

P035 Constitutive and UV-B induced expression of Nod-like receptors and their functional partners in human corneal epithelial cells

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Nod-like receptor (NLR) family proteins are cytosolic molecules exhibiting structural and functional similarity to Toll-like receptors (TLR). As part of protein complexes (inflammasomes) they recognize pathogens or damaged self structures, and regulate NFkB pathway and IL-1b/IL-18 secretion. Corneal epithelial cells, besides protecting the eye from microbial infection, are also important in the defense of the retina from various stresses such as UV-induced photodamage. Intracellular changes in the fine structure of cells and accumulation of self-aggregates, followed by UV-B irradiation may increase the evolvement of ocular pathological disorders.

As no information is available so far on the presence and/or the activity of NLR family proteins in corneal epithelial cells, we compared their cell type-specific expression pattern in human corneal epithelial cells of healthy individuals undergoing photorefractive keratectomy (PRK) treatment and in immortalized corneal epithelial cells (HCE-T) with real time Q-PCR. We also studied changes in the expression of NLR genes in HCE-T cells induced by low dose UV-B irradiation. We found that at 6 hrs followed by UVB-radiation the mRNA levels significantly decreased. Interestingly, the UVB-induced suppression of ASC and Cardinal adaptors and caspases was sustained at 24 hrs, whereas the mRNA level of Nalp sensors was restored or even increased as compared to the non-treated control cells.