Biogen Advances Spinal Muscular Atrophy (SMA) Clinical Research with New Study Evaluating a Higher Dose of SPINRAZA® (nusinersen) and Additional Data in a Broad Range of Patients

September 18, 2019

- DEVOTE trial to evaluate safety and even greater efficacy of a higher dose of SPINRAZA in the treatment of SMA; well-established safety profile supports exploration of potential benefits
- Long-term data from the SHINE study demonstrate improvements in or stabilization of motor function in patients as old as 21 treated with SPINRAZA for up to nearly six years

CAMBRIDGE, Mass., Sept. 18, 2019 (GLOBE NEWSWIRE) -- Biogen Inc. (Nasdaq: BIIB) today announced updates to the SPINRAZA (nusinersen) clinical development program including the initiation of a new global clinical trial, DEVOTE. The DEVOTE study will evaluate if a higher dose of SPINRAZA can provide even greater efficacy in the treatment of spinal muscular atrophy (SMA) across a broad patient population. In addition, new data further demonstrating the safety and efficacy of treatment with SPINRAZA in individuals with later-onset SMA will be featured in a podium presentation at the 13th Congress of the European Paediatric Neurology Society (EPNS) in Athens (September 17-21).

A foundation of care in SMA, SPINRAZA is the only treatment approved for infants, children and adults with evidence across a broad range of patients and real-world experience treating more than 8,400 patients of all ages in over 40 countries.[1] These clinical program updates will add to the largest and longest clinical data set available to date in SMA.

New study, DEVOTE, to evaluate if SPINRAZA can offer even greater efficacy in treating SMA
Building on the demonstrated long-term safety profile and proven efficacy of SPINRAZA in a broad range of patients, the DEVOTE trial will examine the potential for even greater efficacy, as well as the safety and tolerability of SPINRAZA, when administered at a higher dose. The trial is a Phase 2/3 randomized, controlled dose-escalating study that will be conducted at 50 sites around the world with a projected enrollment of 126 individuals with SMA of all ages, including adults.

"SPINRAZA has fundamentally changed the natural history of SMA," said Alfred Sandrock, Jr., M.D., Ph.D., executive vice president and chief medical officer at Biogen. "Antisense oligonucleotides directly intervene at the origin of disease providing a transformative therapeutic option. SPINRAZA's highly targeted approach and well-characterized safety profile allows us to continue exploring ways to potentially address the remaining medical needs in the SMA community."

The three-part trial will include an open-label safety evaluation and a pivotal, double-blind, active control randomized treatment period followed by an open-label treatment period. After the safety evaluation, the trial will compare two loading doses of 50 milligrams (mg) 15 days apart followed by a maintenance dose of 28 mg every four months with the current U.S. Food and Drug Administration-approved administration of SPINRAZA, which is four loading doses with 12 mg maintenance doses every four months. The third part of the trial will be an open-label evaluation to determine how to safely and efficiently transition patients from the currently approved dose of SPINRAZA to the higher dose being tested in the study.

More information on the trial (NCT04089566) is available at clinicaltrials.gov.

Data to be presented at EPNS demonstrate improvements or stabilization in motor function following longer-term treatment
An integrated analysis from SHINE (NCT02594124), an open-label extension study for patients with SMA who participated in prior SPINRAZA studies, found that children with later-onset SMA (Type 2 or Type 3) experienced improvements or stabilization in one or more measures of motor function for up to nearly six years, in contrast to the expected decline observed in natural history cohorts. SHINE is following 24 patients aged 2-15 at treatment initiation (SMA Type 2; n=10 and Type 3; n=14) who transitioned from the CS2/CS12 studies, which previously showed that individuals with later-onset SMA who were treated with SPINRAZA demonstrated improvements in motor function and disease stabilization over approximately three years, that were not observed in natural history cohorts.[2] Patients in the study were between 7 and 21 years old at the last study visit.

Motor function measures in this analysis of the SHINE study included the Hammersmith Functional Motor Scale–Expanded (HFMSE), Upper Limb Module (ULM), and Six-Minute Walk Test (6MWT). No participants discontinued treatment due to adverse events, and no new safety concerns were identified during the nearly six-year follow-up period.

"These findings are important in understanding the need for long-term treatment in individuals with SMA," said Basil Darras, M.D., lead study author, director of the Neuromuscular Center and Spinal Muscular Atrophy Program at Boston Children's Hospital, and professor of neurology at Harvard Medical School. "These data reinforce the long-term safety and durability of SPINRAZA to improve or stabilize motor function in individuals with later-onset SMA."

About SPINRAZA® (nusinersen)[3-4]
SPINRAZA is the first therapy approved to treat infants, children and adults with spinal muscular atrophy (SMA) and is available in more than 40 countries. As of June 30, 2019, more than 8,400 individuals have been treated with SPINRAZA for up to nearly six years, based on patients across the post-marketing setting, Expanded Access Program (EAP) and clinical trial participants. SPINRAZA is the only SMA treatment to combine unsurpassed real-world experience and the highest level of clinical evidence across a broad spectrum of patient populations.

SMA is a rare, genetic, neuromuscular disease that is characterized by a loss of motor neurons in the spinal cord and lower brain stem, resulting in severe, progressive muscle atrophy and weakness. Approximately one in 10,000 live births have a diagnosis of SMA, and people of all ages are impacted by the disease. It is a leading genetic cause of infant mortality.

