



CDB SEMINAR

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Monday, September 3, 2012

10:30~11:30 A7F Seminar Room

Intersection of transcriptional and signalling activity for head morphogenesis in mouse embryos

Summary

Fate-mapping analysis of tissue potency and lineage specification in early mouse embryos has enabled the construction of a series of fate maps that describe the origin of the progenitors of fetal tissues and the organization of the basic body plan which forms the blueprint of development. Molecular annotation of the fate maps reveals an orderly regionalization of the expression of transcription factor genes in concert with components of key signalling pathways that are associated with tissue patterning. Studies of the role of Dkk1 highlight the requirement of a stringent control of the tissue domain and level of WNT signalling activity and its orderly orchestration with the morphogenetic activity for the development of the head structures. To elucidate the intersection of transcriptional and signaling function in the formation of the embryonic head a genetic study was undertaken to assess, in the mouse embryo, the impact of loss of Lhx1 in specific germ layer derivatives and the interaction in the genetic context the activity of Lhx1 with Wnt signaling activity. Our findings revealed an essential requirement of Lhx1 in the anterior mesendoderm, which through the provision of the Dkk1 antagonistic activity, to modulate the Wnt/ β -catenin activity that is critical for normal development of the embryonic head.

Host:

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