



**FOR IMMEDIATE RELEASE**

## **OrPro Therapeutics and Collaborators Present Key Theradux™ Data**

**- Demonstrates Restoration of Mucus Transportability -**

SAN DIEGO, October 28, 2016 -- OrPro Therapeutics, Inc., and its research collaborators at the University of Alabama at Birmingham (UAB) today presented promising new non-clinical human subject data on the efficacy of OrPro's inhaled mucus-normalizing drug Theradux™ (modified human thioredoxin-1) during a poster session at the North American Cystic Fibrosis Conference held in Orlando, Florida.

"The studies conducted at UAB using their non-invasive micro-optical coherence tomography imaging platform demonstrate that Theradux treatment is effective in restoring transportability to stiff and viscous mucus from cystic fibrosis (CF) patients," said OrPro President and CEO Peter Heifetz, Ph.D.

In the UAB study Theradux was found to be at least twice as effective in increasing mucus transport than Pulmozyme® (human DNase, dornase alfa), a standard of care mucolytic whose target is viscous DNA released from cells and bacteria as a consequence of chronic infection and inflammation.

"Highly significant increases in mucociliary transport in situ were observed in both mucus-producing human bronchial epithelial (HBE) cultures in vitro and CF patient sputum applied to excised rat trachea ex vivo. Together these indicate the potential for Theradux to act early in the disease process", commented Dr. Steven M. Rowe, Director of the UAB CF Research Center. "While not a cure, such an approach may, like CFTR modifier drugs Kalydeco® (ivacaftor) and Orkambi® (lumacaftor and ivacaftor), act to alter the course of disease and mitigate onset of the serious late-stage lung symptoms that are the primary contributors to CF morbidity and mortality".

### **About Cystic Fibrosis**

CF is a fatal, inherited disease in which chronic mucus clearance defects resulting from loss of CFTR anion channel function lead to a cycle of airway infection and inflammation, ultimately progressing to irreversible lung injury and respiratory failure. CF affects more than 30,000 individuals in the United States and nearly 80,000 worldwide. While the life expectancy of CF patients has continued to increase, from 18 years prior

to 1980 to nearly 40 years today, there is still an urgent need for improved therapies to further extend life expectancy and enhance quality of life.

### **About OrPro and Theradux**

OrPro Therapeutics, Inc. is a resident company at Johnson & Johnson Innovation JLABS (San Diego, CA). OrPro is developing Theradux (U.S. Patent 9,168,290), representing a new class of inhaled, non-systemic therapeutics that target underlying structural changes in CF mucus via a unique pH-independent binding mechanism that both prolongs activity and sequesters the drug in the mucus layer. Earlier 'mucolytic' reducing agents that break up mucus non-selectively lose most of their potency at the low pH of the CF airway and are rapidly absorbed into the body, resulting in the potential for systemic side effects and low effective concentrations at the target site. In contrast, Theradux relaxes excess protein linkages without disrupting the polymeric mucus gel structure essential for normal transport and clearance. A biologic drug derived from a native airway enzyme (thioredoxin), Theradux is hundreds of times more active than small-molecule mucolytic agents, with far greater selectivity and specificity for mucus protein disulfide bonds.

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