Supplementary Material (ESI) for Journal of Materials Chemistry B

Microfluidic synthesis of composite hollow microfibers for K^+-responsive controlled release based on host-guest system

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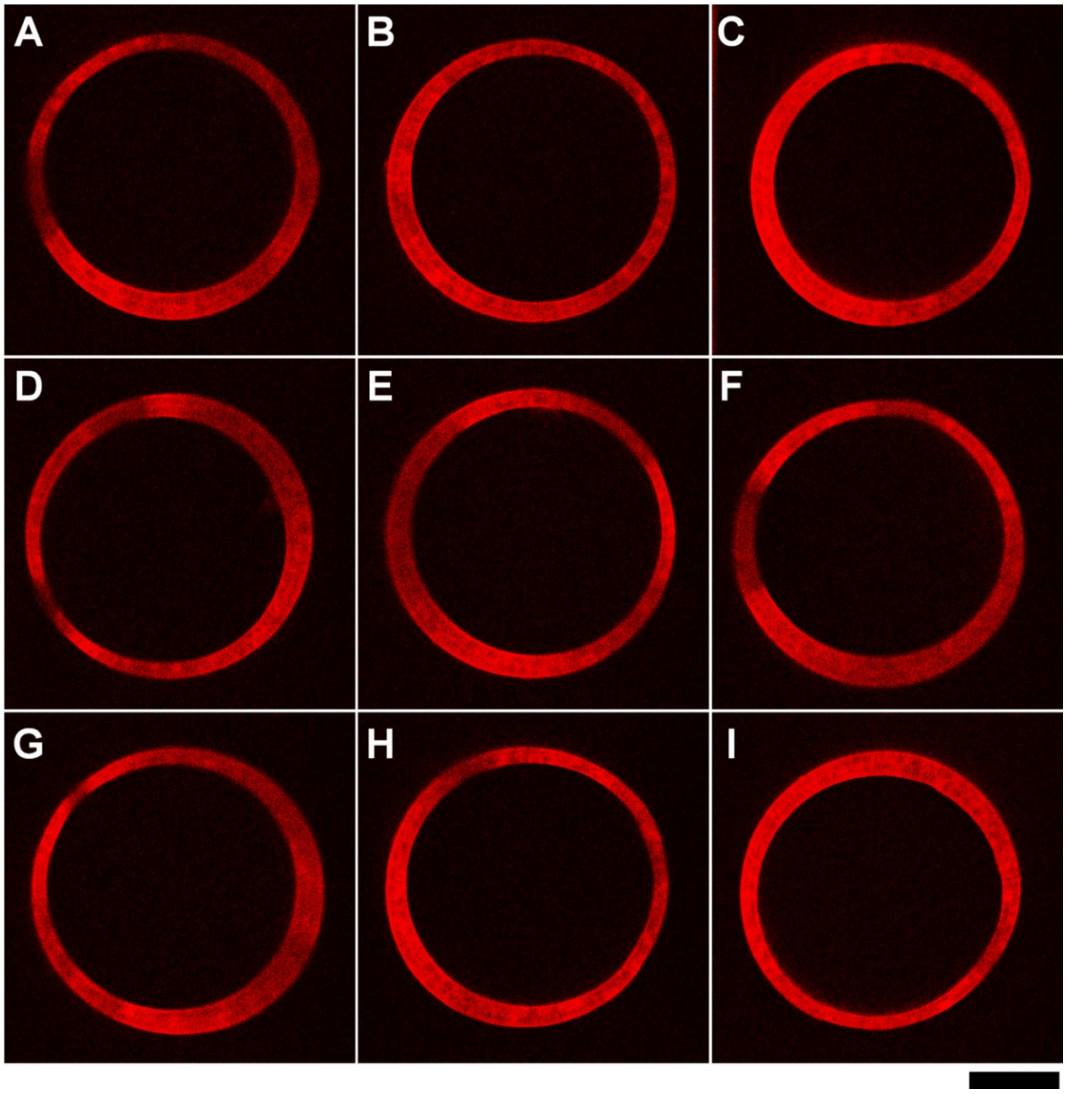

Fig. S1. CLSM images (red fluorescent channel) of composite PLGA microfibers prepared nine times under the same flow rate conditions (Q_{core}, Q_{sample} and Q_{sheath} are fixed at 150 μL min^{-1}, 100 μL min^{-1} and 350 μL min^{-1} respectively). Scale bar is 200 μm.

