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## Preparation of curcumin loaded poly( $\epsilon$ -caprolactone)-poly(ethylene glycol)-poly( $\epsilon$ -caprolactone) nanofibers and their in vitro antitumor activity against Glioma 9L cells.

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### Abstract

The purpose of this work was to develop implantable curcumin-loaded poly( $\epsilon$ -caprolactone)-poly(ethylene glycol)-poly( $\epsilon$ -caprolactone) (PCL-PEG-PCL, PCEC) nanofibers, which might have potential application in cancer therapy. Curcumin was incorporated into biodegradable PCEC nanofibers by electrospinning method. The surface morphology of the composite nanofibers was characterized on Scanning Electron Microscope (SEM). The average diameter of the nanofibers was 2.3-4.5 $\mu$ m. In vitro release behavior of curcumin from the fiber mats was also studied in detail. The in vitro cytotoxicity assay showed that the PCEC fibers themselves did not affect the growth of rat Glioma 9L cells. Antitumor activity of the curcumin-loaded fibers against the cells was kept over the whole experiment process, while the antitumor activity of pure curcumin disappeared within 48 h. These results strongly suggested that the curcumin/PCEC composite nanofibers might have potential application for postoperative chemotherapy of brain cancers.

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