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Brain Research through Advancing Innovative Neurotechnologies (BRAIN)

By Global Research News
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National Institutes of Health Brain Initiative

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The following text is an excerpt from the Executive Summary of the National Institutes of Heath (NIH) BRAIN Working Group. This project has broad implications. It supports the development technologies to manipulate the human brain. It has military applications including the development of Neuroweapons. (GR Ed. M. Ch.)

To Read the full text as well as access the BRAIN Interim Report click here

On April 2, 2013, President Obama launched the BRAIN Initiative to "accelerate the development and application of new technologies that will enable researchers to produce dynamic pictures of the brain that show how individual brain cells and complex neural circuits interact at the speed of thought." In response to this Grand Challenge, NIH convened a working group of the Advisory Committee to the Director, NIH, to develop a rigorous plan for achieving this scientific vision. To ensure a swift start, the NIH Director asked the group to deliver an interim report identifying high priority research areas that should be considered for the BRAIN Initiative NIH funding in Fiscal Year 2014. These areas of priority are reflected in this report and, ultimately, will be incorporated into the working group's broader scientific plan detailing a larger vision, timelines and milestones.

The goals voiced in the charge from the President and from the NIH Director are bold and ambitious. The working group agreed that in its initial stages, the best way to enable these goals is to accelerate technology development, as reflected in the name of the BRAIN Initiative: "Brain Research through Advancing Innovative Neurotechnologies." The focus is not on technology per se, but on the development and use of tools for acquiring fundamental insight about how the nervous system functions in health and disease. In addition, since this initiative is only one part of the NIH's substantial investment in basic and translational neuroscience, these technologies were evaluated for their potential to accelerate and advance other areas of neuroscience as well.

In analyzing these goals and the current state of neuroscience, the working group identified the analysis of circuits of interacting neurons as being particularly rich in opportunity, with potential for revolutionary advances. Truly understanding a circuit requires identifying and characterizing the component cells, defining their synaptic connections with one another, observing their dynamic patterns of activity in vivo during behavior, and perturbing these patterns to test their significance. It also requires an understanding of the algorithms that govern information processing within a circuit, and between interacting circuits in the brain as a whole. With these considerations in mind, the working group consulted extensively with the scientific community to evaluate challenges and opportunities in the field. Over the past

four months, the working group met seven times and held workshops with invited experts to discuss technologies in chemistry and molecular biology; electrophysiology and optics; structural neurobiology; computation, theory, and data analysis; and human neuroscience (a full list of speakers and topics can be found in Appendix A). Workshop discussions addressed the value of appropriate experimental systems, animal and human models, and behavioral analysis. Each workshop included opportunity for public comments, which were valuable for considering the perspectives of patient advocacy groups, physicians, and members of the lay public.

Although we emphasize that this is an interim report, which will develop with much additional advice before June 2014, certain themes have already emerged that should become core principles for the NIH BRAIN Initiative.

To Read the full text a well as access the Interim report click here

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