

THE LISTER INSTITUTE OF PREVENTIVE MEDICINE

England & Wales · Charity number 206271

Details

Other names LISTER INSTITUTE

Status Registered

Legal form Charitable company

Company number [00034479](#)

Registered 1962-09-22

Register [View on the Charity Commission register](#)

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Website <http://www.lister-institute.org.uk>

Activities

Objects: TO SUPPORT AND PROMOTE FOR THE PUBLIC BENEFIT SCIENTIFIC RESEARCH INTO AND STUDY OF THE CAUSES, PREVENTION AND TREATMENT OF DISEASE IN MAN AND ANIMALS, THE STUDY OF BIOLOGY IN ANY FORM, OR ANY OTHER SCIENCE IN ITS RELATION TO THE HEALTH OF MAN OR ANIMALS, THE STUDY OF ANY AGENCY OR DISCOVERY AFFECTING OR LIKELY TO AFFECT HUMAN HEALTH, THE STUDY OF THE COMPOSITION, PROPERTIES AND POWERS OF ANY ARTICLE OF FOOD OR DRINK, OR MEDICINE, THE STUDY OF AIR, WATER, ANIMALS, VEGETABLES, MINERALS, CHEMICAL SUBSTANCES AND OTHER ENVIRONMENTAL AGENTS IN THEIR POSSIBLE RELATION TO HUMAN HEALTH; TO PROVIDE FOR THE PUBLIC BENEFIT INSTRUCTION AND EDUCATION IN PREVENTIVE MEDICINE TO HUMAN AND ANIMAL HEALTH PROFESSIONALS, STUDENTS AND OTHERS;

Activities: The charitable objectives of the Institute are to further understanding and progress in preventive medicine by promoting biomedical excellence in the UK and the Republic of Ireland through its support of the biological sciences and to ensure long-term public benefit through publication of the knowledge gained and, where appropriate, by encouraging its exploitation.

Classification

- **How:** Makes Grants To Organisations, Sponsors Or Undertakes Research
- **What:** Education/training, The Advancement Of Health Or Saving Of Lives
- **Who:** Other Defined Groups, The General Public/mankind

Geography

- Ireland
- Northern Ireland
- Scotland
- Throughout England And Wales

Finances

Period end	Income	Expenditure	Assets	Employees
2024-12-31	£1,030,000	£2,404,000	£44,853,000	4
2023-12-31	£679,000	£2,007,000	£43,148,000	4
2022-12-31	£595,000	£2,490,000	£43,275,000	3
2021-12-31	£612,000	£1,974,000	£47,678,000	3
2020-12-31	£593,000	£1,389,000	£44,794,000	3

Trustees

Name	Role	Appointed
HONORABLE RORY MICHAEL BENJAMIN GUINNESS		
Jennifer Smithson		2023-09-08
PROFESSOR ALEC JOHN JEFFREYS FRS		
PROFESSOR DOUGLAS HIGGS		2012-08-17
Professor Anne Rosser		2025-09-12
Professor Jane Hillston		2025-09-12
Professor John Julian Blow		2022-09-10
Professor Muzlifah Haniffa		2024-09-13
Professor Pamela Jean Shaw DBE		2018-09-07
Professor Rebecca Clare Fitzgerald		2015-09-04
Professor Rosalind Louise Smyth CBE		2022-09-09
Professor Sir John Peter Iredale		2017-09-08
Stephen McMahon		2019-09-06
murray john legg		2020-09-04

Accounts

ANNUAL REPORT AND FINANCIAL STATEMENTS

for the year ended 31 December

2024



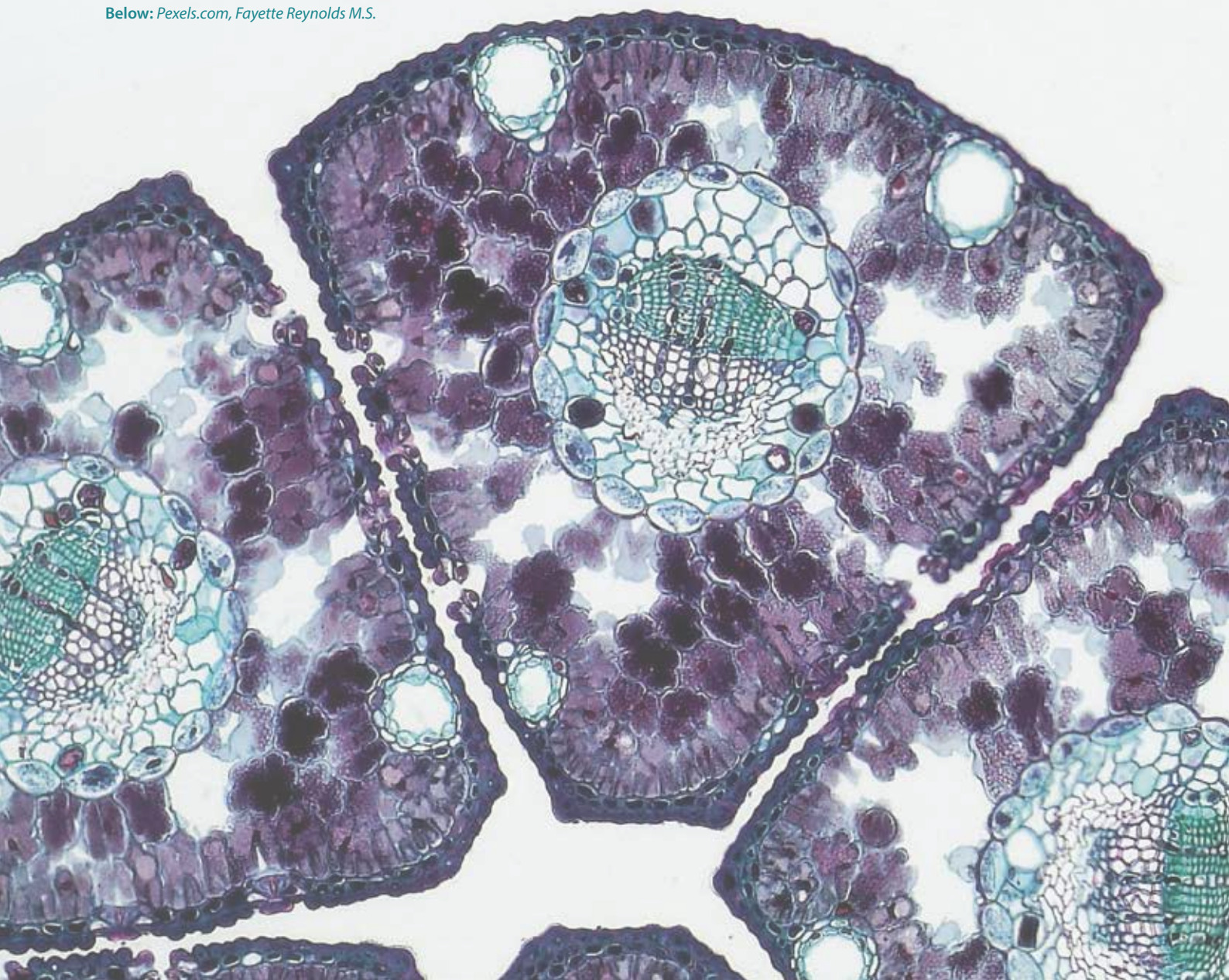
*Nurturing the future leaders
in biomedical research*

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Front cover: *Portrait of Lord Lister*
reproduced courtesy of the Royal Veterinary College;

Lizzy Rosser- Medical Research Foundation

Below: *Pexels.com, Fayette Reynolds M.S.*





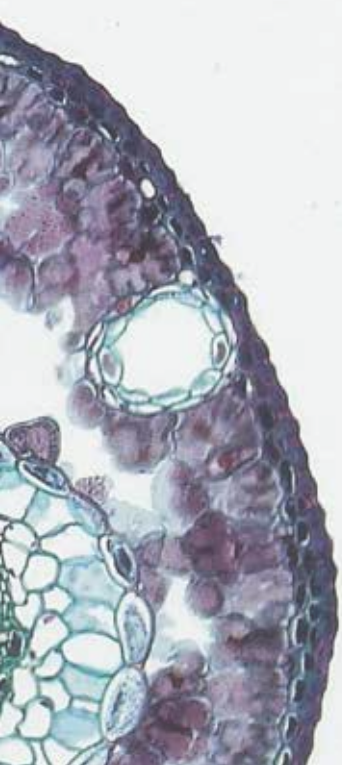
The Institute was founded in 1891 as an independent research institute in the UK. For over 85 years it played a vital role in the development of the laboratory aspects of preventive medicine. In 1982 the Lister Institute launched its prestigious research fellowship programme, which in 2003, was revised to become Prize Fellowships. The Fellowships continue to deliver the Lister Institute's strategic aim of nurturing the future leaders in biomedical research.

Since its conception and right up to the present day, Lister scientists have made discoveries that have made significant impacts on human health.

Some examples are:

- *Dr Dame Harriet Chick discovered that a deficiency of vitamin D was the cause of rickets, making it easily preventable.*
- *Several researchers were involved in research into blood groups thus making blood transfusion safe.*
- *Professor Leslie Collier found a way to produce a form of smallpox vaccine storable at warm temperatures so it could be used all over the world and ultimately led to the eradication of smallpox.*
- *Professor Sir Alec Jeffreys discovered DNA fingerprinting for use in solving crimes and paternity cases.*
- *Professor Fran Platt developed the drug Miglustat which is a treatment for the lysosomal storage disorder Niemann-Pick disease type C (NP-C), a rare but devastating multi-system disorder.*
- *Professor Michael Eddleston's work has had a profound impact on WHO policies regarding world pesticide-related poisoning avoidance and treatment. Resultant changes in clinical practice and pesticide regulation have saved thousands of lives.*
- *Professor Rebecca Fitzgerald's innovative technique, Cytosponge, helps clinicians assess patients for Barrett's oesophagus, a condition that can be a precursor to oesophageal cancer. Early detection is vital, allowing the condition to be treated before it progresses to the cancer stage.*

Our current fellows continue to make discoveries that will impact our health and medicine in the future.



CHAIRMAN'S INTRODUCTION

I am pleased to present the Lister Institute of Preventive Medicine Annual Report for 2024 on behalf of the Governing Body.



I am delighted that 2024, was another excellent year. The Governing Body decided to increase the value of the Prizes and the Institute awarded six Lister Prizes of £300,000. We also gave 43 studentships and held a really successful Annual Meeting in Oxford.

Our Fellows and former Fellows continue to conduct excellent research, publish in high impact journals and to win awards and recognition for their work. This year, particular congratulations must be given to Professors Rebecca Fitzgerald (Former Fellow and current GB member) and David Komander (Former Fellow) who were made Fellows of the Royal Society; and Professors Marius Clore, Michael Eddleston and Jane McKeating

who were elected members of the Academy of Medical Sciences. Congratulations must also be given to Professor Sir Leszek Borysiewicz who was awarded the Knights Grand Cross of the Order of the British Empire for services to Cancer Research, to Clinical Research, to Medicine and to Charities (2025 New Years Honours List); to Professor Daniel Davis who received the OBE for services to Science Communication and to Professor Patrick Maxwell (Chair of the SC between 2010-2017) who received the CBE for services to medical research. Congratulations should also be given to Dr Helen Weavers, Associate Professor in Cell and Developmental Biology in the Faculty of Health and Life Sciences in Bristol, has been awarded the Women in Cell Biology (WCIB) Early Career Medal 2025 by the British Society for Cell Biology (BSCB). On a sad note, I am sorry to have to report that Former Fellows Professor Andrew Fry and Professor David Ish-Horowicz passed away this year.

We held a very successful annual meeting at Corpus Christi College in Oxford. We had prize winners from 2024 speaking as well as very inspirational talks from former Fellow, Professor Danny Smith and Former Fellows and Governing Body Members, Professors Wendy Bickmore and Judy Armitage.

Dr Sally Burtles and I visited recent Fellows in their home institutions. This year we visited 5 fellows in 4 different institutions: Dr John Knight and Dr Fiona Whelan (Manchester), Dr Joana Neves (Kings College London), Dr Shrikanth Ramaswamy (Newcastle) and Dr Helen Weavers (Bristol). It is always excellent to hear the Fellows present their research and for us to be able to tell their colleagues about the Lister Institute. I would like to express our thanks for their excellent hospitality and ongoing support.

I would like to thank Professor Julian Blow and all the members of the Scientific Committee ('SC') for their extremely hard work in reviewing the applications and identifying the Lister Prize Fellows. As a past member and Chair of the SC I know how much work it is for both the Committee to review the applications and the staff to secure external reviewers for those that are long-listed. The final interviews were conducted in person at the Royal Society with the candidates giving presentations and being subject to intense questioning before the 6 Prize winners were selected.

I would also like to thank the members of the Governing Body and the Finance and Investment Committee (FIC) for all their hard work and support throughout the year.

Financial markets remained volatile in 2024 with continued concerns about inflation, the cost of living and geopolitical uncertainty. Through this, our investment managers continued to do a good job of managing our investments. The valuation of our investments on 31 December 2024 (after withdrawal of the funds for the Prize Fellowships and our operational costs) was £44.9M, a good increase up from an opening balance of £43.1M on 31 December 2023.

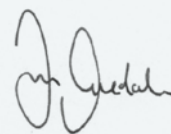
The research environment is particularly challenging especially for young researchers. The increased value of the Lister Institute Prizes of £300,000 provide an even greater opportunity to make a significant and positive impact on the research and careers of those who win them and ensures we deliver on our stated aim of 'nurturing the future leaders in biomedical research'.

I must end by thanking the team – Sally Burtles, Nicola King and Sue Andrews – for making the Lister Institute operate so smoothly on a day-to-day basis. Sue Andrews will be retiring after our audit in February. We wish Sue all the very best in her retirement and offer her our sincere thanks for her years of work with the Lister.

I would also like to welcome Georgina Foster who has joined the team to help Nicola with some of the administrative work.

The Lister Institute is a strong organisation and that is because of the people associated with it - our Fellows, our staff, the Scientific Committee, the members of the Governing Body and FIC, the Membership of the Institute and the external providers who partner with us to support the organisation. To all I offer my sincerest and warmest appreciation.

Professor Sir John Iredale,
Chairman



2024 LISTER RESEARCH PRIZE FELLOWSHIP WINNERS

The six Lister Prize Fellowships were awarded to:



Dr Alex Borodavka,
University of Cambridge
*From Single Molecules to Whole
Viruses: A New View on Viral
Assembly and Replication in Cells*

Alex's group studies rotaviruses, which cause over 170,000 child deaths annually. These RNA viruses are unique due to their segmented genomes, comprising eleven distinct chromosomes. They aim to uncover how rotaviruses and similar viruses assemble their genomic segments. This involves characterising RNA structures and sequences in genome assembly and investigating the molecular mechanisms of the formation of viral replication factories, where the assembly takes place in cells. His research seeks to identify universal genome assembly mechanisms in segmented viruses, providing new avenues for the development of treatments and improved vaccines.



Dr Andrew Davidson,
University of Glasgow
*Investigation of tumour cell
death, its clearance and the
consequences for tumour
inflammation*

Andrew's lab is interested in tumour cell death and how it shapes the tumour microenvironment. While killing tumour cells is the objective of most cancer therapies, our bodies are designed to respond to cell death by triggering healing, which the tumour can hijack to fuel relapse. Furthermore, a failure to clear cell death triggers chronic inflammation, which cancer thrives in. Andrew's lab combines the unrivalled genetics of *Drosophila* with powerful live-cell imaging, to study tumour cell death and its clearance in vivo.



Dr Sarah Dimeloe,
University of Birmingham
*Co-operative metabolic synthesis
as a fourth signal for T cell priming*

Sarah is an immunologist with a particular interest in understanding the metabolism of our immune cells. Metabolism describes how cells take up nutrients and break them down to provide energy and building blocks. This changes dramatically in immune cells when they become engaged in a protective immune response. Sarah aims to understand exactly how this happens, since it is frequently dysregulated in diseases associated with altered immune cell function, including autoimmunity and cancer.

This year, as ever, our Fellows represent a wide range of research areas. Their work contributes to a greater understanding of disease and pathogens the body's healing mechanisms and supporting the development of new therapeutic approaches.



Dr Rebecca Drummond,
University of Birmingham

Exploring how host immunity and co-infection influence fungal environmental adaptation in the CNS

Rebecca's research focus is invasive fungal infections, which kill a large number of vulnerable people every year. She predominantly studies the yeast *Cryptococcus neoformans*, which is a common cause of brain infection in people with HIV/AIDS. Her work looks at how this fungus grows in the brain, such as how it gains nutrients and avoids detection by the immune system, whilst also examining the antifungal immune response to unpick the host-fungal interactions occurring in the brain during an infection.



Dr Lizzy Rosser,
University College London

Extrafollicular B cells in the immunopathology of Juvenile-Idiopathic Arthritis Associated Uveitis

Juvenile Idiopathic Arthritis (JIA) is the most common childhood disease of the joints, with a UK prevalence of 1 in 1000. For unknown reasons, some JIA patients develop uveitis, an inflammatory disorder of the eye, which can lead to life-long loss of sight. Lizzy's group is investigating how different B cell populations contribute to joint, and now through the Lister Prize, eye damage in JIA. Understanding the contribution of B cells to uveitis pathology could lead to the development of novel B-cell targeted therapeutic strategies that prevent visual impairment in these children.



Dr Nicky Whiffin,
University of Oxford

Bridging the diagnostic gap: realising non-coding variant identification and classification in the clinic

Over 300 million people globally have a rare disease and 80% of rare diseases are thought to be genetic. Currently, disease-causing genetic mutations are only looked for in the 1.5% of our DNA that directly encodes proteins. But through this approach, we find the genetic cause of disease for less than half of all rare disease patients. Nicky's team researches genetic variants outside of protein-coding regions of the DNA (in the other 98.5%) to find new diagnoses for patients and to understand more about gene regulation.

Photo: Julia Koblitz on Unsplash

PROTECTING CHILDREN FROM MALARIA



Above: Professor Simon Draper, Professor Angela Minassian, Sarah Silk and Professor Halidou Tinto. Taken at World Malaria Day in Kigali 2024.

Graph: Children under 5 are highly vulnerable to malaria infections. The first malaria vaccine to induce immunity during the blood-stage of *Plasmodium falciparum*'s parasitic life cycle marks a major milestone in the effort to address this persistent threat to child health.

Data source: Institute for Health Metrics and Evaluation, *Global Burden of Disease (2024)* and graph by OurWorldinData.org/malaria | CC BY. www.ourworldindata.org/malaria

Imagine a world where a simple mosquito bite no longer threatens the lives of millions of children. This vision is becoming a reality thanks to groundbreaking advancements in malaria vaccine research.

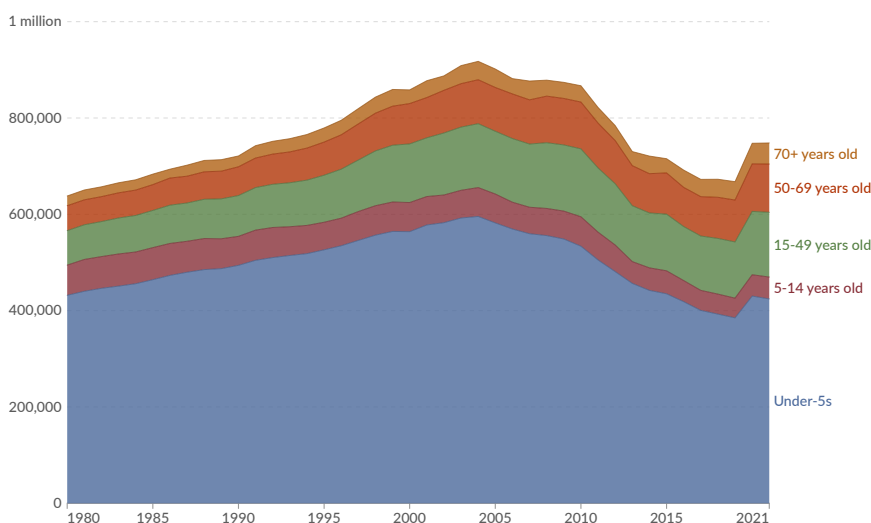
Transmitted by a mosquito bite, *Plasmodium falciparum* (the parasite that causes malaria) is responsible for the deaths of over 600,000 children each year (see graph). A clinical trial for the RH5.1/Matrix-M malaria vaccine candidate, appearing in the *Lancet Infectious Diseases*, reports a major advance in providing protection for the children at risk of becoming infected by this life-threatening parasite. Results from the trial demonstrate the safety and efficacy of the first malaria vaccine to induce immunity during the blood-stage in *P. falciparum*'s parasitic life cycle. Leading the development of the RH5.1/Matrix-M vaccine is the Draper Lab Group headed up by Simon Draper, Professor of Vaccinology and Translational Medicine at the University of Oxford. A former Lister Institute Fellow (2013 - 2019) too, Simon shares, "It's been exciting to finally see these results in African children."

Malaria is endemic in Africa and the Phase 2 clinical trial was conducted in Burkina Faso. During the six-month period described in the interim analysis, the vaccine prevented clinical malaria in over half of the 100+ children between 5 to 17 months of age that received three doses of the RH5.1/Matrix-M vaccine. Importantly, in 80% of the vaccinated children who did become infected, the vaccine curtailed the expansion of malaria parasites in their blood and showed the potential to prevent severe illness. The blood stage is an advanced stage of malaria that is lethal because red blood cells become the host for rapidly dividing parasites. The parasites multiply to the point of destroying their host cells along with the ability to transport oxygen to the organs. "My Lister Prize many years ago certainly made key early contributions to this programme,"

Simon comments. More specifically, the Lister Prize was instrumental in enabling the early Draper Lab Team to establish 'the process for [routinely] making the protein [for research purposes] and setting up the work' with 'the work' encompassing the set-up of multiple research tools, such as assays, antibodies, cell cultures and other experimental techniques designed to obtain a 'high resolution understanding' of 'how RH5 works as a vaccine target'.

Malaria deaths by age, World

Estimated annual number of deaths from malaria¹.



Data source: IHME, *Global Burden of Disease (2024)*

OurWorldinData.org/malaria | CC BY

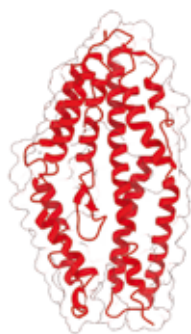
¹ Malaria: Malaria is a life-threatening disease caused by parasites that are transmitted by female Anopheles mosquitoes. There are five parasite species that cause malaria in humans. Two of these species – *P. falciparum* and *P. vivax* – pose the greatest threat. The first symptoms – fever, headache and chills – usually appear 10 to 15 days after the infective mosquito bite and may be mild and difficult to recognize as malaria. Left untreated, *P. falciparum* malaria can progress to severe illness and death within 24 hours. ² Read more on our page on malaria.

On the cusp of a 2nd generation malaria vaccine

"The malaria field has been trying to develop vaccines for decades. Now we have two fantastic milestones,"

explains Simon referring to the promising results observed in the RH5.1/Matrix-M vaccine trial led by his own group, coupled with the recent introduction of two other similar malaria vaccines developed by others, the RTS,S/AS01 and R21/Matrix-M vaccines. The other vaccines provide a similar level of protection against the parasite while in the liver, the organ where the parasites first migrate after someone is infected. The two vaccine classifications, liver and blood, are complementary and could potentially, if combined in the future, provide children with more immune protection from this life-threatening disease.

"It was a long journey involving many team members and collaborators," says Simon in speaking about a clinical research trajectory that originally began with his PhD research. Using a parasitic-protein vaccine discovery platform he created, Simon's group initially identified RH5 in 2010 and recognised the protein's potential for alerting the immune system to protect against the presence of *P. falciparum* in the bloodstream. Now, the Draper Research Group is a translational research hub that encompasses



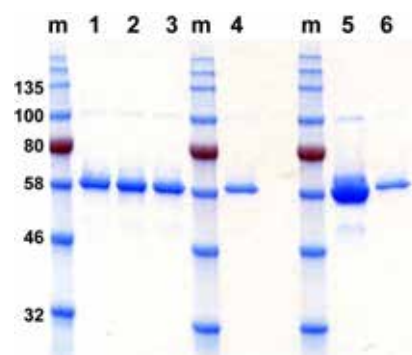
Structural chemistry image of the RH5 antigen discovered by Dr. Draper and used to develop a malaria vaccine. Barrett, Jordan R., et al. "Analysis of the diverse antigenic landscape of the malaria protein RH5 identifies a potent vaccine-induced human public antibody clonotype." Cell 187.18 (2024): 4964-4980.

scientists and clinicians including Associate Professor Angela Minassian, who is heading up the clinical development programme for the RH5.1/Matrix-M vaccine. The Group's Africa-based clinical trial collaborator network includes the Ifakara Health Institute Clinical Trial Facility in Bagamoyo, Tanzania, where the Phase 1 trial took place. To orchestrate the Phase 2 trial, Simon and Angela collaborated with another senior author on the Lancet Infect Dis study, Halidou Tinto, Professor of Parasitology and Regional Director of the Clinical Research Unit at the Institut de Recherche en Sciences de la Santé in Nanoro, Burkina Faso, as well as other research units, vaccine developers and manufacturers.

The ultimate goal for the Draper Lab and the wider collaborative malaria vaccine development community is to introduce a second-generation malaria vaccine designed to prevent serious illness in young children whose lives are threatened by a simple mosquito bite. "We now have the exciting opportunity to test the new RH5.1 blood-stage vaccine in combination with the approved liver-stage vaccines," Simon explains. Clinically-speaking, this is a stepwise process that begins with administering the two types of vaccines, separately.

A Parasitic Achilles Heel

"I began this research journey in 2002," Simon shares, "It had already been a goal to have a vaccine that works in the blood to prevent an infection from growing into very severe disease." While talking about the early research that led to the discovery of RH5, Simon describes, "The leading approach at the time was to go to Africa to study natural immunity to malaria." The antigenic protein targets found and used in earlier vaccines had not worked in the early 2000s. "There was a lot of disappointment," Simon adds, "I started out along those lines, working to improve the means by which we could make antibodies to malaria proteins. This is difficult to do, there are hundreds of them, and they are really strange."



The blue lines level to the number 58 is the RH5.1 protein showing on a SDS Phage display, a protein separation technique used by the Draper. The technique demonstrates the stability of the antigenic-protein within the RH5.1/AS01 B vaccine formulation, a characteristic essential for eliciting an immune response to an infection.

I spent my PhD on developing an adenovirus technology that meant you didn't have to make the protein to vaccinate." Antibodies are the sentinels of the immune system that can detect when a foreign protein is present, and multiply and prompt a response to eliminate it. By incorporating the malaria proteins into an adenovirus adapted to expose them while in vivo, Simon could observe whether individual parasitic proteins prompted antibody production. While meticulously screening the parasitic proteins using his novel technology, Simon and his team observed a noteworthy antibody response just before Christmas 2010. Using a reverse vaccinology technique, similar to the technique used to develop a Meningitis B Vaccine, the antibodies revealed RH5.

Simon also explains that "RH5 is not a natural choice for a target. Adults who have had malaria do not express antibodies to RH5. We went on to learn that RH5 is incredibly, highly conserved. Most proteins are redundant," explains Simon who uses a spare key analogy to illuminate how infectious agents produce multiple proteins for performing the same function as a way of evading detection by the immune system. "There is no spare key for RH5, making it the Achilles Heel of the parasite."

FROM FELLOWSHIP TO LEADERSHIP:

ANNE ROSSER AND JULIAN BLOW ON THEIR LISTER JOURNEYS

Professor Julian Blow, PhD, FRSE, FMedSci has led the Lister Institute's Scientific Committee since 2022. In 2025, Julian will hand over the reins to Professor Anne Rosser, PhD, FRCP, who is currently a Committee member. Like Julian, Anne is a former Lister Fellow whose early research was supported by the Institute's funding. For both, chairing the Scientific Committee has meant coming full circle - from applying for the Lister Prize as early career scientists to leading the multidisciplinary team that assesses Prize applications.



Professor Julian Blow

Julian has many strings to his bow, but few are aware that he is one of Edinburgh University's longest-standing medical students.

Julian began an intercalated course at Edinburgh which incorporated time out to undertake a BSc specialised in pathology. "I liked it so much that I wanted to carry on with the research," he recalls, "and I was supported in taking three more years out to do a PhD at Cambridge. I liked it so much that I never went back."

Following his doctorate, Julian continued at Cambridge as a postdoc until 1988, when he moved to Oxford to work in the lab of preeminent geneticist Paul Nurse. It was in Oxford where Julian received the Lister Prize in 1991, which enabled him to start his lab at what was then the Imperial Cancer Research Fund Clare Hall Laboratories.

However, the majority of his career would be spent back in Scotland at the University of Dundee, where he spent 27 years and accomplished much of his research on chromosome replication. During that time Julian progressed from Principal Investigator to Director of the Centre for Gene Regulation and Expression, then Director of Research for the School of Life Sciences and ultimately Dean of the same school. Most recently, Julian moved to the University of East Anglia

(UEA) where he took up the role of Pro Vice Chancellor of Research and Innovation in June 2024.

Professor Anne Rosser

Like Julian, Anne had a protracted run of undergraduate medical studies, with a PhD in neuroscience sandwiched between preclinical and clinical training at the University of Cambridge. For Anne though, clinical work would remain a primary passion alongside research, playing a central role in her career in regenerative medicine and neurodegenerative disease.

After nine years of postgraduate studies and medical training, Anne worked in some of London's busiest hospitals before returning to Cambridge, where she received an MRC clinical scientist fellowship. "I worked at the Cambridge Brain Repair Centre from 1994 until 2001, which was around when I received the Lister Prize," she remembers.

With her Lister funding in hand, Anne moved to the University of Cardiff. There she set up the Cardiff Brain Repair group in collaboration with Professor Stephen Dunnett, a close colleague who had also recently moved from Cambridge. Key to the Centre's work is the development of therapies for neurodegenerative diseases, especially the use of stem cells.





"The core of my Lister Fellowship was the development of stem cell therapies for Huntington's Disease treatment, and that formed the basis of what I've worked on ever since," Anne says.

As well as co-directing the Brain Repair Group, Anne was Chair of the European Huntington's Disease Network until stepping down in October 2024. Her lab is currently working towards a first-in-man clinical trial of stem-cell-derived cell therapies for Huntington's patients.

Perspectives on the Scientific Committee

"It has been a huge privilege to lead the Scientific Committee,"

says Julian, who will step down as chair from September 2025.

"The Lister's remit is unusually broad, stretching from the medical field to emerging technologies like bioinformatics and AI. We end up reading a huge number of applications, all from the top people in the UK, which gives us a sense of how things are changing at the cutting edge. There are always surprises and new ideas, so it's exciting."

"Things are always changing and we are often in discussion about who we need on the panel, for example if we get a lot of applications in one area, or another area becomes less important over the years," he adds.

Anne has been a Scientific Committee member for three years, and echoes these sentiments. "There are so many applications that are off-the-scale good," she says. "Sifting them has been so enjoyable and informative, and it leaves me feeling optimistic about British science moving forward."

"I think Julian's done a fantastic job, and following him as Chair isn't necessarily going to be easy, but I'm looking forward to seeing the process from a different perspective. Over the last few months I've been able to join Julian and Sally in their discussions, which has been a wonderful introduction."

Anne will Chair the Scientific Committee from September 2025.

Memories of Lister Fellowship

For both Anne and Julian, receiving the Lister Prize was a watershed moment that holds vivid memories.

"When I had my Lister Prize interview I was eight months pregnant with my third child, so I remember it being quite an emotionally charged time," says Anne. "It was fantastic to get the Fellowship and it made an enormous difference to my career."

As well as allowing Anne to relocate, the Lister Prize helped her continue the groundwork laid during her three-year clinician scientist fellowship. "I had established the platforms I was going to use, but to receive the Lister Prize really gave me the time and independence I needed. I think it was really essential in allowing me to develop the work I would go on to do over the next twenty years."

"It's more than a fellowship," she adds, "because you join a community of people who have received the same award and are your peers, which feels pretty amazing. The annual meetings

were in Cambridge at the time, so it was really nice to return there after moving away."

"There was a real buzz at those meetings and a lot of enthusiasm," Anne recalls. "In most scientific meetings the scope is quite focused. It's so valuable to hear about things that are completely different to what you're doing."

For Julian, applying for the Lister Prize was key to joining the Imperial Cancer Research Fund, as it would provide essential funding. "I remember speaking to [former Lister Governing Body member] Professor Judy Armitage, who was working on the floor above me in Oxford," he says. "She was very enthusiastic and supportive, looking over my application and encouraging me to do it."

"1991 was the centenary of the Lister Institute, and I was the Lister-Jenner Centenary Fellow," he recalls. "I remember a commemorative dinner where I met members of the Guinness family."

Like Anne, Julian vividly remembers connecting with the Lister community. "There were so many people around me at different stages of their careers, and plenty of time to discuss ideas and get advice. The peer support and peer learning were so important," he says. "I also made connections with people I still keep in contact with today."

We wish Julian every success in his next chapter, and we are delighted to welcome Anne as Scientific Committee chair.

THREE GENERATIONS OF LISTER SCIENTISTS COME TOGETHER AT THE ANNUAL MEETING



The Lister Institute Annual Meeting at Corpus Christi College, Oxford is always a highlight of our calendar. It's an opportunity for current and former Lister Prize Fellows, Summer Students and Institute Members to connect in the historic atmosphere of the college and share their knowledge and ideas. In 2024, we welcomed three 'generations' of Lister scientists to the event, each with their own unique perspective from cutting-edge areas of immunology, genetic medicine and computational science.





2024 Lister Prize Winners and current Fellows

The majority of this year's talks came from the new cohort of Lister Fellows who have joined the community in 2024. We were very pleased to welcome all but one, Rebecca Drummond who was on maternity leave, of the new Lister Fellows to Oxford. The groups research interests and academic backgrounds vary from microbiology to translational medicine, and we heard inspiring dispatches from cutting-edge areas of immunology, genetic medicine and computational science.

For the new Lister Fellows, the Annual Meeting comes at a time of change and forward planning. The increase of a further £50,000 to the Prize funding this year means that new research possibilities can be pursued, so there was much to discuss and a general air of enthusiasm and excitement. For some, the Prize will be the catalyst to growing their lab, while for others, it will pay for new projects or expand existing research areas.

For each talk from the new Lister Fellows there were lots of questions from community members coming from different academic disciplines, reflecting the enthusiasm and interest among the audience whatever the subject matter. Attendees told us the meeting is like a 'window' onto other biomedical and scientific specialisms, and a rare opportunity to enrich their understanding by viewing it from these different perspectives.

Photo above: From left to right - Professor Julian Blow, Dr Lizzy Rosser, Dr Sarah Dimeloe, Dr Andrew Davidson, Dr Alex Borodavka, Dr Nicky Whiffin, Professor Sir John Iredale and Dr Sally Burtles.

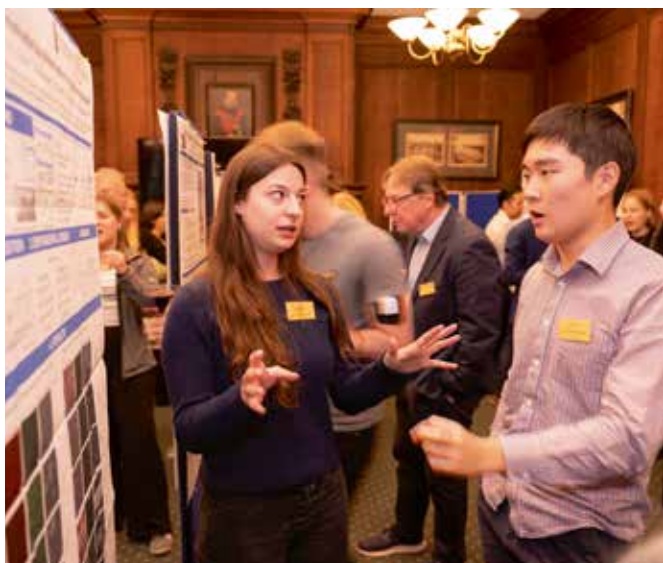
Annual Meeting photography: pages 10 – 13, © Steven O'Gorman

Scientists of tomorrow

Our Summer Students programme brings undergraduate students together with current Lister Fellows for a summer of work experience in the laboratory. Funding is provided by the Lister Institute for up to 10 weeks. This year, 43 Summer Students took part in the programme, and a number of them were able to join us -to present and discuss posters on their summer projects during a session in the historic Rainolds Room. Drinks and a buffet were served and attendees wandered among the posters, asking questions and receiving eloquent explanations of the research from the students.

For these students, the Annual Meeting is an opportunity to get a taste of the academic conference experience, which will be part of their lives in the future if they choose to pursue a scientific career. They present their work to the new Lister Prize Winners, current and past Lister Fellows and Members of the Lister Institute – some of whom will be potential mentors or employers in the future.

Many of this year's students told us that the summer of lab work gave them the insight they needed to choose whether to move on to a PhD or further study. For their supervisors, the addition of an enthusiastic team member over the summer months was a big positive, and several of the Lister Fellows who participated hope to welcome their Summer Students back for a PhD in the future.





Senior leaders

The annual meeting is a regular event for many former Lister Fellows and Committee Members who are further advanced in their careers and have achieved huge progress in their chosen fields. These leaders have changed the face of research in many cases, influencing the lives of countless patients, doctors and junior researchers.

This year, we had the bittersweet pleasure of hearing from members of the community who are retiring from their roles at the Lister and reflecting on long and illustrious careers. Two fascinating talks from geneticist Professor Wendy Bickmore and biochemist Professor Judy Armitage brought to light what their teams had achieved over the decades with determination, faith and hard work and sometimes in the face of adversity.

For both scientists, a passion for discovery and a need to answer fundamental questions were driving forces in their careers. Wendy and Judy have both seen the world of science change over time, mostly for the better. Their stories reflected the progress made towards inclusivity and gender parity in the academic world, as well as the enormous impact made by advances in technology and patient care.



We also heard from senior researcher and clinician Professor Danny Smith, who walked us through his research on sleep-wake cycles and seasonal change in severe mental health conditions. He put forward the persuasive case that circadian dysregulation, rather than mood, is the primary nature of bipolar disorder. In addition to his work on light sensitivity and chronopsychiatry, Danny is currently leading a new and ground-breaking Hub for Metabolic Psychiatry at the University of Edinburgh, which places patient experiences and voices at the heart of its research.

CURRENT LISTER PRIZE FELLOWS

For the full list of all Lister Fellows (past and present) please see the Lister website
<https://www.lister-institute.org.uk/former-fellows/>

<i>Fellow</i>	<i>Title of Research</i>	<i>Awarded</i>
Dr Shoba Amarnath Newcastle University	Translating co-receptor biology to immunotherapeutics in cancer	2022
Dr Elizabeth Ballou University of Exeter	Investigating how cross-kingdom microbial partnerships impact fungal pathogenesis of the causative agents of Mucormycosis	2022
Dr David Bending University of Birmingham	T cell receptor signalling dynamics during T follicular helper cell responses	2022
Professor Tanmay Bharat University of Cambridge	In situ structural studies of the functional organisation and inhibition of the BAM complex in Gram-negative bacteria	2021
Dr Alexander Borodavka University of Cambridge	From Single Molecules to Whole Viruses: A New View on Viral Assembly and Replication in Cells	2024
Dr Amanda Chaplin University of Leicester	Cryo-EM studies of human DNA repair complexes: DNA-PK and interacting partners	2022
Professor Ross Chapman University of Oxford	DNA double-strand break repair mechanisms in immunity and oncogenesis	2019
Dr Andrew Davidson University of Glasgow	Investigation of tumour cell death, its clearance and the consequences for tumour inflammation	2024
Professor James Davies University of Oxford	Using base pair mapping of genome architecture to interrogate the mechanisms by which enhancers control transcription	2022
Dr Marco Di Antonio Imperial College London	Unravelling epigenetic pathways leading to chemo-resistance in ovarian cancer with a light-controlled CRISPR-based platform	2022
Dr Sarah Dimeloe, University of Birmingham	Co-operative metabolic synthesis as a fourth signal for T cell priming	2024
Professor Mark Dodding University of Bristol	A new chemical biology approach to target molecular motors for the manipulation of cytoskeleton and organelle dynamics	2018
Dr Rebecca Drummond University of Birmingham	Exploring how host immunity and co-infection influence fungal environmental adaptation in the CNS	2024
Professor Ravindra Gupta University of Cambridge	Cell cycle regulation in Macrophages	2021
Professor Anthony Khawaja Institute of Ophthalmology University College London	Translating genomic discovery into clinical prediction tools for glaucoma	2022
Dr John Knight University of Manchester	Harnessing the divergent roles of elongation dependency for cancer therapy	2023
Dr Joanne Konkel University of Manchester	Atypical monocytes at the oral mucosa; revisiting myeloid cell development and function at a unique barrier site	2019

Fellow	Title of Research	Awarded
Professor Rebecca Lawson University of Cambridge	Computational neurodevelopment: a new framework for understanding autism spectrum disorder	2020
Professor Tung Le John Innes Centre	The line of duty: How to segregate a giant linear plasmid in antibiotic-producing <i>Streptomyces</i>	2022
Dr James Lee The Francis Crick Institute	From SNPs to biology in inflammatory diseases	2021
Dr Michelle Linterman Malaghan Institute / Babraham Institute	Tertiary lymphoid structures in health and disease	2019
Professor Joseph Marsh University of Edinburgh	The dominant-negative effect in protein complexes: implications for human genetic disease	2018
Professor James Nathan University of Cambridge	The interplay between metabolism and oxygen sensing	2017
Dr Joana Neves King's College London	Regulation of Innate Lymphoid Cell differentiation & function in intestinal health and disease	2023
Professor Rickie Patani UCL & The Francis Crick Institute	Identifying therapeutically targetable RNA binding proteins in ALS	2021
Dr Srikanth Ramaswamy Newcastle University	A tale of two neuromodulators: how histamine and serotonin shape social interactions in mice and human brains	2023
Dr Elizabeth Rosser University College London	Extracellular B cells in the immunopathology of Juvenile-Idiopathic Arthritis Associated Uveitis.	2024
Dr Tomás Ryan Trinity College Dublin	Gone or Misplaced? – Retrieving Infant Memories in Adults	2020
Dr Hayley Sharpe Babraham Institute	Receptor tyrosine phosphatase signalling mechanisms in health and disease	2020
Professor Christopher Stewart Newcastle University	Using stem cell derived “mini guts” to investigate microbiome-host interaction in early life	2021
Dr Kirby Swatek University of Dundee	Irreversible inactivation of ubiquitin and ubiquitin-like proteins	2023
Dr Stephan Uphoff University of Oxford	Resolving oxidative stress response mechanisms in bacteria during infection and antibiotic treatment	2020
Dr Stineke Van Houte University of Exeter	Developing new tools to tackle antibiotic resistance	2021
Dr Helen Weavers University of Bristol	Targeting immune system resilience to curb collateral damage and extend healthy ageing	2023
Dr Fiona Whelan University of Manchester	Accessory gene driven competition within the cystic fibrosis lung microbiota	2023
Dr Nicola Whiffin University of Oxford	Bridging the diagnostic gap: realising non-coding variant identification and classification in the clinic	2024

REPORT OF THE GOVERNING BODY

for the year ended 31 December 2024

The Governing Body presents its Annual Report under the Charities Act 2011 together with the audited Financial Statements of the Charity for the year ended 31 December 2024. The Financial Statements have been prepared in accordance with the accounting policies set out in Note 1 (page 28) to the Financial Statements and comply with the Companies Act 2006, the FRS102 Charities SORP and the documents governing the constitution of the Charity.

LEGAL AND ADMINISTRATIVE DETAILS

Legal and administrative information is set out on page 33 of this report.

STRUCTURE, GOVERNANCE AND MANAGEMENT

Constitution

The Institute is registered with the Charity Commission for England and Wales (registration number 206271). It is incorporated and registered in England and Wales under the Companies Act 2006 as a company limited by guarantee and not having a share capital (company number 34479). It is governed by its Articles of Association and has charitable status.

Members of the Governing Body, Directors, Trustees and Sub-Committees

The members of the Governing Body (GB) are, for the purposes of company law, Directors of the Institute and, for the purposes of charity law, Trustees of the Institute and throughout this report are collectively referred to as the Trustees. Details of the Trustees serving throughout the year are set out on the last page of this report.

Specific authorities are delegated to two Committees in particular areas, the Scientific Committee (SC) and the Finance and Investment Committee (FIC). FIC is a sub-committee of GB. The SC is independent of GB in compliance with the Association of Medical Research Charities' Principles of Expert Review.

The FIC (see the last page for membership) has responsibility for interaction with the Institute's investment advisors, ensuring implementation of the Institute's investment policy and monitoring performance. It prepares and submits to the GB the annual budget and subsequently monitors performance against it. It also advises the GB, as required, on other financial and risk matters. The FIC met twice in 2024 and undertook its normal business reviewing the performance of the investment managers and the finances of the Lister Institute.

The SC (see the last page for membership) has responsibility for identifying the Lister Institute Prize Fellows and the monitoring of their scientific activities, as well as providing scientific and medical advice to the GB as required. In 2024 there were two changes in the membership of the SC. Professors Judi Allen (Manchester) and Muzlifah Haniffa (Newcastle and the Sanger Institute) stood down, and Professors Cliona O'Farrelly (Trinity College) and Ewen Harrison (Edinburgh) joined the Committee. The SC met twice this year. Firstly, to undertake the business of the Committee looking at the review process and

the statistics to ensure we are achieving fairness throughout. Then again to conduct the interviews of the short-listed candidates for the Lister Prize Fellowships.

Appointment and Re-appointment of Trustees

Our Trustees are the fifteen members of the GB of whom six are elected by the members at the Annual General Meeting. A maximum of six further Trustees are appointed by the Governing Body and there are currently six such appointees. One additional member is Lord Iveagh's representative, the Honourable Rory Guinness, another is Professor Sir Alec Jeffreys who was appointed to life-membership, and the final member, Professor Douglas Higgs, is the representative of the Royal Society. Trustees, other than the two nominated representatives, Professor Sir Alec Jeffreys and exceptionally those appointed by the Governing Body, generally serve for a period of six years and a system of planned rotation is in place. When considering appointment or nomination for election as Trustees, the Governing Body has regard to the specialist skills needed.

In 2024 Professor Judy Armitage, Professor Wendy Bickmore and Mr Matthew Pintus all stood down from the Governing Body all having served at least their 9-year term of office. Professor Muzlifah Haniffa (Newcastle University and the Sanger Institute) joined to replace Professor Bickmore. Mr Pintus and Professor Armitage had already been replaced with Professor Smyth and Ms Smithson respectively. As ever, we must pay tribute to the quality and dedication of the GB members and the speed and clarity with which they respond to Lister matters.

Induction and Training of Trustees

New Trustees undergo induction sessions with the Chairman, Treasurer and Director during which they will gain an understanding of the Institute's structure, activities, financial position, and future strategies. Prior to appointment they will attend one meeting of the GB as an 'observer'. New Trustees will also be made aware of their legal obligations regarding charity and company law. In addition, new Trustees will be advised of appropriate literature and training courses. An Induction check list supports the process.

Organisation

The Institute's Governing Body is responsible for setting policies, authorising actions on all significant operational issues and ensuring legality and good practice. Members of the GB are Trustees of the charity and have responsibility to the Charity Commission to ensure the charity is well run and remains true to its purpose. The Treasurer and Chairman review the remuneration of all staff once a year. This includes the remuneration of those individuals considered to be key management personnel.

The routine management of the Institute's activities is undertaken by its Director aided by the Operations Manager and the Accountant. All staff work from home.

In 2024, one of the Charity's Trustees received remuneration in relation to their work for the charity. This is the chairman of the SC, the only trustee who is offered any remuneration in relation

to their dealings with the Charity. As Chairman of the SC, they are offered a small honorarium in recognition of the very significant workload associated with the role.

The Chairman and the Treasurer of the Charity agree the Director's remuneration which, along with other Lister Institute staff, is normally increased in line with CPI. Salaries are also compared to similar organisations and adjusted periodically where appropriate.

Institute Membership

All Fellows of the Lister Institute become Members when they complete their Fellowship. In addition, all Committee members, previous members of staff and others with a particular interest in the Lister Institute are Members. At present we have 243 Members and they are all eligible to vote at the AGM.

The Fellows who completed their Fellowship in 2024 and were elected as Members of the Institute were: Professor Tom Baden (University of Sussex), Professor Tim Blower (Durham University), Dr Rebecca Corrigan (University College Dublin), Professor Susana Godinho (Queen Mary University of London), Professor Yogesh Kulathu (University of Dundee), Professor Yanlan Mao (University College London), Professor William McEwan (University of Cambridge) and Professor Amanda Sferuzzi-Perri (University of Cambridge).

