

Supporting information

for

Synthesis of boronic acid-functionalized molecularly imprinted silica nanoparticles for glycoprotein recognition and enrichment

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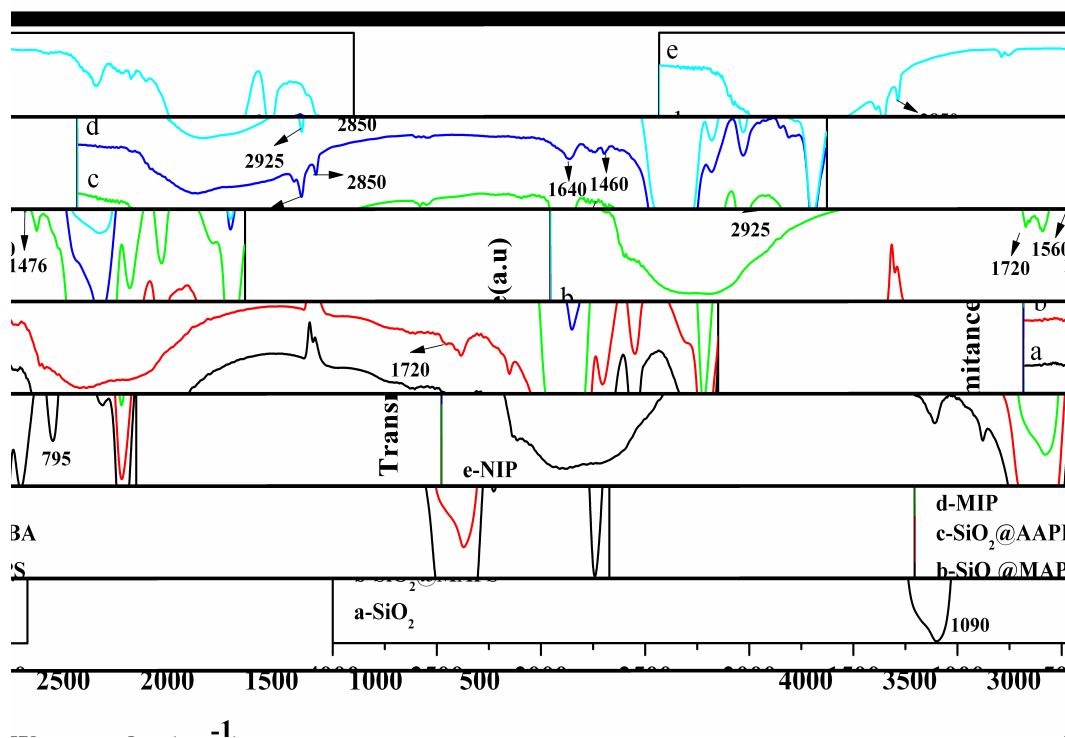


Fig.S1 FT-IR spectra of the (a) bare SiO₂; (b) SiO₂@MAPS; (c) SiO₂@AAPBA; (d) HRP-MIP silica NPs and (f) NIP silica NPs.

