LIVING MODIFIED ORGANISM (LMO)

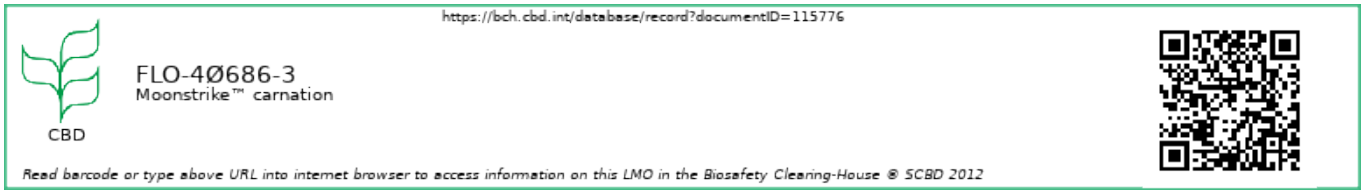
BCH-LMO-SCBD-115776-1

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 23 NOV 2020

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

Moonstrike™ carnation | EN

Transformation event

406851

Unique identifier

FLO-4Ø686-3

Developer(s)

- PERSON: STEPHEN CHANDLER | BCH-CON-SCBD-4953-5

PERSON

Stephen Chandler
Cosnultant
Melbourne, VIC
Australia
Phone: +61 409 387 386
Email: schandler@florigene.com.au
Website: http://www.florigene.com

RELATED ORGANIZATION

Description

The modified carnation (*Dianthus caryophyllus*) was derived from the parental Moonvista™ carnation through vegetative propagation. The Moonstrike™ carnation differs from the | EN

parental variety in having a flecked, bi-colour flower colour pattern. The modified carnation contains *Petunia hybrida* dihydroxflavonol-4 reductase and *Viola sp.* flavonoid 3' 5' hydroxylase, which together promoter biosynthesis of delphinidin and anthocyanin pigments. The pigment bioproduction results in petals that are eggplant purple in colour. The modified carnation additionally contains *Nicotiania tabacum* acetolactate synthase for chlorsulfuron selection during tissue culturing.

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-4954-7 ORGANISM | DIANTHUS CARYOPHYLLUS (CARNATION, DIACA) | Crops

BCH-LMO-SCBD-14835-11 LIVING MODIFIED ORGANISM | FLO-4Ø685-2 - MOONVISTA™ CARNATION | Stephen Chandler Changes in quality and/or metabolite content - Pigmentation / Coloration Resistance to herbicides - Chlorsulfuron, Sulfonylurea

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

Moonstrike™ is a clone of the carnation variety FLORIGENE Moonvista™. EN

Related LMO(s)

BCH-LMO-SCBD-115777-1 | FLO-4Ø62Ø-9 - Moonburst™ carnation | Stephen Chandler Changes in quality and/or metabolite content - Pigmentation / Coloration Resistance to herbicides - Chlorsulfuron, Sulfonylurea

Characteristics of the modification process

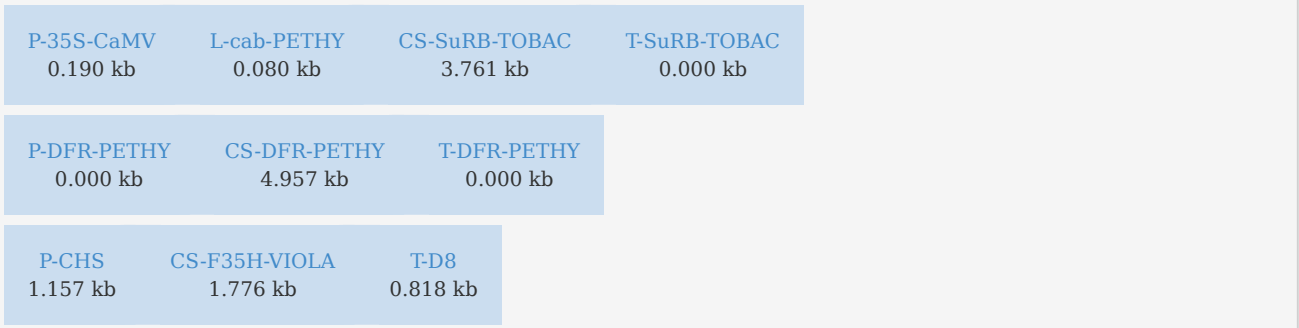
Vector

pCGP1991 EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

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-100287-7 CAMV 35S PROMOTER
Promoter