Two new Scientific Committee Members were also elected as Members of the Institute: Professor Ewen Harrison (University of Edinburgh) and Professor Cliona O'Farrelly (Trinity College Dublin).

Risk Management

Identifying and managing the possible and probable risks that the charity may face is a key part of effective governance. The Trustees assess the risks facing the Institute and review the effectiveness of the controls to monitor and mitigate them. The Institute introduced a Risk Management Policy to formalise the basic principles and strategies that the charity applies to help manage its risks. Central to this is the Risk Register which is maintained and formally reviewed annually by the Governing Body.

The key controls used by the Institute include:

- Formal agendas for all Governing Body meetings
- Strategic planning, budgeting and management accounting
- Formal written policies
- Clear authorisation and approval levels
- Regular review of Fellows' scientific reports
- Regular detailed review of investment policies and performance

The risk of cybersecurity is considered by the Trustees on an ongoing basis. In 2024 a security review of the Institute's Microsoft systems was undertaken and actions taken to improve any weaknesses. As a result our Microsoft assessed security score was increased from 32% to 85%. A cyber-security policy for staff is in place. IT support for staff involves regular security updates and regular cybersecurity training for staff. Security around the application and management process is maintained through an online grants management system called Benefactor which has regular security updates.

In recent years, the risk logs, terms and conditions, policies and procedures have been adapted and updated. The risk register is reviewed annually, and policies are reviewed regularly as defined within each policy. A number of new policies were introduced during 2023 and 2024 to ensure that the Institute complies with the expectations of the Charity Commission in relation to the policies that all charities should have. The Institute maintains a 'Register of Interests' for all Governing Body and committee members as well as principal staff and operates a clear "declaration of interests" policy and procedures for all meetings.

The principal risk facing the Institute lies in its ability to maintain and protect the value in real terms of its investments and to generate from them, on a long-term basis, a consistently high overall return. This risk is mitigated by the Institute's appointment of experienced investment managers with a proven track record; by internal controls that allow close and regular monitoring of their performance against benchmarks; by the Institute's requirement of its investment managers to re-tender periodically and competitively for appointment; and by regular meetings that formally review investment performance and policy and include one-to-one presentations by the investment managers.

Investment Policy Statements are in place for the Lister Institute and its investment partners. These are reviewed on an annual basis.

ACTIVITIES, ACHIEVEMENTS AND IMPACT

Objectives and Activities

The statutory Object of the Institute is to further the understanding and progress in preventive medicine by promoting excellence in biomedical research in the UK and Ireland.

When founded in 1891, the Institute sought to achieve this objective by establishing a research institute specialising in the area of infections and their prevention by immunisation and other means. It complemented these research activities by the production and supply of materials such as vaccines and anti-toxins.

The Institute continued in this mode until the late 1970s when increasing financial and regulatory pressures caused the cessation of these activities. Proceeds from the resultant sale of land and buildings created the investment funds from which present-day activities are financed; at 31 December 2024 these funds stood at £44.9M. From the 1980s the Institute has pursued its objective of nurturing future leaders by the provision of grant funding to facilitate the research and careers of high-quality individuals working in areas of biomedicine relevant to preventive medicine. It has done this because it believes that the acquisition and advancement of knowledge is crucial to the understanding of health and disease and that research to achieve this is driven forward by high quality individuals and their supporting staff.

REPORT OF THE GOVERNING BODY (CONTINUED)

Principal Activities

In pursuance of this objective, during 2024 the Institute awarded six new Prize Fellowships. In addition, the Institute has continued its Summer Studentship scheme.

Achievement and Performance

The six Lister Institute Prize Fellowships were awarded in 2024 to Dr Alexander Borodavka (University of Cambridge), Dr Andrew Davidson (University of Glasgow), Dr Sarah Dimeloe (University of Birmingham), Dr Rebecca Drummond (University of Birmingham), Dr Elizabeth Rosser (University College London), Dr Nicola Whiffin (University of Oxford) from an initial field of 72 applicants. They were awarded following extensive scientific review of their applications and final interview by the SC. (More details of the Prize Fellows and their research are provided on pages 4 and 5). Each Prize Fellowship provides £300k to be spent over 5 years with the funds provided to the host institution at the commencement of the award.

The SC has monitored the performance of the current 36 Institute Prize Fellows through review of their annual scientific research reports that includes the progress they are making, as well as all publications and presentations. The SC has reported to Trustees that it is of the view that all Fellows are undertaking high quality research and producing new knowledge that will contribute significantly to our understanding of disease, its causes, treatment and prevention. The reports of the research undertaken by the Lister Summer Students have also been reviewed and found to be satisfactory.

The studentship scheme has enabled a significant number of undergraduates per year to work with Lister Institute Fellows or former Fellows to gain experience of biomedical research with the hope that they might consider it as a career. In 2024, 43 studentships were awarded. Each is a £2,900 student bursary and is paid to the host institution at the commencement of the award for the support of the student for up to a ten-week period.

Public Benefit

The statutory objectives, aims and activities of The Lister Institute of Preventive Medicine are to further understanding in preventive medicine by promoting biomedical research, as set out on page 17 of this Report. The Trustees have considered the Charity Commission's guidance on public benefit, including the guidance 'public benefit: running a charity (PB2)'.

The public benefit of the Institute's grant-making is clearly identifiable in the 'Achievement and Performance' paragraphs above and in the list of Research Prize Fellows together with their areas of research on pages 14 and 15. All Lister Institute Fellows are actively encouraged, where appropriate, to develop their research findings for potential public benefit and the Scientific Committee has regard to this when reviewing their

research reports. The Lister Institute therefore benefits the public or a sector of it without imposing any restrictions. Applications from individuals are accepted only when demonstrably consistent with the charitable objectives of the Institute.

Impact

The impact of the activities of a medical research charity can be measured at many levels ranging from the growth of knowledge to direct patient/public benefit. Often the transition from the former to the latter may take many years and the involvement of several organisations. The Institute requires that the results of the research it supports are published and disseminated; that, where appropriate, significant intellectual property is protected via patents; and that its commercial development is encouraged. Several biotechnology companies have been formed around the findings of Institute-funded research and there are several interactions with large pharmaceutical companies. A prime example of the impact of Lister Institute research is DNA fingerprinting, which was discovered by Professor Sir Alec Jeffreys when a Lister Institute Fellow, and has become an integral part of society, helping to prove innocence or guilt in criminal cases, resolving immigration arguments and clarifying paternity. Other examples include Professor Frances Platt's research which she started as a Lister Fellow and in collaboration with Dr Terry Butters, has led to the development of the approved drug miglustat (Zavesca®) for glycosphingolipid storage disease therapy. Professor Michael Eddleston's research, initially funded by the Lister Institute on the effects of pesticide poisoning and the use of these chemicals for suicide in countries such as Sri Lanka and Bangladesh. His work has led to international regulation of these pesticides. More recent examples include Professor Rebecca Fitzgerald developed the cytosponge – the sponge on a string – which has proved to be effective in detecting and diagnosing a condition that can lead to oesophageal cancer. It has recently been trialled by the NHS and has reduced the need for invasive endoscopy in thousands of low-risk patients. Professor Simon Draper has developed a new malaria vaccine that has been shown to offer effective protection against the blood stage of the disease – the first inoculation to do so

In the last ten years we have awarded 57 Lister prizes helping the careers of 57 excellent young scientists and clinicians at pivotal stages of their research careers. In the last five years we have also awarded 167 summer studentships which will hopefully have encouraged many students to take up careers in research.

ENVIRONMENT, SOCIAL AND GOVERNANCE (ESG) AND EQUALITY DIVERSITY AND INCLUSION (EDI) REVIEW

Environment Overview

The Lister Institute is a small organisation with a small environmental impact. It has no buildings and all staff work from home. Essential meetings, such as the Annual Fellows Meeting are held in person, with travel by public transport encouraged. Other meetings are held online or in person as needed.

Social Overview

Through the biomedical research that it funds, the Lister Institute has a beneficial impact on society through direct patient and public benefit e.g. new treatments and diagnostics as well as through the expansion of knowledge and understanding. It also aims to support the careers of talented young researchers and to give opportunities to students interested in pursuing careers in research. For the Lister Institute to be successful it is essential that it attracts and retains skilled and talented people. It does this by creating an inclusive working environment where people can be themselves, treating everyone fairly with dignity and respect. We are committed to fairness in our remuneration packages and supporting flexibility at work. Pensions continue to be paid to a small number of former employees.

Equality, Diversity and Inclusion (EDI) Overview

We value and embrace EDI aim to achieve equality, diversity and inclusiveness across the Lister Institute – in our Prize Fellows, our committee members and our staff. Membership of committees is considered annually, and equality and diversity are always considered as part of that process. While EDI is our aim, we recognise that we still have work to do achieve it. We aspire to having an equal gender balance across the Lister Institute. Currently the gender balance in the organisation is as follows: GB 39% female: 61% male; SC 46% female: 54% male; current fellows 39% female: 61% male; staff 80% female: 20% male. The gender balance at all stages of our application process is monitored and steps are made to address any aspects of the process that may affect the gender balance, though ultimately the highest quality candidates are selected. The 2024 Prize winners were 67% female and 33% male. The Institute aspires to achieve greater ethnic diversity consistent with the demographics of the UK general population (broadly 82% white, 18% ethnic minority) and in 2022 we started to collect data to assess our performance. Our 2024 Prize winners are all from a white background although 11% of applicants were from minority ethnic backgrounds. We have made some improvement to the diversity of the GB (now 7.3% from an ethnic minority background) but recognise that further improvements can be made as members retire and we make new appointments. The SC has become less diverse since last year (down to 7.7% from an ethnic minority background) and this will be a focus as new appointments are made.

FINANCIAL REVIEW

Investment Policy and Performance

The Institute's investment objective is to develop and maintain its financial resources in real terms through the selection of investments, consistent with an acceptable level of risk.

The Institute's investment portfolio is split between Cazenove Capital Management and Partners Capital LLP who both operate under mandates agreed in advance with the Finance and Investment Committee. These mandates set out an overall target asset allocation with allowable ranges for each category of asset.

Both investment managers invest through a variety of pooled funds and in accordance with the Institute's overarching "Investment Policy Statement" ("IPS"), which states the overall investment objective and sets the investment return objectives, the risk parameters, the performance measures and review procedures for the portfolio. The Institute's IPS was reviewed and revised as part of the quinquennial review of investment managers with specific versions agreed for each of the investment managers to reflect their individual investment approaches. The IPS's are reviewed annually. Every year the Institute reiterates its likely cash requirements, both in terms of the amount and the timing of any withdrawal.

The Lister Institute's ESG investment policy continues to be a focus for the FIC. The policy attempts to balance the potential investment reward available from the widest possible universe of holdings, while limiting and/or monitoring investment in areas that might be in conflict with the Institute's purposes. For instance, the Institute's IPS does not permit direct investment in tobacco or tobacco-related companies. Our holdings in other contentious investments are monitored to ensure we are aware and comfortable with the resultant exposures, ultimately with a view to their reduction. Our portfolio with Cazenove has a 3.8% indirect exposure to areas of common charity concern at the equity level. This is down a little from 4.4% last year. Our portfolio from Partners Capital has 1.6% exposure to sensitive sectors, up from 1.1% in 2024. It has been agreed that our focus will remain on balancing ethical investments and returns, although the Lister's stance on ESG will be kept under close review.

The Institute's overall financial return objective is to preserve and, if possible, enhance the purchasing power of its portfolio assets, net of costs and approved withdrawals, over rolling five-year periods. This goal is synonymous with the pursuit of a time-weighted net return on portfolio assets that equals and, if possible, exceeds cost inflation as measured by the UK Consumer Price Index and covers the Institute's long-term spending rate of 5-6% measured over corresponding five-year periods.

The performance of the investment portfolio is reviewed by the Finance and Investment Committee, which held two meetings in the year with the investment advisors to review performance, liquidity within the portfolio etc. In addition, the Institute receives detailed quarterly valuation and

REPORT OF THE GOVERNING BODY (CONTINUED)

transaction reports. 2024 was a good year for the market and resulted in the Lister Portfolio increasing by £1.8M to £44.9M at the end of 2024.

The FIC remains satisfied with the performance of the aggregate investment portfolio, and the manner in which it is being invested by the underlying managers.

A decision, taken in 2015 (and ratified in subsequent years), to withdraw and place £5m in a Liquidity Account was based both on the recent strong growth of the portfolio but also concerns about future market volatility and performance. As a result of the Investment Managers Review at the beginning of 2022 a proportion of this £5M was invested in a 'absolute return minded' fund - Ruffer Charitable Assets Trust that will hopefully help protect against the worst effects of inflation. This decision was aimed to ensure that six Prize Fellowships can be awarded for at least three years from 2023.

The liquidity B portfolio was used in 2022 to fund the Prize Fellowships; however, by February 2023 some markets had rebounded to all-time highs and the much publicised, impending recession had not happened. As a result, FIC made the decision to partially replenish the liquidity portfolio (by £750K or 50%) and its current value stands at £3.8m.

More details of the Institute's activities are set out in the Chairman's Report on pages 2 to 13.

Allocation of Resources

The Institute, which does not seek to raise funds from the public, depends primarily on investment returns to meet its pension payments, administrative expenditure and expenditure in furtherance of the Charity's objectives. The total return on investments for the year was a gain of £3.105M and investment income of £1.006M.

Expenditure totalled £2.404M of which £2M were resources expended for the Institute's charitable activities.

The Prize Fellowships are fixed sum awards and, therefore, expenditure can be regulated by altering the number and/or value of prizes awarded each year. In 2024, prizes were awarded to six very strong candidates.

Payments are currently made to three pensioners who are previous employees of the Lister Institute. The Institute's unfunded pension liability is estimated as £142K at reporting date. Given the value and nature of our investments, we do not believe pension funding to be a concern.

Reserves policy

At 31 December 2024 the Institute has total reserves of £44.9 million all of which are unrestricted. A majority of the Institute's investments are listed. The Trustees regard the liquid B portfolio as a free reserve which, if necessary, would cover two years net future expenditure. The Value of liquid portfolio at reporting date was £3.8 million.

The policy of the Trustees is to maintain adequate financial resources to provide income to meet current and future commitments as they fall due and ensure that adequate funds remain available to enable them to make awards in perpetuity.

The adequacy of the level of reserves and the continuing appropriateness of the policy are reviewed on an annual basis by the Trustees. They continue to endorse the policy and its ability to support the long-term viability of the Institute. Although the Institute is not formally committed to awarding any Prizes beyond the current year, the trustees are confident in the ability of the Institute to maintain appropriate levels of activity.

Financial Overview



Murray Legg, Treasurer

In 2024, the GB having reviewed historical records, looked at the impacts of inflation on scientific research costs, the Institute's healthy investment position and views of fellows, decided to increase the value of the Lister Prizes from £250k or £300k. This is the first time they had been increased since 2018.

Our two investment managers, Cazenove and Partners Capital have managed our portfolio with our investments having a valuation (after withdrawal of £2.1M from the main portfolios for the prize Fellowships and Lister operations) of £44.9M, at December 2024, up from £43.1M at the end of 2023. While financial returns for 2024 were positive, the geo-political and macro-economic situation remains volatile. The FIC will, therefore, continue to monitor closely our portfolio and there will continue to be careful consideration of the numbers and levels of Fellowships and studentships and if and when the liquidity reserve fund (B portfolio) should be further replenished.

Six prizes were awarded at £300K instead of the originally budgeted value of £250K, but in other areas all expenditure has generally been in line with the agreed 2024 budget. With six Fellowships being awarded at £300K each, 126K spent on studentships and operational costs being £247K the total expenditure for the Lister institute in 2024, excluding investment manager fees, was £2.173M.

	£K
Prize Fellowships and Studentships	1,926
Investment managers fees	231
Staff and operational costs	247
TOTAL	2,404

The Lister Institute remains indebted to our all the members of the FIC, and we would like to thank them all for their scrutiny of the Institute's finances and the rigorous questioning of our current investment advisors, Partners Capital LLP and Cazenove Capital Management. We are particularly grateful to Murray Legg for his contribution as Treasurer and chair of the FIC.

Plans for the future

The Institute's future policy is to continue to pursue its current objectives. It will therefore maintain and look to increase the Prize Fellowship scheme, which it sees as a funding priority. In wishing to continue to support young researchers through the on-going challenges in the research environment, the Governing Body has agreed that the Scientific Committee may award around 6 Lister Prizes in 2025 but could recommend more if there are sufficient high-quality candidates. The Lister Summer Studentship scheme will also be increased when possible.

Trustee Responsibilities Statement

The Trustees (who are also directors of The Lister Institute of Preventive Medicine for the purposes of company law) are responsible for preparing the Trustees' Annual Report and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Trustees to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company, and of the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period. In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgments and estimates that are reasonable and prudent;

- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis, unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

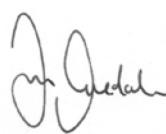
In so far as the Trustees are aware:

1. there is no relevant audit information of which the charitable company's auditor is unaware; and
2. the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

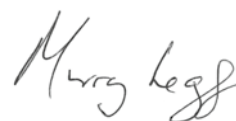
The Trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

This Trustees' report has been prepared in accordance with the special provisions of Part 15 of the Companies Act 2006 relating to small companies.

By Order of the Governing Body and signed on its behalf
on 13th August 2025



JOHN IREDALE
Chairman, 13th August 2025



MURRAY LEGG
Treasurer, 13th August 2025

INDEPENDENT AUDITOR'S REPORT

*to the Members of the Lister Institute
of Preventive Medicine for the year ended
31 December 2024*

Opinion

We have audited the financial statements of The Lister Institute of Preventive Medicine ('the charitable company') for the year ended 31 December 2024 which comprise the Statement of Financial Activities (including the Summary Income and Expenditure Account), the Balance Sheet, the Cash Flow Statement and notes to the financial statements, including significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 'The Financial Reporting Standard Applicable in the UK and Republic of Ireland' (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company's affairs as at 31 December 2024 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the Trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the Trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The Trustees are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees' annual report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the Trustees' annual report has been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees' annual report.

We have nothing to report in respect of the following matters where The Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of Trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit; or
- the Trustees were not entitled to prepare the financial statements in accordance with the small companies' regime and take advantage of the small companies' exemption in preparing the Trustees' annual report and from preparing a strategic report.

Responsibilities of Trustees

As explained more fully in the Trustees' responsibilities statement set out on page 10, the Trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustees are responsible for assessing the charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so

Auditor's Responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs (UK) we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purposes of expressing an opinion on the effectiveness of the charitable company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Trustees.

INDEPENDENT AUDITOR'S REPORT (CONTINUED)

- Conclude on the appropriateness of the Trustees' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the charitable company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the charitable company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

The objectives of our audit in respect of fraud, are; to identify and assess the risks of material misstatement of the financial statements due to fraud; to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate responses to those assessed risks; and to respond appropriately to instances of fraud or suspected fraud identified during the audit. However, the primary responsibility for the prevention and detection of fraud rests with both management and those charged with governance of the charitable company.

Our approach was as follows:

- We obtained an understanding of the legal and regulatory requirements applicable to the charitable company and considered that the most significant are [the Companies Act 2006, the Charities Act 2011, the Charity SORP, and UK financial reporting standards as issued by the Financial Reporting Council.

- We obtained an understanding of how the charitable company complies with these requirements by discussions with management and those charged with governance.
- We assessed the risk of material misstatement of the financial statements, including the risk of material misstatement due to fraud and how it might occur, by holding discussions with management and those charged with governance.
- We inquired of management and those charged with governance as to any known instances of non-compliance or suspected non-compliance with laws and regulations.
- Based on this understanding, we designed specific appropriate audit procedures to identify instances of non-compliance with laws and regulations. This included making enquiries of management and those charged with governance and obtaining additional corroborative evidence as required.

There are inherent limitations in the audit procedures described above. We are less likely to become aware of instances of non-compliance with laws and regulations that are not closely related to events and transactions reflected in the financial statements. Also, the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion.

Use of our report

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to any party other than the charitable company and charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

JONATHAN AIKENS (Senior Statutory Auditor)

for and on behalf of Moore Kingston Smith LLP, *Statutory Auditor*

9 Appold Street
London EC2A 2AP

22nd August 2025

STATEMENT OF FINANCIAL ACTIVITIES

for the year ended 31 December 2024

	Notes	2024	2023
		£'000	£'000
Income from:			
Investments	2	1,026	679
Total income		1,026	679
Expenditure on:			
Cost of raising funds			
Investment management costs	3	(231)	(168)
Charitable Activities			
Prizes and Summer Studentships	5	(2,173)	(1,840)
Total expenditure		(2,404)	(2,007)
Net gains on investments	8	3,105	1,221
Net Surplus / (deficit)		1,727	(107)
Other recognised losses			
Actuarial loss on defined benefit schemes	12	(22)	(20)
Net movement in funds		1,705	(127)
Reconciliation of funds:			
Total funds brought forward		43,148	43,275
Net Movement for the Year		1,705	(127)
Total funds carried forward		44,853	43,148

All items in the above Statement of Financial Activities relate to continuing operations for both years.
The Institute has no other recognised gains and losses other than as stated above and hence no separate income and expenditure statement has been shown.

The notes set out on pages 28 to 32 form part of these financial statements.

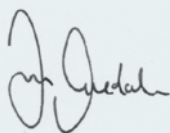
BALANCE SHEET

as at 31 December 2024 Company no: 34479

	Notes	2024	2023
		£'000	£'000
Fixed assets			
Investments	8	44,903	43,101
Total fixed assets		44,903	43,101
Current assets			
Debtors	9	6	6
Cash at bank and in hand	10	169	248
Total current assets		175	254
Current liabilities			
Creditors: amounts falling due within one year	11	(83)	(65)
Net current assets		92	189
Total assets less current liabilities		44,995	43,290
Creditors: amounts falling due after more than one year			
Pension provision	12	(142)	(142)
Net assets		44,853	43,148
Represented by			
Unrestricted funds		44,853	43,148
Total charity funds		44,853	43,148

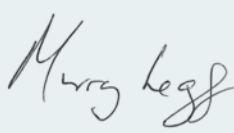
These accounts have been prepared in accordance with the special provision of Part 15 of the Companies Act 2006 relating to small companies and in accordance with the Financial Reporting Standard 102.

These financial statements were approved by the Governing Body on **30th April 2025**



JOHN IREDALE
Chairman

13th August 2025



MURRAY LEGG
Treasurer

13th August 2025

The notes set out on pages 28 to 32 form part of these financial statements.

STATEMENT OF CASHFLOW

for the year ended 31 December 2024

	2024	2023
	£'000	£'000
Cash flows from operating activities		
Net cash (used in) operating activities	(2,407)	(2,012)
Cash flow from investing activities		
Investment income	1,026	679
Proceeds from disposal of fixed asset investments	11,352	10,986
Acquisition of fixed asset investments	(9,757)	(11,395)
Other movements on investments	(293)	1,823
Net cash provided from investing activities	2,328	2,093
Net (decrease)/increase in cash	(79)	81
Cash and cash equivalents at beginning of year	248	167
Cash and cash equivalents at end of year	169	248
Reconciliation of net income to net cash flow from operating activities		
	2024	2023
	£'000	£'000
Net Income /(Expenditure)	1,705	(127)
Adjustments for		
Net gains on investments	(3,105)	(1,221)
Investment Income	(1,026)	(679)
Increase in creditors	19	15
Net cash (used in) operating activities	(2,407)	(2,012)

NOTES TO THE FINANCIAL STATEMENTS

for the year ended 31 December 2024

1 PRINCIPAL ACCOUNTING POLICIES

Basis of preparation

The Financial Statements have been prepared in accordance with the Statement of Recommended Practice, Accounting and Reporting by Charities (FRS102 SORP). The Financial Statements are prepared in accordance with the historical cost convention modified by the revaluation of investments. The charity is a Public Benefit Entity as defined by FRS102.

The Financial Statements are prepared in sterling which is the functional currency of the Charity. Monetary amounts in these Financial Statements are rounded to the nearest thousand pounds.

The principal accounting policies adopted in the preparation of the Financial Statements are as follows:

Income

All incoming resources are accounted for on a receivable basis

Prizes and summer studentships

The cost of Research Prize Fellowships is charged in the year awarded.

Expenditure

The costs of raising funds include those fees payable to the Institute's investment fund managers for the management of the Institute's investment portfolio. These are accounted for on an accruals basis.

Charitable activities comprise all expenditure directly relating to the objects of the charity and are accounted for on an accruals basis. The allocation of expenditure between governance and management, administration and support costs is reviewed on an annual basis to ensure the allocation is appropriate. Indirect costs are generally treated as falling into the latter category with the exception of a proportion of salary and related costs, which have been classified as governance costs.

In addition to auditor's remuneration, governance costs comprise the proportion of staff costs associated with the time spent on the preparation of the statutory accounts and other governance issues, together with honoraria remuneration provided to members of the Institute's Scientific Committee for their duties in selecting the Prize Fellows.

Supplementary pensions and staff pensions

An estimate of the full provision is made in the Financial Statements for the costs of future supplementary payments. The provision and charge to income are reviewed annually by the Trustees in the knowledge that the number of persons receiving the supplementary pensions will not increase. The pension costs are assessed in accordance with actuarial advice and these costs are accounted for in accordance with FRS102 SORP.

Existing employees participate in a defined contribution scheme, the costs of which are expensed as incurred. These disclosures are made in accordance with FRS102 SORP.

Tangible Fixed Assets

Any capital items purchased under £1k in value are expensed in the accounts in full as incurred. The Charity has no tangible fixed assets.

Investments

Investments are shown at market value in the balance sheet. Changes in the market value are included in the Statement of Financial Activities as realised and unrealised investment gains or losses in the year in which they arise. Investments denominated in foreign currencies are valued at year-end rates of exchange.

Cash flow statement

The Charity has included a cash flow statement in accordance with FRS102 SORP.

Taxation

The organisation is a registered charity and has obtained exemptions from taxation under Part 11, Chapter 3 of the Corporation Tax Act 2010. This exemption will remain as long as income is compatible with that section and expenditure is applied to charitable purposes only.

Critical accounting estimates and areas of judgement

In preparing financial statements it is necessary to make certain judgements, estimates and assumptions that affect the amounts recognised in the financial statements. The Trustees consider the estimates involved in the valuation of investments to have most significant effect on amounts recognised in the financial statements. These are taken directly from Investment Managers' reports.

In addition, the company has an obligation to pay pension benefits to certain former employees. The cost of these benefits and the present value of the obligation depend on a number of factors including: life expectancy, salary increases, asset valuations and the discount rate on corporate bonds. Management estimates these factors in determining the net pension obligation in the balance sheet. The assumptions reflect historical experience and current trends. See Note 12 for the disclosures relating to the defined benefit pension scheme.

Going Concern

The Trustees have assessed whether the use of the going concern basis is appropriate and have considered possible events or conditions that might cast significant doubt on the ability of the charity to continue as a going concern. The Trustees have made this assessment for a period of at least one year from the date of approval of the financial statements. In making this assessment the Trustees are satisfied that the substantial reserves and liquid assets held by the Lister Institute

1 PRINCIPAL ACCOUNTING POLICIES continued

justify their belief that there are no material uncertainties that cast significant doubt on the charity's ability to continue as a going concern. The charity therefore continues to adopt the going concern basis in preparing its financial statements.

Financial instruments

The company has elected to apply the provisions of Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instruments Issues' of FRS 102 to all of its financial instruments. Financial instruments are recognised in the company's balance sheet when the company becomes party to the contractual provisions of the instrument. Financial assets and liabilities are offset, with the net amounts presented in the financial

statements, when there is a legally enforceable right to set off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

With the exceptions of prepayments and deferred income all other debtor and creditor balances are considered to be basic financial instruments under FRS 102. See notes 9 and 11 for the debtor and creditor notes.

Fund accounting

Unrestricted funds are available for use at the discretion of the Trustees in furtherance of the general objectives of the Institute. Restricted funds are funds available subject to specific restrictions imposed by donors.

2 INVESTMENT INCOME

	2024	2023
	£'000	£'000
Income from fixed asset investments	1,006	658
Bank interest receivable	20	21
	1,026	679

3 INVESTMENT MANAGEMENT COSTS

	2024	2023
	£'000	£'000
Partners Capital LLP	138	79
Cazenove Capital Management	93	89
Total investment management fees	231	168

4 GOVERNING BODY AND STAFF COSTS

Emoluments of members of the Governing Body

One member of the Governing Body received an emolument of £2,000 in respect of services to the Institute during the year (see Scientific Committee below) (2023: £2,000). Travel expenses of £1,923 were paid relating to the claims of eight members in connection with their attendance at meetings (2023: £2,728 received by 7 members).

Members of the Scientific Committee (the chair of which is also a member of the Governing Body) are offered remuneration in relation to their services to the committee. The SAC members (none of whom are members of the Governing Body) were paid £1,000 (2023: £1,000). The majority of members asked for the honorarium to be paid to their employing institution.

Employee Information

The average number of persons employed by the Institute during the year was 4, (2023: 4) four of whom are part-time (2023: 2). All staff were employed in an administrative and support capacity. No employees earn over £60,000 p.a. (2023: none).

Key management personnel include the Trustees and the Director. The total employee benefits of the charity's key management personnel were £48,023 (2023: £49,862).

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

Staff costs	2024	2023
	£'000	£'000
Gross salaries	117	114
Pension contributions	3	5
Employer's national insurance	8	7
	128	126

The salary costs are allocated under governance where related to statutory accounts preparation, the balance being reported within charitable activities.

5 PRIZES & SUMMER STUDENTSHIPS

	2024	2023
	£'000	£'000
Prize awards	1,800	1,500
Summer studentship payments	126	99
Support costs (see note 6)	91	90
Staff costs (see note 4)	113	110
Governance costs (see note 7)	43	41
	2,173	1,840

6 SUPPORT COSTS

	2024	2023
	£'000	£'000
Office expenses	30	25
Travel expenses	7	9
Professional fees	10	10
Honoraria and events	38	40
Pension costs (see note 12)	6	6
	91	90

These costs are all considered to be costs to support resources expended on charitable activities.

7 GOVERNANCE COSTS

	2024	2023
	£'000	£'000
Auditor's remuneration - current year	18	16
Staff costs (see Note 5)	15	16
Honoraria and events	10	9
	43	41

No non-audit services were provided by the auditors during the year (2023: none).

Auditors remuneration includes fees for the year totalling £14,950 excluding VAT. (2023: £13,775).

8 INVESTMENTS

Listed investments are valued at middle market quotations ruling at the year-end

	2024	2023
	£'000	£'000
Market value at beginning of year	43,101	43,294
Purchases during the year at cost	9,757	11,395
Proceeds of sales during the year	(11,352)	(10,986)
Reinvested income for the year	1,006	658
Movement in un-invested cash	1,386	(581)
Cash withdrawn	(2,100)	(1,900)
Net change in market value	3,105	1,221
Market value at year-end	44,903	43,101

The portfolio's asset allocation was as follows

UK investments

Equities	1,471	1,387
Fixed interest	2,600	2,785
Other (including private equity, property, commodities, alternatives and inflation linked bonds)	3,727	4,543
Cash	4,429	4,172
Total UK investments	12,227	12,887

Non-UK investments

Equities	28,156	25,213
Other (including private equity, property, commodities and alternatives)	4,520	5,001
Total Non-UK investments	32,676	30,214
Total	44,903	43,101

Historical cost related to the closing position of 2024 was £34.5 m (2023: £33.9m).

The Institute's investments held by one custodian are charged as security for the Institute's ongoing financial obligations to that custodian for banking services related to those investments.

9 DEBTORS

	2024	2023
	£'000	£'000
Prepayments	6	6
Total	6	6

10 CASH

	2024	2023
	£'000	£'000
Cash at bank	169	248

11 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2024	2023
	£'000	£'000
Taxation and social security	5	5
Accruals	78	60
Total creditors falling due within one year	83	65

12 PROVISION FOR LIABILITIES AND CHARGES

This represents a provision for future supplementary pension payments in respect of ex-employees, based on their salary and length of service. The pensions are unfunded, with payments made out of the Institute's funds as they fall due.

Movements in the pension provision during the year were as below 3

	2024	2023
	£'000	£'000
Liability at beginning of period	142	142
Plus interest cost	6	6
Plus actuarial losses	20	20
Benefits paid	(26)	(26)
Liability at end of period	142	142

The tables below state the FRS102 actuarial assumptions used to estimate the pension provision.

Principal actuarial assumptions Valuation at 31 December 2024

	2024	2023
Rate of increase to pensions in payment*	5%	5%
Rate used to discount scheme liabilities	4.5%	4.5%

The post-retirement mortality assumption uses the PCA00 base tables (year of birth) with improvements equal to medium cohort with a 1% minimum.

* The 2025 Pension increase is forecasted at 4%

13 RELATED PARTY TRANSACTIONS

There were no related party transactions in the year, other than those outlined in note 4 (2023: none).

14 MEMBERS' LIABILITY

The liability of the Members of the institute is limited to 50p. At the date of the financial statements, there were 243 members, each with a guarantee potential of 50p.

LEGAL AND ADMINISTRATIVE INFORMATION

for the year ended 31 December 2024

Business Address

PO Box 2502
Watford
WD18 1AE

Solicitors

Macfarlanes
20 Cursitor Street
London EC4A 1LT

Bankers

Messrs Coutts & Co
St Martins Office
440 Strand
London WC2R 0QS

Auditor

Moore Kingston Smith LLP
9 Appold Street
London EC2A 2AP

Registered Office

Macfarlanes
10 Norwich Street
London EC4A 1BD

Investment Advisors

Cazenove Capital Management
1 London Wall Place
London EC2Y 5AU

Partners Capital LLP

5 Young Street
London W8 5EH

Website: www.lister-institute.org.uk

Telephone: 0203 532 5345

The Lister Institute of Preventive Medicine is a company limited by guarantee (England 34479) and is a registered charity (206271)

Image: *Rhizopus arrhizus* hyphae and spores. Blue indicates chitin cell wall in ungerminated spores. Orange indicates cell wall antigen bound by diagnostic antibody TG11 along the hyphae. Credit Alyssa Hudson.

THE GOVERNING BODY

Professor Sir John Iredale, BM (Hons), DM, FRCP (Lond), FRCP (Ed), FMedSci, FRSE, MAE, *Chairman*
Mr Murray Legg, BSc, FCA, *Hon Treasurer*
Professor Judith Armitage, BSc, PhD, FRS (*Retired September 2024*)
Professor Wendy Bickmore, CBE, BA, PhD, FMedSci, FRS, FRSE (*Retired September 2024*)
Professor Sir Adrian P Bird, CBE, FRS, FRSE
Professor Julian Blow, PhD, FRSE, *Chair Scientific Committee*
Professor Rebecca Fitzgerald, OBE, MACantab, MD, FMedSci
Hon Rory M B Guinness, BA, MSc, FCIM
Professor Muzlifah Haniffa, FMedSci (*Elected September 2024*)
Professor Douglas Higgs, MBBS, MRCPATH, DSc, FRCP, FRCPath, FRS
Professor Sir Alec J Jeffreys, CH, DPhil, FMedSci, FRS
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA (*Retired September 2024*)
Professor Dame Pamela Shaw, DBE MBBS MD FRCP FMEDSCI FAAN FANA FAAAS
Mrs Jennifer Smithson, BA
Professor Rosalind Smyth, CBE, FMedSci

THE FINANCE AND INVESTMENT COMMITTEE

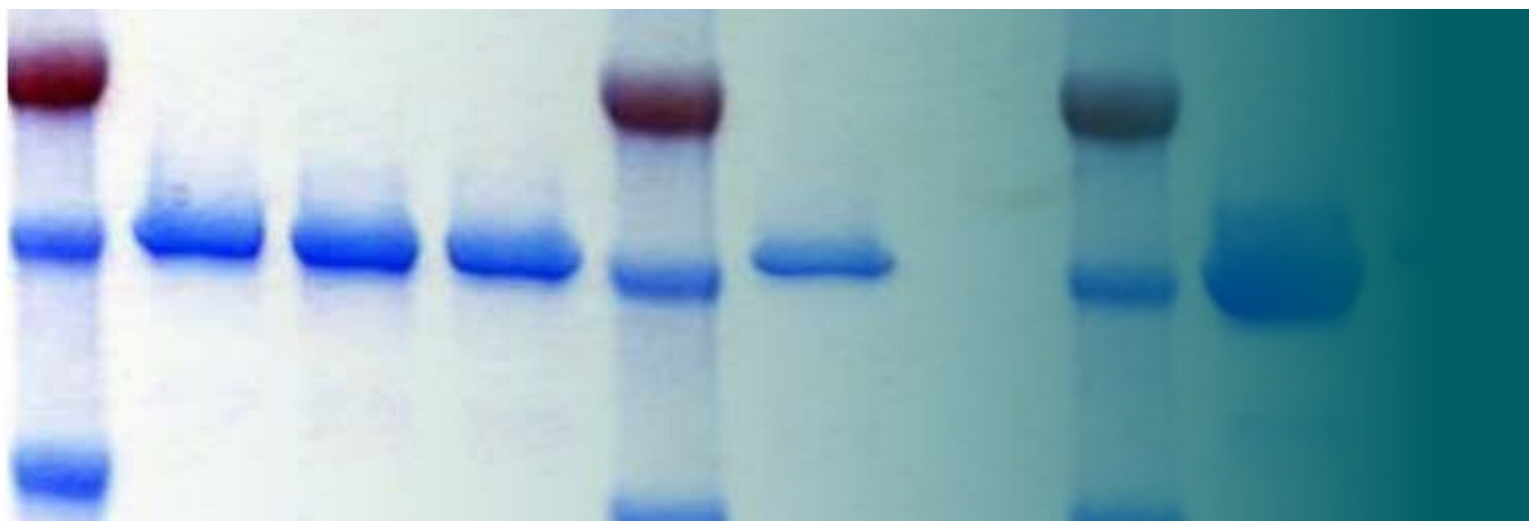
Mr Murray Legg, BSc, FCA, *Hon Treasurer, Chair*
Professor Judith Armitage, BSc, PhD, FRS (*Retired September 2024*)
Hon Rory M B Guinness, BA, MSc, FCIM
Professor Sir John Iredale, BM (Hons), DM, FRCP (Lond), FRCP (Ed), FMedSci, FRSE, MAE
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA (*Retired September 2024*)
Mrs Jenny Smithson, BA
Professor Rosalind Smyth, CBE, FMedSci

THE SCIENTIFIC COMMITTEE

Professor Julian Blow, PhD, FRSE, *Chair*
Professor Judi Allen, MPH, PhD, FRSE, FRSB, FMedSci (*Retired September 2024*)
Professor Tom J Evans, MA, PhD, MBBChir, FRCP
Professor Muzlifah Haniffa, FMedSci (*Retired September 2024*)
Professor Ewen M Harrison OBE, MB ChB, MSc, PhD, FRCS, FRSE, FMedSci
Professor Aroon Hingorani, MA, PhD, FRCP
Professor Clare M Isacke, DPhil, FMedSci
Professor Yvonne Jones, FRS, FMedSci, FLSW
Professor Angus Lamond, FRS, FRSE, FMedSci
Professor Belinda Lennox, DM, FRCPsych
Professor Iain B McInnes, CBE, PhD, FRCP, FRSE, FMedSci
Professor Cliona O'Farrelly PhD
Professor Inga Prokopenko, MSc, PhD
Professor Anne Rosser, PhD, FRCP
Professor Daniel St Johnston, FRS, FMedSci

SENIOR MANAGEMENT

Director and Secretary: Dr Sally Burtles, BSc, PhD



Accounts

ANNUAL REPORT AND FINANCIAL STATEMENTS

for the year ended 31 December

2023

A photograph of a male scientist with dark hair and glasses, wearing a white lab coat and blue gloves. He is using a pipette to transfer liquid into a small vial. The background shows a laboratory setting with various equipment and supplies.

*Nurturing the future leaders
in biomedical research*

The Lister Institute of Preventive Medicine

The Institute was founded in 1891 and for the next 85 years played a vital role in the development of the laboratory aspects of preventive medicine as an independent research institute in the UK. Since the 1980s the Lister Institute has been a highly successful charity awarding prestigious research fellowships, which in 2003, were revised to become Prize Fellowships. The Fellowships continue to deliver the Lister Institute's strategic aim of nurturing the future leaders in biomedical research.

Over its history and up to the present day the Lister Institute research staff and fellows have made discoveries that have made significant impacts on human health. Some examples are:

- Dr Dame Harriet Chick discovered that a deficiency of vitamin D was the cause of rickets, making it easily preventable.
- Several researchers were involved in research into blood groups thus making blood transfusion safe.
- Professor Leslie Collier found a way to produce a form of smallpox vaccine storable at warm temperatures so it could be used all over the world and ultimately led to the eradication of smallpox.
- Professor Sir Alec Jeffreys discovered DNA fingerprinting for use in solving crimes and paternity cases.
- Professor Fran Platt developed the drug Miglustat which is a treatment for the lysosomal storage disorder Niemann-Pick disease type C (NP-C), a rare but devastating multi-system disorder.
- Professor Michael Eddleston's work has had a profound impact on WHO policies regarding world pesticide-related poisoning avoidance and treatment. Resultant changes in clinical practice and pesticide regulation have saved thousands of lives.
- Professor Rebecca Fitzgerald's innovative technique, Cytosponge, helps clinicians assess patients for Barrett's oesophagus, a condition that can be a precursor to oesophageal cancer. Early detection is vital, allowing the condition to be treated before it progresses to the cancer stage.

Our current fellows continue to make discoveries that will impact our health and medicine in the future.

CHAIRMAN'S INTRODUCTION

for the year ended 31 December 2023

I am pleased to present the Lister Institute of Preventive Medicine Annual Report for 2023 on behalf of the Governing Body.

I am delighted that 2023, my first year as chair of the Institute, was a good year. It awarded six Lister Prizes of £250,000, gave 39 studentships and held a fantastic Annual Meeting in Oxford.

Our Fellows and former Fellows continue to conduct excellent research, publish in high impact journals and to win awards and recognition for their work. This year, particular congratulations must be given to Professors Madan Babu and Judi Allen (Scientific Committee member) who were made Fellows of the Royal Society; and Professors Muzlifah Haniffa and Tom Baden who were elected members of EMBO. Congratulations must also be given to one of our former Fellows and Trustees: Professor Rebecca Fitzgerald who was awarded an OBE for services to cancer. Her research is focused on developing new ways to detect oesophageal cancer early and she has



Congratulations must be given to Professor Sir John Iredale, our Chairman who was awarded a knighthood for services to medical research in the New Year's Honours list.

led pioneering advances in research and technological innovation to detect cancer earlier to improve outcomes for cancer patients.

We held a very successful annual meeting at Corpus Christi College in Oxford. We had prize winners from 2020, 2022 and 2023 speaking as well as very inspirational talks from former Fellows, Professor Simon Bullock, Professor Robin May, Scientific Committee Member, Professor Judi Allen, and Governing Body member, Professor Pam Shaw.

I, with the help of Professor Sir Alex Markham and Dr Sally Burtles undertook visits to recent Fellows in their home institutions. I must give my thanks to Alex for his support in enabling all the visits to happen. This year we visited 9 fellows in 9 different institutions: Dr Rebecca Lawson (Cambridge), Dr David Bending (Birmingham), Dr Amanda Chaplin (Leicester), Dr Shoba Amarnath (Newcastle), Dr Anthony Khawaja (UCL), Dr Marco Di Antonio (Imperial), Dr James Davies (Oxford), Dr Tung Le (Norwich) and Dr Elizabeth Ballou (Exeter). It is always excellent to hear the Fellows present their research and for us to be able to tell their colleagues about the Lister Institute. On behalf of Professor Sir Alex Markham and Dr Sally Burtles I would like to express our thanks for their excellent hospitality and ongoing support.

I would like to thank Professor Julian Blow and all the members of the Scientific Committee ('SC') for their extremely hard work in reviewing the applications and identifying the Lister Prize Fellows. As a past member and Chair of the SC I know how much work it is for both the Committee to review the applications and the staff to secure external reviewers for those that are long-listed. The final interviews were conducted in person at the Royal Society with the candidate's giving presentations and being subject to intense questioning before the Prize winners were selected.

I would also like to thank the members of the Governing Body and the Finance and Investment Committee (FIC) for all their hard work and support throughout the year and meeting the challenges of managing our investments through testing times.

Financial markets remained volatile in 2023 with continued concerns about inflation, the cost of living and the wars in Ukraine and Gaza. Through this, our investment managers continued to do a good job of managing our investments. The valuation of our investments on 31 December 2023 (after withdrawal of the funds for the Prize Fellowships and our operational costs) was £43.1M, very slightly down from £43.3M in 2022.

The research environment is particularly challenging especially for young researchers. The Lister Institute Prizes of £250,000 provide an excellent opportunity to make a significant and positive impact on the research and careers of those who win them and ensures we deliver on our stated aim of 'nurturing the future leaders in biomedical research'.

I must end by thanking the team – Sally Burtles, Nicola King, Dina Almulu and Sue Andrews – for making the Lister Institute operate so smoothly on a day-to-day basis. Dina Almulu has done an excellent job as Operations Manager while Nicola King has been on maternity leave.

The Lister Institute is a strong organisation and that is because of the people associated with it – our Fellows, the members of the Governing Body and its sub-committees, the Membership of the Institute and our staff. To all I offer my sincerest and warmest appreciation.

Professor Sir John Iredale, Chairman

2023 LISTER RESEARCH PRIZE FELLOWSHIP WINNERS

The six individuals to whom we awarded the Lister Prize Fellowships are as follows:

This year, as ever, our Fellows represent a wide range of research areas. Their work contributes to a greater understanding of disease and pathogens the body's healing mechanisms and supporting the development of new therapeutic approaches.



Dr John Knight,
University of Manchester
Harnessing the divergent roles of elongation dependency for cancer therapy

Translation elongation turns the genetic code into functional protein, but also uses a vast amount of energy. John has helped build a model where two types of elongation dependency arise in disease. Class 1 dependencies increase the rate of elongation to elevate protein synthesis. Class 2 dependencies suppress elongation to preserve energy. Using cancers with different dependencies, his group studies the underlying biology of elongation-dependent disease. They are also identifying new druggable elongation regulators to precisely target elongation dysregulation in disease.



Dr Joana Neves,
King's College London
Regulation of Innate lymphoid cell differentiation & function in intestinal health and disease

Joana's research group aims to understand how the various cellular compartments of the gut, including immune, epithelial, stromal, microbial, and neural cells, communicate with each other. Their objective is to direct those conversations to promote gut homeostasis. To achieve this, they employ interdisciplinary approaches and develop complex organoid models. These strategies allow them to address critical questions surrounding the intricate dynamics of gut cellular interactions, in particular the ones involving innate lymphoid cells, which are key players on intestinal immune responses.



Dr Srikanth Ramaswamy,
University of Newcastle
A tale of two neuromodulators: how histamine and serotonin shape social interactions in mice and human brains

The brain continuously adapts and responds to ever-changing behavioural demands. It achieves this by controlling the function of nerve cells (neurons) and their networks through the release of neuromodulators. Neuromodulators – dopamine, acetylcholine, serotonin, noradrenaline or histamine – are chemical messengers that govern the emergence of brain oscillations by controlling the activity of neural networks and regulating shifts between behavioural states such as sleep and wakefulness or distraction and attention. Srikanth's research seeks to understand the mechanisms through which neuromodulators shape cognition in mammalian brains and utilize this knowledge to build computational models of how the brain implements cognitive functions.



Dr Kirby Swatek,
University of Dundee
Irreversible inactivation of ubiquitin and ubiquitin-like proteins

Ubiquitin and ubiquitin-like proteins are among the most predominant post-translational modifications in eukaryotic cells. These modifications are crucial for maintaining a healthy cellular environment as mutations in these signalling systems are frequently associated with disease. Fascinatingly, it has emerged that during specific conditions these modifiers become 'inactive' and can no longer perform their normal cellular functions. Kirby's research group is interested in exploring this emerging area of misregulation which may prove critical for identifying new disease biomarkers and novel therapeutic targets.



