Product sheet

HEK293FT Cells | 305275

Informações gerais

Description	The HEK293FT cell line is a derivative of the HEK293 cell line, originally derived from human embryonic kidney cells. The "FT" designation indicates that these cells have been transfected with the SV40 large T-antigen gene, which enhances their ability to replicate plasmid vectors containing the SV40 origin of replication. This modification makes 293FT cells particularly useful for high-efficiency production of viral vectors, such as lentiviruses and adenoviruses, and for transfection studies in molecular biology and gene therapy research. HEK293FT cells exhibit an epithelial morphology and grow rapidly in culture, providing a robust and reliable system for producing high-titer viral stocks. They retain many of the characteristics of the parental HEK293 cells, including high transfection efficiency and the ability to support the replication of recombinant viruses. Researchers utilize 293FT cells to produce viral vectors for gene delivery, to study gene function and regulation, and to develop gene therapies for various diseases. Their role in the production of viral vectors makes 293FT cells a cornerstone in the fields of gene therapy, functional genomics, and molecular cloning, facilitating the advancement of research and therapeutic development.
Organism	Human
Tissue	Fetal Kidney
Synonyms	HEK293-FT, HEK-293FT, HEK 293FT, HEK-293-FT, HEK293FT, 293-FT, FT-293

Características

Age	Fetus
Gender	Female
Morphology	Epithelial
Growth properties	Adherent

Dados regulatórios

Citation	HEK293FT (Cytion catalog number 305275)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_6911

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GMO Status	GMO-S1: This HEK293-derived cell line (293-FT) contains an SV40 expression plasmid with neomycin selection, supporting enhanced proliferation and transfection efficiency. The construct provides stable SV40. This classification applies only within Germany and may differ elsewhere.

Dados biomoleculares

Antigen expression	SV40 large T antigen, Adenovirus early region 1A (E1A)
Viruses	Transformant: Adenovirus 5, Simian virus 40 (SV40)

Manuseio

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
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	2 to 5 x 10^4 cells/cm^2
Fluid renewal	2 times per week
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.

Thawing and Culturing Cells	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. 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.
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
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.
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.

Controle de Qualidade e Análise Molecular

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.