**First Allen Distinguished Investigators Named**

*Paul G. Allen Family Foundation Announces Seven Grants Totaling $9.4 Million for Scientific Research*

11/18/2010

**FOR IMMEDIATE RELEASE**

**18, 2010 –** The Paul G. Allen Family Foundation today launched a program to advance important neuroscience and cellular engineering research. The Allen Distinguished Investigator Awards will fund seven researchers at universities and laboratories in Washington, California, Massachusetts and New York.

The grants total $9.4 million and will be paid over three years.

"A year ago, I started searching for programs with potential for major breakthroughs but which had struggled to find funding through traditional sources," said Paul G. Allen. "The inaugural Distinguished Investigators are working on some of the most exciting research in biology and neurology and I'm proud to be able to help keep that work going."

The grants are awarded to the institutions where the researchers work; the University of Washington, California Institute of Technology, Massachusetts Institute of Technology, Stanford University and Cold Spring Harbor Laboratory. Award recipients and projects funded include:

- **David Anderson, Seymour Benzer Professor of Biology & Investigator, Howard Hughes Medical Institute, California Institute of Technology ($1.6 million)**

  *Project Title: Genetic identification of attack neurons in the mouse*

  Dr. Anderson is working to localize, identify, characterize, and turn on neurons in the hypothalamus associated with attack and bring the study of aggression into the modern molecular era.

- **Edward S. Boyden, Benesse Career Development Professor, MIT Media Lab and associate member, McGovern Institute for Brain Research at MIT ($1.3 million)**

  *Project Title: Massively Parallel, Three-Dimensional, Circuitwide Recording of Neural Activity*

  Dr. Boyden, who heads the MIT Media Lab's Synthetic Neurobiology research group, is inventing new devices for creating real-time electrical maps of the brain in three dimensions.

- **Michael Dickinson, Benjamin Hall Endowed Chair in Basic Life Sciences, University of Washington ($2.0 million)**

  *Project Title: Ethomics: A Technology-driven Approach to Study the Genetic and Neural Basis of Behavior* Using the fruit fly, or *D. melangaster,* Professor Dickinson is working to develop new instruments to expand the body of knowledge in the field of measuring and quantifying complex group behavior in the relatively new field of study called "ethomics."

- **Christof Koch, Lois and Victor Troendle Professor of Cognitive and Behavioral Biology, California Institute of Technology ($600,000)**

*Project Title: Evaluating Connectomes Using Measures of Complexity and Synergy*

Professor Koch studies information processing by neural systems, using computational and theoretical approaches. He will specifically analyze the locomotion network in a worm, *C. elegans,* with an eye toward assessing the information flow in the neural network that leads to a clearly measurable behavior.

- **Jennifer Nemhauser, Assistant Professor, University of Washington ($1.4 million)**

  *Project Title: Reprogramming Cells with Plant-derived Signaling Pathways*

  Dr. Nemhauser aims to reverse engineer a cell-to-cell communication system from plants, construct a modular molecular signal processing toolbox for synthetic biology, and to use the toolbox to genetically engineer the single celled organism *S. cerevisiae,* to exhibit multi-celled behavior.

- **Mark Schnitzer, Associate Professor & Investigator, Howard Hughes Medical Institute, Stanford University ($880,000)**

  *Project Title: Massively Parallel Brain Imaging in Mouse Models of Human Brain Disease*

  Professor Schnitzer's research will strive to develop miniaturized, mass-producible, fluorescence microscopes that can create real-time imaging of neurons in the brain. The data will be used to unravel the neural and cellular basis of schizophrenia.

- **Tony Zador, Professor of Biology and Program Chair in Neuroscience, Cold Spring Harbor Laboratory ($1.6 million)**

  *Project Title: Sequencing the connectome: A fundamentally new way of determining the brain's wiring diagram*

  Professor Zador proposes to develop a method for mapping the wiring diagram of neural circuits using high-throughput DNA sequencing technology.

Susan M. Coliton, Vice President of The Paul G. Allen Family Foundation, said, "One of the Foundation's goals is to support projects that create new knowledge about ourselves and our universe. Making investments in early stage, cutting-edge research leverages both our funding and the intellectual capital of talented scientists. We couldn't be more thrilled about the potential of this inaugural group of Allen Distinguished Investigators."

The research also complements work being done by the Allen Institute for Brain Science. The Institute is conducting leading-edge research, including development of a 3-D genetic map of the human brain. The data, made available to researchers without cost, will shed light on many neurologically based conditions, including behavioral dysfunction and diseases such as Parkinson's and Alzheimer's.

Earlier this year, Allen said that he will leave a majority of his estate to philanthropy, including to continue the work of the brain institute and the family foundation.

