



Lungitude
FOUNDATION

PHILANTHROPIC REPORT

2017 - 2018

Did you know that the average life expectancy for Australian child and adult lung transplant recipients is only 7 years?

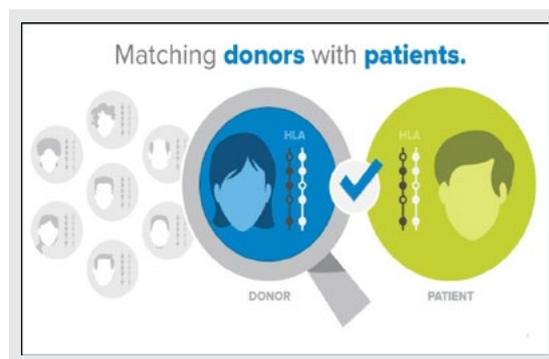
The Lungitude Foundation's aim is to improve these survival rates and outcomes for lung transplant patients and carers, by continuing to facilitate world-class clinical and translational 'bench to bedside' research endeavours that make a difference.

Our very dedicated Board and Fundraising Committee members passionately volunteer their time, and we thank them for all their hard work. With your support and generosity we have already donated \$90,000 since we launched in style and celebration in March this year! The future looks bright as we pursue our goal of 'transplant for life'. We welcome your ongoing support for this worthy cause.

Gordon Jenkins
Board Chair

A New System of Donor and Recipient Matching: HLA Matchmaker

Each of us (except identical twins) has a different set of HLA proteins that sit on the surface of the cells within the lung (and other organs). This genetic signature differs between transplant recipients and their donor lung and is what drives the immune system of some transplant recipients to “reject” their lung. Historically, there have been relatively crude tools to assess the compatibility of the HLA of the donor with that of the recipient. In collaboration with the Red Cross, The Alfred’s Lung Transplant Service Team are exploring how the HLA Matchmaker program may allow them in the future to better match donor lungs with the “best fit” recipient. By improving donor/recipient matching, they will reduce the likelihood of subsequent rejection thereby increasing survival following lung transplantation.



**\$40,000
funding
for 2017/8**

The HLA Matchmaker program allows the team to determine HLA proteins at a molecular level. Through a greater understanding of the precise shape and size of the HLA molecules, they can better predict which HLA proteins are more likely to switch on the transplant recipient’s immune system and trigger an episode of rejection. In recent work that they published in the prestigious “American Journal of Transplantation” they used the HLA Matchmaker program to show that lung transplant recipients whose HLA proteins were structurally very different to those of their donor were more likely to develop

chronic rejection. In collaboration with the labs of Professor David Tarlinton (Monash University) and Professor Andrew Brookes (University of Melbourne) they will now explore how these structural differences in the HLA molecule switch on the immune system.

The success of this program will be two-fold. Through better matching of donors and recipients they will improve donor organ allocation, but additionally through a greater understanding of the immune pathways leading to rejection they can better target their anti-rejection therapies.

The Lungitude Foundation supports the legacy of **The Margaret Pratt Heart Lung Transplant Research Foundation** who donated \$180,000 in 2017 for 2 years of funding for The Alfred Lung Transplant Research Team. Further details about the following current projects are available on our website and will be shared at our Annual Research Presentation on 15th February 2018:

1. A study of QuantiFERON-CMV-Directed CMV prophylaxis versus Standard Of Care to reduce late Cytomegalovirus (CMV) reactivation in patients undergoing lung transplantation.
2. A monitoring study using QuantiFERON to measure ‘net’ immunosuppression post lung transplantation.
3. A phase 2 randomised, placebo controlled trial of bone-marrow derived mesenchymal stromal Cell infusions as treatment for new on-set chronic lung allograft dysfunction.



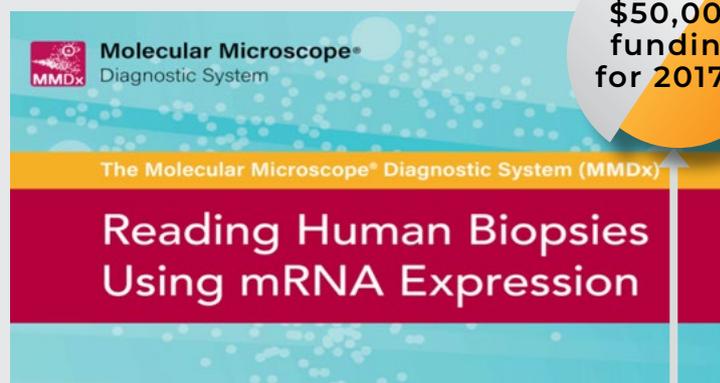
**\$180,000
funding
for 2017
& 2018**

Molecular Microscope Diagnostic System (INTERLUNG Study)

