TaqMan® Salmonella enterica Detection Kit

Validation Data

Salmonella, one of the world’s most commonly tested pathogens, presents significant testing challenges. There are over 2,400 serotypes of Salmonella and many closely related bacteria. For a test to be effective, it must detect strains of interest quickly with high sensitivity and specificity.

The Applied Biosystems TaqMan® Salmonella enterica Detection Kit has been certified by the AOAC Research Institute and the AFAQ AFNOR Certification board, two of the most prominent food industry standard certification organizations, who validate products used for food safety testing in North America and Europe. The Salmonella kit earned the Performance Tested certification from the AOAC Research Institute and earned the ISO-compliant AFNOR VALIDATION (ISO 16140) distinction from AFAQ AFNOR.
AOAC Performance Tested Method™ Certification of the TaqMan® Salmonella enterica Detection Kit

A paired-sample study was conducted on three different foods and one feed to compare the TaqMan® Salmonella enterica Detection Kit with the ISO 6579 reference method for detecting Salmonella spp. The internal study on ground beef, chicken wings, cheddar cheese, and dry pet food found no significant difference in performance between the TaqMan® Pathogen Detection System and the ISO 6579 reference method. The external study confirmed these findings on chicken wings as the food matrix, demonstrating sensitivity and specificity better than or comparable to the ISO 6579 reference method. The TaqMan® Salmonella enterica Detection Kit inclusivity/exclusivity testing was 100% accurate, and tests for lot-to-lot consistency, reagent stability, and ruggedness showed consistent performance. As a result of these findings the TaqMan® Salmonella enterica Detection Kit was granted Performance Tested Methods™ status and assigned certification number 020803.

**Salmonella Strains Tested for Inclusivity—AOAC Study**
- Salmonella abaanetubu
- Salmonella abony
- Salmonella adelaide
- Salmonella agona
- Salmonella ajobo
- Salmonella alachua
- Salmonella albany
- Salmonella anatum
- Salmonella arizonae
- Salmonella bareilly
- Salmonella berta
- Salmonella betikey
- Salmonella binza
- Salmonella bocchennie
- Salmonella bovis morbillicans
- Salmonella brandenburg
- Salmonella bredeney
- Salmonella california
- Salmonella cerro
- Salmonella choleraesuis
- Salmonella choleraesuis kunzendorf
- Salmonella crossness
- Salmonella cubana
- Salmonella derby
- Salmonella drypool
- Salmonella eastbourne
- Salmonella enteritidis
- Salmonella ferlac
- Salmonella flint
- Salmonella gallinarum
- Salmonella gaminara
- Salmonella glostrup
- Salmonella hadar
- Salmonella havana
- Salmonella heidelberg
- Salmonella hilversum
- Salmonella harmelen
- Salmonella houten
- Salmonella Illinois
- Salmonella indiana
- Salmonella infantis
- Salmonella inverness
- Salmonella iaviana
- Salmonella jersalem
- Salmonella johannesburg
- Salmonella kentucky
- Salmonella kottbus
- Salmonella krefeld
- Salmonella livingstone
- Salmonella locarno
- Salmonella london
- Salmonella madelia
- Salmonella malawi
- Salmonella manila
- Salmonella maregrosso
- Salmonella mbandaka
- Salmonella miami
- Salmonella michigan
- Salmonella minnesota
- Salmonella montevideo
- Salmonella muenchen
- Salmonella newbrunswick
- Salmonella newport
- Salmonella nienstedten
- Salmonella ohio
- Salmonella oranienburg
- Salmonella ouakam
- Salmonella panama
- Salmonella paratyphi A
- Salmonella paratyphi B
- Salmonella paratyphi C
- Salmonella phoxin
- Salmonella poona
- Salmonella potdsam
- Salmonella putten
- Salmonella rissen
- Salmonella roodepoort
- Salmonella rubislaw
- Salmonella saintpaul
- Salmonella salamae
- Salmonella sandiego
- Salmonella saphra
- Salmonella schwarzwendrand
- Salmonella senftenberg
- Salmonella simsbury
- Salmonella sundsvall
- Salmonella tallahasee
- Salmonella tennesse
- Salmonella thompson
- Salmonella tranora
- Salmonella treforest
- Salmonella typhi
- Salmonella typhimurium
- Salmonella urbana
- Salmonella vellore
- Salmonella wassenaar
- Salmonella weiteveden
- Salmonella wellesasco
- Salmonella worthington

