

Special Issue on Dual Effect of Long-Chain Free Fatty Acids on Inflammation

CALL FOR PAPERS

Fatty acids (FAs) are involved in critical biological processes; they can interact with both the cell surface and intracellular receptors, and so interfering with cell signaling can trigger cell activation, cell death, or proliferation. FAs are therefore much more than merely storage molecules, and this is mirrored by their increasing relevance in human health and diseases.

FAs have an ambiguous effect on biological systems. On the positive side, FAs can be implicated in health benefits. For instance, supplementation of long-chain unsaturated FAs within the human diet is linked to beneficial effects via immunomodulatory effects, for example, in the Mediterranean diet. This diet is rich in omega 3, a polyunsaturated fatty acid (PUFA), as well as omega 9, a monounsaturated fatty acid (MUFA). Omega 3 is metabolized by cyclooxygenases (COX), generating immunoneutral, anti-inflammatory, or proresolution mediators. Omega 9 binds to nuclear receptors, such as peroxisome proliferator-activated receptors (PPAR), which regulate the levels of circulating FAs as well as protecting against overshooting inflammatory reactions.

The negative effects of FAs include lipotoxicity leading to cell malfunction and cell death. Additionally, FA oxidation generates reactive oxygen species (ROS) as a side product, and ingested or altered long-chain saturated free FA can activate toll-like receptors (TLRs) thereby triggering proinflammatory intracellular pathways. An excess of circulating trans- or saturated free FAs (endogenous or ingested) can induce cell damage and inflammation and is linked to diseases such as diabetes, rheumatic diseases, and sepsis. Arachidonic acid, a PUFA, generates proinflammatory mediators when metabolized. Similarly, free omega 9 can induce lung inflammation.

This special issue aims to highlight the latest research in the field of long-chain free FAs and their involvement in inflammation. The special issue welcomes submissions concerning both the proinflammatory and anti-inflammatory effects of ingested or endogenous long-chain free FA and its impact on health and disease.

Potential topics include but are not limited to the following:

- ▶ Long-chain free FA triggering or blocking of inflammation
- ▶ The positive and negative effects of long-chain FAs in inflammatory processes of chronic metabolic diseases (metabolic syndrome, diabetes, and cardiovascular diseases)
- ▶ The positive and negative involvement of long-chain FAs in inflammatory/infectious pathologies (rheumatic diseases, sepsis, and allergies)
- ▶ The effects of long-chain FAs on leukocyte/epithelium/endothelium functions during inflammatory responses
- ▶ The effects of long-chain FAs on ROS production during inflammatory responses

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/mi/yyfa/>.

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

Lead Guest Editor

Cassiano F. Gonçalves-de-Albuquerque,
Federal University of the State of Rio de
Janeiro, Rio de Janeiro, Brazil
cassiano.albuquerque@unirio.br

Guest Editors

Bernd Uhl, Ludwig Maximilian
University of Munich, Munich,
Germany
bernd.uhl@med.uni-muenchen.de

Pedro Leme, Federal University of Rio
de Janeiro, Rio de Janeiro, Brazil
pedro.leme@gmail.com

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