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Lilly Announces Positive Results for Second Phase 3 Study of Lasmiditan for the Acute Treatment of Migraine

INDIANAPOLIS, Aug. 4, 2017 /PRNewswire/ -- Eli Lilly and Company (NYSE: LLY) announced today that lasmiditan, an investigational, oral, first-in-class molecule for the acute treatment of migraine, met its primary endpoint in SPARTAN, a second Phase 3 study. At two hours following the first dose, a greater percentage of patients treated with lasmiditan were migraine pain-free compared to placebo. These results were statistically significant across all three studied doses (50 mg, 100 mg and 200 mg).

Lasmiditan also met the key secondary endpoint for SPARTAN across all three studied doses, with a statistically significantly greater percentage of patients free of their most bothersome symptom (MBS) compared with placebo at two hours following the first dose. In this study, patients chose their MBS from nausea, sensitivity to sound or sensitivity to light.

"Lasmiditan represents the first significant innovation in the acute treatment of migraine in more than 20 years, and could provide a much-needed new treatment option for the 36 million Americans living with migraine," said Christi Shaw, president of Lilly Bio-Medicines. "We are thrilled with these topline lasmiditan results, which add to more than 25 years of Lilly's research and development of migraine therapies."

The most commonly-reported adverse events after lasmiditan dosing were dizziness, paresthesia, somnolence, fatigue, nausea and lethargy.

These findings are consistent with SAMURAI, the first pivotal Phase 3 study evaluating the safety and efficacy of lasmiditan for the acute treatment of migraine. In this study, lasmiditan met both the primary and key secondary endpoints with statistical significance. Results from SAMURAI were presented at the American Headache Society (AHS) annual meeting in June.

Lilly plans to submit a New Drug Application for lasmiditan to the U.S. Food and Drug Administration (FDA) in the second half of 2018.

SPARTAN Study Results

At two hours following the first dose of lasmiditan, the percentage of patients who were migraine pain-free was statistically significantly greater compared to placebo in all dosing groups: 28.6 percent for 50 mg ($p=0.003$); 31.4 percent for 100 mg ($p < 0.001$); 38.8 percent for 200 mg ($p < 0.001$) and 21.3 percent for placebo.

Statistically significantly more patients treated with lasmiditan were also free of their migraine-associated MBS compared to placebo at two hours following the first dose: 40.8 percent for 50 mg ($p=0.009$); 44.2 percent for 100 mg ($p < 0.001$); 48.7 percent for 200 mg ($p < 0.001$) and 33.5 percent for placebo.

"Lasmiditan has been designed to target receptors associated with migraine without the vasoconstrictor activity associated with some migraine therapies," said Robert Conley, M.D., Distinguished Lilly Scholar and Lilly global development leader for migraine therapeutics. "We hope these results are a significant step forward in the development of new acute migraine treatments for the millions of patients in need, including those who may be poorly served by existing therapies or those with cardiovascular disease or risk factors."

Lasmiditan also demonstrated statistically significant improvements compared to placebo in additional secondary endpoints, including migraine pain relief and migraine disability.

Lilly will present detailed data from both studies at scientific meetings and submit the results to peer-reviewed journals within the next year. An open-label Phase 3 study—GLADIATOR—is also underway evaluating the long-term safety of lasmiditan for the acute treatment of migraine.

About the SPARTAN Study

SPARTAN is a Phase 3 randomized, double-blind, placebo-controlled global trial evaluating the safety and efficacy of three doses of lasmiditan administered orally (50 mg, 100 mg or 200 mg) compared with placebo for the acute treatment of

migraine. To be eligible for this trial, patients were required to have at least moderate migraine disability (as measured by a Migraine Disability Assessment Score (MIDAS) ≥ 11). Patients that participated in the trial had an average of more than five migraine attacks per month at baseline. SPARTAN did not exclude patients with one or more cardiovascular risk factors or known coronary artery disease. The primary endpoint of the study was comparison of the percentage of patients in the lasmiditan 200 mg and placebo groups who were migraine pain-free at two hours following the first dose. The key secondary endpoint of the study was comparison of the percentage of patients in the lasmiditan 200 mg and placebo groups who were free of their MBS (nausea, sensitivity to sound or sensitivity to light) at two hours following the first dose.

