NEWS RELEASE

U.S. FDA Accepts Merck's Gefapixant New Drug Application for Review

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Application for Orally Administered Selective P2X3 Receptor Antagonist Based on Findings from Two Phase 3 Trials in Patients with Refractory or Unexplained Chronic Cough

KENILWORTH, N.J.--(BUSINESS WIRE)-- Merck (NYSE: MRK), known as MSD outside the United States and Canada, announced today that the U.S. Food and Drug Administration (FDA) has accepted for review the company's New Drug Application (NDA) for gefapixant, an investigational, orally administered, selective P2X3 receptor antagonist, for the treatment of refractory chronic cough (RCC) or unexplained chronic cough (UCC) in adults. This application for gefapixant will be discussed at an upcoming advisory committee meeting. No date has been set yet. The FDA has set a Prescription Drug User Fee Act (PDUFA), or target action date, of Dec. 21, 2021.

"This submission underscores our commitment to help patients with refractory or unexplained chronic cough who currently have limited treatment options," said Dr. Roy Baynes, senior vice president and head of global clinical development, chief medical officer, Merck Research Laboratories. "If approved by the FDA, gefapixant would be the first medicine approved specifically to help these patients, and we look forward to participating in the advisory committee meeting and working with the FDA as they review our application."

The NDA is based on results from the COUGH-1 and COUGH-2 clinical trials, which are the first companion Phase 3 studies ever conducted in patients with RCC, a cough that persists despite appropriate treatment of underlying conditions, or UCC, a cough where the underlying cause cannot be identified despite a thorough evaluation. Data from COUGH-1 and COUGH-2 were presented at the virtual European Respiratory Society (ERS) International Congress 2020.

About the COUGH-1 and COUGH-2 Trials

COUGH-1 (NCT03449134) and COUGH-2 (NCT03449147) are Phase 3 multinational, randomized, double-blind, placebo-controlled studies evaluating the efficacy and safety of gefapixant in reducing cough frequency in adult participants with refractory chronic cough (RCC) or unexplained chronic cough (UCC). A total of 2,044 participants were treated in COUGH-1 (n=730) and COUGH-2 (n=1,314). In both studies, patients were randomly selected to receive one of the following: gefapixant 45 mg twice daily, gefapixant 15 mg twice daily, or placebo. The primary efficacy outcomes measure for COUGH-1 and COUGH-2 were 24-hour cough frequency at week 12 and 24-hour cough frequency at week 24, respectively, measured using an ambulatory digital audio recording device. Secondary endpoints in both trials included awake coughs per hour and percentage of participants with a greater than 1.3-point increase from baseline in the Leicester Cough Questionnaire (LCQ) total score. COUGH-1 had a 12-week treatment period and a 40-week extension period, while COUGH-2 had a 24-week treatment period and a 28-week extension period.

About Gefapixant

Gefapixant is an investigational, orally administered, selective P2X3 receptor antagonist, for the potential treatment of refractory or unexplained chronic cough. P2X3 receptors are one of the receptor types found on sensory nerve fibers, predominantly C fibers, in the airway lining. Chemical stimuli, including adenosine triphosphate (ATP), can be released from airway lining cells due to airway inflammation, irritation and mechanical stress/injury. Binding of extracellular ATP to P2X3 receptors on C fibers in the airway can be sensed as a signal of potential damage, creating an action potential, which may initiate coughing. The inhibition of binding of extracellular ATP to P2X3 receptors is thought to reduce sensory nerve activation and, subsequently, cough.

About Chronic Cough

The prevalence of chronic cough (a cough lasting more than 8 weeks) is estimated to be approximately 5% of adults in the U.S. In a subset of these cases, patients either do not respond to treatment of underlying conditions (such as asthma or gastroesophageal reflux), known as refractory chronic cough (RCC), or they have no identifiable underlying condition despite a thorough evaluation, known as unexplained chronic cough (UCC). There are currently no approved therapies for the treatment of RCC or UCC.

About Merck

For 130 years, Merck, known as MSD outside of the United States and Canada, has been inventing for life, bringing forward medicines and vaccines for many of the world's most challenging diseases in pursuit of our mission to save and improve lives. We demonstrate our commitment to patients and population health by increasing access to

health care through far-reaching policies, programs and partnerships. Today, Merck continues to be at the forefront of research to prevent and treat diseases that threaten people and animals – including cancer, infectious diseases such as HIV and Ebola, and emerging animal diseases – as we aspire to be the premier research-intensive biopharmaceutical company in the world. For more information, visit **www.merck.com** and connect with us on **Twitter**, **Facebook**, **Instagram**, **YouTube** and **LinkedIn**.

Forward-Looking Statement of Merck & Co., Inc., Kenilworth, N.J., USA

This news release of Merck & Co., Inc., Kenilworth, N.J., USA (the "company") includes "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements are based upon the current beliefs and expectations of the company's management and are subject to significant risks and uncertainties. There can be no guarantees with respect to pipeline products that the products will receive the necessary regulatory approvals or that they will prove to be commercially successful. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

Risks and uncertainties include but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of the global outbreak of novel coronavirus disease (COVID-19); the impact of pharmaceutical industry regulation and health care legislation in the United States and internationally; global trends toward health care cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; the company's ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of the company's patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions.

The company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the company's 2020 Annual Report on Form 10-K and the company's other filings with the Securities and Exchange Commission (SEC) available at the SEC's Internet site (**www.sec.gov**).

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