Functional silver coated colloidosomes as targeted carriers for small molecules

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Supporting Information

1. Surface Plasmon Resonance (SPR) Figure S1 shows a schematic diagram of the home-built spectral Surface Plasmon Resonance sensor. A tungsten halogen white light source (Ocean Optics, USA) was implemented to generate a broad-band illumination. An optical fibre was used to collimate the light from the source and deliver it to other optical components. The collimated light passed through a polariser and iris, then incident on the prism and coupled to the gold film surface through benzyl alcohol and glass substrate in the Kretschmann configuration. The prism and gold chip were held with a custom made scaffold with a flow channel attached at the sensing side of the gold film. The prism and flow cell assembly were fixed on a rotation stage (Standa Ltd) with angle adjustment. The reflected light beam was collected by an optical fibre coupled USB4000 miniature fibre optical spectrometer (Ocean Optics, USA) with connection to a computer. The peak absorption wavelength in the reflected spectrum was determined by a Lev-Mar non-linear curve fitting algorithm**.**

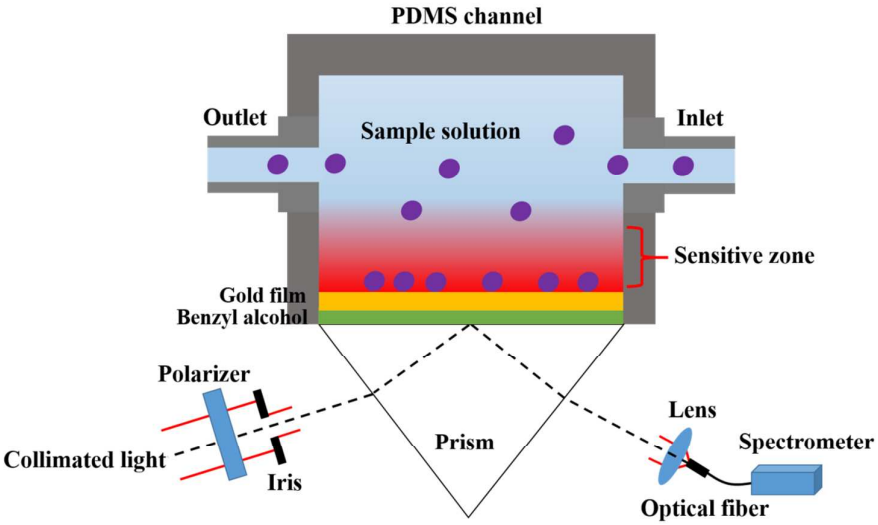

Figure S1. Schematic diagram of home-built spectral Surface Plasmon Resonance (SPR)

2. Dye release calculation

The calculation of the encapsulation efficiency and dye loss data are as follows: The original total dye added in the experiment was 100%. During the capsule making process, 27.7% of the total dye was lost in the sunflower oil and 49.6 % of the total dye was lost in the washing solution. So the remaining dye in the capsules was about 22.7%. This is shown in the table S1 below.

The release data was normalized by the amount of encapsulated dye and the release occurred up to a maximum release yield of around 20 %. A large amount of the encapsulated dye will be damaged by the release processing conditions. We did a few control experiments: 5mL 1 wt% nitric acid was added to the same amount and concentration of dye solution and heated at 65 °C for different durations. Then we tested the absorbance of the dye solutions using UV-vis spectroscopy. After 10 min, there was about 20-30% loss. After 20 min, there was about half dye loss. With prolonged time, more dye was destroyed. After 30 min, there was nearly no dye remaining.

Table S1. The calculation of the dye loss data and encapsulation efficiency

Dye data	Mass	Percentage
Amount of dye added in the experiment	40.0 mg	100 %
Amount measured in the sunflower oil	11.1 mg	27.7 %
Amount measured in the washing solution	19.8 mg	49.6 %
Amount remaining in the capsules	9.1 mg	22.7 %
Amount released on the addition of acid	1.8 mg	20.0 %