US-54600

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use TEZSPIRE safely and effectively. See full prescribing information for TEZSPIRE.

TEZSPIRE™ (tezepelumab-ekko) injection, for subcutaneous use

Initial U.S. Approval: 2021

---------- INDICATIONS AND USAGE ----------

TEZSPIRE is a thymic stromal lymphopoietin (TSLP) blocker, human monoclonal antibody (IgG2λ), indicated for the add-on maintenance treatment of adult and pediatric patients aged 12 years and older with severe asthma. (1)

Limitations of Use:

- Not for relief of acute bronchospasm or status asthmaticus. (1)

---------- DOSAGE AND ADMINISTRATION ----------

- Administer by subcutaneous injection. (2)
- Recommended dosage is 210 mg administered once every 4 weeks. (2)

---------- DOSAGE FORMS AND STRENGTHS ----------

Injection:

- 210 mg/1.91 mL (110 mg/mL) solution in a single-dose glass vial. (3)
- 210 mg/1.91 mL (110 mg/mL) solution in a single-dose pre-filled syringe. (3)

---------- CONTRAINDICATIONS ----------

Known hypersensitivity to tezepelumab-ekko or excipients. (4)

---------- WARNINGS AND PRECAUTIONS ----------

- Hypersensitivity Reactions: Hypersensitivity reactions (e.g., rash, allergic conjunctivitis) can occur after administration of TEZSPIRE. Initiate appropriate treatment as clinically indicated in the event of a hypersensitivity reaction. (5.1)
- Risk Associated with Abrupt Reduction in Corticosteroid Dosage: Do not discontinue systemic or inhaled corticosteroids abruptly upon initiation of therapy with TEZSPIRE. Decrease corticosteroids gradually, if appropriate. (5.3)
- Parasitic (Helminth) Infection: Treat patients with pre-existing helminth infections before therapy with TEZSPIRE. If patients become infected while receiving TEZSPIRE and do not respond to anti-helminth treatment, discontinue TEZSPIRE until the parasitic infection resolves. (5.4)
- Vaccination: Avoid use of live attenuated vaccines. (5.5)

---------- ADVERSE REACTIONS ----------

Most common adverse reactions (incidence ≥ 3%) are pharyngitis, arthralgia, and back pain. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact AstraZeneca at 1-800-236-9933 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 12/2021

FULL PRESCRIBING INFORMATION: CONTENTS*

*Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

TEZSPIRE is indicated for the add-on maintenance treatment of adult and pediatric patients aged 12 years and older with severe asthma.

Limitations of Use:

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

2 DOSAGE AND ADMINISTRATION

2.1 Recommended Dosage

The recommended dosage of TEZSPIRE is 210 mg administered subcutaneously once every 4 weeks.

Missed Dose Information

If a dose is missed, administer the dose as soon as possible. Thereafter, the patient can continue (resume) dosing on the usual day of administration. If the next dose is already due, then administer as planned.

2.2 Preparation and Administration Instructions

TEZSPIRE is intended for administration by a healthcare provider.

Each vial and pre-filled syringe contains a single dose of TEZSPIRE.

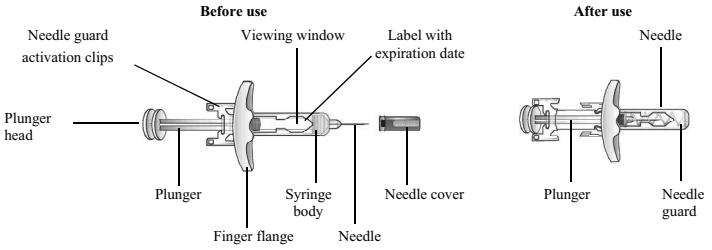
- Prior to administration, remove TEZSPIRE from the refrigerator and allow it to reach room temperature. This generally takes 60 minutes. Do not expose to heat and do not shake. Do not use if the security seal on the carton has been broken. Do not put back in the refrigerator once TEZSPIRE has reached room temperature. After removal from the refrigerator, TEZSPIRE must be used within 30 days or discarded *[see How Supplied/Storage and Handling (16)].*
- Visually inspect TEZSPIRE for particulate matter and discoloration prior to administration. TEZSPIRE is a clear to opalescent, colorless to light yellow solution. Do not use TEZSPIRE if liquid is cloudy, discolored, or if it contains large particles or foreign particulate matter. Do not use if the vial or pre-filled syringe has been dropped or damaged or if the expiration date has passed.
- Inject TEZSPIRE 210 mg (contents of one vial or one pre-filled syringe as described below) subcutaneously into the upper arm, thigh, or abdomen, except for the 2 inches (5 cm) around the navel. TEZSPIRE should not be injected into areas where the skin is tender, bruised, erythematous, or hardened. It is recommended to rotate the injection site with each injection.

Administration Instructions for Single-Dose Pre-filled Syringe

Refer to Figure 1 to identify the pre-filled syringe components for use in the administration steps.

