

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)

BCH-LMO-SCBD-112460-2

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

LAST UPDATED: 01 SEP 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=112460>
DAS-Ø15Ø7-1 X DAS-59122-7 X MON-ØØ6Ø3-6 X SYN-IR6Ø4-5
 Insect resistant, herbicide tolerant maize



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

Name

Insect resistant, herbicide tolerant maize

EN

Transformation event

TC1507 x 59122 x NK603 x MIR604

Unique identifier

DAS-Ø15Ø7-1 x DAS-59122-7 x MON-ØØ6Ø3-6 x SYN-IR6Ø4-5

Developer(s)

- **ORGANIZATION:** DUPONT POINEER | [BCH-CON-SCBD-106199-2](#)

ORGANIZATION

Dupont Poineer
 Private sector (business and industry)
 Chestnut Run Plaza 720/1S5 974 Centre Road
 Wilmington,, Delaware
 19805, United States of America

Description

The stacked maize line DAS-Ø15Ø7-1 x DAS-59122-7 x MON-ØØ6Ø3-6 x SYN-IR6Ø4-5 was obtained through the traditional cross breeding of each of the parental organisms to produce a maize that expresses each of cry1F, pat, cry34Ab1, cry35Ab1, cp4epsps, cry3Aa2 genes. The expression of these genes are expected to confer resistance to Lepidoptera and Coleoptera, and tolerant to glufosinate herbicide and glyphosate herbicide

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

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-15165-13 LIVING MODIFIED ORGANISM | DAS-59122-7 - HERCULEX™ RW ROOTWORM PROTECTION MAIZE |

Pioneer Hi-Bred International Inc. | Resistance to diseases and pests (Insects, Coleoptera (beetles)), Resistance to herbicides (Glufosinate)

BCH-LMO-SCBD-14776-17 LIVING MODIFIED ORGANISM | MON-ØØ6Ø3-6 - ROUNDUP READY™ MAIZE |

Resistance to herbicides - Glyphosate

BCH-LMO-SCBD-15105-12 LIVING MODIFIED ORGANISM | SYN-IR6Ø4-5 - AGRISURE™ RW ROOTWORM-PROTECTED MAIZE |

Mannose tolerance Resistance to diseases and pests - Insects - Coleoptera (beetles) - Western corn rootworm (Diabrotica virgifera) Selectable marker genes and reporter genes

Characteristics of the modification process

Vector

PHI8999A, PHP17662, PV-ZMGT32 and pZM26

EN

Techniques used for the modification

Cross breeding

Genetic elements construct

P-MTL-MAIZE 2.560 kb	CS-mCry3A 1.800 kb	T-nos-RHIRD 0.250 kb		
P-ubi1-MAIZE 0.980 kb	I-1_ubi1-MAIZE 1.010 kb	CS-pmi-ECOLX 1.180 kb	T-nos-RHIRD 0.250 kb	
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
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
P-ubi1-MAIZE 1.990 kb	CS-cry34Ab1-BACTU 0.370 kb	T-pinII-SOLTU 0.320 kb		
P-pox-WHEAT 1.300 kb	CS-cry35Ab1-BACTU 1.150 kb	T-pinII-SOLTU 0.320 kb		
P-ubi1-MAIZE 1.980 kb	CS-cry1F-BACTU 1.820 kb	T-orf25-RHIRD 0.720 kb		

P-35S-CaMV
0.550 kb

CS-pat-STRVR
0.550 kb

T-35S-CaMV
0.200 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-103881-2 METALLOTHIONEIN-LIKE GENE PROMOTER | (MAIZE, CORN) |

Promoter

BCH-GENE-SCBD-43634-3 MCRY3A | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

Protein coding sequence | Resistance to diseases and pests (Insects, Coleoptera (beetles), Western corn rootworm (Diabrotica virgifera))

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

Terminator

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

Promoter

BCH-GENE-SCBD-103627-5 UBIQUITIN INTRON 1 | (MAIZE, CORN) |

Intron

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

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

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

Promoter

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

Intron

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

Transit signal

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

Protein coding sequence | Resistance to herbicides (Glyphosate)

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

Promoter

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

Intron

BCH-GENE-SCBD-14994-9 CRY34AB1 | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

Protein coding sequence | Resistance to diseases and pests (Insects, Coleoptera (beetles))

BCH-GENE-SCBD-100367-4 PROTEINASE INHIBITOR II GENE TERMINATOR | (POTATO) |

Terminator

BCH-GENE-SCBD-100368-6 PEROXIDASE GENE PROMOTER | (WHEAT) |

Promoter

BCH-GENE-SCBD-14995-8 CRY35AB1 | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

Protein coding sequence | Resistance to diseases and pests (Insects, Coleoptera (beetles))

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-100290-6 CAMV 35S TERMINATOR |

Terminator

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

Notes regarding the genetic elements present in this LMO

DNA insert from TC1507 vector PHI8999A

TC1507 modified with the insertion of the Cry1F gene to confer resistance to the European corn borer (*Ostrinia nubilalis*). A transformation cassette coding for phosphinothricin (PPT) herbicide tolerance, specifically glufosinate ammonium, was also inserted into the organism.

DNA insert from 59122 vector PHP17662

The cry34Ab1 and cry35Ab1 genes, isolated from the common soil bacterium *Bacillus thuringiensis* (Bt) strain PS149B1, produce the insect control proteins (delta-endotoxins) Cry34Ab1 and Cry35Ab1. The pat gene was isolated from the soil bacterium *Streptomyces viridochromogenes* and confers tolerance to herbicides containing glufosinate ammonium.

DNA insert from NK603 vector PV-ZMGT32

Contributed 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 MIR604 vector pZM26

Cry3A gene was modified for enhanced expression in maize and such that the amino acid sequence of the synthetic version of Cry3A is the same as the native protein, except for the modified serine-protease recognition site. The pmI gene encodes the enzyme phosphomannose isomerase (PMI) that allows the plants to utilise mannose as a carbon source and is used as a selectable marker.

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

EN

LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Lepidoptera (butterflies and moths)

Resistance to herbicides

Glufosinate

Glyphosate

Selectable marker genes and reporter genes

Common use(s) of the LMO

Food
Feed

Detection method(s)

External link(s)

- ? [DAS-Ø15Ø7-1 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)
- ? [DAS-59122-7 - 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*)
- ? [SYN-IR6Ø4-5 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) (*English*)

Additional Information

Other relevant website addresses and/or attached documents

- ? [DAS-Ø15Ø7-1 x DAS-59122-7 x MON-ØØ6Ø3-6 x SYN-IR6Ø4-5 - ISAAA](#) (*English*)

[BCH-LMO-SCBD-112460-2](#)

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