

Store at
-20°C

#75352

Coronavirus Host Cell Attachment and Entry Antibody Sampler Kit



Support: +1-978-867-2388 (U.S.)
www.cellsignal.com/support

Orders: 877-616-2355 (U.S.)
orders@cellsignal.com

New 03/21

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
ACE2 Antibody	4355	20 µl	120-135 kDa	Rabbit
DPP4/CD26 (D6D8K) Rabbit mAb	67138	20 µl	90, 120 kDa	Rabbit IgG
CD13/APN (D6V1W) Rabbit mAb	32720	20 µl	160 kDa	Rabbit IgG
Basigin/EMMPRIN (E1S1V) Rabbit mAb	13287	20 µl	38-58 kDa	Rabbit IgG
EEA1 (C45B10) Rabbit mAb	3288	20 µl	170 kDa	Rabbit IgG
IFITM1 Antibody	13126	20 µl	14 kDa	Rabbit
Cathepsin B (D1C7Y) XP® Rabbit mAb	31718	20 µl	24, 27, 44 kDa	Rabbit IgG
IFITM3 (D8E8G) XP® Rabbit mAb	59212	20 µl	15 kDa	Rabbit IgG
VCP (7F3) Rabbit mAb	2649	20 µl	89 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions, and additional application protocols.

Description: The Coronavirus Host Cell Attachment and Entry Antibody Sampler Kit provides an economical means of detecting key host cell proteins involved in the attachment and cellular entry of coronaviruses. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Background: Coronaviruses are a group of viruses that contain single-stranded, positive-sense RNA genomes. Several members of this group, which include severe acute respiratory syndrome coronaviruses (SARS-CoV and SARS-CoV-2) and Middle East respiratory syndrome coronavirus (MERS-CoV), are highly pathogenic and have caused significant disease outbreaks in human hosts. In order for human coronaviruses to transcribe and replicate their genomes within host cells, they must first attach and gain entry into host cells using a variety of cell surface receptors and components of the endocytic machinery.

ACE2 is a carboxypeptidase that catalyses the conversion of angiotensin I to angiotensin 1-9, or of angiotensin II to the vasodilator angiotensin 1-7 (1). Research studies have identified ACE2 as the receptor for SARS and SARS-CoV-2 coronaviruses (2-4).

DPP4 (CD26) is a type II transmembrane glycoprotein expressed ubiquitously in most tissues and different cell types (5,6). In addition to its peptidase activity, DPP4 interacts with multiple important cell surface ligands, such as adenosine deaminase, fibronectin, and IGF2 receptor to influence processes like T cell activation, cell migration, and proliferation (7). Research studies have shown that DPP4 serves as a cellular receptor for the MERS-CoV spike protein (8).

Aminopeptidase N (APN, CD13) is a widely expressed, membrane-bound proteolytic enzyme that breaks down peptides during digestion, cleaves cell surface antigens during antigen presentation, and acts as a receptor for human viruses, including several coronaviruses. This multifunctional protein is implicated in the regulation of many biological processes, including angiogenesis, cell proliferation, cell migration, inflammation, and immune response (9,10).

Basigin (EMMPRIN, CD147) is a type I integral membrane receptor protein belonging to the immunoglobulin superfamily (11). Multiple functions have been ascribed to Basigin; foremost among these is stimulating the secretion of extracellular matrix metalloproteinases by adjacent fibroblasts, a function which has been implicated in promoting tumor progression (12-14). Research studies have suggested that Basigin serves as a novel host cell surface receptor for SARS-CoV-2 (15).

EEA1 is an early endosomal marker and a Rab5 effector protein essential for early endosomal membrane fusion and trafficking (16,17). Research studies have shown that efficient coronavirus host cell entry and replication relies upon early endosomes containing EEA1 (18).

Interferon-induced transmembrane protein (IFITM) family members are composed of short amino- and carboxy-termini, two transmembrane domains, and a cytoplasmic domain (19). The primary function of IFITM family proteins appears to be viral restriction, as IFITM proteins inhibit cytosolic entry of coronaviruses by preventing fusion of viral and host membranes (20,21).

Valosin-containing protein (VCP) is a highly conserved and abundant 97 kDa protein that belongs to the AAA family of proteins. These protein complexes participate in many cellular

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibodies.

Please visit www.cellsignal.com for validation data and a complete listing of recommended companion products.

