

**Mini-Symposium:
Cellular Remodeling and Epigenetic Reprogramming during
the Development of Germ Line Cells**

Preface

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After fertilization, the sperm and oocyte undergo extensive cellular remodeling and epigenetic reprogramming to form a totipotent zygote. Furthermore, resetting and modification of epigenetic marks as a part of epigenetic reprogramming occur in the genomes of primordial germ cells (PGCs). The dynamic cellular remodeling and the genome-wide epigenetic reprogramming work in concert to establish the germ cell lineage during embryogenesis. Unraveling the mechanism of cellular remodeling and epigenetic reprogramming will provide important information on the characterization of germ cells, comprising totipotent and pluripotent cells possessing an underlying genomic plasticity.

This Mini-Symposium will focus on the molecular mechanisms, which underlie cellular remodeling and epigenetic reprogramming during the development of germ line cells. Dr. Miyamoto will discuss the involvement of maternal factors in nuclear reprogramming in eggs and oocytes. Dr. Shin and Dr. Tsukamoto will each review the current knowledge about the role of ubiquitin-proteasome system and the role of autophagy during the maternal-to-zygotic transition. Dr. Seki will summarize what has been achieved in the epigenetic reprogramming of PGCs.

I hope this Mini-Symposium will help readers to integrate our understanding on recent progress of cellular remodeling and epigenetic reprogramming in germ cells. I truly appreciate all authors for their fine contributions to this section of JMOR.