Biogen and Stoke Therapeutics Enter into Collaboration to Develop and Commercialize Zorevunersen for the Treatment of Dravet Syndrome, a Rare Genetic Epilepsy Associated with Refractory Seizures and Neurodevelopmental Impairments

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Stoke retains exclusive rights for zorevunersen in the United States, Canada, and Mexico; Biogen receives exclusive rest of world commercialization rights

Collaboration broadens Biogen's rare disease pipeline and leverages global expertise commercializing high-value, disease-modifying medicines for rare genetic diseases

Pivotal Phase 3 EMPEROR study of zorevunersen on track to initiate in Q2 2025 with an anticipated readout in 2H 2027

Stoke to receive $165M upfront, shared development costs and is eligible to receive up to $385M in milestones as well as royalties

CAMBRIDGE, Mass. and BEDFORD, Mass., Feb. 18, 2025 (GLOBE NEWSWIRE) -- Biogen Inc. (Nasdaq: BIIB) and Stoke Therapeutics, Inc. (Nasdaq: STOK) today announced a collaboration for the development and commercialization of zorevunersen, a potential first-in-class disease modifying medicine in development for the treatment of Dravet syndrome, in all territories outside the United States, Canada, and Mexico. Zorevunersen is an investigational antisense oligonucleotide (ASO) that targets the *SCN1A* gene, the underlying cause of most cases of Dravet syndrome. Stoke recently announced plans to initiate a global Phase 3 registrational study of zorevunersen (EMPEROR) following successful alignment with regulatory agencies in the United States, Europe, and Japan. The study is on track to initiate in the second quarter of 2025, with a pivotal data readout expected in the second half of 2027, which is anticipated to support global regulatory filings.

Significant unmet treatment needs remain for patients with Dravet syndrome, a severe, genetic developmental and epileptic encephalopathy characterized by severe, recurrent seizures as well as significant cognitive and behavioral impairments. There are no approved disease-modifying therapies for Dravet syndrome, which is difficult to treat and has a poor long-term prognosis. Currently, it is estimated that up to 38,000 people are living with Dravet syndrome in the U.S., UK, EU-4 and Japan.[1]

"With Biogen's deep experience in neurology and track record of success in commercializing high-value disease-modifying medicines for rare genetic diseases globally, we aim to lead the treatment of Dravet syndrome into a new era by delivering zorevunersen to all patients who could benefit," said Edward M. Kaye, M.D., Chief Executive Officer of Stoke Therapeutics. "Additionally, this collaboration provides cash flows, that when combined with Stoke's financial position, support the company through to mid-2028."

"This collaboration broadens our late-stage pipeline with the addition of a Phase 3-ready disease modifying investigational medicine and allows us to leverage our rare disease product commercialization expertise and global footprint," said Priya Singhal, M.D., M.P.H., Head of Development at Biogen. "The reductions in seizures in patients already receiving standard of care medicines, together with the improvements in multiple measures of cognition and behavior, demonstrate the potential of zorevunersen as the first disease modifying medicine that addresses the underlying cause of Dravet syndrome."

Collaboration Terms
Stoke will continue to lead global development and retains exclusive development and commercialization rights for zorevunersen in the United States, Canada, and Mexico. Biogen receives exclusive rights to commercialize zorevunersen in the rest of the world. Upon closing of this transaction, Stoke will receive an upfront payment of $165 million. The parties will share external clinical development costs for zorevunersen (30 percent Biogen; 70 percent Stoke). Additionally, Stoke may receive up to $385 million in development and commercial milestone payments. Stoke will also be eligible to receive tiered royalties ranging from low double digits to high teens on potential net sales in the Biogen territory.

Stoke has also granted Biogen an option to license rights outside of the United States, Canada, and Mexico to certain future follow-on ASO products targeting *SCN1A*, in exchange for separate milestone, cost sharing, and royalty considerations.

Zorevunersen is a Potential First-in-Class Disease Modifying Medicine for Dravet Syndrome
Zorevunersen has been granted FDA Breakthrough Therapy Designation based on preliminary clinical evidence indicating that the drug may demonstrate substantial improvement over available therapy on clinically-significant endpoint(s). Data from Phase 1/2a and open-label extension (OLE) studies of zorevunersen showed that patients treated with zorevunersen experienced substantial and durable reductions in convulsive seizure frequency and improvements in multiple measures of cognition and behavior, which support advancement to a global registrational Phase 3 study with potential for disease modification. Zorevunersen has been generally well tolerated across the studies.