The Alfred Lung Transplant Service’s ‘Molecular Microscope’ Diagnostic System collaboration (the INTERLUNG Study) with the University of Alberta investigators and other international lung transplant units is now well underway. The Study collects small pieces of the transplanted lung in people with a small drop in lung performance, from both the sponge of the lung and the airways leading to it, and analyses them in the standard way under an ordinary microscope, comparing these to genetic analyses in Canada. The standard approach is often non-specific and does not help to guide treatment. The new genetic approach appears to be giving different answers that suggest alternative treatments - potentially helping lungs at a time before lung function is lost permanently.

Historically, small pieces of the sponge of the lung are obtained to check for rejection, but the INTERLUNG Study is suggesting the potential of getting similar, or even better, results from bits of the lung airways. This would be an important innovation - noting airway tissue is easier and safer to obtain.

The INTERLUNG Study is ongoing, as the team now tries to link the genetic results with long-term lung performance and different types of rejection. The work will be presented at next year’s International Society of Lung Transplant Meeting and a portion will be submitted for publication soon.



Molecular Microscope®
Diagnostic System

The Molecular Microscope® Diagnostic System (MMDx)

Reading Human Biopsies
Using mRNA Expression

**\$50,000
funding
for 2017/8**

Spotlight on Dr Lucy Sullivan

- Bachelor of Science (Honours) and PhD at the University of Adelaide in lung surfactant
- Postdoctoral research at the University of Melbourne in the lab of Prof Andrew Brooks
- Awarded a National Health and Medical Research Council (NHMRC) Peter Doherty Research Fellowship
- Recipient of a NHMRC Travelling Award for Research Training, spending 3 months at the University of Cambridge
- 2009 recipient of an NHMRC Career Development Award
- Research and grant support from the NHMRC and the University of Melbourne
- Member of the Scientific Program and Education Committee for the Transplantation Society of Australia & New Zealand (TSANZ)
- Women in Science Parkville Precinct (WISPP) and Women in Transplantation (WIT) member
- 2017 inaugural recipient of the TSANZ Josette Eris Memorial Award

Dr Lucy Sullivan developed her keen interest in immunity early in her career, prompting a change in direction for her postdoctoral research focusing on the cells of the immune system, and subsequent involvement with lung transplantation immunology. Lucy is the latest of the world-class researchers to receive our funding and a welcome addition to our community.

Lucy currently oversees the conduct of a vital project that is at the forefront of lung transplantation research – Defeating Lung Transplant Rejection: Antibodies and strategies to control them – working in collaboration with the Red Cross / Victorian Transplant Immunology Service, and with researchers at Monash University and the Doherty Institute. The resourcing of this expected 4-year research project is due to the generosity of The Gillespie Family Foundation and Tony Pratt, who was instrumental in securing additional key funding through The Alfred Foundation. *You can read more about this project on the right of this page.*

Whilst an exacting and often gradual process, Lucy enjoys immersing herself in translational ‘bench to bedside’ research apportioning her time between the laboratory and office, with the balance spent with her partner and two children when she is not running or horse-riding. An advocate for equity in science, Lucy is passionate about the benefits of cross-sectional mentoring and the collective impact that can be generated by women supporting each other, citing her chemistry teacher in Year 12 as one of the catalysts for her scientific career ambitions. Lucy recognises the significance grass roots support has in the future of females in science.

Lucy also welcomes the opportunities to share her findings with her peers at conferences and communicate with the public. Lucy’s strong publication record is reflective of her significant contribution to her field of research. It is also what attracted her to work with the world-class lung transplant team at The Alfred, being inspired by the researchers and clinicians who she believes are truly interested in research, and passionate about patient outcomes. We look forward to sharing Lucy’s endeavours at our upcoming Annual Research Presentation on Thursday 15th February 2018.

Defeating Lung Transplant Rejection



**\$120,000
over 4
years
matched***

The major cause of reduced long-term survival after lung transplantation is chronic graft rejection – also known as Chronic Lung Allograft Dysfunction (CLAD) – that disappointingly occurs to some degree in 49% of all lung transplant recipients by 5 years. It is difficult to predict which patients will develop CLAD, which occurs despite these patients being treated with anti-rejection drugs life-long.

