

Peptidoglycan binding protein (PGBP)-modified magnetic nanobeads for efficient magnetic capturing of *Staphylococcus aureus* associated with sepsis in blood

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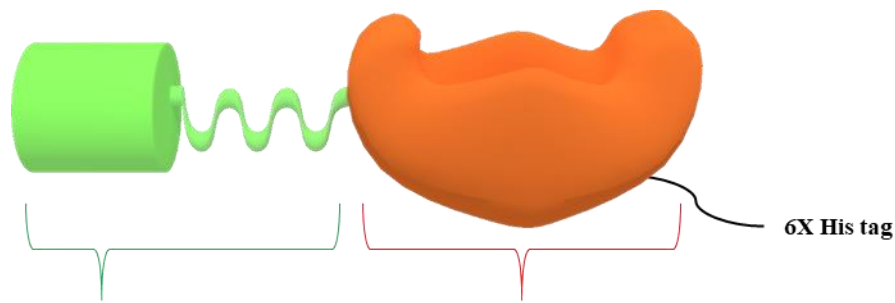
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GFP-Peptidoglycan binding protein-6X His tag

MVSKGEELFTGVVPILVELDGDVNGHKFSVSGEGEGDATYGKLTCLKFICTT
 GKLPVPWPTLVTTLTYGVQCFSRYPDHMKQHDFFKSAMPEGYVQERTIFF
 KDDGNYKTRAEVKFEGDTLVNRIELKGIDFKEDGNILGHKLEYNYNSHNV
 YIMADKQKNGIKVNFKIRHNIEDGSVQLADHYQQNTPIGDGPVLLPDNHY
 LSTQSALS KDPNEKRDHMLLEFVTAAGITLGMDELYKGGSGSGEFMVCP
 NIIKRSARETHCPKMNLPAKYVIIIHTAGTSCTVSTDCQTVVRNIQSFH
 MDTRNFCDIGYHFLVGQDGGVYEGVGWHIQGSHTYGFNDIALGIAFIGYF
 VEKPPNAAALEAAQDLIQCAVVEGYLTPNYLLMGHSDVVNILSPGQALYN
 IISTWPHFKHLEHHHHHH

Figure S1. Sequence of PGBP, composed of green fluorescence protein (GFP)-peptidoglycan binding protein-6X His tags (GFP: Green, peptidoglycan binding proteins: Red and 6X Histidine: Black).

