

Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-104770-2

LAST UPDATED: 12 AUG 2014

General information

Name of genetic element

Cyclobutylpyrimidine dimer photolyase Gene

EN

Alternate genetic element name(s) (synonym(s))

Deoxyribodipyrimidine photolyase

EN

CPD Photolyase

EN

Abbreviation

CS-PHR-ORYSA

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

No

Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-10454-5](#) ORGANISM | ORYZA SATIVA (RICE, ORYSA) |
Crops

Characteristics of the protein coding sequence

Name of the protein expressed by the coding sequence

Cyclobutylpyrimidine dimer photolyase

EN

Biological function of the protein

Involved in repair of UV radiation-induced DNA damage. Catalyzes the light-dependent monomerization (300-600 nm) of cyclobutylpyrimidine dimers (CPDs), which are formed between adjacent bases on the same DNA strand upon exposure to ultraviolet radiation. Required for plant survival in the presence of UV-B light.

EN

Protein can therefore be used in conferring tolerance to UV-B induced abiotic stress caused

by the formation of Cyclobutylpyrimidine dimers. CPDs are neutralised by CPD photolyase thus reducing the effect of UV-B radiation damage

Related trait(s) or use(s) in biotechnology

Tolerance to abiotic stress

Additional Information

Other relevant website addresses and/or attached documents

? [Cyclobutane pyrimidine dimer \(CPD\) photolyase repairs ultraviolet-B-induced CPDs in rice chloroplast and mitochondrial DNA.pdf](#) (*English*)

? [Deoxyribodipyrimidine photolyase - UniProt](#) (*English*)

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Further Information

Questions about the Cartagena Protocol on Biosafety or the operation of the Biosafety Clearing-House may be directed to the Secretariat of the Convention on Biological Diversity.

Secretariat of the Convention on Biological Diversity

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