MicroVal Study 2017LR72: Confirmation Method

Validation study of the MALDI Biotyper® Complete Solution as an Alternative Method for the Confirmation of *Cronobacter* 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 Laboroatories (OH,USA)

Method/Kit name: MALDI Biotyper for *Cronobacter* 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 22964:2017 Microbiology of the food chain – Horizontal method for detection of *Cronobacter* spp.

Scope of validation: Isolates taken from ESIA and CCI, and non-selective nutrient agar (TSA).

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
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	Matrix Assisted Laser Desorption/Ionization Time-Of-Flight (MALDI-TOF)
MBT	Maldi Biotyper
MS	Mass Spectrometry
MCS	Method Comparison Study
min	minute
ml	millilitre
MR	(MicroVal) Method Reviewer
MSP	Main Spectrum or Main Spectra
MVTC	MicroVal Technical Committee
N	Number of strains
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
TSA	Tryptone Soya Agar
ESIA	Enterobacter Sakazakii Isolation Agar
CCI	Chromogenic Cronobacter Isolation Agar

Contents

Introduction

The purpose of this MicroVal study was to validate the use of the Bruker MALDI Biotyper® (MBT) using a presumptive *Cronobacter* 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 micro-organisms 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 *Cronobacter* 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 ESIA and CCI, 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. For the Interlaboratory Study (ILS), Q Laboratories organized and included 14 collaborators from different laboratories. This report summarizes the results and interpretations of the MCS and the ILS.

Reference method: ISO 22964:2017

Scope of the validation study was: confirmation of *Cronobacter* spp. presumptive colonies isolated on ESIA, CCI and on a non-selective agar (TSA).

1 Method protocols

1.1 Reference method

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

The reference method corresponds to the ISO 22964 (April 2017) - Microbiology of food chain - Horizontal method for the detection of *Cronobacter* spp.

1.2 Alternative method

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

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** includes defined bacteria and yeast strains from industrial, veterinary, clinical isolates provided by collaborating partners, round robin strains and strains from accredited ISO 9001:2008 certified strain collections.

- This validation was run with the MBT Compass Library version 6903 and was, therefore, included as part of the validation scope.

The eDT and EXT sample preparations were used when recommended, based on the calculating log (score) value. The sample stability onto prepared targets was guaranteed up to 24 hours at 20 - 25°C.

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.

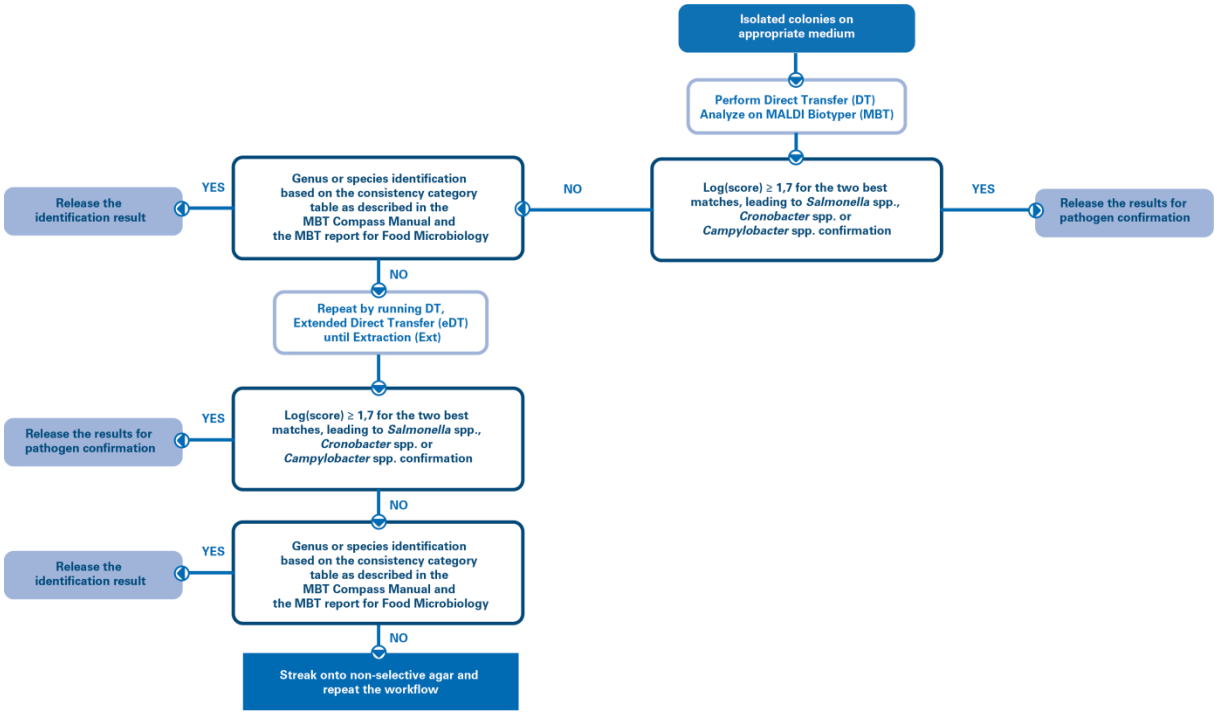
For the confirmation of foodborne pathogens at the genus level, the two highest matches were considered for identification if they both have a log (scores) higher than 1.70 and propose the same identified genus. If the log (score) is < 1.70 after initial analysis, the DT sample preparation was repeated, 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 was 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 *Cronobacter* 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.

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

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.

To show equivalance, these targets were used to plot the samples and data were acquired to comply with the ISO 13485 and ISO 9001 certification. Additionally, 7 collaborators involved in the interlaboratory study used disposable biotargets and 7 collaborators ran the tests on reusable targets. The MCS was run 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 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.

1.2.8 Summary of Equipment and Materials

All the required information is summarized in the Quick Guide for Food Testing (#1855438).

In addition, the MBT report for Food Microbiology, activated in the MBT Compass software, provided the confirmation and identification results according to this flowchart. **Table 3** below summarize the MBT configuration and materials.

Table 3. A summary of Equipment and Materials included in the Validation

Equipment and Materials	Material Item No.
MALDI Biotyper systems	#8269956 - MALDI Biotyper (instrument microflex LT/SH) #1853670 / 1853665 - MALDI Biotyper smart (instrument microflex LT/SH smart)
MBT Library version	#1829023 - MBT Compass Library (version with 6903 MSPs or higher)
Software	#1843241 - MBT Compass Software, Build 4.1.80 or higher, required for the #1842250 - MBT Subtyping Module #1838206 - MBT 4.0 Software
MALDI target plates	#8280800 - MSP 96 target polished steel with bar code #8281817 - MSP 48 target polished steel with bar code #1840375 - MBT Biotarget 96 with #8267615 - MSP adapter for MALDI Biotarget
Optional: Devices to support the sample preparation	*#1822041 - MBT Pilot* *#1821269 - MBT Galaxy*
Consumables	#8255344 - HCCA Matrix *#1823405 - MBT Galaxy HCCA Matrix* #8255343 - Bacterial Test Standard BTS (it is mandatory to get one valid BTS per target and per run)

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 were 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.

To identify each strain, biochemical, serological and/or genetic characterizations were carried out. Strains were isolated primarily 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 should be traceable and held in a local (e.g. expert laboratory), national or international culture collection to enable them to be used in future testing if required.

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

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 22964. The validation study was carried out using strains cultured from stock on a non-selective medium or stored on microbeads at -80°C.

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 22964 method were applied to the strains during the ILS.

2.3 Inclusivity and exclusivity

The study design was 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 be tested with the reference confirmation procedure and with the alternative confirmation method. 103 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 from the exclusivity testing which showed colonies, were tested with the MBT procedure to ensure there were no cross-reactivity with the chosen selective agar. The aspect of the colonies is displayed 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 Cronobacter confirmations.

2.3.2 Cronobacter spp. testing at the genus level

150 Cronobacter spp. strains and 103 relevant non-Cronobacter spp. strains were tested. The list is provided in **Annex D**. Each strain was first recovered on a non-selective agar incubated at 34 - 38°C for 24 h ± 2 h (TSA, standard formulation), as well as on two selective agars:

- ESIA, standard formulation[1], incubated 24 h ± 2 h at 44°C ± 1°C,
- CCI, standard formulation[2], incubated 24 h ± 2 h at 41.5°C ± 1°C.

Non-target organisms were incubated under optimal growth conditions for the organism. Following the Direct Transfer sample preparation, all plates with growth were analyzed by the Bruker Maldi Biotyper System on disposable targets. 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 matrix was placed on each dried smear. After the spotting of the target plate, the HCCA matrix was added within 30 minutes. After the addition of the matrix to the smear, the target plate was analyzed within 24 hours. The protocol is described in **Annex C** .

2.3.3. Summary of the inclusivity and exclusivity testing

Table 4 outlines the tests which were done. Only strains showing colonies were tested.

Table 4. **Tests done during the MCS**

Target	Inclusivity		Exclusivity	Total
	Media tested	Tests number		
Cronobacter spp	TSA	150	103	218
	CCI	150	64[3]	
	ESIA	150	51[1]	
TOTAL		**450**	**218**	**668**

1. No growth obtained on the selective agar.

1 RAPID'*Sakazakii* (Bio-Rad) was used during the study

2 CCI from BioKar and ThermoFisher were used during the study

3 Among the 103 exclusivity strains tested, some did not grow on the selective agar, resulting in a lower number of strains to be tested by MALDI-TOF.

2.3.3 Expression of results

The results are tabulated in **Annex F** for inclusivity and **Annex G** for exclusivity study. **Table 5** shows the number of strains that showed non-characteristic colonies, as well as the number of sub-cultures on a non-selective agar required to get an identification result.

Table 5. **Description of the observed culture data**

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
	CCI	0/150	0	0
	ESIA	0/150	0	0
Exclusivity	TSA	0	3 (N° 72-73-95)=NOIP	2 (N°72 - 95)=NOIP
	CCI	62/103	1 (N°95)	2 (N°72 - 95)
	ESIA	49/103	1 (N°72)	2 (N°72 - 95)

NOIP: Non organism identification possible

For the inclusivity panel, all the strains were able to grow on the non-selective agar plate (TSA) and on both selective agar plates tested (ESIA and CCI).

For the exclusivity panel, 39 strains did not grow on CCI agar, 52 on ESIA agar. As expected, 3 strains (*Franconibacter helveticus* CCUG 6106, *Franconibacter pulveris* DSM 19145 and *Siccibacter turicensis* QL 17031.7) from the exclusivity panel were not always identified, providing a “no identification possible” result and therefore, no false positive confirmation result despite the close relationship with *Cronobacter* spp.

Many taxonomical changes occurred recently. *Franconibacter* spp and *Siccibacter* spp are new genera. Stephan et all[4] (2014) published the “re-examination of the taxonomic status of *Enterobacter helveticus, Enterobacter pulveris* and *Enterobacter turicensis* as members of the genus *Cronobacter* and their reclassification in the genera *Franconibacter* gen. nov. and *Siccibacter* gen. nov. as *Franconibacter helveticus* comb. nov., *Franconibacter pulveris* comb. nov. and *Siccibacter turicensis* comb. nov., respectively” in the reference journal for taxonomy, International Journal of Systematic and Evolutionary Microbiology.

