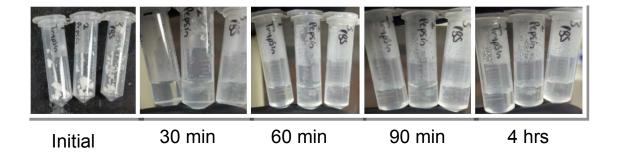
## **Supplementary information**

**Table S.1.** Linear parameters of trypsin activity assay.

Microgel Concentration	R <sup>2</sup>	Slope
(mg/ml)		
6	0.89	51.1
3	0.99	64.4
1.5	0.99	68.3
0	0.99	80.7

Linear parameters of the activity assay of 0.6 mg/ml trypsin incubated with various concentrations of P(MAA-co-NVP) microgels containing degradable crosslinks for 90 minutes (37°C, pH 7.4, N=3). As indicated by the high linear correlation, the trypsin remains active at the end of the incubation period, and the activity is a function of microgel concentration incubated with the trypsin as indicated by the slope of the fitted line.



**Figure S.1.** Visual indication of hydrogel degradation in SIF (trypsin), SGF (pepsin), or PBS over a 4 hour incubation period. After synthesis and lyophilization, the hydrogel is fluffy, white,

and chunky in appearance (Initial). At only 30 minutes after addition of the various buffers, the hydrogel in SIF is no longer visible while hydrogels incubated in SGF or PBS are still visible at the 4 hour time point.