MultiScreen™ Permeability Plate Assembly

User Guide

MAPB MN3 10 (Qty: 10/pk)

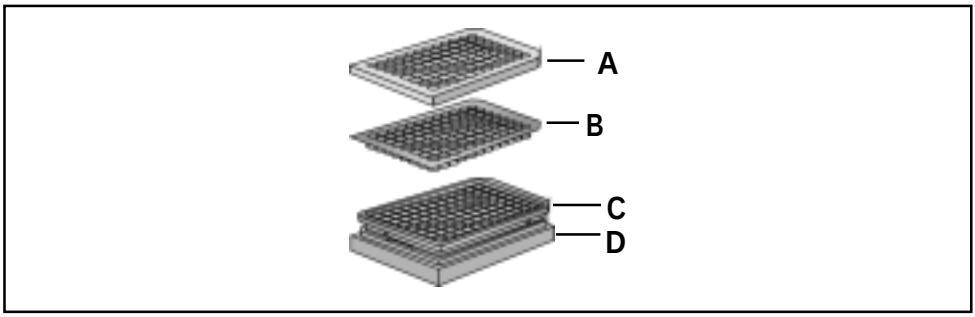
Introduction

The MultiScreen Permeability Plate Assembly is a 96-well disposable device designed to support high throughput non-cell-based assays, such as the assessment of permeability for drug compounds, using an artificial membrane constructed of hexane/hexadecane. The artificial membrane is applied to the polycarbonate membrane in the 96 well filter plate (known as the donor plate) before the wells are filled with buffer and the compounds to be tested. The donor plate is then placed upon a 96-well receiver plate (known as the acceptor plate) filled with buffer. This acceptor plate can be either the plate provided with this assembly or an equivalent, such as Millipore's PTFE acceptor plate (Millipore Cat. No. MSSA CCEP T0R). The donor and acceptor plates are incubated together for 5 to 7 hours, then the donor plate is removed from the acceptor plate. Once separated from the donor plate, the 96 assays in the acceptor plate can be sent for Liquid Chromotography/Mass Spectrometry (LC/MS) analysis or transferred to a UV-compatible 96 well plate and read immediately with a UV/Vis spectrophotometer. The integrity of the artificial membrane layer in the donor plate can be measured using electrical resistance. The MultiScreen Permeability Plate Assembly is particularly recommended for use in pre-ADME or Discovery programs requiring compound rank ordering or profiling. This permeability assay principally predicts transcellular drug absorbance rates.

Materials Supplied

The components supplied with the MultiScreen Permeability Plate Assembly include the following parts:

(A) Lid, (B) Donor plate, 96 well filter plate, (C) Acceptor plate, 96 well receiver plate housed in a single well tray (D).



Device Storage

Store at room temperature.

Guidelines for Use

- The MultiScreen Permeability Plate Assembly is a 96 well disposable device designed to support non-cell-based assays such as permeability assays and pH profiles.
- The Millipore PTFE acceptor plate is a reusable 96-well plate designed to support drug permeability assays and is recommended when evaluating compounds that may exhibit nonspecific binding.
- The recommended volume to set up the permeability assay is 100-300 µL in the Donor/filter plate well and 150-170 µL in the Acceptor/receiver plate well. If the Millipore PTFE Acceptor plate (Millipore Cat. No. MSSA CCEP T0R) is used, the recommended volume is 250-300 µL.

Setting up MultiScreen Permeability Plate Assembly for Permeability Assays

Before beginning the permeability assay, prepare the artificial membrane solution by combining 5% hexadecane in hexane under a fume hood. Continue working under the fume hood for steps 1 and 2 of the following procedure. (For more details, see references 1 and 2)

1. Separate the MultiScreen Permeability Plate Assembly by removing the donor (filter) plate from the 96 well acceptor (receiver) plate and placing it in a sterile single well cell culture tray (Millipore Cat. No. MAMC S01 10).
2. Apply 15 µL of solution to the center of each filter well of the donor plate and let plate stand under the fume hood for a minimum of 10 minutes while the artificial membrane layer forms.
3. Add transport buffer into the wells of the acceptor plate.

   NOTE: The recommended volume is 150-170 µL per well if using the acceptor plate provided. The recommended volume of transport buffer is 250-300 µL per well if using the PTFE plate.
4. Add buffer and drug compounds to donor plate wells after the artificial membrane layer has formed.

   NOTE: The recommended volume is 100 µL per well.
5. Place the donor plate on top of acceptor plate.

   NOTE: Handle the plates carefully during steps 5, 6 and 7 to prevent spillover into adjacent wells of the acceptor plate that could lead to cross talk.
6. Incubate the plate assembly at 25 °C for desired length of time.

   NOTE: Incubation time is usually 5 to 7 hours depending on nature of the compounds[1].
7. Remove the plate assembly from the incubator and separate the donor plate from the acceptor plate.
8. Evaluate the compounds that have transported to the acceptor plate using a standard detection method such as UV/Vis or LC/MS.

Reference

1. Wohnsland, F.; Faller, B. *High-throughput permeability pH profile and high-throughput alkane/water log P with artificial membranes*. J. Med. Chem. 2001, 44, 923-930.
2. AN1725EN00

Product Specifications

Materials of Construction

Lid, donor plate and single well
housing tray: Clear polystyrene
Acceptor plate: PETG

Membrane

Membrane: hydrophobic

track-etchedpolycarbonate

Active membrane area: 0.3 cm^2

Properties

Sterilization: None

Limitations

Incubation: 37 °C

Capacity

Donor plate wells: maximum 350 µL

Acceptor plate wells: maximum 400 µL

Typical Operating Volume

Donor plate wells: 100 µL

Acceptor plate wells: 150-170 µL

Product Ordering Information

This section lists the catalogue numbers for MultiScreen Permeability Plate Assembly devices and accessories. See the Technical Assistance section for information about contacting Millipore. You can also buy Millipore products on-line at www.millipore.com/purecommerce.

Plate Description	Cat. No.	Qty/Pk
MultiScreen Permeability Plate Assembly, 3 µm	MAPB M3N 10	10/pk
Accessory products		
96-well PTFE Acceptor Plate	MSSACCEPT0R	1/pk
Single Well Cell Culture Tray	MAMC S01 10	10/pk

Technical Assistance

For more information, contact the Millipore office nearest you. In the U.S., call **1-800-MILLIPORE** (1-800-645-5476). Outside the U.S., see your Millipore catalogue for the phone number of the office nearest you or go to our web site at www.millipore.com/offices for up-to-date worldwide contact information. You can also visit the tech service page on our web site at http://www.millipore.com/techservice.

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