



liwa
Lung Institute
of Western Australia Inc

annual report

2012

key achievements for 2012

- Pleural Diseases Unit's reputation as a centre of research excellence continued to grow with it being awarded research grants with a combined value of over \$1.2 million 2012.
- The establishment of a new research grant in the area of sarcoidosis research. The LIWA Research Grant Program awards \$150,000 to West Australian respiratory researchers each year.
- LIWA was a well recognised advocate for respiratory health in the media, commenting on issues such as the West Australian pertussis epidemic and trials for new medications for cystic fibrosis.
- LIWA's senior staff continue to be highly visible internationally for their work in lung research in areas such as empyema, mesothelioma and asthma.
- The Clinical Trials Unit was regularly the highest recruiting site in Australia as well as being one of the leading sites internationally. It has established a deserved reputation as Australia's leading respiratory clinical trials centre.

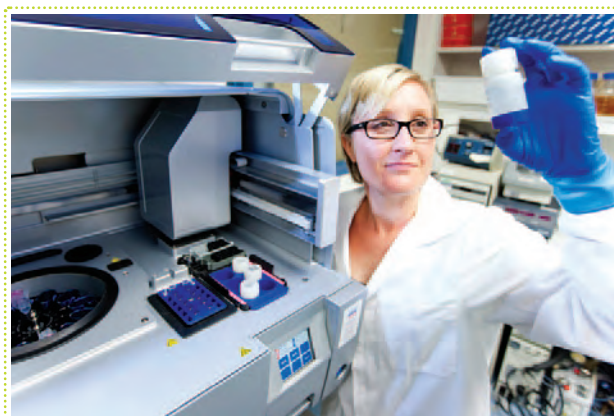


MAKING A DIFFERENCE

organisation chart



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chairman's report Sue Morey

Respiratory diseases are the third most common cause of death in Australia¹ and yet for a common lung disease such as COPD, only 2% of the \$560 million Australia spends is spent on research² into improving our understanding and management of this condition.



It is vital, therefore, that LIWA, one of only two medical research Institute's in Australia dedicated to addressing respiratory disease, strives to ensure it can extract as much value as possible from every precious dollar it receives.

1 AIHW, Asthma, chronic obstructive pulmonary disease and other respiratory diseases in Australia.

2 AIHW disease expenditure database as at Dec 2008.

With this purpose in mind, in 2012 the Board of Directors created two new subcommittees and expanded the scope of a third. Early in the year the Board identified the opportunity to harness the expertise of its members by creating a structure that would allow individual Board Members to focus on specific areas of operation.

The first of the new subcommittees formed was the Governance and Risk Committee which is led by Mr Bill Coleman. This committee oversaw a comprehensive risk assessment in all areas of LIWA's business which encompassed its work practices within clinical, scientific and administrative settings as well as identifying other risks to its ongoing operations.

One such risk identified was the lack of a major succession plan for the Director, Professor Philip Thompson, on whose expertise the Institute is heavily reliant for both its clinical and scientific operations. This identified risk resulted in a working party being formed to develop a succession plan for the position of Director and this is currently being actioned in consultation with the other stakeholders who have a vested interest in the Directorship of LIWA.

The expansion of the terms of reference of the Scientific Subcommittee, chaired by Professor Geoff Stewart, complemented the succession plan. In addition to judging the Institute's scientific grants and awards it has now been asked to advise on research directions to ensure LIWA's gifted researchers are supported in their endeavours to pursue projects that are most likely to address lung disease.

A finance sub-committee, chaired by Mr Jesper Sentow, was also established and its terms of reference include reviewing and monitoring the Institute's performance against financial benchmarks established by the Board. The subcommittee also advises the Board on the Institute's budget and reviews regular financial reports and, where appropriate, provide advice to the Board on the implications of these.

Our research is at the heart of our endeavours

I am sincerely grateful for the support of our Patron, Chief Justice and Deputy Governor Wayne Martin and ambassadors Glenn Mitchell and Karen Tighe.

I am also delighted the Institute continues to enjoy a productive relationship with a number of organisations who assist LIWA carry out its research objectives. Principal among these is the University of Western Australia who LIWA is affiliated with through the Centre of Asthma, Allergy and Respiratory Research, also known as CAARR for short. Many of our researchers hold adjunct academic positions within the University and publish their findings under the CAARR banner.

The Institute is largely located on the QEII campus and as such we appreciate enormously the support we receive from Sir Charles Gairdner Hospital in our operations.

I would also like to acknowledge the special relationship LIWA enjoys with Westcare Inc who provide an annual grant for research into infectious lung diseases and with whom we participate in a corporate breakfast to which draws attention to respiratory disease as a disability.

A number of Board members retired at the 2012 AGM; Mr Jim Baker, Professor Mike Garlepp, Dr John Bandouvakis, and Ms Jackie Ormsby. I would like to thank these members for their support of the Institute. Professor Alistar Robertson also stood down towards the end of 2012 and we anticipate Professor George Yeoh taking his place.

We were delighted to welcome two new members, Mrs Ann Witt and Mr Johnson Kitto, whose contribution has already been significant.

Our researchers remain at the heart of our endeavours and I would like to especially thank these dedicated individuals who continue to expand our understanding of lung disease. These researchers have been ably supported in 2012 by our new Executive Director, Mr Cameron Agnew, who has worked tirelessly to ensure the LIWA is well administered and in a strong financial position.

In conclusion I would like to thank my fellow board members, including our Director Professor Philip Thompson for their service during the past year.



Sue Morey
Chairman

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.

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
Chairman
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 B.Sc. (Econ)
CPA MBA** Treasurer
Chair of LIWA Finance Committee.
Management Consultant.



**Winthrop Professor
Geoffrey Stewart BSc PhD**
Chair of Scientific Sub-committee
School of Pathology and
Laboratory Medicine
University of Western Australia.



**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.



Mr Bill Manning BA, LLB (Qld)

Senior Lawyer,
Department of State Development,
Western Australia.



**Professor Alistar Robertson
BSc (Hons) PhD**

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**

Westcare Inc Representative,
Director of Finance at the Anglican
Church Diocese of Perth;
Member of Board of Directors
Westcare Inc.



Mr Johnson Kitto LLB

Managing Partner
of Kitto & Kitto,
Barristers & Solicitors.



**Winthrop Professor
Philip Thompson
MBBS FRACP FCCP MRACMA
Director**

Director of the Lung Institute of WA,
Clinical Professor Curtin University;
Member of the Board of Directors
of Westcare Inc. Immediate Past
President of the Thoracic Society
of Australia and New Zealand,
Member Editorial Board Respiriology.

