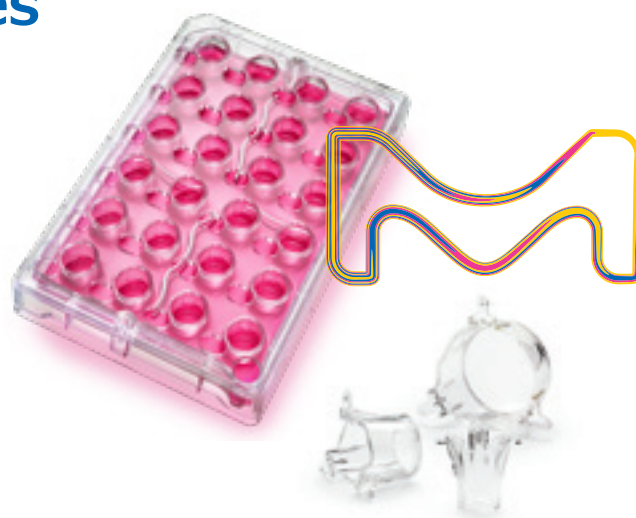


Data Sheet

Millicell® inserts and plates

For more *in vivo* - like membrane-based cell culture

The research needed to narrow the gap between *in vitro* and *in vivo* or 2D and 3D cell environments has never been greater. Merck's sixty-plus year legacy of precision engineered filtration and cell culture expertise continues to provide the modern tools needed to support cell growth that is more predictive of natural cellular behavior.



Enables predictive cell culture

More natural cell growth is the result of biologically thoughtful engineering.

Cells *in vivo* live in a truly three-dimensional environment, and can access nutrients from every side. In contrast, traditional plastic culture plates force cells to grow on a smooth, two-dimensional surface, leading to flattened nuclei and poor function.

Millicell® inserts and plates feature membranes that allow easy access to both the apical and basolateral sides of cells. This encourages three-dimensional growth and opens up more options for co-culture and extended length studies. All of these enable a more accurate, predictive *in vitro* model than regular plastic plates.

Flexible formats

Our flexible formats include hanging and standing single-well inserts, multi-well plate assemblies, and tissue culture-treated receiver plates—all of which are available in a full selection of well sizes and membranes. We also have the microfluidic controlled cell culture systems, water purification, sterile filtration, media, kits, and research reagents that you need to develop and interrogate your model system.

Closer to nature

- Improved cell morphology
- More intracellular organelles
- Better cell differentiation
- Higher cell densities
- More culture stability over time

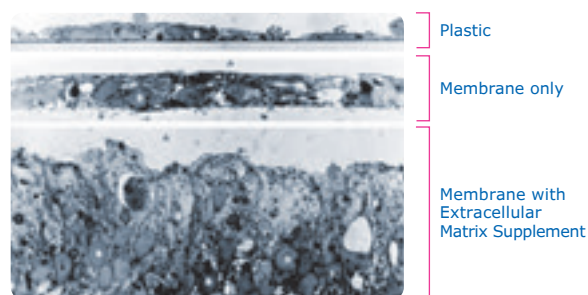


Figure 1.

A comparison of Sertoli cells grown on various surfaces. This seminal publication demonstrates that cells grown on Merck membranes impregnated with reconstituted basement membrane (RBM) form tall, columnar monolayers with ovoid or pyramidal nuclei that more closely mimic *in vivo* growth.

Byers SW, Hadley MA, Djakiew D, Dym M. Growth and characterization of polarized monolayers of epididymal epithelial cells and Sertoli cells in dual environment culture chambers. *J Androl.* 1986 Jan-Feb;7(1):59-68.

Millicell® Hanging Inserts

- For co-culturing and permeability assays
- Unique design allows easy basolateral access, and means less risk of contamination
- PET membrane available in 3 well sizes and 5 pore sizes, including a 1 µm pore size that is optically transparent



Millicell® Standing Inserts

- Promotes excellent cell growth and provides an exceptional opportunity for cell studies
- Available with Biopore™ (PTFE) membrane, MF-Millicell™ (mixed cellulose esters) membrane, and polycarbonate membrane—with 5 pore sizes, and 2 well sizes



Millicell® Organotypic Standing Insert

- For high cell viability and superior study of three dimensional explant structures
- Shorter profile allows inserts to fit inside a standard petri dish
- The optically clear Biopore™ (PTFE) membrane provides high viability—for as long as 40 days—and excellent trans-membrane oxygen transport



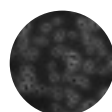
Membrane Types



Biopore™ PFTF Membrane (polytetrafluoroethylene)

For low protein binding, live cell viewing, and immunofluorescent applications.

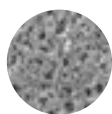
This optically transparent membrane exhibits little or no background fluorescence compared with other membrane matrices. It can be optimized for low protein-binding and low fluorescence applications, and is suitable for attachment-dependent cells if it is coated with an extracellular matrix.



Isopore™ PCF Membrane (polycarbonate)

For growth of attachment-dependent cells without matrix.

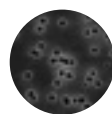
This hydrophilic polycarbonate membrane is tissue culture-treated to allow growth of attachment-dependent cells without the use of extracellular coating matrix (ECM). It is especially recommended for transport/permeability applications.



