

## **Strategies to Improve the Results of Pancreatic Islet Transplantation**

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Pancreatic islet transplantation is a promising alternative therapy for selected patients with type 1 diabetes mellitus. However, continued function of islets following transplantation in diabetic patients has been limited and reports suggest that five year insulin free survival is less than 20% at the clinically used intrahepatic site. Early events following transplantation leading to islet damage and poor engraftment include innate immune activation and hypoxia. Interventions directed to prevent the immediate complement and coagulation cascade activity elicited when exposing human islets to portal blood are presently tested within the Nordic Network for Clinical Islet Transplantation by the use of concomitant low dextrane sulphate infusion at the time of islet transplantation. Attempts to diminish the innate immune reaction by the use of coating of pancreatic islets for transplantation with mesenchymal stem cells are also performed. In recent years, increased attention within the Nordic Network has been paid to evaluate alternative sites to the liver for clinical islet transplantation. Intramuscular transplantation provides a promising site and is evaluated both for auto- and allotransplantation of islets. The muscular site also provides an opportunity for modification including supply of biodegradable scaffolds decorated with oxygen carriers, growth and survival factors together with the implanted islets. Such strategies are presently tested and developed in experimental models.