Shane T. Hentges, Ph.D.
Professor
Department of Biomedical Sciences
Program in Molecular, Cellular and Integrative Neurosciences
Colorado State University
Fort Collins, CO

Central Regulation of Energy Balance: Hypothalamic Neurons and Transmitter Diversity

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Energy balance regulation and the maintenance of normal body weight is not easily accomplished and is easily perturbed. Although work over the past few decades has identified key neural circuits and transmitters that play roles in the control of food intake, reward and energy expenditure, there is still much to be discovered as evidenced by the climbing rates of obesity. This seminar will focus on the role of neurons in the hypothalamus and will present new data on the heterogeneity and regulation of transmitters, even from a single cell type, in this brain region. The hope is that better understanding the compliment of transmitters and their unique regulation will provide a more complete understanding of energy balance regulation and perhaps indicate levels for intervention in energy balance disorders. In addition to findings specific to the circuitry, the results high-light interesting modes of synaptic regulation and cellular heterogeneity that may occur more broadly throughout the brain.