

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-14787-6

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

LAST UPDATED: 02 MAY 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.



NMK-8917Ø-9
Atlantic NewLeaf™ potato

<https://bch.cbd.int/database/record?documentID=14787>



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

Name

Atlantic NewLeaf™ potato

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Transformation event

ATBT04-31

Unique identifier

NMK-8917Ø-9

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

The transgenic cultivars of 'Atlantic' (ATBT04-6, ATBT04-27, ATBT04-30, ATBT04-31, ATBT04-36) NewLeaf® potatoes were genetically engineered to be resistant to attack by Colorado potato beetle (CPB; *Leptinotarsa decemlineata*) by producing their own insecticide. These lines were developed by introducing the cry3A gene, isolated from the common soil

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bacterium *Bacillus thuringiensis* subspecies *tenebrionis* (Btt), into the potato genome.

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-12106-6](#) ORGANISM | SOLANUM TUBEROSUM (POTATO, SOLTU) |

Crops

Point of collection or acquisition of the recipient organism or parental organisms

Cultivar: Atlantic

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Related LMO(s)

[BCH-LMO-SCBD-14898-7](#) | NMK-89279-1 - Atlantic NewLeaf™ potato | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles)

[BCH-LMO-SCBD-14899-7](#) | NMK-89367-8 - Atlantic NewLeaf™ potato | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles)

[BCH-LMO-SCBD-14902-6](#) | NMK-89613-2 - Atlantic NewLeaf™ potato | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles)

[BCH-LMO-SCBD-14789-6](#) | NMK-89761-6 - Atlantic NewLeaf™ potato | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles)

Characteristics of the modification process

Vector

PV-STBT04

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Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct

[P-rbcS-ARATH](#)
1.700 kb

[CS-Cry3A-BACTU](#)
1.800 kb

[T-rbcS_E9-PEA](#)
0.630 kb

[T-nos-RHIR](#)
0.260 kb

[CS-nptII-EC](#)
0.790 kb

[P-35S-CaMV](#)
0.320 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-14989-5](#) CRY3A | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |

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

[BCH-GENE-SCBD-15001-5](#) NEOMYCIN PHOSPHOTRANSFERASE II | (BACTERIA) |

Protein coding sequence | Resistance to antibiotics (Kanamycin)

[BCH-GENE-SCBD-103851-5](#) RBCS PROMOTER | (THALE CRESS) |

Promoter

[BCH-GENE-SCBD-101877-5](#) RBCS-E9 GENE TERMINATOR | (GARDEN PEA) |

Terminator

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

Terminator

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

Promoter

Notes regarding the genetic elements present in this LMO

The coding sequence of the Cry3A gene was modified to plant preferred codons. This resulted in changes to 399 of 1791 nucleotides but there were no changes to the resulting amino acid sequence.

Southern blot analysis indicated that a single copy of the transformation cassette for the coding sequences of both Cry3A and nptII were transformed into the host genome in a linked manner with the integrity of the T-DNA maintained. No portions of the vector backbone were detected.

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LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Coleoptera (beetles)

Resistance to antibiotics

Kanamycin

Common use(s) of the LMO

Food

Feed

Additional Information

Additional Information

The Cry3A protein expressed in these transgenic potato cultivars is identical to that found in nature and in commercial Bt spray formulations. Cry proteins, of which Cry3A is only one, act by selectively binding to specific sites localized on the lining of the midgut of susceptible insect species. Following binding, pores are formed that disrupt midgut ion flow causing gut paralysis and eventual death due to bacterial sepsis. Cry3A is insecticidal only when eaten by the larvae of coleopteran insects such as Colorado potato beetle and its specificity of action is directly attributable to the presence of specific binding sites in the target insects.

Other relevant website addresses and/or attached documents

? [NMK-89170-9 - OECD](#) (English)

? [NMK-89170-9 - CERA](#) (English)

? [Atlantic New Leaf Potato.pdf](#) (English)

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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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