

Product Selection Guide for Culturing Stem Cells

Human Embryonic Stem Cells

Human embryonic stem (hES) cells are pluripotent cells derived from the inner cell mass of a blastocyst. These cells can either self-renew, thereby maintaining their pluripotency, or differentiate into all three germ layers depending upon the culture conditions. Induced pluripotent stem (iPS) cells, which are similar in potential to hES cells, have been generated by transfecting adult cells. iPS cells, like hES cells, can form all three germ layers as well as self-renew. Tremendous hope is associated with the potential application of hES and iPS cells in cell therapy and regenerative medicine because of their ability to differentiate into multiple, clinically-useful cell types. Defined culture conditions, high affinity antibodies, and the appropriate analysis tools are essential to realizing the potential of hES and iPS cells.

A culture environment for hES cells consisting of both a serum-free, defined medium and a cell culture surface specifically qualified for hES cells saves researchers time and resources normally spent qualifying reagents. Corning® Matrigel® Matrix, coupled with a variety of culture media, has been widely accepted as an alternative substrate to feeder-dependent culture of hES cells. Corning Matrigel Matrix is a reconstituted basement membrane isolated from the Engelbreth-Holm-Swarm (EHS) mouse sarcoma. STEMCELL Technologies has commercially developed and optimized WiCell Research Institute's mTeSR®1 medium formulation to standardize feeder-independent hES cell culture. mTeSR1 is complete, defined and serum-free, and has been designed to maintain and expand hES cells in an

undifferentiated state when used with Corning Matrigel hESC-qualified Matrix as a substrate (Figure 1).

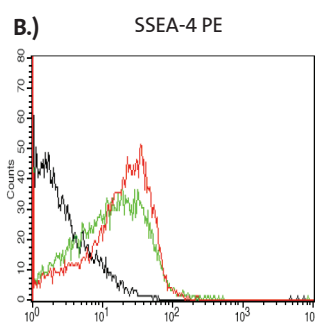
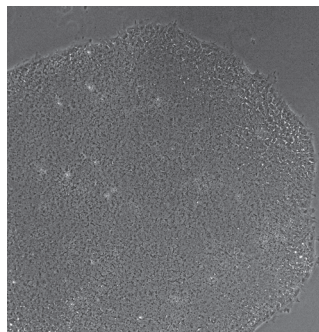
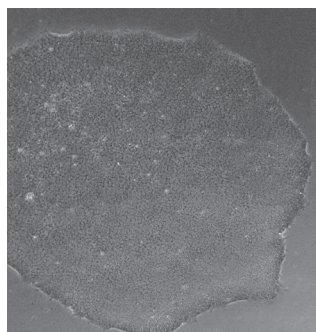
An alternative surface for hES cell culture is Corning Laminin/Entactin complex (Figure 1). Corning Laminin/Entactin complex, with a purity greater than or equal to 90%, is a more defined surface that has been shown to support the maintenance of undifferentiated hES cells. Unlike Corning Matrigel hESC-qualified Matrix, this surface is not specifically qualified for maintenance of undifferentiated hES cells.

For a complete listing of products available from Corning for stem cell research, please visit www.corning.com/lifesciences.

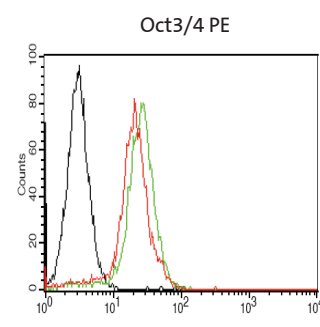
Surfaces for hES Cell Culture

A.) Corning Matrigel hESC-qualified Matrix

Corning Laminin/Entactin Complex



83% on Corning Matrigel hESC-qualified Matrix
91% on Corning Laminin/Entactin Complex
Isotype control



98% on Corning Matrigel hESC-qualified Matrix
95% on Corning Laminin/Entactin Complex
Isotype control

