

Cancer Nanotechnology: Resources for Clinical Translation

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Abstract: Advances in nanotechnology research are bringing about radical changes in early detection, diagnosis and treatment of cancer. Biocompatible nanomaterial can be used to selectively localize and deliver therapies to cancer by Enhanced Permeability and Retention (EPR) phenomenon. Many potential nanomedicines are beyond the discovery phase of research for targeted drug delivery which minimizes dosage, reduces systemic toxicity and side effects of chemotherapy while increasing the therapeutic efficacy. There is an urgent need to quickly transition these novel nanomedicines to clinic. This presentation will highlight the resources available for researchers in academia, industry and government agencies for clinical translation of nanomedicines through the National Cancer Institute's (NCI) Nanotechnology Characterization Laboratory (NCL). The NCL supports the Alliance for Nanotechnology in Cancer and is a formal collaboration between the NCI, the National Institute of Standards in Technology (NIST), and the U.S. Food and Drug Administration (FDA) with a mission to help accelerate the translation of nanotechnology concepts to clinic. NCL's pre-clinical testing includes physio-chemical characterization, *in vitro* and *in vivo* pharmacology, safety and efficacy assessment with standardized tests to facilitate speedy clinical translation of therapeutic, imaging and diagnostic agents.

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