# TEZSPIRE® APPROVED FOR SELF-ADMINISTRATION IN THE U.S. WITH A NEW PRE-FILLED PEN

February 2, 2023

**Now Offers Patients the Choice of Administration at Home or in a Doctor's Office**

THOUSAND OAKS, Calif., Feb. 2, 2023 /PRNewswire/ -- Amgen (NASDAQ:AMGN) and AstraZeneca today announced the U.S. Food and Drug Administration (FDA) has approved TEZSPIRE® (tezepelumab-ekko) for self-administration in a pre-filled, single-use pen for patients aged 12 years and older with severe asthma.[1] First approved by the FDA in December 2021, TEZSPIRE is the only biologic approved for severe asthma with no phenotype (e.g., eosinophilic or allergic) or biomarker limitation within its approved label.[2-9]

"People with severe asthma will now have the flexibility to administer TEZSPIRE at home or continue to receive their medicine in their doctor's office," said Murdo Gordon, executive vice president of Global Commercial Operations at Amgen. "This approval reinforces our continued efforts to improve accessibility to TEZSPIRE, a first-in-class medicine proven to consistently and significantly reduce exacerbations across a broad population of people with severe asthma."

The approval by the FDA was based on results from the PATHFINDER clinical trial program, which included results from the PATH-BRIDGE Phase 1 trial and the PATH-HOME trial Phase 3 trial.[10] The majority (92%) of healthcare providers, patients and caregivers were able to successfully administer TEZSPIRE both in the clinic and at home throughout the PATH-HOME trial. The improvements in asthma control and the safety profile of TEZSPIRE observed in the PATH-HOME trial were consistent with previous clinical trials.[10]

"Severe asthma continues to be a very complex condition to manage, so we welcome the TEZSPIRE pre-filled pen as an option that will empower patients and healthcare providers with increased choice," said Kenneth Mendez, president and chief executive officer of the Asthma and Allergy Foundation of America. "We believe self-administration alternatives can play an important role in patients' lives and address unmet needs for those living with severe asthma."

The most common adverse reactions (incidence ≥3% and more common than placebo) of TEZSPIRE are pharyngitis, arthralgia, and back pain.[1]

TEZSPIRE self-administration and the TEZSPIRE pre-filled pen are also approved in the European Union (EU) and are under regulatory review in several other countries around the world. TEZSPIRE is currently approved for the treatment of severe asthma in the U.S., EU, Japan and other countries.

**TEZSPIRE® (tezepelumab-ekko) U.S. Indication**
TEZSPIRE is indicated for the add-on maintenance treatment of adult and pediatric patients aged 12 years and older with severe asthma.

TEZSPIRE is not indicated for the relief of acute bronchospasm or status asthmaticus.

**TEZSPIRE® (tezepelumab-ekko) Important Safety Information**

**CONTRAINDICATIONS**
Known hypersensitivity to tezepelumab-ekko or excipients.

**WARNINGS AND PRECAUTIONS**

**Hypersensitivity Reactions**
Hypersensitivity reactions were observed in the clinical trials (e.g., rash and allergic conjunctivitis) following the administration of TEZSPIRE. Postmarketing cases of anaphylaxis have been reported. These reactions can occur within hours of administration, but in some instances have a delayed onset (i.e., days). In the event of a hypersensitivity reaction, consider the benefits and risks for the individual patient to determine whether to continue or discontinue treatment with TEZSPIRE.

**Acute Asthma Symptoms or Deteriorating Disease**
TEZSPIRE should not be used to treat acute asthma symptoms, acute exacerbations, acute bronchospasm, or status asthmaticus.

**Abrupt Reduction of Corticosteroid Dosage**
Do not discontinue systemic or inhaled corticosteroids abruptly upon initiation of therapy with TEZSPIRE. Reductions in corticosteroid dose, if appropriate, should be gradual and performed under the direct supervision of a physician. Reduction in corticosteroid dose may be associated with systemic withdrawal symptoms and/or unmask conditions previously suppressed by systemic corticosteroid therapy.

**Parasitic (Helminth) Infection**
It is unknown if TEZSPIRE will influence a patient's response against helminth infections. Treat patients with pre-existing helminth infections before initiating therapy with TEZSPIRE. If patients become infected while receiving TEZSPIRE and do not respond to anti-helminth treatment, discontinue TEZSPIRE until infection resolves.

