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TITLE

Silk-Based Biomaterials for Drug Delivery

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Silk fibroin is one of the promising biomaterials for medical applications. Its unique mechanical properties and biocompatibility make the silk fibers an attractive material and scaffold for tissue engineering. As a result of biodegradability, silk has been recently explored in the field of drug delivery. Silk fibroin has been suggested as a platform for drug delivery in the form of films, hydrogels and porous 3D scaffolds. Design of such drug delivery system is based on the ability of silk fibroin to undergo conformational transition from a random coil to a β -sheet form to produce an interpenetrating network. Possibility to fine tune the release kinetics by controlling the secondary structure of silk fibroin was demonstrated. Control over crystallinity and structure as well as design of the silk - based delivery system in general represent important variables in tailoring the release kinetics of the active compounds. Several advanced strategies of using silk in drug delivery will be presented.

Biography

Tatyana Dyakonov has completed her PhD in 1993 in Moscow (Russia) and postdoctoral studies from Comprehensive Cancer Center at Duke University in 1998. She is the group leader with Banner Pharmacaps Inc, a widely recognized drug delivery and specialty pharmaceutical company. She has authored over 40 publications and co-invented patents in pharmaceutical technology and drug delivery.