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TITLE

Enhancement of the Efficacies of Hydrophobic Anti- cancer Ingredients from Chinese Medicines using Nanotechnologies

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Over the past several decades, some hydrophobic compounds with anti-cancer activities were found from Chinese medicines. However, these components are usually characterized by poor absorption, low and variable bioavailability, which limited their clinical application. Our work focuses on the nano-drug delivery systems for four of the promising drugs (Oridonin, brucine, bufalin and indirubin) aimed at improving the efficacies of anti-cancer therapy.

Polymeric nanoparticles and the RGD-grafted nanoparticles were used as carriers to achieve drug targeting after intravenous administration.

The oral bioavailabilities of oridonin and indirubin were improved through self-microemulsifying drug delivery system and supersaturatable self-microemulsifying drug delivery system, respectively.

WGA-grafted lipid nanoparticles (WGA-LNPs) were prepared with the purpose of further improving the bioavailability of bufalin through bioadhesion action and enhancing cellular uptakes of nanoparticles. The cellular transport mechanisms of the WGA-LNPs were explored by using Caco-2 cell monolayer model and confocal laser scanning microscopy. Compared with suspensions, WGA-grafted lipid nanoparticles showed a 2.7-fold improvement in oral bioavailability.

Biography

Dr. Nianping Feng received his Ph. D from China Pharmaceutical University in June 1997. He is currently a full professor and the director of Department of Pharmaceutics at Shanghai University of Traditional Chinese Medicine. His research interests include drug delivery, nanotechnology (polymers, microemulsions, lipid nanoparticles, etc.) for natural drugs, and dosage forms of Chinese herbal medicines. Dr. Feng has published more than 60 peer-reviewed articles and 9 book chapters..