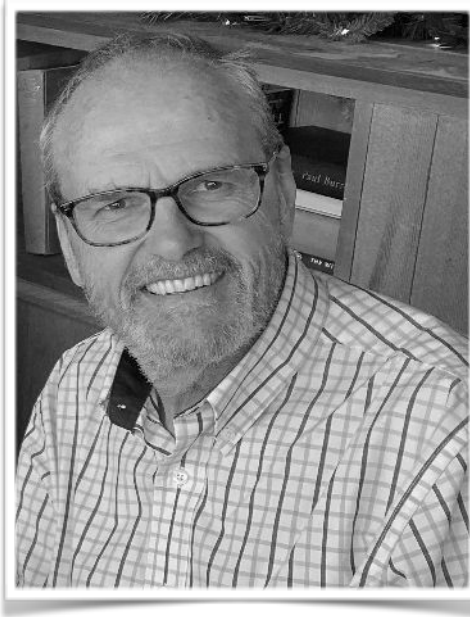


Santorini Scientific

Improving the experience and longevity of a heart transplant patient



Testimonial

'If Santorini Scientific had not had the support of the HTH we would not currently be undertaking a PhD with UWE. The HTH project helped us design the PhD project as well as helping us to connect with incredibly helpful professors at the University. We have also used the knowledge gained from the HTH to support grant applications. As an SME, government grants are essential for funding our research, so the support we receive for these applications is of great value.'

'I'm pleased to say that our experience of working with the HTH programme has built confidence to initiate further collaborative research projects with UWE. They have a passion for understanding what their industry partners are trying to achieve and finding the optimum way of working together. Santorini Scientific can highly recommend UWE as innovative and supportive academic partners.'

Mike Adams, Founder

Santorini Scientific

www.sant-sci.co.uk

Challenge

Santorini Scientific has a mission is to improve quality of life for heart transplant patients. The aim is to achieve this by improving graft tolerance whilst reducing, and eventually eliminating, the need for immunosuppressant drugs. Santorini are conducting research in three key areas; tissue and organ bioprinting, predicting and detecting rejection and tolerogenic therapy. The HTH programme looked at issues associated with rejection. A review of biomarkers that are indicative of cardiac rejection was conducted and their potential for use in a non-invasive technique for detecting rejection assessed. The current gold-standard method for diagnosing rejection in cardiac patients is referred to as endomyocardial biopsy (EMB), a procedure which involves taking cardiac tissue samples from the patient's heart. Significant risks include ventricular wall rupture, conduction block and arrhythmia. The procedure is also prone to sampling errors, where inadequate and non-representative samples are retrieved. However, studies have found that biomarkers of rejection can also be found in the blood stream. Santorini Scientific aim to exploit these findings to create a non-invasive technique for measuring rejection and tailoring treatment accordingly.

Solution

The HTH programme allowed Santorini to improve their knowledge on potential biomarkers of cardiac rejection and how these can be measured. A PhD student was assigned the task of evaluating suitable biomarkers for monitoring rejection. A cluster of clinically relevant biomarkers were identified and the most appropriate methods for validating these biomarkers was proposed.

HTH Contribution

The support provided by the HTH takes us one step closer to developing a non-invasive technique for diagnosing and monitoring rejection. The research study design was used as a basis for a PhD which Santorini Scientific is now co-sponsoring with the University of West England. The PhD, which started in January 2022, looks at validating biomarkers of cardiac rejection using a fluid device. This research is based on the results from the initial HTH programme. The PhD will test this hypothesis in the lab. The support was part of an iterative process, where the final long-term aim is to make invasive procedures for tracking rejection post-heart transplant obsolete. The long-term impact of the HTH will be to help Santorini Scientific improve quality of life for heart transplant patients.