BD Falcon Cell Culture Inserts

- BD Falcon Cell Culture Inserts permit the diffusion of media components to both apical and basolateral cell surfaces, mimicking the *in vivo* process.

Cell culture on microporous membranes

Cell culture systems containing microporous, permeable membranes have been shown to promote differentiation of a variety of epithelial and mesenchymal cells *in vitro*. Because of the bilateral access to nutrients, cytokines, hormones and other media supplements, cells cultured on permeable supports show a higher degree of morphological and functional differentiation when compared to cells cultured on non-permeable plastic surfaces. BD Falcon Cell Culture Inserts have been successfully used for a variety of applications, including transport, diffusion, secretion, permeability, and drug uptake studies of natural and synthetic compounds; analysis of cellular uptake of pathogens; *in vitro* toxicology studies using a variety of cells; analysis of cellular migration and invasion of normal and malignant cells; co-culture studies and air-liquid interface models. Independent access to the apical and basolateral domains of polarized cells permits the study of protein sorting, receptor localization and microbic pathogenesis.

Typical applications for BD Falcon Cell Culture Inserts

- Endothelial models for studies of cell-cell interaction, adhesion, angiogenesis, matrix formation, cell-ECM interaction, metastasis, inflammation, and invasion
- Respiratory epithelium culture for pharmacology, toxicology, cystic fibrosis research, and microbial pathogenesis
- Renal tubule cell culture for *in vitro* toxicology and pharmacology
- Normal Human Epidermal Keratinocyte *in vitro* toxicology models
- Epithelial polarity studies on MDCK, LLPCK, and other cell types
- Hepatocyte culture for drug toxicity and biotransformation studies
- Culture of intestinal epithelial cells for drug bioavailability studies
BD Falcon Cell Culture Inserts contain polyethylene terephthalate (PET) membranes, which are available in a wide variety of pore sizes and densities. The insert housing, also made from PET, is not tissue culture (TC)-treated in order to minimize cell growth on insert side walls. For best results, BD Falcon Cell Culture Inserts should be used together with BD Falcon Cell Culture Insert Companion Plates. These Companion Plates are TC-treated and feature a patented, labyrinth lid design and condensation rings, which reduce evaporation and contamination.

Due to the low protein binding property of PET membranes, BD Falcon Cell Culture Inserts are especially suited for immunohistochemistry, co-culture to study intercellular communication, transport studies, and drug screening. Compatibility with fixatives and the durability of PET membranes makes them ideal for both light and electron microscopy. Membranes will not tear or curl and remain easy to handle when removed from the insert housing.

Select the best membrane for your application
- Larger pore-size membranes for investigating chemotaxis, invasion, and migration
- Transparent membranes for visualization of cells by light microscopy (See Figure b below, 0.4 μm)
- High pore-density membranes for maximal diffusion when studying transport, secretion, or drug uptake (See Figure a below, 0.4 μm HD)

Applications:
- Scanning and transmission electron microscopy
- Visualization of live cells by light microscopy
- Removal of membrane from housing
- Immunocytochemical staining

BD Falcon Cell Culture Inserts
- Track-etched PET membranes have a smooth surface and defined cylindrical pores that traverse the membrane
- Low protein binding PET membrane
- Sterilized by gamma irradiation
- A wide variety of configurations including 6-, 12-, and 24-well
- A broad selection of membrane pore sizes, 0.4, 1.0, 3.0, and 8.0 μm diameter
- Packed in individual blister packs, 48 inserts/case
- Non-tissue culture-treated insert housings prevent promiscuous growth of cells on the insert walls
- Innovative hanging design facilitates pipeting and allows for co-culture

### Physical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty./Pack</th>
<th>Qty./Case</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6-well</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective Diameter of Membrane (mm)</td>
<td>23.1</td>
<td>10.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Effective Growth Area of Membrane (cm²)</td>
<td>4.2</td>
<td>0.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Insert Height (mm)</td>
<td>17.2</td>
<td>17.2</td>
<td>17.5</td>
</tr>
<tr>
<td>Distance from Membrane to the Bottom of the Well (mm)</td>
<td>0.9</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Suggested Media in Insert (ml)</td>
<td>1.5-2.5</td>
<td>0.4-1.0</td>
<td>0.2-0.35</td>
</tr>
<tr>
<td>Suggested Media in Well (ml)</td>
<td>2.7-3.2</td>
<td>1.4-2.3</td>
<td>0.7-0.9</td>
</tr>
<tr>
<td>Growth Area in Plate Well (cm²)</td>
<td>9.6</td>
<td>3.8</td>
<td>2.0</td>
</tr>
</tbody>
</table>

