Recombinant TREX1 protein (His tag)

Catalog Number	543735
Synonyms	3'-5' exonuclease TREX1; Deoxyribonuclease III; DNase III
Species	Human
Expression System	E. coli
Accession	Q9NSU2
Molecular Weight	Predictes a molecular mass of 27.00 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 27 kDa band.

Product Information

Sequence Region	1-236
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>88%, 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 1-236 aa (Q9NSU2) 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 TREX1 (Three-prime repair exonuclease 1) Fragment (residues 1-236) is a high-purity, stable protein designed for structural and biochemical studies. This fragment encompasses a soluble and functional unit of the 3'-to-5' DNA exonuclease, ideal for investigating DNA metabolism, genome stability, and immune regulation mechanisms. Three-prime repair exonuclease 1 (TREX1), encoded by the TREX1 gene in Homo sapiens, is the major cellular 3'-to-5' DNA exonuclease that digests single-stranded DNA (ssDNA) and double-stranded DNA (dsDNA) with mismatched 3' termini. It plays a critical role in preventing autoimmunity by metabolizing DNA fragments from endogenous retroelements, such as L1, LTR, and SINE elements. TREX1 is essential for degrading DNA fragments at cytosolic micronuclei arising from genome instability, thereby limiting CGAS activation and subsequent inflammation. It also prevents chronic ATM-dependent checkpoint activation by processing ssDNA from aberrant DNA replication intermediates and contributes to DNA damage during GZMA-mediated cell death in concert with NME1. Subcellularly, TREX1 localizes to the nucleus, cytoplasm (cytosol), and the endoplasmic reticulum membrane as a peripheral membrane protein, with its association to the endoplasmic reticulum directing it to ruptured micronuclei. In response to DNA damage or during cell death, it translocates to the nucleus, specifically to replication foci, highlighting its dynamic role in DNA repair and immune response pathways.