Virus Entry Receptor Binding – VERB kit

Application note

VERB assay as an innovative tool to detect spike proteins from serum samples

Introduction

SARS-CoV-2 virus initiates the viral entry into target cells through the interaction of its receptor binding domain (RBD) on the S1 subunit of its envelope spike glycoprotein with the angiotensin-converting enzyme 2 (ACE2) on human cells. The highly efficient binding of SARS-CoV-2 to its cellular entry receptor ACE2 forms the molecular principle of the VERB platform developed by Covirabio.

Here we show how the VERB platform can be utilized for spike quantification from serum samples. The VERB assay relies on a capture matrix with ACE2 immobilized on a magnetic beads, making it a versatile tool to be incorporated in a workflow to answer your research question.

Procedure

- **VERB beads preparation**
  - Sample addition
- **Spike protein capture**
  - ≤ 30 min
- **Spike detection**
  - on VERB beads, e.g., direct detection by anti- spike- antibody- HRP conjugates
- **Transfer supernatant**
  - Colorimetric or fluorescent readout of peroxidase reaction product (e.g., TMB) in microtiter plates

Key Features

Characteristics	• **Capture all spike protein variants** • **Rapid procedure** (<2h)
Kit components	• **Magnetic beads** functionalized with **recombinant human ACE2** • **Working buffer** (10x)
Required material	• **Magnetic devices** (block or automatic device e.g. TANBead, KingFisher) for operation in manual mode or automatic mode. • **Antibodies** specific to spike proteins (with peroxidase HRP conjugated) and/or secondary antibodies conjugated with HRP • **Peroxidase detection agents** for colorimetric or fluorescent readout

Performance

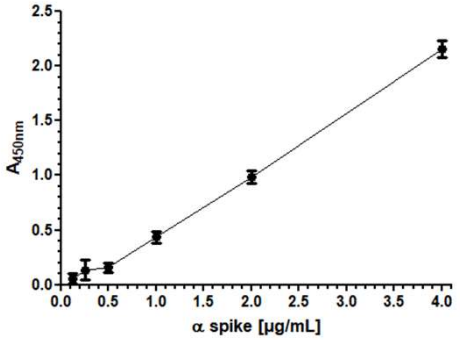

Figure 1. Trimeric alpha spike protein isolated with the VERB assay. Recombinantly expressed trimeric alpha spike protein was spiked into human serum and isolated with the VERB beads. Detection of captured spike was performed with an anti-spike monoclonal antibody conjugated with HRP. The colorimetric signal of the horse radish peroxidase (HRP) substrate tetramethylbenzidine (TMB) was detected at 450 nm. Average and standard deviation of isolations performed in triplicates are displayed in the graph.

Order information
Cat. COV007-RUO

COVIRABIO

Further information
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