

Plenary Session

Signal Transduction Mechanisms in the Kidney



Tony Pawson

STATE-OF-THE-ART LECTURE

The ASN invites Tony Pawson, PhD, to present a state-of-the-art lecture on “Signal Transduction Mechanisms in the Kidney” during the plenary session on Sunday, November 1, from 8:30 to 9:30 a.m.

A distinguished investigator at the Samuel Lunenfeld Research Institute of Mount Sinai Hospital in Toronto, Dr. Pawson also is a professor in the department of molecular genetics at the University of Toronto. He leads the Dynactome Project, which studies protein interactions within human cells and defines the deviations that characterize malignancy at the systems level.

Internationally recognized for his work in cellular organization and signal transduction, Dr. Pawson has increased our understanding of how cells respond to their environment. He identified the basic mechanisms through which cells react to growth signals and how they communicate with each other.

Dr. Pawson's laboratory focuses on how cells convert an external signal into an intracellular response and on the molecular principles underlying cellular organization. He showed that cellular proteins are constructed in a modular fashion of functional domains, many of which mediate specific protein-to-protein interactions. He identified the Src homology 2 (SH2) domain as the prototypic interaction module. Dr.

Pawson demonstrated that these unique structures bind to specific phosphotyrosine-containing protein motifs located on activated growth factor receptors to induce cascades of intracellular signaling that control cellular growth and differentiation. This concept established one of the basic paradigms of signal transduction.

Using a combination of structural, biochemical, proteomic, and genetic tools, Dr. Pawson and his colleagues are investigating how the cell is wired through protein interactions. This research shows that tyrosine kinases and SH2 domains work in tandem to transmit commands from hormones that regulate cellular reproduction and metabolism to their targets within the cell. Dr. Pawson originally detected the integrated functions of tyrosine kinases and SH2 domains in the context of oncogene products necessary for the cancer-like behavior of cells. These discoveries have contributed to development of drugs that block the action of tyrosine kinases, thus arresting the production of some types of cancer cells.

Since the discovery of SH2 domains, dozens of other modular protein domains have been found to control protein-to-protein interactions, many of which Dr. Pawson's laboratory continues to investigate. Dr. Pawson and his colleagues are researching the pathways involved in reciprocal cell signaling and processes such as axon guidance in the nervous system and spatial organization of cells in complex tissues.

Dr. Pawson is a Fellow of the Royal Societies of London and Canada, a Foreign Member of the National Academy of Sciences, and serves on scientific advisory boards for several organizations. He has received many awards, including the AACR-Pezcoller International Award for Cancer Research in 1998, the Dr. H.P. Heineken Prize for Biochemistry and Biophysics in 1998, and the Kyoto Prize in Basic Sciences in 2008 for his work and discoveries in signal transduction.

Dr. Pawson conducted his graduate training at the Imperial Cancer Research Fund in London and received his PhD in molecular biology from King's College, University of London, in 1976.

Belding H. Scribner Award to Honor James E. Cimino



James E. Cimino

The 2009 Belding H. Scribner Award goes to James E. Cimino, MD, who in the 1960s engineered a breakthrough approach to accessing the veins of hemodialysis patients, before dedicating his career to palliative care. Established in 1995, the Belding H. Scribner Award is presented to one or more individuals who have made outstanding contributions to the care of patients with renal disorders or have substantially changed the clinical practice of nephrology.

Dr. Cimino is highly regarded for his role in finding an improved method of accessing the veins of dialysis patients. He

led the team that developed the arteriovenous (AV) needle technique for vascular access in 1966—still a primary means for vascular access in chronic dialysis patients. The procedure creates a surgical connection between the artery and vein in the forearm that lasts longer than previously developed shunts, including the one developed by Dr. Scribner. The AV fistula is widely credited with prolonging the lives of patients with end stage renal disease and for simplifying their hemodialysis treatment.

Shortly after completing his medical residency and Air Force tour of duty, Dr. Cimino returned to the Bronx, where he was raised, to set up a practice. He worked first at the Bronx Veterans Administration Hospital. In 1960, he started a chronic dialysis program and established a nephrology residency. During the '60s, he was responsible for assisting in the placement of artificial kidneys in six New York metropolitan area hospitals. He was one of the first board-certified nephrologists.

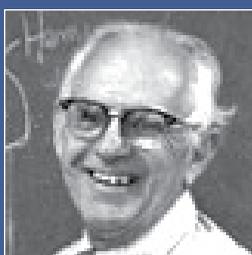
Subsequently, he moved on to Calvary Hospital for advanced cancer patients in the Bronx, where he has held numerous positions, including chief of medicine and medical director. In 1994, he became director of the Palliative Care Institute at Calvary, serving until he retired from that position. Palliative care was Dr. Cimino's focus for many years. He not only cared for terminally ill cancer patients, but also lectured and wrote extensively on the subject, emphasizing nutrition, pain management, comfort care, and ethical issues.

Dr. Cimino has received numerous awards and honors, including the American Cancer Society's Hope Award and the American College of Physicians' Ralph Claypoole Sr. Memorial Award for Devotion of a Career in Internal Medicine to the Care of Patients. He also received two Laureate Awards from the American College of Physicians and is an Alpha Omega Alpha honorary faculty member.

In addition to his many years as a practicing physician, Dr. Cimino has taught medical students for more than five decades. He has been a clinical professor of medicine at New York Medical College since 1980. He is an honorary member of the American Dietetic Association for establishing and teaching a course in medical nutrition at New York University Graduate School for more than 20 years. Renal nutrition was an important part of the curriculum.

The American Society of Nephrology is pleased to present the Belding H. Scribner award to Dr. Cimino during Sunday's plenary session, which begins at 8:30 a.m., directly following ASN's Business Meeting.

Belding H. Scribner



Belding H. Scribner, MD, developed the arteriovenous shunt, which made possible long-term hemodialysis for chronic renal failure.

Dr. Scribner served as head of the University of Washington's Division of Nephrology in the Department of Medicine from 1958 to 1982. He and his co-workers at the Seattle university made numerous contributions to helping patients with end stage renal disease, including establishing the world's first out-of-hospital dialysis unit, developing a home hemodialysis program, improving techniques and equipment for hemodialysis and peritoneal dialysis, and studying the adequacy and complications of chronic renal disease treated by dialysis. Dr. Scribner's work made a significant contribution to transforming nephrology into a major subspecialty of internal medicine.

SUNDAY, NOVEMBER 1, 2009

LEADING THE FIGHT AGAINST KIDNEY DISEASE