There was no *Franconibacter* spp in the MBT library at the time of the validation study. Only one reference mass spectrum for *Siccibacter colletis*. Only few strains are currently available. In the next two years, the MBT Library will be updated with the new genera strains.

The *Franconibacter* spp strains showed characteristic colonies on both selective culture media, CCI and ESIA, leading to further confirmation tests. The Quick Guide for Food Testing describes the confirmation procedure when using the MBT. It is clearly mentioned that “In case of discrepancy between the result of the detection or enumeration method, and the result of confirmation with the MBT. It was the

[4] Stephan *et al.* (2014) Int J Syst Evol Microbiol. 64: 3402 - doi: 10.1099/ijs.0.059832-0

responsibility of the laboratory to investigate and use additional relevant tests". This was the case here.

The Annex C of the ISO 22964 standard provides additional information of the phenotypical distinction of Cronobacter from other genera. The variations observed in the phenotypes can lead to misidentification for some strains of *Cronobacter* spp, *Enterobacter* spp, *Franconibacter* spp, and *Siccibacter* spp. This was confirmed by Jackson and Forsythe (2016)[5]: "misidentifications of *Franconibacter* and *Siccibacter* species as members of the Cronobacter genus is unsurprising as these species were briefly considered to be part of the Cronobacter genus. Forty-eight ID32E profiles returned a species identification with a description of an "Unacceptable profile" instead of a percent identification with the updated version of the database. As with the API20E profiles, this produces more uncertainty in the species identification resulting from those profiles. Commercially available biochemical test panels, such as the API20E and ID32E were insufficient to identify Cronobacter isolates at the species level and reliance on these methods will result in false positive and false negative identifications. Only about 80% of Cronobacter strains were correctly identified to the genus level with current versions of the databases associated with either the AP20E or ID32E test kits. Identification to the species level with the ID32E kit resulted in a match for fewer than half of the strains. Though the Vitek GN cards identified all Cronobacter strains as members of the 'C*. sakazakii* group,' members of the Franconibacter *w*ere also assigned to this group."

There is no available biochemical test that will provide 100% correct identification.

The MBT provided 100% correct confirmation data during the study, and no false confirmation to Cronobacter spp. If the MBT concludes to "no ID° result possible" when analyzing characteristic colonies by running the DT sample preparation twice, the operator should repeat the analysis with a more extensive sample preparation (eDT or EXT).

As described in the MBT workflow, eDT (extended direct transfer) and EXT (extraction) procedures might be required to improve the quality of the profile and get an identification result. For inclusivity, the eDT and EXT procedures were used for some strains tested from CCI agar plates in one laboratory. The CCI providers were different between the two laboratories. Despite the CCI formulation being standardized, the requirement for the EXT procedure might be due to the CCI quality.

For the exclusivity panel, the eDT and EXT procedures were also used in some cases for strains isolated from TSA, CCI and ESIA. This is summarized in **Table 6**.

Table 6. Use of the eDT and EXT Procedures in the MBT workflow

Target	Media	No growth	MBT			MBT smart		
			DT [6]	eDT [7]	EXT [8]	DT	eDT	EXT
Inclusivity	TSA	0	150	0	0	150	0	0
	CCI	0	144	4	2	133	2	15

[5] Jackson and Forsythe BMC Microbiology. 16:146 – doi 10.1186/s12866-016-0768-6
[6] DT: Direct Transfer procedure
[7] eDT: extended Direct Transfer procedure
[8] EXT: extraction procedure

	ESIA	0	150	0	0	150	0	0
	Total	0	444	4	2	433	2	15
			450			450		
	Percentage	/	98.7%	0.9%	0.4%	96.2%	0.4%	3.3%
Exclusivity	TSA	0	100	0	3	99	1	3
	CCI	39	61	1	2	57	1	6
	ESIA	52	48	1	2	48	0	3
	Total	91	209	2	7	204	2	12
			218			218		
	Percentage	/	95.9%	0.9%	3.2%	93.6%	0.9%	5.5%

Inclusivity study

For the MBT, the eDT was run for 0.9% of the identification results and the EXT for 0.4%. For the MBT-smart, the eDT was run for 0.4% of the identification results and the EXT for 3.3 %.

Exclusivity study

For the MBT, the eDT was run for 0.9% of the identification results and the EXT for 3.2%. For the MBT-smart, the eDT was run for 0.9% of the identification results and the EXT for 5.5%.

For both the inclusivity and exclusivity studies, the percentages of eDT were equal. The only difference was observed with the number of EXT that were run. This difference was observed with 18 samples out of a total of 1336 tests (1.3%), 900 for the inclusivity study and 436 for the exclusivity study. This slight difference in the workflow was may be due to the delay in analyzing the biotargets. For the MBT-smart, the biotargets were analyzed a minimum of 24 hours after the sample preparations were carried out while the sample stability can be guaranteed up to 24 hours at 20 - 25°C.

For the exclusivity panel, some disagreements were observed between the original identification of the strains obtained with the conventional identification procedures and the MBT results. These strains were confirmed using 16S rDNA sequencing.

In one case, the misidentification was due to a lack of representatives of the genus or species in the MBT Library. In five cases, the MBT results were confirmed with 16S rDNA sequencing. In some cases, the various methods gave a different result. **Table 7** summarizes the disagreements observed. This table gives additional information not within the scope of the validation. The interpretation of the results is summarized in **Table 8**. The first step of the confirmation procedure was the isolation on the tested culture media.

Table 7. Disagreements observed in the exclusivity panel

Agreement between two methods | Disagreement with the two other methods | Not possible to conclude

Original identification of the strains	Identification with the MALDI Biotyper and MALDI Biotyper smart	Identification with 16S rDNA sequencing	Conclusion
Enterobacter agglomerans 117	*Klebsiella pneumoniae*	*Klebsiella pneumoniae*	*Klebsiella pneumoniae* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing.
Enterobacter agglomerans 135	*Buttiauxella* spp*	*Buttiauxella ferragutiae*	*Buttiauxella spp* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing.
Lelliottia amnigena 129	*Kluyvera spp*	*Kluyvera intermedia*	*Kluyvera spp* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing.
Escherichia vulneris 127	*Citrobacter* spp*	*Citrobacter freundii*	*Citrobacter spp* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing.
Serratia fiacria 113	*Klebsiella spp*	*Klebsiella pneumoniae*	*Klebsiella pneumoniae* is confirmed with the MALDI Biotyper, MALDI Biotyper smart and 16S rDNA sequencing.
Enterobacter cancerogenus QL 11010.1	*Escherichia coli*	*Shigella, Escherichia, Enterobacter*	Difficult to conclude as there are more than 3 identification results. 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 vulneris ATCC 29943	*Escherichia hermannii*	*Enterobacter*	It is probably an *Escherichia* spp strain, but it is difficult to conclude about the species.
Franconibacter helveticus CCUG 66106	*Salmonella sp.*	/	There is no profile from *Franconibacter* in the library, but a matching profile was found with *Salmonella* with a score=1.72. To get a confirmation to *Salmonella* spp, it anyway required to get the two best matches higher than 1.70 and providing both *Salmonella* spp. As it is the case for identification methods, the update of the Library will improve the identification results for *Franconibacter* strains.

*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 8: 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	103[a]	Not applicable	Not applicable	100	0
	CCI	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	103[b]	Not applicable	Not applicable	63	0
	ESIA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	103[b]	Not applicable	Not applicable	50	0
LT/SH MALDI Smart System	TSA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	103[c]	Not applicable	Not applicable	101	0
	CCI	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	103[c]	Not applicable	Not applicable	62	0
	ESIA	Inclusivity	150	150	0	Not applicable	Not applicable
		Exclusivity	103[c]	Not applicable	Not applicable	49	0

[a] No organism identification possible (NOIP) for 3 out of 103
[b] No organism identification possible (NOIP) for 1 out of 103
[c] No organism identification possible (NOIP) for 2 out of 103
*Studies with N< 103 are due to no growth and the indicated NOIP

Some non-target strains did not grow on all the plates. Only the isolates that grew were considered in the final confirmation results displayed in **Table 8-EA**. No discrepant results were observed on any of the tested culture medium.

2.3.4 Evaluation

The results of the method comparison study are summarised in the **Table 9**.

Table 9. **Evaluation of the method comparison study results.**

MALDI System	Media tested	Study	AL	ID	ID≤ AL	ED	ED≤AL	Evaluation
LT/SH-MALDI-MS System	TSA	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
	CCI	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
	ESIA	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	TSA	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
	CCI	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted
	ESIA	Inclusivity	1	0	0 ≤ 1	Not applicable	Not applicable	Accepted
		Exclusivity	2	Not applicable	Not applicable	0	0 ≤ 2	Accepted

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 fixed AL at 1 for 150 target strains tested.

For exclusivity, the AL is met for both MBT Systems, and for all the tested media, as the value for the exclusivity deviation (ED) was lower than the fixed AL at 2 for ≤103 (considering NOIP) non-target strains.

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 fixed AL at 1 for 150 target strains tested.

For exclusivity, the AL is met for both MBT Systems, and for all the tested media, as the value for the exclusivity deviation (ED) was lower than the fixed AL at 2 for ≤103 (considering NOIP) non-target strains. The MBT also provided reliable identification results on the exclusivity panel.

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

5 Interlaboratory Study

5.1Protocol and Materials

14 collaborators from 7 laboratories participated in the Interlaboratory Study. 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 H**. The samples were plotted on targets or biotargets depending on the collaborators. The information is shown in **Table 10**.

Table 10. **Targets used by the collaborators and the expert lab.**

Collaborators	Type of target used
L1	Disposable Biotarget 96
L2	Reusable polished steel target
L3	Reusable polished steel target
L4	Disposable Biotarget 96
L5	Reusable polished steel target
L6	Disposable Biotarget 96
L7	Disposable Biotarget 96
L8	Reusable polished steel target
L9	Reusable polished steel target
L10	Reusable polished steel target
L11	Reusable polished steel target
L12	Disposable Biotarget 96
L13	Disposable Biotarget 96
L14	Disposable Biotarget 96
Q	Disposable Biotarget 96
Total Reusable Polished Steel Targets	**7**
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 Wednesday 23rd 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 to the collaborators on Thursday 24th August 2017.

5.3Analysis

The collaborators and the Expert Laboratory tested the blind coded strains as described in **Annex I**. Each collaborator streaked the blind coded targets and non-target strains onto a non-selective (TSA) and selective agar plates (CCI and ESIA*)* before applying the alternative MALDI-TOF Confirmation Procedure. 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 11**.

Table 11. **Presentation of comments from Participants**

Collaborator	Comments		Collaborators retained for interpretation
	Reference method	Alternative method	
L1	No	No comment	Yes
L2	No	No comment	Yes
L3	No	No comment	Yes
L4	No comment	No result for strain C8 from TSA and CCI. The Lab did not follow the MBT workflow described in the instructions and stopped running analysis	Yes for ESIA only
L5	No comment	No result for strain C2 and C14 from TSA. No result for strains C6, C10, C14 and C15 for CCI. No result for strain C2 and C3 for ESIA. The Lab did not follow the MBT workflow described in the instructions and stopped running analysis	No
L6	No	No comment	Yes
L7	No	No comment	Yes
L8	No	No comment	Yes
L9	No comment	No result for strain C1 from TSA. The Lab did not follow the MBT workflow described in the instructions and stopped running analysis	Yes for CCI and ESIA
L10	No	No comment	Yes
L11	No	No comment	Yes
L12	No	No comment	Yes
L13	No	No comment	Yes
L14	No	No comment	Yes

Some collaborators didn't follow the entire MBT workflow and stopped with the eDT and therefore, no identification result was obtained. Only the data from the collaborators that completed the entire workflow were kept for interpretation and listed in **Table 12**. For 11 out of the 14 collaborators, a repeated DT, eDT or EXT workflow was required on TSA, 10 out of 14 on CCI, and 13 out of 14 on ESIA.

