Sf9

604329

GENERAL INFORMATION

Description

Sf9 cells are clonal isolates derived from the Spodoptera frugiperda Sf21 cell line (IPLB-Sf-21-AE). They are commonly used in insect cell culture for recombinant protein production using baculovirus expression systems. Sf9 cells are epithelial in morphology and were cloned from the pupal ovarian tissue of the fall armyworm.
One of the key characteristics of Sf9 cells is their small, regular size which is ideal for the formation of monolayers and plaques. They are also suitable for transfection, plaque assay/purification, amplification of high-titer stocks, and expression of recombinant proteins. The Sf9 insect cell line can be maintained in attached and suspended cultures, and do not require serum or CO2 to grow.
They are considered Biosafety Level 1 and are usually grown in a 26-28 degree celsius incubator. Sf9 cells/baculovirus expression systems are widely used for high-level protein expression, often for purification, but proteins may also be functionally expressed in the defined Sf9 cell environment. The size of infected Sf9 cells is generally 17-30 microns in diameter.
The Sf9 cell line is distinct from the Sf21 cell line in that it is a clonal isolate with a smaller and more regular size, while Sf21 cells are more disparate in size and form monolayers and plaques that are more irregular.
Some Sf9 cell lines may harbor a negative sense Rhabdovirus called Spodoptera frugiperda rhabdovirus (SfRV), although not all tested Sf9 cells appear to be infected with this virus. The genome size of Sf9 has been estimated to be 451 Mbp with a G+C content of 36.53%.

Tissue	Ovary

Applications

Transfection, plaque assay/purification, amplification of high-titer stocks, and expression of recombinant proteins

Synonyms

- SF9
- sf9
- SF-9
- Sf-9
- sf-9
- Sf 9
- Spodoptera frugiperda clone 9
- Sf clone 9
- IPLB-Sf-9AE
- IPLB-SF-9AE
- IPLB-SF-9
- IPLB-Sf-9
- IPLB-Sf9

CLASSIFICATION

Organism	Fall armyworm
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Round, attached, epitheloid

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IDENTIFIERS

Citation

Sf9 (Cytion catalog number 604329)

NCBI TaxID	7108
Cellosaurus	CVCL_0549

EXPRESSION AND SUSCEPTIBILITY

Virus susceptibility

Baculoviruses, Autographa californica (MNPV), St. Louis encephalitis (SLE)

HANDLING AND CULTURE

Culture medium

Insectra Sf

Incubation atmosphere	27°C, 0% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 2% FBS to enhance proliferation if needed

Dissociation reagent	Accutase

Subculturing

Detachment of cells via a cell scraper is recommended. Collect the medium with detached cells after scraping in a 15ml centrifuge tube. Add about 5ml of medium to the flask and rinse the flask several times to collect any remaining cells and combine them with the rest of the cells in the tube. Centrifuge for 3 min at 300xg, remove the supernatant, resuspend the cells in fresh, cold medium and dispense into new flasks.

Seeding density	1 x 10^4 cells/cm^2. Incubate between 26 to 30 degree Celsius in a non-humidified, ambient air-regulated incubator. Use cell culture flasks with filter caps or loosen caps to allow for oxygen exchange.
Fluid renewal	2 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

Sterility

Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods.
To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.

Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Storage conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Shipping conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

DONOR

Donor age	Pupal stage

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes