Product sheet

IMR-90 Cells | 305216

General information

Description	Please note: The IMR-90 cell line is not available for purchase anymore. Our stock reached senescence and therefore cannot be sold anymore. The IMR-90 cell line is a diploid human cell culture line derived from the lung fibroblasts of a 16-week-old female fetus. Established in the 1970s, it is commonly used in various fields of biomedical research due to its human origin and normal cellular physiology, making it a valuable model for studying human biology and disease. IMR-90 cells exhibit a normal human karyotype with 46 chromosomes, making them an excellent model for studies requiring normal human cellular physiology and genetics. This contrasts with many cancer cell lines, which often have abnormal karyotypes. IMR-90 cells are particularly useful for aging research, including the study of cellular senescence, telomere biology, and age-related cellular processes, as they undergo senescence after a finite number of cell divisions. They are amenable to transfection, which is crucial for genetic studies that explore gene function, gene expression regulation, and the molecular mechanisms underlying various cellular processes. Due to their human origin and normal cellular behavior, IMR-90 cells serve as a relevant model for studying a wide range of human diseases, especially those related to lung function, fibrosis, and other pathologies affecting connective tissues. They are also suitable for in vitro toxicology assays and drug testing. As a viable alternative to the WI-38 cell line and other human lung fibroblast strains, IMR-90 cells offer unique insights into cellular dynamics, particularly in the context of human lung fibroblasts' division capabilities and viral susceptibilities. In regenerative medicine and stem cell research, their fibroblast origin makes IMR-90 cells a subject of interest, particularly in studies related to fibroblast-derived induced pluripotent stem cells (iPSCs) and tissue engineering. Overall, the IMR-90 cell line is a versatile and widely used tool in biomedical research, offering insights into normal human cellular functions, aging, disease mechanisms, and the potential effects of therapeutic interventions.
Organism	Human
Tissue	Fetal lung
Synonyms	IMR 90, IMR90, Institute for Medical Research-90, I90

Characteristics

Age	16 fetal weeks
Gender	Female
Ethnicity	Caucasian
Morphology	Fibroblast

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Cell type	Fibroblast fo lung
Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	IMR-90 (Cytion catalog number 305216)
Biosafety level	1

Expression / Mutation

Handling

Culture Medium	EMEM, w: 2 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: EBSS, w: 1 mM Sodium pyruvate, w: NEAA (Cytion article number 820100c)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	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.
Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

Handling of cryopreserved cultures

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.

Quality control / Genetic profile / HLA

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.