Press Release

RedHill Biopharma Announces Advancement to Second Stage of Phase IIa Study with YELIVA® for Cholangiocarcinoma

- **The first stage of the Phase IIa study with YELIVA® for advanced cholangiocarcinoma (bile duct cancer), a highly lethal malignancy, achieved its pre-specified efficacy goal, and the study can therefore continue to its second stage, enrolling the full cohort of 39 evaluable patients who previous received other treatments**

- **Complete response (i.e. disappearance of all target lesions and all non-target lesions) reported in U.S. patient with advanced gallbladder carcinoma treated with YELIVA® as part of RedHill's Expanded Access Program, allowing compassionate use for eligible patients**

TEL-AVIV, Israel and RALEIGH, N.C., September 6, 2018 -- RedHill Biopharma Ltd. (NASDAQ: RDHL) (Tel-Aviv Stock Exchange: RDHL) ("RedHill" or the "Company"), a specialty biopharmaceutical company primarily focused on proprietary drugs for gastrointestinal diseases, today announced that the ongoing single-arm Phase IIa study with orally-administered YELIVA® (opaganib, ABC294640)[1] for the treatment of advanced cholangiocarcinoma (bile duct cancer) has achieved its pre-specified efficacy goal for the first stage of the two-stage study design, and as a result, the study will continue to its second stage, enrolling the full cohort of 39 evaluable patients.

The primary efficacy endpoint of the study is defined as either partial or complete response, or stable disease at four months treatment with YELIVA®. Enrollment of all subjects is expected to be completed by mid-2019.

The single-arm Phase IIa study is evaluating the activity of YELIVA® as a single agent in patients suffering from advanced, unresectable intrahepatic, perihilar and extrahepatic cholangiocarcinoma.

[1] YELIVA® (ABC294640) is an investigational new drug, not available for commercial distribution.

All subjects enrolled in the study have received up to two lines of other systemic therapy for advanced disease. The study is being conducted at renowned clinical institutions in the U.S.

YELIVA® was granted FDA Orphan Drug designation for the treatment of cholangiocarcinoma, providing various development incentives to develop YELIVA® for this indication and, if approved, a seven-year marketing exclusivity period for the treatment of cholangiocarcinoma.

Complete Response Achieved in Patient treated under RedHill's Expanded Access Program:
Additionally, a patient in the U.S. with advanced gallbladder carcinoma, a condition closely related to cholangiocarcinoma, who had progressed following standard-of-care chemotherapy, received treatment with YELIVA® as part of RedHill's Expanded Access Program, which allows compassionate use for eligible patients, and achieved a confirmed complete response, as measured by RECIST criteria (i.e. disappearance of all target lesions and all non-target lesions).

About cholangiocarcinoma:
Cholangiocarcinoma (bile duct cancer) is a highly lethal malignancy for which there is an urgent need for more effective treatments. Approximately 8,000 people are diagnosed with intrahepatic and extrahepatic bile duct cancers annually in the U.S.[2], with recent studies showing an increased incidence of cholangiocarcinoma, mainly attributed to recent advancements in the diagnosis of this disease[3]. Surgery with complete resection remains the only curative therapy for cholangiocarcinoma; however, only a minority of patients are classified as having a resectable tumor at the time of diagnosis[4]. Additional treatment options include radiation therapy and chemotherapy. Still, the efficacy of these treatments in cholangiocarcinoma patients is also limited and the prognosis for relapse patients who have failed initial chemotherapy is very poor with an overall median survival of approximately one year[5]. The 5-year relative survival rates of intrahepatic and extrahepatic cholangiocarcinoma patients range between 2% to 30%, depending on the tumor type and stage at diagnosis[6].