**Non-Salmonella Strains Tested for Exclusivity—AOAC Study**
- Acetobacter aceti
- Citrobacter amalonaticus
- Citrobacter freundii
- Citrobacter farmeri
- Citrobacter braakii
- Citrobacter youngae
- Enterobacter aerogenes
- Enterobacter agglomerans
- Enterobacter cloacae
- Enterobacter sakazakii
- Escherichia blattae
- Escherichia coli
- Escherichia coli O157:H7
- Hafnia alvei
- Klebsiella oxytoca
- Klebsiella pneumoniae
- Morganella morganii subsp. morganii
- Proteus mirabilis
- Proteus vulgaris
- Providencia stuartii
- Serratia liquefaciens
- Serratia marcescens
- Shigella boydii
- Shigella dysenteriae
- Shigella flexineri
- Shigella sonnei
- Staphylococcus aureus
- Yersinia enterocolitica
- Yersinia frederiksenii
- Yersinia pseudotuberculosis

**Matrices Tested—AOAC Study**
- Meat Products—Raw ground beef
- Poultry Products—Chicken wings
- Dairy Products—Cheddar cheese
- Animal Feeds—Dry pet food
AFNOR Validation of the TaqMan® Salmonella enterica Detection Kit

A methods comparison study was conducted on 5 food and feed categories to compare the TaqMan® Salmonella enterica Detection Kit with the ISO 6579 reference method for detecting Salmonella spp. According to the methods comparison study, the TaqMan® Salmonella method shows satisfactory results for relative accuracy (98.5%), relative specificity (99.4%), and relative sensitivity (97.4%). The TaqMan® Salmonella method and standard method show similar detection limit levels, and negative results are available within one day using the TaqMan® Salmonella method. According to the inter-laboratory study, the alternative method and the reference method show similar performances (accordance, concordance, odds ratio). As a result of these findings the TaqMan® Salmonella enterica Detection Kit earned the ISO-compliant AFNOR VALIDATION (ISO 16140) distinction from AFAQ AFNOR and was assigned certificate number ABI 29/01-09/07.

Salmonella Strains Tested for Inclusivity—AFNOR Study

Salmonella anatum
Salmonella bovis morbillicans
Salmonella brandenburg
Salmonella brandenup
Salmonella bredeney
Salmonella cremieu
Salmonella derby
Salmonella dublin
Salmonella enteritidis
Salmonella gallinarum
Salmonella hadar
Salmonella heidelberg
Salmonella indiana
Salmonella infantis
Salmonella kottbus
Salmonella london
Salmonella mbandaka
Salmonella newport
Salmonella panama
Salmonella paratyphi A
Salmonella paratyphi B
Salmonella paratyphi C
Salmonella seftenberg
Salmonella saintpaul
Salmonella tennessee
Salmonella typhi
Salmonella typhimurium
Salmonella virchow
Salmonella worthington
Salmonella salamae
Salmonella arizonae
Salmonella subgroup IIIb
Salmonella subgroup IV
Salmonella indica

Proteus mirabilis
Proteus vulgaris
Serratia liquefaciens
Serratia proteomaculans
Shigella sonnei
Yersinia enterocolitica

Matrices Tested—AFNOR Study

Andouillette
Bacon straw
Basilic tomato sauce
Bread pudding
Broche with sausage
Brocoli
Brussels sprouts
Cabbage leaves
Cabbage rolls
Carp slices
Cattle feed
Chocolate ice cream
Comté
Confectioner’s custard
Cooked beans
Cougettes slices
Cream puff
Croissant pastry
Croquettes for cat
Croquettes mix for cat
Curry
Curry spices
Dog food
Dry grapes
Dry sausage
Egg white powder
Egg yolk powder
Emmental
Ewe milk
Fish flour
Food for cattle
Garlic sausage
Goat cheese
Goat cheese with herbs
Grated carrots
Green beans
Green peas
Grenadier filet
Ground beef
Ground ham
Hamster mix seeds
Head pâté
Horse feed
Infant milk powder
Lemon butter sauce
Mango coulis
Mashed asparagus
Mashed mushrooms
Mayonnaise
Meat for pets
Milk powder
Minced spinach
Minced vegetables
Onions
Paella
Pangasin filets
Pastry
Pâté
Pâté for cat
Peach purée
Piedmontese salad
Pilchard fillet
Pollack
Preparation for salad
Rabbit mix seeds
Raw meat for pets
Raw milk
Raw milk cheese
Raw milk cheese (comté)
Raw milk cheese (Tomme de Savoie)
Raw milk comté
Raw milk Raclette
Ready-to-eat hake
Red pepper
Remoulade celery
Rice and vegetables
Ripé purée
Roast chicken legs
Salads
Salmon
Salmon kebab
Salmon terrine for cat
Salsify
Sausage for dog
Sauté (pork)
Scallops terrine
Seafood cocktail
Seeds
Shallots
Smoked salmon
St. Nectaire
Strawberries
Tabbouleh
Terrine for dog
Tiramisu
Tomato wheat sead
Tomato blocks
Tuna rillettes
Turnip blocks
Vanilla ice cream
West Indian pudding
Whiting fillet
Yellow pepper