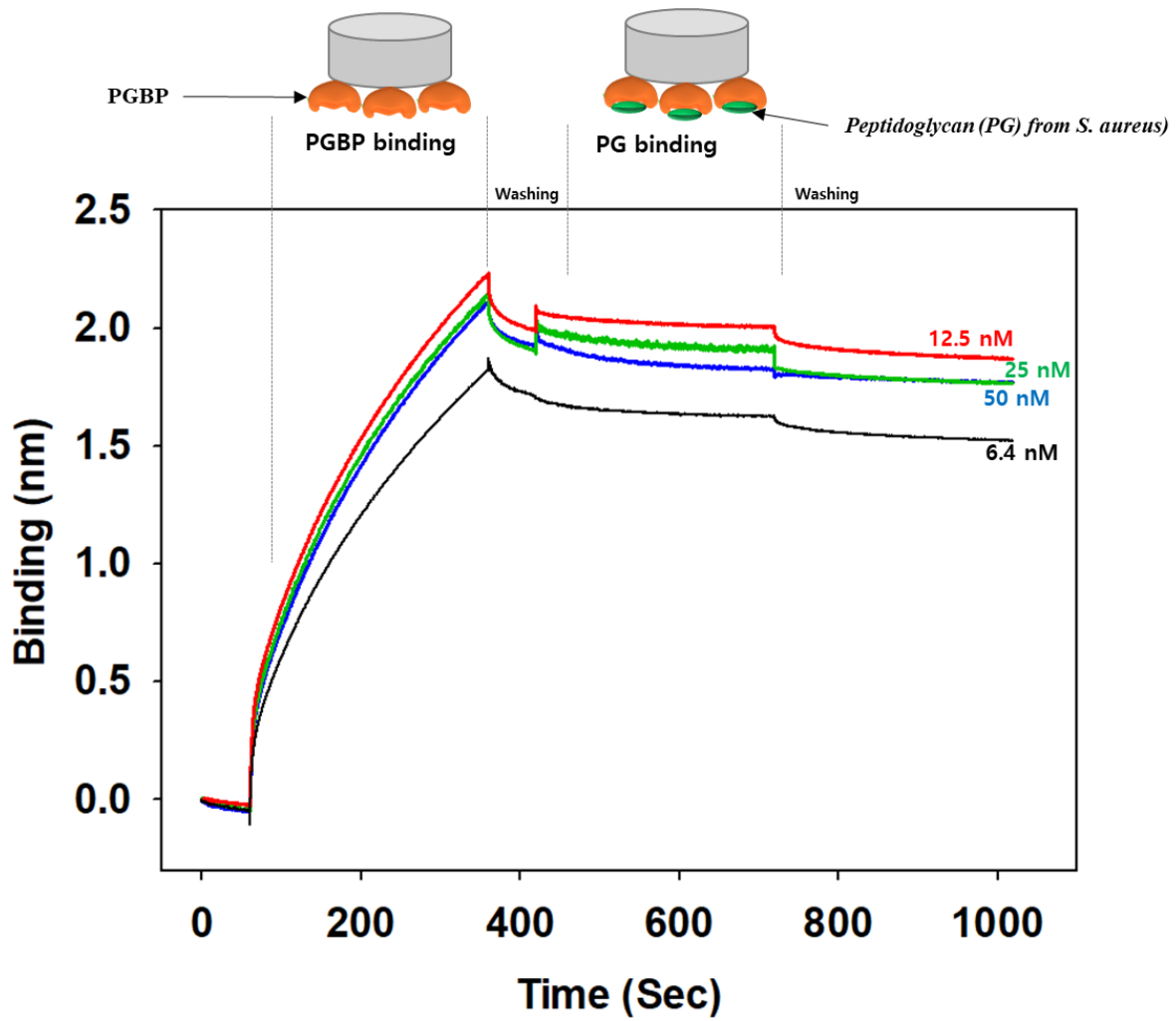


Figure S2. Measurement of binding affinity of PGBP with PG (6.4 ~ 50 nM) from *S. aureus* using the BLITZ[®] system.

