

A full-page background image showing the silhouettes of a man, two children, and two dogs walking along a beach at sunset. The sun is low on the horizon, creating a warm orange and pink glow in the sky. The wet sand reflects the figures and the colorful sky. The man is on the left, walking towards the right. Two children are in the center, also walking right. A small dog is on the left, and a larger dog is on the right, both walking towards the right. The sky is filled with soft, colorful clouds.

2013

annual report



liwa
Lung Institute
of Western Australia Inc

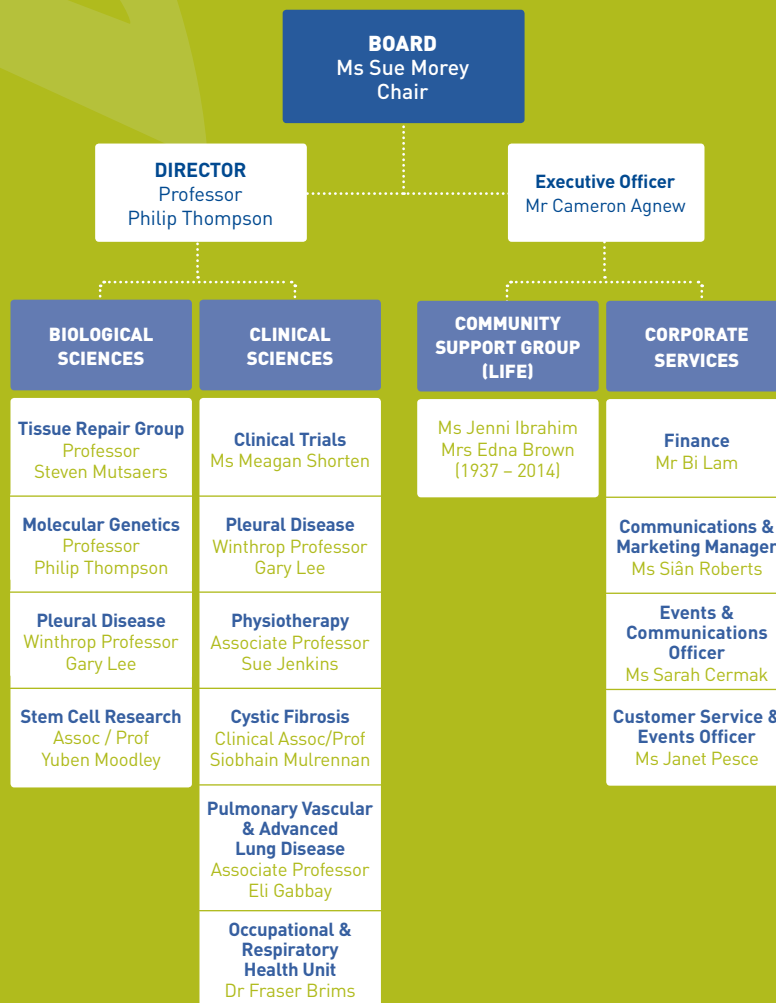
key achievements for 2013

- The Lung Institute of WA research units grew their reputations as centres of excellence, being awarded research grants with a combined value of over \$1.2million in 2013.
- Our Research Grants Program in turn awarded \$150,000 to Western Australian respiratory researchers and \$120,000 to students.
- Our senior staff continue to be highly visible internationally for their work in lung research in areas such as mesothelioma, cystic fibrosis and asthma.
- The Clinical Trials Unit continued its reputation as one of the leading recruiting sites internationally, and broke its own records for the numbers of patients seen and recruited.
- We were recognised in the media as a source of expertise for respiratory health, with press coverage reaching a potential readership of over 40 million people.
- Our public profile was increasingly recognised through community and fundraising events, as well as selection for community awards and sponsorship.

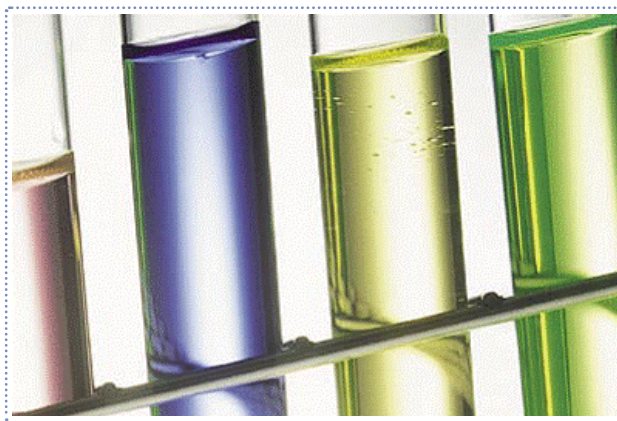


MAKING A DIFFERENCE

organisation chart



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liwa
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of Western Australia Inc

our aims

The aims of LIWA are to:

- Support high quality research into the treatment and management of lung diseases including asthma, chronic bronchitis, emphysema, bronchiectasis, cystic fibrosis, pulmonary vascular diseases, pleural disease, lung cancer, pneumonia and tuberculosis.
- Support research into associated conditions.
- Improve the well-being of patients.
- Support the careers of young scientists.
- Provide a strong educational and scientific resource for the community at large.
- Be an advocacy group for better lung health.

about LIWA



The Lung Institute of Western Australia (LIWA) is a charitable organisation dedicated to the investigation and treatment of lung disease. As one of only three institutes in Australia with this focus, LIWA prides itself on world-class laboratory science, clinical research and clinical practice with the purpose of making a difference to those with lung disease. Our philosophy is that everyone who comes into contact with the Institute should be better informed and healthier for the experience.

Objectives

The objectives of LIWA are to:

- Establish and maintain a centre of excellence for research into all aspects of lung disease that will: conduct laboratory, clinical and epidemiological research into the cause, diagnosis, prevention and treatment of lung diseases.
- Support doctors, scientists, students and other individuals to pursue research careers in lung disease and related disorders.
- Foster international and national networks for research into lung disease.
- Promote prevention and best practice in lung diseases by providing community and professional education.
- Be a source of expert knowledge in relation to lung diseases for health professionals, government, community groups and individuals.
- Provide leadership in the management and prevention of lung and related disorders.
- Be a source of clinical advice to patients with lung disease.



- Be and advocate for patients with respect to lung diseases.
- Reduce the prevalence of cigarette smoking in the community.
- Raise funds to support research and education in lung diseases and related disorders.

Background and inspiration to LIWA

Lung disease is a common, disabling issue which requires ongoing commitment to the investigation of its causes, treatment and cure. Diseases such as asthma, COPD (emphysema and chronic bronchitis), pneumonia, pleural disease, lung cancer, pulmonary hypertension, cystic fibrosis and bronchiectasis cause significant disability to individuals as well as placing a large burden on the health system. With one in four people affected by chronic lung disease, research into this group of diseases is a priority for government, health organisations and research bodies around the globe.

LIWA's approach to respiratory disease is to integrate scientific research and clinical practice. As a result, many diseases are being addressed and investigated utilising the very best of laboratory and clinical sciences and clinical trials.

LIWA's history

LIWA was founded in February 1998 by Professor Philip Thompson, one of Australia's leading respiratory clinicians who is well recognised for his achievements in research and clinical respiratory medicine.

In 2006 the Institute changed its name from the Asthma & Allergy Research Institute (AARI) to the Lung Institute of Western Australia to reflect the broadening scope of its activities.

LIWA is based at Sir Charles Gairdner Hospital in Nedlands, Western Australia and has operations at Royal Perth Hospital as well as strong affiliations with the University of Western Australia (UWA) and Curtin University.

The Institute is committed to strengthening partnerships and affiliations with other academic and respiratory organisations for the benefit of improving the respiratory health of the community.



chair's report Sue Morey

In my role as Nurse Practitioner for people with cystic fibrosis I often come across people for whom I wish I could wave a magic wand, take away their symptoms and improve their quality of life. From my point of view, struggling to breathe is a physical disability that goes largely unnoticed because when people can't breathe, they disappear from public life.



In my role as Chair of the Lung Institute of Western Australia I don't have access to a magic wand, but I am invested in the next best thing – world class scientific and clinical research that makes a real difference to the lives of people living with chronic lung disease.

Our researchers use the latest technologies and contribute to the global drive to end suffering at the hand of respiratory health problems. My job is to make that journey as smooth as possible for our researchers and to allow them as much time focusing on their work as possible.

In 2012 the Board of Directors commenced a succession plan for the position of Director of the Lung Institute of Western Australia. A challenging task – any Scientific or Clinical Director would need to be passionate about both areas, as well as having a head for business. They would also require the creative vision to ensure the Institute expands, improves, collaborates and overall, finds success in all areas of our research.

Given our new home in the Harry Perkins Institute of Medical Research building, I'm confident our search in the respiratory world will provide an attractive opportunity for the right person – offering the state of the art building and facilities to all our staff.

On behalf of the Institute I would like to share my gratitude of the support of our Patron, Chief Justice Wayne Martin, and ambassadors Glenn Mitchell and Karen Tighe. All three supporters contributed their time and energy throughout 2013, getting behind our awareness raising campaigns and members' events.

Our productive relationship with the University of Western Australia continued in 2013 through the Centre of Asthma, Allergy and Respiratory Research (CAARR), as did the support we receive from Sir Charles Gairdner Hospital.

Thanks also to the continuing special relationship with Westcare Inc who again provided our annual grant supporting research into infections lung diseases.

A special mention needs to go to the Harry Perkins Institute of Medical Research (formally the Western Australian Institute of Medical Research). In 2013 a world-class facility was built and opened its doors to the Lung Institute and numerous other medical research organisations encouraging collaboration and improving scientific efficiency. This exciting move has us located at the heart of WA research with new laboratories, office space and facilities for all concerned.

Our researchers remain at the core of our purpose to improve the lives of people with lung disease.

A well respected and long standing board member, Bill Manning stepped down from the Board of Directors in March. Bill was the inaugural chair from 1998 to 2002, then Chair from 2004 to 2012. His contributions will be remembered as invaluable and we wish him all the best in the future.

We also said goodbye to Mrs Ann Witt in 2013, as well as Professor Alistar Robertson. We welcomed three new board members in Prof George Yeoh, Assoc/Prof Simon Leunig, and Winthrop Prof Geoff Laurent.

Our researchers remain the core of our purpose to improve the lives of people with lung disease, and I would like to thank all of them for their tireless work to find the answers to the most challenging of questions.

In conclusion I thank all of our LIWA members, my fellow board members, including our Director Professor Philip Thompson for their service in the past year.

Sue Morey
Chair



director's report

Professor
Philip Thompson



Research

Our much valued researchers were recipients once again of a myriad of high profile grants, including those awarded by the NHMRC (Tissue Repair Group, Stem Cell Unit, and the Advanced Lung and Pulmonary Vascular Diseases Unit), Asthma Foundation (Molecular Genetics Unit), Sir Charles Gairdner Osborne Park Health Care Group Research Advisory Committee (Molecular Genetics Unit, the Tissue Repair Group and the Pleural Diseases Unit), Telethon New Children's Hospital Research Fund and the Ada Bartholomew Medical Research Trust (Stem Cell Unit).

