LABORATORY FOR DETECTION AND IDENTIFICATION OF LMOS (LAB)

BCH-LAB-SCBD-250661-2

LAST UPDATED: 03 AUG 2012

General information

Laboratory name and coordinates

CENTRE DE RECERCA EN AGRIGENÒMICA (CRAG) BCH-ORG-SCBD-102446-2

Academic or research institute

Campus Universitat Autònoma de Barcelona - Edificio CRAG
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Services and activities performed

Field testing
Development of standard methods
Validation of third parties' results and methods
Capacity-building or training

Collaborative agreements

- Colaboración con la Oficina de Variedades Vegetales del Ministerio de Medio Ambiente y Medio Rural y Marino de España para la detección de variedades de maíz y algodón modificados genéticamente. - Colaboración con laboratorios de la European Network of GMO Laboratories (ENGL) en proyectos europeos del V al VII programa marco para el desarrollo de técnicas de detección de OMGs, detección de OMGs no autorizados (UMGs), y detección masiva de OMGs (Arrays). Acrónimos: CO-EXTRA, SIGMEA, QPCRGMOFOOD, GMOCHIPS.	ES

http://www.co-extra.com *(Spanish)*

? http://www.inra.fr/sigmea *(Spanish)*

? http://www.vetinst.no/eng/Research/Research-projects/EU-Projects/QPCRGMOFOOD *(Spanish)*

? http://www.bats.ch/gmochips/ *(Spanish)*

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

DNA-based
- Quantitative PCR (qPCR)
- Qualitative PCR (end-point PCR)
- DNA sequencing
- Southern hybridization
- Genomics

RNA-based
- Northern hybridization
- Transcriptomics

Protein-based
- ELISA
- Strip test
- Western hybridization
- Proteomics

Metabolites
- Chromatography (liquid, gas, HPLC, TLC, etc)
- Mass spectrometry
- Metabolomics

Types of LMOs

Bacteria
Plants

LMO(s) detectable by the laboratory

BCH-LMO-SCBD-14759-8 | ACS-BNØØ5-8 - InVigor™ canola | Changes in physiology and/or production - Reproduction - Male sterility Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14755-7 | ACS-BNØØ3-6 - InVigor™ canola | Changes in physiology and/or production - Fertility restoration Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14762-14 | ACS-BNØØ8-2 - Herbicide Tolerant Canola | Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14756-5 | ACS-BNØØ4-7 - InVigor™ canola | Changes in physiology and/or production - Reproduction - Male sterility Resistance to antibiotics - Kanamycin Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14757-7 | ACS-BNØØ4-7 x ACS-BNØØ1-4 - InVigor™ canola | Changes in physiology and/or production - Reproduction - Male sterility Resistance to antibiotics - Kanamycin Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14753-6 | ACS-BNØØ1-4 - InVigor™ canola | Changes in physiology and/or

production - Fertility restoration Resistance to antibiotics - Kanamycin Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14754-5 | ACS-BNØØ2-5 - InVigor™ canola | Changes in physiology and/or production - Fertility restoration Resistance to antibiotics - Kanamycin Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14761-7 | ACS-BNØØ7-1 - Liberty-Link™ Innovator Canola | Resistance to antibiotics - Kanamycin Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-15165-13 | DAS-59122-7 - Herculex™ RW Rootworm Protection maize | Pioneer Hi-Bred International Inc. | Resistance to diseases and pests (Insects, Coleoptera (beetles)), Resistance to herbicides (Glufosinate)
Show detection method(s)

BCH-LMO-SCBD-14841-13 | DAS-Ø15Ø7-1 - Herculex™ I maize | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths)), Resistance to herbicides (Glufosinate)
Show detection method(s)

BCH-LMO-SCBD-15185-7 | DAS-59122-7 x DAS-Ø15Ø7-1 x MON-ØØ6Ø3-6 - Herculex XTRA™ Roundup Ready™ 2 maize | Pioneer Hi-Bred International Inc. | Resistance to diseases and pests (Insects, Coleoptera (beetles), Lepidoptera (butterflies and moths)), Resistance to herbicides (Glufosinate, Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-15178-8 | DAS-59122-7 x MON-ØØ6Ø3-6 - Herculex™ RW Rootworm Protection Roundup Ready™ 2 maize | Pioneer Hi-Bred International Inc. | Resistance to diseases and pests (Insects, Coleoptera (beetles)), Resistance to herbicides (Glufosinate, Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-14797-15 | SYN-BTØ11-1 - YieldGard™ maize | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-16121-8 | SYN-BTØ11-1 x MON-ØØØ21-9 - YieldGard™ Roundup Ready™ maize | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glufosinate, Glyphosate
Show detection method(s)

