

Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-14900-10

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

LAST UPDATED: 26 APR 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-89576-1
Superior NewLeaf™ potato

CBD

<https://bch.cbd.int/database/record?documentID=14900>



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

Name

Superior NewLeaf™ potato

EN

Transformation event

SPBT02-5

Unique identifier

NMK-89576-1

Developer(s)

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

ORGANIZATION

Monsanto
800 North Lindbergh Blvd.
St. Louis, MO
63167, United States of America
Phone: + 1 314 694-1000
Fax: +1 314 694-3080
Website: <http://www.monsanto.com>

Description

The transgenic potatoes were genetically engineered to be resistant to attack by Colorado potato beetle by producing their own insecticide. These lines were developed by introducing the cry3A gene.

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

Crops

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

Cultivar: Superior

EN

Related LMO(s)

[BCH-LMO-SCBD-14907-6](#) | NMK-89724-5 - Superior NewLeaf™ potato | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles)

Characteristics of the modification process

Vector

PV-STBT02

EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct

P-e35S-CaMV
0.620 kb

CS-Cry3A-BACTU
1.800 kb

T-rbcS_E9-PEA
0.360 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-100366-6](#) CAMV ENHANCED 35S PROMOTER |

Promoter

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

Terminator

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 the Cry3A gene and regulatory elements were incorporated into the host genome. The transformation cassette also contained an nptII gene however this was not transferred into the genome. Additionally segments of the ori-v and ori322 coding sequences, which were outside the left and right borders, were detected.

EN

LMO characteristics

Modified traits

Resistance to diseases and pests

Insects

Coleoptera (beetles)

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. There are no binding sites for delta-endotoxins of *B. thuringiensis* on the surface of mammalian intestinal cells, therefore, livestock animals and humans are not susceptible to these proteins.

Other relevant website addresses and/or attached documents

? [SPBT02-5 - OECD](#) (*English*)

[SPBT02-5 - CERA](#) (*English*)

? [SPBT02-5 - Monsanto](#) (*English*)

[BCH-LMO-SCBD-14900-10](#)

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