OTAGO
MEDICAL RESEARCH FOUNDATION

Annual Report to 31st March 2013 & Notice of Annual General Meeting

Otago Medical Research Foundation Inc.

CONTENTS

NOTICE OF MEETING 1
YOU CAN HELP THE FOUNDATION 2
OBJECT OF THE FOUNDATION 3
OMRF COUNCIL 4
OMRF GRANTS AWARDED 5
RENSHAW PRIZE 6
CHAIRPERSON'S REPORT 7
REPORT FROM THE DIRECTOR OF DEVELOPMENT 9
OMRF ANNUAL GOLF TOURNAMENT 10
CLUB OTAGO REPORT 11
SCIENTIFIC COMMITTEE REPORT 12
FINANCIAL STATEMENTS 25
AUDITOR'S REPORT 26
INFORMATION ABOUT THE FOUNDATION 27
FUNDING PATHWAY 28
LIST OF MEMBERS 29

NOTICE OF MEETING

The Forty Fifth Annual General Meeting of Members
will be held on Tuesday, 10 December 2013 at 5.15 pm
at Deloitte, Level 13, Otago House, 481 Moray Place, Dunedin

Members, and all interested in the work and objects of the Foundation, are invited to attend.
All current grant recipients have been invited to attend the meeting.

BUSINESS

1. To receive the Reports of the Council, the Scientific Committee and the audited Financial Statements for the year ended 31 March, 2013.

2. To record the reappointment of the Auditors, Crowe Horwath, and authorise the Council to determine their remuneration.

3. Election to Council of five members of the Foundation (see notes).

4. To transact any other business for which notice has been given in writing to the Secretary in terms of Rule 8(d) not less than one week before the date of the meeting and any other matters which may be brought forward by the Council.

Deloitte
Secretaries
P.O. Box 1245, Dunedin

NOTES

a) Retiring elected members; Dr M Coleman, Mr K G Dempster, Mr R P Lewis, Dr J McMahon and Ms S Saunderson-Warner are eligible for re-election.

b) Rule 5(b) provides that nominations for other than current elected members of Council should be received by the Secretary, in writing, 7 clear days before the Annual General Meeting. Such nominations to be signed by the nominator (who shall be a financial member of the Foundation) and by the nominee.

Nomination forms are available at the office of the Secretaries. (Level 13, Otago House, 481 Moray Place, Dunedin).

YOU CAN HELP THE FOUNDATION

By: * joining as a new member * making a bequest * recruiting new members
* using an OMRF fuel card * making a donation * joining Club Otago

OTAGO MEDICAL RESEARCH FOUNDATION INCORPORATED

To: The Secretary
Otago Medical Research Foundation Inc.
PO Box 1245, DUNEDIN

Name: (Mr/Mrs/Miss/Ms/Prof/Dr or Company) .....

.....

Address: .....

.....

(Please show department address if employed at the University of Otago, Dunedin School of Medicine or School of Medical Sciences)

E-mail address: .....

ANNUAL SUBSCRIPTION (1/4/13-31/3/14)

I/We wish to join the Otago Medical Research Foundation Inc. as:

☐ An Ordinary Member
(minimum subscription $30 p.a.) $ .....

☐ A Research Patron (Business Firm or Corporate Body)
(minimum subscription $100 p.a.) $ .....

☐ A Life Member
(minimum subscription - Individuals $500) $ .....
(minimum subscription - Corporate Bodies $1,000) $ .....

☐ A donation of $ ..... is enclosed in lieu of membership application $ .....

☐ Please send me information on the Foundation's Fuel Card

TOTAL $ .....

☐ Please send me information on Club Otago

I/We agree to be bound by the rules of the Foundation.

Signed .....

☐ Cheque attached
☐ Funds direct credited to the OMRF bank account number 03 0903 0381844 00

Note: Subscriptions or donations of $5 or over qualify for a tax exemption

You may wish to have your contribution take the form of a legacy or bequest in which case you will no doubt obtain proper advice.

FORM OF BEQUEST

A suitable clause in a Will to provide for a bequest would be on the following lines:
"I give and bequeath (free of all duty) to the Otago Medical Research Foundation (Inc) the sum of $ ..... (or description of other property or assets) for research purposes that may relate to a diverse range of health problems including cancer and heart disease, AND I DECLARE that the receipt of the Secretaries or other proper officer thereof shall be a full and sufficient discharge to my Trustee for the said Legacy nor shall my Trustee be bound to see the application thereof"

OBJECT OF THE FOUNDATION

EXTRACTS FROM RULES

The object of the Otago Medical Research Foundation Inc. shall be:

THE FURTHERANCE OF MEDICAL RESEARCH IN OTAGO

To this end the Foundation shall have power to carry out the following functions:

- To seek, accept and receive donations, subsidies, grants, endowments, gifts and bequests designed in any way to further the object of the Foundation, and to realise on real estate and personal property received by gift or bequest and apply the proceeds to the furtherance of the object of the Foundation.
- To establish and provide bursaries and scholarships tenable either in New Zealand or abroad and make grants of money to persons, organisations or institutions for the purpose of initiating, aiding or furthering medical research by any such persons or institutions.
- To appoint lecturers and demonstrators, to support the holding of lectures, tutorial classes and demonstrations as will contribute to the instruction of persons interested in any medical or allied subject under investigation or enquiry.
- To provide, equip and maintain laboratories, offices and other buildings, including the provision of materials, chemicals, animals for research purposes, and other equipment, books, journals and apparatus of all types.

ASSISTANCE IN FURTHERING THE OBJECT OF THE FOUNDATION AND EXPANDING THE SUPPORT OF MEDICAL RESEARCH IN OTAGO WOULD BE APPRECIATED, AND WILL BE ACKNOWLEDGED IN FUTURE ANNUAL REPORTS

Please contact the Secretaries: Deloitte, Otago House
PO Box 1245, Dunedin

Telephone: (03) 474-8630
Facsimile: (03) 474-8650

or use the membership/donations form included in this publication.

OMRF COUNCIL 31 MARCH 2013

Dr J Adams
Dean Dunedin School of Medicine - ex-officio

Prof H Nicholson
Dean Otago School of Medical Sciences - ex-officio

Assoc Prof P A Cragg
Chairperson of Scientific Committee - ex-officio

Dr S Bunn
Otago Medical School Research Society

Mr M C Horne
Deloitte (Secretaries) - ex-officio

Prof A van Rij
Otago University Faculty of Medicine

Dr P Gootjes
N.Z. Medical Association (Otago Division)

Prof J Highton
General Medical Staff, Otago District Health Board

Mr R Bunton
Otago District Health Board

Dr M Coleman
Elected by Members of the Foundation

Mr K G Dempster
Elected by Members of the Foundation

Mr R P Lewis
Elected by Members of the Foundation

Dr J McMahon MBE
Elected by Members of the Foundation

Ms S Saunderson-Warner
Elected by Members of the Foundation

EXECUTIVE

Mr K G Dempster - Chairperson
Assoc Prof P A Cragg - Deputy Chairperson
Deloitte representative - Secretary/Treasurer

SCIENTIFIC COMMITTEE

Assoc Prof P A Cragg - Chairperson

Physiology Department, Otago School of Medical Sciences
Members (see report on page 9)

DIRECTOR OF DEVELOPMENT

Mr S. Davie

SECRETARIES

Deloitte

HONORARY SOLICITOR

Mr J Anderson
(Gallaway Cook Allan)

AUDITORS

Crowe Horwath

PATRON

Emeritus Professor Barbara Heslop

OMRF GRANTS AWARDED JUNE 2012 AND DECEMBER 2012

OTAGO MEDICAL RESEARCH FOUNDATION

Dr Y Zheng & Prof P Smith (Pharmacology & Toxicology) - $25,000

Role of $GABA_B$ receptors in the dorsal cochlear nucleus in acoustic trauma-induced tinnitus

Dr A Woolley & Prof A Braithwaite (Pathology) - $30,000

Putting a novel prognostic marker for breast cancer through its paces

Dr A von Zychlinkski-Kleffmann (Biochemistry) - $24,000

Lipoprotein(a), new insights into a risk factor for heart disease

OTAGO COMMUNITY TRUST

Assoc Prof R Rosengren (Pharmacology & Toxicology) & Prof H Nicholson (Anatomy) - $25,449

Combination drug therapy for the treatment of aggressive prostate cancer

Assoc Prof G Butt (Physiology) - $30,000

Colonic sodium bicarbonate and inflammatory bowel disease

Dr R Katare & Dr R Lamberts (Physiology) - $30,150

Why do females have a higher risk of diabetic heart disease

Dr A Dunbier (Biochemistry) - $12,532

Investigation of genes involved in breast cancer susceptibility and response to therapy

LAURENSON GRANTS

Prof G Tannock (Microbiology & Immunology) - $12,000

Measuring the temporal impact of exclusive enteral nutrition on gut microbiota and urinary metabolite profiles of Crohn's disease patients: a pilot study

Dr S Skeaff (Human Nutrition) & Assoc Prof P Manning (Medicine) - $16,320

Diagnosing mild iodine deficiency in New Zealand adults

Assoc Prof G Hammond-Took & Assoc Prof A Poole (Medicine) & Dr K Yamanoto (Honorary Research Fellow) - $13,564

The effects of lithium on rat sciatic nerve recovery following crash injury

Dr J Crowley (Chemistry) & Dr G Giles (Pharmacology & Toxicology) - $25,375

Exploiting palladium nanocages for cisplatin drug delivery

Dr S Rizwan (Pharmacy) & Assoc Prof B Boyd (Monash University) - $22,500

Cubosomes: Novel lipid-based particulate carriers to improve delivery and efficacy of anti-epileptic drugs in drug-resistant epilepsy

JACK THOMSON ARTHRITIS GRANTS

Assoc Prof W Duncan, Mr D Godoy Zanicotti, Dr D Coates & Prof G Seymour (Dentistry) - $29,473

Adipose-derived multipotent progenitor cells for bone regeneration on titanium devices

Dr R Kemp (Microbiology & Immunology) & Dr M Schultz (Medicine) - $22,022

Spondyloarthropathy as a joint-specific manifestation of Inflammatory Bowel Disease

Assoc Prof T Merriman & Assoc Prof S McCormick (Biochemistry) & Assoc Prof J Reid (General Practice) - $27,116

Is type IV hyperlipoproteinemia causative of gout?

