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Introduction

Meningitis is an inflammation of meninges surrounding the central nervous system tissue due to many bacterial or viral pathogens. Bacterial meningitis (BM) is rare but serious compared to viral meningitis, and there is no obvious differential clinical diagnostic between both. BM is often subdivided in three categories: **COMMUNITY-ACQUIRED BM**, **NOSOCOMIAL BM**, and **NEONATAL BM**.

Materials & Methods

CSF samples and bacterial strains: Samples were tested directly without DNA extraction:

- *Neisseria meningitidis* (NM) N=50
- *Streptococcus pneumoniae* (SP) N=46
- *Haemophilus influenzae* (HI) N=14
- *Staphylococcus aureus* (SA) N=48
- *Pseudomonas aeruginosa* (PA) N=49
- *Streptococcus agalactiae* (Sag) N=36
- *Listeria monocytogenes* (LM) N=43
- *Escherichia coli* (EC) N=43

	Community acquired BM	Nosoc. BM	Neonatal BM
FAM	NM 1 / SP	SA	SAg
HEX	NM 2 / HI	PA	LM
TexasRed	/	/	EC
CY5	CIPCR	CIPCR	CIPCR

CONTENT of the kits
Enzyme
Oligomixes
Negative Control
Positive Controls
Internal Control

12.5 µL Enzyme + 7.5 µL Oligomix
+1 µL Control of PCR inhibition

20 µL Reaction mix 5 µL Sample/CP/CN

Real-time PCR instrument
1h 25min : 95°C 10 min
 95°C 3 min
 45 X [95°C 10 sec
 60°C 30 sec

Objectives

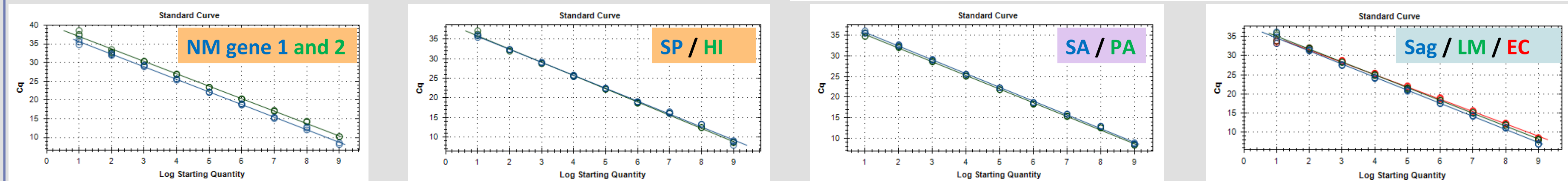
I. Validate a fast and targeted method in real-time PCR to diagnose the main bacteria involved in BM

II. Validate the performances of these, Eurobioplex Bacterial Meningitis multiplex kits :

- on CLINICAL SAMPLES directly on cerebrospinal fluid (CSF) without DNA extraction

Results

I. Eurobioplex performances



- **Detection limit : 10 copies/µL** **Linearity : 10 to 10⁹ copies/µL**, for all targets
- **Variability intra-exp : 0,54-1.89 %**, **inter-exp : 0,64-4,84 %**

	NM1	NM2	SP	HI	SA	PA	SAg	LM	EC
qPCR Efficiency (%)	98	102	100	96	96	99	95	101	99
R ²	1,00	0,99	0,99	0,99	1,00	1,00	0,99	0,99	1,00

CONCLUSION

Eurobioplex Bacterial Meningitis qPCR multiplex kits are CE marked, rapid, and sensitive, allowing early diagnosis of presumption of bacterial meningitis in humans, directly from CSF.

II. Clinical study : CSF were tested directly, without prior DNA extraction

- **Sensitivity : > 98% for all targets**
- **Specificity : 95-100%**
- **No cross reactivity**

NM gene 1 : 95,5 % (n=42/44) and gene 2 : 95,5 % (n=42/44)
SP : 95,1 % (n=39/41)
HI : > 98 % (n=8/8)

SA : > 98 % (n=44/44)
PA : > 98 % (n=43/43)

SAg : 96,8 % (n=30/31)
LM : > 98 % (n=42/42)
EC : 97,2 % (n=35/36)