MicroVal Study 2017LR73

Validation study of the MALDI Biotyper® Complete Solution as an Alternative Method for the Confirmation of *Salmonella* spp.

MCS ILS, Version 2
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The report is prepared in accordance with ISO 16140-6:2019 and the most recent version of the MicroVal Technical Committee for interpretation on ISO 16140-6, version 2.0.

Company: Bruker Corporation

Expert Laboratory: ADRIA Development (FR) and Q Laboratories (OH,USA)

Method/Kit name: MALDI Biotyper for *Salmonella* spp. confirmation

Validation standard: ISO 16140-6: 2019 Microbiology of food chain – Method Validation–Part 6: Protocol for the validation of alternative (proprietary) methods for microbiological confirmation and typing procedures.

Reference methods: ISO 6579-1:2017 Microbiology of the food and animal feeding stuffs – Horizontal method for detection, enumeration and serotyping of Salmonella spp. – Part 1: detection of Salmonella spp.

Scope of validation: Isolates taken from XLD and BGA, chromogenics based on C8-esterase activity detection (RAPID'*Salmonella, Brilliance*™ Salmonella Agar, ASAP), and non-selective nutrient agar (TSA). In October of 2019, Campden BRI conducted an extension to include CASE Agar.

Certification organization: Lloyd's Register

List of abbreviations

-	No typical colonies but presence of background microflora
AL	Acceptability Limit
Alt	Alternative method
BG-	Gram negative rod
BGA	Brilliant Green Agar
BPW	Buffered Peptone Water
d	Doubtful result
DT	Direct transfer procedure
eDT	Extended direct transfer procedure
EXT	Extraction procedure
EL	Expert Laboratory
g	Gram
h	Hour
ILS	Interlaboratory Study
MALDI-TOF MS	Matrix Assisted Laser Desorption/Ionization Time-Of-Flight (MALDI-TOF) Maldi Biotyper Mass Spectrometry
MCS	Method Comparison Study
min	minute
MKTTn	Muller-Kauffmann Tetrathionate-novobiocin broth
ml	millilitre
MR	(MicroVal) Method Reviewer

MSP	Main Spectrum or Main Spectra
MVTC	MicroVal Technical Committee
NA	Negative agreement
ND	Negative deviation
NOIP	No organism identification possible
PA	Positive agreement
PD	Positive deviation
pos (+)	positive/growth/target detected
RT	Relative Trueness
RVS	Rappaport Vassiliadis Soya broth
TSA	Tryptic Soy Agar
w	Weak reaction
XLD	Xylose Lysine Deoxycholate agar

Contents

Introduction

The purpose of this MicroVal study was to validate the use of the Bruker MALDI Biotyper® (MBT) using a presumptive *Salmonella* spp. (defined by ISO 16140-1:2016) as an alternative method to ISO 16140-6:2019. Only the rates of confirmed and non-confirmed results were considered in the final interpretation. Additional details about the strains tested with the MALDI Biotyper are provided in the report for information purposes only.

The MBT utilizes Matrix Assisted Laser Desorption/Ionization Time-Of-Flight (MALDI-TOF) Mass Spectrometry (MS) for the rapid and accurate confirmation and identification of microorganisms isolated from select media types. The MBT method is designed to rapidly confirm a presumptive result and identify the isolates from a variety of agar plates.

The alternative method was evaluated to confirm *Salmonella* spp. according to the technical rules described in the ISO 16140 - Part 6 - Microbiology of the food chain - Method validation - Part 6: protocol for the validation of alternative (proprietary) methods for microbiological confirmation and typing procedures. The tested microorganisms were isolated on XLD and BGA, chromogenics based on C8-esterase activity (RAPID'*Salmonella*, *Brilliance* Salmonella, ASAP), and on a non-selective nutrient agar (TSA). This evaluation was performed by ADRIA Development (FR) and Q Laboratories (OH, USA) as the MicroVal Expert Laboratories. Two MBT systems were used for the testing; the MBT with the microflex LT/SH instrument and the MBT smart with the microflex LT/SH smart instrument. Half of the Method Comparison Study (MCS) was carried out at ADRIA and half at Q Laboratories. In addition, Campden BRI conducted an extension to include CASE Agar to the claim for the confirmation of *Salmonella.* For the ILS, Q Laboratories organized and included 15 collaborators from different laboratories. This report summarizes the results and interpretations of the MCS and the ILS.

Reference method: ISO 6579-1:2017

The scope of the validation study is the confirmation of *Salmonella* spp. presumptive colonies isolated on XLD, BGA, Chromogenics based on C8-esterase activity detection (RAPID'*Salmonella*, *Brilliance* Salmonella, ASAP), CASE agar and non-selective nutrient agars.

1 Method protocols

1.1 Reference method

See the flow diagram in **Annex A**.

The reference method corresponds to the ISO 6579 (February 2017) - Microbiology of food and animal feeding stuffs - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp.

1.2 Alternative method

See the flow diagram of the alternative method in **Annex B**.

A reference of the principle and the workflow can be viewed here on clinical applications: https://www.youtube.com/watch?v=aD7Ln71wGFM.

More than 2600 MBT are used in the world now. Additional concepts were developed including the MBT Subtyping module to differentiate closely related species such as *Listeria* species, or to identify multiresitance to antibiotics.

1.2.1 Instrumentation Workflow and Mechanism

An individual colony from a culture plate of the tested strain was transferred to a selected position on a MALDI target plate. The MALDI target plate was air-dried and the matrix was added. The matrix solution was used to extract mostly ribosomal proteins at high concentrations from the microorganisms. When the matrix crystallized and was completely dry, the MALDI target plate was analyzed using the **MBT System microflex LT/SH** or the **MBT System microflex LT/SH smart** with the corresponding MBT software (4.0 and Compass versions).

Strains were analyzed using MALDI-TOF MS. A laser in the MALDI-TOF MS irradiates the dried matrix spot. The rapid evaporation of the matrix and proteins caused by the laser resulted in the release of intact, positively charged proteins and peptides (a "soft" ionization technique). These ions are electrostatically accelerated over a short distance and arrive in the flight tube at a mass-dependent speed. As different proteins/peptides have different masses, ions arrive at the detector at different times (Time Of Flight). The mass spectrometer measures the time (in the microsecond range) between pulsed acceleration and the corresponding detector signal. The speed is converted into a molecular mass. The highly abundant microbial ribosomal proteins result in a mass spectrum with a characteristic mass and intensity distribution pattern. For many microorganisms, this pattern is species-specific and can be used as a “molecular fingerprint” to identify the sample.

The **MBT Explorer Module** allows sophisticated statistical analysis as well as the extension of existing libraries or the creation of new libraries; statistical analysis is supported by PCA (Principal Component Analysis), Clustering (dendrogram creation and examination) and correlation analysis based on a composite correlation index (CCI) matrix approach.

The MALDI Biotyper (MBT) software and library:

- The MBT System microflex LT/SH (MBT) or MBT System microflex LT/SH smart (MBT-smart) instruments are benchtop MALDI-Time-Of-Flight Mass Spectrometers for accurate mass determination of biomolecules.

- The **MBT Compass** or **MBT 4.0 Software** are dedicated software packages for microorganism identification based on MALDI-TOF MS profile spectra. The

MBT Compass software controls mass spectrometry data acquisition and matches acquired spectra against the MBT Compass library for final identification results. The software generates a report using score values and scoring symbols.

- The **MBT Compass Library** contains 6903 Main Spectra (MSPs) and 2461 species, from exactly defined bacteria and yeast strains from industrial, veterinary and clinical isolates provided by collaborating partners, round robin strains and strains from accredited ISO 9001:2008 certified strain collections; this library is updated every year, and the new version contains 7311 MSPs corresponding to 2509 species of bacteria and yeasts.

Microorganisms identified using the MBT are isolated by streaking a microbial culture onto an agar plate.

1.2.2 Calculating a log (score) value and interpretation

Data acquisition was controlled and analyzed using MBT Compass software. The spectrum of the unknown sample was first translated into a peak list. Using a biostatistical algorithm, this peak list was compared to reference peak lists of organisms in the reference library database and a log (score) between 0.00 and 3.00 was generated. The higher the log (score), the higher the degree of similarity between the pattern for the unknown peak list and the peak list for the database entry in the reference library. Scores higher or equal to 2.00 presented in green were determined to be a high confidence identification. Results presented in yellow have values between 1.70 and 1.99 and were considered low confidence identification. Results presented in red were considered not acceptable for identification. The consistency category of the identification was based on the confidence level of the best and second-best matches as described below.

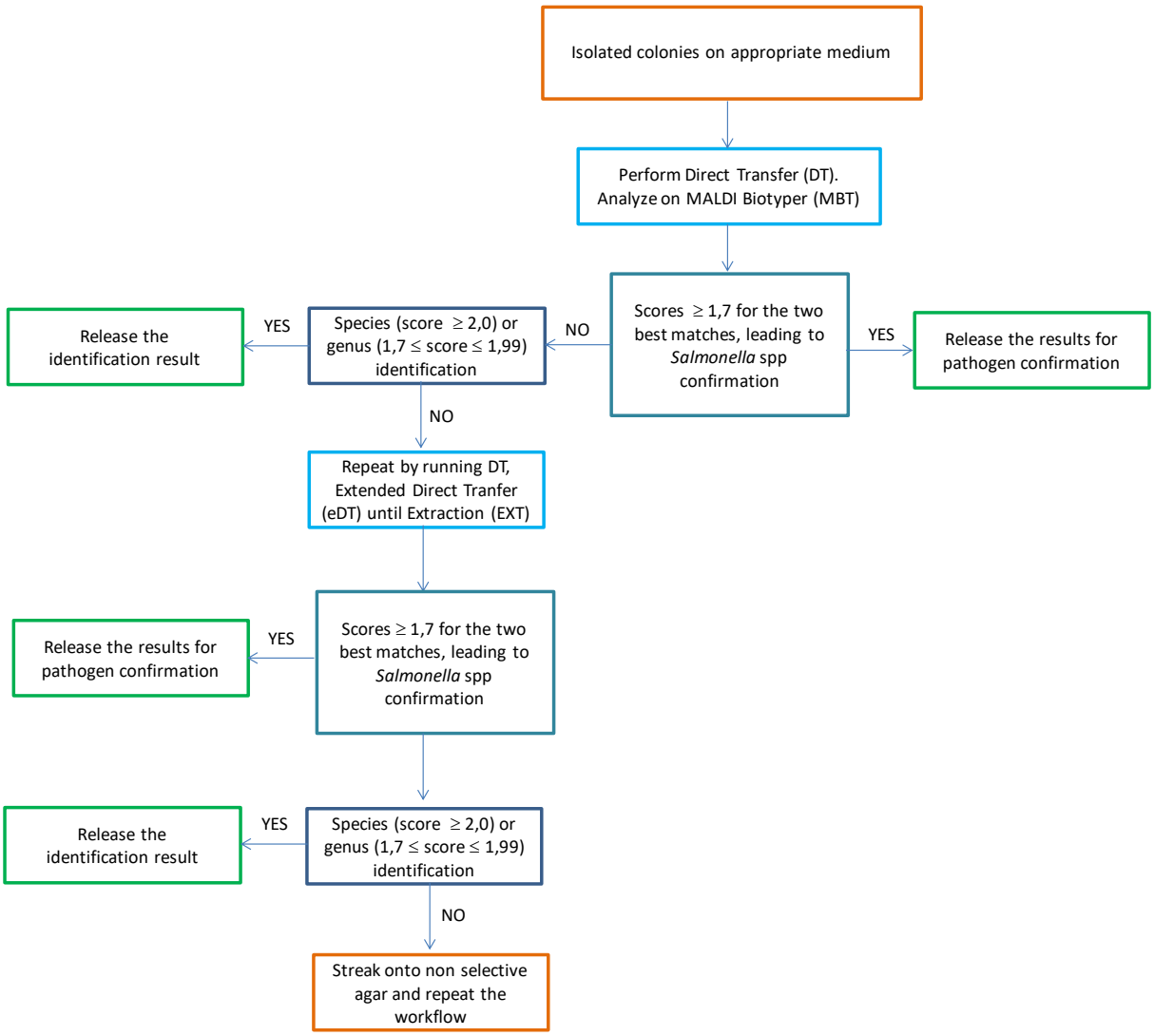
For the confirmation of foodborne pathogens at the genus level, the two highest matches were considered for identification if they both have a log (scores) higher than 1.70 and propose the same identified genus. If the log (score) is < 1.70 after initial analysis, the DT sample preparation was repeated, and if needed the alternative sample preparation procedures, eDT and EXT, was run (See **Annex C**). **Table 1** shows a summary for identification results. If the identification is still not possible, it was advised to streak on a non-selective agar.

Table 1. **Shows identification category and description**

Identification consistency category	Description
High	The best match is a high-confidence identification. The second-best match was: - a high-confidence identification in which the species is identical to the best match; - a low-confidence identification in which the genus is identical to the best match; - a non-identification.
Low	The requirements for high consistency were not met. The best match was a high or low-confidence identification. The second-best match was: - a high or low-confidence identification in which the genus is identical to the best match; - a non-identification.
None	The requirements for high or low consistency were not met.

The MBT enabled the confirmation of isolated colonies from non-selective and selective culture media. The confirmation was done at the genus level for *Salmonella* spp. Based on the observed log (score) values, the eDT and/or EXT sample preparations were run as described in the standard operation procedures (SOP) of the MBT Compass Manual. **Figure 1** shows the workflow.

Figure 1



The MBT report for Food Microbiology, activated in the MBT Compass software, provided the confirmation and identification results according to this flowchart.

The Quick Guide for Food Testing was provided in addition to the MBT Compass user manual, in order to describe the scope of the ISO 16140-6 validation, the workflow, the controls, and the interpretation.

1.2.3 Instrumentation Features

As previously stated, two MBT Complete Solutions are currently available depending on the instrument, MBT System microflex LT/SH (MBT) or MBT System microflex LT/SH smart (MBT-smart). The two instruments were tested during the validation: the MBT microflex LT/SH by the expert laboratory. The blind-coded biotargets were sent for a second reading by BRUKER (Europe) and Atlanta Hospital (US) using the **MBT-smart**. Bruker internal data were available to support the sample stability after the matrix addition up to 24 hours at 20-25°C, but in some cases, the biotargets

arrived one day later. The differences result from the laser technology and the vacuum system are presented below (See **Table 2**).

Table 2. A Comparison of the laser technology and the vacuum system

MALDI Biotyper System microflex LT/SH	MALDI Biotyper Smart System microflex LT/SH
Vacuum system	*High-performance vacuum system*
Gridless microSCOUT™ MALDI ion source with extended pulsed ion extraction PAN™ mass range focusing	*Gridless microSCOUT™ MALDI ion source with extended pulsed ion extraction PAN™ mass range focusing*
Integrated source cleaning without the need of venting the system	*Integrated source cleaning without the need of venting the system*
60 Hz nitrogen laser	*200 Hz BRUKER smartbeam™ solid-state lifetime laser*
TOF analyzer for linear-only measurements with positive acceleration potential	*TOF analyzer for linear-only measurements with positive acceleration potential*
Data System with digitizer, WIN7 Operating-System, >=24" LCD-Display, Printer and Compass™ for Flex software package for MS control, data acquisition and processing	*Data System with digitizer, WIN7 Operating-System, >=24" LCD-Display, Printer and Compass™ for Flex software package for MS control, data acquisition and processing*

1.2.4 Software Features

Two versions of the software are currently available: MBT Compass and MBT 4.0. They use the same algorithm and thus provide the same identification result, as presented in the certificate of equivalence (See **Annex D**).

The only differences in the two software versions are the following:

- The MBT Compass enables the use of the Subtyping Module for automated detection of strain specific characteristics, while the MBT 4.0 cannot;
- The MBT 4.0 enables electronical signature and audit trail with the MBT Security Pack, while the MBT Compass still must be implemented for that option.

1.2.5 Targets and biotargets

The samples can be plotted on several targets:

- Reusable 48 and 96 polished steel target;
- Disposable Biotarget 96, which can be used until all the sample positions are filled.

These targets were simply materials to plot the samples, and data acquired to comply with the ISO 13485 and ISO 9001 certification were available to show the equivalence. Additionally, to clearly show the equivalence, 7 collaborators involved

in the interlaboratory study used disposable biotargets, and 8 collaborators ran the tests on reusable targets. The MCS was ran with disposable biotargets to simplify the workflow and, therefore, no washing step was required.

1.2.6 Associated devices

The MBT was associated to the following devices in order to facilitate the workflow:

- MBT Pilot workstation supported correct sample positioning by guided MALDI target preparation through micro-projection technology; MBT Galaxy automated target preparation system frees laboratory personal from routine work, using exactly the same sample procedure as the manual one; indeed, no additional testing was required, and data acquired to comply with the ISO 13485 and ISO 9001 certification were available to show the equivalence. Note, that the MBT Galaxy is not a colony picker, the MBT Galaxy runs only automatic pipetting of the HCCA (α-Cyano-4-hydroxycinnamic acid) matrix of formic acid. Since automation steps were identical to those used in the manual process, it was only necessary to use the manual method within the validation.

- Barcode Scanner can be used for easy reading of barcodes of routine samples.

For additional information, please see: https://www.bruker.com/products/mass-spectrometry-and-separations/ivd-ce-certified-maldi-biotyper/consumables-accessories-for-mbt-workflows.html

1.2.7 Consumables

The following consumables were required for the manual procedure:

- HCCA Matrix for the sample preparation;
- Bacterial Test Standard (BTS), i.e. mass spectrometry? calibration standard showing a typical *Escherichia coli* DH5 alpha peptide and protein profile plus additional proteins in MALDI-TOF MS. **It is mandatory to get at least one valid BTS control per run.**

Additionally, formic acid was used for the extended direct transfer, as well as ethanol and acetonitrile for the extraction protocol.

1.3 Study design

Microorganisms identified in this MCS using the MBT were isolated by streaking a microbial culture onto an agar plate.

The MBT workflow gathers three sample preparation procedures, which are presented in **Annex C**:

1. Direct transfer sample preparation procedure (DT), which is the usual procedure for most of the bacterial isolates and is used as the general procedure;
2. Extended direct transfer sample preparation procedure (eDT);
3. Extraction sample preparation procedure (EXT).

2 Method comparison study

2.1 Selection of Test Strains

A range of strains were used. The selection of the tested strains was done according to the Annex A of the ISO 16140 – part 6. The strains were selected by considering the measurement principle of the alternative method. Different measurement principles may require the use of different test panels of strains. In addition, the occurrence of suspect and interfering colonies on the media used for the reference method was of importance for selecting strains.

Each strain was characterized biochemically, serologically and/or genetically for it to be correctly identified. Strains were isolated mostly from foods, feed, the food-processing environment, or from primary production in consideration of the scope of the validation. Clinical, environmental and culture collection strains could also be used. The original source of the isolates was traceable and held in a local (e.g. expert laboratory), national or international culture collection enabling them to be used in future testing if required.

The selected strains from the inclusivity and exclusivity lists were sent from collections of the expert laboratories or from culture type collections. They were all identified at the species level using appropriate methods, conventional or molecular identification. This enabled getting a relevant selection of the strains to test a broad range of species in the exclusivity panel and in the inclusivity panel.

2.2 Samples to be tested

Highly characterized pure strains were used for confirmation procedures following the requirements as specified in ISO 7218 and ISO 6579-1.

The validation study was carried out using strains cultured from stock on a non-selective medium or stored on microbeads at -80°C.

Required previously generated data were already available for the reference confirmation procedure, therefore, it was not necessary to repeat the reference confirmation procedure with the alternative confirmation method for the MCS.

The confirmatory tests described in the ISO 6579-1 methods were applied to the strains for the ILS.

2.3 Inclusivity and exclusivity

The study design is based on the taxonomy level addressed by the alternative method and covered by the scope of the certification. All the strains were blind coded prior to analysis.

Inclusivity

Pure cultures of all strains were required to be tested with the reference confirmation procedure and with the alternative confirmation method. 150 different target strains were tested to the genus level.

Exclusivity

Pure cultures of all strains were required to be tested with the reference confirmation procedure and with the alternative confirmation method. 100 non-target strains were tested to the genus level.

Some of the strains from the exclusivity lists were not able to grow or to show characteristic colonies on the tested selective agars. The strains used in exclusivity testing that exhibited any growth were tested with the MBT procedure to ensure there was no cross-reactivity with the chosen selective agar. The characteristics of the colonies are shown in the raw data.

2.3.1 Data discrepancy

In case of discrepancy (ies) between the alternative and reference methods, the strains were additionally identified by sequencing the 16S rDNA. This was the case for some exclusivity strains, but with no impact on the outcomes of the *Salmonella* confirmations.

2.3.2 Salmonella spp. testing at the genus level

150 *Salmonella* spp. strains and 100 relevant non-*Salmonella* spp. strains were tested. The list is provided in **Annex E**. Each strain was first recovered on a non-selective agar incubated at 37.0 ± 1 °C for 24 h ± 3 h (TSA, standard formulation), as well as on two selective agars:

- XLD incubated at 37.0 ± 1 °C for 24 h ± 3 h,
- BGA incubated at 37.0 ± 1 °C for 24 h ± 3 h,
- Three chromogenic agars relying on C8-esterase activity detection, in order to show the equivalence between the generated data, i.e. RAPID'*Salmonella*,

Brilliance Salmonella and ASAP incubated according to the recommendations of the respective inserts.

- Extension: CASE Agar incubated at 37.0 ± 1 °C for 24 h ± 3 h

Non-target organisms were incubated under optimal growth conditions for the organism. All plates with growth were analyzed by the Bruker Maldi Biotyper System on disposable targets, following the Direct Transfer sample preparation. An isolated colony from each plate was smeared as a thin film directly onto a single sample position on the disposable target. A 1 µL aliquot of BTS was spotted onto a designated position in the disposable target and allowed to dry. After the spotting of the target plate, the HCCA matrix was added within 30 minutes. The target plate was analyzed within 24 hours. The protocol is described in **Annex F** .

2.3.3. Summary of the inclusivity and exclusivity testing

Table 3 outlines the tests which were done for the original certificate. Only strains showing colonies were tested. **Table 4** outlines the tests which were done for the extenstion by Campden BRI to include CASE Agar.

Table 3. **Tests done during the Original MCS**

Target	Inclusivity		Exclusivity	Total
	Media tested	Number of tests		
Salmonella spp	TSA	150	100	1323
	XLD	150	67	
	BGA	150	77	
RAPID'*Salmonella*		150	61	
Brilliance Salmonella		149	57	
ASAP		149	63	
TOTAL		**898**	**425**	**1323**

Table 4. **Tests done during the Extension MCS to include CASE Agar**

Target	Inclusivity		Exclusivity	Total
	Media tested	Number of tests		
Salmonella spp	Nutrient Agar (NA)	150	100	500
	CASE Agar	150	100	
TOTAL		**300**	**200**	**500**

2.3.3 Expression of results

The raw data were tabulated in **Annex G** for inclusivity and **Annex I** for exclusivity study for the original certificate and the extension (to include CASE agar). For the original certificate (**Table 5)** and for the extension (**Table 6**) shows the number of strains showing atypical growth on the tested plates, as well as the number of strains for which a subculture on non-selective agar (TSA) was required to get an identification using the MBT-smart.

Table 5. **Description of the observed culture data from Original Certificate**

Study	Media	Number of strains giving non-characteristic colonies on the plates	Number of strains requiring a subculture to get an identification result	
			MBT	MBT smart
Inclusivity	TSA	0	0	0
	XLD	2/150	0	0
	BGA	2/150	0	0
	RAPID'*Salmonella*	6/150	0	0
	Brilliance Salmonella	5/150	0	0
	ASAP	5/150	0	0
Exclusivity	TSA	0	0	0
	XLD	62/100	0	1/100
	BGA	71/100	0	0
	RAPID'*Salmonella*	58/100	0	0
	Brilliance Salmonella	57/100	1/100	0
	ASAP	62/100	1/100	0

Table 6. **Description of the observed culture data from Extension to include CASE Agar**

Study	Media	Number of strains giving non-characteristic colonies on the plates	Number of strains requiring a subculture to get an identification result	
			MBT	MBT smart
Inclusivity	CASE Agar	4/150	0	0
Exclusivity	CASE Agar	29/150	0	0

Original Certificate

For the inclusivity panel, all the strains were able to grow on the non-selective agar plate (TSA) and on all selective agar plates tested, except in the following 2 cases: *Salmonella* Typhi Ad302 was not able to recover on on *Brilliance*™ Salmonella and *Salmonella* Strasbourg CIP 105632 was not able to recover on ASAP.

For exclusivity, 33 strains did not grow on XLD, 24 on BGA, 39 on RAPID' *Salmonella,* 43 on *Brilliance*™ Salmonella and 37 on ASAP.

During the exclusivity study, it was not always possible to get an identification result for the strain *Siccibacter turicensis* QL 17031.7 from all the tested selective media. When analyzed from XLD with the MBT smart, from *Brilliance* Salmonella and ASAP when analyzed with the MBT, an identification result was not obtained. This strain

showed only atypical colonies on the tested selective media. *Siccibacter* spp is a new genus and many taxonomical changes have occurred recently. There is currently only one reference mass spectrum for a *Siccibacter* species that is different from the tested one, i.e *S. colletis*. Therefore, identification with low log (scores) or "no identification" results were observed. Only a few strains are currently available. Updates to the strains in the MBT Library are expected in the next two years; this will improve the log(scores) and thus the identification outcomes. The variations observed in the phenotypes of *Siccibacter* strains can lead to misindentification with the conventional ISO procedure from purified colonies. This is confirmed by Jackson and Forsythe (2016): Commercially available biochemical test panels, are not sufficient to identify *Cronobacter, Franconibacter* and *Siccibacter* isolates at the species level and reliance on these methods will result in misdentifications".

All the *Salmonella* strains were confirmed at the genus level using the DT procedure. No strain of the exclusivity panel was identified as *Salmonella* spp.

For the exclusivity panel, the eDT (extended direct transfer) and EXT (extraction) procedures were used in some cases. This is summarized in **Table 7**.

Table 7. Use of the eDT and EXT Procedures in the exclusivity study of the MBT workflow

Media	No growth	MBT			MBT smart		
		DT[1]	eDT [2]	EXT [3]	DT	eDT	EXT
TSA	0	100	0	0	99	1	0
XLD	33	66	1	0	58	2	7
BGA	23	77	0	0	77	0	0
RAPID'*Salmonella*	39	60	1	0	60	1	0
Brilliance Salmonella	43	56	1	0	54	1	2
ASAP	37	61	1	1	57	1	5
Total	175	420	4	1	405	6	14
		425			425		
Percentage	/	98.8%	0.94%	0.24%	95.3%	1.41%	3.29%

[1] DT: Direct Transfer procedure
[2] eDT: extended Direct Transfer procedure
[3] EXT: extraction procedure

For the MBT, the eDT was run for 0.9% of the identification results and the EXT for 0.2%. For the MBT-smart, the eDT was run for 1.4% identification results and the EXT for 3.3%. In that case, the biotargets were analyzed 24hours (minimum) after the sample preparations. Therefore, the slight differences observed in the sample preparation to an identification result are mainly due to a series of analyses instead of the culture media.

In the exclusivity panel, some discrepants were observed between the original identification of the strains obtained with the conventional identification procedures and the MBT. These strains were identified using 16S rDNA sequencing results. The **Table 8** summarizes all the discrepants observed:

In one case, the misidentification was due to a lack of representatives of the genus or species in the MBT Library. In three cases, the MBT results were confirmed with 16S rDNA sequencing results. For four strains, the original identification was confirmed with 16S rDNA sequencing results. It was challenging in some cases to draw a conclusion as all the methods gave a different result.

The interpretation of the results is summarized in **Table 9**. The first step of the confirmation procedure was the isolation on the tested culture media. The observed data confirmed that the MALDI Biotyper provides reliable identification results for the non-*Salmonella* strains.

Table 8. Disagreements observed in the exclusivity panel

Agreement between two methods	Correct in some cases[4]	Disagreement with the two other methods	Not possible to conclude

**Enterobacter cloacae* complex gathers the following species: *E. asburiae, E. cancerogenus, E. cloacae, E. cowanii, E. hormaechei, E. kobei, E. ludwigii, E. mori, E. nimipressuralis, E. coli*

Original identification of the strains	Identification with the MALDI Biotyper and MALDI Biotyper smart	Identification with 16S rDNA sequencing	Conclusion
Enterobacter agglomerans 117	*Klebsiella* spp or *Klebsiella pneumoniae* on all the culture media	*Klebsiella pneumoniae*	*Klebsiella pneumoniae* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing
Enterobacter cloacae 10	*Leliottia amnigena, Enterobacter cloacae complex*, Citrobacter spp* depending on the culture media	*Enterobacter nimipressuralis or Enterobacter aerogenes* with the same identity	The original identification to *Enterobacter* genus is confirmed with 16S rDNA sequencing. The strain was identified to *Enterobacter cloacae* complex with the MALDI Biotyper and MALDI Biotyper smart when tested from BGA (MBT and MBT-smart) and from *Brilliance* Salmonella and ASAP (MBT)
Enterobacter hormaechei Ad834	*Enterococcus faecium on TSA*	*Enterococcus lactis, durans*	*Enterococcus* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing
Enterobacter kobei Ad342	*Cronobacter* spp, *Escherichia* spp, *Klebsiella* spp, or *Raoutella* spp depending on the culture media	*Enterobacter kobei*	The original identification of the strain to *Enterobacter* is confirmed with 16S rDNA sequencing.
Pantoea agglomerans Ad877	*Enterobacter cloacae complex*	*Pantoea agglomerans* or *Enterobacter cloacae* with the same identity	Impossible to conclude. This is probably an atypical strain, and the API20E, MBT or 16S rDNA libraries can all have a lack of representatives. Moreover, it is recognized that the sequencing of housekeeping genes such as *rpo*B is often required in the identification of *Enterobacteria*.
Serratia ficaria 113	*Klebsiella pneumoniae*	*Klebsiella pneumoniae*	*Klebsiella pneumoniae* is confirmed with the MALDI Biotyper and 16S rDNA sequencing

[4] The MALDI-Biotyper gives an identification in agreement with the expected result for some plates.

