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“Function and dysfunction of the pancreatic beta cell in type 2 diabetes: is it all predictable?”

Pancreatic beta cells are the sole source of circulating insulin in man and other mammals and their loss or dysfunction is a sine qua non of all forms of diabetes mellitus. I will describe firstly our recent studies exploring the function of these cells in situ in the islet, including evidence for a pace-maker role of a subset of beta cells. I will also discuss recent efforts seeking to understand how genes identified in GWAS studies for diabetes impact insulin secretion, and the possibility that some of these might be suitable for therapeutic targeting. Finally, I will describe our efforts to identify circulating biomarkers which predict beta cell failure and diabetes progression.