

Special Issue on Immunomodulators and the Gut-Liver Axis in Fatty Liver Inflammation

CALL FOR PAPERS

Fatty liver disease, encompassing both alcoholic and non-alcoholic fatty liver disease, represents a significant global health concern. Excessive consumption of fats and alcohol leads to the accumulation of fat in the liver, triggering inflammation, fibrosis, and the potential for severe liver damage. The progression of these diseases is intricately linked to the interplay of various pro-inflammatory cytokines and chemokines, and the activation of Toll-like receptor (TLR) signalling pathways, which in turn activate inflammasome complexes, further exacerbating the damage. While often colloquially referred to as “fatty liver disease,” its impact extends beyond the liver. It affects vital organs such as the gut, where it disrupts the microbial ecosystem, resulting in a condition known as dysbiosis. This alteration in the gut’s microbial composition affects cell adhesion molecules and leads to increased intestinal permeability, commonly referred to as a leaky gut. The gut is often regarded as the second brain of the human body, exerting significant regulatory control over numerous physiological functions. Recent research has emphasized the critical role of inflammation and the intricate communication between the gut and the liver in the development of fatty liver diseases. This evolving understanding highlights the need for further exploration and intervention strategies to address the complex mechanisms involved in this condition.

The intricate and complex process leading to the development of fatty liver disease has rendered its mechanisms challenging to fully understand. While several studies have successfully decoded some of these mechanisms, many aspects remain unknown. Presently, there is a notable absence of drugs approved by the Food and Drug Administration (FDA) for the treatment of fatty liver disease. The therapeutic interventions available either have high amounts of side effects or are highly invasive.

In this Special Issue, we aim to investigate the role of various inflammatory mediators, including cytokines, inflammasomes, and the family of cell adhesion-promoting molecules, in the pathogenesis of fatty liver disease and its associated complications. Moreover, understanding how these mediators contribute to liver inflammation and gut-liver axis dysfunction is crucial for developing effective interventions. Additionally, the potential of utilizing nanoparticles, nanostructured formulations, or synthetically derived compounds as immunomodulators emerges as a promising avenue for exploration. We hope to advance our understanding of fatty liver inflammation and its potential transformation through immunomodulatory interventions. We welcome both original research and review articles.

Potential topics include but are not limited to the following:

- ▶ Efficacy and safety of novel compounds in modulating inflammatory signals in fatty liver disease
- ▶ Targeted drug delivery, immunomodulation, and inflammation in fatty liver disease via nanoparticles and nanomaterials
- ▶ Inflammasome complexes involved in the gut-liver inflammation and their significance in fatty liver disease progression
- ▶ Cellular and molecular targets for immunomodulation in liver diseases
- ▶ Interplay between metabolic disorders, such as obesity and insulin resistance, and the development of liver inflammation
- ▶ Pre/pro/postbiotic interventions for immunomodulation in fatty liver disease
- ▶ Clinical studies and trials on immunomodulatory therapies for fatty liver disease
- ▶ Use of dietary supplements for the amelioration of liver inflammation in the gut-liver axis
- ▶ Identification and validation of novel biomarkers for early diagnosis and monitoring of fatty liver inflammation
- ▶ Role of stress mechanisms and therapeutic interventions in fatty liver disease
- ▶ Crosstalk between gut microbiota and other organ immune homeostasis in fatty liver disease
- ▶ Immuno-biological consequences of liver and gut damage in fatty liver disease
- ▶ Molecular pathways associated with the liver and gastrointestinal harm caused by fatty liver disease
- ▶ Role of immune response in generating dysregulation between the gut-liver axis
- ▶ Exploring apoptosis-mediated cell death and inflammatory dynamics in fatty liver disease

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.wiley.com/submit?specialIssue=355872>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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