Keck Medical
Center of USC

DEPARTMENT OF OTOLARYNGOLOGY

April 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) Initiative

Dear Dr. Kateb,

I am writing this strong letter of support for the development of Brain Technology and Innovation Park (BTIP). I am confident that the successful establishment of BTIP will promote research conducted in the academic, public and private institutes and centers in California as well as throughout the country.

The BTIP would take unique and bold approaches in establishing collaborative research network of academic centers, government laboratories, and industry throughout the state of California as well as beyond in order to identify and implement solutions for neurological disorders. BTIP will enable us to assemble scientists and clinicians from various backgrounds, disciplines, and specialties to achieve a common goal: to treat incurable neurological disorders. The scientific and medical discoveries could also be useful for diagnosing and treating medical conditions other than neurological disorders. BTIP also could help job creation and lower the healthcare cost in California and elsewhere. Another crucial part of BTIP is that it could create a clearinghouse through which technologies already developed by federally employed engineers, scientist and researchers can be made available to specific research facilities or services for development and commercialization of new treatments for neurological recovery. Such approaches enable us to achieve the following goals: **I) improve economy through new job creation; II) lower the healthcare cost by improving management of neurological disorders; III) dissipate knowledge rapidly by augmenting health information technology.**

Collaboration is the key in developing innovative, effective ways to diagnose and treat diseases. In the department of head and neck surgery at Keck School of Medicine of University of Southern California, we created a successful collaborative model to develop a better way to diagnose, treat, and prevent cancer. Our multi-disciplinary, multi-institutional research model demonstrated substantial success. For instance, one of our major research areas is nanoparticle-based, targeted gene delivery to cancer to enhance the effects of radiation therapy. The research utilizes micro- and nanoelectromechanical system (MEMS and NEMS)-based pumps for robust delivery of genes to the target tissues and/or organs. We also developed nanoparticle platform that can specifically deliver genes to the cancer effectively and as a result, we were able to substantially reduce the dose of radiation. Another successful collaborative project is the development of novel peptide-based assay with the school of engineering at USC, which allows us to detect biomarkers for

cancer in the blood or saliva. The assay is highly sensitive and can be used to detect biomarkers with nanomolar scale. In addition, we are on the process of developing a technology to identify cancer cells at a single cell level using photonics, which would allow surgeons to maximize removal of cancer during the surgery. If successful, this new technology will significantly reduce the chance of cancer recurrence and metastasis.

Development and application of new technology play significant roles in advancing medicine. X-ray, MRI (from nuclear magnetic resonance), and polymerase chain reaction (PCR, for gene analysis) are the excellent examples of how the application of such technologies in medicine revolutionize the way we diagnose and treat diseases. Some of the technologies developed in non-medical fields, such as nanotechnology, photonics, and virtual reality/augmented reality could potentially revolutionize medicine, in particular in brain research. **We firmly believe that BTIP will create an unprecedented platform to promote collaborative research and accelerate development of innovative research areas**, such as nanotechnology. This will advance human health rapidly through coordinated efforts among scientists and clinicians from academic, federal, and private sectors.

On behalf of the team at USC, we enthusiastically support the BTIP Initiative and strongly endorse the proposal for establishing the BTIP. We hope that you will join us in our efforts to apply the latest advances in technology to improve the healthcare of our veterans and wounded warriors as well as civilians. We believe that the establishment of the BTIP will help accomplish this goal. Please contact me should you have any questions about this important initiative. Thank you.

Sincerely,

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