

Guest Editor



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Molecular Mechanisms of Inflammatory and Metabolic Diseases

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Dear colleagues,

Inflammation is fundamentally important for host defenses against pathogenic antigens and injury, but it also contributes to the pathogenesis and exacerbation of metabolic diseases such as obesity, type 2 diabetes, and metabolic syndrome. Many inflammatory factors, including prostaglandins, platelet-activating factors, leukotrienes, TNF- α , interleukins, NF- κ B, and oxidative stress, are involved in the induction of inflammation and dysregulation of the immune system composed of diverse specialized cells, aggravating metabolic dysregulation. Interestingly, the immune cell functions are critically influenced by the alterations in nutritional status and cellular metabolism, and the altered metabolic homeostasis causes immune dysfunction and metabolic disorders. Excessive fat in obesity promotes inflammation in adipose tissue by infiltration of immune cells and leads to dysfunction of the liver and muscle and failure in the control of blood glucose homeostasis. Prolonged failure of blood glucose control increases damage to various organs, including the pancreas, kidney, and vascular system, causing continuous metabolic dysregulation and the vicious cycle of tissue damage. The interpretation of the dynamic interplay between immune function and metabolic regulation will be important in controlling many inflammatory and metabolic diseases. This special issue aims to attract reports that reveal novel molecular mechanisms or validate existing studies with investigations of therapeutic alternatives and biomarkers associated with inflammatory and metabolic diseases. We also welcome qualified reviews on understanding the potential molecular mechanisms involved in the progression of various inflammatory and metabolic diseases.

This special issue will cover topics including:

- Regulation of inflammatory immune cell activation
- Production of inflammatory mediators
- Regulation of inflammation-related gene expression
- Molecular control of metabolic function
- Cross-talk between the immune system and metabolic organs
- Molecular aspects for metabolic control in inflammation
- Pharmaceutical control of inflammatory and metabolic diseases

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