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# Anti-TFE3 Antibody

Catalog # AP51672

## Product Information

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| **Application** | WB, IHC |
| **Primary Accession** | P19532 |
| **Reactivity** | Human, Mouse, Rat, Pig, Bovine, Dog |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Calculated MW** | 61521 |

## Additional Information

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| **Gene ID** | 7030 |
| **Other Names** | BHLHE33; Transcription factor E3; Class E basic helix-loop-helix protein 33; bHLHe33 |
| **Target/Specificity** | KLH-conjugated synthetic peptide encompassing a sequence within the center region of human TFE3. The exact sequence is proprietary. |
| **Dilution** | WB~~WB (1/500 - 1/1000) IHC~~1:100~500 |
| **Format** | Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide. |
| **Storage** | Store at -20 °C.Stable for 12 months from date of receipt |

## Protein Information

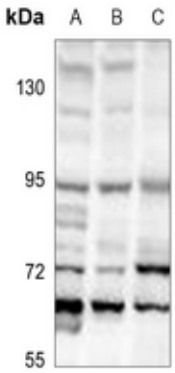
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| **Name** | TFE3 {ECO:0000303\|PubMed:9393982, ECO:0000312\|HGNC:HGNC:11752} |
| **Function** | Transcription factor that acts as a master regulator of lysosomal biogenesis and immune response (PubMed:2338243, PubMed:24448649, PubMed:29146937, PubMed:30733432, 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 |

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| | (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. |

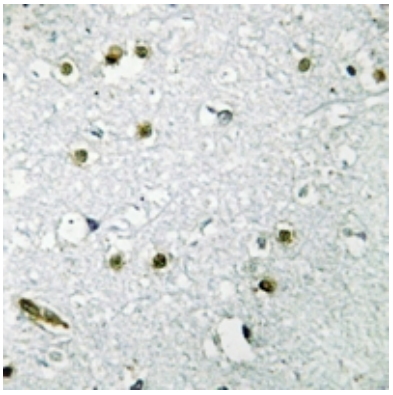
## References


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Ross M.T.,et al.Nature 434:325-337(2005).
Weterman M.A.J.,et al.Proc. Natl. Acad. Sci. U.S.A. 93:15294-15298(1996).
Sidhar S.K.,et al.Hum. Mol. Genet. 5:1333-1338(1996).


## Images




Western blot analysis of TFE3 expression in U87MG (A), EC9706 (B), HEK293T (C) whole cell lysates. (Predicted band size: 61 kD; Observed band size: 62 kD)



Immunohistochemical analysis of TFE3 staining in human brain formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

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