October 19, 2017

Titan Pharmaceuticals Presents Non-Clinical Data From Liothyronine (L-T3) Implant Studies

Data to be presented at American Thyroid Association annual meeting

SOUTH SAN FRANCISCO, Calif., Oct. 19, 2017 /PRNewswire/ --Titan Pharmaceuticals, Inc. (NASDAQ:TTNP) announced today the planned presentation of non-clinical data on the use of its ProNeura™ subdermal implant for the long-term, sustained delivery of liothyronine (L-T3) during a poster session on Oct. 20 at the 87th annual conference of the American Thyroid Association in Victoria, British Columbia, Canada. The data indicate that these ProNeura implants continuously released L-T3 dose dependently for more than six months, providing important initial *in vivo* information for the potential development as a treatment of hypothyroidism.

While treatment of hypothyroidism with daily oral levothyroxine (L-T4) alone is effective in most hypothyroid patients, about 15 percent report feeling inadequately treated and are often prescribed a combination of L-T3 with L-T4. A sustained release L-T3 formulation could be an important alternative to combination therapy, as compliance with multiple daily dosing regimens can be challenging.

"We are encouraged by these initial, non-clinical data demonstrating the successful delivery of L-T3 with our ProNeura continuous, long-term drug delivery platform," said Titan Executive Vice President and Chief Development Officer Kate Beebe, PhD. "The results merit further studies to evaluate the potential therapeutic substitution of, or combination with L-T4 for the treatment of hypothyroidism. Additional discussions with endocrinology experts are needed to continue assessment of the product development and regulatory pathways, as well as to further evaluate the market opportunity and potential for collaboration."

In these studies, ProNeura-based L-T3 implants were formulated and tested for release characteristics in several non-clinical models. Pharmacokinetics of T3, T4, and TSH levels were assessed for varying implant doses in serum samples taken pre- and post-

implantation. Results showed these L-T3 implants continuously released non-fluctuating levels of T3 dose dependently for over 6 months. The full poster will be available in the publications section of the Titan website following the presentation.

About Titan Pharmaceuticals
Titan Pharmaceuticals Inc. (NASDAQ:TTNP), based in South San Francisco, CA, is developing proprietary therapeutics primarily for the treatment of serious medical disorders. The company's lead product is Probuphine®, a novel and long-acting formulation of buprenorphine and the first and only commercialized treatment of opioid dependence approved by the U.S. Food and Drug Administration to provide continuous, around-the-clock blood levels of buprenorphine for six months following a single procedure. Probuphine employs Titan's proprietary drug delivery system ProNeura™, which is capable of delivering sustained, consistent levels of medication for three months or longer. Titan has granted commercial rights in the U.S. and Canada for Probuphine to Braeburn Pharmaceuticals. The ProNeura technology has the potential to be used in developing products for treating other chronic conditions such as Parkinson's disease and hypothyroidism, where maintaining consistent, around-the-clock blood levels of medication 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 commercialization of Probuphine, 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.

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