NEW!

EU validated

Validated under coordination of the Joint Research Centre

See what you eat

DualChip® GMO Kit V2.0

eppendorf

A new dimension in GMO screening

DualChip® GMO Kit V2.0

The DualChip GMO Kit V2.0 is a multiplex screening tool for EU-authorized and non-authorized GMOs, successfully validated in collaboration with the Joint Research Centre (JRC) of the European Union*.
The simultaneous detection of multiple GMO-specific elements, plant-species markers and control elements offers a time-sensitive and robust solution for GMO screening in food, feed and seed.
Optimized components assure best results and an incorporated software tool provides concise result reports with a few simple clicks.

Screen and identify - the new content

Unique combination of plant-species, construct-specific and event-specific targets in one assay

Simultaneous detection of 30 transgenic elements for testing of GMOs in samples with unknown content

Principle - as easy as this

- PCR-based amplification of target DNA with biotinylated primers
- Microarray-based detection of amplicons with specific DNA capture-probes
- Silver-based staining of hybridized targets using Eppendorf proprietary Silverquant® System
- Two independent tests per slide

To get started - The "All-in-One" System

- Kit components include beside the microarrays all reagents necessary for amplification, labeling, hybridization including process controls
- Application-specific software tool is included, providing convenient analysis
- Comprehensive „All-in-One" system for array processing, target detection and slide scanning.

DNA extraction
from food or feed sample

Amplification
via 3 different multiplex PCRs with biotinylated primers

Hybridization
of the 3 PCR reactions on 1 DualChip GMO microarray

Detection
with Silverquant® colorimetric detection

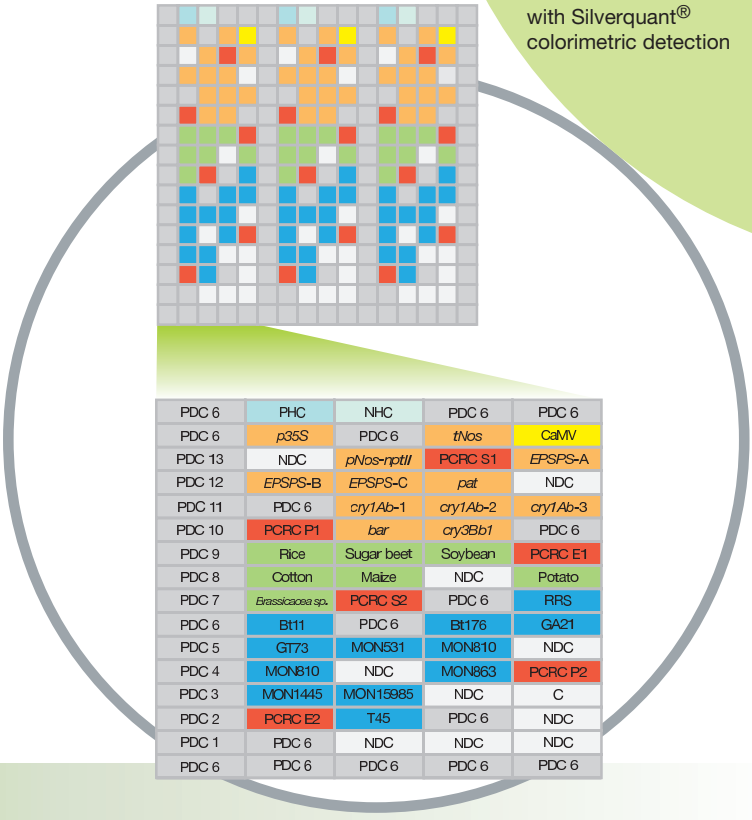


Figure 2: Spotting pattern of probes and controls present on the DualChip GMO V2.0

