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SARS-CoV-2 Pseudoviral Particles

CATALOG NUMBER: SCV2-PsV-001, 10 mL

Description

It has been known that SARS-CoV-2 and SARS-CoV both use human ACE2 as entry receptor and human proteases as entry activators. The virus surface spike protein (S) mediates SARS-CoV-2 entry into cells. To fulfill its function, SARS-CoV-2 spike binds to its receptor human ACE2 (hACE2) through its receptor-binding domain (RBD) and is proteolytically activated by human proteases.

The SARS-CoV-2 Pseudoviral Particles are replication-deficient MLV pseudotyped with the SARS-CoV-2 spike protein. They also contain the ORF for firefly luciferase as a reporter. They establish a pseudovirus entry assay for SARS-CoV-2 as the spike protein mediated cell entry can be conveniently measured via luciferase reporter activity. This pseudovirus assay isolates the SARS-CoV-2 viral entry from other steps of the viral infection cycle.

Applications

Work perfectly for Luc Pseudovirus to get robust signal, 1) for screening potential inhibitor to block SARS-CoV-2 entry and viral protein translation; 2) for measuring the activity of and screening for neutralizing antibody against SARS-CoV-2.

Features

- **Robust:** Excellent signal to noise (basal) ratio
- **Easy to use:** Amenable to HTS format (96-well, 384-well and 1536-well format)

Contents

10 ml (2 tubes, 5 mL/tube), for 2 multi-well plates

Storage

Store at -70˚C

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ASSAY PROTOCOL

Note: requires a luciferase assay reagent (any commercially available)

Cell Infection:

1. Count Vero E6 cells/HEK293-ACE2 cells to be infected and seed ~20K cells per well into 96-well plates (50 µl per well) DMEM with 10% FC (no antibiotics) or 5K cells per well into 384-well plates (15 µl per well).
2. Culture cells overnight to make sure the cells stably adhere to the plates.
3. On the 2nd day, remove media, add 50 µl SARS-CoV-2-PP into each well (12.5 µl for 384-well plate). Spin at 700 rpm for 15 min at 4°C.
4. Incubate for 2 hrs at 37 °C.
5. Add 50 µl DMEM with 10% FC into each well (12.5 µl for 384-well plates).
6. Incubate for 48 hrs at 37 °C.

Measurement of Luciferase Activity in Infected cells

1. Remove supernatant.
2. Add 100 µl Luciferase assay reagent (20 µl for 384-well plates).
3. Read in a luminescence plate reader, and record the data.

Data Analysis

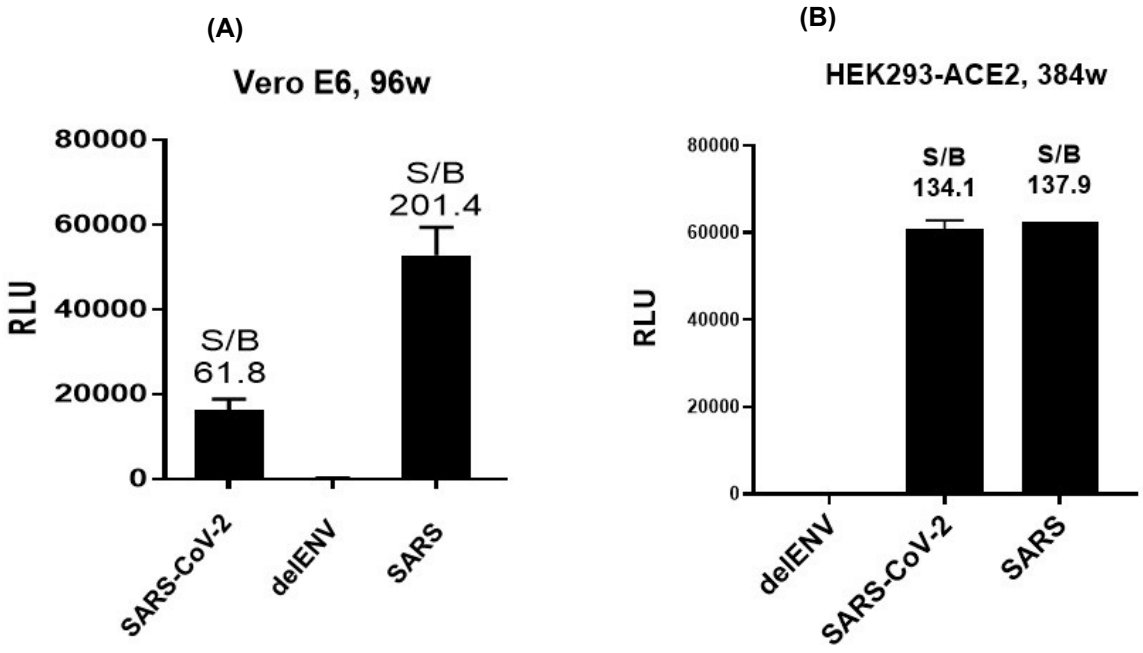

Figure 1. Pseudoviral Particle (PP) Infection Assays

(A) SARS and SARS-CoV-2 pseudoviral particles on Vero E6 cells in 96-well format.

(B) SARS and SARS-CoV-2 pseudoviral particles on HEK293-ACE2 cells in 384-well format.

Legends: 1) **SARS-CoV-2**: MLV w/ SARS-CoV-2 spike protein (SCV2-PsV-001);
delENV: MLV control (w/o envelop spike protein);
SARS: MLV w/ SARS-CoV spike protein.
2) **S/B**: **S**ignal RLU of PP w spike protein. **B**aseline RLU of pp w/o spike protein.

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