Otago Medical Research FOUNDATION

# 2024 Annual Report

# ABOUT THE FOUNDATION

***The Otago Medical Research Foundation is dedicated to supporting important medical research carried out in the Otago region, and encouraging young and gifted people to engage in research.***

The Foundation supports innovative, early stage medical research projects and student scholarships in Otago.

Founded in 1967 to further medical research in Otago, we have committed over $11 million dollars to a broad range of medical research projects. The Foundation is a careful steward of donations, and we do not receive any Government funds. Research is undertaken in Otago with funds raised from a variety of bequests, trusts, individual and corporate sponsors, and a number of fundraising events each year.

## OUR FUNDS ARE:

**Annual Grants** – our premier round of year-long, innovative, early-stage research projects, up to $40,000 per grant.

**Student Summer Scholarships** – 10-week student summer research projects, supervised by senior researchers. These often lead to research and teaching careers for the students, and the projects contribute valuable knowledge essential for advancing the field. Each scholarship is $6,000 which goes directly to the students as a salary equivalent.

**Jack Thomson Bequest** – research into the problems and treatment of arthritis.

**Laurenson Bequest** – research into the effects of proper diet and/or drugs on human health.

You can read about recent research projects funded in the Scientific Committee report on page 11.

## ALLOCATING FUNDS:

All medical researchers are passionate about their work, so to be certain our funding is distributed wisely we have a committee of scientific experts to oversee the process.

The Foundation's Scientific Committee reviews all annual grant and scholarship student projects through rigorous application rounds, choosing the very best each year.

Funding excellent projects and scholarships ensures that students and researchers are able to work in Otago, helping build our community along with focused research outcomes.

## YOUR SUPPORT MAKES A DIFFERENCE

Every one of us has family members and friends who have experienced the benefits of improved health from medical research. We need your help to build our understanding of a wide variety of medical conditions, leading to better diagnosis and treatment for all of us.

**To donate please go to our website www.omrf.org.nz or donate directly to our ANZ bank account**

**Otago Medical Research Foundation**
**01 0815 0104572 00**

## BEQUESTS

Many people make gifts to charitable causes throughout their life. If you wish to contribute beyond your own lifetime in a way that creates meaning for future generations, you could make a bequest.

A legacy gift in your will is a great way to ensure your generosity benefits others for years to come. By gifting some of your estate to the OMRF, you will be creating a legacy of support for medical research.

"Every person's journey is different, but if you're looking for a practical way to give back and fight the impact of these diseases on individuals and families, the bequest option is a good choice." - *OMRF donor.*

*Medical research is a life changer. Our supporters are life changers.*

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Charities Number: CC33444


OMRF.ORG.NZ

# CHAIRPERSON'S REPORT

**2024 GRANTS TOTALLED**
**$370,057**

**TOTAL AMOUNT FUNDED***
**$11,728,677**
*Since the Foundation's inception

## It is with pleasure that I present the 56th Annual Report on the Otago Medical Research Foundation's activities for the 2024 financial year.

The extract from the Financial Statements, as published on page 26 of the annual report, shows a deficit for the year of $155,293 compared with a deficit for the previous year of $193,652, which is $38,359 lower than last year. Total Operating Income (Donations, Bequests, Subscriptions and Investment Income) decreased by $69,782, while Expenses also decreased by $108,141, of that Grant expenditure accounted for $100,949. Last year's income included a realised gain of $39,919 on sale of Investments while in the current year there was no gain on disposal of investments. It would be good to see an increase in the receipt of further injections of capital for investment, which would to help counter the reduced investment rates that we earn on our conservatively invested funds.

The Investment Sub-Committee has continued to face the challenge of finding suitable low risk investments while acknowledging that income and growth are also important. The reinvestment of maturing fixed interest investments remains a major challenge, although it is starting to improve again. It is pleasing to report that at balance date, the market value of our Company Securities and Shares shows an unrealised gain on cost of $1,512,661, which is 77% of cost.

At 31 March, 2024, Accumulated General Funds has a Deficit of $424,013 and Accumulated Special Funds a Surplus of $4,740,341 yielding a total of $4,316,328, both these figures comprising Capital and Income.

This year marked the 27th year in which the Otago Community Trust has awarded an Annual Grant to the Foundation with the details of grants awarded from this year's funding being published in the Scientific Committee Report. This brings the total grants received from the Otago Community Trust to $1,951,000 a truly generous contribution. On behalf of all members of the Foundation and all Researchers based in Dunedin I would like to sincerely thank the Otago Community Trust for their very generous, and much needed, contributions over the 27 years.

The Foundation is deeply indebted to those people who have named the Foundation as a beneficiary in their wills. Medical research is a never-ending activity, and the role of the Foundation will continue as long as there are medical scientists willing to ask critical questions and people willing to help fund these researchers in their quest for the vital answers. I would ask members to consider the Foundation when preparing their wills. A bequest to the Foundation will be effectively used and your influence will be felt beyond your lifetime.

## COUNCIL MEMBERSHIP

Changes in Council since the 2023 Annual Report are as follows:

Prof Neil Gemmell (as Dean of the School of Biomedical Sciences) was farewelled at the December 2023 Council meeting and his replacement, Prof Lisa Matisoo-Smith, welcomed at the March 2024 Council meeting. Prof Jo Baxter (as Dean of the Dunedin School of Medicine) was farewelled at the May 2024 Council meeting and her replacement is pending. In March 2024 we welcomed Prof Kurt Krause and Assoc Prof Tania Slatter to the two vacancies for Appointed Member positions representing the University of Otago's Division of Health Sciences. We are still seeking a person to fill the Appointed Member position representing Te Whatu Ora Southern.

## THANKS

Firstly, to all those Trusts, Companies, Individuals, Members and Non–Members listed in this Annual Report who have supported the Foundation in the year under review. The Foundation is very grateful that it has continued to receive the support that it has in these continuing difficult economic times.

To the Foundation's Director of Development, Susan Sims, and the Foundation's Event Manager, Sarah Rickerby, as the faces and voices of the Foundation, my sincere and grateful thanks. Susan's report can be found on page 7 and Sarah's report on page 22.

To the Scientific Committee and their dedicated Chairperson, Professor Greg Jones, and Deputy Chairperson, Associate Professor Heather Cunliffe, for the many long hours spent on the assessment of and advice on grant applications to ensure a transparent and robust process which ensures the Foundations funds are used in the best possible way. Thank you; your efforts are really appreciated. Without you all, we would not be able to achieve the objective of the Foundation: "The Furtherance of Medical Research in Otago".

To all Council Members, and our Patron, Emeritus Professor Gil Barbezat, for your contribution and support, my sincere thanks for your continued interest in, and work done, for the Foundation. Council Meetings were held on 11 July 2023, 25 October 2023, 12 December 2023, 13 March 2024, 29 May 2024 (and since then 10 July 2024).

To the Investment Sub-Committee members, Michael Milne, Jamie Adamson and Louisa Homersham, for their wise counsel, advice and time so willingly given to serve on this Sub-Committee, I thank you most sincerely.

To the Deloitte team of Jamie Adamson, Nathan Rudd-Lee, Josh Aitcheson and Trudy Corbett for continuing to provide very professional, friendly and efficient administrative services for the Foundation. Jamie and Nathan are the face of Deloitte for Council while Trudy

works quietly in the background and Josh fills in for Nathan when required, ensuring that the Foundation's day-to-day requirements are attended to in a timely and professional manner which is very much appreciated.

To my fellow members of the Executive, Greg Jones and Jamie Adamson, who meet monthly, and with the Director of Development and the Events Manager, to keep things progressing in between Council meetings and to scope new initiatives, my grateful thanks.

On behalf of the Council

**Emeritus Professor Pat Cragg**
*Chairperson*

> "Medical research is a never ending activity and the role of the Foundation will continue as long as there are medical scientists willing to ask critical questions and people willing to help fund these researchers in their quest for the vital answers."

