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The insight into PTPRR and PTPRZ1 expression- Why those protein tyrosine phosphatase receptors might be useful biomarkers in cancer treatment?

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Carcinogenesis is a complicated process resulting from alterations in a variety of molecular pathways, thus leading to disturbances in a cell homeostasis, proliferation, differentiation and deregulation of the biological functions of transformed cells. Amongst others, protein tyrosine phosphatases (PTP's) play key roles in an acceleration or inhibition of tumor growth. Although a lot of previous data have revealed the significance of many PTPs in various cancer, the function of PTPRR and PTPRZ1 as a useful biomarkers have not been studied so far.

In the present study we carried out immunohistochemical analysis of formalin fixed and paraffin embedded oral and colon cancer tissues in relation with two protein tyrosine phosphatase receptors, R and Z1. Furthermore, the expression of PTPRR in cancerous specimens was detected by Western blot. Our results showed that the occurrence of PTPRR and PTPRZ1 in the oral cancer was associated with tumor grading and patient's survival. Additionally, we found the correlation of PTPRR and lymph node involvement status. Moreover, our study focused on expression level of PTPRR and PTPRZ1 in colon cancer cases and corresponding normal tissues revealed strong staining for both proteins all specimens. In conclusion, the above data indicate that the role of PTPRR and PTPRZ1 in cancer development depends on the location of the tumor. We suggest that for oral cancer patients, validation of PTPRR and PTPRZ1 status should be monitored for rational patients' stratification and gains a prognostic value in their treatment. Finally, our results confirmed the hypothesis that over expression in colorectal carcinoma of the above proteins is not enough to protect from the progression of disease.

Biography

Marta Wozniak was born May 9, 1987 in Wroclaw, Poland. During the years 2006-2011 she was a student at Department of Animal Molecular Physiology, University of Wroclaw. In 2011 she graduated Master's degree in physiology. Since 2010, she has started Ph.D. study in the Department of Pathology at the Wroclaw Medical University. In 2012 she took an internship at the Department of Proteomics and Signal Transduction at the Max-Planck Institute of Biochemistry in Martinsried, Germany, where she was trained in the proteomic analysis and validation of proteins from formalin fixed and paraffin embedded colon cancer tissues. Currently, her research focuses on new proteins in the mechanism of photodynamic therapy.

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