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Role of fibrosin in the endothelial to mesenchymal transition

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Fibrosin, which stimulates synthesis of collagen-rich extracellular matrix (ECM) proteins and induces chemotaxis of fibroblasts, might be involved in fibrosis. The term fibrosis describes the accumulation of tough, fibrous scar tissue as a reparative response to injury or damage. Fibrosis occurs when excess fibrous connective tissue and ECM accumulate in an organ or tissue in normal healing or pathological process. Many diseases are caused by tissue fibrosis resulting in chronic inflammation. Endothelial to mesenchymal transition (EndMT) is a process by which endothelial cells convert to a more mesenchymal cell type that can give rise to cells such as fibroblasts. EndMT is a main source of mesenchymal cells participating in the fibrosis. In our research, we analyze early stages of fibrosis which could be initiated by transforming growth factor-beta (TGF- β) and transcription factor such as snail. Our experimental model uses human microvascular endothelial cells (HMEC-1) stimulated with TGF- β 1 or transfected with pcDNA3.1-snail. Profile of endothelial and mesenchymal cell markers were determined to characterize early stage of fibrosis. Bioinformatics transcriptomics analysis of 57716 genes demonstrated up-regulation of fibrosin after TGF- β 1 stimulation. We already confirmed it on the transcription and protein level. We observed an increase of fibrosin in HMEC-1 also after transfection with snail. Thus, overexpression of snail in HMEC-1 leads to enhanced expression of fibrosin. In conclusion, our results indicate the regulatory role of fibrosin in fibrotic process. The current results will provide information about fibrosin as a regulatory molecule involved in EndMT and in fibrosis.

Biography

Katarzyna Gawrys completed her Bachelor's degree in Medical Biotechnology at Medical University of Silesia in 2010 and a Master's degree in Medical Biotechnology at Jagiellonian University in Kraków, Poland in 2012. She held numerous practices in research units and has participated in many conferences and specialized trainings. She currently works at Medical University of Lodz, Department of Cytobiology and Proteomics.

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