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New England Journal of Medicine Publishes Phase 2 Study of VX-770 as a New Approach to Treat the Underlying Cause of Cystic Fibrosis

-Treatment with VX-770 resulted in improvements in lung function and markers of disease-

-There were no discontinuations of treatment due to adverse events-

-Late-stage Phase 3 clinical trials for VX-770 ongoing-

CAMBRIDGE, Mass., Nov 17, 2010 (BUSINESS WIRE)-- In a study published in this week's *New England Journal of Medicine,* treatment with a new drug candidate known as VX-770 resulted in improvements in lung function and markers of disease in a Phase 2 clinical trial of 39 people with cystic fibrosis (CF). There were no discontinuations due to adverse events in the study, and the frequency of adverse events was similar across the study groups. VX-770 is an oral (tablet) medicine that is being developed by Vertex Pharmaceuticals Incorporated (Nasdaq: VRTX) to directly target the defective protein known to cause CF. An accompanying editorial on this study was also published in this week's *New England Journal of Medicine*.

"This study marks a significant step in the development of innovative CF therapies that target the defective protein known to be the underlying cause of CF," said Frank Accurso, M.D., Lead Investigator for the VX-770 study and Director of the Cystic Fibrosis Center and Professor of Pediatrics at the University of Colorado Denver and Children's Hospital in Aurora. "The increase in lung function and improvements in other markers of disease observed in this trial support the continued evaluation of VX-770 in late-stage trials."

CF is a genetic disease that affects 30,000 people in the United States. The disease is caused by a mutated gene that produces defective or missing cystic fibrosis transmembrane conductance regulator (CFTR) proteins. The absence of functional CFTR proteins results in poor flow of fluids across certain cell membranes, including in the lung, and leads to accumulation of abnormally thick, sticky mucus that contributes to chronic lung infections and progressive lung damage. The study published in this week's *New England Journal of Medicine* enrolled people with CF who have the G551D mutation in the *CFTR* gene, where the CFTR protein reaches the cell surface but does not function properly. VX-770, known as a CFTR potentiator, aims to increase the function of defective CFTR proteins by increasing the gating activity, or ability to transport chloride ions, across the cell membrane.

Robert J. Beall, Ph.D., President and CEO of the Cystic Fibrosis Foundation stated, "Nearly a decade ago, the CF Foundation recognized the need to develop new therapies that address the underlying cause of CF and not just the symptoms of the disease. We are encouraged by the data from this Phase 2 trial and see the trial as a milestone in our efforts to discover and develop new treatment options for this disease."

VX-770 was discovered as part of a collaboration with Cystic Fibrosis Foundation Therapeutics, Inc. (CFFT) to discover and develop novel CFTR modulators. CFFT is the nonprofit drug discovery and development affiliate of the Cystic Fibrosis Foundation. Vertex retains worldwide rights to develop and commercialize VX-770.

About the Study

The Phase 2 study of VX-770 was a two-part, randomized, placebo-controlled clinical study that enrolled 39 people with cystic fibrosis who had at least one copy of the G551D mutation. Approximately 4 percent to 5 percent of people with CF carry the G551D mutation. In Part 1 of this study, 16 people received VX-770 (25, 75 or 150 mg; cross-over design) and 4 people received placebo for two, 14-day periods. In Part 2, 15 people received VX-770 (150 or 250 mg; parallel design) and 4 people received placebo for 28 days. VX-770 was dosed as two tablets taken by mouth every twelve hours. While in the study, patients continued to receive their standard medications for CF in addition to VX-770.

The primary objective of the study was to evaluate the safety and adverse event profile of VX-770 in people with CF. In addition, secondary endpoints of the study evaluated the effect of VX-770 on lung function and markers of disease. These markers of disease included assessments of sweat chloride and nasal potential difference (NPD), which were used to determine whether VX-770 impacted the function of the defective CFTR protein.

Primary Endpoint Analysis — Safety

All people enrolled in the study completed treatment with VX-770 or placebo. The frequency of adverse events was similar between the VX-770 and placebo groups and between Parts 1 and 2 of the study. The majority of reported adverse advents were mild or moderate in severity, with most adverse events being reported in one or two people from any study group. The most frequent adverse events observed in the study were fever, cough, nausea, pain and runny nose and occurred in people receiving VX-770 and placebo.

