

Antibiotics Loaded Nanofibrous Scaffolds prepared using Coaxial Electrospinning for Inflammation Therapy

박홍관, 황태원, 이정민, 박태준, 고원건, 정인우, 김중현*
연세대학교
(jayhkim@yonsei.ac.kr*)

Antibiotics-loaded nanofibrous scaffolds were prepared using coaxial electrospinning. Poly(ϵ -caprolactone) (PCL) incorporated with gelatin and PCL with Levofloxacin was used as shell and core respectively, so the antibiotics Levofloxacin electrospinning would be useful for medical applications to treat acute rhinitis. PCL was used to control the release of Levofloxacin with time and gelatin was added to the shell of the fiber to increase its affinity to wounded cells. SEM, TEM, and fluorescence microscope were used for the surface characterization of the core-shell fiber and the diameter measurement of the fiber core and of the total fiber. The core-shell interface was smooth and its structure was clearly visible by TEM. The total fiber diameter was about 300 nm while the core diameter was about 100 nm. 5 mg of nanofibrous scaffolds were soaked in PBS solution at 37 °C and the release of Levofloxacin with time was monitored by UV adsorption measurement at 330 nm. Since the PCL-gelatin hybrid shell allowed the controlled release of Levofloxacin without an initial burst, the antibiotics-loaded nanofibrous scaffolds show promise for treatment of wounds cause by acute rhinitis.