RENSHAW PRIZE

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
- Mr J P Scott
1979 - Mr R A Henderson
1980 - Mr D W MacFarlane
- Mr D W Shaw
1981 - Mr N E Dickson
- 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 McKenzie
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
- Ms S Safari
1998 - Mr J Mangum
1999 - Ms J Pitchforth
- 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
- Ms E Winsley
2010 - Mr J Zhang
2011 - Miss E Gavey
- Mr E Ottley
- Mr W Parkyn
2012 - Miss Su Zhou
2013 - Mr Fly Ing-Aram

CHAIRPERSON'S REPORT

It is with pleasure that I present the 45th Annual Report on the Otago Medical Research Foundation's activities for the 2013 financial year. During the year under review, the Foundation funded $345,582 on medical research in Otago which was a decrease of $3,944 on the 2012 financial year. This brings the total amount funded since the Foundation's inception to $6,687,635. The extract from the Financial Statements, as published further on in the Annual Report, shows a surplus for the year of $90,457. The Foundation endeavours to invest surpluses in project grants rather than build up funds but further injections of capital for investment are vital if the Foundation is to continue supporting research at least at the same rate that we have been.

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. 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 $333,924, which is 11.61% of cost, with the New Zealand and Australian investments being the main contributors.

Forward commitments for grants approved but not yet paid at balance date total $309,384, compared with $197,987 last year, an increase of $111,397 of which $92,307 can be attributed to grants approved and not paid out for the Jack Thomson Fund in the year under review. There were no Commitments for grants approved but not paid out from this Fund at balance date last year.

At 31 March, 2013, Net Assets (Equity) of the foundation total $4,883,306 being Accumulated General Funds total $421,918, and Accumulated Special Funds $4,461,388, both these figures comprising Capital and Income.

This year marked the 16th year in which the Otago Community Trust awarded an Annual Grant to the Foundation with the details of grants awarded from this year's funding being published further on in the Scientific Committee Report. This brings the total grants received from the Otago Community Trust to $1,161,000, 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 continuing contributions.

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.

CHANGE OF RULES

As noted in last year's Annual Report those attending the Annual General Meeting were to be asked to vote in support of changing the rules which had been adopted on 17 November, 1993.

These changes needed to be made to reflect changes in the University and Health sectors, changes in technology, and to fine tune some administration matters.

There was to be no change to the object of the Foundation which remained as "The furtherance of medical research in Otago" and there was to be no real change in the way the Foundation would continue to operate under the proposed new Constitution.
I am pleased to advise that the new Constitution was adopted at last year's AGM.

WEBSITE

During the year the Foundation's updated website was launched (www.omrf.org.nz). This was the culmination of a lot of hard work by Dr Victoria Scott.

Our thanks go to Victoria for her efforts and also to Steve Davie for his input. I would recommend that members visit the website which is regularly updated.

COUNCIL MEMBERSHIP

Although not occurring in the Foundation's financial year, the period since 31 March has seen two significant changes occur within the University which will have a significant effect on the membership of Council.
Earlier in the year it was announced that after almost more than a decade in the role of Dean of the Dunedin School of Medicine, Dr John Adams would be taking on a new role at the School.

After being appointed Dean, John attended his first meeting of Council in June 2003.

In August it was announced that the Dean of the Otago School of Medical Sciences, Prof Helen Nicholson had been appointed as International Pro-Vice Chancellor. Helen initially represented the Otago University Faculty of Medicine on Council, serving from 2002, until her appointment as Dean in February, 2007 when she became the Nominee of the Vice-Chancellor, University of Otago, on Council.

Both Deans have served on the Council as Ex-Officio members and on behalf of Council and members of the Foundation I thank both John and Helen most sincerely for their very valuable contributions to the Foundation and we look forward to welcoming their replacements to the Council table.

THANKS

- Firstly, to all those Trusts, Companies, Individuals, Members and Non–Members listed further on 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 difficult economic times.

- To Steve Davie, our Director of Development, for his commitment to the Foundation. Since Steve took on the position the profile and funds of the Foundation have improved greatly and I say thank you Steve for the enthusiasm with which you approach everything you take on for the Foundation. Steve's report can be found on the next page. Thank you Steve.

- To my fellow Investment Sub-Committee members, Mike Horne, Ron Lewis and Jenny McMahon for their wise counsel, advice and time so willingly given to serve on this Sub-Committee. Thank you most sincerely.

- Special thanks must be recorded to the members of the Scientific Committee, under their longstanding and dedicated Chairperson, Associate Professor Patricia Cragg. Although all busy with their own career activities, the Scientific Committee still continue to find the time to provide professional assessment and advice on three rounds of Grant applications and then make their recommendations to the Council. Without this group of dedicated people we would not be able to achieve the object of the Foundation, "The Furtherance of Medical Research in Otago".

- To all Council Members, for your contribution and support, my sincere thanks for your continued interest in, and work done, for the Foundation.

- To the Deloitte team of Mike Horne, Louisa Homersham and Trudy Reveley for continuing to provide very professional and efficient administration services for the Foundation.

On behalf of the Council
Ken Dempster
Chairperson

REPORT FROM THE DIRECTOR OF DEVELOPMENT

The Foundation's fundraising momentum continues to gather pace.

Since its launch into a structured campaign in early 2010 more than $600,000 in new funding had been generated by March 31 2013 with the Jack Thomson Arthritis Fund, established through a $2 million bequest, additional to that.

As the Foundation's profile builds, so does its ability to generate funding opportunities. That, in turn, increases the long-term capacity to identify and tangibly support world-class medical research.

The Foundation prides itself on its ability to identify and nurture research which, although highly scientifically worthy, does not attract attention from larger funding bodies. However, without the Foundation acting as a catalyst for this investigation to be established, more in-depth study simply wouldn't occur.

Our funding base expands monthly. There is a growing list of individuals who are now regular benefactors, a number of business owners lend their support through 'sponsoring' annual summer research scholarships, several gaming machine trusts have now made several donations, and many within the charitable industry are financially supportive of the Foundation's vision.

The Foundation's annual golf tournament, with OceanaGold partnering up as the major naming rights sponsor, is now seen as a 'must play' event and raises significant funds in its own right – $42,000 in its first three years. Club Otago, a lunch club open to individual and corporate supporters alike, has proven especially successful, use of the Foundation's fuel card is on the increase and the Otago Medical Fund – a conduit through which those in the medical industry can make specific and targeted donations – is creating interest.
Best of all, the funds raised are making a significant difference to the Foundation's ability to set high-calibre medical research underway. As our Patron, Emeritus Professor Barbara Heslop, tells us "Medical research is all about finding out" and from the discoveries made there is no doubt we all benefit.

My thanks go to all supporters and friends of the Foundation. Your generosity and foresight in supporting the terrific work our scientists and researchers undertake is very much appreciated.

Steve Davie
Director of Development

OMRF ANNUAL GOLF TOURNAMENT

The weather gods again smiled on the Foundation as it hosted its third annual golf tournament on the St Clair course in association with OceanaGold in early October. After several days of poor conditions the clouds parted and the field of 100-plus players enjoyed sunny, warm and calm conditions.

And the backing of OceanaGold as the naming rights' sponsor, our show hole sponsor, Armstrong Prestige, all other hole and prize sponsors, separate team entries, a number of other supporters and the enthusiasm with which the players supported our raffle and the selling of 'mulligans' resulted in a profit of almost $22,000 from the day.

Those funds will be directed into the OceanaGold research grant, identified and allocated in May 2013. Money raised at the 2011 event was invested into an investigation into why diabetic women are more prone to heart disease with the results of that study sure to lead to earlier diagnosis and a more effective treatment strategy. That will mean a greater quality of life for those afflicted.

Supporting the OceanaGold and Armstrong Prestige commitment were our hole sponsors and the Foundation acknowledges their enthusiasm. Our thanks to Silicon Coach, Orbit Corporate Travel, Dr John Greaves and Keith Newton (Mornington Health Centre), Speight's Brewery, Dr Patrick Dawes, Dr David Peart and Mr Andrew Swan, Forsyth Barr, Mitchells Tavern, Deloitte, Dr Alan Wright, Palmers Mechanical, Body Synergy Gym, Sport Otago, Mr Simon McMahon, Southern Colour Print, the Southern Trust and Newstalk ZB.

Our appreciation is also extended to our prize and refreshment sponsors, and others who played a part in the success of the day – Dr Jenny McMahon, Dr Brian McMahon, Orbit Corporate Travel, Aravin Central Otago, Dunedin Venues, Valspar Paints New Zealand, Neil Metcalfe (St Clair pro shop), Speight's Brewery, Cadbury Confectionery, Rialto Cinemas (Dunedin), Henry's Beer Wines & Spirits, Rockburn Wines, Gardens New World, Craft Bar, Body Synergy, Paper Plus Dunedin, Bunnings Warehouse Dunedin, Otago Cricket, Luna Bar & Restaurant, Scotia Bar & Bistro, Kmart Dunedin, Mitchells Tavern, Sharpies Golf (Alan Rose) and the Bendigo Valley Sports & Charity Foundation and the Otago Division of the Cancer Society.

There were also a number of team entries and their support was also appreciated – our thanks to Ken and Liz Dempster, Dave Sharp, the Cameron Brothers, Gardens New World, Highland Real Estate Group, John Cutler, Opus International Consultants and Dunedin Venues.

There were a number of twists to the prize-giving with the Orbit Corporate Travel team winning the company's own travel vouchers, the Forysth Barr quartet taking home passes to an event of choice at the Forsyth Barr Stadium, two of Body Synergy gym owner Rowan Ellis' brothers being part of the Palmers Mechanical team which won memberships to Body Synergy, and the OceanaGold # 2 team taking top honours in the tournament to which the company has naming rights.

The day's results were –

Closest to the pin – 4th; Mark Andrews, 7th; James Smith, 13th; Callum Stringer, 16th; Kieran Gavegan.

Longest drive – 2nd; Brent Reid.