MF-Millicell™ MCE Membrane (mixed cellulose esters)

For exceptional anatomical and functional polarization.

This Triton®-free membrane can be used for cell surface receptor, *in vitro* toxicology, microbial attachment, and polarized uptake assays. When compared to plastic, cells had two- to three-fold higher densities and a more cuboidal morphology with rounded nuclei.



PET Membrane (polyethylene terephthalate)

For growth of attachment-dependent cells without matrix.

This track-etched, thin film membrane is translucent or microscopically transparent for better cell visualization and monitoring of the cell monolayer. It is tissue culture treated to promote cell attachment and growth.

Millicell®-24 and Millicell®-96 Plate Assemblies

- Complete system with a multiwell membrane-bottom plate, single-well and/or multiwell receiver tray, and lid
- Apical assist protects the cell monolayer; allows for easier pipetting and basolateral access
- Teardrop-shaped receiver wells eliminate air bubbles
- Raised well edges for improved tape sealing, and large font labeling for easy well identification



Millicell® ERS-2 Voltohmmeter

The Millicell® ERS (Electrical Resistance System) reliably measures membrane potential and resistance of epithelial cells in culture. This device qualitatively measures cell monolayer health and quantitatively measures cell confluence.

A silver/silver chloride (Ag/AgCl) pellet on each electrode tip measures voltage. Because of the small size of the electrodes, the user can easily measure transepithelial voltage and the resistance of cells grown on microporous membranes.

For more information on our cell culture and multiwell products, please visit: MerckMillipore.com/multiwell



Ordering Information

Membrane	Pore Size	Device Size	Qty/ Pk	Cat. No.
Millicell® Single-Well Standing Inserts				
Organotypic Biopore™ (PTFE): Height 5 mm	0.4 µm	6-well	50	PICMORG50
HA insert MF-Millipore™ (mixed cellulose esters)	0.45 µm	6-well 24-well	50 50	PIHA03050 PIHA01250
CM insert** Biopore™ (PTFE)	0.4 µm	6-well 24-well	50 50	PICM03050 PICM01250
PCF insert Isopore (polycarbonate): Height 10.5 mm	0.4 µm 1 µm 3 µm 8 µm 12 µm	6-well 24-well 24-well 24-well 24-well	50 50 50 50 50	PIHP03050 PIHP01250 PITP01250 PI8P01250 PIXP01250

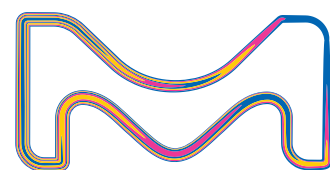
Millicell® Single-Well Hanging Inserts				
PET	0.4 µm 1.0 µm 3.0 µm 5.0 µm 8.0 µm	6-well	48	MCHT06H48 MCRP06H48 MCSP06H48 MCMP06H48 MCEP06H48
PET	0.4 µm 1.0 µm 3.0 µm 5.0 µm 8.0 µm	12-well	48	MCHT12H48 MCRP12H48 MCSP12H48 MCMP12H48 MCEP12H48
PET	0.4 µm 1.0 µm 3.0 µm 5.0 µm 8.0 µm	24-well	48	MCHT24H48 MCRP24H48 MCSP24H48 MCMP24H48 MCEP24H48

Millicell®-24 Cell Culture Plate Assemblies				
24-well cell culture plate, single-well feeder tray, 24-well receiver tray, and lid	PCF PET PCF PCF PCF	0.4 µm 1 µm 3 µm 5 µm 8 µm	1	PSHT010R1 PSRP010R1 PSST010R1 PSMT010R1 PSET010R1
24-well cell culture plate, 24-well receiver tray, and lid	PCF PCF PCF	3 µm 5 µm 8 µm	5	PSST010R5 PSMT010R5 PSET010R5
24-well cell culture plate, single-well feeder tray, and lid	PCF PET	0.4 µm 1 µm	5	PSHT010R5 PSRP010R5

Millicell®-96 Cell Culture Plate Assemblies				
96-well cell culture plate, single-well feeder tray, 96-well receiver tray, and lid	PCF PET	0.4 µm 1 µm	1	PSHT004R1 PSRP004R1
96-well cell culture plate, 96-well receiver tray, and lid	PCF	0.4 µm	5	PSHT004S5
96-well cell culture plate, single-well feeder tray, and lid	PCF PET	0.4 µm 1 µm	5	PSHT004R5 PSRP004R5

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Product description	Qty/ Pk	Cat. No.
Millicell® Electrical Resistance System		
Millicell® ERS-2 Voltohmmeter		MERS00002
Replacement Electrodes		MERSSTX01
Replacement Test Electrodes		MERSSTX04
Adjustable Electrodes		MERSSTX03
Specialized Electrodes (for Millicell®-96 well plate only)		MERSSTX00
Replacement Battery 6V NiMH 2200mAh		MERSBAT01
Media Filtration Products		
Stericup® Quick Release, 0.22 µm PES membrane, 500 mL	12	S2GPU05RE
Sterile Millex®-GP filter unit, PES membrane	50	SLGP033RS
Steriflip®-GP filter unit, PES membrane	25	SCGP00525



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