About YELIVA® (opaganib, ABC294640):
YELIVA® (ABC294640), a new chemical entity, is a Phase II-stage, proprietary, first-in-class, orally-administered, sphingosine kinase-2 (SK2) selective inhibitor with anticancer and anti-inflammatory activities, targeting oncology, inflammatory and gastrointestinal indications. By inhibiting SK2, YELIVA® blocks the synthesis of sphingosine 1-phosphate (S1P), a lipid-signaling molecule that

[2] American Cancer Society, Bile Duct Cancer: www.cancer.org/acs/groups/cid/documents/webcontent/003084-pdf.pdf, Jan 20, 2016.
[3] Gores GJ. Cholangiocarcinoma: current concepts and insights. Hepatology (Baltimore, Md). 2003 May;37(5):961-9.
[4] Banales JM et al. Expert consensus document: Cholangiocarcinoma: current knowledge and future perspectives consensus statement from the European Network for the Study of Cholangiocarcinoma (ENS-CCA), Nat Rev Gastroenterol Hepatol. 2016;13:261–280.
[5] Valle J, Wasan H, Palmer DH, et al. Cisplatin plus gemcitabine versus gemcitabine for biliary tract cancer. New Eng J Med 2010;362:1273-81.
[6] American Cancer Society, Survivor Statistics for Bile Duct Cancers, https://www.cancer.org/content/cancer/en/cancer/bile-duct-cancer/detection-diagnosis-staging/survival-by-stage.html, Jan 20, 2016.

promotes cancer growth and pathological inflammation. SK2 is an innovative molecular target for anticancer therapy because of its critical role in catalyzing the formation of S1P, which is known to regulate cell proliferation and activation of inflammatory pathways. YELIVA® was originally developed by U.S.-based Apogee Biotechnology Corp. and completed multiple successful pre-clinical studies in oncology, inflammation, GI and radioprotection models, as well as the ABC-101 Phase I clinical study in cancer patients with advanced solid tumors. YELIVA® received Orphan Drug designation from the U.S. FDA for the treatment of cholangiocarcinoma. The development of YELIVA® was funded to date primarily by grants and contracts from U.S. federal and state government agencies awarded to Apogee Biotechnology Corp., including the U.S. National Cancer Institute.

The Phase IIa study in cholangiocarcinoma was initiated following an extensive pre-clinical program, and a Phase I clinical study with YELIVA® in patients with advanced solid tumors which successfully met its primary and secondary endpoints, demonstrating that the drug is well tolerated and can be safely administered to cancer patients at doses that provide circulating drug levels that are predicted to have therapeutic activity. Of the three patients with cholangiocarcinoma treated in the Phase I study, all of whom had prior therapy, one subject achieved a sustained partial response (overall survival (OS) = 20.3 months) and the other two subjects had prolonged stable disease (OS = 17.6 and 16.3 months).

The ongoing studies with YELIVA® (ABC294640) for cholangiocarcinoma, multiple myeloma and advanced hepatocellular carcinoma (HCC) are registered on www.ClinicalTrials.gov, a web-based service by the U.S. National Institute of Health, which provides public access to information on publicly and privately supported clinical studies.

Expanded Access Program (EAP)

RedHill adopted an Expanded Access Program (EAP), allowing patients with life-threatening diseases potential access to RedHill's investigational new drugs that have not yet received regulatory marketing approval. Expanded access (sometimes referred to as "compassionate use") is possible outside RedHill's clinical trials, under certain eligibility criteria, when a certain investigational new drug is needed to treat a life-threatening condition and there is some clinical evidence suggesting that the drug might be effective in that condition. Following the adoption of the program, RedHill continues to receive patient requests to obtain access to investigational drugs. Subject to evaluation of eligibility and all the necessary regulatory and other approvals, RedHill is likely to provide certain patients with an investigational new drug under the EAP. Further information about RedHill's EAP can be found on the Company's website at: http://www.redhillbio.com/expandedaccess.

