Product sheet

HEK293T Cells | 300189

General information

Description	HEK 293T, a highly transfectable derivative of the parental HEK 293 cell, stands out as a versatile and powerful tool in the field of biotechnology for the production of recombinant proteins and various types of vaccines. HEK-293T cells were generated by transfecting embryonic kidney 293 cells with a plasmid encoding the SV40 large T antigen. The original HEK293 cell line was developed from the epithelial cells of human embryonic kidney tissue, with its transformation occurring in what was notably the 293rd experiment conducted by the researchers. In the realm of vaccine development, the 293T embryonic kidney cells are pivotal for viral vector production, including adenovirus vectors. HEK293T cells, under specific culture conditions, are transfected with vectors carrying adenoviral and retroviral elements, including the SV40 origin of replication, leading to the production of virus-like particles (VLPs). The VLPs, devoid of viral genetic material, are key in forming the basis of subunit and VLP-based vaccines. The recombinant protein production in 293T cells is facilitated by various transfection methods, with an emphasis on the generation of AP fusion proteins and other protein types that form the antigenic component of vaccines. The 293T cell line's genome engineering capabilities allow for the customization of expression constructs, further boosting the production of viral vectors. This, coupled with the ability to produce proteins in suspension culture or adherent conditions, makes the 293T cell line a full-stack solution for modern vaccine development.
Organism	Human
Tissue	Kidney
Applications	Vaccine development
Synonyms	Hek293T, HEK-293T, HEK 293T, HEK-293-T, HEK 293 T, 293-T, 293 T, 293T, Human Embryonic Kidney 293T, 293tsA1609neo

Characteristics

Age	Fetus
Gender	Female
Morphology	Epithelial-like
Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	HEK293T (Cytion catalog number 300189)
Biosafety level	1

Expression / Mutation

Receptors expressed	Vitronectin
Protein expression	CEA negative, p53 positive
Tumorigenic	In nude mice

Handling

Culture Medium	EMEM, w: 2 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: EBSS, w: 1 mM Sodium pyruvate, w: NEAA (Cytion article number 820100c)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	Accutase
Doubling time	30 hours
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 1:3 to 1:4 is recommended
Seeding density	1 x 10^4 cells/cm^2 will yield in a confluent layer in about 4 days
Fluid renewal	2 times per week
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	HEK293T 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.

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 **CSF1PO**: 11,12 **D13S317**: 12,13,14 **D16S539**: 9,13 **D5S818**: 8,9 **D7S820**: 11 **TH01**: 7,9.3 **TPOX**: 11 **vWA**: 16,18,19,20 **D3S1358**: 15,16,17,18 **D21S11**: 28,30.2 **D18S51**: 17,18 **Penta E**: 7,15 **Penta D**: 9,10 **D8S1179**: 11,12,13,14 **FGA**: 22,23 **D2S1338**: 19 **D19S433**: 18