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KD-Validated Anti-TFE3 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI2386

Product Information

Application	WB, FC, ICC
Primary Accession	P19532
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	24GB2630
Calculated MW	61521
Gene Name	TFE3
Aliases	TFE3; Transcription Factor Binding To IGHM Enhancer 3; BHLHe33; TFEA; Class E Basic Helix-Loop-Helix Protein 33; Transcription Factor E3; Transcription Factor For Immunoglobulin Heavy-Chain Enhancer 3; Transcription Factor E Family, Member A; Transcription Factor For IgH Enhancer; BHLHE33; MRXSPF; RCCP2; RCCX1
Immunogen	A synthesized peptide derived from human TFE3

Additional Information

Gene ID	7030
Other Names	Transcription factor E3, Class E basic helix-loop-helix protein 33, bHLHe33, TFE3 {ECO:0000303|PubMed:9393982, ECO:0000312|HGNC:HGNC:11752}

Protein Information

Name	TFE3 {ECO:0000303|PubMed:9393982, ECO:0000312|HGNC:HGNC:11752}
Function	Transcription factor that acts as a master regulator of lysosomal biogenesis and immune response (PubMed:2338243, PubMed:24448649, PubMed:29146937, PubMed:30733432, PubMed:31672913, PubMed:37079666). Specifically recognizes and binds E-box sequences (5'-CANNTG-3'); efficient DNA-binding requires dimerization with itself or with another MiT/TFE family member such as TFEB or MITF (PubMed:24448649). Involved in the cellular response to amino acid availability by acting downstream of MTOR: in the presence of nutrients, TFE3 phosphorylation by MTOR promotes its inactivation (PubMed:24448649, PubMed:31672913, PubMed:36608670). Upon starvation or lysosomal stress, inhibition of MTOR induces TFE3 dephosphorylation, resulting in transcription factor activity (PubMed:24448649, PubMed:31672913, PubMed:36608670). Specifically recognizes and binds the CLEAR-box sequence (5'-GTCACGTGAC-3') present in the regulatory region of many lysosomal genes, leading to activate their expression, thereby playing a central role in expression of lysosomal genes (PubMed:24448649). Maintains the pluripotent state of embryonic stem cells

by promoting the expression of genes such as ESRRB; mTOR- dependent TFE3 cytosolic retention and inactivation promotes exit from pluripotency (By similarity). Required to maintain the naive pluripotent state of hematopoietic stem cell; mTOR-dependent cytoplasmic retention of TFE3 promotes the exit of hematopoietic stem cell from pluripotency (PubMed:30733432). TFE3 activity is also involved in the inhibition of neuronal progenitor differentiation (By similarity). Acts as a positive regulator of browning of adipose tissue by promoting expression of target genes; mTOR-dependent phosphorylation promotes cytoplasmic retention of TFE3 and inhibits browning of adipose tissue (By similarity). In association with TFEB, activates the expression of CD40L in T-cells, thereby playing a role in T-cell- dependent antibody responses in activated CD4(+) T-cells and thymus- dependent humoral immunity (By similarity). Specifically recognizes the MUE3 box, a subset of E-boxes, present in the immunoglobulin enhancer (PubMed:2338243). It also binds very well to a USF/MLTF site (PubMed:2338243). Promotes TGF-beta-induced transcription of COL1A2; via its interaction with TSC22D1 at E-boxes in the gene proximal promoter (By similarity). May regulate lysosomal positioning in response to nutrient deprivation by promoting the expression of PIP4P1 (PubMed:29146937).

Cellular Location

Cytoplasm, cytosol. Nucleus. Lysosome membrane. Note=When nutrients are present, recruited to the lysosomal membrane via association with GDP-bound RagC/RRAGC (or RagD/RRAGD): it is then phosphorylated by MTOR (PubMed:24448649, PubMed:37079666). Phosphorylation by MTOR prevents nuclear translocation and promotes ubiquitination and degradation (PubMed:22692423, PubMed:30733432, PubMed:36608670, PubMed:37079666) Conversely, inhibition of mTORC1, starvation and lysosomal disruption, promotes dephosphorylation and translocation to the nucleus (PubMed:22692423, PubMed:30733432, PubMed:37079666)

Tissue Location

Ubiquitous in fetal and adult tissues.

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