

# Materials and data of the Biosafety Clearing-House and its key role in supporting laboratory detection

Austein McLoughlin

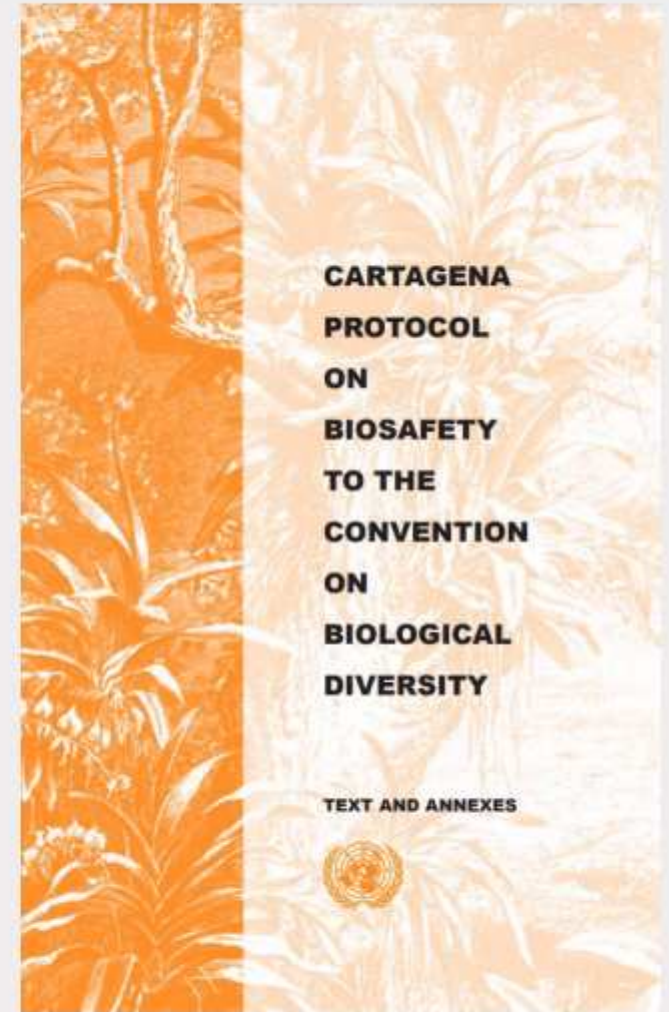
Associate Programme Management Officer

Secretariat of the Convention on Biological Diversity

# What is the Biosafety-Clearing House?

- The Biosafety Clearing-House (BCH) was established:
  - By **Article 20** of the Cartagena Protocol on Biosafety
  - As part of the Clearing-House mechanism under Article 18, paragraph 3, of the Convention on Biological Diversity
- The BCH is the instrument that allows Parties to exchange information on living modified organisms (LMOs\*) and therefore plays **a fundamental role in facilitating the implementation of the Cartagena Protocol**

\* Also known as GMOs



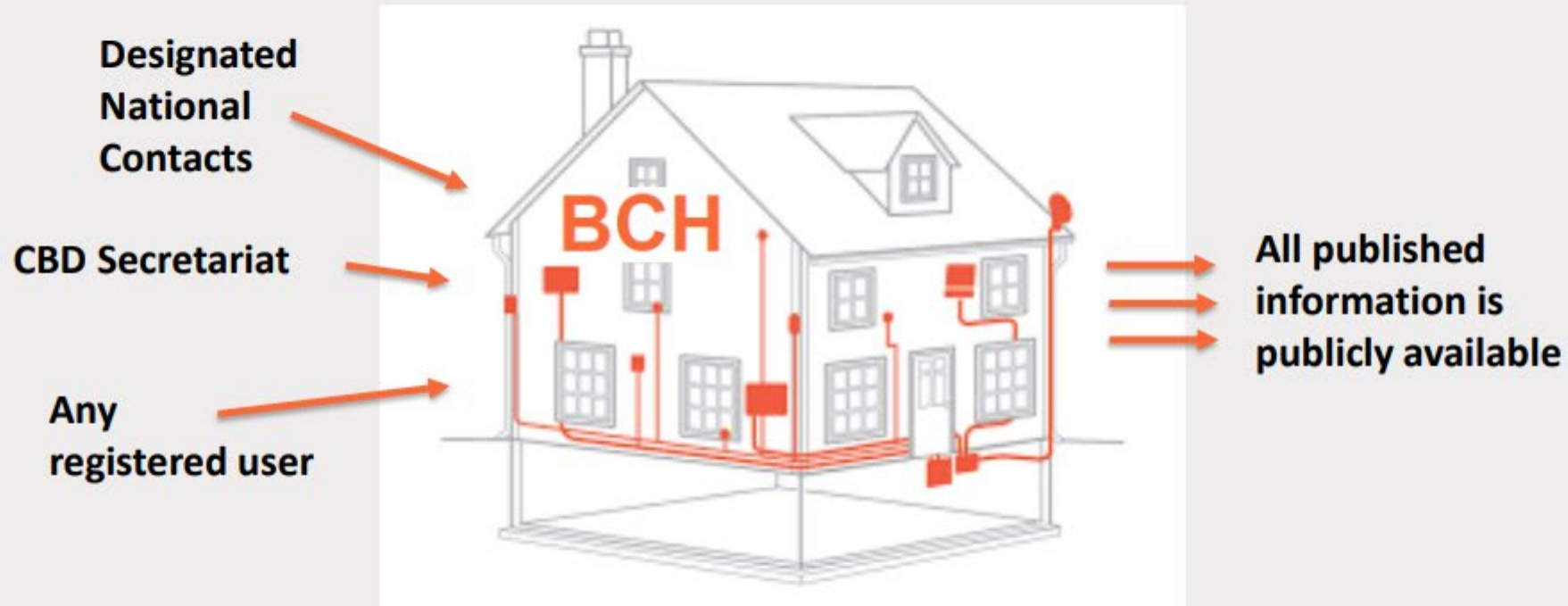
# Why is the Biosafety-Clearing House important?

