Brain Research through Advancing Innovative Neurotechnologies® (BRAIN)
Multi-Council Working Group (MCWG) Meeting
August 21st, 2020

On August 21st, 2020 the National Institutes of Health (NIH) Brain Research through Advancing Innovative Neurotechnologies® (BRAIN) Initiative Multi-Council Working Group (MCWG) met virtually to discuss the role of BRAIN in promoting and enhancing diversity and a concept clearance for future BRAIN funding opportunities.

In opening remarks, John Ngai, PhD, Director of the NIH BRAIN Initiative and new chair of the MCWG, introduced three new working group members, described the recently established Office of the BRAIN Director, and thanked former members for their service. He then overviewed the new NIH BRAIN programmatic Team D organizational structure, which was recently divided into technology dissemination ("Team D") and training and diversity ("Team TD") efforts. Samantha White, PhD, Chief of the NINDS Scientific and Public Engagement branch, summarized the virtual BRAIN Initiative Investigators Meeting, which was held on June 1-2nd, 2020. She noted that this meeting was the largest to date and highly valued, hosting about 3000 attendees across 13 scientific disciplines. Next, Dr. Ngai highlighted four BRAIN-funded studies that used novel neuroanatomical mapping, optogenetics, and machine learning tools to reveal new functions of brain cell types and networks across species. Lastly, he updated the group on current COVID-19 impacts on BRAIN research and NIH-wide efforts to develop vaccines, treatments, and diagnostics for the virus.

Henry T. (Hank) Greely, JD, Director for Law and Biosciences at Stanford University and co-chair of the BRAIN Initiative Neuroethics Working Group (NEWG), a group of experts in neuroethics and neuroscience that provides the NIH BRAIN Initiative with input on neuroethical considerations, overviewed the NEWG meeting held the day prior. Dr. Greely briefly summarized presentations on racial inequities and ethical challenges faced by human subjects researchers due to the COVID-19 pandemic. He noted the main themes that arose from discussions on racism, which included efforts to increase the inclusion of diverse individuals in human research, resource allocation (*i.e.*, facilitating the distribution of scientific and research resources across institutions and organizations), the importance of thoughtfully communicating about race, and other topics.

Dr. Ngai then led a discussion about the role of BRAIN in promoting diversity, equity, and inclusion in neuroscience. He proposed three broad ways to approach diversity and inclusion in biomedicine, which are to diversify the NIH workforce, diversify the BRAIN-funded scientific workforce, and to increase the inclusion of underrepresented and underserved populations in human research studies. Next, meeting participants discussed additional ways in which BRAIN can enhance diversity. The MCWG proposed including more experts in racial disparities (*e.g.*, social scientists) in ongoing discussions about diversity. Resource allocation was also a preeminent topic. For example, meeting participants suggested increasing research training opportunities and access to new technologies and tools for those at institutions serving underrepresented populations and/ or typically not funded by BRAIN.

Yong Yao, PhD, Program Director at the National Institute of Mental Health (NIMH) from BRAIN Team A, presented a concept clearance for Phase III of the BRAIN Initiative Cell Census, which addresses the BRAIN 2.0 recommendation to "generate a comprehensive cell-type atlas in the human brain." Team A oversees two NIH BRAIN Initiative priority areas: *Cell Type/Discovering Diversity* and *Circuit Diagrams/Maps at Multiple Scales*. The goals of this phase are to create brain cell atlases that encompass molecular and functional annotations of cell types across species, develop scalable technologies, and establish a widely

accessible data ecosystem of cell types and circuits. Dr. Yao highlighted several proposed activities, including building brain tissue sources from diverse populations, extending and expanding Phase II of the BRAIN Initiative Cell Census Network (BICCN), and developing common data standards and atlas frameworks. He also mentioned a few challenges, such as balancing breadth and depth, and integrating varied datasets. Overall, Dr. Yao emphasized that coordination and collaboration between researchers is critical to achieving BRAIN Initiative Cell Census goals. MCWG members noted that transitioning from mouse to human cell census work will be a challenge given that the human brain is much more complex and diverse than the rodent brain. Classifying neuronal populations that are already very well characterized (*e.g.*, retinal neurons) across species may be key to this phase.

The meeting concluded with a closed session of the MCWG members and federal staff to discuss funding plans for FY20 awards. The next MCWG meeting will be held on Wednesday, January 27th, 2021 and a videocast will be available for live viewing and later archived.