Figure 1: A.) Phase contrast images of H9 cells grown on Corning Matrigel hESC-qualified Matrix (Cat. No. 354277) and Corning Laminin/Entactin complex (Cat. No. 354259) in mTeSR1 medium (4x magnification). B.) Flow cytometry analysis of H9 cells cultured on Corning Laminin/Entactin complex and Corning Matrigel hESC-qualified Matrix coated surface in mTeSR1 medium. Cells were probed with the following antibodies: SSEA-4 PE (Cat. No. 560128) and Oct3/4 PE (Cat. No. 560186) compared to isotype control. Percent positive is indicated. Cells were run on a BD FACSCalibur™ Flow Cytometer and the data was analyzed with BD CellQuest™ Software. Both the surfaces supported undifferentiated expansion of H9 cells.

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Stem Cell Type							Product Description	Qty./Case	Cat. No.
Embryonic	Neuronal	Hematopoietic	Mesenchymal						
			Adipogenic	Chondrogenic	<i>In Vivo</i>	Osteogenic			
Corning® Extracellular Matrices (ECMs)									
■							Corning Matrigel® hESC-Qualified Matrix	5 mL	354277
■					■		Corning Matrigel Basement Membrane Matrix	5 mL 10 mL 50 mL (5 x 10 mL)	356234 354234 356235
■							Growth Factor Reduced (GFR) Corning Matrigel Matrix	5 mL 10 mL	356230 354230
■							Corning Laminin/Entactin complex	10.5 mg	354259
	■						Corning Laminin, mouse	1 mg	354232
	■						Corning Ultrapure Laminin, mouse (entactin-free)	1 mg	354239
	■						Corning Fibronectin, human	1 mg 5 mg 5 x 5 mg	354008 356008 356009
	■			■	■		Corning PuraMatrix™ Peptide Hydrogel	5 mL	354250
Corning BioCoat™ Cellware									
■							Corning BioCoat™ Matrigel Matrix Plates for ES Cell Culture	6 well	354671
	■						Corning BioCoat Poly-L-Ornithine/Laminin Plates	6 well 24 well 96 well	354658 354659 354657
Corning Growth Factors, Cytokines, and Media Additives*									
■	■					■	Corning Fibroblast Growth Factor (bFGF), human recombinant	10 µg 5 x 10 µg 10 x 10 µg	354060 356060 356061
	■					■	Corning Epidermal Growth Factor (EGF), human recombinant	100 µg 10 x 100 µg	354052 356052
	■					■	Corning EGF, mouse natural (culture grade)	100 µg 10 x 100 µg	354001 356001
	■					■	Corning EGF, mouse natural (receptor grade)	100 µg 5 x 100 µg	354010 356010
	■						Corning 2.5S Nerve Growth Factor (NGF), mouse natural	10 µg 100 µg 2 x 500 µg	354005 356004 356005
	■						Corning 7S NGF, mouse natural	100 µg	354009
					■		Corning Transforming Growth Factor-β1 (TGF-β1), human natural	1 µg 5 x 1 µg 5 x 2 µg	354039 356039 356040
		■					Corning Stem Cell Factor (SCF), human recombinant	10 µg	354105
		■					Corning Transferrin, human	10 mg 1 g	354204 354304
		■					Corning Interleukin-3 (IL-3), mouse recombinant	10 µg	354058
							Corning IL-3 Culture Supplement, mouse	25 mL	354040
			■				Corning Hydrocortisone	50 mg	354203
	■				■		Corning ITS Premix	5 mL 20 mL	354351 354350
	■				■		Corning ITS+ Premix	20 mL	354352
Corning Cell Recovery Reagents									
■							Corning Dispase	100 mL	354235
■							Corning Cell Recovery Solution	100 mL	354253

*All growth factor, cytokine, and media additive products listed have been tested for biological activity. For more information on our testing, please contact Technical Support at 800.492.1110.

