

Supporting Information

Photonic crystal hydrogel suspension array for the capture of blood cells from whole blood

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Supporting Figures:

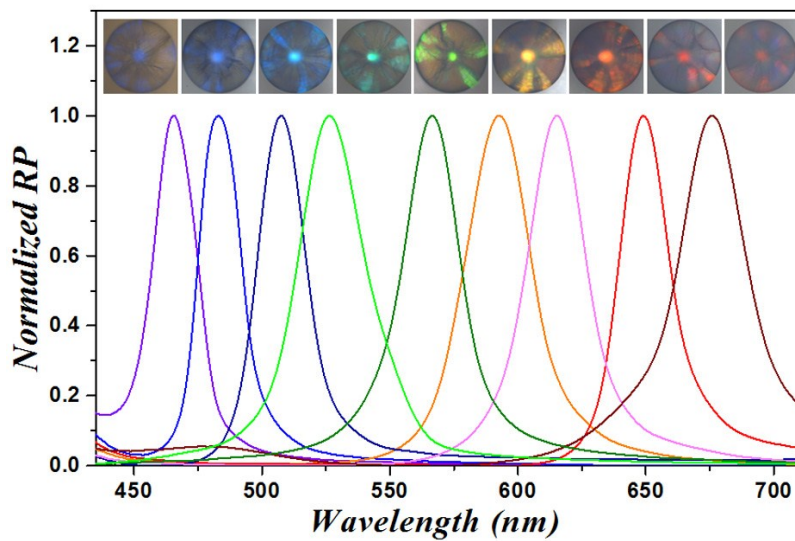


Figure S1. The optical images and reflection spectra of nine kinds of the template SCCC, these SCCC were derived by using different size of silica nanoparticles for assembling in droplets through microfluidic technique.

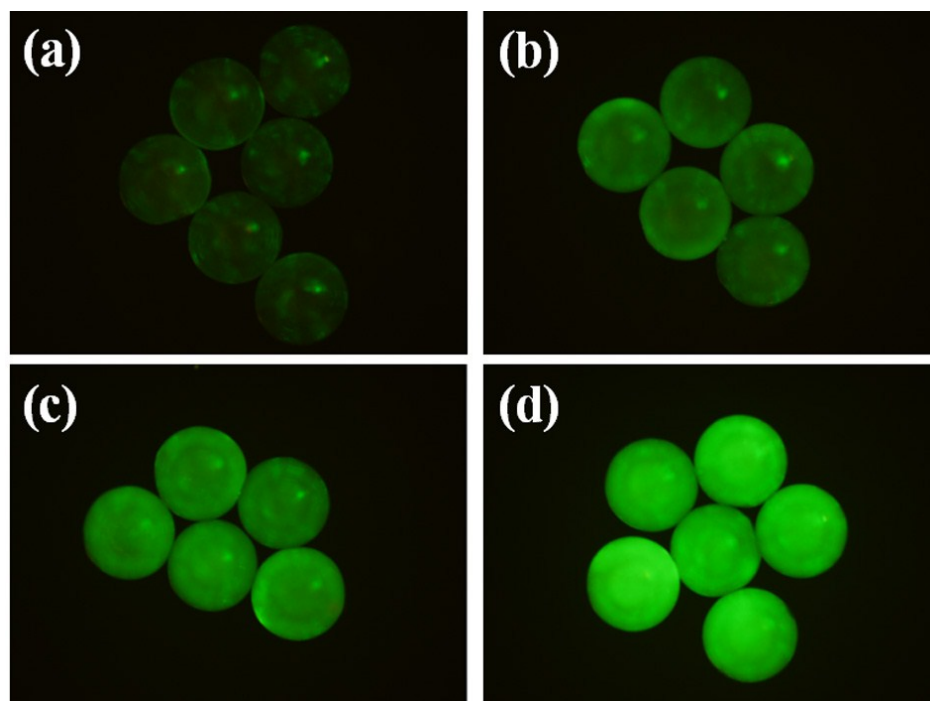


Figure S2. Fluorescent image of the FITC-PHA entrapped inverse opal microcarriers, the fluorescence density was increased with the incremental protein concentration.

