May 17, 2019

Ligand Licenses VER250840 to Cumulus Oncology

SAN DIEGO--(BUSINESS WIRE)-- **Ligand Pharmaceuticals Incorporated (NASDAQ: LGND)** today announced the signing of a license agreement granting Cumulus Oncology exclusive worldwide rights to develop and commercialize VER250840, a novel, oral, selective, preclinical Chk1 Kinase Inhibitor discovered using Ligand's Vernalis Design Platform (VDP). Under the terms of the agreement, Ligand will receive an upfront license fee, and is eligible to receive over $76 million of milestone payments and tiered royalties in the mid-to-high single digit range, depending on revenue. In addition, Ligand is eligible to receive an additional fee, payable in cash or Cumulus equity, upon Cumulus achieving specified financing-related events.

"We are pleased to be partnered with Cumulus to continue to advance the development of this important kinase target," said John Higgins, Chief Executive Officer of Ligand. "Since Ligand's acquisition of Vernalis in October of last year, the business in Cambridge has been successfully integrated and is significantly contributing to the advancement of Ligand's Shots-on-Goal business model. VDP consists of a team of accomplished scientists servicing the needs of partners to design molecules addressing highly-challenging targets, and we expect additional partnered programs to result from their efforts over the coming months and years."

About VER250840

VER250840 is a novel oral, selective Chk1 kinase inhibitor discovered using the Vernalis Design Platform (VDP). Chk1 is an important target within the DNA Damage Response (DDR) network and has been shown to play a key role in maintaining genomic integrity of cancer cells. Inhibition of Chk1 blocks cell cycle arrest and DNA repair, forcing cancer cells to undergo cell division with substantial DNA damage that results in their death. In both *in vitro* and *in vivo* preclinical studies, VER250840 has demonstrated an ability to target Chk1 in a range of different tumor types, as a single agent and in combination with several different cytotoxic agents. The clinical utility of DDR inhibitors for the treatment of cancer has recently been validated by the approval of inhibitors of Poly (ADP-ribose) polymerase (PARP). The opportunity to select patients most likely to respond to Chk1 inhibitors exists.

About the Vernalis Design Platform (VDP)

Vernalis (R&D) Limited is a Ligand subsidiary based in Cambridge, UK, and is a world leader in structure-guided drug discovery. The Vernalis Design Platform (VDP) integrates protein structure determination and engineering, fragment screening and molecular modeling, with medicinal chemistry, to enable success in novel drug discovery programs against highly-challenging targets. A key element to the success of VDP is establishing a robust platform for drug discovery for each target to validate hit identification using multiple proprietary assay and biophysical systems. Vernalis has collaborations across many therapeutic areas, including oncology, CNS, anti-infectives and inflammation, with global partners and a heritage of successful internal drug discovery in oncology and anti-infectives.

About Cumulus Oncology

Cumulus Oncology Ltd (Edinburgh, UK) identifies, evaluates and where appropriate in-licenses novel oncology assets where future value inflections are foreseen. The licensing agreement for VER250840 comes after a rigorous due diligence conducted by the Cumulus Oncology team. This encompassed an in-depth analysis of the existing data package and an evaluation of future clinical development options in molecularly-selected groups of patients, showing specific DNA repair aberrations. Cumulus Oncology will partner with DNA repair specialist, LXRepair (Grenoble, France) and AI specialist, Intelligent Omics (Nottingham, UK) to define the optimal clinical setting for VER250840. www.cumulusoncology.com

About Ligand Pharmaceuticals

Ligand is a biopharmaceutical company focused on developing or acquiring technologies that help pharmaceutical companies discover and develop medicines. Our business model creates value for stockholders by providing a diversified portfolio of biotech and pharmaceutical product revenue streams that are supported by an efficient and low corporate cost structure. Our goal is to offer investors an opportunity to participate in the promise of the biotech industry in a profitable, diversified and lower-risk business than a typical biotech company. Our business model is based on doing what we do best: drug discovery, early-stage drug development, product reformulation and

partnering. We partner with other pharmaceutical companies to leverage what they do best (late-stage development, regulatory management and commercialization) to ultimately generate our revenue. Ligand's Captisol® platform technology is a patent-protected, chemically modified cyclodextrin with a structure designed to optimize the solubility and stability of drugs. OmniAb® is a patent-protected transgenic animal platform used in the discovery of fully human mono- and bispecific therapeutic antibodies. The Vernalis Design Platform (VDP) integrates protein structure determination and engineering, fragment screening and molecular modelling, with medicinal chemistry, to enable success in novel drug discovery programs against highly-challenging targets. Ligand has established multiple alliances, licenses and other business relationships with the world's leading pharmaceutical companies including Amgen, Merck, Pfizer, Gilead, Janssen, Baxter International and Eli Lilly.

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Forward-Looking Statements

This press release contains forward-looking statements by Ligand that involve risks and uncertainties and reflect Ligand's judgment as of the date of this report. These forward-looking statements include comments regarding Cumulus Oncology's preclinical and clinical development program for VER250840; the potential for VER250840 to complete preclinical studies and launch a clinical program; the potential for future regulatory and commercial milestones and royalties from net sales of VER250840, if approved, as well as future fee payments; Ligand's expectations that it will not incur additional cash expenses in connection with the development or commercialization of VER250840; the possibility that VER250840 could be part of a quality-of-life-enhancing treatment category; the importance of CHK1 kinase inhibitors to the DDR network or its role in maintaining genomic integrity of cancer cells; and Ligand's expectations that the VDP and Vernalis team will successfully support additional portfolio partners or enter into additional program partnerships. Actual events or results may differ from Ligand's expectations. For example, the development of VER250840 is entirely dependent on Cumulus' success and Ligand will have no ability to direct the development program; VER250840 could fail to meet satisfactory milestones during preclinical development; if the asset enters phase I clinical evaluation, it could fail to reach its primary endpoints or show sufficient safety or efficacy to continue in further development; and Ligand may not be successful in identifying additional product candidates using the VDP or successfully partnering any such product candidates. Many of these risks also apply to the other programs which comprise Ligand's shots-on-goal portfolio. The failure to meet expectations with respect to any of the foregoing matters may reduce Ligand's stock price. Additional information concerning these and other important risk factors affecting Ligand (including Ligand's current reliance on revenues based on sales of Kyprolis®, and various risks to which Ligand's Captisol® cyclodextrin operations are subject) can be found in Ligand's prior press releases and its periodic filings with the Securities and Exchange Commission (including its Form 10-K filed on February 28, 2019), available at www.sec.gov, as updated by subsequent periodic reports filed with the Securities and Exchange Commission. Ligand disclaims any intent or obligation to update these forward-looking statements beyond the date of this report. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

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