Original identification of the strains	Identification with the MALDI Biotyper and MALDI Biotyper smart	Identification with 16S rDNA sequencing	Conclusion
Enterobacter cancerogenus QL11010.1	*Klebsiella pneumoniae* or *Escherichia coli*	Possibly *Escherichia, Enterobacter or Shigella*	Difficult to conclude. This is probably an atypical strain, and the API20E, MBT or 16S rDNA libraries can all have a lack of representatives. Moreover, it is recognized that the sequencing of housekeeping genes such as *rpo*B is often required in the identification of *Enterobacteria*.
Escherichia fergusonii ATCC 35470	*Escherich*ia *coli*	*Escherichia fergusonii* with the same identity	*Escherichia fergusonii* is confirmed with 16S rDNA.
Escherichia vulneris ATCC 29943	*Escherichia hermanii*	*Enterobacter*	It is probably an *Escherichia* spp strain, but it is difficult to conclude about the species.
Siccibacter turicensis QL 17031.7	*Cronobacter* spp*, Enterobacter* spp*, Klebsiella* spp*, or Raoutella* spp *or No identification possible*	*Cronobacter zurichensis, Cronobacter turicensis with the same identity*	Difficult to conclude, but only on *Siccibacter colletis* strain is present in the MALDI Biotyper Library. Other reference spectra *Siccibacter* strains will be added in the upcoming updates of the Library. See previous comment on *Siccibacter* spp, sub-clause 3.3.5. Moreover, it is recognized that the sequencing of housekeeping genes such as rpo, or even in that case whole genome sequencing, is required into differentiate the closely related strains of *Siccibacter* spp, *Franconibacter* spp, *Cronobacter spp and Enterobacter* spp.
Yersinia intermedia 33	*Yersinia enterolitica*	*Yersinia intermedia* or *Yersinia kristensenii* with the same identity	Difficult to conclude for the species only

*The MALDI Biotyper report mentions that the species of these genera have very similar mass spectrum patterns. Therefore, distinguishing the species is very difficult

Table 9: **Summary of the results in the method comparison study**

MALDI System	Media tested	Study	N	IA	ID	EA*	ED
LT/SH-MALDI-MS System	TSA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	100	0
	XLD	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	67	0
	BGA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	77	0
	RAPID' *Salmonella*	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	61	0
	Brilliance Salmonella	Inclusivity	150	149	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	57	0
	ASAP	Inclusivity	150	149	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable		
LT/SH MALDI Smart System	TSA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	100	0
	XLD	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	67	0
	BGA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	77	0
	RAPID' *Salmonella*	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	61	0
	Brilliance Salmonella	Inclusivity	150	149	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	57	0
	ASAP	Inclusivity	150	149	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	63	0

*Studies with N< 100 are due to no growth

Some non-target strains did not grow on all the plates. Only the isolates that grew were considered in the the final confirmation results displayed in **Table 9**.

No discrepant results were observed on any of the tested culture medium.

Extension Evaluation: To include CASE Agar (Conducted by Campden BRI)

For the inclusivity panel, all the strains were able to grow on the non-selective agar plate (TSA) and on all selective agar plates tested. Four (4) strains did produce atypical results: *Salmonella* Ferlac CRA 1373, *Salmonella* Vrindiban CRA 1466, *Salmonella* Bongri CRA 16378 and *Salmonella* Arizonae CRA 16373.

For exclusivity, zero (0) strains produced typical growth on the CASE Agar, 29 strains produced atypical growth on CASE Agar and 71 strains did not grow on CASE Agar. A total of four (4) strains did not grow on the non-selective media.

During the exclusivity study, it was not always possible to get an identification result for the following four strains: *Aeromonas hydrophila* CRA 411, *Aeromonas salmonicida* CRA 17216, *Buttiauxella walmboldiae* CRA 17112 and *Gluconoacetobacter liquefaciens* CRA 16761.

All the *Salmonella* strains were confirmed at the genus level using the DT procedure. No strain of the exclusivity panel was identified as *Salmonella* spp.

For the exclusivity panel, the eDT (extended direct transfer) procedure were used in some cases. This is summarized in **Table 10**.

Table 10. Use of the eDT Procedures in the exclusivity study of the MBT workflow

Media	No growth	MBT		MBT smart	
		DT[1]	eDT [2]	DT	eDT
TSA	4	-	-	-	-
CASE Agar	92	92	0	92	0
Total	100	92	0	92	0
		92		92	
Percentage	/	100.0%	0.0%	100.0%	0.0%

[1] DT: Direct Transfer procedure
[2] eDT: extended Direct Transfer procedure

The strains were unable to be identified on either the MBT or the MBT Smart, the isolates were identified using 16S rDNA sequencing results. The **Table 11** summarizes all the discrepants observed:

Table 11. **Disagreements observed in the exclusivity panel**

no	No	Original ID	MALDI ID	16S rDNA sequence identification	Conclusion
206	205	*Aeromonas hydrophila*	No ID possible with DT	*Aeromonas hydrophila*	The orginial identity of this isolate is confirmed with 16S rDNA sequence based identification
207	207	*Aeromonas salmonicida*	No ID possible with DT or FE	*Bacillus licheniformis*	Mismatch in identification. New identity considered correct
214	213	*Buttiauxella walmboldiae*	No ID possible with DT or FE	No confident ID possible due to high degree of similarity between 6 top matches. The top 6 hits were *Cedeca davisae* 98.44% *Enterobacter amnigenus* 98.33% *Enterobacter nimipressuralis* 98.23% *Enterobacter aerogenes* 98.16% *Raoultella orntiholytica* 98.00% *Raoultella planticola* 98.00%	The 16S rDNA sequence analysis Identified the isolate as belonging to Enterobacteriaceae, with no significant similarity to *Salmonella* spp.
244	248	*Gluconoacetobacter liquefaciens*	No ID possible with DT or FE	*Gluconoacetobacter liquefaciens*	The orginial identity of this isolate is confirmed with 16S rDNA sequence based identification

To mimic the analysis carried out in analytical laboratories, the CASE Agar was stored for 72 hours at 2-8°C for all organisms. All of the inclusivity strains analyzed produced identical results, accurately confirming as *Salmonella* spp. None of the exclusivity panel strains were confirmed as *Salmonella* spp on either platform.

The interpretation of the results is summarized in **Table 12**. The first step of the confirmation procedure was the isolation on the tested culture media. The observed data confirmed that the MALDI Biotyper provides reliable identification results for the non-*Salmonella* strains.

Some non-target strains did not grow on all the plates.

No discrepant results were observed on any of the tested culture medium.

2.3.4 Evaluation

The results of the method comparison study are summarized in the **Table 13**.

Table 12: **Summary of the results in the method comparison study: Extension for CASE Agar**

MALDI System	Media tested	Study	N	IA	ID	EA*	ED
LT/SH-MALDI-MS System	NA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	94	0
	CASE Agar	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	29	0
LT/SH MALDI Smart System	NA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	94	0
	CASE Agar	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	100	Not applicable	Not applicable	29	0

*Studies with N< 100 are due to no growth

Table 13. **Evaluation of the method comparison study results: Extension for CASE Agar**

MALDI System	Media tested	Study	AL	ID	ID≤ AL	ED	ED≤AL	Evaluation
LT/SH-MALDI-MS System	NA	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
	CASE Agar	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
LT/SH MALDI Smart System	NA	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
	CASE Agar	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted

4. Conclusions Method Comparison Study

For inclusivity, the AL is met for both MBT Systems, and for all the tested media, as the value for –inclusivity deviation (ID) was lower than the AL fixed respectively at 1 for 150 targets tested at the genus level.

For exclusivity, the AL is met for both MBT Systems, and for all the tested media, as the value for exclusivity deviation (ED) was lower than the AL fixed respectively at 2 for 100 non-target strains.

The data and interpretation confirm the reliability and robustness of the MALDI Biotyper as a confirmation method for *Salmonella* spp and non-*Salmonella* spp isolates from isolated colonies.

5 Interlaboratory Study

5.1Protocol and Materials

A total of 15 collaborators participated in the Interlaboratory Study. Each collaborator received 16 target strains and 8 non-target strains. For the inclusivity study, pure cultures of all strains were tested with the reference confirmation procedure and with the alternative confirmation method. For the exclusivity study, pure cultures of all strains were tested with the reference confirmation procedure and with the alternative confirmation method. The list of target and non-target strains tested is provided in **Annex L**. The samples were plotted on targets or biotargets depending on the collaborators. The information is shown in **Table 14**.

Table 14. **Targets used by the collaborators and the expert lab.**

Collaborators	Type of target used
A	Reusable polished steel target
C1	Reusable polished steel target
D	Reusable polished steel target
E	Reusable polished steel target
F	Disposable Biotarget 96
G	Reusable polished steel target
H	Disposable Biotarget 96
I	Reusable polished steel target
J	Disposable Biotarget 96
K	Reusable polished steel target
L	Disposable Biotarget 96
M	Disposable Biotarget 96
N	Disposable Biotarget 96
O	Disposable Biotarget 96
P	Reusable polished steel target
Q (ADRIA)	Disposable Biotarget 96
Total Reusable Polished Steel Targets	**8**
Total Disposable Biotargets	**7**

The strains were propagated onto Tryptic Soy Agar (TSA) with 5 % sheep blood (SBA) from a Q Laboratories' frozen stock cultures stored at -70°C. Each organism was incubated for 24 - 48 hours at temperatures and atmospheric conditions most appropriate for organism growth. Isolated colonies were streaked to TSA slants and incubated under proper conditions for optimal growth prior to being shipped to each site. All samples were labelled with a randomized, blind-coded 3-digit number affixed to the TSA slant. Only the Q Laboratory expert site used the MBT-smart as there are limited MBT-smart instruments installed. All the other collaborators used the MBT instrument with the microflex LT/SH.

5.2Transport

Isolates were shipped on Tuesday 22nd of August 2017 via overnight delivery according to the Category B Dangerous Good Shipment regulations set forms by the

International Air Transport Association (IATA). The UN3373 package used for shipment included a primary receptacle that included the isolate and a secondary package that encapsulated the primary receptacle. Upon receipt, samples were held by the collaborator at refrigerated temperature (2 - 8°C) until the following Monday when analysis was initiated. All packages were delivered in good condition according to **Table 15** below.

Table 15 - Package receipt and analysis date

Collaborators	Receipt date	Analysis date
A	24/08/2017	28/08/2017
C	23/08/2017	28/08/2017
D	24/08/2017	28/08/2017
E	24/08/2017	28/08/2017
F	24/08/2017	28/08/2017
G	23/08/2017	28/08/2017
H	23/08/2017	28/08/2017
I	23/08/2017	28/08/2017
J	23/08/2017	28/08/2017
K	23/08/2017	28/08/2017
L	23/08/2017	28/08/2017
M	25/08/2017	28/08/2017
N	25/08/2017	30/08/2017
O	23/08/2017	28/08/2017
P	23/08/2017	28/08/2017

5.3Analysis

The collaborators and the Expert Laboratory tested the blind coded strains as described in **Annex M**. Each collaborator streaked the blind coded targets and non-target strains onto a non-selective (TSA) and selective agar plates before applying the alternative MALDI-TOF Confirmation Procedure (XLD, RAPID'*Salmonella)*. All the strains were also tested using the ISO standard procedures from the non-selective agar plate (TSA).

5.4 Expression of results

A summary of the discrepant results or concerns encountered during the study are provided in **Table 16**.

Table 16. Summary of the inconsistent results or problems encountered during the study by the collaborators

Collaborator	Comments		Collaborator retained for interpretation
	Reference method	Alternative method	
A	No comment	No comment	Yes
C	*Escherichia hermanii* identified as *Enterobacter cancerogenus* (S21)	No comment	Yes
D	*Escherichia hermanii* identified as *Buttiauxella agrestis* (S21)	No comment	Yes
E	Negative oxidase test whereas a positive result was expected (S23)	No comment	Yes
F	Oxidase positive tests whereas negative results were expected	No comment	Yes
G	No comment	No comment	Yes
H	*Escherichia hermanii* identified as *Enterobacter cancerogenus* (S21)	No comment	Yes
I	▪ Gram positive on *Salmonella* strain (S2) ▪ No biochemical identification for one target strain (S20) ▪ *Citrobacter braakii* identified as *Salmonella arizonae* / *Citrobacter* (S6)	▪ No result provided for 2 strains isolated on RAPID'*Salmonella* (S4, S17).	Yes, except for RAPID'*Salmonella*
J	No comment	▪ No MBT testing from colonies streaked onto XLD and RAPID'*Salmonella* plates	Yes, for the non-selective agar only
K	▪ *Citrobacter braakii* (S6) identified as *Salmonella* spp. ▪ *Aeromonas hydrophila* (S17) identified as *Vibrio fluvialis* ▪ *Escherichia hermanii* (S21) identified as *Buttiauxella agrestis*	▪ Atypical colonies observed on XLD plates for *Salmonella* Panama (S11) ▪ No result for *Aeromonas hydrophila* (S17) isolated on XLD agar ▪ No result for *Plesiomonas shigelloïdes* isolated on RAPID'*Salmonella* ▪ The Lab didn't follow the MBT workflow described in the instructions and stopped running the analyses.	No
L	No comment	No comment	Yes
M	No comment	No comment	Yes

Collaborator	Comments		Collaborator retained for interpretation
	Reference method	Alternative method	
N	▪ Negative oxidase tests whereas positive results were expected (S17, S23) ▪ *Salmonella* Saintpaul (S16) identified as *Aeromonas hydrophila*. The strain was discarded and the Lab was not able to test the strain again. ▪ *Citrobacter braakii* (S6) identified as *Salmonella* spp. ▪ *Yersinia enterocolitica* (S8) identified as *Klebsiella oxytoca* ▪ *Escherichia hermanii (*S21) identified as *Enterobacter amnigenus*	No comment	Yes
O	No comment	No comment	Yes
P	▪ *Cronobacter sakazakii* (S7) identified as *Buttiauxella agrestis*	No comment	Yes

The problems were primarily encountered using the confirmatory tests of the ISO 6579-1 method. Additionally, some collaborators didn't follow the entire MBT workflow and stopped with the DT, therefore, no identification result was obtained. The entire data set provided by the laboratory K was excluded because the MBT workflow was not follow and many data were missing. The collaborators listed in **Table 17** were kept for interpretation.

Table 17. **Collaborators kept for interpretation per media used for streaking**

	Collaborators	TSA	XLD	RAPID'*Salmonella*
	A	A	A	A
	C1	C1	C1	C1
	D	D	D	D
	E	E	E	E
	F	F	F	F
	G	G	G	G
	H	H	H	H
	I	I	I	No
	J	J	No	No
	K	No	No	No
	L	L	L	L
	M	M	M	M
	N	N	N	N
	O	O	O	O
	P	P	P	P
TOTAL	**15**	**14**	**13**	**12**

A summary of the results kept for interpretation are given **Table 18** for TSA, **Table 19** for XLD and **Table 20** for RAPID'*Salmonella*.

Table 181. **Summary of the results obtained for TSA**

	TSA	
Collaborators	**Number of correctly confirmed strains in the inclusivity part (PA)**	**Number of correctly non-confirmed strains in the exclusivity part (NA)**
	Alternative confirmation method	Alternative confirmation method
A	16/16	8/8
C1	16/16	8/8
D	16/16	8/8
E	16/16	8/8
F	16/16	8/8
G	16/16	8/8
H	16/16	8/8
I	16/16	8/8
J	16/16	8/8
L	16/16	8/8
M	16/16	8/8
N	16/16	8/8
O	16/16	8/8
P	16/16	8/8
TOTAL	**224/224**	**112/112**
14 labs	**224/224**	**112/112**

Table 29. Summary of the results obtained for XLD

Collaborators	XLD	
	Number of correctly confirmed strains in the inclusivity part (PA)	**Number of correctly non-confirmed strains in the exclusivity part (NA)**
	Alternative confirmation method	Alternative confirmation method
A	16/16	8/8
C1	16/16	8/8
D	16/16	8/8
E	16/16	8/8
F	16/16	8/8
G	16/16	8/8
H	16/16	8/8
I	16/16	8/8
L	16/16	8/8
M	16/16	8/8
N	16/16	8/8
O	16/16	8/8
P	16/16	8/8
TOTAL	**208/208**	**104/104**
13 labs	**208/208**	**104/104**

Table 30. Summary of the results obtained for RAPID' Salmonella

Collaborators	RAPID'*Salmonella*	
	Number of correctly confirmed strains in the inclusivity part (PA)	Number of correctly non-confirmed strains in the exclusivity part (NA)
	Alternative confirmation method	Alternative confirmation method
A	16/16	8/8
C1	16/16	8/8
D	16/16	8/8
E	16/16	8/8
F	16/16	8/8
G	16/16	8/8 (including 1 NA no growth)
H	16/16	8/8
L	16/16	8/8
M	16/16	8/8
N	16/16	8/8
O	16/16	8/8 (including 1 NA no growth)
P	16/16	8/8
TOTAL	**192/192**	**96/96**
12 labs	**192/192**	**96/96**

5.5 *Interpretation and evaluation*

The results of the interlaboratory study are summarized in **Table 31** and the results evaluated according to the acceptability limits (AL) are given in **Table 32**.

Table 31. Summary of the results in the interlaboratory study

Media tested	Number of collaborators	Study	N	IA	ID	EA	ED
Non-selective agar	14	Inclusivity	224	224	0	Not Applicable	Not Applicable
	14	Exclusivity	112	Not Applicable	Not Applicable	112	0
XLD	13	Inclusivity	208	208	0	Not Applicable	Not Applicable
	13	Exclusivity	104	Not Applicable	Not Applicable	104	0
RAPID' *Salmonella*	12	Inclusivity	192	192	0	Not Applicable	Not Applicable
	12	Exclusivity	96	Not Applicable	Not Applicable	96	0

Table 32. Evaluation of the interlaboratory study results

Media tested	Number of collaborators	Study	N	AL	ID	ID≤AL	ED	ED≤AL	Evaluation
Non-selective	14	Inclusivity	224	3	0	0≤3	Not Applicable	Not Applicable	Accepted
	14	Exclusivity	112	3	Not Applicable	Not Applicable	0	0≤3	Accepted
XLD	13	Inclusivity	208	3	0	0≤3	Not Applicable	Not Applicable	Accepted
	13	Exclusivity	104	3	Not Applicable	Not Applicable	0	0≤3	Accepted
RAPID' Salmonella	12	Inclusivity	192	2	0	0≤2	Not Applicable	Not Applicable	Accepted
	12	Exclusivity	96	2	Not Applicable	Not Applicable	0	0≤3	Accepted

Eight collaborators used the reusable polished steel targets and 7 collaborators used the disposable targets; no difference was observed between either target, confirming the reliability of the method. The AL was met for the three media tested during this interlaboratory study (non-selective agar, XLD and RAPID'*Salmonella*), as the value for –inclusivity deviation (ID) were lower than the AL, as well as the value for ex for the exclusivity study.

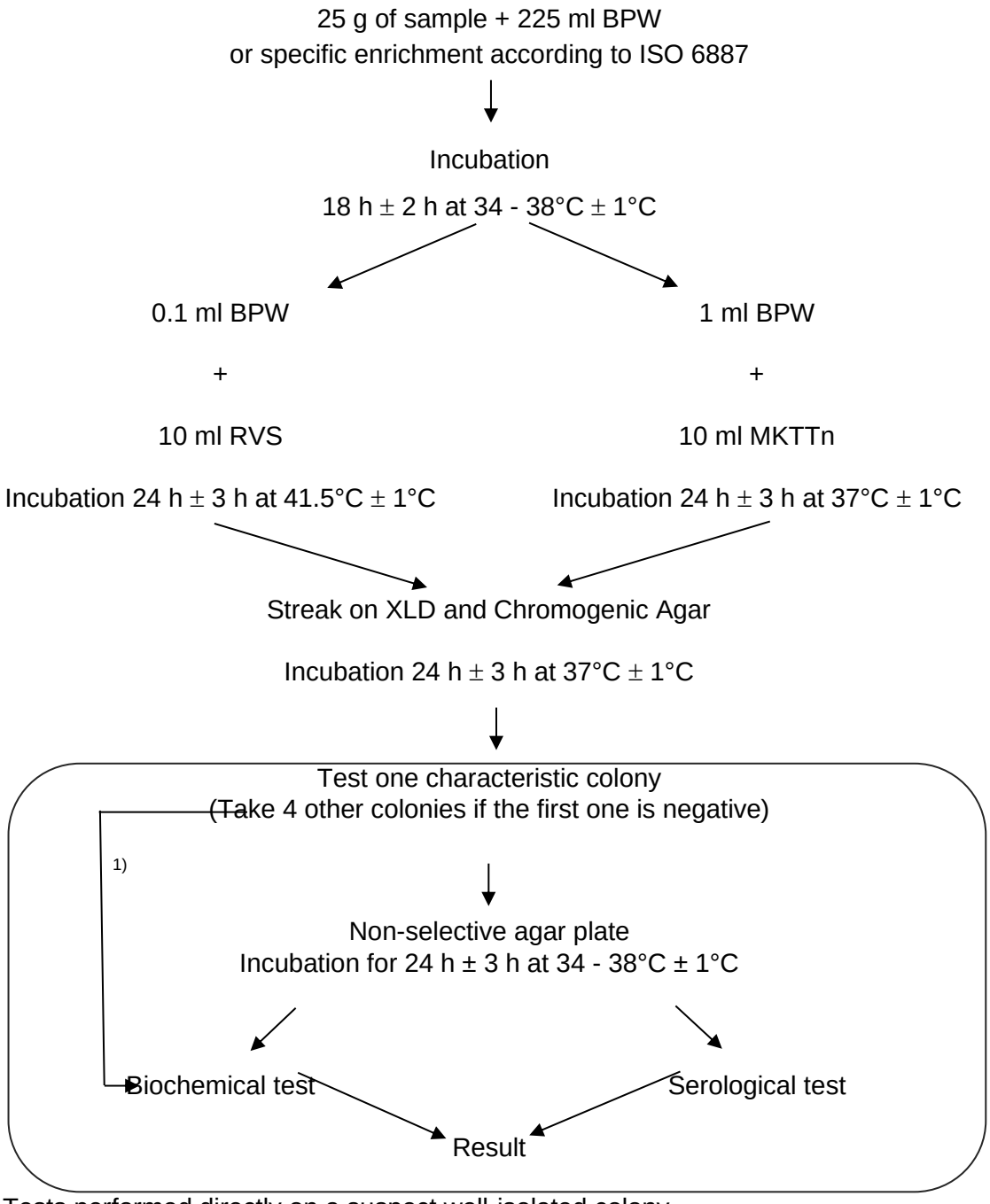
6 Conclusions of Interlaboratory Study

The AL was met for the three tested media during the interlaboratory study (TSA, XLD RAPID' *Salmonella*), as the value for ID for the inclusivity study were lower than the AL, as well as the value for ED for the exclusivity study.

The data and interpretation confirm the reliability and robustness of the MALDI Biotyper as a confirmation method for *Salmonella* spp and non-*Salmonella* spp isolates from isolated colonies.

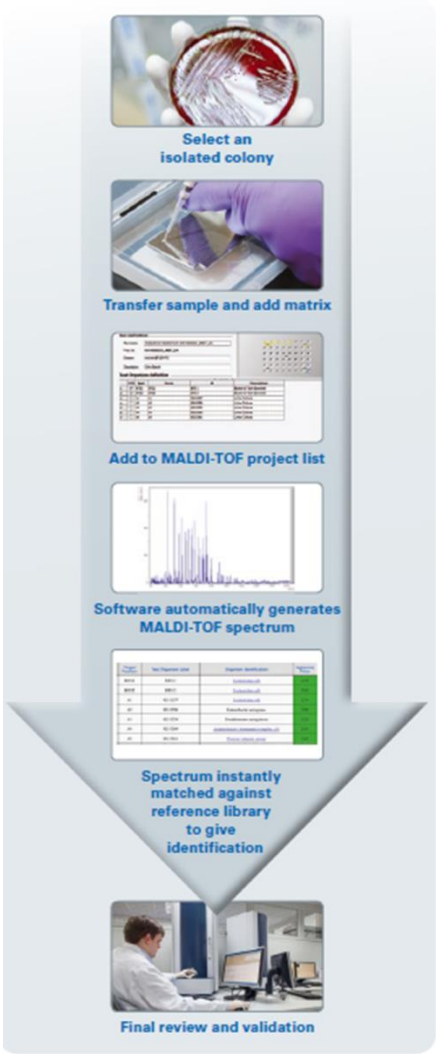
Annex A - Flow diagram of the reference method

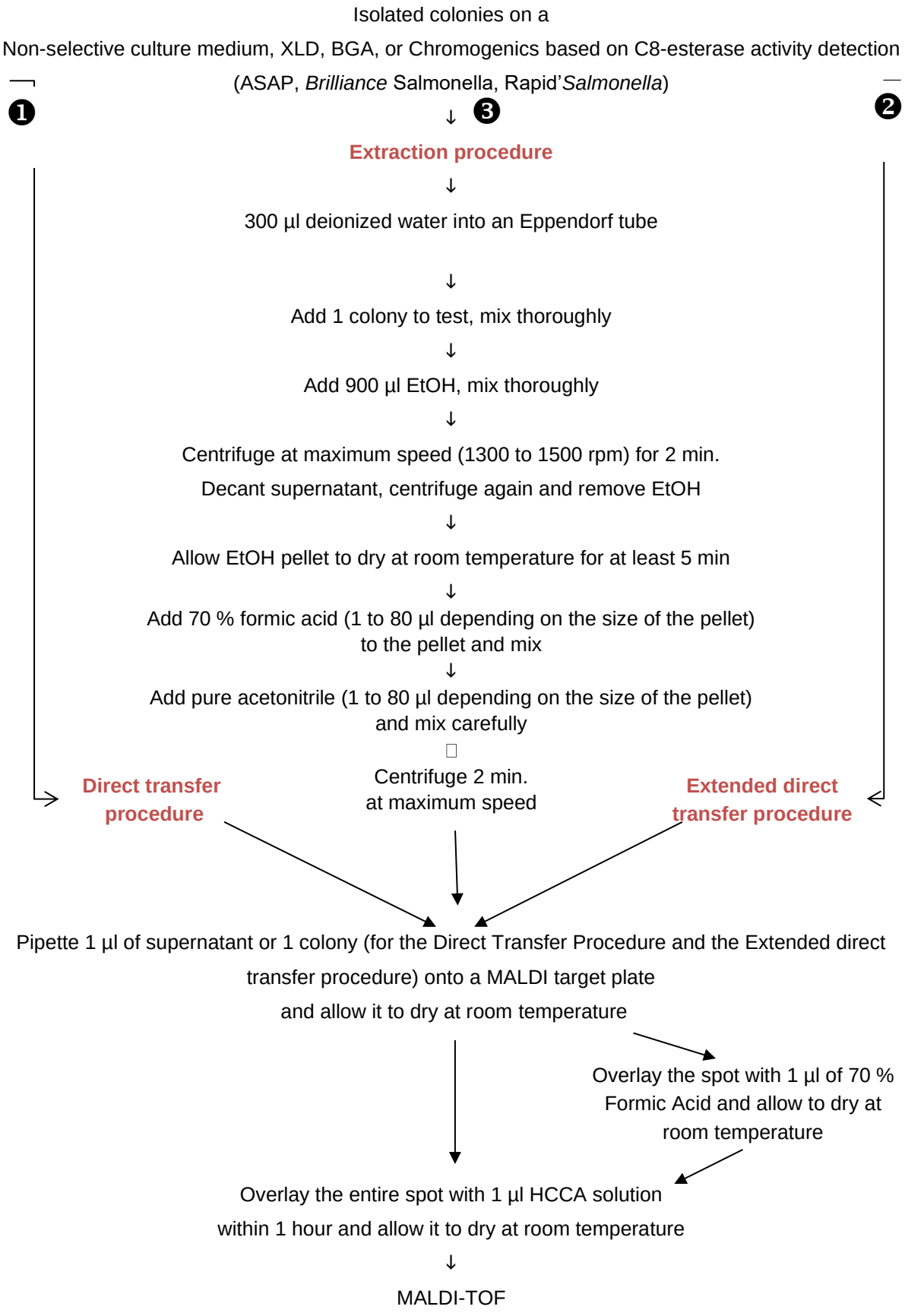
ISO 6579-1 (February 2017): Microbiology of food and animal feeding stuffs - Horizontal method for the detection, enumeration and serotyping of Salmonella spp. - Part 1: detection of Salmonella spp.