| **12-well**  |           |           |          |
| Effective Diameter of Membrane (mm) | 10.5 | 10.5 | 10.5 |
| Effective Growth Area of Membrane (cm²) | 0.9 | 0.9 | 0.9 |
| Insert Height (mm) | 17.2 | 17.2 | 17.2 |
| Distance from Membrane to the Bottom of the Well (mm) | 0.9 | 0.9 | 0.9 |
| Suggested Media in Insert (ml) | 0.4-1.0 | 0.4-1.0 | 0.4-1.0 |
| Suggested Media in Well (ml) | 1.4-2.3 | 1.4-2.3 | 1.4-2.3 |
| Growth Area in Plate Well (cm²) | 3.8 | 3.8 | 3.8 |

| **24-well**  |           |           |          |
| Effective Diameter of Membrane (mm) | 6.4 | 6.4 | 6.4 |
| Effective Growth Area of Membrane (cm²) | 0.3 | 0.3 | 0.3 |
| Insert Height (mm) | 17.5 | 17.5 | 17.5 |
| Distance from Membrane to the Bottom of the Well (mm) | 0.8 | 0.8 | 0.8 |
| Suggested Media in Insert (ml) | 0.2-0.35 | 0.2-0.35 | 0.2-0.35 |
| Suggested Media in Well (ml) | 0.7-0.9 | 0.7-0.9 | 0.7-0.9 |
| Growth Area in Plate Well (cm²) | 2.0 | 2.0 | 2.0 |

Applications:
- Transport, diffusion and secretion of small molecules into, out of, or through a cell monolayer
- Barrier function (Transepithelial Electrical Resistance (TEER) measurements)
- Drug Bioavailability
BD Falcon™ Cultureware

BD Falcon Cell Culture Inserts and Companion Plates

**Description** | **Qty./Pack** | **Qty./Case** | **Cat. No.**
--- | --- | --- | ---
**Transparent PET Membrane**
1.0 μm pore size, 1.6 x 10⁶ pores/cm²
Inserts for 6-well plates | 1 | 48 | 353102
Inserts for 12-well plates | 1 | 48 | 353103
Inserts for 24-well plates | 1 | 48 | 353104

**Applications:**
- General-purpose membrane
- Growth and visualization of live cells
- Transport, secretion, and diffusion of most molecules into, out of, and through cell monolayers
- Immunocytochemical staining
- Drug bioavailability assays
- In general, this is the maximum pore size available to prevent cell migration through pores

**Note:** In long-term cultivation, epithelial cells grown in a monolayer may traverse a naked membrane and grow on the top and bottom of the membrane.

**Description** | **Qty./Pack** | **Qty./Case** | **Cat. No.**
--- | --- | --- | ---
**High Density, Translucent PET Membrane**
3.0 μm pore size, 2 x 10⁶ pores/cm²
Inserts for 6-well plates | 1 | 48 | 353092
Inserts for 12-well plates | 1 | 48 | 353292
Inserts for 24-well plates | 1 | 48 | 353492

**Applications:**
- Transport, secretion and diffusion of large molecules or viruses
- Cell migration studies
- This pore size offers maximum diffusion of large molecules or viruses

**Note:** In long-term culture, epithelial cells grown in a monolayer may traverse a naked membrane and grow on the top and bottom of the membrane.

**Description** | **Qty./Pack** | **Qty./Case** | **Cat. No.**
--- | --- | --- | ---
**Transparent PET Membrane**
3.0 μm pore size, 8 x 10⁵ pores/cm²
Inserts for 6-well plates | 1 | 48 | 353091
Inserts for 12-well plates | 1 | 48 | 353181
Inserts for 24-well plates | 1 | 48 | 353096

**Applications:**
- Visualization by light microscopy
- Transmission and scanning electron microscopy
- Useful for studying transport of larger molecules (lipoproteins) and viruses
- Transendothelial migration
- Smooth muscle migration
- Endothelial cell migration

**Description** | **Qty./Pack** | **Qty./Case** | **Cat. No.**
--- | --- | --- | ---
**Transparent PET Membrane**
8.0 μm pore size, 1 x 10⁵ pores/cm²
Inserts for 6-well plates | 1 | 48 | 353093
Inserts for 12-well plates | 1 | 48 | 353182
Inserts for 24-well plates | 1 | 48 | 353097

**Applications:**
- Tumor invasion
- Cell migration
- Chemotaxis
- Metastasis

**Description** | **Qty./Pack** | **Qty./Case** | **Cat. No.**
--- | --- | --- | ---
**BD Falcon Cell Culture Insert Companion Plates**
Specifically designed for use with BD Falcon™ or BD BioCoat™ Cell Culture Inserts. Tissue culture-treated, polystyrene, sterile, non-pyrogenic, with lid. May be used with or without cell culture inserts.
6-well plate (Deep-Well) | 1 | 4 | 355467
6-well plate | 1 | 50 | 353502
12-well plate | 1 | 50 | 353503
24-well plate | 1 | 50 | 353504

