

## Data Sheet

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| <b>BCRJ Code:</b>         | 0033   |
| <b>Cell Line:</b>         | A549   |
| <b>Species:</b>           | Homo sapiens   |
| <b>Vulgar Name:</b>       | Human  |
| <b>Tissue:</b>            | Lung   |
| <b>Morphology:</b>        | Epithelial   |
| <b>Disease:</b>           | Carcinoma  |
| <b>Growth Properties:</b> | Adherent   |
| <b>Sex:</b>               | Male   |
| <b>Age/Ethnicity:</b>     | 58 Year / Caucasian  |
| <b>Derivation:</b>        | Derived from a 58 year old Caucasian male.   |
| <b>Applications:</b>      | This cell line is a suitable transfection host.  |
| <b>DNA Profile:</b>       | Amelogenin: X,Y CSF1PO: 10,12 D13S317: 11 D16S539: 11,12 D5S818: 11 D7S820: 8,11 TH01: 8,9.3 TPOX: 8,11 vWA: 14  |
| <b>Virus Resistance::</b> | The cells are positive for keratin by immunoperoxidase staining.   |
| <b>Products:</b>          | Keratin  |
| <b>Biosafety:</b>         | 1  |
| <b>Additional Info:</b>   | Studies by M. Lieber, et al. revealed that A549 cells could synthesize lecithin with a high percentage of desaturated fatty acids utilizing the cytidine diphosphocholine pathway. |

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| <b>Culture Medium:</b>                    | Dulbecco's Modified Eagle's Medium (DMEM) modified to contain 4 mM L-glutamine, 4500 mg/L glucose, 1 mM sodium pyruvate and fetal bovine serum to a final concentration of 10%.   |
| <b>Subculturing:</b>                      | Volumes used in this protocol are for 75 cm <sup>2</sup> flask; proportionally reduce or increase amount of dissociation medium for culture vessels of other sizes. T-75 flasks are recommended for subculturing this product. Remove and discard culture medium. Briefly rinse the cell layer with PBS without calcium and magnesium to remove all traces of serum that contains trypsin inhibitor. Add 2.0 to 3.0 mL of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes). Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal. Add 6.0 to 8.0 mL of complete growth medium and aspirate cells by gently pipetting. Add appropriate aliquots of the cell suspension to new culture vessels. Incubate cultures at 37°C. Population Doubling Time about: 22 hours. NOTE: For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 12 in Culture of Animal Cells, a manual of Basic Technique by R. Ian Freshney, 6th edition, published by Alan R. Liss, N.Y., 2010. |
| <b>Subculturing Medium Renewal:</b>       | Every 2 to 3 days   |
| <b>Subculturing Subcultivation Ratio:</b> | 1:3 to 1:8  |
| <b>Culture Conditions:</b>                | Atmosphere: air, 95%; carbon dioxide (CO <sub>2</sub> ), 5% Temperature: 37°C   |
| <b>Cryopreservation:</b>                  | 95% FBS + 5% DMSO (Dimethyl sulfoxide)  |

**Thawing Frozen Cells:**

**SAFETY PRECAUTION:** It is strongly recommended to always wear protective gloves, clothing, and a full-face mask when handling frozen vials. Some vials may leak when submerged in liquid nitrogen, allowing nitrogen to slowly enter the vial. Upon thawing, the conversion of liquid nitrogen back to its gas phase may cause the vial to explode or eject its cap with significant force, creating flying debris.

1. Thaw the vial by gently agitating it in a 37°C water bath. To minimize contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as its contents are thawed and decontaminate it by dipping in or spraying with 70% ethanol. From this point, all operations must be performed under strict aseptic conditions.
3. For cells sensitive to DMSO, it is recommended to remove the cryoprotective agent immediately. Transfer the vial contents to a centrifuge tube containing 9.0 mL of complete culture medium and centrifuge at approximately  $125 \times g$  for 5 to 7 minutes.
4. Discard the supernatant and resuspend the cell pellet in the recommended complete medium (see specific batch information for the appropriate dilution ratio).
5. Incubate the culture under appropriate atmospheric and temperature conditions (see "Culture Conditions" for this cell line).