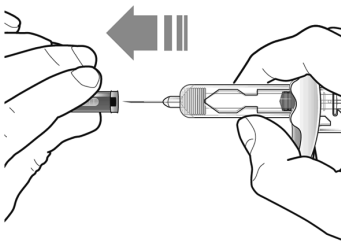
Do not remove the needle cover until Step 2 of these instructions when you are ready to inject TEZSPIRE. Do not touch the needle guard activation clips to prevent premature activation of the needle safety guard.

Figure 1 TEZSPIRE Pre-filled Syringe Components

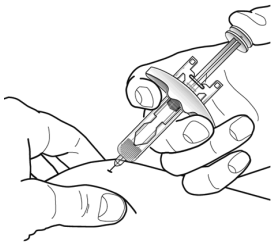


1. Grasp the syringe body to remove the pre-filled syringe from its tray. Do not grab the pre-filled syringe by the plunger.

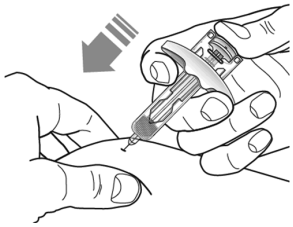
   The pre-filled syringe may contain small air bubbles; this is normal. Do not expel the air bubbles prior to administration.

2. 

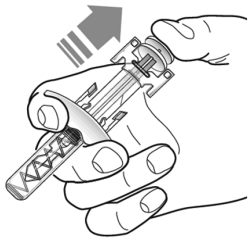
   Do not remove the needle cover until ready to inject. Hold the syringe body and remove the needle cover by pulling straight off. Do not hold the plunger or plunger head while removing the needle cover. You may see a drop of liquid at the end of the needle. This is normal.

3. 

   Gently pinch the skin and administer subcutaneously at approximately 45º angle into the recommended injection site (i.e., upper arm, thigh, or abdomen).

4. 

   Inject all of the medication by pushing in the plunger all the way until the plunger head is completely between the needle guard activation clips. This is necessary to activate the needle guard.

5. 

   After injection, maintain pressure on the plunger head and remove the needle from the skin. Release pressure on the plunger head to allow the needle guard to cover the needle. Do not re-cap the pre-filled syringe.

6. Discard the used syringe into a sharps container.

3 DOSAGE FORMS AND STRENGTHS

Injection: a clear to opalescent, colorless to light yellow solution available as:

- 210 mg/1.91 mL (110 mg/mL) solution in a single-dose glass vial.
- 210 mg/1.91 mL (110 mg/mL) solution in a single-dose pre-filled syringe.

4 CONTRAINDICATIONS

TEZSPIRE is contraindicated in patients who have known hypersensitivity to tezepelumab-ekko or any of its excipients *[see Warnings and Precautions (5.1)]*.

5 WARNINGS AND PRECAUTIONS

5.1 Hypersensitivity Reactions

Hypersensitivity reactions (e.g., rash and allergic conjunctivitis) can occur following administration of TEZSPIRE *[see Contraindications (4) and Adverse Reactions (6)]*. 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.

5.2 Acute Asthma Symptoms or Deteriorating Disease

TEZSPIRE should not be used to treat acute asthma symptoms or acute exacerbations. Do not use TEZSPIRE to treat acute bronchospasm or status asthmaticus. Patients should seek medical advice if their asthma remains uncontrolled or worsens after initiation of treatment with TEZSPIRE.

5.3 Risk Associated with 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.

5.4 Parasitic (Helminth) Infection

Thymic stromal lymphopoietin (TSLP) may be involved in the immunological response to some helminth infections. Patients with known helminth infections were excluded from participation in clinical trials. 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 treatment with TEZSPIRE and do not respond to anti-helminth treatment, discontinue treatment with TEZSPIRE until infection resolves.

5.5 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.

6 ADVERSE REACTIONS

The following clinically significant adverse reactions are described elsewhere in the labeling:

- Hypersensitivity *[see Warnings and Precautions (5.1)]*

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The safety of TEZSPIRE was based on the pooled safety population from PATHWAY and NAVIGATOR, which consists of 665 adult and pediatric patients 12 years of age and older with severe asthma who received at least one dose of TEZSPIRE 210 mg subcutaneously once every 4 weeks. The two placebo-controlled clinical trials were of 52 weeks duration. In addition, a similar safety profile was seen in a trial that enrolled 150 adult patients with severe asthma who required treatment with daily oral corticosteroids *[see Clinical Studies (14)]*.

Adverse reactions that occurred at an incidence greater than or equal to 3% and more common than in the placebo group from the pooled safety population (PATHWAY and NAVIGATOR) are shown in Table 1.

Table 1 Adverse Reactions with TEZSPIRE with Incidence Greater than or Equal to 3% and More Common than Placebo in Patients with Severe Asthma in the Pooled Safety Population (PATHWAY and NAVIGATOR)

Adverse Reaction	TEZSPIRE N=665 %	Placebo N=669 %
Pharyngitis*	4	3
Arthralgia	4	3
Back pain	4	3

* Pharyngitis (including Pharyngitis, Pharyngitis bacterial, Pharyngitis streptococcal and Viral pharyngitis)

Specific Adverse Reaction

Injection Site Reactions

In the pooled safety population, injection site reactions (e.g., injection site erythema, injection site swelling, injection site pain) occurred at a rate of 3.3% in patients treated with TEZSPIRE compared with 2.7% in patients treated with placebo.