**REFERENCES:**

**TIPS**
- BD Falcon Cell Culture Inserts are also available in an automation friendly, one-piece Multiwell Insert plate format. Available in 1.0, 3.0 and 8.0 μm pore sizes for manual and robotic screening of cells. Please see pages 36 and 38 for more detailed information.
- BD Falcon Cell Culture Inserts are also available with consistently pre-applied extracellular matrix (ECM) proteins and ECM components for improved cell attachment, growth or differentiation. Please see page 94 and following for more detailed information.
TIPS

- You may have to increase your seeding density (number of cells/cm²) when changing from non-permeable polystyrene to permeable cell culture surfaces. Start with seeding cell densities 25-50% higher. The time for initial attachment may also increase.

- To avoid air bubbles forming under the inserts, use pre-warmed media and follow the directions found in each case for placing inserts into plate wells.

- To improve cell attachment to uncoated inserts, incubate inserts for 20-30 minutes with media (containing serum if it will be used) before adding cells.

- For applications based on fluorescent techniques see BD FluoroBlok™ Inserts (pages 40 and following).

BD Falcon Cell Culture Insert Companion Plates

BD Falcon Cell Culture Insert Companion Plates have been specially designed for use with BD Falcon or BD BioCoat™ Cell Culture Inserts so that evaporation and contamination due to improper lid fit is eliminated.

In the Feeding Position, pipet access is improved for fluid handling on the basolateral side. Reagents can be added quickly and consistently for timed experiments. Aspiration of media from the well is easier, reducing the risk of contamination.

In the Incubation Position, BD Falcon Cell Culture Inserts remain locked in position in their BD Falcon Companion Plate wells. Media will not wick up between the insert and well wall. The patented BD Falcon low-evaporation lid provides a tortuous air-passage system that reduces evaporation and contamination.

The following Application Notes are available at bdbiosciences.com/eu/support/resources/cellculture or by calling your local BD office.

<table>
<thead>
<tr>
<th>No.</th>
<th>Author/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>K. Amsler, et al. Maintenance and Functional Properties of Primary Turtle Bladder Epithelial Cells Cultured on BD Falcon Cell Culture Inserts</td>
</tr>
<tr>
<td>402</td>
<td>E. J. Roemer and Simon S. R. Simon BD Falcon Cell Culture Inserts as a Supportive Substrate for an In Vitro Extracellular Matrix System</td>
</tr>
<tr>
<td>404</td>
<td>K. Amsler and H. Gray Gamma-Glutamyl Transpeptidase Assay: An Example of a Protocol for Determining the Sidedness or Asymmetrical Expression of a Membrane Protein, Enzyme, or Transport Activity in an Epithelial or Other Cell Type</td>
</tr>
<tr>
<td>405</td>
<td>H. Gray and O Fedun Preparation of BD Falcon Cell Culture Inserts for Scanning Electron Microscopy</td>
</tr>
<tr>
<td>406</td>
<td>M. Gray and F. Morris Preparation of BD Falcon Cell Culture Inserts for Transmission Electron Microscopy</td>
</tr>
<tr>
<td>407</td>
<td>E.J. Roemer An In Vitro Assay for Study of Neutrophil Migration Through Intestinal Matrix Using BD Falcon Cell Culture Inserts</td>
</tr>
<tr>
<td>408</td>
<td>B. J. Johnson Induction of Lymphoproliferation by Antigen-primed Macrophage Across BD Falcon Cell Culture Inserts</td>
</tr>
<tr>
<td>409</td>
<td>J. Font, et al. Use of BD Falcon Cell Culture Inserts to Reconstruct a Differentiated Human Epidermis In Vitro: Expression of Cell Adhesion Molecules (Integrins)</td>
</tr>
<tr>
<td>412</td>
<td>W.I. deBoer, et al. A Physiological and Morphological In Vitro Model for Normal Human Urothelium Cultured on BD Falcon Cell Culture Inserts</td>
</tr>
<tr>
<td>413</td>
<td>X. Quan and H.P. Godfrey In Vitro Study of Cytokine Mediated Activation of Endothelial Cell Permeability Using BD Falcon Cell Culture Inserts</td>
</tr>
<tr>
<td>459</td>
<td>Mark W. Musch Preparation of BD Falcon Cell Culture Inserts for Confocal Indirect Immunofluorescence: Fixation and Staining of Caco-2/bbe (C2) Cells with Various Dyes</td>
</tr>
<tr>
<td>463</td>
<td>Y. Yamasaki Use of BD Falcon Cell Culture Inserts to Evaluate Allelopathic Effects Among Marine Phytoplankters In Vitro</td>
</tr>
</tbody>
</table>

For additional references or for help with an application, please call your local BD office.

