Revision 8

#77533 Store at -20°C

TREM2 Signaling Pathways Antibody Sampler Kit

1 Kit (9 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
TREM2 (D8I4C) Rabbit mAb	91068	20 µl	28 kDa	Rabbit IgG
DAP12 (D7G1X) Rabbit mAb	12492	20 µl	10, 12 kDa	Rabbit IgG
Syk (D3Z1E) XP® Rabbit mAb	13198	20 µl	72 kDa	Rabbit IgG
Phospho-Syk (Tyr525/526) (C87C1) Rabbit mAb	2710	20 µl	72 kDa	Rabbit IgG
Phospho-Zap-70 (Tyr319)/Syk (Tyr352) (65E4) Rabbit mAb	2717	20 µl	70, 72 kDa	Rabbit IgG
PLCγ1 (D9H10) XP® Rabbit mAb	5690	20 µl	150 kDa	Rabbit IgG
Phospho-PLCγ1 (Tyr783) (D6M9S) Rabbit mAb	14008	20 µl	155 kDa	Rabbit IgG
PLCγ2 (E5U4T) Rabbit mAb	55512	20 µl	150 kDa	Rabbit IgG
Phospho-PLCγ2 (Tyr759) (E9E9Y) Rabbit mAb	50535	20 µl	150 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.

Storage

All antibodies are 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

Microglia cells are resident macrophages of the brain that survey the brain environment and dynamically respond to maintain brain homeostasis. Microglial responses include phagocytosis of cellular debris, restricting sites injury or pathology, and/or releasing inflammatory signals to initiate an immune response. Such responses are important during normal development and during diseased states (1).Recently, the role of microglia in neurodegenerative disease pathology, particularly Alzheimer's disease (AD), has been of intense investigation. Much of this work is driven by human genetic data that links microglia-enriched genes with AD progression (2). The triggering receptor expressed on myeloid cells 2 (TREM2) protein is an innate immune receptor that is expressed on the cell surface of microglia (3). TREM2 plays a role in innate immunity, and a rare functional variant (R47H) of the TREM2 gene is associated with the late-onset risk of AD (3,4). How TREM2 contributes to disease function is currently an active area of research (4,5), but might drive a number of microglial cellular functions ranging from microgliosis, phagocytosis, and cytokine release via a variety of signaling cascades triggered by TREM2.The TREM2 receptor is a single-pass type I membrane glycoprotein that consists of an extracellular immunoglobulin-like domain, a transmembrane domain, and a cytoplasmic tail. Ligands for TREM2 include phospholipids, apolipoproteins, and lipoproteins. Upon activation, TREM2 interacts with the tyrosine kinase-binding protein DNAX-activating protein 12 (DAP12, TYROBP) to form a receptor-signaling complex (6). Ligand binding by DAP12-associated receptors, including TREM2, results in phosphorylation of tyrosine residues within the DAP12 immunoreceptor tyrosine-based activation motif (ITAM) by Src family kinases; ITAM phosphorylation leads to activation of spleen tyrosine kinase (Syk) and downstream signaling cascades (7). Tyr525 and Tyr526 are located in the activation loop of the Syk kinase domain and phosphorylation at these residues (equivalent to Tyr519/520 of mouse Syk) is essential for Syk function (8). Syk phosphorylation is also a readout for β-amyloid triggered TREM2 activity (9). Phosphoinositide-specific phospholipase C γ 1/2 (PLCγ1/2) is reported to be down stream of Syk (10). Tyr352 of Syk is involved in the association of PLCγ1 (11); Syk-mediated phosphorylation PLCγ1 at Tyr783 activates PLCγ1 enzymatic activity (12). Interestingly, mutations in the microglia-enriched PLCγ2 gene are associated with AD (13,14,15).

Background References

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Limited Uses