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Electronic Supplementary Information

Preparation of Protein Imprinted Polymer Beads by Pickering Emulsion Polymerization

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Effect of nanoparticle modification on Pickering emulsion stabilities

Three types of Pickering emulsions were prepared by shaking different silica nanoparticles (with and without being treated with haemoglobin or Triton X-100) with the monomer and the water phases. The emulsions were left to stand at ambient temperature for 1 h before their optical images were taken (Fig. S1).

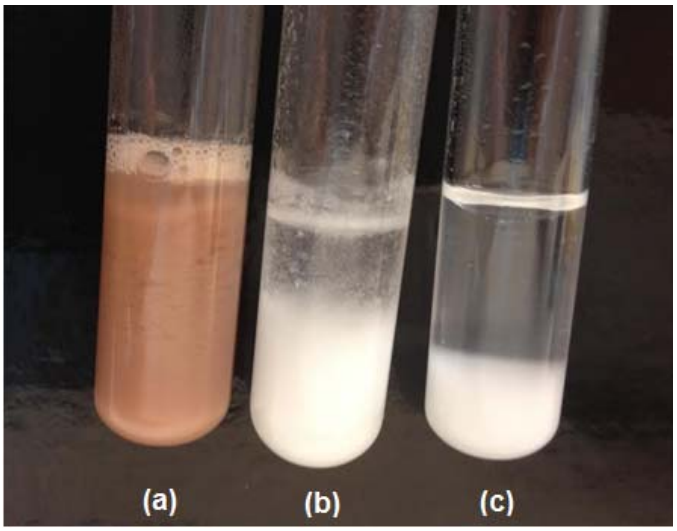

Fig. S1. Pickering emulsions of monomer in water stabilized by (a) silica treated with hemoglobin, (b) silica treated with Triton X-100, (c) silica.

Protein activity analysis

The bound Hb was eluted with 1 mL phosphate buffer (20 mM, pH 8.0). To determine the functionality of the eluted Hb, the Hb solution was firstly reduced with sodium dithionite and then gently bubbled with CO or O_2. The different oxidation states of Hb were monitored by UV-vis spectrophotometer at room temperature immediately after the preparation. In Fig. S2, the obtained UV spectra of Hb-CO and Hb-O_2 are in agreement with the characteristic spectra reported in the literature.[1] The results show that the eluted Hb maintains its activity after the adsorption and desorption processes.

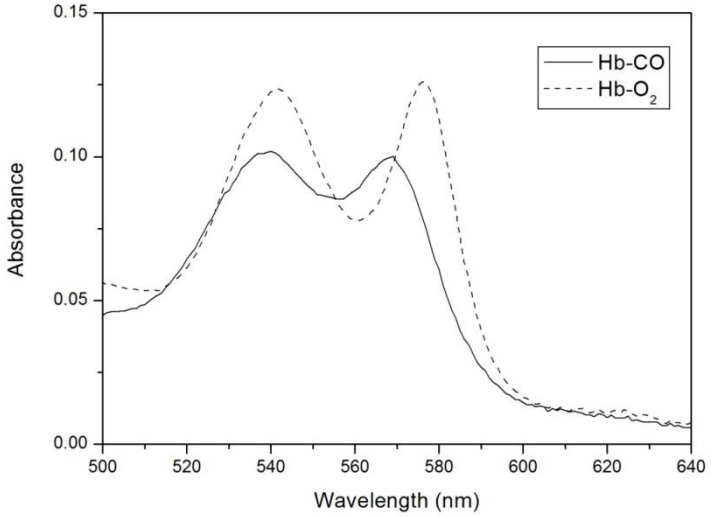

Fig. S2. Absorption spectra of hemoglobin. Hb-CO: Hb treated with CO, Hb-O_2: Hb treated with O_2.

Reference

1. W. G. Zijlstra and A. Buursma, *Comp Biochem Phys B*, 1987, **88**, 251-255.