RELATED PRODUCTS

- BD BioCoat Cell Culture Inserts
- BD Falcon 24-Multiwell Insert Systems
- BD Falcon 96-Multiwell Insert Systems
BD Falcon 24-Multiwell Insert System

- Automate and increase productivity and throughput of cell culture insert-based assays
- Designed for bioavailability, transport, permeability, cell migration and tumor invasion studies

BD Falcon 24-Multiwell Insert Systems are designed to automate many commonly used cell-based assays for drug discovery. Available in a choice of membrane pore sizes, 24-Multiwell inserts have been successfully used for a variety of applications including permeability studies for oral bioavailability (e.g., Caco-2 cells), chemotaxis, cell migration and invasion assays. These insert systems offer all the benefits of BD Falcon Individual Cell Culture Inserts in an automation-friendly format that is compatible with most robots and fluid handlers. The BD Falcon 24-Multiwell Insert Plate is a single unit that is compatible with all BD Falcon 24-well plates and Feeder Tray.

**Typical applications for BD Falcon 24-Multiwell Insert Systems include:**
- Culture of intestinal epithelial cells (e.g., Caco-2 cells) for drug bioavailability and transport studies
- Barrier function [TEER] measurements of epithelial cells (i.e., MDCK cells)
- Epithelial polarity studies of protein sorting, receptor location, and vectorial transport
- Hepatocyte cultures for drug toxicity and biotransformation
- Angiogenesis studies
- Tumor cell invasion and migration

### Physical Specifications

**BD Falcon 24-Multiwell Insert Systems and Cell Culture Insert Companion Plates**

- **Effective Diameter of Membrane (mm)**: 6.5
- **Effective Growth Area of Membrane (cm²)**: 0.3
- **Distance of Membrane to Bottom of Well (mm)**: 2.0
- **Insert Height (mm)**: 18
- **Suggested Media Volume in Insert (µl)**: 300-500
- **Suggested Media Volume in Well (µl)**: 1000-1400
- **Effective Growth Area in 24-well Plate (cm² per well)**: 2.0
- **Pore Density: 1.0 µm inserts (pores/cm²)**: $1.6 \times 10^5$
- **Pore Density: 3.0 µm inserts (pores/cm²)**: $8.0 \times 10^3$
- **Pore Density: 8.0 µm inserts (pores/cm²)**: $1.0 \times 10^3$
The following Application Notes are available at bdbiosciences.com/eu/support/resources/cellculture or by calling your local BD office.

<table>
<thead>
<tr>
<th>No.</th>
<th>Author/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>415</td>
<td>A. Goldberger, et al. Use of Automation-Compatible 24-well Insert Systems for Various Cell-Based Assays</td>
</tr>
<tr>
<td>416</td>
<td>D. Asa and P. LaRocca Comparison of the BD BioCoat™ Intestinal Epithelial Environment with the Conventional 21-Day Caco-2 System</td>
</tr>
<tr>
<td>418</td>
<td>D. Asa and M. Timmins Use of the Three-Day BD BioCoat HTS Caco-2 Assay System for Compound Permeability Measurements</td>
</tr>
<tr>
<td>419</td>
<td>D. Henderson and D. Asa Design and Evaluation of an Automation-Compatible Multiwell Insert for Cell-Based Assays</td>
</tr>
</tbody>
</table>

For additional references or for help with an application, please contact your local BD office.

### RELATED PRODUCTS

- BD BioCoat HTS Caco-2 Assay System
- BD BioCoat Fibronectin Inserts
- BD BioCoat Collagen I 24-Multiwell Insert System
- BD BioCoat Collagen I 24-Multiwell Insert System
- BD BioCoat Fibrillar Collagen 24-Multiwell Insert System
- BD Falcon Cell Culture Inserts
- BD Gentest™ Pre-Coated PAMPA Plate System

---

**BD Falcon 24-Multiwell Insert Systems**

**with Feeder Tray and Lid**

- 1 µm pore size 1: 351180
- 1 µm pore size 5: 351181

**with 24-well Plate and Lid**

- 3 µm pore size 1: 351182
- 3 µm pore size 5: 351183
- 8 µm pore size 1: 351184
- 8 µm pore size 5: 351185

**BD Falcon 24-Well Feeder Tray**

Specifically designed for use with BD Falcon 24-Multiwell Insert Systems

- Feeder Tray with Lid 5: 351186

**BD Falcon 24-Well Plates**

For use with BD Falcon 24-Multiwell Insert Systems

- Standard Tissue Culture 1: 50 353047
- Standard Tissue Culture 6: 36 353226
- Standard Tissue Culture, 10: 60 353935
- BD Primaria™ Tissue Culture 1: 50 353847
- Non-Treated Surface 1: 50 351147

---
BD Falcon 96-Multiwell Insert System

- Automate and miniaturize your xenobiotic permeability and transport studies

The BD Falcon 96-Multiwell Insert System offers:

- **Automation compatible design**
  Format compatible with most robots and fluid handling instruments.