# THE OTAGO MEDICAL RESEARCH FOUNDATION COUNCIL

## PATRON

**Emeritus Professor G Barbezat**

## EX OFFICIO MEMBERS

**Prof G Jones**
Chairperson of Scientific Committee

**Mr J Adamson**
Deloitte (Secretaries)

**Prof J Baxter** (to July 2024)
Dean Dunedin School of Medicine

**Prof N Gemmell** (to December 2023)
**Prof Lisa Matisoo-Smith** (from May 2024)
Dean Otago School of Biomedical Sciences

**Assoc Prof H Cunliffe**
Deputy Chairperson of Scientific Committee

## APPOINTED MEMBERS

**Assoc Prof T Slatter** (from March 2024)
University of Otago Health Sciences
Division Representatives

**Prof K Krause** (from March 2024)
University of Otago Health Sciences
Division Representatives

**Prof S Das** (from December 2022)
President of the Otago Medical
School Research Society

## ELECTED MEMBERS

**Emeritus Prof P Cragg**

**Dr M Coleman**

**Mrs L Homersham**

**Mrs S Knowles**

**Mr M Milne**

## EXECUTIVE

**Emeritus Prof P Cragg**
Chairperson

**Prof G Jones**
Deputy Chairperson

**Deloitte representative**
Secretary/Treasurer

## SCIENTIFIC COMMITTEE

**Prof G Jones**
Chairperson
Department of Surgical Sciences,
Dunedin School of Medicine

**Assoc Prof H Cunliffe**
Deputy Chairperson
Department of Pathology,
Dunedin School of Medicine

## DIRECTOR OF DEVELOPMENT

**Ms S Sims**

## EVENT MANAGER

**Ms S Rickerby**

## SECRETARIES

**Deloitte**

## HONORARY SOLICITOR

**Mr J Anderson** (Gallaway Cook Allan)

## AUDITORS

**Crowe**

# BEHIND THE FOUNDATION

# LOUISA HOMERSHAM

## Funding medical research is investing in future generations.

## So says Louisa Homersham, one of the Otago Medical Research Foundation's five elected board members.

Louisa, who is the Chief Financial Officer for Delta in Dunedin, has had a long connection with the Foundation, having worked behind the scenes on OMRF financial and secretarial administration for many years as an accountant with Deloitte.

That role finished when she left Deloitte, but Louisa jumped at the opportunity in March 2023 to reconnect with the Foundation as a board member. "I understand why it's so important to the region and I'm happy to bring my financial experience and background into the mix. It's a nice fit; I am pleased to be involved."

As well as being on the council she is also on the investment sub-committee.

One of the most satisfying roles in this capacity has been to help set up an investment fund that will support ongoing arthritis research, all thanks to a substantial bequest.

Louisa also enjoys seeing the Foundation support summer research scholarships. "We have a good robust process, and it's so positive to be involved with something that not only delivers research outputs but potentially starts careers as well. It's very satisfying"

And of course, she enjoys being part of the gala and fundraising events. "The fundraising side of the Foundation is crucial, particularly in a recessionary economy – without it we don't have the money to invest in vital research," she says.

"The foundation is important to Dunedin. Not all of the flow-on effects from research investment are immediately obvious, but they are there, and they are enduring – the work has a long tail."

"We are investing in medical research and while we can't predict ultimate outcomes, what we fund will have results that will influence subsequent generations, and that can be huge. We have a long-term view."

She also likes that the Foundation fits nicely alongside the strong tertiary environment in Dunedin. "We enjoy a close relationship with the University.

"I particularly appreciate that we are working with experts who are world-leading. The proposals we see are well-prepared; when we choose to support a proposal with funding, we know it's had all the due diligence done – that gives us the confidence we're investing wisely."

> "The foundation is important to Dunedin. Not all of the flow-on effects from research investment are immediately obvious, but they are there, and they are enduring – the work has a long tail."

# OTAGO MEDICAL RESEARCH FOUNDATION MEMBERSHIP

## ORDINARY MEMBERS

Prof W C Abraham
**Ashburn Hall Charitable Trust***
Emeritus Prof G Barbezat
Mr J Burton
Mr M Farry
Assoc Prof M Hibma
Ms J O'Rourke
Dr W Sutherland
Dr & Mrs G P White
Assoc Prof S Wilbanks
Mrs N Jones

## RESEARCH PATRONS

Hope & Sons Limited

## LIFE MEMBERS

Mrs J Callon
Cerebos Gregg's Ltd
Mr P Chronican
Ciba-Geigy New Zealand Ltd
Mr S Davie
Donaghys Ltd
Dunedin City Council
Farra Engineering Ltd
Mr & Mrs H Fraser
Dr C M Goodall
Healthcare Otago Ltd
Dr R S Henderson
Janssen-Cilag Pty Ltd
Mr R Lewis
Lions Club Dunedin South
Ms S Mackinlay
Marsh Family Trust
Mr D Marsh
Mrs E Marsh
Mr G J Marsh
Mr W J Marsh
Dr J A McMahon
Mondelez New Zealand
Northern Southland Transport Holdings Ltd
Schering NZ Ltd
Roche Products (New Zealand) Ltd
St Margaret's College Council
Mr I A Thomson
Mr H R Wilson & Mrs N Ellis
Emeritus Prof J G Mortimer

## HONORARY LIFE MEMBERS

Mr G T Adams
Mrs E Brown
Emeritus Prof P A Cragg
Mr K G Dempster
Mr P C L Gibson
Prof J I Mann
Rotary Club of Dunedin South
Rotary Club of St Kilda
Dr C N A & Mrs J Trotman
Prof RJ Walker

* *Indicates Founding Member*

# A REPORT FROM THE DIRECTOR OF DEVELOPMENT

## The Foundation exists to further medical research in Otago, supporting our local researchers in their innovative work.

Each year, we fund annual grant projects, two major bequest project rounds, and this year 17 student research scholarships over the summer. These scholarships allow the students to work in a lab on a research project through the summer and are highly sought after with 98 applications received for 2023/2024. The students funded often go on to be researchers and clinicians, so we help ensure the future of medical research in our community is bright.

Last year was a challenging year for fundraising, and therefore, for the Foundation, with lower levels of available funding coming in, particularly from events. We are glad to once again be able to hold our full roster of events and are extremely grateful to all those who have continued their support through this period.

The Scientific Committee, headed by Professor Greg Jones, assesses each and every application for research funding and scholarships, and selects the very best to ensure that the Foundation is supporting the students, researchers, and innovative projects that will have genuine impact. I am very grateful for all the work of the committee.

My sincere thanks to the OMRF Council, a committed group of experts chaired by Emeritus Professor Pat Cragg, who bring a variety of business and academic skills to the OMRF table, and to Sarah Rickerby, our Events Manager.

I also want to acknowledge the excellent behind-the-scenes support provided by Deloitte; considered portfolio management by Craigs Investment Partners, who ensure our financial position is healthy; and Crowe Horwath, our auditors. Thanks also to Walsh & Beck who do great work behind the scenes.

To finish, I'd like to thank the individuals, families and trusts for the financial support you give the Otago Medical Research Foundation. With demand for funding increasing for both our scholarships of $6,000 and annual grants of up to $40,000, all donations are gratefully received as they add to our ability to help fund research undertaken here in Otago. The genuine interest you take in our work is very heartening and your ongoing generosity is humbling, the researchers truly couldn't do their important, innovative work without you.

**Susan Sims**
*Director of Development*

# FUNDS RECEIVED


*Community Grants and Donations*
$271,078

*Events*
$28,963

*Bequests*
$12,312


## DONATIONS:

ACE Shacklock CT
SpecSavers Dunedin
S Wilkinson
J Burton
A Goulding
D Schack
M Kumar
J Hinds

## GRANTS:

ADEPT-MACTODD Charitable Trust
Aotea Group Holdings Limited
Aotearoa Gaming Trust
William Downie Stewart Charitable Trust
A Goulding
C&E Matheson
Deloitte
Hughes Family Trust
PG Foundation
Platinum Recruitment
Rosey McConnon
The Healthcare Otago Charitable Trust
Werribee Trust (Wyn & Dorothy Chirnside)

## BEQUESTS:

Ethel Johnston Charitable Trust
Jack Thompson Bequest

# FUNDING DISTRIBUTION

*Scholarships, grants, trust grants, Laurenson grants and Jack Thomson grants*

## SUMMER RESEARCH SCHOLARSHIPS

Brain
**$18,000**

Cancer
**$24,000**

Hearing
**$6,000**

Vision
**$6,000**

Genes/ Cells
**$6,000**

Antibiotic Resistance
**$12,000**

Immunity/ Microbiology
**$6,000**

Pregnancy/ Obstetrics
**$6,000**

Heart Disease
**$12,000**

Māori Health
**$6,000**

## ANNUAL GRANTS & OTAGO COMMUNITY TRUST

Cancer
**$38,000**

Aging
**$40,000**

Exercise
**$19,000**

Obesity
**$27,000**

Infection
**$37,000**

Bowel Disease
**$33,000**

## LAURENSON BEQUEST

Respiratory Disease
**$20,000**

Diet
**$20,000**

## JACK THOMSON BEQUEST

Osteoarthritis
**$28,000**

Funding distributed financial year ending March 2024

# OMRF RESEARCHER PROFILE

**RESEARCHER SPOTLIGHT**

## MAGDA RATAJSKA

### The work by University of Otago Medical School researcher Magda Ratajska will help doctors provide the right treatment for New Zealand women experiencing ovarian cancer.

