

-Small Molecule Discovery at Novel DrugTargets -----

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ORPHAGEN PARTNER, JAPAN TOBACCO, INITIATES A PHASE I CLINICAL TRIAL OF A NOVEL SMALL MOLECULE THERAPEUTIC FOR AUTOIMMUNE AND ALLERGIC DISEASES

San Diego, CA August 31st, 2016 – Orphagen Pharmaceuticals, Inc., a privately held company, announced today that its partner, Japan Tobacco Inc. ("JT"), has entered Phase I clinical trials with an oral small molecule, JTE-451, for treatment of autoimmune and allergic diseases. This is a major milestone of the strategic partnership between Orphagen and JT, who have been collaborating to develop small molecule antagonists for the orphan nuclear receptor ROR γ since early 2008. The goal of treatment with the clinical candidate is to suppress overactive immune response via inhibition of ROR γ related to Th17 activation.

Orphagen's partnership with JT was the first partnership established to develop ROR γ ligands. Since then, a number of other partnerships for ROR γ between small to mid-sized biotech companies and global pharma companies have been announced.

Orphagen CEO, Scott Thacher said, "We are impressed by the dedication of our partner. JT has excelled in the very competitive area of ROR γ antagonists. A paradigm shift in autoimmune disease treatment has occurred with biologics that target Th17 cells. Clinical development of the ROR γ antagonist JTE-451 presents an opportunity for the first class of oral drug to primarily target this pathway.

About Orphagen - Orphagen discovers drug candidates for potential drug targets for which small molecule ligands--potential drug-like molecules--have yet to be identified. Its goal is to identify, characterize, and position a new class of drug so that pre-clinical and clinical development can be initiated with partners and/or outside sources of funding. These targets come from the nuclear receptor family of drug targets. On a per target basis, the nuclear receptors are one of the most successful target classes known to the pharmaceutical industry. Targets of interest to Orphagen encompass several of the so-called orphan nuclear receptors—potential therapeutic receptors that have yet to be exploited by the pharmaceutical industry.

About JT-Japan Tobacco Inc. is a leading international tobacco product company. Its products are sold in over 120 countries. With diversified operations, JT is actively present in pharmaceuticals and processed foods. JT entered into the pharmaceutical business in 1987 and is currently engaged in the research and development of new drugs mainly on the fields of glucose and lipid metabolism; anti-virus; and immune disorders and inflammation.