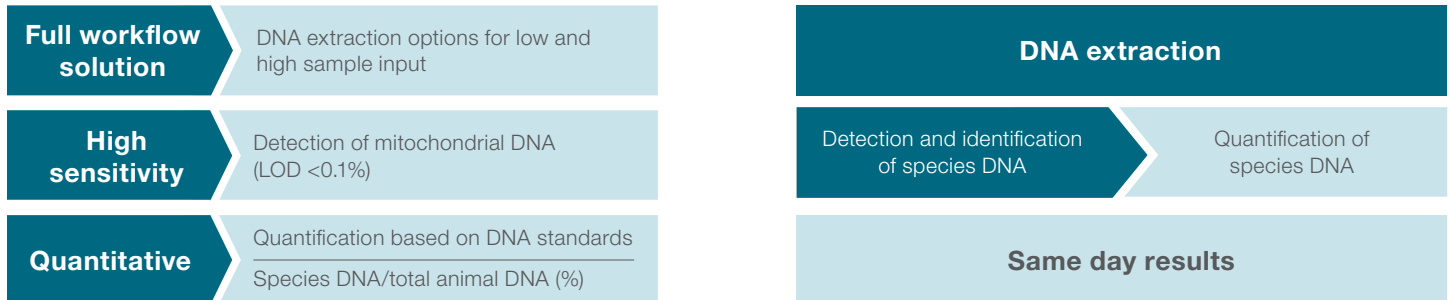




Targeted PCR detection and quantification of meat and fish species in food and ingredients

Extraction, detection and quantification of targeted species

Identification of meat and fish species present in food and ingredient samples is an essential step for verification of origin and traceability of raw materials, as well as for quality control of handling and cleaning processes in production lines. In collaboration with Imegen*, we offer a broad portfolio of real-time PCR-based species detection and quantification solutions. These highly sensitive Thermo Scientific™ RapidFinder™ Meat ID Kits enable detection to below the officially required limits (ref. EU No 51/2013 of 16 Jan 2013, amending reg. EU No 152/2009):



Extraction



Detection



Quantification

GMO Extraction Kit

A fast and easy silica-based DNA extraction and purification method. Obtain high-quality DNA from a wide variety of food samples including raw materials and processed foods.

High sample input:
Test up to 20 g of homogenized sample providing high sensitivity.

Reliable:
Removes inhibitors and isolates high purity DNA.

Easy to use:
Minimal handling steps.
No toxic reagents.

RapidFinder Meat/Fish ID Kit

Reliably detect target species mitochondrial DNA** in food samples. Kit includes 0.1% positive control and all reagents for PCR.

Reliable:
Internal Positive Control (IPC) allows ruling out inhibitors during PCR.

High sensitivity:
Limit of detection of 0.01% (w/w) in fresh meat.

RapidFinder Quant Multi-Meat Set

Reliably detects mitochondrial DNA** in food samples and includes the standards for quantification (species and total animal DNA).***

Reliable:
Internal Positive Control (IPC) for quantification of PCR inhibitors.

High sensitivity:
Limit of detection of 0.05% (w/w) in fresh meat.

* Imegen = Instituto de Medicina Genómica, Valencia Spain
 ** Mitochondrial DNA (mtDNA) is a multi-copy DNA target, as mammalian cells contain several copies of mtDNA per cell. The RapidFinder ID Kits and RapidFinder Quant Multi-Meat Set, detect mitochondrial DNA, giving the assay a very high sensitivity and making the assay applicable to be used with processed food.
 *** Quantification assay is based on two absolute quantifications: the total amount of species DNA (using RapidFinder species ID Kit and RapidFinder Quant Multi-Meat Set), and the total amount of animal present in one sample using the RapidFinder Quant Multi-Meat Set.

Choice of protocols: Low and high throughput options to fit your needs

Manual sample preparation for lower throughput (throughput dependent on centrifuge capacity), and semi-automated sample preparation processing with Thermo Scientific™ KingFisher™ mL Food Protection System (suitable for processing 15 samples per run) and the Thermo Scientific™ KingFisher™ Flex Purification Instrument* (suitable for processing up to 96 samples per run).