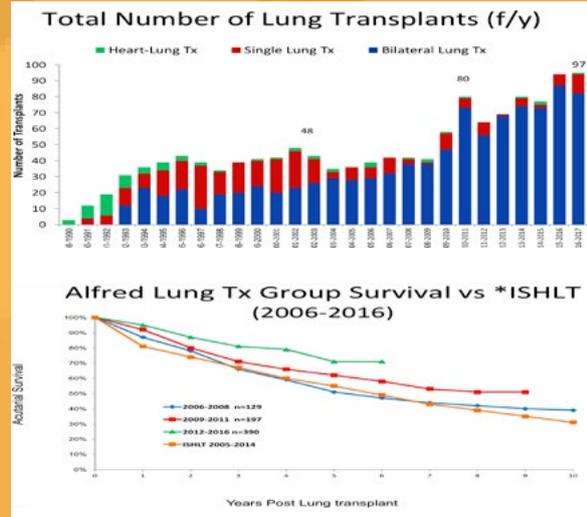
Antibodies that attack the donor lung (antibody-mediated rejection – AMR) have been suspected as an important potential cause of lung failure and CLAD post lung transplantation. Our immune system naturally forms antibodies as a protective response against bacteria and viruses. In the context of transplantation, antibodies are good when they are ready to attack foreign invaders that can lead to illness, but antibodies can also be ready to attack foreign tissue – such as the donor lung.

Currently, antibodies that can attack transplanted lung tissue, known as donor specific antibodies (DSA), can be measured prior to transplantation with the aim of selecting a donor organ that minimises the risk of rejection. DSA levels can also be measured post transplantation to see if the patient’s immune system is actually causing harm to the patient’s new lungs. Identification and definition of specific types of DSA and their incidence in patients undergoing lung transplantation is key to understanding how the immune system makes such antibodies and how they contribute to AMR and ultimately to chronic rejection.

The team from The Alfred Lung Transplant Service are collaborating with the Red Cross / Victorian Transplant Immunology Service to be able to more efficiently detect and measure the presence of these graft-damaging antibodies in lung transplant patient’s blood samples. This collaboration also aims to develop a computerised matching program that will accurately identify problematic antibodies pre-transplant that will enable a better match between a donor and potential lung recipient, reducing the risk of antibodies causing the development of CLAD after transplant.

The funding provided by this grant has thus far enabled the recruitment of a senior post-doctorate researcher, Dr Lucy Sullivan, to oversee the conduct of this very important project. So far the computer matching program has been used to demonstrate in a sub-set of lung transplant patients that better matching of donor to recipient protects against CLAD. This research was published in the prestigious journal, *American Journal of Transplantation*. Additionally, in a small group of recipients the team have shown that better matching also reduces the appearance of these antibodies.

95 LUNG TRANSPLANTS IN 2017 & COUNTING!
3% OF WORLD'S LUNG TRANSPLANTS
1365 IN TOTAL SINCE 1 MARCH 1990
fifth WORLD'S LARGEST LUNG TRANSPLANT PROGRAM
youngest recipient 6 YEARS IN 2017
oldest recipient 72 YEARS (AVG 54)



SURVIVAL RATES
97% 1 YEAR
74% 5 YEAR
54% 10 YEAR
* THE INTERNATIONAL SOCIETY FOR HEART & LUNG TRANSPLANTATION



Victorian Transplantation and Immunogenetics Services (VTIS) Team

Unsung Heroes

Does an organ transplant conjure up images of a team of brilliant hospital specialists and a frantic helicopter dash to deliver vital organs? Behind the scenes there are many unsung heroes playing vital roles that you may not have even considered. Members of the Lungitude Foundation Board, Committee and key supporters had the pleasure of meeting some of these specialists in late August as they toured the Australian Red Cross Blood Service's state-of-the-art secured facilities in West Melbourne.

Transplantation can occur any time resulting in a team of 16 on-call scientists working for the Victorian Transplantation and Immunogenetics Service (VTIS) to process Victorian, Tasmanian, Southern NSW and occasional South Australian vascular organs including lungs (skin, bone and corneas are processed elsewhere). As the interface providing vital data needed in the life-changing decision-making process, the VTIS play a key role in all organ transplantations, analysing on average 1 potential donated organ per day.

