

体細胞分裂から減数分裂へのスイッチの分子機構 The Molecular Mechanism Underlying the Switch from Mitosis to Meiosis

熊本大学 発生医学研究所

石黒 啓一郎 教授

Prof. Kei-ichiro Ishiguro

Institute of Molecular Embryology and Genetics

Kumamoto University



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The regulation of meiotic initiation in mammals remains enigmatic. STRA8, a key factor induced by retinoic acid, has been implicated in promoting meiosis in germ cells. Recently, we identified a novel nuclear protein, Meiosis Initiator (MEIOSIN), as a germ cell-specific factor that interacts with STRA8. Together, MEIOSIN and STRA8 form a transcriptional activator complex that drives the expression of numerous meiosis-related genes, thereby orchestrating the transition from mitosis to meiosis. Furthermore, through the identification of downstream target genes of MEIOSIN, we have uncovered several novel factors essential for regulating meiotic chromosome structure and gene expression. These findings highlight not only the conserved fundamental mechanisms of meiosis across species but also the presence of unique regulatory pathways specific to mammalian reproductive development. Our discoveries provide valuable insights into the molecular basis of infertility. In this talk, I will present our latest research on the mechanisms distinguishing meiosis from mitosis and discuss the initiation of meiosis from an evolutionary perspective.

英語での講演となります
To be delivered in English

お問い合わせ先：

金沢大学 新学術創成研究機構 数理神経科学ユニット
佐藤 純 (makotos@staff.kanazawa-u.ac.jp)