Aptinyx Reports Positive Data from Interim Analysis of Exploratory Study of NYX-2925 in Subjects with Fibromyalgia

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Achieved statistical significance on primary imaging-based endpoint, changes in markers of central pain processing, in 11 subjects

Observed corresponding trends of improvement on multiple secondary endpoints, including average daily pain scores and the Revised Fibromyalgia Impact Questionnaire (FIQR)

Data support further development of NYX-2925 in fibromyalgia

EVANSTON, Ill., Dec. 03, 2018 (GLOBE NEWSWIRE) -- Aptinyx Inc. (NASDAQ: APTX), a clinical-stage biopharmaceutical company developing transformative therapies for the treatment of brain and nervous system disorders, today announced positive results from an interim analysis of an exploratory study of its novel NMDA receptor (NMDAr) modulator, NYX-2925, in subjects with fibromyalgia. Subjects in the study receive daily oral doses of NYX-2925 at two dose levels, 20 mg and 200 mg, as well as placebo, over the course of six weeks. The interim analysis was conducted on data from the first 11 subjects who have completed the study. Administration of NYX-2925 resulted in statistically significant effects on the primary endpoint, changes in markers of central pain processing as measured by advanced imaging techniques, including changes in combined glutamate and glutamine (Glx) levels in brain regions that were pre-specified and selected for analysis based on their known involvement in processing pain.

Improvement trends were also observed on multiple secondary endpoints, including patient-reported pain scores, as measured by the Numeric Pain Rating Scale (NPRS), and the Revised Fibromyalgia Impact Questionnaire (FIQR). NYX-2925 was well tolerated with no subjects reporting treatment-related serious adverse events. Based on these positive interim data, Aptinyx expects to initiate a larger Phase 2 study of NYX-2925 in subjects with fibromyalgia in 2019.

“NYX-2925 shows significant and promising effects in patients with fibromyalgia,” said Daniel Clauw, M.D., professor of anesthesiology, medicine (rheumatology), and psychiatry at the University of Michigan and an investigator in the study. “Despite the limited number of subjects for this interim analysis, we see strong and significant impacts on imaging markers known to be associated with central processing in chronic pain conditions. These interim results compare favorably to the results of a post-approval study we previously completed with pregabalin and we believe these findings indicate that NYX-2925 affects pain processing within the brain.”

“In our first data on NYX-2925 in patients, we are very pleased to see robust effects on the objective biomarkers and trends toward improvement on the patient-reported outcomes,” said Norbert Riedel, Ph.D., president and CEO of Aptinyx. “These data show that NYX-2925’s modulation of NMDA receptors drives changes in key brain regions that are known to translate into symptomatic relief for patients suffering from fibromyalgia. Fibromyalgia is a debilitating condition that afflicts millions of people and for which the available treatments have significant limitations. These data enhance our confidence in the utility of NYX-2925 in chronic pain conditions and encourage us to advance it in development for the treatment of fibromyalgia.”

The study is ongoing with the full data expected to read out in the first half of 2019. Once completed, the company plans to submit the detailed results from this study for publication and presentation at future scientific and medical meetings.

Study Design
This study is being conducted in women diagnosed with fibromyalgia. Over the course of the study, subjects undergo a series of functional magnetic resonance imaging (fMRI) scans, combined with proton magnetic resonance spectroscopy (H-MRS), to measure key brain activity markers known to be associated with central sensitization of pain. The study’s primary endpoint is the evaluation of changes in these specific markers. Secondary endpoints include several patient-reported assessments to evaluate the effects of NYX-2925 on clinical outcomes. These patient-reported outcomes include average daily pain and worst daily pain measured using the NPRS, the impact of their fibromyalgia on daily living measured by the FIQR, mood and anxiety measured by the Hospital Anxiety and Depression Scale (HADS), and cognitive impairment measured using the Multidimensional Inventory of Subjective Cognitive Impairment (MISCI).

At baseline, the subjects included in the interim analysis had a mean average daily pain score of 5.8 on the numeric pain rating scale, which has a range from 0 to 10 (where 0 = no pain and 10 = worst pain imaginable) and had a mean baseline total FIQR score of 51 (this scale has a maximum score of 90 with higher scores indicating worse fibromyalgia). Based on these scores, these subjects are considered to have moderate-to-severe fibromyalgia.

