Conjunctival Epithelial Cells in Culture-growth and Goblet Cell Differentiation

蔡瑞芳

Tsai RJF;Tseng SCG;Chen JK

摘要

Abstract

Conjunctival epithelial cell growth and differentiation were studied by cultivating cells on tissue culture plastic surface and on natural substrata such as collagen gel and matrigelR. Well-differentiated goblet cells were unable to attach in plastic cultures and could only be preserved in collagen gel- or matrigelR - based cultures. Percoll density fractionation experimental suggested that, in the primary conjunctival epithelial cells, there were precursor cells for goblet and non-goblet epithelial cells. The goblet cell phenotypic expression of these precursor cells was influenced by the surface to which they attach and by the serum factors. The PAS and AM-1 positive cells could also be induced when the precursor cells are cultured on collagen gels in serum-free define medium supplemented with retinoic acid. To study how the goblet cell precursors are differentiated and from what stem cells they are derived, it is necessary to develop a culture system with a better mimicry of the in vivo conjunctival tissue. In this regard, wedeveloped an in vitro ‘conjunctival equivalent’, in which the epithelial cells were cultured on fibroblast-contracted collagen lattice to allow continued cross-interactions of the epithelial and mesenchymal cells. This experimental model should allow experimental inquiries that are difficult, if not impossible, in conventional cell cultures.