

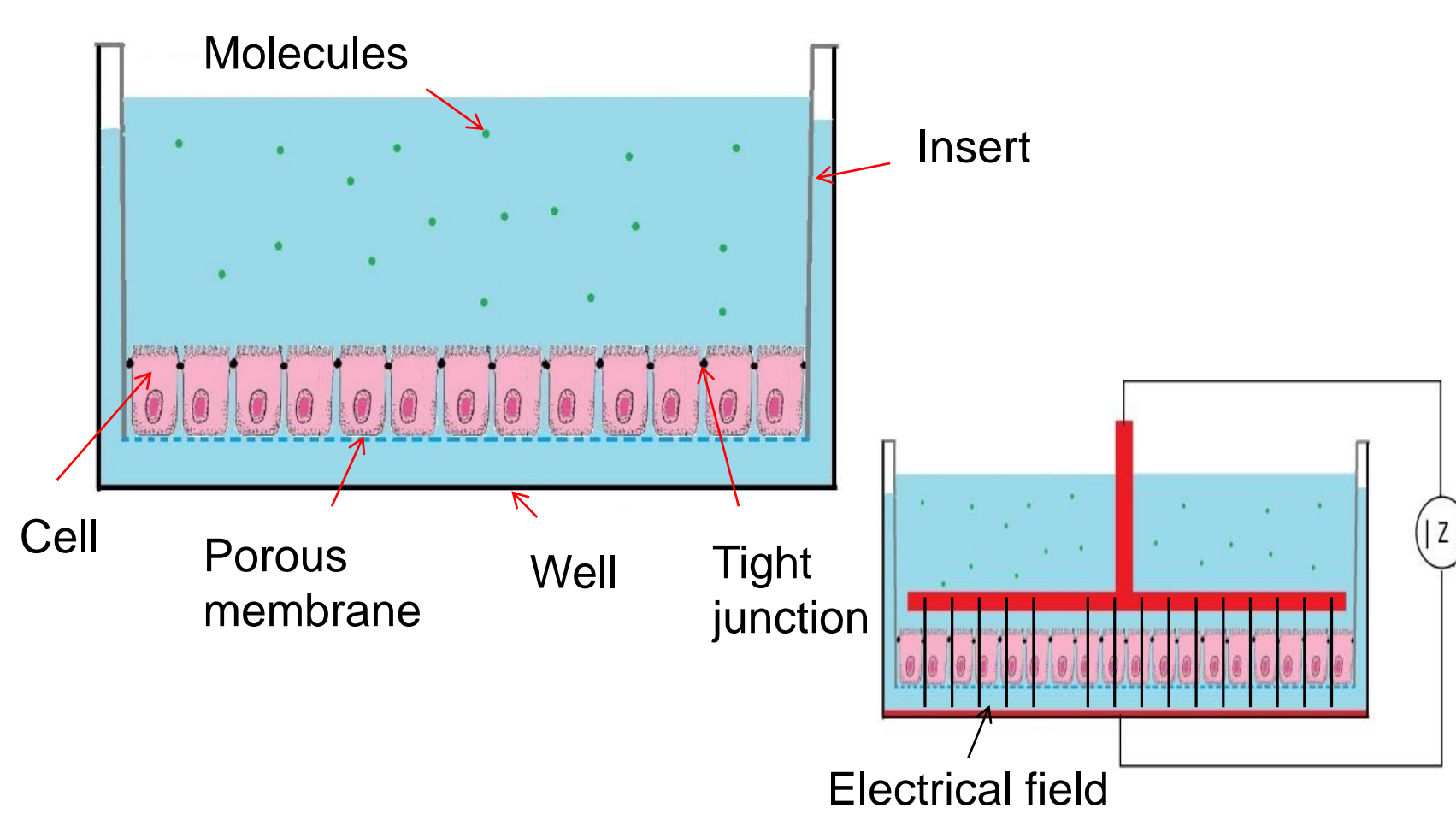
# *In vitro* system for integrity assessment of biological barriers

