Product sheet

MNNG-HOS (CL #5) Cells | 300289

General information

Description	The MNNG/HOS Cl #5 cell line [R-1059-D] is derived from the human osteosarcoma cell line HOS through in vitro transformation with N-methyl-N'-nitro-N-nitrosoguanidine (MNNG) at a concentration of 0.01 mcg/ml. This compound is a potent carcinogen, and the transformation resulted in significant tumorigenic properties, evidenced by the formation of tumors in nude mice within 21 days at a 100% frequency when inoculated subcutaneously with 10^7 cells. These tumors were observed to be poorly differentiated sarcomas or osteosarcomas. The cell line was originally established from a 13-year-old White female patient with osteosarcoma and exhibits adherent growth properties. Functionally, MNNG/HOS Cl #5 cells demonstrate high saturation density and high plating efficiency in soft agar, reflecting their enhanced anchorage-independent growth, a hallmark of malignant transformation. Additionally, these cells exhibit notable fibrinolytic activity, which has been associated with increased tumorigenic potential. When compared to untreated HOS cells, MNNG-treated cells exhibit more robust cell aggregation properties and a higher propensity to form colonies in soft agar, which correlates with their tumor-forming abilities. In experiments, MNNG-transformed cells produced tumors in both nude mice and hamsters, with cells resembling the parent HOS line, while untreated cells were non-tumorigenic under similar conditions. This cell line is also useful in studying cancer progression and tumor biology, particularly osteosarcoma, as it provides a model of chemically induced transformation. The ability of these cells to grow in an immunocompromised environment (e.g., nude mice) makes them a valuable tool for preclinical cancer research, allowing for the investigation of tumorigenic mechanisms and the potential testing of therapeutic interventions.
Organism	Human
Tissue	Bone
Disease	Osteosarcoma
Synonyms	MNNG/HOS, MNNG-HOS, HOS-MNNG, HOS/MNNG, MNNGHOS, MNNG/HOS (Cl#5), MNNG/HOS Clone F-5, MNNG, R-1059-D, TE85, Te85, TE-85, HOS-TE85, Hos TE-85, HOS TE 85, HOS TE85, HOS (TE85), HOS(TE85), HOS (TE85, Clone F5), MNNG-HOS (TE 85, clone F-5), TE-85 clone F-5, HOS-Te85, TE 85.T, TE 85 ClF-5, TE-85 clone 5

Characteristics

Age	13 years
Gender	Female
Ethnicity	Caucasian
Morphology	Fibroblast-like

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Growth properties	Monolayer, adherent

Regulatory Data

Citation	MNNG-HOS (CL #5) (Cytion catalog number 300289)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0439

Biomolecular Data

Isoenzymes	G6PD, B
Tumorigenic	Yes, in nude mice

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
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.
Seeding density	1×10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

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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.
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.
Flask Coating	None
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.