

293AD Cell Line

CATALOG NUMBER: AD-100

STORAGE: Liquid nitrogen

Note: For best results begin culture of cells immediately upon receipt. If this is not possible, store at -80°C until first culture. Store subsequent cultured cells long term in liquid nitrogen.

QUANTITY & CONCENTRATION: 1 mL, 1×10^6 cells/mL in 90% complete medium, 10% DMSO

Background

The 293 Cell Line is a permanent line established from primary embryonic human kidney transformed with human adenovirus type 5 DNA. The genes encoded by the E1 region of adenovirus (E1a and E1b) are expressed in these cells and participate in transactivation of viral promoters, allowing these cells to produce high levels of protein. E1 also complements the E1-deletion in recombinant adenoviral vectors, allowing viral replication.

293AD is derived from the parental 293 cell line, but specifically selected for adenovirus applications. It offers several advantages over the regular 293 cells:

- Flattened morphology
- Firm attachment to culture plate, ideal for amplification and titrating of adenovirus
- Larger cell surface area resulting higher transfection and better yield of recombinant adenovirus.

Quality Control

This cryovial contains at least 1.0×10^6 293AD cells as determined by morphology, trypan-blue dye exclusion, and viable cell count. The 293AD cells are tested free of microbial contamination.

Medium

1. Culture Medium: D-MEM (high glucose), 10% fetal bovine serum (FBS), 0.1 mM MEM Non-Essential Amino Acids (NEAA), 2 mM L-glutamine, 1% Pen-Strep (optional)
2. Freeze Medium: 90% complete medium, 10% DMSO

Methods

I. Establishing 293AD Cultures from Frozen Cells

1. Place 10 mL of complete DMEM growth medium in a 50-mL conical tube. Thaw the frozen cryovial of cells within 1–2 minutes by gentle agitation in a 37°C water bath. Decontaminate the cryovial by wiping the surface of the vial with 70% (v/v) ethanol.
2. Transfer the thawed cell suspension to the conical tube containing 10 ml of growth medium.
3. Collect the cells by centrifugation at 1000 rpm for 5 minutes at room temperature. Remove the growth medium by aspiration.
4. Resuspend the cells in the conical tube in 15 mL of fresh growth medium by gently pipetting up and down.

5. Transfer the 15 mL of cell suspension to a T-75 tissue culture flask. Place the cells in a 37°C incubator at 5% CO₂.
6. Monitor cell density daily. Cells should be passaged when the culture reaches 95% confluence.

Recent Product Citations

1. Petrović Koshmak, I. et al. (2024). Bridging upstream and downstream for improved adenovirus 5 bioprocess. *Electrophoresis*. **45**(5-6):369-379. doi: 10.1002/elps.202300131.
2. Su, W. et al. (2023). AAV production in stable packaging cells requires expression of adenovirus 22/33K protein to allow episomal amplification of integrated rep/cap genes. *Sci Rep*. **13**(1):21670. doi: 10.1038/s41598-023-48901-z.
3. Stevaert, A. et al. (2022). Impact of SARS-CoV-2 Spike Mutations on Its Activation by TMPRSS2 and the Alternative TMPRSS13 Protease. *mBio*. doi: 10.1128/mbio.01376-22.
4. Su, W. et al. (2022). Self-attenuating adenovirus enables production of recombinant adeno-associated virus for high manufacturing yield without contamination. *Nat Commun*. **13**(1):1182. doi: 10.1038/s41467-022-28738-2.
5. Gomez-Soler, M. et al. (2022). Ligands with different dimeric configurations potently activate the EphA2 receptor and reveal its potential for biased signaling. *iScience*. doi: 10.1016/j.isci.2022.103870.
6. Wade, M. et al. (2021). In vivo generation of collagen specific Tregs with AAV8 suppresses autoimmune responses and arthritis in DBA1 mice through IL10 production. *Sci Rep*. **11**(1):18204. doi: 10.1038/s41598-021-97739-w.
7. Light, T.P. et al. (2021). A Cancer Mutation Promotes EphA4 Oligomerization and Signaling by Altering the Conformation of the SAM Domain. *J Biol Chem*. doi: 10.1016/j.jbc.2021.100876.
8. Koduri, V. et al. (2021). Targeting oncoproteins with a positive selection assay for protein degraders. *Sci Adv*. **7**(6):eabd6263. doi: 10.1126/sciadv.abd6263.
9. Tanaka, N. et al. (2020). Vacuum microcasting of 2-methacryloyloxyethyl phosphorylcholine polymer for stable cell patterning. *Biotechniques*. doi: 10.2144/btn-2020-0052.
10. Gehring, M.P. et al. (2020). Protein kinase C phosphorylates the EphA2 receptor on serine 892 in the regulatory linker connecting the kinase and SAM domains. *Cell Signal*. doi: 10.1016/j.cellsig.2020.109668.
11. Cho, J.H. et al. (2020). CD9 induces cellular senescence and aggravates atherosclerotic plaque formation. *Cell Death Differ*. doi: 10.1038/s41418-020-0537-9.
12. Hu, Z. (2020). Tissue factor as a new target for CAR-NK cell immunotherapy of triple-negative breast cancer. *Sci Rep*. **10**(1):2815. doi: 10.1038/s41598-020-59736-3.
13. Watanabe, H. et al. (2018). Sirt2 facilitates hepatic glucose uptake by deacetylating glucokinase regulatory protein. *Nat Commun*. **9**(1):30. doi: 10.1038/s41467-017-02537-6.
14. Wu, B. et al. (2018). Glutaminase 1 regulates the release of extracellular vesicles during neuroinflammation through key metabolic intermediate alpha-ketoglutarate. *J Neuroinflammation*. **15**(1):79. doi: 10.1186/s12974-018-1120-x.
15. Dai, C.Y. et al. (2018). The IL-6/STAT3 pathway upregulates microRNA-125b expression in hepatitis C virus infection. *Oncotarget*. **9**(13):11291-11302. doi: 10.18632/oncotarget.24129.
16. Lin, G.Z. et al. (2018). Immunogenicity of recombinant Adenovirus co-expressing the L7/L12 and BCSP31 proteins of Brucella abortus. *Kafkas Univ Vet Fak Derg*, **24** (2): 211-217. doi: 10.9775/kvfd.2017.18644.