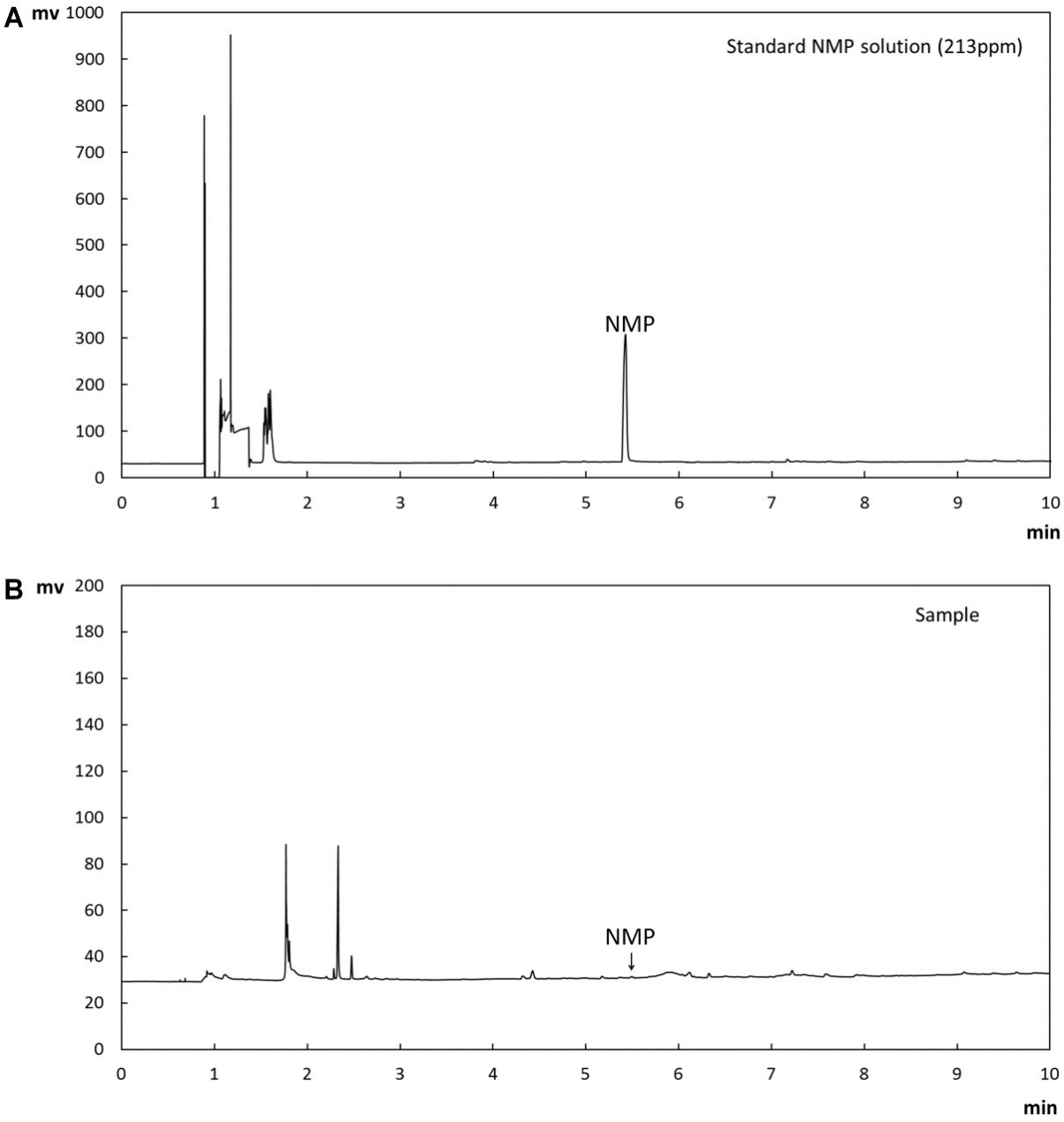

Fig. S2. Gas chromatograph of standard NMP solution (NMP concentration is 213 ppm) (A) and the solution surrounding the microfibers (B).

