Product sheet

AtT-20 Cells | 305161

General information

Description	The AtT-20 cell line is a well-characterized mouse pituitary tumor cell line derived from anterior pituitary cells. These cells originate from a strain of mice known as AtT-20/D16v-F2, and are primarily used for the study of pituitary function and regulation, especially focusing on the synthesis and secretion of adrenocorticotropic hormone (ACTH). ACTH is crucial for adrenal gland function and is a key player in the stress response and metabolic regulation. AtT-20 cells exhibit typical features significant for studies in neuroendocrinology and pharmacology, such as the production and secretion of pro-opiomelanocortin (POMC), the precursor molecule for ACTH. The cells are responsive to corticotropin-releasing hormone (CRH) and other hypothalamic hormones, making them an excellent model for exploring the hypothalamic-pituitary-adrenal (HPA) axis in vitro. Moreover, AtT-20 cells can be used to investigate the mechanisms of peptide hormone processing, packaging, and secretion, given their well-defined secretory pathways. In terms of applications, AtT-20 cells have been utilized in various studies including those focusing on gene expression profiles under different treatment conditions, intracellular signaling pathways involving cAMP, and the effects of genetic modifications on hormone secretion. These cells are also valuable in the assessment of the pharmacological properties of potential drug candidates targeting HPA axis components.
Organism	Mouse
Tissue	Pituitary
Disease	Mouse pituitary gland neoplasms
Synonyms	AtT20, AtT 20, ATT-20

Characteristics

Morphology	Small rounded cells
Growth properties	Adherent/suspension

Identifiers / Biosafety / Citation

Citation	AtT-20 (Cytion catalog number 305161)
Biosafety level	1

Expression / Mutation

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Protein expression	Adrenocorticotropic Hormone(Acth)

Handling

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)
Medium supplements	Supplement the medium with 2.5% FBS, 15% horse serum
Passaging solution	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.
Split ratio	1:2 to 1:4
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100)

Handling of cryopreserved cultures

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.

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.