

## NCI-H82 Cells | 300442

## General information

**Description** The NCI-H82 cell line was derived by A.F. Gazdar and associates in 1978 from the pleural fluid of a patient with small cell cancer of the lung. The morphology of the original tumor was not characteristic of SCLC. The line is a biochemical and morphological variant of SCLC that expresses neuron specific enolase and the brain isoenzyme of creatine kinase. It does not have detectable levels of L-DOPA decarboxylase or bombesin. The cells produce an abnormally sized p53 mRNA (3.7 kb). C-myc DNA sequences are amplified about 25 fold, and there is a 24 fold increase in c-myc RNA relative to normal cells. The cells are reported to express functional ANP receptors, but treatment with ANP does not alter their growth pattern. The cells stain positively for neurofilaments and vimentin. There is expression of v-fes, v-fms, Ha-ras, Ki-ras, N-ras and c-raf 1 mRNAs.

**Organism** Human

**Tissue** Lung

**Disease** Lung small cell carcinoma

**Metastatic site** Pleural effusion

**Synonyms** NCI-H-82, H82, H-82, NCI H82, NCIH82, H82scl

## Characteristics

**Age** 41 years

**Gender** Male

**Ethnicity** Caucasian

**Morphology** Epithelial-like

**Growth properties** Aggregates in suspension. The cells grow in very large aggregates, which are the only viable cell population in the culture.

## Regulatory Data

**Citation** NCI-H82 (Cytion catalog number 300442)

**Biosafety level** 1

**NCBI\_TaxID** 9606

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CellosaurusAccession CVCL\_1591

## Biomolecular Data

**Receptors expressed** Insulin-like growth factor II receptor (IGF II), atrial natriuretic peptide (ANP)

**Protein expression** P53 positive

**Isoenzymes** G6PD, B, PGM1, 1-2, PGM3, 1-2, ES-D, 1, Me-2, 1, AK-1, 1, GLO-1, 1, Phenotype Frequency Product = 0.0082

**Tumorigenic** Yes, forms transplantable tumors with non-typical SCLC histology in nude mice

**Karyotype** This is a near triploid human cell line. The modal chromosome number is 58, occurring at 44% with polyploidy at 3%. Each cell had two copies of a normal x chromosome. The Y chromosome was not detected in Q banded preparations.

## Handling

**Culture Medium** RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO<sub>3</sub> (Cytion article number 820700a)

**Supplements** Supplement the medium with 10% FBS

**Subculturing** Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of  $5 \times 10^5$  cells/ml and keep the cell concentration within the range of  $3 \times 10^5$  to  $1 \times 10^6$  cells/ml for optimal growth.

**Fluid renewal** 2 to 3 times per week

**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.

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### 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  $-150^{\circ}\text{C}$  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  $37^{\circ}\text{C}$  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  $300 \times g$  for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
7. 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.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

### Incubation Atmosphere

$37^{\circ}\text{C}$ , 5%  $\text{CO}_2$ , humidified atmosphere.

### Shipping Conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately  $-78^{\circ}\text{C}$  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  $-196^{\circ}\text{C}$ . Storage at  $-80^{\circ}\text{C}$  is acceptable only as a short interim step before transfer to liquid nitrogen.

## Quality Control & Molecular Analysis

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**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.