News Release

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TREMFYA® (guselkumab) Demonstrates a Differentiated Binding Mechanism from Risankizumab in *In Vitro* Studies

Studies suggest mechanistic benefit of guselkumab by binding to cells that drive inflammation in the colon

SPRING HOUSE, PENNSYLVANIA, March 4, 2023 – The Janssen Pharmaceutical Companies of Johnson & Johnson today announced additional results from *in vitro* MODIF-Y studies, which continue to support a hypothesis that not all IL-23 inhibitors are the same by demonstrating a differentiated binding mechanism for TREMFYA® (guselkumab) from risankizumab. Findings show that guselkumab is able to dose-dependently bind to CD64+[a] myeloid cells,[1] the predominant source of IL-23-driven inflammation in the gut.[2,b] Data comprise one of Janssen's 22 oral and poster presentations at the 18th Congress of the European Crohn's and Colitis Organization (ECCO), taking place in Copenhagen, Denmark, March 1-4.

"These data provide new insights into the mechanism of action of guselkumab and can help in the development of treatments for conditions like inflammatory bowel disease" said study author Raja Atreya, M.D., Senior Physician and Head of the Inflammatory Bowel Disease Unit, Outpatient Clinic, and Clinical Study Centre at the Erlangen University Hospital, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany.[c] "Importantly, these data show that guselkumab has the unique ability to bind to key cells involved in inflammation, neutralizing IL-23 where it is being produced in the local tissue microenvironment, suggesting mechanistic benefit."

MODIF-Y *in vitro* outcomes (Poster P504):[1]

Results from a study comparing functional binding characteristics of guselkumab and IL-23 inhibitor risankizumab show:

- The capacity of guselkumab for dual binding enables simultaneous binding to CD64 and neutralization of IL23 at its cellular source, differentiating guselkumab within the IL-23p19 inhibitor class
- Comparatively, risankizumab showed negligible binding to transfected cell lines expressing Fcγ receptors (FcγRs) including CD64
- Both therapies displayed comparable binding affinity[d] for IL-23 and equivalent potency in the inhibition of IL-23

"The findings from our study demonstrate Janssen's commitment to foundational molecular science and reinforce our commitment to developing therapies that may help address unmet patient need," said Dan Cua, Ph.D., Vice President, IL-23 Distinguished Fellow, Immunology, Janssen Research & Development, LLC. "We continue to investigate the underlying science of guselkumab to further understand mechanistic differences from other IL-23 inhibitors, as well as the growing immune-mediated disease complexities such as inflammatory bowel disease, so that healthcare professionals have an array of treatment options to consider."

Further research is currently being conducted on guselkumab to investigate treatment of patients with inflammatory bowel disease, which includes ongoing

Phase 3 trials in Crohn's disease (NCT03466411) and ulcerative colitis (NCT04033445).[3,4]

TREMFYA (guselkumab) is not approved for the treatment of adults living with UC or CD in the U.S.

Editor's Notes:

a. CD64+ is a receptor that binds to the Fc region of antibodies and is expressed on immune cells that are major producers of IL-23.[2]
b. Frequencies of CD64+ IL-23–producing myeloid cells are increased in the inflamed colon in inflammatory bowel disease and correlated with endoscopic disease severity.[2,5]
c. Dr. Atreya received grant support from Janssen. He has not been compensated for any media work.
d. IL-23 binding affinity and cellular potency were similar for TREMFYA and risankizumab.[1]

About the MODIF-Y Program[6]

The *in vitro* MODIF-Y studies were designed to explore potential mechanisms underpinning potential differences in therapeutic profiles between TREMFYA (guselkumab), a fully human monoclonal immunoglobulin G1 lambda (IgG1λ) antibody specific for IL-23p19 with a native Fc region, and risankizumab, a humanized anti-IL-23p19 IgG1λ with a mutated Fc region, in inflammatory diseases. Functional characteristics of the antigen-binding and Fc regions of the two antibodies were compared.

About Inflammatory Bowel Disease[7]

Inflammatory Bowel Disease (IBD) is an umbrella term for two conditions – Crohn's disease (CD) and ulcerative colitis (UC) – that cause chronic inflammation of the gastrointestinal (GI) tract. Prolonged inflammation results in damage to the GI tract. The exact cause of IBD is unknown, but may be the result of the immune system's response to environmental triggers or genetic predisposition. Symptoms

may vary, but may include persistent diarrhea, abdominal pain, rectal bleeding, bloody stool, weight loss, and fatigue.

About TREMFYA® (guselkumab)[8]

Developed by Janssen, TREMFYA is the first approved fully human monoclonal antibody that selectively binds to the p19 subunit of interleukin (IL)-23 and inhibits its interaction with the IL-23 receptor. IL-23 is an important driver of the pathogenesis of inflammatory diseases such as moderate to severe plaque psoriasis (PsO) and active psoriatic arthritis (PsA). TREMFYA is approved in the U.S., Canada, Japan, and a number of other countries for the treatment of adults with moderate to severe plaque PsO who are candidates for injections or pills (systemic therapy) or phototherapy (treatment using ultraviolet light), and for the treatment of adult patients with active PsA. It is also approved in the EU for the treatment of moderate to severe plaque PsO in adults who are candidates for systemic therapy and for the treatment of active PsA in adult patients who have had an inadequate response or who have been intolerant to a prior disease-modifying antirheumatic drug therapy.

