

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)

BCH-LMO-SCBD-112807-1

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

LAST UPDATED: 13 DEC 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.



<https://bch.cbd.int/database/record?documentID=112807>

MON-89Ø34-3 X DAS-Ø15Ø7-1 X SYN-IR162-4 X MON-ØØ6Ø3-6

Herbicide tolerant, insect resistant maize



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

Name

Herbicide tolerant, insect resistant maize

EN

Transformation event

MON89034 x TC1507 x MIR162 x NK603

Unique identifier

MON-89Ø34-3 x DAS-Ø15Ø7-1 x SYN-IR162-4 x MON-ØØ6Ø3-6

Developer(s)

- [ORGANIZATION: MONSANTO](#) | [BCH-CON-SCBD-14925-3](#)

ORGANIZATION

Monsanto
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St. Louis, MO
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Website: <http://www.monsanto.com>

Description

A stacked maize line MON-89Ø34-3 x DAS-Ø15Ø7-1 x SYN-IR162-4 x MON-ØØ6Ø3-6 obtained through conventional breeding of each of the parental organisms. The modifications in these lines confer tolerance to the glyphosate and glufosinate herbicides and resistance to Lepidoptera and European Corn Borer pests.

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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

[BCH-LMO-SCBD-14776-17](#) LIVING MODIFIED ORGANISM | MON-ØØ6Ø3-6 - ROUNDUP READY™ MAIZE |

Resistance to herbicides - Glyphosate

[BCH-LMO-SCBD-14841-13](#) LIVING MODIFIED ORGANISM | DAS-Ø15Ø7-1 - HERCULEX™ I MAIZE |

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

[BCH-LMO-SCBD-100885-13](#) LIVING MODIFIED ORGANISM | SYN-IR162-4 - AGRISURE™ VIPTERA MAIZE |

Syngenta Crop Protection AG | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

[BCH-LMO-SCBD-43773-18](#) LIVING MODIFIED ORGANISM | MON-89Ø34-3 - YIELDGARD™ VT PRO™ |

Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths)

Characteristics of the modification process

Vector

PV-ZMIR245, pNOV1300, PV-ZMGT32, and PHI8999A

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Techniques used for the modification

Cross breeding

Genetic elements construct

P-34S-FMV 0.560 kb	I-hsp70-MAIZE 0.800 kb	TP-rbcS-MAIZE 0.400 kb	CS-Cry2Ab2-BACTU 1.910 kb	T-nos-RHIRD 0.250 kb
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P-e35S-CaMV 0.300 kb	L-cab-WHEAT 0.060 kb	I-1_act1-ORYSA 0.480 kb	CS-cry1A_105-SYNTH 3.530 kb	TP-ctp2-ARATH 0.210 kb
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P-ubi1-MAIZE 1.990 kb	CS-vip3Aa20-BACTU 2.370 kb	I-9_pepc-MAIZE 0.110 kb	T-35S-CaMV 0.070 kb
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P-ubi1-MAIZE 1.990 kb	CS-pmi-ECOLX 1.180 kb	T-nos-RHIRD 0.250 kb
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P-ubi1-MAIZE 1.980 kb	CS-cry1F-BACTU 1.820 kb	T-orf25-RHIRD 0.720 kb
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P-35S-CaMV 0.550 kb	CS-pat-STRVR 0.550 kb	T-35S-CaMV 0.200 kb
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P-act1-ORYSA 0.800 kb	I-1_act1-ORYSA 0.600 kb	TP-ctp2-ARATH 0.200 kb	CS-CP4epsps-RHIRD 1.400 kb	T-nos-RHIRD 0.300 kb
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P-e35S-CaMV 0.600 kb	I-hsp70-MAIZE 0.800 kb	TP-ctp2-ARATH 0.200 kb	CS-CP4epsps-RHIRD 1.400 kb	T-nos-RHIRD 0.300 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-101507-5 FMV 34S PROMOTER |

Promoter

BCH-GENE-SCBD-100359-7 HSP70 INTRON | (MAIZE, CORN) |

Intron

BCH-GENE-SCBD-100360-4 TRANSIT PEPTIDE AND FIRST INTRON OF RUBISCO SSU | (MAIZE, CORN) |

Transit signal

BCH-GENE-SCBD-14988-7 CRY2AB2 | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

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

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

Terminator

BCH-GENE-SCBD-100366-6 CAMV ENHANCED 35S PROMOTER |

Promoter

BCH-GENE-SCBD-100354-6 5' UNTRANSLATED LEADER FROM CHLOROPHYLL A/B-BINDING PROTEIN | (WHEAT) |

Leader sequence

BCH-GENE-SCBD-100355-6 RICE ACTIN 1, INTRON | (RICE) |

Intron

BCH-GENE-SCBD-43771-9 CRY1A.105 | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

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

BCH-GENE-SCBD-100365-6 CHLOROPLAST TRANSIT PEPTIDE 2 | (THALE CRESS) |

Transit signal

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

Promoter

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-101406-4 PHOSPHOENOLPYRUVATE CARBOXYLASE, INTRON 9 | (MAIZE, CORN) |

Intron

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

Terminator

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

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

BCH-GENE-SCBD-14987-8 CRY1F | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

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

BCH-GENE-SCBD-100363-5 ORF25 POLYA TERMINATOR SEQUENCE |

Terminator

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

Promoter

BCH-GENE-SCBD-15002-4 PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE |

Protein coding sequence | Resistance to herbicides (Glufosinate)

BCH-GENE-SCBD-100364-5 RICE ACTIN 1 GENE PROMOTER | (RICE) |

Promoter

BCH-GENE-SCBD-14979-7 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE SYNTHASE GENE |

Protein coding sequence | Resistance to herbicides (Glyphosate)

Notes regarding the genetic elements present in this LMO

DNA insert from MON89034 vector PV-ZMIR245:

Maize line MON89034 expresses two Bt-toxins encoded by the genes cry1A.105 and cry2Ab2 from *Bacillus thuringiensis* that confer resistance against certain lepidopteran pests.

DNA insert from NK603 vector PV-ZMGT32:

NK603 contains a form of the plant enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) that allows the plant to survive the otherwise lethal application of glyphosate. The glyphosate-tolerant EPSPS gene was isolated from the CP4 strain of the common soil bacterium *Agrobacterium tumefaciens*.

DNA insert from TC1507 vector PHI8999A:

Vector contains the cry1F gene from *Bacillus thuringiensis* to confer resistance to the European corn borer. The vector additionally contains the pat gene to confer tolerance to the glufosinate ammonium herbicide.

DNA insert from MIR162 vector pNOV1300:

MIR162 maize is transformed with vip3Aa20 gene which encodes the Vip3Aa20 protein that confers resistance against lepidopteran insect pests. Event MIR162 maize also contains the manA gene from *Escherichia coli*, which encodes the selectable marker, phosphomannose isomerase (PMI).

For additional information on this LMO, please refer to the records of the parental LMOs.

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LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Coleoptera (beetles)

Lepidoptera (butterflies and moths)

Resistance to herbicides

Glufosinate

Glyphosate

Common use(s) of the LMO

Food

Feed

Detection method(s)

External link(s)

- ? [MON-89Ø34-3 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)
- ? [DAS-Ø15Ø7-1 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)
- ? [SYN-IR162-4 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)
- ? [MON-ØØ6Ø3-6 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)

[BCH-LMO-SCBD-112807-1](#)

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**

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