Improving diagnosis of pancreatic cancer

Combining the research and clinical strengths of Hudson Institute of Medical Research, Monash University and Monash Health, our researchers are developing new tools for the diagnosis of pancreatic cancer.

Our multi-disciplinary team have identified a gene signature to improve the accuracy of EUS-FNA, the most common procedure used to establish diagnosis of pancreatic cancer.

Unmet diagnostic need

Pancreatic cancer accounts for 4.7% of global cancer deaths, and currently is the seventh leading cause of cancer deaths worldwide. By 2030, pancreatic cancer is predicted to be the second leading cause of cancer-related deaths.

There has been little change in survival rates for pancreatic cancer in the last few decades. It has a poor patient outlook with a reported median survival between five to seven months and one of the lowest survival rates of all cancers, with a five-year survival rate of just 10%.

Pancreatic cancer can be challenging to diagnose and many treatment options are not effective. It is most often diagnosed at an advanced stage, by which time the only potential cure - surgical resection - is no longer a therapeutic option.

Diagnosis can come from imaging tests (ultrasound, CT, MRI, PET) and biopsy, endoscopy and laparoscopy. These tests are not always effective at picking up early-stage disease, when treatments may be more effective.

EUS-FNA (endoscopic ultrasound-guided fine-needle aspiration) has become a useful tool in the diagnosis and characterisation of pancreatic cancer, and is current standard of care . However, this method still leads to a high proportion of inconclusive outcomes with around 15% of patients not receiving a tissue diagnosis at the first attempt. These patients thus need to undergo further testing, leading to delays that adversely impact diagnosis and treatment.

Our solution

Our team has developed a genetic signature that distinguishes pancreatic cancer from normal pancreas, and with potential as an adjunct to cytological diagnosis of disease using EUS-FNA. The addition of this genetic-based assay to the current diagnostic paradigm aims to reduce the proportion of missed cases, crucially allowing patients to receive treatment sooner.

IP position

PCT application filed.

Key data

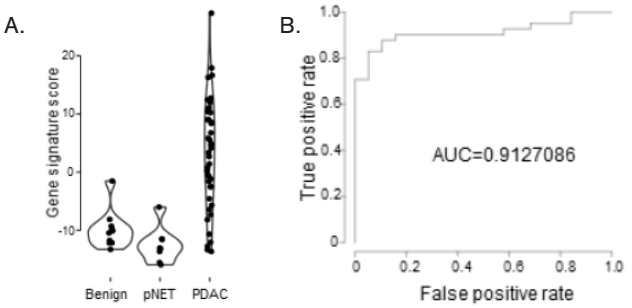

Figure 1. Boxplot (A) and receiver operating characteristic curve (B) indicate that the gene score performs well at discriminating between PDAC and non-PDAC samples in the validation cohort.

Publication

Targeted transcriptome and KRAS mutation analysis improve the diagnostic performance of EUS-FNA biopsies in pancreatic cancer. Lundy J *et al.*, 2021 *Clinical Cancer Research* doi: 10.1158/1078-0432.CCR-21-1107

Project team

This project is led by the combined expertise of Dr Daniel Croagh and Professor Brendan Jenkins, bringing together the research and clinical strengths of Hudson Institute, Monash University and Monash Health.

Dr Daniel Croagh MBBS PhD FRACS is a hepatobiliary and pancreatic surgeon at Monash Health, senior lecturer at Monash University and Honorary Clinical Associate at Hudson Institute.

Professor Brendan Jenkins PhD is a NHMRC Senior Research Fellow, Head of the Cancer and Immune Signalling research group and Head of the Centre for Innate Immunity and Infectious Diseases at Hudson Institute.

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