



TENOVUS SCOTLAND
SUPPORTING MEDICAL RESEARCH

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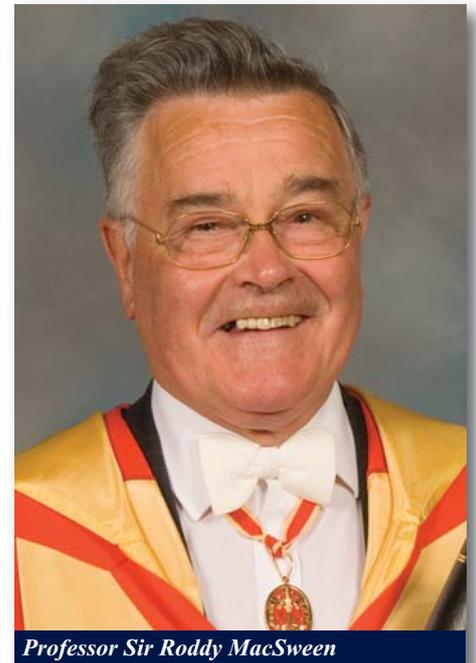
EMERITUS Professor Sir Roddy MacSween Honorary Vice President of Tenovus Scotland

Professor Sir Roddy MacSween, who died in December at the age of 80, was a most distinguished academic pathologist who had a long and much valued association with Tenovus Scotland.

Born into a Lewis manse, he was educated at Broadford Secondary School in Skye and at Inverness Royal Academy. He studied medicine at the University of Glasgow and chose to specialise in pathology. Apart from a postgraduate research fellowship in Denver, Colorado, his professional career was exclusively in the Western Infirmary of Glasgow where he was successively Wellcome Senior Research Fellow, Senior Lecturer, Reader and, finally, Professor and Head of Department. His clinical and research focus was on disease of the liver about which he became an internationally recognised authority. His research publications and textbooks established him as one of the foremost investigators and teachers of his subject. He was the recipient of numerous highly prized awards, held a

wide range of influential offices and was elected President of the Royal College of Pathologists. He retired in 1999 and was knighted for services to medicine and pathology.

In retirement, while enjoying more time for his beloved golf, especially in the Mull of Kintyre, he devoted much of his time and energy to a spectrum of organisations and charities. He was National Chairman of Tenovus Scotland from 2006 until he was forced by ill health to stand down in 2011. His stewardship of the Charity guided it through exciting and increasingly productive times, and it is clear that he held it in special regard. This is shown by his wish that the collection at his funeral should be devoted to Tenovus Scotland. This has been supplemented by generous donations from across the country and abroad, several coming from prominent pathologists anxious to acknowledge Roddy's special role in their inspiration and training. We shall all miss him deeply, and will ensure that a suitable research award is set up in his memory, which his family have



Professor Sir Roddy MacSween

indicated should be competitive in line with Roddy's own vibrant personality. Sir Roddy is survived by his wife Marjory, his two children and five grandchildren. A memorial service will be held in the University Chapel, University of Glasgow, on 19 February at 11 am.

ROYAL VISITS TO TAYSIDE AND GRAMPIAN

The University of Dundee was honoured to host HRH The Princess Royal, Patron of Tenovus Scotland, for the formal opening of the Farr Institute on 15th January 2015. With the support of the Medical Research Council and other funders, the University of Dundee has led the development of the Farr Institute across the UK and in Dundee this has supported the creation of a new

Health Informatic Centre. A state-of-the-art facility for research, based on health-related data, it provides a 'safe haven' where data on health and related outcomes can be linked to allow novel research observations to be made. This type of research has been strongly supported by Tenovus Scotland in Tayside and has facilitated the major Farr Institute development. During the

visit, Her Royal Highness met a number of young research staff who are conducting research that has been supported by Tenovus Scotland in the Farr institute

Professor John Connell, Vice-Principal for Research and Chairman of Tenovus Tayside, paid tribute to the tremendous work done by Tenovus Scotland and its

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contribution to the facility: “An initial grant from Tenovus Scotland of a few thousand pounds over 20 years ago has grown into this facility we see in Dundee today and a £30million eHealth network across the UK”.

