

Store at
-20°C

#48590

PhosphoPlus® TFEB (Ser211) Antibody Duet



Support: +1-978-867-2388 (U.S.)
www.cellsignal.com/support

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orders@cellsignal.com

Entrez-Gene ID #7942
UniProt ID #P19484

New 04/20

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

Products Included	Product #	Quantity	Mol. Wt.	Isotype
Phospho-TFEB (Ser211) (E9S8N) Rabbit mAb	37681	100 µl	70 kDa	Rabbit IgG
TFEB (D207D) Rabbit mAb	37785	100 µl	65-70 kDa	Rabbit IgG

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: PhosphoPlus® Duets from Cell Signaling Technology (CST) provide a means to assess protein activation status. Each Duet contains an activation-state and total protein antibody to your target of interest. These antibodies have been selected from CST's product offering based upon superior performance in specified applications.

Background: Transcription factor EB (TFEB) is a member of the Myc-related, bHLH leucine-zipper family of transcription factors that drives the expression of a network of genes known as the Coordinated Lysosomal Expression and Regulation (CLEAR) network (1,2). TFEB specifically recognizes and binds regulatory sequences within the CLEAR box (GTCACGTGAC) of lysosomal and autophagy genes, resulting in the upregulated expression of genes involved in lysosome biogenesis and function, and regulation of autophagy (1,2). TFEB is activated in response to nutrient deprivation, stimulating translocation to the nucleus where it forms homo- or heterooligomers with other members of the microphthalmia transcription factor (MITF) subfamily and resulting in upregulation of autophagosomes and lysosomes (3-5). Recently, it has been shown that TFEB is a component of mammalian target of rapamycin (mTOR) complex 1 (mTORC1), which regulates the phosphorylation and nuclear translocation of TFEB in response to cellular starvation and stress (6-9). During normal growth conditions, TFEB is phosphorylated at Ser211 in an mTORC1-dependent manner. Phosphorylation promotes association of TFEB with 14-3-3 family proteins and retention in the cytosol. Inhibition of mTORC1 results in a loss of TFEB phosphorylation, dissociation of the TFEB/14-3-3 complex, and rapid transport of TFEB to the nucleus where it increases transcription of CLEAR and autophagy genes (10). TFEB has also been shown to be activated in a nutrient-dependent manner by p42 MAP kinase (Erk2). TFEB is phosphorylated at Ser142 by Erk2 in response to nutrient deprivation, resulting in nuclear localization and activation, and indicating that pathways other than mTOR contribute to nutrient sensing via TFEB (3).

Specificity/Sensitivity: Phospho-TFEB (Ser211) (E9S8N) Rabbit mAb recognizes endogenous levels of TFEB protein only when phosphorylated at Ser211. TFEB (D207D) Rabbit mAb recognizes endogenous levels of total TFEB protein.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser211 of human TFEB protein and a synthetic peptide corresponding to residues surrounding Gly412 of human TFEB 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.

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.

Background References:

- (1) Sardiello, M. et al. (2009) *Science* 325, 473-7.
- (2) Sardiello, M. and Ballabio, A. (2009) *Cell Cycle* 8, 4021-2.
- (3) Settembre, C. et al. (2011) *Science* 332, 1429-33.
- (4) David, R. (2011) *Nat Rev Mol Cell Biol* 12, 404.
- (5) Cuervo, A.M. (2011) *Science* 332, 1392-3.
- (6) Peña-Llopis, S. et al. (2011) *EMBO J* 30, 3242-58.
- (7) Settembre, C. and Ballabio, A. (2011) *Autophagy* 7, 1379-81.
- (8) Peña-Llopis, S. and Brugarolas, J. (2011) *Cell Cycle* 10, 3987-8.
- (9) Settembre, C. et al. (2012) *EMBO J* 31, 1095-108.
- (10) Martina, J.A. et al. (2012) *Autophagy* 8, 903-14.

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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.**