1) Tests performed directly on a suspect well-isolated colony

Annex B: Flow diagram of the alternative method




Isolated colonies on a
Non-selective culture medium, XLD, BGA, or Chromogenics based on C8-esterase activity detection
(ASAP, *Brilliance* Salmonella, Rapid'*Salmonella*)
❶
❸
❷
Extraction procedure
300 µl deionized water into an Eppendorf tube
Add 1 colony to test, mix thoroughly
Add 900 µl EtOH, mix thoroughly
Centrifuge at maximum speed (1300 to 1500 rpm) for 2 min.
Decant supernatant, centrifuge again and remove EtOH
Allow EtOH pellet to dry at room temperature for at least 5 min
Add 70 % formic acid (1 to 80 µl depending on the size of the pellet)
to the pellet and mix
Add pure acetonitrile (1 to 80 µl depending on the size of the pellet)
and mix carefully
Centrifuge 2 min.
at maximum speed
Direct transfer procedure
Extended direct transfer procedure
Pipette 1 µl of supernatant or 1 colony (for the Direct Transfer Procedure and the Extended direct transfer procedure) onto a MALDI target plate
and allow it to dry at room temperature
Overlay the spot with 1 µl of 70 % Formic Acid and allow to dry at room temperature
Overlay the entire spot with 1 µl HCCA solution
within 1 hour and allow it to dry at room temperature
MALDI-TOF

The Direct Transfer (DT) Sample preparation can identify 90%-95% of the bacterial isolates. When no identification is obtained, this procedure should be repeated. If the no result is repeated, then the users should run the eDT. When needed the EXT sample preparation should be carried out. In some rare cases, a sub-culture on a non-selective agar may be required.

MALDI Biotyper

Standard Operating Procedure

Direct Transfer (DT) Procedure

1. Required Chemicals

- Deionized water
- Acetonitrile (ACN)
- Trifluoroacetic acid (TFA)
- Matrix HCCA; portioned # 8255344 (Referred to as HCCA in this SOP)
- Standard solvent (acetonitrile 50%, water 47.5% and trifluoroacetic acid 2.5%) from Sigma-Aldrich (# 19182), which has been tested by Bruker Daltonik GmbH and is recommended for solubilization of HCCA)[1]
- Wooden application sticks, pipet tips or plastic inoculation loop to apply material
- 50–1000 µL pipet tips and a suitable pipet
- 2–200 µL pipet tips and a suitable pipet
- 0.5–10 µL pipet tips and a suitable pipet
- MALDI target plate

Note: Use only Eppendorf tubes (e.g. article no. 0030 120.086) and Eppendorf tips. Plasticizers may be released from other materials.

Note: Only use chemicals of highest purity (suitable for MALDI or HPLC).

Note: Please ensure that the BDAL Standard Library is used.

2. Required Laboratory Instrument

- Vortexer (Vortex Genie 2; # 9730060; Fisher Scientific or similar)

3. General Cultivation Conditions

Cultivation conditions have little effect on the identification. Media such as Columbia-Blood-Agar, Chocolate-Agar, or others can be used regardless of different growth phases or temperatures.

These different cultivation conditions produce only very small variations in observed peaks. Nearly all peaks are reproducible. Nevertheless the same medium and growth conditions should always be used for the cultivation of microorganisms.

If possible freshly grown material (grown overnight) should be used, or in the case of slow-growing bacteria, grown for several days. If cultivation plates are stored at 4°C the quality of spectra deteriorates relatively quickly (within a couple of days). Storing the plates at room temperature for several days is acceptable.

[1] Use commercially available standard solvent or mix 475 µL HPLC-grade water, 25 µL trifluoroacetic acid, and 500 µL acetonitrile in a 1.5 mL Eppendorf tube to produce 1 mL standard solvent. Store aliquots in screw cap tubes with screw cap tightly closed.

4. **To prepare the HCCA matrix solution**
   1. Add 250 µL standard solvent to a tube of HCCA.
   2. Dissolve the HCCA by vortexing at room temperature until the solution is clear.

5. **Direct Transfer Procedure:**
   1. Smear bacteria or yeast (single colony) as a thin film directly onto a spot on a MALDI target plate.

Note: Use only a small amount of material for direct transfer. Even if only a little biological material can be observed on the target, this is sufficient for measurement. For examples showing the correct amount of biological material please refer to the "**Demonstration Section**" at the end of this document.

   2. Overlay the spot with 1 µL of HCCA solution within 1 hour and allow to dry at room temperature.

6. **Demonstration Section – "how much material is enough"**

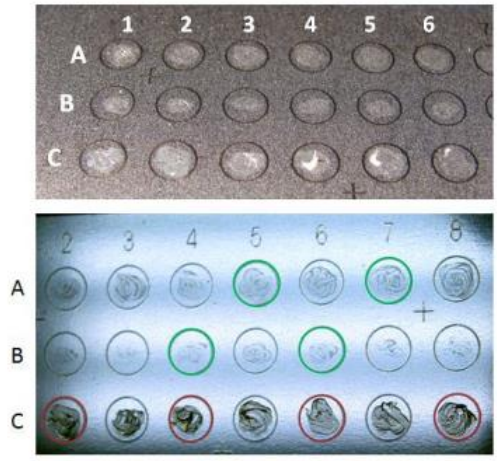


Fig 1: Different amounts of biological material: both pictures show the same MALDI target after sample application and before matrix addition; (entire row A) "appropriate amount" of biological material, (entire row B) small but still sufficient amount of biological material, (entire row C) too much biological material. Circles mark the target positions which were visualised as shown in Fig. 3 after matrix addition (as seen in flexControl).

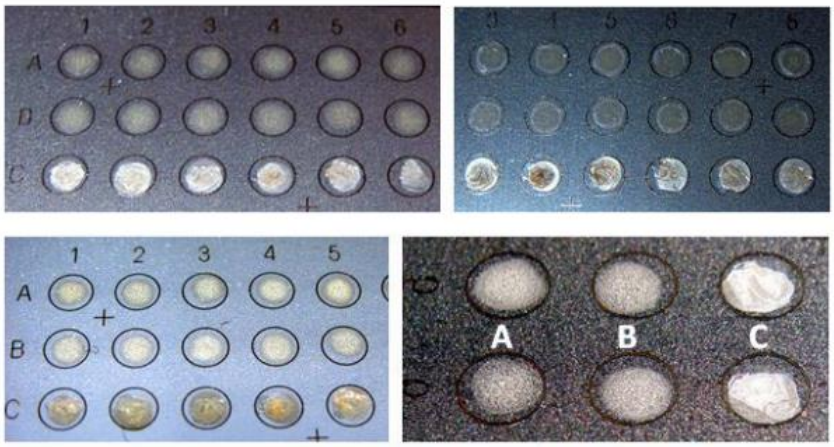


Fig 2: Same MALDI target as shown in Fig 1 after matrix application and drying.

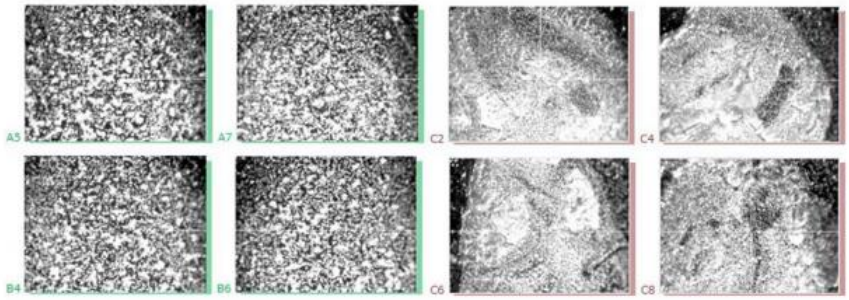
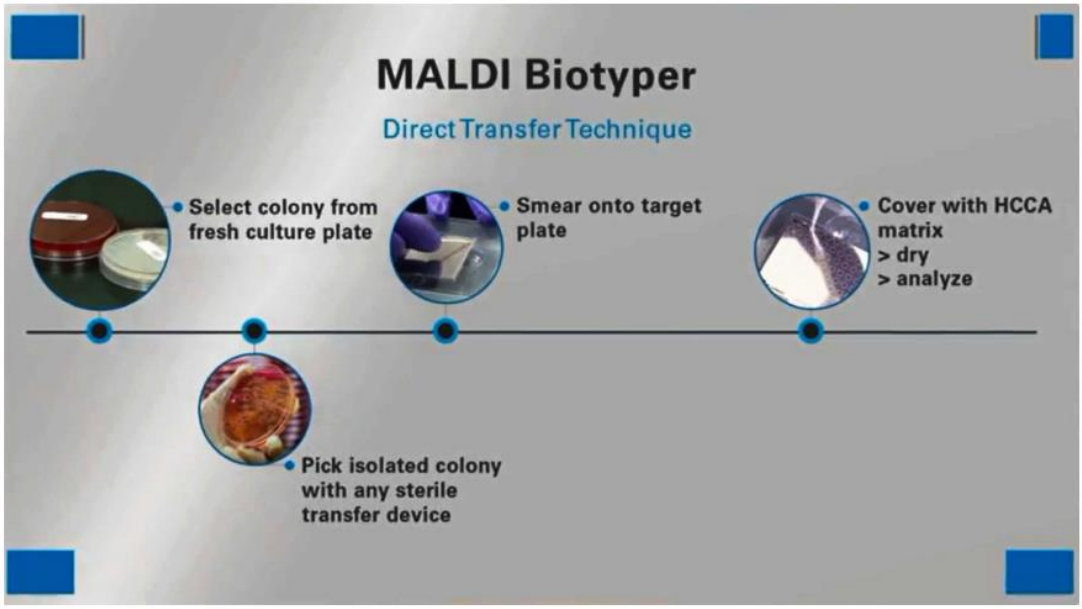


Fig 3: Illustration of crystal formation. "Camera image view" in flexControl:
A5, A7, B4, B6 demonstrate optimal crystal formation on spots where the correct or small (but still sufficient) amounts of biological material were smeared.
C2, C4, C6, C8 are examples for suboptimal crystal formation, due to excessive biological material applied in the direct transfer step, before application of the matrix.


MALDI Biotyper
Direct Transfer Technique
Select colony from fresh culture plate
Smear onto target plate
Cover with HCCA matrix
> dry
> analyze
Pick isolated colony with any sterile transfer device

Standard Operating Procedure

Extended Direct Transfer (eDT) Procedure

1. Required Chemicals

- 70% formic acid (FA)
- Deionized water
- Acetonitrile (ACN)
- Trifluoroacetic acid (TFA)
- Matrix HCCA, portioned; # 8255344 (referred to as HCCA in this SOP)
- Standard solvent (acetonitrile 50%, water 47.5% and trifluoroacetic acid 2.5%) from Sigma-Aldrich (# 19182), which has been tested by Bruker Daltonik GmbH and is recommended for solubilization of HCCA)[1]
- Wooden application sticks, pipet tips or plastic inoculation loop to apply material
- 50–1000 µL pipet tips and a suitable pipet
- 2–200 µL pipet tips and a suitable pipet
- 0.5–10 µL pipet tips and a suitable pipet
- MALDI target plate

Note: Use only Eppendorf tubes (e.g. article no. 0030 120.086) and Eppendorf tips. Plasticizers may be released from other materials.

Note: Only use chemicals of highest purity (suitable for MALDI or HPLC).

Note: Please ensure that the BDAL Standard Library is used.

2. Required Laboratory Instrument

- Vortexer (Vortex Genie 2; # 9730060; Fisher Scientific or similar)

3. General Cultivation Conditions

Cultivation conditions have little effect on the identification. Media such as Columbia-Blood-Agar, Chocolate-Agar, or others can be used regardless of different growth phases or temperatures.

These different cultivation conditions produce only very small variations in observed peaks. Nearly all peaks are reproducible. Nevertheless the same medium and growth conditions should always be used for the cultivation of microorganisms.

If possible freshly grown material (grown overnight) should be used, or in the case of slow-growing bacteria, grown for several days. If cultivation plates are stored at 4°C the quality of spectra deteriorates relatively quickly (within a couple of days). Storing the plates at room temperature for several days is acceptable.

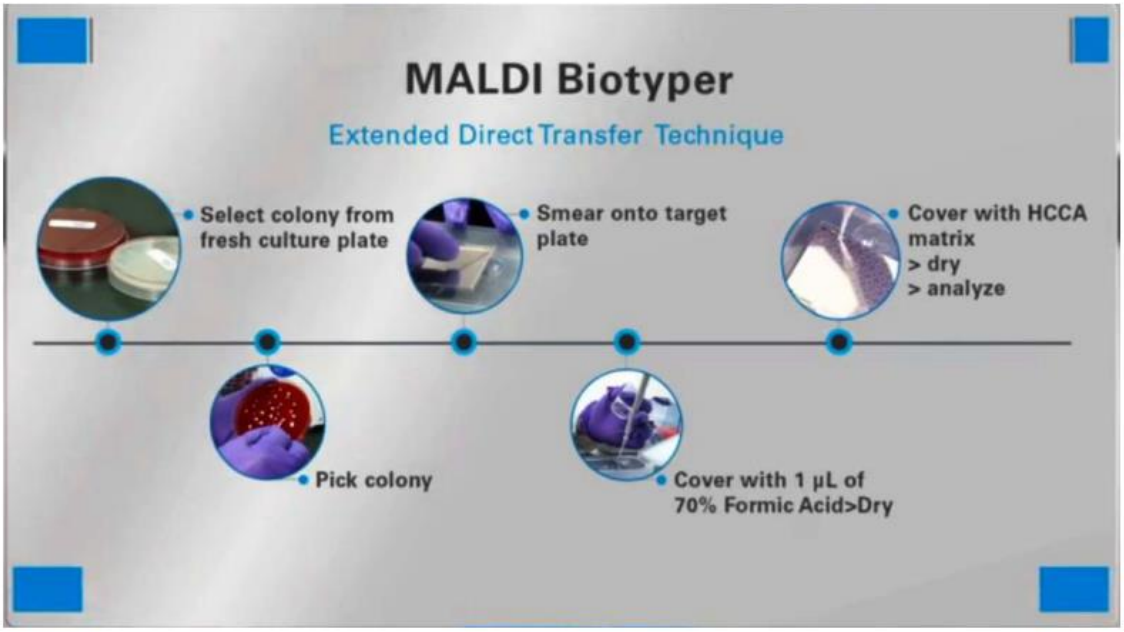
[1] Use commercially available standard solvent or mix 475 µL HPLC-grade water, 25 µL trifluoroacetic acid, and 500 µL acetonitrile in a 1.5 mL Eppendorf tube to produce 1 mL standard solvent. Store aliquots in screw cap tubes with screw cap tightly closed.

4. **To prepare the HCCA matrix solution**
   1. Add 250 µL standard solvent to a tube of HCCA.
   2. Dissolve the HCCA by vortexing at room temperature until the solution is clear.

5. **Extended Direct Transfer Procedure:**
   1. Smear bacteria or yeast (single colony) as a thin film directly onto a spot on a MALDI target plate.

Note: Use only a small amount of material for direct transfer. Even if only a little biological material can be observed on the MALDI target plate, this is sufficient for measurement.

   2. Overlay the spot with 1 µL of 70% FA and allow to dry at room temperature.
   3. Immediately overlay the spot with 1 µL of HCCA solution and allow to dry at room temperature.


MALDI Biotyper
Extended Direct Transfer Technique
Select colony from fresh culture plate
Smear onto target plate
Cover with HCCA matrix
> dry
> analyze
Pick colony
Cover with 1 µL of 70% Formic Acid>Dry

MALDI Biotyper

Standard Operating Procedure

Extraction (Ext) Procedure

1. Required Chemicals and Accessories

- Deionized water
- Absolute ethanol (EtOH)
- Acetonitrile (ACN)
- Formic acid (70%)
- Trifluoroacetic acid (TFA)
- Matrix HCCA, portioned; # 8255344 (referred to as HCCA in this SOP)
- Standard solvent (acetonitrile 50%, water 47.5% and trifluoroacetic acid 2.5%) from Sigma-Aldrich (# 19182), which has been tested by Bruker Daltonik GmbH and is recommended for solubilization of HCCA)[1]
- Wooden application sticks, pipet tips or plastic inoculation loop to apply material
- 50–1000 µL pipet tips and a suitable pipet
- 2–200 µL pipet tips and a suitable pipet
- 0.5–10 µL pipet tips and a suitable pipet
- Microtube (Eppendorf Safe-Lock), PCR clean 1.5 mL
- MALDI Target Plate

Note: Use only Eppendorf tubes (e.g. article no. 0030 120.086) and Eppendorf tips. Plasticizers may be released from other materials.

Note: Only use chemicals of highest purity (suitable for MALDI or HPLC).

Note: Please ensure that the BDAL Standard Library is used.

2. Required Laboratory Instruments

- Benchtop centrifuge (Biofuge fresco; # 75005510; Thermo Scientific or similar)
- Vortexer (Vortex Genie 2; # 9730060; Fisher Scientific or similar)

[1] Use commercially available standard solvent or mix 475 µL HPLC-grade water, 25 µL trifluoroacetic acid, and 500 µL acetonitrile in a 1.5 mL Eppendorf tube to produce 1 mL standard solvent. Store aliquots in screw cap tubes with screw cap tightly closed.

3. General Cultivation Conditions

Cultivation conditions have little effect on the identification. Media such as Columbia-Blood-Agar, Chocolate-Agar, or others can be used regardless of different growth phases or temperatures.

These different cultivation conditions produce only very small variations in observed peaks. Nearly all peaks are reproducible. Nevertheless the same medium and growth conditions should always be used for the cultivation of microorganisms.

If possible freshly grown material (grown overnight) should be used, or in the case of slow-growing bacteria, grown for several days. If cultivation plates are stored at 4°C the quality of spectra deteriorates relatively quickly (within a couple of days). Storing the plates at room temperature for several days is acceptable.

4. To prepare the HCCA matrix solution

1. Add 250 µL standard solvent to a tube of HCCA.
2. Dissolve the HCCA by vortexing at room temperature until the solution is clear.

5. Extraction Procedure:

1. Pipette 300 µL deionized water into an Eppendorf tube.
2. Place a quantity of biological material (between one single colony and 5-10 mg) into the tube. Mix thoroughly. Pipetting or vortexing should be appropriate.
3. Add 900 µL EtOH, mix thoroughly.
4. Centrifuge at max speed (13,000 to 15,000 rpm) for 2 minutes, decant supernatant, centrifuge again and remove all the residual EtOH by carefully pipetting it off to waste without disturbing the pellet.
5. Allow the EtOH-pellet to dry at room temperature for at least 5 minutes.
6. Add 70% formic acid (1 to 80 µL) to the pellet and mix very well by pipetting and/or by vortexing.

Note: If only a little material (one single colony) was used, the volume of formic acid must be adjusted accordingly.

	small single colony	large single colony	1 µL inoculating loop	10 µL inoculating loop
Formic Acid 70%	1–5 µL	10–20 µL	20–40 µL	>40–80 µL
Acetonitrile	1–5 µL	10–20 µL	20–40 µL	>40–80 µL

7. Add pure ACN (1 to 80 µL) and mix carefully. Use the same volume as formic acid!
8. Centrifuge for 2 minutes at maximum speed, such that all material is collected neatly in a pellet.
9. Pipette 1 µL of supernatant onto a MALDI target plate and allow it to dry at room temperature.
10. Overlay the entire spot with 1 µL of HCCA solution within 1 hour and allow it to dry at room temperature.

All statements and applications pertaining to the MALDI Biotyper are for research use only.

Please send comments and questions to biotyper.support@bdal.de

Descriptions and specifications supersede all previous information and are subject to change without notice.

Annex C – Certificate of equivalence

STATEMENT

Equivalency of MBT 4.0 and MBT Compass

Bruker Daltonik GmbH manufactures devices and reagents based on the MALDI-TOF-MS. This method has proven to be a reliable method for the classification and identification of microorganisms.

The microflex LT/SH and microflex LT/SH smart can be used qualitatively in conjunction with software, reference libraries, reagents and workflows. The MBT Compass software is equivalent to MBT 4.0 software in the following points:

- Instrument control software: flexControl
- Recorded mass range: 2,000 – 20,000 m/z
- Matching Algorithm (calculates matches by comparing a new spectrum against each single reference entry of a reference database)
- Current database
- Workflow
- Calibration and Quality Control
- The same rationale for data interpretation

Bruker Daltonik GmbH is certified according to ISO 9001:2008 and to ISO 13485:2012. Our devices are approved worldwide (including the European Union (IVD-CE Mark), the USA (FDA) and in China (CFDA) and are successfully established worldwide in the medical device market and for research and development and quality assurance purposes. The products of the Bruker Daltonik GmbH are manufactured to high quality.

ppa. Dr. Wolfgang Pusch
Executive Vice President
Business Area Clinical MALDI

ppa. Dr. Markus Kostrzewa
Vice President
Clinical Mass Spectrometry, R&D

Bremen, 2016-12-06

Innovation with Integrity

Annex E – List of strains:
Salmonella spp. testing at the genus level

INCLUSIVITY						
N°	Species	Sub species	Serotype	Reference	Origin	Lab
1	*Salmonella enterica*	*enterica*	Blockley	Ad923	Hen	Adria
2	*Salmonella enterica*	*enterica*	Brazzaville	CIP54141	Unknown	Adria
3	*Salmonella enterica*	*enterica*	Caracas	Ad2322	Spices	Adria
4	*Salmonella enterica*	*enterica*	Carrau	CIP105619	Pork	Adria
5	*Salmonella enterica*	*enterica*	Corvallis	CIP105342	Poultry	Adria
6	*Salmonella enterica*	*enterica*	Cremieu	230	Hare	Adria
7	*Salmonella enterica*	*enterica*	Duisburg	42	Food sample	Adria
8	*Salmonella enterica*	*enterica*	Emek	Ad333	Unknown	Adria
9	*Salmonella enterica*	*enterica*	Essen	38	Food sample	Adria
10	*Salmonella enterica*	*enterica*	Falkensee	693	Sausage	Adria
11	*Salmonella enterica*	*enterica*	Gallinarum biovar pullorum	Ad300	Poultry environmental sample	Adria
12	*Salmonella enterica*	*enterica*	Gaminara (16:d:1,7)	Ad2324	Boar	Adria
13	*Salmonella enterica*	*enterica*	Garoli	CIP54139	Unknown	Adria
14	*Salmonella enterica*	*enterica*	Grumpensis	CIP105621	Guinea pig	Adria
15	*Salmonella enterica*	*enterica*	Guinea	0029	Unknown	Adria
16	*Salmonella enterica*	*enterica*	Hessarek	CIP54140	Unknown	Adria
17	*Salmonella enterica*	*enterica*	Hvittingfoss (16:b:e,n,x)	Ad2325	Seafood product	Adria
18	*Salmonella enterica*	*enterica*	Kedougou	Ad929	Chocolate pastry	Adria
19	*Salmonella enterica*	*enterica*	Kottbus	1	Poultry environmental sample	Adria
20	*Salmonella enterica*	*enterica*	Lagos	173	Sausage	Adria
21	*Salmonella enterica*	*enterica*	Landau	Ad499	Unknown	Adria
22	*Salmonella enterica*	*enterica*	Leipzig	CIP105624	Wastewater	Adria
23	*Salmonella enterica*	*enterica*	Luciana	CIP105626	Clinical sample	Adria
24	*Salmonella enterica*	*enterica*	Maracaibo	CIP54143	Unknown	Adria

INCLUSIVITY						
N°	Species	Sub species	Serotype	Reference	Origin	Lab
25	*Salmonella enterica*	*enterica*	Marseille	CIP105627	Human	Adria
26	*Salmonella enterica*	*enterica*	Mbandaka	Ad914	Mayonnaise	Adria
27	*Salmonella enterica*	*enterica*	Meleagridis	505	Raw milk	Adria
28	*Salmonella enterica*	*enterica*	Mikawasima	CIP107220	Human faeces	Adria
29	*Salmonella enterica*	*enterica*	Minnesota	CIP105628	Turkey	Adria
30	*Salmonella enterica*	*enterica*	Mkamba	Ad1544	Compost	Adria
31	*Salmonella enterica*	*enterica*	Montevideo	Ad912	Raw milk	Adria
32	*Salmonella enterica*	*enterica*	Muenchen	CIP106178	Unknown	Adria
33	*Salmonella enterica*	*enterica*	Muenster	CIP107859	Human faeces	Adria
34	*Salmonella enterica*	*enterica*	Napoli	Ad928	Animal clinic	Adria
35	*Salmonella enterica*	*enterica*	Newport	540	Sausage	Adria
36	*Salmonella enterica*	*enterica*	Norwich	Ad1172	Dairy product	Adria
37	*Salmonella enterica*	*enterica*	Ohio	Ad1482	Raw milk	Adria
38	*Salmonella enterica*	*enterica*	Oranienburg	Ad 1724	Cereal	Adria
39	*Salmonella enterica*	*enterica*	Orion	27	Food sample	Adria
40	*Salmonella enterica*	*enterica*	Ovakam	Ad1647	Compost	Adria
41	*Salmonella enterica*	*enterica*	Panama	882	Sausage	Adria
42	*Salmonella enterica*	*enterica*	Paratyphi A	ATCC11511	/	Adria
43	*Salmonella enterica*	*enterica*	Paratyphi B	Ad301	Clinical sample	Adria
44	*Salmonella enterica*	*enterica*	Paratyphi B var java	CIP56.26	Unknown	Adria
45	*Salmonella enterica*	*enterica*	Paratyphi C	ATCC13428	/	Adria
46	*Salmonella enterica*	*enterica*	Pomona	CIP105630	Cock	Adria
47	*Salmonella enterica*	*enterica*	Poona	CIP107125	Human faeces	Adria
48	*Salmonella enterica*	*enterica*	Putten	Ad2331	Feeding stuff	Adria
49	*Salmonella enterica*	*enterica*	Regent	328	Duck	Adria
50	*Salmonella enterica*	*enterica*	Rissen	39	Food sample	Adria

INCLUSIVITY						
N°	Species	Sub species	Serotype	Reference	Origin	Lab
51	*Salmonella enterica*	*enterica*	Rubislaw	Ad2332	Shark	Adria
52	*Salmonella enterica*	*enterica*	Salford	CIP104917	Human	Adria
53	*Salmonella enterica*	*enterica*	Schwarzengrund	Ad2333	Egg product	Adria
54	*Salmonella enterica*	*enterica*	Senftenberg	Ad355	Sea food product	Adria
55	*Salmonella enterica*	*enterica*	Stanley	CIP106163	Unknown	Adria
56	*Salmonella enterica*	*enterica*	Sternschanze	Ad500	Unknown	Adria
57	*Salmonella enterica*	*enterica*	Strasbourg	CIP105632	Human	Adria
58	*Salmonella enterica*	*enterica*	Tananarive	CIP54142	Pork	Adria
59	*Salmonella enterica*	*enterica*	Typhi	Ad302	Clinical sample	Adria
60	*Salmonella enterica*	*enterica*	Typhimurium	Ad1484	Whole egg	Adria
61	*Salmonella enterica*	*enterica*	Typhimurium 1,4,[5],12:-:-	Ad1333	Tiramisu	Adria
62	*Salmonella enterica*	*enterica*	Typhimurium 1,4,[5],12:-:1,	Ad1335	Hen	Adria
63	*Salmonella enterica*	*enterica*	Typhimurium 1,4,[5],12:i:-	Ad1334	Processed pork meat	Adria
64	*Salmonella enterica*	*enterica*	Urbana	Ad501	Unknown	Adria
65	*Salmonella enterica*	*enterica*	Veneziana	233	Food sample	Adria
66	*Salmonella enterica*	*enterica*	Weltevreden	Ad2336	Unknown	Adria
67	*Salmonella enterica*	*enterica*	Wien	CIP8122	Unknown	Adria
68	*Salmonella enterica*	*enterica*	Worthington	3506	Meal product	Adria
69	*Salmonella enterica*	*enterica*	Zanzibar	CIP107479	Human faeces	Adria
70	*Salmonella enterica*	*houtenae*	43:z4,z32	Ad597	Fish product	Adria
71	*Salmonella enterica*	*houtenae*	50:g,z51	Ad596	Dairy product	Adria
72	*Salmonella enterica*	*indica*	1,6,14,25:a:enx	Ad600	Environmental sample	Adria
73	*Salmonella enterica*	*indica*	11:b:e,n,x	Ad2337	Primary production environmental sample	Adria
74	*Salmonella enterica*	*salamae*	1,13,23:gmt:enx	Ad450	Raw ewe milk	Adria
75	*Salmonella enterica*	*salamae*	42:b:enxz15	Ad593	Bean	Adria
76	*Salmonella bongori*	*bongori*	66:z41: - -	ATCC 43975	Not Available	Q Labs

