

Proteomic analysis of tumor fluid in epithelial ovarian cancer: A new strategy for identifying tumor markers

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The proteome analysis of human body fluid has become one of the most promising approaches for biomarker discovery of human diseases, and the study of differences between malign and benign samples can provide valuable information about the disease. The objective of this study is to identify, quantify and classify proteins present in pools of malign epithelial ovarian tumor fluids (n=10) and of benign epithelial ovarian tumor fluids (n=10). The pools were subjected to immunodepletion of albumin and IgG, isotopic labeling with acrylamide, separation by SDS-PAGE and *in situ* digestion with trypsin. All tryptic peptides were separated by liquid chromatography ion exchange followed by reverse phase coupled to a mass spectrometer LTQ-ORBITRAP (LC-MS/MS). We identified 386 common proteins to both pools, 505 proteins found only in malign pool and 272 proteins found only in benign pool. Among the identified proteins (1100 approximately), 366 showed relative quantification based on isotopic labeling. Proteins known to be relevant for cancer were identified differentially accumulated between the pools, including mucin (CA125), LCN2 (Lipocalin-2), WFDC2 (HE4), among others. Furthermore, the detected proteins were cited in the literature as candidates for biomarkers or ovarian cancer proteins extensively studied, as SPP1 (osteopontin), MSLN (mesothelin), TTR (transthyretin), APOA1 (apolipoprotein AI) and IGFBP2 (insulin-like growth factor binding protein 2). Therefore, the samples are rich in differentiating the stages of the disease and the analysis of tumor fluid identifies a large number of proteins characteristic of malign tumors, with potential for use as tumor markers or as potential targets for therapeutics.

Biography

Poersch A is graduated in Biological Sciences (3003) and Masters in Genetics and Molecular Biology from the State University of Londrina, PR, Brazil (2005). Did Ph.D. in Genetics from the Medical School of Ribeirão Preto, University of Sao Paulo, SP, Brazil (2010) and now performs postdoctoral fellow in oncology in the same University. Has experience in the area of genetics, acting on the following subjects: *in vitro* mutagenesis assays, cancer susceptibility (polymorphisms), breast cancer, ovarian cancer, genomic instability, toxicogenetics and proteomics.

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