Product sheet

MIN-6 Cells | 302148

General information

Description	The MIN-6 cell line is a murine pancreatic beta cell line derived from insulinoma. It is commonly used in research to study insulin secretion mechanisms and beta-cell function due to its ability to synthesize and secrete insulin in response to glucose levels. This cell line is particularly valuable because it retains many of the functional characteristics of primary pancreatic beta cells, making it a useful model for diabetes research. MIN-6 cells exhibit glucose-responsive insulin secretion, which is a critical trait for studies focusing on the regulation of insulin release and the cellular responses to varying glucose concentrations. The cells are also used to investigate pancreatic beta-cell proliferation and apoptosis, as well as the role of various genes and environmental factors in these processes. Additionally, MIN-6 cells have been instrumental in testing potential pharmacological agents for their effects on beta-cell function and survival, thus contributing to the development of new therapeutic strategies for diabetes.
Organism	Mouse
Tissue	Pancreas, islets of Langerhans
Disease	Mouse insulinoma
Synonyms	Min6, MIN6, Mouse INsulinoma 6

Characteristics

Breed/Subspecies	C57BL/6 IT6 transgenic
Age	13 weeks
Gender	Unspecified
Cell type	Beta cell
Growth properties	Adherent

Regulatory Data

Citation	MIN-6 (Cytion catalog number 302148)
Biosafety level	1

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NCBI_TaxID	10090
CellosaurusAccession	CVCL_0431
GMO Status	GMO-S1: This murine pancreatic β-cell line (MIN-6) contains an SV40 T-Antigen transgene under insulin promoter control from a transgenic mouse model, supporting immortalization and insulin-related studies. The construct is stably integrated. This classification applies only within Germany and may differ elsewhere.

Biomolecular Data

Protein expression	Insulin, glucagon, somatostatin, ghrelin
Viruses	Transformant: Simian virus 40 (SV40)

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 15% heat-inactivated FBS, 50 µM beta-Mercaptoethanol.
Dissociation Reagent	Accutase
Subculturing	Discard the old medium and wash the cells with PBS. Add a freshly prepared 0.025% trypsin/0.02% EDTA solution heated to 37 degrees Celsius and wait until the cells detach, which usually takes about 5 minutes. Neutralize the trypsin by adding fresh medium, then transfer the cell mixture to a tube and centrifuge. After centrifugation, remove the supernatant, resuspend the cell pellet in fresh culture medium, and transfer the suspension to new flasks.
Seeding density	5×10^4 cells/cm^2
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

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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.