



# PHARMACOLOGICAL REGULATION OF CEREBROSPINAL FLUID

Bonnie Blazer-Yost, Ph.D., is a Professor of Biology at Indiana University – Purdue University Indianapolis. The research of Dr. Blazer-Yost has been focused on renal fluid regulation which she is now applying to cerebrospinal fluid regulation. In her study, *Preclinical testing of TRPV4 Antagonists for the Treatment of Hydrocephalus*, Dr. Blazer-Yost will test if a category of drugs can decrease ventriculomegaly and preserve brain structure and function in an animal model of hydrocephalus.

## GOAL

Decrease ventricle size by modulation of the Choroid Plexus (CP)

## THEORY

The choroid plexus (CP) produces cerebrospinal fluid (CSF)

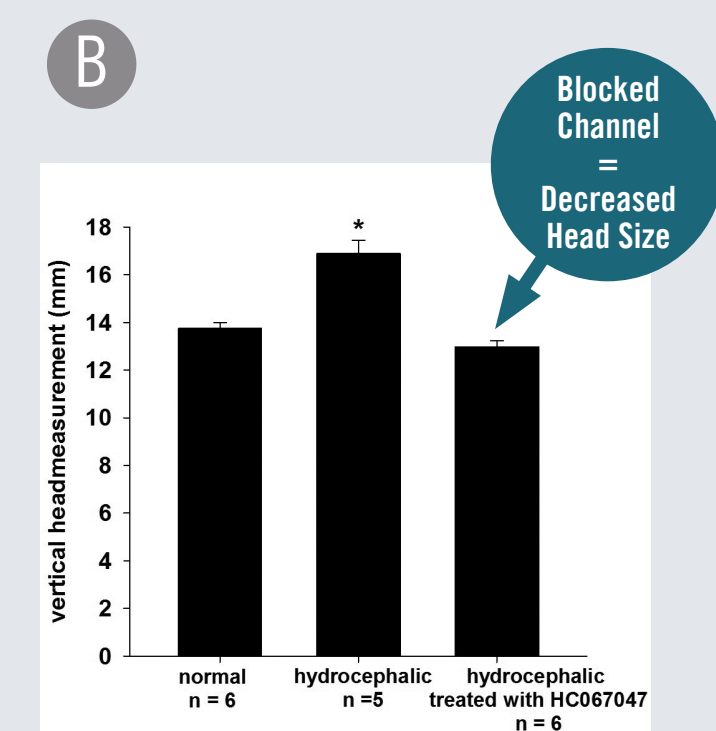
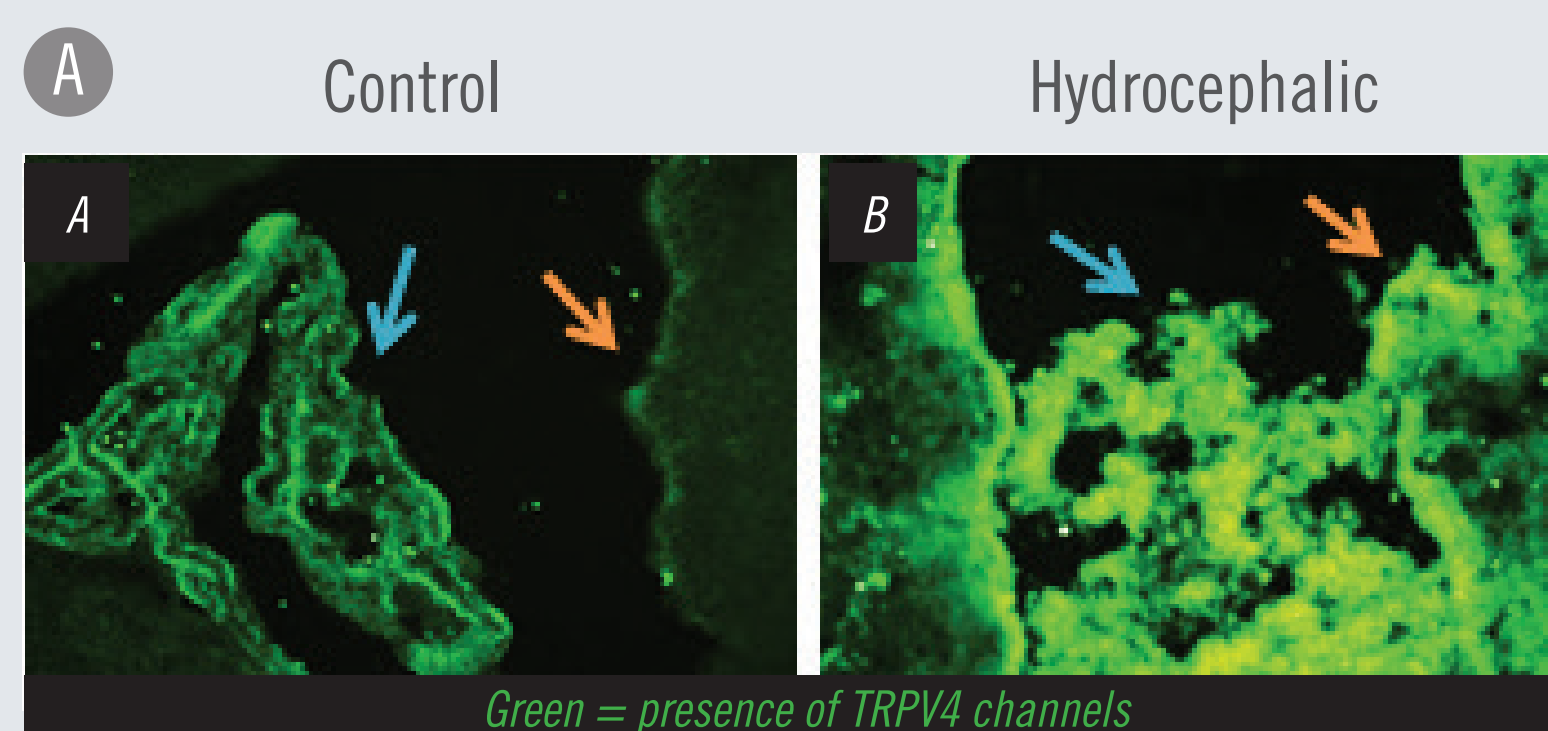
Channels on the CP can be used to modulate CSF production

