

Substrate Modulation of Cultured Rabbit Conjunctival Epithelial Cell Differentiation and Morphology

蔡瑞芳

Tsai RJF; Tseng SCG

摘要

Abstract

This study demonstrated that growth and differentiation of rabbit conjunctival epithelial cells could be promoted by such substrata as collagen gel, matrigel or various mixtures of collagen and matrigel in a defined culture system. On conventional plastic or glass culture, the conjunctival epithelial cells adopted a monolayer of small epithelioid cells in primary cultures. They became enlarged, squamoid and exhibited notable senescence upon subcultures. On collagen gel, cells formed an organized monolayer sheet with cuboid shape and cell polarity. On matrigel, cells formed globules with stratified appearance including the basal layer of the outer part of globule and the squamoid cells of the central part of globule. The epithelial origin of these cultures was verified by the positive immunostaining of anti-keratin monoclonal antibodies. Expression of mucin antigen was lost on plastic or glass culture, but promoted on collagen gel or matrigel, as demonstrated by staining with periodic acid Schiff's reagent and anti-mucin monoclonal antibody stainings. These results indicate that both collagen gel and matrigel can provide a permissive substrate environment for goblet cell differentiation. Furthermore, this unique phenotypic expression may be possessed only by a selective cell subpopulation. This culture system will allow us to further explore the mechanism by which the goblet cell differentiation is controlled.