

Immediate Release

Scientists awarded £5m to advance groundbreaking tumour mapping technology

- Cutting-edge technology from team IMAXT allows scientists to create and analyse 3D maps of tumours.
- Researchers from IMAXT have received £5.2m from Cancer Research UK through Cancer Grand Challenges to create a centre of excellence for tumour profiling, expanding its technology for wider use.
- Cancer Grand Challenges is a global research initiative that unites the world's brightest minds to make radical progress against cancer's toughest challenges.

A team of researchers has today (Friday 13th) been awarded more than £5m* to establish the Spatial Profiling and Annotation Centre of Excellence (SPACE) to open up access to their groundbreaking cancer mapping technology and establish collaborations with other scientists to enable them to investigate tumours in 3D.

The technology from Cancer Grand Challenges team IMAXT uses advanced spatial biology techniques to analyse tumours, some of which are based on technology originally developed to map the Milky Way and discover new planets. Now, other scientists will be able to access these technologies to create detailed tumour maps that could one day transform how we diagnose and treat cancer.

Led by Professor Greg Hannon and Dr Dario Bressan at the Cancer Research UK Cambridge Institute and Dr Nicholas Walton at the University of Cambridge's Institute of Astronomy, SPACE will give other researchers the opportunity to study cancer in a way that wasn't previously possible.

Dr Dario Bressan, Head of the SPACE Laboratory at the Cancer Research UK Cambridge Institute, said:

"Tumours aren't just a uniform mass of cells; they consist of a diverse ecosystem of cancer cells, immune cells, and other essential components that support their survival. Hidden within these intricate networks lies valuable information which could guide us in making more personalised treatment decisions for each patient.

"With the SPACE platform, researchers can zoom into specific cell populations, highlight the complex connections between them, and even run virtual experiments to predict how the tumour might respond to different treatments. By

unlocking these insights, we can transform the future of cancer care and uncover new opportunities for targeted therapies.”

The IMAXT team was first awarded £20 million in 2017 by Cancer Research UK through Cancer Grand Challenges, a global research initiative co-founded by Cancer Research UK and the National Cancer Institute in the US.

Since then, the team has united experts from fields rarely brought together including medicine, Virtual Reality (VR), programming, molecular biology, chemistry, mathematics, and even astronomy, to create a completely immersive tool for studying tumours.

As well as enabling scientists to analyse 3D tumour maps, IMAXT created pioneering VR technology which allows the user to ‘step inside’ a tumour using a VR headset.

With the headset, scientists get to view vast amounts of detailed data about individual tumour cells in a 3D space. Instead of looking at this data on a computer screen, they can see all the information in real-time, as if they were inside the tumour itself.

Professor Greg Hannon, Director of Cancer Research UK Cambridge Institute, said:

“Cancer Grand Challenges offers a unique opportunity for international teams to address some of cancer’s biggest challenges. When we took on our particular challenge, much of what we proposed was science fiction.

“Over the past 7 years, our team has turned those early hopes and ideas into approaches that can now be made broadly available. In nature, biology unfolds in three dimensions, and we now finally have the tools to observe it that way—giving us a much deeper, more accurate view of cancer. We’re thrilled to share these breakthroughs with the broader cancer research community.”

Director of Cancer Grand Challenges at Cancer Research UK, Dr David Scott, said:

“IMAXT is changing what’s possible when it comes to cancer research.

“We can glean important insights about a tumour by analysing its genetic makeup or its proteins, but no technology alone can give us the depth of understanding needed to truly understand this complex disease.

“By combining state-of-the-art technology and vast expertise, IMAXT will change how cancers are classified, treated and managed, giving more people a better chance of surviving their disease.”

SPACE is funded by Cancer Research UK through Cancer Grand Challenges. Additional support for the SPACE project has been provided by the UK Space Agency through their funding of the development of imaging and analysis techniques at the IoA, Cambridge for

a range of space science missions. These have been successfully applied to spatial imaging data through the IMAXT and are ready for wider use in SPACE.

Dr Paul Bate, Chief Executive Officer at UK Space Agency said:

“Space is powering our daily lives, from satellite navigation to weather forecasts and climate monitoring. This collaboration between the cancer and astronomy teams in the IMAXT project is another real-world example of how space science and technology is bringing benefits to people here on Earth.

“Thanks to this partnership, the same science and technology that mapped the Milky Way may soon have a positive impact on people battling cancer, and could support doctors to provide better, faster treatment.”

