ALLEN INSTITUTE for BRAIN SCIENCE
Fueling Discovery

ALLEN INSTITUTE SCIENTIST, ADRIAN CHENG, NAMED TO FORBES' 30 UNDER 30 AS A RISING STAR IN SCIENCE

SEATTLE, WASH. — **December 17, 2012** — Adrian Cheng, a scientist at the Allen Institute for Brain Science, was named today in Forbes' second annual "30 Under 30" list of tomorrow's brightest stars. Cheng invented a powerful microscope technology that can image thousands of neurons in the brain simultaneously. The technique allows scientists to watch the working brain at unprecedented scale and resolution, capturing images nearly ten times faster than a video camera.

Cheng, 28, received his Ph.D. in physics from the University of California, Los Angeles where he invented the microscope technology, called STEM (Spatio-Temporal Excitation-Emission Multiplexing), and published the original work in the journal *Nature Methods*. Traditional techniques for viewing cells in the living brain can only capture a single cell or a handful of cells, without knowing their identities. Cheng's new technology enables scientists to view the location, shape, architecture, and genetic identity of entire neural circuits in the living brain.

Now a scientist at the Allen Institute, Cheng is building imaging capabilities for visualizing the brain at work as part of the Allen Institute's new neural coding initiative. This large-scale, multi-disciplinary research program aims to understand and uncover fundamental principles governing how the brain processes information to drive perception, behavior and other functions. Using the STEM microscopy technique, the neural coding initiative will catch brain circuitry in the act of translating light signals captured by the eyes into perceptions of complex scenes and behavioral responses. In keeping with the Allen Institute's open science research model, this work will provide publicly available data, tools and resources to scientists worldwide.

"This technology was built upon research efforts throughout the microscopy, vision research, and behavioral neuroscience communities," said Cheng. "It's the product of a truly interdisciplinary effort."

Forbes' "30 Under 30" lists thirty amazing individuals in fifteen categories under the age of 30 (available at www.forbes.com/under30). Forbes collaborated with experts in diverse industries to develop a list of 450 people under 30 who are making waves today, and who are destined to still be shaking things up years from now. The 15 categories include Art & Style, Education, Energy, Finance, Food & Wine, Games & Apps, Hollywood, Law & Policy, Media, Marketing & Advertising, Music, Science & Healthcare, Social Entrepreneurs, Sports and Technology.

Citation: Cheng et al. (2011) Simultaneous two-photon calcium imaging at different depths with spatiotemporal multiplexing. *Nature Methods* 8:139-142

About the Allen Institute for Brain Science
The Allen Institute for Brain Science (http://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 team 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 http://www.brain-map.org.

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Media Contact:
Steven Cooper, Edelman for the Allen Institute for Brain Science
646.358.2765; press@alleninstitute.org