**Serotonergic regulation of energy metabolism in peripheral tissues**

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 Serotonin is a biogenic amine synthesized from the essential amino acid tryptophan. Because serotonin cannot cross the blood-brain barrier, it functions differently in central nervous system and peripheral tissues. In the central nervous system, serotonin regulates mood, behavior, appetite, and energy expenditure. Although most serotonin in the body is synthesized at the periphery, its biological roles have not been well elucidated. Older studies using chemical agonists and antagonists yielded conflicting results, because the complexity of serotonin receptors and the low selectivity of agonists and antagonists were not known. My lab has been performing a number of studies using tissue specific knock out of serotonin receptors to assess the role of peripheral serotonin in regulating energy metabolism. I will discuss recent progress in my lab regarding the tissue-specific roles of peripheral serotonin in regulating energy metabolism, the mechanism by which dysfunctional peripheral serotonin signaling can progresses to metabolic diseases, and how peripheral serotonin signaling can be a therapeutic target for metabolic diseases.