Fast *in vitro* Photo-keratitis Model

The new tool for the best decision making

Pearl BioSystem is a pioneer in compound validation assay development.
Reliable assessment of candidate molecules is key for the ophtalmology industry, as it's crucial for proper decision-making throughout the research process.
To address these needs, Pearl BioSystem has developed a new photo-keratitis model analysis, providing researchers with tailor-made assays (UV irradiation, cytokine stimulation, …)

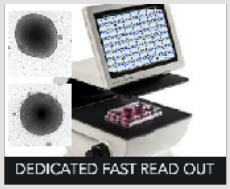
TECHNOLOGY

High Content Screening Workflow

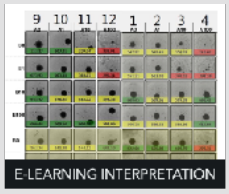
Pearl Biosystem Method

3D cultures equivalent to eye animal models
=> NO animals harmed

Human keratocyte organoïds after UV irradiation



Dedicated device for daily readout of drug efficacy, checked by toxicity labelling



E-learning Software for straightforward data interpretation

from 4 to 8 WEEKS

In vitro drug screening techniques provide rapid and easy to analyze data, while saving a lot of animals from being sacrificed.

In Perlo™ cultures will serve as drug screening platform for corneal keratocyte tissues kept in an optically transparent sterile culture chamber easy to manipulate and this even under non-aseptic conditions like a microscope, or an UV irradiator.

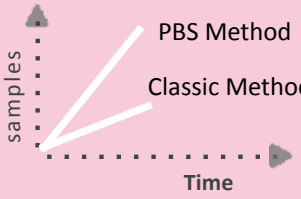
Pearl BioSystem Benefits

Clearer Decision Making

- Faster
- Cheaper
- Easy EC_{50}
- No animal harmed

Pearl biosystem method

Reduced delays and cost



Easy-to-use solution

Custom assays

To suit your R&D process

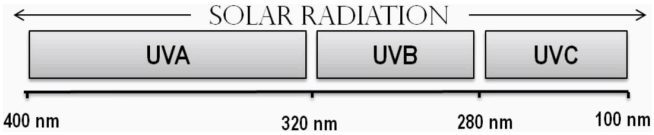
Pearl BioSystem SAS - France - www.pearlbiosystem.com - Email: myproject@pearlbiosystem.com

Pearl BioSystem Keratitis Model under Development

Keratitis is an inflammation of the cornea that can have various origins:

- Keratitis can thus be caused by exposure to UV (photo-keratitis), by the creation of free radicals which will break DNA and sensitize cells.
- Keratitis can also be linked to the use of dermatological products.
- Benzalkonium chloride, which has been used in cosmetics for its bactericidal properties, or antiseptics such as chlorhexidine, can cause inflammation of the cornea.
- Keratitis can also appear on contact with inflammatory molecules, generally linked to infectious causes: microbial keratitis is the fifth leading cause of blindness and visual impairment worldwide. Depending on the responsible pathogen, antibacterial, antiviral, or antifungal treatments will be applied, and often renewed due to the low bioavailability of the products.

Many formulations aimed at extending the presence of active molecules on the eye are being tested, such as nanoparticles, liposomes, niosomes, cubosomes, and research on drugs aimed at treating keratitis is set to develop. To date, there is no 3D cell culture model dedicated to the study of keratitis been able to fuse bacteria biofilm with human keratocytes cultures.



In vitro drug screening techniques provide rapid and easy to analyze data thus an important part of a drug screening platform is to grow keratocyte on a biomaterial which promotes cell growth and proliferation. (Int J Poly Mat & Poly Biomat, 64 785-791).

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In Perlo™ will allow you to be independent on any scaffolds made of polyhydroxybutyrate (PHB) or polycaprolactone (PCL) as the cells grow in G0 gravity sticking to each other.

In Perlo™ cultures will serve as drug screening platform for corneal keratocyte tissues kept in an optically transparent sterile culture chamber easy to manipulate and this even under non-aseptic conditions like a microscope, or an UV irradiator.

PHASE 1: assay in classical 2D

Design Of Experiment (DOE) cost (vehicle/ Pearls concentration / Molecule concentration…)

PHASE 2: sample testing in 3D pearls

Pearl BioSystem offers to carry out one molecule evaluation on the specific DOE assay developed in the first phase (with and without UV irradiation (UV-A,UV-B or UV-C)

Application of a proprietary tailor-made assay

In Perlo
by Pearl Bio System

Pearl BioSystem technology: a boost for your assays