**Plenary Session**

**Leptin Researcher to Describe Its Role in Obesity**

The contribution of the relatively newly discovered hormone leptin to obesity will be the subject of the state-of-the-art lecture by Jeffrey M. Friedman, MD, PhD, on Thursday, November 10, beginning at 8 a.m. Dr. Friedman is a professor at the Rockefeller University, an investigator at the Howard Hughes Medical Institute, and the director of the Starr Center for Human Genetics in New York City. Dr. Friedman’s research received national attention in 1994 when he and his colleagues isolated a gene linked to mouse obesity and its human homologue. They subsequently found that injections of the protein leptin decrease body weight in mice by reducing food intake and increasing energy expenditure. In his lecture, “Leptin and the Biological Basis of Obesity,” Dr. Friedman will describe the current state of research in the area, including his approach to understanding the genetic basis of obesity in humans and the mechanisms by which leptin transmits its weight-reducing signal.

Leptin, a hormone made in fat tissue, plays a key role in regulating weight by modulating food intake relative to energy expenditure to maintain weight within a relatively narrow range. Defects in the leptin gene are associated with severe obesity in animals and humans. Leptin acts on neurons in brain centers that control energy balance, and it plays a general role in regulating many of the physiological responses observed with changes in nutritional states, with clear effects on female reproduction, immune function, and the function of other hormones, including insulin.

Dr. Friedman’s lab is active in elucidating the molecular mechanisms responsible for the regulation of gene expression associated with weight change. The amount of leptin expressed from fat is strongly regulated, which suggests that the fat cell knows how much fat it has. To address this question, the lab is using transgenic mice to identify DNA regulatory elements that change expression of a receptor gene controlled by the leptin gene in parallel with changes in adipose tissue mass.

Diet-induced weight loss in humans decreases leptin concentration, which may explain the high failure rate of dieting. Recent clinical studies at Rockefeller University Hospital explored the possibility that administering leptin to dieting patients can alter their response to weight.

Dr. Friedman received his PhD from the Rockefeller University in 1986. He was appointed assistant investigator with the Howard Hughes Medical Institute at Rockefeller in 1986, promoted to associate investigator in 1991, and investigator in 1997. He received his MD from Albany Medical College.

He was elected to the National Academy of Sciences and is a member of its Institute of Medicine. He has received numerous national and international awards, including the Albert Lasker Basic Medical Research Award and the Endocrinology Transatlantic Medal from the United Kingdom’s Society for Endocrinology.

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**State-of-the-Art Lecture**

**Susan Wall to Deliver Brenner Endowed Lectureship**

Susan M. Wall, MD, will present the Barry M. Brenner Endowed Lectureship on Thursday, November 10. The topic of her presentation will be “Modulation of ENaC function by pendrin-dependent Cl-/HCO3- exchange.”

Dr. Wall is professor of medicine and physiology at Emory University School of Medicine in Atlanta. For the past 25 years, she has studied the renal physiology of H+/OH- transporters along the collecting duct. The focus of her attention recently has been the renal physiology of the Cl-/HCO3- exchanger, pendrin. While pendrin’s critical role in hearing and thyroid function is well known, this transporter is also highly expressed in the apical regions of type B and non-A, non-B intercalated cells in the cortical collecting duct and connecting tubule, where it plays an important role in the renal regulation of blood pressure.

Dr. Wall and her colleagues have shown that pendrin mediates the absorption of chloride and the secretion of bicarbonate in the cortical collecting duct and that it is greatly upregulated by aldosterone, which stimulates chloride absorption and bicarbonate secretion in these segments. The researchers observed that in mice given a high-salt diet, in which circulating aldosterone concentration is low, blood pressure, serum electrolytes, and serum bicarbonate are similar in pendrin-null and wild-type mice. However, the pressor response to aldosterone is greatly blunted in pendrin-null mice, presumably due to the absence of pendrin-mediated chloride absorption. Moreover, when pendrin-null mice are changed from a high- to a low-sodium diet, they excrete more sodium and chloride than pair-fed wild-type mice. The chlorotriuretic observed in the salt-restricted pendrin-null mice could be readily explained by the absence of pendrin-mediated chloride absorption. However, because pendrin does not transport sodium, the researchers explored the cause of the natriuresis further. Although pendrin and the epithelial sodium channel (ENaC) localize to different cell types, Dr. Wall and her colleagues made the surprising observation that ENaC abundance and function are greatly reduced in pendrin-null mice. They demonstrated that pendrin modulates ENaC abundance and function in aldosterone-treated mice, at least in part by secreting bicarbonate into the luminal fluid, which stimulates ENaC abundance and function.

Dr. Wall received her undergraduate degree in chemistry from the University of Seattle and her MD from St. Louis University School of Medicine. She did her postgraduate medical training in internal medicine and nephrology at the University of California, Los Angeles, hospitals. She did research fellowships at UCLA and the National Heart, Lung, and Blood Institute. After a year on the faculty at the University of Texas Medical School at Houston, Dr. Wall moved to Emory in 2002.

ASN gratefully acknowledges Monarch Pharmaceuticals for support of the Barry M. Brenner Endowed Lectureship.

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For details and online applications, please visit the ASN website: [http://www.asn-online.org/grants_and_funding/](http://www.asn-online.org/grants_and_funding/)