

Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-46333-8

LAST UPDATED: 12 FEB 2021

General information

Name of genetic element

5-enolpyruvylshikimate-3-phosphate synthase

EN

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

mEPSPS

EN

2mEPSPS

EN

Abbreviation

CS-epsps-MAIZE

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

No

Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-246-6](#) ORGANISM | ZEA MAYS (MAIZE, CORN, MAIZE) |

Crops

Characteristics of the protein coding sequence

Name of the protein expressed by the coding sequence

5-enolpyruvylshikimate-3-phosphate synthase

EN

Biological function of the protein

The enzyme participates in biosynthesis of the aromatic amino acids phenylalanine, tyrosine and tryptophan. The enzyme is a target for herbicides as these amino acids are only synthesized in plants and microorganisms. Glyphosate acts as a competitive inhibitor for phosphoenolpyruvate, as substrate of EPSPS, and is used as a broad-spectrum systemic herbicide.

EN

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

Resistance to herbicides
Glyphosate

Additional Information

Other relevant website addresses and/or attached documents

- ? [Safety evaluation of the double mutant 5-enol pyruvylshikimate-3-phosphate synthase \(2mEPSPS\) from maize that confers tolerance to glyphosate herbicide in transgeneic plants.pdf \(English \)](#)
- ? [5—Enolpyruvylshikimate 3—Phosphate Synthase: From Biochemistry to Genetic Engineering of Glyphosate Tolerance \(English \)](#)
- ? [Mutated 5-enolpyruvylshikimate-3-phosphate synthase - Patent \(English \)](#)

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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

413 rue Saint-Jacques, suite 800
Montreal, Québec, H2Y 1N9
Canada
Fax: +1 514 288-6588
Email: secretariat@cbd.int