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JOHN B. HYNES CONVENTION CENTER
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GENERATION OF INSULIN-PRODUCING CELLS FROM PANCREATIC TISSUE WITH LONG STANDING TYPE 1 DIABETES

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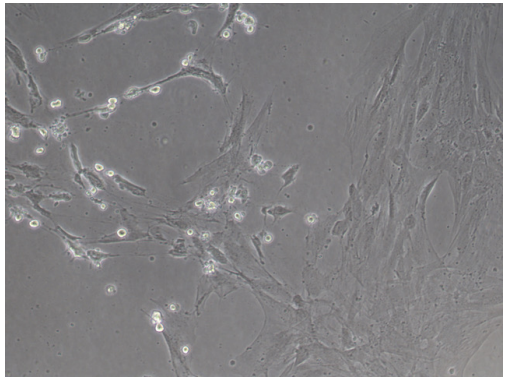
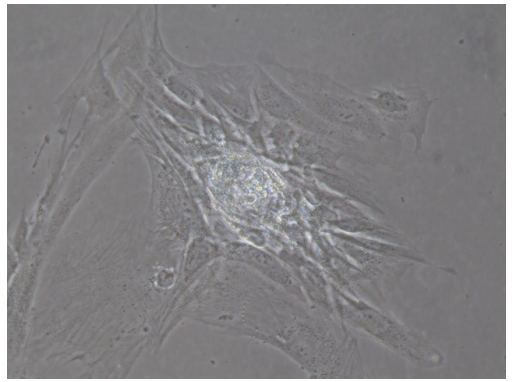
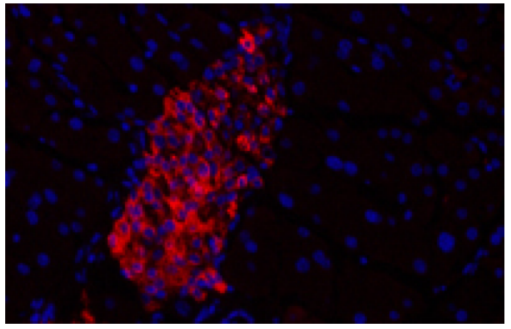
Pittsburgh, PA

AIPCs: Activated Islet Progenitor Cells

- AIPCs are generated from human islets and pancreas biopsies using a simple culture protocol (IMG-1)*
- AIPCs are triple positive, insulin, glucagon, and CD133
- AIPCs secrete insulin and are glucose responsive
- AIPCs injected in vivo home to the pancreas and release insulin
- AIPCs can be cryopreserved
- AIPCs can be generated from islets of donors with Type 1 diabetes







*ATC 2020

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Study question:
Can AIPCs be generated from pancreatic tissue with long-standing T1D?

Donor characteristics:

- 58yr, Female
- DCD donor
- Type 1 Diabetes for 53 years
- HbA1c: 9.8%
- Cold Ischemia Time 14hr
- Cause of death: Anoxia

