

OncoLipidomics - MS analysis for early diagnosis of pancreatic cancer

Development status

Phase 3

Technology validation and implementing it in real environment. Testing the technology outside of the laboratory and its adjustment to external conditions.

IP protection status

Partnering strategy

Co-development, Collaboration, licensing

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Institution



University of Pardubice

Challenge

No screening tests have so far been developed that would allow the detection of sufficiently early stages to lower the risk of dying from pancreatic cancer. So far, several types of blood tests have been considered to diagnose pancreatic cancer, such as carbohydrate antigen 19-9 (CA19-9), carcinoembryonic antigen (CEA), or Kirsten-ras (KRAS), but unfortunately low sensitivity and low specificity do not allow their use in the clinical practice for early diagnosis. The aim of our project is to develop a technology for the early stage detection of pancreatic cancer.

Description

The mass spectrometry (MS) based lipid profiling of body fluid samples of pancreatic cancer patients and healthy volunteers enables to build up the statistical models, which are used to determine the level of probability of the patient suffering from pancreatic cancer. The methodology is based on liquid chromatography MS analysis of up to 500 lipids (UHPSFC/MS, shotgun MS, MALDI). The resulting lipidomic pattern enables to discriminate between cancer patients and healthy volunteers. The retrospective validation study with nearly 400 samples was performed in the Czech Republic and discriminated pancreatic cancer patients of all stages from healthy controls. Advantages:

- detection of early curable stages T1, T2 (95 -100% accuracy)
- 10,000 samples / one year / one MS system
- only 10 - 25 µl of serum or plasma needed
- the method is suitable for high-throughput screening
- validated in line with recommendations of FDA and EMEA

Commercial opportunity

Our major goal is to transfer our know-how into a commercial product, which shall be ready-to-use in clinical screening of pancreatic cancer, including subsequent diagnostics by conventional medical approaches. We offer a unique technology and outstanding expertise in LS MS analysis. We are looking for a co-development or licencing partner for

commercialization on a global scale.