COS-7

605470

GENERAL INFORMATION

Description

COS-7 cells are a fibroblast-like cell line derived from African green monkey kidney tissue and are a vital resource in research, particularly for their high transfection efficiency, making them a popular choice for the expression of recombinant proteins. COS-7 cells are derived from the CV-1 cell line and transformed with a mutant form of the simian virus 40 (SV40), which includes a replication origin that allows for episomal replication of transfected plasmids containing the SV40 origin of replication.
Transfection of COS-7 cells is facilitated by transfection reagents such as Lipofectamine, with an efficiency that mirrors those observed in HeLa cells. Conventional methods can achieve up to 80% transfection efficiency in COS-7 cells, showcasing their ease of genetic manipulation. The ability of COS-7 cells to accommodate large plasmids and replicate them, leading to high yields of the desired recombinant proteins, make them an invaluable resource for various applications, including gene expression studies, signal transduction pathway investigations, and the production of proteins for biochemical analyses.
COS-7 cells exhibit a strong susceptibility to various viruses, making them an excellent model for virology studies, including virus-host interaction investigations, viral life cycle elucidation, and antiviral drug testing. Their permissiveness to viral entry and replication is leveraged to study the mechanisms of viral infection, pathogenesis, and the cellular responses elicited by viral invaders. Consequently, COS-7 cells serve as a valuable tool in the development of viral vectors for gene therapy and vaccine research.
COS-7 cells are a cornerstone in research due to their high transfection efficiency and utility in recombinant protein expression. Their ease of genetic manipulation, combined with susceptibility to viruses, makes them indispensable for studies in gene expression, signal transduction, virology, and the development of viral vectors, solidifying their role as a versatile tool in both basic and applied biological sciences.

Tissue	Kidney

Applications

Transfection host. Suitable for transfection by vectors requiring expression of SV40 T antigen.

Synonyms

- Cos-7
- COS7
- Cos7
- CV-1 in Origin Simian-7

CLASSIFICATION

Organism	African green monkey
Sex	Male
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This African green monkey kidney-derived cell line (COS-7) contains the replication-deficient SV40 mutant pSV6-2 introduced by transfection, supporting immortalization. The construct is integrated into CV-2-derived cells. This classification applies only within Germany and may differ elsewhere.

Biosafety level	1

CHARACTERISTICS

Morphology	Fibroblast-like

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Cell type	Fibroblast

IDENTIFIERS

Citation

COS-7 (Cytion catalog number 605470)

NCBI TaxID	9534
Cellosaurus	CVCL_0224

EXPRESSION AND SUSCEPTIBILITY

Virus susceptibility

SV40 (lytic growth), SV40 tsA209 at 40 degree Celsius, SV40 mutants with deletions in the early region

Products

T antigen

HANDLING AND CULTURE

Culture medium

DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase

Subculturing

Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.

Seeding density	1 x 10^4 cells/cm^2 will yield in a confluent layer in about 4 days
Fluid renewal	2 to 3 times per week
Post-thaw recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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	Adult

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