

# 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

### Client profile:

## Nuchido Ltd

Based in Dissington, near Ponteland, Newcastle

Nuchido is translating the latest scientific advances in ageing research into revolutionary new products that slow, and even reverse, the signs and processes of ageing.

### Background:

The world faces a rapidly ageing population, and in the UK alone it is expected that by 2039 a third of the population will be over 60. According to Euromonitor International, the global anti-ageing market was worth \$292bn in 2015 and is expected to continue to grow.

Nuchido Ltd is expert in efficient molecular discovery using an approach known as 'systems pharmacology' which produces a high hit-rate of potential molecules that address specific aspects of cell biology. The company's strategy is to establish a science-based products offering which sets it apart from its competitors.

### Business challenge:

Nuchido was interested in ageing market opportunities yet recognised it lacked experience in specific aspects of ageing biology. It approached Newcastle University to develop a unique biological platform for the testing of molecules which inhibit cellular ageing (senostatics) or which selectively kill senescent cells (senolytics).

### Key activities:

Professor of Cellular Gerontology at Newcastle University, Prof. Thomas Von Zglinicki, and Research Associate Dr Satomi Miwa, have extensive experience in research into the causes and mechanisms of cellular ageing and senescence and how this determines mammalian ageing – a specialism known as biogerontology.

Their team was able to provide Nuchido with unique access to state-of-the-art cell culture laboratories dedicated to primary human cell culture, core microscopy facilities and a fully equipped biochemical and molecular biology lab. Access to such facilities provided Nuchido with the advantage it needs to be a first-to-market with novel active molecules.

The project aimed to facilitate the design and optimisation of a unique 'in vitro' cellular assay platform for Nuchido to test the effectiveness of potential anti-ageing molecules that would selectively kill senescent cells and inhibit cellular ageing.



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## Project outcomes:

The assay protocol developed during the project qualifies a number of molecular markers of drug effectiveness and allows for the testing of drug effects simultaneously on mixed cultures of both aged senescent cells and young cells, thus providing a representation of the drug's potential effects in the body.

Additionally, culturing both young and senescent cells in the same culture immediately reduces the number of cultures required, and allows for the upscaling of throughput required for the testing of large libraries of potential compounds.

## Project feedback:

### Nuchido Ltd:

'Even though this was a short project, it produced an output that is valuable to the company and increased our bandwidth for working with Newcastle University. The process was straightforward and we've since secured a Knowledge Transfer Partnership project to advance our product development in collaboration with the same University team.'

**Nichola Conlon, CEO**

### Newcastle University:

'We're always interested to collaborate with businesses to help translate our research into applications. In this case, the Innovation Associate deployed by the Arrow programme gave us the capacity to take on this project and we're excited to be continuing to collaborate with Nuchido.'

**Professor Thomas von Zglinicki**



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## Find out more:

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