Electronic Supplementary Material (ESI) for Soft Matter.

Electronic Supplementary Information

I. Calibration curves relating fluorescence intensity with the concentration of FITC-dextran sulphate. The calibration curve was used to correlate the concentration of FITC-Dextran sulfate released from the microspheres encapsulated within the LM and HM scaffolds.

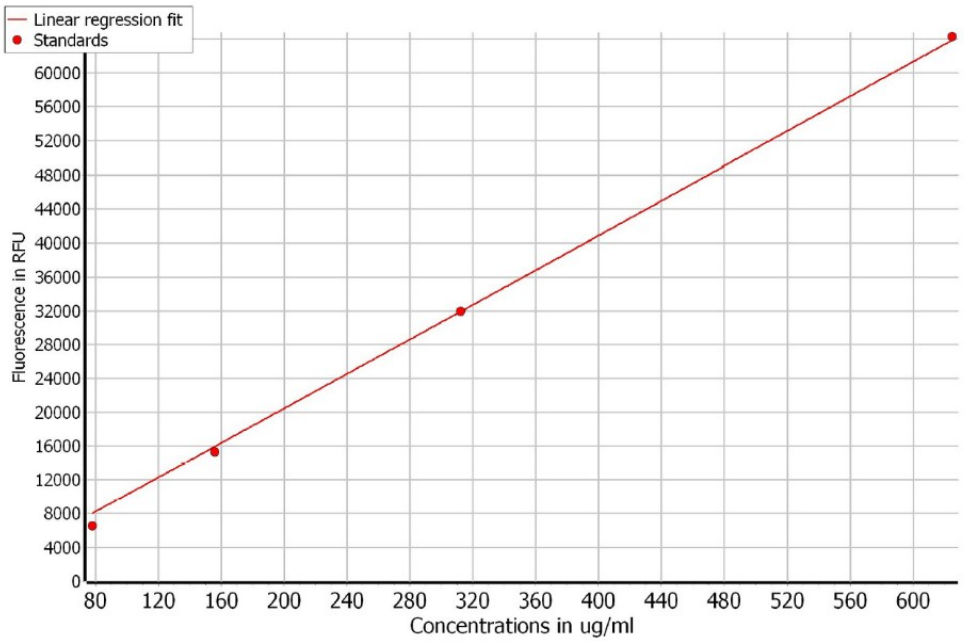

Figure 1 Calibration curve obtained using a linear regression fit. The linear fit was based on known concentration of FITC-dextran sulfate (MW: 40 kDa) and measured using a fluorescence plate-reader (excitation: 495 nm, emission: 525 nm).

II. Fluorescence images of scaffold samples after 30 days of release. The images were acquired using a fluorescence microscope to visualize the FITC from the microspheres.

Control HM-10s: 30 days **HM-PCL-alg-10s: 30 days**

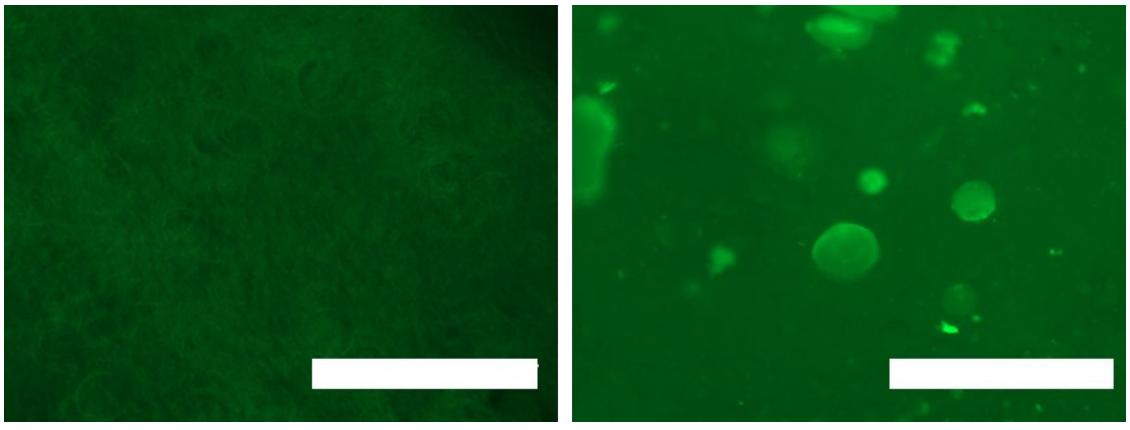

Figure 2 Microscopic acquisitions taken after 30 days of release experimentation. The control sample (HM-10s) in the left shows fluorescence signal close to the background level while the sample with the PCL-alginate microspheres encapsulating the FITC-dextran sulfate (right) shows positive FITC signal after 30 days.

III. Release profile of HM scaffold crosslinked for 2 seconds versus 10 seconds. Samples prepared using two different UV irradiation time were immersed in 1mL of aqueous solution for release experiments. The media was retrieved at determined time points and the released FITC-dextran sulfate was measured by using a fluorescence plate reader.