About the SAMURAI Study
SAMURAI is a Phase 3 randomized, double-blind, placebo-controlled U.S. trial evaluating the safety and efficacy of two doses of lasmiditan administered orally (100 mg or 200 mg) compared with placebo for the acute treatment of migraine. To be eligible for the trial, patients were required to have at least moderate migraine disability (as measured by a MIDAS ≥ 11). Patients that participated in the trial had an average of more than five migraine attacks per month at baseline. SAMURAI did not exclude patients with one or more cardiovascular risk factors. The primary endpoint of the study was comparison of the percentage of patients in the lasmiditan 200 mg and placebo groups who were migraine pain-free at two hours following the first dose. The key secondary endpoint of the study was comparison of the percentage of patients in the lasmiditan 200 mg and placebo groups who were free of their MBS (nausea, sensitivity to sound or sensitivity to light) at two hours following the first dose.

About Migraine
Migraine is a disabling neurological disease characterized by recurrent episodes of severe headache accompanied by other symptoms including nausea, vomiting, sensitivity to light and sound, and changes in vision.[1,2] More than 36 million Americans have migraine, with three times more women affected by migraine compared to men.[3] According to the Migraine Research Foundation, healthcare and lost productivity costs associated with migraine are estimated to be as high as $36 billion annually in the U.S., yet it remains under-recognized and under-treated.[4,5]

About Lilly in Migraine
For over 25 years, Lilly has been committed to helping people suffering from migraine, investigating more than a dozen different compounds for the treatment of migraine and disabling headache disorders. These research programs have accelerated understanding of this disease and advanced the development of Lilly's comprehensive late-stage development programs studying galcanezumab for prevention of migraine and cluster headache, and lasmiditan for the acute treatment of migraine. Our goal is to make life better for people with migraine by offering comprehensive solutions to prevent or stop this disabling disease. The combined clinical, academic and professional experience of our experts helps us to build our research portfolio, identify challenges for healthcare providers and pinpoint the needs of patients living with migraine and cluster headache.

About Lasmiditan
Lasmiditan is an investigational, first-in-class molecule under evaluation for the acute treatment of migraine. Lasmiditan selectively targets 5-HT_{1F} receptors expressed in the trigeminal pathway, and has been designed for the acute treatment of migraine without the vasoconstrictor activity associated with some migraine therapies. Data from SAMURAI, the first of two pivotal Phase 3 studies, was announced in 2016. In March 2017, Lilly completed the acquisition of CoLucid Pharmaceuticals, including lasmiditan, which was originally discovered at Lilly.

About Eli Lilly and Company
Lilly is a global healthcare leader that unites caring with discovery to make life better for people around the world. We were founded more than a century ago by a man committed to creating high-quality medicines that meet real needs, and today we remain true to that mission in all our work. Across the globe, Lilly employees work to discover and bring life-changing medicines to those who need them, improve the understanding and management of disease, and give back to communities through philanthropy and volunteerism. To learn more about Lilly, please visit us at www.lilly.com and www.lilly.com/newsroom/social-channels. P-LLY

This press release contains forward-looking statements (as that term is defined in the Private Securities Litigation Reform Act of 1995) about lasmiditan as a potential acute treatment for patients with migraine, the SPARTAN, SAMURAI and GLADIATOR studies, and reflects Lilly's current belief. However, as with any pharmaceutical product, there are substantial risks and uncertainties in the process of development and commercialization. Among other things, there can be no guarantee that future study results will be consistent with the results to date, or that lasmitidan will receive regulatory approvals or be commercially successful. For further discussion of these and other risks and uncertainties, see Lilly's most recent Form 10-K and Form 10-Q filings with the United States Securities and Exchange Commission. Except as required by law, Lilly undertakes no duty to update forward-looking statements to reflect events after the date of this release.

[1] Headache disorders. World Health Organization website. http://www.who.int/mediacentre/factsheets/fs277/en/. Accessed

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[2] Russo AF. Calcitonin gene-related peptide (CGRP): a new target for migraine. Annual Review of Pharmacology and Toxicology. 2015;55:533-552.

[3] Identifying and treating migraine. American Migraine Foundation website. https://americanmigrainefoundation.org/understanding-migraine/identifying-treating-migraine/. Last accessed August 2, 2017.

[4] Migraine facts. Migraine Research Foundation website. http://migraineresearchfoundation.org/about-migraine/migraine-facts/. Accessed August 2, 2017.

[5] Blumenfeld AM, Bloudek LM, Becker WJ, et al. Patterns of use and reasons for discontinuation of prophylactic medications for episodic migraine and chronic migraine: results from the Second International Burden of Migraine Study (IBSM-II). *Headache.* 2013;53(4):644-655.

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