

P027 Expression and function of the GIPR in SGBS cells
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The glucose-dependent insulinotropic polypeptide receptor (GIPR) is a member of the Family B class of G protein-coupled receptors. It binds a hormone, GIP, which is a 42 amino acid gastrointestinal incretin hormone secreted by enteroendocrine K-cells in response to nutrient ingestion. GIP is well known to markedly potentiate glucose-induced insulin secretion but there is now increasing evidence that it also plays a role in lipid metabolism and obesity. Functional GIP receptors have previously been shown to be present on rat adipocytes but are they present on human fat cells? To answer this we used a model of human adipose tissue, Simpson-Golabi-Behmel syndrome (SGBS) cells, which are human preadipocytes that have a high capacity for adipose differentiation. SGBS cells were cultured and differentiated for 14 days in serum-free medium containing adipogenic factors. The presence of the GIP receptor was determined by analysis of gene expression over the 14 day differentiation time course, showing that GIPR was markedly upregulated following differentiation. The function of the GIPR was then investigated by measuring agonist-induced cAMP accumulation in 9 day differentiated SGBS cells, exhibiting an EC_{50} value of 2.3 nM. Hence we have demonstrated that functional GIP receptors are present in a model of human adipose tissue.