

The Hanson Searcher

THE NEWSLETTER OF THE HANSON INSTITUTE AND RAH RESEARCH FUND

RESEARCHERS AND THEIR RESEARCH

Welcome to the first issue of our brand new HANSON SEARCHER newsletter, where we'll be introducing you to some of the exciting projects and great achievements being made at Royal Adelaide Hospital and the Hanson Institute. Since it was first established over a hundred and sixty years ago, RAH has grown to become one of the finest teaching hospitals in Australia. Every year thousands of sick and injured South Australians can come with confidence that the expert medical care they receive is the envy of most other countries. Little do they realise that behind the scenes there are literally hundreds of dedicated researchers, working to make the health care we offer, even better, not just for the people of SA, but for millions of people suffering from all kinds of conditions all around the world. In the stories that follow, we're proud to share the knowledge of the unique relationships that exist between our clinicians working with patients and the dedicated researchers in the laboratories of Hanson.

We hope you enjoy reading how your support for the Royal Adelaide Hospital Research Fund helps make all this happen.

HANSON LUNG RESEARCH AMAZES

Work at the Lung Research Laboratory at the Hanson Institute is offering real hope to people facing COPD (chronic obstructive pulmonary disease), asthma and even lung cancer.

Professor Paul Reynolds explains that the group's work is examining how readily available antibiotics, macrolides, may improve outcomes for the many thousands of people in Australia suffering from lung disease.

"Even people who have done the right thing and stopped smoking often end up with still having quite significant pulmonary limitations and ongoing inflammation in the lungs," says Prof Reynolds.

"What we've been looking at is a complementary way of approaching the treatment for COPD by looking at the cells in the lungs called macrophages, or scavenger cells, which float around in the airways cleaning up the dying cells and getting rid of bacteria. When people get COPD these scavenger cells tend to malfunction and they don't work properly at clearing away all the mess."

"One of the approaches that we've been taking involves a class of readily available antibiotics called macrolides, which not only kill bacteria but also have anti inflammatory properties. We've been able to show in tissue culture and in human studies that if you treat people with these macrolide antibiotics, the macrophage function improves.

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Professor Paul Reynolds



The group's findings also have important implications for the 10% of the population affected by asthma who also have inflammation in their airways. "Even though they may not have smoked, in many cases, the type of inflammation has some similar properties to COPD," says Professor Reynolds. The group is currently recruiting patients for the NHMRC-funded AMAZES (Asthma and Macrolides; azithromycin efficacy and safety study) project, which it is hoped will improve the quality of life for asthma sufferers. (Interested asthma sufferers can contact the group on 8222 4351).

Another important angle the team is examining is the relationship between COPD, smoking and lung cancer.

"Normally, a cancer cell can be seen as a foreign cell in the body but cancer has a way of evading the immune system and these scavenger cells are an important part of the immune system. If we improve the function of these cells we may in fact potentially have an impact on the development of lung cancer, in patients who have COPD. ***If we were to come up with a strategy that people with COPD could go on to actually prevent them from getting lung cancer, that would obviously have major implications.***"

Professor Paul Reynolds



TESTING NEW WEAPONS TO FIGHT MELANOMA

While Australia holds the record as the melanoma capital of the world, with about three times the incidence of other comparable countries, the researchers at RAH and Hanson Institute are leaving no stone unturned in trying to find ways to combat this deadly cancer.

As Director of the Cancer Clinical Trials Unit at RAH's Cancer Centre, and of the Melanoma Research Group in the Hanson Institute, Professor Michael Brown oversees a host of melanoma focussed projects encompassing laboratory research through to clinical research involving patients. "We've got a very large melanoma programme with about six or seven trials underway covering all stages of the disease; from when it's been first cut out but might come back, through to treatment of disease that's spread around the body."

"There are two major classes of new drugs that are available to treat patients, which can't yet be bought or prescribed until they've been tested through clinical trials. And that's what we're involved in," says Prof Brown.

One of these exciting new drugs is Yervoy or ipi (ipilimumab). It's an antibody that works by taking the brake off the immune system.

