内分泌・代謝学共同利用・共同研究拠点セミナー 生活習慣病解析プロジェクト共催

The Color of Fat: Brown, Beige, and White

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Our lab aims to understand and harness the regulatory circuitry of thermogenesis and energy metabolism, with a particular emphasis on thermogenic adipose cells. Humans and mice possess two forms of thermogenic fat cells: brown adipocytes and beige adipocytes. While brown and beige fat share many morphological and biochemical properties, such as multi-locular lipids, enriched mitochondria, and expression of uncoupling protein 1 (UCP1), recent studies suggest distinct characteristics of the two cell types. For instance, brown adjpocytes and beige adjpocytes arise from distinct developmental lineages. Brown adipose cell fate is determined during embryonic stages, whereas beige adipocytes postnatally emerge within white adipose tissue (WAT) in response to certain external cues, such as chronic cold exposure, exercise, and longterm treatment with PPARy agonists (often referred to as the "browning" of WAT). More recently, we also learned transcriptional and functional differences between brown fat and beige fat. The recent advance regarding the beige fat biology will be discussed.

担当:代謝エピジェネティクス分野 稲垣(8835)