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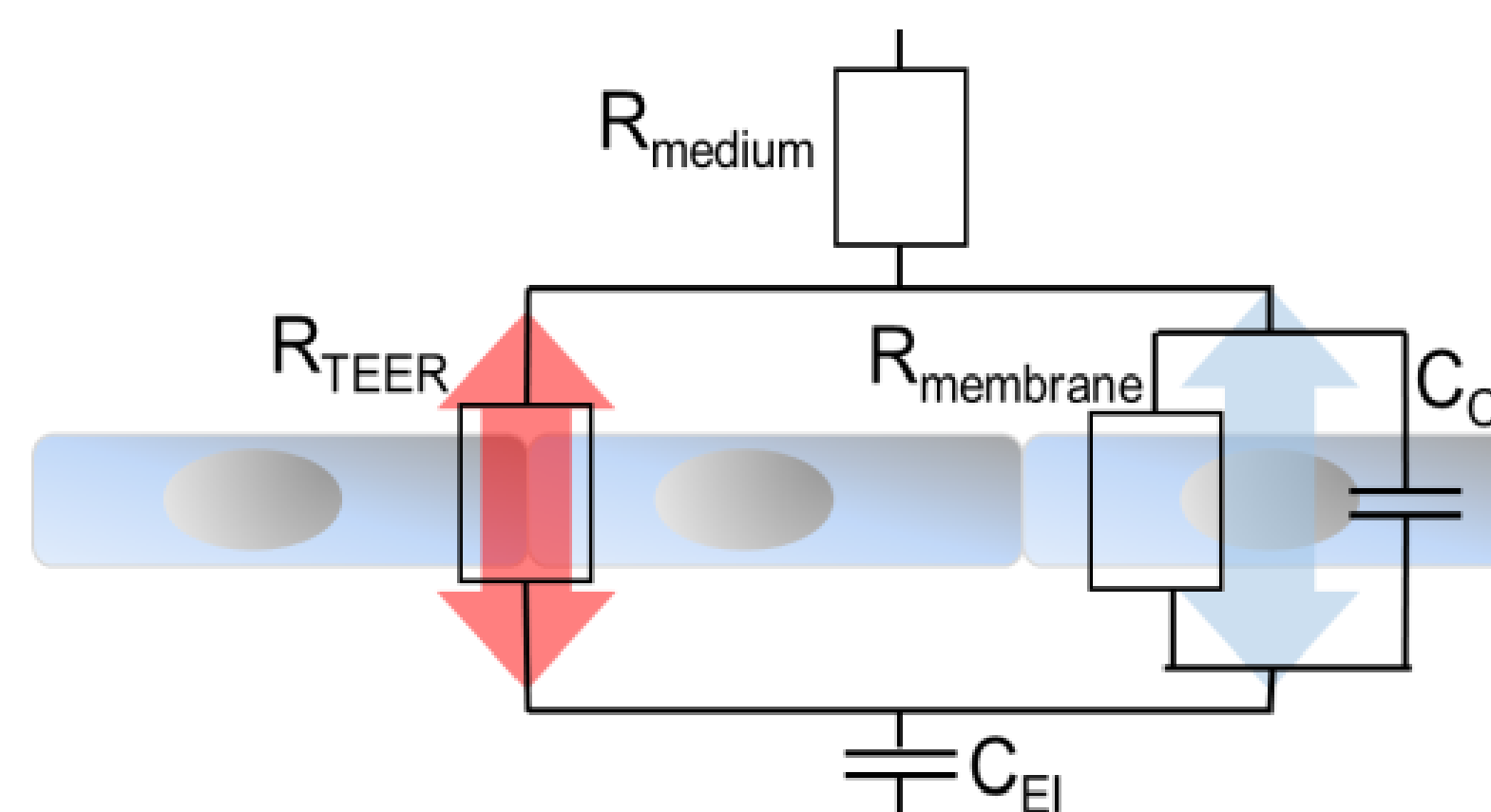
The assessment of biological barrier integrity has become key to understand drug and toxic molecules/particles transport into the human body. However, it is very difficult to make this assessment *in vivo*. It can be modelled *in vitro* and assessed by the measurement of the Trans-Epithelial/Endothelial Electrical Resistance (TEER).

**Measurement Principle: A cell cultured is made on a porous membrane. It is placed inside a large well and the electrical impedance of the cell layer is measured.**

Schematic of the measurement setup: the cell layer is placed between two recording electrodes.

