LIVING MODIFIED ORGANISM (LMO)

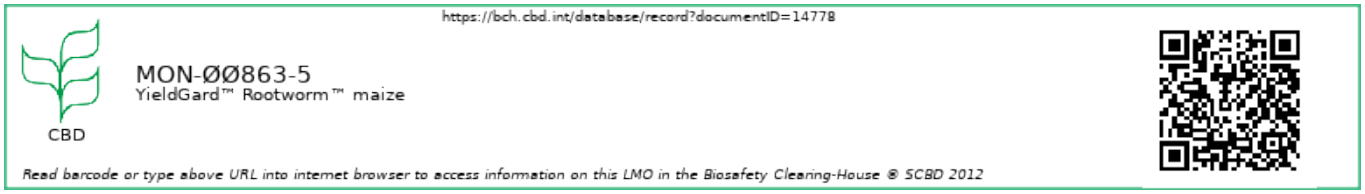
BCH-LMO-SCBD-14778-15

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 19 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.



Name

YieldGard™ Rootworm™ maize | EN

Transformation event

MON863

Unique identifier

MON-ØØ863-5

Developer(s)

- ORGANIZATION: MONSANTO | BCH-CON-SCBD-14925-3

ORGANIZATION

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

Description

Maize was modified for resistance to corn root worm by inserting the cry3Bb1 gene. A neomycin phosphotransferase II (npt II) gene was also integrated into the host genome and confers resistance to the antibiotic kanamycin. | 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

From inbred line A634 EN

Characteristics of the modification process

Vector

PV-ZMIR13 EN

Techniques used for the modification

Biolistic / Particle gun

Genetic elements construct

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-14993-5 CRY3BB1 | 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-100287-7 CAMV 35S PROMOTER |
Promoter

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

BCH-GENE-SCBD-101504-4 CAMV 35S PROMOTER PLUS FOUR REPEATS OF ACTIVATING SEQUENCE |
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-100356-6 HEAT SHOCK PROTEIN 17.3 TERMINATOR | (WHEAT) |
Terminator

Notes regarding the genetic elements present in this LMO

Maize line MON 863 was produced by biolistic transformation of the inbred line A634 using linearized plasmid PV-ZMIR13 DNA purified following Mlu I restriction endonuclease digestion. The introduced DNA contained the modified cry3Bb1 gene from B. thuringiensis subsp. kumamotoensis. The modified cry3Bb1 gene encodes a protein of 653 amino acids whose amino acid sequence differs from that of the wild-type protein by the addition of an alanine residue at position 2 and by seven amino acid changes. The introduced DNA also contained a copy of the neomycin phosphotransferase II (NPTII) encoding gene (nptII) derived from the Tn5 transposon of Escherichia coli. Due to the use of a unique restriction site for the excision of nptII from Tn5, this gene cassette also contains a 153 bp of the 378 bp bleomycin binding protein gene (ble).This segment of ble is located 20 nucleotides downstream of the nptII stop codon, and it is joined to the T-nos. The mRNA that is transcribed from the nptII cassette contains tandem open reading frames (ORF). The proximal ORF is the complete nptII coding sequence while the distal ORF encodes approximately 40% of the bleomycin binding sequence. Due to differences in the mechanism of initiation of translation between procaryotic and eucaryotic organisms, it is highly unlikely that the partial ble ORF will be translated into protein in Mon863. This means that nptII will be expressed in Mon863, but the ble fragment will not. According to the US FDA, if the partial ble gene were translated into protein, the truncated peptide would not dimerize because it lacks the necessary amino acids to dimerize, and also lacks approximately 50% of the residues that are involved in bleomycin binding. Molecular analyses of the transformed plant show that one DNA insert has been transferred to the genome of Mon863. This insert contains one copy of the Mlu I plasmid fragment used in transformation. Both cassettes are intact and no DNA from plasmid backbone was detected.	EN

LMO characteristics

Modified traits

Resistance to diseases and pests
- Insects
  - Coleoptera (beetles)

Resistance to antibiotics
- Kanamycin

Common use(s) of the LMO

Food
Feed
Biofuel

Detection method(s)

External link(s)

? MON-ØØ863-5 - EU Reference Laboratory for GM Food and Feed (EURL-GMFF) *(English)*

? MON-ØØ863-5 - CropLife International Detection Methods Database *(English)*

Additional Information

Other relevant website addresses and/or attached documents

? MON-ØØ863-5 - OECD *(English)*

? MON-ØØ863-5 - CERA *(English)*

? MON-ØØ863-5 - BATS *(English)*

? MON-ØØ863-5 - Monsanto.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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