Cre Recombinant Adenovirus

CATALOG NUMBER: ADV-005 **STORAGE:** -80ºC

QUANTITY AND CONCENTRATION: 50 µl, 1 x 10^{11} VP/mL in TBS containing 10% Glycerol

Background

Recombinant adenoviruses have tremendous potential in both research and therapeutic applications. There are numerous advantages in using an adenovirus to introduce genetic material into host cells. The permissive host cell range is very wide. The virus has been used to infect many mammalian cell types (both replicative and non-replicative) for high expression of the recombinant protein. Recombinant adenoviruses are especially useful for gene transfer and protein expression in cell lines that have low transfection efficiency with liposome. After entering cells, the virus remains epichromosomal (i.e. does not integrate into the host chromosome so does not activate or inactivate host genes). Recently, recombinant adenoviruses have been used to deliver RNAi into cells.

The integrase family of DNA recombinases includes over sixty members identified by sequence similarity. Cre is a bacteriophage P1 member of the integrase family, catalyzing site-specific recombination between two 34-base pair lox DNA sequences. *In vivo*, Cre recombinase is utilized to maintain the P1 genome in a lysogenic state. The Cre-lox system has been extensively employed in *in vivo* and in *in vitro* genetic engineering applications in a variety of organisms. The provided recombinant adenovirus contains Cre recombinase.

Safety Consideration

Remember that you will be working with samples containing infectious virus. Follow the recommended NIH guidelines for all materials containing BSL-2 organisms. Always wear gloves, use filtered tips and work under a biosafety hood.

Methods

The appropriate amount of viruses used for infecting cells is critical for the outcome of your experiments. If not enough virus is used, it will not give 100% of infection. If too much virus is used, it will cause cytotoxicity or other undesired effects. The amount of adenovirus cell surface receptors vary greatly among different cell types therefore the optimal concentration differs dramatically between cell types. A range of 10-200 MOI (multiplicity of infection) is used for most cell lines, but up to 1000 MOI may be used for lymphoid cell lines.

Traditionally, Infectivity particles are measured in culture by a plaque-forming unit assay (PFU) that scores the number of viral plaques as a function of dilution. In contrast to the 10-day infection of a classical plaque assay, Cell Biolabs' QuickTiter™ Adenovirus Titer Immunoassay Kit (Cat. #VPK-109) only requires 2-day infection, and there is no agar overlay step. The kit antibody against hexon protein recognizes all serotypes of adenovirus by immunocytochemistry (see Flow Chart).

Seed 293 cells in 24 or 12-well plate for 1 hr

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Prepare Adenovirus Serial Dilutions and Infect 293 cells for 48 hrs

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Anti-Hexon Immunocytochemistry Staining

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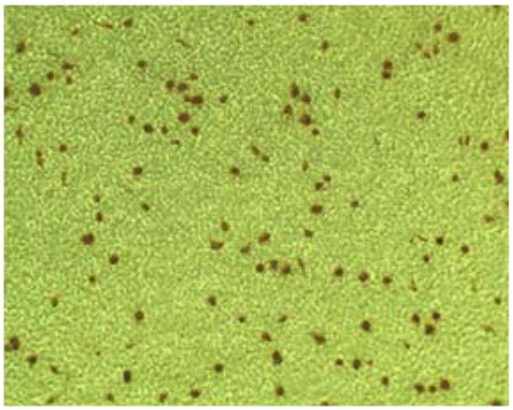
Count Positive Cells and Calculate Viral Titer



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Recent Product Citations

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3. Choi, J. M. et al. (2015). HepG2 cells as an in vitro model for evaluation of cytochrome P450 induction by xenobiotics. *Arch Pharm Res.* **38**:691-704.
4. Choi, S. H. et al. (2014). MMP9 processing of HSPB1 regulates tumor progression. *PLoS One.* **9**:e85509.
5. Kato, H. et al. (2011). Wnt/ß-Catenin pathway in podocytes integrates cell adhesion, differentiation, and survival. *J. Biol Chem*. **286**:26003-26015.

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