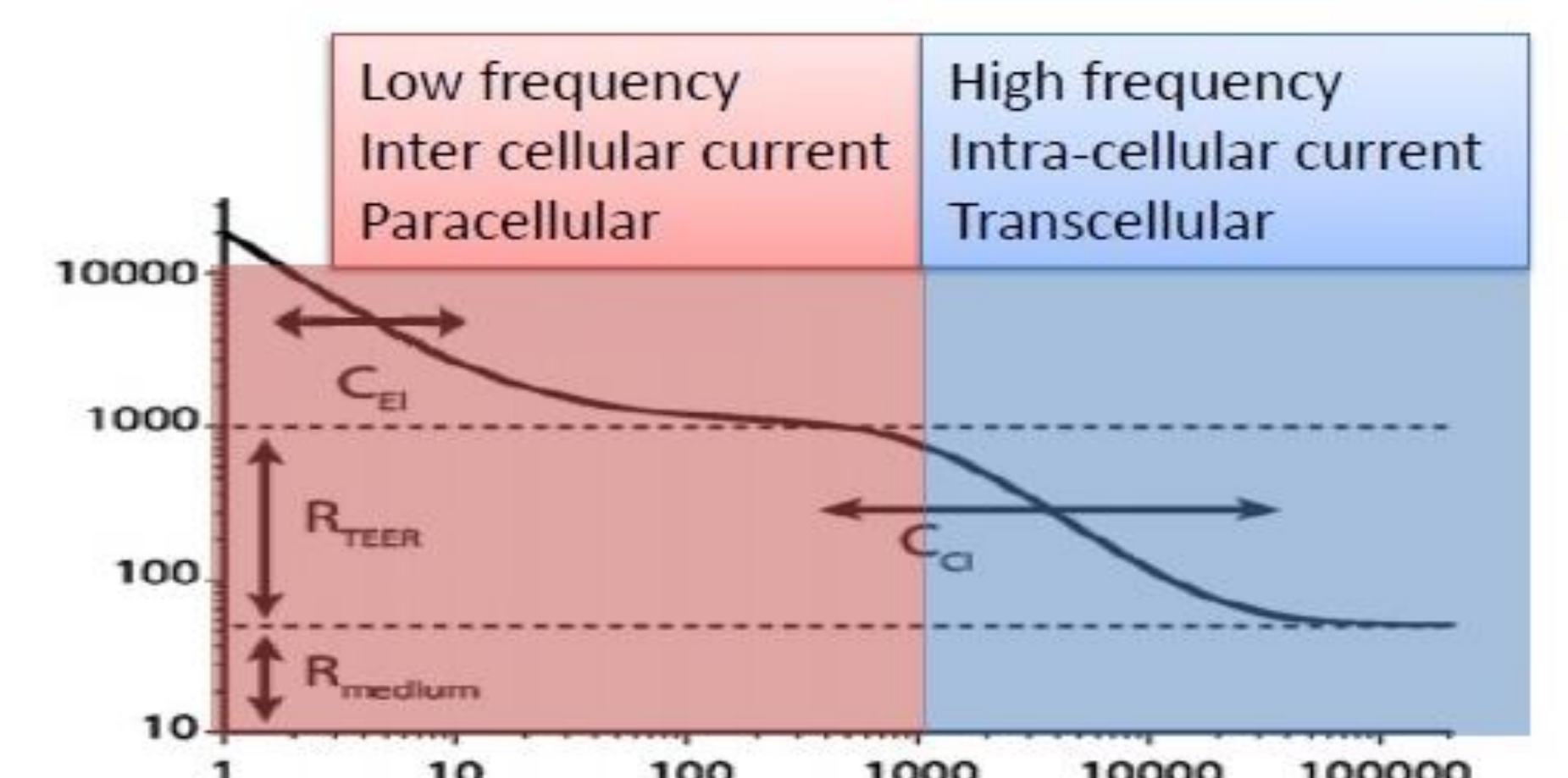


Schematic of the electrical cell barrier model.



Typical impedance measurement versus frequency.