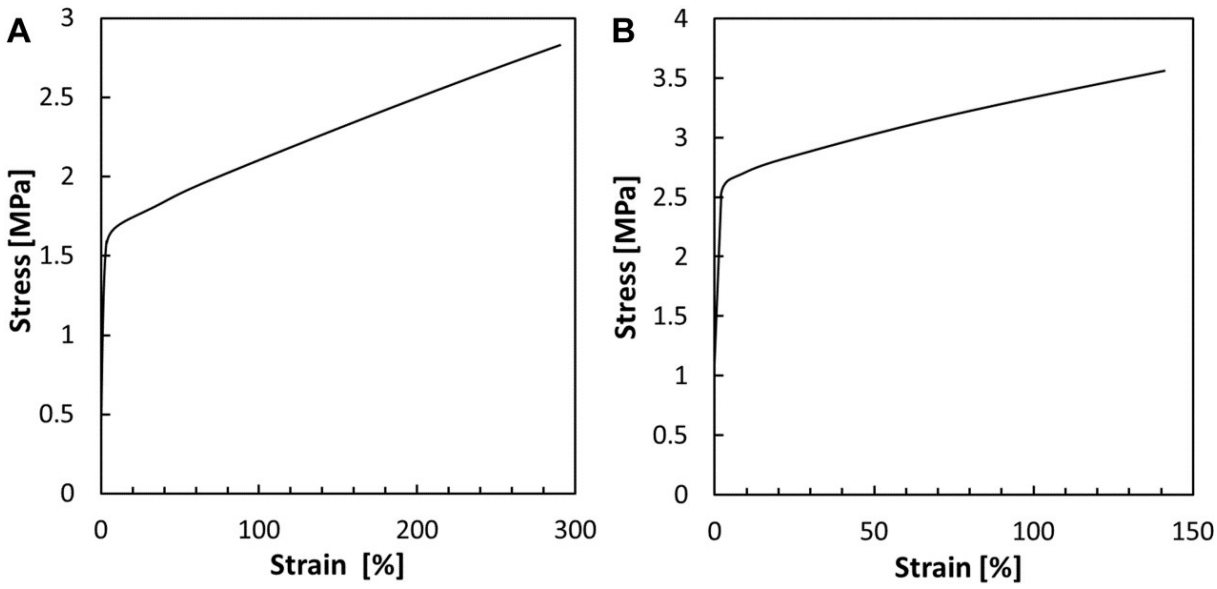

Fig. S3. Stress-strain curves of pure PLGA microfiber (A) and composite PLGA microfiber (B).

Table. S1 Mechanical properties of pure PLGA microfiber (A) and composite PLGA microfiber (B)

Type	D / μm	σ_b / MPa	ε / %	E / MPa
A	43.8	2.87±0.10	264.08±13.07	60.26±9.77
B	43.6	3.51±0.10	146.17±5.16	105.99±16.23

Note: The symbol "D" represents the fiber diameter, "σ_b" represents the tensile strength, "ε" represents the fracture strain, and "E" represents the Young's modulus. E of pure PLGA microfibers is calculated in the range of stress from 0.7 to 1.3 MPa, and E of composite PLGA microfibers is calculated in the range of stress from 1.5 to 2.2 MPa.

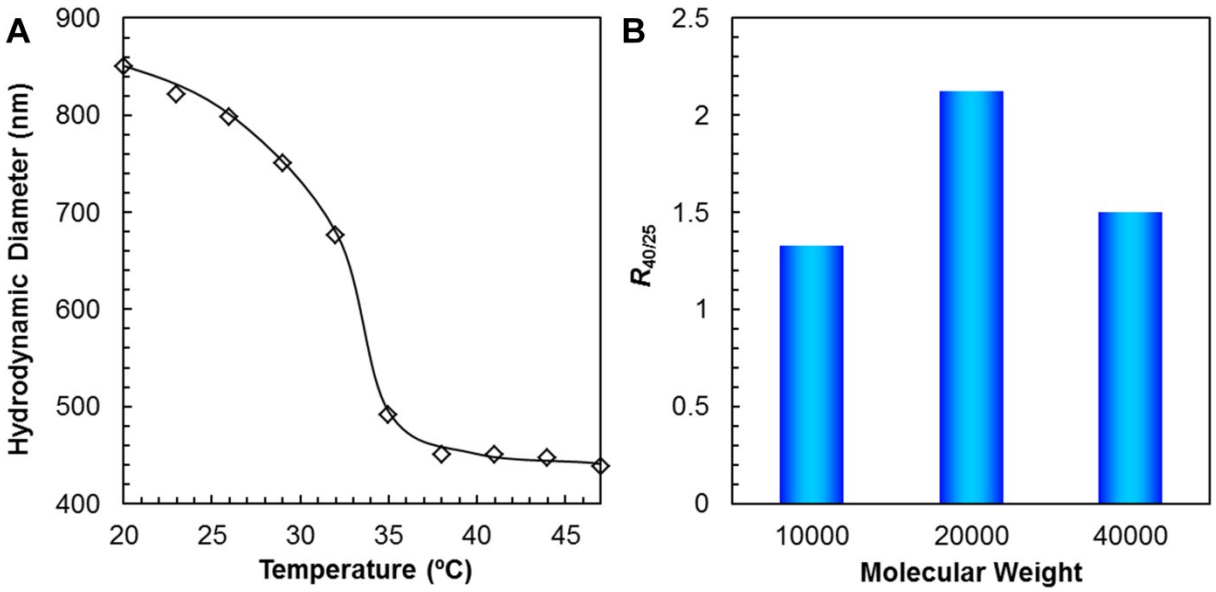

Fig. S4. (A) Hydrodynamic diameters of PNIPAM microspheres in water at varied temperatures. (B) The ratios of accumulated release of three model drugs at 40 °C and 25 °C ($R_{40/25}$) within 30 min from PLGA hollow microfibers embedded with PNIPAM microspheres.

