



# IMPROVING OUTCOMES IN POST-HEMORRHAGIC HYDROCEPHALUS (PHH)

James 'Pat' McAllister, PhD is a Professor in the Department of Neurosurgery at the Washington University School of Medicine and St. Louis Children's Hospital. Dr. McAllister has dedicated his research career to hydrocephalus and is an acknowledged leader in the field. In his study, *Therapeutic Modulation of Post-Hemorrhagic Hydrocephalus*, Dr. McAllister will build off of previous work and test the use of an anti-inflammatory drug in a new model of post-hemorrhagic hydrocephalus.

## GOAL

Determine if an anti-inflammatory drug decreases damage after a brain bleed.

## THEORY

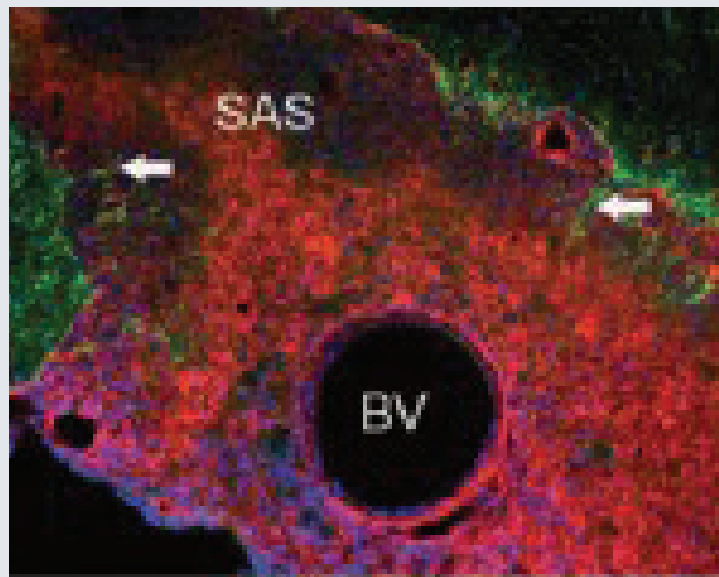
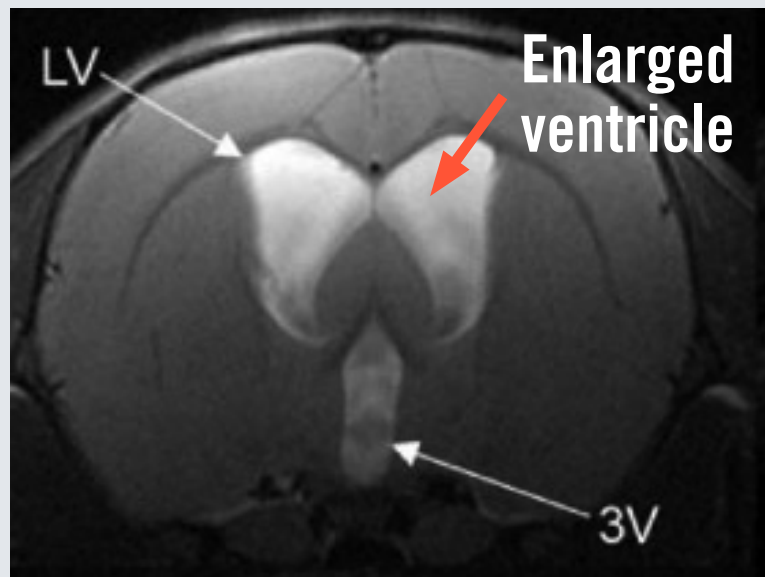

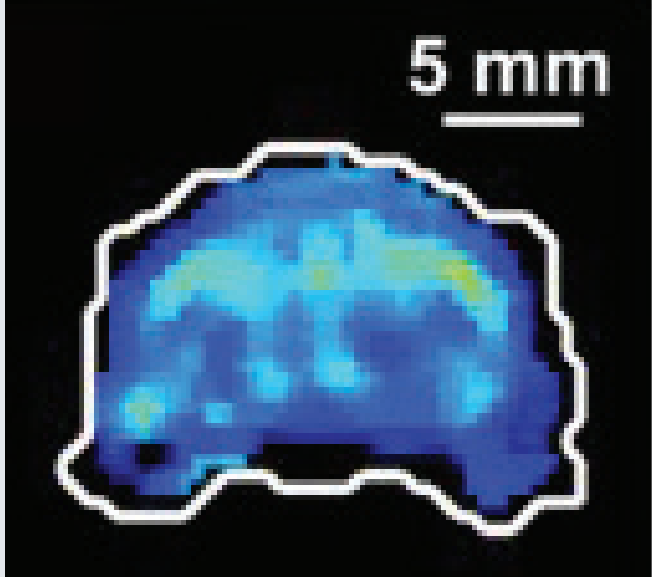


## METHODS

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| <b>1</b> Develop a ferret model of PHH using LPA <ul style="list-style-type: none"> <li>• Ferrets' gyrencephalic brains are similar to humans.</li> <li>• LPA (lysophosphatidic acid) is present in blood and has been shown to induce hydrocephalus in mice.</li> </ul> | <b>2</b> Administer Decorin, an anti-inflammatory drug, into the ventricles 10 days after LPA administration | <b>3</b> Determine if Decorin normalizes ventricle size and other pathological measures. |
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## EVIDENCE

HOW WILL WE KNOW IF DECORIN WORKS?

<b>1</b> Tissue Inflammation <b>Decrease Inflammatory Response</b> 	<b>2</b> Ventricle Size <b>Normalize ventricle size</b> 	<b>3</b> White Matter Integrity <b>Prevent Injury to White Matter Tracts</b> 	<b>4</b> Brain Stiffness <b>Normalize Brain Stiffness</b> 
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## WHY IS THIS WORK INNOVATIVE?

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| <b>1</b> Develops an animal model that more closely mimics a human brain.<br><b>This is important for moving the research from the bench to the bedside</b> | <b>2</b> It is focused on stopping the development of hydrocephalus after the injury.<br><b>This research has the potential to help children and adults after a brain injury</b> |
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