"We're interested particularly in how the immune system works to boost the patient's anti melanoma activity," says Prof Brown. "We're examining how it [the drug] actually works by taking some of the patient's own blood and seeing how their blood cells react against melanoma."

Ipi is really the first demonstration that you can effectively manipulate the immune system to fight a cancer and improve a cancer patient's survival. There's been a long up and down history of using vaccines and all sorts of other treatments particularly with melanoma, and other sorts of cancers, with a litany of failure. But now I think there's renewed promise and interest and clearly commercial interest from drug companies. So it won't be the only such antibody that will come along that will attempt to do this and I'm sure it will get

continually refined so that we'll be seeing more new treatments that are more effective with fewer side effects."

Early next year Prof Brown hopes to begin trials for another potential treatment with the support of a grant from the National Health and Medical Research Council (NHMRC). The trial is due to start early next year. "In this Phase 1 trial involving patients with advanced melanoma, we'll take the patient's own T cells or T lymphocytes (the cells that can fight infections as well as tumours) and modify them by genetic engineering so that the T cells are redirected to the melanoma cell surface and so attack the melanoma throughout the patient's body."

What we've chosen to do is to treat those patients who have failed to respond with another class of drug called a BRAF inhibitor, a tablet that's taken twice a day and that can control the melanoma for a period of months, but it doesn't eradicate it. So the disease comes back, and we're asking, 'What else can you do to control it then?' What we propose in this trial is that patients give us some of their T cells before they go on

to this BRAF inhibitor. It actually takes 2-3 months to make the modified T cells, and then make sure they're good enough to give back to the patient. And when the BRAF inhibitor treatment no longer works and the melanoma returns in the patient, then we can potentially infuse the patient with their own genetically modified T cells."

But there may be other treatment options that come along for patients whose melanoma has escaped the control of BRAF inhibitors. No doubt by the time we get this trial started early next year, there will be other competing drugs around. But these other drugs may not work any better than the immune system, so we believe that's what needs to be tested."

Professor Michael Brown



COLLABORATION IS THE KEY IN HANSON PROSTATE CANCER BREAKTHROUGH

Each year around 19,400 men in Australia are diagnosed with prostate cancer. And 3,000 of them, almost twice the annual road toll, will die. It's a figure Dr Lisa Butler aims to change as she dedicates her career to improving outcomes for people living with a diagnosis of prostate cancer.

Dr Butler's research involves working with cancer drugs that target either androgens (male

hormones such as testosterone) or the androgen receptor, to limit their ability to stimulate growth in prostate cancer cells. In particular, her group at the Hanson Institute is testing a whole gamut of drug permutations and combinations to come up with better ways of killing off prostate cancer cells.

What they have found is that different agents administered together, synergise their effect on the cancer cells, in some cases completely blocking their growth. "This means that we can get a much greater effect with a much lower dose of the drug," Dr Butler says.

To further test these combinations in actual prostate tumours, Dr Butler and postdoctoral fellow, Dr Maggie Centenera, have developed an explant model of prostate cancer whereby sample segments of tumours from patients are grown in culture dishes in the lab.

"We know that a lot of things can look very promising at the test tube or cell line stage, but end up being disappointing in the clinic," Dr Butler says, "So we wanted to develop better preclinical models of prostate cancer – something that is closer to the human clinical disease so that we could better predict the combination of agents that is going to be most successful in an individual patient."

