Case Study: GENOMICS 3

Research Question

Development of non-coding RNA therapies targeting atherosclerotic plaque development.

Our Approach

The Brennan group are exploring novel ways to target atherosclerotic cardiovascular disease. One such approach is to target human aortic vascular smooth muscle cells (HAoSMCs) with non-coding RNA-based therapies (e.g. Let-7d mimic) alongside conventional therapies such as statins. Atorvastatin, lovastatin and let-7d mimic attenuated key inflammatory pathways upregulated by TNF-α in HAoSMCs, including inhibition of interferon, IL1β, IL6 and NF-κB pathways. Importantly, the dual therapy approach of combining let-7d mimic with either atorvastatin or lovastatin significantly reduced the activation of inflammatory pathways beyond what could be achieved by single treatment with let-7d mimic or statins. This data further supports the hypothesis that a dual-therapy approach (statins plus let-7d mimic) can further suppress the inflammatory response in HAoSMCs

Expertise:

Offering genomics solutions to academic and commercial clients in a customisable range of services at each stage of the research pathway; from experimental design to final publication.

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Testimonial

"Our group are regular users of the Genomics Core at UCD. We routinely perform RNA quality analysis and qPCR using the available technologies. The support and expertise provided by staff such as training, assay selection and guidance on all aspects of experimentation are essential for completion of our research projects".

Assistant Professor Eoin Brennan

Principal investigator & Ad Astra Fellow

Tanwi Vartak

PhD student

UCD School of Medicine &
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at UCD Conway Institute

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