6.2 Immunogenicity

As with all therapeutic proteins, there is potential for immunogenicity. The detection of antibody formation is highly dependent on the sensitivity and specificity of the assay. Additionally, the observed incidence of antibody (including neutralizing antibody) positivity in an assay may be influenced by several factors, including assay methodology, sample handling, timing of sample collection, concomitant medications, and underlying disease. For these reasons, comparison of the incidence of antibodies described below with the incidence of antibodies in other studies or to other tezepelumab products may be misleading.

In NAVIGATOR and an additional trial, anti-drug antibodies (ADA) were detected at any time in 29 (5%) out of 601 patients who received TEZSPIRE at the recommended dosing regimen during the 48 to 52-week study period. Of these 29 patients, 11 patients (2% of patients treated with TEZSPIRE) developed treatment-emergent antibodies and 1 patient (<1% of patients treated with TEZSPIRE) developed neutralizing antibodies. ADA titers were generally low and often transient. No evidence of ADA impact on pharmacokinetics, pharmacodynamics, efficacy, or safety was observed.

7 DRUG INTERACTIONS

No formal drug interaction studies have been performed with TEZSPIRE.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

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. In an enhanced pre- and post-natal development (ePPND) study conducted in cynomolgus monkeys, placental transport of tezepelumab-ekko was observed but there was no evidence of fetal harm following intravenous administration of tezepelumab-ekko throughout pregnancy at doses that produced maternal exposures up to 168 times the exposure at the maximum recommended human dose (MRHD) of 210 mg administered subcutaneously *[see Data]*.

The estimated background risk of major birth defects and miscarriages for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively.

Clinical Considerations

Disease-associated maternal and/or embryo/fetal risk:

In women with poorly or moderately controlled asthma, evidence demonstrates that there is an increased risk of preeclampsia in the mother and prematurity, low birth weight, and small for gestational age in the neonate. The level of asthma control should be closely monitored in pregnant women and treatment adjusted as necessary to maintain optimal control.

Data

Animal Data

In the ePPND study, pregnant cynomolgus monkeys received tezepelumab-ekko from GD20 to GD22 (dependent on pregnancy determination), at the beginning of organogenesis, and once every 7 days until the end of gestation at doses that produced exposures up to 168 times that achieved with the MRHD (on an AUC basis with maternal intravenous doses up to 300 mg/kg/week). There were no tezepelumab-ekko related adverse effects on maternal health, pregnancy outcome, embryo-fetal development, or neonatal growth and development up to 6.5 months of age. Tezepelumab-ekko crossed the placenta in cynomolgus monkeys and tezepelumab-ekko serum concentrations were 0.5- to 6.7-fold higher in infants relative to maternal animals.

8.2 Lactation

Risk Summary

There is no information regarding the presence of tezepelumab-ekko in human milk, its effects on the breastfed infant, or its effects on milk production. However, tezepelumab-ekko is a human monoclonal antibody immunoglobulin G2λ (IgG2λ), and immunoglobulin G (IgG) is present in human milk in small amounts. Tezepelumab-ekko was present in the milk of cynomolgus monkeys postpartum following dosing during pregnancy *[see Data]*. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for TEZSPIRE and any potential adverse effects on the breastfed infant from TEZSPIRE or from the underlying maternal condition.

Data

Animal Data

In a prenatal and postnatal development study in cynomolgus monkeys, tezepelumab-ekko concentrations in milk were up to 0.5% of the maternal serum concentrations after intravenous administration of tezepelumab-ekko up to 300 mg/kg/week (168 times the exposures based on AUC achieved at MRHD). The concentration of tezepelumab-ekko in animal milk does not necessarily predict the concentration of drug in human milk.

8.4 Pediatric Use

The safety and effectiveness of TEZSPIRE for the add-on maintenance treatment of severe asthma have been established in pediatric patients aged 12 years and older *[see Adverse Reactions (6.1) and Clinical Studies (14)]*. Use of TEZSPIRE for this indication is supported by evidence from a total of 82 pediatric patients aged 12 to 17 years enrolled in NAVIGATOR and received treatment with TEZSPIRE 210 mg subcutaneously every 4 weeks (n=41) or placebo (n=41). Compared with placebo, improvements in annualized asthma exacerbation (rate ratio 0.70; 95% CI 0.34, 1.46) and FEV_1 (LS mean change versus placebo 0.17 L; 95% CI -0.01, 0.35) were observed in pediatric patients treated with TEZSPIRE. The safety profile and pharmacodynamic responses in pediatric patients were generally similar to the overall study population.

The safety and effectiveness in patients younger than 12 years of age have not been established.