- **Complete sample recovery**
  The BD Falcon 96-Square Well, Angled-Bottom Plate features an angled bottom for more complete sample utilization.

- **Excellent reproducibility**
  One-piece feeder tray enhances consistency in well-to-well monolayer growth.

- **Total assay flexibility – ideal for transport studies**
  System can be used with many cell lines including Caco-2, MDCK, and LLC-PK1, for basal to apical or apical to basal measurements of drug transport.

The BD Falcon 96-Multiwell Insert System is a cell culture insert platform suitable for both manual and robotic screening of compounds in cell-based assays. The system has been tested for its ability to produce a differentiated monolayer of Caco-2, LLC-PK1, and MDCK cells making it an ideal platform for *in vitro* bioavailability and permeability studies.

This automation compatible platform is composed of a 1.0 µm pore size PET membrane-based 96-Multiwell Insert plate, a media feeder tray, and a lid. The newly designed drop-in baffle for the Feeder Tray mitigates media sloshing and lowers the risk of contamination. To analyze individual samples, simply transfer the insert plate into the BD Falcon 96-Square Well, Angled-Bottom Plate. If desired, the BD Falcon 96-Square Well, Angled-Bottom Plate may be used in conjunction with the insert for culturing the cells, eliminating the transfer step from the single-well feeder tray for sample analysis.
Intra-Plate Reproducibility of the BD Falcon 96-Multiwell Insert System

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty./Pk.</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD Falcon 96-Multiwell Insert Systems</td>
<td>one insert plate with feeder tray and lid</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>five insert plates with feeder trays and lids</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>five insert plates with 96-square well, angled-bottom plates and lids</td>
<td>5</td>
</tr>
<tr>
<td>BD Falcon 96-Square Well, Angled-Bottom Plate and Lid</td>
<td>non-treated polystyrene, non-pyrogenic</td>
<td>5</td>
</tr>
<tr>
<td>BD Falcon 96-Well Feeder Tray and Lid</td>
<td>non-treated polystyrene, non-pyrogenic</td>
<td>5</td>
</tr>
</tbody>
</table>

Permeability measured in Caco-2 cell monolayers cultured for 21-days in the BD Falcon Feeder Tray or BD Falcon 96-Square Well, Angled-Bottom Plate. While the newly designed Feeder Tray with drop-in baffle facilitates medium renewal, comparable results can be obtained in either format. Culturing cells in the BD Falcon Feeder Tray enhances consistency in well-to-well monolayer growth (TEER values) and function (Papp values).

### Related Products

**BD Gentest™ Pre-Coated PAMPA Plate System**

**Physical Specifications**

**BD Falcon 96-Multiwell Insert Systems**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective Diameter of Membrane (mm)</td>
<td>3.2</td>
</tr>
<tr>
<td>Effective Growth Area of Membrane (cm²)</td>
<td>0.0804</td>
</tr>
<tr>
<td>Insert Height (mm)</td>
<td>10.4</td>
</tr>
<tr>
<td>Distance from Membrane to the Bottom of Well (mm)</td>
<td></td>
</tr>
<tr>
<td>(low side inner)</td>
<td>2.87</td>
</tr>
<tr>
<td>(high side inner)</td>
<td>4.27</td>
</tr>
<tr>
<td>Suggested Media Volume in Insert (ml)</td>
<td>0.5-0.75</td>
</tr>
<tr>
<td>Suggested Media Volume in Well (ml)</td>
<td></td>
</tr>
<tr>
<td>(square well, angled bottom plate)</td>
<td>0.26</td>
</tr>
<tr>
<td>Growth Area in Companion TC Plate Well (cm²)</td>
<td>0.64</td>
</tr>
</tbody>
</table>
BD Falcon FluoroBlok Cell Culture Inserts

- Increase cell migration and invasion assay productivity with real-time fluorescence

Detect cell migration and invasion in a homogeneous fluorescent assay system

BD Falcon FluoroBlok™ Cell Culture Inserts are designed with a patented light-tight PET membrane that efficiently blocks the transmission of light within the range of 490-700 nm. Fluorescently labeled cells present in the top chamber of the insert are made invisible by the BD FluoroBlok membrane. Once labeled cells migrate through the membrane, they are no longer shielded from the light source and are easily detected with a fluorescence plate reader.

- Simplify insert-based assays
  Unique, light-tight PET membrane makes it easy to specifically detect fluorescently labeled cells and molecules below the insert.

