

Store at
-20C
#98863**TREM2-dependent mTOR Metabolic Fitness Antibody Sampler Kit**
Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

1 Kit (9 x 20 microliters)

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
TREM2 (D8I4C) Rabbit mAb	91068	20 µl	28 kDa	Rabbit IgG
TREM2 (E7P8J) Rabbit mAb (Carboxy-terminal Antigen)	76765	20 µl	11, 28 kDa	Rabbit IgG
AMPKα (D5A2) Rabbit mAb	5831	20 µl	62 kDa	Rabbit IgG
Phospho-AMPKα (Thr172) (40H9) Rabbit mAb	2535	20 µl	62 kDa	Rabbit IgG
mTOR (7C10) Rabbit mAb	2983	20 µl	289 kDa	Rabbit IgG
Phospho-mTOR (Ser2448) (D9C2) XP® Rabbit mAb	5536	20 µl	289 kDa	Rabbit IgG
Akt (pan) (C67E7) Rabbit mAb	4691	20 µl	60 kDa	Rabbit IgG
Phospho-Akt (Ser473) (D9E) XP® Rabbit mAb	4060	20 µl	60 kDa	Rabbit IgG
LC3A/B (D3U4C) XP® Rabbit mAb	12741	20 µl	14, 16 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 TREM2-dependent mTOR Metabolic Fitness Antibody Sampler Kit provides an economical means of detecting metabolic signaling pathways downstream of TREM2 by western blot. 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 triggering receptor expressed on myeloid cells 2 (TREM2) protein is an innate immune receptor that is expressed on the cell surface of microglia, macrophages, osteoclasts, and immature dendritic cells (1). The TREM2 protein plays a role in innate immunity and a rare functional variant (R47H) of TREM2 is associated with the late-onset risk of Alzheimer's disease (AD) (1,2). Research studies using mouse models of AD indicate that deficiency and haploinsufficiency of TREM2 can lead to increased β-amyloid (Aβ) accumulation as a result of dysfunctional microglia response (3). Activation of TREM2 in mouse models of AD ameliorates several forms of AD pathology, likely through a microglia-specific mechanism (4,5). This mechanism is under intense investigation, but may involve TREM2-dependent maintenance microglia energetic and biosynthetic metabolism (6). Autophagy is one mechanism by which cellular metabolism is maintained and, in the absence of TREM2, several AMPK-dependent autophagy cell signaling pathways are enhanced. AMP-activated protein kinase (AMPK) is highly conserved from yeast to plants and animals and plays a key role in the regulation of energy homeostasis (7). The tumor suppressor LKB1, in association with accessory proteins STRAD and MO25, phosphorylates AMPKα at Thr172 in the activation loop, and this phosphorylation is required for AMPK activation (8-10). AMPK is further regulated by several proteins within a regulatory cell signaling pathway. The mammalian target of rapamycin (mTOR, FRAP, RAFT) is a Ser/Thr protein kinase (11) that functions as an ATP and amino acid sensor to balance nutrient availability and cell growth (12). mTOR is phosphorylated at Ser2448 via the PI3 kinase/Akt signaling pathway and autophosphorylated at Ser2481 (13). Akt, also referred to as PKB or Rac, is regulated by phosphorylation at Ser473 (14,15). The presence of autophagy marker Light Chain 3 (LC3) in autophagosomes and the conversion of LC3 to the lower migrating form, LC3-II, have been used as indicators of autophagy (16).

Background References

- Colonna, M. (2003) *Nat Rev Immunol* 3, 445-53.
- Boutajangout, A. and Wisniewski, T. (2013) *Int J Cell Biol* 2013, 576383.
- Wang, Y. et al. (2015) *Cell* 160, 1061-71.
- Schlepckow, K. et al. (2020) *EMBO Mol Med* 12, e11227.
- Wang, S. et al. (2020) *J Exp Med* 217, e20200785.
- Ulland, T.K. et al. (2017) *Cell* 170, 649-663.e13.
- Hardie, D.G. (2004) *J Cell Sci* 117, 5479-87.
- Hawley, S.A. et al. (1996) *J Biol Chem* 271, 27879-87.
- Lizcano, J.M. et al. (2004) *EMBO J* 23, 833-43.

10. Shaw, R.J. et al. (2004) *Proc Natl Acad Sci U S A* 101, 3329-35.
 11. Sabatini, D.M. et al. (1994) *Cell* 78, 35-43.
 12. Dennis, P.B. et al. (2001) *Science* 294, 1102-5.
 13. Navé, B.T. et al. (1999) *Biochem J* 344 Pt 2, 427-31.
 14. Burgering, B.M. and Coffey, P.J. (1995) *Nature* 376, 599-602.
 15. Franke, T.F. et al. (1995) *Cell* 81, 727-36.
 16. Kabeya, Y. et al. (2004) *J Cell Sci* 117, 2805-12.
-

Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

XP is a registered trademark of Cell Signaling Technology, Inc.

U.S. Patent No. 7,429,487, foreign equivalents, and child patents deriving therefrom.

All other trademarks are the property of their respective owners. Visit cellsignal.com/trademarks for more information.

Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.