

RIKEN SEMINAR

〈 1st Epigenetics Seminar Series 2014 〉

Title

Nuclear transfer cloning for the study of epigenetic dynamics in mammalian development

Since the first success by Sir John B Gurdon in the 1960s, cloning by nuclear transfer into enucleated oocytes has been the sole reproductive engineering technology that endows the donor cell's genome with totipotency. Besides its practical applications in the farm animal production industry, drug production, and regenerative medicine, the nuclear transfer technique can provide invaluable experimental models for the study of mammalian epigenetics. During the mammalian life cycle, many epigenetic memories are erased while new memories are established. In theory, it is expected that the reprogramming-resistant memories are unchanged at nuclear transfer and carried over to the cloned embryos. Thus, comparisons of the epigenetic patterns of embryos cloned from donor cells at different times of the life cycle can determine the nature of these epigenetic changes and their underlying mechanisms. These include genomic imprinting (primary and secondary) and X chromosome inactivation. Another important approach for developmental epigenetics by nuclear transfer is the etiology of abnormalities associated with somatic cell nuclear transfer (SCNT). In mice, such abnormalities include frequent death of embryos shortly after implantation and placental hyperplasia at late pregnancy. I anticipate that the combination of nuclear transfer techniques and cutting-edge analytical technologies will facilitate our understanding of the dynamics of epigenetics during mammalian development.

Speaker

Dr. Atsuo Ogura
Bioresource Engineering Division, BRC

Language : English

Date/Time : Tuesday, July 15 / 16:00-17:00

Location : Moriwaki Hall, Tsukuba

•Live telecast from Tsukuba Main
<Wako: S310, Bioscience Bldg.><Kobe: E206, Bldg. D>
<Yokohama:C212, Central Research Bldg.>

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Next

2nd Seminar Series : Tuesday, Sep. 9 Dr. Masako Tada (Tottori Univ.)
Live telecast from Kobe Main