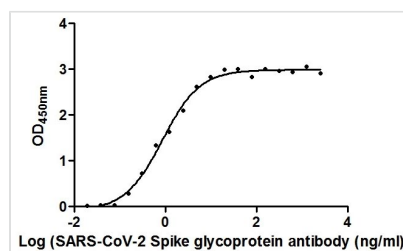




SARS-CoV-2 Spike RBD Recombinant Nanobody

Product Code	CSB-RA33245A2GMY
Abbreviation	S
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P0DTC2
Immunogen	Recombinant Human Novel Coronavirus Spike glycoprotein(S) (319-541aa) (CSB-YP3324GMY1 and CSB-MP3324GMY1b1)
Species Reactivity	Human Novel Coronavirus (SARS-CoV-2/ 2019-nCoV)
Tested Applications	ELISA, GICA, Neutralising; Recommended dilution: ELISA:1:10000-1:100000, GICA:1:10000-1:40000, Neutralising:1:100-1:10000
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Preservative: 0.03% Proclin 300 Constituents: 50% Glycerol, 0.01M PBS, pH 7.4
Purification Method	Affinity-chromatography
Isotype	VHH fusion with human IgG1 Fc
Clonality	Monoclonal
Alias	Anti-coronavirus spike Antibody; Anti-cov spike Antibody; Anti-ncov RBD Antibody; Anti-ncov S1 Antibody; Anti-ncov spike Antibody; Anti-novel coronavirus RBD Antibody; Anti-novel coronavirus S1 Antibody; Anti-novel coronavirus spike Antibody; Anti-RBD Antibody; Anti-S1 Antibody; Anti-Spike RBD Antibody; E2 Antibody; E2 glycoprotein Antibody; Human coronavirus spike glycoprotein Antibody; S Antibody; SARS-CoV-2 S1 RBD Antibody; S glycoprotein Antibody; Spike glycoprotein Antibody
Immunogen Species	Human Novel Coronavirus (SARS-CoV-2/ 2019-nCoV)
Research Area	Microbiology
Gene Names	S (Spike glycoprotein)
Clone No.	A1

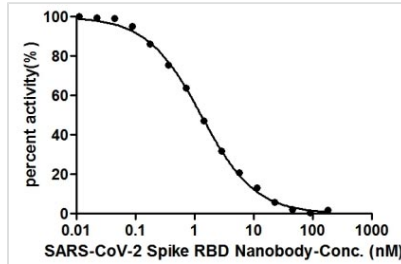
Image



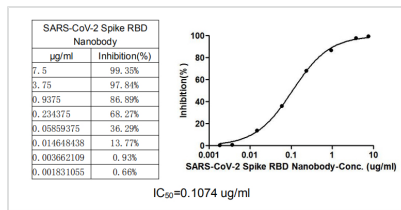
The Binding Activity of SARS-CoV-2 Spike RBD Nanobody with SARS-CoV-2-S1-RBD Activity: Measured by its binding ability in a functional ELISA. Immobilized SARS-CoV-2-S1-RBD (CSB-YP3324GMY1) at 2 µg/ml can bind SARS-CoV-2 Spike RBD Nanobody, the EC50 is 0.8674 ng/ml.



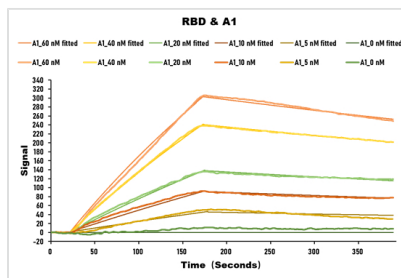
In the Colloidal Gold Immunochromatography Assay detection system, the background of antibody (CSB-RA33245A2GMY) is clean, the detection limit can be as low as 25ng/ml (1.75ng/0.07ml), and the sensitivity is very good.



