

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)

BCH-LMO-SCBD-100885-13

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

LAST UPDATED: 05 JUN 2017

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.



SYN-IR162-4
Agrisure™ Viptera maize

https://bch.cbd.int/database/record?documentID=100885



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

Name

Agrisure™ Viptera maize

EN

Transformation event

MIR162

Unique identifier

SYN-IR162-4

Developer(s)

- **ORGANIZATION:** SYNGENTA CROP PROTECTION AG | [BCH-CON-SCBD-43629-1](#)

ORGANIZATION

Syngenta Crop Protection AG
 Schwarzwaldallee 215
 Basel
 CH 4058 , Switzerland
 Phone: +41 61 323-1111
 Website: <http://www.syngenta.com>

Description

MIR162 maize is transformed with vip3Aa20 gene which encodes the Vip3Aa20 protein that confers resistance against lepidopteran insect pests including: fall armyworm, armyworm , beet armyworm , corn earworm , black cutworm , and western bean cutworm. Event MIR162 maize also contains the manA gene from Escherichia coli, which encodes the selectable marker, phosphomannose isomerase (PMI).

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Vip3A is a group of vegetative insecticidal proteins (i.e., produced during the vegetative stage of bacterial growth) from *Bacillus thuringiensis*. The vip3Aa20 form inserted into MIR162 is a variant of the native vip3Aa gene, which was isolated from Bt strain AB88.

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

pNOV1300

EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct

[P-ubi1-MAIZE](#)
1.993 kb

[CS-vip3Aa20-BACTU](#)
2.370 kb

[I-9_pepc-MAIZE](#)
0.108 kb

[T-35S-CaMV](#)
0.070 kb

[P-ubi1-MAIZE](#)
1.993 kb

[CS-pmi-ECOLX](#)
1.176 kb

[T-nos-RHIRD](#)
0.253 kb

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-100887-5](#) VEGETATIVE INSECTICIDAL PROTEIN 3AA20 |

Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

[BCH-GENE-SCBD-15003-7](#) PHOSPHOMANNOSE ISOMERASE GENE | (BACTERIA) |

Protein coding sequence | Mannose tolerance, Selectable marker genes and reporter genes

[BCH-GENE-SCBD-100362-7](#) UBIQUITIN GENE PROMOTER | (MAIZE, CORN) |

Promoter

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

Terminator

[BCH-GENE-SCBD-100269-8](#) NOPALINE SYNTHASE GENE TERMINATOR |

Terminator

[BCH-GENE-SCBD-101406-4](#) PHOSPHOENOLPYRUVATE CARBOXYLASE, INTRON 9 | (MAIZE, CORN) |

Intron

Notes regarding the genetic elements present in this LMO

In MIR162 maize, a variant of the native *Bt* Vip3Aa, named vip3Aa19, which has codon

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changes that result in a single M129I amino acid substitution was inserted into the transformation cassette. During the transformation process an additional DNA mutation resulted in a K284Q amino acid substitution. This final form was designated the name Vip3Aa20.

The pNOV1300 vector region between the left and right border sequences, which included the vip3Aa19 and pmi gene expression cassettes, was inserted into the maize genome during transformation.

Southern blot analyses demonstrated that the T-DNA insert contains: i) single copies of a vip3Aa20 gene and a pmi gene; ii) two copies of the ZmUbi1nt promoter; iii) one copy of the NOS terminator; and iv) no backbone sequences from transformation plasmid pNOV1300.

LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Lepidoptera (butterflies and moths)

Common use(s) of the LMO

Food

Feed

Detection method(s)

External link(s)

? [Event-specific Method for the Quantification of Maize MIR162 Using Real-time PCR.pdf](#) (English)

Additional Information

Other relevant website addresses and/or attached documents

? [MIR162 - CERA](#) (English)

? [Petition for Determination of Nonregulated Status for Insect Resistant MIR162 Maize.pdf](#) (English)

[BCH-LMO-SCBD-100885-13](#)

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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