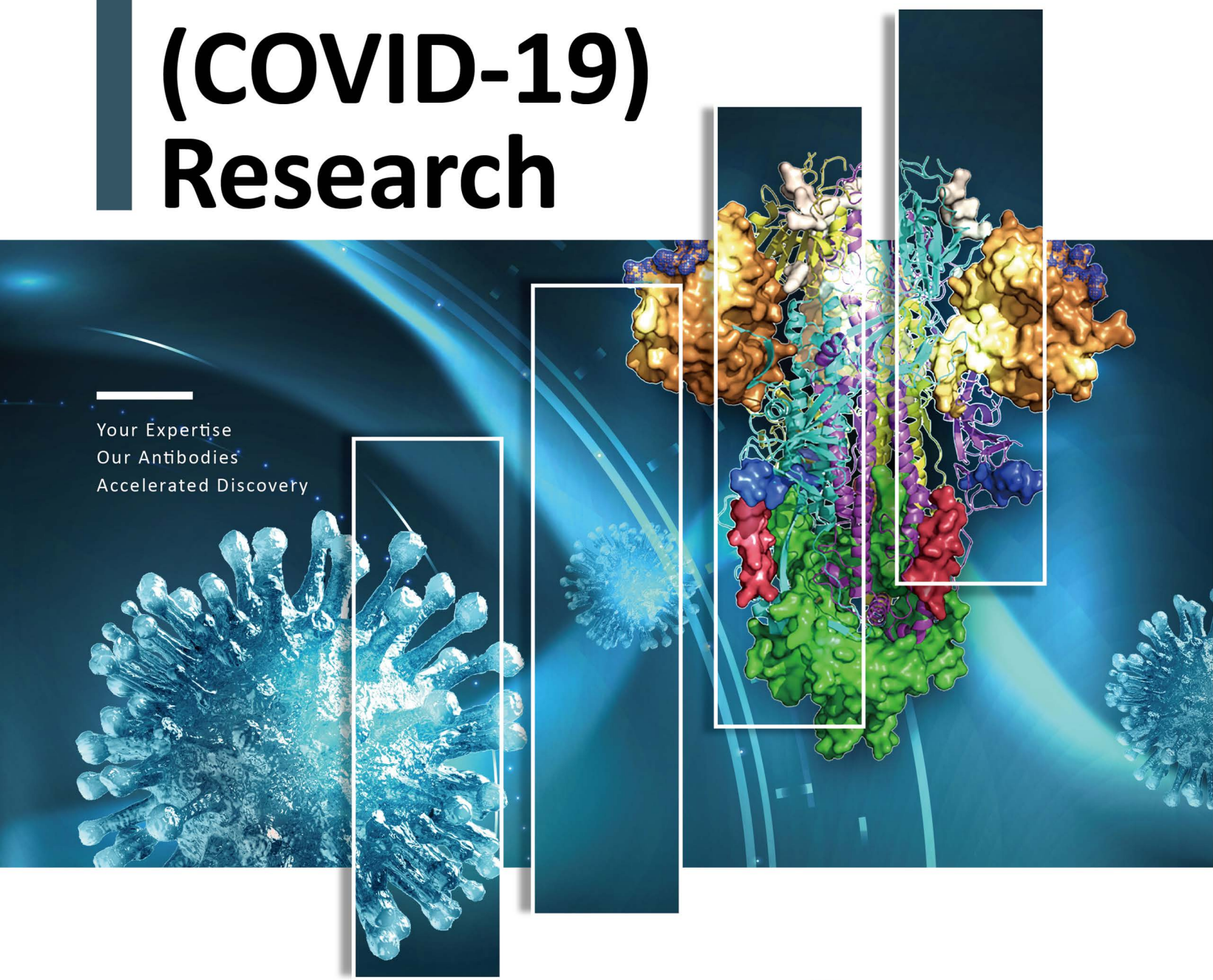
GeneTex

# SARS-CoV-2 (COVID-19) Research



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# Full Listing of Products for SARS-CoV-2 (COVID-19) Research

## Anti-Spike Antibodies

| Product Name | Clonality | EC50 | Applications | Cat. No. |
|---|---|---|---|---|
| Spike S1 antibody [HL1] | Rb recAb | 117 pM | WB, ICC/IF, ELISA, Sandwich ELISA | GTX635656 |
| Spike S1 antibody [HL6] | Rb recAb | 251 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA, FACS, IHC-P | GTX635654 |
| Spike S1 antibody [HL134] | Rb recAb | 552 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA | GTX635671 |
| Spike S1 antibody [HL263] | Rb recAb | 365 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635672 |
| Spike S1 antibody [HL13402] | Rb recAb | | WB, ICC/IF, ELISA, Sandwich ELISA | GTX635713 |
| Spike S1 antibody [GT263] | Ms mAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635708 |
| Spike S1 antibody | Rb pAb | | WB, ICC/IF, ELISA | GTX135384 |
| Spike RBD antibody [HL1002] | Rb recAb | | ELISA, Neutralizing/Inhibition, Sandwich ELISA | GTX635791 |
| Spike RBD antibody [HL1003] | Rb recAb | 7.49 pM | ICC/IF, ELISA, Neutralizing/Inhibition, Sandwich ELISA | GTX635792 |
| Spike RBD antibody [HL1003-HU] | Hu recAb | | Neutralizing/Inhibition | GTX635866 |
| Spike RBD antibody [HL1004] | Rb recAb | 25.13 pM | ICC/IF, ELISA, Sandwich ELISA, Neutralizing/Inhibition | GTX635793 |
| Spike RBD antibody [HL1004] (HRP) | Rb recAb | | ELISA, Sandwich ELISA | GTX635793-01 |
| Spike RBD antibody [HL1014] | Rb recAb | 28.77 pM | ICC/IF, ELISA, Sandwich ELISA | GTX635807 |
| Spike RBD antibody [HL257] | Rb recAb | | WB, ICC/IF, IHC-P, ELISA, IHC-P (cell pellet) | GTX635692 |
| Spike RBD antibody | Rb pAb | | WB, FACS, Neutralizing/Inhibition, ICC/IF, ELISA, IHC-P (cell pellet) | GTX135709 |
| Spike RBD antibody | Rb pAb | | WB, ICC/IF | GTX135385 |
| Spike S2 antibody [HL237] | Rb recAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635693 |
| Spike S2 / S2' antibody | Rb pAb | | WB, ICC/IF, ELISA, Sandwich ELISA | GTX135386 |
| Spike antibody [1A9] | Ms mAb | | WB, ICC/IF, IHC-P, IHC-P (cell pellet), FACS, IP, ELISA, Sandwich ELISA | GTX632604 |
| Spike antibody | Rb pAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX135356 |
| Spike antibody | Rb pAb | | WB, ICC/IF, ELISA, Sandwich ELISA | GTX135360 |
| Spike antibody [CR3022] | Hu recAb | | ELISA, Neutralizing/Inhibition | GTX01555 |
| Spike antibody [CR3022-RB] | Rb recAb | | ELISA, Neutralizing/Inhibition | GTX01556 |

Citation Support | Protein Overexpression | Recombinant

## Anti-Nucleocapsid Antibodies

| Product Name | Clonality | EC50 | Applications | Cat. No. |
|---|---|---|---|---|
| Nucleocapsid antibody [HL455-MS] | Ms mAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635712 |
| Nucleocapsid antibody [HL5410] | Rb recAb | 9 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635685 |
| Nucleocapsid antibody [HL5410] (Gold) | Rb recAb | | Immunoassay | GTX635685-17 |
| Nucleocapsid antibody [HL5511] | Rb recAb | 14 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635689 |
| Nucleocapsid antibody [HL146] | Rb recAb | 50 pM | WB, ICC/IF, ELISA, Sandwich ELISA | GTX635680 |
| Nucleocapsid antibody [HL249] | Rb recAb | 16 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635678 |
| Nucleocapsid antibody [HL344] | Rb recAb | 74 pM | WB, ICC/IF, IHC-P, IHC-P (cell pellet), IHC-Fr, ELISA, Sandwich ELISA | GTX635679 |
| Nucleocapsid antibody [HL448] | Rb recAb | 11 pM | WB, ICC/IF, IHC-P, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635686 |
| Nucleocapsid antibody [HL448] (HRP) | Rb recAb | | ELISA, Sandwich ELISA, WB | GTX635686-01 |
| Nucleocapsid antibody [HL453] | Rb recAb | 6 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA | GTX635687 |
| Nucleocapsid antibody [HL455] | Rb recAb | 6 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635688 |
| Nucleocapsid antibody [GT113] | Ms mAb | | WB | GTX635808 |
| Nucleocapsid antibody [6H3] | Ms mAb | | WB, ICC/IF, IHC-P (cell pellet), IP, ELISA, Sandwich ELISA | GTX632269 |
| Nucleocapsid antibody | Rb pAb | | WB, ICC/IF, IHC-P, IHC-P (cell pellet), FACS, IP, ELISA, Sandwich ELISA | GTX135357 |
| Nucleocapsid antibody | Rb pAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX135361 |

## Other SARS-CoV-2 Antibodies

| Product Name | Clonality | Applications | Cat. No. |
|---|---|---|---|
| RdRp (nsp12) antibody | Rb pAb | WB, ICC/IF | GTX135467 |
| RdRp (nsp12) antibody | Rb pAb | WB | GTX135469 |
| 3CLpro (nsp5) antibody | Rb pAb | WB | GTX135470 |
| ORF8 antibody | Rb pAb | WB, ICC/IF | GTX135591 |
| nsp1 antibody | Rb pAb | WB | GTX135586 |
| nsp1 antibody | Rb pAb | WB, ICC/IF | GTX135612 |
| nsp2 antibody | Rb pAb | WB | GTX135717 |
| PLpro (nsp3) antibody | Rb pAb | WB, ICC/IF | GTX135589 |
| PLpro (nsp3) antibody | Ms mAb | WB, ICC/IF | GTX135614 |

# Full Listing of Products for SARS-CoV-2 (COVID-19) Research

## Other SARS-CoV-2 Antibodies

| Product Name | Clonality | Applications | Cat. No. |
|---|---|---|---|
| ORF7a antibody [3C9] | Ms mAb | WB, ICC/IF | GTX632602 |
| nsp8 antibody [5A10] | Rb pAb | WB, ICC/IF, FACS | GTX632696 |
| nsp8 antibody | Rb pAb | WB | GTX135729 |
| nsp8 antibody | Rb pAb | WB | GTX135730 |
| nsp9 antibody | Rb pAb | WB | GTX135731 |
| nsp9 antibody | Rb pAb | WB | GTX135732 |
| nsp10 antibody | Rb pAb | WB | GTX135733 |
| nsp10 antibody | Rb pAb | WB | GTX135734 |
| nsp15 antibody | Rb pAb | WB | GTX135737 |
| nsp15 antibody | Rb pAb | WB | GTX135738 |
| nsp11 antibody | Rb pAb | WB | GTX135742 |

## Binding / Neutralization Assay Panel

| Product Name | Applications | Cat. No. |
|---|---|---|
| RBD ACE2 Binding Activity / Neutralization Assay Panel | Neutralizing/Inhibition | GTX300122 |

## ELISA Antibody Pairs

| Product Name | Sensitivity | Cat. No. |
|---|---|---|
| Spike RBD ELISA Pair [HL1014 / HL1003] | | GTX500046 |
| Spike RBD ELISA pair [HL1014/HL1004] | | GTX500047 |
| Spike ELISA Pair [1A9 / HL263] | | GTX500041 |
| Spike ELISA Pair [1A9 / HL13402] | | GTX500043 |
| Nucleocapsid ELISA Pair [HL5511 / HL448] | 39.06 pg/mL | GTX500045 |
| Nucleocapsid ELISA Pair [HL5410 / HL455-MS] | 2.68 pg/mL | GTX500042 |

## SARS-CoV-2 Nucleocapsid ELISA Kit

| Product Name | Applications | Cat. No. |
|---|---|---|
| SARS-CoV-2 (COVID-19) Nucleocapsid Protein Sandwich ELISA Kit | ELISA, Sandwich ELISA | GTX535824 |

Citation Support | KO/KD Validation | Protein Overexpression | Recombinant

## Lateral Flow Assay (Recommended Antibody Pairs)

| Antibody Pair | Product Name | Clonality | EC50 | Cat. No. |
|---|---|---|---|---|
| Pair I | SARS-CoV-2 (COVID-19) nucleocapsid antibody [HL5511] | Rb recAb | 14 pM | GTX635689 |
| | SARS-CoV-2 (COVID-19) nucleocapsid antibody [HL448] | Rb recAb | 11 pM | GTX635686 |
| Pair II | SARS-CoV-2 (COVID-19) nucleocapsid antibody [HL5410] | Rb recAb | 9 pM | GTX635685 |
| | SARS-CoV-2 (COVID-19) nucleocapsid antibody [HL455] | Rb recAb | 6 pM | GTX635688 |

## Recombinant Proteins

| Product Name | Expression System | Applications | Cat. No. |
|---|---|---|---|
| Spike (ECD) protein, His tag (active) | HEK293 | Functional Assay | GTX02774-pro |
| Spike (ECD) protein, His tag (active) | HEK293 | ELISA, Functional Assay | GTX135972-pro |
| Spike (D614G Mutant) protein (ECD), His tag (active) | HEK293 | | GTX02575-pro |
| Spike (del69-70,del144,N501Y,A570D,D614G,...) (ECD) Protein, His tag (active) | HEK293 | | GTX136059-pro |
| Spike (L18F,..., K417T, E484K, N501Y, D614G,...,V987P)(ECD), His tag (active) | HEK293 | | GTX136091-pro |
| Spike S1 (del69-70, del44, N501Y, A570D, D614G...) Protein, His tag (active) | HEK293 | | GTX136085-pro |
| Spike S1 (L18F..., R190S, K417T, E484K, N501Y, D614G, H655Y), His tag (active) | HEK293 | | GTX136094-pro |
| Spike S1 (L18F, D80A,..., R246I, K417N, E484K, N501Y, D614G), His tag (active) | HEK293 | | GTX136095-pro |
| Spike S1 protein, His tag (active) | HEK293 | ELISA, Functional Assay | GTX01554-pro |
| Spike S1 protein, His and Avi tag (active) | HEK293 | ELISA, Functional Assay | GTX01548-pro |
| Spike S1 protein, His tag (active) | HEK293 | WB, ELISA, Functional Assay, Sandwich ELISA | GTX135817-pro |
| Spike S2 (ECD) protein, mouse IgG Fc tag | HEK293 | WB, ELISA, Sandwich ELISA | GTX135684-pro |
| Spike S2 (ECD) protein, human IgG Fc tag | HEK293 | | GTX01559-pro |
| Spike S2 (T716I, S982A, D1118H Mutant) (ECD) protein, His tag | HEK293 | WB | GTX136023-pro |
| Spike RBD (E484K, N501Y Mutant) protein, His tag (active) | HEK293 | | GTX136058-pro |
| Spike RBD (N501Y Mutant) protein, His tag (active) | HEK293 | WB, ELISA, Functional Assay | GTX136014-pro |
| Spike RBD (K417N, E484K, N501Y Mutant) protein, His tag (active) | HEK293 | WB, Functional Assay | GTX136022-pro |
| Spike RBD (K417T, E484K, N501Y Mutant) protein, His tag | HEK293 | | GTX136043-pro |
| Spike RBD protein, His tag (active) | HEK293 | Functional Assay | GTX136090-pro |
| Spike RBD protein, His tag (active) | HEK293 | Functional Assay | GTX01546-pro |
| Nucleocapsid protein, His tag | E. coli | ELISA, Sandwich ELISA | GTX135357-pro |
| Nucleocapsid protein, His tag | HEK293 | WB, ELISA, Sandwich ELISA | GTX135592-pro |
| Nucleocapsid protein,His tag (Gold) | HEK293 | Immunoassay | GTX135746-pro |
| Envelope protein, His and Avi tag | E. coli | | GTX01547-pro |
| Envelope Protein, GST and His Tag | HEK293 | | GTX01565-pro |
| 3CLpro (nsp5) protein, His tag | E. coli | WB | GTX135648-pro |
| 3CLpro (nsp5) protein, His and Avi tag | E. coli | | GTX01557-pro |