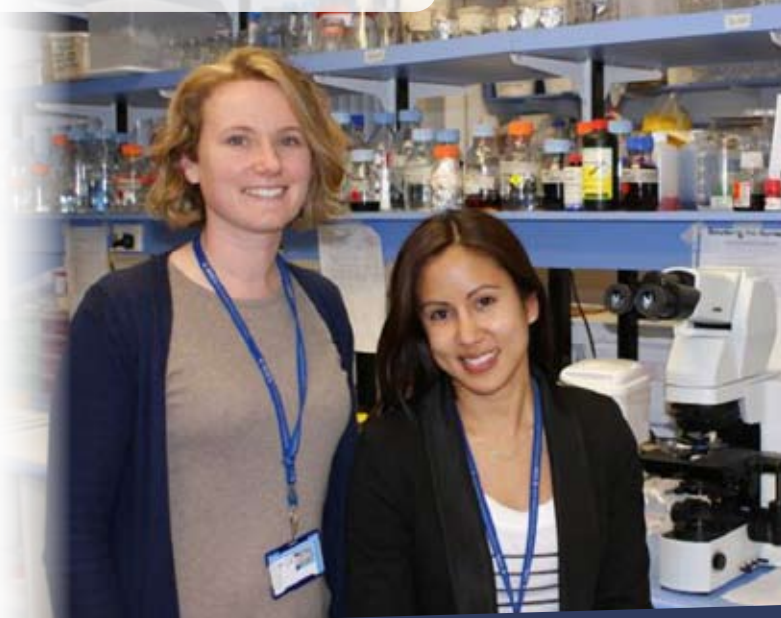
This couldn't have been achieved without a strong collaborative relationship with surgeons and pathologists at Royal Adelaide Hospital which has been crucial to the entire research effort. Dr Butler says, "We have a collection procedure set up whereby each time prostate surgery is performed at the hospital we receive a small portion of the tumour for testing in our explant system. Getting enough tissue as quickly as possible is absolutely essential and only happens by working very closely with the clinicians, who have been incredibly supportive."

It's a collaboration that works both ways with research and clinical teams meeting regularly for updates on the project's results.

"It has been exciting for all concerned, because in the end we are all trying to achieve the best outcomes for patients," says Dr Butler.

Dr Lisa Butler

Dr Lisa Butler & Dr Maggie Centenera





SEARCHING FOR BETTER OUTCOMES FOR ICU PATIENTS

Every year, hundreds of post operative, critically injured or ill patients find themselves in the expert care of Royal Adelaide Hospital's Intensive Care Unit and Dr Matt Maiden.

Dr Maiden is an Intensive Care Specialist involved in research aimed at improving outcomes for patients in Intensive Care Units faced with life threatening infections, collectively called sepsis. As Dr Maiden explains, about a third of patients in ICU are affected by infection which might be caused by any one of a host of known or unknown pathogens. "As the body's response to the infection develops, it can become quite profound leading to multi organ failure where the body shuts down, the lungs stop working properly, the circulation becomes sluggish and the kidneys, liver and the brain also stop working properly."

"It's only been realised in the last ten years as to how lethal this problem is with a mortality rate between 25% and 50%," Dr Maiden says.

"The particular area I'm looking at is the hormonal changes during sepsis, particularly the thyroid. What we know is that thyroid hormone levels fall dramatically in sepsis. But previously, it has been assumed that this has been just an adaptive response by the body to drop the thyroid hormone levels to try to preserve energy as it tries to shut down. However my theory is that it may well be 'maladaptive' and for such a condition with high mortality, we probably can't assume that it's a normal response. And the other thing is that the thyroid hormone has a vast array of effects. It is required essentially for all the cells in the body to work. And if you don't have thyroid hormone, then your body shuts down. So I think when someone's critically ill with a life threatening infection, whose body is already shutting down and who is not responding to our supportive therapy, it's probably not the time to have low thyroid levels. So we might need to be restoring thyroid levels back to normal, which is the direction of the research that we're in the midst of conducting at the moment."

Dr Maiden's theories to test 'the effects of thyroid hormone replacement in severe sepsis' are currently being investigated in the research laboratories at the Hanson Institute.

Meanwhile, Dr Maiden is very positive about the care we are able to provide. "Australia's the place! Our outcomes following sepsis are so much better than other places in the world."

Dr Matt Maiden

SINGING TO IDENTIFY A CURE FOR BREAST AND PROSTATE CANCER

The Research Fund is fortunate to have the support of a number of volunteer groups to raise funds for a number of research projects at the RAH and Hanson Institute.