Table 1. **Collaborators kept for interpretation per media used for streaking**

	Collaborators	TSA	CCI	ESIA
	L1	Yes	Yes	Yes
	L2	Yes	Yes	Yes
	L3	Yes	Yes	Yes
	L4	No	No	Yes
	L5	No	No	No
	L6	Yes	Yes	Yes
	L7	Yes	Yes	Yes
	L8	Yes	Yes	Yes
	L9	No	Yes	Yes
	L10	Yes	Yes	Yes
	L11	Yes	Yes	Yes
	L12	Yes	Yes	Yes
	L13	Yes	Yes	Yes
	L14	Yes	Yes	Yes
TOTAL	**14**	**11**	**12**	**13**

A summary of the results kept for interpretation are given **Table 13** for TSA, **Table 14** for CCI and **Table 15** for ESIA.

Table 2. Summary of the results obtained for TSA

Collaborators	TSA	
	Number of correctly confirmed strains in the inclusivity part leading as well to correct identification at the species level (PA)	Number of correctly non-confirmed strains in the exclusivity part leading as well to correct identification at the species level (NA)
	Alternative confirmation method	Alternative confirmation method
L1	16/16	8/8
L2	16/16	8/8
L3	16/16	8/8
L6	16/16	8/8
L7	16/16	8/8
L8	16/16	8/8
L10	16/16	8/8
L11	16/16	8/8
L12	16/16	8/8
L13	16/16	8/8
L14	16/16	8/8
TOTAL	176/176	88/88
11 labs	**176/176**	**88/88**

Note: Data from 3 collaborators were excluded from interpretation because of technical deviations from the testing protocol

Table 3. Summary of the results obtained for CCI

Collaborators	CCI	
	Number of correctly confirmed strains in the inclusivity part leading as well to correct identification at the species level (PA)	Number of correctly non-confirmed strains in the exclusivity part leading as well to correct identification at the species level (NA)
	Alternative confirmation method	Alternative confirmation method
L1	16/16	8/8
L2	16/16	8/8
L3	16/16	8/8
L6	16/16	8/8
L7	16/16	8/8
L8	16/16	8/8
L9	16/16	8/8
L10	16/16	8/8
L11	16/16	8/8
L12	16/16	8/8 including 3 NA (no growth)
L13	16/16	8/8 including 3 NA (no growth)
L14	16/16	8/8 including 2 NA (no growth)
TOTAL	192/192	96/96
12 labs	**192/192**	**96/96**

Note: Data from 2 collaborators were excluded from interpretation because of technical deviations from the testing protocol

Table 15. **Summary of the results obtained for ESIA**

Collaborators	ESIA	
	Number of correctly confirmed strains in the inclusivity part leading as well to correct identification at the species level (PA)	Number of correctly non-confirmed strains in the exclusivity part leading as well to correct identification at the species level (NA)
	Alternative confirmation method	Alternative confirmation method
L1	16/16	8/8
L2	16/16	8/8
L3	16/16	8/8
L4	16/16	8/8
L6	16/16	8/8
L7	16/16	8/8 including 1 NA (no growth)
L8	16/16	8/8
L9	16/16	8/8
L10	16/16	8/8
L11	16/16	8/8
L12	16/16	8/8 including 2 NA (no growth)
L13	16/16	8/8
L14	16/16	8/8 including 2 NA (no growth)
TOTAL	**208/208**	**104/104**
13 labs	**208/208**	**104/104**

Note: Data from 1 collaborator were excluded from the interpretation because of technical deviations from the testing protocol.

All the strains were correctly confirmed and identified at the Cronobacter genus in the inclusivity testing and at the species level in the exclusivity testing. This confirms the reliability and robustness of the MBT method. *Pseudomonas aeruginosa* ATCC 35032 strain was misidentified to *Chromobacterium violaceum* by the reference method in four laboratories.

5.5 Interpretation and evaluation

The results of the interlaboratory study are summarized in **Table 16**.

Table 46. **Summary of the results in the interlaboratory study**

Media tested	Number of collaborators	Study	N	IA	ID	EA*	ED
TSA	11	Inclusivity	176	176	0	Not Applicable	Not Applicable
	11	Exclusivity	88	Not Applicable	Not Applicable	88	0
CCI	12	Inclusivity	192	193	0	Not Applicable	Not Applicable
	12	Exclusivity	96	Not Applicable	Not Applicable	88	0
ESIA	13	Inclusivity	208	208	0	Not Applicable	Not Applicable
	13	Exclusivity	104	Not Applicable	Not Applicable	99	0

*Studies with EA< N for each medium are due to no growth

The results evaluated according to the acceptability limits (AL) are given in **Table 17**.

Table 17. **Evaluation of the interlaboratory study results**

Media tested	Number of labs	Study	N	AL	ID	ID≤AL	ED	ED≤AL	Evaluation
TSA	11	Inclusivity	176	2	0	0≤2	Not Applicable	Not Applicable	Accepted
	11	Exclusivity	88	2	Not Applicable	Not Applicable	0	0≤2	Accepted
CCI	12	Inclusivity	192	2	0	0≤2	Not Applicable	Not Applicable	Accepted
	12	Exclusivity	96	2	Not Applicable	Not Applicable	0	0≤2	Accepted
ESIA	13	Inclusivity	208	3	0	0≤3	Not Applicable	Not Applicable	Accepted
	13	Exclusivity	104	3	Not Applicable	Not Applicable	0	0≤3	Accepted

Seven collaborators used the reusable polished steel targets and 7 collaborators used the disposable targets; no difference was observed between either targets, confirming the reliability of the method. The AL was met for the 3 media tested during this interlaboratory study (non selective agar (TSA), CCI and ESIA), as the value for inclusivity deviation (ID) for the inclusivity study were lower than the AL as well as the value for exclusivity deviation (ED) for the exclusivity study.

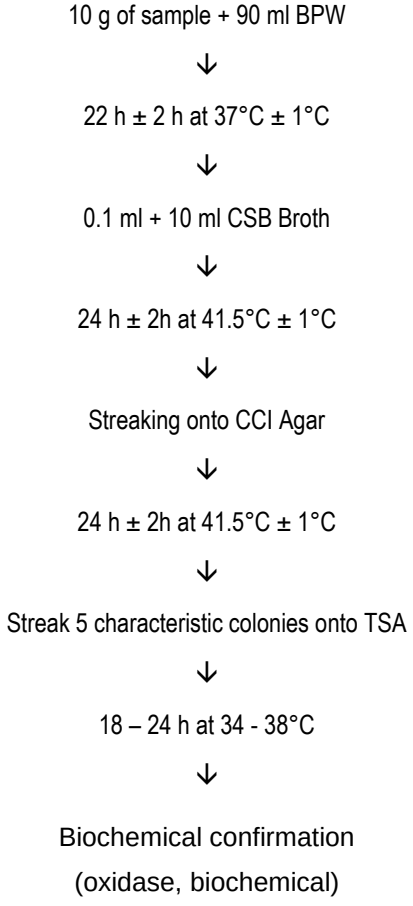
6 Conclusions of Interlaboratory Study

The AL was met for the 3 tested media during the Interlaboratory Study (TSA, CCI and ESIA), as the value for inclusivity deviation (ID) was lower than the AL as well as the value for exclusivity deviation (ED) for the exclusivity study.

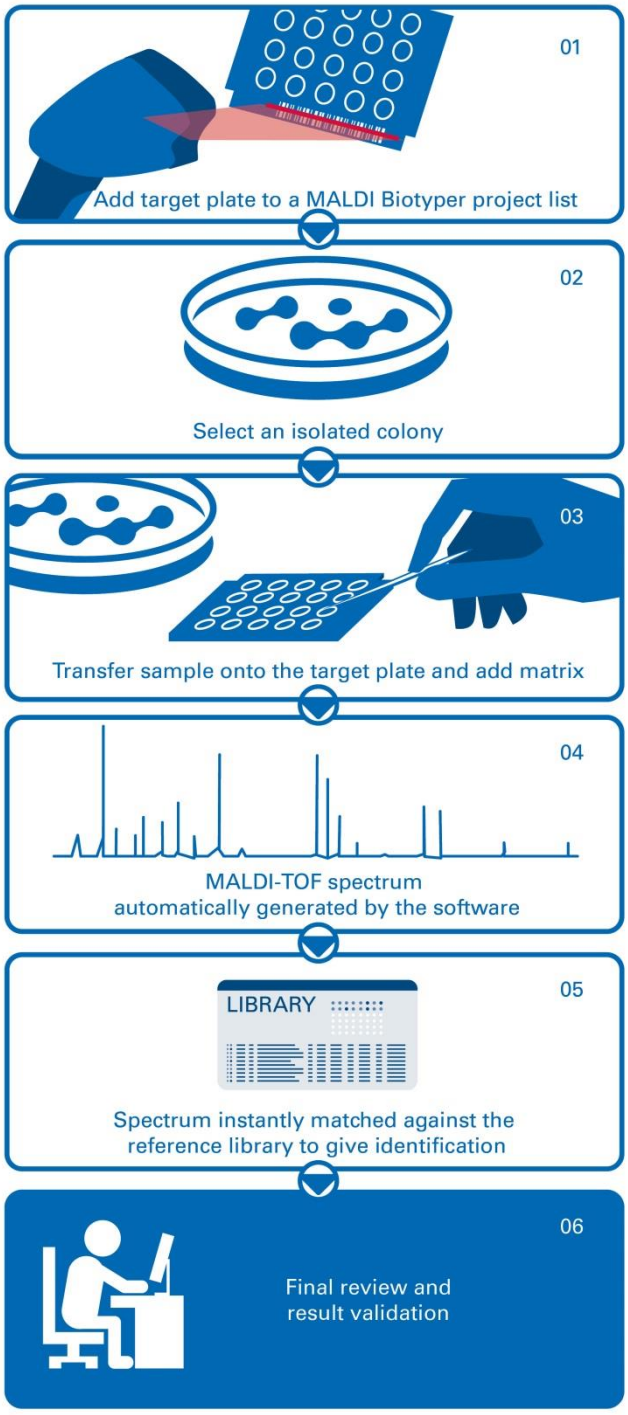
The data and interpretation confirm the reliability and robustness of the MALDI Biotyper as a confirmation method for *Cronobacter* spp and non-*Cronobacter* spp isolates from isolated colonies.

