Celer-S201S 293 Serum-free Medium

Product Name: Celer-S201S

User Manual

Contents

Description

Celer-S201S 293 Serum-Free Medium is a proprietary, chemically defined, protein-free, and animal component-free cell culture medium independently developed, formulated, and manufactured by Shanghai BioEngine Sci-Tech Co., Ltd. It is suitable for cryopreservation, cell recovery, subculture, virus packaging, and expression of various subtypes of human embryonic kidney cells 293 (Human Embryonic Kidney 293 Cells, HEK293). When used in conjunction with the Celer series of feed media (refer to "Related Products"), it can support high-density cell growth and maintenance, achieve higher levels of product expression and quality.

Application

This product is intended for research or further manufacturing in the bio-manufacturing industry, but not for human or therapeutic use.

Composition

The IP rights of Celer-S201S basal medium formulation are owned by Shanghai BioEngine Sci-Tech Co., Ltd.

This medium contains:

☑ Carbohydrates, amino acids, vitamins, bulk salts.

☑ 7 g/L D-glucose，1. g/L P188, 8 mM glutamine.

Not contain:

☒ Cytokines, antibiotics, and phenol red.

☒ Raw materials from animal sources.

Storage

- Store medium at 2-8℃, away from light.
- Once opened, the powder medium should be stored protected from moisture in a tightly sealed container.
- Do not use it after the expiration date or being damped.

Reconstitution of Powder Medium

Table 1 shows the preparation of Celer-S201S medium [1].

Ingredients	Concentration
Celer-S201S medium powder	23.54 g/L [2]
Sodium bicarbonate	2.20 g/L

Table 1. Preparation of Celer-S201S medium

1) Weigh 100% water of the final volume into the preparation container using pure water, ultrapure water, or water for injection at 20-30 ℃ . Mix thoroughly without creating air bubbles.

2) Accurately weigh the corresponding mass of Celer-S201S basal medium at a concentration of 23.54 g/L and add it into the preparation container of step 1). Stir well for 20-30 minutes.

3) Slowly adjust the pH to 6.0-6.5 with 5-10 mol/L sodium hydroxide solution. Stir for 10-20 minutes. At this point, the solution should be clear.

4) Weigh 2.20 g/L of sodium bicarbonate powder, add it slowly near the liquid level in the container, and stir for 20-30 minutes.

5) Adjust the pH to 7.0-7.4 with sodium hydroxide or hydrochloric acid solution if the pH is beyond this range.

6) Pass the medium solution through a pore size of 0.22 or 0.2 μm sterile filter membrane, such as PES, using a pulse pump or compressed air (3-15 psi).

7) Use the prepared medium liquid immediately or store it in glass bottles, PET storage bottles, or disposable storage bags with an oxygen barrier membrane in a dark environment of 2~8 ℃. It's recommended for use within one month.

Note:

[1] The above parameters (such as stirring time) are set for small-scale liquid preparation. Adjust these parameters for large-scale preparation based on container capacity to ensure full dissolution of dry powder.

[2] The "g/L" unit denotes volumetric concentration (solute mass/solution volume).

Specifications of final liquid medium

Test	Unit	Specification
pH		7.0 – 7.4 [3]
Osmolality	mOsm/kg	270 – 330
Turbidity	NTU	< 4.00

Table 2. Specifications of final liquid medium

Note:

[3] The pH buffer system of the product is carbon dioxide-sodium bicarbonate. The final pH value should be strictly controlled within the specific range outlined in Table 2. The following operations, such as prolonged reconstitution time or aeration in the bioreactor without pH control, can result in a gradual pH increase. There is a risk of metal ion precipitation when the pH value exceeds the upper limit.

Cryopreservation

1) Harvest cells in the mid-log phase of growth with >90% viability by centrifugation at 190×g for 5 minutes.

2) Prepare cryopreservation medium with 93% Celer-S201S medium and 7% DMSO on the day of use.

3) Resuspend cells in cryopreservation medium to a final viable cell density of 2.5-3.5×10^7 cells/mL or as required.