The Otago Medical Research Foundation has funded a project to develop a DNA test that detects a specific genetic function known as HRD (homologous recombination repair), which is present in up to half of ovarian cancers.

Patients with this particular type of ovarian cancer will respond differently to the drug treatments currently available, so it's important to know whether HRD is present in their DNA.

Over 300 women are diagnosed with ovarian cancer in New Zealand each year. The aim of developing a test is to ensure the right treatment is targeted to those who will respond to it, rather than the current one-size-fits-all approach.

The test is available in other countries but not in New Zealand.

Magda is using the Foundation's funding to investigate existing tests, collaborating with counterparts in her native Poland. From that it's hoped a test could be developed that is suitable for New Zealanders.

"This is a translational project – that is, it is working at the clinical end of research, where we can make use of work already done and work with the health system to make new tests widely available."

> "I love that interface of diagnostic research and contact with patients. If I can help people I will."

She says that without the Foundation's funding, this particular project wouldn't be possible. "Once we show that the test can be done, then it will happen. We've stopped talking about it, we're now doing it – we've made a start."

"It's an area of research that is very satisfying to me, because it will make a difference to the lives of New Zealand women."

Magda graduated with a degree in Biotechnology in 2000 and worked as a human geneticist in Poland for over 20 years. During her career, she developed several different tests, including one to identify individuals at risk of breast and ovarian cancer which still is widely used as an important first step in diagnosis.

She is excited about the potential for precision medicine, which is genetic-based treatments that targets the individual patient. "There is so much it can do to improve health care into the future. Scaling treatment according to needs will save lives and will also mean public funds into health are spent wisely."

"I love that interface of diagnostic research and contact with patients. If I can help people I will."

"And I love living in New Zealand, and I'm happy to have a part in helping New Zealand-specific populations to benefit from these emerging genetic technologies.

# SCIENTIFIC COMMITTEE REPORT

## *1 July 2023 to 30 June 2024*

## 1. MEMBERSHIP

**Chair: Professor Greg Jones,**

**Deputy Chair: Associate Professor Heather Cunliffe** (Co-opted)

**Associate Professor Hesham Al-Sallami**
(Co-opted)

**Dr Sierra Beck**
(Nominee Dunedin School of Medicine)

**Associate Professor Chris Brown**
(Co-opted)

**Dr Cathy Chapple**
(Co-opted)

**Dr Tanya Cully**
(Co-opted)

**Professor Shyamal Das**
(President OMSRS, ex officio)

**Dr Natasha Flack**
(Co-opted)

**Dr Rhodri Harfoot**
(Co-opted)

**Dr Nick Heng**
(Co-opted)

**Associate Professor Rajesh Katar**
(Nominee of the Otago School of Biomedical Sciences)

**Professor Ivan Sammut**
(Co-opted)

**Professor Rob Walker**
(Co-opted)

The Scientific Committee is primarily concerned with adjudicating on applications for Research Grants and on applications from students for Summer Research Scholarships. To cover the breadth of topics submitted, the committee is relatively large to ensure it has representatives from all the major sub-disciplines of medical research.

During the last year the Scientific Committee farewelled Dr Cathy Chapple  The Foundation thanks Cathy for her invaluable contributions to the Committee.

The many research applications submitted to the Scientific Committee in 2023-24 continued to be of an outstanding quality.  Unfortunately, many excellent projects were unable to be supported due to limited funds.

Please note that most, but not all research projects, have protocols that require approval by the appropriate Ethics or Safety Committee prior to commencement of the research. Agreement by the Foundation to fund research projects is thus subject to receipt by the Chair of the Scientific Committee of a letter from the University of Otago's Animal Ethics Committee, Human Ethics Committee or Human Ethics Committee (Health) (or the Ethics Committee of a Health Funding Authority) indicating that the research has received full ethical approval. Work involving genetically modified organisms requires evidence of approval from ERMA or from the University of Otago's Institutional Biological Safety Committee.

The Otago Medical Research Foundation has continued its commitment to openness on the use of animals in health research as a signatory of The Openness Agreement on Animal Research and Teaching in New Zealand, and has provided its first report on progress to ANZCCART.

The Foundation recognises the important contribution that animal research has made to the advancement of modern medicine.  Some of the research projects funded by the Foundation may involve animals and we are committed to only supporting studies that maintain high standards of animal welfare and adhere to the ethical tenants of refinement, reduction and replacement.

> The scientific activities of the Foundation (advertising of up-coming grants and listings of awards) can be found on the following web site **www.omrf.org.nz**

# 2. SUMMER RESEARCH SCHOLARSHIPS 2023/2024

Ninety eight applications (compared with 82 the previous year) for an OMRF summer research scholarship were received from the University of Otago in late August 2023, of which 17 (compared to 19 in the preceding year) were recommended for funding by the OMRF. It should be noted that the ten-week summer research is not part of the study required in a student's tertiary qualification and any data obtained during the summer research cannot contribute to the dissertation or thesis of such a qualification.

Each OMRF scholarship was worth $6,000 except for the two students with the highest scores who were awarded named Summer Research Scholarships at $7,000 each– named in honour of the late Allan Wilkinson and the late Emeritus Professor Garth McQueen. Allan was Secretary of the Foundation from its inception in 1967 until his retirement in 1993 and Garth was a foundation member of the Foundation and one of the instigators of the formation of the Foundation's Auxiliary.

Due to the continuing sponsorship drive of the OMRF, the other OMRF scholarships were funded by:

Aotearoa Gaming Trust; A Goulding; Deloitte; the Healthcare Otago Charitable Trust; C&E Matheson; Rosey McConnon; Marion Rhodes Memorial Scholarship; Perpetual Guardian Foundation; Platinum Recruitment; MM&JH Hughes; Walsh & Beck; McQueen and Wilkinson. The longstanding and sustained involvement of Otago commercial companies and the Otago community supporting summer research by tertiary students is very much appreciated.

All scholars returned excellent reports at the end of February 2024. The Renshaw Prize ($250) for the best report was jointly awarded to Finlay Anderson (who worked under the guidance of Dr Htin Lin Aung in the Department of Microbiology and Immunology, School of Biomedical Sciences) and Sana Atithi (who worked under the guidance of Professor Colin Brown, Department of Physiology, School of Biomedical Sciences).

The following is a list of the summer scholars and summaries of the projects undertaken – additional information on these projects can be obtained from the Chair of the OMRF Scientific Committee or from the supervisor concerned.

# RENSHAW PRIZE WINNERS

***The Renshaw Prize is named after one of the founders of the Otago Medical Research Foundation Inc., the late Dr P.K. Renshaw. The prize of $250 is awarded to the Summer Research Student, who in the opinion of the Scientific Committee, amongst the Research Scholars supported, has made the most worthwhile contribution to medical research in that particular year.***

***In recognition of their contribution, prize winners' names are listed below:***

1970 - Mr A.G. Yule

1971 - Mr K.J. Davey

1972 - Mr F.M. Patrick

1973 - no award

1974 - Mr J.C. Montgomery

1975 - Mr A.S. McLean

1976 - Mr N.K. Given

1977 - Miss F.M.F. McQueen

1978 - Mr K.D. Jolly and Mr J.P. Scott

1979 - Mr R.A. Henderson

1980 - Mr D.W. MacFarlane and Mr D.W. Shaw

1981 - Mr N.E. Dickson and Mr Wong Ooi

1982 - Miss C. Page

1983 - Mr I.L. McLean

1984 - Mr I.L. McLean

1985 - Miss B.C. Galland

1986 - Mr R.G. Snell

1987 - Mrs T.E. Inder

1988 - Miss M. Kuipers

1989 - Miss E.R. Dennett

1990 - Miss A. Charlton

1991 - Mr B. McKenzi

1992 - Mr J.W. Corboy

1993 - Ms S.M. Dillon

1994 - Ms N. Dalbeth

1995 - Mr T. Zaharic

1996 - Mr M. Morrison

1997 - Mr A. Brown and Ms S. Safari

1998 - Mr J. Magnum

1999 - Ms J. Pitchforth and Ms A. Steyn

2000 - Mr J. Wales

2001 - Mr M. Rahimi

2002 - Ms S. Jordan

2003 - Ms E. Szymlek-Gay

2004 - Mr D. Kieser

2005 - Mr C. Young

2006 - Mr C. Young

2007 - Mr S. Smart

2008 - Ms S. Saunderson

2009 - Ms J. Lee and Ms E. Winsley

2010 - Mr J. Zhang

2011 - Miss E. Gavey, Mr E. Ottley, and Mr W. Parkyn

2012 - Miss Su Zhou

2013 - Nr Fly Ing-Aram

2014 - Katie Hoeksema and Deepa Mistry

2015 - Alice McSweeney

2016 - Nigaah Khan and Isabelle van Hout

2017 - Sashika Samaranayaka

2018 - Simone Thomas

2019 - Eleni Hackwell

2020 - Nathan MacDonell

2021 - Ella Macbeth

2022 - Sarah Barber

2023 - Thomas Noble-Campbell and Annabel Walsh

2024 - Finlay Anderson and Sana Atihi

## FINLAY ANDERSON

Supervisor: Dr Htin Lin Aung, Department of Microbiology and Immunology, University of Otago