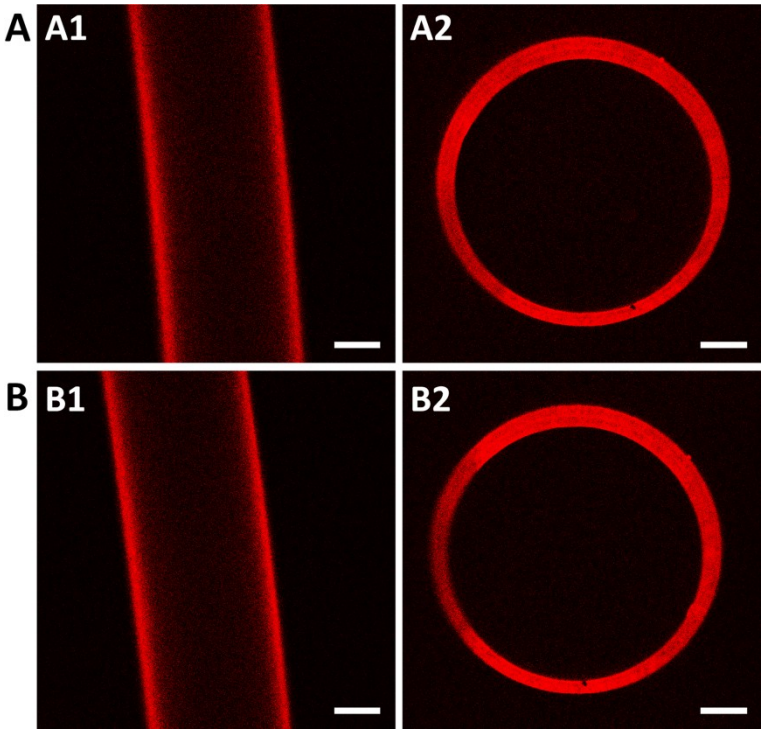

Fig. S5. CLSM images (red fluorescent channel) of the surface (A1 and B1) and cross-section (A2 and B2) views of composite PLGA microfibers immersed in deionized water (A) and 100 mM K^+ solution (B). Scale bars are 200 μm (A1 and B1) and 100 μm (A2 and B2).

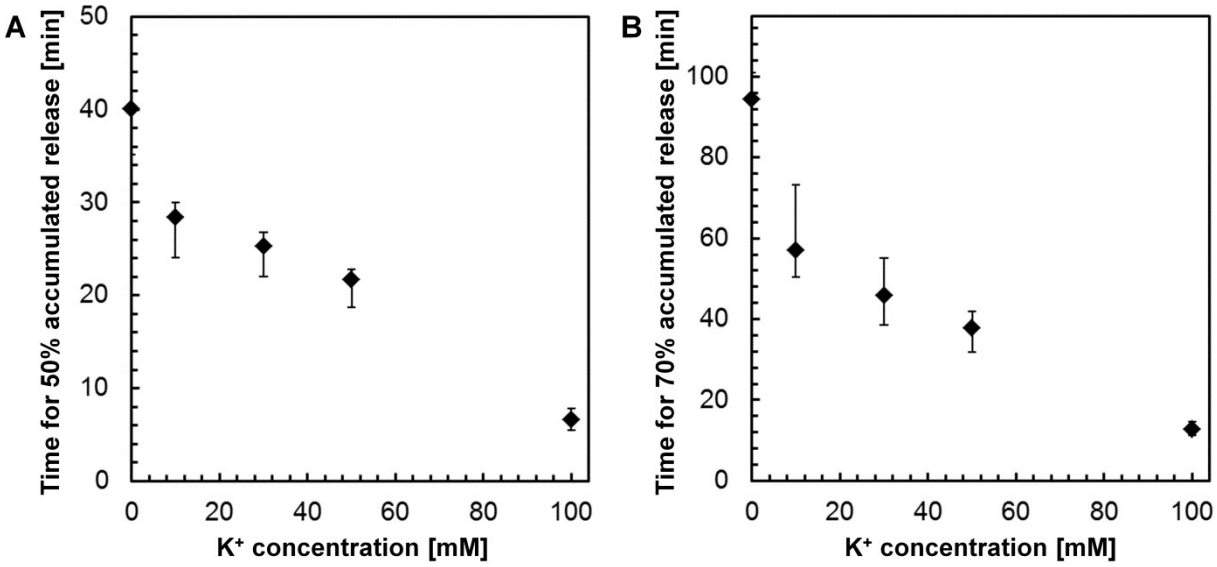

Fig. S6. The time taken for 50 % (A) and 70 % (B) accumulated release of TRITC-dextran 20 from composite PLGA microfibers at different K^+ concentrations.