Novel Molecular Diagnostic Tools for the Prevention and Diagnosis of Pancreatic Cancer

Keywords
Pancreatic cancer, molecular diagnostics, molecular imaging, early diagnosis, PanINs

Problem
Pancreatic cancer has a dismal prognosis due to the late presentation of the tumours and the absence of satisfactory therapeutic options for advanced disease. Surgical resection of early tumours or preneoplastic lesions represents the only curative approach. It is currently difficult to identify early stages of the tumour and preneoplastic lesions and, once in an advanced stage, there are no diagnostic means for a risk stratification of patients concerning prognosis or responsiveness to therapy.

Aim
Here we propose an integrated project joining leading groups in European pancreatic cancer research, SMEs and industry to develop novel molecular diagnostic approaches for the prevention, early diagnosis and risk stratification of pancreatic cancer.

Expected results
These approaches will be developed based on large-scale transcriptome, genome and proteome analyses that have been performed by members of the consortium in recent years in two subsequent EU-funded concerted actions. Within these concerted actions, the relevant protocols and processes were optimised and adjusted between the partners and common standards, as well as establishing a network of clinicians, clinical research and basic research groups. From this basis, novel molecular techniques will be developed for the detection of cancer cells or preneoplastic cells in minimal amounts of clinical tissue (fine needle biopsies) or fluid (pancreatic/duodenal juice or serum) samples.

Potential applications
Novel tools will include transcript and epigenetic analyses, chip technology, single or multiple marker protein studies, DNA/RNA PCR analyses, serum proteomics and molecular imaging. The project will use clinical samples such as serum, urine, fine needle aspirates and surgically resected materials of pancreatic cancer patients collected in large multinational European trials such as ESPAC and EUROPAC. During the last phase, prospective clinical trials of novel diagnostic tools developed in the integrated project will be designed and started.

Project website: under construction

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Instrument: IP
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