Straightest drive – 14th; Peter Hills

Fastest drive (ball speed) – 10th; Mark Patterson 305 kph

TEAM RESULTS

15th – playing off a team handicap of 7.25, net score of 60.75 – Brian Murray group
14th – 8.5, 60.5 – Matt Richardson group
13th – 12.375, 57.625 – The Radio Network
12th – 6.625, 57.375 – Dr Alan Wright
11th – 4.375, 56.625 – the Cameron brothers
10th – 8, 56 – Highland Real Estate
9th – 6.12, 55.88 – Whatsoever Ltd
8th – 7.125, 55.875 – Otago Medical Research Foundation
7th – 4.5, 54.5 – Orbit Corporate Travel
6th – 3.625, 54.375 (on count back) – Sport Otago
5th – 8.625, 54.375 – Mitchells Tavern
4th – 6.75, 53.25 – Deloitte
3rd – 7, 53 – Forsyth Barr
2nd – 5.125, 52.875 – Palmers Mechanical
1st – 9.4, 52.6 – OceanaGold # 2

The winning team at the 2012 OMRF golf tournament, staged in association with Oceanagold. Set to tee off the 10th hole at St Clair, the Oceanagold # 2 team (left to right) Mark Kensington, Mike Dodd, Dennis Dodd and Ray O'Connell.

CLUB OTAGO

Club Otago, a series of luncheons through the year and featuring the topical speakers of the moment, made a spectacular impact on the Otago Medical Research Foundation's calendar of events in the 2012/2013 year.

Launched in April 2012 ***Club Otago*** members have been entertained and enthralled by All Black coach Steve Hansen; evergreen broadcaster Keith Quinn; former All Black, doctor and now successful businessman David Kirk; Sir Peter Leitch (the 'Mad Butcher'); and Dean Bell and John Leslie (the first Warriors and Highlanders captains respectively) who joined us in a combined Q & A session to celebrate the unique rugby union/rugby league doubleheader weekend in Dunedin in February.

All funds raised through members' subscriptions are directed towards the Foundation's on-going mission of identifying and nurturing world-class medical research in the city.

The 2012 subscriptions raised $53,500 for that work.

As well as the main speaker our guests also hear from a medical identity as we put a 'face to research' and assisting in that regard in 2012/2013 were Professor Rob Walker (Head of Health Sciences, Dunedin School of Medicine), Associate Professor Dave Gerrard (Medical Education Group, Dunedin School of Medicine), Dr John Adams (Dean of the Dunedin School of Medicine), David Darling (Chief Executive at Pacific Edge Biotechnology) and Professor Greg Cook (University of Otago's department of Microbiology and Immunology).

We also have a business card draw, raffle, a heads & tails, the meal and refreshment is top-class and there is entertainment aplenty.

Corporate memberships are set at three levels – Senior Fellow, Fellow and Associate Fellow – with Individual memberships also available.

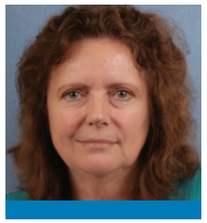
At March 31 2013 ***Club Otago*** is proud to list four Patrons, two Senior Fellow members, 10 at Fellow level, 13 Associate Fellow members and 60 at the individual level. Our members are a mix of businessmen and women, individual benefactors and others interested in the Foundation and its mission of 'furthering medical research in Otago'.

Many utilise the lunches, which are shared between the Dunedin Centre complex and the Forsyth Barr Stadium, as their own hosting of clients, staff, friends and family.

For further information about ***Club Otago*** please contact the Foundation's Director of Development Steve Davie (03 477 8977, 027 437 0335, stevedavie@xtra.co.nz).

SCIENTIFIC COMMITTEE REPORT
1 SEPTEMBER 2012 TO 31 AUGUST 2013

1. MEMBERSHIP



Assoc Prof Pat Cragg

Associate Professor Pat Cragg (Nominee of the Otago School of Medical Sciences)

Dr Stephen Bunn (until March 2013); Associate Professor Colin Brown (from July 2013) (President Otago Medical School Research Society, ex-officio)

Dr Tamlin Conner (Co-opted)

Dr Peter Gootjes (Nominee Otago Branch of the NZ Medical Association)

Dr Bob Hancox (Nominee Dunedin School of Medicine)

Dr Nick Heng (Co-opted)

Associate Professor Greg Jones (Nominee Otago Medical School Research Society)

Dr Beulah Leitch (Co-opted)

Dr David Markie (until March 2013); Professor Antony Braithwaite (from April 2013) (Co-opted)

Associate Professor Russell Poulter (Co-opted)

Professor Clive Ronson (Co-opted)

Dr Ivan Sammut (Co-opted)

Dr Paula Skidmore (Nominee Otago Medical School Research Society)

Dr Joel Tyndall (from July 2013) (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 subdisciplines of medical research.

In early 2013 there were two retirements from the committee, Dr Stephen Bunn and Dr David Markie, and we thank them for all their contributions: in Stephen's case since September 2010 when he became President of the Otago Medical School Research Society and in David's case since early 2006 when he became a co-opted member to represent the Department of Pathology. For 2013 we welcomed three new members: Professor Antony Braithwaite as a co-opted member representing the Department of Pathology, Associate Professor Colin Brown as the new President of the Otago Medical School Research Society and Dr Joel Tyndall as a co-opted member representing the School of Pharmacy.

Note: 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 Scientific Committee's Chairperson of a letter from the University of Otago 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 scientific activities of the Foundation (advertising of up-coming grants and listings of awards) can be found on the following website *www.omrf.org.nz*

2. SUMMER RESEARCH SCHOLARSHIPS 2012/2013

One hundred and eight applications (compared with 141 the previous year) were received from the University of Otago in early September 2012, of which 20 were recommended for funding by the OMRF (and most gained scholarships from other funding bodies, including considerable funding supplied by the Division of Health Sciences). Of the 20 students funded by the OMRF, nine were studying medicine, nine science, one applied science and one dentistry. 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 scholarship was worth $4,000 except for the two students with the highest scores who were awarded named Summer Research Scholarships ($5,000) – 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. One of the projects was funded from the Foundation's Iverach Fund and another was administered by the OMRF but sponsored by the Otago Diabetes Research Trust. Due to the continuing sponsorship drive of the OMRF, all the other 16 OMRF scholarships were funded from such sponsorship: Armstrong Prestige/Artists Room, Deloitte Touche Tohmatsu Limited, Foodstuffs Community Trust, Hughes Family Trust, Infinity Foundation, James Russell Lewis Trust, Kingston Sedgfield Charitable Trust, Lions Club of Dunedin South, OceanaGold, Otago Service Clubs Medical Trust, Pub Charity (2), PricewaterhouseCoopers Foundation, Southern Victorian Charitable Trust (2) and WHK. The involvement of Otago commercial companies and the Otago community for a third year in supporting summer research by tertiary students is much appreciated.

All scholars returned good to excellent reports by the end of February 2013. The Renshaw Prize ($250) for the best report was awarded this year to: Fly Ing-Aram, who worked under the guidance of Professor John Highton and Dr Jo Dockerty of the Department of Medicine. This year there were a further two reports that were also excellent and they have been awarded Commendations: Nathan Hamer, who worked under the guidance of Dr Regis Lamberts of the Department of Physiology; Anton Reiman, guided by Dr Sarah Young of the Department of Pathology and Dr Greg Walker of the School of Pharmacy.

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 Chairperson of the OMRF Scientific Committee or from the supervisor concerned.

Fly Ing-Aram

(Professor John Highton and Dr Jo Dockerty, Department of Medicine)
(Deloitte Scholar and Renshaw Prize Winner)
Title: Methotrexate use in the community – identifying a gap in patients' knowledge of the therapy as well as their awareness of safety issues

Low-dose methotrexate has been implicated in medication errors resulting in life-threatening events. Sixty rheumatology patients were interviewed to obtain information about their methotrexate use and awareness of toxicity as well as to assess the risk of potential unintentional overdose from a medication error. Education from a rheumatology nurse and shorter duration of methotrexate therapy were found to be associated with superior knowledge of methotrexate toxicity. Two patients were identified as being potentially at risk of overdose due to medication error. We would recommend that patients receive education on methotrexate by nurses and subsequent information be given after 5 years of therapy.

Thomas Borowsky

(Dr Rebecca Campbell, Department of Physiology)
Title: Examining ERĐ expression in the solitary nucleus in the polycystic ovarian syndrome mouse model
(Allan Wilkinson Summer Scholar)

Features of the polycystic ovarian syndrome (PCOS) are considered to be caused by impaired neuroendocrine regulation of ovarian function. Estrogen-sensitive noradrenergic neurons in the solitary nucleus (SOL) of the brain may have a role in controlling gonadrophin releasing factor (GnRH) release and ovulation. To examine possible differences in hormone sensitivity, which may impact upon GnRH release, my project examined differences in estrogen receptor alpha (ERα) expression in the SOL of fertile mice and PCOS-like infertile mice. This was performed using immunohistochemistry against ERα and ImageJ analysis to quantify differences in ERα positive cell number. There were no significant differences in ERα cells between the PCOS-like and control animals.

Kieran Bunn

(Professor Warren Tate, Department of Biochemistry)
Title: Binding between proteins involved in Alzheimer's disease
(Southern Victorian Charitable Trust Scholar)

Alzheimer's disease is a progressive and debilitating neurological condition that affects approximately 50,000 New Zealanders. This project aimed to investigate a novel interaction between soluble amyloid precursor protein α (sAPPα) and β-amyloid, important in the disease. This was achieved by measuring the binding between the purified proteins in isolation. Binding between the two proteins was observed, and also occurred when shorter fragments of the β-amyloid was used. The binding, however, only occurred under specific conditions regarding the orientation of the protein. These findings may have implications for sAPPα and β-amyloid's physiological and pathological roles.

Matthew Chae

(Professor Barry Taylor, Dr Benjamin Wheeler and Dr Julie Lawrence, Department of Women & Children's Health)
(Otago Diabetes Research Trust Scholar)
Title: Intuitive eating and type one diabetes mellitus

Maintaining good control of diabetes is crucial in preventing the progression and onset of severe short and long-term complications. This is a pilot cross-sectional study investigating the relationship between intuitive eating and long-term control in young adults between the ages 18 to 25 years, with Type 1 diabetes mellitus (T1DM). Full data was obtained from 33 participants through survey monkey with glycosylated haemoglobin (HbA1c) used as a measure of long-term glycaemic control. A logistic regression showed that no significant relationship between measures of intuitive

eating and metabolic control existed. Despite this, the study is the first of its kind to look at intuitive eating in the young adult T1DM population, and is part of a growing body of research looking to enhance control in this population.

