

1. Objective

This protocol describes the procedure for cleaning and maintaining the OrganoTEER® electrode board. The electrode board is composed of 480 stainless steel electrodes and needs to be handled with care.

Avoid touching the electrodes and always handle the boards by holding the white casing. Store the boards in the appropriate rack or in the base provided with the device with a one well plate in place to avoid damage.

2. Background

The OrganoTEER® can be used to measure the transepithelial or transendothelial electrical resistance (TEER) of barrier tissues cultured in the OrganoPlate® 3-lane. Examples of these barrier tissues include intestinal tubules, kidney tubules, and blood vessels. Correct cleaning of the OrganoTEER® electrode board will aid in maintenance of the board and prevent carry-over of potential toxic compounds from one OrganoPlate® measurement to the subsequent measurement.

3. Materials

- OrganoTEER® electrode board
- 1-well plate provided with the OrganoTEER® electrode board
- MilliQ water / PBS / HBSS
- 70% ethanol in spray bottle
- Citranox® (Alconox, #cat. 1832-1), prepare a 2% solution (2 mL Citranox® in 98 mL tap water)
- Tergazyme® (Alconox, #cat. 1304-1), prepare a 1% solution (1 g in Tergazyme® in 100 mL tap water)
- 60°C heating using a water bath, an ultrasonic bath, a microwave, a heating plate or any other method available in your laboratory

4. Procedure

Rinsing the electrode board with ethanol is recommended before and after each TEER measurement.

Before measuring:

1. Spray the electrode board with a generous amount of 70% ethanol in a sterile environment
2. Let the electrode board dry in the storage rack for a minimum of 30min before using it for measurements

After measuring:

1. Place the 1-well plate in the plate holder
2. Fill the 1-well plate up to the rim with your washing solution of choice (MilliQ water / PBS / HBSS)
3. Insert the electrode board onto the frame of the plate holder
4. Leave the electrode immersed for 5 minutes
5. Remove the board and discard the wash solution
6. Spray the board with a generous amount of 70% ethanol in a sterile environment
7. Let the electrode board dry in the storage rack for a minimum of 30 min before using it for measurements

In case of work with toxic compounds or other residues that may be carried over from one OrganoPlate[®] to another, a wash with an acidic or enzyme-based detergent is recommended between measurements

1. Choose the right detergent to remove your compound residues
 - a. For base-labile or protease-labile compounds, use Tergazyme[®]
 - b. For acid-labile compounds, use Citranox[®]
2. Prepare 100 mL of either a 2% Citranox[®] or a 1% Tergazyme[®] solution in tap water
3. Heat the cleaning detergent to 60°C
4. Place the 1-well plate in the plate holder
5. Fill the 1-well plate up to the rim with the 60°C cleaning solution (Citranox[®] or Tergazyme[®])
6. Insert the electrode board onto the frame
7. Leave the electrode immersed for 30 min
8. Remove the board and discard the cleaning solution
9. Thoroughly rinse the electrode board under running water to remove residues of the detergent
10. Rinse the 1-well plate as well
11. Spray the electrode board with a generous amount of 70% ethanol in a sterile environment
12. Let the electrode board dry in the storage rack for a minimum of 30 min before using it for measurements.

With frequent use of the OrganoTEER[®], calcium deposits may be observed on the electrode board. These deposits may be removed using a wash with 2% Citranox[®] solution, using the same procedure as described above

MIMETAS product list

Cat. No.	Product Name
MI-AR-CC-01	OrganoReady® Caco-2
9605-400-B	OrganoPlate® 2-lane
4004-400-B	OrganoPlate® 3-lane 40
6405-400-B	OrganoPlate® 3-lane 64
6401-400-B	OrganoPlate® Graft
MI-OFPR-S	OrganoFlow® S
MI-OFPR-L	OrganoFlow® L
MI-OT-1	OrganoTEER®

Contact information

For questions, please contact us through the e-mail addresses stated below

Purchasing: order@mimetas.com

Customer service: info@mimetas.com

Technical support: support@mimetas.com

MIMETAS Europe

J.H. Oortweg 19
2333 CH, Leiden
The Netherlands
Phone: +31 (0)85 888 3161

MIMETAS USA

704 Quince Orchard Road
Suite 260, MD 20878
Gaithersburg, USA
+1 (833) 646-3827

MIMETAS Japan

4F Tekko Building,
1-8-2 Marunouchi, Chiyoda-Ku
Tokyo, 100-0005, Japan
+81 3-6870-7235

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