Product sheet

HT-1080 Cells | 300216

General information

Description	HT-1080 cells are an epithelial cell line derived from the connective tissue of a 35-year-old male patient with Fibrosarcoma in 1972. These cells have been extensively utilized in biomedical research due to their diverse applications and unique characteristics. With their origin in Fibrosarcoma, HT-1080 cells offer researchers a valuable resource to study and understand the behavior and progression of this disease. These cells carry an IDH1 mutation and an activated N-ras oncogene, making them particularly suitable for investigating the effects of these genetic alterations. HT-1080 cells exhibit morphological features characteristic of epithelial cells derived from connective tissue. They are adherent cells, requiring a suitable substrate for growth. The applications of HT-1080 cells are wide-ranging. They have proven a valuable tool in 3D cell culture, providing a physiologically relevant model for studying cell behaviour within a three-dimensional context. Additionally, HT-1080 cells have been extensively used in bioproduction processes. HT-1080 cells have a doubling time of approximately 26 to 30 hours and have a karyotype with a modal number of 46 chromosomes, although some variability has been observed. Roughly 40% of the cells exhibit rearranged karyotypes, including an additional E-group chromosome and a probable loss of a group C chromosome, possibly chromosome 11. One notable characteristic of HT-1080 cells is their tumorigenic potential. They have been shown to form tumours in immunosuppressed mice, making them an appropriate model for studying tumour development and metastasis. The presence of an activated N-ras oncogene further contributes to their tumorigenic properties. Moreover, HT-1080 cells have been widely used to study tumour growth and metastasis as a xenograft model and intramuscularly implantation in nude mice results in primary tumours and lung metastases. Tail-vein injection of HT-1080 cells in nude mice leads to the development of lung metastases. Subcutaneous implantation in immunosuppressed or nude mice results in subcutaneous tumour formation. Additionally, HT-1080 cells have been found to metastasize to the lung, liver, brain, and mammary gland when injected into appropriate animal models.
Organism	Human
Disease	Fibrosarcoma
Synonyms	Ht-1080, HT 1080, HT1080, HT 1080.T

Characteristics

Age	35 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial-like
Cell type	Fibroblast
Growth properties	Adherent

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Identifiers / Biosafety / Citation

Citation	HT-1080 (Cytion catalog number 300216)
Biosafety level	1

Expression / Mutation

Isoenzymes	G6PD, B
Oncogenes	ras+
Tumorigenic	Yes, in immunosuppressed mice
Virus susceptibility	poliovirus 1, vesicular stomatitis (Indiana), RD114, feline leukemia virus (FeLV)
Reverse transcriptase	negative
Karyotype	Modal number: 2n=46, pseudodiploid

Handling

Culture Medium	EMEM, w: 2 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: EBSS, w: 1 mM Sodium pyruvate, w: NEAA (Cytion article number 820100c)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	Accutase
Subculturing	Remove medium and rinse the adherent cells using PBS without calcium and magnesium (3-5 ml PBS for T25, 5-10ml for T75 cell culture flasks). Add Accutase (1-2ml per T25, 2.5ml per T75 cell culture flask), the cell sheet must be covered completely. Incubate at ambient temperature for 8-10 minutes. Carefully resuspend the cells with medium (10 ml), centrifuge for 3 min at 300xg, resuspend cells in fresh medium and dispense into new flasks which contain fresh medium.
Split ratio	A ratio of 1:4 to 1:8 is recommended

Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	Every 3 days
Freezing 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	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)
Handling of cryopreserved cultures	HT-1080 cells are shipped in a deep-frozen state on dry ice. Upon receipt, confirm that the vial remains frozen. For storage, place the cryovial immediately at temperatures below -150 degrees. If you plan to culture the cells immediately, swiftly thaw the vial by shaking it in a 37 degrees water bath with clean water and an antimicrobial agent for 40-60 seconds. Remove the vial once a small ice clump persists, ensuring it remains cold. Proceed with all subsequent steps under aseptic conditions. In a sterile flow hood, disinfect the cryovial with 70% ethanol. Then, gently open the vial and transfer the cell suspension into a 15 ml centrifuge tube pre-filled with 8 ml of room temperature culture medium. Gently mix the cells. For cell separation, centrifuge at 300 x g for 3 minutes and dispose of the supernatant. Skipping centrifugation is optional, although any residual freezing medium should be removed after 24 hours. Resuspend the pellet gently in 10 ml of fresh culture medium and divide between two T25 culture flasks. Follow the subculture protocol for subsequent steps.
Handling of proliferating cultures	One or two cell culture flasks come filled with cell culture medium. Collect the entire medium in a 50 ml centrifuge tube. Spin down the collected medium at 300 x g for 3 minutes to collect the cells which may have detached during transit. If a cell pellet is visible, resuspend the cells in 5 ml of cell culture medium and transfer to a T25 cell culture flask. Carefully add 5 ml of cell culture medium to each T25 cell culture flask. Examine cell morphology and confluency using a microscope. Finally, incubate the flasks at 37 degrees Celsius for at least 24 hours.

Quality control / Genetic profile / HLA

Sterility	Mycoplasma contamination is rigorously 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.

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STR profile	**Amelogenin**: x,Y **CSF1PO**: 12 **D13S317**: 12,14 **D16S539**: 9,12 **D5S818**: 11,13 **D7S820**: 9,1 **TH01**: 6 **TPOX**: 8 **vWA**: 14,19 **D3S1358**: 16 **D21S11**: 28,3 **D18S51**: 12,18 **Penta E**: 5,15 **Penta D**: 9,12 **D8S1179**: 13,14 **FGA**: 22,25
HLA alleles	**A***: 01.01.1900 07:01, 02.01.1900 20:01 **B***: 01.01.1900 03:05 **C***: 02:02:02 **DRB1***: 03:01:01, 04:07:01 **DQA1***: 03:03:01, 05:01:01 **DQB1***: 02:01:01, 03:01:01 **DPB1***: 03:01, 04:01 **E**: 01:01, 01:03