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Nano methods to target cancer cells by using ultrasound targeted nano-emulsions contrast

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Targeted microbubbles are outfitted with ligands that bind specific receptors expressed by cancer cells. Microbubbles composed of a lipid monolayer shell with a gas core. The lipid shell is also covered with a layer. This layer prevents microbubble aggregation and makes the microbubble more non-reactive. The shell is modified with molecules that allow for the attachment of ligands that bind certain receptors. Microbubbles targeted with ligands that bind certain molecular markers that are expressed by the Cancer Cells are injected systemically in a small bolus. Microbubbles travel through the circulatory system, finding their respective targets and binding specifically. Ultrasound waves can then be directed on the area of interest. If a sufficient number of microbubbles have bound in the area, their compressible gas cores oscillate in response to the high frequency sonic energy field. The targeted microbubbles reflect a unique echo that stands in stark contrast to the surrounding tissue. Cancer cells express a specific set of receptors that encourage angiogenesis, or the growth of new blood vessels. If microbubbles are targeted with ligands that bind receptors, they can non-invasively and specifically identify areas of cancers. Drug Delivery: Drugs can be incorporated into the microbubble's lipid shell. The microbubble's large size relative to other drug delivery vehicles, may allow a greater amount of drug to be delivered per vehicle. By targeted the drug-loaded microbubble with ligands that bind to a specific cell type, microbubble will not only deliver the drug specifically, but can also provide verification that the drug is delivered if the area is imaged using ultrasound.

Biography

Vikas Leelavati Balasaheb Jadhav has completed Postgraduation in Radiology in 1994. He has 19 Years of experience in the field of Gastro-Intestinal Tract Ultrasound & Diagnostic as well Therapeutic Interventional Sonography. He has four Indian Patents & an International Patent published on his name in the field of Gastro-Intestinal Tract Sonography & the Radiology, since 2008. He has delivered many Guest Lectures in Indian as well International Conferences in nearly 20 countries as an Invited Guest Faculty, since 2000. He is an Unconventional Specialist in Gastro-Intestinal Tract Ultrasound & Diagnostic as well Therapeutic Interventional Sonography in Satara, India.

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