

## Microfluidic approach for generation of monodisperse thermosensitive hollow microcapsules

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We present a simple approach for generation of monodisperse thermosensitive poly(N-isopropylacrylamide) (PNIPAM) microcapsules using microfluidic flow-focusing method. Aqueous droplets of monomer solution were continuously sheared with an immiscible continuous phase containing photoinitiators. Under UV irradiation, initiators dissolved in continuous phase are diffused into the interface between the continuous phase and the aqueous droplets which triggered polymerization of NIPAM monomers. In addition, the size of microcapsules produced could be controlled by the flow rate of the continuous phase or aqueous phase and different concentrations of surfactant to control interfacial tension between continuous phase and aqueous phase. Furthermore, the versatility of this approach enables the preparation of monodisperse microcapsules having the capability to encapsulate various materials such as proteins and nanoparticles under mild conditions. The microfluidic system provides a novel approach for the preparation of monodisperse hollow microcapsules.