

BDR SEMINAR (Kobe & online hybrid)

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Tuesday, October 10, 2023

16:00-17:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom

Zoom meeting URL will be announced on the event day by e-mail.

※※Non-BDR members: Please register from the following link.

<https://krs1.riken.jp/m/bdrseminarregistration> (Registration deadline: Oct 6)

New insight into genome integrity protection in early mammalian embryos

Summary

After fertilization, remodeling of the oocyte and sperm genomes is essential to convert these highly differentiated and transcriptionally quiescent cells into early cleavage-stage blastomeres that are transcriptionally active and totipotent. This developmental transition is accompanied by cell cycle adaptation, such as lengthening or shortening of the gap phases G1 and G2. However, regulation of these cell cycle changes and their role in genome integrity protection is poorly understood, especially in mammals. Our previous work demonstrated that maternally-depleted checkpoint kinase *Chk1* mouse embryos show massive genome fragmentation and impaired preimplantation development. Our recent study used *Chk1* and *Cdc25a* maternal knockout mouse models and advanced light-sheet time-lapse imaging to show that the CHK1-CDC25A-CDK1 axis regulated the cell cycle in early mouse embryos, thus protecting early embryos from chromosome segregation errors, which can result in aneuploidy and infertility.



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