8.5 Geriatric Use

Of the 665 patients with asthma treated with TEZSPIRE in clinical trials (PATHWAY and NAVIGATOR) for severe asthma, 119 patients (18%) were 65 years or older. No overall differences in safety or effectiveness of TEZSPIRE have been observed between patients 65 years of age and older and younger patients *[see Adverse Reactions (6.1) and Clinical Studies (14)]*.

11 DESCRIPTION

Tezepelumab-ekko, a thymic stromal lymphopoietin (TSLP) blocker, is a human monoclonal antibody immunoglobulin G2λ (IgG2λ) produced in Chinese hamster ovary (CHO) cells by recombinant DNA technology. Tezepelumab-ekko has a molecular weight of approximately 147 kDa.

TEZSPIRE (tezepelumab-ekko) injection is a sterile, preservative-free, clear to opalescent, colorless to light yellow solution for subcutaneous injection supplied in a single-dose vial or single-dose pre-filled syringe.

Each single-dose vial or pre-filled syringe delivers 1.91 mL containing 210 mg tezepelumab-ekko, glacial acetic acid (2.8 mg), L-proline (48 mg), polysorbate 80 (0.19 mg), sodium hydroxide, and water for injection. The pH is 5.2.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Tezepelumab-ekko is a thymic stromal lymphopoietin (TSLP) blocker, human monoclonal antibody IgG2λ that binds to human TSLP with a dissociation constant of 15.8 pM and blocks its interaction with the heterodimeric TSLP receptor. TSLP is a cytokine mainly derived from epithelial cells and occupies an upstream position in the asthma inflammatory cascade.

Airway inflammation is an important component in the pathogenesis of asthma. Multiple cell types (e.g., mast cells, eosinophils, neutrophils, macrophages, lymphocytes, ILC2 cells) and mediators (e.g., histamine, eicosanoids, leukotrienes, cytokines) are involved in airway inflammation. Blocking TSLP with tezepelumab-ekko reduces biomarkers and cytokines associated with inflammation including blood eosinophils, airway submucosal eosinophils, IgE, FeNO, IL-5, and IL-13; however, the mechanism of tezepelumab-ekko action in asthma has not been definitively established.

12.2 Pharmacodynamics

In NAVIGATOR, administration of TEZSPIRE 210 mg subcutaneously every 4 weeks (n=528) reduced blood eosinophils counts, FeNO, IL-5 concentration and IL-13 concentration from baseline compared with placebo (n=531) with an onset of effect 2 weeks after initiation of treatment and sustained reduction on treatment to 52 weeks. TEZSPIRE caused a slow but progressive reduction in serum total IgE concentration throughout 52 weeks of treatment. Similar effects were seen in PATHWAY.

12.3 Pharmacokinetics

The pharmacokinetics of tezepelumab-ekko were dose-proportional following administration of a single subcutaneous dose over a dose range from 2.1 mg to 420 mg (0.01 to 2 times the recommended dose). With an every 4 weeks dosing regimen, tezepelumab-ekko achieves steady-state after 12 weeks and the accumulation ratio for C_{trough} is 1.86-fold.

Absorption

Following subcutaneous administration, the maximum serum concentration was reached in approximately 3 to 10 days. Based on population pharmacokinetic analysis, the estimated absolute bioavailability was approximately 77%. There was no clinically relevant difference in bioavailability when administered to different injection sites (abdomen, thigh, or upper arm).

Distribution

Based on population pharmacokinetic analysis, central and peripheral volume of distribution of tezepelumab-ekko were 3.9 L and 2.2 L, respectively, for a 70 kg individual.

Elimination

As a human monoclonal antibody, tezepelumab-ekko is eliminated by intracellular catabolism and there is no evidence of target-mediated clearance within the studied dose range. Based on population pharmacokinetic analysis, the estimated clearance for tezepelumab-ekko was 0.17 L/d for a 70 kg individual. The elimination half-life was approximately 26 days.

Metabolism

Tezepelumab-ekko is a human monoclonal antibody (IgG2λ) that is degraded by proteolytic enzymes widely distributed in the body and not metabolized by hepatic enzymes.

Specific Populations

Age, Sex, Race

Based on population pharmacokinetic analysis, age (12 to 80 years), sex and race (White, Black, Asian, Other) had no clinically meaningful effects on the pharmacokinetics of tezepelumab-ekko.

Body Weight

Based on population pharmacokinetic analysis, higher body weight was associated with lower exposure. However, the effect of body weight on exposure had no meaningful impact on efficacy or safety and does not require dose adjustment.

Patients with Renal impairment

No formal clinical studies have been conducted to investigate the effect of renal impairment on tezepelumab-ekko. The population pharmacokinetic analysis included 320 (23%) subjects with mild renal impairment and 38 (3%) subjects with moderate renal impairment. Tezepelumab-ekko clearance was similar in patients with mild renal impairment (estimated creatinine clearance 60 to 89 mL/min), moderate renal impairment (estimated creatinine clearance 30 to 59 mL/min) and those with normal renal function (estimated creatinine clearance ≥ 90 mL/min). Tezepelumab-ekko has not been studied in patients with severe renal impairment (estimated creatinine clearance < 30 mL/min).