4) Dispense aliquots of the cell suspension into cryovials.

5) Achieve cryopreservation in an automated or manual controlled rate freezing apparatus (0.5-1 ℃ decrease per minute is suggested).

6) Transfer frozen cells to liquid nitrogen storage.

Cell Recovery

1) Rapidly thaw frozen cells in a 37 ℃ water bath. Transfer to a clean workbench as soon as melted or with small ice crystals.

2) Harvest the cells by centrifugation at 190×g for 5 minutes and discard the supernatant.

3) Resuspend cells by prewarmed Celer-S201S medium to a viable cell density of 0.8-1.2×10^6 cells/mL in a 125 mL shake flask.

4) Incubate the shake flask at 37 ℃ in a humidified atmosphere of 5% CO_2 in air on an orbital shaker platform rotating at 110-130 rpm (110 rpm for 50 mm amplitude; 130 rpm for 10 mm amplitude).

5) Cells should be sub cultured and adapted at least two passages. After the cell specific growth rate (or doubling time) reaches stability, subsequent operations can be carried out.

Subculture Cells

1) Ensure that the cell viability is >90%, and the growth rate is in mid-logarithmic phase prior to subculturing.

2) Calculate the volume of cell culture and prewarmed medium necessary to seed at 0.5-1.0×10^6 viable cells/mL in a shake flask.

3) Incubate at 37°C in a humidified atmosphere of 5% CO_2 in air on an orbital shaker platform rotating at 110-130 rpm (110 rpm for 50 mm amplitude; 130 rpm for 10 mm amplitude).

4) Subculture cells every two days according to the above steps.

Transfection

1) Take the cells in exponential growth period, inoculate them in a shaker flask at an initial density of about 1.0×10^6 cells/mL, and culture for 2-3 Days.

2) Dilute the cell density to about 2-4×10^6 cells/mL with fresh medium before transfection.

3) The amount of pDNA is 1.5 mg/L, and the amount of pDNA is 2-4 mg/L. The transfection parameters can be optimized according to specific projects.

4) The total incubation volume is 3%-5% of the working volume.

5) Dilute pDNA to 1/2 of total incubation volume with fresh DMEM, mix gently and incubation for 5-10 min at room temperature.

6) Dilute PEI to 1/2 of total incubation volume with fresh DMEM, mix gently and incubation for 5-10min at room temperature.

7) Add the diluted pDNA to the diluted PEI, mix gently and incubation for 10 min at room temperature.

8) Add the pDNA-PEI complex to the cell suspension prepared in Step 2 and shake gently.

9) 24 h after transfection, add 5% Celer-F001aS, 0.5% Celer-F001bS, and 1% enhancer to cell suspension, culture was continued until harvest.

Related Product

Product	Cat. No.	Form	Size	Packaging	Notes
Celer-S001 HEK293 Serum-free Medium	EXP0104003	Liquid	1 L	Bottle	● SF, PF, ADCF ● Supports adenovirus amplification
Celer-S001S HEK293 Serum-free Medium	EXP0108401	Powder	200 L	Bag	
	EXP0108402	Powder	100 L	Bag	
	EXP0108403	Powder	10 L	Bag	
Celer-S201 293 Serum-free Medium	EXP0103001	Liquid	1 L	Bottle	● SF, PF, ADCF, CD ● Supports protein expression
Celer-S201S 293 Serum-free Medium	EXP0103002	Powder	10 L	Bag	
	EXP0103003	Powder	100 L	Bag	
	EXP0103004	Powder	200 L	Bag	
Celer-F001aS 293 Serum-free Feed Medium	EXP0117301	Powder	10 L	Bag	● SF, PF, ADCF ● To be used with Celer-S201S in fed-batch culture
	EXP0117302	Powder	1 L	Bag	
	EXP0117303	Powder	20 L	Bag	
Celer-F001bS 293 Serum-free Feed Medium	EXP0117401	Powder	10 L	Bag	
	EXP0117402	Powder	1 L	Bag	

Scan the QR code for more product information.

Stay tuned for more updates.

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