

Nano in Medicine & Health

Barcoded Nanoparticles for Precision Cancer Medicine: Effects of tumor type and patient sex on anticancer efficacy

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Abstract

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 liposomes can be used for degrading the pancreatic stroma to allow subsequent drug penetration into pancreatic adenocarcinoma, and how nanoparticle’ biodistribution and anti-cancer efficacy is impacted by patient’ sex and more specifically, the menstrual cycle.

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.

Introductory Talk by **Dr Hanan Abumanhal-Masarweh**

Targeting the tumor-microenvironment using nanotechnology

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VIA ZOOM - <https://icn2.cat/en/outreach/nanoseminars>