

## Supporting Information

### One-step flow synthesis of size-controlled polymer nanogels in a fluorocarbon microfluidic chip

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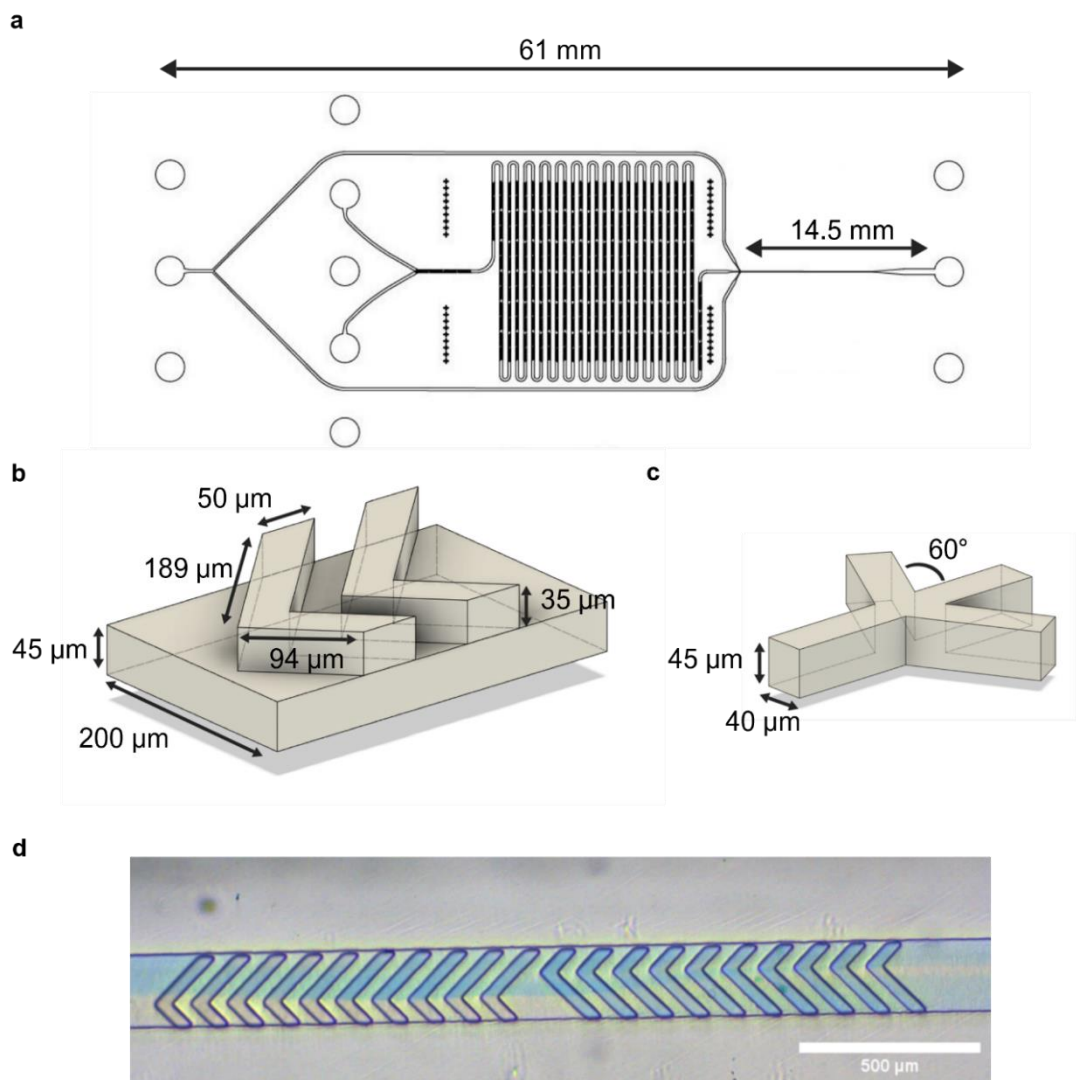