Subcommittees of the Board

Finance:

Jesper Sentow (Chair); Cameron Agnew;
Philip Thompson; Ann Witt

Governance and Risk:

Bill Coleman (Chair); Cameron Agnew

Scientific:

Professor Geoff Stewart (Chair),
Professor Robyn O'Hehir*; Professor Stephen
Holgate*; Winthrop Professor Geoff Laurent*

* External to LIWA



director's report

Winthrop Professor
Philip Thompson

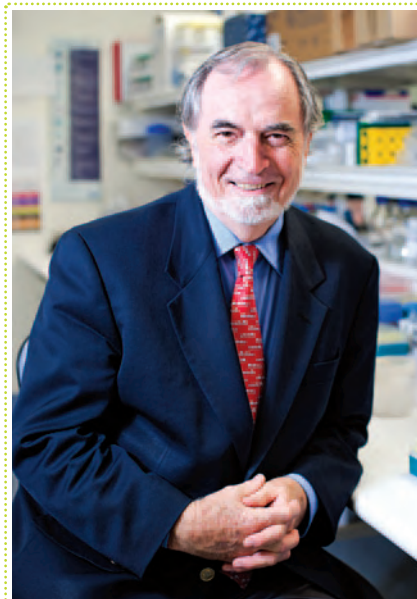
Research

It is testament to the quality of our researchers that 2012 saw a number of grants awarded from diverse sources including the NHMRC, Dust Diseases Board, Cancer Council, Asthma Foundation, Sir Charles Gairdner Hospital Research Fund and Novartis.

These grants enabled significant projects to either commence or continue in the areas of asbestosis, mesothelioma, pleural infections, genetics of asthma, IPF, sarcoidosis, CF and COPD.

Our clinical trials unit performed strongly again in 2012 and has a deserved reputation as Australia's leading respiratory trials centre. It achieved a number of milestones during the year including being the highest recruiting site for a number of studies and was regularly one of the top recruiters internationally for others.

A patent for a molecular gene therapy that shows potential as a novel treatment for asthma and other inflammatory diseases was achieved by the Institute's Molecular Genetics and Inflammation Unit. The patent is an excellent research outcome and substantial progress was made towards gaining a number of other patents.



Community Support

A highlight of 2012 was the establishment of a third competitive research grant for investigating sarcoidosis and other granulomatous lung diseases. As with the other two existing annual grants facilitated by LIWA – one for cystic fibrosis / bronchiectasis and another for infectious lung diseases – this grant is for \$50,000. The research grant program is an achievement of which we are particularly proud and I am confident that this funding will be successful in establishing new treatment directions in the future. It is important to note that these grants are entirely funded by donations from individuals and organisations and we are extremely grateful to this group of donors for their support.

The Institute initiated some new strategies to attract public support. These included aligning ourselves to existing events such as the HBF Run for A Reason; providing additional channels for individuals to support us through platforms such as the Everyday Hero website and engaging in a strategic donor acquisition program.

In addition to pursuing funding through research project grants, LIWA has commenced increasing its engagement with the corporate and community sector in 2012 and I look forward to these initiatives maturing in the coming year.

Organisational Structure

During the year a number of initiatives were undertaken to make the Institute more operationally effective. Our information technology systems were reviewed and appropriate software resources were identified that, once implemented, will increase our capacity for managing our many stakeholders across a number of areas of our operation. A comprehensive review of the Institute's assets was undertaken and a communications audit completed.

It was with sadness that we farewelled the editorial office of the respiratory journal, *Respirology* in June. With the Editor in Chief post now being by served by Professor Peter Eastwood, it was more practical for the staff involved to be housed and administered on the UWA campus near Professor Eastwood. LIWA's management of the journal has been an enriching experience for the Institute which has involved many of our staff over the past decade.

I would like to thank all staff involved in LIWA for their contributions in 2012. Research organisations are very much the sum of their human capital and we are most fortunate to have a number of outstanding researchers, clinicians and support staff who are highly committed to advancing our understanding of lung disease.

I also wish to acknowledge our Patron and ambassadors and the time and expertise given by our voluntary Board of Directors and in particular our Chairman, Mrs Sue Morey, who served her first year as in this position in 2012. Their strong leadership is vital to the success of the Institute as we look forward to the future.



Winthrop Professor Philip Thompson | Director



community activities

The Lung Institute of Western Australia extends its sincere thanks to all of our donors, volunteers and members who supported us in 2012.

Every single contribution is enormously appreciated and needed.

Sponsors



Major Donors

Norma and William Barratt
Mr John Byrne
Cowaramup Lions Club
Crank'n Cycles 'n Toys Collie
Cystic Fibrosis Western Australia
Mr William Darby
Fitness Devil Personal Training
Modern Hiring Beam and Lintel Sales
Mr Chris Jones
Mrs Sue Morey
Perth School of Ballet
Ross Griffin Homes
Westcare Inc
Mr & Mrs John & Afra Wilder
Yellow Brick Road Wealth Management
Anonymous Donors

Fundraising Fun Runs

For the first time in 2012 individuals could raise funds for lung research at LIWA by participating in the Chevron City to Surf and HBF Run for a Reason events. The Institute's alignment with these popular events provided an avenue for individuals to challenge themselves and support LIWA by asking their networks to sponsor their effort, with the proceeds directed to LIWA.

Significantly LIWA partnered with the on-line giving platform, Everyday Hero.com, which enables supporters who take part in these events the facility to create their own fundraising webpage and manage donations to LIWA through it in a secure and transparent fashion.

A special thank you goes to Julie Bradshaw for her outstanding effort in the HBF fun run in raising money for LIWA's research.

Delirium

The second annual Delirium 24hr Cycle Race took place in April in Cowaramup, Western Australia with LIWA once again the charity partner of this event.



^ Professor Philip Thompson leads a team that competed in the Delirium Race.

LIWA participated in the event by offering free lung tests to participants and spectators. One hundred tests were carried out by the Institute's respiratory nurses. Those that returned an abnormal result were given the opportunity to discuss their results with a respiratory physician at the event.

LIWA presented three trophies which were for: The winning soloist, the winning team and the Paul Barratt Trophy for the team or individual who showed the greatest commitment, courage against adversity, improvement and effort.

Three LIWA teams of riders entered the event to raise awareness, to support the event and to raise money for LIWA, with over \$7000 being raised.

We recognise Brendan Morrison for organising this event. We would also like to note Mary Sebes for her significant donation.

Melbourne Cup Lunch for Cystic Fibrosis Research

In 2012 this popular event was moved to the larger State Reception Centre in Frasers Kings Park, enabling the organisations to better meet demand for tickets. Over 300 people attended the glamorous event with all proceeds funding the LIWA Glenn Brown Memorial Grant for Cystic Fibrosis and Bronchiectasis Research. The event is now regarded as one of the premier functions held in Perth to mark this sporting event. Several individuals and organisations contributed to the success of the event by donating prizes. The event is run entirely by volunteers lead by Mrs Janeine Thomas and Suzanne Sheridan who works tirelessly for many months in the lead up to the day.



^ Melbourne Cup luncheon at Frasers Kings Park

Lung testing for World Spirometry Day



^ LIWA staff conducted lung tests at the Morley Galleria.

LIWA partnered with the Australian Lung Foundation to promote lung testing on World Spirometry Day on 27 June. The Clinical Trials Team attended Centro Morley Galleria offering free lung tests to reassure people their lung function is within a normal range or may warrant further investigation.

This event was one of several that took place around Australia and one of hundreds that took place around the world.