BCH-LMO-SCBD-14808-10 | DAS-Ø15Ø7-1 x MON-ØØ6Ø3-6 - Herculex™ I Roundup Ready™ 2 maize | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths)), Resistance to herbicides (Glufosinate, Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-14794-18 | MON-ØØØ21-9 - Roundup Ready™ maize | Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-15105-12 | SYN-IR6Ø4-5 - Agrisure™ RW Rootworm-Protected maize | Mannose tolerance Resistance to diseases and pests - Insects - Coleoptera (beetles) - Western corn rootworm (Diabrotica virgifera) Selectable marker genes and reporter genes
Show detection method(s)

BCH-LMO-SCBD-14750-19 | MON-ØØ81Ø-6 - YieldGard™ maize | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths)
Show detection method(s)

BCH-LMO-SCBD-14778-15 | MON-ØØ863-5 - YieldGard™ Rootworm™ maize | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles)
Show detection method(s)

BCH-LMO-SCBD-14890-7 | MON-ØØ863-5 x MON-ØØ81Ø-6 - YieldGard™ Rootworm™ maize | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles), Lepidoptera (butterflies and moths)
Show detection method(s)

BCH-LMO-SCBD-14809-8 | MON-ØØ863-5 x MON-ØØ81Ø-6 x MON-ØØ6Ø3-6 - Roundup Ready™ YieldGard™ maize | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles), Lepidoptera (butterflies and moths) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-14889-9 | MON-ØØ863-5 x MON-ØØ6Ø3-6 - Roundup Ready™ YieldGard™ maize | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Coleoptera (beetles) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-15106-10 | MON-88Ø17-3 - YieldGard™ VT™ Rootworm/RR2™ Maize | Resistance to diseases and pests - Insects - Coleoptera (beetles) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-15374-8 | MON-88Ø17-3 x MON-ØØ81Ø-6 - YieldGard™ VT Triple | Resistance to diseases and pests - Insects - Coleoptera (beetles), Lepidoptera (butterflies and moths) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-43773-18 | MON-89Ø34-3 - YieldGard™ VT Pro™ | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths)
Show detection method(s)

BCH-LMO-SCBD-46299-13 | MON-89Ø34-3 x MON-88Ø17-3 - Genuity® VT Triple Pro™ Maize | Monsanto Europe S.A. | Resistance to diseases and pests (Insects, Coleoptera (beetles), Lepidoptera (butterflies and moths)), Resistance to herbicides (Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-46305-16 | MON-89Ø34-3 x MON-ØØ6Ø3-6 - Genuity® VT Double Pro™ Maize | Monsanto Europe S.A. | Resistance to antibiotics (Kanamycin), Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths)), Resistance to herbicides (Glyphosate)

Show detection method(s)

BCH-LMO-SCBD-14776-17 | MON-ØØ6Ø3-6 - Roundup Ready™ maize | Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-14885-8 | MON-ØØ6Ø3-6 x MON-ØØ81Ø-6 - Roundup Ready™ YieldGard™ maize | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-14767-14 | ACS-ZMØØ3-2 - Liberty Link™ maize | Resistance to antibiotics - Ampicillin Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14751-10 | SYN-EV176-9 - NaturGard KnockOut™ maize | Resistance to antibiotics - Ampicillin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14892-10 | MON-ØØØ21-9 x MON-ØØ81Ø-6 - Roundup Ready™ YieldGard™ maize | Resistance to antibiotics - Ampicillin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-15109-9 | SYN-E3272-5 - Enogen™ Maize | Mannose tolerance Selectable marker genes and reporter genes Thermostable alpha-amylase Use in industrial applications - Biofuel production
Show detection method(s)

BCH-LMO-SCBD-48466-7 | DP-Ø9814Ø-6 - Optimum™ GAT™ maize | Pioneer Hi-Bred Northern Europe Sales Division GmbH | Resistance to herbicides (Glyphosate, Sulfonylurea)

