

European Respiratory Society Annual Congress 2012

Abstract Number: 4631

Publication Number: P4217

Abstract Group: 11.1. Lung Cancer

Keyword 1: Biomarkers **Keyword 2:** Proteomics **Keyword 3:** Neoplastic diseases

Title: Lung cancer metabolomics in plasma, urine and bronchoalveolar lavage. A pilot study

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Body: Lung cancer (LC) has high morbimortality rates. Today, research in biomarkers is a hot topic, and among these, the least frequently studied, are those of the metabolomics field. Our aims are to present preliminary data using metabolomics technics for detection of differentiated patterns between patients with LC and non-lung cancer (NLC) patients, to obtain an effective screening method. We obtained blood, urine, and bronchoalveolar lavage (BLA) samples from a group of patients who underwent bronchoscopy, for further analysis through mass spectrometry methods. These techniques provide us with metabolic fingerprinting, allowing the study of the metabolites involved in the process. Identification of the resultant metabolites was performed through mass-mass fragmentation procedures. Guided by mass spectrum, the results were processed by Partial Least Squares Discriminant Analysis. We compared the results from both groups. Initially, 7 LC patients and 7 NLC subjects' samples were included. We found differences in metabolite profiles among these groups, allowing us to differentiate between LC and NLC cases. Including the blood and urine samples, we were able to identify potentially overexpressed markers, such as choline, phosphocholine and propionylcarnitine, leaving analysis of BLA samples results pending. In conclusion, both groups shown different metabolomics profiles in the analyzed samples, this allows for its statistic discrimination. Metabolites that are responsible for this discrimination have been identified and correlated with previously described neoplastic processes. The preliminary data raises the possibility of further studies that will allow the development of early screening technics.