Description

The GPRC5D Lentiviruses are replication incompetent, HIV-based, VSV-G pseudotyped lentiviral particles that are ready to transduce nearly all types of mammalian cells, including primary and non-dividing cells. The particles contain a human GPRC5D (NM_018654.1) driven by a CMV promoter and a Hygromycin selection marker (Figure 1).

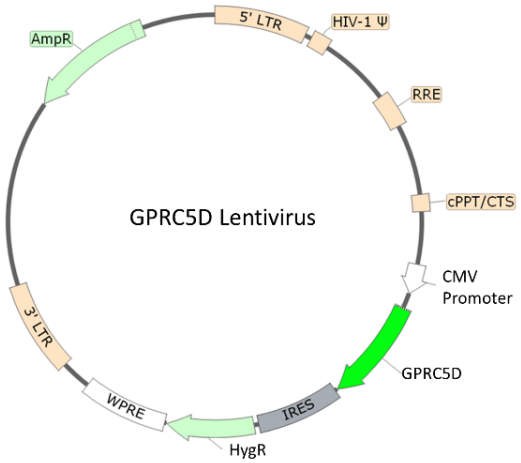

Figure 1: Schematic of the lenti-vector used to generate the GPRC5D Lentivirus

Background

G protein-coupled receptor class C group 5 member D (GPRC5D) is an orphan receptor of little-known function belonging to the large family of G protein-coupled receptors. The protein is highly expressed in malignant plasma cells such multiple myeloma and is now considered a therapeutic target for antibody-based treatment of multiple myeloma. For example, CAR T cells and GPCR5DxCD3 bispecific antibodies are under development.

Application(s)

Generate stable cell line expressing human GPRC5D with hygromycin 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 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

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 GPRC5D stable cell line, remove the growth medium 48 hours after transduction and replace it with fresh growth medium containing the appropriate amount of hygromycin (as pre-determined from a killing curve) for antibiotics selection of transduced cells. Visit: https://bpsbioscience.com/cell-line-faq for guidelines on performing a kill curve.

Figures and Validation Data

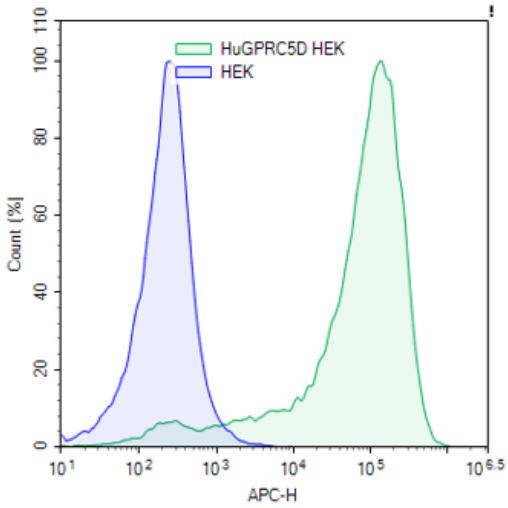

Figure 2. Transduction of HEK293 using GPRC5D Lentivirus.
Approximately 50,000 HEK293 cells were transduced with 500,000 TU of GPRC5D lentiviruses. After 66 hours of transduction, the cells were selected with 100 µg/ml of hygromycin. The hygromycin-resistant cell pool was stained human GPRC5D APC-conjugated Antibody (R&D system CAT#FAB6300A) and analyzed by flow cytometry.

Sequence

Human GPRC5D (NM_018654.1)
MYKDCIESTGDYFLLCDAEGPWGIILESLAILGIVVTILLLLAFLFLMRKIQDCSQWNVLPTQLLFLLSVLGLFGLAFAFIIELNQQTAP
VRYFLFGVLFALCFSCLLAHASNLVKLVRGCVSFSWTTILCIAIGCSLLQIIIATEYVTLIMTRGMMFVNMTPCQLNVDFVVLLVYVL
FLMALTFFVSKATFCGPCENWKQHGRLIFITVLFSIIIWVVWISMLLRGNPQFQRQPQWDDPVVCIALVTNAWVFLLLYIVPELCIL
YRSCRQECPLQGNACPVTAYQHSFQVENQELSRARDSDGAEEDVALTSYGTPIQPQTVDPTQECFIPQAKLSPQQDAGGV

Reference

Mailankody S. *et al.,* GPRC5D-Targeted CAR T Cells for Myeloma (2022) *N Engl J Med.* **387** :1196-1206

Troubleshooting Guide

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

Related Products

Products	*Catalog #*	*Size*
Trop2 Lentivirus	78710	500 µl x 2
GPC3 Lentivirus	78711	500 µl x 2
Nectin-4 Lentivirus	78712	500 µl x 2
BCMA Lentivirus	78714	500 µl x 2
FcRL5 Lentivirus	78715	500 µl x 2
Claudin-9 Lentivirus	78721	500 µl x 2
Claudin-3 Lentivirus	78722	500 µl x 2
Claudin-4 Lentivirus	78723	500 µl x 2
LYPD1 Lentivirus	78724	500 µl x 2
PSMA Lentivirus	78726	500 µl x 2