

P011 GLP-1 and GH-induced human islet cell proliferation
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The aims of this study are to induce proliferation of human beta cells *in vitro* by exposing human islets to GLP-1 or GH or combinations of the two and to characterise proliferating human islet cells. In intact neonatal rat islets we observed that exposure to GH or GLP-1 induced a 6.8-fold and 4.8-fold increase in beta cell proliferation, respectively. Exposure of human islets to either GH or GLP-1 alone had marginal proliferative effect on islet cells. However, the combination of GH and GLP-1 induced a 3.3-fold increase in islet cell proliferation in intact human islets cultured on extracellular matrix. Rare proliferating cells in intact islets (1-2 cells pr. 20 islets) were positive for both insulin and BrdU. In preparations of islet single cells cultured on extracellular matrix and exposed to GLP-1 and GH 24.2% and 18.2% of the BrdU positive cells expressed insulin. However, in both intact human islets and single cell preparations the majority of proliferating cells with small nuclei were negative for insulin, other islet hormones, PECAM-1 and vimentin. 15-72% of the proliferating islet cells expressed the transcription factor Pax6, thus indicating that they have an endocrine origin.