- Increase insert assay productivity
  Save time and labor in chemotaxis, cell migration, and invasion assays by automating your assay detection with real-time fluorescence.

- Eliminate cell culture insert manipulation
  Get rapid data collection using a fluorescence microplate reader or microscope without the need for plate washing or tedious, manual cell scraping and counting. Chart migration of cells and molecules in real time without dismantling or destroying the insert.

Applications:
BD FluoroBlok effectively blocks >99.0% of the light transmission from 490-700 nm, allowing you the flexibility to choose from a variety of fluorophores for bioavailability, toxicity, chemotaxis, cell migration, and tumor invasion assays. As long as the fluorophores of choice are within the blocking range of the BD FluoroBlok membrane, multiplex detection is also possible.
**BD Falcon FluoroBlok Cell Culture Inserts**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty./Pack</th>
<th>Qty./Case</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD Falcon FluoroBlok Cell Culture Inserts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0 µm inserts for 24-well plates</td>
<td>1</td>
<td>48</td>
<td>351151</td>
</tr>
<tr>
<td>8.0 µm inserts for 24-well plates</td>
<td>1</td>
<td>48</td>
<td>351152</td>
</tr>
</tbody>
</table>

**BD Falcon Cell Culture Insert Companion Plates**

Specifically designed for use with BD Falcon or BD BioCoat™ Cell Culture Inserts. Tissue culture-treated polystyrene, sterile, non-pyrogenic, with lid. May be used with or without cell culture inserts.

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty./Pack</th>
<th>Qty./Case</th>
<th>Cat. No.</th>
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<tbody>
<tr>
<td>BD Falcon Cell Culture Insert Companion Plates</td>
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<td>50</td>
<td>353504</td>
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The following Application Note is available at bdbiosciences.com/eu/support/resources/cellculture or by calling your local BD office.

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<thead>
<tr>
<th>No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>451</td>
<td>Compatible Fluorophores and Dyes for BD Falcon FluoroBlok Inserts and Insert Systems</td>
</tr>
</tbody>
</table>

**Physical Specifications**

**BD Falcon FluoroBlok Cell Culture Inserts**

- Effective Diameter of Membrane (mm): 6.4
- Effective Growth Area of Membrane (cm²): 0.3
- Insert Height (mm): 17.5
- Distance from Membrane to the Bottom of Well (mm): 0.8
- Suggested Media Volume in Insert (ml): 0.2-0.35
- Suggested Media Volume in Well (ml): 0.7-0.9
- Growth Area in Companion TC Plate Well (cm²): 2.0
- Pore Density: 3.0 µm inserts (pores/cm²): 8.0 x 10⁵
- Pore Density: 8.0 µm inserts (pores/cm²): 1 x 10⁴

**TIPS**

- BD Falcon FluoroBlok Cell Culture Inserts are also available in an automation-friendly Multiwell Insert plate format. Available in 3.0 and 8.0 µm pore sizes for manual and robotic screening of cells. Please see pages 42 and 44 for more detailed information.

- Cell labeling efficiencies will vary depending on fluorophore and cell type. For optimized conditions, titration of fluorophore is recommended.

- Visit bdbiosciences.com/eu for information on compatible and incompatible fluorophores, frequently asked questions, and application notes.

**RELATED PRODUCTS**

- BD Falcon FluoroBlok 24-Multiwell Insert System
- BD Falcon FluoroBlok 96-Multiwell Insert System
- BD BioCoat FluoroBlok Fibronectin Cell Culture Inserts
- BD™ Fluorescent Dyes
BD Falcon FluoroBlok 24-Multiwell Insert Systems

- Increase cell migration and invasion assay productivity with simplified fluorescence detection and real-time analysis

The BD Falcon FluoroBlok™ Insert System is made with a unique light-tight PET membrane that effectively blocks the transmission of light from 490-700 nm. Fluorescence from labeled cells or compounds present in the top chamber of the insert system is blocked from detection in the bottom chamber by the intervening dyed membrane. Once fluorescently labeled cells or compounds pass through the membrane, they are no longer shielded from the light source and are easily detected with a bottom-reading fluorescence plate reader. The wide blocking range of the BD FluoroBlok membrane allows the flexibility to choose a variety of fluorophores for chemotaxis, cell migration, tumor cell or bacterial invasion, leukocyte extravasation, cell signaling, toxicity and permeability studies for oral bioavailability and absorption assays (e.g., Caco-2 cells).

BD Falcon FluoroBlok 24-Multiwell Insert Systems offer:

- Save time and labor using automated fluorescence detection
- Eliminate cell insert manipulation - get rapid data collection without the need for plate washing or manual cell scraping and counting. Chart migration of cells and molecules in real-time without dismantling or destroying the insert
- Increase sample throughput - automate many commonly used membrane-based cell assays and increase the efficiency, productivity and throughput of these assays in the drug discovery process
- Handle 24 inserts simultaneously - all 24 wells are part of a single unit that is compatible with BD Falcon 24-well plates and Feeder Tray
- Each insert has a generous, automation-compatible sampling port. When used with BD Falcon 24-well plates, users can sample above and below the membrane with standard 200 µl or 1000 µl pipet tips or automated fluid handler tips.

