QIAGEN

2021

QIAGEN N.V.

Financial Report

Content

This document contains detailed financial information about QIAGEN prepared under generally accepted accounting standards in the U.S. (U.S. GAAP) and included in our Form 20-F annual report filed with the U.S. Securities and Exchange Commission. QIAGEN also publishes an Annual Report under IFRS accounting standards, which is available on our website at www.QIAGEN.com.

We help advance science and improve outcomes

Our Mission

Enabling access to valuable insights from molecular research to clinical healthcare

Our Vision

Making improvements in life possible

Helping customers to make advances in science and patient care

1987

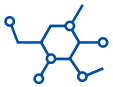
QIAGEN pioneers the first plasmid prep kit, cutting extraction time from 3 days to 3 hours

1993

First QIAGEN instrument for automated sample prep offers a new level of standardization

1997

QIAGEN expands portfolio of sample prep products to RNA and protein



2007

QIAGEN enters the molecular diagnostic market with the acquisition of Digene and launches a test to screen for cervical cancer

2011

First precision diagnostic launched to help guide targeted cancer treatments

Cellestis acquisition adds TB-testing to QIAGEN's portfolio

2013

QIAGEN enters the bioinformatics market with the acquisitions of CLC Bio and Ingenuity Systems

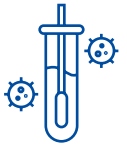
2017

QIAGEN launches the first liquid biopsy-based companion diagnostic for less invasive cancer testing

Stat-Dx acquisition in 2018 adds fully-automated syndromic testing with QIAstat-Dx to portfolio

2019

Acquisition of digital PCR assets from Formulatrix Inc.



2020

QIAGEN responds to COVID-19 with tests to address all stages of the pandemic

QIAGEN completes NeuMoDx Molecular, Inc. acquisition, rounding out portfolio of PCR-based diagnostic automation systems

QIAGEN at a glance

Our products support scientists and clinicians to advance scientific discovery and improve patient outcomes

A global company with scale

$2.2 bn

(2021 sales)

QGEN
LISTED
NYSE

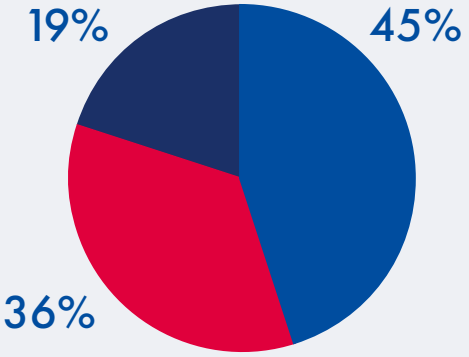
Balanced customer markets

~50%
Molecular Diagnostics

~50%
Life Sciences

>500,000
customers worldwide

Diverse global presence – Sales



Over 6,000 employees known as QIAGENers

- Americas
- EMEA
- Asia-Pacific / Japan

Highly recurring revenues

~88 %

Consumables and related revenues

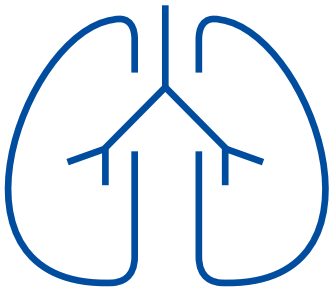
~12 %

Instruments

There is an unprecedented need for molecular research and testing to tackle the health challenges of our time

Our knowledge about the building blocks of life – DNA, RNA and proteins – is growing

The challenge is to make the most of this information

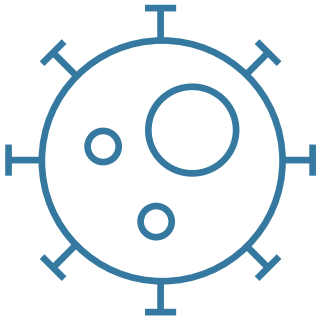


Tuberculosis is still one of the world's most significant infectious killers

In 2020, TB killed 1.5 million people

Cancer remains a leading cause of death worldwide despite progress

Cancer accounted for nearly 10 million deaths in 2020



Infectious diseases have been – and will remain – a truly global health risk

Six major pandemics over the past 20 years

Researchers rely on QIAGEN to advance scientific discovery

"Targeting metabolism is an important way of sensitizing tumors and making them more responsive to chemotherapy... and it's not restricted to one particular type of cancer."

Asha Palat, Doctoral Student at the University of Houston, Texas

Physicians rely on QIAGEN to improve clinical outcomes

"As long as we don't have an answer about the respiratory virus status, we can't admit a patient for hospitalization."

Dr. Benoit Visseaux, Bichat-Claude Bernard Hospital, Paris

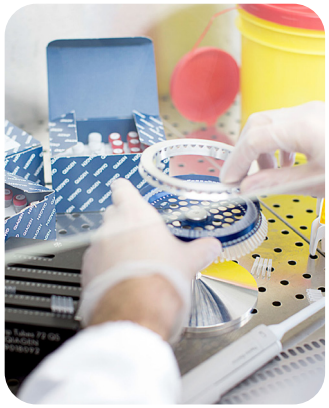
We help over

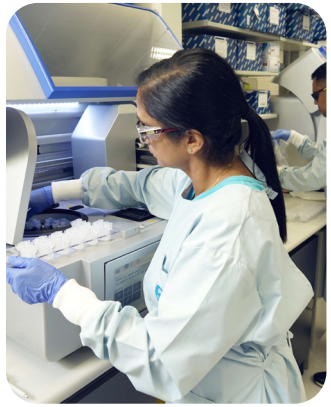
500,000

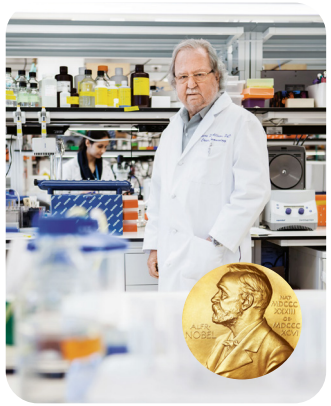
customers unlock molecular insights that address healthcare challenges. That's how we help make improvements in life possible.

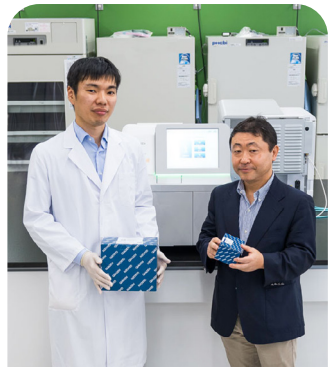
We are known for the highest quality products

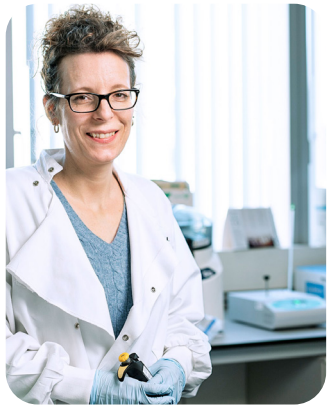
Our products are found in laboratories worldwide – from young scientists to Nobel laureates











We provide solutions to uncover molecular insights – faster, better and more efficiently – from Sample to Insight

Biological sample ▸

Sample to Insight solutions ▸

- Sample Technologies
- Assay Technologies
- Automation Systems
- Bioinformatics

Valuable molecular insights

- Advancing knowledge about the building blocks of life – DNA, RNA and proteins
- Faster and better drug R&D
- Better disease diagnosis
- Ensuring public safety
- Better outcomes with precision medicine

We are COVID relevant – but not COVID dependent

> 750 million

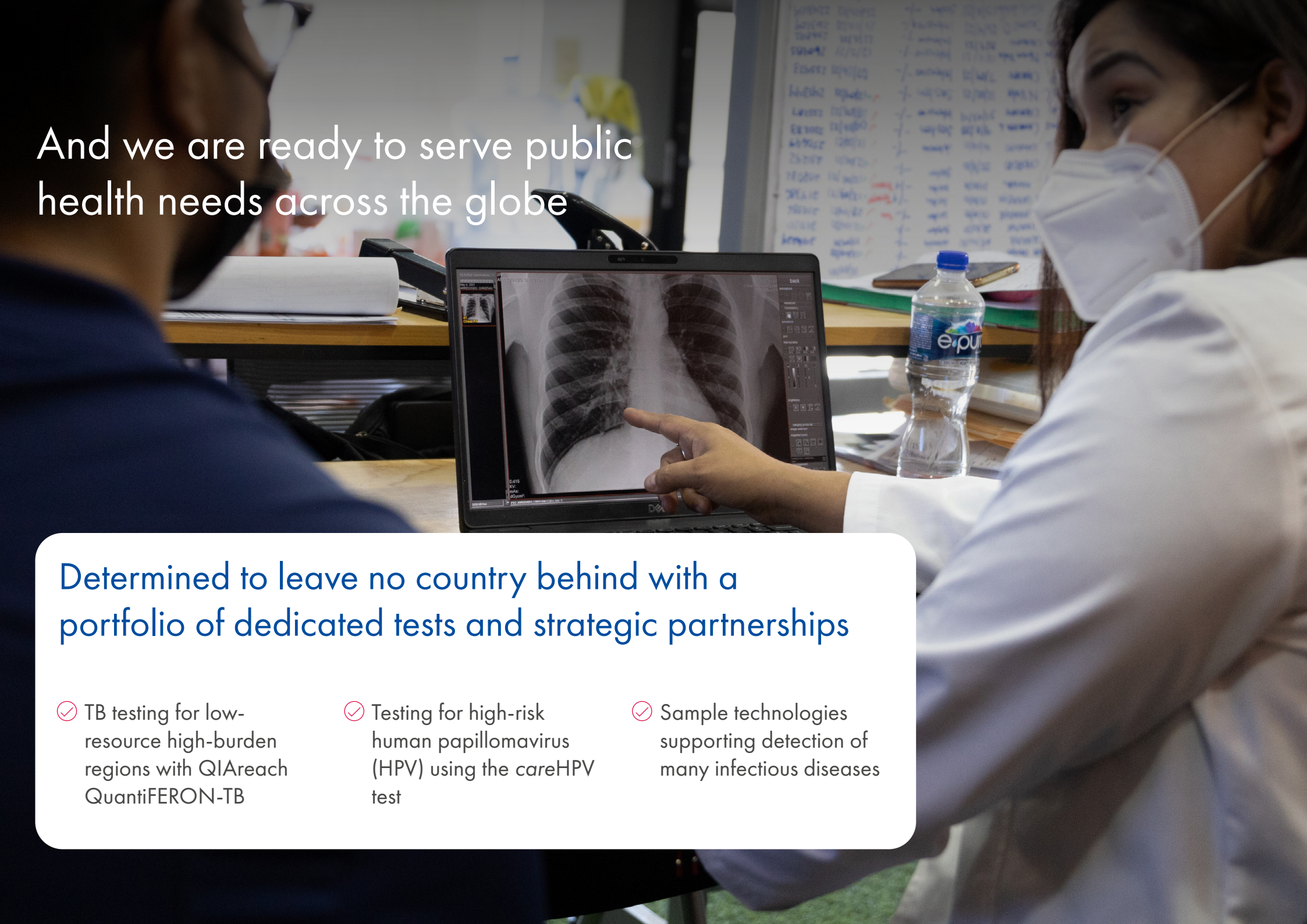
COVID-19 tests in 2021
relied on QIAGEN products

Testing

- RNA sample preparation
- PCR testing solutions
- OEM components for other suppliers

Surveillance

- Immune level testing
- NGS variant monitoring
- Wastewater testing



And we are ready to serve public health needs across the globe

Determined to leave no country behind with a portfolio of dedicated tests and strategic partnerships

- TB testing for low-resource high-burden regions with QIAreach QuantiFERON-TB
- Testing for high-risk human papillomavirus (HPV) using the *care*HPV test
- Sample technologies supporting detection of many infectious diseases

We are well positioned to support our customers with their rapidly evolving scientific and testing needs

Overview

Overview

Supervisory Board Report

Message from the Chair

Dear Stakeholders:

It is a pleasure to share with you this update on the progress of QIAGEN on behalf of our more than 6,000 employees, our Managing Board and my colleagues in the Supervisory Board.

Building on the events in 2020, the contributions of QIAGEN to society during 2021 has never been more critical as the response to the global pandemic took on new dimensions that were unpredictable at the start of the year.

The Supervisory Board continues to be impressed by how our QIAGENers are responding to the challenges facing us worldwide with a courageous, collaborative and caring spirit. They have again showed what a truly agile and robust company we have in terms of delivering a year with record results. Above all, they are moving forward toward achieving our vision of helping to make improvements in life possible.

We would also like to thank our shareholders, customers, business partners and other stakeholders for honoring QIAGEN with their continued collaboration and trust. Together we have delivered an outstanding performance in 2021 and look forward to executing on our strategy in 2022 and beyond.

2021: Another year of record results
During a year of volatile trends due the pandemic, QIAGEN delivered an outstanding performance in 2021. Net sales rose 20% to $2.25 billion, while profitability improved at a faster pace as adjusted earnings per share (EPS) were up 23% to $2.65. (Adjusted EPS excludes purchased intangibles amortization, long-lived asset impairments and other items such as business integration, acquisition-related costs, litigation costs and restructuring.)

It was indeed a year in which QIAGEN continued to show that it was very relevant for the global response to the pandemic, but not dependent on COVID-19 to grow and create value. The Supervisory Board was closely involved in monitoring the impact of the pandemic on QIAGEN, and supported the decision of the Managing Board to adjust the outlook for 2022 to focus on trends for the non-COVID portfolio and take a more cautious view on volatile COVID-19 testing trends. It is particularly important to recognize the 22% CER growth in our non-COVID product portfolio, which was above the target for 20% CER sales growth in 2021.

Executing on our strategy
QIAGEN is moving ahead to implement a strategy that involves “focus” and “balance” while targeting growth opportunities in an $11 billion market opportunity.

This strategy is anchored in our absolute leadership in Sample technologies, which are used to isolate and purify DNA and RNA – the building blocks of life – from any biological sample, and to develop leading positions in markets that can serve over 500,000 customers worldwide.

A key element of this strategy is to focus on five pillars of growth, which address markets with significant potential and ones in which QIAGEN can achieve / maintain a leading position. We are pleased to see the progress of QuantiFERON-TB as the gold standard for the detection of tuberculosis, as well as the uptake of our newer systems with QIAstat-Dx for syndromic testing, the integrated PCR testing platform NeuMoDx and our entry into digital PCR with QIAcuity.

This strategy also includes developing a business balanced on supporting customers across the continuum from molecular research in the Life Sciences to the use of Molecular Diagnostics in clinical healthcare.

We are also working to develop a balanced global footprint, building up our presence in fast-growing emerging markets as well as in more mature markets.

Another element of our strategy is developing the culture of QIAGEN through the EMPOWER initiative. We want to enhance and strengthen our culture to reach a greater level of accountability and agility with the organization, while also seeking to have decision-making closer to customers intertwined with a new level of accountability to make the best decisions in the interests of our customers and QIAGEN.

My colleagues and I in the Supervisory Board fully endorse this strategy and look forward to supporting and advising the Managing Board on implementation. Indeed, QIAGEN is moving forward from a position of strength with robust growth prospects, anchored by a differentiated portfolio and multiple new product launches in the pipeline. As we focus on even greater value creation, QIAGEN has a disciplined capital allocation policy anchored by a healthy balance sheet to support investment in our business along with a commitment to increasing returns to shareholders.

Changes in Supervisory Board composition

As noted in the Supervisory Board report for 2020, we successfully expanded our Supervisory Board with the appointment of two new members with international healthcare and general management experience in early 2021.

We greatly appreciate the contributions of our new colleagues – Thomas Ebeling and Dr. Toralf Haag – and welcome the expertise, international experience and collaborative spirit that they have each brought to QIAGEN. The positive impact has been seen in the effectiveness and level of discussions within the Supervisory Board, as well as the contributions they quickly made to supporting and advising the Managing Board.

These appointments underscore our commitment to creating a Supervisory Board with qualified, experienced and independent members. We have a holistic understanding of diversity that brings together age, gender, qualifications, international experience, cultural backgrounds, sector experience and tenure. These factors should reflect the structure and nature of QIAGEN in order to make better-informed decisions.

As an outcome of our discussions within the Board about the current composition, we initiated in early 2022 a search to find a new, additional Supervisory Board member, and the preference would be for a very experienced professional with a significant track record in our industry.

Developing deeper insights with our new Scientific Advisory Board

A company like QIAGEN thrives from dynamic developments in science and seeks to remain at the cutting edge in Life Sciences and Molecular Diagnostics. To ensure that QIAGEN can develop an even stronger position, and to take early advantage of emerging opportunities, the Managing Board and Supervisory Board created in 2021 a new Scientific Advisory Board (SAB), chaired by Prof. Dr. Ross Levine from our Supervisory Board.

The SAB has a mandate to provide early evaluation of market and technology developments that could have an influence on our development and positioning in highly attractive markets. We have welcomed a group of renown scientific leaders to the SAB, each providing unique expertise but joined together by a commitment to harnessing the power of breakthroughs to advance science and improve clinical outcomes for patients. The discussions in this group, and the insights they have provided to the Managing Board and Supervisory Board, have already proven their value to QIAGEN, and we look forward to greater contributions in the future.

Increasing our commitment to sustainability

QIAGEN is continually increasing its focus on ESG (environment, social and governance) topics. This is backed by our decision in 2021 to expand the scope of our Nomination Committee to also include ESG topics. These are increasingly discussed with management in our Supervisory Board meetings.

The key aspects of our environmental initiatives focus on addressing climate change, a topic that we recognize requires urgent global action. We announced in 2021 our commitment to reduce carbon emissions by setting science-based targets to reach net zero emissions by 2050. This includes achieving by 2030 an at least 40% reduction in Scope 1 and 2 emissions (direct emissions from QIAGEN), along with a 10% reduction in Scope 3 emissions (a broader definition that involves customers and other factors), on the way to achieving this target. QIAGEN has also recently launched the QIAwave portfolio of environmentally friendly products that reduce the use of plastics by up to 63% and cardboard by up to 42% compared to standard QIAGEN kits. Three types were launched in 2021 in this new portfolio, which will help support further reductions in transportation packaging on top of the 9% reduction in plastic transportation packaging in 2021.

In our focus on social responsibility, it is our duty to protect our employees – especially to keep them safe during the COVID-19 pandemic – as well as the health and safety of the communities in which we operate. Another key initiative in this area has been to steadily increase the share of women in management roles, and this stood at 34% of all managers at the end of 2021.

In the area of governance, we have well-established systems in place, and I want to again highlight the continuing excellent levels of collaboration and trust between the Managing Board and Supervisory Board members. In addition, we have significantly increased the level of awareness about compliance topics, as well as participation in compliance training.

Moving ahead in 2022 in a dynamic environment

We look forward to 2022 with confidence amid a dynamic and uncertain environment, including the political, economic and social turmoil created by the Russian invasion of Ukraine. This comes as the spread of COVID-19 continues at levels never imagined at the start of this pandemic two years ago.

Against this backdrop, the Supervisory Board believes QIAGEN has the right strategy to create value for all stakeholders by sharpening our focus on targeted growth opportunities in Life Sciences and Molecular Diagnostics. And we proudly recognize the great efforts made by our QIAGENers during these turbulent times.

The devastating impact of the war in Ukraine has again brought out the best in our employees worldwide through their donations, as well actions on the Ukraine border to support refugees from our organizations nearby in Poland, Romania and Austria. We are proud and pleased to see this level of engagement.

In closing, we view our performance in 2021 as one that we can all truly be proud of. We look forward to even more success in the new year, and the years to come, as we position QIAGEN to achieve our vision of making even more improvements in life possible.

Lawrence A. Rosen

Chair of the Supervisory Board

Supervisory Board composition

The composition of our Supervisory Board is diverse in gender, nationality, background, knowledge and experience. The Board is comprised of five men and two women. Three members are American, two are German, one is UK-American and one is German-Swiss. Many have spent considerable time during their careers living and working outside their home countries.

The Board's current members are Lawrence A. Rosen (Chair), Dr. Metin Colpan, Thomas Ebeling, Dr. Toralf Haag, Prof. Dr. Ross L. Levine, Prof. Dr. Elaine Mardis and Elizabeth E. Tallett. Detailed biographical information can be found in the Corporate Governance Report included in this Annual Report.

Following best practice 2.1.10 of the Dutch Corporate Governance Code, the Supervisory Board establishes that its members are able to act critically and independently of one another on the Managing Board. To safeguard this, the Supervisory Board is composed in such a way that all its members are independent in the meaning of best practice 2.1.8 of the Dutch Corporate Governance Code. As a result, the Supervisory Board confirms being of the opinion that the independence requirements referred to in best practice 2.1.7 to 2.1.9 inclusive of the Dutch Corporate Governance Code have been fulfilled.

The targeted profile of the Supervisory Board is reflected in its regulations, which are published on our website under "Supervisory Board." In terms of members who have a longer tenure, Dr. Metin Colpan joined the Supervisory Board in 2004 and Ms. Elizabeth Tallett has been a Supervisory Board member since 2011. We highly value the scientific and commercial experience of Dr. Colpan and his in-depth knowledge of QIAGEN and the broad industry knowledge, management and board experience of Ms. Tallett. QIAGEN therefore supports the reappointment of Dr. Colpan and Ms. Tallett beyond the eight-year term as recommended by the Dutch Code.

During 2021, the Board changed the scope and composition of its four committees to cover key areas in greater detail, especially Environment, Social and Governance (ESG) and Human Resources topics. The charters of the committees are published on our website under "Supervisory Board."

The following table outlines the current members in 2021:

	Lawrence A. Rosen (Chair)	Dr. Metin Colpan	Thomas Ebeling	Dr. Toralf Haag	Prof. Dr. Ross Levine	Prof. Dr. Elaine Mardis	Elizabeth E. Tallett
Age	64	67	62	55	50	59	72
Gender	Male	Male	Male	Male	Male	Female	Female
Nationality	U.S.	German	Swiss / German	German	U.S.	U.S.	U.S. / British
Date of appointment	2013	2004	2021	2021	2016	2014	2011

The following table outlines the committee membership and meetings attended in 2021.

	Meeting Attendance				
	Supervisory Board	Audit Committee	Compensation & Human Resources Committee	Nomination & ESG Committee	Science & Technology Committee
Lawrence A. Rosen	5/5	7/7	5/5	2/2 (Chair)	
Dr. Metin Colpan	5/5			2/2	4/4 (Chair)
Thomas Ebeling	4/4			2/2	
Dr. Toralf Haag	5/5	7/7 (Chair)			
Dr. Ross L. Levine	5/5				4/4
Dr. Elaine Mardis	5/5		5/5		4/4
Elizabeth E. Tallett	5/5	6/7	5/5 (Chair)	2/2	

The following table outlines the skills and experience of the current Supervisory Board members:

Key competencies	Lawrence A. Rosen (Chair)	Dr. Metin Colpan	Thomas Ebeling	Dr. Toralf Haag	Prof. Dr. Ross Levine	Prof. Dr. Elaine Mardis	Elizabeth E. Tallett
Required							
Integrity	•	•	•	•	•	•	•
Ethics	•	•	•	•	•	•	•
Health	•	•	•	•	•	•	•
English language skills	•	•	•	•	•	•	•
Experience	•	•	•	•	•	•	•
Recommended							
U.S. background	•				•	•	•
Entrepreneur		•	•		•		•
Corporate management multinational	•	•	•	•			•
Currently full-time employed / active				•	•	•	
Public reputation	•	•	•	•	•	•	•
Independence	•	•	•	•	•	•	•
Academic research		•			•	•	
Industrial research		•					
Diagnostics markets		•		•		•	
Capital markets	•	•	•	•			•
Financial management	•			•			•
M&A, business development	•	•	•	•			•
Commercial operations		•	•	•			•
Public management (e.g. universities)		•			•	•	
Regulatory / operations		•	•	•			•

Relationship and stakeholder management

The Supervisory Board acts in accordance with the interests of the company and the business connected with it, taking into consideration the interests of our stakeholders. The Chair of the Supervisory Board is in regular close contact with the Managing Board members, and the same applies to the Chair of the Audit Committee.

The Supervisory Board recognizes that the pandemic has forced the implementation of new ways to interact, and welcomes how these new approaches have proved beneficial to ensuring a high level of engagement and interaction.

At the same time, the Supervisory Board looks forward to holding more in-person meetings in 2022 at QIAGEN sites around the world, as allowed by local regulations.

The Supervisory Board interacts with QIAGEN employees on various occasions and in various contexts, and this was done primarily on a virtual basis in 2021 due to the pandemic. They regularly receive information on relevant topics from senior leaders and experts, both internally and externally, during committee meetings, full Supervisory Board meetings, and also as part of their ongoing professional education.

Direct, one-to-one contact between Supervisory Board members and Managing Board and Executive Committee members generally builds on the topics discussed in the meetings of the Supervisory Board. These discussions draw on the expertise of individual Supervisory Board members, whose advice is sought on a wide range of topics. Supervisory Board members also have direct contact with other employees in the course of supporting business operations and in specifically arranged meetings.

In 2021, meetings were generally held virtually due to the pandemic, while any in-person meetings were done in line with local safety measures. These included in particular the onboarding for Mr. Ebeling and Dr. Haag as new members who joined the Supervisory Board in early 2021.

The Supervisory Board takes an active interest in maintaining an in-depth understanding of our stakeholders and their positions on various topics related to QIAGEN's areas of business.

This includes the perceptions of our shareholders, which is received through direct interaction and calls with major institutional shareholders. The Supervisory Board is also informed of the position of the range of QIAGEN stakeholders by the Managing Board and other senior managers. In addition, the Supervisory Board members collect information through their own individual networks, and this is shared with other members and the Managing Board.

Corporate governance

The Supervisory Board follows the principle of increasing stakeholder value as the members represent the interests of all stakeholders, including shareholders, and has always pursued the highest standards in corporate governance.

QIAGEN is committed to a corporate governance structure that best suits its business and stakeholders, and that complies with relevant rules and regulations. QIAGEN follows the principles described in the Dutch Corporate Governance Code, although some minor deviations, which are explained in detail in our Corporate Governance Report, may result from the impact of factors such as legal requirements imposed on QIAGEN or industry standards.

Our common shares are registered and traded in the U.S. on the New York Stock Exchange (NYSE) and in Germany on the Frankfurt Stock Exchange in the Prime Standard segment. Shareholders in Europe and the U.S. hold the majority of common shares. As a result of these listings for its Global Shares, QIAGEN is subject to the rules regarding Corporate Governance set by the NYSE. QIAGEN believes all of its operations are carried out in accordance with legal frameworks, including Dutch Corporate Law, U.S. laws and regulations, EU regulations and applicable German capital market laws.

Role of the Supervisory Board

The Supervisory Board performs its duties of supervising and advising the Managing Board with respect both to recurring standard agenda items for Supervisory Board meetings and to specific topics that become relevant at any given point in time.

The most prominent regular agenda item is an update on business performance, financial results, treasury and investor relations topics. As part of this agenda item, the Supervisory Board tracks the company's financial performance, approves the annual budget, is updated on capital markets perceptions and expectations, and deliberates on any additional topics as needed.

In light of the COVID-19 pandemic, significant time was spent on business continuity as well as progress on the implementation of QIAGEN's strategy focused around delivering mid-term growth, in particular from the five pillars of growth. In 2021, the Supervisory Board also discussed and approved a $100 million share repurchase program that was completed during the year.

In line with its role, the Supervisory Board oversaw the strategy of QIAGEN by regularly reviewing with Management our progress toward strategic objectives, and by debating and endorsing important resource allocation decisions. These discussions also included regularly discussing M&A opportunities and relevant developments within our sectors. The Supervisory Board was additionally involved in reviewing the development of talent and succession planning within QIAGEN, in particular monitoring and debating the formal succession planning initiatives for the CEO and other senior management roles.

Supervisory Board meetings

In 2021, the Supervisory Board held a total of five regular meetings, of which one was held in person at our headquarters in Venlo, the Netherlands, and four were held virtually due to the COVID-19 pandemic. These regular meetings included the participation of the Managing Board and Executive Committee members, as well as other QIAGEN managers.

The Supervisory Board also met to review and discuss agenda items in the absence of the Managing Board members, such as management performance and strategy as well as to discuss compensation matters.

All members of the Supervisory Board attended 100% of all Supervisory Board meetings, while only one member was excused from one of the committee meetings. All members had adequate time available to devote themselves to their responsibilities.

Supervisory Board evaluation

The Supervisory Board conducted a detailed annual survey among its members to evaluate the functioning of the Supervisory Board, its individual members, its Committees, the Managing Board and the individual members of the Managing Board by means of an online survey. The evaluation process was prepared and monitored by the Nomination & ESG Committee, which also conducted an in-depth analysis of the results that were shared with the Supervisory Board and the Managing Board.

Overall, the Supervisory Board concluded that its activities and responsibilities were all being carried out properly and effectively, especially in view of the regulations set forth in the Dutch Corporate Governance Code, and should continue in the same manner.

The overall feedback from the evaluation in 2021 was again very positive. All topics (team composition, meetings, committees, people processes, agenda definition, etc.) received very high scores. Supervisory Board members appreciate the atmosphere within the Board, as well as the collaborative and constructive engagement with the Managing Board that is built on mutual trust and appreciation for their roles and responsibilities to QIAGEN. All members feel heard, valued and trusted, and appreciate the distinctive strengths of the individual members.

Financial statements and audits

In this Annual Report, the financial statements for 2021 are presented as prepared by the Managing Board and audited by KPMG Accountants N.V. (Independent Registered Public Accounting Firm). The Audit Committee examined the financial statements, the proposal for the use of the distributable profit, the consolidated financial statements and the Management report. The Supervisory Board also confirmed that the external auditor acted independently.

The results have been approved by the Supervisory Board and an unqualified opinion was received from the external auditors.

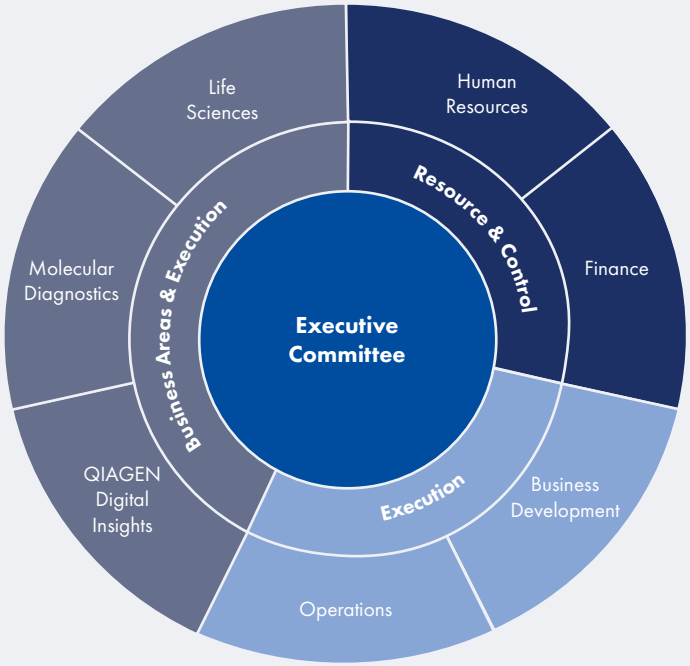
The Supervisory Board will submit the 2021 financial statements to the next Annual General Meeting of Shareholders, which is planned for June 2022. The proposal will recommend that shareholders adopt them and release the Managing Board from all liability in respect of its managerial activities and to release the Supervisory Board from all liability in respect of its Supervisory Board activities.

Venlo, the Netherlands

April 2022

The Supervisory Board

Executive Committee



The following is a brief summary of the background of each of the Executive Committee members as of April 1, 2022.

Thierry Bernard

Chief Executive Officer and Managing Director

Gender: Male

Thierry Bernard joined QIAGEN in February 2015 to lead QIAGEN's growing presence in Molecular Diagnostics, the application of Sample to Insight solutions for molecular testing in human healthcare. He was named Chief Executive Officer in March 2020, after having previously served in this role on an interim basis. Mr. Bernard previously worked at bioMérieux SA, where he served in roles of increasing responsibility for 15 years, most recently as Corporate Vice President, Global Commercial Operations, Investor Relations and the Greater China Region. Prior to joining bioMérieux, he served in management roles in multiple international environments. Mr. Bernard was appointed in 2020 as a member of the Board of Directors of T2 BioSystems, Inc., a publicly listed company in the U.S. Mr. Bernard has earned degrees from Sciences Po (Paris), Harvard Business School, London School of Economics, and the College of Europe and is a member of French Foreign Trade Advisors.

Roland Sackers

Chief Financial Officer and Managing Director

Gender: Male

Roland Sackers joined QIAGEN in 1999 as Vice President of Finance and has been Chief Financial Officer since 2004. In 2006, Mr. Sackers became a member of the Managing Board. Between 1995 and 1999, he served as an auditor with Arthur Andersen Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft. Mr. Sackers earned his Diplom-Kaufmann from the University of Münster, Germany. Mr. Sackers was appointed in 2021 as Vice Chair of the Supervisory Board of Evotec SE, a publicly listed company in Germany and has been a member of the Supervisory Board and Chair of the Audit Committee since 2019. He is also a board member of the industry association BIO Deutschland in Germany.

Stephany Foster

Senior Vice President, Head of Human Resources

Gender: Female

Stephany Foster joined QIAGEN in 2005 as Head of Global Internal Audit and was most recently Vice President, Head of Human Resources. Ms. Foster was also member of the NAELT (North America Executive Leadership Team) and steers the Diversity and Inclusion program at QIAGEN. She was named to her current role in October 2019. Prior to joining QIAGEN, Stephany Foster worked in internal audit at Morgan Franklin and Independence Air. She started her career at PricewaterhouseCoopers, specializing in Sarbanes Oxley Auditing. Ms. Foster has a master's degree in Accounting from the University of Notre Dame and is a Certified Public Accountant (CPA), a Certified Internal and Information Systems Auditor (CIA / CISA) and Certified Fraud Examiner (CFE).

Antonio M. Santos

Senior Vice President, Head of Global Operations

Gender: Male

Antonio M. Santos joined QIAGEN in April 2022 as Senior Vice President, Global Operations, and a member of the Executive Committee. Mr. Santos has more than 25 years of experience in manufacturing diagnostics and medical devices. Prior to joining QIAGEN, he was Senior Vice President, Americas Operations & Global Third Party Products, at bioMérieux in St. Louis, Missouri, where he oversaw since 2013 all manufacturing and supply operations in the Americas. He has worked in international roles in China, Europe and the U.S., and previously served as Vice President Operations at Reliable Biopharmaceutical in the U.S. and at Hovione Pharmasciencia in Portugal, China and the U.S. After studying chemical engineering at the Nova University of Lisbon, School of Science and Technology, he earned an MBA at Rutgers University.

Dr. Thomas Schweins

Senior Vice President, Life Sciences Business Area

Gender: Male

Dr. Thomas Schweins joined QIAGEN in 2004 as Vice President Corporate Strategy and was appointed Vice President Marketing & Strategy in 2005, where he was deeply involved in managing the global business toward Life Science customers. In late 2011, Dr. Schweins assumed responsibility for Human Resources and initiated a multi-year transformation process to increase efficiency and effectiveness of the function. In 2017, Dr. Schweins took over the leadership of the Life Science Business Area and

consequently resigned from his role as head of HR. Dr. Schweins came to QIAGEN from The Boston Consulting Group. He previously worked as Technology Manager, and later as an Assistant to the Management Board at Hoechst / Aventis. Dr. Schweins earned an M.Sc. Degree in Biochemistry from the University of Hanover. He obtained his Ph.D. at the Max Planck Society and received an M.Sc. from the University of Southern California in Los Angeles, where he studied Business Administration and Chemistry.

Dr. Jonathan Sheldon

Senior Vice President, QIAGEN Digital Insights Business Area

Gender: Male

Dr. Jonathan Sheldon joined QIAGEN in 2018 as Senior Vice President, QIAGEN Digital Insights Business Area. He leads QIAGEN's growing presence in bioinformatics, enabling customers to transform raw data from biological samples into valuable molecular insights. Dr. Sheldon came to QIAGEN from Oracle, where he was Global Vice President leading Oracle's Healthcare business globally in the Health Sciences Global Business Unit and served on the Executive Committee. Previously, he established the bioinformatics group and served as Head of Bioinformatics at Roche (UK) Pharmaceuticals, as well as providing leadership in software firms serving the life science and healthcare sectors. He serves on the Board of Directors of the Drug Information Association (DIA). He received his B.Sc. in Biochemistry and Molecular Biology from the University of Manchester, and his Ph.D. in Biochemistry and Molecular Biology from the University of Cambridge.

Jean-Pascal Viola

Senior Vice President, Head of Molecular Diagnostics Business Area and Corporate Business Development

Gender: Male

Jean-Pascal Viola joined QIAGEN in 2005 and has worked in increasing positions of responsibility in Corporate Business Development until he was named in 2015 to the role of Senior Vice President, Corporate Business Development. In October 2019, Mr. Viola was appointed member of the Executive Committee and took on additional responsibilities for the Molecular Diagnostics Business Area, which involves QIAGEN's activities supporting customers in clinical healthcare, and transitioned during this period to focus solely on Molecular Diagnostics beginning in early 2022. Prior to joining QIAGEN, Mr. Viola served as President and CEO of Nextal Biotechnologies Inc., a provider of technologies for protein crystallization, and when QIAGEN acquired Nextal in 2005 he joined as Director of Protein Crystallization. Moving to Business Development in 2007, Mr. Viola led efforts in Asia-Pacific, the Americas, Global M&A and Corporate Ventures. He completed a Bachelor of Science in Biochemistry from the University of Montreal, Canada.

Common Shares

Market Environment

Stock markets maintained their upward momentum into 2021 continuing growth trends that started during the second half of 2020. This growth was aided by monetary policies enacted in advanced economies to mitigate economic uncertainties and provide liquidity to market participants during the continued COVID-19 pandemic. The global economic recovery fueled by vaccine production and distribution to many countries around the world remained on track despite the emergence of COVID-19 variants during the year. Market benchmarks for the year were strong in 2021. The S&P 500 index in the United States finished up 26.9% in 2021. The DAX index of the 40 largest companies in Germany rose 15.8% during the year, and Germany's TecDAX, of which QIAGEN is a member, improved by 22.0% for the year.

Global shares listed in the U.S. and Europe

QIAGEN's global shares have been registered and traded in the United States since 1996 and are currently traded on the New York Stock Exchange (NYSE). The global shares have also traded in Germany on the Frankfurt Stock Exchange since 1997, and the Prime Standard segment since its launch in 2003. The dual listing of global shares on NYSE and the Frankfurt exchange offers advantages for QIAGEN, our shareholders and employees, enhancing liquidity, and increasing the potential market opportunity to attract investors, particularly those in the U.S. that can only invest in U.S. dollar-denominated investments. Unlike American Depositary Receipts (ADRs), QIAGEN's global shares provide equal rights for all shareholders and can be traded on either exchange, in U.S. dollars or euros.

Share Price and Liquidity

QIAGEN's share price increased 5.2% in U.S. dollars to $55.58 on the NYSE and rose 15.4% in euros to EUR 48.99 on the Frankfurt Stock Exchange (XETRA). Performance was influenced by the effects of the COVID-19 pandemic and initiatives to expand the business post-pandemic. Our shares continued to offer high liquidity, with average daily trading volume of approximately 1.4 million in 2021 (about 0.8 million on the NYSE and other U.S. trading venues, and about 0.6 million on the Frankfurt Stock Exchange (XETRA) and other German exchanges). QIAGEN continued its commitment to disciplined capital allocation and shareholder returns. In 2021, QIAGEN repurchased 1.9 million QIAGEN shares on the Frankfurt Stock Exchange, under a program announced in July 2021. This program ended October 29, 2021. Since 2019, a total of 5.2 million shares were repurchased for a total value of EUR 204.4 million at the times of the purchases. As of December 31, 2021, the free float, which affects weighting of QIAGEN shares in various indices, was approximately 99%.

Shareholder Structure

QIAGEN has a global investor base comprised of more than 600 identified institutional investors, including about half in North America, about one-third in Europe and the remaining shares in the rest of the world. Members of the Managing Board and the Supervisory Board, in total, own less than 1% of QIAGEN's outstanding common shares at the end of 2021.

Annual Shareholder Meeting

At the Annual General Meeting on June 29, 2021, in Venlo, the Netherlands, shareholders voted on a number of annually recurring items as well as the Remuneration Policy of the Managing Board. Many of the annually recurring items were approved with majorities above 95% of the shares represented at the meeting. Shareholders present or represented at the meeting held approximately 180.3 million shares, 78.1% of QIAGEN's approximately 230.8 million issued shares as of the record date for the meeting. Details of attendance and voting results are available at corporate.QIAGEN.com.

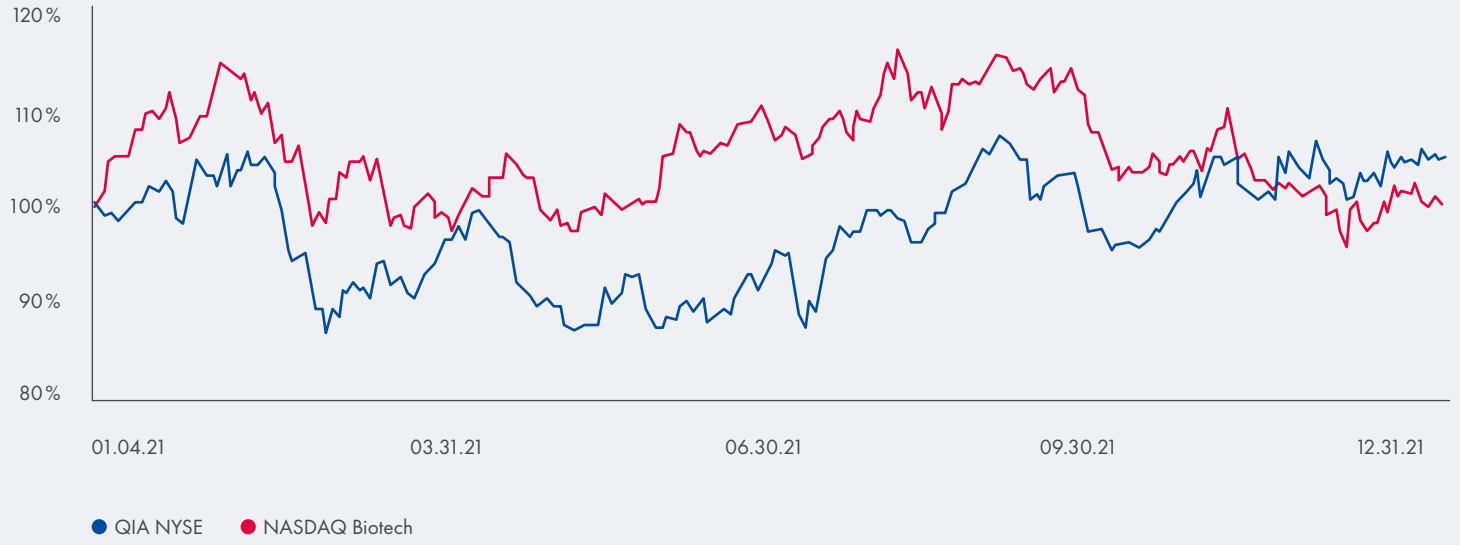
Investor Relations and Engagement with Shareholders

QIAGEN is committed to offering shareholders, analysts and communities around the world transparent, comprehensive and readily accessible information on our performance, strategy and future prospects, as well as our vision and mission. Due to the continued COVID-19 pandemic, most discussions with investors were held virtually during 2021 including individual calls, roadshows and investor conferences.

QIAGEN Share Price Development and Average Trading Volume - NYSE 2021

	2021
Year-end price	$55.58
High	$59.00
Low	$45.58
Average daily trading volume (in million shares)	0.79

US Share Prices



QIAGEN Share Indices and Historic Prices - US

Effective January 10, 2018, our Common Shares began trading on the New York Stock Exchange (NYSE) under the symbol QGEN. Prior to that, from July 3, 2006, until January 9, 2018, our Common Shares were traded on the NASDAQ Global Select Market under the symbol QGEN. Previously, since February 15, 2005, our Common Shares had been quoted on the NASDAQ National Market under the symbol QGEN. Prior to that, since June 27, 1996, our Common Shares had been quoted on the NASDAQ National Market under the symbol QGENF.

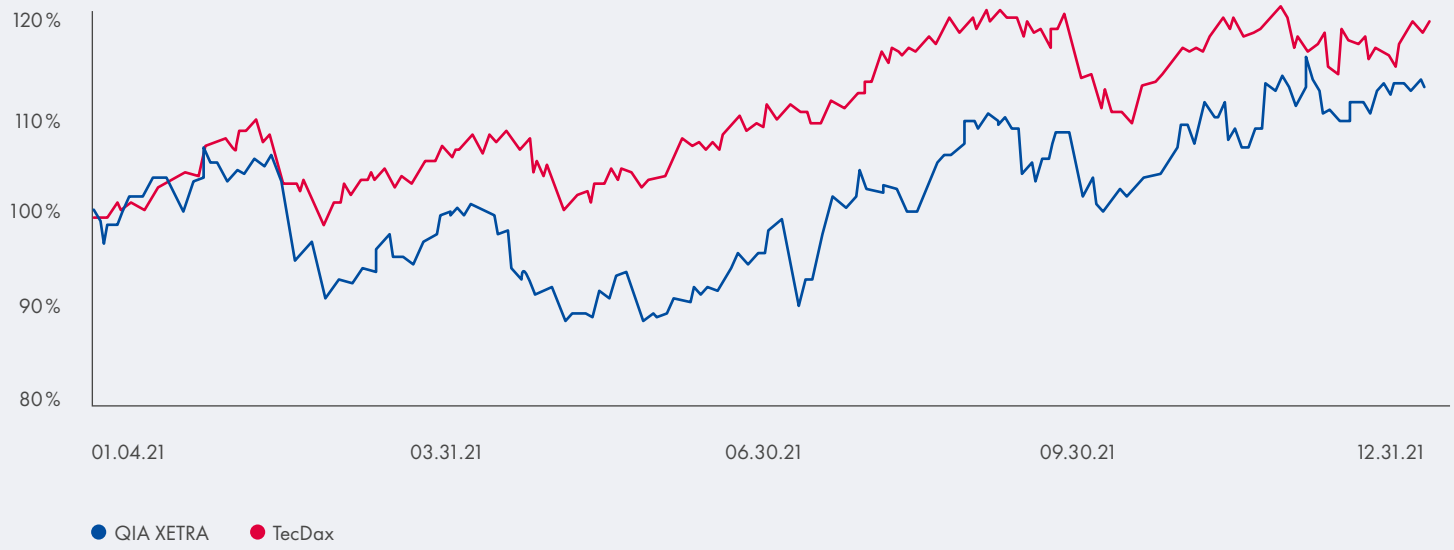
The following tables set forth the annual high and low sale prices for the last five years, the quarterly high and low sale prices for the last two years, and the monthly high and low sale prices for the last six months of our Common Shares on the NYSE and NASDAQ Global Select, as applicable.

	High ($)	Low ($)
Annual:		
2017	36.34	27.40
2018	39.45	30.78
2019	43.16	25.04
2020	55.27	32.97
2021	59.00	45.58
Quarterly 2020:		
First Quarter	42.41	32.97
Second Quarter	44.41	39.05
Third Quarter	52.86	42.48
Fourth Quarter	55.27	45.33
Quarterly 2021:		
First Quarter	59.00	45.72
Second Quarter	52.83	45.58
Third Quarter	56.91	45.95
Fourth Quarter	58.00	50.08
Quarterly 2022:		
First Quarter (through March 9)	55.12	41.32
Monthly:		
October 2021	56.33	50.08
November 2021	58.00	52.53
December 2021	56.18	53.26
January 2022	55.12	47.12
February 2022	51.30	46.76
March 2022 (through March 9)	50.40	41.32

QIAGEN Share Price Development and Average Trading Volume - Frankfurt Stock Exchange (XETRA) 2021

	2021
Year-end price	€48.99
High	€51.56
Low	€37.38
Average daily trading volume (in million shares)	0.56

German Share Prices



QIAGEN Share Indices and Historic Prices - Germany

From September 25, 1997, to December 31, 2002, our Common Shares were traded on the Frankfurt Stock Exchange Neuer Markt under the symbol QIA and with the security code number 901626. As of January 1, 2003, the trading of our Common Shares was transferred to the Prime Standard Segment of the Frankfurt Stock Exchange. QIAGEN is a member of DAX effective September 20, 2021, due to a reorganization of German stock market indices. Prior to that, QIAGEN was a member of the MDAX since September 24, 2018. This reorganization in September 2021 included expansion of the DAX index from 30 to the 40 largest companies in Germany based on market capitalization. Also on this date, the MDAX was reduced from the 60 largest companies excluding DAX listed companies to 50.

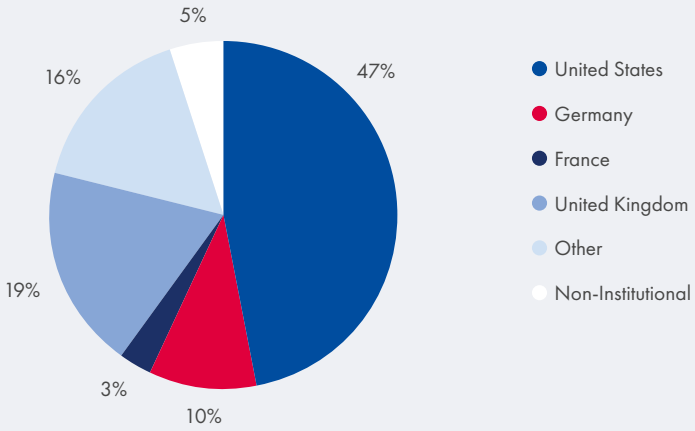
The following table sets forth the annual high and low sale prices for the last five years, the quarterly high and low sale prices for the last two years, and the monthly high and low sale prices for the last six months of our Common Shares on the Prime Standard.

	High (EUR)	Low (EUR)
Annual:		
2017	31.52	25.41
2018	34.05	25.22
2019	39.19	22.54
2020	46.95	29.55
2021	51.56	37.38
Quarterly 2020:		
First Quarter	38.75	29.55
Second Quarter	39.80	36.11
Third Quarter	45.44	37.92
Fourth Quarter	46.95	36.00
Quarterly 2021:		
First Quarter	46.45	38.84
Second Quarter	44.02	37.38
Third Quarter	48.05	38.73
Fourth Quarter	51.56	43.06
Quarterly 2022:		
First Quarter (through March 9)	49.34	37.95
Monthly:		
October 2021	49.22	43.06
November 2021	51.56	45.53
December 2021	49.84	47.09
January 2022	49.34	41.16
February 2022	45.25	41.22
March 2022 (through March 9)	45.36	37.95

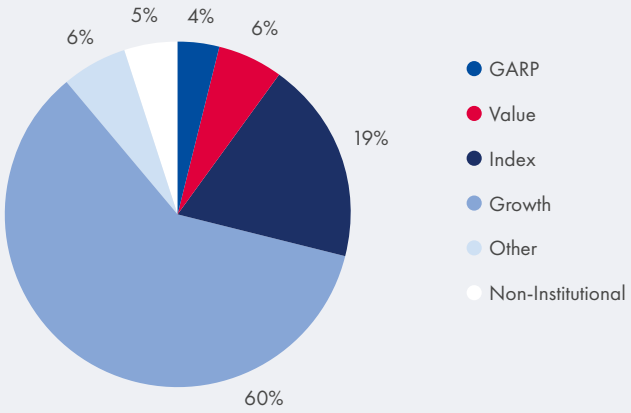
Key Share Data

	2021
Year-end market capitalization (in $ million)	12,621
Year-end market capitalization (in € million)	11,124

2021 Shareholder Structure by Geography



2021 Shareholder Structure by Investor Type



Source: QIAGEN Shareholder ID

Management Report

Management Report

Business and Operating Environment

QIAGEN is a global leader in Sample to Insight solutions that transform biological samples into valuable molecular insights. Our mission is to enable customers across the continuum of molecular research and clinical testing to unlock valuable insights faster, better and more efficiently - from the raw biological sample to the final interpreted results. Proven QIAGEN solutions and content are providing answers in hospitals and laboratories worldwide, helping make sense of the increasing volumes and complexity of biological information, in keeping with our vision of making improvements in life possible.

We began operations in 1986 as a pioneer in the emerging biotechnology sector, introducing a novel method that standardized and accelerated extraction and purification of nucleic acids from biological samples. As molecular biology and genomic knowledge have grown to influence many areas of life, we have expanded to serve the full spectrum of market needs. We believe our sample technologies are unmatched in quality for isolating and preparing DNA (deoxyribonucleic acid), RNA (ribonucleic acid) and proteins from blood or other liquids, tissue, plants or other materials. Our assay technologies amplify, enrich and make these biomolecules accessible for analysis, such as identifying the genetic information of a pathogen or a gene mutation in a tumor. Our industry-leading bioinformatics solutions allow users to analyze and interpret data with bioinformatics software and knowledge bases to provide relevant, actionable insights. Our automation systems can be used to tie these technologies together in seamless and cost-effective molecular testing workflows.

We have grown by developing new instruments, consumables and digital solutions to meet diverse and growing needs in the market, partnering with researchers and pharma companies, and acquiring companies or technologies to complement our portfolio. We believe the addressable global market for our portfolio of molecular testing products in life science research and molecular diagnostics totals more than $11 billion. We continue to accelerate the growth of our portfolio of Sample to Insight solutions, delivering efficiency and effectiveness, increasing the value of QIAGEN as an employer of choice and enhancing the customer experience. Our growth strategy is anchored in our five pillars of growth: sample technologies, the digital PCR (Polymerase Chain Reaction) platform QIAcuity, the clinical PCR automation solutions QIAstat-Dx and NeuMoDx and the QuantiFERON technology platform used to detect diseases such as latent tuberculosis.

We have funded our growth through internally generated funds, debt offerings, and private and public sales of equity securities. Our global shares are listed on the New York Stock Exchange under the ticker symbol QGEN and on the Frankfurt Prime Standard as QIA.

The company is registered under its commercial and legal name QIAGEN N.V. with the trade register (kamer van koophandel) of the Dutch region Limburg Noord under file number 12036979. QIAGEN N.V. is a public limited liability company (naamloze vennootschap) under Dutch law as a holding company. Our principal executive office is located at Hulsterweg 82, 5912 PL Venlo, The Netherlands, and our telephone number is +31-77-355-6600.

As a holding company, QIAGEN conducts business through subsidiaries located throughout the world. Further information about QIAGEN can be found at www.qiagen.com. The SEC maintains an Internet site that contains reports and other information regarding issuers that file electronically with the SEC. The address of that site is www.sec.gov. Information contained in, or that can be accessed through, our website is not a part of, and shall not be incorporated by reference into, this Annual Report. We have included our website address in this document solely as an inactive textual reference.

Totals within tables presented in U.S. dollar millions may contain rounding differences.

Operating Environment

Economic Environment

The global economy grew approximately 6% in 2021, reflecting the continued impacts of the COVID-19 pandemic. During 2021, legislators in advanced economies and central banks around the world took action to stabilize the economy and provide liquidity to market participants amid the spread of COVID-19 variants throughout the world. Vaccine-powered recoveries in some regions and continued adaptation of economic activity where pandemic restrictions remain have been balanced against emerging markets and developing economies that did not yet have access to wide-scale vaccine programs. On the other hand, the global economic expansion in 2021 is compared against record lows of economic activity in 2020 during the initial stages of the pandemic due to shutdowns across the globe. After ending down 7% in 2020, the U.S. Dollar Index, which tracks the currency's value against other major currencies, was up 7% at the end of 2021.

Industry Environment

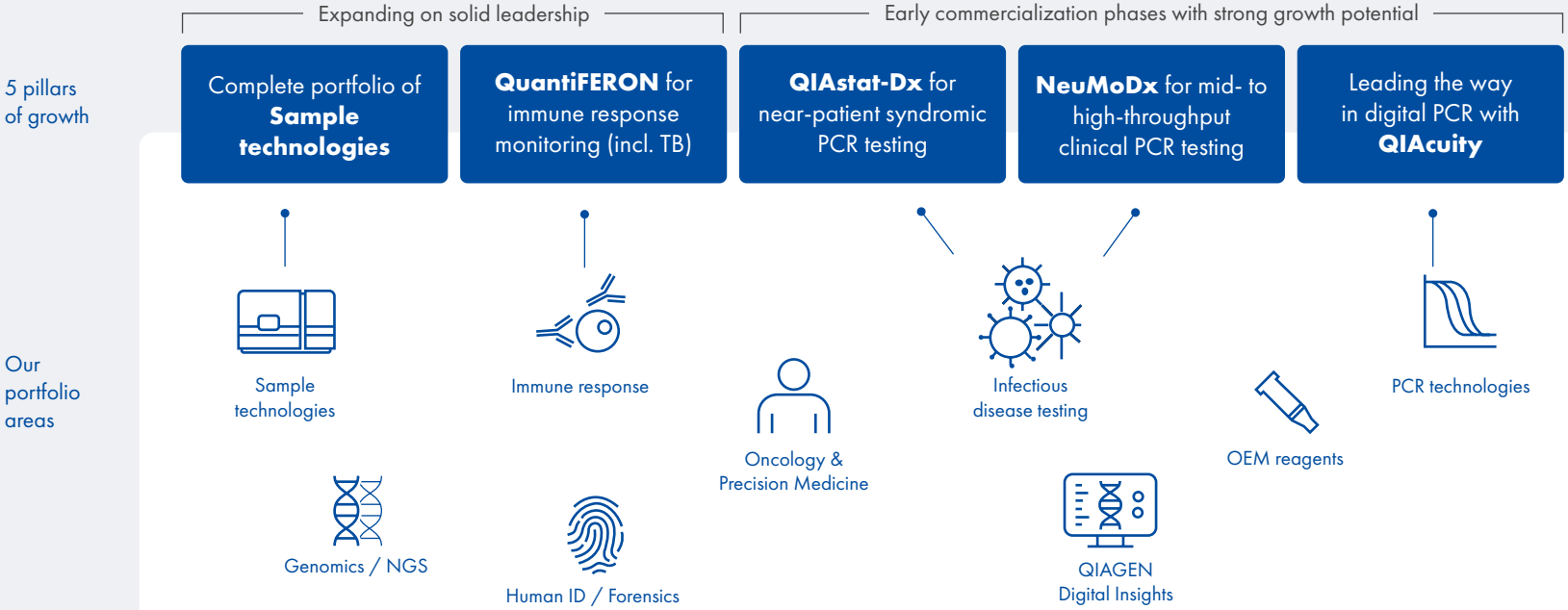
The molecular diagnostics market grew due to increased funding by federal bodies and the private sector during the year as the COVID-19 pandemic continued. In 2020, the expanding use of polymerase chain reaction (PCR), antigen, antibody and T-cell testing significantly raised public awareness of molecular diagnostics and its potential beyond the pandemic. During 2021, there was an increase in demand for both testing equipment as well as the availability of wide-scale testing options in many regions of the world. Surveillance of COVID-19 variants and population immunity became a growing topic as vaccinations were rolled out in many countries. To support this, technologies for NGS and PCR continued to evolve, making molecular testing more accessible, faster and more efficient.

As lockdowns eased, the increase of in-person activities led to additional demand for insights in diagnostics, life science research, pharmaceutical R&D and public safety. The field of molecular diagnostics continues to expand into new areas of medicine – enabling clinicians to evaluate and monitor cancers, infectious diseases, immune status, and prenatal or neonatal health. The expansion of genomic technologies from basic research into the mainstream remains a powerful driver for long-term growth of the industry, increasing the need for scalable, user-friendly and efficient workflows in molecular testing from beginning to end.

Our products

Our leadership in molecular testing solutions leverages our product portfolio across a wide range of applications. We provide more than 500 core consumable products (sample and assay kits), instruments and automation systems, and bioinformatics solutions for analysis and interpretation. These products comprise two main categories: consumables and related revenues accounted for between 86% and 89% of total net sales during the last three years and includes sample and assay kits, bioinformatics solutions, royalties, co-development milestone payments and services, while instruments includes related services and contracts and accounted for between 11% and 14% of total net sales during the same time period.

We focus on areas to build and maintain leading positions



In 2021, we continued to expand our portfolios with solutions used in COVID-19 testing as well as non-COVID related applications.

For COVID-19, we have built a comprehensive portfolio of solutions to cover the phases of the pandemic including: a collection of RNA extraction kits and automation instrumentation from our sample technologies portfolio, PCR testing workflows including QIAstat-Dx, NeuMoDx, and other PCR solutions, Original Equipment Manufacturer (OEM) components used by other diagnostic suppliers, antigen and antibody tests, and genomic solutions. New products in 2021 were focused on expanding our solutions for surveillance and providing products for rapid high-throughput PCR testing:

- artus® SARS-CoV-2 Prep&Amp UM Kit - solution for large-scale COVID-19 testing with CE-IVD registration
- QIAstat-Dx Respiratory 4 Plex Flu A-B/RSV/SARS-CoV-2 test - launched as CE-IVD test to identify whether patients have influenza A or B, respiratory syncytial virus (RSV) or SARS-CoV-2
- NeuMoDx™ Flu A-B/RSV/SARS-CoV-2 Vantage Test - launched as FDA approved test to identify whether patients have influenza A or B, respiratory syncytial virus (RSV) or SARS-CoV-2
- QuantiFERON SARS-CoV-2 assay - received CE-marking as an aid to assessment of immunity in vaccinated individuals
- QIAcuity digital PCR wastewater testing workflow - completed US government contract for use in wastewater testing
- PreAnalytix PAXgene Saliva Collector - new method of sample collection for SARS-CoV-2 research. Additional applications are being developed for the sample collection kit, including DNA
- QIAseq DIRECT SARS-CoV-2 Kit - Ultra-Fast sequencing solution for high-throughput genomic surveillance

In our non-COVID product groups, we continued to build menus and release new products to expand our capabilities and prepare our platforms to capture growth in a post-pandemic market.

Consumables launches:

- QIAwave product line - environmentally friendly sample preparation consumables kits
- QIAstat-Dx panels for the diagnosis of more than 20 various conditions through one syndromic test
  - Meningitis / Encephalitis - received CE-IVD registration
  - Gastrointestinal - submitted for US regulatory clearance
- QIAreach QuantiFERON-TB test - designed for use for the detection of TB in low-resource, high-burden countries (Approved by the Global Fund's Expert Review Panel Diagnostics (ERPD))
- QuantiFERON LIAISON® LymeDetect® assay - test for the early diagnosis of Lyme Borreliosis, a bacterial disease that can cause long-term and debilitating health issue, co-developed and commercialized with DiaSorin

Instrument launches:

- EZ2 Connect - next generation of the EZ1 sample processing instrument for applications including biomedical research, forensics and clinical diagnostics
- QIAcube Connect MDx - sample processing instrument cleared for use in US, EU and other worldwide markets
- QIAsphere - cloud-based solution to enable remote digital monitoring of instrumentation platforms, initially for QIAstat-Dx

Emerging stronger from a time of change

QIAGEN Product Groups

Sample Technologies

Sample technologies is the first of our five pillars of growth and includes products involved in the first step of any molecular lab process.

Our broad portfolio of sample technologies includes consumables and instruments used in sample collection, stabilization, storage, purification and quality control. Some of our consumables are designed to run on our instruments, while others are universal kits designed for use with any molecular testing platform. These products are used in research and applied testing (forensics, human identification and food safety) laboratories as well as clinical testing.

Sample technologies	Selected QIAGEN brands		
Primary sample technology consumables			
• Nucleic stabilization and purification kits designed for primary sample materials (DNA, RNA), manual and automated processing for genotyping, gene expression, viral and bacterial analysis • Mainly based on silica membrane and magnetic bead technologies	• QIAamp • PAXgene • AllPrep	• DNeasy • AdnaTest • QIAprep&amp	• RNeasy • MagAttract
Secondary sample technology consumables			
• Kits and components for purification of nucleic acids from secondary sample materials (e.g. gel, plasmid DNA)	• QIAprep • QIAGEN Plasmid • HiSpeed	• QIAquick • QIAfilter • EndoFree	• DyeEx • R.E.A.L.
Sample technology instruments			
• Instruments for nucleic acid purification, quality control and accessories	• QIAsymphony • EZ1 • TissueLyser	• QIAcube Connect • QIAxpert	• QIAcube HT • QIAxcel

Sample technologies: The foundation of QIAGEN

A portfolio that has grown to address the complete spectrum of processing biological samples

Selected biological samples

- ✓ Tissue
- ✓ Cells
- ✓ Blood
- ✓ Serum
- ✓ Plasma
- ✓ Urine
- ✓ Stool
- ✓ Saliva
- ✓ Other body fluids
- ✓ Bone
- ✓ Plants
- ✓ Soil

Input demands
Low / high-volume
Low-quantity
High-quantity
Tubes / plates

Processing
Manual

Automated
Low-to
High-throughput

Target analytes
Genomic DNA
Plasmid DNA
cfDNA
mRNA,rRNA
miRNA
Proteins
Circ. Tumor cells

Applications

- ✓ Cloning
- ✓ DNA amplification
- ✓ Arrays
- ✓ Gene editing
- ✓ Epigenetic
- ✓ Cellular analytics
- ✓ qPCR / dPCR
- ✓ Sequencing / NGS
- ✓ Liquid biopsy
- ✓ Micobiome
- ✓ Gene silencing
- ✓ Proteomics

>200,000 publications referencing QIAGEN sample prep

Diagnostic Solutions

Diagnostic solutions include our molecular testing platforms and consumables covering three of our five pillars of growth, which are QuantiFERON, QIAstat-Dx and NeuMoDx, as well as Precision Medicine which involves companion diagnostic co-development revenues from projects with pharmaceutical companies, regulated assays and solutions for laboratory developed tests. Additional areas include Oncology and Sexual & Reproductive Health for detection of various diseases and for use in prenatal testing for detection of infectious diseases and for other laboratory processes.

