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## USE OF NONOPERATION FOR CURE OF TUMOR AS A SEPARATION TECHNIQUE

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Ultrasound is an emerging modality for drug delivery in chemotherapy. This poster reviews this novel technology by first introducing the designs and characteristics of three classes of drug/gene vehicles, microbubble (including nanoemulsion), liposomes, and micelles. In comparison to conventional free drug, the targeted drug-release and delivery through vessel wall and interstitial space to cancerous cells can be activated and enhanced under certain sonication conditions. In the acoustic field, there are several reactions of these drug vehicles, including hyperthermia, bubble cavitation, sonoporation and sonodynamics, whose physical properties are illustrated for better understanding of this approach. *In vitro* and *in vivo* results are summarized, and future directions are discussed. Altogether, ultrasound-mediated drug/gene delivery under imaging guidance provides a promising option in cancer treatment with enhanced agent release and site specificity and reduced toxicity. This review poster presents the methodology to treat invasive cancer in a non-invasive manner, by successfully penetrating through the biological membranes.

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