

## Stem cells used to generate insulin in mice

Research by California-based stem cell engineering company Novocell provides evidence supporting the potential future use of hES cells to replace insulin-producing pancreatic cells that are destroyed in people with type 1 diabetes, opening the way for new treatment for diabetes.

In this new work, it has been demonstrated that implantation of hES-derived pancreatic cells into mice results in the generation of glucose-responsive insulin-producing cells. These cells exhibit properties characteristic of functional adult pancreatic insulin-producing cells in the pancreas. Most importantly, these hES-derived cells provide protection in an animal model of diabetes characterised by loss of pancreatic insulin-producing cells.

Currently cellular therapy for diabetes is performed by transplanting donor-derived human islets combined with chronic immunosuppression. However, the adverse side-effects of long-term immunosuppression make this replacement therapy unsuitable for the general diabetes population. Accordingly, together with the stem cell engineering technology for insulin-producing cells, a delivery process has also been developed by Novocell by which such cells might be delivered to patients without the need for chronic immunosuppression. This encapsulation technology, which has been successfully tested in human clinical trials using human islets isolated from donor organs, provides a protective coating for cells, thus allowing them to be more readily accepted in the body without the chronic use of immunosuppressive drugs.

Commenting on these developments Alan J Lewis, president and CEO of Novocell, said that by developing proprietary processes to successfully generate insulin-producing cells from hES cells *in vivo* and protecting these cells from immune system rejection, a potential treatment option had been created that could lead to the first widespread application of cell replacement therapy for the treatment of diabetes.

Source: [www.novocell.com](http://www.novocell.com)

## Egyptian Foot Care Centre awarded IDF grant to improve diabetes foot care

The Faculty of Medicine in Alexandria, Egypt and the Alexandria Western Club of Rotary International have been awarded a 2-year study grant from the International Diabetes Federation's (IDF) BRIDGES programme to create a diabetes foot care centre to provide care and education to people living with diabetes in Alexandria and surrounding areas.

Egypt is currently in the top 10 countries with the highest number of people with diabetes. Poor diabetes control can lead to complications including increased risk for foot ulcers, which cause 85% of all amputations, and globally 70% of all leg amputations happen to people with diabetes.

Foot care services are currently very scarce in Egypt and are urgently required to cope with the rapidly increasing prevalence of diabetes and its complications in the country. According to the IDF's Diabetes and Foot Care: Time to Act, amputation rates may be reduced by between 49% and 85% through a care strategy that combines prevention, the

multidisciplinary treatment of foot ulcers, appropriate organisation, close monitoring, and the education of people with diabetes and health care professionals.

The Diabetes Foot Care Centre has been placed in the Unit of Diabetes and Metabolism, Internal Medicine Department, Alexandria Faculty of Medicine. The project will serve health care providers working in diabetes and people living with diabetes in Alexandria.

People with diabetes will be properly screened for foot complications that make them 'at risk' patients and will be registered for regular follow-up visits. Assessments of nerves and blood vessels will be conducted and if problems are detected proper care and referrals will be made.

The Centre will conduct routine care of the neuropathic foot by cutting nails, debridement of callus, foot care education and counselling for footwear. Workshops will be held to train health care providers working in diabetes in the education and care of feet of people with diabetes.

The project outcome will be measured by observing reduction of the rate of amputations – the objective being to decrease amputations by at least 25% by the end of 2 years. Another alternative would be to assess the state of the feet using the diabetic foot risk classification system developed by the IDF Consultative Section and International Working Group on the Diabetic Foot.

BRIDGES financially supports translational research projects and the foot care project was chosen as one of 11 recipients to receive translation research grants this spring from over 108 global applications.

Source: [www.idfbridges.org](http://www.idfbridges.org)