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 2012 the Institute welcomed the following speakers:

Professor Anna Nowak

School of Medicine and Pharmacology Sir Charles Gairdner Hospital Unit
'Thoracic Cancer Medicine'

Professor Jose Porcel

Chairman, Department of Internal Medicine
Arnau de Vilanova University Hospital, Lleida, Spain
'Pleural Fluid Biomarkers'

Professor Graham Hall

Head of Paediatric Respiratory Physiology, Telethon Institute for Child Health Research
'Lung function – going global in 2012'

Professor Jennifer Harrison

Head of eResearch Programme, iVEC@UWA
'eResearch and the opportunities of applying digital technology in healthcare research'

Professor Geoff Laurent

Director, Centre for Cell Therapy and Regenerative Medicine, University of Western Australia (UWA)
Vice-Dean of Enterprise, University College London
'Stem cells and lung regeneration'

Winthrop Professor David Mackey

Director, Lion's Eye Institute
'Genome-wide association studies success in ophthalmology'

Mr Gary Cox

Chairman, Partner, Wray and Associates
'Patenting for medical researchers the ins and outs'

Dr Keith Giles

Postdoctoral Research Associate

Western Australian Institute for Medical Research
'Tumour suppressor activity of microRNA-7 and microRNA-331-3p'

Winthrop Professor John Newnham

Head of School of Women's and Infants' Health,
University of Western Australia

'Improving lung health by preventing prematurity'

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 December 2012 for members of the Institute at which they were thanked for their support of the Institute.

Corporate Members in 2012 were:

- Turner Freeman Lawyers
- The Doctor Shop

The total membership for 2012 was 198 members of which 57 were scientific.



< Janeine Thomas receiving her award from Chairman Bill Manning. Ms Guest was unable to attend the ceremony.

Hero Award

The LIWA Hero Award was established in 2010 by the Directors of the Lung Institute of Western Australia to celebrate contributions 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 2012 Mrs Janeine Thomas and Ms Alison Guest

LIWA were delighted to announce as its Heros for 2012 Janeine Thomas and Alison Guest who by December 2012 had raised \$150,000 to support an annual research grant dedicated to addressing cystic fibrosis and bronchiectasis.

The Janeine and Alison have given countless voluntarily hours to stage the highly successful Melbourne Cup Luncheon event (see page 11). Both women have children with CF and have undertaken this fund-raising in the hope that research may help theirs and other families affected by this genetically inherited disease. In addition to giving their time, both awardees have championed LIWA as a worthy beneficiary of support to their broad network of friends, family as well as businesses. Janeine and Alison are very deserving LIWA Heros.

LIWA Hero Honour Roll

2010 – Mrs Edna Brown & Dr Jenni Ibrahim

2011 – Mr Paul Barratt



lung information and friendship for everyone – LIFE

L I F E, LIWA's community support group continues to thrive. In 2012 it celebrated 20 years as the first Australian support group for people with chronic lung conditions. Members got together 14 times, including ten meetings at Sir Charles Gairdner Hospital with speakers and four community lunches held in a range of cafes across Perth.

The speaker program covered such topics as palliative care, the WA Seniors Card, bronchiectasis, CPAP machines for sleep apnoea, clinical trials, and self management of chronic conditions. Participation ranged from 8-28. The Christmas lunch celebrated our 20th anniversary and acknowledged the tremendous contribution of Edna Brown, retiring coordinator who founded the group in 1992. The event was attended by a number of visitors and prospective members, some of whom have since joined.

Some members were interviewed and filmed at Edith Cowan University as part of the development of a DVD resource to help people with lung disease manage anxiety and panic attacks.

Breath of L I F E magazine was published four times and about 200 copies were distributed to members, interested health professionals, relevant organisations and waiting areas at Sir Charles Gairdner Hospital. Back issues are available on the LIWA website.

A communications strategy was developed to raise awareness of the group's existence in people with lung disease and health professionals. This is being gradually implemented, initially with a presentation to respiratory ward nurses at Sir Charles Gairdner Hospital and the distribution of L I F E's new poster in waiting areas at the hospital and GP practices.



^ LIFE Members enjoying Christmas Lunch at Wembley Golf Club.

research grant program

LIWA acknowledges that some individuals and organisations are in a position to provide significant support to further research into an area of lung disease that may touch their lives in some way, and that they wish to see their donation used to fund the most worthwhile project.

The LIWA competitive research grant enables such donors to establish a research grant designed to address a specific respiratory disease by providing \$50,000 to be used on a project within 12 months. LIWA adds value to the donation by administering the grants which includes its independent, voluntary, scientific board selecting the grant winners.

LIWA researchers working across all disciplines may apply for the grant and, on every alternate year, any West Australian researcher may compete with LIWA's own researchers for the funds. This ensures that the very best respiratory research is funded, no matter where in Western Australia it takes place.

In 2012 the Institute was delighted to announce the establishment of a third \$50,000 grant to support research into the lesser known disease sarcoidosis, a gift from John and Afra Wilder.

LIWA now facilitates \$150,000 worth of respiratory research funding in Western Australia annually.



< Dr Kathryn Ramsey was awarded the LIWA Glenn Brown Memorial Grant by Scientific Sub-committee Chair, Professor Geoff Stewart.

Projects awarded LIWA Respiratory Research Grants in 2012

Westcare Alan King Grant for Investigation into Infectious Lung Disease

Awarded to: Winthrop Professor Gary Lee, Lung Institute of Western Australia

'Translational research in pleural infection to optimize antibiotics choice and improve pus drainage'.

Funded by Westcare Inc.

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

Awarded to: Dr Kathryn Ramsey, Telethon Institute of Child Health Research.

'Lung clearance index as a surveillance tool to detect structural lung disease in preschool children with cystic fibrosis'.

Funded by Melbourne Cup volunteer fundraising.

LIWA Sarcoidosis and Other Granulomatous Lung Diseases Project Grant

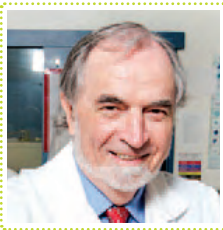
Associate Professor Yuben Moodley

'Discovering the sarcoid antigen'.

Funded by John and Afra Wilder.

key people at LIWA

Research Leaders



**Winthrop Professor
Philip Thompson**

MBBS, FRACP, FCCP, MRACMA
Director,
Head of Molecular Genetics
and Inflammation Unit
Research Interests:

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



**Winthrop Professor
Gary Lee**

MBChB, PhD, FRACP, FCCP
Head of Pleural Diseases Unit
Research Interests:

- Malignant pleural diseases
- Global gene expression profiling of malignant pleural mesothelioma in patients
- Clinical studies of indwelling pleural catheters (IPC) vs pleurodesis in malignant effusions
- Longitudinal and clinical studies of malignant pleural effusions

- Transforming Growth Factor (TGF)-beta in pleural fibrosis for malignant effusions
- Preclinical study of pathogenesis of empyema and interaction of bacteria and pleura



**Associate 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
- COPD



**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



**Associate 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



Dr 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



Meagan Shorten
(BSc (Nutrition))
Clinical Trials Manager

Research Interests:

- Clinical trials of new therapies for respiratory diseases
- Education to patients with respiratory diseases
- 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 Bahareh Badrian

BSc (Hons), PhD

Research Interests:

- Diagnostic and biological role of miRNA in malignant mesothelioma
- Non-coding RNA in malignant mesothelioma
- Molecular mechanisms of malignant mesothelioma and lung cancer



Dr Ed Fysh

MBBS, BSC

Research Interests:

- Clinical trials investigating the management of malignant pleural effusions
- Complications of pleural procedures including indwelling pleural catheters
- Pleural infection
- Thoracic ultrasound



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,
PhD

Research Interests:

- Inflammation in chronic obstructive pulmonary disease
- Immunological and molecular mechanisms underlying chronic airway diseases
- Host immune defences 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



Dr Kylie Hill
BSc Physiotherapy, PhD

Research Interests:

- Exercise training for people with chronic lung disease and including lung cancer
- Skeletal muscle dysfunction following lung or heart / lung transplant
- Vascular health in COPD
- Rehabilitation of patients hospitalised with an acute respiratory illness



education initiatives

Supporting the education of clinical and scientific researchers, at every stage of their careers, is a core activity of LIWA. 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 2012 LIWA invested \$127,000 in funding PhD and Honours scholarships and the Summer Vacation Cadet Program all of which support young scientists to embark on a career in respiratory research.



