

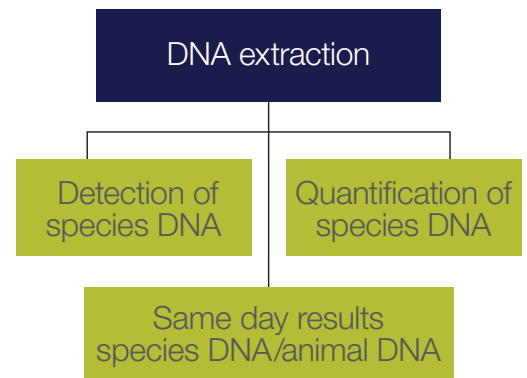
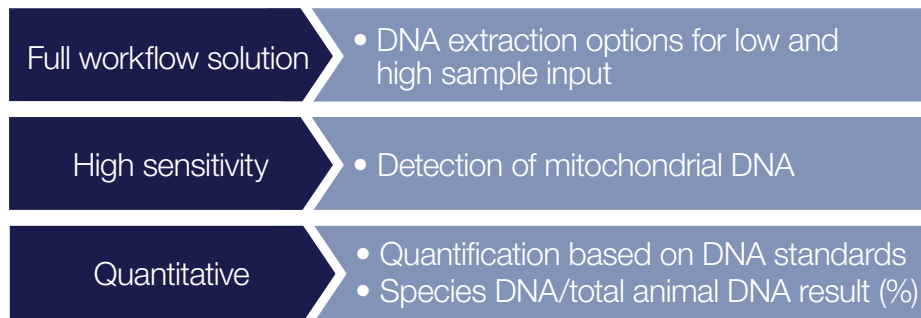
food safety



Reliable detection and
quantification of species DNA
in meat and feed samples

ThermoFisher
SCIENTIFIC

Identification of meat species present in food 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 meat species detection and quantification testing solutions for multi-meat and equine, with high sensitivity below the officially required limit of detection (LOD) of 0.1% (ref. EU No 51/2013 of 16 Jan 2013, amending reg. EU No 152/2009):



Extraction

Detection

Quantification



GMO Extraction Kit

The GMO Extraction Kit provides a fast and easy silica-based DNA purification method to obtain DNA from a wide variety of food samples, like raw materials and processed food.

Characteristics:

High sample input:

Test up to 20g of sample (homogenized sample) for high sensitivity

Reliable:

Removes inhibitors and isolates high purity DNA

Easy to use:

Minimal handling steps.
No toxic reagents.

RapidFinder ID Kit

The Thermo Scientific™ RapidFinder™ ID Kits detect mitochondrial DNA** in food samples. Each kit contains a positive control consisting of 0.1% species DNA. All reagents for 48 reactions are provided.

Characteristics:

Easy to use:

Real-time PCR, no electrophoresis

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

The Thermo Scientific™ RapidFinder™ Quant Multi-Meat Set detects mitochondrial DNA** in food samples and includes the standards for quantification (species and animal).*** All reagents for 48 reactions are provided.

Characteristics:

Easy to use:

Real-time PCR, no electrophoresis

Reliable:

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

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 Applied Biosystems™ BeadRetriever™ Instrument (suitable for processing 15 samples per run) and the Thermo Scientific™ KingFisher™ Flex Purification Instrument (suitable for processing up to 96 samples per run).

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

Meat Species	Results
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

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

Repeatability assay for the RapidFinder Chicken ID Kit

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)

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.



KingFisher Flex Purification Instrument



Applied Biosystems 7500
Fast Real-Time PCR Instrument

The kits are optimized for use in the Applied Biosystems™ 7500 Fast Real-Time System.

Product overview

Description	Pack Size	Order Code
Sample preparation		
GMO Extraction Kit (for manual DNA extraction)	48 extractions	4466336
KingFisher Flex Purification System (96 Deep Well Processor)	Instrument	A32681
BeadRetriever System	Instrument	15950
Applied Biosystems™ PrepSEQ™ Nucleic Acid Extraction Kit (for use with KingFisher Flex Purification and BeadRetriever Systems)	100 extractions	4480466
PrepSEQ Nucleic Acid Extraction Kit (for use with KingFisher Flex Purification and BeadRetriever Systems)	300 extractions	4428176
Detection & Quantification		
RapidFinder Beef ID Kit (species detected <i>Bos taurus</i>)	48 reactions	A24391
RapidFinder Pork ID Kit (species detected <i>Sus scrofa</i>)	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 Quant Multi-Meat Set	48 reactions	A24399
RapidFinder Quant Equine Set	48 reactions	A15579
Lysis Buffer + RNase for Food ID	50-100 preparations	A24401
Applied Biosystems 7500 Fast Instrument Package, Laptop*	See below	A30299
Applied Biosystems 7500 Fast Instrument Package, Desktop*	See below	A30304
RapidFinder Express v2.0 and SDS 1.4.2 Software for Applied Biosystems 7500 Fast Instrument	CD pack	A28811

Service and Support packages

Contact your local supplier for information on instrument service and support including OQ/IPV services and extended warranty packages

*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



imegenagro

To learn more about solutions for the identification of meat species present in food samples, go to:

thermofisher.com/meat-species

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