**Live Attenuated Vaccines**
The concomitant use of TEZSPIRE and live attenuated vaccines has not been evaluated. The use of live attenuated vaccines should be avoided in patients receiving TEZSPIRE.

**ADVERSE REACTIONS**
The most common adverse reactions (incidence ≥3%) are pharyngitis, arthralgia, and back pain.

**USE IN SPECIFIC POPULATIONS**

There are no available data on TEZSPIRE use in pregnant women to evaluate for any drug-associated risk of major birth defects, miscarriage, or other adverse maternal or fetal outcomes. Placental transfer of monoclonal antibodies such as Tezepelumab-ekko is greater during the third trimester of pregnancy; therefore, potential effects on a fetus are likely to be greater during the third trimester of pregnancy.

**Please see the full Prescribing Information including Patient Information and Instructions for Use.**

*You may report side effects related to AstraZeneca products by clicking here.*

**About TEZSPIRE® (tezepelumab-ekko)**
TEZSPIRE is a first-in-class human monoclonal antibody that works on the primary source of inflammation: the airway epithelium, which is the first point of contact for viruses, allergens, pollutants and other environmental insults. Specifically, TEZSPIRE targets and blocks TSLP, a key epithelial cytokine that sits at the top of multiple inflammatory cascades and initiates an overreactive immune response to allergic, eosinophilic and other types of airway inflammation associated with severe asthma.[11,12] TSLP is released in response to multiple triggers associated with asthma exacerbations, including allergens, viruses and other airborne particles.[11,12]

Expression of TSLP is increased in the airways of patients with asthma and has been correlated with disease severity.[11,13] Blocking TSLP may prevent the release of pro-inflammatory cytokines by immune cells, resulting in the prevention of asthma exacerbations and improved asthma control.[11,13] By working at the top of the cascade, TEZSPIRE helps stop inflammation at the source and has the potential to treat a broad population of severe asthma patients.[11,13]

TEZSPIRE is also in development for other potential indications including chronic obstructive pulmonary disease, chronic rhinosinusitis with nasal polyps, chronic spontaneous urticaria and eosinophilic esophagitis (EoE). In October 2021, tezepelumab was granted Orphan Drug Designation by the FDA for the treatment of EoE.

**About Severe Asthma**
Globally, there are approximately 2.5 million patients with severe asthma who are uncontrolled or biologic eligible, with approximately 1.3 million in the U.S. Many patients with severe asthma have an inadequate response to currently available biologics and oral corticosteroids and thus fail to achieve asthma control.[14-19] Uncontrolled asthma occurs when symptoms persist despite treatment. Severe, uncontrolled asthma is debilitating with patients experiencing frequent exacerbations, significant limitations on lung function and a reduced quality of life.[15-17] Patients with severe uncontrolled asthma have twice the risk of asthma-related hospitalizations.[20,21] There is also a significant socio-economic burden with these severe uncontrolled asthma patients accounting for 50% of asthma-related costs.[22]

Multiple inflammatory pathways are involved in the pathogenesis of asthma.[22-24] Eosinophilic asthma, and more broadly, T2 inflammation-driven asthma, accounts for about two-thirds of patients with severe asthma.[24] These patients are typically characterized as having elevated levels of inflammatory biomarkers, including blood eosinophils, serum IgE and FeNO.[25,26] However, many patients do not fit the criteria for eosinophilic or allergic asthma, may have unclear or multiple drivers of inflammation, and may not qualify for or respond well to a current biologic medicine.[26]

**About the Amgen and AstraZeneca Collaboration**
In 2020, Amgen and AstraZeneca updated the 2012 collaboration agreement for TEZSPIRE. Both companies will continue to share costs and profits equally after payment by AstraZeneca of a mid-single-digit royalty to Amgen. AstraZeneca continues to lead development and Amgen continues to lead manufacturing. All aspects of the collaboration are under the oversight of joint governing bodies. Under the amended agreement, Amgen and AstraZeneca will jointly commercialize TEZSPIRE in North America. Amgen will record product sales in the U.S., with AstraZeneca recording its share of U.S. profits as Collaboration Revenue. Outside of the U.S., AstraZeneca will record product sales, with Amgen recording profit share as Other/Collaboration revenue.

