

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-14862-7

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

LAST UPDATED: 18 APR 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-ZMØØ4-3
Starlink™ maize

CBD

<https://bch.cbd.int/database/record?documentID=14862>



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

Name

Starlink™ maize

EN

Transformation event

CBH-351

Unique identifier

ACS-ZMØØ4-3

Developer(s)

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

ORGANIZATION

Bayer CropScience

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

Description

The transgenic Starlink™ maize line CBH-351 was developed to for insect resistance and glufosinate herbicide tolerance. Resistance to lepidopteran pests was conferred through the insertion of the Cry9C coding sequence. Tolerance to glufosinate is conferred through the insertion of the coding sequence for phosphinothricin N-acetyltransferase (PAT).

EN

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-246-6 ORGANISM | ZEA MAYS (MAIZE, CORN, MAIZE) |

Crops

Characteristics of the modification process

Vector

pRVA9909 and pDE110

EN

Techniques used for the modification

Biolistic / Particle gun

Genetic elements construct

P-35S-CaMV 0.526 kb	L-cab-PETHY 0.059 kb	CS-Cry9C-BACTU 1.877 kb	T-35S-CaMV 0.214 kb
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P-35S-CaMV 1.382 kb	CS-bar-STRHY 0.551 kb	T-nos-RHIRD 0.260 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-14996-8 CRY9C | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), European corn borer (*Ostrinia nubilalis*))

BCH-GENE-SCBD-14972-12 PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE |

Protein coding sequence | Resistance to herbicides (Glufosinate)

BCH-GENE-SCBD-100287-7 CAMV 35S PROMOTER |

Promoter

BCH-GENE-SCBD-101901-3 5' UNTRANSLATED LEADER OF CHLOROPHYLL A/B-BINDING PROTEIN | (PETUNIA) |

Leader

BCH-GENE-SCBD-100290-6 CAMV 35S TERMINATOR |

Terminator

BCH-GENE-SCBD-100269-8 NOPALINE SYNTHASE GENE TERMINATOR |

Terminator

Notes regarding the genetic elements present in this LMO

The recipient organism was co-transformed with the pRVA9909 and pDE110 vectors. The pRVA9909 vector contained the transformation cassette for Cry9C and the pDE110 vector contained the transformation cassette for the bar gene.

Southern blot analysis indicated that the LMO contains at least one intact copy of the Cry9c expression cassette and at least 4 copies of the PAT expression cassette one of which integrated into the genome without its regulatory elements.

EN

The test also confirmed that there was integration of at least 4 copies of the bacterial β -lactamase gene. However this is non-functional in plant tissues.

The Cry9c DNA sequence was modified to truncate the C-terminal amino acids following amino acid position 666 and the first 43 amino acids at the N-terminal. Additionally the arginine amino acid at position 123 was modified to a lysine. These modifications do not affect the insecticidal activity of the protein.

LMO characteristics

Modified traits

Resistance to diseases and pests
Insects
Lepidoptera (butterflies and moths)
Resistance to herbicides
Glufosinate

Common use(s) of the LMO

Feed

Detection method(s)

External link(s)

? [Qualitative and event-specific PCR real-time detection methods for Starlink maize.pdf](#) (English)

Additional Information

Other relevant website addresses and/or attached documents

? [OECD UID Database](#) (English)
? [CERA GM Database](#) (English)
? [Starlink Maize - APHIS.pdf](#) (English)
? [ACS-ZMØØ4-3 - AgrEvo.pdf](#) (English)

[BCH-LMO-SCBD-14862-7](#)

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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