Recipients of LIWA PhD TopUp Scholarships Awarded in 2012

Mr Chuan Bian Lim, University of Western Australia
Research Unit: Tissue Repair

Project title: 'Role of hedgehog signalling in malignant mesothelioma.'

Supervised by S Mutsaers.

Dr Rabab Rashwan, University of Western Australia
Research Unit: Pleural Diseases Unit

Project title: 'The biological effects of common bacterial pathogens of pleural infections on pleural mesothelial cells.'

Supervised by YCG Lee.

Recipients of LIWA PhD TopUp Scholarships continuing in 2012

Miss Kimberly Birnie, University of Western Australia
Research Unit: Tissue Repair

Project title: 'miRNA in malignant mesothelioma.'

Supervised by B Badrian, PJThompson, S Mutsaers.

Dr Li Ping Chung, University of Western Australia
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.

Dr Edward Fysh, University of Western Australia
Research Unit: Pleural Diseases

Project title: 'Longitudinal followup of malignant pleural effusions (MPE) and their management.'

Supervised by YCG Lee.

Ms Ai Ling Tan, University of Western Australia
 Research Unit: Pleural Diseases
 Project title: 'The potential biological role of fibroblast growth factor-9 in malignant pleural mesothelioma.'
 Supervised by YCG Lee.

Recipient of the LIWA Honours / Bachelor of Medical Science Scholarship 2012

Ms Kathrine Gee
 Research Unit: Molecular Genetics
 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.

Other PhD Scholars within LIWA

Ms Hui Min Cheah, University of Western Australia
 Research Unit: Pleural Diseases
 Project title: 'Biological functions of malignant pleural effusions.'
 Supervised by YCG Lee.

Dr Robin Fowler, Curtin University
 Research Unit: Physiotherapy
 Project title: 'The impact of elevated pulmonary artery pressure on exercise responses.'
 Supervised by E Gabbay, A Maiorana, S Jenkins.

Mr Geoff Strange, Curtin University
 Research Unit: Physiotherapy
 Project title: 'Barriers to timely diagnosis of pulmonary hypertension.'
 Supervised by E Gabbay, A Keogh, S Stewart.

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 Louise Ganderton, Curtin University
 Research Unit: Physiotherapy
 Project title: 'Short-term effects of exercise training on exercise capacity and quality of life in individuals with pulmonary arterial hypertension.'
 Supervised by E Gabbay, S Jenkins, K Gains.

Ms Robyn Jones, University of Western Australia
 Research Unit: Tissue Repair
 Project title: 'Airway remodelling in asthma.'
 Supervised by A James, S Mutsaers, P Noble.

Ms Alina Miranda, University of Western Australia
 Research Unit: Tissue Repair
 Project title: 'MUC-1 in mesothelioma.'
 Supervised by J Creaney, S Mutsaers, A Nowak.

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.

Masters Scholars within LIWA

Ms Keyuri Koriya, University of Notre Dame (WA)

Research Unit: Tissue Repair

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

Supervised by S Mutsaers, C Prèle, 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.

Other Honours Scholars within LIWA

Ms Alice Green, Murdoch University

Research Unit: Tissue Repair

Project title: 'Effect of STAT1/3 depletion on bleomycin-induced lung fibrosis.'

Supervised by C Prele, S Mutsaers, PJ Thompson.

Mr Adley Handoko, University of Western Australia

Research Unit: Tissue Repair

Project title: 'The role of IL-11 in idiopathic pulmonary fibrosis.'

Supervised by C Prele, S Mutsaers, PJ Thompson.

Ms Kathryn Jiajko, University of Western Australia

Research Unit: Tissue Repair

Project title: 'The expression and function of mir-139-5p in malignant mesothelioma.'

Supervised by B Badrian, S Mutsaers, J Xu.

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 2012 /13 program saw five outstanding students selected from a highly competitive field to commence the ten week program in December 2012.

Cameron Carling

Biomedical Science
University of Notre Dame Australia
LIWA Research Unit: Molecular Genetics

Courtney Kidd

Genetics and Pathology
University of Western Australia
LIWA Research Unit: Molecular Genetics

Nathanael Ong

Biomedical Science
University of Notre Dame Australia
LIWA Research Unit: Stem Cell Research

Joel Schier

Biomedical Science / Physics & Nanotechnology
Murdoch University
LIWA Research Unit: Molecular Genetics

Maya Zimmermann

Biomedical Science
Murdoch University
LIWA Research Unit: Stem Cell Research

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 2012**Associate Professor Steven Mutsaers**

Conference: 17th Colloquium on lung and airway fibrosis, Modena, Italy, September 2012.

Abstract: 'Gp130-mediated STAT3 signalling as a molecular target for lung fibrosis.'

Junior Travel Award winners 2012**Dr Li Ping Chung**

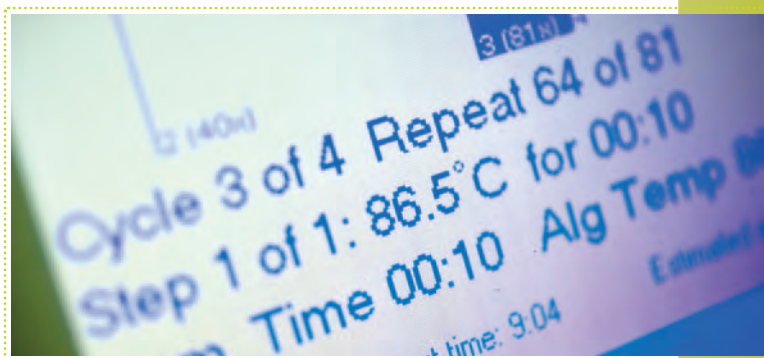
Conference: TSANZ Annual Meeting, Canberra, April 2012 and ATS 2012 San Francisco, USA, May 2012.

Abstract: 'β2-Adrenoceptor (ADR β2) haplotype pairs affects ADR β2 function and response to formoterol in severe asthmatics.'

Dr Dino Tan

Conference: TSANZ Annual Meeting, Canberra, April 2012.