**About Amgen**
Amgen is committed to unlocking the potential of biology for patients suffering from serious illnesses by discovering, developing, manufacturing and delivering innovative human therapeutics. This approach begins by using tools like advanced human genetics to unravel the complexities of disease and understand the fundamentals of human biology.

Amgen focuses on areas of high unmet medical need and leverages its expertise to strive for solutions that improve health outcomes and dramatically improve people's lives. A biotechnology pioneer since 1980, Amgen has grown to be one of the world's leading independent biotechnology companies, has reached millions of patients around the world and is developing a pipeline of medicines with breakaway potential.

Amgen is one of the 30 companies that comprise the Dow Jones Industrial Average and is also part of the Nasdaq-100 index. In 2022, Amgen was named one of the "World's Best Employers" by Forbes and one of "America's 100 Most Sustainable Companies" by Barron's.

For more information, visit Amgen.com and follow us on Twitter, LinkedIn, Instagram, TikTok and YouTube.

**Amgen Forward-Looking Statements**
This news release contains forward-looking statements that are based on the current expectations and beliefs of Amgen. All statements, other than statements of historical fact, are statements that could be deemed forward-looking statements, including any statements on the outcome, benefits and synergies of collaborations, or potential collaborations, with any other company (including BeiGene, Ltd., Kyowa Kirin Co., Ltd., or any collaboration to manufacture therapeutic antibodies against COVID-19), the performance of Otezla® (apremilast) (including anticipated Otezla sales growth and the timing of non-GAAP EPS accretion), the Five Prime Therapeutics, Inc. acquisition, the Teneobio, Inc. acquisition, the ChemoCentryx, Inc. acquisition, or the proposed acquisition of Horizon Therapeutics plc, as well as estimates of revenues, operating margins, capital expenditures, cash, other financial metrics, expected legal, arbitration, political, regulatory or clinical results or practices, customer and prescriber patterns or practices, reimbursement activities and outcomes, effects of pandemics or other widespread health problems such as the ongoing COVID-19 pandemic on Amgen's business, and other such estimates and results. Forward-looking statements involve significant risks and uncertainties, including those discussed below and more fully described in the Securities and Exchange Commission reports filed by Amgen, including its most recent annual report on Form 10-K and any subsequent periodic reports on Form 10-Q and current reports on Form 8-K. Unless otherwise noted, Amgen is providing this information as of the date of this news release and does not undertake any obligation to update any forward-looking statements contained in this

document as a result of new information, future events or otherwise.

No forward-looking statement can be guaranteed and actual results may differ materially from those Amgen projects. Discovery or identification of new product candidates or development of new indications for existing products cannot be guaranteed and movement from concept to product is uncertain; consequently, there can be no guarantee that any particular product candidate or development of a new indication for an existing product will be successful and become a commercial product. Further, preclinical results do not guarantee safe and effective performance of product candidates in humans. The complexity of the human body cannot be perfectly, or sometimes, even adequately modeled by computer or cell culture systems or animal models. The length of time that it takes for Amgen to complete clinical trials and obtain regulatory approval for product marketing has in the past varied and Amgen expects similar variability in the future. Even when clinical trials are successful, regulatory authorities may question the sufficiency for approval of the trial endpoints Amgen has selected. Amgen develops product candidates internally and through licensing collaborations, partnerships and joint ventures. Product candidates that are derived from relationships may be subject to disputes between the parties or may prove to be not as effective or as safe as Amgen may have believed at the time of entering into such relationship. Also, Amgen or others could identify safety, side effects or manufacturing problems with its products, including its devices, after they are on the market.

