Background

- Intraportal islet transplantation is considered as a useful treatment for type 1 autoimmune diabetes, but there are a number of issues that need to be overcome prior to routine clinical application.
- The embolization of the portal vein after islet transplantation is one of major components for impairment of islet engraftment (chemical and mechanical stress, inflammation, lack of suitable ECM).
- Development of alternative implantation sites for pancreatic islets should minimize surgical risks and improve therapeutic successes of islet transplantation.

Material/Methods

IS Tx & IP Tx

350 IEQ

Stz diabetic Lewis Rats (n=20)

IS graft removal: 1 w, 2 w, 1.5 m, 3 m, 6 m, 12m
Pancreatic Islet Tx into the intestinal submucosa induces euglicemia

Discussion

- Our studies demonstrate that pancreatic islets can be successfully transplanted into vascularized small intestinal segments with the potential to correct hyperglycemia in diabetic rats.
- Transplantation of minimal mass of semi-pure islet preparation into the small intestinal submucosa was successful in restoring euglycemia in STZ-treated diabetic rats.
- These encouraging features of the isolated intestinal segment open new research avenues for addressing biological mechanisms and clinical applications.
- This tissue-engineering approach could eventually be considered for cell therapy in diabetes mellitus.

*Kakabadze Z et al American Journal of Transplantation. 2013, in press*