Sehan De Silva

(Dr George Dias, Department of Anatomy)
(Southern Victorian Charitable Trust Scholar)
Title: Microscopic study of improved wound healing of a novel suture material

A histological examination of sections preserved from a pilot study done in 2010 was carried out to determine the mechanism by which two novel hybrid resorbable sutures, containing growth factors and antibacterial agents, had increased healed wound strength compared with the unmodified control. The study indicated differences between the materials in granulation tissue per unit area that could account for the increased performance. Given the potential benefits to patients in terms of earlier mobilisation from surgery and shorter hospital stays, the results of this study suggest that larger *in vivo* trials to assess the efficacy of the new suture materials is warranted.

Grace Haack

(Professor Ian McLennan and Dr Michael Pankhurst, Department of Anatomy)
(Armstrong Prestige/Artists Room Scholar)
Title: Sexual dimorphism in the murine ventromedial pre-optic nucleus may depend on anti-Mullerian hormone: a pilot study

Most brain disorders differ between the sexes in incidence or severity. The testes secrete anti-Mullerian hormone (AMH) during childhood, whereas the ovaries do not. AMH may therefore generate sexual differences in the brains of children. This pilot study investigated whether a sexually dimorphic brain area (the medial preoptic area) shows a sex bias in the number of cells containing the enzyme tyrosine hydroxylase (TH-positive cells). It asked whether the absence of AMH during development affects this sex bias. The results indicate that this cell population is appropriate to study in further investigations into the role of AMH in brain development.

Nathan Hamer

(Dr Regis Lamberts, Department of Physiology)
(Kingston Sedgfield Charitable Trust Scholar and Commendation)
Title: Atrial-ventricular differences of myocardial function in obesity

Obesity is a risk factor for development of cardiac disease. Knowledge of changes in underlying mechanisms determining cardiac function in humans are limited, but can be studied in trabeculae (small cardiac muscles) yielded from the right atrium (RA). We investigated whether obesity affects cardiac function differently between the RA and right ventricle (RV), and saw that trabeculae from RA and RV of lean rats showed similar cardiac responses at baseline, force-frequency and adrenergic stimulation. However, atrial and ventricular trabeculae in obese rats were affected differently. These disparities suggest atrialventricular differences with obesity, despite similar regulation of function in a healthy heart.

Louis Seong Min Han

(Dr Logan Mitchell, Department of Medicine)
(WHK Scholar)
Title: Effectiveness of pupil dilating drops when used on consecutive days

Pupil dilation is often required both for eye examinations and eye surgery. Many ophthalmologists avoid using these dilating drops the day before surgery, fearing they are less effective when used on consecutive days. Our study examined pupil size after routine dilation in 25 patients, of whom 10 received dilating drops on consecutive days. We found no statistically significant difference in final pupil size between these groups - indeed the average increase in pupil size was larger on the second day. We conclude that pupil dilation the day before eye surgery does not need to be avoided.

Nicholas Instone

(Dr Shyamala Nada-Raja, Department of Preventive and Social Medicine)
(Otago Services Clubs Medical Trust Scholar)
Title: The Child Abuse-Health Professional Interface – What is happening?

Child maltreatment in New Zealand is a significant burden. This online pilot study investigated health professionals' reporting practices, barriers to reporting and mandatory reporting attitudes in the Southern District Health Board regions. Based on 63 participants' responses to a questionnaire, 63% had suspected child maltreatment in the past year, and 37% of this group did not formally report their suspicions. Most (61%) favoured implementing mandatory reporting and 17% felt sufficiently trained to recognise and respond to maltreatment. Further research is needed to ascertain the consequences of health professionals not reporting their suspicions and how best to improve health professionals' participation in research.

Zoe Jaquiery

(Dr Victoria Scott, Department of Physiology)
(Infinity Foundation Scholar)
Title: Changes in kisspeptin neuron number in the arcuate nucleus during pregnancy and lactation in rats

Kisspeptin is critical for puberty and fertility, and preliminary results have shown it has a centrally mediated effect on oxytocin neurons during late stages of pregnancy. Understanding the changes that occur in neuronal circuitry during pregnancy is important; therefore, the aim of my project was to investigate change in kisspeptin neuron number, and expression of an immediate early gene, c-Fos, in the arcuate nucleus during pregnancy and lactation using immunohistochemistry. It was hypothesised that kisspeptin neuron number and c-Fos expression would increase. Results showed a decrease in kisspeptin neuron number from day 14 of pregnancy. No significant change was seen in c-Fos expression.

Yindi Jiang

(Professor Helen Nicholson and Dr Maree Gould, Department of Anatomy)
(OceanaGold – Prostate Scholar)
Title: The role of the cell membrane in prostate cancer progression

Prostate cancer is the most commonly diagnosed cancer in New Zealand. In prostate cancer, there is a loss of caveolae and expression of the protein PTRF. The loss of caveolae may be associated with increased cell proliferation. This research attempted to reduce PTRF expression using SiRNA in the normal prostate cell line PNT1A to see if this affected cell proliferation. Whilst a reduction in PTRF expression occurred in hormone-treated PNT1A cells, a consistent reduction of PTRF in untreated cells was not achieved. No effect on cell proliferation was observed. Further studies are required to optimise the SiRNA treatment.

Tom Kelly

(Dr Mik Black, Department of Biochemistry)
(Garth McQueen Scholar)
Title: Comparing genetic variation and gene expression with colorectal tumour properties

A genomic approach to molecular genetics is one that studies all of the genes and RNA in a cell using the latest sequencing and microarray technology. This approach has been extensively applied in cancer research generating a large repository of genome sequence and gene expression data. The limiting factor for this approach to yield clinically relevant information is bioinformatics: statistical and computational analysis of very large datasets. This summer research project aimed to find clinically relevant conclusions from gene expression and methylation datasets in colorectal cancers. Colorectal cancer gene expression data generated by The Cancer Genome Atlas project was used for survival analysis of clinical factors, comparison of gene expression and DNA methylation in different tumour stages, and for unsupervised clustering to find molecular subtypes. Gastric cancer gene expression data was used to find potential synthetic lethal interactions with CDHI, replicating the findings from a larger breast cancer dataset.

Robbie Masters

(Professor Cliff Abraham, Department of Psychology)
(PricewaterhouseCoopers Foundation Scholar)
Title: A novel learning rule in the rat dentate gyrus of the brain

Previous research suggests that information is stored at synaptic connections in the brain through a Hebbian spike-timing dependent plasticity (STOP) rule. In this rule, the strength of connections between neuronal cells is increased (or decreased) if their firing coincides in time. Here we aimed to explore whether granule cells of the hippocampus can also exhibit a novel form of non-Hebbian learning. We investigated this hypothesis by delivering spikes in the granule cells alone, without associated activity. We found no evidence of this novel learning rule, however we did provide results that may refute earlier findings in the same brain area.

Glen Rawlinson

(Professor Jean-Claude Theis, Department of Surgical Sciences)
(Hughes Family Trust Scholar)
Title: Transfusion requirements following elective hip and knee replacements

Haemoglobin (Hb) is an essential protein that exists within red blood cells and plays a major role of carrying oxygen within the blood. During surgical operations there is often blood loss, which can result in anaemia leading to a reduction in vitality due to lowered Hb. To solve this, blood can be transfused into the patient to increase the Hb levels within the blood. This research aimed to see whether there was a correlation between the preoperative Hb level of a patient and the requirement for a postoperative blood transfusion and discovered that with increasing Hb level there was a decreasing chance of transfusion being required.

Anton Reiman

(Dr Sarah Young, Department of Pathology and Dr Greg Walker, School of Pharmacy)
(James Russell Lewis Trust and Commendation)
Title: Nanofibre delivery system for cancer immunotherapy

The amount and duration of antigen presentation to dendritic cells dictates the quality of the subsequent immune response as well as preventing tolerance. Nanofibre devices are advantageous to drug delivery as they have defined structure, molecular composition and predictable biodegradation profiles. This project has demonstrated that an electrospun nanofibre device can be used to activate the immune system in vitro against a model antigen and induce effector cell proliferation, an essential step in the activation of the immune system against cancer. This study suggests that electrospun nanofibre devices are amenable for use as antigen delivery systems for cancer immunotherapy.

Matthew Shrimpton

(Dr Phil Sheard, Department of Physiology)
(Pub Charity Scholar)
Title: Nerve degeneration as a cause of muscle weakness in the elderly

Progressive loss of muscle mass (sarcopenia) is a widespread manifestation of ageing. The precise cause is unknown, but evidence supports motor nerve terminal degradation as a trigger. A protein, Lrp4, has been identified as a synaptic maintenance signal at the mouse neuromuscular junction, so this project investigated whether loss of that signal underpins sarcopenia. Immunohistochemistry and fluorescence microscopy quantified the level of Lrp4 at healthy and degenerating neuromuscular junctions in muscle extracted from an elderly mouse. No significant difference was found between Lrp4 expression at healthy versus degrading synapses which did not support the original hypothesis. However, qualitative assessment of individual synapses indicates potential for future investigation.

Steffi Supangkat

(Professor Indrawati Oey, Department of Food Science)
(Foodstuffs Community Trust Scholar)
Title: Antioxidant capacity of summer fruits and vegetables

Consuming fruits and vegetables are known to reduce the risk of diseases due to the high content of phytochemicals that can act as antioxidant. The purpose of this experiment was to evaluate the effects of processing on antioxidant capacity and bioactive compounds in summer fruits and vegetables grown in Otago and Nelson region. The result revealed that extraction solvent affected antioxidant capacity significantly due to different plant matrix, processing and the complexity of the corresponding phytochemicals. Processing could lead to the formation and release of phytochemical compounds, which could have more antioxidant capacity; but their degradation should also be considered. Moreover, it was found that heating fruits retained more Lascorbic acid due to the inactivation of enzymes.

Elizabeth Williams

(Dr Anne-Louise Heath and Associate Professor Rachael Taylor, Department of Human Nutrition, and Dr Andrew Gray, Department of Medicine)
(Lions Club of Dunedin South Scholar)
Title: Breastfeeding in the first six months of life: Prevalence and problems

Exclusive breastfeeding is recommended for the first six months of life. Breastfeeding problems are a leading cause of breastfeeding cessation; however there is little quantitative evidence of the prevalence and types of breastfeeding problems that occur each month during the first six months of life. The research project described the prevalence of 'exclusive' and 'any' breastfeeding during the first six months of life, the prevalence of different types of self reported breastfeeding problems and when they occur month-by-month during the first six months of life, and to investigate whether breastfeeding problems occur in clusters, in a representative sample of 209 Dunedin women.

