Lyra Therapeutics Announces Publication of Preclinical Pharmacokinetics and Drug Release characterization for XTreo™ Technology Platform in the American Journal of Rhinology & Allergy

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Results demonstrate XTreo ™technology platform provides targeted and sustained dosing of anti-inflammatory medication

Outcomes supported advancing into clinical development for LYRA's first indication, Chronic Rhinosinusitis, with lead product candidate, LYR-210, currently poised to enter Phase 3 studies

WATERTOWN, Mass., Sept. 09, 2021 (GLOBE NEWSWIRE) -- Lyra Therapeutics, Inc. (Nasdaq: LYRA), a clinical-stage therapeutics company leveraging its proprietary XTreo™ platform to enable precise, sustained, and local delivery of medications to the ear, nose and throat (ENT) passages and other diseased tissues, today announced that preclinical data for XTreo™ were published online in the peer-review journal,*American Journal of Rhinology & Allergy.* The manuscript titled, "Drug Release and Pharmacokinetic Evaluation of Novel Implantable Mometasone Furoate Matrices in Rabbit Maxillary Sinuses," can be accessed online here.

The pharmacokinetics and drug release study evaluated the release of mometasone furoate (MF), a potent anti-inflammatory corticosteroid formulated into Lyra's proprietary XTreo™ matrix, in a rabbit model. The results demonstrate that XTreo™ MF provides targeted, sustained and efficient dosing to local sinus tissues that is superior to intranasal corticosteroid sprays (INCS). LYR-210 and LYR-220, Lyra's product candidates, are built upon the XTreo™ platform and are currently in late-stage clinical development for the treatment for chronic rhinosinusitis (CRS).

"The outcomes from this study supported Lyra's advancement into clinical development for the first application of our novel XTreo™ platform, LYR-210 for the treatment of Chronic Rhinosinusitis (CRS), which is now poised to enter Phase 3 studies," said Maria Palasis, Lyra's President and Chief Executive Officer. "XTreo™ is a powerful drug delivery platform that can target a precise dose of a therapeutic agent consistently over an extended period of time, up to many months. These characteristics translate into multiple potential benefits, including increased efficacy, elimination of patient adherence issues, and avoidance of systemic side effects. We believe our proprietary platform technology can provide optimal treatment for CRS, as well as other chronic ear, nose and throat (ENT) diseases."

Lyra's XTreo™ technology platform enables precise, sustained, local delivery of medications to diseased tissues not accessible with conventional therapeutic approaches. The XTreo™ matrix is a tubular elastomeric mesh comprised of biocompatible and bioresorbable materials that can be formulated for delivery of a range of therapeutic agents directly to targeted tissues, with a single administration.

Study Results

The study evaluated the *in vitro* drug release and *in vivo* pharmacokinetics of novel XTreo™ MF matrices in a rabbit dorsal maxillary osteotomy model. The matrices were formulated to consistently elute MF for up to 6 months and were surgically placed bilaterally into the maxillary sinuses of New Zealand White (NZW) rabbits. Tissue and plasma MF concentrations were measured to assess the *in vivo* drug delivery. The *in vivo* and *in vitro* drug release kinetics of the matrices were quantified and compared to those of rabbits receiving daily Nasonex® MF nasal sprays. Key findings include:

- XTreo™ matrices self-expanded upon deployment to conform to the irregular geometry of the maxillary sinus cavities in the NZW rabbits.
- Sustained release of MF was demonstrated *in vitro* and *in vivo* for 2 MF matrices of distinct release durations and an in vitro–in vivo correlation was established.
- Therapeutic levels of MF in local tissues were measured throughout the intended dosing durations. In contrast to the variable peaks and troughs of daily nasal sprays, sustained dosing via a single administration of MF matrices was confirmed by quantifiable plasma MF concentrations over the intended dosing duration.
- Low levels of MF were detected in plasma, demonstrating that the XTreo™ matrix can maximize the therapeutic effect to the immediately contacted tissues while potentially eliminating systemic side effects.

