



Application

- Blood-based determination of pancreatic disease

Benefits

- Less invasive than endoscopic ultrasounds (EUS)
- Amenable to high-throughput
- High specificity

VARI IP-00125

Patent Status: Issued
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Pancreatic Cancer Biomarkers and Diagnostic Methods

This technology addresses the lack of effective methods for the accurate, differential diagnoses of benign and malignant pancreatic diseases.

Background

The widespread availability of non-invasive abdominal imaging has caused a marked increase in the number of computed tomography (CT) or magnetic resonance imaging (MRI) scans of the abdomen to evaluate symptoms of abdominal problems. This has led to increasing numbers of incidental pancreatic findings. Since these imaging methods perform poorly in distinguishing between benign and malignant pancreatic conditions, patients typically are referred for an endoscopic ultrasound (EUS) to clarify the clinical significance of these incidental findings. Only a minority of the patients referred for these procedures have cancer or a condition that calls for further interventions. Consequently, this high rate of unnecessary referrals has a significant negative impact due to the physical and emotional stress on the patient, the chance of complications from the procedure, and the high financial cost. Furthermore, results from biopsies and ultrasounds may also be inconclusive. In some cases, the diagnosis of cancer remains unclear and the decision whether to operate is difficult. For these reasons, improved diagnostic tools for assessing pancreatic abnormalities and to supplement imaging and biopsy methods are greatly needed.

Technology

Van Andel Research Institute (VARI) scientists have identified a biomarker panel consisting of three mucin proteins and their glycans for use in differentiating malignant from benign pancreatic disease in subjects with image-detected abnormalities. The biomarkers are based on the detection of the serum marker CA 19-9, three mucin proteins, and the carbohydrate modifications on the mucins. This panel identified nearly all confirmed pancreatic cancer cases in comparison to pancreatitis patients in a multi-site study of nearly 400 patients.

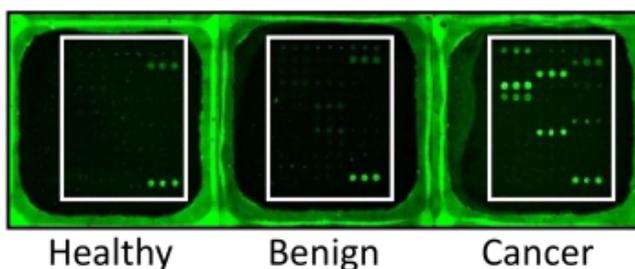


Figure 1: High-throughput sample processing and array-based sandwich assays for biomarker detection. Representative raw image data from each of the sample group arrays are printed on microscopic slides. A set of serum or plasma samples are incubated on the arrays in random order, and the arrays for the entire sample set are probed with appropriate antibodies. Triplicates of each antibody were randomly positioned on the array.

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Through biomedical research and science education Van Andel Institute is committed to improving the health and enhancing the lives of current and future generations.

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