INCLUSIVITY						
N°	Species	Sub species	Serotype	Reference	Origin	Lab
77	*Salmonella bongori*	*bongori*	66:z41:-	NCTC 10946	Amphibian; Frog	Q Labs
78	*Salmonella enterica*	*arizonae*	IIIa 51:z4,z23:-	ATCC 13314	Not Available	Q Labs
79	*Salmonella enterica*	*arizonae*	41:z4,z23:-	ATCC BAA-1577	Not Available	Q Labs
80	*Salmonella enterica*	*arizonae*	62:z4,z23: - -	QL2016.61	Meat Sample	Q Labs
81	*Salmonella enterica*	*arizonae*	62:z36: - -	QL2016.62	Meat Sample	Q Labs
82	*Salmonella enterica*	*diarizonae*	IIIb 35:i:z	ATCC BAA-216	Human Blood	Q Labs
83	*Salmonella enterica*	*diarizonae*	61:1,v:1,5,(7)	ATCC BAA-639	Human Faeces	Q Labs
84	*Salmonella enterica*	*diarizonae*	38:(k):z35:-	QL011414.1	Environmental Isolate	Q Labs
85	*Salmonella enterica*	*diarizonae*	40:g,z51:- -	QL2016.56	Meat Sample	Q Labs
86	*Salmonella enterica*	*diarizonae*	40:z4,z24:[z39]	QL2016.57	Meat Sample	Q Labs
87	*Salmonella enterica*	*enterica*	Abaetetuba	ATCC 35640	Creek Water	Q Labs
88	*Salmonella enterica*	*enterica*	Abony	NCTC 6017	Not Available	Q Labs
89	*Salmonella enterica*	*enterica*	Abortusequi	ATCC 9842	Not Available	Q Labs
90	*Salmonella enterica*	*enterica*	Abortusovis	NCTC 10241	Not Available	Q Labs
91	*Salmonella enterica*	*enterica*	Adelaide	UPENN STS 2	Not Available	Q Labs
92	*Salmonella enterica*	*enterica*	Agama	UPENN STS 3	Not Available	Q Labs
93	*Salmonella enterica*	*enterica*	Agona	ATCC 51957	Not Available	Q Labs
94	*Salmonella enterica*	*enterica*	Agoueve	UPENN STS 5	Not Available	Q Labs
95	*Salmonella enterica*	*enterica*	Alachua	UPENN STS 6	Not Available	Q Labs
96	*Salmonella enterica*	*enterica*	Albany	UPENN STS 7	Not Available	Q Labs
97	*Salmonella enterica*	*enterica*	Anatum	ATCC 9270	Pork Liver	Q Labs
98	*Salmonella enterica*	*enterica*	Arkansas	UPENN STS 11	Not Available	Q Labs
99	*Salmonella enterica*	*enterica*	Bareilly	FDA 1206H	Not Available	Q Labs
100	*Salmonella enterica*	*enterica*	Bareilly	UPENN STS 12	Not Available	Q Labs
101	*Salmonella enterica*	*enterica*	Berta	UPENN STS 13	Not Available	Q Labs
102	*Salmonella enterica*	*enterica*	Binza	UPENN STS 14	Not Available	Q Labs

INCLUSIVITY						
N°	Species	Sub species	Serotype	Reference	Origin	Lab
103	*Salmonella enterica*	*enterica*	Bovismorbificans	UPENN STS 16	Not Available	Q Labs
104	*Salmonella enterica*	*enterica*	Brandenburg	UPENN STS 18	Not Available	Q Labs
105	*Salmonella enterica*	*enterica*	Bredeney	NCTC 5731	Not Available	Q Labs
106	*Salmonella enterica*	*enterica*	California	NCTC 6018	Not Available	Q Labs
107	*Salmonella enterica*	*enterica*	Cerro	ATCC 10723	Not Available	Q Labs
108	*Salmonella enterica*	*enterica*	Choleraesuis	ATCC 12011	Not Available	Q Labs
109	*Salmonella enterica*	*enterica*	Cubana	UPENN STS 24	Not Available	Q Labs
110	*Salmonella enterica*	*enterica*	Derby	NCTC 5721	Not Available	Q Labs
111	*Salmonella enterica*	*enterica*	Drypool	UPENN STS 26	Not Available	Q Labs
112	*Salmonella enterica*	*enterica*	Dublin	UPENN STS 27	Not Available	Q Labs
113	*Salmonella enterica*	*enterica*	Eastbourne	FDA 4017H	Not Available	Q Labs
114	*Salmonella enterica*	*enterica*	Enteritidis	UDSA 207	Not Available	Q Labs
115	*Salmonella enterica*	*enterica*	Galiema	QL024.2	Environmental Isolate	Q Labs
116	*Salmonella enterica*	*enterica*	Give	UPENN STS 42	Not Available	Q Labs
117	*Salmonella enterica*	*enterica*	Haardt	UPENN STS 44	Not Available	Q Labs
118	*Salmonella enterica*	*enterica*	Hadar	ATCC 51956	Not Available	Q Labs
119	*Salmonella enterica*	*enterica*	Havana	UPENN STS 47	Not Available	Q Labs
120	*Salmonella enterica*	*enterica*	Heidelberg	NCTC 5717	Not Available	Q Labs
121	*Salmonella enterica*	*enterica*	Illinois	ATCC 11646	Not Available	Q Labs
122	*Salmonella enterica*	*enterica*	Indiana	NCTC 11304	Bird; Turkey	Q Labs
123	*Salmonella enterica*	*enterica*	Infantis	ATCC 51741	Pasta	Q Labs
124	*Salmonella enterica*	*enterica*	Javiana	ATCC 10721	Not Available	Q Labs
125	*Salmonella enterica*	*enterica*	Jerusalem	QL024.12	Environmental Isolate	Q Labs
126	*Salmonella enterica*	*enterica*	Kahla	ATCC 17980	Faeces	Q Labs
127	*Salmonella enterica*	*enterica*	Kaitaan	QL024.7	Environmental Isolate	Q Labs
128	*Salmonella enterica*	*enterica*	Kentucky	ATCC 9263	Not Available	Q Labs

INCLUSIVITY						
N°	Species	Sub species	Serotype	Reference	Origin	Lab
129	*Salmonella enterica*	*enterica*	Lille	UPENN STS 59	Not Available	Q Labs
130	*Salmonella enterica*	*enterica*	Livingstone	QL091313.1	Environmental Isolate	Q Labs
131	*Salmonella enterica*	*enterica*	London	UPENN STS 64	Not Available	Q Labs
132	*Salmonella enterica*	*enterica*	Manhattan	UPENN STS 65	Not Available	Q Labs
133	*Salmonella enterica*	*enterica*	Mbandaka	QL11031.1	Environmental Isolate	Q Labs
134	*Salmonella enterica*	*enterica*	Neasden	QL024.4	Not Available	Q Labs
135	*Salmonella enterica*	*enterica*	Newington	QL0248	Not Available	Q Labs
136	*Salmonella enterica*	*enterica*	Saintpaul	ATCC 9712	Cystitis, Panama	Q Labs
137	*Salmonella enterica*	*enterica*	Utrect	NCTC 10077	Not Available	Q Labs
138	*Salmonella enterica*	*enterica*	Vellore	ATCC 15611	Rectal Swab	Q Labs
139	*Salmonella enterica*	*enterica*	Virchow	ATCC 51955	Not Available	Q Labs
140	*Salmonella enterica*	*enterica*	Westhampton	QL 024.14	Environmental Isolate	Q Labs
141	*Salmonella enterica*	*enterica*	Jamaica	QL 245478-2	Environmental Isolate	Q Labs
142	*Salmonella enterica*	*enterica*	Ruiru	QL 243995-8	Environmental Isolate	Q Labs
143	*Salmonella enterica*	*enterica*	Sylvania	QL 227400-196	Environmental Isolate	Q Labs
144	*Salmonella enterica*	*houtenae*	E2(3,15); g,s,t; -	QL024.1	Not Available	Q Labs
145	*Salmonella enterica*	*houtenae*	51(51); z4,z23; -	ATCC 15783	Boa constrictor, the Netherlands	Q Labs
146	*Salmonella enterica*	*houtenae*	I(16); z4,z23; -	ATCC 29932	Not Available	Q Labs
147	*Salmonella enterica*	*indica*	H(1,6,14,25); a; e,n,x	ATCC 43976	Not Available	Q Labs
148	*Salmonella enterica*	*indica*	H(1,6,14,25); a; e,n,x; k, z6	NCTC 10458	Ceylonese desiccated coconut	Q Labs
149	*Salmonella enterica*	*salamae*	56:b:-	ATCC 700149	Not Available	Q Labs
150	*Salmonella enterica*	*salamae*	58(58); 1,z13,z28; 1,5	ATCC 700151	Not Available	Q Labs

EXCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
1	*Acinetobacter*	*johnsonii*	Ad1317	Whole liquid egg	Adria
2	*Aeromonas*	*bestiarum*	CIP74.30	Fish	Adria
3	*Aeromonas*	*hydrophila*	Ad1570	Water	Adria
4	*Aeromonas*	*punctata*	Ad1517	Whole liquid egg	Adria
5	*Aeromonas*	*salmonicida*	Ad1319	Whole liquid egg	Adria
6	*Buttiauxella*	*agrestis*	Ad1320	Whole liquid egg	Adria
7	*Buttiauxella*	*noackiae*	Ad1325	Whole liquid egg	Adria
8	*Citrobacter*	*diversus*	147	Raw milk	Adria
9	*Citrobacter*	*braakii*	Ad2701	Rings of squid	Adria
10	*Citrobacter*	*freundii*	104	Ground beef	Adria
11	*Citrobacter*	*freundii*	24	Sea food	Adria
12	*Citrobacter*	*freundii*	25	Spinach	Adria
13	*Citrobacter*	*gillenii*	Ad343	Unknown	Adria
14	*Citrobacter*	*farmeri*	Ad1116	Environmental sample (egg)	Adria
15	*Comamonas*	*aquatica*	Ad1543	Environmental sample	Adria
16	*Cronobacter*	*sakazakii*	Ad1418	Infant formula	Adria
17	*Enterobacter*	*aerogenes*	Ad889	Beef flour	Adria
18	*Pantoea*	*agglomerans*	Ad877	Unknown	Adria
19	*Enterobacter*	*agglomerans*	117	Broccoli	Adria
20	*Enterobacter*	*cloacae*	10	Raw milk	Adria
21	*Enterobacter*	*cloacae*	148	Ready to reheat (paella)	Adria
22	*Enterobacter*	*hormaechei*	Ad990	Butter	Adria
23	*Enterobacter*	*kobei*	Ad342	Ham	Adria
24	*Enterobacter*	*hormaechei*	Ad834	Beef meat	Adria
25	*Escherichia*	*fergusonii*	Ad1381	Water	Adria
26	*Escherichia*	*fergusonii*	2876	Environmental sample	Adria
27	*Escherichia*	*hermannii*	Ad457	Spinach	Adria
28	*Klebsiella*	*oxytoca*	Ad1509	Milk powder	Adria
29	*Hafnia*	*alvei*	130	Raw milk cheese	Adria
30	*Kluyvera*	*intermedia*	88a	Gizzards	Adria
31	*Leclercia*	*adecarboxylata*	Ad707	Milk powder	Adria
32	*Plesiomonas*	*shigelloïdes*	Ad673	Fish	Adria
33	*Providencia*	*rettgeri*	112	White liquid egg	Adria
34	*Providencia*	*stuartii*	46	Turkey thigh	Adria
35	*Providencia*	*stuartii*	Ad1575	River water	Adria
36	*Pseudomonas*	*fragi*	Ad1327	Whole liquid egg	Adria
37	*Pseudomonas*	*putida*	Ad1331	Whole liquid egg	Adria
38	*Pseudomonas*	*veronii*	Ad1588	Environmental sample	Adria
39	*Raoultella*	*terrigena*	Ad1368	Water	Adria
40	*Ralstonia*	*mannitolilytica*	Ad1059	Turkey skin	Adria
41	*Serratia*	*ficaria*	113	Salad	Adria
42	*Serratia*	*fonticola*	Ad1696	Salmon	Adria
43	*Serratia*	*liquefaciens*	87a	Gizzard	Adria

EXCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
44	*Serratia*	*marcescens*	Ad447	Raw milk	Adria
45	*Serratia*	*marcescens*	Ad454	Raw milk	Adria
46	*Serratia*	*proteamaculans*	Ad1697	Salmon	Adria
47	*Stenotrophomonas*	*maltophilia*	Ad720	Unknown	Adria
48	*Yersinia*	*enterocolitica*	A00C066	Cockerel	Adria
49	*Yersinia*	*intermedia*	33	Raw milk	Adria
50	*Lelliottia*	*amnigena*	52	Beans	Adria
51	*Aeromonas*	*hydrophila*	ATCC 49140	Clinical Isolate	Q Labs
52	*Aeromonas*	*viridans*	QL 17041.8	Raw Milk	Q Labs
53	*Citrobacter*	*amolanaticus*	ATCC 25407	Faeces	Q Labs
54	*Citrobacter*	*braakii*	ATCC 43162	Clinical Isolate	Q Labs
55	*Citrobacter*	*farmeri*	ATCC 51633	Human Faeces	Q Labs
56	*Citrobacter*	*freundii*	QL 11007-10	Clinical Isolate	Q Labs
57	*Citrobacter*	*youngae*	ATCC 11102	Not Available	Q Labs
58	*Cronobacter*	*malonaticus*	QL 17031.3	Infant formula	Q Labs
59	*Cronobacter*	*malonaticus*	QL 123015-1A	Rice flour	Q Labs
60	*Cronobacter*	*sakazakii*	QL 17031.4	Infant formula	Q Labs
61	*Cronobacter*	*sakazakii*	ATCC 51329	Rice flour	Q Labs
62	*Edwardsiella*	*tarda*	QL 11007-11	Clinical Isolate	Q Labs
63	*Enterobacter*	*aerogenes*	ATCC 35029	Not Available	Q Labs
64	*Enterobacter*	*amnigenus*	ATCC 51816	Milk	Q Labs
65	*Enterobacter*	*cancerogenus*	QL11010.1	Bottled Water	Q Labs
66	*Enterobacter*	*cloacae*	ATCC 23355	Spinal Fluid	Q Labs
67	*Enterococcus*	*faecalis*	ATCC 51299	Peritonela fluid	Q Labs
68	*Enterococcus*	*faecium*	ATCC 8459	Dairy Product	Q Labs
69	*Escherichia*	*coli*	QL 11010.2	Bottled Water	Q Labs
70	*Escherichia*	*coli O157:H7*	ATCC 43895	Raw Hamburger	Q Labs
71	*Escherichia*	*fergusonii*	ATCC 35470	Not Available	Q Labs
72	*Escherichia*	*hermannii*	ATCC 33651	Human Arm Wound	Q Labs
73	*Escherichia*	*vulneris*	ATCC 29943	Human Wound	Q Labs
74	*Havnia*	*alvei*	ATCC 51815	Milk	Q Labs
75	*Klebsiella*	*oxytoca*	ATCC 43165	Clinical Isolate	Q Labs
76	*Klebsiella*	*pneumoniae*	ATCC 10031	Clinical Isolate	Q Labs
77	*Lactobacillus*	*acidophilus*	ATCC 314	Not Available	Q Labs
78	*Lactobacillus*	*brevis*	ATCC 4006	Not Available	Q Labs
79	*Lactobacillus*	*casei*	ATCC 11578	Oral Cavity	Q Labs
80	*Listeria*	*innocua*	QL 32811.1	Seasoning Powder	Q Labs
81	*Listeria*	*ivanovii*	QL 030911-11	Clinical Isolate	Q Labs
82	*Listeria*	*monocytogenes*	QL 030911.10	Shellfish	Q Labs
83	*Morganella*	*morganii*	ATCC 25829	Human	Q Labs
84	*Providencia*	*stuartii*	QL 11007.5	Clinical Isolate	Q Labs

EXCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
85	*Proteus*	*mirabilis*	QL 11007.6	Veterinary	Q Labs
86	*Proteus*	*vulgaris*	ATCC 6380	Clinical Isolate	Q Labs
87	*Pseudomonas*	*aeruginosa*	ATCC 35032	Not Available	Q Labs
88	*Pseudomonas*	*extremorientialis*	QL 17041.1	Raw milk	Q Labs
89	*Pseudomonas*	*fluorescens*	QL 17041.3	Raw milk	Q Labs
90	*Pseudomonas*	*gessardii*	QL 17041.12	Raw milk	Q Labs
91	*Pseudomonas*	*proteolytica*	QL 17041.4	Raw milk	Q Labs
92	*Pseudomonas*	*rhodesiae*	QL 17041.6	Raw milk	Q Labs
93	*Serratia*	*marcescens*	QL 11007.1	Bottled Water	Q Labs
94	*Siccibacter*	*turicensis*	QL 17031.7	Infant formula	Q Labs
95	*Staphylococcus*	*aureus*	QL 030911.4	Seasoning Powder	Q Labs
96	*Staphylococcus*	*chromogenes*	QL 17041.10	Raw milk	Q Labs
97	*Staphylococcus*	*epidermidis*	QL 030911.1	Clinical Isolate	Q Labs
98	*Staphylococcus*	*intermedius*	QL 030911.2	Veterinary	Q Labs
99	*Staphylococcus*	*sciuri*	QL 17041.9	Raw milk	Q Labs
100	*Vibrio*	*vulnificus*	QL021111A	Seafood Product	Q Labs

List of Inclusivity strains from the Extension: to include CASE Agar

no	Species	Sub species	Serotype	Reference (CRA)	Origin
1	*Salmonella enterica*	*enterica*	Abaetetuba	1268	NCTC 8244, unknown
2	*Salmonella enterica*	*enterica*	Abony	1270	NCTC 6017, unknown
3	*Salmonella enterica*	*enterica*	Abortusequi	7046	industrial
4	*Salmonella enterica*	*enterica*	Adelaide	1271	NCTC 6586, unknown
5	*Salmonella enterica*	*enterica*	Africana	2002	industrial
6	*Salmonella enterica*	*enterica*	Agama	1419	meat
7	*Salmonella enterica*	*enterica*	Agona	1050	chicken
8	*Salmonella enterica*	*enterica*	Alachua	1274	abattoir
9	*Salmonella enterica*	*enterica*	Albany	1275	NCTC 9869, unknown
10	*Salmonella enterica*	*enterica*	Albuquerque	1276	irrigation water
11	*Salmonella enterica*	*enterica*	Amsterdam	5467	PHE
12	*Salmonella enterica*	*enterica*	Anatum	1060	egg
13	*Salmonella enterica*	*enterica*	Anfo	1420	African box meat
14	*Salmonella enterica*	*enterica*	Arkansas	3608	chicken giblets
15	*Salmonella enterica*	*enterica*	Ball	1288	NCTC 9870, clinical
16	*Salmonella enterica*	*enterica*	Banana	1289	NCTC 8718, clinical
17	*Salmonella enterica*	*enterica*	Bareilly	1291	clinical
18	*Salmonella enterica*	*enterica*	Barry	1651	chicken giblets
19	*Salmonella enterica*	*enterica*	Berta	1067	uncooked chicken
20	*Salmonella enterica*	*enterica*	Binza	1436	dried spice
21	*Salmonella enterica*	*enterica*	Blockley	1087	fresh chicken
22	*Salmonella enterica*	*enterica*	Bovismorbificans	16362	industrial
23	*Salmonella enterica*	*enterica*	Brazzaville	1310	NCTC 9900, unknown
24	*Salmonella enterica*	*enterica*	Brandenburg	1070	beef
25	*Salmonella enterica*	*enterica*	Braenderup	1095	chicken
26	*Salmonella enterica*	*enterica*	Brazil	1309	clinical
29	*Salmonella enterica*	*enterica*	Bredeney	1075	fish meal
27	*Salmonella enterica*	*enterica*	Budapest	1314	NCTC 5724, unknown
28	*Salmonella enterica*	*enterica*	Butantan	1316	gastroenteritis
29	*Salmonella enterica*	*enterica*	California	1421	chicken
30	*Salmonella enterica*	*enterica*	Caracas	1323	NCTC 8715, unknown
31	*Salmonella enterica*	*enterica*	Carmel	1324	NCTC 9872, clinical
32	*Salmonella enterica*	*enterica*	Carrau	1325	NCTC 5794, clinical
33	*Salmonella enterica*	*enterica*	Cerro	1326	NCTC 5801, unknown
34	*Salmonella enterica*	*enterica*	Chudleigh	1336	Not Available
35	*Salmonella enterica*	*enterica*	Clifton	1334	tortoise
36	*Salmonella enterica*	*enterica*	Clerkenwell	1333	NCTC 8462, clinical
37	*Salmonella enterica*	*enterica*	Concord	1339	chick liver
38	*Salmonella enterica*	*enterica*	Corvallis	1341	NCTC 7830, unknown
39	*Salmonella enterica*	*enterica*	Crossness	1342	sewage
40	*Salmonella enterica*	*enterica*	Cubana	1343	industrial
41	*Salmonella enterica*	*enterica*	Dakar	1346	NCTC 9928, clinical
42	*Salmonella enterica*	*enterica*	Daytona	1348	NCTC 7102, clinical
43	*Salmonella enterica*	*enterica*	Derby	1352	NCTC 5721, unknown
44	*Salmonella enterica*	*enterica*	Donna	1355	NCTC 7409, clinical

no	Species	Sub species	Serotype	Reference (CRA)	Origin
45	*Salmonella enterica*	*enterica*	Driffield	1430	beef
46	*Salmonella enterica*	*enterica*	Dugbe	1357	NCTC 10347, clinical
47	*Salmonella enterica*	*enterica*	Duisburg	2001	cucumber
50	*Salmonella enterica*	*enterica*	Dublin	1356	bovine
51	*Salmonella enterica*	*enterica*	Durban	1359	faeces
52	*Salmonella enterica*	*enterica*	Duval	1361	NCTC 9875
53	*Salmonella enterica*	*enterica*	Drypool	1654	PHE
58	*Salmonella enterica*	*enterica*	Ealing	1362	dried baby milk
59	*Salmonella enterica*	*enterica*	Eastbourne	1363	NCTC 3378, clinical
54	*Salmonella enterica*	*enterica*	Eko	1655	PHE
55	*Salmonella enterica*	*enterica*	Emek	1367	NCTC 8485, unknown
56	*Salmonella enterica*	*enterica*	Enteritidis	1004	chicken
57	*Salmonella enterica*	*enterica*	Essen	1370	NCTC 5723, unknown
58	*Salmonella enterica*	*enterica*	Ezra	1371	NCTC 9917, clinical
59	*Salmonella enterica*	*enterica*	Falkensee	16425	Indian onion powder
60	*Salmonella enterica*	*enterica*	Florida	9282	ATCC10727, unknown
61	*Salmonella enterica*	*enterica*	Frintrop	1422	animal feed
62	*Salmonella enterica*	*enterica*	Gallinarum	12265	NCTC 10532, unknown
63	*Salmonella enterica*	*enterica*	Give	1374	NCTC 5778, clinical
64	*Salmonella enterica*	*enterica*	Goldcoast	3665	oats
65	*Salmonella enterica*	*enterica*	Grampian	16110	industrial
66	*Salmonella enterica*	*enterica*	Haardt	1657	PHE
67	*Salmonella enterica*	*enterica*	Hadar	1973	fluff sample (turkeys)
68	*Salmonella enterica*	*enterica*	Havana	3004	black pepper
69	*Salmonella enterica*	*enterica*	Hartford	1375	NCTC 6802, clinical
70	*Salmonella enterica*	*enterica*	Heidelberg	1988	beefburger
71	*Salmonella enterica*	*enterica*	Hvittingfoss (16:b:e.n.x)	1837	herbs
72	*Salmonella enterica*	*enterica*	Infantis	1035	milk plant environment
73	*Salmonella enterica*	*enterica*	Indiana	71	turkey
74	*Salmonella enterica*	*enterica*	Inverness	1377	faeces
75	*Salmonella enterica*	*enterica*	Javiana	1379	NCTC 6495, clinical
76	*Salmonella enterica*	*enterica*	Jerusalem	1380	NCTC 8146, clinical
77	*Salmonella enterica*	*enterica*	Johannesburg	1381	NCTC 8272, clinical
78	*Salmonella enterica*	*enterica*	Kedougou	1021	roast beef
79	*Salmonella enterica*	*enterica*	Kentucky	1382	clinical sample
80	*Salmonella enterica*	*enterica*	Kimberley	1423	beef
81	Salmonella enterica	enterica	Kottbus	4179	clinical sample
82	Salmonella enterica	enterica	Krefeld	1383	NCTC 9884, clinical
83	Salmonella enterica	enterica	Lexington	2024	dates
84	Salmonella enterica	enterica	Lille	1753	cocoa bean environment
85	Salmonella enterica	enterica	Livingstone	1385	faeces
86	Salmonella enterica	enterica	Locarno	1386	meat sample
87	Salmonella enterica	enterica	London	1387	clinical sample
88	Salmonella enterica	enterica	Maastrict	9273	fishmeal

no	Species	Sub species	Serotype	Reference (CRA)	Origin
89	*Salmonella enterica*	*enterica*	Madelia	1388	hen liver
90	*Salmonella enterica*	*enterica*	Manchester	1434	flavouring
91	*Salmonella enterica*	*enterica*	Manhattan	1389	NCTC 6245, clinical
92	*Salmonella enterica*	*enterica*	Mbandaka	16424	onion powder
93	*Salmonella enterica*	*enterica*	Meleagridis	1392	NCTC 6023, clinical
94	*Salmonella enterica*	*enterica*	Mississppi	1395	faeces
95	*Salmonella enterica*	*enterica*	Montevideo	1031	Sunflower pellets
96	*Salmonella enterica*	*enterica*	Muenchen	16292	houmous
97	*Salmonella enterica*	*enterica*	Muenster	3507	herbal infusion
98	*Salmonella enterica*	*enterica*	Napoli	16305	salad
99	*Salmonella enterica*	*enterica*	Newbrunswick	1399	NCTC 5787
100	*Salmonella enterica*	*enterica*	Newington	1400	NCTC 5785, unknown
101	*Salmonella enterica*	*enterica*	Newport	1044	pork sausages
102	*Salmonella enterica*	*enterica*	Norwich	1401	pig lymph nodes
103	*Salmonella enterica*	*enterica*	Nottingham	16290	NCTC 7832, clinical
104	*Salmonella enterica*	*enterica*	Ohio	1459	PHE
105	*Salmonella enterica*	*enterica*	Oranienburg	1402	clinical sample
106	*Salmonella enterica*	*enterica*	Orion	1936	Food sample
107	*Salmonella enterica*	*enterica*	Ouakam	1461	PHE
108	*Salmonella enterica*	*enterica*	Panama	1045	pork sausage
109	*Salmonella enterica*	*enterica*	Pomona	1403	turkey intestine
110	*Salmonella enterica*	*enterica*	Poona	725	Human
111	*Salmonella enterica*	*enterica*	Pretoria	14047	pig
112	*Salmonella enterica*	*enterica*	Reading	1405	paprika
113	*Salmonella enterica*	*enterica*	Rubislaw	1406	NCTC 6016, clinical
114	*Salmonella enterica*	*enterica*	Saintpaul	1093	giblets
115	*Salmonella enterica*	*enterica*	Sandiego	1407	Chilean sausage
116	*Salmonella enterica*	*enterica*	Saphra	1463	PHE
117	*Salmonella enterica*	*enterica*	Schwarzengrund	16635	industrial
118	*Salmonella enterica*	*enterica*	Senftenberg	9281	ATCC 8400, unknown
119	*Salmonella enterica*	*enterica*	Shangani	1409	NCTC 5784, clinical
120	*Salmonella enterica*	*enterica*	Solt	1569	clinical
121	*Salmonella enterica*	*enterica*	Stanley	1057	boiled ham
122	*Salmonella enterica*	*enterica*	Sundsvall	1410	NCTC 6758
123	*Salmonella enterica*	*enterica*	Tallahassee	16285	watercress
124	*Salmonella enterica*	*enterica*	Telelkebir	1577	cocoa bean
125	*Salmonella enterica*	*enterica*	Tennesee	3944	sesame seeds
126	*Salmonella enterica*	*enterica*	Thompson	1081	pork
127	*Salmonella enterica*	*enterica*	Typhimurium	1008	pork
128	*Salmonella enterica*	*enterica*	Typhimurium 4:i:- monophasic+D145	17295	industrial
129	*Salmonella enterica*	*enterica*	Uccle	1416	NCTC 10251, clinical
130	*Salmonella enterica*	*enterica*	Urbana	9272	ATCC 9261, unknown
131	*Salmonella enterica*	*enterica*	Utrecht	1417	NCTC 10077, unknown
132	*Salmonella enterica*	*enterica*	Virchow	1014	turkey
133	*Salmonella enterica*	*enterica*	Weltevreden	7223	industrial
134	*Salmonella enterica*	*enterica*	Worthington	1972	industrial
135	*Salmonella enterica*	*houtenae*	43:z4, z23:- S. Houten	1376	NCTC 10401, unknown

no	Species	Sub species	Serotype	Reference (CRA)	Origin
136	*Salmonella enterica*	*houtenae*	50:g, z51:- (Wassenar)	1415	Dairy product
137	*Salmonella enterica*	*indica*	Ferlac	1373	desiccated coconut
138	*Salmonella enterica*	*indica*	Vrindiban	1466	PHE
139	*Salmonella enterica*	*salamae*	Basel	1292	human urine
140	*Salmonella enterica*	*salamae*	Betioky	1296	reptile
141	*Salmonella enterica*	*salamae*	Bleadon	1299	tortoise
142	*Salmonella enterica*	*salamae*	Canastel	1321	gastroenteritis
143	*Salmonella bongori*	*bongori*	Bongori 66:z65:-	16378	PHE
144	*Salmonella bongori*	*bongori*	Brookfield 66:z41:-	1312	frog
145	*Salmonella enterica*	*arizonae*	51:z4,z23:-	16380	NCTC 8297
146	*Salmonella enterica*	*arizonae*	44:z4, z23:-	16371	PHE
147	*Salmonella enterica*	*arizonae*	48:z4,z24:-	16373	PHE
148	*Salmonella enterica*	*diarizonae*	50:k:z	16374	PHE
149	*Salmonella enterica*	*diarizonae*	61:l,v:1,5	16375	PHE
150	*Salmonella enterica*	*diarizonae*	48:i:z	16376	PHE

