

Special Issue

Genetics of Embryonic Organogenesis: From Cell Differentiation to Disease

Message from the Guest Editors

Embryonic organogenesis converts a small progenitor cell pool into functionally distinct organs via tightly controlled proliferation, differentiation, migration, and programmed cell death. Perturbation of these developmental programs causes congenital anomalies, and the same pathways are often reactivated in adulthood in fibrosis, degeneration, and cancer. While classical embryology described these processes morphologically, the last two decades have brought powerful tools: lineage tracing, conditional animal models, organoids, single-cell/spatial transcriptomics, and quantitative multiplex imaging of human fetal tissue. These methods allow dissection of the genetic control of organ formation at cellular resolution. This Special Issue links organogenic gene expression, cell fate decisions, and disease phenotypes across organ systems, highlighting the kidney/urinary tract, heart, placenta, and nervous system. We invite original articles, short communications and reviews on developmental signaling, congenital malformations including CAKUT, animal/organoid models, single-cell and spatial omics, and embryonic programs reactivated in postnatal disease and tumour biology.

Guest Editors

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Message from the Editor-in-Chief

Genes is central to our understanding of biology, and modern advances such as genomics and genome editing have maintained genetics as a vibrant, diverse and fast-moving field. There is a need for good quality, open access journals in this area, and the *Genes* team aims to provide expert manuscript handling, serious peer review, and rapid publication across the whole discipline of genetics. Starting in 2010, the journal is now well established and recognised. Why not consider *Genes* for your next genetics paper?

Editor-in-Chief

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