Despite these successes, the scientific research grant market remains highly competitive, the availability of research funds remains limited and WA is winning a much smaller proportion of national grants than was the case 5 years ago. Our research staff need to spend considerable time applying for grants whilst at the same time carrying out practical research.

The grants awarded in 2013 are a testament to the dedication, professionalism and commitment to advancing research and knowledge into respiratory disease, and their work is appreciated on all levels.

The Clinical Trials Unit continued to perform strongly, conducting 20 trials for new medications during 2013. The staff saw over 100 patients per month, not only contributing hugely to the world of clinical research, but also improving the lives of each of our valued volunteers. Participants in our clinical trials give their time generously and in return our staff ensure they receive health education, health support and advice and better management – no matter whether they are on active treatment, placebo or in an open label phase or not.

A significant number of manuscripts were published throughout 2013, contributing to the global knowledge of respiratory treatment and research. Publications varied from basic science discoveries through to applied studies of better treatment techniques.

During 2013 we were delighted to welcome the formation of a new research unit: Occupational and Respiratory Health Unit, headed by Dr Fraser Brims. Fraser has had a distinguished career in the UK and we look forward to seeing this unit flourish.

Community Support

Our community lung testing took on a new look when the Corporate Services Unit launched the Search for Perth's Best Set of Lungs, recruiting local celebrities for a community leader board. The campaign successfully raised awareness of lung health and tested over 250 individuals. In 2014 the Fremantle Dockers will support the campaign, raising the Institute's profile further.

The Corporate Services Unit also initiated new fundraising events including Cook for a Cure, and continued to support peer-to-peer fundraisers at the Delirium 24 Hour Cycle Race, HBF Run for a Reason and the Melbourne Cup Luncheon.

These fundraising events not only help to raise awareness of lung disease and the profile of the institute, but are vital in growing our donor database and increasing our income from areas other than scientific research grants. These initiatives will continue to grow and take the pressure off our researchers, allowing them to focus on the task at hand – improving the health and wellbeing of people living with chronic lung disease.

Organisational Structure

At the end of 2013 we publicly announced that I would be stepping down once the Board was able to find a replacement. This is an important step for the evolution of the Institute and it is time for the organisation to be stimulated by new ideas, aspirations and energy to take it to the next level. We all look forward to this occurring. My day-to-day work with respiratory disease patients has continuously stimulated my passion and drive for the work that we do. The 'invisible disability' that constitutes being unable to breathe needs to be embraced long into the future.

I look forward to the new directions that LIWA will take, and wish to acknowledge our Patron, Ambassadors, Board of Directors, members, staff and researchers past and present for their involvement in the Lung Institute of Western Australia.



Professor Philip Thompson | Director

board of directors

LIWA is governed by a Board of eight (Non-Executive) Directors who contribute a broad range of experience in differing aspects of respiratory medicine and research, as well as legal and corporate skills. The voluntary Board members are committed to ensuring that LIWA fulfils its purpose and has the required vision. Ex-officio members of the Board include the Director of LIWA and nominees from any formally affiliated organisations.

The Board meets regularly to make key decisions, help shape the direction of the Institute and to ensure that LIWA is acting in accordance with its Mission and Objectives.



Ms Sue Morey OAM, FRCNA

Chair

Nurse Practitioner in
Respiratory Medicine;
Board of Directors Westcare Inc.



Professor Lou Landau AO, MBBS MD

FRACP Deputy Chair

Emeritus Professor of Paediatrics,
University of Western Australia;
Chair of the Postgraduate Medical
Council of Western Australia.



Mr Jesper Sentow BSc (Econ)

CPA MBA Treasurer

Chair of LIWA Finance Committee.
Management Consultant.



Mr Bill Coleman AM BSocSc,

BJuris LLB Secretary

Chair of LIWA Governance and
Risk Committee.

Chairman of the Salaries and
Allowances Tribunal of
Western Australia.

Former Chief Commissioner of the
WA Industrial Relations Commission.



Winthrop Professor

Geoffrey Stewart BSc PhD

Chair of LIWA Scientific Sub-committee

School of Pathology and
Laboratory Medicine,
University of Western Australia.



Mr Johnson Kitto LLB
Managing Partner
of Kitto & Kitto,
Barristers & Solicitors.



**Winthrop Professor
Geoff Laurent BSc PhD FRCP(Hon)
FRCPATH FMedSci**
Director of the Centre for Cell
Therapy and Regenerative Medicine,
University of Western Australia.
Honorary Fellow at University
College London.



**Professor George Yeoh BSc PhD
(UWA appointed representative)**
Head of Liver Disease and
Carcinogenes Unit, Centre for
Medical Research, University of
Western Australia.



**Assoc Professor Simon Leunig
MEd MBA BPhEd**
Dean of International Student
Admissions.



**Professor Philip Thompson
MBBS FRACP FCCP MRACMA
Director**
Director of the Lung Institute of WA.
Clinical Professor Curtin University.
Board of Directors Westcare Inc.
Past President, Thoracic Society of
Australia and New Zealand.
Former Editor-in-Chief of Respiriology.



**Mr Bill Manning BA, LLB (Qld)
(until March 2013)**
Senior Lawyer, Department of
State Development, Western
Australia.



**Professor Alistair Robertson
BSc (Hons) PhD (until March 2013)**
Pro Vice Chancellor Research
Initiatives, University of Western
Australia. Dean of Faculty of
Natural and Agricultural Sciences,
University of Western Australia.



**Mrs Ann Witt BBus MBA
Exec CPA GAICD (until October 2013)**
Director of Finance at the
Anglican Church Diocese of Perth.
Board of Directors Westcare Inc.

Subcommittees of the Board

Finance: Jesper Sentow (Chair), Cameron Agnew,
Philip Thompson.

Governance and Risk: Bill Coleman (Chair), Lou Landau,
Cameron Agnew.

Scientific: Professor Geoff Stewart (Chair),
Professor Clive Robinson*, Professor Robyn O'Hehir*,
Professor Stephen Holgate*, W/Prof Geoff Laurent.

* External to LIWA



community activities

The Lung Institute of Western Australia extends its sincere thanks to all of our donors, volunteers and members who supported us in 2013.

Every single contribution is enormously appreciated and needed.

Sponsors



Volunteers

Thank you to all our volunteers who gave their time during lung testing and all our fundraising, membership and social events throughout 2013. We couldn't do it without you!

Major Gift Givers

Westcare Inc	Bi Lam
Mr and Mrs John & Afra Wilder	Philip Thompson
Joanne Barratt	Greg Walkington
William and Norma Barratt	Mal Tiet
Jane Barratt	Tony Tribe
Perth School of Ballet	Martin Rosenberg
William Darby	Karen Wedemeyer
Janet Pesce	

Major Fundraisers

Lyndell Gore, Cook for a Cure
Dr Svetlana Baltic, Cook for a Cure
Cowaramup Meats Specialists,
Delirium 24 Hour Cycle Race
Philip Thompson,
Delirium 24 Hour Cycle Race
Melyssa Flynn, Delirium 24 Hour Cycle Race
Cameron Agnew, Delirium 24 Hour Cycle Race
Janine Ban, HBF Run for a Reason
Sarah Cermak, Cook for a Cure
Ben Castlehow, Delirium 24 hour Cycle Race
Lauren Schipp, HBF Run for a Reason
Joel Nicholson, Delirijm 24 Hour Cycle Race
Cameron Agnew, Cook for a Cure
Sally Lansley, HBF Run for a Reason
Dumindi Dalugoda, Cook for a Cure
Fouad Haddad, Delirium 24 Hour Cycle Race
Jordan Haddad, Delirium 24 Hour Cycle Race
Catherine Keegan, Cook for a Cure

Delirium 24 Hour Cycle Race 2013

The third annual Delirium 24 Hour Cycle Race took place in April in Cowaramup, WA, with the Lung Institute of WA chosen again as charity partner.

Melyssa Flynn, Sally Lansley, and the 'LIWA Delirium Dynamos' cycled for 24 hours over Saturday and Sunday and completed nearly 1,000 kms between them.



^ Leah Hamer rides for LIWA

\$11,648.50 was raised for respiratory research and to help raise awareness of lung health. LIWA also conducted free lung screenings for the public in Bunbury and Busselton prior to the event.

Donation of trophies by: Allsports Trophies and Engraving in Booragoon

Donations towards 'Ride for Rewards': Crank'n Cycles Collie; Margaret River Cycles and Repairs; Passmore Cycles; and Kauri Sports.



^ Melbourne Cup luncheon at Frasers Kings Park

Melbourne Cup Luncheon

Once again a dedicated group of volunteers coordinated fundraising events in support of the LIWA Glenn Brown Memorial Grant. This year over \$48,000 was raised at the 1920's Great Gatsby themed event, held at the State Reception Centre, in Frasers, King's Park.

The glamorous event celebrated its 15th year of raising money to fund the Glenn Brown Memorial Grant for Cystic Fibrosis and Bronchiectasis Research.

The event is run entirely by volunteers, with many LIWA staff members volunteering their time to help on the day. A special mention must go to Mrs Janeine Thomas and Suzanne Sheridan who work tirelessly with their committee for many months leading up to the day.



Search for Perth's Best Set of Lungs

LIWA conducted free lung testing around the metro area during the month of May to raise awareness of lung health and find Perth's Best Set of Lungs.



^ Ross Glendinning taking spirometry test

Celebrity football personality Ross Glendinning came on board and provided his test results as a watermark for the rest of Perth to beat. LIWA Patron Chief Justice the Honourable Wayne Martin and Ambassador Karen Tighe also offered their lung test results.

Over 285 people were tested, and encouraged to participate in the HBF Run for a Reason. The participants who fundraised online were able to gift \$3,855 to respiratory research.

The Orange Seed Project

LIWA was a top 10 finalist in the Orange Seed project – a video competition – collecting \$20,000 of advertising from the West Australian to use in 2014.

The Big Breath for COPD

LIWA conducted over 250 free lung tests for members of the public on World COPD day in November.

Cook for a Cure

As part of Research Australia's Cook for a Cure, participants cooked their way to curing asthma by sharing a meal and raising awareness of the importance of scientific research into medical conditions at the same time.

LIWA raised over 30% of the total gifts given across all Australian organisations that were a part for this year's Cook for a Cure, enabling us to put \$7,529 towards research into severe asthma.

v Russell Blaikie and Prof Phil Thompson at Parliament House



Medical Research Seminar Series

The LIWA Medical Research Seminar Series provides a forum for leading researchers to present findings from current research to their clinical and scientific peers. LIWA acknowledges the financial support it received from sponsors AstraZeneca and Takeda NycoMed.

