LIVING MODIFIED ORGANISM (LMO)

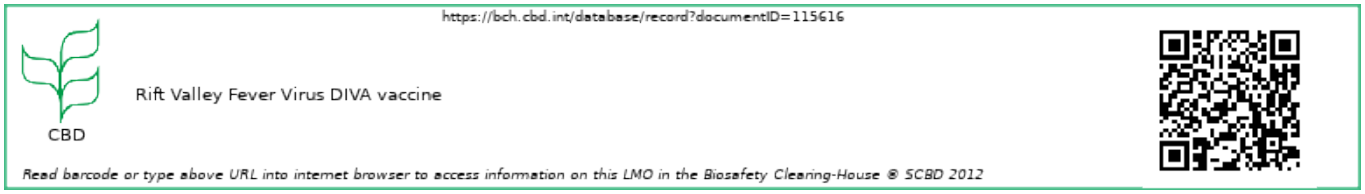
BCH-LMO-SCBD-115616-2

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 27 JUL 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

Rift Valley Fever Virus DIVA vaccine	EN

Transformation event

ChAdOx1-Gn-Gc

Developer(s)

- PERSON: DR. GEORGE WARIMWE | BCH-CON-SCBD-115615-2

PERSON

Dr. George Warimwe
Principal Scientist
Nairobi
Kenya
Phone: +1865617622
Fax: +1865617608
Email: gwarimwe@kemri-wellcome.org

RELATED ORGANIZATION

Description

ChAdOx1-GnGc is a DIVA (differentiating infected from vaccinated animals) vaccine composed of a replication-deficient simian adenovirus vector expressing *Rift valley fever phlebovirus* envelope glycoproteins (amino-terminus and carboxy-terminus glycoproteins). Together, the glycoproteins form virus-like particles, which are expected to elicit a strong immune response to viral challenges in livestock, such as sheep, goats, cattle and dromedary	EN

camels. The disease is characterized by high rates of mortality in newborn animals and abortions in those that are pregnant. The modified adenovirus is not expected to replicate within the animal due to the deletion of gene E1, which is responsible for replication.

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-115611-2 ORGANISM | CHIMPANZEE ADENOVIRUS Y25 - CHAD Y25

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

ChAdOx1 (Chimpanzee Adenovirus Oxford 1) is a replication-deficient vaccine vector derived from Chimpanzee adenovirus Y25 and contains a deletion of the gene responsible for replication, E1. EN

Characteristics of the modification process

Vector

ChAdOx1 EN

Techniques used for the modification

Direct DNA transfer

Genetic elements construct

P-IE	tPA	Gn	Gc	T-bGH
0.000 kb	0.000 kb	0.000 kb	0.000 kb	0.000 kb

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-115612-2 GLYCOPROTEIN GN - RIFT VALLEY FEVER PHLEBOVIRUS - RVFV | Production of medical or pharmaceutical compounds (human or animal) - Vaccines, Antibodies and antigens

BCH-GENE-SCBD-115609-1 MAJOR IMMEDIATE EARLY PROMOTER CONTAINING INTRON A - HUMAN BETAHERPESVIRUS 5 - HUMAN CYTOMEGALOVIRUS, HCMV, HHV-5 |

BCH-GENE-SCBD-115614-1 HUMAN TISSUE PLASMINOGEN ACTIVATOR LEADER SEQUENCE - HOMO SAPIENS - HUMAN |

BCH-GENE-SCBD-115580-1 BOVINE GROWTH HORMONE TERMINATOR - BOS TAURUS - COW, CATTLE, BULL, AUROCH, OXEN, BULLOCKS |

BCH-GENE-SCBD-115613-1 GLYCOPROTEIN GC - RIFT VALLEY FEVER PHLEBOVIRUS - RVFV | Production of medical or pharmaceutical compounds (human or animal) - Vaccines, Antibodies and antigens

Notes regarding the genetic elements present in this LMO

Gene expression
Transcription of the *Rift valley fever phlebovirus* glycoproteins Gn and Gc are under control of the Human cytomegalovirus major immediate-early promoter and the *Bos taurus* bovine EN

growth hormone terminator. A human tissue plasminogen activator leader sequence is also included to enhance the expression of the glycoproteins.

Note:
- The Human cytomegalovirus immediate early promoter contains intron A, which enhances expression of the downstream elements by promoting strong transcription.
- The Human cytomegalovirus immediate early promoter contains the following portions: Regulatory sequence (437 bp); Enhancer (481 bp); Promoter (62 bp); Exon A (120 bp); and Intron A (824 bp) (total size 1924 bp).
- The Rift valley fever virus glycoproteins Gn and Gc were isolated from the M segment of the viral genome (base pairs: 411 to 3614)

Please note: Genetic element sizes have not been confirmed

LMO characteristics

Modified traits

Production of medical or pharmaceutical compounds (human or animal)
Vaccines

Common use(s) of the LMO

Vaccine

Additional Information

Other relevant website addresses and/or attached documents

? Chimpanzee Adenovirus Vaccine Provides Multispecies Protection against Rift Valley Fever.pdf *(English)*

? A Novel Chimpanzee Adenovirus Vector with Low Human Seroprevalence - Improved Systems for Vector Derivation and Comparative Immunogenicity.PDF *(English)*

? US Patent USOO9714435B2.pdf *(English)*

BCH-LMO-SCBD-115616-2

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