VitroScreenORA®
A Visionary Future of Human Health

CORNEAL STROMA

Micro-physiological 3D corneal system mimics the natural human corneal stroma in healthy condition in terms of tissue architecture and de-novo extracellular matrix assembly. Collagen type I, V, III, XII and XIV are expressed as in healthy cornea providing structural supports to the tissue. Corneal degradation and aging are based on a progressive increase of α-smooth muscle action (α-SMA) and alteration in collagen fibrils, leading to an increase in myofibroblast population.

Applications

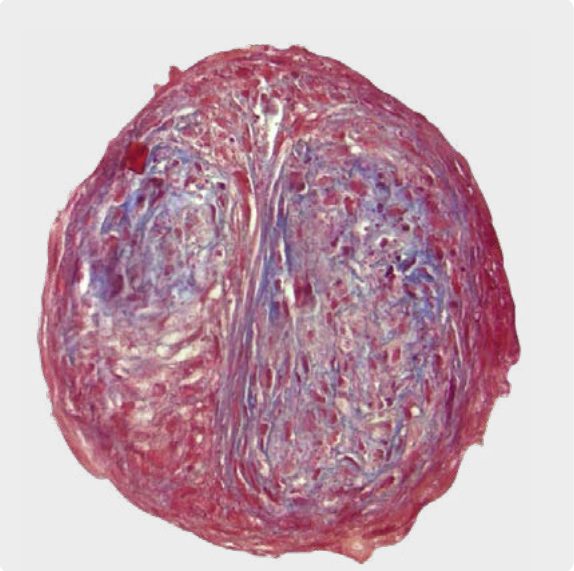
- Simulation of chronical fibrotic disease
- Corneal disorders: transparency and mechanical alterations
- UV-induced photo-damage keratitis
- Drug metabolism and long term exposure

Cell source:
primary corneal keratocytes

Fibrotic induction:
7 days

Relevance:
Healthy VitroScreenORA® corneal spheroids exposed to a pro-fibrotic inductor for 7 days showed genotypic signature modifications.
Pro-fibrotic induction affects ECM with significant modifications: increase of collagen fibres amount and thickness, α-SMA expression and reduction of collagen type III.
From day 3 to day 7, collagen fibres show increased thickness as a consequence of tissue dynamic maturation and remodelling.

MASSON'S TRICHROME ON PARAFFIN SECTIONS



Stroma and cells Collagen fibres

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