



FDA Approves TRIKAFTA™ (elixacaftor/tezacaftor/ivacaftor and ivacaftor) to Treat the Underlying Cause of Cystic Fibrosis in People Ages 12 and Older Who Have at Least One F508del Mutation

October 21, 2019

- For the first time, approximately 6,000 patients with one minimal function mutation and one F508del mutation have a medicine to treat the underlying cause of their disease—

-12,000 people with one or two F508del mutations who are currently eligible for one of Vertex's three other FDA-approved cystic fibrosis medicines are now also eligible for TRIKAFTA-

-Approval is based on two positive global Phase 3 studies in people with cystic fibrosis ages 12 and older with one F508del mutation and one minimal function mutation and in people with two F508del mutations-

BOSTON--(BUSINESS WIRE)--Oct. 21, 2019-- [Vertex Pharmaceuticals Incorporated](#) (Nasdaq: VRTX) today announced the U.S. Food and Drug Administration (FDA) has approved TRIKAFTA™ (elixacaftor/tezacaftor/ivacaftor and ivacaftor) for the treatment of cystic fibrosis (CF) in people ages 12 years and older who have at least one *F508del* mutation in the cystic fibrosis transmembrane conductance regulator (*CFTR*) gene, the most common CF-causing mutation. With this approval, for the first time, approximately 6,000 people with CF ages 12 years and older who have one *F508del* mutation and one minimal function mutation (F/MF) have a medicine that targets the underlying cause of their CF. Additionally, approximately 12,000 people with one or two *F508del* mutations who are currently eligible for one of Vertex's three other FDA-approved CF medicines are now also eligible for TRIKAFTA.

"Today marks a milestone for CF patients, their families and Vertex. After a 20-year journey together, we have received FDA approval of TRIKAFTA: a single breakthrough medicine with the potential to treat up to 90% of all people with CF in the future. For approximately 6,000 people with CF in the U.S., TRIKAFTA is the first medicine that can treat the underlying cause of their disease," said Jeffrey Leiden, M.D., Ph.D., Vertex's Chairman, President and Chief Executive Officer. "I want to personally thank the hundreds of Vertex scientists who have been working on this program for nearly 20 years – many of whom have dedicated their entire careers to changing the course of this disease; the CF Foundation which has provided support, encouragement and help throughout the journey; and most importantly the thousands of patients, caregivers, doctors and advocates who have courageously and persistently worked side-by-side with us to get to where we are today."

"Today's approval is a historic moment in cystic fibrosis care, with the potential for more people to benefit from CFTR modulator therapy to treat the basic defect of their disease," said Steven Rowe, M.D., Director, Gregory Fleming James Cystic Fibrosis Research Center, University of Alabama at Birmingham. "In clinical trials, TRIKAFTA was generally well tolerated and demonstrated improvements in multiple outcome measures in CF, including improvements in FEV₁, improvements in respiratory symptoms and, in the 24-week F/MF study, a reduced rate of pulmonary exacerbations and improvements in BMI."

"The incredible speed of this approval underscores our shared sense of urgency with the FDA and the CF community for bringing this medicine to eligible people with CF, particularly those without a medicine targeting the underlying cause of their disease," said Reshma Kewalramani, M.D., Executive Vice President, Global Medicines Development and Medical Affairs and Chief Medical Officer at Vertex. "We remain committed to relentlessly pursuing the development of transformative therapies for all people living with this disease."

Vertex has submitted a Marketing Authorization Application (MAA) to the European Medicines Agency (EMA) for the elixacaftor/tezacaftor/ivacaftor combination regimen. Vertex is currently evaluating elixacaftor/tezacaftor/ivacaftor in people ages 6 through 11 with F/MF and F/F CF mutations in an ongoing Phase 3 study and is committed to evaluating elixacaftor/tezacaftor/ivacaftor in children <6 years of age as part of planned future studies.

For more information on Vertex's patient assistance program, please visit [VertexGPS.com](#).

About TRIKAFTA™

TRIKAFTA (elixacaftor/tezacaftor/ivacaftor and ivacaftor) is a prescription medicine used for the treatment of cystic fibrosis (CF) in patients ages 12 years and older who have at least one copy of the *F508del* mutation in the cystic fibrosis transmembrane conductance regulator (*CFTR*) gene. Patients should talk to their doctor to learn if they have an indicated CF gene mutation. It is not known if TRIKAFTA is safe and effective in children under 12 years of age. TRIKAFTA is designed to increase the quantity and function of the F508del-CFTR protein at the cell surface. The approval of TRIKAFTA was supported by positive results of two global Phase 3 studies in people ages 12 years and older with CF: a 24-week Phase 3 study in 403 people with one *F508del* mutation and one minimal function mutation (F/MF) and a 4-week Phase 3 study in 107 people with two *F508del* mutations (F/F).

Helping Patients Access TRIKAFTA™

The people who work at Vertex understand that medicines can only help people who can get them. The Vertex Guidance & Patient Support (Vertex GPS™) program provides a team of Vertex employees dedicated to helping eligible people in the United States who have been prescribed our medicines understand their insurance benefits and the resources that are available to help them.

Vertex also offers a co-pay assistance program for eligible people with commercial insurance coverage and a free medicine program for qualifying people who meet certain income and other eligibility criteria. More information is available by visiting [www.VertexGPS.com](#) or by calling 1-877-752-5933.

