

A STEP CLOSER TO CLINICALLY-COMPATIBLE CULTURE OF hESCs & hiPSCs

TeSR™2 (Catalog #05860/05880) is the latest advance from STEMCELL Technologies for the culture of human embryonic and induced pluripotent stem cells (hESCs and hiPSCs) without the use of feeders (Figure 1). Closely related to mTeSR™1, the most-published medium for the culture of hESC and hiPSC without feeders, TeSR™2 combines the advantages of a feeder-independent culture system with the added value of being free of non-human proteins.

Based on a published formulation,¹ TeSR™2 includes high levels of basic fibroblast growth factor (bFGF)² together with transforming growth factor β (TGF β).³ The medium allows for the long-term maintenance of undifferentiated hESCs (Figure 2) and hiPSCs with full retention of pluripotency (Figures 3 and 5) and normal karyotype (Figure 4).

The development of fully humanized and defined systems for the maintenance of hESCs and hiPSCs is critical to the development of cellular therapies using these cells. TeSR™2 is a significant step in this direction.

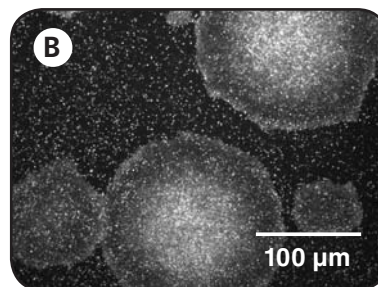
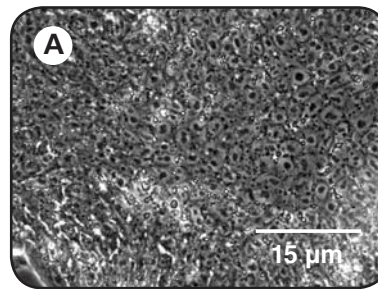
Feeder-Independent Growth of hESCs and hiPSCs



Advantages of TeSR™2

- Animal protein-free, defined
- Reduced variability in hESC and hiPSC culture
- No need to grow feeders

PRODUCT	QUANTITY	CATALOG #
TeSR™2	500 mL	05860
	10 x 500 mL	05880



Morphology of hESCs Cultured in TeSR™2

FIGURE 1: hESCs cultured in TeSR™2 grow as colonies with defined edges and high nucleus to cytoplasm ratio.

(A) H1 cell line cultured for 3 passages in TeSR™2.

(B) H1 cell line cultured for 8 passages in TeSR™2.

hESCs Cultured in TeSR™2 Demonstrate Consistent Expansion

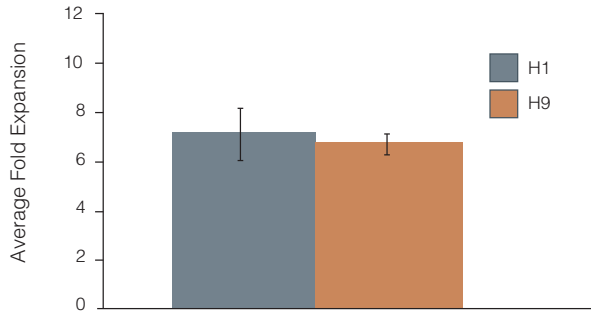


FIGURE 2: Consistent expansion of hESCs cultured in TeSR™2. H1 and H9 cells were cultured in TeSR™2 for 26 and 27 passages respectively. Average fold expansion (±SEM) over these passages are shown.

hESCs Cultured Long-Term in TeSR™2 Retain Normal Karyotype



FIGURE 4: Retention of normal karyotype in (A) H1 and (B) H9 cells following long-term passaging in TeSR™2, 19 and 22 passages respectively.

hESCs Cultured in TeSR™2 Retain Expression of Pluripotency Markers

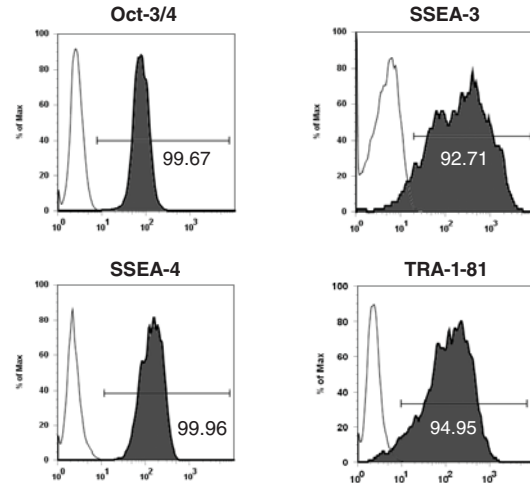


FIGURE 3: Flow cytometric analysis of H1 cells maintained in TeSR™2 for 26 passages.

hESCs Cultured in TeSR™2 are Pluripotent

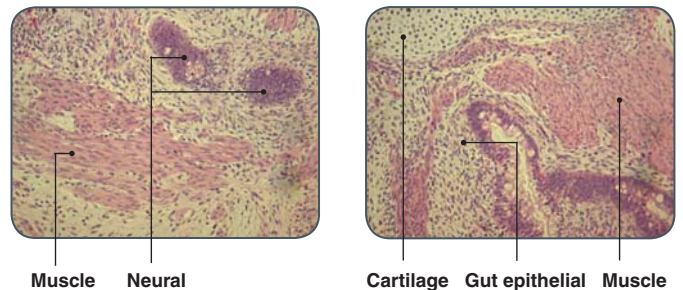


FIGURE 5: H9 cells were cultured for 11 passages in TeSR™2 then injected subcutaneously into NOD-SCID mice. The resulting teratomas contained cell types from all 3 germ layers.⁴ Representative tissue types are shown.

References

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