

**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 3 $\beta$ -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 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."

**1998 SSR RESEARCH AWARD  
GEULA GIBORI**

This year's recipient of the SSR Research Award, sponsored by the Society for the Study of Reproduction, is Dr. Geula Gibori, Professor of

Physiology and Biophysics in the College of Medicine at the University of Illinois at Chicago. Her innovative studies on the complex interactions among the ovary, fetus, and placenta during pregnancy in the rat over the past six years exemplify the standards of excellence represented by this award.

Dr. Gibori received her bachelor of science degree in Biology from the Lebanese University of Beirut, Lebanon, in 1967. Her potential as a research scientist was recognized early as she received a Centre Nationales de la Recherche Scientifique Predoctoral Fellowship to pursue her master's degree in Reproductive Biology at the Sorbonne, University of Paris, which she completed in 1968. In 1973, she was awarded her Ph.D. in Physiology from Tel Aviv University, Israel, and a Fulbright Award. Subsequently, she came to the United States as a Ford Foundation Postdoctoral Fellow, working initially in the Department of Reproductive Physiology at Case Western Reserve University, Cleveland, Ohio, with Dr. Irving Rothchild (1994 Carl G. Hartman awardee). After a second postdoctoral period in reproductive endocrinology at the University of Michigan in Ann Arbor working with eminent members of the SSR, Drs. Landis Keyes and Joanne Richards (1989 recipient of the SSR Research Award), Dr. Gibori was recruited to the University of Illinois at Chicago where she began as an Assistant Professor in 1976. She was promoted to Associate Professor in 1980 and to Professor in 1986.

Dr. Gibori's distinguished research career has focused on the hormonal regulation of the corpus luteum and decidua in the rat. Her remarkable ability to blend molecular biology, biochemistry, and cell biology within a physiological framework has had a major impact on our understanding of ovarian and placental function. Her work has unraveled the role of estradiol as a key regulator of luteal progesterone synthesis. Dr. Gibori and her colleagues discovered that estradiol synthesized in the rat corpus luteum acts by an intracrine mechanism to stimulate the expression of HMGCoA reductase, a key enzyme involved in cholesterol biosynthesis, and to enhance the phosphorylation state of sterol carrier protein 2, a protein responsible for cholesterol transport to the mitochondria. Recently, her studies have focused on the role of the newly discovered  $\beta$  form of the estrogen receptor in estradiol-mediated regulation of luteal function.

Because prolactin is a prerequisite for estradiol action, and prolactin synergizes with estradiol to promote maximal stimulation of luteal size and progesterone production, Dr. Gibori has also focused the research effort of her laboratory to define the role of prolactin in this synergism. She has demonstrated that these two hormones stimulate protein synthesis at the translational level wherein estradiol enhances the expression of elongation factor 2, a protein responsible for peptide elongation and the proper translation of protein, while prolactin causes the dephosphorylation of this factor thereby enhancing its activity and affinity for ribosomes. Her studies led to the characterization and cloning of a protein named "prolactin receptor-associated protein" (PRAP), which appears to be a site for the synergistic actions of these hormones, acting via a novel cellular signaling pathway in the corpus luteum. This protein associates with the short form of the prolactin receptor and involves tyrosine phosphorylation of a factor that is not a member of the Jak/Stat family of transcription factors typically associated with prolactin action. In addition, she is investigating the molecular mechanisms by which the gene for 20 $\alpha$ -hydroxysteroid dehydrogenase (20 $\alpha$ HSD; an enzyme responsible for the catabolism of progesterone) in the corpus luteum is induced by luteinizing hormone and interleukin-6 but is suppressed by prolactin at the end of pregnancy in the rat. She and her colleagues have developed a temperature-sensitive luteal cell line stably transfected with either the short or long form of the prolactin receptor and the 20 $\alpha$ HSD promoter to test the hypothesis that prolactin inhibition of 20 $\alpha$ HSD involves the short form of the prolactin receptor/PRAP system. Together, these observations open new options and possibilities for understanding the mode of estradiol, prolactin, and cytokine actions in the ovary.

Her seminal findings also include the discovery of a prolactin-related protein called "decidual luteotropin" that binds to the luteal prolactin receptor and acts to stimulate progesterone secretion by the corpus luteum during pregnancy. They have also shown that decidual luteotropin may play a key role within the decidua itself.

This hormone, which is synthesized by a cell population located on the antimesometrial side of the uterus, appears also to regulate the activities of the mesometrial cells at the site of implantation. For example, decidual luteotropin

mediates the up-regulation of  $\alpha$ 2-macroglobulin, a proteinase inhibitor, which may limit the extent of trophoblast invasion. In addition, she has established that the trophoblast secretes androgens that serve as a substrate for luteal estradiol production. She has characterized the expression of steroidogenic enzymes in the trophoblast and shown that luteinizing hormone stimulates the expression of the relevant P450 genes in the ovaries but down-regulates their expression in the trophoblast. Her complementary studies on the corpus luteum and placenta continues to bring new insight into the complex regulation of these tissues.