Diagnostic solutions: QuantiFERON gold standard for modern latent TB-testing

Fully automated workflow for large-scale testing needs

DiaSorin LIASON XS & XL

> 8,000 systems Worldwide

QuantiFERON differentiation

- Full automation capability
- Highly specific
- No inter-reader variability
- Electronic results
- Quality-assured laboratory test[1]

[1]Not available in all markets

QIAreach – TB CE-IVD

Expanding access to high disease burden, low-resource areas

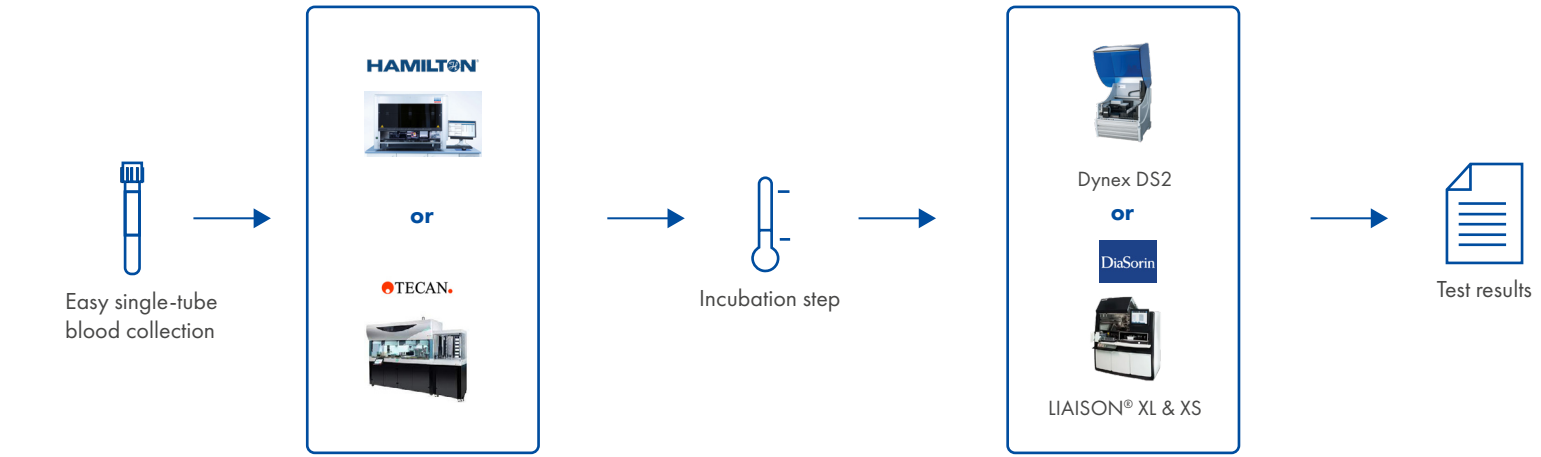
Portable
No cold chain required, all equipment <1 kg

No maintenance
No eHub maintenance or calibration

Battery powered
Requires no continuous external power

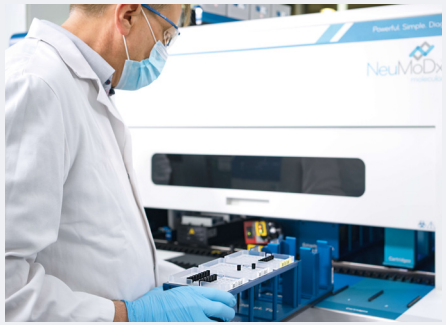
Scalable
1 to 8 samples, up to 24 samples per hour

No calibration or maintenance needed
No computer needed
No continuous power supply needed
No cold chain for consumables



Diagnostic solutions: NeuMoDx for mid- to high-throughput clinical testing

Bringing simplicity of clinical chemistry to integrated PCR testing



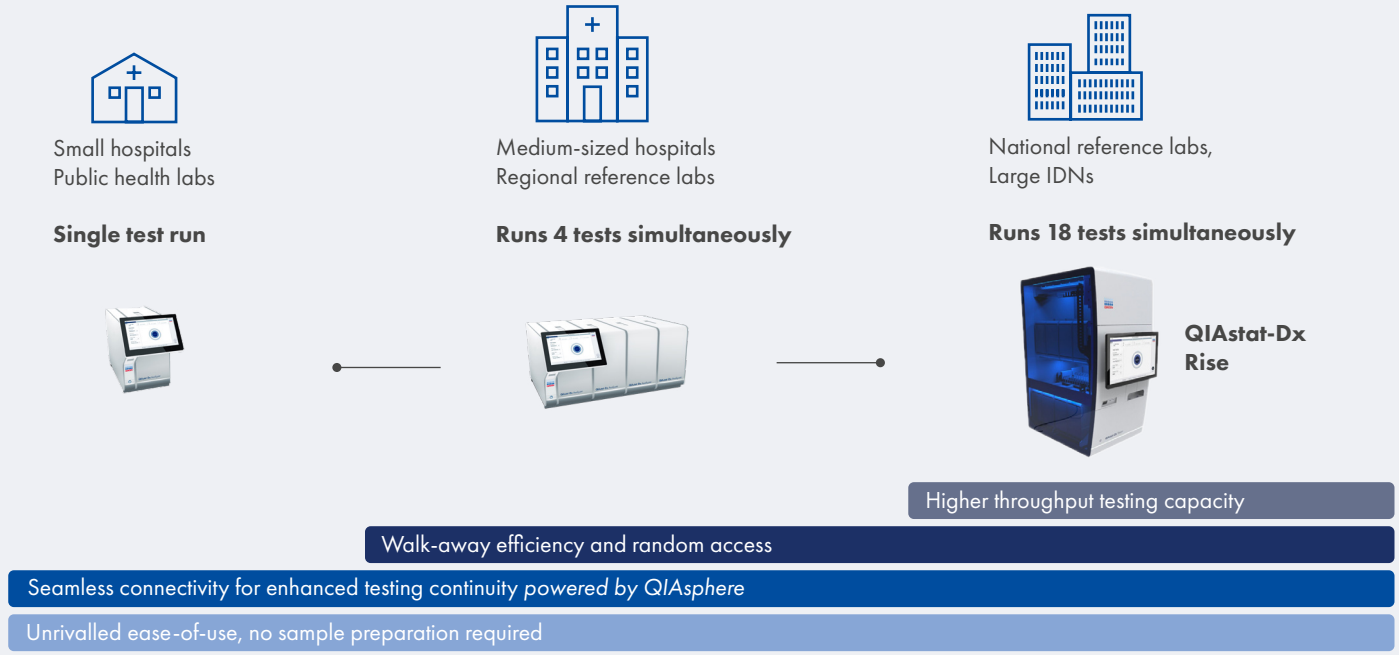
- High throughput
- Ultra-fast results
- Regulated and LDTs in parallel
- True random access
- Cost efficiency

Fully integrated microfluidic design

- No moving parts
- Containment of all waste
- Fewer plastic disposables

Self-contained cartridge

Diagnostic solutions: QIAstat-Dx for near-patient syndromic testing

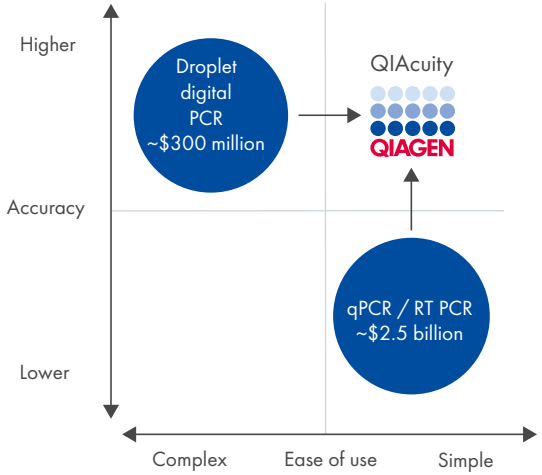


Diagnostic solutions	Selected QIAGEN brands		
Immune response consumables			
• Interferon-Gamma Release Assay (IGRA) for TB testing • Assays for post-transplant testing and viral load monitoring	• QuantiFERON	• QIAreach	
Oncology and Sexual & Reproductive health consumables			
• Assays for analysis of genomic variants such as mutations, insertions, deletions and fusions • Assays for prenatal testing and detection of sexually transmitted diseases and HPV	• Therascreen • AmniSure / PartoSure	• Ipsogen	• digene HC2
Sample to Insight instruments			
• One-step molecular analysis of hard-to-diagnose syndromes • Fully integrated PCR testing	• QIAstat-Dx	• NeuMoDx	

PCR / Nucleic Acid Amplification

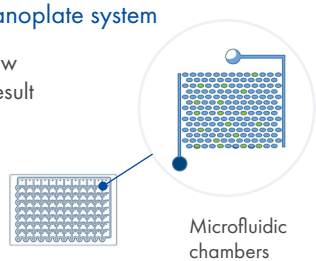
PCR / Nucleic Acid Amplification involves our research and applied PCR solutions and components. The product group includes another of our five pillars of growth: QIAcuity. We offer optimized solutions for end-point PCR, quantitative PCR and digital PCR. Our kits, assays, instruments and accessories amplify and detect targets and streamline workflow for virtually any application.

PCR / Nucleic acid amplification: QIAcuity digital PCR accessing the comprehensive PCR market



Differentiated nanoplate system

Simplified workflow offers sample to result in **under 2 hours**



Complete portfolio for research use

New partnerships expanding breadth of applications

ATILA BioSystems — Non-invasive prenatal testing

GT MOLECULAR — Wastewater testing

ACTOME — Proteomics testing

Easy-to-use system vs. competition

Scalable	More versatile	Easier	Faster
Greater flexibility	Higher multiplexing	Fully automated workflow	Over twice as fast time-to-result

Millions of assays available on QIAGEN GeneGlobe portal

PCR/Nucleic acid amplification	Selected QIAGEN brands		
Research PCR consumables			
• Different generations of PCR, quantitative PCR, reverse transcription and combinations (RT-PCR) kits for analysis of gene expression, genotyping and gene regulation, running on QIAGEN or third-party instruments and technologies	• QuantiTect • OneStep RT-PCR • Type-it • OmniScript	• QuantiFast • QIAGEN Multiplex • miRCURY • miScript	• QuantiNova • HotStarTaq • TopTaq
Human ID / Forensics assay consumables			
• STR assays for Human ID, additional assays for food contamination	• Investigator (human ID / forensics)	• *mericon* (food safety)	
PCR instruments			
• Digital PCR solutions	• QIAcuity • Rotor-Gene Q	• QIAquant • QIAgility	• QIAamplifier 96
OEM consumables			
• Custom-developed and configured enzymes and PCR solutions that are sold to OEM customers	• Provided on an individualized contract basis		

Genomics / NGS

This product group includes our universal NGS (next-generation sequencing) solutions for use with any NGS sequencer as well as the full bioinformatics portfolio offered by QIAGEN Digital Insights.

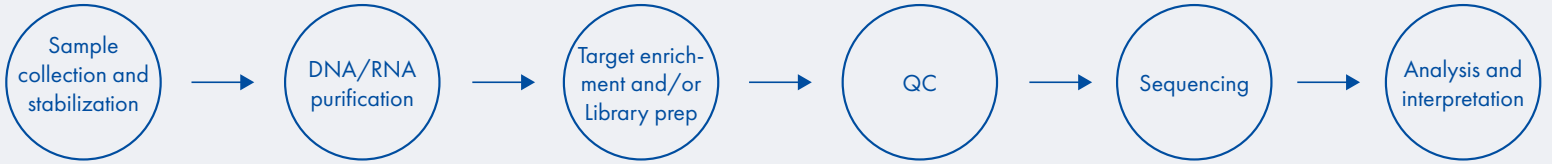
NGS / Genomics: Universal consumables providing high-performance chemistry

Target enrichment and streamlined library preparation leveraging leading sample preparation and bioinformatics

QIAGEN NGS differentiation
Superior technology performance for target enrichment
Gold standard RNAseq products for miRNA and RNA removal
Integrated with leading sample preparation and bioinformatics

NGS research market
>$800m market
>15% CAGR

Over **1 million** cancer samples analyzed



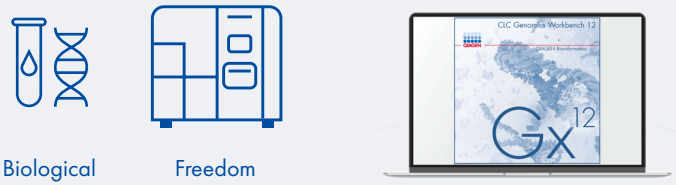
QIAGEN sample preparation

QIAseq Universal NGS solutions Compatible with any sequencer

QIAGEN Digital Insights Compatible with any sequencing data

NGS / Genomics: Bioinformatics serving the research community

Example: Analyzing gene expression data from Sample to Insight with QIAGEN Digital Insights



Biological sample

Freedom of choice

Sample to data

NGS library prep Sequencing

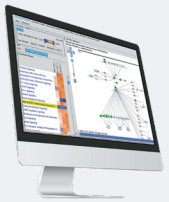
- Platform and Assay agnostic
- Whole transcriptome, Single Cell experiments

Data to information

Normalization and QC
Read mapping
Gene expression

QIAGEN CLC Genomics Workbench, Server and Cloud Engine

Per sample Analysis Portal, BaseSpace Integration



Information to knowledge

Data Integration
Metadata exploration
Differential expression

- **QIAGEN OmicSoft Server and Land Explorer**

Curated Experiments (OncoLand, DiseaseLand, GeneticsLand, Single Cell Land)

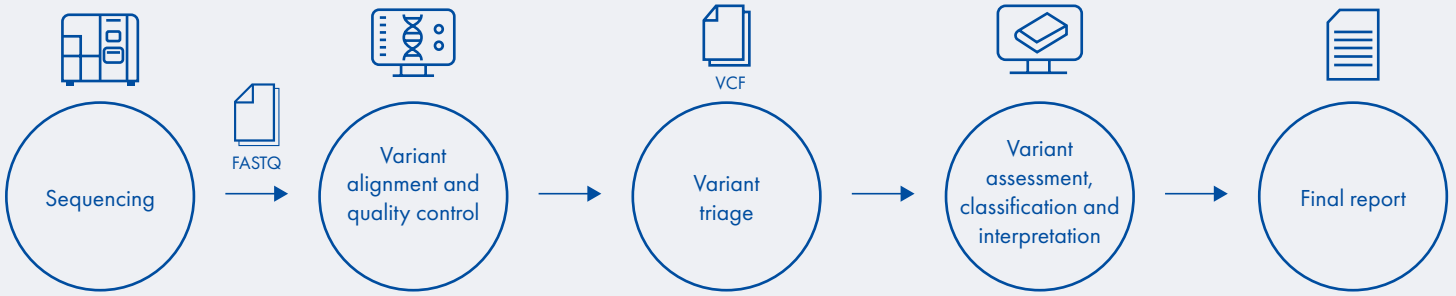
Knowledge to insight

Interpretation Pathway analysis

QIAGEN Ingenuity Pathway Analysis

NGS / Genomics: Bioinformatics serving clinical diagnostics

Software platform for scalable, standardized and reproducible variant interpretation



ONCOLOGY		**QCI PRODUCTS**
Clinical Testing Labs	Freedom of choice	← Precision Insights – QCI Interpret – QCI Interpret One →
Clinical Research Workflows	Freedom of choice	← QCI Translational →
Clinical Research databases	Freedom of choice	COSMIC-HSMD

HEREDITARY		**QCI PRODUCTS**
Clinical Testing Labs	Freedom of choice	← QCI Interpret →
Clinical Research Workflows	Freedom of choice	← QCI Translational →
Clinical Research databases	Freedom of choice	HGMD

Genomics / NGS	Selected QIAGEN brands		
Universal NGS consumables			
• Predefined and custom NGS gene panels (DNA, RNA), library prep kits and components, whole genome amplification, etc.	• QIAseq	• REPLI-g Epitect	
QIAGEN Digital Insights solutions			
• Bioinformatics solutions analyze and interpret data to deliver actionable insights from NGS. This includes freestanding software or cloud-based solutions and is also integrated into many QIAGEN consumables and instruments	• QIAGEN Clinical Insight • N-of-One • Ingenuity Variant Analysis	• CLC Genomics Workbench • OmicSoft • Ingenuity Pathway Analysis	• QIAGEN Knowledge Base • HGMD
Custom laboratory and genomic services			
• Custom services such as DNA sequencing, whole genome amplification, and non-cGMP DNA production	• Provided on an individualized contract basis		

Other

Revenues from various sources including protein biology products, royalties, intellectual property and freight charges.

Principal Markets

We sell our products to more than 500,000 customers in two broad customer groups: Molecular Diagnostics (clinical testing) and Life Sciences (academia, pharmaceutical R&D and applied testing). We estimate the total addressable market has a volume of over $11 billion per year. The five pillars of growth – sample technologies, immune response, digital PCR, integrated PCR, syndromic testing – account for more than $6 billion of this total.

Molecular Diagnostics: Improving outcomes for patients

~$6 billion
addressable market

QIAGEN value

- 2021 sales of ~$1.1 billion
- Focused on high-growth, high-demand opportunities
- Strong automation portfolio with multi-year assay menu expansion underway

Selected QIAGEN products

Sample technologies

- Tissue
- Blood
- Liquid biopsy
- Swabs, other

Assay technologies

Indication areas
- Oncology
- Immune modulation
- Infectious diseases technologies: QFT, PCR, NGS

Instruments

- QIAstat-Dx
- NeuMoDx
- QIAsymphony RGQ

Bioinformatics

QIAGEN Clinical Insight (QCI)
- Hereditary diseases
- Somatic and germline cancers
- All diseases

Life Sciences: Enabling the advancement of science

~$5 billion
addressable market

QIAGEN value

- 2021 sales of ~$1.1 billion
- Recognized innovator supporting breakthrough science
- Ability to translate innovations into commercial products

Selected QIAGEN products

Sample technologies

- ~300 different kit types
- Liquid biopsy, tissue, blood, cells, plants, microbiome, other

Assay technologies

- Real-time PCR
- Digital PCR
- Next-generation sequencing

Instruments

- QIAsymphony
- QIAcube Connect
- QIAcuity digital PCR
- RotorGene Q

Bioinformatics

- Ingenuity Pathway Analysis (IPA)
- Genomics Workbench / Server
- Microbial Pro Suite / RNA-seq
- Microbial Epigenetics

Molecular Diagnostics

The molecular diagnostics market includes healthcare providers engaged in many aspects of patient care that require accurate diagnoses and insights to guide treatment decisions in oncology, infectious diseases and immune monitoring.

We offer one of the broadest portfolios of molecular technologies for healthcare. The success of molecular testing in healthcare depends on the ability to accurately analyze purified nucleic acid samples from sources such as blood, tissue, body fluids and stool. Automated systems process tests reliably and efficiently, often handling hundreds of samples simultaneously. Our range of assays for diseases and biomarkers speed up and simplify laboratory workflow and standardize many lab procedures.

Molecular testing is the most dynamic segment of the global in vitro diagnostics market. The pandemic has demonstrated the value of molecular testing in healthcare and we expect the market to provide significant growth opportunities.

We have built a position as a preferred partner to co-develop companion diagnostics paired with targeted drugs and have created a rich pipeline of molecular tests that are transforming the treatment of cancer and other diseases. We have more than 25 master collaboration agreements with pharmaceutical industry customers, some with multiple co-development projects. In 2021 we continued to expand on these partnerships with new agreements to develop NGS based assays. These include partnerships

with Inovio for development of an assay for advanced cervical dysplasia, with OncXerna Therapeutics for their ovarian cancer therapeutic and with Sysmex Corporation for liquid biopsy oncology solutions. In addition we signed an agreement with Mirati for a PCR-based assay for Non-Small Cell Lung Cancer. Companion diagnostics move through clinical trials and regulatory approvals, along with the paired drugs, to commercialization and marketing to healthcare providers.

Molecular Diagnostics customers accounted for $1.1 billion, $904 million, and $737 million of our sales in 2021, 2020 and 2019, respectively.

What does Sample to Insight look like in Molecular Diagnostics?

A patient blood sample is collected using QIAGEN's proprietary blood collection tubes

QIAGEN's QuantiFERON-TB Gold Plus assay is used to analyze for latent infections with *M. tuberculosis* bacteria

Test results are delivered with one visit and in less than 24 hours

More than

100 million

QuantiFERON TB tests have been completed in the global fight against TB

Life Sciences

The Life Sciences market includes governments and biotechnology companies – and researchers who use molecular testing and technologies and are generally served by public funding in areas such as medicine and clinical development, forensics and exploring the building blocks of life.

We partner with customers across diverse disciplines in academia and industry, providing sample technologies, assay technologies, bioinformatics and services to universities and institutes, pharmaceutical and biotech companies, government and law enforcement agencies.

We provide Sample to Insight solutions to academic and research institutions around the world. We focus on enabling researchers to use reliable, fast, highly reproducible and high-quality technologies, sometimes replacing time-consuming traditional or in-house methods. We often partner with leading institutions on research projects and develop customized solutions such as NGS panels for the digital sequencing of multiple gene targets.

In the course of the COVID-19 pandemic, we served increased demand from viral and vaccine researchers for RNA extraction, general PCR reagents and enzymes, and universal NGS solutions.

We are a global leader in solutions for governments and industry, particularly in forensic testing and human identification. The value of genetic "fingerprinting" has been proven in criminal investigations and examinations of paternity or ancestry, as well as in food safety and veterinary diagnostics. We provide sample collection and analytical solutions for law enforcement and human identification labs, as well as advanced technologies for studies of microbiomes and their effect on health and the environment.

We have deep relationships with pharmaceutical and biotechnology companies. Drug discovery and translational research efforts increasingly employ genomic information, both to guide research in diseases and to differentiate patient populations that are most likely to respond to particular therapies. We estimate that about half of our sales to these companies supports research, while the other half supports clinical development, including stratification of patient populations based on genetic information. Also, QIAGEN Digital Insights solutions are widely used to guide pharmaceutical research.

Life Sciences customers accounted for $1.1 billion, $966 million, and $789 million of our sales in 2021, 2020 and 2019, respectively.

What does Sample to Insight look like in the Life Sciences?

Wastewater samples are collected and brought to a lab, where RNA and DNA are extracted with QIAGEN kits and instrument

QIAGEN's QIAcuity digital PCR system is used to analyze target sequences

QIAGEN bioinformatics are used to analyze the data to monitor for new infectious disease outbreaks

70%

of all U.S. states are using QIAcuity for ultra-sensitive wastewater detection of SARS-CoV-2 infections

Competition

In sample technology products, we also experience competition in various markets from other companies providing sample preparation products in kit form and assay solutions. These competitors include, but are not limited to, companies with a focus on nucleic acid separation and purification, assay solutions, transfection reagents and protein fractionation products. We compete with other suppliers through innovative technologies and products, offering a comprehensive solution for nucleic acid collection, pre-treatment, separation and purification needs and providing significant advantages in speed, reliability, convenience, reproducibility and ease of use.

Some of our other products within our molecular diagnostics customer class, such as tests for chlamydia, gonorrhea, hepatitis B virus, herpes simplex virus and CMV, compete against existing screening, monitoring and diagnostic technologies, including tissue culture and antigen-based diagnostic methodologies. We believe the primary competitive factors in the market for gene-based probe diagnostics and other screening devices are clinical validation, performance and reliability, ease of use, standardization, cost, proprietary position, competitors' market shares, access to distribution channels, regulatory approvals and reimbursement.

We believe our competitors typically do not have the same comprehensive approach to sample to insight solutions as we do, nor do they have the ability to provide the broad range of technologies and depth of products and services that we offer. With our complete range of manual and fully automated solutions, we believe we offer the value of standardization of procedures and, therefore, more reliable results. We also believe our integrated strategic approach gives us a competitive advantage. The quality of sample technologies - an area in which we have a unique market and leadership position - is a key prerequisite for reliable molecular assay solutions, which increasingly are being applied in emerging markets such as Molecular Diagnostics and Applied Testing.

Current and potential competitors may be in the process of seeking FDA or foreign regulatory approvals for their respective products. Our continued future success will depend in large part on our ability to maintain our technological advantage over competing products, expand our market presence and preserve customer loyalty. There can be no assurance that we will be able to compete effectively in the future or that development by others will not render our technologies or products non-competitive.

Global presence with a focus on the most attractive developed and emerging markets

Our global and regional headquarters

Venlo
Netherlands — Global HQ

Germantown
Maryland — Americas HQ

Hilden
Germany — EMEA HQ

Shanghai
China — Asia-Pacific HQ

Distribution partners in over **60** countries

35 subsidiaries

in over **25** countries

Global Presence by Category of Activity and Geographic Market

Product Category Information

Net sales for the product categories are attributed based on those revenues related to sample and assay products and related revenues including bioinformatics solutions, and revenues derived from instrumentation sales.

Net Sales (in millions)	**2021**	2020	2019
Consumables and related revenues	$1,986.3	$1,615.4	$1,354.1
Instrumentation	265.3	254.9	172.3
Total	**$2,251.7**	**$1,870.3**	**$1,526.4**

Geographical Information

We currently market products in more than 130 countries. The following table shows total revenue by geographic market for the past three years (net sales are attributed to countries based on the location of the customer, as certain subsidiaries have international distribution):

Net Sales (in millions)	**2021**	2020	2019
United States	$909.7	$728.6	$663.9
Other Americas	97.7	96.9	58.1
Total Americas	1,007.4	825.5	722.0
Europe, Middle East and Africa	814.4	682.3	487.5
Asia Pacific, Japan and Rest of World	429.9	362.6	317.0
Total	**$2,251.7**	**$1,870.3**	**$1,526.4**

We have built an increasing presence in key markets as a growth strategy. In 2021, the top seven growth markets - Brazil, Russia, India, China, South Korea, Mexico and Turkey contributed approximately 14% of net sales.

Seasonality

Our business does not experience significant predictable seasonality. Historically, a significant portion of our sales has been to researchers, universities, government laboratories and private foundations whose funding is dependent upon grants from government agencies, such as the National Institutes of Health and similar bodies. To the extent that our customers experience increases, decreases or delays in funding arrangements and budget approvals, and to the extent that customers' activities are slowed, such as during times of higher unemployment, vacation periods or delays in approval of government budgets, we may experience fluctuations in sales volumes during the year or delays from one period to the next in the recognition of sales. Additionally, we have customers who are active in the diagnostics testing market, and sales to these customers fluctuate to the extent that their activities are impacted by public health concerns such as the timing and severity of viral infections such as the influenza or SARS-CoV-2 viruses.

Suppliers

We strive to ensure that our quality standards, compliance with laws and regulations as well as environmental and social standards are maintained along the entire value chain of suppliers and partners. We demand the same from our business partners. Suppliers are subjected to a risk analysis with regard to environmental and social criteria based on their geographic location. Our procurement policy, which is available on our website, contains requirements with regard to legal compliance, bribery and corruption, labor rights, non-discrimination and fair treatment, health and safety as well as environmental protection and conservation. In 2021, all new suppliers have signed our procurement policy. In addition, first-tier suppliers must confirm REACH, RoHS and conflict minerals compliance as appropriate. As part of our supplier assessment procedures, we evaluate on a monthly basis the supply performance of our raw material and component suppliers, and we assess on a continuous basis potential alternative sources of such materials and components, and on a yearly basis the risks and benefits of reliance on our existing suppliers.

We buy materials for our products from many suppliers, and are not dependent on any one supplier or group of suppliers for our business as a whole. Raw materials generally include chemicals, raw separation media, biologics, plastics, electronics and packaging. Raw materials are generally readily available at competitive, stable prices from a number of suppliers. Certain raw materials are produced under our specifications. We have inventory agreements with the majority of our suppliers and we closely monitor stock levels to maintain adequate supplies. In 2021, we have been able to secure a stable supply of chemicals, bioreagents, plastics and packaging materials with only moderate price adjustments. However in electronics, we have seen shortages that needed to be mitigated with long term contacts and high volume agreements, which at times included price increases. These increases are considered in the pricing of our products. We strive to maintain inventories at a sufficient level to ensure reasonable customer service levels, to guard against normal volatility in availability and we continue to work to circumvent shortages and keep pricing competitive.

Research and Development

We are committed to expanding our global leadership in Sample to Insight solutions in Molecular Diagnostics and the Life Sciences. We target our research and development resources at the most promising technologies to address the unmet needs of our customers in healthcare and research labs in key geographic markets.

As a percentage of sales, our research and development investments are among the highest in our industry. 992 employees in research and development work in QIAGEN centers of excellence on three continents.

Innovation at QIAGEN follows parallel paths:

- Creating new systems for automation of workflows - platforms for laboratories, hospitals and other users of novel molecular technologies.
- Expanding our broad portfolio of novel content - including assays to detect and measure biomarkers for disease or genetic identification.
- Integrating QIAGEN Digital Insights with the testing process - software and cloud-based resources to interpret and transform raw molecular data into useful insights.

Innovation in automation systems positions us in fast-growing fields of molecular testing, and generates ongoing demand for our consumable products. We are developing and commercializing a deep pipeline of assays for preventive screening and diagnostic profiling of diseases, detection of biomarkers to guide Precision Medicine in cancer and other diseases, and other molecular targets. Our assay development program aims to commercialize tests that will add value to our QIAsymphony, QIAstat-Dx and NeuMoDx automation systems in the coming years, as well as next-generation sequencing (NGS) kits to support our universal NGS franchise and our in vitro diagnostics partnership with Illumina. We continue to develop applications for the QIAcuity digital PCR system which is designed to make digital PCR technology available to Life Sciences laboratories worldwide.

We collaborate with many institutions and companies to create innovative molecular solutions. In 2021, we joined collaborations to facilitate rapid advancements in building a broader application base for QIAcuity including a partnership with GT Molecular to provide a SARS-CoV-2 wastewater testing workflow, with Atila BioSystems to advance digital PCR in non-invasive prenatal testing, and with Actome to develop protein analysis solutions.

Our QIAGEN Digital Insights teams are developing new software and adding proprietary cloud-based content to support the latest research and clinical trends in molecular testing, especially the interpretation of large volumes of NGS data. We also integrate digital solutions with instruments and molecular content to provide our customers seamless Sample to Insight workflows.

Sales and Marketing

We market our products in more than 130 countries, mainly through subsidiaries in markets in the Americas, Europe, Australia and Asia with the greatest sales potential. Experienced marketing and sales staff, many of them scientists with academic degrees in molecular biology or related areas, sell our products and support our customers. Business managers oversee key accounts to ensure that we serve customers' commercial needs, such as procurement processes, financing, data on costs and the value of our systems, and collaborative relationships. In many markets, we have specialized independent distributors and importers.

Our marketing strategy focuses on providing differentiated, high-quality products across the value chain from Sample to Insight, integrating components into end-to-end solutions when possible, and enhancing relationships with commitment to technical excellence and customer service. Our omni-channel approach seeks to engage customers through their preferred channels - online, by phone, in person, etc. - and to optimize investment in different customer types.

We continue to drive the growth of our digital marketing channels - including our website (www.qiagen.com), product-specific sites and social media. Since the onset of the pandemic there has been an increase in virtual events and use of digital sales channels. We have likewise increased the activities in digital marketing to adapt to these market changes, such as installing an in-house studio to facilitate creation of video content and live virtual events.

Our eCommerce team works with clients to provide automated processes supporting a variety of electronic transactions and all major eProcurement systems. Information contained on our website, or accessed through it, is not part of this Annual Report.

My QIAGEN is an easy-to-use self-service portal that is personalized to our customers' needs and enables customers to manage different activities in one central place. Customers can now easily reorder, place bulk orders, apply quotes to their cart, and then track their order status. Functionality in the dashboard allows customers to monitor their instrument use and view the status of licenses and service agreements. Additionally, customers can access our exclusive content and services, such as webinars, handbooks and other documents.

Our GeneGlobe Design & Analysis Hub (www.geneglobe.com) is a valuable outreach to scientists in pharma and academia, enabling researchers to search and order from approximately 25 million pre-designed and custom PCR assay kits, NGS assay panels and other products. The new hub brings next-level experiment planning, execution and follow-up to life science researchers, linking our QIAGEN Digital Insights solutions with ordering of assays to accelerate research.

We use a range of tools to provide customers with direct access to technical support, inform them of new product offerings, and enhance our reputation for technical excellence, high-quality products and commitment to service. For example, our technical service hotline allows existing or potential customers to discuss a wide range of questions about our products and molecular biology procedures, online or via phone, with Ph.D. and M.Sc. scientists at QIAGEN. Frequent communication with customers enables us to identify market needs, learn of new developments and opportunities, and respond with new products.

We also distribute publications, including our catalog, to existing and potential customers worldwide, providing new product information, updates, and articles about existing and new applications. In addition, we hold numerous scientific seminars at clinical, academic and industrial research institutes worldwide and at major scientific and clinical meetings. We conduct direct marketing campaigns to announce new products and special promotions, and we offer personalized electronic newsletters and webinars highlighting molecular biology applications.

For laboratories that frequently rely on our consumables, the QIAstock program maintains inventory on-site to keep up with their requirements. QIAGEN representatives make regular visits to replenish the stock and help with other needs, and we are automating this process with digital technologies. Easy-to-use online ordering, inventory monitoring and customer-driven changes make QIAstock an efficient system for providing ready access to our products for the hundreds of customers worldwide who use this program.

Intellectual Property, Proprietary Rights and Licenses

We have made and expect to continue to make investments in intellectual property. In 2021, additions to our intangible assets outside of business combinations totaled $24.0 million. While we do not depend solely on any individual patent or technology, we are significantly dependent in the aggregate on technology that we own or license. Therefore, we consider protection of proprietary technologies and products one of the major keys to our business success. We rely on a combination of patents, licenses and trademarks to establish and protect proprietary rights. As of December 31, 2021, we owned 338 issued patents in the United States, 273 issued patents in Germany and 1,832 issued patents in other major industrialized countries. We had 425 pending patent applications. Our policy is to file patent applications in Western Europe, the United States and Japan. Patents in most countries have a term of 20 years from the date of filing the patent application. We intend to aggressively prosecute and enforce patents and to otherwise protect our proprietary technologies. We also rely on trade secrets, know-how, continuing technological innovation and licensing opportunities to develop and maintain our competitive position.

Our practice is to require employees, consultants, outside scientific collaborators, sponsored researchers and other advisers to execute confidentiality agreements upon commencement of their relationships with us. These agreements provide that all confidential information developed by or made known to the individual during the course of the relationship is to be kept confidential and not disclosed to third parties, subject to a right to publish certain information in scientific literature in certain circumstances and to other specific exceptions. In the case of our employees, the agreements provide that all inventions conceived by individuals in the course of their employment will be our exclusive property.

See Risk Factors included below for details regarding risks related to our reliance on patents and proprietary rights.

Government Regulations

We are subject to a variety of laws and regulations in the European Union, the United States and other countries. The level and scope of the regulation varies depending on the country or defined economic region, but may include, among other things, the research, development, testing, clinical trials, manufacture, storage, recordkeeping, approval, labeling, promotion and commercial sales and distribution, of many of our products.

European Union Regulations

In the European Union, in vitro diagnostic medical devices (IVDs) have been regulated under EU-Directive 98/79/EC (IVD Directive) and corresponding national provisions. The IVD Directive requires that medical devices meet the essential requirements, including those relating to device safety and efficacy, set out in an annex of the Directive. According to the IVD Directive, EU Member States presume compliance with these essential requirements for devices that are in conformity with the relevant national standards transposing the harmonized standards, such as ISO 13485:2016, the quality system standard for medical device manufacturers.

IVD medical devices, other than devices for performance evaluation, must bear the CE marking of conformity when they are placed on the market. The CE mark is a declaration by the manufacturer that the product meets all the appropriate provisions of the applicable legislation implementing the relevant European Directive. As a general rule, the manufacturer must follow the EU declaration of conformity procedure to obtain a CE marking.

In May 2022, the Directive will be replaced by the In Vitro Diagnostic Device Regulation (IVDR) (EU) 2017/746 that was published in May 2017 and given a 5-year transition period until its full implementation on May 26, 2022. Unlike the Directive, the IVDR has binding legal force throughout every Member State and it will become effective on a set date in all the Member States. The major goals of the IVDR are to standardize diagnostic procedures within the EU, increase reliability of diagnostic analysis and enhance patient safety. Under the IVDR as enacted by the European Commission (EC), IVD devices will be subject to additional legal regulatory requirements after it comes into full effect. Among other things, the IVDR introduces a new risk-based classification system and requirements for conformity assessments. Products already certified by a Notified Body may remain on the market until May 25, 2024 under some conditions including fulfillment of specific requirements in the IVDR, but ultimately most products will have to be approved. Under the Directive the majority of QIAGEN products were under the self-declaration classification, while under IVDR most of QIAGEN products will require pre-approval, and those that are in the highest risk class will have to be tested by a Designated Reference Laboratory. In addition, the IVDR imposes additional requirements relating to post-market surveillance and submission of post-market performance follow-up reports. On January 25, 2022, Regulation (EU) 2022/112 was published to extend the transitional provisions of IVDR (EU) 2017/746, allowing most devices with their EC Declaration of Conformity under the IVD Directive to be placed on the market and/or put into service for an additional timeframe of 3-6 years depending on their appropriate risk class under the IVDR.

The EC has designated six (6) Notified Bodies to perform conformity assessments under the IVDR, including QIAGEN's Notified Body, TÜV Rheinland. MedTech Europe has issued guidance relating to the IVDR in several areas, e.g., clinical benefit, technical documentation, state of art, accessories, and EUDAMED. Open points still being addressed/defined are the designation of EU Reference Laboratories and Common Specification for high risk IVDs. With respect to the current COVID-19 pandemic, the EC has classified SARS-CoV-2 assays as high risk.

The General Data Protection Regulation (GDPR) of the European Union, imposes restrictions on the transfer, access, use, and disclosure of health and other personal information. We have implemented the requirements set forth by the GDPR, which took effect on May 25, 2018. GDPR and other EU data privacy and security laws impact our business either directly or indirectly. Our failure to comply with applicable privacy or security laws or significant changes in these laws could significantly impact our business and future business plans. For example, we may be subject to regulatory action, fines, or lawsuits in the event we fail to comply with applicable privacy laws. We may face significant liability in the event any of the personal information we maintain is lost or otherwise subject to misuse or other wrongful use, access or disclosure.

The General Data Protection Regulation (GDPR), which applies to all EU member states from May 25, 2018, also applies to some of our operations.

United Kingdom Regulations

The UK's withdrawal from the EU has major ramifications for IVD manufacturers. Among other things, companies now have to follow new procedures that apply in the UK, including appointment of a UK Responsible Person rather than relying on European Authorized Representatives, to manage their compliance efforts in the UK.

The UK Medicine and Healthcare Products Regulatory Agency (MHRA) issued guidance on how the country will regulate IVDs after January 1, 2021. According to MHRA, IVDs will require certification in the UK, which is defined as England, Scotland and Wales, while companies will still be able to sell tests in Northern Ireland under existing EU IVD regulations. As described in the guidance, MHRA will continue to recognize CE marks until June 30, 2023, although companies wishing to place IVDs on the UK market are required to register as such with MHRA. After July 1, 2023, companies selling in the UK will have to obtain a new marking called a UK Conformity Assessed mark (UKCA).

United States Regulations

In the United States, in vitro diagnostic products are subject to regulation by the FDA as medical devices to the extent that they are intended for use in the diagnosis, treatment, mitigation or prevention of disease or other conditions.

Certain types of tests, like some that we manufacture and sell for research use only in the United States, are not subject to the FDA's premarket review and controls because we do not promote these tests for clinical diagnostic use, and they are labeled "For Research Use Only," or RUO, as required by the FDA. Other tests, known as laboratory developed tests (LDTs), which are IVDs that are designed, manufactured and used within a single accredited, clinical laboratory, have generally been subject to enforcement discretion and not actively regulated by the FDA. As LDTs have increased in complexity, the FDA has taken steps towards developing a risk-based approach to the regulation of LDTs; however, most LDTs remain under FDA enforcement discretion. Congress has also signaled interest in clarifying the regulatory landscape for LDTs. In 2020, the Verifying Accurate, Leading-edge IVCT Development (VALID) Act was introduced in both chambers of Congress, and it was reintroduced in substantially unchanged form in June 2021. If enacted, clinical laboratories that develop and offer LDTs and traditional IVD medical device manufacturers would be subject to similar regulatory oversight. The VALID Act defines both LDTs and IVDs as in vitro clinical tests (IVCT) and would establish a new regulatory framework under the Food, Drug and Cosmetic Act (FDCA) for the review and oversight of IVCTs. The proposed regulatory framework adopts various concepts from the FDCA, utilizing a risk-based approach that aims to ensure that all marketed IVCTs have a reasonable assurance of both analytical and clinical validity.

Medical devices are classified into one of three classes depending on the controls deemed by the FDA to be necessary to reasonably assure their safety and effectiveness. Class I devices are generally exempt from premarket review and are subject to general controls, including labeling requirements, and adherence to the FDA's Quality System Regulations (QSR), which are device-specific current good manufacturing practices. Class II devices are generally subject to premarket notification (or 510(k) clearance), the QSR, general controls and special controls, including performance standards and post-market surveillance. Class III devices are subject to most of the previously identified requirements as well as to premarket approval (PMA). The payment of a user fee, which is typically adjusted annually, to the FDA is usually required upon filing a premarket submission (e.g., premarket notification, premarket approval, or De Novo classification request) for FDA review.

510(k) Premarket Notification. A 510(k) premarket notification requires the sponsor to demonstrate that a medical device is substantially equivalent to another marketed device, termed a "predicate device," that is legally marketed in the United States and is not subject to premarket approval. A device is substantially equivalent to a predicate device if its intended use(s), performance, safety and technological characteristics are similar to those of the predicate; or has a similar intended use but different technological characteristics, where the information submitted to the FDA does not raise new questions of safety and effectiveness and demonstrates that the device is at least as safe and effective as the legally marketed device.

If the FDA determines that the device (1) is not substantially equivalent to a predicate device, (2) has a new intended use compared to the identified predicate, (3) has different technological characteristics that raise different questions of safety and effectiveness, or (4) has new indications for use or technological characteristics and required performance data were not provided, it will issue a "Not Substantially Equivalent" (NSE) determination. If the FDA determines that the applicant's device is substantially equivalent to the identified predicate device(s), the agency will issue a 510(k) clearance letter that authorizes commercial marketing of the device for one or more specific indications for use.

De Novo Classification. If a previously unclassified new medical device does not qualify for the 510(k) premarket notification process because no predicate device to which it is substantially equivalent can be identified, the device is automatically classified into Class III. However, if such a device would be considered low or moderate risk (in other words, it does not rise to the level of requiring the approval of a PMA), it may be eligible for the De Novo classification process. The De Novo classification process allows a device developer to request that the novel medical device be reclassified as either a Class I or Class II device, rather than having it regulated as a high risk Class III device subject to the PMA requirements. If the manufacturer seeks reclassification into Class II, the classification request must include a draft proposal for special controls that are necessary to provide a reasonable assurance of the safety and effectiveness of the medical device.

In October 2021, FDA issued a final rule that would formally codify requirements for the medical device De Novo process and the procedures and criteria for product developers to file a De Novo classification request (86 Fed. Reg. 54,826). Although the final rule does not affect marketed products, and likely not expected to impact products in current development, the FDA's goals in promulgating the final rule are to create a predictable, consistent, and transparent De Novo classification process for innovative medical device developers.

Premarket Approval. The PMA process is more complex, costly and time consuming than the 510(k) process. A PMA must be supported by more detailed and comprehensive scientific evidence, including clinical data, to demonstrate the safety and efficacy of the medical device for its intended purpose. A clinical trial involving a "significant risk" device may not begin until the sponsor submits an investigational device exemption (IDE) application to the FDA and obtains approval to begin the trial.

After the PMA is submitted, the FDA has 45 days to make a threshold determination that the PMA is sufficiently complete to permit a substantive review. If the PMA is complete, the FDA will file the PMA and begin the substantive review process. The FDA is subject to a performance goal review time for a PMA that is 180 days from the date of filing, although in practice this review time is longer. Questions from the FDA, requests for additional data and referrals to advisory committees may delay the process considerably. The total process may take several years and there is no guarantee that the PMA will ever be approved. Even if approved, the FDA may limit the indications for which the device may be marketed. The FDA may also request additional clinical data as a condition of approval or after the PMA is approved. Any changes to the medical device may require a supplemental PMA to be submitted and approved before changed medical device may be marketed.

Any products manufactured and sold by us pursuant to FDA clearances or approvals will be subject to pervasive and continuing regulation by the FDA, including quality system requirements, record-keeping requirements, reporting of adverse experiences with the use of the device and restrictions on the advertising and promotion of our products. Device manufacturers are required to register their establishments and list their devices with the FDA and are subject to periodic inspections by the FDA and certain

state agencies. Noncompliance with applicable FDA requirements can result in, among other things, warning letters, fines, injunctions, civil penalties, recalls or seizures of products, total or partial suspension of production, refusal of the FDA to grant 510(k) clearance or PMA approval for new devices, withdrawal of 510(k) clearances and/or PMA approvals and criminal prosecution.

As a result of the COVID-19 pandemic, the Secretary of the U.S. Department of Health and Human Services declared a public health emergency and authorized the FDA to issue emergency use authorizations (EUAs) to provide more timely access to critical medical countermeasures (including medicines and diagnostic tests) when there are no adequate, approved, and available alternative options. EUAs remain in effect until the emergency declaration ends unless the FDA decides to revise or revoke an EUA at an earlier point as the agency considers public health needs during the emergency and new data on an authorized product's safety and effectiveness, or as products meet the criteria for FDA approval or clearance. Manufacturers of several types of SARS-CoV-2 assays have been granted EUAs, including QIAGEN. The FDA has indicated the withdrawal of EUAs for COVID-19 countermeasures will be done in a gradual, phased process and issued draft guidance on a transitional plan.

Regulation of Companion Diagnostic Devices

If a sponsor or the FDA believes that a diagnostic test is essential for the safe and effective use of a corresponding therapeutic product, the sponsor of the therapeutic product will typically work with a collaborator to develop an in vitro companion diagnostic device. The FDA defines an IVD companion diagnostic device as a device that provides information that is essential for the safe and effective use of a corresponding therapeutic product.

The FDA has also introduced the concept of complementary diagnostics that are distinct from companion diagnostics because they provide additional information about how a drug is used or identify patients who are likely to derive the greatest benefit from therapy without being required for the safe and effective use of that drug. The FDA has not yet provided much guidance on the regulation and use of complementary diagnostics, but several have been approved.

The FDA indicated that it will apply a risk-based approach to determine the regulatory pathway for IVD companion diagnostic devices, as it does with all medical devices. This means that the regulatory pathway will depend on the level of risk to patients, based on the intended use of the IVD companion diagnostic device and the controls necessary to provide a reasonable assurance of safety and effectiveness. We expect that any IVD companion diagnostic device that we develop will utilize the PMA pathway and that a clinical trial performed under an investigational device exemption, or IDE, will have to be completed before the PMA may be submitted.

The FDA expects that the therapeutic sponsor will address the need for an IVD companion diagnostic device in its therapeutic product development plan and that, in most cases, the therapeutic product and its corresponding IVD companion diagnostic device will be developed contemporaneously. If the companion diagnostic test will be used to make critical treatment decisions such as patient selection, treatment assignment, or treatment arm, it will likely be considered a significant risk device for which a clinical trial will be required.

The sponsor of the IVD companion diagnostic device will be required to comply with the FDA's IDE requirements that apply to clinical trials of significant risk devices. If the diagnostic test and the therapeutic drug are studied together to support their respective approvals, the clinical trial must meet both the IDE and IND requirements.

Regulation of Research Use Only Products

Some of our products are sold for research purposes in the U.S., and labeled "For Research Use Only" (RUO) or "for molecular biology applications." RUO refers to devices that are in the laboratory phase of development, while investigational use only, or IUO, refers to devices that are in the product testing phase of development. These types of devices are exempt from most regulatory controls pursuant to long-standing FDA guidance on RUO/IUO diagnostics. Because we do not promote our RUOs for clinical diagnostic use, or provide technical assistance to clinical laboratories with respect to these tests, we believe that these tests are exempt from FDA's premarket review and other requirements. If the FDA were to disagree with our designation of any of these products, we could be forced to stop selling the product until we obtain

appropriate regulatory clearance or approval. Further, it is possible that some of our RUOs may be used by some customers without our knowledge in their LDTs, which they may then develop, validate and promote for clinical use. However, QIAGEN does not promote these products for use in LDTs or assist in the development of the LDTs for clinical diagnostic use.

HIPAA and Other Privacy and Security Laws

The Health Insurance Portability and Accountability Act of 1996 (HIPAA), established comprehensive federal standards for the privacy and security of health information. The HIPAA standards apply to health plans, healthcare clearing houses, and healthcare providers that conduct certain healthcare transactions electronically (Covered Entities,), as well as individuals or entities that perform services for them involving the use, or disclosure of, individually identifiable health information or "protected health information" under HIPAA. Such service providers are called "Business Associates." Title II of HIPAA, the Administrative Simplification Act, contains provisions that address the privacy of health data, the security of health data, the standardization of identifying numbers used in the healthcare system and the standardization of certain healthcare transactions. The privacy regulations protect medical records and other protected health information by limiting their use and release, giving patients the right to access their medical records and limiting most disclosures of health information to the minimum amount necessary to accomplish an intended purpose. The HIPAA security standards require the adoption of administrative, physical, and technical safeguards and the adoption of written security policies and procedures to maintain the security of protected health information.

On February 17, 2009, Congress enacted Subtitle D of the Health Information Technology for Economic and Clinical Health Act (HITECH) provisions of the American Recovery and Reinvestment Act of 2009. HITECH expanded and strengthened HIPAA, created new targets for enforcement, imposed new penalties for noncompliance and established new breach notification requirements for Covered Entities and Business Associates.

Under 'HITECH's breach notification requirements, Covered Entities must report breaches of protected health information that has not been encrypted or otherwise secured. Required breach notices must be made as soon as is reasonably practicable, but no later than 60 days following discovery of the breach. Reports must be made to affected individuals and to the Secretary and, in some cases depending on the size of the breach, they must be reported through local and national media. Breach reports can lead to investigation, enforcement and civil litigation, including class action lawsuits.

Our Redwood City entity serves in some cases as a Business Associate to customers who are subject to the HIPAA regulations. In this capacity, we maintain an active compliance program that is designed to identify security incidents and other issues in a timely fashion and enable us to remediate, mitigate harm or report if required by law. We are subject to prosecution and/or administrative enforcement and increased civil and criminal penalties for non-compliance, including a new, four-tiered system of monetary penalties adopted under HITECH. We are also subject to enforcement by state attorneys general who were given authority to enforce HIPAA under HITECH. To avoid penalties under the HITECH breach notification provisions, we must ensure that breaches of protected health information are promptly detected and reported within the company, so that we can make all required notifications on a timely basis. However, even if we make required reports on a timely basis, we may still be subject to penalties for the underlying breach.

California has also adopted the California Consumer Privacy Act of 2018, or CCPA, which took effect on January 1, 2020 and became enforceable by the state attorney general on July 1, 2020. The CCPA establishes a new privacy framework for covered businesses by creating an expanded definition of personal information, establishing new data privacy rights for consumers in the State of California, imposing special rules on the collection of consumer data from minors, and creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches.

The regulations issued under the CCPA have been modified several times. Additionally, a new privacy law, the California Privacy Rights Act, or CPRA, was approved by California voters in the election on November 3, 2020. The CPRA will modify the CCPA significantly, potentially resulting in further uncertainty, additional costs and expenses stemming from efforts to comply, and additional potential for harm and liability for failure to comply. Other states in the U.S. are considering privacy laws similar to the CCPA. In February 2021, the Virginia legislature became the second to enact a state-specific law called the Consumer Data Protection Act, or CDPA, which includes key differences from California's law, further complicating compliance by industry and other stakeholders.

Many states have also implemented genetic testing and privacy laws imposing specific patient consent requirements and protecting test results by strictly limiting the disclosure of those results. State requirements are particularly stringent regarding predictive genetic tests, due to the risk of genetic discrimination against healthy patients identified through testing as being at a high risk for disease. We believe that we have taken the steps required of us to comply with health information privacy and security statutes and regulations, including genetic testing and genetic information privacy laws in all jurisdictions, both state and federal. However, these laws constantly change, and we may not be able to maintain compliance in all jurisdictions where we do business. Failure to maintain compliance, or changes in state or federal laws regarding privacy or security could result in civil and/or criminal penalties, significant reputational damage and could have a material adverse effect on our business.

U.S. Fraud and Abuse Laws and Other Healthcare Regulations

A variety of state and federal laws prohibit fraud and abuse involving state and federal healthcare programs, as well as commercial insurers. These laws are interpreted broadly and enforced aggressively by various federal and state agencies, including the Centers for Medicare & Medicaid Services (CMS), the Department of Justice (DOJ), and the Office of Inspector General for the U.S. Department of Health and Human Services (OIG). The Company seeks to conduct its business in compliance with all applicable federal and state laws.

State and federal fraud and abuse laws may be interpreted and applied differently, and arrangements and business practices could be subject to scrutiny under them by federal or state enforcement agencies. Sanctions for violations of these laws could result in a wide range of penalties, including but not limited to significant criminal sanctions, civil fines and penalties.

The Anti-Kickback Statute

The federal Anti-Kickback Statute (AKS) prohibits, in pertinent part, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in cash or in kind, in exchange for or to induce that person:

- To refer an individual to a person for the furnishing or arranging for the furnishing of any item or service for which payment may be made by federal healthcare programs; or
- To purchase, lease, order, or arrange for or recommend purchasing, leasing, or ordering, any good, facility, service, or item for which payment may be made by a federal healthcare program.

A person or entity does not need to have actual knowledge of the AKS or specific intent to violate it to have committed a violation. Recognizing that the AKS is broad and potentially applies to innocuous or beneficial arrangements, the OIG issued regulations, commonly known as "safe harbors," which set forth certain requirements that, if fully met, insulate a given arrangement or conduct from prosecution under the AKS. The AKS also has statutory exceptions that provide protection similar to that of safe harbors. If, however, an arrangement does not meet every requirement of an exception or safe harbor, the arrangement does not necessarily violate the AKS. A facts-and-circumstances analysis is necessary to determine AKS compliance or lack thereof. The statutory penalties for violating the AKS include imprisonment and criminal fines. In addition, through application of other laws, conduct that violates the AKS can give rise to civil monetary penalties and possible exclusion from Medicare, Medicaid, and other federal healthcare programs. Claims including items or services resulting from a violation of the AKS also constitute a false or fraudulent claim for purposes of the False Claims Act.

In addition to the federal AKS, many states have their own anti-kickback laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions, safe harbors or sanctions. In some states, these anti-kickback laws apply to both state healthcare programs and commercial insurers. The penalties for violating state anti-kickback provisions can be severe, including criminal and civil penalties (including penalties under the state false claims law), imprisonment, and exclusion from state healthcare programs.

The False Claims Act

The federal False Claims Act (FCA) imposes civil liability on any person or entity that, among other things, knowingly presents, or causes to be presented, to the federal government, claims for payment that are false or fraudulent; knowingly makes, uses or causes to be made or used, a false statement or record material to a false or fraudulent claim or obligation to pay or transmit money or property to the federal government; or knowingly conceals or knowingly and improperly avoids or decreases an obligation to pay money to the federal government. The FCA also prohibits the knowing retention of overpayments (sometimes referred to as "reverse false claims").

In addition, the FCA permits a private individual acting as a "whistleblower" (also referred to as a "relator") to bring FCA actions on behalf of the federal government under the statute's qui tam provisions, and to share in any monetary recovery. The federal government may elect or decline to intervene in such matters, but if the government declines intervention, the whistleblower may still proceed with the litigation on the government's behalf.

Penalties for violating the FCA include payment of up to three times the actual damages sustained by the government, plus substantial per-claim statutory penalties, as well as possible exclusion from federal healthcare programs.

Various states have enacted similar laws modeled after the FCA that apply to items and services reimbursed under Medicaid and other state healthcare programs, and, in several states, such laws apply to claims submitted to any payor, including commercial insurers.

There is also a federal criminal false claims statute that prohibits, in pertinent part, the making or presentation of a false claim, knowing such claim to be false, to any person or officer in the civil, military, or naval service or any department or agency thereof. Potential penalties for violating this statute include fines or imprisonment.

Health Care Fraud and False Statements

The federal healthcare fraud statute criminalizes knowingly and willfully defrauding a healthcare benefit program, which includes including commercial insurers. A violation of this statute may result in fines, imprisonment, or exclusion from federal healthcare programs. The false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact or making a materially false, fictitious, or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items, or services. A violation of this statute may result in fines or imprisonment.

Civil Monetary Penalties Law

The federal Civil Monetary Penalties Law (CMP Law) prohibits, among other things, (1) the offering or transfer of remuneration to a beneficiary of Medicare or a state healthcare program if the person knows or should know it is likely to influence the beneficiary's selection of a particular provider, practitioner, or supplier of services reimbursable by Medicare or a state healthcare program, unless an exception applies; (2) employing or contracting with an individual or entity that the provider knows or should know is excluded from participation in a federal healthcare program; (3) billing for services requested by an unlicensed physician or an excluded provider; and (4) billing for medically unnecessary services. The penalties for violating the CMP Law include exclusion from federal healthcare programs, substantial fines, and payment of up to three times the amount billed, depending on the nature of the offense.

Physician Payments Sunshine Act

The federal Physician Payments Sunshine Act (Sunshine Act) imposes reporting requirements on manufacturers of certain devices, drugs, biologics, and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program (CHIP), with certain exceptions. Manufacturers to which the Sunshine Act applies must collect and report annually certain data on certain payments and transfers of value by them (and in some cases their distributors) to physicians, teaching hospitals, and certain advanced non-physician healthcare practitioners, as well as ownership and investment interests held by physicians and their immediate family members. For reporting beginning January 1, 2022, U.S.-licensed physician assistants, clinical nurse specialists, certified nurse-midwives, certified nurse anesthetists, and nurse practitioners must be included in the provider types subject to Sunshine Act reporting. The report program (known as the Open Payments program) is administered by CMS.

There are also an increasing number of state "sunshine" laws that require manufacturers to provide reports to state governments on pricing and marketing information. Several states have enacted legislation requiring manufacturers, including medical device companies to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales and marketing activities, and to prohibit or limit certain other sales and marketing practices.

Failure to comply with the Sunshine Act or state equivalents could result in civil monetary penalties, among other sanctions, depending upon the nature of the violation.

Despite extensive procedures to ensure compliance, we may also be exposed to liabilities under the U.S. Foreign Corrupt Practices Act (FCPA), which generally prohibits companies and their intermediaries from making corrupt payments to foreign officials for the purpose of obtaining or maintaining business or otherwise obtaining favorable treatment, and requires companies to maintain adequate record-keeping and internal accounting practices to accurately reflect the transactions of the company. We are also subject to a number of other laws and regulations relating to money laundering, international money transfers and electronic fund transfers. These laws apply to companies, individual directors, officers, employees and agents.

Environment, Health and Safety

We are subject to laws and regulations related to the protection of the environment, the health and safety of employees and the handling, transportation and disposal of medical specimens, infectious and hazardous waste and radioactive materials. For example, the U.S. Occupational Safety and Health Administration (OSHA) has established extensive requirements relating specifically to workplace safety for healthcare employers in the U.S. This includes requirements to develop and implement multi-faceted programs to protect workers from exposure to blood-borne pathogens, such as HIV and hepatitis B and C, including preventing or minimizing any exposure through needle stick injuries. For purposes of transportation, some biological materials and laboratory supplies are classified as hazardous materials and are subject to regulation by one or more of the following agencies: the U.S. Department of Transportation, the U.S. Public Health Service, the United States Postal Service and the International Air Transport Association. The U.S. Environmental Protection Agency (EPA) has also promulgated regulations setting forth importation, labelling, and registration requirements, among others, which may apply to certain products and/or establishments of the company.

Rest of the World Regulation

In addition to regulations in the United States and the EU, we are subject to a variety of regulations governing clinical studies and commercial sales and distribution of molecular testing instruments, consumables and digital solutions in other jurisdictions around the world. These laws and regulations typically require the licensing of manufacturing facilities, as well as controlled research, testing and governmental authorization of product candidates. Additionally, they may require adherence to good manufacturing, clinical and laboratory practices.

We must obtain approval from regulatory authorities in all countries where we distribute our products. The requirements governing the conduct of product authorization, pricing and reimbursement vary greatly from country to country. If we fail to comply with applicable regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions, or criminal prosecution.

Reimbursement

United States

In the United States, payments for diagnostic tests come from several sources, including commercial insurers, (which might include health maintenance organizations and preferred provider organizations); government healthcare programs (such as Medicare or Medicaid); and, in many cases, the patients themselves. For many years, federal and state governments in the United States have pursued methods to reduce the cost of healthcare delivery. For example, in 2010, the United States enacted major healthcare reform legislation known as the Patient Protection and Affordable Care Act (ACA). Such changes have had, and are expected to continue to have, an impact on our business.

For example, in August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers up to 2% per fiscal year, and, due to subsequent legislative amendments, will remain in effect through 2030 unless additional Congressional action is taken. Pursuant to the Coronavirus Aid, Relief, and Economic Security Act, also known as the CARES Act, as well as subsequent legislation, these reductions have been suspended from May 1, 2020 through March 31, 2021 due to the COVID-19 pandemic. The suspension was subsequently extended through March 31, 2022, with a reduction of the suspension to 1% sequester through June 30, 2022.

We frequently identify value propositions on our products and communicate them to payors, providers, and patient stakeholders and attempt to positively impact coverage, coding and payment pathways. However, we have no direct control over payor decisions with respect to coverage and payment levels for our products. The manner and level of reimbursement may depend on the site of care, the procedure(s) performed, the final patient diagnosis, the device(s) and/or drug(s) utilized, the available budget, or a combination of these factors, and coverage and payment levels are determined at each payor's discretion. Changes in reimbursement levels or methods may positively or negatively affect sales of our products in any given country for any given product. At QIAGEN, we work with several specialized reimbursement consulting companies and maintain regular contact with payors.

As government programs seek to expand healthcare coverage for their citizens, they have at the same time sought to control costs by limiting the amount of reimbursement they will pay for particular procedures, products or services. Many third-party payors have developed payment and delivery mechanisms to support cost control efforts and to focus on paying for quality. Such mechanisms include payment reductions, pay for performance metrics, quality-based performance payments, restrictive coverage policies, studies to compare effectiveness and patient outcomes, and technology assessments. These changes have increased emphasis on the delivery of more cost-effective and quality-driven healthcare.

Code Assignment: In the United States, a third-party payor's decisions regarding coverage and payment are impacted, in large part, by the specific Current Procedural Terminology (CPT) code used to identify a test. The American Medical Association (AMA) publishes the CPT, which identifies codes, along with descriptions, for reporting medical services and procedures. The purpose of the CPT is to provide a uniform language that accurately describes medical, surgical, and diagnostic services and therefore to ensure reliable nationwide communication among healthcare providers, patients, and third-party payors. CMS uses its own Healthcare Common Procedure Coding System (HCPCS) codes for medical billing and reimbursement purposes. Level I HCPCS codes are comprised of current CPT codes, while Level II HCPCS codes primarily represent non-physician services and Level III HCPCS codes are local codes developed by Medicaid agencies, Medicare contractors and commercial insurers. Proprietary Laboratory Analyses (PLA) Codes are an addition to the CPT® code set approved by the AMA CPT® Editorial Panel. They are alpha-numeric CPT codes with a corresponding descriptor for labs or manufacturers that want to more specifically identify their test.

A manufacturer of in vitro diagnostic kits or a provider of laboratory services may request establishment of a Category I CPT code for a new product or a PLA Code or both. In addition, Z-Code identifiers are unique five-character alphanumeric tracking codes associated with a specific molecular diagnostic test. When a claim is submitted, it includes the associated CPT code and the Z-Code identifier is entered as a device code. Assignment of a specific CPT code ensures routine processing and payment for a diagnostic test by both commercial insurers and government payors.

The AMA has specific procedures for establishing a new CPT code and, if appropriate, for modifying existing nomenclature to incorporate a new test into an existing code. If the AMA concludes that a new code or modification of nomenclature is unnecessary, the AMA will inform the requestor how to use one or more existing codes to report the test.

While the AMA's decision is pending, billing and collection may be sought under an existing, non-specific CPT code. A manufacturer or provider may decide not to request assignment of a CPT code and instead use an existing, non-specific code for reimbursement purposes. However, use of such codes may result in more frequent denials and/or requests for supporting clinical documentation from the third-party payor and in lower reimbursement rates, which may vary based on geographical location.

CMS reimbursement rates for clinical diagnostic tests are defined by CPT and HCPCS codes in the Clinical Laboratory Fee Schedule (CLFS). In 2012, the AMA added 127 new CPT codes for molecular pathology services that became effective on January 1, 2013. These new CPT codes are biomarker specific and were designed to replace the previous methodology of billing for molecular pathology testing, which involved "stacking" a series of non-biomarker specific CPT codes together to describe the testing performed. CMS issued final national reimbursement prices for the new CPT codes in November 2013. These federal reimbursement amounts are widely acknowledged to be lower than the reimbursement obtained by the now outdated "stacking" method, but commercial insurers and Medicare contractors are still in the process of solidifying their coverage and reimbursement policies for the testing described by these new CPT codes.

As of January 1, 2018, in accordance with the Protecting Access to Medicare Act of 2014 (PAMA), applicable laboratories are required to report to CMS commercial insurer payment rates and volumes for their tests. CMS uses the data reported and the HCPCS code associated with the test to calculate a weighted median payment rate for each test, which is used to establish revised Medicare CLFS reimbursement rates for certain clinical diagnostic laboratory tests (CDLTs), subject to certain phase-in limits. For a CDLT that is assigned a new or substantially revised CPT code, the initial payment rate is assigned using the gap-fill methodology.

If the test at issue falls into the category of new advanced diagnostic laboratory test (ADLT) instead of CDLT, the test will be paid based on an actual list charge for an initial period of three quarters, before being shifted to the weighted median commercial insurer rate reported by the laboratory performing the ADLT. Laboratories offering ADLTs are subject to recoupment if the actual list charge exceeds the weighted median private payor rate by a certain amount.

On December 20, 2019, the President signed the Further Consolidated Appropriations Act, which included the Laboratory Access for Beneficiaries Act (LAB Act). The LAB Act delayed until the first quarter of 2021 the reporting of payment data under PAMA for CDLTs that are not ADLTs. The Coronavirus Aid, Relief, and Economic Security Act (CARES Act), which Congress passed in March 2020, again delayed reporting by an additional year, until the first quarter of 2022. The CARES Act also delayed the next PAMA reporting period for CDLTs to January 1, 2022 through March 31, 2022. Then, on December 10, 2021, Congress passed the Protecting Medicare and American Farmers from Sequester Cuts Act, which included a provision that further delays the next PAMA reporting period for CDLTs that are not ADLTs to January 1, 2023 through March 31, 2023. New CLFS rates for CDLTs will thus be established based on that data beginning in 2024, subject to phase-in limits.