**TIPS**

- Cell labeling efficiencies will vary depending on fluorophore and cell type. For optimized conditions, titration of fluorophore is recommended.
- Visit our website (bdbiosciences.com/eu/cell_culture) for information on compatible and incompatible fluorophores, frequently asked questions, and application notes

**REFERENCES:**


**RELATED PRODUCTS**

BD Falcon FluoroBlok
Individual Cell Culture Inserts .... 40
BD BioCoat™ FluoroBlok
Fibronectin Cell Culture Inserts... 97
BD™ Fluorescent Dyes............... 134
**Physical Specifications**

**BD Falcon FluoroBlok 24-Multiwell Insert Systems**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty./Pk.</th>
<th>Qty./Case</th>
<th>Cat. No.</th>
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</thead>
<tbody>
<tr>
<td>BD Falcon FluoroBlok 24-Multiwell Insert Systems with 24-well Plate and Lid</td>
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<tr>
<td>3.0 µm pore size 1 plate</td>
<td>–</td>
<td>–</td>
<td>351155</td>
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<tr>
<td>3.0 µm pore size 5 plates</td>
<td>–</td>
<td>–</td>
<td>351156</td>
</tr>
<tr>
<td>8.0 µm pore size 1 plate</td>
<td>–</td>
<td>–</td>
<td>351157</td>
</tr>
<tr>
<td>8.0 µm pore size 5 plates</td>
<td>–</td>
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<td>351158</td>
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</tbody>
</table>

**BD Falcon 24-well Feeder Tray**

Specifically designed for use with BD Falcon FluoroBlok™ 24-Multiwell Insert Systems

- Feeder Tray with Lid 5 plates – 351186

**BD Falcon 24-well Plates**

For use with BD Falcon FluoroBlok 24-Multiwell Insert Systems

- Standard tissue culture 1/tray 50 – 353047
- Standard tissue culture 6/bag 36 – 353226
- Standard tissue culture 10/RS Tray* 60 – 353935
- BD Primaria™ 1/tray 50 – 353847
- Non-treated surface 1/tray 50 – 351147

* Ready-Stack Tray

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**Comparison of HUVEC Migration Through BD Falcon FluoroBlok Individual Inserts and 24-Multiwell Insert Systems**

Human umbilical vein endothelial cells (HUVECs) labeled with the fluorescent dye Calcein-AM were placed in both BD Falcon FluoroBlok individual inserts (3.0 µm pore size) and 24-multiwell insert plates (3.0 µm pore size) in either the absence (Control) or presence of chemoattractant (10% fetal bovine serum). Chemotaxis was measured by detecting the fluorescence of cells migrating through the pores to the lower chamber with an Applied Biosystems CytoFluor® 4000 plate reader at 485 nm excitation and 530 nm emission. Data represents the mean of n=3 inserts ± SD.

**Migration of Calcein AM Labeled HUVECs through BD Falcon FluoroBlok 24-Multiwell Insert System**

Human umbilical vein endothelial cells (HUVECs) labeled with the fluorescent dye Calcein AM were placed in a BD Falcon FluoroBlok 24-Multiwell Insert System (3.0 µm pore size) in either the absence (+10% Serum) or presence of chemoattractant (+10% Serum). Cells were visualized using an Olympus IMT-2 phase epifluorescent microscope. Images were captured using IPWIN 4.0 software.

**The following Application Notes are available at bdbiosciences.com/eu/support/resources/cellculture or by calling your local BD office.**

<table>
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<tr>
<th>No.</th>
<th>Author/Title</th>
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</thead>
<tbody>
<tr>
<td>436</td>
<td>Set up Guidelines and Dimensional Templates for Fluorescence Plate Readers used with BD Falcon FluoroBlok Insert Systems and BD BioCoat Multiiwell Insert Cell-Based Assays</td>
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<tr>
<td>441</td>
<td>P. Flaherty   Screening of Anti-Metastatic Compounds Using ZsGreen1 Reef Coral Fluorescent Protein (RCFP) Labeled HT-1080 Tumor Cells</td>
</tr>
<tr>
<td>442</td>
<td>P. Flaherty   Screening of Anti-Metastatic Compounds by a Fluorescence-Based Tumor Cell Invasion Assay</td>
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<tr>
<td>451</td>
<td>Compatible Fluorophores and Dyes for BD Falcon FluoroBlok Inserts and Insert Systems</td>
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<tr>
<td>484</td>
<td>J. Partridge  Migration of Human Mesenchymal Stem Cells using BD Falcon FluoroBlok Cell Culture Inserts</td>
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BD Falcon FluoroBlok 96-Multiwell Insert System

