Beta Cells in Pancreas

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Editorial

Beta cells (β-cells) are a type of cell found in pancreatic islets that synthesize and secrete insulin and amylin. Beta cells make up 50-70% of the cells in human islets. In patients with type 1 diabetes, beta-cell mass and function are diminished, leading to insufficient insulin secretion and hyperglycemia. The primary function of a beta cell is to produce and release insulin and amylin. Both are hormones which reduce blood glucose levels by different mechanisms [1]. Beta cells can respond quickly to spikes in blood glucose concentrations by secreting some of their stored insulin and amylin while simultaneously producing more. Beta cells are the only site of insulin synthesis in mammals. As glucose stimulates insulin secretion, it simultaneously increases proinsulin biosynthesis, mainly through translational control. The insulin gene is first transcribed into mRNA and translated into preproinsulin. After translation, the preproinsulin precursor contains an N-terminal signal peptide that allows translocation into the rough endoplasmic reticulum. Inside the RER, the signal peptide is cleaved to form proinsulin. Then, folding of proinsulin occurs forming three