

# Hair follicle development from human mesenchymal cell with asymmetric distribution of polarity molecules

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Hair follicle(HF), a complex mini-organ, represents a typical neuroectodermal- mesodermal interaction system and is a useful model for studying the mechanism of organogenesis. However, It is hard to know why the hair follicle get the orientation of growth and whose molecules control the process of the development. The differentiation potential of human mesenchymal cell to HF had been verified. Also we detected that cell suspensions of human mesenchymal cell injected into nude mice subcutaneous led to the formation of HF. From 1 day to 7 day after the injection, the morphology was changed from a round cell mass to a typical HF. The mesenchymal transition to hair follicle epithelium (MET) involves in the changement of cytoskeleton and the polarity molecules play in the role of their regulation. Therefore, we examined the expression and distribution of JAM1, PAR3 and Tiam1 in different development stages of HF. The results showed that Tiam1 was expressed in all around cells of HF and the expression of JAM1 and PAR3 was selective that were enriched on the top of different development stages of HF. In the matured HF, JAM1 and PAR3 were enriched in hair follicle sides as like the sheath. It suggests that human mesenchymal cells in subcutaneous tissue circumstance may be developed to HF and that JAM1 and PAR3 be concerned with the HF orientation and steered the growth of HF.

**Keywords:** MET, cell polarity, hair follicle, JAM1, PAR3

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