# Recombinant TFE3 protein (His tag)

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| **Catalog Number** | 537597 |
| **Synonyms** | Class E basic helix-loop-helix protein 33; bHLHe33 |
| **Species** | Human |
| **Expression System** | E. coli |
| **Accession** | P19532 |
| **Molecular Weight** | Predictes a molecular mass of 14.58 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 15 kDa band. |

## Product Information

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| **Sequence Region** | 334-442 |
| **Form** | Lyophilized powder |
| **Formulation** | Lyophilized from sterile PBS, pH 7.4 |
| **Purity** | >89%, by SDS-PAGE with Coomassie Brilliant Blue staining. |
| **Endotoxin** | Not tested. |
| **Activity** | Not tested. |
| **Stability** | Samples are stable for up to twelve months from date of receipt at -70℃ |
| **Protein Construction** | DNA encoding 334-442 aa (P19532) were fused with 6His tag. |

## Storage & Handling

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| **Reconstitution** | Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution. |
| **Storage** | Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles. |
| **Shipping** | In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature.<br>Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise. |

## Description

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| **Description** | Recombinant Transcription factor E3 (TFE3) fragment (334-442) from Homo sapiens, encompassing the essential bHLH domain. This high-purity protein is an ideal tool for investigating DNA-binding mechanisms, transcriptional regulation, and lysosomal biogenesis pathways in cellular and molecular research.<br>Transcription factor E3 (TFE3) is a master regulator of lysosomal biogenesis and immune response in humans, functioning by binding E-box sequences (5'-CANNTG-3') and CLEAR-box elements to activate lysosomal gene expression. Its activity is nutrient-sensitive, regulated by mTOR-mediated phosphorylation that controls subcellular localization: under nutrient-rich conditions, TFE3 is retained in the cytoplasm and degraded, while starvation or lysosomal stress promotes dephosphorylation and nuclear translocation to drive target gene transcription. TFE3 also plays roles in stem cell pluripotency maintenance, adipose tissue browning, and T-cell-dependent immunity. The provided fragment includes the bHLH domain (346-399), critical for DNA binding and dimerization, enabling focused studies on these molecular interactions. |