CMS's methodology under PAMA (as well as the willingness of commercial insurers to recognize the value of diagnostic testing and pay for that testing accordingly) renders commercial insurer payment levels even more significant. This calculation methodology has resulted in significant reductions in reimbursement, even though CMS imposed caps on those reductions. Given the many uncertainties built into PAMA's price-setting process, it is difficult to predict how payments made by CMS under the CLFS may change from year to year.

Coverage Decisions: When deciding whether to cover a particular diagnostic test, third-party payors generally consider whether the test is a medically necessary and, if so, whether the test will directly impact clinical decision making. For coverage, the testing method should be considered scientifically valid to identify the specific gene biomarker or gene mutation, and must have been demonstrated to improve clinical outcomes for the patient's condition. Coverage of a drug therapy and its companion diagnostic are usually validated by a NCCN category 1, 2A or 2B recommendation. However, most third-party payors do not cover experimental services. Coverage determinations are often influenced by current standards of practice and clinical data, particularly at the local level. CMS has the authority to make coverage determinations on a national basis, but most Medicare coverage decisions are made at the local level by contractors that administer the Medicare program in specified geographic areas. Commercial insurers and government payors have separate processes for making coverage determinations, and commercial insurer may or may not follow Medicare's coverage decisions. If a third-party payor has a coverage determination in place for a particular diagnostic test, billing for that test must comply with the established policy. Otherwise, the third-party payor makes reimbursement decisions on a case-by-case basis.

Payment: Payment for covered diagnostic tests is determined based on various methodologies, including prospective payment systems and fee schedules. In addition, commercial insurers may negotiate contractual rates with participating providers, establish fee schedule rates, or set rates as a percentage of the billed charge. Diagnostic tests furnished to Medicare inpatients generally are included in the bundled payment made to the hospital under Medicare's Inpatient Prospective Payment System, utilizing Diagnosis Related Groups (DRGs) depending on the patient's condition. Payment rates for diagnostic tests furnished to Medicare beneficiaries in outpatient settings are the lesser of the amount billed, the local fee for a geographic area, or a national limit. Each year, the fee schedule is updated for inflation and could be modified by Congress in accordance with the CLFS rules and provisions. Medicaid programs generally pay for diagnostic tests based on a fee schedule, but reimbursement varies by geographic region.

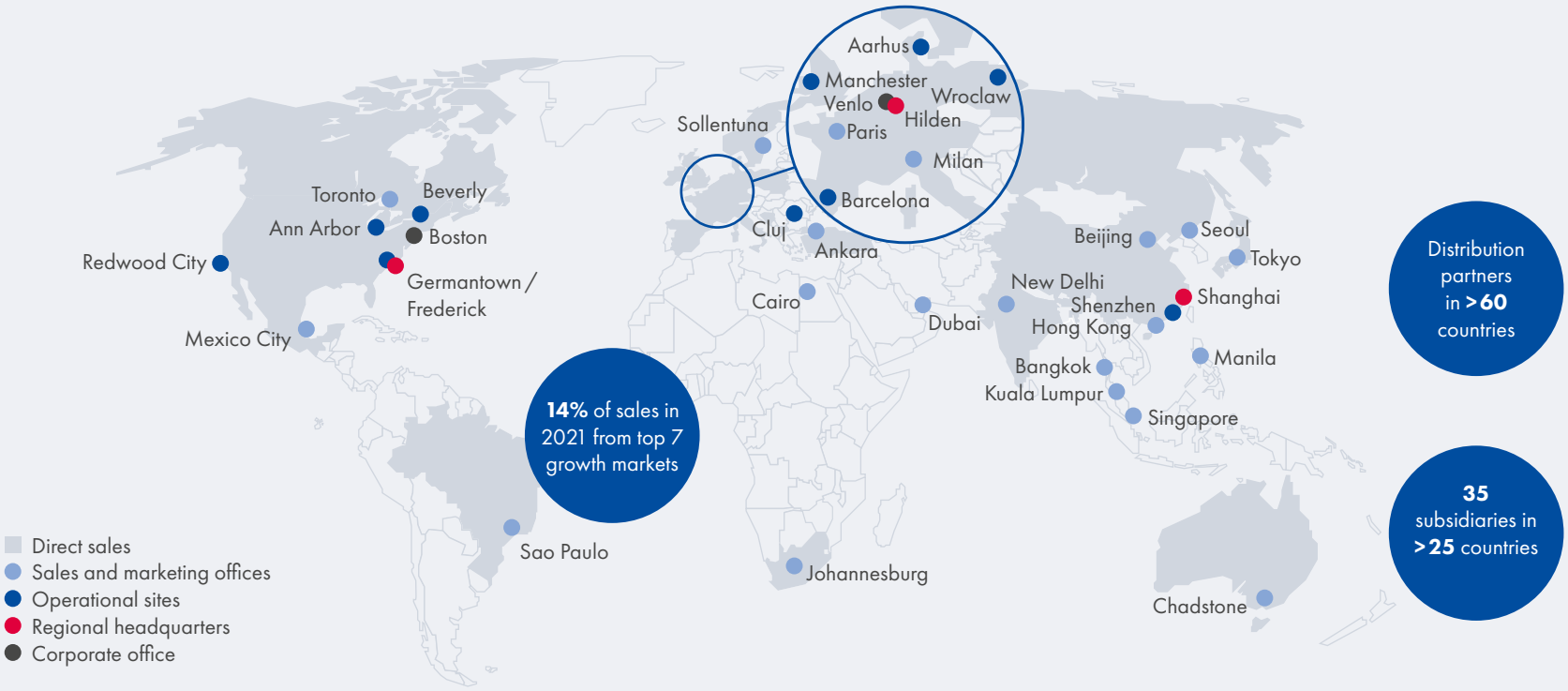
European Union

In the European Union, the reimbursement mechanisms used by private and public health insurers vary by country. For the public systems, reimbursement is determined by guidelines established by the legislator or responsible national authority. As elsewhere, inclusion in reimbursement catalogues focuses on the medical usefulness, need, quality and economic benefits to patients and the healthcare system. Acceptance for reimbursement comes with cost, use, and often volume restrictions, which again can vary by country.

Organizational Structure

QIAGEN N.V. is the holding company for more than 50 consolidated subsidiaries, many of which have the primary function of distributing our products and services on a regional basis. Certain subsidiaries also have research and development or production activities. A listing of our significant subsidiaries and their jurisdictions of incorporation is included in the Financial Results section to this Annual Report.

Our global presence: Focus on the most attractive developed and emerging markets



Description of Property

Our primary production and manufacturing facilities for consumable products are located in Germany, the United States, Spain and China. Our facilities for software development are located in the United States, Germany, Poland, Denmark and Romania. In recent years, we have made investments in automated and interchangeable production equipment to increase our production capacity and improve efficiency. Our production and manufacturing operations are highly integrated and benefit from sophisticated inventory control. Production management personnel are highly qualified, and many have advanced degrees in engineering, business and science. We also have installed and continue to expand production-planning systems that are included in our integrated information and control system based on the SAP R/3 business software package from SAP SE. Worldwide, we use SAP software to integrate most of our operating subsidiaries. Capital expenditures for property, plant and equipment totaled $189.9 million, $132.8 million and $118.0 million for 2021, 2020 and 2019, respectively.

We have an established quality system, including standard manufacturing and documentation procedures, intended to ensure that products are produced and tested in accordance with the FDA's Quality System Regulations, which impose current Good Manufacturing Practice (cGMP) requirements. For facilities that accommodate cGMP production, special areas were built and these facilities operate in accordance with cGMP requirements.

The consumable products manufactured at QIAGEN GmbH in Germany, and QIAGEN Sciences LLC in Maryland, are produced under ISO 9001: 2015, ISO 13485:2016, MDSAP. Our certifications form part of our ongoing commitment to provide our customers with high-quality, state-of-the-art sample and assay technologies under our Total Quality Management system.

Our corporate headquarters are located in leased office space in Venlo, The Netherlands. The below table summarizes our material facilities. Other subsidiaries throughout the world lease smaller amounts of space.

Location	Country	Purpose	Owned or Leased	Square feet
Hilden	Germany	Manufacturing, warehousing, distribution, research and administration	Owned	786,000
Germantown, Maryland	USA	Manufacturing, warehousing, distribution and administration	Owned	285,000
Shenzhen	China	Research, manufacturing, warehousing, distribution, and administration	Leased	102,150
Manchester	UK	Research and Service Solutions	Leased	96,300
Ann Arbor, Michigan	USA	Manufacturing, warehousing, distribution, and administration	Leased	81,000
Wroclaw	Poland	Shared service center	Leased	65,100
Beverly, Massachusetts	USA	Enzyme manufacturing	Leased	44,000
Frederick, Maryland	USA	Manufacturing, warehousing, distribution and research	Leased	42,000
Barcelona	Spain	Research, manufacturing, warehousing, distribution, and administration	Leased	31,900
Manila	Philippines	Shared service center	Leased	29,300
Ann Arbor, Michigan	USA	Service Solutions, warehousing and administration	Leased	28,000
Minden, Nevada	USA	Service Solutions	Leased	19,000
Germantown, Maryland	USA	Service Solutions and training center	Leased	13,500
Redwood City, California	USA	Bioinformatics	Leased	12,700

In 2021 and 2020, we made investments to expand production lines in Germany, Spain and the U.S. to meet both current demand as well as future growth. At each of our owned facilities in Hilden, Germany and Germantown, Maryland, there is room for future expansion of up to 300,000 square feet of facility space.

We believe our existing production and distribution facilities can support anticipated production needs for the next 36 months. Our production and manufacturing operations are subject to various federal, state, and local laws and regulations including environmental regulations. We do not believe we have any material issues relating to these laws and regulations.

Risks Management

Risk Factors

Risk Management:

Our risk management approach embodies the key elements of a sound risk management system including (1) active Supervisory Board and senior management involvement; (2) adequate policies and procedures; (3) adequate risk management, monitoring and information systems; and (4) comprehensive internal controls.

QIAGEN is managed by a Managing Board and an independent Supervisory Board appointed by the General Meeting of Shareholders. One of the Managing Board's responsibilities is the oversight of the risk management system. The Managing Board has developed and implemented strategies, controls and mitigation measures to identify current and developing risks as part of the risk management system. These policies and procedures are embodied in our corporate governance, code of ethics and financial reporting controls and procedures. A variety of functional experts evaluate these business risks, attempting to mitigate and manage these risks on an ongoing basis.

Identified risks are subdivided into three types:

- A base business risk that is specific to us or our industry and threatens our existing business;
- A business growth risk that is specific to us or our industry and threatens our future business growth; and
- An underlying business risk that is not specific to us or our industry, but applies to a larger number of public companies.

All identified risks are evaluated based on their likelihood of occurring and their potential impact (estimated in monetary terms) in disrupting our progress in achieving our business objectives. The overall risk management goal is to identify risks that could significantly threaten our success and to allow management the opportunity to successfully implement mitigation actions on a timely basis. The results of the risk assessment, and any updates, are reported to the Audit Committee of the Supervisory Board on a regular basis. A detailed risk reporting update is provided each quarter to the Audit Committee for specific risks that have been newly identified or have changed since the previous assessment. At least once on an annual basis, the Supervisory Board discusses the corporate strategy and business risks as well as the results of an assessment by the Managing Board and the Audit Committee of the structure and operations of the internal risk management and control systems, including any significant changes.

Our corporate governance structure outlines the responsibilities of our Managing Board and Supervisory Board and the function of the Audit Committee of the Supervisory Board (discussed in more detail in the "Corporate Governance Report" section of this Annual Report). We maintain internal controls to ensure the integrity of financial reporting, which is described further in the "Corporate Governance Report" section of this Annual Report. Additionally, we have a Compliance Committee that consists of senior executives from various functional areas who are responsible for ensuring compliance with legal and regulatory requirements, as well as overseeing the communication of corporate policies, including our Code of Ethics as described further in this Annual Report.

Risk Types
Base Business Risk
• Identification and monitoring of competitive business threats • Monitoring complexity of product portfolio • Monitoring dependence on key customers for single product groups • Reviewing dependence on individual production sites or suppliers • Evaluating purchasing initiatives, price controls and changes to reimbursements • Monitoring production risks, including contamination prevention, high-quality product assurance • Ensuring ability to defend against intellectual property infringements and maintain competitive advantage after expiration
Business Growth Risk
• Managing development and success of key R&D projects • Managing successful integration of acquisitions to achieve anticipated benefits
Underlying Business Risk
• Evaluating financial risks, including global economic risks, and currency rate fluctuations • Evaluating and monitoring international hostilities • Monitoring financial reporting risks, including multi-jurisdiction tax compliance • Reviewing possible asset impairment events • Assessing cyber security, compliance and legal risks, including safety in operations and environmental hazard risks, compliance with various regulatory bodies and pending product approvals • Monitoring risks of FCPA (Foreign Corrupt Practices Act) or antitrust concerns arising from a network of subsidiaries and distributors in foreign countries

The risks described below are listed in the order of our current view of their expected significance. Describing the risk factors in order of significance does not imply that a lower listed risk factor may not have a material adverse impact on our results of operations, liquidity or capital resources.

Risks

Our continued growth is dependent on the development and success of new products.

Rapid technological change and frequent new product introductions are typical in the markets we serve. Our success will depend in part on continuous, timely development and introduction of new products that address evolving market requirements, for example products in response to SARS-CoV-2. We believe successful new product introductions provide a significant competitive advantage because customers make an investment of time in selecting and learning to use a new product and are reluctant to switch after these efforts. To the extent that we fail to introduce new and innovative products, or such products suffer significant delays in development or are not accepted in the market, we may lose market share to our competitors that would be difficult or impossible to regain. An inability to successfully develop and introduce new products, for technological or other reasons, could reduce our growth rate or otherwise have an adverse effect on our business. In the past, we have experienced delays in the development and introduction of products, including regulatory approvals, or decisions to stop development of projects, and we may experience delays or make decisions to stop certain products in the future.

As a result, we cannot assure you that we will keep pace with the rapid rate of change in our markets or that our new products will adequately meet the requirements of the marketplace, achieve market acceptance or regulatory approval, or compete successfully with companies offering similar or new technologies. Some of the factors affecting market acceptance of a new product include:

- availability, quality and price relative to existing competitor products;
- the timing of introduction of the new product relative to competitive products;
- opinions of the new product's utility;
- citation of the new product in published research;
- regulatory trends and approvals; and
- general trends in life sciences research, applied markets and molecular diagnostics.

In the development of new products, we may make significant investments in intellectual property, software solutions and manufacturing capacity. These investments increase our fixed costs, resulting in higher operational costs in the short term that will negatively impact our gross profit and operating income until products potentially reach a minimum level of market acceptance and sales. The expenses or losses associated with unsuccessful product development activities or lack of market acceptance of our new products could materially adversely affect our business, financial condition and results of operations.

Our continued growth depends significantly on the success of new products in the molecular testing markets we serve and our ability to scale manufacturing capacities to meet customer demands. Important product programs include our modular medium-throughput QIAsymphony automation platform, QIAstat-Dx system for one-step, fully integrated molecular analysis of hard-to-diagnose syndromes, the high-throughput NeuMoDx 288 and mid-throughput NeuMoDx 96 fully integrated PCR automation systems, sample and assay technologies designed for use with QIAGEN instruments or with "universal" automation systems and instruments, and bioinformatics solutions to analyze and interpret complex genomic data.

The speed and level of adoption of our new automation platforms will affect sales not only of instrumentation but also of consumables – sample and assay kits – designed to run on the systems. The rollouts of new automation platforms are intended to drive the dissemination and increasing sales of consumables for these systems. We are developing or co-developing new kits for each of these platforms and seeking regulatory approvals for a number of these new products. In turn, the availability and regulatory approval of more tests for processing on QIAsymphony, QIAstat-Dx and NeuMoDx systems, especially molecular assays for specific diseases or companion diagnostics paired with new drugs, will influence the value of the instruments to prospective buyers. Slower adoption of the QIAsymphony, QIAstat-Dx, NeuMoDx and QIAcuity systems could significantly affect sales of consumables products designed to run on these platforms.

An inability to manage our growth, manage the expansion of our operations, or successfully integrate acquired businesses could adversely affect our business.

Our business has grown in recent years, with total net sales increasing to $2.25 billion in 2021 from $1.42 billion in 2017. We have made a series of acquisitions in recent years, including the acquisitions of NeuMoDx Molecular, Inc. in 2020, assets from Formulatrix, Inc. in 2019 for our entry into digital PCR with QIAcuity, and N-of-One in January 2019 to strengthen our position in bioinformatics. We intend to identify and acquire other businesses in the future that support our strategy to build on our global leadership position in Sample to Insight solutions focused on molecular testing. The successful integration of acquired businesses requires a significant effort and expense across all operational areas.

We continue to make investments to expand our existing business operations. These projects increase our fixed costs, resulting in higher operational costs in the short term that will negatively impact our gross profit and operating income until we more fully utilize the additional capacity of these facilities. In addition, we have invested in establishing and expanding shared service centers in Poland and the Philippines, opening new commercial operations in emerging markets to expand our geographic footprint, and implementing digitization of business processes to increase sales growth and realize operational efficiencies. The expansion of our business and the addition of new personnel may place a strain on our management and operational systems. As we continue to upgrade our operating and financial systems, as well as expand the geographic presence of our operations, we intend to continue to assess the need to reallocate existing resources or hire new employees, as well as increase responsibilities for both existing and new management personnel.

Our future operating results will depend on our ability to continue to implement and improve our research, product development, manufacturing, sales and marketing and customer support programs, enhance our operational and financial control systems, expand, train and manage our employee base, integrate acquired businesses, and effectively address new issues related to our growth as they arise. There can be no assurance that we will be able to manage our recent or any future expansion or acquisitions successfully, and any inability to do so could have a material adverse effect on our results of operations.

Our acquisitions expose us to new risks, and we may not achieve the anticipated benefits of acquisitions of technologies and businesses.

During the past several years, we have acquired and integrated a number of companies through which we have gained access to new technologies, products and businesses that complement our internally developed product lines. In the future, we expect to acquire additional technologies, products or businesses to expand our operations. Acquisitions potentially expose us to new operating and financial risks, including risks associated with the:

- assimilation of new products, technologies, operations, sites and personnel;
- integration and retention of fundamental personnel and technical expertise;
- application for and achievement of regulatory approvals or other clearances;
- diversion of resources from our existing products, business and technologies;
- generation of sales;
- implementation and maintenance of uniform standards and effective controls and procedures;
- exposure to cyber security risks or compromise of acquired entities;
- maintenance of relationships with employees, customers and suppliers, and integration of new management personnel;
- issuance of initially dilutive equity securities;
- incurrence or assumption of debt and contingent liabilities;
- amortization or impairment of acquired intangible assets or potential businesses; and
- exposure to liabilities of and claims against acquired entities or personnel, including patent litigation.

Our failure to address the above risks successfully in the future may prevent us from achieving the anticipated benefits from any acquisition in a reasonable time frame, or at all.

Global economic conditions could adversely affect our business, results of operations and financial condition.

Our results of operations could be materially affected by adverse general conditions in the global economy and financial markets. We may experience an adverse impact on our results of operations due to the current geopolitical tensions caused by the Russian invasion of Ukraine. The governments of the European Union, the United States, Japan and other jurisdictions have recently announced the imposition of sanctions on certain industry sectors and parties in Russia and the regions of Donetsk and Luhansk, as well as enhanced export controls on certain products and industries. These and any additional sanctions and export controls, as well as any counter responses by the governments of Russia or other jurisdictions, could adversely affect, directly or indirectly, the levels of government spending or the global supply chain, with negative implications on the availability and prices of raw materials, energy prices, and our customers, as well as the global financial markets.

Further, the global economy recovery from the COVID-19 pandemic will depend on many factors, including the recovery of the supply chain. In the near term we anticipate continued exposures on the supply chain and we have inventory agreements with the majority of our suppliers and we closely monitor stock levels to maintain adequate supplies. In 2021, we have been able to secure a stable supply of chemicals, bioreagents, plastics and packaging materials with only moderate price adjustments. However

in electronics, we have seen shortages that needed to be mitigated with long term contacts and high volume agreements, which at times included price increases. These increases are considered in the pricing of our products. We strive to maintain inventories at a sufficient level to ensure reasonable customer service levels, to guard against normal volatility in availability and we continue to work to circumvent shortages and keep pricing competitive. However, there also is a risk of loss of revenue, penalties due to delayed deliveries and currency losses, or other unforeseen costs which would negatively impact margins.

During challenging economic times, access to financing in the global financial markets has also been adversely affected for many businesses. The central banks in the U.S., the UK and the Euro Zone have started to signal a revision of the very accommodating monetary policies. Combined with the high degree of uncertainty in the global financial markets and the economic conditions generally and as a result of the war in Ukraine, this may impact our future performance. Our customers may face internal financing pressures that adversely impact spending decisions or the ability to purchase our products, or that lead to a delay in collection of receivables and thus negatively impact our cash flow. A severe or prolonged economic downturn could result in a variety of risks to our business that would adversely impact our results of operations, including the reduction or delay in planned improvements to healthcare systems in various countries, the reduction of funding for life sciences research, and intensified efforts by governments and healthcare payors regarding cost-containment efforts.

Our results of operations could also be negatively impacted by any governmental action or inaction resulting in automatic government spending cuts (sequestration) that may take effect, particularly in terms of federal government funding in the United States. These conditions may add uncertainty to the timing and budget for investment decisions by our customers, particularly researchers, universities, government laboratories and private foundations whose funding is dependent upon grants from government agencies, such as the U.S. National Institutes of Health (NIH) and similar bodies.

As is the case for many businesses, we face the following risks in regard to financial markets:

- severely limited access to financing over an extended period of time, which may affect our ability to fund our growth strategy and could result in delays to capital expenditures, acquisitions or research and development projects;
- failures of currently solvent financial institutions, which may cause losses from our short-term cash investments or our hedging transactions due to a counterparty's inability to fulfill its payment obligations;
- inability to refinance existing debt at competitive rates, reasonable terms or sufficient amounts; and
- increased volatility or adverse movements in foreign currency exchange rates.

Our global operations may be affected by actions of governments, global or regional economic or public health developments, weather or transportation delays, epidemics or pandemics, natural disasters or other force majeure events (collectively, unforeseen events) which may negatively impact our suppliers, our customers or us.

Our business involves operations around the world. Our primary consumable manufacturing facilities are located in Germany, the U.S., Spain and China. We have established sales subsidiaries in numerous countries and our products are sold through independent distributors serving more than 40 additional countries. Our global footprint exposes us to unforeseen events, such as the December 2019 outbreak of the novel coronavirus (COVID-19) and the resulting global pandemic, or other natural events which may be associated with climate change. Our facilities may be harmed by unforeseen events, and in the event that we or our customers are affected by a disaster, we may experience delays or reductions in sales or production, increased costs, or we may be required to identify alternate suppliers and/or rely on third-party manufacturers.

To the extent that our suppliers are impacted by a natural disaster or other disruption, we may experience periods of reduced production. Any unexpected interruptions in our production capabilities may lead to delayed or lost sales and may adversely affect our results of operations for the affected period.

In addition, to the extent we temporarily shut down any facility following such an unforeseen event, we may experience disruptions in our ability to manufacture or ship products to customers or otherwise operate our business. Many of our products are manufactured in a single location and we may experience adverse effects to the extent these manufacturing operations are disrupted. While our global operations give us the ability to ship product from alternative sites, we may not be able to do so because our customers' facilities are shut down or the local logistics infrastructure is not functioning, and our sales will suffer.

Damage to our property due to unforeseen events and the disruption of our business may be covered by insurance, but this insurance may not be sufficient to cover all of our potential losses, and such insurance may not continue to be available to us on acceptable terms, or at all. In addition, we may incur incremental costs following an unforeseen event, which will reduce profits and adversely affect our results of operations.

Terrorist attacks and international hostilities and instability in any region could adversely affect our business.

Terrorist attacks, the outbreak of war, or the existence of international hostilities could damage the world economy, adversely affect the global supply chain and adversely affect both our ability to sell our products to certain regions or purchase supplies from such regions. In particular, the warfare, political turmoil or terrorist attacks in Ukraine could adversely impact our financial condition, result of operations and cash flows. In February 2022, Russian troops invaded Ukraine. Although the severity and duration of the ongoing military action are highly unpredictable, the conflict in Ukraine could materially disrupt our operations in Europe and/or increase their costs. In addition, Russia's prior annexation of Crimea, recent recognition of two separatist republics in the Donetsk and Luhansk regions of Ukraine and subsequent military interventions in Ukraine have led to sanctions being levied by the European Union, the United States and other countries against Russia, with additional potential sanctions threatened and/or proposed. Russia's military incursion and the resulting sanctions could adversely affect the global economy and financial markets and thus could affect our business, operations, operating results and financial condition as well as, potentially, the price of our common shares. The extent and duration of the military action, sanctions and resulting market disruptions are impossible to predict, but could be substantial. Any such disruptions caused by Russian military action or resulting sanctions may magnify the impact of other risks described in this Annual Report.

We depend on suppliers for materials used to manufacture our products, and if shipments from these suppliers are delayed or interrupted, we may be unable to manufacture our products.

We buy materials to create our products from a number of suppliers and are not dependent on any one supplier or group of suppliers for our business as a whole. However, key components of certain products, including certain instrumentation and chemicals, are available only from a single source. If supplies from these vendors are delayed or interrupted for any reason, we may not be able to obtain these materials in a timely manner or in sufficient quantity or quality to produce certain products, and this could have an adverse impact on our results of operations.

The ongoing COVID-19 pandemic has resulted in increased global supply chain constraints and disruption to the operations of certain of our suppliers, and we cannot predict the duration or severity of current supply chain issues, including increased freight costs. Supply chain constraints have required, and may continue to require, in certain instances, alternative delivery arrangements and increased costs and could have a material adverse effect on our business and operations.

We rely heavily on air cargo carriers and other overnight logistics services, and shipping delays or interruptions could harm our business.

Our customers in the scientific research markets typically keep only a modest inventory of our products on hand, and consequently require overnight delivery of purchases. As a result, we rely heavily on air cargo carriers and logistic suppliers. If overnight services are suspended or delayed, and other delivery carriers and logistic suppliers cannot provide satisfactory services, customers may suspend a significant amount of their work. The lack of adequate delivery alternatives would have a serious adverse impact on our results of operations.

Changes in tax laws or their application or the termination or reduction of certain government tax incentives, could adversely impact our overall effective tax rate, results of operations or financial flexibility.

Our effective tax rate reflects the benefit of some income being partially exempt from income taxes due to various intercompany operating and financing activities. The benefit also derives from our global operations, where income or loss in some jurisdictions is taxed at rates higher or lower than the Netherlands' statutory rate of 25%. Changes in tax laws or their application with respect to matters such as changes in tax rates, transfer pricing and income allocation, utilization of tax loss carryforwards, intercompany dividends, controlled corporations, and limitations on the deductibility of interest and foreign related-party expenses, and changes to tax credit mechanisms, could increase our effective tax rate and adversely affect our results of operations and limit our ability to repurchase our common shares, par value EUR 0.01 per share (Common Shares) without experiencing adverse tax consequences. The increased tax burden as a result of changes in law may adversely affect our results of operations. Additionally, if our tax positions are challenged by tax authorities or other governmental bodies, such as the European Commission, we could incur additional tax liabilities, which could have an adverse effect on our results of operations, financial flexibility or cash flow.

We rely on secure communication and information systems and are subject to privacy and data security laws which, in the event of a disruption, breach, violation or failure, could adversely affect our business.

We rely heavily on communications and information systems to conduct our business. In the ordinary course of business, we collect and store sensitive data, including our own intellectual property and other proprietary business information and that of our customers, suppliers and business partners, as well as personally identifiable information of our customers and employees, in our data centers and on our networks or in the cloud. Our operations rely on the secure processing, storage and transmission of confidential and other information on both our own and cloud-based computer systems and networks. We have made significant investments to ensure our employees are aware of cyber security risks facing our company and how to prevent data breaches. We have modernized our cyber security tools, and are continually updating our cyber security processes, in an attempt to keep pace with evolving cyber security risks. In spite of our efforts, we are unable to completely eliminate these risks and occasionally experience minor cyber security incidents. External phishing emails (occurring outside of our computer services) are a growing threat our customers are facing. These emails could lead to the disclosing of intellectual property or personally identifiable information, which could lead to financial harm or reputational damage. While our cyber security team works diligently with our employees around the world, as well as with our customers, to mitigate these threats by helping to identify and analyze phishing emails, we cannot guarantee that sensitive data will not be lost or stolen.

A breach in cyber security due to unauthorized access to our computer systems or misuse could include the misappropriation of assets or sensitive information, the corruption of data or other operational disruption. Failures in our computer systems and networks could be caused by internal or external events, such as incursions by intruders or hackers, computer viruses, failures in hardware or software, or cyber terrorists. Furthermore, there is an increased risk of cyber security attacks by state actors due to the current conflict between Russia and Ukraine. Recently, Russian ransomware gangs have threatened to increase hacking activity against critical infrastructure of any nation or organization that retaliates against Moscow for its invasion of Ukraine. Any such increase in such attacks on our third-party providers or other systems could adversely affect our network systems or other operations. If we do experience a breach or failure of our systems, we could experience potentially significant operational delays resulting from the disruption of systems, loss due to theft or misappropriation of assets or data, or negative impacts from the loss of confidential data or intellectual property. We may face significant liability in the event personal information we maintain is lost or otherwise subject to misuse or other wrongful use, access or disclosure. Further, we could experience negative publicity resulting in reputation or brand damage with customers or partners.

Additionally, we are subject to privacy and data security laws across multiple jurisdictions, including those relating to the storage of health information, which are complex, overlapping and rapidly evolving. In the U.S., individual states regulate requirements and have authority over privacy and personal data protection. For example, the California Consumer Privacy Act of 2018 (the CCPA), which took effect on January 1, 2020, imposes expansive new requirements and protections upon the processing of

personal data, aimed at giving California consumers more visibility into and control over their personal information. Virginia and Colorado also enacted comprehensive data privacy laws similar to the CCPA, both of which will be effective in 2023. In addition, laws in all 50 U.S. states require businesses to provide notice to consumers whose personal information has been disclosed as a result of a data breach. State laws are changing rapidly and there is discussion in the U.S. Congress of a new comprehensive federal data privacy law to which we would become subject if it is enacted. There are also European privacy laws, such as the General Data Protection Regulation (GDPR) of the European Union, that impose restrictions on the transfer, access, use and disclosure of health and other personal information. We have implemented the requirements set forth by the GDPR, which took effect on May 25, 2018. As our activities continue to evolve and expand, we may be subject to additional laws that impose further restrictions on the transfer, access, use and disclosure of health and other personal information, which may impact our business either directly or indirectly. A failure to comply with applicable privacy or security laws or significant changes in these laws could subject us to costly regulatory action or lawsuits and could adversely impact our reputation, business and future business plans.

We may encounter delays in receipt, or limits in the amount, of reimbursement approvals and public health funding, which may negatively impact our ability to grow revenues in the healthcare market or our profitability.

Changes in the market availability or reimbursement of our diagnostic testing products by insurance providers and health maintenance organizations could also have a significant adverse impact on our results of operations. Third-party payors are often reluctant to reimburse healthcare providers for the use of medical tests that involve new technologies or provide novel diagnostic information. In addition, third-party payors are increasingly limiting reimbursement coverage for medical diagnostic products and, in many instances, are exerting pressure on suppliers to reduce their prices. Since each third-party payor often makes reimbursement decisions on an individual patient basis, obtaining such approvals is a time-consuming and costly process that requires us to provide scientific and clinical data supporting the clinical benefits of each of our products. As a result, there can be no assurance that reimbursement approvals will be obtained, and the process can delay the broad market introduction of new products. If third-party reimbursement is not consistent or financially adequate to cover the cost of our products, this could limit our ability to sell our products or cause us to reduce prices, which would adversely affect our results of operations.

Further, the ability of many of our customers to successfully market their products depends in part on the extent to which reimbursement for the costs of these products is available from governmental health administrations, private health insurers and other organizations. Governmental and other third-party payors are increasingly seeking to contain healthcare costs and to reduce the price of medical products and services. With evolving political realities in the United States, certain sections of the Patient Protection and Affordable Care Act of 2010 (ACA) have not been fully implemented and the direction of healthcare policy is unpredictable. Uncertainty around the future of the ACA, and in particular the impact to reimbursement levels, may lead to uncertainty or delay in the purchasing decisions of our customers, which may in turn negatively impact our product sales. In accordance with the Protecting Access to Medicare Act of 2014 (PAMA), the Centers for Medicare & Medicaid Services calculate Medicare reimbursement rates for certain clinical diagnostic tests using weighted median private payor rates, which are based on rate information reported by applicable laboratories. This new rate methodology means the lower reimbursement rates previously experienced in the field of molecular pathology testing now extend to additional diagnostic testing codes on the Clinical Laboratory Fee Schedule (CLFS). If there are not adequate reimbursement levels, our business and results of operations could be adversely affected.

Reduction in research and development budgets and government funding may result in reduced sales.

Our customers include researchers at pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. Fluctuations in the research and development budgets of these organizations could have a significant adverse effect on demand for our products. Research and development budgets are affected by changes in available resources, the mergers of pharmaceutical and biotechnology companies, changes in spending priorities and institutional budgetary policies. Our results of operations could be adversely affected by any significant decrease in expenditures for life sciences research and development by pharmaceutical

and biotechnology companies, academic institutions, and government and private laboratories. In addition, short-term changes in administrative, regulatory or purchasing-related procedures can create uncertainties or other impediments that can have an adverse impact on our results of operations.

In recent years, the pharmaceutical and biotechnology industries have undergone substantial restructuring and consolidation. Additional mergers or consolidation within the pharmaceutical and biotechnology industries could cause us to lose existing customers and potential future customers, which could have a material adverse impact on our results of operations.

We sell our products to universities, government laboratories and private foundations, whose funding is dependent on grants from government agencies, such as the NIH (National Institutes of Health) in the United States. Although the level of research funding has been increasing in recent years, we cannot ensure that this trend will continue given federal and state budget constraints. Government funding of research and development is subject to the political process, which is inherently unpredictable. Future sales may be adversely affected if our customers delay purchases as a result of uncertainties regarding the approval of government budget proposals. Also, government proposals to reduce or eliminate budgetary deficits have sometimes included reduced allocations to the NIH and government agencies in other countries that fund life sciences research and development activities. A reduction in government funding for the NIH or government research agencies in other countries could have a serious adverse impact on our results of operations.

Competition could reduce our sales.

The markets for most of our products are very competitive. Competitors may have significant advantages in financial, operational, sales and marketing resources as well as experience in research and development. These competitors may have developed, or could develop in the future, new technologies that compete with our products or even render our products obsolete. Some competitors may obtain regulatory approval from the U.S. Food and Drug Administration (FDA) or similar non-U.S. authorities. Our competitors' development of alternative products offering superior technology, greater cost-effectiveness and/or receiving regulatory approval could have a material adverse effect on our sales and results of operations.

The growth of our business depends in part on the continued conversion of users from competitive products to our sample and assay technologies and other solutions. Lack of conversion could have a material adverse effect on our sales and results of operations.

It can be difficult for users of our products to switch from their current supplier of a particular product, primarily due to the time and expense required to properly integrate new products into their operations. As a result, if we are unable to be the first to develop and supply new products, our competitive position may suffer, resulting in a material adverse effect on our sales and results of operations.

For our commercial clinical assays, we often compete with solutions developed by our laboratory customers, and driving conversion from such laboratory-developed tests (LDTs) to commercial diagnostics assays can be challenging.

The time and expense needed to obtain regulatory approval and respond to changes in regulatory requirements could adversely affect our ability to commercially distribute our products and generate sales.

We and our customers operate in a highly regulated environment characterized by frequent changes in the governing regulatory framework. Genetic research activities and products commonly referred to as "genetically engineered" (such as certain food and therapeutic products) are subject to extensive governmental regulation in most developed countries, especially in the major markets for pharmaceutical and diagnostic products such as the European Union, the U.S., China and Japan. In recent years,

several highly publicized scientific events (notably in genomic research, gene editing and cloning) have prompted intense public debate on the ethical, philosophical and religious implications of an unlimited expansion in genetic research and the use of products emerging from this research. As a result of this debate, some key countries may increase or establish regulatory barriers, which could adversely affect demand for our products and prevent us from fulfilling our growth expectations. Furthermore, there can be no assurance that any future changes in applicable regulations will not require further expenditures or an alteration, suspension or liquidation of our operations in certain areas, or even in their entirety.

Changes in the existing regulations or adoption of new requirements or policies could adversely affect our ability to sell our approved or cleared products, or to seek approvals for new products in other countries around the world. Sales of certain products now in development may be dependent upon us successfully conducting preclinical studies, clinical trials and other tasks required to gain regulatory approvals and meet other requirements from the FDA in the U.S. and regulatory agencies in other countries. If we are not able to meet the applicable requirements, we will not be able to commercialize our products and tests, which will have a material adverse effect on our business.

Several of our key products and programs are medical devices that are subject to extensive regulation by the FDA under the U.S. Food, Drug and Cosmetic Act. We plan to apply for FDA clearance or approval of additional products in the future. Regulatory agencies in other countries also have medical device and in vitro diagnostic medical devices (IVD) approval requirements that are becoming more extensive. These regulations govern most commercial activities associated with medical devices, including indications for the use of these products as well as other aspects that include product development, testing, manufacturing, labeling, storage, record-keeping, advertising and promotion. Compliance with these regulations is expensive and time-consuming.

Our cleared or approved devices, including diagnostic tests and related equipment, are subject to numerous post-approval requirements. We are subject to inspection and marketing surveillance by the FDA to determine our compliance with regulatory requirements. If the FDA determines that we have failed to comply, it can institute a wide variety of enforcement actions, ranging from warning letters to more severe sanctions such as fines, injunctions and civil penalties, recalls or seizures of our products, operating restrictions, partial suspension or total shutdown of production, denial of our requests for 510(k) clearance or pre-market approval of product candidates, withdrawal of 510(k) clearance or pre-market approval already granted and civil or criminal prosecution. Any enforcement action by the FDA may affect our ability to commercially distribute these products in the U.S.

Some of our products are sold for research purposes in the U.S. We do not promote these products for clinical diagnostic use, and they are labeled "For Research Use Only" (RUO) or "For Molecular Biology Applications." If the FDA were to disagree with our designation of a product as having RUO status, we could be forced to stop selling it until appropriate regulatory clearance or approval has been obtained.

We are subject to risks associated with patent litigation.

The biotechnology industry has been characterized by extensive litigation regarding patents and other intellectual property rights, particularly since industry competitors gravitate around common technology platforms. We are aware that patents have been applied for and/or issued to third parties claiming technologies for sample and assay technologies that are closely related to those we use. From time to time, we receive inquiries requesting confirmation that we do not infringe patents of third parties. We endeavor to follow developments in this field, and we do not believe that our technologies or products infringe any proprietary rights of third parties. However, there can be no assurance that third parties will not challenge our activities or, if so challenged, that we will prevail. In addition, the patent and proprietary rights of others could require that we alter our products or processes, pay licensing fees or cease certain activities, and there can be no assurance that we will be able to license any technologies that we may require on acceptable terms. In addition, litigation, including proceedings that may be declared by the U.S. Patent and Trademark Office or the International Trade Commission, may be necessary to respond to any assertions of infringement, enforce our patent rights and/or determine the scope and validity of our proprietary rights or those of third parties. Litigation, or threatened litigation, could involve substantial cost, and there can be no assurance that we would prevail in any proceedings.

We rely on collaborative commercial relationships to develop and/or market some of our products.

Our long-term business strategy involves entering into strategic alliances as well as marketing and distribution arrangements with academic, corporate and other partners relating to the development, commercialization, marketing and distribution of certain of our existing and potential products. We may be unable to continue to negotiate these collaborative arrangements on acceptable terms, and these relationships also may not be scientifically or commercially successful. In addition, we may be unable to maintain these relationships, and our collaborative partners may pursue or develop competing products or technologies, either on their own or in collaboration with others.

Our Precision Medicine business includes projects with pharmaceutical and biotechnology companies to co-develop companion diagnostics paired with drugs that those companies either market currently or are developing for future use. The success of these co-development programs, including regulatory approvals for the companion diagnostics, depends upon the continued commitment of our partners to the development of their drugs, the outcome of clinical trials for the drugs and diagnostics, and regulatory approvals of the tests and drugs. In addition, the future level of sales for companion diagnostics depends to a high degree on the commercial success of the related medicines for which the tests have been designed. More companion diagnostics would be sold in combination with a widely prescribed drug than one with limited use.

The successful marketing of QIAGEN products, in some cases, depends on commercial relationships such as joint ventures or distributorships, particularly in emerging markets where we partner with local companies to augment our less-established commercial relationships and infrastructure. The continued commitment of our partners to these ventures, as well as the management of the commercial efforts, could influence QIAGEN's sales and profitability in these markets.

We have made investments in and are expanding our business into growth markets, which exposes us to risks.

Our top seven growth markets are Brazil, China, India, South Korea, Mexico, Russia and Turkey, which together accounted in 2021 for approximately 14% of total sales. We expect to continue to focus on expanding our business in these or other fast-growing markets, including those in the Middle East and Asia. In addition to the currency and operating risks described above, our international operations are subject to a variety of risks arising from the economy, political outlook, language and cultural barriers in countries where we have operations or do business. In many of these emerging markets, we may face several risks that are more significant than in other countries in which we have a history of doing business. These risks include economies that may be dependent on only a few products and are therefore subject to significant fluctuations, weak legal systems that may affect our ability to enforce contractual rights, exchange controls, unstable governments, and privatization or other government actions affecting the flow of goods and currency. In the case of Russia, which represented less than 1.0% of consolidated net sales in 2021, our expansion could be limited due to the economic fallout of the recent and ongoing Russian invasion of Ukraine, which has led to widespread economic sanctions on Russia and the devaluation of the Russian ruble. In conducting our business, we move products from one country to another and may provide services in one country from a subsidiary located in another country. Accordingly, we are vulnerable to abrupt changes in customs and tax regimes that could have significant negative impacts on our results of operations.

Sales practices may change and this may limit our pricing flexibility and harm our business.

Some of our customers have developed purchasing initiatives to reduce the number of vendors from which they purchase products in order to lower their supply costs. In some cases, these customers have established agreements with large distributors, which include discounts and direct involvement in the distributor's purchasing process. These activities may force us to supply large distributors with our products at discounts in order to continue providing products to some customers. For similar reasons, many larger customers, including the U.S. government, have requested, and may request in the future, special pricing arrangements, which can include blanket purchase agreements. These agreements may limit our pricing flexibility, which could harm our business and affect our results of operations. For a limited number of customers, and at the customers' request, we have conducted sales transactions through distribution and other value-added partners. If sales grow through these intermediaries, this could adversely impact our results of operations, in particular our gross profit.

Exchange rate fluctuations may adversely affect our business and operating results.

Given that we currently market our products throughout the world, a significant portion of our business is conducted in currencies other than the U.S. dollar, our reporting currency. As a result, fluctuations in value relative to the U.S. dollar of the currencies in which we conduct our business have caused and will continue to cause foreign currency transaction gains and losses. Foreign currency transaction gains and losses arising from normal business operations are charged against earnings in the period when incurred. Due to the number of currencies involved, the variability of currency exposures and the potential volatility of currency exchange rates, we cannot predict the effects of future exchange rate fluctuations. While we may engage in foreign exchange hedging transactions to manage our foreign currency exposure, there can be no assurance that our hedging strategy will adequately protect our operating results from the effects of future exchange rate fluctuations.

Our success depends on the continued employment of qualified personnel, any of whom we may lose at any time.

Although we have not experienced any difficulties attracting or retaining management and scientific staff, our ability to recruit and retain qualified, skilled employees will continue to be critical to our success. Given the intense competition for experienced scientists and managers among pharmaceutical and biotechnology companies, as well as academic and other research institutions, there can be no assurance that we will be able to attract and retain employees critical to our success on acceptable terms. Initiatives to expand QIAGEN will also require additional employees, including management with expertise in areas such as research and development, manufacturing, digitization, sales and marketing, and the development of existing managers to lead a growing organization. The failure to recruit and retain qualified employees, or develop existing employees, could have a material adverse impact on our results of operations.

Our ability to accurately forecast our results during each quarter may be negatively impacted by the fact that a substantial percentage of our sales may be recorded in the final weeks or days of the quarter.

In the markets we serve, a high percentage of purchase orders are typically received in the final few weeks or days of each quarter. Although this varies from quarter to quarter, many customers make a large portion of their purchase decisions late in each quarter, in particular because they receive new information during this period on their budgets and requirements. Additionally, volatility in the timing of revenue from companion diagnostic partnerships can be difficult to predict. As a result, even late in each quarter, we cannot predict with certainty whether our sales forecasts for the quarter will be achieved.

Historically, we have been able to rely on the overall pattern of customer purchase orders during prior periods to project with reasonable accuracy our anticipated sales for the current or coming quarters. However, if customer purchasing trends during a quarter vary from historical patterns, as may occur with changes in market and economic conditions, our quarterly financial results could deviate significantly from our projections. As a result, our sales forecasts for any given quarter may prove not to be accurate. We also may not have sufficient, timely information to confirm or revise our sales projections for a specific quarter. If we fail to achieve our forecasted sales for a particular quarter, the value of our Common Shares could be significantly affected.

We have a significant amount of debt that may adversely affect our financial condition and flexibility.

We have a significant amount of debt, debt service obligations and restrictive covenants imposed by our lenders. A high level of indebtedness increases the risk that we may default on our debt obligations, and restrictive covenants may prevent us from borrowing additional funds. There is no assurance that we will be able to generate sufficient cash flow to pay the interest on our debt and comply with our debt covenants, or that future working capital, borrowings or equity financing will be available to repay or refinance our debt. If we are unable to generate sufficient cash flow to pay the interest on our debt and comply with our debt covenants, we may have to delay or curtail our research and development programs. The level of our indebtedness could, among other things:

- make it difficult for us to make required payments on our debt;
- make it difficult in the future for us to obtain financing necessary for working capital, capital expenditures, debt service requirements or other purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; and
- make us more vulnerable in the event of a downturn in our business.

The London Interbank Offered Rate (LIBOR) has historically been widely used as a reference for setting the interest rate on loans globally. LIBOR is the subject of recent national, international and other regulatory guidance and proposals for reform or discontinuation. In particular, on July 27, 2017, the Chief Executive of the U.K. Financial Conduct Authority, which regulates LIBOR, announced that it will no longer persuade or compel banks to submit rates for the calculation of LIBOR after 2021. Subsequently, the ICE Benchmark Administration announced its plan to extend the date most U.S. dollar LIBOR values would cease being computed to June 30, 2023. Following the end of 2021, LIBOR ceased being a widely used benchmark interest rate. Presently, we do hold debt and derivative instruments that use LIBOR. While we expect to settle these instruments in October 2022 and certain agreements do contain language for the determination of interest rates in the event the LIBOR rate is not available, if changes to these agreements are required, we could be negatively impacted by any newly determined alternative benchmark.

Our business may require substantial additional capital, which we may not be able to obtain on terms acceptable to us, if at all.

Our future capital requirements and level of expenses will depend on numerous factors, including the costs associated with:

- marketing, sales and customer support efforts;
- research and development activities;
- expansion of our facilities;
- consummation of possible future acquisitions of technologies, products or businesses;
- demand for our products and services;
- repayment or refinancing of debt; and
- payments in connection with our hedging activities and/or taxes.

We currently anticipate that our short-term capital requirements will be satisfied by cash flow from our operations and/or cash on hand. As of December 31, 2021, we had outstanding long-term debt of $1.9 billion, of which $847.6 million was current. We may need to refinance these liabilities.

If at some point in time our existing resources should be insufficient to fund our activities, we may need to raise funds through public or private debt or equity financings. The funds for the refinancing of existing liabilities or for the ongoing funding of our business may not be available or, if available, not on terms acceptable to us. If adequate funds are not available, we may be required to reduce or delay expenditures for research and development, production, marketing, capital expenditures and/or acquisitions, which could have a material adverse effect on our business and results of operations. To the extent that additional capital is raised through the sale of equity or convertible securities, the issuance of any securities could result in dilution to our shareholders.

The accounting for the cash convertible notes we have issued will result in recognition of interest expense significantly greater than the stated interest rate of the notes and may result in volatility to our Consolidated Statements of Income (Loss).

We will settle any conversions of the Cash Convertible Notes described under the heading "Other Factors Affecting Liquidity and Capital Resources" elsewhere in this Annual Report, entirely in cash. Accordingly, the conversion option that is part of the Cash Convertible Notes will be accounted for as a derivative pursuant to accounting standards relating to derivative instruments and hedging activities. Refer to Note 14 "Derivatives and Hedging" and Note 16 "Debt", of the Notes to Consolidated Financial Statements. In general, this resulted in an initial valuation of the conversion option separate from the debt component of the Cash Convertible Notes, resulting in an original issue discount. The original issue discount will be accreted to interest expense over the term of the Cash Convertible Notes, which will result in an effective interest rate reported in our financial statements significantly in excess of the stated coupon rates of the Cash Convertible Notes. This accounting treatment will reduce our earnings. For each financial statement period after the issuance of the Cash Convertible Notes, a gain (or loss) will be reported in our financial statements to the extent the valuation of the conversion option changes from the previous period. The Call Options issued in connection with the Cash Convertible Notes will also be accounted for as derivative instruments, substantially offsetting the gain (or loss) associated with changes to the valuation of the conversion option. This may result in increased volatility to our results of operations.

The cash convertible note hedge and warrant transactions we entered into in connection with the issuance of our Cash Convertible Notes may not provide the benefits we anticipate, and may have a dilutive effect on our common stock.

Concurrently with the issuance of the Cash Convertible Notes, we entered into Call Options and issued Warrants. We entered into the Call Options with the expectation that they would offset potential cash payments by us in excess of the principal amount of the Cash Convertible Notes upon conversion of the Cash Convertible Notes. In the event that the hedge counterparties fail to deliver potential cash payments to us, as required under the Call Options, we would not receive the benefit of such transaction. Separately, we also issued Warrants. The Warrants could separately have a dilutive effect to the extent that the market price per share of our common stock, as measured under the terms of the Warrants, exceeds the strike price of the Warrants.

An impairment of goodwill and intangible assets could reduce our earnings.

At December 31, 2021, our consolidated balance sheet reflected $2.4 billion of goodwill and $627.4 million of intangible assets. Goodwill is recorded when the purchase price of a business exceeds the fair value of the tangible and separately measurable intangible net assets. U.S. generally accepted accounting principles (U.S. GAAP) require us to test goodwill for impairment on an annual basis or when events or circumstances occur indicating that goodwill might be impaired. Long-lived assets, such as intangible assets with finite useful lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. The impairment review often cannot be done at the level of the individual asset and it must instead be applied to a group of assets. For the purpose of our annual goodwill impairment testing based on the current circumstances of how we manage our business, this group of assets is the Company as a whole. If we determine that any of our goodwill or intangible assets were impaired, we will be required to take an immediate charge to earnings and our results of operations could be adversely affected.

Our strategic equity investments may result in losses.

We have made, and may continue to make, strategic investments in businesses as opportunities arise. We periodically review the carrying value of these investments for impairment, considering factors that include the most recent stock transactions, book values from the most recent financial statements, and forecasts and expectations of the investee. The results of these valuations may fluctuate due to market conditions and other conditions over which we have no control.

Estimating the fair value of non-marketable equity investments in life science companies is inherently subjective. If actual events differ from our assumptions and unfavorable fluctuations in the valuations of the investments are indicated, we could be required to write down the investment. This could result in future charges on our earnings that could materially adversely affect our results of operations. It is uncertain whether or not we will realize any long-term benefits from these strategic investments.

Doing business internationally creates certain risks.

Our business involves operations in several countries outside of the U.S. Our consumable manufacturing facilities are located in Germany, China, Spain and the U.S. We source raw materials and subcomponents to manufacture our products from different countries. We have established sales subsidiaries in many countries. In addition, our products are sold through independent distributors serving more than 40 other countries. Conducting and launching operations on an international scale requires close coordination of activities across multiple jurisdictions and time zones and consumes significant management resources. We have invested heavily in computerized information systems in order to manage more efficiently the widely dispersed components of our operations. If we fail to coordinate and manage these activities effectively, our business and results of operations will be adversely affected.

Our operations are subject to other risks inherent in international business activities, such as the general economic and public health conditions in the countries in which we operate, trade restrictions and changes in tariffs, longer accounts receivable payment cycles in certain countries, overlap of different tax structures, unexpected changes in regulatory requirements, and compliance with a variety of foreign laws and regulations. Other risks associated with international operations include import and export licensing requirements, exchange controls and changes in freight rates, as may occur as a result of rising energy costs. Further, any misuse or other wrongful use of our products could expose us to negative publicity resulting in reputation or brand damage with customers or partners. As a result of these conditions, an inability to successfully manage our international operations could have a material adverse impact on our business and results of operations.

Unethical behavior and non-compliance with laws by our sales representatives, other employees, consultants, commercial partners or distributors or employees could seriously harm our business.

Our business in countries with a history of corruption and transactions with foreign governments increases the risks associated with our international activities. Based on our international operations, we are subject to the U.S. Foreign Corrupt Practices Act (FCPA), the U.K. Bribery Act and other laws that prohibit improper payments or offers of payments to foreign governments and their officials and political parties by business entities for the purpose of obtaining or retaining business. We have operations, agreements with third parties and sales in countries known to experience corruption. Further international expansion may involve increased exposure to such practices. Our activities in these countries and others create risks of unauthorized payments or offers of payments, non-compliance with laws, or other unethical behavior by any of our employees, consultants, sales agents or distributors, that could be in violation of various laws, including the FCPA, even though these parties are not always subject to our control. Our policy is to implement safeguards to discourage these or other unethical practices by our employees and distributors including online and in-person employee trainings, periodic internal audits and standard reviews of our distributors. However, our existing safeguards and any future improvements may not prove to be effective, and our employees, consultants, sales agents or distributors may engage in conduct for which we might be held responsible. Violations of the FCPA and other laws may result in criminal or civil sanctions, which could be severe, and we may be subject to other liabilities, which could negatively affect our business, results of operations and financial condition.

Real or perceived defects in or misuse of our products could adversely affect our results of operations, growth prospects and reputation.

We currently market our products in 130 countries. Due to the size and breadth of our operations, we may not always be able to track the use of our products by the end users. If our products are misused or are perceived to be misused, this could adversely affect our reputation and our customers' willingness to buy from us, and adversely affect market acceptance or perception of our products.

Many of our customers, especially those in law enforcement and government who use our products for forensic testing, human identification, food testing or other purposes, use our products in applications that are of public interest or critical to their businesses or missions and may thus have a lower risk tolerance to defects in our products than

to defects in other, less critical, products. A defect in or misuse of any of our products by our law enforcement customers could lead to interference with the administration of justice, for example by corrupting forensic evidence. Any defects or misuse, real or perceived, cause us to lose sales opportunities, increase our service costs, incur replacement costs, lose customers or subject us to liability for damages and divert our resources from other tasks, any one of which could materially and adversely affect our business, results of operations and financial condition. In addition, our products could be perceived as ineffective for reasons outside of our control.

Additionally, if any of our customers, government or otherwise, use or are perceived to use our products in a manner that is unethical, unlawful or inconsistent with our values, this may damage our reputation and results of operations. We strive to ensure that our products are used only in ethical and lawful ways, but we cannot provide any assurance that we will not be subject to claims from third parties alleging that our products were misused. Any allegations of misuse by our customers or third parties may damage our reputation, even if we took no part in the misuse or take immediate action to sever ties with such customers.

We believe that our brand and reputation are critical to driving our business. Building our brand will depend largely on our ability to continue to provide top-tier service, including high quality products at appropriate price points, which we may not do successfully. Negative reviews or publicity about our products or business, especially on media outlets, could harm our reputation and diminish our ability to make additional sales, which would adversely affect our business, financial condition, and results of operations.

We depend on patents and proprietary rights that may fail to protect our business.

Our success depends to a large extent on our ability to develop proprietary products and technologies and to establish and protect our patent and trademark rights in these products and technologies. As of December 31, 2021, we owned 338 issued patents in the United States, 273 issued patents in Germany and 1,832 issued patents in other major industrialized countries. In addition, as of December 31, 2021, we had 425 pending patent applications, and we intend to file applications for additional patents as our products and technologies are developed. The patent positions of technology-based companies involve complex legal and factual questions and may be uncertain, and the laws governing the scope of patent coverage and the periods of enforceability of patent protection are subject to change. In addition, patent applications in the United States are maintained in secrecy until patents issue, and publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months. Therefore, no assurance can be given that patents will issue from any patent applications that we own or license, or if patents do issue, that the claims allowed will be sufficiently broad to protect our technology. In addition, no assurance can be given that any issued patents that we own or license will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide us competitive advantages. Further, as issued patents expire, we may lose some competitive advantage as others develop competing products and as a result, we may lose revenue.

Some of our products incorporate patents and technologies that are licensed from third parties and for certain products, these in-licensed patents together with other patents provide us with a competitive advantage. These licenses impose various commercialization, sublicensing and other obligations on us. Our failure to comply with these requirements could result in the conversion of the applicable license from being exclusive to non-exclusive or, in some cases, termination of the license, and as a result, we may lose some competitive advantage and experience a loss of revenue.

We also rely on trade secrets and proprietary know-how, which we seek to protect through confidentiality agreements with our employees and consultants. There can be no assurance that any confidentiality agreements that we have with our employees, consultants, outside scientific collaborators and sponsored researchers and other advisors will provide meaningful protection for our trade secrets or adequate remedies in the event of unauthorized use or disclosure of such information. There also can be no assurance that our trade secrets will not otherwise become known or be independently developed by competitors.

We currently engage in, and may continue to engage in, collaborations with academic researchers and institutions. There can be no assurance that under the terms of such collaborations, third parties will not acquire rights in certain inventions developed during the course of these collaborations.

Our business exposes us to potential product liability.

The marketing and sale of our products and services for certain applications entail a potential risk of product liability. Although we are not currently subject to any material product liability claims, product liability claims may be brought against us in the future. Further, there can be no assurance that our products will not be included in unethical, illegal or inappropriate research or applications, which may in turn put us at risk of litigation. We carry product liability insurance coverage, which is limited in scope and amount. There can be no assurance that we will be able to maintain this insurance at a reasonable cost and on reasonable terms, or that this insurance will be adequate to protect us against any or all potential claims or losses.

We are subject to various laws and regulations generally applicable to businesses in the different jurisdictions in which we operate, including laws and regulations applicable to the handling and disposal of hazardous substances. The risk of accidental contamination or injury from these materials cannot be completely eliminated. In the event of such an accident, we could be held liable for any damages that result, and any such liability could have a material adverse impact on us.

Our operating results may vary significantly from period to period and this may affect the market price of our Common Shares.

Our operating results may vary significantly from quarter to quarter, and also year to year, since they are dependent upon a broad range of factors that include demand for our products, the level and timing of customer research budgets and commercialization efforts, the timing of government funding budgets of our customers, the timing of our research and development activities and related regulatory approvals, the impact of sales and marketing expenses, restructuring activities, introduction of new products by us or our competitors, competitive market conditions, exchange rate fluctuations and general economic conditions. Our expense levels are based in part on our expectations as to future sales trends. As a result, sales and earnings may vary significantly from quarter to quarter or from year to year, and actual sales and earnings results in any one period will not necessarily be indicative of results to be anticipated in subsequent periods. Our results may also fail to meet or exceed the expectations of securities analysts or investors, which could cause a decline in the market price of our Common Shares.

Our holding company structure makes us dependent on the operations of our subsidiaries.

QIAGEN N.V. is incorporated under Dutch law as a public limited liability company (naamloze vennootschap), and is organized as a holding company. Currently, the material assets are the outstanding shares of the QIAGEN subsidiaries, intercompany receivables and other financial assets such as cash, short-term investments and derivative instruments. As a result, QIAGEN N.V. is dependent upon payments, dividends and distributions from the subsidiaries for funds to pay operating and other expenses as well as to pay future cash dividends or distributions, if any, to holders of our Common Shares. Dividends or distributions by subsidiaries in a currency other than the U.S. dollar may result in a loss upon a subsequent conversion into U.S. dollars.

Our Common Shares may have a volatile public trading price.

The market price of our Common Shares since our initial public offering in September 1996 has increased significantly and been highly volatile. Since January 10, 2018, our shares have been listed on the New York Stock Exchange (NYSE). Before that, our shares were listed on the NASDAQ through January 9, 2018. In the last two years, the price of our Common Shares has ranged from a high of $59.00 to a low of $32.97. On the Frankfurt Stock Exchange our Common Shares have ranged from a high of €51.56 to a low of €29.55 during the last two years. In addition to overall stock market fluctuations, factors that may have a significant impact on the price of our Common Shares include:

- announcements of technological innovations or the introduction of new products by us or our competitors;
- developments in our relationships with collaborative partners;
- quarterly variations in our operating results or those of our peer companies;
- changes in government regulations, tax laws or patent laws;
- developments in patent or other intellectual property rights;
- developments in government spending budgets for life sciences-related research;
- general market conditions relating to the diagnostics, applied testing, pharmaceutical and biotechnology industries; and
- impact from foreign exchange rates.

The stock market has from time to time experienced extreme price and trading volume fluctuations that have particularly affected the market for technology-based companies. These fluctuations have not necessarily been related to the operating performance of these companies. These broad market fluctuations may adversely affect the market price of our Common Shares.

Holders of our Common Shares should not expect to receive dividend income.

QIAGEN has not paid an annual dividend since its inception, and does not intend to implement one at this time. At the same time, in January 2017 we completed a synthetic share repurchase that combined a direct capital repayment with a reverse stock split. Although we do not anticipate paying any cash dividends on a regular basis, the distribution of any cash dividends through another synthetic share repurchase in a currency other than the U.S. dollar will be subject to the risk of foreign currency transaction losses. Investors should not invest in our Common Shares if they are seeking dividend income; the only return that may be realized through investing in our Common Shares would be through an appreciation in the share price.

Holders of our Common Shares may not benefit from future stock repurchase programs.

QIAGEN has conducted share repurchase programs in the past through open-market transactions. The purpose of our share repurchases has been to hold the shares in treasury in order to satisfy obligations from exchangeable debt instruments, warrants and/or employee share-based remuneration plans, and thus to reduce dilution to existing holders of our Common Shares. In 2019, we began net share withholding on the vesting of stock-based awards and as a result, fewer shares are issued than the number of awards outstanding. We may decide not to continue such programs in the future, our covenants with lenders may limit our ability to use available cash to do so, or the market price of our Common Shares may make such repurchases less desirable. In any of these cases, holders of our Common Shares may suffer dilution from conversion of our indebtedness or issuance of shares pursuant to employee remuneration plans that would otherwise be at least partially offset by repurchased shares.

Future sales and issuances of our Common Shares could adversely affect our stock price.

Any future sale or issuance of a substantial number of our Common Shares in the public market, or any perception that a sale may occur, could adversely affect the market price of our Common Shares. Under Dutch law, a company can issue shares up to its authorized share capital provided for in its Articles of Association. Pursuant to our Articles of Association, our authorized share capital amounts to EUR 9.0 million, which is divided into 410.0 million common shares, 40.0 million financing preference shares and 450.0 million preference shares, with all shares having a EUR 0.01 par value. As of December 31, 2021, a total of approximately 227.1 million Common Shares were outstanding along with approximately 4.0 million additional shares reserved for issuance upon exercise or release of outstanding stock options and awards, of which 18.0 thousand were vested. A total of approximately 12.9 million Common Shares are reserved and available for issuances under our stock plans as of December 31, 2021, including the shares subject to outstanding stock options and awards. The majority of our outstanding Common Shares may be sold without restriction, except shares held by

our affiliates, which are subject to certain limitations on resale. Additionally, convertible debt issued in 2020 and Warrants issued in connection with the Cash Convertible Notes cover an aggregate of 26.8 million underlying shares of common stock or up to a maximum of 42.5 million shares, subject to customary adjustments under certain circumstances.

Shareholders who are United States residents could be subject to unfavorable tax treatment.

We may be classified as a "passive foreign investment company," or a PFIC, for U.S. federal income tax purposes if certain tests are met. Our treatment as a PFIC could result in a reduction in the after-tax return to holders of Common Shares and would likely cause a reduction in the value of these shares. If we were determined to be a PFIC for U.S. federal income tax purposes, highly complex rules would apply to our U.S. shareholders. We would be considered a PFIC with respect to a U.S. shareholder if for any taxable year in which the U.S. shareholder held the Common Shares, either (i) 75% or more of our gross income for the taxable year is passive income; or (ii) the average value of our assets (during the taxable year) which produce or are held for the production of passive income is at least 50% of the average value of all assets for such year. Based on our income, assets and activities, we do not believe that we were a PFIC for U.S. federal income tax purposes for our taxable year ended December 31, 2021, and do not expect to be a PFIC for the current taxable year or any future taxable year. No assurances can be made, however, that the Internal Revenue Service will not challenge this position or that we will not subsequently become a PFIC.

Provisions of our Articles of Association and Dutch law and an option we have granted may make it difficult to replace or remove management and may inhibit or delay a takeover.

Our Articles of Association (Articles) provide that our shareholders may only suspend or dismiss our Managing Directors and Supervisory Directors against their wishes with a vote of two-thirds of the votes cast if such votes represent more than 50% of our issued share capital. If the proposal was made by the joint meeting of the Supervisory Board and the Managing Board, a simple majority is sufficient. The Articles also provide that if the members of our Supervisory Board and our Managing Board have been nominated by the joint meeting of the Supervisory Board and Managing Board, shareholders may only overrule this nomination with a vote of two-thirds of the votes cast if such votes represent more than 50% of our issued share capital.

Certain other provisions of our Articles allow us, under certain circumstances, to prevent a third party from obtaining a majority of the voting control of our Common Shares through the issuance of Preference Shares. Pursuant to our Articles and the resolution adopted by our General Meeting of Shareholders, our Supervisory Board is entitled to issue Preference Shares in case of an intended takeover of our company by (i) any person who alone or with one or more other persons, directly or indirectly, have acquired or given notice of an intent to acquire (beneficial) ownership of an equity stake which in aggregate equals 20% or more of our share capital then outstanding or (ii) an "adverse person" as determined by the Supervisory Board. If the Supervisory Board opposes an intended takeover and authorizes the issuance of Preference Shares, the bidder may withdraw its bid or enter into negotiations with the Managing Board and/or Supervisory Board and agree on a higher bid price for our Shares.

