Revision 1

#20836 Store at -20°C

Mouse Reactive Inflammasome Antibody Sampler Kit

1 Kit (7 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
NLRP3 (D4D8T) Rabbit mAb	15101	20 µl	110 kDa	Rabbit IgG
AIM2 Antibody	63660	20 µl	43 kDa	Rabbit
ASC/TMS1 (D2W8U) Rabbit mAb	67824	20 µl	22 kDa	Rabbit IgG
Cleaved-IL-1β (Asp117) (E7V2A) Rabbit mAb	63124	20 µl	17 kDa	Rabbit IgG
IL-1β (D6D6T) Rabbit mAb	31202	20 µl	17, 31 kDa	Rabbit IgG
Cleaved Caspase-1 (Asp296) (E2G2I) Rabbit mAb	89332	20 µl	22 kDa	Rabbit IgG
Caspase-1 (E2Z1C) Rabbit mAb	24232	20 µl	48, 10 kDa	Rabbit IgG
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 Mouse Reactive Inflammasome Antibody Sampler Kit provides an economical means of detecting multiple inflammasome components. The kit includes enough antibodies to perform at least 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 antibody.*

Background

The innate immune system works as the first line of defense in protection from pathogenic microbes and host-derived signals of cellular distress. One way in which these “danger” signals trigger inflammation is through activation of inflammasomes, which are multiprotein complexes that assemble in the cytosol after exposure to pathogen-associated molecular patterns (PAMPs) or danger-associated molecular patterns (DAMPs) and result in the activation of caspase-1 and subsequent cleavage of proinflammatory cytokines IL-1β and IL-18 (Reviewed in 1-6). Inflammasome complexes typically consist of a cytosolic pattern recognition receptor (PRR; a nucleotide-binding domain and leucine-rich-repeat [NLR] or AIM2-like receptor [ALR] family member), an adaptor protein (ASC/TMS1), and pro-caspase-1. A number of distinct inflammasome complexes have been identified, each with a unique PRR and activation triggers. The best characterized is the NLRP3 complex, which contains NLRP3, ASC/TMS1, and pro-caspase-1. The NLRP3 inflammasome is activated in a two-step process. First, NF-κB signaling is induced through PAMP- or DAMP-mediated activation of TLR4 or TNFR, resulting in increased expression of NLRP3, pro-IL-1β, and pro-IL-18 (priming step, signal 1). Next, indirect activation of NLRP3 occurs by a multitude of signals (whole pathogens, PAMPs/DAMPs, potassium efflux, lysosomal-damaging environmental factors [uric acid, silica, alum] and endogenous factors [amyloid-β, cholesterol crystals], and mitochondrial damage), leading to complex assembly and activation of caspase-1 (signal 2). The complex inflammasome structure is built via domain interactions among the protein components. Other inflammasomes are activated by more direct means: double-stranded DNA activates the AIM2 complex, anthrax toxin activates NLRP1, and bacterial flagellin activates NLRC4. Activated caspase-1 induces secretion of proinflammatory cytokines IL-1β and -18, but also regulates metabolic enzyme expression, phagosome maturation, vasodilation, and pyroptosis, an inflammatory programmed cell death. Inflammasome signaling contributes to the onset of a number of diseases, including atherosclerosis, type II diabetes, Alzheimer’s disease, and autoimmune disorders.

Background References

1. Broz, P. and Dixit, V.M. (2016) *Nat Rev Immunol* 16, 407-20.
2. Guo, H. et al. (2015) *Nat Med* 21, 677-87.
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4. Rathinam, V.A. and Fitzgerald, K.A. (2016) *Cell* 165, 792-800.
5. Shao, B.Z. et al. (2015) *Front Pharmacol* 6, 262.
6. Schroder, K. and Tschopp, J. (2010) *Cell* 140, 821-32.

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