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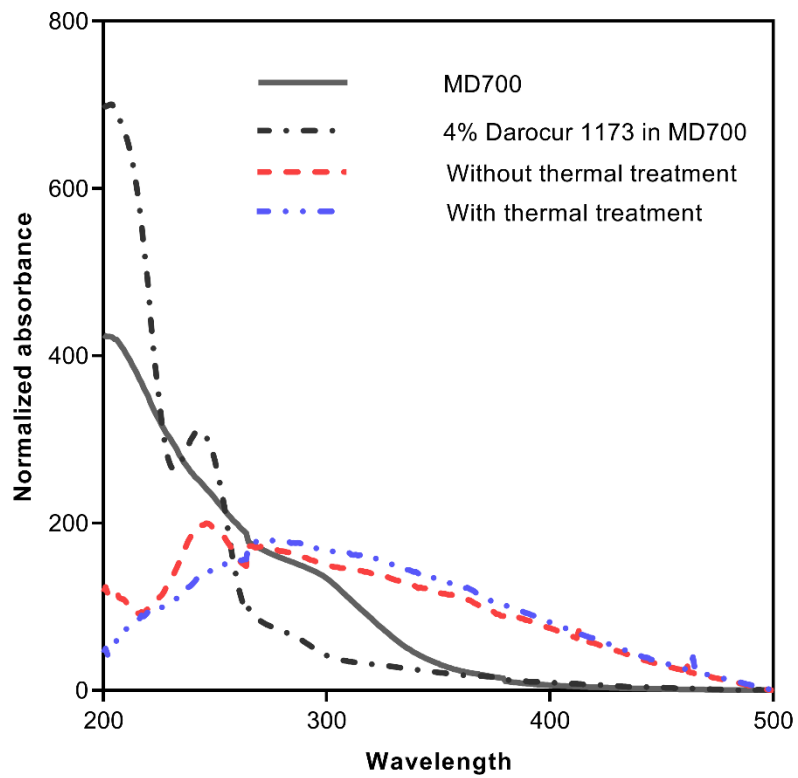
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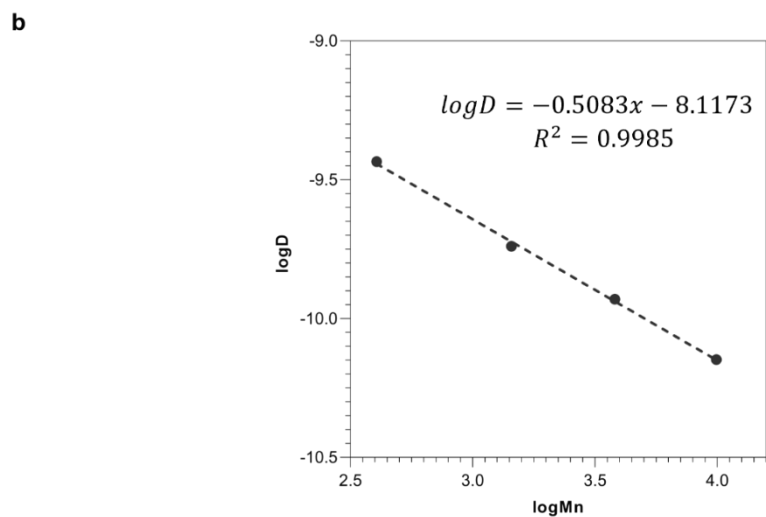
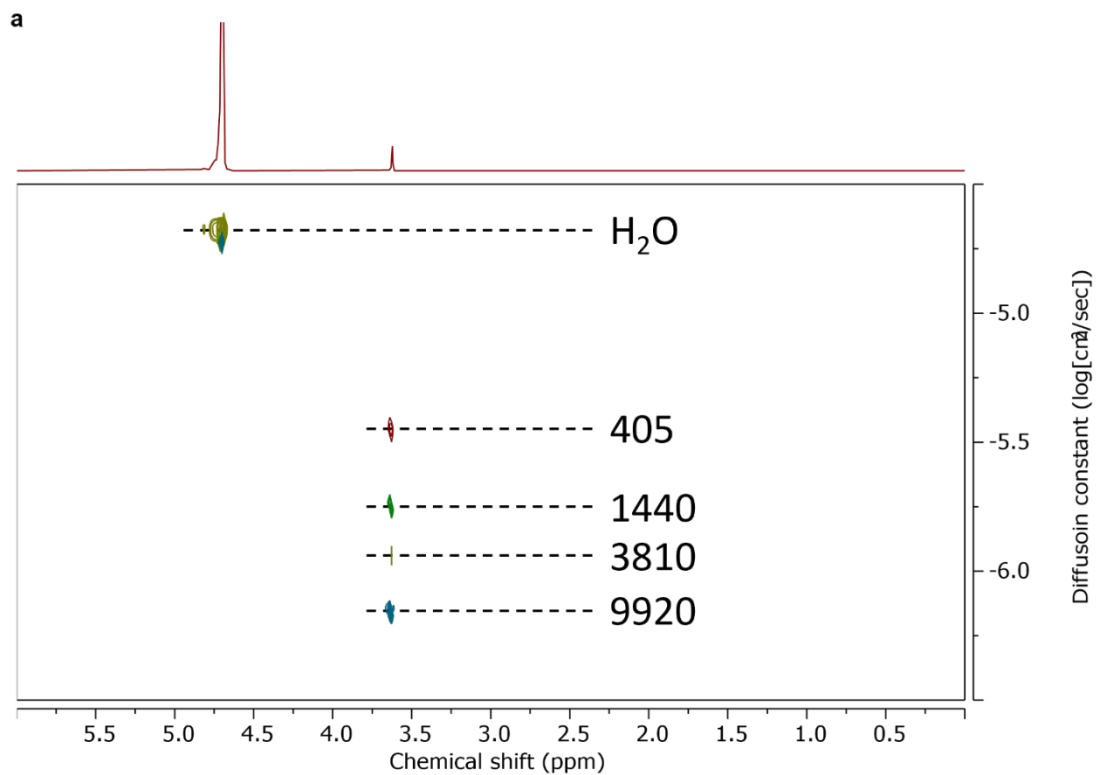
Figure S1 – S6



