Product sheet

LC-540 Cells | 500262

General information

Description	The LC-540 cell line is an adherent cell model derived from an adult male Fischer rat. Known for its robust growth properties, this cell line has a modal chromosome number of 42, with a karyotypic range of 40 to 43. Approximately 21% of the cells exhibit aneuploidy, although no other structural abnormalities have been reported, indicating a relatively stable genomic profile. LC-540 cells are tumorigenic, with the ability to form tumors when introduced into rats. This feature makes them particularly valuable for studying oncogenesis and tumor biology in a controlled in vitro environment. Additionally, these cells are susceptible to several viruses, including Herpes simplex virus, Vaccinia virus, Vesicular stomatitis virus, and Human poliovirus 1. This susceptibility renders LC-540 a useful model for virological research, particularly in exploring virus-host interactions, viral pathogenesis, and the development of antiviral strategies. Due to their specific characteristics, LC-540 cells are instrumental in a range of research applications, including cancer research and virology, where they provide insights into the mechanisms of tumor formation and viral infections.
Organism	Rat
Tissue	Testis
Disease	Adenoma
Synonyms	LC540, LC 540

Characteristics

Breed/Subspecies	Fischer
Age	Adult
Gender	Male
Cell type	Leydig
Growth properties	Adherent

Regulatory Data

Citation	LC-540 (Cytion catalog number 500262)

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Biosafety level	1
NCBI_TaxID	10116
CellosaurusAccession	CVCL_3536

Biomolecular Data

Tumorigenic	Yes, in rats
Reverse transcriptase	Positive
Products	Steroid hormone, estrogen (estradiol and others), androgen (testosterone and others)

Handling

Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)
Supplements	Supplement the medium with 10% FBS and 1% NEAA
Dissociation Reagent	Accutase
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.
Seeding density	1 to 2 x 10^6 cells/cm^2
Fluid renewal	2 to 3 times per week
Post-Thaw 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	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% CO_2, humidified atmosphere.
Flask Coating	None
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

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.