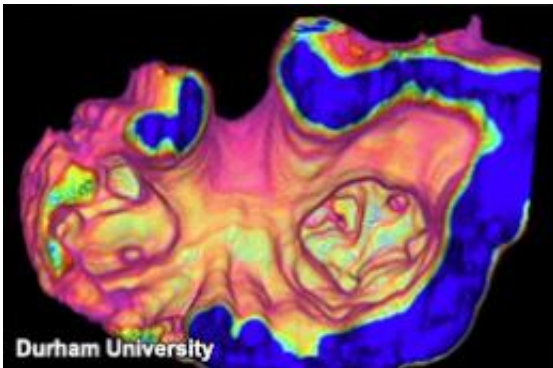


Fish hearts' secrets shown through telescope technology

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Credit: Durham University

Heart research funded by EPSRC at Durham University is using sophisticated optical technology to overcome the challenges of imaging living hearts which are located deep inside the body and move at 300 beats per minute.

Researchers are studying the development of zebra fish hearts' which can self-repair, unlike human hearts. The aim of the project is to improve the understanding of the human heart and develop better drugs and treatments for [heart conditions](#).

The optical technology has been developed at Durham University for use with the world's largest telescope, the European Extremely Large Telescope (E-ELT). Adaptive optics allow astronomers to overcome the

distorting effects of the earth's atmosphere on the quality of images obtained by the telescope. This technology is now being applied to biological research.

Professor John Girkin, Director of the Biophysical Sciences Institute and Wolfson Fellow at Durham University, said: "The [high speed imaging](#) allowed by [adaptive optics](#) is crucial because the hearts are moving and embedded in the body of an animal, meaning it must be imaged at depth.

"Zebra fish are inherently transparent, so we can see what is going on, which is of course crucially important. And there are two outstanding features; the zebra fish heart can repair itself, unlike the human heart, which can't do that even at a very early stage. We want to understand that repair process and translate it to humans.

"The other advantage is that most drugs work on the zebra fish heart in the same way as on the human heart, which has obvious experimental advantages.

"We may be able to use [zebra fish](#) embryos as a screen for further [therapeutic drugs](#) for use in treating [heart patients](#) and also to model the biological and biochemical process to understand [heart formation](#) and heart disease."

Colin Cunningham, from the Science and Technology Facilities Council's (STFC) UK Astronomy Technology Centre, is leader of the UK E-ELT UK Project Office and said: "It is very gratifying to see the investment we have put in over the last ten years in order to enable the E-ELT to produce exquisite images of the universe now bearing fruit in biological research. We look forward to seeing what other technological benefits will result from the E-ELT".

Provided by Engineering and Physical Sciences Research Council

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