



August 2005

# Newsletter

The Diabetes Transplant Unit is proudly supported by

**Australian Foundation for Diabetes Research**

**Australian Stem Cell Centre**

**Clive & Vera Ramaciotti Foundation**

**Diabetes Australia Research Trust**

**GlaxoSmithKline**

**Home Wilkinson Lowry**

**Juvenile Diabetes Research Foundation**

**National Health and Medical Research Council**

**Rebecca L Cooper Medical Research Foundation**

**Sydney Foundation for Medical Research**

For more information about the Unit please consult its website ([www.diabetes.unsw.edu.au](http://www.diabetes.unsw.edu.au)) or

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## Annual Fundraising Dinner

One hundred and forty people attended the annual fundraising Dinner of the Unit, which took place at Pavilion on the Park in the Domain on Saturday night of August 6.

Special guest was Senator Natasha Stott Despoja who had flown from Adelaide especially for the occasion. Senator Stott Despoja is an advocate of stem cell research and shares with the Unit a passion for their continued use in Australia.

Master of ceremonies for the evening was Dr John Gullotta, President of the Australian Medical Association in NSW, who entertained the audience with his unique style.

The Unit raised a profit of \$25,000 on the evening from donations, a raffle plus an auction, the major item of which was the painting *Harbour Impressions* by Sydney artist Maja Meinhardt. Winners of the raffle were Duncan Li, Dr Ian Younger and Dr Bozana Beric.

Organizing the successful evening was the excellent team of Heather Schoenheimer, Ann Levi, Marianna Walsh and Sarah Walke. Funds raised on the evening are being used to support a clinical trial with encapsulated human islets with the aim of finding a cure for type I diabetes

## Pilot Clinical Trial

Previously, islets isolated from human organ donors have been transplanted into selected diabetic patients both overseas and in Australia. The downside of such transplants is the need for recipients to take anti-rejection drugs.

For the last few years, the Unit in conjunction with a colleague in Germany, Professor Karin Ulrichs, has been developing the art

of a product from seaweed, to prevent the need for anti-rejection therapy. Encapsulated human islets normalise blood sugar levels when transplanted into diabetic mice. Moreover, encapsulated mouse insulin-producing cells achieve a similar outcome in diabetic mice and encapsulated insulin-producing pig cells function and lower insulin requirements in diabetic pigs.

Approval to proceed to a pilot clinical trial with encapsulated human islets was granted by the Ethics Committee of the South East Sydney Illawarra Area Health Service. Chief Technical Officer, Ms Lindy Williams, who is in charge of the preparation of human islets from donor pancreases said "I am excited about the progression to the clinical phase of islet usage utilising an innovative technique previously unused for this purpose in Australia".



*Ms Lindy Williams separating out islets for the pilot clinical trial.*

The Unit is now creating a short list of needy type 1 local diabetic recipients to participate in the trial.

## Human Embryonic Stem Cells

The Unit recently entered into a joint venture with IVF Australia to make human embryonic stem cell (hESC) lines within its laboratories at the Prince of Wales Hospital. The licence to do so was granted by the National Health and Medical Research Council of Australia. Senior scientists Dr Kuldip Sidhu for the Unit and Dr John Ryan for IVF Australia are making the hESC lines. "This is the realization of a dream" said Dr Sidhu, as he gleefully examines hESC under the microscope.



*Spare fertilized eggs at the 2-4 cell stage*

Support for the creation of these cells and attempts to convert them into insulin-producing cells initially came from the charitable arm of the Unit, the Australian Foundation for Diabetes Research, and more recently from the 2005 Millennium Grant of Diabetes Australia Research Trust.

### Stem Cell Training Course

In February this year, the Unit in conjunction with the NSW Stem Cell Network carried out the first training course with hESC in Australia. The 3 day course was held in February and attracted people from as far as Canberra. Scientist Dr Kuldip Sidhu designed and implemented the program which aimed at giving participants hands on experience in being able to culture and freeze hESC. Director of the Unit, Professor Bernie Tuch said he was "delighted that we were able to introduce others to the the great potential of stem cells".

A second course is planned for the end of 2005 with enquiries from as far away as the Middle East. The course is registered on the website of the National Institute of Health in North America.

### North America

For the second year in a row graduates from the Arcadia University, on the East Coast of the United States, carried out cadetships at the Unit during their summer vacation. Most recently Jamey Hourigan worked with PhD student Jayne Foster in transplanting insulin-producing pig cells into diabetic pigs. Jamey found the experience a rewarding one and has returned to America 'all fired up' to continue with his career. He is hoping to gain entry into medical school.

### Awards

Members of the Unit have received a number of awards recently. Ai Khim Lim, who completed an Honours Year with the Unit in 2004, won a coveted University Medal for her efforts. Ai Khim has subsequently returned to Singapore and her family to continue her career.

Justin Lees is currently in his 3<sup>rd</sup> year PhD candidature at the University of New South Wales. Late last year, he won the open Junior Division of the Tow Research Day, an annual event that brings together junior researchers in the entire Randwick Campus. Justin was also the winner of the Home Wilkinson Lowry Diabetes Stem Cell Scholarship for his efforts in growing embryonic stem cells on three dimensional scaffolds.

Two other PhD students have also won awards recently. Mr Mathiyalagan Appavoo won the Award for the Best Student Abstract at the 2005 Annual Scientific



*Justin Lees, PhD student, winner of the open Junior Division of the Tow Research Day*

of the Australian Gene Therapy Association. Mr Mark Lutherborrow won a travelling award from the Juvenile Diabetes Research Foundation to attend the 2005 Diabetes Training Course held by the European Association for the Study of Diabetes.

Not to be outdone the Laboratory Manager of the Unit, Sarah Walke, won the Employee Recognition Award by the Prince of Wales Hospital. Well done to the staff and students of the Unit.

### DVD creation

The Unit has shown its innovation once again this time in the field of education, by creating a DVD to teach people about cell therapies for type 1 diabetes. Thanks go to Dr Daniella Goldberg, an expert in publicizing science in the media, and Mr Lindsay Hewson from the Multimedia Unit of the School of Medical Science at the University of New South Wales. Therapies covered include the use of: human islets, pig islets, embryonic and non-embryonic stem cells and cell lines.

Clinical Nurse Specialist, Jennie King, is in charge of the task force examining the efficacy of DVD in educating people about these cell therapies and providing realistic hope to people with type 1 diabetes. Her colleague, Michelle Redmond, is currently conducting workshops with the DVD and assessing responses by questionnaire.