Dr Helen Weavers,
University of Bristol
Targeting immune system resilience to curb collateral damage and extend healthy ageing

The cells and tissues within our bodies encounter many challenges over their lifetime, such as physical damage or toxin exposure. Yet many tissues display remarkable resilience to these internal and external threats, continuing to function and even thrive in the face of adversity. Helen's group studies the molecular basis of this biological resilience. By discovering why some tissues have robust capacity to resist or repair damage and 'bounce back', they aim to harness these powerful biological shields therapeutically to enhance tissue recovery after insult. Helen's team recently discovered that biological resilience is key to maintaining a healthy immune system, where it prevents activated pro-inflammatory immune cells from causing systemic collateral damage. By investigating these processes using cutting-edge imaging and omics approaches, Helen's lab is identifying new ways to enhance immune resilience across the life-course and promote healthy ageing.



Dr Fiona Jane Whelan,
University of Nottingham
Accessory gene driven competition within the cystic fibrosis lung microbiota

Individuals with cystic fibrosis harbour chronic pathogenic lung infections which cause most of the morbidity and mortality in this population. Fiona's lab aims to identify microbial genes within the lung microbiome which inhibit these pathogens and can potentially be used as novel therapeutic targets. Fiona's lab uses high-throughput microbiology to identify microbes that can inhibit pathogens. They find that many of these interactions are strain-dependent, meaning that it is the genes present in some but not all strains of an organism which contribute to this inhibition.

BEYOND THE PROTEIN-FIRST PARADIGM IN ALS



Two current Lister Fellows have united to carry out ground-breaking research on ALS and its associated molecular phenomena. Could it be that strange forms of RNA are responsible for some of the condition's devastating symptoms?

In a paper published in Nature Communications, Rickie Patani (2021 Fellow), Marco Di Antonio (2022 Fellow) and their co-authors explore the possibility that genetic material, rather than just proteins, could play a causal role in Amyotrophic lateral sclerosis (ALS – also known as motor neurone disease). We caught up with them to talk about their remarkable findings and the Lister connection that helped bring them together.

Genes on repeat

Typically, the focus in ALS research is on proteins, which play a clear role in the disease's origin and its development. But Rickie and Marco's team have discovered a new pathway between ALS and a phenomenon called gene expansion, which happens in our DNA.

"Somehow, this nucleic acid is doing something that can trigger the disease." – says Marco

In gene expansion, a short string of nucleotides, our genetic building blocks, seem to get stuck on repeat like a stutter in speech or a scratched record. This fragment 'replays' many times before the normal sequence of the gene resumes.

"ALS is one of the few neurodegenerative diseases we know of that has some kind of correlation with a repeating sequence of nucleotides within a gene," says Marco. "We didn't know what to expect, but we knew there was a strong correlation – somehow, this nucleic acid is doing something that can trigger the disease."

A protein-focused paradigm

The team believe that RNA derived from expanded genes is laying the foundation for protein anomalies called aggregations. These aggregations are solid masses of protein that collect around the neurons. And while the aggregation phenomenon is well recognised, the Nature paper, whose lead author is Dr Federica Raguseo, breaks new ground.

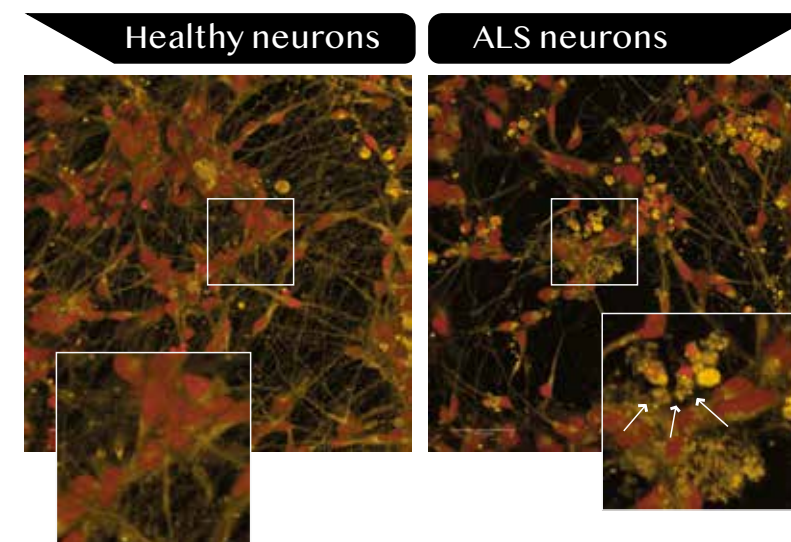
"The process of aggregation is a hallmark of all of neurodegeneration, in Parkinson's, Alzheimer's, and ALS. We've always seen it as fundamentally protein-based, both the event that starts it off and the progression of aggregation afterwards," says Marco.

"This research tells us that RNA itself, even in the absence of protein, can start an aggregation. That's incredibly exciting because it means the precursor of a lot of aggregates we see throughout neurodegeneration may not be protein at all, but RNA. So, it might be targetable through existing modalities like antisense oligonucleotides. It's a huge prospect."

How huge?

"This gene is a major cause of ALS, accounting for 40% of the genetic cases. Genetic cases are about 10% of the total number of patients overall. And for the remaining 90%, mutation in this gene probably accounts for

AMYOTROPHIC LATERAL SCLEROSIS (ALS) IS ALSO KNOWN AS MOTOR NEURONE DISEASE



7-10% of sporadic cases in that group of people as well," Rickie explains.

Looking at gene expansion in a new light

The biomedical field has been exploring genetic repeats for a while, but until now, it hasn't connected these directly to ALS, focusing instead on how gene expansion affects protein production.

"In our field, there has been a lot of research into mechanisms where the repeat is kidnapping proteins and stopping them from functioning or getting translated into proteins that could be toxic," says Rickie.

"But what I found especially fascinating is that the repeat itself can aggregate. That's a profoundly novel finding. "We've always taken a protein-centric view on aggregation, and this adds something completely fresh to the mix." – Rickie

When RNA and proteins collude

Both scientists are quick to stress that their research doesn't negate the role of protein in ALS and other neurodegenerative conditions. Instead, it represents another angle to attack the disease therapeutically.

"There are two contributing factors that can synergise together," notes Marco. "We can take a protein called TDP43, which has been heavily studied in relation to aggregation, and combine it with our RNA expansion in

vitro. The two things combined make the aggregation worse. It's probably telling us that it's a combination of factors, but RNA could be a key component, and it can be targeted with existing strategies. That's where the excitement comes from."

Serendipitous collaboration

Rickie and Marco's collaboration has been serendipitous in a couple of ways. As Lister Fellows, they became aware of each other as part of the close-knit Lister community. They're also connected geographically, with connections to the Francis Crick Institute in London – Rickie is based there, and Marco's lab at Imperial College has recently set up a satellite group there.

"I contacted Rickie ahead of the Lister Annual Meeting after going through the list of Fellows," recalls Marco. "I dropped him an email because I needed someone with expertise in ALS, ideally in London, who could validate our more in vitro findings in a therapeutically relevant model.

"And then he said, 'Actually, this is exactly what we wanted as well, to validate some of our stuff,' and so we met exactly midway."

The two scientists' specialities seemed to click together like pieces in a jigsaw puzzle – Marco's in vitro research with genes, which gave the project a tremendous theoretical foundation, and Rickie's clinical work

with ALS patients, which helped not only to validate the science in vivo but to hammer home the value of the work to clinical and therapeutic stakeholders.

"Marco won't say this because he's very modest," says Rickie, "but the brilliance of Marco's lab is entirely what has led to this. I feel privileged to work with him because he identified this brilliant idea." Nonetheless, it was Rickie's team who were able to validate the Di Antonio Lab findings with patients' genetic material.

"We designed the experiments collaboratively," says Rickie. "We took samples from patients who carry this repeat expansion and samples from a control group. Then we looked at them using a tool, again, from Marco's lab, that allowed us to visualise the RNAs. From this, we could infer that they were these RNA-based aggregates."

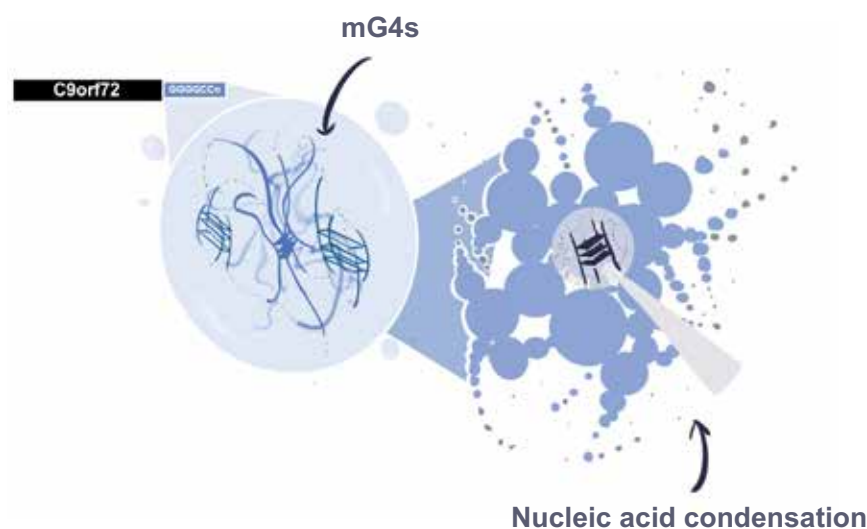
Being able to examine real people's cellular material, which expresses disease in their motor neurons, was much more valuable than only using knock-down or artificially overexpressed genes to test the phenomenon in a lab.

The Lister connection

Being Lister Fellows has catalysed the relationship between the two researchers.

"It's not something we've discussed at any point, but whenever I see that someone is a Lister Fellow, my willingness to respond to them is very high," says Marco. "And clearly the project was hugely exciting as well. The combination of these things made us very, very keen."

"The interdisciplinarity has been key for us," he continues. "We're immensely grateful to the Lister Institute because there's no other connection between us that would have made this happen. It's fantastic that we've come together in this way and we're planning so much more – it's been a springboard for even more questions."



FEMALE LEADERS IN FOCUS

Our Governing Body (GB) is made up of Trustees who are also company directors of the Lister Institute. They come from diverse backgrounds some within the field of preventive medicine, from clinician-scientists to geneticists. We asked five female members of our GB to share their thoughts on being a woman in science now and in the past, and how they would advise a female science leader of the future.

Professor Wendy Bickmore, CBE, BA, PhD, FMedSci, FRSE, Western General Hospital, Edinburgh

Wendy received a CBE in 2021 for services to medical science and to women in science.

Within the Lister Institute, gender representation has got better over time, as it has in science generally. I've never felt it was a place where it was odd to be a woman in science; it felt like a completely natural home. There are definitely more women in science leadership now, and more awareness of balance and representation in committees. Although that can become an issue if the same people are asked to do everything, as it takes time away from your own science. It's useful to be good at saying no.

I notice that when I am involved in high-level meetings, what I say is not always heard. It's something I've become acutely aware of in the last five years. It doesn't happen when I'm talking science to scientific colleagues, but rather in arenas of persuasion and politics.

I'd advise a new female scientist that if you enjoy doing science, do it. If you're good at it, you will succeed. I also recommend getting out into the community and networking. The ability to do that with young families has improved hugely, with grants for childcare and the option to come to conferences with your kids.

Professor Rebecca Fitzgerald, OBE, MACantab, MD, FMedSci, Hutchison-MRC Research Centre, Cambridge

Rebecca received an OBE in 2023 for services to cancer.

It's notable that the applications we get aren't equitable from an equality, diversity and inclusion perspective. There is overrepresentation of a small number of institutions and a lack of people from ethnic minorities applying. That's something I hope will change in the future.

My clinical speciality is gastroenterology, which has been very male dominated, so I got used to being in the minority. Among the students I teach today, there's almost the opposite pattern.

Everyone is different in their leadership style, but perhaps being a female leader does give you a different perspective. It's important for women in science to encourage one another. The further you get in your career, the more important it becomes to mentor and support others and to create a good atmosphere.

My advice for a woman beginning her scientific career is to prioritise her time. In a clinical scientific career like mine, where you have personal life, scientific work and clinical work to balance, you have to learn how to delegate and what to say no to.

Professor Muzlifah Haniffa, FMedSci, Newcastle University and Wellcome Sanger Institute

Muzz was elected to the Academy of Medical Sciences in 2020 and joins the Governing Body from September 2024.

My hope for the future is that we no longer need to ask questions about women specifically, because we will have achieved gender parity. One of my passions and commitments is to try to make the system inclusive of anyone who wants to do scientific research. As well as being a woman in science, I am someone from an ethnic minority background and from a different country. The system is not necessarily designed for someone like me, and I want to make sure others find it easier to navigate than I did.

Things have improved, but there is still a long way to go. We no longer have people making sexist remarks, but there's still a lot of unconscious bias from both men and women. A new female scientist doesn't get heard in the way a male would be. It's very subtle and can be hard to detect and address.

It's not just up to women to support other women. Support from institutions, funders, senior leaders, and allies, including men, are much more likely to help women navigate a career in STEM. Everybody should be supporting each other.

For inspiration, I recommend books *The Exceptions* by Kate Zernike and *Breaking Through* by Katalin Karikó.

Professor Rosalind Smyth, CBE, FMedSci, UCL Great Ormond Street Institute of Child Health

Ros was awarded her CBE in 2015 for services to the regulation of medicines for children.

The Lister Institute provides support to researchers at a critical point in their careers. The timing is particularly important for women as these opportunities arise when people have young families and demanding personal responsibilities, as well as the pressure to demonstrate research excellence.

Things are much better now than two to three decades ago, but there are still attitudes and practices which cause difficulties for women in following a research and academic track. The UK will be successful in science by supporting the brightest and best, so it is essential that we remain vigilant of the need to support talented women to pursue these careers.

Women should be aware of the career "crunch points" and look out for and support those more junior than themselves. Everyone needs to contribute to a positive research culture.

Professor Judith Armitage, PhD, FRS, University of Oxford

Judy was awarded her FRS for her work on microbiology.

Things have really changed during my career. I was once asked at a job interview how I combined research with housework. There was no maternity leave and next to no childcare. I returned to work 3 weeks after becoming a mother, bringing my baby, who slept in the pram or on the gently humming fax machine.

It is now much more straightforward to have children early in your career. But because of the linear way career success is measured, having a break for childcare can still have an adverse effect.

Early in my career, I was taken under the wing of a senior female scientist, Pat Clarke. Her advice was not to pursue the obvious questions, which would already be taken by men with big groups, but to find an interesting, tangential question and make it your own. I think this is still sound advice.

My real hope is that people stop commenting on the gender or background of anyone in science. It should be irrelevant. We need as great a variety of thinking and approaches as possible, and I hope we will see more women and more researchers from minority backgrounds coming from non-traditional areas and institutions.



LISTER ANNUAL FELLOWS MEETING 2023

Our annual meeting brings together a multi-generational community of scientists, from Lister Summer Students on the brink of their careers, to current Fellows setting up their research groups, to former Fellows, Members and Committee members who are happy to share their knowledge and experience. Attendees always come from a huge range of disciplines and backgrounds, and this year's event was no exception.

It was an unseasonably hot September day when friends, students, committee members and members of the Lister Fellows gathered at Corpus Christi College, Oxford. We began with drinks and canapes outside the College's Al Jaber Auditorium, the vestibule of which had its large glass doors open to the sunshine. Spirits were high as Fellows and other members of the Lister community greeted one another and made new connections.



After a tea and coffee break, the group returned to the auditorium to hear from 2022 Prize Winner **Dr Anthony Khawaja of University College London and Moorfields Eye Hospital**, who joined us remotely due to testing positive for COVID-19. Combining genetic information with other biomarkers, Anthony has created predictive tools healthcare professionals can use to recommend tailored treatments to glaucoma patients.

Rounding off the afternoon's talks was 2022 Prize Winner **Dr Amanda Chaplin of the University of Leicester** with a talk about her study of human DNA repair complexes using cryo-electron microscopy (cryo-EM). The technology has helped Amanda and her team explore DNA repair in greater detail than ever before. Her talk was accompanied by striking images of the proteins and genetic material provided by cryo-EM technology.

As usual, talks were accompanied by lively Q&A sessions with attendees, who were inspired by fresh perspectives on the science they practice day to day.

Thursday concluded with drinks, a buffet and a poster presentation from the Lister Summer Students in the busy Rainolds Room. The posters captured the projects students were carrying out in the labs of Lister Fellows. The evening was warm enough for attendees to sit outside, enjoying the Turner Quad and college gardens.



With everyone settled inside the auditorium, we heard an introduction from our Chair, Professor Sir John Iredale, who introduced the first speaker, former Lister Fellow **Professor Robin May of the University of Birmingham**. Robin's talk traced a path from his childhood fascination with birdwatching to a love of watching microorganisms swim under a microscope during his academic career.

We then heard from 2020 Prize Winner **Dr Rebecca Lawson, of the University of Cambridge**. Becky's work unites psychiatric diagnosis with computer modelling, which could formalise the classification of psychiatric symptoms, building up a quantitative 'fingerprint' of cognitive traits.





Friday's talks kicked off with a lecture on macrophages, matrix and metazoan parasites from **Professor Judi Allen of the University of Manchester**, a member of the Scientific Committee. Judi introduced us to the 'type 2' immune response in humans which is fundamentally different to the 'classical' immune response.

Next came the first of the 2023 Lister Fellows' talks, from **Dr Fiona Whelan of the University of Nottingham**. Fiona introduces a computational layer to traditional biomedical research. She and her colleagues wrote a programme, Coinfinder, which finds significant gene interactions in bacterial genomes. The knowledge could help create cystic fibrosis treatments targeting pathogenic strains of bacteria.

Dr Kirby Swatek of the University of Dundee took the podium to discuss his work on ubiquitin and ubiquitin-like proteins. These are found in almost all eukaryotic tissues, where they play an important and complex signalling role. Kirby described how he will use the Lister Prize funding to address unanswered questions about ubiquitin and ubiquitin-like proteins and their role in health and disease.

The next talk was from **Dr Srikanth Ramaswamy of the University of Newcastle**. Srikanth studies the role that neuromodulators – substances that influence how neurons function – play in shaping social interactions in the brains of humans and mice. He uses computer modelling and neurorobotics to supplement knowledge gained from experimental work.

Dr Joana Neves of King's College London then introduced us to her work on the regulation of innate lymphoid cell differentiation and function in intestinal health and disease. Joana and her team investigate unhelpful innate lymphoid cells (ILCs) using organoids – tiny model 'mini-guts' made of living tissue in vitro.

Next, we welcomed **Dr John Knight of the University of Manchester**. John studies the way human proteins are translated from RNA 'blueprints'. Translation involves multiple steps – initiation, elongation and termination. John's doctoral work explored the role of the elongation step in colorectal cancer, establishing that modulating it could have a valuable therapeutic role.

The final 2023 Fellows talk was from **Dr Helen Weavers of the University of Bristol**. Helen introduced her research on immune system resilience and maintaining healthy tissues in later life. Our bodies can survive and even thrive despite a lifetime of physical and chemical insults, and Helen's interest lies in the biological mechanisms of repair, neutralisation or damage limitation that make this happen.



A short talk followed from former Lister Fellow **Dr Simon Bullock of the University of Cambridge**, co-founder of the Microscopes 4 Schools project. The project aims to spark scientific interest in children of primary school age, especially those with underprivileged or underrepresented backgrounds. Simon invited us to try out the microscopes with a selection of leaves, feathers, flowers and other specimens.



The sessions concluded with the Special Lister Lecture, delivered by Governing Body Member, **Professor Dame Pam Shaw of the University of Sheffield**, Director of the Sheffield Institute for Translational Neuroscience (SITraN), who has received many awards for her pioneering work in the treatment of motor neurone disease (MND). Pam's talk was a moving story about the journey towards better outcomes for people living with MND, and the progress made to date in extending their life expectancy and improving their quality of life.

We rounded off the event with a delicious supper in the college dining hall and many toasts to good health – and to good health research.



CURRENT

LISTER PRIZE FELLOWS

For the full list of all Lister Fellows (past and present) please see the Lister website <https://www.lister-institute.org.uk/former-fellows/>

<i>Fellow</i>	<i>Title of Research</i>	<i>Awarded</i>
Dr Shoba Amarnath Newcastle University	Translating co-receptor biology to immunotherapeutics in cancer	2022
Professor Tom Baden University of Sussex	Anisotropic retinal circuits for processing of colour and space in nature	2018
Dr Elizabeth Ballou University of Exeter	Investigating how cross-kingdom microbial partnerships impact fungal pathogenesis of the causative agents of Mucormycosis	2022
Dr David Bending University of Birmingham	T cell receptor signalling dynamics during T follicular helper cell responses	2022
Dr Tanmay Bharat University of Cambridge	In situ structural studies of the functional organisation and inhibition of the BAM complex in Gram-negative bacteria	2021
Professor Timothy Blower Durham University	BREX and phage-bacteria interactions	2019
Dr Amanda Chaplin University of Leicester	Cryo-EM studies of human DNA repair complexes: DNA-PK and interacting partners	2022
Professor Ross Chapman University of Oxford	DNA double-strand break repair mechanisms in immunity and oncogenesis	2019
Dr Rebecca Corrigan University of Sheffield	Analysis of the role of (p)ppGpp in staphylococcal infection using zebrafish as a model organism	2018
Professor James Davies University of Oxford	Using base pair mapping of genome architecture to interrogate the mechanisms by which enhancers control transcription	2022
Dr Marco Di Antonio Imperial College London	Unravelling epigenetic pathways leading to chemo-resistance in ovarian cancer with a light-controlled CRISPR-based platform	2022
Professor Mark Dodding University of Bristol	A new chemical biology approach to target molecular motors for the manipulation of cytoskeleton and organelle dynamics	2018
Professor Sherif El-Khamisy University of Sheffield	The repair of oxidative and topoisomerase induced chromosomal strand breaks and human disease	2013
Professor Susana Godinho Queen Mary University of London	Regulation of paracrine signalling by centrosome amplification	2016
Professor Ravindra Gupta University of Cambridge	Cell cycle regulation in Macrophages	2021
Dr Anthony Khawaja Institute of Ophthalmology University College London	Translating genomic discovery into clinical prediction tools for glaucoma	2022
Dr John Knight University of Manchester	Harnessing the divergent roles of elongation dependency for cancer therapy	2023
Dr Joanne Konkel University of Manchester	Atypical monocytes at the oral mucosa; revisiting myeloid cell development and function at a unique barrier site	2019

<i>Fellow</i>	<i>Title of Research</i>	<i>Awarded</i>
Professor Yogesh Kulathu University of Dundee	Regulation and function of protein FUBlylation	2017
Professor Rebecca Lawson University of Cambridge	Computational neurodevelopment: a new framework for understanding autism spectrum disorder	2020
Dr Tung Le John Innes Centre	The line of duty: How to segregate a giant linear plasmid in antibiotic-producing Streptomyces	2022
Dr James Lee The Francis Crick Institute	From SNPs to biology in inflammatory diseases	2021
Dr Michelle Linterman Babraham Institute	Tertiary lymphoid structures in health and disease	2019
Professor Yanlan Mao University College London	Mechanochemical regulation of tissue growth and morphogenesis	2018
Professor Joseph Marsh University of Edinburgh	The dominant-negative effect in protein complexes: implications for human genetic disease	2018
Dr Will McEwan University of Cambridge	Protein-level knockdown as a new frontier for biological and biomedical sciences	2019
Professor James Nathan University of Cambridge	The interplay between metabolism and oxygen sensing	2017
Dr Joana Neves King's College London	Regulation of Innate Lymphoid Cell differentiation & function in intestinal health and disease	2023
Professor Rickie Patani UCL & The Francis Crick Institute	Identifying therapeutically targetable RNA binding proteins in ALS	2021
Dr Srikanth Ramaswamy Newcastle University	A tale of two neuromodulators: how histamine and serotonin shape social interactions in mice and human brains	2023
Dr Tomás Ryan Trinity College Dublin	Gone or Misplaced? – Retrieving Infant Memories in Adults	2020
Professor Amanda Sferruzzi-Perri University of Cambridge	Biomarkers of materno-fetal health: role of placental endocrine mediators in normal and obese pregnancies	2018
Dr Hayley Sharpe Babraham Institute	Receptor tyrosine phosphatase signalling mechanisms in health and disease	2020
Dr Christopher Stewart Newcastle University	Using stem cell derived “mini guts” to investigate microbiome-host interaction in early life	2021
Dr Kirby Swatek University of Dundee	Irreversible inactivation of ubiquitin and ubiquitin-like proteins	2023
Dr Stephan Uphoff University of Oxford	Resolving oxidative stress response mechanisms in bacteria during infection and antibiotic treatment	2020
Dr Stineke Van Houte University of Exeter	Developing new tools to tackle antibiotic resistance	2021
Dr Helen Weavers University of Bristol	Targeting immune system resilience to curb collateral damage and extend healthy ageing	2023
Dr Fiona Whelan University of Manchester	Accessory gene driven competition within the cystic fibrosis lung microbiota	2023

ENVIRONMENT, SOCIAL, GOVERNANCE (ESG); EDI (EQUALITY, DIVERSITY & INCLUSION) AND FINANCIAL OVERVIEW

GOVERNANCE OVERVIEW

The Governing Body (GB)

Governance of the Lister Institute is overseen by the GB which meets twice a year. Members of the GB are Trustees of the charity and have responsibility to the Charity Commission to ensure the charity is well run and remains true to its purpose. As ever, we must pay tribute to the quality and dedication of the GB members and the speed and clarity with which they respond to Lister matters.

At the AGM in 2023 Mr Matthew Pintus stood down as the Elected member who had had the longest period since being last elected. He was re-elected to allow time for a handover with Mrs Jennifer Smithson who was appointed to the GB in 2023.

Finance and Investment Committee (FIC)

The FIC met twice in 2023 and undertook its normal business reviewing the performance of the investment managers and the finances of the Lister Institute.

The Lister Institute's ESG investment policy continues to be a focus for the FIC. The policy attempts to balance the potential investment reward available from the widest possible universe of holdings, while limiting and/or monitoring investment in areas that might be in conflict with the Institute's purposes.

The FIC remains comfortable with the performance of the aggregate investment portfolio, and the manner in which it is being invested by the underlying managers.

Scientific Committee (SC)

In 2023 the SC reviewed and revised the Lister Institute's Scientific Strategy. The new strategy does not constitute a major change in strategy but more of a clarification of our approach and bringing the document up to date. As part of the new strategy, the Committee changed its name from the Scientific Advisory Committee to the Scientific Committee.

There were two changes in the membership of the SC. Professors Liz Patton (Edinburgh) and Mike Owen (Cardiff) stood down, and Professors Belinda Lennox (Oxford) and Clare Isacke (Institute of Cancer Research) joined the Committee.

The SC met twice this year. It met once via Zoom to undertake the business of the Committee looking at the review process and the statistics to ensure we are achieving fairness throughout. The main and most important meeting was the interviews of the short-listed candidates for the Lister Prize Fellowships.

Institute Membership

All Fellows of the Lister Institute become Members when they complete their Fellowship. In addition, all Committee members, previous members of staff and others with a particular interest in the Lister Institute are Members. At present we have 236 Members and they are all eligible to vote at the AGM.

The Fellows who completed their Fellowship in 2023 and were elected as Members of the Institute were: Dr Sebastian Guettler (Institute of Cancer Research), Dr Matthew Hepworth (University of Manchester) and Professor Daniel Smith (University of Edinburgh).

Two new Scientific Committee Members were also elected as Members of the Institute: Professor Clare Isacke (Institute of Cancer Research) and Professor Belinda Lennox (University of Oxford).

A new member of the Governing Body, Mrs Jenny Smithson, was appointed as a Member of the Institute.

ENVIRONMENT OVERVIEW

The Lister Institute is a small organisation with a small environmental impact. It has no buildings and all three staff work from home. Essential meetings, such as the Annual Fellows Meeting are held in person, with travel by public transport encouraged. Other meetings are held online or in person as needed.

SOCIAL OVERVIEW

Through the biomedical research that it funds, the Lister Institute has a beneficial impact on society through direct patient and public benefit e.g. new treatments and diagnostics as well as through the expansion of knowledge and understanding. It also aims to support the careers of talented young researchers and to give opportunities to students interested in pursuing careers in research. For the Lister Institute to be successful it is essential that it attracts and retains skilled and talented people. It does this by creating an inclusive working environment where people can be themselves, treating everyone fairly with dignity and respect. We are committed to fairness in our remuneration packages and supporting flexibility at work. Pensions continue to be paid to a small number of former employees.

EQUALITY, DIVERSITY AND INCLUSION (EDI) OVERVIEW

We value and embrace EDI and aim to achieve equality, diversity and inclusiveness across the Lister Institute – in our Prize Fellows, our committee members and our staff. While to EDI is our aim, we recognise that we still have work to do achieve it.

We aspire to having an equal gender balance across the Lister Institute. Currently the gender balance in the organisation is as follows: Governing Body 36% female: 64% male; Scientific Committee 46% female: 54% male; current Fellows 35% female: 65% male; staff 100% female. The gender balance at all stages of our application process is monitored and steps are made to address any aspects of the process that may affect the gender balance, though ultimately the highest quality candidates are selected.

The Institute aspires to achieve ethnic diversity consistent with the demographics of the UK general population (broadly 82% white, 18% ethnic minority) and from the 2022 round of prizes started to collect data to assess our performance. Our 2023 Prize winners and SC are close to the national pattern. For the 2023 prize round 16% of applicants and 17% of prize winners were from minority ethnic backgrounds. The SC has 15% of members who are from minority ethnic backgrounds. We recognise that significant improvements can be made to our Governing Body's diversity and intend to address this as members retire and we make new appointments.



FINANCIAL OVERVIEW



Murray Legg, Treasurer

While financial returns for 2023 were ultimately positive, the path to this outcome was not straight forward. A range of geopolitical and macroeconomic events threatened markets’ resilience; any advances in the financial indices were typically over-turned in the subsequent period. It was only in the final two months of the year that a clear trend emerged, and almost all of the positive returns earned in 2023 arose in November and December.

The Lister Institute has its low volatility liquidity reserve fund, which was established to enable the Lister to ride out a major market correction. It has continued to provide a buffer against this uncertainty and falls in the markets and, for the first time last year (2022), we took advantage of this reserve and used it to fund the Prizes.

Our two investment managers, Cazenove and Partners Capital have managed our portfolio with our investments having a final valuation (after withdrawal of £1.9M from the main portfolios for the prize Fellowships and Lister operations) of £43.1M, only down slightly from £43.3M at the end of 2022. Both Partners Capital and Cazenove transferred a further £375K each to the Cazenove B Portfolio to partially replenish it. The FIC will continue to monitor closely our portfolio and there will continue to be careful consideration of the numbers and levels of Fellowships and studentships and if and when the liquidity reserve fund (B portfolio) should be further replenished.

Six prizes were awarded instead of the originally budgeted number of seven, but in other areas all expenditure has been in line with the agreed 2023 budget. The investment managers’ fees were £168K, down from £185K in 2022. With six Fellowships being awarded at £250K each, 101K spent on studentships and operational costs being £259K the total expenditure for the Lister institute in 2023 was £2.028M.

	£K
Prize Fellowships and Studentships	1,601
Investment managers fees	168
Staff and operational costs	259
TOTAL	2,028

The Lister Institute remains indebted to our all the members of the FIC, and I would like to thank them all for their scrutiny of the Institute’s finances and the rigorous questioning of our current investment advisors, Partners Capital LLP and Cazenove Capital Management. We are particularly grateful to Murray Legg for his contribution as Treasurer and chair of the FIC.


Sir John Iredale, Chairman

REPORT OF THE GOVERNING BODY
for the year ended 31 December 2023

The Governing Body presents its Annual Report under the Charities Act 2011 together with the audited Financial Statements of the Charity for the year ended 31 December 2023. The Financial Statements have been prepared in accordance with the accounting policies set out in Note 1 (page 27) to the Financial Statements and comply with the Companies Act 2006, the FRS102 Charities SORP and the documents governing the constitution of the Charity.

LEGAL AND ADMINISTRATIVE DETAILS

Legal and administrative information is set out on page 33 of this report.

Members of the Governing Body, Directors and Trustees
The members of the Governing Body are, for the purposes of company law, Directors of the Institute and, for the purposes of charity law, Trustees of the Institute and throughout this report are collectively referred to as the Trustees.

Details of the Trustees serving throughout the year are set out on page 33.

STRUCTURE, GOVERNANCE AND MANAGEMENT

Constitution
The Institute is registered with the Charity Commission for England and Wales (registration number 206271). It is incorporated and registered in England and Wales under the Companies Act 2006 as a company limited by guarantee and not having a share capital (company number 34479). It is governed by its Articles of Association and has charitable status.

Appointment and Re-appointment of Trustees
The Trustees are the fifteen members of the GB of whom six are elected by the members at the Annual General Meeting. A maximum of six further Trustees are appointed by the Governing Body and there are currently six such appointees. One additional member is Lord Iveagh’s representative, the Hon Rory Guinness, another is Professor Sir Alec Jeffreys who was appointed to life-membership, and the final member, Professor Douglas Higgs, is the representative of the Royal Society. Trustees, other than the two nominated representatives, Professor Sir Alec Jeffreys and exceptionally those appointed by the Governing Body, generally serve for a period of six years and a system of planned rotation is in place. When considering appointment or nomination for election as Trustees, the Governing Body has regard to the specialist skills needed.

Induction and Training of Trustees
New Trustees undergo induction sessions with the Chairman, Treasurer and Director during which they will gain an understanding of the Institute’s structure, activities, financial position, and future strategies. Prior to appointment they will attend one meeting of the GB as an ‘observer’. New Trustees will also be made aware of their legal obligations regarding charity and company law. In addition, new Trustees will be advised of appropriate literature and training courses. An Induction check list supports the process.

Organisation
The Institute is governed by its GB, which is responsible for setting policies, authorising actions on all significant operational issues and ensuring legality and good practice. The GB meets formally twice a year. The Treasurer and Chairman review the remuneration of all staff once a year. This includes the remuneration of those individuals considered to be key management personnel.

Specific authorities are delegated to two sub-Committees in particular areas. The SC (see page 33 for membership) has responsibility for identifying the Lister Institute Prize Fellows and the monitoring of their scientific activities, as well as providing scientific and medical advice to the GB as required. The FIC (see page 33 for membership) has responsibility for interaction with the Institute’s investment advisors, ensuring implementation of the Institute’s investment policy and monitoring performance. It prepares and submits to the GB the annual budget, and subsequently monitors performance against it. It also advises the GB, as required, on other financial and risk matters.

The routine management of the Institute’s activities is undertaken by its Director aided by the Operations Manager and the Accountant. All staff work from home.

In 2023, none of the Charity’s Trustees received any remuneration in relation to their work for the charity. The Chairman and the Treasurer of the Charity agree the Director’s remuneration which, along with other Lister Institute staff, is normally increased in line with CPI. Salaries are also compared to similar organisations and adjusted periodically where appropriate.

Risk Management
Identifying and managing the possible and probable risks that the charity may face is a key part of effective governance. The Trustees assess the risks facing the Institute and review the effectiveness of the controls to monitor and mitigate them. In 2023, the Institute introduced a Risk Management Policy to formalise the basic principles and strategies that the charity applies to help manage its risks. Central to this is the Risk Register which is maintained and formally reviewed annually by the Governing Body.

The key controls used by the Institute include:

- Formal agendas for all Governing Body meetings
- Strategic planning, budgeting and management accounting
- Formal written policies
- Clear authorisation and approval levels
- Regular review of Fellows’ scientific reports
- Regular detailed review of investment policies and performance

The risk of cybersecurity is considered by the Trustees on an ongoing basis. A cybersecurity policy has been developed. IT support for staff involves regular security updates and regular cybersecurity training. Security around the application and management process is maintained through an online grants management system called Benefactor. An IT review and risk assessment was undertaken in 2023 as an addition to the organisational risk log.

REPORT OF THE GOVERNING BODY
(CONTINUED)

In recent years, the risk logs, terms and conditions, policies and procedures have been adapted and updated. The terms and conditions were reviewed in 2022. The risk register is reviewed annually, and policies are reviewed regularly as defined within each policy. A number of new policies were introduced in 2023 to ensure that the Institute complies with the expectations of the Charity Commission in relation to the policies that all charities should have. The Institute maintains a ‘Register of Interests’ for all Governing Body and committee members as well as principal staff and operates a clear “declaration of interests” policy and procedures for all meetings.

The principal risk facing the Institute lies in its ability to maintain and protect the value in real terms of its investments and to generate from them, on a long-term basis, a consistently high overall return. This risk is mitigated by the Institute’s appointment of experienced investment managers with a proven track record; by internal controls that allow close and regular monitoring of their performance against benchmarks; by the Institute’s requirement of its investment managers to re-tender periodically and competitively for appointment; and by regular meetings that formally review investment performance and policy and include one-to-one presentations by the investment managers.

Investment Policy Statements are in place for the Lister Institute and its investment partners. These are reviewed on an annual basis.

Objectives and Activities

The statutory objective of the Institute is to further the understanding and progress in preventive medicine by promoting excellence in biomedical research in the UK and Ireland.

When founded in 1891, the Institute sought to achieve this objective by establishing a research institute specialising in the area of “infections” and their prevention by immunisation and other means. It complemented these research activities by the production and supply of materials such as vaccines and anti-toxins.

The Institute continued in this mode until the late 1970s when increasing financial and regulatory pressures caused the cessation of these activities. Proceeds from the resultant sale of land and buildings created the investment funds from which present-day activities are financed; at 31 December 2023 these funds stood at £43.1M. From the 1980s, the Institute has pursued its objective of nurturing future leaders by the provision of grant funding to facilitate the research and careers of high-quality individuals, working in areas of biomedicine relevant to preventive medicine. It has done this because it believes that the acquisition and advancement of knowledge is crucial to the understanding of health and disease and that research to achieve this is driven forward by high quality individuals and their supporting staff.

Principal Activities

In pursuance of this objective, during 2023 the Institute awarded six new Prize Fellowships. In addition, the Institute has

continued its Summer Studentship scheme. Generally, this has enabled an increasing number of undergraduates per year to work with Lister Institute Fellows or former Fellows to gain experience of biomedical research with the hope that they might consider it as a career. In 2023, 39 studentships were awarded.

Achievement and Performance

The SC has monitored the performance of the current 39 Lister Institute Prize Fellows through review of their annual scientific research reports that includes the progress they are making, as well as all publications and presentations. The SC has reported to Trustees that it is of the view that all Fellows are undertaking high quality research and producing new knowledge that will contribute significantly to our understanding of disease, its causes, treatment and prevention. The reports of the research undertaken by the Lister Summer Students have also been reviewed and found to be satisfactory.

Six Lister Institute Prize Fellowships were awarded in 2023 to Dr Fiona Jane Whelan (University of Nottingham); Dr Kirby Swatek (University of Dundee); Dr Helen Weavers (University of Bristol); Dr Joana F Neves (King’s College London); Dr John Knight (University of Manchester); Dr Srikanth Ramaswamy (University of Newcastle) from an initial field of 96 applicants. They were awarded following extensive scientific review of their applications and final interview by the SC. (More details of the Prize Fellows and their research are provided on pages 2 and 3). Each Prize Fellowship provides £250K to be spent over 5 years with the funds provided to the host institution at the commencement of the award.

39 Summer Studentships were awarded in 2023. Each is a £2,500 student bursary and is paid to the host institution at the commencement of the award for the support of the student for up to a ten-week period.

Public Benefit

The statutory objectives, aims and activities of The Lister Institute of Preventive Medicine are to further understanding in preventive medicine by promoting biomedical research, as set out on page 18 of this Report. The Trustees have considered the Charity Commission’s guidance on public benefit, including the guidance ‘public benefit: running a charity (PB2)’.

The public benefit of the Institute’s grant-making is clearly identifiable in the ‘Achievement and Performance’ paragraphs above and in the list of Research Prize Fellows together with their areas of research on pages 12 and 13. All Lister Institute Fellows are actively encouraged, where appropriate, to develop their research findings for potential public benefit and the SC has regard to this when reviewing their research reports. The Lister Institute therefore benefits the public or a sector of it without imposing any restrictions. Applications from individuals are accepted only when demonstrably consistent with the charitable objectives of the Institute.

Impact

The impact of the activities of a medical research charity can be measured at many levels ranging from the growth of knowledge to direct patient/public benefit. Often the transition from the former to the latter may take many years and the involvement of several organisations. The Institute requires that the results of the research it supports are published and disseminated; that, where appropriate, significant intellectual property is protected via patents; and that its commercial development is encouraged. Several biotechnology companies have been formed around the findings of Institute-funded research and there are several interactions with large pharmaceutical companies. A prime example of the impact of Lister Institute research is DNA fingerprinting, which was discovered by Professor Sir Alec Jeffreys when a Lister Institute Fellow, and has become an integral part of society, helping to prove innocence or guilt in criminal cases, resolving immigration arguments and clarifying paternity. Other examples include Professor Frances Platt’s research which she started as a Lister Fellow and in collaboration with Dr Terry Butters, has led to the development of the approved drug miglustat (Zavesca) for glycosphingolipid storage disease therapy. Professor Michael Eddleston’s research, initially funded by the Lister Institute on the effects of pesticide poisoning and the use of these chemicals for suicide in countries such as Sri Lanka and Bangladesh. His work has led to international regulation of these pesticides. Professor Rebecca Fitzgerald developed the cytosponge – the sponge on a string – which has proved to be effective in detecting and diagnosing a condition that can lead to oesophageal cancer. It has recently been trialled by the NHS and has reduced the need for invasive endoscopy in thousands of low-risk patients.

More directly, since 2019 we have awarded 29 Lister Prizes (2019 -5, 2020 – 4, 2021 – 6, 2022 – 8, 2023 - 6) helping the careers of 29 excellent young scientists and clinicians at pivotal stages of their research careers. In the last five years we have also awarded 164 summer studentships which will hopefully have encouraged many students to take up careers in research.

Investment Policy and Performance

The Institute’s investment objective is to develop and maintain its financial resources in real terms through the selection of investments, consistent with an acceptable level of risk.

The Institute’s investment portfolio is split between Cazenove Capital Management and Partners Capital LLP who both operate under mandates agreed in advance with the Finance and Investment Committee. These mandates set out an overall target asset allocation with allowable ranges for each category of asset.

Both investment managers invest on a total returns basis through a variety of pooled funds and in accordance with the Institute’s overarching “Investment Policy Statement” (“IPS”). This states the overall investment objective and sets the investment return objectives, the risk parameters, the performance measures and review procedures for the portfolio.

We are mindful of the Charity Commission Guidance on Investing Charity Money (CC14) and adhere to the principals espoused therein The Institute’s IPS was reviewed and revised as part of the quinquennial review of investment managers with specific versions agreed for each of the investment managers to reflect their individual investment approaches. The IPS’s are reviewed annually. Every year the Institute reiterates its likely cash requirements, both in terms of the amount and the timing of any withdrawal.

The Institute’s IPS includes reference to an ethical investment policy which does not permit direct investment in tobacco or tobacco-related companies. It has been agreed that our focus will remain on balancing ethical investments and returns as there is no compelling argument for a significant change in strategy at this time, although the Lister’s stance on ESG will be kept under close review.

The Institute’s overall financial return objective is to preserve and, if possible, enhance the purchasing power of its portfolio assets, net of costs and approved withdrawals, over rolling five-year periods. This goal is synonymous with the pursuit of a time-weighted net return on portfolio assets that equals and, if possible, exceeds cost inflation as measured by the UK Consumer Price Index plus the Institute’s long-term spending rate of 3-4% measured over corresponding five-year periods. Having exceeded this target over recent years until 2022, with the high level of inflation being experienced and difficult markets our investment performance is now running behind the target.

The performance of the investment portfolio is reviewed by the Finance and Investment Committee, which held two meetings in the year with the investment advisors to review performance, liquidity within the portfolio etc. In addition, the Institute receives detailed quarterly valuation and transaction reports. 2023 was a better year for the market but still resulted in the Lister Portfolio declining by £201K to £43.1M from £43.3M at the end of 2022.

A decision, taken in 2015 (and ratified in subsequent years), to withdraw and place £5M in a Liquidity Account was based both on the recent strong growth of the portfolio but also concerns about future market volatility and performance. As a result of the Investment Managers Review at the beginning of 2022 a proportion of this £5M was invested in a ‘absolute return minded’ fund - Ruffer Charitable Assets Trust that will hopefully help protect against the worst effects of inflation. This decision was aimed to ensure that six Prize Fellowships of £250K each can be awarded for at least three years from 2023.

The liquidity B portfolio was used in 2022 to fund the Prize Fellowships; however, by February 2023 some markets had rebounded to all-time highs and the much publicised, impending recession had not happened. As a result, FIC made the decision to partially replenish the liquidity portfolio (by £750K or 50%) and its current value stands at £3.7M.

More details of the Institute’s activities are set out in the Chairman’s Report on pages 1 to 16.

REPORT OF THE GOVERNING BODY
(CONTINUED)

FINANCIAL REVIEW

Allocation of Resources

The Institute, which does not seek to raise funds from the public, depends primarily on investment returns to meet its pension payments, administrative expenditure and expenditure in furtherance of the Charity’s objectives. The total return on investments for the year was a gain of £1.221M and investment income of £658K.

The resources expended totalled £2,028M of which £1,601M were resources expended for the Institute’s charitable activities.

The Prize Fellowships are fixed sum awards and, therefore, expenditure can be regulated by altering the number and/or value of prizes awarded each year. In 2023, prizes were awarded to six very strong candidates.

Payments are currently made to three pensioners who are previous employees of the Lister Institute. The Institute’s unfunded pension liability is some £142K. Given the value and nature of our investments, we do not believe pension funding to be a concern.

Reserves Policy

At 31 December 2023 the Institute has total reserves of £43.1M all of which are unrestricted. A majority of the Institute’s investments are listed. The Trustees regard the liquid B portfolio as a free reserve which, if necessary, would cover two years expected future expenditure.

The policy of the Trustees is to maintain adequate financial resources to provide income to meet current and future commitments as they fall due and ensure that adequate funds remain available to enable them to make awards in perpetuity. The adequacy of the level of reserves and the continuing appropriateness of the policy are reviewed on an annual basis by the Trustees. They continue to endorse the policy and its ability to support the long-term viability of the Institute. Although the Institute is not formally committed to awarding any Prizes beyond the current year, the Trustees are confident in the ability of the Institute to maintain appropriate levels of activity.

Plans for the Future

The Institute’s future policy is to continue to pursue its current objectives. It will therefore maintain and look to increase the Prize Fellowship scheme, which it sees as a funding priority. In wishing to continue to support young researchers through the on-going challenges in the research environment, the Governing Body has agreed that if there are sufficient high-quality candidates, the Scientific Committee may award around 6 Lister Prizes in 2024. The Lister Summer Studentship scheme will also be increased when possible.

Trustee Responsibilities Statement

The Trustees (who are also directors of The Lister Institute of Preventive Medicine for the purposes of company law) are responsible for preparing the Trustees’ Annual Report and

the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Trustees to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company, and of the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period. In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgments and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis, unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

In so far as the Trustees are aware:

- there is no relevant audit information of which the charitable company’s auditor is unaware; and
- the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company’s website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

This Trustees’ report has been prepared in accordance with the special provisions of Part 15 of the Companies Act 2006 relating to small companies.

By Order of the Governing Body



JOHN IREDALE
Chairman, 2 August 2024



MURRAY LEGG
Treasurer, 2 August 2024

INDEPENDENT AUDITOR’S REPORT

to the Members of the Lister Institute of Preventive Medicine
for the year ended 31 December 2023

Opinion

We have audited the financial statements of The Lister Institute of Preventive Medicine (‘the charitable company’) for the year ended 31 December 2023 which comprise the Statement of Financial Activities (including the Summary Income and Expenditure Account), the Balance Sheet, the Cash Flow Statement and notes to the financial statements, including significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 ‘The Financial Reporting Standard Applicable in the UK and Republic of Ireland’ (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company’s affairs as at 31 December 2023 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC’s Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the Trustees’ use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charitable company’s ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the Trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor’s report thereon. The Trustees are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees’ annual report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the Trustees’ annual report has been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees’ annual report.

We have nothing to report in respect of the following matters where The Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of Trustees’ remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit; or
- the Trustees were not entitled to prepare the financial statements in accordance with the small companies’ regime and take advantage of the small companies’ exemption in preparing the Trustees’ annual report and from preparing a strategic report.