Blocking one of these channels, TRPV4, may prevent the ventricles from enlarging

## EVIDENCE

1 TRPV4 Channels are highly expressed in the choroid plexus and cells lining the ventricles (see visual A)

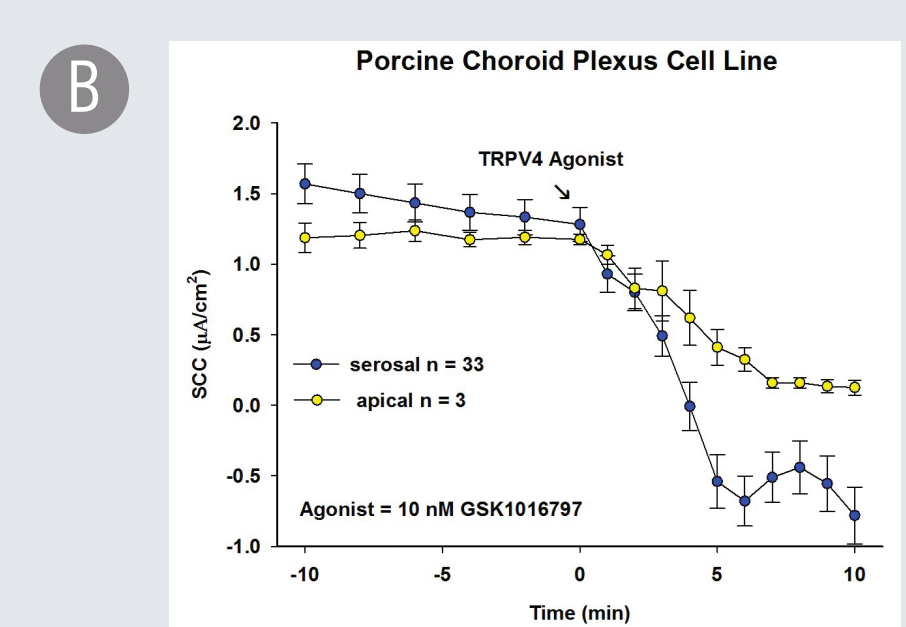
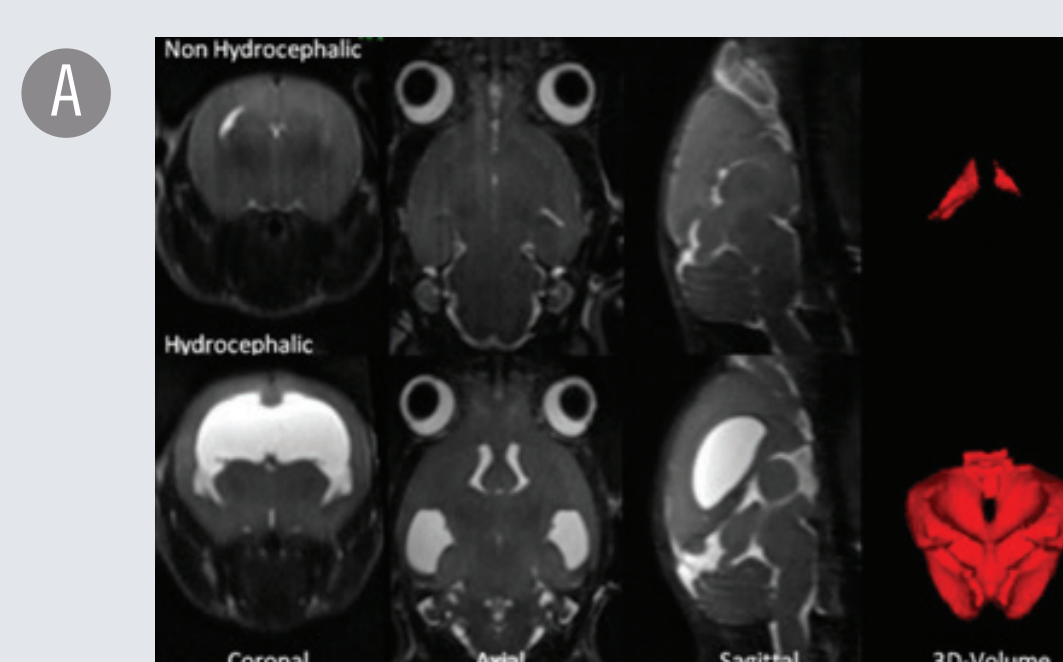
2 Blocking these channels decreases head size back to normal in one genetic animal model (see visual B)



## HOW DO WE MEASURE THE EFFECTS OF BLOCKING THIS CHANNEL?

1 3D Measurements of Ventricle Volume using a new MRI technique (see visual A)

2 Direct measures of how the drug affects the channel (see visual B)



## WHY IS THIS WORK INNOVATIVE?

1 This study builds on knowledge in other disease areas.

2 It is focused on stopping the development of hydrocephalus.