

Stem Cell Epigenetics

Volume 17

Series Edited by Trygve Tollefsbol

Volume Edited by Eran Meshorer, PhD

The Arthur Gutterman Family Chair in Stem Cell Biology; Full Professor of Molecular Biology, Department of Genetics, The Institute of Life Sciences and The Edmond and Lily Safra Center for Brain Sciences, The Hebrew University, Jerusalem, Israel

Volume Edited by Giuseppe Testa, PhD, MD, MA

Full Professor of Molecular Biology, Department of Oncology and Hemato-Oncology, University of Milan; Head of the Center for Neurogenomics, Human Technopole; Director of the High Definition Disease Modelling Laboratory, European Institute of Oncology, Milan, Italy

Growing evidence suggests that epigenetic mechanisms play a central role in stem cell biology and are vital for determining gene expression during cellular differentiation and governing mammalian development. In *Stem Cell Epigenetics*, leading international researchers examine how chromatin regulation and bona fide epigenetic mechanisms underlie stem cell renewal and differentiation. Authors also explore how the diversity of cell types, including the extent revealed by single cell omic approaches, is achieved, and how such processes may be reversed or managed via epigenetic reprogramming.

Topics discussed include chromatin in pluripotency, stem cells and DNA methylation, histone modifications in stem cells and differentiation, higher-order chromatin conformation in pluripotent cells, stem cells and cancer, epigenetics and disease modeling, brain organoids from pluripotent cells, transcriptional regulation in stem cells and differentiation, non-coding RNAs in pluripotency and early differentiation, and diseases caused by epigenetic alterations in stem cells. *Stem Cell Epigenetics* will provide researchers and physicians with a state-of-the-art map to orient across the frontiers of this fast-evolving field.

Key Features

- Analyzes the role of epigenetics in embryonic stem cell regulation
- Indicates the epigenetic mechanisms involved in stem cell differentiation and highlights modifications and misregulations that may result in disease pathogenesis
- Examines the potential applications of stem cell epigenetics in therapeutic disease interventions and regenerative medicine, providing a foundation for researchers and physicians to bring this exciting and fast-evolving field into a clinical setting
- Features chapter contributions by leading international experts



ACADEMIC PRESS

An imprint of Elsevier

elsevier.com/books-and-journals

ISBN 978-0-12-814085-7



9 780128 140857