I have just begun to read your material, but if I have some grasp of it – cognitive abilities in cells and molecules are critical to your thesis.

One of the main thrusts of my posts have been the cognitive abilities and self engineering in cells in a type of panpsychism. I extend this to viruses and have a number of articles showing the choices, advanced decision making and complex lifestyles of viruses. Since a virus is just a piece of DNA or RNA, then I extend this cognitive ability to jumping genes as well and question prions also.

I have many different posts relevant to this that might be of interest to you. I realize my website has over a hundred articles and it hard to find material. One day I will catalogue it. I have called these cognitive abilities intelligence at these different levels, which seems similar to your thesis. I still have to understand your term “hologenome.” Is this a hologram of intelligence (mind) in each cell?

Relevant links of my articles include:

Jumping genes versus epigenetics - drivers of evolution

<http://jonlieffmd.com/blog/jumping-genes-versus-epigenetics-the-real-drivers-of-evolution>

<http://jonlieffmd.com/blog/intelligent-rnas-in-the-brain>

Cellular self-engineering

<http://jonlieffmd.com/blog/dna-proofreading-correcting-mutations-during-replication-cellullar-self-directed-engineering>

<http://jonlieffmd.com/blog/the-many-ways-neurons-repair-their-own-dna>

Microbes Intelligence

<http://jonlieffmd.com/blog/microbes/a-mind-with-no-brain>

<http://jonlieffmd.com/blog/microbe-communication-quorum-sensing-behavior-spreading-resistance-altruism-and-more>

http://jonlieffmd.com/blog/microbe-tricks-for-entering-the-brain

<http://jonlieffmd.com/blog/vital-plant-communication-with-bacteria-and-fungus>

<http://jonlieffmd.com/blog/microbe-innovations-in-the-battle-with-human-cells>

<http://jonlieffmd.com/blog/microbe-innovations-in-the-battle-with-human-cells>

T cells intelligence

<http://jonlieffmd.com/blog/neuronal-plasticity-blog/intelligent-t-cells>

Microglia intelligence

<http://jonlieffmd.com/blog/are-microglia-the-most-intelligent-brain-cells>

Astrocyte

<http://jonlieffmd.com/blog/astrocytes-control-synapse-function>

Cancer cell intelligence

<http://jonlieffmd.com/blog/the-emperor-of-cells-how-intelligent-are-cancer-cells-2>

Virus intelligence and evolution

<http://jonlieffmd.com/blog/virus-and-virus-like-particles-in-evolution>

http://jonlieffmd.com/blog/the-remarkable-intelligent-varicella-virus

<http://jonlieffmd.com/blog/are-viruses-alive-are-viruses-sentient-virus-intelligence>

<http://jonlieffmd.com/blog/intelligent-virus-tricks>

Are prions intelligent

http://jonlieffmd.com/blog/is-a-prion-an-intelligent-protein

Mitochondria Intelligence

<http://jonlieffmd.com/blog/microbe-innovations-in-the-battle-with-human-cells>

<http://jonlieffmd.com/blog/dynamic-relationship-of-mitochondria-and-neurons>

Primary cilium

<http://jonlieffmd.com/blog/is-the-primary-cilium-a-cells-antenna-or-its-brain>

Immune function

<http://jonlieffmd.com/blog/networks-of-genes-respond-to-social-experiences>

<http://jonlieffmd.com/blog/dual-function-molecules-for-brain-and-immunity>

<http://jonlieffmd.com/blog/human-brain/brain-and-immunity-fight-internal-and-external-foes-together>

Also relevant is brain using inflammation pathways for neuroplasticity

<http://jonlieffmd.com/blog/inflammation-pathways-in-neuroplasticity>

A summary post of the entire view of nature is:

<http://jonlieffmd.com/blog/where-is-mind-in-nature>