Early Detection of Pancreatic Cancer

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Technology description

A 2-protein panel blood test for early detection of pancreatic ductal adenocarcinoma.
Problem
Pancreatic cancer is the third leading cause of cancer related death in the US and is predicted to become the second leading cause of cancer mortality by 2020. Most pancreatic ductal adenocarcinoma (PDAC) patients are diagnosed at an advanced stage of disease, and their tumors are not surgically resectable, contributing to an overall 5-year survival rate of 7%. The lack of early diagnosis has made it challenging to develop therapeutics to slow or reverse PDAC.
Currently CA19-9 is used to assess disease progression in PDAC patients. However its use is not recommended for general screening because (1) it is elevated in certain nonmalignant pancreatic conditions, such as chronic pancreatitis (2) it produce false negatives in individuals who do not express Lewis blood group antigens. Other secreted markers have been reported for PDAC including blood or urine proteins, exosomes, microRNAs, and epigenetic marks in circulating nucleosomes. However, most are discovered in advanced PDAC or cell lines that are not representative of earlier stages, when detection would be most relevant, although recent candidates have been tested or discovered in prediagnostic samples of PDAC. There is an urgent need for early detection of PDAC to be able to contemplate efficient therapeutic intervention.
Solution
In an effort to develop early diagnostic prognostic, Dr. Kenneth Zaret at the Perelman School of Medicine has developed a 2-protein panel for early detection of pancreatic ductal adenocarcinoma.
ROC curves for THBS2, CA19-9, and THBS2 + CA19-9
concentrations in plasma samples from patients with all stages of PDAC versus healthy controls. (D)PDAC, n = 197; controls, n = 140 studies.
Reference Media
Paper : Kim et al., Sci. Transl. Med. 9, eaah5583 (2017) – Press releases: Penn Medicine; AACR; Clinicalomics; Genomeweb

Application area

• Early diagnostic of pancreatic cancer

Advantages

• Assay done via ELISA
• No biopsy needed
• Early detection of pancreatic cancer

Institution

University of Pennsylvania

Inventors

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