

Description

VSIG4 (V-set and immunoglobulin domain containing 4) Lentivirus 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 particles contain human VSIG4 (NM_007268.3) driven by a CMV promoter and a puromycin selection marker (Figure 1).

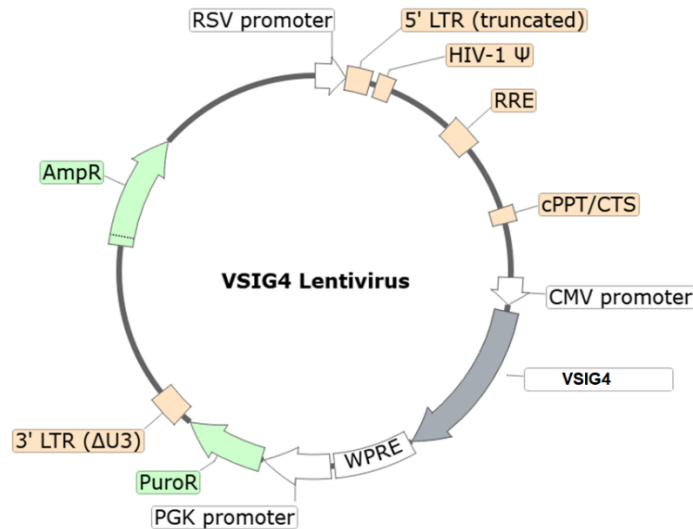


Figure 1. Schematic of the lenti-vector used to generate the VSIG4 Lentivirus.

Background

VSIG4 also known as V-set and immunoglobulin domain containing 4, is an immunoglobulin of the B7 family of immune regulatory proteins. VSIG4 contributes to immune homeostasis by multiple mechanisms. It is a receptor for the complement component 3 fragment C3b and iC3b, where binding triggers receptor internalization and promotes inflammation. While most of the B7 homologues are expressed at low levels in resting cells, VSIG4 is abundantly expressed in non-active peripheral tissues macrophages and downregulated when cells become activated and is hardly found in lymphoid tissue macrophages. VSIG4 has been identified as an inhibitor of T cell responses as effectively as PD-L1 (programmed death-ligand 1), inhibiting T cell proliferation and contributing to cancer progression. Similarly to PD-L1, VSIG4 can be considered an immune checkpoint and be an attractive target in cancer therapy.

Application(s)

- Expression of human VSIG4 in cells of interest.
- Generate cell pools or stable cell lines expressing human VSIG4 following puromycin selection.

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.

Size and Titer

Two vials (500 µl 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 VSIG4 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, <https://bpsbioscience.com/cell-line-faq>), for antibiotic selection of transduced cells, followed by clonal selection.

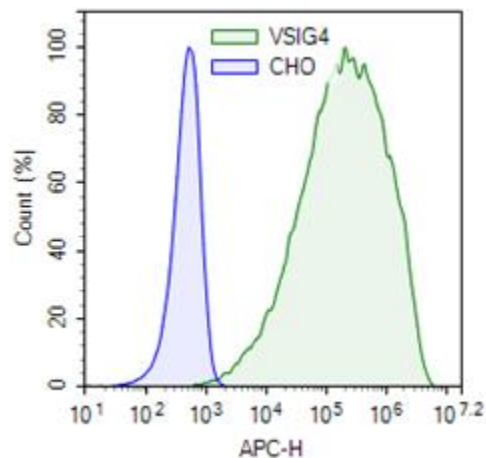
Figures and Validation Data

Figure 2. Expression of human VSIG4 in CHO cells transduced with VSIG4 lentiviruses.

The human VSIG4 CHO cell pool was generated by transduction of CHO-K1 cells with VSIG4 lentiviruses, followed by puromycin selection. The expression of VSIG4 was analyzed by flow cytometry using Human VSIG4 APC-conjugated antibody (Thermo Fisher #17-5757-42).

Sequence

Human VSIG4 sequence (accession number NM_007268.3)

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MGILLGLLLLGHILTVDYGRPILEVPESVTGPWKGDVNLPCYDPLQGYTQVLVKWLVRGSDPVTIFLRDSSGDHIQQAKYQGR
LHVSHKVPGDVSLQLSTLEMDDRSHYTCEVTWQTPDGNQVVRDKITELRVQKLSVSKPTVTTGSGYGFTVPQGMRISLQCQAR
GSPPISYIWYKQQTNNQEPIKVATLSTLLFKPAVIADSGSYFCTAKGQVQSEQHSDIVKFVVKDSSKLLKTKTEAPTTMTYPLKATST
VKQSWDWTDDMDGYLGETSAGPGKSLPVFAIILISLCCMVVFTMAYIMLCRKTSQQEHVVEAARAHAREANDSGETMRVAIFA
SGCSSDEPTSQNLGNNYSDEPCIGQEYQIIAQINGNYARLLDTPLDYEFATEGKSVC
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References

Vogt L., *et al.*, 2006 *J Clin Invest.* 116(10): 2817-26.

Liu B., *et al.*, 2023 *Cancer Lett.* 553: 215996.

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>
VSIG3, Avi-His-Tag Recombinant	100349	100 µg
VSIG3, Fc-fusion (IgG1), Avi-Tag Recombinant	79491	100 µg
VSIG3, Fc-fusion (IgG1), Avi-Tag, Biotin-Labeled Recombinant	100044	25 µg/50 µg