Product sheet

Lenti-X293T Cells | 305820

General information

Description	Lenti-X293T cells are a derivative of the human embryonic kidney 293T lineage, engineered and optimized specifically for high-efficiency lentiviral vector production. Like parental 293T cells, they stably express the SV40 large T antigen, which enables episomal replication of plasmids containing the SV40 origin of replication and significantly enhances transient transfection efficiency. Lenti-X293T cells exhibit an adherent epithelial morphology and robust growth characteristics in standard serum-supplemented culture conditions, supporting high-density cultures suitable for large-scale viral production workflows. This cell line has been selected for superior transfection performance using calcium phosphate, lipid-based, or polymer-based reagents, resulting in consistently elevated lentiviral titers compared to conventional HEK293T populations. The enhanced viral output is attributed to optimized cellular physiology that supports efficient plasmid uptake, strong transgene expression, and effective assembly and release of replication-incompetent lentiviral particles when co-transfected with appropriate packaging and envelope constructs. Lenti-X293T cells are therefore widely used for the generation of third-generation lentiviral vectors in gene delivery, gene editing, and stable cell line engineering applications. Lenti-X293T cells maintain the general utility of HEK293-derived systems for high-level recombinant protein expression and transient gene expression studies. Their stable growth characteristics and reproducible performance make them suitable for both small-scale research applications and scalable production settings, provided that standard biosafety and vector packaging guidelines are followed for lentiviral systems.
Organism	Human
Tissue	Embryonic kidney
Disease	Transformed cell line (adenovirus type 5 DNA-transformed HEK cells)
Applications	Lentiviral vector production; transient transfection; high-level recombinant protein expression; virus packaging
Synonyms	Lenti-X 293T; 293T; HEK 293T

Characteristics

Age	Fetus
Gender	Female
Morphology	Epithelial-like
Cell type	Embryonic kidney epithelial cells

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Growth properties	Adherent; high transfectability; strong viral protein expression

Regulatory Data

Citation	Lenti-X293T (Cytion catalog number 305820)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0063 (parental 293T)
GMO Status	GMO Status Genetically modified (adenovirus type 5 DNA transformation; SV40 large T antigen expression)

Biomolecular Data

Protein expression	SV40 large T antigen
Antigen expression	SV40 large T antigen
Oncogenes	SV40 large T antigen
Tumorigenic	tumorigenic in immunocompromised mice (for 293T)
Viruses	Contains adenovirus type 5 DNA; expresses SV40 large T antigen
Virus susceptibility	Highly permissive for lentiviral production
Ploidy status	Aneuploid, hypotriploid (reported for 293T)
Mutational profile	Not fully characterized; contains integrated adenovirus 5 DNA and SV40 large T antigen construct
Karyotype	Aneuploid human karyotype with multiple chromosomal abnormalities (typical for 293T)

Handling

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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
Doubling time	20-24 hours
Subculturing	Split before reaching full confluence; allow up to 48 h for full attachment after thawing
Split ratio	A ratio of 1:5 to 1:10 is recommended.
Seeding density	2 to 4 x 10^4 cells/cm^2
Fluid renewal	Every 2-3 days
Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium.
7. Follow the procedure described under Post-Thaw Recovery

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.

Quality Control & Molecular Analysis