SARS-CoV-2 spike protein (RBD) neutralizing (C-A11) rabbit mAb

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Applications	Detection	Clonality	Isotype
Functional Assay	Anti-Rabbit IgG	Monoclonal	Rabbit IgGk

Format: Unconjugated

Cross Reactivity: U.K coronavirus variant B.1.1.7, South Africa variant B.1.351

Formulation: 1X PBS

Preparation: Protein A

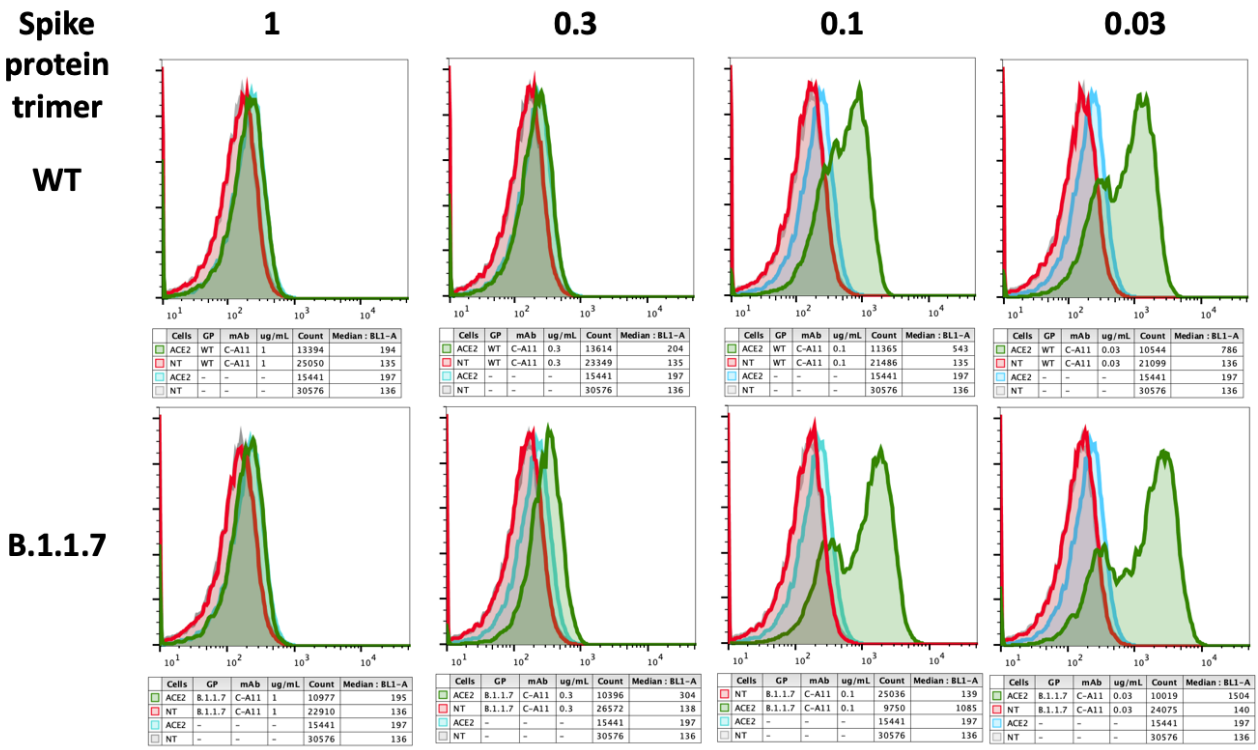
Reactivity: Other

Recommended Usage: This antibody recognizes the SARS-CoV-2 Spike Protein RBD domain and inhibits the interaction between SARS-CoV-2 RBD and ACE2. Can be paired with other antibody for detection in sandwich ELISA format.