Patients with Hepatic impairment

No formal clinical studies have been conducted to investigate the effect of hepatic impairment on tezepelumab-ekko. Since tezepelumab-ekko is degraded by proteolytic enzymes widely distributed in the body and not metabolized by hepatic-specific enzymes, change in hepatic function is not expected to influence tezepelumab-ekko clearance.

Drug Interaction Studies

No formal drug interaction studies have been conducted with tezepelumab-ekko. Based on the population pharmacokinetic analysis, commonly co-administered asthma medications (leukotriene receptor antagonist, theophylline/aminophylline, oral and inhaled corticosteroid) had no clinically meaningful effect on tezepelumab-ekko clearance.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Animal studies have not been conducted to evaluate the carcinogenic potential of tezepelumab-ekko. The malignancy risk in humans from an antibody that blocks TSLP ligand, such as tezepelumab-ekko, is currently unknown.

Male and female fertility was unaffected based upon no observed adverse histopathological findings in the reproductive organs and no changes in menstrual cycle or semen analysis in sexually mature cynomolgus monkeys that received tezepelumab-ekko for 26 weeks at subcutaneous doses up to 300 mg/kg/week (approximately 134 times the MRHD on an AUC basis).

14 CLINICAL STUDIES

The efficacy of TEZSPIRE was evaluated in two randomized, double-blind, parallel group, placebo-controlled clinical trials (PATHWAY [NCT02054130] and NAVIGATOR [NCT03347279]) of 52 weeks duration. The two trials enrolled a total of 1609 patients 12 years of age and older with severe asthma.

PATHWAY was a 52-week dose-ranging exacerbation trial that enrolled 550 adult patients with severe asthma who received treatment with tezepelumab-ekko 70 mg subcutaneously every 4 weeks, TEZSPIRE 210 mg subcutaneously every 4 weeks, tezepelumab-ekko 280 mg subcutaneously every 2 weeks, or placebo subcutaneously. Patients were required to have a history of 2 or more asthma exacerbations requiring oral or injectable corticosteroid treatment or 1 asthma exacerbation resulting in hospitalization in the past 12 months.

NAVIGATOR was a 52-week exacerbation trial that enrolled 1061 patients (adult and pediatric patients 12 years of age and older) with severe asthma who received treatment with TEZSPIRE 210 mg subcutaneously every 4 weeks or placebo subcutaneously every 4 weeks. Patients were required to have a history of 2 or more asthma exacerbations requiring oral or injectable corticosteroid treatment or resulting in hospitalization in the past 12 months.

In both PATHWAY and NAVIGATOR, patients were required to have an Asthma Control Questionnaire 6 (ACQ-6) score of 1.5 or more at screening and reduced lung function at baseline [pre-bronchodilator forced expiratory volume in 1 second (FEV_1) below 80% predicted in adults, and below 90% predicted in adolescents]. Patients were required to have been on regular treatment with medium or high-dose inhaled corticosteroids (ICS) and at least one additional asthma controller, with or without oral corticosteroids (OCS). Patients continued background asthma therapy throughout the duration of the trials. In both trials, patients were enrolled without requiring a minimum baseline level of blood eosinophils or FeNO.

The demographics and baseline characteristics of PATHWAY and NAVIGATOR are provided in Table 2 below.

Table 2 Demographics and Baseline Characteristics of Patients in PATHWAY and NAVIGATOR

	PATHWAY N=550	NAVIGATOR N=1059
Mean age (year) (SD)	52 (12)	50 (16)
Female (%)	66	64
White (%)	92	62
Black or African American (%)	3	6
Asian (%)	3	28
Hispanic or Latino (%)	1	15
Never smoked (%)	81	80
High-dose ICS use (%)	49	75
OCS use (%)	9	9
Mean number of exacerbations in previous year (SD)	2.4 (1.2)	2.8 (1.4)
Mean duration of asthma (years) (SD)	17 (12)	22 (16)
Mean baseline % predicted FEV_1 (SD)	60 (13)	63 (18)
Mean post-bronchodilator FEV_1 reversibility (%) (SD)	23 (20)	15 (15)
Mean baseline blood EOS count (cells/μL) (SD)	371 (353)	340 (403)
Positive serum specific IgE to any perennial allergen (%)*	46	64
Mean FeNO (ppb) (SD)	35 (39)	44 (41)

* in the FEIA panel

EOS, Eosinophils; FEIA, Fluorescent enzyme immunoassay; FeNO, Fractional exhaled nitric oxide; FEV_1, Forced expiratory volume in one second; ICS, Inhaled corticosteroid, IgE, Immunoglobulin E; OCS, Oral corticosteroid; ppb, Parts per billion; SD, Standard deviation.

The results summarized below are for the recommended TEZSPIRE 210 mg subcutaneously every 4 weeks dosing regimen.

