

## OBITUARY

### Charles Heidelberger 1920-1983

Charles Heidelberger died on January 18, 1983, shortly after his 62nd birthday, as the victim of the disease to which he devoted essentially all of his professional life. His death ended a distinguished career, which was unique in its major contributions to our knowledge of both the etiology of cancer and its cure.

Dr. Heidelberger was born in New York City on December 23, 1920, the only child of Michael and Nina Heidelberger. Through his father, a famous immunologist, his mother, and family friends, he early became acquainted with a scholarly atmosphere and the fascination and challenge of science and scientific research. Dr. Heidelberger received all of his academic training at Harvard University, from which he graduated with a S.B. in chemistry in 1942 and with M.S. and Ph.D. degrees in organic chemistry in 1944 and 1946, respectively. Professor Louis Fieser was his graduate advisor, and Dr. Heidelberger retained a life-long friendship with Professor and Mrs. Fieser.

On completion of his Ph.D. degree, Dr. Heidelberger moved to the Laboratory of Professor Melvin Calvin at the University of California in Berkeley for postdoctoral training with the explicit goal of obtaining expertise in the use of radioactive carbon, which had just become available for laboratory studies. During his 2-year period at Berkeley, he synthesized <sup>14</sup>C-labeled dibenz(a,h)anthracene, the first <sup>14</sup>C-labeled carcinogen, and carried out initial studies on its metabolism in the mouse. At the same time, collaborative work with Dr. S. Lepkovsky and other colleagues yielded the synthesis of <sup>14</sup>C-labeled tryptophan and studies on its metabolism.

The now classical studies on <sup>14</sup>C-labeled dibenz(a,h)anthracene stimulated Dr. H. P. Rusch, then director of the McArdle Laboratory for Cancer Research, University of Wisconsin Medical School, Madison, to offer Dr. Heidelberger a position as Assistant Professor of Oncology. On accepting that position in 1948, Dr. Heidelberger started a most productive 28-year period at the McArdle Laboratory. During this period, Dr. Heidelberger developed three principal areas of research. (a) One of these was directed toward an understanding of the mechanisms by which the carcinogenic polycyclic aromatic hydrocarbons induce cancer. (b) The second was the synthesis of fluorinated pyrimidine derivatives for chemotherapy of cancer and analysis of their biochemical mechanisms of chemotherapeutic activity. (c) He early recognized the importance of being able to induce malignant transformation of cultured cells by chemicals and developed one of the first quantitative systems for this purpose. The C3H 10T- $\frac{1}{2}$  clone 8 cells developed in his laboratory have been used extensively, not only by his colleagues, but throughout the world, for studies on malignant transformation. The contributions that Dr. Heidelberger made in each of these areas (summarized up to 1970 in his Clowes Award address, *Cancer Research*, 30: 1549-1569, 1970) are impressive. His ability to develop critical, incisive approaches to all three areas more or less simultaneously and to make important discoveries in each area earned Dr. Heidelberger the great respect of his immediate colleagues and of investigators around the world.

Interest in Dr. Heidelberger's research brought many requests for training in his laboratory. At the McArdle Laboratory, 16 graduate students earned their Ph.D.'s under his leadership, and about 60 postdoctoral fellows each spent several months to several years in his laboratory developing expertise in carcinogenesis, cell culture, or biochemistry. These former colleagues are now carrying out research on cancer and allied subjects at research institutes, universities, and industrial laboratories in many countries.

At the University of Wisconsin, Dr. Heidelberger was promoted to Professor of Oncology in 1958, and in 1960, he was awarded an

American Cancer Society Professorship of Oncology, which he held until 1976. As an outgrowth of his interests in clinical cancer research, Dr. Heidelberger, while retaining his appointment in the McArdle Laboratory, accepted an appointment in 1973 as Associate Director for Basic Research of the newly formed Wisconsin Clinical Cancer Center at the University of Wisconsin Medical School. In 1976, he moved to the University of Southern California as Professor of Biochemistry and Pathology and Director for Basic Research of the USC Cancer Center, and in 1981, he became a Distinguished Professor at the University of Southern California.

Dr. Heidelberger's scientific and administrative abilities were recognized and utilized in his membership on numerous committees. These included the Board of Directors of the American Association for Cancer Research (1959-1962, 1965-1968, 1975-1978), the Pharmacology and Experimental Therapeutics B Study Section of the NIH (1964-1968), the Program Committee (Chairman) for the Tenth International Cancer Congress (1974), the Council of the International Union against Cancer (1970-1974), and the Board of Scientific Counselors of the Division of Cancer Treatment of the National Cancer Institute (1975-1980). He served on editorial boards of a number of journals, including *Cancer Research*, *Molecular Pharmacology*, *Biochemical Pharmacology*, the *International Journal of Cancer*, *In Vitro*, and the *Journal of Medicinal Chemistry*.

Numerous awards attest to the high esteem in which Dr. Heidelberger's scientific contributions were held. He was elected to the National Academy of Sciences, U. S. A., in 1978. Other awards included the Langer-Teplitz Award for Cancer Research (1958), Walter I. Hubert Lecturer for the British Association for Cancer Research (1969), Lucy Wortham James Award of the James Ewing Society (1969), G. H. A. Clowes Memorial Award and Lectureship of the American Association for Cancer Research (1970), American Cancer Society National Award (1974), Lila Gruber Award of the American Academy of Dermatology (1976), Papanicolaou Award for Scientific Achievement (1978), Chemical Industry Institute of Toxicology Founder's Award (1982), C. Chester Stock Award of the Memorial Sloan-Kettering Cancer Center (1982), and the first Athayde International Cancer Prize (1982).

Although science and research were all-consuming interests, Dr. Heidelberger wholeheartedly enjoyed social activities with his family and his many friends, who knew him affectionately as Charlie. Parties at the Heidelberger home are remembered for their mixture of good conversation, good fun, and good music. Charlie had a life-long interest in music and particularly enjoyed opportunities to play the violin and trumpet. In addition to performing at informal gatherings in his home, he also participated in occasional jazz sessions around the country with other scientist-musicians. Charlie also took great pleasure in sailing on Lake Mendota when he lived in Madison and on bays of the Pacific Ocean after he moved to Los Angeles.

Dr. Heidelberger, the scientist, and Charlie, the friend, will be long remembered for his major contributions to cancer research and allied areas and for his friendship. He is survived by his father, his wife Patricia, his three children Nina, Philip, and Lisa from his previous marriage, and two grandsons, Joshua and David Charles.

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# Cancer Research

The Journal of Cancer Research (1916–1930) | The American Journal of Cancer (1931–1940)

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