

Global Spotlights

CureHeart wins Big Beat Challenge, a £30 million research award from the British Heart Foundation

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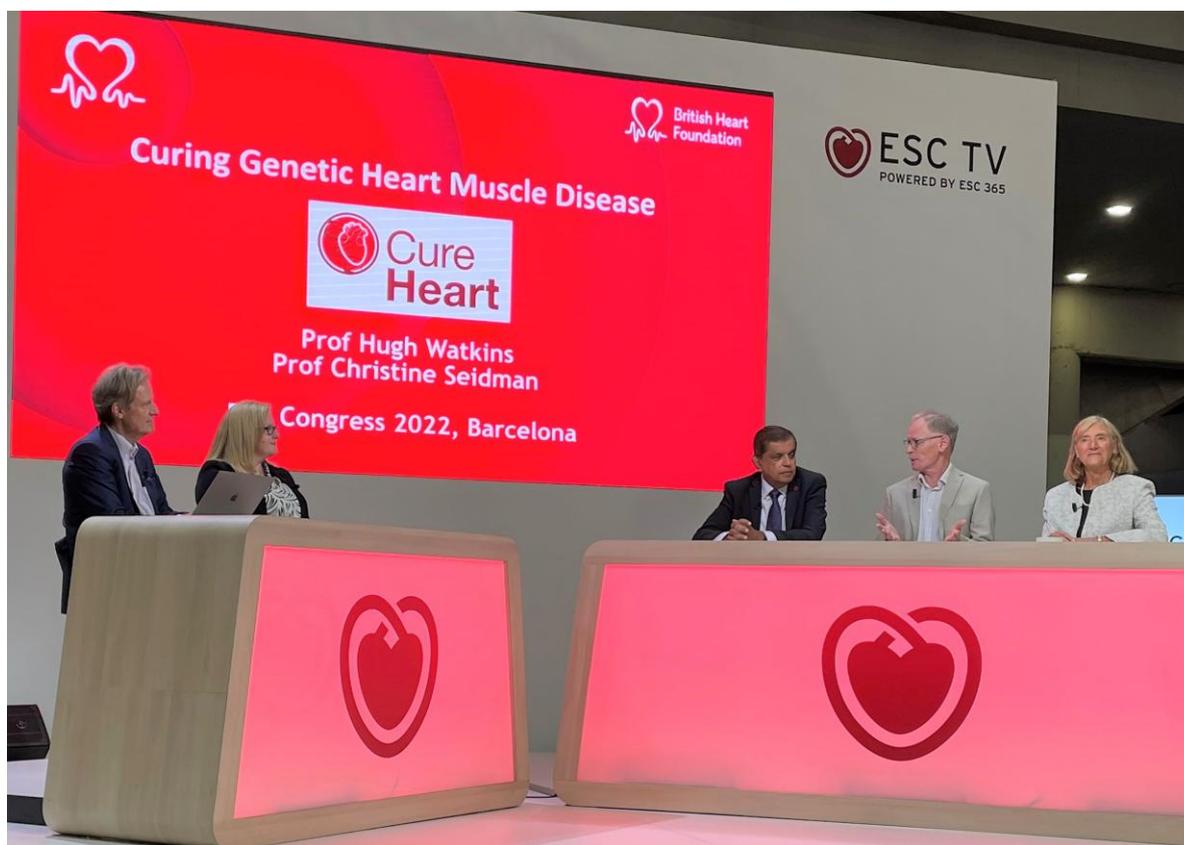


Figure 1 CureHeart session at ESC Congress 2022. From left to right, Thomas Lüscher, Charmaine Griffiths, Nilesh Samani, Hugh Watkins, and Christine Seidman.

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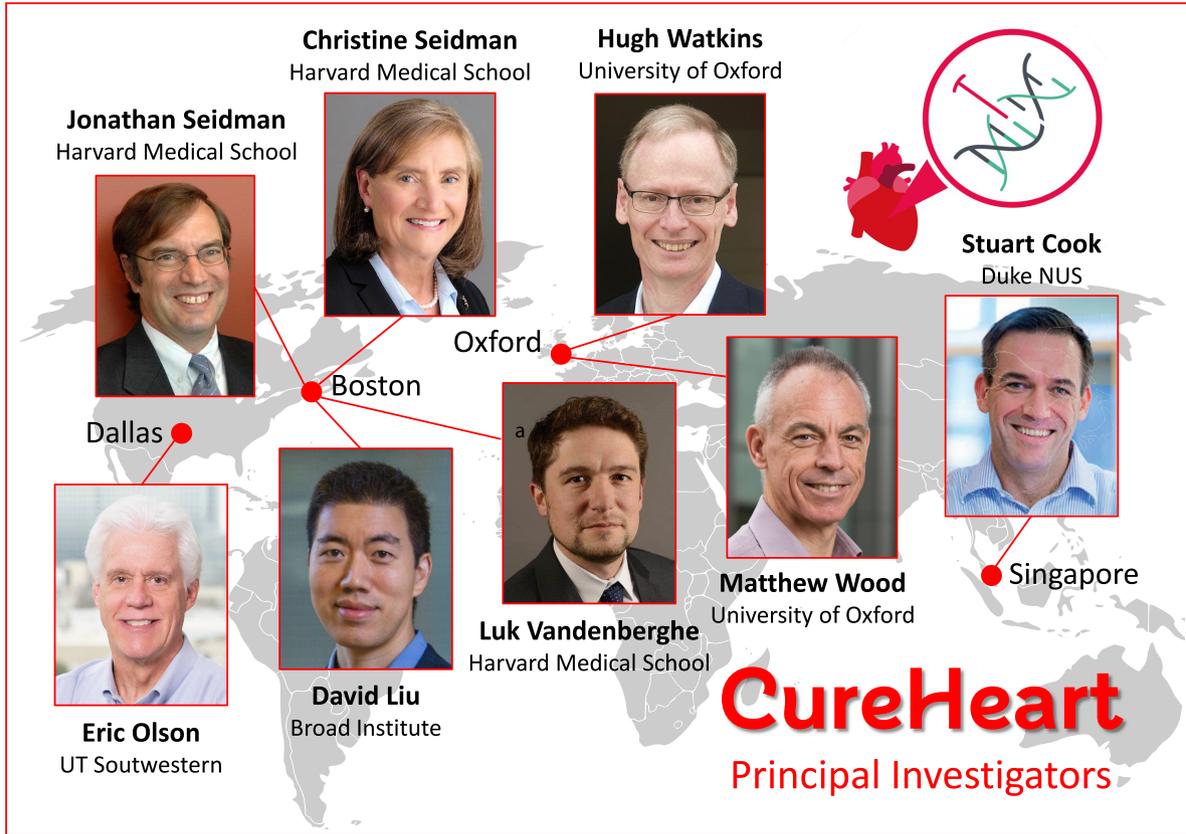