In 2013 the Institute presented nine seminars, with over 350 members of the scientific and medical community attending. The following presentations were made:

Caitlin Broderick and Kirsten Mooney

Thoracic cancer nurse co-ordinators,
WA Cancer and Palliative Care Network,
Sir Charles Gairdner Hospital

'Changing attitudes on Lung Cancer:
Hope for a hidden disease'

Professor George Yeoh

Head, Liver Disease and Carcinogenesis,
Centre for Medical Research,

'Liver progenitor cells: friend or foe'

Associate Professor Robert McLaughlin

Optical + Biomedical Engineering Lab,
University of Western Australia

A microscope in a needle: New technologies
to image disease

Clinical/Professor Stephen Stick

Head, Department of Respiratory Medicine,
Princess Margaret Hospital for Children,

'New approaches to prevent airway inflammation in
early CF lung disease – from mummies to MetaGex

Dr Sarra Jamieson

Genetics and Health Division, Telethon Institute for
Child Health Research

'Understanding childhood susceptibility to otitis
media: genetic and environmental risk factors'

Professor Ruth Ganss

Head of Angiogenesis and Tumor Immunology
Research, Western Australian Institute for Medical
Research

'Regulator of G protein Signalling 5 and Vascular
Remodelling'

Dr Anthony Bosco

Immunology & Genomics, Telethon Institute for
Child Health Research

'Role of gene networks in asthma'

Associate Professor Deborah Lehmann

Principal Research Fellow, Division of Population
Sciences, Telethon Institute for Child Health
Research

'Confronting the killer: epidemiology and prevention
of pneumonia in Papua New Guinean children'

Visiting Speakers

Professor Kenneth R. Chapman

Director, Asthma and Airway Centre of the University Health Network

'Canadian Research in Respiratory Health Care Delivery: A presentation on the latest research on Alpha1 Antitrypsin Deficiency, pulmonary function testing and respiratory health care delivery issues.'

Professor Sam Janes

Consultant, National Health Service (NHS), Respiratory Medicine, UK

'Cell therapies for lung cancers and mesotheliomas'

LIWA Members

LIWA continues to enjoy the strong support of its members, who comprise individuals from the scientific / medical sector, as well as the broader community, students and the corporate sector. Membership of LIWA is open to all, reflecting the Institute's desire to be a transparent and accountable organisation, serving the needs of those who support it and aiming to be of value to as broad a group of people as possible.

A morning tea was held in July 2013, and a Christmas function in December for members of the Institute at which they were thanked for their continued support.

Corporate Members in 2013 were:

- **The Doctor Shop**
- **Westcare**
- **Turner Freeman Lawyers**
- **Michael Thomas Musk**

The total membership for 2013 was 187 members of which 49 were scientific.



^ Janine Ban receives her award from
LIWA Ambassador Karen Tighe

Hero Award

The LIWA Hero Award was established in 2010 by the Directors of the Lung Institute of Western Australia to celebrate the contribution made to LIWA by its members.

The award acknowledges the support and commitment an individual member has demonstrated for LIWA in the previous year.

LIWA Hero 2013 Mrs Janine Ban

We were delighted to announce that Mrs Janine Ban had been nominated and chosen as the 2013 Hero.

Despite having had asthma for most of her life – in her early twenties she was spending two weeks out of four in hospital and was widely regarded as having the most severe asthma in Perth – Janine has been truly inspirational to her fellow patients, to those who look after her and just simply to everyone she meets and to anyone who knows her story. In spite of what she endures with complex treatments, regular check-ups and regular hospital trips (at least four per week), she always has a smile. Janine is forever positive in her approach and has time to reach out and help others.

For all these reasons we believe Janine is a truly worthy recipient of the 2013 LIWA Hero Award.

LIWA Hero Honour Roll

2012 Mrs Janiene Thomas and Ms Alison Guest

2011 Mr Paul Barratt

2010 Mrs Edna Brown & Dr Jenni Ibrahim

lung information and friendship for everyone – LIFE

L I F E, LIWA's community support group, continues to flourish. Members met 14 times, including 10 meetings with speakers at Sir Charles Gairdner Hospital and four community lunches celebrating autumn, winter, spring and Christmas held in cafes across Perth.

The 2013 speaker program covered a variety of topics including self management of chronic conditions, bladder and bowel control, hospital in the home, laughter yoga, life of an orchestral musician, drug interactions and WA convict history. Participation rates at meetings and social events varied from 8-15.

Breath of L I F E magazine was published four times and about 220 copies were distributed to about 50 members, and additional interested health professionals, relevant organisations and waiting areas at Sir Charles Gairdner Hospital. Back issues are available on the LIWA website. During 2013 articles included the latest relevant health research, health tips, humour, news, members' stories, major chronic lung diseases.



^ *LIFE Members enjoying Christmas lunch*

The communications strategy continues to be implemented to increase awareness of L I F E among people with lung disease and health professionals. Over 30 copies of L I F E's new laminated poster were distributed at the respiratory clinic and the respiratory ward (G54) at Sir Charles Gairdner Hospital, and at members' GP clinics. L I F E brochures in refillable stands have been provided to the respiratory nurses' spirometry rooms and the respiratory ward, and L I F E business cards allow members spread the word when they meet someone else with lung disease.

In September 2013 L I F E coordinated a stall about respiratory support groups in WA at the ConnectGroups Self Help Expo held over 3 days at Garden City shopping centre. Our display was staffed by a team of volunteers from L I F E, Heavy Breathers, Bentley Bronchiatrix and Pulmonary Hypertension WA. It provided an opportunity to enhance community awareness and to network with other support groups.

In November two L I F E members presented their own stories of living with lung disease to LIWA staff at a regular Wednesday staff seminar. In an interview format they told of their diagnosis and its impact and how they live well with their lung disease. One interview had been video recorded earlier due to the incapacity of the member. Both provided moving personal insights into life with serious lung disease.

research grant program



^ Melbourne Cup Committee member Suzanne Sheridan presents a cheque to
LIWA Chair Sue Morey

LIWA is delighted that various individuals and organisations have chosen to financially support its research grant program which investigates specific areas of lung disease, namely infections lung diseases cystic fibrosis, bronchiectasis and sarcoidosis. The grants are for \$50,000 each and on alternate years are open to all researchers in WA.

LIWA adds further value by administering the grants including evaluation by its independent, voluntary scientific board to help select the grant winners.

Projects awarded LIWA Respiratory Research Grants in 2013

Alan King Westcare Grant for Investigation into Infectious Lung Disease

Awarded to: Professor Peter Le Souëf,
The University of Western Australia

'Cytokine profiles associated with acute lower
respiratory infections in African children'.

Funded by Westcare Inc.

LIWA Glenn Brown Memorial Grant for Investigation into Cystic Fibrosis and Bronchiectasis.

Awarded to: A/Professor Sue Jenkins,
Lung Institute of WA

'A proof of concept study investigating the impact
of telehealth clinics on the lung function and quality
of life of adults with cystic fibrosis'.

Funded by Melbourne Cup Luncheon volunteer
fundraising.

LIWA Sarcoidosis and Other Granulomatous Lung Diseases Project Grant

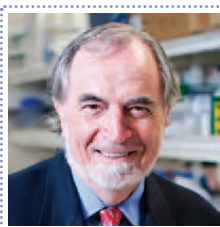
Awarded to: Professor Steven Mutsaers,
Lung Institute of WA

'B cell regulation of STAT3-mediated lung fibrosis
in sarcoidosis'.

Funded by John and Afra Wilder.

key people at LIWA

Research Leaders



**Professor
Philip Thompson**
MBBS, FRACP, FCCP, MRACMA
Director, Head of
Molecular Genetics and
Inflammation Unit
Clinical Professor,
Curtin University

Research Interests:

- Asthma inflammation and pharmacology.
- Role of splice variants and epigenetics in airways disease.
- Antisense therapies for airways diseases.
- Sarcoidosis.
- Clinical trials of new therapies for airways diseases.



**Winthrop Professor
Y C Gary Lee**
MBChB, PhD, FRACP,
FRCP, FCCP
Head of Pleural
Diseases Unit

Research Interests:

- Malignant Pleural Effusions: epidemiology, understanding disease pathogenesis, studying novel diagnostic modalities, testing new therapies (especially indwelling pleural catheters).

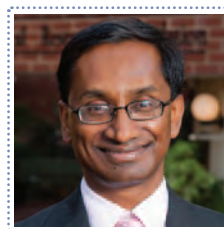
- Malignant Pleural Mesothelioma: investigating biological markers, new treatments and usefulness of adjunct therapies.
- Pleural Infection: studying the pathogenesis of empyema especially interaction of bacteria and pleura; Diagnostic biomarkers; Developing novel therapies.



**Professor
Steven Mutsaers**
BSc (Hons), PhD
Head of Tissue Repair Unit

Research Interests:

- Molecular mechanisms underlying lung fibrosis.
- Mechanisms regulating mesothelial cell and serosal repair.
- Multipotential nature of the mesothelial cell.
- Developmental genes in the regulation of malignant mesothelioma growth.
- Diagnostic and biological role of miRNA in malignant mesothelioma.
- Pathogenesis of adhesion formation.



**Associate Professor
Yuben Moodley**
MBSS, FRACP, MD, PhD
Head of Stem Cell Unit

Research Interests:

- Molecular mechanism of chronic inflammation.
- Identifying biomarkers for lung diseases.
- Cell therapies for lung disease.



Professor Eli Gabbay
MBBS, FRACP
Head of Advanced Lung and
Pulmonary Vascular Diseases

Research Interests:

- Pulmonary arterial hypertension (PAH) and its response to therapy.
- Parenchymal Lung and Airway disease and following Pulmonary Embolism.
- Examining the role of exercise haemodynamics and cardiopulmonary exercise testing.
- Lung Transplantation including management of Bronchiolitis Obliterans Syndrome.



**Clinical Associate
Professor Siobhain
Mulrennan**
MBChB, MRCP, MD, FRACP
Head of Cystic Fibrosis/
Bronchiectasis Unit

Research Interests:

- Improving Cystic Fibrosis Clinical Care.
- Cystic Fibrosis and Bronchiectasis Clinical trials.
- Reflux and Respiratory Disease.
- Interventional bronchoscopy.
- Receptor for Advanced Glycation End Products – role in Cystic Fibrosis.



Dr Fraser Brims
MBChB, MRCP, MD, FRACP
Head of Occupational and
Respiratory Health Unit

Research Interests:

- Thoracic medicine.
- The effects of early palliative care in mesothelioma patients.
- Pleural infection.
- Treatments for pneumothorax.
- Occupational aspects of lung disease.



Professor Sue Jenkins
GradDip Phys, PhD
Head of Physiotherapy Unit

Research Interests:

- Field-based exercise tests in people with chronic lung disease.
- Exercise training in people with chronic lung disease.
- Increasing physical activity and quality of life in people with chronic lung disease.
- Role of supplemental oxygen during exercise training in people with chronic obstructive pulmonary disease.



Meagan Shorten
BSc (Nutrition)
Head of Clinical Trials Unit

Research Interests:

- Clinical trials of new therapies for respiratory diseases.
- Education for patients with respiratory disease.
- Raising patient and public awareness of lung health.

Emerging Leaders



Dr Svetlana Baltic
BSc (Hons), MSc, PhD

Research Interests:

- Molecular mechanism of chronic inflammation.
- Asthma inflammation and pharmacology.
- Role of splice variants and epigenetics in airways disease.
- Antisense therapies for airways diseases.