Aaron Yap

(Dr Jim Faed and Dr Shinji Chiruka, Department of Pathology)
(Pub Charity Scholar)
Title: An audit of outcomes for patients treated with prothrombinex-VF

Prothrombinex complex concentrates (PCCs) are commonly used to reverse the effects of the oral anticoagulant warfarin, in patients who are actively bleeding, or prior to high risk procedures. Prothrombinex-VF is a PCC, which when combined with Vitamin K, offers fast and complete reversal of warfarin. However, reports indicate PCCs may increase the risk of thrombosis. We retrospectively reviewed 121 patients treated with PTX-VF in Dunedin Hospital and found 5.0% of the patients subsequently had a thromboembolic episode within 30 days. The episodes could not be etiologically linked to PTX-VF use due to the presence of other multiple confounding factors such as patient age and co-morbidity.

Stephanie Yung

(Dr Nick Cutfield and Dr Liana Machado, Department of Medicine)
(J.A. Iverach Scholar)
Title: How does healthy ageing and Parkinson's disease affect strategic control over the eye fixation reflex?

Past research has shown that both healthy ageing and Parkinson disease (PD) may compromise the ability to strategically control the eye fixation reflex. The current research investigated these possibilities by comparing the performance of patients with PD, healthy age-matched controls and healthy young adults. A fixation offset effect (FOE) paradigm with preparation of voluntary eye movements was performed. The time course of the eye movements was recorded by using an eye tracker. Both control and PD groups demonstrated a significant cueing effect and a robust modulation of the FOE. Strategic control over the fixation reflex was preserved in the aged and PD groups.

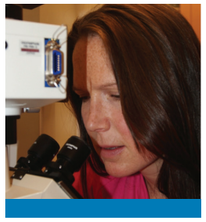
3. RESEARCH GRANTS AWARDED (A) ANNUAL GRANTS AND OTAGO COMMUNITY TRUST GRANTS

These one-year grants are for research concerned with human health and the scientific basis of medicine. In June 2012 there were 28 applications from the University of Otago (cf 27 the previous year) totalling $780,420 and seven of these were funded at a total expenditure of around $177,000 of which $60,000 was provided most generously by the Otago Community Trust. These grants commenced between July and October 2012 and are nearing completion with full reports due 3 months after the one-year grant ends. Progress as at the end of July 2013 is summarised below:

(i) Annual Grants

Dr Anita Dunbier

(Department of Biochemistry)
Investigation of genes involved in breast cancer susceptibility and response to therapy – AG 306
Sponsored by the St Kilda Community Sports Society



Over three quarters of women diagnosed with breast cancer receive anti-oestrogen therapy. Although this treatment is currently the best available, in many cases it is not successful. We have identified three new genes involved in breast cancer that are turned on at the same time as the oestrogen receptor. In this project we are investigating why these genes are turned on together and how this makes some breast cancers respond poorly to anti-oestrogen therapy. We have found that as breast cancer cells become resistant to therapy, specific changes known as DNA methylation occur close to these genes. These changes may help the cancer cells grow in the absence of oestrogen. We hope this will help us to find better ways of treating breast cancer in the future.

Dr Rajesh Katare and Dr Regis Lamberts

(Department of Physiology)
Why do females have a higher risk of diabetic heart disease? – AG 307
Sponsored by OceanaGold

From left to right: Dr Rajesh Katare– Principal Investigator, Andrew Moore– PGDip Sci student, Ingrid Fomison-Nurse– AG 307

Cardiac complications of diabetes are prevalent in women. In fact, while non-diabetic women are generally protected from cardiovascular disease, this advantage is lost in diabetes. Furthermore, diabetic women have significantly higher mortality after myocardial infarction than diabetic men. Our project aimed to understand the unknown mechanisms for this global "female disadvantage" in diabetes. We used an animal model of type-1 diabetes for this project. Serial measurement of cardiac functions using cardiac ultrasound demonstrated marked contractile dysfunction in the female diabetic hearts within 8 weeks after the induction of diabetes, while the male diabetic hearts did not show any significant changes. We also confirmed this by measuring the pressure within the heart using the Millar catheter inserted into the left ventricle. Molecular analysis demonstrated significant reduction in the expression level of a cell survival protein Pim-1 in the female diabetic heart compared to the male diabetic heart at 12 weeks after induction of diabetes. Our earlier studies have demonstrated the major role of Pim-1 in physiological homeostasis of the cardiomyocytes. Further, immune-histochemical analysis confirmed increase in the level of interstitial fibrosis in female diabetic heart compared to the male diabetic heart. In conclusion, the results so far have demonstrated the downregulation of Pim-1 as the mechanism behind the female disadvantage in diabetic heart disease and hence development of novel therapies targeting Pim-1 could help to combat the cardiovascular complication in female diabetic heart.

Dr Anna von Zychlinski-Kleffmann

(Department of Biochemistry)

Lipoprotein(a), new insights into a risk factor for heart disease – AG 305

Sponsored by Kelliher Charitable Trust

Cardiovascular disease (CVD) is still the leading cause of death worldwide.

One major risk factor is a particle known as Lipoprotein(a), (Lp(a)), affecting one in five people. Little is known about the exact function or role of Lp(a) in the development of CVD. The focus of this study is to determine differences between Lp(a) from healthy individuals and those with CVD. The research will establish protein signatures for different Lp(a) particles, and evaluate them as biomarkers for CVD. The initial analysis of Lp(a) associated proteins from CVD subjects revealed that the differences in the Lp(a) proteome are more subtle than anticipated and are more on a quantitative rather than strictly qualitative basis. Therefore we are now investigating 22 proteins, which have all been attributed with interesting properties in conjunction with lipoprotein function, by using extensive absolute quantitation by mass spectrometry. This research will extend our current knowledge of Lp(a) pathogenicity and help solve more of Lp(a)'s mysteries. There is no effective treatment available to specifically lower Lp(a)-plasma levels, with diets and other lifestyle factors showing no or only little effect. We will provide a diagnostic and mechanistic insight into a poorly understood CVD-risk factor, with the potential to identify therapeutic targets.

Dr Adele Woolley and Professor Antony Braithwaite

(Department of Pathology)

Putting a novel prognostic marker for breast cancer through its paces – AG 309

Sponsored by the Southern Victorian Charitable Trust

Breast cancer is the leading cause of death for women. Despite considerable advances in diagnosis and therapy some breast cancers, particularly the highly aggressive types, remain difficult to treat. Identification of new ways to treat breast cancer is most important. Our published research has recently shown that the Y-box binding protein-1 (YB-1) is highly associated with high-grade and aggressive breast cancers. Therefore, targeting YB-1 provides a promising therapeutic strategy. In light of this we have developed a monoclonal antibody that can be used to specifically label YB-1. The OMRF funded research will characterise this monoclonal antibody so that it can be used as a reliable prognostic tool for breast cancer in the future and as a useful laboratory reagent.

Dr Yiwen Zheng and Professor Paul Smith

(Department of Pharmacology & Toxicology)

Role of $GABA_B$ receptors in the dorsal cochlear nucleus in acoustic trauma-induced tinnitus – AG 310

Sponsored by the Southern Trust

Dr Yiwen Zheng & Prof Paul Smith
(Department of Pharmacology & Toxicology) – AG 310

Tinnitus, often described as "ringing in the ear", is a detrimental condition affecting about 10% of the adult population and 14.3% of the population between the ages of 60 and 69. Even though many people do learn to ignore and compensate for the phantom sound, the quality of life is severely affected by tinnitus in about 1-3% of the population. The increase in young people spending prolonged periods of time listening to loud music using headphones is likely to increase the prevalence of tinnitus in the future. At present, treatment options for tinnitus are very limited because we still do not fully understand how tinnitus develops. It has been suggested that tinnitus is generated in the brain by the hyperactivity of brain cells involved in hearing and this hyperactivity might be due to an imbalance between inhibitory and excitatory neurotransmission. Specifically, a down-regulation of GABAergic neurotransmission, the main inhibitory system in the brain, has been proposed. With the awarded grant, we are investigating how the activation of this receptor contributes to the treatment of tinnitus in a specific part of the brain thought to be important in tinnitus pathology. We have exposed the animals to acoustic trauma to induce tinnitus and delivered drugs using brain cannula and an osmotic mini-pump. The animals with and without drug treatment are undergoing behavioural tests for the perception of tinnitus. This will take about 1 month to complete. The results will contribute to the research team's on-going efforts in understanding how tinnitus develops and may lead to translational approaches to tinnitus treatment by developing target-specific therapies that improve the quality of life for tinnitus patients.

(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:

Associate Professor Grant Butt and Lisa Fan

(Department of Physiology)

Colonic sodium bicarbonate and inflammatory bowel disease – CT 303

Lisa Fan PhD student for Associate Professor Grant Butt (Department of Physiology) – CT 303

Inflammatory bowel disease (IBD) is an inappropriate immune response to the normal commensal bacteria found in the intestine, which results in inflammation of the epithelial lining of the intestine. Using a mouse model of IBD we have identified a protein (NBCe1) that transports sodium bicarbonate across cell membranes which is lost from the cells lining the inflamed colon. This protein is thought to be essential for regulation of intracellular pH (pHi), which is critical for the survival of the colonic epithelial cells. It is also thought to drive the secretion of bicarbonate into the colonic lumen. This not only defines the pH of the microbial environment in the lumen, but also is essential for mucus secretion, which along with the epithelium forms a barrier that prevents the commensal bacteria entering the body. In this study we are investigating the effect of the loss of NBCe1 from the inflamed colonic epithelium on the ability of the epithelial cells to regulate their pHi and secrete bicarbonate and mucus. The colonic epithelium consists of two main cell types – surface cells and crypt cells. Both immunohistochemical measurements of the distribution of NBCe1 and functional measurements of the activity of NBCe1 in the surface and crypt cells demonstrated that, in healthy tissue, it was only expressed in the surface cells. Unexpectedly, under basal conditions NBCe1 was inactive and had little role in the regulation of pHi in these cells. However, compounds that stimulate intestinal HCO_{3-} secretion stimulated the activity of NBCe1, suggesting that NBCe1 has a role in HCO_{3-} secretion. Consistent with this, a comparison of the secretory response of the inflamed and healthy colonic epithelium indicated that HCO_{3-} secretion was reduced in the inflamed tissue. Interestingly, this secretory response involves a component that is driven by a chloride/bicarbonate exchanger, and this component is also reduced in the inflamed tissue. This suggests that a global down regulation of HCO_{3-} transporters is associated with inflammation of the colon. We are currently investigating how this affects the secretion of mucus and the formation of the barrier in the inflamed colon.