In 2004, we granted an option to the Stichting Preferente Aandelen QIAGEN, or the Foundation (*Stichting*), subject to the conditions described in the paragraph above, which allows the Foundation to acquire Preference Shares from us. The option enables the Foundation to acquire such number of Preference Shares as equals the number of our outstanding Common Shares at the time of the relevant exercise of the option, less one Preference Share. When exercising the option and exercising its voting rights on these Preference Shares, the Foundation must act in our interest and the interests of our stakeholders. The purpose of the Foundation option is to prevent or delay a change of control that would not be in the best interests of our stakeholders. An important restriction on the Foundation's ability to prevent or delay a change of control is that a public offer must be announced by a third party before it can issue (preference or other) protective shares that would enable the Foundation to exercise rights to 30% or more of the voting rights without an obligation to make a mandatory offer for all shares held by the remaining shareholders. In addition, the holding period for these shares by the Foundation is restricted to two years, and this protective stake must fall below the 30% voting rights threshold before the two-year period ends.

Critical Accounting Policies, Judgments and Estimates

The preparation of our financial statements in accordance with accounting principles generally accepted in the United States requires management to make assumptions that affect the reported amounts of assets, liabilities and disclosure of contingencies as of the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Critical accounting policies are those that require the most complex or subjective judgments often as a result of the need to make estimates about the effects of matters that are inherently uncertain. Thus, to the extent that actual events differ from management's estimates and assumptions, there could be a material impact to the financial statements. In applying our critical accounting policies, at times we used accounting estimates that either required us to make assumptions about matters that were highly uncertain at the time the estimate was made or it is reasonably likely that changes in the accounting estimate may occur from period to period that would have a material impact on the presentation of our results of operations, financial position or cash flows. Our critical accounting policies are those related to revenue recognition, income taxes, investments, goodwill and other intangible assets, acquisitions and fair value measurements. We reviewed the development, selection, and disclosure of our critical accounting policies and estimates with the Audit Committee of our Supervisory Board.

Revenue Recognition

We recognize revenue when control of promised goods or services is transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. Identifying performance obligations in a contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation requires management's judgments and estimates. Sales arrangements which require a measure of progress toward completion by measuring actual hours incurred to date as a proportion of the total budgeted hours of the project also involves management's judgments and estimates. While the majority of our sales agreements contain standard terms and conditions, we do enter into agreements that contain multiple products or services or non-standard terms and conditions. Sometimes it is difficult to determine whether there is more than one performance obligation under a sales agreement and if so, how and when revenue should be recognized is subject to certain estimates or assumptions. Should our judgments and estimates not be correct, revenue recognized for any reporting period could be adversely affected.

Income Taxes

Calculation of our tax provision is complex due to our international operations and the multiple taxing jurisdictions in which we operate. Some of our deferred tax assets relate to net operating losses (NOL). The utilization of NOLs is not assured and is dependent on generating sufficient taxable income in the future. Although management believes it is more likely than not that we will generate sufficient taxable income to utilize substantially all NOL carryforwards, evaluating the NOLs related to our newer subsidiaries requires us to make estimates that we believe are reasonable, but may also be highly uncertain given that we do not have direct experience with these subsidiaries or their products. Thus, the estimates may be subject to significant changes from period to period as we gain that experience. To the extent that our estimates of future taxable income are insufficient to utilize all available NOLs, a valuation allowance will be recorded in the provision for income taxes in the period the determination is made, and the deferred tax assets will be reduced by this amount, which could be material. In the event that actual circumstances differ from management's estimates, or to the extent that these estimates are adjusted in the future, any changes to the valuation allowance could materially impact our financial position and results of operations.

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in many jurisdictions across our global operations. ASC 740 states that a tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes on the basis of technical merits. We record unrecognized tax positions in accordance with ASC 740 and adjust these liabilities when our judgment changes as a result of the evaluation of new information not previously available. Because of the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from our current estimate of the unrecognized tax liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which the new information is available.

Investments

Generally accepted accounting principles require different methods of accounting for an investment depending on the level of influence that we exert. Assessing the level of influence involves subjective judgments. If management's assumptions with respect to its level of influence differ in future periods and we therefore have to account for these investments under a method other than the cost method, it could have a material impact to our financial statements.

We have equity investments accounted for under the measurement alternative as these equity securities do not have readily determinable fair values and are not accounted for under the equity method. This measurement alternative requires these investments to be measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. At each reporting date, we review each investment for impairment, considering factors such as book values from the most recent financial statements, and forecasts and expectations of the investee, and also for any observable price changes from stock transactions of the issuer. If an impairment is determined to have occurred, estimation of the fair value of these non-marketable equity investments is inherently subjective. Therefore, in the case of an impairment or an observable price change occurs, it could require a write-down or write-up of the investment that could materially impact our financial position and results of operations.

Additionally, we have made strategic investments in certain companies as more fully described in Note 10 "Investments" to the Consolidated Financial Statements, some of which are variable interest entities. FASB ASC Topic 810 requires a company to consolidate a variable interest entity in which it holds a variable interest if it is designated as the primary beneficiary of that entity even if the company does not have a majority of voting interests. A variable interest entity is generally defined as an entity with insufficient equity to finance its activities or where the owners of the entity lack the risk and rewards of ownership. Assessing the requirements of ASC Topic 810 involves subjective judgments. If management's assumptions with respect to the criteria differ in future periods, and we therefore have to account for these investments under a different method, it could have a material impact on our financial statements.

Amortized Intangible Assets

We assess amortized intangible assets at least annually, as of October 1st of each year, for indications of impairment. Intangibles are assessed for recoverability considering the contract life, where applicable, and the period of time over which the intangible will contribute to future cash flow. The unamortized cost of intangible assets, where cash flows are independent and identifiable from other assets, is evaluated periodically and adjusted, if necessary, if events and circumstances indicate that a decline in value below the carrying amount has occurred. Due to the numerous variables associated with our judgments and assumptions and the effects of changes in circumstances affecting the valuation, both the precision and reliability of the resulting estimates are subject to uncertainty. As additional information becomes known, we may change our estimates.

Acquisitions

We frequently enter into business combinations and must determine whether an acquired entity is considered to be a business or an asset or group of assets under ASU 2017-01, *Business Combinations: Clarifying the Definition of a Business*. A portion of the purchase price can only be allocated to goodwill in a business combination. Transaction costs are expensed in a business combination yet capitalized in an asset acquisition. Contingent payments and in-process research and development costs are also handled differently. A set of assets is not a business if substantially all of the fair value of the acquired gross assets is concentrated in a single asset or group of similar identifiable assets. In determining whether an acquired entity is considered to be a business or a set of assets, application of the "substantially all" threshold requires judgment.

The purchase price allocation for acquisitions of a business requires extensive use of accounting estimates and judgments to allocate the purchase price to the identifiable tangible and intangible assets acquired, including in-process research and development, and liabilities assumed based on their respective fair values. An acquisition may include contingent consideration as part of the purchase price. Contingent consideration is accounted for at fair value at the acquisition date with subsequent changes to the fair value being recognized in earnings.

We have made several acquisitions of businesses in recent years. The purchase prices for the acquisitions were allocated to tangible and intangible assets acquired and liabilities assumed based on their estimated fair values at the acquisition dates. In most acquisitions, we engage an independent third-party valuation firm to assist us in determining the estimated fair values of acquired in-process research and development and identifiable intangible assets. Such a valuation requires significant estimates and assumptions, including but not limited to determining the timing and estimated costs to complete the in-process projects, projecting regulatory approvals, estimating projected revenue and related growth rates, estimating future cash flows, estimating customer attrition rates and developing appropriate discount rates. We believe the estimated fair values of contingent consideration and assets acquired and liabilities assumed are based on reasonable assumptions. However, the fair value estimates for the purchase price allocations may change during the allowable allocation period, which is up to one year from the acquisition dates, if additional information becomes available.

Fair Value Measurements

We have categorized our assets and liabilities that are measured at fair value, based on the priority of the inputs to the valuation techniques, in a three-level fair value hierarchy: Level 1 - using quoted prices in active markets for identical assets or liabilities; Level 2 - using observable inputs other than quoted prices; and Level 3 – using unobservable inputs. We primarily apply the market approach for recurring fair value measurements, maximize our use of observable inputs and minimize our use of unobservable inputs. We utilize the mid-point price between bid and ask prices for valuing the majority of our assets and liabilities measured and reported at fair value. In addition to using market data, we make assumptions in valuing assets and liabilities, including assumptions about risk and the risks inherent in the inputs to the valuation technique.

Certain of our derivative instruments, which are classified in Level 2 of the fair value hierarchy, are valued using industry-standard models that consider various inputs, including time value, volatility factors, and current market and contractual prices for the underlying instruments, as well as other relevant economic measures. Substantially all of these inputs are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable prices at which transactions are executed in the marketplace.

Certain of our acquisitions involve contingent consideration, the payment of which is contingent on the occurrence of future events. Contingent consideration is classified in Level 3 of the fair value hierarchy and is initially recognized at fair value as a cost of the acquisition. After the acquisition, the contingent consideration liability is remeasured each reporting period. The fair value of contingent consideration is measured predominantly on unobservable inputs such as assumptions about the likelihood of achieving specified milestone criteria, projections of future financial performance, assumed discount rates and assumed weightings applied to potential scenarios in deriving a probability weighted fair value. Significant judgment is used in developing these estimates and assumptions both at the acquisition date and in subsequent periods. If actual events differ from management's estimates, or to the extent these estimates are adjusted in the future, our financial condition or results of operations could be affected in the period of any change.

Additionally, our Level 3 instruments include non-marketable equity security investments. Under the measurement alternative, the carrying value is measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments of the same issuer. Adjustments are determined primarily based on a market approach as of the transaction date.

For other fair value measurements, we generally use an income approach to measure fair value when there is not a market observable price for an identical or similar asset or liability. This approach utilizes management’s best assumptions regarding expectations of projected cash flows, and discounts the expected cash flows using a commensurate risk-adjusted discount rate.

The above listing is not intended to be a comprehensive list of all our accounting policies. In many cases, the accounting treatment of a particular transaction is specifically dictated by generally accepted accounting principles in the United States, with limited or no need for management's judgment. There are also areas in which management's judgment in selecting available alternatives may or may not produce a materially different result. See our audited consolidated financial statements and notes thereto in the Financial Results section of this Annual Report, containing a description of accounting policies and other disclosures required by generally accepted accounting principles in the United States.

Recent Authoritative Pronouncements

For information on recent accounting pronouncements impacting our business see Note 2 "Effects of New Accounting Pronouncements" of the Notes to Consolidated Financial Statements included in the Financial Results section of this Annual Report.

Performance Review

Our future operating results may be affected by various risk factors, many of which are beyond our control.

Certain statements included in this Annual Report and the documents incorporated herein by reference may be forward-looking statements within the meaning of Section 27A of the U.S. Securities Act of 1933, as amended, and Section 21E of the U.S. Securities Exchange Act of 1934, as amended, including statements regarding potential future net sales, gross profit, net income and liquidity. These statements can be identified by the use of forward-looking terminology such as "believe," "hope," "plan," "intend," "seek," "may," "will," "could," "should," "would," "expect," "anticipate," "estimate," "continue" or other similar words. Reference is made in particular to the description of our plans and objectives for future operations, assumptions underlying such plans and objectives, and other forward-looking statements. Such statements are based on management's current expectations and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. We caution investors that there can be no assurance that actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements as a result of various factors. Factors which could cause such results to differ materially from those described in the forward-looking statements include those set forth in the risk factors below. As a result, our future success involves a high degree of risk. When considering forward-looking statements, you should keep in mind that the risk factors could cause our actual results to differ significantly from those contained in any forward-looking statement.

Operating Results

Delivering on our promises: 2021 accomplishments

Empowered teams achieved our goals
- FY 2021: +19% CER sales growth, Adj EPS $2.63 CER, free cash flow $449 million
- Set ambitious but realistic targets: Met or beat our non-COVID sales expectations for 10 consecutive quarters

Focused on five pillars of growth
- ~65% of R&D investments into five pillars of growth
- Launched >10 assays and 3 new instruments

Increased transparency and candor
- Established new revenue reporting in product groups
- De-risked outlook by removing COVID-19 volatility

Advanced our ESG initiatives
- Set commitment to be carbon neutral by 2050
- Ensured effective governance with two new Supervisory Board members

Sample technologies
- QIApre&Amp for high-throughput COVID testing
- EZ2 Connect instruments

QuantiFERON
- QFT SARS-CoV-2 T cell test (CE-IVD)
- QIAreach QFT-TB (CE-IVD)
- QFT-Lyme test on DiaSorin (CE-IVD)
- QFT-TB Gold Plus on DiaSorin XS (FDA)

QIAstat-Dx
- Respiratory 4-plex assay (RSV, Influenza A/B, COVID-19)
- QIAstat-Dx Meningitis panel (CE-IVD registration)
- QIAstat-Dx Gastrointestinal panel (FDA submission)

NeuMoDx
- Respiratory 4-plex assay (RSV, Influenza A/B, COVID-19)
- Human adenovirus (CE-IVD)
- CMV (Cytomegalovirus) (CE-IVD)

QIAcuity digital PCR
- Wastewater testing solution for COVID-19 surveillance

Overview

In 2021 QIAGEN exceeded two billion dollars in total net sales for the first time in the company's history due to strong performance of our non-COVID product portfolio and our continued support of the global response to the pandemic through testing solutions for COVID-19. Strong sales in 2021 supported profitability and cash flow while we continued to make investments to strengthen our portfolio, in particular the five pillars of growth which consist of sample technologies, the digital PCR (Polymerase Chain Reaction) platform QIAcuity, the clinical PCR automation solutions QIAstat-Dx and NeuMoDx and the QuantiFERON technology platform used to detect diseases such as latent tuberculosis. We are moving ahead with large manufacturing upscaling projects and investing in research and development for menu expansion of our key platforms. These investments are designed to enable us to transition our installed base of instruments and systems into new applications while supporting the global response to COVID-19 testing.

Financial highlights of 2021 include:

- Net sales grew 20% in 2021 driven by growth of 24% in our non-COVID product portfolio demonstrating that we have a robust portfolio anchored by our five pillars of growth to drive strong business expansion beyond the pandemic. Net sales of our COVID-19 products grew 14% as we continue to support the global response to the COVID-19 pandemic. 2021 results include NeuMoDx Molecular Inc. (NeuMoDx) which we acquired in September 2020. For additional information on this acquisition see Note 5 "Acquisitions."
- Operating income margin rose to 28.0% in 2021 from 20.7% in 2020 primarily due to lower restructuring, acquisition, integration and other expenses. Additionally, we realized efficiencies in sales and marketing as well as general and administrative expenses which more than offset the investments made to our portfolio that resulted in a reduction in gross margin and higher research and development as a percentage of sales during 2021.
- Net income rose at a slower pace than operating income due primarily to lower gains in other income, net in 2021 compared to 2020 related to the Invitae shares received and sold in connection with the sale of ArcherDX. In addition to the impacts from the change in net income, diluted EPS was also impacted by a lower number of weighted-average common shares outstanding used in calculating diluted EPS in 2021 compared to the prior year.
- Net cash provided by operating activities reflected the strong growth in net sales in 2021. Purchases of property, plant and equipment rose compared to 2020 primarily due to investments made to expand consumables production capacity for key growth products at sites in Europe and the United States.

Year Ended December 31, 2021, Compared to 2020

Net Sales

(in millions)	2021		2020		
Product type	Net sales	% of net sales	Net sales	% of net sales	% change
Consumables and related revenues	$1,986.3	88%	$1,615.4	86%	+23%
Instruments	265.3	12%	254.9	14%	+4%
Net Sales	**$2,251.7**		**$1,870.3**		**+20%**
Customer class					
Molecular Diagnostics	$1,143.7	51%	$904.0	48%	+27%
Life Sciences	1,108.0	49%	966.4	52%	+15%
Net Sales	**$2,251.7**		**$1,870.3**		**+20%**
Non-COVID and COVID-19 products					
Non-COVID products	$1,547.2	69%	$1,252.4	67%	+24%
COVID-19 products	704.4	31%	617.9	33%	+14%
Net Sales	**$2,251.7**		**$1,870.3**		**+20%**

Consumables and related revenues showed ongoing solid trends for both non-COVID and COVID-19 related products in 2021 and grew 23% compared to 2020. Net sales of instruments grew 4% in 2021 and represented 12% of total net sales. During 2020, instruments reflected 14% of total net sales as we experienced an increase in our installed base of instruments due to the ability of these to be used in COVID-19 testing. In 2021, sales of non-COVID products grew 24% supported by improved demand trends among both Molecular Diagnostics and Life Sciences customers compared to 2020. Demand for COVID-19 test products continued through 2021 in response to the pandemic, including the rise in testing related to the Omicron variant which was identified in November 2021. Net sales were positively impacted by one percentage point from favorable currency movements against the U.S. dollar.

(in millions)	2021		2020		
Product group	Net sales	% of net sales	Net sales	% of net sales	% change
Sample technologies	$850.6	38%	$803.9	43%	+6%
Diagnostic solutions	638.8	28%	460.8	25%	+39%
PCR / Nucleic acid amplification	434.0	19%	363.6	19%	+19%
Genomics / NGS	245.1	11%	165.6	9%	+48%
Other	83.2	4%	76.6	4%	+9%
Net Sales	**$2,251.7**		**$1,870.3**		**+20%**

Sample technologies include both COVID-19 and non-COVID products involved in the first step in any molecular lab process. In 2021, non-COVID product group sales rose 14%, representing 64% of net sales for this product group on higher demand for DNA sample prep due in part to a favorable research funding environment. Sales of sample technologies for COVID-19 testing declined overall primarily due to lower sales of manual sample prep kits and instruments, while sales of automated sample prep kits, namely QIAprep&amp, were higher driven by demands for high-volume testing.

Diagnostic solutions include molecular testing platforms and products as well as Precision Medicine and companion diagnostic co-development revenues. This product group experienced growth due to improved trends in clinical testing demand in 2021. Key product drivers were the QuantiFERON latent TB test with 48% growth and 2021 sales of $281.4 million together with sales of the QIAstat-Dx syndromic testing system which grew 39% to $75 million. In the first full year following the September 2020 acquisition, NeuMoDx sales totaled $105 million in 2021, supported by demand for COVID-19 testing. Revenues from companion diagnostic co-development projects grew 25% in 2021 on the resumption of pharma research and development projects while sales of Precision Medicine companion diagnostic consumables rose 9%.

PCR / Nucleic acid amplification involves research and applied PCR solutions and components and includes the QIAcuity digital PCR platform launched in September 2020. This product group experienced strong demand for OEM solutions and enzymes used in third-party diagnostic kits while COVID-related sales for both consumables and instruments declined after strong demand in 2020.

Genomics / NGS includes universal NGS solutions as well as the full QIAGEN Digital Insights portfolio. Growth in this product group reflects an increased demand against weaker sales trends in 2020 due to the adverse pandemic impact on customers. As activity levels continued to rise in research and clinical applications in 2021, sales for universal consumables used in NGS in both the Life Sciences and Molecular Diagnostic applications, as well as bioinformatics revenues from QIAGEN Digital Insights, were key drivers of 2021 sales growth.

Geographic region (in millions)	**2021**	2020	% change
Americas	$1,007.4	$825.5	+22%
Europe, Middle East and Africa	814.4	682.3	+19%
Asia Pacific, Japan and Rest of World	429.9	362.6	+19%
Net Sales	**$2,251.7**	**$1,870.3**	**+20%**

Top 7 growth markets: Brazil, Russia, India, China, South Korea, Mexico and Turkey (2021: $309 million, 2020: $287 million, +8%)

The Americas led the geographic regions with 22% sales growth in 2021 due to a strong performance in the U.S. which experienced 25% growth including gains in non-COVID product group sales especially in QuantiFERON-TB and QIAcuity. Growth in the U.S. was partially offset by declines in Brazil and in Mexico compared to 2020.

The Europe, Middle East and Africa (EMEA) region was driven by growth throughout Western Europe primarily in Austria, the United Kingdom, Italy and Switzerland during 2021. EMEA was supported by two percentage points of sales growth from positive currency movements in 2021.

The Asia Pacific, Japan and Rest of World region's performance was driven by 27% growth in China compared to 2020 on improving trends in non-COVID product groups. Higher sales were also seen in Japan, Australia and South Korea, more than absorbing the decline in India compared to 2020. Sales in this region were positively impacted by three percentage points from favorable currency movements against the U.S. dollar.

Gross Profit

(in millions)	**2021**	2020	% change
Gross Profit	$1,450.8	$1,232.7	+18%
Gross Margin	64.4%	65.9%	

Gross margin between periods can be impacted by significant changes in individual product sales. The gross margin decline of 1.5 percentage points is attributable in part to changes in the consumable product mix, notably the increase in QuantiFERON latent TB test with 48% growth in 2021. Additionally, the lower gross margin reflects higher costs following our investments in expanded production capacity and higher amortization expense. Generally, our consumables and related products have a higher gross margin than our instrumentation products and service arrangements. While net sales have shifted towards a higher percentage of consumables in 2021, fluctuations in the sales levels within the product types can result in changes in gross margin between periods.

In 2021, the amortization expense on acquisition-related intangibles within cost of sales increased to $67.1 million in 2021 from $63.2 million in 2020. This net increase in amortization expense reflects the NeuMoDx intangibles acquired in 2020 partially offset by the full amortization during 2020 of assets previously acquired. Our acquisition-related intangible amortization will increase in the event of future acquisitions.

Operating Expenses

	2021		2020		
(in millions)	Expenses	% of net sales	Expenses	% of net sales	% change
Research and development	$190.0	8.4%	$149.1	8.0%	+27%
Sales and marketing	456.4	20.3%	413.7	22.1%	+10%
General and administrative	128.1	5.7%	111.7	6.0%	+15%
Acquisition-related intangible amortization	18.5	0.8%	20.8	1.1%	-11%
Restructuring, acquisition, integration and other, net	27.8	1.2%	150.0	8.0%	-81%
Long-lived asset impairments	—	—%	1.0	0.1%	-100%
Total operating expenses	$820.8	36.5%	$846.3	45.2%	
Income from operations	$630.1	28.0%	$386.4	20.7%	

Research and Development

The increase of research and development expenses as a percentage of sales as well as the overall increase in research and development is the result of the focus on our five pillars of growth, including investments in NeuMoDx, QIAstat-Dx and QIAcuity. These investments are targeting new applications within our five pillars of growth to drive sustainable post-pandemic expansion. Research and development costs for the year ended December 31, 2021, include $6.0 million of unfavorable currency exchange impact. In 2020, research and development costs reflect the suspended development of NGS-related instrument systems as discussed in Note 6 "Restructuring and Impairments". As we continue to discover, develop and acquire new products and technologies, we expect to incur additional expenses related to facilities, licenses and employees engaged in research and development. Overall, research and development costs are expected to increase as a result of seeking regulatory approvals, including U.S. FDA Pre-Market Approval (PMA), U.S. FDA 510(k) clearance and EU CE approval of certain assays or instruments. Further, business combinations, along with the acquisition of new technologies, may increase research and development costs in the future. We have a strong commitment to innovation and expect to continue to make investments in our research and development efforts.

Sales and Marketing

The overall increase in expense reflects additional sales and marketing efforts supporting the focus on our five pillars of growth, as well as increases in freight and other supply chain costs in line with the increase in sales and includes unfavorable currency exchange impacts of $8.0 million for the year ended December 31, 2021. The increased use of digital marketing efforts during the COVID-19 pandemic was a driver in reduced sales and marketing expenses as a percentage of sales of 20.3% in 2021 compared to 22.1% in 2020. Sales and marketing expenses are primarily associated with personnel, commissions, advertising, trade shows, publications, freight

and logistics expenses, and other promotional expenses. We expect to continue building out our digital customer engagement channels and intend to closely monitor the development of sales and marketing expenses once pandemic restrictions are lifted.

General and Administrative

General and administrative expenses also decreased as a percentage of sales in 2021 compared to 2020 while overall expenses increased. General and administrative expenses include unfavorable currency exchange impacts of $1.7 million for the year ended December 31, 2021. We anticipate continued investments in cyber security and other investments in information technology systems including upgraded enterprise resource planning (ERP) systems in the coming years.

Acquisition-Related Intangible Amortization

During 2021, amortization expense on acquisition-related intangibles within operating expense decreased to $18.5 million, compared to $20.8 million in 2020. The decrease follows the full amortization of assets previously acquired in 2011. Amortization expense related to developed technology and patent and license rights acquired in a business combination is included in cost of sales. Amortization of trademarks and customer base acquired in a business combination is recorded in operating expense under the caption "acquisition-related intangible amortization." Amortization expenses of intangible assets not acquired in a business combination are recorded within cost of sales, research and development, or sales and marketing line items based on the use of the asset. Our acquisition-related intangible amortization recorded in operating expenses will increase in the event of future acquisitions.

Restructuring, Acquisition, Integration and Other, net

Restructuring, acquisition, integration and other, net expenses decreased $122.2 million in 2021 compared to the prior year. Expenses of $27.8 million during the year ended December 31, 2021 includes costs for the continued integration of NeuMoDx as well as $4.7 million jury-awarded damages to ArcherDX. We also incurred $2.4 million of charges related to the 2019 restructuring program as discussed further in Note 6.

During the year ended December 31, 2020, $150.0 million of expenses were incurred including acquisition expenses related to the unsuccessful acquisition attempt by Thermo Fisher of $125.5 million, including a $95.0 million expense reimbursement. Additionally, we incurred net acquisition, integration and other expenses of $21.2 million, including charges for NeuMoDx as well as the $11.7 million gain on the value of our interest held on the acquisition date. We also incurred $3.3 million of charges related to the 2019 restructuring program as discussed further in Note 6.

Long-lived Asset Impairments

Impairments to property, plant and equipment during the year ended 2020 totaled $1.0 million and were incurred in connection with the 2019 restructuring measures as further discussed in Note 6 "Restructuring and Impairments."

Other Income (Expense)

(in millions)	**2021**	2020	% change
Interest income	$9.6	$10.0	-5%
Interest expense	(54.5)	(71.3)	-24%
Other income, net	40.7	114.3	-64%
Total other (expense) income, net	**($4.3)**	**$53.0**	**-108%**

Total other income (expense), net, changed from income to expense primarily due to the decrease in other income, net, associated to the Invitae shares received and sold related to the sale of ArcherDX partially offset by a reduction in interest expense after repayments of debt in 2020.

Interest income includes interest earned on cash, cash equivalents and short-term investments, income related to certain interest rate derivatives as discussed in Note 14 "Derivatives and Hedging" and other components including the interest portion of operating lease transactions. The fluctuation in 2021 compared to the prior year is partially attributable to the duration and level of short-term investments held during the period.

Interest expense primarily relates to debt, discussed in Note 16 "Debt" in the accompanying consolidated financial statements. The decrease in 2021 is driven by the repayment of the majority of the 2021 Notes after the first quarter of 2020.

Other income, net, for the year ended December 31, 2021, includes a $35.8 million gain recognized from the receipt and sale of the Invitae shares and related hedge, $12.0 million of income from equity method investments, $0.7 million in income, net from the changes in fair value and sale of investments held in other publicly traded companies, and a $0.3 million gain from the sale of an equity method investment, partially offset by a $9.0 million loss on foreign currency transactions.

Other income, net, was $114.3 million of income for the year ended December 31, 2020. Other income includes a gain of $123.3 million for the sale of our investment in ArcherDX, $5.0 million of income from equity method investees and a total of $1.6 million in gains related to prior sales of assets. These gains were partially offset by $9.3 million in unrealized losses recognized for the change in fair market value of all marketable equity securities, $4.1 million net losses on foreign currency transactions and a $2.3 million loss from the sale of an equity security investment.

Income Tax Expense

(in millions)	**2021**	2020	% change
Income before income taxes	$625.8	$439.5	+42%
Income tax expense	$113.2	$80.3	+41%
Net income	$512.6	$359.2	
Effective tax rate	18.1%	18.3%	

In 2021 and 2020, our effective tax rates were 18.1% and 18.3%, respectively. The effective tax rates in both years reflect higher pre-tax book income due to higher operating income driven by the significant demand for solutions used in COVID-19 testing. Our effective tax rates differ from the Netherlands statutory tax rate of 25% due in part to our operating subsidiaries being exposed to effective tax rates ranging from zero to 35%. Fluctuations in the distribution of pre-tax (loss) income among our operating subsidiaries can lead to fluctuations of the effective tax rate in the consolidated financial statements. We record partial tax exemptions on foreign income primarily derived from operations in Germany, the Netherlands and Singapore. These foreign tax benefits are due to a combination of favorable tax laws, rules, and exemptions in these jurisdictions, including intercompany foreign royalty income in Germany which is statutorily exempt from trade tax. Further, we have intercompany financing arrangements in which the intercompany income is nontaxable in Dubai. See Note 17 "Income Taxes" to the consolidated financial statements for a full reconciliation of the effective tax rate to the Netherlands statutory rate.

In future periods, our effective tax rate may fluctuate from similar or other factors as discussed in “Changes in tax laws or their application could adversely affect our results of operations or financial flexibility” in Risk Factors .

Foreign Currencies

The reporting currency of QIAGEN N.V. is the U.S. dollar. The functional currency of most of our subsidiaries are the local currencies of the countries in which they are headquartered. All amounts in the financial statements of entities whose functional currency is not the U.S. dollar are translated into U.S. dollar equivalents at exchange rates as follows: (1) assets and liabilities at period-end rates, (2) income statement accounts at average exchange rates for the period, and (3) components of shareholders' equity at historical rates. Translation gains or losses are recorded in shareholders' equity, and transaction gains and losses are reflected in net income. The net loss on foreign currency transactions is included in other income, net, and in 2021, 2020 and 2019 was $9.0 million, $4.1 million, and $5.7 million, respectively.

Derivatives and Hedging

In the ordinary course of business, we use derivative instruments, including swaps, forwards and/or options, to manage potential losses from foreign currency exposures and variable rate debt. The principal objective of such derivative instruments is to minimize the risks and/or costs associated with global financial and operating activities. We do not utilize derivative or other financial instruments for trading or speculative purposes. We recognize all derivatives as either assets or liabilities on the balance sheet, measure those instruments at fair value and recognize the change in fair value in earnings in the period of change, unless the derivative qualifies as an effective hedge that offsets certain exposures. In determining fair value, we consider both the counterparty credit risk and our own creditworthiness, to the extent that the derivatives are not covered by collateral agreements with the respective counterparties. To determine our own credit risk, we estimated our own credit rating by benchmarking the price of our outstanding debt to publicly-available comparable data from rated companies. Using the estimated rating, we quantify our credit risk by reference to publicly traded debt with a corresponding rating.

Foreign Currency Derivatives

As a globally active enterprise, we are subject to risks associated with fluctuations in foreign currencies in our ordinary operations. This includes foreign currency-denominated receivables, payables, debt and other balance sheet positions including intercompany items. We manage our balance sheet exposure on a group-wide basis using foreign exchange forwards, options and cross-currency swaps.

Interest Rate Derivatives

We use interest rate derivative contracts on certain borrowing transactions to hedge interest rate exposures. We have entered into interest rate swaps in which we agree to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to an agreed-upon notional principal amount.

We also make use of economic hedges. Further details of our derivative and hedging activities can be found in Note 14 "Derivatives and Hedging" to the accompanying consolidated financial statements.

Liquidity and Capital Resources

To date, we have funded our business primarily through internally generated funds, debt, and private and public sales of equity. Our primary use of cash has been to support continuing operations and our investing activities including capital expenditure requirements and acquisitions. As of December 31, 2021, we had cash and cash equivalents of $880.5 million and short-term investments of $184.8 million. As of December 31, 2020, we had cash and cash equivalents of $598.0 million and short-term investments of $117.2 million. Cash and cash equivalents are primarily held in U.S. dollars and euros, other than those cash balances maintained in the local currency of subsidiaries to meet local working capital needs. At December 31, 2021, cash and cash equivalents had increased by $282.5 million from December 31, 2020, primarily as a result of cash provided by operating activities of $639.0 million partially offset by cash used in investing activities of $202.4 million and cash used in financing activities of $150.4 million. As of December 31, 2021 and 2020, we had working capital of $592.1 million and $1.05 billion, respectively.

Cash Flow Summary

(in millions)	2021	2020
Net cash provided by operating activities	$639.0	$457.8
Net cash used in investing activities	($202.4)	($443.3)
Net cash used in financing activities	($150.4)	($50.1)
Effect of exchange rate changes on cash and cash equivalents	($3.7)	$4.2
Net increase (decrease) in cash and cash equivalents	$282.5	($31.4)

Operating Activities

For the years ended December 31, 2021 and 2020, we generated net cash from operating activities of $639.0 million and $457.8 million, respectively. The net increase in net cash from operating activities is primarily the result of an increase in net income and adjustments for non-cash items. While net income was $512.6 million in 2021, non-cash components in income included $214.9 million of depreciation and amortization, $38.4 million of share-based compensation, and $32.3 million of amortization of debt discount. Operating cash flows include a net decrease in operating assets and liabilities primarily due to increased inventories in order to meet the increase in demand and decreased accrued and other current liabilities and accounts payable during 2021. Because we rely heavily on cash generated from operating activities to fund our business, a decrease in demand for our products, longer collection cycles or significant technological advances of competitors would have a negative impact on our liquidity.

Investing Activities

Approximately $202.4 million of cash was used in investing activities during 2021, compared to $443.3 million during 2020. Investing activities during 2021 consisted principally of $397.7 million for purchases of short-term investments, $189.9 million in cash paid for purchases of property and equipment which includes the investments we continue to make in expanded production capacity and $16.6 million paid for intangible assets. This was partially offset by $359.6 million from the sale of short-term investments and $44.9 million returned to us from our derivative counterparties in connection with cash we had provided to them to collateralize our derivative liabilities with them as discussed in Note 14 "Derivatives and Hedging."

Cash used in investing activities during 2020 includes $239.6 million in cash paid for acquisitions, net of cash acquired primarily for NeuMoDx, $171.5 million paid for intangible assets including $135.9 million of the remaining milestone payments for the digital PCR assets acquired from Formulatrix, $132.8 million purchases of property, plant and equipment, $53.4 million paid for collateral assets and $49.8 million for purchases of short-term investments. This was partially offset by $181.2 million from the sale of short-term investments and $25.6 million net proceeds from sales of investments in privately held companies as discussed in Note 10 "Investments."

Financing Activities

For the year ended December 31, 2021, cash used in financing activities was $150.4 million compared to $50.1 million in 2020. Financing activities during 2021 includes net payments of $100.0 million for repurchases of QIAGEN shares, repayments of long-term debt including $41.1 million for two tranches of the German Private Placement (Schuldschein) that matured and $0.2 million for the remaining 2021 Notes, as well as $23.6 million paid in connection with net share settlement for tax withholding related to the vesting of stock awards. This was partially offset by $8.6 million received from our derivative counterparties to collateralize derivative assets that we hold with them.

In 2020, cash used in financing activities totaled $50.1 million and consisted primarily of net payments of $468.6 million in connection with the final conversion, redemption and termination of the 2021 Cash Convertible Notes and warrants discussed further in Note 16 "Debt" as well as $64.0 million for repurchases of QIAGEN shares. This was partially offset by $497.6 million in proceeds from issuance of the 2027 Zero Coupon Convertible Notes.

Other Factors Affecting Liquidity and Capital Resources

As of December 31, 2021, we carry $1.9 billion of long-term debt, of which $847.6 million is current and $1.09 billion is long-term.

In December 2020, we issued $500.0 million aggregate principal amount of zero coupon Convertible Notes due in 2027 (2027 Notes). The 2027 Notes will mature on December 17, 2027, unless converted in accordance with their terms prior to such date as described more fully in Note 16 "Debt."

In November 2018, we issued $500.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2024 (2024 Notes). Interest on the 2024 Notes is payable semiannually in arrears at a rate of 1.000% per annum. The 2024 Notes will mature on November 13, 2024, unless repurchased or converted in accordance with their terms prior to such date.

In September 2017, we issued $400.0 million aggregate principal amount of Cash Convertible Senior Notes which are due in 2023 (2023 Notes). Interest on the 2023 Notes is payable semiannually in arrears at a rate of 0.500% per annum. The 2023 Notes will mature on September 13, 2023, unless repurchased or converted in accordance with their terms prior to such date.

Additionally in 2017, we completed a German private placement consisting of several tranches denominated in either U.S. dollars or Euro at either floating or fixed rates and due at various dates through June 2027. As of December 31, 2021, a total of $294.5 million is outstanding, of which $170.6 million is due in October 2022. During 2021, we paid $41.1 million when two tranches matured as described in Note 16 "Debt."

In March 2014, we issued Cash Convertible Senior Notes of which the remaining $0.2 million was paid during 2021.

In October 2012, we completed a U.S. private placement with three series at a weighted average interest rate of 3.66%. The following two series remain outstanding at December 31, 2021: (1) $300 million 10-year term due October 16, 2022 (3.75%); and (2) $27 million 12-year term due October 16, 2024 (3.90%).

In December 2020, we obtained a €400 million syndicated revolving credit facility with a contractual life of three years with the ability to extend by one year two times. No amounts were utilized at December 31, 2021. The facility can be utilized in euro and bears interest of 0.550% to 1.500% above EURIBOR, and is offered with interest periods of one, three or six months. The interest rate is linked to our environmental, social and governance (ESG) performance. We have additional credit lines totaling €27.0 million with no expiration date, none of which were utilized as of December 31, 2021.

On July 12, 2021, we announced our seventh share repurchase program of up to $100 million of our common shares. During 2021, we repurchased 1.9 million QIAGEN shares for $100.0 million (including transaction costs). This program ended on October 29, 2021. In May 2019, we announced our sixth share repurchase program of up to $100 million of our common shares. During 2020, we repurchased 1.3 million QIAGEN shares for $64.0 million (including transaction costs). This program ended in December 2020. Repurchased shares will be held in treasury in order to satisfy various obligations, which include employee share-based remuneration plans.

We have lease obligations, including interest, in the aggregate amount of $105.4 million, of which $23.6 million is current as of December 31, 2021. We also have purchase obligations and license commitments totaling $139.3 million and $17.8 million, respectively, and in connection with certain acquisitions, we could be required to make additional contingent cash payments totaling up to $26.6 million based on the achievement of certain revenue and operating results milestones. These obligations are further discussed in Note 12 "Leases" and Note 20 "Commitments and Contingencies" in the accompanying financial statements.

Liabilities associated with uncertain tax positions, including interest and penalties, are currently estimated at $107.5 million as of December 31, 2021. Ultimate settlement of these liabilities is dependent on factors outside of our control, such as examinations by each agency and expiration of statutes of limitation for assessment of additional taxes. Therefore, we cannot reasonably estimate when, if ever, this amount will be paid to a government agency.

We did not use special purpose entities and do not have off-balance sheet financing arrangements as of and during the years ended December 31, 2021, 2020 and 2019.

We expect that cash from financing activities will continue to be impacted by issuances of our common shares in connection with our equity compensation plans and that the market performance of our stock will impact the timing and volume of the issuances. Additionally, we may make future acquisitions or investments requiring cash payments, the issuance of additional equity or debt financing.

We believe that funds from operations, existing cash and cash equivalents, together with the proceeds from any public and private sales of equity, and availability of financing facilities, will be sufficient to fund our planned operations and expansion during the coming year. However, any global economic downturn may have a greater impact on our business than currently expected, and we may experience a decrease in the sales of our products, which could impact our ability to generate cash. If our future cash flows from operations and other capital resources are not adequate to fund our liquidity needs, we may be required to obtain additional debt or equity financing or to reduce or delay our capital expenditures, acquisitions or research and development projects. If we could not obtain financing on a timely basis or at satisfactory terms, or implement timely reductions in our expenditures, our business could be adversely affected.

Dividend

QIAGEN has not paid a cash dividend since its inception and does not intend to pay any dividends in the foreseeable future. We intend to retain any earnings for the development of the business.

Credit Rating

QIAGEN is currently not rated by any credit rating agency.

Human Capital

The skills, knowledge, dedication and passion of our employees are critical for the success of QIAGEN. We want to recruit, support and retain the best employees, offering performance-based remuneration, development opportunities and measures to balance work and family life. We are committed to diversity in our teams, fueling innovation and engagement with our customers and business partners, and an environment and culture that allow all employees the equal opportunity for success. In a fast-changing, competitive business environment, QIAGEN has a significant commitment to being an employer of choice and further enhancing our position as a great place to work. At the end of 2021, QIAGEN had 6,028 full-time equivalent employees, an increase of 7% from 5,610 at the end of 2020. We have succeeded to maintain our retention targets by maintaining a management turnover rate under 7%. For 2021, the overall turnover rate at the management level was 6.6%, with an 11.1% voluntary turnover rate for the total workforce. We believe our relationship with our employees is good.

Recognizing that our employees are the key to our success, we seek to be a great place to work. In 2021, many of our subsidiaries have been recognized as an employer of choice including in Germany, where we are recognized again as a “Top Employer” by the Top Employer Institute, a global authority on recognizing excellence in people practices. In 2021, we received the Top Employer Certificate for China, and our subsidiaries in Brazil and Mexico were again recognized as a "Great Place to Work". Our Philippines Shared Service Center won multiple employer certifications in 2021, including Asia's "Great Place to Work' and Asia's "Best Employer Brand in 2021." For the first time in 2021, our subsidiaries in the U.S. India and the Philippines were certified as a “Great Place to Work.”

In 2021, as a continued consequence of the global pandemic, a large portion of our employees continued to work remotely. For our essential workers and in our locations where employees either returned or continued to work on site, we maintained safety measures including routine on-site testing at critical facilities to reduce the risk of COVID-19 transmission.

Diversity and Inclusion

We are committed to creating an environment that is rich in diversity and empowers all employees. Diverse teams strengthen our organization through the variety of ideas, perspectives and approaches they bring to our business. Our teams outperform and succeed when they are composed of individuals with the widest possible range of personalities, backgrounds and traits. That's why we value each person's uniqueness and maintain an environment where all individuals can succeed based on their strengths and characteristics. In 2021, our workforce was composed of at least 80 nationalities with an average age of 39.4. With 49% women, we are well balanced in terms of gender on an aggregate level. Our strategic initiative on gender diversity started in late 2018 has yielded remarkable results, particularly regarding leadership positions. The participation of women in leadership roles (QIAGEN management and above) rose from approximately 28% in 2018 to 34% in 2021 (2020: 33%). We continue to work towards gender parity and are targeting a 2022 goal of 35% or more women in leadership roles. We have been listed under the 2022 Bloomberg Gender Equality Index which provides an opportunity for companies to assess progress towards parity, benchmark against peers and highlight a commitment to gender equality. Our commitment to diversity goes beyond cultural and gender diversity. Our U.S. subsidiary received a score of 100 on the Human Rights Campaign Foundation's 2022 Corporate Equality Index. QIAGEN is also a member of the Business Coalition for the Equality Act.

Employee Development

Employee development is viewed as integral to the success of creating lasting value for our customers, patients, colleagues, partners, and shareholders. We believe we offer opportunities to work on exciting tasks and projects in an engaging work environment. Employees join QIAGEN and stay with QIAGEN because they can see how their work makes a difference to people's lives everywhere in the world. We offer various training platforms that provide the possibility to either use our global e-learning portfolio or to participate in personal trainings usually offered in a blended format. The focus is on job-specific skills, compliance, competencies and leadership development. In 2021, we conducted both virtual instructor-led and e-learning courses. All in-person trainings remain on hold due to the ongoing COVID-19 pandemic.

Employee Compensation

We have been committed since our beginning to attract and retain the best talent worldwide via our focus on rewarding for performance. Our compensation system fosters a focus on achieving corporate strategic initiatives as well as personal accountability. We regularly benchmark our compensation strategy to evaluate the level and mix of compensation awarded by companies and industries for a broad range of positions around the world. Our benchmarks include many peer life science and diagnostics companies. QIAGEN has a "pay for performance" culture, with the compensation of employees linked to the achievement of corporate financial and individual performance goals. Business goals are established by senior management. These goals are set at ambitious levels each year to motivate and drive performance, with a focus on both short-term and long-term quantifiable objectives. Furthermore, to align our compensation programs with the interests of shareholders, management levels receive a portion of their total compensation in the form of long-term compensation, which is granted as equity as a reward for performance.

For more information about our human capital, please refer to the Sustainability page on our website at www.qiagen.com/sustainability.

Employee Worldwide

	2021	2020	2019
Americas	1,384	1,328	1,132
Europe, Middle East & Africa	3,389	3,059	2,820
Asia Pacific, Japan and Rest of World	1,255	1,223	1,144
Total	**6,028**	**5,610**	**5,096**

	2021	2020	2019
Production	30%	28%	23%
Research & Development	16%	16%	19%
Sales	37%	39%	40%
Marketing	6%	6%	6%
Administration	11%	11%	12%

Outlook

QIAGEN Perspectives for 2022

Against the backdrop of record sales in 2021, we expect demand for our non-COVID product portfolio to continue to grow during 2022, while taking a cautious view on expectations for a significant decline in COVID-19 test sales for the year. The growth in our non-COVID portfolio is expected to be driven by opportunities in the research environment amid increases in national governmental funding programs as well as a resumption in regular clinical testing for molecular diagnostics. Investments have been made to strengthen our portfolio including manufacturing upscaling projects and within research and development for menu expansion of our key platforms. These are expected to support the transition of our installed base of instruments and systems into non-COVID applications. At the same time, QIAGEN remains prepared to continue supporting the global response to the pandemic.

We plan to focus investments in our five pillars of growth with the aim to secure mid-term growth trends for these products. We are seeking to secure our leadership positions in sample technologies and for the QuantiFERON franchise, while seeking to gain market share in the three other pillars involving the QIAcuity digital PCR instruments, as well as the NeuMoDx integrated PCR systems for clinical diagnostics and the QIAstat-Dx syndromic testing platform.

Global Economic Perspectives for 2022

In January 2022, the International Monetary Fund and the World Bank both projected the world economy would grow about 4% on an annual basis.

However, this forecast has been called into doubt in light of the war in Ukraine, and the impact it has had on energy prices, global supply chains and other areas of the global economy. These impacts have combined to cause high inflation rates in many countries across the globe including rates at 40-year highs in the United States as announced by the Bureau of Labor and Statistics in April 2022. We now believe global economic growth is expected to be well below this forecast amid a risk that some regions could begin to face recessionary conditions.

Additionally, the risk continues that COVID-19 variants could emerge that prolong the pandemic and related economic disruptions. The current global economic forecast assumes that vaccination rates continue to improve worldwide and therapies become more effective during the course of 2022. Continued disruptions in the global supply chain as a result of COVID-19 and other factors could negatively impact results of operations for QIAGEN and other companies. Economic growth tends to benefit our performance, while downturn can limit spending by customers. Uncertain geopolitical conditions, including the recent and ongoing Russian invasion of Ukraine, sanctions, and other potential impacts on this region's economic environment and currencies, may cause demand for our products and services to be volatile, cause changes in our customers' buying patterns, interrupt our ability to supply products to this or other regions or limit the access of our customers to financial resources and ability to satisfy obligations to us. In 2021, net sales in Russia represented less than 1% of consolidated net sales. Currency exchange rates also positively or negatively affect QIAGEN's results as these are reported in U.S. dollars.

Industry Perspectives for 2022

The demand for testing for active SARS-CoV-2 infections using PCR and antigen products is expected to decline to a lower base level in the next phase of the COVID-19 pandemic recovery. Viral immune-response monitoring using T-cell and antibody testing may increase along with population monitoring to stop new infection hotspots and multiplex PCR tests to discern between COVID-19 and other respiratory illnesses. PCR testing volumes are expected to remain fairly robust in 2022. Elective procedures and laboratory volumes for non-COVID issues are likely to begin to normalize.

The pandemic has accelerated the demand for genomic insights, and this has accelerated the transition from basic research into applications in medicine and other fields, delivering ever-greater value for patients and other users. As innovation drives market expansion, QIAGEN has strong product portfolios to capture opportunities in growing areas.

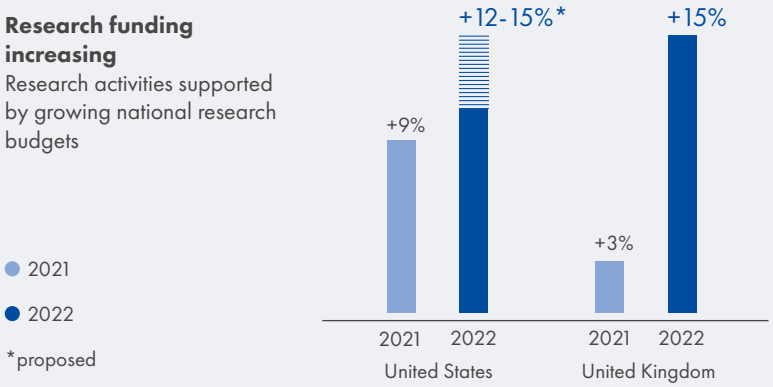
The COVID-19 pandemic has drawn attention to the fact that molecular testing can also evaluate and monitor patients for cancer, infectious diseases and other conditions. Molecular medicine is migrating from research-based institutions to hospitals and reference laboratories in need of quick, accurate results, increasing the demand for standardized tests and automated workflows. Customers are embracing diverse technologies based on different settings and needs – from low-throughput to high-throughput, and from single-target or multiplex PCR analysis to in-depth next-generation sequencing. Customers increasingly want easy-to-use technologies that can also be used outside of a laboratory.

Life science researchers in academia and the pharmaceutical industry rely on novel sample and analytical technologies to explore disease pathways and biomarkers, and also to guide drug development and clinical trials. Genomic insights from molecular biology laboratories are increasingly leading to new drug approvals. Applications of molecular testing also are expanding into public safety fields such as forensics and environmental monitoring.

Macro trends fueling attractive opportunities in 2022 and beyond

Research funding increasing

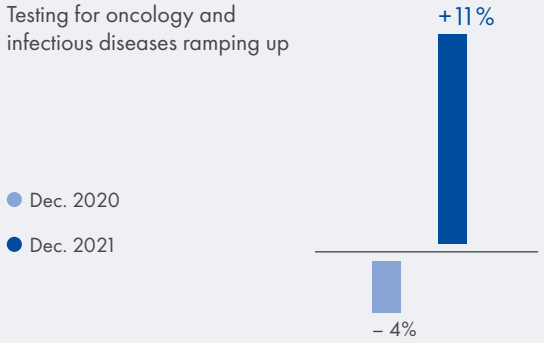
Research activities supported by growing national research budgets



Annual national research budget increases

Regular clinical testing returns to growth

Testing for oncology and infectious diseases ramping up



Routine testing change from February 2020 XIFIN volume index

Corporate Governance Report

Corporate Governance Report

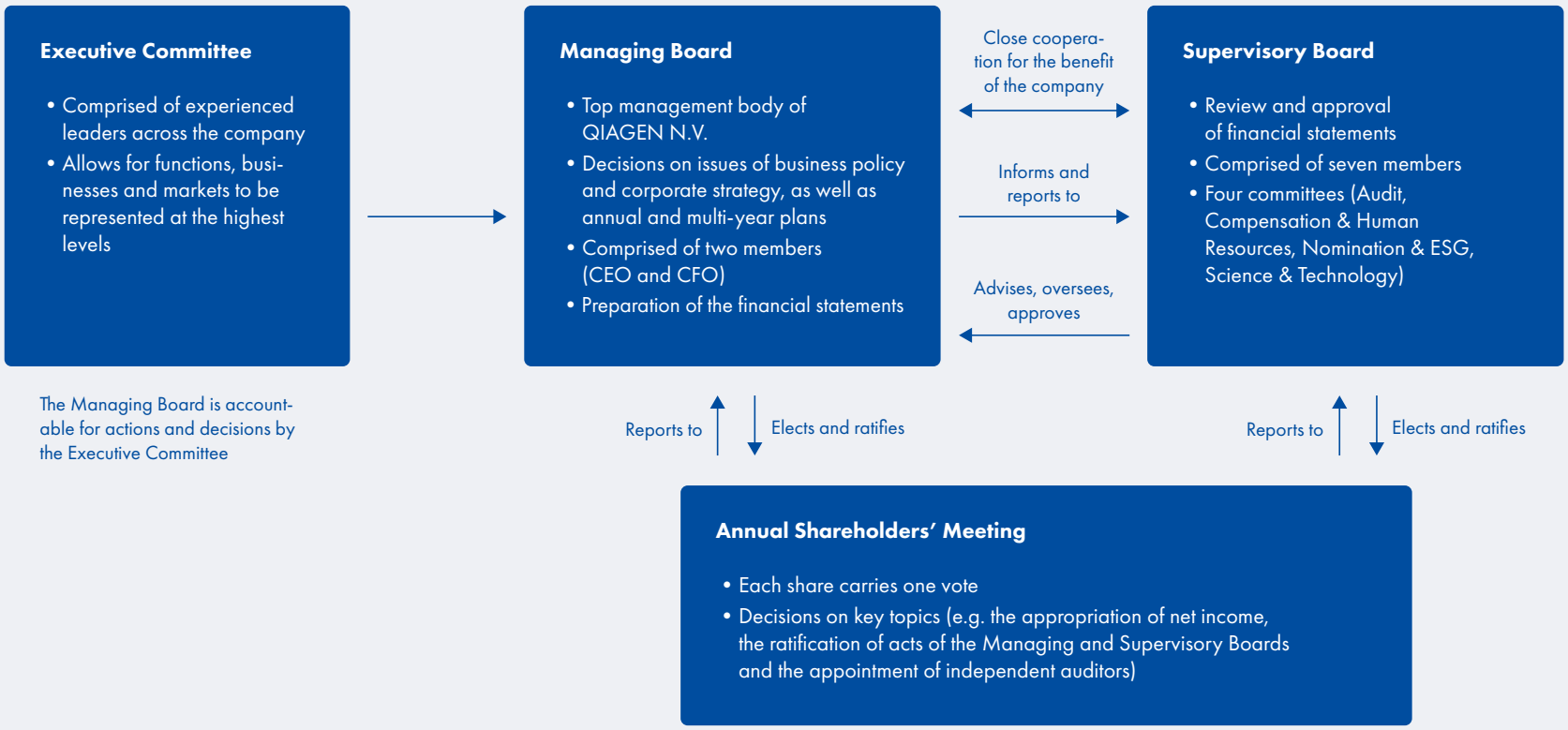
We recognize the importance of clear and straightforward rules on corporate governance and, where appropriate, have adapted our internal organization and processes to these rules. This section provides an overview of QIAGEN's corporate governance structure and includes details of the information required under the Dutch Corporate Governance Code (the Dutch Code). The Dutch Code is applicable to QIAGEN N.V. (in the following also referred to as the "Company" and "QIAGEN"), as it is a publicly listed company incorporated under the laws of the Netherlands with a registered seat in Venlo, The Netherlands. The Dutch Code contains the principles and concrete provisions which the persons involved in a listed company (including Managing Board members and Supervisory Board members) and stakeholders should observe in relation to one another.

Our corporate governance practices generally derive from the provisions of the Dutch Civil Code and the Dutch Corporate Governance Code. Further, due to our listing on the New York Stock Exchange in the U.S., the Managing Board and the Supervisory Board of QIAGEN N.V. declared their intention to disclose in QIAGEN's Annual Reports the Company's compliance with the corporate governance practices followed by U.S. companies under the New York Stock Exchange listing standards or state the deviations recorded in the period. A brief summary is presented below under the section "Dutch Corporate Governance Code - Comply or Explain".

Corporate Structure

QIAGEN is a 'Naamloze Vennootschap,' or N.V., a Dutch limited liability company similar to a corporation in the United States. QIAGEN has a two-tier board structure. QIAGEN is managed by a Managing Board consisting of executive management acting under the supervision of a Supervisory Board (non-executives), similar to a Board of Directors in a U.S. corporation. It is in the interest of QIAGEN and all its stakeholders that each Board performs its functions appropriately and that there is a clear division of responsibilities between the Managing Board, the Supervisory Board, the general meeting of shareholders (General Meeting) and the external auditor in a well-functioning system of checks and balances.

QIAGEN operates under a two-tier corporate structure



Managing Board

General

The Managing Board manages QIAGEN and is responsible for defining and achieving QIAGEN's aims, strategy, policies and results. The Managing Board is also responsible for complying with all relevant legislation and regulations as well as for managing the risks associated with the business activities and the financing of QIAGEN. It reports related developments to and discusses the internal risk management and control systems with the Supervisory Board and the Audit Committee. The Managing Board is accountable for the performance of its duties to the Supervisory Board and the General Meeting of Shareholders (General Meeting). The Managing Board provides the Supervisory Board with timely information necessary for the exercise of the duties of the Supervisory Board. In discharging its duties, the Managing Board takes into account the interests of QIAGEN, its enterprises and all parties involved in QIAGEN, including shareholders and other stakeholders.

Composition and Appointment

The Managing Board consists of one or more members as determined by the Supervisory Board. The members of the Managing Board are appointed by the General Meeting upon the joint meeting of the Supervisory Board and the Managing Board (the Joint Meeting) having made a binding nomination for each vacancy. However, the General Meeting may at all times overrule the binding nature of such a nomination by a resolution adopted by at least a two-thirds majority of the votes cast, if such majority represents more than half of the issued share capital. Managing Directors are appointed annually for the period beginning on the date following the Annual General Meeting up to and including the date of the Annual General Meeting held in the following year.

Members of the Managing Board may be suspended and dismissed by the General Meeting by a resolution adopted by a two-thirds majority of the votes cast, if such majority represents more than half of the issued share capital, unless the proposal was made by the Joint Meeting, in which case a simple majority of votes cast is sufficient. Furthermore, the Supervisory Board may at any time suspend (but not dismiss) a member of the Managing Board.

Managing Directors

The following is a brief summary of the background of each of the Managing Directors for the year ended December 31, 2021 and their ages as of January 31, 2022.

Thierry Bernard

Chief Executive Officer

Gender: Male

Thierry Bernard, *57*, joined QIAGEN in February 2015 to lead QIAGEN's growing presence in Molecular Diagnostics, the application of Sample to Insight solutions for molecular testing in human healthcare. He was named Chief Executive Officer in March 2020, after having previously served in this role on an interim basis. Mr. Bernard previously worked at bioMérieux SA, where he served in roles of increasing responsibility for 15 years, most recently as Corporate Vice President, Global Commercial Operations, Investor Relations and the Greater China Region. Prior to joining bioMérieux, he served in management roles in multiple international environments. Mr. Bernard was appointed in 2020 as a member of the Board of Directors of T2 BioSystems, Inc., a publicly listed company in the U.S. Mr. Bernard has earned degrees from Sciences Po (Paris), Harvard Business School, London School of Economics, and the College of Europe and is a member of French Foreign Trade Advisors.

Roland Sackers

Chief Financial Officer

Gender: Male

Roland Sackers, 53, joined QIAGEN in 1999 as Vice President of Finance and has been Chief Financial Officer since 2004. In 2006, Mr. Sackers became a member of the Managing Board. Between 1995 and 1999, he served as an auditor with Arthur Andersen Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft. Mr. Sackers earned his Diplom-Kaufmann from the University of Münster, Germany. Mr. Sackers was appointed in 2021 as Vice Chair of the Supervisory Board of Evotec SE, a publicly listed company in Germany and has been a member of the Supervisory Board and Chair of the Audit Committee since 2019. He is also a board member of the industry association BIO Deutschland in Germany.

Conflicts of Interest, Loans or Similar Benefits

Resolutions to enter into transactions under which members of the Managing Board could have a conflict of interest with QIAGEN, and which are of material significance to QIAGEN and/or the relevant member of the Managing Board, require the approval of the Supervisory Board. QIAGEN has not entered into any such transactions in 2021. No credit, loans or similar benefits were granted to members of the Managing Board. Additionally, the Managing Board members did not receive any benefits from third parties that were either promised or granted in view of their position as members of the Managing Board.

Supervisory Board

General

The Supervisory Board supervises the policies of the Managing Board, the general course of QIAGEN's affairs and strategy and the business enterprises which we operate. The Supervisory Board assists the Managing Board by providing advice relating to the business activities of QIAGEN. In 2021, the Supervisory Board had five regular meetings that were held with the attendance of the Managing Board, while certain agenda items were discussed exclusively between the Supervisory Board members. In discharging its duties, the Supervisory Board takes into account the interests of QIAGEN, its enterprise and all parties involved in QIAGEN, including shareholders and other stakeholders. The Supervisory Board is responsible for the quality of its own performance. In this respect, the Supervisory Board conducts a self-evaluation on an annual basis. Our Supervisory Board has specified matters requiring its approval, including decisions and actions which would fundamentally change the company's assets, financial position or results of operations. The Supervisory Board has appointed an Audit Committee, a Compensation & Human Resources Committee, a Nomination & ESG Committee and a Science & Technology Committee from among its members and can appoint other committees as deemed beneficial. The Supervisory Board has approved charters pursuant to which each of the committees operates.

Composition and Appointment

The Supervisory Board consists of at least three members, or a larger number as determined by the Joint Meeting. Members of the Supervisory Board are appointed by the General Meeting upon the Joint Meeting having made a binding nomination for each vacancy. However, the General Meeting may at all times overrule the binding nature of such a nomination by a resolution adopted by at least a two-thirds majority of the votes cast, if such majority represents more than half of the issued share capital.

The Supervisory Board shall be composed in a way that enables it to carry out its duties properly and enables its members to act critically and independently of one another and of the Managing Board and any particular interests. To that effect, the Supervisory Board has adopted a profile of its size and composition that takes into account the nature of our business, our activities and the desired diversity, expertise and background of the members of the Supervisory Board. The current profile of the Supervisory Board can be found on our website (www.qiagen.com). The Supervisory Board has appointed a chair from its members who has the duties assigned by the Articles of Association and the Dutch Code.

Members of the Supervisory Board are appointed annually for the period beginning on the date following the General Meeting up to and including the date of the General Meeting held in the following year. Members of the Supervisory Board may be suspended and dismissed by the General Meeting by a resolution adopted by a two-thirds majority of the votes cast, if such majority represents more than half of the issued share capital, unless the proposal was made by the Joint Meeting in which case a simple majority of votes cast is sufficient.

Supervisory Directors:

The following is a brief summary of the background of each of the Supervisory Directors for the year ended December 31, 2021 and their ages as of January 31, 2022. References to "QIAGEN" and the "Company" in relation to periods prior to April 29, 1996 mean QIAGEN GmbH and its consolidated subsidiaries.

Lawrence A. Rosen

Committees: Audit, Nomination & ESG (Chair), Compensation & Human Resources

Gender: Male

Lawrence A. Rosen, 64, joined QIAGEN as a Supervisory Director in 2013 and has served as Chair of the Supervisory Board since 2020. As a member of the Board of Management and Chief Financial Officer of Deutsche Post DHL from 2009 to 2016, he was responsible for controlling, corporate accounting and reporting, investor relations, corporate finance, corporate internal audit and security, taxes, as well as the group's global business services. Prior to this role, Mr. Rosen served as Chief Financial Officer of Fresenius Medical Care AG & Co. KGaA in Germany from 2003 to 2009 and earlier served as Senior Vice President and Treasurer for Aventis SA in Strasbourg, France. From 1984 to 2000, he held various positions of increasing responsibility at the Aventis predecessor companies Hoechst AG and American Hoechst/ Hoechst Celanese, Inc. He currently serves on the Supervisory Boards of Deutsch Post DHL Group and Lanxess AG, both publicly listed companies in Germany. Mr. Rosen holds a bachelor's degree in economics from the State University of New York and an M.B.A. from the University of Michigan.

Dr. Metin Colpan

Committees: Science & Technology (Chair), Nomination & ESG

Gender: Male

Dr. Metin Colpan, 67, is a co-founder of QIAGEN, its first Chief Executive Officer and a Managing Director from 1985 to 2003. Dr. Colpan has been a member of the Supervisory Board since 2004 and has served as Chair of the Science & Technology Committee since 2014, and as a member of the Nomination & ESG Committee since 2015. Dr. Colpan obtained his Ph.D. and Master of Science degree in Organic Chemistry and Chemical Engineering from the Darmstadt Institute of Technology in 1983. Prior to founding QIAGEN, Dr. Colpan was an Assistant Investigator at the Institute for Biophysics at the University of Düsseldorf. Dr. Colpan has extensive experience in sample technologies, and in particular in the separation and purification of nucleic acids, and has many patents in the field. Dr. Colpan also serves as a Supervisory Board member of CGR GmbH in Mettmann, Germany and Heilpflanzenwohl AG in Baar, Germany.

Thomas Ebeling

Committee: Nomination & ESG

Gender: Male

Thomas Ebeling, 62, joined the Supervisory Board in 2021. He has been an advisor in recent years to various businesses after having served as the CEO of the publicly listed German media group ProSiebenSat.1 Media from 2009 to 2018. Prior to that, he worked for the global healthcare company Novartis from 1997 to 2008, including roles as CEO of Novartis Pharmaceuticals and as CEO of Novartis Consumer Health. Since beginning his career in 1987, Mr. Ebeling held various positions in marketing and sales in the consumer goods industry before joining Novartis. He previously served on the Supervisory Boards of Bayer AG in Germany and Lonza AG of Switzerland. Mr. Ebeling has a degree in psychology from the University of Hamburg.

Dr. Toralf Haag

Committee: Audit (Chair and Financial Expert)

Gender: Male

Dr. Toralf Haag, 55, joined the Supervisory Board in 2021. He has served since October 2018 as Chairman of the Corporate Board of Management at Voith GmbH & Co. KGaA in Germany, a global technology company with more than EUR 4 billion in annual sales and over 19,000 employees. Before joining Voith in October 2016 as Chief Financial Officer, Dr. Haag served for more than 11 years as CFO and Member of the Executive Committee of Lonza Group AG. He began his career in 1994 as the personal assistant to the CEO of Thyssen Handelsunion AG after earning a degree in Business Administration from the University of Augsburg and a Ph.D. at the University of Kiel.

Prof. Dr. Ross L. Levine

Committee: Science & Technology

Gender: Male

Professor Dr. Ross Levine, 50, joined the Supervisory Board in 2016. He is a physician-scientist focused on researching and treating blood and bone marrow cancers as the Laurence Joseph Dineen Chair in Leukemia Research, Chief of Molecular Cancer Medicine, and an Attending Physician at Memorial Sloan Kettering Cancer Center, as well as Professor of Medicine at Weill Cornell Medical College. He leads a research lab investigating genetics and targeted therapies in myeloid malignancies, and is interested in application of next-generation sequencing technology in the practice of medicine in hematologic cancers. He trained in internal medicine at Massachusetts General Hospital and in hematology-oncology at the Dana-Farber Cancer Institute, earning board certification in these specialties. He received his M.D. from the Johns Hopkins University School of Medicine, and his A.B. degree from Harvard College.

