Spark Therapeutics and Pfizer Announce Updated Data from First Cohort in Hemophilia B Phase 1/2 Trial Demonstrating Consistent, Sustained Therapeutic Levels of Factor IX Activity

Monday, July 25, 2016 - 08:00am

First four subjects all with follow up beyond 12 weeks without any need for immunosuppression

PHILADELPHIA and NEW YORK CITY, July 25, 2016 -- Spark Therapeutics (NASDAQ:ONCE) and Pfizer Inc. (NYSE:PFE) announced today updated results of the first cohort from the ongoing Phase 1/2 clinical trial of SPK-9001, the lead investigational candidate in the companies' SPK-FIX program, in development for the treatment of hemophilia B as a potential one-time therapy. SPK-9001, a novel bio-engineered adeno-associated virus (AAV) capsid expressing a codon-optimized, high-activity human factor IX variant, was developed using Spark's proprietary technology platform for selecting, designing, manufacturing and formulating highly optimized gene therapies. SPK-9001 has received breakthrough therapy designation from the U.S. Food and Drug Administration.

Data presented today, current as of July 12, 2016, show that the low dose cohort of four subjects enrolled in the study experienced consistent and sustained factor IX activity levels following a single administration of SPK-9001 at the initial dose level (5 x 1011 vg/kg) studied in the trial. Across the four subjects, average steady-state factor IX activity

levels are 31.8% ±6.9% (range 20% - 44%) of normal, determined by averaging levels beginning at 8 weeks post vector administration through follow up over 12-31 weeks. No sustained elevation in liver enzyme levels were seen.

To date, SPK-9001 has been well-tolerated and no subjects have needed, or received, immunosuppression. None of the first four subjects, through a combined 76 weeks of observation, has received infusions of factor IX concentrates to prevent bleeding events. Only one precautionary infusion has taken place due to a suspected ankle bleed in one subject two days after administration of vector.

“The clinical data emerging from our hemophilia B program, which is partnered with Pfizer, continue to show early promise in achieving our goal of eliminating the need for regular factor IX infusions to control and prevent bleeding episodes in patients with these diseases through a potentially one-time, intravenous administration of highly optimized gene therapies,” said Dr. Katherine High, president and chief scientific officer of Spark Therapeutics.

These data from the Phase 1/2 clinical trial of SPK-9001 will be presented at a moderated poster presentation today, Monday July 25, at 4:00 pm (ET) at the 2016 International Congress of the World Federation of Hemophilia (WFH) by Dr. Lindsey George, a hematologist at the Children's Hospital of Philadelphia and the lead clinical investigator in the Phase 1/2 clinical trial of SPK-9001 for the treatment of hemophilia B. Dr. George also will present at a Late Breaking Gene Therapy session on Wednesday July 27, 2016 at 2:15 pm (ET).

About Hemophilia B Hemophilia is a rare genetic bleeding disorder that causes the blood to take a long time to clot as a result of a deficiency in one of several blood clotting factors, and occurs almost exclusively in males. People with hemophilia face specific risks as they are not able to form blood clots efficiently and are at risk for excessive and recurrent bleeding from modest injuries, which have the potential to be life threatening. People with severe hemophilia often bleed spontaneously into their muscles or joints. The incidence of hemophilia B is one in 25,000 male births. People with hemophilia B have a deficiency in clotting factor IX, a specific protein in the blood. Hemophilia B is also called congenital factor IX deficiency or Christmas disease. Current standard of care requires recurrent intravenous infusions of either plasma-derived or recombinant factor IX to control and prevent bleeding episodes. There exists a significant need for novel therapeutics to treat people living with hemophilia.

About the SPK-FIX Program Spark Therapeutics' proprietary technology platform for selecting, designing, manufacturing and formulating highly optimized gene therapies was applied to developing compounds in the SPK-FIX program. The SPK-FIX program leverages a long history of hemophilia gene therapy research and clinical development conducted by Spark Therapeutics and its founding scientific team over nearly three decades. SPK-9001 is a novel bio-engineered adeno-associated virus (AAV) capsid expressing a codonoptimized, high-activity human factor IX variant enabling endogenous production of factor IX. SPK9001 is being developed under a collaboration with Pfizer. Spark Therapeutics and Pfizer entered into a collaboration in 2014 for the SPK-FIX program, including SPK-9001, under which Spark Therapeutics is responsible for conducting all Phase 1/2 studies for any product candidates, while Pfizer will assume responsibility for pivotal studies, any regulatory activities and potential global commercialization of any products that may result from the collaboration.

