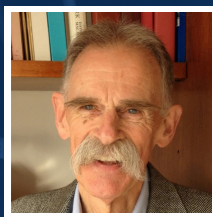


Exploring Neurotransmitter Switching



Nicholas Spitzer

Director, Kavli Institute for Brain and Mind Distinguished Professor, Neurobiology

CURRENT RESEARCH

Identifying the responsibility of neurotransmitter switching on behavioral change

Neurotransmitter switching is a novel form of brain plasticity not previously appreciated in the adult mammalian brain. It involves the switching of molecules expressed by neurons, which changes the whole function of those neurons. Dr. Nicholas Spitzer of the Neurobiology Department at the University of California, San Diego is investigating the involvement of transmitter switches as a potential cure for a number of neurological disorders. It is important to understand what triggers this switching and where in the brain it is expressed, both in the normal brain and in brains afflicted with a range of different neurological disorders, so that potential therapies can be derived. Investigating the specifics of transmitter switching in the adult brain is important for a number of reasons. First, humans have an inherent curiosity for understanding how things work, and finding new kinds of brain plasticity gives insight into how the brain responds to changes in the environment. Secondly, a better understanding of a process makes us more prepared to fix it should it break, and the same is the case with the brain. Lastly, it is hypothesized that although transmitter switching is often beneficial for adaptation to one's environment, it can, and sometimes does, go awry. Research has shown that a simple treatment, such as phototherapy, or exposure to bright light, can cure Seasonal Affective Disorder (SAD), a clinical form of depression that may result from unwanted neurotransmitter switching. Investigating transmitter switching that regulates changes in behavior will provide valuable insight into how normal brains function, and how brains afflicted with a neurological disease malfunction. Dr. Spitzer's lab is one of a very...

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AFFILIATION

 University of California, San Diego

EDUCATION

- B.A. in Biology, 1964
Harvard University
- Ph.D. in Neurobiology, 1969
Harvard Medical School

AWARDS

- Editor-in-Chief since 2011
- Co-Chair, Chair, Public Education & Communication Committee
- Editorial Board since 2006
- Member since 2002
- 2011 Fellow
- and 1 more...

RESEARCH AREAS

Life Science, Neurological / Cognitive, Neurological / Cognitive, Women's Health

FUNDING REQUEST

Your contributions will enable Dr. Spitzer to design experiments directed at identifying the responsibility of transmitter switching in various cases of behavioral change. Increased support for these projects would enable Dr. Spitzer to oversee more projects and proceed much faster and with greater success. Testing the involvement of transmitter switching in diseases could open a wholly new avenue for developing therapies.