**Product sheet**

# AtT-20 Cells | 305161

## General information

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| **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.<br><br>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.<br><br>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

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| **Breed/Subspecies** | LAF1 |
| **Morphology** | Small rounded cells |
| **Growth properties** | Suspension |

## Regulatory Data

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

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| **NCBI_TaxID** | 10090 |
| **CellosaurusAccession** | CVCL_2300 |

## Biomolecular Data

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| **Protein expression** | Adrenocorticotropic Hormone(Acth) |

## Handling

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| **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) |
| **Supplements** | Supplement the medium with 2.5% FBS, 15% horse serum |
| **Dissociation Reagent** | Accutase |
| **Subculturing** | Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of 5 x $10^5$ cells/ml and keep the cell concentration within the range of 3 x $10^5$ to 1 x $10^6$ cells/ml for optimal growth. |
| **Fluid renewal** | 2 to 3 times per week |
| **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. |

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| **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.<br>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.<br>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.<br>4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.<br>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.<br>6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.<br>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.<br>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. |
| **Flask Coating** | None |
| **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.