Dr Sally Lansley
BSc, PhD

Research Interests:

- Preclinical study of pathogenesis of empyema and interaction of bacteria and pleura.
- Determining the biological role of malignant pleural effusions.
- Identification of underlying mechanisms of pleural infection.
- Developmental genes in the regulation of malignant mesothelioma growth.
- Preclinical study of novel therapies for malignant mesothelioma.



Dr Dino Bee Aik Tan
BSc, PhD

Research Interests:

- Inflammation in Chronic Obstructive Pulmonary Disease.
- Immunological and molecular mechanisms underlying chronic airway diseases.
- Host immune defenses against bacterial and viral pathogens.



**Associate Professor
Cecilia Prêle**

BSc (Hons), PhD

Research Interests:

- Molecular mechanisms underlying lung fibrosis.
- Mechanisms regulating mesothelial cell and serosal repair.
- Multipotential nature of the mesothelial cell.
- Developmental genes in the regulation of malignant mesothelioma growth.



Jamie Wood

BSc Physio

Research Interests:

- Airway clearance therapy in chronic suppurative lung disease.
- High intensity exercise for adults with cystic fibrosis.
- CF related diabetes and physical activity.
- Feasibility of telehealth CF clinics for adults living in rural and remote WA.

Executive Officer



Cameron Agnew

BSc, GradDip Ed, MBA

Business Interests:

- Leadership development.
- Creating high performing teams.
- Implementing organisational change.
- Strategic and business planning.

Staff

Director

Prof Phil Thompson

Executive Officer

Cameron Agnew

Finance Manager

Bi Lam

Communications and Marketing Manager

Siân Roberts

Communications and Events Officer

Sarah Cermak

Customer Service and Events Officer

Janet Pesce

Head of Pleural Diseases Unit
W/Prof Gary Lee

Senior Research Officer
Dr Sally Lansley

Senior Research Officer
Julius Varano

Research Manager
Cathy Read

Consultant
Dr Fraser Brims

Specialist
Dr Rajesh Thomas

Head of Tissue Repair Unit
Prof Steve Mutsaers

Senior Research Fellow
Assoc/Prof Cecilia Prêle

Head of Stem Cell Research Unit
Assoc/Prof Yuben Moodley

Senior Research Officer
Dr Dino Tan

Head of Molecular Genetics and Inflammation Unit
Prof Phil Thompson

Unit Manager
Dr Svetlana Baltic

Researchers
Dumindi Dalugoda
Caitlyn Granland
Assoc/Prof Helen Keen
Asst Research Prof
Suzanna Temple
Dr Li Ping Chung
Marisa Ryan

Head of Clinical Trials Unit
Meagan Shorten

Senior Clinician
Prof Phil Thompson

Clinical Trials Nurse
Michelle Blackwood

Clinical Trials Nurse
Alison Magness

Clinical Trials Coordinator
Emily Stevens

Clinical Trials Nurse
Annalise Vujcich

Clinical Trials Coordinator
Lynda Whetstone

Clinical Trials Physician
Dr Alex Franke

Clinical Trials Physician
Dr Jelena Maticevic

Clinical Trials Physician
Dr Margaret Stevens

Clinical Trials Physician
Dr Elisabeth Tropiano

Customer Service and Events Officer
Janet Pesce

Head of Cystic Fibrosis Unit
Siobhain Mulrennan

Consultant
Gerard Ryan

Senior CF Physiotherapist
Jamie Wood

CF Nurse Practitioner
Sue Morey

Head of Physiotherapy Unit
Dr Sue Jenkins

Associate Professor
Dr Kylie Hill

Pulmonary Rehabilitation Physiotherapist
Nola Cecins

Research Assistant
Nikola Newton

Head of Pulmonary Vascular and Advanced Lung Disease Unit
Prof Eli Gabbay

Deputy Head of Unit
Jeremy Wrobel

Head Lung Transplant Unit, Royal Perth Hospital
Dr Michael Musk

Nurses
Corina Jary
Sharon Lawrence

Physiotherapists
Dianne Lunt
Peta Winship
Trial Coordinator
Natalie Lawson

Head of Occupational and Respiratory Health Unit
Dr Fraser Brims

education program

LIWA Awards and Scholarships

Supporting the education of clinical and scientific researchers, at every stage of their careers is a core activity of the Lung Institute of WA. Attracting high calibre researchers to the field of respiratory research is crucial to understanding and treating lung disease now, and in years to come.

In 2013 we invested over \$120,000 in funding PhD and Honours scholarships and the Summer Vacation Cadet Program, all of which supported young scientists to embark on a career in respiratory research.

Recipients of LIWA PhD TopUp Scholarships Awarded in 2013

Ms Hui Min Cheah, University of Western Australia
Research Unit: Pleural Diseases
Project title: 'Biological Activity of Malignant Pleural Effusion in Mesothelioma.'
Supervised by YCG Lee.

Recipients of LIWA PhD TopUp Scholarships continuing in 2013

Miss Kimberly Birnie, University of Western Australia
Research Unit: Tissue Repair
Project title: 'miRNA in Malignant Mesothelioma.'
Supervised by PJ Thompson, SE Mutsaers.

Mr Chuan Bian Lim, University of Western Australia
Research Unit: Tissue Repair
Project title: 'Role of Hedgehog signalling in malignant mesothelioma.'
Supervised by SE Mutsaers, CM Prêle, S Baltic, PJ Thompson.

Recipient of the LIWA Honours / Bachelor of Medical Science Scholarships 2013

Ms Kathrine Gee
Research Unit: Molecular Genetics and Inflammation
Project title: 'The role of prostaglandin E2 and the EP receptors on airway epithelial cell function in lung inflammation'.
Supervised by: S Baltic, PJ Thompson, P Price.

Ms Julia Richardson
Research Unit: Molecular Genetics and Inflammation
Project title: 'Verification of miRNA target sites on EP and DP receptors.'
Supervised by: S Baltic, PJ Thompson.



< Hui Min Cheah
receiving her award
from LIWA Patron
Chief Justice
Wayne Martin

LIWA Travel Awards

The annual LIWA Travel Awards offers senior and junior scientist who are members of the Institute the opportunity to attend a national or international conference to present original research work on respiratory diseases.

Senior Travel Award winner 2013

Associate Professor Alaina Jean Ammit

Conference: European Respiratory Society (Barcelona, Spain) and associated 8th International Young Investigators' Symposium on Airway Smooth Muscle (Groningen, The Netherlands).

Abstract: 'MKP-1: a negative feedback effector represses MAPK-mediated pro-inflammatory signalling pathways in asthma'

Junior Travel Award winners 2013

Dr Holly Clifford

Conference: TSANZ Annual Meeting Darwin and ATS Philadelphia

Abstract: 'Exacerbation of influenza infection by low doses of geogenic dust'

Miss Rachel Foong

Conference: The Thoracic Society of Australia and New Zealand and European Respiratory Society (ERS) Annual Congress

Abstract: 'Vitamin D deficiency causes airway hyper-responsiveness, increased airway smooth muscle mass and altered lung structure in female mice'.

PhD Scholars within LIWA

Dr Rajesh Thomas, UWA

Research Unit: Pleural Diseases

Project Title: 'Management of Malignant Pleural Effusion'

Supervised by YCG Gary Lee.

Mr Vinicius Cavalheri de Oliveira, Curtin University

Research Unit: Physiotherapy

Project title: 'Surgical resection for lung cancer: Optimising patient evaluation and recovery.'

Supervised by K Hill, S Jenkins.

Ms Li Whye Cindy Ng, Curtin University

Research Unit: Physiotherapy

Project title: 'Optimising physical activity in people with COPD'.

Supervised by S Jenkins, K Hill.

Dr Li Ping Chung, UWA

Research Unit: Molecular Genetics

Project title: 'Pharmacogenetics of severe asthma: Beta 2 adrenergic receptor polymorphisms alter receptor and function leading to differential clinical response to beta 2 agonists'.

Supervised by PJ Thompson, G Waterer.

Ms Faang Cheah, UWA

Research Unit: Molecular Genetics

Project title: 'Characterisation of kinin B1 receptor expression in human lung cells'.

Supervised by PJ Thompson.

Ms Ail Ling Tan, UWA

Research Unit: Pleural Diseases

Project title: 'The Role of Fibroblast Growth Factor-9 in Malignant Mesothelioma'.

Supervised by YCG Lee.

Masters Scholars within LIWA

Ms Keyuri Koriya, Notre Dame University

Research Unit: Tissue Repair

Project title: 'The interaction between Hedgehog and TGF-beta signalling pathways in Malignant Mesothelioma.'

Supervised by SE Mutsaers, CM Prêle, B Badrian, G Hoyne.

Mr Ben Noteboom, Curtin University

Research Unit: Physiotherapy

Project title: 'Vascular health in chronic obstructive pulmonary disease: magnitude of impairment, association with disease severity and effect of exercise training.' Supervised by K Hill, A Maiorana, S Jenkins.

Ms Carol Watson, Curtin University

Research Unit: Physiotherapy

Project title: 'Quadriceps dysfunction following heart and heart-lung transplant: Magnitude, nature, contributing factors and clinical implications.'

Supervised by K Hill, S Jenkins.

Mr Jamie Wood, Curtin University

Research Unit: Physiotherapy

Project title: 'A proof of concept study investigating the impact of telehealth clinics on the lung function and quality of life of adults with cystic fibrosis.'

Supervised by K Hill, S Jenkins and S Mulrennan.

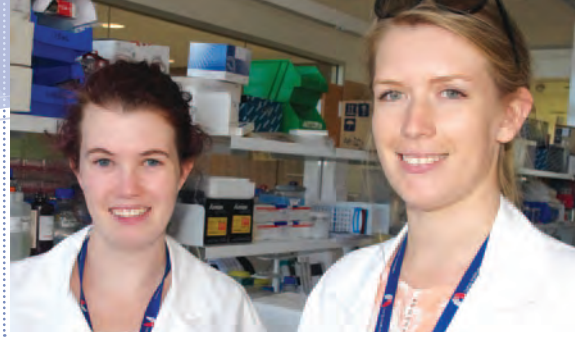
Honours Scholars within LIWA

Ms Alice Green, University of Western Australia

Research Unit: Tissue Repair

Project title: 'Evaluating Mechanisms Protecting gp130 STAT1/3 deficient mice from bleomycin-induced lung fibrosis.'

Supervised by CM Prêle, SE Mutsaers, PJ Thompson.



^ Vacation Cadets *Julia Richardson and Courtney Kidd*

Summer Vacation Cadetships

The LIWA cadet program provides talented undergraduate science and medical students the opportunity to gain paid experience working on active research projects within the Institute. The work they undertake contributes to LIWA's current research goals and their experience may positively influence students to pursue a career in medical research. Some students choose to subsequently apply to complete an honours project with LIWA.

The 2013 /14 program saw three outstanding students selected from a highly competitive field to commence the ten week program in December 2012.