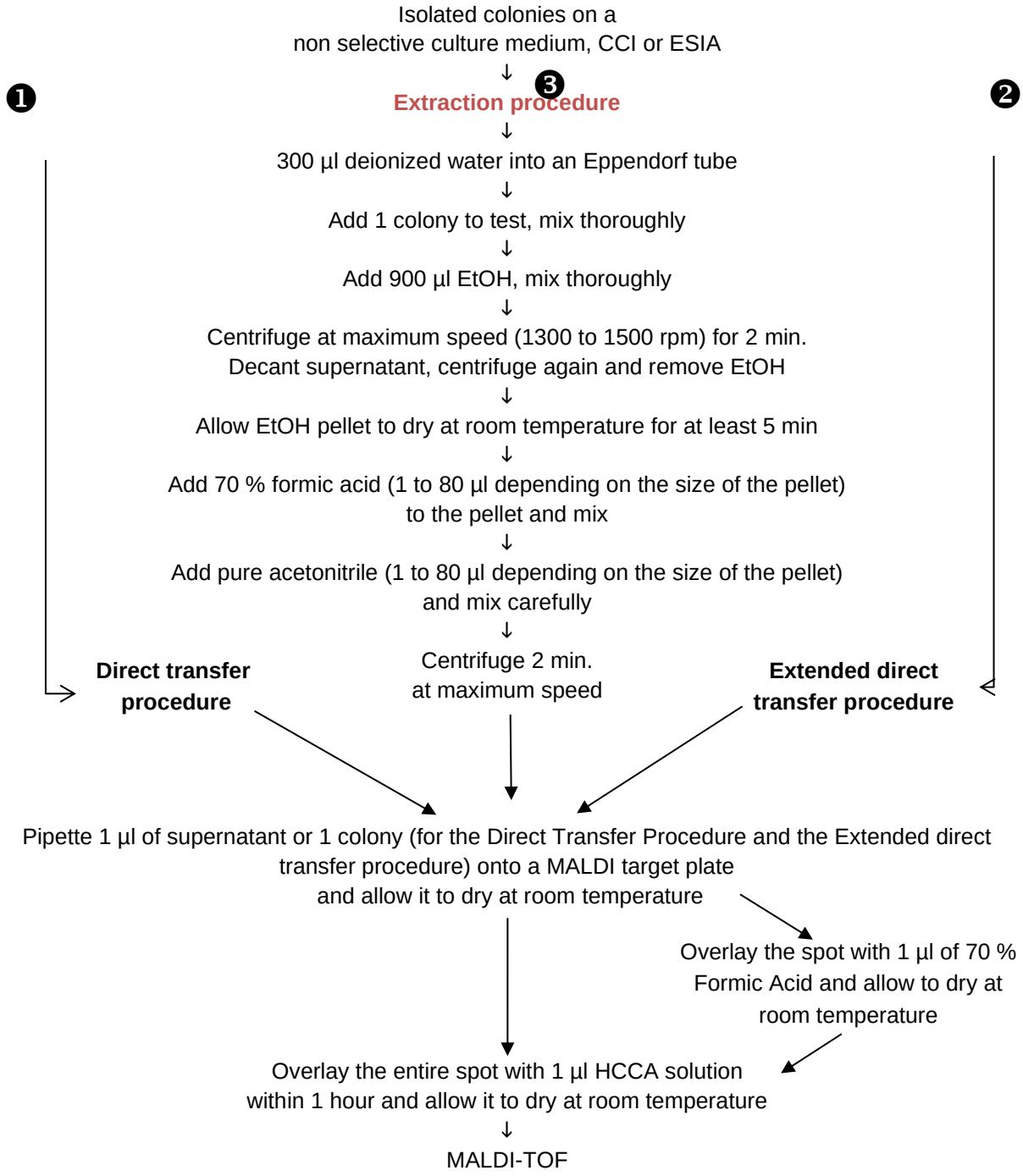
Annex A: Flow diagram of the reference method

ISO 22964 (April 2017) - Microbiology of food chain - Horizontal method for the detection of *Cronobacter* spp.



Annex B: Flow diagram of the alternative method





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 nonselective 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"**

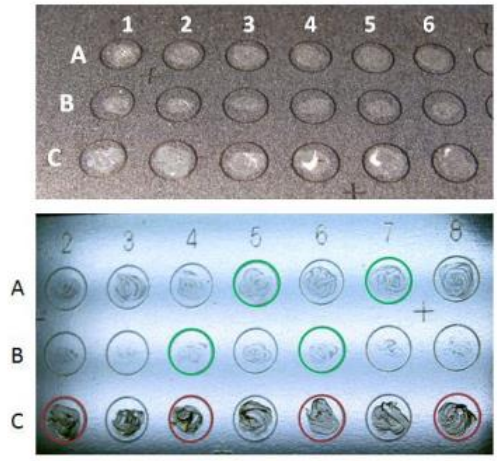


Fig 1: Different amounts of biological material: both pictures show the same MALDI target after sample application and before matrix addition; (entire row A) "appropriate amount" of biological material, (entire row B) small but still sufficient amount of biological material, (entire row C) too much biological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

Annex B – List of strains:
Cronobacter spp. testing at the genus level

INCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
1	*Cronobacter*	*condimenti*	LMG26250T	Spiced meat	Adria
2	*Cronobacter*	*dublinensis dublinensis*	LMG23823T	Environmental sample	Adria
3	*Cronobacter*	*dublinensis lausannensis*	E798	Unknown	Adria
4	*Cronobacter*	*muytjensii*	E769	Milk powder	Adria
5	*Cronobacter*	*muytjensii*	E888	Milk powder	Adria
6	*Cronobacter*	*malonaticus*	E684	Food product	Adria
7	*Cronobacter*	*malonaticus*	E752	Baby food	Adria
8	*Cronobacter*	*sakazakii*	95	Vanilla cottage cheese	Adria
9	*Cronobacter*	*sakazakii*	138	Raz el Hanout	Adria
10	*Cronobacter*	*sakazakii*	Ad704	Milk powder	Adria
11	*Cronobacter*	*sakazakii*	Ad705	Grain for poultry	Adria
12	*Cronobacter*	*sakazakii*	Ad890	Whole egg	Adria
13	*Cronobacter*	*sakazakii*	Ad891	Whole egg	Adria
14	*Cronobacter*	*sakazakii*	Ad1418	Infant formula	Adria
15	*Cronobacter*	*sakazakii*	Ad1419	Infant formula	Adria
16	*Cronobacter*	*sakazakii*	Ad1420	Infant formula	Adria
17	*Cronobacter*	*sakazakii*	Ad1421	Infant formula	Adria
18	*Cronobacter*	*sakazakii*	Ad1424	Infant formula	Adria
19	*Cronobacter*	*sakazakii*	Ad1425	Infant formula	Adria
20	*Cronobacter*	*sakazakii*	Ad1426	Infant formula	Adria
21	*Cronobacter*	*sakazakii*	Ad1427	Infant formula	Adria
22	*Cronobacter*	*sakazakii*	Ad1428	Infant formula	Adria
23	*Cronobacter*	*sakazakii*	Ad1429	Infant formula	Adria
24	*Cronobacter*	*sakazakii*	Ad1430	Infant formula	Adria
25	*Cronobacter*	*sakazakii*	Ad1431	Infant formula	Adria
26	*Cronobacter*	*sakazakii*	Ad1432	Infant formula	Adria
27	*Cronobacter*	*sakazakii*	Ad1433	Infant formula	Adria
28	*Cronobacter*	*sakazakii*	Ad1434	Infant formula	Adria
29	*Cronobacter*	*sakazakii*	Ad1435	Infant formula	Adria
30	*Cronobacter*	*sakazakii*	Ad1436	Infant formula	Adria
31	*Cronobacter*	*sakazakii*	Ad1437	Infant formula	Adria
32	*Cronobacter*	*sakazakii*	Ad1446	Infant formula	Adria
33	*Cronobacter*	*sakazakii*	Ad1813	Peanut paste	Adria
34	*Cronobacter*	*sakazakii*	Ad2283	Dairy product	Adria
35	*Cronobacter*	*sakazakii*	Ad2289	Process water	Adria
36	*Cronobacter*	*sakazakii*	Ad2341	Amylogen	Adria
37	*Cronobacter*	*sakazakii*	Ad2342	Environmental sample (dairy)	Adria
38	*Cronobacter*	*sakazakii*	Ad2344	Environmental sample (dairy)	Adria
39	*Cronobacter*	*sakazakii*	Ad2346	Environmental sample (dairy)	Adria
40	*Cronobacter*	*sakazakii*	Ad2347	Environmental sample (dairy)	Adria
41	*Cronobacter*	*sakazakii*	Ad2349	Infant formula	Adria
42	*Cronobacter*	*sakazakii*	Ad2350	Infant formula	Adria

INCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
43	*Cronobacter*	*sakazakii*	Ad2355	Environmental sample (dairy)	Adria
44	*Cronobacter*	*sakazakii*	Ad2356	Infant formula	Adria
45	*Cronobacter*	*sakazakii*	Ad2358	Infant formula	Adria
46	*Cronobacter*	*sakazakii*	Ad2362	Environmental sample (dairy)	Adria
47	*Cronobacter*	*sakazakii*	Ad2363	Environmental sample (dairy)	Adria
48	*Cronobacter*	*sakazakii*	Ad2366	Environmental sample (dairy)	Adria
49	*Cronobacter*	*sakazakii*	Ad2368	Dairy product	Adria
50	*Cronobacter*	*sakazakii*	Ad2369	Dairy product	Adria
51	*Cronobacter*	*sakazakii*	Ad2370	Infant formula	Adria
52	*Cronobacter*	*sakazakii*	Ad2371	Dairy product	Adria
53	*Cronobacter*	*sakazakii*	Ad2376	Dairy product	Adria
54	*Cronobacter*	*sakazakii*	Ad2377	Dairy product	Adria
55	*Cronobacter*	*sakazakii*	Ad2378	Infant formula	Adria
56	*Cronobacter*	*sakazakii*	Ad2380	Environmental sample (dairy)	Adria
57	*Cronobacter*	*sakazakii*	Ad2384	Environmental sample (dairy)	Adria
58	*Cronobacter*	*sakazakii*	Ad2386	Environmental sample (dairy)	Adria
59	*Cronobacter*	*sakazakii*	Ad2387	Environmental sample (dairy)	Adria
60	*Cronobacter*	*sakazakii*	Ad2394	Infant formula	Adria
61	*Cronobacter*	*sakazakii*	Ad2396	Infant formula	Adria
62	*Cronobacter*	*sakazakii*	Ad2397	Environmental sample (dairy)	Adria
63	*Cronobacter*	*sakazakii*	Ad2400	Infant formula	Adria
64	*Cronobacter*	*sakazakii*	Ad2405	Infant formula	Adria
65	*Cronobacter*	*sakazakii*	Ad2407	Infant formula	Adria
66	*Cronobacter*	*sakazakii*	Ad2408	Environmental sample (dairy)	Adria
67	*Cronobacter*	*sakazakii*	Ad2411	Infant formula	Adria
68	*Cronobacter*	*sakazakii*	Ad2412	Infant formula	Adria
69	*Cronobacter*	*sakazakii*	Ad2413	Infant formula	Adria
70	*Cronobacter*	*sakazakii subsp sakazakii*	Ad1707	Environmental sample (dairy)	Adria
71	*Cronobacter*	*sakazakii subsp malonaticus*	Ad1708	Environmental sample (dairy)	Adria
72	*Cronobacter*	*universalis*	NCTC9529T	Water	Adria
73	*Cronobacter*	*turicensis*	E681	Ready to eat	Adria
74	*Cronobacter*	*turicensis*	E694	Ready to eat	Adria
75	*Cronobacter*	*turicensis*	Ad1445	Infant formula	Adria
76	*Cronobacter*	*condimenti*	QL 17031.1	Infant formula	Q Labs
77	*Cronobacter*	*condimenti*	DSM 27966	Milk powder	Q Labs
78	*Cronobacter*	*dublinensis*	QL 17031.2	Infant formula	Q Labs
79	*Cronobacter*	*dublinensis*	CCUG 55851	Milk powder	Q Labs
80	*Cronobacter*	*dublinensis*	CCUG 58094	Milk powder	Q Labs
81	*Cronobacter*	*dublinensis*	CCUG 58095	Water Fountain Basin	Q Labs
82	*Cronobacter*	*dublinensis* subsp *dublinensis*	DSM 18705	Milk powder	Q Labs
83	*Cronobacter*	*dublinensis* subsp Lausannensis	DSM 18706	Water Fountain Basin	Q Labs
84	*Cronobacter*	*dublinensis* subsp *Lactaridi*	DSM 18707	Milk powder	Q Labs
85	*Cronobacter*	*malonaticus*	QL 123015-1A	Rice flour	Q Labs
86	*Cronobacter*	*malonaticus*	FSL F6-030	Infant formula	Q Labs
87	*Cronobacter*	*malonaticus*	FSL F6-052	Human Clinical	Q Labs

INCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
88	*Cronobacter*	*malonaticus*	QL 123015-1B	Rice flour	Q Labs
89	*Cronobacter*	*malonaticus*	DSM 18702	Breast Abscess	Q Labs
90	*Cronobacter*	*malonaticus*	CCUG 22864	Human cerebrospinal fluid	Q Labs
91	*Cronobacter*	*malonaticus*	CCUG 28859	Formula	Q Labs
92	*Cronobacter*	*malonaticus*	CCUG 28869	Dish Brush	Q Labs
93	*Cronobacter*	*malonaticus*	CCUG 56035	Human Breast Abscess	Q Labs
94	*Cronobacter*	*malonaticus*	QL 17031.3	Infant formula	Q Labs
95	*Cronobacter*	*muytjensii*	QL 17031.6	Infant formula	Q Labs
96	*Cronobacter*	*muytjensii*	DSM 21870	Not Available	Q Labs
97	*Cronobacter*	*muytjensii*	FSL F6-031	Infant formula	Q Labs
98	*Cronobacter*	*muytjensii*	ATCC 51329	Not Available	Q Labs
99	*Cronobacter*	*sakazakii*	QL 11010.2	Infant formula	Q Labs
100	*Cronobacter*	*sakazakii*	QL 11007-9	Rice flour	Q Labs
101	*Cronobacter*	*sakazakii*	FSL F6-023	Human Clinical	Q Labs
102	*Cronobacter*	*sakazakii*	FSL F6-024	Infant formula	Q Labs
103	*Cronobacter*	*sakazakii*	FSL F6-025	Environment, Food	Q Labs
104	*Cronobacter*	*sakazakii*	FSL F6-027	Environment, Food	Q Labs
105	*Cronobacter*	*sakazakii*	FSL F6-028	Human Clinical	Q Labs
106	*Cronobacter*	*sakazakii*	FSL F6-029	Human Clinical	Q Labs
107	*Cronobacter*	*sakazakii*	FSL F6-032	Infant formula	Q Labs
108	*Cronobacter*	*sakazakii*	FSL F6-034	Human Clinical	Q Labs
109	*Cronobacter*	*sakazakii*	FSL F6-035	Human Clinical	Q Labs
110	*Cronobacter*	*sakazakii*	FSL F6-036	Environment, Food	Q Labs
111	*Cronobacter*	*sakazakii*	FSL F6-037	Environment, Food	Q Labs
112	*Cronobacter*	*sakazakii*	FSL F6-038	Environment, Food	Q Labs
113	*Cronobacter*	*sakazakii*	FSL F6-039	Environment, Food	Q Labs
114	*Cronobacter*	*sakazakii*	FSL F6-040	Environment, Food	Q Labs
115	*Cronobacter*	*sakazakii*	FSL F6-041	Environment, Food	Q Labs
116	*Cronobacter*	*sakazakii*	FSL F6-042	Infant formula	Q Labs
117	*Cronobacter*	*sakazakii*	FSL F6-043	Human Clinical	Q Labs
118	*Cronobacter*	*sakazakii*	FSL F6-044	Food product	Q Labs
119	*Cronobacter*	*sakazakii*	FSL F6-046	Infant formula	Q Labs
120	*Cronobacter*	*sakazakii*	FSL F6-047	Infant formula	Q Labs
121	*Cronobacter*	*sakazakii*	FSL F6-048	Infant formula	Q Labs
122	*Cronobacter*	*sakazakii*	FSL F6-049	Human Clinical	Q Labs
123	*Cronobacter*	*sakazakii*	FSL F6-050	Human Clinical	Q Labs
124	*Cronobacter*	*sakazakii*	FSL F6-051	Human Clinical	Q Labs
125	*Cronobacter*	*sakazakii*	FSL F6-045i	Food product	Q Labs
126	*Cronobacter*	*sakazakii*	QL 17031.8	Infant formula	Q Labs
127	*Cronobacter*	*sakazakii*	QL 17031.4	Infant formula	Q Labs
128	*Cronobacter*	*sakazakii*	DSM 4485	Child's Throat	Q Labs
129	*Cronobacter*	*sakazakii*	CCUG 10788	Tin of Milk	Q Labs
130	*Cronobacter*	*sakazakii*	CCUG 14558	Child Throat	Q Labs
131	*Cronobacter*	*sakazakii*	CCUG 21205	Not Available	Q Labs
132	*Cronobacter*	*sakazakii*	CCUG 29212	Human cerebrospinal fluid	Q Labs

INCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
133	*Cronobacter*	*sakazakii*	CCUG 28821	Human Sputum	Q Labs
134	*Cronobacter*	*sakazakii*	CCUG 28857	Human cerebrospinal fluid	Q Labs
135	*Cronobacter*	*sakazakii*	CCUG 28858	Human cerebrospinal fluid	Q Labs
136	*Cronobacter*	*sakazakii*	CCUG 28860	Formula	Q Labs
137	*Cronobacter*	*sakazakii*	CCUG 28861	Human cerebrospinal fluid	Q Labs
138	*Cronobacter*	*sakazakii*	CCUG 28863	Human cerebrospinal fluid	Q Labs
139	*Cronobacter*	*sakazakii*	CCUG 28865	Human cerebrospinal fluid	Q Labs
140	*Cronobacter*	*sakazakii*	CCUG 28866	Human Vagina, newborn	Q Labs
141	*Cronobacter*	*sakazakii*	CCUG 28867	Formula	Q Labs
142	*Cronobacter*	*sakazakii*	CCUG 28868	Dish Brush	Q Labs
143	*Cronobacter*	*sakazakii*	CCUG 28870	Dish Brush	Q Labs
144	*Cronobacter*	*sakazakii*	CCUG 64760	Environment, Industry	Q Labs
145	*Cronobacter*	*sakazakii*	QL 17031.7	Infant formula	Q Labs
146	*Cronobacter*	*sakazakii*	QL 17031.5	Infant formula	Q Labs
147	*Cronobacter*	*sakazakii*	QL 17031.6	Infant formula	Q Labs
148	*Cronobacter*	*turicensis*	DSM 18703	Neonate with Meningitidis	Q Labs
149	*Cronobacter*	*turicensis*	CCUG 55852	Human Blood	Q Labs
150	*Cronobacter*	*turicensis*	QL 17031.5	Infant formula	Q Labs

EXCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
1	*Buttiauxella*	*agrestis*	Ad1320	Liquid egg	Adria
2	*Buttiauxella*	*noackiae*	Ad1325	Whole liquid egg	Adria
3	*Citrobacter*	*diversus*	147	Raw milk	Adria
4	*Citrobacter*	*diversus*	100	Liver	Adria
5	*Citrobacter*	*freundii*	104	Ground beef	Adria
6	*Citrobacter*	*diversus*	Ad1326	Liquid egg	Adria
7	*Citrobacter*	*freundii*	24	Sea food	Adria
8	*Citrobacter*	*freundii*	25	Spinach	Adria
9	*Citrobacter*	*gillenii*	Ad343	Unknown	Adria
10	*Citrobacter*	*farmeri*	Ad1116	Environmental sample (egg)	Adria
11	*Citrobacter*	*youngae*	Ad833	Beef meat	Adria
12	*Enterobacter*	*aerogenes*	Ad889	Meat meal	Adria
13	*Enterobacter (Pantoea)*	*agglomerans*	117	Broccoli	Adria
14	*Enterobacter (Pantoea)*	*agglomerans*	Ad877	Unknown	Adria
15	*Enterobacter (Pantoea)*	*agglomerans*	135	Liver	Adria
16	*Enterobacter*	*amnigenus*	A00C068	Cockerel	Adria
17	*Enterobacter*	*cloacae*	10	Raw milk	Adria
18	*Enterobacter*	*cloacae*	148	Ready to reheat (paella)	Adria
19	*Enterobacter*	*cloacae*	150	Ground beef	Adria
20	*Enterobacter*	*hormaechei*	Ad990	Butter	Adria
21	*Enterobacter*	*kobei*	Ad342	Ham	Adria
22	*Escherichia*	*fergusonii*	Ad1381	Water	Adria
23	*Escherichia*	*fergusonii*	2876	Environmental sample	Adria
24	*Escherichia*	*hermannii*	Ad457	Spinach	Adria
25	*Escherichia*	*hermannii*	Ad458	Egg product	Adria
26	*Escherichia*	*vulneris*	127	Raw milk	Adria
27	*Hafnia*	*alvei*	130	Raw milk cheese	Adria
28	*Hafnia*	*alvei*	168	Duck meat	Adria
29	*Klebsiella*	*pneumoniae*	47	Chicken skin	Adria
30	*Klebsiella*	*oxytoca*	Ad1509	Milk powder	Adria
31	*Kluyvera*	*intermedia*	60	Frozen beans	Adria
32	*Leclercia*	*adecarboxylata*	Ad707	Milk powder	Adria
33	*Lelliottia*	*amnigena*	52	Beans	Adria
34	*Lelliottia*	*amnigena*	129	Raw milk	Adria
35	*Pectobacterium*	*carotovora*	CIP82.83T	Potatoes	Adria
36	*Providencia*	*rettgeri*	112	White liquid egg	Adria
37	*Providencia*	*stuartii*	46	Poultry meat	Adria
38	*Providencia*	*stuartii*	Ad1575	River water	Adria
39	*Raoultella*	*terrigena*	Ad1370	Water	Adria
40	*Raoultella*	*terrigena*	Ad1368	Water	Adria
41	*Rhanella*	*aquatilis*	68	Ready to reheat meat	Adria
42	*Salmonella enterica*	Blockley	Ad923	Hen	Adria
43	*Salmonella enterica*	Putten	Ad2331	Feed for chicken	Adria
44	*Salmonella enterica houtenae*	43:z4.z32	Ad597	Fish product	Adria
45	*Salmonella enterica salamae*	1.13.23:gmt:enx	Ad450	Raw ewe milk	Adria