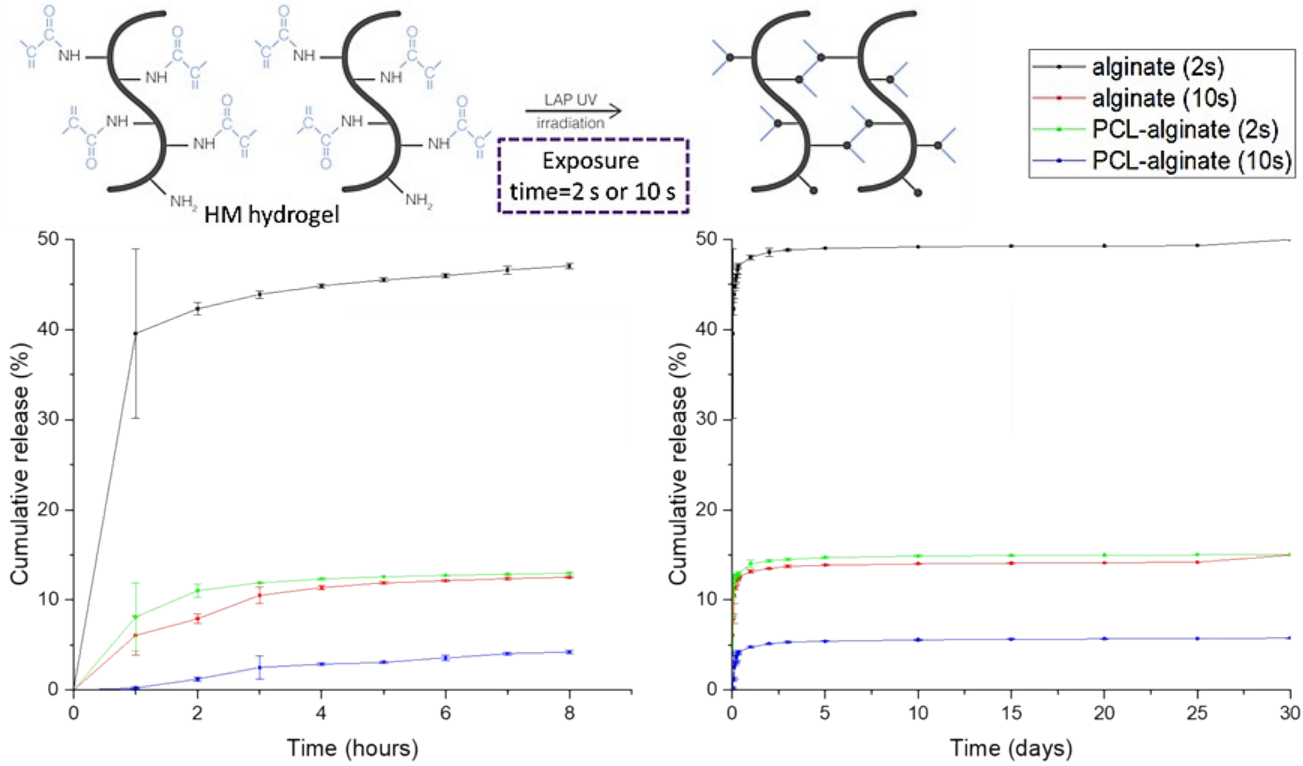

Figure 3 Cumulative release of scaffolds photocrosslinked using either 2 s or 10 s of UV irradiation (365 nm) encapsulating alginate or PCL-alginate microspheres loaded with FITC-dextran sulfate.

IV. HM-10s sample freeze-dried and swollen. Fresh samples were casted using GelMa/HAMa hydrogels with and without the microspheres and stored under -80 ?C. The samples were placed in a freeze-drier until all the aqueous portion was removed. The dried scaffolds were immersed in PBS and retrieved at determined time points. The samples reached swelling equilibrium after 6h.

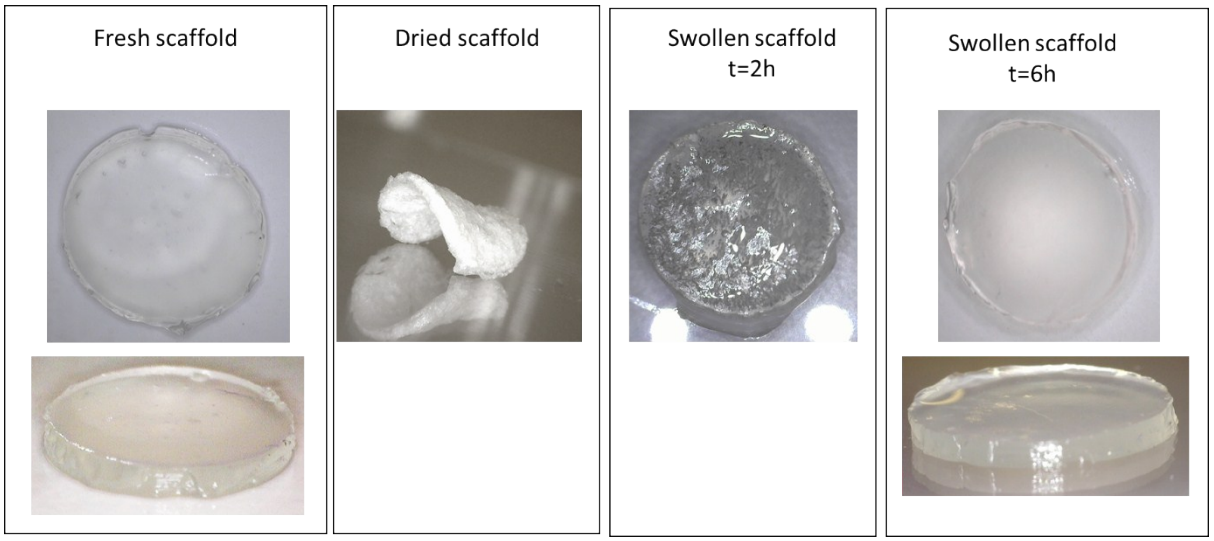

Figure 4 Macroscopic images showing the swelling process of the HM-10 scaffold from the dried sample and over 2h and 6h. The samples reached swelling equilibrium after 6h.