***Renshaw Prize (joint) Winner for the best OMRF summer research scholar report***

### PROJECT: Targeted nanopore sequencing as a diagnostic tool multi-drug resistant tuberculosis

*Funder: Aotearoa Gaming Trust*

**ABSTRACT**: Multidrug-resistant tuberculosis (MDR-TB) presents a major threat to global health.

The World Health Organisation have recently recommended a new oral drug regimen to treat MDR-TB, and endorsed the use of targeted next-generation sequencing (tNGS) as a diagnostic tool for MDR-TB. Oxford Nanopore sequencing is currently the best tNGS option for clinical TB diagnostics due to its portability and affordability. This project demonstrated for the first time the ability of tNGS to accurately sequence key genes implicated in resistance to the oral regimen using Oxford Nanopore Technologies (ONT) MinION device. These genes were previously amplified via polymerase chain reaction and multiplexing this is a crucial next step to streamline MinIONs diagnostic capacity. Our results validated tNGS potential to serve as a diagnostic tool given its efficiency and accessibility. This observation may be highly relevant to the ongoing fight against TB, which disproportionately affects people in low-income areas with limited infrastructure.

## SANA ATITHI

Supervisor: Professor Colin Brown, Department of Physiology, University of Otago

***Renshaw Prize (joint) Winner for the best OMRF summer research scholar report***

### PROJECT: Unveiling a PVN-PAG circuitry for avoidance behaviours

*Funder: Aotearoa Gaming Trust*

**ABSTRACT**: This study explored the complexities of the brain's mechanisms in responding to stress, with a particular focus on identifying the neural pathways that facilitate rapid escape reactions when faced with stress. Understanding the stress circuits responsible for such behaviours is crucial for understanding mammalian survival strategies and illuminating how disruptions to these pathways could lead to dysregulated stress responses. This investigation aimed to determine the stress-escape circuit by employing a virus to deliver a fluorescent marker into specific neurons to map the pathway between the stress detecting areas and motor control regions. Contrary to our expectations, we did not find evidence of a direct projection from the stress detecting areas and motor control regions. Instead, our findings revealed the possible involvement of the thalamus (which is an integrative hub facilitating complex decision-making tasks) as an intermediary region within the stress- escape circuit.

Our research has uncovered a previously unknown aspect of the brain's stress response network, enriching our understanding of how stress modifies behaviour in mammals. stress responses.

## AMY CHOI

Supervisor: Dr Nick Cutfield, Department of Medicine, University of Otago

### PROJECT: Cognitive function in people with low hearing and vision

*Funder: Deloitte Dunedin*

**ABSTRACT:** This project aimed to demonstrate the implications of vision and hearing loss on cognitive function of older individuals, by using data from the national interRAI database. Sensory impairment is related to dementia progression and a higher incidence of depression, among other health concerns. In Aotearoa, this has not been investigated in detail. In this retrospective cohort study, trends were quantified and differentiated between ethnic groups. This is particularly important as Māori and Pacific peoples suffer disproportionately from cognitive health issues. In our sample of 141,445 people, the proportion of those with dementia increased with increasing severity of visual impairment. Our findings suggest the need for further investigation into possible residual confounding and highlights the potential importance of addressing vision impairment to promote cognitive health.

## TESSA CLOUTMAN

Assoc Professor Anita Dunbier, Department of Biochemistry, University of Otago

### PROJECT: Unravelling epigenetic regulation at the 6q25.1 breast cancer susceptibility locus

*Funder: Dr Ailsa Goulding*

**ABSTRACT:** Breast cancer development is a result of the unregulated and uncontrolled proliferation of cells due to genetic and/or environmental factors. The genomic region upstream from the oestrogen receptor gene ESR1 has been previously associated with increased breast cancer susceptibility. Preliminary data suggests that a single base change may affect the levels of four genes within the region which has been linked to cancer development. However, the mechanism through which this occurs and how this is regulated is poorly understood. This project aimed to determine if this region upstream from the ESR1 gene functions as an enhancer element and whether a genetic variant within this alters the expression of the nearby genes ESR1, ARMT1, CCDC170 and RMND1. The experiments conducted as part of this studentship optimised the technically challenging procedures that will now be used in future experiments to explore if the variant influences enhancer activity. This work will help provide insight into the development of breast cancer and aid in the development of new treatments.

## SOLOMON FILIPO

Supervisor: Dr Francesc March de Ribot, Department of Medicine, University of Otago

### PROJECT: Understanding the impact of visual impairment on dementia risk in Pacific Island communities

*Funder: C&E Matheson*

**ABSTRACT:** The older Pacific population within Aotearoa are disproportionately impacted by visual impairment and dementia. There is evidence that visual loss can predispose to dementia, but there is limited data available and their implications in daily life. The aim of this research was to evaluate the impact these diseases have on Pacific people's quality of life. The main findings from this report was to highlight the life changing impact cataract surgery can have on people's lives, as well as the importance of informing the public about the risks of low vision and dementia risk.

## SARAH GRANT

Supervisor: Professor Sally McCormick, Department of Biochemistry, University of Otago

### PROJECT: Investigating the effect of antidepressants on lipoprotein metabolism

*Funder: Aotearoa Gaming Trust*

**ABSTRACT:** Depression and cardiovascular disease (CVD) are comorbid conditions effecting many New Zealanders. Lipoprotein(a) (Lp(a)) is a modified low-density lipoprotein (LDL) which, when present at high levels, is linked to CVD. Lp(a) undergoes movement into liver cells via both receptor-mediated and macropinocytic uptake. Recent studies show that serotonin-based antidepressants enhance Lp(a) cell surface binding and macropinocytic uptake. However, the most effective antidepressant in promoting Lp(a) uptake was imipramine, which also inhibits the reuptake of norepinephrine. This project aimed to determine if Lp(a) uptake in liver cells is specific to serotonin reuptake inhibitors, or if this also occurs with drugs that additionally inhibit norepinephrine reuptake. We found that one norepinephrine based antidepressant, called atomoxetine, was able to increase the uptake of Lp(a) up to a certain concentration. While these are early findings it could mean that both types of antidepressants have the ability to remove Lp(a) from plasma. These observations could potentially translate into novel treatments to lower the chances of developing heart disease.

## NAOMI GRAMBIN

Supervisor: Dr Daniel Pletzer, Department of Microbiology and Immunology, University of Otago

### PROJECT: Immunomodulatory activity of peptoids

*Funder: Deloitte*

**ABSTRACT:** Increasing antibiotic resistance among various microorganisms is leading research for new therapeutics. These will overcome significantly resistant bacteria. Host Defence Peptides are an attractive source of new therapeutics. These have immunomodulatory properties, suppressing inflammation, simultaneously recruiting the immune system, thereby increasing their potency.

Peptoids are peptidomimetics of peptide sequences where the amino acid side chain is attached to the nitrogen rather than the carbon atom. This modification maintains the biological activity but makes them more resistant to host degradation. My summer project focused on investigating the cytotoxicity and immunomodulation of 15 novel peptoids using a human keratinocyte cell line. Six were shown not to kill skin cells and may therefore be suitable for future investigation as potentially novel antimicrobial treatments. Although there is more work to be done, the data obtained in this project has provided a head start on the drug development process.

## BONNIE HUANG

Supervisor: Dr Sarah Diermeier, Department of Biochemistry, University of Otago

### PROJECT: A newly discovered long non-coding RNA is a driver of drug resistance in triple negative breast cancer

*Funder: Platinum Recruitment*

**ABSTRACT:** Triple negative breast cancer (TNBC) is an aggressive molecular subtype of breast cancer, making up ~15% of all breast cancer cases. Drug resistance is a major contributor to the poor patient outcome associated with TNBC. Long non-coding RNAs (lncRNAs) have a diverse role in cancer progression, including resistance against cancer therapies. Antisense oligonucleotides (ASOs) can bind to RNA and target these lncRNAs, as such they can be used as a potential drug. We hypothesised that lncRNA targeting drugs can work synergistically with existing therapies such as Olaparib. We showed that *lncTNBC3* was expressed in our model cell line and that our ASO drug reduced the levels of *lncTNBC3* in the cells, and inhibited TNBC cell growth. However, when cells were treated with ASO and Olaparib together, there was no significant synergistic effect. Future studies will investigate differing concentrations of Olaparib, as well as other drugs, such as Paclitaxel, as potentially synergistic TNBC treatments.