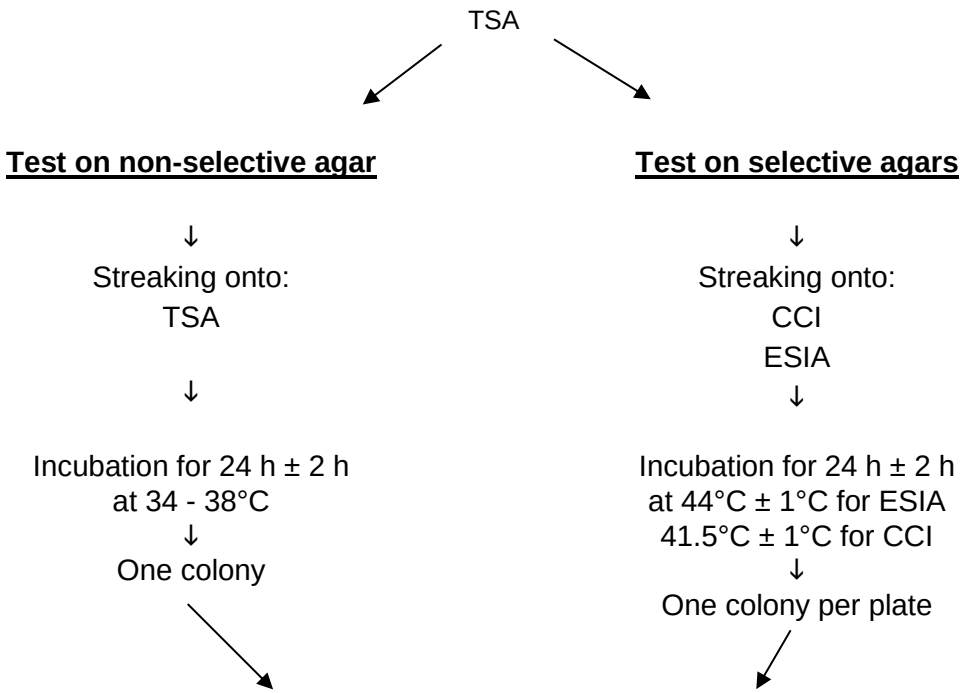
EXCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
46	*Serratia*	*ficaria*	113	Salad	Adria
47	*Serratia*	*fonticola*	Ad1696	Salmon	Adria
48	*Serratia*	*liquefaciens*	87a	Gizzard	Adria
49	*Serratia*	*marcescens*	Ad447	Raw milk	Adria
50	*Serratia*	*proteamaculans*	Ad1697	Salmon	Adria
51	*Yersinia*	*enterocolitica*	A00C066	Cockerel	Adria
52	*Yersinia*	*intermedia*	33	Raw milk	Adria
53	*Aeromonas*	*hydrophila*	ATCC 49140	Clinical Isolate	Q Labs
54	*Aerococcus*	*virdans*	QL 17041.8	Raw Milk	Q Labs
55	*Citrobacter*	*amolanaticus*	ATCC 25407	Feces	Q Labs
56	*Citrobacter*	*braakii*	ATCC 43162	Clinical Isolate	Q Labs
57	*Citrobacter*	*farmeri*	ATCC 51633	Human Feces	Q Labs
58	*Citrobacter*	*freundii*	QL 11007.10	Clinical Isolate	Q Labs
59	*Citrobacter*	*youngae*	ATCC 11102	Not Available	Q Labs
60	*Edwardsiella*	*tarda*	QL 11007.11	Clinical Isolate	Q Labs
61	*Enterobacter*	*aerogenes*	ATCC 35029	Not Available	Q Labs
62	*Enterobacter*	*amnigenus* (synonym *Leliottia manigenus)*	ATCC 51816	Milk	Q Labs
63	*Enterobacter*	*cancerogenus*	QL11010.1	Bottled Water	Q Labs
64	*Enterobacter*	*cloacae*	ATCC 23355	Spinal Fluid	Q Labs
65	*Enterococcus*	*faecalis*	ATCC 51299	Not Available	Q Labs
66	*Enterococcus*	*faecium*	ATCC 8459	Not Available	Q Labs
67	*Escherichia*	*coli*	QL 11010.2	Bottled Water	Q Labs
68	*Escherichia*	*coli O157:H7*	ATCC 43895	Raw Hamburger	Q Labs
69	*Escherichia*	*fergusonii*	ATCC 35470	Not Available	Q Labs
70	*Escherichia*	*hermannii*	ATCC 33651	Human Arm Wound	Q Labs
71	*Escherichia*	*vulneris*	ATCC 29943	Human Wound	Q Labs
72	*Franconibacter*	*helveticus*	CCUG 66106	Product Industry	Q Labs
73	*Franconibacter*	*pulveris*	DSM 19145	Milk powder	Q Labs
74	*Hafnia*	*alvei*	ATCC 51815	Milk	Q Labs
75	*Klebsiella*	*pneumoniae*	ATCC 10031	Clinical Isolate	Q Labs
76	*Klebsiella*	*oxytoca*	ATCC 43165	Clinical Isolate	Q Labs
77	*Pseudomonas*	*gessardii*	QL 17041.12	Raw milk	Q Labs
78	*Lactobacillus*	*acidophilus*	ATCC 314	Not Available	Q Labs
79	*Lactobacillus*	*brevis*	ATCC 4006	Not Available	Q Labs
80	*Lactobacillus*	*casei*	ATCC 11578	Oral Cavity	Q Labs
81	*Listeria*	*innocua*	QL 32811.1	Seasoning Powder	Q Labs
82	*Listeria*	*ivanovii*	QL 030911-11	Clinical Isolate	Q Labs
83	*Listeria*	*monocytogenes*	QL 030911.10	Shellfish	Q Labs
84	*Morganella*	*morganii*	ATCC 25829	Human	Q Labs
85	*Pseudomonas*	*proteolytica*	QL 17041.4	Raw milk	Q Labs
86	*Pseudomonas*	*rhodesiae*	QL 17041.6	Raw milk	Q Labs
87	*Proteus*	*mirabilis*	QL 11007.6	Veterinary	Q Labs
88	*Plurilibacter*	*gergoviae*	ATCC 33028	Urine	Q Labs

EXCLUSIVITY					
N°	Genus	Species	Reference	Origin	Lab
89	*Pseudomonas*	*aeruginosa*	ATCC 35032	Not Available	Q Labs
90	*Pseudomonas*	*extremorientialis*	QL 17041.1	Raw milk	Q Labs
91	*Pseudomonas*	*fluorescens*	QL 17041.3	Raw milk	Q Labs
92	*Proteus*	*vulgaris*	ATCC 6380	Clinical Isolate	Q Labs
93	*Providencia*	*stuartii*	QL 11007.5	Clinical Isolate	Q Labs
94	*Serratia*	*marcescens*	QL 11007.1	Bottled Water	Q Labs
95	*Siccibacter*	*turicensis*	QL 17031.7	Infant formula	Q Labs
96	*Staphylococcus*	*aureus*	QL 030911.4	Seasoning Powder	Q Labs
97	*Staphylococcus*	*chromogenes*	QL 17041.10	Raw milk	Q Labs
98	*Staphylococcus*	*epidermidis*	QL 030911.1	Bottled Water	Q Labs
99	*Staphylococcus*	*sciuri*	QL 17041.9	Raw milk	Q Labs
100	*Staphylococcus*	*haemolyticus*	ATCC 29970	Human Skin	Q Labs
101	*Staphylococcus*	*intermedius*	QL 030911-2	Veterinary	Q Labs
102	*Salmonella*	*Typhi*	QL 16078-2A	Chicken	Q Labs
103	*Vibrio*	*vulnificus*	QL 021111A	Seafood Product	Q Labs

