

ETK-1 Cells | 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 α 1, 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.

Organism	Human
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Tissue	Metastatic
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Disease	Cholangiocarcinoma
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Metastatic site	Ascites
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Synonyms	ETK1
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Characteristics

Age	61 years
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Gender	Female
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Ethnicity	Japanese
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Growth properties	Adherent
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Regulatory Data

Citation	ETK-1 (Cytion catalog number 305529)
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Biosafety level	1
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NCBI_TaxID	9606
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CellosaurusAccession	CVCL_1206
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Biomolecular Data

Mutational profile	Mutation: p.Arg175His, Homozygous
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Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO ₃ (Cytion article number 820700a)
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Supplements	Supplement the medium with 10% FBS
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Dissociation Reagent	Accutase, 5 min., 37°C
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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.
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Seeding density	1 to 3 x 10 ⁴ cells/cm ²
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Fluid renewal	2 to 3 times per week
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Post-Thaw Recovery

After thawing, plate the cells at 5×10^4 cells/cm² 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 + 10% DMSO for adequate post-thaw viability.

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

Incubation Atmosphere

37°C, 5% CO₂, 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