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News Release

NIH awards Acelerox grant to develop PEG-HCC nanoparticle for treatment of Alzheimer's Disease

HOUSTON, November 29, 2017 – The National Institute of Aging has awarded Acelerox, LLC, a Fannin Innovation Studio® company, a $224,813 grant to develop poly(ethylene glycol)-functionalized hydrophilic carbon clusters (PEG-HCC) antioxidant nanoparticles as a novel therapeutic to minimize neural degeneration by targeting brain cells.

Acelerox is a preclinical biotechnology company developing novel antioxidant nanoparticles for therapeutic use in cancer, neurological and autoimmune diseases. In partnership with Baylor College of Medicine, this award will be used to optimize the therapeutic approach. Proper axonal transport is essential for maintenance of neuronal homeostasis and optimum function. Deficiencies of axonal transport have been linked to Alzheimer's disease (AD) and can be modeled in cultured cells and animal models. Oxidative stress has been shown to be a key contributor to the pathogenesis of AD, including deficient axonal transport. Reduction of oxidative stress through ectopic expression of reactive oxygen species (ROS) scavenging proteins or the administration of antioxidant drugs have effectively demonstrated restorative effects on AD pathology. PEG-HCCs are a novel class of nanoparticles which can scavenge reactive oxygen species (ROS). Preliminary results provide evidence that PEG-HCCs may have a protective effect against Alzheimer's disease-related pathologies.

Acelerox proposes to further these studies of PEG-HCCs in the treatment of AD, using an established animal model of AD to assess the ability of PEG-HCCs to reach the brain, improve neuronal function, and AD-associated behavioral abnormalities. In addition to these studies in the auditory system, PEG-HCCs are also being evaluated to address rheumatoid arthritis, chemotherapy-induced hearing loss, spinal cord injury and the associated gastrointestinal loss of function.

PEG-HCCs were developed by James M. Tour, Ph.D., T. T. and W. F. Chao Professor of Chemistry, Professor of Computer Science, and Professor of Materials Science and NanoEngineering at Rice University. The Principal Investigator for the grant is Robia Pautler, Ph.D., Associate Professor in the department of Molecular Physiology at Baylor College of Medicine, whose research is aimed at understanding in vivo alterations in axonal transport in Alzheimer's disease using a novel imaging technique developed in her laboratory. Dr. Pautler, who's established AD as a viable indication for PEG-HCCs, said, "AD patients face unique therapeutic challenges. Development of an intranasally

deliverable treatment with potentially preventative functions can change the outlook for so many people who are predisposed to developing this devastating disease."

Dr. Dev Chatterjee, co-investigator for this study shares that "Acelerox sees great promise in the application of PEG-HCCs in Alzheimer's disease. We believe that our technology could be an effective treatment for many diseases involving excess ROS."

Acelerox is a portfolio company of Fannin, a Houston-based company that provides integrated funding and management of early-stage life science startups. Acelerox research and development activities are actively managed by Fannin Principal Dev Chatterjee, M.D., Ph.D, and Aundrietta Duncan, Ph.D. Fannin's Managing Partner Atul Varadhachary, M.D., Ph.D., serves as President.

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About Fannin Innovation Studio

Houston-based Fannin Innovation Studio is an early-stage life sciences development group focused exclusively on commercializing medical technologies. Fannin partners with life science innovators to co-found startup companies and provides a pooled management team, funding, and administrative support. To further bridge the commercialization gap, Fannin's internship and fellowship programs provide aspiring entrepreneurs with hands-on development experience with its portfolio companies. For more information, visit www.FanninInnovation.com or email innovate@fannininnovation.com.

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