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## MCPIP1 as a ribonuclease contributing to modification of RNA profile in cell

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The response of cell to external and internal stimuli results in the global changes in gene expression profile and accumulation of molecules those are essential for cell to adjust to a new condition. One of recently discovered endonuclease capable of mRNA cleavage is monocyte chemoattractant protein-induced protein 1 (MCPIP1), known also as Regnase-1 (Reg1). The protein is essential for degradation of short-living transcripts coding for inflammation-related proteins, including IL-1 $\beta$ , IL-2, IL-8, IL-12b, IER-3, c-Rel and many other transcripts coding for proteins engaged in many other cellular processes such as: cell differentiation, metabolism and apoptosis. Besides mRNA, MCPIP1 regulates also miRNA processing. Ribonucleolytic activity of MCPIP1 has been attributed to a PIN (PilT N terminus) like domain where four Asp residues (D141, D225, D226, D244) in the catalytic center determine RNase activity. It has been proven that MCPIP1 binding of an mRNA depends on conserved stem-loop structures present in the 3'UTR of mRNA templates. Level of MCPIP1 changes during inflammatory processes generated by pathogen infections and also during sterile inflammation induced for example by cancer development. We found that the MCPIP1 levels are significantly lower in ccRCC samples than in surrounding tissues. Furthermore, lower level of MCPIP1 influences very important signaling pathways what corresponds to higher level of proangiogenic factors and enhanced metabolism and proliferation rate. Overall, these results suggest that MCPIP1 is an important player in ccRCC development.

## Biography

Jolanta Jura is working as a Professor at Faculty of Biochemistry, Biophysics and Biotechnology in Jagiellonian University in Krakow. After completing her PhD at Human Genetic Institute in Poznan, she has joined the group at Brigham and Women's Hospital of Harvard Medical School in Boston for two years, focusing on identification and characteristic of gene involved in tuberous sclerosis.

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