

Features and Benefits



Ideal for daily 3-dimensional cell culture applications. By simply using one of our 3D Insert™-PS ready-to-use kits, you can turn an ordinary 2D monolayer cell culture into a novel 3D cell culture environment, which offers many extraordinary benefits you may never have realized before.

Pre-Sterilized and Ready-to-Use

3D Insert™-PS scaffolds are prepackaged into wells of tissue culture plates, terminally sterilized using γ -radiation, and are ready to use for your convenience. Currently our PS Scaffolds are available in prepackaged tissue culture plates ranging from 6-well to 96-well plates.

100% Connectivity

3D Biotek's 3D precision microfabrication technology produces a well-defined fiber/pore size and ensures the reproducibility of the porous structure from batch to batch. The pores of the inserts are 100% open, making it easy for cells to be seeded throughout the porous scaffolds and for an efficient exchange of nutrient and cellular metabolic waste. This feature makes the products especially useful in conducting dynamic cultures where the medium can perfuse through the open porous structure.

Easy Imaging and Cell Growth Monitoring

3D Insert™-PS scaffolds are made from polystyrene, the same material as the traditional tissue culture plates. The combination of transparency of the material and the porous structure design makes it possible to monitor cell growth under an inverted light microscope.

Mechanically Strong and Easy to Handle

3D Insert™-PS scaffolds are mechanically strong and therefore very easy to handle.

Free of Animal-Derived Material

Scaffolds are made from 100% synthetic polymer with consistent quality to ensure experimental reproducibility from batch to batch.

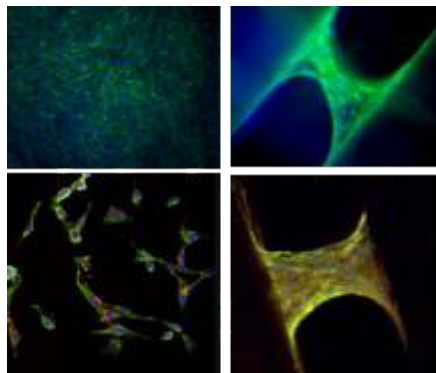
Improved Cell Culture Efficiency

3D Biotek's scaffolds have increased surface area as compared to 2D cell culture plates. As a result, more cells can be cultured on our 3D Inserts than on the same sized cell culture dish/plate/flask/bioreactor.

Easy Separation of Cytokines and Growth Factors Secreted by Cultured Cells

Our 3D cell culture PS scaffolds will not absorb cytokines and growth factors. Therefore, secreted cytokines and growth factors can be easily separated or recovered from culture medium without extensive separation steps.

Cells Cultured on
3D Insert™-PS



Have Enhanced
Cellular
Organization

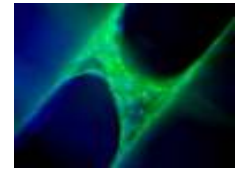
Fluorescent (top panels) and Confocal (bottom panels) images of NIH-3T3 cells cultured in 2D (left panels) and on 3D PS scaffolds (right panels). F-actin filaments (green), Fibronectin (red), DAPI (blue).

PS Catalog Numbers

Catalog Number	Fiber Diameter (μ)	Pore Size (μ)	Size	PS Inserts in Package
PS152006-3	150	200	6-well	3
PS152012-6	150	200	12-well	6
PS152024-12	150	200	24-well	12
PS152048-16	150	200	48-well	16
PS152096-24	150	200	96-well	24
PS252012-6	250	200	12-well	6
PS304006-3	300	400	6-well	3
PS304012-6	300	400	12-well	6
PS304024-12	300	400	24-well	12
PS304048-16	300	400	48-well	16
PS304096-24	300	400	96-well	24

Nominal Cell Growth Area

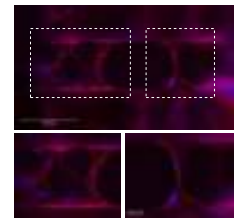
	2D	3D Insert™-PS
6 well		
9.6 cm²	1520	54.5 cm ²
	3040	54.2 cm ²
12 well		
4 cm²	1520	30.2 cm ²
	3040	16.4 cm ²
24 well		
1.9 cm²	1520	11.0 cm ²
	3040	9.2 cm ²
48 well		
1 cm²	1520	5.5 cm ²
	3040	4.0 cm ²
96 well		
0.32 cm²	1520	1.5 cm ²
	3040	1.1 cm ²



NIH-3T3 cells organize into 3D structures between PS fibers (F-actin: green, DAPI: blue).



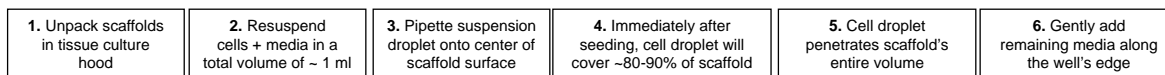
MCF-7 cells form aggregates and rounded cell structures on PS fibers and within pores (200x)



hMSCs deposit fibronectin matrix on PS fibers and naturally fill PS scaffold pores (Fibronectin: red, DAPI: blue).

Storage: Opened plates containing scaffolds can be stored at room temperature in sterile conditions.

Seeding Protocol (available on www.3dbiotek.com/3dprotocols.aspx):



Seeding and Resuspension Volumes for steps 3 and 6

Scaffold	Seeding Volume	Scaffold	Volume To Add After 3 h	Total Volume After 3 h
96-well	20 μl	96-well	180 μl	200 μl
48-well	50 μl	48-well	200 μl	250 μl
24-well	100 μl	24-well	400 μl	500 μl
12-well	200 μl	12-well	1300 μl	1500 μl
6-well	500 μl	6-well	1500 μl	2000 μl

7. Perform experiments

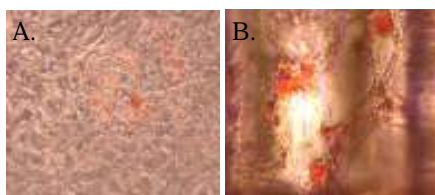
- Monitor cell growth and morphology in real time with an inverted light microscope
- Any assay can be easily performed with our scaffolds with little to no modification!

Related Products

Related Products	Size	Catalog Number
Untreated tissue culture plates	6-well	TCP001006
	12-well	TCP001012
	24-well	TCP001024
	48-well	TCP001048
	96-well	TCP001096
Treated tissue culture plates <i>*not to be used for 3D cell culture</i>	6-well	TCP011006
	12-well	TCP011012
	24-well	TCP011024
	48-well	TCP011048
	96-well	TCP011096



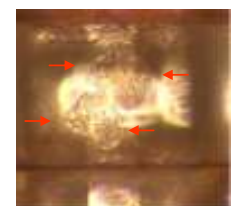
Osteoblastic cells form cell sheets to cover PS scaffold fibers and pores (100x).



Following adipogenic induction, differentiating 2D (A) and 3D (B) hMSCs were assayed with Oil-Red-O. hMSCs on 3D Insert™-PS scaffolds showed larger and increased numbers of lipid droplets (100x).



Following osteoblastic induction, 2D (A) and 3D (B) cells were stained by Von Kossa assay at days 14. Osteoblastic cells on 3D Insert™-PS scaffolds showed more mineralized nodule formation in 3D.



HepG2 cells form 3D aggregates within PS scaffold pores (100x).