Impedance range: 1Ω-500kΩ  
Frequency spectrum: 2Hz-100kHz



## Measurement System

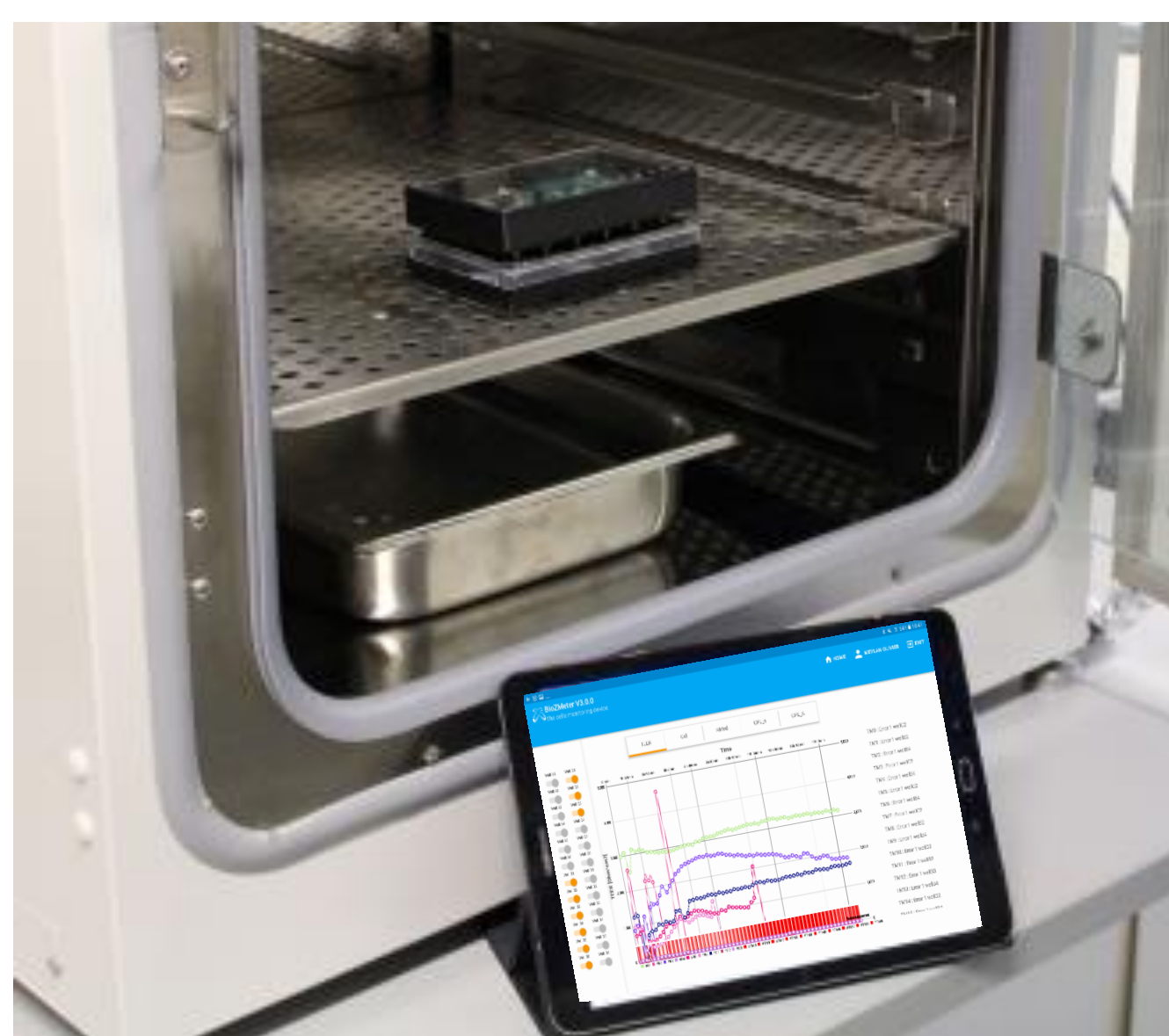
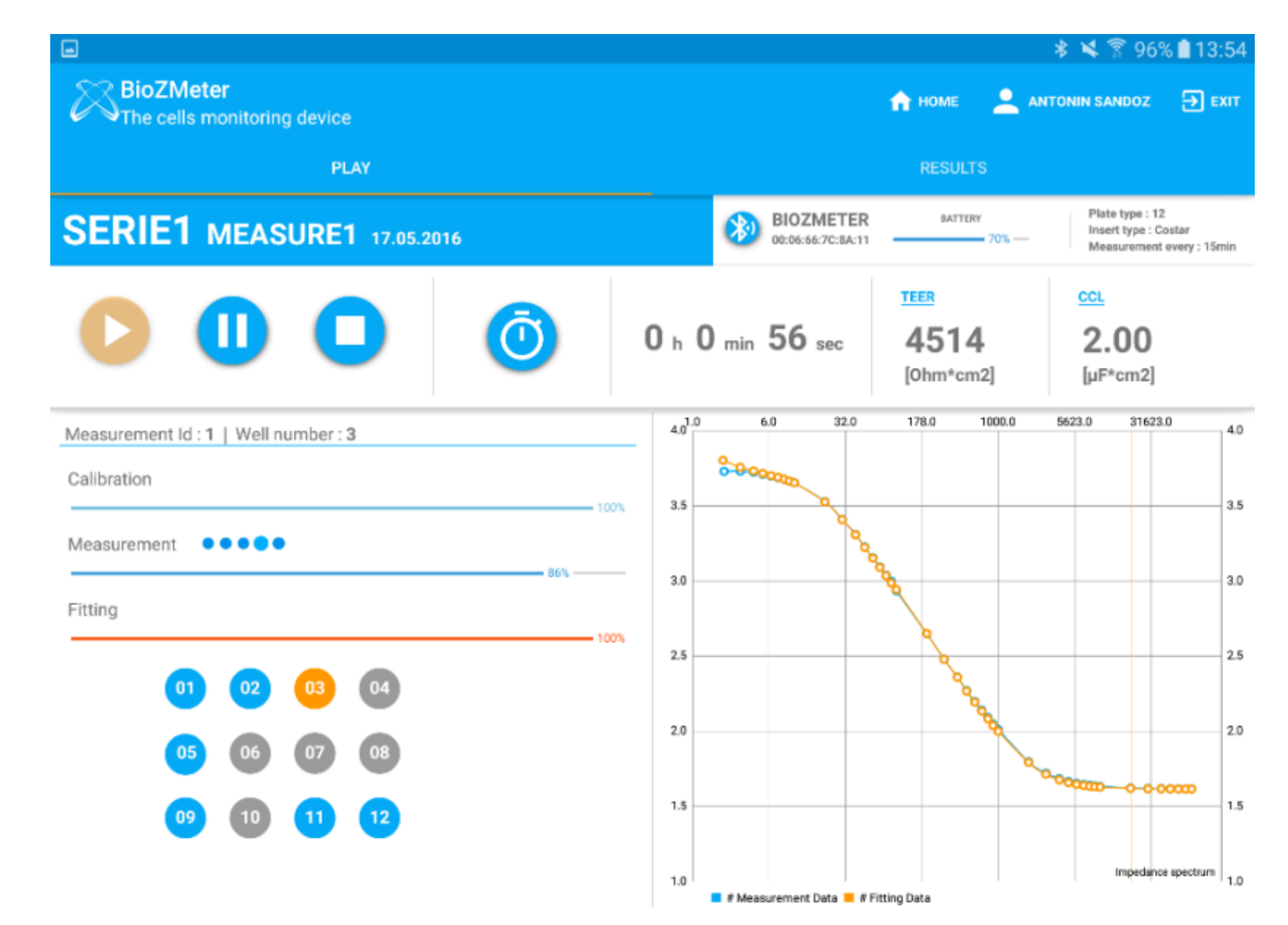
Proprietary cellware system for TEER measurement. The system is compatible with all commercially available cell culture inserts.



View of complete recording system. Humidity protected measurement electronics are directly fixed onto the cellware for TEER assessment.



Display of Android App designed to control and acquire the measurements, and to readout TEER parameter values.



The measurement system is designed to work inside an incubator, allowing best and stable culture conditions during experiments.

## Main Advantages

- Non-invasive Measurement (Kinetic studies possible)
- Good quality control of the barrier integrity.
- Medium throughput 24 wells system
- Disposable cellware compatible with commercial inserts.
- Standalone device : Bluetooth communication with tablet, battery power supply, and Micro-SD memory for safe data storage.
- Imagery friendly – microscopy.
- Compatible with several cellular models (BBB, GI, Kidney, and Lung alveolar epithelial) and with co-culture