

Description

The CD19 Lentiviruses are replication incompetent, HIV based, VSV-G pseudotyped lentiviral particles that are ready to infect almost all types of mammalian cells, including primary and non-dividing cells. These viruses constitutively express human CD19 (NM_001770) under the control of an EF1A promoter (Figure 1).

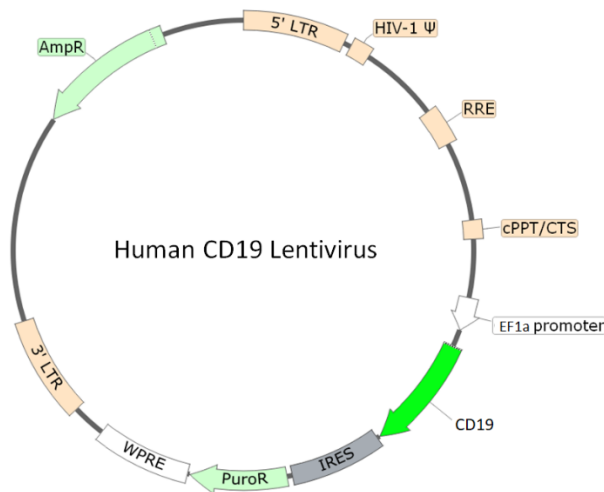


Figure 1. Schematic of the lenti-vector used to generate the CD19 Lentivirus.

Background

B-lymphocyte antigen CD19 (Cluster of Differentiation 19), also known as B-Lymphocyte Surface Antigen B4 and CVID3C, is a transmembrane protein expressed in follicular dendritic cells and all B lineage cells except plasma cells. CD19 plays two major roles in human B cells. It acts as an adaptor protein to recruit cytoplasmic signaling proteins to the membrane and it works within the CD19/CD21 complex to decrease the threshold for B cell receptor signaling pathways. Due to its presence on all B cells, it is a biomarker for B lymphocyte development and lymphoma diagnosis and can be utilized as a target for leukemia immunotherapies. CD19-targeted therapies based on T cells that express CD19-specific chimeric antigen receptors (CARs) have been utilized for their antitumor abilities in patients with CD19+ lymphoma and leukemia, such as Non-Hodgkins Lymphoma (NHL), CLL and ALL.

Application(s)

- Study the transient expression of human CD19 in target cells.
- Generate a stable cell line expressing human CD19 with limiting dilution under puromycin selection.

Formulation

The lentivirus particles were produced from HEK293T cells. They are supplied in cell culture medium containing 90% DMEM + 10% FBS.

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 will be 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

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 CD19 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 antibiotics selection of transduced cells.

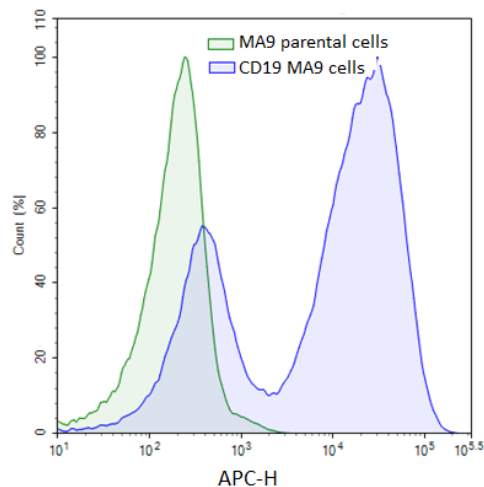
Figures and Validation Data

Figure 2. Transduction of MA9 cells using the CD19 lentivirus.

Approximately 50,000 MA9 cells were transduced with 500,000 TU of CD19 lentivirus via spinoculation (32°C x 30 min in the presence of $5\ \mu\text{g}/\text{ml}$ of polybrene). After 48 hours of transduction, the cells were selected with $0.5\ \mu\text{g}/\text{ml}$ of puromycin. The puromycin-resistant cell pool was stained with APC-labeled anti-human CD19 (clone# HIB19; Biolegend #302212) and analyzed by flow cytometry.

Troubleshooting Guide

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

Related Products

<i>Products</i>	<i>Catalog #</i>	<i>Size</i>
CD20 Lentivirus	78658	500 µl x 2
CD22 Lentivirus	78659	500 µl x 2