Revision 4

Store at -20C

#86843

Phospho-TFEB (Ser122) Antibody

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H	Endogenous	70-80	Rabbit	#P19484	7942

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:200

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

Specificity/Sensitivity

Phospho-TFEB (Ser122) Antibody recognizes endogenous levels of TFEB protein only when phosphorylated at Ser122.

Species predicted to react based on 100% sequence homology

Mouse, Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser122 of human TFEB protein. Antibodies are purified by peptide affinity chromatography.

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).
Additional studies have also identified phosphorylation of TFEB at Ser122 that is dependent on mTORC1 (11).

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.
11. Vega-Rubin-de-Celis, S. et al. (2017) *Autophagy* 13, 464-72.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human

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