- The BCH fosters transparency:
  - In the regulation of LMOs → what rules apply and who to contact for more information
  - In decisions taken on LMOs → what LMOs have been approved or prohibited, for what uses, and where
  - Access to information on LMOs
- The BCH is for everyone:
  - Governments that are not Parties to the Protocol are also encouraged to publish information in the BCH
  - A large number of decisions in the BCH have been published by non-Parties
  - Other stakeholders can also publish some types of information in the BCH and the BCH is freely accessible to everyone

# What information exists on the Biosafety Clearing-House?

- **National records** are published by governments and include information Parties are obliged to provide in accordance with the Protocol as well as other national information relevant to the implementation of the Protocol
- **Reference records** include a number of biosafety-related resources and information that can be submitted by any registered user and are validated by the Secretariat prior to their publication

# The Biosafety Clearing-House at its core?



**THE BIODIVERSITY PLAN**  
For Life on Earth



**UN**  
environment  
programme



Convention on  
Biological Diversity

# How does the BCH contribute to the field of detection and identification of LMOs?

- Database of information related to biosafety and LMOs (scientific records, resource records, experts)
- User-friendly search and cross-referencing between records
- Linkages to other databases
- Network of Laboratories for the Detection and Identification of Living Modified Organisms



# What type of scientific records are on the Biosafety Clearing-House?

- Living modified organisms
- Genetic elements
- Organisms
- Biosafety Virtual Library Resources
- Laboratories for detection and identification of LMOs
- Risk assessments generated by an independent or non-regulatory process

Reference

- Risk assessment generated by a regulatory process
- Biosafety experts

National

# Snapshot of the Biosafety Clearing-House

17,000+ records published

- 950+ LMOs
- 850+ genetic elements
- 270+ organisms
- 70+ laboratories
- 1570+ virtual library resources
- 2650+ risk assessments
- 360+ biosafety experts





# What does a BCH record look like: Living Modified Organisms

LIVING MODIFIED ORGANISM (LMO)


[BCH-LMO-SCBD-15168-16](#) | [PDF](#) | [Print](#) | [Share](#) | [Compare](#) | [Edit](#)

[Decisions on the LMO](#) [Risk Assessments](#)

LAST UPDATED: 25 SEP 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.



**MON-88913-8**  
Roundup Ready™ Flex™ cotton

<https://bch.cbd.int/database/record?documentID=15168>



*Read barcode or type above URL into internet browser to access information on this LMO in the Biosafety Clearing-House © SCBD 2012*

Name

Roundup Ready™ Flex™ cotton

EN

Transformation event

MON88913 (88913)

Does this LMO have a unique identifier?

Yes

Unique identifier

MON-88913-8

#### Developer(s)

- [ORGANIZATION: MONSANTO](#) | [BCH-CON-SCBD-14925-3](#) 

##### ORGANIZATION:

Monsanto

800 North Lindbergh Blvd.

St. Louis, MO

63167, United States of America

Phone: + 1 314 694-1000

Fax: +1 314 694-3080

Website: <http://www.monsanto.com>

#### Description

Roundup Ready® Flex cotton (MON 88913) was developed to allow the use of glyphosate, the active ingredient in the herbicide Roundup®, as a weed control option in cotton production. This genetically engineered cotton contains a novel form of the plant enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) that allows MON 88913 to survive otherwise lethal applications of glyphosate. The *epsps* gene introduced into MON 88913 was isolated from a strain of the common soil bacterium *Agrobacterium tumefaciens* strain CP4; the EPSPS enzyme expressed by this gene is tolerant to glyphosate. MON 88913 cotton contains two copies of the EPSPS gene to confer tolerance to glyphosate later in the growing season, specifically after the fifth true leaf stage.

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-12080-6](#) ORGANISM | GOSSYPIUM HIRSUTUM (COTTON) |

Crops

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

Variety: 'Coker 312'

EN

## Characteristics of the modification process

### Vector

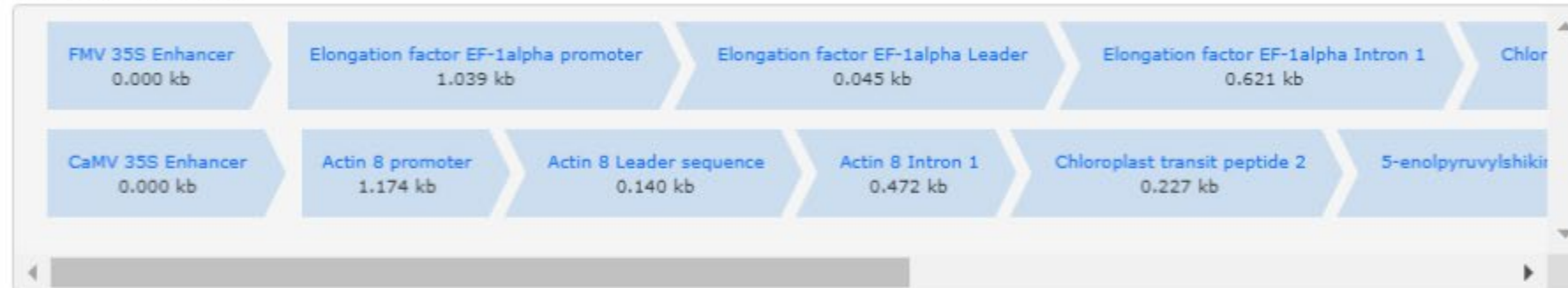
PV-GHGT35

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-14979-7](#) 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE SYNTHASE GENE | AGROBACTERIUM TUMEFACIENS (AGROBACTERIUM) |

