Product sheet

HEp-2 Cells | 300397

General information

Description	The HEp-2 cell line, originally believed to be derived from laryngeal cancer cells, was later identified through DNA fingerprinting and the presence of HeLa marker chromosomes as being contaminated with HeLa cells, a cell line that was derived from cervical cancer. Despite this, the HEp-2 cell line remains extensively utilized in indirect immunofluorescence to detect antinuclear antibodies (ANAs), which are key in diagnosing conditions like systemic lupus erythematosus and systemic sclerosis. The indirect immunofluorescence assay (IIFA) using HEp-2 cells, which provides clear positive or negative results, is the standard method for testing antinuclear antibodies. This straightforward approach is crucial for diagnosing and classifying different systemic autoimmune diseases. The patterns of autoantibodies observed in indirect immunofluorescence on HEp-2 cells, especially in the context of rheumatology, provide invaluable insights into various rheumatic diseases. Furthermore, the comprehensive review of antigens expressed by HEp-2 human cells under different culture conditions enables the identification of specific ANAs linked to diseases like lupus. In conclusion, while the contamination of cell lines like HEp-2 with HeLa cells has prompted concerns in cancer research about the accuracy and reliability of results and their clinical relevance, the utility of Hep-2 in the detection of antinuclear antibodies and its application across various research disciplines underscore its continued importance. The HEp-2 cell line serves as an essential tool in diagnosing and classifying autoimmune diseases, among other applications.
Organism	Human
Tissue	Larynx
Disease	Adenocarcinoma
Applications	In rheumatology, indirect immunofluorescence using HEp-2 cells plays a crucial role in diagnosing autoimmune diseases, including systemic lupus erythematosus and systemic sclerosis
Synonyms	Hep-2, HEP-2, HEp-2/HeLa, Hep 2, Hep2, HEp2, HEP2, H.Ep.-2, H.Ep. #2, H.Ep. No. 2, Hep II, Human Epidermoid carcinoma #2, Human Epithelioma-2

Characteristics

Age	30 years
Gender	Female
Ethnicity	African American
Morphology	Epithelial-like

Growth properties	Monolayer, adherent

Identifiers / Biosafety / Citation

Citation	HEp-2 (Cytion catalog number 300397)
Biosafety level	1

Expression / Mutation

Isoenzymes	G6PD, A
Reverse transcriptase	Negative
Products	Keratin

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 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.
Split ratio	A ratio of 1:4 to 1:10 is recommended
Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

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	HEp-2 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.

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.
STR profile	**Amelogenin**: x,x **CSF1PO**: 9,10 **D13S317**: 12,13.3 **D16S539**: 9,10 **D5S818**: 11,12 **D7S820**: 8,12 **TH01**: 7 **TPOX**: 8,12 **vWA**: 16,18 **D3S1358**: 15,18 **D21S11**: 27,28 **D18S51**: 16 **Penta E**: 7,17 **Penta D**: 8,15 **D8S1179**: 12,13 **FGA**: 18,21