LV-Pseudovirus Spike SARS-CoV-2 (B.1.1.7) GFP reporter

The lot number #LVSA-0100 is a lentivirus-based pseudovirus pseutotyped with the SARS-CoV-2 B.1.1.7 (Alpha) variant spike protein. This quality control report demonstrates that the lot #LVSA-0100 is efficient for cell transduction and can be effectively neutralized by a standard neutralizing antibody.

1. Transduction efficiency assay

Target cells	HEK293 cells (ACE2$^+$, TMPRSS2$^+$)
Volume of pseudoviruses	10 µL/well
Detection signal	Fluorescence (GFP)
Detection method	Fluorescent microscopy

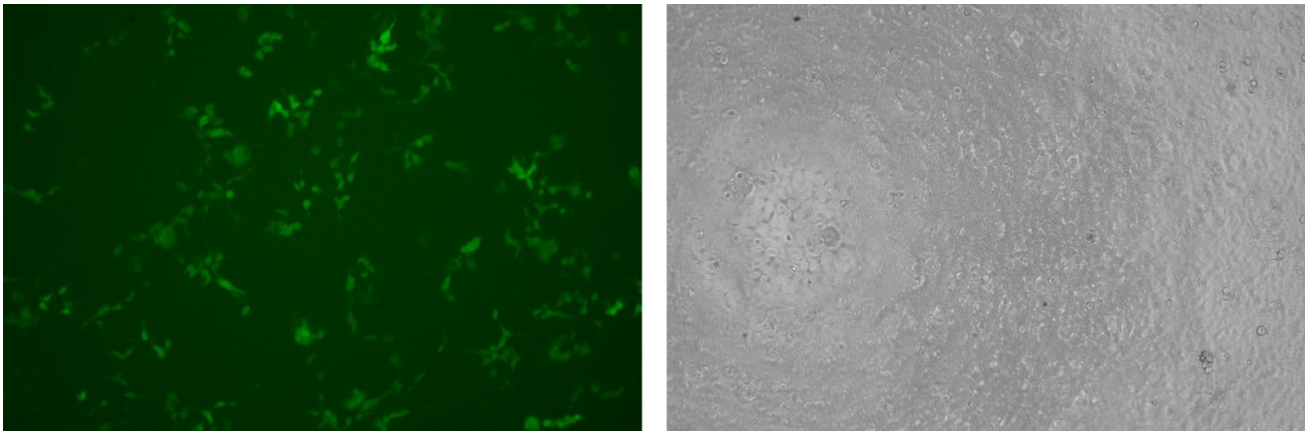

Figure 1: GFP-positive cells after transduction with the LV-Pseudovirus #LVSA-0100.

A volume of 10 µl of LV-pseudovirus was mixed to 40 µL of culture complete medium, in a 96-well plate. Then, an additional volume of 50 µL containing 30 000 HEK293 cells (ACE2$^+$, TMPRSS2$^+$) were seeded in each well. GFP expression analysis was performed 48 hours post-infection by fluorescent microscopy.

Conclusion	The production batch of LV-Pseudoviruses #LVSA-0100 can transduce the target cells.

2. Neutralization assay

Target cells	HEK293 cells (ACE2$^+$, TMPRSS2$^+$)
Volume of pseudoviruses	10 µL/well
Neutralizing antibody standard	Anti-Spike Protein (RBD) [CV30], AB02019-12.1
Detection signal	Fluorescence (GFP)
Detection method	Flow cytometry

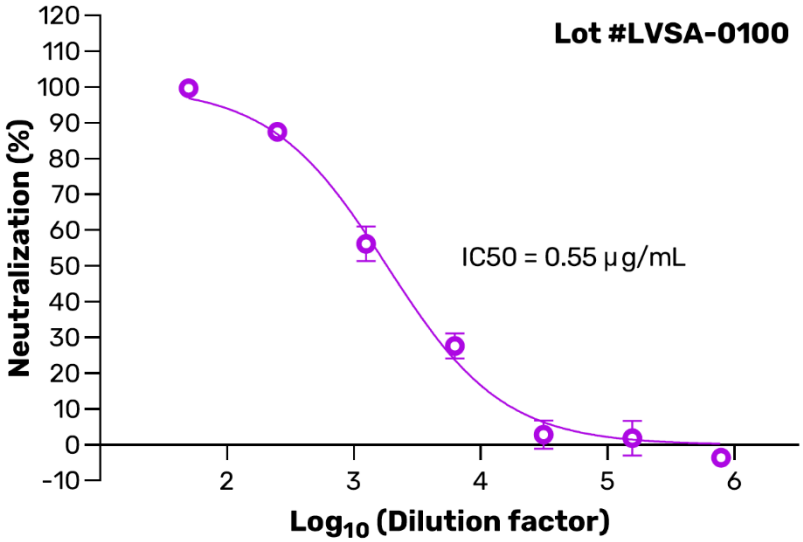

Figure 2 : Neutralization curve of the batch #LVSA-0100.

A neutralizing antibody (AB02019-12.1) was serial diluted in a final volume of 50 µL of complete medium and incubated for 1 hour with 10 µL of LV-pseudoviruses, in a 96-well plate. Then, an additional 50 µL containing 30 000 HEK293 cells (ACE2+, TMPRSS2+) were seeded in each well and incubated for 48 hours before flow cytometry analysis. Data in relative unit fluorescence (RFU) were obtained from the analysis of 10 000 cells. Control conditions with pseudoviruses or cells only were also included in the assay as negative controls. The normalized values are analyzed by choosing a nonlinear regression analysis followed by a log (inhibitor) *vs* response – variable slope function in GraphPad Prism software. Data are representative of duplicates.

Conclusion	The production batch of LV-Pseudoviruses #LVSA-0100 can be efficiently neutralized by a neutralizing antibody.

3. Additional information

Caution	We recommend determining the optimal pseudovirus volume to use according to your specific experimental conditions.
LV-pseudovirus	3rd generation, replication incompetent
Pseudotyping	SARS-CoV-2 B.1.1.7 (Alpha) variant spike protein (GenBank: MN908947) with multiple mutations including: ΔH69/V70, ΔY144, N501Y, A570D, D614G, P681H, T716I, S982A, and D1118H. The spike protein has an 18-aa cytoplasmic tail truncation for optimal infection.
Glycosylation origin	Human
Reporter protein	Green fluorescent protein
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