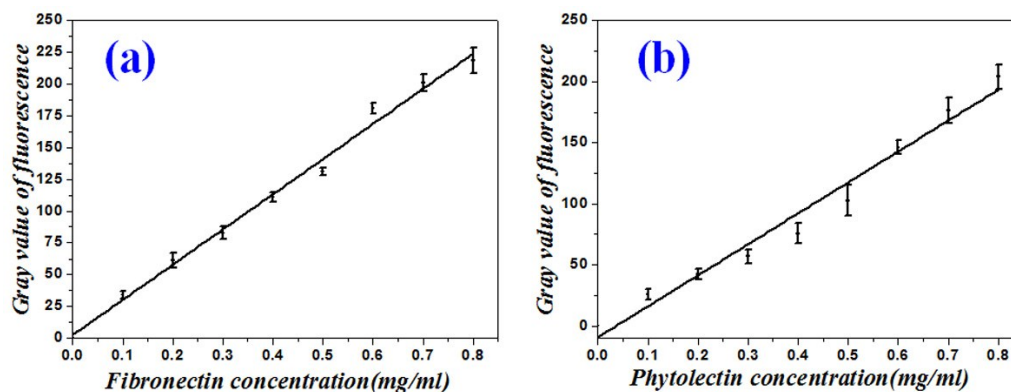


Figure S3. (a) The relationship between FITC-FN concentrations and the protein density that the inverse opal microcarriers entrapped. (b) The relationship between FITC-PHA concentrations and the protein density that the inverse opal microcarriers entrapped.

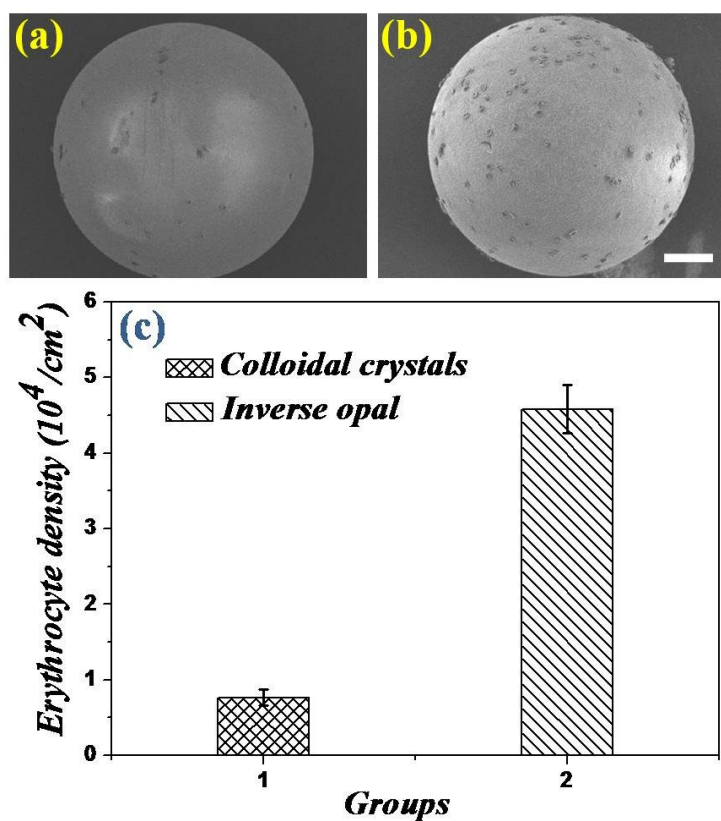


Figure S4. (a) SEM image of colloidal crystal with captured erythrocytes. (b) SEM image of inverse opal with captured erythrocytes. (c) Column diagram of erythrocytes density of colloidal crystals and inverse opal. Scale bar is 50 μ m.

