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Richard Anderson

Dick Anderson is professor of Cell Biology and Neuroscience and holder of the Cecil H. Green Distinguished Chair in Cellular and Molecular Biology at the University of Texas Southwestern Medical Center at Dallas.

A member of the ASCB for nearly thirty years, Anderson remembers when ASCB meetings were intimate affairs with fewer than 1,000 people. He was the Program Chair of the 1983 Annual Meeting in San Antonio during the Administration of former ASCB President Jim Jamieson and served on Council from 1985-1987.

Despite his urban Philadelphia roots, or maybe because of them, Anderson initially wanted to be a forester. He attended Oregon State University, graduating in 1965 with a degree in mathematics. One college summer, he served as an intern in a remote area of Oregon but found it too isolated, curing him permanently of his passion for a career in forestry. Anderson decided to pursue research at the University of Oregon Medical School.

Anderson was attracted to basic research by Robert Bacon at Oregon. He recalls that Bacon was a morphologist in an "era [1964] when electron microscopy was supreme." Often Anderson wonders "if Bacon had been a biochemist instead of a morphologist, would I have been attracted to a career in science?" He considers himself very fortunate to have been trained during this time because he discovered his own talent for interpreting and integrating morphologic information with other types of data.

Anderson's Ph.D. thesis, under the direction of Robert Brenner, utilized morphologic and biochemical methods to study the biogenesis of cilia and centrioles in the oviduct of the rhesus monkey. Anderson was Brenner's first graduate student. Brenner recalls that when Anderson presented his work at the American Association of Anatomy meeting in 1970, he observed that "Dick would walk away with the prize for best paper by a graduate student. I was right, and Dick has since gone on to greater accomplishments and higher honors. Those who know Dick would agree that he combines an ability to come up with ingenious approaches to problems in cell biology with a dogged stick-to-it-iveness that carries him through all obstacles in his path."

After receiving his Ph.D., Anderson remained at the Oregon Primate Research Center as a post-doctoral fellow in Brenner's laboratory. He continued to work on the mechanism of cilia biogenesis in the oviduct.

Completing his postdoc, Anderson was attracted to the University of Texas Southwestern Medical School primarily by the large number of outstanding faculty members. He correctly sensed UTSW as "a growing institution with the drive and determination to become outstanding." Rupert Billingham was Chair of the Department of Cell Biology at the time. When Anderson and his wife, Barbara, packed their bags, he assured her they

would be in Texas only three years. That was in 1973. As a result, concedes Anderson, Barbara "rarely believes anything I say."

Anderson continued to work on cilia biogenesis in the oviduct, switching to the chick as a model system. In 1974, he met Michael Brown and Joseph Goldstein and started a collaboration leading to the discovery of receptor-mediated endocytosis and the role of clathrin coated pits in the internalization of macromolecules. His collaboration with Brown and Goldstein, Anderson says, is an "outstanding example of how scientists with different talents can work together towards a common goal while all the time having great fun." Because of this collaboration, the LDL receptor is the best understood of those receptors that internalize macromolecules through clathrin-coated pits. Throughout the 1980s, Anderson studied the cell biology of cholesterol metabolism and the mechanism of clathrin-coated pit function.

In 1988 the magic of UTSW struck again when Anderson, this time in collaboration with Bart Kamen, discovered a new endocytic pathway named potocytosis. This pathway utilizes lipid-anchored membrane receptors and caveolae to take up small molecules such as vitamins and lipids.

The current focus of the Anderson lab is to understand how caveolae work. Caveolae appear to play an important role in signal transduction. They could be a special membrane domain where information from different sources enters the cell and is processed. Anderson thinks what is surprising is "how such a tiny piece of membrane can be important for both normal cell behavior and cholesterol homeostasis."

Anderson believes young cell biologists need to use a more integrated approach in their the study of the cell. Many of the students he teaches lack knowledge about the basic architecture of the cell, which he feels is absolutely necessary for understanding how cells function. If he had one piece of advice to give an aspiring cell biologist it would be to "learn as much mathematics and morphology as you can."

Anderson remains optimistic about the future of biomedical research: "UT Southwestern was clearly the right choice for me. As always, future research looks more exciting than the past. This is a wonderful time to be a scientist!"

Equally exciting and interesting are his hobbies. Anderson is a glider pilot and often takes his sailplane out for a spin. He finds refreshment in this pastime, as well as a release from the competition of science. Although in gliding he finds spiritual enrichment, it is also a source of great fun and entertainment for members of his lab. Mary Moore, a former graduate student remembers that "Dick gave great parties for the people in his lab. One of the most memorable was the time he took us all up in a glider. It was quite a success. Only two of the ten people he took up got airsick. We all thought it was a lot of fun."

On the ground, he and Barbara also like to take back country treks, particularly in the winter. Their favorite winter spot is Yellowstone, where the Andersons spend a week skiing up a remote river canyon and camping in the snow. Relief from the cold is

provided by occasional soaks in nearby hot springs. As in science, sometimes these treks don't go as planned: like the time last winter when they were trapped for three days in a blizzard, and were out of provisions for two days before being rescued.