

Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-43771-9

LAST UPDATED: 22 JUN 2021

General information

Name of genetic element

Cry1A.105

EN

Abbreviation

CS-cry1A_105-SYNTH

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

Yes

Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-45614-11](#) ORGANISM | BACILLUS THURINGIENSIS (BT, BACILLUS, BACTU) |
Bacteria

Characteristics of the protein coding sequence

Name of the protein expressed by the coding sequence

Cry1A.105 delta-endotoxin

EN

Biological function of the protein

Cry1A.105 is a full-length, insecticidal protein consisting of 1177 amino acids with a molecular weight (MW) of 133 kDa. It is a chimeric protein that consists of domains I and II from Cry1Ab or Cry1Ac1, domain III from Cry1F, and the C-terminal domain from Cry1Ac.

Cry1A.105 was designed using domain exchange strategy to achieve high levels of activity against target lepidopteran insect pests. The domains I and II of Cry1A.105 are 100% identical to the respective domains of Cry1Ab or Cry1Ac. The domain III of Cry1A.105 is 99% identical to the domain III of Cry1F. The C-terminal region of Cry1A.105 is 100% identical to that of Cry1Ac.

EN

Cry1Ac, Cry1Ab and Cry1F are all well known and well characterized insecticidal proteins derived from the soil bacterium *Bacillus thuringiensis* (Bt). The overall amino acid sequence identity of Cry1A.105 to Cry1Ac, Cry1Ab, and Cry1F is 93.6%, 90.0%, and 76.7%, respectively

Related trait(s) or use(s) in biotechnology

Resistance to diseases and pests

Insects

Lepidoptera (butterflies and moths)

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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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