**NOTE:** It is important to avoid excessive alkalinity of the medium during cell recovery. To minimize this risk, it is recommended to place the culture vessel containing the growth medium in the incubator for at least 15 minutes before adding the vial contents. This allows the medium to stabilize at its normal pH (7.0 to 7.6).

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### References:

Giard DJ, et al. In vitro cultivation of human tumors: establishment of cell lines derived from a series of solid tumors. J. Natl. Cancer Inst. 51: 1417-1423, 1973. PubMed: 4357758 Mayr GA, Freimuth P. A single locus on human chromosome 21 directs the expression of a receptor for adenovirus type 2 in mouse A9 cells. J. Virol. 71: 412-418, 1997. PubMed: 8985365 Goodrum FD, Ornelles DA. The early region 1B 55-kilodalton oncoprotein of adenovirus relieves growth restrictions imposed on viral replication by the cell cycle. J. Virol. 71: 548-561, 1997. PubMed: 8985383 St. Geme JW, et al. Characterization of the genetic locus encoding Haemophilus influenzae type b surface fibrils. J. Bacteriol. 178: 6281-6287, 1996. PubMed: 8892830 Horikami SM, et al. The Sendai virus V protein interacts with the NP protein to regulate viral genome RNA replication. Virology 222: 383-390, 1996. PubMed: 8806522 Huang S, et al. Adenovirus interaction with distinct integrins mediates separate events in cell entry and gene delivery to hematopoietic cells. J. Virol. 70: 4502-4508, 1996. PubMed: 8676475 Goodrum FD, et al. Adenovirus early region 4 34-kilodalton protein directs the nuclear localization of the early region 1B 55-kilodalton protein in primate cells. J. Virol. 70: 6323-6335, 1996. PubMed: 8709260 Fang R, Aust AE. Induction of ferritin synthesis in human lung epithelial cells treated with crocidolite asbestos. Arch. Biochem. Biophys. 340: 369-375, 1997. PubMed: 9143343 Geiger T, et al. Antitumor activity of a PKC-alpha antisense oligonucleotide in combination with standard chemotherapeutic agents against various human tumors transplanted into nude mice. Anticancer Drug Des. 13: 35-45, 1998. PubMed: 9474241 Evdokiou A, Cowled PA. Tumor-suppressive activity of the growth arrest-specific gene GAS1 in human tumor cell lines. Int. J. Cancer 75: 568-577, 1998. PubMed: 9466658 Giavedoni LD, Yilma T. Construction and characterization of replication-competent simian immunodeficiency virus vectors that express gamma interferon. J. Virol. 70: 2247-2251, 1996. PubMed: 8642649 Bartz SR, et al. Human immunodeficiency virus type 1 cell cycle control: Vpr is cytostatic and mediates G2 accumulation by a mechanism which differs from DNA damage checkpoint control. J. Virol. 70: 2324-2331, 1996. PubMed: 8642659 Garofalo R, et al. Transcriptional activation of the interleukin-8 gene by respiratory syncytial virus infection in alveolar epithelial cells: nuclear translocation of the RelA transcription factor as a mechanism producing airway mucosal inflammation. J. Virol. 70: 8773-8781, 1996. PubMed: 8971006 Jamaluddin M, et al. Inducible translational regulation of the NF-IL6 transcription factor by respiratory syncytial virus infection in pulmonary epithelial cells. J. Virol. 70: 1554-1563, 1996. PubMed: 8627674 Lewis JA, et al. Inhibition of mitochondrial function by interferon. J. Biol. Chem. 271: 13184-13190, 1996. PubMed: 8662694 Lieber M, et al. A continuous tumor-cell line from a human lung carcinoma with properties of type II alveolar epithelial cells. Int. J. Cancer 17: 62-70, 1976. PubMed: 175022

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