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Robert M. Macnab

Robert Macnab, noted for his research on bacteria, dies

Robert M. Macnab, professor in and former chair of the Department of Molecular Biophysics and Biochemistry (MB&B), died on Sept. 7 as a result of a fall in his home. He was 63 years old.

Over the last 30 years, Professor Macnab -- with his wife and colleague May Kihara Macnab, research associate in MB&B -- studied how bacteria swim and find food. Their research focused on the assembly, structure and function of the bacterial flagellum. He was also known among his colleagues as a distinguished teacher of biochemistry who helped both his department and Yale in many key decisions about policies and their implementation.

A native of Scotland, Professor Macnab began his career as a petroleum chemist with British Petroleum after receiving his undergraduate degree in chemistry in 1962 from the University of St. Andrews in Scotland. He later left to pursue a Ph.D. in physical chemistry at the University of California at Berkeley, which he earned in 1969. He remained at UC-Berkeley as a postdoctoral researcher with Dan Koshland, with whom he began his work on chemotaxis and motility. Professor Macnab's first paper with Koshland in 1972 was a landmark work showing that bacteria detect spatial gradients by converting them to temporal gradients.

Professor Macnab came to Yale in 1973. In his early work here, he watched cells swim and tumble using a microscope he had developed while still in the Koshland laboratory. He was the first to document how individual flagellar filaments in cells of Salmonella move. He and his collaborators also made major contributions to understanding of the structure and organization of the components of the bacterial flagellum. More recently, he had turned his attention to the assembly pathway of the flagellum. A widely published author, he contributed the chapter on the flagellum to the two-volume "Escherichia coli and Salmonella: cellular and molecular biology."

In his 30 years at Yale, Professor Macnab played a major role in re-creating the microbiology department. He was a member of many key committees, including the

Teaching and Learning Committee and the Yale Executive Committee. He was particularly concerned with undergraduate life and education, and he taught undergraduate biochemistry in both MB&B and the Department of Biology for many years. He was a longtime fellow of Calhoun College, and served as director of undergraduate studies in MB&B and as the department's chair.

"His colleagues always could count on his clarity of thinking, his balanced judgment and his highly developed sense of principle," said his Yale colleague Donald M. Engelman, the Eugene Higgins Professor of Molecular Biophysics and Biochemistry.

David DeRosier, professor of biology and the Abraham S. and Gertrude Burg Chair of Life Sciences at Brandeis University, noted: "His colleagues and collaborators will miss his sense of humor, his scrupulous sense of fair play in all matters, his insights and the contributions he surely would have continued to make."

In honor of his leadership in flagellar research, Professor Macnab was elected to the American Academy of Microbiology and the Japan Society for the Promotion of Science. He chaired the Gordon Conference on Sensory Transduction in Microorganisms and served on the editorial boards of the Journal of Bacteriology, the Biophysical Journal, the Microbiology Review, and most recently Molecular Microbiology.

A memorial symposium in Professor Macnab's honor is being planned for the spring; contributions in his memory may be made to the Professor Robert Macnab Fund, c/o Department of Molecular Biophysics and Biochemistry, Yale University, P.O. Box 208114, New Haven, CT 06520-8114.

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