

Food safety

Food authenticity testing solutions

Comprehensive molecular solutions for food authenticity testing and compliance

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Why food authenticity matters

In today's global food industry, ensuring the safety and authenticity of food products is paramount. As consumer demand for transparency and regulatory requirements continue to tighten, the need for advanced, reliable, and highly specific testing solutions has never been greater. Our comprehensive food authenticity portfolio is designed to meet these demands, providing robust methods for the detection and quantification of genetically modified organisms (GMOs) and the precise identification of meat and fish species in food and ingredients.

Our integrated approach to food authenticity is built on a foundation of rigorous scientific research and innovation. Each solution is validated to meet the highest standards of accuracy and reliability, enabling food industry stakeholders to make informed decisions with confidence.



The importance of testing



Food fraud control

Testing is crucial for preventing food fraud and adulteration, which cost the industry millions annually.



Compliance

Ensures adherence to country-specific legislation for importing meat and fish, maintaining legal standards.



Quality assurance

Confirms the quality and authenticity of raw materials used in processed foods, enhancing product integrity.



Customer preferences

Addresses special dietary needs, preventing allergic reactions, and respecting personal and religious preferences.

EXTRACTION

Optimize your food authenticity testing with our extraction solutions

Thermo Scientific GMO Extraction Kit – A universal extraction kit for our complete food authenticity range

The Thermo Scientific™ GMO Extraction Kit offers a fast and straightforward silica-based DNA purification method, enabling you to obtain high-quality DNA from a diverse range of food samples, including raw materials, processed foods, and animal feed.

- ✓ **High sample input**
Test up to 20 g of sample for increased sensitivity.
- ✓ **Rapid assay time**
Achieve a two-hour turnaround time for faster reporting.
- ✓ **Safe handling**
No toxic reagents are used, ensuring safer handling.
- ✓ **Reliable results**
Efficient removal of inhibitors and isolation of high-purity DNA ($A_{260}/A_{280} > 1.8$).
- ✓ **User-friendly**
Minimal handling steps ensure a simple and efficient workflow.
- ✓ **High specificity**
Adapted to food samples for transgenic material analysis.

Adaptable, scalable sample preparation options



Low to medium throughput

The Thermo Scientific GMO Extraction Kit employs silica-based DNA purification using spin column technology to provide samples for GMO testing. Effectively removing inhibitors, the GMO Extraction Kit provides isolated, highly-purified DNA, quickly, reliably, and safely.



Medium to high throughput

Carry out automated total nucleic acid purification and concentration of selected targets from a broad range of food and environmental samples with the Thermo Scientific™ KingFisher™ Flex Purification System. The system, in combination with the Applied Biosystems™ PrepSEQ™ Nucleic Acid Extraction Kit, offers a fast solution with reduced hands-on time.

Enhance your food safety and authenticity testing with rapid, reliable GMO detection and quantification solutions

In response to increasing public demand for comprehensive information on food authenticity and origin, regulatory standards for the use, supply, and labeling of food products have become more stringent. Many countries now require food manufacturers to provide clear labeling for specific ingredients, including allergens and genetically modified organisms (GMOs). As such, the need for reliable, cost-effective testing solutions to ensure accurate analysis and information has never been more critical.

Discover a complete range of GMO real-time PCR-based testing solutions with Applied Biosystems™ TaqMan™ GMO Detection and Quantification Kits, offered in collaboration with Health in Code, S.L. Our kits cover every step of your workflow, from nucleic acid extraction, to GMO screening and quantification. Detect GMO-specific DNA events in soy, corn, and processed products with precision. Additionally, we provide a universal assay that identifies and quantifies all GMOs approved in Europe and the majority of GMOs approved worldwide.



Unmatched performance and flexibility with market-leading instrumentation

All of our food authenticity PCR kits are designed to run seamlessly on our industry-leading real-time PCR instrument, the Applied Biosystems™ QuantStudio™ 5 Food Safety Real-Time PCR System. This enables you to enhance your testing capabilities across a single, versatile platform.



GMO SCREENING

Efficient and accurate GMO detection with the TaqMan GMO Screening Kit

The Thermo Scientific™ TaqMan™ GMO Screening Kit offers a comprehensive solution for the simultaneous detection of key genetic regions associated with genetically modified organisms (GMOs). Utilizing three GMO event master mixes, this kit accurately identifies regions P35S & CaMV, TNOS & A. tumefaciens, and P34S & FMV, ensuring precise determination of genetically modified material and the natural presence of organisms/viruses used in initial modifications.