Thermo Scientific KingFisher mL Food Protection System

A flexible Real-Time PCR platform for all your food testing needs

Species ID and Quantification kits are optimized for use on the Applied Biosystems™ QuantStudio™ 5 Food Safety Real-Time PCR System or the Applied Biosystems™ Food Safety Real-Time PCR System.



Applied Biosystems QuantStudio 5 Food Safety System



Validation data

Validation study reports are available upon request. Example data is shown in Table 1 and Table 2 below.

Specificity assay of the RapidFinder Chicken ID Kit

Table 1. Example of data included in validation study report. Analyses were performed using DNA from raw and processed meat.

Meat species	Result
Horse	Not detected
Mule	Not detected
Donkey	Not detected
Beef	Not detected
Swine	Not detected
Buffalo	Not detected
Deer	Not detected
Chicken	Detected
Turkey	Not detected
Duck	Not detected
Ostrich	Not detected
Goose	Not detected
Human	Not detected

Repeatability assay for the RapidFinder Chicken ID Kit

Table 2. Example of data included in validation study report. Analyses were performed using DNA from pure meat. The standards used were mixes with 0.1% chicken/turkey, 0.01% chicken/turkey and 0.1% chicken/swine. Seven replicates of three different samples of DNA extracted from meat were analyzed.

Standard used	Technician 1	Technician 2
0.1% chicken/turkey	100% (7/7)	100% (7/7)
0.01% chicken/turkey	100% (7/7)	100% (7/7)
0.1% chicken/swine	100% (7/7)	100% (7/7)

*Speak to your account manager about how to order the Thermo Scientific KingFisher Flex Purification System.

Product overview

Description	Pack size	Order code
Sample preparation		
Thermo Scientific™ GMO Extraction Kit (for manual DNA extraction)	48 extractions	4466336
Thermo Scientific™ Lysis Buffer + RNase for Food ID	50-100 preparations	A24401
Thermo Scientific™ KingFisher™ mL Food Safety System	Instrument	4428176
Applied Biosystems™ PrepSEQ™ Nucleic Acid Extraction Kit (for use with KingFisher Flex Purification and KingFisher mL Systems)	100 extractions	4480466
	300 extractions	4428176
Detection and quantification		
RapidFinder™ Beef ID Kit (species detected <i>Bos taurus</i>)	48 reactions	A24391
RapidFinder™ Pork ID Kit (species detected <i>Sus scrofa</i> , LOD 0.1%)	48 reactions	A24392
RapidFinder™ Chicken ID Kit (species detected <i>Gallus gallus</i>)	48 reactions	A24393
RapidFinder™ Turkey ID Kit (species detected <i>Meleagris gallopavo</i>)	48 reactions	A24394
RapidFinder™ Sheep ID Kit (species detected <i>Ovis aries</i>)	48 reactions	A24395
RapidFinder™ Equine ID Kit (species detected <i>Equus caballus</i>)	48 reactions	A15570
RapidFinder™ Poultry ID Kit (Several avian species detected)	48 reactions	A24397
RapidFinder™ Fish ID Kit (Broad scope of fish species detected)	48 reactions	A24398
RapidFinder™ Halal ID Kit (species detected <i>Sus scrofa</i> , LOD 0.005%)	48 reactions	A47086
RapidFinder™ Vegan ID Kit (Animal DNA, LOD 0.01%)	48 reactions	A24412
RapidFinder™ Quant Multi-Meat Set	48 reactions	A24399
RapidFinder™ Quant Equine Set	48 reactions	A15579
Applied Biosystems™ QuantStudio™ 5 Food Safety Real-Time PCR System, 0.1 mL Block	Laptop*	A36328
	Desktop*	A36320
Applied Biosystems™ 7500 Fast Food Safety Real-Time PCR System	Laptop**	A30299
	Desktop**	A30304

Service and support packages

Contact your local sales representative for information on instrument service and support packages

*Includes: Applied Biosystems™ QuantStudio™ 5 Real-Time PCR Instrument, computer (desktop computer and monitor, or laptop computer), Thermo Scientific™ RapidFinder™ Analysis Software, USB Flash drive and power cords.

**Includes: Applied Biosystems™ 7500 Fast Instrument, computer, RapidFinder™ Express v2.0 and SDS 1.4.2 software, calibration kits, capping tool, precision plate holder and block balance tubes.

Learn more about solutions for the targeted identification and quantification of meat and fish species in food samples at thermofisher.com/meat-species



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