ERATO Kurumizaka Chromatin Atlas Project - International Seminar Series -

The establishment of 3D genome architecture at the start of life

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Zoom meeting

Registration → https://forms.office.com/r/2V30WAjs4G

Abstract

A key transition is the conversion of a female germ cell/oocyte to a one-cell embryo/zygote upon fertilisation. The zygote is totipotent, which is the potential to generate all cell types and a whole organism. How chromatin is reprogrammed to totipotency remains poorly understood. We combine mechanistic cell biology, genetics and genomics to gain insights into the mechanisms of reprogramming and chromatin organization in mouse embryos. Our recent work focused on gaining insights into 3D genome architecture during the oocyte-to-embryo transition. Single-nucleus Hi-C revealed differences in chromatin organization of zygotic maternal and paternal genomes. By applying the method to biological questions, we discovered that the replicative helicase minichromosome maintenance complex is a barrier to loop extrusion, the mechanism that is thought to fold genomes.

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