Abstract: 'Are T-cell suppressive mechanisms defective in COPD patients?'





research overview 2012

The respiratory system is complex and often multiple factors influence each individual's lung disease. LIWA has adopted a multidisciplinary approach to its research by supporting both clinical and scientific projects.



Projects within our biological sciences based research units are aimed at determining the fundamental mechanisms of respiratory cell biology. The research outcomes from these projects ultimately provide a basis for new treatments.

Clinically based LIWA research units undertake projects in healthcare settings. Researchers in these areas work directly with individuals living with lung disease to improve existing treatment modalities. Some of these units unite clinicians and health care workers who are focussed on a particular area of disease, while others are concentrating on a particular 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 and 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.

Below is a summary of some of the key clinical and scientific projects undertaken by the Institute during 2012.

AIRWAY DISEASES

Asthma

- LIWA 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. LIWA contributes genetic data samples to its various studies and early findings have already achieved publication in the prestigious Lancet and Nature Genetics journals.
- The Clinical Trials Unit has been involved in a number of studies for new medications that address hypereosinophilic asthma. Many physicians are not conscious of this form of severe asthma and struggle to achieve control using conventional treatments. The clinical trials unit has also conducted an GM-CSF monoclonal antibody study.
- A Patent was registered for a gene therapy to inhibit granulocyte macrophage-colony-stimulating factor.
- The Molecular Genetics unit continued studies on the molecular mechanisms underpinning pro and anti-inflammatory pathways in the lung.

Bronchiectasis

- The Clinical Trials Unit tested a new inhaled antibiotic targeting gram-negative bacteria in the airway so as 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 of an oral vaccine that aims to reduce the rate of exacerbations from the bacteria Haemophilus Influenzae.
- The Stem Cell Research Unit conducted a project which investigated whether molecules that normally suppress inflammation are poorly regulated in COPD and contribute to the chronic inflammation seen in this condition.
- The Physiotherapy Unit conducted several studies addressing COPD. These included one which investigating strategies to optimize physical activity and well-being in patients with COPD, one that considered vascular health in patients with COPD and their response to exercise training and another which measured responses to exercise testing and training in patients with COPD and PAH.

Cystic Fibrosis (CF)

- The Clinical Trials Unit continued trials for two new medications used in combination, VX-770 and VX-809. The drugs target the protein which is defective in CF as a result of genetic mutations. 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 continue to receive the medication on an open label study through LIWA throughout the year. These new treatments represent the greatest breakthrough in CF research in the last 20 years.

Continuing trials will help determine whether this targeted therapy will provide much need benefits to people living with CF.

- Assessing Cholecalciferol Recommendations in the Adult Cystic Fibrosis Population. Project undertaken in 2012 and ongoing 2013 – Sir Charles Gairdner CF Multidisciplinary team.
- The Stem Cell Unit commenced a study, funded by the LIWA Glenn Brown Memorial Grant which investigated using human amnion epithelial cells (hAECs) to correct receptors in the lung cells of individuals with CF by replacing abnormal cells with normal functioning cells and the potential of these cells to repair an injured lung in the setting of infection. At the level of cultured cells results from this study are promising.
- A study was conducted by our physiotherapists that explored the use of interactive gaming consoles as alternatives to traditional exercise in young adults with CF.

INTERSTITIAL DISEASES Pulmonary Fibrosis

- LIWA's Clinical Trials Unit is one of several centres internationally that is conducting a trial of a new medication that its manufacturer hopes will slow the progression of idiopathic pulmonary disease (IPF). The trial aims to address the efficacy and safety of a new medication which is currently the only new medication to have been developed that shows potential for treating this ultimately fatal condition.



- Little is unfortunately known about the rare lung disease Idiopathic Pulmonary Fibrosis, however 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 2012, working with the Australian Lung Foundation. Associate Professor Yuben Moodley is a member of the Registry Steering Committee and Emily Stevens is 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 as well as a possible breakdown in regulation of the naturally occurring inhibitors that normally control the STAT3 response.

Sarcoidosis

- The Stem Cell Unit examined the differences in the protein expression in sarcoid which may assist physicians diagnosing the disease more effectively – it is currently hard to diagnose – thus by allowing patients access to treatments that will alleviate some of their symptoms earlier and potentially lessen the long term damage to their lungs from the disease.

PLEURAL DISEASES

Pleural Effusions and Empyema (Pleural Infection)

- 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.
- The Unit have also made a considerable contribution to improving the treatment of pleural effusions through studies they have undertaken on indwelling pleural catheters and comparing their effectiveness with traditional treatments and influencing clinical practice.

Mesothelioma

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 TRG are also looking at the biological significance of certain miRNAs in mesothelioma.



Stem cells in mesothelioma and the role of the hedgehog signalling pathway

- 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. Not only is this pathway important in cancer cells but it plays an important role in maintaining stem cells. The Tissue Repair Unit have undertaken a study which demonstrated that Hh pathway signalling is important in the growth of mesothelioma and are looking at the possible role of Hh-mediated cancer stem cells in this disease. They are also 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.

Mesothelial progenitor cells in serosal repair and post-operative adhesion formation.

- The Tissue Repair Unit investigated the role of HGF in mesothelial repair and adhesion formation. Adhesions are bands of fibrous tissue that form between surfaces (serosa) in body cavities and organs. It has been proposed that adhesions form as a consequence of a failure to degrade fibrin after injury. The Tissue Repair Unit believe that the future direction in preventing adhesions is likely to be the application of growth factors and mediators designed to increase the rate of serosal repair which will re-establish the tissue's normal fibrinolytic capacity to breakdown fibrin at the sites of injury. The Unit are using novel approaches to investigate the effect of delivering HGF to body cavities to determine if this may have therapeutic potential to prevent adhesions.

The role of TGF β 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 which is a potent stimulator of collagen production. Studies within the TRG are looking at why mesotheliomas make a lot of collagen and how they do this, so that that can find specific ways to inhibit collagen production and slow down tumour growth.

PULMONARY VASCULAR DISEASES

- The Advanced Lung Diseases Unit has undertaken a multicentre study examining the role of anticoagulation in scleroderma associated pulmonary hypertension. In addition they have been looking closely at families with pulmonary hypertension to determine if a genetic factor is involved in the disease. A third project underway has involved refining the screening algorithm that has been developed for assessment of patients with connective tissue disease and pulmonary hypertension.

TRANSPLANTATION

- Physiotherapists from the Advanced Lung Diseases Unit conducted a study on muscle dysfunction following heart and heart-lung transplantation.



research activities

FOR 2012

Staff

AWARDS IN 2012

Bahareh Badrian	SCGH 3rd place Poster Award
Chuan Bian Lim	TSANZ WA Branch New Investigator Award
Kimberly Birnie	TSANZ WA Branch Best Poster Award
Svetlana Baltic	Janet Elder International Travel Award
Svetlana Baltic	Thoracic Society of Australia & NZ (TSANZ) Travel Award
Svetlana Baltic	Ian Potter Travel Award
Saskia Mazzella	Sir Frank Ledger Scholarship, Australian Institute of Management – UWA Business Advanced Management Program.
Steven Mutsaers	Cancer Council WA Research Fellowship
Steven Mutsaers	LIWA Senior Travel Award
Adley Handoko	TSANZ WA Branch Honorable Mention, Best Poster Award

Invited Presentations and Chairmanship

INTERNATIONAL

Eli Gabbay. 'Management of acute and chronic pulmonary thromboembolic disease'. 3rd Chinese International Pulmonary Vascular Symposium, Beijing, March 2012.

