TeSR™-E8™

Xeno-Free and Feeder-Free Culture Medium for hPSCs

TeSR™-E8™ is a highly defined, xeno-free and feeder-free culture medium for human pluripotent stem cells (hPSCs). It is based on the E8 formulation (Table 1) published by the laboratory of Dr. James Thomson (University of Wisconsin-Madison), the lead research group behind the design of mTeSR™1.[1-3]

Like mTeSR™1, TeSR™-E8™ is made with the highest level of quality and care. Xeno-free TeSR™-E8™ contains only the essential components required for maintenance of embryonic stem (ES) and induced pluripotent stem (iPS) cells, thus providing a more simple medium for hPSC culture. It can be used with a surface coating of Corning® Matrigel® hESC-Qualified Matrix or with Vitronectin XF™.

Cells cultured using TeSR™-E8™ maintain typical pluripotent stem cell morphology (Figure 1), display high expansion rates (Figure 2), express high levels of undifferentiated cell markers (Figure 3), exhibit normal karyotype after long-term passaging (www.stemcell.com/TeSR-E8Data) and retain the ability to differentiate into cells of all three germ layers (Figure 4).

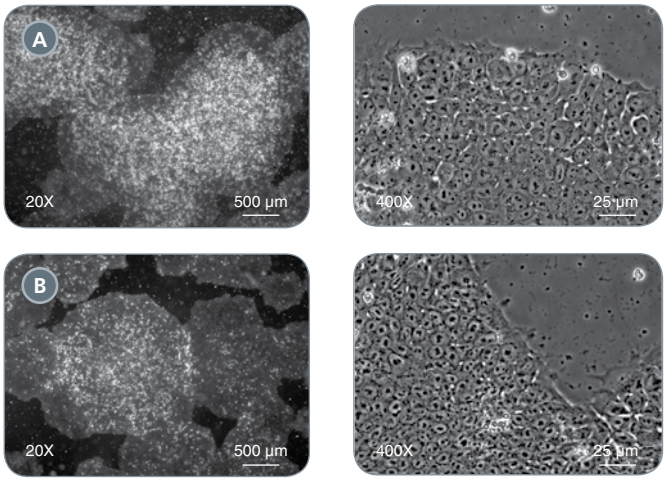

FIGURE 1. Morphology of Human ES and iPS Cells in TeSR™-E8™ Cultures

Undifferentiated human **(A)** ES (H9) and **(B)** iPS (WLS-1C) cells cultured on Corning® Matrigel® in TeSR™-E8™ retain the prominent nucleoli and high nuclear to cytoplasm ratio characteristic of this cell type. Densely packed cells and multilayering are prominent when cells are ready to passage.

TeSR™-E8™ is part of the most complete, defined system of reagents for hPSC research:

- **mTeSR™1**, **TeSR™2** and **TeSR™-E8™** media for feeder-free culture
- **ReLeSR™** for easy passaging of hPSCs without manual selection or scraping
- **Vitronectin XF™** for a completely xeno-free culture system when used with TeSR™2 or TeSR™-E8™
- **STEMdiff™** suite of products for optimized hPSC differentiation to specific lineages
- **CryoStor®** or **FreSR™** media for cryopreservation

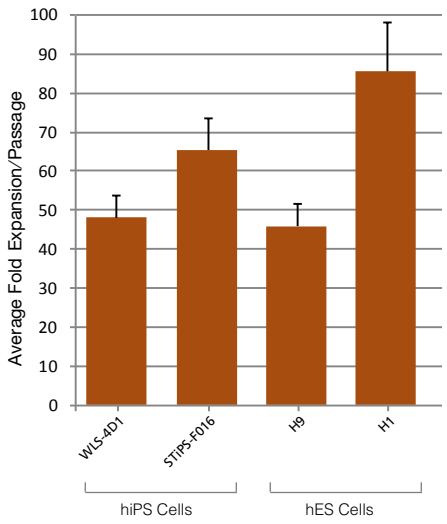

FIGURE 2. High Expansion Rates are Observed with TeSR™-E8™

Graph shows the average fold expansion per passage ± SEM obtained for human ES and iPS cells cultured in TeSR™-E8™ with Corning® Matrigel®, and passaged using ReLeSR™ or Gentle Cell Dissociation Reagent (GCDR) protocols over 10 passages. Expansion was determined by enumerating the cell aggregates obtained at harvest and dividing by the number of cell aggregates seeded.

Note: This data is representative of cultures passaged after 6-7 days in culture; lower expansion should be expected if using shorter culture times.