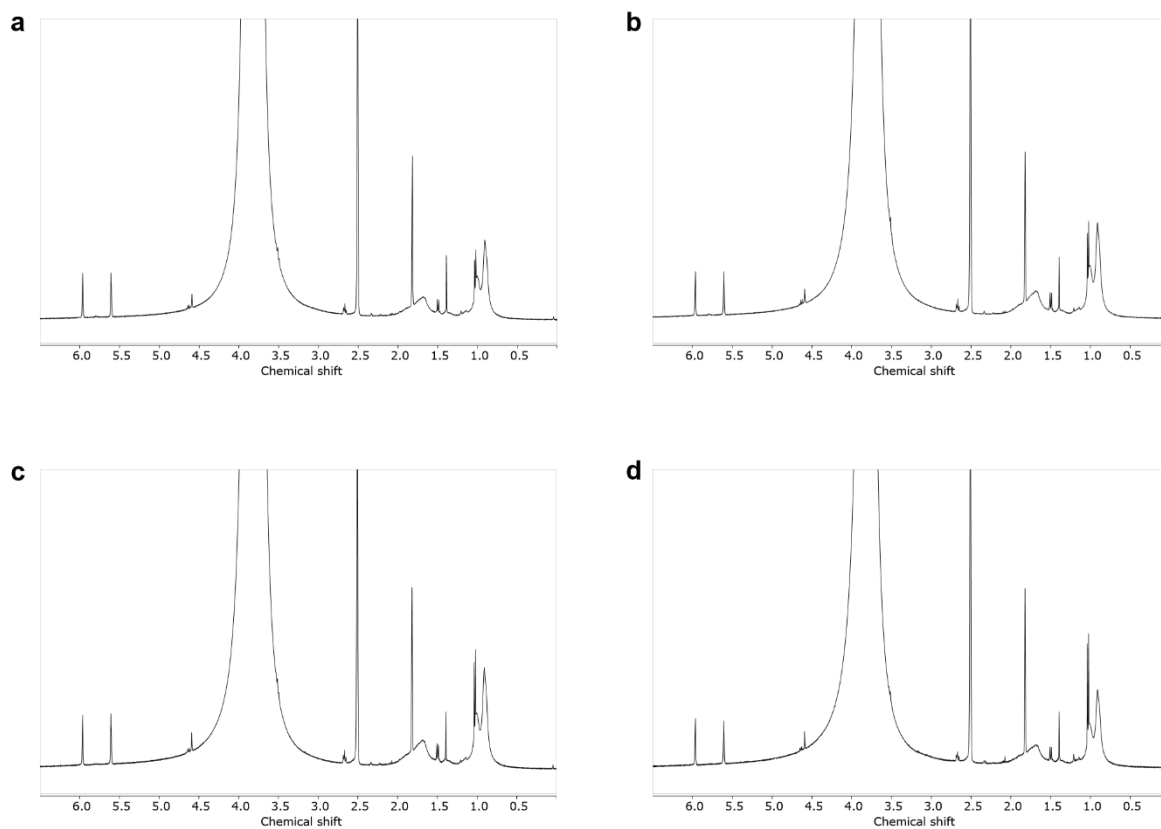
**Figure S1.** The design of the microfluidic chip. (a) the chip schematic as drawn with AutoCAD software. (b) A 3D rendering of a section of the polymerization channel showing the dimensions of the channel and the SHMs. (c) A 3D rendering of the flow-focusing junction showing its dimensions. (d) A demonstration showing the rapid mixing of blue and yellow food dye across the first set of SHMs.



