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Ligand Announces Icagen's Expansion of Collaboration with Roche to Develop and Commercialize Therapies for Neurological Diseases

Collaboration initiates second Roche program utilizing Icagen's ion channel drug discovery platform

SAN DIEGO--(BUSINESS WIRE)-- **Ligand Pharmaceuticals Incorporated (NASDAQ: LGND) and Icagen, a Ligand Company,** announced today the expansion of Icagen's license agreement with Roche to develop and commercialize small molecule ion channel modulators for the treatment of neurological disorders, by adding a second program to the agreement. The new program incorporates Icagen's ion channel technology and expertise and is directed at a specific novel ion channel target relevant to neurodegenerative disease. The new program is in addition to ongoing work on another novel CNS target.

"Icagen's collaboration with Roche was a key value-driver in the acquisition of the Icagen business, and we are very pleased to see this expansion and extension of the relationship," said John Higgins, Chief Executive Officer of Ligand. "This type of deal fits perfectly within the Ligand strategy to establish and leverage partnerships with global leaders in the industry as they look to access our technology for their drug discovery and development needs. The Icagen team has been a great addition to Ligand's business."

"We are pleased to extend and expand our collaboration with Roche and its drug discovery team in Basel," said Icagen Site Head Douglas Krafte, PhD. "Our initial neurology program with Roche continues to make great progress and we hope to assist Roche in bringing multiple meaningful therapies to patients in areas of neurological disease with major unmet needs through both our initial and this new program."

Terms of Expanded Icagen and Roche Collaboration

Under the terms of the license agreement, Roche made a cash upfront payment and will provide research funding to Icagen. In addition, Icagen is eligible to potentially receive development and commercial milestone payments of up to $274 million and royalty payments should a drug be commercialized from any of the collaboration's programs.

Icagen will be responsible for most preclinical activities up to lead optimization with both Icagen and Roche applying resources to identify candidates for entry into IND-enabling studies. Roche will be responsible for the further development and commercialization of the program.

About Icagen, a Ligand Company

Icagen, a Ligand Company, is a preclinical drug discovery company focused on ion channel and transporter drug discovery with research facilities located in Durham, N.C. Icagen partners with the pharmaceutical industry to develop first-in-class therapies for patients in need, typically under arrangements in which we work closely with our partners through the time of clinical candidate selection and our partners are responsible for the clinical development and commercialization. Icagen, a Ligand Company, is a subsidiary of Ligand Pharmaceuticals Incorporated. 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. 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 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. The Vernalis Design Platform (VDP) integrates protein structure determination and engineering, fragment screening and molecular modeling, with medicinal chemistry, to help enable success in novel drug discovery programs against highly-challenging targets. 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. Icagen, a Ligand Company, focuses on ion channel and transporter drug discovery as it partners with the pharmaceutical industry to develop first-in-class therapies for patients in need. Ligand has established multiple alliances, licenses and other business relationships with the world's leading pharmaceutical companies including Amgen, Merck, Pfizer, Sanofi, Janssen, Takeda, 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 Icagen/Roche license and collaboration agreement programs. Actual events or results may differ from Ligand's expectations due to risks and uncertainties inherent in Ligand's business, including, without limitation, that there can be no assurance that either the original or expansion Roche program with Icagen 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 milestone payments and royalties not being earned. 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, including the possibility of additional contract revenue we may receive. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

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