Prof. Dr. Elaine Mardis

Committees: Compensation & Human Resources, Science & Technology

Gender: Female

Professor Dr. Elaine Mardis, 59, joined the Supervisory Board in 2014. Dr. Mardis is the Co-Executive Director of the Institute for Genomic Medicine at Nationwide Children's Hospital in Columbus, Ohio, and is Professor of Pediatrics at the Ohio State University College of Medicine. Dr. Mardis has research interests in the application of genomic technologies to improve our understanding of human disease, and toward improving the precision of medical diagnosis, prognosis and treatment. Dr. Mardis is the former Robert E. and Louise F. Dunn Distinguished Professor of Medicine at Washington University School of Medicine in St. Louis, Missouri, where she was on the faculty for 22 years. As Co-Director of the McDonnell Genome Institute, she devised methods and automation that contributed to the Human Genome Project, and has since played key roles in the 1000 Genomes Project, The Cancer Genome Atlas, and the Pediatric Cancer Genome Project. Prior to joining the Washington University faculty, she was a senior research scientist at BioRad Laboratories in Hercules, California. Dr. Mardis currently serves as a member of the Board of Directors of Singular Genomics Systems, Inc., a publicly listed company in the U.S. Additionally, she is an elected member of the U.S. National Academy of Medicine. She is also a past President of the American Association for Cancer Research, and has scientific advisory roles at PACT Pharma, LLC and Scorpion Therapeutics, LLC. She received her Bachelor of Science degree in Zoology in 1984, and her Ph.D. in Chemistry and Biochemistry in 1989, both from the University of Oklahoma.

Elizabeth E. Tallett

Committees: Audit, Compensation & Human Resources (Chair), Nomination & ESG

Gender: Female

Elizabeth E. Tallett, 72, joined the Supervisory Board in 2011. Ms. Tallett was a Principal of Hunter Partners, LLC, a management company for early to mid-stage pharmaceutical, biotechnology and medical device companies, from 2002 until February 2015. Ms. Tallett continues to consult with early stage healthcare companies. Her senior management experience includes roles as President and CEO of Transcell Technologies Inc., President of Centocor Pharmaceuticals, member of the Parke-Davis Executive Committee, and Director of Worldwide Strategic Planning for Warner-Lambert Company. Additionally, Ms. Tallett is also a member of the Board of Directors of Anthem, Inc. (where she is currently Chair) and Moderna, Inc., both publicly listed companies in the U.S., and previously served on the boards of Meredith Corporation and Principal Financial Group, Inc. Ms. Tallett was a founding board member of the Biotechnology Council of New Jersey and is Chair of the Trustees of Solebury School in Pennsylvania. Ms. Tallett graduated from Nottingham University, England with dual bachelor's degrees with honors in mathematics and economics.

Stéphane Bancel joined the Supervisory Board in 2013 and did not stand for reappointment at the Annual General Meeting in 2021. He was a member of the Compensation & Human Resources Committee from 2013 through July 2020, and a member of the Audit Committee from 2014 until the end of June 2021. Mr. Bancel serves as Chief Executive Officer of the U.S. biotechnology company Moderna, Inc.

Conflicts of Interest, Loans or Similar Benefits

Resolutions to enter into transactions under which members of the Supervisory Board could have a conflict of interest with QIAGEN, and which are of material significance to QIAGEN and/or the relevant member of the Supervisory Board, must be reported and require the approval of the Supervisory Board plenum. A Supervisory Director that has a personal conflict of interest will not participate in the decision making process regarding such item.

In 2021, neither QIAGEN nor its Supervisory Board members have entered into any such transactions. No credit, loans or similar benefits were granted to members of the Supervisory Board. Additionally, the Supervisory Board Members did not receive any benefits from third parties that were either promised or granted in view of their position as members of the Supervisory Board.

Committees of the Supervisory Board

The Supervisory Board has established among its members the following four committees:

- Audit Committee;
- Compensation & Human Resources Committee;
- Nomination & ESG Committee; and
- Science & Technology Committee.

The Supervisory Board can establish other committees as deemed beneficial. Charters have been approved by the Supervisory Board under which each of the committees operates. These charters are published on our website at www.qiagen.com.

The committees were comprised of the following members in 2021:

Supervisory Board Member	Audit Committee	Compensation & Human Resources Committee	Nomination & ESG Committee	Science & Technology Committee
Lawrence A. Rosen	•	•	• (Chair)	
Dr. Metin Colpan			•	• (Chair)
Thomas Ebeling			•	
Dr. Toralf Haag	• (Chair)			
Dr. Ross L. Levine				•
Dr. Elaine Mardis		•		•
Elizabeth E. Tallett	•	• (Chair)	•	

We believe that all of our Supervisory Board members meet the independence requirements set forth in the Dutch Corporate Governance Code (the Dutch Code). We further believe that all Supervisory Board members qualify as independent under the independence standards set forth in the New York Stock Exchange (NYSE) Listed Company Manual. Pursuant to the NYSE rules, a majority of the Supervisory Directors must qualify as independent, as defined in the Rules.

Audit Committee

The Audit Committee consists of three members appointed annually by the Supervisory Board for one-year terms and meets at least quarterly. We believe that all members of this Committee meet the independence requirements as set forth in Rule 10A-3 of the Securities Exchange Act of 1934, as amended, and the New York Stock Exchange Listed Company Manual. The Board has designated Dr. Haag as an "Audit Committee Financial Expert" as that term is defined in the U.S. Securities and Exchange Commission rules adopted pursuant to the Sarbanes-Oxley Act of 2002 and as referred to in the Dutch Decree on Audit Committees (*Besluit instelling* audit committee). The Committee performs a self-evaluation of its activities on an annual basis.

The Committee's primary duties and responsibilities include, among other things, to serve as an independent and objective party to monitor QIAGEN's accounting and financial reporting process, control and compliance systems and internal risk management, including cyber security. This Committee also is directly responsible for proposing the external auditor to the Supervisory Board, which then proposes the appointment of the external auditor to the Annual General Meeting. Further, this Committee is responsible for the compensation and oversight of QIAGEN's external auditor and for providing an open avenue of communication among the external auditor as well as the Managing Board and the Supervisory Board. Our Internal Audit department operates under the direct responsibility of the Audit Committee. Further, this Committee is responsible for establishing procedures to allow for the confidential and or anonymous submission by employees of concerns, including the receipt, retention and treatment of submissions received regarding accounting, internal accounting controls, or auditing matters.

The Audit Committee discusses, among other matters:

- Our financial accounting and reporting principles and policies, and the adequacy of our internal accounting, financial and operating controls and procedures with the external auditor and management;
- considers and approves any recommendations regarding changes to our accounting policies and processes;
- reviews with management and the external auditor our quarterly earnings reports prior to their public release;
- reviews the quarterly and annual reports (reported on Forms 6-K and 20-F) to be furnished to or filed with the U.S. Securities and Exchange Commission and the Deutsche Boerse in Germany; and
- reviews major risk exposures (including cyber security), pre-approves related-party transactions between the Company and members of the Supervisory Board or Managing Board, and reviews any legal matter including compliance topics that could have a significant impact on the financial statements.

The Audit Committee met seven times in 2021 and also met with the external auditor excluding members of the Managing Board in December 2021.

Compensation & Human Resources Committee

The Compensation & Human Resources Committee consists of three members appointed annually by the Supervisory Board for one-year terms. Its primary duties and responsibilities include, among other things:

- preparation of a proposal to the Supervisory Board regarding the Remuneration Policy for the Managing Board and Supervisory Board and proposal for adoption by shareholders at the General Meeting;
- preparation of a proposal concerning the individual compensation for Managing Board members to be adopted by the Supervisory Board; and
- preparation of the Remuneration Report that outlines compensation for the Managing Board members and Supervisory Board members to be adopted by the Supervisory Board, and submitted to the Annual General Meeting for an advisory vote in accordance with Dutch law. The Remuneration Report outlines the implementation of the Remuneration Policies for the most recent year.

Additionally, the Compensation & Human Resources Committee is responsible for:

- review and approval of all equity-based compensation;
- review and approval of the annual salaries, bonuses and other benefits of the Executive Committee; and
- review of general policies relating to employee compensation and benefits.

This Committee engages external consultants to ensure that the overall remuneration levels are benchmarked regularly, against a selected group of companies and key markets in which QIAGEN operates. The Compensation & Human Resources Committee met five times in 2021.

Nomination & ESG Committee

The Nomination & ESG Committee consists of four members appointed by the Supervisory Board annually for one-year terms. Its primarily responsibilities include, among other things:

- preparing selection criteria and appointment procedures for members of the Supervisory Board and Managing Board; and
- conducting periodic evaluations of QIAGEN's environmental, social and governance (ESG) policies and related public disclosures.

Additionally, this Committee periodically evaluates the scope and composition of the Managing Board and the Supervisory Board, including the profile of the Supervisory Board as well as the functioning of individual members of Boards, and reporting these results to our Supervisory Board. It also proposes the (re-)appointment of members of the Managing Board and Supervisory Board, and supervises the policy of the Managing Board in relation to the selection and appointment criteria for senior management.

The Nomination & ESG Committee met three times in 2021.

Science & Technology Committee

The Science & Technology Committee consists of three members appointed annually by the Supervisory Board for one-year terms. The Science & Technology Committee works with the Scientific Advisory Board which was established in 2021 to provide early evaluation of market and technology developments that could have an influence on QIAGEN's development and positioning in the Life Sciences and Molecular Diagnostics. The Committee's primary responsibilities include, among other things:

- reviewing and monitoring research and development projects, programs, budgets, infrastructure management; and
- overseeing the management risks related to our portfolio and information technology platforms.

The Science & Technology Committee provides understanding, clarification and validation of the fundamental technical basis of our business in order to enable the Supervisory Board to make informed, strategic business decisions and vote on related matters. Additionally, the Committee guides the Managing Board to ensure that QIAGEN can develop and leverage powerful, world-class science to create value for our stakeholders, including shareholders. The Science & Technology Committee met four times in 2021.

Diversity within the Managing Board and Supervisory Board

QIAGEN is not subject to statutory requirements regarding gender diversity within the Managing Board and Supervisory Board. However, in nominating candidates for these boards, QIAGEN supports the trend toward higher participation of women. QIAGEN feels that gender is only one part of diversity and strives for a diverse composition in the Managing Board and Supervisory Board also in terms of other factors such as age, nationality, public reputation, industry or academic background. QIAGEN is committed to expanding diversity while pursuing individuals for these boards with a unique blend of scientific and commercial expertise and experience that will contribute to the future success of its business. Management development programs support the career advancement of leaders regardless of gender and other factors. As a result a number of women are in key leadership roles, particularly in leading commercial and operational positions around the world. In line with this commitment, QIAGEN's Nomination & ESG Committee will continue selecting future members of the Managing Board and Supervisory Board with due observance of its aim to have a diverse leadership team on the basis of gender, but also on the basis of age, wide ranging experience, backgrounds, skills, knowledge and insight. This all without compromising QIAGEN's commitment to hiring the best individuals for those positions. More information about diversity within the Board other than gender, can be found in below under the section *Dutch Corporate Governance Code - Comply or explain*.

Compensation of Managing Board Members and Supervisory Directors

Managing Board Remuneration Policy

Remuneration of Managing Board members consists of a combination of base salary, short-term variable cash incentive (STI) tied to the achievement of annual Corporate Goals and Team Goals, and a long-term incentive (LTI) granted in share units that only vest after multiple years upon the achievement of predefined targets. In addition, Managing Board members can receive deferred compensation contributions and other benefits in line with market practices.

The Remuneration Policy complies with the best practices in Corporate Governance in the United States and Germany, where QIAGEN shares are listed on the New York Stock Exchange (NYSE) and the Frankfurt Stock Exchange, respectively. The inclusion of perspectives from the U.S. is particularly important given that this country is the domicile of many of our competitors, and for many members of our leadership and senior executive team, and also a country that represents about 40% of our annual sales.

The remuneration package for Managing Board members is designed to have a significant portion of total compensation in variable awards. The value of these awards can differ substantially from year to year depending on actual performance. Within the variable component, the incentives for short-term performance targets have a lower weight than those for long-term incentives, which are aimed at delivering sustainable value creation for our stakeholders, including shareholders.

A copy of the Remuneration Policy for the Managing Board can be found on QIAGEN's website (www.qiagen.com).

Compensation of Managing Board Members

The updated Remuneration Policy for the Managing Board was approved by shareholders at the Annual General Meeting (AGM) on June 29, 2021, and came into force the day after the AGM. This policy complies with the Dutch law provisions implementing the Shareholders Rights Directive II (EU Directive 2017/828). Under Dutch law, the Supervisory Board will be required to submit a proposal to adopt a Remuneration Policy for the Managing Board no later than at the AGM to be held in 2025.

Managing Board Compensation for 2021

For the year ended December 31, 2021, the Managing Board members received the following compensation:

	Annual Compensation				Long-Term Compensation	
Managing Board Member	Fixed Salary	Variable Cash Bonus	Other [1]	Total	Benefit Plans	Performance Stock Units Granted
Thierry Bernard	$900,000	1,076,000	40,000	$2,016,000	$90,000	113,683
Roland Sackers	$606,400	476,000	96,000	$1,178,400	$128,000	87,322

[1] Amounts include, among others, car lease and reimbursed personal expenses such as tax consulting. We also occasionally reimburse our Managing Directors' personal expenses related to attending out-of-town meetings but not directly related to their attendance. Amounts do not include the reimbursement of certain expenses relating to travel incurred at the request of QIAGEN, other reimbursements or payments that in total did not exceed $10,000, or tax amounts paid by the Company to tax authorities in order to avoid double-taxation under multi-tax jurisdiction employment agreements.

Supervisory Board Remuneration Policy

At the Annual General Meeting of Shareholders in 2021, an update to the Remuneration Policy for the Supervisory Board was adopted to harmonize the annual compensation granted to members of certain Board committees. This policy complies with the Dutch law provisions implementing the Shareholders Rights Directive II (EU Directive 2017/828). Under Dutch law, the Supervisory Board will be required to submit a proposal to adopt a Remuneration Policy for the Supervisory Board no later than at the Annual General Meeting to be held in 2024.

The objective of the Remuneration Policy for the Supervisory Board is to attract, retain, and motivate highly qualified Board members, taking into account QIAGEN's mission and vision, as well as strategic initiatives and opportunities to create value for stakeholders, including shareholders. It focuses on achieving a total remuneration level, both short-term and long term, that is comparable with levels provided by other European and U.S.-based companies.

This Policy supports the long-term development and strategy of QIAGEN in a highly dynamic environment, while aiming to address the requests of various stakeholders and maintaining an acceptable risk profile. It builds on remuneration principles and practices that have proven to be both fitting and effective for QIAGEN, especially as a Dutch incorporated company with global operations as well as stock market listings in the U.S. and Germany. The Supervisory Board ensures that the Policy and its implementation are linked to our objectives.

Supervisory Board Compensation for 2021

The Supervisory Board compensation for 2021 consists of fixed retainer compensation and additional retainer amounts for Chair and Vice Chair. Annual remuneration of the Supervisory Board members is as follows:

Fee payable to the Chair of the Supervisory Board	$150,000
Fee payable to each member of the Supervisory Board	$57,500
Additional compensation payable to members holding the following positions:	
Chair of the Audit Committee	$25,000
Member of the Audit Committee	$15,000
Chair of the (i) Compensation & Human Resources Committee, (ii) the Nomination & ESG Committee, or (iii) the Science & Technology Committee	$18,000
Member of the (i) Compensation & Human Resources Committee, (ii) the Nomination & ESG Committee, or (iii) the Science & Technology Committee	$11,000
Chair of other committees	$12,000
Member of other committees	$6,000

Further, Supervisory Board members will be reimbursed for tax consulting costs incurred in connection with the preparation of their tax returns up to an amount of €5,000 per person per year.

Supervisory Board members also receive a variable component, in the form of share-based compensation. We did not pay any agency or advisory service fees to members of the Supervisory Board in 2021.

For the year ended December 31, 2021, members of the Supervisory Board received the following compensation:

Supervisory Board Member	Fixed Remuneration	Committee Chair	Committee Membership	Total [1]	Restricted Stock Units
Lawrence A. Rosen	$150,000	32,580	17,250	$199,830	7,482
Dr. Metin Colpan	$57,500	18,000	11,000	$86,500	7,482
Thomas Ebeling[2]	$47,920	—	5,500	$53,420	7,482
Dr. Toralf Haag	$57,500	10,420	8,750	$76,670	7,482
Dr. Ross L. Levine	$57,500	—	11,000	$68,500	7,482
Dr. Elaine Mardis	$57,500	—	22,000	$79,500	7,482
Elizabeth E. Tallett	$57,500	18,000	26,000	$101,500	7,482
Stéphane Bancel[3]	$28,750	—	1,250	$30,000	7,482

[1] Supervisory Board members are reimbursed for travel costs and for any value-added tax to be paid on their remuneration. These reimbursements are excluded from the amounts presented herein.

[2] Thomas Ebeling joined the Supervisory Board in February 2021.

[3] Stéphane Bancel did not stand for re-appointment at the Annual General Meeting on June 29, 2021, resulting in the end of his Supervisory Board term.

Share Ownership

The following table sets forth certain information as of January 31, 2022 concerning the ownership of Common Shares by members of the Managing Board and Supervisory Board. In preparing the following table, we have relied on information furnished by such persons.

	Shares Beneficially Owned [1]		
Name and Country of Residence	Number [2]		Percent Ownership
Thierry Bernard, United States	88,601	(3)	*
Roland Sackers, Germany	188,414	(4)	*
Dr. Metin Colpan, Germany	407,783	(5)	*
Thomas Ebeling, Germany	—		—
Dr. Toralf Haag, Germany	700		*
Dr. Ross L. Levine, United States	4,129	(6)	*
Dr. Elaine Mardis, United States	—	(7)	—
Lawrence A. Rosen, United States	—	(8)	—
Elizabeth Tallett, United States	34,089	(9)	*

* Indicates that the person beneficially owns less than 0.5% of the Common Shares issued and outstanding as of January 31, 2022.

(1) The number of Common Shares outstanding as of January 31, 2022 was 227,073,511. The persons named in the table have sole voting and investment power with respect to all shares shown as beneficially owned by them and have the same voting rights as shareholders with respect to Common Shares.

(2) Does not include Common Shares subject to options or awards held by such persons as of January 31, 2022. See footnotes below for information regarding stock awards that could become releasable within 60 days of the date of this table.

(3) Does not include 86,852 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(4) Does not include 181,086 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(5) Includes 357,893 shares held by CC Verwaltungs GmbH, of which Dr. Colpan is the sole stockholder. Does not include 10,716 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(6) Does not include 10,172 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(7) Does not include 10,172 shares issuable upon the release of unvested stock awards that could become released within 60 days from the date of this table.

(8) Does not include 10,172 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(9) Does not include 10,716 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

Additional Information

Shareholders

Our shareholders exercise their voting rights through Annual and Extraordinary General Meetings. Resolutions of the General Meeting are adopted by an absolute majority of votes cast, unless a different majority of votes or quorum is required by Dutch law or the Articles of Association. Each common share confers the right to cast one vote.

Furthermore, the Managing Board, or where appropriate, the Supervisory Board, shall provide all shareholders and other parties in the financial markets with equal and simultaneous information about matters that may influence QIAGEN's share price.

QIAGEN is required to convene an Annual General Meeting in the Netherlands no later than six months following the end of each year. The agenda for the Annual General Meeting must contain certain matters as specified in QIAGEN's Articles of Association and under Dutch law, including, among other things, the adoption of QIAGEN's annual financial statements.

Additional Extraordinary General Meetings may be convened at any time by the Managing Board, the Supervisory Board or by one or more shareholders jointly representing at least 40% of QIAGEN's issued share capital. Furthermore, one or more shareholders, who jointly represent at least 10% of QIAGEN's issued share capital may, on their application, be authorized by the district court judge having applications for interim relief, to convene a General Meeting. Shareholders are entitled to propose items for the agenda of the General Meeting provided that they hold at least 3% of the issued share capital. Proposals for agenda items for the General Meeting must be submitted at least 60 days prior to the meeting date. The notice convening a General Meeting, accompanied by the agenda, shall be sent no later than 42 days prior to the meeting. QIAGEN informs the General Meeting by means of explanatory notes to the agenda, providing all facts and circumstances relevant to the proposed resolutions.

Pursuant to the Dutch Code, all transactions between the company and legal or natural persons who hold at least 10% of the shares in the company shall be agreed on terms that are customary in the sector concerned. Decisions to enter into transactions in which there are conflicts of interest with such persons that are of material significance to the company and/or to such persons require the approval of the Supervisory Board. QIAGEN has not entered into any such transactions in 2021.

Furthermore, pursuant to the Dutch implementation of the Shareholders Rights Directive II (SRD II), certain material transactions with related parties (in the meaning of the standards adopted by the International Accounting Standards Board and approved by the European Commission) require the approval of the Supervisory Board, or, if all Supervisory Directors are involved in such transaction, the General Meeting of Shareholders.

Stock Plans

We adopted the QIAGEN N.V. Amended and Restated 2005 Stock Plan (the 2005 Plan) which was approved by our shareholders on June 14, 2005. The 2005 Plan expired by its terms in April 2015 and no further awards will be granted under the 2005 Plan. On June 25, 2014, our shareholders approved the QIAGEN N.V. 2014 Stock Plan (the 2014 Plan), which replaced the 2005 Plan in April 2015. An aggregate of 16.7 million Common Shares were reserved for issuance pursuant to the 2014 Plan, subject to certain antidilution adjustments. We issue Treasury Shares to satisfy option exercises and award releases and had approximately 12.9 million Common Shares reserved and available for issuance under the 2005 and 2014 Plans at December 31, 2021.

Pursuant to the 2014 Plan, stock rights, which include options to purchase our Common Shares, stock grants and stock-based awards, may be granted to employees and consultants of QIAGEN and its subsidiaries and to Supervisory Directors. Options granted pursuant to the 2014 Plan may either be incentive stock options within the meaning of Section 422 of the United States Internal Revenue Code of 1986, as amended (the Code), or non-qualified stock options. Options granted to members of the

Supervisory Board and the Managing Board must have an exercise price that is higher than the market price at the time of grant. Generally, the stock rights and incentive stock options, as well as non-qualified options, stock grants and stock-based awards have terms of up to five or ten years, subject to earlier termination in the event of death, disability or other termination of employment. The vesting and exercisability of certain stock rights will be accelerated in the event of a Change of Control, as defined in the agreements under the 2014 Plan.

The Plan is administered by the Compensation & Human Resources Committee of the Supervisory Board, which selects participants from among eligible employees, consultants and directors and determines the number of shares subject to the stock-based award, the length of time the award will remain outstanding, the manner and time of the award's vesting, the price per share subject to the award and other terms and conditions of the award consistent with the Plan. The Compensation & Human Resources Committee's decisions are subject to the approval of the Supervisory Board.

The Compensation & Human Resources Committee has the power, subject to Supervisory Board approval, to interpret the plans and to adopt such rules and regulations (including the adoption of "sub plans" applicable to participants in specified jurisdictions) as it may deem necessary or appropriate. The Compensation & Human Resources Committee or the Supervisory Board may at any time amend the plans in any respect, subject to Supervisory Board approval, and except that (i) no amendment that would adversely affect the rights of any participant under any option previously granted may be made without such participant's consent and (ii) no amendment shall be effective prior to shareholder approval to the extent such approval is required to ensure favorable tax treatment for incentive stock options or to ensure compliance with Rule 16b-3 under the United States Securities Exchange Act of 1934, as amended (the Exchange Act) at such times as any participants are subject to Section 16 of the Exchange Act.

As of January 31, 2022, there were 4.0 million stock unit awards outstanding. These awards will be released between February 21, 2022 and May 31, 2028. As of January 31, 2022, 0.7 million stock unit awards were held by the officers and directors of QIAGEN, as a group.

Independence

Unlike the New York Stock Exchange listing standards which require a majority of the Supervisory Board Members to be independent, the Dutch Corporate Governance Code distinguishes between certain independence criteria which may be fulfilled by not more than one Supervisory Board Members (as e.g. prior employment with the Company, receiving personal financial compensation from the Company, or an important business relationship with the Company) and other criteria which may not be fulfilled by more than the majority of the Supervisory Board members. In some cases the Dutch independence requirement is more stringent, such as by requiring a longer "look back" period (five years) for former executive directors. In other cases, the New York Stock Exchange rules are more stringent, such as a broader definition of disqualifying affiliations. Currently, all members of our Supervisory Board are "independent" under both the New York Stock Exchange and Dutch definitions.

Risk Management

Reference is made to the discussion in the "Risk Management" section above.

Disclosure Controls and Procedures

Our Managing Directors, with the assistance of other members of management, performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as that term is defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended, within 90 days of the date of this Annual Report. Based on that evaluation, they concluded that as of December 31, 2021, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and is accumulated and communicated to our management, including our Managing Directors, as appropriate to allow timely decisions regarding required disclosure.

There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, no matter how well designed, such as the possibility of human error and the circumvention or overriding of the controls and procedures. Therefore, even those systems determined to be effective may not prevent or detect misstatements and can provide only reasonable assurance of achieving their control objectives. In addition, any determination of effectiveness of controls is not a projection of any effectiveness of those controls to future periods, as those controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Report of Management on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. The Company's system of internal controls over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the consolidated financial statements in accordance with generally accepted accounting principles.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements and even when determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2021. In making this assessment, management used the updated criteria set forth in 2013 by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework.

Based on our assessment under the COSO Internal Control-Integrated Framework, management believes that, as of December 31, 2021, our internal control over financial reporting is effective.

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting during 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Independent Auditors

In accordance with the requirements of Dutch law, our independent registered public accounting firm for our statutory consolidated financial statements prepared in accordance with International Financial Reporting Standards as adopted by the European Union and filed with the Netherlands Authority for the Financial Markets (AFM), is appointed, and may be removed by, the General Meeting. The Supervisory Board nominates a candidate for the appointment as external auditor, for which purpose the Audit Committee advises the Supervisory Board. At the Annual General Meeting in 2021, KPMG Accountants N.V. was appointed as external auditor for the Company for the 2021 year. The external auditor is invited to attend the meeting of the Supervisory Board at which the statutory financial statements prepared in accordance with International Financial Reporting Standards and filed with the AFM shall be approved and is furthermore invited to attend the General Meeting at which the statutory financial statements are adopted and may be questioned by the General Meeting on its statement on the fairness of our annual accounts prepared in accordance with International Financial Reporting Standards.

Following the appointment of KPMG Accountants N.V. for the audit of our statutory consolidated financial statements, the external auditor for our consolidated financial statements prepared under U.S. generally accepted accounting principles is KPMG AG Wirtschaftsprüfungsgesellschaft who audited the consolidated financial statements as of and for the year ended December 31, 2021 , contained in this annual report.

The remuneration of the external auditor, and instructions to the external auditor to provide non-audit services, shall be approved by the Supervisory Board on the recommendation of the Audit Committee and after consultation with the Managing Board. At least once every four years, the Supervisory Board and the Audit Committee shall conduct a thorough assessment of the functioning of the external auditor. The main conclusions of this assessment shall be communicated to the General Meeting for the purposes of assessing the nomination for the appointment of the external auditor. The next assessment will be completed in 2023.

Whistleblower Policy and Code of Conduct

We have a formal Whistleblower Policy concerning the reporting of alleged irregularities within QIAGEN of a general, operational or financial nature. Furthermore, we have a published Code of Conduct that outlines business principles for our employees and rules of conduct. The Code of Conduct can be found on our website at www.qiagen.com.

Anti-Takeover Measures

In 2004, the Supervisory Board granted an option to the Dutch Foundation Stichting Preferente Aandelen QIAGEN that allows the Foundation to acquire preference shares from QIAGEN if (i) a person has (directly or indirectly) acquired or has expressed a desire to acquire more than 20% of our issued share capital, or (ii) a person holding at least a 10% interest in the share capital has been designated as a hostile person by our Supervisory Board. The option enables the Foundation to acquire preference shares equal to the number of our outstanding common shares at the time of the relevant exercise of the right, less one share. When exercising the option and exercising its voting rights on these shares, the Foundation must act in the interest of QIAGEN and the interests of our stakeholders. No preference shares are currently outstanding.

Dutch Corporate Governance Code – Comply or Explain

The corporate governance structure and compliance with the Dutch Code is the joint responsibility of the Managing Board and the Supervisory Board. They are accountable for this responsibility to the General Meeting. We continue to seek ways to improve our corporate governance by measuring itself against international best practice. The Dutch Code was last amended on December 8, 2016, and can be found at www.commissiecorporategovernance.nl.

Non-application of a specific best practice provision is not in itself considered objectionable by the Dutch Code and may well be justified because of particular circumstances relevant to a company. In accordance with Dutch law, we disclose in our Annual Report the application of the Dutch Code's principles and best practice provisions.

To the extent that we do not apply certain principles and best practice provisions, or do not intend to apply these in the current or the subsequent year, we state the reasons.

We take a positive view of the Dutch Code and apply nearly all of the best practice provisions. However, we prefer not to apply some provisions due to the international character of our business as well as the fact - acknowledged by the Commission that drafted the Dutch Code - that existing contractual agreements between QIAGEN and individual members of the Managing Board cannot be set aside at will.

The following provides an overview of exceptions that we have identified:

1. *Best practice provision 2.2.2 recommends that a Supervisory Board member is appointed for a period of four years. A member may be reappointed for a term of additional two years, which appointment may be extended by at most two years.*

   Members of the Supervisory Board are appointed annually for a one-year period beginning on the day following the General Meeting up to and including the day of the General Meeting held in the following year. Dr. Metin Colpan has joined the Supervisory Board in 2004 and Ms. Elizabeth Tallett has been a Supervisory Board member since 2011. We highly value the scientific and commercial experience of Dr. Colpan and his in-depth knowledge of QIAGEN and the broad industry

knowledge, management and board experience of Ms. Tallett. QIAGEN therefore supports the reappointment of Dr. Colpan and Ms. Tallett beyond the eight-year term as recommended by the Dutch Code.

2. *Best practice provision 2.1.5 recommends that the Supervisory Board should draw up a diversity policy for the composition of the Management Board, the Supervisory Board and, if applicable, the Executive Committee. The policy should address concrete targets relating to diversity and the diversity aspects to the Company, such as nationality, age, gender and education and work background.*

   While QIAGEN strives for a diverse composition of the Supervisory Board, Managing Board, Executive Committee and in all other management levels of the Company, we do not consider the definition of concrete targets relating to diversity useful. We are committed to creating an environment where all individuals have the opportunity to grow and contribute to our progress, regardless of their age, educational background, gender, nationality, physical abilities, race and ethnic background, religion, or sexual orientation. We consider it to be a key success factor on the path to achieving our mission and goals. Individuals and teams alike understand the diverse needs of our customers, identify and realize cross-functional opportunities for our business areas, and can quickly adapt to a fast changing environment. In 2021, our multicultural workforce was composed of at least 80 nationalities with an average age of 39.4. With 49% women, we are well balanced in terms of gender on an aggregate level. Information on the composition of our Managing and Supervisory Boards can be found above.

3. *Best practice provision 3.1.2 vi recommends that when formulating the remuneration policy, it should be considered that shares awarded to members of the Management Board should be held for a period of at least five years*

   Pursuant to the Company's Remuneration Policy, long-term equity-based grants to members of the Managing Board under the 2014 Plan primarily consist of an award of performance stock units, i.e. long-term incentive awards which are dependent upon the achievement of pre-defined performance goals. Grants of restricted stock units, which are based on time vesting only, are no longer to be granted. Performance stock units and restricted stock units granted until February 2018 are basically structured so that 40% of a grant vests after three years, 50% after five years and the remaining 10% after ten years. Grants of performance stock units and restricted stock units granted after February 2018 vest 40% after three years, 60% after five years. Beginning in February 2021, grants of performance stock units vest after three years.

4. *Best practice provision 3.2.3 recommends that the maximum remuneration in the event of dismissal of a Management Board member may not exceed one year's salary (the "fixed" remuneration component).*

   Our Managing Board members have entered into agreements with QIAGEN N.V. and some QIAGEN affiliates for which they hold managing positions. In case of termination of an agreement without serious cause as defined by the applicable law, the respective affiliate would remain obliged to compensate the Managing Board member for the remaining term of the employment agreement.

5. *Best practice provision 2.2.4 recommends that the Supervisory Board should draw up a retirement schedule in order to avoid, as far as possible, a situation in which many Supervisory Board members retire simultaneously. The retirement schedule should be made generally available and should be posted on the company's website.*

   The Supervisory Board follows the practice to discuss retirement plans of individual members early to proactively manage continuity within the Supervisory Board. QIAGEN believes that this practice provides a more flexible and better succession planning than a fixed retirement schedule.

6. *Best practice provision 3.3.2 recommends that a Supervisory Board member may not be granted any shares and/or rights to shares by way of remuneration.*

QIAGEN has granted stock options to the members of the Supervisory Board as a remuneration component since its establishment until 2013 when we stopped granting stock options. Since 2007, Supervisory Board members have been granted restricted stock units. We believe that the reasonable level of equity-based compensation which we practice allows a positive alignment of shareholder interests with the other duties of the Supervisory Board and that this practice is necessary to attract and retain Supervisory Board members as the granting of share-based compensation to Supervisory Board members is a common practice in our industry.

NYSE Exemptions

Exemptions from the NYSE corporate governance standards are available to foreign private issuers, such as QIAGEN when those standards are contrary to a law, rule or regulation of any public authority exercising jurisdiction over such issuer or contrary to generally accepted business practices in the issuer's country of domicile. In connection with QIAGEN's listing on the NYSE, the NYSE accepted QIAGEN's exemptions from certain corporate governance standards that are contrary to the laws, rules, regulations or generally accepted business practices of the Netherlands. These exemptions and the practices followed by QIAGEN are described below:

- QIAGEN is exempt from NYSE's quorum requirements applicable to meetings of ordinary shareholders. In keeping with the law of the Netherlands and generally accepted business practices in the Netherlands, QIAGEN's Articles of Association provide that there are no quorum requirements generally applicable to meetings of the General Meeting.
- QIAGEN is exempt from NYSE's requirements that shareholder approval be obtained prior to the establishment of, or material amendments to, stock option or purchase plans and other equity compensation arrangements pursuant to which options or stock may be acquired by directors, officers, employees or consultants. QIAGEN is also exempt from NYSE's requirements that shareholder approval be obtained prior to certain issuances of stock resulting in a change of control, occurring in connection with acquisitions of stock or assets of another company or issued at a price less than the greater of book or market value other than in a public offering. QIAGEN's Articles of Association do not require approval of the General Meeting prior to the establishment of a stock plan. The Articles of Association also permit the General Meeting to grant the Supervisory Board general authority to issue shares without further approval of the General Meeting. QIAGEN's General Meeting has granted the Supervisory Board general authority to issue up to a maximum of our authorized capital without further approval of the General Meeting. QIAGEN plans to seek approval of the General Meetings for stock plans and stock issuances only where required under the law of the Netherlands or under QIAGEN's Articles of Association.

Environmental, Social and Governance

Environmental, Social and Governance Report

Our Approach to Sustainability

The past two years have demonstrated just how quickly social and environmental developments can affect business and proven that companies cannot effectively hold their strategy and operations separate from the issues facing their communities. Factoring social and environmental considerations into day-to-day business is not about minimizing costs, but rather recognizing them as important investments in the company's success. Consistently promoting good social well-being and establishing resource efficient business activities supports our goal to operate in a sustainable manner while ensuring operational profits.

At QIAGEN, sustainability means long-term economic growth aligned with respect for both the environment as well as our stakeholders – employees, customers, suppliers, and neighbors. By taking full responsibility for our environmental, social, and governance impact and influence, we strive to be a good corporate citizen and aspire to improve lives both with our range of products and services, as well as in the manner in which we conduct our business.

Committed to building a sustainable business

We have set ambitious goals to contribute to a more sustainable future – never compromising on our high quality standards

By 2050: Carbon neutral

2030 interim goal: 40% reduction in Scope 1 and 2, 10% reduction in Scope 3

9% reduction
in plastic transport packaging in 2022

Environment
Practice sustainability and protect global ecosystems

Goal: 35% women
in leadership in 2022

2021 level: 33%

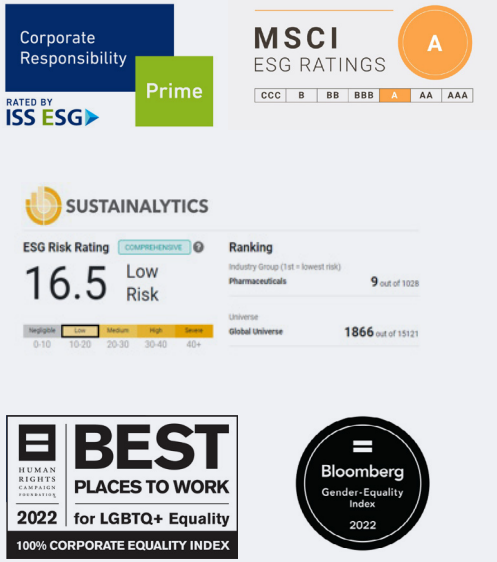
Goal: Maintain our ratings with Bloomberg Gender Equality Index and the Human Rights Campaign

Social
Foster diversity, inclusion and access to healthcare

100%
Suppliers committed to sustainable improvement goals by 2023

100%
Compliance training for all new employees

Governance
Ensure responsible corporate practices and compliance



2021 ESG Commitments

Our commitment to sustainability goes beyond formal regulations. For 2021, we defined and achieved three corporate ESG goals:

(1) To achieve a diversity target of more than 33% of leadership roles filled by women.
(2) To reduce transportation plastic packaging by 9% below 2020 levels.
(3) For our Days Away, Restricted and Transferred (DART) rate / incident rate to be less than 0.9 and near-miss reporting to be established in 14 sites.

The achievement of these Team Goals is linked to the annual performance goals of the Management compensation (short-term incentive, STI) as provided in the Remuneration Report.

In an important step to mitigate our environmental impact, we aligned our mid- and long-term carbon reduction targets in 2021 with the Science Based Targets initiative (SBTi) and committed to reduce our carbon emissions in line with a 1.5°C climate target. In October 2021, we started the SBTi validation process with the commitment to set science-based targets to achieve net-zero by 2050. We plan to finalize the validation in 2022.

During 2021, we continued to advance our environmental, social and governance (ESG) agenda and implemented a dedicated committee within the Supervisory Board to oversee measurement. We also established a Corporate ESG Committee for the strategic and operational work on these topics. The Corporate ESG Committee is led by our Head of Global Sustainability Measurements. This function reports directly to the Head of Global Operations, who is a member of our Executive Committee. The Corporate ESG Committee comprises a cross-functional team representing all areas of the organization.

Full information about our business model, structure, products, customers, and strategy can be found in the Management Report.

Material non-financial information

For guidance on materiality and non-financial disclosure, we apply the reporting standards provided by Global Reporting Initiative (GRI) as well as relevant guidance issued by Sustainability Accounting Standards Board (SASB) to our non-financial reporting.

For management purposes, we also work on the basis of defined materiality topics relating to sustainability. In the reporting period, we reviewed the materiality analysis first conducted in 2019. Our senior management validated the following list of material topics:

- Environmental matters: energy and emissions, water consumption, resource efficiency, sustainable procurement;
- Employee matters: employee satisfaction, occupational safety and health protection, employee development, responsible employer, equal opportunities;
- Social matters: access to healthcare, quality and product safety, customer satisfaction, data and cyber security;
- Respect for human rights: conflict minerals; and
- Anti-corruption and bribery matters: antitrust, anti-corruption.

Please refer to our non-financial statement 2019 for a detailed description of the process used to define material topics.

In the future, we will continue our work to gain a better understanding of our operating environment, including market developments and cultural dynamics. We will continue to approach employees, customers, patients, suppliers, shareholders, non-governmental organizations (NGOs) and communities in a range of ways, from standard questionnaires to one-on-one conversations. Employee-led volunteer sustainability committees contribute to environmental discussions and improvements throughout the company.

Environment

At QIAGEN, we are committed to minimizing the environmental impact of our business activities – from the energy we consume and the resources we use in our manufacturing processes, to the materials we use in our own laboratories and offices. We address these issues through global programs – the details of which can be found in this section – while also encouraging our employees to actively pursue ways to conserve energy and reduce waste in their activities, and in the services and products we provide. Some of these activities are driven by local sustainability committees.

In 2021 we documented our commitment in our Global Environment, Health and Safety (EHS) Policy and initiated mandatory sustainability training for all QIAGEN employees. In 2021, work started at our largest manufacturing location in Hilden on the implementation of an Environmental Management System as per ISO 14001.

In order to ensure comparability, certain prior year amounts in the environmental tables that follow have been updated due to improvements in environmental data collection and reporting processes during 2021.

Climate Change

We recognize climate change as one of the most pressing global challenges, bringing with it risks such as extreme weather events and changes in regulations or customer needs and behavior. Operations could, for example, be negatively impacted by fluctuations in the cost of raw materials, components, freight, and energy. New laws or regulations adopted in response to climate change could cause a further rise in energy prices, as well as the price of certain raw materials, components, packaging, and transportation. Our customers are generally very conscious of environmental issues including plastic consumption and the recyclability and durability of products. These factors influence their choice of supplier.

In 2019, we set a goal to reduce emissions in line with the 1.5°C climate target per the 2015 Paris Agreement. As such, we committed to reducing our Scope 1 (direct), Scope 2 (indirect), Scope 3.4. (transportation and distribution) and Scope 3.6. (business travel) emissions.

In 2021 we reaffirmed this commitment by joining the Business Ambition for 1.5°C campaign of the Science Based Target Initiative (SBTi). In joining the SBTi campaign we also joined the Race to Zero, a UN-backed global campaign to take immediate action to reduce emissions across all scopes. We are expanding the calculation and reporting of our emissions accordingly from this reporting year.

In accordance with the SBTi process, we officially committed to reach net-zero across our entire value chain by 2050. The first step of this commitment calls for us to reduce Scope 1 and 2 emissions by 42% and Scope 3 emissions by 12.3% by 2030.

By the end of 2021, we recorded an increase of 1.3% or 258 tCO_2e in Scope 1 and 2 emissions compared to 2020. The 2021 consumption was driven by increased business activities which exceeded the positive impact of the purchase of renewable electricity for our main production site in Hilden and the implementation of further energy efficiency measures.

Based on our expanded emissions reporting for 2021, we also recorded a significant reduction in Scope 3 emissions, which were 2.2% or 9,084 tCO_2e less over a one-year period.

Usage of renewable energy

Throughout 2021, we identified further opportunities for emission reductions. The first was to initiate a global conversion to renewable energy, starting at our main manufacturing and administrative sites. Our subsidiary in Hilden, Germany, set the precedent by switching to 100% green energy, significantly reducing our 2021 corporate carbon footprint. We also installed solar panels at our Hilden site, which, when active in 2022, will produce energy for our own operations and reduce the purchased amounts for this site.

Electric company cars and commuting incentives

To reduce the environmental impact of employee commuting, several of our sites have installed charging stations for electric cars and introduced bike-to-work programs. These include Venlo, Hilden and Germantown. Many facilities provide discounted train and bus tickets to encourage employees to use public transportation. In Hilden, an electric bike program was initiated to encourage employees to avoid using cars.

To further mitigate emissions, from 2022 we will start transitioning our entire fleet of company cars to electric cars over the next couple of years. Additional electric charging stations will be added on the QIAGEN campus in 2022 to compensate the increased need of green energy.

Environmental Performance

Our environmental data is collected through a centralized process that includes all production sites, research centers and offices. In accordance with the requirements for the SBTi commitment, we extended our emissions reporting in 2021 to include additional Scope 3 categories. The total carbon footprint for 2021 amounts to 417,361 tCO2e which is 2.1% or 8,826 tCO2e below the same year ago period of 426,187 tCO2e.

QIAGEN Corporate Carbon Footprint 2021

Emission category (in tCO_2e)	**2021**	2020	Change in tCO_2e 2020 to 2021	Change in % 2020 to 2021
Scope 1: Direct emissions	11,054	10,202	852	8.4%
Scope 2: Indirect emissions	9,822	10,416	(594)	-5.7%
Total Scope 1 and 2 (market based)	**20,876**	**20,618**	**258**	**+1.3%**
Scope 3.1: Purchased goods	274,471	293,619	(19,148)	-6.5%
Scope 3.3: Energy related emissions	2,684	3,007	(323)	-10.7%
Scope 3.4: Transportation and distribution	33,062	36,633	(3,571)	-9.7%
Scope 3.5: Waste in operations	6,097	3,628	2,469	+68.1%
Scope 3.6: Business travel	13,542	7,900	5,642	+71.4%
Scope 3.7: Employee commuting	6,188	6,613	(425)	-6.4%
Scope 3.11: Use phase of sold products	1,475	1,534	(59)	-3.8%
Scope 3.12: End of life	58,966	52,635	6,331	12.0%
Total Scope 3	**396,485**	**405,569**	**(9,084)**	**-2.2%**
Total Emissions	**417,361**	**426,187**	**(8,826)**	**-2.1%**

Scope 1 covers direct Greenhouse Gas (GHG) emissions from the combustion of fossil fuels on our own premises and by company vehicles.

Scope 2 covers our indirect GHG emissions originating from the external generation of electricity for our operational and business activities. They are reported using both a location-based and market-based approach. A location-based calculation method for Scope 2 emissions reflects the average emissions intensity of grids on which energy consumption occurs; a market-based method reflects emissions calculated with the energy source mix used by each of our sites.

Scope 3 covers upstream and downstream emissions that occur along our value chain. The subcategories are reported separately in table (QIAGEN Corporate Carbon Footprint 2021). We have considered emissions in the following categories as material to our operations: Scopes 3.1. (Purchased goods and services), 3.3. (Energy related

activities), 3.4. (Upstream transportation and distribution), 3.5. (Waste in operations), 3.6. (Business travel), 3.7. (Employee commuting), 3.11. (Use phase of sold products) and 3.12. (End of life).

The energy data used to calculate Scope 1 and 2 emissions can be viewed by source in table QIAGEN Energy Consumption Scope 1 and 2.

QIAGEN Energy Consumption Scope 1 and 2

Energy consumption by source (in kWh)	**2021**	2020	2019
Natural gas	35,254,698	33,854,835	34,679,620
Petrol	10,632,676	7,908,050	8,677,185
Diesel	3,833,095	3,771,816	5,255,293
Liquefied Petroleum Gas (LPG)	435	361	50,179
Electricity procurement from conventional tariffs	22,587,904	38,551,191	36,130,248
Electricity procurement from green tariffs	14,507,701	136,970	1,142,240
Consumption from district heating, district cooling and steam	1,270,813	362,748	223,000
Total energy consumption (including green energy)	**88,087,322**	**84,585,971**	**86,157,765**

In addition to our energy data, we collect data regarding freshwater consumption, waste, and recycling.

Our operations consumed 131.9 megaliters of water in 2021 and 11.6 megaliters were extracted from areas classified as having medium-high, high, or extremely high water stress as defined by World Resource Institute Aqueduct.

QIAGEN Water Consumption by Water Stress Level

Water stress level of site (in megaliters)	**2021**	2020
Low	105,855	96,645
Low-medium	14,444	12,655
Medium-high	6,200	4,521
High	3,455	4,375
Extremely high	1,916	1,854
Total water consumption	**131,870**	**120,050**

The table QIAGEN Environmental Indicators lists the environmental performance data for 2019 through 2021. The data is shown as a ratio of our consolidated environmental data in relation to our net sales (NS in $ thousands), to establish a system for long-term monitoring.

QIAGEN Environmental Indicators

	2021	Indicators 2021		2020	Indicators 2020		2019	Indicators 2019	
Energy (in MWh)	88,087	0.0391	MWh/NS	84,586	0.0452	MWh/NS	86,158	0.0564	MWh/NS
GHG emissions Scope 1 + 2 (in tCO_2; location-based)	30,240	0.0134	t/NS	29,441	0.0157	t/NS	29,347	0.0192	t/NS
Freshwater use (in m^3)	131,870	58.57	l/NS	120,051	64.19	l/NS	174,635	114.41	l/NS
Total waste (in t)	2,434	1.081	kg/NS	2,490	1.331	kg/NS	1,155	0.757	kg/NS
Hazardous waste (in t)	1,534	0.681	kg/NS	507	0.271	kg/NS	330	0.216	kg/NS

Product life cycle assessment

In 2019, we conducted a life cycle assessment (LCA) for the QIAamp DNA Mini Kit, one of our best-selling products. An LCA assesses the environmental impact of the full life cycle of a product (so called "cradle to grave"), including the extraction and processing of raw materials, transport to the customer, energy and material input required when using the product, as well as transport to the disposal facility and incineration of remaining materials.

As the QIAamp DNA Mini Kit is similar in composition and manufacturing process to other QIAGEN kits, our aim was to extrapolate ways to improve the environmental performance across our kit portfolio from the findings of the LCA. Areas identified for optimization in the first instance included changes to secondary transportation packaging to reduce plastic usage, further details of which can be found in the section "Plastic Footprint Reduction."

The LCA of a sample kit, the QIAamp DNA Mini Kit has been updated in 2021 with an increased scope and notable improvements to data quality. The 2021 LCA has been carried out in accordance to ISO 14040/14044 and hence it is certified by an independent third party (GUTcert). The LCA reconfirmed the environmental impacts within the entire life cycle of a QIAamp DNA Mini Kit. The detailed report on the LCA can be found on QIAGEN's website under Sustainability.

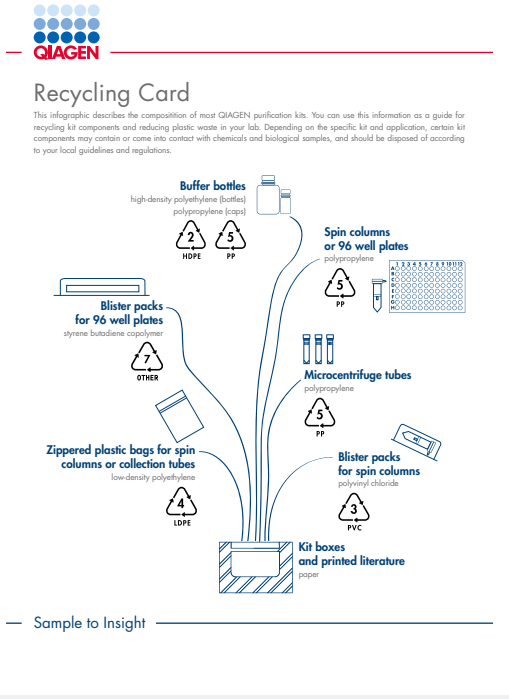
Plastic footprint reduction

We use plastics in many of our products and production support materials, as well as for transport and packaging. Our industry faces several challenges in reducing plastic materials due to technical and regulatory requirements, safety, and hygiene standards. However, we are working to eliminate plastics wherever possible without compromising on product quality. Our global cross-functional, plastic footprint reduction team identifies opportunities to reduce plastic, investigates more environmentally friendly alternative materials, and optimizes recyclability where possible.

Plastic footprint reduction

Committed to reduce, replace, and recycle plastic waste wherever possible, without compromising on the safety and hygiene standards required of our products

Reduce	Reduced the thickness of blister film in packaging equating to a 2,800 kg annual reduction Reduced the number of gel packs used equating a 33.4-ton annual reduction
Replace	Replaced packaging with sustainable material for cold shipments in North America and Canada – reducing our plastic footprint by > 14 tons per year
Recycle	Recycling cards inform our customers of kit composition and provides information on safe recycling according to local guidelines and regulations



In 2021, we set a corporate goal to reduce plastic transportation packaging material by 9% below 2020 levels. We surpassed this goal by achieving a 9.6% reduction in plastic transport packaging. Our goal for 2022 is to reduce it by a further 9% compared to 2021.

Many of our plastic reduction initiatives focus on transport material packaging. For example, in 2021 we introduced plant-based material alternatives to replace the expanded polystyrene (EPS) coolers in cold-chain shipments. The straw-based coolers in Europe, the Middle East and Africa (EMEA) and paper-based coolers in the Americas have replaced a total of 15,700 EPS coolers in 2021. We also replaced plastic bubble wrap with paper. We will continue to expand these initiatives in 2022.

As we are responsible for our entire supply chain, we are also actively working with our logistics suppliers on other initiatives to reduce shipping waste. These include, for example, utilizing re-usable passive temperature control shipping systems for certain cold-chain products.

In 2021 we developed a new eco-friendly product range called the QIAwave, with the aim of reducing the environmental impact of our products. The new kit design contains less internal plastic packaging, includes more concentrated buffers contained in smaller bottles and uses collection tubes made of 100% recycled plastic. This results in up to 63% less plastic and 42% less cardboard in each kit. New QIAwave kits deliver the same high-quality DNA and RNA, but with a reduced environmental footprint. QIAwave marks the beginning of our journey to translate sustainability into our products. We are working on further improvements to advance the circular economy of our QIAwave.

Environment-friendly facilities

We aim to make our buildings environmentally friendly by seeking LEED certification for new construction. Hilden's research and development and the production facility were awarded LEED Gold certification, and an extension to the QIAGEN Germantown facility received Silver certification. In 2021, our Manchester, U.K., subsidiary moved to a new site designed with energy saving technology incorporated. Our initiatives to improve energy efficiency include energy modeling during the design phase of buildings, energy extraction from co-generators, improved insulation, heat recovery, lighting replacements, and installation of intelligent building systems. Manchester's new building includes indoor storage for 36 bicycles, with further provision outside of the building. Furthermore, a first e-bike initiative started at our subsidiary in Stockach, Germany.

Our local volunteer sustainability committees have initiated projects to reduce waste at their sites by introducing recycling and composting programs, replacing single-use items with reusable versions, and donating surplus office furniture and lab equipment to local community organizations. They collaborate across regions and departments to identify and implement impactful sustainability projects.

Employees

Our long-term success and growth depend on the knowledge, skill and passion of our employees. Focusing on human capital therefore drives our economic performance and considerably influences the sustainability of our operations. We are convinced that the professional and personal development of our employees is an integral factor in creating value for customers, patients, colleagues, partners and shareholders. Being the industry's employer of choice by attracting and developing top talent is one of our global goals. To achieve that, QIAGEN creates a work environment that empowers and involves employees at all levels.

We have a culture of empowerment driven by achieving targets

Decentralized decision-making

- Giving teams at all levels greater influence
- Bringing decisions closer to customers

Ambitious but realistic targets

- Appropriately balance opportunity and risk
- Training teams on PREmortem analysis

A culture of "doers"

- Foster a stronger culture of ownership
- Increase diversity in global workforce

As a company headquartered in the EU, freedom of association and collective bargaining are cornerstones of the good relationship between management and representatives of employees. Around 76% of our workforce is employed in member states of the Organization for Security and Cooperation in Europe (OSCE), and in all regions where we operate, we comply with all applicable laws regarding freedom of association and collective bargaining and respect local laws and regulations concerning labor relations. Our commitment on this issue can also be found in our Human Rights Policy on our Sustainability webpage. This policy is communicated to all employees globally on an ongoing basis via the company intranet and also given to newly hired employees. We strive to foster an open-door workplace culture where employees are able to approach management and/or Human Resources about their concerns without fear of retaliation. Our policy states that employees may communicate openly with management regarding their working conditions without threat of reprisal, intimidation or harassment.

Among all QIAGEN guidelines, the following policies aim to incorporate our culture and values into all of our internal and external relationships. These are available internally for all employees:

- Our Corporate Code of Conduct and Ethics is intended to provide our employees with a clear understanding of the business conduct and ethics that are expected of them.
- Our Ethical Standards Policy: QIAGEN's cultural norms and values are defined in our mission, vision and identity. Our values form the basis of our business success. Every employee is expected to treat everyone in an open, honest and respectful manner.

Depending on local law and custom, there are different types of QIAGEN employment ranging from long-term fixed contracts to temporary positions, also including flexible time and programs for parents returning from parental leave. In 2021, we employed 2.5% of our workforce on a part-time basis (2020: 3.0%) and 4.7% on a temporary contract / fixed-term work contract (2020: 2.1%).

Employee training

As a fast-growing technology and knowledge-based company, we consider high-quality training and career development to be an integral part of our success. We offer various training platforms such as QIAlearn, QIAGEN Academy, and MasterControl that provide the possibility to either use our global e-learning portfolio or to participate in personal trainings usually offered in a blended format. The focus is on job-specific skills, compliance, competencies and leadership development.

During 2021, we conducted a mix of virtual instructor-led and e-learning courses totaling approximately 95,000 hours for more than 5,800 attendees. In addition, 35 employees participated in our Global Executive Leadership Development Programs during 2021. All trainings were conducted virtually in 2021 due to the ongoing COVID-19 pandemic.

As part of our talent and succession management, we have established transparent career paths with the QIAGEN Profile Navigator. It defines jobs, core competencies and approaches to advancement across the global organization.

In addition, our global Performance Enhancement System creates a clear framework of regular one-on-one review sessions for each employee and their manager to discuss career development. These include discussions of goals and achievement levels, assessment of relevant competencies, as well as training needs and career planning steps.

As part of the feedback mechanism for continuous improvement to individual leadership competencies, the annual 180° feedback process provides the opportunity for employees and supervisors to give anonymized feedback to managers. For 2021, employees provided very positive feedback overall.

Diversity

At QIAGEN, we are committed to creating an environment that is rich in diversity and empowers all employees. We want to provide an environment where all individuals have the equal opportunity to grow and contribute, regardless of their age, educational background, sex, sexual orientation, gender identity, gender expression, nationality, ethnicity, veteran status, physical abilities or religion. Our diversity is a strength and makes QIAGEN a great place to work.

The QIAGEN Executive Council of Equal Opportunity (ECEO) is made up of senior representatives from each of the business areas across the organization. Globally agreed cross-functional objectives are tied directly to our corporate goals on diversity and inclusion (D&I) and the ECEO drives initiatives within each organizational area. The ECEO sponsors our D&I ambassador program which is comprised of more than 25 employees who volunteer to champion D&I across our global sites. In 2021, the ambassadors hosted site and region-specific speakers and presentations, and organized trainings, workshops and events to educate the community – within QIAGEN and beyond. The ambassadors have updated many D&I resources for employees including our unconscious bias training which emphasizes actions that can be taken beyond awareness of unconscious bias to proactively drive inclusive behavior.

Our strategic initiative on gender diversity started in late 2018 has yielded remarkable results, particularly regarding leadership positions. The participation of women in leadership roles (QIAGEN management and above) rose from approximately 28% in 2018 to 34% in 2021 (2020: 33%). We continue to work towards gender parity and are targeting a 2022 goal of 35% or more women in leadership roles. We have been listed under the 2022 Bloomberg Gender Equality Index which provides an opportunity for companies to assess progress towards parity, benchmark against peers and highlight a commitment to gender equality.

Our commitment to diversity extends beyond cultural and gender diversity. In 2021 we made a targeted review of all our policies and guidelines and updated them to ensure clarity and confirmation of our commitment to equality for LGBTQ+ workers and their families. As a result of these updates as well as other initiatives focused on the LGBTQ+ community during the year, our U.S. subsidiary received a score of 100 on the Human Rights Campaign (HRC) Foundation's 2022 Corporate Equality Index (CEI). We are also a member of the Business Coalition for the Equality Act.

In 2021, we launched the first cohort of our mentorship exchange, an internal program pairing employees who are uniquely positioned to support each other's career goals. The mentorship exchange is designed to support career progress as well as foster a strong sense of culture and inclusiveness at QIAGEN.

Throughout 2021 we have been working towards the launch of QIAGEN communities. During the year we have completed a series of discussions, surveys and focus groups with the aim to identify and support the launch of communities requested by our employees. These groups are all volunteer-led, and in the initial launch, expected in mid-2022, we will focus on four topics: Disability/Accessibility, Parents/Caregivers, LGBTQ+ and Women. We are supporting our employee volunteers by providing training and resources to launch this important initiative.

Diverse teams strengthen our organization through the variety of ideas, perspectives and approaches they bring to our business. Our teams perform best when they are composed of individuals with the widest possible range of personalities, backgrounds and traits. That's why we value each individual and maintain an environment where everyone can be successful. More information about the policy on diversifying the Management Board and the Supervisory Board can be found in the Corporate Governance Report.

Employee satisfaction and retention

Our employees are the key to our success, and so we seek to be a great place to work. We offer opportunities to work on exciting tasks and projects in an engaging environment. Employees join QIAGEN and stay with us because they can see how their work makes a difference in people's lives around the world. Internal and external ratings have continued to improve and highlight our good reputation and preferred position within the global working environment. As expected, after a year of incredibly low turnover, our turnover rates did increase year over year but in line with the internal goals to maintain overall voluntary turnover at the management level under 7%. At the same time, the average voluntary annual turnover rate has increased from approximately 8% to more than 11% in 2021.

Turnover at Management Level

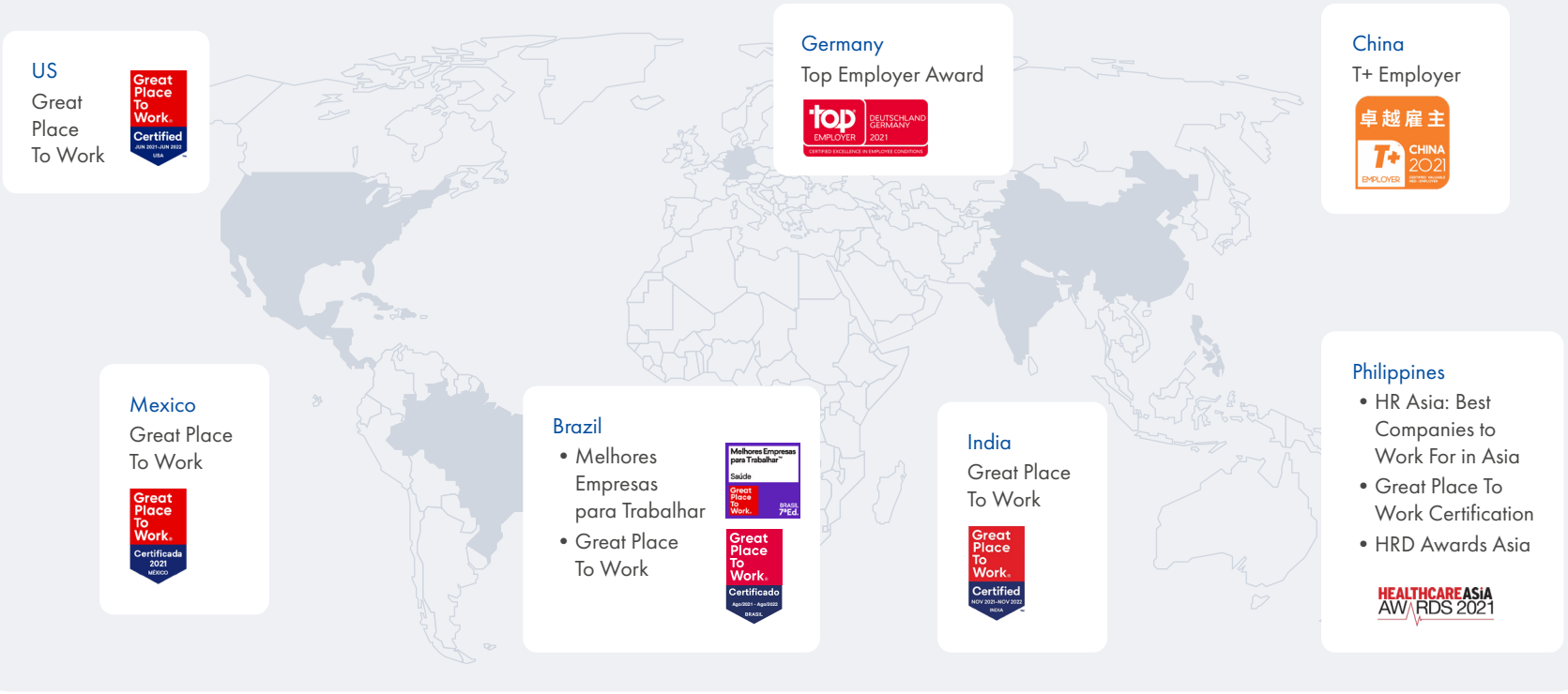
				2021	2020
QIAGEN Leadership	Headcount	Average Headcount	Voluntary Leavers	Voluntary Turnover	Headcount
Female	211	238	(16)	6.7%	265
Male	409	446	(29)	6.5%	482
Total	**620**	**684**	**(45)**	**6.6%**	**747**

Work-life balance is an important measure to create and maintain employee satisfaction. We provide services to help employees balance their personal lives with the company's dynamic work environment, including in-house childcare, and flexible working hours. Our global flexible framework allows all employees who can work remotely to do so up to 25% of the time. We have a significant number of part-time employees (2.5%) and also provide short-term bereavement leave. Regarding the COVID-19 pandemic, we were and continue to be flexible and allow our employees to work from home as guided by local regulations as well as personal situations. Beginning in 2021, we rolled out our global QIAflex program, which is our flexible working framework. QIAflex provides the framework that local site leadership follows in developing the model of flexible working for eligible employees at their location, typically based on a split of 25% remote work and 75% onsite work. We also offer an Employee Assistance Program (EAP) in Poland, Germany, U.S., Canada, UK, Australia and the Philippines. Our employees can make use of consultant service to get support on personal topics. EAP is offered through different communication channels, like in-person meetings, video conferences and phone calls, adapted to the needs of the employees. More than 60% of our employees work in countries that offer an EAP and we are looking to expand this program.

We have implemented frameworks for performance-based compensation and equity-based compensation, and incentive programs for new ideas and innovation. These programs aim to ensure fair and attractive compensation and to encourage each employee to contribute to the company's long-term success. Our Remuneration Report provides detailed information on the compensation practices regarding our Supervisory and Managing Boards. Our internal pay ratio is defined as the ratio between the average pay of the Managing Board and the average pay of QIAGEN employees on a global level. The combined pay ratio in 2021 for the Managing Board was 68:1 (2020: 72:1).

An essential component of our efforts to maintain a high level of satisfaction at work is our corporate health and safety management. We offer a wide range of measures and tools, from annual "health days" with free counseling, screening and medical check-ups, to fitness opportunities in the form of in-house gyms, on-site soccer fields and beach volleyball courts, and online yoga. We also held several online mental health events throughout the year, and added an EAP in many countries.

