V79

305012

GENERAL INFORMATION

Description

V79 cells are a Chinese hamster lung fibroblast cell line, commonly used in genetic, toxicological, and radiobiological research. They originate from the lung tissue of the Chinese hamster and are particularly valued for their rapid growth rate and stable karyotype, making them a reliable model for various laboratory studies.
One of the primary uses of V79 cells is in cytotoxicity and genotoxicity testing. These cells are employed to assess the potential DNA-damaging effects of chemical compounds and radiation, providing crucial data for risk assessment and safety evaluations. V79 cells are highly responsive to mutagens and carcinogens, making them an excellent choice for mutagenicity assays, such as the micronucleus test and chromosome aberration test.
In radiation biology, V79 cells are used to study the effects of ionizing radiation on cellular structures and to evaluate the efficacy of radioprotective substances. Their sensitivity to radiation-induced damage allows researchers to investigate the mechanisms of DNA repair, cell cycle arrest, and apoptosis following exposure to various types of radiation.
V79 cells are also instrumental in pharmacological research, particularly in drug screening processes where their robust growth and reproducibility are advantageous for high-throughput assays. They are used to test the cytotoxic effects of new drugs and to study the cellular uptake and metabolism of pharmaceutical compounds.
Overall, the V79 cell line is a versatile tool in biomedical research, contributing to our understanding of cellular responses to environmental agents and aiding in the development of safer and more effective therapeutic interventions.

Tissue	Lung

Applications

V79 cells are a widely used and established cell line in biological research, particularly in the study of DNA repair and DNA damage. These cells have a shortened cell cycle, are readily mutagenized to make stable mutant lines deficient in DNA repair enzymes and related DNA damage response functions, and are particularly useful for gene toxicity assays due to their stability of karyotype and morphology. V79 cells have been widely utilized in studies on x-ray, UV radiation, and oxidizing agent-induced DNA damage and repair, as well as investigations into cellular signaling pathways, apoptosis, inflammation, and the effects of various chemicals and compounds on cellular growth and viability. Their extensive use in research attests to their usefulness and importance in biological science.

Synonyms

- V-79
- V 79
- Strain V
- V79-1
- GM00215
- GM-215
- GM00215A
- GM16136
- UCW 100

CLASSIFICATION

Organism	Chinese hamster
Sex	Male
Growth properties	Adherent
Biosafety level	1

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CHARACTERISTICS

Morphology	Fibroblast

IDENTIFIERS

Citation

V79 (Cytion catalog number 305012)

NCBI TaxID	10029
Cellosaurus	CVCL_2234

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

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.

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.

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