

# mTeSR™1

Defined, feeder-free maintenance medium for human ES and iPS cells



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## Product Description

mTeSR™1 medium is a complete, serum-free, defined formulation designed for the feeder-free maintenance and expansion of human embryonic stem (ES) cells<sup>1,2</sup> and human induced pluripotent stem (iPS) cells<sup>3-5</sup> in the undifferentiated state. Complete mTeSR™1 medium (Basal Medium + 5X Supplement) contains recombinant human basic fibroblast growth factor (rh bFGF) and recombinant human transforming growth factor  $\beta$  (rh TGF $\beta$ ). Addition of further growth factors is not required.

mTeSR™1 may be used with either Corning® Matrigel® hESC-Qualified Matrix (Corning Catalog #354277) or Vitronectin XF™ (Catalog #07180, a matrix developed and manufactured by Primorigen Biosciences) as the culture matrix.

Each lot of mTeSR™1 5X Supplement is used to prepare complete mTeSR™1 medium and then performance-tested in a culture assay using human pluripotent stem cells (hPSCs).

## Product Information

PRODUCT NAME	CATALOG #	SIZE	COMPONENTS
mTeSR™1	85850	500 mL	<ul style="list-style-type: none"><li>mTeSR™1 Basal Medium (400 mL)</li><li>mTeSR™1 5X Supplement (100 mL)</li></ul>
mTeSR™1	85857	1 L	<ul style="list-style-type: none"><li>mTeSR™1 Basal Medium (800 mL)</li><li>mTeSR™1 5X Supplement (2 x 100 mL)</li></ul>
mTeSR™1	85870	10 x 500 mL	<ul style="list-style-type: none"><li>mTeSR™1 Basal Medium (10 x 400 mL)</li><li>mTeSR™1 5X Supplement (10 x 100 mL)</li></ul>
mTeSR™1	85875	25 x 500 mL	<ul style="list-style-type: none"><li>mTeSR™1 Basal Medium (25 x 400 mL)</li><li>mTeSR™1 5X Supplement (25 x 100 mL)</li></ul>

## Component Storage and Stability

The following components are sold as part of the mTeSR™1 medium kits (see Product Information) and are not available for individual sale.

COMPONENT NAME	COMPONENT #	STORAGE	SHELF LIFE
mTeSR™1 Basal Medium (400 mL)	85851	Store at 2 - 8°C.	Stable until expiry date (EXP) on label.
mTeSR™1 Basal Medium (800 mL)	85871	Store at 2 - 8°C.	Stable until expiry date (EXP) on label.
mTeSR™1 5X Supplement	85852	Store at -20°C.	Stable until expiry date (EXP) on label.

## Preparation of Complete mTeSR™1 Medium

Use sterile techniques to prepare complete mTeSR™1 medium (Basal Medium + 5X Supplement). The following example is for preparing 500 mL of complete medium. If preparing 1 L of complete medium, add 2 x 100 mL of 5X Supplement to 800 mL of Basal Medium. If preparing other volumes, adjust accordingly.

NOTE: Thaw supplements or complete medium at room temperature (15 - 25°C) or overnight at 2 - 8°C. Do not thaw in a 37°C water bath.

1. Thaw mTeSR™1 5X Supplement and warm to room temperature. Mix thoroughly.

NOTE: mTeSR™1 5X Supplement may appear slightly cloudy after thawing. If this is noted, place in a 37°C water bath for approximately 5 minutes, swirling occasionally until supplement becomes clear. Supplement must be free of cloudiness before adding to basal medium (step 2).

NOTE: Once thawed, use supplement immediately or aliquot and store at -20°C for up to 3 months. Do not exceed the shelf life of the supplement. After thawing the aliquoted supplement, use immediately. Do not re-freeze.

2. Add 100 mL of mTeSR™1 5X Supplement to 400 mL of mTeSR™1 Basal Medium. Mix thoroughly.

NOTE: If not used immediately, store complete mTeSR™1 medium at 2 - 8°C for up to 2 weeks. Alternatively, aliquot and store at -20°C for up to 6 months. Do not exceed the shelf life of the individual components. After thawing the aliquoted complete medium, use immediately or store at 2 - 8°C for up to 2 weeks. Do not re-freeze.

If prepared aseptically, complete mTeSR™1 medium is ready for use. If desired, the medium can be filtered using a 0.2 - 0.22 µm low protein binding polyethersulfone (PES) filter unit (e.g. Fisher 09-741-04 [0.2 µm, 250 mL]; Fisher SCGP00525 [0.22 µm, 50 mL]).

## Directions for Use

For complete instructions on how to maintain human ES and iPS cells in mTeSR™1, refer to the Technical Manual: Maintenance of Human Pluripotent Stem Cells in mTeSR™1 (Document #28315) available at [www.stemcell.com](http://www.stemcell.com) or contact us to request a copy.

## Assessment of hPSCs

The following antibodies can be used to characterize hPSCs by flow cytometry or immunocytochemistry:

- Anti-Human SSEA-4 Antibody, Clone MC-813-70 (Catalog #60062)
- Anti-Human TRA-1-60 Antibody, Clone TRA-1-60R (Catalog #60064)
- Anti-Human OCT4 (OCT3) Antibody, Clone 3A2A20 (Catalog #60093)

For complete flow cytometry protocols and antibodies that can be used, refer to the Technical Manual: Maintenance of Human Pluripotent Stem Cells in mTeSR™1 (Document #28315), available at [www.stemcell.com](http://www.stemcell.com) or contact us to request a copy.

## Related Products

For related products, including specialized cell culture and storage media, matrices, antibodies, cytokines, and small molecules, visit [www.stemcell.com/hPSCworkflow](http://www.stemcell.com/hPSCworkflow) or contact us at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

## References

1. Ludwig TE et al. (2006) Derivation of human embryonic stem cells in defined conditions. *Nat Biotechnol* 24(2): 185–7.
2. Ludwig TE et al. (2006) Feeder-independent culture of human embryonic stem cells. *Nat Methods* 3(8): 637–46.
3. Yu J et al. (2007) Induced pluripotent stem cell lines derived from human somatic cells. *Science* 318(5858): 1917–20.
4. Masaki H et al. (2007) Heterogeneity of pluripotent marker gene expression in colonies generated in human iPS cell induction culture. *Stem Cell Res* 1(2): 105–15.
5. Sun N et al. (2009) Feeder-free derivation of induced pluripotent stem cells from adult human adipose stem cells. *Proc Natl Acad Sci USA* 106(37): 15720–5.



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