## NOAH KELLY-FOLENI

Supervisor: Dr Sunali Mehta, Department of Pathology, University of Otago

### PROJECT: Characterising the TP53 splice mutation X126

*Funder: Aotearoa Gaming Trust*

**ABSTRACT:** Lung cancer affects hundreds of New Zealanders each year and disproportionately affects Pasifika communities as they suffer from higher mortality rates compared to other ethnic groups. Patients that have tumour cells which harbour mutations of the tumour suppressor gene TP53 produce mutant or truncated p53 proteins. The TP53 splice mutation, X126, may be involved in the increasing levels of the D133p53 isoform that has shown to cause poor patient outcomes. This investigation aimed to determine the influence of the X126 splice mutation on known p53 isoforms and identify novel p53 isoforms in lung cancer cells harbouring this splice mutation. When compared to the wild type cells the (heterozygous) mutation carrying cells produced less mRNA in all of the target transcripts in both RT-qPCR and ddPCR assessments. This implied that protein p53 levels may consequently be lower in these cells, and thereby cause functional changes which could potentially influence cancer development. Although further investigation into the X126 splice mutation and its effect on p53 protein levels is required, this research will hopefully contribute to the understanding of novel TP53 mutations and wider cancer research in Aotearoa.

## ISAAC KIM

Supervisor: Assoc Professor Peter Mace, Department of Biochemistry, University of Otago

### PROJECT: Evolution of a synthetic nanobody to block migraine signalling

*Funder: Perpetual Guardian Foundation*

**ABSTRACT:** Migraine is a neurological disorder caused by neurogenic inflammation and pain sensitisation that affects approximately 12% of the population. Studies have shown that migraine is mediated by neuropeptides that bind to a receptor on the surface of cells which triggers migraine symptoms. In 2018, the FDA approved erenumab as a migraine treatment, which uses an antibody to block the receptor, CLR-RAMP1. The aim of this research was to design an erenumab-like nanobody that targets a similar receptor, CLR-RAMP3 using cloning, flow cytometry, and techniques to evolve nanobodies under laboratory conditions. This summer project successfully enabled the design, construction and purification of both the nanobody and the CLR-RAMP1 protein. Future studies will focus on the continued characterisation of the nanobody.

## ECHO KITE-BELL

Supervisor: Dr John Woodfield, Department of Surgical Sciences, University of Otago

### PROJECT: Tikanga Māori approach to GWH surgical software program. Is it beneficial?

*Funder: OMRF McQueen*

**ABSTRACT:** Go Well Health, an ehealth software program, provides tailored education and support for patients throughout their surgical journey in the Colorectal Surgical Unit at Dunedin Hospital. Work is commencing to incorporate appropriate tikanga (culturally correct) Māori protocols into the package. This research investigated if a tikanga Māori approach helps enhance the users experience, making them more likely to engage in the program. This study is based on a qualitative co-design framework involving collaboration between Māori who have recently had colorectal surgery, their immediate family/friends and the colorectal research team at the Otago University. The study's preliminary findings suggested that cultural integration benefited the user experience, particularly those of Māori ancestry, however further study is recommended to more fully understand how beneficial it may be, and to explore the delicate nature of implementing such a program.

## EMILY LIGHT

Supervisor: Dr Celia Devenish, Department of Women's and Children's Health, University of Otago

### PROJECT: Study on the incidence, interventions and pregnancy outcomes of umbilical cord insertion anomalies detected on routine ultrasound scan

*Funder: Walsh & Beck*

**ABSTRACT:** The aim of this research was to determine the frequency of cord insertion anomalies at routine 20-week ultrasound scans, whether interventions including follow up ultrasounds occurred subsequent to recognition of cord insertion anomalies, and determine if the frequency of complications in these pregnancies was higher than in matched controls. Association between adverse outcomes and cord anomalies have been reported in the international literature, yet there are no national guidelines regarding their management. If a clinically significant increase in complications is found, this would prompt consideration of whether changes in referral recommendations under Maternity Section 88 guidelines should be made to include cord insertion anomalies as a reason to receive secondary obstetric care. This study provided important information about how common cord insertion anomalies are in Otago and highlighted the need for a larger study to be done in New Zealand.

## TOM MCDERMOTT

Supervisor: Professor Alexander McLellan, Department of Microbiology and Immunology, University of Otago

### PROJECT: Are CAR T cells susceptible to natural killer cell lysis?

*Funder: Rosey McConnon*

**ABSTRACT:** Chimeric antigen receptor (CAR) T cell-based therapies have been shown as an effective means of treating hematopoietic cancers, with six FDA approved protocols currently available. A challenge facing these therapies, however, is their poor efficacy in solid tumours. Natural killer (NK) cells have potent, innate anti-cancer characteristics, suggesting that they could be suitable for co-administration with CAR T cells to treat solid tumours - however their potential negative impacts on CAR T cells are not currently known. We aimed to assess the susceptibility of CAR T cells to lysis by NK cells, to determine the most effective method of co-delivery. By co-culturing the two cell types, we found that lysis did not occur, suggesting the two components could be delivered concurrently, as opposed to a staggered approach. While encouraging, future studies are needed to test these interactions in the presence of a malignancy and in an *in vivo* setting.

## LUCY SIMMONDS

Supervisor: Dr Jo Krysa, Department of Surgical Sciences, University of Otago

### PROJECT: A qualitative study of barriers and facilitators to compression stocking use among patients with chronic venous insufficiency

*Funder: Healthcare Otago Charitable Trust*

**ABSTRACT:** In patients with chronic venous insufficiency, it is well known that compression stockings are effective at preventing complications such as venous ulcer formation. Venous ulcers provide significant challenges for both the patient and clinician, as they are painful, difficult to treat, and often recurring. Despite this, compliance rates of preventative compression stocking use are poor. Therefore, this study focused on gaining a deeper understanding of patients' experiences with compression stockings by investigating barriers and facilitators to patient compliance. Our analysis identified three key themes: physical factors, psychological factors, and external factors, that influenced compression stocking use. Through a deeper understanding of these factors, we suggest that clinicians could take a multidimensional management approach, addressing barriers for the individual patient and improving overall adherence.

## ARIANA TUSON

Supervisor: Professor Cliff Abraham, Department of Psychology, University of Otago

**PROJECT: The contribution of protein synthesis to the impairment of memory mechanisms**

*Funder: C&E Matheson*

**ABSTRACT:** The plasticity of synaptic connections plays a crucial role in memory formation. Prior neural activity (priming) can influence synaptic plasticity and inhibit subsequent long-term potentiation, a phenomenon known as metaplasticity. Understanding the complexity of these processes will be an important factor in the development of potential treatments for Alzheimer's disease (AD). This project investigated the role of protein synthesis in mediating metaplasticity in the mouse hippocampus, with a particular emphasis on the protein pro-brain-derived neurotrophic factor. It was found that priming stimulation did not significantly increase protein synthesis in certain subregions of the hippocampus, and that the genetic impairment in astrocyte signalling did not show significant effects on the measures examined. These findings underscore the complexity of synaptic plasticity and highlight the need for continued exploration.

## KATIE (KATHRYN) WONG

Supervisor: Dr Scott Ferguson, Department of Microbiology and Immunology, University of Otago

**PROJECT: Targeting antimicrobial resistance: unravelling the mechanisms of PBT2-Zn in restoring antibiotic sensitivity in MRSA**

*Funder: MM & JH Hughes Family Trust*

**ABSTRACT:** Antimicrobial Resistance (AMR) is a major global health concern causing millions of deaths annually. Methicillin-resistant Staphylococcus aureus (MRSA) is a significant AMR pathogen resistant to essential antibiotics like the β-lactam oxacillin. This research investigated PBT2, a zinc ionophore, as an adjuvant to restore MRSA susceptibility to β-lactam antibiotics. The study aimed to uncover how crucial genetic pathways in MRSA contribute to PBT2-mediated AMR reversal. We investigated this by characterising the phenotypes of targeted gene deletions and CRISPR/dCas9 knockdowns in MRSA. We identified 80 putative genes involved in PBT2-mediated AMR reversal and characterised five through PZ synergism assays. This research provides valuable insights into potential avenues for overcoming antimicrobial resistance and underscores the urgency of addressing this critical health issue.

