Table S5 The comparison of pMB-based biosensing with other previously reported methods for *Staphylococcus aureus* detection.

Method	Linear range (CFU/mL)	LOD	Time	Ref.
Colorimetric detection	10^1-10^4	0.2 CFU/mL	100 min	[1]
Fluorescence detection	7.22×10^0-1.44×10^9	4 CFU/mL	in 120 min	[2]
Dark-field light scattering imaging with plasma biosensors	\	8×10^4 CFU/mL	15-20 min	[3]
Phagomagnetic separation with immunoassay	1.0×10^4-1.0×10^6	10^3 CFU/mL	in 90 min	[4]
Strand exchange amplification	\	10^0 CFU/g	60-120 min	[5]
Magnetic separation with mPCR	\	100 CFU/mL	240 min	[6]
Magnetic separation with bioluminescence	2.3×10^3-1.2×10^7	2.2×10^2 CFU/mL	in 33 min	[7]
Magnetic separation with bioluminescence	1.0×10^2-1.0×10^7	33 CFU/mL	in 70 min	[8]
Immunomagnetic with enzyme linked	\	4×10^3 CFU/mL	90 min	[9]
Magnetic with fluorescence detection	1.0×10^2-1.0×10^7	70 CFU/mL	less than 50 min	[10]
Fluorescence-enhanced lateral flow biosensor	\	5.4×10^2 CFU/mL	in 70 min	[11]
Nanoflower-based ELISA method	10^1-10^6	6 CFU/mL	over 240 min	[12]
Electrochemical aptasensor	10-10^8	3 CFU/mL	15 min	[13]
Electrochemical aptasensor	1.2×10^1-1.2×10^8	1 CFU/mL	30 min	[14]
Immunomagnetic with colorimetric detection	10-10^6	2.4 CFU/mL	about 35 min	[15]
Long-period fiber grating immunosensor	10^2-10^7	33 CFU/mL	20 min	[16]
Biolayer interferometry technology	\	13 CFU/mL	16 min	[17]
Magnetic separation with colorimetric	10^1-10^6	3.0×10^2 CFU/mL	120 min	[18]
Magnetic separation with surface-enhanced Raman scattering	7.6×10^1-7.6×10^7	1.09 CFU/mL	50 min	[19]
Magnetic with fluorescence detection	10^2-10^5	2.7×10^2 CFU/mL	80 min	[20]
Magnetic with fluorescence detection	3×10^1-3×10^6	30 CFU/mL	45 min	[21]
Molecular imprinted aptasensor	10^1-10^7	1 CFU/mL	more than 110 min	[22]

Sandwich lateral flow assay	1.0×10^3-1.0×10^8	1.0×10^3 CFU/mL	about 40 min	[23]
Phage amplification with multiplex qPCR	10-10^8	10 CFU/mL	no more than 240 min	[24]
Sandwich ELISA	\	1.4×10^5 CFU/mL	more than 180 min	[25]
CRISPR-Cas13a based bacterial detection	10^0-10^7	1 CFU/mL	4 h	[26]
High throughput colorimetric biosensor	10^2-10^7	81 CFU/mL	5.5 h	[27]
Polymerase spiral reaction with visual detection	\	1.99×10^3 CFU/g	2 h	[28]
This work	1×10^4-1×10^8	2.43×10^3 CFU/mL	in 30 min	\

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