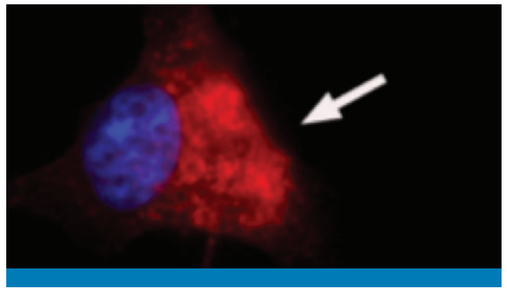
Associate Professor Rhonda Rosengren

(Department of Pharmacology & Toxicology)

Professor Helen Nicholson

(Department of Anatomy)

Combination drug therapy for the treatment of aggressive prostate cancer – CT 304



We have shown that raloxifene, a drug that is approved for the prevention of osteoporosis in post-menopausal women, also has a role in the treatment of aggressive prostate cancer, especially when used in combination. Our results showed that individually raloxifene and a curcumin analog (RL91) were cytotoxic toward PC3 and DU-145 prostate cancer cells. However, combination studies showed that following raloxifene (5 μM) and RL91 (1 μM) treatment, 90% of these aggressive prostate cancer cells were killed. Further experiments were undertaken to determine why raloxifene can dramatically increase the cytotoxicity of RL91. To date we have used immunocytochemistry to show that raloxifene changes the cellular location of key proteins involved in prostate cancer cell growth. Specifically, raloxifene treatment caused the epidermal growth factor receptor (EGFR) and estrogen receptor beta (ERβ) to change their location in prostate cancer cells. Specifically, ERβ, which is normally expressed in the nucleus of PC3 cells, clustered in the perinuclear and cytoplasmic region following raloxifene treatment. Similarly, EGFR expression, following raloxifene treatment, was removed from the cell membrane and became encapsulated in endocytotic vesicles. This effect on receptor trafficking was dose-dependent, as the effect was stronger at 15 μM compared to lower concentrations. Changes to the EGFR and ERb were also shown by Western blotting and both proteins were decreased by ~60% following raloxifene treatment at 15 μM. We postulate that these changes in receptor location are key contributors to the cytotoxicity produced elicited by this new combination therapy.

(iii) Recent Annual Grant Round

In June 2013 there were 43 applications from the University of Otago totalling $1,128,850. Five of these applications were funded by the Foundation (~$112,200) and three by the Otago Community Trust ($60,000). Abstracts of the proposed work can be found on the following website www.omrf.org.nz

(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 2012 there were 14 applications (compared with 13 the previous year) from the University of Otago totalling $342,170 and five of these were funded at a total expenditure of around $90,000. Final reports are not due until the end of March to June 2014, depending on start date of grant. Work in progress is summarised below:

Dr James Crowley

(Department of Chemistry)

Dr Gregory Giles

(Department of Pharmacology & Toxicology)

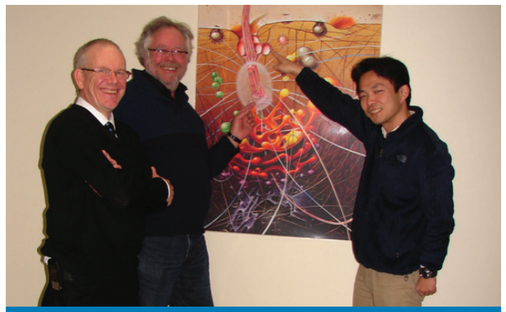
Exploiting palladium nanocages for cisplatin drug delivery – LA 307

Every year in New Zealand cancer affects around 18000 new patients and kills >8000 people. Cisplatin is a widely used anti-cancer agent which is very effective against a variety of tumors. However, this platinum based drug has two major drawbacks, namely general toxicity (leading to undesirable side effects) and drug resistance. We have recently synthesised novel nanoscale cage molecules that are able to bind two molecules of cisplatin within their central cavity. The aim of this research is to show that these palladium containing nanocages can be exploited to deliver cisplatin drugs selectively to tumor sites thereby increasing the efficacy and safety of these platinum drugs. This could potentially result in new, more effective therapeutic protocols for cisplatin administration in the clinic. Initial results on the parent palladium cage system have shown that it is unstable in the presence of a range of biological nucleophiles. While the stability of the parent cage is modest it has been shown to be cytotoxic towards A549 and MB231 cancer cell lines using a MTT assay. This promising initial result indicates that the cages could display synergistic therapeutic effects when the Pd-cage–cisplatin adducts are exposed to cancer cells. A second generation "stabilised" cage has been synthesised and the biological stability, cytotoxicity and cellular uptake of this new system are now being examined.

Associate Professor Graeme Hammond-Tooke, Associate Professor Anthony Poole and Dr Koji Yamamoto

(Department of Medicine)

The effects of lithium on rat sciatic nerve recovery following crush injury – LA 308



From left to right: Professor Graeme Hammond-Tooke, Associate Professor Tony Poole and Dr Koji Yamamoto – LA 308

Loss of myelin, the insulating sheath around many nerve fibres, is a prominent feature of diseases like multiple sclerosis and Guillain-Barre syndrome. The drug lithium has been shown to stimulate both myelin formation and elongation of primary cilia which are small sensory "antennae" found on most cell types including myelinating Schwann cells. The aim of this study was to investigate the role of primary cilia in nerve repair after injury, and to attempt to improve nerve recovery using lithium. We have completed the laboratory work for the first stage of the study. We treated half of a group of 16 rats with lithium added to their food and the other half received a normal diet. We produced crush injury in one sciatic nerve using a forceps under general anaesthesia. The first thing we discovered was that the dose of lithium that we were using was too high, and caused weight loss. By measuring the levels of lithium in the blood, we demonstrated that a lower dose produced the levels seen when lithium is used in humans. Secondly, we have demonstrated that cilia are hard to detect in uninjured nerve, but appear a few days after injury. This was shown using antibodies that stain cilia, and can be made to fluoresce when examined under ultra-violet light. We have optimised the staining methods and are nearly ready to start phase 2 of the study, in which we will attempt to quantify the numbers and length of the cilia over a period of a month following nerve injury. We will also attempt to demonstrate that lithium accelerates nerve recovery and in particular the formation of myelin during the recovery process.

Dr Shakila Rizwan

(School of Pharmacy)

Cubosomes: Novel lipid-based particulate carriers to improve delivery and efficacy of anti-epileptic drugs in drug-resistant epilepsy – LA 309

Epilepsy is a common brain disorder characterised by spontaneous seizures, treated symptomatically with anti-epileptic drugs (AEDs). However, at least 30% of suffers are unresponsive to available AEDs and fail to achieve good seizure control. One possible mechanism of drug-resistance is that the multidrug transporter P-glycoprotein (PgP) moves AEDs outside the cell (efflux), resulting in sub-therapeutic levels in the brain. A promising strategy to increase brain AED levels is by incorporating them in particulate carriers. In this study we will prepare cubosomes, novel lipid-based particulate carriers, to investigate their ability to transport a Pgp substrate, rhodamine (a fluorone dye), in *in vitro* brain cell models. To date we investigated the physical properties of cubosomes such as size, charge and heterogeneity. By quantifying rhodamine concentrations in brain cells, we can determine the effectiveness of cubosomes to overcome Pgp efflux. Preliminary *in vitro* results indicate that cubosomes are able to facilitate uptake of rhodamine in brain cells. Cell culture work is in progress to determine whether uptake of rhodamine-cubosomes by cells results in an increase in permeability, indicating success in overcoming Pgp-efflux and increasing drug levels to the brain.

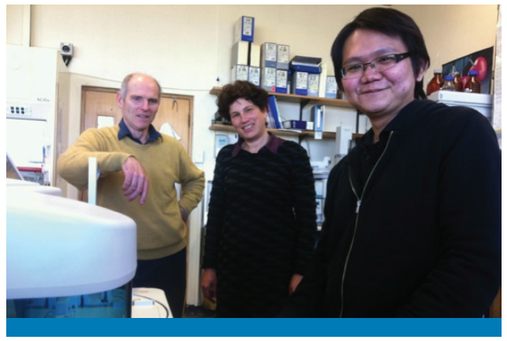
Dr Sheila Skeaff

(Department of Human Nutrition)

Associate Professor Patrick Manning

(Department of Medicine)

Diagnosing mild iodine deficiency in New Zealand adults – LA 310



From left to right: Dr Bernard Venn, Principle Investigator Dr Sheila Skeaff and PhD student Ma Zheng Feei – LA 310

Iodine is required to make thyroid hormones which are needed for normal growth and development, particularly of the brain. A lack of iodine in the diet is still one of the most common nutrient deficiencies in the world today. From the mid 1990s, mild iodine deficiency re-emerged in New Zealand prompting the government to make the addition of iodised salt to bread compulsory in 2009. However, people who eat little or no bread remain iodine deficient. The aim of this study is to determine if a blood component called thyroglobulin can be used to diagnose mild iodine deficiency in adults. In order to ensure that we recruit mildly iodine deficient subjects, we have conducted a small pilot study. Ten adults were asked to collect a casual or spot urine sample on seven different days of the week, and the urinary iodine concentration (UIC) for each participant was then determined by either averaging the individual result of the seven samples or pooling the urine samples. There was no difference ($p = 0.259$) in the mean UIC determined by either method and nine of the 10 subjects were categorised as mildly iodine deficient (i.e. UIC <100 µg/L). To date 91 people have expressed an interest to take part in the study. Of these, 56 people met the inclusion criteria and provided contact details, and from those 56 people, 27 participants have been recruited into the screening phase of the study.