On 2nd July 2015, Tenovus Scotland, Grampian, was delighted to welcome our patron, HRH The Princess Royal, to Robert Gordon University, Aberdeen, to meet Grampian Committee Members, National Committee office bearers and Tenovus supporters, and to view poster presentations from several of our grant-holders and PhD scholars, relating to Tenovus funded work. Her Royal Highness proved to be an extremely well-informed and interested guest, who spent an hour reviewing the posters and questioning the authors whose research is being conducted at the University of Aberdeen, Robert Gordon University, and the University of the Highlands and Islands.

Amongst the projects, there were displays relating to imaging, prevention and treatment of neurodegenerative diseases (including Alzheimer’s and Parkinson’s), markers for pre-eclampsia, novel approaches to raised blood pressure and heart attacks, understanding of growth and spread of breast cancer, recurrent mouth ulceration, and mediators of childhood asthma.

After honouring us with her presence, Her Royal Highness officially opened the Sir Ian Wood Building of Robert Gordon University.



Royal visit Grampian: HRH The Princess Royal meeting Grampian researcher, Ms Karen Thompson and Grampian Chairman, Professor Jamie Grieve



Royal visit Tayside: HRH The Princess Royal with Tayside Chairman, Professor John Connell

Exciting development on The Princess Royal Tenovus Scotland Medical Research Scholarships

In September 2015, Tenovus Strathclyde was pleased to be in a position to award a second Princess Royal Tenovus Scotland Medical Research Scholarship. Monies to fund the Scholarship were generously provided by the Trustees of the Ian Sunter Trust, which stipulated that the research should only be in the field of oncology and should be undertaken in the West of Scotland. Following communication with the relevant academic institutions, 13 applications were received.

All applications were of a very high standard, and the short-listing process, undertaken by members of the Local Scientific Advisory Committee, was difficult, but three candidates and projects were eventually short-listed for interview. The Local and National Scientific Advisory Committees had another hard task choosing just one recipient. After considerable discussion, the Scholarship was awarded to Ms Angela Ianniciello from Florence, Italy, to undertake work at the Wolfson Wohl Cancer Research Centre in the Institute of Cancer Sciences at the University of Glasgow, under the supervision of Dr Vignir Helgason. Ms Ianniciello took up the Scholarship on 1st October 2015, and we look forward to receiving regular updates on her progress.

Special thanks are due to members of the Scientific Advisory Committees for their involvement in the selection

process to a very tight timetable over the summer months.

Anna Mariano, the first Princess Royal Scholar, has just entered the second year of her Neuroscience PhD studies at the University of Dundee Medical School. She is investigating cognitive enhancers as a novel therapy in Huntington’s disease (HD), under the mentorship of Dr Rosamund Langston and Professor Jeremy Lambert.



Angela Ianniciello

Anna is now testing the effects of a drug, currently in clinical trials for cognitive enhancement in patients with Down’s syndrome, to see if this has the potential to work in HD. Since this drug is already approved for clinical trials it is a strategic route to an earlier therapeutic possibility. Anna spent her summer on the NIMH-funded Neural Systems and Behavior course in the USA where she was one of only 20 PhD students selected internationally for this highly competitive research opportunity. She was able to work with a different HD mouse model, kindly donated by Jackson Laboratories, and will be pursuing, in the coming year, the new techniques she learned there, comparing both mouse models to look for common disease mechanisms.

SIR ROBIN MACLELLAN AWARD 2015

Joint winners Joanne McPeake and Stephen O'Neil

This award is made annually and is intended to contribute towards the travel costs to a conference/symposium to enable the researcher - whose final research report has been judged the most outstanding for the year - to present a paper. The research work must be carried out in Scotland.

Stephen O'Neil, University of Edinburgh

“As a result of kidney injury, up to 49% of transplanted kidneys from deceased donors in the UK suffer delayed function. This means that patients require post-operative dialysis, which prolongs hospitalisation and increases costs.



Mr Stephen O'Neil

I investigated a drug called AT13387 that may reduce kidney injury. In kidney cells it was demonstrated that this drug had an anti-inflammatory effect. Then, in a microsurgical mouse model of kidney injury, kidneys from mice treated with AT13387 had reduced inflammation, less cell death, and they functioned better. This research has, therefore, identified a promising candidate drug that may reduce kidney injury. It also gives insight into how the drug may work, which will be important for developing it further for use in humans patients.