SPINRAZA, a foundation of care in SMA, is an antisense oligonucleotide (ASO) designed to target a root cause of SMA by increasing the amount of full-length survival motor neuron (SMN) protein, which is critical to maintaining motor neurons. It is administered by intrathecal injection into the fluid surrounding the spinal cord where motor neurons reside to deliver the treatment where the disease starts.

SPINRAZA currently maintains the largest clinical data set in SMA based on data from over 300 patients across a broad range of SMA populations demonstrating a favorable benefit:risk profile. SPINRAZA was evaluated in two randomized, double-blind, sham-controlled studies (ENDEAR and CHERISH) in infantile and later-onset SMA patients and supported by open-label studies in pre-symptomatic infants (NURTURE) and individuals who were treated into adulthood with later-onset SMA (CS2/CS12). The most common adverse events observed were respiratory infection, fever, constipation, headache, vomiting and back pain. Meningitis and hydrocephalus have been observed in the post-marketing setting. Renal toxicity and coagulation abnormalities, including acute severe low platelet counts, have been observed after administration of some ASOs. Laboratory tests can monitor for these signs.

Biogen licensed the global rights to develop, manufacture and commercialize SPINRAZA from Ionis Pharmaceuticals, Inc. (Nasdaq: IONS), a leader in antisense therapeutics. Biogen and Ionis conducted an innovative clinical development program that moved SPINRAZA from its first dose in humans in 2011 to its first regulatory approval in five years.

About Biogen
At Biogen, our mission is clear: we are pioneers in neuroscience. Biogen discovers, develops and delivers worldwide innovative therapies for people living with serious neurological and neurodegenerative diseases as well as related therapeutic adjacencies. One of the world's first global biotechnology companies, Biogen was founded in 1978 by Charles Weissmann, Heinz Schaller, Kenneth Murray and Nobel Prize winners Walter Gilbert and Phillip Sharp, and today has the leading portfolio of medicines to treat multiple sclerosis, has introduced the first approved treatment for spinal muscular atrophy, commercializes biosimilars of advanced biologics and is focused on advancing research programs in multiple sclerosis and neuroimmunology, neuromuscular disorders, movement disorders, Alzheimer's disease and dementia, ophthalmology, immunology, neurocognitive disorders, acute neurology and pain.

We routinely post information that may be important to investors on our website at www.biogen.com. To learn more, please visit www.biogen.com and follow us on social media – Twitter, LinkedIn, Facebook, YouTube.

Biogen Safe Harbor
This news release contains forward-looking statements, including statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, about the potential benefits, safety and efficacy of SPINRAZA; the results of certain real-world data; the identification and treatment of SMA; our research and development program for the treatment of SMA; the clinical development program for SPINRAZA, including the enrollment of the DEVOTE study; the potential benefits and results from early treatment of SMA; and risks and uncertainties associated with drug development and commercialization. These statements may be identified by words such as "aim," "anticipate," "believe," "could," "estimate," "expect," "forecast," "goal," "intend," "may," "plan," "possible," "potential," "will," "would" and other words and terms of similar meaning. You should not place undue reliance on these statements or the scientific data presented.

These statements involve risks and uncertainties that could cause actual results to differ materially from those reflected in such statements, including without limitation risks relating to the occurrence of adverse safety events and/or unexpected concerns that may arise from additional data or analysis; the risk that we may not fully enroll our clinical trials or enrollment will take longer than expected; failure to obtain regulatory approvals in other jurisdictions; risks of unexpected costs or delays; failure to protect and enforce our data, intellectual property and other proprietary rights and uncertainties relating to intellectual property claims and challenges;; regulatory authorities may require additional information or further studies; product liability claims; and third party collaboration risks. The foregoing sets forth many, but not all, of the factors that could cause actual results to differ from our expectations in any forward-looking statement. Investors should consider this cautionary statement, as well as the risk factors identified in our most recent annual or quarterly report and in other reports we have filed with the U.S. Securities and Exchange Commission. These statements are based on our current beliefs and expectations and speak only as of the date of this news release. We do not undertake any obligation to publicly update any forward-looking statements, whether as a result of new information, future developments or otherwise.

References

[1]As of June 30, 2019, more than 8,400 patients on therapy across the post-marketing setting, the expanded access program and clinical trials.

[2]Darras BT, Chiriboga CA, Iannaccone ST, et al. Nusinersen in later-onset spinal muscular atrophy: Long-term results from the phase 1/2 studies. Neurology. 2019 May 21;92(21):e2492-e2506.

[3]Finkel R, Chiriboga C, Vajsar J, et al. Treatment of infantile-onset spinal muscular atrophy with nusinersen: a phase 2, open-label, dose-escalation study. Lancet. 2016;388(10063):3017-3026.

[4]Darras B, Markowitz J, Monani U, De Vivo D. Chapter 8 - Spinal Muscular Atrophies. In: Vivo BTD, ed. Neuromuscular Disorders of Infancy, Childhood, and Adolescence (Second Edition). San Diego: Academic Press; 2015:117-145.

MEDIA CONTACT:
Biogen
David Caouette
+ 617 679 4945
public.affairs@biogen.com

INVESTOR CONTACT:
Joe Mara
+1 781 464 2442
IR@biogen.com