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Ligand and GSK Enter Global Collaboration and License Agreement Leveraging Icagen's Discovery Technology to Target Neurological Disorders

Ligand Group is eligible to receive an upfront payment of $7 million and potential milestone payments and fees of up to $154.5 million and tiered royalties

SAN DIEGO--(BUSINESS WIRE)-- **Ligand Pharmaceuticals Incorporated (NASDAQ: LGND)** announced today a collaboration and license agreement between its subsidiary, Icagen, and GlaxoSmithKline (GSK) to leverage Icagen's unique expertise in small molecule therapeutics targeting transmembrane proteins. This collaboration will utilize the Icagen discovery technology to identify and develop inhibitors of a specific genetically-validated molecular target relevant to neurological diseases.

"We are very pleased to partner with a global pharmaceutical company like GSK with an ambitious innovation agenda," said Matt Foehr, President and COO of Ligand. "This agreement fits perfectly within the Ligand strategy to establish and leverage partnerships with industry leaders as they access our technologies and expertise for their drug-discovery needs. GSK has also recognized that great ideas come from relationships like this one and they have a history of successfully working with others to access innovation and deliver next-generation transformational medicines."

"Central to GSK's innovation agenda is working with cutting-edge partners to help us develop genetically-validated, transformational medicines in ways that are faster and more effective," said John Lepore, Senior Vice President, Research, GSK. "Ligand's unique model systems and depth of expertise will enable our team to advance this drug-discovery program with a higher probability of success and may help deliver a new treatment option for patients suffering from neurological disease."

Under the terms of the collaboration and license agreement, Ligand will receive an upfront payment of $7 million. Ligand could receive additional development, regulatory and commercialization milestone payments, conditional on meeting those milestones, of up to $154.5 million. Ligand will receive tiered royalties on net sales of any drug from the collaboration that is commercialized by GSK.

Ligand will be responsible for most preclinical activities up to lead optimization, with Ligand and GSK collaborating to identify candidates for entry into IND-enabling studies. GSK has the exclusive option to license any identified inhibitors and will be responsible for the further development and commercialization of any drug candidates identified through the

collaboration. Ligand acquired Icagen in April 2020, adding enabling technologies to its business offering that will support this collaborative drug-discovery program.

About Icagen Technology Platform

The Icagen Technology Platform is focused primarily on ion channel and transporter novel drug discovery. Ion channels and transporters are key components in a wide variety of biological processes that involve rapid changes in cells and have broad therapeutic applicability including cancer, metabolic disease, pain, neurological diseases, infectious diseases and others. The Icagen Technology Platform leverages proprietary expertise in the combination of biological assays, medicinal chemistry, and *in silico* and computational chemistry applications. Partners in the pharmaceutical industry leverage our platform to develop first-in-class therapies for patients in need, typically under arrangements in which we work closely through the time of clinical candidate selection, with our partners responsible for clinical development and commercialization. For more information, please visit www.ligand.com.

About Ligand Pharmaceuticals

Ligand is a revenue-generating biopharmaceutical company focused on developing or acquiring technologies that help pharmaceutical companies discover and develop medicines. Ligand's 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. Ligand's 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. Ligand's business model is based on doing what Ligand does best: drug discovery, early-stage drug development, product reformulation and partnering. Ligand partners with other pharmaceutical companies to leverage what they do best (late-stage development, regulatory management and commercialization) to ultimately generate our revenue. Ligand's OmniAb® technology platform is a patent-protected transgenic animal platform used in the discovery of fully human mono- and bispecific therapeutic antibodies. The Captisol® platform technology is a patent-protected, chemically modified cyclodextrin with a structure designed to optimize the solubility and stability of drugs. Ligand's Protein Expression Technology® is a robust, validated, cost-effective and scalable approach to recombinant protein production, and is especially well-suited for complex, large-scale protein production that cannot be made by more traditional systems. Ab Initio™ technology and services for the design and preparation of customized antigens enable the successful discovery of therapeutic antibodies against difficult-to-access cellular targets. Ligand has established multiple alliances, licenses and other business relationships with the world's leading pharmaceutical companies including Amgen, Merck, Pfizer, Roche, Sanofi, Janssen, Takeda, Gilead Sciences, GSK and Baxter International. For more information, please visit www.ligand.com.

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Forward-Looking Statements

This news release contains forward-looking statements by Ligand that involve risks and uncertainties and reflect Ligand's judgment as of the date of this release. Words such as

“plans,” “believes,” “expects,” “anticipates,” and “will,” and similar expressions, are intended to identify forward-looking statements. These forward-looking statements include, without limitation, statements regarding the potential benefits of the Ligand Group/GSK collaboration agreement program. Actual events or results may differ from Ligand's expectations due to risks and uncertainties inherent in Ligand’s business, including, without limitation: there can be no assurance that the GSK program with Ligand will be able to successfully identify any desirable drug candidates or that any drug candidates developed in such programs would be clinically or commercially successful, all of which might result in the potential license option exercise fee, milestone payments and royalties not being earned; Ligand may not receive expected revenue from royalties, Captisol sales, contract and service revenue; the COVID-19 pandemic has disrupted Ligand’s and its partners’ business, including delaying manufacturing, pre-clinical studies and clinical trials and product sales, and impairing global economic activity, all of which could materially and adversely impact Ligand’s results of operations and financial condition; effective COVID-19 vaccines may limit the market for Captisol-enabled remdesivir; Ligand and its partners may not be able to timely or successfully advance any product(s) in its internal or partnered pipeline; Ligand may not achieve its guidance for 2020; development of product candidates by Ligand partners may not be successful; Ligand may not be able to create future revenues and cash flows by developing innovative therapeutics; results of any clinical study may not be timely, favorable or confirmed by later studies; products under development by Ligand or its partners may not receive regulatory approval; there may not be a market for the product(s) even if successfully developed and approved; Ligand or its partners may not be able to protect their intellectual property and patents covering certain products and technologies may be challenged or invalidated; Ligand's partners may terminate any of its agreements or development or commercialization of any of its products; Ligand may not generate expected revenues under its existing license agreements; Ligand and its partners may experience delays in the commencement, enrollment, completion or analysis of clinical testing for its product candidates, or significant issues regarding the adequacy of its clinical trial designs or the execution of its clinical trials, which could result in increased costs and delays, or limit Ligand's ability to obtain regulatory approval; unexpected adverse side effects or inadequate therapeutic efficacy of Ligand's product(s) could delay or prevent regulatory approval or commercialization; Ligand may not be able to successfully implement its strategic growth plan and continue the development of its proprietary programs; and ongoing or future litigation could expose Ligand to significant liabilities and have a material adverse effect on the company. 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 risk factors affecting Ligand can be found in prior press releases available at www.ligand.com as well as in Ligand's public periodic filings with the Securities and Exchange Commission available at www.sec.gov. Ligand disclaims any intent or obligation to update these forward-looking statements beyond the date of this release. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

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