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Supplementary Material

Peroxidase-like DNA machines (PxDM) for visual detection of stem-loop primer amplification (SPA) product

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S1. Material and Methods

Table S1. Sequence of primers

Oligonucleotide name	Sequence 5'-3'
PCR E.coli primers	
F3	GCCATCTCCTGATGACGC
B3	ATTTACCGCAGCCAGACG
LAMP E.coli primers	
FIP	CTGGGGCGAGGTCGTCCTATTCCGACAAACACCACGAATT
BIP	CATTTTGCAGCTGTACGCTCGCAGCCCATCATGAATGTTGCT
F3	GCCATCTCCTGATGACGC
B3	ATTTACCGCAGCCAGACG
SPA *E. coli* primers	
FrSL_AA	TTTATATAATATATAAAAGGTTGTTACAAAGG
BvSL_AA	TTTATATAATATATAAACGACCTCGCCC
FrSL_CC	CCTATATAATATATAGGAGGTTGTTACAAAGG
BvSL_CC	CCTATATAATATATAGGCGACCTCGCCC
Fr	AGGTTGTTACAAAGG
Bv	CGACCTCGCC

SPA *St. agalactiae* primers	
Sagal_Fr	CCGGTAGAGCTATTACC
Sagal_Bv	AATGTGTTATCCCACTTC
Sagal_FrSL	TTTATATAATATATAAA CCGGTAGAGCTATTACC
Sagal_BvSL	TTTATATAATATATAAA AATGTGTTATCCCACTTC
SPA Epstein-Barr virus primers	
EBV_Frw	GTCTCGCCGGACTATGGCCT
EBV_Rw	TGTTCCAGCCACCCGCCATC
EBV_FrwSL	TTTATATAATATATAAA GTCTCGCCGGACTATGGCCT
EBV_RwSL	TTTATATAATATATAAA TGTTCCAGCCACCCGCCATC

Table S2. Sequence of the PxDMs

Oligonucleotide name	Sequence 5'-3'
Target E.coli DNA	ATAGTCAGCCCATCATGAATGTTGCTGTCGATGACAGGTTGT TACAAAGGGAGAAGGGCATGGCGAGCGTACAGCTGCAAAA TGTAACGAAAGCCTGGGGCGAGGTCGTGGTATCGAAAGATA TCAATCTCGATATCCATGAAGGTGAATTCGTGGTGTTTGTCG GACC
Target EBV DNA	TGGGCGGGCGTCTCGCCGGACTATGGCCTCGGCACGCTCGG CGTCGATGGCGGGTGGCTG GAACAGGCGGGCGAATGTGTAATCCCGGA
E.coli PxDM T1	CATATAAGGAATAGCAGAAGGCGGCTAG/HEG/CGTTACATT TTGCA/HEG/**GGGTAGGG**
E.coli PxDM T2	GACCTCGCCCCAGGCTTT/HEG/CTAGCCGCCTTCTGCTATTC CTTATATG/HEG/TGCCCTTCTCCCTTTGTAA
E.coli PxDM F7	**GGGTTGGG**/HEG/GCTGTACGCTCGCCAACC
F7 SNP	**GGGTTGGG**/HEG/GCTGTACACTCGCCAACC
EBV PxDM f7	**GGGTAGGG** tttt GCGTGCCGAGGCcc
EBV PxDM T1	ATTCGTAATGCTGACTAGATAGATtttccCGCCATCGACGCCGA ttttt**GGGTTGGG**
EBV PxDM T2	TGTTCCAGCCACCtttttATCTATCTAGTCAGCATTACGAATttttC ATAGTCCGGCGAGAC

/HEG/- hexaethylene glycol linkers. Nucleotide linkers between different functional parts of PxDM are shown in low case. Bold nucleotides form G-quadruplex. Sequences of synthetic analytes corresponded to the sequences of amplicons. Red letter is a mismatched nucleotide introduced to the sensing arm of the sensor.

3. Analysis of EBV amplification products

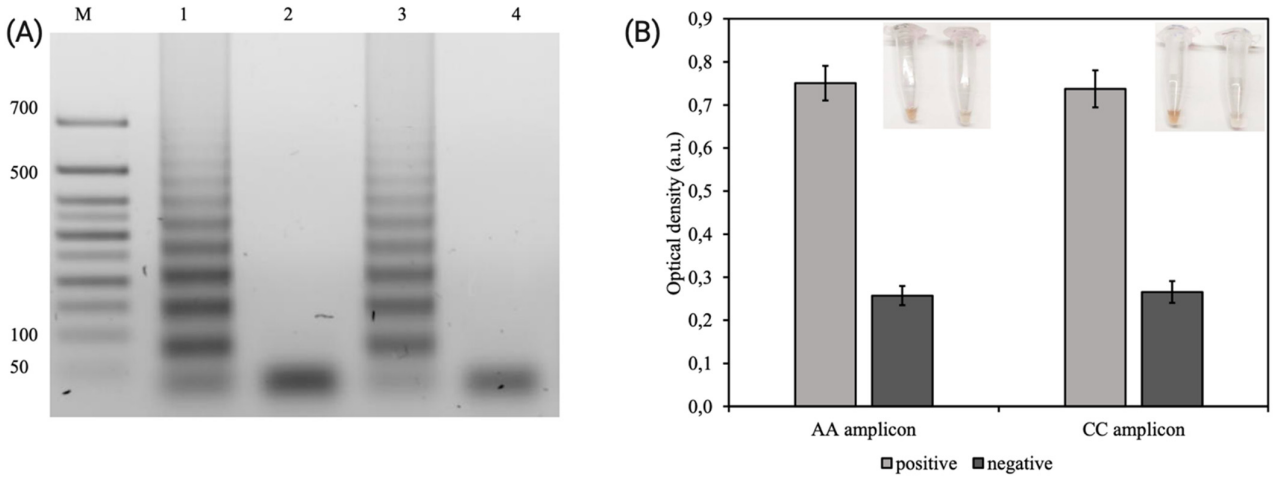

Figure S1. (A) An analysis of the EBV amplification products in 2% agarose. Analysis of Epstein-Barr virus amplicons obtained with AA and CC Epstein-Barr virus primers: M – marker 50 bp+, 1 – AA Epstein-Barr virus primers, 3 – CC Epstein-Barr virus primers, 2 and 4 – negative controls. (B) Analysis of Epstein-Barr virus amplicons obtained with AA and CC Epstein-Barr virus primers by Epstein-Barr virus PxDM. Colorimetric analysis of reaction buffer in the presence (positive) or absence (negative) of 300 ng of purified SPA product. Strand concentrations: 1 μM of T1, 1 μM of T2, 1 μM of F7. Inset: The corresponding photograph of the color change.