Going forward, a next-generation version of the VR technology will be further developed and commercialised by Suil Vision, a start-up company recently launched by IMAXT team members and Cancer Research UK’s innovation arm, Cancer Research Horizons. Suil Vision is the first start-up to emerge from the Cancer Grand Challenges programme. With a £500,000 investment from the Cancer Research Horizons Seed Fund, Suil Vision will create a market-ready version of their suite of VR technologies for analysing multiple types of biological data, rolling these out across research institutions and companies worldwide.

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For media enquiries, contact Eleanor Bennett in the Cancer Research UK press office on Eleanor.bennett@cancer.org.uk / 020 3469 5370, or out of hours, on 020 3469 8301.

Notes to editor

*The funding will support the SPACE hub laboratory, hosted at the CRUK Cambridge Institute, and the SPACE analysis and computing platform, developed and operated at the Institute of Astronomy, University of Cambridge. Together SPACE includes and combines most available technologies for the spatial molecular profiling of tumours. The continued collaboration between the cancer and astronomy teams from the IMAXT project will ensure the maintenance and development of all critical aspects of the platform – from technical and scientific expertise to instrumentation, computing, and data analysis – to allow SPACE to continue at the forefront research in the rapidly emerging spatial-omics field, and be a valuable centre of excellence to support new research in the Cancer Grand Challenge and cancer research communities.

About Cancer Grand Challenges

Co-founded in 2020 by two of the largest funders of cancer research in the world: Cancer Research UK and the National Cancer Institute, Cancer Grand Challenges supports a global community of interdisciplinary, world-class research teams to come together, think differently and take on some of cancer’s toughest challenges. These are the obstacles that continue to impede progress, and no

one scientist, institution, or country will be able to solve them alone. With awards of up to £20m, Cancer Grand Challenges teams are empowered to rise above the traditional boundaries of geography and discipline to make the progress against cancer we urgently need.

Every two years, Cancer Grand Challenges invites the global research community and patient advocates to share their views on the greatest obstacles standing in the way of making vital progress against cancer. The Cancer Grand Challenges Scientific Committee, comprising some of the world's most eminent researchers, then meets to discuss and debate the ideas submitted and recommends to Cancer Research UK a set of complex challenges, that it believes can be solved. Cancer Research UK and the National Cancer Institute make the final decision on which challenges should be posed to the research community.

International teams are then invited to apply for up to £20 million in funding to support innovative, interdisciplinary research to solve them, with the successful teams announced the following year.

About Cancer Research UK

- Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research, influence and information.
- Cancer Research UK's pioneering work into the prevention, diagnosis and treatment of cancer has helped save millions of lives.
- Cancer Research UK has been at the heart of the progress that has already seen survival in the UK double in the last 40 years.
- Today, 2 in 4 people survive their cancer for at least 10 years. Cancer Research UK wants to accelerate progress and see 3 in 4 people surviving their cancer by 2034.
- Cancer Research UK supports research into the prevention and treatment of cancer through the work of over 4,000 scientists, doctors and nurses.
- Together with its partners and supporters, Cancer Research UK is working towards a world where people can live longer, better lives, free from the fear of cancer.

For further information about Cancer Research UK's work or to find out how to support the charity, please call 0300 123 1022 or visit www.cancerresearchuk.org. Follow us on [Twitter](#) and [Facebook](#).

About Cancer Research Horizons

Cancer Research Horizons is the innovation engine of Cancer Research UK – the world's largest charitable funder of cancer research. We bring together world-leading minds, bold ideas and the right partners to bridge the gap between academic research and taking drugs to market. We focus on the tougher, more profound ideas that can lead to true innovation, translating them into effective treatments and diagnostics for cancer patients.

To date, we've played an instrumental role in forming over 70 start-ups. We've helped bring 11 cancer drugs to market, borne out of Cancer Research UK's pioneering research. Through these drugs, we have enabled in excess of 6 million courses of treatment for cancer patients across the world.

With access to Cancer Research UK's network of 4,000 exceptional researchers, and £400+ million of annual research spend, we're a powerful partner in the fight to conquer cancer. By uniting our commercial partnerships and therapeutic innovation capabilities, Cancer Research Horizons is uniquely placed to support translational funding, entrepreneurial development, licensing and collaboration, spinout creation, and offer a full spectrum of drug discovery and clinical capabilities.

Every penny we make goes back into funding the next bold steps, to help bring forward the day when all cancers are conquered.

For more information and to get in touch with the team, visit cancerresearchhorizons.com.