Stem Cell Type				Product Description	Qty./Pack	Qty./Case	Cat. No.
Embryonic	Neuronal	Hematopoietic	Mesenchymal				
Falcon® Cultureware							
Falcon Cell Culture Flasks							
	■	■	■	12.5 cm ² canted neck, 25 mL, plug-seal cap	10	100	353018
				12.5 cm ² canted neck, 25 mL, vented cap	10	100	353107
	■	■	■	25 cm ² canted neck, 50 mL, plug-seal cap	20	200	353014
				25 cm ² canted neck, 50 mL, vented cap	20	100	353108
				25 cm ² canted neck, 70 mL, plug-seal cap	20	200	353082
				25 cm ² canted neck, 70 mL, vented cap	20	100	353109
	■	■	■	75 cm ² straight neck, 250 mL, plug-seal cap	5	100	353024
				75 cm ² straight neck, 250 mL, vented cap	5	100	353110
				75 cm ² canted neck, 250 mL, plug-seal cap	5	60	353135
				75 cm ² canted neck, 250 mL, vented cap	5	60	353136
	■	■	■	150 cm ² canted neck, 600 mL, plug-seal cap	5	40	355000
				150 cm ² canted neck, 600 mL, vented cap	5	40	355001
	■	■	■	175 cm ² straight neck, 750 mL, plug-seal cap	5	40	353028
				175 cm ² straight neck, 750 mL, vented cap	5	40	353112
				175 cm ² canted neck, 750 mL, vented cap, bar coded	5	40	353118
	■	■	■	225 cm ² canted neck, 800 mL, plug-seal cap	5	30	353139
				225 cm ² canted neck, 800 mL, vented cap	5	30	353138
Falcon Cell Culture Plates							
■	■	■	■	6 well flat-bottom with lid	1	50	353046
■	■	■	■	12 well flat-bottom with lid	1	50	353043
■	■	■	■	24 well flat-bottom with lid	1	50	353047
■	■	■	■	48 well flat-bottom with lid	1	50	353078
■	■	■	■	96 well flat-bottom with lid	1	50	353072
		■		96 well U-bottom with lid	1	50	353077
	■	■	■	384 well flat-bottom with lid	5	50	353961
				384 well black/clear with lid	5	50	353962
				384 well white/clear with lid	5	50	353963
				384 well white with lid	5	50	353988
				384 well black with lid	5	50	353378
Falcon Cell Culture Dishes							
■	■	■	■	35 x 10 mm Easy-Grip dishes	20	500	353001
■	■	■	■	60 x 15 mm Standard dishes	20	500	353002
				60 x 15 mm Easy-Grip dishes	20	500	353004
				60 x 15 mm style center well dishes	20	500	353037
■	■	■	■	100 x 20 mm Standard dishes	20	200	353003
■	■	■	■	150 x 25 mm Gridded dishes	10	100	353025
Falcon® Cultureware (continued)							
Falcon CultureSlides							
■	■	■	■	4 well	12	96	354104
■	■	■	■	8 well	12	96	354108
Falcon Accessories							
Falcon Cell Scrapers							
■	■	■	■	18 cm handle, 1.8 cm blade	1	100	353085
■	■	■	■	25 cm handle, 1.8 cm blade	1	100	353086
■	■	■	■	25 cm handle, 3.0 cm blade	1	100	353089
■	■	■	■	40 cm handle, 3.0 cm blade	1	100	353087
Falcon Pipets							
■	■	■	■	Serological pipets Individually wrapped and bulk packaged	Visit www.corning.com/lifesciences for more information on our entire line of Falcon Pipets and Pipetters.		
■	■	■	■	Aspirating pipets			
■	■	■	■	Pipetters			

Visit www.corning.com/lifesciences for a complete listing of all Falcon®, Corning® BioCoat™ Cultureware, and Fluid Handling products available.

ORDERING INFORMATION

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications.

For additional product or technical information, visit www.corning.com/lifesciences, or contact our Scientific Support Team at ScientificSupportEMEA@corning.com.

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