Product sheet

COS-7 Cells | 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.
Organism	Cercopithecus aethiops (Green monkey)
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

Characteristics

Age	Adult
Gender	Male
Morphology	Fibroblast-like
Cell type	Fibroblast

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Growth properties	Monolayer, adherent

Identifiers / Biosafety / Citation

Citation	COS-7 (Cytion catalog number 605470)
Biosafety level	1

Expression / Mutation

Virus susceptibility	SV40 (lytic growth), SV40 tsA209 at 40 degree Celsius, SV40 mutants with deletions in the early region
Products	T antigen

Handling

Culture Medium	DMEM:Ham's F12, w: 3.1 g/L Glucose, w: 1.6 mM L-Glutamine, w: 15 mM HEPES, w: 1.0 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	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.
Split ratio	A ratio of 1:4 to 1:8 is recommended
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

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Freezing 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.
Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

Handling of cryopreserved cultures

1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
2. 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.
3. 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.
4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
5. 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.
6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
7. 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.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

Quality control / Genetic profile / HLA

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.