## Cell Pellet Blocks

| Product Name | Applications | Cat. No. |
|---|---|---|
| SARS-CoV-2 (COVID-19) Spike FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435640 |
| SARS-CoV-2 (COVID-19) Spike S1 FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435643 |
| SARS-CoV-2 (COVID-19) Spike S2 FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435644 |
| SARS-CoV-2 (COVID-19) Nucleocapsid FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435641 |
| SARS-CoV-2 (COVID-19) Envelope FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435642 |
| SARS-CoV-2 (COVID-19) Membrane FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435645 |

## Overexpression Lysates

| Product Name | Applications | Cat. No. |
|---|---|---|
| SARS-CoV-2 (COVID-19) Spike overexpression 293T whole cell lysate | WB, ELISA | GTX535664 |
| SARS-CoV-2 (COVID-19) Spike S1 overexpression 293T whole cell lysate | WB | GTX535663 |
| SARS-CoV-2 (COVID-19) Nucleocapsid overexpression 293T whole cell lysate | WB, ELISA | GTX535665 |

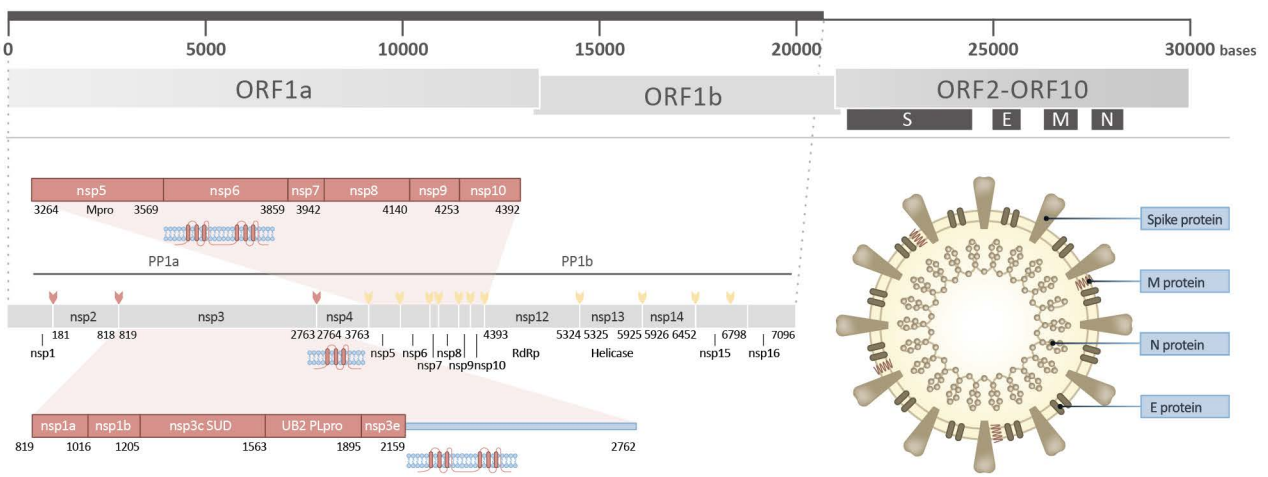
## Products for Host Cell Entry Research

| Product Name | Clonality or Expression System | Applications | Cat. No. |
|---|---|---|---|
| ACE2 antibody [GT19410] | Ms mAb | WB, IHC-P, ELISA | GTX635897 |
| ACE2 antibody [N1N2], N-term | Rb pAb | WB, ICC/IF, IHC-P, FACS, ELISA | GTX101395 |
| ACE2 antibody [SN0754] | Rb recAb | WB, ICC/IF, IHC-P | GTX01160 |
| ACE2 antibody | Rb pAb | WB, ICC/IF, IHC-P, ELISA | GTX15349 |
| Human ACE2(ECD) protein, mouse IgG Fc tag | HEK 293 | ELISA, Functional Assay | GTX135683-pro |
| Human ACE2 protein, His and Avi tag | HEK 293 | ELISA, Functional Assay | GTX01550-pro |
| TMPRSS2 antibody [N2C3] | Rb pAb | WB, IHC-P | GTX100743 |
| Camostat mesylate | | TMPRSS2 inhibitor | GTX01523 |

Citation Support | KO/KD Validation | Orthogonal Validation | Protein Overexpression | Recombinant

# A Review of the SARS-CoV-2 (COVID-19) Genome and Proteome

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), previously known as 2019 Novel Coronavirus (2019-nCoV), is a positive-sense, single-stranded RNA virus that causes the potentially lethal COVID-19 respiratory tract infection. This new virus belongs to the genus Betacoronavirus, which also includes SARS-CoV and MERS-CoV.




The SARS-CoV-2 has a ~29.9 kilobase positive-sense RNA genome that contains as many as 29 open reading frames. Though the exact number of functional proteins remains to be established, there are at least 16 nonstructural proteins (nsp), four structural proteins, and likely nine accessory proteins. Based on previous work with SARS-CoV and other coronaviruses, scientists have identified functions for the majority of these factors, though work is ongoing. A schematic of the SARS-CoV-2 genome is shown in the figure above, while the known or hypothesized functions of the viral proteins, based on studies of SARS-CoV-2, SARS-CoV, and other coronaviruses, are summarized below in Table 1. Of note, nonstructural proteins (nsps) 1-16 are encoded in the ORF1a and ORF1b regions, which give rise to polyproteins 1a and 1ab.

## Table 1. Putative Functions of SARS-CoV-2 Proteins

| Protein | Functions | References |
|---|---|---|
| Spike (S) (ORF2) | Spike full-length (~1273 a.a. in SARS-CoV-2) protein precursor is cleaved into glycosylated subunits, S1 and S2 (S2'). S1 binds to the host's receptor, ACE2, while S2 mediates viral and host membrane fusion. | 1 |
| Nucleocapsid (N) (ORF9a) | Nucleocapsid (~419 a.a. in SARS-CoV-2) binds viral genomic RNA and forms a helical ribonucleocapsid. Involved in genome protection, viral RNA replication, virion assembly, and immune evasion (including IFN-I suppression). Interacts with M and nsp3 proteins. | 2 |
| Membrane (M) (ORF5) | Membrane/matrix protein (~222 a.a. in SARS-CoV-2) is the most abundant structural component of the virion, and very conserved. Mediates assembly and budding of viral particles through recruitment of other structural proteins to "ER-Golgi-intermediate compartment (ERGIC)". Interaction with N for RNA packaging into virion. Interacts with accessory proteins 3a and 7a. Mitigation of immune response? | 3 |
| Envelope (E) (ORF4) | Envelope small membrane protein (~75 a.a. in SARS-CoV-2) is a single-pass type III membrane protein involved in viral assembly, budding, and pathogenesis. Localizes to ERGIC. Forms a homopentameric ion channel and is a viroporin. Interacts with M, N, 3a, and 7a. | 4 |
| nsp1 | Nonstructural protein 1 (nsp1; ~180 a.a. in SARS-CoV-2) likely inhibits host translation by interacting with 40S ribosomal subunit, leading to host mRNA degradation through cleavage near their 5'UTRs. Promotes viral gene expression and immunoevasion in part by interfering with interferon-mediated signaling. | 5 |
| nsp2 | nsp2 (~638 a.a. in SARS-CoV-2) interacts with host factors prohibitin 1 and prohibitin 2, which are involved in many cellular processes including mitochondrial biogenesis. It appears that nsp2 may change the intracellular milieu and perturb host intracellular signaling. | 6 |
| nsp3 | nsp3 (~1945 a.a. in SARS-CoV-2) is a papain-like protease (PLpro) and multi-pass membrane protein that processes the viral polyprotein to release nsp1, nsp2, and nsp3. It also exhibits deubiquitinating and deISGylating activities. Interacts with nsp4 and nsp6. | 7 |
| nsp4 | nsp4 (~500 a.a. in SARS-CoV-2) is required for viral replication by inducing (with nsp3) assembly of, and localizing to, double-membrane cytoplasmic vesicles. Multi-pass membrane protein. | 8 |
| nsp5 | nsp5 (3CLpro; ~306 a.a. in SARS-CoV-2) cleaves at 11 sites in the polyprotein to release nsp4-nsp16. It is also responsible for nsp maturation. | 9 |
| nsp6 | nsp6 (~290 a.a. in SARS-CoV-2) is a multi-pass membrane protein that induces double-membrane vesicles in infected cells with nsp 3 and nsp4. It also limits autophagosome expansion and interferes with autophagosome delivery of viral factors to lysosomes for destruction. | 10, 11 |
| nsp7 | nsp7 (~83 a.a. in SARS-CoV-2) forms a hexadecamer with nsp8 as a cofactor for the RNA-dependent RNA polymerase nsp12. May have processivity or RNA primase function. | 12 |
| nsp8 | nsp8 (~198 a.a. in SARS-CoV-2) forms a hexadecamer with nsp7 as a cofactor for the RNA-dependent RNA polymerase nsp12. May have processivity or RNA primase function. Mutation of certain residues in nsp8 is lethal to SARS-CoV by impacting RNA synthesis. | 13 |
| nsp9 | nsp9 (~113 a.a. in SARS-CoV-2) functions in viral replication as a dimeric ssRNA-binding protein. | 13 |
| nsp10 | nsp10 (~139 a.a. in SARS-CoV-2) forms a dodecamer and interacts with both nsp14 and nsp16 to stimulate their respective 3'-5' exoribonuclease and 2'-O-methyltransferase activities in the formation of the viral mRNA capping machinery. | 13 |

# A Review of the SARS-CoV-2 (COVID-19) Genome and Proteome

| Protein | Functions | References |
|---|---|---|
| nsp11 | nsp11 (~13-23 a.a., depending on the CoV species) is a pp1a cleavage product at the nsp10/11 boundary. For pp1ab, it is a frameshift product that becomes the N-terminal of nsp12. Its function, if any, is unknown. | 13 |
| nsp12 | nsp12 (~932 a.a. in SARS-CoV-2) is the RNA-dependent RNA polymerase (RdRp) performing both replication and transcription of the viral genome. It has >95% identity to the SARS-CoV polymerase and is inhibited by the nucleoside analogue Remdesivir. | 13 |
| nsp13 | nsp13 (~601 a.a. in SARS-CoV-2) is a multifunctional superfamily 1 helicase capable of using both dsDNA and dsRNA as substrates with 5'-3' polarity. In addition to working with nsp12 in viral genome replication, it is also involved in viral mRNA capping. It associates with nucleoprotein in membranous complexes. | 14 |
| nsp14 | nsp14 (~527 a.a. in SARS-CoV-2) has both 3'-5' exoribonuclease (proofreading during RNA replication) and N7-guanine methyltransferase (viral mRNA capping) activities. Interacts with nsp10. | 13 |
| nsp15 | nsp15 (~346 a.a. in SARS-CoV-2) is an endoribonuclease that favors cleavage of RNA at the 3'-ends of uridylates. Loss of nsp15 affects both viral replication and pathogenesis. It is also required for evasion of host cell dsRNA sensors. | 15 |
| nsp16 | nsp16 (~298 a.a. in SARS-CoV-2) interacts with and is activated by nsp10. Its 2'-O-methyltransferase activity is essential for viral mRNA capping. It may also work against host cell antiviral sensors. | 13 |
| ORF3a | ORF3a (~275 a.a. in SARS-CoV-2) is a multi-pass membrane protein that forms a homotetrameric viroporin in SARS-CoV. It interacts with accessory protein 7a, M, S and E. May be involved in viral release. Importantly, it also activates both NF-kB and NLRP3 inflammasome and contributes to the generation of cytokine storm. | 16 |
| ORF3b | ORF3b (~22 a.a. in SARS-CoV-2) differs from its 154 a.a. SARS-CoV ortholog due to the presence of four premature stop codons. Along with N and ORF6, ORF3b appears to block induction of IFN-I. This 22-residue variant is also present in SARS-CoV-2-related viral genomes in bats and pangolins. | 17 |
| ORF6 | ORF6 (~61 a.a. in SARS-CoV-2) appears to be a virulence factor in SARS-CoV. It was shown to be an antagonist of type I interferons (IFNs) and is involved in viral escape from the host innate immune system. | 18 |
| ORF7a | ORF7a (~121 a.a. in SARS-CoV-2) is a type I membrane protein that interacts with bone marrow stromal antigen 2 (BST-2) in SARS-CoV. BST-2 tethers virions to the host's plasma membrane. ORF7a binding inhibits BST-2 glycosylation and interferes with this restriction activity. ORF7a also interacts with S, M, E, and ORF3a in SARS-CoV. | 19 |
| ORF7b | ORF7b (~43 a.a. in SARS-CoV-2) is a type III integral transmembrane protein in the Golgi apparatus. In SARS-CoV, it appears to be a viral attenuation factor. It may be involved in human infectivity of SARS-CoV-2. | 20 |
| ORF8 | ORF8 (~121 a.a. in SARS-CoV-2) has only 30% identity to the intact ORF8 of SARS-CoV and might be a luminal ER membrane-associated protein. It may trigger ATF6 activation and affect the unfolded protein response (UPR). Like ORF7b, it may be involved in human infectivity of SARS-CoV-2. | 21, 22, 23 |
| ORF9b | ORF9b (~97 a.a. in SARS-CoV-2) is coded for in an alternative ORF within the N gene. In SARS-CoV, it localizes to mitochondria and affects mitochondrial morphology and function, ultimately undermining host cell interferon responses. | 24 |
| ORF9c | ORF9c (~70 a.a. in SARS-CoV), also located in the N coding region, interacts with various host proteins including Sigma receptors, implying involvement in lipid remodeling and the ER stress response. It also might target NF-$\varkappa$B signaling. | 25 |
| ORF10 | ORF10 (~38 a.a. in SARS-CoV-2) interacts with factors in the CUL2 RING E3 ligase complex and thus may modulate ubiquitination. | 25 |

