Portrait

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LOUISIANA'S

Dr. Feelgood

In 1968, a young medical graduate at the Clarke Institute of Psychiatry in Toronto made a breakthrough discovery about the chemistry of brain damage: he found that brain ischemia (the restriction of blood flow to the brain) or seizures cause a rapid rise in the presence of the free form of two fatty acids in the brain.

In a journal publication that has since become a highly cited classic, then 26-year-old Nicolas Bazan postulated that the rise in arachidonic acid (AA) and docosahexaenoic acid (DHA) is directly related to the activation of an enzyme (phospholipase A2) located at the synapse. Synapses communicate information, signals and directions from one neuron to the next—the lifeblood of the brain's communication system.

For more than 35 years, Bazan and others in the scientific community have been studying explanations for the phenomenon the young doctor from Tucuman, Argentina, had discovered. At the time, Bazan was an assistant professor at the Clarke Institute at the University of Toronto who had just completed three years of his postdoctoral training in neurochemistry, but he had begun what was to become a lifelong habit: making important contributions to key issues in the field of neuroscience. His subsequent research has produced answers to some of the field's most puzzling questions, including the development of potential new drugs for reducing brain damage and alleviating pain.

Bazan arrived at the School of Medicine, LSU Health Sciences Center in New Orleans in 1981, initially conducting his cutting-edge research in the survival, development and function of cells in the brain and retina at the LSU Eye Center. In 1987, he became the founding director of the LSU Neuroscience Center of Excellence at the School of Medicine at LSUHSC, a spin-off of the Eye Center which soon gained its own momentum and its own space. The Center now nurtures 14 research groups (including Bazan's team) and serves as a multidisciplinary nexus of investigators from several LSUHSC departments. It houses active collaborations with scientists from dozens of universities across the United States and around the world.

The vision for the Center is to establish a nurturing environment for the conception and development of science and discoveries regarding the mechanisms of normal and abnormal brain function. By identifying molecular targets to tip the critical balance of cell fate toward neuronal survival, Bazan and his team are giving hope to the millions of people afflicted with stroke, epilepsy, retinal degeneration, traumatic brain injury, Alzheimer's disease, pain, and other neurological disorders.

The Center is also the home of the LSU Neuroscience Center Drug-Discovery Program, which Bazan created in 1994 and still directs. His identification of the critical steps in several disease processes have led to numerous inventions, 17 patents or patent applications, and the translation of basic "bench research" into human clinical trials.

One outgrowth of the program is St. Charles Pharmaceuticals, a start-up company headed by Bazan that is currently testing a novel drug for the treatment of pain. The drug, SCP-1, is an acetaminophen derivative that is as effective in reducing pain as acetaminophen, with the additional benefit of having no liver toxicity, even at high doses. Like Bazan's earliest discoveries, it is based on understanding the activities of enzymes and signaling within the neurons of the brain. With the FDA granting Investigational New Drug Status to SCP-1, its economic potential was highlighted in the December 2003 issue of Forbes magazine, in an article titled "Dr. Feelgood."

The LSU Neuroscience Center has bolstered the economy of the Greater New Orleans region and of the state of Louisiana by attracting about $100 million in grants from outside the state, as well as through the incubation of biotech and pharmaceutical start-up companies, he says. "Patents arising from discoveries made in the Center are the foundation of a knowledge-based entrepreneurial force of economic development."