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Ligand Expands License with Sermonix to Include Worldwide Rights for Oral Lasofoxifene

SAN DIEGO--(BUSINESS WIRE)-- **Ligand Pharmaceuticals Incorporated (NASDAQ: LGND)** announces that it has expanded its license with Sermonix Pharmaceuticals to include worldwide rights to develop and commercialize oral lasofoxifene. Ligand originally licensed the U.S. rights to oral lasofoxifene to Sermonix in February of 2015, and has now expanded the agreement to include the rest of the world. Sermonix is focused on breast and ovarian cancer treatment with oral lasofoxifene, particularly an indication in the treatment of advanced Estrogen Receptor positive (ER+) endocrine-resistant breast cancer.

“Lasofoxifene is an asset with a rich heritage originating at Ligand and with a substantial set of global clinical data. This agreement with Sermonix represents an expansion of our relationship and enables further development of oral lasofoxifene on a worldwide basis,” said John Higgins, Chief Executive Officer of Ligand Pharmaceuticals. “This amendment includes an upfront payment, additional commercial milestones and 6% to 10% royalties on ex-US sales and is consistent with our shots-on-goal business model of partnering the development of our assets to create a robust pipeline with limited required R&D spending by Ligand.”

About Lasofoxifene and Ligand’s Lasofoxifene Partnerships

Lasofoxifene was discovered through a research collaboration between Ligand and Pfizer that began in 1991. The oral, 0.5 mg form of lasofoxifene tartrate was developed by Pfizer under the trade name Fablyn®, and progressed through regulatory approval in the EU. After Pfizer acquired Wyeth and its drug Conbriza® (bazedoxifene), a similar SERM program, rights to all forms of lasofoxifene reverted to Ligand in 2011. In 2013 Ligand licensed lasofoxifene to Azure Biotech for the development of a novel formulation targeting an underserved market in women's health. Also in 2013, Ligand licensed to Ethicor Pharmaceuticals Ltd rights to manufacture and distribute oral lasofoxifene as an unlicensed medicinal product in the European Economic Area, Switzerland and the Indian Subcontinent. Ligand and Ethicor mutually terminated that agreement in early 2017.

About Sermonix Pharmaceuticals

Sermonix Pharmaceuticals LLC is a biotechnology company with a targeted focus on bringing female-specific oncology products through proof of concept, clinical development, and regulatory approval. The company was founded in 2014 by David Portman, MD, a leading clinical researcher and expert in women's health, menopause and selective estrogen receptor modulator (SERM) therapy. Sermonix has as its lead product oral lasofoxifene, with exclusive worldwide licensing rights obtained from Ligand Pharmaceuticals, Inc. (NASDAQ: LGND). The Sermonix internal management team, led by Dr. Portman, has significant

experience in all stages of the drug development and regulatory process. James Symons, MS, PhD, is Vice President of Clinical Development at Sermonix, and led the global lasofoxifene VVA program while at Pfizer. Paul Plourde, MD, VP Sermonix Oncology Clinical Development, was previously with Astra-Zeneca, where he was instrumental in the development and approval of tamoxifen, Arimidex® and Faslodex®. Barry Komm, PhD, Sermonix Chief Scientific Officer, was former head of the SERM program at Wyeth and Pfizer, playing a key role in the development and approval of bazedoxifene and Duavee®. Elizabeth Attias, MMSc, ScD, is Vice President of Business Development. Miriam Portman, M.D., is the Chief Operating Officer of Sermonix. She is former Co-director and Founder of the Columbus Center for Women's Health Research. Sermonix Non-Executive Chairman of the Board is Anthony Wild, PhD, former president of both Parke-Davis Pharmaceuticals and Warner-Lambert's Pharmaceutical Division.

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. Ligand has established multiple alliances, licenses and other business relationships with the world's leading pharmaceutical companies including Novartis, Amgen, Merck, Pfizer, Celgene, Gilead, Janssen, Baxter International and Eli Lilly.

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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. These include statements regarding Sermonix's planned development of lasofoxifene including the target indications. Actual events or results may differ from our expectations. For example, Sermonix may choose to abandon lasofoxifene or may choose a different target indication; Sermonix's clinical development plan may fail for a variety of reasons beyond Ligand's and Sermonix's control including increased costs or company priorities; and the safety, tolerability and efficacy data from a new clinical trial or other study in lasofoxifene may conflict with the results of prior clinical trials. 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 can be found in Ligand's 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 press release, except as required by law. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

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