Product sheet

L6 Cells | 305231

General information

Description	The L6 cell line is a well-established model derived from rat skeletal muscle tissue. These cells are notable for their ability to differentiate into myotubes, making them a valuable tool for studying muscle development, regeneration, and physiology. L6 cells exhibit robust proliferative capacity and are commonly used in research focusing on muscle cell biology, including studies on muscle protein synthesis, hypertrophy, and atrophy. The differentiation process in L6 cells can be induced under specific culture conditions, leading to the formation of multinucleated myotubes that closely mimic the characteristics of mature skeletal muscle fibers. In addition to their applications in muscle physiology research, L6 cells are also employed in metabolic studies, particularly those involving glucose uptake and insulin signaling pathways. These cells express insulin receptors and can be used to investigate the molecular mechanisms underlying insulin resistance and diabetes. The L6 cell line's responsiveness to various metabolic stimuli makes it an ideal model for exploring the effects of different treatments or genetic modifications on muscle metabolism. Overall, L6 cells provide a versatile and reliable platform for advancing our understanding of muscle biology and metabolic diseases.
Organism	Rat
Tissue	Skeletal muscle
Synonyms	L-6, L-6 myoblast

Characteristics

Age	1 day
Gender	Male
Cell type	Myoblast
Growth properties	Adherent

Regulatory Data

Citation	L6 (Cytion catalog number 305231)
Biosafety level	1
NCBI_TaxID	10116
CellosaurusAccession	CVCL_0385

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Biomolecular Data

Protein expression	Myosin

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
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.
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.