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Ligand and GSK Expand Global Collaboration and License Agreement

Ligand to receive an upfront payment of $10 million

Further leverages the Icagen ion-channel discovery technology to target neurological diseases

EMERYVILLE, Calif.--(BUSINESS WIRE)-- **Ligand Pharmaceuticals Incorporated (NASDAQ: LGND)** announced today the expansion of an existing collaboration and license agreement between its subsidiary, Icagen, and GlaxoSmithKline (GSK). The expansion will leverage Icagen's ion-channel-based discovery technology and unique expertise in small molecule therapeutics targeting transmembrane proteins. This new agreement builds upon the initial December 2020 agreement to identify and develop inhibitors of a specific genetically-validated molecular target relevant to neurological diseases.

"We are very pleased to expand our collaboration with GSK to include a second neurological target," said Matt Foehr, President and COO of Ligand. "Over the past year this has been a productive relationship combining our technologies and expertise with GSK's history of successfully working with others to access innovation and deliver next-generation transformational medicines."

"We look forward to strengthening our collaboration to identify genetically-validated targets for neurological diseases utilizing Icagen's technology," said John Lepore, Senior Vice President, Head of Research, GSK. "Our expanded collaboration provides a framework to advance drug discovery by maximizing the strengths of our two scientific organizations to develop novel drug candidates efficiently and effectively."

In addition to all payments available under the original 2020 collaboration and license agreement, under the terms of the expanded collaboration and license agreement, Ligand will receive an upfront payment of $10 million and is eligible for development and regulatory milestones up to $67.5 million. Furthermore, should the potential new medicine receive regulatory approval in major markets, the deal provides for commercial milestone payments to Ligand of up to $60 million at first commercial sale, and up to $120 million in sales-related milestone payments. Ligand will receive tiered royalties on net sales of any drug 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 molecules and will be responsible for the further development and commercialization of any drug candidates identified through the collaboration.

About Icagen Ion Channel Technology

The Icagen technology 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 oncology, metabolic disease, pain, neurological diseases, infectious diseases and others. The Icagen technology leverages proprietary expertise in the combination of biological assays, medicinal chemistry, and *in silico* and computational chemistry applications to enable the discovery of ion channel targeting therapeutics. Partners in the pharmaceutical industry leverage Icagen's platform to develop first-in-class therapies for patients in need, typically under collaborative arrangements through the time of clinical candidate selection, with partners responsible for subsequent clinical development and commercialization.

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) ultimately to generate our revenue. Ligand's OmniAb® technology platform is a patent-protected transgenic animal platform used in the discovery of fully human monoclonal 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 Pelican Expression Technology is a robust, validated, cost-effective and scalable platform for recombinant protein production that is especially well-suited for complex, large-scale protein production where traditional systems are not. 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, Sanofi, Janssen, Takeda, Servier, Gilead Sciences 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 and the potential to discover ion channel targeting therapeutics using Icagen ion channel platform. 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 either of the GSK programs 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 and its partners may not be able to timely or successfully advance any product(s) in its internal or partnered pipeline; 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; 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 one or more of its agreements or development for commercialization of 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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Ligand Pharmaceuticals Incorporated
Simon Latimer
investors@ligand.com
(858) 550-7766
Twitter: @Ligand_LGND

LHA Investor Relations
Bruce Voss
bvoss@lhai.com
(310) 691-7100

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