Wilms10M

300418

GENERAL INFORMATION

Description

The Wilms10M cell line was established from a metastatic lung nodule of a patient with Wilms tumor (nephroblastoma). Like its primary tumor counterpart, Wilms10T, the Wilms10M cell line is characterized by a homozygous deletion of the WT1 gene, resulting in the complete absence of WT1 protein. WT1 is essential for normal kidney development, and its deletion is associated with more aggressive tumor behavior, particularly in metastatic settings. Additionally, Wilms10M cells exhibit loss of heterozygosity (LOH) in the 11p15 chromosomal region, which includes the IGF2 gene, further contributing to the malignant properties of these cells.
Wilms10M cells maintain a stable karyotype with no major chromosomal rearrangements apart from the specific deletion of the WT1 region. This cell line, derived from metastatic tissue, is particularly valuable for studying the molecular mechanisms that drive metastasis in Wilms tumor. The cells exhibit mesenchymal characteristics, expressing markers such as vimentin, while lacking epithelial markers like cytokeratin, which is indicative of their origin from the stromal component of the tumor.
Research on Wilms10M has focused on the signaling pathways that are active in these metastatic cells. Proteomic analyses have demonstrated the activation of several receptor tyrosine kinases (RTKs), including IGF1R, PDGFRβ, and AXL, which are involved in promoting cell survival, proliferation, and metastatic potential. The downstream MAPK and PI3K/AKT signaling pathways are also activated, playing a key role in maintaining the invasive and metastatic phenotype of Wilms10M cells. Given its metastatic origin, Wilms10M is an essential model for understanding the molecular events underlying Wilms tumor metastasis and for developing targeted therapeutic strategies against metastatic disease.

Tissue	Kidney
Disease	Wilms tumor

Applications

In vitro cell culture model. Biochemical studies

Synonyms

- Wilms10

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Spindle-shaped
Cell type	Wilms cells

IDENTIFIERS

Citation

Wilms10M (Cytion catalog number 300418)

NCBI TaxID	9606

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Cellosaurus	CVCL_A5SL

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

WT1 mutation status: homozygous del WT1 within del11p13. LOH: no in 11p13 but UPD in 11p15. CTNNB1 mutation status: homozygous del TCT, p.DS45, UPD 3p

HANDLING AND CULTURE

Culture medium

MSCGM kit (from Lonza)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.
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.

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.

DONOR

Donor age	2 years
Ethnicity	Caucasian

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