INDEPENDENT AUDITOR’S REPORT
(CONTINUED)

Responsibilities of Trustees

As explained more fully in the Trustees’ responsibilities statement set out on page 10, the Trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustees are responsible for assessing the charitable company’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so

Auditor’s Responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs (UK) we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purposes of expressing an opinion on the effectiveness of the charitable company’s internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Trustees.
- Conclude on the appropriateness of the Trustees’ use of the going concern basis of accounting and, based on the audit

evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the charitable company’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause the charitable company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

The objectives of our audit in respect of fraud, are; to identify and assess the risks of material misstatement of the financial statements due to fraud; to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate responses to those assessed risks; and to respond appropriately to instances of fraud or suspected fraud identified during the audit. However, the primary responsibility for the prevention and detection of fraud rests with both management and those charged with governance of the charitable company. Our approach was as follows:

- We obtained an understanding of the legal and regulatory requirements applicable to the charitable company and considered that the most significant are [the Companies Act 2006, the Charities Act 2011, the Charity SORP, and UK financial reporting standards as issued by the Financial Reporting Council.
- We obtained an understanding of how the charitable company complies with these requirements by discussions with management and those charged with governance.

- We assessed the risk of material misstatement of the financial statements, including the risk of material misstatement due to fraud and how it might occur, by holding discussions with management and those charged with governance.
- We inquired of management and those charged with governance as to any known instances of non-compliance or suspected non-compliance with laws and regulations.
- Based on this understanding, we designed specific appropriate audit procedures to identify instances of non-compliance with laws and regulations. This included making enquiries of management and those charged with governance and obtaining additional corroborative evidence as required.

There are inherent limitations in the audit procedures described above. We are less likely to become aware of instances of non-compliance with laws and regulations that are not closely related to events and transactions reflected in the financial statements. Also, the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion.

Use of our report

This report is made solely to the charitable company’s members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company’s members those matters we are required to state to them in an auditor’s report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to any party other than the charitable company and charitable company’s members as a body, for our audit work, for this report, or for the opinions we have formed.

JONATHAN AIKENS (Senior Statutory Auditor)
for and on behalf of Moore Kingston Smith LLP, Statutory Auditor

9 Appold Street
London EC2A 2AP

9 August 2024

STATEMENT OF FINANCIAL ACTIVITIES
(INCORPORATING INCOME AND EXPENDITURE ACCOUNT)
for the year ended 31 December 2023

	Notes	2023	2022
		£'000	£'000
Income from:			
Investments	2	679	595
Total income		679	595
Expenditure on:			
Cost of raising funds			
Investment management costs	3	(168)	(185)
Charitable Activities			
Prizes and Summer Studentships	5	(1,840)	(2,305)
Total expenditure		(2,007)	(2,490)
Net gains/(losses) on investments	8	1,221	(2,483)
Net (expenditure) for the year		(107)	(4,378)
Other recognised (losses):			
Actuarial charge on defined benefit schemes	12	(20)	(25)
Net movement in funds		(127)	(4,403)
Reconciliation of funds:			
Total funds brought forward		43,275	47,678
Net Movement for the Year		(127)	(4,403)
Total funds carried forward		43,148	43,275

All of the Charity's funds are unrestricted.

The Statement of Financial Activities includes all gains and losses recognised during the year. All income and expenditure derives from continuing activities/operations.

The notes set out on pages 27 to 32 form part of these financial statements.

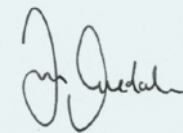
BALANCE SHEET
as at 31 December 2023 Company no: 34479

	Notes	2023	2022
		£'000	£'000
Fixed assets:			
Investments	8	43,101	43,294
Total fixed assets		43,101	43,294
Current assets:			
Debtors	9	6	6
Cash at bank and in hand	10	248	167
Total current assets		254	173
Current liabilities:			
Creditors: amounts falling due within one year	11	(66)	(50)
Net current assets		189	123
Total assets less current liabilities		43,290	43,417
Creditors: amounts falling due after more than one year			
Pension provision	12	(142)	(142)
Net assets		43,148	43,275
Represented by			
Unrestricted funds		43,148	43,275
Total charity funds		43,148	43,275

All of the Charity's funds are unrestricted.

These accounts have been prepared in accordance with the special provision of Part 15 of the Companies Act 2006 relating to small companies and in accordance with the Financial Reporting Standard 102.

These financial statements were approved by the Governing Body on 17 April 2024



JOHN IREDALE
Chairman
2 August 2024



MURRAY LEGG
Treasurer
2 August 2024

The notes set out on pages 27 to 32 form part of these financial statements.

STATEMENT OF CASHFLOW

for the year ended 31 December 2023

	2023	2022
	£'000	£'000
Cash flow from operating activities		
Net cash (used in) operating activities	(2,012)	(2,531)
Cash flow from investing activities		
Investment income	679	595
Proceeds from disposal of fixed asset investments	10,986	16,314
Acquisition of fixed asset investments	(11,395)	(13,818)
Other movements on investments	1,823	(676)
Net cash from investing activites	2,093	2,415
Net increase/(decrease) in cash	81	(116)
Cash and cash equivalents at beginning of year	167	283
Cash and cash equivalents at end of year	248	167
Reconciliation of net income to net cash flow from operating activities		
	2023	2022
	£'000	£'000
Net (expenditure) / income	(127)	(4,403)
Adjustments for		
Net gains on investments	(1,221)	2,483
Investment Income	(679)	(595)
(Increase) in debtors	-	(1)
Increase / (Decrease) in creditors	15	(23)
(Increase) / Decrease in pensions	-	8
Net cash used in operating activities	(2,012)	(2,531)

The Institute has no borrowings and cash is held on current account or short term deposits.
For analysis of cash see Note 10.

NOTES TO THE FINANCIAL STATEMENTS

for the year ended 31 December 2023

1 PRINCIPAL ACCOUNTING POLICIES

Basis of preparation

The Financial Statements have been prepared in accordance with the Statement of Recommended Practice, Accounting and Reporting by Charities (FRS102 SORP). The Financial Statements are prepared in accordance with the historical cost convention modified by the revaluation of investments. The charity is a Public Benefit Entity as defined by FRS102.

The Financial Statements are prepared in sterling which is the functional currency of the Charity. Monetary amounts in these Financial Statements are rounded to the nearest thousand pounds.

The principal accounting policies adopted in the preparation of the Financial Statements are as follows:

Income

All incoming resources are accounted for on a receivable basis.

Prizes and summer studentships

The cost of Research Prize Fellowships is charged in the year awarded.

Expenditure

The costs of raising funds include those fees payable to the Institute’s investment fund managers for the management of the Institute’s investment portfolio. These are accounted for on an accruals basis.

Charitable activities comprise all expenditure directly relating to the objects of the charity and are accounted for on an accruals basis. The allocation of expenditure between governance and management, administration and support costs is reviewed on an annual basis to ensure the allocation is appropriate. Indirect costs are generally treated as falling into the latter category with the exception of a proportion of salary and related costs, which have been classified as governance costs.

In addition to auditor’s remuneration, governance costs comprise the proportion of staff costs associated with the time spent on the preparation of the statutory accounts and other governance issues, together with honoraria remuneration provided to members of the Institute’s SC for their duties in selecting the Prize Fellows.

Supplementary pensions and staff pensions

An estimate of the full provision is made in the Financial Statements for the costs of future supplementary payments. The provision and charge to income are reviewed annually by the Trustees in the knowledge that the number of persons receiving the supplementary pensions will not increase. The pension costs are assessed in accordance with actuarial advice and these costs are accounted for in accordance with FRS102 SORP.

Existing employees participate in a defined contribution scheme, the costs of which are expensed as incurred. These disclosures are made in accordance with FRS102 SORP.

Tangible Fixed Assets

Any capital items purchased under £1K in value are expensed in the accounts in full as incurred. The Charity has no tangible fixed assets.

Investments

Investments are shown at market value in the balance sheet. Changes in the market value are included in the Statement of Financial Activities as realised and unrealised investment gains or losses in the year in which they arise. Investments denominated in foreign currencies are valued at year-end rates of exchange.

Cash flow statement

The Charity has included a cash flow statement in accordance with FRS102 SORP.

Taxation

The organisation is a registered charity and has obtained exemptions from taxation under Part 11, Chapter 3 of the Corporation Tax Act 2010. This exemption will remain as long as income is compatible with that section and expenditure is applied to charitable purposes only.

Critical accounting estimates and areas of judgement

In preparing financial statements it is necessary to make certain judgements, estimates and assumptions that affect the amounts recognised in the financial statements. The Trustees consider the estimates involved in the valuation of investments to have most significant effect on amounts recognised in the financial statements. These are taken directly from Investment Managers’ reports.

In addition, the company has an obligation to pay pension benefits to certain employees. The cost of these benefits and the present value of the obligation depend on a number of factors including: life expectancy, salary increases, asset valuations and the discount rate on corporate bonds. Management estimates these factors in determining the net pension obligation in the balance sheet. The assumptions reflect historical experience and current trends. See Note 12 for the disclosures relating to the defined benefit pension scheme.

Going Concern

The Trustees have assessed whether the use of the going concern basis is appropriate and have considered possible events or conditions that might cast significant doubt on the ability of the charity to continue as a going concern. The Trustees have made this assessment for a period of at least one year from the date of approval of the financial statements. In making this assessment the Trustees are satisfied that the substantial reserves and liquid assets held by the Lister Institute

NOTES TO THE FINANCIAL STATEMENTS
(CONTINUED)

1 PRINCIPAL ACCOUNTING POLICIES continued

justify their belief that there are no material uncertainties that cast significant doubt on the charity’s ability to continue as a going concern. The charity therefore continues to adopt the going concern basis in preparing its financial statements.

Financial instruments

The company has financial assets and liabilities of a kind that qualify as basic financial instruments. Basic financial instruments are initially recognised at transaction value and subsequently measured at their settlement value.

Trade and other debtors are recognised at the settlement amount due after any trade discount offered. Prepayments are valued at the amount prepaid, net of any trade discounts due.

Cash at bank and cash in hand includes cash and short term highly liquid investments with a short maturity of three months or less from the date of acquisition or opening of the deposit or similar account.

Creditors and provisions are recognised where the company has a present obligation resulting from a past event that will probably result in the transfer of funds to a third party and the amount due to settle the obligation can be measured or estimated reliably. Creditors and provisions are normally recognised at their settlement amount after allowing for any trade discounts due.

With the exceptions of prepayments and deferred income all other debtor and creditor balances are considered to be basic financial instruments under FRS 102. See notes 9 and 11 for the debtor and creditor notes.

Fund accounting

All of the Charity’s funds are unrestricted. Unrestricted funds are available for use at the discretion of the Trustees in furtherance of the general objectives of the Institute.

2 INVESTMENT INCOME

	2023	2022
	£’000	£’000
Income from fixed asset investments	658	588
Bank interest receivable	21	7
	679	595

3 INVESTMENT MANAGEMENT COSTS

	2023	2022
	£’000	£’000
Partners Capital LLP	79	92
Cazenove Capital Management	89	93
Total investment management fees	168	185

4 GOVERNING BODY AND STAFF COSTS

Employee information

The average number of persons employed by the Institute during the year was 4, (2022: 3) two of whom are part-time (2022: 2) and one of whom was on maternity leave. All staff were employed in an administrative and support capacity. No employees earn over £60,000 p.a. (2022: none).

Staff costs	2023	2022
	£’000	£’000
Gross salaries	114	101
Pension contributions	5	4
Employer’s national insurance	7	7
	126	112

The salary costs are allocated under governance where related to statutory accounts preparation, the balance being reported within charitable activities.

Key management personnel include the Trustees and the Director.

The total employee benefits of the charity’s key management personnel were £49,862 (2022: £44,069).

Emoluments of Trustees (members of the Governing Body (GB))

None of the members of the GB received an emolument in respect of services to the Institute during the year (see Scientific Committee below) (2022: £2,000). Travel expenses of £2,728 were paid relating to the claims of seven members in connection with their attendance at meetings (2022: £858 four members).

Members of the Scientific Committee (SC) (the chair of which is also a member of the Governing Body) are offered remuneration in relation to their services to the committee. An honorarium of £2,000 (2022: £2000) was offered to the chair of the SC, the other SC members (none of whom are members of the GB) were offered £1,000 (2022: £1,000). The majority of members, including the chair, asked for the honorarium to be paid to their employing institution.

5 PRIZES & SUMMER STUDENTSHIPS

	2023	2022
	£’000	£’000
Prize awards	1,500	2,000
Summer studentship payments	99	84
Support costs (see note 6)	90	87
Salaries (see note 4)	110	98
Governance costs (see note 7)	41	36
	1,840	2,305

6 SUPPORT COSTS

	2023	2022
	£’000	£’000
Office expenses	25	25
Travel expenses	9	9
Professional fees	10	8
Honoraria and events	40	38
Pension costs (see note 12)	6	7
	90	87

These costs are all considered to be costs to support resources expended on charitable activities.

7 GOVERNANCE COSTS

	2023	2022
	£’000	£’000
Auditor’s remuneration - current year	16	15
Staff costs (see Note 5)	16	14
Honoraria and events	9	7
	40	36

No non-audit services were provided by the auditors during the year (2022: none). Auditors remuneration includes fees for the year totalling £13,775 excluding VAT. (2022: £12, 650).

NOTES TO THE FINANCIAL STATEMENTS
(CONTINUED)

8 INVESTMENTS

Listed investments are valued at middle market quotations ruling at the year-end		
	2023	2022
	£'000	£'000
Market value at beginning of year	43,294	47,597
Purchases during the year at cost	11,395	13,231
Proceeds of sales during the year	(10,986)	(16,314)
Reinvested income for the year	658	588
Movement in un-invested cash	(581)	2,875
Cash withdrawn	(1,900)	(2,200)
Net change in market value	1,221	(2,483)
Market value at year-end	43,101	43,294
The portfolio's asset allocation was as follows		
UK investments		
Equities	1,387	1,845
Fixed interest	2,785	2,781
Other (including private equity, property, commodities, alternatives and inflation linked bonds)	4,543	4,543
Cash	4,172	4,954
Total UK investments	12,887	14,123
Non-UK investments		
Equities	25,213	23,473
Other (including private equity, property, commodities and alternatives)	5,001	5,698
Cash	-	-
Total Non-UK investments	30,214	29,170
Total	43,101	43,294

As of 31 December 2023 individual shareholdings exceeding 5% of the total value of investments were: Vanguard S & P 500 UCITS - £2,783,872; Partners Capital Harrier Fund - £2,679,766 (2022: None).¹

The Institute's investments held by one custodian are charged as security for the Institute's ongoing financial obligations to that custodian for banking services related to those investments.

9 DEBTORS

	2023	2022
	£'000	£'000
Prepayments	6	6
Total	6	6

10 CASH

	2023	2022
	£'000	£'000
Cash at bank	248	167

11 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2023	2022
	£'000	£'000
Taxation and social security	5	4
Accruals	61	46
Total creditors falling due within one year	66	50

12 PROVISION FOR LIABILITIES AND CHARGES

This represents a provision for future supplementary pension payments in respect of ex-employees, based on their salary and length of service. The pensions are unfunded, with payments made out of the Institute's funds as they fall due.

Movements in the pension provision during the year were as below

	2023	2022
	£'000	£'000
Liability at beginning of period	142	134
Plus interest cost	6	7
Plus actuarial losses	20	25
Benefits paid	(26)	(24)
Liability at end of period	142	142

The tables below state the FRS102 actuarial assumptions used to estimate the pension provision.

Principal actuarial assumptions Valuation at 31 December 2023

	2023	2022
Rate of increase to pensions in payment*	5%	5%
Rate used to discount scheme liabilities	4.5%	5%

The post-retirement mortality assumption uses the PCA00 base tables (year of birth) with improvements equal to medium cohort with a 1% minimum.

NOTES TO THE FINANCIAL STATEMENTS
(CONTINUED)

13 RELATED PARTY TRANSACTIONS

Emoluments of Trustees (members of the Governing Body (GB). None of the members of the GB received an emolument in respect of services to the Institute during the year (2022: £2,000). Travel expenses of £2,728 were paid relating to the claims of seven members in connection with their attendance at meetings (2022: £858 four members).

Members of the Scientific Committee (SC) (the chair of which is also a member of the Governing Body) are offered remuneration in relation to their services to the committee. An honorarium of £2,000 (2022: £2000) was offered to the chair of the SC, the other SC members (none of whom are members of the GB) were offered £1,000 (2022: £1,000). The majority of members, including the chair, asked for the honorarium to be paid to their employing institution.

Lister Prize Fellowships may be awarded to candidates from academic institutions which employ or have associations with Trustees. Trustees are not involved in and do not benefit from such awards which are made after a rigorous selection process by the SC. SC members also reclude themselves where there are similar relationships with candidates for prizes.

In 2023 two Lister Prize Fellowships were awarded to applicants from the same institutions as two of our Trustees (2022: one).

14 MEMBERS’ LIABILITY

The liability of the Members of the institute is limited to 50p. At the date of the financial statements, there were 236 members, each with a guarantee potential of 50p.

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Page 14: Professor Dame Pamela Shaw, Ms Dina Almuli, Professor Sir Alec Jeffreys, Mr Matthew Pintus, Professor Sir John Iredale, Dr Sally Burtles, Mrs Nicola King, Mrs Susan Andrews, Professor Julian Blow
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Back cover: Nicole Simms (PhD), Post-doc, based in Dr John Knight’s lab at the University of Manchester

LEGAL AND ADMINISTRATIVE INFORMATION
for the year ended 31 December 2023

Business Address
PO Box 2502
Watford
WD18 1AE

Solicitors
Macfarlanes
20 Cursitor Street
London EC4A 1LT

Bankers
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St Martins Office
440 Strand
London WC2R 0QS

Auditor
Moore Kingston Smith LLP
9 Appold Street
London EC2A 2AP

Registered Office
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10 Norwich Street
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Investment Advisors
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1 London Wall Place
London EC2Y 5AU

Partners Capital LLP
5 Young Street
London W8 5EH

Website: www.lister-institute.org.uk
Telephone: 0203 532 5345

The Lister Institute of Preventive Medicine is a company limited by guarantee (England 34479) and is a registered charity (206271)

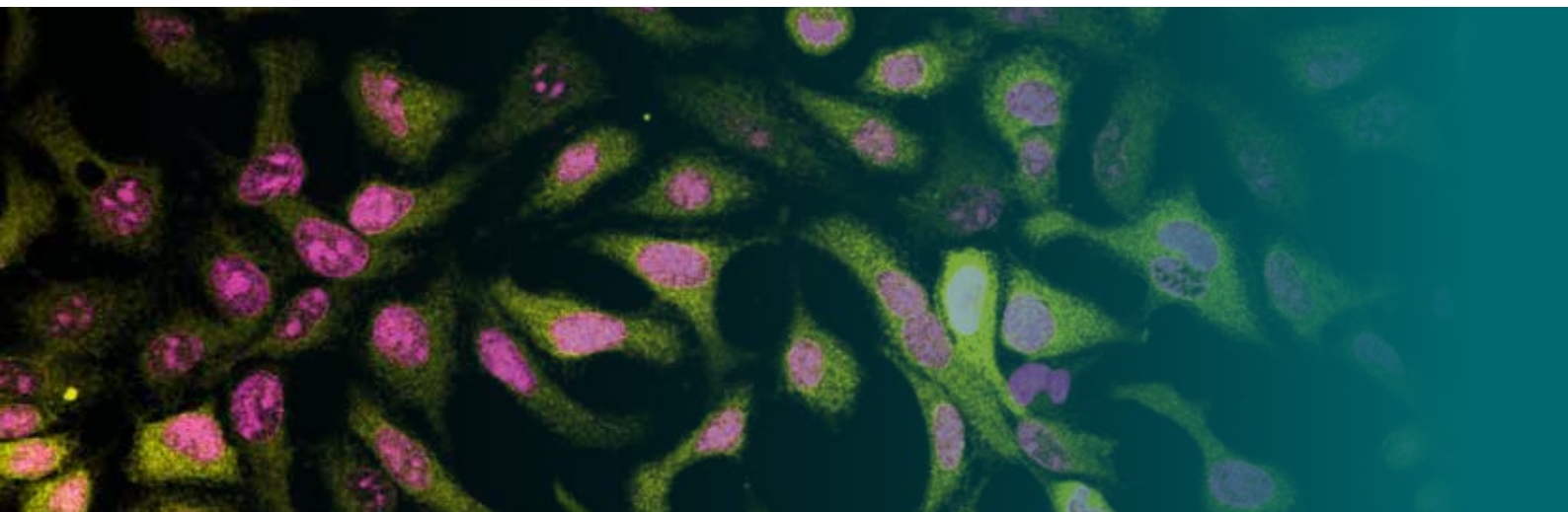
THE GOVERNING BODY
Professor Sir John Iredale, FRCP, FMedSci, FRSE, *Chairman*
Mr Murray Legg, BSc, FCA, *Hon Treasurer*
Professor Judith Armitage, BSc, PhD, FRS
Professor Wendy Bickmore, CBE, BA, PhD, FMedSci, FRS, FRSE
Professor Sir Adrian P Bird, CBE, FRS, FRSE
Professor Julian Blow, PhD, FRSE, *Chair Scientific Advisory Committee*

Professor Rebecca Fitzgerald, OBE, MACantab, MD, FMedSci
Hon Rory M B Guinness, BA, MSc, FCIM
Professor Douglas Higgs, MBBS, MRCPPath, DSc, FRCP, FRCPPath, FRS
Professor Sir Alec J Jeffreys, CH, DPhil, FMedSci, FRS
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA
Professor Dame Pamela Shaw, DBE, FRCP, FMedSci
Mrs Jennifer Smithson, BA (*Appointed September 2023*)
Professor Rosalind Smyth, CBE, FMedSci

THE SCIENTIFIC COMMITTEE
Professor Julian Blow, PhD, FRSE, FMedSci, FMedSci, *Chair*
Professor Judi Allen, MPH, PhD, FRSE, FRSB, FMedSci
Professor Thomas J Evans, MA, PhD, MBBChir, FRCP
Professor Muzlifah Haniffa, FMedSci
Professor Aroon Hingorani, MA, PhD, FRCP
Professor Clare Isacke, DPhil, FmedSci (*Appointed September 2023*)
Professor Yvonne Jones, FRS, FMedSci, FLSW
Professor Angus Lamond, FRS FRSE FMedSci
Professor Belinda Lennox, DM FRCPsych (*Appointed September 2023*)
Professor Iain B McInnes, CBE PhD FRCP FRSE FMedSci
Professor Sir Mike Owen, BSc, MB ChB, PhD, FRCPsych, FMedSci, FLSW (*Retired September 2023*)
Professor Elizabeth Patton, BSc, PhD, FRSE (*Retired September 2023*)
Professor Inga Prokopenko, MSc PhD
Professor Anne Rosser, PhD, FRCP
Professor Daniel St Johnston, FRS, FMedSci

THE FINANCE AND INVESTMENT COMMITTEE
Mr Murray Legg, BSc, FCA, Hon Treasurer, *Chair*
Professor Judith Armitage, BSc, PhD, FRS
Hon Rory M B Guinness, BA, FCIM
Professor Sir John Iredale, FRCP, FMedSci, FRSE
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA
Mrs Jenny Smithson, BA (*Appointed September 2023*)

SENIOR MANAGEMENT
Director and Secretary: Dr Sally Burtles, BSc, PhD



THE LISTER INSTITUTE OF PREVENTIVE MEDICINE

England & Wales - Charity number 206271

Accounts

ANNUAL REPORT AND FINANCIAL STATEMENTS

for the year ended 31 December

2022

A photograph of a young woman with long blonde hair and black-rimmed glasses, smiling warmly at the camera. She is wearing a white lab coat. The background is a laboratory setting with shelves containing various bottles and equipment.

*Nurturing the future leaders
in biomedical research*

The Institute was founded in 1891 and for the next 85 years played a vital role in the development of the laboratory aspects of preventive medicine as an independent research institute in the UK. Since the 1980s the Lister Institute has been a highly successful trust awarding prestigious research fellowships, which in 2003, were revised to become Prize Fellowships. The Fellowships continue to deliver the Lister Institute's strategic aim of nurturing the future leaders in biomedical research.

Over its history, the Lister Institute research staff and Fellows have made discoveries that have made significant impacts on human health. For example,

Dr (later Dame) Harriet Chick discovered that a deficiency of vitamin D was the cause of rickets. Several researchers were involved in research into blood groups thus making blood transfusion safe. Dr (later Professor) Leslie Collier found a way to produce a form of smallpox vaccine storable at warm temperatures so it could be used all over the world and ultimately led to the eradication of smallpox. Dr (now Professor Sir) Alec Jeffreys discovered DNA fingerprinting for use in solving crimes and paternity cases. Our current Fellows continue to build on this illustrious past and are making discoveries that will impact our health and medicine in the future.



CHAIRMAN'S INTRODUCTION

for the year ended 31 December 2022

I am pleased to present the Lister Institute of Preventive Medicine Annual Report for 2022 on behalf of the Governing Body.

This is the first Annual Report that I have the honour of presenting as Chairman of the Lister Institute, having taken over as Chair at the AGM in September 2022. I am delighted to have been appointed as Chair as I have a deep fondness for the Lister Institute and its spectacular track record in supporting young talent. If you would like to read more about my thoughts about the Lister Institute and how it can transform talent, please see page 7.

I have taken over at a good time as 2022 was a notable year for the Institute with it awarding eight Lister Prizes of £250,000, the highest number it has ever awarded. The Governing Body agreed to the increased number in part as something the Lister could do to mitigate for the impact of the pandemic on young researchers. It also gave 35 studentships and held an excellent Annual Meeting in Oxford.

As always, our Fellows and former Fellows continue to conduct excellent research, publish in high impact

journals and to win awards and recognition for their work. This year, particular congratulations must be given to Professors Kate Storey and Paul Lehner who were made Fellows of the Royal Society; Professor Nick Lemoine (past SAC member) who was awarded the CBE for services to Clinical Research; and to Professor Ravi Gupta who was awarded the Translational Microbiology Prize and Dr Tanmay Bharat who was awarded the Fleming Prize by the Microbiology Society.

It is with sadness that I have to report that Edward Guinness CVO died at the end of 2022 aged 98. Edward was the representative of the Guinness family on the Governing Body for 32 years from 1969 to 2001 and was said to have found it 'a most enriching and rewarding experience'. He had a crucial role in steering the Institute through its change from being a physical institute undertaking research and producing vaccines and other products to being an organisation which awards prestigious research fellowships. I am also sorry to report that Lawrence Banks, another former Governor (2001-2006) passed away this year as well.

We held a very successful Annual Meeting at Corpus Christi College in Oxford. We had talks from both 2022

and 2021 prize winners. Professor Frances Platt gave a very inspirational talk and Professor Sir Alex Markham shared his words and wisdom as our departing Chairman.

Professor Sir Alex Markham and Dr Sally Burtles undertook a record number of visits to the Fellows in their home institutions this year to make up for visits missed because of the pandemic. In 2022 they visited 9 Fellows in 7 institutions: Dr James Lee and Professor Rickie Patani (Crick), Dr Stephen Uphoff (Oxford), Professor Yanlan Mao (UCL), Dr Chris Stewart (Newcastle), Dr Tomás Ryan (Dublin), Dr Stineke Van Houte (Exeter), Professor Ravi Gupta and Dr Tanmay Bharat (Cambridge). It is always excellent to hear the Fellows present their research and to be able to tell their colleagues about the Lister Institute. On behalf of Professor Sir Markham and Dr Burtles I would like to express our thanks for their excellent hospitality and ongoing support. The visit to Dublin involved a larger group which also included both myself and the Hon Rory Guinness. As well as the visit with Dr Ryan we held a special event aimed at encouraging more applications from Irish institutions.

I would like to thank Professor Julian Blow and all the members of the Scientific Advisory Committee ('SAC') for their extremely hard work

in reviewing the applications and identifying the Lister Prize Fellows. As a past member and Chair of the SAC I know it is always a big task for both the SAC to review the applications and the staff to secure external reviewers for those that are long-listed. For the first time since 2019, the final interviews were conducted in person at the Royal Society with the candidates giving presentations and being subject to intense questioning before the Prize Winners were selected.

I would also like to thank the members of the Governing Body and the Finance and Investment Committee for all their hard work and support throughout the year and the challenges of managing our investments through testing times.

Financial markets remained volatile in 2022 with concerns about inflation, energy prices and the war in Ukraine. Through this our investment managers continued to do a good job of managing our investments although we ended the year with a negative outcome. The valuation of our investments on 31 March 2022 (after withdrawal of the funds for the Prize Fellowships and our operational costs) was £43.3, down from £47.6M in 2021. Despite these challenges we awarded eight Lister Prizes in 2022 but, for the first time, we used the 'B' Liquidity Portfolio to fund them.

The Covid pandemic and other changes in the research environment are causing considerable challenges for young researchers. The Lister Institute Prizes of £250,000 provide an excellent opportunity to make a significant and positive impact on the research and careers of those who win them, and to deliver on our aim of 'nurturing the future leaders in biomedical research'.

I must end by thanking the team – Sally Burtles, Nicola King, Dina Almuli and Sue Andrews – for making the Lister Institute operate so smoothly on a day-to-day basis. Our Operations Manager, Nicola King went on maternity leave in October and has been replaced by Dina Almuli who is doing an excellent job of covering all the work. I must also thank my predecessor Professor Sir Alex Markham for leading the Lister Institute so well over the last eleven years, wishing him well in his retirement and hoping we will continue to see him at the Lister Institute Annual Meetings.

The Lister Institute is a strong organisation and that is because of the people associated with it - our Fellows, the members of the Governing Body and its sub-committees, the Membership of the Institute and our staff. To all I offer my sincerest and warmest appreciation.

Professor John Iredale, Chairman

2022 LISTER RESEARCH PRIZE FELLOWSHIP WINNERS

The individuals to whom we awarded the Lister Prize Fellowships are as follows:

This year, in response to the Covid pandemic, we were keen to award as many Fellowships as possible. We received a high number of outstanding applications and so, for the first time, eight researchers received the £250,000 in flexible funding.



Dr Shoba Amarnath, University of Newcastle upon Tyne

Translating co-receptor biology to immunotherapeutics in cancer

Immune checkpoint therapies – antibodies directed against checkpoint proteins such as programmed cell death-1 receptor (PD-1) – benefit about 30% of cancer patients. But why do most patients not respond? Shoba's aim is to determine whether early immune activation triggers driven by tumour cells can play a key role in enhancing response. Determining immune modifiers that drive robust early immune activation may be key to improving checkpoint therapies and stratifying patients.



Dr Elizabeth Ballou, University of Exeter

Investigating how cross-kingdom microbial partnerships impact fungal pathogenesis of the causative agents of Mucormycosis

Elizabeth's group studies how relationships between soil-dwelling fungi and bacteria influence disease. They have shown that transient interaction with bacteria can cause changes in fungal stress resistance resulting in increased virulence. By investigating the molecular mechanisms by which fungal-bacterial partnerships influence pathogenesis in a variety of species, Elizabeth's lab is identifying new ways to block fungal stress resistance and improve patient outcomes.



Dr David Bending, University of Birmingham

T cell receptor signalling dynamics during T follicular helper cell responses

T follicular helper (Tfh) cells are a key immune cell population controlling the generation of high affinity germinal centre B cells and antibody responses. David's lab employs state-of-the-art tools to reveal how T cell receptor signal strength and duration impact upon Tfh cell formation and the ensuing development of antibody-secreting lymphocytes. Better understanding these processes will help to design more effective vaccines and immunotherapies.



Dr Amanda Chaplin, University of Leicester

Cryo-EM studies of human DNA repair complexes: DNA-PK and interacting partners

Amanda's lab studies a key mechanism to repair double-strand breaks in DNA, called non-homologous end joining (NHEJ). They use cryo-electron microscopy and biochemical techniques to understand large multicomponent assemblies critical for DNA repair. Proteins involved in NHEJ are also important during viral infection, which they are also investigating. Understanding these mechanisms has the potential to develop specific therapeutics against cancer and viruses.



Professor James Davies, University of Oxford

Using base pair mapping of genome architecture to interrogate the mechanisms by which enhancers control transcription

James' lab specialises in understanding how DNA is structured within the nucleus and how this relates to gene expression. They have developed new approaches that allow DNA structures to be determined at very high resolution. These are providing insights into the fundamental mechanisms by which genes are controlled as well as enabling them to understand the effects of sequence variation on human disease.



Dr Marco Di Antonio, Imperial College London

Unravelling epigenetic pathways leading to chemo-resistance in ovarian cancer with a light-controlled CRISPR-based platform

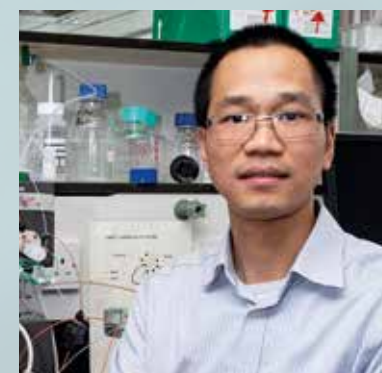
Marco's group investigates the prevalence of non-helical DNA structures and DNA chemical modifications in the context of ageing related disorders. They aim to develop chemical-based tools to perturb, in real time, DNA-methylation in ovarian cancer cells using light irradiation. This technology will underpin druggable pathways to restore the sensitivity to therapies whilst also identifying diagnostic markers to monitor resistance acquisition.



Dr Anthony Khawaja, Institute of Ophthalmology, University College London

Translating genomic discovery into clinical prediction tools for glaucoma

Detecting glaucoma early is challenging, response to available treatments is variable, and it is impossible to predict which patients will become blind. The solution to these challenges lies in understanding glaucoma's complex genetics. Anthony's team is identifying many new genetic markers and building prediction tools that will enable population screening for early detection and enable more personalised care, saving sight and considerable cost.



Dr Tung Le, John Innes Centre

The line of duty: How to segregate a giant linear plasmid in antibiotic-producing Streptomyces

Streptomyces bacteria are peculiar in that they often contain giant linear plasmids, which are often involved in complex metabolic processes including antibiotic production. Tung's group is interested in understanding the fundamental mechanisms by which these important linear plasmids are faithfully segregated and how they might contribute to the genome evolution in antibiotic-producing Streptomyces.

TRANSFORMING TALENT



The Lister Institute's Chair, Professor John Iredale, highlights the unique, nurturing environment that Lister Fellows and Members create. Connectivity, conversation and collaboration are crucial ingredients for truly world-class, breakthrough research.

I first joined the Lister Institute as a member of its Scientific Advisory Committee in 2013 and since then I have developed what I can only describe as a deep affection and respect for this wonderful organisation. I don't say this lightly either. Over my career, I've reviewed innumerable research proposals, sat on umpteen committees and am currently Interim Chair of the Medical Research Council. All of these experiences have been rewarding, but there's nothing quite like the Lister Institute. It stands out from the crowd and has a unique place in UK and Irish medical research funding.

We have neither scale nor resources on our side, but we do our best to make up for all that in the significance of our funding impact. Just flipping through the last few years of Annual Reports, I'm staggered by what our Fellows and Members achieve. Although you could argue that our grants are comparatively modest, nevertheless having several hundred thousand pounds that you're able to spend almost as you choose offers freedom and, most importantly, transformational support for exciting new ideas. And it is that potential for transformation that is so important in what we do and how our decisions are informed.

Given the depth, breadth and originality of the science we support, my only lament is that the Scientific Advisory Committee is not able to award more and bigger annual prizes! With the pandemic, the Ukraine conflict and continued global instability, this is not an easy period to navigate financially so we will

continue to seek new benefactors and look to the potential to develop funding awards jointly with other institutions and organisations. We will continue to invest responsibly in the future of biomedical science as our mission is more important now than ever.

The science funded by Lister is always incredible, however part of the real magic of this Institute happens outside of the lab. We've got a spectacular track record in supporting young talent. That's because as a community we genuinely want to see our Fellow researchers thrive and push the boundaries of our knowledge. We aspire always to wrap around support and mentorship to those we fund and see that knowledge potential realised as our Fellows thrive.

We have created a community that builds meaningful connections across generations and disciplines. I love the Annual Meeting because you see this in action. I'm immersed in so many lively discussions, so many offers of help, so much excellent mentoring that directly builds our capacity and capability for breakthrough science.

So alongside our support for excellent science, as Chair I want to maintain this drive to nurture excellent scientists too. It is something that no grant award can buy, but something we do so well. Let's keep connecting, collaborating, challenging, and mentoring each other. Together, we have the potential to transform lives.

CREATING A MODEL MOUSE EMBRYO – WITHOUT EGGS OR SPERM



Professor Magdalena Zernicka-Goetz, former Lister Fellow and former member of the Lister's Scientific Advisory Group (SAC), talks about her achievement to grow a model mouse embryo from stem cells.

My research group is investigating the molecular and cellular mechanisms that drive cell specification and patterning at the earliest stages of our life, when cells have to develop their identities for the first time. We use molecular genetics and cell biology techniques to alter live embryos, then image how they develop. The mouse embryo is great to study because it closely resembles human development.

Through this research, my colleagues and I began to wonder whether we can reproduce cell-cell communications using all different stem cell types critical for the process of embryogenesis. So we combined embryonic stem cells with two other stem cell types from mice. After inducing expression of a particular set of genes and placing the cells in a suitable environment, we indeed detected their mutual interaction. They self-organised into structures that progressed through developmental stages until we had a beating heart and the foundations of the brain. We were amazed to see the structure even contained a yolk sac where the embryo develops and gets nutrients during its first weeks.

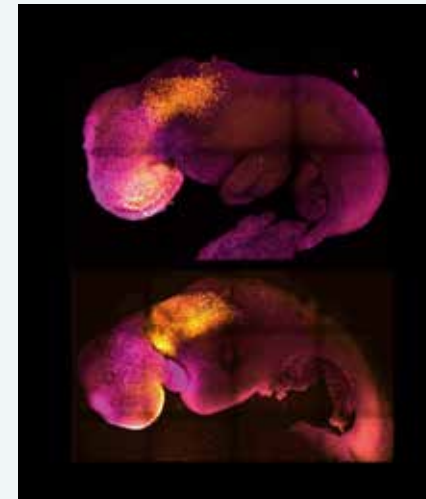
This is the furthest point any scientists have achieved using any kind of stem

cell-derived model. It felt unbelievable that we got this far. This had been the dream of our research community for years and a major focus of my work for a decade. Finally, we had done it, an amazing moment for my team.

The so-called "embryoids" mirror a natural mouse embryo up to 8.5 days after fertilisation. Our follow-up studies have revealed some of the mechanisms behind this incredible phenomenon. It appears that extraembryonic cells signal to embryonic cells by chemical signals, but also mechanistically, through touch, using a code (cadherin code) to guide the embryo's development. In essence, there's a dialogue happening between the different types of stem cell in these earliest days of development – we've shown how it occurs and how it can go wrong.

With further refinement, the technique could really improve our understanding of the earliest stages of organ development, especially why some pregnancies fail. We also hope that we could use embryoids to study the early stages of development and tease apart the mechanisms behind diseases without having to use animal models.

This period of human life is so mysterious, so to be able to see how it happens in a dish – to have access to these individual stem cells, to understand why so many pregnancies fail and how we might be able to prevent that from happening – is very special.



'TIS IN MY MEMORY LOCK'D



Dr Tomás Ryan is the first scientist in an Irish institution to secure a Lister Fellowship.

He is deciphering the neuroscience of memory-making and forgetting.

Like confidential documents and large wads of crisp bank notes, we try to keep our thoughts and memories safe. We lock them in our minds where no-one can touch or tamper with them.

But are these memories really so hidden or safe?

This question puzzles Tomás Ryan too, but in 2022 he posited a new theory of forgetting. Writing a Perspectives piece in Nature Reviews Neuroscience, he proposed that forgetting was the outcome of adaptive cell plasticity in the brain.

Neuroscientists argue that memories are stored in groups of neurons known as “engrams”. Building on this idea, Tomás and his co-author, Dr Paul Frankland of the University of Toronto, suggest that forgetting –the loss of memories – occurs when engrams switch from an accessible to an inaccessible state. Forgetting is like losing the key to your supposed high security engram memory vault.

Going a step further, the authors argue that ‘forgetting’ is actually an act of learning: it requires neuronal plasticity that alters access to specific memories, based on environmental feedback and predictability. They suggest that in diseases associated with memory loss, natural forgetting mechanisms may become faulty, leading to a loss of accessibility to engrams and subsequent memory loss.

The Perspective article looks in detail at the different theories of how humans forget. It also reviews the techniques that can be used to explore these possibilities, including how scientists’ ability to observe and manipulate memory engrams provides the opportunity to study the effect of forgetting on these cells.

The big question is whether memory loss can be reversed. Is it possible to reconnect engrams and recover memories, as if you have found that missing key?

Tomás is using his Lister Prize award to advance his research into memory engrams, amnesia and recall, for example by supporting the post of Dr Clara Ortega-de San Luis in his lab. His group explores the neurobiological background of infantile amnesia – the natural phenomenon in which we lose all our early memories. He wants to find out if and how childhood memories can be rediscovered in adulthood, and what impact this may have.

In May 2022 last year, Tomás and Clara published a review paper in Journal of Biological Chemistry. It covers current understanding of the molecular and cellular nature of memory formation deduced from engram studies. The paper highlights unanswered questions, many of which Tomás himself aims to solve, most intriguingly, whether there is anything like a “memory code” that machines might one day decipher.

“I believe that the great breakthrough in neuroscience will come from understanding the physical substrate of information in the brain and how learning is translated into it,” remarks Clara. We have a sophisticated set of tools available now to explore this fascinating question and better grasp what memories look like.

“What Clara has articulated here, is the importance of distinguishing between the molecular basis of information storage and the mechanisms of the expression of that information. Just as for the genome, an engram likely uses different approaches for each aspect,” Tomás adds.

Perhaps our memory is not quite as locked away as we once thought.

SUMMER STUDENTSHIP SCHEME 2022

Since it launched in 2011, we have supported over 500 students to experience life in top laboratories. The opportunity encourages most participants to register for PhDs. Some students projects even contribute to papers in high profile journals!

In 2022 we funded 35 studentships. A few students’ and supervisors give their reflections.



The student perspective



Grace Kirman: *studentship with Professor Mark Buttner and Dr Susan Schlimpert, John Innes Centre*

“It was exciting to have the opportunity to explore such a fast-evolving field of research. This was challenging but also intellectually stimulating and as a consequence brought with it a huge sense of achievement. The financial benefits provided by the Lister Institute also served as motivation – I would have not been able to take up the placement had it been unpaid.”



Rohum Hossain: *studentship with Professor Sherif El-Khamisy and Dr Hannah Crane, University of Sheffield*

“I have grown more confident in research and scientific communication. The studentship has given me the opportunity to network with fellow academics in the research sector and enhanced my understanding in the field of cancer biology.”

Ivan Yang Ji: *studentship with Professor Serge Mostowy, London School of Hygiene and Tropical Medicine*

“I got to better understand the dynamics of research and funding in academia, and how to succeed in it, which has helped me to make an informed decision on how to continue my career in this field.

The supervisor perspective

Professor Yanlan Mao,
University College London

“Katherine’s work in the lab during her project placement has been truly exceptional: she’s an enthusiastic and fast learner and was able to master the different steps involved in data collection and analysis. She fit in very quickly with our interdisciplinary group, showing great interest in people’s research projects and topics related to a career in science.”

Professor Julian Blow,
University of Dundee

“Within two weeks Kai Lynn progressed to being able to work both independently and effectively. Throughout the remaining duration of her studentship Kai Lynn worked very hard producing well controlled and reproducible results that made a valuable contribution to our project. I am very pleased that Kai Lynn will return to the lab to continue her project in the autumn as a part of her degree course.”

ANNUAL MEETING

On 8 and 9 September, we returned to our usual venue of Corpus Christi College, University of Oxford, for our annual gathering of Fellows and Members. If you feel you missed out – or want to relive this spectacular event – here are some of our favourite moments.



Lecture from Professor Frances Platt ‘Saved by the Lister Institute; the story of miglustat’

The opening talk at this meeting always serves to inspire, and Frances’s presentation was no different.

She talked us through her body of work into lysosomal storage diseases, and how her 1994 paper outlined a new therapy approach. It was met with considerable scepticism but led to animal research and then human trials to establish miglustat as an approved treatment in 2002-3.



The audience enjoyed Frances’s recollections of applying for the Lister Fellowship two days before the closing date. She admits her proposal was “a stream of consciousness” and she posted it without any time for edits.

The huge impact of her work is undeniable. As the only approved therapy for this disease, miglustat adds an average of 10 years to life expectancy: “Niemann-Pick patients wouldn’t have received treatment if it wasn’t for the Lister Institute,” she concluded.



Talks by winners of the 2021 Research Prizes

Dr Christopher Stewart of Newcastle University spoke about his studies using stem cell-derived “mini guts” to investigate microbiome-host interaction in early life.

Pre-term babies are at risk of necrotising enterocolitis (NEC), a life-threatening infection resulting from inflamed tissues in the gut. Working with the Great North Neonatal Biobank, Christopher explored how different bacteria in babies’ gut microbiome react to sugars. He has identified the sugar DSLNT in human milk as needed to prevent NEC.

A paper in Nature Microbiology highlights Christopher’s work using intestinal organoids derived from pre-term infants which discovered that the probiotics act in strain-specific ways to drive gut microbiome development in very pre-term infants.

Poster session

Lister Fellows and Members ended the day with a buffet and drinks reception whilst viewing research posters from Lister Summer Studentships.

It is always a great honour to fund these studentships and give undergraduate students a unique opportunity to meet other Lister Fellows and esteemed Members.

Talks by winners of the 2022 Research Prizes

Dr Tung Le, based at the John Innes Centre

kicked off the series of 2022 Prize Winners with his presentation *The line of duty: How to segregate a giant linear plasmid in antibiotic-producing Streptomyces*.

He described foundational work to understand how Streptomyces form giant linear plasmids to ensure DNA is not damaged during bacterial cell replication. Tung is now using his Lister funding to explore how this process happens in multicellular organisms. The project has potential to contribute to the vitally important discovery and production of new antibiotics.

The research certainly went down well, with Professor John Iredale praising the “beautiful, elegant work.”

Dr Shoba Amarnath of Newcastle University

is using her funding to discover whether there is an initial immune cell in tumours that drives tumour immunity. She hopes that the research will help explain why immune checkpoint therapies currently benefit just a third of patients – and help improve them accordingly.

Focusing on the PD-1 receptor, Shoba’s lab is full of questions about cancer cell immunity. “In the next few years, we’ll be tearing apart the immune system in melanoma patients and putting it all back together,” she says.

Dr Elizabeth Ballou of University of Exeter

gave us a fascinating insight into the unique Mucorales or black fungus, which she described as widely misunderstood by clinicians. Current treatment options are limited.

During the delta wave of Covid-19 in India, doctors were giving patients steroids to try and tackle their Covid symptoms, only to see them return to hospital after a fortnight with severe mucormycosis. Liz believes that cross-kingdom microbial partnerships affect Mucormycosis pathogenesis; she wants to identify global trends in highly diverse clinical isolates to find a signature for endosymbiosis and ultimately improve outcomes for patients.

Dr David Bending of University of Birmingham

is studying signalling dynamics in T cells. He spoke about his work that shows how T cell receptor signal strength and duration influence the formation of T follicular helper cells. Ultimately, he hopes his research will lead to the development of more effective vaccines and immunotherapies by identifying the ideal amount of antigen to use, known as the ‘Goldilocks’ amount.

David’s award will fund proof of principle studies to establish new vaccination models and expand his research to assess mode of antigen delivery and route. It will help to retain his MSc student in a technical post so the research can continue.

“I know enough about immunology to know that was absolutely brilliant,” said Professor Sir Alex Markham, following the lecture.

Dr James Davies of University of Oxford

focused on his lab’s technique to capture chromosome conformation at base pair resolution. This work is providing insights into the fundamental mechanisms by which enhancers control gene expression. It also provides hints on how genome sequence variation may affect human disease. The research is pioneering a new mapping technique that James plans to integrate with other modelling approaches, such as machine learning, static models, and polymer modelling.

Dr Marco Di Antonio of Imperial College London

is trying to unravel the complex epigenetic pathways that lead to chemo-resistance in ovarian cancer. He’s hoping a light-controlled CRISPR-based platform will do the trick.

“I really like challenging dogmas,” said Marco – and with that, the lecture theatre was captivated! His work draws from the fact that DNA is not only found as a double helix, and that the genetic code is not limited to A, T, G, and C nucleotides.

His lab studies ovarian cancer – a disease for which the survival rate hasn’t improved since 1975, contrary to most other tissue cancers. The research aims to understand the temporal and spatial control of methylation in ovarian cancer and the epigenetic contribution to therapy resistance.



Special Lister Lecture from Professor Sir Alex Markham

After all the inspiring science, we knew we were in for a treat, and Alex did not fail to deliver. As outgoing Chair, Alex gave a walk through his life and times, bidding the Lister “a fond au revoir”. We got glimpses of manuscripts scrawled with notes, wonderfully faded photos and a steady stream of anecdotes delivered with good humour and a generous portion of gratitude and reflection.