Protein coding sequence | Resistance to herbicides (Glyphosate)

[BCH-GENE-SCBD-103903-1](#) ELONGATION FACTOR EF-1ALPHA PROMOTER | ARABIDOPSIS THALIANA (THALE CRESS, MOUSE-EAR CRESS, ARABIDOPSIS, ARATH) |

Promoter

[BCH-GENE-SCBD-103904-1](#) ELONGATION FACTOR EF-1ALPHA LEADER | ARABIDOPSIS THALIANA (THALE CRESS, MOUSE-EAR CRESS, ARABIDOPSIS, ARATH) |

Leader

[BCH-GENE-SCBD-103905-1](#) ELONGATION FACTOR EF-1ALPHA INTRON 1 | ARABIDOPSIS THALIANA (THALE CRESS, MOUSE-EAR CRESS, ARABIDOPSIS, ARATH) |

Intron

[BCH-GENE-SCBD-100365-6](#) CHLOROPLAST TRANSIT PEPTIDE 2 | ARABIDOPSIS THALIANA (THALE CRESS, MOUSE-EAR CRESS, ARABIDOPSIS, ARATH) |

[BCH-GENE-SCBD-105196-2](#) FMV 35S ENHANCER | FIGWORT MOSAIC VIRUS (FIGWORT MOTTLE VIRUS, FMV, CMOV B)

Leader

[BCH-GENE-SCBD-105197-2](#) CAMV 35S ENHANCER | CAULIFLOWER MOSAIC VIRUS (CAMV)

Leader

Notes regarding the genetic elements present in this LMO

#### Information on the inserted DNA sequences

The transforming plasmid PV-GHGT35 carried a transfer DNA sequence comprising of two codon-optimised *Agrobacterium tumefaciens* 5-enolpyruvylshikimate-3-phosphate synthase (*epsps*) cassettes:

(1) the first *epsps* coding sequence under the regulation of a chimeric transcriptional promoter (*Figwort mosaic virus* 35S promoter enhancer and *Arabidopsis thaliana* elongation factor EF-1 alpha (*tsf1*) promoter), *tsf1* leader and intron sequences, an *A. thaliana* chloroplast transit peptide 2 sequence and a *Pisum sativum* ribulose-1,5-bisphosphate carboxylase/oxygenase (rubisco) E9 transcript termination and polyadenylation sequence (T-E9).

(2) the second *epsps* coding sequence regulated by another chimeric transcriptional promoter (*Cauliflower mosaic virus* 35S enhancer and *A. thaliana* actin 8 (*act8*) promoter), *act8* leader and intron sequences, *A. thaliana* chloroplast targeting peptide 2 and T-E9.

High levels of transcription are expected from both cassettes due to the presence of viral enhancer sequences. The EPSPS protein is expected to accumulate in the chloroplast due to the transit signal peptide.

#### Vector information

Monsanto constructed the double border, binary plasmid vector PV-GHGT35 for the transformation of cotton variety Coker 312. The plasmid contains a single copy of two *epsps* expression cassettes within the T-DNA region. The T-DNA region of PV-GHGT35 was incorporated into the target cotton genome using *Agrobacterium*-mediated transformation. Plasmid PV-GHGT35 also contains several genes from the plasmid backbone necessary for maintenance and selection of the plasmid that are not ultimately incorporated into the plant genome. Plasmid PV-GHGT35 contains both vegetative and bacterial origins of replication that allow replication of the plasmid in both *A. tumefaciens* and *Escherichia coli*. The plasmid contains the *aad* gene encoding the Tn7 adenyltransferase that provides resistance to spectinomycin and streptomycin. The plasmid also contains a sequence, known as *rop*, which represses the formation of RNA primer thereby allowing maintenance and copy number control of the plasmid in *Escherichia coli*.

#### Note on genetic element sizes:

The promoter for both genetic constructs are chimeric promoters containing viral enhancer sequences. Thus, the size of the promoters (Elongation factor 1 alpha and Actin 8) in the 'Genetic elements construct' reflects the size of chimeric promoters (FMV 35S enhancer + Elongation factor 1 alpha promoter; CaMV 35S enhancer + Actin 8 promoter).

EN

# What does a BCH record look like: Living Modified Organisms

## LMO characteristics

### Modified traits

Resistance to herbicides  
Glyphosate

### Common use(s) of the LMO

Fiber/textile

## Detection method(s)

### External link(s)

[MON-88913-8 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\) \( JRC \) \[ English \]](#)

[MON-88913-8 - CropLife International Detection Methods Database \( CropLife \) \[ English \]](#)



Meeting challenges in a growing world

ATAIA

[Home](#) [About Us](#) [Crop Protection](#) [Plant Biotechnology](#) [Resources](#) [Contact Us](#)

[database home](#) [technology overview](#) [about us](#) [library](#) [intellectual property](#)

## The CropLife International Detection Methods Database

### Background

Genetically modified (GM) crops were first introduced in 1994 and have now been adopted by farmers in more



SEARCH THE  
DATABASE

Filter products by crop, protein,  
developer, and more.



