**P072** Maternal microchimerism in the human pancreas

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Bi-directional transfer of cells between mother and foetus during pregnancy and the long term persistence of these microchimeric cells in both mother and offspring are now well accepted but their role in health and disease remains unclear. We previously examined four male pancreases from autopsies, one from a T1D patient, for the presence of female islet beta cells using FISH for X and Y chromosomes with concomitant CD45 and beta cell insulin staining. Female islet beta cells (presumed maternal) formed 0.39-0.96% of the total, whereas female hematopoietic cells were very rare. These data strongly suggest that maternal stem cells transferred from the mother during pregnancy have the potential to differentiate into functional islet beta cells. Now, to test the hypothesis that maternal cells transferred during pregnancy contribute to the process that results in type 1 diabetes, we are comparing the frequency and phenotype (insulin, glucagon, CD45, Ki67) of maternal cells in a panel of 17 autopsy pancreas sections (age range 5-23 years) from individuals with recently-diagnosed type 1 diabetes and 24 autopsy non-autoimmune control pancreas sections (age range 37 weeks gestation-18 years). Preliminary results demonstrate an increased frequency of maternal cells in neonatal compared to adult pancreas and in type 1 diabetes compared to age-matched control pancreas.