Targeting pancreatic tumors with nanomedicine

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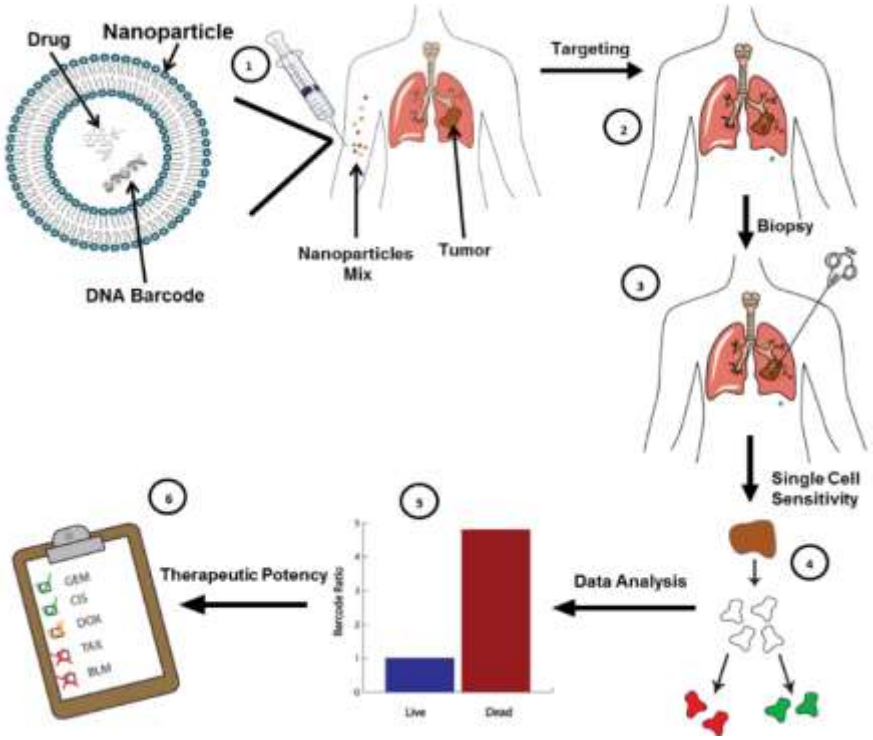
Medicine is taking its first steps towards patient-specific cancer care. Nanoparticles have many potential benefits for treating cancer, including the ability to transport complex molecular cargoes including siRNA and protein, as well as targeting to specific cell populations.
The talk will discuss 'barcoded nanoparticles' that target sites of cancer where they perform a programmed therapeutic task. Specifically, liposomes that diagnose the tumor and metastasis for their sensitivity to different medications, providing patient-specific drug activity information that can be used to improve the medication choice.
The talk will also describe how the liposomal lipid composition are used as multi-functional systems for degrading the pancreatic stroma to allow subsequent drug penetration into pancreatic adenocarcinoma, and how the nanoparticle configuration can be leveraged to induce an anti-tumor immune response.
The evolution of drug delivery systems into *synthetic cells*, programmed nanoparticles that have an autonomous capacity to synthesize diagnostic and therapeutic proteins inside the body, and their promise for treating cancer and immunotherapy, will be discussed.



References:
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2) Synthetic Cells Synthesize Therapeutic Proteins inside Tumors, Krinsky et al., ***Advanced Healthcare Materials,*** 2017

3) Collagenase nanoparticles enhance the penetration of drugs into pancreatic tumors, Zinger et al., ***ACS Nano,*** 2019