About LYR-210 for Chronic Rhinosinusitis

LYR-210 is an investigational product candidate that utilizes Lyra's proprietary XTreo™ platform to enable six months of local, intra-nasal, anti-inflammatory therapy from a single administration for chronic rhinosinusitis (CRS). LYR-210 is designed as a non-invasive alternative to sinus surgery for the millions of CRS patients who have failed medical management. It is a bioresorbable polymeric matrix administered in a brief, non-invasive, in-office procedure and is intended to deliver up to six months of continuous mometasone furoate drug therapy to the sinonasal passages. In the LANTERN Phase 2 study, LYR-210 (7500mcg) demonstrated rapid, clinically meaningful and durable symptom improvement as measured by the SNOT-22 score and a cardinal symptom score over six months. There are approximately 14 million patients with CRS in the US, approximately 4 million of whom fail current standard of care medical management.

About Lyra Therapeutics

Lyra Therapeutics, Inc. is a clinical-stage therapeutics company leveraging its proprietary XTreo™ platform to enable precise, sustained, local delivery of medications to diseased tissues not accessible with conventional therapeutic approaches. Lyra's XTreo™ platform is comprised of a biocompatible mesh scaffold, an engineered elastomeric matrix and a versatile polymer-drug complex. The company's current pipeline of therapeutics target tissues deep in the ear, nose and throat passages and are designed to deliver continuous drug therapy for up to six months following a single non-invasive, in-office administration. Lyra's lead product candidate, LYR-210, is entering Phase 3 clinical development for the treatment of chronic rhinosinusitis (CRS) as an alternative to primary sinus surgery. Lyra's second product candidate, LYR-220, is entering Phase 2 development and is designed to be

an alternative to revision CRS sinus surgery and post-surgical medical management. For more information, please visit www.lyratherapeutics.com and follow us on LinkedIn and Twitter.

Forward-Looking Statement

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this press release that do not relate to matters of historical fact should be considered forward-looking statements, including statements regarding the company's clinical advancement of LYR-210 for the treatment of CRS and our expectations regarding the development and commercialization of LYR-210 pursuant to the terms of the LianBio License Agreement. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may cause the company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, the following: the fact that the company has incurred significant losses since inception and expects to incur losses for the foreseeable future; the company's need for additional funding, which may not be available; the company's limited operating history; the fact that the company has no approved products; the fact that the company's product candidates are in various stages of development; our the fact that the company may not be successful in its efforts to identify and successfully commercialize its product candidates; the fact that clinical trials required for the company's product candidates are expensive and time-consuming, and their outcome is uncertain; the fact that the FDA may not conclude that certain of the company's product candidates satisfy the requirements for the Section 505(b)(2) regulatory approval pathway; the company's inability to obtain required regulatory approvals; effects of recently enacted and future legislation; the possibility of system failures or security breaches; effects of significant competition; the fact that the successful commercialization of the company's product candidates will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and pricing policies; failure to achieve market acceptance; product liability lawsuits; the fact that the company relies on third parties for the manufacture of materials for its research programs, pre-clinical studies and clinical trials; the company's reliance on third parties to conduct its preclinical studies and clinical trials; the company's inability to succeed in establishing and maintaining collaborative relationships; the company's reliance on certain suppliers critical to its production; failure to obtain and maintain or adequately protect the company's intellectual property rights; failure to retain key personnel or to recruit qualified personnel; difficulties in managing the company's growth; effects of natural disasters; the fact that the global pandemic caused by COVID-19 could adversely impact the company's business and operations, including the company's clinical trials; the fact that the price of the company's common stock may be volatile and fluctuate substantially; significant costs and required management time as a result of operating as a public company and any securities class action litigation. These and other important factors discussed under the caption "Risk Factors" in the company's Quarterly Report on Form 10-Q filed with the SEC on August 9, 2021 and its other filings with the SEC could cause actual results to differ materially from those indicated by the forward-looking statements made in this press release. Any such forward-looking statements represent management's estimates as of the date of this press release. While the company may elect to update such forward-looking statements at some point in the future, it disclaims any obligation to do so, even if subsequent events cause its views to change.

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