Institute commemorates ANZAC spirit says Governor-General

ANZAC Research Institute board members, staff and benefactors were privileged guests of the Governor-General Sir Peter Cosgrove and Lady Cosgrove at a cocktail reception at Admiralty House on Saturday 21 November.

The Governor-General has traditionally been the Institute’s Patron-in-Chief, and Sir Peter was lavish in his praise of our achievements in medical research over the past 20 years.

“We hear so much about the importance of cutting edge research, but someone has to have the skills, experience and expertise to deliver it,” said Sir Peter. “You have this expertise. You contribute to better lives, better treatments.”

Noting that 2015 has marked the centenary of the ANZAC landings at Gallipoli, the Governor-General said it was important to build a legacy that recognises our servicemen and women, and does justice to the things they lived and died for.

“And that is why the ANZAC Research Institute is so important. Every day, your work is a commemoration of the ANZAC spirit,” he told guests.

In his vote of thanks, Professor Bob Lusby, Chairman of the ANZAC Research Institute, said the close ties between the Institute and Concord Repatriation General Hospital were extremely important.

“No teaching hospital is complete without research and on the occasion of the “Australia Remembers” celebrations 50 years after World War Two we had an opportunity to seek funding for the ANZAC Research Institute,” he said.
Institute commemorates
ANZAC spirit says Governor-General (continued)

Advances in fighting Polycystic Ovary Syndrome

One in six Australian couples experiences infertility, and one of its major causes, polycystic ovary syndrome (PCOS), is a major health issue affecting up to 10% of women of reproductive age, costing our economy $800 million a year.

Dr Kirsty Walters has been focused on determining the role of androgens – commonly thought of as male steroids, like testosterone – in regulating female fertility, the response of the ovary to IVF stimulation, the development of reproductive, metabolic and endocrine traits of PCOS, and how androgens interact with diet to drive reproductive and metabolic disorders.

Androgens act on the body by combining with the androgen receptor (AR), a natural protein that orchestrates hormonal effects on the gene expression. In women androgens are implicated in improving poor ovarian response to IVF stimulation and, when through their excessive effects, as a major feature of PCOS as well as other conditions like premature ovarian failure, breast cancer and uterine hyperplasia, a precursor of endometrial cancer. However, despite the broad range of androgen-associated disorders in women, the precise biochemical and cellular mechanisms involved remain poorly understood.

Dr Walters says that until recently it was impossible to systematically study AR-mediated androgen action in females, as the necessary experiments could not be conducted in women and suitable animal models to study their actions were not available.

“Our laboratory created androgen resistant mice by using genetic engineering, and we proved a critical role for AR-mediated androgen action in optimising female reproductive physiology,” she says.

“We also showed that androgen pre-treatment can improve the ovarian response to ovarian stimulation by increasing growing ovarian follicle populations. These results support the current proposals that androgen pre-treatment ahead of an IVF cycle may improve ovarian response to ovarian stimulation which we are aiming to test by a clinical trial.

“We now aim to investigate the mechanisms by which androgens can improve ovarian response and also how androgen excess can drive the development of PCOS.”

Findings from this research will provide evidence-based knowledge on the direction of future research into better treatments for female infertility, the broad range of general health issues associated with PCOS, and a wide range of other androgen-associated disorders in women.

**Figure 1.** Polycystic ovaries in DHT-treated female mice displaying arrested ovarian follicles (star) and no sites of ovulation (triangle).
Identify Atrial Fibrillation risks with smartphone technology

The ANZAC Research Institute’s Vascular Biology Group has started a feasibility study to see how effective it will be for patients who have had recent surgery to gauge their risk of atrial fibrillation themselves, by using a simple handheld smartphone electrocardiogram.

Professor Ben Freedman says patients are being asked to take multiple daily recordings for a month, to self-identify early recurrent Post-operative Atrial Fibrillation, the most common abnormal heart rhythm occurring after surgery.

His group has just successfully completed a pilot of patient-activated recording for one month after discharge from coronary bypass surgery. Even the older patients had no trouble using the technology. About a quarter of the patients had recurrences of AF, and about half of these were silent and completely asymptomatic.

“Post-operative AF following cardiac surgery is associated with adverse outcomes including death, prolonged hospital stay, and increased risk of severe stroke both pre- and post-discharge,” he explains.

“But there hasn’t been a thorough study of POAF after general surgery, and that is potentially more important given the estimated 200 million procedures carried out annually worldwide. POAF patients, discharged home in normal heart rhythm, have 5 times the stroke risk of those without POAF.

“We predict that if AF recurrence is identified early after discharge, strokes can be prevented by effective treatment. Currently, monitoring for recurrence falls mostly on the patient recognising symptoms, but AF recurrence is largely asymptomatic or has non-specific symptoms confused with normal recovery after an operation and therefore unlikely to be identified by the patient.”

We predict that if AF recurrence is identified early after discharge, strokes can be prevented by effective treatment.

Before commencing a larger expensive trial it is necessary to test the feasibility of the intervention, and provide an estimate of the rate of symptomatic and asymptomatic POAF recurrence after general surgery. Results from this feasibility study will inform and refine the design of a larger intervention study.
<table>
<thead>
<tr>
<th>Yes – I would like to help the ANZAC Health &amp; Medical Research Foundation</th>
<th>I have already remembered the Foundation in my will</th>
<th>Please send me more information about the Foundation’s Bequest program</th>
</tr>
</thead>
</table>

### MY GIFT DETAILS

If we wish to make a donation of $____________ to the ANZAC Health & Medical Research Foundation

<table>
<thead>
<tr>
<th>NAME:</th>
<th>EMAIL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>POSTCODE:</td>
</tr>
<tr>
<td>PHONE - HOME:</td>
<td>PHONE - WORK:</td>
</tr>
</tbody>
</table>

I enclose payment by cheque or money order made payable to ANZAC Health & Medical Research Foundation

**OR**

Please deduct the above amount from my

- Visa
- Mastercard

<table>
<thead>
<tr>
<th>CARD HOLDER’S NAME:</th>
<th>CARD NUMBER:</th>
<th>EXPIRY DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARD HOLDER’S SIGNATURE:</td>
<td>DATE:</td>
<td></td>
</tr>
</tbody>
</table>

Please complete this coupon and mail it to:

**Telephone:** (02) 9767 9100  **Fax:** (02) 9767 9101  **Email:** anzac@anzac.edu.au