QIAGEN has received employer awards around the globe in 2021



Our commitment to being an employer of choice is also reflected in the high number of applications we receive for open positions. In 2021, we were once again recognized as a "Top Employer" in Germany and additionally received the Top Employer Certificate in China. The Top Employer Institute is a global authority on recognizing excellence in people practices. The title is awarded after a very rigorous process where companies must share detailed information on their HR practices, have an onsite review and provide several employee interviews. Our Brazil and Mexico subsidiaries were also once again certified. In India, the Philippines and the U.S. we also received "Great Place to Work" awards for the first time. To earn the certification, at least 7 out of 10 employees must classify the company in a survey as a "Great Place to Work." For the ranking, an assessment of the cultural practices and a complementary questionnaire are considered. Our Shared Service Center in Manila also won multiple employer certifications in 2021 including Asia's "Great Place To Work" and Asia's "Best Employer Brand 2021."

At QIAGEN, we also deploy short anonymous engagement surveys, or Pulse Checks, globally to provide a snapshot of engagement levels within the organization. In 2021, three Pulse Checks were deployed and had an average participation rate of 65% with an average trending score of 4/5 across all areas of engagement. Participation rates and overall average score by Pulse Check in 2021 are as follows: March: 63% participation rate and overall score 4.0, June: 70% participation rate and overall score 4.06 and November: 62% participation rate and overall score 3.94.

Occupational safety and health protection

We recognize our responsibilities with respect to occupational health and safety. All QIAGEN employees are required to adhere to local health and safety procedures and practices. Safety, orderliness, and cleanliness are a key success factor at QIAGEN.

Our Global EHS team defines the principles and direction of the implementation of global EHS policies and procedures in alignment with International Standard 45001. Local EHS teams at our facilities coordinate, manage, and monitor site-specific occupational health and safety risks and activities, which include the management of permits and licenses, risk analysis and assessments, planning for unplanned events, accident reporting, and health and safety inspections.

In 2021 the global EHS policy was reviewed, and mandatory training provided to all employees. Furthermore, the Hilden site, which is our largest manufacturing location, expanded the local EHS team to implement an occupational health and safety management system according to ISO 45001.

In 2021, we also committed to a company-wide goal to reduce the rate of lost workdays due to injuries, by driving initiatives to improve our culture of safety. To that end, we launched a global digital system for the reporting and investigation of safety incidents across all facilities, and mandatory safety awareness training. These activities supported the 2021 QIAttention campaign which was designed to raise awareness of safety and encourage reporting of safety incidents and near misses.

Our corporate goal is to keep the number of safety incidents that result in Days Away, Restricted and Transferred (DART) below 0.9 /per 100 employees. The data for this metric during 2021 was collected monthly from 14 QIAGEN sites located in the U.S., EMEA and the Asia-Pacific (APAC). The DART rate for 2021 was maintained below 0.9 which was a good achievement in light of an increase in manufacturing hours.

The table below shows the DART rate for our key facilities in 2021 (14 key sites) and 2020 (13 key sites).

DART rate for key QIAGEN facilities

	2021[2]	2020[3]
Total number of calculated work hours[1]	8,263,028	6,731,500
Total number of recordable work-related injuries	40	29
Total number of recordable work-related injuries that caused days away from work, restricted work activities and/or job transfers encountered	35	17
DART (per 100 employees)	0.85	0.51

(1) Total number of calculated work hours including contractors, temporary workers and QIAGEN employees

(2) In 2021, scope has been extended and now covers 14 sites to include NeuMoDx (United States) acquired in September 2020.

(3) In 2020, scope covered 13 key sites: QIAGEN Iberia SL (Spain); Beverly QIAGEN Inc (United States); DIALUNOX GmbH (Germany); QIAGEN Frederick (United States); QIAGEN Sciences (Unites States); QIAGEN GmbH (Germany); QIAGEN Manchester Ltd (United Kingdom); QIAGEN K.K. (Japan); QIAGEN DNA Synthesis AB (Sweden); QIAGEN Shenzhen Co. Ltd (China); QIAGEN Singapore Pte Ltd (Singapore); TIANGEN Biotech Co. Ltd (China); QIAGEN Business Services (Poland).

The table below shows the Total Recordable Incident Rate (TRIR) for our key facilities in 2021 and 2020, and by QIAGEN employees and non-employees whose work is controlled by QIAGEN. Further information, including a split by employees and non-employees is available on Sustainability page at www.qiagen.com/sustainability.

Health And Safety Indicators For QIAGEN Employees And Employees Whose Work Is Controlled By QIAGEN

Health and Safety Indicators (employees and non-employees)	**2021**	2020
Number of work-related fatalities	0	0
Total Recordable Incident Rate	0.97	0.86
Lost Time Case Rate (excludes restricted and transferred work)	0.80	0.51
Number of near misses (close calls)	81	30

The table below shows the total number of recordable incidents and number of lost workdays for only QIAGEN employees during periods 2021, 2020 and 2019, by region.

Total Number Of Recordable Incidents And Numbers Of Lost Workdays For QIAGEN Employees

	Total Recordable Incidents[2]			Days Lost due to Injuries		
	2021[3]	2020	2019	**2021[3]**	2020	2019
Headcount average per month[1]	3,815	3,220	3,132	3,815	3,220	3,132
Europe / Middle East / Africa	30	23	17	471	64	121
Americas	9	6	3	146	49	5
Asia-Pacific / Japan	1	0	0	0	0	0

[1] Headcount average per month of QIAGEN employees at key manufacturing sites across APAC, US and EMEA.

[2] Recordable incidents include lost workdays, restricted work, and medical treatment beyond first aid.

[3] Data for 2021 equates to 62% of the total number of QIAGEN employees, due to the fact that data has been collected only from key manufacturing sites.

In 2021, reporting of safety incidents that did not result in injury, or "near misses," were encouraged, to promote further safety awareness and support continuous improvement initiatives. Health and safety training programs were also implemented 2021.

Sites that have implemented lean management processes utilize the blue safety cross - a visual data collection tool - to capture the number of daily safety incidents, including near misses and accidents. The tool is used to improve safety and promote good practice within the teams by raising awareness of safety incidents related to their work.

Measures at QIAGEN to fight COVID-19

To further ensure the health and safety of our staff, several measures, capabilities and capacities to fight COVID-19 were expanded and intensified in 2021.

At the Hilden site, we provided all staff with free face masks (surgical or FFP2), placed disinfectants at all central and crucial locations, and we rolled out dedicated onsite rules and regulations, aligned with recommendations from respective authorities. Additionally, we expanded our capacity to provide free coronavirus testing to employees, initiated at the onset of the COVID–19 pandemic in early 2020. In 2021, we ran nearly 70,000 tests in our internal laboratory for Hilden-based employees, their families, and external service providers, using our technologies for sample prep and virus detection. This represents a more than six-fold increase over 2020 numbers. The introduction of a saliva-based sample collection process formed the base for our "Lolli-Test 2go" in-house PCR tests which increased ease of use for self-testing and improved the workflow in the testing lab. Results were delivered within a maximum of 24 hours, and individuals testing positive were called individually to ensure measures were followed to protect the health and safety of all involved. We also provided the Hilden-based SARS-CoV-2 testing to employees at our sites in Köping (Sweden), Stockach (Germany) and Wroclaw (Poland). First and second shot vaccinations against COVID-19 were offered on-site in Hilden in close collaboration with the company physicians.

Human Rights

Respect for human rights is an essential component of promoting sustainability in our global business. As a publicly listed company with international operations, we regard ourselves as a responsible corporate citizen in all the countries and regions where we do business. This role includes rights and obligations governed by international and national law, with human rights as one of the foundational elements.

The global crisis created by Russia's invasion of Ukraine has resulted in the adoption of extensive sectoral and financial sanctions. QIAGEN condemns Russia's actions against Ukraine and supports the measures, including sanctions and export controls, that the European Union, the United States and other jurisdictions have announced. As a global company and in accordance with our values, we will act responsibly in all matters related to the conflict, including the implementation of sanctions and embargoes. Our employees - particularly in Poland, Romania and Austria - have launched various initiatives to support refugees from Ukraine. We are working closely with our commercial partner in Ukraine to support their colleagues, and also with our QIAGEN employees in Russia, some of whom have family in Ukraine.

In this sense, we acknowledge and endorse the UN Universal Declaration of Human Rights, the European Convention on Human Rights, the business-related Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Guiding Principles on Business and Human Rights and its application in National Actions Plans of our relevant jurisdictions. For the U.K., QIAGEN Ltd has endorsed its official statement about the UK Modern Slavery Act 2015 globally.

Our Human Rights Policy is designed to provide guidance on all human rights issues in our sphere of influence including our relationship with customers, employees, and in our supply chain. For more information on our due diligence processes with regard to human rights in our supply chain, please refer to the "Sustainable supply chain management" section. Our Human Rights Policy can be found on the Sustainability page on our website at www.qiagen.com/sustainability.

Our review of potential compliance matters with respect to human rights violations applies a risk-based approach (see "Compliance" section). It takes into account that our global operations can be classified as either administrative, research and development, manufacturing or sales-based. None of these areas, including our manufacturing sites, allow for employment practices that violate human rights principles (such as child or slave labor). Furthermore, local management is responsible for the observance of the principles set forth in our Code of Conduct and Ethics and our Human Rights Policy at all these sites. We therefore do not apply additional specific human rights reviews of our operations.

Sustainable supply chain management

We strive to ensure that our quality standards, compliance with laws and regulations as well as environmental and social standards are maintained along the entire value chain of suppliers and partners, and demand the same from our business partners. Our procurement policy includes specific requirements for corporate governance, environmental and social standards, which we expect our suppliers to adhere to as minimum standards. Among other issues, it includes obligations to reduce the use of substances of concern, to ensure collective bargaining and freedom of association among employees, fair wages, and regulations concerning maximum working time. The procurement policy is available online on QIAGEN's website.

In alignment with QIAGEN's Compliance Program (especially QIAGEN's Corporate Code of Conduct and Ethics), every QIAGEN employee is required to conduct themselves honestly, fairly, and objectively in all business relationships with suppliers and all others with whom QIAGEN maintains business relationships. Our compliance training program ensures that employees in the procurement organization understand our guidelines and comply with them.

Integrating sustainability throughout the value chain

Examples of sustainability in product design

- Avoiding materials that cause a lot of damage when they are mined, cannot be recycled or do not decompose
- Improving repairability, longevity, and allowing for reuse
- Designing products to use less energy and produce less waste for customers
- Optimizing recycling by making it easy to separate materials

Structure of our supply chain

We operate in more than 35 locations worldwide, and our sites are supported by a global supplier network that includes approximately 8,300 (2020: 9,000) suppliers in over 70 (2020: 60) countries, supplying resources such as chemicals and bioreagents, plastics, packaging materials, as well as other materials and services essential to our business. In 2021, 75% (2020: 76%) of our overall purchasing volume came from OECD countries.

Region of origin of suppliers

Region of origin	2021	2020
Europe	47%	48%
Asia	25%	25%
North America	21%	22%
South America	4%	3%
Australia	2%	2%
Africa	1%	0%
Total	**100%**	**100%**

Due diligence process

To minimize compliance, environmental and social risks in our supply chain, we apply a multi-stage vendor selection process. Suppliers are subjected to a risk analysis regarding environmental and social criteria based on their geographic location. These criteria were supported by information from the MVO Nederlands platform financed by the Dutch Foreign Ministry as well as the Bertelsmann Stiftung's Sustainable Development Goals Index in 2020. This analysis identified zero suppliers for whom potential risks exist due to geographic location and sales to QIAGEN.

In 2021, all new suppliers signed our procurement policy as a mandatory part of the contracting process. The policy contains requirements regarding legal compliance, anti-bribery and corruption, labor rights, free speech, right of assembly, non-discrimination and fair treatment, health and safety as well as environmental protection and conservation. QIAGEN provides a whistleblower hotline, which can be used by all employees. The contact details can be found on our website within the Corporate Code of Conduct and Ethics section. In addition, first-tier suppliers must confirm REACH, RoHS and conflict mineral compliance as appropriate.

As part of our supplier selection process, we conduct additional assessments. Some suppliers are analyzed with a supplier risk assessment. This includes all strategic suppliers with a high critical impact on QIAGEN's security of supply. The analysis is based on the following criteria, among others: quality management, financial stability, embargoes, risks of natural disaster. This process will be evaluated in the future against further criteria in context with evolving compliance, environmental and social standards. The relevant data for the assessment is either submitted via a questionnaire, or the suppliers are assessed on site during a visit. If a supplier does not fulfil all criteria, next steps are decided on an individual basis.

Quality audits are conducted on site at least every three years for all "A"-categorized suppliers. We document all audits and share the results with the audited suppliers. In case of non-conformity with respect to quality processes, corrective actions are delivered to the supplier.

Our current processes ensure that our top suppliers, contributing to over 80% of our expenditure, confirm their compliance with our Compliance Policies. Our corporate headquarters in Hilden (Germany) will be subject to the German Supply Chain Due Diligence Act (Lieferkettensorgfaltspflichtgesetz) effective as of January 1, 2024. The new law will impose significant due diligence requirements on the supply chain and impact our global operations. We will start preparing to implement the required tools and processes as of 2022. We are currently reviewing automated solutions which allow for human rights reviews in our supply chain, and we plan to implement these solutions in 2022, as well.

Conflict minerals

The sourcing of certain minerals (known as "conflict minerals") has been linked with human rights abuses in the Democratic Republic of Congo (DRC) and other conflict zones. Our products consist of sample and assay kits, known as consumables, and automated instrumentation systems. We do not believe that any conflict minerals are necessary for the production or functionality of any of our consumable products. Certain "conflict minerals" are however necessary for the functionality or production of certain instrumentation products that we manufacture or contract to manufacture. After conducting a reasonable country of origin inquiry (RCOI) with the suppliers of certain components used in these products, we have concluded that our products are "DRC conflict free" through December 31, 2020.

We performed a comprehensive analysis of our automation and instrumentation components and identified all suppliers that may source "conflict minerals," which include columbite-tantalite, cassiterite, gold, wolframite, and their derivatives, tin, tungsten and tantalum. We defined the scope of our RCOI to include all of these direct suppliers. We began conflict minerals inquiries of these direct suppliers in the fourth quarter of 2021 and received responses from the direct suppliers which were either provided on company letterhead or on standard conflict minerals reporting templates established by the Electronic Industry Citizenship Coalition. We conducted our RCOI in good faith and believe that our inquiry was reasonably designed to determine whether any of the conflict minerals originated in the DRC or any adjoining country. In conducting this inquiry, we relied on the direct suppliers' responses about the source of conflict minerals contained in the components supplied to them. These direct suppliers are similarly reliant upon information provided by their own suppliers.

We received responses to our request for information from all direct suppliers within the scope of the RCOI. Of the responses, all confirmed that the products they supply to QIAGEN are either DRC conflict free or they are not aware of any non-compliance in their supply base.

Based on the RCOI, we have no indication that any conflict minerals used in our products originated in the DRC through December 31, 2020. We disclosed our findings to the U.S. Securities and Exchange Commission (SEC) for the year ending December 31, 2020, on Form SD on March 26, 2021, and will provide updated disclosure to the SEC annually. Our assessment for the year ending December 31, 2021, is ongoing and we expect to provide our disclosure on Form SD by the end of May 2022.

Business ethics and anti-corruption

For QIAGEN, conducting business in a responsible way includes looking beyond our day-to-day business operations into the ethical foundations of our company. This means, in particular, the respect for human rights and legally compliant business behavior.

Ethics in R&D

For our research and development (R&D) activities, we endorse the principles and proposals of scientific organizations and advisory groups – such as the American Society of Human Genetics and the European Society of Human Genetics – that have issued cautionary guidelines on the ethical use of genome editing technologies.

Clinical studies are essential to evaluate the performance and clinical value of our regulated clinical diagnostic tests. This information is required by regulatory authorities to gain marketing approval. More importantly we are committed to bringing high performance products to the market, and this can only be achieved by establishing the performance characteristics of a potential product according to its intended use. Therefore, we and our partners conduct clinical studies for our diagnostics tests that are to be approved for use as in vitro diagnostics in a patient care pathway. In the conduct of these studies, we commit to ensuring the well-being, safety, ethical concerns, and legal rights of the study volunteers.

In light of this, we have built global procedures for the conduct of clinical studies which abide by the following principles:

- The Declaration of Helsinki: this is a statement of ethical principles that was developed by the World Medical Association to guide medical research WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects – WMA – The World Medical Association
- The International Conference on Harmonization and national Good Clinical Practice (GCP) guidelines
- ISO 20916: In vitro diagnostic medical devices — Clinical performance studies using specimens from human subjects —Good study practice

All investigators and staff involved in QIAGEN studies must have up-to-date training in GCP and be suitably qualified for their role. Eligible studies must be approved by ethics committees or the Institutional Review Board prior to starting, and if required, have the appropriate regulatory approvals from authorities in the country in which the study is being conducted.

We use residual (left-over) patient samples whenever possible, minimizing the need to actively collect samples from patients. Where active participation by volunteers in studies is needed, we obtain informed consent by providing volunteers, in accordance with best practice, with a comprehensive overview of the study including its risks and benefits and alternative options for the patient.

Appropriate guidelines, such as ISO20916, Clinical and Laboratory Standards Institute guidelines and feedback from regulatory authorities, are applied in the design of QIAGEN clinical studies. This is to ensure the integrity of study design, adherence to sound scientific principles and that high quality data is generated, while the risk to volunteers is minimized.

We convene a Medical Safety Committee, chaired by the Chief Medical Officer, to oversee study and patient risk, and to assess any adverse event or device event reports, which are then appropriately reviewed and reported.

Personally identifiable data that we collect during the conduct of QIAGEN studies is kept confidential in accordance with all applicable laws and regulations. We issue all volunteers with unique subject identification numbers to de-identify patient data, ensuring we meet the requirement for data privacy.

For transparency and accessibility of clinical performance data of QIAGEN clinical diagnostic tests, QIAGEN undertakes to:

- Register relevant studies on www.clinicaltrials.gov
- Publish studies in peer-reviewed publications in an anonymized fashion

Ethical product use

Following articles in the media about the use of DNA profiling technologies for the genetic surveillance of minorities in certain countries, we reviewed our commercialization channels in such countries and we could not confirm that any such practices were performed with our products.

We endorse the application of our products, our services, and our operations in compliance with Human Rights principles and codes such as the U.N. Guiding Principles on Business and Human Rights. Many of our products, such as DNA or RNA extraction kits, have an intended use for a broad range of research and diagnostic applications, including COVID -19, oncology testing and forensics. None of them are designed for population screening, but we acknowledge that it is technically possible to operate our products for this purpose. As per our Human Rights Policy, we do not tolerate the misuse of our products for purposes such as mass screening and surveillance of ethnic minorities, and we will block customers involved in such practices from further sales should this become known to us. However, as we operate via distributors in many countries, we have no means of monitoring the identity of all of our customers, or control the use of our products by end-customers.

To mitigate this, we will be asking all our distributors in 2022 to sign modified distribution agreements requiring them to block end-customers from further sales in the event they become aware of any misuse of our products as defined by our Human Rights Policy. Those amendments will give us the legal leverage to terminate the respective distribution agreement if necessary.

Our approach to tax

We are committed to conducting business lawfully, ethically, and with the highest degree of integrity. These fundamental values and principles, as defined in our three I's (Integrity, Inspiration, and Insight), are key to the long-term success of our company and the basis for our tax strategy.

Our tax strategy is embedded in the following guiding principles which reflects our status as a listed company and the regulated nature of our business.

Tax accountability and governance

Tax is part of our corporate governance and is supervised by the QIAGEN Managing Board. The tax function of QIAGEN is centrally managed and controlled by its Global Tax Department, which is part of the Global Finance organization. It is led by the global Head of Tax, who reports to the Chief Financial Officer of the QIAGEN Group. Under the ultimate responsibility of our Audit Committee and Managing Board, the Chief Financial Officer regularly reviews, evaluates, approves and where necessary adjusts QIAGEN's approach to tax.

Tax follows business

One of the basic principles for sustainable tax management is that taxes should be paid where economic value is generated. We allocate assets to the jurisdictions in which the underlying activities are performed, and risks are assumed. This ensures that the return on our business activities is allocated and taxed where they are actually performed. The volume of product and service flows among entities within the company is significant, and the price of transactions among QIAGEN entities is an important factor in QIAGEN's overall tax organization. Our Global Transfer Pricing Team determines the policy for the pricing of such transactions based on a full analysis of the value drivers of our business, ensuring that international and local rules are followed. Our objective is that all entities are remunerated at "arm's length," in accordance with OECD guidelines and country-specific rules and regulations.

The intellectual property related to our products and also to marketing specific intangibles are key profit drivers within QIAGEN, and profits generated with the employment of such assets are appropriately remunerated with the respective owner. The owner is the company controlling and taking the entrepreneurial risk of investing in the intellectual property. Our main entrepreneurs and intellectual property owners are companies in Germany, the U.S. and Spain.

We will only use business structures that are driven by commercial considerations, are aligned with business activity and have genuine substance. We do not operate in countries that are on the EU list of non-cooperative jurisdictions for tax purposes.

Seeking and accepting tax benefits

Like many companies, we seek to optimize our global tax position by accepting tax incentives. In doing so, we always try to achieve an appropriate balance between corporate, employee and shareholder interests on the one hand and public interest on the other. We are committed to conducting business lawfully, ethically, and with the highest degree of integrity. We seek to comply with both the letter and the spirit of the relevant local and international tax laws and principles wherever we operate, and we anticipate paying tax on profits where our business activities take place and added value is created. If possible and ethically appropriate, we apply for tax incentives and exemptions. Such tax incentive schemes relate to eligible Research and Development activities performed by QIAGEN.

Compliance

We are committed to complying with the tax legislation of the countries in which we operate and create added value and to paying the right amount of tax at the right time. We strive for full and timely tax compliance. To minimize any tax compliance risk, a frequent review process is in place to secure timely and correct tax filings and tax payments. In the execution of tax compliance, third-party tax service providers are often involved under the supervision of the Global Tax Department.

Stakeholder engagement

We seek an open dialogue with our stakeholders, including relevant tax authorities, our shareholders, customers, business partners, employees, governments, regulators, NGOs and the communities in which we operate. In some cases, QIAGEN and the respective tax authority may disagree on the correct application of local tax law. In the event of disputes, we collaborate with the respective tax authority in a fair and positive spirit to find balanced solutions in accordance with the applicable laws.

Transparency

Country-by-Country Reporting (CbCR) requires multinationals to report with aggregate data on the global allocation of income, profit, taxes paid and economic activity among tax jurisdictions in which they operate. This requires QIAGEN N.V., the ultimate parent of the QIAGEN Group, to file an annual CbCR report to the Dutch tax authorities.

We provide in the following selected, aggregated information for the regions Europe, Middle East and Africa (EMEA), North and South America (Americas) and Asia Pacific, Japan and Rest of World (APAC). We also provide more detailed information and reconciliation in accordance with the respective GRI standard on our website within the Financial Reporting section. The following information are presented in US$ thousands if not otherwise stated.

Tax Reporting

	2021				2020			
In '000s, except for headcount	EMEA	Americas	APAC	**Total**	EMEA	Americas	APAC	**Total**
Headcount (people)[1]	3,343	1,433	1,252	**6,028**	3,065	1,323	1,222	**5,610**
Income tax paid[2]	$22,170	$75,108	$4,805	**$102,083**	$28,645	$6,660	$7,267	**$42,572**
Related party revenues[3]	$2,133,257	$874,037	$221,178	**$3,228,472**	$1,847,943	$575,142	$29,549	**$2,452,634**
Profit before income tax for CbCR	$260,302	$372,301	$12,432	**$645,035**	$181,796	$287,392	$14,895	**$484,083**
Tangible assets[4]	$762,676	$344,916	$97,433	**$1,205,025**	$593,367	$272,812	$83,602	**$949,781**

(1) The total number of employees on a full-time equivalent basis (Headcount) of constituent entities.

(2) The amounts for income tax paid during the relevant years by constituent entities resident for tax purposes in the relevant tax jurisdiction. The disclosed amounts are net and include payments and reimbursements for income tax.

(3) Related party revenues include intra-group sales revenues of all constituent entities as well as other income with constituent entities.

(4) The sum of the net book values of tangibles assets of constituent entities resident for tax purposes in the relevant tax jurisdiction does not include cash or cash equivalents, intangible or financial assets.

Financial assistance from governments

We recognize government grants when there is reasonable assurance that all conditions will be complied with, and the grant will be received. Our government grants generally represent subsidies for specified activities and are therefore recognized when earned as a reduction of the expenses recorded for the activity for which the grants are intended to compensate. Thus, when the grant relates to research and development expenses, the grant is recognized over the same period that the related costs are incurred. Otherwise, amounts received under government grants are recorded as liabilities in the statement of financial position. When the grant relates to an asset, the value of the grant is deducted from the carrying amount of the asset and recognized over the same period that the related asset is depreciated or amortized.

The company has received cost grants and investment grants. In 2021, the company received income from government grants in the amount of $1.3 million (2020: $3.0 million).

COVID-19 related grants

Since early 2020, we have been working closely with governments, public health authorities and customers to ensure availability of critical COVID-19 testing diagnostics across the globe, while also developing new dedicated COVID-19 tests to cover all stages of the infection cycle. In this context, QIAGEN launched its largest investment program ever to increase production capacity in Hilden (Germany), Maryland (U.S.) and Barcelona (Spain).

This investment program is being supported by a grant of EUR 18 million from the government of North Rhine-Westphalia (Germany), a grant of $0.6 million from the U.S. government and a grant of EUR 0.5 million from the Spanish government.

COVID-19 related financial measures

Governments around the world are acting decisively to protect their businesses and people from economic disruption resulting from the COVID-19 virus pandemic. QIAGEN has not proactively applied for any COVID-19-related financial stimulus. Some countries, however, have introduced generic measures that apply automatically to all or certain business areas.

Compliance

As a publicly listed company with international operations, QIAGEN is subject to regulation in various jurisdictions. Unethical behavior and non-compliance with laws and regulations have the potential to seriously harm our business, our reputation and our shareholders, and to expose our employees to personal liability. QIAGEN has established a comprehensive Compliance Program, which translates legal and regulatory requirements as well as our fundamental values into clear and precise guidelines in our Corporate Code of Conduct and Ethics, supplementing specific policies for our employees. Our Corporate Code of Conduct and Ethics can be found here on our Compliance webpage under Investor Relations.

The policies include, but are not limited to, aspects such as conflicts of interest, insider trading, revenue recognition, confidentiality and social media. Policies regarding interactions with healthcare professionals are fully compliant with the AdvaMed Code of Ethics and are described in detail in our Global Sales and Marketing Policy that includes guidelines on samples, gifts etc. Moreover, QIAGEN does not make or receive any payments to or from political parties or political action committees. Such actions have been prohibited without exception by QIAGEN's Code of Conduct since its establishment in 1996. QIAGEN is a member of a number of industry trade associations such as AdvaMedDx (US) and MedTech (Europe) which work to advance important healthcare related initiatives with governmental and non-governmental organizations from time to time. We also collaborate with global health policy institutions such as the World Health Organization and regional consortia such as the African Society for Laboratory Medicine to improve affordable access to testing solutions for neglected diseases in low-resource settings. We had no specific expenditures for these activities in 2021.

We pay special attention to antitrust and anti-corruption laws. Our specific antitrust and anti-corruption policies support our commitment to ensure that QIAGEN and its subsidiaries abide by the antitrust and anti-corruption laws of the countries in which we operate. Our policies on anti-trust and anti-corruption can be found on our

Compliance webpage under Investor Relations. We extend our Compliance Program not only to our management and employees, but also to third-party intermediaries such as distributors or agents. Our third-party due diligence program - which lies in the remit of the Global Compliance Manager - focuses on our local distributors and agents and contains the following six elements:

(1) Pre-screening, anti-corruption questionnaire and certification for new distributors, resellers and agents
(2) Annual risk assessment of selected third parties based on a calculated risk score, which factors in location of business and Corruption Perceptions Index
(3) Annual audits of the anti-corruption program and third-party risk management conducted by internal and external auditors
(4) Training for third-party distributors
(5) Contractual obligation to comply with applicable laws (including anti-corruption laws) and QIAGEN's Code of Conduct and Anti-Corruption Policy as well as compliance certification
(6) Due diligence in the form of annual background checks of random selection of third parties and ongoing monitoring

All our compliance policies are available to employees through the company's Compliance@QIAGEN intranet pages. Our employees' awareness of compliance is increased by regular in-person trainings, which are held by external as well as in-house legal and regulatory experts. QIAGEN also offers an online training program focusing on topics such as antitrust and competition, bribery and corruption, conflicts of interest, data protection, gifts and entertainment, harassment, insider trading, reporting as well as respectful communication.

Online training is provided to all employees in their local language, and supported by multiple communication resources. New employees are required to take online training on our Corporate Code of Conduct and Ethics and to confirm that they have read and understood the Code. Additional training customized to the specific area of responsibility is mandatory. Employees in sales and marketing as well as upper management are required to complete training on anti-corruption and antitrust laws. These basic trainings are followed by regular refresher courses (depending on the course, from quarterly to every three years). In 2021 and 2020, our employees completed more than 7,000 online training modules. In addition, employees are informed through the Company's Compliance@QIAGEN intranet page and regular updates on compliance topics via the company's internal communication platform Yammer and its quarterly Compliance Newsletter. During 2021 each employee was provided with cyber security, master data governance, and health & safety near miss prevention trainings as required.

We provide a hotline for reporting accounting-related concerns anonymously and in good faith. In accordance with the U.S. Sarbanes-Oxley Act and the listing standards of NYSE, QIAGEN follows a strict non-retaliation policy. QIAGEN will diligently investigate all such complaints and will protect the anonymity of the complainant to ensure protection from retaliation as well as to secure the employment status of the complainant. We also offer a direct email and telephone hotline for employees to address questions or make suggestions for our Compliance Program.

Our Compliance Program is overseen by the Compliance Committee under the leadership of the Head of Global Legal Affairs and Compliance, who reports in this function directly to the Audit Committee of the Supervisory Board. The Compliance Committee consists of managers from Legal, Internal Audit, Human Resources, Commercial Operations, Trade Compliance and Regulatory functions.

In the reporting period, QIAGEN had no legal actions pending or completed regarding antitrust or corruption.

Data and cyber security

As the external threat landscape continues to evolve, managing cyber security risk is a priority for QIAGEN. We are committed to making investments to enhance the cyber resilience of our organization, products and services and to preserve the trust of our customers, partners and employees.

Our cyber security program ensures that data and cyber security efforts and initiatives reflect evolving business requirements, regulatory guidance, and emerging threats.

Our data and cyber security-related processes are based on the ISO 27001 standard as well as the Information Security Forum Standard of Good Practice. Global cyber security and privacy requirements are actively monitored for and discussed as part of QIAGEN's Cyber Security Council as well as Data Protection committee meetings. Cyber Security risks are managed as part of QIAGEN's Enterprise Risk Management and regularly reported to the Audit Committee.

We have supporting privacy and cyber security policies and guidelines in place which are reviewed and approved as part of QIAGEN's Cyber Security Council and Compliance committee procedures. These documents are available to all employees on QIAGEN's intranet and we offer further mandatory training on a regularly basis, during which we carry out knowledge checks to ensure that the content was understood by the trainees. We also conduct regular 'phishing' simulations, awareness webinars and workshops on important security topics, as well as role specific trainings.

Recognizing the increasing cyber threat landscape and the importance of preparation for cyber incidents, we refreshed our Cyber Incident Response procedures in 2021. To our knowledge, we did not experience any material cyber security incidents or material breaches of customer data privacy, cases of data theft or data loss related to customer data in 2021. We also did not record any well-founded privacy complaints with Data Protection Authorities.

Our Cyber Security team pro-actively monitors for exposed weaknesses in the organization's systems and services. In addition, we are working with CREST (Council for Registered Ethical Security Testers) certified partners to conduct regular security assessments of our infrastructure. To facilitate information and knowledge exchange, QIAGEN has joined well-known industry and governmental cyber security communities like the Information Security Forum (ISF), Allianz fuer CyberSicherheit, UK Cyber Security Information Sharing Partnership, Health-ISAC and Cyber-Sicherheitsrat Deutschland e.V.

Social Matters

QIAGEN's mission is to make improvements in life possible by enabling our customers to achieve outstanding success and breakthroughs in life sciences, applied testing, pharma and molecular diagnostics. We are committed to delivering our customers and their patients innovative solutions that unlock new insights for scientific research, forensics, food safety or better treatment decisions. We understand and live up to our responsibility to customers and patients who depend on us for reliable, efficient and safe workflows.

Customer satisfaction

Customer satisfaction is an integral part of the QIAGEN mission of making improvements in life possible. Our customers have high expectations in terms of the reliability, safety and environmentally friendly manufacturing of our products. We develop our products and services in close consultation with our customers and incorporate their feedback into our processes.

We commit to continually improving our customers' experience, taking into account their evolving needs and expectations. Globally, we have established a systematic approach to measure customer experience in the form of an aggregated Customer Experience Indicator. This is measured monthly through a set of internal KPIs – such as product and delivery performance or phone support – and external customer feedback linked to customer experience in our transactions. This allows us to quickly and reliably identify areas for improvement.

Departmental and employee contributions to performance are embedded into our annual goal-setting process. For 2021, we achieved a year-to-date (Jan to Oct) score of 94.4 points out of a maximum of 100 points, versus 92.6 points in 2020. The increase compared to the previous year indicates an improvement in performance throughout all regions, primarily in the area of product availability but also in our ability to respond to customer inquiries, both commercial and technical.

Quality and product safety

QIAGEN stands for quality. Since our founding in 1984, we have been committed to the highest quality, and strive to exceed our customers' expectations. Our reputation as a quality supplier is best-in-class in our industry and is the foundation of our loyal global customer base. Our products are designed and developed following state-of-the-art usability standards and are verified and validated according to their intended purpose.

To achieve and maintain our quality standards, we established quality management systems (QMS) in all our manufacturing facilities worldwide. These assure consistent high quality, as well as safe and effective medical devices. QIAGEN's QMS are certified according to ISO 9001, ISO 13485, ISO 18385, and comply to 21 CFR 820 and all other applicable medical device standards around the world (see section "Government Regulations" in the Management Report). Furthermore, we are committed to regularly adapting our system to new or revised regulatory requirements like the new European In Vitro Diagnostic Devices Regulation EU/2017/746 (IVDR).

Our products and their components are safe to use by customers and our employees. In the early stages of product development, the Chemical Compliance Department provides a statement and guidance on the use of specific substances. During this evaluation, we put special emphasis on substances of very high concern (according to REACH in the EU) and ensure that these substances are not added to new products. We use a component tree to reach this goal – a list of all materials that can be used in development, including an overview of qualified substances, suppliers, components and substances that must not be used (i.e. substances of concern). We have also developed a strategy to reduce substances of concern in our production processes.

When assessing the manufacturability of a new product, the evaluation considers technical aspects, regulatory requirements, financial aspects and timeline constraints. We aim to fully eliminate the use of OPnEO and NpnEO (substance groups for substances of very high concern) and have launched a project to substitute OPnEO and NpnEO in non-regulated/non-in-vitro diagnostic (IVD) products within the next four years, and in IVD and otherwise regulated products within the next nine years. To do this, we conducted a detailed technical evaluation to assess the scope and feasibility of substitution of substances of concern. A holistic analysis of multiple parameters will determine the prioritization and sequence of substitution. Such parameters consider:

- volume and concentration of substances of concern in an affected product;
- total annual volume turnaround of the affected product and substance;
- economic aspects (revenues and revenue projection) of the affected product;
- complexity of substitution; and
- product sustainability.

This systematic approach allows us to determine the most effective substitution of substances of concern from affected products.

To ensure the compliance of our products, including automated system products, QIAGEN uses software configured to support supply chain communication and data evaluation. It also monitors conformity with directives such as REACH, RoHS, the Waste Framework and Conflict Minerals.

Our transparent and responsible product and development policy also includes communication and marketing. As with all companies in the medical device/IVD industry, our product claims and properties are verified and validated during development and approved by regulatory bodies around the world as part of the product submission process. All IVD products are specially tested for safety and usability during development. We market products only in accordance with their approved intended purpose and declare potential residual (or remaining) risks in the instructions for use of each product.

QIAGEN, like other companies, is exposed to the financial implications of potential recalls and other adverse events due to equipment failure, manufacturing defects, design flaws, or inadequate disclosure of product-related risks. In the event of a recall, we have established global procedures applicable to all QIAGEN sites that aim to avoid the further use of the product and to guarantee cost-neutral procedures for our customers. We guarantee full traceability of each product to the final customer and can therefore notify customers directly in the event of a recall. Required actions for recalls depend on the individual case. They can range from providing additional information to physically recalling a product. We have defined processes, responsibilities, and improvement programs as required by regulating authorities to avoid the recurrence of recalls. Due to our stringent quality management, recalls rarely occur. In past recalls, we were able to reach 90% to 100% of customers to confirm the recall.

Recalls and Affected Products

	2021	2020	2019	2018	2017	2016	2015
Number of recalls	6	6	3	4	0	3	1
Percentage of affected products	0.08%	0.14%	0.15%	0.09%	0.00%	0.21%	0.02%

Access to healthcare

We are committed to leaving no one behind when it comes to providing equitable and affordable access to our products across all regions and business areas. In certain areas, we have increased our efforts even further, such as in providing access to COVID-19 testing as part of our contribution to end the global pandemic. We also developed new tools and innovations for tuberculosis (TB) testing and brought TB infection tests to rural areas with little or no laboratory infrastructure. And we helped advance women's health by closing long-term agreements with the World Health Organization and United Nations Population Fund, among other international bodies, to supply our human papillomavirus (HPV) products to developing countries at the lowest global price.

To help coordinate our efforts on a global scale, in 2021, we created a Global Public Health Task Force composed of representatives from each region where QIAGEN operates. The task force is responsible for developing strategies and initiatives that advance our access goals, with a particular focus on marginalized and vulnerable populations, low resource areas, developing countries, rural communities, and gender-based equity, among other priorities. This group will report on specific metrics and outcomes in 2022.

In addition to our core business activities, "QIAGEN Cares" is the company's Corporate Social Responsibility program, an umbrella for supporting initiatives that improve lives by fighting diseases in which our products can play an important role. These are helping to find new ways to ensure developing countries with scarce resources gain access to affordable diagnostics that play a critical role in helping to prevent and treat diseases. Infectious diseases and various malignancies can be treated much more cost-effectively and with improved patient outcomes through early and precise detection. Yet many developing countries lack properly trained lab personnel and technical infrastructure to utilize the latest molecular testing technologies.

We therefore collaborate with non-governmental health organizations, local nonprofits, and ministries of health on capacity building programs, research projects, training and educational initiatives to help ensure efficient distribution of our products. This year, QIAGEN committed to work with international experts and local partners to undertake a broad infrastructure project in Africa supporting centers of excellence and national reference laboratories on the continent to ensure laboratories have appropriate infrastructure to absorb our product offerings.

In terms of our commitment to affordability, QIAGEN is committed to offering UN agencies, public health authorities, non-profit organizations, and non-governmental organizations operating in low-resource, high-burden countries access to the lowest available global price for our products. This pricing transparency is publicly listed on the websites of the international bodies that procure our products. In most cases, countries that are eligible for Global Fund financing qualify for our global health pricing.

In addition to offering the lowest global price for global health customers, we have also scaled up donations to areas most in need. Our social responsibility efforts aim to provide access to cutting-edge molecular technologies to people worldwide, regardless of their economic or social status, including diagnostic solutions designed especially for settings where limited medical resources are available. In this context we revised and expanded our Global Donation and Sponsorship Policy, which included creating a Global Donation Review Committee in 2022 to help streamline and scale-up these donation activities.

In 2021 our Life Sciences teams were also active in providing research grants and support to various public health, research and academic laboratories in Europe, Asia and North America. For example, the team provided a non-monetary dPCR grant to a public health lab in the United States to support a novel workflow. Six applications were received and the best application was selected for digital PCR.

In Europe, the BioPharma team initiated a Biotech Grant in 2021 specifically aimed at young biotech companies. Grant winners receive up to US $100,000 in instruments and reagents. Finally, in Asia, a research grant was announced for academic institutions in Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam, providing two winners with US $10,000 each in dPCR consumables. One of the winning entrants is a cardiovascular research institute that submitted a proposal to decipher the role of identified non-coding RNAs in the disease progression of heart failure.

Tuberculosis

QIAGEN is leading a global effort to advance diagnostics for tuberculosis (TB) and Human papillomavirus (HPV) in low-resource, high-disease burdened countries. Tuberculosis is one of the world's leading infectious disease killers, claiming three million lives in 2020. It was the first time in more than a decade that TB deaths had increased, due to the effects of the COVID-19 pandemic. We are committed to helping find and treat more cases of TB as countries continue to recover from the decline in case detection caused by the pandemic.

More than 100 million QuantiFERON-TB (QFT) tests have been made available in more than 130 countries, and it has become the recognized gold standard test for TB infection. In October 2021, QIAGEN launched QIAreach QTF, a novel, field-friendly test with ultrasensitive digital detection. It utilizes the same QFT technology built into a fully portable device to help meet a previously unmet medical need in low-resource, decentralized and rural areas. As such, we are committed to making it accessible and affordable in all eligible country partners of The Global Fund to fight AIDS, Tuberculosis and Malaria. To do this we are working with key stakeholders at the country and global levels, including the Stop TB Partnership and the Global Drug Facility, who will be instrumental in helping achieve broad access via their pooled procurement strategies. Programs are already underway in more than a dozen high-burden countries to roll out QIAreach QFT with the goal of identifying and treating more than one million TB patients within the first three years. A QIAreach QFT donation program will also be launched in 2022.

In 2021, QIAGEN was also recognized by the Treatment Action Group as one of the leading private sector investors in TB diagnostics research and development, after increasing our contribution from 2019 and dedicating nearly $4 million in R&D activities in 2020. Importantly, we were very proud to be listed among the top private sector investors in pediatric TB R&D, doubling our contribution in this area over the previous year. Children are often a neglected segment of this already neglected disease. The unique needs of children and adolescents require new tools and innovations, and QIAGEN is a leader in developing testing solutions suitable for this vulnerable population.

Women's health

Over 100 million women have been screened for HPV with a QIAGEN test from our women's health portfolio, which includes careHPV, QIAscreen and QIAsure. Our goals for these HPV testing solutions are to expand our collaborations with multinational agencies and the NGO community active in the field, particularly in sub-Saharan Africa where HPV testing is ramping up. We aim to reach another 100 million women over the next several years.

In 2021, QIAGEN was recognized by the Clinton Health Access Initiative (CHAI) in a joint WHO/UNAIDS consultation meeting for providing careHPV, the lowest cost HPV test currently available in the market, for public health programs and UN procurement agencies. QIAGEN remains committed to maintaining the lowest global price and has announced an additional donation scheme of careHPV instrumentation for global health partners who commit to working towards scaling up HPV testing in their public health programs.

COVID-19 testing

Since the start of the COVID-19 pandemic, we have been working closely with governments, public health authorities and customers to ensure worldwide availability of critical COVID-19 testing diagnostics, while also developing new dedicated COVID-19 tests to cover all stages of the infection cycle. In order to meet the high demand for COVID-19 tests, we dramatically scaled up production, moving to 24-hour, seven-day-a week operations at our manufacturing sites, and investing in additional equipment capacity.

Dedicated COVID-19 tests brought to market since the start of the pandemic include:

- QIAStat-Dx Respiratory SARS-CoV-2 Panel (EUA, CE-IVD) intended for the qualitative detection and differentiation of nucleic acid from multiple respiratory viral and bacterial organisms, including the SARS-CoV-2 virus, in nasopharyngeal swabs
- NeuMoDX single-plex and 4-plex assays (EUA, CE-IVD) a rapid, automated, in vitro real-time RT-PCR diagnostic test for the direct detection of SARS-CoV-2 Coronavirus RNA from nasopharyngeal, oropharyngeal and nasal swab specimens
- Artus SARS-CoV-2 Prep&Amp UM (CE-IVD) a solution that streamlines RNA extraction and PCR analysis into one process, delivering a result in under one hour and requiring less disposable laboratory plastic-ware than standard PCR tests, helping to avoid resource bottlenecks
- QuantiFERON SARS CoV-2 T cell immune response (CE-IVD) intended to aid in assessing cell-mediated immune (CMI) response in individuals without a history of SARS-CoV-2 infection and who have received COVID-19 vaccination using vaccines targeting the viral spike (S) protein of the SARS-CoV-2 virus.
- QIAseq Direct SARS-CoV-2 and QIAseq SARS CoV-2 primer panel for fast targeted whole genome library preparation of SARS-CoV-2 for genomic surveillance and variant detection; and a suite of next generation sequencing (NGS) and bioinformatics tools - used for epidemiological studies.

Support for local initiatives

We support a broad range of activities in communities where our businesses are based. Our expanded Global Donation and Sponsorship Policy and new Global Donation Committee will help to streamline and scale-up our activities. These include sponsorship of science education, disease awareness campaigns, the installation of school laboratories and promotion of biology in school curricula. Our local engagement goes beyond financial support. In Hilden, for example, we collaborate with the local Rotary Club to help integrate refugees from Syria and other war-torn countries through a program that includes language training and cultural orientation, assessment centers, and internships at QIAGEN.

Hilden also works with Hephata, a local institution for citizens with disabilities, who undertake a broad range of operational tasks for the company, including certain packaging and production responsibilities.

In North America, our employees are granted eight hours of paid community service time per year, and in 2021 contributed around 780 hours of volunteer time to meeting community needs. Our Community Service Committee mobilizes volunteers and provides company funds for projects that improve the lives of people locally and nationally.

>6,000 passionate QIAGENers around the world are employed by QIAGEN

People from all functions working together to achieve our vision: Making improvements in life possible

EU Taxonomy

On December 9, 2021, the European Union formally adopted its delegated taxonomy regulation. The aim of the European Taxonomy Legislation (EU Taxonomy) is to create a uniform language and understanding for sustainable economic activities. To this end, legally binding criteria will be used to define whether certain economic activities contribute significantly to the six key EU environmental goals.

The legislation is still under development: by the beginning of 2022, the taxonomies for two of the six EU environmental goals had been adopted, namely for climate protection and adaptation to climate change (so called Climate Taxonomy) The Environment Taxonomy, i.e., the requirements for the other EU environmental targets as well as are still being developed.

The EU Taxonomy only includes economic activities that are of particular importance for the transformation to an environmentally and climate compatible economy. If a company has no or few economic activities as defined in the taxonomy, then it may be less important for the achievement of the European environmental goals, but this does not imply a negative statement about the environmental performance of the company.

The reporting requirements of the EU Taxonomy include the disclosure of information on how and to what extent activities are associated with activities defined in the EU Taxonomy, using Key Performance Indicators (KPIs) for the proportion of sustainable turnover, capital expenditure (CapEx) and operational expenditure (OpEx). The initial legislative only included the criteria for aligned for CapEx and OpEx. On February 2, 2022, the Commission published more guidance on eligible CapEx and OpEx.

Currently, there is little guidance available on how to interpret the EU Taxonomy. The relevant rules and regulations are still under development. In the coming years, economic activities and environmental objectives will be further elaborated upon, and more guidance will become available.

In 2021, we have examined to what extent we generate revenue from economic activities that are included in the so-called Climate Taxonomy, i.e. in the delegated regulation (EU) 2021/2139. It turned out that our economic activities in the reporting period 2021 are not taxonomy-eligible.

Furthermore, we assessed that we cannot provide the CapEx and OpEx in line with the EU Taxonomy considering data availability limitations and expected low materiality. However during 2022 we will continue to monitor the further development of the EU Taxonomy reporting requirements for non-financial undertakings and will revalidate assessments and disclosures periodically and also will further improve the granularity of relevant information in our global financial reporting systems in order to make them entirely available at the respective aggregation level.

QIAGEN's ESG performance at a glance

Environment

Climate
- 417,361 tCO_2e total carbon footprint for Scope 1, 2 (market based) and 3
- 88,087 MWh total energy consumption
- 100% renewable energy for main production site in Hilden

Water
- 131,870 m^3 freshwater use
- 5,371 m^3 in areas with high or extremely high water stress level

Waste
- 9.6% plastic footprint reduction in 2021 compared to 2020
- 63% less plastic and 42% less cardboard used for each kit in QIAwave product line
- 2,434 t total waste

Product life cycle assessment
- LCAs for best-selling product in accordance with ISO 14040/14044

Social

Access to healthcare
- Production scale-up to meet the demand for COVID-19 tests
- More than 100 million QuantiFERON tests for tuberculosis have been made available in more than 130 countries to date
- More than 100 million women screened for HPV with a QIAGEN test

Local initiatives
- 780 hours of volunteer time committed to meeting community needs in North America

Attractive employer
- 6,028 employees, 11.1% turnover
- 6.6% turnover at Management level
- Top Employer Certificate in Germany and China
- Approximately 95,000 hours of trainings completed

Diversity and Inclusion
- Diversity & Inclusion program driven by ECEO and D&I ambassadors
- 34% of women in leadership roles
- Perfect score of 100% on the HRC CEI
- Listed in 2022 Bloomberg Gender Equality Index

Health and safety
- 0.85 DART rate (per 100 employees)
- 0.97 recordable incident rate
- 40 work-related injuries
- 0 work-related fatalities

Governance

Human rights
- Human Rights Policy provides guidance for our relationship with customers, product use, employees, and in our supply chain

Ethics In R&D
- Global procedures for clinical studies in place (Declaration of Helsinki, GCP, ISO 20916)

Compliance
- More than 7,000 online training modules completed

Data security
- Processes are based on the ISO 27001
- No material cyber incidents

Tax
- $102 million income tax paid

Quality and product safety
- 94,4/100 Customer Experience Indicator
- 0.08% of products affected from a total number of 6 recalls

Sustainable supply chain management
- Approx. 8,300 suppliers in over 70 countries
- 75% of purchasing volume sourced from OECD countries
- Conflict mineral inquiries for all direct suppliers

Financial Results

Financial Results

Consolidated Financial Statements

QIAGEN N.V. and Subsidiaries Consolidated Balance Sheets

		As of December 31,	
(in thousands)	Notes	**2021**	2020
Assets			
Current assets:			
Cash and cash equivalents	(3)	$880,516	$597,984
Short-term investments	(7)	184,785	117,249
Accounts receivable, net of allowance for credit losses of $23,124 and $27,052 in 2021 and 2020, respectively	(3, 24)	362,131	380,519
Inventories, net	(3)	327,525	291,181
Prepaid expenses and other current assets (of which $16,956 and $25,429 in 2021 and 2020 due from related parties, respectively)	(8, 24)	354,645	237,472
Total current assets		2,109,602	1,624,405
Long-term assets:			
Property, plant and equipment, net of accumulated depreciation of $632,416 and $630,443 in 2021 and 2020, respectively	(9)	638,183	559,372
Goodwill	(11)	2,350,763	2,364,031
Intangible assets, net of accumulated amortization of $806,787 and $809,724 in 2021 and 2020, respectively	(11)	627,436	726,194
Fair value of derivative instruments - long-term	(14)	190,430	379,080
Other long-term assets (of which $10,843 in 2020 due from related parties)	(10, 12, 24)	157,644	161,658
Deferred tax assets	(17)	72,896	54,879
Total long-term assets		4,037,352	4,245,214
Total assets		**$6,146,954**	**$5,869,619**

The accompanying notes are an integral part of these consolidated financial statements.

QIAGEN N.V. and Subsidiaries Consolidated Balance Sheets

(in thousands, except par value)	Notes	As of December 31, 2021	2020
Liabilities and equity			
Current liabilities:			
Current portion of long-term debt	(16)	$847,626	$42,539
Accounts payable	(24)	101,224	118,153
Accrued and other current liabilities	(10,13,24)	568,620	411,483
Total current liabilities		1,517,470	572,175
Long-term liabilities:			
Long-term debt, net of current portion	(16)	1,094,144	1,880,210
Fair value of derivative instruments - long-term	(14)	191,879	393,455
Other long-term liabilities	(12, 15)	209,320	186,724
Deferred tax liabilities	(17)	37,591	39,216
Total long-term liabilities		1,532,934	2,499,605
Commitments and contingencies	(20)		
Equity:			
Preference shares, 0.01 EUR par value, authorized—450,000 shares, no shares issued and outstanding		—	—
Financing preference shares, 0.01 EUR par value, authorized—40,000 shares, no shares issued and outstanding		—	—
Common Shares, 0.01 EUR par value, authorized—410,000 shares, issued—230,829 shares in 2021 and 2020, respectively		2,702	2,702
Additional paid-in capital		1,818,508	1,834,169
Retained earnings		1,791,740	1,323,091
Accumulated other comprehensive loss	(18)	(326,670)	(243,822)
Less treasury shares, at cost—3,755 and 2,844 shares in 2021 and 2020, respectively	(18)	(189,730)	(118,301)
Total equity		3,096,550	2,797,839
Total liabilities and equity		**$6,146,954**	**$5,869,619**

The accompanying notes are an integral part of these consolidated financial statements.

QIAGEN N.V. and Subsidiaries Consolidated Statements of Income (Loss)

		Years ended December 31,		
(in thousands, except par value)	Notes	**2021**	2020	2019
Net sales	(3, 4, 24)	$2,251,657	$1,870,346	$1,526,424
Cost of sales:				
Cost of sales		733,719	574,467	449,651
Acquisition-related intangible amortization		67,118	63,164	71,511
Total cost of sales		800,837	637,631	521,162
Gross profit		1,450,820	1,232,715	1,005,262
Operating expenses:				
Research and development	(3)	189,964	149,072	157,448
Sales and marketing		456,392	413,684	391,906
General and administrative	(3)	128,076	111,678	112,262
Acquisition-related intangible amortization		18,542	20,811	29,973
Restructuring, acquisition, integration and other, net	(1, 6)	27,762	150,005	199,778
Long-lived asset impairments	(6)	–	1,034	140,031
Total operating expenses		820,736	846,284	1,031,398
Income (loss) from operations		630,084	386,431	(26,136)
Other income (expense):				
Interest income		9,555	10,032	22,113
Interest expense		(54,477)	(71,317)	(74,185)
Other income, net	(6)	40,671	114,326	432
Total other (expense) income, net		(4,251)	53,041	(51,640)
Income (loss) before income tax (benefit) expense		625,833	439,472	(77,776)
Income tax expense (benefit)	(3, 17)	113,234	80,284	(36,321)
Net income (loss)		**$512,599**	**$359,188**	**($41,455)**
Basic earnings (loss) per common share	(19)	$2.25	$1.57	($0.18)
Diluted earnings (loss) per common share	(19)	$2.21	$1.53	($0.18)
Weighted-average common shares outstanding:				
Basic	(19)	227,983	228,427	226,777
Diluted	(19)	232,034	234,214	226,777

The accompanying notes are an integral part of these consolidated financial statements.

QIAGEN N.V. and Subsidiaries Consolidated Statements of Comprehensive Income (Loss)

		Years ended December 31,		
(in thousands)	Notes	**2021**	2020	2019
Net income (loss)		$512,599	$359,188	($41,455)
Other comprehensive income (loss) to be reclassified to profit or loss in subsequent periods:				
Gains (losses) on cash flow hedges (net of tax of $0, $2,845 and $0)	(14)	16,780	(8,536)	11,547
Reclassification adjustments on cash flow hedges (net of tax of $0, $4,666 and $0)	(14)	(17,010)	13,999	(3,888)
Cash flow hedges, net of tax		(230)	5,463	7,659
Net investment hedge	(14)	24,743	(26,442)	5,505
Gain (loss) on pension (net of tax of $5, $16 and $359)		11	(38)	(437)
Foreign currency translation adjustments (net of tax of $1,674,$946 and $454)		(107,372)	86,814	(11,702)
Total other comprehensive (loss) income		(82,848)	65,797	1,025
Comprehensive income (loss)		**$429,751**	**$424,985**	**($40,430)**

The accompanying notes are an integral part of these consolidated financial statements.

QIAGEN N.V. and Subsidiaries Consolidated Statements of Changes in Equity

(in thousands)	Notes	Common Shares		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Shares		Total Equity
		Shares	Amount				Shares	Amount	
Balance at December 31, 2018		230,829	$2,702	$1,742,191	$1,379,624	($310,644)	(5,320)	($178,903)	$2,634,970
ASC 842 impact of change in accounting policy		—	—	—	(316)	—	—	—	(316)
Net loss		—	—	—	(41,455)	—	—	—	(41,455)
Conversion of warrants	(18)	—	—	(31,067)	(37,698)	—	2,056	68,761	(4)
Total other comprehensive income		—	—	—	—	1,025	—	—	1,025
Purchase of treasury shares	(18)	—	—	—	—	—	(1,987)	(74,450)	(74,450)
Issuance of common shares in connection with stock plan	(22)	—	—	—	(121,698)	—	3,622	123,773	2,075
Tax withholding related to vesting of stock awards	(22)	—	—	—	—	—	(1,448)	(51,147)	(51,147)
Share-based compensation	(22)	—	—	65,893	—	—	—	—	65,893
Balance at December 31, 2019		**230,829**	**$2,702**	**$1,777,017**	**$1,178,457**	**($309,619)**	**(3,077)**	**($111,966)**	**$2,536,591**
ASC 326 impact of change in accounting policy		—	—	—	(15,074)	—	—	—	(15,074)
Net income		—	—	—	359,188	—	—	—	359,188
Conversion of warrants	(18)	—	—	(7,547)	(22,725)	—	807	30,272	—
Termination of warrants	(18)	—	—	(30,289)	(144,337)	—	—	—	(174,626)
Equity component of convertible debt, net	(16)	—	—	54,052	—	—	—	—	54,052
Total other comprehensive income		—	—	—	—	65,797	—	—	65,797
Purchase of treasury shares	(18)	—	—	—	—	—	(1,346)	(63,995)	(63,995)
Issuance of common shares in connection with stock plan	(22)	—	—	—	(32,418)	—	1,085	40,079	7,661
Tax withholding related to vesting of stock awards	(22)	—	—	—	—	—	(313)	(12,691)	(12,691)
Share-based compensation	(22)	—	—	40,936	—	—	—	—	40,936
Balance at December 31, 2020		**230,829**	**$2,702**	**$1,834,169**	**$1,323,091**	**($243,822)**	**(2,844)**	**($118,301)**	**$2,797,839**
ASU 2020-06 impact of change in accounting policy	(2)	—	—	(54,052)	263	—	—	—	(53,789)
Net income		—	—	—	512,599	—	—	—	512,599
Total other comprehensive loss		—	—	—	—	(82,848)	—	—	(82,848)
Purchase of treasury shares	(18)	—	—	—	—	—	(1,891)	(99,987)	(99,987)
Issuance of common shares in connection with stock plan	(22)	—	—	—	(44,213)	—	1,441	52,132	7,919
Tax withholding related to vesting of stock awards	(22)	—	—	—	—	—	(461)	(23,574)	(23,574)
Share-based compensation	(22)	—	—	38,391	—	—	—	—	38,391
Balance at December 31, 2021		**230,829**	**$2,702**	**$1,818,508**	**$1,791,740**	**($326,670)**	**(3,755)**	**($189,730)**	**$3,096,550**

The accompanying notes are an integral part of these consolidated financial statements.

QIAGEN N.V. and Subsidiaries Consolidated Statements of Cash Flows

		Years ended December 31,		
(in thousands)	Notes	**2021**	2020	2019
Cash flows from operating activities:				
Net income (loss)		$512,599	$359,188	($41,455)
Adjustments to reconcile net income to net cash provided by operating activities, net of effects of businesses acquired:				
Depreciation and amortization		214,931	205,014	231,458
Non-cash impairments	(6)	—	1,432	144,830
Amortization of debt discount and issuance costs		32,294	42,318	40,763
Share-based compensation expense	(22)	38,391	40,936	65,893
Deferred tax benefit	(17)	(5,288)	(6,706)	(55,362)
Loss (Gain) on marketable securities		6,550	(1,992)	2,867
Gain on sale of investment	(10)	(36,086)	(121,813)	—
Reversals of contingent consideration	(15)	—	—	(10,433)
Other items, net including fair value changes in derivatives		5,622	11,696	(3,394)
Net changes in operating assets and liabilities:				
Accounts receivable	(3)	(7,402)	(14,711)	(39,578)
Inventories	(3)	(81,803)	(107,573)	(30,028)
Prepaid expenses and other current assets	(8)	13,918	1,061	18,626
Other long-term assets		1,400	316	(1,406)
Accounts payable		(5,975)	8,442	9,252
Accrued and other current liabilities	(13)	(71,681)	(22,141)	19,913
Income taxes	(17)	(12,832)	4,682	(6,782)
Other long-term liabilities		34,363	57,657	(14,321)
Net cash provided by operating activities		639,001	457,806	330,843
Cash flows from investing activities:				
Purchases of property, plant and equipment		(189,904)	(132,787)	(117,950)
Purchases of intangible assets	(11)	(16,630)	(171,450)	(156,934)
Proceeds from (purchases of) investments, net	(10)	(2,645)	25,638	(5,170)
Cash paid for acquisitions, net of cash acquired	(5)	—	(239,572)	(68,058)
Purchases of short-term investments	(7)	(397,650)	(49,770)	(293,959)
Proceeds from redemptions of short-term investments	(7)	359,560	181,223	396,098
Proceeds from divestiture	(5)	—	1,845	1,000
Cash received (paid) for collateral asset	(14)	44,900	(53,417)	22,685
Other investing activities		(57)	(4,991)	10
Net cash used in investing activities		(202,426)	(443,281)	(222,278)

QIAGEN N.V. and Subsidiaries Consolidated Statements of Cash Flows

		Years ended December 31,		
(in thousands)	Notes	**2021**	2020	2019
Cash flows from financing activities:				
Proceeds from short-term debt	(16)	—	59,345	—
Repayment of short-term debt	(16)	—	(58,705)	—
Proceeds from long-term debt, net of issuance costs	(16)	—	497,646	—
Repayment of long-term debt	(16)	(41,345)	(296,400)	(506,400)
Payment for termination of warrants	(18)	—	(174,627)	—
Payment of intrinsic value of cash convertible notes	(16)	—	(237,438)	(133,763)
Proceeds from exercise of call option related to cash convertible notes	(16)	—	239,836	134,737
Purchase of treasury shares	(18)	(99,987)	(63,995)	(74,450)
Proceeds from issuance of common shares		7,919	7,662	2,075
Tax withholding related to vesting of stock awards		(23,574)	(13,841)	(49,998)
Other financing activities		6,621	(9,610)	(11,281)
Net cash used in financing activities		(150,366)	(50,127)	(639,080)
Effect of exchange rate changes on cash, cash equivalents and restricted cash		(3,677)	4,196	826
Net increase (decrease) in cash, cash equivalents and restricted cash		282,532	(31,406)	(529,689)
Cash, cash equivalents and restricted cash, beginning of period		597,984	629,390	1,159,079
Cash, cash equivalents and restricted cash, end of period		$880,516	$597,984	$629,390
Supplemental cash flow disclosures:				
Cash paid for interest		$21,588	$25,351	$29,721
Cash paid for income taxes, net of refunds		$102,083	$42,572	$41,474
Supplemental disclosure of non-cash investing activities:				
Equity securities acquired in non-monetary exchange	(10)	$35,705	$122,368	$657
Intangible asset received in exchange for note receivable	(24)	$14,989	$—	$—

The accompanying notes are an integral part of these consolidated financial statements.

Notes to the Consolidated Financial Statements

December 31, 2021

1. Corporate Information and Basis of Presentation

Corporate Information

QIAGEN N.V. is a public limited liability company (naamloze vennootschap) under Dutch law with a registered office at Hulsterweg 82, 5912 PL Venlo, The Netherlands. QIAGEN N.V., a Netherlands holding company, and subsidiaries (we, our or the Company) is a leading global provider of Sample to Insight solutions that enable customers to gain valuable molecular insights from samples containing the building blocks of life. Our sample technologies isolate and process DNA, RNA and proteins from blood, tissue and other materials. Assay technologies make these biomolecules visible and ready for analysis. Bioinformatics software and knowledge bases interpret data to report relevant, actionable insights. Automation solutions tie these together in seamless and cost-effective workflows. We provide solutions to more than 500,000 customers around the world in Molecular Diagnostics (human healthcare) and Life Sciences (academia, pharma R&D and industrial applications, primarily forensics). As of December 31, 2021, we employed more than 6,000 people in over 35 locations worldwide.

Basis of Presentation

The accompanying consolidated financial statements were prepared in accordance with U.S. generally accepted accounting principles (GAAP) and all amounts are presented in U.S. dollars rounded to the nearest thousand, unless otherwise indicated. The consolidated financial statements have been prepared on a historical cost basis, except for derivative financial instruments, contingent consideration and available-for-sale financial instruments that have been measured at fair value.

We undertake acquisitions to complement our own internal product development activities. In September 2020, we completed the acquisition of the remaining shares in NeuMoDx Molecular, Inc. (NeuMoDx), a privately-held U.S. company that designs and develops molecular diagnostics solutions for hospital and clinical reference laboratories. In 2019, we completed three immaterial acquisitions, including the January 2019 acquisition of N-of-One, Inc., a privately-held U.S. molecular decision support company and pioneer in clinical interpretation services for complex genomic data located in Concord, Massachusetts. Accordingly, at their respective acquisition dates, all the assets acquired and liabilities assumed were recorded at their respective fair values and our consolidated results of operations include the operating results from the acquired companies from the acquisition date.

Certain prior year amounts have been reclassified to conform to the current year presentation.

2. Effects of New Accounting Pronouncements

The following new Financial Accounting Standards Board (FASB) Accounting Standards Updates (ASU) were adopted in 2021, 2020 and 2019:

Adoption of New Accounting Standards in 2021

ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, removed certain exceptions for recognizing deferred taxes for investments, performing intraperiod tax allocations and calculating income taxes in interim periods. The ASU also adds guidance to reduce complexity in certain areas, including recognizing deferred taxes for tax goodwill and allocating income taxes to members of a consolidated group. We adopted the ASU on the effective date of January 1, 2021 and the adoption of this guidance did not have an impact on our consolidated financial statements on the date of adoption.

ASU 2020-06, *Debt-Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, reduced the number of accounting models for convertible instruments. The ASU also amended diluted earnings per share (EPS) calculations for convertible instruments, which will result in more dilutive EPS results, and also amended the requirements for a

contract (or embedded derivative) that is potentially settled in an entity's own shares to be classified in equity. ASU 2020-06 was effective for annual periods beginning on January 1, 2022, with earlier adoption on January 1, 2021 permitted. We adopted ASU 2020-06 early on January 1, 2021 and this resulted in a decrease of $54.1 million to additional paid in capital and an increase of $0.3 million to retained earnings for the conversion feature to the liability for our 2027 Convertible Notes further discussed in Note 16 "Debt".

Adoption of New Accounting Standards in 2020

ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, replaced the incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to form credit loss estimates. We adopted Topic 326 on January 1, 2020 using the modified retrospective approach by recognizing the effect of initially applying Topic 326 as an after-tax $15.1 million ($19.6 million pre-tax) adjustment to the opening balance of retained earnings at January 1, 2020 for credit losses on loans, notes and accounts receivable. The adoption did not have an impact on our consolidated statements of income or cash flows.

