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**UNITED THERAPEUTICS ANNOUNCES
FDA APPROVAL OF UPDATED LABEL FOR ORENITRAM REFLECTING
RESULTS OF FREEDOM-EV STUDY**

Silver Spring, MD and Research Triangle Park, NC, October 21, 2019: United Therapeutics Corporation (Nasdaq: UTHR) today announced that the U.S. Food and Drug Administration (FDA) has approved a supplement to the New Drug Application for Orenitram® (treprostinil) Extended-Release Tablets reflecting data from the FREEDOM-EV study in patients with pulmonary arterial hypertension (PAH).

The FDA-approved labeling has now been updated to indicate that Orenitram delays disease progression when used in conjunction with an approved oral background PAH therapy. The primary efficacy endpoint of the FREEDOM-EV study was time to first clinical worsening (morbidity or mortality) event. The new label notes that treatment with Orenitram resulted in a significant increase in the time to first clinical worsening event compared with patients who received placebo, which was associated with a reduction in the risk of an event. The treatment effect on time to first clinical worsening due to disease progression was consistent across subgroups.

"We are pleased that the FDA has approved the updated Orenitram label, which should bolster the competitive positioning of this important prostacyclin analogue therapy," said Leigh Peterson, Ph.D., United Therapeutics' Vice President, Product Development. "We believe this improved label will provide physicians and patients with even more confidence in the efficacy and benefit of Orenitram."

"Data from the FREEDOM-EV study have already been well-received by the PAH community throughout the course of scientific and medical discourse," said Michael Benkowitz, President and Chief Operating Officer of United Therapeutics. "We believe this FDA approval will continue to expand the commercial opportunity for Orenitram."

Orenitram was originally approved by FDA in 2013, with a label indicating that it improves PAH patients' exercise capacity when used as a monotherapy.

About FREEDOM-EV

FREEDOM-EV was a phase 3, international, multi-center, randomized, double-blind, placebo-controlled, event-driven clinical worsening study of oral treprostinil in patients with PAH receiving background oral monotherapy (a phosphodiesterase type 5 inhibitor, an endothelin receptor antagonist or a soluble guanylate cyclase stimulator). The primary endpoint of this study was met, as Orenitram decreased the risk of adjudicated clinical worsening events by 25% compared to placebo (p=0.039). These results were largely driven by delay in disease

progression; Orenitram decreased the risk of disease progression by 61% compared with placebo (p=0.0002).

Global enrollment was completed in December 2017 with a total of 690 patients. Patients were randomized 1:1 to receive three daily doses of Orenitram or placebo. This event-driven study was conducted in 152 centers from 23 countries in North and Latin America, Europe, and Asia-Pacific, with 214 patients having an adjudicated clinical worsening (morbidity or mortality) event: death, hospitalization due to worsening of PAH, initiation of inhaled or infused prostacyclin treatment for PAH, disease progression, or unsatisfactory long-term clinical response. Disease progression was defined as a decrease in six-minute walk distance (6MWD) by ≥15% and an increase in functional class or the appearance or worsening of right-heart failure. Dosing in FREEDOM-EV was initiated at 0.125 mg three times daily (TID) and increased to a maximum of 12 mg TID. This event-driven study was designed to demonstrate a prolongation of time to the first adjudicated clinical worsening event for patients treated with Orenitram compared with placebo and to further establish the safety of Orenitram in PAH patients. Investigator-reported clinical worsening events were adjudicated by an independent committee blinded to study treatment. Mortality was analyzed at the end of randomized treatment and study closure, which included open-label treatment. Vital status was assessed at six-month intervals for consenting individuals who discontinued participation.

Secondary Endpoints

Secondary endpoints included changes from baseline in 6MWD, Borg dyspnea score (shortness of breath test), functional class, NT-proBNP levels, and combined 6MWD and Borg dyspnea score. Secondary endpoint data, which are not included in the updated FDA-approved labeling, are summarized below:

- **Change in 6MWD:** The median 6MWD trended toward improvement at week 24 (Hodges-Lehmann treatment estimate: 7 meters). Median 6MWD improved with Orenitram at weeks 36 (13 meters) and 48 (21 meters) compared to placebo.
- **Change in Borg dyspnea score and World Health Organization (WHO) functional class:** When classified categorically as ‘improved’, ‘no change’, or ‘deteriorated’, participants in the Orenitram group exhibited a significantly positive shift in Borg dyspnea score and WHO functional class compared to placebo at weeks 24, 36, and 48.
- **Change in NT-proBNP levels:** NT-proBNP levels were significantly improved with Orenitram at weeks 24 and 36. Per protocol, NT-proBNP was not assessed at week 48.
- **Change in combined 6MWD and Borg dyspnea score:** Combined 6MWD and Borg dyspnea score was significantly improved with Orenitram when assessed at week 24 compared to placebo.

