

Islet Cell Transplantation for Type 1 Diabetes – Current Status and Future Opportunities

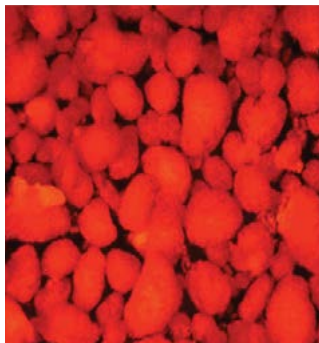
Islet cell transplantation has achieved considerable clinical success in adults over the past two decades. However, the ultimate aim of using it to treat children soon after diagnosis is yet to be realised.

Pancreatic Islet cell transplantation is a state-of-the-art, minimally invasive treatment that has the potential to reverse type 1 diabetes mellitus. Over the past two decades, the clinical outcomes of this procedure have improved dramatically, with up to 80% of selected adult patients now achieving insulin independence for at least one year post transplantation in clinical trial



Oxford DRWF Human Islet Isolation Facility

That said, the ultimate goal for this treatment is to be able to transplant children soon after diagnosis. For this to be achieved, a number of challenges still need to be overcome, the main one being to develop strategies that prevent the need for long-term immunosuppression with its associated risks.

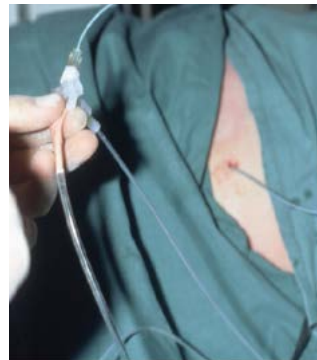


Purified Islets

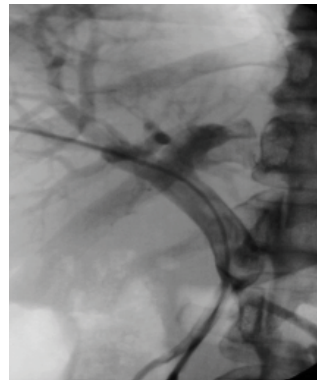
One of the approaches is to develop implantable macro-encapsulation devices that isolate the islets from the immune system, but that still allow the islets to secrete the pancreatic hormones including insulin and for them to accurately detect subtle fluctuations in blood glucose.

Oxford has been at the forefront of the field of islet transplantation for many years. We have one of only three commissioned clinical isolation facilities in the UK and are one of a few commissioned supra-regional islet transplant centres.

Dovetailed with this clinical programme is our collaborative, multi-disciplinary research programme, which includes paediatric transplant surgeons, islet biologists, transplant immunologists, tissue engineers, and industrial partners.



Immunoisolation and islet macro-encapsulation are major foci of the translational research programme and Oxford has been chosen as one of two European centres to conduct 'first in man' trials of a novel macroencapsulation device. This talk will outline the current status of islet transplantation and address some of the ongoing challenges. It will then focus on immunoisolation and pancreaticomimetic bioscaffolds.



Islet Transplant



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