Exacerbations

The primary endpoint for PATHWAY and NAVIGATOR was the rate of clinically significant asthma exacerbations measured over 52 weeks. Clinically significant asthma exacerbations were defined as worsening of asthma requiring the use of or increase in oral or injectable corticosteroids for at least 3 days, or a single depo-injection of corticosteroids, and/or emergency department visits requiring use of oral or injectable corticosteroids and/or hospitalization.

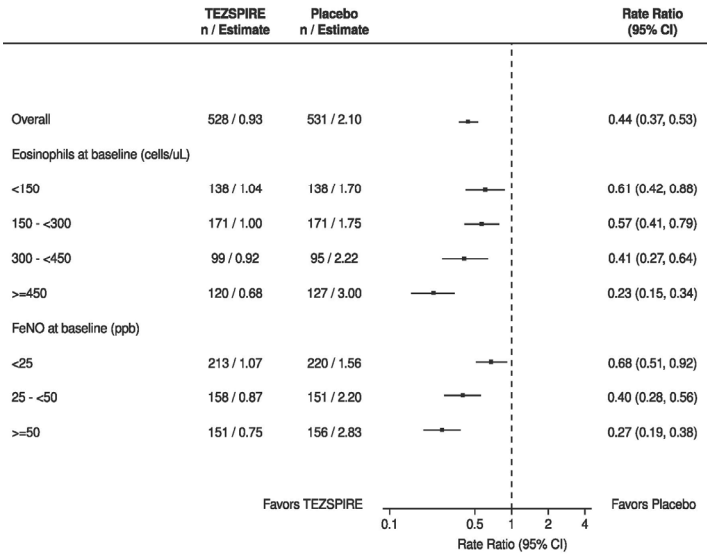
In both PATHWAY and NAVIGATOR, patients receiving TEZSPIRE had significant reductions in the annualized rate of asthma exacerbations compared to placebo. There were also fewer exacerbations requiring emergency room visits and/or hospitalization in patients treated with TEZSPIRE compared with placebo (Table 3).

Table 3 Rate of Clinically Significant Exacerbations Over 52 Weeks in PATHWAY and NAVIGATOR

Trial	Treatment	Exacerbations per year	
		Rate	Rate Ratio (95% CI)
Annualized Asthma Exacerbation Rate			
PATHWAY	TEZSPIRE (N=137)	0.20	0.29 (0.16, 0.51)
	Placebo (N=138)	0.72	
NAVIGATOR	TEZSPIRE (N=528)	0.93	0.44 (0.37, 0.53)
	Placebo (N=531)	2.10	
Exacerbations requiring emergency room visit/hospitalization			
PATHWAY	TEZSPIRE (N=137)	0.03	0.15 (0.04, 0.58)
	Placebo (N=138)	0.18	
NAVIGATOR	TEZSPIRE (N=528)	0.06	0.21 (0.12, 0.37)
	Placebo (N=531)	0.28	
Exacerbations requiring hospitalization			
PATHWAY	TEZSPIRE (N=137)	0.02	0.14 (0.03, 0.71)
	Placebo (N=138)	0.14	
NAVIGATOR	TEZSPIRE (N=528)	0.03	0.15 (0.07, 0.22)
	Placebo (N=531)	0.19	

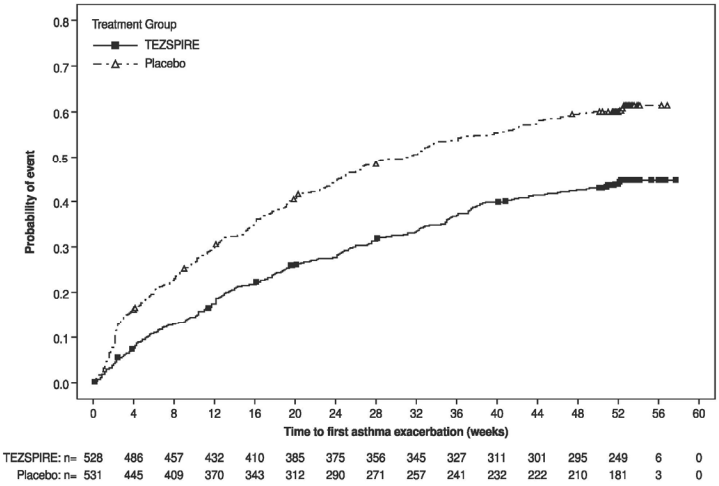
In NAVIGATOR, patients receiving TEZSPIRE experienced fewer exacerbations than those receiving placebo regardless of baseline levels of blood eosinophils or FeNO (Figure 2). Similar results were seen in PATHWAY.

Figure 2 Annualized Asthma Exacerbation Rate Ratio Over 52 Weeks Across Different Baseline Biomarkers in NAVIGATOR



The time to first exacerbation was longer for the patients receiving TEZSPIRE compared with placebo in NAVIGATOR (Figure 3). Similar findings were seen in PATHWAY.

