Program Abstract #39

Tale of tails

Yoshiko Takahashi

Kyoto University, JP

The tail is an important part of the boy that most characterizes the vertebrate. The tail also allows a variety of diversities because in many cases tails are specified to particular purposes of habitation (e. g. long vs short tails, decorative appealing for reproductive tactics). The tail, forming posteriorly to the hind limb/anus level, consists of two major components: the ectoderm (nervous system) and mesoderm (muscles and bones). For such formation, the tail bud, a mass of mesenchymal cells, plays critical roles. In particular, the tail bud cells that participate in the neural tube formation undergo EMT and MET, and this process is called secondary neurulation (SN), markedly different from the well-known neural plate folding seen in the anterior body. Using chickens, we have recently identified the presumptive SN region located posteriorly to Hensen's node in stage 8 chicken embryo (equivalent to ~E8 mouse embryo). Importantly, this region does not contribute to the mesodermal components. Thus, neural tube-forming cells and mesodermal cells are segregated early in the tail-forming region, in which Sox genes play important roles. Furthermore, SN-forming precursors in the tail bud appear to behave as stem cell-like cells. We will discuss the roles of SN in the tail formation and its physiological functions in both embryology and evo-devo.