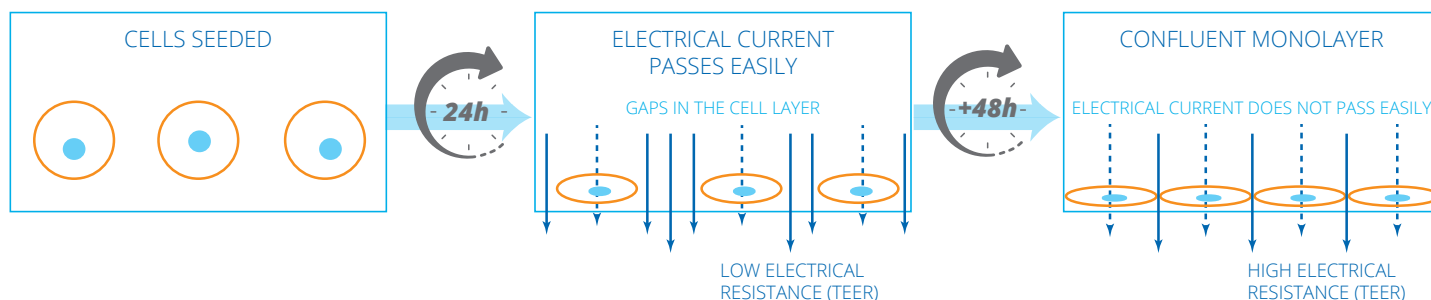




Comprehensive Solutions

TO BETTER UNDERSTAND RPE PHYSIOLOGY

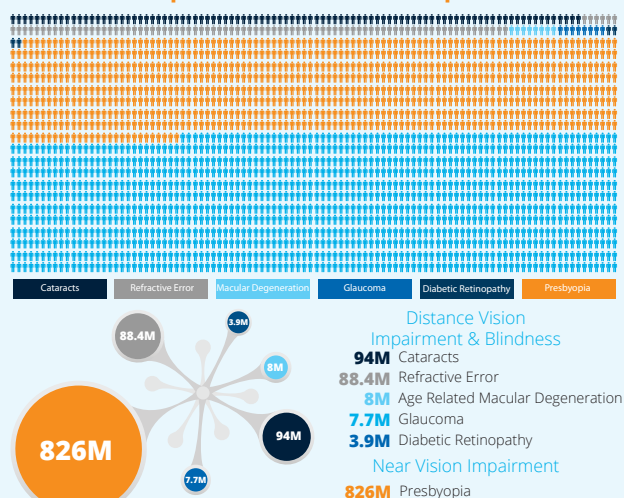
SINCE 1980, WPI HAS SET THE GOLD STANDARD FOR HOW TEER WORKS



Cell therapy is a promising approach for retinal degenerative diseases, such as age-related macular degeneration (AMD), Stargardt's macular dystrophy (SMD), and retinitis pigmentosa (RP), and continues to remain as an emerging field of research and development. The Retinal Pigment Epithelium (RPE) is known to be the key player in these degenerative diseases, and the normal function of the RPE does not rely on nerve synapses. In addition, the immune privilege of the eye holds the potential for the stem cell based cell therapy to be able to effectively cure retinal degeneration by targeting the RPE. Three different stem cell sources: pluripotent stem cells (iPSCs), human embryonic stem cells (hESCs), and human umbilical tissue-derived cells (hUTCs), have been identified as the cell source to derive RPE cells. Preclinical and clinical trials have focused on the study of the effectiveness of the cell therapy, as well as to confirm the safety of the therapy. An example would be to prevent unintended adverse effects such as unwanted migration to other organs.

