Product sheet

WI-38 Cells | 300428

General information

Description	**Please note:** The WI-38 cell line is not available for purchase anymore. Our stock reached senescence and therefore cannot be sold anymore. However, we continue to offer an immortalized variant of this cell line, WI 38VA13 Subline 2RA (Catalog No. 300421). The WI-38 cell line, derived from the fetal lung tissue of a 3-month-old fetus obtained from an elective abortion in Sweden in 1962, represents a landmark in medical science, particularly in vaccine production. WI-38 cells have played a crucial role in the development of vaccines for a wide array of virus-based infectious diseases, including poliomyelitis, measles, mumps, rubella, varicella, herpes zoster, adenovirus, rabies, and Hepatitis A, thereby significantly reducing morbidity associated with these conditions. Notably, WI-38 cells have been utilized in the production of several key vaccines, such as Merck's rubella and Hepatitis A vaccines, Sanofi Pasteur's Imovax rabies vaccine, and the adenovirus vaccine used by the U.S. military, highlighting their essential role in public health. These cells, characterized by their fibroblast cell type and excellent biocompatibility, offer an optimal environment for the culture of viruses and the production of human virus vaccines. As a human diploid cell line with a finite lifespan of about 50 population doublings and a doubling time of roughly 24 hours, WI-38 cells have been used extensively in biological research, including the study of cellular aging, cancer, and genetics. WI-38 cells further have been instrumental in the field of virology, particularly in supporting the cultivation and study of human viruses. These cells provide a conducive environment for growing viruses extracted from clinical specimens, which is essential for the development of vaccines and for advancing our understanding of viral behaviors and genetics. In summary, WI-38 cells, with their extensive applications in vaccine production remain a cornerstone in the field of virology. Their contribution to the development of cell-derived vaccines and the advancement of primary cells in scientific research underscores their invaluable role in enhancing human health worldwide.
Organism	Human
Tissue	Lung
Metastatic site	Not applicable (normal fetal lung fibroblast line; finite passage)
Applications	Vaccine virus production (poliomyelitis, measles, mumps, rubella, varicella, hepatitis A, rabies); virology host cell; cellular aging and senescence research; diploid fibroblast biology; genotoxicity testing
Synonyms	Wi-38, WI38, Wistar Institute-38, AG06814E, AG06814G, AG06814H, AG06814-J, AG06814J, AG06814-M, AG06814-N

Characteristics

Age	3 months gestation
Gender	Female

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Ethnicity	Caucasian
Morphology	Epithelial-like
Cell type	Fibroblast
Growth properties	Adherent

Regulatory Data

Citation	WI 38 (Cytion catalog number 300428)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0579
GMO Status	No genetic modification; normal diploid human fibroblast with finite replicative lifespan (~50 population doublings)

Biomolecular Data

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.
Split ratio	1 to 5

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Seeding density	3 to 5 × 10^3 cells/cm^2
Fluid renewal	Every 2 to 3 days
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.
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.