

**Brain Research Through Advancing Innovative Neurotechnologies® (BRAIN)
Multi-Council Working Group (MCWG) Meeting
January 25th, 2023**

On January 25, 2023, the National Institutes of Health (NIH) *Brain Research Through Advancing Innovative Neurotechnologies®* (BRAIN) Initiative [Multi-Council Working Group \(MCWG\)](#) met virtually to discuss the current state of the BRAIN Initiative and learn about research by a new MCWG member on the neural mechanisms of visual spatial attention.

In [opening remarks](#), Kristin Dupre, PhD, Science Committee Specialist for the MCWG and Acting Designated Federal Official of the MCWG, welcomed everyone. Next, John Ngai, PhD, director of the NIH BRAIN Initiative and chair of the MCWG, introduced a number of new members, including: Hugo Bellen, DVM, PhD, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) representative; Jennifer French, MBA, at-large working group member and Executive Director and Founder of Neurotech Network; Amy Bernard, PhD, representing the BRAIN Initiative Alliance as a non-federal *ex officio* member; Robert Rahmer, MBA, the new representative from Intelligence Advanced Research Projects Activity (IARPA); and Gopal Sarma, MD, PhD, the new representative from the Defense Advanced Research Projects Agency (DARPA). He thanked Kristen Jordan, PhD, and David Markowitz, PhD, for their service on the MCWG. Next, Dr. Ngai summarized the NIH BRAIN project team structure and provided a budget overview, noting the increase in Congressionally appropriated funds for the BRAIN Initiative in fiscal year 2023. He also highlighted progress made over the years. Since 2014, the Initiative has funded over 1100 investigators across more than 230 institutions and has resulted in over 6200 publications in a range of scientific journals. Dr. Ngai recognized the recipients of the 2022 Gruber Neuroscience Prize for their pioneering work in computational and theoretical neuroscience and other BRAIN-funded investigators who were recently elected to the National Academy of Inventors. He also congratulated Hongkui Zeng, PhD, for receiving the 2023 National Academy of Science Pradel Research Award. He recognized and honored Krishna V. Shenoy, PhD, for his significant contributions to neuroscience and neurotechnology, who recently passed away from cancer. Then Dr. Ngai recapped [recent NIH BRAIN events](#) on community building and career transitions, as well as a [Congressional Briefing](#) organized by the American Brain Coalition and American Academy of Neurology. Then he reminded the group of a few upcoming events, including the [9th Annual BRAIN Initiative Meeting](#), which will take place on June 12-13, 2023, and updated the group on the [Plan for Enhancing Diverse Perspectives](#) (PEDP), emphasizing its ongoing incorporation into BRAIN and other funding opportunity announcements across NIH. He also highlighted current funding opportunities to develop molecular payload centers ([RFA-MH-22-245](#)), brain behavior quantification ([RFA-MH-23-335](#); [RFA-DA-23-030](#)), short courses for research skill development ([RFA-EY-21-003](#)), as well as current [training and diversity programs](#). Lastly, Dr. Ngai discussed two recent BRAIN-funded studies on characterizing astrocyte diversity and morphology and quantifying naturalistic behavior in marmosets^{1,2}.

Christine Grady, RN, PhD, Chief of the NIH Department of Bioethics and NEWG co-chair, updated the group on NEWG activities. Dr. Grady summarized the NEWG meeting held the day prior, which focused on potential ethical considerations in the application of health-related technologies that affect the brain. There were two presentations focused on new clinical interventions; closed-loop neuromodulation to

¹ Endo, F., Kasai, A., Soto, J. S., Yu, X., Qu, Z., Hashimoto, H., ... & Khakh, B. S. (2022). Molecular basis of astrocyte diversity and morphology across the CNS in health and disease. *Science*, 378(6619), eadc9020.

² Ngo, V., Gorman, J. C., De la Fuente, M. F., Souto, A., Schiel, N., & Miller, C. T. (2022). Active vision during prey capture in wild marmoset monkeys. *Current Biology*, 32(15), 3423-3428.

treat depression and virtual reality to manage post-operative pain and opioid use after head and neck surgery. The NEWG discussed individualization, reversibility, and other neuroethical issues related to these emerging treatments. Dr. Grady also announced initial plans for an upcoming NEWG workshop on data privacy and sharing, currently planned for summer 2023. MCWG members considered ways to improve the integration of neuroethics into research training.

The MCWG meeting continued with a scientific presentation by MCWG member, John Maunsell, PhD, at the University of Chicago, about the role of the locus coeruleus (LC) in visual spatial attention. In the lab, Dr. Maunsell's research team uses electrophysiology and visual orientation tasks in non-human primates to examine how this small brainstem nucleus processes incoming sensory information. In a recent study, they found that optogenetically stimulating norepinephrine neurons in the LC during sensory-specific firing resulted in a strong and spatially selective improvement in visual sensitivity, suggesting that these neurons may drive certain aspects of behavioral performance. The MCWG talked about how the LC may contribute to other sensory modalities, cognition, neurotransmitter release, and the integration of sensory stimuli via neural circuits.

The next MCWG meeting will be held on May 24, 2023, and a [video recording](#) will be available for live viewing and archived.