# Reagents for SARS-CoV-2 (COVID-19) Research

## 1.1 Anti-Spike Antibodies

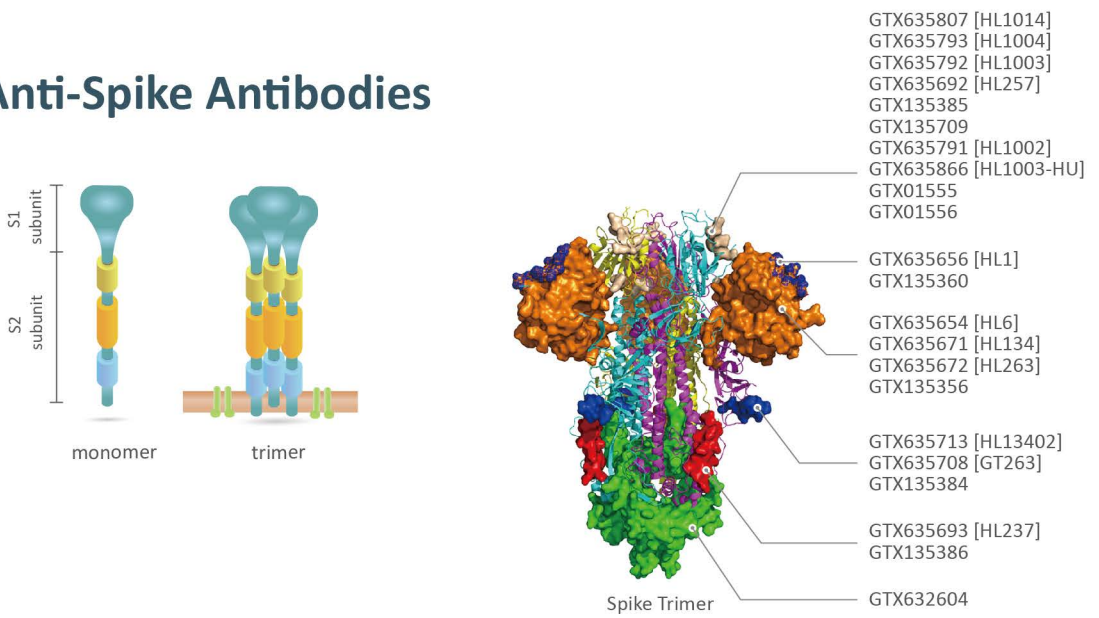



Fig. Structure and antibodies of SARS-CoV-2 spike protein

## SARS-CoV-2 Spike Protein

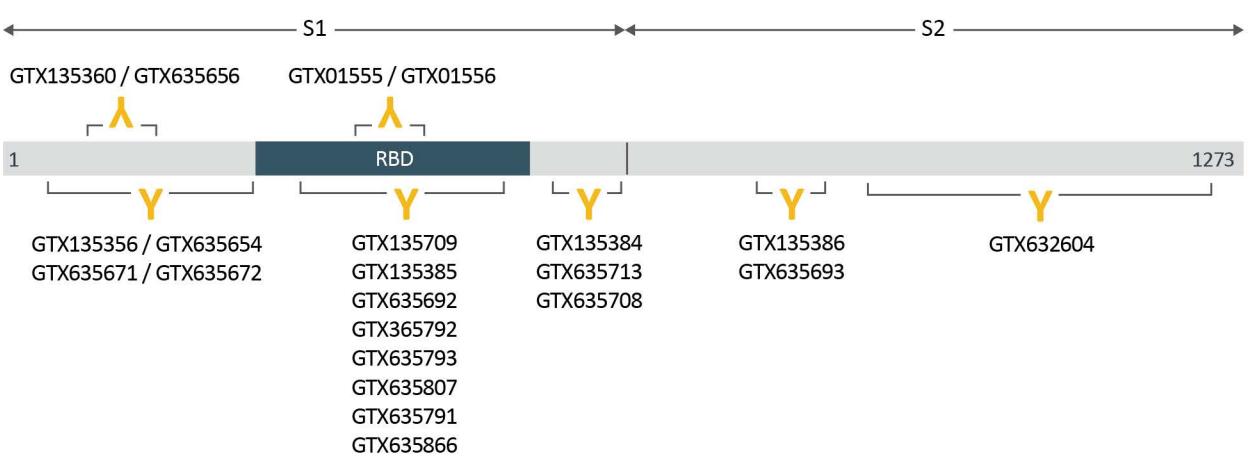



Fig. Antibodies against S protein

## Anti-Spike Antibodies

| Product Name | Clonality | EC50 | Applications | Cat. No. |
|---|---|---|---|---|
| Spike S1 antibody [HL1] | Rb recAb | 117 pM | WB, ICC/IF, ELISA, Sandwich ELISA | GTX635656 |
| Spike S1 antibody [HL6] | Rb recAb | 251 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA, FACS, IHC-P | GTX635654 |
| Spike S1 antibody [HL134] | Rb recAb | 552 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA | GTX635671 |
| Spike S1 antibody [HL263] | Rb recAb | 365 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635672 |
| Spike S1 antibody [HL13402] | Rb recAb | | WB, ICC/IF, ELISA, Sandwich ELISA | GTX635713 |
| Spike S1 antibody [GT263] | Ms mAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635708 |
| Spike S1 antibody | Rb pAb | | WB, ICC/IF, ELISA | GTX135384 |
| Spike RBD antibody [HL1002] | Rb recAb | | Neutralizing/Inhibition | GTX635791 |
| Spike RBD antibody [HL1003] | Rb recAb | 7.49 pM | ICC/IF, ELISA, Neutralizing/Inhibition, Sandwich ELISA | GTX635792 |
| Spike RBD antibody [HL1003-HU] | Hu recAb | | Neutralizing/Inhibition | GTX635866 |
| Spike RBD antibody [HL1004] | Rb recAb | 25.13 pM | ICC/IF, ELISA, Sandwich ELISA, Neutralizing/Inhibition | GTX635793 |
| Spike RBD antibody [HL1004] (HRP) | Rb recAb | | ELISA, Sandwich ELISA | GTX635793-01 |
| Spike RBD antibody [HL1014] | Rb recAb | 28.77 pM | ICC/IF, ELISA, Sandwich ELISA | GTX635807 |
| Spike RBD antibody [HL257] | Rb recAb | | WB, ICC/IF, IHC-P, ELISA, IHC-P (cell pellet) | GTX635692 |
| Spike RBD antibody | Rb pAb | | WB, FACS, Neutralizing/Inhibition, ICC/IF, ELISA, IHC-P (cell pellet) | GTX135709 |
| Spike RBD antibody | Rb pAb | | WB, ICC/IF | GTX135385 |
| Spike S2 antibody [HL237] | Rb recAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635693 |
| Spike S2 / S2' antibody | Rb pAb | | WB, ICC/IF, ELISA, Sandwich ELISA | GTX135386 |
| Spike antibody [1A9] | Ms mAb | | WB, ICC/IF, IHC-P, IHC-P (cell pellet), FACS, IP, ELISA, Sandwich ELISA | GTX632604 |
| Spike antibody | Rb pAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX135356 |
| Spike antibody | Rb pAb | | WB, ICC/IF, ELISA, Sandwich ELISA | GTX135360 |
| Spike antibody [CR3022] | Hu recAb | | ELISA, Neutralizing/Inhibition | GTX01555 |
| Spike antibody [CR3022-RB] | Rb recAb | | ELISA, Neutralizing/Inhibition | GTX01556 |

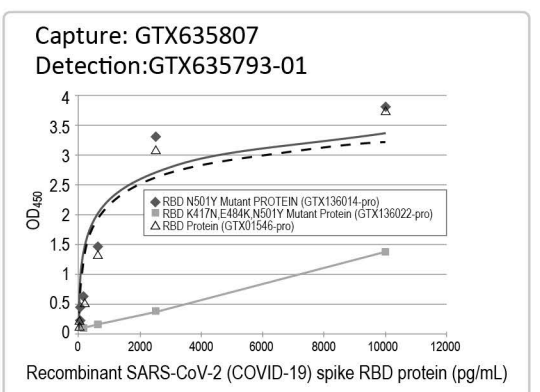
Citation Support | Protein Overexpression | Recombinant

# Reagents for SARS-CoV-2 (COVID-19) Research

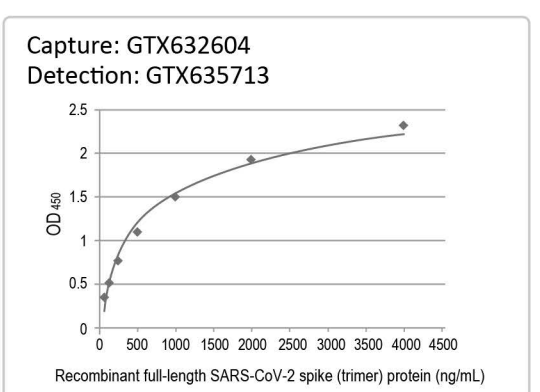
## 1.1.1 Anti-Spike Antibody Pairs for ELISA

- Monoclonal antibody pairs
- Spike trimer sandwich ELISA validation
- SARS-CoV-2 specific

### GTX500047 SARS-CoV-2 (COVID-19) Spike RBD ELISA pair [HL1014 / HL1004]



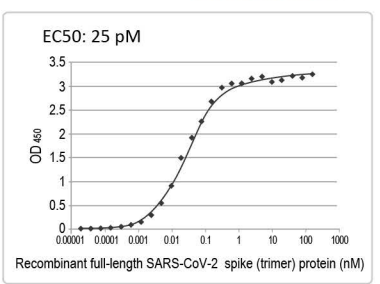

### GTX500043 SARS-CoV-2 (COVID-19) Spike ELISA Pair [1A9 / HL13402]

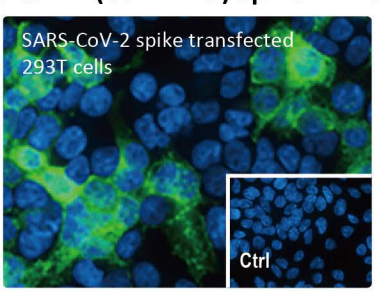


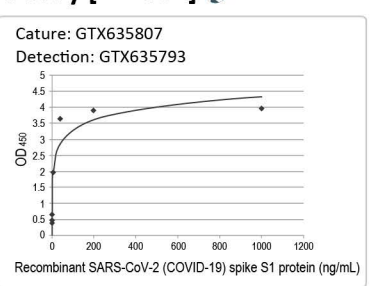
## 1.1.2 Recombinant Rabbit Monoclonal Antibodies

- Spike trimer or Spike S2 (ECD) sandwich ELISA validation
- Multiple applications
- Cross-reactivity validation

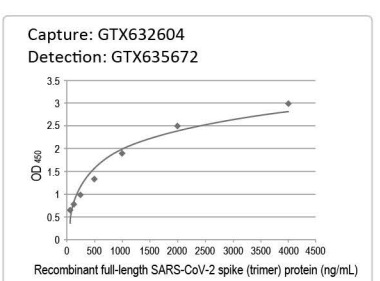
### GTX635793 SARS-CoV-2 (COVID-19) Spike RBD antibody [HL1004]

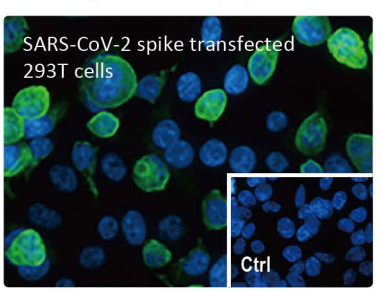


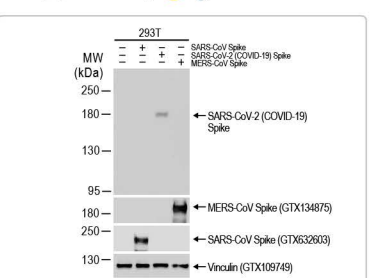



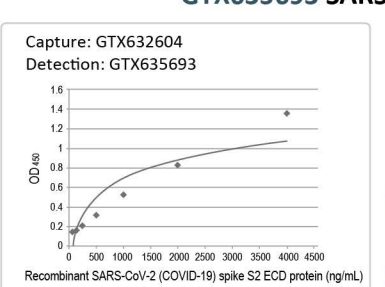

### GTX635672 SARS-CoV-2 (COVID-19) Spike S1 antibody [HL263]

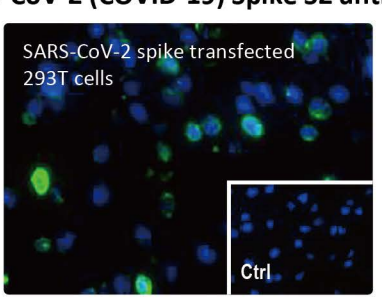


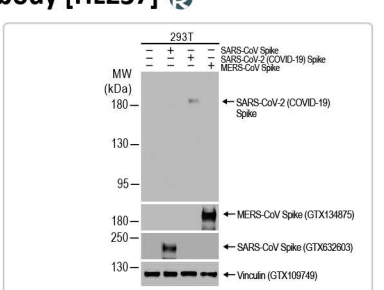




### GTX635693 SARS-CoV-2 (COVID-19) Spike S2 antibody [HL237]



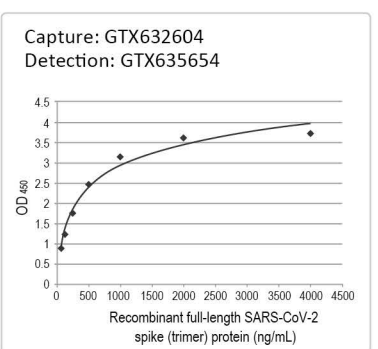

Citation Support | Recombinant

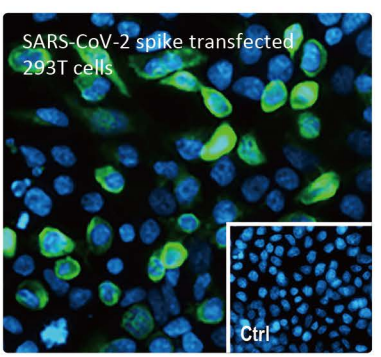
# Reagents for SARS-CoV-2 (COVID-19) Research

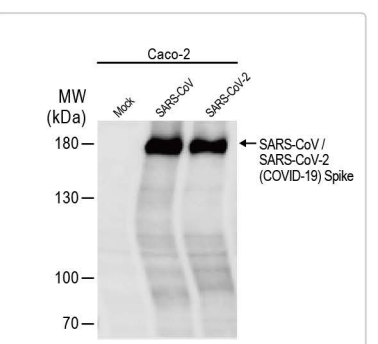
## 1.1.3 Mouse Monoclonal Antibody

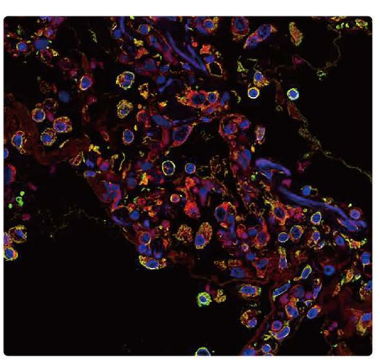
- Tested on virus-infected cell lysates
- Spike trimer sandwich ELISA validation
- Multiple applications
- Domain specificity validation
- Citation support
- Customer feedback

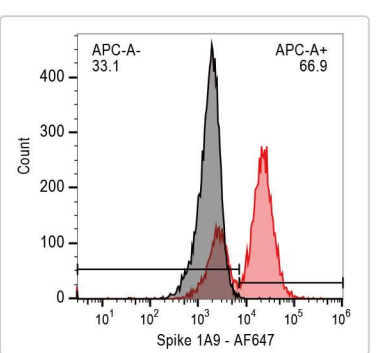
### GTX632604 SARS-CoV / SARS-CoV-2 (COVID-19) Spike antibody [1A9]

