

Tenovus Scotland Research Symposium Returns!



One of the many excellent oral presentations

Over 80 delegates gathered at the Royal College of Physicians of Edinburgh at the start of October for the second Tenovus Scotland Research Symposium. After our first Symposium in 2018, it had been the intention that this be a biennial event, but restrictions imposed by the Covid-19 pandemic made this

impossible, so it was good to be able to get together researchers, their supervisors, and Tenovus Committee members for a day of total immersion in science.

Over 30 papers were presented, either orally or as posters, and the quality of the science, across a very wide range of topic areas, was excellent and impressive. Equally impressive were the presentational skills of the speakers, who managed to present their work to a very mixed audience in ways which allowed the significance and importance of their research to be widely appreciated, not an easy task.

Our keynote speaker was Professor

Andrew Morris from the University of Edinburgh, and presently seconded to the role of Director of Health Data Research UK, who spoke about the increasing importance of collaboration and data sharing and analysis in current and future research (see Face to Face, page 4).

The full Abstract Book is on the Tenovus Scotland website if you want to see what you missed!

The atmosphere on the day was 'buzzing', and the day ended, in the true spirit of any 'symposium', with refreshments and more networking. We aim to revert to our plan to hold a similar event every two years, so watch out for 2025!

Launch of Friends of Tenovus Scotland

The launch of Friends of Tenovus Scotland took place on 6th October at our hugely successful National Symposium in the Royal College of Physicians in Edinburgh.

The idea of having a Friends organisation is one that is recognised by other charities as a way to encourage supporters to become more involved and invested in a particular charity. We envisage that Friends of Tenovus Scotland will spread the word about our unique and worthwhile charity. We are looking for volunteers to help our small committees run events and share their skills and contacts to enable us to develop new areas and ideas for fundraising.

Recently, we have been delighted that Alex Dobrea, herself a young researcher, has come on board with us to run the social media side of Tenovus Scotland and to administer Friends. We would love to hear from you with offers, suggestions or ideas of how you may be able to help. This is your chance to influence future health! Alex can be contacted at national.fundraising@tenovus-scotland.org.uk



Networking after the 'Friends' Launch and Symposium

Symposium Awards

Many congratulations to all the presenters, but especially to Gael Morrow and Vasudha Tandon, who were awarded prizes for the best oral and poster presentations respectively, and to Cameron Smith who received a special award for his oral presentation given that he is still a medical student.

Oral Presentation Award: **Gael Morrow**



How do transfusion therapies for traumatic bleeding impact clot structure

"My research investigates the cellular and molecular mechanisms of uncontrolled bleeding following traumatic injury. Traumatic injury accounts for 4.9 million deaths every year, largely due to a blood clotting abnormality termed trauma induced coagulopathy (TIC). TIC describes the overall failure of the blood clotting system to form a stable blood clot and prevent bleeding. As a consequence, fibrinogen, the key clotting factor, is depleted to critical levels during TIC.

My Tenovus Scotland research project investigated differences in clot strength and structure between two fibrinogen replacement therapies (fibrinogen concentrate and cryoprecipitate) used to treat trauma patients with uncontrolled bleeding. We found key differences between the two replacement therapies;

cryoprecipitate formed stronger blood clots that were more resistant against premature degradation.

These data were used to inform the Fibrinogen Early in Severe Trauma Study II (FEISTY II) protocol; a randomised controlled trial comparing fibrinogen concentrate and cryoprecipitate taking place in Australia and New Zealand. The project also provided pilot data for a Chancellor's Fellowship at Robert Gordon University."

Poster Presentation Award: **Vasudha Tandon**



Attempting to impede the deadliest type of brain cancer

"Glioblastoma (GBM) is one of the deadliest cancers. Only 5% of patients survive five years beyond initial diagnosis, and the rate at which people get this disease is projected to double by the next 15 years. Treatment options include: highly invasive and risky neurosurgery, radiotherapy, and only five approved drug therapies. However, each of these drug therapies individually target only one aspect of the cancer, therefore patients almost always become resistant and develop cancer relapse.

My project focuses on developing and characterizing a small molecule kinase inhibitor that simultaneously targets multiple pro-cancer pathways in GBM. Our current lead compound, DYR726, targets multiple pro-GBM pathways and when we treat GBM cells with DYR726 we see a decrease in cancer cell division and invasion. We also see tumour reduction in GBM mouse

models, which gives us hope that DYR726 could potentially improve the lives of GBM patients worldwide."

Special Award: **Cameron Smith**



The impact of intensive lipid management on cardiovascular risk after ischaemic stroke-modelling analysis of real-world data

"Ischaemic stroke remains a leading cause of mortality and disability in the developed world. Elevated serum lipid levels have been shown to contribute to excessive rates of recurrent cardiovascular events following an ischaemic stroke. International guidelines now recommend aiming for an intensive LDL-cholesterol target (<1.8mmol/L) in people with ischaemic stroke or TIA. Our study aimed to explore the impact of implementing this target on a Scottish population.

From a cohort of people admitted with non-cardioembolic ischaemic stroke or TIA within NHS Greater Glasgow & Clyde, we were able to model the impact of introducing an intensive LDL-cholesterol target. Treatment effects used were based on results from other trials such as 'Treat Stroke to Target'.

We estimated that implementation of an intensive LDL-cholesterol target (<1.8mmol/L) in a Scottish population would lead to a small but important reduction in the number of recurrent cardiovascular events in people with ischaemic stroke or TIA."