**THE BIODIVERSITY PLAN**  
For Life on Earth



**UN**  
environment  
programme



Convention on  
Biological Diversity


## Additional Information

### Additional Information

The EPSPS enzyme is part of the shikimate pathway, an important biochemical pathway in plants involved in the production of aromatic amino acids and other aromatic compounds. When conventional plants are treated with glyphosate, the plants cannot produce the aromatic amino acids needed for growth and survival. EPSPS is present in all plants, bacteria, and fungi. It is not present in animals, since these organisms are unable to synthesize their own aromatic amino acids. Because the aromatic amino acid pathway is not present in mammals, birds, or aquatic life forms, glyphosate has little, if any, toxicity for these organisms. The EPSPS enzyme is naturally present in foods derived from plant and microbial sources.

EN

### Other relevant website addresses and/or attached documents

 [MON 88913-8 - APHIS](#) [ English ]

 [Euginius: MON88913](#) [ English ]

### Records referencing this document

[Show in search](#)

	Record type	Field	Record(s)
 <a href="#">Show</a>	Living Modified Organism	Recipient Organism" or "Parental Organisms	10
 <a href="#">Show</a>	Risk Assessment generated by a regulatory process	Living modified organism(s)	43
 <a href="#">Show</a>	Country's Decision or any other Communication	Living modified organism(s)	47
 <a href="#">Show</a>	Laboratory for detection and identification of LMOs	LMO(s) detectable by the laboratory	6

# What does a BCH record look like: Living Modified Organisms

Records referencing this document

Show in search

	Record type	Field	Record(s)
Show	Living Modified Organism	Recipient Organism" or "Parental Organisms	11
Show	Risk Assessment generated by a regulatory process	Living modified organism(s)	43
Show	Country's Decision or any other Communication	Living modified organism(s)	47
Hide	Laboratory for detection and identification of LMOs	LMO(s) detectable by the laboratory	6

Title ↑↓	UId ↑↓	Updated on ↑↓
LAB - Executive Environment Agency (ExEA)	<a href="#">BCH-LAB-SCBD-250602-2</a>	29 Mar 2021 18:13
LAB - National Bureau of Plant Genetic Resources, New Delhi (NBPGR)	<a href="#">BCH-LAB-SCBD-250645-6</a>	29 Mar 2021 15:26
LAB - European Union Reference Laboratory for Genetically Modified Food and Feed (EU-RL GMFF)	<a href="#">BCH-LAB-SCBD-250649-4</a>	29 Mar 2021 15:20
LAB - Comisión Intersecretarial de Bioseguridad de los Organismos Genéticamente Modificados (CIBIOGEM)	<a href="#">BCH-LAB-SCBD-250671-15</a>	29 Mar 2021 15:13
LAB - Wageningen Food Safety Research (WFSR), Wageningen University & Research (Formely RIKILT Wageningen University & Research) (WFSR)	<a href="#">BCH-LAB-SCBD-250647-9</a>	15 Jun 2020 13:25
LAB - Centre de Recerca en Agrigenòmica (CRAG)	<a href="#">BCH-LAB-SCBD-250661-2</a>	03 Aug 2012 19:38

[BCH-LMO-SCBD-15168-16](#)

Report

# What information is available related to detection on the BCH?

## Living modified organisms (LMO)

- Detection methods field (automated links)
- Characteristics of the modification process section
- Sequence information, regulatory documents and/or related journal publications in the additional information field



## Genetic elements (GENE)

- GMO Genetic Elements Thesaurus (with EUginius)
- Sequence information in the additional information field (if available)



## Organisms (ORGA)

- Sequence information in the additional information field (if available)

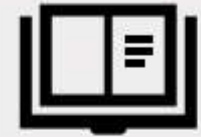




# What is the Biosafety-Clearing House?

## Biosafety Virtual Library Resources (VLR)

- Scientific publications related to the field of detection and identification of LMOs
- Detection is a “Biosafety Thematic Area”



## Laboratories for detection and identification of LMOs (LAB)

- Information on services performed, methods used, types of LMOs analyzed, LMOs, genetic elements, accreditation



## Risk assessments (regulatory and non-regulatory; RA & IRA)

- Risk assessment summary or report
- LMO detection and identification methods proposed



## Biosafety experts (EXP)

- Sampling and detection of LMOs is an Area of Expertise



# What is the Biosafety-Clearing House?

## Biosafety Virtual Library Resources

- Scientific publications and identification of LMOs
- Detection is a “Biosafety”

## Laboratories for detection and

- Information on services LMOs analyzed, LMOs,

## Risk assessments (regulatory)

- Risk assessment summaries
- LMO detection and identification

## Biosafety experts (EXP)

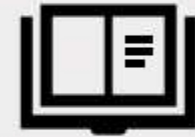
- Sampling and detection

Секретариат  
Конвенции о  
биологическом  
разнообразии

ТЕХНИЧЕСКАЯ СЕРИЯ ПО БИОБЕЗОПАСНОСТИ 05



Учебное пособие по обнаружению  
и идентификации живых  
изменённых организмов в контексте  
Картахенского протокола по  
биобезопасности