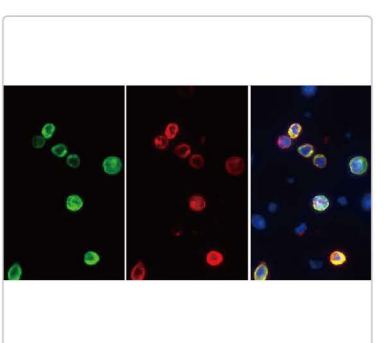




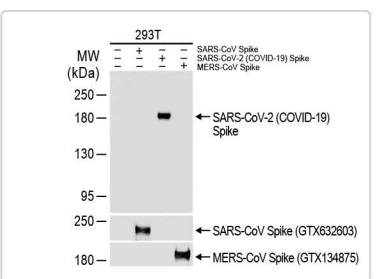



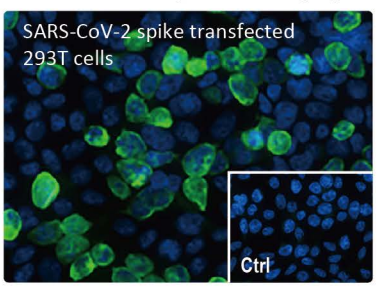
Citation Support | Protein Overexpression

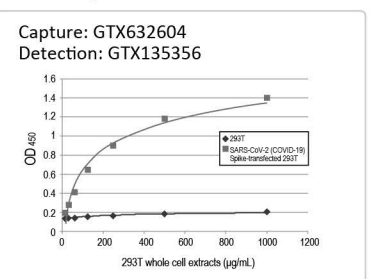
## 1.1.4 Rabbit Polyclonal Antibodies

- Rabbit polyclonal antibodies
- Multiple applications
- Cross-reactivity validation

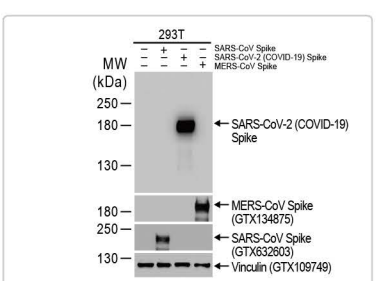
### GTX135356 SARS-CoV-2 (COVID-19) Spike antibody

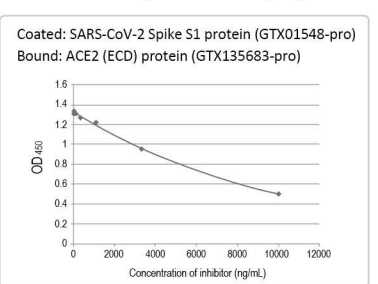


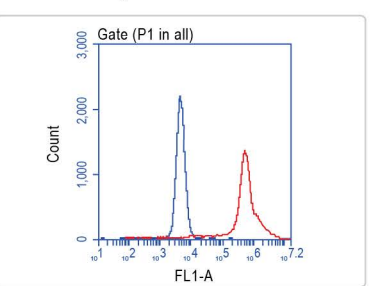



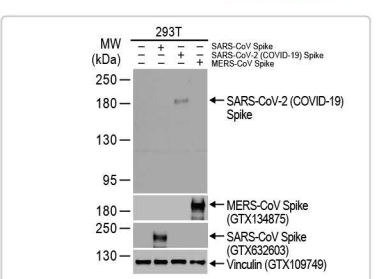

### GTX135709 SARS-CoV-2 (COVID-19) Spike RBD antibody

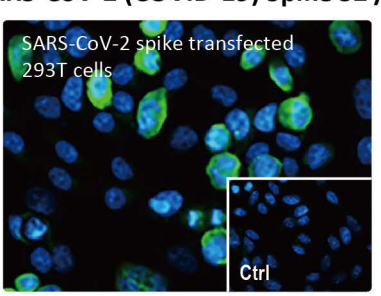


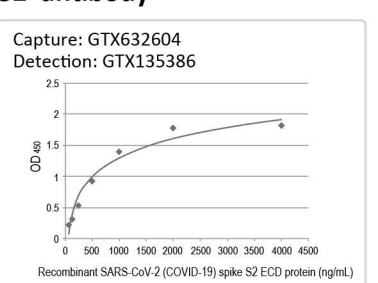




### GTX135386 SARS-CoV-2 (COVID-19) Spike S2 / S2' antibody



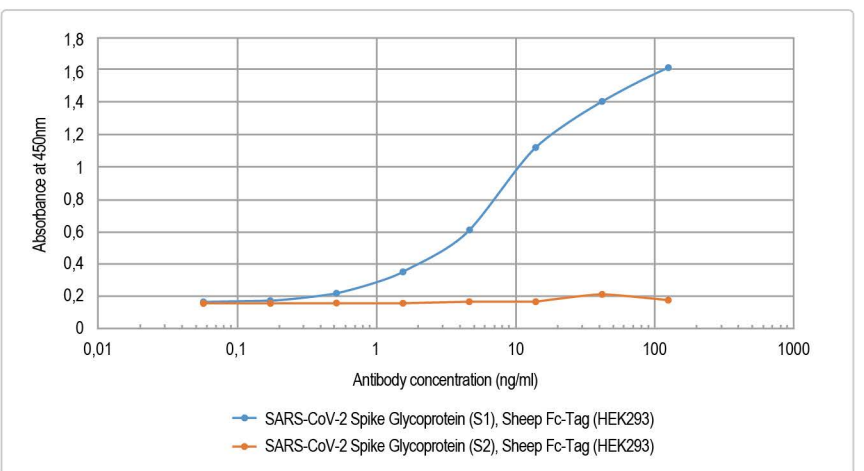



# Reagents for SARS-CoV-2 (COVID-19) Research

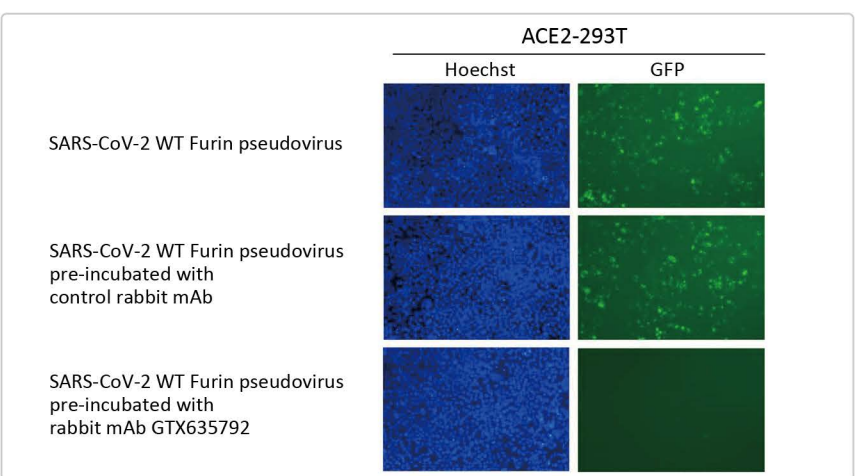
## 1.1.5 Neutralization Antibody

- Recombinant monoclonal antibody
- SARS-CoV-2 spike glycoprotein binding affinity
- Citation support
- Customer feedback

### GTX01555 SARS-CoV / SARS-CoV-2 (COVID-19) Spike antibody [CR3022]



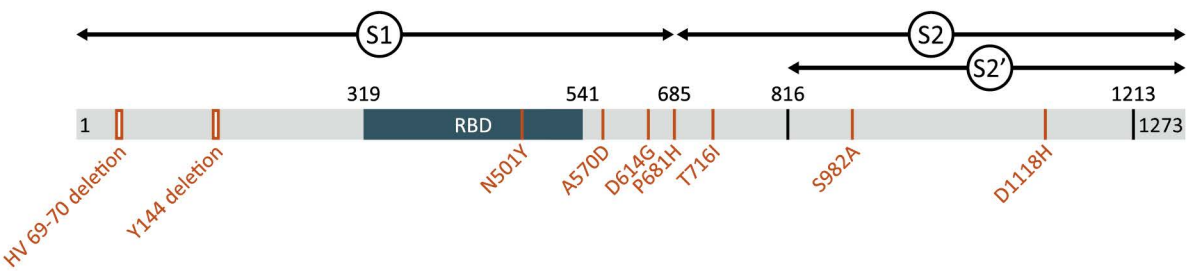

### GTX635792 SARS-CoV-2 (COVID-19) Spike RBD antibody [HL1003]



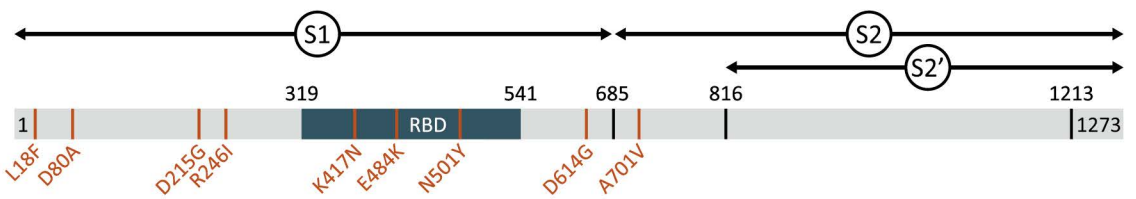

Citation Support Recombinant

# 1.2 Recombinant Spike proteins

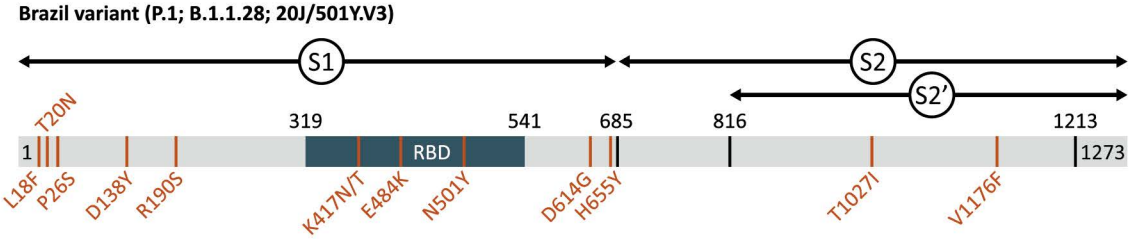
**UK variant (B.1.1.7; 20I/501Y.V1; VOC 202012/01)**




**South Africa variant (B.1.351; 20H/501Y.V2)**




**Brazil variant (P.1; B.1.1.28; 20J/501Y.V3)**



# Reagents for SARS-CoV-2 (COVID-19) Research

## Recombinant Proteins

### Wild-type and Single Mutation Spike Protein

| Product Name Expression | System | Cat. No. |
|---|---|---|
| Spike (ECD) protein, His tag (active) | HEK293 | GTX135972-pro |
| Spike RBD protein, His tag (active) | HEK293 | GTX136090-pro |
| Spike S1 protein, His tag (active) | HEK293 | GTX135817-pro |
| Spike S2 (ECD) protein, mouse IgG Fc tag | HEK293 | GTX135684-pro |
| Spike (D614G Mutant) protein (ECD), His tag (active) | HEK293 | GTX02575-pro |

### 501Y.V1 (UK Variant) Spike Proteins

| Product Name Expression | System | Cat. No. |
|---|---|---|
| Spike (del69-70, del144, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H) (ECD) Protein, His tag (active) | HEK293 | GTX136059-pro |
| Spike RBD (N501Y Mutant) protein, His tag (active) | HEK293 | GTX136014-pro |
| Spike RBD (E484K, N501Y Mutant) protein, His tag (active) | HEK293 | GTX136058-pro |
| Spike S1 (del69-70, del144, N501Y, A570D, D614G, P681H Mutant) protein, His tag | HEK293 | GTX136085-pro |
| Spike S2 (T716I, S982A, D1118H Mutant) (ECD) protein, His tag | HEK293 | GTX136023-pro |

### 501Y.V2 (South Africa Variant) Spike Proteins

| Product Name Expression | System | Cat. No. |
|---|---|---|
| Spike (L18F,..., K417N, E484K, N501Y,...)(ECD) Protein, His tag (active) | HEK293 | GTX136061-pro |
| Spike RBD (K417N, E484K, N501Y Mutant) protein, His tag (active) | HEK293 | GTX136022-pro |
| Spike S1 (L18F, D80A, D215G, R246I, K417N, E484K, N501Y, D614G Mutant) protein, His tag | HEK293 | GTX136095-pro |

## 501Y.V3 (Brazil Variant) Spike Proteins

| Product Name Expression | System | Cat. No. |
|---|---|---|
| Spike (L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I, V1176F Mutant) (ECD) protein, His tag | HEK293 | GTX136091-pro |
| Spike RBD (K417T, E484K, N501Y Mutant) protein, His tag (active) | HEK293 | GTX136043-pro |
| Spike S1 (L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G Mutant) protein, His tag | HEK293 | GTX136094-pro |

## The affinities of GeneTex's spike antibodies for recombinant variant spike proteins

| Targeted Region of Spike | Antibody Cat. No | WIV04/2019 (reference sequence) | 501Y.V1 | 501Y.V2 | 501Y.V3 |
|---|---|---|---|---|---|
| RBD | GTX635807 | ● | ● | ● | ● |
| RBD | GTX635792 | ● | ● | ○ | ○ |
| RBD | GTX635793 | ● | ● | ○ | ● |
| S1 | GTX635713 | ● | ● | ● | ● |
| S1 | GTX635708 | X | X | ○ | X |
| S2 | GTX632604 | ● | ● | ● | ○ |
| S2 | GTX635693 | ○ | ● | ● | X |

● Strong reaction. Defined as OD450 value >1 when 1μg/ml protein was used.
○ Weak reaction. Defined as OD450 value >1 when 4μg/ml protein was used.
X No reaction. Defined as OD450 value <1 when 4μg/ml protein was used.

