Cancer cell line

- Radiotherapy enhances anticancer CD8 T cell responses by cGAMP transfer through LRRC8A/C volume-regulated anion channels
- Metabolic regulation of visual acuity
- Effective Targeting of Glioma Stem Cells by BSJ-04-122, a Novel Covalent MKK4/7 Dual Inhibitor
- Transcription factor-based classification of pituitary adenomas / PitNETs: a comparative analysis and clinical implications across WHO 2004, 2017 and 2022 in 921 cases
- Metformin limits cerebral cavernous malformation development by targeting KLF4-mediated mitochondrial damage
- ETMR stem-like state and chemo-resistance are supported by perivascular cells at single-cell resolution
- Nimodipine protects Schwann and neuronal cells from cell death induced by cisplatin without affecting cancer cells
- Ectopic expression of GDF15 in cancer-associated fibroblasts enhances melanoma immunosuppression via the GFRAL/RET cascade

A cancer cell line is a population of cancer cells that has been cultured in the laboratory and can continuously grow and divide. These cells originate from a tumor sample taken from a patient and are modified to survive and proliferate indefinitely under lab conditions. They're a crucial tool in cancer research, drug development, and understanding cancer biology.

 Characteristics: Immortalized: Unlike normal cells, they don't undergo senescence (aging).

Genetically unstable: They may accumulate mutations over time.

Homogeneous (sort of): All cells in the line are genetically similar, but some heterogeneity can still emerge.

Adapted to 2D culture: Most are grown in monolayers, although 3D models (e.g., organoids) are increasingly used.

 Common Cancer Cell Lines: Cell Line Cancer Type Origin HeLa Cervical cancer Henrietta Lacks (1951) MCF-7 Breast cancer Human A549 Lung carcinoma Human U87 Glioblastoma Human PC-3 Prostate cancer Human ⚠ Limitations: May not fully represent real tumors (e.g., tumor microenvironment is absent).

Long-term passaging can change their properties.

Some are contaminated or misidentified (HeLa famously contaminated many lines).

 Applications: Drug screening

Gene editing and CRISPR studies

Tumor biology research

Biomarker discovery

An immortalized cell line is a population of cells from a multicellular organism that would normally not proliferate indefinitely but, due to mutation, have evaded normal cellular senescence and instead can keep undergoing division. The cells can therefore be grown for prolonged periods in vitro. The mutations required for immortality can occur naturally or be intentionally induced for experimental purposes. Immortal cell lines are a very important tool for research into the biochemistry and cell biology of multicellular organisms. Immortalised cell lines have also found uses in biotechnology.

https://www.atcc.org/~/media/PDFs/Brain_Tumor_Cell_Lines.ashx

AM-38

GaMg

D-54Mg

CCF-STTG1

SW 1088

SW 1783

CHLA-02-ATRT

A172

U-138 MG

LN-18

LN-229

U87 MG

U-118 MG

T98G

Hs 683

CHLA-01-MED

CHP-212

H4

D341 Med

Daoy

PFSK-1

DBTRG-05MG

M059K

M059J

IMR-32

BC3H1

bEnd.3

Neuro-2a

NB41A3

N1E-115

C6

C6/LacZ

9L/lacZ

C6/lacZ7

F98EGFR

F98npEGFRvIII

F98

RG2

9L gliosarcoma

U251,