***2010 Marks 20th Anniversary of Paul G. Allen Family Foundation***

Over the past 20 years, Paul Allen's contributions to the Foundation have resulted in more than 3,000 grants totaling over $400 million. In addition to contributions to his family foundation, he has provided $600 million directly to nonprofits he has founded, including the Allen Institute for Brain Science and the Experience Music Project, for a total of over $1 billion in personal giving.

The Paul G. Allen Family Foundation is a longstanding supporter of nonprofit organizations focused on making positive and measurable change. The Foundation's vision for transforming lives and building healthy communities guides its five priority program funding areas, which include nurturing the arts, engaging children in learning, addressing the needs of vulnerable populations, advancing scientific and technological discoveries, and providing economic relief amid tough economic times.

You can learn more about the Paul G. Allen Family Foundation at www.pgafamilyfoundation.org.

To read a special report celebrating the Foundation's 20 years of giving, go to: http://www.pgafamilyfoundation.org/decadereport/

More about the inaugural Allen Distinguished Investigators research projects:

- David Anderson: Dr. Anderson's project is aimed at identifying specific classes of neurons that control emotional behaviors in mice, using powerful genetic tools. If such neurons can be identified, it will greatly facilitate the study of how they are wired into the brain's circuitry, and how this circuitry is affected by genetic and environmental factors that influence emotional behavior. Such studies could potentially lead to the development of new treatments for emotional disorders. http://cns.caltech.edu/people/faculty/anderson.html

- Edward S. Boyden: Dr. Boyden is devising a new kind of probe for recording the activity of neurons distributed in multiple sites in the brain, in order to open up the exploration of how distributed neurons work together to implement behavior, and how these computations go awry in pathological states. Such detailed descriptions of brain dynamics will support the discovery of new targets for therapeutically improving brain function in neurological and psychiatric disorders, while minimizing side effects. http://syntheticneurobiology.org/

- Michael Dickinson: Dr. Dickinson's work is aimed at developing new technology for measuring complex behavior with the ease, reliability, and power of approaches used to sequence and manipulate genomes. The research will focus on the fruit fly, Drosophila, which has emerged as a powerful genetic model organism in the study of general brain function. The work will advance the field of neuroscience by finalizing the intellectual and technological synthesis necessary to understand brain function at the genetic, cellular, and organismal levels. In doing so, the research should provide insight into many biological processes involved in mental health disorders. http://www.dickinson.caltech.edu/

- Christof Koch: Dr. Koch's group seeks to characterize the complexity of the *connectome*, that is the complete set of connections among all processing elements of a particular nervous system, and its ability to integrate information using a combination of analysis and computation. They propose that integrated information – a measure that uses variables such as conditional entropy from information theory - is a critical property of nervous systems. The Koch lab believes that evolution by natural selection gives rise to a systematic increase in the integrated information of brains. They propose to demonstrate this for both simulated artificial networks that evolve and/or learn as well as for extant neurobiological networks – here the known locomotion network of the roundworm *Caenorhabditis elegans*. http://www.klab.caltech.edu/~koch/

- Jennifer Nemhauser: Dr. Nemhauser's project is to reverse engineer the cellular response to the plant hormone auxin–central to nearly every aspect of higher plant life and evolution–using single-celled yeast as a testbed. This approach will allow them to study each part of the auxin response circuit in detail and use this knowledge to build entirely new circuits for a wide range of possible applications. http://protist.biology.washington.edu/nemhauser/people.htm

- Mark Schnitzer: Professors Mark Schnitzer and Abbas El Gamal, along with Dr. Kunal Ghosh and their collaborators, are developing enabling technologies for large-scale brain imaging studies in mouse models of human brain disease. They will develop mass-producible, miniaturized optical microscopes for imaging neural activity in freely behaving mice. Such optical recordings will be used to gain crucial knowledge of the normal patterns of neural circuit dynamics and how these patterns may go awry in disease states. This is a key step towards the design of novel therapeutic and corrective strategies. http://pyramidal.stanford.edu/

- Tony Zador: Dr. Zador proposes to develop a highly efficient method for determining the neural wiring diagram for any genetically accessible organism. Such a method would transform neuroscience research. The brain is a network of incredible complexity, consisting of billions of neurons connected by trillions of synapses. The details of these connections--the precise wiring diagram specifying which neurons form synaptic connections with which other neurons--are crucial in determining brain function. However, for technical reasons the details of this wiring diagram have remained inaccessible. http://zadorlab.cshl.edu/

**Media Contacts:**

Aaron Blank or Lora Lee, for the Paul G. Allen Family Foundation

(206) 343-1543, aaronblank@feareygroup.com or llee@feareygroup.com

**SEATTLE, Wash. – November**

###

<< BACK