

StemGro® ESS8 Pluripotent Stem Cell Medium

Cat.No.	Product	Amount	Shelf Life	Type	Storage	Transport
T430KJ	StemGro® ESS8 Pluripotent Stem Cell Medium	set				
T435KH	StemGro® ESS8/TeSR Basal Medium AOF/HOF	450 mL	12 months	Liquid	2-8 °C	Blue Ice
S930JJ	StemGro® ESS8 Supplement, 10X, AOF/HOF	50 mL	12 months	Liquid	-30 ~ -5 °C	Dry Ice



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BasalMedia

1.introductions

StemGro®ESS8 Pluripotent Stem Cell Medium is an animal component-free (ACDF) medium specifically designed for the growth and expansion of human pluripotent stem cells (PSCs) and embryonic stem cells (ESCs). The medium consists of two components: StemGro®ESS8/TeSR Basal Medium and StemGro®ESS8 Supplement. Compared with traditional media that require the addition of animal serum or serum-free media with complex formulations, StemGro®ESS8 Pluripotent Stem Cell Medium features a relatively simple composition. Based on the basal medium formulation, only eight additional components essential for stem cell culture are added. This not only eliminates the possibility of introducing animal-derived components during culture, but also ensures that batch-to-batch variation is fully controlled.

Due to the addition of long-acting cytokines, a single medium change can sustain the culture for over 48 hours, allowing a flexible culture schedule and eliminating the need for weekend medium changes.

This product is prepared using Water for Injection (WFI).

2.Quality management system

The product is manufactured in CGMP standard workshop in Basalmedia Shanghai.

Basalmedia Shanghai Biotechnology Co.Ltd has obtained ISO9001 :2015 , ISO13485 :2016 quality system certification.

3. Product parameters

StemGro® ESS8/TeSR Basal medium AOF/HOF

(T435KH)

The product is sterilized by filtration.

Appearance: Transparent liquid with red color

Endotoxin: ≤1 EU/mL

Osmotic pressure: 340 ~ 400 mOsm/kg-H₂O

pH value: 7.0 ~ 7.4

Storage: -8 ~ 2 °C

Transportation: Blue Ice

Application: for research and production only.

StemGro® ESS8 Supplement, 10X, AOF/HOF

(S930JJ)

The product is sterilized by filtration.

Appearance: Transparent liquid with light yellow color

Endotoxin: Check and Record

Osmotic pressure: 50 ~ 200 mOsm/kg-H₂O

pH value: 6.0 ~ 8.0

Storage: -30 ~ -5 °C

Transportation: Dry Ice

Application: for research and production only.

4.User Guide

Please wear appropriate safety gloves, lab clothes and goggles when using. The product should not be used on the human body.

The environment in which the cells contact directly must be sterile, and the reagents used in cells culture must be sterile.

Please conduct cell experiments in a sterile environment. Before moving any vessels or tools into a sterile environment, remove the outer packaging at the entrance and disinfect with alcohol swab.

Note: Do not use the product when it has completely melted upon receipt, or when it has passed its term of validity.

5.Prepare Medium

StemGro® ESS8 Supplement is frozen prior to use. Thaw gently at 2-8 °C, mix by swirling gently, and then slowly add to the StemGro® ESS8/TeSR Basal Medium with gentle swirling to ensure a homogeneous medium. **Do not thaw the supplement at 37 °C.** StemGro® ESS8 Complete Medium can be stored at 2-8 °C for 2 weeks.

6. Cell Culture Conditions

StemGro® ESS8 Complete Medium does not require the addition of any other components. If contamination of the cultured stem cells is a concern, antibiotics may be added prior to use. For example, gentamicin at a final concentration of 5 µg/mL.

Applicable cell lines: embryonic stem cells (ESCs), pluripotent stem cells (PSCs)

Cell type: adherent cells

Culture vessels and equipment: culture flasks and a CO₂ incubator

Culture conditions: 36–38 °C, humidified air with 5% CO₂, protected from light.

Before conducting experiments, set the temperature and gas parameters of the cell culture equipment.

7.Recover cryopreserved cells

1. Rapidly thaw (<1 minute) frozen vial of cells in a 37°C water bath. Remove vial from water bath just before the last trace of ice has melted;
2. Gently aspirate the contents of the tube and transfer to a 50 mL sterile centrifuge tube;
3. Slowly add pre-warmed StemGro® ESS8 Complete Medium while gently swirling the centrifuge tube to ensure mixing;
4. Centrifuge at 100–200 × g for 5 minutes at room temperature, then aspirate the supernatant;
5. Resuspend the cells in a minimal volume of medium, count using a cell counter, and calculate the viable cell density;
6. In a T75 culture flask that has been rinsed with medium, add an appropriate volume of pre-warmed StemGro® ESS8 Complete Medium, then add the cell suspension to achieve a viable cell seeding density of approximately 5 × 10³ cells/cm²;
7. Culture in the incubator;
8. Refresh the medium every 2 or 3 days, pre-warm the medium before use.

