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# Lentivirus Pseudotyped with Coronavirus Spike (S) Protein

VectorBuilder offers lentivirus pseudotyped with spike (S) proteins from a variety of most recently emerged SARS-CoV-2 variants to help you explore viral entry mechanisms into host cells.

Spike (S) protein variant	Description	
WT S protein	Canonical S protein from the first published SARS-CoV-2 genome sequence.	Figure 1. Recombinant lentivirus pseudotyped with S protein mimics the host cell entry mechanism of coronavirus.
D614G S protein	S protein containing the D614G substitution within the C-terminal region of the S1 subunit, which plays a critical role in receptor binding.	
N439K S protein	S protein contaning the N439K substitution within the receptor-binding motif (RBM).	
N501Y S protein	S protein containing the N501Y substitution within the receptor-binding domain (RBD).	
K417T S protein	S protein containing the K417T substitution within the RBD.	
Y453F S protein	S protein containing the Y453F substitution within the RBD.	
P681H S protein	S protein containing the P681H substitution located adjacent to the furin cleavage site which plays a role in viral membrane fusion.	
E484K S protein	S protein containing the E484K substitution within the RBD.	
H69/V70 deleted S protein	S protein containing a six nucleotide out-of-frame deletion within the S1 N-terminal domain which leads to the loss of amino acids H69 and V70.	
N501Y, K417N, E484K S protein	S protein containing the three substitutions N501Y, K417N, E484K within the RBD.	
B.1.1.7 S protein	S protein derived from the B.1.1.7 variant of SARS-CoV-2 which was first identified in the UK.	
B.1.351 S protein	S protein derived from the B.1.351 variant of SARS-CoV-2 which was first identified in South Africa.	
B.1.617.2 S protein	S protein derived from the B.1.617.2 variant of SARS-CoV-2 which was first identified in India.	

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#### **Highlights**

- Ideal for studying virus-cell interaction, immune escape from antibody neutralization, vaccine protection, and so on.
- Can be safely handled in a regular BSL-2 facility.
- Highly optimized pseudotyping protocols for achieving high transduction efficiency.
- Options to customize pseudotyped virus to express reporters • such as EGFP or luciferase for easy viral entry analysis.

**Bald** lentivirus

- · Pseudotyping available for S proteins derived from other coronavirus species.
- Bald lentivirus lacking viral envelope protein available for being used as negative control.
- ACE2 expressing cell lines optimized for transduction with SARS-CoV-2 S protein pseudotyped lentivirus available.

S-pseudotyped lentivirus

D614G S-pseudotyped lentivirus



Figure 2. 293T cells overexpressing human ACE2 receptor (hACE2) transduced with bald lentivirus, lentivirus pseudotyped with wild type S protein or its D614G variant.

N439K S-pseudotyped lentivirus

N501Y S-pseudotyped lentivirus



Figure 3. 293T (hACE2) cells transduced with lentivirus pseudotyped with N439K or N501Y S protein.

B.1.1.7 S-pseudotyped lentivirus

B.1.351 S-pseudotyped lentivirus



Figure 4. 293T (hACE2) cells transduced with lentivirus pseudotyped with B.1.1.7 or B.1.351 S protein.

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