BCH-LMO-SCBD-100885-13 | SYN-IR162-4 - Agrisure™ Viptera maize | Syngenta Crop Protection AG | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))
Show detection method(s)

BCH-LMO-SCBD-14862-7 | ACS-ZMØØ4-3 - Starlink™ maize | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) - European corn borer (Ostrinia nubilalis) Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-15103-8 | REN-ØØØ38-3 - Mavera™ maize | Renessen LLC Netherlands | Changes in quality and/or metabolite content (Protein and amino acids)
Show detection method(s)

BCH-LMO-SCBD-15104-8 | REN-ØØØ38-3 x MON-ØØ81Ø-6 - Mavera™YieldGard™ maize | Changes in quality and/or metabolite content (Lysine content), Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), European corn borer (Ostrinia nubilalis))
Show detection method(s)

BCH-LMO-SCBD-15373-10 | ACS-ZMØØ3-2 x MON-ØØ81Ø-6 - Liberty Link™ Yieldgard™ maize | Resistance to antibiotics - Ampicillin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14775-16 | MON-ØØ531-6 - Bollgard™ cotton | Resistance to antibiotics - Kanamycin, Streptomycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths)
Show detection method(s)

BCH-LMO-SCBD-14777-8 | MON-ØØ757-7 - Bollgard™ cotton | Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths)

BCH-LMO-SCBD-46334-8 | BCS-GHØØ2-5 - GlyTol™ Cotton GHB614 | Bayer CropScience | Resistance to herbicides (Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-14851-7 | ACS-GHØØ1-3 - Liberty Link™ cotton | Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14880-14 | MON-Ø1445-2 - Roundup Ready™ cotton | Resistance to antibiotics - Kanamycin, Streptomycin Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-14774-18 | MON-15985-7 - Bollgard II™ cotton | Resistance to antibiotics - Kanamycin, Streptomycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Selectable marker genes and reporter genes
Show detection method(s)

BCH-LMO-SCBD-14875-8 | MON-15985-7 x MON-Ø1445-2 - Roundup Ready™ Bollgard II™ cotton | Monsanto | Resistance to antibiotics (Streptomycin), Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths)), Resistance to herbicides (Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-14883-8 | MON-ØØ531-6 x MON-Ø1445-2 - Roundup Ready™ Bollgard™ Cotton | Resistance to antibiotics - Kanamycin, Streptomycin Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-15107-11 | DAS-24236-5 x DAS-21Ø23-5 - WideStrike™ cotton | Dow AgroSciences | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))
Show detection method(s)

BCH-LMO-SCBD-15168-16 | MON-88913-8 - Roundup Ready™ Flex™ cotton | Resistance to herbicides - Glyphosate
Show detection method(s)

BCH-LMO-SCBD-14940-7 | DAS-24236-5 - Insect-resistant cotton | Dow AgroSciences | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

Show detection method(s)

BCH-LMO-SCBD-14938-7 | DAS-21Ø23-5 - Insect-resistant cotton | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))
Show detection method(s)

BCH-LMO-SCBD-101898-5 | BCS-GHØØ5-8 - Herbicide-tolerant and lepidoptera-resistant cotton | Bayer BioScience N.V. | Changes in quality and/or metabolite content (Pigmentation / Coloration), Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths), Cotton bollworm (Helicoverpa spp.), Fall armyworm (Spodoptera frugiperda)), Resistance to herbicides (Glufosinate)
Show detection method(s)

BCH-LMO-SCBD-101018-13 | BCS-GHØØ4-7 - Herbicide-tolerant, insect-resistant cotton | Resistance to diseases and pests - Insects - Lepidoptera (butterflies and moths) Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14768-7 | CDC-FLØØ1-2 - CDC Triffid flax modified for herbicide resistance | Resistance to antibiotics - Kanamycin Resistance to herbicides - Imidazolinone, Sulfonylurea Selectable marker genes and reporter genes
Show detection method(s)

BCH-LMO-SCBD-40294-8 | CUH-CP551-8 - Papaya resistant to papaya ringspot virus | Cornell University and University of Hawaii | Resistance to antibiotics (Kanamycin), Resistance to diseases and pests (Viruses, Papaya ringspot virus (PRV)), Selectable marker genes and reporter genes
Show detection method(s)

