

**1998 CARL G. HARTMAN AWARD
ANITA H. PAYNE**

The highest award of the Society for the Study of Reproduction is the Carl G. Hartman Award, sponsored by the R.W. Johnson Pharmaceutical Research Company. The award this year is given to Dr. Anita H. Payne, one of SSR's finest members, for her outstanding lifelong scholarly contributions to reproductive biology, her dedicated and generous service to the SSR, and her exceptional role as advisor and mentor of students.

Dr. Payne received her B.A. in Physiology in 1949 at the University of California, Berkeley, where she continued her studies until receiving a Ph.D. in 1952. Her first job was as a Physiologist at the Donner Laboratory of Medical Physics in Berkeley, where she studied the effects of neoplasia on nucleic acid turnover in tissues from 1952–1953. Thereafter, she was dedicated to raising her family and subsequently returned to science in 1961 as a Research Associate in the Departments of Biological Chemistry, and Obstetrics and Gynecology at the Medical School of the University of Michigan, Ann Arbor. She gained the respect and admiration of her colleagues at Ann Arbor during a period that spans over three decades of teaching and research. She became Assistant Professor in 1971, Associate Professor in 1976, and Professor of Biological Chemistry in 1981. Her many achievements in academia and research were honored with the establishment in 1994 of the Anita H. Payne Annual Lectureship in Reproductive Endocrinology in the Department of Obstetrics and Gynecology. She reportedly “retired” from the University of Michigan in 1996; however, she is still in a laboratory today, as a Senior Research Scientist in the Department of Gynecology and Obstetrics at Stanford University Medical Center in Palo Alto, California.

Dr. Payne has devoted her career to the study of the enzymes involved in steroid hormone biosynthesis. As a first-rate biochemist, her studies in the 1960s and early 1970s with Mason and Jaffe established her as a leader in the characterization of steroid sulfates and sulfatases. She then turned her attention to the enzymes involved in testosterone biosynthesis and to the elucidation of the complex hormonal regulation of their activities. Dr. Payne's work in steroid biochemistry and molecular endocrinology forms the foundation of our understanding of the gonadotropic regulation of Leydig cell function, making her the leader in the field of testicular physiology. She was the first to establish that there are two populations of Leydig cells that are differentially responsive to gonadotropins. She also demonstrated that



treatment with different modes of human chorionic gonadotropin (hCG) or luteinizing hormone (LH) results in different effects on the capacity of Leydig cells for testosterone production. She further established that refractoriness to hCG after a single high dose of gonadotropin results not from a decrease in LH receptors but from a decrease in the P450 enzyme activity due to their degradation. Dr. Payne was the first to establish a long-term primary culture of purified mouse Leydig cells, which enable her and her colleagues to identify factors that regulate the expression of various steroidogenic enzymes. In the 1980s, she expanded her work to include genetic approaches and mapped several of the chromosomal genes affecting enzyme structure and levels of activity in the mouse, particularly the gene encoding P450c17, which is involved in androgen synthesis. After a sabbatical in the Department of Pharmacology at Stanford in 1987, she shifted her research to the molecular level, which led to the isolation of complete cDNAs for six isoforms of 3β -hydroxysteroid dehydrogenase, the enzyme that converts pregnenolone to progesterone. She is currently deciphering the functional roles of these multiple isoforms and determining the factors that regulate their tissue-specific and temporal patterns of expression. Dr. Payne's work has been continuously funded by the NIH and has resulted in the publication of over 100 papers and book chapters. As a legacy to her lifelong career, Dr. Payne has recently edited the definitive book on the Leydig cell.

No less important, Dr. Payne has given tirelessly and most generously to the SSR and to the scientific community. Her service to the SSR is exemplary; she became a member of the Board of Directors in 1982, Secretary in 1986, and President in 1990, and was an active member of many other committees. Dr. Payne also contributed her leadership as a member of the Council of the Endocrine Society and the Executive Council of the American Society of Andrology. She served on the editorial boards of *Biology of Reproduction*, *Journal of Andrology*, *Endocrinology*, *Steroids*, *Endocrine Journal*, *Molecular Endocrinology*, and *Molecular and Cellular Endocrinology*. She has been a member of the Reproductive Biology and Biochemical Endocrinology study sections of the NIH and a member of the Population Research Committee of the NICHD.

Finally, one of Dr. Payne's greatest contributions is as a mentor and role model. She began her career at a time when there were few women scientists. In the 1950s, she was featured in a local newspaper with a headline exclaiming her virtues as a young, beautiful housewife finding a cure for cancer. One of Dr. Payne's most ardent supporters, who shall remain nameless for fear of retribution, was reminded of the example of the famous dancers, Fred Astaire and Ginger Rogers. Rogers did everything that Astaire did except that she did it wearing

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high heels and backwards. Dr. Payne has done the equivalent in science, with grace and style, and has emerged as a major leader of women in science today. She has nurtured the careers of many scientists by setting an example of critical thinking and with her contagious excitement about science, her dedication to both the big picture and the details, and her ultimate sense of balance and perspective. One of her former students stated, “She exemplifies the saying, ‘I teach this year’s student what last year’s student taught me.’”

Dr. Payne is a remarkable scientist who has contributed extensively to the vitality and excellence of reproductive endocrinology through her novel and pioneering research, her leadership within the scientific community, her tireless devotion to her students, and her selfless generosity. As a scientist, teacher, mentor, colleague, and supporter of the SSR, she has touched and positively influenced many lives. Dr. Anita H. Payne’s headline now reads, “Scholarly woman scientist recognized for lifelong leadership in research and academia receives Carl G. Hartman Award.”