

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-258895-1

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

LAST UPDATED: 14 JAN 2022

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.



MON-95379-3
Insect-protected maize

CBD

<https://bch.cbd.int/database/record?documentID=258895>



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

Name

Insect-protected maize

EN

Transformation event

MON95379

Unique identifier

MON-95379-3

Developer(s)

- [PERSON: BAYER CROPSCIENCE](#) | [BCH-CON-SCBD-111462-3](#)

PERSON

Bayer CropScience

Bayer CropScience AG Alfred-Nobel-Str. 50 40789 Monheim am Rhein

Monheim am Rhein

40789, Germany

Phone: +49 21 73 - 38-0

Website: <https://www.cropscience.bayer.com/en>, <https://www.cropscience.bayer.de/de-DE>

RELATED ORGANIZATION

Description

The maize (*Zea mays*) was modified for resistance to Lepidoptera insects and to overcome Bt-resistance in insect pests. The maize expresses synthetic Cry1B.868 and Cry1Da_7 proteins (originally derived from *Bacillus thuringiensis*), which have a pore-forming mode of

EN

action that is independent of the receptors that other Bt toxins interact with. A selectable marker cassette (glyphosate tolerance) was removed using Cre-lox excision during the development of this line to result in a marker-free line.

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

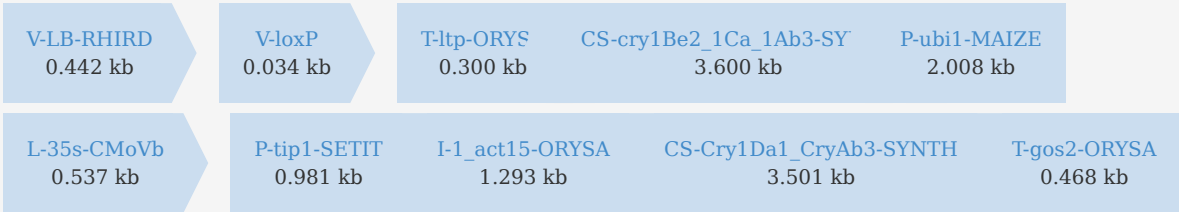
Vector

PV-ZMIR522223 EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct



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-103069-3 LOXP RECOMBINATION SITE |
recombination site

BCH-GENE-SCBD-258891-1 LIPID TRANSFER PROTEIN-LIKE TERMINATOR | ORYZA SATIVA (RICE, ORYSA) |
Terminator

BCH-GENE-SCBD-258889-1 CRY1B.868 | BACILLUS THURINGIENSIS (BT, BACILLUS, BACTU) |
Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), Fall armyworm (Spodoptera frugiperda))

BCH-GENE-SCBD-100362-7 UBIQUITIN GENE PROMOTER | (MAIZE, CORN) |
Promoter

BCH-GENE-SCBD-105196-2 FMV 35S ENHANCER |
Leader

BCH-GENE-SCBD-258892-1 TONOPLAST INTEGRAL PROTEIN 1 PROMOTER | SETARIA ITALICA - FOXTAIL MILLET, ITALIAN MILLET |
Promoter

BCH-GENE-SCBD-258893-1 RICE ACTIN 15 INTRON | ORYZA SATIVA (RICE, ORYSA) |

Intron

BCH-GENE-SCBD-258890-1 CRY1DA_7 | BACILLUS THURINGIENSIS (BT, BACILLUS, BACTU) |

Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), Cotton bollworm (*Helicoverpa* spp.), European corn borer (*Ostrinia nubilalis*), Fall armyworm (*Spodoptera frugiperda*))

BCH-GENE-SCBD-258894-1 GOS2 TERMINATOR | ORYZA SATIVA (RICE, ORYSA) |

Terminator

BCH-GENE-SCBD-101415-9 TI PLASMID LEFT BORDER REPEAT |

Plasmid vector

Notes regarding the genetic elements present in this LMO

The modified maize contains two gene cassettes: synthetic *cry1B.868* and synthetic *cry1Da_7*.

The *cry1B.868* coding sequence is under control of a *Zea mays* ubiquitin promoter and an *Oryza sativa* lipid transfer-like protein terminator. The promoter contains the promoter, leader and intron sequences from the maize ubiquitin gene. High levels of transcription are expected in all tissues due to the constitutive nature of the promoter.

The *cry1Da_7* coding sequence is under control of a *Setaria italica* promoter and an *O. sativa* *gos2* terminator. The first intron of the rice actin 15 gene was also included and likely improves expression of the gene.

Note:

- Both *cry1B.868* and *cry1Da_7* sequences are derived from *Bacillus thuringiensis* sequences. Refer to the genetic element records for more information.
- During development of the modified maize, a *c4-epsps* cassette (rice tubulin A terminator; *cp4-epsps*; *Arabidopsis thaliana* chloroplast transit peptide 2; and rice tubulin A promoter) was removed using Cre-lox excision. The T-DNA right border was also truncated (lost) during transformation.
- Next-generation sequencing indicated that a single, intact copy of the the intended DNA insertion was present in the parental genome. No backbone or other unexpected sequences were detected.

EN

LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Lepidoptera (butterflies and moths)

Cotton bollworm (*Helicoverpa* spp.)

European corn borer (*Ostrinia nubilalis*)

Fall armyworm (*Spodoptera frugiperda*)

Common use(s) of the LMO

Feed

Food

Additional Information

Other relevant website addresses and/or attached documents

? [Euginius - MON95379 maize](#) (*English*)

? [US11198887 - Corn transgenic event MON 95379 and methods for detection and uses thereof.pdf](#) (*English*)

? [Application A1226 - Food derived from insect-protected corn line MON95379.pdf](#) (*English*)

? [Pest Management Science - 2021 - Horikoshi - A new generation of Bt maize for control of fall armyworm Spodoptera.pdf](#) (*English*)

[BCH-LMO-SCBD-258895-1](#)

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