List of Inclusivity strains from the Extension: to include CASE Agar

No	Genus	Species	Reference (CRA)	Origin
201	*Acinetobacter*	*baumannii*	7421	sesame seeds
202	*Aeromonas*	*bestiarum*	17217	industrial
203	*Aeromonas*	*encheleia*	17114	marsh
204	*Aeromonas*	*eucrenophila*	17121	wet land water
205	*Aeromonas*	*hydrophila*	4111	milk
206	*Aeromonas*	*salmonicida*	8388	NCTC 10402, unknown
207	*Aeromonas*	*salmonicida*	17216	industrial
208	*Aeromonas*	*veroni*	17062	flood water
209	*Aliivibrio*	*fisherii*	16818	ATCC 7744, unknown
210	*Bacillus*	*subtilis*	265	dog faeces
211	*Burkholderia*	*cepacia*	16815	onion
212	*Buttiauxella*	*agrestis*	17110	pond water
213	*Buttiauxella*	*warmboldiae*	17112	rainwater
214	*Chryseobacterium*	*hominis*	4088	dried milk powder
215	*Citrobacter*	*amalonaticus*	7458	beansprouts
216	*Citrobacter*	*braakii*	16279	beansprouts
217	*Citrobacter*	*koseri*	7126	industrial
218	*Citrobacter*	*freundii*	40	NCTC 9750, unknown
219	*Citrobacter*	*freundii*	3664	blackforest gateau
220	*Citrobacter*	*freundii*	3659	salami
221	*Citrobacter*	*freundii*	7522	sausages
222	*Citrobacter*	*gilenii*	16923	industrial
223	*Cronobacter*	*sakazakii*	16909	dried milk
224	*Enterobacter*	*aerogenes*	15736	sputum
225	*Enterobacter (Pantoea)*	*agglomerans*	15945	raw beef
226	*Enterobacter*	*amnigenus*	7426	mushrooms
227	*Enterobacter*	*asburiae*	17021	NCTC 12123, human
228	*Enterobacter*	*cloacae*	1472	dried milk
229	*Enterobacter*	*intermedius*	17023	surface water
230	*Enterobacter*	*taylorae*	7530	seeds
231	*Enterobacter*	*xiangfangensis*	16927	NCIMB 14836, unknown
232	*Escherichia*	*coli*	17022	clinical
233	*Escherichia*	*coli O6*	11017	ATCC 25922, clinical
234	*Escherichia*	*coli*	2003	fish
235	Escherichia	coli O111	ATCC 29552	faeces, non-toxigenic
236	*Escherichia*	*coli O157*	NCTC 12900	unknown, non-toxigenic
237	*Escherichia*	*hermannii*	7475	sausages
238	*Enterobacter*	*kobei*	16260	sesame seeds
239	*Enterococcus*	*faecium*	1513	industrial
240	*Enterococcus*	*faecium*	8351	industrial
241	*Flavobacterium (Novosphingobium)*	*resinovorum*	9000	bamboo shoots
242	*Erwinia*	*amylovorans*	8037	forest soil
243	*Ewingella*	*americana*	8086	industrial
244	*Gluconoacetobacter*	*liquefaciens*	16761	industrial
245	*Gluconobacter*	*cerinus*	16654	environmental

No	Genus	Species	Reference (CRA)	Origin
246	*Hafnia*	*alvei*	4936	raw minced beef
247	*Klebsiella*	*oxytoca*	8387	Water
248	*Klebsiella*	*oxytoca*	15926	ATCC 13182, human
249	*Klebsiella*	*pneumoniae*	6786	industrial
250	*Kluyvera*	*ascorbata*	17126	industrial
251	*Kosakonia*	*radicincitans*	16979	NCIMB 9428, unknown
252	*Lactobacillus*	*casei*	7670	industrial
253	*Leclercia*	*adecarboxylata*	5121	oregano
254	*Lelliottia*	*amnigena*	16924	sea water
255	*Listeria*	*monocytogenes*	2064	watercress
256	*Listeria*	*ivanovii*	1123	soft cheese
257	*Listeria*	*welshimeri*	8036	industrial
258	*Lysinibacillus*	*boronitoelrans*	7438	tomatoes
259	*Micrococcus*	*luteus*	3503	air sample
260	*Moraxella*	*osloensis*	17043	Milk, NCIMB 8552
261	*Morganella*	*morganii*	1542	mince
262	*Morganella*	*morganii*	269	chicken
263	*Paraburkholderia*	*tropica*	16779	soft drinks environment
264	*Photobacterium*	*damselae*	16821	marine fish
265	*Proteus*	*mirabilis*	266	minced pork
266	*Proteus*	*vulgaris*	267	poultry
267	*Providencia*	*rettgeri*	268	human
268	*Providencia*	*rettgeri*	8390	sewage
269	*Pseudomonas*	*aeruginosa*	270	animal room
270	*Pseudomonas*	*citronellosis*	272	industrial
271	*Pseudomonas*	*fluorescens*	273	soil
272	*Pseudomonas*	*fragi*	274	NCTC 10689, unknown
273	*Pseudomonas*	*gladioli subsp gladioli*	275	industrial
274	*Pseudomonas*	*oleovorans*	276	cutting fluid
275	*Pseudomonas*	*putida*	277	soil
276	*Pseudomonas*	*taetrolens*	17326	St Maure de Touraine goat's milk soft cheese
277	*Pseudomonas*	*tolaassi*	17347	raw milk
278	*Rahnella*	*aqualtilis*	16911	drinking water
279	*Raoultella*	*ornithinolytica*	279	industrial
280	*Raoultella*	*ornithinolytica*	16928	cream
281	*Raoultella*	*planticola*	280	raw tuna
282	*Raoultella*	*terrigena*	17343	raw milk
283	*Shewanella*	*profunda*	NCIMB 10471	chilled chicken
284	*Serratia*	*fonticola*	4613	chicken
285	*Serratia*	*liquefaciens*	1491	raw mince
286	*Serratia*	*marcescens*	4190	sandwich
287	*Serratia*	*proteamaculans ssp. quinovora*	16463	mushrooms
288	*Shigella*	*flexneri*	325	human
289	*Shigella*	*sonnei*	4107	human
290	*Shimwellia*	*blattae*	16931	cockroach
291	*Staphylococcus*	*aureus*	1211	shellfish

No	Genus	Species	Reference (CRA)	Origin
292	*Staphylococcus*	*carnosus*	284	goat's milk
293	*Staphylococcus*	*pasteurii*	8389	chicken
294	*Staphylococcus*	*saprophyticius*	8999	environmental
295	*Vibrio*	*metschinkovii*	5437	cooked cockles
296	*Yersinia*	*enterocolitica*	4103	NCTC 10460, ear
297	*Yersinia*	*bercovieri*	17106	stream
298	*Xanthomonas*	*arboricola*	8047	industrial
299	*Xanthomonas*	*hortorum*	8046	industrial
300	*Zygosaccharomyces*	*bailii*	16193	soft drinks factory

Annex F – *Salmonella* spp. testing

Method Comparison Study

Cryobead of already well characterized strain

↓

Nutrient Agar

Test on non-selective agar

↓

Streaking onto:
TSA

↓

Incubation for 24 h ± 3 h
at 37°C

↓

One colony

Test on selective agars

↓

Streaking onto:
XLD
BGA
RAPID'*Salmonella*
Brilliance Salmonella
ASAP

↓

Incubation according to the ISO standard procedure or the insert of proprietary agars

↓

One colony per plate

Confirmation by using the Direct Transfer Procedure
of the Biotyper of BRUKER on fresh culture

Annex G - Raw data inclusivity study

See Excel File: 2017LR73 - Microval MCS & ILS Salmonella (Version 2).xlsx; Tab « Raw data Incl »

Annex H – Raw data exclusivity study

See Excel File: 2017LR73 - Microval MCS & ILS Salmonella (Version 2).xlsx; Tab « Raw data Excl »

Annex D - Results inclusivity study: Original Study

INCLUSIVITY																										
Target Strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
1	*Salmonella enterica*	*enterica*	Blockley	Ad923	Hen	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
2	*Salmonella enterica*	*enterica*	Brazzaville	CIP54141	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
3	*Salmonella enterica*	*enterica*	Caracas	Ad2322	Spices	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
4	*Salmonella enterica*	*enterica*	Carrau	CIP105619	Pork	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
5	*Salmonella enterica*	*enterica*	Corvallis	CIP105342	Poultry	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
6	*Salmonella enterica*	*enterica*	Cremieu	230	Hare	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
7	*Salmonella enterica*	*enterica*	Duisburg	42	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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8	*Salmonella enterica*	*enterica*	Emek	Ad333	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
9	*Salmonella enterica*	*enterica*	Essen	38	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
10	*Salmonella enterica*	*enterica*	Falkensee	693	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
11	*Salmonella enterica*	*enterica*	Gallinarum biovar pullorum	Ad300	Poultry environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
12	*Salmonella enterica*	*enterica*	Gaminara (16:d:1.7)	Ad2324	Boar	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
13	*Salmonella enterica*	*enterica*	Garoli	CIP54139	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
14	*Salmonella enterica*	*enterica*	Grumpensis	CIP105621	Guinea pig	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
15	*Salmonella enterica*	*enterica*	Guinea	29	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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16	*Salmonella enterica*	*enterica*	Hessarek	CIP54140	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
17	*Salmonella enterica*	*enterica*	Hvittingfoss (16:b:e.n.x)	Ad2325	Seafood product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
18	*Salmonella enterica*	*enterica*	Kedougou	Ad929	Chocolate pastry	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
19	*Salmonella enterica*	*enterica*	Kottbus	1	Poultry environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
20	*Salmonella enterica*	*enterica*	Lagos	173	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
21	*Salmonella enterica*	*enterica*	Landau	Ad499	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
22	*Salmonella enterica*	*enterica*	Leipzig	CIP105624	Wastewater	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
23	*Salmonella enterica*	*enterica*	Luciana	CIP105626	Clinical sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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24	*Salmonella enterica*	*enterica*	Maracaibo	CIP54143	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
25	*Salmonella enterica*	*enterica*	Marseille	CIP105627	Human	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
26	*Salmonella enterica*	*enterica*	Mbandaka	Ad914	Mayonnaise	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
27	*Salmonella enterica*	*enterica*	Meleagridis	505	Raw milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
28	*Salmonella enterica*	*enterica*	Mikawasima	CIP107220	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
29	*Salmonella enterica*	*enterica*	Minnesota	CIP105628	Turkey	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
30	*Salmonella enterica*	*enterica*	Mkamba	Ad1544	Compost	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
31	*Salmonella enterica*	*enterica*	Montevideo	Ad912	Raw milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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32	*Salmonella enterica*	*enterica*	Muenchen	CIP106178	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
33	*Salmonella enterica*	*enterica*	Muenster	CIP107859	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
34	*Salmonella enterica*	*enterica*	Napoli	Ad928	Animal clinic	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
35	*Salmonella enterica*	*enterica*	Newport	540	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
36	*Salmonella enterica*	*enterica*	Norwich	Ad1172	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
37	*Salmonella enterica*	*enterica*	Ohio	Ad1482	Raw milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
38	*Salmonella enterica*	*enterica*	Oranienburg	Ad 1724	Cereal	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
39	*Salmonella enterica*	*enterica*	Orion	27	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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40	*Salmonella enterica*	*enterica*	Ovakam	Ad1647	Compost	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
41	*Salmonella enterica*	*enterica*	Panama	882	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
42	*Salmonella enterica*	*enterica*	Paratyphi A	ATCC11511	/	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
43	*Salmonella enterica*	*enterica*	Paratyphi B	Ad301	Clinical sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
44	*Salmonella enterica*	*enterica*	Paratyphi B var java	CIP56.26	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
45	*Salmonella enterica*	*enterica*	Paratyphi C	ATCC13428	/	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
46	*Salmonella enterica*	*enterica*	Pomona	CIP105630	Cock	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
47	*Salmonella enterica*	*enterica*	Poona	CIP107125	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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48	*Salmonella enterica*	*enterica*	Putten	Ad2331	Feeding stuff	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
49	*Salmonella enterica*	*enterica*	Regent	328	Duck	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
50	*Salmonella enterica*	*enterica*	Rissen	39	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
51	*Salmonella enterica*	*enterica*	Rubislaw	Ad2332	Shark	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
52	*Salmonella enterica*	*enterica*	Salford	CIP104917	Human	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
53	*Salmonella enterica*	*enterica*	Schwarzengrund	Ad2333	Egg product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
54	*Salmonella enterica*	*enterica*	Senftenberg	Ad355	Sea food product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
55	*Salmonella enterica*	*enterica*	Stanley	CIP106163	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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56	*Salmonella enterica*	*enterica*	Sternschanze	Ad500	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
57	*Salmonella enterica*	*enterica*	Strasbourg	CIP105632	Human	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	- (no growth)	NA (no growth)	NA (no growth)
58	*Salmonella enterica*	*enterica*	Tananarive	CIP54142	Pork	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
59	*Salmonella enterica*	*enterica*	Typhi	Ad302	Clinical sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	- (no growth)	NA (no growth)	NA (no growth)	+	PA	IA
60	*Salmonella enterica*	*enterica*	Typhimurium	Ad1484	Whole egg	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
61	*Salmonella enterica*	*enterica*	Typhimurium 1.4.[5].12:-:-	Ad1333	Tiramisu	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
62	*Salmonella enterica*	*enterica*	Typhimurium 1.4.[5].12:-:1.2	Ad1335	Hen	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
63	*Salmonella enterica*	*enterica*	Typhimurium 1.4.[5].12:i:-	Ad1334	Processed pork meat	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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64	*Salmonella enterica*	*enterica*	Urbana	Ad501	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
65	*Salmonella enterica*	*enterica*	Venezian a	233	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
66	*Salmonella enterica*	*enterica*	Weltevreden	Ad2336	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
67	*Salmonella enterica*	*enterica*	Wien	CIP8122	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
68	*Salmonella enterica*	*enterica*	Worthington	3506	Meal product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
69	*Salmonella enterica*	*enterica*	Zanzibar	CIP107479	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
70	*Salmonella enterica*	*houtenae*	43:z4.z32	Ad597	Fish product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
71	*Salmonella enterica*	*houtenae*	50:g.z51	Ad596	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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72	*Salmonella enterica*	*indica*	1.6.14.25:a:enx	Ad600	Environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
73	*Salmonella enterica*	*indica*	11:b:e.n.x	Ad2337	Primary production environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
74	*Salmonella enterica*	*salamae*	1.13.23:gmt:enx	Ad450	Raw ewe milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
75	*Salmonella enterica*	*salamae*	42:b:enxz15	Ad593	Bean	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
76	*Salmonella bongori*	*bongori*	66:z41:-	NCTC 12419	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
77	*Salmonella bongori*	*bongori*	66:z41: - -	ATCC 43975	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
78	*Salmonella bongori*	*bongori*	66:z41:-	NCTC 10946	Amphibian; Frog	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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79	*Salmonella enterica*	*arizonae*	IIIa 51:z4,z23: -	ATCC 13314	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
80	*Salmonella enterica*	*arizonae*	41:z4,z23: -	ATCC BAA-1577	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
81	*Salmonella enterica*	*arizonae*		QL11007-4	Ground Beef	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
82	*Salmonella enterica*	*arizonae*	62:z4,z23: - -	QL2016.61	Meat Sample	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
83	*Salmonella enterica*	*arizonae*	62:z36: - -	QL2016.62	Meat Sample	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
84	*Salmonella enterica*	*diarizonae*		ATCC BAA-1579	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
85	*Salmonella enterica*	*diarizonae*	IIIb 35:i:z	ATCC BAA-216	Human Blood	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
86	*Salmonella enterica*	*diarizonae*	61:1,v:1,5,(7)	ATCC BAA-639	Human Feces	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																										
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								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
87	*Salmonella enterica*	*diarizonae*	38:(k):z35:-	QL011414.1	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
88	*Salmonella enterica*	*diarizonae*	40:g,z51:-	QL2016.56	Meat Sample	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
89	*Salmonella enterica*	*diarizonae*	40:z4,z24:[z39]	QL2016.57	Meat Sample	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
90	*Salmonella enterica*	*enterica*	Abaetetuba	ATCC 35640	Creek Water	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
91	*Salmonella enterica*	*enterica*	Abony	NCTC 6017	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
92	*Salmonella enterica*	*enterica*	Abortusequi	ATCC 9842	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
93	*Salmonella enterica*	*enterica*	Abortusovis	NCTC 10241	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
94	*Salmonella enterica*	*enterica*	Adelaide	UPENN STS2	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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95	*Salmonella enterica*	*enterica*	Agama	UPENN STS 3	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
96	*Salmonella enterica*	*enterica*	Agona	ATCC 51957	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
97	*Salmonella enterica*	*enterica*	Agoueve	UPENN STS 5	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
98	*Salmonella enterica*	*enterica*	Alachua	UPENN STS 6	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
99	*Salmonella enterica*	*enterica*	Albany	UPENN STS 7	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
100	*Salmonella enterica*	*enterica*	Anatum	ATCC 9270	Pork Liver	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
101	*Salmonella enterica*	*enterica*	Arkansas	UPENN STS 11	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
102	*Salmonella enterica*	*enterica*	Bareilly	FDA 1206H	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
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103	*Salmonella enterica*	*enterica*	Bareilly	UPENN STS 12	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
104	*Salmonella enterica*	*enterica*	Berta	UPENN STS 13	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
105	*Salmonella enterica*	*enterica*	Binza	UPENN STS 14	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
106	*Salmonella enterica*	*enterica*	Bovismorbificans	UPENN STS 16	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
107	*Salmonella enterica*	*enterica*	Brandenburg	UPENN STS 18	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
108	*Salmonella enterica*	*enterica*	Bredeney	NCTC 5731	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
109	*Salmonella enterica*	*enterica*	California	NCTC 6018	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
110	*Salmonella enterica*	*enterica*	Cerro	UPENN STS 22	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
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111	*Salmonella enterica*	*enterica*	Cerro	ATCC 10723	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
112	*Salmonella enterica*	*enterica*	Choleraesuis	ATCC 12011	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
113	*Salmonella enterica*	*enterica*	Cubana	UPENN STS 24	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
114	*Salmonella enterica*	*enterica*	Derby	NCTC 5721	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
115	*Salmonella enterica*	*enterica*	Drypool	UPENN STS 26	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
116	*Salmonella enterica*	*enterica*	Dublin	UPENN STS 27	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
117	*Salmonella enterica*	*enterica*	Eastbourne	FDA 4017H	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
118	*Salmonella enterica*	*enterica*	Enteritidis	UDSA 207	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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119	*Salmonella enterica*	*enterica*	Galiema	QL024.2	Environmental Isolate	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
120	*Salmonella enterica*	*enterica*	Give	UPENN STS 42	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
121	*Salmonella enterica*	*enterica*	Haardt	UPENN STS 44	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
122	*Salmonella enterica*	*enterica*	Hadar	ATCC 51956	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
123	*Salmonella enterica*	*enterica*	Havana	UPENN STS 47	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
124	*Salmonella enterica*	*enterica*	Heidelberg	NCTC 5717	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
125	*Salmonella enterica*	*enterica*	Illinois	ATCC 11646	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
126	*Salmonella enterica*	*enterica*	Indiana	NCTC 11304	Bird; Turkey	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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127	*Salmonella enterica*	*enterica*	Infantis	ATCC 51741	Pasta	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
128	*Salmonella enterica*	*enterica*	Javiana	ATCC 10721	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
129	*Salmonella enterica*	*enterica*	Jerusalem	QL024.12	Environmental Isolate	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
130	*Salmonella enterica*	*enterica*	Johannesburg	UPENN STS 56	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
131	*Salmonella enterica*	*enterica*	Kahla	ATCC 17980	Feces	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
132	*Salmonella enterica*	*enterica*	Kaitaan	QL024.7	Environmental Isolate	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
133	*Salmonella enterica*	*enterica*	Kentucky	ATCC 9263	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
134	*Salmonella enterica*	*enterica*	Krefeld	UPENN STS 58	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
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135	*Salmonella enterica*	*enterica*	Lille	UPENN STS 59	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
136	*Salmonella enterica*	*enterica*	Livingstone	QL091313.1	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
137	*Salmonella enterica*	*enterica*	London	UPENN STS 64	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
138	*Salmonella enterica*	*enterica*	Manhattan	UPENN STS 65	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
139	*Salmonella enterica*	*enterica*	Mbandaka	QL11031.1	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
140	*Salmonella enterica*	*enterica*	Neasden	QL024.4	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
141	*Salmonella enterica*	*enterica*	Newington	QL0248	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
142	*Salmonella enterica*	*enterica*	Saintpaul	ATCC 9712	Cystits, Panama	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
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143	*Salmonella enterica*	*enterica*	Utrect	NCTC 10077	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
144	*Salmonella enterica*	*enterica*	Vellore	ATCC 15611	Rectal Swab	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
145	*Salmonella enterica*	*enterica*	Virchow	ATCC 51955	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
146	*Salmonella enterica*	*enterica*	Westhampton	QL 024.14	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
147	*Salmonella enterica*	*enterica*	Jamaica	QL 245478-2	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
148	*Salmonella enterica*	*enterica*	Ruiru	QL 243995-8	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
149	*Salmonella enterica*	*enterica*	Sylvania	QL 227400-196	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
150	*Salmonella enterica*	*salamae*	56:b:-	ATCC 700149	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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Total	N								150			150			150			150			150			150	
	PA								150			150			150			150			149			149	
	ND								0			0			0			0			0			0	
	NA								0			0			0			0			0			0	
	NA (no growth)								0			0			0			0			1			1	
	PD								0			0			0			0			0			0	

