Store at -20°C

# Host Cell Viral Restriction Factor Antibody Sampler Kit

#68355

**Support:** +1-978-867-2388 (U.S.)
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**For Research Use Only. Not For Use In Diagnostic Procedures.**

| Products Included | Product # | Quantity | Mol. Wt. | Isotype/Source |
|---|---|---|---|---|
| MX1 (D3W7I) Rabbit mAb | 37849 | 20 µl | 76 kDa | Rabbit IgG |
| OAS1 (D1W3A) Rabbit mAb | 14498 | 20 µl | 40, 44 kDa | Rabbit IgG |
| RNase L (D4B4J) Rabbit mAb | 27281 | 20 µl | 80 kDa | Rabbit IgG |
| IFITM3 (D8E8G) XP® Rabbit mAb | 59212 | 20 µl | 15 kDa | Rabbit IgG |
| BST2 (D5V5Z) Rabbit mAb | 19277 | 20 µl | 28-40 kDa | Rabbit IgG |
| TRIM5α (D6Z8L) Rabbit mAb | 14326 | 20 µl | 56 kDa | Rabbit IgG |
| Phospho-eIF2α (Ser51) (D9G8) XP® Rabbit mAb | 3398 | 20 µl | 38 kDa | Rabbit IgG |
| Phospho-SAMHD1 (Thr592) (D7O2M) Rabbit mAb | 89930 | 20 µl | 72 kDa | Rabbit IgG |
| IFITM1 Antibody | 13126 | 20 µl | 14 kDa | Rabbit |
| 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 Host Cell Viral Restriction Factor Antibody Sampler Kit provides an economical means of detecting the expression of various host cell viral restriction factors using phospho-specific and total protein antibodies. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

**Background:** Viral restriction factors are proteins produced by host cells that function, in part, to negatively impact various stages of viral life cycles in order to prevent propagation. MX1 (Myxovirus resistance protein 1/MxA) is an interferon-inducible antiviral protein that confers resistance to RNA viruses by blocking transcription of the viral genome (1,2).

2'-5'-oligoadenylate synthetase 1 (OAS1) is an antiviral protein induced by type 1 interferon that plays a key role in the cellular innate immune response (3). The OAS1 enzyme produces a second messenger, 2'-5'-linked oligoadenylate, which binds to RNase L, which then degrades viral and cellular RNA (4). Research studies indicate that the OAS1 system inhibits protein synthesis and induces apoptosis in virally infected cells, which limits viral infection (5).

Interferon-induced transmembrane protein (IFITM) family members, IFITM1 and IFITM3, appear to function as viral restriction factors by preventing fusion of viral and host membranes (6,7).

BST2 (CD317, Tetherin, HM1.24) is a type II transmembrane glycoprotein functioning as a major mediator of the innate immune defense against the dissemination of enveloped viruses by tethering viron on the cell surface, preventing viral release (8).

TRIM5α blocks viral infection by interacting with the incoming viral capsid and promoting its premature disassembly (9).

PKR-induced phosphorylation of the eukaryotic initiation factor 2 (eIF2) α subunit at Ser51 is a well-documented mechanism to downregulate protein synthesis upon viral infection (10).

SAM domain and HD domain-containing protein 1 (SAMHD1) prevents autoimmunity and HIV infection by hydrolyzing intracellular deoxynucleoside triphosphates (dNTPs), thereby limiting inappropriate immune activation by self nucleic acid and inhibiting reverse transcription of the HIV genome (11). Phosphorylation of SAMHD1 at Thr592 by cyclin A2/CDK1 was identified as a regulatory mechanism that controls SAMHD1 activity. SAMHD1 is phosphorylated in proliferating cells, which inhibits its ability to block HIV infection (12).

**Specificity/Sensitivity:** Each antibody in the Host Cell Viral Restriction Factor Antibody Sampler Kit detects endogenous levels of its target protein. MX1 (D3W7I) Rabbit mAb recognizes endogenous levels of total MX1 protein. OAS1 (D1W3A) Rabbit mAb recognizes endogenous levels of total OAS1 protein. This antibody cross-reacts with an unidentified protein of 100 kDa in some cell lines. RNase L (D4B4J) Rabbit mAb recognizes endogenous levels of total RNase L protein. IFITM3 (D8E8G) XP® Rabbit mAb recognizes endogenous levels of total IFITM3 protein. This antibody does not cross-react with IFITM1 or IFITM2 proteins. BST2 (D5V5Z) Rabbit mAb recognizes endogenous levels of total BST2 protein. TRIM5α (D6Z8L) Rabbit mAb recognizes endogenous levels of total TRIM5α protein. This antibody does not cross-react with human TRIM5β protein and is not predicted to cross-react with other human TRIM5 isoforms. Phospho-eIF2α (Ser51) (D9G8) XP® Rabbit mAb detects endogenous levels of eIF2α protein only when phosphorylated at Ser51. Phospho-SAMHD1 (Thr592) (D7O2M) Rabbit mAb recognizes endogenous levels of SAMHD1 protein only when phosphorylated at Thr592. IFITM1 Antibody recognizes endogenous levels of total IFITM1 protein. This antibody does not cross-react with IFITM2 or IFITM3 proteins.

**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.*

**For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.**

**Background References:**

(1) Staeheli, P. et al. (1986) *Cell* 44, 147-58.

(2) Kochs, G. and Haller, O. (1999) *Proc Natl Acad Sci U S A* 96, 2082-6.

(3) Schoggins, J.W. et al. (2011) *Nature* 472, 481-5.

(4) Dong, B. and Silverman, R.H. (1997) *J Biol Chem* 272, 22236-42.

(5) Castelli, J.C. et al. (1998) *Cell Death Differ* 5, 313-20.

(6) Brass, A.L. et al. (2009) *Cell* 139, 1243-54.

(7) Feeley, E.M. et al. (2011) *PLoS Pathog* 7, e1002337.

(8) Le Tortorec, A. et al. (2011) *Viruses* 3, 520-40.

(9) Stremlau, M. et al. (2006) *Proc Natl Acad Sci U S A* 103, 5514-9.

(10) Zamanian-Daryoush, M. et al. (2000) *Mol Cell Biol* 20, 1278-90.

(11) Powell, R.D. et al. (2011) *J Biol Chem* 286, 43596-600.

(12) Cribier, A. et al. (2013) *Cell Rep* 3, 1036-43.

**Source/Purification:** Monoclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu292 of human MX1 protein, Asp90 of human OAS1 protein, Pro717 of human RNase L protein, Val5 of human IFITM3 protein, Val134 of human BST2 protein, Pro395 of human TRIM5α protein, Ser51 of human eIF2α protein, and Thr592 of human SAMHD1 protein. Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro20 of human IFITM1 protein. Polyclonal antibodies are purified by protein A and peptide affinity chromatography.

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**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.