Recombinant DNLI4 protein (His tag)

Catalog Number	542372
Synonyms	DNA ligase IV; Polydeoxyribonucleotide synthase [ATP] 4
Species	Human
Expression System	E. coli
Accession	P49917
Molecular Weight	Predictes a molecular mass of 31.65 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 34 kDa band.

Product Information

Sequence Region	652-911
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 652-911 aa (P49917) 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 DNA Ligase 4 Fragment (LIG4, residues 652-911) is a high-purity protein designed for studying the BRCT domains critical for DNA double-strand break repair and V(D)J recombination. This 260-amino acid fragment provides a targeted tool for investigating domain-specific interactions in non-homologous end joining pathways. DNA ligase 4 (LIG4) is an essential nuclear enzyme in Homo sapiens that catalyzes the final ligation step in DNA non-homologous end joining (NHEJ), a crucial pathway for repairing DNA double-strand breaks and facilitating V(D)J recombination. The full-length protein functions as an ATP-dependent polydeoxyribonucleotide synthase that joins single-strand breaks in double-stranded DNA and can ligate nicks, compatible overhangs, and ends with microhomology when complexed with XRCC4. LIG4 forms a subcomplex with XRCC4 that enhances its joining activity, and this complex requires assembly with DNA-PK for efficient binding to DNA ends. The protein's nuclear localization and mechanistic flexibility make it fundamental for maintaining genomic stability. The provided fragment (652-911) contains both BRCT domains (residues 654-743 and 808-911), which are essential for protein-protein interactions in the DNA damage response machinery.