Courtney Kidd

Genetics and Pathology

University of Western Australia

LIWA Research Unit: Molecular Genetics and Inflammation

Julia Richardson

Molecular Biology

Murdoch University

LIWA Research Unit: Molecular Genetics and Inflammation

Joe Yasa

Molecular Biology

Murdoch University

LIWA Research Unit: Tissue Repair Unit

research overview 2013



“I’m proud that the research we conduct is a step towards making a difference to people living with chronic lung disease.”

Dumindi Dalugoda, Genetics Researcher.

The respiratory system is highly complex and requires dedicated scientists to research areas such as chronic inflammation and respiratory lung diseases.

LIWA has adopted a multidisciplinary approach to its research by supporting both clinical and scientific projects. The research outcomes from these projects ultimately provide a basis for new treatments. The areas of research during 2013 included tissue repair, genetics, stem cell, cystic fibrosis, pleural disease, asthma, COPD, sarcoidosis and pulmonary vascular and advance lung disease research.

Clinically based LIWA research units undertake projects that involve working directly with individuals who are affected by respiratory disorders. Researchers in these areas work to improve existing treatment modalities. Some of these units unite clinicians and health care workers who are focused on a particular area of disease, while other units are concentrating on a specific area of treatment.

By creating a network of research units across LIWA, several key initiatives can be achieved for the Institute’s research program.

These include establishing a critical mass of interrelated research personnel, offering improved funding opportunities, being able to support an increased number of health experts, enhanced development of postgraduate students and postdoctoral scholars and development and testing of potentially new therapeutic interventions.

In any one area of respiratory disease, multiple research projects may be underway within LIWA so that its causes and potential treatments can be considered from different scientific and clinical perspectives.

The following is a summary of some of the key clinical and scientific projects undertaken by the Institute during 2013.

AIRWAY DISEASE

Asthma

- The Molecular Genetics and Inflammation Unit is a member of the Australian Asthma Genetics Consortium which was formed to promote a more rapid progress towards the identification of the genetic causes underlying asthma. The Unit contributes genetic data samples to its various studies and early findings have already achieved publication in the prestigious Lancet and Nature Genetics journals.
- Further advances are being made by the Molecular Genetics and Inflammation Unit on the role of PGE2 as a protective mediator in asthma.
- Epigenetic mechanisms may play an important role in asthma as both are heritable, influenced by the environment, and modified by in utero and environmental exposures and ageing. It regulates the expression of a large number of well-established asthma associated genes. Molecular Genetics and Inflammation Unit has identified the differences in genes regulating these processes in mild and severe asthma. This may explain why some people get asthma and what determines its severity. This may be a good therapeutic target.
- The Clinical Trials Unit has been involved in a number of studies for new medications that address different subsets of asthma. Many physicians are not conscious of these forms and struggle to

achieve control using conventional treatments. The clinical trials unit has also conducted a GM-CSF monoclonal antibody study.

Bronchiectasis

- The Clinical Trials Unit tested a new inhaled antibiotic targeting gram-negative bacteria in the airway to reduce airway inflammation. Twenty three patients took part in the study and this treatment appeared to be very promising.

Chronic Obstructive Pulmonary Disease (COPD)

- The Clinical Trials Unit undertook studies assessing a new inhaled therapy called Indacaterol which is a new once-a-day bronchodilator. Once registered this medication will form part of an improved drug regimen for managing COPD.
- A trial was undertaken within the Clinical Trials Unit for another new inhaler to see whether the way it has been developed works better than those currently available for managing COPD.
- The Physiotherapy Unit investigated strategies to optimize physical activity and well-being in people with COPD. Low levels of physical activity are associated with poorer outcomes and increased healthcare utilization in people with COPD. The Physiotherapy Unit's research is investigating the effects of interventions such as walking training, use of a wheeled walker and supplemental oxygen on symptoms, well-being and physical activity in people with COPD. These studies have the potential to reduce hospitalisations and thus reduce healthcare costs.

- The Stem Cell Unit investigated the role of anti-inflammatory cells and molecules in individuals with COPD. This project aims to better understand the defects in anti-inflammatory mechanisms which contribute to the progression of COPD. This goal is the first stage in a longer term ambition to develop immune therapies to correct these cellular defects, and potentially even reverse the inflammatory conditions in individuals with COPD.
- The Stem Cell Unit has characterized the protective anti-bacterial immune responses in individuals with COPD. This project aims to investigate how protective anti-bacterial immune responses are influenced by the expression of anti-inflammatory molecules by immune cells from COPD patients. The Unit seeks to examine the potential of blocking these anti-inflammatory signals to improve bacterial-specific responses and hence prevent exacerbations of COPD.

Lung Cancer

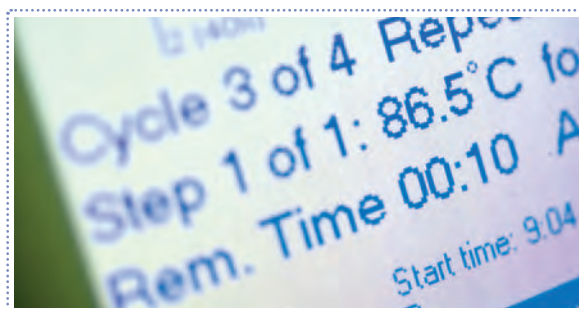
- The Physiotherapy Unit looked at the effects of exercise training in patients following surgical resection for non-small cell lung cancer (NSCLC). The Unit is currently conducting a randomised controlled trial to investigate the role of exercise training on recovery of people following lung resection (with/without adjuvant chemotherapy) for NSCLC. The outcomes they aim to improve are exercise capacity, quality of life, muscle strength, physical activity levels and feelings of anxiety and depression.

Alpha 1-Antitrypsin Deficiency

- The Clinical Trials Unit continued to see patients for their ongoing clinical trial, testing a weekly infusion in patients with Alpha 1-Antitrypsin Deficiency. In addition they have been treating patients with replacement therapy.

Cystic Fibrosis

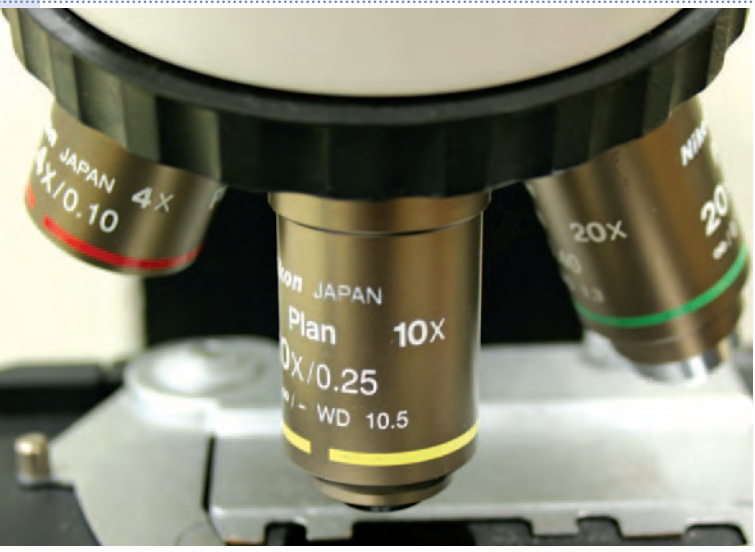
- The Clinical Trials Unit in collaboration with The Cystic Fibrosis and Bronchiectasis Unit continued clinical trials of drugs that target the protein which is defective in CF as a result of genetic mutations. Vertex trials – VX09-809-102: A three month study to learn about the safety and efficacy of one study medication alone and in combination with another on patients with the delta 508 gene mutation; VX12-809-104: A 32 week study to learn about the safety and efficacy of taking lumacaftor with ivacaftor in patients with cystic fibrosis with the F508del-CFTR mutation. Continuing these trials will help determine whether this targeted therapy will provide much needed benefits to people living with CF.



- Results from a trial of the medication, VX-770, which is only suitable for individuals with the relatively rare genetic defect G551D, were encouraging. Patients who participated in the VX-770 trial continued to receive the medication on an open label study through LIWA throughout the year. The study ended in 2013, and the medication known as Ivacaftor is currently available on a named patient basis in Australia.
- The Cystic Fibrosis and Bronchiectasis Unit (CF&B Unit) are committed to improving clinical care for CF patients. A study was commenced focusing on telehealth for rural and country CF patients – the project will assess whether a CF Multidisciplinary telehealth clinic reduces the decline in lung function, and improves quality of life, in adults with CF who live in rural and remote Western Australia (WA).
- The CF&B Unit continued to participate in the Australian CF Clonal Pseudomonas study – a multicentre national study now in its final year.
- The CF&B Unit has analysed data from the Ivacaftor Named Patient Program. This data will be part of an Australian multicentre study to be presented at TSANZ conference 2014.
- In collaboration with two LIWA Units, Molecular Genetics and Inflammation Unit and The Cystic Fibrosis and Bronchiectasis Unit explored the complex inflammatory mechanisms underlying the pathology and lung deterioration in CF and CF-related diabetes.

INTERSTITIAL DISEASE Pulmonary Fibrosis

- LIWA's Clinical Trials Unit is one of several centres internationally that is conducting a trial of a new medication for idiopathic pulmonary disease (IPF). The trial aims to address the efficacy and safety of a new medication that shows potential for treating this ultimately fatal condition.
- Stem Cell Unit Head Assoc/Prof Yuben Moodley was involved with the Australian IPF Registry as a member of the Registry Steering Committee, along with the Clinical Trials Unit's Emily Stevens as Registry Coordinator. This national Lung Foundation Australia project aims to enrol all Australians with IPF so that the information collected can help researchers to learn more about this serious disorder.



- A group of clinicians united by their interest in IPF and supported by the Australian Lung Foundation have developed the Australian IPF Registry. This Registry aims to enrol all Australians with IPF so that the data collected can help researchers learn more about this serious disorder. LIWA was pleased to be involved in this exciting project in 2013, working with the Australian Lung Foundation. Assoc Prof Yuben Moodley is a member of the Registry Steering Committee and Emily Stevens was the Coordinator in Western Australia.
- The Tissue Repair Unit continued to address IPF at a molecular level. The cause of IPF is unknown but it is widely accepted that repeated injury to the epithelium leads to dysregulated healing, initiating a cascade of processes resulting in fibroblast / myofibroblast accumulation and overproduction and deposition of collagen. LIWA's Tissue Repair Unit has pioneered studies identifying the gp130-induced signal transducer and activator of transcription (STAT)3 signalling pathway as pivotal in the development of lung fibrosis. What regulates STAT3-mediate fibrosis is not clear but their current studies are focussing on understanding the role of mediators known to activate the pathway, cell types that may be regulating the mediator response, as well as a possible breakdown in regulation of the naturally occurring inhibitors that normally control the STAT3 response.

PLEURAL DISEASE

Pleural Effusions and Empyema

- Clinicians and scientists working within the Pleural Diseases Unit continued to address pleural infection through a range of studies that have been recognised internationally. The studies included conducting translational research in pleural infection to optimize antibiotics choice and improve fluid drainage.