Professor John Iredale thanked him for his years of service. We enjoyed some photos of Alex’s trip to a brewery to make his very own “Alex’s Lister Ale” – bottles of which went down well at the evening drinks reception!

Hon Rory Guinness tweeted, “What a legend of a man. A kind gentleman with a great sense of humour. We are so lucky to have had the honour of his Chairmanship. Scientists and science have benefited immeasurably from his wise ways.”

It was only fitting to give Alex the ovation he so clearly earned for his outstanding contribution.



Talks by winners of the 2020 Research Prizes

Dr Hayley Sharpe of The Babraham Institute

was unable to join us in previous years, but she delighted us with an update on research that is reshaping how we think about receptor tyrosine phosphatase signalling in health and disease. She is using her Lister funding to recruit a PhD student to the lab who will drive forward research into new areas of signalling, using a mouse model for CD45.

CURRENT

LISTER PRIZE FELLOWS

For the full list of all Lister Fellows (past and present) please see the Lister website <https://www.lister-institute.org.uk/former-fellows/>

<i>Fellow</i>	<i>Title of Research</i>	<i>Awarded</i>
Dr Shoba Amarnath University of Newcastle upon Tyne	Translating co-receptor biology to immunotherapeutics in cancer	2022
Dr Tom Baden University of Sussex	Anisotropic retinal circuits for processing of colour and space in nature	2018
Dr Elizabeth Ballou University of Exeter	Investigating how cross-kingdom microbial partnerships impact fungal pathogenesis of the causative agents of Mucormycosis	2022
Dr David Bending University of Birmingham	T cell receptor signalling dynamics during T follicular helper cell responses	2022
Dr Tanmay Bharat University of Oxford	In situ structural studies of the functional organisation and inhibition of the BAM complex in Gram-negative bacteria	2021
Professor Timothy Blower Durham University	BREX and phage-bacteria interactions	2019
Dr Amanda Chaplin University of Leicester	Cryo-EM studies of human DNA repair complexes: DNA-PK and interacting partners	2022
Dr Ross Chapman University of Oxford	DNA double-strand break repair mechanisms in immunity and oncogenesis	2019
Dr Rebecca Corrigan University of Sheffield	Analysis of the role of (p)ppGpp in staphylococcal infection using zebrafish as a model organism	2018
Professor James Davies University of Oxford	Using base pair mapping of genome architecture to interrogate the mechanisms by which enhancers control transcription	2022
Dr Marco Di Antonio Imperial College London	Unravelling epigenetic pathways leading to chemo-resistance in ovarian cancer with a light-controlled CRISPR-based platform	2022
Dr Mark Dodding University of Bristol	A new chemical biology approach to target molecular motors for the manipulation of cytoskeleton and organelle dynamics	2018
Professor Sherif El-Khamisy University of Sheffield	The repair of oxidative and topoisomerase induced chromosomal strand breaks and human disease	2013
Professor Susana Godinho Queen Mary University of London	Regulation of paracrine signalling by centrosome amplification	2016
Dr Sebastian Guettler The Institute of Cancer Research	Structural basis and mechanism of telomere maintenance by poly(ADP-ribosyl)ation	2017
Professor Ravindra Gupta University of Cambridge	Cell cycle regulation in Macrophages	2021
Dr Sophie Helaine Imperial College London Harvard Medical School	Salmonella Persister formation at the single cell level	2017
Dr Matthew Hepworth University of Manchester	Targeting cell metabolism to regulate innate lymphoid cells in health and disease	2018

<i>Fellow</i>	<i>Title of Research</i>	<i>Awarded</i>
Dr Anthony Khawaja Institute of Ophthalmology University College London	Translating genomic discovery into clinical prediction tools for glaucoma	2022
Dr Joanne Konkel University of Manchester	Atypical monocytes at the oral mucosa; revisiting myeloid cell development and function at a unique barrier site	2019
Dr Yogesh Kulathu University of Dundee	Regulation and function of protein FUBylation	2017
Dr Rebecca Lawson University of Cambridge	Computational neurodevelopment: a new framework for understanding autism spectrum disorder	2020
Dr Tung Le John Innes Centre	The line of duty: How to segregate a giant linear plasmid in antibiotic-producing Streptomyces	2022
Dr James Lee The Francis Crick Institute	From SNPs to biology in inflammatory diseases	2021
Dr Michelle Linterman Babraham Institute	Tertiary lymphoid structures in health and disease	2019
Professor Yanlan Mao University College London	Mechanochemical regulation of tissue growth and morphogenesis	2018
Dr Joseph Marsh University of Edinburgh	The dominant-negative effect in protein complexes: implications for human genetic disease	2018
Dr Will McEwan University of Cambridge	Protein-level knockdown as a new frontier for biological and biomedical sciences	2019
Dr James Nathan University of Cambridge	The interplay between metabolism and oxygen sensing	2017
Professor Rickie Patani UCL & The Francis Crick Institute	Identifying therapeutically targetable RNA binding proteins in ALS	2021
Dr Tomás Ryan Trinity College Dublin	Gone or Misplaced? – Retrieving Infant Memories in Adults	2020
Dr Amanda Sferruzzi-Perri University of Cambridge	Biomarkers of materno-fetal health: role of placental endocrine mediators in normal and obese pregnancies	2018
Dr Hayley Sharpe Babraham Institute	Receptor tyrosine phosphatase signalling mechanisms in health and disease	2020
Professor Daniel Smith University of Edinburgh	Investigating the overlap between hypertension and bipolar disorder to identify new and repurposed medications for bipolar disorder	2016
Dr Christopher Stewart Newcastle University	Using stem cell derived “mini guts” to investigate microbiome-host interaction in early life	2021
Dr Stephan Uphoff University of Oxford	Resolving oxidative stress response mechanisms in bacteria during infection and antibiotic treatment	2020
Dr Stineke Van Houte University of Exeter	Developing new tools to tackle antibiotic resistance	2021

ENVIRONMENT, SOCIAL, GOVERNANCE (ESG); EQUALITY, DIVERSITY & INCLUSION (EDI) AND FINANCIAL OVERVIEW

GOVERNANCE

The Governing Body

Governance of the Lister Institute is overseen by the Governing Body which meets twice a year. Members of the Governing Body are Trustees of the charity and have responsibility to the Charity Commission to ensure the charity is well run and remains true to its purpose. As ever, we must pay tribute to the quality and dedication of the Governing Body members and the speed and clarity with which they respond to Lister matters.

At the AGM in 2022 Professor Sir Alex Markham stood down after eleven years as the Chair of the Governing Body and was succeeded by Professor John Iredale. In addition, Mr Andrew Hutton retired after 15 years on the Governing Body and Finance and Investment Committee. Professor Ros Smyth (Great Ormond Street Hospital and Institute of Child Health) was Appointed as a new member of the Governing Body. Professor Wendy Bickmore stood down as the Elected member longest in role since last election. She was re-elected for a further 2 years to reduce churn on the Governing Body. With the departure of Professor Sir Markham and Mr Hutton from the Governing Body,

Professor John Iredale and Mr Steve McMahon stood down as Appointed members and were Elected as members of the Governing Body.

Finance and Investment Committee

The Finance and Investment Committee (FIC) met twice in 2022 and undertook its normal business reviewing the performance of the investment managers and the finances of the Lister Institute.

The Lister Institute's quinquennial review of its investment managers concluded in early 2022. Our recent investment performance has been strong and we decided to continue with our existing investment managers and to continue to review our stance and trends on ESG matters. We also decided to invest a proportion of the B portfolio in a "absolute return minded" fund managed by Ruffer LLPs to seek to mitigate the effects of inflation. While there has not been 100% mitigation of current levels of inflation, the B portfolio has at least had a positive return over 2022 whereas as a result of the impact on markets of the war in Ukraine, higher inflation and generally unsettled market conditions including Covid effects, our main portfolio has had a negative return over 2022.



Scientific Advisory Committee

The Institute endeavours to manage the turnover of membership of the SAC so that a small number of people leave each year, however due to circumstances beyond our control this was not achieved this year. There were quite a few changes in membership, but this had been managed carefully and the new members given support through the first round of the review process by existing members of the SAC.

Five members of the SAC stood down after the 2022 round of Prizes were awarded. These were: Professor John Iredale (Bristol); Professor Chris Tang (Oxford); Professor Barry Potter (Oxford); Professor Kikkeri Naresh (Fred Hutchinson Institute, Seattle); and Professor Kate Nobes (Bristol). Five new members joined the SAC. These were:- Professor Yvonne Jones (Oxford); Professor Angus Lamond (Dundee); Professor Inga Prokopenko (Surrey); Professor Anne Rosser (Cardiff); Professor Daniel St Johnston (Cambridge).

The SAC met two times this year. The main and most important meeting was the interviews of the short-listed candidates for the Lister Prize Fellowships. The interviews were held in person for the first time since 2019. While conducting the interviews online worked well, everyone agreed that meeting the candidates in person was much better. The SAC also met via Zoom in advance of the interviews to undertake the work of the SAC to look at diversity, the review process etc.

Institute Membership

All Fellows of the Lister Institute become Members when they complete their Fellowship. In addition, all Committee members, previous members of staff and others with a particular interest in the Lister Institute are Members. At present we have 232 Members and they are all eligible to vote at the AGM.

Dr Rahul Roychoudhuri (University of Cambridge) has completed his Fellowship and was elected as Member of the Institute in 2022.

Four new SAC Members were also elected as Members of the Institute: Professor Yvonne Jones (University of Oxford), Professor Angus Lamond (University of Dundee), Professor Inga Prokopenko (University of Surrey) and Professor Daniel St Johnston (University of Cambridge).

ENVIRONMENT

The Lister Institute is a small organisation with a small environmental impact. It has no buildings and all three staff work from home. Essential meetings, such as the Annual Fellows Meeting are held in person with travel by public transport encouraged. Other meetings are held on-line or in person as needed.

SOCIAL

Through the biomedical research that it funds the Lister Institute has a beneficial impact on society through direct patient and public benefit e.g. new treatments and diagnostics as well as through the expansion of knowledge and understanding. For the Lister Institute to be successful it is essential that it attracts and retains skilled and talented people. It does this by creating an inclusive working environment where people can be themselves, treating everyone fairly with dignity and respect. We are committed to fairness in our remuneration packages and supporting flexibility at work. Pensions continue to be paid to a small number of former employees.

EQUALITY, DIVERSITY AND INCLUSION (EDI)

We value and embrace EDI and aim to achieve equality, diversity and inclusiveness across the Lister Institute – in our Prize Fellows, our committee members and our staff. While EDI is our aim, we recognise that we still have work to do achieve it. We aspire to having an equal gender balance across the Lister Institute. Currently the gender balance in the organisation is as follows: Governing Body 36% female: 64% male; Scientific Advisory Committee 46% female: 54% male; current Fellows 35% female: 65% male; staff 100% female. The gender balance at all stages of our application process is monitored and steps are made to address any aspects of the process that may affect the gender balance, though ultimately the highest quality candidates are selected. The Institute aspires to achieve ethnic diversity consistent with the demographics of the UK general population (broadly 82% white, 18% ethnic minority) and for the 2022 round of prizes have started to collect data to assess our performance. Our 2022 Prize Winners and Scientific Advisory Committee have good ethnic diversity. For the 2022 prize round 28% of applicants and 37.5% of Prize Winners were from diverse (minority ethnic) backgrounds. We recognise that significant improvements can be made to our Governing Body's diversity and intend to address this as members retire and we make new appointments. Membership of committees is considered annually and equality and diversity are always considered as part of that process.

FINANCIAL OVERVIEW



Murray Legg, Treasurer

2022 was once again a challenging year for the financial markets with very high inflation, high energy prices and the war in Ukraine as well as the ongoing global after-effects of the pandemic. The Lister Institute has its low volatility liquidity reserve fund, which was established to enable the Lister to ride out a major market correction. It has continued to provide a buffer against this uncertainty and falls in the markets and, for the first time this year, we took advantage of this reserve and used it to fund the Prizes.

Our two investment managers, Cazenove and Partners Capital have managed our portfolio with our investments having a final valuation (after withdrawal of £2.2M from the B portfolio for the Prize Fellowships and Lister operations) of £43.3M, down from £47.6M at the end of 2021. The FIC will continue to monitor closely our portfolio and there will continue to be careful consideration of the numbers and levels of Fellowships and studentships and if and when the liquidity reserve fund (B portfolio) should be replenished.

Eight prizes were awarded instead of the originally budgeted number of six, but in other areas all expenditure has been in line with the agreed 2022 budget. The investment managers’ fees were £185K, down from £263K in 2021. With eight Fellowships being awarded at £250,000K each, £84K spent on studentships and operational costs being £245K the total expenditure for the Lister institute in 2022 was £2.514M.

	£K
Prize Fellowships and Studentships	2,084
Investment managers fees	185
Staff and operational costs	245
TOTAL	2,514

The Lister Institute remains indebted to our all the members of the Finance and Investment Committee, and I would like to thank them all for their scrutiny of the Institute’s finances and the rigorous questioning of our current investment advisors, Partners Capital LLP and Cazenove Capital Management. We are particularly grateful to Murray Legg for his contribution as Treasurer and Chair of the FIC.


John Iredale, Chairman

REPORT OF THE GOVERNING BODY for the year ended 31 December 2022

The Governing Body presents its Annual Report under the Charities Act 2011 together with the audited Financial Statements of the Charity for the year ended 31 December 2022. The Financial Statements have been prepared in accordance with the accounting policies set out in Note 1 (page 27) to the Financial Statements and comply with the Companies Act 2006, the FRS102 Charities SORP and the documents governing the constitution of the Charity.

LEGAL AND ADMINISTRATIVE DETAILS

Legal and administrative information is set out on page 33 of this report.

Members of the Governing Body, Directors and Trustees

The members of the Governing Body are, for the purposes of company law, Directors of the Institute and, for the purposes of charity law, Trustees of the Institute and throughout this report are collectively referred to as the Trustees.

Details of the Trustees serving throughout the year are set out on page 33.

STRUCTURE, GOVERNANCE AND MANAGEMENT

Constitution

The Institute is registered with the Charity Commission for England and Wales (registration number 206271). It is incorporated and registered in England and Wales under the Companies Act 2006 as a company limited by guarantee and not having a share capital (company number 34479). It is governed by its Articles of Association and has charitable status.

Appointment and Re-appointment of Trustees

The Trustees are the fourteen members of the Governing Body of whom six are elected by the members at the Annual General Meeting. A maximum of six further Trustees are appointed by the Governing Body and there are currently five such appointees. One additional member is Lord Iveagh’s representative, another is Professor Sir Alec Jeffreys who was appointed to life-membership, and the final member, Professor Douglas Higgs, is the representative of the Royal Society. Trustees, other than the two nominated representatives, Professor Sir Alec Jeffreys and exceptionally those appointed by the Governing Body, generally serve for a period of six years and a system of planned rotation is in place. When considering appointment or nomination for election as Trustees, the Governing Body has regard to the specialist skills needed.

Induction and Training of Trustees

New Trustees undergo induction sessions with the Chairman, Treasurer and Director during which they will gain an understanding of the Institute’s structure, activities, financial position and future strategies. Prior to appointment they will

attend one meeting of the Governing Body as ‘observers’. New Trustees will also be made aware of their legal obligations with regard to charity and company law. In addition, new Trustees will be advised of appropriate literature and training courses. An Induction check list supports the process.

Organisation

The Institute is governed by its Governing Body which is responsible for setting policies, authorising actions on all significant operational issues and ensuring legality and good practice. The Governing Body meets formally twice a year. The Treasurer and Chairman review the remuneration of all staff once a year. This includes the remuneration of those individuals considered to be key management personnel.

Specific authorities are delegated to two sub-Committees in particular areas. The Scientific Advisory Committee (see page 33 for membership) has responsibility for identifying the Lister Institute Prize Fellows and the monitoring of their scientific activities, as well as providing scientific and medical advice to the Governing Body as required. The Finance and Investment Committee (see page 33 for membership) has responsibility for interaction with the Institute’s investment advisors, ensuring implementation of the Institute’s investment policy and monitoring performance. It prepares and submits to the Governing Body the annual budget, and subsequently monitors performance against it. It also advises the Governing Body, as required, on other financial and risk matters.

The routine management of the Institute’s activities is undertaken by its Director, aided by the Operations Manager and the Accountant. All staff work from home.

In 2022, one of the Charity’s Trustees received remuneration in relation to their work for the charity. This is the Chairman of the SAC who is the only one of the Trustees who is offered any remuneration in relation to their dealings with the Charity. They are offered a small honorarium in recognition of the very significant workload associated with the role.

The Chairman and the Treasurer of the Charity agree the Director’s remuneration which, along with other Lister Institute staff, is normally increased in line with RPI. Salaries are also compared to similar organisations and adjusted periodically where appropriate.

Risk Management

The Trustees assess the risks facing the Institute and review the effectiveness of the controls to monitor and mitigate them. A Risk Management Register is maintained and formally reviewed annually by the Governing Body.

The key controls used by the Institute include:

- Formal agendas for all Governing Body meetings
- Strategic planning, budgeting and management accounting
- Formal written policies
- Clear authorisation and approval levels
- Regular review of Fellows’ scientific reports

REPORT OF THE GOVERNING BODY
(CONTINUED)

- Regular detailed review of investment policies and performances

The risk of cybersecurity is considered by the Trustees on an ongoing basis and amendments have been made to the risk log. A cyber-security policy for staff has been developed. IT support for staff has been changed to a new company and now involves more formal and regular security updates and regular training for staff. An online grants management system called Benefactor has been implemented to improve the security around the application process.

In recent years, the risk logs, terms and conditions, policies and procedures have been adapted and updated to address the specific risks of bribery, scientific misconduct and data protection. The terms and conditions were reviewed again in 2022. The risk register is reviewed annually and policies are reviewed regularly as defined within each policy.

The Institute maintains a 'Register of Interests' for all Governing Body and committee members as well as principal staff and operates a clear "declaration of interests" policy and procedures for all meetings.

The principal risk facing the Institute lies in its ability to maintain and protect the value in real terms of its investments and to generate from them, on a long-term basis, a consistently high overall return. This risk is mitigated by the Institute's appointment of experienced investment managers with a proven track record; by internal controls that allow close and regular monitoring of their performance against benchmarks; by the Institute's requirement of its investment managers to re-tender periodically and competitively for appointment; and by regular meetings that formally review investment performance and policy and include one-to-one presentations by the investment managers. The investment manager review was conducted in early 2022.

Investment Policy Statements are in place for the Lister Institute and its investment partners. These are reviewed on an annual basis.

Objectives and Activities

The statutory Object of the Institute is to further the understanding and progress in preventive medicine by promoting excellence in biomedical research in the UK and Ireland.

When founded in 1891, the Institute sought to achieve this objective by establishing a research institute specialising in the area of "infections" and their prevention by immunisation and other means. It complemented these research activities by the production and supply of materials such as vaccines and anti-toxins.

The Institute continued in this mode until the late 1970s when increasing financial and regulatory pressures caused the cessation of these activities. Proceeds from the resultant sale of land and buildings created the investment funds from which present-day activities are financed; at 31 December 2022 these

funds stood at £43.3M. From the 1980s the Institute has pursued its objective of nurturing future leaders by the provision of grant funding to facilitate the research and careers of high-quality individuals working in areas of biomedicine relevant to preventive medicine. It has done this because it believes that the acquisition and advancement of knowledge is crucial to the understanding of health and disease and that research to achieve this is driven forward by high quality individuals and their supporting staff.

Principal Activities

In pursuance of this objective, during 2022 the Institute awarded eight new Prize Fellowships. In addition, the Institute has continued its Summer Studentship scheme. Generally, this has enabled an increasing number of undergraduates per year to work with Lister Institute Fellows or former Fellows in order to gain experience of biomedical research with the hope that they might consider it as a career. In 2022, 35 studentships were awarded.

Achievement and Performance

The Scientific Advisory Committee has monitored the performance of the current 37 Lister Institute Prize Fellows through review of their annual scientific research reports that includes the progress they are making, as well as all publications and presentations. The Scientific Advisory Committee has reported to Trustees that it is of the view that all Fellows are undertaking high quality research and producing new knowledge that will contribute significantly to our understanding of disease, its causes, treatment and prevention. The reports of the research undertaken by the Summer Students have also been reviewed and found to be satisfactory.

Eight Lister Institute Prize Fellowships were awarded in 2022 to Dr Shoba Amarnath (Newcastle), Dr Elizabeth Ballou (Exeter), Dr David Bending (Birmingham), Dr Amanda Chaplin (Leicester), Professor James Davies (Oxford), Dr Marco Di Antonio (Imperial College), Dr Anthony Khawaja (UCL), Dr Tung Le (John Innes Centre) from an initial field of 82 applicants. They were awarded following extensive scientific review of their applications and final interview by the Scientific Advisory Committee (more details of the Prize Fellows and their research are provided on pages 2 and 3). Each Prize Fellowship provides £250K to be spent over 5 years with the funds provided to the host institution at the commencement of the award.

35 Summer Studentships were awarded in 2022. Each is a £2,350 student bursary and is paid to the host institution at the commencement of the award for the support of the student for up to a ten-week period.

Public Benefit

The statutory objectives, aims and activities of The Lister Institute of Preventive Medicine are to further understanding in preventive medicine by promoting biomedical research, as set out on page 18 of this Report. The Trustees have considered the

Charity Commission's guidance on public benefit, including the guidance 'public benefit: running a charity (PB2)'.

The public benefit of the Institute's grant-making is clearly identifiable in the 'Achievement and Performance' paragraphs above and in the list of Research Prize Fellows together with their areas of research on pages 12 and 13. All Lister Institute Fellows are actively encouraged, where appropriate, to develop their research findings for potential public benefit and the Scientific Advisory Committee has regard to this when reviewing their research reports. The Lister Institute therefore benefits the public or a sector of it without imposing any restrictions. Applications from individuals are accepted only when demonstrably consistent with the charitable objectives of the Institute.

Impact

The impact of the activities of a medical research charity can be measured at many levels ranging from the growth of knowledge to direct patient/public benefit. Often the transition from the former to the latter may take many years and the involvement of several organisations. The Institute requires that the results of the research it supports are published and disseminated; that, where appropriate, significant intellectual property is protected via patents; and that its commercial development is encouraged. Several biotechnology companies have been formed around the findings of Institute-funded research and there are several interactions with large pharmaceutical companies. A prime example of the impact of Lister Institute research is DNA fingerprinting, which was discovered by Sir Alec Jeffreys when a Lister Institute Fellow, and has become an integral part of society, helping to prove innocence or guilt in criminal cases, resolving immigration arguments and clarifying paternity.

More directly, since 2019 we have awarded 23 Lister Prizes (2019 – 5, 2020 – 4, 2021 – 6, 2022 – 8) helping the careers of 23 excellent young scientists and clinicians at pivotal stages of their research careers. In the last four years we have also awarded 125 summer studentships which will hopefully have encouraged many students to take up careers in research.

Investment Policy and Performance

The Institute's investment objective is to develop and maintain its financial resources in real terms through the selection of investments, consistent with an acceptable level of risk.

The Institute's investment portfolio is split between Cazenove Capital Management and Partners Capital LLP who both operate under mandates agreed in advance with the Finance and Investment Committee. These mandates set out an overall target asset allocation with allowable ranges for each category of asset.

Both investment managers invest on a total returns basis through a variety of pooled funds and in accordance with the Institute's overarching "Investment Policy Statement" ("IPS"), which states the overall investment objective and sets

the investment return objectives, the risk parameters, the performance measures and review procedures for the portfolio. The Institute's IPS was reviewed and revised as part of the quinquennial review of investment managers with specific versions agreed for each of the investment managers to reflect their individual investment approaches. The IPS's are reviewed annually. Every year the Institute reiterates its likely cash requirements, both in terms of the amount and the timing of any withdrawal.

The Institute's IPS includes reference to an ethical investment policy which does not permit direct investment in tobacco or tobacco-related companies. It has been agreed that our focus will remain on balancing ethical investments and returns as there is no compelling argument for a significant change in strategy at this time, although the Lister's stance on ESG will be kept under close review.

The Institute's overall financial return objective is to preserve and, if possible, enhance the purchasing power of its portfolio assets, net of costs and approved withdrawals, over rolling five-year periods. This goal is synonymous with the pursuit of a time-weighted net return on portfolio assets that equals and, if possible, exceeds cost inflation as measured by the UK Consumer Price Index plus the Institute's long-term spending rate of 3-4% measured over corresponding five-year periods. Having exceeded this target over recent years, with the high level of inflation now being experienced and difficult markets our investment performance is now running behind the target.

The performance of the investment portfolio is reviewed by the Finance and Investment Committee, which held two meetings in the year with the investment advisors to review performance, liquidity within the portfolio etc. In addition, the Institute receives detailed quarterly valuation and transaction reports. 2022 was another difficult year for the market which resulted in the Lister Portfolio declining from £47.6M to £43.3M.

A decision, taken in 2015 (and ratified in subsequent years), to withdraw and place £5M in a Liquidity Account was based both on the recent strong growth of the portfolio but also concerns about future market volatility and performance. Given the increase in the number and level of the Fellowships a further discussion was held in 2022 and the decision was made to maintain £5M in this Account, on a rolling basis, to be reviewed annually. As a result of the Investment Managers Review at the beginning of 2022 a proportion of this £5M was invested in a 'absolute return minded' fund - Ruffer Charitable Assets Trust that will hopefully help protect against the worst ravages of inflation. This decision was aimed to ensure that six Prize Fellowships of £250K each can be awarded for at least three years from 2023. The cash part of the Liquidity fund was used in 2022 to fund the Prize Fellowships. As a result of this, at the end of 2022 the Liquidity 'B' Fund has £3.098K.

More details of the Institute's activities are set out in the Chairman's Report on pages 1 to 16.

FINANCIAL REVIEW

Allocation of Resources

The Institute, which does not seek to raise funds from the public, depends primarily on investment returns to meet its pension payments, administrative expenditure and expenditure in furtherance of the Charity’s objectives. The total return on investments for the year was a net loss of £2.483M and investment income of £595K.

The resources expended totalled £2,514M of which £2,084M were resources expended for the Institute’s charitable activities. The Prize Fellowships are fixed sum awards and, therefore, expenditure can be regulated by altering the number and/or value of prizes awarded each year. In 2022, prizes were awarded to eight very strong candidates. As previously described, a £5M liquidity portfolio has been established so that the number and level of awards is sustainable over a minimum of three years and for the first time was used to fund the Prizes in 2022. Payments are currently made to three pensioners who are previous employees of the Lister Institute. The Institute’s unfunded pension liability is some £142K. Given the value and nature of our investments, we do not believe pension funding to be a concern.

Reserves Policy

The policy of the Trustees is to maintain adequate financial resources to provide income to meet current and future commitments as they fall due and ensure that adequate funds remain available to enable them to make awards in perpetuity. The adequacy of the level of reserves (£43.3M at the end of 2022) and the continuing appropriateness of the policy are reviewed on an annual basis by the Trustees. They continue to endorse the policy and its ability to support the long-term viability of the Institute and, given that the Institute is not formally committed to awarding any Prizes beyond the current year, are confident in the ability of the Institute to maintain appropriate levels of activity in the short-term.

Plans for the Future

The Institute’s future policy is to continue to pursue its current objectives. It will therefore maintain and look to increase the Prize Fellowship scheme, which it sees as a funding priority. In wishing to continue to support young researchers through the on-going challenges in the research environment, the Governing Body has agreed that if there are sufficient high-quality candidates, the SAC may award up to 7 Lister Prizes in 2023. The Summer Studentship scheme will also be increased when possible.

Trustee Responsibilities Statement

The Trustees (who are also directors of The Lister Institute of Preventive Medicine for the purposes of company law) are responsible for preparing the Trustees’ Annual Report and the financial statements in accordance with applicable law

and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice). Company law requires the Trustees to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company, and of the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period. In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgments and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis, unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

In so far as the Trustees are aware:

- there is no relevant audit information of which the charitable company’s auditor is unaware; and
- the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company’s website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions. This Trustees’ report has been prepared in accordance with the special provisions of Part 15 of the Companies Act 2006 relating to small companies.

By Order of the Governing Body

JOHN IREDALE, Chairman
MURRAY LEGG, Treasurer

19 April 2023 
Murray Legg (Aug 22, 2023 18:32 GMT+1)

Opinion

We have audited the financial statements of The Lister Institute of Preventive Medicine (‘the company’) for the year ended 31 December 2022 which comprise the Statement of Financial Activities, the Balance Sheet, the Cash Flow Statement and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable to law and United Kingdom Accounting Standards, including FRS 102 ‘The Financial Reporting Standard Applicable in the UK and Republic of Ireland’ (United Kingdom Generally Accepted Accounting Practice). In our opinion the financial statements:

- give a true and fair view of the state of the charitable company’s affairs as at 31 December 2022 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs(UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC’s Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the Trustees’ use of the going concern basis of accounting in the preparation of the financial statements is appropriate. Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charitable company’s ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue. Our responsibilities and the responsibilities of the Trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the Annual Report, other than the financial statements and our auditor’s report thereon. The Trustees are responsible for

the other information. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees’ Annual Report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the Trustees’ Annual Report have been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the Trustees’ Annual Report. We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of Trustees’ remuneration specified by law are not made;
- we have not received all the information and explanations we require for our audit; or
- the Trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies exemption in preparing the Trustees’ Annual Report and from preparing a Strategic Report.

INDEPENDENT AUDITOR’S REPORT
(CONTINUED)

Responsibilities of Trustees

As explained more fully in the Trustees’ responsibilities statement, the Trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustees are responsible for assessing the charitable company’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so.

Auditor’s responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

The objectives of our audit in respect of fraud, are; to identify and assess the risks of material misstatement of the financial statements due to fraud; to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate responses to those assessed risks; and to respond appropriately to instances of fraud or suspected fraud identified during the audit. However, the primary responsibility for the prevention and detection of fraud rests with both management and those charged with governance of the charitable company.

Our approach was as follows:

- We obtained an understanding of the legal and regulatory requirements applicable to the charitable company and considered that the most significant are the Companies Act 2006, the Charities Act 2011, the Charity SORP, and UK financial reporting standards as issued by the Financial Reporting Council.
- We obtained an understanding of how the charitable company complies with these requirements by discussions with management.
- We assessed the risk of material misstatement of the financial statements, including the risk of material misstatement due to fraud and how it might occur, by holding discussions with management.
- We inquired of management and those charged with governance as to any known instances of non-compliance or suspected non-compliance with laws and regulations.
- Based on this understanding, we designed specific appropriate audit procedures to identify instances of non-compliance with laws and regulations. This included making enquiries of management and those charged with governance and obtaining additional corroborative evidence as required.
- In addressing the risk of fraud due to management override of internal controls, we tested the appropriateness of journal entries and assessed whether the judgements made in making accounting estimates were indicative of a potential bias.

Due to the inherent limitations of an audit, there is an unavoidable risk that we may not have detected some material misstatements in the financial statements, even though we have properly planned and performed our audit in accordance with auditing standards. For example, as with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls. We are not responsible for preventing fraud or non-compliance with laws and regulations and cannot be expected to detect all fraud and non-compliance with laws and regulations

As part of an audit in accordance with ISAs (UK) we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purposes of expressing an opinion on the effectiveness of the charitable company’s internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Trustees.
- Conclude on the appropriateness of the Trustees’ use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the charitable company’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause the charitable company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Use of our report

This report is made solely to the charitable company’s members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company’s members those matters we are required to state to them in an auditor’s report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to any party other than the charitable company and charitable company’s members as a body, for our audit work, for this report, or for the opinions we have formed.

LUKE HOLT (Senior Statutory Auditor)
for and on behalf of Moore Kingston Smith LLP, Statutory Auditor

9 Appold Street
London EC2A 2AP

July 2023

STATEMENT OF FINANCIAL ACTIVITIES

for the year ended 31 December 2022

	Notes	2022	2021
		£'000	£'000
Income from:			
Investments	2	595	612
Total income		595	612
Expenditure on:			
Cost of raising funds			
Investment management costs	3	(185)	(263)
Charitable Activities			
Prizes and Summer Studentships	5	(2,305)	(1,711)
Total expenditure		(2,490)	(1,974)
Net (losses) / gains on investments	8	(2,483)	4,265
Net (losses) / gains		(4,378)	2,903
Other recognised losses:			
Actuarial losses on defined benefit schemes	12	(25)	(19)
Net movement in funds		(4,403)	2,884
Reconciliation of funds:			
Total funds brought forward		47,678	44,794
Total funds carried forward		43,275	47,678

All items in the above Statement of Financial Activities relate to continuing operations for both years. The Institute has no other recognised gains and losses other than as stated above and hence no separate income and expenditure statement has been shown.

The notes set out on pages 27 to 32 form part of these financial statements.

BALANCE SHEET

as at 31 December 2022 Company no: 34479

	Notes	2022	2021
		£'000	£'000
Fixed assets:			
Investments	8	43,294	47,597
Total fixed assets		43,294	47,597
Current assets:			
Debtors	9	6	5
Cash at bank and in hand	10	167	283
Total current assets		173	288
Current liabilities:			
Creditors: amounts falling due within one year	11	(50)	(73)
Net current assets		123	215
Total assets less current liabilities		43,417	47,812
Creditors: amounts falling due after more than one year			
Pension provision	12	(142)	(134)
Net assets		43,275	47,678
Represented by			
Unrestricted funds		43,275	47,678
Total charity funds		43,275	47,678

The Trustees have taken advantage of the exemptions conferred by the Companies Act 2006, on the grounds that the Institute is entitled to the benefit of those exemptions as a small company.

These financial statements were approved by the Governing Body on 19 April 2023


JOHN IREDALE
MURRAY LEGG
 Members of the Governing Body

The notes set out on pages 27 to 32 form part of these financial statements.

CASH FLOW STATEMENT

for the year ended 31 December 2022

	2022	2021
	£'000	£'000
Cash flow/(outflow) from operating activities		
Net cash used in operating activities	(2,531)	(1,997)
Cash flows from investing activities		
Investment income	595	612
Proceeds from disposal of fixed asset investments	16,314	16,474
Acquisition of fixed asset investments	(13,818)	(14,042)
Other movements on investments	(676)	(896)
	2,415	2,148
Net (decrease) / increase in cash	(116)	151
Cash and cash equivalents at beginning of year	283	132
Cash and cash equivalents at end of year	167	283
Reconciliation of net income to net cash flow from operating activities		
	2022	2021
	£'000	£'000
Net (expenditure) / income	(4,403)	2,884
Adjustments for		
Net loss / (gains) on investments	2,483	(4,265)
Investment Income	(595)	(612)
Decrease / (Increase) in debtors	(1)	21
Increase / (Decrease) in creditors	(23)	(25)
(Increase) / Decrease in pensions	8	0
Net cash used in operating activities	(2,531)	(1,997)

NOTES TO THE FINANCIAL STATEMENTS

for the year ended 31 December 2022

1 PRINCIPAL ACCOUNTING POLICIES

Basis of preparation

The Financial Statements have been prepared in accordance with the Statement of Recommended Practice, Accounting and Reporting by Charities (FRS102 SORP). The Financial Statements are prepared in accordance with the historical cost convention modified by the revaluation of investments. The charity is a Public Benefit Entity as defined by FRS102.

The Financial Statements are prepared in sterling which is the functional currency of the Charity. Monetary amounts in these Financial Statements are rounded to the nearest thousand pounds.

The principal accounting policies adopted in the preparation of the Financial Statements are as follows:

Income

All incoming resources are accounted for on a receivable basis.

Prizes and Summer Studentships

The cost of Research Prize Fellowships is charged in the year awarded.

Expenditure

The costs of raising funds include those fees payable to the Institute's investment fund managers for the management of the Institute's investment portfolio. These are accounted for on an accruals basis.

Charitable activities comprise all expenditure directly relating to the objects of the charity and are accounted for on an accruals basis. The allocation of expenditure between governance and management, administration and support costs is reviewed on an annual basis to ensure the allocation is appropriate. Indirect costs are generally treated as falling into the latter category with the exception of a proportion of salary and related costs, which have been classified as governance costs.

In addition to auditor's remuneration, governance costs comprise the proportion of staff costs associated with the time spent on the preparation of the statutory accounts and other governance issues, together with honoraria remuneration provided to members of the Institute's Scientific Advisory Committee for their duties in selecting the Prize Fellows.

Supplementary pensions and staff pensions

An estimate of the full provision is made in the Financial Statements for the costs of future supplementary payments. The provision and charge to income are reviewed annually by the Trustees in the knowledge that the number of persons receiving the supplementary pensions will not increase. The pension costs are assessed in accordance with actuarial advice and these costs are accounted for in accordance with FRS102 SORP.

Existing employees participate in a defined contribution scheme, the costs of which are expensed as incurred. These disclosures are made in accordance with FRS102 SORP.

Tangible fixed assets

Any capital items purchased under £1k in value are expensed in the accounts in full as incurred. The Charity has no tangible fixed assets.

Investments

Investments are shown at market value in the balance sheet. Changes in the market value are included in the Statement of Financial Activities as realised and unrealised investment gains or losses in the year in which they arise. Investments denominated in foreign currencies are valued at year-end rates of exchange.

Cash flow statement

The Charity has included a cash flow statement in accordance with FRS102 SORP.

Taxation

The organisation is a registered charity and has obtained exemptions from taxation under Part 11, Chapter 3 of the Corporation Tax Act 2010. This exemption will remain as long as income is compatible with that section and expenditure is applied to charitable purposes only.

Critical accounting estimates and areas of judgement

In preparing financial statements it is necessary to make certain judgements, estimates and assumptions that affect the amounts recognised in the financial statements. The Trustees consider the estimates involved in the valuation of investments to have most significant effect on amounts recognised in the financial statements. These are taken directly from Investment Managers' reports.

In addition, the company has an obligation to pay pension benefits to certain employees. The cost of these benefits and the present value of the obligation depend on a number of factors including: life expectancy, salary increases, asset valuations and the discount rate on corporate bonds. Management estimates these factors in determining the net pension obligation in the balance sheet. The assumptions reflect historical experience and current trends. See Note 12 for the disclosures relating to the defined benefit pension scheme.

Going concern

The Trustees have assessed whether the use of the going concern basis is appropriate and have considered possible events or conditions that might cast significant doubt on the ability of the charity to continue as a going concern. The Trustees have made this assessment for a period of at least one year from the date of approval of the financial statements. In making this assessment the Trustees are satisfied that the substantial reserves and liquid assets held by the Lister Institute

NOTES TO THE FINANCIAL STATEMENTS
(CONTINUED)

1 PRINCIPAL ACCOUNTING POLICIES continued

justify their belief that there are no material uncertainties that cast significant doubt on the charity's ability to continue as a going concern. The charity therefore continues to adopt the going concern basis in preparing its financial statements.

Financial instruments

The company has elected to apply the provisions of Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instruments Issues' of FRS 102 to all of its financial instruments. Financial instruments are recognised in the company's balance sheet when the company becomes party to the contractual provisions of the instrument. Financial assets and liabilities are offset, with the net amounts presented in the financial statements, when there is a legally enforceable right to set

off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

With the exceptions of prepayments and deferred income all other debtor and creditor balances are considered to be basic financial instruments under FRS 102. See notes 9 and 11 for the debtor and creditor notes.

Fund accounting

Unrestricted funds are available for use at the discretion of the Trustees in furtherance of the general objectives of the Institute. Restricted funds are funds available subject to specific restrictions imposed by donors.

2 INVESTMENT INCOME

	2022	2021
	£'000	£'000
Income from fixed asset investments	588	612
Bank interest receivable	7	0
	595	612

3 INVESTMENT MANAGEMENT COSTS

	2022	2021
	£'000	£'000
Partners Capital LLP	92	168
Cazenove Capital Management	93	95
Total investment management fees	185	263

Investment management fees referred to here are those accrued fees relating to the management of the Institute's investment portfolios in 2022.

4 GOVERNING BODY AND STAFF COSTS

Emoluments of members of the Governing Body

One member of the Governing Body received an emolument of £2,000 in respect of services to the Institute during the year (see Scientific Advisory Committee below) (2021: 2000). Travel expenses of £858 were paid relating to the claims of four members in connection with their attendance at meetings (2021: £703 five members).

Members of the Scientific Advisory Committee (the Chair of which is also a member of the Governing Body) are offered remuneration in relation to their services to the committee. An honorarium of £2,000 (2021: £2,000) was paid to the chair of the SAC, the other SAC members (none of whom are members of the Governing Body) were paid £1,000 (2021: £1,000). The majority of members asked for the honorarium to be paid to their employing institution.

Employee information

The average number of persons employed by the Institute during the year was 3, (2021: 3) two of whom are part-time (2021: 2). All staff were employed in an administrative and support capacity. No employees earn over £60,000 p.a. (2021: none). Key management personnel include the Trustees and the Director. The total employee benefits of the charity's key management personnel were £44,069 (2020: £41,608).

Staff costs	2022	2021
	£'000	£'000
Gross salaries	101	88
Pension contributions	4	3
Employer's national insurance	7	5
	112	96

The salary costs are allocated under governance where related to statutory accounts preparation, the balance being reported within charitable activities.

5 PRIZES & SUMMER STUDENTSHIPS

	2022	2021
	£'000	£'000
Prize awards	2,000	1,437
Summer studentship payments	84	97
Support costs (see note 6)	87	64
Salaries (see note 4)	98	84
Governance costs (see note 7)	36	29
	2,305	1,711

6 SUPPORT COSTS

	2022	2021
	£'000	£'000
Office expenses	25	17
Travel expenses	9	0
Professional fees	8	4
Honoraria and events	38	39
Pension costs (see note 12)	7	4
	87	64

These costs are all considered to be costs to support resources expended on charitable activities.

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

7 GOVERNANCE COSTS

	2022	2021
	£'000	£'000
Auditor's remuneration - current year	15	14
Staff costs (see Note 5)	14	12
Honoraria and events	7	3
	36	29

No non-audit services were provided by the auditors during the year (2021: none).
Auditors remuneration includes irrecoverable VAT.

8 INVESTMENTS

Listed investments are valued at middle market quotations ruling at the year-end

	2022	2021
	£'000	£'000
Market value at beginning of year	47,597	44,858
Purchases during the year at cost	13,231	14,042
Proceeds of sales during the year	(16,314)	(16,474)
Reinvested income for the year	588	593
Movement in un-invested cash	2,875	2,163
Cash withdrawn	(2,200)	(1,850)
Net change in market value	(2,483)	4,265
Market value at year-end	43,294	47,597

The portfolio's asset allocation was as follows

UK investments

Equities	1,845	2,244
Fixed interest	2,781	2,223
Other (including private equity, property, commodities, alternatives and inflation linked bonds)	4,543	5,271
Cash	4,954	6,311
Total UK investments	14,123	16,049

Non-UK investments

Equities	23,473	25,386
Other (including private equity, property, commodities and alternatives)	5,698	6,162
Cash	0	0
Total Non-UK investments	29,170	31,548
Total	43,294	47,598

At 31 December 2022 no single shareholding exceeded 5% of the total value of investments (2021: none).
Historical cost related to the closing position of 2022 was £33.6M (2021: £35.74M).

The Institute's investments held by one custodian are charged as security for the Institute's ongoing financial obligations to that custodian for banking services related to those investments.

9 DEBTORS

	2022	2021
	£'000	£'000
Prepayments	6	5
Total	6	5

10 CASH

	2022	2021
	£'000	£'000
Cash at bank	167	283

11 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2022	2021
	£'000	£'000
Taxation and social security	4	3
Accruals	46	70
Total creditors falling due within one year	50	73

12 PROVISION FOR LIABILITIES AND CHARGES

This represents a provision for future supplementary pension payments in respect of ex-employees, based on their salary and length of service. The pensions are unfunded, with payments made out of the Institute's funds as they fall due.

Movements in the pension provision during the year were as below

	2022	2021
	£'000	£'000
Liability at beginning of period	134	134
Plus interest cost	7	4
Plus actuarial costs and losses	25	19
Benefits paid	(24)	(23)
Liability at end of period	142	134

The tables below state the FRS102 actuarial assumptions used to estimate the pension provision.

Principal actuarial assumptions Valuation at 31 December 2022

	2022	2021
Rate of increase to pensions in payment*	5%	5%
Rate used to discount scheme liabilities	5%	2.5%

The post-retirement mortality assumption uses the PCA00 base tables (year of birth) with improvements equal to medium cohort with a 1% minimum.

* The 2023 Pension increase is 10%

NOTES TO THE FINANCIAL STATEMENTS
(CONTINUED)

13 RELATED PARTY TRANSACTIONS

There were no related party transactions in the year, other than those outlined in note 5 (2021: none).

14 MEMBERS’ LIABILITY

The liability of the Members of the institute is limited to 50p. At the date of the financial statements, there were 232 members, each with a guarantee potential of 50p.

Additional Image Credits:

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Inside front and back cover: Neurons derived from neural stem cells. Yirui Sun.

Page 2, 3: Background image by Louis Reed on Unsplash.

Page 7 – 9, 11: Annual Meeeting photography by Steven O’Gorman

Page 11: From left to right: Dr Christopher Stewart, Dr Shoba Amarnath, Dr Elizabeth Ballou, Dr David Bending, Dr Tung Le, Professor Sir Alex Markham - past Chairman, Professor John Iredale - Chairman, Professor Julian Blow - SAC Chair, Dr Hayley Share, Professor James Davies, Dr Marco Di Antonio, Dr Sally Burtles - Director.

Page 14: 2022 Prize Winners left to right: Dr Elizabeth Ballou, Dr Marco Di Antonio, Dr Tung Le, Dr Shoba Amarnath.

Copyright: Steven O’Gorman.

Back cover: The science behind it is described in Jones & Uphoff Single-molecule imaging of LexA degradation in Escherichia coli elucidates regulatory mechanisms and heterogeneity of the SOS response. Nature Microbiology 6, 981–990, 2021.

