



# Newsletter

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**December 2019**

## Israeli Hope

Kadimastem is a company on the Tel Aviv stock exchange with whom the AFDR has been collaborating for the past year. The Israeli company has been sending insulin-producing cells derived from human embryonic stem cells to Sydney. Here, they are seeded into a bioengineered device, made of microcapsules and 3D printed scaffolds, and then implanted beneath the skin of diabetic mice. Whilst the experiments are on-going, they have demonstrated that human insulin is produced in recipient mice, and that it is safe to implant the seeded device for at least 3 months. "This is an excellent start on the journey to obtain approval for a first-in-man clinical trial in the next few years", said Director of the AFDR, Professor Bernie Tuch. In June this year, the Research Fellow working on the Project at The University of Sydney, Dr Auvro Mridha, showed its versatility by flying to Israel with devices, and implanting them into diabetic mice there. He had been preceded by one of the Directors of the AFDR, physician Dr John Gallo.

Word soon filtered out, and representatives of Austrade came to visit the Israeli company, soon to be followed by the Australian Ambassador to Israel, Chris Canaan. The Ambassador had this to say, as reported in [Jwire](#) "The work being undertaken by Kadimastem and the Australian Foundation for Diabetes Research could lead to a major breakthrough in the treatment of diabetes, a disease which affects millions of people worldwide. This collaboration is a great example of the growing research and technology links between Australia and Israel – particularly in the biotech sector."



(Image: Ambassador Chris Canaan with Kadimastem personnel Michal Zimmerman & Dr Alon Levy via <https://twitter.com/AusAmbIsrael/status/1161706757988716545>)

## National Stem Cell Foundation of Australia



The Project received a further funding boost when the National Stem Cell Foundation of Australia (NSCFA) agreed to provide up to \$1 million in matched funds over a period of 5 years. Half of these funds must come from donations to the NSCFA specifically for this Project. The first entity to donate funds was Lions District 201N3 Diabetes Foundation, with matching funds immediately provided by Graeme Mehegan, General Manager of the NSCFA. Further funds have since been received after contributions were made by private benefactors.

## NSW Government Support



The former Department of Industry of the NSW Government also has been enamoured by the Diabetes Project of the AFDR, working with Kadimastem. It agreed to provide matching financial support for the Project, just as did the Israeli Innovation Authority to Kadimastem. This was part of a new R & D and Technological Innovation Program of the two Governments. The then Minister for Trade & Industry, Niall Blair, came to the USYD laboratories to examine the device and talk with personnel involved, as well as potential recipients. Channel 9 was there for the occasion, and ran the story as a News segment. This can be found at: <https://twitter.com/9newssyd/status/1103218921262350336?s=21>



## Bnai Brith Bargain Bazaar and more

Others in the community also have lent support, including a Sydney op shop Bargain Bazaar, run by the Bnai Brith charity, PayPal Giving Fund Australia, and the company Moelis Australia.



*(l to r) AFDR Director, Steven Nemes, receiving cheque from Robert Kohn of Bargain Bazaar*

## Presentation at Conference

Professor Bernie Tuch attended the Annual Scientific Meeting of the Australasian Society for Stem Cell Research in Brisbane during November and spoke at a symposium there of the journey that had been taken and was being taken to get to clinical trials with human insulin producing cells inside a bioengineered device for the treatment of type 1 diabetes. He spoke of the need to ensure that the science was working appropriately, the people carrying and supporting the work remained motivated, and that there were sufficient funds to fund what was needed. The particular session was devoted to clinicians who were conducting translation research. Other speakers included Professor Dan Chambers transplanting stem cells to treat lung disease, and Dr Siok Tey transplanting blood cells for the treatment of leukaemia.

## PhD Submission

A member of the AFDR is Luke Carroll, who has been carrying out his research on human embryonic stem cells under Professor Tuch, Associate Professor Anand Hardikar, and Dr Michael Morris at The University of Sydney. In June this year, he submitted his thesis, entitled Differentiation of Human Pluripotent Stem Cells into Mature Insulin Producing Cells, before moving to Sweden to carry out post-doctoral research. It is hoped that he will be granted his PhD early in the New Year. We congratulate Luke on his persistence, a necessary prerequisite of a good researcher.

## Patent Submission

In April this year, the patent on the bioengineered device Cell Associated Scaffolds for Delivery of Agents entered the national phase in Europe, USA, and Australia. Its claims are now being assessed by experts in the field, a process that may take some time. The granting of a patent should provide protection to the AFDR as it deals with other entities around the world interested in working with it to deliver a commercial cell therapy for treatment of type 1 diabetes.

## Visitors

During the year the AFDR was host to a number of visitors. JWIRE Editor and Publisher Henry Benjamin and community editor Elana Bowman with Research Associate Dr Auvro Mridha as well as Graeme Mehegan, General Manager of the National Stem Cell Foundation of Australia.



*(l to r) community editor Elana Bowman, JWIRE Editor, and Publisher Henry Benjamin with Research Associate Dr Auvro Mridha*



*(l to r) Dr Auvro Mridha, Graeme Mehegan, and Professor Tuch*