Australasian Malignant Pleural Effusion (AMPLE) Trial

- The Pleural Diseases Unit leads the AMPLE randomised clinical study comparing indwelling pleural catheter (IPC) with pleurodesis in the management of malignant pleural effusion. To date 90 (of the target total of 146) participants have been enrolled and included 9 recruitment centres in Australia, New Zealand and Singapore.

Clinical and Laboratory Studies on Malignant Pleural Diseases

- The Pleural Unit has a strong track record on studying various aspects of the diagnosis, pathogenesis and best management of malignant pleural disease and care of malignant effusions. These include investigating the benefits and complications (and their best care) of use of indwelling pleural catheters, evaluating biomarkers for malignant pleural diseases, and the use of imaging in improving diagnostic yield.
- The Pleural Disease Unit also employs various in vitro techniques and preclinical models to investigate novel therapies for malignant pleural disease and mesothelioma.

Mesothelioma

- The Pleural Diseases Unit has uncovered an exciting and novel target from their global gene profiling of human mesothelioma samples. They have verified over-expression of the target in malignant pleural mesothelioma over other cancers and benign pleuritis in five separate cohorts of human pleural tissues and effusions. The Unit's preliminary in vitro work demonstrated that the target induces mesothelioma cell proliferation and matrix invasion. The Unit therefore hypothesises that targeting this factor will inhibit tumour growth in vivo.
- **miRNA in mesothelioma**
Limited treatment options in Mesothelioma lead to a short median survival and clinical management is hampered by the lack of molecular biomarkers

for diagnosis/prognosis. There is growing evidence that short non-coding RNAs such as microRNA (miRNA), are useful biomarkers in cancer. Studies in the Tissue Repair Unit are trying to determine the diagnostic and prognostic potential of miRNAs in serum and pleural effusion fluids and cells from patients with mesothelioma compared with other diseases. The Unit also worked on a project seeking to determine if differentially expressed serum miRNAs are early disease markers. miRNA also have important biological roles within cells so the Tissue Repair Unit are also looking at the biological significance of certain miRNAs in mesothelioma.

- **The hedgehog signalling pathway in mesothelioma**

Increasing evidence is pointing to the reactivation and aberrant expression of developmental signalling pathways, such as the hedgehog (Hh) pathway, as critical to the pathogenesis of certain cancers. The Tissue Repair Unit have undertaken a study which demonstrated that Hh pathway signalling is important in the growth of mesothelioma and are examining different antagonists to identify the best possible therapeutic approach to inhibit mesothelioma growth and to elucidate the mechanisms the Hh pathway uses to promote tumour growth.

- **The role of TGFβ in mesothelioma tumour growth and collagen production.**

Many mesothelioma tumours make a lot of connective tissue called collagen and we and others have shown the importance of collagen for tumour cell proliferation. Mesotheliomas also make a lot of the growth factor transforming growth factor beta TGFβ which is a potent stimulator

of collagen production. Studies within the Tissue Repair Unit are looking at why mesotheliomas make a lot of collagen and how they do this, so that they can find specific ways to inhibit collagen production and slow down tumour growth.

PULMONARY VASCULAR DISEASES

- The Pulmonary Vascular and Advanced Lung Diseases Unit has undertaken a multicentre study examining the role of anticoagulation in scleroderma associated pulmonary hypertension. After a pilot study, this multicentre study has recently received an NH and MRC project grant for 5 years. In addition they have been carefully analysing the frequency, prognosis and response to therapy of familial pulmonary hypertension.
- After pioneering this area of research in Australia, the Unit continues to be at the forefront of developing the most cost effective algorithm for screening patients with scleroderma for cardiopulmonary complications
- The Unit has begun collaboration into a multicentre study analysing the potential risks and benefits of a structured exercise training program for patients with pulmonary arterial hypertension.
- The Pulmonary Vascular and Advanced Lung Diseases Unit is leading a multicentred Australia wide project, which aims to in standardise echocardiography data collection and reporting to ensure that echocardiography can be optimised to enable earlier and more accurate detection of pulmonary vascular disease and better guidance for prognosis and monitoring of therapy.

TRANSPLANTATION

- The Pulmonary Vascular and Advanced Lung Diseases Unit's Dr Michael Musk heads the Interstitial Lung Disease group and has been involved in several multicentre trials for new and hopefully effective therapies in ILD.
- Headed by our newest recruit, Dr Jeremy Wrobel, our group has begun a collaborative national assessment of clinical outcomes following lung transplantation for pulmonary hypertension.
- Physiotherapists from the Pulmonary Vascular and advanced Lung Disease Unit and the Physiotherapy Unit are undertaking a study on quadriceps dysfunction following lung and heart-lung transplantation: magnitude, nature, contributing factors and clinical implications. This research explores changes in quadriceps muscle strength and/or fatigue from six months after lung and heart-lung transplantation. Contributing factors such as levels of physical activity are assessed to determine their contribution to these changes. The findings will assist physiotherapists in targeting exercise programs for this group and optimise the outcomes of surgery.





research activities

FOR 2013

Staff

AWARDS IN 2013

Bahareh Badrian	SCGH 3rd place Poster Award
Svetlana Baltic	TSANZ Travel Award
Hui Min Cheah	TSANZ Travel Award 3rd Prize Poster Award, Sir Charles Gairdner Hospital Research Week 2013 Lung Cancer SIG Award, TSANZ ASM 2013
Robin Fowler	PhD, Curtin University
Eli Gabbay	TSANZ Best Overall Poster at Annual Scientific Meeting
Caitlyn Granland	TSANZ Travel Award
Sue Jenkins	Glen Brown Memorial Grant 2013
Courtney Kidd	TSANZ Travel Award Asthma Foundation WA cadetship Honours scholarship from Asthma Foundation WA
Chuan Bian Lim	TSANZ WA Branch New Investigator Award

Rajesh Thomas Finalist at The Best of Grand Rounds
Wiley Blackwell Publishing Award for
Clinical Excellence

Philip Thompson TSANZ Society Medal

Jamie Wood Rotary Allied Health Professional
of the Year 2013

Invited Presentations and Chairmanship

INTERNATIONAL

Kylie Hill. 'Exercise training for your patients',
American Thoracic Society, Annual Scientific
Meeting, Philadelphia, USA.

Sue Jenkins. 'Physical activity, exercise and
pulmonary rehabilitation', 50th Annual General Meeting
of the Malaysian Physiotherapy Association,
Kuala Lumpur, Malaysia.

'Pulmonary rehabilitation workshop',
Malaysian Physiotherapy Association, University of
Kuala Lumpur, Kuala Lumpur, Malaysia.

'Physical activity and pulmonary rehabilitation:
Recent research and clinical implications',
27th Pulmonary Rehabilitation Workshop,
Nagasaki, Japan.

'Publishing research', 8th Health Science Research
Seminar, Nagasaki, Japan.

Gary Lee. 'Indwelling pleural catheter: When and
how', 9th International Symposium on Respiratory
Diseases & ATS in China Forum, Shanghai, China.

'Advances in management of pleural infection',
9th International Symposium on Respiratory
Diseases & ATS in China Forum, Shanghai, China.

'Advances in Malignant Effusion Management'
International Mesothelioma Interest Group
Mesothelioma Symposium, Sydney, Australia.

'Malignant effusions from mesothelioma: Special considerations', American Thoracic Society International Conference, Philadelphia, USA.

'Using biomarkers to shed light on pleural effusions', American Thoracic Society International Conference, Philadelphia, USA.

'Mesothelioma', American Thoracic Society International Conference, Philadelphia, USA.

'Role of tPA/DNase and saline irrigation', European Congress of Bronchology and Interventional Pulmonology, Cesme, Turkey.

'Role of indwelling pleural catheters', European Congress of Bronchology and Interventional Pulmonology, Cesme, Turkey.

'Should you give prophylactic radiotherapy to prevent tumor seeding?', European Congress of Bronchology and Interventional Pulmonology, Cesme, Turkey.

'Why clinicians should do research and how to get started?', Borneo Tuberculosis Symposium, Kota Kinabalu, Malaysia.

'Approach to Pleural Effusions 2013', Borneo Tuberculosis Symposium, Kota Kinabalu, Malaysia.

'Pleural Infection', Borneo Tuberculosis Symposium, Kota Kinabalu, Malaysia.

'Therapeutic Use of Indwelling Pleural Catheters', Borneo Tuberculosis Symposium, Kota Kinabalu, Malaysia.

Steve Mutsaers. 'Hedgehog pathway – A novel target in malignant mesothelioma', Centre for Respiratory Research Seminar, University College London, London, UK.

Helmholtz, UCL, UWA Inaugural Research Symposium, Munich, Germany. Invited speaker Title: 'Aberrant repair leading to lung and pleural disease'.

'Mesothelial cell structure, function and repair', Surgical Humidification International Clinical Meeting, Auckland, New Zealand.

Cecilia Prêle. 'SOCS regulation of STAT signalling in Idiopathic pulmonary fibrosis', University Hospitals Geneva, Geneva, Switzerland.

Jamie Wood. 'Airway clearance therapy in chronic suppurative lung disease across the lifespan: From the basics to the complex', Auckland, New Zealand.

The Cystic Fibrosis and Bronchiectasis Unit.

'Assessing cholecalciferol recommendations in the adult cystic fibrosis population – CF adult MDT', Australasian CF Conference, Auckland, New Zealand.

'Adherence and outcomes in cystic fibrosis – Natalia Forrest pharmacist', Australasian CF Conference Auckland, New Zealand.

NATIONAL

Kimberly Birnie. 25th Lorne Cancer Conference, Lorne, Victoria – Poster Title: microRNA-223 targets stathmin and regulates cell migration in Malignant Mesothelioma.

Vinicius Cavalheri de Oliveria.

'Functional performance and physical activity in people with lung cancer', Airways 2013, Gold Coast, Australia.

Eli Gabbay. 'New therapies in pulmonary arterial hypertension', 2nd Actelion Clinical Excellence Program Annual Scientific Meeting, Sydney, Australia.

Kylie Hill. 'Measuring physical activity and patterns of physical activity in COPD', Airways 2013, Gold Coast, Australia.

Sue Jenkins. 'Evidence-based practice – A marriage made in heaven'. Australian Physiotherapy Association (APA) Physiotherapy Conference, Melbourne, Australia.

'Sedentary behaviour – the couch potato syndrome' Airways 2013, Gold Coast, Australia.

Gary Lee. 'Establishing the first dedicated specialist pleural service in Australasia: the benefits', WA Health Conference, Perth, Australia.

'Lung cancer, pleural diseases and IPF', Novartis Respiratory Weekend Symposium, Melbourne, Australia.

Siobhain Mulrennan. 'Transition to adult care session – CF', Royal Australasian College of Physicians Conference, Perth, Australia.

Steve Mutsaers. 'Session chair', Asbestos Diseases Research Institute symposium, Sydney, Australia.

Cecilia Prêle. 'Session chair', Inaugural Australian Short Course in Lung Disease, Sydney, Australia.

'Poster presentation', investigating SOCS-mediated regulation of STAT signalling in IPF, Inaugural Australian Short Course in Lung Disease, Sydney, Australia.