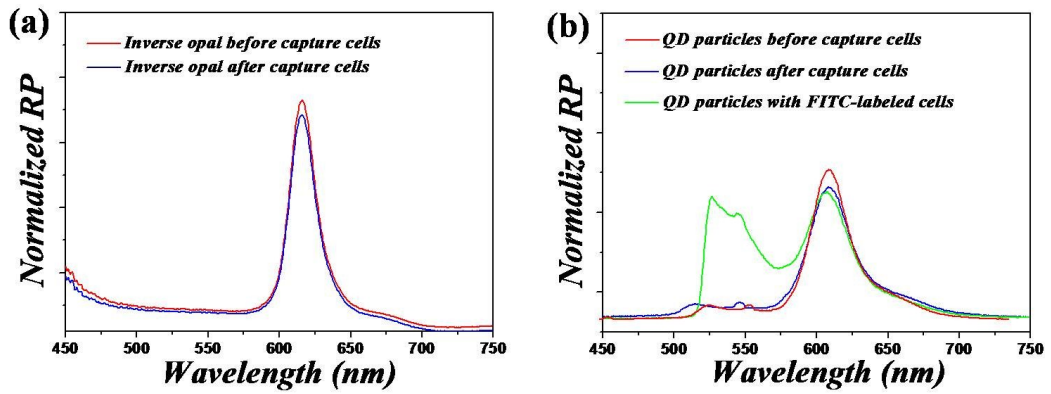


Figure S5. (a) The reflection spectra of inverse opal before and after cell capture. Although the reflection intensity was effected by the cell layer, the encoded peak position was with little effect. (b) The fluorescent spectrum of quantum dots before cell capture, after cell capture and with labeled cells. The fluorescent intensity, which was the mainly encoded elements of the QD particles, could be effected by the cell layer, especially when it was stained by fluorescent dyes.

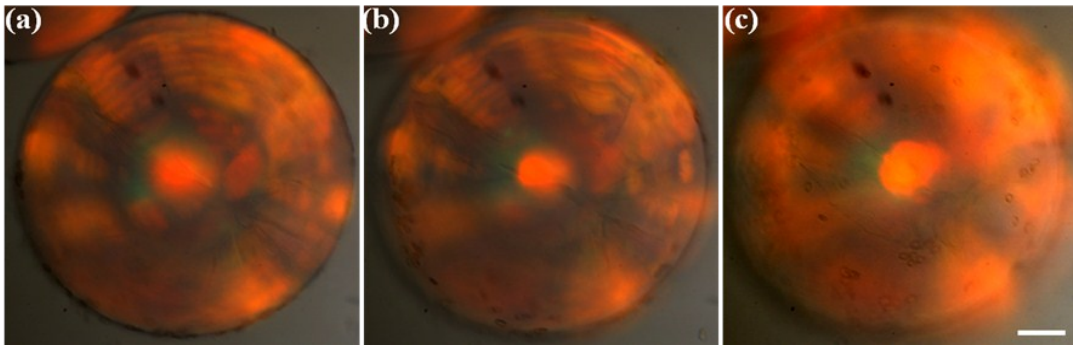


Figure S6. The reflection images of the inverse opal microcarrier with captured erythrocytes. By adjusting the focal length of the microscope, the structural colors of the microcarriers with captured erythrocytes on their surface could still be observed. Scale bar is 50um.

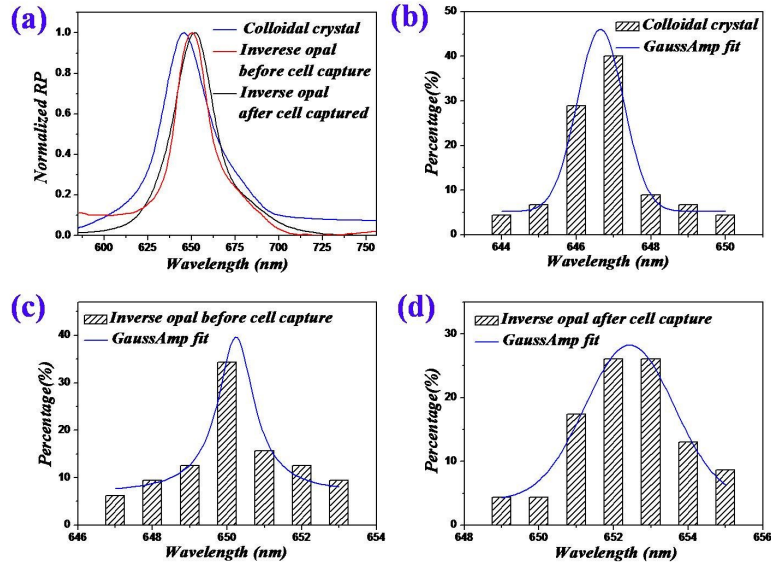


Figure S7. (a) The reflection spectra of colloidal crystal, inverse opal before and after cell capturing. (b) The distribution of reflection peak positions of colloidal crystal. (c) The distribution of reflection peak positions of inverse opal microcarriers before cell capture. (d) The distribution of reflection peak positions of inverse opal microcarriers after cell capture.

