



New Brain Discovery ✦ Immune System of the Brain

Lesson #15

by JC Spencer

New brain research concludes some signal functions bypass neurons and process data on a different wireless communication network. This discovery is turning brain science on its head. It is the immune network system.

The fact that data can flow through the brain without normal electrical charges via the glia network is sending new thought waves through neurological science.

These studies are changing the way we look at the brain and how it works. This new discovery of the brain's immune system tells us that if it is not healthy, the brain becomes infected and starts to die.

What we thought was putty packing that occupied 85% of the brain, has been discovered to be the vitally important immune system. Yesterday's scientists dismissed the glia as filler packing material. We have now learned that this part of your brain is, in fact, in control of many vital functions.

Microglia fight infection and promote repair of the brain. We have known that neurons transmit data via untold trillions of synapses that contact each other. I conceptualized but did not have the verification that the design of the brain included the means to transmit data wirelessly.

Researcher R. Douglas Fields had his first inkling of this brain phenomena in 1999 in a NIH lab. In the May/June 2011 issue of *Scientific American MIND* magazine, Fields writes, "Glial cells interact with neurons, control them, work alongside them — and the function of these strange looking cells are myriad."

Evidence indicates that the Glial cells also serve as the brain's IMMUNE SYSTEM. When microglia cells fail to fight infection and repair damage THE BRAIN FAILS.

Fields further states, "*Especially exciting is new research showing the central role of glia in information processing, neurological disorders, and psychiatric illness. Some glial cells speed information between distance regions of the brain, helping us master complex cognitive processes.*"

Glia is from the Greek root word for "glue". For 100

years, scientists thought glia was just holding things together. What we thought was putty glue is for real, 85% of our functioning brain. The Neuron Doctrine has ruled how we look at the brain. Now we understand that the Neuron Doctrine is deeply flawed.

Neurons are not dense, they are rather scattered sparsely throughout the brain. The network of synapses may be 100 trillion but hidden in the glue is another network. Yet to be discovered is the detail of the glial cell and variants in design and function.

The astrocytes of the glial cells control synaptic communication. The astrocytes cling to blood vessels with some tentacles while reaching out to also grasp neurons and synapses. The glia listen to neurons and talk among themselves without using the electrical impulses we thought controlled the brain.

It will require yet undeveloped tools to monitor the glia. R. Douglas Fields has stimulated neurons to fire an impulse and the neuroglia flashed back a signal. There was some kind of calcium ion connection that released a chain reaction of glia activity. Could this be another type of flock of birds taking flight? That was how I described the firing of the synapses. Now we learn that this formation is spontaneous in neuroglia as well.

Stunning evidence of the neuroglia has sparked interest of neuroscientists around the world and like the flock of birds, have responded with more research underway. Norio Matsuki at the University of Tokyo reported early in 2011 that neurotransmitter released from the astrocyte boosted the strength of an electrical impulse in the axon.

I am excited to see how specific sugars influence the glial cells. We already know they play a vital role in fighting inflammation, improving the immune system, construct glycolipids and glycoproteins for communication, provide fuel for the mitochondria, help construct the backbone structure to the DNA and help transcribe the data to the DNA.

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