Product sheet

CLS-ACI-1 Cells | 500459

General information

Description	The CLS-ACI-1 cell line was established in 1998 from a solid mammary carcinoma, which was induced in a model organism through oral administration of 7,12-dimethylbenzo[a]anthracene (DMBA) at a dosage of 20 mg per kilogram body weight. DMBA is a well-known potent mutagen and carcinogen that is commonly used in experimental oncology for the induction of cancers, particularly in studies related to breast cancer. The establishment of the CLS-ACI-1 cell line from the tumor tissue allows for extensive in vitro exploration of breast cancer biology, particularly in understanding the mechanisms of carcinogenesis initiated by chemical agents like DMBA. In vitro studies using the CLS-ACI-1 cell line provide crucial insights into the cellular pathways and genetic alterations associated with mammary carcinomas. This cell line serves as a valuable tool for oncological research, including drug testing, resistance mechanisms, and cellular response to pharmacological agents. As a continuous cell line, CLS-ACI-1 offers a consistent and replicable model for studying the progression and treatment of breast cancer, facilitating the development of more effective therapeutic strategies against similar carcinomas induced by chemical agents in humans.
Organism	Rat
Tissue	Breast
Disease	Adenocarcinoma
Synonyms	CLS-ACI-I

Characteristics

Breed/Subspecies	ACI
Age	3 months
Gender	Female
Morphology	Epithelial-like
Growth properties	Adherent/suspension

Regulatory Data

Citation	CLS-ACI-1 (Cytion catalog number 500459)

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Biosafety level	1
NCBI_TaxID	10116
CellosaurusAccession	CVCL_5729

Biomolecular Data

Oncogenes	Overexpression of Mycn gene.
Tumorigenic	Yes, in nude mice, ACI-rat
Karyotype	Near triploid. 88.4% showing 51-69 chromosomes, 5% 38-50 chromosomes, 6.6% near tetraploid or higher ploidy level.

Handling

Culture Medium	DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)
Supplements	Supplement the medium with 10% 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.
Seeding density	2 x 10^4 cells/cm^2 will yield in a confluent layer in about 6 to 7 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.

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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. 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

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.