# 1.2.1 Binding Activity / Neutralization Assay Panel

- **Blocking ACE2 Binding with Multiple RBD Variants**
- **Low Background in Various Sample Types**
- **Excellent Reproducibility**

| Reagents | Note | Cat. No. |
|---|---|---|
| Spike RBD antibody [HL1002] | Neutralizing Antibody | GTX635791 |
| Spike RBD protein, His tag (active) | Wild-type | GTX136090-pro |
| Spike RBD (N501Y Mutant) protein, His tag (active) | 501Y.V1 variant | GTX136014-pro |
| Spike RBD (E484K, N501Y Mutant) protein, His tag (active) | 501Y.V1 (VOC-21FEB-02) variant | GTX136058-pro |
| Spike RBD (K417N, E484K, N501Y Mutant) protein, His tag (active) | 501Y.V2 variant | GTX136022-pro |
| Spike RBD (K417T, E484K, N501Y Mutant) protein, His tag (active) | 501Y.V3 variant | GTX136043-pro |
| Human ACE2 (ECD) protein, mouse IgG Fc tag (active) | ACE2 receptor | GTX135683-pro |

## GTX300122 SARS-CoV-2 (COVID-19) RBD ACE2 Binding Activity /Neutralization Assay Panel

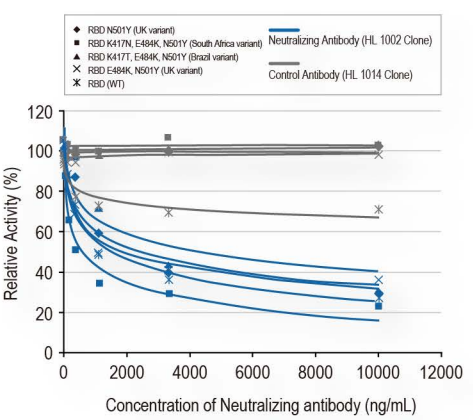



**Figure.**
Spike RBD ACE2 Binding Inhibition Assay of the Major SARS-CoV-2 Variants

# 1.3 Anti-Nucleocapsid Antibodies

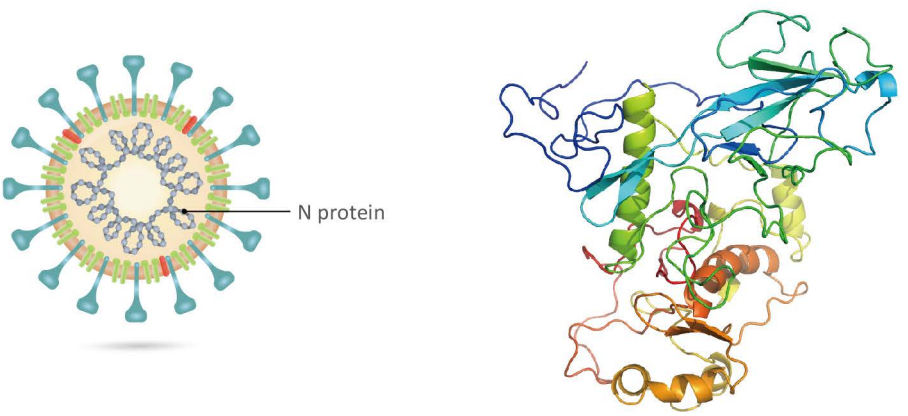



Fig. A putative structure of SARS-CoV-2 Nucleocapsid protein

## SARS-CoV-2 Nucleocapsid Protein


Fig. Antibodies against N protein

# Reagents for SARS-CoV-2 (COVID-19) Research

## Anti-Nucleocapsid Antibodies

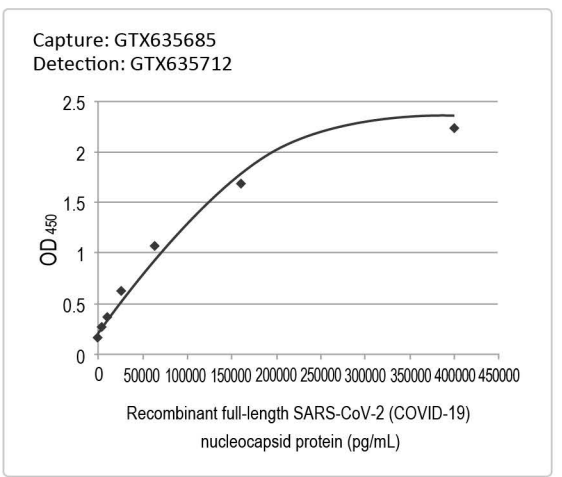
| Product Name | Clonality | EC50 | Applications | Cat. No. |
|---|---|---|---|---|
| Nucleocapsid antibody [HL455-MS] | Ms mAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635712 |
| Nucleocapsid antibody [HL5410] | Rb recAb | 9 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635685 |
| Nucleocapsid antibody [HL5410] (Gold) | Rb recAb | | Immunoassay | GTX635685-17 |
| Nucleocapsid antibody [HL5511] | Rb recAb | 14 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635689 |
| Nucleocapsid antibody [HL146] | Rb recAb | 50 pM | WB, ICC/IF, ELISA, Sandwich ELISA | GTX635680 |
| Nucleocapsid antibody [HL249] | Rb recAb | 16 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635678 |
| Nucleocapsid antibody [HL344] | Rb recAb | 74 pM | WB, ICC/IF, IHC-P, IHC-P (cell pellet), IHC-Fr, ELISA, Sandwich ELISA | GTX635679 |
| Nucleocapsid antibody [HL448] | Rb recAb | 11 pM | WB, ICC/IF, IHC-P, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635686 |
| Nucleocapsid antibody [HL448] (HRP) | Rb recAb | | ELISA, Sandwich ELISA, WB | GTX635686-01 |
| Nucleocapsid antibody [HL453] | Rb recAb | 6 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA | GTX635687 |
| Nucleocapsid antibody [HL455] | Rb recAb | 6 pM | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX635688 |
| Nucleocapsid antibody [GT113] | Ms mAb | | WB | GTX635808 |
| Nucleocapsid antibody [6H3] | Ms mAb | | WB, ICC/IF, IHC-P (cell pellet), IP, ELISA, Sandwich ELISA | GTX632269 |
| Nucleocapsid antibody | Rb pAb | | WB, ICC/IF, IHC-P, IHC-P (cell pellet), FACS, IP, ELISA, Sandwich ELISA | GTX135357 |
| Nucleocapsid antibody | Rb pAb | | WB, ICC/IF, IHC-P (cell pellet), ELISA, Sandwich ELISA | GTX135361 |

Citation Support | Protein Overexpression | Recombinant

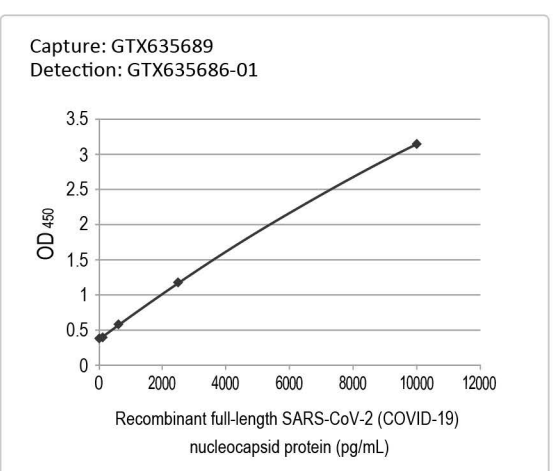
## 1.3.1 Anti-Nucleocapsid Antibody Pairs for ELISA

- **Recombinant antibodies**
- **Extra sensitive: 2.68 pg/ml**

### GTX500042 SARS-CoV-2 (COVID-19) Nucleocapsid ELISA Pair [HL5410 / HL455-MS]




### GTX500045 SARS-CoV-2 (COVID-19) Nucleocapsid ELISA Pair [HL5511 / HL448]

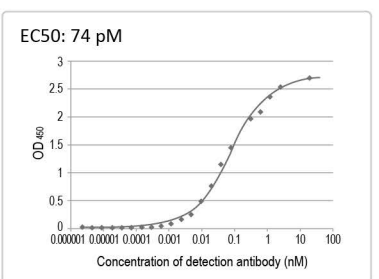


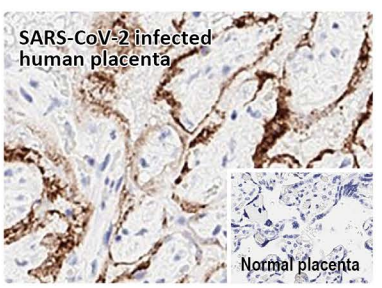
# Reagents for SARS-CoV-2 (COVID-19) Research

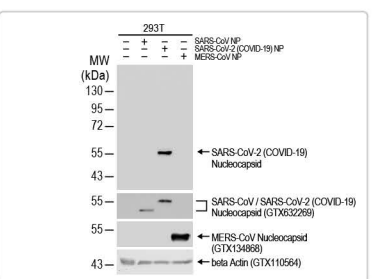
## 1.3.2 Recombinant Rabbit Monoclonal Antibodies

- Multiple applications
- Cross-reactivity validation

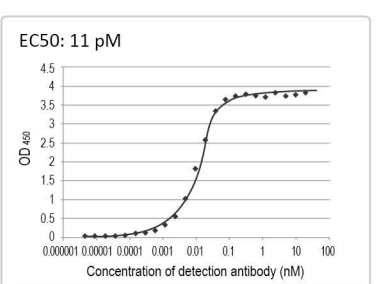
### GTX635679 SARS-CoV-2 (COVID-19) Nucleocapsid antibody [HL344]

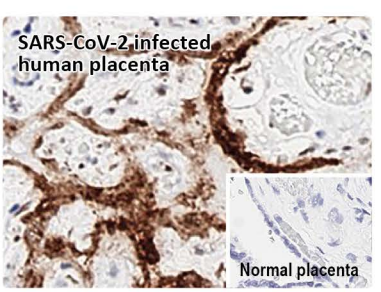


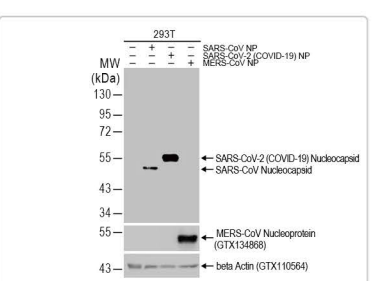



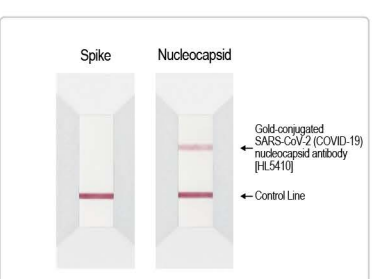

### GTX635686 SARS-CoV-2 (COVID-19) Nucleocapsid antibody [HL448]




### GTX635685-17 SARS-CoV-2 (COVID-19) Nucleocapsid antibody [HL5410] (Gold)

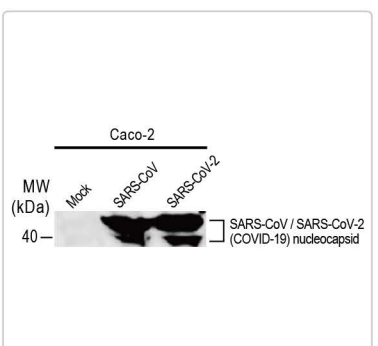


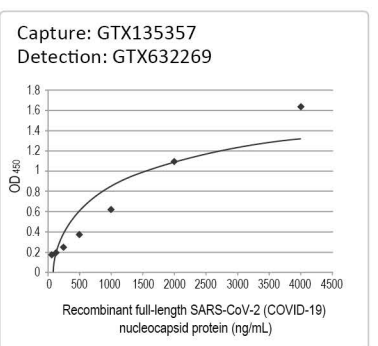

Citation Support | Recombinant

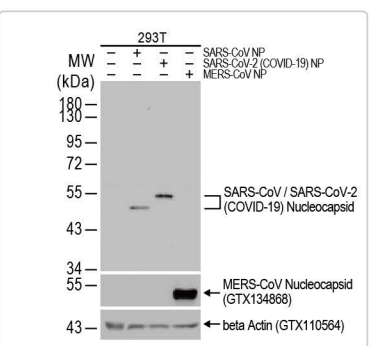
## 1.3.3 Mouse Monoclonal Antibody

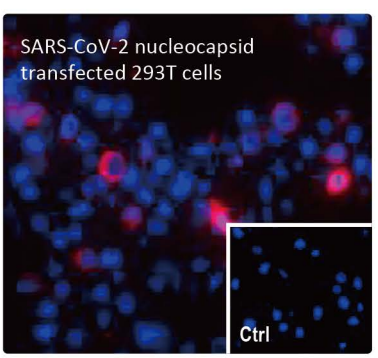
- Tested on virus-infected cell lysates
- Multiple applications
- Cross-reactivity validation
- Customer feedback

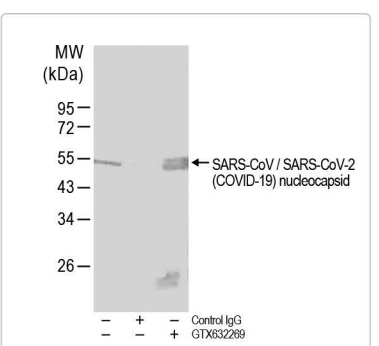
### GTX632269 SARS-CoV / SARS-CoV-2 (COVID-19) Nucleocapsid antibody [6H3]

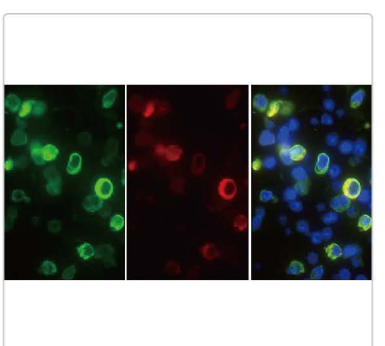


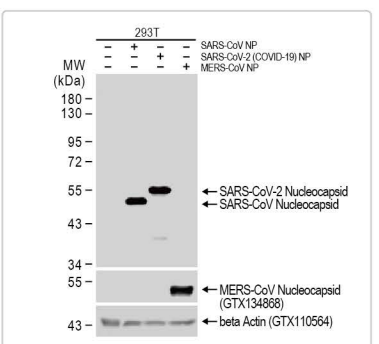
Protein Overexpression

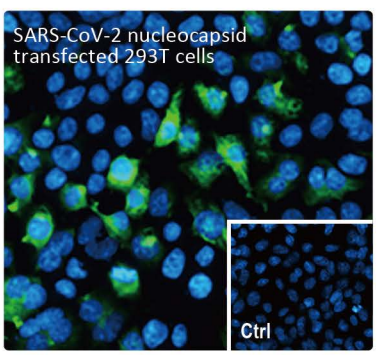
# Reagents for SARS-CoV-2 (COVID-19) Research

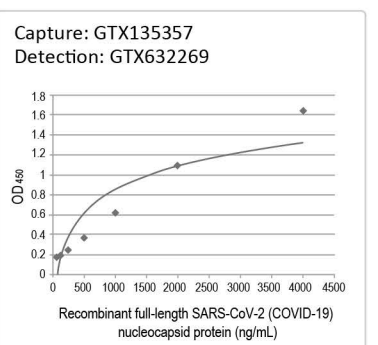
## 1.3.4 Rabbit Polyclonal Antibodies

- Rabbit polyclonal antibodies
- Multiple applications
- Cross-reactivity validation

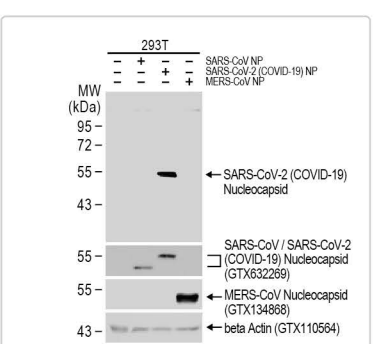
### GTX135357 SARS-CoV-2 (COVID-19) Nucleocapsid antibody