LOCAL

Kimberly Birnie. Australian Society for Medical Research, WA Branch, WA Symposium. 'MicroRNA expression profiles in pleural effusions – identification of diagnostic and therapeutic targets for Malignant Mesothelioma'

Nola Cecins. 'Breathing, breathlessness and how to relieve it', Lung Health Education Day, Perth, Australia.

Sue Jenkins. 'Breathing, breathlessness and how to relieve it', Lung Health Education Day, Perth, Australia.

Gary Lee. 'Pleural effusion in mesothelioma', Asbestos Disease Society (WA) Annual General Symposium, Perth, Australia.

'Medical thoracoscopy course', University of Western Australia, Perth, Australia.

CB Lim. 'Targeting of Hedgehog pathway via pharmacologic inhibition of Gli induces apoptosis and autophagy in malignant mesothelioma cells', The Australian Society for Medical Research Scientific Symposium, Perth, Australia.

Siobhain Mulrennan. 'Cystic fibrosis – A case study', Professional Development Day for Respiratory Nurses, Perth, Australia.

'Transition to adult care session – CF', Royal Australasian College of Physicians Conference, Perth, Australia.

Faculty – EBUS Bronchoscopy and Advanced Bronchoscopic Techniques 2013, CTEC, UWA.

Steve Mutsaers. 'Session chair', Australian Society for Medical Research, WA Symposium, Perth, Australia.

'Session Chair', Centre for Cell Therapy and Regenerative Medicine Research Symposium, Perth, Australia.

Cecilia Prêle. 'SOCS regulation of STAT activity in Idiopathic pulmonary fibrosis', Bone and Vascular Research Group, Perth, Australia.

Judge for best student presentation, ASMR Student Symposium, Perth, Australia.

Judge for best student presentation, Combined Biological Sciences Meeting, Perth, Australia.

Cancer Council of W.A. 8th State Cancer Conference. 'Loss of miR-223 and over expression of target protein stathmin regulates cell motility in MM'.

Perth Mesothelioma Symposium. 'Loss of miR-223 and over expression of target protein stathmin regulates cell motility in MM'.

Committees and Boards

INTERNATIONAL

Kylie Hill. Member, Research Subcommittee, Thoracic Society of Australia and New Zealand.

Editor, Official Appraised Papers, Journal of Physiology.

Gary Lee. External Advisor, China Lung Cancer Alliance. Committee Member, Thoracic Society of Australia and New Zealand, WA Branch.

Steve Mutsaers. President, of the International Mesothelioma Interest Group.

Member, Mesothelioma Applied Research Foundation Scientific Advisory Board.

Editorial board, Fibrogenesis and Tissue Repair Journal.

Editorial board, Open Journal of Respiratory Disease.

Editorial board, World Journal of Transplantation.

Editorial board, Journal of Cellular and Molecular Medicine.

Advisory Committee, Department of Medicine Laboratory Research.

Member, NHMRC Grant Review Panel, Respiratory Medicine/Sleep/Pharmacology.

Cecilia Prêle. Deputy Section Editor, Fibrogenesis and Tissue Repair Journal.

Phil Thompson. Editorial Board, Respiratory.

NATIONAL

Nola Cecins. Member, Respiratory Health Network Advisory Group, Department of Health.

Member, NMHS Respiratory Service delivery Model Working Group, Department of Health.

WA State Representative, Pulmonary Rehabilitation Network, Lung Foundation Australia.

Eli Gabbay. Executive Council, Pulmonary Hypertension Society of Australia and New Zealand.

Advisory Committee, Scleroderma Australia Experts Research.

Member, Medicare Australia Clinical Experts Reference Group in Pulmonary Hypertension.

Sue Jenkins. COPD Evaluation Committee, Lung Foundation Australia.

Steering Committee, Airways 2013.

WA State Representative, Pulmonary Rehabilitation Network, Lung Foundation Australia.

Siobhain Mulrennan. Member, Respiratory Health Network Executive Advisory Group.

LOCAL

Eli Gabbay. Member, University of Notre Dame, Medical School Strategic Planning.

Member, Western Australian Government Committee to Improve Rate of Organ Donation.

Judging Panel, Western Australian Premier Science Award.

Chair, Medical Research Committee, University of Notre Dame, Medical School.

Co-Chair, Workcover Industrial Diseases Medical Panel, WA.

Training Committee, Royal Perth Hospital Basic Physician.

Sue Jenkins. Research Advisory Committee, Sir Charles Gardner Hospital.

Member, Clinical Commissioning Pulmonary Rehabilitation Reference Group, Fiona Stanley Hospital.

Siobhain Mulrennan. Board and Research Committee Member, Busselton Population Medical Research Institute (BPMRI).

Member, Sir Charles Gairdner Hospital Drug and Therapeutics Committee.

Executive Committee Member, WA TSANZ.

Member, Respiratory Health Network Executive Advisory Group.

Steve Mutsaers. Member, UWA Department of Medicine Management Committee.

Member, UWA Institutional Biosafety Committee.

Philip Thompson. Board of Westcare Industries Pty Ltd. Director, Centre for Asthma, Allergy and Respiratory Research, UWA.

Collaborations

INTERNATIONAL

Professor Paul Baas, 'Investigating miRNA in serum and pleural effusion fluid from mesothelioma patients', The Netherlands Cancer Institute, Amsterdam, Department of Thoracic Oncology, The Netherlands.

Professor Courtney Broadus, 'Use of tumour spheroids in testing drug actions', University of California, San Francisco, California, USA.

Associate Professor Dina Brooks, 'Measurement of physical activity', University of Toronto, West Park Healthcare Centre, Toronto, Canada.

Tom Dolmage, 'Measurement of physical activity', West Park Healthcare Centre, Toronto, Canada.

Professor Roger Goldstein, 'Measurement of physical activity', University of Toronto, Toronto, Canada.

Professor Geoffrey Laurent and Dr Robin McAnulty, 'Investigating the regulation of gp130-signalling pathways in idiopathic pulmonary fibrosis', University College London, London, UK.

Professor Fabio Pitta, 'Physical activity in COPD' Londrina, Brazil.

Prof Darlene Reid, Co-editing a new version of a physiotherapy textbook, University of British Columbia, Vancouver, Canada.

Professor Hideaki Senjyu and Dr Ryo Kozu, 'Pulmonary rehabilitation in chronic lung disease', Department of Physical Therapy, School of Health Sciences, Nagasaki University, Nagasaki, Japan.

Dr Martjin Spruit, 'Physical activity in COPD', CIRO, The Netherlands.

NATIONAL

Professor Jennifer Alison, Professor Christine Jenkins, Dr Zoe McKeough, 'Investigating the benefits of walking training in COPD', University of Sydney, Sydney, Australia.

Professor Jennifer Alison (University of Sydney), Dr Zoe McKeough (University of Sydney), Dr Christine McDonald (Austin Hospital), Anne Holland (La Trobe University/Alfred Hospital), Dr Norm Morris (Griffiths University), 'Investigating the benefits of supplemental oxygen during exercise training in people with COPD', Australia.

Professor Gary Anderson, Jessica Jones and Dr Hong-Jian Zhu, 'Investigating gp130-signalling pathways in bleomycin-induced lung fibrosis in gp130-mutant mice', University of Melbourne, Melbourne, Australia.

Professor Judith Black, Associate Professor Janette Burgess, 'Investigating Fibulin-1 in idiopathic pulmonary fibrosis', Cell Biology Group Woolcock Institute of Medical Research, Sydney, Australia.

Professor Mattias Ernst, Dr Robert O'Donoghue, Walter and Eliza Hall Institute, Melbourne, Australia.

Dr Paul Gardiner, 'Changing physical activity and sedentary behaviour in chronic respiratory disease', University of Queensland, Brisbane, Australia.

Dr Genevieve Healy, 'Changing physical activity and sedentary behaviour in chronic respiratory disease', University of Queensland, Brisbane, Australia.

Associate Professor Anne Holland and

Dr Annemarie Lee, 'Benefits of pulmonary rehabilitation in non-cystic fibrosis bronchiectasis', Physiotherapy Department, Alfred Hospital, Melbourne, Australia.

Dr Kylie Johnston, 'Changing physical activity and sedentary behaviour in chronic respiratory disease', University of South Australia, Adelaide, Australia.

Professor Darryl Knight, University of Newcastle, Callaghan, NSW, Australia.

Dr Glen Reid and Professor Nico van Zandwijk, Birnie Banton Centre, 'Investigating miRNA in malignant mesothelioma', Asbestos Disease Research Institute, Sydney, Australia.

Professor Neil Watkins, 'Investigating hedgehog signalling pathways in malignant mesothelioma', Monash University, Melbourne, Australia.

LOCAL

Professor Peter Eastwood and Dr David Hillman, 'Investigating mechanisms of exercise limitation in chronic obstructive pulmonary disease (COPD); benefits of walking training in COPD; Optimising physical activity in COPD', Sir Charles Gairdner Hospital, Perth, Australia.

Professor Danny Green, 'Vascular health in chronic obstructive pulmonary disease. Magnitude of impairment, association with disease severity and response to exercise training', University of Western Australia, Perth, Australia.

Dr Sara Jamieson, 'Regulation of SOCS1 gene expression in lung fibrosis', Telethon Kids Institute.

Professor YC Gary Lee, 'Malignant pleural effusions: A clinical and translational research program', Pleural Disease Unit, LIWA, University of Western Australia School of Medicine & Pharmacology, Respiratory Department and Pulmonary Physiology, Sir Charles Gairdner Hospital, Perth, Australia.

Professor Bruce Robinson, Professor Jenette Creaney, Associate Professor Richard Lake and Dr Cleo Robinson, 'Investigating miRNA and cell plasticity of malignant mesothelioma cells', School of Medicine & Pharmacology, University of Western Australia, Perth, Australia.



publications

Book Chapters

Lee YCG. [2013]. Pleural Anatomy and Fluid Analysis. In Ernst A and Herth F, (eds.). Principles and Practice of Interventional Pulmonology, (pp. 545-56). New York, NY, USA, Springer.

Mulrennan S & Payne D. [2013]. Respiratory Disorders in Adolescence. In Kohn, M and Steinbeck, K, (eds.). A Clinical Handbook in Adolescent Medicine, (pp.439-51). Singapore, World Scientific.

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Tan S & Lee YCG. Clinical indications for Pleural Ultrasound. [2013]. In obin C and Lee YCG with Subeditors: Gleeson FV, Feller-Kopman D and Rahman NM, (eds.). Pleural Ultrasound for Clinicians. London, UK, Taylor & Francis. (in press).

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Alison J & Jenkins S. [2013]. Pulmonary rehabilitation and physical activity in COPD. *Medicine Today*.

Brims FJ, Lee YCG & Creaney J. [2013]. The continual search for ideal biomarkers for mesothelioma: the hurdles. [Editorial]. *Journal of Thoracic Disease*, 5:364-66.

Boshuizen R, Thomas R & Lee YCG. [2013]. Use of indwelling pleural catheter for management of malignant pleural effusions: the advantages. *Current Respiratory Care Reports*, 2:93-99.