* http://bgmo.jrc.ec.europa.eu/home/documents/report-JRC-EAT.pdf

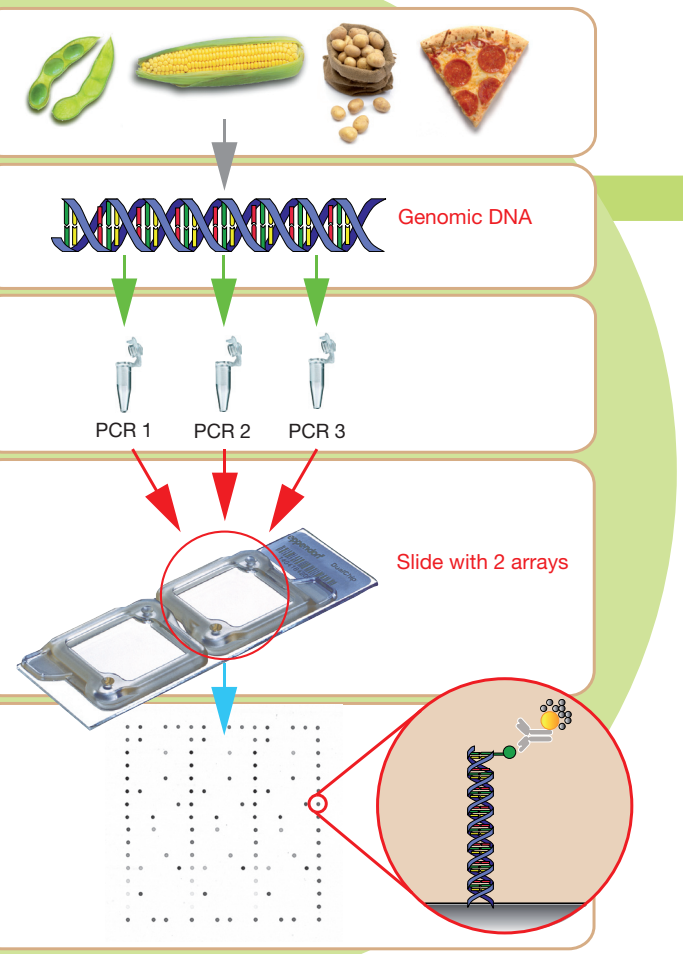


Figure 1: DualChip GMO Kit workflow

Content

PCR S: Twelve screening elements:
p35S, tNos, pat, cry1Ab (3 gene varieties), cry3Bb1, EPSPS (3 gene varieties), bar, pNos-nptII

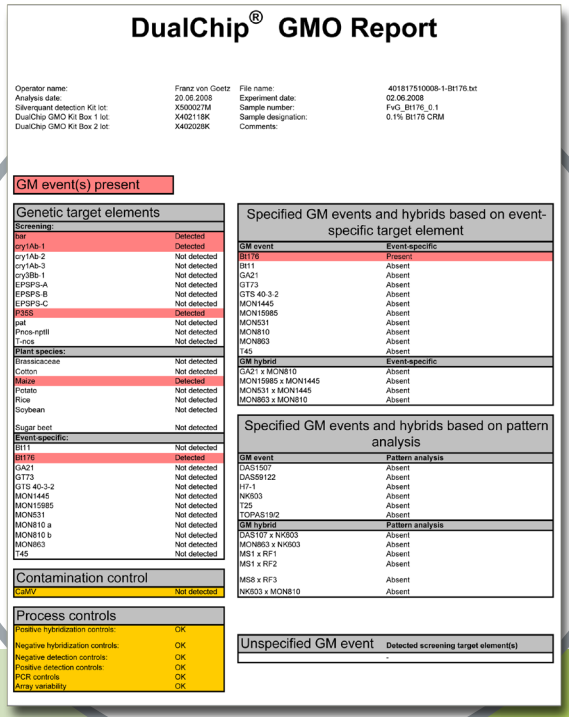
PCR P: Seven plant-specific markers for:
Maize, Soybean, Rapeseed, Cotton, Rice, Potato, Sugar beet

PCR E: Eleven event-specific markers for:
Bt11, Bt176, GA21, GT73, MON531, MON810, MON863, MON1445, MON15985, RRS,T45

Control elements:
CaMV virus contamination control
Positive PCR control (PCRC)
Positive and negative hybridization control (PHC, NHC)
Positive and negative detection control (PDC, NDC)

Specifications

- Accuracy of 95% established in ring-trial study
- Proven sensitivity of 0.1% for all transgenic elements and 1% for all plant-specific markers
- All capture-probes (incl. controls) spotted in triplicate
- Tight monitoring of handling and results due to sophisticated control system for each step
- Standardized, sample-independent protocol
- High specificity from 2 independent sequence-specific steps
  - specific primers for the PCR reaction
  - specific capture probes for the hybridization
- Convenient software tool for concise report generation