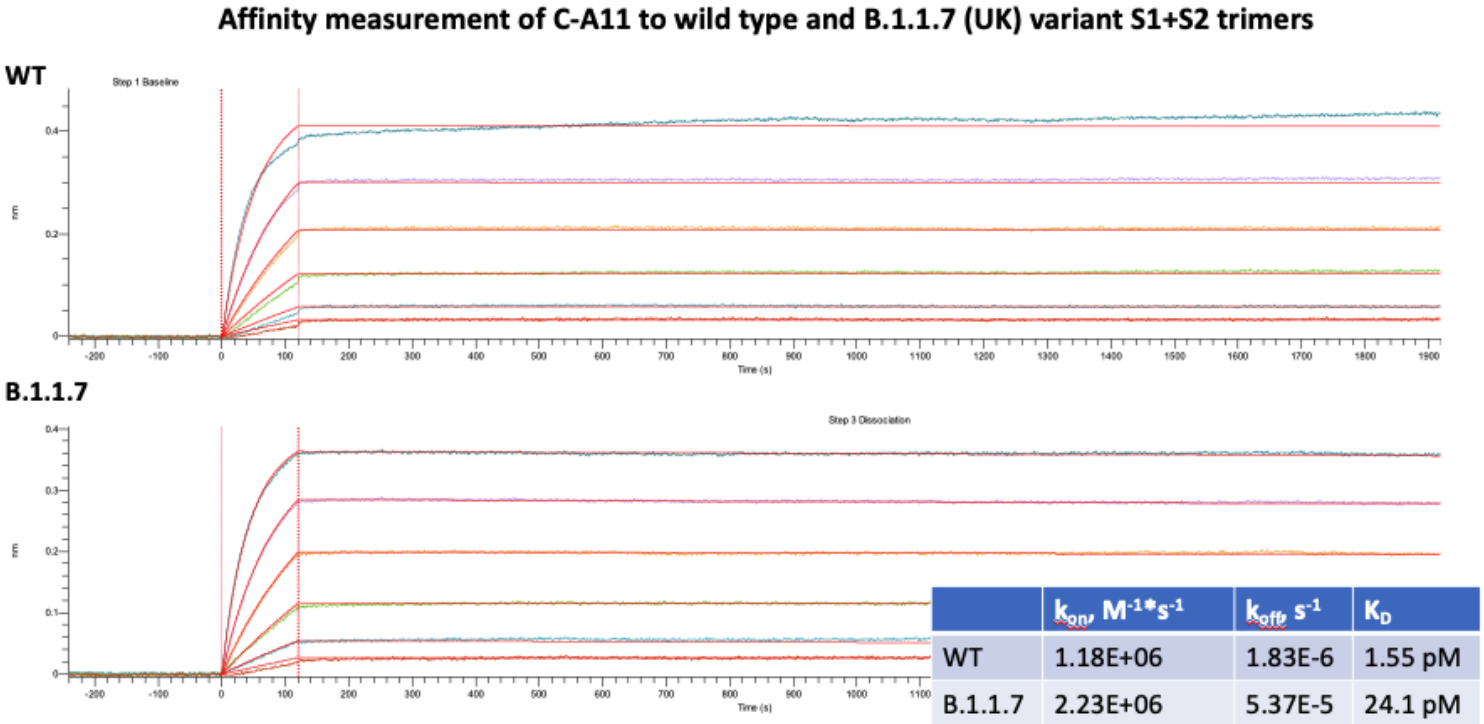
Immunogen: recombinant protein (RBD)

Description: This antibody recognizes the SARS-CoV-2 spike protein RBD domain and inhibits the interaction between SARS-CoV-2 RBD and ACE2. The spike (S) glycoprotein of coronaviruses contains protrusions that will only bind to certain receptors on the host cell. Known receptors bind S1 are ACE2, angiotensin-converting enzyme 2; DPP4, dipeptidyl peptidase-4; APN, aminopeptidase N; CEACAM, carcinoembryonic antigen-related cell adhesion molecule 1; Sia, sialic acid; O-ac Sia, and O-acetylated sialic acid. The spike protein is essential for both host specificity and viral infectivity. The term ‘peplomer’ is typically used to refer to a grouping of heterologous proteins on the virus surface that function together. The spike (S) glycoprotein of coronaviruses is known to be essential in the binding of the virus to the host cell at the advent of the infection process. It’s been reported that SARS-CoV-2 (COVID-19 coronavirus, 2019-nCoV) can infect the human respiratory epithelial cells through interaction with the human ACE2 receptor. The spike protein is a large type I transmembrane protein containing two subunits, S1 and S2. S1 mainly contains a receptor binding domain (RBD), which is responsible for recognizing the cell surface receptor. S2 contains basic elements needed for the membrane fusion. The S protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity. The main functions for the spike protein are summarized as: mediates receptor binding and membrane fusion, defines the range of the hosts and specificity of the virus; main component to bind with the neutralizing antibody; key target for vaccine design; and can be transmitted between different hosts through gene recombination or mutation of the receptor binding domain (RBD), leading to a higher mortality rate.

