



THE OTHER BRAIN

Neuroplastic Transformation Institute
 65 W-1 Division Ave., # 237
 Eugene, OR 97404
neuroplastictransformation.com

Brain cells aren't just made of nerve cells. They include other cells that, as a group, are called glia. There are three types of these glial cells, Astrocytes, Microglia and Oligodendrocytes. Together they account for half the weight of the brain and 90% of all brain cells. Unlike the nerve cells, called Neurons, they do not conduct electrical signals. They signal each other and the Neurons using molecular releases. Oligodendrocytes coat long Neuron extensions called Axons, with Myelin, which makes the electrical signal travel up to 30

times faster. Microglia are located around blood vessels in the brain (Capillaries) in an inactive form, responding to foreign invaders by activating and changing shape to attack and destroy anything not recognized as belonging in the brain. Finally, the most numerous glial cells, Astrocytes serve many functions. Neurons are imbedded in them. Their many tendrils act like hedges to separate synapses and prevent released neurotransmitters from missing their targets or hitting unintended synapses. They also add and subtract neurotransmitters to synapses

and tell synapses where to form and break. Astrocytes "read" the molecules inside the capillaries and adjust the amounts in the brain in response. They also release inflammatory molecules called cytokines that reinforce brain pain networks and direct the body where to release these same inflammatory products. As a group Glia have a major role in determining where synapses form and melt away, the strength of synapse activity, what molecules are allowed in our brain from the body, the brain's immune response and our actual level of intelligence.