Store at -20°C

#19171

Microglia Interferon-Related Module Antibody Sampler Kit

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New 04/19

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

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
ASC/TMS1 (D2W8U) Rabbit mAb (Mouse Specific)	67824	20 µl	22 kDa	Rabbit IgG
HS1 (D5A9) XP® Rabbit mAb (Rodent Specific)	3892	20 µl	80 kDa	Rabbit IgG
Stat2 (D9J7L) Rabbit mAb	72604	20 µl	97, 113 kDa	Rabbit IgG
Phospho-Stat2 (Tyr690) (D3P2P) Rabbit mAb	88410	20 µl	97, 113 kDa	Rabbit IgG
Akt3 (E1Z3W) Rabbit mAb	14982	20 µl	60 kDa	Rabbit IgG
Phospho-Akt (Ser473) (D9E) XP® Rabbit mAb	4060	20 µl	60 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 Microglia Interferon-Related Module Antibody Sampler Kit provides an economical means of detecting proteins identified as markers of interferon-related microglial activity by western blot and/or immunofluorescence.

Background: Distinct microglial activation states have been identified using RNA-seq data from a vast array of neurological disease and aging models. These activation states have been categorized into modules corresponding to proliferation, neurodegeneration, interferon-relation, LPS-relation, and many others (1). Previous work identifying markers of specific brain cell types using RNA-seq has shown HS1 and ASC/TMS1 to be useful and specific tools to study microglia (2). HS1 is a protein kinase substrate that is expressed only in tissues and cells of hematopoietic origin (3) and ASC/TMS1 has been found to be a critical component of inflammatory signaling where it associates with and activates caspase-1 in response to pro-inflammatory signals (4).

Stat2 is critical to the transcriptional responses induced by type I interferons, IFN-alpha/beta (5,6). In response to IFN-alpha/beta, Stat2 is activated by phosphorylation at site Tyr690 through associations with receptor-bound Jak kinases (7). Akt is a protein kinase that plays a critical role in controlling survival and apoptosis. Akt is activated by various growth and survival factors to function in a wortmannin-sensitive pathway involving PI3 kinase (8-10) and its activity is shown to be essential for up-regulation of key IFN inducible proteins (11). Akt is activated by phospholipid binding and activation loop phosphorylation at Thr308 by PDK1 (12) and by phosphorylation within the carboxy terminus at Ser473. The previously elusive PDK2 responsible for phosphorylation of Akt at Ser473 has been identified as mammalian target of rapamycin (mTOR) in a rapamycin-insensitive complex with rictor and Sin1 (13,14).

Specificity/Sensitivity: Each antibody in the Microglia Interferon-Related Module Antibody Sampler Kit detects endogenous levels of its target protein. Phospho-Stat2 (Tyr690) (D3P2P) Rabbit mAb recognizes endogenous levels of Stat2 protein only when phosphorylated at Tyr690. Phospho-Akt (Ser473) (D9E) XP® Rabbit mAb detects endogenous levels of Akt only when phosphorylated at Ser473. HS1 (D5A9) XP® Rabbit mAb (Rodent Specific) does not recognize human HS1 protein. HS1 has a calculated size of 54 kDa, but has an apparent molecular weight of 80 kDa on SDS-PAGE gels.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with synthetic peptides corresponding to residues surrounding Leu310 of mouse HS1, His140 of human Akt3, Leu706 of human Stat2, a phospho-specific synthetic peptide corresponding to residues surrounding Tyr690 of human Stat2 protein and Ser473 of human Akt, and recombinant mouse ASC/TMS1 protein.

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 References:

(1) Friedman, B.A. et al. (2018) *Cell Rep* 22, 832-847.
(2) Zhang, Y. et al. (2014) *J Neurosci* 34, 11929-47.
(3) Kitamura, D. et al. (1995) *Biochem Biophys Res Commun* 208, 1137-46.
(4) Srinivasula, S.M. et al. (2002) *J Biol Chem* 277, 21119-22.
(5) Fu, X.Y. et al. (1992) *Proc Natl Acad Sci U S A* 89, 7840-3.
(6) Ihle, J.N. (2001) *Curr Opin Cell Biol* 13, 211-7.
(7) Improta, T. et al. (1994) *Proc Natl Acad Sci U S A* 91, 4776-80.
(8) Franke, T.F. et al. (1997) *Cell* 88, 435-7.
(9) Burgering, B.M. and Coffer, P.J. (1995) *Nature* 376, 599-602.
(10) Franke, T.F. et al. (1995) *Cell* 81, 727-36.
(11) Kaur, S. et al. (2008) *Proc Natl Acad Sci U S A* 105, 4808-13.
(12) Alessi, D.R. et al. (1996) *EMBO J* 15, 6541-51.
(13) Sarbassov, D.D. et al. (2005) *Science* 307, 1098-101.
(14) Jacinto, E. et al. (2006) *Cell* 127, 125-37.

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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.