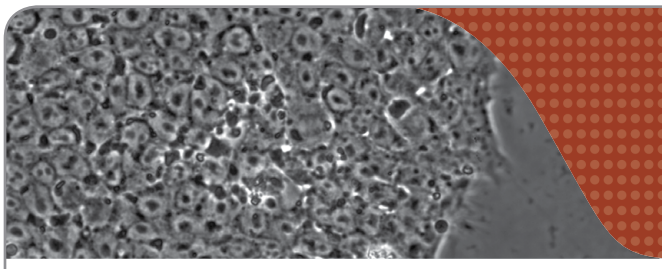

TeSR™2

Defined, Feeder-Free and Xeno-Free Human ES and iPS Cell Medium

TeSR™2, a Xeno-Free Version of mTeSR™1 for Maintenance of Human ES and iPS Cells

TeSR™2 is a xeno-free medium for long-term maintenance of human embryonic stem (ES) and induced pluripotent stem (iPS) cells. The TeSR™ family of feeder-free maintenance media includes mTeSR™1, TeSR™2 and TeSR™-E8™, which are based on published formulations from the laboratory of James Thomson.[1–3] Closely related to mTeSR™1, the most widely published feeder-free human pluripotent stem cell (hPSC) medium, TeSR™2 has a modified formulation, but with all xeno-free components, to produce a more defined medium.[2]

As a xeno-free alternative, TeSR™2 provides the same high-quality and robust system for basic research, stem cell banking, scale-up studies and pre-clinical applications. TeSR™2, can also be used with Vitronectin XF™ (Catalog #07180) as a substrate to culture cells in a completely xeno-free system.

Advantages:

XENO-FREE. TeSR™2 is a more defined version of mTeSR™1, free of xenogenic components.

COMPATIBLE. Use with published mTeSR™1 protocols for a wide variety of applications.

ROBUST. Formulation contains recombinant human albumin to aid in lipid/nutrient transport and to protect cultures from cellular toxins and stresses.

INTEGRATED WORKFLOW. Maintain newly generated human iPS cells (reprogrammed using TeSR™-E7™ or ReproTeSR™) and hPSCs prior to directed downstream differentiation with STEMdiff™ products.

Comparable with mTeSR™1

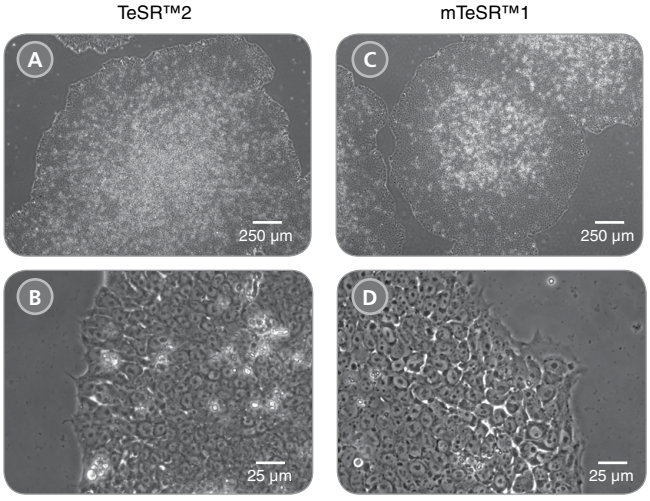

FIGURE 1. Morphology of hPSCs Maintained in TeSR™2 is Comparable to hPSCs Cultured in mTeSR™1

(A,B) Undifferentiated human ES (H9) cells cultured on Corning® Matrigel® matrix in TeSR™2 retain the prominent nucleoli and high nuclear-to-cytoplasmic ratio characteristic of this cell type. Densely packed cells and multilayering are apparent when cells are ready to be passaged. **(C,D)** H9 cells cultured under the same conditions in mTeSR™1 exhibit comparable morphology.

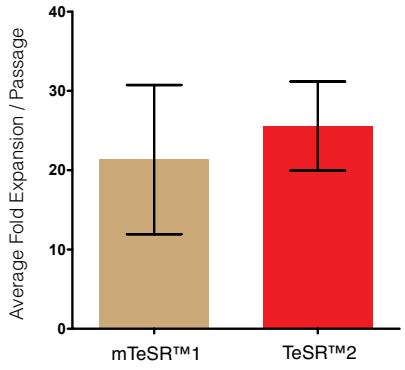

FIGURE 2. Fold and Cumulative Aggregate Expansion in TeSR™2

Graph shows the average fold expansion per passage ± SEM obtained for human ES and iPS cells cultured in mTeSR™1 (brown) or TeSR™2 (red) with Corning® Matrigel® over 10 passages. Expansion was determined by counting the cell aggregates obtained at harvest and dividing by the number of cell aggregates seeded.

Note: This data is representative of cultures passaged after 5-6 days in culture; lower expansion should be expected if using shorter culture times.

