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In Memoriam: Joan S. Hunt

Joan Hunt, an internationally respected immunologist, placentologist, and mentor died on April 20, 2019.

As an undergraduate student at the University of Kansas, Joan majored in microbiology, afterwards working in a blood bank. Putting her professional aspirations on hold in order to tend to family, she remained inspired by science and later returned to the University of Kansas to earn her Ph.D.. In 1984, she joined the faculty of the University of Kansas Medical Center (KUMC), where she remained until her retirement in 2011.

Over her 27 years at KUMC, Joan influenced numerous trainees, colleagues, and the entire field of reproductive biology, achieving international eminence. She rose to the highest of academic ranks, advancing to University Distinguished Professor at KUMC and receiving a Doctor of Science *honoris causa* from the University of Guelph. Remarkably, these bestowments, among many others, were made less than 20 years after her doctorate. Further testament to her influence, Joan received the Chancellor's Club Research Award from the University of Kansas and was inducted into the Kansas University Women's Hall of Fame.

Joan was admired for her eloquence in speech and writing. A prolific researcher and author, she published nearly 200 peer-reviewed research papers and book chapters, and edited several books. She was among the first to recognize that certain leukocytes did not, in her words, “flee” the maternal-fetal interface as might be expected, but rather arrived, remained, and adapted to help shape the gravid uterus for the benefit of the growing fetus. She observed that macrophages were abundant and shaped by progesterone, correctly postulating that these cells were key players in placentation. In her office Joan displayed a plaque presented to her by colleagues that dubbed her as a “guardian of the macrophage-laden womb”. Joan also discovered that the tumor necrosis factor family of cytokines not only helps protect the fetus and placenta from inappropriate maternal immunological responses, but also promotes a nurturing maternal environment.

Possibly her most cherished finding was that trophoblast cells uniquely and strictly regulate the expression of human leukocyte antigens (HLA) – a bane of transplantation biologists due to their exceptional degree of polymorphism and propensity to quickly catalyze destruction of donated organs. Joan recognized that trophoblast cells uniquely shift their synthesis away from these “classical” HLA molecules in favor of “non-classical” HLAs, in particular HLA-G and its unique isoforms, characterized by low polymorphism and ligation by unique leukocyte receptors that favored immune suppression and vascular trophism. Altogether, Joan's research contributions stimulated the vitality of the emerging field of reproductive immunology and served as a springboard of inspiration for countless scientific investigations that followed.

Joan had a passion and a talent for the advancement of science. She used her sharp intellect and seemingly limitless energy not only for discoveries in the laboratory but also for the good of the greater scientific community. She served two 4-year terms as a member of the Human Embryonic Development-1 study section for the National Institutes of Health, the second term as its first female chair. She served as the editor-in-chief for the Journal of Reproductive Immunology, and at KUMC she was concurrently Associate Dean for Graduate Medical Education, Vice Chancellor for Research, and President of the Research Institute.

It was Joan's nature to do nothing small, and the return on her efforts were enormous. She brought recognition to KUMC as a hub for world-class research and training, not only through her own research, but also by pioneering the NIH-funded Kansas Institutional Network for Biomedical Research Excellence (K-INBRE), which brought together 10 campuses across Kansas and Oklahoma to support the development of undergraduate and graduate students interested in biomedical research, faculty efforts to improve competitiveness for NIH research funds, and biomedical research infrastructure. This program, which continues today, was one of the first of its kind, and has brought tens of millions of dollars to the state of Kansas for the benefit of science. Indeed, with this program and her highly successful research grant awards, she was consistently among the very top awardees at KUMC.

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Joan's commitment to the International Federation of Placenta Associations (IFPA) from its early days as a fledgling society was clear. Together with Anthony Carter, she undertook a much-needed revision of the By-Laws; she also served in the early 2000's as IFPA's third president. True to her support of promoting the careers of trainees, Joan was in part responsible for the Loke Awards through her suggestion to Charlie Loke at the first IFPA meeting in Sydney that he could best to help the society through an endowment of travel awards for new investigators. For her scientific contributions and in recognition of her service to IFPA, she was awarded the first Senior Investigator Award from IFPA in Hiroshima, Japan, in 2012. Many remember her award lecture fondly, placing not her science, but the history of IFPA first.

Always with an eye towards training the next generation of scientists, Joan served as one of three founding directors for Frontiers in Reproduction (FIR), a 6-week long intensive laboratory- and lecture-based course at Woods Hole, Massachusetts, that teaches advanced graduate students, postdoctoral researchers, and junior faculty on all aspects of reproductive biology. It is no surprise that Joan's influence helped render FIR as the premier cutting-edge reproductive biology course that now boasts its own legacy of more than 400 alumni.

Joan's deep dedication to science and to the advancement of trainees was evident throughout her career. She was especially proud of her support of young women scientists, both at KUMC and around the world. Her generosity in helping to launch and sustain the careers of colleagues and mentees at KUMC, nationally and internationally, is celebrated by those fortunate enough to have benefited from it. Joan was an exemplary role model who broke through the invisible glass ceiling at a time when few acknowledged its presence, never wavering in her dedication to put science first. She had considerable talent for knowing what is right and effective, holding trainees and colleagues to the highest personal and scientific standards, and doing so with remarkable grace, poise, dignity, and wit. Joan's quick mind, keen foresight, and delightful sense of humor will be missed, and her contributions to the fields of placentology and reproductive immunology will live on and continue to be advanced by the many whom she influenced.

Throughout Joan's career, Joan remained devoted to her family, often expressing immense pride in her son Thomas, who is now a successful orthopedic surgeon, her daughter-in-law Teri, and her four grandchildren.

Contributed by Margaret G. Petroff, B. Anne Croy, J. Lee Nelson, and Carole Ober.