AMIKACIN RELEASE FROM ELECTROSPUN POLY(D,L-LACTIDE) FIBERS

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Abstract

Electrospun linear and 4-arm star poly(D,L-lactide) (PLA) nanofibrous scaffolds demonstrated successful incorporation and release of an antibiotic, amikacin. Analysis of a two week elution study using electrospun linear and 4-arm star PLA of different weight average molecular weights, M_W, ranging from 40 and 88 kg/mol impregnated with amikacin provided an amikacin release profile for the electrospun fibers. The amount of amikacin incorporated directly influenced the amount of antibiotic eluted. Further analysis showed that the topology of the PLA affected the morphology of the electrospun fibers as well as the maximum incorporation of amikacin into the electrospun scaffolds. As a result, the molecular architecture of the electrospun PLA directly influenced the amikacin release profile.