News Release

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Janssen Announces Positive Topline Results for JNJ-2113—a Novel, First and Only Oral IL-23 Receptor Antagonist Peptide in Development for Moderate-to-Severe Plaque Psoriasis

A greater proportion of patients achieved 100 percent improvement in skin clearance at the highest dose level tested compared to placebo, at week 16

Phase 3 clinical development in moderate-to-severe plaque psoriasis is planned

SPRING HOUSE, PENNSYLVANIA, July 4, 2023 – The Janssen Pharmaceutical Companies of Johnson & Johnson today announced positive topline results from its Phase 2b FRONTIER 1 clinical trial evaluating the novel, first and only oral interleukin-23 receptor (IL-23R) antagonist peptide JNJ-2113 in adult patients with moderate-to-severe plaque psoriasis (PsO).[1] The trial achieved all primary and secondary efficacy endpoints. A greater proportion of patients who received JNJ-2113 achieved PASI 75 (primary endpoint) as well as PASI 90 and PASI 100 (75, 90 and 100 percent improvement in skin lesions as measured by the Psoriasis Area

and Severity Index, respectively)[a] compared to placebo, at week 16.[1] Trial results for JNJ-2113 demonstrated a profile[1] that supports its advancement into Phase 3 clinical development for moderate-to-severe plaque PsO in adult patients.

JNJ-2113 is a novel oral IL-23R antagonist peptide that binds with high affinity to the IL-23R and has properties that allow it to be absorbed with oral dosing.[2,3] The IL-23/IL-23R signaling pathway plays a critical role in the pathogenesis of immune-mediated inflammatory diseases, including PsO.[4,5] JNJ-2113 selectively and potently blocks IL-23 signaling and downstream inflammatory cytokine production.[2,6]

PASI 75 Results – Primary Endpoint

The proportions of adult patients receiving JNJ-2113 (n=212)[1] who achieved PASI 75 demonstrated the following dose responses at week 16 compared to 9.3 percent of patients receiving placebo (n=43) (nominal p ≤0.002 for all comparisons):[1]

- 37.2 percent at 25 mg daily (n=43)
- 51.2 percent at 25 mg twice daily (n=41)
- 58.1 percent at 50 mg daily (n=43)
- 65.1 percent at 100 mg daily (n=43)
- 78.6 percent at 100 mg twice daily (n=42)

PASI 90 Results – Secondary Endpoint

The proportions of adult patients receiving JNJ-2113 who achieved PASI 90 demonstrated the following dose responses at week 16 compared to 2.3 percent of patients receiving placebo (n=43) (nominal p ≤0.002 for all comparisons):[1]

- 25.6 percent at 25 mg daily (n=43)
- 26.8 percent at 25 mg twice daily (n=41)
- 51.2 percent at 50 mg daily (n=43)
- 46.5 percent at 100 mg daily (n=43)
- 59.5 percent at 100 mg twice daily (n=42)

PASI 100 Results – Secondary Endpoint

The proportions of adult patients receiving JNJ-2113 who achieved PASI 100 also demonstrated the following dose responses at week 16 compared to 0 percent of patients receiving placebo (n=43) (nominal p ≤0.05 for all comparisons):[1]

- 11.6 percent at 25 mg daily (n=43)
- 9.8 percent at 25 mg twice daily (n=41)
- 25.6 percent at 50 mg daily (n=43)
- 23.3 percent at 100 mg daily (n=43)
- 40.5 percent at 100 mg twice daily (n=42)

Treatment was generally well tolerated, and the proportions of patients with adverse events were comparable between patient groups.[1] The proportion of participants experiencing one or more adverse events (AEs) was 52.4 percent (n=111) in the combined JNJ-2113 group and 51.2 percent (n=22) in the placebo group.[1] Although there was variability across the treatment groups, there was no evidence of a dose-dependent increase in the occurrence of specific AEs across the JNJ-2113 treatment groups.[1] The most frequent system organ class involved in AEs in all groups was infections and infestations, which were 30.2 percent (n=64) vs. 27.9 percent (n=12) in the combined JNJ-2113 group vs. placebo group, respectively; of these, the most common were comparable between groups: COVID-19 (10.8 percent [n=23] vs. 11.6 percent [n=5]), nasopharyngitis (7.1 percent [n=15] vs. 4.7 percent [n=2]) and upper respiratory tract infection (2.4 percent [n=5] vs. 2.3 percent [n=1]).[1]

"Patients are looking for more flexible and convenient treatment options to manage the signs and symptoms of psoriasis, and these positive early results for JNJ-2113 are encouraging," said Robert Bissonnette, M.D., FRCPC, Chief Executive Officer and Medical Director, Innovaderm, Montreal, Canada, and Lead Investigator of the FRONTIER clinical trial.[b] "The majority of people living with moderate-to-severe plaque psoriasis are eligible for but are still not receiving advanced therapies.[c,7] For many patients, a pill is preferable to an injection.[d,8]"

"The development of a novel oral therapy that specifically targets IL-23R could potentially change the treatment paradigm for patients living with moderate-to-severe plaque psoriasis," said Lloyd Miller, M.D., Ph.D., Vice President, Immunodermatology Disease Area Stronghold Leader, Janssen Research & Development, LLC. "Until now, advanced psoriasis treatments have been largely limited to injectable biologics. An oral therapy that can uniquely inhibit the IL-23 pathway by directly targeting the IL-23 receptor could help address the needs and preferences of patients, and may offer greater freedom, with the aim of driving greater adoption of advanced treatment."

