Celgene Corporation and Sage Bionetworks Announce Technology Collaboration to Develop Observational Study Using the Apple ResearchKit Framework

*Observational study to examine the burden of chronic anemia in myelodysplastic syndromes and betathalassemia*

SUMMIT, N.J. & SEATTLE--(BUSINESS WIRE)-- Celgene Corporation (NASDAQ: CELG) and Sage Bionetworks today announced a collaboration to develop an iPhone application utilizing the Apple ResearchKit framework to improve the understanding of the burden of disease for patients living with chronic anemia due to myelodysplastic syndromes (MDS) or beta-thalassemia.

Smartphone-based apps like Sage Bionetworks' mPower for Parkinson's disease are increasingly being utilized as a tool by clinical study researchers to collect and analyze increasing volumes of patient-reported data in order to better capture and understand disease burden better and to improve therapeutic developments. Smartphone clinical study apps also enable the return communication of important study information to the patient participants.

"We stand at a point where technology is unlocking the ability to capture patient reported outcomes," said Michael Pehl, President, Hematology & Oncology for Celgene. "Through our collaboration with Sage Bionetworks and the evolving capability of smartphones and wearables as robust data collection devices, we believe we will be able to provide important new insights for patients with MDS and beta-thalassemia. We are pleased to be working alongside Sage Bionetworks and the patient community on this important project."

Celgene and Sage Bionetworks have chosen to address chronic anemia caused by myelodysplastic syndromes and beta-thalassemia. These diseases impose a great burden on affected individuals that is difficult to understand and quantify, and typically have clinical endpoints outside traditional measures. The collaboration seeks to move to a paradigm where this and other information like physiological testing are collected on a multi-dimensional and regular basis.

Already a leader in MDS, Celgene is currently developing three assets in the clinic across myelodysplastic syndromes and beta-thalassemia (CC-486, luspatercept, and enasidenib (AG-221/CC-90007)).

In addition to helping collect difficult to quantify data, the new mobile study will collect neurological assessments of patients using cognitive testing software from BrainBaseline, a leading technology for the self-assessment of cognitive performance. The app will also be an important channel for two-way communication and support for patients living with their disease - allowing them to understand their physical functioning and other symptoms of anemia.

Dr. Lara Mangravite, President of Sage Bionetworks stated, "We are thrilled to partner with Celgene to explore the use of sensor-based technologies to quantify the daily burden of disease in patients with chronic anemia. This is a first of its kind exploration from which we hope to gain insights that can be used to understand the impact of chronic anemia."

Celgene and Sage Bionetworks are working closely with the MDS Foundation (www.mds-foundation.org) and Cooley’s Anemia Foundation (www.thalassemia.org) in defining the right elements for capture in the application to ensure patient relevance and applicability.

**About Celgene**

Celgene Corporation, headquartered in Summit, New Jersey, is an integrated global biopharmaceutical company engaged primarily in the discovery, development and commercialization of innovative therapies for the treatment of cancer and inflammatory diseases through next-generation solutions in protein homeostasis, immuno-oncology, epigenetics, immunology and neuro-inflammation. For more information, please visit www.celgene.com. Follow Celgene on Social Media: @Celgene, Pinterest, LinkedIn, FaceBook and YouTube.

**About Sage Bionetworks** (www.sagebase.org)
Sage Bionetworks is a nonprofit biomedical research organization, founded in 2009, with a vision to promote innovations in personalized medicine by enabling a community-based approach to scientific inquiries and discoveries. In pursuit of this Mission, Sage Bionetworks is working with others to assemble an information Commons for biomedicine that (1) is supported by an open compute space (Synapse: www.synapse.org), (2) supports open research collaborations and innovative DREAM Challenges, and (3) empowers citizens and patients with the tools to partner with researchers and share their data through Sage’s BRIDGE platform (http://sagebase.org/bridge/) in order to drive the research studies that matter most to them.

Forward-Looking Statements

This press release contains forward-looking statements, which are generally statements that are not historical facts. Forward-looking statements can be identified by the words “expects,” “anticipates,” “believes,” “intends,” “estimates,” “plans,” “will,” “outlook” and similar expressions. Forward-looking statements are based on management’s current plans, estimates, assumptions and projections, and speak only as of the date they are made. Celgene undertakes no obligation to update any forward-looking statement in light of new information or future events, except as otherwise required by law. Forward-looking statements involve inherent risks and uncertainties, most of which are difficult to predict and are generally beyond Celgene’s control. Actual results or outcomes may differ materially from those implied by the forward-looking statements as a result of the impact of a number of factors, many of which are discussed in more detail in Celgene’s Annual Report on Form 10-K and other reports filed with the Securities and Exchange Commission.


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