LEGAL AND ADMINISTRATIVE INFORMATION
for the year ended 31 December 2022

Business Address

PO Box 2502
Watford
WD18 1AE

Solicitors

Macfarlanes
20 Cursitor Street
London EC4A 1LT

Bankers

Messrs Coutts & Co
St Martins Office
440 Strand
London WC2R 0QS

Auditor

Moore Kingston Smith LLP
9 Appold Street
London EC2A 2AP

Registered Office

Macfarlanes
10 Norwich Street
London EC4A 1BD

Investment Advisors

Cazenove Capital Management
1 London Wall Place
London EC2Y 5AU

Partners Capital LLP
5 Young Street
London W8 5EH

Website: www.lister-institute.org.uk
Telephone: 0203 532 5345

The Lister Institute of Preventive Medicine is a company limited by guarantee (England 34479) and is a registered charity (206271)

THE GOVERNING BODY

Professor John Iredale, FRCP, FMedSci, FRSE, Chairman (Elected 10th September 2022)
Mr Murray Legg, BSc, FCA, Hon Treasurer
Professor Judith Armitage, BSc, PhD, FRS
Professor Wendy Bickmore, CBE, BA, PhD, FMedSci, FRS, FRSE
Professor Sir Adrian P Bird, CBE, FRS, FRSE
Professor Julian Blow, PhD, FRSE, Chair Scientific Advisory Committee (Appointed 10th September 2022)
Professor Rebecca Fitzgerald, MD, FRCP, FMedSci
Hon Rory M B Guinness, BA, MSc, FCIM
Professor Douglas Higgs, MBBS, MRCPATH, DSc, FRCP, FRCPath, FRS
Mr Andrew Hutton, MA, CFA (Retired 10th September 2022)
Professor Sir Alec J Jeffreys, CH, DPhil, FMedSci, FRS
Professor Sir Alex Markham, DSc, FRCP, FRCPath, FMedSci (Retired 10th September 2022)
Mr Stephen McMahon, MA (Oxon), FCA, FCSI (Elected 10th September 2022)
Mr Matthew Pintus, BA
Professor Dame Pamela Shaw, DBE, FRCP, FMedSci
Professor Rosalind Smyth, CBE, FMedSci (Appointed 10th September 2022)

THE SCIENTIFIC ADVISORY COMMITTEE

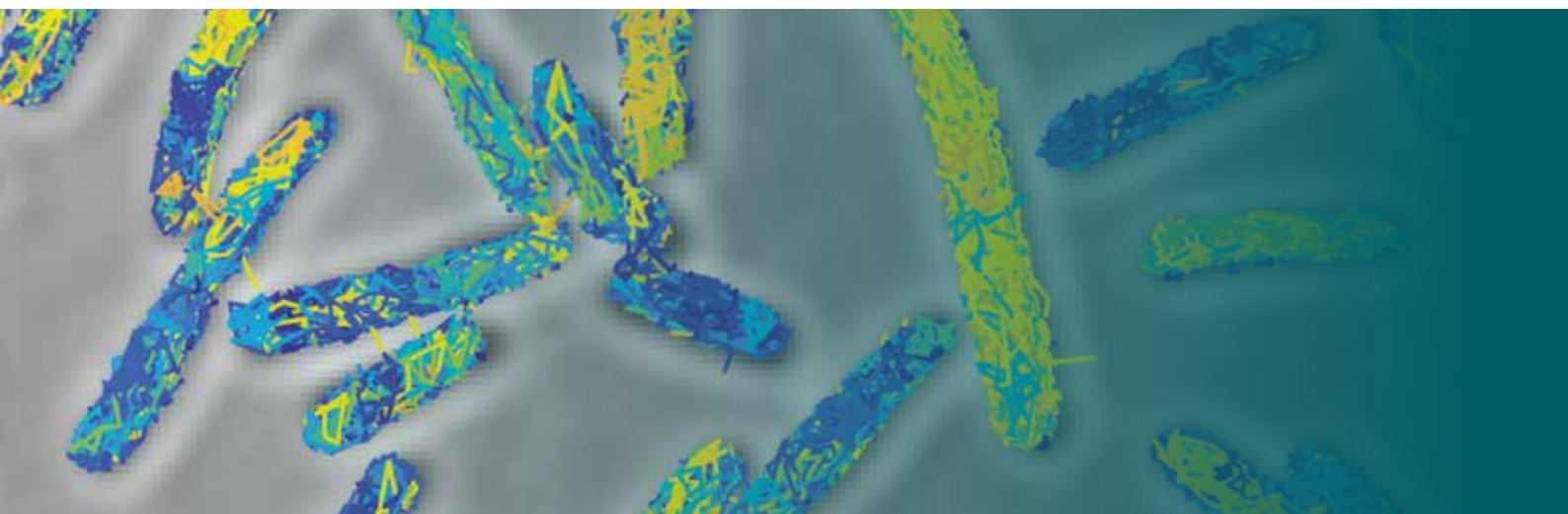
Professor Julian Blow, PhD, FRSE, FMedSci, FMedSci, Chair (Appointed 10th September 2022)
Professor Judi Allen, MPH, PhD, FRSE, FRSB, FMedSci
Professor Thomas J Evans, MA, PhD, MBBChir, FRCP
Professor Muzlifah Haniffa, FMedSci
Professor Aroon Hingorani, MA, PhD, FRCP
Professor Kikkeri K Naresh, MBBS, MD, DCP, FRCPath (Retired 10th September 2022)
Professor John Iredale, BM (Hons), FMedSci, FCRP, FRSE, MA (Retired 10th September 2022)
Professor Yvonne Jones, PhD, FRCP (Appointed 10th September 2022)
Professor Angus Lamond, FRS FRSE FMed Sci (Appointed 10th September 2022)
Professor Iain B McInnes, CBE PhD FRCP FRSE FMedSci
Professor Catherine Nobes, BSc, PhD (Retired 10th September 2022)
Professor Sir Mike Owen, BSc, MB ChB, PhD, FRCPsych, FMedSci, FLSW
Professor Elizabeth Patton, BSc, PhD, FRSE
Professor Barry V L Potter, MA, DPhil, DSc, CSci, FRSC, FMedSci (Retired 10th September 2022)
Professor Inga Prokopenko, MSc PhD (Appointed 10th September 2022)
Professor Anne Rosser, PhD, FRCP (Appointed 10th September 2022)
Professor Daniel St Johnston, FRS, FMedSci (Appointed 10th September 2022)
Professor Christoph M Tang, MBChB, PhD, FMedSci (Retired 10th September 2022)

THE FINANCE AND INVESTMENT COMMITTEE

Mr Murray Legg, BSc, FCA, Hon Treasurer, Chair
Professor Judith Armitage, BSc, PhD, FRS
Hon Rory M B Guinness, BA, FCIM
Professor John Iredale, FRCP, FMedSci, FRSE
Mr Andrew Hutton, MA, CFA (Retired 10th September 2022)
Professor Sir Alex Markham, DSc, FRCP, FRCPath, FMedSci (Retired 10th September 2022)
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA

SENIOR MANAGEMENT

Director and Secretary: Dr Sally Burtles, BSc, PhD



Accounts

The Lister Institute of Preventive Medicine

PO Box 2502, Watford, Hertfordshire, WD18 1AE

ANNUAL REPORT AND FINANCIAL STATEMENTS

for the year ended 31 December

2021

The Lister Institute of Preventive Medicine

The Institute was founded in 1891 and for the next 85 years played a vital role in the development of the laboratory aspects of preventive medicine as an independent research institute in the UK. Since the 1980s the Lister Institute has been a highly successful trust awarding prestigious research fellowships, which in 2003, were revised to become Prize Fellowships. The Fellowships continue to deliver the Lister Institute's strategic aim of nurturing the future leaders in biomedical research.

Over its history the Lister Institute research staff and fellows have made discoveries that have made significant impacts on human health. For example, Dr (later Dame) Harriet Chick discovered that a deficiency of vitamin D was the cause of rickets. Several researchers were involved in research into blood groups thus making blood transfusion safe. Dr (later Professor) Leslie Collier found a way to produce a form of smallpox vaccine storable at warm temperatures so it could be used all over the world and ultimately led to the eradication of smallpox. Dr (now Professor Sir) Alec Jeffries discovered DNA fingerprinting for use in solving crimes and paternity cases. Our current fellows continue to build on this illustrious past and are making discoveries that will impact preventive medicine in the future.

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ANNUAL REPORT

For the year ended 31 December 2021

CHAIRMAN'S INTRODUCTION

I am pleased to present the Lister Institute of Preventive Medicine Annual Report for 2021 on behalf of the Governing Body.

The ongoing Covid pandemic has continued to provide challenges for us all. Despite this, the Lister Institute has carried on its work in 2021, awarding six Lister Prizes of £250,000, giving 41 Studentships and once again holding its Annual Meeting in Oxford.

Our Fellows and former Fellows continue to conduct excellent research, publish in high impact journals and to win awards and recognition for their work. This year, particular congratulations must be given to: Professor Frances Platt who was elected as a Fellow of the Royal Society; Professors Michael Eddleston and Liz Patton (Scientific Advisory Committee (SAC) member) who were elected Fellows of the Royal Society of Edinburgh; Dr Madan Babu who was elected a Fellow of the Academy of Medical Sciences; and Professors Pete Cullen and Corinne Houart (Former SAC member) who were elected Members of EMBO. In addition, we offer our warmest congratulations to Dr Amanda Sferruzzi-Perri who was awarded the Hans Sigrist Prize and Professor Michael Eddleston who was awarded the University of Edinburgh Chancellor's Award.

On a sad note, I am sorry to have to report that Professor Sir James Gowans, Lister Member, former Governor and Chair of the SAC, and Professor Sir Peter Lachmann Lister Member and former member of the SAC both passed away last year. Both were giants of 20th Century UK biomedicine.

While much of the business of the Lister Institute continued to be conducted virtually throughout 2021, a real highlight of the year was that we successfully held the Annual Meeting in Oxford. For the majority of people, it was their first 'in person' meeting in 18 months and everyone was excited to be there. Although we had a few cancellations due to Covid we had a full agenda, with Prize Fellows from both 2020 and 2021 speaking. The poster session was popular with the Students having an opportunity to present their work, network with the Fellows and talk about careers in science.

As always, I would like to thank Professor John Iredale and all the members of the SAC and our wonderful office staff for their extremely hard work in reviewing the many applications and identifying the Lister Prize Fellows. 2021 was a record year and we received 145 applications!! This created an enormous task for both the SAC to prioritise and the staff to secure external reviewers. As in 2020, the final interviews were conducted virtually via Zoom. This worked very well with the candidates still giving presentations and being subject to intense questioning by the panel before the Prize winners were selected.

I would also like to thank the members of the Governing Body and the Finance and Investment Committee for all their hard work and support, throughout the year. I particularly thank our new Treasurer, Murray Legg, and our new FIC member Stephen McMahon for the valuable contributions they are already making behind the scenes to the work of the Lister.

It is fantastic that we have been able to re-start the Fellows visits this year. In November 2021 we went to the Babraham Institute where two Fellows – one from 2020 (Michelle Lintermann) and one from 2021 (Hayley Sharpe) presented their work. December marked another visit, to Durham, where Tim Blower (2020) presented his research. So far in 2022, we have enjoyed a visit to the Francis Crick Institute in January to hear presentations from James Lee and Rickie Patani (2021), hosted by our former Governor Sir Peter Ratcliffe, now the Clinical Director at the Crick. I would like to express our thanks to all 3 Institutions for their excellent hospitality and ongoing support. Covid allowing we aim to catch up on the other visits in 2022!

Financial markets were more stable in 2021 despite the ongoing pandemic and disruption to our daily lives. Throughout this period our investment managers continued to do an excellent job of looking after our resources and we ended the year with another positive outcome. The valuation of our investments on 31 December 2021 (after withdrawal of the funds for the Prize Fellowships, Studentships and our operational costs) was £47.6m, up from £44.86m in December 2020. Recent events in Ukraine have had a significant impact on the markets and we will need to wait to see how things develop over 2022.

Whilst the Covid pandemic has brought considerable challenges, it has also exemplified the vital importance of biomedical research. The Lister Institute Prizes of £250,000 provide an excellent foundation that really makes a significant and positive impact on Fellows' research and careers. They ensure that we deliver on our stated aim of 'nurturing the future leaders in biomedical research'.

I am sad to say that this will be the last Lister Institute Annual Report that I present, as I will be standing down at the end of my allowed term as Chairman at the AGM in September 2022. I am delighted to announce that I will be handing our reins into the very safe hands of Professor John Iredale. John is very well known and respected by the Lister Institute family, because he has been a Trustee and very effective Chair of our Scientific Advisory Committee for the last 5 years. At the same time, John is passing the vital baton of Chairmanship of the SAC into the equally safe hands of Professor Julian Blow. Julian is a former Lister Fellow and has been a member of the SAC for the last 3 years.

The strength of the Institute is the people associated with it, whether they be our Fellows, members of the Governing Body and its sub-committees, the Membership of the Institute or our staff and to all I offer my sincerest and warmest appreciation. The Lister Institute is in a strong position, and I am confident that with its new leadership it will go from strength to strength in the years to come.

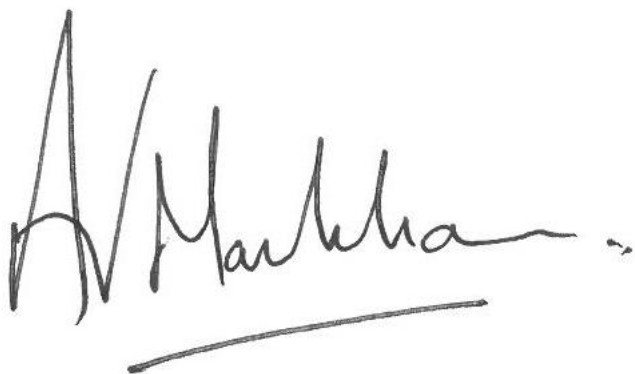
It has been a huge pleasure and privilege to serve the Lister Institute as its Chairman over the past decade. I am particularly conscious of the many distinguished national scientific leaders who have graced the Lister Institute Chair over the decades and I hope posterity will not feel that I have let them down. This has been the highlight of a long career for me. You have all taught me a great deal. The extraordinary catalogue of the Institute's achievements over the years, produced to mark our 125th Anniversary in 2016, stands out as a particularly fond memory and reminds us all of the remarkable value of this unique organisation.

On this occasion, I wish to conclude by specifically thanking the current representative of our founder, Lord Iveagh, my good friend and wonderfully supportive member of the Governing Body, the Hon Rory Guinness, for the massive amount he always does to support the Lister Institute.

I hope that I have not disappointed any of you and I wish you all every possible joy and continuing success.

Here's to the next 125 years!

Professor Sir Alex Markham, Chairman

A handwritten signature in black ink, appearing to read 'A Markham', with a horizontal line drawn underneath. The signature is located within a light gray rectangular box.

CHAIRMAN'S INTRODUCTION

2021 Lister Research Prize Fellowship Winners

Amidst the continuing disruptions of the COVID-19 pandemic, we ran our full application process remotely for the second year running. We identified six researchers with the potential to play a leading role in a range of vital biomedical developments.

The individuals to whom we awarded the Lister Prize Fellowships are as follows:

Dr Tanmay Bharat, University of Oxford <i>In situ structural studies of the functional organisation and inhibition of the BAM complex in Gram-negative bacteria</i>
There is much to learn about how bacteria form biofilms – the multicellular, organised communities that help them evade antibiotics. Tanmay's Bacterial Biofilms group investigates this using their expertise in electron microscopy and cellular structural biology. The team look inside bacterial cells at the atomic level to study the fundamental molecular mechanisms involved in biofilm formation. Their findings could help inform and develop therapeutic strategies against bacterial infections.
Prof Ravindra Gupta, University of Cambridge <i>Cell cycle regulation in Macrophages</i>
Macrophages are reservoirs for the HIV-1 virus, where it can lie safely dormant during anti-retroviral treatment. Although macrophages are thought of as non-dividing cells, Ravindra's research has shown that a significant proportion do go through the early stage of cell division (from G0 to G1). This transition makes them highly vulnerable to infection. By understanding how these cell cycle transitions occur, Ravindra hopes to develop strategies to make macrophages less susceptible to HIV-1. His research may also help understand infection and immunity more broadly and could have implications for inflammation and cancer.
Dr James Lee, Francis Crick Institute <i>From SNPs to biology in inflammatory diseases</i>
Almost all autoimmune diseases need better treatments, but many drugs fail during the early stages of development. This is partly because we still do not know enough about these diseases. James' lab has developed a series of experimental tools to better understand how tiny differences in DNA, known as SNPs, predispose people to inflammatory diseases such as

rheumatoid arthritis. By uncovering the biological mechanisms involved, his lab hopes to better understand autoimmune conditions and find new ways of treating them.

Prof Rickie Patani, UCL and The Francis Crick Institute

Identifying therapeutically targetable RNA binding proteins in ALS

Motor neuron disease (ALS) remains untreatable because we do not understand the underlying disease mechanisms. Rickie's laboratory transforms stem cells generated from real patients into motor neurons to study disease development at the cellular and molecular levels. His research focuses on how RNA molecules become 'corrupted' in ALS, possibly because the proteins responsible for RNA processing become mis-localised from the nuclear to cytoplasmic compartment in this context. Understanding this 'chaos' may help Rickie's team better understand ALS and identify potential therapies.

Dr Christopher Stewart, Newcastle University

Using stem cell derived "mini guts" to investigate microbiome-host interaction in early life

A key risk for babies born very preterm is that they have abnormal bacterial colonisation of the gut. This puts them at significant risk of life-threatening diseases. We know that breast milk delivers important components that modulate the microbial cells and also act directly upon the infant's cells. Christopher's lab uses stem cells from human tissue to grow organoid "mini-guts." Christopher is using these "mini guts" to investigate the interaction between breastmilk, microbes, and infant host cells. Deeper understanding of this will help develop new and effective therapies for preterm babies.

Dr Stineke Van Houte, University of Exeter

Developing new tools to tackle antibiotic resistance

Overcoming the threat of growing antibiotic resistance would be ground-breaking. Stineke studies interactions between genetic parasites, such as bacteriophages and plasmids, and their bacterial hosts. Her work aims to develop new tools to remove antibiotic resistance genes from microbial communities in patients. Research at the Van Houte lab uses the CRISPR-Cas9 enzyme to develop new methods to target antibiotic resistance genes in microbial communities in the gut, where different bacterial species and other microorganisms share a habitat and often interact.

As Professor Sir Alex Markham reaches the end of his 11-year tenure as Chair of the Lister Institute, we speak to him about his career to date.

Born in Manchester, Alex attended the University of Birmingham to study Chemistry. During a subsequent PhD with Profs AS Jones and RT Walker, these “supportive mentors” stimulated Alex’s lifelong interest in the nucleic acids.

While most of his PhD contemporaries moved on to the United States, Alex did his first post-doctoral placement in Osaka, Japan, with Professors M. Ikehara and E. Ohtsuka. Here, he contributed to some of the earliest work on chemical synthesis of fragments of RNA, including the total synthesis of a functional tRNA molecule.

“Although the science was fantastic, having a conversation was a challenge at first,” says Alex. “I got into the habit of working a lot. That’s something that never left me.”

After a short period working for Nobel Laureate, Sir Derek Barton, Alex embarked on his first job in industry with G.D. Searle Pharmaceuticals. At that time, it had the best containment facilities for molecular biology in the UK.

Alex moved to ICI Pharmaceuticals in 1979. “I was surrounded by wonderfully talented people, who invented many of the drugs that remain cornerstones of medical oncology and cardiology to this day,” says Alex.

But he could see that the pharmaceutical industry was changing, and that the chemist would no longer be king. He decided to train again in medicine at St Mary’s, Paddington.

“Understanding biomedicine opened my eyes to endless research possibilities,” says Alex. He continued to run his research group at ICI on a part-time basis. “I used to nip out of the anatomy classes on a Friday afternoon and catch the train from Euston to Wilmslow for weekends in the lab. That means I still don’t know much about anatomy below the knee,” he jokes.

After qualifying and clinical training, Alex returned to ICI to help run a diagnostics division. This marked his first interaction with the Lister Institute, as he worked closely with Alec Jeffreys to commercialise his recent invention – DNA fingerprinting.

“The thing that really fascinated me was inherited disease and genetics,” he says. “Drug companies at that time weren’t remotely interested because these were thought to be untreatable diseases that only affect small numbers of people.”

Direct access to patients would be essential to study these conditions, so Alex found himself drawn back to clinical work. “I was 41 years old,” he laughs, “running up and down the seven storeys of the John Radcliffe Hospital with the cardiac arrest bleep. The nurses would tell me to lie down when I arrived, because I looked worse than the patients.”

After this, Alex joined the University of Leeds as Professor of Medicine – a position he retains to this day. His group has identified some of the mutant genes that cause deafness, eye disease, and certain immunological or neurological deficiencies. Particular highlights were the discoveries of

the mutant genes causing the clinical sign “clubbing” and those that determine the size of the human brain.

In 2003, Alex became the first substantive Chief Executive of Cancer Research UK, when the Cancer Research Campaign and Imperial Cancer Research Fund merged.

During his five-year tenure, the newly formed charity massively increased its income, sustaining its research base whilst revitalising and opening new research institutes and research centres. It invested heavily in clinical research, demonstrated the benefits of screening for cervical and breast cancer and rolled out NHS bowel cancer screening programmes. Drugs that entered routine use included abiraterone for prostate cancer and temozolamide for brain tumours.

Alex helped bring the 2006 Ban on Smoking in Public Places into force, which he says was “a huge achievement, because we really had to shift political opinion.”

Since leaving Cancer Research UK, Alex has chaired numerous panels and funding committees and served at the MHRA. He has also spent many years trying to make patient data available confidentially for research purposes.

“Between 2008 and 2012, we were able to bring together cancer registry data, primary care data, hospital episode statistics and death records from the Office for National Statistics. Linking those four datasets as the National Cancer Intelligence Network (NCIN) created a powerful tool to highlight NHS problems and help improve cancer outcomes.”

Regrettably, the NCIN fell apart following the creation of Public Health England in 2013, but Alex remains passionate about making patient data more widely available to save lives. He sits on the boards of UK Biobank (which gained consent to share the anonymised patient data from its 500,000 participants) and Health Data Research UK (where he has also helped set up the new British Heart Foundation Data Science Centre). He also enjoys his work as a Board Non-Executive Director for the NIHR National Clinical Research Network and the Innovate UK Medicines Discovery Catapult.

“By being patient, our funds have increased about fourfold, and we’ve been able to increase the number of Fellowships significantly.” Alex gives thanks to the people who have supported him during his time at the Lister: Trevor Hince, Kate Law, Sally Burtles, Naomi King, Nicola King and his many wonderful colleagues on the Governing Body. His successor will be Professor John Iredale, who currently chairs the Scientific Advisory Committee.

“We’re thinking carefully about what additional support we can give our current Fellows in the wake of the pandemic,” concludes Alex. “I am leaving that work in John’s very capable hands.”

Undergraduates go phage-hunting

Dr Tim Blower was awarded the Lister Prize Fellowship in 2019. His lab at Durham University is interested in how bacteria protect themselves from bacteriophages (phages). In particular, they explore the phage-resistance system known as Bacteriophage EXclusion (BREX), which was first identified in 2015.

“We know that BREX stops phages, and we know it’s something to do with methylation of DNA, but it’s far more complex than restriction-modification,” explains Tim.

By learning more about the interactions between phages and their hosts, Tim’s lab intends to contribute to the fight against antibiotic resistance. Ultimately, phages could be used as an alternative to traditional antibiotics.

Tim also hopes that his research will build a better understanding of the mechanisms underlying BREX to inform the development of new techniques. Historically, research into the relationships between phages and host bacteria has resulted in a number of widely used biomedical technologies. Understanding restriction-modification and CRISPR-Cas are the foundations of the recombinant DNA and genome editing revolutions.

The lab’s research has already identified a new defence system, called BrxU, which has potential as a useful tool. The bacterial DNA modifications that BrxU recognises are also found in human DNA. BrxU could prove to be a way of mapping changes in human DNA during ageing or as a result of diseases such as cancer.

This research was published in October 2021. It acknowledged 97 undergraduates who isolated the bacteriophages that were used in the study.

Tim is a huge advocate for research-led teaching, which combines academic knowledge with practical skills to contribute to his lab’s ongoing research. This activity plays a vital role in inspiring young researchers to consider biomedical careers. In Tim’s Bacteriophage Workshops, undergraduate students isolate new phages from waterways local to the university.

One of the first undergraduates to take part was Izaak Beck: “Contributing to research at Durham was a fantastic and inspiring experience as an undergraduate. From our samples, we purified and studied *E. coli* bacteriophages using a range of microbiological, biochemical and imaging techniques. These bacteriophages are still used to this day in the Blower Lab for further study of a defence system against them.”

Izaak stayed on in Tim’s lab to do an MSc by Research. Now in the final year of his PhD, Izaak is studying the structural biology and biochemistry of the interactions between toxin-antitoxin systems.

“After visualising their discoveries, the undergrads get to name them,” says Tim. “So, we’ve got Smiley, Phage Against the Machine, and Phage and Onion Stuffing, to name a few!”

Another of Tim’s former students, Elisabeth Waller, credits Tim’s Bacteriophage Workshop with inspiring her to complete a Master’s in Medical Microbiology. She has since worked in a virological laboratory with viruses such as rabies, West Nile virus, and COVID-19, although she currently spends her days investigating microbes more than growing them in the lab.

“The workshop was enjoyable, thought-provoking, and broadened my knowledge of laboratory techniques,” says Elisabeth. “I was most excited to use the scanning electron microscope to visualise our phages. I can proudly say my career in microbiology started with this bacteriophage workshop – and it is an experience I still look back on fondly.”

Picton, D.M., Luyten, Y.A., Morgan, R.D., Nelson, A., Smith, D.L., Dryden, D.T.F., Hinton, J.C.D. & Blower, T.R. (2021). The phage defence island of a multidrug resistant plasmid uses both BREX and type IV restriction for complementary protection from viruses. Nucleic Acids Research 49(19): 11257-11273.

Picton, D. M., Harling-Lee, J. D., Duffner, S. J., Went, S. C., Morgan, R. D., Hinton, J. C. D. & Blower, T. R. (2022). A widespread family of WYL-domain transcriptional regulators co-localises with diverse phage defence systems and islands. Nucleic Acids Research 50(9): 5191-5207.

Annual Meeting

On Thursday 9 and Friday 10 September 2021, we held our AGM within the beautiful walls of Corpus Christi College in Oxford. Here we review the action-packed agenda.

Lecture from Professor Wolf Reik

Following a warm welcome from Professor Sir Alex Markham, Wolf gave us a rundown of his research in spatially resolving patterns of gene expression for mouse cell atlases and the Reik Lab's work to create a map of mouse organogenesis.

He discussed epigenetic reprogramming and his efforts to create a "cell fate model" that could potentially make predictions about cell fate in human development. He also talked about his team's ongoing research into reversing the ageing of cells through reprogramming induced pluripotent stem (iPS) cells, with implications for wound healing and ageing.

Talks by winners of the 2020 Research Prizes

Dr Tomás Ryan of Trinity College Dublin talked about his neurobiological research, which labels memory engrams to show the information they encode and to look at the real-time activity of these cells in living animals. His work looks specifically at infant amnesia – the memories from our first few years of life that we all lose and has been able to reactivate these infant memories in adult mice.

Dr Stephan Uphoff of the University of Oxford spoke about his research to image DNA repair and mutagenesis in bacteria. Stephan talked about the complexities of DNA and mutagenesis, and how his lab is developing single-molecule imaging to view this in live cells, such as *E.Coli*. This research is bringing to light how enzymes find their targets of DNA to repair – something which remains unclear. He is using his Lister funding to explore how oxidative stress causes a mutation burst.

Dr Rebecca Lawson of the University of Cambridge and Dr Hayley Sharpe of The Babraham Institute were unable to attend, but we look forward to hearing them speak next year.

Poster session

On Thursday evening, several students presented posters about their Lister Summer Studentships. Over drinks and a buffet, attendees had time to speak with the students and ask them more about their research projects.

Talks by winners of the 2021 Research Prizes

Dr Tanmay Bharat of the University of Oxford studies the structural biology of biofilms. He showed us the incredible detail with which his newly developed techniques can resolve cell structures, and how this can provide information about what is happening on the surface of bacteria. His Lister-funded work is studying cellular structure down to the level of atomic detail, using these techniques to identify antibiotic targets.

Professor Ravindra Gupta of the University of Cambridge focuses on studying macrophages and their role in HIV infection. His research has revealed the stages of the cell cycle at which macrophages are infected, and consequently shown how infection could be prevented in these

cells. He is using Lister funding to understand what the physiological drivers are for cell cycle arrest.

Dr James Lee of the Francis Crick Institute outlined the urgent need for better treatments for inflammatory disease and the unfulfilled potential of genome-wide association studies (GWAS) in identifying gene targets. His “fine mapping” approach assesses all SNPs for whether they have causal impact – a method that can achieve great scale in a single experiment.

Professor Rickie Patani of University College London and the Francis Crick Institute described his work to capture “compartmental chaos” in motor neuron disease (ALS). Methods created by his lab generate 90% pure spinal cord motor neurons from patient-derived iPS cells in three weeks. Rickie has found that the TDP-43 binding protein is mislocalised in these cells, leading to cell death. His Lister-funded research aims to reveal far more detail about this.

Dr Stineke Van Houte of the University of Exeter explained how she is using CRISPR-Cas9 to study complex, realistic microbial communities. Her research demonstrates that inserting CRISPR-Cas9 into plasmids resensitises a range of bacteria to antibiotics. She is seeking the best “phage cocktail” for getting plasmids into bacteria, engineering plasmids, measuring their effectiveness in gut cells, and creating an *in vivo* model of infection prevention.

Dr Christopher Stewart of Newcastle University was unable to attend, but we eagerly anticipate his talk in 2022.

Talk by Professor Victoria Cowling

Victoria, the University of Dundee, became a Lister Fellow in 2011. She studies how formation of the RNA cap changes in cancer, immunological, basal, and developmental states. Much of this work focuses on the role of RNMT – an enzyme that plays a key role in the process by binding to the cap. She is now looking at mouse cancer models to work out why some genes need RNMT and why some do not.

Special Lister Lecture from Professor Doug Higgs

Doug, Professor of Molecular Haematology and Director of the Weatherall Institute of Molecular Medicine, regaled everyone with anecdotes from his long and illustrious career. He talked about his discoveries of the multigene clusters that regulate haemoglobin production and described how his lab worked out the genetics underlying alpha thalassaemia, carried by hundreds of millions of people.

Doug also discussed his ongoing research into epigenetics, exploring the interactions between enhancers and promoters and the mechanisms by which they regulate gene expression to create real-time “snapshots” of gene expression.

The Annual Event (pandemics aside) is an excellent opportunity for our members to meet, share ideas, celebrate successes, and build connections. We look forward to another fantastic meeting in 2022.

Save the date!

The 2022 Annual Fellows Meeting is being held at Corpus Christi in Oxford on
Thursday 8 September- Friday 9 September 2022

ENVIRONMENT, SOCIAL AND GOVERNANCE

GOVERNANCE OVERVIEW

The Governing Body

Governance of the Lister Institute is overseen by the Governing Body which meets twice a year. Members of the Governing Body are Trustees of the charity and have responsibility to the Charity Commission to ensure the charity is well run and remains true to its purpose. As ever, we must pay tribute to the quality and dedication of the Governing Body members and the speed and clarity with which they respond to Lister matters.

In 2021, Professor Sir Alex Markham, the Chair of the Governing Body, was due to stand down as the longest standing Elected member of the Governing Body. Professor Markham had been chair of the Lister Institute since 2011 and during 2021 a thorough process to identify a new chair was conducted by the GB. The outcome of this process was that Professor John Iredale, currently chair of the Scientific Advisory Committee (SAC) was unanimously agreed to take over as Chair of the Governing Body at the AGM in September 2022 when he will be put forwards for election and will stand down, as scheduled, as chair of the SAC. As a result Professor Markham was re-elected at the AGM for one additional year to allow a smooth hand over of chairmanship to Professor Iredale before he formally takes over in 2022.

Finance and Investment Committee

The Finance and Investment Committee (FIC) met twice in 2021 and undertook its normal business reviewing the performance of the investment managers and the finances of the Lister Institute.

Every five years the Lister Institute formally undertakes a review of its investment managers. The last review was in 2017. During 2021 the FIC undertook the preparatory work for the review which has been completed in 2022. This included:- a review of the Investment Policy Statement, including distribution and ESG policies, a review of the incumbent manager's investment performance and service (including terms of engagement) and consideration of alternative investment solutions and providers. The outputs of this preparatory work was summarised for final discussion and conclusion by the FIC and Governing Body in March and April 2022. The conclusions were not to change the investment managers, to keep our stance on ESG investments under close review and to invest a proportion of the B portfolio in a "absolute return minded" fund managed by Ruffer LLPs to seek to mitigate the effects of inflation

Scientific Advisory Committee

In 2021 there were several changes to the SAC membership. Professor Cyrus Cooper stood down after completing his term of office and Professors Fiona Powrie and Magda Zernicka-Goetz stood down due to pressures of work. Professor Muzliffah Hannifa (Newcastle), Professor Iain McInnes (Glasgow) and Professor Tom Owen (Glasgow) all joined the committee.

The SAC met three times this year, on all occasions on-line. The main and most important meeting was the interviews of the short-listed candidates for the Lister Prize Fellowships. The SAC also met in advance of the interviews to undertake the work of the SAC. There was also an additional meeting to consider what the Lister Institute could do in light of the impact of Covid on the careers of young researchers.

Institute membership

All Fellows of the Lister Institute become Members when they complete their Fellowship. In addition, all Committee members, previous members of staff and others with a particular interest in the Lister Institute are Members. At present we have 226 Members and they are all eligible to vote at the AGM.

The Fellows who completed their Fellowship in 2021 were, Dr Cynthia Andoniadou (Kings College London); Professor Victoria Cowling (University of Dundee); Dr Aga Gambus (University of Birmingham); Professor Muzlifah Haniffa (Newcastle University); Professor Serge Mostowy (LSHTM) Professor Jan Rehwinkle (University of Oxford); Dr Erica Watson (University of Cambridge) and Professor Steven West (University of Exeter).

As we changed the membership rules in 2021 the majority of the Fellows were already members. Dr Cynthia Andoniadou, Dr Aga Gambus, Professor Muzlifah Haniffa and Professor Jan Rehwinkle all became Lister Members in 2021.

As a new member of the SAC, Professor Iain McInnes also became a Member of the Lister Institute.

ENVIRONMENT

The Lister Institute is a small organisation with a small environmental impact. It has no buildings and all three staff work from home. Essential meetings, such as the Annual Fellows meeting are held in person with travel by public transport encouraged. Other meetings are held on-line.

SOCIAL

Through the biomedical research that it funds the Lister Institute has a beneficial impact on society through direct patient and public benefit e.g. new treatments and diagnostics as well as through the expansion of knowledge and understanding. For the Lister Institute to be successful it is essential that it attracts and retains skilled and talented people. It does this by creating an inclusive working environment where people can be themselves, treating everyone fairly with dignity and respect. We are committed to fairness in our remuneration packages and supporting flexibility at work. Pensions continue to be paid to a small number of former employees.

EQUALITY, DIVERSITY AND INCLUSION (EDI)

We value and embrace EDI and aim to achieve equality, diversity and inclusiveness across the Lister Institute – in our Prize Fellows, our committee members and our staff. While EDI is our aim, we recognise that we still have work to do achieve it. Currently the gender balance in the organisation is as follows: Governing Body 29% female: 71% male; current fellows 30% female: 70% male; staff 100% female. The gender balance at all stages of our application process is monitored and steps are made to address any aspects of the process that may affect the gender balance, though ultimately the highest quality candidates are selected. In 2021 we started to collect other data to allow consideration of wider aspects of equality and diversity to begin to be monitored and addressed. Membership of committees is considered annually and equality and diversity are always considered as part of that process.

FINANCIAL OVERVIEW

After the volatile markets of 2020, it was comparatively smooth sailing for investments in 2021, despite the ongoing pandemic and associated disruption to our daily lives. However, the FIC has remained vigilant in the face of positive returns, given the possible risks to a rather febrile economic backdrop, not least the growing spectre of inflation. At the time of writing, the war in Ukraine has resulted in steep equity market falls, an illustration of how unforeseen risks can affect financial reserves.

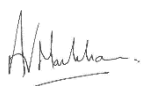
The Lister Institute has its low volatility liquidity reserve fund, which was established to enable the Lister to ride out a major market correction. It continues to provide a buffer against this uncertainty and any ensuing fall in the markets.

Our two investment managers, Cazenove and Partners Capital have successfully handled our portfolio with our investments having a final valuation (after withdrawal of £1.85M for the prize Fellowships and Lister operations) of £47.6M, up from £44.9M at the end of 2020. The FIC will continue to monitor closely our portfolio and there will continue to be careful consideration of the numbers and levels of Fellowships and studentships.

All expenditure has been in line with or below the agreed 2021 budget. The investment managers' fees were £263K, up slightly from £237K in 2020. With six Fellowships being awarded at £250,000K each, £97K spent on studentships and operational costs being £177K the total expenditure for the Lister institute in 2021 was £1.973M.

	£K
Prize Fellowships and studentships	1,533
Investment managers fees	263
Staff and operational costs	177
TOTAL	1,973

The Lister Institute remains indebted to our all the members of the Finance and Investment Committee, and I would like to thank them all for their scrutiny of the Institute's finances and the rigorous questioning of our current investment advisors, Partners Capital LLP and Cazenove Capital Management. We are particularly grateful to Murray Legg for his contribution as Treasurer and chair of the FIC.



ALEX MARKHAM
CHAIRMAN

Current Lister Prize Fellows

For the full list of all Lister Fellows (past and present) please see the Lister website
<https://www.lister-institute.org.uk/former-fellows/>

Fellow	Title of Research	Awarded
Dr Tom Baden University of Sussex	Anisotropic retinal circuits for processing of colour and space in nature	2018
Dr Tanmay Bharat University of Oxford	In situ structural studies of the functional organisation and inhibition of the BAM complex in Gram-negative bacteria	2021
Dr Timothy Blower Durham University	BREX and phage-bacteria interactions	2019
Dr Ross Chapman University of Oxford	DNA double-strand break repair mechanisms in immunity and oncogenesis	2019
Dr Rebecca Corrigan University of Sheffield	Analysis of the role of (p)ppGpp in staphylococcal infection using zebrafish as a model organism	2018
Dr Mark Dodding University of Bristol	A new chemical biology approach to target molecular motors for the manipulation of cytoskeleton and organelle dynamics	2018
Professor Sherif El-Khamisy University of Sheffield	The repair of oxidative and topoisomerase induced chromosomal strand breaks and human disease	2013
Dr Susana Godinho Queen Mary University of London	Regulation of Paracrine Signalling by Centrosome Amplification	2016
Dr Sebastian Guettler The Institute of Cancer Research	Structural basis and mechanism of telomere maintenance by poly(ADP-ribosylation)	2017
Professor Ravindra Gupta University of Cambridge	Cell cycle regulation in Macrophages	2021
Dr Sophie Helaine Imperial College London Harvard Medical School	Salmonella Persister formation at the single cell level	2017
Dr Matthew Hepworth University of Manchester	Targeting cell metabolism to regulate innate lymphoid cells in health and disease	2018
Dr Joanne Konkel University of Manchester	Atypical monocytes at the oral mucosa; revisiting myeloid cell development and function at a unique barrier site	2019
Dr Yogesh Kulathu University of Dundee	Regulation and function of protein FUBylation	2017
Dr Rebecca Lawson University of Cambridge	Computational neurodevelopment: a new framework for understanding autism spectrum disorder	2020
Dr James Lee The Francis Crick Institute	From SNPs to biology in inflammatory diseases	2021
Dr Michelle Linterman Babraham Institute	Tertiary lymphoid structures in health and disease	2019

Dr Yanlan Mao University College London	Mechanochemical regulation of tissue growth and morphogenesis	2018
Dr Joseph Marsh University of Edinburgh	The dominant-negative effect in protein complexes: implications for human genetic disease	2018
Dr Will McEwan University of Cambridge	Protein-level knockdown as a new frontier for biological and biomedical sciences	2019
Dr James Nathan University of Cambridge	The interplay between metabolism and oxygen sensing	2017
Professor Rickie Patani UCL & The Francis Crick Institute	Identifying therapeutically targetable RNA binding proteins in ALS	2021
Dr Rahul Roychoudhuri University of Cambridge	Resolving mechanisms of gene regulation within the immune system using forward genetics	2017
Dr Tomás Ryan Trinity College Dublin	Gone or Misplaced? – Retrieving Infant Memories in Adults	2020
Dr Amanda Sferruzzi-Perri University of Cambridge	Biomarkers of materno-fetal health: role of placental endocrine mediators in normal and obese pregnancies	2018
Dr Hayley Sharpe Babraham Institute	Receptor tyrosine phosphatase signalling mechanisms in health and disease	2020
Professor Daniel Smith University of Edinburgh	Investigating the overlap between hypertension and bipolar disorder to identify new and repurposed medications for bipolar disorder	2016
Dr Christopher Stewart Newcastle University	Using stem cell derived “mini guts” to investigate microbiome-host interaction in early life	2021
Dr Stephan Uphoff University of Oxford	Resolving oxidative stress response mechanisms in bacteria during infection and antibiotic treatment	2020
Dr Stineke Van Houte University of Exeter	Developing new tools to tackle antibiotic resistance	2021

REPORT OF THE GOVERNING BODY

for the year ended 31 December 2021

The Governing Body presents its Annual Report under the Charities Act 2011 together with the audited Financial Statements of the Charity for the year ended 31 December 2021. The Financial Statements have been prepared in accordance with the accounting policies set out in Note 1 (page 32) to the Financial Statements and comply with the Companies Act 2006, the FRS102 Charities SORP and the documents governing the constitution of the Charity.

LEGAL AND ADMINISTRATIVE DETAILS

Legal and administrative information is set out on pages 38 and 39 of this report.

Members of the Governing Body, Directors and Trustees

The members of the Governing Body are, for the purposes of company law, Directors of the Institute and, for the purposes of charity law, Trustees of the Institute and throughout this report are collectively referred to as the Trustees.

Details of the Trustees serving throughout the year are set out on page 38.

STRUCTURE, GOVERNANCE AND MANAGEMENT

Constitution

The Institute is registered with the Charity Commission for England and Wales (registration number 206271). It is incorporated and registered in England and Wales under the Companies Act 2006 as a company limited by guarantee and not having a share capital (company number 34479). It is governed by its Articles of Association and has charitable status.

Appointment and Re-appointment of Trustees

The Trustees are the fourteen members of the Governing Body of whom six are elected by the members at the annual general meeting. A maximum of six further Trustees are appointed by the Governing Body and there are currently five such appointees. One additional member is Lord Iveagh's representative, another is Professor Sir Alec Jeffreys who was appointed to life-membership, and the final member, Professor Douglas Higgs, is the representative of the Royal Society. Trustees, other than the two nominated representatives, Professor Sir Alec Jeffreys and exceptionally those appointed by the Governing Body, generally serve for a period of six years and a system of planned rotation is in place. When considering appointment or nomination for election as Trustees, the Governing Body has regard to the specialist skills needed.

Induction and Training of Trustees

New Trustees undergo induction sessions with the Chairman, Treasurer and Director during which they will gain an understanding of the Institute's structure, activities, financial position and future strategies. Prior to appointment they will attend one meeting of the Governing Body as 'observers'. New Trustees will also be made aware of their legal obligations with regard to charity and company law. In addition, new Trustees will be advised of appropriate literature and training courses. An Induction check list supports the process.

Organisation

The Institute is governed by its Governing Body which is responsible for setting policies, authorising actions on all significant operational issues and ensuring legality and good practice.

The Governing Body meets formally twice a year. The Treasurer and Chairman review the remuneration of all staff once a year. This includes the remuneration of those individuals considered to be key management personnel.

Specific authorities are delegated to two sub-Committees in particular areas. The Scientific Advisory Committee (see page 38 for membership) has responsibility for identifying the Lister Institute Prize Fellows and the monitoring of their scientific activities, as well as providing scientific and medical advice to the Governing Body as required. The Finance and Investment Committee (see page 38 for membership) has responsibility for interaction with the Institute's investment advisors, ensuring implementation of the Institute's investment policy and monitoring performance. It prepares and submits to the Governing Body the annual budget, and subsequently monitors performance against it. It also advises the Governing Body, as required, on other financial and risk matters.

The routine management of the Institute's activities is undertaken by its Director, aided by the Operations Manager and the Accountant. All staff work from home.

In 2021, one of the Charity's Trustees received remuneration in relation to their work for the charity. This is the chairman of the SAC who is the only one of the trustees who is offered any remuneration in relation to their dealings with the Charity. They are offered a small honorarium in recognition of the very significant workload associated with the role.

The Chairman and the Treasurer of the Charity agree the Director's remuneration which, along with other Lister Institute staff, is normally increased in line with RPI. Salaries are also compared to similar organisations and adjusted periodically where appropriate.

Risk Management

The Trustees assess the risks facing the Institute and review the effectiveness of the controls to monitor and mitigate them. A Risk Management Register is maintained and formally reviewed annually by the Governing Body.

The key controls used by the Institute include:

- Formal agendas for all Governing Body meetings
- Strategic planning, budgeting and management accounting
- Formal written policies
- Clear authorisation and approval levels
- Regular review of Fellows' scientific reports

The risk of cybersecurity is considered by the Trustees on an ongoing basis and amendments have been made to the risk log. A cyber-security policy for staff has been developed. IT support for staff has been changed to a new company and now involves more formal and regular security updates and regular training for staff. An online grants management system called Benefactor has been implemented to improve the security around the application process.

In recent years, the risk logs, terms and conditions, policies and procedures have been adapted and updated to address the specific risks of bribery, scientific misconduct and data protection. The terms and conditions are being reviewed again in 2022. The risk register is reviewed annually and policies are reviewed regularly as defined within each policy.

The Institute maintains a 'Register of Interests' for all Governing Body and committee members as well as principal staff and operates a clear "declaration of interests" policy and procedures for all meetings.

The principal risk facing the Institute lies in its ability to maintain and protect the value in real terms of its investments and to generate from them, on a long-term basis, a consistently high overall return. This risk is mitigated by the Institute's appointment of experienced investment managers with a proven track record; by internal controls that allow close and regular monitoring of their performance against benchmarks; by the Institute's requirement of its investment managers to re-tender periodically and competitively for appointment; and by regular meetings that formally review investment performance and policy and include one-to-one presentations by the investment managers. The investment manager review was conducted in early 2022 and much of the preparative work for this was conducted in 2021.

Investment Policy Statements are in place for the Lister Institute and its investment partners. These are reviewed on an annual basis.

Objectives and Activities

The statutory Object of the Institute is to further the understanding and progress in preventive medicine by promoting excellence in biomedical research in the UK and Ireland.

When founded in 1891, the Institute sought to achieve this objective by establishing a research institute specialising in the area of "infections" and their prevention by immunisation and other means. It complemented these research activities by the production and supply of materials such as vaccines and anti-toxins.

The Institute continued in this mode until the late 1970s when increasing financial and regulatory pressures caused the cessation of these activities. Proceeds from the resultant sale of land and buildings created the investment funds from which present-day activities are financed; at 31 December 2021 these funds stood at £47.6M. From the 1980s the Institute has pursued its objective of nurturing future leaders by the provision of grant funding to facilitate the research and careers of high-quality individuals working in areas of biomedicine relevant to preventive medicine. It has done this because it believes that the acquisition and advancement of knowledge is crucial to the understanding of health and disease and that research to achieve this is driven forward by high quality individuals and their supporting staff.

Principal Activities

In pursuance of this objective, during 2021 the Institute awarded six new Prize Fellowships. In addition, the Institute has continued its Summer Studentship scheme. Generally, this has enabled an increasing number of undergraduates per year to work with Lister Institute Fellows or former Fellows in order to gain experience of biomedical research with the hope that they might consider it as a career. In 2021, 41 studentships were awarded.

Achievement and Performance

The Scientific Advisory Committee has monitored the performance of the current 30 Lister Institute Prize Fellows through review of their annual scientific research reports that includes the progress they are making, as well as all publications and presentations.

The Scientific Advisory Committee has reported to Trustees that it is of the view that all Fellows are undertaking high quality research and producing new knowledge that will contribute significantly to our understanding of disease, its causes, treatment and prevention. The reports of the research undertaken by the Summer Students have also been reviewed and found to be satisfactory.

Six Lister Institute Prize Fellowships were awarded in 2021 to Dr Tanmay Bahrat, Professor Ravindra Gupta, Dr James Lee, Professor Rickie Patani, Dr James Stewart and Dr Stineke Van Houte from an initial field of 145 applicants. They were awarded following extensive scientific review of their applications and final interview by the Scientific Advisory Committee. (More details of the Prize Fellows and their research are provided on pages 5 and 6). Each Prize Fellowship provides £250k with the funds provided to the host institution at the commencement of the award. Normally Lister Prize Fellowships may be spent over five years on the recipient's research, however in 2021 (and 2020) they were awarded for 6 years to allow for the early limitations and likely slow start caused by the pandemic.

Forty one Summer Studentships were awarded in 2021. Each is a £2,350 student bursary and is paid to the host institution at the commencement of the award for the support of the student for up to a ten-week period.

Public Benefit

The statutory objectives, aims and activities of The Lister Institute of Preventive Medicine are to further understanding in preventive medicine by promoting biomedical research, as set out on page 20 of this Report. The Trustees have considered the Charity Commission's guidance on public benefit, including the guidance 'public benefit: running a charity (PB2)'.

The public benefit of the Institute's grant-making is clearly identifiable in the 'Achievement and Performance' paragraphs above and in the list of Research Prize Fellows together with their areas of research on pages 16 and 17. All Lister Institute Fellows are actively encouraged, where appropriate, to develop their research findings for potential public benefit and the Scientific Advisory Committee has regard to this when reviewing their research reports. The Lister Institute therefore benefits the public or a sector of it without imposing any restrictions. Applications from individuals are accepted only when demonstrably consistent with the charitable objectives of the Institute.

Impact

The impact of the activities of a medical research charity can be measured at many levels ranging from the growth of knowledge to direct patient/public benefit. Often the transition from the former to the latter may take many years and the involvement of several organisations. The Institute requires that the results of the research it supports are published and disseminated; that, where appropriate, significant intellectual property is protected via patents; and that its commercial development is encouraged. Several biotechnology companies have been formed around the findings of Institute-funded research and there are several interactions with large pharmaceutical companies. A prime example of the impact of Lister Institute research is DNA fingerprinting, which was discovered by Sir Alec Jeffreys when a Lister Institute Fellow, and has become an integral part of society, helping to prove innocence or guilt in criminal cases, resolving immigration arguments and clarifying paternity.

Investment Policy and Performance

The Institute's investment objective is to develop and maintain its financial resources in real terms through the selection of investments, consistent with an acceptable level of risk.

The Institute's investment portfolio is split between Cazenove Capital Management and Partners Capital LLP who both operate under mandates agreed in advance with the Finance and Investment Committee. These mandates set out an overall target asset allocation with allowable ranges for each category of asset.

