



# Neurogliacil

## Astrocyte and Glymphatic Support Formula

### Areas of Research

Head trauma Brain  
Memory loss  
Neurological Disorders  
Learning and Cognition Function  
Pathogen Detox  
Immune Support  
HPA Axis  
Anti-aging  
Anxiety/Fear

Neurogliacil is designed to alter the AQP4 channel by inhibition of carbonic anhydrase thus improving glymphatic flow.

Astrocytes collectively known as astroglia are star-shaped glial cells in the brain and spinal cord. They wrap their end feet containing water channels (aquaporins) around capillaries and neurons. They perform many functions including biochemical support of endothelial cells that form the blood brain barrier, provision of nutrients to the nervous tissue, maintenance of extracellular ion balance and role in the repair and scarring processes of the brain and spinal cord following traumatic injuries.

They propagate intercellular  $Ca^{2+}$  waves in response to stimulation, and similar to neurons, release gliotransmitters (glutamate, GABA, ATP, and D-Serine). An imbalance in the release of the gliotransmitters could result in altered neuronal activity. Various pathological conditions, including CNS diseases, traumatic brain injuries, developmental disorders and prenatal exposures to deleterious molecules have been reported to be associated with gliotransmission impairment. *Front Neurosci* 2015;9:499

Aquaporin-4 (AQP4) has been implicated in cytotoxic brain edema resulting from water intoxication, brain ischemia or meningitis. AQP4 actually becomes swollen thus preventing flow. Inhibitors of carbonic anhydrase reverse water permeation through AQP4. *JStruct Biol* 2009 Apr; 166(1)

Neural plasticity is believed to underlie the acquisition and retention of Pavlovian fear conditioning. AQP4 deficiency impairs synaptic plasticity in the amygdala. This may alter amygdala dependent learning behavior. *Aquaporin-4 Deficiency Impairs Synaptic Plasticity and Associate Fear Memory Neuropsychopharmacology* 37, 1867-1878 (2012)

In traumatic brain injury (TBI) secondary cell death involves calcium influx into the cells initiating cell death signaling cascades. *Front Pharmacol* 2012;3:60 As individuals age, the body's ability to regulate and maintain calcium levels is diminished. Manipulation of Calcium channels by aquaporin show improvements in a quantitative measure of cognitive function, specifically verbal learning. *Effects of a Supplement Containing Aquaporin on Verbal Learning in Older Adults* *Ady Mind Body Med* 2016 Winter, 30(1);4-11

### **Proprietary Blend:**

equal parts of Flower pollen 2X, RNA-DNA (yeast) 2X, Royal Jelly 3X, Amygdala amara 3X, Fucus vesiculosus 3X, Symphytum officinale 6X, Zincum metallicum 4X, 6X, Bee pollen 4X, 6X, B vitamins (B1, B2, B6) 6X, Cimicifuga racemosa 3X