Source: CORE (Center for Organ Recovery and Education), Pittsburgh

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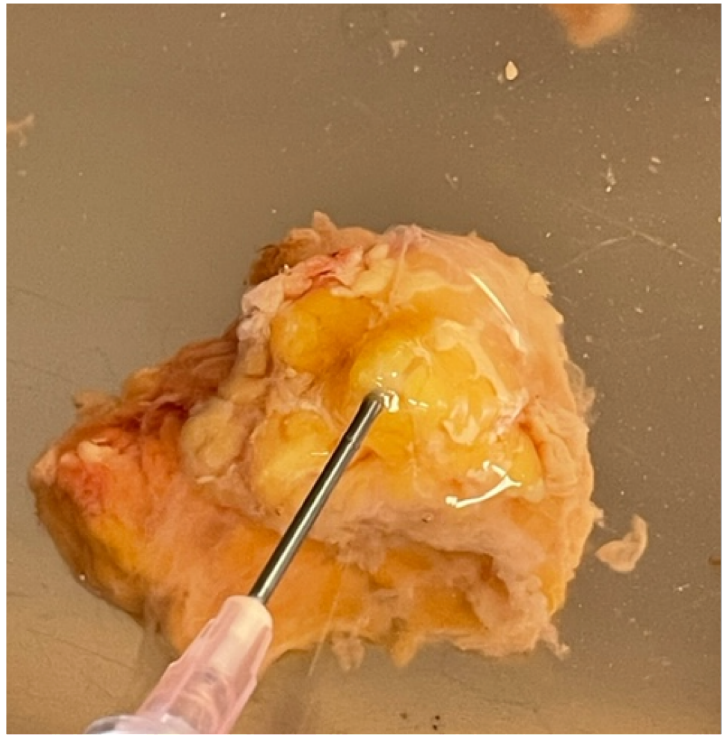
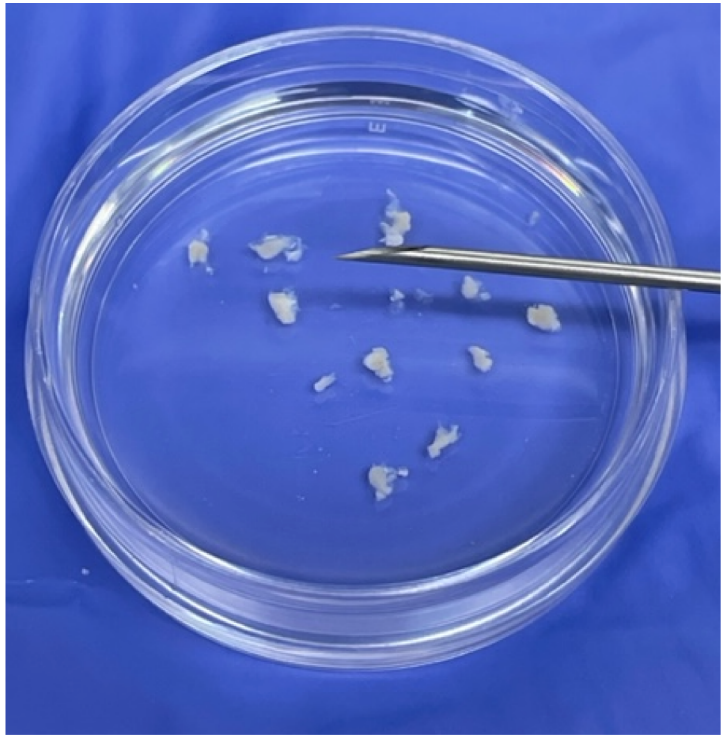
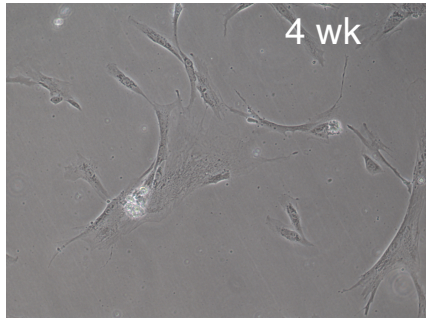
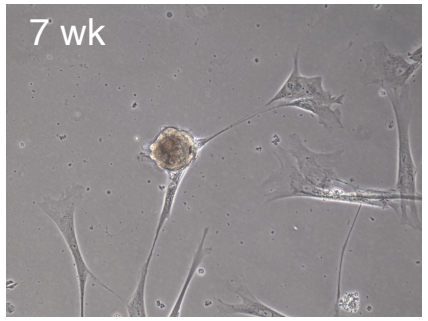
Pancreas Needle (18-20G) Biopsies

