THE PAUL G. ALLEN FAMILY FOUNDATION

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The Paul G. Allen Family Foundation Drives Major Traumatic Brain Injury Study Forward With $2.37MM Grant

First-of-its-kind research initiative, led by researchers at University of Washington and Allen Institute for Brain Science, to investigate unknowns of TBIs

SEATTLE, Wash. – November 21, 2013 – The Paul G. Allen Family Foundation has awarded a new $2.37 million grant to help Seattle-area researchers embark on an important research effort designed to investigate the lasting effects of traumatic brain injuries (TBI) in people – an area that has long been filled with question marks for physicians and scientists. The grant, awarded over two years to the University of Washington and the Allen Institute for Brain Science, will help fill in the gaps about the unknown lasting structural and biological effects of TBI.

The team of researchers will analyze brain tissues from a robust sample set, the well-known Seattle-based Adult Changes in Thought (ACT) study, zeroing in on what goes wrong in the brain after a TBI and if there are any corresponding disorders and complications. Study data will be loaded into the Allen Brain Atlas web portal, where researchers around the world can access the new TBI data for free.

“Awareness of TBI has grown in recent years, but our understanding of what actually happens to the brain in the years following that type of injury is still a great mystery,” said Susan M. Coliton, Vice President of The Paul G. Allen Family Foundation. “This unmatched investigation into the long-term impacts of TBI is bold discovery science at its best, and we are proud to support this important work.”

The primary investigators leading the project are: **Dr. Richard G. Ellenbogen,** Chairman of the Department of Neurological Surgery at The University of Washington; **Dr. Ed Lein,** Investigator at the Allen Institute for Brain Science; and **Dr. C. Dirk Keene,** Assistant Professor in the Division of Neuropathology at the University of Washington.

"The ‘perfect storm’ of soldiers returning from Iraq and Afghanistan with TBI and PTSD, and the increased recognition of concussion in youth and professional sports has inspired neuroscientists to better understand the short- and long-term consequences of TBI,” said Dr. Ellenbogen of the University of Washington. **“**The Allen Foundation has generously funded a unique collaboration between some of the leading scientific institutions in the Northwest to answer the timely and much asked question of who is at risk of neurological consequences after a TBI, one of the most common injuries worldwide. "

“This grant will allow us to expand on our molecular and anatomical atlasing of the normal human brain to collaboratively analyze the long-term impact of trauma to the brain,” said Dr. Lein of the Allen Institute. “We will be able to leverage our technologies and the open access Allen Brain Atlas resource to share the data from this study to accelerate progress toward understanding of brain function and treatment for brain injury.”

More than 5.3 million Americans currently live with a TBI-related disability, and the World Health Organization predicts that by 2020, TBI will be the third-leading cause of death and disability for all ages worldwide. Research into TBI to date has focused on the immediate impacts of mild trauma, but the broader, lasting consequences of a single or repetitive brain injury are still unclear. There are currently no standard guidelines for physicians to determine if neurodegeneration has happened after such an injury, making it difficult to diagnose or connect a TBI with complications that may occur years or decades after the incident.

Researchers will analyze hundreds of brain samples from participants in ACT, which is a nearly two decades-long study of aging in people leading normal lives in the Seattle community. The sample set, made available through a partnership with Seattle's Group Health Research Institute, is unique because it allows scientists from the Allen Institute, University of Washington, and Group Health Research Initiative to compare TBI samples with control samples and identify differences between them.

"The opportunity to work on the TBI project and use our unique brain resource, donated by Group Health participants, to improve understanding of brain aging fits perfectly with our goal to understand how human brains change over time with age," said Dr. Eric B. Larson, Principal Investigator of the Group Health ACT study and Vice President for Research at Group Health.

In addition to determining late effects of TBI on the brain, the study aims to understand relationships between TBI and other age-related neurodegenerative diseases like Alzheimer's or Parkinson's; identify and characterize TBI-specific changes using state-of-the-art technology; and determine how brains are impacted at the molecular and cellular level by TBI-related neurodegeneration.

"For the first time, we will determine the structural and molecular genetic changes that occur in the brain years or decades after a TBI. This study is finally possible through the generosity and vision of the Allen Foundation, and through partnership with the Allen Institute and the Adult Changes in Thought study, which has one of the largest and best characterized population-based brain repositories in the world," said Dr. Keene of the University of Washington**.** **"**The enormous data sets generated by this study will be invaluable resources for TBI researchers long into the future, and will hopefully help clinicians develop better strategies to diagnose and treat the disease."

Funding science is a priority area for The Paul G. Allen Family Foundation, accounting for over a third of its historic giving. The new grant is complementary to the Foundation's Allen Distinguished Investigators program, which supports scientists pursuing ambitious, pioneering research and the ongoing work of the Foundation's affiliate organization, The Allen Institute for Brain Science.

About The Paul G. Allen Family Foundation

Launched by Microsoft co-founder and philanthropist Paul G. Allen and Jody Allen in 1988, the Allen family's philanthropy is dedicated to transforming lives and strengthening communities by fostering innovation, creating knowledge and promoting social progress. Since inception, the Foundation has awarded over $475 million to more than 1,400 nonprofit groups to support and advance their critical charitable endeavors in the Pacific Northwest and beyond. The Foundation's funding programs nurture the arts, engage children in learning, address the needs of

vulnerable populations, and advance scientific and technological discoveries. For more information, go to www.pgafamilyfoundation.org.

About The Allen Institute for Brain Science

The Allen Institute for Brain Science (www.alleninstitute.org) is an independent, 501(c)(3) nonprofit medical research organization dedicated to accelerating the understanding of how the human brain works in health and disease. Using a big science approach, the Allen Institute generates useful public resources used by researchers and organizations around the globe, drives technological and analytical advances, and discovers fundamental brain properties through integration of experiments, modeling and theory. Launched in 2003 with a seed contribution from founder and philanthropist Paul G. Allen, the Allen Institute is supported by a diversity of government, foundation and private funds to enable its projects. Given the Institute's achievements, Mr. Allen committed an additional $300 million in 2012 for the first four years of a ten-year plan to further propel and expand the Institute's scientific programs, bringing his total commitment to date to $500 million. The Allen Institute's data and tools are publicly available online at www.brain-map.org.

About UW Medicine

UW Medicine is part of the University of Washington. Its mission is to improve the health of the public by advancing medical knowledge, providing patient care, and training the next generation of physicians and other health professionals. Its system includes Harborview Medical Center, Northwest Hospital & Medical Center, Valley Medical Center, UW Medical Center, UW Neighborhood Clinics, UW Physicians, UW School of Medicine and Airlift Northwest. UW Medicine is affiliated with Seattle Children's, Fred Hutchinson Cancer Research Center, the Veteran's Affairs Healthcare System in Seattle, and the Boise VA Medical Center. It shares in the ownership and governance of the Seattle Cancer Care Alliance and Children's University Medical Group. Visit http://uwmedicine.org for details

About the Group Health Research Institute

Group Health Research Institute does practical research that helps people like you and your family stay healthy. The Institute is the research arm of Seattle-based Group Health Cooperative, a consumer-governed, nonprofit health care system. Founded in 1947, Group Health Cooperative coordinates health care and coverage. Group Health Research Institute changed its name from Group Health Center for Health Studies in 2009. Now celebrating its 30th anniversary year, the Institute has conducted nonproprietary public-interest research on preventing, diagnosing, and treating major health problems since 1983. Government and private research grants provide its main funding.

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