Recombinant TOR1A protein (His tag)

Catalog Number	544047
Synonyms	Dystonia 1 protein; Torsin ATPase-1A; Torsin family 1 member A
Species	Human
Expression System	E. coli
Accession	O14656
Molecular Weight	Predictes a molecular mass of 37.43 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 38 kDa band.

Product Information

Sequence Region	21-332
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>86%, 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 21-332 aa (O14656) were fused with 6His tag.

Storage & Handling

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. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise.

Description

Description	Recombinant Human Torsin-1A (Dystonia 1 protein) fragment (amino acids 21-332) is a high-quality protein product designed for structural and biochemical studies. This fragment represents a stable, soluble unit of Torsin-1A, an ATPase with critical chaperone functions in protein folding, stability, and cellular trafficking, making it ideal for research on neurodegenerative mechanisms and protein quality control. Torsin-1A, encoded by the TOR1A gene, is a human protein with essential chaperone roles in controlling protein folding, processing, stability, and localization, while reducing misfolded protein aggregates. It regulates synaptic vesicle recycling, stabilizes proteins like STON2 in collaboration with the COP9 signalosome complex, and maintains nuclear envelope integrity, particularly in neurons. In the endoplasmic reticulum, Torsin-1A enhances clearance of misfolded proteins, such as SGCE variants, and aids in their refolding. It also modulates dopamine neurotransmission by influencing the trafficking of transporters like SLC6A3. Subcellularly, it localizes to the endoplasmic reticulum lumen, nucleus membrane (as a peripheral membrane protein), cell projections like growth cones, cytoplasmic vesicles including synaptic vesicles, and the cytoskeleton. Under oxidative stress, it redistributes to cell surface protrusions, with its membrane associations mediated by interactions with TOR1AIP1 and TOR1AIP2. This protein is crucial for understanding cellular protein homeostasis and neurodegenerative disorders.