

Mortimer Civan, Physiology

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Mortimer Civan

Mortimer M. Civan, an emeritus professor of physiology in the Perelman School of Medicine and an influential researcher of epithelial salt and water transport, passed away on April 17 after a brief illness.

Dr. Civan obtained his AB in 1955 and his MD degree in 1959 from Columbia University, where he was elected to the Phi Beta Kappa and Alpha Omega Alpha honorary societies. Following an internal medicine internship and residency training at Presbyterian Hospital, New York City, Dr. Civan studied salt and water transport across kidney epithelia at the National Institute of Arthritis and Metabolic Diseases, a sub-group of the National Institutes of Health. He then moved to Boston and joined the lab of Alex Leaf, then chief of the renal service at Massachusetts General Hospital. In the Leaf lab, and then as a faculty member at Harvard Medical School, Dr. Civan focused on the toad urinary bladder as a model of the kidney and contributed to the discovery of the need by cells for an energy-dependent mechanism to effectively extrude water (the “double Donnan” hypothesis). He went on to publish over thirty reports over three decades, using biophysical analyses and approaches, including NMR, electron-probe X-ray microanalysis and electrophysiology. His studies elucidated fundamental mechanisms of epithelial salt and water transport and their regulation by vasopressin and aldosterone.

In 1972, Dr. Civan joined Penn’s faculty as an associate professor of physiology and medicine. Advancing to the rank of full professor in 1979, he continued to make essential contributions to the renal transport field. At Penn, Dr. Civan expanded to a second interest in ocular physiology, where he also made major contributions to the understanding the underlying mechanisms of fluid transport within the anterior part of the eye. Using methods that were analogous to his work in kidney transport, Dr. Civan addressed the nature and control of the ionic channels responsible for the turnover of aqueous humor, including adrenergic, adenosine and purinergic mechanisms. Using cell volume analysis, patch clamp techniques and fluorescent ion imaging, he dissected the contributions of various ion transporters to the salt and fluid uptake by the ciliary epithelium and drainage through the trabecular meshwork. He published over 70 papers on this research, as well as many review articles and book chapters.

Over his 43 years in Penn’s physiology department, Dr. Civan trained numerous fellows and graduate students. He was awarded the Dean’s Award for Excellence in Teaching Basic Science in 1988. Among other editorial positions, Dr. Civan served for 40 years on the editorial board of the *American Journal of Physiology: Cell Physiology*. He was active in the American Physiological Society, the Society of General Physiologists, and the International Society of Eye Research. He was an established investigator of the American Heart Association from 1970 to 1975 and was elected a fellow of the American Association for the Advancement of Science in 1988. He was the recipient of 3 patents.

“His local, national and international colleagues held him in the highest regard, with deep-felt respect for his scientific contributions, his inquisitive mind, his broad knowledge and his character,” said Dr. Civan’s colleagues. “To his colleagues at Penn, Mort was a caring, gentle, fair, steady and humorous man. For many, Mort was a constant source of support, always inquisitive about how one was doing, a great listener, positive in his outlook, and always with a bit of a twinkle in his eye. He provided counsel that was rational and thoughtful, often punctuated with ‘keep up the good work!’”

Dr. Civan is survived by his wife, Judith; two sons, Ethan and Jesse; and five grandchildren.