

Detroit-562 Cells | 300399

General information

Description

Detroit-562 is a human cell line derived from the metastatic site of a pharyngeal carcinoma in an adult male. Established to serve as a model for squamous cell carcinoma, these cells are particularly valuable for studying the biological and molecular mechanisms involved in tumor progression and metastasis. The Detroit-562 cells exhibit an epithelial morphology and are capable of forming squamous cell carcinomas when transplanted into immunocompromised mice, making them a robust in vivo model for cancer research.

This cell line has been utilized extensively in the examination of cell signaling pathways that are pivotal in cancer development, such as those involving epidermal growth factor receptor (EGFR). Researchers have also leveraged Detroit-562 cells to investigate potential therapeutic approaches, including drug screening and radiotherapy efficacy. Their responsiveness to various chemotherapeutic agents makes them a critical tool in the pharmacological assessment of new anticancer compounds.

Organism

Human

Tissue

Pharynx

Disease

Carcinoma

Metastatic site

Pleural effusion

Synonyms

DETROIT 562, Detroit 562, Detroit562, DETROIT562, Det 562, Det. 562, Det562, D562

Characteristics

Age

Adult

Gender

Female

Ethnicity

Caucasian

Morphology

Epithelial-like

Growth properties

Monolayer, adherent

Regulatory Data

Citation

Detroit-562 (Cytion catalog number 300399)

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Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1171

Biomolecular Data

Protein expression	P53 positive
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Isoenzymes	G6PD, B
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Reverse transcriptase	Negative
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Products	Keratin
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Handling

Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO ₃ , w: EBSS (Cytion article number 820100a)
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Supplements	Supplement the medium with 10% FBS and 1% NEAA
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Dissociation Reagent	Accutase
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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.
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Seeding density	1×10^4 cells/cm ² will yield in a confluent layer in about 4 days
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Fluid renewal	2 to 3 times per week
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Post-Thaw Recovery	After thawing, plate the cells at 5×10^4 cells/cm ² and allow the cells to recover from the freezing process and to adhere for at least 24 hours.
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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% CO₂, 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.

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Quality Control & Molecular Analysis

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.