# Recombinant RRAGD protein (His tag)

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| **Catalog Number** | 548329 |
| **Synonyms** | Rag D; RagD |
| **Species** | Human |
| **Expression System** | E. coli |
| **Accession** | Q9NQL2 |
| **Molecular Weight** | Predictes a molecular mass of 40.50 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 42 kDa band. |

## Product Information

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| **Sequence Region** | 64-400 |
| **Form** | Lyophilized powder |
| **Formulation** | Lyophilized from sterile PBS, pH 7.4 |
| **Purity** | >90%, 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 64-400 aa (Q9NQL2) 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 RagD (RRAGD) Fragment (64-400) is a high-purity, stable protein designed for advanced research on mTORC1 signaling and amino acid sensing pathways. This 337-amino acid fragment retains key structural features, making it ideal for biochemical assays, structural studies, and mechanistic investigations into cellular nutrient response mechanisms.<br>Ras-related GTP-binding protein D (RagD), encoded by the RRAGD gene, serves as a critical regulator in the cellular response to amino acid availability through the mTORC1 signaling cascade. The protein functions as a guanine nucleotide-binding protein that forms heterodimeric complexes with RagA/RRAGA or RagB/RRAGB, cycling between active (GDP-bound) and inactive (GTP-bound) states. In its active form, RagD promotes mTORC1 recruitment to lysosomes and subsequent activation by RHEB GTPase, representing a crucial step in amino acid-mediated MTOR signaling activation. Additionally, RagD plays a central role in the non-canonical mTORC1 complex, independently mediating phosphorylation of MiT/TFE factors TFEB and TFE3. The protein localizes predominantly to the cytoplasm but also shuttles to the nucleus and associates with lysosome membranes through recruitment by the Ragulator complex, with its nucleocytoplasmic distribution influenced by the nucleotide state of associated RRAGA. |