## ANDREW YIP

Supervisor: Professor Catherine Day, Department of Biochemistry, University of Otago

**PROJECT: Molecular mechanism of MKRN1 ubiquitylation**

*Funder: Marion Rhodes Memorial Scholarship*

**ABSTRACT:** Protein ubiquitylation is the second most common post-translational modification in cells. Makorin Ring Finger Protein 1 (MKRN1) is a RING E3 ligase with five $Zn^{2+}$ finger domains. MKRN1 has been shown to bind with poly-A binding protein C and regulate mRNA translation to maintain proteome integrity. Although important for cellular function, the mechanism of the E3 ligase activity is not well understood. This project aimed to identify the mechanism of ubiquitin transfer in MKRN1 and identify the key domain(s) involved in this process. Five constructs were produced, one of which (RZ5) was able to remain soluble and was shown to support the RING activity in MKRN1. This study provides valuable insight into how the MKRN1 protein functions and will support future research.

# 3. RESEARCH GRANTS AWARDED

## (A) ANNUAL GRANTS AND OTAGO COMMUNITY TRUST GRANTS

These one-year grants are for research concerned with human health and the scientific basis of medicine. In July 2023 there were 16 applications from the University of Otago (compared with 25 the previous year) totalling $544,288 and six of these were funded at a total expenditure of $211,666 of which $80,000 was provided most generously by the Otago Community Trust. These grants commenced between August and October 2023 and are nearing completion with full reports due 3 months after the one-year grant ends. Abstracts from the final report will be available on the OMRF website www.omrf.org.nz at the end of 2025. The funded projects are summarised below:

### (I) ANNUAL GRANTS

**Dr Erin Macaulay**
(Department of Pathology, University of Otago )

**Cracking the secrets of senescence to reveal mechanisms of ageing and disease**

*Sponsored by Mactodd Community Charitable Trust*

As we age, our cells undergo a process where they stop dividing and release harmful signals. This process is called senescence and plays a key role in ageing and age-related diseases like cancer and heart disease. With the increasing number of ageing individuals and rising

prevalence of age-related conditions, understanding the mechanisms behind senescence is urgent. Our research focuses on a genetic disorder where cells avoid senescence and form tumours. By studying senescence in these cells, we aim to uncover its secrets and develop novel strategies and treatments that promote healthy ageing and alleviate the burden of age-related conditions on our healthcare system.

### Dr Meredith Peddie
(Human Nutrition, University of Otago )

#### Breaking up free living sedentary time in the evening with regular activity breaks: A feasibility study

*Sponsored by Aotea Holdings Group Limited*

Prolonged periods of sitting in the evening, and sleeping for less than 7 hours a night, are both associated with an increased risk of developing several diseases, such as heart disease and type 2 diabetes. Our group was among the first to show, in a laboratory setting, that regularly interrupting prolonged periods of prolonged sitting with brief bouts of activity in the evening improved blood sugar uptake, and sleep duration both of which can reduce the risk of developing these diseases. To date, no study has investigated whether people would be willing to break up their sitting time in the evening as part of everyday life. Therefore, this study will explore the feasibility of interrupting sitting time in the evening with body weight resistance exercises in a real-life setting..

### Dr Kunyu Li
(Department of Pathology, University of Otago)

#### Investigating genomic alteration in tumour cells under the pressure of anti-tumour immune responses

*Sponsored by Aotearoa Gaming Trust*

Despite the recent success of some cancer treatment strategies, most cancer patients develop cancer reoccurrence after the initial response to the treatments. There is evidence suggesting that these cancer cells had mutated, adapted, and resisted to the treatments in order to survive. In this research, we aim to understand how immune response might influence the mutation of cancer cells that allows them to develop resistance to subsequent killing by the immune system, using an animal model of melanoma. The findings of this research contribute to the improvement of treatment outcomes for cancer.

### Associate Professor Alexander Tups
(Department of Physiology, University of Otago )

#### A neuroendocrine role for GIP in the treatment of obesity

*Sponsored by OceanaGold*

The prevalence of obesity is increasing worldwide and is associated with serious health problems and mortality. An important cause of obesity is an imbalance between energy intake through food consumption and energy expenditure. Glucose-dependent insulinotropic polypeptide (GIP) is secreted from the gut when we consume food and there are indications that GIP may signal through regions of the brain to influence food consumption and metabolism. Using a genetically modified mouse model, we will determine how GIP signals in the brain to help maintain a healthy energy balance. Results of these studies will aid future development of obesity therapies.

## (II) OTAGO COMMUNITY TRUST GRANTS

*The Otago Community Trust supports biomedical research in the Otago area with the proviso that the research is selected on topics that can relate well to issues understandable by the layperson. The two projects selected were:*

### Dr Daniel Pletzer
(Department of Microbiology and Immunology, University of Otago )

#### Understanding the host immune landscape of bacterial skin infections

*Sponsored by Otago Community Trust*

The skin is the body's defence barrier that protects from physical and chemical damages as well as prevents the entry of infectious agents. Damage to skin integrity can result in various skin diseases caused by bacterial microorganisms. In addition, the presence of different types of bacteria at the same time can lead to more severe infections that make effective treatment difficult. Our study will investigate small changes in host immune cells in response to individual and mixed bacterial infections to understand how the presence of one or more bacterial species alter the host immune response.

### Dr Nicholas Fleming
(Department of Pathology, University of Otago)

#### Targeted use of combination treatments in inflammatory bowel disease

*Sponsored by Otago Community Trust*

Inflammatory bowel disease (IBD) is a significant and growing health burden for Aotearoa/New Zealand, which currently affects at least 20,000 Kiwis. IBD patients have a limited range of treatments available, to which they vary greatly in response. Recently, a new group of drugs has emerged that may cooperate with existing options and allow more patients to control their disease. However, this new combination treatment will add significant cost, and we need to identify those it will work best for. Here, we will test a genetic marker that we propose will serve this purpose.

## (B) LAURENSON AWARDS

Laurenson Awards are one-year grants for research concerned with the effects of diet and/or drugs on human health. In December 2023 there were four applications requesting $91,133, with two grants being funded to a total of $40,00. These grants commenced before 1 March 2023 and final reports are due at the end of April or May 2024. Abstracts from the final report will be available on the OMRF website **www.omrf.org.nz**. The funded projects are summarised below:

### Professor Shyamal Das
(School of Pharmacy, University of Otago)

#### Cannabidiol dry powder inhaler

Cannabidiol (CBD) is an active constituent of cannabis, with potent biological properties but with no psychoactive effects. Most exciting is that CBD could also treat inflammatory respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma, which are common in New Zealand and worldwide. The therapeutic potential of CBD is limited when given orally. CBD can instead be delivered locally to the lungs via a dry powder inhaler to ensure sufficient concentration and effectiveness. This study will develop in vitro a dry powder inhaler containing CBD to treat local lung diseases such as asthma and COPD. This inhaler will also be useful for other systemic diseases.

### Dr Sherly Parackal
(Centre for International Health, University of Otago)

#### Diet and physical activity related health beliefs, knowledge and behaviour of South Asians with pharmacologically untreated hypercholesterolemia

South Asians (SAs) have particularly high rates of Atherosclerotic Cardiovascular Diseases (ASCVD), such as coronary heart disease (CHD), stroke and peripheral arterial disease. NZ SAs are one of the three high risk groups for high blood cholesterol, a key risk factor of ASCVD, nevertheless targeted prevention measures are absent. Epidemiological investigations have identified a positive association between dietary saturated fats and the increased risk of ASCVD. Our recently completed *(OMRF-funded)* study indicates that most participants treated for high blood cholesterol were diagnosed at a young age and were disheartened for not being able to manage the disease via lifestyle changes. What is unknown is whether SAs with medically untreated high blood cholesterol have the knowledge to make lifestyle changes and if they have received culturally appropriate professional advice to enable this. The current study aims to address this gap in our knowledge to inform clinical practice and develop an ethnic-specific intervention.

## (C) JACK THOMSON ARTHRITIS FUND

This OMRF fund was established in 2011 and was made possible by a bequest from the late Jack Thomson. In December 2023 there was one application requesting $27,500, (cf. five in the previous year). This grant being funded in full and commenced before 1 March 2024 and the final report being due at the end of May 2025. Abstracts from the final report will be available on the OMRF website **www.omrf.org.nz.** The funded project is summarised below:

### Dr Andrew Bahn
(Department of Physiology, University of Otago)

#### Identification of the human allopurinol transporter causing side effects in gout treatment

Gout is a painful inflammation of the joints induced by high serum uric acid (SUA) based on genetic predisposition and an unhealthy Western diet. The gold standard for gout treatment is allopurinol, inhibiting the synthesis of uric acid in the liver to lower SUA. However, gout is associated with many comorbidities including hypertension, the treatment of which renders gout treatment with allopurinol ineffective. Consequently, the allopurinol dose needs adjustment, exposing the patient to further gout attacks and the risk of life-threatening side effects. We aim to better understand these drug-drug interactions by identifying the liver transporter for allopurinol to ultimately improve gout treatment.

