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ALLEN INSTITUTE RECEIVES \$4.75 MILLION BRAIN INITIATIVE GRANT

Funding from the NIH will support the publicly accessible Allen Institute Cell Types Database

SEATTLE, WASH. — September 30, 2014 — The Allen Institute for Brain Science has been awarded a \$4.75 million, three-year BRAIN Initiative grant to create a prototype database of cell types in the mouse brain, in a critical step toward understanding many brain diseases and disorders. The team, led by Hongkui Zeng, Ph.D., Senior Director of Research and Development at the Allen Institute, will collaborate with David Anderson, Ph.D., Howard Hughes Medical Institute (HHMI) Investigator at the California Institute of Technology and Karel Svoboda, Ph.D., at the Janelia Research Campus of HHMI to collect a wide variety of information about cells, including genetic, physiological, morphological and connective data. All the data will be mapped onto the Common Coordinate Framework: a unique product of the Allen Institute that allows researchers to quantitatively assess data on a three-dimensional reference brain. Like all Allen Institute products, the Allen Institute Cell Types Database will be publicly available online for scientists around the globe.

“Support from the NIH through the BRAIN Initiative will be instrumental in helping advance a project that will impact and benefit the entire neuroscience community,” says Allan Jones, CEO of the Allen Institute for Brain Science.

Both the BRAIN Initiative and the Allen Institute for Brain Science have identified cell types as a crucial pillar in the current landscape of neuroscience research. “Neuronal cell types are the foundational building blocks of circuits in the brain, so if we want to understand how circuits work—in everything from information processing to states of health and disease—we need to know more about the parts that comprise them,” explains Zeng.

Cells can be defined by a variety of characteristics. This project will seek to identify cells by many different paradigms. Researchers will collect data on genetic profiles, electrophysiological properties, and the shape and structure of individual neurons.

All the data will be mapped onto a three-dimensional template brain known as the Common Coordinate Framework. This unique resource builds on the original Allen Mouse Brain Reference Atlas and contains a precise anatomical description of each region of the brain. “Mapping data from many different modalities onto a single reference brain is essential for us to understand how genetic expression at the single cell level relates to *in vivo* brain activities, for instance, or how the shape of a neuron relates to its function within a circuit,” says Zeng. “This is the only way we can gain a comprehensive understanding of how individual cells act together in the highly complex brain networks.”

The project will be a collaborative effort between the Allen Institute for Brain Science and the academic labs of David Anderson at Caltech and Karel Svoboda at Janelia Research Campus. Because academic labs have expertise and biological insight into particular brain circuits, and the Allen Institute has proven experience in building scalable, shareable scientific resources for the larger scientific community, the collaboration promises to make the resulting Allen Institute Cell Types Database an exceptionally useful public tool.

The project described was supported by award number U01MH105982 from the National Institute of Mental Health and Eunice Kennedy Shriver National Institute of Child Health & Human Development, totaling \$4.75M. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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.

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