'Improving access to PAH specific therapy in the ASEAN region'. 3rd Asean Pulmonary Vascular Asean Congress, Beijing, March 2012.

Kylie Hill. 'Skeletal muscle dysfunction in COPD'; 'Evaluating pulmonary rehabilitation'. First Joint Meeting for the American College of Chest Physicians and the Israel Society of Pulmonary Medicine, Tel Aviv, Israel, March 2012

Sue Jenkins. 'Pulmonary rehabilitation in Australia'. Keynote speaker, 26th Pulmonary Rehabilitation Workshop, Nagasaki, Japan, July 2012.

'How to write a paper in English', 7th Health Science Research Seminar, Graduate School of Biomedical Sciences, Nagasaki, Japan, July 2012.

Gary Lee. 'Pleural infection: new lessons from translational research'. The Science Behind Infection in the Pleural Space Symposium. British Thoracic Society Winter Conference, London, U.K. December 2012.

'Management of pleural malignancies and controversies'. Lung cancer symposium. Asian Pacific Society of Respiriology Annual Congress, Hong Kong. December 2012.

'Pneumonia and Pleural Infection in 2012: The challenges of pleural infection in 2012

Advances in Pleural Disease: Diagnostic molecular biomarkers for malignant pleural diseases.'

Master Clinician (Panel), Practical Tips for State-of-the-art Pleural Management: Indwelling pleural catheter & related complications Symposium. American College of Chest Physicians (CHEST) Conference, Atlanta, USA. October 2012.

'Mesothelioma'. Panel Discussion at Mesothelioma Update symposium. Turkish Respiratory Society Respiration Conference, Antalya, Turkey. October 2012.

'Other origins of pleural effusion'. Pleural Disease Focus on Pleural Effusion workshop. Respina, Jakarta, Indonesia. October 2012.

'Pleural ultrasound by chest physicians: when, why and how to get started'. Pleural Disease Focus on Pleural Effusion workshop. Respina, Jakarta, Indonesia. October 2012.

'Mesothelioma: what Indonesian physicians need to know'. Pleural Disease Focus on Pleural Effusion workshop. Respina, Jakarta, Indonesia. October 2012.

'Empyema: Surgery should be the first line'. Invited Plenary Session. Respina, Jakarta, Indonesia. October 2012.

'Malignant pleural effusion – Common myths.' ERS/ACCP joint course on diagnostic and management strategies for pleural disorders. European Respiratory Society annual scientific conference, Vienna, Austria. September 2012.

'Management of parapneumonic effusion'. Pleural Disease symposium. Malaysian Respiratory Society annual congress, Kuching City, Malaysia. July 2012.

'How to diagnose and manage trapped lungs'. Pleural Disease symposium. Malaysian Respiratory Society annual congress, Kuching City, Malaysia. July 2012.

'Role of ultrasound in pulmonary disease – when and how'. Hands on Thoracic Ultrasound workshop. Malaysian Respiratory Society annual congress, Kuching City, Malaysia. July 2012.

'How clinicians can start research and get published?'. Breakfast session. Malaysian Respiratory Society annual congress, Kuching City, Malaysia. July 2012.

'Where should pleuroscopy be placed in the diagnostic workup of pleural effusion in 2012?'. Pleuroscopy symposium. 17th World Congress for Bronchology and Interventional Bronchology, Cleveland, USA. June 2012.

'Advances in Diagnosis of Pleural Infection: What clinicians need to know?'. Pneumonia and Pleural Infection: Advances & Controversies symposium. American Thoracic Society International Conference, San Francisco, USA. May 2012.

Mesothelioma: challenges of diagnosis and management'. Chinese Lung Cancer Prevention and Treatment Alliance (CLCPTA) – American College of Chest Physicians – Shanghai Respiratory Society Joint Meeting, Shanghai, China. April 2012.

'Management of Malignant Pleural Effusions – advances and controversies'. Chinese Lung Cancer Prevention and Treatment Alliance (CLCPTA) – American College of Chest Physicians – Shanghai Respiratory Society Joint Meeting, Shanghai, China. April 2012.

Session Chair, College of Chest Physicians (CHEST) Conference, Atlanta, USA. Oct 2012.

Symposium Chair, British Thoracic Society Winter Conference, London, U.K. Dec 2012.

Symposium Chair, American Thoracic Society International Conference, San Francisco, U.S.A. May 2012.

Steven Mutsaers. 'The role of gp130-mediated signalling in the pathogenesis of IPF'. Invited speaker, Centre for Respiratory Research, University College London, London, UK, February 2012.

Session Chair, 11th International Mesothelioma Interest Group Conference, Boston, USA, September 2012.

Workshop Chair, 11th International Mesothelioma Interest Group Conference, Boston, USA, September 2012.

Session Summary, 17th International Colloquium on Lung and Airway Fibrosis, Modena, Italy. September 2012.

Invited Discussant, Trans Atlantic Conference: Lung Injury and Repair: The Role of Extracellular Matrix, Lucerne, Switzerland, January 2012.

NATIONAL

Robin Fowler. 'Exercise training in pulmonary arterial hypertension'. Airways 2012, Melbourne, August 2012.

Eli Gabbay. 'Pulmonary hypertension and lung transplantation – it's all in the timing'. 2nd PSANZ ASM, Sydney, November 2012.

Kylie Hill. 'Exercise training during acute exacerbation of chronic obstructive pulmonary disease'. Airways 2012, Melbourne, August 2012.

Sue Jenkins. Session Chair, 'Pulmonary hypertension and lung transplantation – it's all in the timing'. Airways 2012. Melbourne, August 2012.

Gary Lee. 'Malignant Pleural Effusion: Overview of Research in Pleural Plumbing'. National Centre for Asbestos Related Diseases Annual Conference, Perth, Australia. October 2012.

'Malignant mesothelioma'. Mesothelioma Symposium, Cixi City People's Hospital, Cixi, China. April 2012.

Steven Mutsaers. 'The development of better diagnosis, early detection and effective therapies for mesothelioma'. Asbestos Diseases Society of Australia, AGM. Osborne Park, WA, July 2012.

LOCAL

Svetlana Baltic. 'Antisense oligonucleotides effectively reduce GM-CSF expression in human airway epithelial cells'. School of Pathology and Laboratory Medicine Seminars, Perth 2012.

'Asthma, genetics and therapy'. Thoracic Society of Australia and New Zealand West Australian Branch, Annual Scientific Meeting 2012.

Sue Jenkins. 'Pulmonary rehabilitation'. University of Western Australia, Continuing Professional Development Workshop, Perth, April 2012.

'Pulmonary rehabilitation update'. Australian Physiotherapy Association, Level 1 Course in Cardiorespiratory Physiotherapy, Perth, June 2012.

Steven Mutsaers. 'Regulation of lung fibrosis through STAT3-mediated pathways'. School of Pathology and Laboratory Medicine, UWA, Royal Perth Hospital, Perth, October, 2012.