# 4. OTHER ACTIVITIES OF THE SCIENTIFIC COMMITTEE

### OMRF Student Speaker Awards at the Otago Medical School Research Society:

The Student Speaker awards are given to the student speakers who, in the opinion of a panel of three to four judges, gives the best and second best oral presentation – based on both the components of the presentation and its scientific merit. To be eligible the candidates must report work that has been performed under the auspices of the University of Otago.

At the **16th August 2023** scientific meeting of the Otago Medical School Research Society (OMSRS) there were 10 doctoral candidates. The first Prize ($500) was funded by the Otago Medical Research Foundation. This year's winner was **Rebecca Lord** (Anatomy Department), for her talk entitled "Neuronal deletion of STAT3, but not ERK2, causes obesity and delayed puberty onset in mice.

At the **24th April 2024** scientific meeting of the OMSRS there were 10 summer research scholars selected (from 24 submissions) to give presentations of their projects. Both the first ($500) and runner-up ($250) prizes were funded by the Otago Medical Research Foundation. Since 2015 the OMSRS summer research prizes have been called "The Pat Cragg Summer Scholar Speaker Prizes" in recognition of the long-standing involvement by Professor Pat Cragg in the summer research scholarship assessing committee. This year the prize was awarded to **Andy Stewart** from the Department of Anatomy (talk entitled: Establishing a model of viral- induced fever suppression in late pregnancy of mice). The runner-up prize was awarded to **Sana Atithi** from the Department of Physiology (talk entitled: Virus-Mediated Mapping of a Novel Escape Network in the Brain).

## OTAGO AURORA SCIENCE & TECHNOLOGY FAIR (August 2023):

The Foundation sponsors awards ($50 each) for "Excellence in presentation for medically orientated topics". This year the OMRF judges were Assoc Prof Heather Cunliffe and Dr Rhodri Harfoot.

This year four OMRF awards were awarded at the Otago Science Fair:

This year four OMRF awards were awarded at the Otago Science Fair:

- Sleep and wellbeing of adolescents – a national survey, by **Megha Senthilkumar**, St Hilda's Collegiate (Year: 11)
- Do athletic students have better lung capacity than nonathletic students? by **Ivy Clarke**, Tokomairiro School (Year 7)
- An investigation into Children's ability to differentiate between pills & lollies, by **Harry Matheson**, Fairfield School (Year 8)
- Grippy Fingers by **Ari Nielsen**, Dunedin North Intermediate (Year 8)

# ACKNOWLEDGEMENTS

The Foundation continues to play an important role in funding Medical Research in Otago. The last few years have especially highlighted the need for sustained and rapidly responsive medical research capacity.

I wish to thank the members of the Scientific Committee for their dedicated efforts in carefully assessing the merits of the large number of summer research projects and grant applications that were received by the Foundation over the last year. We thank the Council of the Foundation for the support, advice and enthusiasm with which our funding recommendations are endorsed. Finally, we wish to express our deep gratitude to the many Benefactors and Sponsors of the Foundation whose financial support has made all this possible.

*Professor Gregory T. Jones*

*Chair of the OMRF Scientific Committee*
*19 September 2024*

## BEHIND THE FOUNDATION

# DEAN DELANEY AND DANIEL HARMES

Platinum Recruitment has had a long association with the Otago Medical Research Foundation, and has more recently formalised that by supporting a student in the annual summer scholarship programme.

Platinum's Founder and Managing Director, Daniel Harmes and Director Dean Delaney agree partnering with the Foundation delivers lots of positives.

"We believe all businesses should find some way to give back to their community. The Foundation's values align with our own, so we are proud to make them one of the not-for-profits we actively support within the community," says Dean.

"A small investment in a student's summer studies could have far-reaching consequences for human health."

While they enjoy a strong relationship with the Foundation at a governance and operational level, Dean says they genuinely love giving back via the summer scholarship programme. "Everyone benefits – us, the students, the Foundation, the University, the region, and the health and wellness of the community."

"We as sponsors love seeing the young person grow into their project. We see them do the work and perhaps to discover something new in their research that we didn't know before. But it's also about learning soft skills like communication so they can present their results in a way that we as laypeople can understand," he said.

Platinum has funded two students over the last two years, and is now following the progress of these incredible young people with pride:

- Bonnie Huang, who worked with Dr Sarah Diemeier at the University of Otago Biochemistry Department on a project evaluating therapies to treat breast cancer.
- Yani Remoto who worked with Dr Andrew Reynolds, Fiona Hood and Professor Jim Mann at the Otago Medical School on comparing healthy eating options as a way of treating Coronary Heart Disease (CHD).

"We are thrilled to know we had a small part to play in setting these two up to be great contributors and potential leaders in their chosen industry and to have stellar careers. And at the same time, we're proud to be using this as a way of supporting the Otago region. It's a phenomenal programme," says Daniel.

Platinum looks forward to sponsoring another student in this year's round of summer scholarships.

> "We're proud to be using this as a way of supporting the Otago region. It's a phenomenal programme."

# EVENTS

## *OMRF Gala*

### Another fantastic OMRF Gala was held on Friday 16 February 2024.

The show opened with another showstopper from MC Doug Kamo, featuring the hidden talents of Dean Delaney and Alice Lane to create an amazing opening number!

Our Face of Research this year was OMRF Life Member Professor Rob Walker. Rob spoke on his lengthy career in Kidney Health and gave us all a timely reminder to look after our precious organs.

As always, a delicious meal was created for our guests by the team at Compass Catering and throughout the night our audience enjoyed the fantastic selection of wines from long time sponsor Misha's Vineyard.

New Zealand Comedian Andre King had the crowd giggling before the amazing Rock Divas took the stage for a high energy set of all our favourite rock hits. From laughter to dancing, our audience got a full body workout over the evening.

The night was seen to a close by the talented local band Funk Foundation.

It was truly an amazing night, and we are so grateful for our supporters, sponsors and table hosts who help raise another significant amount towards Medical Research in Otago.

***SPONSORS:***

*Major Sponsor: OceanaGold*

*Associate Sponsors: Vero Liability and Aotearoa Gaming Trust*

*Supporting Sponsors: Walsh and Beck, Select Recruitment, Anderson Lloyd, Misha's Vineyard.*

*Auction Prize donors: Sam Foley, Highlands – 'Experience the Exceptional', Monarch Wildlife Cruises, The Artists Room, Cardrona Distillery, Allpress Coffee, Ainsley Lewis, Vault 21, St Clair Golf Club, Esplanade Surf School, Esplanade Restaurant, Pete Wheeler, Michelle Chalklin-Sinclair*

*Additional prize donors were: Poplar Estate Wines, Otago Brew School, Rialto Cinema Dunedin, Estelle Flowers, Jizo, Monarch Wildlife Cruises.*

# *OMRF Annual Golf Day*


## A great, albeit chilly, day was had by all on the course. The team from Mainfreight helped warm everyone from the inside out with their fantastic BBQ setup as everyone started.

Our winners for 2024 were the mixed team representing the St Clair Pro Shop with a score of 52.

We would like to thank all of our Hole Sponsors for their support of the day: St Clair Pro Shop, Jarden, Deloitte, Craigs Investment Partners, Mercy Hospital, Mainfreight, Aotea Electric, Calder Stewart, Stonelake Corp and our Registration Sponsor, Challenge Marketing.

Thank you also to those that supported the day by donating additional prizes and products: The Cardrona Distillery, Otago Brew School, Goodman Fielder, Stewart Construction, Central City Auto Repairs, Highland Motorsport Park, RD Petroleum, Fable, Stirling Sports, Mitre10 Mega, Jewellery by Idour, Platinum Recruitment, DKCM and PaperPlus Dunedin.

Check out all the great photos taken on the day by Alex Lovell-Smith on the OMRF website photo gallery.

### RESULTS FROM THE DAY:

1st – The Pro Shop Team
2nd – Calder Stewart
3rd - Forsyth Barr
4th – Gladfield - (Team Burns)
5th – Stonelake Corp.
6th - Craigs Investment Partners
7th –Gladfield (Team Hawke)
8th – Whatsoever

# OMRF CLUB OTAGO

## Once again, we were delighted to have a selection of wonderful guest speakers for the OMRF Club Otago lunches at the end of 2023 and into 2024

In September of 2023, we were lucky to host Paralympian Holly Robinson and Paralympian Coach Raylene Bates, just after her appointment as Chef de Mission for the 2024 Paralympics in Paris. Holly and Raylene gave us some amazing insight into their world of athletic training and what representing New Zealand against the world means. Holly also bought along her gold medal from Tokyo to share with us.

We ended 2023 with our tradition of a researcher taking the spotlight and welcomed Sesquicentennial Distinguished Professor Gregory Cook. Professor Cook is the Head of the Microbiology and Immunology Department, the research projects in his laboratory are multidisciplinary, spanning human biomedical, agritech fields and biotech. Professor Cook discussed his research in the agricultural field in more depth with us.

