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Poster Abstract Form

Nanocarriers for pancreatic ductal adenocarcinoma diagnosis and treatment

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Introduction

To overcome the eminent challenges of pancreatic cancer diagnosis and treatment, nanomaterials have been employed. Although, typical designs mainly focus on the macroscopic tumour therapeutic effect, while the crucial nano-bio interactions in the heterogeneous microenvironment remain poorly understood. This project involves employing nanocarriers as a dual detection and treatment pathway to advance the treatment of pancreatic cancer. Herein, we are developing a self-propelled nanocarrier that can detect pancreatic cancer and offer subsequently drug delivery to the cancer cells. An objective of this project is to observe chemical change upon a cellular interaction, which will provide insights to optimal conditions for cell detection.

Methods

To introduce high selectivity to the nanocarrier, specific covalent modifications are made to the surface, allowing for the installation of tracking agents (gold nanoparticles) and specific cancer cell detectors (antibodies). For the nanocarrier to achieve optimal efficiency, a targeting degree of functionalisation and drug loading ability must be determined.

Results and Conclusion

Preliminary results reveal successful nanocarrier assembly and tuneable to boutique chemical functionalisation. Applicable to the tailoring of tracking agents and cancer cell detectors. With current ongoing works to demonstrate their cell viability, cellular interaction and in vitro particle tracking using surface enhanced raman scattering (SERS).

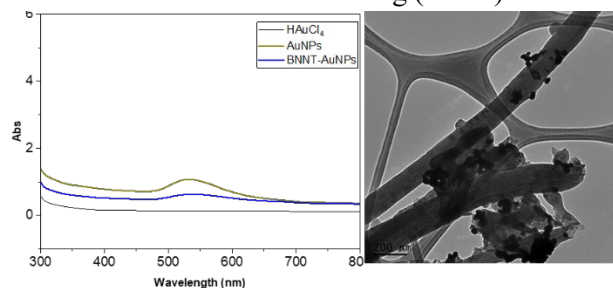


Fig. Nanocarrier UV- VIS Response (left), TEM images (right)

References

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