

Special Issue

Insights in Reproductive Immunology: The Immune Regulation at the Maternal-Fetal Interface in Health and Disease

Message from the Guest Editors

The maternal–fetal interface is a unique immunological environment where immune tolerance, inflammation, and tissue remodeling must be precisely coordinated for reproductive success. Immune responses are critical not only for embryo implantation and pregnancy maintenance but also for reproductive disorders affecting both sexes. Emerging technologies are transforming our understanding of reproductive immunology and accelerating diagnostic and therapeutic discovery.

This Special Issue invites original research, reviews, and perspectives on recent advances in reproductive immunology in health and disease. Topics include, but are not limited to: uterine immune cells and tolerance mechanisms; extracellular vesicles in intercellular communication; sperm-induced inflammation and male reproductive immunity; immunometabolism, microbiome, and infection in reproduction; endometriosis and pregnancy complications. We particularly welcome studies using innovative approaches—such as single-cell analysis, multi-omics, and integrative technologies—to elucidate immune regulation at the maternal–fetal interface and to identify clinical biomarkers or novel immunotherapeutic strategies.

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International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 5.6
CiteScore 10.0
Indexed in PubMed



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*International Journal of
Molecular Sciences*
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4052 Basel, Switzerland
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