Lenti-X293T

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.

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

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
GMO status	GMO

GMO status details

GMO Status Genetically modified (adenovirus type 5 DNA transformation; SV40 large T antigen expression)

Biosafety level	2

CHARACTERISTICS

Morphology	Epithelial-like
Cell type	Embryonic kidney epithelial cells

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Tumourigenic	tumorigenic in immunocompromised mice (for 293T)
Ploidy status	Aneuploid, hypotriploid (reported for 293T)

Karyotype

Aneuploid human karyotype with multiple chromosomal abnormalities (typical for 293T)

Doubling time	20-24 hours

IDENTIFIERS

Citation

Lenti-X293T (Cytion catalog number 305820)

NCBI TaxID	9606
Cellosaurus	CVCL_0063 (parental 293T)

EXPRESSION AND SUSCEPTIBILITY

Protein expression

SV40 large T antigen

Antigen expression

SV40 large T antigen

Oncogenes

SV40 large T antigen

Mutational profile

Not fully characterized; contains integrated adenovirus 5 DNA and SV40 large T antigen construct

Viruses

Contains adenovirus type 5 DNA; expresses SV40 large T antigen

Virus susceptibility

Highly permissive for lentiviral production

HANDLING AND CULTURE

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)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase

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

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

QUALITY CONTROL AND CRYOPRESERVATION

Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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	Fetus

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.

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