References:

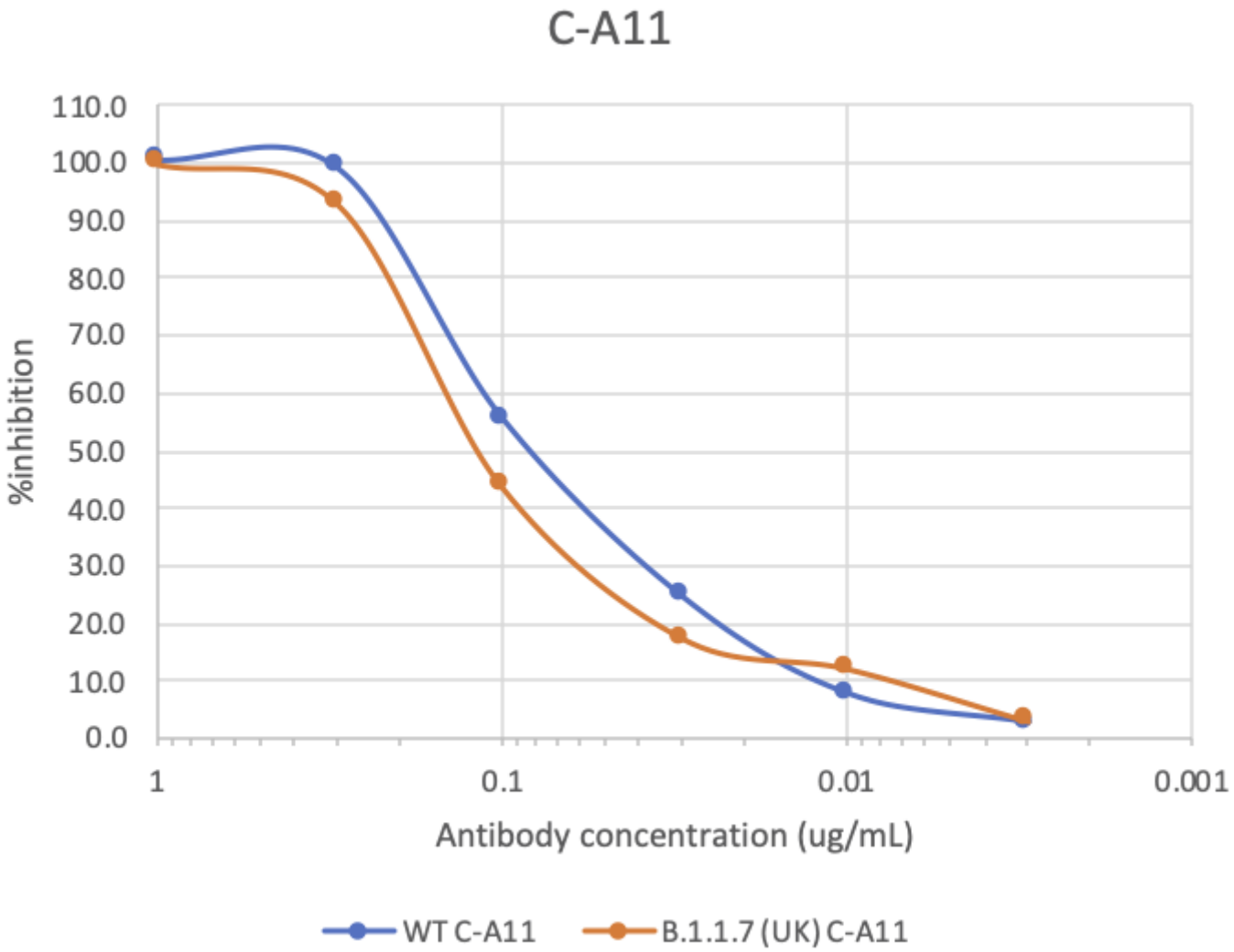


Flow cytometry neutralizing assay: C-A11 displayed dose dependent blocking of spike proteins (wild type and UK variant) to ACE2 expressing cells.

