Special Issue

The Placental Matrix: Trophoblasts, Decidualization, and Embryo Implantation

Message from the Guest Editor

The placenta is essential for pregnancy success, orchestrating a complex interplay between trophoblast differentiation, decidualization, and immune modulation to ensure proper embryo implantation and maternal–fetal communication. Disruptions in these tightly regulated processes, especially due to inflammation and environmental toxicants, can trigger severe pregnancy complications, including implantation failure, pre-eclampsia, fetal growth restriction, and long-term offspring health consequences. Deciphering the molecular and cellular mechanisms underlying these interactions is critical for developing targeted interventions to improve reproductive outcomes. This Special Issue delves into the latest advancements in placental biology, immune crosstalk, and reproductive toxicology, shedding light on how environmental and inflammatory factors shape pregnancy health.

Guest Editor

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Deadline for manuscript submissions

closed (20 May 2026)

Cells

an Open Access Journal by MDPI

Impact Factor 5.2
CiteScore 10.5
Indexed in PubMed

mdpi.com/si/232026

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Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

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