

Carl G. Hartman Award. (*Sponsored by the R. J. Johnson Pharmaceutical Research Institute.*) The 1991 recipient of the Carl G. Hartman Award is Dr. Robert Ryan.

An undergraduate from Xavier University, Robert Ryan obtained his M.D. degree from the University of Cincinnati in 1952. He took his medical internship at Henry Ford Hospital the next year in Detroit, where he wrote his first manuscript. The research fellowship that followed, at the Research and Education Hospital in Chicago, involved studies in extracellular water and led to several more publications and a realization of his true interest, research.

Dr. Ryan's special research interest was realized during his residency with Dr. Harry Dowling, who introduced him to several leading endocrinologists including Dr. E. Q. Astwood. A Research Fellowship allowed him to work in Astwood's laboratory for a year and a half and engendered a long-lasting interest in the chemistry of the gonadotropins. He returned to academic medicine as an assistant professor at the University of Illinois in Chicago in 1959 and applied for his first NIH research grant in 1960. He succeeded in purifying the gonadotropins in 1965, and with his post-doctoral fellow, Charles Faiman, developed an assay for FSH in 1966. At this time he was an associate professor of medicine, and his new goal was to spend full time in research.

The move to the Mayo Graduate School of Medicine in 1967 fulfilled his ambition for a full-time research position and led to the development of additional assays for the gonadotropins, triiodothyronine, and estradiol. In 1970, he received his first invitation to present his findings at the Laurentian Hormone Conference, as his attention was becoming focused on the LH receptor and its relationship to the adenylyl cyclase enzyme.

Under his leadership, this work led to the purification of the LH receptor. During the next three years (1971-1974), he was chair of the Department of Endocrine Research, followed by five years (1974-1979) as chair of the Department of Molecular Medicine. These activities overlapped with a third area of research that he initiated in 1975: studies of ovarian follicles and the demonstration that FSH stimulates the production of glycosamine glycan by the granulosa cells.

An undercurrent of Dr. Ryan's research since 1968 has been the study of the structure-function relationship of the gonadotropins. In the early

1970s he recognized that a peptide sequence between residues 93 and 100 had the properties of a substrate for cAMP-dependent protein kinase. This led to a series of experiments demonstrating that LH and hCG betas could be phosphorylated and that it was threonine 95 that was phosphorylated. This, in turn, led to the synthesis of a series of peptides that mimicked various regions of LH and hCG beta subunits and helped to define the areas involved in receptor binding and to better understand the role of the carbohydrates of the gonadotropins in relation to their binding and bioactivity. This was the topic of his second visit to the Laurentian Hormone Conference in 1986.

Some of the awards and honors conferred on Dr. Ryan include the Hopkins-Maryland Lecturer in Reproductive Biology (1979); The Robert H. Williams Distinguished Leadership Award of the Endocrine Society (1984); the Mayo Foundation Distinguished Lecture, University of Miami (1986); the Sterling Visiting Professor of Pharmacology, University of Michigan (1990); and the Daniel Drake Medal, University of Cincinnati (1990). Until his retirement last year, he was professor of Biochemistry and the Bartels Professor of Cellular Biology. His vast contributions to editorial boards, review boards, and other service to the scientific community defy listing; because of this, he is truly a credit to all of science and education, a model for those who know him professionally and a friend to all who know him well. He joins a list of the few who have made special contributions to the study of reproduction and adds more than just his name to the tradition of the Carl G. Hartman award.