Secondary Endpoint Analysis — Lung Function and Markers of Disease

In Parts 1 and 2 of the study, lung function and CFTR function were measured as secondary endpoints. Lung function was assessed using measurements of Forced Expiratory Volume in one second (FEV_1), a standard test that measures the amount of air that can be exhaled in one second. CFTR function was assessed using measurements of sweat chloride and NPD. High sweat chloride levels are observed in people with CF and result from dysfunctional CFTR proteins. NPD measures voltage changes across airway cells lining the inside of the nose and is used as a direct measure of CFTR function.

In the study, improvements in lung function were observed among patients who received treatment with VX-770 for 14 days or 28 days as compared to their lung function when they enrolled in the study. Additionally, measurements of sweat chloride and NPD showed that treatment with VX-770 was associated with improvements in CFTR function in the sweat duct and airway epithelial cells. For some patients in the trial, the sweat chloride levels observed after treatment with VX-770 decreased to within the range seen in people who do not have CF. Results from this study support the hypothesis that improving the function of the defective CFTR protein in people with CF may result in improvements in lung function. Additionally, the results suggest that improving CFTR function may represent a viable approach to treating the underlying cause of CF.

Additional data from the study, including data from all VX-770 dose groups and from other secondary endpoints, are discussed in the *New England Journal of Medicine* article.

"Based on these results, we are now evaluating VX-770 as part of a Phase 3 development program and expect data early next year," said Robert Kauffman, M.D., Ph.D., Senior Vice President and Chief Medical Officer for Vertex. "Importantly, we also recently began a trial that will combine VX-770 with another CF drug candidate known as VX-809 as a first step toward addressing the underlying defect of CF in people with more common forms of the disease, such as the F508del mutation."

Ongoing Phase 3 Studies of VX-770

Based on the results observed in the Phase 2 study, Vertex initiated a Phase 3 registration program that is designed to further evaluate the use of VX-770 for the treatment of people with CF who have the G551D mutation. In drug development, Phase 3 studies are intended to be the final step in the clinical trial process and are designed to generate data that the U.S. Food and Drug Administration (FDA) may use to determine whether a new medication is safe and effective for use in people with a specific disease.

The Phase 3 program for VX-770 consists of two 48-week Phase 3 trials (STRIVE and ENVISION) that enrolled patients with the G551D mutation, and a 16-week Phase 2 trial (DISCOVER) that enrolled patients with two copies of the more common F508del mutation. The DISCOVER trial was designed primarily as a safety study. Data from the Phase 3 registration program of VX-770 are expected in the first half of 2011. Pending the results, Vertex expects to submit a New Drug Application with the FDA and a Marketing Authorization Application with European regulatory authorities for VX-770 in the second half of 2011.

Studies in People with The Most Common Mutation of CF

The Phase 2 study published in the *New England Journal of Medicine* evaluated the use of VX-770 in people with CF who have a specific mutation in the *CFTR* gene, known as G551D. The majority of people with CF carry the F508del mutation, which is present in approximately 90 percent of those with CF in the United States. In people with the F508del mutation, CFTR proteins do not reach the cell surface in normal amounts. Vertex recently initiated a clinical trial designed to evaluate the use of VX-770 combined with another drug candidate known as VX-809 in people with two copies of the F508del mutation. VX-809, known as a CFTR corrector, aims to increase CFTR function by increasing the trafficking, or movement, of CFTR to the cell surface. The trial of VX-770 and VX-809 will be the first to evaluate whether a combination regimen of VX-770 and VX-809 can improve CFTR function by increasing both the gating and trafficking of CFTR in people with the F508del mutation. The trial is currently enrolling patients and is expected to include approximately 21 clinical trial sites in the United States, Europe, New Zealand and Australia.