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TeSR™-E8™

Feeder-Free Culture Medium for Human Pluripotent Stem Cells

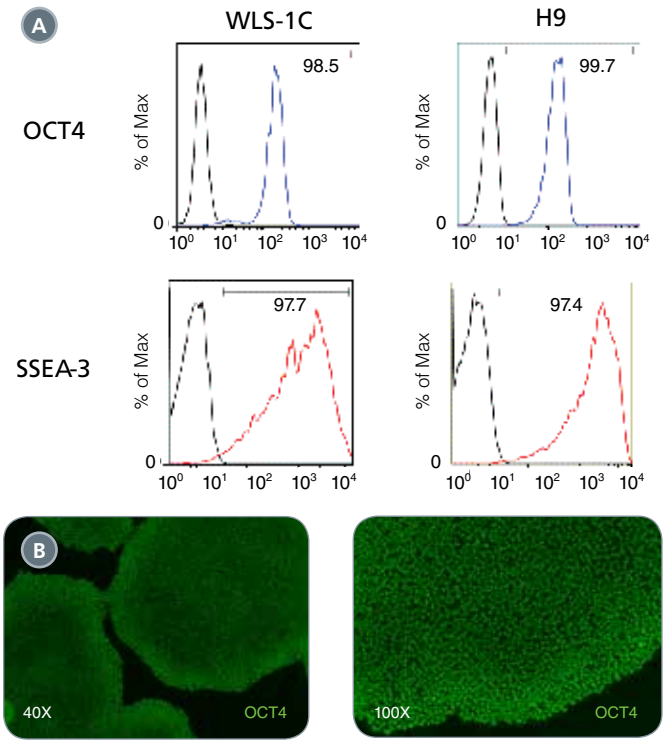

FIGURE 3. Cells Cultured in TeSR™-E8™ Medium Express Markers of Undifferentiated Pluripotent Stem Cells

(A) Histogram analysis for H9 human ES and WLS-1C human iPS cells characterized using flow cytometry for markers of undifferentiated cells (SSEA-3 and OCT4) after 10 passages in TeSR™-E8™ (blue or red = sample, black = secondary antibody only). **(B)** H1 cells cultured in TeSR™-E8™ medium were characterized by OCT4 (OCT3) immunostaining after 18 passages.

Product Information

PRODUCT	CATALOG #
TeSR™-E8™	05940
ReLeSR™	05872
Vitronectin XF™	07180; 07190
Non-Tissue Culture Treated 6-Well Plates	27147
mFreSR™	05855
CryoStor® CS10	07930
CryoStor® CS5	07933
CryoStor® CS2	07932

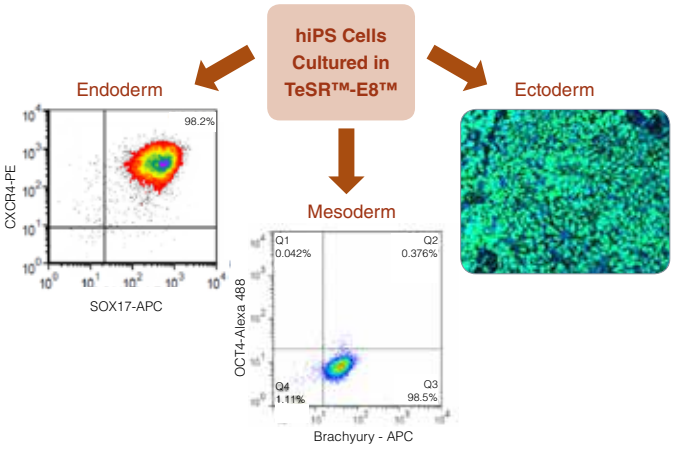

FIGURE 4. Directed Differentiation of Human iPS Cells Cultured in TeSR™-E8™

STiPS-F016 human iPS cells maintained in TeSR™-E8™ were differentiated into all three germ layers. Endoderm specification was achieved using the STEMdiff™ Definitive Endoderm Kit (TeSR™-E8™ Optimized) (Catalog #05115). Mesoderm specification was demonstrated using STEMdiff™ Mesoderm Induction Medium (Catalog #05220). Cells were analyzed by flow cytometry for expression of endoderm (CXCR4 and SOX17) or mesoderm (Brachyury) markers. Ectoderm specification was demonstrated using STEMdiff™ Neural Induction Medium (Catalog #05835). Central Nervous System (CNS)-enriched neural progenitor cell (NPC) cultures expressing PAX6 (green) are shown.

COMPONENT	mTeSR™1	E8*
DMEM/F12 (DF12), $NaHCO_3$, L-Ascorbic Acid, Selenium, Transferrin, Insulin, FGF2, TGF-β	•	•
Bovine Serum Albumin (BSA)	•	
Glutathione	•	
β-mercaptoethanol (BME)	•	
Pipecolic Acid	•	
GABA	•	
Lithium Chloride	•	
Defined Lipids	•	
Trace Elements	•	

TABLE 1. TeSR™-E8™ Product Specifications

*As published in Chen et al. 2011, the base design for TeSR™-E8™.

For a complete list of related products, including specialized cell culture and storage media, matrices, antibodies, cytokines and small molecules, visit **www.stemcell.com/hPSCworkflow** or contact us at **techsupport@stemcell.com**. Recommended antibodies include Anti-Human OCT4 (OCT3) Antibody, Clone 3A2A20 (Catalog #60093).

References

1. Ludwig TE et al. (2006) Nat Methods 3(8): 637–46.
2. Ludwig TE et al. (2006) Nat Biotechnol 24(2): 185–7.
3. Chen G et al. (2011) Nat Methods 8(5): 424–9.