TeSR™2

Defined, Feeder-Free and Xeno-Free hES and hiPS Cell Medium

Standardized Feeder-Free Maintenance

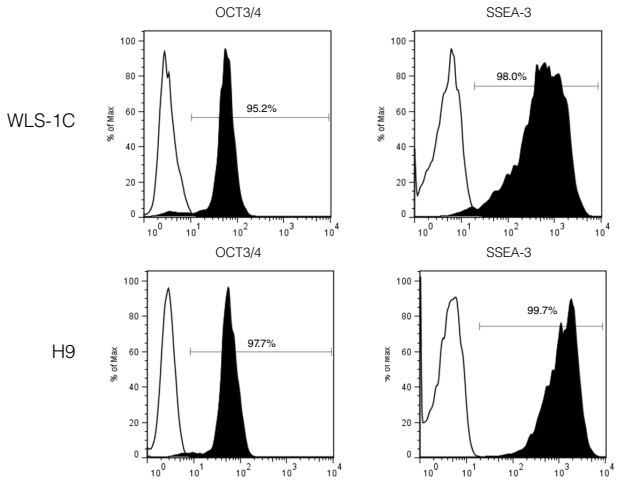

FIGURE 3. Human Pluripotent Stem Cells Cultured in TeSR™2 Retain Expression of Undifferentiated Cell Markers

Histogram analysis for H9 human ES and WLS-1C human iPS cells characterized using flow cytometry for undifferentiated cell markers (SSEA-3 and OCT3/4) after passaging in TeSR™2 for 21 passages (WLS-1C) and 18 passages (H9), respectively (filled histogram = sample, hollow histogram = secondary antibody only).

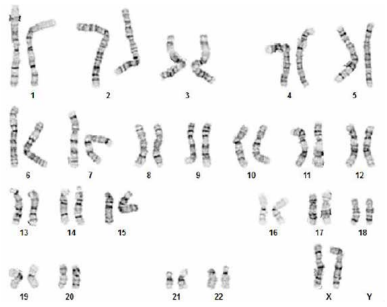

FIGURE 4. Human ES Cells Cultured Long-Term in TeSR™2 Retain Normal Karyotype

Chromosomal analysis of H9 hES cells cultured in TeSR™2 for 12 passages shows that normal karyotype is retained during passaging.

Product Information

PRODUCT	SIZE	CATALOG #
TeSR™2	1 Kit	05860
	10 Kits	05880
Vitronectin XF™	2 mL	07180
	1 Kit	07190

TeSR™2 Integrates Upstream or Downstream of Your Workflow

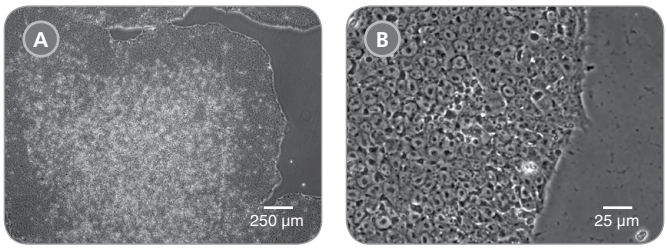

FIGURE 5. iPS Cell Colonies Generated with ReproTeSR™ Can Be Expanded in TeSR™2

(A,B) Representative images of iPS cell colonies generated using ReproTeSR™ and cultured in TeSR™2. Generated iPS cells retain the prominent nucleoli and high nuclear-to-cytoplasmic ratio characteristic of this cell type. Densely packed cells and multilayering are apparent when cells are ready to be passaged.

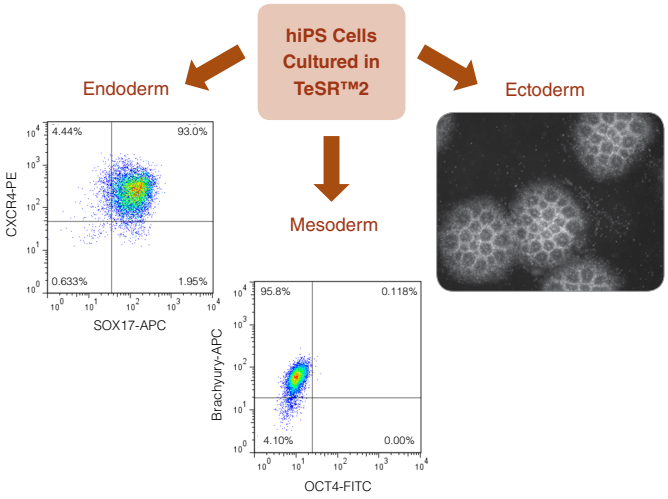

FIGURE 6. Directed Differentiation of TeSR™2-Maintained hiPS Cells

WLS-1C human iPS cells maintained in TeSR™2 were differentiated into all three germ layers. Endoderm specification was achieved using the STEMdiff™ Definitive Endoderm Kit (Catalog #05110). Mesoderm specification was demonstrated using a protocol modified from Lian X, et al.[4] Ectoderm specification was demonstrated using STEMdiff™ Neural Induction Medium (Catalog #05835) to generate neural rosettes, a morphological hallmark of neural induction.

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.
4. Lian X et al. (2012) PNAS 109(27): E1848-57.

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) and Anti-Mouse SSEA-3 Antibody, Clone MC-631 (Catalog #60061).