Product sheet

KATO-III Cells | 300381

General information

Description	The KATO-III cell line is a human gastric carcinoma model derived from the metastatic site of a poorly differentiated adenocarcinoma. These cells are widely utilized in research focused on gastric cancer, particularly for studying the molecular mechanisms driving tumor progression, drug resistance, and metastasis. The KATO-III cells exhibit an aneuploid karyotype, characterized by multiple chromosomal abnormalities, which contributes to their aggressive cancer phenotype. They are notably p53 deficient, a feature often associated with increased tumorigenicity and altered responses to chemotherapy, making them a valuable tool for investigating the role of p53 in gastric cancer. KATO-III cells grow in suspension and display a rounded morphology. They possess a high capacity for proliferation, making them suitable for various in vitro applications, including drug screening and cytotoxicity assays. These cells are also used in studies of cell signaling pathways, as their aberrant signaling is a hallmark of gastric cancer pathogenesis. Researchers often utilize KATO-III cells to explore the efficacy of novel therapeutic agents, particularly those targeting HER2, EGFR, and other relevant oncogenic pathways. This cell line is essential for advancing our understanding of gastric cancer biology and for developing targeted therapies aimed at improving patient outcomes.
Organism	Human
Tissue	Stomach
Disease	Adenocarcinoma
Metastatic site	Pleural effusion
Synonyms	Kato III, Kato-III, KATO III, KATOIII, KatoIII, KATO 3, JTC-28, Japanese Tissue Culture-28

Characteristics

Age	57 years
Gender	Male
Ethnicity	Asian
Morphology	Spherical
Growth properties	Adherent/suspension

Regulatory Data

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Citation	KATO-III (Cytion catalog number 300381)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0371

Biomolecular Data

Protein expression	P53 negative, CEA positive
Antigen expression	Blood Type B, Rh+
Isoenzymes	PGM3, 1, PGM1, 1, ES-D, 1, AK-1, 1, GLO-1, 2, G6PD, B, Phenotype Frequency Product: 0.0742
Tumorigenic	Yes, in cheek pouches of anti thymocyte serum treated hamsters, not tumorigenic in nude mice
Karyotype	The stemline chromosome number is hypotetraploid with the 2S component occurring at 6.2%. Nine markers were common to most S metaphases, four markers were less frequent. One (occasionally 2 copies) homogenous staining region (HSR) (t(11,HSR) was present in all metaphases examined, but no double minutes (DM) were detected (Sekiguchi 1978).

Handling

Culture Medium	Ham's F12, w: 1.0 mM stable Glutamine, w: 1.0 mM Sodium pyruvate, w: 1.1 g/L NaHCO3 (Cytion article number 820600a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	36 hours
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 37°C 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.

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Seeding density	2 x 10^4 cells/cm^2 will result in a confluent monolayer within 2 to 3 days.
Fluid renewal	Every 3 to 5 days
Post-Thaw Recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.
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.
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.