

Polysaccharide for protein stability loaded in PLGA microcapsule

Kun Na

*Division of Biotechnology, The Catholic University of Korea,
43-1 Yokkok 2-dong, Wonmi-gu, Bucheon, Gyeonggi-do 420-743, Korea.*

Polysaccharide (POL) can mixed with proteins in microcapsules. This mixture was built to the nano-sized particles. From the zeta potential test, more than a 0.1 fraction of POL to protein showed neutralizing the positively charge of Lysozyme (Lys). Based on this preliminary study, we prepared poly(lactide-co-glycolide) (PLGA) microspheres by the multi-emulsion method containing Lys-POL mixture. The stability of protein in PLGA microspheres was preserved during microsphere preparation and protein release. The release profiles of Lys from the PLGA microspheres exhibited nearly zero-order kinetics, depending on the amount of POL. An *in vivo* fluorescent image of a mouse showed that the PLGA microspheres with the Lys- POL complex released all of their Lys without any residual amount after 10 days, but microspheres without the complex had much residual Lys that is attributable to be degraded by the acidic PLGA degradates. These results demonstrate that POL is a viable candidate for long acting micro-particular protein delivery.

Key word: Chondroitin Sulfate; Ionic complex; Poly(lactide-co-glycolide); Microsphere; Protein Stabilization