Figure 2 CureHeart principal investigators.

CureHeart, a multinational research partnership that aims to develop transformative and potentially curative gene therapy approaches for inherited cardiomyopathies, was introduced to the global cardiology and cardiovascular research community on 26 August 2022, in a Special Session of the European Society for Cardiology (ESC) Congress. CureHeart lead investigator Hugh Watkins (British Heart Foundation [BHF] Professor of Cardiovascular Medicine at the University of Oxford) and co-lead Christine Seidman (Thomas W. Smith Professor of Medicine at Harvard Medical School), two world leaders in the study and management of inherited cardiomyopathies,^{1,2} both participated in the Session (Figure 1). The CureHeart principal investigator team also includes leading experts from the UK, USA, and Singapore in complementary areas of science and medicine (Figure 2).

Big Beat Challenge, the BHF’s competition for a single research award of up to £30 million, was first announced at the ESC Congress in Munich in 2018.³ The competition invited international, multidisciplinary research teams to identify and propose a transformative solution to a significant problem in cardiovascular disease. As articulated by the BHF’s Medical Director, Professor Sir Nilesh Samani, Big Beat Challenge was ‘a challenge to scientists, clinicians, innovators, and entrepreneurs to look beyond incremental gains and accelerate breakthroughs that could transform lives across the globe.’³ In the first stage of the competition, 75 outline applications, proposing to tackle a broad range of cardiovascular problems and conditions, were submitted from across the globe.⁴ After a rigorous evaluation process led by an International Advisory Panel (IAP), four proposals were shortlisted in late 2019 and invited to develop and submit full applications.⁴

The original plan was to receive and evaluate the full applications in 2020; however, disruptions caused by the COVID-19 pandemic led to a 1-year delay. Consequently, the four shortlisted applications were submitted in mid-2021 and thereafter subjected to extensive peer review by subject experts. Additionally, the finalist teams were interviewed by the IAP and the BHF’s international Patient and Public Panel. Ultimately, the IAP recommended CureHeart for the Big Beat Challenge award, while recognizing the very high quality of the other three finalists. Sir Patrick Vallance, the IAP Chair and Chief Scientific Advisor to the UK government, has stated ‘CureHeart was selected in recognition of the boldness of its ambition, the scale of its potential benefit for patients with genetic heart muscle diseases and their families, and the excellence of the international team of participating researchers’.

Recent scientific developments have opened up potential new avenues for treating inherited cardiomyopathies using contemporary approaches such as gene editing and antisense and RNA therapies, as emphasized in a recent ESC position paper.⁵ In that context, the CureHeart programme will combine the team’s existing knowledge regarding the genetics, mechanisms and clinical management of inherited cardiomyopathies^{1,2} with their recent advances in gene editing technologies^{6,7} and gene⁸ and oligonucleotide⁹ therapy approaches. The initial focus will be on inherited cardiomyopathies arising from dominant negative or haploinsufficient mutations in single genes that are associated with particularly poor patient outcomes. Bolstered by recent progress in the translation of scientific advances to a novel pharmacological treatment for hypertrophic cardiomyopathy,¹⁰ the CureHeart

team's ambition is to start early clinical testing of their most promising candidate(s) by the end of the award.

'After 30 years of research, we have discovered many of the genes and specific genetic faults responsible for different cardiomyopathies, and how they work. We believe that we will have a gene therapy ready to start testing in clinical trials in the next five years.' **Hugh Watkins**

Big Beat Challenge is the biggest single research award made to date by the BHF, a 61-year-old medical research charity that is the largest independent funder of cardiovascular research in Europe. It is also the charity's first award that will support overseas components of a multinational research programme. Charmaine Griffiths, BHF Chief Executive, states 'With the public's support, the aim of the Big Beat Challenge was to move past incremental progress and make a giant leap in an important area of heart patient care. Creating the world's first genetic cure for a heart disease would undoubtedly do this and has the potential to stop families losing loved ones without a moment's notice to these cruel diseases'.

Conflict of interest: Metin Avkiran is Associate Medical Director at the British Heart Foundation.

Data availability

This news article does not contain any original data.

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