University of Richmond Biology Professor Colleen Carpenter-Swanson Awarded Grant Funding for Epilepsy Research

UNIVERSITY OF RICHMOND — Biology professor Colleen Carpenter-Swanson has received $25,000 in grant funding from the STXBP1 Foundation for epilepsy research.

Carpenter-Swanson and her undergraduate research students use zebrafish to investigate the potential of repurposing FDA-approved drugs as anti-epileptic treatments. Successful drug discovery in this study may offer future treatment avenues for STXBP1-linked epilepsy disorders in humans.

STXBP1, which stands for syntaxin-binding protein 1, is a protein that plays an important role in brain function. STXBP1-linked epilepsies represent some of the most severe childhood-onset disorders.

“Along with frequent seizures, patients often display significant cognitive, behavioral, and psychiatric challenges,”

Carpenter-Swanson said. “Though various anti-epileptic drugs are available, they frequently prove ineffective in preventing or managing seizures, and many impose serious side effects on the developing brain.”

Zebrafish and humans share approximately 70% of the same protein-coding genes, including the *STXBP1* gene, making the zebrafish a promising model for expanding the understanding of STXBP1-linked epilepsies.

“This research may uncover novel treatment routes that could improve the prognosis for affected individuals,” Carpenter-Swanson said.

Carpenter-Swanson, Coston Family Fellow in Molecular Biology, joined the University of Richmond faculty in 2021. She has previously received research funding from the LGS Foundation.

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