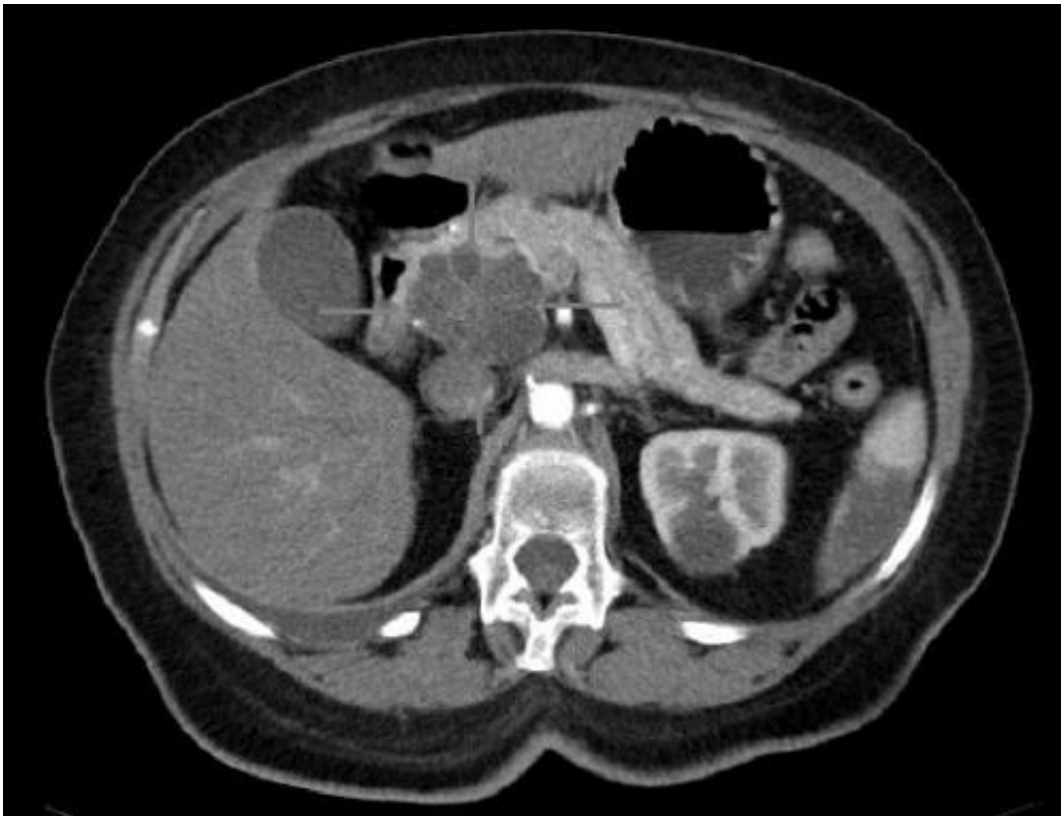


Role of rogue protein PAK4 confirmed in pancreatic cancer cells

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Axial CT image with i.v. contrast. Macrocystic adenocarcinoma of the pancreatic head. Credit: public domain

A new study that confirms the role of a protein called PAK4 in the movement and growth of pancreatic cancer cells could help researchers find new ways to tackle the disease.

The work, funded by national charity Pancreatic Cancer Research Fund, uncovers new evidence that PAK4 plays a key role in enabling [cancer cells](#) to grow and to spread from the pancreas into other areas of the body, a process called metastasis.

The researchers, from Kings College London, also found evidence of a close relationship between PAK4 and a well-researched cancer pathway called the phosphoinositide 3-kinase pathway (PI3K). PI3K is responsible for regulating the growth and survival of cancer cells and several inhibitors targeting it have already been developed.

"We've seen hints before that PAK4 and PI3K pathway are linked, but finding evidence of their interaction is an important advance because it gives us additional avenues to explore in testing promising new inhibitor compounds that can tackle this disease," says Dr Claire Wells, who led the study. "Such studies could lead the way to thinking about combination therapy that could target both PAK4 and PI3K"

PAK4 is found at particularly high levels in pancreatic cancer cells and this work forms part of a wider investigation into the precise role of this protein in cancer progression. Dr Wells' team has previously published research on the importance of PAK4 in other types of cancer, including prostate, breast and melanoma.

The work complements existing studies into PAK4, but advances existing knowledge by using a sophisticated model system that better mimics a pancreatic tumour, alongside films of the cells as they grow and develop.

The team also studied what happened when PAK4 was removed from the cells, using an RNA silencing technology that can prevent production of specific proteins.

"This technique allows us to look in detail at the structure and development of the cells, and we can clearly see that, if you remove PAK4 from those cells, they lose their ability to be really invasive," explains Dr Wells.

"One of the big problems with pancreatic cancer is recurrence - even for people who can have surgery, there's a really high level of recurrence," adds Dr Wells. "If we can develop therapeutics that would suppress the movement of cells out of the pancreas, they could be given to patients following surgery and help to prevent that recurrence and spread of the disease."

Ultimately this research confirms PAK4 as a promising target for new drug compounds, a number of which have already been identified by the researchers for testing. The team is also planning further research to find out more about why [pancreatic cancer](#) cells rely on PAK4 and what other proteins and pathways PAK4 is interacting with to drive cell growth and migration.

More information: Helen King et al, PAK4 interacts with p85 alpha: implications for pancreatic cancer cell migration, *Scientific Reports* (2017). [DOI: 10.1038/srep42575](https://doi.org/10.1038/srep42575)

Provided by Pancreatic Cancer Research Fund

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