ASU 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606*, precludes an entity from presenting consideration from a transaction in a collaborative arrangement as revenue from contracts with customers if the counterparty is not a customer of that transaction. We adopted ASU 2018-18 on January 1, 2020 without any cumulative effect.

ASU 2020-03, *Codification Improvements to Financial Instruments*, was issued to improve and clarify various financial instrument topics, including Topic 326 issued in 2016. The ASU includes seven issues that describe areas of improvement and the related amendments to GAAP. They are intended to make the standards easier to understand and apply and to eliminate inconsistencies. They are narrow in scope and are not expected to significantly change practice for most entities. We adopted ASU 2020-03 on January 1, 2020 without any effect.

ASU 2020-01, *Investments-Equity Securities (Topic 321), Investments-Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815)-Clarifying the Interactions between Topic 321, Topic 323, and Topic 815*, addresses accounting for the transition into and out of the equity method and measuring certain purchased options and forward contracts to acquire investments. We adopted ASU 2020-01 on June 30, 2020 without any impact.

Adoption of New Accounting Standards in 2019

The FASB issued guidance codified in Accounting Standards Codification (ASC) Topic 842, *Leases (Topic 842)*, which supersedes the lease requirements in ASC Topic 840 and aims to increase transparency and comparability among organizations and requires disclosure of key information about leasing arrangements. The main principle of ASC 842 requires lessees to recognize the assets and liabilities that arise from nearly all leases on the consolidated balance sheet. We adopted these standards as per the effective date of January 1, 2019, using the modified retrospective approach and did not restate comparative periods. Our initial lease liabilities and right-of-use assets totaled $57.7 million and $57.4 million, respectively, as recorded in our consolidated balance sheet as of January 1, 2019, primarily relating to leased office space. The difference between the additional lease assets and lease liabilities was recorded as a $0.3 million adjustment to retained earnings.

ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*, makes more financial and nonfinancial hedging strategies eligible for hedge accounting. It also amends the presentation and disclosure requirements and changes how companies assess effectiveness. We adopted ASU 2017-12 on January 1, 2019 without any cumulative effect.

ASU 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, removes Step 2 of the goodwill impairment test. We adopted ASU 2017-04 on January 1, 2019 and apply the new guidance prospectively as required.

ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework*, provides guidance that eliminates, adds and modifies certain disclosure requirements for fair value measurements. We adopted ASU 2018-13 on January 1, 2019 and applied the entire standard to disclosures as required beginning in 2019.

ASU 2018-15, *Intangibles--Goodwill and Other--Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, provides guidance on a customer's accounting for implementation, set-up, and other upfront costs incurred in a cloud computing arrangement that is hosted by the vendor, i.e. a service contract. We adopted ASU 2018-15 on January 1, 2019 and applied the guidance to all implementation costs prospectively.

ASU 2018-17, *Consolidation (Topic 810): Targeted Improvements to Related Party Guidance for Variable Interest Entities*, amended how a decision maker or service provider determines whether its fee is a variable interest entity (VIE) when a related party under common control also has an interest in the VIE. We adopted ASU 2018-17 on January 1, 2019, on a prospective basis.

New Accounting Standards Not Yet Adopted

The following new FASB Accounting Standards Update was not yet adopted as of December 31, 2021:

ASU 2021-04, *Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options*, clarifies and reduces diversity in an issuer's accounting for modifications or exchanges of freestanding equity-classified written call options (for example, warrants) that remain equity classified after modification or exchange. The amendments affect all entities that issue freestanding written call options that are classified in equity. Specifically, the amendments affect those entities when a freestanding equity-classified written call option is modified or exchanged and remains equity classified after the modification or exchange. The amendments that relate to the recognition and measurement of EPS for certain modifications or exchanges of freestanding equity-classified written call options affect entities that present EPS in accordance with the guidance in Topic 260, Earnings Per Share. The amendments are effective for all entities for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. An entity should apply the amendments prospectively to modifications or exchanges occurring on or after the effective date of the amendments. Early adoption is permitted for all entities, including adoption in an interim period. We adopted ASU 2021-04 prospectively effective January 1, 2022.

3. Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of QIAGEN N.V. and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated. Investments in either common stock or in-substance common stock of companies where we exercise significant influence over the operations but do not have control, and where we are not the primary beneficiary, are accounted for using the equity method. All other investments are accounted for as discussed under "Non-marketable Investments" below. When there is a portion of equity in an acquired subsidiary not attributable, directly or indirectly, to the Company, we record the fair value of the noncontrolling interests at the acquisition date and classify the amounts attributable to noncontrolling interests separately in equity in the consolidated financial statements. Any subsequent changes in the Company's ownership interest while the Company retains its controlling financial interest in its subsidiary are accounted for as equity transactions.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and disclosure of contingencies at the date of the financial statements as well as the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Concentrations of Risk

We buy materials for products from many suppliers, and are not dependent on any one supplier or group of suppliers for the business as a whole. However, key components of certain products, including certain instrumentation components and chemicals, are available only from a single source. If supplies from these vendors were delayed or interrupted for any reason, we may not be able to obtain these materials timely or in sufficient quantities in order to produce certain products and sales levels could be negatively affected. Additionally, our customers include researchers at pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. Fluctuations in the research and development budgets of these researchers and their organizations for applications in which our products are used could have a significant effect on the demand for our products.

The financial instruments used in managing our foreign currency, equity and interest rate exposures have an element of risk in that the counterparties may be unable to meet the terms of the agreements. We attempt to minimize this risk by limiting the counterparties to a diverse group of highly-rated international financial institutions. The carrying values of our financial instruments incorporate the non-performance risk by using market pricing for credit risk. However, we have no reason to believe that any counterparties will default on their obligations. In order to minimize our exposure with any single counterparty, we have entered into master agreements which allow us to manage the exposure with the respective counterparty on a net basis.

Other financial instruments that potentially subject us to concentrations of credit risk are cash and cash equivalents, short-term investments, and accounts receivable. We attempt to minimize the risks related to cash and cash equivalents and short-term investments by dealing with highly-rated financial institutions and investing in a broad and diverse range of financial instruments. We have established guidelines related to credit quality and maturities of investments intended to maintain safety and liquidity. Concentration of credit risk with respect to accounts receivable is limited due to a large and diverse customer base, which is dispersed over different geographic areas. Allowances are maintained for potential credit losses and such losses have historically been within expected ranges.

Foreign Currency Translation

Our reporting currency is the U.S. dollar and the functional currencies of our subsidiaries are generally the local currency of the respective countries in which they are headquartered. All amounts in the financial statements of entities whose functional currency is not the U.S. dollar are translated into U.S. dollar equivalents at exchange rates as follows: (1) assets and liabilities at period-end rates, (2) income statement accounts at average exchange rates for the period, and (3) components of equity at historical rates. Translation gains or losses are recorded in equity, and transaction gains and losses are reflected in net income (loss) as a component of other income, net. Realized gains or losses on the value of derivative contracts entered into to hedge the exchange rate exposure of receivables and payables are also included in net income (loss) as a component of other income, net. The net loss on foreign currency transactions was $9.0 million, $4.1 million, and $5.7 million in 2021, 2020 and 2019, respectively, and is included in other income, net.

The exchange rates of key currencies were as follows:

	Closing rate at December 31,		Annual average rate		
(US$ equivalent for one)	**2021**	2020	**2021**	2020	2019
Euro (EUR)	1.1326	1.2271	1.1832	1.1411	1.1196
Pound Sterling (GBP)	1.3479	1.3649	1.3758	1.2836	1.2768
Swiss Franc (CHF)	1.0963	1.1360	1.0940	1.0659	1.0062
Australian Dollar (AUD)	0.7253	0.7720	0.7514	0.6905	0.6954
Canadian Dollar (CAD)	0.7869	0.7849	0.7977	0.7463	0.7535
Japanese Yen (JPY)	0.0087	0.0097	0.0091	0.0094	0.0092
Chinese Yuan (CNY)	0.1574	0.1530	0.1550	0.1450	0.1448

Segment Information
We determined that we operate as one operating segment in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 280, Segment Reporting. Our chief operating decision maker (CODM) makes decisions based on the Company as a whole. In addition, we have a common basis of organization and types of products and services which derive revenues and consistent product margins. Accordingly, we operate and make decisions as one reporting unit.

Revenue Recognition
We recognize revenue when control of promised goods or services transfers to our customers in an amount that reflects the consideration that is expected to be received in exchange for those goods or services. The majority of our sales revenue is recognized when products are shipped to the customers at which point control transfers.

Warranty
We provide warranties on our products against defects in materials and workmanship for a period of one year. A provision for estimated future warranty costs is recorded in cost of sales at the time product revenue is recognized. Product warranty obligations are included in accrued and other current liabilities in the accompanying consolidated balance sheets.

Research and Development
Research and product development costs are expensed as incurred. Research and development expenses consist primarily of salaries and related expenses, facility costs, and amounts paid to contract research organizations and laboratories for the provision of services and materials as well as costs for internal use or clinical trials.

Government Grants
We recognize government grants when there is reasonable assurance that all conditions will be complied with and the grant will be received. Our government grants generally represent subsidies for specified activities and are therefore recognized when earned as a reduction of the expenses recorded for the activity that the grants are intended to compensate. Thus, when the grant relates to research and development expense, the grant is recognized over the same period that the related costs are incurred. Otherwise, amounts received under government grants are recorded as liabilities in the balance sheet. When the grant relates to an asset, the nominal amount of the grant is deducted from the carrying amount of the asset and recognized over the same period that the related asset is depreciated.

Borrowing Costs
Borrowing costs directly attributable to the acquisition, construction or production of an asset that takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets (qualifying asset) when such borrowing costs are significant. All other borrowing costs are expensed in the period they occur.

Shipping and Handling Income and Costs
Shipping and handling costs charged to customers are recorded as revenue in the period that the related product sale revenue is recorded. Associated costs of shipping and handling are included in sales and marketing expenses. For the years ended December 31, 2021, 2020 and 2019, shipping and handling costs totaled $31.7 million, $32.1 million and $27.9 million, respectively.

Advertising Costs
The costs of advertising are expensed as incurred and are included as a component of sales and marketing expense. Advertising costs for the years ended December 31, 2021, 2020 and 2019 were $13.5 million, $9.5 million and $8.1 million, respectively.

General and Administrative

General and administrative expenses primarily represent the costs required to support administrative infrastructure. These costs include licensing costs in connection with continued investments in information technology improvements, including cyber security, across the organization as well as personnel in administrative functions.

Restructuring, Acquisition, Integration and Other

We incur indirect acquisition and business integration costs in connection with business combinations which are expensed when incurred. These costs represent incremental costs that we believe would not have been incurred absent the business combinations. Major components of these costs include consulting and related fees incurred to integrate or restructure the acquired operations, payroll and related costs for employees remaining with the Company on a transitional basis and public relations, advertising and media costs for re-branding of the combined organization.

Restructuring costs include personnel costs (principally termination benefits) as well as contract and other costs, primarily contract termination costs. Termination benefits are accounted for in accordance with FASB ASC Topic 712, Compensation - Nonretirement Postemployment Benefits, and are recorded when it is probable that employees will be entitled to benefits and the amounts can be reasonably estimated. Estimates of termination benefits are based on the frequency of past termination benefits, the similarity of benefits under the current plan and prior plans, and the existence of statutory required minimum benefits. Contract and other costs are accounted for in accordance with FASB ASC Topic 420, Exit or Disposal Cost Obligations and are recorded when the liability is incurred. The specific restructuring measures and associated estimated costs are based on management's best business judgment under the existing circumstances at the time the estimates are made. If future events require changes to these estimates, such adjustments will be reflected in the period of the revised estimate.

On March 3, 2020, QIAGEN and Thermo Fisher Scientific Inc. (NYSE: TMO) announced that their boards of directors, as well as the Managing Board of QIAGEN N.V., unanimously approved Thermo Fisher's proposal to acquire QIAGEN. On August 13, 2020, QIAGEN announced that Thermo Fisher did not achieve the minimum 66.67% acceptance threshold from QIAGEN shareholders. For the year ended December 31, 2020, we incurred related expenses of $125.5 million, which includes the $95.0 million expense reimbursement which was paid when the minimum acceptance threshold was not met. These costs are recorded within restructuring, acquisition, integration and other expenses, net in the accompanying consolidated statement of income.

Income Taxes

We account for income taxes under the liability method. Under this method, total income tax expense is the amount of income taxes expected to be payable for the current year plus the change from the beginning of the year for deferred tax assets and liabilities established for the expected future tax consequences resulting from differences in the financial statement carrying amount and the tax basis of assets and liabilities. Deferred tax assets and/or liabilities are determined by multiplying the differences between the financial statement carrying amount and the tax bases of assets and liabilities by the enacted tax rates expected to be in effect when such differences are recovered or settled. Deferred tax assets are reduced by a valuation allowance to the amount more likely than not to be realized. The effect on deferred taxes of a change in tax rates is recognized in income in the period that includes the enactment date.

Tax benefits are initially recognized in the financial statements when it is more likely than not that the position will be sustained upon examination by the tax authorities. Such tax positions are initially and subsequently measured as the largest amount of tax benefit that is greater than 50 percent likely of being realized upon settlement with the taxing authority using the cumulative probability method, assuming the tax authority has full knowledge of the position and all relevant facts. Our policy is to recognize interest accrued related to unrecognized tax benefits in interest expense and penalties within the income tax expense.

Derivative Instruments

We enter into derivative financial instrument contracts to minimize the variability of cash flows or income statement impact associated with the anticipated transactions being hedged or to hedge fluctuating interest rates. As changes in foreign currency or interest rate impact the value of anticipated transactions, the fair value of the forward or swap contracts also changes, offsetting foreign currency or interest rate fluctuations. Derivative instruments are recorded on the balance sheet at fair value. Changes in fair value of derivatives are recorded in current earnings or other comprehensive income, depending on whether a derivative is designated as part of a hedge transaction.

Share-Based Payments

Compensation cost for all share-based payments is recorded based on the grant date fair value, less an estimate for pre-vesting forfeitures, recognized in expense over the service period using an accelerated method.

Forfeiture Rate - This is the estimated percentage of grants that are expected to be forfeited or canceled on an annual basis before becoming fully vested. We estimated the forfeiture rate based on historical forfeiture experience.

Restricted Stock Units and Performance Stock Units - Restricted stock units and performance stock units represent rights to receive Common Shares at a future date. The fair market value of restricted and performance stock units is determined based on the number of stock units granted and the fair market value of our shares on the grant date. The fair market value at the time of the grant, less an estimate for pre-vesting forfeitures, is recognized in expense over the vesting period. At each reporting period, the estimated performance achievement of the performance stock units is assessed and any change in the estimated achievement is recorded on a cumulative basis in the period of adjustment.

Cash and Cash Equivalents

Cash and cash equivalents consist of cash on deposit in banks and other cash invested temporarily in various instruments that are short-term and highly liquid, and having an original maturity of less than three months at the date of purchase. Cash equivalents are carried at amortized cost which approximates fair value. Cash and cash equivalents as of December 31, 2021 and 2020 consist of the following:

(in thousands)	**2021**	2020
Cash at bank and on hand	$235,381	$245,373
Money market funds	366,117	273,584
Commercial paper	179,844	—
Short-term bank deposits	99,174	79,027
Cash and cash equivalents	**$880,516**	**$597,984**

Short-Term Investments

Short-term investments include cash investments with original maturities of more than three months which are classified as "available for sale" and stated at fair value, which is equivalent to the amortized cost, in the accompanying consolidated balance sheet. Interest income is accrued when earned and changes in fair market values are reflected in other income, net. The amortization of premiums and accretion of discounts to maturity arising from acquisition is included in interest income. A decline in fair value that is judged to be other-than-temporary is accounted for as a realized loss and the write-down is included in the consolidated statements of income. Realized gains and losses, determined on a specific identification basis on the sale of short-term investments, are included in income.

Short-term investments consisting of marketable equity securities are reported at fair value with gains and losses recorded in earnings.

Fair Value of Financial Instruments

The carrying amount of cash and cash equivalents, notes receivable, accounts receivable, accounts payable and accrued liabilities approximate their fair values because of the short maturities of those instruments. The carrying value of our variable rate debt and leases approximates their fair values because of the short maturities and/or interest rates which are comparable to those available to us on similar terms. The fair values of the zero coupon convertible debt and the Cash Convertible Notes are based on an estimation using available over-the-counter market information. The fair values of the Private Placement Senior Notes were estimated using the changes in the U.S. Treasury rates and the fair value of the German Private Placement is based on an estimation using changes in the euro swap rates.

Accounts Receivable, Loans and Other Receivables and Allowance for Credit Losses

Our accounts receivable consist of unsecured customer obligations and we are at risk to the extent such amounts become uncollectible. Accounts receivable are carried at face value less an allowance for doubtful accounts as of December 31, 2019, and following the adoption of ASU 2016-13, Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments, less an allowance for expected credit losses. We continually monitor accounts receivable balances, and until December 31, 2019, provided for an allowance for doubtful accounts at the time collection became questionable based on payment history or age of the receivable. Since January 1, 2020, we maintain allowances for credit losses resulting from the expected failure or inability of our customers to make required payments. We recognize the allowance for expected credit losses at inception and reassess regularly considering historical experience with bad debts, the aging of the receivables, credit quality of the customer base, current economic conditions and other reasonable and supportable expectations for future conditions, if applicable. Once a receivable is determined to be uncollectible, the balance is charged against the allowance.

We sell our products worldwide through sales subsidiaries and distributors. There is no concentration of credit risk with respect to trade accounts receivable as we have a large number of internationally dispersed customers. Trade accounts receivable are non-interest bearing and mostly have payment terms of 30-90 days. For all years presented, no single customer represented more than ten percent of accounts receivable or consolidated net sales.

Following the adoption of Topic 326, we are required to use the new forward-looking expected credit loss model that replaced the previous incurred credit loss model. The new model generally results in earlier recognition of allowances for credit losses and requires consideration of a broader range of information to estimate expected credit losses over the entire lifetime of the assets. Accordingly, with the adoption of Topic 326, we recorded allowances for credit losses of $8.1 million for accounts receivable, $10.2 million for other receivables and $1.3 million for loan receivables. The allowances reflect the forward-looking expected impact of non-payment of the contractual amounts due.

The changes in the allowance for credit losses on accounts receivable and loans and other receivables for the year ended December 31, 2021 and 2020 and in the allowance for doubtful accounts for the year December 31, 2019 are as follows:

	Accounts Receivable			Loans and Other Receivables	
(in thousands)	**2021**	2020	2019	**2021**	2020
Balance at beginning of year	$27,052	$12,115	$9,270	$9,132	$—
ASC 326 adoption impact	—	8,089	—	—	11,543
Provisions for expected credit losses	18	16,439	8,701	2,155	1,325
Deductions from allowance	(1,249)	(9,868)	(5,777)	(6,049)	(3,916)
Recoveries collected	288	—	—	12	—
Currency translation adjustments and other	(2,985)	277	(79)	(108)	180
Balance at end of year	**$23,124**	**$27,052**	**$12,115**	**$5,142**	**$9,132**

For the years ended December 31, 2021 and 2020, additions charged to expense include forward-looking expected impacts of the global economic uncertainty caused by COVID-19.

Inventories

Inventories are stated at the lower of cost or net realizable value, determined on either a weighted average cost basis or a standard cost basis which is regularly adjusted to actual. Inventories include material, direct labor and overhead costs and are reduced for estimated obsolescence. Inventories consisted of the following as of December 31, 2021 and 2020:

(in thousands)	2021	2020
Raw materials	$94,748	$65,449
Work in process	67,679	74,398
Finished goods	165,098	151,334
Total inventories, net	**$327,525**	**$291,181**

Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated amortization. Capitalized internal-use software costs include only those direct costs associated with the actual development or acquisition of computer software solely to meet internal needs and cloud-based applications to deliver our service and comprise costs associated with the design, coding, installation and testing of the system. Costs associated with preliminary development, such as the evaluation and selection of alternatives, as well as training, maintenance and support are expensed as incurred. Costs for software to be sold, leased or otherwise marketed that are related to the conceptual formulation and design are expensed as incurred. Costs incurred to produce software products and the software components of products to be sold, leased or marketed after technological feasibility is established are capitalized and amortized in accordance with the accounting standards for the costs of software to be sold, leased, or otherwise marketed. All other depreciation is computed using the straight-line method over the estimated useful lives of the assets (3 to 40 years). Amortization of leasehold improvements is computed on a straight-line basis over the lesser of the remaining life of the lease or the estimated useful life of the improvement asset. We have a policy of capitalizing expenditures that materially increase assets' useful lives and charging ordinary maintenance and repairs to operations as incurred. When property or equipment is disposed of, the cost and related accumulated depreciation and amortization are removed from the accounts and any gain or loss is included in earnings.

Business Combinations

We include the results of operations of the businesses that we acquire as of the acquisition date. The purchase price of an acquired business is allocated to the individual assets acquired and liabilities assumed based on their fair values at the date of acquisition. Those fair values are determined using income, cost and market approaches, most of which depend upon significant inputs that are not observable in the market, or level 3 measurements. The excess of purchase price over the fair value of identifiable assets acquired and liabilities assumed is recorded as goodwill. Acquisition-related expenses are recognized separately from the business combinations and are expensed as incurred.

The purchase price for some business combinations includes consideration that is contingent on the achievement of net sales or earnings targets by the acquired business. Contingent consideration is measured initially and on a recurring basis at fair value. Payments to settle the acquisition-date fair value of contingent consideration are presented as financing activities on the statement of cash flows; any payments in excess of the acquisition-date fair value are presented as operating activities.

Acquired Intangibles and Goodwill

Acquired intangibles with alternative future uses are carried at cost less accumulated amortization and consist of licenses to technology held by third parties and other acquired intangible assets. Amortization related to patents are computed over the estimated useful life of the underlying patent, which has historically ranged from 1 to 20 years. Purchased intangible assets acquired in business combinations, other than goodwill, are amortized over their estimated useful lives unless these lives are determined to be indefinite. Intangibles are assessed for recoverability considering the contract life and the period of time over which the intangible will contribute to future cash flow. The unamortized cost of intangible assets, where cash flows are independent and identifiable from other assets, is evaluated periodically and adjusted, if necessary, if events and circumstances indicate that a decline in value below the carrying amount has occurred. Intangible asset impairments recorded during the years ended December 31, 2020 and 2019 are further discussed in Note 6 "Restructuring and Impairments".

Amortization expense related to developed technology and patent and license rights which have been acquired in a business combination is included in cost of sales. Amortization of trademarks, customer base and non-compete agreements which have been acquired in a business combination is recorded in operating expense under the caption 'acquisition-related intangible amortization'. Amortization expenses of intangible assets not acquired in a business combination are recorded within either the cost of sales, research and development or sales and marketing line items based on the use of the asset.

We dispose the gross carrying amount and accumulated amortization of fully amortized intangible assets from historic business combinations once they are considered fully integrated into our business.

The fair value of in-process research and development (IPR&D) acquired in a business combination is capitalized as an indefinite-lived intangible asset until completion or abandonment of the related research and development activities. IPR&D is tested for impairment annually or when any event or circumstance indicates that the fair value may be below the carrying value. If and when research and development is complete, the associated asset is amortized over the estimated useful life.

Goodwill represents the difference between the purchase price and the estimated fair value of the net assets acquired arising from business combinations. Goodwill is subject to impairment tests annually or earlier if indicators of potential impairment exist. We have elected to perform our annual test for indications of impairment as of October 1st of each year. Following the annual impairment tests for the years ended December 31, 2021, 2020 and 2019, goodwill has not been impaired.

Non-Marketable Investments

We have investments in non-marketable equity securities issued by privately held companies. These investments are included in other long-term assets in the accompanying consolidated balance sheets. Non-marketable investments through which we exercise significant influence but do not have control are accounted for using the equity method. We monitor for changes in circumstances that may require a reassessment of the level of influence. Our non-marketable equity securities not accounted for under the equity method are accounted for under the measurement alternative. Under the measurement alternative, the carrying value is measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments of the same issuer. Adjustments are determined primarily based on a market approach as of the transaction date.

Investments are evaluated periodically, or when impairment indicators are noted, to determine if declines in value are other-than-temporary. In making that determination, we consider all available evidence relating to the realizable value of a security. This evidence includes, but is not limited to, the following:

- adverse financial conditions of a specific issuer, segment, industry, region or other variables;
- the length of time and the extent to which the fair value has been less than cost; and
- the financial condition and near-term prospects of the issuer.

We consider whether the fair values of any of our non-marketable investments have declined below their carrying value whenever adverse events or changes in circumstances indicate that recorded values may not be recoverable. If any such decline is considered to be other than temporary (based on various factors, including historical financial results, product development activities and the overall health of the affiliate's industry), then a write-down of the investment would be recorded in operating expense to its estimated fair value. Investment impairments recorded during the years ended December 31, 2020 and 2019 are discussed in Note 10 "Investments."

Variable Interest Entities

We evaluate at the inception of each arrangement whether we have made an investment in an entity that is considered a variable interest entity (VIE) or if we hold other variable interests in an arrangement that is considered a variable interest entity (VIE). We consolidate VIEs when we are the primary beneficiary. The primary beneficiary of a VIE is the party that meets both of the following criteria: (1) has the power to make decisions that most significantly affect the economic performance of the VIE; and (2) has the obligation to absorb losses or the right to receive benefits that in either case could potentially be significant to the VIE. Periodically, we assess whether any changes in our interest or relationship with the entity affect our determination of whether the entity is still a VIE and, if so, whether we are the primary beneficiary. If we are not the primary beneficiary in a VIE, we account for the investment or other variable interests in a VIE as an investment in a non-marketable investment or in accordance with other applicable GAAP.

Impairment of Long-Lived Assets

We review our long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or a group of assets may not be recoverable. We consider, amongst other indicators, a history of operating losses or a change in expected sales levels to be indicators of potential impairment. Assets are grouped and evaluated for impairment at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other groups of assets. If an asset is determined to be impaired, the loss is measured as the amount by which the carrying amount of the asset exceeds fair value which is determined by applicable market prices, when available. When market prices are not available, we generally measure fair value by discounting projected future cash flows of the asset. Considerable judgment is necessary to estimate discounted future cash flows. Accordingly, actual results could differ from such estimates.

4. Revenue

Nature of Goods and Services

Our revenues are reported net of sales and value added taxes and accruals for estimated rebates and returns and are derived primarily from the sale of consumable and instrumentation products, and to a much lesser extent, from the sale of services, intellectual property and technology. Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. We enter into contracts that can include various combinations of products and services, which are generally distinct and accounted for as separate performance obligations. The transaction price is allocated to performance obligations based on their relative stand-alone selling prices.

We offer warranties on our products. Certain of our warranties are assurance-type in nature and do not cover anything beyond ensuring that the product is functioning as intended. Based on the guidance in Topic 606, assurance-type warranties do not represent separate performance obligations. The Company also sells separately-priced service contracts which qualify as service-type warranties and represent separate performance obligations.

We sell our products and services both directly to customers and through distributors generally under agreements with payment terms typically less than 90 days and in most cases not exceeding one year and therefore contracts do not contain a significant financing component.

Consumable and Related Revenue

Consumable Products

In the last three years, revenue from consumable product sales has accounted for approximately 78-81% of our net sales and revenue is recognized when performance obligations under the terms of a contract with a customer are satisfied. The majority of our contracts have either a single performance obligation to transfer a single consumable product or multiple performance obligations to transfer multiple products concurrently. Accordingly, we recognize revenue when control of the products has transferred to the customer, which is generally at the time of shipment of products as this is when title and risk of loss have been transferred. In addition, invoicing typically occurs at this time so this is when we have a present right to payment. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products and is generally based upon a negotiated formula, list or fixed price.

Related Revenue

Revenues from related products include software-as-a-service (SaaS), licenses, intellectual property and patent sales, royalties and milestone payments and over the last three years has accounted for approximately 6-10% of our net sales.

SaaS arrangements: Revenue from SaaS arrangements, which allow customers to use hosted software over the contract period without taking possession of the software, is recognized over the duration of the agreement unless the terms of the agreement indicate that revenue should be recognized in a different pattern, for example based on usage.

Licenses: Licenses for on-site software, which allow customers to use the software as it exists when made available, are sold as perpetual licenses or term licenses. Revenue from on-site licenses are recognized upfront at the point in time at the later of when the software is made available to the customer and the beginning of the license term. When a portion of the transaction price is allocated to a performance obligation to provide support and/or updates, revenue is recognized as the updates/support are provided, generally over the life of the license. Fees from research collaborations include payments for technology transfer and access rights. Royalties from licensees of intellectual property are based on sales of licensed products and revenues are recognized at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied).

Milestone Payments: At the inception of each companion diagnostic co-development arrangement that includes development milestone payments, which represent variable consideration, we evaluate whether the milestones are probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control, such as milestones which are achieved through regulatory approvals, are considered to be constrained and excluded from the transaction price until those approvals are received. Revenue is recognized following the input method as this is considered to best depict the timing of the transfer of control. This involves measuring actual hours incurred to date as a proportion of the total budgeted hours of the project. At the end of each subsequent reporting period, the proportion of completion is trued-up. We also re-evaluate the probability of achievement of development milestones and any related constraint on a periodic basis, and if necessary, adjust our estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment.

Instruments

Revenue from instrumentation includes the instrumentation equipment, installation, training and other instrumentation services, such as extended warranty services or product maintenance contracts and over the last three years has accounted for approximately 11-14% of net sales. Revenue from instrumentation equipment is recognized when the customer obtains control of the instrument which is predominantly at the time of delivery or when title has transferred to the customer. Service revenue is recognized over the term of the service period as the customers benefit from the service throughout the service period. Revenue related to services performed on a time-and-materials basis is recognized when performed.

Contract Estimates

The majority of our revenue is derived from contracts (i) with an original expected length of one year or less and (ii) contracts for which we recognize revenue at the amount in which we have the right to invoice as product is delivered. We have elected the practical expedient not to disclose the value of remaining performance obligations associated with these types of contracts.

However, we have certain companion diagnostic co-development contracts to provide research and development activities in which our performance obligations extend over multiple years. As of December 31, 2021, we had $54.5 million of remaining performance obligations for which the transaction price is not constrained related to these contracts which we expect to recognize over the next 12 to 18 months.

Revenue expected to be recognized in any future year related to remaining performance obligations, excluding revenue pertaining to contracts that have an original expected duration of one year or less, contracts where revenue is recognized as invoiced and contracts with variable consideration related to undelivered performance obligations, is not material.

Contract Balances

The timing of revenue recognition, billings and cash collections can result in billed accounts receivable, unbilled receivables (contract assets), and customer advances and deposits (contract liabilities) in the consolidated balance sheet.

Contract assets as of December 31, 2021 and 2020 totaled $14.1 million and $8.5 million, respectively, and are included in prepaid expenses and other current assets in the accompanying consolidated balance sheets and relate to the companion diagnostic co-development contracts discussed above.

Contract liabilities primarily relate to non-cancellable advances or deposits received from customers before revenue is recognized and is primarily related to instrument service and Software as a Service (SaaS) arrangements. As of December 31, 2021 and 2020, contract liabilities totaled $74.7 million and $68.9 million, respectively, of which $63.4 million and $57.1 million is included in accrued and other current liabilities, respectively, and $11.3 million and $11.8 million in included in other long-term liabilities, respectively. During the years ended December 31, 2021 and 2020, we satisfied the associated performance obligations and recognized revenue of $54.9 million and $48.1 million, respectively, related to advance customer payments previously received.

Disaggregation of Revenue

We disaggregate our revenue based on product type and customer class as shown in the tables below for the years ended December 31, 2021, 2020 and 2019:

(in thousands)	**2021**	2020	2019
Consumables and related revenues	$1,027,215	$774,234	$665,866
Instruments	116,449	129,742	71,266
Molecular Diagnostics	1,143,664	903,976	737,132
Consumables and related revenues	959,093	841,201	688,281
Instruments	148,900	125,169	101,011
Life Sciences	1,107,993	966,370	789,292
Total	**$2,251,657**	**$1,870,346**	**$1,526,424**

Additionally, we disaggregate our revenue based on product category as shown in the tables below for the years ended December 31, 2021, 2020 and 2019:

(in thousands)	2021	2020	2019
Sample technologies	$850,636	$803,867	$548,365
Diagnostic solutions	638,759	460,757	465,503
PCR / Nucleic acid amplification	433,972	363,552	224,685
Genomics / NGS	245,066	165,570	183,768
Other	83,224	76,600	104,103
Total	**$2,251,657**	**$1,870,346**	**$1,526,424**

Refer to Note 21 "Segment Information" for disclosure of revenue by geographic region.

5. Acquisitions

Business Combinations and Asset Acquisitions

For acquisitions which have been accounted for as business combinations, the acquired companies' results have been included in the accompanying consolidated statements of income (loss) from their respective dates of acquisition. Our acquisitions have historically been made at prices above the fair value of the acquired net assets, resulting in goodwill, due to expectations of synergies of combining the businesses. These synergies include use of our existing infrastructure, such as sales force, shared service centers, distribution channels and customer relations, to expand sales of an acquired business' products; use of the infrastructure of the acquired businesses to cost-effectively expand sales of our products; and elimination of duplicative facilities, functions and staffing.

If the acquired net assets do not constitute a business under the acquisition method of accounting, the transaction is accounted for as an asset acquisition and no goodwill is recognized. In an asset acquisition, the amount allocated to acquired in-process research and development with no alternative future use is charged to expense at the acquisition date.

2020 Business Combinations

On September 17, 2020, we completed the acquisition of the remaining 80.1% of NeuMoDx Molecular, Inc. (NeuMoDx) shares, a privately-held U.S. company in which we held a minority interest. NeuMoDx designs and develops molecular diagnostics solutions for hospital and clinical reference laboratories. Prior to acquisition, we held a 19.9% investment in NeuMoDx with a carrying value of $41.0 million. The cash consideration for the remaining shares totaled $251.7 million. We incurred $2.5 million acquisition related costs to effect the business combination, of which $1.8 million was incurred during the year ended December 31, 2020, and are included in restructuring, acquisition, integration and other, net.

The acquisition date fair value of the minority interest investment was $52.7 million and a gain of $11.7 million was recorded in restructuring, acquisition, integration and other, net in the accompanying consolidated statement of income for the year ended December 31, 2020. The fair value of the minority interest investment was determined using an implied purchase price reduced by a 20% control premium.

The final purchase price allocation differed from the preliminary purchase price allocation primarily as a result of updates to the acquisition date value of the liability related to acquired litigation, the final valuation and allocation of amounts among the acquired intangible assets as set forth in an independent appraisal, and related deferred tax impacts as follows:

(in thousands)	**Final**	Preliminary[1]	Difference
Purchase Price:			
Cash consideration	$251,730	$251,730	$—
Fair value of minority interest	52,727	52,727	—
	$304,457	**$304,457**	**$—**
Preliminary Allocation:			
Cash and cash equivalents	$12,291	$12,291	$—
Accounts receivable	5,691	5,691	—
Inventories	20,271	18,866	1,405
Prepaid expenses and other current assets	5,961	5,943	18
Accounts payable	(12,450)	(11,168)	(1,282)
Accruals and other current liabilities	(69,585)	(18,770)	(50,815)
Other long-term liabilities	(4,101)	(4,101)	—
Fixed and other long-term assets	7,076	6,698	378
Developed technology	101,000	119,100	(18,100)
In-process research and development	55,000	64,800	(9,800)
Patents and license rights	770	770	—
Customer backlog	400	900	(500)
Goodwill	191,343	149,877	41,466
Deferred tax asset	30,057	—	30,057
Deferred tax liability on fair value of identifiable intangible assets acquired	(39,267)	(46,440)	7,173
Total	**$304,457**	**$304,457**	**$—**

[1] As of September 30, 2020

The final purchase price allocation includes $55.0 million for the acquisition date value of the liability related to acquired litigation. The final settlement amount, discussed further in Note 20 "Commitments and Contingencies" was $53.0 million. The $2.0 million difference between the final purchase price allocation and final settlement amount was recorded to restructuring, acquisition, integration and other expense, net in the year ended December 31, 2021. The in-process research and development recognized relates to technologies that remain in development and have not yet obtained regulatory approvals. The technologies within in-process research and development are expected to be completed within the next five years. The weighted average amortization period for the acquired intangibles is 10 years. The goodwill acquired is not deductible for tax purposes.

Pro forma results

The following unaudited pro forma information assumes that the above acquisition occurred at the beginning of the periods presented. For the year ended December 31, 2020, pro forma net sales would have been $1.90 billion, pro forma net income would have been $347.0 million and pro forma diluted net income per common share would have been $1.48. These unaudited pro forma results are intended for informational purposes only and are not necessarily indicative of the results of operations that would have occurred had the acquisition been in effect at the beginning of the periods presented, or of future results of the combined operations.

2019 Business Combinations

In January 2019, we completed the acquisition of N-of-One, Inc., a privately-held U.S. molecular decision support company and pioneer in clinical interpretation services for complex genomic data located in Concord, Massachusetts. The cash consideration, net of cash acquired, was $24.5 million. This acquisition was not significant to the overall consolidated financial statements and as of December 31, 2019, the allocation of the purchase price was final. The acquisition did not have a material impact to net sales, net income or earnings per share and therefore no pro forma information has been provided herein.

In the third quarter of 2019, we acquired two additional companies for total cash consideration, net of cash acquired, of $43.5 million. The purchase price allocations for these acquisitions were final as of March 31, 2020. These acquisitions were not significant to the overall consolidated financial statements and the acquisitions did not have a material impact to net sales, net income or earnings per share. Thus, no pro forma information has been provided herein.

2019 Asset Acquisition

On January 31, 2019, we acquired the digital PCR asset of Formulatrix, Inc., a developer of laboratory automation solutions. We paid Formulatrix $125.0 million in cash upon closing. During 2020, we paid the remaining $135.9 million of milestone payments.

6. Restructuring and Impairments

As part of our restructuring activities, we incur expenses that qualify as exit and disposal costs under U.S. GAAP including severance and employee costs as well as contract and other costs, primarily contract termination costs, as well as inventory write-offs and other implementation costs primarily related to consulting fees. Personnel related costs primarily relate to cash severance and other termination benefits including accelerated share-based compensation. We also incur expenses that are an integral component of, and are directly attributable to, our restructuring activities which do not qualify as exit and disposal costs under U.S. GAAP, which consist of asset-related costs such as intangible asset impairments and other asset related write-offs.

Personnel costs are primarily determined based on established benefit arrangements, local statutory requirements, or historical benefit practices. We recognize these benefits when payment is probable and estimable. Other benefits which require future service and are associated to non-recurring benefits are recognized ratably over the future service period. Other assets, including inventory, are impaired or written-off if the carrying value exceeds the fair value. All other costs are recognized as incurred.

2019 Restructuring

In the second half of 2019, we decided to suspend development of NGS-related instrument systems and entered into a new strategic partnership with Illumina to commercialize IVD kits worldwide on Illumina's diagnostic sequencers. In order to align our business with this new strategy, we began restructuring initiatives to target resource allocation to growth opportunities in our Sample to Insight portfolio. In addition, we implemented measures to shift commercial operations activities, transition manufacturing activities into a regional structure, and expand the scope of activities at our shared service centers.

Total cumulative pre-tax costs for the program, which concluded in 2021, were $313.2 million as summarized below.

Classification and Type of Charge (in thousands)	Note	2021	2020	2019	Total cumulative charges
Restructuring, acquisition, integration and other, net					
Personnel related[1]	(22)	$845	$904	$70,578	$72,327
Contract and other costs[1]		1,762	1,835	52,249	55,846
Accounts receivable[2]		(246)	(622)	10,825	9,957
Inventories		—	1,014	12,336	13,350
Prepaid expenses and other assets[2]		—	127	17,012	17,139
		2,361	3,258	163,000	168,619
Long-lived asset impairments					
Property, plant and equipment	(9)	—	1,034	98,472	99,506
Intangible assets	(11)	—	—	40,301	40,301
		—	1,034	138,773	139,807
Other income, net					
Equity method investment impairment	(10)	—	—	4,799	4,799
Total		**$2,361**	**$4,292**	**$306,572**	**$313,225**

(1) During the year ended December 31, 2019, personnel related and contract and other costs include $2,956 and $15,676, respectively, due to related parties.

(2) During the year ended December 31, 2019, accounts receivable and prepaid expenses and other assets includes $5,984 and $2,270, respectively due from related parties.

Of the total costs incurred, $1.5 million and $11.2 million are accrued as of December 31, 2021 and 2020, respectively, in accrued and other current liabilities in the accompanying consolidated balance sheets as summarized in the following table including the cash components of the restructuring activity.

(in thousands)	Personnel Related	Contract and Other Costs	Total
Liability at December 31, 2019	$27,999	$32,233	$60,232
Additional costs incurred in 2020	4,542	3,300	7,842
Release of accrual	(3,638)	(1,465)	(5,103)
Payments	(24,355)	(27,347)	(51,702)
Foreign currency translation adjustment	139	(242)	(103)
Liability at December 31, 2020	**4,687**	**6,479**	**11,166**
Additional costs incurred in 2021	1,725	7,294	9,019
Release of accrual	(880)	(5,532)	(6,412)
Payments	(5,273)	(6,690)	(11,963)
Foreign currency translation adjustment	(144)	(161)	(305)
Liability at December 31, 2021	**$115**	**$1,390**	**$1,505**

7. Short-Term Investments

As of December 31, 2021 and 2020, short-term investments consisted of the following:

(in thousands)	2021	2020
Commercial paper	$139,785	$—
Money market deposits	45,000	—
Marketable equity securities	—	117,249
Total	**$184,785**	**$117,249**

At December 31, 2021, we had $184.8 million of commercial paper and money market deposits due from financial and nonfinancial institutions. These instruments are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market and carried at fair market value, which is equal to the cost. All instruments are classified as current assets in the accompanying balance sheet as they have a maturity of less than one year or are redeemable at our discretion. Interest income is determined using the effective interest rate method.

At December 31, 2020, short-term investments include the fair value of our marketable equity securities totaling $117.2 million. These investments, further discussed in Note 10 "Investments", are reported at fair value with gains and losses recorded in earnings.

8. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets are summarized as follows as of December 31, 2021 and 2020:

(in thousands)	Note	2021	2020
Fair value of derivative instruments	(14)	$175,284	$14,127
Prepaid expenses		60,629	61,159
Income tax receivable	(17)	45,116	16,424
Value added tax		22,884	31,128
Other receivables		19,201	32,901
Contract assets	(4)	14,082	8,539
Cash collateral	(14)	11,200	56,100
Loan receivables		6,249	17,094
Total prepaid expenses and other current assets		**$354,645**	**$237,472**

9. Property, Plant and Equipment

Property, plant and equipment of December 31, 2021 and 2020 were as follows:

(in thousands)	Estimated useful life (in years)	2021	2020
Land	—	$26,732	$18,903
Buildings and improvements	5-40	371,834	362,902
Machinery and equipment	3-10	343,968	322,379
Computer software	3-10	281,226	260,730
Furniture and office equipment	3-10	106,016	108,339
Construction in progress	—	140,823	116,562
		1,270,599	1,189,815
Less: Accumulated depreciation and amortization		(632,416)	(630,443)
Property, plant and equipment, net		**$638,183**	**$559,372**

Asset impairment charges for the years ended December 31, 2020 and 2019 were as follows:

(in thousands)	2020	2019
Machinery and equipment	$77	$9,177
Computer software	—	44,649
Furniture and office equipment	315	4,030
Construction in progress	642	41,870
Total impairment in property, plant and equipment	**$1,034**	**$99,726**

During the year ended December 31, 2020, $1.0 million of impairments were related to the 2019 Restructuring program discussed in Note 6 "Restructuring and Impairments". In 2019, $98.5 million of impairments were related to the 2019 Restructuring program while the remaining $1.2 million were related to other identified impairments during the year.

For the years ended December 31, 2021, 2020 and 2019 depreciation and amortization expense totaled $85.4 million, $78.6 million and $86.0 million, respectively. For the years ended December 31, 2021, 2020 and 2019 amortization related to computer software to be sold, leased or marketed totaled $9.2 million, $7.4 million and $18.3 million, respectively. Impairment charges related to computer software to be sold, leased or marketed are included in computer software and construction in progress in the table above and totaled $65.9 million for the year ended December 31, 2019. As of December 31, 2021 and 2020, the unamortized balance of computer software to be sold, leased or marketed was $56.9 million and $50.5 million, respectively.

Repairs and maintenance expense was $16.2 million, $13.8 million and $10.7 million in 2021, 2020 and 2019, respectively. For the year ended December 31, 2021, construction in progress primarily includes amounts related to projects to expand production lines and increase capacity of manufacturing as well as ongoing software development projects. For the years ended December 31, 2021, 2020 and 2019, interest capitalized in connection with construction projects was not significant.

10. Investments

Non-Marketable Investments

We have made strategic investments in certain privately-held companies without readily determinable market values.

Non-Marketable Investments Accounted for Under the Equity Method

A summary of our non-marketable investments accounted for as equity method investments is as follows:

		Equity investments as of December 31,		Share of income (loss) for the years ended December 31,		
($ in thousands)	Ownership Percentage	**2021**	2020	**2021**	2020	2019
PreAnalytiX GmbH	50.00%	$10,291	$4,761	$10,412	$3,070	$3,971
Apis Assay Technologies Ltd	19.00%	3,713	1,940	1,773	1,221	(51)
TVM Life Science Ventures III	3.10%	3,669	1,545	(264)	630	(330)
Suzhou Fuda Business Management and Consulting Partnership	33.67%	2,832	3,301	—	—	—
Actome GmbH	12.50%	1,045	—	(31)	—	—
Hombrechtikon Systems Engineering AG	19.00%	(413)	(530)	97	97	(1,124)
MAQGEN Biotechnology Co., Ltd	40.00%	—	—	—	—	(383)
		$21,137	**$11,017**	**$11,987**	**$5,018**	**$2,083**

Of the $21.1 million of non-marketable investments accounted for as equity method investments, $21.5 million is included in other long-term assets and $0.4 million, where we are committed to fund losses, is included in other long-term liabilities in the accompanying consolidated balance sheet as of December 31, 2021.

During 2021, we made a $1.1 million investment in Actome GmbH (Actome) and as of December 31, 2021 we hold a 12.5% ownership stake in this company that is accounted for under the equity method as we have the ability to exercise significant influence.

TVM Life Science Ventures III (TVM) is a limited partnership and we account for our 3.1% investment under the equity method as we have the ability to exercise significant influence over the limited partnership. This investment is valued at net asset value (NAV) reported by the counterparty, adjusted as necessary. During 2021, we made $2.4 million in additional cash payments to TVM and have $10.3 million of unfunded commitments through 2029 related to this investment. We do not have the right to redeem these funds under the normal course of operations of this partnership.

During the years ended December 31, 2021, 2020 and 2019, we received dividends of $4.7 million, $4.4 million and $4.1 million, respectively, from PreAnalytix GmbH. These dividends are included in Other items, net including fair value changes in derivatives in the accompanying consolidated statements of cash flows as they are a return on investment and therefore classified as cash flows from operating activities.

As of December 31, 2021, four of our equity method investments are variable interest entities and we are not the primary beneficiary as we do not hold the power to direct the activities that most significantly impact the economic performance. Therefore, these investments are not consolidated. As of December 31, 2021, these investments had a total net carrying value of $8.0 million, of which $8.4 million, representing our maximum exposure to loss, is included in other long-term assets and $0.4 million is included in other long-term liabilities in the accompanying consolidated balance sheet. As of December 31, 2020, these investments held a balance of $3.0 million, of which $3.5 million is included in other long-term assets and $0.5 million is included in other long-term liabilities in the accompanying consolidated balance sheet.

During 2019, we recorded an impairment of $4.8 million in other income, net in the accompanying consolidated statements of income, following changes in circumstances of MAQGEN Biotechnology Co., Ltd that indicated the carrying value was no longer recoverable. Accordingly, the investment was fully impaired.

Non-Marketable Investments Not Accounted for Under the Equity Method

At December 31, 2021 and 2020, we had investments in non-publicly traded companies that do not have readily determinable fair values with carrying amounts that totaled $3.9 million and $4.1 million, respectively. These investments which are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. Changes resulting from impairment and observable price changes are recognized in the statements of income during the period the change is identified.

The changes in non-marketable investments not accounted for under the equity method for the years ended December 31, 2021 and 2020 are as follows:

(in thousands)	**2021**	2020
Balance at beginning of year	$4,142	$70,849
Full acquisition of equity securities	—	(41,001)
Sale of equity securities	—	(23,812)
Loss on sale of equity securities	—	(2,250)
Impairments	—	(398)
Cash investments in equity securities, net	81	173
Foreign currency translation adjustments	(278)	581
Balance at end of year	**$3,945**	**$4,142**

We made additional investments of $0.1 million in non-marketable investments not accounted for under equity method for the year ended December 31, 2021.

In 2020, we acquired the remaining shares of NeuMoDx as further discussed in Note 5 "Acquisitions". Invitae Corporation (Invitae), a publicly traded company (NVTA), completed the acquisition of ArcherDX, Inc. (ArcherDX), a company in which we held an approximate 8% investment. In exchange for our shares in ArcherDX, we initially

received cash of $21.1 million and 2.4 million shares in Invitae followed by an additional 0.4 million shares for milestone achievement, as shown in the marketable equity securities table below. For the year ended December 31, 2020, we recognized a total gain of $123.3 million in other income, net in the accompanying consolidated statement of income as a result of this transaction. Additionally in 2020, we sold two other investments. One investment was sold for its book value and we received $3.7 million in cash. The other investment had a carrying value of $2.5 million and was sold for cash of $0.3 million and the shares in OncoCyte Corporation (OncoCyte), shown in the marketable equity securities table below. A loss of $2.3 million was recognized in other income, net on the sale of this investment. We also recorded a $0.4 million impairment in other income, net following indications that the carrying value was no longer recoverable. Accordingly, the investment was fully impaired. Finally, we made additional investments of $0.2 million in non-marketable investments not accounted for under the equity method during the year ended December 31, 2020.

For non-marketable investments not accounted for under the equity method as of both December 31, 2021 and 2020, cumulative upward adjustments for price changes was $0.7 million. These adjustments were due to equity offerings at a higher price from the issuer in orderly transactions for identical or similar investments as those we hold.

Marketable Equity Securities

As of December 31, 2020, we held investments in marketable equity securities that have readily determinable fair values. These investments are reported at fair value with gains and losses recorded in earnings. These marketable investments were all sold in 2021.

The changes in marketable equity securities during the year ended December 31, 2021 are as follows:

	Invitae		OncoCyte		Oncimmune Holdings plc (Oncimmune)		HTG Molecular Diagnostics, Inc (HTGM)	
(in $ thousands, except shares data)	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
Balance at December 31, 2020	**2,769,189**	**$115,780**	**88,101**	**$211**	**560,416**	**$1,258**	**55,556**	**$266**
Shares received upon milestone achievement	1,100,190	35,338	30,152	147	86,218	220	—	—
(Loss) gain on change in fair value	—	(3,066)	—	123	—	61	—	65
Sale of investment	(3,869,379)	(148,052)	(118,253)	(481)	(646,634)	(1,539)	(55,556)	(331)
Balance at December 31, 2021	**—**	**$—**	**—**	**$—**	**—**	**$—**	**—**	**$—**

During 2021, we sold all shares received from Invitae upon milestone achievement and realized a gain of $32.3 million in other income, net in the accompanying consolidated statement of income. We are entitled to up to 0.6 million Invitae shares and up to approximately $3.0 million from OncoCyte in the future upon achievement of certain milestones.

As of December 31, 2020, we held marketable equity securities in short-term investment and other long-term assets in the accompanying consolidated balance sheet as follows:

	Short-Term			Long-Term
(in thousands, except shares held)	Invitae	OncoCyte	Oncimmune	HTGM
Shares held	2,769,189	88,101	560,416	55,556
Cost basis	$100,822	$230	$657	$2,000
Fair value	$115,780	$211	$1,258	$266
Total cumulative unrealized gain (loss)	$14,958	($19)	$601	($1,734)

In 2020, HTGM completed a 15:1 reverse stock split.

During the year ended December 31, 2020, unrealized losses recognized for the change in fair market value of all marketable equity securities totaled $5.7 million of which $5.4 million is attributable to short-term and $0.3 million to long-term investments.

11. Goodwill and Intangible Assets

The following sets forth the intangible assets by major asset class as of December 31, 2021 and 2020:

(in thousands)	Weighted Average Life (in years)	2021 Gross Carrying Amount	2021 Accumulated Amortization	2020 Gross Carrying Amount	2020 Accumulated Amortization
Amortized Intangible Assets:					
Patent and license rights	11.41	$297,986	($202,569)	$298,395	($197,038)
Developed technology	10.70	810,420	(400,021)	860,129	(378,705)
Customer base, trademarks, and non-compete agreements	12.36	263,878	(204,197)	314,876	(233,981)
	11.00	$1,372,284	($806,787)	$1,473,400	($809,724)
Unamortized Intangible Assets:					
In-process research and development		$61,939		$62,518	
Goodwill		2,350,763		2,364,031	
		$2,412,702		**$2,426,549**	

The in-process research and development as of December 31, 2021 is from the acquisitions of NeuMoDx in 2020 and STAT-Dx in 2018. The estimated fair value of acquired in-process research and development projects which have not reached technological feasibility at the date of acquisition are capitalized and subsequently tested for impairment through completion of the development process, at which point the capitalized amounts are amortized over their estimated useful life. If a project is abandoned rather than completed, all capitalized amounts are written-off immediately.

The changes in intangible assets, excluding goodwill, for the years ended December 31, 2021 and 2020 are as follows:

(in thousands)	2021	2020
Balance at beginning of year	$726,194	$632,434
Additions	23,969	24,007
Additions from acquisitions	—	157,170
Amortization	(104,371)	(103,230)
Disposals	(4,571)	(537)
Foreign currency translation adjustments	(13,785)	16,350
Balance at end of year	**$627,436**	**$726,194**

Cash paid for purchases of intangible assets during the year ended December 31, 2021 totaled $16.6 million, of which $8.4 million is related to current year payments for assets that were accrued as of December 31, 2020 and $0.2 million is related to prepayments recorded in other long-term assets in the accompanying consolidated balance sheet. Intangible additions of $24.0 million includes $15.0 million associated to a fully paid-up technology license received in exchange for a convertible note as discussed further in FN 24 "Related Party Transactions", $8.1 million of cash paid during the year and $0.9 million of additions which were previously recorded as prepayments.

Cash paid for intangible assets during the year ended December 31, 2020 totaled $171.5 million of which $146.1 million is related to payments in 2020 for licenses that were accrued as of December 31, 2019, $24.0 million of current year additions and $1.4 million for prepayments recorded in other long-term assets in accompanying consolidated balance sheet.

Amortization expense on intangible assets totaled approximately $104.4 million, $103.2 million and $122.6 million, respectively, for the years ended December 31, 2021, 2020 and 2019. During the year ended December 31, 2019, we recorded an impairment charge of $40.3 million related to the restructuring activities discussed further in Note 6 "Restructuring and Impairments" of which $28.1 million is related to patent and license rights and $12.1 million is related to developed technology.

Amortization of intangibles for the next five years is expected to be approximately:

Years ended December 31, (in thousands)	
2022	$90,798
2023	$88,438
2024	$84,768
2025	$72,974
2026	$64,946

The changes in goodwill for the years ended December 31, 2021 and 2020 are as follows:

(in thousands)	**2021**	2020
Balance at beginning of year	$2,364,031	$2,140,503
Business combinations	—	157,627
Purchase adjustments	33,716	3,382
Foreign currency translation adjustments	(46,984)	62,519
Balance at end of year	**$2,350,763**	**$2,364,031**

The changes in the carrying amount of goodwill during the year ended December 31, 2021 resulted primarily from changes in foreign currency translation partially offset by purchase adjustments related to the acquisition of NeuMoDx discussed in in Note 5 "Acquisitions". The changes in goodwill during the year ended December 31, 2020 resulted primarily from the acquisition of NeuMoDx and changes in foreign currency translation.

12. Leases

We have operating leases primarily for real estate. The leases generally have terms which range from one year to 15 years, some include options to extend or renew, and some include options to early terminate the leases. As of December 31, 2021 and 2020, no such options have been recognized as part of the right-of-use assets and lease liabilities.

Operating leases can contain variable lease charges based on an index like consumer prices or rates. During the years ended December 31, 2021 and 2020, amounts recorded as variable lease payments not included in the operating lease liability were not material.

When the interest rate implicit in each lease is not readily determinable, we apply our incremental borrowing rate in determining the present value of lease payments. All operating lease expense is recognized on a straight-line basis over the lease term. For the years ended December 31, 2021 and 2020, we recognized $27.2 million and $25.0 million in total lease costs, respectively.

Supplemental balance sheet and other information related to operating leases as of December 31, 2021 and 2020 are as follows:

(in thousands, except lease term and discount rate)	Location in balance sheet	**2021**	2020
Operating lease right-of-use assets	Other long-term assets	$100,894	$102,522
Current operating lease liabilities	Accrued and other current liabilities	$22,048	$23,450
Long-term operating lease liabilities	Other long-term liabilities	$76,534	$85,585
Weighted average remaining lease term		7.80 years	7.04 years
Weighted average discount rate		1.90%	1.89%

Supplemental cash flow information related to operating leases for the years ended December 31, 2021 and 2020 are as follows:

(in thousands)	**2021**	2020
Cash paid for operating leases included in operating cash flows	$27,429	$24,193
Operating lease right-of-use assets obtained in exchange for lease obligations	$26,784	$58,992

Future maturities of operating lease liabilities as of December 31, 2021 are as follows:

Years ending December 31, (in thousands)	
2022	$23,641
2023	19,441
2024	13,930
2025	9,270
2026	7,031
Thereafter	32,054
Total lease payments	105,367
Less: imputed interest	(6,785)
Total	**$98,582**

As of December 31, 2021, we do not have any material operating leases that have not yet commenced. We did not hold any material finance leases as of December 31, 2021 and 2020.

13. Accrued and Other Current Liabilities

Accrued and other current liabilities at December 31, 2021 and 2020 consist of the following:

(in thousands)	Note	2021	2020
Fair value of derivative instruments	(14)	$181,858	$51,464
Payroll and related accruals		100,756	99,085
Other liabilities		66,589	67,244
Deferred revenue	(4)	63,368	57,066
Accrued expenses		54,271	51,026
Income tax payable	(17)	27,669	14,354
Accrued contingent consideration and milestone payments	(15)	24,100	23,593
Operating lease liabilities	(12)	22,048	23,450
Accrued royalties	(20)	12,559	7,427
Cash collateral	(14)	9,200	600
Accrued interest on long-term debt	(16)	4,488	4,575
Restructuring	(6)	1,714	11,599
Total accrued and other current liabilities		**$568,620**	**$411,483**

14. Derivatives and Hedging

Objective and Strategy

In the ordinary course of business, we use derivative instruments, including swaps, forwards and/or options, to manage potential losses from foreign currency exposures and interest bearing assets or liabilities. The principal objective of such derivative instruments is to minimize the risks and/or costs associated with our global financial and operating activities. We do not utilize derivative or other financial instruments for trading or other speculative purposes. We recognize all derivatives as either assets or liabilities on the balance sheet on a gross basis, measure those instruments at fair value and recognize the change in fair value in earnings in the period of change, unless the derivative qualifies as an effective hedge that offsets certain exposures. We have agreed with almost all of our counterparties with whom we had entered into cross-currency swaps, interest rate swaps or foreign exchange contracts, to enter into bilateral collateralization contracts under which we will receive or provide cash collateral, as the case may be, for the net position with each of these counterparties. As of December 31, 2021, cash collateral positions consisted of $9.2 million recorded in accrued and other current liabilities and $11.2 million recorded in prepaid expenses and other current assets. As of December 31, 2020, we had cash collateral positions consisting of $0.6 million recorded in accrued and other current liabilities and $56.1 million recorded in prepaid expenses and other current assets in the accompanying consolidated balance sheets.

Non-Derivative Hedging Instrument

Net Investment Hedge

We are party to a foreign currency non-derivative hedging instrument that is designated and qualifies as net investment hedge. The objective of the hedge is to protect part of the net investment in foreign operations against adverse changes in the exchange rate between the Euro and the functional currency of the U.S. dollar. The non-derivative hedging instrument is the German private corporate bond (Schuldschein) which was issued in the total amount of $331.1 million as described in Note 16 "Debt". Of the $331.1 million, which is held in both U.S. dollars and Euros, €255.0 million was designated as the hedging instrument as of December 31, 2020 against a portion of our Euro net investments in our foreign operations. As further described in Note 16, two tranches of the Schuldschein matured and were paid during 2021 and as a result, €220.5 million remained designated as a hedging instrument as of December 31, 2021. The relative changes in both the hedged item and hedging instrument are calculated by applying the change in spot rate between two assessment dates against the respective notional amount. The effective portion of the hedge is recorded in the cumulative translation adjustment account within other accumulated comprehensive loss. Based on the spot rate method, the unrealized loss recorded in equity as of December 31, 2021 and 2020 is $2.1 million and $26.9 million, respectively. Since we are using the debt as the hedging instrument, which is also remeasured based on the spot rate method, there is no hedge ineffectiveness related to the net investment hedge as of December 31, 2021 and 2020.

Derivatives Designated as Hedging Instruments

Cash Flow Hedges

As of December 31, 2021 and 2020, we held derivative instruments that are designated and qualify as cash flow hedges, where the effective portion of the gain or loss on the derivative is reported as a component of other comprehensive loss and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings. Gains and losses on the derivative representing either hedge ineffectiveness or hedge components excluded from the assessment of effectiveness are recognized in current earnings. To date, we have not recorded any hedge ineffectiveness related to any cash-flow hedges in earnings. Based on their valuation as of December 31, 2021, we expect approximately $3.4 million of derivative losses included in accumulated other comprehensive loss will be reclassified into income during the next 12 months. The cash flows derived from derivatives are classified in the consolidated statements of cash flows in the same category as the consolidated balance sheets account of the underlying item.

We use interest rate derivative contracts to align our portfolio of interest bearing assets and liabilities with our risk management objectives. We are party to five cross currency interest rate swaps through 2025 for a total notional amount of €180.0 million which qualify for hedge accounting as cash flow hedges. We determined that no ineffectiveness exists related to these swaps. As of December 31, 2021 and 2020, interest receivables of $1.4 million and $1.1 million, respectively are recorded in prepaid expenses and other current assets in the accompanying consolidated balance sheets.

Fair Value Hedges

As of December 31, 2021 and 2020, we held derivative instruments that qualify for hedge accounting as fair value hedges. For derivative instruments that are designated and qualify as a fair value hedge, the effective portion of the gain or loss on the derivative is reflected in earnings. This effect on earnings is offset by the change in the fair value of the hedged item attributable to the risk being hedged that is also recorded in earnings. To date, there has been no ineffectiveness. The cash flows derived from derivatives are classified in the consolidated statements of cash flows in the same category as the consolidated balance sheets account of the underlying item.

We hold interest rate swaps which effectively fix the fair value of a portion of our fixed rate private placement debt and qualify for hedge accounting as fair value hedges. We determined that no ineffectiveness exists related to these swaps. As of both December 31, 2021 and 2020, interest receivables of $0.6 million are recorded in prepaid and other current assets in the accompanying consolidated balance sheets.

Derivatives Not Designated as Hedging Instruments

Call Options

We entered into Call Options which, along with the sale of the Warrants, represent the Call Spread Overlay entered into in connection with the Cash Convertible Notes and which are more fully described in Note 16 "Debt". In these transactions, the Call Options are intended to address the equity price risk inherent in the cash conversion feature of each instrument by offsetting cash payments in excess of the principal amount due upon any conversion of the Cash Convertible Notes. Accordingly, the derivative is presented as either current or long-term based upon the classification of the related debt. As of December 31, 2021, the 2023 Notes may be surrendered for conversion through the close of business on March 31, 2022 as discussed in Note 16 "Debt". Accordingly, the related call options have been reclassified to current as of December 31, 2021

Aside from the initial payment of premiums for the Call Options, we will not be required to make any cash payments under the Call Options. We will, however, be entitled to receive under the terms of the Call Options, an amount of cash generally equal to the amount by which the market price per share of our common stock exceeds the exercise price of the Call Options during the relevant valuation period. The exercise price under the Call Options is equal to the conversion price of the Cash Convertible Notes.

The Call Options, for which our common stock is the underlying security, are derivative assets that require mark-to-market accounting treatment. The Call Options are measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy. The change in fair value is recognized immediately in our consolidated statements of income in other income, net.

Cash Convertible Notes Embedded Cash Conversion Option

The embedded cash conversion option within the Cash Convertible Notes discussed in Note 16 "Debt" is required to be separated from the Cash Convertible Notes and accounted for separately as a derivative liability, with changes in fair value reported in our consolidated statements of income in other income, net until the cash conversion option settles or expires. The embedded cash conversion option is measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy.

Because the terms of the Cash Convertible Notes' embedded cash conversion option are substantially similar to those of the Call Options, discussed above, we expect the effect on earnings from these two derivative instruments to mostly offset each other.

Embedded Conversion Option

During 2017, we purchased a convertible note for $3.0 million from a publicly listed company considered a related party. The embedded conversion option within the convertible note was required to be separated from the convertible note and accounted for separately as a derivative liability, with changes in fair value reported in our consolidated statements of income (loss) in other income, net. The embedded cash conversion option was measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy. During 2020, $3.2 million was collected including the principal and accrued interest. For further discussion of the inputs used to determine the fair value of the embedded cash conversion option, refer to Note 15 "Financial Instruments and Fair Value Measurements".

Foreign Exchange Contracts

As a globally active enterprise, we are subject to risks associated with fluctuations in foreign currencies in our ordinary operations. This includes foreign currency-denominated receivables, payables, debt, and other balance sheet positions including intercompany items. We manage balance sheet exposure on a group-wide basis using foreign exchange forward contracts, foreign exchange options and cross-currency swaps.

We are party to various foreign exchange forward, option and swap arrangements which had, at both December 31, 2021 and 2020, aggregate notional values of $1.3 billion, which expire at various dates through December 2022. The transactions have been entered into to offset the effects from short-term balance sheet exposure to foreign currency exchange risk. Changes in the fair value of these arrangements have been recognized in other income, net.

