

# 24 h Listeria and Salmonella Detection in food matrices using rRNA based *LUMIPROBE 24* Method

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## Introduction

Using rRNA provides a specific and sensitive molecular biology method for the detection of pathogenic bacteria in food and environmental samples.

After 22 hours enrichment of the sample, *LUMIPROBE 24* is an easy to run method, suitable for food industry laboratories as the microplate version requires only 4 pipetting steps. Additionally, automation frees 2 hours of technician time and brings reliability to all the steps.

## Material & Methods

- RM enrichment broth (Euralam)
- *LUMIPROBE 24* kits (Europrobe)
  - Listeria monocytogenes
  - Salmonella spp
- Crocodile miniWorkstation (Titertek-Berthold)
- Orion II microplate luminometer (Titertek-Berthold)

After assay preparation with the Crocodile (reagent dispensing, shaking, incubation, washing) the microplate was transferred for reading to the Orion II microplate luminometer: custom software automatically interprets the RLU results, well by well.

## Results

Positive and negative samples can be detected according to relative light units.

Picture 2  
Software for result interpreting

D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Kit Lot Number	Temperature	Test Date	Background	Background	Protocol Name	Indication	Well	Sample ID	Reading	Result	Pathogen	Pathogen Group	Negative Cut
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	A1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	B1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	C1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	D1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	E1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	F1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	G1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	H1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	I1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	J1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	K1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	L1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	M1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	N1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	O1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	P1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	Q1			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	A2			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	B2			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	C2			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	D2			0.0	negative	salmonella	FA30	
xxxx03	21.14.00	2011.10.07	27	FA30	Pathogen - Menu/Marc	E2			0.0	negative	salmonella	FA30	

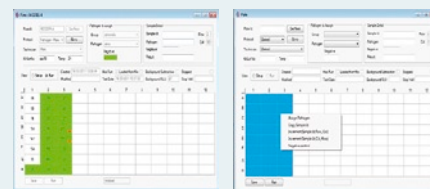
Picture 1  
*LUMIPROBE 24* assay kits



Table 1  
Crocodile Protocol of Lumiprobe 24 Listeria monocytogenes

Step	Temp / Volume / Time
Dispense Lysis	40 µL
Add sample manually	40 µL
Incubate	15 min at 37°C
Dispense Hybridization buffer	90 µL
Shake	
Incubate	45 min at 50°C
Wash	4 x 350 µL
Dispense Conjugate	100 µL
Shake / Incubate	15 min at 37°C
Dispense Substrate	100 µL
Shake / Incubate	15 min at 30°C

Picture 3  
Luminometer software



## Conclusion

Europrobe *LUMIPROBE 24* method, with the Crocodile miniWorkstation and Orion II luminometer, is a fast and easy in-house method for food industry laboratories to confirm the absence of pathogenic bacteria in their products, with a working time reduced to 20 minutes for 96 samples.

Picture 4  
Crocodile miniWorkstation



Picture 5  
Orion II luminometer