Background References:

- (1) Schmidt, B.L. et al. (2000) *J Clin Microbiol* 38, 1279-82.
- (2) Li, W. et al. (2005) *EMBO J* 24, 1634-43.
- (3) Hoffmann, M. et al. (2020) *Cell* 181, 271-280.e8.
- (4) Lan, J. et al. (2020) *Nature* 581, 215-220.
- (5) Mentzel, S. et al. (1996) *J Histochem Cytochem* 44, 445-61.
- (6) Röhrborn, D. et al. (2015) *Front Immunol* 6, 386.
- (7) Zhong, J. et al. (2015) *J Diabetes Res* 2015, 606031.
- (8) Wang, N. et al. (2013) *Cell Res* 23, 986-93.
- (9) Luan, Y. and Xu, W. (2007) *Curr Med Chem* 14, 639-47.
- (10) Mina-Osorio, P. (2008) *Trends Mol Med* 14, 361-71.
- (11) Biswas, C. et al. (1995) *Cancer Res* 55, 434-9.
- (12) Liao, C.G. et al. (2011) *Mol Cell Biol* 31, 2591-604.
- (13) Sweeny, L. et al. (2012) *Exp Cell Res* 318, 1788-98.
- (14) Lescaille, G. et al. (2012) *BMC Cancer* 12, 115.
- (15) Wang, K. et al. (2020) *Signal Transduct Target Ther* 5, 283.
- (16) Mu, F.T. et al. (1995) *J Biol Chem* 270, 13503-11.
- (17) Christoforidis, S. et al. (1999) *Nature* 397, 621-5.
- (18) Burkard, C. et al. (2014) *PLoS Pathog* 10, e1004502.
- (19) Diamond, M.S. and Farzan, M. (2013) *Nat Rev Immunol* 13, 46-57.
- (20) Brass, A.L. et al. (2009) *Cell* 139, 1243-54.
- (21) Feeley, E.M. et al. (2011) *PLoS Pathog* 7, e1002337.
- (22) Wang, Q. et al. *J Struct Biol* 146, 44-57.
- (23) Wong, H.H. et al. (2015) *J Virol* 89, 11116-28.
- (24) Chan, S.J. et al. (1986) *Proc Natl Acad Sci U S A* 83, 7721-5.
- (25) Fong, D. et al. (1986) *Proc Natl Acad Sci U S A* 83, 2909-13.
- (26) Simmons, G. et al. (2005) *Proc Natl Acad Sci U S A* 102, 11876-81.

U.S. Patent No. 7,429,487, foreign equivalents, and child patents deriving therefrom.

Thank you for your recent purchase. If you would like to provide a review visit www.cellsignal.com/comments.

www.cellsignal.com

© 2021 Cell Signaling Technology, Inc.

XP and Cell Signaling Technology are trademarks of Cell Signaling Technology, Inc.

Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected **Species** enclosed in parentheses are predicted to react based on 100% homology.

functions, including vesicle transport and fusion, fragmentation and reassembly of the golgi stacks during mitosis, nuclear envelope formation and spindle disassembly following mitosis, cell cycle regulation, DNA damage repair, apoptosis, B and T cell activation, NF- κ B-mediated transcriptional regulation, endoplasmic reticulum (ER)-associated degradation, and protein degradation (22). Research studies have shown that VCP facilitates the release of some coronaviruses from the early endosomal compartment (23).

Cathepsin B, part of the papain family of proteases, is a widely expressed lysosomal cysteine endopeptidase (24,25). Research studies have suggested that cathepsin B facilitates host cell entry of SARS-CoV by promoting fusion of viral and endosomal membranes (26).

Specificity/Sensitivity: Each antibody in the Coronavirus Host Cell Attachment and Entry Antibody Sampler Kit detects endogenous levels of its target protein. ACE2 Antibody recognizes endogenous levels of glycosylated ACE2 protein. This antibody also cross-reacts with 55 and 75 kDa proteins of unknown origin in some cells. IFITM1 Antibody recognizes endogenous levels of total IFITM1 protein. This antibody does not cross-react with IFITM2 or IFITM3 proteins. Cathepsin B (D1C7Y) XP[®] Rabbit mAb recognizes endogenous levels of total cathepsin B protein. This antibody detects the heavy chain subunit of cathepsin B. IFITM3 (D8E8G) XP[®] Rabbit mAb recognizes endogenous levels of total IFITM3 protein. This antibody does not cross-react with IFITM1 or IFITM2 proteins.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu491 of human DPP4 protein, Ala254 of human EMMPRIN protein, Ser70 of human EEA1 protein, Val5 of human IFITM3 protein, and a synthetic peptide corresponding to the sequence of human VCP. Monoclonal antibodies are produced by immunizing animals with a recombinant protein specific to the carboxy terminus of human CD13/APN protein and a recombinant protein specific to the heavy chain subunit of human cathepsin B protein. Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human ACE2 protein and surrounding Pro20 of human IFITM1 protein. Polyclonal antibodies are purified by protein A and peptide affinity chromatography.

Thank you for your recent purchase. If you would like to provide a review visit [cellsignal.com/comments](https://www.cellsignal.com/comments).

www.cellsignal.com