The Janssen Pharmaceutical Companies of Johnson & Johnson maintain exclusive worldwide marketing rights to TREMFYA®.

IMPORTANT SAFETY INFORMATION

What is the most important information I should know about TREMFYA®? TREMFYA® is a prescription medicine that may cause serious side effects, including:

- **Serious Allergic Reactions.** Stop using TREMFYA® and get emergency medical help right away if you develop any of the following symptoms of a serious allergic reaction:
  - fainting, dizziness, feeling lightheaded (low blood pressure)
  - swelling of your face, eyelids, lips, mouth, tongue or throat
  - trouble breathing or throat tightness
  - chest tightness
  - skin rash, hives
  - itching

- **Infections.** TREMFYA® may lower the ability of your immune system to fight infections and may increase your risk of infections. Your healthcare provider

should check you for infections and tuberculosis (TB) before starting treatment with TREMFYA® and may treat you for TB before you begin treatment with TREMFYA® if you have a history of TB or have active TB. Your healthcare provider should watch you closely for signs and symptoms of TB during and after treatment with TREMFYA®.

Tell your healthcare provider right away if you have an infection or have symptoms of an infection, including:

- fever, sweats, or chills
- muscle aches
- weight loss
- cough
- warm, red, or painful skin or sores on your body different from your psoriasis
- diarrhea or stomach pain
- shortness of breath
- blood in your phlegm (mucus)
- burning when you urinate or urinating more often than normal

Do not take TREMFYA® if you have had a serious allergic reaction to guselkumab or any of the ingredients in TREMFYA®.

Before using TREMFYA®, tell your healthcare provider about all of your medical conditions, including if you:

- have any of the conditions or symptoms listed in the section **"What is the most important information I should know about TREMFYA®?"**
- have an infection that does not go away or that keeps coming back.
- have TB or have been in close contact with someone with TB.
- have recently received or are scheduled to receive an immunization (vaccine). You should avoid receiving live vaccines during treatment with TREMFYA®.
- are pregnant or plan to become pregnant. It is not known if TREMFYA® can harm your unborn baby.
- are breastfeeding or plan to breastfeed. It is not known if TREMFYA® passes into your breast milk.

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

What are the possible side effects of TREMFYA®?
TREMFYA® may cause serious side effects. See "What is the most important information I should know about TREMFYA®?"

The most common side effects of TREMFYA® include: upper respiratory infections, headache, injection site reactions, joint pain (arthralgia), diarrhea, stomach flu (gastroenteritis), fungal skin infections, herpes simplex infections, and bronchitis.

These are not all the possible side effects of TREMFYA®. Call your doctor for medical advice about side effects.

Use TREMFYA® exactly as your healthcare provider tells you to use it.

Please read the full Prescribing Information, including Medication Guide for TREMFYA®, and discuss any questions that you have with your doctor.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

About the Janssen Pharmaceutical Companies of Johnson & Johnson

At Janssen, we're creating a future where disease is a thing of the past. We're the Pharmaceutical Companies of Johnson & Johnson, working tirelessly to make that future a reality for patients everywhere by fighting sickness with science, improving access with ingenuity, and healing hopelessness with heart. We focus on areas of medicine where we can make the biggest difference: Cardiovascular, Metabolism & Retina; Immunology; Infectious Diseases & Vaccines; Neuroscience; Oncology; and Pulmonary Hypertension.

Learn more at **www.janssen.com**.
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Janssen Research & Development, LLC is a part of the Janssen Pharmaceutical Companies of Johnson & Johnson.

Cautions Concerning Forward-Looking Statements

This press release contains "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995 regarding product development of TREMFYA® (guselkumab). The reader is cautioned not to rely on these forward-looking statements. These statements are based on current expectations of future events. If underlying assumptions prove inaccurate or known or unknown risks or uncertainties materialize, actual results could vary materially from the expectations and projections of Janssen Research & Development, LLC, any of the other Janssen Pharmaceutical

Companies, and/or Johnson & Johnson. Risks and uncertainties include, but are not limited to: challenges and uncertainties inherent in product research and development, including the uncertainty of clinical success and of obtaining regulatory approvals; uncertainty of commercial success; manufacturing difficulties and delays; competition, including technological advances, new products and patents attained by competitors; challenges to patents; product efficacy or safety concerns resulting in product recalls or regulatory action; changes in behavior and spending patterns of purchasers of health care products and services; changes to applicable laws and regulations, including global health care reforms; and trends toward health care cost containment. A further list and descriptions of these risks, uncertainties and other factors can be found in Johnson & Johnson's Annual Report on Form 10-K for the fiscal year ended January 1, 2023, including in the sections captioned "Cautionary Note Regarding Forward-Looking Statements" and "Item 1A. Risk Factors," and in Johnson & Johnson's subsequent Quarterly Reports on Form 10-Q and other filings with the Securities and Exchange Commission. Copies of these filings are available online at www.sec.gov, www.jnj.com or on request from Johnson & Johnson. None of the Janssen Pharmaceutical Companies nor Johnson & Johnson undertakes to update any forward-looking statement as a result of new information or future events or developments.

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