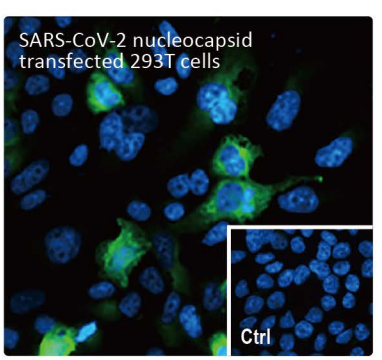


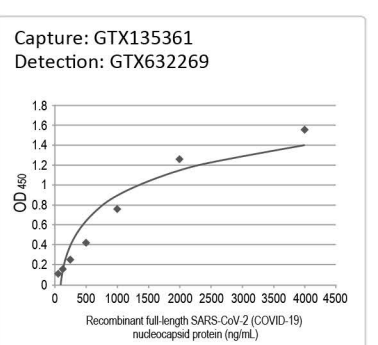




### GTX135361 SARS-CoV-2 (COVID-19) Nucleocapsid antibody




Citation Support  Protein Overexpression

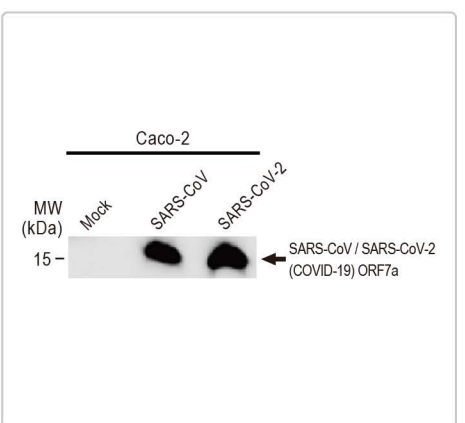
# 1.4 Antibodies of other Proteins

## 1.4.1 Mouse Monoclonal Antibodies

- Tested on virus-infected cell lysates
- Customer feedback

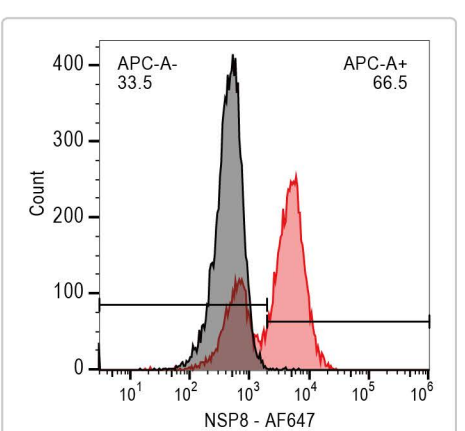
### Anti-ORF7a antibody

**GTX632602 SARS-CoV / SARS-CoV-2 (COVID-19) ORF7a antibody [3C9]**




### Anti-NSP8 antibody

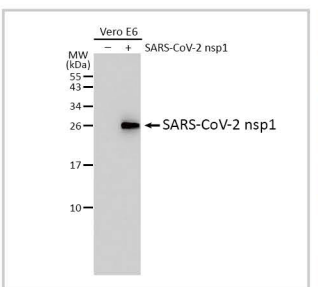
**GTX632696 SARS-CoV / SARS-CoV-2 (COVID-19) NSP8 antibody [5A10]**



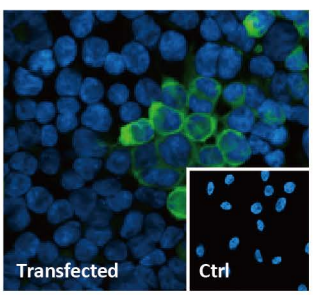
# Reagents for SARS-CoV-2 (COVID-19) Research

## 1.4.2 Rabbit Polyclonal Antibodies

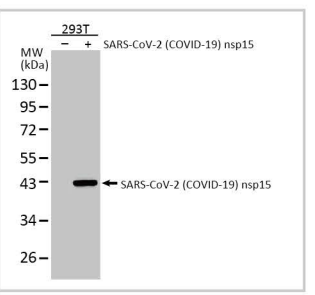
### Multiple applications



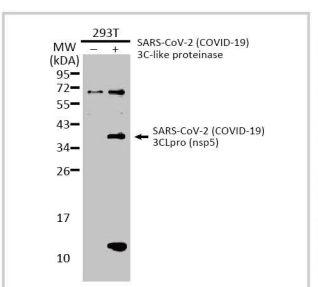

nsp1 antibody (GTX135612)



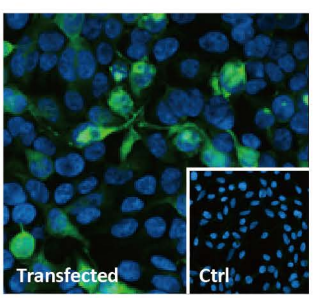

nsp2 antibody (GTX135717)



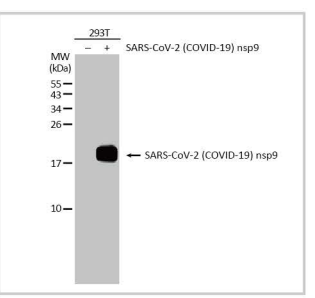

nsp15 antibody (GTX135737)



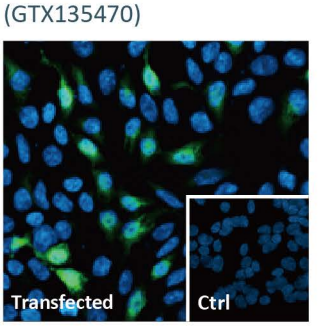

3CLpro (nsp5) antibody (GTX135470)



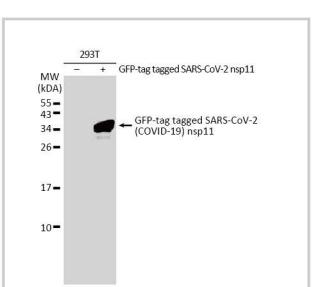

nsp8 antibody (GTX135730)



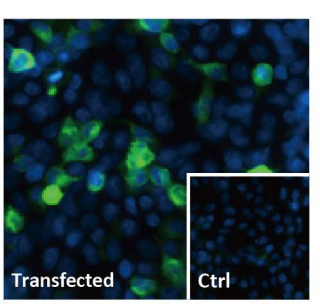

nsp9 antibody (GTX135731)




nsp10 antibody (GTX135734)




nsp11 antibody (GTX135742)

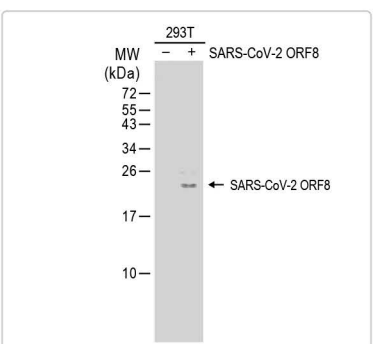


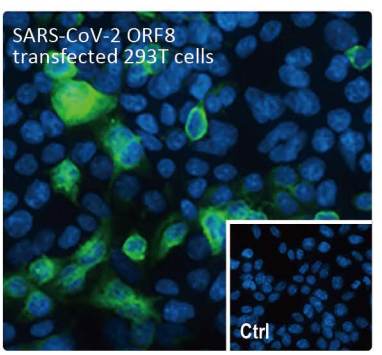

nsp12 antibody (GTX135467)

## Multiple applications

# Anti-ORF8 antibody

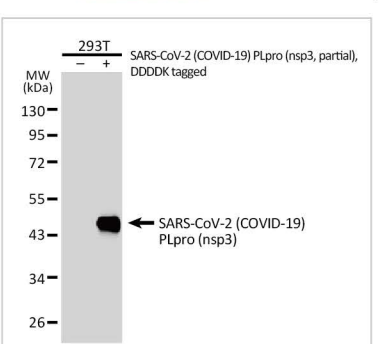
### GTX135591 SARS-CoV-2 (COVID-19) ORF8 antibody

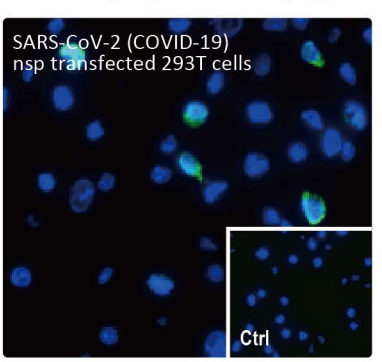



# Anti-nsp3 antibody

### GTX135589 SARS-CoV-2 (COVID-19) nsp3 antibody



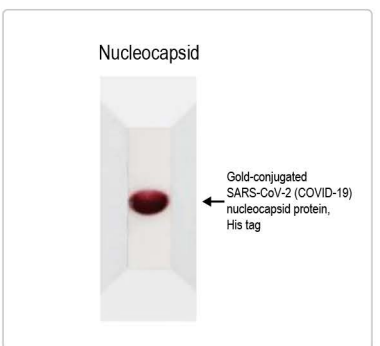



# Reagents for SARS-CoV-2 (COVID-19) Research

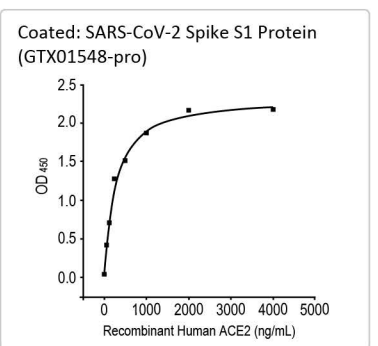
## 1.5 Recombinant Proteins for SARS-CoV-2 (COVID-19)

| Product Name | Expression System | Applications | Cat. No. |
|---|---|---|---|
| SARS-CoV-2 (COVID-19) Spike S1 protein, His tag (active) | HEK293 | ELISA, Functional Assay | GTX01554-pro |
| SARS-CoV-2 (COVID-19) Spike S1 protein, His and Avi tag (active) | HEK293 | ELISA, Functional Assay | GTX01548-pro |
| SARS-CoV-2 (COVID-19) Spike S1 protein, His tag (active) | HEK293 | WB, ELISA, Functional Assay, Sandwich ELISA | GTX135817-pro |
| SARS-CoV-2 (COVID-19) Spike S2 (ECD) protein, mouse IgG Fc tag | HEK293 | WB, ELISA, Sandwich ELISA | GTX135684-pro |
| SARS-CoV-2 (COVID-19) Spike S2 (ECD) protein, human IgG Fc tag | HEK293 | | GTX01559-pro |
| SARS-CoV-2 (COVID-19) Spike RBD protein, His tag (active) | HEK293 | Functional Assay | GTX01546-pro |
| SARS-CoV-2 (COVID-19) Nucleocapsid protein, His tag | E. coli | ELISA, Sandwich ELISA | GTX135357-pro |
| SARS-CoV-2 (COVID-19) Nucleocapsid protein, His tag | HEK293 | WB, ELISA, Sandwich ELISA | GTX135592-pro |
| SARS-CoV-2 (COVID-19) Nucleocapsid protein,His tag (Gold) | HEK293 | Immunoassay | GTX135746-pro |
| SARS-CoV-2 (COVID-19) Envelope protein, His and Avi tag | E. coli | | GTX01547-pro |
| SARS-CoV-2 (COVID-19) Envelope Protein, GST and His Tag | HEK293 | | GTX01565-pro |
| SARS-CoV-2 (COVID-19) 3CLpro (nsp5) protein, His tag | E. coli | WB | GTX135648-pro |
| SARS-CoV-2 (COVID-19) 3CLpro (nsp5) protein, His and Avi tag | E. coli | | GTX01557-pro |

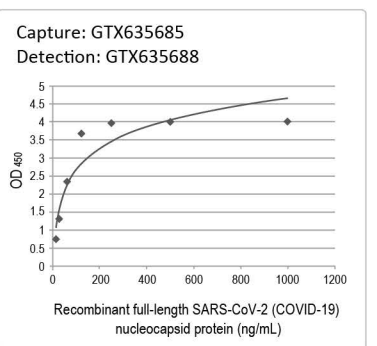
**Validated for functional assays**
**Expressed in HEK293 or E. coli**



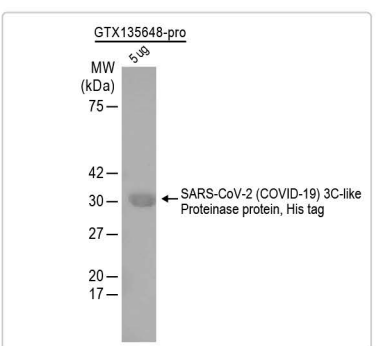

SARS-CoV-2 (COVID-19) Nucleocapsid protein,His tag (Gold)
(GTX135746-pro)



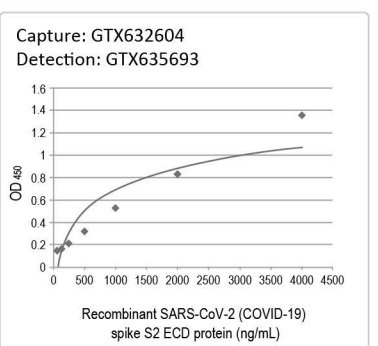

SARS-CoV-2 (COVID-19) Spike S1 protein, His and Avi tag (active)
(GTX01548-pro)



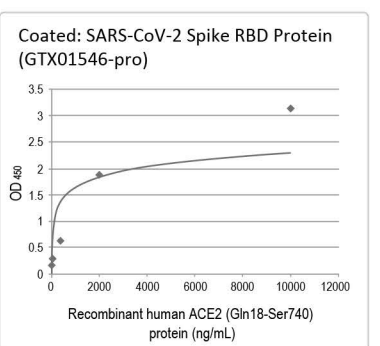

SARS-CoV-2 (COVID-19) Nucleocapsid protein, His tag
(GTX135592-pro)




SARS-CoV-2 (COVID-19) 3CLpro (nsp5) protein, His tag
(GTX135648-pro)



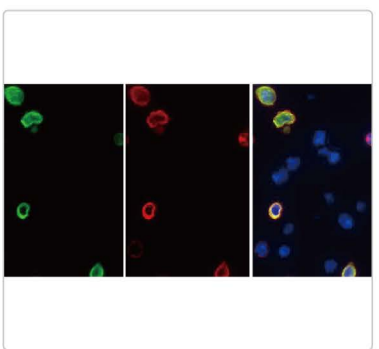

SARS-CoV-2 (COVID-19) Spike S2 (ECD) protein, mouse IgG Fc tag
(GTX135684-pro)



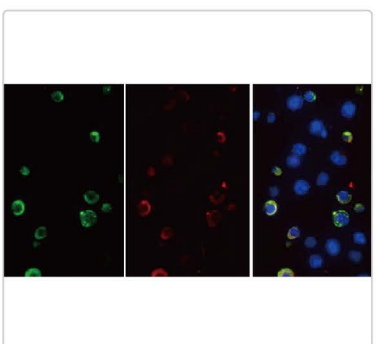

SARS-CoV-2 (COVID-19) Spike RBD protein, His tag (active)
(GTX01546-pro)

## 1.6 Cell Pellet Blocks for SARS-CoV-2 (COVID-19)

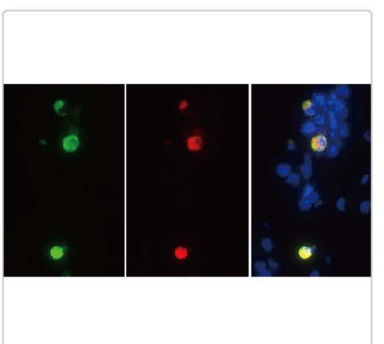
| Product Name | Applications | Cat. No. |
|---|---|---|
| SARS-CoV-2 (COVID-19) Spike FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435640 |
| SARS-CoV-2 (COVID-19) Spike S1 FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435643 |
| SARS-CoV-2 (COVID-19) Spike S2 FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435644 |
| SARS-CoV-2 (COVID-19) Nucleocapsid FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435641 |
| SARS-CoV-2 (COVID-19) Envelope FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435642 |
| SARS-CoV-2 (COVID-19) Membrane FFPE 293T cell pellet block | IHC-P (cell pellet) | GTX435645 |



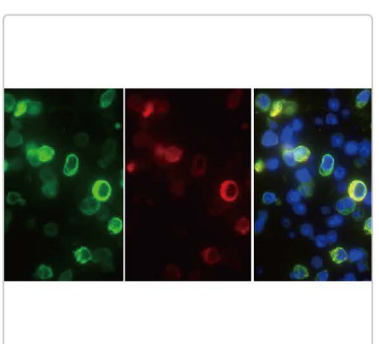
SARS-CoV-2 (COVID-19) Spike FFPE 293T cell pellet block (GTX435640)



