

## Ion-responsive star copolymers and their biomedical applications

Taichi Ito<sup>†</sup>

The University of Tokyo, Center for Disease Biology and Integrative Medicine  
(taichi@m.u-tokyo.ac.jp<sup>†</sup>)

Star shaped block copolymers were newly synthesized using ATRP (atom transfer radical polymerization) technique. The copolymer has a hydrophobic core composed of dendritic polyester (DPE) and hydrophilic graft chains composed of block copolymer of oligo (ethylene glycol) methyl ether acrylate (OEGA) and acrylic acid (AA). Due to the ionic interaction between AA and calcium ions, the star copolymer formed hydrogel rapidly by mixing the copolymer and calcium ions. Then, its gelation mechanism was investigated using fluorescence resonance energy (FRET). Finally its biocompatibility was investigated in vitro and in vivo.