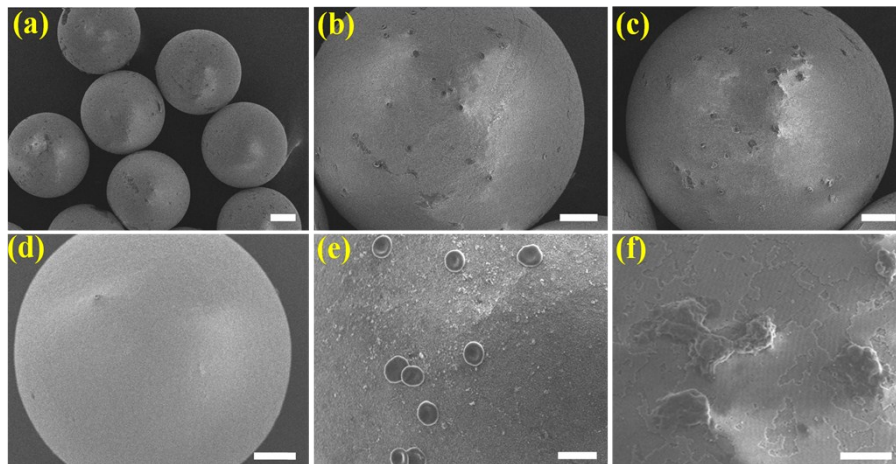


Figure S8. (a) SEM images of blood cells captured from whole blood on the surface of the microcarriers. (b) Erythrocytes were mainly enriched on the blue microcarriers (c) Platelets were mainly enriched on the red microcarriers. (d) There almost no other cells arrested on the controlled microcarrier without protein decorated. (e-f) Magnifying images of captured erythrocyte and platelet, respectively. Scale bars are 100um, 50um, 50um, 50um, 10um and 5um.

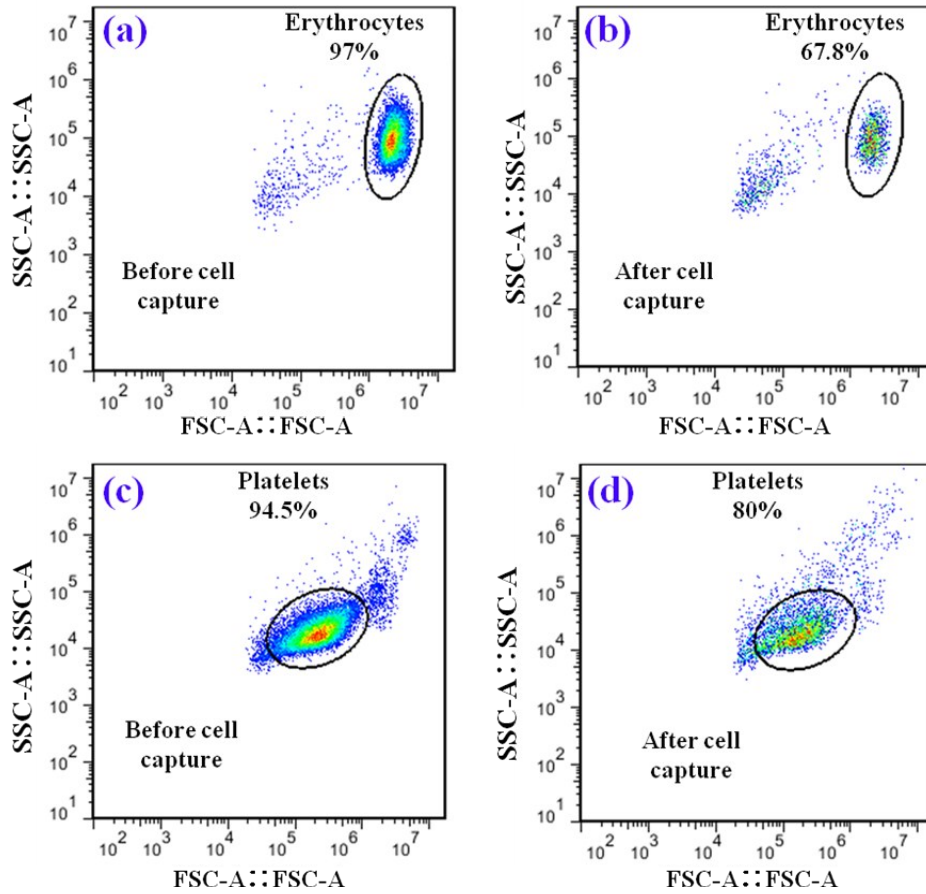


Figure S9. (a-b) Flow cytometer scatter plots summarize the erythrocytes distribution before (a) and after (b) the cell capture. (c-d) Flow cytometer scatter plots summarize the platelets distribution before (c) and after (d) the cell capture.