Primary Endpoint Findings – fMRI/H-MRS
The interim analysis of imaging measures showed that NYX-2925 reduced Glx levels in brain regions known to be involved in central pain processing. Fibromyalgia is associated with increased overall levels of Glx and prior studies have shown a correlation between pain severity and higher Glx levels in certain brain regions. Compared to placebo, administration of NYX-2925 resulted in statistically significant reductions of Glx levels in these brain regions, including a reduction in resting Glx levels in the dorsal anterior cingulate cortex (*p=0.02*) and a reduction of Glx increase in the posterior insular cortex following an evoked pain stimulus (*p=0.01*). NYX-2925 administration also resulted in connectivity changes that have previously been shown to be associated with central pain processing and alleviation of fibromyalgia symptoms, including reduced connectivity between the posterior insular and the default mode network. The observed changes in objectively measured Glx levels and connectivity correlated with improvements on patient-reported outcomes.

Secondary Endpoint Findings – Patient-Reported Outcomes

The interim analysis also showed trends of clinical improvement in key symptoms of fibromyalgia following treatment with NYX-2925. Administration of NYX-2925 resulted in decreases in average and worst daily pain scores, improvements on FIQR scores, improvements on HADS scores, and improvement in cognitive impairment as measured by MISCI.

About the Exploratory Study
This study is a single-blind, exploratory, placebo-controlled, pilot study to assess the efficacy and safety of daily oral NYX-2925 in fibromyalgia subjects (NCT03249103). Subjects are assessed in the week leading up to treatment to establish baseline values for imaging endpoints and patient-reported endpoints, then receive daily oral doses of 20 mg of NYX-2925, 200 mg of NYX-2925, and placebo for two weeks each. Following the last week of treatment, subjects are evaluated during a one-week follow-up period. During each of the two-week treatment periods, participants undergo fMRI scans and H-MRS to evaluate Glx levels and connectivity patterns in pre-specified brain regions known to be particularly involved in central pain processing. Data analysis was performed by analysts that were blinded to treatment sequence. Over the course of treatment, subjects are also assessed across a range of symptoms with patient-reported outcomes using the NPRS, FIQR, MISCI, and HADS. Safety and tolerability are also monitored over the course of the study.

About NYX-2925
NYX-2925 is a novel NMDA receptor modulator currently in Phase 2 clinical development for the treatment of painful diabetic peripheral neuropathy (DPN) and under evaluation in an exploratory Phase 2 study in fibromyalgia. NYX-2925 has demonstrated robust activity in preclinical models of numerous neuropathic pain conditions with a favorable tolerability profile. In a Phase 1 clinical study in healthy human subjects, NYX-2925 was well tolerated across a wide dose range, including dose levels well in excess of the expected therapeutic levels. The U.S. Food and Drug Administration (FDA) has granted Fast Track designation to Aptinyx's development of NYX-2925 for the treatment of neuropathic pain associated with DPN.

About Aptinyx
Aptinyx Inc. is a clinical-stage biopharmaceutical company focused on the discovery, development, and commercialization of proprietary synthetic small molecules for the treatment of brain and nervous system disorders. Aptinyx has a platform for discovery of novel compounds that work through a unique mechanism to modulate – rather than block or over-activate – NMDA receptors and enhance synaptic plasticity, the foundation of neural cell communication. The company has three product candidates in clinical development in central nervous system indications, including chronic pain, post-traumatic stress disorder, and cognitive impairment associated with Parkinson's disease. Aptinyx is also advancing additional compounds from its proprietary discovery platform, which continues to generate a rich and diverse pipeline of small-molecule NMDA receptor modulators with the potential to treat an array of neurologic disorders. For more information, visit www.aptinyx.com**.**

Forward-Looking Statements
Statements contained in this press release regarding matters that are not historical facts are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Because such statements are subject to risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. Such statements include, but are not limited to, statements regarding the company's business plans and objectives, therapeutic effects of the company's product candidates, expectations regarding the design, implementation, enrollment, timing, and success of its current and planned clinical trials, expectations regarding its preclinical development activities, and expectations regarding its uses of capital. Risks that contribute to the uncertain nature of the forward-looking statements include: the success, cost, and timing of the company's product candidate development activities and planned clinical trials; the company's ability to execute on its strategy; positive results from a clinical study may not necessarily be predictive of the results of future or ongoing clinical studies; regulatory developments in the United States and foreign countries; as well as those risks and uncertainties set forth in the company's most recent quarterly report on Form 10-Q and in its other filings and reports with the United States Securities and Exchange Commission. All forward-looking statements contained in this press release speak only as of the date on which they were made. Aptinyx undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

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