

Arrow

Innovation for Business

What we do:

Newcastle University's £3.4m innovation programme Arrow, is accelerating and enhancing North East economic impact by matching the University's research, knowledge and innovation projects with the needs of Small and Medium-sized Enterprises (SMEs).

How we do it:

Our Innovation Catalyst leverages time from academic experts to work with growing North East SMEs by deploying an Innovation Associate to carry out an agreed project and deliver meaningful outputs back to the business.

CASE STUDY

Working with Newcastle University's Arrow programme helped Magnitude Biosciences secure second-round funding, recruit key new staff, and boost the credibility of its marketing collateral.

Client profile:

Magnitude Biosciences

Based in Durham

A technology-based spin-out company, offering services to the drug discovery industry, particularly in the field of ageing research. Magnitude Biosciences provides an automated service to find healthspan extending drugs faster and more cost effectively than current approaches.

Background:

With a rapidly ageing population and cost of care dramatically increasing for over 65s it is crucial for drug discovery fields to focus on therapeutics which extend not only lifespan, but also 'healthspan', improving the quality of life for longer. Current pre-clinical tests of potential drugs on mice are very expensive, time consuming and labour intensive.

Magnitude Biosciences offers a screening platform to rapidly and reproducibly test compounds for their ability to slow ageing. Underpinning this service is a technology they have developed that allows non-invasive tracking of large populations of the nematode worm *C. elegans*. This technology offers a significant improvement in performance over other automated technologies to track *C. elegans*, which focus on smaller numbers of individuals.

The innovative technology, known as the Healthspan Machine, is able to reproducibly and efficiently measure biomarkers of ageing using large numbers of *C. elegans*, making the service attractive not only for *C. elegans* researchers, but also for other academics in the field of ageing, drug discovery companies and ultimately pharmaceutical companies who have potential compounds that may increase healthspan by slowing down the ageing process.

Business challenge:

Interaction with initial customers showed that MB sales success depends on validating the power of their technology to reliably detect and consistently measure the effect of compounds with known ability to slow ageing, as well as demonstrating that they can test new compounds for such age-slowing ability. The company approached Newcastle University to identify those compounds and use technical assistance to produce data to validate their system.

Key activities:

Newcastle University houses a strong community of biology of ageing. The input from Dr Satomi Miwa and Prof Thomas von Zglinicki has allowed MB to further refine the system and data output format based on better understanding of the needs of the Ageing Research community and associated biotech companies.

The project aimed to facilitate testing of two well-known age-delaying drugs and one novel compound provided by NU, which was found to decrease mortality in rodents, using Healthspan Machine in order to validate the technology.



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Project outcomes:

The data for the three compounds tested is now used in the company's marketing material and served as a basis for discussions with Newcastle University experts leading to better understanding of pharma customers' needs and the development of a new client output (SMART Lifespan Report) format. The project helped to establish logistics, Quality Control, Quality Management, scheduling and improvement to technology (power back-up) required to run the lab service at client-delivery scale. Magnitude Biosciences and Dr Miwa plan to publish two research papers based on the data generated by the project to use in ongoing marketing and research activity.

Project feedback:

Magnitude Biosciences:

'For a short project, it has produced a lot of useful data particularly comparing healthspan with lifespan and producing evidence supporting the concept of the SMART lifespan. These data will be used to interest new customers especially once they've been published. We have successfully raised second-round investment from existing private investors, allowing us to recruit a Sales Manager, and this would not have been possible without the work done in the Arrow project and the expert insight from customers including Satomi and Thomas.' **David Weinkove, CEO**

Newcastle University:

'The project allowed us to test our compounds with Magnitude's technology which directed us with interesting insights of the drug actions. This was enabled by extensive discussions of the results with the company, who provided a vast amount of high quality data and their biological and technical expertise. We have already been presenting the generated data during conferences and are looking forward to publishing it and continuing the dialogue with Magnitude Biosciences. It has been a privilege to work with them!' **Dr Satomi Miwa, Research Associate**



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Find out more:

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