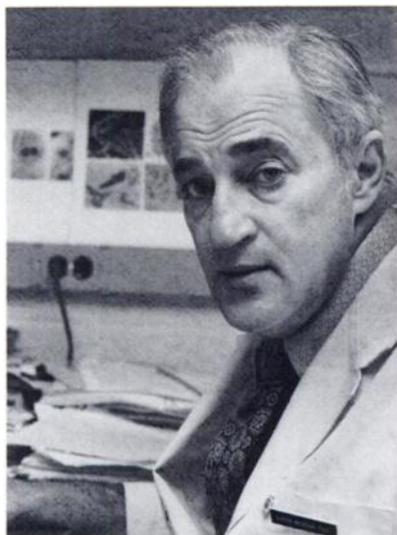


## OBITUARY

### Aaron Bendich 1917–1979



The death of Aaron Bendich on September 12, 1979, at the age of 62, ended the career of an active, productive, and imaginative scientist. He is survived by his wife Clare and his sons, Stephen Z. and Arnold J., the latter continuing the name in nucleic acid research.

Bendich, a graduate of the class of 1939 at City College of New York, was honored by that institution in 1974 with the Townsend Harris Medal for outstanding achievement. After college, he undertook graduate study under Professor Erwin Chargaff at Columbia University where he was one of an illustrious group of students who later made remarkable contributions to biochemistry and molecular biology. Bendich completed his training and preparation for his future by working with Professor Elvin Kabat in the Department of Bacteriology at Columbia.

In 1947, he was one of 28 scientists who established the infant Sloan-Kettering Institute, using a single laboratory in the old Memorial Hospital. Bendich joined G. B. Brown, L. F. Cavalieri, M. L. Petermann, and P. M. Roll to form what was to become one of the foremost groups investigating the biosynthesis of nucleic acids. They were among the first to synthesize isotopically labeled purines and pyrimidines and to follow their metabolism in laboratory animals and humans. Their work led to the initial evidence of the existence of what has since come to be known as the salvage pathway of purine metabolism. Later, with J. R. Fresco, Bendich carried out what are considered to be among the classic experiments demonstrating the metabolic stability of DNA. With G. P. di Mayorca, R. I. Eddy, S. E. Steward, W. S. Hunter, and C. Friend, he isolated DNA from polyoma-infected cells and demonstrated its infectious nature. These are studies with consequences so widespread that they have entered the "public domain" of science.

During the 1950's, Bendich's training as a chemist expressed itself in many ways. With L. F. Cavalieri, he worked on the synthesis and ultraviolet absorption spectra of purines and pyrimidines. These studies were of course geared to the heterocyclic components of the nucleic acids, a primary interest throughout his scientific career.

In 1954, he wrote a comprehensive chapter in Volume 1 of *The Nucleic Acids* (Chargaff and Davidson, eds.) entitled, "The Chemistry of Purines and Pyrimidines," which remained a solid contribution to this burgeoning field for many years. In this chapter, his emphasis on the "minor" components in the nucleic acid, at that time few in number and of unknown significance, exemplify his thoroughness and insight. In preparing this chapter, he came upon an obscure paper by Rittenhausen and Kreisler, published in 1870, on vicine, a constituent of vetch seeds. In examining the data formulated by P. A. Levene in 1914 for the structure of vicine as a nucleoside, Bendich (with uncanny

insight) inferred that the proposed structure was incorrect. He then proceeded, using direct physical and chemical techniques, to establish its correct structure as a pyrimidine-*O*-glucoside.

Bendich set up a chemical synthesis laboratory in 1954 and, in collaboration with J. J. Fox, A. Giner-Sorolla, and others, initiated a program on nucleoside synthesis and chemistry that has since evolved into a major laboratory in the chemistry of nucleosides at the Sloan-Kettering Institute. His interest in DNA remained a constant thread throughout the two decades that saw our knowledge of this molecule evolve from the tetranucleotide concept to the 10<sup>8</sup>-dalton double helix. He explored the heterogeneity and possible nonnucleotide components and the biological role of DNA. He respected tradition but refused to be immobilized by dogma.

Although his training was primarily in nucleic acid biochemistry, his interests over the last 15 years centered increasingly on its biological expression. In his long-standing association with E. Borenfreund, their research was directed toward problems concerning cellular transformation and oncogenesis. This work included studies on the incorporation and genetic expression of exogenous DNA; the demonstration of the uptake of isolated metaphase chromosomes by mammalian cells in culture; and, more recently, on cell-cell interactions involving spermatozoa and somatic cells. He also studied basic cellular events accompanying carcinogenesis, in particular the effect of carcinogens on rat liver cells *in vivo* and *in vitro* in an effort to elucidate the mechanism and progression of neoplastic transformation. Parallel studies with P. Higgins were concerned with the role of fetal antigens in oncogenic development and differentiation and their potential as immunodiagnostic markers.

Although the composition of the nucleic acid group at Sloan-Kettering has changed over the years, Bendich remained at its center. He was the one to whom most turned when life, science, or funding became burdensome. He was the first to hear of our troubles and the first to share our successes, just as he had been the first to welcome us when we joined the staff. He sensed our needs and gave to each what was most helpful. Aaron was in no way a somber man. He had a magnificent sense of humor and brightened many a hard day. His dynamic personality and humanity, his warmth and sincerity, won him friends and admirers throughout the world.

A hallmark of Bendich's 32 years at Sloan-Kettering was his devotion to the Institute's goals and programs. His accomplishments and dedication were recognized by his rapid advancement to the rank of Member and his receipt of the Sloan Award in 1964. An active member of the scientific community, he also served as Associate Editor of the *Archives of Biochemistry and Biophysics* and of *Cancer Research*. He served as member and later as Chairman of the Scientific Advisory Board of the St. Jude Children's Research Hospital. He served in many capacities in the Sloan-Kettering Institute, but in none was he more at home or more effective than as Professor of Biochemistry and most recently as Chairman of the Biochemistry Unit in the Sloan-Kettering Division of the Cornell University Graduate School of Medical Sciences. He was a complete teacher. Students found him a source of inspiration and stimulation, and he loved spending time with them.

In recognition of his zeal as a teacher, his colleagues and friends have established a lectureship that will be awarded annually to a graduate of the school who has since contributed to the progress of science in his spirit. We hope this will be a reminder to many that Aaron Bendich was with us and is loved and honored by those who knew him.

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