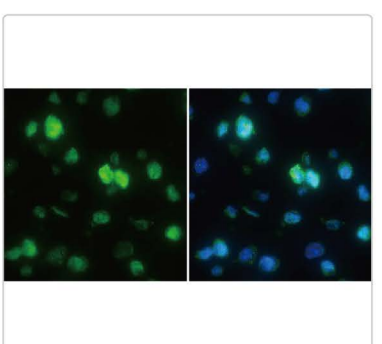
SARS-CoV-2 (COVID-19) Spike S1 FFPE 293T cell pellet block (GTX435643)



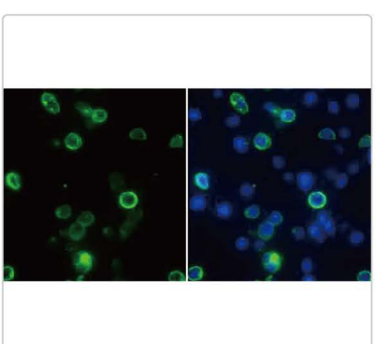
SARS-CoV-2 (COVID-19) Spike S2 FFPE 293T cell pellet block (GTX435644)



SARS-CoV-2 (COVID-19) Nucleocapsid FFPE 293T cell pellet block (GTX435641)



SARS-CoV-2 (COVID-19) Envelope FFPE 293T cell pellet block (GTX435642)



SARS-CoV-2 (COVID-19) Membrane FFPE 293T cell pellet block (GTX435645)

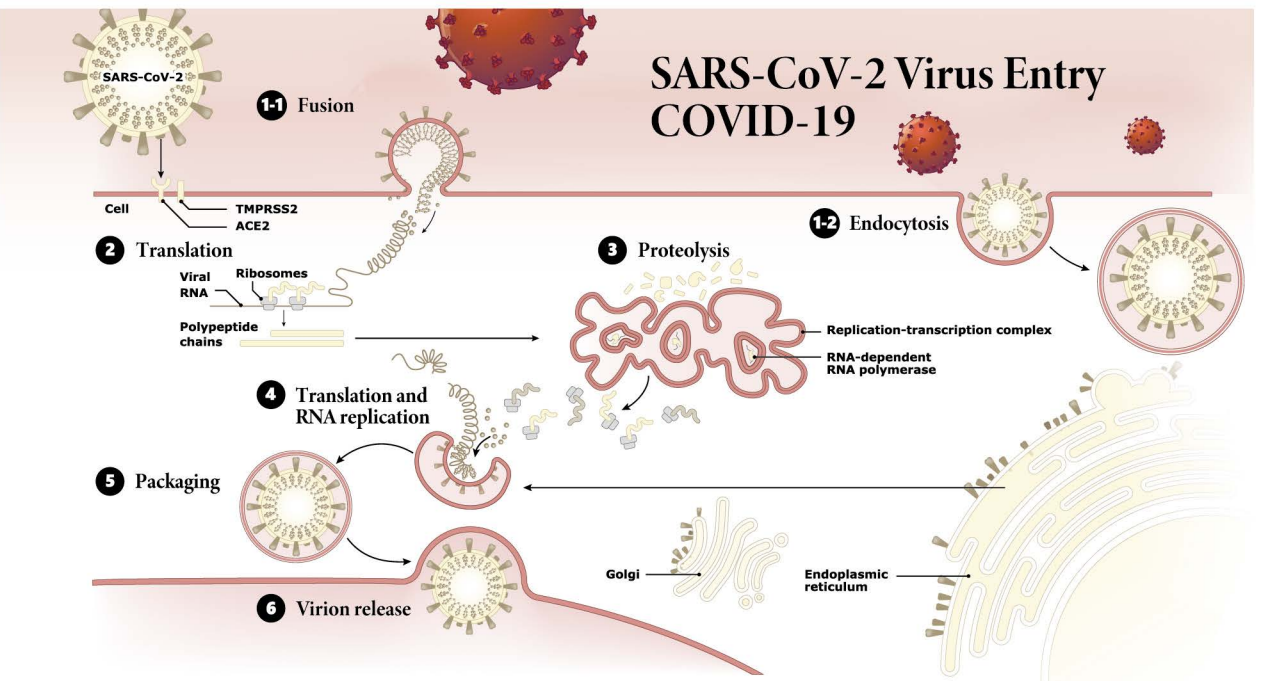
Citation Support

## 1.7 Overexpression Lysates for SARS-CoV-2 (COVID-19)

| Product Name | Applications | Cat. No. |
|---|---|---|
| SARS-CoV-2 (COVID-19) Spike overexpression 293T whole cell lysate | WB, ELISA | GTX535664 |
| SARS-CoV-2 (COVID-19) Spike S1 overexpression 293T whole cell lysate | WB | GTX535663 |
| SARS-CoV-2 (COVID-19) Nucleocapsid overexpression 293T whole cell lysate | WB, ELISA | GTX535665 |

# SARS-CoV-2 (COVID-19) Entry into Host Cells

With SARS-CoV-2 now reaching pandemic status, researchers and clinicians have been working furiously to learn more about the virus's biology and pathogenesis as well as how to treat the more clinically aggressive COVID-19 cases. As with any viral pathogen, understanding how SARS-CoV-2 enters host cells is of great significance.




Angiotensin-converting enzyme 2 (ACE2) is the cellular receptor for SARS-CoV-2, as it is for SARS-CoV. In addition, the serine protease TMPRSS2 is a critical factor for the priming of the SARS-CoV-2 spike (S) protein, an essential step for viral entry into host cells through fusion of the viral and cellular membranes.

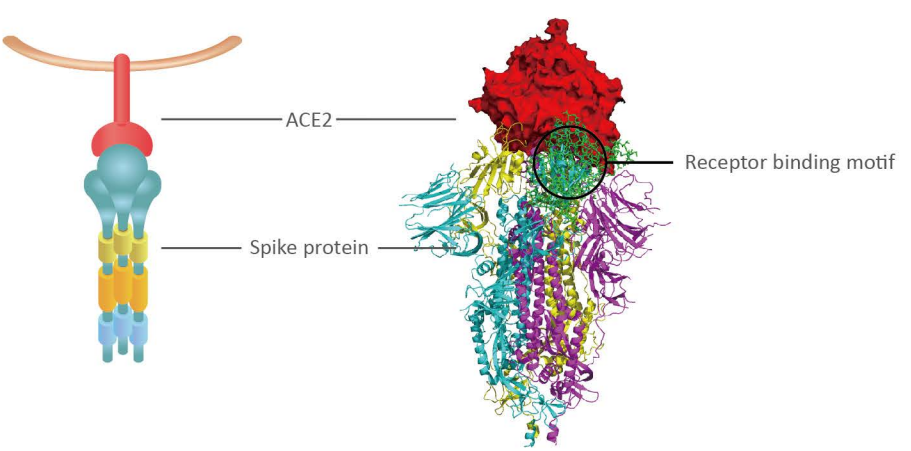


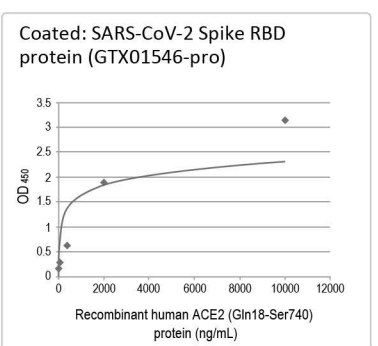

Fig. A putative ACE2 and SARS-CoV-2 spike protein binding model

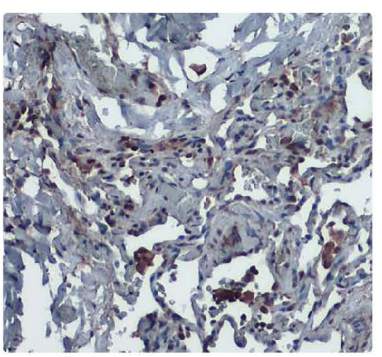
To learn more about GeneTex's virus entry products, please visit:

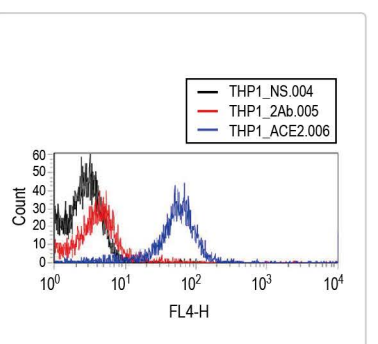
# 2.1 Products for SARS-CoV-2 (COVID-19) Host Cell Entry Research

| Product Name | Clonality or Expression System | Applications | Cat. No. |
|---|---|---|---|
| ACE2 antibody [GT19410] | Ms mAb | WB, IHC-P, ELISA | GTX635897 |
| ACE2 antibody [N1N2], N-term | Rb pAb | WB, ICC/IF, IHC-P, FACS, ELISA | GTX101395 |
| ACE2 antibody [SN0754] | Rb recAb | WB, ICC/IF, IHC-P | GTX01160 |
| ACE2 antibody | Rb pAb | WB, ICC/IF, IHC-P, ELISA | GTX15349 |
| Human ACE2(ECD) protein, mouse IgG Fc tag | HEK 293 | ELISA, Functional Assay | GTX135683-pro |
| Human ACE2 protein, His and Avi tag | HEK 293 | ELISA, Functional Assay | GTX01550-pro |
| TMPRSS2 antibody [N2C3] | Rb pAb | WB, IHC-P | GTX100743 |
| Camostat mesylate | | TMPRSS2 inhibitor | GTX01523 |

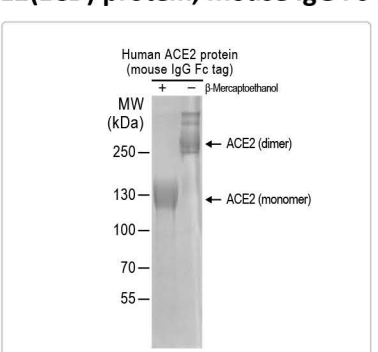
## GTX101395 ACE2 antibody [N1N2], N-term



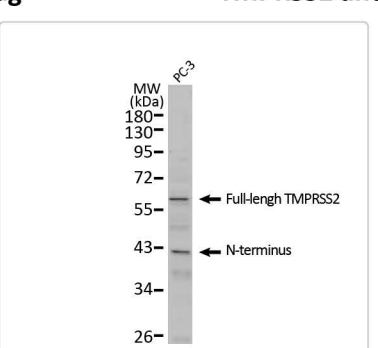



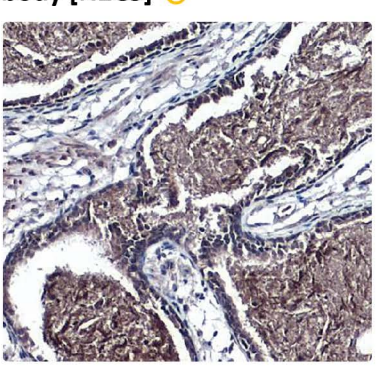



## GTX135683-pro Human ACE2(ECD) protein, mouse IgG Fc tag




## GTX100743 TMPRSS2 antibody [N2C3]

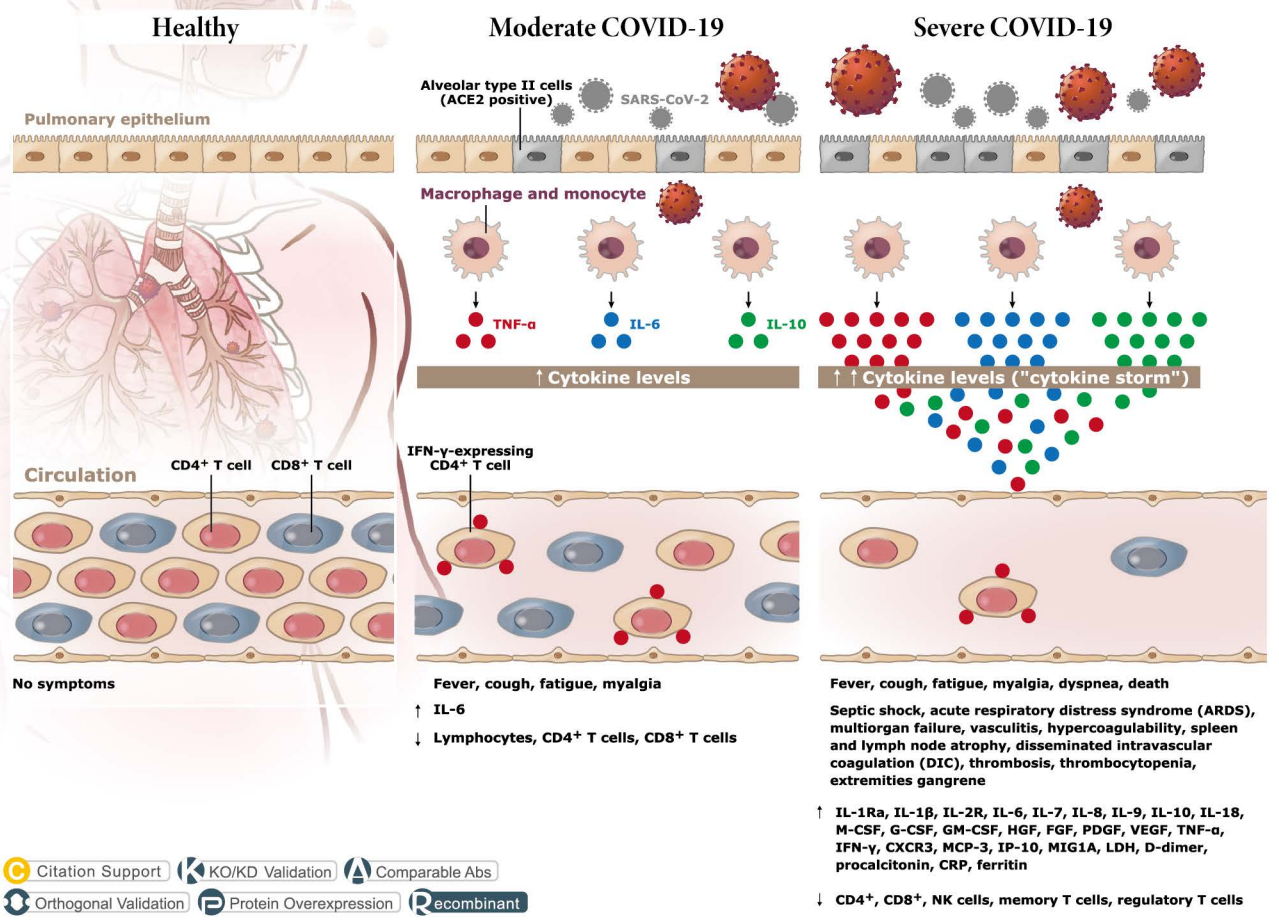


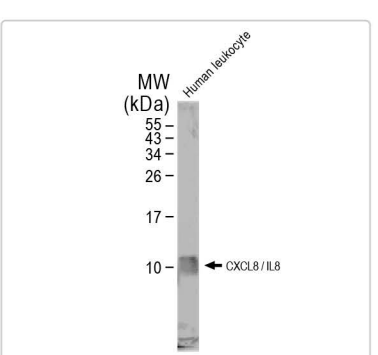
Citation Support | KO/KD Validation | Orthogonal Validation | Protein Overexpression | Recombinant

# Cytokine Storm

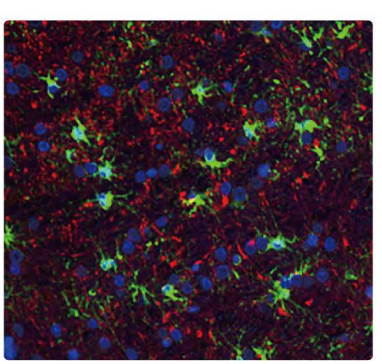
SARS-CoV-2 / COVID-19 pathogenesis is inextricably linked to immune system dysfunction. Hypercytokinemia (or "cytokine storm") is a hyperinflammatory response that can lead to acute respiratory distress syndrome (ARDS) and other systemic complications in COVID-19 patients.



