ALLEN INSTITUTE for BRAIN SCIENCE

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ALLEN INSTITUTE FOR BRAIN SCIENCE ANNOUNCES MAPPING OF THE MOUSE CORTEX IN 3D

Data release also includes updates to several other Allen Brain Atlas resources

SEATTLE, WASH. — October 27, 2016 — The Allen Institute for Brain Science has completed the three-dimensional mapping of the mouse cortex as part of the Allen Mouse Common Coordinate Framework (CCF): a standardized spatial coordinate system for comparing many types of data on the brain from the suite of Allen Brain Atlas resources.

"Maps of the brain have always been created in two dimensions, but even a stack of flat maps sitting on top of each other does not necessarily align with the complex three-dimensional nature of the brain," says Christof Koch, Ph.D., President and Chief Scientific Officer of the Allen Institute for Brain Science. "The Common Coordinate Framework is a remarkable effort to capture a typical mouse brain in its true three dimensions, and serves as a valuable platform on which to present many of our other data resources."

"Annotating the cortex in three dimensions was no small task," says Lydia Ng, Ph.D., Senior Director of Technology at the Allen Institute for Brain Science. "It required the expertise of both technologists and anatomists working closely and for many long hours to generate the data. The CCF enables quantification and comparison of many types of data, including gene expression, connectivity, single cell characterization and functional imaging. This is a truly unique resource for the neuroscience community to understand the structure and function of the mouse brain."

The Common Coordinate Framework was built by carefully averaging the anatomy of 1,675 specimens from the Allen Mouse Brain Connectivity Atlas. Researchers used transgenic mouse lines and data from viral tracers to draw boundaries between 43 regions of the cortex.

The end result is a template brain rendered faithfully in three dimensions, which serves as a useful guide to mouse brain anatomy as well as a platform for comparing data across many Allen Brain Atlas resources.

The October data release also includes updates to several other resources. The Allen Brain Observatory, launched in May, received a back-end overhaul that enables robust search and the addition of more than 30 new datasets and additional engineered mouse lines. The Allen Cell Types Database and the Allen Mouse Brain Connectivity Atlas are also updated with new data.

About the Allen Institute for Brain Science

The Allen Institute for Brain Science is a division of the Allen Institute (alleninstitute.org), an independent, 501(c)(3) nonprofit medical research organization, and is 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 for Brain Science's data and tools are publicly available online at brain-map.org.

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