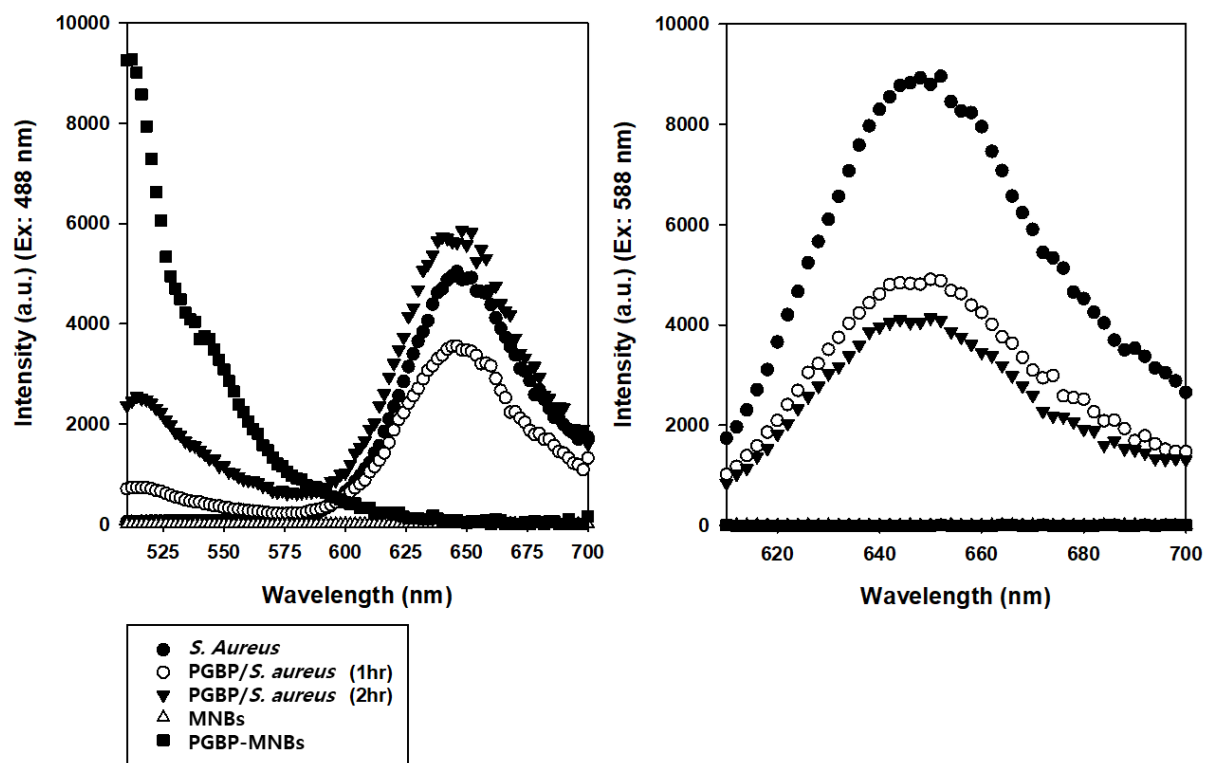
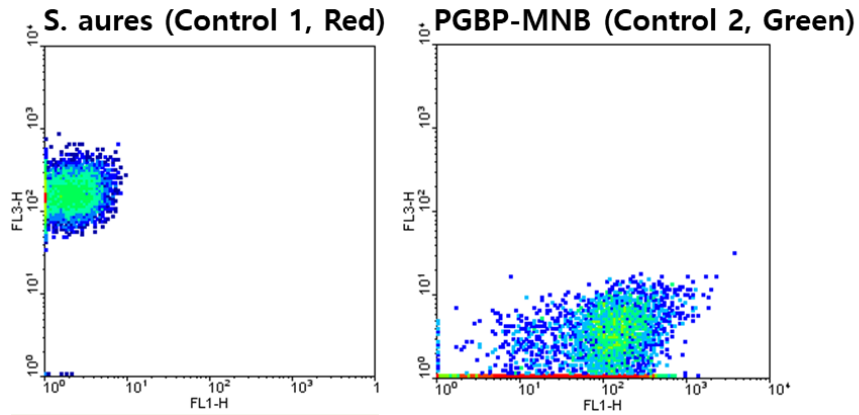


Figure S3. Fluorescence spectra of free *S. aureus*, MNBs, PGBP-MNBs and PGBP/*S. aureus* (b) at 488 nm (excitation) and (c) at 588 nm (excitation) under different incubation time (1 and 2 hr), respectively.