Key features

- ✓ **Comprehensive detection**
Simultaneously identifies P35S & CaMV, TNOS & A. tumefaciens, and P34S & FMV regions.
- ✓ **Multiplex amplification**
Includes master mixes for Endogenous Vegetal Control (EVC) and Internal Positive Control (IPC) for robust and reliable results.
- ✓ **High sensitivity**
Detects as few as three DNA copies (equivalent to 0.01%) for screening and down to 20 DNA copies for quantification.
- ✓ **User-friendly**
Real-Time PCR eliminates the need for post-run electrophoresis.
- ✓ **Reliability**
Internal positive control verifies the PCR process even in the presence of inhibitors.
- ✓ **Unique specificity**
Ensures exclusion of CaMV, A. tumefaciens, and FMV.
- ✓ **Rapid results**
Obtain accurate results in under three hours.



Precise GMO detection and quantification with TaqMan Quantification Kits

Thermo Scientific™ TaqMan™ GMO Quantification Kits provide a rapid ISO compliant (9001 and 14001) and simple method to detect and quantify the percentage of GMO-specific DNA events in soy, corn, and downstream processed products. We also offer a universal assay that detects and quantifies all approved GMOs in Europe and the vast majority of GMOs approved in other countries.

Name		Description	Cat. No.
Thermo Scientific™ TaqMan™ MON89788 and Roundup Ready™ Soya Event ID Kit		The TaqMan MON89788 and Roundup Ready™ Soya Event ID Kit enables detection of MON89788 and Roundup Ready™ transgenic soybean DNA in a sample. The kit detects a percentage >0.01% of MON89788 and Roundup Ready™ transgenic soybean DNA.	A43720
Thermo Scientific™ TaqMan™ P35S Maize Quantification Kit		The TaqMan P35S Maize Quantification Kit enables relative quantification of as little as 0.01% of P35S sequence with respect to total maize in a sample. The limit of quantification is 20 copies of DNA, and the detection limit of the PCR technique is 3 copies each of P35S and maize DNA.	4481972
Thermo Scientific™ TaqMan™ TNOS Maize Quantification Kit		The TaqMan TNOS Maize Quantification Kit enables relative quantification of as little as 0.1% of TNOS sequence with respect to total maize in a sample. The absolute limit of quantification is 20 copies of DNA, and the detection limit of the PCR technique is 5 copies each of TNOS and maize DNA.	4327694
Thermo Scientific™ TaqMan™ Roundup Ready™ Alfalfa Quantification Kit		The TaqMan Roundup Ready™ Alfalfa Quantification Kit enables relative quantification of as little as 0.1% of Roundup Ready™ transgenic alfalfa with respect to total alfalfa in a sample. The absolute limit of quantification is 20 copies of DNA, and the detection limit of the PCR technique is 5 copies each of Roundup Ready™ and alfalfa DNA.	4327696
Thermo Scientific™ TaqMan™ MON89788 Quantification Kit		The TaqMan MON89788 Quantification Kit enables relative quantification of as little as 0.1% of MON89788 transgenic soybeans with respect to total soya in a sample. The absolute limit of quantification is 20 copies of DNA, and the detection limit of the PCR technique is 5 copies each of MON89788 and soya DNA.	A44113
Thermo Scientific™ TaqMan™ Roundup Ready™ Soya Quantification Kit		The TaqMan Roundup Ready Soya Quantification Kit can be used to determine the percentage of Roundup Ready™ soya against the total amount of soya present in a DNA sample. The kit consists of plasmid-containing targets for the endogenous soy gene, known as lectin, and for the transgenic event (GTS-40-3-2) present in Roundup Ready™ soybean. With a quantification limit of 20 DNA copies and detection limit of 3 DNA copies each of Roundup Ready™ and soya DNA, the kit offers high sensitivity.	4466335

SPECIES IDENTIFICATION

Secure your supply chain with advanced species testing solutions

Identification of meat and fish species present in food and ingredient samples is an essential step for quality control, verification of origin and traceability of raw materials, and ensuring that product sold is accurately labeled and nonadulterated - vital for building consumer trust and maintaining country-specific compliance. It also plays a crucial role in quality control of handling and cleaning processes in production lines. We provide an extensive range of real-time PCR-based species detection and quantification solutions.



