

Description

The TNFR2 (Tumor Necrosis Factor Receptor 2, or TNFR1B) Lentiviruses are replication incompetent, HIV-based, VSV-G pseudotyped lentiviral particles ready to transduce almost all types of mammalian cells, including primary and non-dividing cells. These viruses transduce cells with Human TNFR2 (NM_001066.3) driven by a CMV promoter. The lentiviruses also transduce a puromycin selection gene (Figure 1).

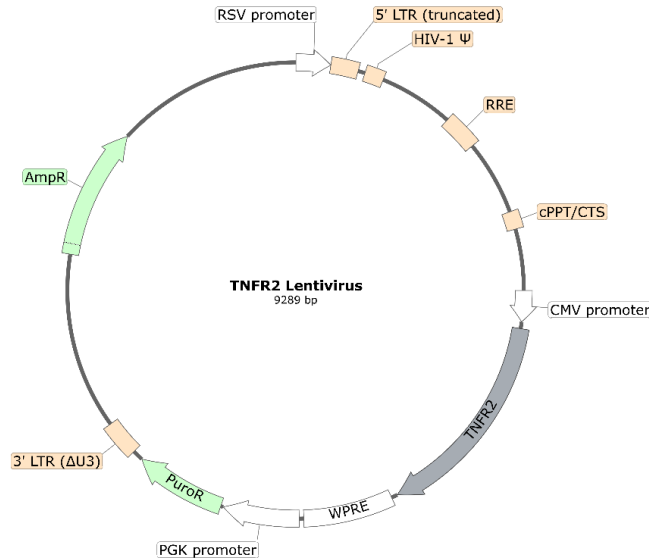


Figure 1. Schematic of the lenti-vector used to generate the TNFR2 Lentivirus.

Background

Tumor Necrosis Factor Receptor 2 (TNFR2, also known as TNFR1B, TNFRSF1B, or CD120b) is a transmembrane receptor of the TNF protein superfamily that binds the pleiotropic pro-inflammatory cytokine tumor necrosis factor- α (TNF- α). TNFR2 can be found in several T-Cell subsets such as regulatory CD8⁺ T-Cells (Tregs) and CD4⁺ tumor infiltrating T cells, myeloid lineage cells and some cancer types, and it is involved in autoimmune diseases, graft versus host disease and cancer. It has become an attractive target for cancer immunotherapy, where its different functions as oncogene and immune regulator are being explored. TNFR2 also exhibits neuroprotective properties and promotes tissue regeneration, making it a promising potential therapeutic target for the treatment of Alzheimer's disease.

Application(s)

- Expression of human TNFR2 in cells of interest.
- Generate stable cell lines expressing human TNFR2 (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 μ l x 2) of lentivirus at a titer $\geq 10^7$ 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 TNFR2 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 how to perform a kill curve.

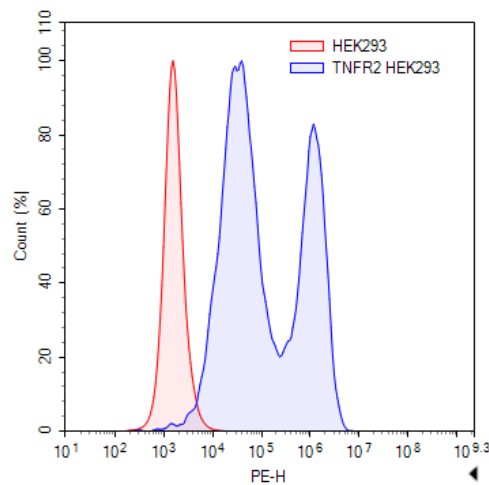
Figures and Validation Data

Figure 2. Expression of human TNFR2 in HEK293 cells transduced with TNFR2 lentiviruses. HEK293 cells were transduced with TNFR2 Lentivirus. 66 hours post-transduction, control (green) and transduced (blue) HEK293 cells were stained with PE-conjugated Anti-TNFR2 Antibody (Biolegend #358404) and analyzed by flow cytometry.

Sequence

Human TNFR2 sequence (accession number NM_001066.3)

MAPVAVWAALAVGLELWAAHALPAQVAFTPYAPEPGSTCRLREYYDQTAQMCCSKCSPGQHAKVFCTKTSDTVCDSCEDST
 YTQLWNWVPECLSCGRSSDQVETQACTREQNRICRPGWYCALSKQEGCRLCAPLRKCRPGFVGVARPGTETSDVVCKPCA
 PGTFSNTTSTDICRPHQICNVVAIPGNASMDAVCTSTSPTRSMAPGAVHLPQPVSTRSQHTQPTPEPSTAPSTSFLPMGPSPP
 AEGSTGDFALPVGLIVGVTALGLLIIGVVNVCVIMTQVKKKPLCLQREAKVPHLPADKARGTQGPEQQHLLITAPSSSSSSLESSASAL
 DRRAPTRNQPAPGVEASGAGEARASTGSSDSSPGGHGTQVNVTCIVNVCSSDHSSQCSSQASSTMGDTDSSPSES PKDEQV
 PFSKEECAFRSQLETPETLLGSTEELPLPLGVPDAGMKPS

References

1. Chen X, *et al.*, 2017, *Science Signaling* 10(462): 2328
2. Chopra M, *et al.*, 2016, *Journal of Experimental Medicine* 213: 1881-1900
3. Medler J, *et al.*, 2022, *Cancers* 14(11): 2603
4. Vanamee É. and Faustman D., 2017, *Trends in Molecular Medicine*, 23(11): 1037-1046

Troubleshooting Guide

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

Related Products

<i>Products</i>	<i>Catalog #</i>	<i>Size</i>
TNFR2 HEK293 Cell Line	78828	2 vials
TNFR2, Fc-Fusion (IgG1), His-Avi-Tag, Biotin-labeled Recombinant	100205	25 µg/50 µg
TNFR2:TNF-alpha[Biotinylated] Inhibitor Screening Assay	79756	96 reactions
TNFR2, Fc-Fusion (IgG1), His-Avi-Tag Recombinant	79363	100 µg
Human Tumor Necrosis Factor-alpha Recombinant	90244	10 µg/50 µg