

# Investigation of evolutionary background of pluripotency among amniotes

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Wednesday, November 30, 2011

16:00 ~ 17:00

C4F S401Room

Investigating the evolution of pluripotency will provide insights into the origin of multicellular development and knowledge for medical applications of human pluripotent stem cells. So far, factors working for embryonic pluripotency have been understood by studying mainly mouse or human ESCs or iPSCs. However, factors or mechanisms underlying pluripotency in other animals, e.g., birds or reptiles, are not yet well studied. It is interesting to ask whether signal transductions and transcriptional factors of mammalian pluripotency have the same effects on pluripotency in other vertebrates. Recently, two distinct pluripotent states were recognized: “naive” and “primed” pluripotent states. “Naive” state of pluripotency is a fully potential state in which cells can go through germline-transmission in blastocyst chimeras, producing LIF-dependent domed colonies on culture dishes. “Primed” state is a more differentiated and limitedly potential state giving low blastocyst chimera contribution, requiring FGF signal pathway and showing flattened colony morphology. Here we hypothesized this landscape of pluripotency can also be seen in the early development of birds and reptiles. To test this, we have compared effects of several medium conditions on avian and reptile embryonic cells and checked the expression levels, proliferation and differentiation abilities of these cultured cells.

Host : Hiroshi Kiyonari  
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