Davies HE & Lee YCG. [2013]. Management of malignant pleural effusions: questions that need answers. *Current Opinion in Pulmonary Medicine*, 19:374-79.

Lee YCG & Waterer GW. [2013]. The need for translational research in respiratory medicine. [Editorial]. *Translational Respiratory Medicine*, 1:9.

Moodley Y & Thompson PJ. [2013]. The burden of lung disease: A need for cellular therapy. *Respirology*, 18:393-96.

Thomas R & Lee YCG. [2013]. Etiology and management of common benign pleural effusions. *Thoracic Surgery Clinics*, 23:25-42.

Journal Articles

Aung AK, Teh BM, McGrath C, & Thompson PJ. [2013]. Pulmonary Sporotrichosis: Case Series and Systematic Analysis of Literature on Clinico-radiological Patterns and Management Outcomes. *Medical Mycology*, 51:534-44.

Bønnelykke K, Baltic S, Price L, Thompson PJ, et al. [2013]. Meta-analysis of genome-wide association studies identifies 10 loci influencing allergic sensitization. *Nature Genetics*, 45(8):902-6.

Cavalheri V, Jenkins S & Hill K. [2013]. Physiotherapy practice patterns for patients undergoing surgery for lung cancer: A survey of hospitals in Australia and New Zealand, *Intern Med J* 2012 Aug 22.

Cavalheri V, Tahirah F, Nonoyama M, Jenkins S & Hill K. [2013]. Exercise training undertaken within 12 months following lung resection for patients with non-small cell lung cancer. *Cochrane Database Syst Rev*, (7).

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Chung LP, Baltic S, Temple S, Waterer G, Thompson PJ. [2013]. Association between Beta2 Adrenergic Receptor (ADRBeta2) Haplotype pair and severe asthma in an Australian Caucasian population. *Plos One*. [in press].

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Dolmage TE, Janaudis-Ferreira T, Hill K, Price S, Brooks D & Goldstein RS. [2013]. Arm elevation and coordinated breathing strategies in patients with COPD. *Chest*, 144(1):128-135.

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Janaudis-Ferreira T, Hill K, Goldstein RS, Wadell K & Brooks D. (2013). Relationship and responsiveness of three upper-limb tests in patients with chronic obstructive pulmonary disease. *Physiotherapy Canada*, 65(1):40-43.

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- Wilson S**, **Cecins N**, **Jenkins S**, Melang M & Singh B, et al. (2013). Comparing finger and forehead sensors to measure oxygen saturation in people with COPD, *Respirology*, 18(7):1143-47.

grants

Baltic S. 'Dysregulation of prostaglandin E2 receptor expression leads to severe asthma', Raine Foundation Grant.

Baltic S. 'Prostaglandin E2 receptors: their regulation and role in severe asthma'. Cook for A Cure, Research Australia.

Cheah, Hui Min. Slater and Gordon Mesothelioma Travel Grant.

Cheah, Hui Min. Lung Institute of Western Australia Travel Grant

Gabbay E. 'Double blind placebo controlled clinical study of anticoagulation in Scleroderma associated Pulmonary Arterial Hypertension'. National Health and Medical Research Council Australia Project Grant.

Jenkins, S. 'A proof of concept study investigating the impact of telehealth clinics on the lung function and quality of life of adults with cystic fibrosis'. Lung Institute of Western Australia, Glenn Brown Memorial Grant.

Jenkins, S. 'Randomised controlled trial of rehabilitation during an acute exacerbation of COPD.' Malaysian Research Grant (Incentive Category).

Kidd C. 'Aberrant alternative splicing defines the severity of Asthma'. Asthma Foundation WA cadetship.

Kidd C. 'Aberrant alternative splicing defines the severity of Asthma'. Asthma Foundation WA Honours Scholarship.

Lee YCG. 'Therapeutic targeting of a new growth factor in mesothelioma'.

National Health & Medical Research Council Australia Project Grant.

Lee YCG. National Health & Medical Research Council Career Development Fellowship.

Lee YCG. 'Optimizing the use of indwelling pleural catheter in management of malignant pleural effusions'. Sir Charles Gairdner Hospital Research Advisory Committee Australia Project Grant.

Moodley Y. 'Novel Methods for the Early Identification of Progressive Disease in Idiopathic Pulmonary'. National Health and Medical Research Council Australia Project Grant.

Moodley Y. 'A Curative strategy for cystic fibrosis lung disease'. Telethon – New Children's Hospital Research Fund 2012.

Mutsaers SE. 'MiR-223 and MiR-222 Regulate Tumour Development in Malignant Mesothelioma'. Sir Charles Gairdner Osborne Park Health Care Group Research Advisory Committee.

Mutsaers SE, Knight DA, Prêle CM, O'Donoghue RR, Hoyne GA & Laurent GJ. 'Stat 3 Regulation of Cell Responses in Idiopathic Pulmonary Fibrosis'. National Health and Medical Research Council Project Grant.

Mutsaers SE. 'Small non-coding RNAs in malignant mesothelioma.' Cancer Council WA Research Fellowship.

Mutsaers SE & Prêle CM. LIWA Sarcoidosis Grant.

Prêle CM & Mutsaers SE & Jamieson S. 'Regulation of SOCS1 gene expression in lung fibrosis'. Raine Priming Grant.

Tan D. 'Chronic obstructive pulmonary disease and bacterial infection.' Ada Bartholomew Medical Research Trust.

Tan D. Postdoctoral Fellowship, awarded by the Medical Research Foundation of Royal Perth Hospital and the University of Western Australia.

Thomas R. WA Cancer and Palliative Care Network Research Fellowship.

Thomas R. 'Indwelling pleural catheter for management of cancer-related pleural effusions'. National Health & Medical Research Council Australia Post-graduate Scholarship.

Thompson PJ & Baltic S. 'Managing asthma severity by managing PGD2 receptors', Sir Charles Gairdner Hospital Research Advisory Committee Grant.

Thompson PJ & Baltic S. 'Aberrant alternative splicing defines the severity of Asthma', Asthma Foundation WA project grant.





THE LUNG INSTITUTE OF WESTERN AUSTRALIA (INC)

financial report*

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* For a comprehensive review of
LIWA's financial position, please email:
admin@liwa.uwa.edu.au

Statement by the Board

The Board has determined that the association is not a reporting entity and that this special purpose financial report should be prepared in accordance with the accounting policies outlined in Note 1 to the financial statements.

In the opinion of the Board the financial report:

1. Presents a true and fair view of the financial position of the Lung Institute of Western Australia (Inc) as at 31 December 2013 and its performance for the year ended on that date.
2. At the date of this statement, there are reasonable grounds to believe that Lung Institute of Western Australia (Inc) will be able to pay its debts as and when they fall due.

This statement is made in accordance with a resolution of the Board and is signed for and on behalf of the Board by:

Dated this 6th day of February 2013

Sue Morey | BOARD CHAIR



THE LUNG INSTITUTE OF WESTERN AUSTRALIA (INC)

income statement

for the year ended 31 December 2013

	Note	2013 \$	2012 \$
Revenue	2	2,351,755	2,272,800
Operating Expenses		(425,539)	(420,016)
Employee Benefits Expense		(1,596,782)	(1,867,559)
Depreciation Expenses		(43,372)	(51,397)
Finance Costs		(1,163)	(1,006)
Other Expenses		(408,693)	(306,501)
Surplus / (Loss) for the Year		<u>(123,794)</u>	<u>(373,679)</u>
Surplus / (Loss) Allocated to:			
- Restricted Funds	9	(69,259)	150,000
- Designated Funds	9	162,483	(69,787)
- Unrestricted Funds	9	(217,018)	(453,892)
		<u>(123,794)</u>	<u>(373,679)</u>

The accompanying notes form part of these financial statements

THE LUNG INSTITUTE OF WESTERN AUSTRALIA (INC)

balance sheet

for the year ended 31 December 2013

	Note	2013 \$	2012 \$
CURRENT ASSETS			
Cash and Cash Equivalents	3	1,782,945	1,885,836
Trade and Other Receivables	4	267,697	489,854
TOTAL CURRENT ASSETS		<u>2,050,642</u>	<u>2,375,690</u>
NON-CURRENT ASSETS			
Financial Assets	5	250,000	250,000
Property, Plant and Equipment	6	207,965	212,153
TOTAL NON-CURRENT ASSETS		<u>457,965</u>	<u>462,153</u>
TOTAL ASSETS		<u>2,508,607</u>	<u>2,587,843</u>
CURRENT LIABILITIES			
Trade and Other Payables	7	391,246	354,228
Provisions	8	134,302	106,383
TOTAL CURRENT LIABILITIES		<u>525,548</u>	<u>460,611</u>
NON-CURRENT LIABILITIES			
Provisions	8	57,575	77,954
TOTAL NON-CURRENT LIABILITIES		<u>57,575</u>	<u>77,954</u>
TOTAL LIABILITIES		<u>583,123</u>	<u>538,565</u>
NET ASSETS		<u>1,925,484</u>	<u>2,049,278</u>
MEMBERS' FUNDS			
Accumulated Funds			
- Restricted	9	130,741	200,000
- Designated	9	405,769	243,286
- Unrestricted	9	1,388,974	1,605,992
TOTAL MEMBERS' FUNDS		<u>1,925,484</u>	<u>2,049,278</u>

The accompanying notes form part of these financial statements



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INDEPENDENT AUDITOR'S REPORT
TO THE MEMBERS OF
LUNG INSTITUTE OF WESTERN AUSTRALIA INC

We have audited the accompanying financial report, being a special purpose financial report, of the Lung Institute of Western Australia Inc, which comprises the balance sheet as at 31 December 2013 and the income statement for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the directors statement.

Board of Management Responsibility for the Financial Report

The board of management responsible for the preparation of the financial report, and have determined that the basis of preparation described in Note 1, is appropriate to meet the requirements of its constitution and is appropriate to meet the needs of the members. The board of management's responsibility also includes such internal control as the board of management determine is necessary to enable the preparation of a financial report that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the board of management, as well as evaluating the overall presentation of the financial report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independence

In conducting our audit, we have complied with the independence requirements of the Australian professional accounting bodies.

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RSM Bird Cameron is a member of the RSM network. Each member of the RSM network is an independent accounting and advisory firm which practises in its own right. The RSM network is not itself a separate legal entity in any jurisdiction.



Opinion

In our opinion, the financial report presents fairly, in all material respects, the financial position of the Lung Institute of Western Australia Inc as of 31 December 2013 and its financial performance for the year then ended in accordance with its constitution and the accounting policies described in Note 1 to the financial statements.

Basis of accounting

Without modifying our opinion, we draw attention to Note 1 to the financial report, which describes the basis of accounting. The financial report has been prepared to assist the Lung Institute of Western Australia Inc to meet the requirements of its constitution. As a result, the financial report may not be suitable for another purpose.

RSM Bird Cameron

RSM BIRD CAMERON

Perth, WA
Dated: 10 March 2014

J A KOMNINOS
Director

Look out for our gift giving campaigns during 2014 and please:

Give a Breath
for those who can't





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Lung Institute of Western Australia



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LIWA is a registered charity.

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