Title: Supramolecular hydrogel microcapsules via cucurbit[8]uril host-guest interactions with triggered and UV-controlled molecular permeability

Authors: Ziyi Yu, Jing Zhang, Roger J. Coulston, Richard M. Parker, Frank Biedermann, Xin Liu, Oren A. Scherman, * and Chris Abell, *

a Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, United Kingdom E-mail: ca26@cam.ac.uk

* Melville Laboratory for Polymer Synthesis, Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, United Kingdom E-mail: oas23@cam.ac.uk

Original unprocessed data is provided in support of the article “Supramolecular hydrogel microcapsules via cucurbit[8]uril host-guest interactions with triggered and UV-controlled molecular permeability”. The data is structured into four folders and the description of each folder is as follows:

Folder 1: Quantitative fluorescence measurements
Quantitative fluorescence in single microdroplets was studied with a varying molar ratio between cucurbit[8]uril (CB[8]) and anthracene. The molar concentration of CB[8] keeps consistent in each microdroplet with 60 µM, while the concentration of anthracene is 0 µM, 15 µM, 30 µM, and 45 µM, respectively. The quantitative fluorescence emission measurement of single microdroplet was measured by a photomultiplier tube (H8249-102, Hamamatsu) when the microdroplet pass through a JDSU 150 mW 355 nm UV DPSS laser, with 510/42 filter (Semrock) and 447/60 filter (Semrock) to split the emission light. The signal from the photomultiplier tube was obtained by NI PCI-6251 data acquisition (National Instruments) and then was analysed by Labview 8.2 software, compiled into the spreadsheet, fluorescence profiles.xlsx.

Folder 2: Photos of prepared Ant-HEC microdroplets and CB[8]/Ant HEC microdroplets in vials
The photos of prepared Ant-HEC microdroplets and CB[8]/Ant HEC microdroplets in vials were capture by Fujifilm FinePix S1770 camera. The microdroplets contain only Ant-HEC polymers fluoresce “blue” under UV light, indicative of single anthracene units. The fluorescence changes to green when CB[8] was added (0.5 equiv. per anthracene moiety), and corresponds to the anthracene excimer emission from a 2:1 complex with CB[8].

Folder 3: Fluorescence micrographs of FITC-dextran release from microcapsules as a function of the rehydration time
The original fluorescence micrographs of the 150 kDa, 250 kDa, and 500 kDa FITC-dextran release from microcapsules as a function of the rehydration time were provided. Those images were obtained using an Olympus IX81 inverted optical microscope under a 20× objective coupled with a camera of Andor Technology EMCCD iXonEM+ DU 897. For the analysis of the release of FITC-dextran, the fluorescence intensities were analysed by Image J software, compiled into the spreadsheet, release profile.xlsx.
Folder 4: Fluorescence micrographs of FITC-dextran release from microcapsules as a function of the UV irradiation time

The original fluorescence micrographs of the 250 kDa FITC-dextran release from microcapsules as a function of the UV irradiation time were provided. Those images were obtained using an Olympus IX81 inverted optical microscope under a 20× objective coupled with a camera of Andor Technology EMCCD iXonEM+ DU 897. For the analysis of the release of FITC-dextran, the fluorescence intensities were analysed by Image J software, compiled into the spreadsheet, 250 kDa dextran release profile.xlsx.