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New mouse model for brain arteriovenous malformations

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An abstract unveiling a new mouse model for brain arteriovenous malformations (AVMs) developed by UTHealth Houston researchers has

been selected for a poster presentation at the second annual National Institutes of Health (NIH) Investigator Meeting for Interoception Research in November.

Eunsu Park, Ph.D., assistant professor in the Vivian L. Smith Department of Neurosurgery with McGovern Medical School at UTHealth Houston, will present the abstract at the meeting, hosted by the National Center for Complementary and Integrative Health (NCCIH) at the NIH campus in Bethesda, Maryland, on Nov. 11 to highlight recent advances in interoception research.

Interoception refers to the communication between the brain and body by the peripheral nervous or non-neuronal systems.

"I hope the presentation will be an excellent chance to publicize our study to all researchers and the general public who don't know what brain AVMs are and how vital this new model is," said Park, whose abstract was among 20 selected for a poster presentation.

Brain AVMs are a tangle of vessels in the brain that carry a high risk for hemorrhagic stroke and neurological deficits in children and young adults. Mutations of KRAS—a subfamily of proteins that regulate cell functions—are closely linked with sporadic brain AVMs, which account for 95% of all cases. The excessive, uncontrolled formation of new blood vessels is also a key process in brain AVM formation.

Using the discovery of KRAS mutations in human patients with brain AVMs, the UTHealth Houston research team established and characterized a new brain AVM mouse model over a three-year period, from 2018 to 2020.

In the abstract, Park proposed that humoral (antibody-related) immune mediators circling throughout the body's bloodstream interact with cells

surrounding the brain AVM. His research explored how the mutant KRAS in endothelial cells changes humoral immunity and causes brain AVM-associated hemorrhage.

"Ultimately, we believe this research can illuminate what is happening in human brain AVMs and give insights into finding therapeutic methods for these patients," Park said.

Provided by University of Texas Health Science Center at Houston

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