As a testament to her successful career in reproductive research, Dr. Gibori has maintained continuous funding from the NIH for over two decades, including the coveted NIH merit award. In the past six years, she and her colleagues have published over 30 manuscripts and book chapters, and she has been an author of over 100 papers since the inception of her career. She is a sought-after national and international speaker.

Through her examples of intelligence, enthusiasm, and commitment to excellence, Dr. Gibori is a wonderful mentor to her graduate students and postdoctoral fellows. She has generously shared her research expertise and laboratory with visiting scholars from all over the world, which has led to many fruitful collaborations over the years. Her dedication to academic responsibilities is evident by her institution's recognition of her excellence in teaching and by her participation in many committees that support the university. Dr. Gibori has also served the research community in countless ways as a reviewer and consultant on several national and international committees including the NIH, NSF, USDA, and Israeli Science Foundation. She has chaired and organized Gordon Research conferences and Ovarian Workshops, as well as provided editorial services for numerous prestigious journals. As an active member and advocate of the SSR, Dr. Gibori has given her time and advice on many committees and is currently a member of the Board of Directors.

The past six years of Dr. Gibori's career have exemplified her lifelong record of the highest standards in innovative research and dedicated leadership in the reproductive sciences community. Her colleagues say that Dr. Gibori is a person who brings out the best in everyone. She

now joins the company of outstanding reproductive scientists honored as recipients of the SSR Research award.

**1998 DISTINGUISHED SERVICE AWARD  
JOHN A. RESKO**

The Distinguished Service Award, sponsored by Serono Laboratories, Inc., recognizes an individual who has demonstrated unselfish service and leadership in advancing the discipline of reproductive biology. The scientist selected in 1998 to be most eminently qualified and deserving of this award is John A. Resko.

Dr. Resko received his A.B. degree in Philosophy from St. Charles Overbrook University, Philadelphia, Pennsylvania, in 1956 and an M.S. degree in Zoology from Marquette University, Milwaukee, Wisconsin, in 1960. Dr. Resko received his Ph.D. degree in Animal Science from the University of Illinois in 1963. He completed his doctoral research in the laboratory of A.V. Nalbandov, studying the endocrine regulation of the avian adrenal gland, the results of which were published in *Endocrinology* in 1964. In a series of classical endocrinological experiments involving hypophysectomy, transplantation of the anterior pituitary gland, and measurements of corticosterone in adrenal vein plasma, definitive data was collected demonstrating that steroid production by the adrenal gland of the bird was regulated by ACTH produced by the anterior pituitary gland and that adrenal regulation in avian species was similar to mammals. Since steroid measurements had not been performed in this laboratory previously, the validation and use of the corticosterone assay was also an accomplishment of his thesis project.

After graduate school, Dr. Resko was accepted into the Steroid Training Program in the Biochemistry Department in the School of Medicine at the University of Utah in Salt Lake City. During this time he trained with some of the outstanding steroid researchers of the time including Leo Samuels, Kristen Eik-Nes, O.V. Dominguez, and Alter Weist. In 1966, using gas chromatography with electron capture detection, Resko and Eik-Nes clearly demonstrated a diurnal variation in testosterone concentrations in the systemic circulation of men.

In 1964, Resko was recruited to the Oregon Regional Primate Research Center in Beaverton, Oregon, where he collaborated over the next 16

years on many important observations regarding the secretion of steroid hormones in fetal and adult monkeys (and rodents as well) and their relationships to reproductive behaviors and gonadotropin release. While at the Primate Center, Dr. Resko advanced to the rank of Professor by 1977.

From 1981 to 1995, Dr. Resko served as Chairman of the Department of Physiology at the Oregon Health Sciences University (OHSU) in Portland, during which time he nurtured and mentored the careers of several young faculty members and, for the past 20 years, served as Principal Investigator of an interdisciplinary NIH Training Grant for pre- and postdoctoral trainees in Reproductive Biology involving the departments of Cell and Developmental Biology, and Physiology and Pharmacology, as well as the Oregon Regional Primate Research Center. He taught Endocrine Physiology to first-year medical students for over 25 years until a new interdisciplinary curriculum was initiated in 1994, which he directed. The department flourished under his leadership, and he designed and supervised the construction of a new building for research. In 1996 he was appointed Chairman of the newly merged Department of Physiology and Pharmacology in the School of Medicine at OHSU.

