SFM4Insect

HYCLONE MEDIA AND SUPPLEMENTS

HyClone™ SFM4Insect is an animal-derived component-free, versatile cell culture medium developed through the HyClone Metabolic Pathway Design process (see box) to support the growth of multiple insect cell lines and production of a variety of recombinant proteins using the baculovirus expression vector system (BEVS).

SFM4Insect medium provides excellent growth of many key insect cell lines, including Sf9, Sf21, High Five™ (T.ni) and D.Mel-2 cells, while requiring minimal adaptation. Additionally, SFM4Insect medium has been successfully tested in a variety of culture systems ranging from T-Flasks, shaker flasks, and various traditional and disposable bioreactors.

SFM4Insect is available as liquid or powder medium in bottles, bags or custom packaging. SFM4Insect is available in liquid and powder formats in user-friendly packaging (Fig 1).

Key features of SFM4Insect medium include

- Animal-derived component-free (ADCF) and protein-free formulation
- Designed for high cell yield and recombinant protein production
- Complexed lipids for enhanced stability
- Supports multiple insect cell lines
- Supports direct or sequential adaptation
- Manufactured from traceable components according to cGMP and ISO guidelines

Specifications

- Protein-free
- Contains poloxamer 188
- Does not contain phenol red
- Contains 10 mM L-glutamine

Store medium at 2°C to 8°C away from light. In addition, powder medium should be stored protected from moisture in a tightly sealed container.



Fig 1. SFM4Insect medium is available as liquid or powder in pack sizes suitable for small-volume cell culture as well as large-scale bioprocessing applications.

Metabolic Pathway Design process

An optimal cell culture process is dependent on a variety of factors including the parental cell line, the genetic makeup of the specific clone, medium and feed composition, as well as process variables to maximize viable cell densities and titers while maintaining cell morphology. Our experts in medium design and development know and understand how these factors can influence the metabolic processes involved. They evaluate the culture's metabolic activities, measuring nutritional demand and waste creation to make sure the correct type and quantity of nutrients are used to minimize waste and resultant cell toxicity. Our experts use their understanding of metabolic pathways to optimize medium composition for enhanced productivity and viable cell densities. Once a medium has been optimized using this Metabolic Pathway Design process, our scientists can help you devise the most effective cell culture strategy using a combination of medium and feeds to further enrich productivity and reduce process inefficiencies.

DOMINIQUE DUTSCHER SAS

Suggested preparation

Reconstitution of SFM4Insect powder medium

1. While stirring, add SFM4Insect powder medium to cell culture-grade water at 90% of final preparation volume (41.73 g/L). Mix until dissolved. If your water source is normally cool, it can be useful to adjust the water temperature. Using warmer room temperature water (22°C to 25°C) will improve solubilization time. Mix for 20 min until dissolved.
2. Add 0.35 g/L sodium bicarbonate. Mix until dissolved.
3. Adjust pH to between 6.1 to 6.4, if necessary.
4. Bring vessel to final volume with cell culture-grade water. Allow solution to mix for 10 to 20 min.
5. Check pH and osmolality. Expected values:
   - pH 6.1 to 6.4
   - Osmolality 355 to 385 mOsm/kg
6. Sterile filter into desired container using a 0.2 µm sterile filter.

Preparation notes

SFM4Insect medium contains 10 mM L-glutamine.

General culture recommendations

1. Cultures should be incubated at 27°C and in an ambient gas environment.
2. The caps on culture flasks should be loosened and adequate vessel headspace should be given to provide gas exchange.
3. Seeding densities should be ~ 5.0 × 10^5 cells/mL. Higher densities (e.g., 10.0 × 10^5 cells/mL) can facilitate quicker adaptation.

Direct adaption

1. Transfer cells grown in current medium directly into SFM4Insect medium at 5.0 × 10^5 cells/mL.
2. When viable cell density reaches 2 to 4 × 10^6 cells/mL, subculture the cells.
3. Cells should be subcultured every 72 to 96 h.
4. If cell viability drops below 80%, proceed to sequential adaptation.

Sequential adaptation

1. Transfer cells grown in current medium into SFM4Insect medium at a ratio of 1:1 using a seeding density of 5.0 × 10^5 cells/mL.
2. Incubate culture until two population doublings are observed. Subculture cells by mixing equal volumes of cell suspension in conditioned medium and fresh SFM4Insect medium (1:1 ratio).
3. Continue to subculture the cells using this method until the previously used medium is reduced below 0.05% concentration and cell viability is > 85%.

Cryopreservation

SFM4Insect medium adapted cells can be cryopreserved in a medium consisting of a 1:1 ratio of fresh and conditioned SFM4Insect medium. To this, add DMSO to a final concentration of 7.5%.

Quality control testing

Quality control test specifications are listed in Table 1.

Table 1. Test specifications[1]

Appearance	Clear solution
Osmolality	355 to 385 mOsm/kg
pH	6.1 to 6.4
Sterility	No growth (bacteria or fungi)
Endotoxin	< 10.0 EU/mL[1]
Application	Growth promotion

[1] Refer to certificate of analysis for actual results.

Custom production

Formulations and delivery systems can be customized to your specific process requirements or optimized to maximize process yields.

Rapid Response Production (RRP)

Our RRP program manufactures up to 200 L of your custom prototype formulation within seven working days of your request. Use our RRP service to expedite the development and testing of custom buffers and process liquids for your biopharmaceutical manufacturing process.

DOMINIQUE DUTSCHER SAS

Ordering information

Product	Size	Code number
HyClone SFM4Insect liquid medium With L-glutamine	500 mL PETE* bottle	SH30913.01
	1000 mL PETE bottle	SH30913.02
	1 L bag	SH30913.03
	5 L bag	SH30913.04
	10 L bag	SH30913.05
	20 L bag	SH30913.06
	50 L bag	SH30913.07
	100 L bag	SH30913.08
	200 L bag	SH30913.09
HyClone SFM4Insect powder medium With L-glutamine	5 L bottle†	SH30912.01
	10 L bottle†	SH30912.02
	50 L bottle†	SH30912.03
	100 L polybag/pail	SH30912.04
	500 L polybag/pail	SH30912.05
	1000 L polybag/pail	SH30912.06

* Polyethylene terephthalate
† High-density polyethylene (HDPE) bottle

DOMINIQUE DUTSCHER SAS

cytiva.com/hyclone

Cytiva and the Drop logo are trademarks of Global Life Sciences IP Holdco LLC or an affiliate. HyClone is a trademark of Global Life Sciences Solutions USA LLC or an affiliate doing business as Cytiva.

High Five is a trademark of Thermo Fisher Scientific. All other third party trademarks are the property of their respective owner.

© 2020 Cytiva

All goods and services are sold subject to the terms and conditions of sale of the supplying company operating within the Cytiva business. A copy of those terms and conditions is available on request. Contact your local Cytiva representative for the most current information.

For local office contact information, visit cytiva.com/contact

CY14482-22Sep20-DF

cytiva