

**TFEB Signaling Antibody Sampler Kit**

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1 Kit (6 x 20 microliters)

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

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
TFEB (D2O7D) Rabbit mAb	37785	20 µl	65-70 kDa	Rabbit IgG
Phospho-TFEB (Ser211) (E9S8N) Rabbit mAb	37681	20 µl	70 kDa	Rabbit IgG
Phospho-TFEB (Ser122) (E9M5M) Rabbit mAb	87932	20 µl	70-80 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
Pan-Calceinurin A Antibody	2614	20 µl	59 kDa	Rabbit
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit [cellsignal.com](http://cellsignal.com) for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

**Description**

The TFEB Signaling Antibody Sampler Kit provides an economical means of analyzing the regulation of TFEB. The kit includes enough antibodies to perform 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**

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). mTOR activity is associated with phosphorylation at Ser2448 via the PI3 kinase/Akt signaling pathway (12). Lysosomal calcium release activates the phosphatase calcineurin that dephosphorylates TFEB and promotes nuclear translocation and autophagy (13).

**Background References**

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