Product sheet

Sf9 Cells | 604328

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%.
Organism	Fall armyworm
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

Characteristics

Age	Pupal stage
Gender	Female
Morphology	Round, attached, epitheloid
Growth properties	Monolayer, adherent

Identifiers / Biosafety / Citation

Citation	Sf9 (Cytion catalog number 604328)

Biosafety level	1

Expression / Mutation

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

Handling

Culture Medium	Spodopan (PAN Biotech)
Medium supplements	Supplement the medium with 2% FBS to enhance proliferation if needed
Passaging solution	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.
Split ratio	For the first two subcultivations a ratio of 1:3 to 1:5 is recommended. In further subcultivations cells can be split at a ratio of 1:10 to 1:20
Seeding density	1 x 10^4 cells/cm^2. Incubate between 26 to 30 degree Celsius in a nontohumidified, ambient airtoregulated incubator. Use cell culture flasks with filter caps or loosen caps to allow for oxygen exchange.
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)
Handling of cryopreserved cultures	Sf9 cells are shipped in a deep-frozen state on dry ice. Upon receipt, confirm that the vial remains frozen. For storage, place the cryovial immediately at temperatures below -150 degrees. If you plan to culture the cells immediately, swiftly thaw the vial by shaking it in a 37 degrees water bath with clean water and an antimicrobial agent for 40-60 seconds. Remove the vial once a small ice clump persists, ensuring it remains cold. Proceed with all subsequent steps under aseptic conditions. In a sterile flow hood, disinfect the cryovial with 70% ethanol. Then, gently open the vial and transfer the cell suspension into a 15 ml centrifuge tube pre-filled with 8 ml of room temperature culture medium. Gently mix the cells. For cell separation, centrifuge at 300 x g for 3 minutes and dispose of the supernatant. Skipping centrifugation is optional, although any residual freezing medium should be removed after 24 hours. Resuspend the pellet gently in 10 ml of fresh culture medium and divide between two T25 culture flasks. Follow the subculture protocol for subsequent steps.

Handling of proliferating cultures	One or two cell culture flasks come filled with cell culture medium. Collect the entire medium in a 50 ml centrifuge tube. Spin down the collected medium at 300 x g for 3 minutes to collect the cells which may have detached during transit. If a cell pellet is visible, resuspend the cells in 5 ml of cell culture medium and transfer to a T25 cell culture flask. Carefully add 5 ml of cell culture medium to each T25 cell culture flask. Examine cell morphology and confluency using a microscope. Finally, incubate the flasks at 37 degrees Celsius for at least 24 hours.

Quality control / Genetic profile / HLA

Sterility	Mycoplasma contamination is rigorously 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.
STR profile	**Amelogenin**: X,X