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Nanoparticle SN-38-encapsulated Micelle Formulation IT-141

National Cancer Institute

Source

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A nanoparticle-based formulation consisting of polymeric micelles, composed of triblock copolymers, loaded with the bioactive hydrophobic irinotecan metabolite 7-ethyl-10-hydroxy-camptothecin (SN-38), with potential antineoplastic activity. Upon administration, nanoparticle SN-38-encapsulated micelle formulation IT 141 diffuses into the tumor site and the SN-38 moiety binds to and inhibits topoisomerase I by stabilizing the cleavable complex between topoisomerase I and DNA, which results in DNA breaks, inhibition of DNA replication, and apoptosis. Compared to SN-38 alone, this formulation increases the water solubility of SN-38 and allows the delivery of higher doses of SN-38. IT-141 also has a much longer circulation time and reduces toxicity to normal, healthy tissues.