Kevin J. Phillips, Ph.D.
Diabetes Research and Genomic Medicine Programs
Houston Methodist Research Institute

Turning white fat brown: Can a metabolic villain be reformed?

Obesity Research Cluster
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Contact: Dr. Moustaid-Moussa (naima.moustaid-moussa@ttu.edu)

Dr. Phillips Bio: Dr. Phillips pursued his doctoral research at Harvard University, working in the field of chemical biology. He then moved to San Francisco for postdoctoral training under the joint direction of John Baxter and Robert Fletterick at UCSF where he pursued structural studies of nuclear hormone receptors. In 2008, Dr. Phillips moved from UCSF to the Houston Methodist Research Institute, where he currently runs an independent research group that is focused primarily on understanding how thyroid hormone signaling regulates various aspects of metabolism.

Activation of the thyroid hormone receptors (TRs) elicits catabolic processes that tend to oppose obesity and the maladies of metabolic syndrome. My group is interested in understanding how TR activation leads to a reduction of serum cholesterol and lipid levels, the amelioration of fatty liver disease, increased insulin sensitivity and fat loss. We are keenly interested in understanding how TR activation mediates thermogenesis - the conversion of excess energy (such as extra calories or fat) to heat. In work that is ongoing, we have discovered a novel mechanism by which TR activation elicits thermogenesis, causing severely obese mice to lose the majority of their fat mass in about 2 weeks. We are currently working to identify the molecular events that mediate this effect and are exploring the potential of this action to treat obesity and metabolic disease.