論 文 要 旨

Type II/III cell composition and NCAM expression in taste buds

（味蕾におけるⅡ型・Ⅲ型細胞の構成および NCAM の発現）

小柳　江梨子

Taste buds are localized in fungiform (FF), foliate (FL), and circumvallate (CV) papillae on the tongue and taste buds also occur on the soft palate (SP). Mature elongate cells within taste buds are constantly renewed from stem cells and classified into three cell types, type I, II, and III. These cell types are generally assumed to reside in respective taste buds in a particular ratio corresponding to taste regions. A variety of cell-type markers were used to analyze taste bud cells. NCAM is the first established marker for type III cells and is still often used. However, NCAM was examined mainly in the CV, but not sufficiently in other regions. Furthermore, our previous data suggested that NCAM may be transiently expressed in the immature stage of type II cells. To precisely assess NCAM expression as a type III cell marker, we first examined type II and III cell-type markers, IP3R3 and CA4, respectively, and then compared NCAM with them using whole-mount immunohistochemistry. IP3R3 and CA4 were segregated from each other, supporting the reliability of these markers. The ratio between type II and III cells varied widely among taste buds in the respective regions (Pearson's r = 0.442 [CV], 0.279 [SP], and −0.011 [FF]), indicating that type II and III cells are contained rather independently in respective taste buds. NCAM immunohistochemistry showed that a subset of taste bud cells were NCAM(+)CA4(−). While NCAM(+)CA4(−) cells were IP3R3(−) in the CV, the majority of them were IP3R3(+) in the SP and FF.

(Cell and Tissue Research, 2021, IN PRESS)