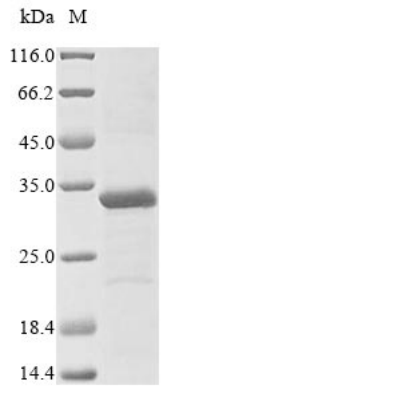
Recombinant Human Three-prime repair exonuclease 1 (TREX1), partial

Product Code	CSB-EP865133HU1
Relevance	Major cellular 3'-to-5' DNA exonuclease which digests single-stranded DNA (ssDNA) and double-stranded DNA (dsDNA) with mismatched 3' termini. Prevents cell-intrinsic initiation of autoimmunity. Acts by metabolizing DNA fragments from endogenous retroelements, including L1, LTR and SINE elements. Unless degraded, these DNA fragments accumulate in the cytosol and activate the IFN-stimulatory DNA (ISD) response and innate immune signaling. Prevents chronic ATM-dependent checkpoint activation, by processing ssDNA polynucleotide species arising from the processing of aberrant DNA replication intermediates. Inefficiently degrades oxidized DNA, such as that generated upon antimicrobial reactive oxygen production or upon absorption of UV light. During GZMA-mediated cell death, contributes to DNA damage in concert with NME1. NME1 nicks one strand of DNA and TREX1 removes bases from the free 3' end to enhance DNA damage and prevent DNA end reannealing and rapid repair.
Abbreviation	Recombinant Human TREX1 protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q9NSU2
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MGPGARRQGRIVQGRPEMCFCPPPTPLPPLRILTLGTHTPTPCSSPGSAAGTY PTMGSQALPPGPMQTLIFFDMEATGLPFSQPKVTELCLLAVHRCALESPPTSQ GPPPTVPPPPRVVDKLSLCVAPGKACSPAASEITGLSTAVLAAHGRQCFDDNL ANLLLAFLRRQPQPWCLVAHNGDRYDFPLLQAELAMLGLTSALDGAFCVDSIT ALKALERASSPSEHGPRKSYSLGSIYTRLY
Research Area	Epigenetics and Nuclear Signaling
Source	E.coli
Target Names	TREX1
Protein Names	3'-5' exonuclease TREX1Deoxyribonuclease III
Expression Region	1-242aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged and C-terminal Myc-tagged

Mol. Weight	32.7 kDa
Protein Length	Partial

Image



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The gene fragment corresponding to the 1-242aa of the human TREX1 protein was synthesized, with appropriate restriction sites suitable for in-frame cloning into an expression vector, with N-terminal 10xHis tag and C-terminal Myc tag. The E.coli was transformed with the expression vector, and the clone was expressed upon certain induction. After the induced cell centrifugation, the recombinant protein was purified from the cell extract and presented as N-terminal 10xHis-tagged and C-terminal Myc-tagged fusion. This recombinant human TREX1 protein's purity is greater than 85% assayed by SDS-PAGE. The TREX1 protein ran to a band of about 33 kDa molecular weight on the gel, indicating a glycosylated form of the protein.

TREX1 is a member of the DEDD family of 3' → 5', whose members are defined by a conserved Asp-Glu-Asp-Asp motif that facilitates catalytic activity. Members of the DEDD nuclease family frequently have a role in DNA replication and/or repair. More than sixty TREX1 mutations have now been identified that exhibit dominant and recessive genetics and occur as inherited or de novo mutations, dependent upon the specific mutant allele. TREX1 disease alleles include missense mutations, insertions, duplications, and frame shifts that locate to positions throughout the 314-amino acid-coding gene. There is a causal relationship between TREX1 genetic variants and multiple mechanisms of TREX1 enzyme dysfunction that have now been linked to a spectrum of autoimmune diseases in human. Most of the TREX1 mutations affecting the catalytic domain are recessive and are largely associated with Aicardi-Goutières Syndrome (AGS) or Familial Chilblains Lupus (FCL).

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.

Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.