

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-14764-9

[? Decisions on the LMO ? Risk Assessments](#)

LAST UPDATED: 04 FEB 2019


Living Modified Organism identity

The image below identifies the LMO through its unique identifier, trade name and a link to this page of the BCH. Click on it to download a larger image on your computer. For help on how to use it go to the LMO quick-links page.



ACS-GM005-3
Herbicide-tolerant soybean

Read barcode or type above URL into internet browser to access information on this LMO in the Biosafety Clearing-House © SCBD 2012

<https://bch.cbd.int/database/record?documentID=14764>


Name

Herbicide-tolerant soybean

EN

Transformation event

A2704-12

Unique identifier

ACS-GM005-3

Developer(s)

- [ORGANIZATION: BAYER CROPSCIENCE](#) | [BCH-CON-SCBD-7088-7](#)

ORGANIZATION

Bayer CropScience

Website: <http://www.bayercropscience.com>

Description

The soybean line A2704-12 was developed to allow for the use of glufosinate ammonium, the active ingredient in phosphinothricin herbicides (Basta®, Ignite®, Rely®, Liberty®, Harvest®, and Finale®) as a weed control option. These genetically engineered soybean lines contain the fungal enzyme phosphinothricin-N-acetyltransferase (PAT) that allows these plants to survive the otherwise lethal application of glufosinate. The pat gene inserted was isolated from a common soil fungus, *Streptomyces viridochromogenes*, and introduced into the soybean genome by particle acceleration (biolistic) transformation.

The PAT enzyme converts L-phosphinothricin (PPT), the active ingredient in glufosinate

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ammonium, to an inactive form thereby conferring resistance to the herbicide. In absence of PAT, application of glufosinate leads to reduced production of the amino acid glutamine and increased ammonia levels in the plant tissues which are lethal to the plant. The PAT enzyme is not known to have any toxic properties.

Recipient Organism or Parental Organisms

The term “Recipient organism” refers to an organism (either already modified or non-modified) that was subjected to genetic modification, whereas “Parental organisms” refers to those that were involved in cross breeding or cell fusion.

[BCH-ORGA-SCBD-10453-6](#) ORGANISM | GLYCINE MAX (SOYBEAN, SOYA BEAN, SOYA, SOYBN) |
Crops

Related LMO(s)

[BCH-LMO-SCBD-14852-5](#) | ACS-GMØØ1-8 - Herbicide-tolerant soybean | Resistance to antibiotics - Ampicillin Resistance to herbicides - Glufosinate Selectable marker genes and reporter genes
[BCH-LMO-SCBD-14853-5](#) | ACS-GMØØ2-9 - Herbicide-tolerant soybean | Resistance to antibiotics - Ampicillin Resistance to herbicides - Glufosinate Selectable marker genes and reporter genes
[BCH-LMO-SCBD-14854-5](#) | ACS-GMØØ3-1 - Herbicide-tolerant soybean | Resistance to herbicides - Glufosinate
[BCH-LMO-SCBD-14855-5](#) | ACS-GMØØ4-2 - Herbicide-tolerant soybean | Resistance to herbicides - Glufosinate
[BCH-LMO-SCBD-14857-8](#) | ACS-GMØØ6-4 - Liberty Link™ soybean | Resistance to herbicides - Glufosinate
[Show detection method\(s\)](#)
[BCH-LMO-SCBD-15418-5](#) | ACS-GMØØ8-6 - Herbicide-tolerant soybean | Resistance to herbicides - Glufosinate

Characteristics of the modification process

Vector

pB2/35SAcK (AKA: pWRG5143)

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Techniques used for the modification

Biolistic / Particle gun

Genetic elements construct

P-35S-CaMV 0.540 kb	CS-pat-STRVR 0.550 kb	T-35S-CaMV 0.200 kb
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Introduced or modified genetic element(s)

Some of these genetic elements may be present as fragments or truncated forms. Please see notes below, where applicable.

[BCH-GENE-SCBD-15002-4](#) PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE |
Protein coding sequence | Resistance to herbicides (Glufosinate)
[BCH-GENE-SCBD-100287-7](#) CAMV 35S PROMOTER |

Promoter

[BCH-GENE-SCBD-100290-6](#) CAMV 35S TERMINATOR

Terminator

Notes regarding the genetic elements present in this LMO

The PAT gene from *Streptomyces viridochromogenes* was synthetically modified with plant preferred codons.

The bacterial ampicillin resistance gene was also integrated into the host genome. It is however only expressed in bacterial cells.

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LMO characteristics

Modified traits

Resistance to herbicides
Glufosinate

Common use(s) of the LMO

Food

Detection method(s)

External link(s)

? [ACS-GM005-3 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)

? [ACS-GM005-3 - CropLife International Detection Methods Database](#) (*English*)

Additional Information

Southern blot analysis indicated that 4 copies of the PAT gene and 4 copies of the ampR gene were integrated into the host genome.

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Additional Information

Other relevant website addresses and/or attached documents

? [OECD UID Database](#) (*English*)

? [CERA GM Database](#) (*English*)

? [A2704-12 APHIS.pdf](#) (*English*)

[BCH-LMO-SCBD-14764-9](#)

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