Product sheet

MG-63 Cells | 300441

General information

Description	MG-63 cells, a human osteosarcoma cell line derived from the bone of a 14-year-old White male patient with osteosarcoma, are a pivotal model in bone biology research. MG63 human osteosarcoma cells, with their fibroblast morphology and rapid proliferation, serve as an essential tool in understanding bone metabolism, particularly in the context of osteosarcoma. MG-63 cells produce high levels of human interferon when induced with agents like polyinosinic acid-polycytidylic acid, cycloheximide, and actinomycin D. Enhanced interferon production is crucial for studies focusing on the immune responses within the bone microenvironment. Seeding MG-63 cells on biocompatible surfaces like Bioglass disks, titanium (Ti-6Al-4V) disks, and cobalt chrome (Co-Cr-Mo) alloys is possible due to their strong cell adherence and attachment. They are a good osteoblastic model for studying osseointegration and bone cell-implant interactions with amorphous carbon films and composite tantalum. Research involving the osteoblastic cell line MG-63 often focuses on apoptosis, the regulation, and expression of osteocalcin, and the impact of adenosine on bone metabolism. Overall, MG-63 cells remain a cornerstone in the study of human osteoblast-like cells, offering insights into cell growth, differentiation, and the intricate interactions between bone cells and their microenvironment.
Organism	Human
Tissue	Bone
Disease	Osteosarcoma
Metastatic site	Bone, left femur
Synonyms	M-G63, MG63

Characteristics

Age	14 years
Gender	Male
Ethnicity	Caucasian
Morphology	Fibroblast-like
Growth properties	Adherent

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Regulatory Data

Citation	MG-63 (Cytion catalog number 300441)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0426

Biomolecular Data

Receptors expressed	Transforming growth factor beta (TGF beta, type I and type II)
Products	Interferon

Handling

Culture Medium	DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)
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
Post-Thaw Recovery	After thawing, plate the cells at 5×10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 48 hours.

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Freeze medium	As a cryopreservation medium, 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 / Genetic profile / HLA

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.