Amgen's results may be affected by its ability to successfully market both new and existing products domestically and internationally, clinical and regulatory developments involving current and future products, sales growth of recently launched products, competition from other products including biosimilars, difficulties or delays in manufacturing its products and global economic conditions. In addition, sales of Amgen's products are affected by pricing pressure, political and public scrutiny and reimbursement policies imposed by third-party payers, including governments, private insurance plans and managed care providers and may be affected by regulatory, clinical and guideline developments and domestic and international trends toward managed care and healthcare cost containment. Furthermore, Amgen's research, testing, pricing, marketing and other operations are subject to extensive regulation by domestic and foreign government regulatory authorities. Amgen's business may be impacted by government investigations, litigation and product liability claims. In addition, Amgen's business may be impacted by the adoption of new tax legislation or exposure to additional tax liabilities. If Amgen fails to meet the compliance obligations in the corporate integrity agreement between Amgen and the U.S. government, Amgen could become subject to significant sanctions. Further, while Amgen routinely obtains patents for its products and technology, the protection offered by its patents and patent applications may be challenged, invalidated or circumvented by its competitors, or Amgen may fail to prevail in present and future intellectual property litigation. Amgen performs a substantial amount of its commercial manufacturing activities at a few key facilities, including in Puerto Rico, and also depends on third parties for a portion of its manufacturing activities, and limits on supply may constrain sales of certain of its current products and product candidate development. An outbreak of disease or similar public health threat, such as COVID-19, and the public and governmental effort to mitigate against the spread of such disease, could have a significant adverse effect on the supply of materials for Amgen's manufacturing activities, the distribution of Amgen's products, the commercialization of Amgen's product candidates, and Amgen's clinical trial operations, and any such events may have a material adverse effect on Amgen's product development, product sales, business and results of operations. Amgen relies on collaborations with third parties for the development of some of its product candidates and for the commercialization and sales of some of its commercial products. In addition, Amgen competes with other companies with respect to many of its marketed products as well as for the discovery and development of new products. Further, some raw materials, medical devices and component parts for Amgen's products are supplied by sole third-party suppliers. Certain of Amgen's distributors, customers and payers have substantial purchasing leverage in their dealings with Amgen. The discovery of significant problems with a product similar to one of Amgen's products that implicate an entire class of products could have a material adverse effect on sales of the affected products and on its business and results of operations. Amgen's efforts to collaborate with or acquire other companies, products or technology, and to integrate the operations of companies or to support the products or technology Amgen has acquired, may not be successful. A breakdown, cyberattack or information security breach could compromise the confidentiality, integrity and availability of Amgen's systems and Amgen's data. Amgen's stock price may be volatile and may be affected by a number of events. Amgen's business and operations may be negatively affected by the failure, or perceived failure, of achieving its environmental, social and governance objectives. The effects of global climate change and related natural disasters could negatively affect Amgen's business and operations. Global economic conditions may magnify certain risks that affect Amgen's business. Amgen's business performance could affect or limit the ability of the Amgen Board of Directors to declare a dividend or its ability to pay a dividend or repurchase its common stock. Amgen may not be able to access the capital and credit markets on terms that are favorable to it, or at all.

CONTACT: Amgen, Thousand Oaks
Michael Strapazon, 805-313-5553 (media)
Jessica Akopyan, 805-440-5721 (media)
Arvind Sood, 805-447-1060 (investors)

References

1. TEZSPIRE U.S. Prescribing Information. February 2023.
2. Hanania NA, et al. Omalizumab in severe allergic asthma inadequately controlled with standard therapy: a randomized trial. Ann Intern Med. 2011;154 (9): 573-82.
3. Yancey SW, et al. Disease burden and efficacy of mepolizumab in patients with severe asthma and blood eosinophil counts of ≥150-300 cells/µL. Respir Med. 2019; 151: 139-141.
4. FitzGerald JM, et al. Predictors of enhanced response with benralizumab for patients with severe asthma: pooled analysis of the SIROCCO and CALIMA studies. Lancet Respir Med. 2018; 6 (1): 51-64.
5. Castro M, et al. Dupilumab Efficacy and Safety in Moderate-to-Severe Uncontrolled Asthma. N Engl J Med. 2018; 378 (26): 2486-2496.
6. Ortega HG, et al; on behalf of the MENSA Investigators. Mepolizumab treatment in patients with severe eosinophilic asthma. N Engl J Med. 2014;371(13):1198-207.
7. Bleecker ER, et al, on behalf of the SIROCCO study investigators. Efficacy and safety of benralizumab for patients with severe asthma uncontrolled with high-dosage inhaled corticosteroids and long-acting beta2-agonists (SIROCCO): a randomised, multicentre, placebo-controlled phase 3 trial. Lancet 2016: 388 (10056): 2115-2127.
8. FitzGerald JM, et al, on behalf of the CALIMA study investigators. Benralizumab, an anti-interleukin-5 receptor alpha monoclonal antibody, as add-on treatment for patients with severe, uncontrolled, eosinophilic asthma (CALIMA): a

