

Cell and molecular mechanisms behind diet-induced hypothalamic inflammation and obesity

Ávalos, Y.

Kerr, B.

Maliqueo, M.

Dorfman, M.

© 2018 British Society for Neuroendocrinology Diet-induced obesity (DIO) is associated with chronic, low-grade inflammation in the hypothalamus, a key regulator of energy homeostasis.

Current studies have revealed the involvement of different cell types, as well as cell and molecular mechanisms, that contribute to diet-induced hypothalamic inflammation (DIHI) and DIO. Subsequent to the discovery that high-fat diet and saturated fatty acids increase the expression of hypothalamic cytokines prior to weight gain, research has focused on understanding the cellular and molecular mechanisms underlying these changes, in addition to the role of inflammation in the pathogenesis of obesity. Recent studies have proposed that the inhibition of pro-inflammatory pathways in microglia and astrocytes is sufficient to protect against DIHI and prevent obesity. In addition, impairment of intracellular and epigenetic mechanisms, such as hypothalamic autophagy and changes in the methylation pattern of cert