NIH and the BRAIN Initiative
Francis S. Collins, M.D., Ph.D.
Director, National Institutes of Health
Congressional Briefing
June 12, 2013
Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative

- Accelerate new technologies to
  - Produce real-time pictures of complex neural circuits
  - Visualize rapid-fire interactions of cells at the speed of thought

- Open new doors to understanding
  - How brain function is linked to human behavior and learning
  - Mechanisms of brain disease
Neurological and Psychiatric Disorders: Challenges and Opportunities

- Brain disorders: #1 source of disability in U.S.
  - Alzheimer’s, Parkinson’s, autism, schizophrenia, epilepsy, TBI
  - > 100 million Americans affected
  - Billions of dollars a year in health care costs
  - Untold human suffering

- 86 billion neurons, each with thousands of connections
  - Perception
  - Memory
  - Emotion
The Science Is Ready

- Progress in neuroscience is yielding new insights into brain structure, function

- Progress in optics, genetics, nanotechnology, informatics, etc. is rapidly advancing design of new tools
## BRAIN Initiative Partners

### FY2014 Investments

<table>
<thead>
<tr>
<th>Government Agencies</th>
<th>$ in Millions</th>
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<tbody>
<tr>
<td>National Institutes of Health</td>
<td>$40</td>
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<tr>
<td>Defense Advanced Research Projects Agency</td>
<td>$50</td>
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<td>National Science Foundation</td>
<td>$20</td>
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<th>Private Organizations</th>
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<td>Allen Institute for Brain Science</td>
<td>$60</td>
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<tr>
<td>Howard Hughes Medical Institute</td>
<td>$30</td>
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<td>Salk Institute for Biological Studies</td>
<td>$28</td>
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<td>The Kavli Foundation</td>
<td>$4</td>
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Goals of NIH BRAIN Initiative

- Accelerate development, application of innovative technologies to construct dynamic picture of brain function that integrates neuronal and circuit activity over time and space

- Build on growing scientific foundation – neuroscience, genetics, physics, engineering, informatics, nanoscience, chemistry, mathematics, etc. – to catalyze interdisciplinary effort of unprecedented scope
How Will NIH BRAIN Initiative Work?

- Plan to be developed by a working group of the Advisory Committee to the Director, NIH
  - Selected for visionary leadership, expertise
  - Charged with articulating scientific goals, developing plan
    - Including timetables, milestones, costs

- Informed by experts across sectors and disciplines; assisted by NIH Blueprint for Neuroscience Research

- NIH BRAIN Working Group will
  - Seek broad input; hold open meetings, workshops
  - Deliver interim report on high-priority areas for FY14 funding in summer 2013; final report, June 2014
NIH BRAIN Initiative Team

Cornelia Bargmann, PhD (co-chair)
The Rockefeller University

Bill Newsome, PhD (co-chair)
Stanford University

David Anderson, PhD
California Institute of Technology

Emery Brown, MD, PhD
Massachusetts Institute of Technology

Karl Deisseroth, MD, PhD
Stanford University

John Donoghue, PhD
Brown University

Peter MacLeish, PhD
Morehouse School of Medicine

Eve Marder, PhD
Brandeis University

Richard Normann, PhD
University of Utah

Joshua Sanes, PhD
Harvard University

Mark Schnitzer, PhD
Stanford University

Terry Sejnowski, PhD
Salk Institute for Biological Studies

David Tank, PhD
Princeton University

Roger Tsien, PhD
University of California, San Diego

Kamil Ugurbil, PhD
University of Minnesota

EX OFFICIO MEMBERS
Kathy Hudson, PhD
National Institutes of Health

Geoffrey Ling, MD, PhD
Defense Advanced Research Projects Agency

John Wingfield, PhD
National Science Foundation
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Public will be able to receive updates, contribute to discussion, at http://www.nih.gov/science/brain/
Features of NIH BRAIN Initiative

- Impact on support for other research
  - NIH spends approximately $5.5B on neuroscience research; BRAIN Initiative is <1%

- Potential for wide-ranging benefits
  - Dedicated to providing tools to enhance many areas of research
  - Should provide methods for deeper understanding of all brain disorders
NIH... Turning Discovery Into Health®