

# **Vigor-S101S Insect cell Serum-free Medium**

**Product Name: Vigor-S101S**

## **User Manual**

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## Description

Vigor-S101S is a serum-free culture medium developed by Shanghai Biotechnology Co., Ltd. targeting the growth and metabolism characteristics of insect cells. It is protein free and animal component free, suitable for high-density suspension culture of insect cells, including Sf9, Sf21, and High five, also supports efficient subunit or VLP vaccine production with baculovirus expression vector system.

## 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 Vigor-S101S medium formulation are owned by Shanghai BioEngine Sci-Tech Co., Ltd.

This medium contains:

- Carbohydrates, amino acids, vitamins, bulk salts, and trace elements.
- 11 g/L D-glucose, 1 g/L P188, 10 mM glutamine.

Not contain:

- Cytokines, antibiotics, HEPES and phenol red.
- Raw materials from animal sources.

## Storage

- Store medium at 2-8°C, 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

### Reconstitution by volume

Table 1 shows the preparation of Vigor-S101S medium <sup>[1]</sup>.

Ingredients	Concentration
Vigor-S101S medium powder	41.60 g/L <sup>[2]</sup>
Sodium bicarbonate	350 mg/L
Vigor-S101S Additive	1 mL/L

Table 1. Preparation of Vigor-S101S 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°C. Mix thoroughly without creating air bubbles.
- 2) Accurately weigh the corresponding mass of Vigor-S101S medium at a concentration of 41.60 g/L and add it into the preparation container of 1) step. Stir well for 20-30 minutes. At this point, the solution should be clear.
- 3) Weigh 350 mg/L of sodium bicarbonate powder, add it slowly near the liquid level in the container. Add 1 mL/L Vigor-S101S Additive and stir for 10-15 minutes.

- 4) Slowly adjust to pH 6.0-6.2 with 10 mol/L sodium hydroxide solution. The amount of 10 mol/L sodium hydroxide solution is about 2mL/L. Stir for 10-20 minutes.
  - 5) 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). The capacity of vacuum bottle filter is limited (about 1-2 L). For larger volume filtration, filter with a larger filtration area is recommended.
  - 6) 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°C. It's recommended for use within one month.
- 2) Accurately weigh the corresponding mass of Vigor-S101S medium at a concentration of 39.85 g/kg and add it into the preparation container of 1) step. Stir well for 20-30 minutes. At this point, the solution should be clear.
  - 3) Weigh 335 mg/kg of sodium bicarbonate powder, add it slowly near the liquid level in the container. Add 0.96 mL/kg Vigor-S101S Additive and stir for 10-15 minutes.
  - 4) Slowly adjust to pH 6.0-6.2 with 10 mol/L sodium hydroxide solution. The amount of 10 mol/L sodium hydroxide solution is about 1.9 mL/kg. Stir for 10-20 minutes.
  - 5) Quantify with water to reach 100% of the weight.
  - 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). The capacity of vacuum bottle filter is limited (about 1-2 L). For larger volume filtration, filter with a larger filtration area is recommended.
  - 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°C. It's recommended for use within one month.

**Note:**

<sup>[1]</sup> 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.

<sup>[2]</sup> The "g/L" unit denotes volumetric concentration (solute mass/water volume).

**Reconstitution by constant weight**

Table 2 shows the preparation of Vigor-S101S medium <sup>[3]</sup>.

Ingredients	Concentration
Vigor-S101S medium powder	39.85 g/kg <sup>[4]</sup>
Sodium bicarbonate	335 mg/kg
Vigor-S101S Additive	0.96 mL/kg

Table 2. Preparation of Vigor-S101S medium

- 1) Weigh 80% water of the final volume into the preparation container using pure water, ultrapure water, or water for injection at 20-30°C. Mix thoroughly without creating air bubbles.

**Note:**

<sup>[3]</sup> 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.

<sup>[4]</sup> The "g/kg" unit denotes volumetric concentration (solute mass/solution mass).

## Specifications of final liquid medium

Test	Unit	Specification
pH		6.0 – 6.2 <sup>[5]</sup>
Osmolality	mOsm/kg	370 – 420
Turbidity	NTU	< 4.00

Table 2. Specifications of final liquid medium

**Note:**

<sup>[5]</sup> 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. Reserve the culture supernatant (conditioned medium) for preparing cryopreservation medium.
- 2) Prepare cryopreservation medium with 45% Vigor-S101S medium, 45% conditioned medium and 10% DMSO on the day of use.
- 3) Resuspend cells in cryopreservation medium to a final viable cell density of 2.5-3.5×10<sup>7</sup> 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°C decrease per minute is suggested).

- 6) Transfer frozen cells to liquid nitrogen storage.

**Cell Recovery**

- 1) Rapidly thaw frozen cells in a 37°C water bath. Transfer to a super clean bench as soon as melted or with small ice crystals.
- 2) Transfer the vial content into a centrifuge tube containing 10 mL of prewarmed Vigor-S101S medium. Harvest the cells by centrifugation at 190×g for 5 minutes and discard the supernatant.
- 3) Resuspend cells by prewarmed Vigor-S101S medium to a viable cell density of 0.8-1.2×10<sup>6</sup> cells/mL in a 125 mL shake flask.
- 4) Incubate the shake flask at 27°C in a humidified air atmosphere 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 0.8-1.2×10<sup>6</sup> viable cells/mL in a shake flask.
- 3) Incubate at 27°C in a humidified air atmosphere 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.

## Related Product

Product	Cat. No.	Form	Size	Packaging	Notes
Vigor-S100S Insect Cell Serum-free Medium	EXP0109401	Powder	100 L	Bag	<ul style="list-style-type: none"> <li>● SF, PF</li> <li>● Suitable for both Sf9 &amp; High five cells</li> </ul>
	EXP0109402	Powder	5 L	Bag	<ul style="list-style-type: none"> <li>● Supports subunit vaccine production (e.g. Porcine circovirus, Classical Swine Fever virus, and Porcine parvovirus) or VLP production</li> </ul>
Vigor-S100S Additive	EXP0109501	Liquid	100 mL	Bottle	
	EXP0109502	Liquid	5 mL	Tube	<ul style="list-style-type: none"> <li>● Add additives to powder media at a ratio of 1:1000</li> </ul>
Vigor-S101 Insect Cell Serum-free Medium	EXP0118601	Liquid	1 L	Bottle	<ul style="list-style-type: none"> <li>● SF, PF, ADCF</li> <li>● Suitable for both Sf9 &amp; High five cells</li> </ul>
Vigor-S101S Insect Cell Serum-free Medium	EXP0107401	Powder	100 L	Bag	
	EXP0107403	Powder	5 L	Bag	<ul style="list-style-type: none"> <li>● Supports subunit vaccine production (e.g. COVID-19, Influenza), VLP or AAV production</li> </ul>
Vigor-S101S Additive	EXP0107501	Liquid	100 mL	Bottle	
	EXP0107503	Liquid	5 mL	Tube	<ul style="list-style-type: none"> <li>● Add additives to powder media at a ratio of 1:1000</li> </ul>



Scan the QR code for more product information.

Stay tuned for more updates.

Tel: 86-21-68582660

Web: [www.bio-engine.com.cn/EN](http://www.bio-engine.com.cn/EN)

**Shanghai BioEngine Sci-Tech Co., Ltd**

Floor 4, Building 3, Lane 396, LvZhou Ring Road, Shanghai, China

Tel: 86-21-68582660

[www.bio-engine.com.cn/EN](http://www.bio-engine.com.cn/EN)

