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Periphery-Brain Interactions and Leptin in the Regulation of Whole-Body Energy Metabolism

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Message from the Guest Editors

Since the seminal discovery of the adipokine leptin in 1994, our understanding of the molecular, cellular and systems bases of whole-body energy metabolism regulation has grown tremendously. However, the incidence of obesity and its comorbidities continue to soar globally.

We now know that peripheral tissues bi-directionally communicate with the central nervous system through various signalling molecules to regulate whole-body energy metabolism. As a recently characterized example, leptin communicates with a chemically defined network of hypothalamic neurons to in turn increase sympathetic nerve activity and innervation of brown and white adipose tissues, thereby promoting thermogenesis and a negative whole-body energy balance.

In this Special Issue, we invite articles that expand our knowledge on periphery-brain interactions. These can include adipokines such as leptin and gut hormones such as glucagon-like peptide 1, but also microbiota products and host-derived metabolites. Articles that shed light on how nutritional, pharmacological, exercise or surgical interventions promote healthier whole-body energy metabolism through periphery-brain interactions are also welcome.



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Special Issue



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