These findings from the FRONTIER 1 clinical trial suggest the potential of JNJ-2113 across the spectrum of additional IL-23-mediated diseases; and as a next step, Janssen plans to advance JNJ-2113 into Phase 3 development for moderate-to-severe plaque PsO and initiate a Phase 2b clinical trial for adults living with ulcerative colitis.

Editor's Notes:

a. The PASI score grades the amount of surface area on each body region that is covered by PsO plaques and the severity of plaques for their redness, thickness and scaliness.[9]
b. Dr. Robert Bissonnette is a paid consultant for Janssen. He has not been compensated for any media work.
c. This survey included a total of 414 respondents from Germany, Japan, Spain, the UK and the U.S.[7]
d. This survey included a total of 395 respondents from the U.S., Europe and Japan.[8]

About FRONTIER 1 (NCT05223868)

The FRONTIER 1 Phase 2b trial (NCT05223868) is a randomized, multicenter, double-blind, placebo-controlled clinical trial that evaluated three once-daily dosages and two twice-daily dosages of JNJ-2113 taken orally.[1,10] It was designed to assess the efficacy and safety of JNJ-2113 in patients with moderate-to-severe

plaque PsO.[1] 255 participants were randomized into six treatment groups (placebo [n=43], 25 mg daily [n=43], 25 mg twice daily [n=41], 50 mg daily [n=43], 100 mg daily [n=43], 100 mg twice daily [n=42]).[1] The total duration of the trial was up to 24 weeks, which included a screening period of less than or equal to four weeks, a 16-week treatment period and a four-week safety follow-up period.[1]
The primary endpoint of the clinical trial was the proportion of patients achieving PASI 75 at 16 weeks.[1] Secondary endpoints include change from baseline in PASI total score at week 16, percentage of participants achieving PASI 90 and PASI 100 score at week 16, percentage of participants achieving an Investigator's Global Assessment (IGA) score of cleared (0) or minimal (1) at week 16, change from baseline in body surface area (BSA) at week 16, change from baseline in Psoriasis Symptoms and Signs Diary (PSSD) symptoms scores at week 16, percentage of participants achieving PSSD symptoms score=0 at week 16 in participants with a baseline symptoms score >=1, percentage of participants achieving a Dermatology Life Quality Index (DLQI) of 0 or 1 at week 16 in participants with baseline DLQI Score >1, change from baseline in Patient-Reported Outcomes Measurement Information System (PROMIS-29) domain score at week 16, percentage of participants who achieve >= 5-point improvement from baseline in PROMIS-29 domain score at week 16, and number of participants with adverse events and serious adverse events up to 24 weeks.[10]

About Plaque Psoriasis (PsO)

Plaque PsO is an immune-mediated disease resulting in overproduction of skin cells, which causes inflamed, scaly plaques that may be itchy or painful.[11] It is estimated that eight million Americans and more than 125 million people worldwide live with the disease.[12] Nearly one-quarter of all people with plaque PsO have cases that are considered moderate to severe.[12] Living with plaque PsO can be a challenge and impact life beyond a person’s physical health, including emotional health, relationships, and handling the stressors of life.[13]

About JNJ-2113

JNJ-2113 (formerly PN-235) was discovered and is being developed pursuant to the license and collaboration agreement between Protagonist Therapeutics and Janssen Biotech, Inc. Janssen retains exclusive worldwide rights to develop JNJ-2113 in Phase 2 clinical trials and beyond, and to commercialize compounds derived from the research conducted pursuant to the agreement against a broad range of indications.[14]

JNJ-2113 is an oral IL-23R antagonist peptide that binds to the IL-23 receptor with single-digit picomolar affinity and demonstrated potent, selective inhibition of IL-23 signaling in human T cells.[6] The license and collaboration agreement established between Protagonist and Janssen Biotech, Inc. in 2017 enabled the companies to work together to discover and develop next-generation compounds that ultimately led to JNJ-2113.[15,16]

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.

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Janssen Research & Development, LLC; Janssen Biotech, Inc.; and Janssen Scientific Affairs, LLC are 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 JNJ-2113. 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 Janssen Research & Development, LLC, 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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