Gene expression analysis for extracellular matrix in feeder layers: Type VI collagen effectively induces the colony formation of epithelial cells

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Mouse 3T3 feeder layer has been utilized for serially cultivation of stratified squamous epithelial cells, and promotes the cells to form tissue-like cell stratification. However, the molecular mechanism underlying epithelial-feeder layer interactions remains poorly understood. Here, the feeder layer activity was examined in terms of the colony-forming efficiency of primary stratified epithelial cells for screening the bioactive factors for the epithelial cells.

The results of colony-forming assay of rabbit stratified epithelial cells showed that colony-forming efficiency of C3H/10T1/2 was significantly higher than other five mouse fibroblast cell lines. In the result of RT-PCR, gene expressions of six extracellular matrices in C3H/10T1/2 were significantly higher than the other cell lines having significantly lower colony-forming efficiency for the epithelial cells. Type VI collagen was one of the expressions, and colony-forming efficiency and cell adhesion of rabbit oral mucosal epithelial cells were increased in a dose-dependent manner to coating density of type VI collagen. These results indicated that type VI collagen was a candidate molecule inducing high efficiency of colony formations of stratified epithelial cells co-cultured with C3H/10T1/2 feeder layer. Moreover, type VI collagen effectively promoted the colony formation and cell adhesion of stratified epithelial cells in vitro.