For the past six years the Strolling Tones have entertained audiences across South Australia with their unique brand of entertainment. Proceeds raised from their shows are used to fund breast and prostate cancer research at the Hanson Institute.

They performed at this year's Fringe Festival for the first time, had amazing support from both sponsors and the general public, and, including sponsorship monies, raised over \$10,000. Their efforts have now generated in excess of \$100,000. A truly magnificent effort from this dedicated group!

So, if you are looking for a great bunch of entertainers be sure to look them up at www.strollingtones.com.au



Back row, left to right:
Tony Buck, Kristina Vonow,
Don Green, Gloria Seymour

Middle row, left to right:
Heath Gladigau, Jan Buck,
Robert McBride, Diane Tregear

Front row, left to right:
Kylie Neumann, Lisa Lane, Kate Green

Absent: Helen Holliday,
Terry and Michelle Nelhams



Jeff and Jess Bond

A NIGHT TO REMEMBER

On 19 February 2011, over five hundred guests attended the inaugural Captain Courageous Ball at the Hilton Hotel. Hosted by Channel 7's Hamish McLachlan, the night proved to be a spectacular success.

The Ball was the brainchild of Jeff and Jess Bond, the parents of Angus Bond (who we have written about previously), who has been diagnosed with a rare bone marrow disease called Diamond Black-Fan Anemia. Working with Research Fund and their band of volunteers, they pulled together an array of celebrities and magnificent auction items and gave their guests a night they will not forget in a long time.

Jeff gave a touching, and at times moving, talk about the challenges that children like Angus have to endure.

The warmth and generosity in the room was amazing. The guests were stunned when it was revealed the Ball netted over

\$200,000 to fund a three year research study into bone marrow failure at the Hanson Institute.

The highlight of the main auction was a male Labradoodle puppy named "Captain" donated by Katies Family's Pets, Condoblin, NSW. After spirited bidding, "Captain" had a new home for the bargain price of \$16,000!

The Hanson Institute sincerely thanks the Bond family and their volunteers and friends who made this a truly special night.

Special thanks to the following sponsors.



Incredibly Courageous (\$10k)

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THANK YOU TO HAMPSTEAD AND HANSON INSTITUTE

Spinal and head injuries, stroke and other neurological disorders take a devastating toll on our community. But Hanson Institute research is helping people like Tony Deluca to get back on their feet.

Tony's life changed in an instant with a fall from a common, six foot, household ladder. After numerous scans and specialist examinations at RAH, doctors found that Tony had bruised his spinal cord, leaving him with a condition known as 'central spine syndrome'. Arriving at Hampstead Rehabilitation Centre in October 2010 unable to walk and confined to a wheelchair, Tony was given hope by doctors that he would walk again.

With huge determination and the help of doctors, nurses and physios, he set himself the goal of 'walking by Christmas.'

'When my wife first saw me walking with the walking frame she started crying, and then I started crying. You can imagine how I felt on Christmas Day, with my whole family around and my children there to watch me.'

After months of therapy, Tony proudly walked out of Hampstead in February 2011. Determined clients like Tony are an inspiration to us all. But behind every clinical success is a team of doctors, nurses and therapists doing everything

they can to help them achieve their goals. And behind them are the medical researchers working to improve surgical techniques, investigating how damaged nerve and brain cells might be repaired and trialling new therapies to move muscles back into action. This is the kind of research your donations to The Hanson Institute help support.

'To the Doctors, Nurses and Orderlies of Hampstead Rehabilitation Hospital, my family and I deeply appreciate all your efforts to guide me on my journey to recovery. Wishing you all the best for the future.'

Tony Deluca and family.

