Does crosstalk between the Insulin and IGF pathways explain the increased risk of cancer in diabetes patients?

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Diabetes has recently been identified as a risk factor for many different types of cancer. Pancreatic ductal adenocarcinoma (PDAC) is an almost universally lethal disease due to late diagnosis and resistance to treatment. It is the fourth leading cause of cancer-related mortality. The risk of PDAC in is increased by around 80% in diabetes patients.

It has been hypothesized that the high levels of insulin characteristic of Type 2 diabetes patients may explain the increased cancer risk. Insulin has been shown to promote the proliferation of pancreatic cancer cells. However, the mechanism by which this occurs is not yet known. The receptors for insulin and IGF have a high degree of structural homology and can activate common signalling pathways. IGF-1R plays an important role in the development of pancreatic cancer. This project will use *in vivo* and *in vitro* models of diabetes to test the importance of crosstalk between the insulin and IGF signalling pathways in the development of cancer in a diabetic environment.

The project builds on our expertise in the use of clinically relevant antibodies to inhibit growth factor receptors, as well as analysis of insulin and IGF signalling pathways. It combines *in vitro* and *in vivo* approaches, as well as other techniques including western blotting, proliferation assays and confocal microscopy.

This is a collaborative project between the Diabetes and Cardiovascular Research Group and the Cancer Research group.