Figure 3 Kaplan-Meier Cumulative Incidence Curves for Time to First Exacerbation in NAVIGATOR



Lung Function

Change from baseline in FEV_1 was assessed as a secondary endpoint in PATHWAY and NAVIGATOR. Compared with placebo, TEZSPIRE provided clinically meaningful improvements in the mean change from baseline in FEV_1 in both trials (Table 4).

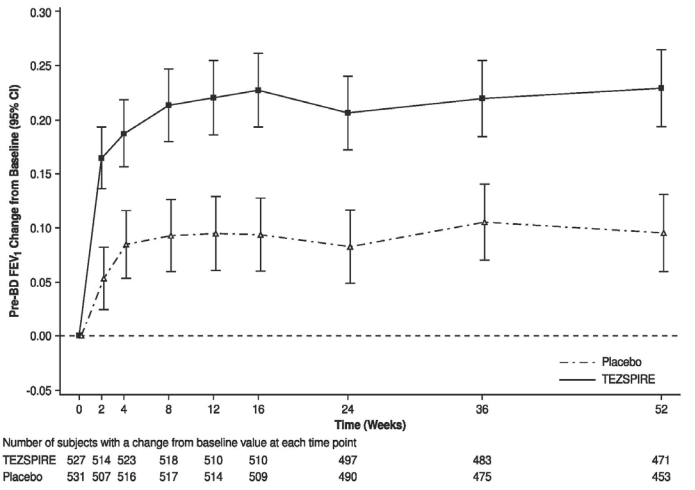
Table 4 Mean Change from Baseline in Pre-Bronchodilator FEV_1 at End of Trial in PATHWAY and NAVIGATOR*

Trial	Treatment	LS Mean Change from Baseline (L)	Difference from Placebo (95% CI)
PATHWAY	TEZSPIRE (N=133)†	0.08	0.13 (0.03, 0.23)
	Placebo (N=138)†	-0.06	
NAVIGATOR	TEZSPIRE (N=527)†	0.23	0.13 (0.08, 0.18)
	Placebo (N=531)†	0.10	

* Week 52 in PATHWAY, Week 52 in NAVIGATOR
† Number of patients contributing to the full analysis (FA) with at least 1 change from baseline value

In NAVIGATOR, improvement in FEV_1 was seen as early as 2 weeks after initiation of treatment and was sustained through week 52 (Figure 4).

Figure 4 Mean Change (95% CI) from Baseline in Pre-Bronchodilator FEV_1 (L) in NAVIGATOR



Patient Reported Outcomes

Changes from baseline in Asthma Control Questionnaire 6 (ACQ-6) and Standardized Asthma Quality of Life Questionnaire for ages 12 and older [AQLQ(S)+12] were also assessed as secondary endpoints in PATHWAY and NAVIGATOR. In both trials, more patients treated with TEZSPIRE compared to placebo had a clinically meaningful improvement in ACQ-6 and AQLQ(S)+12. Clinically meaningful improvement (responder rate) for both measures was defined as improvement in score of 0.5 or more at end of trial. In NAVIGATOR, the ACQ-6 responder rate for TEZSPIRE was 86% compared with 77% for placebo (OR=1.99; 95% CI 1.43, 2.76) and the AQLQ(S)+12 responder rate for TEZSPIRE was 78% compared with 72% for placebo (OR=1.36; 95% CI 1.02, 1.82). Similar findings were seen in PATHWAY.

Additional Trial

In a randomized, double-blind, parallel group, placebo-controlled clinical trial, the effect of TEZSPIRE (210 mg subcutaneously every 4 weeks) on reducing the use of maintenance OCS was evaluated. The trial enrolled 150 adult patients with severe asthma who required treatment with daily OCS (7.5 mg to 30 mg per day) in addition to regular use of high-dose ICS and a long-acting beta-agonist with or without additional controller(s). The primary endpoint was categorized percent reduction from baseline of the final OCS dose at Week 48 (≥90% reduction, ≥75% to <90% reduction, ≥50% to <75% reduction, >0% to <50 reduction, and no change or no decrease in OCS), while maintaining asthma control. TEZSPIRE did not demonstrate a statistically significant reduction in maintenance OCS dose compared with placebo (cumulative OR=1.28; 95% CI 0.69, 2.35).

16 HOW SUPPLIED/STORAGE AND HANDLING

How Supplied

TEZSPIRE (tezepelumab-ekko) injection is a sterile, preservative-free, clear to opalescent, colorless to light yellow solution supplied as a single-dose vial or single-dose pre-filled syringe with a fixed 27-gauge ½ inch needle with a needle cover. The needle cap and vial stopper are not made with natural rubber latex.

TEZSPIRE is available as:

- Single-Dose Vial: Carton contains one 210 mg/1.91 mL (110 mg/mL) in glass vial (NDC 55513-100-01)
- Single-Dose Pre-filled Syringe: Carton contains one 210 mg/1.91 mL (110 mg/mL) pre-filled syringe (NDC 55513-112-01)

Storage and Handling

Store refrigerated between 36°F to 46°F (2°C to 8°C). If necessary, TEZSPIRE may be kept at room temperature between 68°F to 77°F (20°C to 25°C) for a maximum of 30 days. Do not put back in the refrigerator once TEZSPIRE has reached room temperature. After removal from the refrigerator, TEZSPIRE must be used within 30 days or discarded.

