Results of Competition: North East Angel R&D Programme Regional Angel Investment Accelerator: Round 7

Competition Code: 2006_IA_RAIA_R7_NORTH_EAST

Total available funding is £33,766

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
NANOVERY LIMITED	Nanorobotic biosensors platform for disease biomarker detection	£300,000	£150,000

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
Use the Competition Code given above to search for this competition's results

Project description - provided by applicants
Nanovery is making use of emerging developments in nanorobotics to develop new approaches to diagnosing the world's deadliest diseases, starting with cancer. Early detection together with close tracking of cancer progression and response to treatment greatly improves a patient's experience and chances of recovery. Medical imaging and surgical tissue biopsies are limited in associated with risks, high costs and inconvenience for patients. The liquid biopsy, with the convenience of collecting and analysing biomarkers in blood samples, is a potentially more informative and less invasive alternative to tissue biopsies. This intervention is emerging as a breakthrough tool for screening and frequent monitoring. The liquid biopsy comprises the analysis of circulating tumour-derived material including circulating tumour DNA (ctDNA) and circulating tumour cells. Nanovery Limited was founded in 2018 to develop a novel diagnostic approach using DNA nanorobots to target specific cancer mutations in circulating tumour DNA (ctDNA), enabling clinicians to conduct simpler, less invasive, faster and cheaper liquid biopsies for cancer diagnosis and monitoring at the point-of-care. The revolutionary approach is based on nanorobot devices that are added to a blood sample to capture ctDNA, and can distinguish tiny genetic mutations originating in cancer cells and leaving trace biomarkers in blood. The nanorobot produces an easy-to-read fluorescent signal when it binds to the biomarker if present. As the nanorobot sequence matches and binds to the ctDNA, it provides specific, accurate and sensitive diagnosis, even when cancer is at an early stage. This project aims to develop nanorobot prototypes and assess the sensitivity and specificity of the diagnostic approach to address a large unmet need and current bottlenecks to screening and monitoring of cancer and beyond.