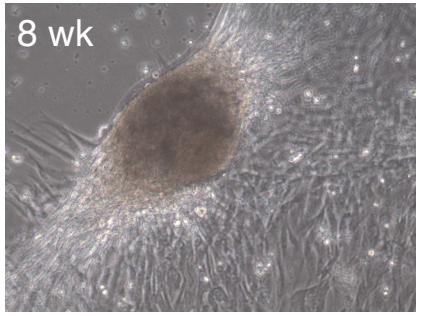




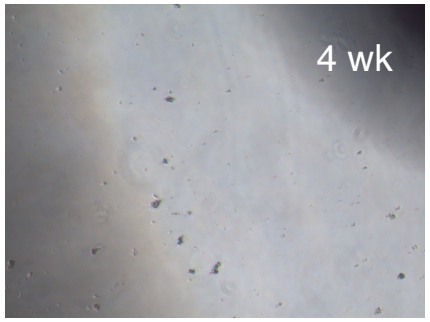
T1D-AIPCs

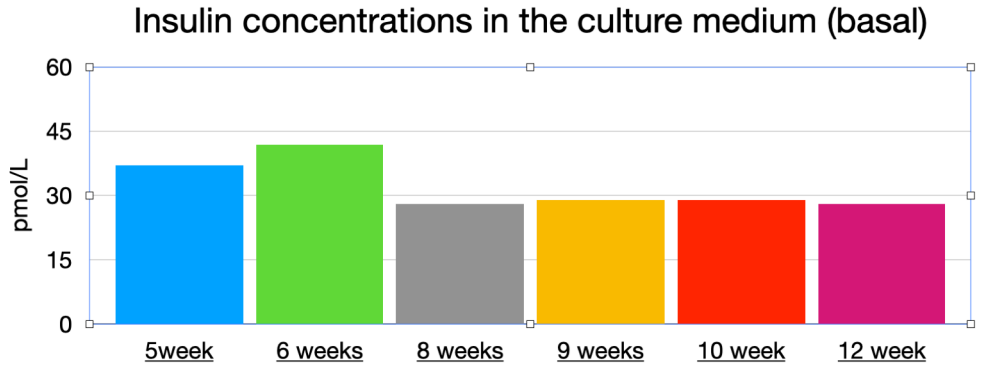




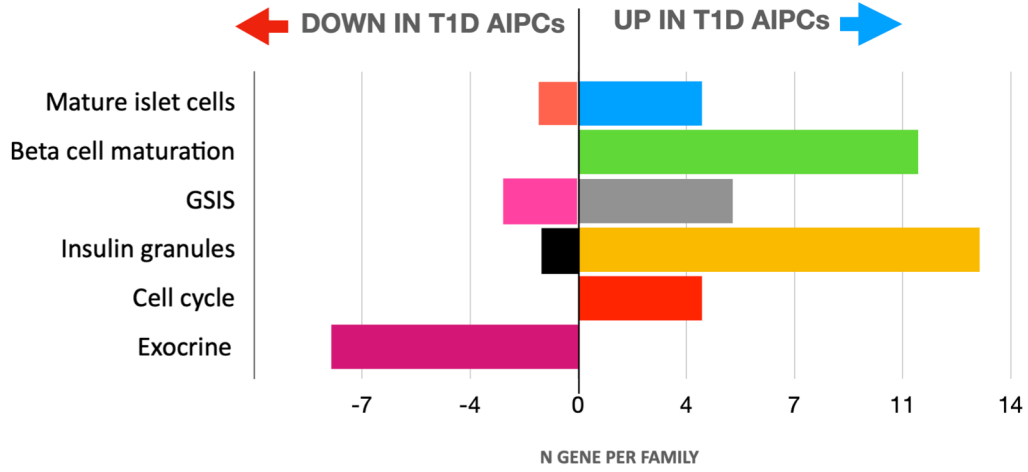


Control





GENE PROFILES
AIPCs compared to non-treated PANCREAS



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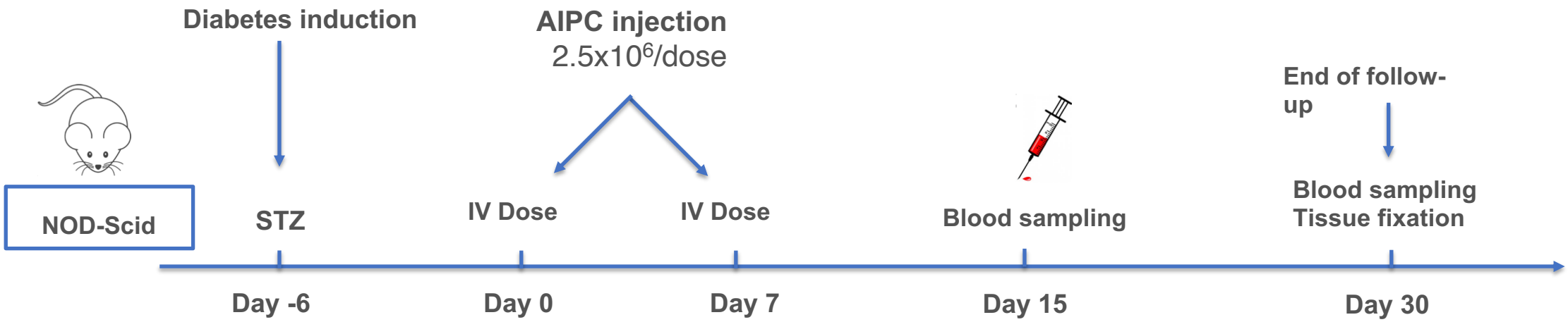
Poster number 5384 Tuesday June 7

