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The influence of *TIMP-2* gene expression on melanoma cell metastasis

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Melanoma is one of the most malignant human cancers with the rapidly rising number of cases worldwide. Due to the low effectiveness of the advanced melanoma treatment with available methods as well as high mortality mainly caused by metastasis, there is urgent need for new therapeutic strategies in advanced melanoma. Tissue inhibitor of metalloproteinases 2 (*TIMP-2*) has an inhibitory effect on tumour growth, angiogenesis, tumour invasiveness and metastasis in a mechanism likely independent of metalloproteinases activity. Despite the fact, that *TIMP-2* is considered as a metastasis suppressor gene, it remains unknown in what mechanism this protein influences metastasis process of melanoma. We determined the impact of *TIMP-2* overexpression in melanoma cells allografts in vivo. Murine B16-F10 melanoma cells overexpressing *TIMP-2* were grafted into mice by subcutaneous or tail vein injections in order to examine tumour growth rate and metastatic potential respectively. mRNA levels of selected metastasis related genes in in vitro cultured cells were measured with RT-qPCR. Our data demonstrated that B16-F10/*TIMP-2* subcutaneous tumors had slower growth rate and cells injected to bloodstream did not metastase to lungs. *TIMP-2* overexpression modulated the mRNA expression of genes belonging to Nf-kb signaling pathway, interleukins and integrins. We conclude that observed anti-tumour response and metastasis suppression of B16-F10/*TIMP-2* tumours may stem from mRNA expression up-regulation of pro-inflammatory genes.

Biography

Emilia Grecka has completed her PhD in 2014 from Maria Sklodowska-Curie Memorial Cancer Centre and Institute of Oncology in Warsaw. She works as a Postdoctoral Fellow in Department of Molecular and Translational Oncology in Maria Sklodowska-Curie Memorial Cancer Centre and Institute of Oncology in Warsaw. She co-authored number of papers in domestic and international journals.

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