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1	*Salmonella enterica*	*enterica*	Blockley	Ad923	Hen	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
2	*Salmonella enterica*	*enterica*	Brazzaville	CIP54141	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
3	*Salmonella enterica*	*enterica*	Caracas	Ad2322	Spices	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
4	*Salmonella enterica*	*enterica*	Carrau	CIP105619	Pork	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
5	*Salmonella enterica*	*enterica*	Corvallis	CIP105342	Poultry	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
6	*Salmonella enterica*	*enterica*	Cremieu	230	Hare	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
7	*Salmonella enterica*	*enterica*	Duisburg	42	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
8	*Salmonella enterica*	*enterica*	Emek	Ad333	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
9	*Salmonella enterica*	*enterica*	Essen	38	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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10	*Salmonella enterica*	*enterica*	Falkensee	693	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
11	*Salmonella enterica*	*enterica*	Gallinarum biovar pullorum	Ad300	Poultry environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
12	*Salmonella enterica*	*enterica*	Gaminara (16:d:1.7)	Ad2324	Boar	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
13	*Salmonella enterica*	*enterica*	Garoli	CIP54139	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
14	*Salmonella enterica*	*enterica*	Grumpensis	CIP105621	Guinea pig	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
15	*Salmonella enterica*	*enterica*	Guinea	29	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
16	*Salmonella enterica*	*enterica*	Hessarek	CIP54140	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
17	*Salmonella enterica*	*enterica*	Hvittingfoss (16:b:e.n.x)	Ad2325	Seafood product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
18	*Salmonella enterica*	*enterica*	Kedougou	Ad929	Chocolate pastry	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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19	*Salmonella enterica*	*enterica*	Kottbus	1	Poultry environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
20	*Salmonella enterica*	*enterica*	Lagos	173	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
21	*Salmonella enterica*	*enterica*	Landau	Ad499	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
22	*Salmonella enterica*	*enterica*	Leipzig	CIP105624	Wastewater	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
23	*Salmonella enterica*	*enterica*	Luciana	CIP105626	Clinical sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
24	*Salmonella enterica*	*enterica*	Maracaibo	CIP54143	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
25	*Salmonella enterica*	*enterica*	Marseille	CIP105627	Human	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
26	*Salmonella enterica*	*enterica*	Mbandaka	Ad914	Mayonnaise	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
27	*Salmonella enterica*	*enterica*	Meleagridis	505	Raw milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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28	*Salmonella enterica*	*enterica*	Mikawasima	CIP107220	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
29	*Salmonella enterica*	*enterica*	Minnesota	CIP105628	Turkey	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
30	*Salmonella enterica*	*enterica*	Mkamba	Ad1544	Compost	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
31	*Salmonella enterica*	*enterica*	Montevideo	Ad912	Raw milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
32	*Salmonella enterica*	*enterica*	Muenchen	CIP106178	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
33	*Salmonella enterica*	*enterica*	Muenster	CIP107859	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
34	*Salmonella enterica*	*enterica*	Napoli	Ad928	Animal clinic	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
35	*Salmonella enterica*	*enterica*	Newport	540	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
36	*Salmonella enterica*	*enterica*	Norwich	Ad1172	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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37	*Salmonella enterica*	*enterica*	Ohio	Ad1482	Raw milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
38	*Salmonella enterica*	*enterica*	Oranienburg	Ad 1724	Cereal	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
39	*Salmonella enterica*	*enterica*	Orion	27	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
40	*Salmonella enterica*	*enterica*	Ovakam	Ad1647	Compost	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
41	*Salmonella enterica*	*enterica*	Panama	882	Sausage	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
42	*Salmonella enterica*	*enterica*	Paratyphi A	ATCC11511	/	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
43	*Salmonella enterica*	*enterica*	Paratyphi B	Ad301	Clinical sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
44	*Salmonella enterica*	*enterica*	Paratyphi B var java	CIP56.26	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
45	*Salmonella enterica*	*enterica*	Paratyphi C	ATCC13428	/	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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46	*Salmonella enterica*	*enterica*	Pomona	CIP105630	Cock	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
47	*Salmonella enterica*	*enterica*	Poona	CIP107125	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
48	*Salmonella enterica*	*enterica*	Putten	Ad2331	Feeding stuff	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
49	*Salmonella enterica*	*enterica*	Regent	328	Duck	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
50	*Salmonella enterica*	*enterica*	Rissen	39	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
51	*Salmonella enterica*	*enterica*	Rubislaw	Ad2332	Shark	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
52	*Salmonella enterica*	*enterica*	Salford	CIP104917	Human	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
53	*Salmonella enterica*	*enterica*	Schwarzengrund	Ad2333	Egg product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
54	*Salmonella enterica*	*enterica*	Senftenberg	Ad355	Sea food product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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55	*Salmonella enterica*	*enterica*	Stanley	CIP106163	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
56	*Salmonella enterica*	*enterica*	Sternschanze	Ad500	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
57	*Salmonella enterica*	*enterica*	Strasbourg	CIP105632	Human	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	- (no growth)	NA (no growth)	NA (no growth)
58	*Salmonella enterica*	*enterica*	Tananarive	CIP54142	Pork	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
59	*Salmonella enterica*	*enterica*	Typhi	Ad302	Clinical sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	- (no growth)	NA (no growth)	NA (no growth)	+	PA	IA
60	*Salmonella enterica*	*enterica*	Typhimurium	Ad1484	Whole egg	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
61	*Salmonella enterica*	*enterica*	Typhimurium 1.4.[5].12:-:-	Ad1333	Tiramisu	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
62	*Salmonella enterica*	*enterica*	Typhimurium 1.4.[5].12:--:1.2	Ad1335	Hen	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
63	*Salmonella enterica*	*enterica*	Typhimurium 1.4.[5].12:i:-	Ad1334	Processed pork meat	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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64	*Salmonella enterica*	*enterica*	Urbana	Ad501	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
65	*Salmonella enterica*	*enterica*	Veneziana	233	Food sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
66	*Salmonella enterica*	*enterica*	Weltevreden	Ad2336	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
67	*Salmonella enterica*	*enterica*	Wien	CIP8122	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
68	*Salmonella enterica*	*enterica*	Worthington	3506	Meal product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
69	*Salmonella enterica*	*enterica*	Zanzibar	CIP107479	Human faeces	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
70	*Salmonella enterica*	*houtenae*	43:z4.z32	Ad597	Fish product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
71	*Salmonella enterica*	*houtenae*	50:g.z51	Ad596	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
72	*Salmonella enterica*	*indica*	1.6.14.25:a:enx	Ad600	Environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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73	*Salmonella enterica*	*indica*	11:b:e.n.x	Ad2337	Primary production environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
74	*Salmonella enterica*	*salamae*	1.13.23:gmt:enx	Ad450	Raw ewe milk	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
75	*Salmonella enterica*	*salamae*	42:b:enxz15	Ad593	Bean	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
76	*Salmonella bongori*	*bongori*	66:z41:-	NCTC 12419	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
77	*Salmonella bongori*	*bongori*	66:z41: - -	ATCC 43975	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
78	*Salmonella bongori*	*bongori*	66:z41:-	NCTC 10946	Amphibian; Frog	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
79	*Salmonella enterica*	*arizonae*	IIIa 51:z4,z23:-	ATCC 13314	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
80	*Salmonella enterica*	*arizonae*	41:z4,z23:-	ATCC BAA-1577	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
81	*Salmonella enterica*	*arizonae*		QL11007-4	Ground Beef	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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82	*Salmonella enterica*	*arizonae*	62:z4,z23: - -	QL2016.61	Meat Sample	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
83	*Salmonella enterica*	*arizonae*	62:z36: - -	QL2016.62	Meat Sample	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
84	*Salmonella enterica*	*diarizonae*		ATCC BAA-1579	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
85	*Salmonella enterica*	*diarizonae*	IIIb 35:i:z	ATCC BAA-216	Human Blood	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
86	*Salmonella enterica*	*diarizonae*	61:1,v:1,5,(7)	ATCC BAA-639	Human Feces	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
87	*Salmonella enterica*	*diarizonae*	38:(k):z35:-	QL011414.1	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
88	*Salmonella enterica*	*diarizonae*	40:g,z51:- -	QL2016.56	Meat Sample	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
89	*Salmonella enterica*	*diarizonae*	40:z4,z24:[z39]	QL2016.57	Meat Sample	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
90	*Salmonella enterica*	*enterica*	Abaetetuba	ATCC 35640	Creek Water	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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91	*Salmonella enterica*	*enterica*	Abony	NCTC 6017	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
92	*Salmonella enterica*	*enterica*	Abortusequi	ATCC 9842	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
93	*Salmonella enterica*	*enterica*	Abortusovis	NCTC 10241	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
94	*Salmonella enterica*	*enterica*	Adelaide	UPENN STS 2	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
95	*Salmonella enterica*	*enterica*	Agama	UPENN STS 3	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
96	*Salmonella enterica*	*enterica*	Agona	ATCC 51957	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
97	*Salmonella enterica*	*enterica*	Agoueve	UPENN STS 5	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
98	*Salmonella enterica*	*enterica*	Alachua	UPENN STS 6	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
99	*Salmonella enterica*	*enterica*	Albany	UPENN STS 7	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																										
Target Strain							Reference method	Alternative method																		
								LT/SH MALDI-smart System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
100	*Salmonella enterica*	*enterica*	Anatum	ATCC 9270	Pork Liver	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
101	*Salmonella enterica*	*enterica*	Arkansas	UPENN STS 11	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
102	*Salmonella enterica*	*enterica*	Bareilly	FDA 1206H	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
103	*Salmonella enterica*	*enterica*	Bareilly	UPENN STS 12	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
104	*Salmonella enterica*	*enterica*	Berta	UPENN STS 13	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
105	*Salmonella enterica*	*enterica*	Binza	UPENN STS 14	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
106	*Salmonella enterica*	*enterica*	Bovismorbificans	UPENN STS 16	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
107	*Salmonella enterica*	*enterica*	Brandenburg	UPENN STS 18	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
108	*Salmonella enterica*	*enterica*	Bredeney	NCTC 5731	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																										
Target Strain							Reference method	Alternative method																		
								LT/SH MALDI-smart System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
109	*Salmonella enterica*	*enterica*	California	NCTC 6018	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
110	*Salmonella enterica*	*enterica*	Cerro	UPENN STS 22	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
111	*Salmonella enterica*	*enterica*	Cerro	ATCC 10723	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
112	*Salmonella enterica*	*enterica*	Choleraesuis	ATCC 12011	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
113	*Salmonella enterica*	*enterica*	Cubana	UPENN STS 24	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
114	*Salmonella enterica*	*enterica*	Derby	NCTC 5721	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
115	*Salmonella enterica*	*enterica*	Drypool	UPENN STS 26	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
116	*Salmonella enterica*	*enterica*	Dublin	UPENN STS 27	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
117	*Salmonella enterica*	*enterica*	Eastbourne	FDA 4017H	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																										
Target Strain							Reference method	Alternative method																		
								LT/SH MALDI-smart System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
118	*Salmonella enterica*	*enterica*	Enteritidis	UDSA 207	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
119	*Salmonella enterica*	*enterica*	Galiema	QL024.2	Environmental Isolate	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
120	*Salmonella enterica*	*enterica*	Give	UPENN STS 42	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
121	*Salmonella enterica*	*enterica*	Haardt	UPENN STS 44	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
122	*Salmonella enterica*	*enterica*	Hadar	ATCC 51956	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
123	*Salmonella enterica*	*enterica*	Havana	UPENN STS 47	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
124	*Salmonella enterica*	*enterica*	Heidelberg	NCTC 5717	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
125	*Salmonella enterica*	*enterica*	Illinois	ATCC 11646	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
126	*Salmonella enterica*	*enterica*	Indiana	NCTC 11304	Bird; Turkey	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																									
Target Strain							Reference method	Alternative method																	
								LT/SH MALDI-smart System																	
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
127	*Salmonella enterica*	*enterica*	Infantis	ATCC 51741	Pasta	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
128	*Salmonella enterica*	*enterica*	Javiana	ATCC 10721	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
129	*Salmonella enterica*	*enterica*	Jerusalem	QL024.12	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
130	*Salmonella enterica*	*enterica*	Johannesburg	UPENN STS 56	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
131	*Salmonella enterica*	*enterica*	Kahla	ATCC 17980	Feces	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
132	*Salmonella enterica*	*enterica*	Kaitaan	QL024.7	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
133	*Salmonella enterica*	*enterica*	Kentucky	ATCC 9263	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
134	*Salmonella enterica*	*enterica*	Krefeld	UPENN STS 58	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
135	*Salmonella enterica*	*enterica*	Lille	UPENN STS 59	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																										
Target Strain							Reference method	Alternative method																		
								LT/SH MALDI-smart System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
136	*Salmonella enterica*	*enterica*	Livingstone	QL09131 3.1	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
137	*Salmonella enterica*	*enterica*	London	UPENN STS 64	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
138	*Salmonella enterica*	*enterica*	Manhattan	UPENN STS 65	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
139	*Salmonella enterica*	*enterica*	Mbandaka	QL11031.1	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
140	*Salmonella enterica*	*enterica*	Neasden	QL024.4	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
141	*Salmonella enterica*	*enterica*	Newington	QL0248	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
142	*Salmonella enterica*	*enterica*	Saintpaul	ATCC 9712	Cystits, Panama	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
143	*Salmonella enterica*	*enterica*	Utrect	NCTC 10077	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
144	*Salmonella enterica*	*enterica*	Vellore	ATCC 15611	Rectal Swab	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																										
Target Strain							Reference method	Alternative method																		
								LT/SH MALDI-smart System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
145	*Salmonella enterica*	*enterica*	Virchow	ATCC 51955	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
146	*Salmonella enterica*	*enterica*	Westhampton	QL 024.14	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
147	*Salmonella enterica*	*enterica*	Jamaica	QL 245478-2	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
148	*Salmonella enterica*	*enterica*	Ruiru	QL 243995-8	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
149	*Salmonella enterica*	*enterica*	Sylvania	QL 227400-196	Environmental Isolate	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
150	*Salmonella enterica*	*salamae*	56:b:-	ATCC 700149	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
Total	N								150			150			150			150			150			150	
	PA								150			150			150			150			149			149	
	ND								0			0			0			0			0			0	
	NA								0			0			0			0			0			0	
	NA (no growth)								0			0			0			0			1			1	

INCLUSIVITY																													
Target Strain							Reference method	Alternative method																					
								LT/SH MALDI-smart System																					
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP					
N	Species	Sub species	Serotype	Reference	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation				
	PD								0			0			0			0			0			0					

Annex E - Results exclusivity study: Original Study

NOIP: NO Organism Identification Possible

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Reference	rDNA sequencing	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
1	*Acinetobacter*	*johnsonii*	Ad1317		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
2	*Aeromonas*	*bestiarum*	CIP74.30		Fish	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
3	*Aeromonas*	*hydrophila*	Ad1570		Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Reference	rDNA sequencing	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
4	*Aeromonas*	*punctata*	Ad1517		Whole liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
5	*Aeromonas*	*salmonicida*	Ad1319		Whole liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
6	*Buttiauxella*	*agrestis*	Ad1320		Whole liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
7	*Buttiauxella*	*noackiae*	Ad1325		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
8	*Citrobacter*	*diversus*	147		Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Reference	rDNA sequencing	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
9	*Citrobacter*	*braakii*	Ad2701		Rings of squid	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
10	*Citrobacter*	*freundii*	104		Ground beef	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
11	*Citrobacter*	*freundii*	24		Sea food	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
12	*Citrobacter*	*freundii*	25		Spinach	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
13	*Citrobacter*	*gillenii*	Ad343		Unknown	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA
14	*Citrobacter*	*farmeri*	Ad1116		Environmental sample (egg)	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System																	
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
N	Species	Sub species	Reference	rDNA sequencing	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
15	*Comamonas*	*aquatica*	Ad1543		Environmental sample	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
16	*Cronobacter*	*sakazakii*	Ad1418		Infant formula	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
17	*Enterobacter*	*aerogenes*	Ad889		Beef flour	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
18	*Pantoea*	*agglomerans*	Ad877		Unknown	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
19	*Enterobacter*	*agglomerans*	117	*Klebsiella pneumoniae*	Broccoli	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System																		
								NA			XLD			BGA			RAPID'*Salmonella*			*Brilliance* Salmonella			ASAP		
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20	*Enterobacter*	*cloacae*	10	*Enterobacter nimipressuralis / aerogenes*	Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
21	*Enterobacter*	*cloacae*	148		Ready to reheat (paella)	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
22	*Enterobacter*	*hormaechei*	Ad990		Butter	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
23	*Enterobacter*	*kobei*	Ad342	*Enterobacter kobei*	Ham	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
24	*Enterobacter*	*hormaechei*	Ad834	*Enterococcus lactis / durans*	Beef meat	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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25	*Escherichia*	*fergusonii*	Ad1381		Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
26	*Escherichia*	*fergusonii*	2876		Environmental sample	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
27	*Escherichia*	*hermannii*	Ad457		Spinach	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
28	*Klebsiella*	*oxytoca*	Ad1509		Milk powder	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
29	*Hafnia*	*alvei*	130		Raw milk cheese	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
30	*Kluyvera*	*intermedia*	88a		Gizzards	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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31	*Leclercia*	*adecarboxylata*	Ad707		Milk powder	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
32	*Plesiomonas*	*shigelloïdes*	Ad673		Fish	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
33	*Providencia*	*rettgeri*	112		White liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
34	*Providencia*	*stuartii*	46		Turkey thigh	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
35	*Providencia*	*stuartii*	Ad1575		River water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
36	*Pseudomonas*	*fragi*	Ad1327		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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37	*Pseudomonas*	*putida*	Ad1331		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
38	*Pseudomonas*	*veronii*	Ad1588		Environmental sample	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
39	*Raoultella*	*terrigena*	Ad1368		Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
40	*Ralstonia*	*mannitolilytica*	Ad1059		Turkey skin	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
41	*Serratia*	*ficaria*	113		Salad	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
42	*Serratia*	*fonticola*	Ad1696		Salmon	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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43	*Serratia*	*liquefaciens*	87a		Gizzard	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
44	*Serratia*	*marcescens*	Ad447		Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
45	*Serratia*	*marcescens*	Ad454		Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
46	*Serratia*	*proteamaculans*	Ad1697		Salmon	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
47	*Stenotrophomonas*	*maltophilia*	Ad720		Unknown	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)

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48	*Yersinia*	*enterocolitica*	A00C066		Cockerel	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
49	*Yersinia*	*intermedia*	33	*Yersinia intermedia / kristenseni*	Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
50	*Lelliottia*	*amnigena*	52		Beans	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
51	*Aeromonas*	*hydrophila*	ATCC 49140		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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52	*Aerococcus*	*viridans*	QL 17041.8		Raw Milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
53	*Citrobacter*	*amolanaticus*	ATCC 25407		Feces	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
54	*Citrobacter*	*braakii*	ATCC 43162		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
55	*Citrobacter*	*farmeri*	ATCC 51633		Human Feces	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
56	*Citrobacter*	*freundii*	QL 11007-10		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
57	*Citrobacter*	*youngae*	ATCC 11102		Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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58	*Cronobacter*	*malonaticus*	QL17031.3		Infant formula	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
59	*Cronobacter*	*malonaticus*	QL123015-1A		Rice flour	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
60	*Cronobacter*	*sakazakii*	QL17031.4		Infant formula	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
61	*Cronobacter*	*sakazakii*	ATCC51329		Rice flour	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
62	*Edwardsiella*	*tarda*	QL11007-11		Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
63	*Enterobacter*	*aerogenes*	ATCC35029		Not Available	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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64	*Enterobacter*	*amnigenus*	ATCC 51816		Milk	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
65	*Enterobacter*	*cancerogenus*	QL11010.1	*Shigella, Escherichia, Enterobacter*	Bottled Water	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
66	*Enterobacter*	*cloacae*	ATCC 23355		*Spinal Fluid*	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
67	*Enterococcus*	*faecalis*	ATCC 51299		Peritonela fluid	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
68	*Enterococcus*	*faecium*	ATCC 8459		Dairy Product	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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69	*Escherichia*	*coli*	QL 11010.2		Bottled Water	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
70	*Escherichia*	*coli O157:H7*	ATCC 43895		Raw Hamburger	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
71	*Escherichia*	*fergusonii*	ATCC 35470	*Escherichia fergusoni*	Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
72	*Escherichia*	*hermannii*	ATCC 33651		Human Arm Wound	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
73	*Escherichia*	*vulneris*	ATCC 29943	*Enterobacter*	Human Wound	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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74	*Hafnia*	*alvei*	ATCC 51815		Milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
75	*Klebsiella*	*oxytoca*	ATCC 43165		Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
76	*Klebsiella*	*pneumoniae*	ATCC 10031		Clinical Isolate	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
77	*Lactobacillus*	*acidophilus*	ATCC 314		Not Available	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
78	*Lactobacillus*	*brevis*	ATCC 4006		Not Available	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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79	*Lactobacillus*	*casei*	ATCC 11578		Oral Cavity	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
80	*Listeria*	*innocua*	QL 32811.1		Seasoning Powder	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
81	*Listeria*	*ivanovii*	QL 030911-11		Clinical Isolate	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
82	*Listeria*	*monocytogenes*	QL 030911.10		Shellfish	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
83	*Morganella*	*morganii*	ATCC 25829		Human	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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84	*Staphylococcus*	*intermedius*	QL 030911.2		*Veterinary*	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
85	*Proteus*	*mirabilis*	QL 11007.6		*Veterinary*	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
86	*Proteus*	*vulgaris*	ATCC 6380		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
87	*Providencia*	*stuartii*	QL 11007.5		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
88	*Pseudomonas*	*aeruginosa*	ATCC 35032		Not Available	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
89	*Pseudomonas*	*extremorientalis*	QL 17041.1		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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90	*Pseudomonas*	*gessardii*	QL 1704 1.12		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
91	*Pseudomonas*	*fluorescens*	QL 1704 1.3		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
92	*Pseudomonas*	*proteolytica*	QL 1704 1.4		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
93	*Pseudomonas*	*rhodesiae*	QL 1704 1.6		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
94	*Serratia*	*marcescens*	QL 1100 7.1		Bottled Water	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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95	*Siccibacter*	*turicensis*	QL17031.7		Infant formula	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	NOIP	NA		NOIP	NA	EA
96	*Staphylococcus*	*aureus*	QL030911.4		Seasoning Powder	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
97	*Staphylococcus*	*epidermidis*	QL030911.1		Clinical Isolate	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
98	*Staphylococcus*	*chromogenes*	QL17041.10		Raw milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
99	*Staphylococcus*	*sciuri*	QL17041.9		Raw milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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100	*Vibrio*	*vulnificus*	QL021111A		Seafood Product	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
Total	N								100			100			100			100			100			100	
	PA								0			0			0			0			0			0	
	ND								0			0			0			0			0			0	
	NA								100			67			77			61			57			63	
	NA (no growth)								0			33			23			39			43			37	
	PD								0			0			0			0			0			0	

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1	*Acinetobacter*	*johnsonii*	Ad1317		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
2	*Aeromonas*	*bestiarum*	CIP74.30		Fish	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
3	*Aeromonas*	*hydrophila*	Ad1570		Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
4	*Aeromonas*	*punctata*	Ad1517		Whole liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
5	*Aeromonas*	*salmonicida*	Ad1319		Whole liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
6	*Buttiauxella*	*agrestis*	Ad1320		Whole liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
7	*Buttiauxella*	*noackiae*	Ad1325		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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8	*Citrobacter*	*diversus*	147		Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
9	*Citrobacter*	*braakii*	Ad2701		Rings of squid	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
10	*Citrobacter*	*freundii*	104		Ground beef	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
11	*Citrobacter*	*freundii*	24		Sea food	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
12	*Citrobacter*	*freundii*	25		Spinach	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
13	*Citrobacter*	*gillenii*	Ad343		Unknown	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA
14	*Citrobacter*	*farmeri*	Ad1116		Environmental sample (egg)	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
15	*Comamonas*	*aquatica*	Ad1543		Environmental sample	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
16	*Cronobacter*	*sakazakii*	Ad1418		Infant formula	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
17	*Enterobacter*	*aerogenes*	Ad889		Beef flour	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
18	*Pantoea*	*agglomerans*	Ad877		Unknown	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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19	*Enterobacter*	*agglomerans*	117	*Klebsiella pneumoniae*	Broccoli	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
20	*Enterobacter*	*cloacae*	10	*Enterobacter nimipressuralis / aerogenes*	Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
21	*Enterobacter*	*cloacae*	148		Ready to reheat (paella)	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
22	*Enterobacter*	*hormaechei*	Ad990		Butter	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
23	*Enterobacter*	*kobei*	Ad342	*Enterobacter kobei*	Ham	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
24	*Enterobacter*	*hormaechei*	Ad834	*Enterococcus lactis / durans*	Beef meat	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
25	*Escherichia*	*fergusonii*	Ad1381		Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
26	*Escherichia*	*fergusonii*	2876		Environmental sample	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
27	*Escherichia*	*hermannii*	Ad457		Spinach	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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28	*Klebsiella*	*oxytoca*	Ad1509		Milk powder	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
29	*Hafnia*	*alvei*	130		Raw milk cheese	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
30	*Kluyvera*	*intermedia*	88a		Gizzards	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
31	*Leclercia*	*adecarboxylata*	Ad707		Milk powder	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
32	*Plesiomonas*	*shigelloïdes*	Ad673		Fish	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
33	*Providencia*	*rettgeri*	112		White liquid egg	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
34	*Providencia*	*stuartii*	46		Turkey thigh	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
35	*Providencia*	*stuartii*	Ad1575		River water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
36	*Pseudomonas*	*fragi*	Ad1327		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

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37	*Pseudomonas*	*putida*	Ad1331		Whole liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
38	*Pseudomonas*	*veronii*	Ad1588		Environmental sample	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
39	*Raoultella*	*terrigena*	Ad1368		Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
40	*Ralstonia*	*mannitolilytica*	Ad1059		Turkey skin	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
41	*Serratia*	*ficaria*	113		Salad	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
42	*Serratia*	*fonticola*	Ad1696		Salmon	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
43	*Serratia*	*liquefaciens*	87a		Gizzard	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
44	*Serratia*	*marcescens*	Ad447		Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
45	*Serratia*	*marcescens*	Ad454		Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

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46	*Serratia*	*proteamaculans*	Ad1697		Salmon	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
47	*Stenotrophomonas*	*maltophilia*	Ad720		Unknown	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
48	*Yersinia*	*enterocolitica*	A00C066		Cockerel	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
49	*Yersinia*	*intermedia*	33	*Yersinia intermedia / kristensenii*	Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
50	*Lelliottia*	*amnigena*	52		Beans	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
51	*Aeromonas*	*hydrophila*	ATCC 49140		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-smart System																	
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP		
N	Species	Subspecies	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
52	*Aerococcus*	*viridans*	QL 17041.8		Raw Milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
53	*Citrobacter*	*amolanaticus*	ATCC 25407		Feces	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
54	*Citrobacter*	*braakii*	ATCC 43162		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
55	*Citrobacter*	*farmeri*	ATCC 51633		Human Feces	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
56	*Citrobacter*	*freundii*	QL 11007-10		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
57	*Citrobacter*	*youngae*	ATCC 11102		Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
58	*Cronobacter*	*malonaticus*	QL 17031.3		Infant formula	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
59	*Cronobacter*	*malonaticus*	QL 123015-1A		Rice flour	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
60	*Cronobacter*	*sakazakii*	QL 17031.4		Infant formula	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-smart System																	
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP		
N	Species	Subspecies	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
61	*Cronobacter*	*sakazakii*	ATCC 51329		Rice flour	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
62	*Edwardsiella*	*tarda*	QL 11007-11		Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
63	*Enterobacter*	*aerogenes*	ATCC 35029		Not Available	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
64	*Enterobacter*	*amnigenus*	ATCC 51816		Milk	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
65	*Enterobacter*	*cancerogenus*	QL11010.1	*Shigella, Escherichia, Enterobacter*	Bottled Water	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
66	*Enterobacter*	*cloacae*	ATCC 23355		*Spinal Fluid*	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
67	*Enterococcus*	*faecalis*	ATCC 51299		Peritonela fluid	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-smart System																		
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP		
N	Species	Sub species	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
68	*Enterococcus*	*faecium*	ATCC 8459		Dairy Product	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
69	*Escherichia*	*coli*	QL 11010.2		Bottled Water	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
70	*Escherichia*	*coli O157:H7*	ATCC 43895		Raw Hamburger	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
71	*Escherichia*	*fergusonii*	ATCC 35470	*Escherichia fergusonii*	Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
72	*Escherichia*	*hermannii*	ATCC 33651		Human Arm Wound	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
73	*Escherichia*	*vulneris*	ATCC 29943	*Enterobacter*	Human Wound	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
74	*Hafnia*	*alvei*	ATCC 51815		Milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
75	*Klebsiella*	*oxytoca*	ATCC 43165		Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-smart System																	
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP		
N	Species	Sub species	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
76	*Klebsiella*	*pneumoniae*	ATCC 10031		Clinical Isolate	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
77	*Lactobacillus*	*acidophilus*	ATCC 314		Not Available	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
78	*Lactobacillus*	*brevis*	ATCC 4006		Not Available	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
79	*Lactobacillus*	*casei*	ATCC 11578		Oral Cavity	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
80	*Listeria*	*innocua*	QL 32811.1		Seasoning Powder	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
81	*Listeria*	*ivanovii*	QL 03091 1-11		Clinical Isolate	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
82	*Listeria*	*monocytogenes*	QL 03091 1.10		Shellfish	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-smart System																	
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP		
N	Species	Subspecies	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
83	*Morganella*	*morganii*	ATCC 25829		Human	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
84	*Staphylococcus*	*intermedius*	QL 030911.2		*Veterinary*	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
85	*Proteus*	*mirabilis*	QL 11007.6		*Veterinary*	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
86	*Proteus*	*vulgaris*	ATCC 6380		Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
87	*Providencia*	*stuartii*	QL 11007.5		Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
88	*Pseudomonas*	*aeruginosa*	ATCC 35032		Not Available	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
89	*Pseudomonas*	*extremorientialis*	QL 17041.1		Raw milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
90	*Pseudomonas*	*gessardii*	QL 17041.12		Raw milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-smart System																	
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP		
N	Species	Sub species	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
91	*Pseudomonas*	*fluorescens*	QL 17041.3		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
92	*Pseudomonas*	*proteolytica*	QL 17041.4		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
93	*Pseudomonas*	*rhodesiae*	QL 17041.6		Raw milk	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
94	*Serratia*	*marcescens*	QL 11007.1		Bottled Water	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
95	*Siccibacter*	*turicensis*	QL 17031.7		Infant formula	Q Labs	-	-	NA	EA	NOIP	NA	EA	NOIP	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
96	*Staphylococcus*	*aureus*	QL 030911.4		Seasoning Powder	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
97	*Staphylococcus*	*epidermidis*	QL 030911.1		Clinical Isolate	Q Labs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																											
Non-target strain							Reference method	Alternative method																			
								LT/SH MALDI-smart System																			
								NA			XLD			BGA			RAPID'Salmonella			Brilliance Salmonella			ASAP			
N	Species	Subspecies	Reference	*rDNA sequencing*	Origin	Lab		Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation	Final result (+/-)	Alternative method confirmation compared to identity of the strain	Final Interpretation
98	*Staphylococcus*	*chromogenes*	QL17041.10		Raw milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
99	*Staphylococcus*	*sciuri*	QL17041.9		Raw milk	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
100	*Vibrio*	*vulnificus*	QL021111A		Seafood Product	QLabs	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
Total	N								100			100			100			100			100			100	
	PA								0			0			0			0			0			0	
	ND								0			0			0			0			0			0	
	NA								100			67			77			61			57			63	
	NA (no growth)								0			33			23			39			43			37	
	PD								0			0			0			0			0			0	

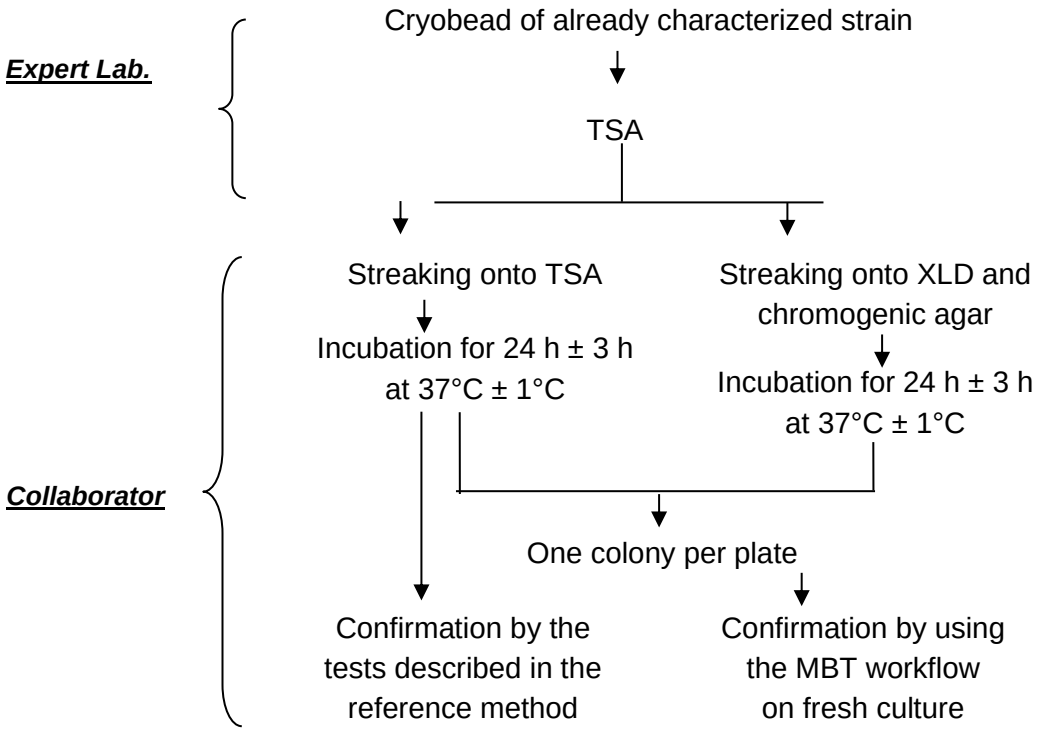
Annex F - List of collaborators

Laboratory	Street	Town	ZIP	Country
AGROLAB-Labor GmbH - GmbH - Chem. Untersuchungslaboratorium - Dr. Blasy - Dr. Busse	Moosstr. 6 a	Eching	82279	Germany
ALS	Unit 7-8 Aspen Court	Rotherham	S60 1FB	United-Kingdom
CCFRA	Station Road Chipping Campden	Gloucestershire	GL55 6LD	United-Kingdom
Eurofins	11 rue Pierre Adolphe Bobierre	Nantes	44323	France
Eurofins	i54 Business Park, Valiant Way, Coven,	Wolverhampton	WV9 5GB	United-Kingdom
Eurofins CLF Specialised Nutrition Testing Services GmbH	Professor-Wagner-Str. 11	Friedrichsdorf	61381	Germany
GD Animal Health	Arnsbergstraat 7	Deventer	7400AA	Netherlands
Groupe CARSO	4 avenue Jean Moulin - CS 30228	Vénissieux Cedex	69633	France
Institut Scientifique de Santé Publique	Juliette Wytsmanstraat 14	Brussels	1050	Belgique
Intertek Food Services GmbH - Standort Bremen	Olof-Palme-Straße 8	Bremen	28719	Germany
LABEO	1352 avenue de Paris – CS 33608	Saint Lô	50008	France
LABOCEA	Avenue de la Plage des Gueux	Quimper	29000	France
LASAT	Plateau technique de microbiologie des aliments ZI Montplaisir	Champdeniers	79220	France
Max Rubner-Institut - Bundesforschungsinstitut für Ernährung und Lebensmittel - Standort Kulmbach	E.-C.-Baumann-Str. 20	Kulmbach	95326	Germany
Nederlandse Voedsel en Waren Autoriteit (VWA)	Akkermaalsbos 2	Wageningen	6708 WB (PO box 144,6700AC)	The Netherlands

