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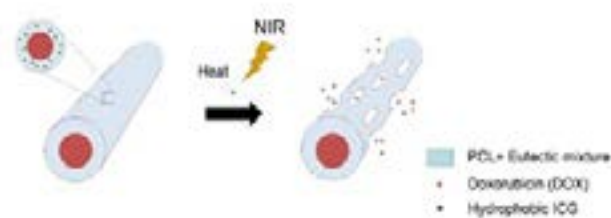
MATERIALS SCIENCE AND ENGINEERING

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NIR light-triggered, localized anti-cancer drug delivery using poly (ϵ -caprolactone) (PCL) fibers incorporated with indocyanine green and phase-changeable fatty acid

Ju Hyang Park, Se Jeong Hwang, Hyun Jin Oh, Dong Choon Hyun and Dong Gug Kang
Kyungpook National University, Republic of Korea

This paper explains a new system for NIR light-triggered release of drugs. The system consists of poly(ϵ -caprolactone) (PCL)-based fibers having a core loaded with doxorubicin (DOX) and a sheath incorporated with indocyanine green (ICG) as a NIR-absorbing agent together with a phase-changeable fatty acid. Upon NIR irradiation, the photothermal agent will generate heat to raise the local temperature of the fibers. When the temperature is above the melting point of the fatty acid, nano-pores will be produced in the fibers. This response to NIR irradiation allows the instant release of DOX from the fibers through the pores, leading to the significant enhancement of anticancer activity in combination with the hyperthermia effect arising from the photothermal agent.



Biography

Ju Hyang PARK is a first year doctoral course student in polymer science and engineering at kyungpook national university in republic of korea under professor Dong Choon Hyun. She received her M.S. degree and her B.S. degree in polymer science and engineering from the same university. The topic of her PhD research is "smart drug delivery system using electrospinning."

jh.park@knu.ac.kr

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