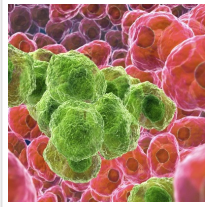


UK Innovators Target Nanoparticles at Inoperable Cancers



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Active Needle Technology, Xerion Healthcare and Medicines Discovery Catapult win funding to begin ground-breaking project.

At a point of critical clinical need for improved treatments for pancreatic and head and neck cancers, a partnership of healthcare innovators set out to revolutionise radiotherapy for inoperable, and the most difficult to treat tumours.

With the aim of achieving a higher quality of life for those with unfavourable prognoses, this project, funded by Innovate [UK](#), the [UK](#)'s innovation agency, brings together partners with a wealth of experience and specialist know-how in the areas of nanoparticle development, drug delivery and bioimaging.

The pioneering work being conducted will target cancerous cells more selectively, enabling a reduced dose of radiation, which would lower the toxic effects a patient receives as a result.

This targeted approach will employ [Xerion Healthcare](#)'s non-toxic radiosensitiser - this heightens the cells' sensitivity to radiotherapy, increasing the likelihood of successful treatment while reducing the often devastating side effects.

To ensure the nanoparticles carrying the therapeutic agent reaches deep inside the tumour, [Active Needle Technology](#)'s unique delivery system conveys the treatment to the cancerous cells with the assistance of ultrasonic vibrations, which not only allow accurate placement, but also enables an optimal distribution throughout the tumour and limits damage of healthy cells in the process.

[Medicines Discovery Catapult](#)'s (MDC) advanced preclinical imaging suite and state-of-the-art expertise in complex medicines validation will undertake in-life imaging of the nanoparticle

distribution, allowing the partners to validate its biodistribution in tumour and across other tissues and organs.

Ian Quirk, CEO of Active Needle Technology said:

“For patients suffering from a range of late stage cancers, treatment options can be limited. The effectivity and accuracy of Active Needles delivery of Xerion Healthcare’s ground-breaking new anti-cancer treatment is poised to revolutionise radiotherapy, and offer the hope of recovery for vast numbers of patients. We’re delighted to be working with Medicines Discovery Catapult to take the technology one step closer to the clinic.”

Dr Gareth Wakefield, Chief Technology Officer from Xerion Healthcare said:

“Effective direct tumoural delivery of anti-cancer agents is a key stepping stone to getting our nanoparticle products into clinical trials and into treatment programs for patients with inoperable tumours. Partnering with Active Needles unique ultrasonic delivery system and MDC’s real time imaging allows us to optimise the delivery system for maximum efficacy.

“Late presenting inoperable tumours require very high dose radiotherapy for successful treatment. This can often have very severe side effects or simply not be possible due to nearby sensitive organs. This project gives us a way to boost the effectiveness of the treatment without increasing the whole body dose.”

Professor Peter Simpson, Chief Scientific Officer at Medicines Discovery Catapult (MDC) said:

“MDC is pleased to be providing our state of the art imaging facilities and complex medicines expertise in this exciting collaboration with Active Needle Technology and Xerion Healthcare - to assess the biodistribution and efficacy of this nanoparticle approach.

“Complex medicines have the potential to address patients’ problems which conventionally administered small molecules and monoclonal antibodies cannot. This project is a very encouraging example of exploring how using an advanced drug delivery technology could improve drug biodistribution, and so improve the targeting and efficacy of potentially toxic therapeutics.”

Although great progress has been made in the treatment of some common cancers, there remain many indications where there has been little improvement in care over decades. Pancreatic cancer is on course to become the second leading cause of cancer mortality by 2030 with head and neck cancer currently seeing a 50% mortality rate. It has never been more timely or pertinent for research in this space to be undertaken.

Read the [original article](#) on PoliticsHome.