Dr. Resko pioneered the application of biochemical techniques for understanding reproductive behaviors. He utilized the technique of gas chromatography with electron capture detection for the measurement of progesterone, testosterone, and androstenedione in tissue and sera before techniques for the measurement of steroid hormones by radioimmunoassay were developed, and correlated these levels with physiological functions such as estrous behavior. Early in his career, Dr. Resko understood the importance of collaborations between endocrinologists and behavioral scientists. He collaborated with experimental psychologists, providing knowledge of steroid biochemistry for experiments that could not have been completed without his expertise. In addition, he developed antisera for all the major classes of steroid hormones, which he has provided to numerous laboratories. His laboratory was also instrumental in the development of a specific antisera for GnRH, which is used throughout the world for immunocytochemistry and radioimmunoassay. Recently, his laboratory has developed and

provided a cDNA probe for the measurement of androgen receptor and aromatase mRNA in brains of rats and rhesus macaques.

Dr. Resko and his colleagues have published over 138 peer-reviewed scientific papers in many prestigious journals, encompassing studies in laboratory and domestic animals as well as in nonhuman primates. His research career, characterized by continuous funding from the NIH, has made him an international authority on the actions of sex steroids in the fetal brain and the neuroendocrine control of gonadotropin secretion. Dr. Resko has been a most encouraging mentor of several individuals who now hold senior positions in academia and industry. His simple advice of "do good work and everything else will take care of itself" was heeded and respected by those he mentored.

Dr. Resko is among an elite few who have demonstrated outstanding dedication and service to the scientific community and especially to promoting the discipline of reproductive biology. He has a long record of participation on editorial boards, including *Biology of Reproduction*, *Proceedings of the Society of Experimental Biology and Medicine*, *Endocrinology*, and *Advances in Sex Hormone Research*. It is unusual for an individual to be called upon for leadership in multiple societies; in this regard, Dr. Resko's career is particularly noteworthy. He has held important positions of responsibility in several major societies including the Society for the Study of Reproduction, the Endocrine Society, the American Society for Experimental Biology and Medicine, and the American Physiological Society. He has served on NIH study sections and been an advisor and consultant to a wide variety of research programs throughout the country.

His distinguished service is most evident through his dedication and contributions to the Society for the Study of Reproduction. He was a Charter Member and has been one its most ardent supporters, serving on almost every committee of the society. He has also had the dubious honor of serving on the Local Arrangements Committee not once, but twice. He continued to shape the society through his leadership when elected to the Board of Directors in 1981 and as President in 1988. Dr. Resko is the epitome of the volunteer spirit that provides the energy for ensuring the success of the SSR and for enriching the field of reproductive biology.

Over more than three decades, Dr. Resko has been able to combine extended service as Chair of the Department of Physiology, service to the scientific community, and a program of continuously funded NIH-sponsored research. Throughout his exemplary career, he remains the kind of leader who always has time to help his colleagues, community, and friends no matter what the cause. His life and career serve as an example of how to excel while remaining a caring and compassionate human being. The Distinguished Service Award is a tribute to Dr. John Resko's lifelong commitment and dedication to the scientific community.

### 1998 TRAINEE RESEARCH AWARDS

The Trainee Research Awards, sponsored by Serono Laboratories, Inc., are given in recognition of outstanding research by young scientists. From the myriad of excellent abstracts submitted for this competition, only six are selected for final evaluation by the Awards Committee during oral presentations at the Society's Annual Meeting. Although only presenters of the top two abstracts receive a plaque and monetary award, all finalists are considered to be winners.

The 1998 recipient of the first place award is Faye A. Bradbury, Department of Biological Chemistry, University of Michigan, Ann Arbor, for her abstract entitled "The role of hydrogen bonding in activation of the LH/hCG receptor," coauthored by I.D. Pogozeva and K.M.J. Menon. Faye Bradbury graduated from the University of California at Irvine in 1993 with B.S. degrees in Biological Sciences and Chemistry. In

1995 she received an M.S. in Biological Chemistry from the University of Michigan, Ann Arbor, where she is currently doing research for her Ph.D. thesis in the laboratory of Dr. K.M.J. Menon. During graduate training, she was recipient of the NIH predoctoral fellowship awarded to the Reproductive Sciences Program at the University of Michigan. She expects to complete the doctoral program in May 1999 and then intends to do postdoctoral work in the area of protein processing. Her long-range plan includes an academic position at a research university.

Second place was awarded to Dr. Charles L. Chaffin, Division of Reproductive Sciences, Oregon Regional Primate Research Center, for his abstract entitled "Progesterone promotes the expression of matrix metalloproteinases and their

inhibitors (TIMPS) in the primate periovulatory follicle,” coauthored by R.L. Stouffer. Dr. Chaffin earned his B.S. degree in Biopsychology from Ripon College, Ripon, Wisconsin, in 1989; his M.S. degree in Primate Behavior from the University of Wisconsin, Milwaukee, in 1992; and his Ph.D. degree in Reproductive Toxicology from the same institution in 1996. He is currently a postdoctoral fellow with Dr. Richard Stouffer and a recipient of a National Research Service Award from the National Institutes of Health. Dr. Chaffin plans to pursue a career in academic research, with other aspirations in the fields of baseball and stock car racing. He was recently elected as the SSR Trainee Representative.