Key features

- ✓ **Sensitive**
Our kits enable reliable detection of target species mitochondrial DNA in food samples, surpassing the officially required limits*.
- ✓ **Simple**
Real-time PCR based assays; no electrophoresis needed.
- ✓ **Fast**
From sample to result in the same day allowing for faster product release or intervention.
- ✓ **Reliable**
Internal Positive Control (IPC) provides process control check for PCR inhibitors








*ref. EU No 51/2013 of 16 Jan 2013, amending reg. EU No 152/2009












Comprehensive detection and quantification of meat and fish species

Accurate identification of meat and fish species in food and ingredient samples is essential for verifying origin and traceability of raw materials. It also plays a crucial role in quality control of handling and cleaning processes in production lines. We provide an extensive range of real-time PCR-based species detection and quantification solutions.








Our highly sensitive Thermo Scientific™ RapidFinder™ Species ID Kits enable reliable detection of target species mitochondrial DNA in food and feed samples, surpassing the officially required limits (ref. EU No 51/2013 of 16 Jan 2013, amending reg. EU No 152/2009). The kits include a 0.1% positive control and all necessary reagents for PCR.

Name		Description	Cat. No.
Thermo Scientific™ RapidFinder™ Basa ID Kit		The RapidFinder Basa ID Kit enables the simple and reliable detection of basa (<i>Pangasius hypophthalmus</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.01% of basa DNA.	A24406
Thermo Scientific™ RapidFinder™ Beef ID Kit		The RapidFinder Beef ID Kit enables the simple and reliable detection of bovine, or <i>Bos taurus</i> , DNA from both raw and processed beef, and provides sensitivity down to 0.01% bovine DNA.	A24391
Thermo Scientific™ RapidFinder™ Chicken ID Kit		The RapidFinder Chicken ID Kit enables the simple and reliable detection of chicken, or <i>Gallus gallus</i> , from both raw and processed chicken, and provides sensitivity down to 0.01% chicken DNA.	A24393
Thermo Scientific™ RapidFinder™ Duck ID Kit		The RapidFinder Duck ID Kit enables the simple and reliable detection of Duck DNA in food and feed samples and provides sensitivity down to 0.01% of duck DNA.	A24413
Thermo Scientific™ RapidFinder™ Equine ID Kit		The RapidFinder Equine ID Kit enables the simple and reliable detection of horse (<i>Equus caballus</i>) DNA in food and feed samples and provides sensitivity down to 0.01% of horse DNA.	A15570
Thermo Scientific™ RapidFinder™ Fallow Deer ID Kit		The RapidFinder Fallow Deer ID Kit enables the simple and reliable detection of fallow deer (<i>Dama dama</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.01% of fallow deer DNA.	A24410
Thermo Scientific™ RapidFinder™ Fish ID Kit		The RapidFinder Fish ID Kit enables the simple and reliable detection of fish DNA (bony fish and shark) in food and feed samples. The kit detects and provides sensitivity down to 0.01% of fish DNA.	A24398

SPECIES IDENTIFICATION

Name		Description	Cat. No.
Thermo Scientific™ RapidFinder™ Gadus ID Kit		The RapidFinder Gadus ID Kit enables the simple and reliable detection of gadus (<i>Gadus morhua</i> or <i>Gadus macrocephalus</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.1% of gadus DNA.	A24402
Thermo Scientific™ RapidFinder™ Goat ID Kit		The RapidFinder Goat ID Kit enables the simple and reliable detection of goat (<i>Capra aegagrus hircus</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.01% of goat DNA.	A24407
Thermo Scientific™ RapidFinder™ Haddock ID Kit		The RapidFinder Haddock ID Kit enables the simple and reliable detection of haddock (<i>Melanogrammus aeglefinus</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.01% of haddock DNA.	A24405
Thermo Scientific™ RapidFinder™ Pollack ID Kit		The RapidFinder Pollack ID Kit enables detection of pollack (<i>Pollachius pollachius</i>) DNA that is present in food and feed samples. The kit detects blends containing $\geq 0.01\%$ of pollack DNA.	A24404
Thermo Scientific™ RapidFinder™ Pollock ID Kit		The RapidFinder Pollock ID Kit enables detection of pollock (<i>Gadus chalcogrammus</i>) DNA that is present in food and feed samples. The kit detects blends containing $\geq 0.01\%$ of pollock DNA.	A24403
Thermo Scientific™ RapidFinder™ Pork ID Kit		The RapidFinder Pork ID Kit enables the simple and reliable detection of pork (<i>Sus scrofa</i> , including <i>Sus scrofa domestica</i> , commonly referred to as <i>Sus domestica</i>) DNA in food and feed samples. The kit detects and processed pork and provides sensitivity down to 0.01% porcine DNA.	A24392
Thermo Scientific™ RapidFinder™ Poultry ID Kit		The RapidFinder Poultry ID Kit enables the simple and reliable detection of avian DNA in food and feed samples, including DNA from chicken, turkey, duck, ostrich, goose, and other birds. The kit detects both raw and processed poultry meat and provides sensitivity down to 0.01% poultry DNA.	A24397
Thermo Scientific™ RapidFinder™ Quant Equine Set		The RapidFinder Quant Equine Set, when used with the RapidFinder Equine ID Kit, enables the fast and accurate quantification of horse meat in food and feed samples. Using the included standards, the kit enables quantification of as little as 0.05% horse meat DNA relative to other meat DNA in only a few hours.	A15579
Thermo Scientific™ RapidFinder™ Quant Multi-Animal Set		The RapidFinder Quant Multi-Animal Set, when used with one or more of the RapidFinder animal species ID Kits, enables the determination of the percentage of a target animal species with respect to total animal in food and feed samples. The kit enables quantification of as little as 0.05% target species DNA as compared to other animal DNA in only a few hours.	A24399

