Radiation and Nanoparticles for Enhancement of Drug Delivery in Solid Tumors

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Description:
The present invention discloses a method/system utilizing interaction of electromagnetic pulses or ultrasonic radiation with nano- and microparticles for enhancement of drug delivery in solid tumors. The particles can be attached to antibodies directed against antigens in tumor vasculature and selectively delivered to tumor blood vessel walls. Cavitation induced by ultrasonic waves or local heating of the particles by pulsed electromagnetic radiation results in perforation of tumor blood vessels, microconvection in the interstitium, and perforation of cancer cell membrane, and therefore, provides enhanced delivery of macromolecular therapeutic agents from blood into cancer cells with minimal thermal and mechanical damage to normal tissues.

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