Annex C – *Cronobacter* spp. testing

Method Comparison Study

Cryobead of already well characterized strain



Annex D - Results inclusivity study

+: the strain was confirmed to be the target

-: the strain was not confirmed to be the target

INCLUSIVITY																								
Target Strain						Reference method	Alternative method																	
							LT/SH MALDI-MS System									LT/SH MALDI-smart System								
							TSA			CCI			ESIA			TSA			CCI			ESIA		
N°	Genus	Species	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	*Cronobacter*	*condimenti*	LMG26250T	Spiced meat	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
2	*Cronobacter*	*dublinensis dublinensis*	LMG23823T	Environmental sample	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
3	*Cronobacter*	*dublinensis lausannensis*	E798	Unknown	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
4	*Cronobacter*	*muytjensii*	E769	Milk powder	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
5	*Cronobacter*	*muytjensii*	E888	Milk powder	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
6	*Cronobacter*	*malonaticus*	E684	Food product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
7	*Cronobacter*	*malonaticus*	E752	Baby food	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
8	*Cronobacter*	*sakazakii*	95	Vanilla cottage cheese	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
9	*Cronobacter*	*sakazakii*	138	Raz el Hanout	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
10	*Cronobacter*	*sakazakii*	Ad704	Milk powder	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
11	*Cronobacter*	*sakazakii*	Ad705	Grain for poultry	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
12	*Cronobacter*	*sakazakii*	Ad890	Whole egg	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
13	*Cronobacter*	*sakazakii*	Ad891	Whole egg	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																								
Target Strain						Reference method	Alternative method																	
							LT/SH MALDI-MS System									LT/SH MALDI-smart System								
							TSA			CCI			ESIA			TSA			CCI			ESIA		
N°	Genus	Species	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
14	*Cronobacter*	*sakazakii*	Ad1418	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
15	*Cronobacter*	*sakazakii*	Ad1419	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
16	*Cronobacter*	*sakazakii*	Ad1420	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
17	*Cronobacter*	*sakazakii*	Ad1421	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
18	*Cronobacter*	*sakazakii*	Ad1424	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
19	*Cronobacter*	*sakazakii*	Ad1425	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
20	*Cronobacter*	*sakazakii*	Ad1426	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
21	*Cronobacter*	*sakazakii*	Ad1427	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
22	*Cronobacter*	*sakazakii*	Ad1428	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
23	*Cronobacter*	*sakazakii*	Ad1429	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
24	*Cronobacter*	*sakazakii*	Ad1430	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
25	*Cronobacter*	*sakazakii*	Ad1431	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
26	*Cronobacter*	*sakazakii*	Ad1432	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
27	*Cronobacter*	*sakazakii*	Ad1433	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
28	*Cronobacter*	*sakazakii*	Ad1434	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
29	*Cronobacter*	*sakazakii*	Ad1435	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																								
Target Strain						Reference method	Alternative method																	
							LT/SH MALDI-MS System									LT/SH MALDI-smart System								
							TSA			CCI			ESIA			TSA			CCI			ESIA		
N°	Genus	Species	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
30	*Cronobacter*	*sakazakii*	Ad1436	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
31	*Cronobacter*	*sakazakii*	Ad1437	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
32	*Cronobacter*	*sakazakii*	Ad1446	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
33	*Cronobacter*	*sakazakii*	Ad1813	Peanut paste	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
34	*Cronobacter*	*sakazakii*	Ad2283	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
35	*Cronobacter*	*sakazakii*	Ad2289	Process water	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
36	*Cronobacter*	*sakazakii*	Ad2341	Amylogen	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
37	*Cronobacter*	*sakazakii*	Ad2342	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
38	*Cronobacter*	*sakazakii*	Ad2344	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
39	*Cronobacter*	*sakazakii*	Ad2346	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
40	*Cronobacter*	*sakazakii*	Ad2347	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
41	*Cronobacter*	*sakazakii*	Ad2349	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
42	*Cronobacter*	*sakazakii*	Ad2350	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
43	*Cronobacter*	*sakazakii*	Ad2355	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
44	*Cronobacter*	*sakazakii*	Ad2356	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
45	*Cronobacter*	*sakazakii*	Ad2358	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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46	*Cronobacter*	*sakazakii*	Ad2362	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
47	*Cronobacter*	*sakazakii*	Ad2363	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
48	*Cronobacter*	*sakazakii*	Ad2366	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
49	*Cronobacter*	*sakazakii*	Ad2368	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
50	*Cronobacter*	*sakazakii*	Ad2369	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
51	*Cronobacter*	*sakazakii*	Ad2370	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
52	*Cronobacter*	*sakazakii*	Ad2371	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
53	*Cronobacter*	*sakazakii*	Ad2376	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
54	*Cronobacter*	*sakazakii*	Ad2377	Dairy product	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
55	*Cronobacter*	*sakazakii*	Ad2378	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
56	*Cronobacter*	*sakazakii*	Ad2380	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
57	*Cronobacter*	*sakazakii*	Ad2384	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
58	*Cronobacter*	*sakazakii*	Ad2386	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
59	*Cronobacter*	*sakazakii*	Ad2387	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
60	*Cronobacter*	*sakazakii*	Ad2394	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
61	*Cronobacter*	*sakazakii*	Ad2396	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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62	*Cronobacter*	*sakazakii*	Ad2397	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
63	*Cronobacter*	*sakazakii*	Ad2400	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
64	*Cronobacter*	*sakazakii*	Ad2405	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
65	*Cronobacter*	*sakazakii*	Ad2407	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
66	*Cronobacter*	*sakazakii*	Ad2408	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
67	*Cronobacter*	*sakazakii*	Ad2411	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
68	*Cronobacter*	*sakazakii*	Ad2412	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
69	*Cronobacter*	*sakazakii*	Ad2413	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
70	*Cronobacter*	*sakazakii subsp sakazakii*	Ad1707	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
71	*Cronobacter*	*sakazakii subsp malonaticus*	Ad1708	Environmental sample (dairy)	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
72	*Cronobacter*	*turicensis*	E681	Ready to eat	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
73	*Cronobacter*	*turicensis*	E694	Ready to eat	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
74	*Cronobacter*	*universalis*	NCTC9529T	Water	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
75	*Cronobacter*	*turicensis*	Ad1445	Infant formula	Adria	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
76	*Cronobacter*	*malonaticus*	QL 123015-1A	Rice flour	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
77	*Cronobacter*	*malonaticus*	FSL F6-030	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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78	*Cronobacter*	*malonaticus*	FSL F6-052	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
79	*Cronobacter*	*malonaticus*	QL 123015-1B	Rice flour	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
80	*Cronobacter*	*muytjensii*	FSL F6-031	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
81	*Cronobacter*	*muytjensii*	ATCC 51329	Not Available	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
82	*Cronobacter*	*spp*	QL 11010.2	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
83	*Cronobacter*	*spp*	QL 11007-9	Rice flour	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
84	*Cronobacter*	*spp*	FSL F6-023	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
85	*Cronobacter*	*spp*	FSL F6-024	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
86	*Cronobacter*	*spp*	FSL F6-025	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
87	*Cronobacter*	*spp*	FSL F6-027	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
88	*Cronobacter*	*spp*	FSL F6-028	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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89	*Cronobacter*	*spp*	FSL F6-029	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
90	*Cronobacter*	*spp*	FSL F6-032	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
91	*Cronobacter*	*spp*	FSL F6-034	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
92	*Cronobacter*	*spp*	FSL F6-035	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
93	*Cronobacter*	*spp*	FSL F6-036	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
94	*Cronobacter*	*spp*	FSL F6-037	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
95	*Cronobacter*	*spp*	FSL F6-038	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
96	*Cronobacter*	*spp*	FSL F6-039	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
97	*Cronobacter*	*spp*	FSL F6-040	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
98	*Cronobacter*	*spp*	FSL F6-041	Environment, Food	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
99	*Cronobacter*	*spp*	FSL F6-042	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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100	*Cronobacter*	*spp*	FSL F6-043	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
101	*Cronobacter*	*spp*	FSL F6-044	Food product	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
102	*Cronobacter*	*spp*	FSL F6-046	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
103	*Cronobacter*	*spp*	FSL F6-047	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
104	*Cronobacter*	*spp*	FSL F6-048	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
105	*Cronobacter*	*spp*	FSL F6-049	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
106	*Cronobacter*	*spp*	FSL F6-050	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
107	*Cronobacter*	*spp*	FSL F6-051	Human Clinical	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
108	*Cronobacter*	*spp*	FSL F6-045i	Food product	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
109	*Cronobacter*	*condimenti*	QL 17031.1	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
110	*Cronobacter*	*condimenti*	DSM 27966	Milk powder	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

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111	*Cronobacter*	*dublinensis*	QL 17031.2	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
112	*Cronobacter*	*dublinensis*	CCUG 55851	Milk powder	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
113	*Cronobacter*	*dublinensis*	CCUG 58094	Milk powder	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
114	*Cronobacter*	*dublinensis*	CCUG 58095	Water Fountain Basin	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
115	*Cronobacter*	*dublinensis* subsp *dublinensis*	DSM 18705	Milk powder	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
116	*Cronobacter*	*dublinensis* subsp Lausannensis	DSM 18706	Water Fountain Basin	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
117	*Cronobacter*	*dublinensis* subsp *Lactaridi*	DSM 18707	Milk powder	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
118	*Cronobacter*	*spp*	QL 17031.8	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
119	*Cronobacter*	*malonaticus*	DSM 18702	Breast Abscess	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
120	*Cronobacter*	*malonaticus*	CCUG 22864	Human cerebrospinal fluid	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
121	*Cronobacter*	*malonaticus*	CCUG 28859	Formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA

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122	*Cronobacter*	*malonaticus*	CCUG 28869	Dish Brush	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
123	*Cronobacter*	*malonaticus*	CCUG 56035	Human Breast Abscess	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
124	*Cronobacter*	*malonaticus*	QL 17031.3	Infant formula	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
125	*Cronobacter*	*muytjensii*	QL 17031.6	Infant formula	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
126	*Cronobacter*	*muytjensii*	DSM 21870	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
127	*Cronobacter*	*spp*	QL 17031.4	Infant formula	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
128	*Cronobacter*	*spp*	DSM 4485	Child's Throat	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
129	*Cronobacter*	*spp*	CCUG 10788	Tin of Milk	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
130	*Cronobacter*	*spp*	CCUG 14558	Child Throat	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
131	*Cronobacter*	*spp*	CCUG 21205	Not Available	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA
132	*Cronobacter*	*spp*	CCUG 29212	Human cerebrospinal fluid	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA		+	PA	IA	+	PA	IA	+	PA	IA

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N°	Genus	Species	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
133	*Cronobacter*	*spp*	CCUG 28821	Human Sputum	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
134	*Cronobacter*	*spp*	CCUG 28857	Human cerebrospinal fluid	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
135	*Cronobacter*	*spp*	CCUG 28858	Human cerebrospinal fluid	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
136	*Cronobacter*	*spp*	CCUG 28860	Formula	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
137	*Cronobacter*	*spp*	CCUG 28861	Human cerebrospinal fluid	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
138	*Cronobacter*	*spp*	CCUG 28863	Human cerebrospinal fluid	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
139	*Cronobacter*	*spp*	CCUG 28865	Human cerebrospinal fluid	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
140	*Cronobacter*	*spp*	CCUG 28866	Human Vagina, newborn	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
141	*Cronobacter*	*spp*	CCUG 28867	Formula	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
142	*Cronobacter*	*spp*	CCUG 28868	Dish Brush	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
143	*Cronobacter*	*spp*	CCUG 28870	Dish Brush	QLabs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA

INCLUSIVITY																									
Target Strain						Reference method	Alternative method																		
							LT/SH MALDI-MS System									LT/SH MALDI-smart System									
							TSA			CCI			ESIA			TSA			CCI			ESIA		
N°	Genus	Species	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
144	*Cronobacter*	*spp*	CCUG 64760	Environment, Industry	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
145	*Cronobacter*	*spp*	QL 17031.7	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
146	*Cronobacter*	*turicensis*	DSM 18703	Neonate with Meningitidis	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
147	*Cronobacter*	*turicensis*	CCUG 55852	Human Blood	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
148	*Cronobacter*	*turicensis*	QL 17031.5	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
149	*Cronobacter*	*spp*	QL 17031.5	Infant formula	Q Labs	+	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA	+	PA	IA
150	*Cronobacter*	*spp*	QL 17031.6	Infant formula	Q Labs	+	+	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			150			150	
	ND							0			0			0			0			0			0	
	NA							0			0			0			0			0			0	
	NA (no growth)							0			0			0			0			0			0	
	PD							0			0			0			0			0			0	

Annex E - Results exclusivity study

NOIP: NO Organism Identification Possible

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System										LT/SH MALDI-smart System								
								TSA			CCI			ESIA				TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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	*Buttiauxella*	*agrestis*		Ad1320	Liquid egg	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
2	*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)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
3	*Citrobacter*	*diversus*		147	Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
4	*Citrobacter*	*diversus*		100	Liver	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
5	*Citrobacter*	*freundii*		104	Ground beef	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
6	*Citrobacter*	*diversus*		Ad1326	Liquid egg	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
7	*Citrobacter*	*freundii*		24	Sea food	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
8	*Citrobacter*	*freundii*		25	Spinach	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									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
9	*Citrobacter*	*gillenii*		Ad343	Unknown	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
10	*Citrobacter*	*farmeri*		Ad1116	Environmental sample (egg)	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
11	*Citrobacter*	*youngae*		Ad833	Beef meat	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
12	*Enterobacter*	*aerogenes*		Ad889	Meat meal	Adria	-	-	NA	EA	-	NA		-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
13	*Enterobacter (Pantoea)*	*agglomerans*	*Klebsiella pneumoniae*	117	Broccoli	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
14	*Enterobacter (Pantoea)*	*agglomerans*		Ad877	Unknown	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
15	*Enterobacter (Pantoea)*	*agglomerans*	*Buttiauxella ferragutiae*	135	Liver	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
16	*Enterobacter*	*amnigenus*	*Enterobacter kobei*	A00C068	Cockerel	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									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
17	*Enterobacter*	*cloacae*	*Enterobacter nimipressuralis / aerogenes*	10	Raw milk	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	EA	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
18	*Enterobacter*	*cloacae*		148	Ready to reheat (paella)	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
19	*Enterobacter*	*cloacae*		150	Ground beef	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
20	*Enterobacter*	*hormaechei*		Ad990	Butter	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
21	*Enterobacter*	*kobei*	*Enterobacter kobei*	Ad342	Ham	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
22	*Escherichia*	*fergusonii*		Ad1381	Water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
23	*Escherichia*	*fergusonii*		2876	Environmental sample	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
24	*Escherichia*	*hermannii*		Ad457	Spinach	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
25	*Escherichia*	*hermannii*		Ad458	Egg product	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
26	*Escherichia*	*vulneris*	*Citrobacter freundii*	127	Raw milk	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
27	*Hafnia*	*alvei*		130	Raw milk cheese	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
28	*Hafnia*	*alvei*		168	Duck meat	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
29	*Klebsiella*	*pneumoniae*		47	Chicken skin	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
30	*Klebsiella*	*oxytoca*		Ad1509	Milk powder	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
31	*Kluyvera*	*intermedia*		60	Frozen beans	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
32	*Leclercia*	*adecarboxylata*		Ad707	Milk powder	Adria	-	-	NA	EA	- (no gro	NA (no growth)	NA (no growth)	- (no gro	NA (no growth)	NA (no growth)	-	NA	EA	- (no gro	NA (no growth)	NA (no growth)	- (no gro	NA (no growth)	NA (no growth)

