

## Biosafety Clearing-House (BCH)

LIVING MODIFIED ORGANISM (LMO)


BCH-LMO-SCBD-101262-8

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

LAST UPDATED: 12 JUL 2019


### 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.



DP-305423-1 X MON-04032-6  
Modified fatty acid, herbicide-tolerant soybean

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

<https://bch.cbd.int/database/record?documentID=101262>


Name

Modified fatty acid, herbicide-tolerant soybean

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Transformation event

305423 x GTS 40-3-2

Unique identifier

DP-305423-1 x MON-04032-6

Developer(s)

- [PERSON: PIONEER HI-BRED](#) | [BCH-CON-MX-101254-2](#)

#### PERSON

Pioneer Hi-Bred  
Iowa  
United States of America  
Phone: (515) 270-3200  
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#### RELATED ORGANIZATION

Description

The stacked soy line DP-305423-1 x MON-04032-6 was obtained through the traditional cross breeding of each of the parental organisms to produce a soy that expresses each of EPSPS, ALS and omega-6-fatty acid dehydrogenase genes. The expression of these genes are expected to confer tolerance to sulphonylurea and glyphosate herbicides and increased

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levels of monounsaturated fatty acid and decreased levels of polyunsaturated fatty acids.

#### 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-10453-6** ORGANISM | GLYCINE MAX (SOYBEAN, SOYA BEAN, SOYA, SOYBN) |

Crops

**BCH-LMO-SCBD-49073-9** LIVING MODIFIED ORGANISM | 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)

**BCH-LMO-SCBD-14796-14** LIVING MODIFIED ORGANISM | MON-Ø4Ø32-6 - ROUNDUP READY™

SOYBEAN |

Monsanto | Resistance to herbicides (Glyphosate)

### Characteristics of the modification process

#### Vector

PV-GMGT04, PHP19340 and PHP17752

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#### Techniques used for the modification

Cross breeding

#### Genetic elements construct

**P-KTi3**  
2.080 kb

**FAD2-1**  
0.600 kb

**T-KTi3**  
0.200 kb

**P-SAMS**  
1.300 kb

**CS-ahas-SOYBN**  
1.970 kb

**T-ahas-SOYBN**  
0.600 kb

**P-e35S-CaMV**  
0.610 kb

**TP-CTP4-PETHY**  
0.230 kb

**CS-CP4epsps-RHIRD**  
1.360 kb

**T-nos-RHIRD**  
0.260 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-100268-6** ACETOHYDROXY ACID SYNTHASE GENE | (SOYBEANS) |

Protein coding sequence | Resistance to herbicides (Sulfonylurea)

**BCH-GENE-SCBD-14979-7** 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE SYNTHASE GENE |

Protein coding sequence | Resistance to herbicides (Glyphosate)

**BCH-GENE-SCBD-103893-1** KUNITZ TRYPSIN INHIBITOR GENE PROMOTER | (SOYBEANS) |

Promoter

**BCH-GENE-SCBD-103894-1** KUNITZ TRYPSIN INHIBITOR GENE TERMINATOR | (SOYBEANS) |

Terminator

**BCH-GENE-SCBD-103895-2** SAMS PROMOTER | (SOYBEANS) |

Promoter

[BCH-GENE-SCBD-103896-5](#) ACETOHYDROXY ACID SYNTHASE GENE TERMINATOR | (SOYBEANS) |

Terminator

[BCH-GENE-SCBD-100366-6](#) CAMV ENHANCED 35S PROMOTER |

Promoter

[BCH-GENE-SCBD-103899-3](#) CHLOROPLAST TRANSIT PEPTIDE 4 | (PETUNIA) |

Transit signal

[BCH-GENE-SCBD-100269-8](#) NOPALINE SYNTHASE GENE TERMINATOR |

Terminator

[BCH-GENE-SCBD-115046-3](#) OMEGA-6-DESATURASE | (SOYBEANS) |

Protein coding sequence | Changes in quality and/or metabolite content (Lipid and fatty acids)

Notes regarding the genetic elements present in this LMO

#### **DNA insert from GTS 40-3-2 vector PV-GMGT04**

The soybean line GTS 40-3-2 was developed to allow for the use of glyphosate, the active ingredient in the herbicide Roundup®, as a weed control option. This genetically engineered soybean line contains a form of the plant enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) that allows GTS 40-3-2 to survive the otherwise lethal application of glyphosate.

#### **DNA insert from 305423 vector PHP19340 and PHP17752**

The intended effect of the modification in 305423 soybean is to produce soybean seeds with increased levels of monounsaturated fatty acid and decreased levels of polyunsaturated fatty acids through the insertion of the microsomal omega-6 desaturase gene (FAD2-1) into soybean. Transcription of the gene fragment acts to silence the expression of the endogenous soybean omega-6 desaturase, which results in an increased level of oleic acid and decreased levels of linoleic and linolenic acids in the soybean seed. The acetolactate synthase (als gene) that confers tolerance to a sulfonylurea herbicide was used as a selectable marker for the transformation.

For additional information on this LMO, please refer to the records of the parental LMOs.

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### **LMO characteristics**

Modified traits

Resistance to herbicides  
Glyphosate  
Sulfonylurea

Other gene(s) whose expression was affected by the transformation

[BCH-GENE-SCBD-115046-3](#) OMEGA-6-DESATURASE | (SOYBEANS) |

Protein coding sequence | Changes in quality and/or metabolite content (Lipid and fatty acids)

How the expression of the gene(s) was affected

The DNA insert from PHP19340 and PHP17752 contains a fragment corresponding to 40% of

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the soy omega-6-desaturase. Upon transcription of the fragment, the resulting transcript acts to silencing the endogenous gene by RNA interference.

Common use(s) of the LMO

Food  
Feed

### Detection method(s)

External link(s)

- ? [DP-3Ø5423-1 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) ( *English* )
- ? [MON-Ø4Ø32-6 - EU Reference Laboratory for GM Food and Feed \(EURL-GMFF\)](#) ( *English* )

### Additional Information

Other relevant website addresses and/or attached documents

- ? [DP-3Ø5423-1 x MON-Ø4Ø32-6 - Japan.pdf](#) ( *English* )

[BCH-LMO-SCBD-101262-8](#)

## 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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