

## Isis Pharmaceuticals Earns \$7M for Advancing ISIS-SMN<sub>Rx</sub> in Children With Spinal Muscular Atrophy

January 14, 2015

CARLSBAD, Calif., Jan. 14, 2015 /PRNewswire/ -- Isis Pharmaceuticals, Inc. (NASDAQ: ISIS) announced today that it has earned a \$7 million milestone payment from Biogen Idec related to the advancement of the ongoing open-label extension study of ISIS-SMN<sub>Rx</sub> in children with spinal muscular atrophy (SMA).



The open-label extension study of ISIS-SMN<sub>Rx</sub> is offered to those children with SMA who have completed dosing in Isis' previous studies. In this study, children with SMA are receiving a 12 mg dose of ISIS-SMN<sub>Rx</sub> every six months for the duration of the study. For further study information, please visit [www.clinicaltrials.gov](http://www.clinicaltrials.gov) and search for ISIS-SMN<sub>Rx</sub>.

### ABOUT ISIS-SMN<sub>Rx</sub>

ISIS-SMN<sub>Rx</sub> is designed to alter the splicing of a closely related gene (SMN2) to increase production of fully functional SMN protein. The FDA granted orphan drug status and fast track designation to ISIS-SMN<sub>Rx</sub> for the treatment of patients with SMA. Isis is currently in collaboration with Biogen Idec to develop and potentially commercialize the investigational compound, ISIS-SMN<sub>Rx</sub>, to treat all types of SMA. Under the terms of the January 2012 agreement, Isis is responsible for global development and Biogen Idec has the option to license the compound until completion of the first successful Phase 2/3 study or the completion of two Phase 2/3 studies. Isis is conducting two Phase 3 studies with agreement from the FDA for special protocol assessments, or SPAs. A SPA is a written agreement between the FDA and a drug sponsor intended to confirm that the clinical trial protocol is adequate to meet current scientific and regulatory requirements for a potential new drug application.

Isis acknowledges support from the following organizations for ISIS-SMN<sub>Rx</sub>: Muscular Dystrophy Association, SMA Foundation, Cure SMA and intellectual property licensed from Cold Spring Harbor Laboratory and the University of Massachusetts Medical School.

### ABOUT SMA

SMA is a severe genetic disease that affects approximately 30,000-35,000 patients in the United States, Europe and Japan. SMA is caused by a loss of, or defect in, the survival motor neuron 1 (SMN1) gene leading to a decrease in the survival motor neuron (SMN) protein. SMN is critical to the health and survival of nerve cells in the spinal cord responsible for neuromuscular growth and function. One in 50 people, the equivalent of about 6 million people in the United States, are carriers of a defective SMN1 gene, which is unable to produce fully functional SMN protein. Carriers experience no symptoms and do not develop the disease. However, when both parents are carriers, there is a one in four chance that their child will have SMA. The severity of SMA correlates with the amount of SMN protein. Infants with Type I SMA, the most severe form of the disease, produce very little SMN protein and have a life expectancy of less than two years. Children with Type II have greater amounts of SMN protein but still have a shortened lifespan and are never able to stand independently. Children with Type III have a normal lifespan but accumulate life-long physical disabilities as they grow.

### ABOUT ISIS and BIOGEN IDEC

Biogen Idec and Isis have established four collaborations focused on leveraging antisense technology to advance the treatment of neurological and neuromuscular disorders. This alliance combines Isis' expertise in antisense technology to evaluate potential neurological targets and discover antisense drugs with Biogen Idec's capability to develop therapies for neurological disorders. Isis is primarily responsible for drug discovery and early development of antisense therapies. Biogen Idec has the option to license each antisense program at a particular stage in development. Current development-stage programs include antisense drugs to treat patients with spinal muscular atrophy (SMA), ISIS-SMN<sub>Rx</sub>, myotonic dystrophy type 1 (DM1), ISIS-DMPK<sub>Rx</sub>, and an undisclosed neurodegenerative disease, ISIS-BIIB3<sub>Rx</sub>.

### ABOUT ISIS PHARMACEUTICALS, INC.

Isis is exploiting its leadership position in RNA-targeted technology to discover and develop novel drugs for its product pipeline and for its partners. Isis' broad pipeline consists of 33 drugs to treat a wide variety of diseases with an emphasis on cardiovascular, metabolic, severe and rare diseases, including neurological disorders, and cancer. Isis' partner, Genzyme, is commercializing Isis' lead product, KYNAMRO<sup>®</sup>, in the United States and other countries for the treatment of patients with homozygous FH. Isis has numerous drugs in Phase 3 development in severe/rare diseases and cardiovascular diseases. These include ISIS-APOCIII<sub>Rx</sub>, a drug Isis is developing to treat patients with severely high triglycerides, such as patients with familial chylomicronemia syndrome; ISIS-TTR<sub>Rx</sub>, a drug Isis is developing with GSK to treat patients with the polyneuropathy form of TTR amyloidosis; and, ISIS-SMN<sub>Rx</sub>, a drug Isis is developing with Biogen Idec to treat infants and children with spinal muscular atrophy, a severe and rare neuromuscular disease. Isis' patents provide strong and extensive protection for its drugs and technology. Additional information about Isis is available at [www.isispharm.com](http://www.isispharm.com).

### ISIS PHARMACEUTICALS' FORWARD-LOOKING STATEMENT

This press release includes forward-looking statements regarding Isis' alliance with Biogen Idec, the discovery, development, activity, therapeutic and commercial potential and safety of ISIS-SMN<sub>Rx</sub> and the discovery, development and therapeutic potential of an antisense drug for the treatment of spinal muscular atrophy. Any statement describing Isis' 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, particularly those inherent in

the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such drugs. Isis' 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 Isis' forward-looking statements reflect the good faith judgment of its management, these statements are based only on facts and factors currently known by Isis. As a result, you are cautioned not to rely on these forward-looking statements. These and other risks concerning Isis' programs are described in additional detail in Isis' annual report on Form 10-K for the year ended December 31, 2013, and its most recent quarterly report on Form 10-Q, which are on file with the SEC. Copies of these and other documents are available from the Company.

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

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SOURCE Isis Pharmaceuticals, Inc.

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