Store TEZSPIRE in original carton to protect from light until time of use.

Do not freeze. Do not shake. Do not expose to heat.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information).

Hypersensitivity Reactions

Inform patients that hypersensitivity reactions (e.g., rash and allergic conjunctivitis) can occur following administration of TEZSPIRE *[see Contraindications (4) and Adverse Reactions (6)]*. These reactions can occur within hours of administration, but in some instances have a delayed onset (i.e., days). Instruct patients to contact their healthcare provider if they experience symptoms of an allergic reaction *[see Warnings and Precautions (5.1)]*.

Not for Acute Symptoms or Deteriorating Disease

Inform patients that TEZSPIRE does not treat acute asthma symptoms or acute exacerbations. Inform patients to seek medical advice if their asthma remains uncontrolled or worsens after initiation of treatment with TEZSPIRE *[see Warnings and Precautions (5.2)]*.

Risk Associated with Abrupt Reduction of Corticosteroid Dosage

Inform patients to not discontinue systemic or inhaled corticosteroids except under the direct supervision of a healthcare provider. Inform patients that reduction in corticosteroid dose may be associated with systemic withdrawal symptoms and/or unmask conditions previously suppressed by systemic corticosteroid therapy *[see Warnings and Precautions (5.3)]*.

Administration of Vaccines

Instruct patients to inform the healthcare provider that they are taking TEZSPIRE prior to a potential vaccination *[see Warnings and Precautions (5.5)]*.

Manufactured by: AstraZeneca AB, Sodertalje, Sweden SE-15185

US License No. 2059

At: Amgen Inc., One Amgen Center Drive, Thousand Oaks, CA 91320-1799

Marketed by: Amgen Inc. and AstraZeneca AB

12/2021 US-54600 12/21

PATIENT INFORMATION
TEZSPIRE™ (TEZ-SPY-ER)
(tezepelumab-ekko)
injection, for subcutaneous use

What is TEZSPIRE?

TEZSPIRE is a prescription medicine used with other asthma medicines for the maintenance treatment of severe asthma in people 12 years of age and older whose asthma is not controlled with their current asthma medicine.

TEZSPIRE helps prevent severe asthma attacks (exacerbations) and can improve your breathing.

TEZSPIRE is not used to treat sudden breathing problems. Tell your healthcare provider if your asthma does not get better or if it gets worse after you start treatment with TEZSPIRE.

It is not known if TEZSPIRE is safe and effective in children under 12 years of age.

Do not receive TEZSPIRE if you:

- are allergic to tezepelumab or any of the ingredients in TEZSPIRE. See the end of this Patient Information leaflet for a complete list of ingredients in TEZSPIRE.

Before you receive TEZSPIRE, tell your healthcare provider about all of your medical conditions, including if you:

- have ever had a severe allergic reaction (hypersensitivity).
- have a parasitic (helminth) infection.
- have recently received or are scheduled to receive any live attenuated vaccinations. People who receive TEZSPIRE should not receive live attenuated vaccines.
- are pregnant, think you may be pregnant, or plan to become pregnant. It is not known if TEZSPIRE may harm your unborn baby.
- are breastfeeding or plan to breastfeed. It is not known if TEZSPIRE passes into your breast milk. Talk to your healthcare provider about the best way to feed your baby if you receive TEZSPIRE.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

Do not change or stop your corticosteroid medicines or other asthma medicines unless your healthcare provider tells you to.

How will I receive TEZSPIRE?

- Your healthcare provider will give you TEZSPIRE in a healthcare setting.
- TEZSPIRE is injected under your skin (subcutaneously) 1 time every 4 weeks.
- If you miss an appointment, ask your healthcare provider when to schedule your next treatment.

What are the possible side effects of TEZSPIRE?

TEZSPIRE may cause serious side effects, including:

- **severe allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of allergic reaction:
  - rash
  - hives
  - breathing problems
  - red, itchy, swollen, or inflamed eyes

The most common side effects of TEZSPIRE include:

- sore throat (pharyngitis)
- joint pain (arthralgia)
- back pain

These are not all of the possible side effects of TEZSPIRE.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about the safe and effective use of TEZSPIRE

Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. You can ask your pharmacist or healthcare provider for information about TEZSPIRE that is written for health professionals.

What are the ingredients in TEZSPIRE?

Active ingredient: tezepelumab-ekko

Inactive ingredients: glacial acetic acid, L-proline, polysorbate 80, sodium hydroxide, and water for injection

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For more information, go to https://www.TEZSPIRE.com or call 1-800-236-9933.

This Patient Information has been approved by the U.S. Food and Drug Administration. Issued: 12/2021 US-54600 12/21