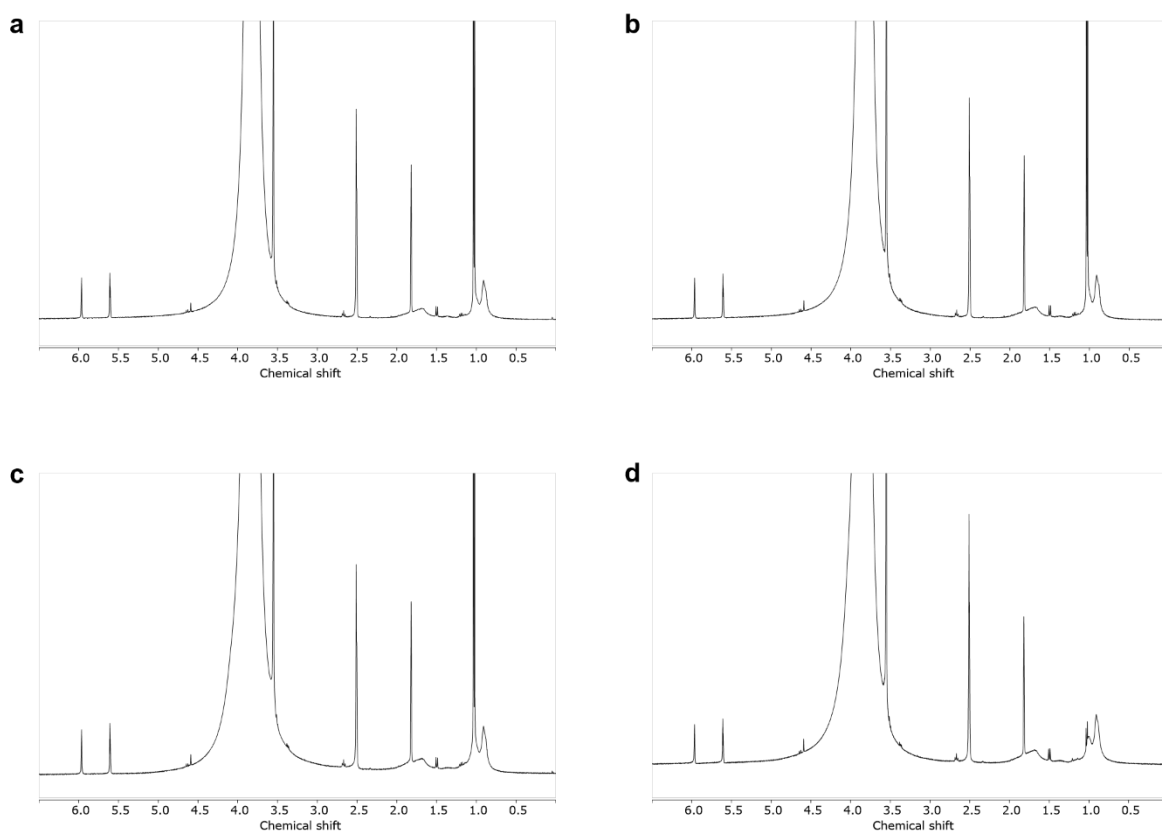
**Figure S2.** UV-Vis absorbance of MD700, 4% Darocur 1173 in MD700, the fabricated chips with and without thermal treatment. The corresponding peak of Darocur 1173 at ~250 nm is present in both the resin and untreated chip. Disappearance of the peak was observed after thermal treatment.



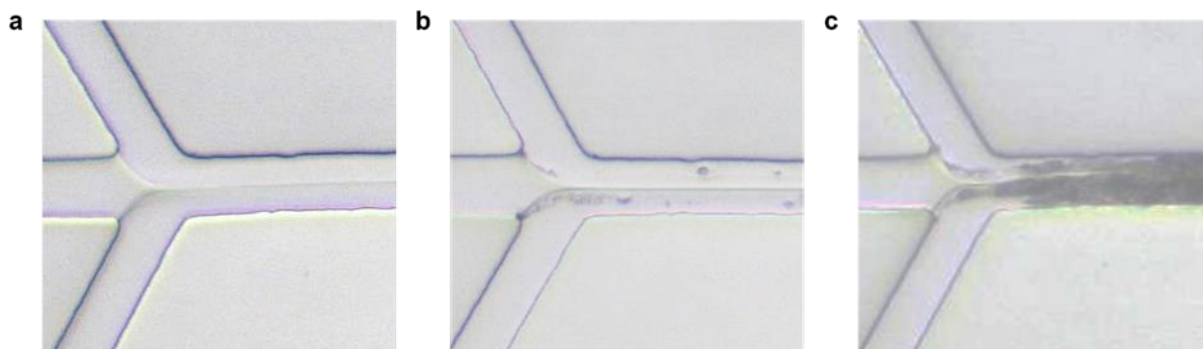
**Figure S3.** PEG molecular weight standards used for DOSY NMR experiments. (a) 2D NMR contour plot with the PEG signals overlaid. (b) Calibration curve obtained from the molecular weight standards.



**Figure S4.** NMR spectra of PMAA synthesized in the chip at residence times of (a) 29s, (b) 36s, (c) 48s, and (d) 71s.



**Figure S5.** NMR spectra of PMAA synthesized in solution at reaction times of (a) 29s, (b) 36s, (c) 48s, and (d) 71s.



**Figure S6.** Effect of PEGDA concentration on polymer crosslinking: (a) 0.1 %, (b) 0.5 % and (c) 1 %.