Product sheet

MSTO-211H Cells | 300450

General information

Description	The MSTO-211H cell line is derived from a patient with biphasic mesothelioma, specifically from a pleural effusion. It is classified as metastatic, and the patient had not undergone prior radiation or chemotherapy treatments before the establishment of the cell line. MSTO-211H cells are notable for expressing several markers that are significant in understanding both their biological behavior and their potential utility in cancer research. These cells possess high-affinity binding sites for epidermal growth factor (EGF), a property that may contribute to their proliferative capabilities, as EGF is a key regulator of cell growth and differentiation. The presence of EGF receptors suggests these cells could be useful in studying pathways related to growth factor signaling in cancer. In addition to EGF receptors, MSTO-211H cells express neuron-specific enolase (NSE), an enzyme typically found in neurons and neuroendocrine cells. NSE expression in MSTO-211H cells may be indicative of a neuroendocrine differentiation potential, a feature that can be significant for understanding the heterogeneity of mesothelioma tumors. Furthermore, the cells express both the alpha and beta subunits of human chorionic gonadotropin (HCG), a hormone typically produced during pregnancy but also known to be secreted by certain cancers. The expression of HCG subunits in MSTO-211H cells suggests a possible role in tumor biology, potentially related to immune evasion or tumor progression mechanisms. These markers collectively highlight the complex nature of this cell line, making it a valuable model for investigating mesothelioma biology and the effects of therapeutic agents.
Organism	Human
Tissue	Lung
Disease	Pleural mesothelioma
Synonyms	MSTO-211 H, MSTO211H, MSTO-211, 211H, MeSoTheliOma-211H

Characteristics

Age	62 years
Gender	Male
Ethnicity	Caucasian
Growth properties	Adherent

Regulatory Data

Citation	MSTO-211H (Cytion catalog number 300450)

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Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1430

Biomolecular Data

Protein expression	High affinity binding sites for EGF, expression of Neuron specific enolase (NSE) and alpha and beta subunits of HCG, L-DOPA decarboxylase (DDC), bombesin and neurotensin were not detected.
Tumorigenic	Yes, tumors for med in approximately 20% of nude mice inoculated with MSTO-211H cells
Karyotype	Modal number = 72, range = 70 to 78

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	20 hours
Subculturing	The cells can reach a saturation density of 400.000 cells per cm2, but will slough off the surface as they attain this density. Remove medium and rinse the adherent cells using PBS without calcium and magnesium (3-5 ml PBS for T25, 5-10ml for T75 cell culture flasks). Add Accutase (1-2ml per T25, 2.5ml per T75 cell culture flask), the cell sheet must be covered completely. Incubate at ambient temperature for 8-10 minutes. Carefully resuspend the cells with medium (10 ml), centrifuge for 5 min at 300xg, resuspend cells in fresh medium and dispense into new flasks which contain fresh medium.
Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Post-Thaw Recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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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.