

Image-guided technology to reach target site

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A promising technology that still in a nascent stage is image guided drug delivery.

The goal of this drug delivery technology is to optimize and ensure delivery of the therapeutic agent to the target cell or site and provide imaging feedback of the therapeutic protocol. The delivery method is at a relatively nascent stage and many research organizations and universities are working on this platform.

Recent advances in the application of nanotechnology to cancer have led to the development of nanocarriers, which can deliver imaging contrast agents and therapeutics at the sub-cellular level.

It is also possible to accurately target drugs with image-guided delivery wherein once the drug reaches the target site, an external source of energy is applied, which causes the drug to be released from the carrier and kill the target cells.

Non-invasive imaging may prove to be an invaluable tool to help overcome some of the barriers associated with clinical translation of cancer nanotechnologies in drug delivery. It can be implemented to study the pharmacokinetics and pharmacodynamics of drugs and to determine the bio distribution and therapeutic effects temporally and spatially.