MEMORIALS

Between 01/10/10 – 15/03/11 donations were gratefully received by the RAH Research Fund in memory of the following people:

Anfiteatro	Irmo Lino	Farrell	David	Mason	Terry	Schulz	Sheila Helen
Avolio	Carmela	Fernandez	Helen	Matthews	Filomena (Fil)	Scotland	Pamela Joyce
Bailey	Mahala Elizabeth (Pat)	Ferraro	Arduino	McCulla	Janice	Selway	Ruth
Balales	Soultana	Flaherty	Richard (Rick) Jens	McDonald	Alexander Rupert	Seymour	Terry
Barnden	Nan	Giacopini	Brenda	McRostie	Colin George	Smith	Janice Murial (Jan)
Battams	Coral Lois	Girdler	Elly Evelina	Moffatt	James (Jim) Eric	Southgate	Doreen Rebecca
Baughan	Neville	Goldsworthy	Warwick	Moller	Nelda Patricia	Spagnoletti	Mario
Bavaresco	Giuseppina (Gessy)	Gray	Robert John	Morcom	Myrtle Phylis	Springett	Gary
Bickford	Richard Nevill Stoddart (Rick)	Greaves	Anthony	Morton	William	Steedman	Joseph Raymond (Joe)
Birbas	Theofanis	Haga	Maxine Josephine	Moysse	Barry Malcolm	Steele	Iris Audrey
Borrowdale	Agnes Torika (Aggie)	Hagen	Robert Brian Mauritz	Mugridge	Jamie Steven	Stevens	Noel Munson (Steve)
Bosneac	Peter	Hall	Lachlan McGregor	Mulcahy	Paul Brian	Stevenson	Linda Jael
Bowhey	Graeme	Hanson	Dr Bill	Munro	Donald (Don)	Stodden	Maxine
Bradley	Patricia Rose (Pat)	Harvey	Brian Verdun	Nani	Giuseppe Gaetano	Stokes	Pamela Ruth
Brook	Kevin	Haskett	Eileen	Neville	Joan Winifred	Strapps	Betty Eileen
Brooks	Yvonne Joy	Henderson	Jayne Lesley	Nihill	Edith Joan	Struck	Hans Wilfried
Brown	Richard Dutton	Henley	Lyllal Reginald	Nugent	Patricia Christine (Chris)	Terry	Leslie Charles
Budimski	Vladimir	Hibbert	Judie	O'Connor	Vincent Frederick	Tonkes O.A.M	William Roy (Bill)
Burrill	Ruth	Hill	Dorothy Winifred	O'Toole	Ronald Joseph (Ron)	Treadwell	Christopher P
Bushell	Marita	Hitchens	Arthur Ronald	Papini	Maria Assunta	Trewartha	Betty
Butler	Dr Randal	Hopkins	David	Parsons	David Arthur	Trewin	Bridget May (Polly)
Capponi	Anita Maria	Hutchison	Gordon	Partridge	May	Turner	John Reginald
Carapetis	Barbara Jean	Innamorati	Teseo (Ted)	Passingham	Frances Anne	Underwood	Lee Patrick
Christian	Adela (Del) Emilie	James	Ralph	Penna	Murray Arthur	Van Pelt	Ross James
Clarkson A.M	Dr Anthony Russell (Tony)	Johns	Malcolm Ronald	Place	Thomas	Walker	Ella
Cocca	Diodoro	Johnson	Graham James	Posnakidis	John (Yani)	Whatcott	Walter
Cook	Ethel Grace	Joyce	Joan	Rankine	Bob	Williams	John Hurbert
Crampton	Millicent Gertrude (Millie)	Katis	Nicholas	Ransom	Lorna Myrtle	Williams	Michael John (Mick)
Crick	Donald (Don)	Kent	Jane	Rapson	Susan	Wittesch	Heinz
Croser	Norman (Ted)	Lane	Adam	Reed	Malcolm Donald Campbell	Wojtkowiak	Vincenza
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Edwards	William Arthur (Bill)	Lugg	Heather	Sappiatzer	Amy Jean		
Ernst	Eileen May	Lynn	Hazel Mary	Sausse	Betty Elaine		
Evans	James Leonard	Marafioti	Rocco	Schreiner	Ibolya (Ibi)		
Ey	Beryl Alice	Martin	Brian & Horrie	Schultz	Russell Edwin Martin		

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Black Matthew
Hague Taylor Brooke

**WE HONOUR
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C/- RAH Research Fund
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