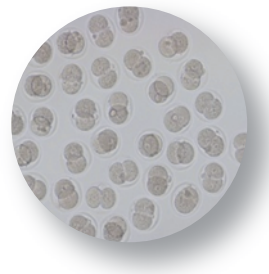
The 137th RIKEN BRC SEMINAR

2016年10月28日(金) 16:00～
バイオリソースセンター1階　森脇和郎ホール



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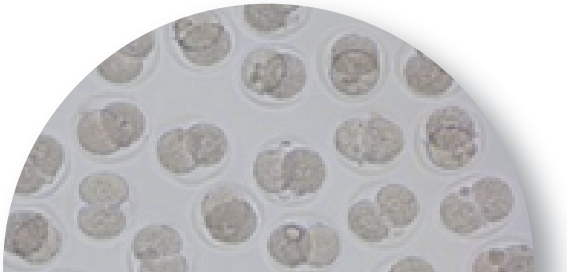
Role of Newly Discovered Oocyte Factors in Regulating Maternal-zygotic Transition in Mammals

The mRNAs stored in oocytes undergo general decay during maternal-zygotic transition (MZT), and their stability is tightly interconnected with meiotic cell cycle progression. We identified B-cell translocation gene-4 (BTG4) as an MZT licensing factor in mouse. BTG4 bridged CNOT7, a catalytic subunit of CCR4-NOT deadenylase, to eIF4E, a key translation initiation factor, and played a permissive role in maternal mRNA decay. Oocyte intrinsic MAPK cascade triggers translation of Btg4 mRNA stored in fully-grown oocytes by targeting its 3'-untranslated region, thereby couples CCR4–NOT deadenylase-mediated maternal mRNA decay with oocyte maturation and fertilization. On the other hand, maternally accumulated YAP in oocyte is crucial for zygotic genome activation. These observations provide insights into the mechanisms of zygotic genome activation, and suggest potential implications of YAP activators in improving the developmental competence of cultured embryos in human assisted reproduction and animal biotechnology.



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