

**DUAL MOLECULAR MECHANISMS IN CVP MORPHOGENESIS**

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In rodents, a circumvallate papilla (CVP) develops with dramatic changes in epithelial morphogenesis during early tongue development. Molecular and cellular dissections of CVP development revealed that there are two different mechanisms in the apex part and the trench wall forming regions of CVP epithelium. Expression patterns of *Wnt* and *Shh* showed that there are two significant different molecular mechanisms in CVP morphogenesis. *Wnt*, well known key molecule to initiate taste papillae, would govern Rho activation and cytoskeleton formation in apex epithelium of CVP. On the contrast, *Shh* would regulate the cell proliferation to differentiate taste buds and to invaginate the epithelium for development of von Ebner's gland (VEG). Furthermore, *in vitro* organ culture of tongue with various inhibitors confirmed that these *Wnt* and *Shh* would play important roles through different molecular signaling cascades in specific morphogenesis and taste bud patterning of CVP during early mouse embryo development.