SPECIES IDENTIFICATION

Name		Description	Cat. No.
Thermo Scientific™ RapidFinder™ Rabbit ID Kit		The RapidFinder Rabbit ID Kit enables the simple and reliable detection of rabbit (<i>Oryctolagus cuniculus</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.01% of rabbit DNA.	A24408
Thermo Scientific™ RapidFinder™ Ruminant ID Kit		The RapidFinder Ruminant ID Kit enables the simple and reliable detection of ruminant meat in food and feed samples including, <i>Bos taurus</i> , <i>Ovis aries</i> , <i>Capra hircus</i> , <i>Cervus elaphus</i> , and <i>Capreolus capreolus</i> DNA, which corresponds to DNA from beef, sheep, goat, red deer, and roe deer. The kit detects both raw and processed ruminant meat and provides sensitivity down to 0.01% ruminant DNA.	A24396
Thermo Scientific™ RapidFinder™ Sheep ID Kit		The RapidFinder Sheep ID Kit enables the simple and reliable detection of sheep and lamb in food and feed samples. The method works by detection of ovine, or <i>Ovis aries</i> , and detection of both raw and processed sheep and lamb with sensitivity down to 0.01% ovine DNA.	A24395
Thermo Scientific™ RapidFinder™ Specific Tuna ID Kit		The RapidFinder Specific Tuna ID Kit enables detection of four types of tuna DNA in food and feed samples. The kit detects blends containing ≥1% of the following tuna species: <i>Thunnus alalunga</i> (Longfin tuna), <i>Thunnus albacares</i> (Yellowfin tuna), <i>Thunnus obesus</i> (Bigeye tuna), <i>Katsuwonus pelamis</i> (Skipjack tuna).	A24411
Thermo Scientific™ RapidFinder™ Tuna ID Kit		The RapidFinder Tuna ID Kit enables detection of tuna (<i>genus Thunnus</i>) DNA that is present in food and feed samples. The kit detects blends containing ≥0.01% of tuna DNA.	A24415
Thermo Scientific™ RapidFinder™ Turkey ID Kit		The RapidFinder Turkey ID Kit enables the simple and reliable detection of turkey, or <i>Meleagris gallopavo</i> , DNA from both raw and processed turkey, and provides sensitivity down to 0.01% turkey DNA.	A24394
Thermo Scientific™ RapidFinder™ Water Buffalo ID Kit		The RapidFinder Water Buffalo ID Kit enables the simple and reliable detection of Water Buffalo (<i>Bubalus bubalis</i>) DNA in food and feed samples. The kit detects and provides sensitivity down to 0.01% of water buffalo DNA.	A24414

Empowering your vegan and halal food label claims

In today's market, the importance of accurate testing for Halal and vegan claims cannot be overstated. Consumers increasingly demand transparency and adherence to their dietary restrictions and ethical choices. Our solutions are designed to seamlessly integrate into your existing workflows, whether you're verifying halal compliance or ensuring vegan purity. With unparalleled sensitivity and specificity, they are essential tools for food laboratories committed to quality control, regulatory compliance, and consumer trust.





Key features

- ✓ **Flexible**
Vertebrate animal or pork DNA detected in any food or feed sample, both raw and processed
- ✓ **Fast**
From sample to result in the same day allowing for faster product release or intervention.
- ✓ **Simple**
Real-time PCR based assays; no electrophoresis needed.
- ✓ **Specific**
The RapidFinder Halal ID Kit targets a specific mitochondrial DNA region from gene 16s common to pork and wild boar, whilst the RapidFinder Vegan ID Kit targets a mitochondrial DNA region conserved in vertebrate animal species.



