



## **Proteomic Analysis Improves the Assessment of Pancreatic Cystic Lesions.**

Sjöberg Karolina<sup>1</sup>; Johansson Malin E.<sup>2</sup>; Hyltander Anders G.<sup>3</sup>; Kalaitzakis Evangelos<sup>1</sup>; Hansson Gunnar C.<sup>2</sup>; Sadik Riadh<sup>1</sup>

1. Department of Internal Medicine, Sahlgrenska University Hospital, Gothenburg, Sweden.
2. Department of Medical Biochemistry and Cell Biology, Gothenburg University, Gothenburg, Sweden.
3. Department of Surgery, Sahlgrenska University Hospital, Gothenburg, Sweden.

Available methods for assessing pancreatic cystic lesions (PCL) have unsatisfactory sensitivity and specificity. Mucin expression has been reported in mucinous and serous cystic tumors and in ductal adenocarcinoma. AIMS: To explore the utility of proteomic analysis of cyst fluid mucin expression, in the clinical assessment of PCLs.

### **METHODS:**

Patients referred for EUS-FNA of a PCL were prospectively included. In addition to cytology and CEA quantification, proteomics was performed on the aspirates. Following electrophoresis, high mass bands were trypsinized and analysed by mass spectrometry. For peptide identification, "Mascot" software and an in-house mucin database were used. Endpoints: 1)Surgical pathology (n=8); 2)Follow up with imaging (n=12); 3)Preliminary clinical diagnosis.

### **RESULTS:**

13 females and 16 males, aged 36-86, were included. According to our endpoints there were 19 cyst-like tumors and 10 pseudocysts. The table shows the sensitivity, specificity and accuracy for cytology versus proteomics for the identification of cyst-like tumors. Cyst fluid yield limited the use of CEA, which could not be analyzed for 10 patients. For cases with surgical pathology, the sensitivity of MUC 1 for detecting malignancy was 57% and for cytology 13%.

### **CONCLUSION:**

Proteomic mucin analysis was significantly more accurate than standard cyst fluid analyses in the clinical assessment of PCLs. MUC1 content is a useful marker for malignancy.

|  | Sensitivity%<br>(95%CI) | Specificity% | Accuracy%<br>p=0.03 |
|--|-------------------------|--------------|---------------------|
| Proteomic mucin<br>expression analysis | 89 (65-98)              | 90 (54-99)   | 90 (74-96)          |
| Cytology with mucus stain              | 53 (29-75)              | 80 (44-96)   | 62 (44-77)          |

Cyst fluid CEA (cut-off 400 ng/ml) Sensitivity: 50%, Specificity:  
90%