

04/16/2021

Babak Kateb MD
Chairman of the Board of Society for Brain Mapping and Therapeutics
Director of Brain Technology and Innovation Park
President of Brain Mapping Foundation
860 Via De La Paz, Suite E1, Pacific Palisades, CA 90272

Re: Brain Technology and Innovation Park (BTIP) Support

Dear Babak,

It is with the greatest pleasure that I write this letter in support of the Los Angeles Brain Technology and Innovation Park (BTIP). I offer this support from my positions as the David Packard Professor of Engineering, the Professor of Biomedical Engineering, and as a Professor in the Neuroscience Program at the University of Southern California in Los Angeles, California. My Ph.D. is from Harvard University, after which I did postdoctoral research at the University of California, Irvine and at The Salk Institute in La Jolla, California. From 1979-1992, I was a faculty member at the Behavioral Neuroscience and Psychiatry Departments at the University of Pittsburgh, where I was promoted to Full Professor. In 1992 I was offered a position at the University of Southern California, and given the David Packard Chair of Engineering in 2003. I have received many awards during my career to date, among which have been the Alfred P. Sloan Foundation Fellowship; the McKnight Foundation Scholar Award; the Research Scientist Development Award (NIMH; given twice); Fellow, American Association for the Advancement of Science; Fellow, American Institute for Medical and Biological Engineering, Academic Career Achievement Award by the IEEE Engineering, Medicine, and Biology Society; Fellow, Institute of Electrical and Electronics Engineers (IEEE); The 100 Leading Global Thinkers Award, by Foreign Policy; Pioneer in Medicine Award, by the Society for Brain Mapping and Therapeutics (SBMT); and the Australian Society for Medical Research Medalist and Lecturer. Finally, I have published over 500 scientific articles and book chapters, and have started three companies based on my neurotechnology research.

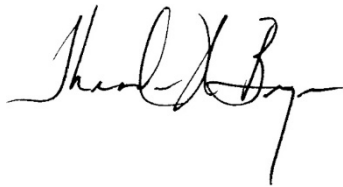
During my time at the University of Southern California, my research has focused on the development and clinical application of neural prostheses for long-term declarative and episodic memories. These classes of long-term memory are mediated by a brain structure known as the hippocampus, located in the temporal lobe. The hippocampus is known to integrate and transform information related to short-term memories and contextual cues. As these classes of memory are integrated and transformed by the several subregions of the hippocampus, they emerge as long-term memories. We have developed experimental and mathematical methods that can identify hippocampal spatio-temporal brain patterns that code for item-specific



memories. These novel methodologies allow us to track pre-long-term memories as they propagate through the pathways of the hippocampus, and as they progressively develop into long-term memories. We have demonstrated in epilepsy patients (who have long-term memory deficits due to seizure-related damage to hippocampal circuitry) that electrical stimulation with spatio-temporal patterns specific for specific items can improve by 30-40% short- and long-term memories for items coded by these patterns. We recently have developed a microchip implementation of the modeling methodology.

A Brain Technology and Innovation Park like the one proposed by the Society for Brain Mapping and Therapeutics (SBMT) would greatly enhance the development of neurotechnologies like the ones we are attempting to move forward. What is greatly needed by our efforts is only a minor amount of additional research and development; what is needed most is greater development of commercialization and increased preparation for the market place. We need business-related guidance from experts in the development of the initial steps in creating new businesses from which novel biotechnologies which will subsequently emerge from the ground-floor up. I have great hopes for the Brain Technology and Innovation Park as described in the proposal, and I hope to make great use of its expertise in the future.

My best,

A handwritten signature in black ink, appearing to read 'Theodore W. Berger'. The signature is fluid and cursive, with a large initial 'T' and 'B'.

Theodore W. Berger, Ph.D.
David Packard Professor of Engineering
Director, Center for Neural Engineering
Professor of Biomedical Engineering and Neuroscience