The outputs from my work included a PhD, three prizes (Chiene Medal, Moynihan Prize & Sir Robin MacLellan Travel Award), six publications and £240,000 of additional funding, including a MRC Fellowship”.

Joanne McPeake, University of Glasgow

“In 2013 I was awarded a small grant from TENOVUS Scotland (Strathclyde



Joanne McPeake

region) to undertake a mixed methods project exploring alcohol-related admission to critical care. This project found that over a third of all admissions to critical care were related to alcohol and that these patients had a difficult recovery trajectory following critical care discharge.

The results and findings of this project have had a significant impact on patient care. Alongside Dr Tara Quasim, two innovative projects at Glasgow Royal Infirmary have been created as a direct result of this small TENOVUS grant. Firstly, we have created a critical care Patient and Family Advisory Council. This Council, which is led and chaired by patient and family members, drives

the quality improvement agenda within the critical care environment. The second project is a Health Foundation funded project: ‘Intensive Care Syndrome: Promoting Independence and Return to Employment (InS:PIRE)’. This five-week, peer supported rehabilitation programme, helps support individuals and their caregivers through the difficult recovery trajectory. InS:PIRE has demonstrated a positive impact on patient and caregiver quality of life in both the long and short term.

None of the initial work, or the continued outputs, would have been possible without the support of TENOVUS Scotland”.

POSITIVE new research into the treatment of Parkinson's Disease

Research, part-funded by Tenovus Scotland at the Medical Research Council (MRC) Protein Phosphorylation and Ubiquitylation Unit at the University of Dundee, has uncovered a map of molecules that play a vital role in protecting the brain against Parkinson's disease. The discovery of these ‘switchboard’ molecules provides scientists with the first good grasp on how different genetic causes of Parkinson's are linked at the molecular level.

Previous genetic research had identified mutations in a gene called PINK1 that led to Parkinson's disease. The PINK1 gene encodes for an important enzyme and, in patients, the protective effects of PINK1 is lost and brain cells controlling movement degenerate, leading to the symptoms of Parkinson's.

The Dundee scientists have now analysed tens of thousands of signals using state-of-the-art technology and made the remarkable discovery that PINK1 targets a family of enzymes termed ‘Rabs’. Rabs operate within the ‘switchboards’ of cells to control many processes, including growth and survival. Remarkably, the scientists found that a key role of the PINK1 enzyme is to simultaneously target multiple Rabs and dramatically alter their activity. Their data suggests that Rab molecules will play a critical role in protecting brain cells and, thus, help to prevent Parkinson's disease from developing in patients.

The team was jointly led by Dr Miratul Muqit and Dr Matthias Trost at the University of Dundee.

“Parkinson's disease is at present incurable and it is vital we understand the molecular mechanisms in order to design the next generation of therapeutics against the disease,” said Dr Muqit.

“In the future it will be critical to study this molecular ‘switchboard’ in more detail in Parkinson's patients. That said, our new research strongly suggests that developing drugs to modulate Rabs represents an exciting new approach to the treatment of Parkinson's.”

Face to Face

With
Matteo Santoro,
Moulton-Barret
PhD Scholar



Matteo Santoro

What is your background?

I graduated in Italy in Chemistry and Pharmaceutical Technologies in 2012. During my undergraduate studies, I engaged in a four-month research placement at King's College London and, after completion of my studies, worked as a pharmacist for eight months at a private chemist. At present, I am halfway through my PhD in Neuroscience at the University of Aberdeen and, so far, have conducted two lines of research into mechanisms of Parkinson's disease.

Why did you decide to get involved in medical research?

Despite my training as a pharmacist, I always had the ambition to do a PhD in Neuroscience. I went through this decision-making process quite early on as a student. It was during my time at college, whilst studying civil engineering, that I realised my vocation for the biological disciplines. Consequently, after college, I did my undergraduate studies at the Faculty of Pharmacy, where my interest in the biomedical disciplines grew exponentially. A key experience was the research placement at King's College London, during which I was involved in identifying genetic modifications responsible for causing mental disorders such as depression.

Why did you apply for the Scholarship and how have you found Aberdeen University in general, and what are its advantages for this particular study?