Research by the University of Glasgow demonstrates the longer term value of initial Tenovus Scotland funding



A drug developed to combat type 2 diabetes and Alzheimer's disease may offer new treatment hope for people with chronic myeloid leukaemia (CML), a form of blood cancer.

The new study, led by the University of Glasgow and published in Nature Communications, focused on understanding the unique role glucose plays in the behaviour of treatment-resistant CML cancer cells. Encouragingly, the research team

found that targeting CML cells with an investigational diabetes drug prevented them from absorbing glucose, weakening them and potentially making them more susceptible to cancer treatments.

Professor Vignir Helgason, lead author of the study from the University of Glasgow, said: "Research has shown that cancer cells often rely on increased uptake of specific nutrients – sugar, proteins or fats – to survive.

This suggests that if we can use drugs to target that nutrient uptake, it may in turn improve cancer treatments.

"Our study investigated specific nutrient "addictions" in CML cancer cells. We were able to reveal that CML cancer cells use an increased amount of glucose to support their nutritional needs. Encouragingly, we were also able to show that the same cancer cells were sensitive to a newly developed anti-diabetic drug that prevents a normal breakdown of glucose, blocking the cells' ability to absorb it."

This work was mainly funded by Blood Cancer UK and Cancer Research UK with additional support from The Howat Foundation, The Kay Kendall Leukemia Fund, Tenovus Scotland, and Friends of Paul O'Gorman Leukaemia Research Centre.

University of Glasgow Symposium and Tenovus Medal Lecture

In addition to providing funding to support research, Tenovus Scotland offers a small number of national prizes in research excellence. Awarded to world-class scientists since 1992, the Tenovus Medal recognises the best of Scottish research in the area of molecular medicine. Recipients, who have typically studied or worked in Scotland, are presented with an engraved silver medal following their Medal Lecture.

On June 12th, the University of Glasgow held the Glasgow Geroscience Symposium on 'Models and mechanisms of ageing: a holistic approach to health span'. During the Symposium, the 2023 Tenovus Medal Lecture on the topic of 'parasitic worms – master gerontologists?' was delivered by Professor Maggie Harnett. Maggie received her Medal from Professor Iain MacInnes, Head of the College of Medical Veterinary and Life Sciences.

The Strathclyde region of Tenovus Scotland was represented by Professor Alan Foulis, who detailed the history and achievements of the charity to the scientific audience present.

The event also featured a series of

multi-disciplinary talks on all aspects of the biology of ageing from a range of national and international speakers, including a dedicated session promoting the achievements of 'Women in Science.'



Prof McInnes presenting medal to Prof Maggie Harnett

Face to Face

Professor Andrew Morris is Professor of Medicine and Vice-Principal in Data Science at the University of Edinburgh, as well as Director of Health Data Research UK. One of his first ever grants was from Tenovus Scotland and was the foundation for all his work on Data science.



What is health data and how is it used by researchers?

In the UK there are 1.6 million contacts with the NHS every day. Each contact may produce health data – information on health conditions, information relating to maternity and children, causes of death, and quality of life. Health data includes, for example: patient health records, studies about the health of groups of people, data from blood or tissue samples, genetic data, imaging data, and data from health and fitness devices.

Access to health data in a trustworthy way, whilst ensuring confidentiality and privacy, allows researchers to better understand diseases and health conditions, and to predict, prevent or protect against disease. It is also vital for the discovery and assessment of new drugs, diagnostics and treatment pathways. The trick is to organise the data well to help health services to do five things: (1) optimise patient care, (2) support public health and population health management, (3) improve how clinical trials are performed, (4) manage the

health service and (5) research and development.

Where did it start in Scotland and who were the inspirations behind it?

In the 1970s, thanks to the vision of Dr Ronnie Graham in Tayside, Scotland adopted a centrally maintained 10-digit Community Health Index (CHI) to uniquely identify every person registered with a GP. Every person in Scotland has a “CHI” and it is helpful to know your own! Thanks to the CHI and the national registry of medical information, it is possible to link patient pathways so that we get a complete picture of care between general practice, the community and hospital care. One example is in diabetes care: twenty years ago teams of professionals, led by GPs, worked together with patients across Scotland to join up the data and improve care – within five years amputations and blindness decreased by 40-50%.

How far has it progressed in the UK and what is HDR UK?

Uniting health data across the UK to enable research and discoveries that improves lives has its challenges. The large numbers of data controllers (those that hold the data- such as the NHS), lack of a consistent data format, uncertainty about governance, little to no data standards and bad interoperability (the ability for computer systems to connect and exchange information) have all been a hindrance to researchers and clinicians alike. Establishing environments where data can be safely saved, accessed, used and re-used, with public engagement, is a huge step towards uniting UK data and making it accessible for research. HDR UK is a UK institute supported by MRC, Wellcome, CRUK, BHF, the health departments in the four nations and ESRC/EPSC, that works with 86 organisations across 32 locations in the UK to enable research and discoveries using health data in a trustworthy way.

What is the future and the implications of health data research internationally?

It is an exciting time for health data research. We are seeing the fusion of biology with computational science and physical science that underpins new exciting areas such as artificial intelligence and “generative AI” such as GPT. This is creating immense excitement – such as the Bletchley Park Summit in November 2023 - but this is all dependent on data! In health care there is a greater urgency than ever to understand and sort the data whilst ensuring privacy and confidentiality.

How to help us:

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Make this payable to Tenovus Scotland and send it, along with the completed Gift Aid form, if appropriate, to:

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Royal College of Physicians &
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Glasgow G2 5RJ**

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