Cytokeratin 13 is a Marker for Human Conjunctival Epithelium

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Abstract

Purpose: To evaluate the expression pattern of keratins (K)13, 19, and 12 in human normal ocular surface epithelium to determine their expression specificity in different epithelial cells

Methods: Cryosections were obtained from normal sclerocorneal tissues. Expression at the protein level were as evaluated by immunohistochemistry using primary antibodies specific for human K13, K19, and K12, and labeled with the appropriate secondary antibodies. Specificity of the expression was confirmed on impression cytology specimens obtained from normal human sclerocorneal tissues with a sterile, single-packed Biopore membrane. Double staining of K12 and K19, K13 and K12, were performed to further evaluate the specificity of the expression on both the sclerocorneal tissue and impression cytology specimens. The pictures were taken under 25X object using a fluorescent microscope

Results: Immunohistochemistry confirmed that K13 was expressed at the limbal basal and conjunctival epithelium, and was absent in the corneal epithelium. K12 was expressed in all layers of corneal epithelium and the suprabasal epithelium of the limbus. It was absent in the conjunctival epithelium. In contrast, K19 was expressed in the epithelium in the peripheral cornea, limbus and conjunctiva. K12 was
detected in impression cytology (IC) specimens only from the cornea, and K 13 was present only on the conjunctival IC specimens. K19 showed lack of specificity. It was present in both the corneal and conjunctival epithelial cells on IC. Double staining showed that expression of K13 and K12 was mutually exclusive, while K19 and K12 double staining confirmed the results of single staining showing K19 staining in conjunctiva, peripheral cornea and superficial epithelium of central cornea

**Conclusions:** K13 is expressed in K12- limbal and conjunctival epithelium and it might be used as a more specific diagnostic marker for limbal stem cell deficiency

**Keywords:** cornea: epithelium • conjunctiva • immunohistochemistry

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