June 17, 2015

Titan Pharmaceuticals Presents Nonclinical Data Supporting Use of ProNeura Drug Delivery Platform in Parkinson's Disease

Data Presented at International Congress of Parkinson's Disease and Movement Disorders Shows Significant Improvement in Motor Function in a Nonclinical Model

SOUTH SAN FRANCISCO, CA -- (Marketwired) -- 06/17/15 -- Titan Pharmaceuticals, Inc. (OTCQB: TTNP) today presented nonclinical data at the 19th International Congress of Parkinson's Disease and Movement Disorders in San Diego demonstrating the potential of Titan's ProNeura™ long-term, continuous drug delivery platform in the treatment of Parkinson's disease. ProNeura-based subdermal implants containing the dopamine agonist ropinirole were first characterized for pharmacokinetics of drug release in rats followed by an evaluation of motor function and onset of treatment-related dyskinesias in an implant dose-escalating study in the Parkinsonian monkey model.

The dose-escalating study in Parkinsonian monkeys showed that motor function could be significantly improved with no onset of dyskinesias (involuntary movements), following the continuous, non-fluctuating release of ropinirole with the subdermal implant. There were also no observed signs of irritation, inflammation or fibrotic capsule formation at the implant site. Continuous, non-fluctuating release of ropinirole was observed for a period of several months following implantation.

"These early stage results of ProNeura with ropinirole in a Parkinsonian model are very encouraging, and illustrate the potential positive impact that delivering continuous, non-fluctuating levels of medication could have on patients suffering from Parkinson's disease," said Kate Glassman Beebe, PhD, Titan's executive vice president and chief development officer.

Symptoms of Parkinson's disease are primarily treated today by dopamine replacement therapy (DRT). However, DRT is often associated with the pulsatile stimulation of dopamine receptors due to peak-trough fluctuations of medication in the blood. Over time the non-physiologic stimulation of dopamine receptors in the brain causes patients to develop serious motor complications and dyskinesias, limiting treatment effectiveness. New treatments that offer continuous delivery of medication providing non-pulsatile stimulation of dopamine receptors in the brain appear to be more effective, but current approaches are surgically invasive and can cause serious adverse effects. Unlike current treatments, ProNeura would provide continuous, non-fluctuating therapeutic drug levels for several

months from a single treatment.

The poster, titled "Continuous Delivery of Ropinirole by Subdermal ProNeura™ Implants," was co-authored by Sunil Sreedharan, PhD, vice president of technology and product development at Titan Pharmaceuticals; Krystof Bankiewicz, MD, PhD, professor of neurosurgery and neurology, at the University of California, San Francisco; and Raj Patel, PhD, vice president of process and manufacturing development at Titan Pharmaceuticals.

Titan intends to begin clinical work on ProNeura for Parkinson's in the second half of 2016, following completion of nonclinical safety and pharmacology studies and the filing of an investigational new drug application with the U.S. Food and Drug Administration. The ProNeura drug delivery platform has already demonstrated efficacy and safety in a Phase 3 clinical program (Probuphine®) for opioid addiction.

About the ProNeura Long-term Drug Delivery Platform

ProNeura is Titan's proprietary, long-term drug delivery platform utilized in the development of products for the treatment of select chronic conditions that may benefit from the delivery of continuous, non-fluctuating levels of certain medications over an extended period of six months to a year. ProNeura consists of a small, solid rod made from a mixture of ethylene-vinyl acetate ("EVA") and a drug substance. The resulting product is a solid matrix that is placed subdermally, normally in the inner part of the upper arm, during a simple office procedure, and is removed in a similar manner at the end of treatment. The drug substance is released continuously through the process of dissolution, resulting in a stable, non-fluctuating blood level similar to that seen with intravenous administration. These long-term, linear-release characteristics are medically desirable to avoid the peak and trough swings from oral dosing that pose problems in the current treatments for many diseases, especially diseases of the central nervous system. Titan has issued patents as well as patent applications covering the use of the ProNeura long-term drug delivery platform for the formulation of specific products for the treatment of certain chronic diseases, such as opioid dependence, Parkinson's disease, and others.

Probuphine®, an investigational subdermal implant designed to deliver around-the-clock blood levels of buprenorphine for the long-term maintenance treatment of opioid dependence, is Titan's first product in development employing the ProNeura long-term drug delivery platform. Titan recently reported strong positive results from the final Phase 3 study, and resubmission of the Probuphine NDA is expected in the second half of 2015 with potential approval in the first half of 2016.

About Titan Pharmaceuticals

Titan Pharmaceuticals Inc. (OTCQB: TTNP), based in South San Francisco, CA, is a specialty pharmaceutical company developing proprietary therapeutics primarily for the treatment of serious medical disorders. The company's lead product candidate is Probuphine®, a novel and long-acting formulation of buprenorphine for the long-term maintenance treatment of opioid dependence. Probuphine employs Titan's proprietary drug delivery system ProNeura™, which is capable of delivering sustained, consistent levels of medication for six months or longer. Titan has granted North American commercial rights for Probuphine to Braeburn Pharmaceuticals. If approved, Probuphine would be the first and only commercialized treatment of opioid dependence to provide continuous, around-the-

clock blood levels of buprenorphine for six months following a single procedure. The ProNeura technology has the potential to be used in developing products for treating other chronic conditions, such as Parkinson's disease, where maintaining consistent blood levels of a dopamine agonist may benefit the patient and improve medical outcomes. For more information about Titan, please visit www.titanpharm.com.

This press release may contain "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Such statements include, but are not limited to, any statements relating to our product development programs and any other statements that are not historical facts. Such statements involve risks and uncertainties that could negatively affect our business, operating results, financial condition and stock price. Factors that could cause actual results to differ materially from management's current expectations include those risks and uncertainties relating to the regulatory approval process, the development, testing, production and marketing of our drug candidates, patent and intellectual property matters and strategic agreements and relationships. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations or any changes in events, conditions or circumstances on which any such statement is based, except as required by law.

Contacts:

Titan Pharmaceuticals, Inc.
Sunil Bhonsle
President
(650) 244-4990

Investors:
Stephen Kilmer
(647) 872-4849
skilmer@titanpharm.com

Media:
Susan Thomas
(619) 540-9195
sthomas@titanpharm.com

Source: Titan Pharmaceuticals, Inc.