randomised, double-blind, placebo-controlled phase 3 trial. Lancet. 2016: 388(10056): 2128-2141.
9. Wenzel S, et al. Dupilumab efficacy and safety in adults with uncontrolled persistent asthma despite use of medium-to-high-dose inhaled corticosteroids plus a long-acting β2 agonist: a randomised double-blind placebo-controlled pivotal phase 2b dose-ranging trial. Lancet. 2016 Jul 2;388(10039):31-44
10. Alpizar, Sady et al. "Functionality and Performance of an Accessorized Pre-Filled Syringe and an Autoinjector for At-Home Administration of Tezepelumab in Patients with Severe, Uncontrolled Asthma." *Journal of asthma and allergy* vol. 14 381-392. 19 Apr. 2021, doi:10.2147/JAA.S305114
11. Menzies-Gow A, *et al*. Tezepelumab in Adults and Adolescents with Severe, Uncontrolled Asthma. *N Engl J Med*. 2021;384:1800-1809. DOI: 10.1056/NEJMoa2034975.
12. Varricchi G, et al. Thymic Stromal Lymphopoietin Isoforms, Inflammatory Disorders, and Cancer. *Front Immunol.* 2018; 9: 1595.
13. Li Y, et al. Elevated Expression of IL-33 and TSLP in the Airways of Human Asthmatics In Vivo: A Potential Biomarker of Severe Refractory Disease. *J Immunol*. 2018; 200: 2253–2262.
14. Centers for Disease Control and Prevention. Most Recent National Asthma Data. Available at: https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm. Accessed December 2022
15. Wenzel S. Severe Asthma in Adults. Am J Respir Crit Care Med. 2005;172;149–60.
16. Chung KF, et al. International ERS/ATS guidelines on definition, evaluation and treatment of severe asthma. *Eur Respir J.* 2014; 43: 343–73.
17. Kupczyk M, Wenzel S. U.S. and European severe asthma cohorts: what can they teach us about severe asthma? *J Intern Med* 2012;272:121–32.
18. Chastek et al. *J Manag Care Spec Pharm* 2016;22:848-861.
19. Chen et al. *Curr Med Res Opin* 2018;34(12):2075-2088.
20. Price D, Fletcher M, van der Molen T. Asthma control and management in 8,000 European patients: the Recognise Asthma and Link to Symptoms and Experience (REALISE) survey. *NPJ Prim Care Respir Med.* 2014; 12; 24: 14009.
21. World Allergy Organization (WAO). The management of severe asthma: economic analysis of the cost of treatments for severe asthma. Available at: https://www.worldallergy.org/educational_programs/world_allergy_forum/anaheim2005/blaiss.php [Last accessed: December 2022].
22. Rabe KF, Busse W, Pavord I, Castro M. Raising the clinical bar beyond current biologics in uncontrolled persistent asthma: translating emerging data in future clinical decisions. *EMJ Allergy Immunol.* 2018; 3: 60-9.
23. Godar M, Blanchetot C, de Haard H, et al. Personalized medicine with biologics for severe type 2 asthma: current status and future prospects. *MAbs.* 2018; 10 (1): 34–45.
24. Peters MC, Mekonnen ZK, Yuan S, et al. Measures of gene expression in sputum cells can identify TH2-high and TH2-low subtypes of asthma. *J Allergy Clin Immunol.* 2014; 133: 388–94.
25. Clinicaltrials.gov. Study to Evaluate the Efficacy and Safety of Tezepelumab in Reducing Oral Corticosteroid Use in Adults With Oral Corticosteroid Dependent Asthma (SOURCE) [Online]. Available at: https://clinicaltrials.gov/ct2/show/NCT03406078. [Last accessed: December 2022].
26. Fahy JV. Type 2 inflammation in asthma--present in most, absent in many. *Nat Rev Immunol.* 2015; 15: 57-65.

View original content to download multimedia:https://www.prnewswire.com/news-releases/tezspire-approved-for-self-administration-in-the-us-with-a-new-pre-filled-pen-301736900.html

SOURCE Amgen