



**Nucorion Pharmaceuticals Presents Preclinical Data for its
Novel Liver-Targeting Hepatitis B Program
at The European Association for the Study of the Liver's International Liver Congress™**

Liver-targeting prodrug technology shown to significantly increase antiviral drug concentrations in the liver

SAN DIEGO (April 14, 2018) – Nucorion Pharmaceuticals today presented preclinical data for its novel liver-targeting prodrug technology program, NCO-1010, for the potential treatment of hepatitis B at the European Association for the Study of the Liver's (EASL) International Liver Congress in Paris. The proprietary LTP platform™ technology is designed to increase drug concentration in the liver to maximize efficacy or potency, while reducing exposure outside of the liver to minimize side effects.

In a study in rats, Nucorion compared an LTP-enabled tenofovir prodrug compound (NCO-8548) with an FDA-approved antiviral treatment (VEMLIDY®, tenofovir alafenamide).¹ NCO-8548 achieved 7- to 15-fold higher concentrations in the liver compared with an equivalent dose of tenofovir alafenamide. The superior liver concentration of NCO-8548 was achieved without significantly increasing systemic exposure of the active metabolite, illustrating a highly liver targeted therapy.

Hepatitis B is a viral infection of the liver that can progress to cirrhosis and liver cancer in chronic cases. Despite the availability of a preventive vaccine, infection rates remain high in many regions of the world with a high prevalence in China.² Existing antiviral treatments have serious side effects due, in part, to systemic drug exposure. Nucorion's NCO-1010 program is using the LTP platform technology to discover novel prodrugs of clinically validated antiviral hepatitis B treatments with increased liver exposure and decreased systemic exposure, which could enhance the safety profile and improve the therapeutic index of these treatments.

“This is an exciting advancement for Nucorion and for potential antiviral treatments,” said James Gu, Chairman of Nucorion Pharmaceuticals. “The preclinical data we presented today are evidence that Nucorion scientists have been able to quickly progress from idea to proof-of-concept in liver diseases that are particularly prevalent in China.”

“LTP platform technology is a cutting-edge and valuable liver targeting technology that may lead to safer and more effective treatments for liver diseases,” said Zucui Suo, Ph.D., Professor of Chemistry & Biochemistry at The Ohio State University and Chairman of the Nucorion Scientific Advisory Board.

About LTP Platform Technology

Nucorion licensed the LTP platform technology from Ligand Pharmaceuticals Incorporated (NASDAQ: LGND). Ligand's LTP platform technology is a novel prodrug technology platform designed to selectively deliver a range of active pharmaceutical agents to the liver. It works by chemically modifying a biologically active molecule into an inactive prodrug form that will be administered and later activated in the liver by certain enzymes mainly expressed in the liver. The technology can be used to improve activity and/or safety of an existing drug or to develop new agents to treat liver diseases or diseases caused by homeostasis

imbalance of circulating biomolecules controlled by the liver such as lipids and glucose. It is especially applicable to metabolic and cardiovascular diseases. Ligand's LTP platform technology has expanded chemical class applicability and also removes certain by-products compared with other targeting technologies.

About Nucorion

Nucorion Pharmaceuticals, Inc. is a venture-funded biotechnology company focused on developing anti-cancer and antiviral agents targeted at diseases of the liver, initially directed to the Chinese market. Nucorion was co-founded by Ligand and Professor Zucui Suo of The Ohio State University (OSU), who also chairs Nucorion's Scientific Advisory Board (SAB). In addition to Dr. Suo, Nucorion's SAB includes: Jack W. Szostak Ph.D., 2009 Nobel Laureate, Howard Hughes Medical Institute Investigator and Professor of Genetics at Harvard Medical School; Stephen J. Benkovic, Ph.D., 2010 National Medal of Science recipient and Eberly Chair of Chemistry at Pennsylvania State University; John Kozarich, Ph.D., Ligand Pharmaceuticals Chairman and ActivX Biosciences former Chairman and President; and Lin Zhi, Ph.D., Ligand Pharmaceuticals Vice President of Chemistry and Pharmaceutical Sciences. Nucorion has rights to certain programs leveraging the LTP platform technology as well as rights to certain novel analog compounds licensed from OSU. Nucorion is majority owned and funded by Silver River International Investment Ltd. Ligand is a minority shareholder of Nucorion, currently owning less than 20%. For additional information, visit www.nucorionpharma.com.

Forward-Looking Statements

This news release contains forward-looking statements that involve risks and uncertainties and reflect Nucorion's judgment as of the date of this release. These include statements regarding the scientific and commercial potential of NCO-8548 and the NCO-1010 program. Actual events or results may differ from our expectations. For example, there can be no assurances as to whether further tests of further preclinical testing of NCO-8548 or any other NCO-1010 program compounds will have favorable results, whether and when clinical trials of NCO-8548 or any other NCO-1010 program compounds will ever be approved or commenced, the costs and timing of any future clinical trials, the ability of Nucorion to cover the costs of any future clinical trials, whether any future clinical trials will have favorable results, whether and when any products will receive regulatory approval for commercialization, and whether and when any products can be successfully commercialized. Nucorion is a start-up company with a forming management team, and Ligand does not control Nucorion's activities or decisions. Nucorion's intended Chinese activities carry additional risk. The failure to meet expectations with respect to any of the foregoing matters may reduce Nucorion's value and/or 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. Nucorion and Ligand both disclaim any intent or obligation to update these forward-looking statements beyond the date of this press release, except as required by law. As to Ligand, this forward-looking statements caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

References

1. Lin Zhi and Eric G. Vajda. Liver-targeting Prodrug (LTP) Technology Offers New Generation Nucleotide Antiviral Agents. International Liver Congress, April 11-15, 2018, Paris, France.
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