GP2D

305778

GENERAL INFORMATION

Description

GP2d is a human colorectal adenocarcinoma cell line derived from a poorly differentiated colon tumor. It was established alongside a sister line, GPSd, from the same adenocarcinoma specimen. While both lines share similar genetic alterations consistent with common patterns seen in colorectal cancer, including an inverted duplication involving chromosome 10q11-q21, they differ markedly in their phenotypic characteristics and cellular behavior. Notably, no translocations involving the ret proto-oncogene-mapped to this chromosomal region-were detected by Southern blot analysis, suggesting the duplication did not disrupt this gene directly.
GP2d cells exhibit a cohesive, spreading growth pattern from the edges of microcolonies to form a confluent epithelial monolayer. This morphology is accompanied by distinct expression patterns of adhesion molecules such as α2-integrin, desmoplakin, and E-cadherin, all of which play roles in maintaining epithelial integrity. Functionally, GP2d cells respond robustly to epidermal growth factor (EGF), transforming growth factor-alpha (TGFα), and insulin, as demonstrated by increased cell proliferation in response to these ligands. Interestingly, both GP2d and GPSd express comparable numbers of EGF receptors, but differ in their expression of EGF receptor ligands. GP2d cells have abundant amphiregulin mRNA, whereas GPSd predominantly expresses TGFα mRNA with little to no amphiregulin, correlating with the differing biological responses observed.
These features make GP2d a valuable model for studying the regulation of growth factor signaling and cell adhesion in colorectal cancer. Its responsiveness to EGF pathway stimuli and distinct epithelial morphology highlight its utility in investigating tumor cell differentiation and proliferation. Furthermore, the shared origin with GPSd allows for comparative studies of clonal variation within tumors, particularly in the context of ligand-receptor dynamics and epithelial-to-mesenchymal transition (EMT) responses.

Tissue	Colon
Disease	Adenocarcinoma

Synonyms

- Gp2d
- Gp2D
- GP2D

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

IDENTIFIERS

Citation

GP2D (Cytion catalog number 305778)

NCBI TaxID	9606
Cellosaurus	CVCL_2450

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: KRAS, Simple, p.Gly12Asp (c.35G>A), Heterozygous, TP53

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HANDLING AND CULTURE

Culture medium

DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase

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.

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 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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	71 years
Ethnicity	Caucasian

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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

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