

# Supplementary Information

## A Multi-Region Magnetoimpedance-Based Bio-Analytical System for Ultrasensitive Simultaneous Determination of Cardiac Biomarkers Myoglobin and C-reactive Protein

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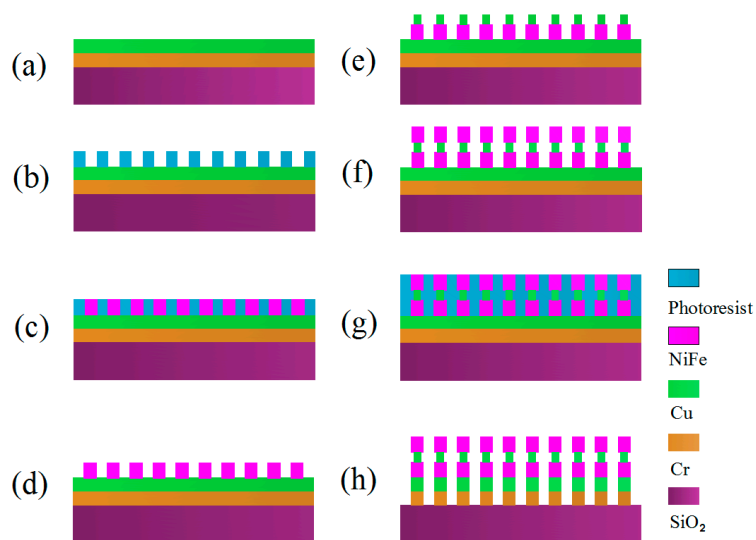
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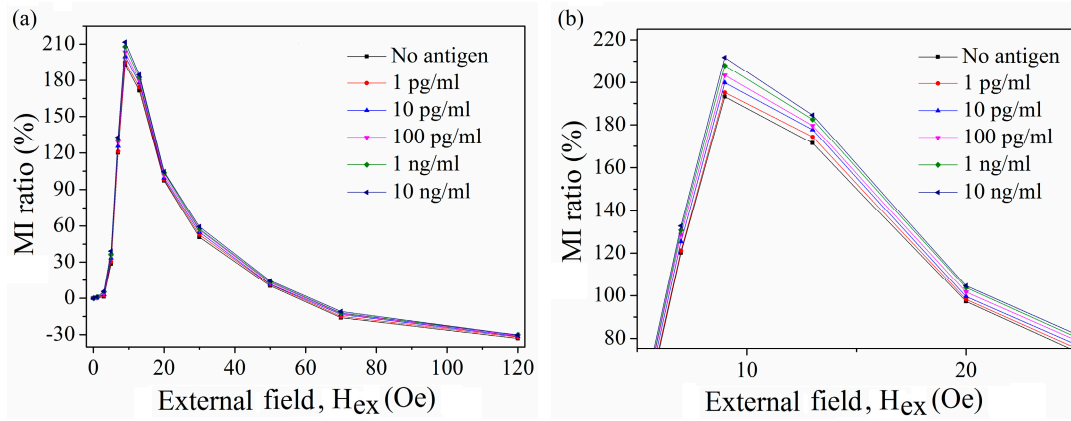
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### 2.2. Microfabrication of MI element and MR-MFD

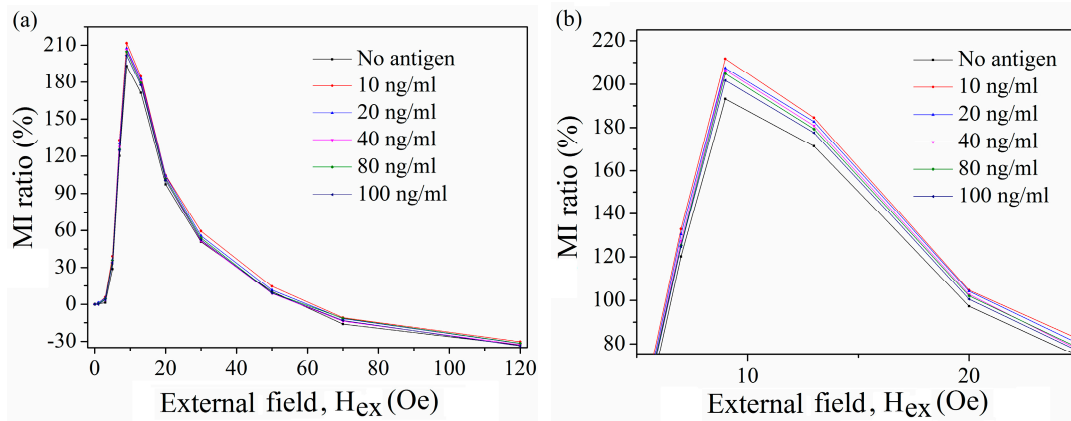
The meander-shaped MI element was designed for appropriate structural parameters in order to obtain the high performance in this work. The length of the straight-line segment in the tortuous structure was 5 mm. The widths of NiFe and Cu film were 160 and 140  $\mu\text{m}$ , respectively. The space between neighboring segments was 80  $\mu\text{m}$ . The thicknesses of the NiFe and Cu film were about 3 and 2  $\mu\text{m}$ , respectively.



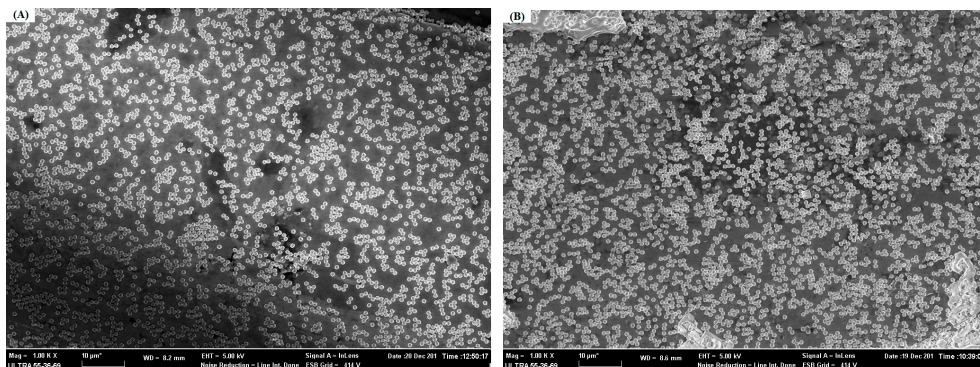
**Figure S1.** Fabrication steps of the MI element.



**Figure S2.** Field dependence of MI responses under the low concentration of CRP antigen (a) full view (b) partial enlargement.



**Figure S3.** Field dependence of MI responses under the high concentration of CRP antigen (a) full view (b) partial enlargement.



**Figure S4.** SEM characterizations CRP-conjugated Dynabeads at the concentration of 10 ng/ml (A) and SEM characterizations Mb-conjugated Dynabeads at the concentration of 10 ng/ml (B).