Description

The FOLR1 (Folate receptor alpha) Lentiviruses are replication incompetent, HIV-based, VSV-G pseudotyped lentiviral particles ready to transduce nearly all types of mammalian cells, including primary and non-dividing cells. These viruses transduce cells with the *Macaca fascicularis* (also known as crab-eating macaque or cynomolgus monkey) FOLR1 gene (Figure 1).

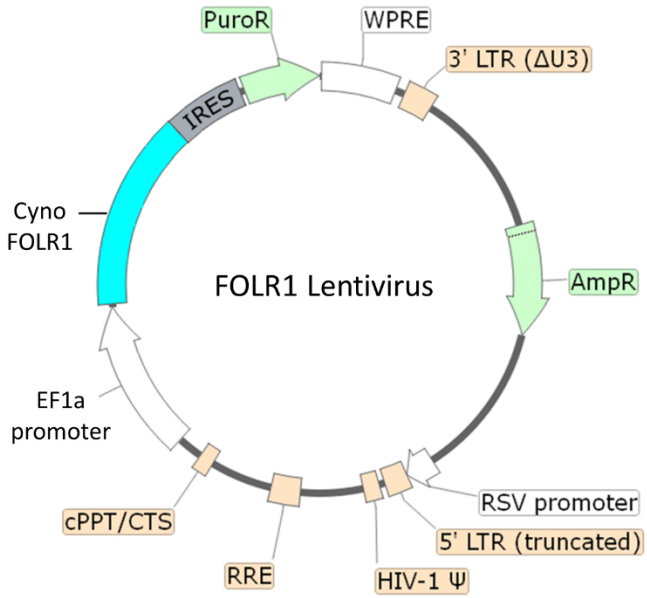

Figure 1: Schematic of the lenti-vector used to generate the cynomolgus FOLR1 Lentivirus.

Background

Folate receptor alpha (FOLR1) is a glycosylphosphatidylinositol (GPI)-anchored membrane protein that transports folate (vitamin B9) into cells. FOLR1 is overexpressed in multiple cancers such as cervical cancer, ovarian cancer, breast cancer, and brain carcinomas, and FOLR1 overexpression is associated with poor patient prognosis and increased cancer progression. The overexpression of FOLR1 in a variety of cancerous tissues makes it a valuable target for drug development. There are multiple clinical trials that target FOLR1, making use of antibodies, folate-drug conjugates and small molecules. More recently early phase trials using CAR-T cells have also been initiated.

Application(s)

- Expression of FOLRR1 in cells of interest.
- Generate stable cell lines expressing cynomolgus FOLR1 (puromycin resistant).

Formulation

The lentivirus particles were produced in HEK293T cells in medium containing 90% DMEM + 10% FBS. Virus particles can be packaged in custom formulations by special request, for an additional fee.

Titer

Two vials (500 µl x 2) of lentivirus at a titer ≥10*7* TU/ml. The titer will vary with each lot; the exact value is provided with each shipment.

Storage

Lentiviruses are shipped with dry ice. For long-term storage, it is recommended to store the lentiviruses at -80°C. Avoid repeated freeze/thaw cycles. Titers can drop significantly with each freeze/thaw cycle.

Biosafety

The lentiviruses are produced with a SIN (self-inactivation) lentivector which ensures self-inactivation of the lentiviral construct after transduction and after integration into the genomic DNA of the target cells. None of the HIV genes (gag, pol, rev) will be expressed in the transduced cells, as they are expressed from packaging plasmids lacking the packing signal and are not present in the lentivirus particle. Although the pseudotyped lentiviruses are replication-incompetent, they require the use of a Biosafety Level 2 facility. BPS Bioscience recommends following all local federal, state, and institutional regulations and using all appropriate safety precautions.

Notes

To generate a FOLR1 stable cell line, remove the growth medium 48 hours after transduction and replace it with fresh growth medium containing the appropriate amount of puromycin (as pre-determined from a killing curve), for antibiotic selection of transduced cells. Visit: https://bpsbioscience.com/cell-line-faq for guidelines on performing a kill curve.

Figures and Validation Data

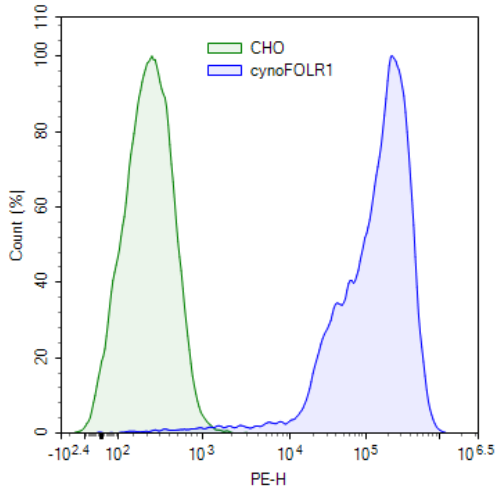

Figure 2. Expression of FOLR1 in CHO-K1 cells using cynomolgus FOLR1 lentivirus.
CHO-K1 cells were transduced with cynomolgus FOLR1 Lentivirus. 66 hours post-transduction cells were selected with puromycin. The puromycin-resistant cell pool was stained with FOLR1 PE-conjugated Antibody (R&D Systems FAB5646P) and analyzed by flow cytometry (blue). Non-transduced CHO K1 cells were used as negative control (green).

Sequence

Cynomolgus FOLR1 sequence (accession number NM_001194647.3)

MAQRMTTQLLLLLVWVAVVGEAQTRTARARTELLNVCMNAKHHKEKPGPEDKLHEQCRPWKKNACCSTNTSQEAHKDVSYL
YRFNWNHCGEMAPACKRHFIQDTCLYECSPNLGPWIQQVDQSWRKERVLNVPLCKEDCEQWWEDCRTSYTCKSNWHKGW
NWTSGFNKCPVGAACQPFHFYFPTPTVLCNEIWTYSYKVSNYSRGSGRCIQMWFDPAQGNPNEEVARFYAAAMSGAGPWAA
WPLLLSLALTLLWLLS

Troubleshooting Guide

Visit bpsbioscience.com/lentivirus-faq for detailed troubleshooting instructions. For further questions, email support@bpsbioscience.com.

Related Products

Products	*Catalog #*	*Size*
FOLR1 CHO Cell Line	78360	2 vials
BCMA Lentivirus	78714	500 µl x 2
FcRL5 Lentivirus	78715	500 µl x 2
GPRC5D Lentiviruses	78716	500 µl x 2
LYPD1 Lentivirus	78724	500 µl x 2
PSMA Lentivirus	78726	500 µl x 2