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## Proteomic analysis of endothelial to mesenchymal transition controlled by snail

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Molecular mechanism of fibrosis is characterized by the accumulation of a collagen-rich extracellular matrix (ECM) and is a feature of a number of fibrotic diseases as well as the stroma of many solid tumors. Recent studies have shown that endothelial cells are capable of undergoing endothelial to mesenchymal transition (EndMT) and generates fibrotic tissue. This mechanism causes fibrosis in organs such as kidney, lung and heart. Our studies demonstrated that overexpression of transcription factor snail1 can initialize EndMT in HMEC-1 cells. We observed the loss of endothelial markers (VE-cadherin) with the simultaneous gain of mesenchymal markers (FSP-1, SMA- $\alpha$  and vimentin). Differential proteomics performed for a global quantitative comparison of two proteomes with Orbitrap Velos mass spectrometers and iTRAQ- a labeling-based method analysis of HMEC-1 displayed a total number of 2145 proteins, among those three were overexpressed and 19 were down-regulated after overexpressed snail1 in endothelial cells. Moreover, the reduced expression of plectin was observed. Heretofore, only one patient with mutation in the *plectin* gene was previously reported whose case was diagnosed with cardiomyopathy and heart fibrosis. Our experiments concerning early stages of EndMT revealed decreased expression of matrin3, calmodulin and an isoform 1 of nucleophosmin. These data are similar to quantitative proteomic analysis of protein expression profile in a prostate cancer EMT model.

### Biography

Marta Stasiak has completed her PhD in Medical Biology in 2007 at Medical University of Lodz. She was a Post-doctoral Visiting Fellow at the Laboratoire de Biochimie Médicale et de Biologie Université de Reims Champagne Ardenne Moléculaire, Reims, France and in the Division of Hematology, Children's Hospital of Philadelphia, Philadelphia, USA. She is currently an Assistant Professor in Department of Cytobiology and Proteomics, Medical University of Lodz, Poland.

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