# How do I search for information related to detection?

1. Go to <http://bch.cbd.int>
2. Click “Search” and select “Records”
3. Select specific types of records under “Record types”





The screenshot shows the BCH website interface. At the top left, it says "Convention on Biological Diversity". On the right, the user name "Austein McLoughlin" and language "EN" are visible. The main header features the "BCH BIOSAFETY CLEARING-HOUSE" logo and a navigation menu with "HOME", "ABOUT", "SEARCH", "SUBMIT", "COUNTRY PROFILES", "HELP", and "FORUMS". The "SEARCH" menu is open, showing "Records" (highlighted with a red box and a green arrow), "Registries", "LMO", "Organism", "Gene", and "National Report Analyzer". Below the navigation, a large banner contains the text: "The Biosafety Clearing-House (BCH) is an online platform for exchanging information on Living Modified Organisms... a key tool for facilitating the implementation of the Cartagena Protocol on Biosafety." Three buttons are present: "EXPLORE THE MAP", "GET STARTED", and "RECENT RECORDS". Below this is an "Announcements" section with three items: "15 Feb 2023", "06 Feb 2023 QUESTION AND ANSWER WEBINAR", and "23 Jan 2023 Webinar: New and improved clearing-house features".

CBD / BCH / Search

## Search





























 TAKE SEARCH TOUR

Search the Clearing-House

DEFAULT VIEW SORT SHARE EXPORT GLOBAL FILTERS: Record types  Keywords  Country  Regions  Date  My saved searches 


## National Records





















 National records are published by governments and include information Parties are obliged to provide in accordance with the Protocol as well as other national information relevant to the implementation of the Protocol.

-  National Focal Points (344) 
-  Competent National Authorities (407) 
-  Supplementary Protocol Competent Authorities (13) 
-  Biosafety Laws, Regulations, Guidelines and Agreements (1139) 
-  Countries' Decisions or any other Communications (2710) 
-  Risk Assessments generated by a regulatory process (2597) 
-  National Biosafety Websites or Databases (151) 
-  Fourth National Reports on the Implementation of the Cartagena Protocol on Biosafety (135) 
-  Third National Reports on the Implementation of the Cartagena Protocol on Biosafety (160) 
-  Second National Reports on the Implementation of the Cartagena Protocol on Biosafety (156) 
-  First National Reports on the Implementation of the Cartagena Protocol on Biosafety (0) 
-  Interim National Reports on the Implementation of the Cartagena Protocol on Biosafety (0) 
-  Biosafety Experts (363) 
-  Country Profiles for Biosafety Clearing-House (168) 





-  Contacts (2460) 

## Reference Records

 Reference records include a number of biosafety-related resources and information that can be submitted by any registered user and are validated by the Secretariat prior to their publication.

-  Biosafety Virtual Library Resources (1571) 
-  Biosafety Organizations (377) 
-  Laboratories for detection and identification of LMOs (74) 
-  Living Modified Organisms (941) 
-  Genetic elements (847) 
-  Organisms (268) 
-  Risk Assessments generated by an independent or non-regulatory process (32) 
-  Submissions (525) 
-  Capacity Development Initiatives (423) 
-  BCH News (558) 

## Party Status

-  Party to the Cartagena Protocol on Biosafety
-  Party to the Supplementary Protocol
-  Ratified, not yet Party to the Cartagena Protocol on Biosafety
-  Not a Party to the Cartagena Protocol on Biosafety



# How do I refine my search: Laboratories for the detection of LMOs

## Search

Laboratories for detection and identification of LMOs

Clear filters

TAKE SEARCH TOUR

Search the Clearing-House



DEFAULT VIEW

SORT

SHARE

EXPORT

GLOBAL FILTERS: Record types ▾ Keywords ▾ Country ▾ Regions ▾ Date ▾ My saved searches ▾

Save this search

## SUB-FILTERS

Laboratories for detection and identification of LMOs

Free Text

Search in Laboratories for detection and identification of LMO



Services and activities performed

Types of LMOs

Geographical region

Types of detection/identification method(s) available for use in the laboratory

LMO(s) detectable by the laboratory

Genetic elements(s) detectable by the laboratory

All records 74

National records 0

Reference records 74

SCBD records 0

Page 1 of 3

« First

« Prev

1

2

3

Next »

Last »

1 - 25 of 74

Items per page 25

LAB - The P.I "Central Phytosanitary Laboratory" of the NFS A of the Republic of Moldova

Field sampling, Development of standard methods, Development of reference materials

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-263325-1 | REPUBLIC OF MOLDOVA | 24 FEB 2023

LAB - Department of Chemistry Malaysia (DOC)

Development of standard methods, Organization of inter-laboratory comparisons, Validation of third parties' results and methods, Capacity-building or training

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-260243-1 | MALAYSIA | 27 APR 2022

LAB - GMO Detection Laboratory in Shanghai Jiao Tong University (GMODL-SJTU)

Development of standard methods, Development of reference materials, Other

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-259921-1 | CHINA | 30 MAR 2022

LAB - Centre National de Recherches sur l'Environnement (CNRE)

Field sampling, Development of reference materials, Supply of reference materials, Organization of inter-laboratory comparisons

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-258867-1 | MADAGASCAR | 23 MAR 2022

