Revision 1

Store at -20C

#68355

Host Cell Viral Restriction Factor Antibody Sampler Kit

1 Kit (9 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	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

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

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.

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.*

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).

Background References

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