PGBP-MNBs/S. Aureus

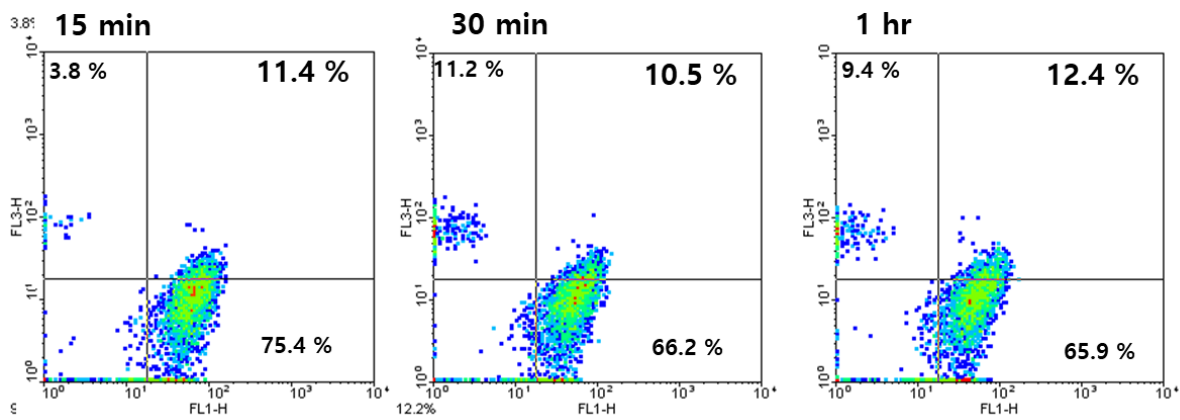


Figure S4. The magnetic capturing efficiency of *S. aureus* using PGBP-MNBs under various reaction time (15 min, 30 min, and 1 hr) by flow cytometry. Free *S. aureus* and PGBP-MNBs are used as control, respectively (FL1-H filter: Green and FL3 filter: Red).

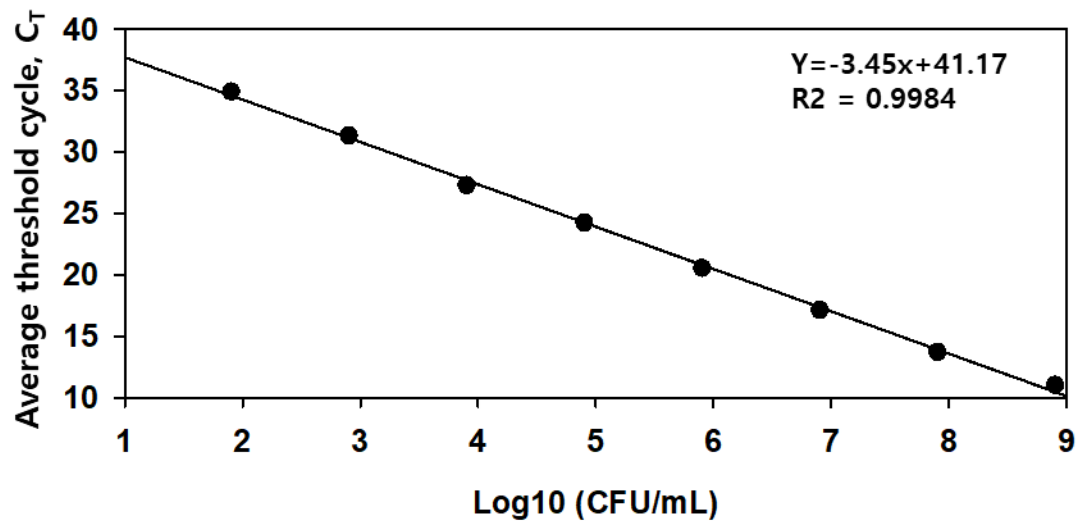


Figure S5. Linear regression of 10-fold dilutions of *S. Aureus* strain against corresponding average cycle threshold values (C_T). Data points represent the means of three separate real-time PCR.

| Target | Primers | Sequences (5'-3') |
|----------------------------------|---------|-------------------------|
| <i>S. aureus</i> , MRSA, MSSA | Forward | CCTGAAGCAAGTGCATTTACGA |
| | Reverse | CTTTAGCCAAGCCTTGACGAACT |
| <i>B. cereus</i> | Forward | CTGTAGCGAATCGTACGTATC |
| | Reverse | TACTGCTCCAGCCACATTAC |

Table S1. Sequences of primers used for identification of bacteria by real-time PCR