Vital Status Substudy (End of Study Survival)

Mortality was similar between Orenitram and placebo groups at the end of randomized treatment. However, in participants for which data are available (89%), Orenitram was associated with a 37% decreased risk of mortality compared with placebo at study closure. This

mortality data is not reflected in the FDA-approved label, since it includes data accrued in the open-label extension study.

About Orenitram

Indication

Orenitram is a prostacyclin mimetic indicated for treatment of pulmonary arterial hypertension (PAH; WHO Group 1), to delay disease progression and to improve exercise capacity. The studies that established effectiveness included predominately patients with WHO functional class II-III symptoms and etiologies of idiopathic or heritable PAH (66%) or PAH associated with connective tissue disease (26%).

Important Safety Information for Orenitram

CONTRAINDICATIONS

- Avoid use of Orenitram in patients with severe hepatic impairment (Child Pugh Class C) due to increases in systemic exposure.

WARNINGS AND PRECAUTIONS

- Abrupt discontinuation or sudden large reductions in dosage of Orenitram may result in worsening of PAH symptoms.
- The Orenitram tablet shell does not dissolve. In patients with diverticulosis, Orenitram tablets can lodge in a diverticulum.

ADVERSE REACTIONS

- In the 12-week, placebo-controlled, monotherapy study, and an event-driven, placebo-controlled, combination therapy study, adverse reactions that occurred at rates at least 5% higher on Orenitram than on placebo included headache, diarrhea, nausea, vomiting, flushing, pain in jaw, pain in extremity, hypokalemia, abdominal discomfort, and upper abdominal pain.

DRUG INTERACTIONS

- Co-administration of Orenitram and the CYP2C8 enzyme inhibitor gemfibrozil increases exposure to treprostinil; therefore, Orenitram dosage reduction may be necessary in these patients.

SPECIFIC POPULATIONS

- Animal reproductive studies with Orenitram have shown an adverse effect on the fetus. There are no adequate and well-controlled studies with Orenitram in pregnant women.
- It is not known whether treprostinil is excreted in human milk or if it affects the breastfed infant or milk production.
- Safety and effectiveness of Orenitram in pediatric patients have not been established.

- Use of Orenitram in patients aged 65 years and over demonstrated slightly higher absolute and relative adverse event rates compared to younger patients. Caution should be used when selecting a dose for geriatric patients.
- There is a marked increase in the systemic exposure to treprostinil in hepatically impaired patients.

Please see Full Prescribing Information and Patient Information at www.orenitram.com or call 1-877-UNITHER (1-877-864-8437).

About United Therapeutics

United Therapeutics Corporation focuses on the strength of a balanced, value-creating biotechnology model. We are confident in our future thanks to our fundamental attributes, namely our obsession with quality and innovation, the power of our brands, our entrepreneurial culture and our bioinformatics leadership. We also believe that our determination to be responsible citizens – having a positive impact on patients, the environment and society – will sustain our success in the long term.

Through our wholly-owned subsidiary, Lung Biotechnology PBC, we are focused on addressing the acute national shortage of transplantable lungs and other organs with a variety of technologies that either delay the need for such organs or expand the supply. Lung Biotechnology is the first public benefit corporation subsidiary of a public biotechnology or pharmaceutical company.

Forward-looking Statements

Statements included in this press release that are not historical in nature are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include, among others, statements regarding the impact of the FREEDOM-EV results and FDA approval of an updated label for Orenitram on physicians and patients, and the commercial potential for Orenitram. These forward-looking statements are subject to certain risks and uncertainties, such as those described in our periodic and other reports filed with the Securities and Exchange Commission that could cause actual results to differ materially from anticipated results. The forward-looking statements in this press release are qualified by the cautionary statements, cautionary language and risk factors set forth in our periodic reports and documents filed with the Securities and Exchange Commission, including our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. We claim the protection of the safe harbor contained in the Private Securities Litigation Reform Act of 1995 for forward-looking statements. We are providing this information as of October 21, 2019 and assume no obligation to update or revise the information contained in this press release whether as a result of new information, future events or any other reason.