

Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-45874-3

LAST UPDATED: 28 JUN 2013

General information

Name of genetic element

luxCDABE genes

EN

Alternate genetic element name(s) (synonym(s))

luxCDABE Operon

EN

Abbreviation

CS-luxCDABE

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

No

Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-45861-2](#) ORGANISM | PHOTORHABDUS LUMINESCENS (BACTERIA) |
Bacteria

Characteristics of the protein coding sequence

Name of the protein expressed by the coding sequence

Luciferase and fatty acid reductase

EN

Biological function of the protein

The luxCDABE operon of the bioluminescent bacterium *Photobacterium luminescens* is commonly used as a transcriptional reporter to facilitate the quantification of gene expression.

The lux genes essential for luminescence are arranged in a single operon, luxCDABE. luxCDE encode a fatty acid reductase complex involved in synthesis of the fatty aldehyde substrate for the luminescence reaction catalysed by the luciferase LuxAB subunits. Cells that express the cluster emit the 490-nm light spontaneously.

EN

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

Selectable marker genes and reporter genes

Additional Information

Other relevant website addresses and/or attached documents

? [Engineering the luxCDABE genes from Photorhabdus luminescens to provide a bioluminescent reporter for constitutive and promoter probe plasmids and mini-Tn5 constructs](#) (*English*)

? [Molecular biology of bacterial bioluminescence.](#) (*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