17. Zaric, M. et al. (2017). Long-lived tissue resident HIV-1 specific memory CD8+ T cells are generated by skin immunization with live virus vectored microneedle arrays. *J Control Release*. **268**:166-175. doi: 10.1016/j.jconrel.2017.10.026.
18. Ravindran D, et al. (2017). Chemokine binding protein 'M3' limits atherosclerosis in apolipoprotein E-/- mice. *PLoS One*. **12**(3):e0173224. doi: 10.1371/journal.pone.0173224.
19. Ridiandries A, Bursill C and Tan J. (2017). Broad-Spectrum Inhibition of the CC-Chemokine Class Improves Wound Healing and Wound Angiogenesis. *Int J Mol Sci*. **18**(1). pii: E155. doi: 10.3390/ijms18010155.
20. Bae, E. J. et al. (2015). Cell models to study cell-to-cell transmission of α -synuclein. *Methods Mol Biol*. **1345**:291-298.
21. Strathearn, K. E. & Pardo, A. M. P. (2015). Parameters to Consider When Expanding Cells on Corning® Microcarriers. Corning Application Note.
22. Sugiyama, K. et al. (2014). Expression of the miR200 family of microRNAs in mesothelial cells suppresses the dissemination of ovarian cancer cells. *Mol Cancer Ther*. **13**:2081-2091.
23. Peng, D. et al. (2014). Glutathione peroxidase 7 has potential tumour suppressor functions that are silenced by location-specific methylation in oesophageal adenocarcinoma. *Gut* **63**:540-551.
24. Peng, D. et al. (2011). Glutathione peroxidase 7 protects against oxidative DNA damage in oesophageal cells. *Gut* **61**:1250-1260.
25. Kothari, H. et al. (2010) Cystine 186-cystine 209 disulfide bond is not essential for the procoagulant activity of tissue factor or for its de-encryption. *Blood* **115**:4273-4283.
26. Fang, S. et al. (2007). Coordinated recruitment of histone methyltransferase G9a and other chromatin modifying enzymes in SHP-mediated regulation of hepatic bile acid metabolism. *Mol. Cell. Biol*. **27**:1407-1424.
27. Ponugoti, B. et al. (2007). Functional interaction of HNF-4 and PGC-1alpha in CYP7A1 regulation is inhibited by a key lipogenic activator, SREBP-1c. *Mol. Endocrinol*. **21**:2698-2712.

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Director of Business Development
 Cell Biolabs, Inc.
busdev@cellbiolabs.com

Contact Information

Cell Biolabs, Inc.
5628 Copley Drive
San Diego, CA 92111
Worldwide: +1 858-271-6500
USA Toll-Free: 1-888-CBL-0505
E-mail: tech@cellbiolabs.com
www.cellbiolabs.com

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