The RPE creates a monolayer of highly polarized cells. The functions of RPE cells include maintaining the blood-retina barrier, providing nutrients for the retina, and preventing photo-oxidation by absorbing the excess light. Transepithelial electrical (TEER) measurement is a widely used technique to confirm tight junction integrity and barrier function of epithelial cells, including RPE cells. Down regulation of TEER values of RPE cells was found to be related to compromised barrier function as seen in corneal diseases, diabetic retinopathy, and glaucoma. TEER measurement can be a critical measurement parameter to confirm that the stem cell derived RPE cells are functional and can be effectively used to target the damaged RPE layer in the eye. WPI's EVOM™ technology is considered the gold standard to measure TEER values using an automatic or manual EVOM systems.

2.2B People with Vision Impairment

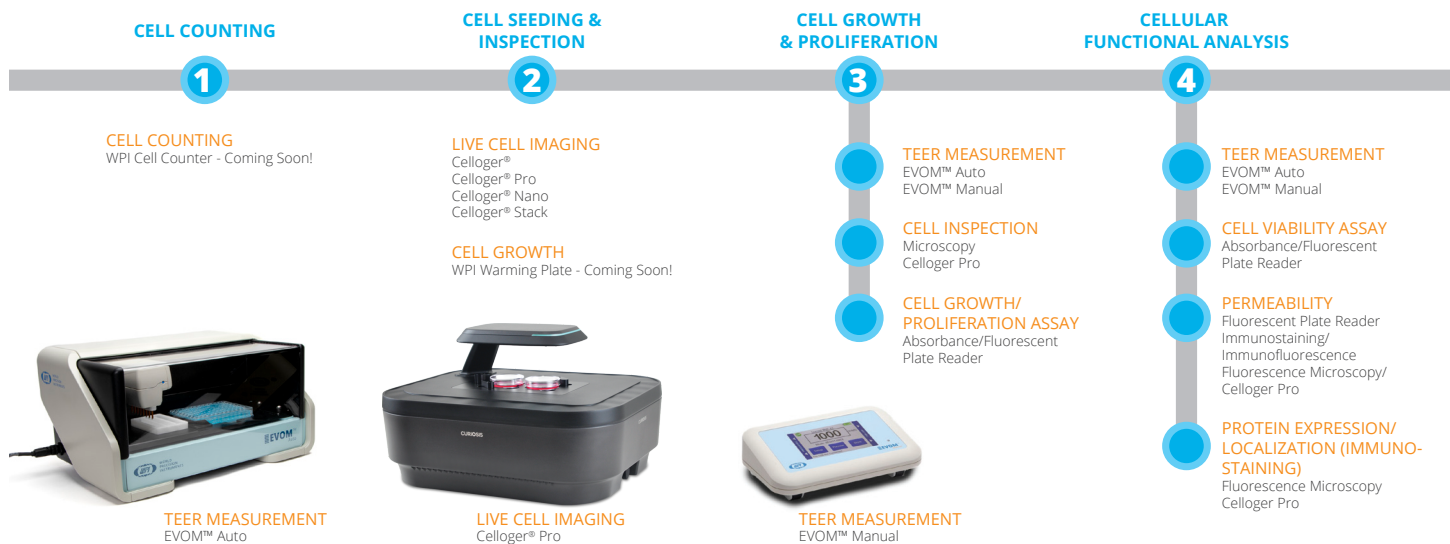


Data comes from the World Health Organization. (<https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment>)

BENEFITS OF UTILIZING TEER TECHNOLOGY IN OPHTHALMOLOGY

- Simple, fast, and non-invasive method that does not affect your sample
- A critical measurement parameter to confirm the stem cell derived RPE cells are functional and can be effectively used to target damaged RPE layer in the eye
- Individual cellular doses can be screened with a threshold TEER value to ensure stem cells reached the desired differentiated and functional state (like, functional RPE cells) before using them for transplantation studies
- An efficient quality control and screening tool for cell therapy studies aiming to cure retinal degenerative diseases

WPI Offers Solutions for All Your Cell Growth & Analysis Needs



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TEER Technology Enables an Optimized *in vitro* Workflow for Drug Discovery

SynVivo, WPI. "TEER Technology Enables an Optimized *in vitro* Workflow for Drug Discovery." (2024).



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