About Dravet Syndrome
Dravet syndrome is a severe developmental and epileptic encephalopathy characterized by severe, recurrent seizures as well as significant cognitive and behavioral impairments. Most cases of Dravet are caused by mutations in one copy of the *SCN1A* gene, leading to insufficient levels of NaV1.1 protein in neuronal cells in the brain. More than 90 percent of patients continue to experience seizures despite treatment with the best available anti-seizure medicines. Complications of the disease often contribute to a poor quality of life for patients and their caregivers. Developmental and cognitive impairments often include intellectual disability, developmental delays, movement and balance issues, language and speech disturbances, growth defects, sleep abnormalities, disruptions of the autonomic nervous system and mood disorders. Compared with the general epilepsy population, people living with Dravet syndrome have a higher risk of sudden unexpected death in epilepsy, or SUDEP. Dravet syndrome occurs globally and is not concentrated in a particular geographic area or ethnic group. Currently, it is estimated that up to 38,000 people are living with Dravet syndrome in the U.S., UK, EU-4 and Japan.[1]

About Zorevunersen
Zorevunersen is an investigational antisense oligonucleotide that is designed to treat the underlying cause of Dravet syndrome by increasing NaV1.1 protein production in brain cells from the non-mutated (wild-type) copy of the *SCN1A* gene. This highly differentiated mechanism of action aims to reduce seizure frequency beyond what has been achieved with anti-seizure medicines and to improve neurodevelopment, cognition, and behavior.

Zorevunersen has demonstrated the potential for disease modification and has been granted orphan drug designation by the FDA and the EMA. The FDA has also granted zorevunersen rare pediatric disease designation and Breakthrough Therapy Designation for the treatment of Dravet syndrome with a confirmed mutation not associated with gain-of-function, in the *SCN1A* gene.

About Stoke Therapeutics
Stoke Therapeutics (Nasdaq: STOK), is a biotechnology company dedicated to restoring protein expression by harnessing the body's potential with RNA medicine. Using Stoke's proprietary TANGO (Targeted Augmentation of Nuclear Gene Output) approach, Stoke is developing antisense oligonucleotides (ASOs) to selectively restore naturally-occurring protein levels. Stoke's first medicine in development, zorevunersen, has demonstrated the potential for disease modification in patients with Dravet syndrome and is expected to enter Phase 3 development in 2025. Stoke's initial focus are diseases of the central nervous system and the eye that are caused by a loss of ~50% of normal protein levels (haploinsufficiency). Proof of concept has been demonstrated in other organs, tissues, and systems, supporting broad potential for the Company's proprietary approach. Stoke is headquartered in Bedford, Massachusetts with offices in Cambridge, Massachusetts. For more information, visit https://www.stoketherapeutics.com/.

About Biogen
Founded in 1978, Biogen is a leading biotechnology company that pioneers innovative science to deliver new medicines to transform patients' lives and to create value for shareholders and our communities. We apply deep understanding of human biology and leverage different modalities to advance first-in-class treatments or therapies that deliver superior outcomes. Our approach is to take bold risks, balanced with return on investment to deliver long-term growth.

We routinely post information that may be important to investors on our website at www.biogen.com. Follow us on social media - Facebook, LinkedIn, X, YouTube.

Stoke's Cautionary Note Regarding Forward-Looking Statements
This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to: the receipt of upfront payments and potential milestone and royalty payments under the collaboration; the design, timing and results of the Phase 3 EMPEROR study; the timing and expected progress of regulatory filings and regulatory decisions; the ability of zorevunersen to treat the underlying causes of Dravet syndrome and reduce seizures or show improvements in behavior and cognition at the indicated dosing levels or at all; Stoke's cash runway; and the expectations regarding the proposed transaction with Biogen. Statements including words such as "expect," "plan," "will," "continue," "may," or "ongoing" and statements in the future tense are forward-looking statements. These forward-looking statements involve risks and uncertainties, as well as assumptions, which, if they prove incorrect or do not fully materialize, could cause Stoke's results to differ materially from those expressed or implied by such forward-looking statements, including, but not limited to, risks and uncertainties related to: Stoke's ability to advance, obtain regulatory approval and ultimately commercialize its product candidates; that if Biogen were to breach or terminate the collaboration, Stoke would not obtain the anticipated financial or other benefits; the possibility that Stoke and Biogen may not be successful in their development of zorevunersen and that, even if successful, they may be unable to successfully commercialize zorevunersen; positive results in a clinical trial may not be replicated in subsequent trials or successes in early stage clinical trials may not be predictive of results in later stage trials; Stoke's ability to protect its intellectual property; and the other risks and uncertainties described under the heading "Risk Factors" in Stoke's Annual Report on Form 10-K for the year ended December 31, 2023, its quarterly reports on Form 10-Q, and the other documents it files with the Securities and Exchange Commission. These forward-looking statements speak only as of the date of this press release, and Stoke undertakes no obligation to revise or update any forward-looking statements to reflect events or circumstances after the date hereof.

