

# David Boettiger, Microbiology

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*David Boettiger*

David Edward Boettiger, an emeritus professor of microbiology in the Perelman School of Medicine, died on October 6. He was 80.

Dr. Boettiger was born in Baltimore, Maryland, but grew up mostly in Storrs, Connecticut, where his father was a professor at UConn. He attended Earlham, a Quaker college in Indiana, graduating in 1964. He was active in the civil rights movement and the peace movement, and joined the Peace Corps during the Vietnam War, where he served as a teacher in rural Ethiopia.

Dr. Boettiger returned to complete his graduate studies in the U.S., where, as a PhD student at the University of Michigan, he helped discover the protein reverse transcriptase, an enzyme that can turn RNA into DNA. This discovery earned Dr. Boettiger's mentor, Howard Temin, a Nobel Prize in 1975. At the time, it was believed RNA could only serve as a transient intermediate between DNA and protein, rather than templating DNA production. Reverse-transcriptase was critical in the scientific understanding of cancer-inducing behavior of the Sarcoma virus in which the gene was first identified, as well as the replication and immune evasion of HIV, the virus that causes AIDs. The enzyme has also become among the most widely used in molecular biology today, in analysis of gene expression by sequencing the DNA transcripts produced from RNA templates.

Dr. Boettiger joined Penn's microbiology faculty in 1974 and was promoted to full professor in 1986. He retired in 2011 and was accorded emeritus status. As a researcher at Penn, he studied the molecular mechanisms of cell adhesion, which is critical for the integrity of tissues and organs and for the infection of cells by microbes and viruses. Among his works, Dr. Boettiger showed that adhesive complexes, like integrin, not only hold cells together on their matrix of extracellular proteins, but also transduce mechanical forces into chemical signals to alter cell behavior. In recognition of his contributions, he was elected a fellow of the American Association for the Advancement of Science.

In his spare time, Dr. Boettiger enjoyed skiing, hiking, backpacking, and sailing with his family. He was a Boy Scout and later served as a Venture Scout leader in the Philadelphia area for nearly twenty years.

He is survived by his wife, Barbara; his sons, Alistair and Carl; and his grandchildren, Edward, Matilda, and James.