Both investment managers invest on a total returns basis through a variety of pooled funds and in accordance with the Institute's overarching "Investment Policy Statement" ("IPS"), which states the overall investment objective and sets the investment return objectives, the risk parameters, the performance measures and review procedures for the portfolio. The Institute's IPS was reviewed and revised in 2021. Specific versions were also agreed for each of the investment managers to reflect their individual investment approaches. The IPS's are reviewed annually. The Institute reiterates its likely cash requirements, both in terms of the amount and the timing of any withdrawal.

The Institute's IPS also includes reference to an ethical investment policy which does not permit direct investment in tobacco or tobacco-related companies. A workshop was held to discuss the Lister's position on ethical investments where it was agreed that our focus would remain on balancing ethical investments and returns (and endeavouring to better define our views as to what constitutes an ethical investment.) While there was no compelling argument for a significant change in strategy at this time, the Lister's stance on ESG would be kept under close review.

The Institute's overall financial return objective is to preserve and, if possible, enhance the purchasing power of its portfolio assets, net of costs and approved withdrawals, over rolling five-year periods. This goal is synonymous with the pursuit of a time-weighted net return on portfolio assets that equals and, if possible, exceeds cost inflation as measured by the UK Consumer Price Index plus the Institute's long-term spending rate of 3-4% measured over corresponding five-year periods. This goal has been achieved over the previous five-year period.

The performance of the investment portfolio is reviewed by the Finance and Investment Committee, which held two meetings in the year with the investment advisors to review performance, liquidity within the portfolio etc. In addition, the Institute receives detailed quarterly valuation and transaction reports. In a year that saw less volatility in the market the fund has grown from £44.86m to £47.6m. A decision, taken in 2015 (and ratified in subsequent years), to withdraw and place £5m in a Liquidity Account was based both on the recent strong growth of the portfolio but also concerns about future market volatility and performance. Given the increase in the number and level of the Fellowships a further discussion was held in 2021 and the decision was made to maintain £5m in this Account, on a rolling basis, to be reviewed annually. As a result of the Investment Managers Review it was agreed that a proportion of this £5M would be invested in a 'absolute return minded' fund - Ruffer Charitable Assets Trust that will hopefully help protect against the worst ravages of inflation. This decision will ensure that six Prize Fellowships of £250k each can be awarded for at least three years from 2022.

More details of the Institute's activities are set out in the Chairman's Report on pages 2 to 17.

FINANCIAL REVIEW

Allocation of Resources

The Institute, which does not seek to raise funds from the public, depends primarily on investment returns to meet its pension provision payments, administrative expenditure and expenditure in furtherance of the Charity's objectives. The total return on investments for the year was a net gain of £4.265M and investment income of £612K.

The resources expended totalled £1.973M of which £1.710M were resources expended for the Institute's charitable activities.

The Prize Fellowships are fixed sum awards and, therefore, expenditure can be regulated by altering the number and/or value of prizes awarded each year. In 2021, prizes were awarded to six very strong candidates. As previously described, a £5m liquid portfolio has been established so that the number and level of awards is sustainable over a minimum of three years. Forty one studentships were awarded in 2021.

Payments are currently made to three pensioners who are previous employees of the Lister Institute. The Institute's unfunded pension liability is some £134,000. Given the value and nature of our investments, we do not believe pension funding to be a concern.

Reserves policy

The policy of the Trustees is to maintain adequate financial resources to provide income to meet current and future commitments as they fall due and ensure that adequate funds remain available to enable them to make awards in perpetuity.

The adequacy of the level of reserves (£47.68m at the end of 2021) and the continuing appropriateness of the policy are reviewed on an annual basis by the Trustees. They continue to endorse the policy and its ability to support the long-term viability of the Institute and, given that the Institute is not formally committed to awarding any Prizes beyond the current year, are confident in the ability of the Institute to maintain appropriate levels of activity in the short-term.

Plans for the future

The Institute's future policy is to continue to pursue its current objectives. It will therefore maintain and look to increase the Prize Fellowship scheme, which it sees as a funding priority. As a result of the SAC's discussion about what the Lister Institute could do to mitigate the impacts of Covid on young researchers the Governing Body has agreed that if there are sufficient high-quality candidates, the SAC may award up to 7 Lister Prizes in 2022. The Summer Studentship scheme will also be increased when possible.

Trustee Responsibilities Statement

The Trustees (who are also directors of The Lister Institute of Preventive Medicine for the purposes of company law) are responsible for preparing the Trustees' Annual Report and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Trustees to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company, and of the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period. In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgments and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis, unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

In so far as the Trustees are aware:

1. there is no relevant audit information of which the charitable company's auditor is unaware; and
2. the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

This Trustees' report has been prepared in accordance with the special provisions of Part 15 of the Companies Act 2006 relating to small companies.

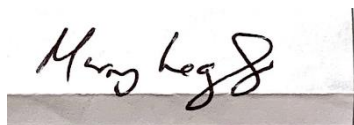
By Order of the Governing Body

SIR ALEXANDER F MARKHAM
Chairman



27 April 2022

Murray Legg
Treasurer



27 April 2022

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE LISTER INSTITUTE OF PREVENTIVE MEDICINE

Opinion

We have audited the financial statements of The Lister Institute of Preventive Medicine ('the company') for the year ended 31 December 2021 which comprise the Statement of Financial Activities, the Balance Sheet, the Cash Flow Statement and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 'The Financial Reporting Standard Applicable in the UK and Republic of Ireland' (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company's affairs as at 31 December 2021 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs(UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The trustees are responsible for the other information. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the trustees' annual report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the trustees' annual report have been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees' annual report.

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of trustees' remuneration specified by law are not made;
- we have not received all the information and explanations we require for our audit; or
- the trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies exemption in preparing the Trustees' Annual Report and from preparing a Strategic Report.

Responsibilities of trustees

As explained more fully in the trustees' responsibilities statement, the trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

The objectives of our audit in respect of fraud, are; to identify and assess the risks of material misstatement of the financial statements due to fraud; to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate responses to those assessed risks; and to respond appropriately to instances of fraud or suspected fraud identified during the audit. However, the primary responsibility for the prevention and detection of fraud rests with both management and those charged with governance of the charitable company.

Our approach was as follows:

- We obtained an understanding of the legal and regulatory requirements applicable to the charitable company and considered that the most significant are the Companies Act 2006, the Charities Act 2011, the Charity SORP, and UK financial reporting standards as issued by the Financial Reporting Council.
- We obtained an understanding of how the charitable company complies with these requirements by discussions with management.
- We assessed the risk of material misstatement of the financial statements, including the risk of material misstatement due to fraud and how it might occur, by holding discussions with management.
- We inquired of management and those charged with governance as to any known instances of non-compliance or suspected non-compliance with laws and regulations.
- Based on this understanding, we designed specific appropriate audit procedures to identify instances of non-compliance with laws and regulations. This included making enquiries of management and those charged with governance and obtaining additional corroborative evidence as required.
- In addressing the risk of fraud due to management override of internal controls we tested the appropriateness of journal entries and assessed whether the judgements made in making accounting estimates were indicative of a potential bias.

Due to the inherent limitations of an audit, there is an unavoidable risk that we may not have detected some material misstatements in the financial statements, even though we have properly planned and performed our audit in accordance with auditing standards. For example, as with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls. We are not responsible for preventing fraud or non-compliance with laws and regulations and cannot be expected to detect all fraud and non-compliance with laws and regulations.

As part of an audit in accordance with ISAs (UK) we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purposes of expressing an opinion on the effectiveness of the charitable company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the trustees.
- Conclude on the appropriateness of the trustees' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the charitable company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the charitable company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Use of our report

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to any party other than the charitable company and charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Handwritten signature of Luke Holt in black ink, reading "Moore Kingston Smith LLP".

Luke Holt (Senior Statutory Auditor)
for and on behalf of Moore Kingston Smith LLP, Statutory Auditor

Devonshire House
60 Goswell Road
London
EC1M 7AD

Date: 8 August 2022

STATEMENT OF FINANCIAL ACTIVITIES
for the year ended 31 December 2021

	Notes	2021	2020
		£'000	£'000
Income from:			
Investments	2	612	580
Other	3	0	13
Total income		612	593
Expenditure on:			
Cost of raising funds			
Investment management costs	4	(263)	(237)
Charitable Activities			
Prizes and Summer Studentships	6	(1,711)	(1,152)
Total expenditure		(1,974)	(1,389)
Net gains on investments	9	4,265	2,282
Net income		2,903	1,486
Other recognised losses			
Actuarial charge on defined benefit schemes	13	(19)	(13)
Net movement in funds		2,884	1,473
Reconciliation of funds:			
Total funds brought forward		44,794	43,321
Total funds carried forward		47,678	44,794

All items in the above Statement of Financial Activities relate to continuing operations for both years. The Institute has no other recognised gains and losses other than as stated above and hence no separate income and expenditure statement has been shown.

The notes set out on pages 32 to 37 form part of these financial statements.

BALANCE SHEET
as at 31 December 2021

COMPANY NO: 34479

	Notes	2021 £'000	2020 £'000
<i>Fixed assets</i>			
Investments	9	47,597	44,858
Total fixed assets		47,597	44,858
<i>Current assets</i>			
Debtors	10	5	26
Cash at bank and in hand	11	283	132
Total current assets		288	158
<i>Current liabilities</i>			
Creditors: amounts falling due within one year	12	(73)	(88)
Net current assets		215	70
Total assets less current liabilities		47,812	44,928
<i>Creditors: amounts falling due after more than one year</i>			
Pension provision	13	(134)	(134)
Net assets		47,678	44,794
<i>Represented by</i>			
Unrestricted funds		47,678	44,794
Total charity funds		47,678	44,794

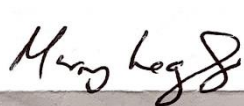
The Trustees have taken advantage of the exemptions conferred by the Companies Act 2006, on the grounds that the Institute is entitled to the benefit of those exemptions as a small company.

These financial statements were approved by the Governing Body on 27 April 2022



ALEXANDER F MARKHAM)

)
) Members of the
) Governing Body
)



MURRAY LEGG)

The notes set out on pages 32 to 37 form part of these financial statements.

CASH FLOW STATEMENT

For the year ended 31 December 2021

	2021 £'000	2020 £'000
Cash flow/(outflow) from operating activities		
Net cash used in operating activities	(1,997)	(1,401)
Cash flows from investing activities		
Investment income	612	580
Proceeds from disposal of fixed asset investments	16,474	13,572
Acquisition of fixed asset investments	(14,042)	(12,790)
Other movements on investments	(896)	(132)
	151	(171)
Net increase/(decrease) in cash	151	(171)
Cash and cash equivalents at beginning of year		303
	132	
Cash and cash equivalents at end of year		132
	283	
Reconciliation of net income to net cash flow from operating activities		
	2021 £'000	2020 £'000
Net income	2,884	1,473
Adjustments for:		
Net gains on investments	(4,265)	(2,282)
Investment Income	(612)	(580)
(Increase)/decrease in debtors	21	(18)
(Decrease)/increase in creditors		15
	(25)	
Decrease in pensions	0	(9)
Net cash used in operating activities	(1,997)	(1,401)

1 PRINCIPAL ACCOUNTING POLICIES

Basis of preparation

The Financial Statements have been prepared in accordance with the Statement of Recommended Practice, Accounting and Reporting by Charities (FRS102 SORP). The Financial Statements are prepared in accordance with the historical cost convention modified by the revaluation of investments. The charity is a Public Benefit Entity as defined by FRS102.

The Financial Statements are prepared in sterling which is the functional currency of the Charity. Monetary amounts in these Financial Statements are rounded to the nearest thousand pounds.

The principal accounting policies adopted in the preparation of the Financial Statements are as follows:

Income

All incoming resources are accounted for on a receivable basis.

Prizes and summer studentships

The cost of Research Prize Fellowships is charged in the year awarded.

Expenditure

The costs of raising funds include those fees payable to the Institute's investment fund managers for the management of the Institute's investment portfolio. These are accounted for on an accruals basis.

Charitable activities comprise all expenditure directly relating to the objects of the charity and are accounted for on an accruals basis. The allocation of expenditure between governance and management, administration and support costs is reviewed on an annual basis to ensure the allocation is appropriate. Indirect costs are generally treated as falling into the latter category with the exception of a proportion of salary and related costs, which have been classified as governance costs.

In addition to auditor's remuneration, governance costs comprise the proportion of staff costs associated with the time spent on the preparation of the statutory accounts and other governance issues, together with honoraria remuneration provided to members of the Institute's Scientific Advisory Committee for their duties in selecting the Prize Fellows.

Supplementary pensions and staff pensions

An estimate of the full provision is made in the Financial Statements for the costs of future supplementary payments. The provision and charge to income are reviewed annually by the Trustees in the knowledge that the number of persons receiving the supplementary pensions will not increase. The pension costs are assessed in accordance with actuarial advice and these costs are accounted for in accordance with FRS102 SORP.

Existing employees participate in a defined contribution scheme, the costs of which are expensed as incurred. These disclosures are made in accordance with FRS102 SORP.

Tangible Fixed Assets

Any capital items purchased under £1k in value are expensed in the accounts in full as incurred. The Charity has no tangible fixed assets.

Investments

Investments are shown at market value in the balance sheet. Changes in the market value are included in the Statement of Financial Activities as realised and unrealised investment gains or losses in the year in which they arise. Investments denominated in foreign currencies are valued at year-end rates of exchange.

Cash flow statement

The Charity has included a cash flow statement in accordance with FRS102 SORP.

Taxation

The organisation is a registered charity and has obtained exemptions from taxation under Part 11, Chapter 3 of the Corporation Tax Act 2010. This exemption will remain as long as income is compatible with that section and expenditure is applied to charitable purposes only.

Critical accounting estimates and areas of judgement

In preparing financial statements it is necessary to make certain judgements, estimates and assumptions that affect the amounts recognised in the financial statements. The Trustees consider the estimates involved in the valuation of investments to have most significant effect on amounts recognised in the financial statements. These are taken directly from Investment Managers' reports.

In addition, the company has an obligation to pay pension benefits to certain employees. The cost of these benefits and the present value of the obligation depend on a number of factors including: life expectancy, salary increases, asset valuations and the discount rate on corporate bonds. Management estimates these factors in determining the net pension obligation in the balance sheet. The assumptions reflect historical experience and current trends. See Note 13 for the disclosures relating to the defined benefit pension scheme.

Going Concern

The Trustees have assessed whether the use of the going concern basis is appropriate and have considered possible events or conditions that might cast significant doubt on the ability of the charity to continue as a going concern. The Trustees have made this assessment for a period of at least one year from the date of approval of the financial statements. In making this assessment the Trustees have considered the impact of the ongoing Covid 19 pandemic and are satisfied that the substantial reserves and liquid assets held by the Lister Institute justify their belief that there are no material uncertainties that cast significant doubt on the charity's ability to continue as a going concern. The charity therefore continues to adopt the going concern basis in preparing its financial statements.

Financial instruments

The company has elected to apply the provisions of Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instruments Issues' of FRS 102 to all of its financial instruments. Financial instruments are recognised in the company's balance sheet when the company becomes party to the contractual provisions of the instrument. Financial assets and liabilities are offset, with the net amounts presented in the financial statements, when there is a legally enforceable right to set off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

With the exceptions of prepayments and deferred income all other debtor and creditor balances are considered to be basic financial instruments under FRS 102. See notes 10 and 12 for the debtor and creditor notes.

Fund accounting

Unrestricted funds are available for use at the discretion of the Trustees in furtherance of the general objectives of the Institute. Restricted funds are funds available subject to specific restrictions imposed by donors.

2 INVESTMENT INCOME		
	2021	2020
	£'000	£'000
Income from fixed asset investments	612	579
Bank interest receivable	0	1
	612	580

3 OTHER INCOME		
	2021	2020
	£'000	£'000
Royalty income CRT Ltd	0	13
Total other income	0	13

Royalty income earned from Cancer Research Technology as a result of Revenue sharing related to Glover research studies – no more payments expected after 2020.

4 INVESTMENT MANAGEMENT COSTS		
	2021	2020
	£'000	£'000
Partners Capital LLP	168	146
Cazenove Capital Management	95	91
Total investment management fees	263	237

Investment management fees referred to here are those accrued fees relating to the management of the Institute's investment portfolios in 2021.

5 GOVERNING BODY AND STAFF COSTS

Emoluments of members of the Governing Body

One member of the Governing Body received an emolument of £2,000 in respect of services to the Institute during the year (2020: Nil). Travel expenses of £703 were paid relating to the claims of five members in connection with their attendance at meetings (2020: £411 one member).

Members of the Scientific Advisory Committee (the chair of which is also a member of the Governing Body) are offered remuneration in relation to their services to the committee. An honorarium of £2,000 (2020: nil) was paid to the chair of the SAC, the other SAC members (none of whom are members of the Governing Body) were paid £1,000 (2020 £1,000). The majority of members asked for the honorarium to be paid to their employing institution.

Employee Information

The average number of persons employed by the Institute during the year was 3, (2020: 4) two of whom are part-time (2020: 3). All staff were employed in an administrative and support capacity. No employees earn over £60,000 p.a. (2020: none).

Key management personnel include the Trustees and the Director. The total employee benefits of the charity's key management personnel were £41,608 (2020: £40,228).

Staff costs

	2021	2020
	£'000	£'000
Gross salaries	88	99
Pension contributions	3	4
Employer's national insurance	5	6
	96	109

The salary costs are allocated under governance where related to statutory accounts preparation, the balance being reported within charitable activities.

6 PRIZES & SUMMER STUDENTSHIPS

	2021	2020
	£'000	£'000
Prize awards	1,437	970
Summer studentship payments	97	22
Support costs (see note 7)	64	37
Salaries (see note 5)	84	96
Governance costs (see note 8)	29	27
	1,711	1,152

7 SUPPORT COSTS

	2021	2020
	£'000	£'000
Office expenses	17	12
Travel expenses	0	1
Professional fees	4	9
Honoraria and events	39	11
Pension costs (see note 13)	4	4
	64	37

These costs are all considered to be costs to support resources expended on charitable activities.

8 GOVERNANCE COSTS

	2021	2020
	£'000	£'000
Auditor's remuneration - current year	14	11
Staff costs (see Note 5)	12	14
Honoraria and events	3	2
	29	27

No non-audit services were provided by the auditors during the year (2020: none). Auditor's remuneration includes irrecoverable VAT.

9 INVESTMENTS

Listed investments are valued at middle market quotations ruling at the year-end.

	2021	2020
	£'000	£'000
Market value at beginning of year	44,858	43,226

Purchases during the year at cost	14,042	12,790
Proceeds of sales during the year	(16,474)	(13,572)
Reinvested income for the year	593	474
Movement in un-invested cash	2163	658
Cash withdrawn	(1,850)	(1,000)
Net Change in market value	4,265	2,282
Market value at year-end	47,597	44,858

The portfolio's asset allocation was as follows:

	2021 £'000	2020 £'000
UK investments		
Equities	2,244	3,265
Fixed interest	2,223	3,591
Other (including private equity, property, commodities, alternatives and inflation linked bonds)	5,271	5,599
Cash	6,311	5,207
Total UK investments	16,049	17,662
Non-UK investments		
Equities	25,386	22,652
Other (including private equity, property, commodities and alternatives)	6,163	4,544
Cash	0	0
Total Non-UK investments	31,549	27,196
Total	47,597	44,858

At 31 December 2021 no single shareholding exceeded 5% of the total value of investments (2020: none).

Historical cost related to the closing position of 2021 was £35.74m (2020: £35.52m).

The Institute's investments held by one custodian are charged as security for the Institute's ongoing financial obligations to that custodian for banking services related to those investments.

10 DEBTORS

	2021 £'000	2020 £'000
Prepayments	5	13
Accrued income	0	13
Total	5	26

11 CASH

	2021 £'000	2020 £'000
Cash at bank	283	132

12 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2021	2020
	£'000	£'000
Taxation and social security	3	4
Accruals	70	84
Total creditors falling due within one year	73	88

13 PROVISION FOR LIABILITIES AND CHARGES

This represents a provision for future supplementary pension payments in respect of ex-employees, based on their salary and length of service. The pensions are unfunded, with payments made out of the Institute's funds as they fall due.

Movements in the pension provision during the year were as below:

	2021	2020
	£'000	£'000
Liability at beginning of period	134	143
Plus interest cost	4	4
Plus actuarial gains and losses	19	13
Benefits paid	(23)	(26)
Liability at end of period	134	134

The tables below state the FRS102 actuarial assumptions used to estimate the pension provision.

Principal actuarial assumptions

Valuation at 31 December 2021

	2021	2020
Rate of increase to pensions in payment	5.0%	3.0%
Rate used to discount scheme liabilities	2.5%	2.5%

The post-retirement mortality assumption uses the PCA00 base tables (year of birth) with improvements equal to medium cohort with a 1% minimum.

14 RELATED PARTY TRANSACTIONS

There were no related party transactions in the year, other than those outlined in note 5 (2020: none).

15 MEMBERS' LIABILITY

The liability of the Members of the institute is limited to 50p. At the date of the financial statements, there were 226 members, each with a guarantee potential of 50p.

11 LEGAL AND ADMINISTRATIVE INFORMATION for the year ended 31 December 2021

THE GOVERNING BODY

Professor Sir Alex Markham, DSc, FRCP, FRCPath, FMedSci, *Chairman*

Mr Murray Legg, BSc, FCA, Hon Treasurer

Professor Judith Armitage, BSc, PhD, FRS

Professor Wendy Bickmore, CBE, BA, PhD, FMedSci, FRS, FRSE

Professor Sir Adrian P Bird, CBE, FRS, FRSE

Professor Rebecca Fitzgerald, MD, FRCP, FMedSci

Hon Rory M B Guinness, BA, FCIM

Professor Douglas Higgs, MBBS, MRCPPath, DSc, FRCP, FRCPath, FRS

Mr Andrew Hutton, MA, CFA

Professor John Iredale, FRCP, FMedSci, FRSE

Professor Sir Alec J Jeffreys, CH, DPhil, FMedSci, FRS

Mr Stephen McMahon, MA (Oxon), FCA, FCSI

Mr Matthew Pintus, BA

Professor Dame Pamela Shaw, DBE, FRCP, FMedSci

THE SCIENTIFIC ADVISORY COMMITTEE

Professor John Iredale, BM (Hons), FMedSci, FCRP, FRSE, MA

Professor Judi Allen, MPH, PhD, FRSE, FRSB, FMedSci

Professor Julian Blow, PhD, FRSE, FMedSci, FMedSci

Professor Cyrus Cooper, OBE, MA, DM, FRCP, FFPH, FMedSci (*Retired 10th September 2021*)

Professor Thomas J Evans, MA, PhD, MBBChir, FRCP (*Appointed 10th September 2021*)

Professor Muzlifah Haniffa, FMedSci (*Appointed 10th September 2021*)

Professor Aroon Hingorani, MA, PhD, FRCP

Professor Kikkeri K Naresh, MBBS, MD, DCP, FRCPath

Professor Iain B McInnes, CBE PhD FRCP FRSE FMedSci, (*Appointed 10th September 2021*)

Professor Catherine Nobes, BSc, PhD

Professor Sir Mike Owen, BSc, MB ChB, PhD, FRCPsych, FMedSci, FLSW

Professor Elizabeth Patton, BSc, PhD, FRSE

Professor Barry V L Potter, MA, DPhil, DSc, CSci, FRSC, FMedSci

Professor Fiona Powrie, FRS FMedSci (*Retired 10th September 2021*)

Professor Christoph M Tang, MBChB, PhD, FMedSci

Professor Magdalena Zernicka-Goetz, MSc, PhD (*Retired 10th September 2021*)

THE FINANCE AND INVESTMENT COMMITTEE

Mr Murray Legg, BSc, FCA, Hon Treasurer

Professor Judith Armitage, BSc, PhD, FRS

Hon Rory M B Guinness, BA, FCIM

Mr Andrew Hutton, MA, CFA

Professor Sir Alex Markham, DSc, FRCP, FRCPath, FMedSci

Mr Stephen McMahon, MA (Oxon), FCA, FCSI

Mr Matthew Pintus, BA

SENIOR MANAGEMENT

Director and Secretary: Dr Sally Burtles, BSc, PhD

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Telephone: 0203 532 5345

Solicitors

Macfarlanes

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London, EC4A 1LT

Investment Advisors

Cazenove Capital Management

1 London Wall Place

London, EC2Y 5AU

Bankers

Messrs Coutts & Co

St Martins Office

440 Strand

London, WC2R 0QS

Partners Capital LLP

5 Young Street

London, W8 5EH

Auditor

Moore Kingston Smith LLP

Devonshire House

60 Goswell Road

London, EC1M 7AD

Accounts

The Lister Institute of Preventive Medicine

PO Box 2502, Watford, Hertfordshire, WD18 1AE

ANNUAL REPORT AND FINANCIAL STATEMENTS

for the year ended 31 December

2020

The Lister Institute of Preventive Medicine

The Institute was founded in 1891 and for the next 85 years played a vital role in the development of the laboratory aspects of preventive medicine as an independent research institute in the UK.

Financial pressures in the 1970s led to the closure of the research and production facilities. This in turn led to the conversion of the Lister Institute into a highly successful trust awarding prestigious research fellowships from 1982, which in 2003, were revised to become Prize Fellowships. The Fellowships continue to deliver on the Lister Institute's strategic aim of nurturing the future leaders in biomedical research.

ANNUAL REPORT

For the year ended 31 December 2020

CHAIRMAN'S INTRODUCTION

I am pleased to present the Lister Institute of Preventive Medicine's Annual Report for 2020 on behalf of the Governing Body.

2020 has been a challenging year for everyone. We have all had to adapt to more constrained living and working, and to embrace technology to keep our organisations, families and friends connected. Despite this, the Lister Institute has weathered the storm of the Covid pandemic well. We received a large number of applications (114) and awarded four Lister Prizes of £250,000 each. One of the 2020 Fellows (Tomás Ryan) is our first Prize Fellow from an Irish Institution which is pleasing given the Institute's long-standing relationship with the Guinness Family.

Our Fellows and Former Fellows continue to conduct excellent research, publish in high impact journals and to win awards and recognition for their work. This year, particular congratulations must be given to Dr Marius Clore, Dr Sarah Teichmann, Professor Nigel Scrutton and Professor Andrew Jackson who have been elected as Fellows of the Royal Society; and to Professor Muzlifah Haniffa and Professor Peter Cullen who have been made Fellows of the Academy of Medical Sciences. Congratulations must also be given to two of our Trustees: Professor Wendy Bickmore who was awarded the CBE for services to biomedical science and to women in science and to Professor Sir Adrian Bird, one of our Trustees, who won the Brain Prize for his outstanding contribution and impact in the field of Neuroscience.

I would like to thank Professor John Iredale and all the members of the Scientific Advisory Committee ('SAC') for their hard work in reviewing the many applications and identifying the Lister Prize Fellows. For the 2020 prizes, the first part of the process was the same as usual, but because of Covid, it was not possible to conduct the interviews as normal. While some funders cancelled their Fellowship schemes, the Lister Institute conducted the interviews virtually via Zoom. This worked very well with the candidates still giving presentations and being subject to intense questioning by the panel before the exceptional Prize winners were selected.

This year, since March, all meetings and business of the Governing Body and its sub-committees have been conducted on-line and this has worked remarkably well, although there is a real gap without the personal interactions. As such I would like to thank the members of the Governing Body and Finance and Investment Committee ('FIC') for all their hard work and support throughout the year. I particularly wish to thank Mr Michael French who stood down at the AGM as the Treasurer of the Lister Institute after seventeen dedicated years and would like to extend an extremely warm welcome to Mr Murray Legg who has taken over as Treasurer.

The new staff team have settled in well. They have done a grand job of adapting ways of working to enable Lister business and work to continue throughout the pandemic. I especially want to take this opportunity to thank Naomi King who has now fully retired from the Institute. Naomi semi-retired last year but continued to provide support throughout 2020 for our new Operations Manager, Nicola King. I wish Naomi all the very best in her retirement. We are sorry to have to report that Johanna Rigg, one of our pensioners, has died.

Although generally the Institute got through the pandemic well, it has had an adverse effect on some of the business. For the first time, we were unable to hold our Annual Meeting and missed out on the chance to welcome and to hear from our 2020 Prize Fellowship winners. Fellows were also unable to meet and discuss with colleagues to gain support and advice about their work and careers. While we hope we will be able to hold the meeting in 2021, it has been decided that if this is not possible a virtual meeting, including speakers, will be held instead.

Our Summer Studentship scheme was also adversely impacted by the pandemic as most university labs remained closed or with restricted staff which meant that in most cases, Fellows could not host summer students in 2020. Nine studentships with computer-based (rather than lab-based) projects did go ahead with the students working at home. We have therefore increased the budget for summer students for 2021. 2020 was the 75th anniversary of the Microbiology Society and to help mark the occasion, the Institute had agreed to support five joint studentships in the field of Anti-Microbial Resistance with the Microbiology Society. One of these, won by Dr Serge Mostowy, went ahead and the others will happen in 2021 instead.

We did manage to visit three of the 2019 Fellows. It was a real highlight to listen to them give seminars in their own departments, hear how the Lister Prize Fellowship is helping their careers and their research and meet other members of their departments. Sadly, two visits had to be cancelled and will be held once we can travel, meet, and hold seminars again. To the Fellows and their host institutions we did visit, I would like to express our thanks for their excellent hospitality and ongoing support.

2020 was an exceptionally volatile year in the financial markets, but despite this our investment managers did a good job of protecting our investments and ending the year with a positive outcome. The valuation of our investments at 31 March 2020 (after withdrawal of the funds for the Prize Fellowships and our operational costs) was £44.86M, up from £43.2M in 2019. While we thought we would need to use our liquidity reserve fund (£5M held in cash) to fund this year's prizes, in the end FIC decided not to so this fund remains intact.

The Covid Pandemic has brought science to the forefront of public attention and exemplified the vital importance of research. Nonetheless it is a time of great change and uncertainty with Brexit and the economic impact of Covid both on research charities and government finances. The Lister Institute Prizes of £250,000 provides an excellent opportunity to really impact Fellows' research and careers and ensures we deliver on our stated aim of 'nurturing the future leaders in biomedical research'.

The strength of the Institute is the people associated with it, whether they be our Fellows, members of the Governing Body and its sub-committees, the Membership of the Institute or our staff and to all I offer my sincerest and warmest appreciation.

Professor Sir Alex Markham, Chairman


A F Markham (Jun 24, 2021 11:45 GMT+1)

2020 LISTER RESEARCH PRIZE FELLOWSHIP WINNERS:

Despite the disruptions of the Covid-19 pandemic, we ran our full application process remotely. We identified four researchers working in the UK and Republic of Ireland with the potential to play a leading role in biomedical development.

The individuals to whom we awarded the Lister Prize Fellowships are as follows:

Dr Rebecca Lawson, University of Cambridge	Computational Psychology Across the Lifespan We know relatively little about how the human brain builds expectations about the world around it. The Lawson Lab seeks to understand why people with neurodevelopmental and psychiatric conditions – including autism, depression, and anxiety – experience the world so differently. Despite being the leading cause of disability, these conditions remain poorly understood. Rebecca's team uses computational models to capture individual differences in the brain processes that drive symptoms. Alongside pharmacology and brain imaging, this research may lead to earlier diagnosis and access to interventions
Dr Tomás Ryan, Trinity College Dublin	Gone or misplaced? Retrieving infant memories in adults Spatial memories are stored in the brain as sparse populations of cells that are activated during learning and required for the retrieval of memories. The goal of Tomás' research is to understand how these memory engram cells are able to store specific memories as information. He is especially interested in understanding the biological mechanisms underpinning the loss of memories formed in early childhood, known as infantile amnesia. Tomás is the first Fellow to be based in an institution in the Republic of Ireland
Dr Hayley Sharpe, The Babraham Institute	Receptor tyrosine phosphatase signalling mechanisms in health and disease Cell surface receptors help cells sense and respond to their environment by triggering changes in the cell. Hayley's research focuses on receptor-linked protein tyrosine phosphatases (PTPs) – enzymes that catalyse the removal of phosphate groups from other proteins. Her lab is revealing new insights into phosphatase signalling mechanisms, looking in particular at a family of PTPs that regulate cells' attachment to each other. Her research could uncover new ways of targeting PTPs, for example in cancer or spinal cord injury.
Dr Stephan Uphoff, University of Oxford	Imaging DNA repair and mutagenesis in bacteria When bacteria are exposed to antibiotics, they respond by ramping up their DNA mutation rates. This stress response allows them to develop resistance to treatment. Stephan's research studies how bacterial cells regulate their mutation rates by deciphering the biological mechanisms involved in DNA repair and mutagenesis. His group develops new methods to observe individual DNA repair proteins within living bacterial cells and explore how those bacteria behave in response to stress. The central goal of his work is to understand what drives the evolution of antibiotic resistance.

THE ROLE OF THE SCIENTIFIC ADVISORY COMMITTEE IN SELECTING THE 2020 LISTER PRIZE FELLOWS

“There’s no greater privilege than hearing the best young minds talk about what they want to do and helping them achieve it.”

The role of the Scientific Advisory Committee (SAC) forms the heart of the Lister’s activities. Chaired by Professor John Iredale, this independent committee reviews and shortlists applications for the annual Lister Prize, interviews candidates, and ultimately recommends outstanding young researchers for the Fellowship.

In 2020, the process was conducted remotely as opposed to through face-to-face discussion. At an early stage, the Lister decided to include virtual interviews in the award process. While other funding bodies chose not to interview in the face of the pandemic, the SAC felt it was a vital element of the process.

A total of 114 applications were received and scored by SAC members. A longlist of 39 went out for peer review. Taking the comments of these external specialists into account, the SAC drew up a shortlist of 11 candidates to interview.

“We consider the quality of science and the excitement that the science generates in the mind of the SAC. We also look for the potential for the Prize to be transformative – both to the individual’s career and the wider scientific area,” explains John. “That is a challenging thing to try and understand, but we select interviewers who can get under the skin of an idea to work out how it would unlock particular potential.”

Zoom interviews ran over two days in May 2020. A reduced panel of between six and eight SAC members with the most relevant skillsets interviewed each candidate. To maximise time for discussion, candidates were asked to limit their presentations to a handful of slides.

“A good interview shouldn’t be inquisitorial,” says John. “If we’ve selected the right people – and that’s what happened – then what you get is a fascinating discussion. You know it’s right when it rapidly develops into that as opposed to a question-and-answer session.”

“One could argue that the interviewees were disadvantaged by being unable to assess non-verbal cues from the panel or sense the dynamic in the room. But my personal view is that those who may have appeared more reticent or timid in person may have come across better in a quieter, less intimidating online environment.”

He wants to record his gratitude to the members of the committee: “All of us felt that we’d worked really hard to make it a success. For the stage it was in lockdown, when everyone was getting a bit fed up, it was a positive experience. We all felt we were back doing something for the community.”

The Lister was delighted to offer Fellowships to four outstanding young researchers in 2020. It also marks the first time we have awarded the Prize to a scientist in an Irish institution.

“We saw some outstanding individuals,” adds John. “And we had the same trouble that we have every year, which is that we’d like to award to more individuals. There are so many good young scientists out there.”

WHO ARE THE SCIENTIFIC ADVISORY COMMITTEE?

The SAC is made up of 12 experienced clinicians and scientists, with a broad range of expertise. Members are appointed to the SAC for one term of six years. It is currently chaired by Professor John Iredale.

Professor John Iredale, BM (Hons), DM, FRCP (Lond), FRCP (Ed), FMedSci, FRSE, MAE, University of Bristol – Chairman of the SAC

John took on the role of Chairman of the Scientific Advisory Board of the Lister Institute in 2018. He is currently Pro Vice-Chancellor Health and Life Sciences at the University of Bristol and holds the chair of Experimental Medicine. His research interests are focused on tissue scarring and regeneration and he has published extensively on these subjects. Professor Iredale was, in the past, the Regius Chair of Medical Science, Dean of Clinical Medicine and Vice Principal Health Services at the University of Edinburgh where he led the Medical School.

Professor Judi Allen, FRSE, FMedSci, University of Manchester

Judi is an immunologist at the University of Manchester investigating the host immune response to metazoan parasites (helminths). A major research focus of the lab is the function and evolution of the type 2 immune response, with a focus on macrophage biology and immune cell interactions with the extracellular matrix. Prior to moving to Manchester in 2016, Judi was at the University of Edinburgh, where she still holds an honorary professorship.

Professor J Julian Blow, PhD, FRSE, University of Dundee

Julian is Professor of Chromosome Maintenance and Interim Vice Principal (Academic Planning & Performance) at the University of Dundee. Julian’s research interests centre on how eukaryotic DNA replication is regulated to ensure that the genome is precisely duplicated with the minimum of errors, with no sections of DNA left unreplicated and with no sections of DNA replicated more than once. Julian is a Fellow of the Royal Society of Edinburgh, a Fellow of the Academy of Medical Sciences and a member of EMBO.

Professor Cyrus Cooper, OBE, MA, DM, FRCP, FFPH, FMedSci, University of Southampton

Cyrus is Professor of Rheumatology and Director of the MRC Lifecourse Epidemiology Unit; Vice-Dean Faculty of Medicine at the University of Southampton; Professor of Epidemiology at NDORMS, University of Oxford. He leads an internationally competitive programme of research into the epidemiology of musculoskeletal disorders, most notably osteoporosis. President of the International Osteoporosis Foundation; Chair of BHF Project Grants Committee; an emeritus NIHR Senior Investigator; and Associate Editor of Osteoporosis International. He has published on osteoporosis and rheumatic disorders and pioneered clinical studies on the developmental origins of peak bone mass. In 2015, he was awarded an OBE.

Professor Aroon Hingorani PhD, FRCP, FESC, University College London

Aroon is UCL Professor of Genetic Epidemiology. He is Director of the UCL Institute of Cardiovascular Science; Cardiovascular Programme Lead for the UCL Hospitals NIHR Biomedical Research Centre; Director of the UCL British Heart Foundation Research Accelerator; and a co-Investigator in the Precision Medicine Research Initiative of the HDRUK London site. He is Consultant Physician at University College London Hospitals NHS Foundation Trust and an NIHR Senior Investigator. His current work focuses on the use of genetic studies in populations as a tool to identify and validate drug targets, using the Mendelian randomisation principle. He has interest in critical evaluation of the use of genomic and biomarkers data for disease prediction and stratification.

Professor Kikkeri K Naresh, MBBS, MD, DCP, FRCPath, Fred Hutchinson Cancer Centre & University of Washington, Seattle

Naresh is a haematopathologist, an expert in the diagnosis and translational research of haematological malignancies — especially lymphoma and bone marrow pathology. Naresh recently moved to Seattle, United States and is the Section Head & Professor of Pathology, Fred Hutchinson Cancer Center; and Professor of Pathology, University of Washington. He is an international expert, currently on the editorial board for the upcoming WHO Blue book on Haematolymphoid Tumours. As a translational researcher, Naresh conducts laboratory studies to improve patient care in the era of precision medicine. His focus is the biology of lymphoma, including its genome, lymphomagenesis, and microenvironment.

Professor Catherine Nobes, BSc PhD, University of Bristol

Kate is Professor of Cell Biology and Head of the School of Biochemistry at the University of Bristol. Kate held a Lister Institute Research Fellowship from 1997-2001 and an MRC Senior Fellowship from 2001-2006, that enabled her to develop her own research interests including the mechanisms underlying how neuronal cell and cancer cell movements are guided through repulsive “contact-inhibition” and attractive interactions with other cells. Kate moved to University of Bristol in 2003 and she has been Head of School for 7 years.

Professor Sir Michael Owen PhD, FRCPsych, FMedSci, FLSW, Cardiff University

Mike is Professor of Psychological Medicine, at Cardiff University. He trained in medicine and obtained a PhD in neuroscience at Birmingham University before training in psychiatry and the Maudsley Hospital in London. He was Director of the MRC Centre for Neuropsychiatric Genetics and Genomics at Cardiff University from 2009-2019. His research focusses on the genetics of psychiatric and neurodevelopmental disorders and is aimed at understanding disease mechanisms and in improving diagnostic processes.

Professor Elizabeth Patton, BSc, PhD, Western General Hospital

Liz is a Professor and MRC Investigator at the MRC Human Genetics Unit, MRC Institute of Genetics and Molecular Medicine, University of Edinburgh. Liz received a BSc Honours degree from King’s College at Dalhousie University, and a PhD from the University of Toronto, working with Mike Tyers to discover how E3 ubiquitin ligases control cell division. Following this, she received a Human Frontier Science Programme Postdoctoral Fellowship to work with Len Zon at Harvard Medical School, where she developed a zebrafish model for melanoma. Her lab uses

chemical genetic approaches in zebrafish to investigate the basis for melanoma biology and drug discovery. Liz is currently Editor-in-Chief of Disease Models & Mechanisms, Company of Biologists

Professor Barry V L Potter MA DPhil DSc (Oxon) FRSB FRSC MAE FmedSci, University of Oxford

Barry is a biological & medicinal chemist and studied chemistry at Oxford. After postdocs in Oxford and Göttingen at the Max-Planck-Institute he was lecturer at Leicester, Lister Institute Fellow and moved to Bath as Head of Medicinal Chemistry before returning to Oxford. His chemical biology research in cell signalling and anticancer drug discovery, with drugs entering clinical trials, has won academic and industrial awards, including four RSC medals and the GlaxoSmithKline International Achievement Award. He was elected to the Academy of Medical Sciences and to Academia Europaea.

Professor Fiona Powrie PhD, FRS FMedSci, University of Oxford

Fiona is Director of the Kennedy Institute of Rheumatology, University of Oxford, as well as a Governor of the Wellcome Trust. She joined the University of Oxford as a Wellcome Senior Research Fellow and has since held various leadership roles including the Sidney Truelove Professor of Gastroenterology and Head of the Translational Gastroenterology Unit. Her research interests include the mutualistic relationship between the intestinal microbiome and the host immune system and how this breaks down in inflammatory disease.

Professor Christoph M Tang, MBChB, PhD, FMedSci, University of Oxford

Chris is Professor of Cellular Pathology at the Sir William Dunn School of Pathology at the University of Oxford. His group studies mechanisms of virulence in human-adapted bacterial pathogens with a particular interest in immune evasion and the response of bacteria to microenvironments in their hosts. The long term aim is to translate fundamental insights of host:pathogen interaction into vaccine development and therapeutics. He is a member of EMBO, and a Fellow of the Academy of Medical Sciences.

Professor Magdalena Zernicka-Goetz, PhD, FMedSci, University of Cambridge and California Institute of Technology

Magda is Professor of Mammalian Development and Stem Cell Biology at the University of Cambridge and Bren Professor of Biology and Biological Engineering at the Californian Institute of Technology. She is interested in how cells make decisions and is best known for her pioneering work on human embryos and creating 3D stem cell models of mouse and human embryos. She has received several prizes, including award in recognition of lifetime contribution to Reproductive Medicine in 2017 and Pioneer award from NIH in 2020.

SUMMER STUDENTSHIP SCHEME 2020

This year, the Lister Institute awarded 38 Summer Studentships to help support the biomedical scientists of the future. This scheme supports undergraduate students to carry out summer research projects with Fellows and former Fellows.

Due to the coronavirus pandemic, only nine Studentships were able to go ahead, running remotely. We are delighted to have been able to support these students during a difficult time.

Joint Studentship with the Microbiology Society

Professor Serge Mostowy and University College London student, Olivia Hill, were awarded one of these new joint studentships.

Olivia helped develop an automated approach for analysing images of zebrafish larvae infected with antibiotic resistant *Shigella* bacteria. She worked with Dr Margarida C Gomes, a postdoctoral researcher in the lab, and took an online image processing and analysis course to help answer the biological questions posed by her project.

“Being able to introduce a new method to the Mostowy lab and improve the efficiency of leukocyte counting in zebrafish was extremely rewarding and I have high hopes for its impact in the lab,” says Olivia. “As a very visual person who’s always looked for a way to integrate my love of biology and art, the opportunity to work with the high-quality images produced by the lab felt like a personal breakthrough.”

Serge expects her work to form part of manuscripts for publication in the near future.

“Working with Olivia was a great pleasure,” he says. “Although her internship was performed remotely, she continuously demonstrated great interest and excitement in her project.” Olivia has recently accepted an offer for a 4-year funded PhD position in the Francis Crick Institute’s Cellular Signalling and Cytoskeletal Function Laboratory, starting in September 2022.

“The immediacy and quality of the support provided by my colleagues during the studentship was incredible,” says Olivia. “Professor Mostowy was an excellent mentor throughout the process of applying for PhDs – providing references and giving valuable advice. I am extremely grateful.”

“These experiences will be of great value for Olivia’s future career,” adds Serge. “I look forward to following her progress.”

Studentship in Professor Stephen Perkins’ Structural Immunology Group

Another UCL student, Weining Lin, joined Stephen Perkins for eight weeks in summer 2020. She upgraded the interactive human coagulation Factor XI database by assembling a set of 69 additional genetic variants. The database will soon go live as a valuable resource for basic and clinical scientists as well as those who work in haemophilia clinics.

“I clearly remember receiving the funding for my studentship,” says Weining. “I was so excited and felt so encouraged.

“My undergraduate degree had offered little opportunity to get involved with genetic variants and their integration into an understanding of disease, even though it’s the foundation of almost all life sciences-related research. My studentship gave me these skills and also provided me with a great opportunity to develop transferable data skills.”

Many research groups, especially those investigating rare diseases, urgently need a relevant well-integrated genetic database as they need a huge amount of data to build up machine learning based algorithm models to predict the pathology mechanisms.

“Weining proved to be a careful and conscientious student,” says Stephen. “The studentship offered a great opportunity for her to learn about websites and acquire transferable skills in developing these, all in the context of biomedicine.”

The studentship helped Weining with her current master’s research project, which focusses on genetic database integration and disease classification. She is currently seeking funding for a PhD, which she hopes to begin immediately after graduating from her master’s degree in September. Building up a database forms a key part of her research plans.

“We thank the Lister Institute for its kind support of our endeavours this summer in spite of the issues caused by COVID-19,” adds Stephen.

SCIENCE STORIES FROM OUR FELLOWS

Professor Michael Eddleston's work has led to bans on lethal pesticides, which could save 75,000 lives every year in rural Asia.

Self-poisoning with pesticides is one of the most common means of suicide globally. Most deaths happen in rural farming communities in low- and middle-income countries, where highly hazardous pesticides can be bought over the counter and stored in the house. For people in crisis, with suicidal impulses, these chemicals are incredibly easy to get hold of. Just one small sip of the pesticide paraquat can kill.

Without access to these lethal pesticides, those who do harm themselves choose other methods that are less likely to kill them. These people, with usually transient suicidal thoughts, may then be able to get the help they need.

The shift from 'safe storage' to pesticide bans

Michael's ambition to reduce deaths from pesticide poisoning won him the Lister Prize in 2011. He had already built up a body of research on the effects of pesticide poisoning and the use of these chemicals for suicide in rural Asia.

"Winning the Fellowship enabled me to attack the problem from many angles," says Michael. He used the funds to hire a project coordinator and a PhD student to help with research.

At the time, the international focus lay on the safe storage of pesticides. But Michael held the belief that bans and the use of alternative, lower-risk chemicals were the only effective ways of reducing deaths. His landmark study, published in *The Lancet* in 2017, proved that safe storage would not prevent deaths by suicide. This proved seminal in driving World Health Organisation (WHO) policy towards greater pesticide regulation.

In 2017, Michael established the Centre for Pesticide Suicide Prevention to work with the UN and regulators worldwide to support bans on the most hazardous pesticides. A recent WHO analysis indicates that pesticide regulation is highly cost-effective for suicide prevention. A flurry of bans followed in Nepal, India, and Sri Lanka.

More and more people saved

"I see the charts and the bans, and I know that they mean more people are being saved, and fewer families are experiencing the distress of losing a loved one," says Michael. "The team and I have worked alongside these people in poor, rural areas for years. It's a pleasure to see our work appreciated by them, and to see less stressed communities."

Michael seeks to work with new collaborators to drive the work forward. Tens of thousands of people are alive today who would otherwise have died. Growing global regulation of pesticides in response to his work will continue to reduce the tragic loss of life by suicide.

Many years of research led Professor Daan van Aalten to identify a new neurodevelopmental disease caused by mutations in a single gene.

Daan won the Lister Fellowship in 2006 with his plan to study the structure of two mysterious enzymes and develop inhibitors against them that he might use as tools.

