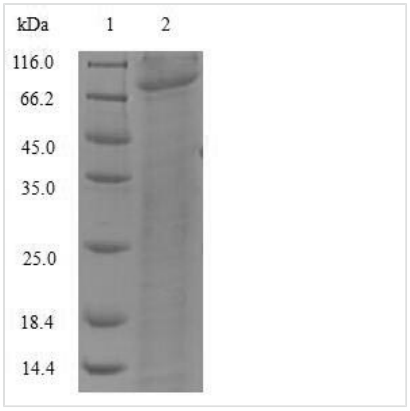
Recombinant Synechococcus sp. Deoxyribodipyrimidine photo-lyase (phr)

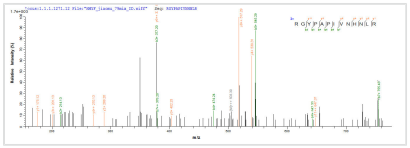
Product Code	CSB-EP361494FPZ
Relevance	Involved in repair of UV radiation-induced DNA damage. Catalyzes the light-dependent monomerization (300-600 nm) of cyclobutyl pyrimidine dimers (in cis-syn configuration), which are formed between adjacent bases on the same DNA strand upon exposure to ultraviolet radiation.
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.	P05327
Alias	DNA photolyase Photoreactivating enzyme
Product Type	Recombinant Protein
Immunogen Species	Synechococcus sp. (strain ATCC 27144 / PCC 6301 / SAUG 1402/1) (Anacystis nidulans)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	AAPILFWHRRDLRLSDNIGLAAARAQSAQLIGLFCLDPQILQSADMAPARVAYL QGCLQELQQRYQQAGSRLLLLQGDPQHLIPQLAQQLQAEAVYWNQDIEPYGR DRDGQVAAALKTAGIRAVQLWDQLLHSPDQILSGSGNPYSVYGPFWKNWQA QPKPTPVATPTELVDLSPEQLTAIAPLLLSELPTLKQLGFDWDGGFPVEPGETA AIARLQEFCDRAIADYDPQRNFPAEAGTSGLSPALKFGAIGIRQAWRAASAAHA LSRSDEARNSIRVWQQELAWREFYQHALYHFPSLADGPYRSLWQQFPWENR EALFTAWTQAQTGYPIVDAAMRQLTETGWMHNRCWMIVASFLTKDLIIDWRR GEQFFMQHLVDGDLAANNGGWQWSASSGMDPKPLRIFNPASQAKKFDATAT YIKRWLPELRHVHPKDLISGEITPIGRRGYPAPIVNHNLRQKQFKALYNQLKAAI AEPEAEPDS
Lead Time	3-7 business days
Research Area	Epigenetics and Nuclear Signaling
Source	E.coli
Gene Names	phr
Protein Names	Recommended name: Deoxyribodipyrimidine photo-lyase EC= 4.1.99.3 Alternative name(s): DNA photolyase Photoreactivating enzyme
Expression Region	2-484aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-SUMO-tagged and C-terminal Myc-tagged
Mol. Weight	74.3kDa

Protein Description Full Length of Mature Protein

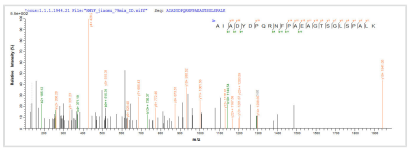
Image



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



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP361494FPZ could indicate that this peptide derived from E.coli-expressed Synechococcus sp. (strain ATCC 27144 / PCC 6301 / SAUG 1402/1) (Anacystis nidulans) phr.



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Description

Amino acids 2-484 form the expressed segment for recombinant Synechococcus sp. phr. The calculated molecular weight for this phr protein is 74.3 kDa. This protein is generated in a e.coli-based system. The N-terminal 10xHis-SUMO tag and C-terminal Myc tag was smoothly integrated into the coding gene of phr, which enables a simple process of detecting and purifying the phr recombinant protein in the following steps.

The Synechococcus sp. deoxyribodipyrimidine photo-lyase (Phr) is an enzyme that plays a critical role in the repair of DNA damage caused by ultraviolet (UV) radiation. Upon absorption of light in the visible or near-UV range, Phr undergoes a conformational change and becomes activated. The activated Phr can then bind to damaged DNA containing CPDs or 6-4 photoproducts. Through a process known as photoreactivation, the Phr enzyme utilizes energy from light to break the covalent bonds within the DNA lesions, restoring the original structure of the DNA strand. The function of Phr is particularly important for organisms like Synechococcus sp. that are exposed to natural sunlight, as it provides a mechanism to repair UV-induced DNA damage and maintain genomic integrity. Studying photo-lyases, including Synechococcus sp. Phr contributes to the understanding of DNA repair mechanisms and has implications for various biotechnological applications, such as the development of photoreactivation-based technologies for DNA repair in diverse organisms.

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.