- A solution for automated, high throughput cell-based studies of chemotaxis, migration and invasion
- Increase cell migration and invasion assay productivity with simplified fluorescence detection and real-time analysis

The BD Falcon FluoroBlok™ 96-Multiwell Insert System is a cell culture assay platform designed with automation in mind. The one-piece insert housing and fluorescence blocking microporous membrane (available in 3.0 and 8.0 µm pore sizes) enables increased efficiency, productivity and throughput in the drug discovery process. The novel receiver plate design minimizes crosstalk between the wells; the black housing of the 96-Multiwell Insert virtually eliminates autofluorescence. These features ensure fluorescence measurements that result from your assay, not crosstalk or background signal.

BD Falcon FluoroBlok 96-Multiwell Insert Systems offer:
- Simplification of chemotaxis, cell migration, and invasion assays
  Standard technology platform allows multiple protocols
- Homogeneous protocols for real-time kinetic readouts
  Real-time detection without dismantling or destroying the insert
- Increased sample throughput
  Eliminates need for manual cell scraping and counting
- Automation friendly
  96-Multiwell format is compatible with commercial detectors and fluid handling instruments
- Unique, patented, fluorescence blocking membrane
  Blocks greater than 99% of the excitation and emission wavelengths of fluorophores commonly used to label cells

The PET membrane is dyed to block the excitation and emission wavelengths of fluorophores commonly used to label cells, such as Calcein AM and Dil. Greater than 99% of input fluorescence in the insert is blocked by the dyed membrane. Fluorescently labeled cells stimulated by a chemoattractant, pass through the membrane. The non-migrated population does not have to be removed from the inserts prior to analysis and no further manipulation is required to quantitate the results using a bottom-reading fluorescence plate reader.

### Physical Specifications

<table>
<thead>
<tr>
<th>BD Falcon FluoroBlok 96-Multiwell Insert System</th>
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<tbody>
<tr>
<td>Effective Diameter of Membrane (mm)</td>
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<tr>
<td>Effective Growth Area of Membrane (cm²)</td>
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<tr>
<td>Distance from Membrane to Bottom of Well (mm)</td>
</tr>
<tr>
<td>Insert Height (mm)</td>
</tr>
<tr>
<td>Suggested Media Volume in Insert in µl (optimum volume: 50 µl)</td>
</tr>
<tr>
<td>Suggested Media Volume in Well in µl (optimum volume: 225 µl)</td>
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<tr>
<td>Effective Growth Area in 96-Square Well Flat Bottom Plate (cm² per well)</td>
</tr>
<tr>
<td>Pore Density: 3.0 µm insert (pores/cm²)</td>
</tr>
<tr>
<td>Pore Density: 8.0 µm insert (pores/cm²)</td>
</tr>
</tbody>
</table>

### TIPS
- Cell labeling efficiencies will vary depending on fluorophore and cell type. For optimized conditions, titration of fluorophore is recommended.
- Visit our website (bdbiosciences.com/eu/cell_culture) for information on compatible and incompatible fluorophores, frequently asked questions and application notes.

### RELATED PRODUCTS
- BD Falcon FluoroBlok 24-Multiwell Insert System ............. 42
- BD Falcon FluoroBlok Individual Cell Culture Inserts ....... 40
- BD BioCoat™ FluoroBlok Invasion System.................. 132
- BD BioCoat FluoroBlok Fibronectin Cell Culture Inserts.......... 97
- BD™ Fluorescent Dyes......................... 134
Simplify and automate cell-based assays using the BD Falcon FluoroBlok 96-Multiwell Insert System

The BD Falcon FluoroBlok™ 96-Multiwell Insert System, designed with automation in mind, is well suited for high-throughput analysis of cell-based assays. Good detection sensitivity is observed even when a small number of cells is added to the wells. Variability is also low, as CV values of 10% and below are routinely observed.

The wide blocking range (490-700 nm) of the BD FluoroBlok membrane allows the flexibility to choose from a variety of fluorophores for screening compounds in cell-based assays such as chemotaxis, cell invasion and migration, and monolayer permeability. Unlike traditional *in vitro* cell-based assays, the BD Falcon FluoroBlok 96-Multiwell Insert System allows rapid data collection without the need for plate washing or tedious manual cell scraping and counting. Each insert has a generous automation-compatible sampling port so you may sample above and below the membrane with standard pipet tips or automated fluid handling equipment. The 96-Multiwell Insert plate format is compatible with many standard fluorescence plate readers, robots and fluid handlers.

### REFERENCES: