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Biomarkers in dry eye disease

Cintia S. de Paiva, Rosa M. Corrales and Stephen C. Pflugfelder
Baylor College of Medicine, USA

Dry eye disease affects millions of people worldwide and its incidence increases with aging. Patients with dry eye complain of eye irritation, grittiness and blurred vision. There is no gold standard technique to diagnose dry eye, which currently relies on clinical tests and a symptoms questionnaire. Corneal disease is evaluated by increased permeability to fluorescein dye, but there is considerable daily and seasonal variation. We have developed a quantitative real-time PCR assay to measure levels of biomarkers in cells extracted from the conjunctiva by impression cytology. Standard curves for each gene of interest were created to extrapolate the number of RNA transcripts in samples obtained from patients and control subjects. In a cohort of 9 normal subjects and 20 dry eye patients, we observed a significant increase in the number of copies for inflammation associated genes, including IL-6, IL-17A, MMP-9 and IFN-γ mRNA in the dry eye group compared to normal subjects. These results indicated that molecular techniques can be used to measure the levels of ocular surface inflammation in dry eye. Studies are on going to determine the mechanisms responsible for the chronic ocular surface inflammation in dry eye.

Biography

Cintia de Paiva is a fully trained ophthalmologist who decided to pursue a scientific academic career in Ophthalmology. She is currently an Assistant Professor at Baylor College of Medicine. She has published more than 60 papers in high impact journals about dry eye and ocular surface diseases.

cintiadp@bcm.edu