

**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. living 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 β 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 α -hydroxysteroid dehydrogenase (20 α 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 α HSD promoter to test the hypothesis that prolactin inhibition of 20 α 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 α 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.

AWARDS

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.