BCH-LMO-SCBD-40296-11 | CUH-CP631-7 - Papaya resistant to papaya ringspot virus | Cornell University | Resistance to antibiotics (Kanamycin), Resistance to diseases and pests (Viruses, Papaya ringspot virus (PRV)), Selectable marker genes and reporter genes
Show detection method(s)

BCH-LMO-SCBD-15100-7 | BPS-25271-9 - Amflora™ Potato | Amylogen HB | Reduced amylose in starch content, Resistance to antibiotics (Kanamycin)
Show detection method(s)

BCH-LMO-SCBD-101897-11 | AVE-436G7-1 - Modena potato with altered starch | BASF altered carbohydrate composition: increased amylopectin content Selectable marker genes and reporter genes

BCH-LMO-SCBD-14859-7 | ACS-OSØØ2-5 - Liberty Link™ rice | Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-47517-6 | BCS-OSØØ3-7 - Liberty Link™ rice | Bayer CropScience (Aventis CropScience (AgrEvo)) | Resistance to herbicides (Glufosinate)
Show detection method(s)

BCH-LMO-SCBD-14764-9 | ACS-GMØØ5-3 - Herbicide-tolerant soybean | Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-14855-5 | ACS-GMØØ4-2 - Herbicide-tolerant soybean | Resistance to herbicides - Glufosinate

BCH-LMO-SCBD-14796-14 | MON-Ø4Ø32-6 - Roundup Ready™ soybean | Monsanto | Resistance to herbicides (Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-40284-18 | MON-89788-1 - Roundup Ready2Yield™ soybean | Monsanto | Resistance to herbicides (Glyphosate)
Show detection method(s)

BCH-LMO-SCBD-49073-9 | DP-3Ø5423-1 - TREUS™Plenish™ Soybean | Pioneer Hi-Bred Production Inc. | Changes in quality and/or metabolite content (Lipid and fatty acids), Resistance to herbicides (Sulfonylurea)
Show detection method(s)

BCH-LMO-SCBD-48967-9 | DP-356Ø43-5 - Optimum™ GAT™ soybean | Resistance to herbicides (Glyphosate, Sulfonylurea)
Show detection method(s)

BCH-LMO-SCBD-14857-8 | ACS-GMØØ6-4 - Liberty Link™ soybean | Resistance to herbicides - Glufosinate
Show detection method(s)

BCH-LMO-SCBD-100994-7 | BPS-CV127-9 - Herbicide-tolerant soybean | BASF S.A. Resistance to herbicides - Imidazolinone, Sulfonylurea

Genetic element(s) detectable by the laboratory

BCH-GENE-SCBD-100287-7 GENETIC ELEMENT | CAMV 35S PROMOTER |
Promoter

BCH-GENE-SCBD-100290-6 GENETIC ELEMENT | CAMV 35S TERMINATOR |
Terminator

BCH-GENE-SCBD-15001-5 GENETIC ELEMENT | NEOMYCIN PHOSPHOTRANSFERASE II | (BACTERIA) |
Protein coding sequence | Resistance to antibiotics (Kanamycin)

BCH-GENE-SCBD-14989-5 GENETIC ELEMENT | CRY3A | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |
Protein coding sequence | Resistance to diseases and pests (Insects, Coleoptera (beetles))

BCH-GENE-SCBD-45463-4 GENETIC ELEMENT | 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE SYNTHASE | (THALE CRESS) |

Protein coding sequence | Resistance to herbicides (Glyphosate)

BCH-GENE-SCBD-15002-4 GENETIC ELEMENT | PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE |
Protein coding sequence | Resistance to herbicides (Glufosinate)

BCH-GENE-SCBD-100270-6 GENETIC ELEMENT | NOPALINE SYNTHASE GENE PROMOTER |
Promoter

BCH-GENE-SCBD-100269-8 GENETIC ELEMENT | NOPALINE SYNTHASE GENE TERMINATOR |
Terminator

BCH-GENE-SCBD-101507-5 GENETIC ELEMENT | FMV 34S PROMOTER |
Promoter

BCH-GENE-SCBD-14972-12 GENETIC ELEMENT | PHOSPHINOTHRICIN N-ACETYLTRANSFERASE GENE |
Protein coding sequence | Resistance to herbicides (Glufosinate)

BCH-GENE-SCBD-14985-12 GENETIC ELEMENT | CRY1AB | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU |
Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

BCH-LAB-SCBD-250661-2

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.

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