

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

Nicole Malarre¹ Bettina Plommer²

¹ Europrobe, Lyon, France, n.malarre@europrobe.com ² Berthold Detection Systems GmbH (Titertek-Berthold), Pforzheim, Germany, plommer@titertek-berthold.com

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

ID	Lot Number	Temperature	Test Date	Background	Background	Protocol Name	Indication	Well	Sample ID	Result	Pathogen	Pathogen Group	Negative Co
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	A1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	B1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	C1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	D1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	E1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	F1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	G1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	H1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	I1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	J1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	K1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	L1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	M1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	N1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	O1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	P1					0.0	Salmonella	Salmonella	FAU3
xxx03	21.14.09.0011.10.07	27	FAU3	Pathogen - Menu Marc	Q1					0.0	Salmonella	Salmonella	FAU3

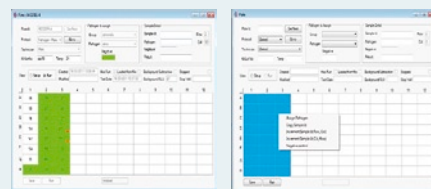
Picture 1
LUMIPROBE 24 assay kits



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

