

NaïveCult™ Induction Kit

Defined medium kit for transgene-free induction of reset naïve human ES and iPS cells

Catalog #05580

1 Kit



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Product Description

NaïveCult™ Induction Kit contains defined cell culture media for the chemical induction of transgene-free reset naïve human embryonic stem (ES) and induced pluripotent stem (iPS) cells from the primed state. The kit was developed under license from the Cambridge Stem Cell Institute at the University of Cambridge, UK based on Guo et al. (2017). This kit works robustly across multiple primed human ES and iPS cells maintained in mTeSR™1 (Catalog #85850) or TeSR™-E8™ (Catalog #05990). Reset naïve human pluripotent stem cells (hPSCs) generated using NaïveCult™ Induction Kit demonstrate uniformly domed, phase-bright colonies with refractive edges and maintain gene expression profiles associated with reset naïve hPSCs (Guo et al. 2016; Guo et al. 2017; Takashima et al.).

NaïveCult™ Induction Kit requires a histone deacetylase inhibitor (HDACi) that is sold separately (either Sodium Butyrate [Catalog #72242] or Valproic Acid [Catalog #72292]).

Product Information

The following components are sold as a kit and are not available for individual sale.

NAME	COMPONENT #	SIZE	STORAGE	SHELF LIFE
NaïveCult™ Induction Basal Medium	05581	76 mL	Store at 2 - 8°C.	Stable for 18 months from date of manufacture (MFG) on label.
NaïveCult™ 20X Induction Supplement A*	05582	4 mL	Store at -20°C.	Stable for 18 months from date of manufacture (MFG) on label.
NaïveCult™ 1000X Induction Supplement B**	05584	80 µL	Store at -20°C.	Stable for 2 years from date of manufacture (MFG) on label.
NaïveCult™ 5X Induction Supplement C*	05583	200 mL	Store at -20°C.	Stable for 18 months from date of manufacture (MFG) on label.
NaïveCult™ 1000X Induction Supplement D**	05585	500 µL	Store at -20°C.	Stable for 18 months from date of manufacture (MFG) on label.
NaïveCult™ Expansion Basal Medium	05591	2 x 400 mL	Store at 2 - 8°C.	Stable for 15 months from date of manufacture (MFG) on label.
NaïveCult™ 1000X Expansion Supplement**	05593	500 µL	Store at -20°C.	Stable for 2 years from date of manufacture (MFG) on label.

*This component contains material derived from human plasma. Donors have been tested and found negative for HIV-1 and -2, hepatitis B, and hepatitis C prior to donation. However, this product should be considered potentially infectious and treated in accordance with universal handling precautions.

**Please refer to the Safety Data Sheet (SDS) for hazard information. This product contains components dissolved in dimethyl sulfoxide (DMSO). DMSO is a strong solvent and skin penetrant, and can transport many substances through the skin. DMSO can also penetrate some protective glove materials including latex and silicone. Extra caution should be utilized when handling this product.

Materials Required But Not Included

PRODUCT NAME	CATALOG #
Valproic Acid OR Sodium Butyrate	72292 OR 72242

Preparation of Media

Use sterile techniques to prepare NaïveCult™ induction media. Prepare each medium as required in the protocol as outlined in the Technical Manual: Reversion and Maintenance of Naïve-Like Human Pluripotent Stem Cells with NaïveCult™ Induction Kit and NaïveCult™ Expansion Medium (Document #DX21865), available at www.stemcell.com or contact us to request a copy.

Refer to Table 1 for medium components, volumes, and in-use storage. If preparing other volumes, adjust accordingly.

1. Thaw required Supplements at room temperature (15 - 25°C). Mix each Supplement thoroughly.
NOTE: If not used immediately, aliquot Supplement(s) and store at -20°C. Do not exceed the shelf life of the Supplement(s). After thawing aliquots, use immediately. Do not re-freeze.
2. Combine components for each medium as indicated in Table 1. Mix thoroughly. Warm medium to room temperature (15 - 25°C) before use.

NOTE: If not used immediately, store medium as indicated in Table 1.

Table 1. Preparation of NaïveCult™ Induction Media

MEDIUM	COMPONENT	VOLUME	IN-USE STORAGE AND STABILITY
Induction Medium 1 (80 mL)	NaïveCult™ Induction Basal Medium	76 mL	Store at 2 - 8°C for up to 1 week.
	NaïveCult™ 20X Induction Supplement A	4 mL	
	NaïveCult™ 1000X Induction Supplement B	80 µL	
	Valproic Acid OR Sodium Butyrate	(0.5 - 1.0 mM)*	
Induction Medium 2 (150 mL)	NaïveCult™ Expansion Basal Medium	120 mL	Store at 2 - 8°C for up to 1 week.
	NaïveCult™ 5X Induction Supplement C	30 mL	
	NaïveCult™ 1000X Induction Supplement D	150 µL	
Induction Medium 3 (150 mL)	NaïveCult™ Expansion Basal Medium	120 mL	Store at 2 - 8°C for up to 1 week.
	NaïveCult™ 5X Induction Supplement C	30 mL	
	NaïveCult™ 1000X Expansion Supplement	150 µL	

*Titration is recommended for new hPSC lines, as cytotoxicity may be observed at higher concentrations.

Directions for Use

For complete instructions, refer to the Technical Manual: Reversion and Maintenance of Naïve-Like Human Pluripotent Stem Cells with NaïveCult™ Induction Kit and NaïveCult™ Expansion Medium (Document #DX21865), available at www.stemcell.com or contact us to request a copy.

Related Products

For related products, including specialized culture and storage media, small molecules, supplements and antibodies, visit www.stemcell.com or contact us at techsupport@stemcell.com.

References

- Guo G et al. (2016) Naïve pluripotent stem cells derived directly from isolated cells of the human inner cell mass. *Stem Cell Reports* 6(4): 437–46.
- Guo G et al. (2017) Epigenetic resetting of human pluripotency. *Development* 144(15): 2748–63.
- Takashima Y et al. (2014) Resetting transcription factor control circuitry toward ground-state pluripotency in human. *Cell* 158(6): 1254–69.

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