DMS-114

305364

GENERAL INFORMATION

Description

DMS-114 is a human small-cell lung cancer (SCLC) cell line with unique features distinguishing it from other SCLC subtypes. Recent research has indicated that DMS-114, previously classified within the YAP1-expressing SCLC category (SCLC-Y), harbors pathogenic mutations in SMARCA4, an ATPase subunit of the SWI/SNF chromatin-remodeling complex. These mutations are associated with the absence of RB1 mutations, contrary to the typical mutational landscape of SCLC, which commonly features concurrent TP53 and RB1 alterations. This cell line's profile includes reduced expression of SMARCA4 mRNA and protein, contributing to its reclassification as a SMARCA4-deficient undifferentiated tumor (SMARCA4-UT) rather than a traditional SCLC. Morphological assessments have shown that DMS-114 aligns more closely with thoracic SMARCA4-UT, exhibiting traits such as lower neuroendocrine marker expression and a distinctive immunohistochemical profile.
The revised classification of DMS-114 as a SMARCA4-deficient malignancy rather than SCLC has significant implications for its use as a preclinical model. It serves as an important resource for studying therapeutic strategies targeting SMARCA4-related pathways and investigating the biology of aggressive thoracic cancers that mimic SCLC. Unlike conventional SCLC, SMARCA4-deficient tumors, including DMS-114, often present with unique gene expression profiles marked by high YAP1 expression, loss of certain neuroendocrine markers, and distinct molecular vulnerabilities. This insight underscores the necessity of comprehensive molecular and histopathological analysis for accurate tumor classification and the development of effective treatment strategies.

Tissue	Lung
Disease	Thoracic SMARCA4-deficient undifferentiated tumor

Synonyms

- DMS-114
- DMS114
- Darmouth Medical School 114

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Tumourigenic	Yes, in nude mice

IDENTIFIERS

Citation

DMS-114 (Cytion catalog number 305364)

NCBI TaxID	9606
Cellosaurus	CVCL_1174

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EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

Epidermal growth factor (EGF), complement (CR3)

Protein expression

Genes expressed: adrenocorticotropin (adrenocorticotropic hormone, ACTH), bombesin, glucagon, 17 beta estradiol, oxytocin - neurophysin (OT-NP)

Antigen expression

Leu 7 +, My23 +, CD11b +

Mutational profile

Mutation: SMARCA4, p.Glu1310Ter (c.3928G>T), homozygous; Mutation: PARD3B, Ex2-14del, homozygous; Mutation: TP53, p.Arg213Ter (c.637C>T), homozygous

HANDLING AND CULTURE

Culture medium

Waymouth's MB 752/1 medium (We do not supply this product; please consider other suppliers. Please let us know if you need further assistance)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase
Fluid renewal	2 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.

DONOR

Donor age	68 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