# How do I refine my search: Laboratories for the detection of LMOs

## SUB-FILTERS

### Laboratories for detection and identification of LMOs

Free Text

Search in Laboratories for detection and identification of LMC



Services and activities performed >

Types of LMOs >

Geographical region >

Types of detection/identification method(s) available for use in the laboratory >

LMO(s) detectable by the laboratory >

Genetic element(s) detectable by the laboratory >

- Sub-filters specific to the fields on the common format for each record type
- Improved functionality compared to previous version of the platform

# How do I refine my search: Laboratories for the detection of LMOs

**Search**

Laboratories for detection and identification of LMOs

Search the Clearing-House

GLOBAL FILTERS: Record types ▾ Keywords ▾ Country ▾ Regions ▾ Date ▾ My saved searches ▾

DEFAULT VIEW ▾ | SORT | SHARE | EXPORT

Save this search

## SUB-FILTERS

Laboratories for detection and identification of LMOs

Free Text

Search in Laboratories for detection and identification

Services and activities performed >

Types of LMOs >

Geographical region >

Types of detection/identification method(s) available for use in the laboratory >

**Qualitative PCR (end-point PCR) x**

LMO(s) detectable by the laboratory >

Genetic element(s) detectable by the laboratory >

All records 57 National records 0 Reference records 57 SCBD records 0

Page 1 of 3 « First « Prev 1 2 3 Next » Last » 1 - 25 of 57 Items per page 25 ▾

- LAB - The P.I "Central Phytosanitary Laboratory" of the NFSA of the Republic of Moldova**
  - Field sampling, Development of standard methods, Development of reference materials
  - [LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs](#) | BCH-LAB-SCBD-263325-1 | REPUBLIC OF MOLDOVA | 24 FEB 2022
- LAB - Department of Chemistry Malaysia (DOC)**
  - Development of standard methods, Organization of inter-laboratory comparisons, Validation of third parties' results and methods, Capacity-building or training
  - [LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs](#) | BCH-LAB-SCBD-260245-1 | MALAYSIA | 27 APR 2022
- LAB - GMO Detection Laboratory in Shanghai Jiao Tong University (GMODL-SJTU)**
  - Development of standard methods, Development of reference materials, Other
  - [LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs](#) | BCH-LAB-SCBD-259921-1 | CHINA | 30 MAR 2022
- LAB - Centre National de Recherches sur l'Environnement (CNRE)**
  - Field sampling, Development of reference materials, Supply of reference materials, Organization of inter-laboratory comparisons
  - [LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs](#) | BCH-LAB-SCBD-259967-1 | MADAGASCAR | 23 MAR 2022
- LAB - DNA Fingerprinting and Transgenic Crops Monitoring Lab (DFTCM Lab)**
  - Field sampling, Field testing, Development of standard methods, Capacity-building or training
  - [LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs](#) | BCH-LAB-SCBD-250652-5 | INDIA | 29 MAR 2021

# How do I refine my search: Laboratories for the detection of LMOs

**Search**

Laboratories for detection and identification of LMOs Clear filters

Search the Clearing-House

DEFAULT VIEW

GLOBAL FILTERS: Record types

**SUB-FILTERS**

Laboratories for detection and identification of LMOs

Free Text

Search in Laboratories for detection and identification

Services and activities performed

Types of LMOs

Geographical region

Types of detection/identification method(s) available for use in the laboratory

Qualitative PCR (end-point PCR)

LMO(s) detectable by the laboratory

Genetic elements(s) detectable by the laboratory

All records **57** National records **0** Reference records **57** SCBD records **0**

Page 1 of 3   **1**     1 - 25 of 57

**LAB - The P.I "Central Phytosanitary Laboratory" of the NFSA of the Republic of Moldova**

Field sampling, Development of standard methods, Development of reference materials

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-263325-1 | REPUBLIC OF MOLDOVA | 24 FEB 2023

**LAB - Department of Chemistry Malaysia (DOC)**

Development of standard methods, Organization of inter-laboratory comparisons, Validation of third parties' results and methods , Capacity-building or training

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-260245-1 | MALAY SIA | 27 APR 2022

**LAB - GMO Detection Laboratory in Shanghai Jiao Tong University (GMODL-SJTU)**

Development of standard methods, Development of reference materials , Other

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-259921-1 | CHINA | 30 MAR 2022

**LAB - Centre National de Recherches sur l'Environnement (CNRE)**

Field sampling, Development of reference materials , Supply of reference materials, Organization of inter-laboratory comparisons

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-259067-1 | MADAGASCAR | 23 MAR 2022

**LAB - DNA Fingerprinting and Transgenic Crops Monitoring Lab (DFTCM Lab)**

Field sampling, Field testing, Development of standard methods, Capacity-building or training

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-250652-3 | INDIA | 29 MAR 2021



# How do I refine my search: Laboratories for the detection of LMOs

**Search**

Laboratories for detection and identification of LMOs Clear filters

Search the Clearing-House

GLOBAL FILTERS: Record types Keywords Country Regions Date My saved searches

Save this search

## SUB-FILTERS

Laboratories for detection and identification of LMOs

### Free Text

Search in Laboratories for detection and

### Services and activities performed

### Types of LMOs

### Geographical region

### Types of detection/identification methods for use in the laboratory

### Qualitative PCR (end-point PCR)

### LMO(s) detectable by the laboratory

### Genetic element(s) detectable by the laboratory

## Save search filter(s)

### Title for this saved search:

Search title

Send me an email when records relevant to this search are added or updated.

