





ΕN

EN

Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)	BCH-GENE-SCBD-48363-
	LAST UPDATED: 18 FEB 2021
General information	
Name of genetic element	
Glyphosate-N-Acteyltransferase gene	EN
Abbreviation	
CS-gat-BACLI	EN
Category	
Protein coding sequence	
Is this genetic element a synthetic molecule?	
No	
Donor organism	
Donor organism(s)	
BCH-ORGA-SCBD-48360-3 ORGANISM BACILLUS LICHENIFORMIS (BACLI)	

Characteristics of the protein coding sequence

Name of the protein expressed by the coding sequence

Glyphosate-N-Acteyltransferase

Biological function of the protein

Glyphosate-N-acetyltransferase expression in genetically modified plants may lead to detoxification of the glyphosate agent. This is brought about by the transfer of an acetyl group from acetyl CoA to the secondary amine group of glyphosate.

The resulting N-acetylglyphosate does not have the ability to inhibit the activity of the EPSPS enzyme, and the genetically modified plants are able to grow despite glyphosate treatment.

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

Resistance to herbicides Glyphosate

Additional Information

Two modified versions of the GAT gene were developed using a DNA shuffling technique using the GAT coding sequences from 3 separate strains of B. licheniformis (Strains B6, 401 and DS3).

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The two versions are known as GAT4621 and GAT4601.

Other relevant website addresses and/or attached documents

? Evolution of a microbial acetyltransferase for modification of glyphosate: a novel tolerance strategy (<code>English</code>)

? GAT4621 - Food and Drug Administration.pdf (*English*)

? GAT4601 - Food and Drug Administration.pdf (English)

? Discovery and Directed Evolution of a Glyphosate Tolerance Gene.pdf (*English*)

BCH-GENE-SCBD-48363-4

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