



Ionis presents positive Phase 2 data from open label extension study of donidalorsen at 2022 ACAAI Annual Meeting

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- Interim results show sustained reduction in hereditary angioedema attacks and no new safety signals in patients treated for one year

CARLSBAD, Calif., Nov. 13, 2022 /PRNewswire/ -- Ionis Pharmaceuticals, Inc. (Nasdaq: IONS) today presented positive results from a Phase 2 open-label extension (OLE) study evaluating the safety and efficacy of its investigational antisense medicine, donidalorsen, in patients with hereditary angioedema (HAE), a rare and devastating inflammatory disease. Interim data after all patients completed 1 year of treatment in the study showed a sustained reduction in HAE attacks and no new safety signals following treatment with donidalorsen. Treatment with donidalorsen resulted in an overall sustained mean reduction in HAE attack rates of 95% from baseline. For patients treated with donidalorsen, 99.6% of study days were HAE attack-free.



The data were presented at the American College of Allergy, Asthma & Immunology (ACAAI) Annual Scientific Meeting in Louisville, Ky. Additional details can be found on the ACAAI [website](#).

"Today's data further enhance donidalorsen's profile and potential to provide significant sustained protection from attacks for people living with hereditary angioedema," said Richard S. Geary, Ph.D., executive vice president and chief development officer at Ionis. "The positive results of the Phase 2 OLE are encouraging as we continue evaluating donidalorsen, a potential best-in-class medicine, in the ongoing OASIS Phase 3 program."

Patients completing the Phase 2 study were eligible for enrollment in the OLE study. There were 20 Type 1 or Type 2 HAE patients in the Phase 2 study, and 17 (85%) entered the OLE. Following a 13-week fixed-dose period where participants received subcutaneous donidalorsen 80 mg every four weeks, eight patients switched to subcutaneous donidalorsen 80 mg every eight weeks. Patients who remained on donidalorsen 80 mg every 4 weeks had a mean reduction in attack rate of 95.3% and 98.3%, from Week 1 (after first dose) and Week 5 (after second dose), respectively. Patients receiving donidalorsen 80 mg every eight weeks experienced a mean reduction in attack rate of 75.6% from baseline and the mean monthly attack rate was 0.28. Five of these patients remained attack free over the one-year duration of this analysis, and three patients returned to 80 mg every four weeks.

No serious adverse events were reported in the OLE study and no treatment-emergent adverse events (TEAEs) led to study discontinuation. There were no clinically relevant abnormalities in any laboratory measurements.

About Hereditary Angioedema (HAE)

HAE is a rare and potentially fatal genetic disease characterized by rapid and painful attacks of inflammation in the hands, feet, limbs, face, abdomen, larynx, and trachea. HAE affects approximately 20,000 patients in the U.S. and Europe and can be fatal if swelling occurs in the larynx. In patients with frequent or severe attacks, doctors may use prophylactic treatment approaches to prevent and reduce the severity of HAE attacks.

About Donidalorsen

Donidalorsen is an investigational antisense medicine that uses Ionis' advanced **L**igand-**C**onjugated **A**ntisense (LICA) technology and is designed to reduce the production of prekallikrein, or PKK, to treat patients with HAE. PKK plays an important role in the activation of inflammatory mediators associated with acute attacks of HAE. HAE is a rare genetic disease characterized by rapid and painful attacks of inflammation in the hands, feet, limbs, face, abdomen, larynx, and trachea. HAE can be fatal if swelling

occurs in the larynx. In patients with frequent or severe attacks, doctors may use prophylactic treatment approaches to prevent and reduce the severity of HAE attacks.

About Ionis Pharmaceuticals, Inc.

For more than 30 years, Ionis has been the leader in RNA-targeted therapy, pioneering new markets and changing standards of care with its novel antisense technology. Ionis currently has three marketed medicines and a premier late-stage pipeline highlighted by industry-leading cardiovascular and neurological franchises. Our scientific innovation began and continues with the knowledge that sick people depend on us, which fuels our vision of becoming a leading, fully integrated biotechnology company.

To learn more about Ionis, visit www.ionispharma.com and follow us on Twitter @ionispharma.

Ionis' Forward-looking Statements

This press release includes forward-looking statements regarding Ionis' business and the therapeutic and commercial potential of Ionis' technologies, donidalorsen and other products in development. Any statement describing Ionis' goals, expectations, financial or other projections, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, including those related to the impact COVID-19 could have on our business, and including but not limited to, those related to our commercial products and the medicines in our pipeline, and particularly those inherent in the process of discovering, developing and commercializing medicines that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such medicines. Ionis' forward-looking statements also involve assumptions that, if they never materialize or prove correct, could cause its results to differ materially from those expressed or implied by such forward-looking statements.

Although Ionis' forward-looking statements reflect the good faith judgment of its management, these statements are based only on facts and factors currently known by Ionis. As a result, you are cautioned not to rely on these forward-looking statements. These and other risks concerning Ionis' programs are described in additional detail in Ionis' annual report on Form 10-K for the year ended December 31, 2021, and the most recent Form 10-Q quarterly filing, which is on file with the Securities and Exchange Commission. Copies of these and other documents are available from the Company.

In this press release, unless the context requires otherwise, "Ionis," "Company," "we," "our," and "us" refers to Ionis Pharmaceuticals and its subsidiaries.

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Ionis Pharmaceuticals Investor Contact: info@ionisph.com, 760-603-2331; Ionis Pharmaceuticals Media Contact: corporatecommunications@ionisph.com, 760-603-4679