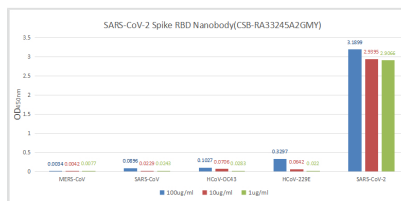
SARS-CoV-2 Spike RBD Nanobody (CSB-RA33245A2GMY) competed with ACE2-HRP conjugate (CSB-MP866317HU) for binding to SARS-CoV-2-S1-RBD (CSB-YP3324GMY1). The binding signal of SARS-CoV-2-S1-RBD and ACE2-HRP conjugate was gradually reduced as the SARS-CoV-2 Spike RBD Nanobody concentrations increased. It indicated that this SARS-CoV-2 Spike RBD Nanobody effectively inhibited the SARS-CoV-2-S1-RBD/ACE2 binding. And the IC_{50} of this SARS-CoV-2 Spike RBD Nanobody is 1.296 nM.



SARS-CoV-2 Spike RBD Nanobody (CSB-RA33245A2GMY) competitively prevented SARS-CoV-2-S1-RBD (CSB-YP3324GMY1) from binding to ACE2-HRP conjugate (CSB-MP866317HU). The inhibition efficacy of the SARS-CoV-2-S1-RBD/ACE2 binding was positively proportionally to the SARS-CoV-2 Spike RBD Nanobody concentrations. It showed that this SARS-CoV-2 Spike RBD Nanobody effectively inhibited the SARS-CoV-2-S1-RBD/ACE2 binding. And the IC_{50} of this SARS-CoV-2 Spike RBD Nanobody is 0.1074 $\mu\text{g/ml}$.



SARS-CoV-2 Spike protein RBD His/Sumostar Tag (CSB-YP3324GMY1) captured on COOH chip binding to the SARS-CoV-2 Spike RBD Nanobody (CSB-RA33245A2GMY), increases the local refractive index (RI), leading to a red shift of the LSPR peak position. The higher concentrations of SARS-CoV-2 Spike RBD Nanobody, the larger the wavelength shift. The detected affinity constant of SARS-CoV-2 Spike protein RBD/SARS-CoV-2 Spike RBD Nanobody binding is 28.2nM.



ELISA: Immobilize various types of SARS proteins at concentration of 2 $\mu\text{g/ml}$ on solid substrate, then react with SARS-CoV-2 Spike RBD Nanobody at concentration of 100 $\mu\text{g/ml}$, 10 $\mu\text{g/ml}$ and 1 $\mu\text{g/ml}$. It shows the SARS-CoV-2 Spike RBD Nanobody (CSB-RA33245A2GMY) is specific for SARS-CoV-2-S1-RBD protein, without any cross-reactivity with MERS-CoV, SARS-CoV, HCoV-OC43 or HCoV-229E.



Description

The production of the SARS-CoV-2 Spike RBD recombinant monoclonal antibody involves the application of DNA recombinant technology and in vitro genetic manipulation. Initially, an animal is immunized with a recombinant human SARS-CoV-2 Spike glycoprotein (S) (319-541aa) (CSB-YP3324GMY1 and CSB-MP3324GMY1b1), resulting in the isolation of B cells. From these B cells, positive B cells are selected for further screening and identification of single clones. The light and heavy chains of the SARS-CoV-2 Spike RBD antibody are then amplified through PCR and inserted into a plasmid vector to create a recombinant vector. This vector is subsequently transfected into a host cell line to facilitate antibody expression. The SARS-CoV-2 Spike RBD recombinant monoclonal antibody is collected and purified from the cell culture supernatant using affinity chromatography. This antibody exhibits reactivity towards human SARS-CoV-2 Spike RBD protein and is highly suitable for ELISA, GICA, and neutralizing applications.

The SARS-CoV-2 Spike RBD (receptor-binding domain) protein is a key component of the virus that enables it to enter host cells. The RBD binds to the human ACE2 receptor on the surface of host cells, initiating the process of viral entry. The interaction between the SARS-CoV-2 Spike RBD and the human ACE2 receptor is the target of several vaccines and therapeutic antibodies aimed at preventing viral entry and reducing the severity of COVID-19.