8.Cell Passage

Passaging of PSCs Using a T75 Culture Flask as an Example

1. Passage the cells when the cell confluence reaches 85%.
2. Before use, pre-warm the recombinant trypsin solution (animal origin-free, Yuanpei product number S342JV) and StemGro® ESS8 Complete Medium to room temperature.

3. Aspirate the medium from the T75 culture flask. Rinse the cell monolayer with DPBS without calcium and magnesium, then aspirate the rinse solution.
4. Add 5–8 mL of pre-warmed recombinant trypsin solution to each T75 flask, ensuring the liquid covers the entire culture surface. Incubate under the recommended cell culture conditions for 5–10 minutes.
5. Observe the culture flask under an inverted microscope to ensure that the cells have completely detached.
6. Then add 5–10 mL of pre-warmed DPBS containing calcium and magnesium to each flask, ensuring the buffer completely covers the culture surface. Transfer the cell suspension to a 15 mL sterile centrifuge tube. Rinse the flask again with 5–10 mL of DPBS containing calcium and magnesium and collect the liquid into the centrifuge tube.
7. Centrifuge at 100–200 × g for 5 minutes at room temperature and carefully aspirate the supernatant.
8. Resuspend the cells in a minimal volume of StemGro® ESS8 Complete Medium and perform a viable cell count.
9. Add 15 mL of pre-warmed StemGro® ESS8 Complete Medium to a culture flask pre-coated with vitronectin.
10. Seed the cells at a viable cell density of 5 × 10³ cells/cm² (i.e., 3.75 × 10⁵ viable cells per T75 flask). Gently swirl the flask to ensure even cell distribution.
11. Place the cells under the recommended culture conditions.
12. Replace the medium every 2–3 days.

9.Cryopreserve cells

Before starting the cryopreservation procedure, prepare a sufficient number of cells at 80–90% confluence:

1. Prepare cryopreservation medium (46.25% fresh Complete Medium + 46.25% conditioned medium (i.e., medium that has been used to culture the cells) + 7.5% DMSO) and pre-cool it at 2–8 °C protected from light (for no more than 24 hours); alternatively, it is recommended to use Yuanpei Biotech CD-Freezer® Chemically Defined Cell Cryopreservation Solution (a chemically defined, serum-free formulation containing 7.5% DMSO, Yuanpei catalog number S919JV).
2. Determine the cell number and calculate the required

- volume V of cryopreservation medium (recommended cell freezing density: $1-5 \times 10^6$ cells/mL).
- Aspirate the medium from the culture flask, then rinse the adherent cells with 5 mL of DPBS without Ca^{2+} and Mg^{2+} . Aspirate the DPBS rinse solution after washing.
 - Add 3 mL of recombinant trypsin solution (only 1 mL is needed for a T25 flask).
 - Let stand at room temperature for 2–5 minutes; during this time, gently tap the flask wall to help the cells detach. Once the cells have detached from the flask surface, immediately add V mL of the cryopreservation medium prepared in step 1. Tilt and swirl the flask gently to mix the newly added liquid and ensure it comes into full contact with all inner surfaces of the flask.
 - Depending on subsequent needs, dispense the cell suspension into cryovials (typically 1.5 mL per vial).
 - Label the cryovials appropriately (e.g., cell name, date of cryopreservation, and operator).
 - Use a controlled-rate freezer to manage the temperature decrease (standard freezing rate: -1 to -2 °C/min). Once the temperature reaches below -25 °C, the cooling rate can be increased to -5 to -10 °C/min; upon reaching -100 °C, the vials can be rapidly transferred into liquid nitrogen.
 - Alternatively, a manual cooling method can be used: place the cryovials into a freezing container containing isopropanol (Nalgene), put the container in a -20 °C freezer for 2 hours, then transfer to a -80 °C freezer overnight. Finally, remove the cryovials individually and transfer them into a liquid nitrogen container.

10. Related Products

Cat.No.	Product	Amount	Storage	Transport
T440KJ	StemGro® TeSR Pluripotent Stem Cell Medium	Set		
T310KJ	StemGro® Mesenchymal Stem Cell (MSC) Expansion Medium	100 mL	$-30 \sim -5$ °C	Dry Ice
T320KJ	StemGro® Mesenchymal Stem Cell (MSC) Serum-Free Basal	500 mL	$2 \sim 8$ °C	Blue Ice
S342KJ	Trpzyme® Recombinant Trypsin Solution, without phenol red	500 mL	$-30 \sim -5$ °C	Dry Ice
S919JV	CD-Freezer® Chemically Defined Cell Cryopreservation Medium	100 mL	$2 \sim 8$ °C	Blue Ice
B210KJ	Dulbecco's DPBS, without Ca^{2+} , Mg^{2+} , Phenol red	500 mL	$2 \sim 30$ °C	RT
B220KJ	Dulbecco's DPBS, with Ca^{2+} and Mg^{2+} , without Phenol red	500 mL	$2 \sim 30$ °C	RT