

Amphipathic Engineering of Magnetic Composites Reinforced with Ion-Copolymers-Activated Protein-Bioconjugate Functionalized Surface

Zhi-Yong Guo^{a,e#}, Guo-Bin Huang^{b#}, Chen Zhang^a, Qiu-hong Yao^a, Ting-Xiu Ye^d,
Li Zhang^a and Xi Chen^{c*}*

*^aInstitute of Analytical Technology and Smart Instruments and Colleague of Environment and
Public Health, Xiamen Huaxia University, Xiamen, 361024, China*

^bInstitute of Food Safety and Environment Monitoring, Fuzhou University, Fuzhou, 350108, China.

*^cState Key Laboratory of Marine Environmental Science, Xiamen University, Xiamen 361005,
China*

^dCollege of pharmacy, Xiamen Medicine College, Xiamen 361005, China

^eXiamen Environmental Monitoring Engineering Technology Research Center

Keywords: ion-copolymers; amphipathic surface; magnetic composites; glycoprotein
separation

***Corresponding author.**

Corresponding author. Tel: 86 592 2184530;

E-mail address: xichen@xmu.edu.cn, guozy@hxxxy.edu.cn

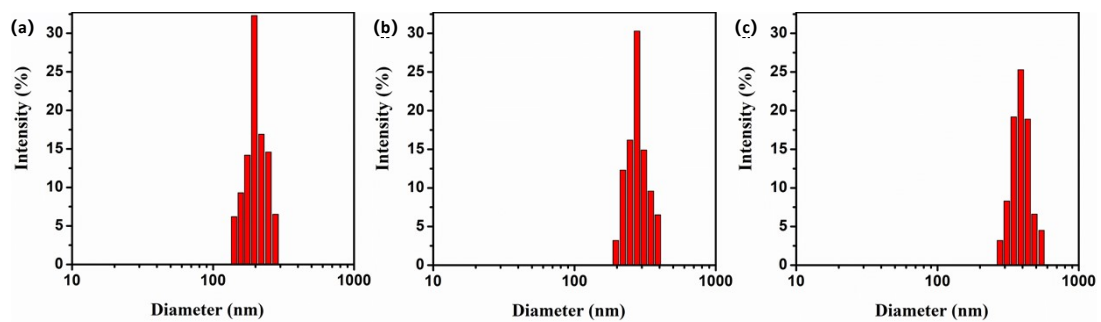


Figure S1 Size distribution histogram of (a) Fe₃O₄ NPs, (b) Fe₃O₄@PCL, and (c) Fe₃O₄@PCL-ZDES NPs, respectively.

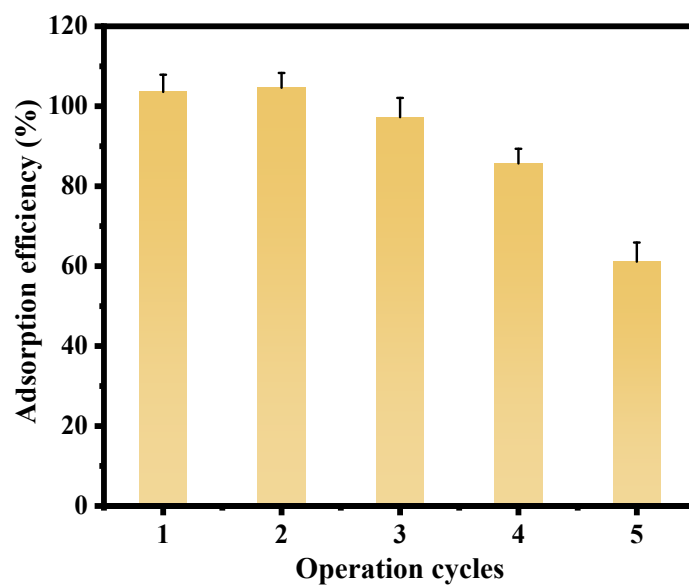


Figure S2 The reusability of $\text{Fe}_3\text{O}_4@\text{PCL-ZDES}$ NPs for the circulation of adsorption and desorption of Ig-G. (Protein solution: 1.0 mL, $50 \mu\text{g mL}^{-1}$, pH 7; adsorption time, 30 min; magnetic NPs, 1.0 mg.)

Table S1 Comparison of Adsorption Capacities for
 Immunoglobulin G with Various Adsorbents with the Fe₃O₄@PCL-ZDES NPs.

Adsorbents	Adsorption capacity (mg/g)	Reference
Octapeptide affinity resins	176.4	[48]
PHEMA/PGMA-IDA-Cu ²⁺	257.0	[49]
His-MWNTs	267.0	[50]
Boronic acid GMA-MAA-DVB	85	[51]
Fe ₃ O ₄ @PCL-ZDES NPs	233.2	this work