Our March OMRF Club Otago was held at the Forsyth Barr Stadium and our invited guest was Major General Martyn Dunne, CNZM, QSO, to Dunedin and he spoke candidly about his career and leadership, while focusing on four major events of the last century that he believes have had the biggest impact on the world and international security. We were also joined by Professor David McBride, whose research into veteran health was discussed.

Our latest OMRF Club Otago lunch was held at the Dunedin Public Art Gallery. Curator Anna McLean treated us to a detailed walk through and talk on the Giovanni Intra: Side Effects exhibition which showcased an amazing fusion of science and modern art.

We would like to extend a huge thank you to our OMRF Club Otago membership base, who continue to support our events and bringing colleagues, clients and friends along to enjoy the afternoons. It has been wonderful to see some new faces over the past year.

### JOIN US

To join OMRF Club Otago, simply go to our website **omrf.org.nz/club-otago** and fill out the form or email the Foundation at **info@OMRF.org.nz**

Membership for the OMRF Club Otago is open to anyone, with memberships starting at $250 per year. All profits from the OMRF Club Otago lunches go towards funding life changing research.


# *Our members in the 2024 year were:*

## PATRONS

JARDEN

MERCY HOSPITAL

## SENIOR FELLOW

Calder Stewart

## FELLOW

Ross & Bev Middlemass

Deloitte

## ASSOCIATE FELLOW

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(Harvie Green Wyatt)

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(Damian Foster)

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*(Quantify Consulting)*

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*(Cook Brothers Construction)*

Ant & Chris Wither
*(Awhirk Farms)*

Dr Michael Schultz
*(Gastroenterology Otago Ltd)*

Dr. Paul Templer

Emily Lam

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*(Oteha Valley Holdings)*

Jackson Miller
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*(Paper Plus Dunedin)*

Justin & Eterei Stonelake
*(Stonelake Foundation)*

Michael Milne
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*(Alison Glover)*

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Sharon Hyndman
*(BayleysMetro)*

Simon Parke
*(Parker Warburton Team Architecture)*

Tracy Stevenson
*(Webb Farry Lawyers)*

Webb Farry

Will McMillian

# FINANCIAL HIGHLIGHTS

*Otago Medical Research Foundation Inc.*

## Otago Medical Research Foundation Inc.
## Financial Highlights
### For the Year ended 31 March 2024

This summary financial report has been authorised for issue by the Chairperson of the Council Prof Pat Cragg. The results presented in the summary financial report have been extracted from the full financial report for the year ended 31 March 2024. As such, this summary report cannot be expected to provide a complete understanding as provided by the statements of financial performance, financial position and movements in equity of the Otago Medical Research Foundation Incorporated. A full copy of the audited financial report for the Otago Medical Research Foundation Incorporated for the year ended 31 March 2024 is available from the office of the Foundations administrators - Deloitte, Otago House, 481 Moray Place, Dunedin.

## Statement of Financial Performance

**For the Year ended 31 March 2024**

| | 2024 | 2023 |
|---|---|---|
| | $ | $ |
| **Operating Income** | | |
| Donations, Bequests, Subscriptions | 425,744 | 505,777 |
| Investment Income | 214,753 | 164,583 |
| Gain on Disposal of Investments | - | 39,919 |
| | **640,497** | **710,279** |
| **Less Expenses** | | |
| Administration | 107,480 | 113,508 |
| Promotion Costs | 318,253 | 319,417 |
| **Total Expenses** | **425,733** | **432,925** |
| **Net Surplus before Research Grants** | **214,764** | **277,355** |
| Research Grants approved during the | 370,057 | 471,006 |
| **Net Surplus for the year** | **(155,293)** | **(193,652)** |

## Statement of Financial Position

**As at 31 March 2024**

| | Market Value | 2024 | 2023 |
|---|---|---|---|
| | | $ | $ |
| **Current Assets** | | **162,914** | **241,332** |
| **Investments** | **5,781,332** | **4,269,605** | **4,276,736** |
| **Total Assets** | | **4,432,519** | **4,518,068** |
| **Current Liabilities** | | **116,191** | **46,447** |
| **Total Liabilities** | | **116,191** | **46,447** |
| **NET ASSETS (EQUITY)** | | **4,316,328** | **4,471,621** |

# Otago Medical Research Foundation Inc.

## Financial Highlights

### For the Year ended 31 March 2024

### Statement of Cash Flows

**For the Year ended 31 March 2024**

| | 2024 | 2023 |
|---|---|---|
| | $ | $ |
| Net Cash Flows from Operating | (71,723) | (302,464) |
| Net Cash Flows from Investing | 5,998 | 344,455 |
| **Net Increase / (Decrease) in Cash Held** | **(65,725)** | **41,991** |
| Cash at the Beginning of the Year | 169,344 | 127,353 |
| **Cash at the End of the Year** | **103,618** | **169,344** |

### Statement of Service Performance

**For the Year ended 31 March 2024**

The Foundation aims to establish world-class medical research for the benefit of local, national and international health.

The Foundation has provided a calendar of events in which members, supporters and the public were invited to participate - the Club lunches, annual dinner, annual golf day, and various other one-off events.

**Grants & Scholarships approved during the year:**

| | 2024 | | | 2023 | |
|---|---|---|---|---|---|
| | Actual | | Budget | Actual | |
| | # | $ | $ | # | $ |
| Annual Grants | 4 | 121,889 | 120,000 | 5 | 145,289 |
| Special Fund Grants | 3 | 67,359 | 80,000 | 7 | 114,114 |
| Summer Research Scholarships | 17 | 104,000 | 140,000 | 18 | 115,500 |
| Otago Medical Research Society Award Sponsorship | 4 | 1,200 | 2,000 | 4 | 3,450 |
| **Total** | **28** | **294,448** | **342,000** | **34** | **378,353** |

The full financial report of the Otago Medical Research Foundation for the year to 31 March 2024 was authorised for issue by the Chairperson of the Council. The full financial statements applied Public Benefit Entity Simple Format Reporting - Accrual (Not-For-Profit). The auditor expressed an unqualified opinion. The summary financial report has been examined by the auditor for consistency with the full financial report. The auditor has expressed an unqualified opinion.

# AUDITOR'S REPORT

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## REPORT OF THE INDEPENDENT AUDITOR ON THE SUMMARY FINANCIAL STATEMENTS

**To the Council of Otago Medical Research Foundation Incorporated**

*Opinion*

The summary financial statements, which comprise the summary statement of financial position as at 31 March 2024, the summary statement of service performance, the performance summary statement of financial performance and the summary statement of cash flows for the year then ended, and related notes, are derived from the audited financial statements of Otago Medical Research Foundation Inc. (the "Foundation") for the year ended 31 March 2024.

In our opinion, the accompanying summary financial statements are consistent, in all material respects, with the audited financial statements, in accordance with FRS-43: *Summary Financial Statements* issued by the New Zealand Accounting Standards Board.

*Summary Financial Statements*

The summary financial statements do not contain all the disclosures required by Public Benefit Entity Simple Format Reporting – Accrual (Not-For-Profit). Reading the summary financial statements and the auditor's report thereon, therefore, is not a substitute for reading the audited financial statements and the auditor's report thereon. The summary financial statements and the audited financial statements do not reflect the effects of events that occurred subsequent to the date of our report on the audited financial statements.

*The Audited Financial Statements and Our Report Thereon*

We expressed an unmodified audit opinion on the audited financial statements in our report dated 10 July 2024.

*Council's Responsibility for the Summary Financial Statements*

The Council are responsible on behalf of the entity for the preparation of the summary financial statements in accordance with FRS-43: *Summary Financial Statements*.

*Auditor's Responsibility*

Our responsibility is to express an opinion on whether the summary financial statements are consistent, in all material respects, with the audited financial statements based on our procedures, which were conducted in accordance with International Standard on Auditing (New Zealand) (ISA (NZ)) 810 (Revised), *Engagements to Report on Summary Financial Statements*.

Other than in our capacity as auditor we have no relationship with, or interests in, the Foundation.

**Crowe New Zealand Audit Partnership**

CHARTERED ACCOUNTANTS

Dated at Dunedin this 10th day of July 2024

The title 'Partner' conveys that the person is a senior member within their respective division and is among the group of persons who hold an equity interest (shareholder) in its parent entity, Findex Group Limited. The only professional service offering which is conducted by a partnership is the Crowe Australasia external audit division. All other professional services offered by Findex Group Limited are conducted by a privately-owned organisation and/or its subsidiaries.

Otago Medical Research FOUNDATION

Annual Report to 31st March 2024

Charities Number: CC33444

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