Data Sheet

HCC827 GR6 Human Lung Adenocarcinoma Cell Line

Cancer Cell Line

SCC426

Pack Size ≥ 1x10^6 viable cells/vial

Store in liquid nitrogen

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for Human or Animal Consumption.

Background

HCC827 GR6 Human Lung Adenocarcinoma Cell Line (HCC827 GR6) is a model for gefitinib-resistant non-small cell lung cancer. Lung cancer is the most common cause of cancer-related death worldwide. Tobacco smoke, the main causal factor of lung cancer, is a complex mixture of many carcinogenic agents that affect genetic and epigenetic mutations in the respiratory epithelium during carcinogenesis.[1]Patient outcome depends on multiple factors, including the genomic signature of the tumor, and these factors help to identify patients most likely to benefit from targeted therapeutics. Patients with EGFR-activating (epidermal growth factor receptor, a tyrosine kinase) mutations have a higher likelihood to respond to first-generation EGFR-targeted tyrosine kinase inhibitors such as erlotinib and gefitinib; however, intrinsic or acquired resistance often limits the efficacy of targeted therapies. Resistance most often arises through secondary mutations in EGFR or amplification of the *MET* oncogene.[2]

The lung adenocarcinoma HCC827 is non-small cell lung cancer (NSCLC) cell line with an acquired E746-A750 deletion in the EGFR tyrosine kinase exon 19 domain.[1] HCC827 has been used extensively in biomedical discovery and research. HCC827 GR6 is a gefitinib-resistant clone of the parental gefitinib-hypersensitive HCC827 cell line developed by six-month exposure to increasing concentrations of gefitinib in vitro.[2] The resistance was shown to be a result of focal amplification of the *MET* proto-oncogene. Inhibition of MET signaling restores sensitivity of these cells to gefitinib. HCC827 GR6 is thus a relevant cellular model for studying resistance mechanisms for EGFR/ERBB-targeted therapeutics.

Source

HCC827 GR6 human lung adenocarcinoma cell line was derived from clonally isolated single cells of the parental HCC827 cell line. The parental cell line was isolated from non-small cell lung cancer tissue of a 39-year-old female patient.[1]

Short Tandem Repeat (STR Profile)

D3S1358:	17	D13S317:	9
D7S820:	11, 12	D16S539:	12
vWA:	18	TH01:	6
FGA:	24	TPOX:	8
D8S1179:	12	CSF1PO:	11
D21S11:	31	Amelogenin:	X
D18S51:	13	Penta D:	14
D5S818:	12	Penta E:	19, 20

Cancer cell lines are inherently genetically unstable. Instability may arise in the form of loss of heterozygosity of alleles at one or more genetic sites with increased passages.

Quality Control Testing

- HCC827 GR6 human lung adenocarcinoma cells are verified to be of human origin and negative for mouse, rat, Chinese hamster, Golden Syrian hamster, and non-human primate interspecies contamination, as assessed by a Contamination Clear panel by Charles River Animal Diagnostic Services.
- Cells tested negative for infectious diseases against a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells tested negative for mycoplasma.

Storage and Handling

HCC827 GR6 human lung adenocarcinoma cells should be stored in liquid nitrogen until use. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Representative Data

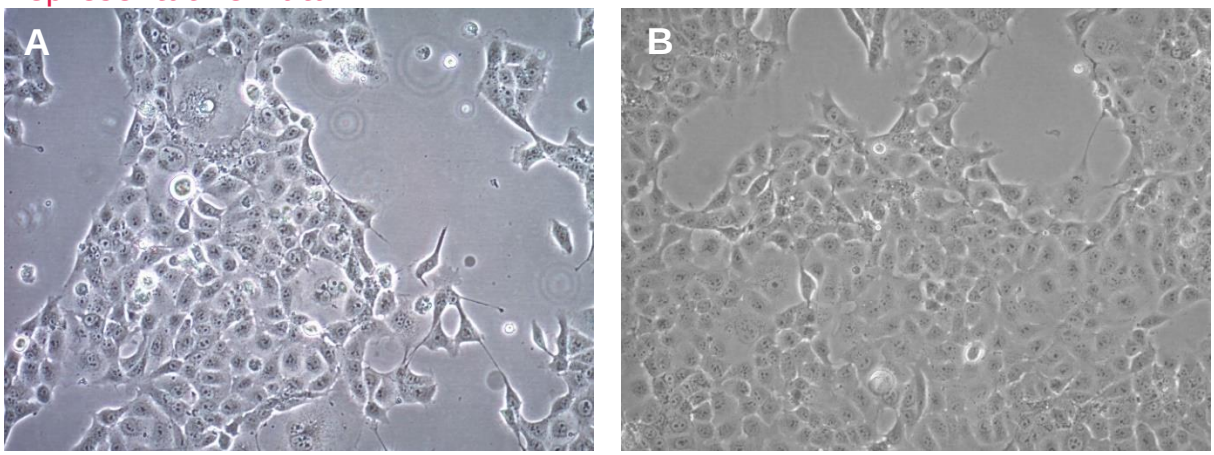

Figure 1. Bright-field images of HCC827 GR6 cells one (**A**) and two days (**B**) after thaw.

Protocols

Thawing the Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on standard tissue cultureware surfaces without any additional coating.

   Cells are thawed and expanded in HCC827 GR6 Expansion Medium comprising RPMI-1640 medium (Cat. No. R0883) containing 10% FBS (Cat. No. ES-009-B) and 2 mM L-Glutamine (Cat. No. TMS-002-C).

2. Remove the vial of frozen HCC827 GR6 cells from liquid nitrogen and incubate in a 37 °C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   IMPORTANT: Do not vortex the cells.

3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
4. In a laminar flow hood, use a 1 or 2 mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add dropwise 9 mL of N2A Psen1/2 Expansion Medium (Step 1 above) to the 15 mL conical tube.
   IMPORTANT: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   IMPORTANT: Do not vortex the cells.

7. Centrifuge the tube at 300 *x g* for 2-3 minutes to pellet the cells.
8. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 15 mL of HCC827 GR6 Expansion Medium.
10. Transfer the cell mixture to a T75 tissue culture flask.
11. Incubate the cells at 37 °C in a humidified incubator with 5% CO_2.

Subculturing the Cells

1. Do not allow the cells to grow to confluency. HCC827 GR6 cells should be passaged at ~70-80% confluency.
2. Carefully remove the medium from the T75 tissue culture flask containing the 80% confluent layer of HCC827 GR6 cells.
3. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
4. Apply 5-7 mL of Accutase® solution and incubate in a 37 °C incubator for 3-5 minutes.
5. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand.
6. Add 5-7 mL of HCC827 GR6 Expansion Medium to the plate.
7. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
8. Centrifuge the tube at 300 *x g* for 3-5 minutes to pellet the cells.
9. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
10. Apply 2-5 mL of HCC827 GR6 Expansion Medium to the conical tube and resuspend the cells thoroughly. Large cell clumps may be broken up by gentle trituration.

    IMPORTANT: Do not vortex the cells.
11. Count the number of cells using a hemocytometer.
12. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of the Cells

HCC827 GR6 human lung adenocarcinoma cells may be frozen in HCC827 GR6 Expansion Medium supplemented with 10% DMSO using a Nalgene® slow freeze Mr. Frosty® container.

References

1. Girard L, Zöchbauer-Müller S, Virmani AK, Gazdar AF, Minna JD. *Cancer Res* 2000; 60(17): 4894-4906.
2. Engelman JA et al. *Science* 2007; 316(5827): 1039-1043.

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