

# CytoVu®

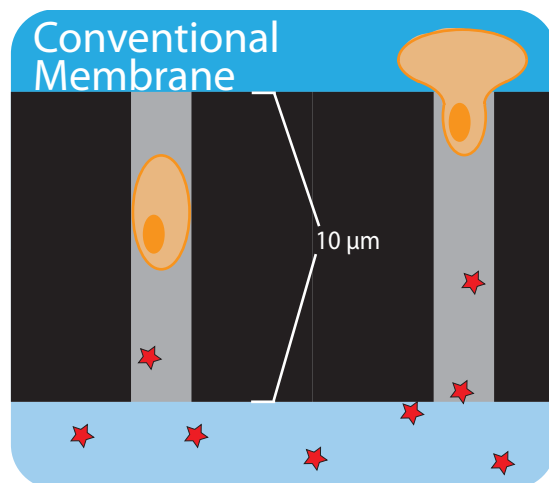
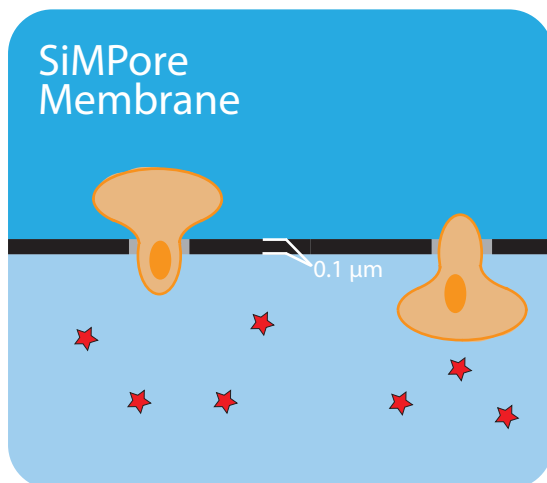
## Nanotechnology fixes the Boyden chamber

SiMPore's CytoVu® imaging slide without NanoBarrier™ technology acts similar to a typical Boyden chamber. Our 0.1 micrometer thick membrane has precisely controlled 3 or 8 micrometer pores that allow a migrating cell to move from the apical side of the membrane to the basal side.



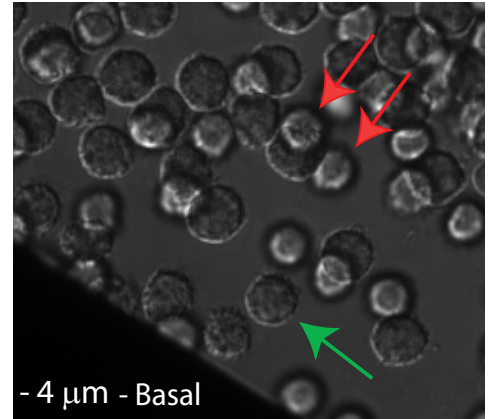
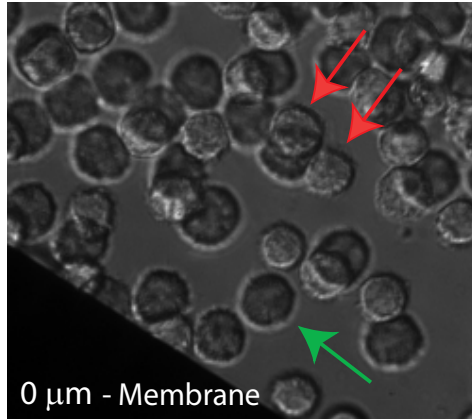
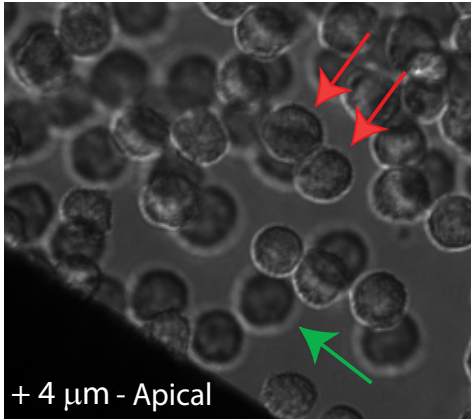
Nanotechnology from SiMPore gives CytoVu® many advantages over conventional Boyden chambers:

1. Our membrane is much **thinner** (100x), reducing the number of cells that get trapped in the membrane and improving the signal:noise ratio.
2. Our membrane is more **permeable** (100x), allowing more effective diffusion of chemoattractants.
3. You can **culture cells on both sides** of our membrane at the same time allowing you to study chemoattractants produced by a cell line, migration through a tissue layer, and many other applications.
4. You can image directly on the culture slide at the highest possible quality because CytoVu® membranes are **optically transparent**.
5. CytoVu® provides you with an **easy transition** between culturing, migrating, and imaging cells by housing all of these capabilities in one slide.



## Sample Procedure:

1. Coat the membrane to improve attachment or migration properties.
2. Seed 800 cells/ $\mu\text{l}$  in the apical well and allow to grow to confluence.
3. Place slide on microscope and record baseline image at time  $t = 0$  hr.
4. Add chemoattractant to basal well.
  - Use a more dilute concentration than you would normally use in a traditional Boyden chamber
5. Incubate 2 hours at 37 C.
  - Note: migration times will be faster than in a traditional Boyden chamber
6. Place slide on microscope and record image at desired time.
7. Repeat as necessary.

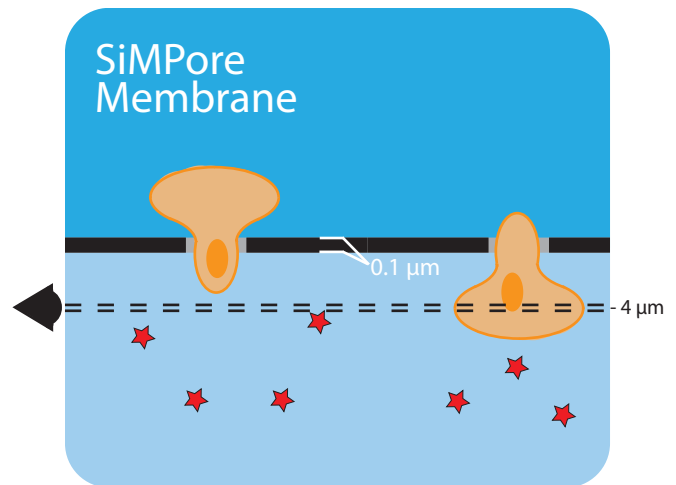


Apical cells (red) can be clearly distinguished from Basal cells (green) by eye or computer analysis when focusing at the corresponding z-height.

## Imaging

Set the plane of focus significantly below the membrane and analyze for cells that are in focus. By setting the plane of focus significantly below the membrane, you can detect migrating cells in real time. Cells in focus have migrated through the membrane towards the chemoattractant. Cells can be fluorescently tagged, stained, or live imaged.

You can quantify the migrated cells by using standard imaging software and can determine the proportion of cells that have migrated by analyzing the Apical cells at a given timepoint.



## Contact Us

For more information and ordering details, please visit [www.SiMPoreStore.com](http://www.SiMPoreStore.com) or call (888) 323-NANO.

CytoVu<sup>®</sup>, NanoBarrier<sup>™</sup> - Patent Pending

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Porous nanocrystalline silicon membranes as highly permeable and molecularly thin substrates for cell culture. Agrawal, A. A., Nehilla, B. J., Reisig, K. V., Gaborski, T. R., Fang, D. Z., Striemer, C. C., Fauchet, P. M. & McGrath, J. L. **Biomaterials** (2010) 31, 5408-5417.

Charge- and size-based separation of macromolecules using ultrathin silicon membranes. Striemer, C. C., Gaborski, T. R., McGrath, J. L. & Fauchet, P. M. **Nature** (2007) 445, 749-753.