Ensuring ethical claims with precision and confidence

Substantiate your ethical food claims and meet labeling requirements with vegan and halal PCR Kits. Simply and reliably detect the presence of animal DNA in raw and processed food samples with a sensitivity down to 0.0005% pork DNA for halal and 0.01% vertebrate animal DNA for vegan.

Name		Description	Cat. No.
Thermo Scientific™ RapidFinder™ Halal ID Kit		The RapidFinder Halal ID Kit detects both raw and processed DNA and provides a sensitivity down to 0.0005% pork DNA. The assay targets a highly specific mitochondrial region from gene 16S, common to all pork and wild boar. The included positive control, which comprises 0.1% of pork DNA, can be used as a reference to set the threshold of detection of the assay. This test can also be used in conjunction with the RapidFinder Quant Multi-Animal Kit for quantification.	A47086
Thermo Scientific™ RapidFinder™ Vegan ID Kit		The RapidFinder Vegan ID Kit detects vertebrate animal DNA in both raw and processed foods, making it the only kit that detects all required DNA species simultaneously. The assay provides a sensitivity down to 0.01% of vertebrate animal DNA to support vegan label claims. The included positive control, which comprises 0.1% of vertebrate animal DNA, can be used as a reference to set the threshold of detection of the assay.	A24412

ORDERING INFORMATION

Description	Pack size	Order code
Extraction		
Thermo Scientific GMO Extraction Kit (for manual DNA extraction)	48 extractions	4466336
KingFisher Flex Purification System (96 Deep-Well Head) Instrument	Instrument	A32681
PrepSEQ Nucleic Acid Extraction Kit for Food and Environmental Testing (for use with KingFisher Flex Purification and BeadRetriever Systems)	100 extractions	4480466
GMO testing		
TaqMan GMO Screening Kit	48 reactions	4466334
TaqMan MON89788 & Roundup Ready Soya Event ID Kit	48 reactions	A43720
TaqMan MON89788 Quantification Kit	50 reactions	A44113
TaqMan Roundup Ready Alfalfa Quantification Kit	50 reactions	4327696
TaqMan Roundup Ready Soya Quantification Kit	96 reactions	4466335
TaqMan TNOS Maize Quantification Kit	50 reactions	4327694
TaqMan P35S Maize Quantification Kit	50 reactions	4481972
Species ID testing		
RapidFinder Basa ID Kit	48 reactions	A24406
RapidFinder Beef ID Kit	48 reactions	A24391
RapidFinder Chicken ID Kit	48 reactions	A24393
RapidFinder Duck ID Kit	48 reactions	A24413
RapidFinder Equine ID Kit	48 reactions	A15570
RapidFinder Fallow Deer ID Kit	48 reactions	A24410
RapidFinder Fish ID Kit	48 reactions	A24398
RapidFinder Gadus ID Kit	48 reactions	A24402
RapidFinder Goat ID Kit	48 reactions	A24407
RapidFinder Haddock ID Kit	48 reactions	A24405
RapidFinder Pollack ID Kit	48 reactions	A24404
RapidFinder Pollock ID Kit	48 reactions	A24403
RapidFinder Pork ID Kit	48 reactions	A24392
RapidFinder Poultry ID Kit	48 reactions	A24397
RapidFinder Quant Equine Set	48 reactions	A15579
RapidFinder Quant Multi-Animal Set	48 reactions	A24399
RapidFinder Rabbit ID Kit	48 reactions	A24408
RapidFinder Ruminant ID Kit	48 reactions	A24396
RapidFinder Sheep ID Kit	48 reactions	A24395
RapidFinder Specific Tuna ID Kit	48 reactions	A24411
RapidFinder Tuna ID Kit	48 reactions	A24415
RapidFinder Turkey ID Kit	48 reactions	A24394
RapidFinder Water Buffalo ID Kit	48 reactions	A24414
RapidFinder Halal ID Kit	48 reactions	A47086
RapidFinder Vegan ID Kit	48 reactions	A24412
Applied Biosystems QuantStudio 5 Food Safety Real-Time PCR System, 0.1 mL Block	Laptop	A36328
	Desktop	A36320

 To learn more about our complete solutions for food authenticity visit thermofisher.com/food-authenticity-pcr-testing

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