BCH-GENE-SCBD-101901-3 5' UNTRANSLATED LEADER OF CHLOROPHYLL A/B-BINDING PROTEIN | (PETUNIA)
Leader

BCH-GENE-SCBD-15177-7 ACETOHYDROXY ACID SYNTHASE GENE | (TOBACCO PLANT)
Protein coding sequence | Resistance to herbicides (Chlorsulfuron, Sulfonylurea)

BCH-GENE-SCBD-100390-7 ACETOHYDROXY ACID SYNTHASE GENE TERMINATOR | (TOBACCO PLANT)
Terminator

BCH-GENE-SCBD-105798-1 DIHYDROFLAVONOL-4-REDUCTASE PROMOTER | (PETUNIA)
Promoter

BCH-GENE-SCBD-15009-4 DIHYDROFLAVONOL-4-REDUCTASE | (PETUNIA)
Protein coding sequence | Changes in quality and/or metabolite content (Pigmentation / Coloration)

BCH-GENE-SCBD-105799-1 DIHYDROFLAVONOL-4-REDUCTASE TERMINATOR | (PETUNIA)
Terminator

BCH-GENE-SCBD-103771-1 CHALCONE SYNTHASE GENE PROMOTER | (COMMON SNAPDRAGON, SNAPDRAGON)
Promoter

BCH-GENE-SCBD-43793-4 FLAVONOID 3', 5'-HYDROXYLASE GENE | (PANSIES)
Protein coding sequence | Changes in quality and/or metabolite content (Pigmentation / Coloration)

BCH-GENE-SCBD-103772-2 D8 GENE TERMINATOR | (PETUNIA)
Terminator

Notes regarding the genetic elements present in this LMO

Gene expression
Three gene cassettes are present: *Nicotiania tabacum* acetolactate synthase (ALS; acetohydroxy acid synthase), *Petunia hybrida* dihydroflavonol-4-reductase (DFR) and *Viola sp.* flavonoid3', 5'-hydroxylase (F3'5'H).

Transcription of ALS is under control of a *Cauliflower mosaic virus* (CaMV) 35S promoter and a *N. tabacum* ALS terminator. A 5' untranslated leader sequence from *P. hybrida* chlorophyll a/b-binding protein is also present at the 5' end of ALS, but is not expected to be translated. The leader sequence promotes high levels of transcription of ALS.

Transcription of DFR is under control of its endogenous promoter and terminator. The coding sequence contains 6 exons and 5 introns.

Transcription of F3'5'H is under control of an *Antirrhinum majus* chalcone synthase promoter and a *P. hybrida* D8 terminator.

Note:
- The size of the ALS coding sequence includes the size of the terminator (3.76 kb = size of ALS coding sequence + ALS terminator)
- The size of the DFR coding sequence represents the size of the full genomic cone (4.96 kb = DFR promoter + DFR coding sequence + DFR terminator)

EN

For more information, kindly refer to the parental record.

LMO characteristics

Modified traits

Resistance to herbicides
- Chlorsulfuron
- Sulfonylurea

Changes in quality and/or metabolite content
- Pigmentation / Coloration

Common use(s) of the LMO

Ornamental

Detection method(s)

External link(s)

? FLO-4Ø685-2 - EU Reference Laboratory for GM Food and Feed (EURL-GMFF) - parental variety *(English)*

Additional Information

Note: The detection methods of the parental variety are shown and expected to be applicable to this variety as well. EN

Additional Information

Other relevant website addresses and/or attached documents

? FLORIGENE® Moonstrike™ *(English)*

? Pigment biosynthesis in flowers.docx *(English)*

? Flower colour and cytochromes P450.pdf *(English)*

? EUginius - Moonvista carnation (parental line; FLO-4Ø685-2) *(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
413 rue Saint-Jacques, suite 800
Montreal, Québec, H2Y 1N9
Canada

Fax: +1 514 288-6588
Email: secretariat@cbd.int