Annex L - List of strains:
List of strains tested in the interlaboratory study

	Salmonella spp.
Target strains	*Salmonella* Agona A00V038
	Salmonella Brandenburg Ad351
	Salmonella Cerro Ad1173
	Salmonella Derby Ad1337
	Salmonella Dublin Ad1336
	Salmonella Enteritidis Ad 2539
	Salmonella Infantis Ad2646
	Salmonella Kentucky Ad1756
	Salmonella Montevideo Ad912
	Salmonella Napoli Ad928
	Salmonella Newport 540
	Salmonella Panama Ad1733
	Salmonella Saintpaul A00C002
	Salmonella Stourbridge Ad2297
	Salmonella Typhimurium Ad1484
	Salmonella Virchow F276
Non-target strains	*Aeromonas hydrophila* Ad1570
	Citrobacter braakii Ad2701
	Cronobacter sakazakii Ad1418
	Escherichia hermanii Ad457
	Plesiomonas shigelloïdes Ad673
	Providencia stuartii Ad1575
	Serratia marcescens Ad447
	Yersinia enterocolitica A00C066

Annex M - *Salmonella* spp. testing at the genus level



Annex G - Raw data interlaboratory study

See Excel File: 2017LR73 - Microval MCS & ILS Salmonella (Version 2).xlsx; Tab « Raw data ILS »

Annex O – Extension for CASE Agar Raw Data from Campden BRI

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
1	*Salmonella enterica*	*enterica*	Abaetetuba	1268	NCTC 8244, unknown	+	PA	+	PA	+	PA
2	*Salmonella enterica*	*enterica*	Abony	1270	NCTC 6017, unknown	+	PA	+	PA	+	PA
3	*Salmonella enterica*	*enterica*	Abortusequi	7046	industrial	+	PA	+	PA	+	PA
4	*Salmonella enterica*	*enterica*	Adelaide	1271	NCTC 6586, unknown	+	PA	+	PA	+	PA
5	*Salmonella enterica*	*enterica*	Africana	2002	industrial	+	PA	+	PA	+	PA
6	*Salmonella enterica*	*enterica*	Agama	1419	meat	+	PA	+	PA	+	PA
7	*Salmonella enterica*	*enterica*	Agona	1050	chicken	+	PA	+	PA	+	PA
8	*Salmonella enterica*	*enterica*	Alachua	1274	abattoir	+	PA	+	PA	+	PA
9	*Salmonella enterica*	*enterica*	Albany	1275	NCTC 9869, unknown	+	PA	+	PA	+	PA
10	*Salmonella enterica*	*enterica*	Albuquerque	1276	irrigation water	+	PA	+	PA	+	PA
11	*Salmonella enterica*	*enterica*	Amsterdam	5467	PHE	+	PA	+	PA	+	PA
12	*Salmonella enterica*	*enterica*	Anatum	1060	egg	+	PA	+	PA	+	PA
13	*Salmonella enterica*	*enterica*	Anfo	1420	African box meat	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
14	*Salmonella enterica*	*enterica*	Arkansas	3608	chicken giblets	+	PA	+	PA	+	PA
15	*Salmonella enterica*	*enterica*	Ball	1288	NCTC 9870, clinical	+	PA	+	PA	+	PA
16	*Salmonella enterica*	*enterica*	Banana	1289	NCTC 8718, clinical	+	PA	+	PA	+	PA
17	*Salmonella enterica*	*enterica*	Bareilly	1291	clinical	+	PA	+	PA	+	PA
18	*Salmonella enterica*	*enterica*	Barry	1651	chicken giblets	+	PA	+	PA	+	PA
19	*Salmonella enterica*	*enterica*	Berta	1067	uncooked chicken	+	PA	+	PA	+	PA
20	*Salmonella enterica*	*enterica*	Binza	1436	dried spice	+	PA	+	PA	+	PA
21	*Salmonella enterica*	*enterica*	Blockley	1087	fresh chicken	+	PA	+	PA	+	PA
22	*Salmonella enterica*	*enterica*	Bovismorbificans	16362	industrial	+	PA	+	PA	+	PA
23	*Salmonella enterica*	*enterica*	Brazzaville	1310	NCTC 9900, unknown	+	PA	+	PA	+	PA
24	*Salmonella enterica*	*enterica*	Brandenburg	1070	beef	+	PA	+	PA	+	PA
25	*Salmonella enterica*	*enterica*	Braenderup	1095	chicken	+	PA	+	PA	+	PA
26	*Salmonella enterica*	*enterica*	Brazil	1309	clinical	+	PA	+	PA	+	PA
29	*Salmonella enterica*	*enterica*	Bredeney	1075	fish meal	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
27	*Salmonella enterica*	*enterica*	Budapest	1314	NCTC 5724, unknown	+	PA	+	PA	+	PA
28	*Salmonella enterica*	*enterica*	Butantan	1316	gastroenteritis	+	PA	+	PA	+	PA
29	*Salmonella enterica*	*enterica*	California	1421	chicken	+	PA	+	PA	+	PA
30	*Salmonella enterica*	*enterica*	Caracas	1323	NCTC 8715, unknown	+	PA	+	PA	+	PA
31	*Salmonella enterica*	*enterica*	Carmel	1324	NCTC 9872, clinical	+	PA	+	PA	+	PA
32	*Salmonella enterica*	*enterica*	Carrau	1325	NCTC 5794, clinical	+	PA	+	PA	+	PA
33	*Salmonella enterica*	*enterica*	Cerro	1326	NCTC 5801, unknown	+	PA	+	PA	+	PA
34	*Salmonella enterica*	*enterica*	Chudleigh	1336	Not Available	+	PA	+	PA	+	PA
35	*Salmonella enterica*	*enterica*	Clifton	1334	tortoise	+	PA	+	PA	+	PA
36	*Salmonella enterica*	*enterica*	Clerkenwell	1333	NCTC 8462, clinical	+	PA	+	PA	+	PA
37	*Salmonella enterica*	*enterica*	Concord	1339	chick liver	+	PA	+	PA	+	PA
38	*Salmonella enterica*	*enterica*	Corvallis	1341	NCTC 7830, unknown	+	PA	+	PA	+	PA
39	*Salmonella enterica*	*enterica*	Crossness	1342	sewage	+	PA	+	PA	+	PA
40	*Salmonella enterica*	*enterica*	Cubana	1343	industrial	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
41	*Salmonella enterica*	*enterica*	Dakar	1346	NCTC 9928, clinical	+	PA	+	PA	+	PA
42	*Salmonella enterica*	*enterica*	Daytona	1348	NCTC 7102, clinical	+	PA	+	PA	+	PA
43	*Salmonella enterica*	*enterica*	Derby	1352	NCTC 5721, unknown	+	PA	+	PA	+	PA
44	*Salmonella enterica*	*enterica*	Donna	1355	NCTC 7409, clinical	+	PA	+	PA	+	PA
45	*Salmonella enterica*	*enterica*	Driffield	1430	beef	+	PA	+	PA	+	PA
46	*Salmonella enterica*	*enterica*	Dugbe	1357	NCTC 10347, clinical	+	PA	+	PA	+	PA
47	*Salmonella enterica*	*enterica*	Duisburg	2001	cucumber	+	PA	+	PA	+	PA
50	*Salmonella enterica*	*enterica*	Dublin	1356	bovine	+	PA	+	PA	+	PA
51	*Salmonella enterica*	*enterica*	Durban	1359	faeces	+	PA	+	PA	+	PA
52	*Salmonella enterica*	*enterica*	Duval	1361	NCTC 9875	+	PA	+	PA	+	PA
53	*Salmonella enterica*	*enterica*	Drypool	1654	PHE	+	PA	+	PA	+	PA
58	*Salmonella enterica*	*enterica*	Ealing	1362	dried baby milk	+	PA	+	PA	+	PA
59	*Salmonella enterica*	*enterica*	Eastbourne	1363	NCTC 3378, clinical	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
54	*Salmonella enterica*	*enterica*	Eko	1655	PHE	+	PA	+	PA	+	PA
55	*Salmonella enterica*	*enterica*	Emek	1367	NCTC 8485, unknown	+	PA	+	PA	+	PA
56	*Salmonella enterica*	*enterica*	Enteritidis	1004	chicken	+	PA	+	PA	+	PA
57	*Salmonella enterica*	*enterica*	Essen	1370	NCTC 5723, unknown	+	PA	+	PA	+	PA
58	*Salmonella enterica*	*enterica*	Ezra	1371	NCTC 9917, clinical	+	PA	+	PA	+	PA
59	*Salmonella enterica*	*enterica*	Falkensee	16425	Indian onion powder	+	PA	+	PA	+	PA
60	*Salmonella enterica*	*enterica*	Florida	9282	ATCC10727, unknown	+	PA	+	PA	+	PA
61	*Salmonella enterica*	*enterica*	Frintrop	1422	animal feed	+	PA	+	PA	+	PA
62	*Salmonella enterica*	*enterica*	Gallinarum	12265	NCTC 10532, unknown	+	PA	+	PA	+	PA
63	*Salmonella enterica*	*enterica*	Give	1374	NCTC 5778, clinical	+	PA	+	PA	+	PA
64	*Salmonella enterica*	*enterica*	Goldcoast	3665	oats	+	PA	+	PA	+	PA
65	*Salmonella enterica*	*enterica*	Grampian	16110	industrial	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
66	*Salmonella enterica*	*enterica*	Haardt	1657	PHE	+	PA	+	PA	+	PA
67	*Salmonella enterica*	*enterica*	Hadar	1973	fluff sample (turkeys)	+	PA	+	PA	+	PA
68	*Salmonella enterica*	*enterica*	Havana	3004	black pepper	+	PA	+	PA	+	PA
69	*Salmonella enterica*	*enterica*	Hartford	1375	NCTC 6802, clinical	+	PA	+	PA	+	PA
70	*Salmonella enterica*	*enterica*	Heidelberg	1988	beefburger	+	PA	+	PA	+	PA
71	*Salmonella enterica*	*enterica*	Hvittingfoss (16:b:e.n.x)	1837	herbs	+	PA	+	PA	+	PA
72	*Salmonella enterica*	*enterica*	Infantis	1035	milk plant environment	+	PA	+	PA	+	PA
73	*Salmonella enterica*	*enterica*	Indiana	71	turkey	+	PA	+	PA	+	PA
74	*Salmonella enterica*	*enterica*	Inverness	1377	faeces	+	PA	+	PA	+	PA
75	*Salmonella enterica*	*enterica*	Javiana	1379	NCTC 6495, clinical	+	PA	+	PA	+	PA
76	*Salmonella enterica*	*enterica*	Jerusalem	1380	NCTC 8146, clinical	+	PA	+	PA	+	PA
77	*Salmonella enterica*	*enterica*	Johannesburg	1381	NCTC 8272, clinical	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
78	*Salmonella enterica*	*enterica*	Kedougou	1021	roast beef	+	PA	+	PA	+	PA
79	*Salmonella enterica*	*enterica*	Kentucky	1382	clinical sample	+	PA	+	PA	+	PA
80	*Salmonella enterica*	*enterica*	Kimberley	1423	beef	+	PA	+	PA	+	PA
81	Salmonella enterica	enterica	Kottbus	4179	clinical sample	+	PA	+	PA	+	PA
82	Salmonella enterica	enterica	Krefeld	1383	NCTC 9884, clinical	+	PA	+	PA	+	PA
83	Salmonella enterica	enterica	Lexington	2024	dates	+	PA	+	PA	+	PA
84	Salmonella enterica	enterica	Lille	1753	cocoa bean environment	+	PA	+	PA	+	PA
85	Salmonella enterica	enterica	Livingstone	1385	faeces	+	PA	+	PA	+	PA
86	Salmonella enterica	enterica	Locarno	1386	meat Sample	+	PA	+	PA	+	PA
87	Salmonella enterica	enterica	London	1387	clinical sample	+	PA	+	PA	+	PA
88	Salmonella enterica	enterica	Maastrict	9273	fishmeal	+	PA	+	PA	+	PA
89	Salmonella enterica	enterica	Madelia	1388	hen liver	+	PA	+	PA	+	PA
90	Salmonella enterica	enterica	Manchester	1434	flavouring	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
91	Salmonella enterica	enterica	Manhattan	1389	NCTC 6245, clinical	+	PA	+	PA	+	PA
92	Salmonella enterica	enterica	Mbandaka	16424	onion powder	+	PA	+	PA	+	PA
93	Salmonella enterica	enterica	Meleagridis	1392	NCTC 6023, clinical	+	PA	+	PA	+	PA
94	Salmonella enterica	enterica	Mississppi	1395	faeces	+	PA	+	PA	+	PA
95	Salmonella enterica	enterica	Montevideo	1031	Sunflower pellets	+	PA	+	PA	+	PA
96	Salmonella enterica	enterica	Muenchen	16292	houmous	+	PA	+	PA	+	PA
97	Salmonella enterica	enterica	Muenster	3507	herbal infusion	+	PA	+	PA	+	PA
98	Salmonella enterica	enterica	Napoli	16305	salad	+	PA	+	PA	+	PA
99	*Salmonella enterica*	*enterica*	Newbrunswick	1399	NCTC 5787	+	PA	+	PA	+	PA
100	Salmonella enterica	enterica	Newington	1400	NCTC 5785, unknown	+	PA	+	PA	+	PA
101	Salmonella enterica	enterica	Newport	1044	pork sausages	+	PA	+	PA	+	PA
102	Salmonella enterica	enterica	Norwich	1401	pig lymph nodes	+	PA	+	PA	+	PA
103	Salmonella enterica	enterica	Nottingham	16290	NCTC 7832, clinical	+	PA	+	PA	+	PA
104	Salmonella enterica	enterica	Ohio	1459	PHE	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
105	Salmonella enterica	enterica	Oranienburg	1402	clinical sample	+	PA	+	PA	+	PA
106	Salmonella enterica	enterica	Orion	1936	Food sample	+	PA	+	PA	+	PA
107	Salmonella enterica	enterica	Ouakam	1461	PHE	+	PA	+	PA	+	PA
108	Salmonella enterica	enterica	Panama	1045	pork sausage	+	PA	+	PA	+	PA
109	Salmonella enterica	enterica	Pomona	1403	turkey intestine	+	PA	+	PA	+	PA
110	Salmonella enterica	enterica	Poona	725	Human	+	PA	+	PA	+	PA
111	Salmonella enterica	enterica	Pretoria	14047	pig	+	PA	+	PA	+	PA
112	Salmonella enterica	enterica	Reading	1405	paprika	+	PA	+	PA	+	PA
113	Salmonella enterica	enterica	Rubislaw	1406	NCTC 6016, clinical	+	PA	+	PA	+	PA
114	Salmonella enterica	enterica	Saintpaul	1093	giblets	+	PA	+	PA	+	PA
115	*Salmonella enterica*	*enterica*	Sandiego	1407	Chilean sausage	+	PA	+	PA	+	PA
116	*Salmonella enterica*	*enterica*	Saphra	1463	PHE	+	PA	+	PA	+	PA
117	*Salmonella enterica*	*enterica*	Schwarzengrund	16635	industrial	+	PA	+	PA	+	PA
118	*Salmonella enterica*	*enterica*	Senftenberg	9281	ATCC 8400, unknown	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
119	*Salmonella enterica*	*enterica*	Shangani	1409	NCTC 5784, clinical	+	PA	+	PA	+	PA
120	*Salmonella enterica*	*enterica*	Solt	1569	clinical	+	PA	+	PA	+	PA
121	*Salmonella enterica*	*enterica*	Stanley	1057	boiled ham	+	PA	+	PA	+	PA
122	*Salmonella enterica*	*enterica*	Sundsvall	1410	NCTC 6758	+	PA	+	PA	+	PA
123	*Salmonella enterica*	*enterica*	Tallahassee	16285	watercress	+	PA	+	PA	+	PA
124	*Salmonella enterica*	*enterica*	Telelkebir	1577	cocoa bean	+	PA	+	PA	+	PA
125	*Salmonella enterica*	*enterica*	Tennesee	3944	sesame seeds	+	PA	+	PA	+	PA
126	*Salmonella enterica*	*enterica*	Thompson	1081	pork	+	PA	+	PA	+	PA
127	*Salmonella enterica*	*enterica*	Typhimurium	1008	pork	+	PA	+	PA	+	PA
128	*Salmonella enterica*	*enterica*	Typhimurium 4:i:- monophasic+D145	17295	industrial	+	PA	+	PA	+	PA
129	*Salmonella enterica*	*enterica*	Uccle	1416	NCTC 10251, clinical	+	PA	+	PA	+	PA
130	*Salmonella enterica*	*enterica*	Urbana	9272	ATCC 9261, unknown	+	PA	+	PA	+	PA
131	*Salmonella enterica*	*enterica*	Utrecht	1417	NCTC 10077, unknown	+	PA	+	PA	+	PA
132	*Salmonella enterica*	*enterica*	Virchow	1014	Turkey	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
133	*Salmonella enterica*	*enterica*	Weltevreden	7223	industrial	+	PA	+	PA	+	PA
134	*Salmonella enterica*	*enterica*	Worthington	1972	industrial	+	PA	+	PA	+	PA
135	*Salmonella enterica*	*houtenae*	43:z4, z23:- S. Houten	1376	NCTC 10401, unknown	+	PA	+	PA	+	PA
136	*Salmonella enterica*	*houtenae*	50:g, z51:- (Wassenar)	1415	Dairy product	+	PA	+	PA	+	PA
137	*Salmonella enterica*	*indica*	Ferlac	1373	desiccated coconut	+	PA	+	PA	+	PA
138	*Salmonella enterica*	*indica*	Vrindiban	1466	PHE	+	PA	+	PA	+	PA
139	*Salmonella enterica*	*salamae*	Basel	1292	human urine	+	PA	+	PA	+	PA
140	*Salmonella enterica*	*salamae*	Betioky	1296	reptile	+	PA	+	PA	+	PA
141	*Salmonella enterica*	*salamae*	Bleadon	1299	tortoise	+	PA	+	PA	+	PA
142	*Salmonella enterica*	*salamae*	Canastel	1321	gastroenteritis	+	PA	+	PA	+	PA
143	*Salmonella bongori*	*bongori*	Bongori 66:z65:-	16378	PHE	+	PA	+	PA	+	PA
144	*Salmonella bongori*	*bongori*	Brookfield 66:z41:-	1312	frog	+	PA	+	PA	+	PA
145	*Salmonella enterica*	*arizonae*	51:z4,z23:-	16380	NCTC 8297	+	PA	+	PA	+	PA
146	*Salmonella enterica*	*arizonae*	44:z4, z23:-	16371	PHE	+	PA	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
						CASE FLEX system	result	CASE FLEX system 72h @4°C storage	results	NA FLEX system	results
147	*Salmonella enterica*	*arizonae*	48:z4,z24:-	16373	PHE	+	PA	+	PA	+	PA
148	*Salmonella enterica*	*diarizonae*	50:k:z	16374	PHE	+	PA	+	PA	+	PA
149	*Salmonella enterica*	*diarizonae*	61:l,v:1,5	16375	PHE	+	PA	+	PA	+	PA
150	*Salmonella enterica*	*diarizonae*	48:i:z	16376	PHE	+	PA	+	PA	+	PA
total	N						150		150		150
	PA						150		150		150
	ND						0		0		0
	NA						0		0		0
	NG						0		0		0
	PD						0		0		0

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
1	*Salmonella enterica*	*enterica*	Abaetetuba	1268	NCTC 8244, unknown	+	PA	+	PA
2	*Salmonella enterica*	*enterica*	Abony	1270	NCTC 6017, unknown	+	PA	+	PA
3	*Salmonella enterica*	*enterica*	Abortusequi	7046	industrial	+	PA	+	PA
4	*Salmonella enterica*	*enterica*	Adelaide	1271	NCTC 6586, unknown	+	PA	+	PA
5	*Salmonella enterica*	*enterica*	Africana	2002	industrial	+	PA	+	PA
6	*Salmonella enterica*	*enterica*	Agama	1419	meat	+	PA	+	PA
7	*Salmonella enterica*	*enterica*	Agona	1050	chicken	+	PA	+	PA
8	*Salmonella enterica*	*enterica*	Alachua	1274	abattoir	+	PA	+	PA
9	*Salmonella enterica*	*enterica*	Albany	1275	NCTC 9869, unknown	+	PA	+	PA
10	*Salmonella enterica*	*enterica*	Albuquerque	1276	irrigation water	+	PA	+	PA
11	*Salmonella enterica*	*enterica*	Amsterdam	5467	PHE	+	PA	+	PA
12	*Salmonella enterica*	*enterica*	Anatum	1060	egg	+	PA	+	PA
13	*Salmonella enterica*	*enterica*	Anfo	1420	African box meat	+	PA	+	PA
14	*Salmonella enterica*	*enterica*	Arkansas	3608	chicken giblets	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
15	*Salmonella enterica*	*enterica*	Ball	1288	NCTC 9870, clinical	+	PA	+	PA
16	*Salmonella enterica*	*enterica*	Banana	1289	NCTC 8718, clinical	+	PA	+	PA
17	*Salmonella enterica*	*enterica*	Bareilly	1291	clinical	+	PA	+	PA
18	*Salmonella enterica*	*enterica*	Barry	1651	chicken giblets	+	PA	+	PA
19	*Salmonella enterica*	*enterica*	Berta	1067	uncooked chicken	+	PA	+	PA
20	*Salmonella enterica*	*enterica*	Binza	1436	dried spice	+	PA	+	PA
21	*Salmonella enterica*	*enterica*	Blockley	1087	fresh chicken	+	PA	+	PA
22	*Salmonella enterica*	*enterica*	Bovismorbificans	16362	industrial	+	PA	+	PA
23	*Salmonella enterica*	*enterica*	Brazzaville	1310	NCTC 9900, unknown	+	PA	+	PA
24	*Salmonella enterica*	*enterica*	Brandenburg	1070	beef	+	PA	+	PA
25	*Salmonella enterica*	*enterica*	Braenderup	1095	chicken	+	PA	+	PA
26	*Salmonella enterica*	*enterica*	Brazil	1309	clinical	+	PA	+	PA
29	*Salmonella enterica*	*enterica*	Bredeney	1075	fish meal	+	PA	+	PA
27	*Salmonella enterica*	*enterica*	Budapest	1314	NCTC 5724, unknown	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
28	*Salmonella enterica*	*enterica*	Butantan	1316	gastroenteritis	+	PA	+	PA
29	*Salmonella enterica*	*enterica*	California	1421	chicken	+	PA	+	PA
30	*Salmonella enterica*	*enterica*	Caracas	1323	NCTC 8715, unknown	+	PA	+	PA
31	*Salmonella enterica*	*enterica*	Carmel	1324	NCTC 9872, clinical	+	PA	+	PA
32	*Salmonella enterica*	*enterica*	Carrau	1325	NCTC 5794, clinical	+	PA	+	PA
33	*Salmonella enterica*	*enterica*	Cerro	1326	NCTC 5801, unknown	+	PA	+	PA
34	*Salmonella enterica*	*enterica*	Chudleigh	1336	Not Available	+	PA	+	PA
35	*Salmonella enterica*	*enterica*	Clifton	1334	tortoise	+	PA	+	PA
36	*Salmonella enterica*	*enterica*	Clerkenwell	1333	NCTC 8462, clinical	+	PA	+	PA
37	*Salmonella enterica*	*enterica*	Concord	1339	chick liver	+	PA	+	PA
38	*Salmonella enterica*	*enterica*	Corvallis	1341	NCTC 7830, unknown	+	PA	+	PA
39	*Salmonella enterica*	*enterica*	Crossness	1342	sewage	+	PA	+	PA
40	*Salmonella enterica*	*enterica*	Cubana	1343	industrial	+	PA	+	PA
41	*Salmonella enterica*	*enterica*	Dakar	1346	NCTC 9928, clinical	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
42	*Salmonella enterica*	*enterica*	Daytona	1348	NCTC 7102, clinical	+	PA	+	PA
43	*Salmonella enterica*	*enterica*	Derby	1352	NCTC 5721, unknown	+	PA	+	PA
44	*Salmonella enterica*	*enterica*	Donna	1355	NCTC 7409, clinical	+	PA	+	PA
45	*Salmonella enterica*	*enterica*	Driffield	1430	beef	+	PA	+	PA
46	*Salmonella enterica*	*enterica*	Dugbe	1357	NCTC 10347, clinical	+	PA	+	PA
47	*Salmonella enterica*	*enterica*	Duisburg	2001	cucumber	+	PA	+	PA
50	*Salmonella enterica*	*enterica*	Dublin	1356	bovine	+	PA	+	PA
51	*Salmonella enterica*	*enterica*	Durban	1359	faeces	+	PA	+	PA
52	*Salmonella enterica*	*enterica*	Duval	1361	NCTC 9875	+	PA	+	PA
53	*Salmonella enterica*	*enterica*	Drypool	1654	PHE	+	PA	+	PA
58	*Salmonella enterica*	*enterica*	Ealing	1362	dried baby milk	+	PA	+	PA
59	*Salmonella enterica*	*enterica*	Eastbourne	1363	NCTC 3378, clinical	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
54	*Salmonella enterica*	*enterica*	Eko	1655	PHE	+	PA	+	PA
55	*Salmonella enterica*	*enterica*	Emek	1367	NCTC 8485, unknown	+	PA	+	PA
56	*Salmonella enterica*	*enterica*	Enteritidis	1004	chicken	+	PA	+	PA
57	*Salmonella enterica*	*enterica*	Essen	1370	NCTC 5723, unknown	+	PA	+	PA
58	*Salmonella enterica*	*enterica*	Ezra	1371	NCTC 9917, clinical	+	PA	+	PA
59	*Salmonella enterica*	*enterica*	Falkensee	16425	Indian onion powder	+	PA	+	PA
60	*Salmonella enterica*	*enterica*	Florida	9282	ATCC10727, unknown	+	PA	+	PA
61	*Salmonella enterica*	*enterica*	Frintrop	1422	animal feed	+	PA	+	PA
62	*Salmonella enterica*	*enterica*	Gallinarum	12265	NCTC 10532, unknown	+	PA	+	PA
63	*Salmonella enterica*	*enterica*	Give	1374	NCTC 5778, clinical	+	PA	+	PA
64	*Salmonella enterica*	*enterica*	Goldcoast	3665	oats	+	PA	+	PA
65	*Salmonella enterica*	*enterica*	Grampian	16110	industrial	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
66	*Salmonella enterica*	*enterica*	Haardt	1657	PHE	+	PA	+	PA
67	*Salmonella enterica*	*enterica*	Hadar	1973	fluff sample (turkeys)	+	PA	+	PA
68	*Salmonella enterica*	*enterica*	Havana	3004	black pepper	+	PA	+	PA
69	*Salmonella enterica*	*enterica*	Hartford	1375	NCTC 6802, clinical	+	PA	+	PA
70	*Salmonella enterica*	*enterica*	Heidelberg	1988	beefburger	+	PA	+	PA
71	*Salmonella enterica*	*enterica*	Hvittingfoss (16:b:e.n.x)	1837	herbs	+	PA	+	PA
72	*Salmonella enterica*	*enterica*	Infantis	1035	milk plant environment	+	PA	+	PA
73	*Salmonella enterica*	*enterica*	Indiana	71	turkey	+	PA	+	PA
74	*Salmonella enterica*	*enterica*	Inverness	1377	faeces	+	PA	+	PA
75	*Salmonella enterica*	*enterica*	Javiana	1379	NCTC 6495, clinical	+	PA	+	PA
76	*Salmonella enterica*	*enterica*	Jerusalem	1380	NCTC 8146, clinical	+	PA	+	PA
77	*Salmonella enterica*	*enterica*	Johannesburg	1381	NCTC 8272, clinical	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
78	*Salmonella enterica*	*enterica*	Kedougou	1021	roast beef	+	PA	+	PA
79	*Salmonella enterica*	*enterica*	Kentucky	1382	clinical sample	+	PA	+	PA
80	*Salmonella enterica*	*enterica*	Kimberley	1423	beef	+	PA	+	PA
81	Salmonella enterica	enterica	Kottbus	4179	clinical sample	+	PA	+	PA
82	Salmonella enterica	enterica	Krefeld	1383	NCTC 9884, clinical	+	PA	+	PA
83	Salmonella enterica	enterica	Lexington	2024	dates	+	PA	+	PA
84	Salmonella enterica	enterica	Lille	1753	cocoa bean environment	+	PA	+	PA
85	Salmonella enterica	enterica	Livingstone	1385	faeces	+	PA	+	PA
86	Salmonella enterica	enterica	Locarno	1386	meat Sample	+	PA	+	PA
87	Salmonella enterica	enterica	London	1387	clinical sample	+	PA	+	PA
88	Salmonella enterica	enterica	Maastrict	9273	fishmeal	+	PA	+	PA
89	Salmonella enterica	enterica	Madelia	1388	hen liver	+	PA	+	PA
90	Salmonella enterica	enterica	Manchester	1434	flavouring	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
91	Salmonella enterica	enterica	Manhattan	1389	NCTC 6245, clinical	+	PA	+	PA
92	Salmonella enterica	enterica	Mbandaka	16424	onion powder	+	PA	+	PA
93	Salmonella enterica	enterica	Meleagridis	1392	NCTC 6023, clinical	+	PA	+	PA
94	Salmonella enterica	enterica	Mississppi	1395	faeces	+	PA	+	PA
95	Salmonella enterica	enterica	Montevideo	1031	Sunflower pellets	+	PA	+	PA
96	Salmonella enterica	enterica	Muenchen	16292	houmous	+	PA	+	PA
97	Salmonella enterica	enterica	Muenster	3507	herbal infusion	+	PA	+	PA
98	Salmonella enterica	enterica	Napoli	16305	salad	+	PA	+	PA
99	*Salmonella enterica*	*enterica*	Newbrunswick	1399	NCTC 5787	+	PA	+	PA
100	Salmonella enterica	enterica	Newington	1400	NCTC 5785, unknown	+	PA	+	PA
101	Salmonella enterica	enterica	Newport	1044	pork sausages	+	PA	+	PA
102	Salmonella enterica	enterica	Norwich	1401	pig lymph nodes	+	PA	+	PA
103	Salmonella enterica	enterica	Nottingham	16290	NCTC 7832, clinical	+	PA	+	PA
104	Salmonella enterica	enterica	Ohio	1459	PHE	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
105	Salmonella enterica	enterica	Oranienburg	1402	clinical sample	+	PA	+	PA
106	Salmonella enterica	enterica	Orion	1936	Food sample	+	PA	+	PA
107	Salmonella enterica	enterica	Ouakam	1461	PHE	+	PA	+	PA
108	Salmonella enterica	enterica	Panama	1045	pork sausage	+	PA	+	PA
109	Salmonella enterica	enterica	Pomona	1403	turkey intestine	+	PA	+	PA
110	Salmonella enterica	enterica	Poona	725	Human	+	PA	+	PA
111	Salmonella enterica	enterica	Pretoria	14047	pig	+	PA	+	PA
112	Salmonella enterica	enterica	Reading	1405	paprika	+	PA	+	PA
113	Salmonella enterica	enterica	Rubislaw	1406	NCTC 6016, clinical	+	PA	+	PA
114	Salmonella enterica	enterica	Saintpaul	1093	giblets	+	PA	+	PA
115	*Salmonella enterica*	*enterica*	Sandiego	1407	Chilean sausage	+	PA	+	PA
116	*Salmonella enterica*	*enterica*	Saphra	1463	PHE	+	PA	+	PA
117	*Salmonella enterica*	*enterica*	Schwarzengrund	16635	industrial	+	PA	+	PA
118	*Salmonella enterica*	*enterica*	Senftenberg	9281	ATCC 8400, unknown	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
119	*Salmonella enterica*	*enterica*	Shangani	1409	NCTC 5784, clinical	+	PA	+	PA
120	*Salmonella enterica*	*enterica*	Solt	1569	clinical	+	PA	+	PA
121	*Salmonella enterica*	*enterica*	Stanley	1057	boiled ham	+	PA	+	PA
122	*Salmonella enterica*	*enterica*	Sundsvall	1410	NCTC 6758	+	PA	+	PA
123	*Salmonella enterica*	*enterica*	Tallahassee	16285	watercress	+	PA	+	PA
124	*Salmonella enterica*	*enterica*	Telelkebir	1577	cocoa bean	+	PA	+	PA
125	*Salmonella enterica*	*enterica*	Tennesee	3944	sesame seeds	+	PA	+	PA
126	*Salmonella enterica*	*enterica*	Thompson	1081	pork	+	PA	+	PA
127	*Salmonella enterica*	*enterica*	Typhimurium	1008	pork	+	PA	+	PA
128	*Salmonella enterica*	*enterica*	Typhimurium 4:i:- monophasic+D145	17295	industrial	+	PA	+	PA
129	*Salmonella enterica*	*enterica*	Uccle	1416	NCTC 10251, clinical	+	PA	+	PA
130	*Salmonella enterica*	*enterica*	Urbana	9272	ATCC 9261, unknown	+	PA	+	PA
131	*Salmonella enterica*	*enterica*	Utrecht	1417	NCTC 10077, unknown	+	PA	+	PA
132	*Salmonella enterica*	*enterica*	Virchow	1014	Turkey	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
133	*Salmonella enterica*	*enterica*	Weltevreden	7223	industrial	+	PA	+	PA
134	*Salmonella enterica*	*enterica*	Worthington	1972	industrial	+	PA	+	PA
135	*Salmonella enterica*	*houtenae*	43:z4, z23:- S. Houten	1376	NCTC 10401, unknown	+	PA	+	PA
136	*Salmonella enterica*	*houtenae*	50:g, z51:- (Wassenar)	1415	Dairy product	+	PA	+	PA
137	*Salmonella enterica*	*indica*	Ferlac	1373	desiccated coconut	+	PA	+	PA
138	*Salmonella enterica*	*indica*	Vrindiban	1466	PHE	+	PA	+	PA
139	*Salmonella enterica*	*salamae*	Basel	1292	human urine	+	PA	+	PA
140	*Salmonella enterica*	*salamae*	Betioky	1296	reptile	+	PA	+	PA
141	*Salmonella enterica*	*salamae*	Bleadon	1299	tortoise	+	PA	+	PA
142	*Salmonella enterica*	*salamae*	Canastel	1321	gastroenteritis	+	PA	+	PA
143	*Salmonella bongori*	*bongori*	Bongori 66:z65:-	16378	PHE	+	PA	+	PA
144	*Salmonella bongori*	*bongori*	Brookfield 66:z41:-	1312	frog	+	PA	+	PA
145	*Salmonella enterica*	*arizonae*	51:z4,z23:-	16380	NCTC 8297	+	PA	+	PA
146	*Salmonella enterica*	*arizonae*	44:z4, z23:-	16371	PHE	+	PA	+	PA

