

OBITUARY

CESAR MILSTEIN (1927 - 2002)

César Milstein was born in Bahía Blanca (Argentina) in 1927. He went to grammar school and high school in his natal city and in 1945 went to Buenos Aires where he graduated in chemistry in 1952 from the Faculty of Sciences, after having been the president of the Students Union. His interest in biochemistry took him to start working, on Leloir's suggestion, in the Biochemistry Department of Buenos Aires Medical School under Professor A.O.M. Stoppani. He investigated the active centre of aldehyde dehydrogenases, which work he completed successfully in 1957. During those years, scholarships for graduate students were scanty and difficult to obtain, so that Milstein had



to work part-time in a clinical pathology laboratory (1950-1956). In spite of this, his thesis won the highest mark and prize of the Argentine Chemical Association. His thesis supervisor, Stoppani, could then appreciate his sagacity as a researcher, his ability to express his observations in mathematical terms, his experimental ability and his firmness of purposes. After his Doctorate, he obtained a position as established investigator at the Malbrán National Microbiology Institute. At the same time he won a British Council Scholarship, to work in the Biochemical Department of Cambridge University under M. Dixon, where he completed a second Ph.D. Thesis with an important study on phosphoglucomutase and its activation by chromium. He also investigated the enzyme active centre, a subject that led him to meet the Nobel Laureate F. Sanger, a valuable relationship for Milstein further progress.

After completion of his Cambridge period in 1961, Milstein returned to Buenos Aires and started work at the Malbrán Institute, whose Director was Dr. Ignacio Pirotsky, a distinguished bacteriologist who intended to improve the scientific and professional prestige of the Institute. With a clear vision of the importance of Molecular Biology Division and staffed the Division with young well-trained researchers who shared his purposes, with the support of Pirotsky. In a short time, interesting papers were published in prestigious journals. Nevertheless, in 1962 as a result of political changes which took place at the state Public Health Ministry, Milstein resigned his post at the Malbrán. Sanger invited him back to Cambridge where Milstein was appointed Medical Research Council Investigator.

The investigations carried out by Milstein during his second Cambridge period were of increasing significance. He first elucidated the structure of immunoglobulins, then the mechanism whereby the genes of a given individual order the production of a large number of immunoglobulins, each specific for a given antigen whether it was a pathogen organism or a toxic product. Finally, by cell fusion Milstein and his co-workers obtained the hybridomas, the cells which produce monoclonal antibodies. These works caused Kohler and Milstein to be awarded the 1984 Nobel Prize in Medicine.

In many opportunities Milstein claimed that the support given since long by society to pure science is the base of useful applications which later had remarkable successes in human biology and medicine. Cesar came to Argentina often to see friends he appreciated, and in his Cambridge laboratory he received Argentinean research students anxious to further their abilities. He will be remembered with deep affection by all who had the privilege of knowing him.

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