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System										LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
											wth)			wth)						wth)			wth)		
33	*Lelliottia*	*amnigena*		52	Beans	Adria	-	-	NA	EA	-(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)	-(no growth)	NA (no growth)	NA (no growth)
34	*Lelliottia*	*amnigena*	*Kluyvera intermedia*	129	Raw milk	Adria	-	-	NA	EA	-(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)	-(no growth)	NA (no growth)	NA (no growth)
35	*Pectobacterium*	*carotovora*		CIP82.83T	Potatoes	Adria	-	-	NA	EA	-(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)	-(no growth)	NA (no growth)	NA (no growth)
36	*Providencia*	*rettgeri*		112	White liquid egg	Adria	-	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)
37	*Providencia*	*stuartii*		46	Poultry meat	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
38	*Providencia*	*stuartii*		Ad1575	River water	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
39	*Raoultella*	*terrigena*		Ad1370	Water	Adria	-	-	NA	EA	-(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)	-(no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
40	*Raoultella*	*terrigena*		Ad1368	Water	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
41	*Rhanella*	*aquatilis*		68	Ready to reheat meat	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
42	*Salmonella enterica*	Blockley		Ad923	Hen	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
43	*Salmonella enterica*	Putten		Ad2331	Feed for chicken	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
44	*Salmonella enterica houtenae*	43:z4.z32		Ad597	Fish product	Adria	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
45	*Salmonella enterica salamae*	1.13.23:gmt:enx		Ad450	Raw ewe milk	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA
46	*Serratia*	*ficaria*	*Klebsiella pneumoniae*	113	Salad	Adria	-	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
47	*Serratia*	*fonticola*		Ad1696	Salmon	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
48	*Serratia*	*liquefaciens*		87a	Gizzard	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
49	*Serratia*	*marcescens*		Ad447	Raw milk	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
50	*Serratia*	*proteamaculans*		Ad1697	Salmon	Adria	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
51	*Yersinia*	*enterocolitica*		A00C066	Cockerel	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
52	*Yersinia*	*intermedia*	*Yersinia intermedia / kristenseni*	33	Raw milk	Adria	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																								
Non-target strain							Reference method	Alternative method																
								LT/SH MALDI-MS System									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
53	*Aeromonas*	*hydrophila*		ATCC 49140	Clinical Isolate	QLabs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
54	*Aerococcus*	*virdans*		QL 17041.8	Raw Milk	QLabs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
55	*Citrobacter*	*amolanaticus*		ATCC 25407	Feces	QLabs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
56	*Citrobacter*	*braakii*		ATCC 43162	Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
57	*Citrobacter*	*farmeri*		ATCC 51633	Human Feces	QLabs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
58	*Citrobacter*	*freundii*		QL 11007.10	Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
59	*Citrobacter*	*youngae*		ATCC 11102	Not Available	QLabs	-	-	NA	EA	-	NA	EA	- (no gro	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no gro	NA (no growth)	NA (no growth)

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System										LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
														wth)									wth)		
60	*Edwardsiella*	*tarda*		QL11007.11	Clinical Isolate	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
61	*Enterobacter*	*aerogenes*		ATCC35029	Not Available	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
62	*Enterobacter*	*amnigenus* (synonym *Leliottia manigenus)*		ATCC51816	Milk	QLabs	-	-	NA	EA	-(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)	-(no growth)	NA (no growth)	NA (no growth)
63	*Enterobacter*	*cancerogenus*	*Shigella, Escherichia, Enterobacter*	QL11010.1	Bottled Water	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
64	*Enterobacter*	*cloacae*		ATCC23355	Spinal Fluid	QLabs	-	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)
65	*Enterococcus*	*faecalis*		ATCC51299	Not Available	QLabs	-	-	NA	EA	-	NA	EA	-(no gro	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-(no gro	NA (no growth)	NA (no growth)

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System									LT/SH MALDI-smart System									
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
														wth)									wth)		
66	*Enterococcus*	*faecium*		ATCC 8459	Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)
67	*Escherichia*	*coli*		QL 11010.2	Bottled Water	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
68	*Escherichia*	*coli O157:H7*		ATCC 43895	Raw Hamburger	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
69	*Escherichia*	*fergusonii*		ATCC 35470	Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
70	*Escherichia*	*hermannii*		ATCC 33651	Human Arm Wound	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
71	*Escherichia*	*vulneris*	*Enterobacter*	ATCC 29943	Human Wound	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
72	*Francoibacter*	*helveticus*		CCUG 66106	Product Industry	Q Labs	-	NOIP	No result	No result	-	NA	EA	NOIP	No result	No result	NOIP	No result	No result	NOIP	No result	No result	NOIP	No result	No result

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System										LT/SH MALDI-smart System								
								TSA			CCI			ESIA				TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
73	*Francon ibacter*	*pulveris*	*Franco nibacter pulveris*	DSM 19145	Milk powder	Q Labs	-	NOIP	No result	No result	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
74	*Hafnia*	*alvei*		ATCC 51815	Milk	Q Labs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
75	*Klebsiella*	*pneumoniae*		ATCC 10031	Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
76	*Klebsiella*	*oxytoca*		ATCC 43165	Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
77	*Pseudomonas*	*gessardii*		QL 17041.12	Raw milk	Q Labs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
78	*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)	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	- (no growth)	NA (no growth)	NA (no growth)
79	*Lactobacillus*	*brevis*		ATCC 4006	Not Available	Q Labs	-	-	NA	EA	- (no gro	NA (no growth)	NA (no growth)	- (no gro	NA (no growth)	NA (no growth)	-	NA	EA	- (no gro	NA (no growth)	NA (no growth)	- (no gro	NA (no growth)	NA (no growth)

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
											wth)			wth)						wth)			wth)		
80	*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)	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-(no growth)	NA (no growth)	NA (no growth)
81	*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)	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-(no growth)	NA (no growth)	NA (no growth)
82	*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)	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-(no growth)	NA (no growth)	NA (no growth)
83	*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)	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-(no growth)	NA (no growth)	NA (no growth)
84	*Morganella*	*morganii*		ATCC 25829	Human	Q Labs	-	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)
85	*Pseudomonas*	*proteolytica*		QL 17041.4	Raw milk	Q Labs	-	-	NA	EA	-(no gro	NA (no growth)	NA (no growth)	-(no gro	NA (no growth)	NA (no growth)	-	NA	EA	-(no gro	NA (no growth)	NA (no growth)	-(no gro	NA (no growth)	NA (no growth)

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System										LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
											wth)			wth)						wth)			wth)		
86	*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)	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-(no growth)	NA (no growth)	NA (no growth)
87	*Proteus*	*mirabilis*		QL 11007.6	Veterinary	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
88	*Pluriliba cter*	*gergoviae*		ATCC 33028	Urine	Q Labs	-	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)
89	*Pseudomonas*	*aeruginosa*		ATCC 35032	Not Available	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
90	*Pseudomonas*	*extremorientialis*		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)	-	NA	EA	-(no growth)	NA (no growth)	NA (no growth)	-(no growth)	NA (no growth)	NA (no growth)
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)	-	NA	EA	-(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-MS System										LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
92	*Proteus*	*vulgaris*		ATCC 6380	Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
93	*Providencia*	*stuartii*		QL 11007.5	Clinical Isolate	Q Labs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
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	-	NOIP	No result	No result	NOIP	No result	No result	-	NA	EA	NOIP	No result	No result	NOIP	No result	No result	NOIP	No result	No result
96	*Staphylococcus*	*aureus*		QL 030911.4	Seasoning Powder	Q Labs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
97	*Staphylococcus*	*chromogenes*		QL 170411.10	Raw milk	Q Labs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
98	*Staphylococcus*	*epidermidis*		QL 030911.1	Bottled Water	Q Labs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)

EXCLUSIVITY																										
Non-target strain							Reference method	Alternative method																		
								LT/SH MALDI-MS System									LT/SH MALDI-smart System									
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
99	*Staphylococcus*	*sciuri*		QL 17041.9	Raw milk	QLabs	-	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)	-	NA	EA	-	NA	EA	- (no growth)	NA (no growth)	NA (no growth)
100	*Staphylococcus*	*haemolyticus*		ATCC 29970	Human Skin	QLabs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
101	*Staphylococcus*	*intermedius*		QL 030911-2	Veterinary	QLabs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
102	*Salmonella*	Typhi		QL 16078-2A	Chicken	QLabs	-	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA	-	NA	EA
103	*Vibrio*	*vulnificus*		QL 021111A	Seafood Product	QLabs	-	-	NA	EA	- (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)	- (no growth)	NA (no growth)	NA (no growth)
Total	N								103			103			103			103			103			103	
	PA								0			0			0			0			0			0	
	ND								0			0			0			0			0			0	
	NA								100			63			50			101			62			49	

EXCLUSIVITY																									
Non-target strain							Reference method	Alternative method																	
								LT/SH MALDI-MS System									LT/SH MALDI-smart System								
								TSA			CCI			ESIA			TSA			CCI			ESIA		
N	Species	Sub species	rDNA sequencing	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
	NA (no growth)								0			39			52			0			39			52	
	PD								0			0			0			0			0			0	
	No result								3			1			1			2			2			2	

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

	Cronobacter spp.
Target strains	*Cronobacter condimenti* QL17031.1
	Cronobacter dubinensis QL17031.2
	Cronobacter dubinensis CCUG 58094
	Cronobacter malonaticus CCUG 28859
	Cronobacter sakazakii CCUG 14558
	Cronobacter sakazakii CCUG 21205
	Cronobacter sakazakii CCUG 28857
	Cronobacter sakazakii CCUG 28867
	Cronobacter sakazakii CCUG 28870
	Cronobacter sakazakii FSL F6-023
	Cronobacter sakazakii FSL F6-032
	Cronobacter sakazakii FSL F6-038
	Cronobacter sakazakii FSL F6-041
	Cronobacter sakazakii FSL F6-046
	Cronobacter sakazakii FSL F6-051
	Cronobacter sakazakii ATCC29544
Non-target strains	*Citrobacter farmeri* ATCC51633
	Edwardsiella tarda ATCC15947
	Pseudomonas aeruginosa ATCC27853
	Escherichia coli ATCC10536
	Havnia alvei ATCC51815
	Klebsiella pneumoniae ATCC10031
	Salmonella Hadar ATCC51956
	Serratia marcescens ATCC13880

Annex G - *Cronobacter* spp. testing at the genus level

Interlaboratory Study