DualChip® GMO Report

Operator name:	Franz von Goetz	File name:	401817510008-1-Bt176.txt
Analysis date:	20.06.2008	Experiment date:	02.06.2008
Silverquant detection Kit lot:	X500027M	Sample number:	FvG_Bt176_0.1
DualChip GMO Kit Box 1 lot:	X402118K	Sample designation:	0.1% Bt176 CRM
DualChip GMO Kit Box 2 lot:	X402028K	Comments:	

GM event(s) present

Genetic target elements

Screening:	
bar	Detected
cry1Ab-1	Detected
cry1Ab-2	Not detected
cry1Ab-3	Not detected
cry3Bb-1	Not detected
EPSPS-A	Not detected
EPSPS-B	Not detected
EPSPS-C	Not detected
P35S	Detected
pat	Not detected
Pnos-nptII	Not detected
T-nos	Not detected
Plant species:	
Brassicaceae	Not detected
Cotton	Not detected
Maize	Detected
Potato	Not detected
Rice	Not detected
Soybean	Not detected
Sugar beet	Not detected
Event-specific:	
Bt11	Not detected
Bt176	Detected
GA21	Not detected
GT73	Not detected
GTS 40-3-2	Not detected
MON1445	Not detected
MON15985	Not detected
MON531	Not detected
MON810 a	Not detected
MON810 b	Not detected
MON863	Not detected
T45	Not detected

Contamination control

CaMV	Not detected

Process controls

Positive hybridization controls:	OK
Negative hybridization controls:	OK
Negative detection controls:	OK
Positive detection controls:	OK
PCR controls	OK
Array variability	OK

Specified GM events and hybrids based on event-specific target element

GM event	Event-specific
Bt176	Present
Bt11	Absent
GA21	Absent
GT73	Absent
GTS 40-3-2	Absent
MON1445	Absent
MON15985	Absent
MON531	Absent
MON810	Absent
MON863	Absent
T45	Absent
GM hybrid	**Event-specific**
GA21 x MON810	Absent
MON15985 x MON1445	Absent
MON531 x MON1445	Absent
MON863 x MON810	Absent

Specified GM events and hybrids based on pattern analysis

GM event	Pattern analysis
DAS1507	Absent
DAS59122	Absent
H7-1	Absent
NK603	Absent
T25	Absent
TOPAS19/2	Absent
GM hybrid	**Pattern analysis**
DAS107 x NK603	Absent
MON863 x NK603	Absent
MS1 x RF1	Absent
MS1 x RF2	Absent
MS8 x RF3	Absent
NK603 x MON810	Absent

Unspecified GM event — Detected screening target element(s): -

Figure 3: Example of DualChip GMO result table

DualChip® GMO Kit V2.0

Kit components

Kit Box 1
- PCR control V2.0
- GMO primer mix S, P, E

Kit Box 2
- 8 DualChip GMO screening slides V2.0 (16 individual tests)
- 16 Hybridization frames
- Aluminum sealing pads
- Genomic HybriBuffer
- NaOH Solution
- Hybridization control V2.0

Kit Box 3
- Qiagen Multiplex PCR Master Mix for 60 reactions*
- RNase-free H_2O

DualChip GMO software tool for analysis of results and generation of ISO 17025-conform report accessible by download from: www.eppendorf-biochip.com/downloads

Additional Hardware and Reagents

- Silverquant® Microarray Detection Kit for staining of 16 DualChip GMO microarrays
- Silverquant Microarray Scanning System for scanning and raw data analysis
- Thermomixer® comfort for simultaneous mixing and temperature control during hybridization
- Silverquant adapter for incubation of microarray slides during Silverquant staining

Ordering information

Description	Order No. International	Order No. North America
DualChip® GMO Kit V2.0 (8 slides for 16 multiplex tests incl. reagents and software)	0038 004.032	956014200
Silverquant scanner system (software included)	6000 000.106	956030030
Silverquant detection kit	0038 005.000	956015073
Silverquant adapter	5368 000.037	956015090
Thermomixer comfort (without exchangeable thermoblock)	5355 000.011 (220V)	022670107 (120V) 022670158 (220V)
Exchangeable thermoblocks and accessories for 4 slides for hybridization experiments	5368 000.010	022670590

* The QIAGEN Multiplex PCR Kit is intended for research use. No claim or representation is intended for its use to provide information for the diagnosis, prevention of treatment of a disease. This product is intended to be used for research purposes only.

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