

New Initiated Chemical Vapor Deposition (iCVD) Polymerization of a Thermally Responsive Polymer,
Poly(N-vinylcaprolactam)

이보라, 임성갑*
한국과학기술원
(sungcap@gmail.com*)

Poly(N-vinylcaprolactam), PNVCL, is a nontoxic, water soluble, thermally sensitive and biocompatible polymer. A temperature-responsive polymer pNVCL is synthesized successfully using the method of initiated chemical vapor deposition(iCVD) and exhibits a sharp lower critical solution temperature(LCST) transition centered at 32–34°C. FTIR results showed that polymerization takes place by opening of carbon-carbon double bond without any change in the caprolactam ring. Polymer was characterized by FTIR, Contact Angle and UV absorption techniques. Temperature-responsive intelligent surfaces exhibit hydrophilic/hydrophobic alterations with external temperature changes, which, result in thermally modulated attachment and detachment with cells. The advantage of this system is that cells cultured on such temperature-responsive surfaces can be recovered as a cell sheet, simply by lowering the temperature without conventional enzymatic treatment.