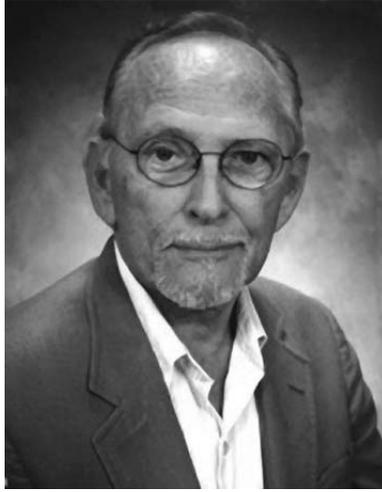


In Memoriam



Donald O. Rudin, M.D.
1923 – 2005

We lost a great man, Donald Rudin, in November, 2005. Dr. Rudin had the ability to see life where it all begins, through the cell membrane. A brilliant researcher, physician, mathematician who embraced quantum physics, chemistry, essential lipids, the brain and the cell membrane as one.

Born in Walalua, Hawaii 1923, he did his undergraduate work at the University of Colorado, obtained his M.D. degree from Harvard in 1948 and entered into full time research on the Harvard Medical School faculty in the field of brain function.

In 1956, on recommendation of Dr. Herbert Gasser, Nobel Prize recipient and Director of the Rockefeller Institute for Medical Research, he became head of the Department of Molecular Biology at the Eastern Pennsylvania Psychiatric Institute in Philadelphia. Dr. Rudin and his colleagues hold the pioneering patent on ultra-selective ion electrodes mimicking the function of the cell membrane, whereby they synthesized the bimolecular lipid membrane underlying cell structure.

Dr. Rudin spent most of his career trying to answer the dualistic question: What is the molecular and cellular organization of the brain that it can know and feel; and what is the organization of knowledge and feeling that they can be known in brief, what are the hardware and software of thinking and feeling?

While at Philadelphia Psychiatric he adapted observations made by Hooke and Newton during their famous controversy on the nature of light to extend the inorganic electrode model of the cell membrane by directly synthesizing the bimolecular lipid membrane structure underlying the living cell—the thinnest stable structure known. He and his colleagues subsequently doped it with specific peptides to again achieve ionic ultra selectivity in a biologically realistic structure and, subsequently, induced synthetic action potentials in it which exhibited all the electrical and many of the pharmacological properties of the living nerve impulse. These findings were first confirmed by Dr. Walter Brattain, the Bell

Laboratories Nobelist and co-discoverer of the transistor, who worked with Dr. Rudin for a time.

Because the work in lipid and cell chemistry had been carried out in a clinical setting, Dr. Rudin was alert to its possible therapeutic significance. He observed that the '50' essential nutrients of the diet constitute a coherent chemical reaction system which he called—*The Fundamental Reaction of Nutrition*. He also found that multiple modern dietary distortions, including destruction of omega-3 essential fatty acids, impacted a body-wide cell membrane lipid regulatory system. The manipulation of the food base, hydrogenation of fatty acids and/or removing essential fatty acids from the diet could interact to produce a widespread, unrecognized synergistic malnutrition producing a large array of seemingly different illnesses varying with genetic sensitivity.

Diagnostically, this constituted a new chemical variant of the classical B vitamin deficiency diseases of pellagra

and beriberi, which should now be properly called "lipid substrate pellagra and beriberi." This would provide an explanation for the rampant modernization diseases, from cancer, multiple sclerosis and heart disease to schizophrenia, autism and immune disorders, which have emerged in the past 50 to 100 years to dominate the health picture in modernized societies. Dr. Rudin viewed essential fatty acids as the 'Nutritional Missing Link.' Years later, Dr. Rudin discovered that the balance of the essential fatty acids, omega 3 and omega 6, was equally as critical to homeostasis and the stability of the cell membrane.

Dr. Rudin published his work in popular form as *The Omega Factor: Our Nutritional Missing Link* (Rodale Press, 1985) and the technical version will be published in 2006.

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