# Recombinant THEM4 protein (His tag)

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| **Catalog Number** | 547437 |
| **Synonyms** | Acyl-CoA thioesterase THEM4; Carboxyl-terminal modulator protein; Thioesterase superfamily member 4 |
| **Species** | Human |
| **Expression System** | E. coli |
| **Accession** | Q5T1C6 |
| **Molecular Weight** | Predictes a molecular mass of 24.18 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 24 kDa band. |

## Product Information

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| **Sequence Region** | 43-240 |
| **Form** | Lyophilized powder |
| **Formulation** | Lyophilized from sterile PBS, pH 7.4 |
| **Purity** | >87%, 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 43-240 aa (Q5T1C6) 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 Human Acyl-CoA Thioesterase THEM4 Fragment (residues 43-240) - a highly stable and soluble protein fragment ideal for structural studies and biochemical characterization of this key mitochondrial enzyme involved in fatty acid metabolism and apoptosis regulation.<br>THEM4 (Thioesterase superfamily member 4), also known as Carboxyl-terminal modulator protein, is a multifunctional enzyme with acyl-CoA thioesterase activity toward medium and long-chain (C14 to C18) fatty acyl-CoA substrates. This enzyme plays a crucial role in mitochondrial fatty acid metabolism and is involved in the apoptotic process through its regulation of AKT1 activity. Research publications have shown conflicting evidence regarding its effect on AKT1, with some studies indicating inhibition of AKT1 phosphorylation and activity, while others demonstrate enhancement of AKT1 activity by promoting its phosphorylation and membrane translocation. THEM4 exhibits complex subcellular localization, primarily found in mitochondria (inner membrane and intermembrane space), cytoplasm, cell membrane, and ruffle membranes. Notably, the protein is released from mitochondria into the cytosol in response to apoptotic stimuli, highlighting its dynamic role in cellular stress responses. The recombinant fragment (residues 43-240) represents a stable, soluble unit optimized for experimental applications. |