

Ranwel Caputto (January 1, 1914–April 19, 1994)

A Life of Commitment to Science

It is with considerable sadness that the neuroscience and biochemical communities have learned of the death of an outstanding biochemist and retinal neurochemist from Cordoba, Argentina, Dr. Ranwel Caputto. One of the founding members of the *Molecular Neurobiology* Editorial Board, Dr. Caputto, whose research and teachings have been indispensable to many subsequent scientists, had a prolific career and his intellectual influence reached all over the world.

After Dr. Caputto received his MD at the Universidad Nacional, Cordoba, and completed his doctoral thesis (1943), supported by Bernardo Houssay (Argentine Nobel Laureate in Medicine, 1946), he joined the laboratory of M. Dixon as a Postdoctoral Fellow at the University of Cambridge. In 1947, he, with Luis F. Leloir and R. Trucco, established the Instituto de Investigaciones Bioquímicas Fundación Campomar. Dr. Caputto was one of four scientists who, with Luis F. Leloir, discovered UDPG and UDP-gal. With these discoveries, the way sugars are metabolized could be understood for the first time, as could how energy is supplied to cells.

In 1953 Dr. Caputto, having been awarded a Guggenheim fellowship, worked at the University of Ohio and in 1954, he joined the faculty as Professor and Head of a department at the University of Oklahoma Medical School, where he spent the next decade. At that institution, Dr. Caputto developed an outstanding research program and taught, attaining the rank of Professor.

Dr. Caputto always wanted to return to Argentina and, particularly, to Cordoba. He did so in the early 1960s, encouraged by Bernardo Houssay. There Dr. Caputto was considered an exemplary pioneer. He revitalized the Instituto de Ciencias Químicas, creating an outstanding postgraduate program and training numerous brilliant students and fellows. Those who he influenced are now productive faculty members both in Argentina and abroad.

Dr. Caputto made several major contributions to biochemistry and neurochemistry. He discovered adenosine kinase, sialyl-lactose, neuramin lactose sulfate, mammalian neuraminidase, and lactose-3-phosphate. In the early 1950s, Dr. Caputto, as part of the team led by Luis F. Leloir, codiscovered glucose-1-6-diphosphate as coenzyme of phosphoglucomutase, enzymatic synthesis of glucose 1-6-diphosphate, galactokinase, uridine diphosphoglucose (UDPG), and uridine diphosphogalactose. These findings were the foundation for the 1970 Nobel Prize in Chemistry awarded to Luis F. Leloir.

Later he identified the site of ganglioside synthesis in the chick optic system with C. Landa and H. J. F. Maccioni; the synthesis of trisialo-gangliosides with M. Mestrallat and F. A. Cumar; the effect of light as a model of neuronal stimulation on ganglioside turnover in the chick visual system with B. L. Caputto, A. H. R. Maccioni, and C. Landa, an endogenous inhibitor of sialyl transferase in GM3 ganglioside synthesis with R. O. Duffard, I. Albarracín, and F. E. Lassaga; an inhibitor of n-acetylgalactosamin

transferase in GM2 synthesis with S. Quiroga and B. L. Caputto; a metabolic step that adds tyrosine and phenylalanine to tubulin as a novel posttranslational event with H. S. Barra, J. A. Rodriguez, and C. Arce; and a carboxipeptidase with M. E. Hallak, J. A. Rodriguez, and H. S. Barra.

My experience with Dr. Caputto was profoundly influential in my own career, from the earliest days of medical school. In 1964, I attended a winter course in biology in Buenos Aires, traveling from Tucumán in northern Argentina. I had been lucky enough to obtain a scholarship. I was asked by the head of the research group with whom I had been working to pick up some reagents from Dr. Caputto on my way through Cordoba. I was thrilled at the prospect of meeting a man of such stature, knowing his reputation and his former key association with the Leloir team. Unfortunately, my meeting with Dr. Caputto was brief and I was only able to ask a few questions, many fewer than I would have liked. However, I was grateful for his patience with me. Dr. Caputto left me with a very deep impression of kindness, humility, and thoughtfulness. I learned many lessons that day, not the least of which was a lesson in humanity.