Save

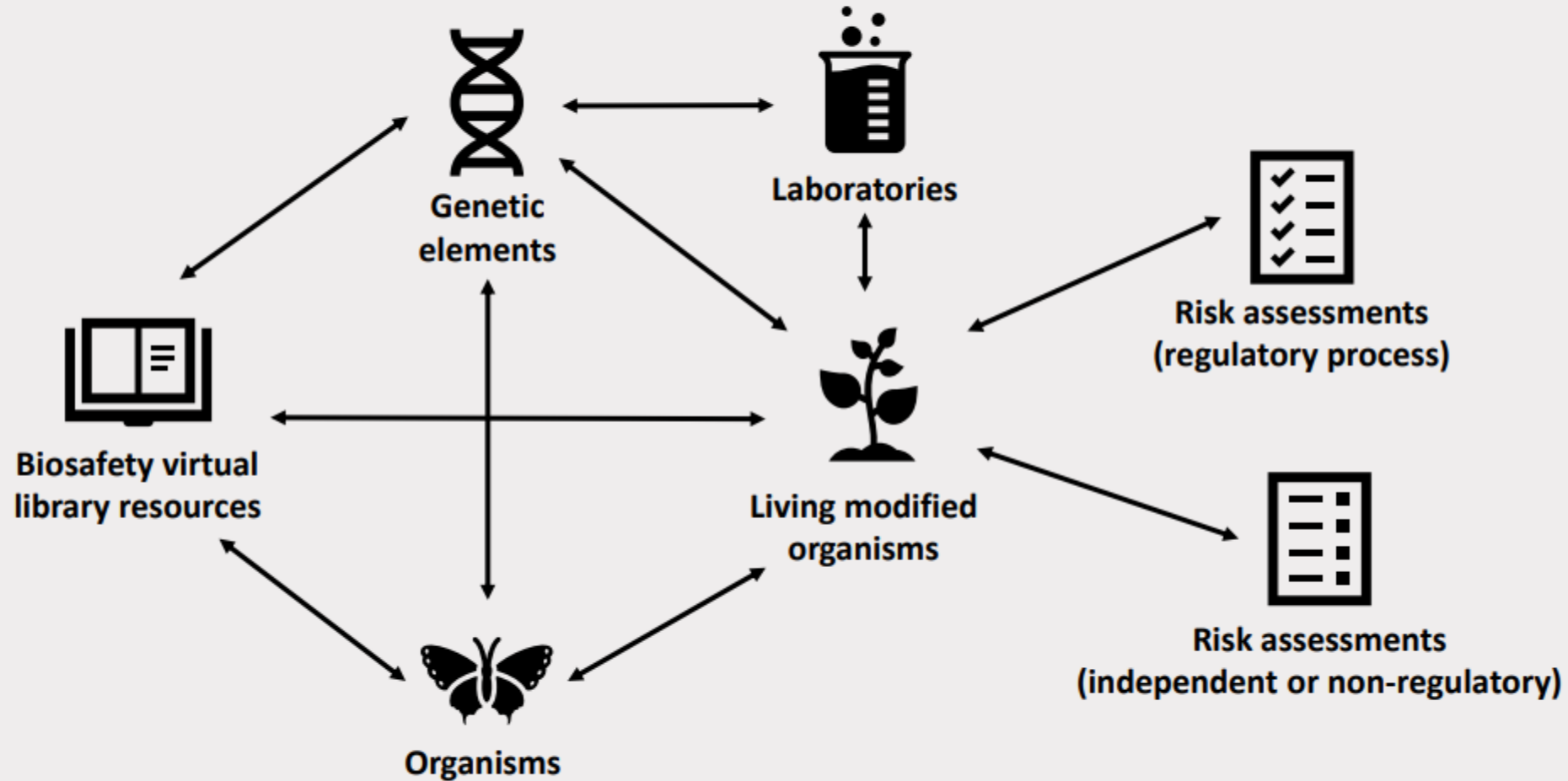
LAB - DNA Fingerprinting and Transgenic Crops Monitoring Lab (DFTCM Lab)

Field sampling, Field testing, Development of standard methods, Capacity-building or training

LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOs | BCH-LAB-SCBD-250652-3 | INDIA | 29 MAR 2021

# Other ways to find information

- Cross referencing between records in the BCH



# Other ways to find information

- Cross referencing between records in the BCH
- Through the use of the registries:
  - Compiled lists of all LMOs, genetic elements and organisms
- Forums

## Living Modified Organism (LMO) Registry 341

The LMO Registry provides summary information on all living modified organisms registered in the BCH, including transformation events, genetic modifications and the [unique identification code](#) (if available) for each record. Links to all decisions and risk assessment reports that refer to these organisms are accessible through the records in the registry.

[View registry](#)

## Organism Registry 258

The Organism Registry includes summary information on those organisms that have been registered in the BCH as parental, recipient or donor organisms. The registry includes links to the records on each organism where further information about relevant biological characteristics, including information on taxonomic classification, common name, origin, centre of origin and centre of genetic diversity can be found. Links to records that reference the organism are provided at the bottom of each individual record.

[View registry](#)

## Genetic Element Registry 847

The Genetic Element Registry provides a summary of information on the genetic elements associated with the LMOs registered in the BCH, including information on the donor organism, conferred traits and biological function. The registry includes links to the records on each genetic element where more details may be found. LMOs containing the particular genetic element are referenced at the bottom of the individual record.