There was one driving reason that brought me here to the University of Aberdeen. It all began when I first spotted the advertisement for my studentship on a web platform. I was stunned by the research proposal: the aim of the project was to investigate the role of a protein, called HMGB1, in the inflammation process occurring in Parkinson's disease. The protein proposed in the project was the same I had worked on, for one year, during the final thesis project. I was really excited to apply my background and all my knowledge regarding the protein HMGB1, to increase the understanding of a disabling condition such as Parkinson's disease. The University of Aberdeen provides the type of milieu which is fundamental for the wellbeing of PhD students. We are surrounded by a broad network of professionals and facilities, indispensable for proficiently conducting our research studies. There are three libraries, which are very diverse, and the presence of modern sport facilities. I recently joined a

research group where my fellow PhD students work on Alzheimer's disease and schizophrenia. It is wonderful being surrounded by outstanding colleagues, collaborative and keen to share ideas. As a consequence, I am not alone working on my research project, but I am interacting in a dynamic and comprehensive academic environment, which allows me to learn about different aspects of my field. During these first two years, the University of Aberdeen has given me the opportunity to attend many important conferences. Two events in particular have been extremely helpful for my ongoing research project and my career development: the first was the British Neuroscience Association Conference, Edinburgh 2015; and the second was the Society for Neuroscience Meeting, Chicago 2015.

What has your research revealed to date and what is the expected outcome?

In terms of findings, we have made major discoveries in two lines of research: first of all, we established that activation of HMGB1 is detrimental in the inflammatory process occurring in Parkinson's disease. We then tested an inhibitory compound, called Glycyrrhizin, against HMGB1 protein, and we observed a reduction in inflammation and lowering of neurodegeneration in a model of Parkinson's disease; secondly, we have compared different animal models of Parkinson's disease and determined whether they really mimic the traits of patients. The plan for the future is to perform pharmacological

trials, for glycyrrhizin, and determine whether we can rescue the nerve cells and functionally improve the behaviour of our mouse models.

How do you feel about meeting HRH The Princess Royal twice in your time at Aberdeen?

As a PhD student coming from abroad, I could never have imagined that I would have such direct contact with a member of the Royal Family. The two meetings I had with HRH The Princess Royal have been extremely stimulating. Her extreme dedication in keeping track of our research activities is astonishing. This gives importance to the work I do in my laboratory and, at the same time, I have the privilege of being able to explain to HRH, in detail, the progress I am making thanks to the Tenovus Scotland Scholarship.

What are your next steps after obtaining your PhD?

Based on my growing personal interest in the neurosciences, I would like to continue working in this field. I'm already establishing contacts, mainly with public institutions across the world, in order to broaden the range of opportunities after my studies. The attendance at the Society for Neuroscience Conference in Chicago last October has been an excellent networking opportunity. I am also keen to enlarge my portfolio toward different neurodegenerative disease and, perhaps, explore pathological aspects overlapping across different diseases. Whether I work in the future in academia or in a private institution, what really matters is to work for something that gives to my daily life a profound meaning.

University of Glasgow Tenovus Symposium 2015 Medal Winner

This year the Tenovus Scotland Medal was presented to Professor Ian Deary, who is Professor of Differential Psychology, and Director of the Centre for Cognitive Ageing and Cognitive Epidemiology at the University of Edinburgh. Professor Deary was chosen by the University of Glasgow Tenovus Committee to be the recipient of the medal in light of his distinguished career in the area of the science of aging and intelligence.

During his medal presentation lecture on 15th September 2015 at the University of Glasgow Medical School, Professor Deary explained how he and his colleagues used detailed survey data from intelligence tests done on almost every child born in Scotland, in 1921 or 1936, and attending school in Scotland in the month of June in those years. Professor Deary followed up on these studies by tracing, recruiting and re-testing the people in Lothian (the so-called "Lothian Birth Cohort") who had taken part in these original surveys. During his engaging lecture, which was presented with great energy and enthusiasm, Professor Deary explained how these studies offered a rare opportunity to examine the causes of cognitive ageing across most of the human life course.

The studies demonstrated how the normal ageing process affects intelligence, and not principally dementia or other pathological cognitive disorders. Professor Deary also went on to explain how the Lothian Birth Cohort studies continue to be used for studies of the relationship between intelligence and a wide variety of health, educational and socioeconomic outcomes. In addition, genetic and brain imaging data from members of the Cohorts are now being used to determine the biological causes of differences in intelligence and cognitive ageing, including the causes of the intriguing observation that more intelligent people tend to live longer!