Carl G. Hartman Award *(sponsored by a grant from Cook Medical).* This award is the most prestigious award conferred by the Society for the Study of Reproduction. Each year, this award recognizes an exemplary research career in reproductive biology. The 2011 recipient of the Carl G. Hartman Award is **Dr. JoAnne S. Richards**.

The recipient of the 2011 Carl G. Hartman Award is JoAnne S. Richards, Ph.D., a world-renowned scientist and academician and active member of the Society for the Study of Reproduction. Dr. Richards received her Ph.D. from Brown University in 1970. As part of her dissertation research, she published her first paper in 1969 in the SSR journal Biology of Reproduction, and joined the field of female reproductive biology. After postdoctoral training in the Reproductive Biology Program, Department of Pathology (Dr. A. Rees Midgley, Jr., mentor), University of Michigan, Dr. Richards joined the faculty. In 1981, she was recruited to the Department of Cell Biology, Baylor College of Medicine and achieved her current rank of Professor in 1988.

As a beginning faculty member, Dr. Richards advanced our understanding of the interactions between hormonal and local factors in controlling follicle/luteal differentiation by demonstrating the presence of classical nuclear receptors for estrogen in the follicle, and the ability of estrogen to locally facilitate FSH's action in inducing LH receptors in granulosa cells of the preovulatory follicle. Likewise, she discovered the role of LH in inducing PRL receptors in the luteinizing follicle, thereby permitting PRL to act on luteal cells and maintain luteal structure-function in early pregnancy. These early studies established a theme that continued for the next three decades as experiments were designed to understand the mechanisms of action of gonadotropic hormones, particularly in the follicle, and how hormonal signaling regulated processes that were critical for follicular selection, development, and ovulation. Her productivity and important advances to the field established Dr. Richards as one of the leading authorities in the emerging field of molecular endocrinology.

In the early 1990s, Dr. Richards began a series of investigations that revolutionized our understanding of the synthesis, regulation, and actions of prostaglandins (PGs), not only in the ovary, but in other organ systems as well. Her laboratory group discovered a novel form of the cyclooxygenase that catalyzes the rate-limiting step in the arachidonate cascade leading to the synthesis of prostaglandins. Now termed prostaglandin synthase 2 (PTGS2, or popularly COX2), Richards and colleagues identified, purified, and characterized this enzyme isoform, including its induction by the ovulatory gonadotropin surge in the preovulatory follicle. This discovery led to a wave of studies by investigators in other tissues and to the concept that PTGS2 was the inducible form of the enzyme critical for PG synthesis and action in response to various stimuli.

Further advances were built on her establishment of highly productive collaborations with such colleagues as Dr. Lawrence Espey at Trinity University in San Antonio. Larry's expertise in the structural and cellular changes in the ovulatory follicle synergized with Dr. Richards's molecular expertise to produce multiple advances in our understanding of the cellular signals and pathways leading to follicle rupture and cumulus-oocyte maturation. Her studies also involved a team approach with colleagues at Baylor College of Medicine who had generated gene-knockout mouse models (Drs. John P. Lydon and Bert W. O'Malley, using the progesterone receptor-null mouse). Tremendous advances occurred regularly as novel genes were identified whose protein products were determined to be crucial for periovulatory events, and whose expression was either directly regulated by the gonadotropin surge or indirectly regulated through gonadotropin-induced factors (e.g., locally-produced progesterone or growth factors). Richards, Espey, and colleagues were providing exciting insight on the multiple genes and processes involved in the previously nebulously described ''cascade of events'' leading to ovulation.

In the past decade, Dr. Richards's attention has broadened to consider the somatic cell-oocyte interactions that are critical for oocyte maturation, release of the cumulus-oocyte complex from the follicle wall, and subsequent fertilization. Her findings continue to stimulate research and the discovery of new factors, including families of neuronal and immune-related proteins that appear critical for cumulus-oocyte events. Her group continues to use genetic approaches, including the generation of mouse models with selective gene knockout in the ovary/follicle, to elucidate cellular processes critical for ovulation. She demonstrated the vital role of the protein kinases ERK 1/2 (which are activated by EGF-like factors) in periovulatory events, such that ERK 1/2 null mice contained antral follicles whose oocytes failed to reinitiate meiotic maturation, whose cumulus-oocyte complexes did not expand, and whose follicle walls did not rupture or luteinize. Dr. Richards and her colleagues are also striving to address the clinical implications of their findings.

In addition to her research accomplishments, Dr. Richards is a driving force behind the training programs in reproductive sciences at Baylor. JoAnne has been the Director of Graduate Studies in the Department of Molecular and Cellular Biology for over two decades (1988-present). With the emergence of molecular reproductive biology and endocrinology, this program, including her laboratory, trained a number of high-quality

graduate students and postdoctoral fellows who are current or emerging leaders in research and education. Her commitment to and excellence in education and mentoring is evident from her receipt on two occasions of the M. Dresden Excellence in Graduate Education Award from Baylor College of Medicine, and the Women in Endocrinology Mentor Award in 2007. Likewise, Dr. Richards has been very active in service to her profession (e.g., six years as a member of the NIH Biochemical Endocrinology Study Section), in leadership roles of professional societies (e.g., Council of the Endocrine Society 1991–1993; Board of Directors, SSR 1981–1983), and in oversight as associate editor of the highest quality journals in reproduction (*Molecular Endocrinology*, 1998–2004; *Biology of Reproduction*, 2003–2009). In summary, Dr. JoAnne Richards is a key pioneer, bringing molecular biology to the study of hormone action and follicle growth/differentiation in the ovary. In addition, she has graciously offered her time and wisdom as an academician to trainees of all levels, and as a scientist in service to her profession. Dr. Richards is nationally and internationally renowned, as judged by her invitations to give lectures at

meetings and her receipt of numerous awards (including the SSR Research Award, 1989; Trans-Atlantic Medal, British Endocrine Society, 1995; Griff T. Ross and Gerald Aurbach Awards from the Endocrine Society, 1990 and 1998). It is timely and most appropriate to honor Dr. Richards with the 2011 Carl G. Harman Award for an extraordinary career as a scientist, educator, and SSR colleague. (Submitted by Dr. Richard Stouffer.)