I encountered Dr. Caputto again at a FASEB meeting in Atlantic City in 1968, and this time I was lucky enough to be able to spend a couple of hours talking with him. Through this conversation, I was thoroughly convinced that it would have been wonderful to work under the guidance of such an extraordinary person and outstanding scientist. I was, at that time, finishing my postdoctoral fellowship, and he supported my strong desire to go back to Argentina. In fact, he was enthusiastically supportive of that move, writing letters and otherwise contacting authorities on my behalf. Because of his encouragement I returned to the Universidad del Sur in Argentina in 1970. Dr. Caputto was an inspiration to me because, after spending several years in Ohio and Oklahoma as a faculty member, he decided in 1963 to return to Argentina and became a pioneer in his field. Dr. Caputto continued to encourage me personally and professionally to take a similar course.

Since 1970, I have looked forward to the Annual Meetings of the Argentine Biochemical Society (Sociedad Argentina de Investigaciones Bioquímicas) in the late spring (November in the southern hemisphere), in anticipation of seeing Dr. Caputto and hearing his wise counsel. He had many demands on his time but was always very generous when I asked for help in academic matters that had potential importance to the progress and development of science in Argentina. He was always familiar with the literature to guide the academic careers of students and fellows. In the 1970s, for instance, he agreed to be a committee member for two of my PhD students in our new graduate program, although he was more than 1000 km away. However, he took the responsibility very seriously, visiting us often and making outstanding contributions to our successful program in the University of the South.

In 1975, I had the opportunity to invite Dr. Caputto to speak at a workshop on the retina for the International Society for Neurochemistry in Barcelona, Spain, and again in 1979 in Athens, Greece at a satellite of the International Society for Neurochemistry (Neurochemistry of the Retina). Dr. Caputto revealed to us his vast knowledge, insight, and understanding of the retina from a biochemical perspective, as well as his reflections on life. At about the same time the Argentine Biochemical Society held its annual meeting in the South, along with an International satellite on the "Function and Biosynthesis of Lipids." I was the local host for the annual meeting and Secretary for the latter. With Dr. Caputto, R. Brenner, L. F. Leloir, Nicolas Behrens, and others, it was a joyful time, planning and bringing these plans to fruition, particularly since resources were extremely scarce. My own graduate students, Norma Guisto, Ana Maria Pechen de D'Angelo, Marta Avelaño, and others, experienced the guidance and inspiration that Dr. Caputto provided to make these meetings successful.

In the 1980s I met Dr. Caputto several times at various international meetings. In 1990, we had the pleasure and honor of hosting Dr.

Caputto and his wife, Dora, for their visit to New Orleans. The Dean of the School of Medicine presented Dr. Caputto with an Award for Outstanding Contributions to Neuroscience.

Aside from his devotion to science, excellence, and progress, his life was clearly driven by his dedication to his wife, Dora, and his children, Ranwel, Dora, Beatriz, and Lilla.

The task of writing this account of the life and work of Ranwel Caputto has been overwhelming, and is largely incomplete. Dr. Caputto will always be remembered fondly by his many disciples, colleagues, and friends as a humble, imaginative thinker, an outstanding

scientist, and a visionary leader in the development of biochemistry and neurochemistry in South America.

In his memory, the Ranwel Caputto Memorial Fund for Excellence in Neurochemistry has been established at the Sociedad Argentina de Neuroquímica (SAN). Donations may be sent to the attention of Dr. Hugo Maccioni (Departamento de Química Biológica, Facultad de Ciencias Químicas, Ciudad Universitaria, Casilla Correo 61, 5016 Córdoba, Argentina).

Nicolas Bazan
Editor-in Chief