

## Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-14857-8

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

LAST UPDATED: 21 JAN 2013

### 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-GM006-4  
Liberty Link™ soybean

CBD

<https://bch.cbd.int/database/record?documentID=14857>



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

Name

Liberty Link™ soybean

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Transformation event

A5547-127

Unique identifier

ACS-GM006-4

Developer(s)

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

#### ORGANIZATION

Bayer CropScience

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

Description

The soybean line A5547-127 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. This genetically engineered soybean line contains the fungal enzyme phosphinothricin-N-acetyltransferase (PAT), which allows these plants to survive the otherwise lethal application of glufosinate. The pat gene inserted into A5547-127 was isolated from a common soil fungus, *Streptomyces viridochromogenes*, and introduced into the soybean genome by particle acceleration (biolistic) transformation.

The PAT enzyme in soybean line A5547-127 converts L-phosphinothricin (PPT), the active

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ingredient in glufosinate ammonium, to an inactive form thereby conferring resistance to the herbicide. In the 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-14764-9](#) | ACS-GMØØ5-3 - Herbicide-tolerant soybean | Resistance to herbicides - Glufosinate  
[Show detection method\(s\)](#)  
[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-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

<a href="#">P-35S-CaMV</a> 0.540 kb	<a href="#">CS-pat-STRVR</a> 0.550 kb	<a href="#">T-35S-CaMV</a> 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.

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The bacterial ampicillin resistance gene was also partially integrated into the host genome. It is however not expressed in the host organism.

## LMO characteristics

Modified traits

Resistance to herbicides  
Glufosinate

Common use(s) of the LMO

Food

## Detection method(s)

External link(s)

? [ACS-GM006-4 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) ( *English* )

Additional Information

Southern blot analysis indicated that 1 copy of the PAT gene integrated into the host genome.

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One copy of the 5' portion of the bla gene was integrated upstream of the PAT gene and one copy of the 3' portion of the bla gene was integrated downstream of the PAT gene.

## Additional Information

Other relevant website addresses and/or attached documents

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

? [A5547-127 APHIS.pdf](#) ( *English* )

**BCH-LMO-SCBD-14857-8**

## 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.

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on Biological Diversity**

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