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## Introduction

The human alphaherpesvirinae subfamily comprises 2 genera, simplex viruses with herpes simplex virus 1 and 2 (HSV-1 and HSV-2), and varicellovirus with varicella-zoster virus (VZV), all three being double stranded DNA enveloped viruses. Primary infection may occur at any age, followed by latent infection, which is reactivated under a variety of stimuli, linked or not to the host immune status. HSV affects the respiratory tract, genital epithelium, eye, skin and the central nervous system (encephalitis).

## Objectives

Eurobioplex HSV1/HSV2/VZV is a real-time PCR multiplex for the qualitative and quantitative detection of these 3 viruses using fluorescence (FAM, HEX, Texas Red respectively), with in addition an internal control of DNA extraction and PCR inhibition (Cy5). The study aims at:

1/ Validate the performances of a new diagnosis technique, Eurobioplex alphaHerpes virus (Eurobio, Les Ulis, France) to quantify HSV1, HSV2 and VZV.

2/ Compare the Eurobioplex kit with another commercial kit.

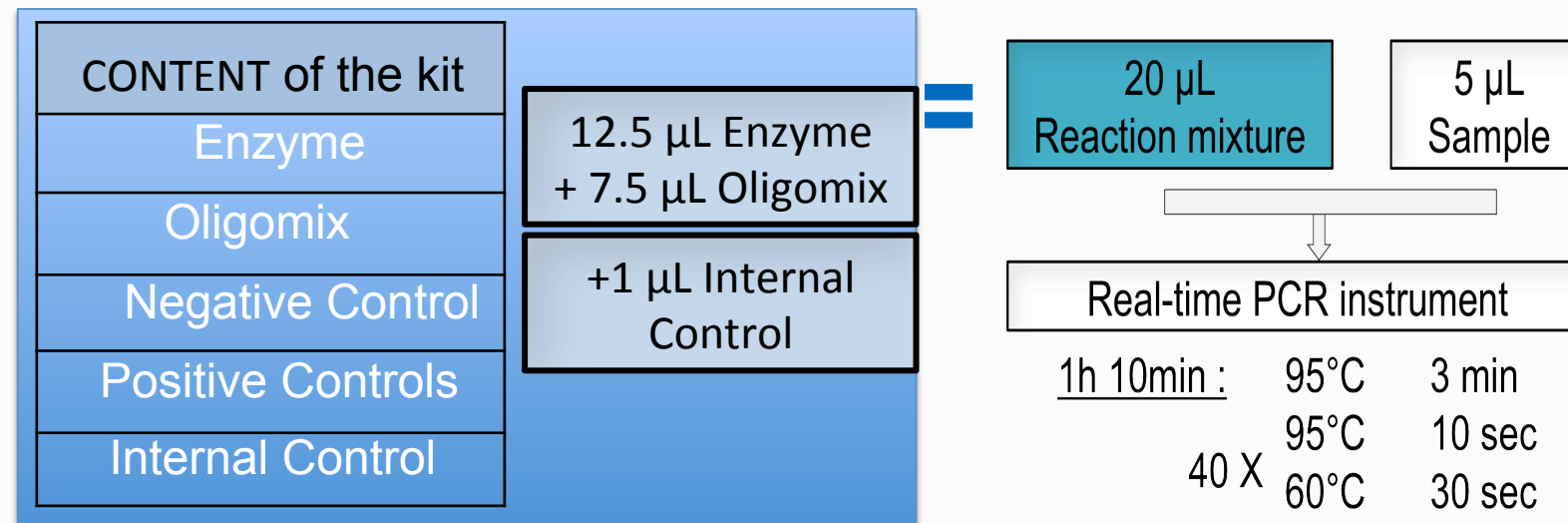
## CONCLUSION

**Eurobioplex alphaHerpes virus is a CE marked rapid and sensitive qPCR multiplex to simultaneously detect HSV1, HSV2 and VZV, usable on any biological sample.**

## Materials & Methods

A total of **101 samples** were used to determine the performances on respectively, 36, 29 and 23 positive samples for HSV1, HSV2, or VZV.

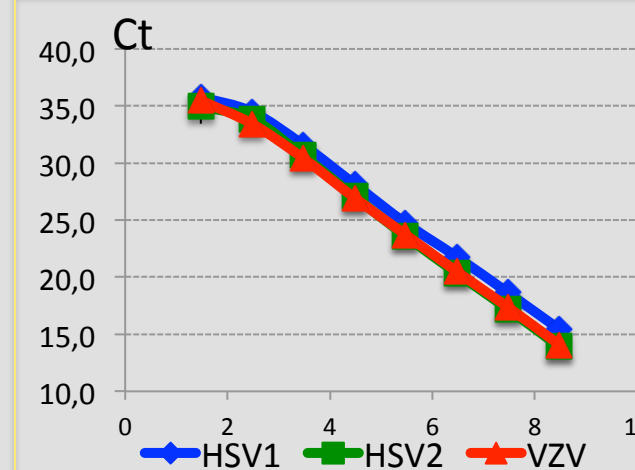
DNA was extracted from **various tissue origins (e.g. skin, genital tissues, eye, amniotic fluid, cerebrospinal fluid, bronchial aspiration, blood).**



TARGET	CHANNEL	EXCITATION	EMISSION
HSV1	FAM	495 nm	515 nm
HSV2	HEX	535 nm	555 nm
VZV	Texas Red	585 nm	605 nm
Control of PCR inhibition	CY5	647 nm	667 nm

## Results

### I. Eurobioplex performances



Starting Quantity (copies/reaction)	Mean Ct			CV (%) inter-expérience		
	HSV1	HSV2	VZV	HSV1	HSV2	VZV
300	34,5	33,9	33,4	0,9	0,4	0,9
3000	31,6	30,6	30,4	2,3	0,1	1,3
30000	28,2	27,1	27,0	0,1	0,6	0,7
300000	24,7	23,6	23,7	2,8	0,6	1,0
3000000	21,8	20,3	20,5	0,1	1,7	0,5
30000000	18,6	17,2	17,4	1,6	1,2	0,7
300000000	15,4	13,9	14,1	0,2	3,5	0,8

**Detection limit : 300 copies/reaction for HSV1, HSV2 and VZV**

**Linearity : 300 to 3.10<sup>8</sup> copies/PCR for HSV1, HSV2 and VZV**

QUANTIFICATION	qPCR Efficiency and R <sup>2</sup>
HSV1	E=105.2 % R2=0.997
HSV2	E=96.4 % R2=0.999
VZV	E=96.1 % R2=0.999

### II. Clinical study

- **Specificity : > 98% for for all 3 viruses**
- **Sensitivity : > 98% for for all 3 viruses**
- Variability intra-exp : 1,05-1,25%  
inter-exp : 1,82-2,97%
- No cross reactivity between the 3 alphaHerpes viruses

HSV1		EBX-011 HSV1 EUROBIO	
		POS	NEG
Pretestés	POS	36	0
	NEG	0	65
HSV2		EBX-011 HSV2 EUROBIO	
		POS	NEG
Pretestés	POS	29	0
	NEG	0	72
VZV		EBX-011 VZV EUROBIO	
		POS	NEG
Pretestés	POS	23	0
	NEG	0	78

### III. Comparative study

