LIVING MODIFIED ORGANISM (LMO)

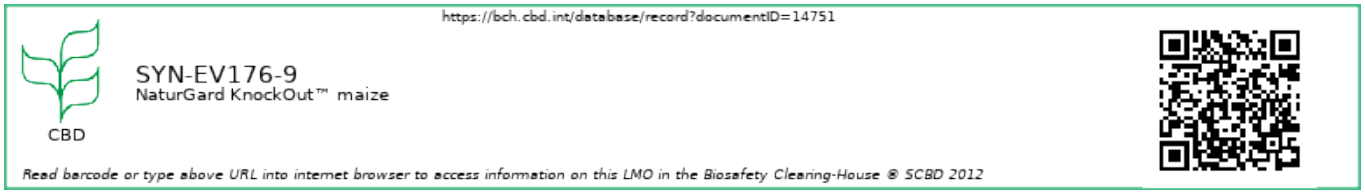
BCH-LMO-SCBD-14751-10

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 14 AUG 2012

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.



Name

NaturGard KnockOut™ maize | EN

Transformation event

Bt176 (176)

Unique identifier

SYN-EV176-9

Developer(s)

- ORGANIZATION: SYNGENTA | BCH-CON-SCBD-14926-2

ORGANIZATION

Syngenta
Website: http://www.syngentaseeds.com

Description

This LMO contains two copies of a truncated synthetic version of the full length *cry1Ab* gene from *Bacillus thuringiensis* subsp. *kurstaki*. The synthetic truncated *cry1Ab* gene encodes a protein that corresponds to the first 648 amino acids of the N-terminal of the 1155 amino acid full length native Cry1Ab protein and includes the portion of the native protein that is necessary for insect control. | 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

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

Proprietary Ciba Seeds inbred maize line CG00526 EN

Characteristics of the modification process

Vector

pCIB3064 and pCIB4431 EN

Techniques used for the modification

Biolistic / Particle gun

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-14972-12 PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE
Protein coding sequence | Resistance to herbicides (Glufosinate)

BCH-GENE-SCBD-14985-12 CRY1AB | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU
Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

BCH-GENE-SCBD-14975-5 BETA-LACTAMASE GENE | (BACTERIA)
Protein coding sequence | Resistance to antibiotics (Ampicillin)

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

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

BCH-GENE-SCBD-101404-3 PHOSPHOENOLPYRUVATE CARBOXYLASE GENE PROMOTER | (MAIZE, CORN)
Promoter

BCH-GENE-SCBD-101405-2 CALCIUM-DEPENDENT PROTEIN KINASE PROMOTER | (MAIZE, CORN)
Promoter

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

Notes regarding the genetic elements present in this LMO

Additional information concerning the *cry1Ab* gene inserts in this LMO:
The expression of the two copies of the cry1Ab genes are under the control either of a pollen-specific promoter the from a calcium-dependent protein kinase or green tissue-specific promoter phosphoenolpyruvate carboxylase. Both promoters were isolated from maize. The termination sequences for both of genes was from cauliflower mosaic virus (CaMV), a known plant pest.

Additional information concerning the *bar* gene insert in this LMO: EN

This LMO contains one copy of the *bar* gene from *Streptomyces hygroscopicus* which encodes for phosphinotricin acetyltransferase (PAT) that confers resistance to glufosinate herbicide. The *bar* gene is under the regulation of the 35S promoter and the 35S terminator from the cauliflower mosaic virus (CaMV).

Additional information concerning the *bla* gene insert in this LMO:
The *bla* gene from *Escherichia coli* is not expressed in plant cells, but was employed as a selectable trait for screening bacterial colonies for the presence of the plasmid vector.

Additional information on the inserted genetic material:

Two plasmids, pCIB3064 and pCIB4431 were used as vectors for the transformation of Bt176 maize. Both are derivatives of the plasmid PUC18, which has a molecular weight of 2.7 kb and contains sequences such as prokaryotic gene bla and gene lacZ.

Plasmid pCIB3064 contains one copy of the *bar* gene which is under the regulation of the 35S promoter and the 35S terminator from the cauliflower mosaic virus (CaMV). The plasmid pCIB4431 contains two copies of a synthetic truncated cry1Ab gene; the first copy which is under the regulation of a promoter derived from maize phosphoenolpyruvate carboxylase gene and the CaMV 35S terminator; and the second copy which is under the regulation of a promoter derived from maize calcium-dependent protein kinase gene (“pollen promoter’) and the CaMV 35S terminator.

There are uncertainties regarding the copy number of the inserts in Bt176. Evidence suggests that 2-5 copies of the inserts may be present (see document below on the molecular characterization of Bt176).

LMO characteristics

Modified traits

Resistance to diseases and pests
- Insects
  - Lepidoptera (butterflies and moths)
    - European corn borer (Ostrinia nubilalis)

Resistance to herbicides
- Glufosinate

Resistance to antibiotics
- Ampicillin

Common use(s) of the LMO

Food
Feed
Biofuel

Detection method(s)

External link(s)

? SYN-EV176-9 - EU Reference Laboratory for GM Food and Feed (EURL-GMFF) *(English)*

Additional Information

Other relevant website addresses and/or attached documents

? SYN-EV176-9 (176) - CERA GM Database *(English)*

? Molecular characterization of Bt176.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.

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