PT-67

305483

GENERAL INFORMATION

Description

The PT-67 cell line is a murine retrovirus packaging cell line commonly used for the production of retroviral vectors for gene delivery purposes. Derived from NIH 3T3 cells, PT-67 expresses viral structural proteins and envelope proteins necessary for the assembly of retroviral particles. Notably, it is optimized to produce vectors pseudotyped with the 10A1 murine leukemia virus (MLV) envelope protein, which enables entry into cells using multiple phosphate transport protein receptors, including the gibbon ape leukemia virus receptor (Glvr-1 or Pit-1) and the amphotropic receptor Ram-1 (Pit-2).

The unique feature of PT-67 packaging cells lies in the 10A1 envelope protein's ability to utilize both Glvr-1 and Ram-1 receptors. This dual receptor specificity significantly expands the host range of retroviral vectors produced by PT-67, making it advantageous for transducing a variety of cell types across species, including human, mouse, and rat cells. For instance, the 10A1-pseudotyped retroviral vectors can efficiently transduce murine NIH 3T3 cells and human fibroblasts by leveraging these receptors. However, receptor usage patterns are species- and tissue-specific, as observed in studies where 10A1 pseudotyped vectors efficiently use Ram-1 but show variable efficiency with Glvr-1 in different human and rodent cell lines.

Retroviral vectors produced using PT-67 cells are helper virus-free, ensuring safety and efficiency in gene transfer experiments. This makes PT-67 a valuable tool for stable gene delivery in experimental and therapeutic applications, particularly where broad host range transduction is desired. The development and optimization of PT-67 packaging cells have facilitated advancements in gene therapy, enabling the delivery of therapeutic genes into target cells with enhanced specificity and efficiency.

Tissue	Embryo

Synonyms

- RetroPack PT67
- PT-67

CLASSIFICATION

Organism	Mouse
Sex	Male
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This murine NIH-3T3-derived packaging cell line (PT-67) contains a circularly permuted clone of the 10A1 retrovirus delivered via B6 plasmid transfection, supporting production of amphotropic retroviral particles. The inserts are stably present. This classification applies only within Germany and may differ elsewhere.

Biosafety level	2

CHARACTERISTICS

Morphology	Fibroblast
Cell type	Fibroblast

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IDENTIFIERS

Citation

PT-67 (Cytion catalog number 305483)

NCBI TaxID	10090
Cellosaurus	CVCL_9093

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
Seeding density	2-4*10^4/cm²
Fluid renewal	2 to 3 times per week

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 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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	Unspecified

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