

## Allan H. Conney: In Memoriam (1930–2013)

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On September 10, 2013, the scientific community lost Dr. Allan H. Conney, a world-renowned pharmacologist and cancer researcher who made seminal discoveries in the molecular mechanisms of enzyme induction, drug metabolism, carcinogen activation, and cancer prevention. Dr. Conney was born in Chicago on March 23, 1930. He received his B.S. in pharmacy (1952) and his M.S. (1954) and Ph.D. (1956) in oncology from the University of Wisconsin-Madison (Madison, WI).

In the 1950s, as a graduate student working with Drs. James and Elizabeth Miller, Dr. Conney discovered the induction of xenobiotic-metabolizing enzymes in animals. This was among the first demonstration of enzyme induction in mammals. This work, along with his subsequent research at the National Institutes of Health (Bethesda, MD) illustrated how chemicals could induce the enzymes that catalyze the metabolism of many other compounds. In the 1960s and 1970s, working at Burroughs Wellcome & Co. Inc. and then at Hoffmann-La Roche Inc., Dr. Conney investigated the metabolism of many drugs by cytochrome P450 and other enzymes. Further characterization of numerous factors that regulate drug-metabolizing enzymes by Dr. Conney and his colleagues led to the discovery of multiple forms of cytochrome P450 enzymes. This enzyme system metabolizes a variety of drugs, steroid hormones, carcinogens, and other environmental chemicals. His work provided the molecular basis for our understanding of how drugs, other xenobiotics, and endogenous compounds are biotransformed and how these processes can be influenced

by different environmental chemicals, including those present in the diet. Dr. Conney's seminal research has greatly impacted the fields of pharmacology, toxicology, and oncology.

Dr. Conney also made major contributions in elucidating the mechanisms by which polycyclic aromatic hydrocarbons are activated to proximate carcinogens and then to ultimate carcinogens, whose binding to DNA can lead to mutagenesis and carcinogenesis. His work clearly illustrated how a chemically inactive compound can be metabolically activated to cause mutations and induce cancer. For this and other achievements, he was awarded the G.H.A. Clowes Award from the American Association for Cancer Research (AACR) in 1981. In the following year, he was elected to the National Academy of Sciences. His research group then devoted much effort in understanding how cancer can be prevented. Dr. Conney has conducted pioneering research on the prevention of carcinogenesis by curcumin, tea polyphenols, and other natural products.

In 1987, Dr. Conney moved to Rutgers University (Piscataway, NJ) and established the Department of Chemical Biology in the College of Pharmacy. He also founded the Laboratory for Cancer Research, which was named the Susan Lehman Cullman Laboratory for Cancer Research in 2000, after Dr. Conney's tremendous fundraising efforts to build the second floor of the building. He and his colleagues at Rutgers also provided critical expertise in carcinogenesis and chemoprevention in the establishment of the Cancer Institute of New Jersey in the 1990s.

From 1990–2000, Dr. Conney's research work was supported by a prestigious Outstanding Investigator Award from the National Cancer Institute (Bethesda, MD) and, subsequently, by many other grants from the NIH. His research has stimulated the interest of many other investigators in the field of cancer chemoprevention, and many of the chemopreventive agents that he discovered are still being extensively investigated at Rutgers and elsewhere. His contributions to cancer prevention research was

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recognized with the DeWitt S. Goodman Memorial Award from the AACR in 2002. In recent years, his laboratory has made exciting discoveries on how caffeine, exercise, and lipectomy inhibit skin carcinogenesis and on the inhibition of prostate and pancreatic cancer progression by the combination of Lipitor and Celebrex. This work greatly enhanced our understanding of the different approaches for cancer prevention. With his great understanding of the individual differences in drug metabolism, Dr. Conney had been advocating an approach of individualized cancer prevention and the measurement of blood levels of drugs and their metabolites for individualized medicine. In addition to the awards and recognition mentioned above, he has received numerous other accolades for his innovative work. He was a prolific scientist who authored or co-authored more than 500 publications, at least 90 of which are in various AACR journals and served as an associate editor for *Cancer Research* (1975–2009) as well as a member on the editorial board of *Cancer Prevention Research* (2008–2013).

Dr. Conney is survived by his wife Diana, two sons Steven and Michael, daughter-in-law Yulin, granddaughter Melissa, and sister Ruth Adrian. Dr. Conney's passing is a major loss to all of us and the scientific community at large. We remember him not only as a brilliant scientist but also as a wonderful person who treated his colleagues with respect and his friends with unending loyalty. Dr. Conney, a renowned pharmacologist and cancer researcher, was admired worldwide. Amazingly, he was able to accomplish so much with his gentle and patient

demeanor. He seemed to have time for all colleagues, students, and even strangers. He always asked "How can I help?" and, indeed, he has helped a large number of people in their career development. His distinguished scholarship and admirable personal style have touched so many people. He set an excellent example for us to follow. Dr. Conney's long-lasting legacy will contribute greatly to the betterment of society.

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