'Interstitial lung disease'. South West Impaired Lung Support Group Meeting, Bunbury, WA. June, 2012.

Session Chair, Australian Society for Medical Research, WA Branch, WA Symposium, June 2012.

Session Chair, 9th Perth Mesothelioma Centre Symposium, Sir John of God Hospital, Subiaco, WA, November 2012.

Committees and Boards

INTERNATIONAL

Eli Gabbay Organising Committee, 3rd Asean Pulmonary Vascular Asean Congress, Beijing, March 2012.

Steven Mutsaers President, Executive Committee of the International Mesothelioma Interest Group.

Member, Scientific Advisory Board of the Mesothelioma Applied Research Foundation.

Member, Editorial Board of the Fibrogenesis and Tissue Repair.

Member, Editorial Board of the Open Journal of Respiratory Disease.

Member, Editorial Board of the World Journal of Transplantation.

Gary Lee Invited participant for the annual Academic Reputation Survey for World University Rankings: Thomson Reuters and Times Higher Education.

External Advisor, China Lung Cancer Alliance.

Thoracic Society of Australia & NZ, West Australian Branch Committee.

Lead Investigator, AMPLE (Australasian Malignant Pleural Effusion) Trial.

Steering Committee Member, RCT of Interventional vs Conservative Treatment of Primary Spontaneous Pneumothorax.

Independent Committee Member, SMART (Surgical and large bore pleural procedures in Malignant Pleural Mesothelioma and Radiotherapy Trial).

Independent Committee Member, TIME-3 (Therapeutic Intervention of Malignant Effusion Trial-3).

Key Investigator, TIME-2 (Therapeutic Intervention of Malignant Effusion Trial-2).

Key Investigator, TIME-1 (Therapeutic Intervention of Malignant Effusion Trial-1).

Editor, International Pleural Newsletter.

Immediate Past Editor, Respiriology.

Section Editor for Pleural Diseases, Current Respiratory Care Report.

Editorial Board member, Plevra Bülteni (Turkish).

Series Editor, Translational Respiratory Medicine.

Philip Thompson Member, Editorial Board, Respiriology.

International Liaison Committee.

International Society of Translational Medicine.

Yuben Moodley Associate Editor of Respiriology.

NATIONAL

Eli Gabbay Editorial board member Advances in Pulmonary Hypertension; Australian Medicines Handbook; Case Reports in Pulmonology.

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

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

Editor, Critical Appraised Papers, Journal of Physiotherapy.

Sue Jenkins Member, COPD Evaluation Committee, Australian Lung Foundation.

Member, Steering Committee, Airways 2012.

Yuben Moodley IPF Registry Steering Committee.

Philip Thompson Past President, Thoracic Society of Australia and New Zealand (TSANZ).

Director, CRC for Asthma and Airways WA Node.

Co-Director, NH&MRC Centre of Clinical Research Excellence.

Co-Director, (WA) Australian Asthma Genetics Consortium.

Member, Adult Division of Royal Australasian College of Physicians Executive.

Member, TSANZ Board.

Member, Medicine Australia's Appeals committee (Respiratory).

LOCAL

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

Member, NMHS Respiratory Service Delivery Model Working Group North Metropolitan Area Health Service.

Eli Gabbay Medical Director, Western Australian Advanced Lung Disease Program and Pulmonary Hypertension Service, Royal Perth Hospital.

Professor of Respiratory Medicine, Chair, Medical Research Committee.

School of Medicine, University of Notre Dame (WA), Australia.

Sue Jenkins Member, Research Advisory Committee, Sir Charles Gairdner Hospital.

Steven Mutsaers Member of the Laboratory Research Advisory Committee, School of Medicine and Pharmacology, University of WA.

Philip Thompson Member, Board of Westcare Industries Pty Ltd.

Clinical Professor, Division of Health Sciences, Curtin University.

Collaborations

INTERNATIONAL

Dr Robert Tarran, Chapel Hill University, Chapel Hill, North Carolina, USA.

Professor Carlos Luna, University of Buenos Aires, Buenos Aires, Argentina.

Professor Darryl Knight, James Hogg iCapture Centre, Vancouver, Canada.

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

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

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

Professor Roger Goldstein; Associate Professor Dina Brooks; Tom Dolmage, University of Toronto, West Park Healthcare Centre, Toronto, Canada. Measurement of physical activity.

Professor Darlene Reid, University of British Columbia, Vancouver, Canada, co-editing a new version of a physiotherapy text book.

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

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

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

NATIONAL

Australian Genetics Consortium for Asthma.
Cooperative Research Centre for Asthma and Airways.
Professor Mattias Ernst, Dr Andrew Jarnicki,
Dr Robert O'Donoghue, Ludwig Institute for Cancer
Research, Melbourne.

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

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

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

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

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

Associate Professor Anne Holland and
Dr Annemarie Lee. Physiotherapy Department,
Alfred Hospital. Benefits of pulmonary rehabilitation
in non-cystic fibrosis bronchiectasis.

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

LOCAL

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

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

Dr Bhajan Singh. Pulmonary Physiology, Sir Charles
Gairdner Hospital. Examining the agreement of
arterial oxygen saturation measured during exercise
using a transmission and reflectance sensor in
people with chronic obstructive pulmonary disease.

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

publications

Book Chapters

Wrightson JM, Davies HE and Lee YCG. Pleural effusion, empyema and pneumothorax. In: Spiro SG, Agusti A and Silvestri G, eds. *Clinical Pulmonary Medicine*, 4th ed. Philadelphia, PA, USA: Elsevier. 2012; in press.

Steer H and Lee YCG. Mesothelioma. In: Heffner JE, Grippi M and Kollef R, eds. *Clinical decision support: Pulmonary medicine and sleep disorders. Decision Support in Medicine*, Wilmington, DE, USA. 2012; in press.

Steer H, Gleeson FV and Lee YCG. Malignant mesothelioma. In: Hunt I, Maskell NA and Gleeson FV, eds. *ABC of Pleural Disease*. Oxford, UK: Wiley-Blackwell. 2012; in press.

Lee YCG. Pleural anatomy and fluid analysis. In: Ernst A and Herth F, eds. *Principles and Practice of Interventional Pulmonology*. New York, NY, USA: Springer. 2012; in press.

Invited Reviews and Editorials

Lee YCG and Waterer GW. The need for translational research in respiratory medicine. [Editorial] *Translational Respiratory Medicine*. 2012; in press.

Thomas R and Lee YCG. Etiology and management of common benign pleural effusions. *Thorac Surg Clin*; 23:25-42. 2012; in press.

Eastwood PR, Naughton M, Calvery P, Zeng G, Beasley R, Robinson BW and Lee YCG. How to write research papers and grants: 2011 Asian Pacific Society of Respiriology Annual Scientific Meeting Postgraduate Session. *Respirology*. 2012;17:792-801.

Tobin C and Lee YCG. Pleural infection – what we need to know but don't. *Curr Opin Pulm Med*. 2012; 18:321-325.

Rosenstengel A and Lee YCG. Pleural infection – current diagnosis and management. *J Thorac Dis*. 2012; 4:186-193.