One of these enzymes – O-GlcNAc transferase (OGT) – decorates thousands of proteins inside cells with a sugar called O-GlcNAc. The other enzyme, *O*-GlcNAc hydrolase (OGA), removes the modification. When Daan won the Prize, little was known about the role these enzymes play or the proteins they affect – only that if their genes are deleted from the genome, then life becomes impossible.

“Colleagues asked why I was wasting my time with this obscure post-translational modification,” says Daan. “They had pointed out that there was no evidence that mutations in these enzymes were involved in human disease.”

Patient zero

Then, three years ago, he received a phone call. The clinician on the end of the line had a young patient with unexplained intellectual disability and general development delay.

“They’d done whole genome sequencing on this child and the only relevant mutation they’d found was in OGT,” says Daan. His 2020 paper in the *European Journal of Human Genetics* went on to describe this new condition, naming it OGT-linked Congenital Disorder of Glycosylation (OGT-CDG).

“These mutations can’t be totally inactivating because then life wouldn’t be possible,” explains Daan. “So, they must be subtle – they never completely make the OGT enzyme disappear, nor make it completely inactive.” It is likely that the partial inactivation of OGT leads to the loss of O-GlcNAc modification on certain proteins that are involved in development.

Daan’s lab has also found that when OGT is partially disabled, the cell attempts to compensate for the loss of O-GlcNAc levels by producing less of the OGA enzyme that reverses the modification.

In a finding that ties right back to the start of his Lister project, Daan thinks that developing inhibitors against OGA could form a possible approach to treatment. “By inhibiting that last remaining bit of the enzyme, we might be able to return O-GlcNAc to a normal level.”

Decades of research ahead

The lab is now looking at introducing the OGT mutations found in patients into stem cells, fruit flies, and mice. This will help them explore how O-GlcNAc affects specific proteins and leads to developmental problems.

“We’re contacted by families from all over the world who want to know what will happen to their child,” says Daan. “We’re thinking about bringing doctors, families, and fundamental scientists like us together in an organisation to exchange information and help develop treatments.”

SHINING A SPOTLIGHT ON COVID-19

Speeding up testing

Lister Fellow Professor Anne Straube's lab helped develop a rapid test for SARS-CoV-2.

Lateral flow devices offer rapid COVID-19 testing that people can do themselves without the need for expert help. This low cost, paper-based technology delivers results in a matter of minutes.

Anne's colleagues at Warwick Medical School and the University's chemistry department began developing their own test during the first lockdown. To test it, they needed purified stock of the virus's S1 spike protein. But supplies were limited and expensive.

"All lab-based activities stopped, with Covid-related research as the only exception," says Anne, based at Warwick Medical School's Centre for Mechanochemical Cell Biology. "My lab routinely purifies proteins from human and insect cells, so we had all the equipment and reagents available, sitting there, unused. We were delighted to be able to help."

There is debate over the effectiveness of lateral flow tests already in use, which search for antibodies or genetic material in saliva. But the Warwick tool uses sugars to grab onto the virus as it moves along a test strip, delivering a rapid result.

A new target for attacking SARS-CoV-2

Lister Fellow Professor Pete Cullen's lab found a new way in which the SARS-CoV-2 coronavirus attaches to the host cell to make it more infectious.

"The similar SARS-CoV virus, which appeared in 2002, didn't cause a pandemic, and yet both viruses bind to the same cell surface ACE2 receptor," says Pete. "So, why is SARS-CoV-2 highly infectious? There must be something different about it."

The Cullen lab has been studying a family of proteins called neuropilins, which are found on the surface of cells. They already knew that neuropilins bind to proteins that contain a specific amino acid sequence known as a 'CendR motif'. When they examined the spike protein of SARS-CoV-2 – the part the virus uses to bind to the host cell's surface – they spotted this motif. This led to a simple hypothesis: are neuropilins required to enhance SARS-CoV-2 infectivity?

Their November 2020 *Science* paper validated this idea. It presented evidence that blocking the interaction between the spike protein's CendR motif and neuropilin-1 reduced SARS-CoV-2 infection. From this landmark finding, US company aTyr Pharma is performing clinical trials to repurpose a drug originally developed to treat cancer that interferes with interaction between the CendR motif and neuropilins. It is hoped that this drug may have potential in the fight against COVID-19.

GOVERNANCE OVERVIEW

The Governing Body

Governance of the Lister Institute is overseen by the Governing Body which meets twice a year. Members of the Governing Body are Trustees of the charity and have responsibility to the Charity Commission to ensure the charity is well and properly run. There was only one change to the membership of the Governing Body in 2020. Michael French stood down, after 17 years as Treasurer and was replaced by Murray Legg. As ever, we must pay tribute to the quality and dedication of the Governing Body members and the speed and clarity with which they respond to Lister matters.

Finance and Investment Committee

The Finance and Investment Committee (FIC) met three times in 2020, with two full meetings and one to discuss whether to use the liquidity reserve fund. Long standing member of the FIC – the Chairman and Treasurer Michael French has retired and been replaced by Murray Legg.

Murray is a chartered accountant who spent 35 years with PricewaterhouseCoopers until retiring in 2013. As a partner with PwC he held a variety of senior management, governance and client facing roles auditing and advising large UK listed and unlisted companies. He was a member of the PwC international network's Global Governance Board, and he also served on the PwC UK firm's governance body. Murray is non executive chairman of GlobalData plc and a non executive director of Sutton and East Surrey Water plc, where he chairs the company's audit Committee.

Scientific Advisory Committee

In 2020 there was only one change to the SAC membership. Professor Kikkeri Naresh joined the SAC. In 2020 he moved from Imperial College to the Fred Hutchinson Cancer Centre in Seattle.

To date, the SAC has met once a year to conduct the interviews and undertake any other business required. It has been decided that from 2021 an additional on-line meeting will be held to plan the interviews and conduct all the non-interview business to avoid it being curtailed due to lack of time on the day of the interviews.

Institute membership

As Fellowship were awarded for 6 years in 2020 because of Covid, the GB has agreed that Fellows will become members when they complete their Fellowship. In addition, all Committee members, previous members of staff and others with a particular interest in the Lister Institute are Members. At present we have 217 Members and they are all eligible to vote at the AGM.

The Fellows who completed five years of their Fellowship and became Members of the Lister Institute in October 2020 are Dr Aga Gambus (University of Birmingham), Dr Thora Karadottir (University of Cambridge), Dr Serge Mostowy (London school of Hygiene and Tropical Medicine), Dr Erica Watson (University of Cambridge) and Professor Steven West (University of Exeter).

In the course of 2020, Professor Kikkeri Naresh (Fred Hutchison Cancer Centre, Seattle) [SAC Member], Mr Murray Legg [Treasurer and Governing Body member] Mrs Naomi King and Mrs Jacky Wilson [previous members of staff] became Members of the Lister Institute.

FINANCIAL OVERVIEW

2020 was a year of significant volatility in the financial markets as a result of the Covid 19 pandemic and its economic consequences. In addition, further uncertainty was added with Brexit, the US election and trade disputes.

The Lister Institute has its low volatility liquidity reserve fund, which was established to enable the Lister to ride out a major market correction. It continues to provide a buffer against this uncertainty and any ensuing fall in the markets. The FIC had several discussions during the year about whether the 2020 Lister Prizes should be funded from this liquidity reserve fund as the value of the main portfolio had dropped significantly. In the end it was decided not to do this and the Prizes were funded from the main portfolio as markets recovered.

Our two investment managers, Cazenove and Partners Capital have successfully handled our portfolio in the challenging market environment of 2020 with our investments having a final valuation (after withdrawal of £1.0M for the prize Fellowships and Lister operations) of £44.86M, up from £43.2M at the end of 2019. The FIC will continue to monitor closely our portfolio and there will continue to be careful consideration of the numbers and levels of Fellowships and studentships.

All expenditure has been in line with or below the agreed 2020 budget. Spending on Prizes has been lower as only four prizes were awarded, and fewer studentships went ahead because labs were closed. Operational costs were also reduced as a result of not holding the Annual Meeting and holding most of the Governing Body and Committee meetings on-line. The investment managers' fees were £237K, down slightly from £245K in 2019. With four Fellowships being awarded at £250,000K each, £30K from a prize that had ended being returned, £22K spent on studentships and operational costs being £173K the total expenditure for the Lister institute in 2020 was £1.401M

	£K
Prize Fellowships and studentships	992
Investment managers fees	237
Staff and operational costs	172
TOTAL	1,401

The Lister institute is extremely indebted to our all the members of the Finance and Investment Committee and I would like to thank them all for their scrutiny of the Institute's finances and the rigorous questioning of our current investment advisors, Partners Capital LLP and Cazenove Capital Management. We are particularly grateful to Michael French for his many years as Treasurer and chair of the FIC.

A F Markham
A F Markham (Jun 24, 2021 11:45 GMT+1)

ALEX MARKHAM
CHAIRMAN

Current Lister Prize Fellows

For the full list of all Lister Fellows (past and present) please see the Lister website
<https://www.lister-institute.org.uk/former-fellows/>

Fellow	Title of Research	Awarded
Dr Cynthia Andoniadou King's College London	Regulation of stem cell potential in the mammalian pituitary gland	2016
Dr Tom Baden University of Sussex	Anisotropic retinal circuits for processing of colour and space in nature	2018
Dr Tim Blower Durham University	BREX and phage-bacteria interactions	2019
Dr Ross Chapman University of Oxford	DNA double-strand break repair mechanisms in immunity and oncogenesis	2019
Dr Rebecca Corrigan University of Sheffield	Analysis of the role of (p)ppGpp in staphylococcal infection using zebrafish as a model organism	2018
Professor Victoria Cowling University of Dundee	Regulation and function of the 7-methylguanosine cap	2011
Dr Mark Dodding University of Bristol	A new chemical biology approach to target molecular motors for the manipulation of cytoskeleton and organelle dynamics	2018
Professor Sherif El-Khamisy University of Sheffield	The repair of oxidative and topoisomerase induced chromosomal strand breaks and human disease	2013
Dr Agnieszka Gambus University of Birmingham	Identification and characterisation of Mcm7 ubiquitin ligase	2015
Dr Susana Godinho Queen Mary University of London	Regulation of Paracrine Signalling by Centrosome Amplification	2016
Dr Sebastian Guettler The Institute of Cancer Research	Structural basis and mechanism of telomere maintenance by poly(ADP-ribosylation)	2017
Professor Muzlifah Haniffa Newcastle University	In vivo kinetics and functional response of human mononuclear phagocytes during acute tissue inflammation	2016
Dr Sophie Helaine Imperial College London Harvard Medical School	Salmonella Persister formation at the single cell level	2017
Dr Matthew Hepworth University of Manchester	Targeting cell metabolism to regulate innate lymphoid cells in health and disease	2018
Dr Ragnhildur Thora Karadottir University of Cambridge	The role of neuronal activity in myelin repair	2015
Dr Joanne Konkell University of Manchester	Atypical monocytes at the oral mucosa; revisiting myeloid cell development and function at a unique barrier site	2019

Dr Yogesh Kulathu University of Dundee	Regulation and function of protein FUBylation	2017
Dr Rebecca Lawson University of Cambridge	Computational neurodevelopment: a new framework for understanding autism spectrum disorder	2020
Dr Michelle Linterman Babraham Institute	Tertiary lymphoid structures in health and disease	2019
Dr Yanlan Mao University College London	Mechanochemical regulation of tissue growth and morphogenesis	2018
Dr Joseph Marsh University of Edinburgh	The dominant-negative effect in protein complexes: implications for human genetic disease	2018
Dr Will McEwan University of Cambridge	Protein-level knockdown as a new frontier for biological and biomedical sciences	2019
Dr Serge Mostowy London School of Hygiene & Tropical Medicine	Bacterial autophagy and the cytoskeleton in host defence	2015
Professor Haniffa Muzlifah University of Newcastle	<i>In vivo</i> kinetics and functional response of human mononuclear phagocytes during acute tissue inflammation	2016
Dr James Nathan University of Cambridge	The interplay between metabolism and oxygen sensing	2017
Professor Jan Rehwinkel University of Oxford	Z-RNA and Z-DNA: Novel inducers of antiviral immunity	2016
Dr Rahul Roychoudhuri University of Cambridge	Resolving mechanisms of gene regulation within the immune system using forward genetics	2017
Dr Tomás Ryan Trinity College Dublin	Gone or Misplaced? – Retrieving Infant Memories in Adults	2020
Dr Amanda Sferruzzi-Perri University of Cambridge	Biomarkers of materno-fetal health: role of placental endocrine mediators in normal and obese pregnancies	2018
Dr Hayley Sharpe Babraham Institute	Receptor tyrosine phosphatase signalling mechanisms in health and disease	2020
Professor Daniel Smith University of Glasgow	Investigating the overlap between hypertension and bipolar disorder to identify new and repurposed medications for bipolar disorder	2016
Dr Stephan Uphoff University of Oxford	Resolving oxidative stress response mechanisms in bacteria during infection and antibiotic treatment	2020
Dr Erica Watson University of Cambridge	Mechanisms of folate metabolism during the trans-generational inheritance of disease	2015
Professor Steven West University of Exeter	The nature, mechanism and function of RNA polymerase II modifications in health and disease	2015

for the year ended 31 December 2020

The Governing Body presents its Annual Report under the Charities Act 2011 together with the audited Financial Statements of the Charity for the year ended 31 December 2020. The Financial Statements have been prepared in accordance with the accounting policies set out in Note 1 (pages 29-30) to the Financial Statements and comply with the Companies Act 2006, the FRS102 Charities SORP and the documents governing the constitution of the Charity.

LEGAL AND ADMINISTRATIVE DETAILS

Legal and administrative information is set out on pages 39 and 40 of this report.

Members of the Governing Body, Directors and Trustees

The members of the Governing Body are, for the purposes of company law, Directors of the Institute and, for the purposes of charity law, Trustees of the Institute and throughout this report are collectively referred to as the Trustees.

Details of the Trustees serving throughout the year are set out on page 39.

STRUCTURE, GOVERNANCE AND MANAGEMENT

Constitution

The Institute is registered with the Charity Commission for England and Wales (registration number 206271). It is incorporated and registered in England and Wales under the Companies Act 2006 as a company limited by guarantee and not having a share capital (company number 34479). It is governed by its Articles of Association and has charitable status.

Appointment and Re-appointment of Trustees

The Trustees are the fourteen members of the Governing Body of whom six are elected by the members at the annual general meeting. A maximum of six further Trustees are appointed by the Governing Body and there are currently five such appointees. One additional member is Lord Iveagh's representative, another is Professor Sir Alec Jeffreys who was appointed to life-membership, and the final member, Professor Douglas Higgs, is the representative of the Royal Society. Trustees, other than the two nominated representatives, Professor Sir Alec Jeffreys and exceptionally those appointed by the Governing Body, generally serve for a period of six years and a system of planned rotation is in place. When considering appointment or nomination for election as Trustees, the Governing Body has regard to the specialist skills needed.

Induction and Training of Trustees

New Trustees undergo induction sessions with the Chairman, Treasurer and Director during which they will gain an understanding of the Institute's structure, activities, financial position and future strategies. Prior to appointment they will attend one meeting of the Governing Body as 'observers'. New Trustees will also be made aware of their legal obligations with regard to charity and company law. In addition, new Trustees will be advised of appropriate literature and training courses. An Induction check list has been put in place.

Organisation

The Institute is governed by its Governing Body which is responsible for setting policies, authorising actions on all significant operational issues and ensuring legality and good practice. The Governing Body meets formally twice a year. The Treasurer and Chairman review the

remuneration of all staff once a year. This includes the remuneration of those individuals considered to be key management personnel.

Specific authorities are delegated to two sub-Committees in particular areas. The Scientific Advisory Committee (see page 39 for membership) has responsibility for identifying the Lister Institute Prize Fellows and the monitoring of their scientific activities, as well as providing scientific and medical advice to the Governing Body as required. In 2020 the Association of Medical Research Charities undertook its quinquennial review of our peer review processes. We will be addressing the few areas highlighted that we might improve to further strengthen our review and award process. The Finance and Investment Committee (see page 39 for membership) has responsibility for interaction with the Institute's investment advisors, ensuring implementation of the Institute's investment policy and monitoring performance. It prepares and submits to the Governing Body the annual budget, and subsequently monitors performance against it. It also advises the Governing Body, as required, on other financial and risk matters.

The routine management of the Institute's activities is undertaken by its Director, aided by the Operations Manager and the Accountant. All staff work from home.

In 2020, none of the Charity's Trustees received any remuneration. Of the trustees only the chairman of the SAC is offered any remuneration or any other benefits in relation to their dealings with the Charity. The chair of the SAC, who is also a member of the Governing Body, is offered an honorarium in recognition of the very significant workload associated with the role. In 2020 the honorarium was paid to the chairman's employer, the University of Bristol.

The Chairman and the Treasurer of the Charity agree the Director's remuneration which, along with other Lister Institute staff, is normally increased in line with RPI. Salaries are also compared to similar organisations and adjusted periodically where appropriate.

Risk Management

The Trustees assess the risks facing the Institute and review the effectiveness of the controls to monitor and mitigate them. A Risk Management Register is maintained and formally reviewed annually by the Governing Body.

The key controls used by the Institute include:

- Formal agendas for all Governing Body meetings
- Strategic planning, budgeting and management accounting
- Formal written policies
- Clear authorisation and approval levels
- Regular review of Fellows' scientific reports

The risk of cybersecurity was considered by the Trustees and amendments were made to the risk log. A cyber-security policy is being developed.

The specific risk of bribery associated with any of the Institute's activities has been previously reviewed, and clear policies and procedures have been developed and communicated to all Trustees, staff and Members.

The specific risk of scientific misconduct by Lister Fellows was previously reviewed by the Trustees and, as a result, minor amendments were made to the risk log.

The Lister website and terms and conditions have been updated in response to the 2018 EU General Data Protection Regulation (GDPR). All staff have undertaken GDPR training and further documentation is being developed to further support compliance

The Institute maintains a 'Register of Interests' for all Governing Body and committee members as well as principal staff and operates a clear "declaration of interests" policy and procedures for all meetings.

The principal risk facing the Institute lies in its ability to maintain and protect the value in real terms of its investments and to generate from them, on a long-term basis, a consistently high overall return. This risk is mitigated by the Institute's appointment of experienced investment managers with a proven track record; by internal controls that allow close and regular monitoring of their performance against benchmarks; by the Institute's requirement of its investment managers to re-tender periodically and competitively for appointment – as happened in 2017 and is planned for 2022; and by regular meetings that formally review investment performance and policy, and include one-to-one presentations by the investment managers.

Investment Policy Statements are in place for the Lister Institute and its investment partners. These are reviewed on an annual basis.

Objectives and Activities

The statutory Object of the Institute is to further the understanding and progress in preventive medicine by promoting excellence in biomedical research in the UK and Ireland.

When founded in 1891, the Institute sought to achieve this objective by establishing a research institute specialising in the area of "infections" and their prevention by immunisation and other means. It complemented these research activities by the production and supply of materials such as vaccines and anti-toxins.

The Institute continued in this mode until the late 1970s when increasing financial and regulatory pressures caused the cessation of these activities. Proceeds from the resultant sale of land and buildings created the investment funds from which present-day activities are financed; at 31 December 2020 these funds stood at £44.86M. From the 1980s the Institute has pursued its objective of nurturing future leaders by the provision of grant funding to facilitate the research and careers of high-quality individuals working in areas of biomedicine relevant to preventive medicine. It has done this because it believes that the acquisition and advancement of knowledge is crucial to the understanding of health and disease and that research to achieve this is driven forward by high quality individuals and their supporting staff.

Principal Activities

In pursuance of this objective, during 2020 the Institute awarded four new Prize Fellowships. In addition, the Institute has continued its Summer Studentship scheme. Generally, this has enabled an increasing number of undergraduates per year to work with Lister Institute Fellows or former Fellows in order to gain experience of biomedical research with the hope that they might consider it as a career. In 2020, because of Covid restrictions only a small number of studentships could go ahead.

Achievement and Performance

The Scientific Advisory Committee has monitored the performance of the current 33 Lister Institute Prize Fellows, through detailed review of the annual reports on their research that include details of all publications and presentations. The Scientific Advisory Committee has reported to Trustees that it is of the view that all Fellows are undertaking high quality research and producing new knowledge that will contribute significantly to our understanding of disease, its causes, treatment and prevention. The reports of the research undertaken by the Summer Students have also been reviewed and found to be satisfactory.

Four Lister Institute Prize Fellowships were awarded in 2020 to Dr Rebecca Lawson, Dr Tomás Ryan, Dr Haley Sharpe and Dr Stephan Uphoff from an initial field of 114 applicants, following extensive scientific review of their applications and final interview by the Scientific Advisory Committee. (More details of the Prize Fellows and their research are provided on page 5). Each Prize Fellowship provides £250k with all the funds provided to the host institution at the commencement of the award. Normally Lister Prize Fellowships may be spent over five years on the recipient's research, however in 2020 they were awarded for 6 years to allow for the early limitations and likely slow start caused by the pandemic.

Forty Summer Studentships were awarded in 2020, however only nine went ahead due to covid restrictions. Each is a £2,350 student bursary and is paid to the host institution at the commencement of the award for the support of the student for up to a ten-week period. We are pleased that despite the challenges of the pandemic we were still able to support these studentships.

Public Benefit

The statutory objectives, aims and activities of The Lister Institute of Preventive Medicine are to further understanding in preventive medicine by promoting biomedical research, as set out on page 21 of this Report. The Trustees have considered the Charity Commission's guidance on public benefit, including the guidance 'public benefit: running a charity (PB2)'.

The public benefit of the Institute's grant-making is clearly identifiable in the 'Achievement and Performance' paragraphs above and in the list of Research Prize Fellows together with their areas of research on pages 17 to 18. All Lister Institute Fellows are actively encouraged, where appropriate, to develop their research findings for potential public benefit and the Scientific Advisory Committee has regard to this when reviewing their research reports. The Lister Institute therefore benefits the public or a sector of it without imposing any restrictions. Applications from individuals are accepted only when demonstrably consistent with the charitable objectives of the Institute.

Impact

The impact of the activities of a medical research charity can be measured at many levels ranging from the growth of knowledge to direct patient/public benefit. Often the transition from the former to the latter may take many years and the involvement of several organisations. The Institute requires that the results of the research it supports are published and disseminated; that, where appropriate, significant intellectual property is protected via patents; and that its commercial development is encouraged. Several biotechnology companies have been formed around the findings of Institute-funded research and there are several interactions with large pharmaceutical companies. A prime example of the impact of Lister Institute research is DNA fingerprinting, which was discovered by Sir Alec Jeffreys when a Lister

Institute Fellow, and has become an integral part of society, helping to prove innocence or guilt in criminal cases, resolving immigration arguments and clarifying paternity.

Investment Policy and Performance

The Institute's investment objective is to develop and maintain its financial resources in real terms through the selection of investments, consistent with an acceptable level of risk.

The Institute's investment portfolio is split between Cazenove Capital Management and Partners Capital LLP who both operate under mandates agreed in advance with the Finance and Investment Committee. These mandates set out an overall target asset allocation with allowable ranges for each category of asset.

Both investment managers invest on a total returns basis through a variety of pooled funds and in accordance with the Institute's overarching "Investment Policy Statement" ("IPS"), which states the overall investment objective and sets the investment return objectives, the risk parameters, the performance measures and review procedures for the portfolio. The Institute's IPS was reviewed and revised in 2020. Specific versions were also agreed for each of the investment managers to reflect their individual investment approaches. The IPS's are reviewed annually. The investment managers are informed at the beginning of the financial year of the Institute's likely cash requirements, both in terms of the amount and the timing of any draw-down and are asked to keep in an income or cash account sufficient funds to meet them. The Institute has in place an ethical investment policy which does not permit direct investment in tobacco or tobacco-related companies.

The Institute's overall financial return objective is to preserve and, if possible, enhance the purchasing power of its portfolio assets, net of costs and approved withdrawals, over rolling five-year periods. This goal is synonymous with the pursuit of a time-weighted net return on portfolio assets that equals and, if possible, exceeds cost inflation as measured by the UK Consumer Price Index plus the Institute's long-term spending rate of 3-4% measured over corresponding five-year periods. This goal has been achieved over the previous five-year period.

The performance of the investment portfolio is reviewed by the Finance and Investment Committee, which held two meetings in the year with the investment advisors to review performance, liquidity within the portfolio etc. In addition, the Institute receives detailed quarterly valuation and transaction reports. In a year that saw significant volatility in the market the fund has still grown from £43.23m to £44.86m. A decision, taken in 2015 (and ratified in subsequent years), to withdraw and place £5m in a Liquidity Account was based both on the recent strong growth of the portfolio but also concerns about future market volatility and performance. Given the increase in the number and level of the Fellowships a further discussion was held in 2020 and the decision was made to maintain £5m in this Account, on a rolling basis, to be reviewed annually. This decision will ensure that six Prize Fellowships of £250k each can be awarded for at least three years from 2021. With the significant fluctuations in markets triggered by the Covid-19 pandemic, for the first time, serious consideration was given to using this Liquidity Account to finance 2020's prizes and activities. In the end, however, it was decided not to do this and 2020 activities were funded as normal through the main portfolio.

More details of the Institute's activities are set out in the Chairman's Report on pages 3 to 16.

FINANCIAL REVIEW

Allocation of Resources

The Institute, which does not seek to raise funds from the public, depends primarily on investment returns to meet its pension provision payments, administrative expenditure and expenditure in furtherance of the Charity's objectives. The total return on investments for the year was a net gain of £2.28m and investment income of £580K.

The resources expended totalled £1.388m of which £1.151m were resources expended for the Institute's charitable activities.

The Prize Fellowships are fixed sum awards and, therefore, expenditure can be regulated by altering the number and/or value of prizes awarded each year. In 2020, prizes were awarded to four very strong candidates. As previously described, a £5m liquid portfolio has been established so that the number and level of awards is sustainable over a minimum of three years. Nine studentships were awarded in 2020.

Payments are currently made to three pensioners who are previous employees of the Lister Institute. The Institute's unfunded pension liability, as last disclosed, is some £143,000. Given the value and nature of our investments, we do not believe pension funding to be a concern.

Reserves policy

The policy of the Trustees is to maintain adequate financial resources to provide income to meet current and future commitments as they fall due and ensure that adequate funds remain available to enable them to make awards in perpetuity.

The adequacy of the level of reserves (£44.79m at the end of 2020) and the continuing appropriateness of the policy are reviewed on an annual basis by the Trustees. They continue to endorse the policy and its ability to support the long-term viability of the Institute and, given that the Institute is not formally committed to awarding any Prizes beyond the current year, are confident in the ability of the Institute to maintain appropriate levels of activity in the short-term.

Plans for the future

The Institute's future policy is to continue to pursue its current objectives. It will therefore maintain and look to increase the Prize Fellowship scheme, which it sees as a funding priority. The Summer Studentship scheme will also be increased when possible.

Trustee Responsibilities Statement

The Trustees (who are also directors of The Lister Institute of Preventive Medicine for the purposes of company law) are responsible for preparing the Trustees' Annual Report and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the Trustees to prepare financial statements for each financial year, which give a true and fair view of the state of affairs of the charitable company, and of the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period. In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP;
- make judgments and estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis, unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

In so far as the Trustees are aware:

- there is no relevant audit information of which the charitable company's auditor is unaware; and
- the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

This Trustees' report has been prepared in accordance with the special provisions of Part 15 of the Companies Act 2006 relating to small companies.

By Order of the Governing Body

A F Markham

A F Markham (Jun 24, 2021 11:45 GMT+1)

SIR ALEXANDER F MARKHAM
Chairman

5 May 2021

M. J. Legg

Murray Legg (Jun 30, 2021 09:05 GMT+1)

Murray Legg
Treasurer

5 May 2021

STATEMENT OF FINANCIAL ACTIVITIES
for the year ended 31 December 2020

	Notes	2020	2019
		£'000	£'000
Income from:			
Investments	2	580	840
Other	3	13	6
Total income		593	846
Expenditure on:			
Cost of raising funds			
Investment management costs	4	(237)	(245)
Charitable Activities			
Prizes and Summer Studentships	6	(1,152)	(1,538)
Total expenditure		(1,389)	(1,783)
Net gains on investments	9	2,282	3,579
Net income		1,486	2,642
Other recognised losses			
Actuarial losses on defined benefit schemes	13	(13)	(8)
Net movement in funds		1,473	2,634
Reconciliation of funds:			
Total funds brought forward		43,321	40,687
Total funds carried forward		44,794	43,321

All items in the above Statement of Financial Activities relate to continuing operations for both years. The Institute has no other recognised gains and losses other than as stated above and hence no separate income and expenditure statement has been shown.

The notes set out on pages 29-34 form part of these financial statements.

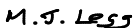
BALANCE SHEET
as at 31 December 2020

COMPANY No: 34479

	Notes	2020 £'000	2019 £'000
<i>Fixed assets</i>			
Investments	9	44,858	43,226
Total fixed assets		44,858	43,226
<i>Current assets</i>			
Debtors	10	26	8
Cash at bank and in hand	11	132	303
Total current assets		158	311
<i>Current liabilities</i>			
Creditors: amounts falling due within one year	12	(88)	(73)
Net current assets		70	238
Total assets less current liabilities		44,928	43,464
<i>Creditors: amounts falling due after more than one year</i>			
Pension provision	13	(134)	(143)
Net assets		44,794	43,321
<i>Represented by</i>			
Unrestricted funds		44,794	43,321
Total charity funds		44,794	43,321

The Trustees have taken advantage of the exemptions conferred by the Companies Act 2006, on the grounds that the Institute is entitled to the benefit of those exemptions as a small company.

These financial statements were approved by the Governing Body on 5 May 2021

ALEXANDER F MARKHAM	)	
	)	
A F Markham (Jun 24, 2021 11:45 GMT+1)	)	Members of the
	)	Governing Body
	)	
MURRAY LEGG	)	
	)	
Murray Legg (Jun 30, 2021 09:05 GMT+1)	)	

The notes set out on pages 29 to 34 form part of these financial statements.

CASH FLOW STATEMENT
For the year ended 31 December 2020

	2020 £'000	2019 £'000
Cash flow/(outflow) from operating activities		
Net cash used in operating activities	(1,401)	(1,783)
Cash flows from investing activities		
Investment income	580	840
Proceeds from disposal of fixed asset investments	13,572	11,280
Acquisition of fixed asset investments	(12,790)	(9,366)
Other movements on investments	(132)	(737)
	(171)	234
Net (decrease)/increase in cash	(171)	234
Cash and cash equivalents at beginning of year	303	69
Cash and cash equivalents at end of year	132	303
Reconciliation of net income to net cash flow from operating activities		
	2020 £'000	2019 £'000
Net income	1,473	2,634
Adjustments for:		
Net gains on investments	(2,282)	(3,579)
Investment Income	(580)	(840)
(Increase)/decrease in debtors	(18)	3
Increase in creditors	15	11
Decrease in pensions	(9)	(12)
Net cash used in operating activities	(1,401)	(1,783)

1 PRINCIPAL ACCOUNTING POLICIES

Basis of preparation

The Financial Statements have been prepared in accordance with the Statement of Recommended Practice, Accounting and Reporting by Charities (FRS102 SORP). The Financial Statements are prepared in accordance with the historical cost convention modified by the revaluation of investments. The charity is a Public Benefit Entity as defined by FRS102.

The Financial Statements are prepared in sterling which is the functional currency of the Charity. Monetary amounts in these Financial Statements are rounded to the nearest thousand pounds.

The principal accounting policies adopted in the preparation of the Financial Statements are as follows:

Income

All incoming resources are accounted for on a receivable basis.

Prizes and summer studentships

The cost of Research Prize Fellowships is charged in the year awarded.

Expenditure

The costs of raising funds include those fees payable to the Institute's investment fund managers for the management of the Institute's investment portfolio. These are accounted for on an accruals basis.

Charitable activities comprise all expenditure directly relating to the objects of the charity and are accounted for on an accruals basis. The allocation of expenditure between governance and management, administration and support costs is reviewed on an annual basis to ensure the allocation is appropriate. Indirect costs are generally treated as falling into the latter category with the exception of a proportion of salary and related costs, which have been classified as governance costs.

In addition to auditor's remuneration, governance costs comprise the proportion of staff costs associated with the time spent on the preparation of the statutory accounts and other governance issues, together with honoraria remuneration provided to members of the Institute's Scientific Advisory Committee for their duties in selecting the Prize Fellows.

Supplementary pensions and staff pensions

An estimate of the full provision is made in the Financial Statements for the costs of future supplementary payments. The provision and charge to income are reviewed annually by the Trustees in the knowledge that the number of persons receiving the supplementary pensions will not increase. The pension costs are assessed in accordance with actuarial advice and these costs are accounted for in accordance with FRS102 SORP.

Existing employees participate in a defined contribution scheme, the costs of which are expensed as incurred. These disclosures are made in accordance with FRS102 SORP.

Tangible Fixed Assets

Any capital items purchased under £1k in value are expensed in the accounts in full as incurred. The Charity has no tangible fixed assets.

Investments

Investments are shown at market value in the balance sheet. Changes in the market value are included in the Statement of Financial Activities as realised and unrealised investment gains or losses in the year in which they arise. Investments denominated in foreign currencies are valued at year-end rates of exchange.

Cash flow statement

The Charity has included a cash flow statement in accordance with FRS102 SORP.

Taxation

The organisation is a registered charity and has obtained exemptions from taxation under Part 11, Chapter 3 of the Corporation Tax Act 2010. This exemption will remain as long as income is compatible with that section and expenditure is applied to charitable purposes only.

Critical accounting estimates and areas of judgement

In preparing financial statements it is necessary to make certain judgements, estimates and assumptions that affect the amounts recognised in the financial statements. The Trustees consider the estimates involved in the valuation of investments to have most significant effect on amounts recognised in the financial statements. These are taken directly from Investment Manager's reports.

In addition, the company has an obligation to pay pension benefits to certain employees. The cost of these benefits and the present value of the obligation depend on a number of factors including: life expectancy, salary increases, asset valuations and the discount rate on corporate bonds. Management estimates these factors in determining the net pension obligation in the balance sheet. The assumptions reflect historical experience and current trends. See Note 13 for the disclosures relating to the defined benefit pension scheme.

Going Concern

The Trustees have assessed whether the use of the going concern basis is appropriate and have considered possible events or conditions that might cast significant doubt on the ability of the charity to continue as a going concern. The Trustees have made this assessment for a period of at least one year from the date of approval of the financial statements. In making this assessment the Trustees have considered the impact of the Covid 19 pandemic and are satisfied that the substantial reserves and liquid assets held by the Lister Institute justify their belief that there are no material uncertainties that cast significant doubt on the charity's ability to continue as a going concern. The charity therefore continues to adopt the going concern basis in preparing its financial statements.

Financial instruments

The company has elected to apply the provisions of Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instruments Issues' of FRS 102 to all of its financial instruments. Financial instruments are recognised in the company's balance sheet when the company becomes party to the contractual provisions of the instrument. Financial assets and liabilities are offset, with the net amounts presented in the financial statements, when there is a legally enforceable right to set off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

With the exceptions of prepayments and deferred income all other debtor and creditor balances are considered to be basic financial instruments under FRS 102. See notes 10 and 12 for the debtor and creditor notes.

Fund accounting

Unrestricted funds are available for use at the discretion of the Trustees in furtherance of the general objectives of the Institute. Restricted funds are funds available subject to specific restrictions imposed by donors.

2 INVESTMENT INCOME

	2020	2019
	£'000	£'000
Income from fixed asset investments	579	839
Bank interest receivable	1	1
	580	840

3 OTHER INCOME

	2020	2019
	£'000	£'000
Royalty income CRT Ltd	13	6
Total other income	13	6

Royalty income is earned from Cancer Research Technology as a result of Revenue sharing related to Glover research studies £13k (2019: £6k).

4 INVESTMENT MANAGEMENT COSTS

	2020	2019
	£'000	£'000
Partners Capital LLP	146	154
Cazenove Capital Management	91	91
Total investment management fees	237	245

Investment management fees referred to here are those accrued fees relating to the management of the Institute's investment portfolios in 2020.

5 GOVERNING BODY AND STAFF COSTS

Emoluments of members of the Governing Body

No member of the Governing Body received any emoluments in respect of services to the Institute during the year (2019: nil). Travel expenses of £411 were paid relating to the claims of one member in connection with their attendance at meetings (2019: £2,151 eight members).

Members of the Scientific Advisory Committee (the chair of which is also a member of the Governing Body) are offered remuneration in relation to their services to the committee. An honorarium of £2,000 (2019: £2,000) was paid to the employing institution of the chair of the SAC, the other SAC members (none of whom are members of the Governing Body) were paid £1,000 (2019: £1,000). The vast majority of members asked for the honorarium to be paid to their employing institution.

Employee Information

The average number of persons employed by the Institute during the year was 4, (2019: 3.6) three of whom are part-time (2019: 2). All staff were employed in an administrative and support capacity. No employees earn over £60,000 p.a. (2019: none).

Key management personnel include the Trustees and the Director. The total employee benefits of the charity's key management personnel were £40,228 (2019: £59,344).

Staff costs

	2020	2019
	£'000	£'000
Gross salaries	99	108
Pension contributions	4	4

Employer's national insurance	6	8
	109	120

The salary costs are allocated under governance where related to statutory accounts preparation, the balance being reported within charitable activities.

6 PRIZES & SUMMER STUDENTSHIPS

	2020	2019
	£'000	£'000
Prize awards	970	1,250
Summer studentship payments	22	80
Support costs (see note 7)	37	67
Salaries (see note 5)	96	105
Governance costs (see note 8)	27	36
	1,152	1,538

7 SUPPORT COSTS

	2020	2019
	£'000	£'000
Office expenses	12	19
Travel expenses	1	3
Professional fees	9	8
Honoraria and events	11	29
Pension costs (see note 13)	4	8
	37	67

These costs are all considered to be costs to support resources expended on charitable activities.

8 GOVERNANCE COSTS

	2020	2019
	£'000	£'000
Auditor's remuneration - current year	11	11
Staff costs (see Note 5)	14	15
Honoraria and events	2	10
	27	36

No non-audit services were provided by the auditors during the year (2019: none). Auditors remuneration includes irrecoverable VAT.

9 INVESTMENTS

Listed investments are valued at middle market quotations ruling at the year-end.

	2020	2019
	£'000	£'000
Market value at beginning of year	43,226	40,824
Purchases during the year at cost	12,790	9,366
Proceeds of sales during the year	(13,572)	(11,280)
Reinvested income for the year	474	681
Movement in un-invested cash	658	1,806
Cash withdrawn	(1,000)	(1,750)
Net Change in market value	2,282	3,579
Market value at year-end	44,858	43,226

The portfolio's asset allocation was as follows:

	2020 £'000	2019 £'000
UK investments		
Equities	3,265	5,319
Fixed interest	3,591	3,613
Other (including private equity, property, commodities, alternatives and inflation linked bonds)	5,599	5,765
Cash	5,207	3,748
Total UK investments	17,662	18,445
Non-UK investments		
Equities	22,652	18,678
Other (including private equity, property, commodities and alternatives)	4,544	5,054
Cash	0	1,049
Total Non-UK investments	27,196	24,781
Total	44,858	43,226

At 31 December 2020 no single shareholding exceeded 5% of the total value of investments (2019: none).

Historical cost related to the closing position of 2020 was £35.52m (2019: £34.47m).

The Institute's investments held by one custodian are charged as security for the Institute's ongoing financial obligations to that custodian for banking services related to those investments.

10 DEBTORS

	2020 £'000	2019 £'000
Prepayments	13	2
Accrued income	13	6
Total	26	8

11 CASH

	2020 £'000	2019 £'000
Cash at bank	132	303

12 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2020 £'000	2019 £'000
Taxation and social security	4	4
Accruals	84	69
Total creditors falling due within one year	88	73

13 PROVISION FOR LIABILITIES AND CHARGES

This represents a provision for future supplementary pension payments in respect of ex-employees, based on their salary and length of service. The pensions are unfunded, with payments made out of the Institute's funds as they fall due.

Movements in the pension provision during the year were as below:

	2020 £'000	2019 £'000
Liability at beginning of period	143	155
Plus interest cost	4	8
Plus actuarial gains and losses	13	8
Benefits paid	(26)	(28)
Liability at end of period	134	143

The tables below state the FRS102 actuarial assumptions used to estimate the pension provision.

Principal actuarial assumptions

Valuation at 31 December 2020

	2020	2019
Rate of increase to pensions in payment	3.0%	3.0%
Rate used to discount scheme liabilities	2.5%	5.0%

The post-retirement mortality assumption uses the PCA00 base tables (year of birth) with improvements equal to medium cohort with a 1% minimum.

14 RELATED PARTY TRANSACTIONS

There were no related party transactions in the year, other than those outlined in note 5 (2019: none).

15 FINANCIAL INSTRUMENTS

	2020 £'000	2019 £'000
Carrying amount of financial asset debt instrument at amortised cost	13	6
Carrying amount of financial liabilities measured at amortised cost	84	69

16 MEMBERS' LIABILITY

The liability of the Members of the institute is limited to 50p. At the date of the financial statements, there were 217 members (2019:205), each with a guarantee potential of 50p.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE LISTER INSTITUTE OF PREVENTIVE MEDICINE

Opinion

We have audited the financial statements of The Lister Institute of Preventive Medicine ('the company') for the year ended 31 December 2020 which comprise the Statement of Financial Activities, the Balance Sheet, the Cash Flow Statement and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 'The Financial Reporting Standard Applicable in the UK and Republic of Ireland' (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company's affairs as at 31 December 2020 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs(UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

In auditing the financial statements, we have concluded that the trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the charitable company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the trustees with respect to going concern are described in the relevant sections of this report.

Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The trustees are responsible for the other information. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the trustees' annual report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the trustees' annual report have been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees' annual report.

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of trustees' remuneration specified by law are not made;
- we have not received all the information and explanations we require for our audit; or
- the trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies exemption in preparing the Trustees' Annual Report and from preparing a Strategic Report.

Responsibilities of trustees

As explained more fully in the trustees' responsibilities statement set out on pages 24 and 25, the trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

The objectives of our audit in respect of fraud, are; to identify and assess the risks of material misstatement of the financial statements due to fraud; to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate responses to those assessed risks; and to respond appropriately to instances of fraud or suspected fraud identified during the audit. However, the primary responsibility for the prevention and detection of fraud rests with both management and those charged with governance of the charitable company.

Our approach was as follows:

- We obtained an understanding of the legal and regulatory requirements applicable to the charitable company and considered that the most significant are the Companies Act 2006, the Charities Act 2011, the Charity SORP, and UK financial reporting standards as issued by the Financial Reporting Council.
- We obtained an understanding of how the charitable company complies with these requirements by discussions with management.
- We assessed the risk of material misstatement of the financial statements, including the risk of material misstatement due to fraud and how it might occur, by holding discussions with management.
- We inquired of management and those charged with governance as to any known instances of non-compliance or suspected non-compliance with laws and regulations.
- Based on this understanding, we designed specific appropriate audit procedures to identify instances of non-compliance with laws and regulations. This included making enquiries of management and those charged with governance and obtaining additional corroborative evidence as required.
- In addressing the risk of fraud due to management override of internal controls we tested the appropriateness of journal entries and assessed whether the judgements made in making accounting estimates were indicative of a potential bias.

Due to the inherent limitations of an audit, there is an unavoidable risk that we may not have detected some material misstatements in the financial statements, even though we have properly planned and performed our audit in accordance with auditing standards. For example, as with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls. We are not responsible for preventing fraud or non-compliance with laws and regulations and cannot be expected to detect all fraud and non-compliance with laws and regulations.

As part of an audit in accordance with ISAs (UK) we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purposes of expressing an opinion on the effectiveness of the charitable company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the trustees.
- Conclude on the appropriateness of the trustees' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the charitable company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the charitable company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Use of our report

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to any party other than the charitable company and charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Moore Kingston Smith LLP

Luke Holt (Senior Statutory Auditor)
for and on behalf of Moore Kingston Smith LLP, Statutory Auditor

Devonshire House
60 Goswell Road
London
EC1M 7AD

Date: 30/06/2021

11 LEGAL AND ADMINISTRATIVE INFORMATION
for the year ended 31 December 2020
THE GOVERNING BODY

Professor Sir Alex Markham, DSc, FRCP, FRCPath, FMedSci, *Chairman*
Mr Michael French, BSc (Eng), FCA, *Hon Treasurer (Retired 4th September 2020)*
Mr Murray Legg, BSc, FCA, *Hon Treasurer (Elected 4th September 2020)*
Professor Judith Armitage, BSc, PhD, FRS
Professor Wendy Bickmore, CBE, BA, PhD, FMedSci, FRS, FRSE
Professor Sir Adrian P Bird, CBE, FRS, FRSE
Professor Rebecca Fitzgerald, MD, FRCP, FMedSci
Hon Rory M B Guinness, BA, FCIM
Professor Douglas Higgs, MBBS, MRCP, DSc, FRCP, FRCPath, FRS
Mr Andrew Hutton, MA, CFA
Professor John Iredale, FRCP, FMedSci, FRSE
Professor Sir Alec J Jeffreys, CH, DPhil, FMedSci, FRS
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA
Professor Dame Pamela Shaw, DBE, FRCP, FMedSci

THE SCIENTIFIC ADVISORY COMMITTEE

Professor John Iredale, BM (Hons), FMedSci, FCRP, FRSE, MA
Professor Judi Allen, MPH, PhD, FRSE, FRSB, FMedSci
Professor J Julian Blow, PhD, FRSE, FMedSci
Professor Cyrus Cooper, OBE, MA, DM, FRCP, FFP, FMedSci
Professor Aroon Hingorani, MA, PhD, FRCP
Professor Kikkeri K Naresh, MBBS, MD, DCP, FRCPath, *(Appointed 4th September 2020)*
Professor Catherine Nobes, BSc, PhD
Professor Sir Mike Owen, BSc, MB ChB, PhD, FRCPsych, FMedSci, FLSW
Professor Elizabeth Patton, BSc, PhD, FRSE
Professor Barry V L Potter, MA, DPhil, DSc, CSci, FRSC, FMedSci
Professor Fiona Powrie, FRS FMedSci
Professor Christoph M Tang, MBChB, PhD, FMedSci
Professor Magdalena Zernicka-Goetz, MSc, PhD

THE FINANCE AND INVESTMENT COMMITTEE

Mr Michael French, BSc (Eng), FCA, *Hon Treasurer (Retired 4th September 2020)*
Mr Murray Legg, BSc, FCA, *Hon Treasurer (Elected 4th September 2020)*
Professor Judith Armitage, BSc, PhD, FRS
Hon Rory M B Guinness, BA, FCIM
Mr Andrew Hutton, MA, CFA
Professor Sir Alex Markham, DSc, FRCP, FRCPath, FMedSci
Mr Stephen McMahon, MA (Oxon), FCA, FCSI
Mr Matthew Pintus, BA

SENIOR MANAGEMENT

Director and Secretary: Dr Sally Burtles, BSc, PhD

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London, EC4A 1LT

Investment Advisors

Cazenove Capital Management

1 London Wall Place

London, EC2Y 5AU

Bankers

Messrs Coutts & Co

St Martins Office

440 Strand

London, WC2R 0QS

Partners Capital LLP

5 Young Street

London, W8 5EH

Auditor

Moore Kingston Smith LLP

Devonshire House

60 Goswell Road

London, EC1M 7AD

2020 ARA Final Version for signing

Final Audit Report

2021-07-02

Created:	2021-06-24
By:	Nicola King (secretary@lister-institute.org.uk)
Status:	Signed
Transaction ID:	CBJCHBCAABAATPsozZ3YTCORFcVwhB0f6pp8X95lYWv2

"2020 ARA Final Version for signing" History

-  Document created by Nicola King (secretary@lister-institute.org.uk)
2021-06-24 - 10:37:49 AM GMT- IP address: 81.110.24.66
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2021-06-29 - 3:47:36 PM GMT- IP address: 109.158.131.240
-  Document e-signed by Murray Legg (leggmj@btinternet.com)
Signature Date: 2021-06-30 - 8:05:25 AM GMT - Time Source: server- IP address: 109.158.131.240
-  Document emailed to Luke Holt (lholt@mks.co.uk) for signature
2021-06-30 - 8:05:27 AM GMT
-  Email viewed by Luke Holt (lholt@mks.co.uk)
2021-06-30 - 8:46:38 AM GMT- IP address: 86.161.206.88
-  Document e-signed by Luke Holt (lholt@mks.co.uk)
Signature Date: 2021-07-02 - 6:33:13 AM GMT - Time Source: server- IP address: 86.24.190.60

✔ Agreement completed.

2021-07-02 - 6:33:13 AM GMT