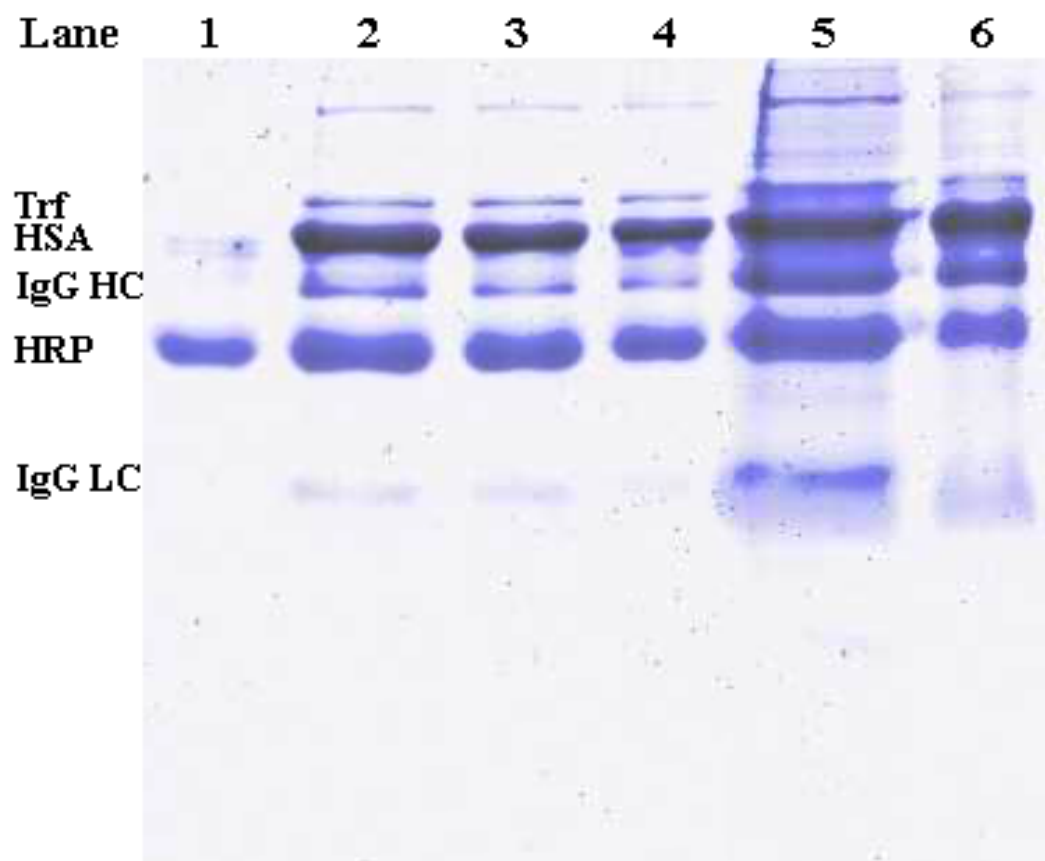


Fig. S2 SDS-PAGE analysis of the spiked human serum before and after treatment with HRP-MIP and NIP silica NPs. Lane (1) HRP standard ($8.75 \mu\text{mol L}^{-1}$); (2) spiked human serum; (3) the supernatant after treatment with HRP-MIPs; (4) the supernatant after treatment with NIPs; (5) the eluate from lane 3; (6) the eluate from lane 4; loading amount of sample: $10 \mu\text{L}$.

Table S1 the recovery of different proteins from the HRP-MIP and NIP silica NPs (n=3)

materials	Major bands	Original	The supernatant	The eluate	Recovery (%)
HRP-MIPs	HSA	26.76	20.77	5.99	22.4%
	Ig G	19.96	11.16	8.80	44.1%
	HRP	20.22	4.95	15.27	75.6%
NIPs	HSA	26.76	11.96	14.80	55.3%
	Ig G	19.96	5.62	14.81	74.2%
	HRP	20.22	12.04	8.18	40.4%

Gel images were obtained using a GS-800 Calibrated Densitometer (Bio-Rad) and quantification of the protein bands was carried out with Quantity One software (Bio-Rad).

Optical density (OD) measures were corrected for background (via subtraction).

Units of protein quantity($OD \times mm^2$) were obtained by recording the average OD for each band minus a modal background density, and then multiplying by the area occupied by the band. The detailed recoveries were calculated and listed as follow:

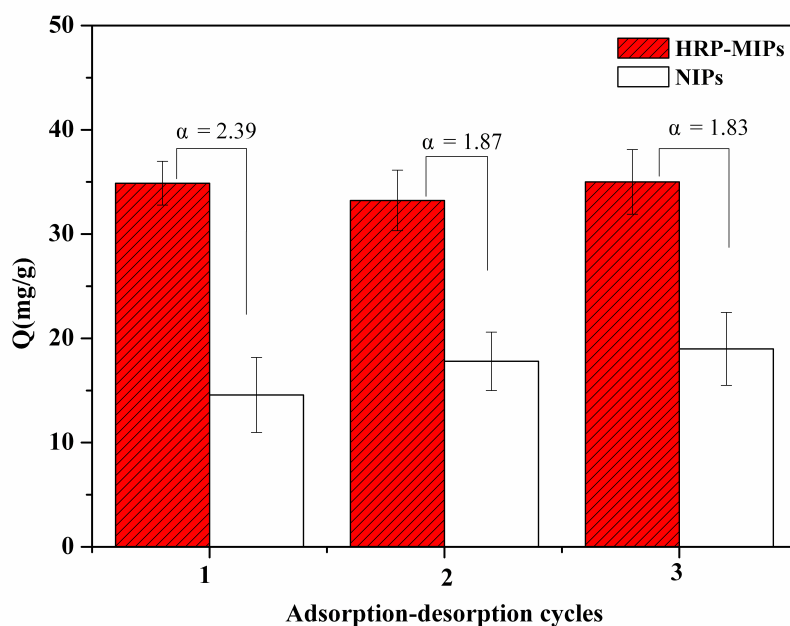


Fig.S3 Stability and regeneration of the HRP-MIP and NIP silica NPs for three cycles. Amount of HRP-MIP and NIP silica NPs: 1 mg; volume: 0.5 mL; binding media: 0.02 mol/L PBS (pH8.5); incubation time: 6h; C_{HRP} : $10.0 \mu\text{mol L}^{-1}$. The points represent mean values of three measurements.