Tobin C, Porcel JM, Wrightson JM, Waterer GW, Light RW and Lee YCG. Diagnosis of pleural infection: State-of-the-Art. *Curr Respir Care Rep*. 2012;1:101-110.

Journal Articles

Aung AK, Teh BM; McGrath C; Thompson PJ. Reversal of bronchiectasis (pseudobronchiectasis) post pertussis and mycoplasma infection. *AJCCRM*. 2012;186: 292-4.

Aung AK, Teh BM; McGrath C; Thompson PJ. Pulmonary sporotrichosis: case series and systematic analysis of literature on clinico-radiological patterns and management outcomes. *Med Mycol*, 2012 [Epub].

Cavalheri V, Hill K, Donaria L, Camillo CA, Pitta F. Maximum voluntary ventilation is more strongly associated with energy expenditure during simple activities of daily living than measures of airflow obstruction or respiratory muscle strength in patients with chronic obstructive pulmonary disease. *Chron Respir Dis*. 2012 9;4:239-40.

Cavalheri V, Jenkins S, Hill K. 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. Exercise training undertaken within 12 months following lung resection for patients with non-small cell lung cancer. *Cochrane Database Syst Rev*. 2012; in press.

Cindy Ng LW, Mackney J, Jenkins S, Hill K. Does exercise training change physical activity in people with COPD? A systematic review and meta-analysis. *Chron Respir Dis* 2012;17-26.

Dalton B, McNeil K, Keogh A, Williams T, Proudman S, Gabbay E, Kotlyar E, Weintraub R, Kermeen F, Celermajor D, Boland J. Design and delivery of an e-learning curriculum for physicians involved in the management of pulmonary hypertension. *Int J Clin Pract* 2012;66:1117-24.

Davies HE, Mishra EK, Kahan BC, Wrightson JM, Stanton A, Guhan A, Davies CWH, Grayez J, Harrison R, Prasad A, Crosthwaite N, Lee YCG, Davies RJO, Miller RF, Rahman NM. Effect of indwelling pleural catheters versus chest tube and talc pleurodesis for relieving dyspnea in patients with malignant pleural effusion: the TIME2 randomized controlled trial. *JAMA*. 2012;307:2383-2390.

Dunne B, van den Broek A, Williams V, Smith G, Revesz T, Edwards M, Gabbay E. Chronic thromboembolic pulmonary hypertension: treat the patient not the haemodynamics. *Case Rep Pulmonol*; 2012:108672.

Finn RS, Brims FJH, Gandhi A, Olsen N, Musk AW, Maskell NA and Lee YC. Post mortem of malignant pleural mesothelioma: A two centre study of 318 patients. *Chest*. 2012; in press.

Fowler RM, Gain KR, Gabbay E. Exercise intolerance in pulmonary arterial hypertension. *Pulm Med*; 2012:359204.

Fowler RM, Maiorana AJ, Jenkins SC, Gain KR, O'Driscoll G, Gabbay E. A comparison of the acute haemodynamic response to aerobic and resistance exercise in subjects with exercise-induced pulmonary arterial hypertension. *Eur J Prev Cardiol*. 2012 Apr 13 [ePub].

Fysh ET, Shrestha RL, Wood BA, Lee YC. A pleural effusion of multiple causes. *Chest*. 2012 Apr;141(4):1094-7.

Fysh ET, Waterer GW, Kendall PA, Bremmer PR, Dina S, Geelhoed E, McCarney K, Morey S, Millward M, Musk AW, Lee YC. Indwelling pleural catheters reduce inpatient days over pleurodesis for malignant pleural effusion. *Chest*. 2012 Aug;142(2):394-400.

Fysh ET, Wrightson JM, Lee YC, Rahman NM. Fractured indwelling pleural catheters. *Chest*. 2012 Apr;141(4):1090-4.

Goldstein RS, Hill K, Brooks D, Dolmage TE. Pulmonary rehabilitation: a review of the recent literature. *Chest*. 2012 Sep;142(3):738-49.

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grants

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Lee YCG. 'Fibroblast growth factor 9: a novel therapeutic and biomarker target in mesothelioma'. A project grant from the Workers' Compensation Dust Disease Board of New South Wales.

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Moodley Y. 'Discovering the sarcoid antigen'. LIWA Sarcoidosis and other Granulomatous Lung Diseases Grant.

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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

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 2012 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:

Signed and dated this 27th day of March 2013

Sue Morey | BOARD CHAIR



THE LUNG INSTITUTE OF WESTERN AUSTRALIA (INC)

income statement

for the year ended 31 December 2012

	2012	2011
	\$	\$
Revenue	2,272,800	3,027,066
Operating Expenses	(420,016)	(515,869)
Employee Benefits Expense	(1,867,559)	(1,866,326)
Depreciation Expenses	(51,397)	(53,850)
Finance Costs	(1,006)	(1,717)
Other Expenses	(306,501)	(298,289)
(Loss) / Surplus for the Year	<u>(373,679)</u>	<u>291,015</u>
(Loss) / Surplus Allocated to:		
- Restricted Funds	150,000	-
- Designated Funds	(69,787)	308,366
- Unrestricted Funds	(453,892)	(17,351)
	<u>(373,679)</u>	<u>291,015</u>



THE LUNG INSTITUTE OF WESTERN AUSTRALIA (INC)

balance sheet

for the year ended 31 December 2012

	2012 \$	2011 \$
CURRENT ASSETS		
Cash and Cash Equivalents	1,885,836	2,107,101
Trade and Other Receivables	489,854	734,343
Other Current Assets	-	21,484
TOTAL CURRENT ASSETS	2,375,690	2,862,928
NON-CURRENT ASSETS		
Property, Plant and Equipment	212,153	246,061
TOTAL NON-CURRENT ASSETS	212,153	246,061
TOTAL ASSETS	2,587,843	3,108,989
CURRENT LIABILITIES		
Trade and Other Payables	354,228	518,003
Borrowings	-	1,476
Provisions	106,383	107,823
TOTAL CURRENT LIABILITIES	460,611	627,302
NON-CURRENT LIABILITIES		
Provisions	77,954	58,730
TOTAL NON-CURRENT LIABILITIES	77,954	58,730
TOTAL LIABILITIES	538,565	686,032
NET ASSETS	2,049,278	2,422,957
MEMBERS' FUNDS		
Accumulated Funds		
- Restricted	200,000	50,000
- Designated	243,286	313,073
- Unrestricted	1,605,992	2,059,884
TOTAL MEMBERS' FUNDS	2,049,278	2,422,957



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INDEPENDENT AUDITOR'S REPORT

TO THE MEMBERS OF

THE 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 2012, and the income statement for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the directors' declaration.

Board of Management's Responsibility for the Financial Report

The Board of Management is 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 Board of Management determines 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 directors, 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.

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Birdanco Nominees Pty Ltd
ABN 33 009 321 377
Practising as
RSM Bird Cameron
ABN 65 319 382 479

Major Offices in:
Perth, Sydney,
Melbourne, Adelaide
and Canberra

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Independence

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

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 28 March 2013 and its financial performance for the year then ended in accordance with Australian Accounting Standards

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 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: 28 March 2013

J A KOMNINOS
Director



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Lung Institute of Western Australia



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LIWA is a registered charity.

All donations over \$2 are tax deductible.

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