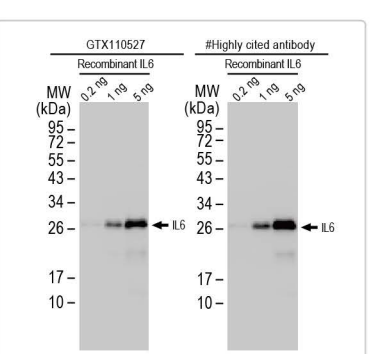

Citation Support | KO/KD Validation | Comparable Abs | Orthogonal Validation | Protein Overexpression | Recombinant




CXCL8 / IL8 antibody (GTX115959)



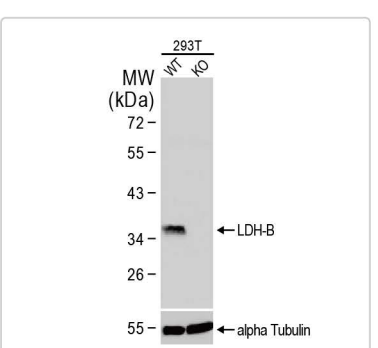
IL1 beta antibody (GTX74034)



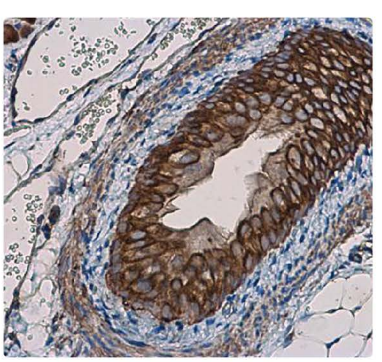

IL6 antibody (GTX110527)

# 3.1 Antibodies for COVID-19 Cytokine Storm Research

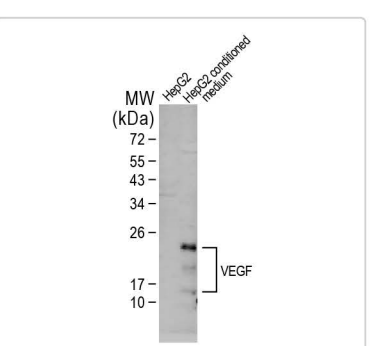
| Product Name | Clonality | Reactivity | Applications | Cat. No. |
|---|---|---|---|---|
| C Reactive Protein antibody [C1] | Ms mAb | Hu | WB, ELISA, IHC, Purification, Turbidimetry | GTX10026 |
| C Reactive Protein antibody [N1C3] | Rb pAb | Hu, Rat | WB, IHC-P | GTX101262 |
| CXCL10 / IP10 antibody | Rb pAb | Hu | WB, IHC-P, ELISA, Neutralizing/Inhibition | GTX31176 |
| CXCL8 / IL8 antibody | Rb pAb | Hu | WB, IHC-P, FACS | GTX115959 |
| CXCR3 antibody [JA61-33] | Rb mAb | Hu | WB, ICC/IF | GTX01155 |
| CXCR3 antibody [N1], N-term | Rb pAb | Hu | WB, IHC-P | GTX108145 |
| D-Dimer antibody [28] | Ms mAb | Hu, Dog | WB, ELISA | GTX60943 |
| FGF10 antibody | Rb pAb | Hu, Rat | WB | GTX101005 |
| FGF12 antibody | Rb pAb | Ms | WB | GTX101007 |
| FGF13 antibody | Rb pAb | Hu, Ms, Rat | WB, IHC-P | GTX101008 |
| FGF14 antibody | Rb pAb | Hu | WB, ICC/IF | GTX130346 |
| FGF18 antibody | Rb pAb | Hu | WB | GTX128496 |
| FGF21 antibody [JA10-97] | Rb mAb | Hu, Ms, Rat | WB, IHC-P | GTX01054 |
| FGF21 antibody [N3C3] | Rb pAb | Hu | WB, ICC/IF, IHC-P | GTX111877 |
| G-CSF antibody | Rb pAb | Hu | WB, IHC-P, ELISA, Neutralizing/Inhibition | GTX31157 |
| GM-CSF antibody | Rb pAb | Hu | WB, Neutralizing/Inhibition | GTX59748 |
| HGF (alpha subunit) antibody | Rb pAb | Hu | WB | GTX129003 |
| HGF antibody | Rb pAb | Hu | WB | GTX111810 |
| IL1 beta antibody | Rb pAb | Hu, Ms, Rat | WB, ICC/IF, IHC-P, IHC-Fr, ELISA, IHC | GTX74034 |
| IL1 beta antibody [GT289] | Ms mAb | Hu | WB, ICC/IF | GTX634188 |
| IL10 antibody | Rb pAb | Hu, Ms | WB, IHC-Fr, ELISA | GTX130513 |
| IL10 antibody [GT5111] | Ms mAb | Hu, Ms, Rat | WB, IHC-P | GTX632359 |
| IL-18 antibody | Rb pAb | Hu, Ms | WB, IP | GTX32675 |
| IL6 antibody | Rb pAb | Hu, Ms, Rat | WB, IHC-P, IHC-Fr | GTX110527 |
| IL7 antibody | Rb pAb | Hu | WB | GTX131448 |
| IL9 antibody | Rb pAb | Ms, Rat | WB, IHC-P | GTX51537 |
| Interferon gamma antibody [2G1] | Ms mAb | Hu, Ms | WB, ELISA, sELISA | GTX15624 |
| LDHA antibody | Rb pAb | Hu, Ms, Rat | WB, ICC/IF, IHC-P | GTX101416 |
| LDH-B antibody | Rb pAb | Hu, Ms, Rat | WB, ICC/IF, IHC-P | GTX101747 |
| TNF alpha antibody | Rb pAb | Hu, Ms, Rat, Bov | WB, ICC/IF, IHC-P | GTX110520 |
| VEGF antibody | Rb pAb | Hu, Ms, Rat | WB, IHC-P, ELISA, IHC | GTX102643 |
| VEGF antibody [VG1] | Ms mAb | Hu, Ms, Rat,Zfsh | WB, ICC/IF, IHC-P, IHC-Fr, ELISA | GTX21316 |




LDH-B antibody (GTX101747)



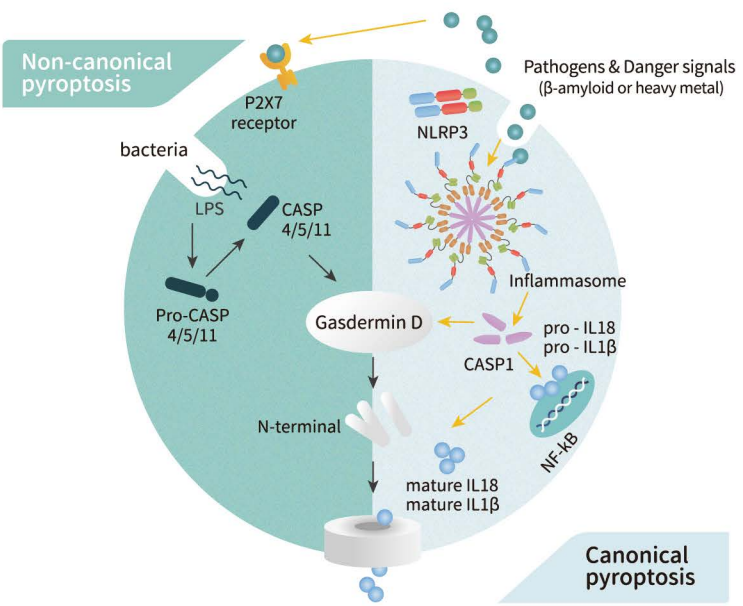
TNF alpha antibody (GTX110520)

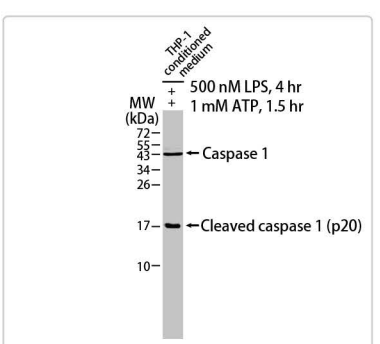



VEGF antibody (GTX102643)

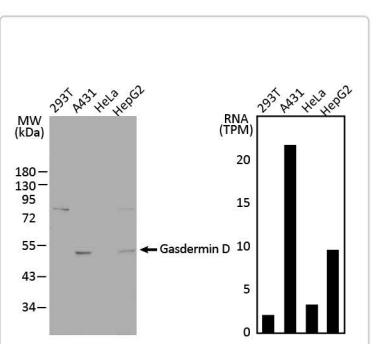
# Pyroptosis

Pyroptosis is a programmed cell death process executed by inflammatory caspases upon initiation of canonical or non-canonical mechanisms. It is triggered by specific inflammatory caspases (caspase-1,-4,-5,-11) that are distinct from those responsible for apoptosis. Both the canonical and non-canonical pathways lead to the activation of gasdermin D (GSDMD), which forms pores that cause cellular leakage and lysis. The resultant extracellular release of cytoplasmic components unleashes a local inflammatory cascade that can become systemic, underscoring the importance of pyroptosis' normal function in mobilizing immune cells against pathogens. Nevertheless, pyroptosis can also contribute to inflammation-related pathology, including cancer progression and autoimmune disease.

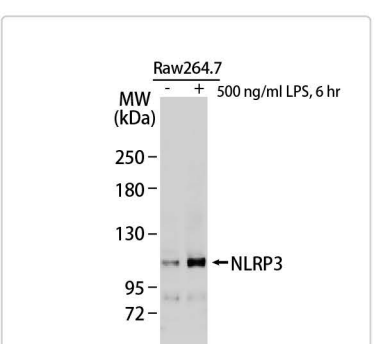



Caspase 1 antibody [N1N3] (GTX101322)




Gasdermin D antibody [N1N3] (GTX116840)



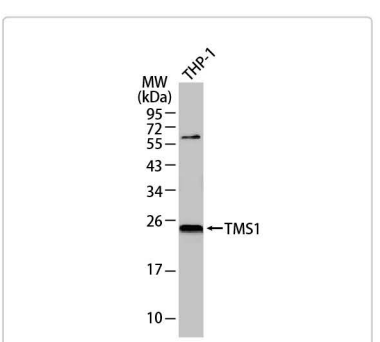

NLRP3 antibody (GTX133569)

Citation Support | KO/KD Validation | Comparable Abs | IP/MS Analysis | Orthogonal Validation | Protein Overexpression

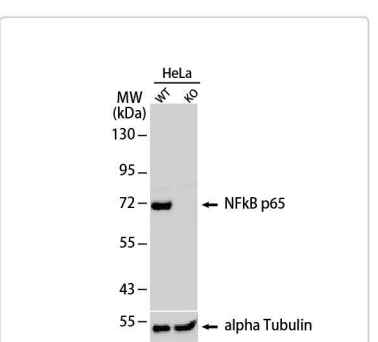
To learn more about GeneTex's pyroptosis products, please visit:

# 4.1 Antibodies for Pyroptosis Research

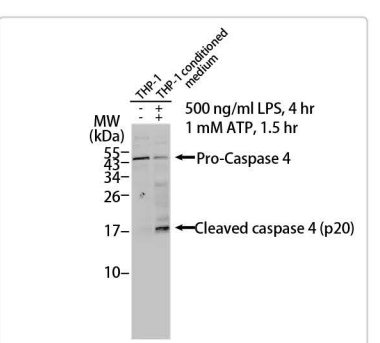
| Product Name | Clonality | Reactivity | Applications | Cat. No. |
|---|---|---|---|---|
| AIM2 antibody | Rb pAb | Hu | WB | GTX116487 |
| CARD12 antibody [N1], N-term | Rb pAb | Hu | WB | GTX102366 |
| Caspase 1 (cleaved Asp297) antibody | Rb pAb | Hu | WB | GTX133447 |
| Caspase 1 antibody [14F468] | Ms mAb | Hu, Ms, Rat | WB, IHC-P, FACS | GTX14367 |
| Caspase 1 antibody [N1N3] | Rb pAb | Hu, Ms | WB, ICC/IF, IHC-P | GTX101322 |
| Caspase 1 p10 subunit antibody | Rb pAb | Hu, Ms, Rat | IHC-P | GTX123675 |
| Caspase 1 p10 subunit antibody | Rb pAb | Hu, Ms, Rat | WB, IHC-P | GTX134551 |
| Caspase 1 p20 subunit antibody | Rb pAb | Ms, Rat | WB | GTX11701 |
| caspase 4 antibody | Rb pAb | Hu, Ms, Rat | WB, IHC-P | GTX134552 |
| caspase 4 antibody | Rb pAb | Hu | WB, IHC-P | GTX113639 |
| caspase 5 antibody | Rb pAb | Hu, Ms | WB, ICC/IF, ELISA | GTX31701 |
| Gasdermin D antibody [N1N3] | Rb pAb | Hu | WB | GTX116840 |
| IL1 beta antibody | Rb pAb | Hu, Ms, Rat | WB, ICC/IF, IHC-P, IHC-Fr, ELISA, IHC | GTX74034 |
| IL1 beta antibody [GT289] | Ms mAb | Hu | WB, ICC/IF | GTX634188 |
| IL-18 antibody | Rb pAb | Hu, Ms | WB, IP | GTX32675 |
| NAIP antibody | Rb pAb | Hu | WB | GTX22549 |
| NEK7 antibody [C2C3], C-term | Rb pAb | Hu, Ms | WB, ICC/IF, IHC-P | GTX108216 |
| NFkB p100 antibody [C2C3], C-term | Rb pAb | Hu, Ms | WB, IP | GTX101150 |
| NFkB p105 antibody | Rb pAb | Hu, Ms | WB, ICC/IF, IHC-P, ChIP assay, IHC | GTX110585 |
| NFkB p65 antibody | Rb pAb | Hu, Ms, Rat | WB, ICC/IF, IHC-P, IP, EMSA | GTX107678 |
| NLRP3 antibody | Rb pAb | Hu, Ms | WB | GTX133569 |
| P2X7 antibody | Rb pAb | Hu, Ms, Rat | WB, ICC/IF, IHC-Fr, FACS, LCI | GTX16827 |
| Pannexin 1 antibody | Rb pAb | Hu, Ms, Rat | WB, IHC-P, ELISA | GTX31510 |
| TMS1 antibody [N1C3] | Rb pAb | Hu | WB, ICC/IF, IHC-Fr | GTX102474 |




TMS1 antibody [N1C3] (GTX102474)




NFkB p65 antibody (GTX107678)




Caspase 4 antibody (GTX134552)

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