

## A Message from the Director of the National Science Foundation

This month, I toured the National MagLab to get a closer view of some of the world's strongest and most unique magnets. These one-of-a-kind tools draw over 1000 researchers to the facility annually as they study a variety of topics from materials to neuroscience. Since we also celebrated Brain Awareness Week this month, I'd like to share with you a few examples of how the NSF-funded MagLab is advancing neuroscience.

The MagLab is home to the most powerful small animal magnetic resonance imaging (MRI) scanner in the world. This tool allowed researchers for the first time ever to identify blood vessels in the mouse brain, track the chemical and metabolic pathways in bird brains and monitor oxygen in a living rat brain.

These findings lay the groundwork for research in memory and learning, biochemical impacts of drug abuse and tumor detection. The MagLab is also part of an international team developing the most powerful MRI for human use ever constructed.

NSF-funded neuroscience research, whether through "big science" like the MagLab or at individual benchtops, is creating new tools to extend understanding of the brain's structure, activity and function. With the launch of the U.S. Brain Initiative in 2013, NSF established an agency-wide brain research program—Understanding the Brain (UtB)—to complement its ongoing neuroscience efforts. Over the last four years, NSF doubled its UtB investments, going from \$75 million to over \$140 million annually, primarily by increasing funding of neurotechnologies. This translated into 384 new awards.

In response to Congressional guidance, NSF supports efforts to coordinate the many independent, large-scale brain projects now underway in several different countries. In September 2016, NSF co-sponsored an international conference that was a critical step toward establishing a Global Brain Initiative.

NSF will continue to foster the establishment of a data and research infrastructure for neuroscience with an emphasis on new technologies, training and international collaboration. This is an opportunity to come together and chart a new path towards understanding the complexity of the brain. What we learn from this endeavor is sure to enhance society in ways we can only begin to imagine.



*Francé A. Córdoba*

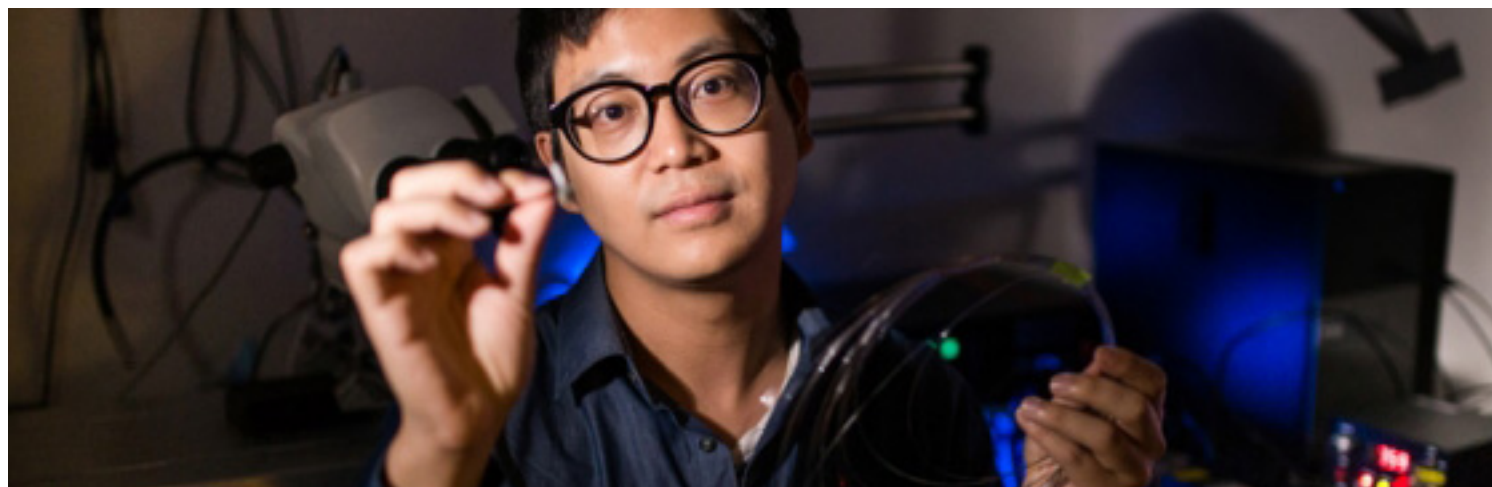
Dr. France A. Córdoba  
Director, National Science Foundation  
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## Where Discoveries Begin...



### [Brain prints reveal children's reading difficulties](#)

New test uses the brain's electrical activity to pinpoint learning challenges.



### [Tiny fibers open new windows into the brain](#)

Single fibers mimic the softness and flexibility of brain tissue enhancing brain studies.





[Lab creates low-cost optogenetics hardware, software](#)

Open source, easy-to-use hardware available to modify cells with light-sensing molecules.

## What's Next?

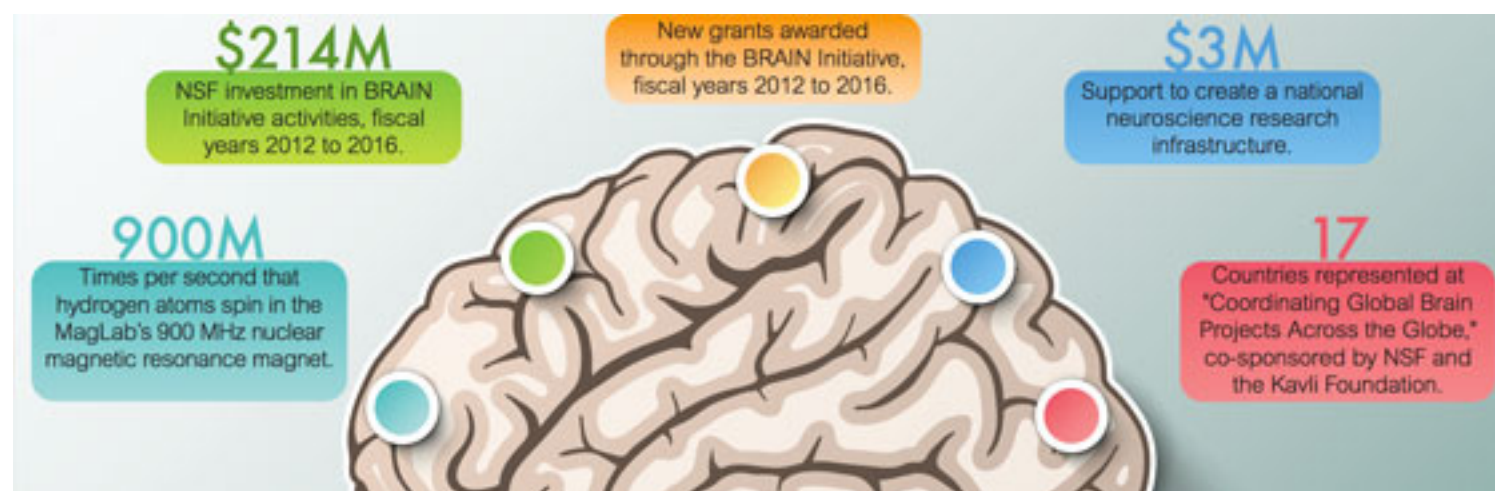
### [3/22-26/17 – World Science Festival – Brisbane](#)

Dr. Córdoba will participate in three separate panel discussions highlighting LIGO, STEM and Big Science.

### [3/27/17 – AAAS Forum on Science and Technology Policy](#)

Dr. Córdoba will present with Dr. Collins about Federal Agency Priorities.

## Learn More...



This month's infographic features [NSF Brain Initiative Activities and a few MagLab facts](#).

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