About Cystic Fibrosis

Cystic Fibrosis (CF) is a rare, life-shortening genetic disease affecting approximately 75,000 people worldwide. CF is a progressive, multi-system

disease that affects the lungs, liver, GI tract, sinuses, sweat glands, pancreas and reproductive tract. CF is caused by a defective and/or missing CFTR protein resulting from certain mutations in the *CFTR* gene. Children must inherit two defective *CFTR* genes — one from each parent — to have CF. While there are many different types of *CFTR* mutations that can cause the disease, the vast majority of all people with CF have at least one *F508del* mutation. These mutations, which can be determined by a genetic test, or genotyping test, lead to CF by creating non-working and/or too few CFTR proteins at the cell surface. The defective function and/or absence of CFTR protein results in poor flow of salt and water into and out of the cells in a number of organs. In the lungs, this leads to the buildup of abnormally thick, sticky mucus that can cause chronic lung infections and progressive lung damage in many patients that eventually leads to death. The median age of death is in the early 30s.

INDICATIONS AND IMPORTANT SAFETY INFORMATION FOR TRIKAFTA™ (elexacaftor/tezacaftor/ivacaftor and ivacaftor) TABLETS

TRIKAFTA is a prescription medicine used for the treatment of cystic fibrosis (CF) in patients aged 12 years and older who have at least one copy of the *F508del* mutation in the cystic fibrosis transmembrane conductance regulator (*CFTR*) gene. Patients should talk to their doctor to learn if they have an indicated CF gene mutation. It is not known if TRIKAFTA is safe and effective in children under 12 years of age.

Patients should not take TRIKAFTA if they take certain medicines, such as: antibiotics such as rifampin or rifabutin; seizure medicines such as phenobarbital, carbamazepine, or phenytoin; St. John's wort.

Before taking TRIKAFTA, patients should tell their doctor about all of their medical conditions, including if they: have kidney problems, have or have had liver problems, are pregnant or plan to become pregnant because it is not known if TRIKAFTA will harm an unborn baby, or are breastfeeding or planning to breastfeed because it is not known if TRIKAFTA passes into breast milk.

TRIKAFTA may affect the way other medicines work, and other medicines may affect how TRIKAFTA works. Therefore, the dose of TRIKAFTA may need to be adjusted when taken with certain medicines. Patients should especially tell their doctor if they take: antifungal medicines including ketoconazole, itraconazole, posaconazole, voriconazole, or fluconazole; antibiotics including telithromycin, clarithromycin, or erythromycin; other medicines including rifampin, rifabutin, phenobarbital, carbamazepine, phenytoin, and St. John's wort.

TRIKAFTA may cause dizziness in some people who take it. Patients should not drive a car, operate machinery, or do anything that requires alertness until they know how TRIKAFTA affects them.

Patients should avoid food or drink that contains grapefruit while they are taking TRIKAFTA.

TRIKAFTA can cause serious side effects, including:

High liver enzymes in the blood, which is a common side effect in people treated with TRIKAFTA. These can be serious and may be a sign of liver injury. The patient's doctor will do blood tests to check their liver before they start TRIKAFTA, every 3 months during the first year of taking TRIKAFTA, and every year while taking TRIKAFTA. Patients should call their doctor right away if they have any of the following symptoms of liver problems: pain or discomfort in the upper right stomach (abdominal) area; yellowing of the skin or the white part of the eyes; loss of appetite; nausea or vomiting; dark, amber-colored urine.

Abnormality of the eye lens (cataract) in some children and adolescents treated with TRIKAFTA. If the patient is a child or adolescent, their doctor should perform eye examinations before and during treatment with TRIKAFTA to look for cataracts.

The most common side effects of TRIKAFTA include headache, diarrhea, upper respiratory tract infection (common cold) including stuffy and runny nose, stomach (abdominal) pain, inflamed sinuses, increase in liver enzymes, increase in a certain blood enzyme called creatine phosphokinase, rash, flu (influenza), and increase in blood bilirubin.

These are not all the possible side effects of TRIKAFTA. Please click [here](#) to see the full Prescribing Information for TRIKAFTA.

About Vertex

Vertex is a global biotechnology company that invests in scientific innovation to create transformative medicines for people with serious diseases. The company has four approved medicines that treat the underlying cause of cystic fibrosis (CF) - a rare, life-threatening genetic disease - and has several ongoing clinical and research programs in CF. Beyond CF, Vertex has a robust pipeline of investigational medicines in other serious diseases where it has deep insight into causal human biology, such as sickle cell disease, beta thalassemia, pain, alpha-1 antitrypsin deficiency, Duchenne muscular dystrophy and APOL1-mediated kidney diseases.

Founded in 1989 in Cambridge, Mass., Vertex's global headquarters is now located in Boston's Innovation District and its international headquarters is in London, UK. Additionally, the company has research and development sites and commercial offices in North America, Europe, Australia and Latin America. Vertex is consistently recognized as one of the industry's top places to work, including nine consecutive years on *Science* magazine's Top Employers list and top five on the 2019 Best Employers for Diversity list by Forbes. For company updates and to learn more about Vertex's history of innovation, visit www.vrtx.com or follow us on Facebook, Twitter, LinkedIn, YouTube and Instagram.

Special Note Regarding Forward-looking Statements

This press release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, including, without limitation, the statements by Dr. Leiden in the second paragraph, Dr. Rowe in the third paragraph, and Dr. Kewalramani in the fourth paragraph and statements regarding Vertex's current and future plans to study elexacaftor/tezacaftor/ivacaftor in the fifth paragraph of this press release. While Vertex believes the forward-looking statements contained in this press release are accurate, these forward-looking statements represent the company's beliefs only as of the date of this press release and there are a number of risks and uncertainties that could cause actual events or results to differ materially from those expressed or implied by such forward-looking statements. Those risks and uncertainties include, among other things, that data from the company's development programs may not support registration or further development of its compounds due to safety, efficacy or other reasons, obtaining approval and commercializing elexacaftor/tezacaftor/ivacaftor in Europe, developing additional medicines to treat cystic fibrosis, and other risks listed under Risk Factors in Vertex's annual report and subsequent 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.

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