Biogen's Cautionary Note Regarding Forward-Looking Statements
This press release contains forward-looking statements, relating to: our strategy and plans; potential of, and expectations for, expectations regarding our collaboration with Stoke, the design, timing and results of the Phase 3 EMPEROR study, the ability of zorevunersen to treat Dravet syndrome or its underlying causes and reduce seizures or show improvements in behavior and cognition at the indicated dosing levels or at all, our commercial business and pipeline programs; capital allocation and investment strategy; clinical development programs, clinical trials, and data readouts and presentations; regulatory discussions, submissions, filings, and approvals; the potential benefits, safety, our future financial and operating results. These forward-looking statements may be accompanied by such words as "aim," "anticipate," "assume," "believe," "contemplate," "continue," "could," "estimate," "expect," "forecast," "goal," "guidance," "hope," "intend," "may," "objective," "plan," "possible," "potential," "predict," "project," "prospect," "should," "target," "will," "would," and other words and terms of similar meaning. Drug development and commercialization involve a high degree of risk, and only a small number of research and development programs result in commercialization of a product. Results in early-stage clinical trials may not be indicative of full results or results from later stage or larger scale clinical trials and do not ensure regulatory approval. You should not place undue reliance on these statements. Given their forward-looking nature, these statements involve substantial risks and uncertainties that may be based on inaccurate assumptions and could cause actual results to differ materially from those reflected in such statements. These forward-looking statements are based on management's current beliefs and assumptions and on information currently available to management. Given their nature, we cannot assure that any outcome expressed in these forward-looking statements will be realized in whole or in part. We caution that these statements are subject to risks and uncertainties, many of which are outside of our control and could cause future events or results to be materially different from those stated or implied in this document, including, among others, factors relating to: our substantial dependence on revenue from our products and other payments under licensing, collaboration, acquisition or divestiture agreements; uncertainty of long-term success in developing, licensing, or acquiring other product candidates or additional indications for existing products; expectations, plans and prospects relating to product approvals, approvals of additional indications for our existing products, sales, pricing, growth, reimbursement and launch of our marketed and pipeline products; the potential impact of increased product competition in the biopharmaceutical and healthcare industry, as well as any other markets in which we compete, including increased competition from new originator therapies, generics, prodrugs and biosimilars of existing products and products approved under abbreviated regulatory pathways; our ability to effectively implement our corporate strategy; the successful execution of our strategic and growth initiatives, including acquisitions; the drivers for growing our business; difficulties in obtaining and maintaining adequate coverage, pricing, and reimbursement for our products; the drivers for growing our business, including our dependence on collaborators and other third parties for the development, regulatory approval, and commercialization of products and other aspects of our business, which are outside of our full control; risks associated with current and potential future healthcare reforms; risks related to commercialization of biosimilars, which is subject to such risks related to our reliance on third-parties, intellectual property, competitive and market challenges and regulatory compliance; failure to obtain, protect, and enforce our data, intellectual property, and other proprietary rights and the risks and uncertainties relating to intellectual property claims and challenges; the risk that positive results in a clinical trial may not be replicated in subsequent or confirmatory trials or success in early stage clinical trials may not be predictive of results in later stage or large scale clinical trials or trials in other potential indications; risks associated with clinical trials, including our ability to adequately manage clinical activities, unexpected concerns that may arise from additional data or analysis obtained during clinical trials, regulatory authorities may require additional information or further studies, or may fail to approve or may delay approval of our drug candidates; the occurrence of adverse safety events, restrictions on use with our products, or product liability claims; risks relating to technology, including our incorporation of new technologies such as artificial intelligence into some of our processes; risks related to use of information technology systems and potential impacts of any breakdowns, interruptions, invasions, corruptions, data breaches, destructions and/or other cybersecurity incidents of our systems or those of connected and/or third-party systems; problems with our manufacturing capacity, including our ability to manufacture products efficiently or adequately address global bulk supply risks; risks relating to management, personnel and other organizational changes, including our ability to attracting, retaining and motivating qualified individuals; risks related to the failure to comply with current and new

legal and regulatory requirements, including judicial decisions, accounting standards, and tariff or trade restrictions; the risks of doing business internationally, including geopolitical tensions, acts of war and large-scale crises; risks relating to investment in our manufacturing capacity; risks relating to the distribution and sale by third parties of counterfeit or unfit versions of our products; risks relating to the use of social media for our business, results of operations and financial condition; fluctuations in our operating results; risks related to investment in properties; risks relating to access to capital and credit markets to finance our present and future operations and business initiatives and obtain funding for such activities on favorable terms; risks related to indebtedness; the market, interest, and credit risks associated with our investment portfolio; risks relating to share repurchase programs; change in control provisions in certain of our collaboration agreements; fluctuations in our effective tax rate and obligations in various jurisdictions in which we are subject to taxation; environmental risks; and any other risks and uncertainties that are described in other reports we have filed with the U.S. Securities and Exchange Commission. These statements speak only as of the date of this press release and are based on information and estimates available to us at this time. Should known or unknown risks or uncertainties materialize or should underlying assumptions prove inaccurate, actual results could vary materially from past results and those anticipated, estimated or projected. Investors are cautioned not to put undue reliance on forward-looking statements. A further list and description of risks, uncertainties and other matters can be found in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024 and in our subsequent reports on Form 10-Q and Form 10-K, in each case including in the sections thereof captioned “Note Regarding Forward-Looking Statements” and “Item 1A. Risk Factors,” and in our subsequent reports on Form 8-K. Except as required by law, we do not undertake any obligation to publicly update any forward-looking statements whether as a result of any new information, future events, changed circumstances or otherwise.

Reference:

1. *Based on Stoke Therapeutics’ preliminary estimates, which scaled annual incidence to prevalence using country-specific live birth rates over the past 85 years and adjusted for Dravet-specific mortality. The estimate is based on incidence rates published by Wu et al., Pediatrics, 2015.*

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