



Titan Pharmaceuticals Inc.

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FOR IMMEDIATE RELEASE

**TITAN PHARMACEUTICALS, INC. REPORTS POSITIVE PRELIMINARY RESULTS FOR
CLINICAL STUDY OF SPHERAMINE®
IN THE TREATMENT OF PARKINSON'S DISEASE**

South San Francisco, CA- May 9, 2001 – Titan Pharmaceuticals, Inc. (ASE: TTP) today announced preliminary results from a Phase I/II study of Spheramine® for the treatment of Parkinson's disease, demonstrating improvement in motor function and quality of life in all patients treated, with no safety concerns or significant adverse events. Six patients have been on study ranging from 4 to 12 months. These results were presented today at the American Academy of Neurology meeting in Philadelphia by the study's principal investigator Ray L. Watts, M.D., Professor and Vice Chairman of the Department of Neurology at Emory University School of Medicine.

The Phase I/II clinical study, performed at Emory University in Atlanta, GA, is designed to assess the preliminary safety and efficacy of Spheramine in patients with advanced Parkinson's disease. Six patients were assessed at baseline and post treatment, both 'on' and 'off' their normal medication, using the Unified Parkinson's Disease Rating Scale (UPDRS), a standard measure of Parkinson's disease severity. The study's primary efficacy endpoint is the motor score of the total UPDRS, which is evaluated at baseline and at 1, 3, 6, 9, and 12 months post treatment. Of the six patients in this open label study, one patient has completed one year on study, with two patients at approximately eight months, and three patients at four months on study respectively. All patients have demonstrated improvement, with no safety concerns or significant adverse events. At 3 months post treatment, an average 30% improvement over baseline was demonstrated in the total UPDRS scores, and an average 35% improvement was demonstrated in motor UPDRS scores, off all other medications. The first patient was treated one year ago, with the 12-month evaluation demonstrating a 36% improvement over baseline total UPDRS, and a 48% improvement over baseline motor UPDRS, off other medications.

"These important preliminary results support the potential role of Spheramine as a restorative therapy for patients with Parkinson's disease," commented Dr. Ray L. Watts, the study's principal investigator. "Patients in this study have so far demonstrated significant improvement in motor function, as well as improved quality of life. Furthermore, the safety of Spheramine to date has been excellent, with no significant adverse events or tolerability concerns."

Safety evaluations to date, including laboratory and clinical evaluations such as the Dyskinesia Rating Scale, suggest that Spheramine is well tolerated in this patient group. Of note, five of six patients demonstrated reduction or absence of dyskinesias after treatment with Spheramine, with an average improvement in dyskinesia of 60% at 3 months (n=6) and 58% at 6 months (n=3).

In Parkinson's disease, dopamine deficiency in certain brain regions causes progressive motor symptoms such as tremors, rigidity, and slowed, difficult movements of the legs and arms.

Spheramine is a novel cell therapy product in development that utilizes normal human cells called retinal pigment epithelial (RPE) cells. RPE cells secrete dopamine, and can be utilized to provide dopamine to specific brain regions that are deficient in dopamine due to Parkinson's disease. In addition, RPE cells can be readily obtained and produced in large numbers in cell culture from a single starting sample, allowing standardization for therapeutic use. Also, importantly, Spheramine does not require the use of any immunosuppression, avoiding potential side effects from use of these other medications.

"These preliminary clinical results are very encouraging," stated Dr. Louis R. Bucalo, Chairman, President, and CEO of Titan. "The numerous practical advantages of Spheramine and Titan's CCM technology, combined with these very supportive early clinical results, provide strong momentum for our Spheramine development program."

Spheramine is based on Titan's proprietary cell-coated microcarrier (CCM™) technology, which confers greatly improved survival to cells that are implanted into the central nervous system (CNS). Previously, animal experiments utilizing CCM technology have demonstrated greatly enhanced long-term survival and function of human cells implanted into the CNS, without any evidence of immune rejection of the implanted cells. Use of CCM technology avoids the need for immunosuppression, and allows the use of normal mature human cells, rather than those derived from animal or human stem cell sources. Spheramine is Titan's first product utilizing the Company's proprietary CCM technology. Titan is exploring other potential applications of CCM technology, including therapeutics for other central nervous system disorders such as Alzheimer's disease and CNS tumors.

This current clinical study is supported by a Phase II SBIR grant from the National Institutes of Health. Future clinical studies of Spheramine will be funded by Schering AG, Titan's corporate partner for development and commercialization of Spheramine.

About Titan Pharmaceuticals

Titan Pharmaceuticals, Inc. (ASE: TTP) is a biopharmaceutical company focused on the development and commercialization of novel treatments for central nervous system (CNS) disorders, cancer and other serious and life-threatening diseases. Titan has assembled a deep pipeline of products utilizing novel technologies that have the potential to significantly improve the treatment of these diseases. Titan has established important partnerships with multinational pharmaceutical companies and government institutions for the development of its products. Zomaril™, Titan's novel drug for the treatment of schizophrenia, is being developed through a corporate partnership agreement with Novartis Pharma AG. Titan has also entered into a corporate partnership with Schering AG to develop and commercialize Spheramine®, a novel treatment for Parkinson's disease. In addition, several clinical programs in cancer therapy are supported by large oncology cooperative groups that are funded by the National Cancer Institute.

The 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 the Company's development program and any other statements that are not historical facts. Such statements involve risks and uncertainties, including, but not limited to, those risks and uncertainties relating to difficulties or delays in development, testing, regulatory approval, production and marketing of the Company's drug candidates, unexpected adverse side effects or inadequate therapeutic efficacy of the Company's drug candidates that could slow or prevent product development or commercialization, the uncertainty of patent protection for the Company's intellectual property or trade secrets and the Company's ability to obtain additional financing if necessary. Such statements are based on management's current expectations, but actual results may differ materially due to various factors, including those risks and uncertainties mentioned or referred to in this press release.

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