Fair Values of Derivative Instruments

The following table summarizes the fair value amounts of derivative instruments reported in the consolidated balance sheets as of December 31, 2021 and 2020:

	2021		2020	
(in thousands)	Current Asset	Long-Term Asset	Current Asset	Long-Term Asset
Assets:				
Derivative instruments designated as hedges				
Interest rate contracts - fair value hedge [1]	$1,971	$—	$—	$5,042
Total derivative instruments designated as hedges	$1,971	$—	$—	$5,042
Undesignated derivative instruments				
Equity options	$162,141	$190,430	$2,415	$374,038
Foreign exchange forwards and options	11,172	—	11,712	—
Total undesignated derivative instruments	$173,313	$190,430	$14,127	$374,038
Total Derivative Assets	**$175,284**	**$190,430**	**$14,127**	**$379,080**

	2021		2020	
(in thousands)	Current Liability	Long-Term Liability	Current Liability	Long-Term Liability
Liabilities:				
Derivative instruments designated as hedges				
Interest rate contracts - cash flow hedge [1]	$—	($628)	$—	($17,409)
Interest rate contracts - fair value hedge [1]	—	—	—	—
Total derivative instruments designated as hedges	$—	($628)	$—	($17,409)
Undesignated derivative instruments				
Equity options	($162,608)	($191,251)	($5,966)	($376,046)
Foreign exchange forwards and options	(19,250)	—	(45,498)	—
Total undesignated derivative instruments	($181,858)	($191,251)	($51,464)	($376,046)
Total Derivative Liabilities	**($181,858)**	**($191,879)**	**($51,464)**	**($393,455)**

[1] The fair value amounts for the interest rate contracts do not include accrued interest.

Gains and Losses on Derivative Instruments

The following tables summarize the gains and losses on derivative instruments for the years ended December 31, 2021, 2020 and 2019:

	2021	2020	2019
(in thousands)	Other income, net	Other income, net	Other income, net
Total amounts presented in the Consolidated Statements of Income in which the effects of cash flow and fair value hedges are recorded	$40,671	$114,326	$432
Gains (Losses) on Derivatives in Cash Flow Hedges			
Interest rate contracts			
Amount of (loss) gain reclassified from accumulated other comprehensive loss	($17,010)	$18,666	($3,888)
Amounts excluded from effectiveness testing	—	—	—
Gains (Losses) on Derivatives in Fair Value Hedges			
Interest rate contracts			
Hedged item	3,072	(2,568)	(3,668)
Derivatives designated as hedging instruments	(3,072)	2,568	3,668
Gains (Losses) Derivatives Not Designated as Hedging Instruments			
Embedded conversion option	—	—	(349)
Equity options	(23,882)	322,580	(104,125)
Cash convertible notes embedded cash conversion option	28,154	(321,213)	106,998
Foreign exchange forwards and options	10,333	(12,429)	1,835
Total (losses) gains	**($2,405)**	**$7,604**	**$471**

Balance Sheet Line Items in which the Hedged Item is Included

The following tables summarizes the balance sheet line items in which the hedged item is included as of December 31, 2021 and 2020:

	Carrying Amount of the Hedged Assets (Liabilities)		Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of Hedged Assets (Liabilities)	
(in thousands)	**2021**	2020	**2021**	2020
Balance Sheet line items in which the Hedged Item is included				
Current portion of long-term debt	($128,916)	$—	$1,971	$—
Long-term debt	$—	($131,923)	$—	$5,042

15. Financial Instruments and Fair Value Measurements

Assets and liabilities are measured at fair value according to a three-tier fair value hierarchy which prioritizes the inputs used in measuring fair value as follows:

- *Level 1.* Observable inputs, such as quoted prices in active markets;
- *Level 2.* Inputs, other than the quoted price in active markets, that are observable either directly or indirectly; and
- *Level 3.* Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The following table presents our fair value hierarchy for our financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2021 and 2020:

	2021				2020			
(in thousands)	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Cash equivalents	$366,117	$179,844	$—	$545,961	$273,584	$—	$—	$273,584
Short-term investments	—	139,785	—	139,785	—	—	—	—
Marketable equity securities	—	—	—	—	117,515	—	—	117,515
Non-marketable equity securities	—	—	3,945	3,945	—	—	4,142	4,142
Equity options	—	352,571	—	352,571	—	376,453	—	376,453
Foreign exchange forwards and options	—	11,172	—	11,172	—	11,712	—	11,712
Interest rate contracts	—	1,971	—	1,971	—	5,042	—	5,042
	$366,117	**$685,343**	**$3,945**	**$1,055,405**	**$391,099**	**$393,207**	**$4,142**	**$788,448**
Liabilities:								
Foreign exchange forwards and options	$—	($19,250)	$—	($19,250)	$—	($45,498)	$—	($45,498)
Interest rate contracts	—	(628)	—	(628)	—	(17,409)	—	(17,409)
Equity options	—	(353,859)	—	(353,859)	—	(382,012)	—	(382,012)
Contingent consideration	—	—	(24,100)	(24,100)	—	—	(23,593)	(23,593)
	$—	**($373,737)**	**($24,100)**	**($397,837)**	**$—**	**($444,919)**	**($23,593)**	**($468,512)**

The carrying values of financial instruments, including cash and cash equivalents, accounts receivable, accounts payable and other accrued liabilities, approximate their fair values due to their short-term maturities.

Our assets and liabilities measured at fair value on a recurring basis consist of marketable securities discussed in Note 10 "Investments", which are classified in Level 1, short-term investments, which are classified in Level 2 of the fair value hierarchy, derivative contracts used to hedge currency and interest rate risk and derivative financial instruments entered into in connection with the Cash Convertible Notes discussed in Note 16 "Debt", which are classified in Level 2 of the fair value hierarchy, contingent consideration accruals which are classified in Level 3 of the fair value hierarchy, and are shown in the tables below and non-marketable equity securities remeasured during the year ended December 31, 2021 and 2020 are classified within Level 3 in the fair value hierarchy. There were no transfers between levels for the year ended December 31, 2021.

In determining fair value for Level 2 instruments, we apply a market approach, using quoted active market prices relevant to the particular instrument under valuation, giving consideration to the credit risk of both the respective counterparty to the contract and the Company. To determine our credit risk, we estimated our credit rating by benchmarking the price of outstanding debt to publicly-available comparable data from rated companies. Using the estimated rating, our credit risk was quantified by reference to publicly-traded debt with a corresponding rating. The Level 2 derivative financial instruments include the Call Options asset and the embedded conversion option liability. See Note 16 "Debt", and Note 14 "Derivatives and Hedging", for further information. The derivatives are not actively traded and are valued based on an option pricing model that uses observable market data for inputs. Significant market data inputs used to determine fair values included our common stock price, the risk-free interest rate, and the implied volatility of our common stock. The Call Options asset and the embedded cash conversion option liability were designed with the intent that changes in their fair values would substantially offset, with limited net impact to our earnings. Therefore, the sensitivity of changes in the unobservable inputs to the option pricing model for such instruments is substantially mitigated.

Our Level 3 instruments include non-marketable equity security investments. Under the measurement alternative, the carrying value is measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments of the same issuer. Adjustments are determined primarily based on a market approach as of the transaction date.

Our Level 3 instruments also include contingent consideration liabilities. We value contingent consideration liabilities using unobservable inputs, applying the income approach, such as the discounted cash flow technique, or the probability-weighted scenario method. Contingent consideration arrangements obligate us to pay the sellers of an acquired entity if specified future events occur or conditions are met such as the achievement of technological or revenue milestones. We use various key assumptions, such as the probability of achievement of the milestones (0% to 100%) and the discount rate (between 6.5% and 6.9%), to represent the non-performing risk factors and time value when applying the income approach. We regularly review the fair value of the contingent consideration, and reflect any change in the accrual in the consolidated statements of income (loss) in the line items commensurate with the underlying nature of milestone arrangements.

Refer to Note 10 "Investments" for the change in non-marketable equity securities with Level 3 inputs during the year ended December 31, 2021 and 2020. For contingent consideration liabilities with Level 3 inputs, the following table summarizes the activity for the years ended December 31, 2021 and 2020:

(in thousands)	**2021**	2020
Balance at beginning of year	($23,593)	($162,160)
Additions from acquisitions	(507)	(3,223)
Payments	—	141,790
Balance at end of year	**($24,100)**	**($23,593)**

As of December 31, 2021, we had $24.1 million accrued for contingent consideration which is included in accrued and other current liabilities in the accompanying consolidated balance sheet. During 2021, the $0.5 million of additions relates to the time value increases of existing contingent consideration liabilities related to the 2018 acquisition of STAT-Dx. During 2020, the payments of $141.8 million and time value increases of $3.2 million both relate to the STAT-Dx acquisition as well as the 2019 asset acquisition of Formulatrix.

The estimated fair value of long-term debt as disclosed in Note 16 "Debt" was based on current interest rates for similar types of borrowings. The estimated fair values may not represent actual values of the financial instruments that could be realized as of the balance sheet date or that will be realized in the future.

The fair values of the financial instruments are presented in Note 16 "Debt" and were determined as follows:

Cash Convertible Notes and Convertible Notes: Fair value is based on an estimation using available over-the-counter market information on the Cash Convertible Notes due in 2023 and 2024 as well as the Convertible Notes due in 2027.

U.S. Private Placement: Fair value of the outstanding bonds is based on an estimation using the changes in the U.S. Treasury rates.

German Private Placement: Fair value is based on an estimation using changes in the euro swap rates.

There were no adjustments in the years ended December 31, 2021 and 2020 for nonfinancial assets or liabilities required to be measured at fair value on a nonrecurring basis.

16. Debt

At December 31, 2021 and 2020, total long-term debt, net of debt issuance costs of $8.4 million and $10.7 million, respectively, consists of the following:

(in thousands)	**2021**	2020
0.875% Senior Unsecured Cash Convertible Notes due 2021	$—	$200
0.500% Senior Unsecured Cash Convertible Notes due 2023	375,149	361,304
1.000% Senior Unsecured Cash Convertible Notes due 2024	446,503	429,496
0.000% Senior Unsecured Convertible Notes due 2027	496,804	442,481
3.75% Series B Senior Notes due October 16, 2022	301,843	304,761
3.90% Series C Senior Notes due October 16, 2024	26,967	26,956
German Private Placement (Schuldschein)	294,504	357,551
Total long-term debt	**1,941,770**	**1,922,749**
Less current portion	847,626	42,539
Long-term portion	**$1,094,144**	**$1,880,210**

The notes are all unsecured obligations that rank pari passu. Interest expense on long-term debt was $50.7 million, $63.5 million and $68.0 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Repayments of long-term debt for the years ended December 31, 2021, 2020 and 2019 consisted of:

(in thousands)	**2021**	2020	2019
German Private Placement (Schuldschein)	$41,145	$—	$—
0.875% Senior Unsecured Cash Convertible Notes due 2021	200	296,400	3,400
0.375% Senior Unsecured Cash Convertible Notes due 2019	—	—	430,000
3.19% Series A Senior Notes due October 16, 2019	—	—	73,000
	$41,345	**$296,400**	**$506,400**

The principal amount, carrying amount and fair values of long-term debt instruments are summarized below:

	As of December 31, 2021				
				Fair Value	
(in thousands)	Principal Amount	Unamortized debt discount and issuance costs	Carrying Amount	Amount	Leveling
Cash Convertible Notes due 2023	$400,000	($24,851)	$375,149	$547,256	Level 1
Cash Convertible Notes due 2024	500,000	(53,497)	446,503	647,100	Level 1
Convertible Notes due 2027	500,000	(3,196)	496,804	536,400	Level 1
U.S. Private Placement [1]	328,971	(161)	328,810	331,566	Level 2
German Private Placement	294,738	(234)	294,504	296,587	Level 2
	$2,023,709	**($81,939)**	**$1,941,770**	**$2,358,909**	

	As of December 31, 2020				
				Fair Value	
(in thousands)	Principal Amount, net of equity component	Unamortized debt discount and issuance costs	Carrying Amount	Amount	Leveling
Cash Convertible Notes due 2021	$200	$—	$200	$370	Level 1
Cash Convertible Notes due 2023	400,000	(38,696)	361,304	530,376	Level 1
Cash Convertible Notes due 2024	500,000	(70,504)	429,496	636,455	Level 1
Convertible Notes due 2027 [2]	445,948	(3,467)	442,481	510,930	Level 1
U.S. Private Placement [1]	332,042	(325)	331,717	337,747	Level 2
German Private Placement	357,911	(360)	357,551	361,957	Level 2
	$2,036,101	**($113,352)**	**$1,922,749**	**$2,377,835**	

[1] The principal amount of the U.S. Private Placement includes the $2.0 million and $5.0 million as of December 31, 2021 and 2020, respectively for the impact of the interest rate swaps which qualify for hedge accounting as fair value hedges which are further discussed in Note 14 "Derivatives and Hedging".

[2] As of December 31, 2020, $54.1 million was allocated to the equity component, representing the conversion option. ASU 2020-06 was adopted on January 1, 2021 as discussed in Note 2 "Effects of New Accounting Pronouncements".

Future maturities (stated at the carrying values) of long-term debt as of December 31, 2021, are as follows:

Years ending December 31, (in thousands)	
2022	$847,626
2023	—
2024	580,946
2025	—
2026	—
thereafter	513,198
	$1,941,770

Interest expense for the years ended December 31, 2021 and 2020 related to the 2027 Notes and the Cash Convertible Notes was comprised of the following:

(in thousands)	**2021**	2020
Coupon interest	$7,000	$9,025
Amortization of original issuance discount	28,864	38,229
Amortization of debt issuance costs	2,521	2,942
Total interest expense	**$38,385**	**$50,196**

Convertible Notes due 2027

On December 17, 2020, we issued zero coupon convertible notes in an aggregate principal amount of $500.0 million with a maturity date of December 17, 2027 (2027 Notes). The 2027 Notes carry no coupon interest. The net proceeds of the 2027 Notes totaled $497.6 million, after payment of debt issuance costs of $3.7 million.

In accounting for the issuance of the 2027 Notes in 2020 prior to the adoption of ASU 2020-06, we separated the 2027 Notes into liability and equity components. We allocated $445.9 million of the 2027 Notes to the liability component, representing the fair value of a similar debt instrument that does not have an associated convertible feature; and $54.1 million to the equity component, representing the conversion option, which does not meet the criteria for separate accounting as a derivative as it is indexed to our own stock. ASU 2020-06 was adopted on January 1, 2021 as discussed in Note 2 "Effects of New Accounting Pronouncements".

The effective interest rate of the 2027 Notes is 1.65%, which is imputed based on the amortization of the fair value of the embedded conversion option over the remaining term of the 2027 Notes.

The 2027 Notes are convertible into common shares based on an initial conversion rate, subject to adjustment, of 2,477.65 shares per $200,000 principal amount of notes (which represents an initial conversion price of $80.7218 per share, or 6.2 million underlying shares). At conversion, we will settle the 2027 Notes by repaying the principal portion in cash and any excess of the conversion value over the principal amount in shares of common stock.

The notes may be redeemed at the option of each noteholder at their principal amount on December 17, 2025 or in connection with a change of control or delisting event.

The 2027 Notes are convertible in whole, but not in part, at the option of the noteholders on a net share settlement basis, at the prevailing conversion price in the following circumstances beginning after January 27, 2021 through June 16, 2027:

- if the last reported sale price of our common stock for at least 20-consecutive trading days during a period of 30-consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; or
- if we undergo certain fundamental changes, including a change of control, as defined in the agreement; or
- if parity event or trading price unavailability event, as the case maybe occurs during the period of 10 days, including the first business day following the relevant trading price notification date; or
- if we distribute assets or property to all or substantially all of the holders of our common stock and those assets or other property have a value of more than 25% of the average daily volume-weighted average trading price of our common stock for the prior 20 consecutive trading days; or
- in case of early redemption in respect of the outstanding notes at our option, where the conversion date falls in the period from (and including) the date on which the call notice is published to (and including) the 45th business day prior to the redemption date; or
- if we experience certain customary events of default, including defaults under certain other indebtedness, until such event of default has been cured or waived.

The noteholders may convert their notes at any time, without condition, on or after June 17, 2027 until the 45th business day prior to December 17, 2027.

No Contingent Conversion Conditions were triggered for the 2027 Notes as of December 31, 2021.

Cash Convertible Notes due 2021, 2023, and 2024

On March 19, 2014, we issued $730.0 million aggregate principal amount of Cash Convertible Senior Notes in two tranches consisting of $430.0 million due on March 19, 2019 (2019 Notes) and $300.0 million due on March 19, 2021 (2021 Notes). The aggregate net proceeds of the 2019 and 2021 Convertible Notes were $680.7 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs. Repayment of these Notes are further detailed in the table above.

On September 13, 2017, we issued $400.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2023 (2023 Notes). The net proceeds of the 2023 Notes were $365.6 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs.

On November 13, 2018, we issued $500.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2024 (2024 Notes). The net proceeds of the 2024 Notes were $468.9 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs.

We refer to the 2019 Notes, 2021 Notes 2023 Notes, and 2024 Notes, collectively as the "Cash Convertible Notes".

Interest on the Cash Convertible Notes is payable semi-annually in arrears and will mature on the maturity date unless repurchased or converted with their terms prior to such date. The interest rate and corresponding maturity of each Note are summarized in the table below. The Cash Convertible Notes that remain outstanding as of December 31, 2021 are solely convertible into cash in whole, but not in part, at the option of noteholders under the circumstances described below and during the contingent conversion periods as shown in the table below.

Cash Convertible Notes	Annual Interest Rate	Date of Interest Payments	Maturity Date	Contingent Conversion Period	Conversion Rate per $200,000 Principal Amount
2023 Notes	0.500%	March 13 and September 13	September 13, 2023	From October 24, 2017 to March 13, 2023	4,829.7279
2024 Notes	1.000%	May 13 and November 13	November 13, 2024	From December 24, 2018 to August 2, 2024	4,360.3098

Additionally, conversion may occur at any time following a Contingent Conversion Period through the fifth business day immediately preceding the applicable maturity date.

Upon conversion, noteholders will receive an amount in cash equal to the Cash Settlement Amount, calculated as described below. The Cash Convertible Notes are not convertible into shares of our common stock or any other securities.

Noteholders may convert Cash Convertible Notes into cash at their option at any time during the Contingent Conversion Periods described above only under the following circumstances (Contingent Conversion Conditions):

- if the last reported sale price of our common stock for at least 20-consecutive trading days during a period of 30-consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- if we undergo certain fundamental changes, including a change of control, as defined in the agreement;

- if parity event or trading price unavailability event, as the case maybe occurs for the 2023 Notes and 2024 Notes during the period of 10 days, including the first business day following the relevant trading price notification date;
- if we elect to distribute assets or property to all or substantially all of the holders of our common stock and those assets or other property have a value of more than 25% of the average daily volume-weighted average trading price of our common stock for the prior 20 consecutive trading days;
- if we elect to redeem the Cash Convertible Notes; or
- if we experience certain customary events of default, including defaults under certain other indebtedness until such event has been cured or waived or the payment of the Notes have been accelerated.

The Contingent Conversion Conditions in the 2023 and 2024 Notes noted above have been analyzed under ASC 815, *Derivatives and Hedging*, and, based on our analysis, we determined that each of the embedded features listed above are clearly and closely related to the 2023 and 2024 Notes (i.e., the host contracts). As a result, pursuant to the accounting provisions of ASC 815, *Derivatives and Hedging*, the Contingent Conversion Conditions noted above are not required to be bifurcated as separate instruments.

As of December 31, 2021, the 2023 Notes may be surrendered for conversion through the close of business on March 31, 2022 (the "Relevant Fiscal Quarter"). The 2023 Notes have become convertible pursuant to Section 12.01(b)(iv) of the indenture because the arithmetic mean of the last reported sale prices of our common stock, in each trading day in at least one 20 consecutive trading day period during the 30 consecutive trading day period ending on the last trading day of the preceding fiscal quarter, was greater than 130% of the conversion price in effect on such last trading day. The 2023 Notes will be convertible at a conversion ratio of 4,829.7279 per $200,000 principal amount of 2023 Notes, which is equivalent to a conversion price of approximately $41.4102 per share of our common stock.

No Contingent Conversion Conditions were triggered for the 2024 Notes as of December 31, 2021.

Upon conversion, holders are entitled to a cash payment (Cash Settlement Amount) equal to the average of the conversion rate multiplied by the daily volume-weighted average trading price for our common stock over a 50-day period. The conversion rate is subject to adjustment in certain instances but will not be adjusted for any accrued and unpaid interest. In addition, following the occurrence of certain corporate events that may occur prior to the applicable maturity date, we may be required to pay a cash make-whole premium by increasing the conversion rate for any holder who elects to convert Cash Convertible Notes in connection with the occurrence of such a corporate event.

We may redeem the Cash Convertible Notes in their entirety at a price equal to 100% of the principal amount of the applicable Cash Convertible Notes plus accrued interest at any time when 20% or less of the aggregate principal amount of the applicable Cash Convertible Notes originally issued remain outstanding.

Because the Cash Convertible Notes contain an embedded cash conversion option, we have determined that the embedded cash conversion option is a derivative financial instrument, which is required to be separated from the Cash Convertible Notes and accounted for separately as a derivative liability, with changes in fair value reported in our consolidated statements of income (loss) until the cash conversion option transaction settles or expires. The initial fair value liability of the embedded cash conversion option for the 2019 and 2021 Notes was $51.2 million and $54.0 million, respectively, $74.5 million for the 2023 Notes, and $98.5 million for the 2024 Notes, which simultaneously reduced the carrying value of the Cash Convertible Notes (effectively an original issuance discount). For further discussion of the derivative financial instruments relating to the Cash Convertible Notes, refer to Note 14 "Derivatives and Hedging".

As noted above, the reduced carrying value on the Cash Convertible Notes resulted in a debt discount that is amortized to the principal amount through the recognition of non-cash interest expense using the effective interest method over the expected life of the debt, which is five and seven for the 2019 Notes and 2021 Notes, and six years for the 2023 Notes and 2024 Notes, respectively. This resulted in our recognition of interest expense on the Cash Convertible Notes at an effective rate approximating

what we would have incurred had nonconvertible debt with otherwise similar terms been issued. The effective interest rate of the 2019 Notes, 2021 Notes, 2023 Notes and 2024 Notes is 2.937%, 3.809%, 3.997% and 4.782%, respectively, which is imputed based on the amortization of the fair value of the embedded cash conversion option over the remaining term of the Cash Convertible Notes.

In connection with the issuance of the May 2014 Cash Convertible Senior Notes, which included 2021 Notes, we incurred approximately $13.1 million in transaction costs. We incurred approximately $6.2 million and $5.7 million in transaction costs for the 2023 Notes and 2024 Notes, respectively. Such costs have been allocated to the Cash Convertible Notes and deferred and are being amortized to interest expense over the terms of the Cash Convertible Notes using the effective interest method.

Cash Convertible Notes Call Spread Overlay

Concurrent with the issuance of the Cash Convertible Notes, we entered into privately negotiated hedge transactions (Call Options) with, and issued warrants to purchase shares of our common stock (Warrants) to, certain financial institutions. We refer to the Call Options and Warrants collectively as the "Call Spread Overlay". The Call Options are intended to offset any cash payments payable by us in excess of the principal amount due upon any conversion of the Cash Convertible Notes.

The Call Options are derivative financial instruments and are discussed further in Note 14 "Derivatives and Hedging". The Warrants are equity instruments and are further discussed in Note 18 "Equity".

Aside from the initial payment of a premium, we will not be required to make any cash payments under the Call Options, and will be entitled to receive an amount of cash, generally equal to the amount by which the market price per share of our common stock exceeds the exercise price of the Call Options during the relevant valuation period. The exercise price under the Call Options is initially equal to the conversion price of the Cash Convertible Notes.

During 2019, we received $133.2 million in cash upon the exercise of the call options in connection with the repayment of the 2019 Notes. In the same transaction, we paid $132.7 million for the intrinsic value of the 2019 Notes' embedded cash conversion option. The net effect of the cash paid and received of $0.5 million was recognized as a gain in other income, net. In connection with the early conversion of a portion of 2021 Notes during 2019, we received $1.5 million upon the exercise of the related call options. Also, we paid $1.1 million for the intrinsic value of the 2021 Notes' embedded cash conversion option. As a result of these early conversions, a gain of $0.4 million was recognized in other income, net.

During 2020, while the 2021 Notes were contingently convertible, we received conversion notices for $119.4 million of outstanding principal. In December 2020, we initiated a tender offer and repurchased a further $177.0 million of outstanding principal. In connection with these transactions, we received $239.8 million in cash upon the exercise of the call options and we paid $237.4 million for the intrinsic value of the 2021 Notes' embedded cash conversion option. The net effect of the cash paid and received of $2.4 million was recognized as a gain in other income, net.

The Warrants that were issued with our Cash Convertible Notes, could have a dilutive effect to the extent that the price of our common stock exceeds the applicable strike price of the Warrants. For each Warrant that is exercised, we will deliver to the holder a number of shares of our common stock equal to the amount by which the settlement price exceeds the exercise price, plus cash in lieu of any fractional shares. We will not receive any proceeds if the Warrants are exercised.

U.S. Private Placement

In October 16, 2012, we completed a private placement through the issuance of new senior unsecured notes at a total amount of $400.0 million with a weighted average interest rate of 3.66% (settled on October 16, 2012). The notes were issued in three series: (1) $73.0 million 7-year term due and paid on October 16, 2019 (3.19%); (2) $300.0 million 10-year term due on October 16, 2022 (3.75%); and (3) $27.0 million 12-year term due on October 16, 2024 (3.90%). We paid $2.1 million in debt

issuance costs which will be amortized through interest expense using the effective interest method over the lifetime of the notes. The note purchase agreement contains certain financial and non-financial covenants, including but not limited to, restrictions on priority indebtedness and the maintenance of certain financial ratios. We were in compliance with these covenants at December 31, 2021. During 2014, we entered into interest rate swaps, which effectively fixed the fair value of $200.0 million of this debt, which was reduced to $127.0 million following the 2019 $73.0 million repayment. These interest rate swaps qualify for hedge accounting as fair value hedges as described in Note 14 "Derivatives and Hedging".

German Private Placement (Schuldschein)

In 2017, we completed a German private placement bond (Schuldschein) which was issued in several tranches totaling $331.1 million due in various periods through 2027. In the first quarter of 2021, we repaid $41.1 million for two tranches that matured. The Schuldschein consists of one U.S. dollar and several Euro denominated tranches. The Euro tranches are designated as a foreign currency non-derivative hedging instrument that qualifies as a net investment hedge as described in Note 14 "Derivatives and Hedging". Based on the spot rate method, the change in the carrying value of the Euro denominated tranches attributed to the net investment hedge as of December 31, 2021 totaled $2.1 million of unrealized loss and is recorded in equity. We paid $1.2 million in debt issuance costs which are being amortized through interest expense over the lifetime of the notes. A summary of the tranches is as follows:

				Carrying Value (in thousands) as of December 31,	
Currency	Notional Amount	Interest Rate	Maturity	**2021**	2020
EUR	€11.5 million	Fixed 0.4%	March 2021	$—	$14,115
EUR	€23.0 million	Floating EURIBOR + 0.4%	March 2021	—	28,224
EUR	€21.5 million	Fixed 0.68%	October 2022	24,340	26,361
EUR	€64.5 million	Floating EURIBOR + 0.5%	October 2022	73,020	79,083
USD	$45.0 million	Floating LIBOR + 1.2%	October 2022	44,976	44,948
EUR	€25.0 million	Floating EURIBOR + 0.5%	October 2022	28,298	30,642
EUR	€64.0 million	Fixed 1.09%	June 2024	72,405	78,429
EUR	€31.0 million	Floating EURIBOR + 0.7%	June 2024	35,071	37,989
EUR	€14.5 million	Fixed 1.61%	June 2027	16,394	17,760
				$294,504	**$357,551**

The financial markets regulators in the United Kingdom and the Eurozone have passed regulations wherein non-dollar LIBORs and one-week and two-month USD LIBOR ended after 2021, while the remaining USD LIBOR tenors will end as of June 30, 2023. Market participants and regulators are working on establishing new interest rate benchmarks. While the outcome of this work is not clear yet, the USD tranche of the Schuldschein and our interest rate swaps continue to make reference to the current LIBOR benchmark rate. These agreements contain language for the determination of interest rates in case the benchmark rate is not available. However, as the maturity date for the USD tranche of the Schuldschein and related interest rate swaps is in October 2022, these instruments will be settled before the LIBOR end date of June 30, 2023. Therefore we currently do not anticipate any impact from the LIBOR phase out.

Revolving Credit Facility

Our credit facilities available and undrawn at December 31, 2021 total €427.0 million (approximately $483.6 million). This includes a €400.0 million syndicated ESG-linked revolving credit facility expiring December 2024 and three other lines of credit amounting to €27.0 million with no expiration date. The €400.0 million facility can be utilized in Euro and bears interest of 0.550% to 1.500% above EURIBOR, and is offered with interest periods of one, three or six months. The commitment fee is

calculated based on 35% of the applicable margin. In 2021, $1.3 million of commitment fees were paid. The revolving facility agreement contains certain financial and non-financial covenants, including but not limited to, restrictions on the encumbrance of assets and the maintenance of certain financial ratios. We were in compliance with these covenants at December 31, 2021. The credit facilities are for general corporate purposes and no amounts were utilized at December 31, 2021.

17. Income Taxes

Income (loss) before income taxes for the years ended December 31, 2021, 2020 and 2019 consisted of:

(in thousands)	2021	2020	2019
Pretax income (loss) in the Netherlands	$7,062	($38,242)	($77,433)
Pretax income (loss) from foreign operations	618,771	477,714	(343)
	$625,833	**$439,472**	**($77,776)**

Income tax expense (benefit) for the years ended December 31, 2021, 2020 and 2019 are as follows:

(in thousands)	2021	2020	2019
Current:			
The Netherlands	$1,714	$270	$5,670
Foreign	116,808	86,720	13,371
	118,522	86,990	19,041
Deferred:			
The Netherlands	(1,776)	(6,921)	4,177
Foreign	(3,512)	215	(59,539)
	(5,288)	(6,706)	(55,362)
Total income tax expense (benefit)	**$113,234**	**$80,284**	**($36,321)**

The Netherlands statutory income tax rate was 25% for the years ended December 31, 2021, 2020 and 2019. Income from foreign subsidiaries is generally taxed at the statutory income tax rates applicable in the respective countries of domicile. The principal items comprising the differences between income taxes computed at the Netherlands statutory rate and our effective tax rate for the years ended December 31, 2021, 2020 and 2019 are as follows:

	2021	2020	2019
Income taxes at the Netherlands statutory rate	25.0%	25.0%	25.0%
Valuation allowance	(4.4)	(8.1)	(26.9)
Taxation of foreign operations, net[1]	(3.0)	(2.1)	33.1
Unrecognized tax benefits[2]	1.6	8.2	(14.1)
Excess tax benefit related to share-based compensation	(1.0)	(0.6)	5.1
Prior year taxes	0.6	(1.6)	(1.4)
Government incentives[3]	(0.6)	(0.6)	9.7
Changes in tax laws and rates	(0.4)	(0.3)	(0.4)
Tax impact from (deductible) nondeductible items	0.2	(0.8)	(10.3)
Tax impact from intangible property transfer	0.0	(0.8)	27.2
Other items, net	0.1	0.0	(0.3)
Effective tax rate	**18.1%**	**18.3%**	**46.7%**

(1) Our effective tax rate reflects the benefit of our global operations where certain income or loss is taxed at rates higher or lower than the Netherlands' statutory rate of 25% as well as the benefit of some income being partially exempt from income taxes due to various intercompany operating and financing activities. These foreign tax benefits are due to a combination of favorable tax laws, regulations and exemptions in these jurisdictions. Partial tax exemptions exist on foreign income primarily derived from operations in Germany, the Netherlands and Singapore. Further, we have intercompany financing arrangements in which the intercompany income is nontaxable or partially exempt or subject to lower statutory tax rates. During 2021 and 2020, we had intercompany arrangements through Dubai, and through mid-2019 had arrangements through Luxembourg and Ireland.

(2) In 2020, we recorded tax accruals related to the potential nondeductibility of the $95.0 million expense reimbursement paid in connection with the unsuccessful acquisition attempt by Thermo Fisher.

(3) Government incentives include tax credits in the U.S. relating to research and development expense and other government incentives.

We conduct business globally and, as a result, file numerous consolidated and separate income tax returns in the Netherlands, Germany, and the U.S. federal jurisdiction, as well as in various other state and foreign jurisdictions. In the normal course of business, we are subject to examination by taxing authorities throughout the world. Tax years in the Netherlands are potentially open back to 2009 for income tax examinations by the Netherlands taxing authority. The German group is open to audit for the tax years starting in 2014 and in 2019, the German tax authority commenced an audit for the 2014-2016 tax years. The U.S. consolidated group is subject to federal and most state income tax examinations by tax authorities beginning with the year ending December 31, 2018 through the current period. Our other subsidiaries, with few exceptions, are no longer subject to income tax examinations by tax authorities for years before 2017.

Changes in the amount of unrecognized tax benefits for the years ended December 31, 2021, 2020, and 2019 are as follows:

(in thousands)	**2021**	2020	2019
Balance at beginning of year	$100,092	$58,002	$55,780
Additions based on tax positions related to the current year	6,629	31,758	5,770
Additions for tax positions of prior years	5,036	3,560	14,532
Decrease for tax position of prior years	(266)	(57)	(9,073)
Decrease related to settlements	—	—	(7,605)
Decrease due to lapse of statute of limitations	(344)	(520)	(409)
(Decrease) increase from currency translation	(7,529)	7,349	(993)
Balance at end of year	**$103,618**	**$100,092**	**$58,002**

At December 31, 2021 and 2020, our net unrecognized tax benefits totaled approximately $103.6 million and $100.1 million, respectively, which, if recognized, would favorably affect our effective tax rate in any future period. It is reasonably possible that approximately $35.1 million of the unrecognized tax benefits may be released or utilized during the next 12 months due to lapse of statute of limitations or settlements with tax authorities. However, various events could cause our current expectations to change in the future. The above unrecognized tax benefits, if ever recognized in the financial statements, would be recorded in the statements of income (loss) as part of income tax expense (benefit).

Our policy is to recognize interest accrued related to an underpayment of income taxes in interest expense and penalties within income tax expense. For the years ended December 31, 2021, 2020 and 2019, we recognized (income) expense, net for interest and penalties of $(0.6) million, $1.9 million and $1.6 million, respectively. At December 31, 2021 and 2020, we have accrued interest and penalties of $3.8 million and $4.6 million, respectively, which are not included in the table above.

We have recorded net deferred tax assets of $35.3 million and $15.7 million at December 31, 2021 and 2020, respectively. The components of the net deferred tax asset and liability at December 31, 2021 and 2020 are as follows:

	2021		2020	
(in thousands)	Deferred Tax Asset	Deferred Tax Liability	Deferred Tax Asset	Deferred Tax Liability
Net operating loss and tax credit carryforward	$67,853	$—	$67,856	$—
Accrued and other liabilities	26,513	—	22,926	—
Inventories	4,790	(3,935)	3,872	(2,269)
Unrealized loss on investments	—	(32)	—	(25,779)
Property, plant and equipment	6,046	(29,241)	6,099	(23,376)
Intangible assets	4,066	(62,585)	2,817	(55,999)
Share-based compensation	20,464	—	18,377	—
Disallowed interest carryforwards	16,219	—	42,090	—
Convertible notes	5,231	—	6,512	(13,513)
Other	7,287	(6,045)	9,428	(6,046)
	158,469	**(101,838)**	**179,977**	**(126,982)**
Valuation allowance	(21,326)	—	(37,332)	—
	$137,143	**($101,838)**	**$142,645**	**($126,982)**
Net deferred tax assets		**$35,305**		**$15,663**

As of December 31, 2021, the valuation allowance principally relates to net operating loss carryforwards. A deferred tax asset can only be recognized to the extent it is "more likely than not" that the assets will be realized. Judgments around realizability depend on the availability and weight of both positive and negative evidence. At December 31, 2021, we had $599.5 million in total net operating loss (NOL) carryforwards which included $231.2 million for Germany, $158.8 million for the U.S., $59.7 million for Spain, $55.7 million for the Netherlands, and $94.1 million for other foreign jurisdictions. The NOL carryforwards in Germany, the Netherlands and Spain carryforward indefinitely. The entire NOL carryforward in the U.S. is subject to limitations under Section 382 of the U.S. Internal Revenue Code. The NOL carryforwards in the U.S. expire between 2024 and 2034. NOL carryforwards of $19.9 million in other foreign jurisdictions expire between 2022 and 2031 while the remainder can be carried forward indefinitely. At December 31, 2021, tax credits total $3.0 million which expire between 2031 and 2040.

The United States Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted on March 27, 2020. The CARES Act and related notices include several significant provisions, including delaying certain payroll tax payments and mandatory transition tax payments under the Tax Cuts and Jobs Act as well as an extension of the NOL carryback period to five years. At present, the primary impact from the CARES Act is that it allowed us to carry back U.S. NOLs for five years. We will continue to monitor and assess the impact the CARES Act and similar legislation in other countries may have on our business and financial results.

During the year ended December 31, 2021, we recorded an increase to the valuation allowance of $0.6 million related to losses in certain foreign jurisdictions and a decrease of $28.2 million. The decrease primarily included $16.0 million due to the utilization of previously disallowed U.S. interest carryforwards and $9.4 million due to a change in judgment about the realizability of previously disallowed U.S. interest carryforwards in future years. We expect to utilize the remaining total of $16.2 million of disallowed interest carryforwards in 2022. Additionally, in 2021, $13.5 million of the valuation allowance, which had been established in additional paid in capital in 2020, was reversed due to adopting ASU 2020-06.

During the year ended December 31, 2020, we recorded an increase to the valuation allowance of $6.6 million related to losses in certain foreign jurisdictions and a decrease of $42.2 million primarily related to utilized U.S. disallowed interest carryforwards and $13.5 million valuation allowance in additional paid in capital related to the 2027 Convertible Notes.

During the year ended December 31, 2019, we increased the valuation allowance by $20.9 million related to losses in certain foreign jurisdictions and U.S. disallowed interest carryforwards.

As of December 31, 2021, a deferred tax liability has not been recognized for residual income taxes in the Netherlands on the undistributed earnings of the majority of our foreign subsidiaries as these earnings are considered to be either indefinitely reinvested or can be repatriated tax free under the Dutch participation exemption. The indefinitely reinvested earnings retained of our subsidiaries that would be subject to tax if distributed amounted to $950.5 million at December 31, 2021. Estimating the amount of the unrecognized deferred tax liability on indefinitely reinvested foreign earnings is not practicable. Should the earnings be remitted as dividends, we may be subject to taxes including withholding tax. We have $24.5 million of undistributed earnings that we do not consider indefinitely reinvested and have recorded a deferred tax liability at December 31, 2021 and 2020, of $1.5 million and $1.6 million, respectively.

18. Equity

Shares

The authorized classes of our shares consist of Common Shares (410 million authorized), Preference Shares (450 million authorized) and Financing Preference Shares (40 million authorized). All classes of shares have a par value of €0.01. No Financing Preference Shares or Preference Shares have been issued. Like all shareholders' equity accounts, common shares are translated to U.S. dollars at the foreign exchange rates in effect when the shares are issued.

Issuance and Conversion of Warrants

In connection with the issuance of the Cash Convertible Notes as described in Note 16 "Debt", we issued Warrants as summarized in the table below. The number of warrants and exercise prices are subject to customary adjustments under certain circumstances. The proceeds, net of issuance costs, from the sale of the Warrants are included as additional paid in capital in the accompanying consolidated balance sheets.

The Warrants are exercisable only upon expiration. For each Warrant that is exercised, we will deliver to the holder a number of shares of our common stock equal to the amount by which the settlement price exceeds the exercise price, divided by the settlement price, plus cash in lieu of any fractional shares. The Warrants could separately have a dilutive effect on shares of our common stock to the extent that the market value per share of our common stock exceeds the applicable exercise price of the Warrants (as measured under the terms of the Warrants).

Cash convertible notes	Issued on	Number of share warrants issued (in millions)	Exercise price per share	Proceeds from issuance of warrants, net of issuance costs (in millions)	Warrants expire over a period of 50 trading days beginning on
2023	September 13, 2017	9.7	$49.9775	$45.3	June 26, 2023
2024	November 13, 2018	10.9	$50.2947	$72.4	August 27, 2024

During 2020, 0.8 million common shares were issued in connection with the early conversion of 4.2 million warrants related to the 2021 Notes which resulted in a $7.5 million decrease to additional paid in capital, a $22.7 million decrease in retained earnings, and a decrease of $30.3 million in treasury shares. The remaining warrants related to the 2021 Notes of 6.3 million were terminated in 2020, resulting in a cash payment of $174.6 million, a $30.3 million decrease to additional paid in capital and a $144.3 million decrease in retained earnings.

Share Repurchase Programs

On July 12, 2021, we announced our seventh share repurchase program of up to $100 million of our common shares. During 2021, we repurchased 1.9 million QIAGEN shares for $100.0 million (including transaction costs). This program ended on October 29, 2021.

On May 6, 2019, we announced our sixth share repurchase program of up to $100 million of our common shares. During 2020, we repurchased 1.3 million QIAGEN shares for $64.0 million (including transaction costs). This program ended on December 17, 2020.

On January 31, 2018, we announced our fifth share repurchase program of up to $200 million of our common shares. During 2019, we repurchased 2.0 million QIAGEN shares for $74.5 million (including transaction costs), bringing the total shares repurchased under this program to 4.9 million for $179.1 million (including transaction costs). This program ended on June 30, 2019.

The cost of repurchased shares is included in treasury stock and reported as a reduction in total equity when a repurchase occurs. Repurchased shares will be held in treasury in order to satisfy various obligations, which include exchangeable debt instruments, warrants and employee share-based remuneration plans.

Accumulated Other Comprehensive Loss

The following table is a summary of the components of accumulated other comprehensive loss as of December 31, 2021 and 2020:

(in thousands)	**2021**	2020
Net unrealized income (loss) on hedging contracts, net of tax	$1,245	($23,268)
Net unrealized loss on pension, net of tax	(588)	(599)
Foreign currency effects from intercompany long-term investment transactions, net of tax of $12.4 million and $10.7 million in 2021 and 2020, respectively	(30,768)	(25,717)
Foreign currency translation adjustments	(296,559)	(194,238)
Accumulated other comprehensive loss	**($326,670)**	**($243,822)**

19. Earnings Per Common Share

We present basic and diluted earnings per share. Basic earnings per share is calculated by dividing the net income (loss) by the weighted average number of common shares outstanding. Diluted earnings per share reflect the potential dilution that would occur if all "in the money" securities to issue common shares were exercised.

The following schedule summarizes the information used to compute earnings per common share for the years ended December 31, 2021, 2020 and 2019:

(in thousands, except per share data)	**2021**	2020	2019
Net income (loss)	$512,599	$359,188	($41,455)
Weighted average number of common shares used to compute basic net income per common share	227,983	228,427	226,777
Dilutive effect of stock options and restrictive stock units	3,403	3,350	–
Dilutive effect of outstanding warrants	648	2,437	–
Weighted average number of common shares used to compute diluted net income per common share	232,034	234,214	226,777
Outstanding options and awards having no dilutive effect, not included in above calculation	8	11	107
Outstanding warrants having no dilutive effect, not included in above calculation	19,912	26,438	32,938
Basic earnings (loss) per common share	$2.25	$1.57	($0.18)
Diluted earnings (loss) per common share	$2.21	$1.53	($0.18)

For purposes of considering the 2027 Notes in determining diluted earnings (loss) per common share, only an excess of the conversion value over the principal amount would have a dilutive impact using the treasury stock method. Since the 2027 Notes were out of the money and anti-dilutive during the period from December 17, 2020 through December 31, 2021, they were excluded from the diluted earnings (loss) per common share calculation in 2020 and 2021.

Due to the net loss for the year ended December 31, 2019, stock options and restricted stock units representing approximately 3.9 million weighted-average shares of common stock and warrants representing 1.7 million shares of common stock were excluded from the computation of diluted net loss because the impact would have been antidilutive.

20. Commitments and Contingencies

Licensing and Purchase Commitments

We have licensing agreements with companies, universities and individuals, some of which require certain up-front payments. Royalty payments are required on net product sales ranging from 0.45 percent to 25 percent of covered products or based on quantities sold. Several of these agreements have minimum royalty requirements. The accompanying consolidated balance sheets include accrued royalties relating to these agreements in the amount of $12.6 million and $7.4 million at December 31, 2021 and 2020, respectively. Royalty expense relating to these agreements amounted to $18.5 million, $12.2 million, and $13.5 million for the years ended December 31, 2021, 2020 and 2019, respectively. Royalty expense is primarily recorded in cost of sales, with a small portion recorded as research and development expense depending on the use of the technology under license. Some of these agreements also have minimum raw material purchase requirements and requirements to perform specific types of research.

At December 31, 2021, we had commitments to purchase goods or services, and for future license and royalty payments. They are as follows:

Years ending December 31, (in thousands)	Purchase Commitments	License & Royalty Commitments
2022	$115,180	$6,701
2023	14,897	3,941
2024	9,250	1,994
2025	—	1,483
2026	—	793
Thereafter	—	2,885
	$139,327	**$17,797**

We have total purchase commitments of $12.3 million included in the table above and future license and royalty commitments of $9.2 million associated to a January 2022 agreement that will paid over the next 19 years with companies in which we hold an interest and are considered related parties.

Contingent Consideration Commitments

Pursuant to the purchase agreements for certain acquisitions we could be required to make additional contingent cash payments, based on the achievement of certain revenue and operating results milestones, totaling up to $26.6 million in 2022 of which $24.1 million is included in accrued and other current liabilities in the accompanying consolidated balance sheet as of December 31, 2021.

Employment Agreements

Certain of our employment contracts contain provisions which guarantee the payments of certain amounts in the event of a change in control, as defined in the agreements, or if the executive is terminated for reasons other than cause, as defined in the agreements. At December 31, 2021, the commitment under these agreements totaled $9.2 million.

Contingencies

In the ordinary course of business, we provide a warranty to customers that our products are free of defects and will conform to published specifications. Generally, the applicable product warranty period is one year from the date of delivery of the product to the customer or of site acceptance, if required. Additionally, we typically provide limited warranties with respect to our services. We provide for estimated warranty costs at the time of the product sale. The changes in the carrying amount of warranty obligations for the years ended December 31, 2021 and 2020 are as follows:

(in thousands)	**2021**	2020
Balance at beginning of year	$4,813	$3,141
Provision charged to cost of sales	7,518	5,645
Usage	(5,774)	(3,978)
Adjustments to previously provided warranties, net	(43)	(125)
Currency translation	(190)	130
Balance at end of year	**$6,324**	**$4,813**

Litigation

From time to time, we may be party to legal proceedings incidental to our business. As of December 31, 2021, certain claims, suits or legal proceedings arising out of the normal course of business have been filed or were pending against QIAGEN or our subsidiaries. These matters have arisen in the ordinary course and conduct of business, as well as through acquisition. Although it is not possible to predict the outcome of such litigation, we assess the degree of probability and evaluate the reasonably possible losses that we could incur as a result of these matters. We accrue for any estimated loss when it is probable that a liability has been incurred and the amount of probable loss can be estimated.

Litigation accruals recorded in accrued and other current liabilities totaled $5.7 million as of December 31, 2021 and $5.2 million as of December 31, 2020.

ArcherDX spun out as an independent company in conjunction with QIAGEN's acquisition of Enzymatics in 2015. In 2018, ArcherDX (recently acquired by Invitae) and Massachusetts General Hospital (MGH) sued QIAGEN for patent infringement. In August 2021, a Federal jury ruled that QIAGEN infringed two patents owned by ArcherDX and awarded damages of $4.7 million which were expensed in Restructuring, acquisition, integration and other, net, and remain accrued as of December 31, 2021. We plan to appeal the verdict as soon as the final verdict is entered.

On September 17, 2020, QIAGEN acquired NeuMoDx. As part of the purchase, QIAGEN also acquired preexisting contingencies and became defendant in ongoing litigation matters pertaining to preexisting claims made by Becton Dickinson (BD) and subsidiaries over patent infringement. In addition to patent infringement allegations, the litigation involved trade secret misappropriation and other non-patent claims relating to NeuMoDx and former NeuMoDx officers, before the acquisition by QIAGEN. On September 26, 2021, through mediation, the parties reached a preliminary settlement of $53.0 million due to BD for the past infringements of NeuMoDx prior to QIAGEN's acquisition. On November 5, 2021, QIAGEN and BD reached an agreement to settle their ongoing litigation in the U.S. District Court of the District of Delaware and certain inter partes review proceedings. As part of the settlement, QIAGEN paid $53.0 million to BD in November 2021 and all claims asserted against QIAGEN, as well as counterclaims asserted against BD, were dismissed.

The estimated amount of a range of possible losses for other specific matters as of December 31, 2021, is between $0.2 million and $2.1 million. For these other matters a total of $1.0 million is accrued as of December 31, 2021. Based on the facts known to QIAGEN and after consultation with legal counsel, management believes that such litigation will not have a material adverse effect on our financial position or results of operations above the amounts accrued. However, the outcome of these matters is ultimately uncertain, thus any settlements or judgments against us in excess of management's expectations could have a material adverse effect on our financial position, results of operations or cash flows.

21. Segment Information

We operate as one operating segment in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 280, Segment Reporting. We have a common basis of organization and our products and services are offered globally. Considering our continued restructuring and streamlining of the growing organization, our chief operating decision maker (CODM) continues to make decisions with regards to business operations and resource allocation based on evaluations of QIAGEN as a whole. Accordingly, we operate and make decisions as one business segment. Product category and geographic information follows below.

Product Category Information

Net sales for the product categories are attributed based on those revenues related to sample and assay products and similarly related revenues including bioinformatics solutions, and revenues derived from instrumentation sales. Refer to Note 4 "Revenue" for disaggregation of revenue based on product categories, product type and customer class.

Geographical Information

Net sales are attributed to countries based on the location of the customer. QIAGEN operates manufacturing facilities in Germany, China, and the United States that supply products to customers as well as QIAGEN subsidiaries in other countries. The intersegment portions of such net sales are excluded to derive consolidated net sales. No single customer represents more than ten percent of consolidated net sales. Our country of domicile is the Netherlands, which reported net sales of $28.3 million, $17.8 million and $15.8 million for the years ended 2021, 2020 and 2019, respectively, and these amounts are included in the line item Europe, Middle East and Africa as shown in the table below.

Net sales (in thousands)	2021	2020	2019
Americas:			
United States	$909,690	$728,577	$663,869
Other Americas	97,686	96,880	58,121
Total Americas	1,007,376	825,457	721,990
Europe, Middle East and Africa	814,417	682,289	487,476
Asia Pacific, Japan and Rest of World	429,864	362,600	316,958
Total	**$2,251,657**	**$1,870,346**	**$1,526,424**

Long-lived assets include property, plant and equipment. The Netherlands, which is included in the balances for Europe, reported long-lived assets of $1.1 million and $1.5 million as of December 31, 2021 and 2020, respectively.

Long-lived assets (in thousands)	2021	2020
Americas:		
United States	$158,949	$154,843
Other Americas	2,805	2,436
Total Americas	161,754	157,279
Europe, Middle East and Africa:		
Germany	373,609	304,571
Other Europe, Middle East and Africa	78,608	71,444
Total Europe, Middle East and Africa	452,217	376,015
Asia Pacific and Japan	24,212	26,078
Total	**$638,183**	**$559,372**

22. Share-Based Compensation

We adopted the QIAGEN N.V. Amended and Restated 2005 Stock Plan (the 2005 Plan) in 2005 and the QIAGEN N.V. 2014 Stock Plan (the 2014 Plan) in 2014. The 2005 Plan expired by its terms in April 2015 and no further awards will be granted under the 2005 Plan. The plans allow for the granting of stock rights and incentive stock options, as well as non-qualified options, stock grants and stock-based awards, generally with terms of up to 3 years, with previous grants through 2020 having terms of 5 years subject to earlier termination in certain situations. The vesting and exercisability of certain stock rights will be accelerated in the event of a Change of Control, as defined in the plans. All option grants have been at the market value on the grant date or at a premium above the closing market price on the grant date. We issue Treasury

Shares to satisfy option exercises and award releases and had approximately 12.9 million Common Shares reserved and available for issuance under the 2005 and 2014 Plans at December 31, 2021.

Stock Options

We have not granted stock options since 2013. A summary of the status of employee stock options as of December 31, 2021 and changes during the year then ended is presented below:

All Employee Options	Number of Shares (in thousands)	Weighted Average Exercise Price	Weighted Average Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2021	427	$19.28		
Exercised	(409)	$19.34		
Outstanding at December 31, 2021	**18**	**$17.79**	**1.08**	**$664**
Vested at December 31, 2021	18	$17.79	1.08	$664
Vested and expected to vest at December 31, 2021	18	$17.79	1.08	$664

The total intrinsic value of options exercised during the years ended December 31, 2021, 2020 and 2019 was $14.4 million, $6.5 million and $2.0 million, respectively. The actual tax benefit for the tax deductions from option exercises totaled $2.2 million, $1.3 million, and $0.5 million during the years ended December 31, 2021, 2020 and 2019, respectively. At December 31, 2021, there was no unrecognized share-based compensation expense related to employee stock option awards.

At December 31, 2021, 2020 and 2019, 18 thousand, 0.4 million and 0.8 million options were exercisable at a weighted average price of $17.79, $19.28 and $20.06 per share, respectively. The options outstanding at December 31, 2021 expire in various years through 2023.

Stock Units

Stock units represent rights to receive Common Shares at a future date and include restricted stock units which are subject to time-vesting only and performance stock units which include performance conditions in addition to time-vesting. The final number of performance stock units earned is based on the performance achievement which for some grants can reach up to 200% of the granted shares. There is no exercise price and the fair market value at the time of the grant is recognized over the requisite vesting period. The fair market value is determined based on the number of stock units granted and the market value of our shares on the grant date. Pre-vesting forfeitures were estimated to be approximately 6.9%. At December 31, 2021, there was $68.9 million remaining in unrecognized compensation cost including estimated forfeitures related to these awards, which is expected to be recognized over a weighted average period of 1.78 years. The weighted average grant date fair value of stock units granted during the years ended December 31, 2021, 2020 and 2019 was $48.77, $36.92 and $37.28, respectively. The total fair value of stock units that vested during the years ended December 31, 2021, 2020 and 2019 was $52.6 million, $29.3 million and $123.9 million, respectively.

A summary of stock units as of December 31, 2021 and changes during the year are presented below:

Stock Units	**Stock Units (in thousands)**	Weighted Average Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2021	5,133		
Granted	739		
Vested	(1,031)		
Forfeited	(860)		
Outstanding at December 31, 2021	**3,981**	**1.78**	**$221,284**
Vested and expected to vest at December 31, 2021	3,526	1.69	$195,972

We net share settle for the tax withholding upon the vesting of awards. Shares are issued on the vesting dates net of the applicable statutory tax withholding to be paid by us on behalf of our employees. As a result, fewer shares are issued than the number of stock units outstanding. We record a liability for the tax withholding to be paid by us as a reduction to treasury shares.

Compensation Expense

Share-based compensation expense before taxes for the years ended December 31, 2021, 2020 and 2019 totaled approximately $38.4 million, $40.9 million and $65.9 million, respectively, as shown in the table below.

(in thousands)	**2021**	2020	2019
Cost of sales	$40	$2,897	$2,493
Research and development	4,909	7,014	5,810
Sales and marketing	13,630	15,889	7,947
General and administrative	19,812	15,136	23,705
Restructuring, acquisition, integration and other, net	—	—	25,938
Share-based compensation expense	38,391	40,936	65,893
Less: income tax benefit [1]	8,956	9,552	12,153
Net share-based compensation expense	**$29,435**	**$31,384**	**$53,740**

[1] Does not include the excess tax benefit realized for the tax deductions of the share-based payment arrangements which totaled $6.5 million, $2.5 million and $4.0 million, respectively, for the years ended December 31, 2021, 2020 and 2019.

The lower share-based compensation expense in cost of sales in 2021 resulted from forfeitures upon the separation of an executive who received a cash severance payment in lieu of accelerated vesting upon separation per the terms of the arrangement. The cash separation accrual offset the share-based compensation forfeiture.

Share-based compensation expense includes amounts related to the restructuring programs discussed in Note 6 "Restructuring and Impairments", including accelerated expense in 2019. No share-based compensation costs were capitalized for the years ended December 31, 2021, 2020 or 2019 as the amounts were not material.

23. Employee Benefits

We maintain various benefit plans, including defined contribution and defined benefit plans. Our U.S. defined contribution plan is qualified under Section 401(k) of the Internal Revenue Code, and covers substantially all U.S. employees. Participants may contribute a portion of their compensation not exceeding a limit set annually by the Internal Revenue Service. This plan includes a provision for us to match a portion of employee contributions. Total expense under the 401(k) plans, including the plans acquired via business acquisitions, was $3.7 million, $3.6 million and $4.0 million for the years ended December 31, 2021, 2020 and 2019, respectively. We also have a defined contribution plan which covers certain executives. We make matching contributions up to an established maximum. Matching contributions made to the plan, and expensed, totaled approximately $0.2 million in each of the years ended December 31, 2021, 2020 and 2019.

We have six defined benefit, non-contributory retirement or termination plans that cover certain employees in Germany, France, Italy, Japan, Philippines and the United Arab Emirates. These defined benefit plans provide benefits to covered individuals satisfying certain age and/or service requirements. For certain plans, we calculate the vested benefits to which employees are entitled if they separate immediately. The benefits accrued on a pro-rata basis during the employees' employment period are based on the individuals' salaries, adjusted for inflation. The liability under the defined benefit plans was $9.3 million as of both December 31, 2021 and 2020, and is included as a component of other long-term liabilities on the accompanying consolidated balance sheets.

24. Related Party Transactions

From time to time, we have transactions with other companies in which we hold an interest, all of which are individually and in the aggregate immaterial, as summarized in the table below.

Net sales to related parties for the years ended December 31, 2021, 2020, and 2019 are as follows:

(in thousands)	**2021**	2020	2019
Net sales	$9,089	$6,025	$20,002

Net sales with related parties primarily reflects our venture in China including our partnership in China to externalize the HPV test franchise for cervical cancer screening in China. During the year ended December 31, 2019, net sales also includes activity with Sichuan Maccura Biotechnology Co., Ltd which was terminated in conjunction with the 2019 restructuring activities discussed further in Note 6 "Restructuring and Impairments".

As of December 31, 2021 and 2020 balances with related parties are as follows:

(in thousands)	**2021**	2020
Accounts receivable	$3,868	$3,961
Prepaid expenses and other current assets	$16,956	$25,429
Other long-term assets	$61	$10,843
Accounts payable	$4,149	$4,050
Accrued and other current liabilities	$1,558	$1,380

Prepaid expenses and other current assets include loans receivable and supplier advances from companies with which we have an investment or partnership interest. As of December 31, 2021, prepaid expenses and other current assets include a $10.0 million convertible note which bears interest at 10% and is due in December 2022 from a privately held company. In the event the company goes public, this note will convert into common shares in the company ranking pari passu with existing common shares. As of December 31, 2020, two convertible notes were due from this company including $15.0 million of principal and $2.1 million accrued interest in prepaid expenses and other current assets and $10.0 million of principal and $0.2 million of accrued interest in other long-term assets. In 2021, we settled the $15.0 million convertible note in exchange for a fully paid-up technology license.

List of Subsidiaries

The following is a list of the Registrant's subsidiaries as of December 31, 2021, other than certain subsidiaries that did not in the aggregate constitute a significant subsidiary.

Company Name	Jurisdiction of Incorporation
Amnisure International LLC	USA
Cellestis Pty. Ltd.	Australia
Life Biotech Partners B.V.	Netherlands
NeuMoDx Inc.	USA
STAT-Dx Life S.L.	Spain
QIAGEN Aarhus A/S	Denmark
QIAGEN AB	Sweden
QIAGEN AG	Switzerland
QIAGEN Australia Holding Pty. Ltd.	Australia
QIAGEN Benelux B.V.	Netherlands
QIAGEN Beverly LLC	USA
QIAGEN Business Management MEA Ltd.	UAE
QIAGEN Business Services (Manila), Inc.	Philippines
QIAGEN Business Services S.p.z.o.o.	Poland
QIAGEN China (Shanghai) Co. Ltd.	China
QIAGEN Luxembourg SARL	Luxembourg
QIAGEN Deutschland Holding GmbH	Germany
QIAGEN Distribution B.V.	Netherlands
QIAGEN France S.A.S.	France
QIAGEN Gaithersburg LLC	USA

Company Name	Jurisdiction of Incorporation
QIAGEN GmbH	Germany
QIAGEN Hamburg GmbH	Germany
QIAGEN Hong Kong Pte. Ltd.	China
QIAGEN Inc.	Canada
QIAGEN Instruments AG	Switzerland
QIAGEN K.K.	Japan
QIAGEN Korea Ltd.	Korea (South)
QIAGEN LLC	USA
QIAGEN Ltd.	UK
QIAGEN Manchester Ltd.	UK
QIAGEN Marseille S.A.	France
QIAGEN North American Holdings Inc.	USA
QIAGEN Pty. Ltd.	Australia
QIAGEN Redwood City Inc.	USA
QIAGEN Sciences LLC	USA
QIAGEN Shared Services LLC	USA
QIAGEN Singapore Pte. Ltd.	Singapore
QIAGEN S.r.l.	Italy
QIAGEN U.S. Finance LLC	USA

Auditor's Report

Report of Independent Registered Public Accounting Firm

To the Shareholders and Supervisory Board

QIAGEN N.V.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of QIAGEN N.V. and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of income (loss), comprehensive income (loss), changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 14, 2022 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company has changed its method of accounting for convertible instruments as of January 1, 2021 due to the adoption of *ASU 2020-06, Debt-Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*. In 2020 the Company changed its method of accounting for expected credit losses on financial instruments and other commitments due to the adoption of Accounting Standards Codification Topic 326 – *Measurement of Credit Losses on Financial Instruments.*

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Assessment of unrecognized tax benefits

As discussed in Note 17 to the consolidated financial statements, the Company conducts its business globally and operates more than 50 consolidated subsidiaries in multiple tax jurisdictions. This multi-jurisdictional business operation involves complex intercompany operating and financing activities. The nature of these activities can result in uncertainties in the estimation of the related tax exposures. The Company initially recognizes and subsequently measures the unrecognized tax benefit in its consolidated financial statements when it is more likely than not that the position will be sustained upon examination by the tax authorities. As at 31 December 2021, the Company recorded unrecognized tax benefits of $103.6m.

We identified the assessment of unrecognized tax benefits as a critical audit matter. Complex auditor judgment and specialized skills and knowledge were required in evaluating the Company's interpretation and application of tax laws in the jurisdictions where it operates and its estimate of the ultimate resolution of the tax position.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's unrecognized tax benefit process, including controls related to (1) its interpretation and application of tax statutes and legislation, and changes thereto, in the various jurisdictions in which it operates and (2) its determination of the estimate for the associated unrecognized tax benefit. We inspected the Company's legal composition to identify and assess changes in operating structures and financing arrangements. We inquired of the Company's tax department in combination with inspecting correspondence with the responsible tax authorities with respect to the results of inspections by tax authorities. We involved tax and transfer pricing professionals with specialized skills and knowledge, who assisted in:

- analyzing the Company's interpretation and application of multi-jurisdictional tax laws, and changes thereto, and its impact on the unrecognized tax benefit by reading advice obtained from the Company's external specialists,
- inspecting the lapse of statute of limitations and settlements with tax authorities over a selection of unrecognized tax benefits to evaluate the amount in the settlement documents compared to the unrecognized tax benefit, and
- inspecting a selection of intercompany operating and financing activities between group entities to assess the sustainability of tax positions based on their technical merits and the probabilities of possible settlement alternatives.

/s/ KPMG AG Wirtschaftsprüfungsgesellschaft

We have served as the Company's auditor since 2015.

Düsseldorf, Germany

March 14, 2022

Report of Independent Registered Public Accounting Firm

To the Shareholders and Supervisory Board

QIAGEN N.V.:

Opinion on Internal Control Over Financial Reporting

We have audited QIAGEN N.V. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2021 and 2020, the related consolidated statements of income (loss), comprehensive income (loss), changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements), and our report dated March 14, 2022 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying 'Report of Management on Internal Control over Financial Reporting'. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG AG Wirtschaftsprüfungsgesellschaft

Düsseldorf, Germany

March 14, 2022

Appendix

Services

Corporate Communications

For Investors

Phone worldwide: +49 2103 29 11711
Phone U.S.: +1 240 686 2222
Email: IR@QIAGEN.com

For Media

Phone worldwide: +49 2103 29 11826
Phone U.S.: +1 240 686 7425
Email: PR@QIAGEN.com

QIAGEN on the web

www.QIAGEN.com
www.corporate.QIAGEN.com
www.linkedin.com/company/qiagen
www.facebook.com/QIAGEN
www.twitter.com/QIAGEN
www.youtube.com/user/QIAGENvideos
www.instagram.com/QIAGEN

Financial Calendar

Publication Date

April 2022

Annual General Meeting of Shareholders of QIAGEN N.V.

June 2022

Second Quarter 2022 Results

July 2022

Third Quarter 2022 Results

November 2022

Fourth Quarter 2022 Results (provisional)

February 2023

Trademarks

Our name together with our logo is registered as a trademark in the United States and a number of other countries: QIAGEN®.

For a complete list of QIAGEN's trademarks and disclaimers, please refer to QIAGEN's webpage at www.QIAGEN.com/trademarks_disclaims.aspx.

This Annual Report may also contain trade names or trademarks of companies other than QIAGEN.

This document contains detailed financial information about QIAGEN prepared under generally accepted accounting standards in the U.S. (U.S. GAAP) and included in our Form 20-F annual report filed with the U.S. Securities and Exchange Commission. QIAGEN also publishes an Annual Report under IFRS accounting standards, which is available on our website at www.QIAGEN.com.

Imprint

QIAGEN N.V. – The Netherlands

Address

QIAGEN N.V.
Hulsterweg 82,
5912 PL Venlo
The Netherlands

QIAGEN GmbH
QIAGEN Strasse 1
40724 Hilden

Managing directors

Thierry Bernard, Roland Sackers, Antonio M. Santos

Commercial registration

Amtsgericht Düsseldorf
HRB 45822
USt-IdNr.: DE 121386819

Zuständige Aufsichtsbehörde

Bezirksregierung Düsseldorf
Cecilienallee 2
40474 Düsseldorf

Contact

Phone: +49-2103-29-0
Fax: +49-2103-29-22000
Email: pr@qiagen.com
Website: corporate.qiagen.com