In vivo IV injection of T1D-AIPCs in NOD-Scid STZ mice

Study goals

1. Can human T1D-AIPCs be safely injected IV?
2. Do T1D-AIPCs produce insulin in a diabetic recipient?



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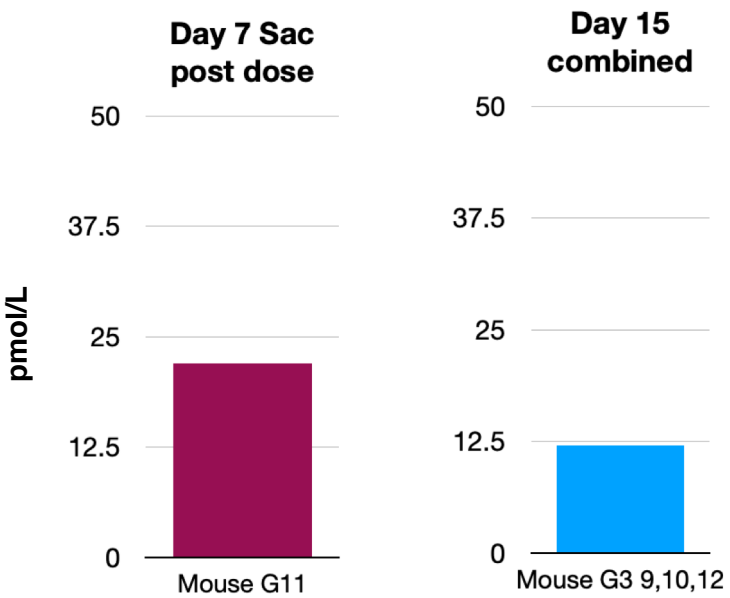
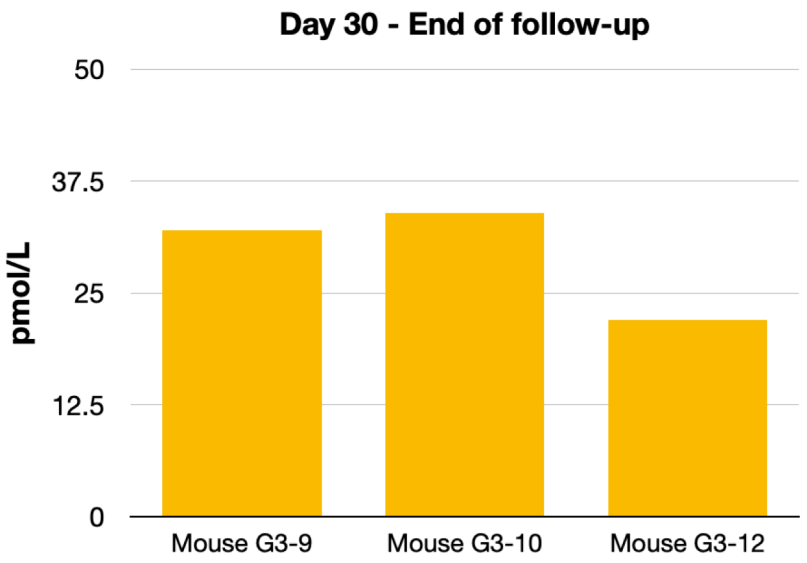
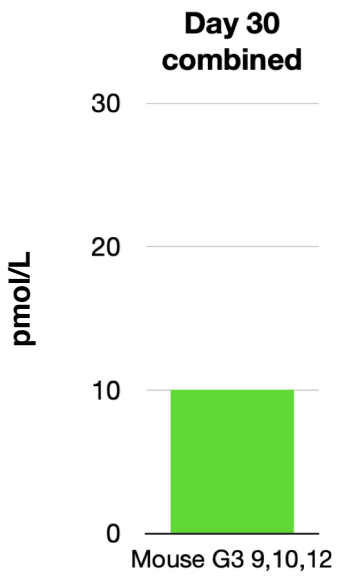
Human insulin concentration in the serum





Human C-peptide



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Summary and preliminary conclusions

- ✔ AIPCs can be generated from needle biopsies of pancreatic organs with long standing T1D
- ✔ T1D-AIPCs proliferate and mature into insulin producing cells
- ✔ T1D-AIPCs release insulin after IV injection in vivo

T1D-AIPCs offer the potential to sustain insulin production as autologous cell transplantation in patients with Type 1 diabetes even after long disease duration

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Organ Donor Families

Pittsburgh

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