Professor Gerald Tannock

(Department of Microbiology & Immunology)

Measuring the temporal impact of exclusive enteral nutrition on gut microbiota and urinary metabolite profiles of Crohn's disease patients: a pilot study – LA 311

Hypothesis: exclusive enteral nutrition (EEN) results in changes to the composition of the bowel microbiota with consequent alterations to the profile of metabolites in urine, and concomitant reduction in bowel inflammation. Consequent to obtaining ethical approval, recruitment of patients began in the Christchurch Gastroenterology Department in May 2013 and is ongoing. We anticipate that recruitment rates will increase in the coming months due to increased awareness of the study. There have not been any compliance difficulties. The protocols for collection of stool and urine specimens are working well, and all aspects of sample collection and processing are proving feasible and manageable. Literature searches have identified common practices for the preparation of urine samples and analysis of samples using ultra high performance liquid chromatography with dual mass spectrometry (UHPLC/MS/MS) instrumentation. Urine samples for method development have been collected and prepared according to a published protocol, but with the inclusion of a further high-speed centrifugation step for removal of small particulates and desalting prior to UHPLC/MC/MC. A comparative study of extraction methods to obtain DNA from stool has commenced. While our laboratory is experienced in DNA extractions, new and safer methodologies have been described recently. We want to bench mark these new methods against our standard procedure. The computer software pipeline to analyse the bacterial composition of the stool microbiota is well established and tested in our laboratory. Overall, clinical and laboratory aspects of the project are progressing well and will coalesce in the last three months of the year.

(C) JACK THOMSON ARTHRITIS FUND

This is OMRF fund was made possible by a bequest from the late Jack Thomson and commenced in 2011. For the second grant round in December 2012 there were eight applications (compared with three in the previous year) from the University of Otago totalling $180,185 and three of these were funded at a total expenditure of ~$78,600. All grants commenced on 1 April 2013 and final reports are due at the end of June 2014. Work in progress is summarised below:

Associate Professor Warwick Duncan, Mr Diogo Godoy Zanicotti, Dr Dawn Coates and Professor Gregory Seymour

(Sir John Walsh Research Institute, Department of Oral Sciences, School of Dentistry)

Adipose-derived multi-potent progenitor cells for bone regeneration on titanium devices – JT 102

From left to right: Associate Professor Warwick Duncan and Mr Diogo Godoy Zanicotti – JT 101

New Zealand has an aging population with increased prevalence of obesity and physical inactivity, which has resulted in more people presenting with osteoarthritis. Advanced joint disease may be treated surgically by replacing joints with titanium orthopaedic devices. A successful outcome when placing orthopaedic devices is dependent on the presence of sufficient bone at the surgical site to anchor the prostheses. The implantation of so-called adult 'stem cells' or 'multipotent progenitor cells' (MPCs) is been advocated to directly regenerate missing tissue. Our research investigates bone regeneration on titanium surfaces using adipose- (fat-) derived MPCs in a large animal model.

Dr Roslyn Kemp

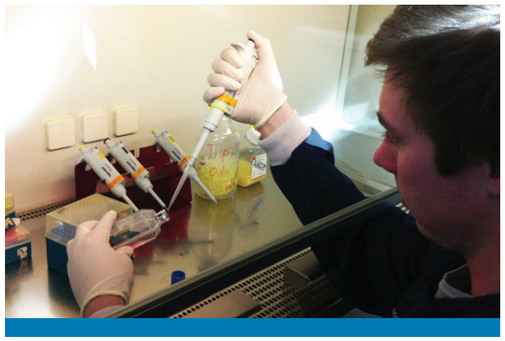
(Department of Microbiology & Immunology)

Associate Professor Michael Schultz

(Department of Medicine)

and MSc student Elliott Dunn

Spondyloarthropathy as a joint-specific manifestation of Inflammatory Bowel Disease – JT 103



MSc student Elliott Dunn conducting experiments - Dr Roslyn Kemp (Department of Microbiology & Immunology) & Dr Michael Schultz (Department of Medicine) – JT 103

Spondyloarthropathy (SpA) is a chronic arthritic disease characterised by inflammation at the junction of the tendon and bone in the lower spine. This disease leads to new bone growth, causing fusion of the vertebrae and severe lower back pain. Current treatments are focused on pain relief and, unlike rheumatoid arthritis, are not highly effective. In contrast, inflammatory bowel disease (IBD) is a chronic, incurable disease characterised by fever, weight loss, bloody diarrhoea and intestinal lesions. These diseases are distinct yet they may arise from a common source. Up to two thirds of people with SpA have chronic intestinal inflammation and many will develop IBD. Furthermore, many genetic mutations of particular genes of the immune response are implicated in both SpA and IBD. Therefore, our aim is to analyse the intestinal immune response of people with SpA in comparison to people with IBD, and people with healthy intestinal tracts. We have developed novel analytical techniques for investigation of different immune cells from the gut of healthy and diseased people. This allows in-depth analysis of a wide variety of immune cell types previously unable to be observed in such detail. Preliminary results suggest a dysregulation of particular immune cells in people with IBD in comparison to those with a healthy gut. Further analysis of people with SpA and IBD will allow understanding of the dysregulated immune response, providing insight into the initiation and progression of these diseases and how they relate to one another.

Associate Professor Tony Merriman, Associate Professor Sally McCormick

(Department of Biochemistry)

Associate Professor Jim Reid

(Department of General Practice)

Is type IV hyperlipoproteinemia causative of gout? – JT 104

The purpose of the Jack Thomson Arthritis grant is to determine whether or not bad lipids (very low density lipoprotein (VLDL)) are a cause of gout. Gout is the most common form of arthritis affecting New Zealanders with a primary cause being elevated levels of uric acid in the blood. The uric acid forms crystals in the joints and painful attacks of gout result from an inflammatory reaction of the immune system. However, not everyone with elevated uric acid (hyperuricemia) gets gout. The grant is funding our experiment to test if high levels of VLDL cause gout in hyperuricemia by comparing levels of VLDL in people with gout, people with hyperuricemia but not gout and people with normal uric acid levels (normouricemia). If our hypothesis is correct, treatment for gout with existing lipid-lowering drugs called fibrates may be possible. The grant is funding the recruitment of people from the Caversham Medical Centre and analysis at the Department of Biochemistry. We have currently recruited and analysed 30 participants, including genotyping for genetic variants that influence VLDL levels. When added to our existing data, the combined data continue to support the hypothesis that increased VLDL is causal of gout. The data currently show that, for every mmol/L increase in triglycerides in VLDL, the risk of gout in the presence of hyperuricemia increases 6.43-fold in Europeans and 2.52-fold in Maori and Pacific (P = 0.013 and 0.047, respectively).

4. OTHER ACTIVITIES OF THE SCIENTIFIC COMMITTEE

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

(1) At the September 2012 scientific meeting of the Otago Medical School Research Society (OMSRS) there were ten doctoral candidates (selected from 15 applicants based on their submitted abstracts). The first Prize ($1,000) funded by Otago Postgraduate Medical Society was awarded to Su Young Han (supervised by Associate Professor Colin Brown and Dr Daryl Schwenke, Department of Physiology) on the topic of "Induction of hypertension blunts baroreflex inhibition of vasopressin neuron activity in Cyp1a1-Ren2 (inducible hypertensive) rats". The second prize ($500), which was funded by the OMRF, was awarded to Seyed Ali Mirjalili (supervised by Professor Mark Stringer, Department of Anatomy) on the topic of "Is iatrogenic injury of the spinal accessory nerve necessarily the surgeon's fault?"

(2) At the May 2013 scientific meeting of the OMSRS there were ten candidates (selected from 26 applicants based on their submitted abstracts). All were summer research scholars and two of the ten (and six of the 26) had been sponsored by the OMRF. The first prize ($500) funded by the OMRF was awarded to Jessica Macindoe (supervisor Associate Professor Steve Kerr, Department of Pharmacology & Toxicology) on the topic of "*In vitro* preconditioning of hippocampal slices with GYKI-52466". The second prize ($250) also funded by the OMRF was awarded to Elliot Dunn (supervisors Associate Professor Grant Butt, Department of Physiology, and Dr Roslyn Kemp, Department of Microbiology & Immunology) for "Long-term *in vitro* expansion of human intestinal organoids". The OMRF-sponsored summer research scholars presenting at the meeting were: Fly Ing-aram (supervisors Professor John Highton and Dr Jo Dockerty, Department of Medicine) funded via the OMRF by Deloitte; and Aaron Yap (supervisors Dr Jim Faed, Department of Pathology, and Dr S Chiruka, Haematology Department, Southern District Health Board) funded via the OMRF by Pub Charity.

The Student Speaker awards are given to the student speakers who, in the opinion of a panel of five 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.

OMRF-sponsored Invited Speaker for the Otago Medical School Research Society:

The opportunity for such sponsorship occurred in August 2013 when an excellent Annual Review Lecture was given by Professor Alastair Ferguson, Professor of Physiology, Queen's University, Canada, on the topic of "Neurotransmitter roles for regulatory peptides in the paraventricular nucleus: ABCs of integrated autonomic control".

OMRF-sponsored prizes at the Otago School's Science Fair:

The Foundation sponsors prizes each year in the Special Prize category (four awards at $50 each) at the Otago Aurora Science & Technology Fair for secondary schools for projects involving medically orientated topics. In August 2013 the recipients were "Sun up, sun down: Height up, height down" by Lachlan Jones (Year 7), "Hearing Damage from iPods" by Jamie Shand (Year 8), "Nap Tap Catch: The Battle of the Reflexes" by Natasha Whyte (Year 9 & 10 group), and "The Quick Fix" by Jack Lim and Eddie Lu (Year 11-13 group). The Foundation's judges were Dr Paula Andrews, Dr Tamlin Conner and Dr Ivan Sammut.

ACKNOWLEDGEMENTS

The Foundation continues to play an ever increasing role in funding Medical Research in Otago – may I thank the Scientific Committee for its dedicated efforts in the arduous, though satisfying, work of assessing the scholarship and merit of the many summer research projects and grant applications that it receives. We thank the Council of the Foundation for the support, advice and enthusiasm with which our funding recommendations are endorsed and the many Benefactors of the Foundation whose financial support has made all this possible.

FINANCIAL STATEMENTS

FINANCIAL HIGHLIGHTS
OTAGO MEDICAL RESEARCH FOUNDATION INC.