About Cystic Fibrosis

Cystic fibrosis is a life-threatening genetic disease affecting approximately 30,000 people in the United States and 70,000 people worldwide. Today, the median predicted age of survival for a person with CF is more than 37 years. According to the

2008 Cystic Fibrosis Foundation Patient Registry Annual Data Report, approximately 4 percent of the total CF patient population in the United States have at least one copy of the G551D mutation, 48 percent of the total CF patient population in the United States have two copies of the F508del mutation and an additional 39 percent of the CF patient population in the United States have one copy of the F508del mutation.

Patients interested in further information about clinical trials of VX-809 or VX-770 should visit or . http://www.cff.org/clinicaltrialswww.clinicaltrials.gov

Collaborative History with Cystic Fibrosis Foundation Therapeutics, Inc. (CFFT)

Vertex initiated its CF research program in 1998 as a part of a collaboration with CFFT, the non-profit drug discovery and development affiliate of the Cystic Fibrosis Foundation. Vertex and CFFT expanded the agreement in 2000 and again in 2004, and in March 2006 entered into a collaboration for the accelerated development of VX-770. In addition to the development collaboration for VX-770, in January 2006 Vertex and CFFT entered into an expanded research collaboration to develop novel corrector compounds. Vertex has received approximately $75 million from CFFT to support CF research and development efforts.

About the Cystic Fibrosis Foundation

The Cystic Fibrosis Foundation is the world's leader in the search for a cure for cystic fibrosis. The Foundation funds more CF research than any other organization and nearly every CF drug available today was made possible because of Foundation support. Based in Bethesda, Md., the Foundation also supports and accredits a national care center network that has been recognized by the National Institutes of Health as a model of care for a chronic disease.

About Vertex

Vertex Pharmaceuticals Incorporated is a global biotechnology company committed to the discovery and development of breakthrough small molecule drugs for serious diseases. The Company's strategy is to commercialize its products both independently and in collaboration with major pharmaceutical companies. Vertex's product pipeline is focused on viral diseases, cystic fibrosis, inflammation, autoimmune diseases, cancer, and pain. Vertex co-discovered the HIV protease inhibitor, Lexiva, with GlaxoSmithKline.

Lexiva is a registered trademark of the GlaxoSmithKline group of companies.

Safe Harbor Statement

This press release contains forward-looking statements including statements regarding (i) the study marking a significant step in the development of innovative CF therapies and supporting the continued evaluation of VX-770 in late-stage trials; (ii) VX-770 and VX-809 aiming to increase the function of defective CFTR proteins; (iii) the hypothesis that improving the function of the defective CFTR protein in people with CF may result in improvements in lung function; (iv) the expectations regarding Vertex obtaining data from the Phase 3 clinical trials evaluating VX-770 in the first half of 2011; (iv) the clinical trial combining VX-770 and VX-809 being a first step toward addressing the underlying defect of CF in people with more common forms of the disease; (v) the Phase 3 registration program being designed to further evaluate the use of VX-770 for the treatment of people with CF who have the G551D mutation and (vi) the expectation, pending the results from the Phase 3 registration program, that Vertex will submit a New Drug Application with the U.S. Food and Drug Administration and a Marketing Authorization Application with European regulatory authorities for VX-770 in the second half of 2011. While the Company believes the forward-looking statements contained in this press release are accurate, these statements are subject to risks and uncertainties that could cause actual outcomes to vary materially from the outcomes referenced in the forward-looking statements. These risks and uncertainties include, among other things, the risk that efforts to develop VX-770 separately, or in combination with VX-809, may not proceed due to technical, scientific, commercial, financial or other reasons, that clinical trials may not proceed as planned due to drug supply or patient enrollment issues, that an adverse event profile for VX-770 or VX-809 could be revealed in further nonclinical or clinical studies that could put further development of VX-770 or VX-809 in jeopardy or adversely impact their therapeutic value, and other risks listed under Risk Factors in Vertex's annual report and quarterly reports filed with the Securities and Exchange Commission and available through the Company's website at www.vrtx.com. Vertex disclaims any obligation to update the information contained in this press release as new information becomes available.

(VRTX - GEN)

Vertex Pharmaceuticals Incorporated
Media:
Dawn Kalmar or Zachry Barber
617-444-6992

or
Investors:
Michael Partridge, 617-444-6108
or
Lora Pike, 617-444-6755
or
Matthew Osborne, 617-444-6057

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