

The Center For Modeling Optimal Outcomes® LLC

“The Think Tank for Creativity & Innovation”®

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The Model for Cellular Absorption Changes Toxicology and Many Aspects of Medical Research

As part of The Center’s investigative process into the application of neuroscience in business, the process required detailed analysis of the roles neurohormones, neurosteroids and amino acid neurotransmitters had on cognitive processes.

What started as research into brain chemicals (neurohormones) involved with logic and emotions led The Center to create a Model for Homeostasis of the body’s substances.

The significance of the information contained in this document will become obvious after the reader has reviewed the tutorial-format of the model. While the tutorial provides specific information relative to potential sources of disruption in homeostasis between bodily substances, this document and several others included on our web site have been prepared as specific examples intended to expand on that overview.

De-mystifying Allergies and Toxicity

After unraveling the complexities of neurohormone disruptions through the use of the model (refer to Factors for Dementia), the Life Sciences group took on the challenge of researching the possible causal paths of several disease states. Their objective was to validate the universality of the Model for Homeostasis and the outcomes that could result from disruptions of substances in the body other than neurohormones.

Clues from renowned retired neurosurgeon and neuroscientist Russell Blaylock, M.D. regarding the “excitotoxic” nature of two amino acid neurotransmitters (aspartate and glutamate) prompted the group to look closely at these substances. Articles by neuroscientist Dr. Martha Herbert of Massachusetts General Hospital in Boston regarding the possibility that autism was a disorder of the body and not merely the mind offered another important clue.

Applying The Center’s model for homeostasis of the body’s substances uncovered a few startling facts. First, it became obvious that numerous variables have to occur concurrently for a “perfect storm” to cause an illness or disease. Second, if the excitotoxins identified by Dr. Blaylock exist, there must also be the opposite – “inhibitotoxins.” Third, many of the studies Blaylock referred to in his 1997 book, *Excitotoxins: The Taste That Kills* (Health Press NA) and many of his subsequent articles identified glutamate as a substance associated with taste and flavor enhancement. This information lead the Life Sciences group to consider the possibility that glutamate’s role in flavor and taste enhancement was attributed to cellular absorption.

Considerable confusion exists within different scientific disciplines with regard to the processes used by various types of cells to “uptake” substances. Most frequently, studies refer to a process whereby substances bind to a cell, a channel forms and it enables individual substance to enter. When a particular substance is needed, a “port” forms and the newly formulated substance in the cell is expelled for use. During research into the dynamics of

cellular activity along with input and guidance from the group's biology advisor, it became apparent that various mechanisms are used by cells to receive (uptake or absorb) substances. They include but are not limited to osmosis, diffusion, phagocytosis, pinocytosis, pumps and conventional absorption.

The issue of cellular absorption had been one of interest to The Center as part of its investigation into the application of neuroscience in business. In lay terms, scientific literature supports the fact that certain cells in the brain emit signals that are received by other cells; a process critical to the formation of memory and the analysis of factors in order to make decisions. Logic dictated that these signals emitted by cells could not be binding to other cells waiting for a channel to form that would enable "uptake." It was at that point in their investigation that several "dots" were connected; i.e. the receiving cells essential for logic and memory had to be involved in a process of absorption. Furthermore, because the firing rate of the signals would be variable during times of stress, anger, deep thought, etc. the rate of absorption by those cells would also vary. If cellular absorption was variable, what substances were responsible for determining this rate? Dr. Blaylock's work and the studies referenced in the scientific literature supported the possibility that glutamate was involved with cellular absorption.

The Center's Life Sciences group was faced with a major challenge – overcoming the beliefs of nearly the entire (global) scientific community regarding cellular absorption.

When the group identified glycine and glutamate as a homeostatic pair, things began to fall into place. The scientific community had already identified glycine as being an inhibitory amino acid neurotransmitter. Because medical science has been able to only identify the existence of four amino acid neurotransmitters, aligning them into functional roles was a relatively easy task.

The Center's research staff identified the class of G-Protein Coupled Receptors as being at least one major class of cells for which the conventional "binding" process seemed impossible because the substances associated with them would necessitate an instantaneous mechanism. Furthermore, the fact that transdermal patches and medication such as nitroglycerine placed under one's tongue work so well provided further support for the hypothesis that some cells use absorption. Finally, the knowledge that variable signal firing rates and variable absorption rates were essential to maintain homeostasis (balance), all of the pieces of information were falling into place as being a biological necessity.

Based on the use of its model, when glutamate and glycine were identified as a pair that functioned to control the rate of cellular absorption, the group still had a challenge; i.e. finding current scientific literature that supported The Center's model.

Finding the Information

Do certain classes of cells absorb substances? If so, the entire science of toxicology would change. If the homeostasis of certain classes of cells associated with bodily functions were disrupted, could the outcome be allergies, cancer or any of countless illnesses or diseases. Would disruption of the inability of some cells to absorb critical substances necessary for the brain and body to function normally provide scientists with a model that could lead to many answers surrounding causal paths for disease entities?

During the investigative process countless articles and studies provided anecdotal support for The Center's model; including one based on a mathematical model.¹ Because the scientific community did not recognize the dynamics of cellular absorption, finding studies to prove the existence of cellular absorption was a formidable challenge. Gradually, the Life Sciences group began to connect the dots between existing studies.² Finally, after three years of searching for supporting studies, scientists in Sweden referred to the dynamics of cellular absorption of the endothelial cells that comprise the blood brain barrier.³

Now, the use of a verifiable scientific model provides a rationale for why individuals have varying levels toxicity to substances.⁴

By applying The Center's Model for Homeostasis to amino acid neurotransmitters, the foundation for toxicology "dose determines the poison" (Paracelsus 1493 – 1541) becomes "but absorption determines the level of toxicity."

Summary

Finally, evidence to support the existence of a model for rate of cellular absorption has surfaced. The Center is now seeking a partner to license the intellectual property (based on several pending patent applications) that address the process necessary to commercialize the test.

The financial value of biodiagnostic assessments that will replace body mass index as a determination for prescriptions is miniscule in comparison to the application of the process to all aspects of medical research, the concept of toxicology in general and the new generation of pharmaceutical products that will be created.

For more information about The Center, visit the website www.TheCenterNJ.com or to discuss the model for homeostasis in general or the specific model for cellular absorption, contact the Life Sciences spokesperson, Linda Oliver-Perrier at loliverperrier@TheCenterNJ.com

¹ <http://www.math.ubc.ca/~ais/website/formulation/cells.html>

² <http://www.minami-nutrition.ch/omega3/litdownloads/9%20Ethylester%20versus%20Triglyceride.pdf>

³ <http://www.sciencedaily.com/releases/2009/06/090603091133.htm>

⁴ <http://www.sciencedaily.com/releases/2009/08/090826110159.htm>