[View registry](#)

# Network of Laboratories for the Detection and Identification of LMOs

The Biosafety Clearing-House (BCH) is an online platform for Living Modified Organisms (LMOs) and a key tool for facilitating the implementation of the Cartagena Protocol on Biosafety.

 **EXPLORE THE MAP** ▾

- BCH on BCH Forum
- Risk Assessment and Risk Management
- Sampling, Detection and Identification**
- BCH Informal Advisory Committee (BCH-IAC)
- Liaison Group on the Cartagena Protocol on Biosafety
- UNEP Regional Advisors Forum

 **RECENT RECORDS** ▾

## Announcements



**The Implementation Plan and the Capacity-building Action Plan for the Cartagena Protocol on Biosafety**

Read the Implementation Plan and the Capacity-building Action Plan, adopted at CP-MOP 10.




**Poll on Public Awareness, Education and Participation regarding LMOs**

Results of the poll



**Webinar "20 Years of the Safe Use of Biotechnology"**

Recording of the webinar, held on 11 September 2023, to celebrate the 20th anniversary of the entry into force of the Cartagena Protocol on Biosafety.

- Sampling, Detection and Identification
  - > Network of Laboratories**
  - Submissions of information 
  - > Resources
  - > Past activities

### Sampling, Detection and Identification

The detection and identification of living modified organisms (LMOs) is a broad reaching activity, which can facilitate the application of several articles of the Cartagena Protocol on Biosafety. In the context of [Article 18](#), which addresses the issue of the handling, transport, packaging and identification of LMOs, the detection and identification of LMOs plays a part in the ability of national authorities to distinguish whether or not there are LMOs in a shipment both through proper packaging and labelling of shipments and through the analytical, laboratory based analysis of the contents of a shipment to detect unauthorised and unintended LMOs.

Furthermore the identification of LMOs is also vital to the activities relating to Risk Management as outlined in [Article 16](#) which requires Parties to adopt measures and strategies for preventing adverse effects and for managing and controlling risks identified by risk assessments. This may involve risk management activities such as monitoring the receiving environment in which detection and identification can be used as a tool. This can be further applied to the provisions of implementing [Articles 17 and 25](#) on unintentional and illegal transboundary movements respectively.

### Current 2023-2024 intersessional period

At its tenth meeting, in decision [CP-10/11](#), the Conference of the Parties serving as the meeting of the Parties to the Protocol (COP-MOP) welcomed the publication of [Biosafety Technical Series 05: Training Manual on the Detection and Identification of Living Modified Organisms in the Context of the Cartagena Protocol on Biosafety](#). Further, the COP-MOP invited Parties to submit information on their experience detecting newly developed and unauthorised living modified organisms, and developing reference materials, as well as opening collaborations involving national and regional

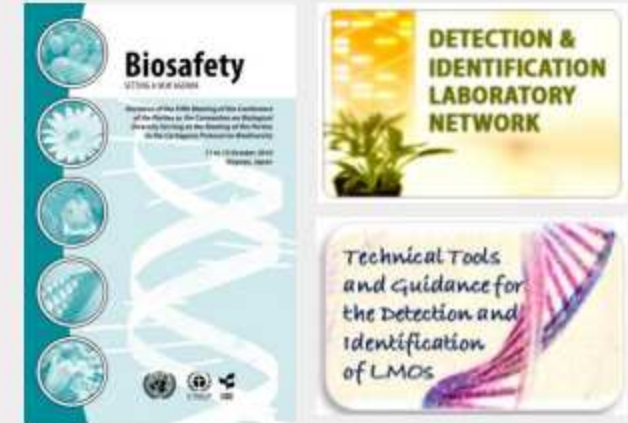
**building Action Plan for the Cartagena Protocol on Biosafety**  
Read the Implementation Plan and the Capacity-building Action Plan, adopted at CP-MOP 10.

**Poll on Public Awareness, Education and Participation regarding LMOs**  
Results of the poll

**Biotechnology**  
Recording of the webinar, held on 11 September 2023, to celebrate the 20th anniversary of the entry into force of the Cartagena Protocol on Biosafety.

# Network of Laboratories for the Detection and Identification of LMOs

- An electronic network of laboratories to facilitate the identification of LMOs as well as sharing of information and experiences (decision BS-V/9)
- Hosted on the Biosafety Clearing-House
- Supports the programme of work on detection
  - Assists with developing technical materials
  - Definitions (e.g., illegal vs. unintentional transboundary movements)
  - Online discussions to inform Parties
- 204 experts from all regions



# What is the Secretariat doing moving forward?

- Following the launch of the new platform, the Secretariat continues to improve the new BCH platform
- In decision CP-10/11, Parties are invited to submit information on their laboratories using the LAB common format
- Opportunities to explore further interlinkages and interoperability with other databases
  - Current: JRC GMOMethods + Croplife Detection methods database, FAO GM Foods platform, OECD BioTrack Product database
- Continued enlargement of the Network of Laboratories

# How to engage with the Biosafety Clearing-House?

- Sign up for a BCH account (<http://bch.cbd.int>)
- Submit information
  - New publications or protocols
  - Information on your lab
- Provide feedback ([bch@cbd.int](mailto:bch@cbd.int))
- Get help:
  - Chat
  - Training materials





- How?
  - Send a nomination
  - Signed letter either:
    - National focal point to the Cartagena Protocol on Biosafety; or
    - Head of organization
  - CV with description of involvement in detection and identification activities



# Thank you!

## Secretariat of the Convention on Biological Diversity

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