All similar laboratories across Australia hold samples of every potential organ recipient in Australia, ensuring immediate availability should an interstate match be required. Upon receipt of a potential donor sample, a pair of scientists will be called in to conduct comprehensive testing over 8 to 12 hours depending on the number of potential recipients, blood and tissue types, and how many organs a recipient may be able to donate. Long gone are the days of just matching based on blood type. The latest technology and expertise enables the best match possible, contributing to the world-class outcomes being achieved in Australia.

The Lungitude Foundation is excited to be funding a new system of donor and recipient matching in collaboration with the Red Cross, a project which is further detailed within this report. Next time you hear of a recent organ transplantation, spare a thought for the scientists working diligently in their laboratories and proudly making a difference in patient outcomes.

This research was presented at the International Society of Heart and Lung Transplant conference in San Francisco in April 2017.

In collaboration with researchers at Monash University, the team have also started a project to identify the specific immune cells that produce these antibodies. So far, they have shown that the number of "B cells" is significantly increased in lung transplant patients that also have damaging antibodies. They are now investigating the characteristics and appearance of these "B cells". Furthermore, in collaboration with Doherty Institute they are using advanced laboratory techniques to identify other specific immune cells that cause damage to the lung following the production of antibodies. They believe these cells to be a group of white blood cells called "natural killer" or NK cells. So far, they have identified that certain groups of NK cells will kill other cells when antibodies are present.

The results, to date, from all aspects of this project are very pleasing, and the team anticipate being able to make considerable progress as they continue into 2018-19. Already this study is contributing greatly to their understanding of how and why harmful antibodies are produced and how to potentially avoid this process occurring after lung transplantation.

*\$120,000 OVER 4 YEARS WITH FUNDING MATCHED BY THE ALFRED FOUNDATION'S SUPPORTERS - TOTAL \$240,000

Events connect our community and help us raise vital funds.
www.lungitudo.com.au/ourevents

1. LATEST DONATION OF \$90,000
2. LAUNCH EVENT, 3 MARCH 2017
3. GOLF DAY, 2 JUNE 2017
4. TRIVIA NIGHT, 5 AUGUST 2017
5. CITY2SEA FUN RUN, 12 NOVEMBER 2017

In addition, various fundraising activities by our kind supporters and committee members.



Please consider a Christmas donation to support our fundraising
 Donate **ONLINE** via www.lungitudo.com.au/our-causes or complete below **FORM**

Please cut along dotted line

Donations of \$2 or more are tax deductible

\$50 \$100 \$250 \$500 \$ _____

Name: _____

I would like to donate by:

Address: _____

Cheque (payable to the Lungitudo Foundation)

Mastercard Visa Amex (min \$500)

Phone: _____

Email: _____

Expires: / CVV (on reverse):

Lungitudo Foundation
 PO Box 25132, Melbourne VIC 3004
 Ph: (03) 9525 2448 or 0419 991 305

Name on card: _____

Signature: _____

Key Supporters

The Lungitude Foundation extends our many thanks to our following key supporters:

Gillespie Family Foundation

Mr Tony Pratt



The Visible Guy



The Gittus Family



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HAVE YOU BEEN RECEIVING OUR LATEST EMAILS?

Please add the following email to your address book info@lungitude.com.au or subscribe to our database www.lungitude.com.au/community

Supporter Offers



Summit Finance Group will donate 0.20% of the loan amount for clients introduced via Lungitude, that's \$2,000 for every \$1,000,000 of loans. Terms and conditions apply, refer to www.summitfg.com.au/lungitude for details.



We receive \$250 cash for just 20 minutes of your time! Make A Difference Office Machines will donate \$250 to the Lungitude Foundation to do an analysis of your printing costs (for businesses with printing costs of more than \$100 per month). You will receive a detailed analysis of your monthly expenditure for your copier / printer. They will create a proposal with the lowest possible cost for your business. You are under no obligation to change! makeadifference.community/lungitude

Save the Dates!

15 FEB
@ 4pm
The Alfred



Annual
Research
Presentation

World-class researchers
Complimentary refreshments

22 APR
@ Noon
Inner City



Lungitude's
Long Lazy
Lunch

Celebrity chef
Comedian MC
Victorian produce
Amazing location

MIDNOV
@ 7am
Inner City



City2Sea
Fun Run
or Walk

Run or walk with the Lungitude Team for a very worthy cause

More events being planned ... or run your own!