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An epitope imprinted polymer with affinity for kininogen fragments prepared by metal coordination interaction for cancer biomarker analysis

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Supporting Information

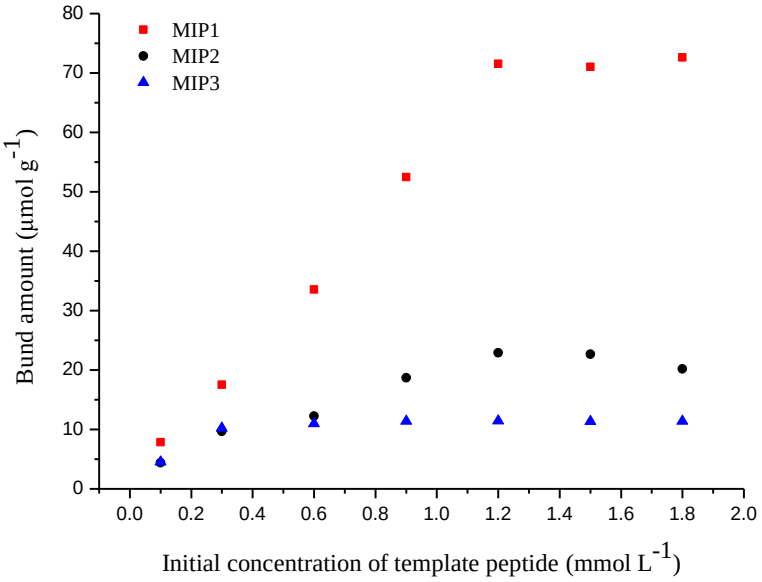

Fig. S1 Equilibrium binding isotherms of DQGHGHQ on MIPs synthesized with different template/Cu^{2+} ratios

The MIPs were prepared with template/Cu^{2+}/4-VPy/EDMA (molar ratio): 1/6/12/30 (MIP1), 1/4/8/20 (MIP2), and 1/8/16/40 (MIP3), respectively. Other synthetic conditions are listed in the manuscript section 2.3.

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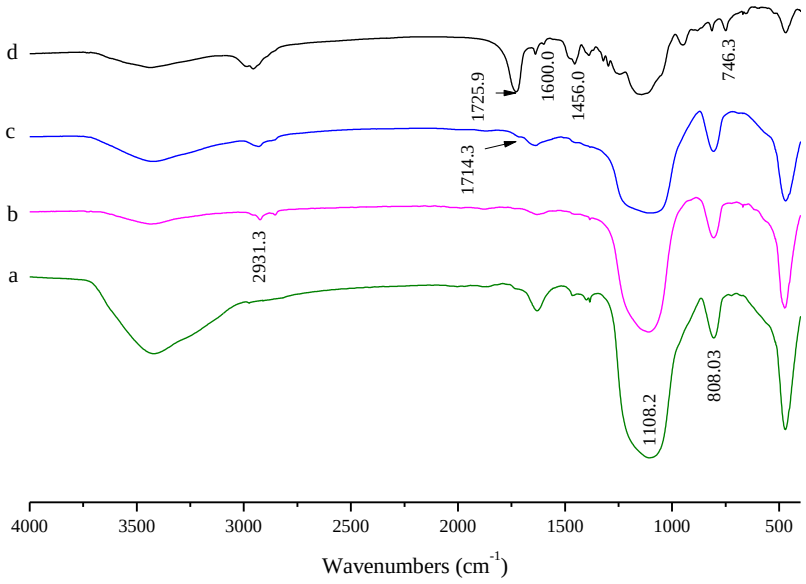

Fig.S2 FT-IR spectra of silica gel (a), Si-NH_2 (b), Si-CHO (c) and DQGHGHQ-MIP (d)

FT-IR analysis of modified silica and DQGHGHQ-MIP

In the FT-IR spectrum of blank silica, the absorptions at 1108.2 cm^{-1} and 808.3 cm^{-1} (the Si-O-Si asymmetric and symmetric stretching, respectively) have shown the characteristic silica bands. In the FT-IR of Si-NH_2, the peak corresponding to C-H stretch of methylene (2931.3 cm^{-1}) appeared. The peak at 1714.3 cm^{-1} from C=O stretching appeared in the FT-IR of Si-CHO, which verified the successful grafting of aldehyde group. In the FT-IR of DQGHGHQ-MIP, strong peak at 1725.9 cm^{-1} due to the C=O stretching of ester group was observed. The absorptions at 1456-1600 cm^{-1} (stretching of aromatic ring), 764.3 cm^{-1} (out-of-plane bending of aromatic hydrogen) from the compositions of 4-Vpy also appeared. Moreover, the Si-O-Si asymmetric and symmetric stretching at 1108.2 cm^{-1} and 808.3 cm^{-1} reduced considerably in the FT-IR of MIP, which has shown the successful removal of the silica matrix.

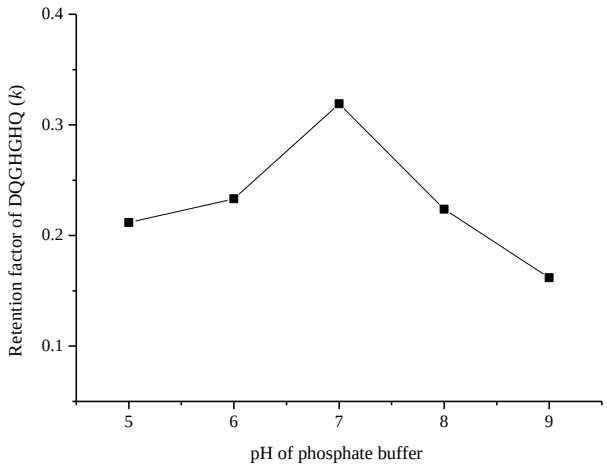

Fig. S3. Influence of pH of mobile phase on the retention of template DQGHGHQ on the MIP column

In the HPLC analysis, DQGHGHQ-MIP packed in a stainless steel column (20 mm ×3.0 mm i.d) was used as stationary phase. Phosphate buffer solutions (20 mM) with different pH were employed as mobile phase. The retention factor of template was calculated by $k=(t_r-t_0)/t_0$ and acetone was used for the t_0 measurement. The analyte was detected at 205 nm