About Spark Therapeutics Spark Therapeutics, a fully integrated gene therapy company, is seeking to transform the lives of patients with debilitating genetic diseases by developing one-time, life-altering treatments. Spark Therapeutics’ validated gene therapy platform is being applied to a range of clinical and preclinical programs addressing serious genetic diseases, including inherited retinal diseases, liver-associated diseases, such as hemophilia, and neurodegenerative diseases. Spark Therapeutics’ validated and proprietary technology platform for selecting, designing, manufacturing and formulating highly optimized gene therapies has successfully delivered gene therapies with proof-of-concept data in the eye and liver. Spark Therapeutics’ most advanced product candidate, voretigene neparvovec (formerly referred to as SPK-RPE65), which has received both breakthrough therapy and orphan product designation, reported positive top-line results from a pivotal Phase 3 clinical trial for the treatment of rare blinding conditions. Spark Therapeutics’ hemophilia franchise has two lead assets: SPK-9001, in a Phase 1/2 trial for hemophilia B and SPK-8011, a preclinical candidate for hemophilia A. To learn more, please visit www.sparktx.com.

Spark Cautionary Note on Forward-looking Statements This release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the company's SPK-FIX program. Any forward-looking statements are based on management's current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in, or implied by, such forward-looking statements. These risks and uncertainties include, but are not limited to, the risk that: (i) our lead SPK-FIX product candidate, SPK9001, may not produce sufficient

data in our Phase 1/2 clinical trial to warrant further development; and(ii) our overall collaboration with Pfizer may not be successful. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the "Risk Factors" section, as well as discussions of potential risks, uncertainties and other important factors, in our Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q and other filings we make with the Securities and Exchange Commission. All information in this press release is as of the date of the release, and Spark undertakes no duty to update this information unless required by law.

Pfizer and Rare Diseases Rare diseases are among the most serious of all illnesses and impact millions of patients worldwide, representing an opportunity to apply our knowledge and expertise to help make a significant impact in addressing unmet medical needs. The Pfizer focus on rare diseases builds on more than two decades of experience, a dedicated research unit focusing on rare diseases, and a global portfolio of more than 20 medicines approved worldwide that treat rare diseases in the areas of hematology, neuroscience, inherited metabolic disorders, pulmonology, and oncology.

Pfizer Inc: Working together for a healthier world® At Pfizer, we apply science and our global resources to bring therapies to people that extend and significantly improve their lives. We strive to set the standard for quality, safety and value in the discovery, development and manufacture of health care products. Our global portfolio includes medicines and vaccines as well as many of the world's best-known consumer health care products. Every day, Pfizer colleagues work across developed and emerging markets to advance wellness, prevention, treatments and cures that challenge the most feared diseases of our time. Consistent with our responsibility as one of the world's premier innovative biopharmaceutical companies, we collaborate with health care providers, governments and local communities to support and expand access to reliable, affordable health care around the world. For more than 150 years, Pfizer has worked to make a difference for all who rely on us. For more information, please visit us at www.pfizer.com. In addition, to learn more, follow us on Twitter at @Pfizer and @Pfizer_News, LinkedIn, YouTube and like us on Facebook at Facebook.com/Pfizer.

Pfizer Disclosure Notice: The information contained in this release is as of July 25, 2016. Pfizer assumes no obligation to update forward-looking statements contained in this release as the result of new information or future events or developments.

This release contains forward-looking information about SPK-9001 and the SPK-FIX program, including their potential benefits, that involves substantial risks and

uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Risks and uncertainties include, among other things, the uncertainties inherent in research and development, including the ability to meet anticipated clinical study commencement and completion dates as well as the possibility of unfavorable study results, including unfavorable new clinical data and additional analyses of existing clinical data; risks associated with initial data, including the risk that the final results of the Phase I/2 study for SPK-9001 and/or additional clinical trials may be different from (including less favorable than) the initial data results and may not support further clinical development; whether and when any applications may be filed with regulatory authorities for SPK-9001; whether and when regulatory authorities may approve any such applications, which will depend on the assessment by such regulatory authorities of the benefit-risk profile suggested by the totality of the efficacy and safety information submitted; decisions by regulatory authorities regarding labeling and other matters that could affect the availability or commercial potential of SPK-9001; and competitive developments.

A further description of risks and uncertainties can be found in Pfizer's Annual Report on Form 10-K for the fiscal year ended December 31, 2015 and in its subsequent reports on Form 10-Q, including in the sections thereof captioned "Risk Factors" and "Forward-Looking Information and Factors That May Affect Future Results", as well as in its subsequent reports on Form 8-K, all of which are filed with the U.S. Securities and Exchange Commission and available at www.sec.gov and www.pfizer.com.

Contacts Spark Corporate Contacts: Stephen W. Webster Chief Financial Officer Spark Therapeutics, Inc.

Daniel Faga Chief Business Officer Spark Therapeutics, Inc. (855) SPARKTX (1-855-772-7589)

Spark Media Contact: Ten Bridge Communications Dan Quinn (781) 475-7974 dan@tenbridgecommunications.com