About RedHill Biopharma Ltd.:

RedHill Biopharma Ltd. (NASDAQ: RDHL) (Tel-Aviv Stock Exchange: RDHL) is a specialty biopharmaceutical company, primarily focused on the development and commercialization of late clinical-stage, proprietary drugs for the treatment of gastrointestinal diseases. RedHill commercializes and promotes four gastrointestinal products in the U.S.: **Donnatal®** - a prescription oral adjunctive drug used in the treatment of IBS and acute enterocolitis; **Mytesi®** - an anti-diarrheal indicated for the symptomatic relief of non-infectious diarrhea in adult patients with HIV/AIDS on

anti-retroviral therapy; **Esomeprazole Strontium Delayed-Release Capsules 49.3 mg -** a prescription proton pump inhibitor indicated for adults for the treatment of gastroesophageal reflux disease (GERD) and other gastrointestinal conditions, and **EnteraGam® -** a medical food intended for the dietary management, under medical supervision, of chronic diarrhea and loose stools. RedHill's key clinical-stage development programs include: (i) **TALICIA® (RHB-105)** for the treatment of *Helicobacter pylori* infection with an ongoing confirmatory Phase III study and positive results from a first Phase III study; (ii) **RHB-104,** with positive top-line results from a first Phase III study for Crohn's disease; (iii) **RHB-204,** with a planned pivotal Phase III study for pulmonary nontuberculous mycobacteria (NTM) infections; (iv) **BEKINDA® (RHB-102),** with positive results from a Phase III study for acute gastroenteritis and gastritis and positive results from a Phase II study for IBS-D; (v) **YELIVA® (ABC294640),** a first-in-class SK2 selective inhibitor, targeting multiple oncology, inflammatory and gastrointestinal indications, with an ongoing Phase IIa study for cholangiocarcinoma; (vi) **RHB-106,** an encapsulated bowel preparation licensed to Salix Pharmaceuticals, Ltd. and (vii) **RHB-107 (formerly MESUPRON),** a Phase II-stage first-in-class, serine protease inhibitor, targeting cancer and inflammatory gastrointestinal diseases. More information about the Company is available at: www.redhillbio.com.

This press release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements may be preceded by the words "intends," "may," "will," "plans," "expects," "anticipates," "projects," "predicts," "estimates," "aims," "believes," "hopes," "potential" or similar words. Forward-looking statements are based on certain assumptions and are subject to various known and unknown risks and uncertainties, many of which are beyond the Company's control, and cannot be predicted or quantified and consequently, actual results may differ materially from those expressed or implied by such forward-looking statements. Such risks and uncertainties include, without limitation, risks and uncertainties associated with (i) the initiation, timing, progress and results of the Company's research, manufacturing, preclinical studies, clinical trials, and other therapeutic candidate development efforts; (ii) the Company's ability to advance its therapeutic candidates into clinical trials or to successfully complete its preclinical studies or clinical trials; (iii) the extent and number of additional studies that the Company may be required to conduct and the Company's receipt of regulatory approvals for its therapeutic candidates, and the timing of other regulatory filings, approvals and feedback; (iv) the manufacturing, clinical development, commercialization, and market acceptance of the Company's therapeutic candidates; (v) the Company's ability to successfully promote Donnatal® and Esomeprazole Strontium Delayed-Release Capsules 49.3 mg and commercialize EnteraGam®; (vi) the Company's ability to establish and maintain corporate collaborations; (vii) the Company's ability to acquire products approved for marketing in the U.S. that achieve commercial success and build its own marketing and commercialization capabilities; (viii) the interpretation of the properties and characteristics of the Company's therapeutic candidates and the results obtained with its therapeutic candidates in research, preclinical studies or clinical trials; (ix) the implementation of the Company's business model, strategic plans for its business and therapeutic candidates; (x) the scope of protection the Company is able to establish and maintain for intellectual property rights covering its therapeutic candidates and its ability to operate its business without infringing the intellectual property rights of others; (xi) parties from whom the Company licenses its intellectual property defaulting in their obligations to the Company; (xii) estimates of the Company's expenses, future revenues, capital

requirements and needs for additional financing; (xiii) the effect of patients suffering adverse experiences using investigative drugs under the Company's Expanded Access Program; and (xiv) competition from other companies and technologies within the Company's industry. More detailed information about the Company and the risk factors that may affect the realization of forward-looking statements is set forth in the Company's filings with the Securities and Exchange Commission (SEC), including the Company's Annual Report on Form 20-F filed with the SEC on February 22, 2018. All forward-looking statements included in this press release are made only as of the date of this press release. The Company assumes no obligation to update any written or oral forward-looking statement, whether as a result of new information, future events or otherwise, unless required by law.

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