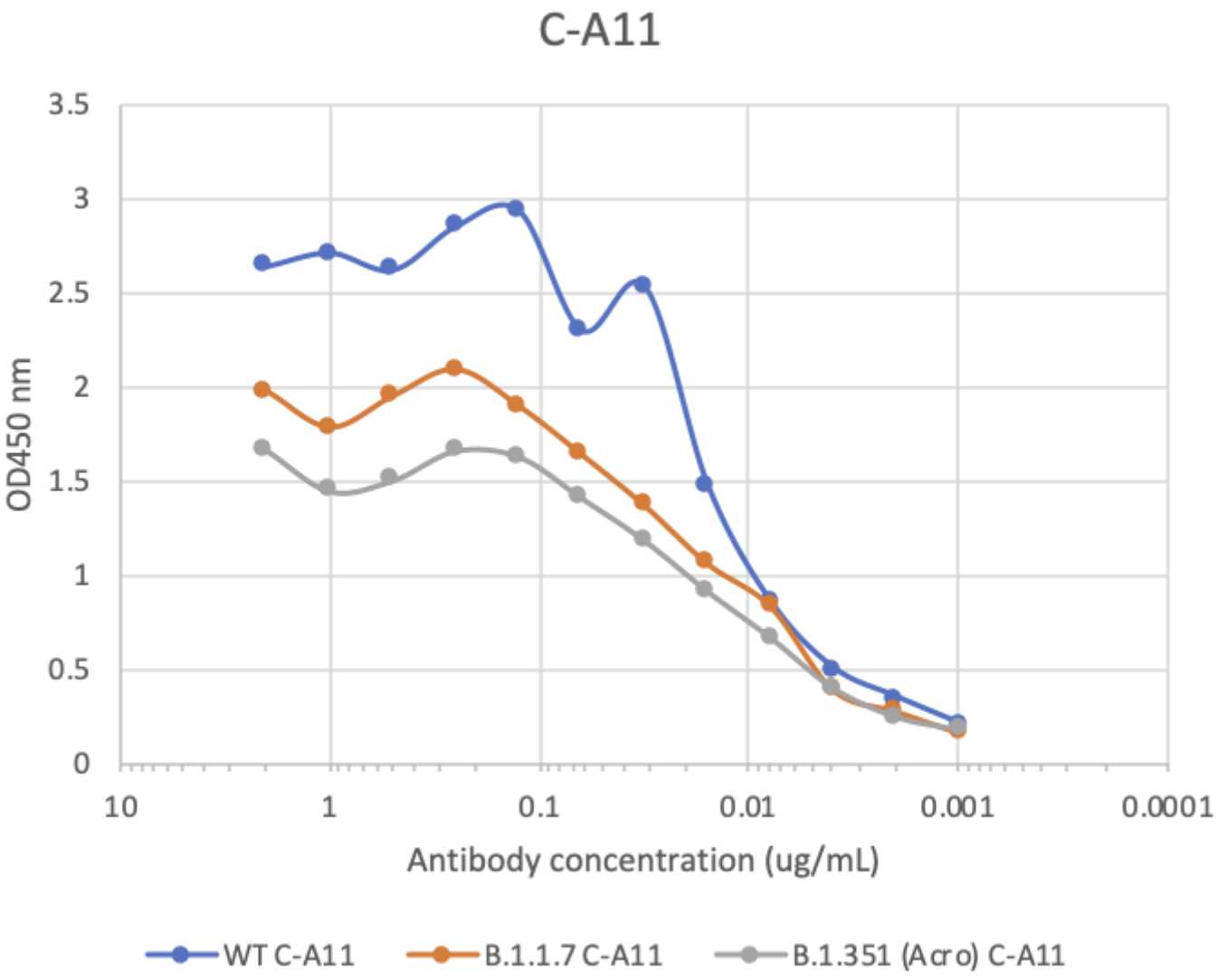


	k_{on}, $M^{-1}*s^{-1}$	k_{off}, s^{-1}	K_D
WT	1.18E+06	1.83E-6	1.55 pM
B.1.1.7	2.23E+06	5.37E-5	24.1 pM

Affinity assessment of SARS-CoV-2 C-A11 IgG to wild type and B.1.1.7 (UK) S1+S2 trimers. C-A11 possesses very low (pM) KD affinity to both variants.



Flow cytomery neutralizing assay of C-A11 (plotted graphs): ACE2 transfected cells were incubated with biotinylated spike protein (0.5 ug/mL) in the presence or absence of antibody. Binding of spike protein was detected with DyLight488 conjugated StreptAv



Binding of C-A11 to SARS-CoV-2 variants (UK and South Africa): C-A11 shows good cross reactivity to both variants B.1.1.7 (UK) and B.1.351 (S. Africa).