ETK-1

305529

GENERAL INFORMATION

Description

ETK-1 is a human intrahepatic cholangiocarcinoma (IHCCA) cell line originally established from the ascitic fluid of an adult patient with sarcomatoid cholangiocarcinoma. The tumor from which ETK-1 was derived exhibited both tubular adenocarcinoma and sarcomatoid components, and the cell line reflects the sarcomatoid phenotype. ETK-1 cells grow adherently as a uniform epithelial monolayer with a cobblestone appearance, composed mainly of small polygonal cells with round to oval nuclei and prominent nucleoli. Early passage cells demonstrated a population doubling time of approximately 70 hours and a hyperdiploid karyotype with a modal chromosome number in the mid-70s, consistent with chromosomal instability typical of aggressive biliary tract malignancies.
Immunophenotypically, ETK-1 cells express biliary epithelial markers including γ-glutamyl transpeptidase (GGT), cytokeratin 18 (CK18), and cytokeratin 19 (CK19), confirming their cholangiocytic origin. They are negative for hepatocyte-associated markers such as alpha-fetoprotein (AFP) and albumin under basal conditions. ETK-1 cells express vimentin, reflecting their sarcomatoid characteristics and partial mesenchymal phenotype, while lacking expression of carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA19-9). This marker profile corresponds to the sarcomatoid component observed in the primary tumor and highlights features consistent with epithelial-mesenchymal transition-like properties.
ETK-1 has also been used as a model to study cellular plasticity and lineage differentiation in cholangiocarcinoma. Treatment with the DNA methyltransferase inhibitor 5-azacytidine induced morphological and phenotypic changes, resulting in a derivative cell line with hepatocyte-like features, including expression of AFP, albumin, integrin α1, and thrombopoietin, along with loss of certain biliary markers. In xenograft models, untreated ETK-1 cells form tumors consistent with tubular adenocarcinoma displaying a ductal phenotype. These findings demonstrate that ETK-1 retains differentiation plasticity and serves as a valuable in vitro system for investigating biliary epithelial-to-hepatocytic transdifferentiation, epigenetic regulation, and tumor heterogeneity in intrahepatic cholangiocarcinoma.

Tissue	Metastatic
Disease	Cholangiocarcinoma
Metastatic site	Ascites

Synonyms

- ETK1

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

IDENTIFIERS

Citation

ETK-1 (Cytion catalog number 305529)

NCBI TaxID	9606
Cellosaurus	CVCL_1206

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EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: p.Arg175His, Homozygous

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase, 5 min., 37°C

Subculturing

Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.

Seeding density	1 to 3 x 10^4 cells/cm2
Fluid renewal	2 to 3 times per week
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.

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 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium.
Follow the procedure described under Post-Thaw Recovery

QUALITY CONTROL AND CRYOPRESERVATION

Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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

Donor age	61 years

Ethnicity	Japanese

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