Non-Salmonella Strains Tested for Exclusivity—AFNOR Study

Bacillus cereus
Bacillus firmus
Bacillus pumilus
Citrobacter diversus
Citrobacter freundii
Citrobacter koseri
Enterobacter aerogenes
Enterobacter agglomerans
Enterobacter cloacae
Enterobacter sakazakii
Enterococcus durans
Enterococcus faecalis
Escherichia coli
Hafnia alvei
Klebsiella oxytoca
Klebsiella pneumoniae

Matrixes Tested—AFNOR Study

Andouillette
Bacon straw
Basilic tomato sauce
Bread pudding
Broche with sausage
Brocoli
Brussels sprouts
Cabbage leaves
Cabbage rolls
Carp slices
Cattle feed
Chocolate ice cream
Comté
Confectioner’s custard
Cooked beans
Cougettes slices
Cream puff
Croissant pastry
Croquettes for cat
Croquettes mix for cat
Curry
Curry spices
Dog food
Dry grapes
Dry sausage
Egg white powder
Egg yolk powder
Emmental
Ewe milk
Fish flour
Food for cattle
Garlic sausage
Goat cheese
Goat cheese with herbs
Grated carrots
Green beans
Green peas
Grenadier filet
Ground beef
Ground ham
Hamster mix seeds
Head pâté
Horse feed
Infant milk powder
Lemon butter sauce
Mango coulis
Mashed asparagus
Mashed mushrooms
Mayonnaise
Meat for pets
Milk powder
Minced spinach
Minced vegetables
Onions
Paella
Pangasin filets
Pastry
Pâté
Pâté for cat
Peach purée
Piedmontese salad
Pilchard fillet
Pollack
Preparation for salad
Rabbit mix seeds
Raw meat for pets
Raw milk
Raw milk cheese
Raw milk cheese (comté)
Raw milk cheese (Tomme de Savoie)
Raw milk comté
Raw milk Raclette
Ready-to-eat hake
Red pepper
Remoulade celery
Rice and vegetables
Ripé purée
Roast chicken legs
Salads
Salmon
Salmon kebab
Salmon terrine for cat
Salsify
Sausage for dog
Sauté (pork)
Scallops terrine
Seafood cocktail
Seeds
Shallots
Smoked salmon
St. Nectaire
Strawberries
Tabbouleh
Terrine for dog
Tiramisu
Tomato wheat sead
Tomato blocks
Tuna rillettes
Turnip blocks
Vanilla ice cream
West Indian pudding
Whiting fillet
Yellow pepper
Fast, Accurate Pathogen Testing

The TaqMan® Salmonella enterica Detection Kit provides a simple, reliable, and rapid procedure that utilizes the polymerase chain reaction (PCR) to amplify a target sequence unique to Salmonella enterica.

• Reduce sample handling with a software-guided, three-step process that uses a single, closed-tube format during the PCR step.
• The highly sensitive TaqMan® real-time PCR system enables a dramatic reduction in time required for pre-enrichment compared to conventional techniques.
• Get your results quickly, with time to results of less than 4 hours after one-step sample enrichment (20 hours total).
• Detect 1–10 copies of the target DNA per reaction—or down to 1 colony-forming unit in 25 grams of food.
• Streamline your workflow with one standard protocol for multiple organisms.

Part of a Growing Family

Applied Biosystems offers a full line of pathogen detection kits based on universal assay conditions, enabling you to run any combination of these assays together in the same sample run.

• Salmonella enterica (p/n 4366104)
• Campylobacter jejuni (p/n 4366098)
• Cronobacter sakazakii (p/n 4382492)
• E. coli O157:H7 (p/n 4366100)
• Listeria monocytogenes (p/n 4366102)
• Pseudomonas aeruginosa (p/n 4368604)
• Staphylococcus aureus (p/n 4368606)

A Complete Solution

In combination with Applied Biosystems Real-Time PCR Systems such as the 7300, 7500, 7500 Fast, and StepOne™ Systems, RapidFinder™ Software, and the PrepMan® Ultra Sample Preparation Reagent, the TaqMan Salmonella enterica Detection Kit offers a fully integrated, single-vendor solution that provides superior performance, reliability, and ease of use.