This summary financial report has been authorised for issue by the Chairperson of the Council Mr Ken Dempster. The results presented in the summary financial report have been extracted from the full financial report for the year ended 31 March 2013. As such, this summary report cannot be expected to provide as complete an 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 2013 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 2013

	2013	2012
	$	$
Operating Income		
Donations, Bequests, Subscriptions	419,964	309,286
Investment Income	269,259	264,469
Profit (Loss) on Disposal of Investments	(30,472)	1,078
	658,751	**574,833**
Less Expenses		
Administration	59,801	63,241
Promotion Costs	163,211	88,171
Total Expenses	**223,012**	**151,412**
Net Surplus before Research Grants	**435,739**	**423,421**
Research Grants	345,282	349,226
Net Surplus for the year	**90,457**	**74,195**

Statement of Financial Position

As at 31 March 2013

	Market Value	2013	2012
		$	$
Current Assets		**265,932**	**100,689**
Investments	4,807,593	**4,755,667**	**4,744,730**
Total Assets		**5,021,599**	**4,845,419**
Current Liabilities		**138,293**	**52,570**
Total Liabilities		**138,293**	**52,570**
NET ASSETS (EQUITY)		**4,883,306**	**4,792,849**

Forward commitments for grants approved but not yet paid at balance date total $309,384

Statement of Movement in Equity

For the Year Ended 31 March 2013

	2013	2012
	$	$
Revenue		
Net Surplus	90,457	74,195
Total Recognised Revenues and Expenses	**90,457**	**74,195**
Equity at the Beginning of the Year	4,792,849	4,718,654
Equity at the End of the Year	**4,883,306**	**4,792,849**

Deloitte

The full financial report of the Otago Medical Research Foundation for the year to 31 March 2013 were authorised for issue by the Chairperson of the Council. The full financial statements applied differential reporting concessions. 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

REPORT OF THE INDEPENDENT AUDITOR ON THE SUMMARY FINANCIAL STATEMENTS

To the Council of the Otago Medical Research Foundation

The accompanying summary financial statements, which comprise of the summary Statement of Financial Position as at 31 March 2013, the summary Statement of Financial Performance and the summary Statement of Movements in Equity for the year then ended, and related notes, are derived from the full audited financial statements of the Otago Medical Research Foundation. We expressed an unmodified audit opinion on those financial statements in our report dated 27 June 2013. Those financial statements, and the summary financial statements, do not reflect the effects of events that occured subsequent to the date of our report on those financial statements.

The summary financial statements do not contain all the disclosures required for full financial statements under generally accepted accounting practice in New Zealand. Reading the summary financial statements, therefore, is not a substitute for reading the full audited financial statements of the Otago Medical Research Foundation.

Council's Responsibility for the Financial Statements

The Council are responsible for the preparation of a summary of the audited statements in accordance with FRS-43: *Summary Financial Statements.*

Auditors Responsibility

Our responsibility is to express an opinion on the summary financial statements based on our audit procedures, which were conducted in accordance with International Standard of Auditing (New Zealand) (ISA (NZ)) 810, "Engagements to Report on Summary Financial Statements".

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

Opinion

In our opinion, the summary financial statements derived from the audited full financial statements of the Otago Medical Research Foundation for the year ended 31 March 2013 are consistent, in all material aspects, with those financial statements, in accordance with FRS-43

27 June 2013
Dunedin
CHARTERED ACCOUNTANTS

INFORMATION ABOUT THE FOUNDATION CHARITIES REGISTRATION NUMBER CC33444

SUBSCRIPTIONS:

Current subscriptions are $30 per annum for Ordinary Members, $100 per annum for Research Patrons (business firms or corporate bodies), and a minimum of $500 paid by individuals, ($1,000 for corporate bodies), applying as Life Members.

Although business firms are welcomed as Ordinary Members, in order to assist in expanding the work of the Foundation, they are invited to consider joining as Research Patrons or Life Members. The Foundation is an approved body for Income Tax purposes, and is registered for GST purposes. The taxation position in respect of donations and subscriptions is as follows:

COMPANIES:

- From 1 April, 2008 a company making cash donations, or paying a membership subscription to any one donee may treat the amount as a deductible item for tax purposes up to the amount of their net income.

MEDICAL PRACTITIONERS:

- Annual subscriptions - claim as a deduction.
- Donations - can be claimed as a rebate as for individual taxpayers.

INDIVIDUAL TAXPAYERS (INCLUDING FULL-TIME SALARIED DOCTORS):

- All taxpayers are entitled to a rebate on subscriptions and donations in excess of $5. Receipts should be attached to the Donations Rebate Form in support of the claim. From 1 April, 2008 taxpayers are able to claim a 33.33% tax rebate on all donations up to their annual net income.

GIFT AND DEATH DUTIES:

- No gift duty is payable by an individual on gifts to the Foundation.

REMEMBRANCE DONATION:

- When you consider this substitute in place of a floral tribute, write or telephone the Secretary giving the name of the deceased, the relationship to the deceased, the relationship to the bereaved, and the name and address of the bereaved. A letter of condolence will be sent to the bereaved notifying them that you have made a donation in place of a floral tribute.
  An acknowledgement, with a receipt for your donation (which may be tax deductible), will be sent to you. This is a dignified and practical way of expressing your condolence, which is invariably appreciated by the bereaved.

MEMBERSHIP:

- A form for membership application or donations is included on page 2 of this report.
  Further information or brochures will be supplied on request to the Secretaries, Deloitte, P.O. Box 1245, Dunedin. Telephone (03) 474-8630.

FUNDING PATHWAY

The Otago Medical Research Foundation made steady progress as it applied a conscious and deliberate funding strategy during the 2012/2013 financial year. A number of charitable Trusts, organisations and companies joined the Foundation in partnership with the details as follows:

Air Rescue	$5,000
Bendigo Valley	$2,000
Cutlers Real Estate	$1,350
VMD Collier	$5,000
Deloitte	$5,000
Dunedin Casino Charitable Trust	$1,000
P & J Fitzgerald (Club Otago)	$2,500
Foodstuffs Community Trust	$5,000
H Fraser	$10,000
Dr Ailsa Goulding	$4,000
Emeritus Prof B F Heslop	$2,000
JAD Iverach Memorial Fund	$2,000
J N Lemon Charitable Trust	$30,000
J R Lewis Trust	$5,000
Kingston Sedgefield Charitable Trust	$3,200
Lions Club of Dunedin South	$5,000
MM & JH Hughes Family Trust	$2,500
Oceana Gold	$5,000
Otago Diabetes Trust	$2,400
Otago Service Clubs Medical Trust	$5,000
Pub Charity	$10,000
PWC Foundation	$5,000
Shacklock Trust	$1,000
Southern Victorian Charitable Trust	$35,000
St Kilda Community Sports Society	$12,000
The Community Trust of Otago	$60,000
WHK Otago	$5,000

During the 2012/2013 financial year, the following individuals have made donations to the Foundation:

Mr M G Bell
Rev Dr J R Brinsley
Mr J Burton
Mr N A Carroll
Caversham Pharmacy (2005) Ltd
Dr S O Chin
Mr E J Chronican
Dr M Coleman
Dr A Cook
Mr K G Dempster
Mr G G Dunckley
P & J Fitzgerald (Club Otago)
R J & S A Harvey
Mr & Mrs S D Jones
Prof R Laverty
Mr R Lewis
S McChesney
Dr B T McMahon
Dr J A McMahon
H Nukada
Dr E L Phelan
C & J Trotman
Dr M Turner
Dr & Mrs G P White
Mr T J Williams
Mrs S M Willkinson

LIST OF MEMBERS

ORDINARY MEMBERS

Prof W C Abraham
Mr S G Amsden
Dr F J Austin
Assoc Prof M A Baird
Mr M G Bell
Rev Dr John R Brinsley
Mr John Burton
Mr N A Carroll
Caversham Pharmacy (2005) Ltd
* Dr S O Chin
* Mr E J Chronican
Dr J I Clayton
Dr M Coleman
Dr A Cook
Assoc Prof P A Cragg
Mr K G Dempster
* Mr G G Dunckley
Dr J M Faed
* Fairmaid Chance & Crawford
Mr M Farry
* Prof F N Fastier
Dr B Galland
Mrs H L Gibson
Prof W Gillett
Dr P R F Gootjes
Prof A Goulding
Dr S J Greaves
* Ashburn Hall
Dr R J Harvey
* Mr J H Heslop
Prof B F Heslop
Dr M Hibma
Prof J Highton
Dr R S J Highton
Mrs L Homersham
Dr C Mck Holmes
Mr M C Horne
* Prof J B Howie
Mr A K Jeffery
Prof D T Jones
Mr & Mrs S D Jones
Dr R B Keillor
Assoc Prof I L Lamont
Prof R Laverty
Dr Liz Ledgerwood
Mr R Lewis
Mrs J W McChesney
Prof A C B Molteno
Prof J G Mortimer
Dr R Nada-Raja
Dr J Ng
Dr H Nukada
Assoc Prof D Oorschot
* Prof D G Palmer
Assoc Prof D J Perez
Prof G B Petersen
Dr E L Phelan
Prof A E Reeve
Assoc Prof J J Reid
Assoc Prof A Rich
Prof A M van Rij
Prof L R Robinson
Mrs M I Rowe
S Saunderson-Warner
Dr M Schlup
Prof D C G Skegg
Prof R D H Stewart
Dr W Sutherland
Mr M Thompson-Fawcett
Dr M Turner
Dr & Mrs G P White
Dr S Wilbanks
* Mrs S M Wilkinson
Mr T J Williams
Prof D Wilson
Dr R A Wright
Dr M E Wyatt
Dr A I Yelavich

** Indicates Founder Member*

RESEARCH PATRONS

AMI Insurance Limited
Respiratory Research Unit (University of Otago)
Hope & Sons Limited
Asthma Society Inc.

LIFE MEMBERS

Cadbury Confectionary Ltd
Mrs J Callon
Cerebos Gregg Ltd Mr L Chronican
Ciba-Geigy NZ Ltd
Donaghys Industries Ltd
Dunedin City Council
Mr S Davie
Farra Dunedin Engineering Ltd
Dr C M Goodall
HealthCare Otago Ltd
Dr R S Henderson
Janssen-Cilag Pty Ltd
Lions Club Dunedin South
Ms S Mackinlay
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Marsh Family Trust
Dr J A McMahon
Northern Southland Transport Ltd
Schering (NZ) Limited
Roche Products NZ Ltd
St Margaret's College Council
Mr I A Thomson
Mr H R Wilson & Mrs N Ellis

HONORARY LIFE MEMBERS

Mr & Mrs L J Brown
Rotary Club of Dunedin South
Mr G T Adams
Mr P C L Gibson
Rotary Club of St Kilda
Prof J I Mann
Dr C N A & Mrs J Trotman

Otago Medical Research Foundation Inc.

Annual Report to 31st March 2013
& Notice of Annual General Meeting