

Synthesis of poly(N-vinylcaprolactam)-based microparticles for thermo-responsive drug delivery

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Recently, numerous polymers have been developed for drug delivery system because of high biocompatibility and tunable thermo-sensitivity. We introduce thermo-sensitive Poly (N-vinyl caprolactam) hydrogel microparticles synthesized via Stop Flow Lithography (SFL) for controlled drug delivery. Microparticles were collapsed above lower critical solution temperature (LCST) which was adjusted by amount of hydrophilic monomer, as PVCL exhibit LCST. Doxorubicin, as a model drug, was released significantly higher at above LCST than below LCST. The PVCL-based particles accomplished selective drug release depending on temperature, illustrating their feasibility of controlled drug delivery.