

## Severe Acute Respiratory Syndrome Corona Virus 2-like particles (Ha-CoV-2), XBB.1.9.1 Catalog #: 0568-PP-032

### Description:

The hybrid alpha-pseudovirus for SARS-CoV-2 (Ha-CoV-2) is a newly developed SARS-CoV-2 virus-like particle (VLP) that encapsulates an alphavirus-derived RNA genome for rapid report expression (Luciferase or GFP) in target cells (Hetrick et al., 2022). Different from commonly used S protein pseudotyped lenti- or vesicular stomatitis virus (VSV)-pseudoviruses, Ha-CoV-2 is assembled with all 4 structural proteins (S, M, N, and E) of SARS-CoV-2, and contains a reporter genome derived from an alphavirus-based vector for rapid (6 hours) and robust expression of reporter genes. The alphavirus vector does not contain any of the structural proteins from the authentic virus and the alpha-pseudovirus particles are single-cycle.

**Formulation & Storage:** Available upon request  
Store at -80°C.

#### Notes & Usage Guidelines:

**Spike Mutations:** Spike T19I, Spike L24S, Spike Del25/27, Spike V83A, Spike G142D, Spike Del144/144, Spike H146Q, Spike Q183E, Spike V213E, Spike G339H, Spike R346T, Spike L368I, Spike S371F, Spike S373P, Spike S375F, Spike T376A, Spike D405N, Spike R408S, Spike K417N, Spike N440K, Spike V445P, Spike G446S, Spike N460K, Spike S477N, Spike T478K, Spike E484A, Spike F486P, Spike F490S, Spike Q498R, Spike N501Y, Spike Y505H, Spike D614G, Spike H655Y, Spike N679K, Spike P681H, Spike N764K, Spike D796Y, Spike Q954H, Spike N969K

**Size:** 25 X 200  $\mu$ L ~100 wells/96 well plate or 60x Conc. 5 x 100  $\mu$ L  
**Reporter:** Available with Firefly luciferase, GFP, or RFP

## Applications

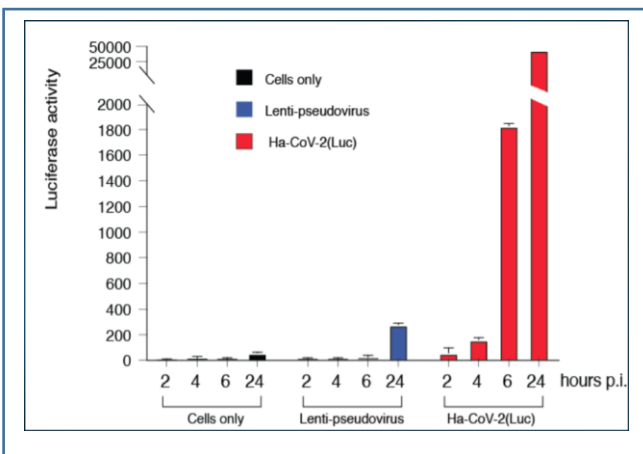
- Screening and quantification of anti-coronavirus-neutralizing antibodies
- Anti-coronavirus drug screening
- Quantification of viral mutants' infectivity
- Identification of host co-factors and restriction factors of coronaviruses

### Hybrid alpha-Pseudovirus Neutralization Assay Protocol:

A monolayer of Vero cells is infected with VLPs or a mixture of VLPs and test sample for approximately 1 hr in a dilution block. Cells are overlaid with 1-2% FBS supplemented media and incubated overnight at 37°C + 5% CO<sub>2</sub>. Following overnight incubation, luciferase activity is measured by adding an appropriate substrate like Bright-Glo™ or Luciferase Assay System (Promega). Plates can be read immediately on an instrument such as BioTek Cytation™ or similar. Relative neutralization activity is measured by comparing treated versus untreated wells (or virus only control). In dose response experiments the concentration of TA resulting in 50% neutralization (IC<sub>50</sub>) is determined.

Repeated freeze/thaw cycles are not recommended as it may affect viral titer and infectivity.

**Left:** Comparison of Ha-CoV-2 with S protein pseudotyped lentivirus in a time course of infection and reporter expression



### Certificate of analysis:

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