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2022 SEBASTIANSTRONG DISCOVERY SCIENCE AWARD

Focused Ultrasound Consortium for Treatment of Children Diagnosed with Diffuse Midline Gliomas

Javad Nazarian, Ph.D., M.Sc. - Brain Tumor Institute, Jennifer Munson, Ph.D., Eli Vlaisavljevich, Ph.D. - Virginia Tech, Cheng-Chia Wu, M.D., Ph.D. - Columbia University

Every year, SebastianStrong Foundation opens its doors to pioneering research proposals in the realm of childhood cancer. The Discovery Science Award, an initiative dedicated to funding cutting-edge early-stage projects, continues to catalyze transformative research. This year, we proudly announce the selection of a groundbreaking research consortium poised to revolutionize the field of childhood cancer, with a specific focus on Diffuse Midline Glioma (DMG) and Diffuse Intrinsic Pontine Glioma (DIPG), two of the most formidable adversaries in pediatric oncology.

In this cycle, we were inundated with 32 exceptional proposals, showcasing the unwavering commitment of the scientific community to combat childhood cancer. The dedicated members of our Medical Advisory Board, renowned pediatric oncologists from across the nation, undertook the arduous task of reviewing these submissions. Through their rigorous evaluation, a remarkable synergy emerged as they identified two research teams working on a similar approach to address the challenges of DMG/DIPG.

This fortuitous discovery led to the formation of a dynamic collaboration between the Children's National Hospital Brain Tumor Institute, the Virginia Tech Fralin Biomedical Research Institute, and Columbia University Irving Medical Center. Together, they presented a compelling proposal designed to harness ultrasound technology to breach the blood-brain barrier, a critical barrier in delivering medications to the brain.

While the primary focus of this project is the treatment of DMG/DIPG, its potential reverberations extend beyond this scope. Dr. Javad Nazarian, the Scientific Director of the Brain Tumor Institute, explains, "In the past few years, we have discovered promising drugs for DMG, but the problem has been drug distribution across the blood-brain barrier. Focused ultrasound is a promising platform where the blood-brain barrier can be effectively opened for a short period of time."

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The significance of this research cannot be overstated. It offers hope for a more targeted and less toxic treatment option for children battling brain cancer. The future of pediatric oncology looks brighter with this extraordinary team, composed of:

- Javad Nazarian, Ph.D., M.Sc., Scientific Director of the Brain Tumor Institute.
- Jennifer Munson, Ph.D., a bioengineer with expertise in tissue engineering of 3D cultures for brain tumors from Virginia Tech.
- Eli Vlaisavljevich, Ph.D., a specialist in the design and development of focused ultrasound devices from Virginia Tech.
- Cheng-Chia Wu, M.D., Ph.D., principal investigator for the world's first clinical trial using focused ultrasound in children with relapsed DMG from Columbia University.

Much of this pioneering research will be conducted at the cutting-edge Children's National Research & Innovation Campus, where both Virginia Tech and Children's National boast state-of-the-art laboratories.
This venture exemplifies the spirit of collaboration and innovation that defines SebastianStrong's Discovery Science Award. It is a testament to the tireless efforts of dedicated scientists and their unwavering commitment to making a difference in the lives of children facing cancer.