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the WHITE HOUSE



PRESIDENT OBAMA IS CALLING ON THE SCIENCE COMMUNITY  
TO JOIN HIM IN PURSUING A GRAND CHALLENGE

# BRAIN INITIATIVE

BRAIN RESEARCH  
THROUGH ADVANCING  
INNOVATIVE  
NEUROTECHNOLOGIES



**\$100  
MILLION**

Approximate investment to give  
scientists the tools they need  
to get a dynamic picture of the  
brain and **better understand how  
we think, learn, and remember.**

BRAINSTEM





**DARPA**  
DEFENSE ADVANCED  
RESEARCH PROJECTS AGENCY

\$50 million for understanding the dynamic functions of the brain and demonstrating breakthrough applications based on these insights

**NIH**  
NATIONAL INSTITUTES  
OF HEALTH

Approximately \$40 million to develop new tools, training opportunities, and other resources

**NSF**  
NATIONAL SCIENCE  
FOUNDATION

Approximately \$20 million to support research that spans physical, biological, social, and behavioral sciences.



PURKINJE CELLS





DENTATE GYRUS

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## POSSIBLE LONG-TERM OUTCOMES

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Better understand the mechanisms underlying Parkinson's disease to inform improved treatments, preventions, and even cures

Reduce language barriers through technological advances in how computers interface with human thought

Develop solutions to prevent, treat, or even reverse the harmful effects of PTSD and Traumatic Brain Injury in returning war veterans

Create high-tech jobs for Americans in cutting-edge industries of the future







**Key private sector partners have made important commitments to support the BRAIN Initiative. We encourage companies, universities, and philanthropists to get involved.**



OCULOMOTOR NEURONS

## PARTNERS

**\$60 MILLION**  
ANNUALLY  
THE ALLEN INSTITUTE  
FOR BRAIN SCIENCE

**\$30 MILLION**  
ANNUALLY  
HOWARD HUGHES  
MEDICAL INSTITUTE

**\$4 MILLION**  
ANNUALLY FOR 10 YRS  
KAVLI FOUNDATION

**\$28 MILLION**  
SALK INSTITUTE FOR  
BIOLOGICAL STUDIES

## GOALS

Understand how brain activity leads to perception, decision making and ultimately action

Develop new imaging technologies and understand how information is stored and processed in neural networks

Provide the knowledge for addressing debilitating diseases and conditions

Produce a sophisticated understanding of the brain, from individual genes to neuronal circuits to behavior





## MAINTAINING OUR HIGHEST ETHICAL STANDARDS

President Obama will direct his Commission for the Study of Bioethical Issues to **explore the ethical, legal, and societal implications raised by this research initiative** and other recent advances in neuroscience.

*DENTATE GYRUS - HILUS*



The Human Genome Project demonstrates the potential impact that ambitious research programs like the BRAIN initiative can have. From 1988-2003, the Federal Government invested \$3.8 billion in the Human Genome Project, which has since generated an economic output of \$796 billion—a return of \$141 for every \$1 invested.



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All images from: [cbs.fas.harvard.edu/science/connectome-project/brainbow](http://cbs.fas.harvard.edu/science/connectome-project/brainbow)

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