Applied BioPhysics

ECIS TEER 24

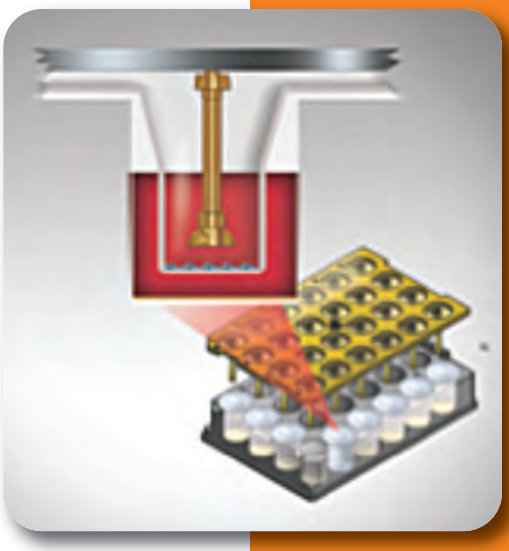
Barrier Function Measurement System

Continuous, Automated, Remains in incubator- eliminate temperature variations, eliminate operator variability

This system provides repeatable, automated TEER measurements to electrically monitor the barrier function of epithelial and endothelial cells as they are grown on membrane insert filters in 24 independent wells. Data are collected continuously and it reports real-time changes in barrier function of cell layers in ohm-cm^2.

Non-invasive measurements may be made continuously for days and even weeks. The fixed position of electrodes throughout the measurements eliminates operator variability allowing precise and repeatable measurements of endothelial layers with weak barrier function (<10 ohm-cm^2). No need to take the station out of the incubator eliminating temperature variations.

The TEER24 accepts standard 24 well membrane inserts from any commercial supplier. These are placed in a disposable sterile base plate with addressable electrodes on the well bottom. Once medium and cell suspension are added, an autoclavable array of gold dipping electrodes is inserted and measurements begun. Even with the dipping electrodes in place, the media both in and out of the inner well can be easily reached with standard micropipettes.



Uses standard 6mm filter inserts

ohm-cm2

Time	Well 1	Well 2	Well 3	Well 4	Well 5
15:00	123	323	240	870	960
15:01	132	340	276	940	975
15:02	138	354	293	1020	1048
15:03	142	393	329	1059	1120

Caption?

www.[redacted]ophysics.com

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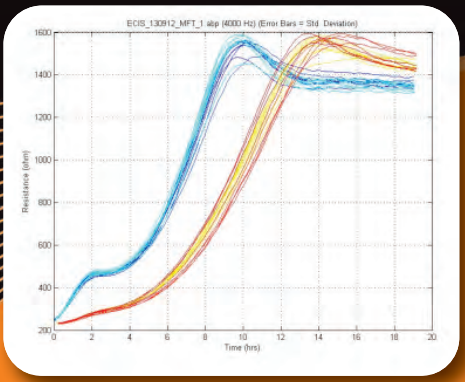

Biological Benefits

- Continuous long-term measurement of TEER from under 10 to 10,000 ohm cm2 in up to 24 wells
- Uses standard commercially available membrane inserts
- Fast barrier function dynamics can be monitored
- Accurately measures Endothelial barrier function
- Located in incubator for long term experiments
- Real time visualization of TEER, control of sampling rate
- Multiple samples
- Easy sample tracking
- Easily sterilizable, disposable array and autoclavable stainless dipping pins
- Quantitative data easy to export to third party programs
- Create figures and plots of data

Data Analysis

- Min/max
- Group and compare data
- Up to 24 wells can be simultaneously displayed and analyzed
- Export to excel or other statistical programs
- Graphical output in PEG, TIFF and PNG
- Data output in Excel or CSV

Key System Benefits

- Continuous measurement /automated
- Measures weak barrier function; epithelial and endothelial cells
- Eliminate operator variability
- Measurement takes place in incubator
- Maintain Sterility
- Objective, Repeatable Data
- Measure 24 wells at a time, Label free
- Suitable for long term measurement over days and weeks
- Large cell sample size-measure barrier of entire 6mm diameter cell layer
- Bar coded 24 well disposable plates
- Medical grade gold coated and stainless electrodes
- Dynamic range from under 10 to 10,000 ohm cm^2

Specifications:

- 10 sec/well read rate
- 24 well microplates use standard 6mm filters
- Gold electrodes
- Connects to laptop via USB
- Power: powered from USB output
- 24 well plates are barcoded with unique serial number for tracking
- 24 well dipping assembly is medical grade stainless, can be autoclaved
- Station dimensions 10 x 3 x 15cm
- Power and mode indicator light located on front panel
- Rear panel: USB
- Power: 3 watts
- Windows 10 OS

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