GH3

300383

GENERAL INFORMATION

Description

The GH3 cell line, originating from a rat pituitary tumor, is a critical resource in the study of pituitary functions, particularly regarding the secretion of prolactin and growth hormone. These cells possess characteristics of both somatotropic and lactotropic cells, enabling detailed investigations into pituitary hormones and their regulatory mechanisms. The cell line is extensively utilized to understand the effects of hormonal treatments and genetic modifications on the secretion of these hormones. GH3 cells respond significantly to thyroid-stimulating hormones, making them a valuable model for assays that measure the impact of various compounds on pituitary gland activities.
Research employing GH3 cells often delves into how these cells react to different hormonal stimuli. For example, hydrocortisone is known to promote growth hormone production while inhibiting prolactin output in these cells, making GH3 a preferred model for exploring hormonal balance and the endocrine system's response to stress and other physiological factors. Such studies are pivotal in advancing our understanding of pituitary gland disorders and crafting therapies for conditions like growth deficiencies and hyperprolactinemia.
Moreover, GH3 cells are instrumental in pharmacological testing and biotechnological applications aimed at developing treatments for pituitary-related disorders. Their ability to produce more growth hormone compared to GH1 cells, along with prolactin, allows researchers to examine the regulation and effects of these hormones under various conditions. This unique profile is essential for understanding the complex interactions within the endocrine system and for the development of targeted therapeutic interventions.

Tissue	Brain, Pituitary gland
Disease	Neoplasm

Synonyms

- GH 3

CLASSIFICATION

Organism	Rat
Sex	Female
Growth properties	Adherent and suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

IDENTIFIERS

Citation

GH3 (Cytion catalog number 300383)

NCBI TaxID	10116
Cellosaurus	CVCL_0273

EXPRESSION AND SUSCEPTIBILITY

Products

Growth hormone, prolactin

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HANDLING AND CULTURE

Culture medium

Ham's F12K Medium, w: 2.0 mM L-Glutamine, w: 2.0 mM Sodium pyruvate, w: 2.5 g/L NaHCO3 (Cytion article number 820608a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 15% horse serum, 2.5% heat-inactivated FBS

Dissociation reagent	Accutase

Subculturing

Gather the suspension cells in a 15 ml tube and gently wash the adherent cells with PBS lacking calcium and magnesium (use 3-5 ml for T25 flasks and 5-10 ml for T75 flasks). Apply Accutase (1-2 ml for T25 flasks, 2.5 ml for T75 flasks) ensuring full coverage of the cell layer. Allow the cells to incubate at room temperature for 10 minutes. Following incubation, combine and centrifuge both the suspension and adherent cells. After centrifugation, carefully resuspend the cell pellet and transfer the cell suspension into new flasks containing fresh medium.

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Breed / subspecies	Wistar Furth
Donor age	7 months

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

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