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NFL & GE Announce Six Final Winners of \$10 Million Head Health Challenge I

- Innovations are advancing the understanding and diagnosis of mild traumatic brain injury
- Breakthrough ideas include: point-of-care blood test to rapidly detect the presence of mild and moderate brain trauma; biomarkers that indicate how the brain reacts following a traumatic brain injury (TBI) and a method to identify which brain areas become disconnected after injury

NEW YORK (July 23, 2015) -- GE (NYSE: GE) and the NFL announced today the six final winners of the up to \$10 million Head Health Challenge I. **Banyan Biomarkers, Inc., San Diego, Calif.; BrainScope Company, Inc. Bethesda, Md.; Medical College of Wisconsin, Milwaukee, Wis.; Quanterix, Lexington, Mass.; University of California, Santa Barbara (UCSB), Santa Barbara, Calif.; and University of Montana, Missoula, Mont.;** each will receive a \$500,000 award to advance their work to speed diagnosis and improve treatment for mild traumatic brain injury. This award is in addition to \$300,000 previously awarded to the 16 first round winners of the Head Health Challenge I.

The goal of Head Health Challenge I is to improve the safety of athletes, members of the military and society overall. The winners were selected from an initial group of 16 challenge winners that were chosen from more than 400 entries from 27 countries, after having been reviewed and nominated by a panel of leading healthcare experts in brain research, imaging technologies, and advocates for advances in brain research.

“We are truly impressed by the quality of the work and the measurable progress being made by these winning organizations,” said Alan Gilbert, director health policy, government and community strategy for GE healthymagination. “There are a number of breakthrough ideas that are advancing our understanding of the brain and have applications not only on the playing field but also extend to neurodegenerative diseases such as ALS, Parkinson’s and Alzheimer’s.”

Jeff Miller, NFL senior vice president of health and safety policy said, “It’s exciting to witness the breakthroughs accomplished by the winners. Their efforts will truly advance the science around brain injury. We look forward to continuing to support this work and benefiting not only football and other sports, but society more broadly.”

Challenge I Final Award Winners and their areas of research and innovation:

Banyan Biomarkers, Inc. San Diego, Calif. - Banyan Biomarkers, Inc. is developing a point-of-care blood test to rapidly detect the presence of mild and moderate brain trauma to improve the medical management of head injured patients. Researchers from Banyan Biomarkers and the University of Florida are collaborating on a sports concussion study to analyze biomarkers, neurocognitive testing, and neuroimaging on student athletes. Banyan Biomarkers expects twenty blood-based markers for head injury will be added to the study in the coming year which will help provide researchers a better understanding of the biochemical pathways that occur in the brain after a concussion and, ultimately, assist to develop treatments to improve clinical outcomes.

BrainScope Company, Inc. Bethesda, Md. - BrainScope, in collaboration with the Purdue Neurotrauma Group, conducted a study of athletes using both neuroimaging tools as well as BrainScope’s urgent care,

handheld, EEG-based traumatic brain injury detection technology. The research supported the utility of the BrainScope markers as a surrogate for neuroimaging and revealed its potential to identify those with increased vulnerability and susceptibility to concussion. BrainScope is developing a concussion assessment system to identify concussed from non-concussed patients and provide a method for assessment of concussed patients over time. This system in development is intended for use by clinicians from initial point-of-care assessment to rehabilitation of head-injured patients.

Medical College of Wisconsin, Milwaukee, Wis. - Using MRI scanning technology, researchers at the Medical College of Wisconsin are determining the direct effects of sports-related concussions on brain structure and function. The aim of the study is to advance the discovery of more objective biomarkers to assist in diagnosing concussion, determining when an athlete's brain has fully recovered, and clinical decision making about the athlete's fitness to return to play after a concussion.

Quanterix, Lexington, Mass. - Quanterix has developed a simple blood test to aid in the detection of traumatic brain injury. Using its Simoa technology, Quanterix is able to measure molecular signatures (biomarkers) of brain injury in blood. Quanterix is working to detect and quantify mild to moderate traumatic brain injury almost immediately after the injury has taken place, which will help to better predict the long-term prognosis of individuals who have undergone acute and repetitive injuries. Quanterix's goal is to provide a blood test that speeds the diagnosis of a concussion in a clinical setting and on the sidelines in a sports arena, therefore improving and accelerating treatment.

University of California, Santa Barbara (UCSB), Santa Barbara, Calif. - The UCSB Brain Imaging Center, in collaboration with faculty in the computer sciences, is developing statistical methods to detect damage to the deep connections in the brains of patients after a mild head injury. Recent breakthroughs in both MRI scanning and data analysis make it possible to detect subtle brain changes in individual patients after mild concussions. This approach will be tested with clinical data from collaborators using a variety of MRI scanners.

University of Montana, Missoula, Mont. - Researchers at the University of Montana have identified blood-based biomarkers that indicate how the brain reacts following a traumatic brain injury (TBI). Research over the past year has demonstrated changes in specific plasma microRNAs (micro ribonucleic acids) in TBI patients over a period of several months. The identification and validation of these markers could help with diagnosis and assessing recovery after a head injury as well as testing the effectiveness of new treatments for TBI.

Launched in March 2013, the Head Health Challenge is part of the Head Health Initiative, a four-year, \$60 million collaboration between GE and the NFL to speed diagnosis and improve treatment for mild traumatic brain injury. The initiative includes a four-year, \$40 million research and development program from the NFL and GE to evaluate and develop next generation imaging technologies to improve diagnosis that would allow for targeting treatment therapy for patients with mild traumatic brain injury.

In addition to Challenge I, GE and the NFL launched two additional open innovation challenges to invest in research and technology development to better understand, diagnose and protect against brain injury. Challenge II was initiated by GE, the NFL and Under Armour to uncover new innovations and materials that better protect the brain from traumatic injury and new tools for tracking head impacts in real time. GE, the NFL and Under Armour also have partnered with the Department of Commerce's National Institute of Standards and Technology (NIST) to launch Head Health Challenge III, an open

innovation competition to promote next generation materials that better absorb or dissipate energy. These new materials could improve the performance of protective equipment for athletes, military personnel and those in dangerous occupations.

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