no	Species	Sub species	Serotype	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
						CASE SMART system	Results	NA SMART system	Results
147	*Salmonella enterica*	*arizonae*	48:z4,z24:-	16373	PHE	+	PA	+	PA
148	*Salmonella enterica*	*diarizonae*	50:k:z	16374	PHE	+	PA	+	PA
149	*Salmonella enterica*	*diarizonae*	61:l,v:1,5	16375	PHE	+	PA	+	PA
150	*Salmonella enterica*	*diarizonae*	48:i:z	16376	PHE	+	PA	+	PA
total	N						150		150
	PA						150		150
	ND						0		0
	NA						0		0
	NG						0		0
	PD						0		0

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
					NA FLEX system	result	CASE FLEX system	results	CASE FLEX system 72h @4°C storage	results
201	*Acinetobacter*	*baumannii*	7421	sesame seeds	-	NA	NG	NG	NG	NG
202	*Aeromonas*	*bestiarum*	17217	industrial	-	NA	NG	NG	NG	NG
203	*Aeromonas*	*encheleia*	17114	marsh	-	NA	NG	NG	NG	NG
204	*Aeromonas*	*eucrenophila*	17121	wet land water	-	NA	NG	NG	NG	NG
205	*Aeromonas*	*hydrophila*	4111	milk	-	NA	NG	NG	NG	NG
206	*Aeromonas*	*salmonicida*	8388	NCTC 10402, unknown	-	NA	NG	NG	NG	NG
207	*Aeromonas*	*salmonicida*	17216	industrial	-	NA	NG	NG	NG	NG
208	*Aeromonas*	*veroni*	17062	flood water	-	NA	NG	NG	NG	NG
209	*Aliivibrio*	*fisherii*	16818	ATCC 7744, unknown	-	NG	NG	NG	NG	NG
210	*Bacillus*	*subtilis*	265	dog faeces	-	NA	NG	NG	NG	NG
211	*Burkholderia*	*cepacia*	16815	onion	-	NA	NG	NG	NG	NG
212	*Buttiauxella*	*agrestis*	17110	pond water	-	NA	NG	NG	NG	NG
213	*Buttiauxella*	*warmboldiae*	17112	rainwater	-	NA	NG	NG	NG	NG
214	*Chryseobacterium*	*hominis*	4088	dried milk powder	-	NA	NG	NG	NG	NG
215	*Citrobacter*	*amalonaticus*	7458	beansprouts	-	NA	-	NA	-	NA
216	*Citrobacter*	*braakii*	16279	beansprouts	-	NA	NG	NG	NG	NG
217	*Citrobacter*	*koseri*	7126	industrial	-	NA	-	NA	-	NA
218	*Citrobacter*	*freundii*	40	NCTC 9750, unknown	-	NA	NG	NG	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
					NA FLEX system	result	CASE FLEX system	results	CASE FLEX system 72h @4°C storage	results
219	*Citrobacter*	*freundii*	3664	blackforest gateau	-	NA	-	NA	-	NA
220	*Citrobacter*	*freundii*	3659	salami	-	NA	NG	NG	NG	NG
221	*Citrobacter*	*freundii*	7522	sausages	-	NA	NG	NG	NG	NG
222	*Citrobacter*	*gilenii*	16923	industrial	-	NA	NG	NG	NG	NG
223	*Cronobacter*	*sakazakii*	16909	dried milk	-	NA	NG	NG	NG	NG
224	*Enterobacter*	*aerogenes*	15736	sputum	-	NA	-	NA	-	NA
225	*Enterobacter (Pantoea)*	*agglomerans*	15945	raw beef	-	NA	NG	NG	NG	NG
226	*Enterobacter*	*amnigenus*	7426	mushrooms	-	NA	-	NA	-	NA
227	*Enterobacter*	*asburiae*	17021	NCTC 12123, human	-	NA	-	NA	-	NA
228	*Enterobacter*	*cloacae*	1472	dried milk	-	NA	-	NA	-	NA
229	*Enterobacter*	*intermedius*	17023	surface water	-	NA	-	NA	-	NA
230	*Enterobacter*	*taylorae*	7530	seeds	-	NA	-	NA	-	NA
231	*Enterobacter*	*xiangfangensis*	16927	NCIMB 14836, unknown	-	NA	-	NA	-	NA
232	*Escherichia*	*coli*	17022	clinical	-	NA	NG	NG	NG	NG
233	*Escherichia*	*coli* O6	11017	ATCC 25922, clinical	-	NA	NG	NG	NG	NG
234	*Escherichia*	*coli*	2003	fish	-	NA	NG	NG	NG	NG
235	*Escherichia*	*coli* O111	ATCC 29552	faeces, non toxigenic	-	NA	NG	NG	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
					NA FLEX system	result	CASE FLEX system	results	CASE FLEX system 72h @4°C storage	results
236	*Escherichia*	*coli* O157	NCTC 12900	non tox, unknown	-	NA	-	NA	-	NA
237	*Escherichia*	*hermannii*	7475	sausages	-	NA	NG	NG	NG	NG
238	*Enterobacter*	*kobei*	16260	sesame seeds	-	NA	NG	NG	NG	NG
239	*Enterococcus*	*faecium*	1513	industrial	-	NA	NG	NG	NG	NG
240	*Enterococcus*	*faecium*	8351	industrial	-	NA	NG	NG	NG	NG
241	Flavobacterium (Novosphingobium)	*resinovorum*	9000	bamboo shoots	-	NA	NG	NG	NG	NG
242	*Erwinia*	*amylovorans*	8037	forest soil	-	NA	NG	NG	NG	NG
243	*Ewingella*	*americana*	8086	industrial	-	NA	-	NA	-	NA
244	*Gluconoacetobacter*	*liquefaciens*	16761	industrial	-	NA	NG	NG	NG	NG
245	*Gluconobacter*	*cerinus*	16654	environmental	-	NA	NG	NG	NG	NG
246	*Hafnia*	*alvei*	4936	raw minced beef	-	NA	NG	NG	NG	NG
247	*Klebsiella*	*oxytoca*	8387	Water	-	NA	-	NA	-	NA
248	*Klebsiella*	*oxytoca*	15926	ATCC 13182, human	-	NA	-	NA	-	NA
249	*Klebsiella*	*pneumoniae*	6786	industrial	-	NA	-	NA	-	NA
250	*Kluyvera*	*ascorbata*	17126	industrial	-	NA	-	NA	-	NA
251	*Kosakonia*	*radicincitans*	16979	NCIMB 9428, unknown	-	NA	NG	NG	NG	NG
252	*Lactobacillus*	*casei*	7670	industrial	-	NA	NG	NG	NG	NG
253	*Leclercia*	*adecarboxylata*	5121	oregano	-	NA	NG	NG	NG	NG
254	*Lelliottia*	*amnigena*	16924	sea water	-	NA	-	NA	-	NA
255	*Listeria*	*monocytogenes*	2064	watercress	-	NA	NG	NG	NG	NG
256	*Listeria*	*ivanovii*	1123	soft cheese	-	NA	NG	NG	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
					NA FLEX system	result	CASE FLEX system	results	CASE FLEX system 72h @4°C storage	results
257	*Listeria*	*welshimeri*	8036	industrial	-	NA	NG	NG	NG	NG
258	*Lysinibacillus*	*boronitoelrans*	7438	tomatoes	-	NA	NG	NG	NG	NG
259	*Micrococcus*	*luteus*	3503	air sample	-	NA	NG	NG	NG	NG
260	*Moraxella*	*osloensis*	17043	Milk, NCIMB 8552	-	NA	NG	NG	NG	NG
261	*Morganella*	*morganii*	1542	mince	-	NA	NG	NG	NG	NG
262	*Morganella*	*morganii*	269	chicken		NA	NG	NG	NG	NG
263	*Paraburkholderia*	*tropica*	16779	soft drinks environment	-	NA	NG	NG	NG	NG
264	*Photobacterium*	*damselae*	16821	marine fish	-	NA	NG	NG	NG	NG
265	*Proteus*	*mirabilis*	266	minced pork	-	NA	NG	NG	NG	NG
266	*Proteus*	*vulgaris*	267	poultry	-	NA	NG	NG	NG	NG
267	*Providencia*	*rettgeri*	268	human	-	NA	-	NA	-	NA
268	*Providencia*	*rettgeri*	8390	sewage	-	NA	-	NA	-	NA
269	*Pseudomonas*	*aeruginosa*	270	animal room	-	NA	-	NA	-	NA
270	*Pseudomonas*	*citronellosis*	272	industrial	-	NA	-	NA	-	NA
271	*Pseudomonas*	*fluorescens*	273	soil	-	NA	-	NA	-	NA
272	*Pseudomonas*	*fragi*	274	NCTC 10689, unknown	-	NA	-	NA	-	NA
273	*Pseudomonas*	*gladioli subsp gladioli*	275	industrial	-	NG	NG	NG	NG	NG
274	*Pseudomonas*	*oleovorans*	276	cutting fluid	-	NA	NG	NG	NG	NG
275	*Pseudomonas*	*putida*	277	soil	-	-	NA	-	NA	-

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
					NA FLEX system	result	CASE FLEX system	results	CASE FLEX system 72h @4°C storage	results
276	*Pseudomonas*	*taetrolens*	17326	St Maure de Touraine goat's milk soft cheese	-	NA	NG	NG	NG	NG
277	*Pseudomonas*	*tolaassi*	17347	raw milk	-	NA	-	NA	-	NA
278	*Rahnella*	*aqualtilis*	16911	drinking water	-	NA	NG	NG	NG	NG
279	*Raoultella*	*ornithinolytica*	279	industrial	-	NA	-	NA	-	NA
280	*Raoultella*	*ornithinolytica*	16928	cream	-	NA	-	NA	-	NA
281	*Raoultella*	*planticola*	280	raw tuna	-	NA	NG	NG	NG	NG
282	*Raoultella*	*terrigena*	17343	raw milk	-	NA	NG	NG	NG	NG
283	*Shewanella*	*profunda*	NCIMB 10471	chilled chicken	-	NA	NG	NG	NG	NG
284	*Serratia*	*fonticola*	4613	chicken	-	NA	-	NA	-	NA
285	*Serratia*	*liquefaciens*	1491	raw mince	-	NA	NG	NG	NG	NG
286	*Serratia*	*marcescens*	4190	sandwich	-	NA	NG	NG	NG	NG
287	*Serratia*	proteamaculans ssp. quinovora	16463	mushrooms	-	NA	NG	NG	NG	NG
288	*Shigella*	*flexneri*	325	human	-	NA	NG	NG	NG	NG
289	*Shigella*	*sonnei*	4107	human	-	NA	NG	NG	NG	NG
290	Shimwellia	blattae	16931	cockroach	-	NA	NG	NG	NG	NG
291	*Staphylococcus*	*aureus*	1211	shellfish	-	NA	NG	NG	NG	NG
292	*Staphylococcus*	*carnosus*	284	goat's milk	-	NA	NG	NG	NG	NG
293	*Staphylococcus*	*pasteurii*	8389	chicken	-	NA	NG	NG	NG	NG
294	*Staphylococcus*	*saprophyticius*	8999	distilled water environmental	-	NA	NG	NG	NG	NG
295	*Vibrio*	*metschinkovii*	5437	cooked cockles	-	NA	NG	NG	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-					
					NA FLEX system	result	CASE FLEX system	results	CASE FLEX system 72h @4°C storage	results
296	*Yersinia*	*enterocolitica*	4103	NCTC 10460, ear	-	NA	-	NA	-	NA
297	*Yersinia*	*bercovieri*	17106	stream	-	NA	NG	NG	NG	NG
298	*Xanthomonas*	*arboricola*	8047	industrial	-	NG	NG	NG	NG	NG
299	*Xanthomonas*	*hortorum*	8046	industrial	-	NG	NG	NG	NG	NG
300	*Zygosaccharomyces*	*bailii*	16193	soft drinks factory	NG	NG	NG	NG	NG	NG
total	N					100		100		100
	PA					0		0		0
	ND					0		0		0
	NA					95		29		29
	NG					5		71		71
	PD					0		0		0

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
					NA SMART system	result	CASE SMART system	results
201	*Acinetobacter*	*baumannii*	7421	sesame seeds	-	NA	NG	NG
202	*Aeromonas*	*bestiarum*	17217	industrial	-	NA	NG	NG
203	*Aeromonas*	*encheleia*	17114	marsh	-	NA	NG	NG
204	*Aeromonas*	*eucrenophila*	17121	wet land water	-	NA	NG	NG
205	*Aeromonas*	*hydrophila*	4111	milk	-	NA	NG	NG
206	*Aeromonas*	*salmonicida*	8388	NCTC 10402, unknown	-	NA	NG	NG
207	*Aeromonas*	*salmonicida*	17216	industrial	-	NA	NG	NG
208	*Aeromonas*	*veroni*	17062	flood water	-	NA	NG	NG
209	*Aliivibrio*	*fisherii*	16818	ATCC 7744, unknown	-	NG	NG	NG
210	*Bacillus*	*subtilis*	265	dog faeces	-	NA	NG	NG
211	*Burkholderia*	*cepacia*	16815	onion	-	NA	NG	NG
212	*Buttiauxella*	*agrestis*	17110	pond water	-	NA	NG	NG
213	*Buttiauxella*	*warmboldiae*	17112	rainwater	-	NA	NG	NG
214	*Chryseobacterium*	*hominis*	4088	dried milk powder	-	NA	NG	NG
215	*Citrobacter*	*amalonaticus*	7458	beansprouts	-	NA	-	NA
216	*Citrobacter*	*braakii*	16279	beansprouts	-	NA	NG	NG
217	*Citrobacter*	*koseri*	7126	industrial	-	NA	-	NA
218	*Citrobacter*	*freundii*	40	NCTC 9750, unknown	-	NA	NG	NG
219	*Citrobacter*	*freundii*	3664	blackforest gateau	-	NA	-	NA
220	*Citrobacter*	*freundii*	3659	salami	-	NA	NG	NG
221	*Citrobacter*	*freundii*	7522	sausages		NA	NG	NG
222	*Citrobacter*	*gilenii*	16923	industrial	-	NA	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
					NA SMART system	result	CASE SMART system	results
223	*Cronobacter*	*sakazakii*	16909	dried milk	-	NA	NG	NG
224	*Enterobacter*	*aerogenes*	15736	sputum	-	NA	-	NA
225	*Enterobacter (Pantoea)*	*agglomerans*	15945	raw beef	-	NA	NG	NG
226	*Enterobacter*	*amnigenus*	7426	mushrooms	-	NA	-	NA
227	*Enterobacter*	*asburiae*	17021	NCTC 12123, human	-	NA	-	NA
228	*Enterobacter*	*cloacae*	1472	dried milk	-	NA	-	NA
229	*Enterobacter*	*intermedius*	17023	surface water	-	NA	-	NA
230	*Enterobacter*	*taylorae*	7530	seeds	-	NA	-	NA
231	*Enterobacter*	*xiangfangensis*	16927	NCIMB 14836, unknown	-	NA	-	NA
232	*Escherichia*	*coli*	17022	clinical	-	NA	NG	NG
233	*Escherichia*	*coli O6*	11017	ATCC 25922, clinical	-	NA	NG	NG
234	*Escherichia*	*coli*	2003	fish	-	NA	NG	NG
235	*Escherichia*	*coli* O111	ATCC 29552	faeces, non toxigenic	-	NA	NG	NG
236	*Escherichia*	*coli* O157	NCTC 12900	non tox, unknown	-	NA	-	NA
237	*Escherichia*	*hermannii*	7475	sausages	-	NA	NG	NG
238	*Enterobacter*	*kobei*	16260	sesame seeds	-	NA	NG	NG
239	*Enterococcus*	*faecium*	1513	industrial	-	NA	NG	NG
240	*Enterococcus*	*faecium*	8351	industrial	-	NA	NG	NG
241	*Flavobacterium (Novosphingobium)*	*resinovorum*	9000	bamboo shoots	-	NA	NG	NG
242	*Erwinia*	*amylovorans*	8037	forest soil	-	NA	NG	NG
243	*Ewingella*	*americana*	8086	industrial	-	NA	-	NA

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
					NA SMART system	result	CASE SMART system	results
244	*Gluconoacetobacter*	*liquefaciens*	16761	industrial	-	NA	NG	NG
245	*Gluconobacter*	*cerinus*	16654	environmental	-	NA	NG	NG
246	*Hafnia*	*alvei*	4936	raw minced beef	-	NA	NG	NG
247	*Klebsiella*	*oxytoca*	8387	Water	-	NA	-	NA
248	*Klebsiella*	*oxytoca*	15926	ATCC 13182, human	-	NA	-	NA
249	*Klebsiella*	*pneumoniae*	6786	industrial	-	NA	-	NA
250	*Kluyvera*	*ascorbata*	17126	industrial	-	NA	-	NA
251	*Kosakonia*	*radicincitans*	16979	NCIMB 9428, unknown	-	NA	NG	NG
252	*Lactobacillus*	*casei*	7670	industrial	-	NA	NG	NG
253	*Leclercia*	*adecarboxylata*	5121	oregano	-	NA	NG	NG
254	*Lelliottia*	*amnigena*	16924	sea water	-	NA	-	NA
255	*Listeria*	*monocytogenes*	2064	watercress	-	NA	NG	NG
256	*Listeria*	*ivanovii*	1123	soft cheese	-	NA	NG	NG
257	*Listeria*	*welshimeri*	8036	industrial	-	NA	NG	NG
258	*Lysinibacillus*	*boronitoelrans*	7438	tomatoes	-	NA	NG	NG
259	*Micrococcus*	*luteus*	3503	air sample	-	NA	NG	NG
260	*Moraxella*	*osloensis*	17043	Milk, NCIMB 8552	-	NA	NG	NG
261	*Morganella*	*morganii*	1542	mince	-	NA	NG	NG
262	*Morganella*	*morganii*	269	chicken		NA	NG	NG
263	*Paraburkholderia*	*tropica*	16779	soft drinks environment	-	NA	NG	NG
264	*Photobacterium*	*damselae*	16821	marine fish	-	NA	NG	NG
265	*Proteus*	*mirabilis*	266	minced pork	-	NA	NG	NG
266	*Proteus*	*vulgaris*	267	poultry	-	NA	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
					NA SMART system	result	CASE SMART system	results
267	*Providencia*	*rettgeri*	268	human	-	NA	-	NA
268	*Providencia*	*rettgeri*	8390	sewage	-	NA	-	NA
269	*Pseudomonas*	*aeruginosa*	270	animal room	-	NA	-	NA
270	*Pseudomonas*	*citronellosis*	272	industrial	-	NA	-	NA
271	*Pseudomonas*	*fluorescens*	273	soil	-	NA	-	NA
272	*Pseudomonas*	*fragi*	274	NCTC 10689, unknown	-	NA	-	NA
273	*Pseudomonas*	*gladioli subsp gladioli*	275	industrial	-	NG	NG	NG
274	*Pseudomonas*	*oleovorans*	276	cutting fluid	-	NA	NG	NG
275	*Pseudomonas*	*putida*	277	soil	-	NA	-	NA
276	*Pseudomonas*	*taetrolens*	17326	St Maure de Touraine goat's milk soft cheese	-	NA	NG	NG
277	*Pseudomonas*	*tolaassi*	17347	raw milk	-	NA	-	NA
278	*Rahnella*	*aqualtilis*	16911	drinking water	-	NA	NG	NG
279	*Raoultella*	*ornithinolytica*	279	industrial	-	NA	-	NA
280	*Raoultella*	*ornithinolytica*	16928	cream	-	NA	-	NA
281	*Raoultella*	*planticola*	280	raw tuna	-	NA	NG	NG
282	*Raoultella*	*terrigena*	17343	raw milk	-	NA	NG	NG
283	*Shewanella*	*profunda*	NCIMB 10471	chilled chicken	-	NA	NG	NG
284	*Serratia*	*fonticola*	4613	chicken	-	NA	-	NA
285	*Serratia*	*liquefaciens*	1491	raw mince	-	NA	NG	NG
286	*Serratia*	*marcescens*	4190	sandwich	-	NA	NG	NG

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
					NA SMART system	result	CASE SMART system	results
287	*Serratia*	*proteamaculans* ssp. quinovora	16463	mushrooms	-	NA	NG	NG
284	*Serratia*	*fonticola*	4613	chicken	-	NA	NG	NG
285	*Serratia*	*liquefaciens*	1491	raw mince	-	NA	NG	NG
286	*Serratia*	*marcescens*	4190	sandwich	-	NA	NG	NG
287	*Serratia*	*proteamaculans ssp. quinovora*	16463	mushrooms	-	NA	NG	NG
288	*Shigella*	*flexneri*	325	human	-	NA	NG	NG
289	*Shigella*	*sonnei*	4107	human	-	NA	NG	NG
290	*Shimwellia*	*blattae*	16931	cockroach	-	NA	NG	NG
291	*Staphylococcus*	*aureus*	1211	shellfish	-	NA	NG	NG
292	*Staphylococcus*	*carnosus*	284	goat's milk	-	NA	NG	NG
293	*Staphylococcus*	*pasteurii*	8389	chicken	-	NA	NG	NG
294	*Staphylococcus*	*saprophyticius*	8999	distilled water environmental	-	NA	NG	NG
295	*Vibrio*	*metschinkovii*	5437	cooked cockles	-	NA	NG	NG
296	*Yersinia*	*enterocolitica*	4103	NCTC 10460, ear	-	NA	-	NA
297	*Yersinia*	*bercovieri*	17106	stream	-	NA	NG	NG
298	*Xanthomonas*	*arboricola*	8047	industrial	-	NG	NG	NG
299	*Xanthomonas*	*hortorum*	8046	industrial	-	NG	NG	NG
300	*Zygosaccharomyces*	*bailii*	16193	soft drinks factory	-	NG	NG	NG
total	N					100		100
	PA					0		0
	ND					0		0
	NA					95		29

no	Species	Sub species	Reference (CRA)	Origin	MALDI Biotyper Confirmation result Salmonella +/-			
					NA SMART system	result	CASE SMART system	results
	NG					5		71
	PD					0		0