

The correlation of miR-125b, p53 and VEGF-A in A549 lung cancer cells after tyrosine kinase inhibitors and cytostatics treatment

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miR-125b is involved in regulation of expression of a number of different genes and therefore this molecule has drawn many attentions in cancer research. It was showed that miR-125b may act as an oncogene, since it is up-regulated in different types of cancer, or as tumor suppressor, since it is downregulated in others. miR-125b was shown to be involved in regulation of cell proliferation, apoptosis and differentiation. Among thousands of genes regulated by miR-125b are TP53 and VEGFA. We have shown previously that cisplatin and docetaxel alone or in combinations with tyrosine kinase inhibitors induced up-regulation of p53 expression in A549 lung cancer cells, while only treatment with cisplatin alone or in combination with sunitinib significantly lowered the level of VEGF-A secreted by A549 lung cancer cells. In order to investigate the molecular mechanism responsible for downregulation of VEGF-A in A549 cells treated with different combinations of tested agents we decided to study the impact of such treatment on miR-125b expression to see whether there is a correlation between miR-125b and VEGF-A as well as p53 expression. We found for example that after treatment with imatinib and cisplatin the expression of miR-125b was upregulated in A549 cells, what correlated with lowered VEGF-A protein expression when A549 cells were incubated with cisplatin and with downregulation of TP53 when cells were exposed to imatinib. No changes in miR-125b expression were seen after sunitinib treatment.

Biography:

Ewa Maj has completed her PhD in 2016 from Hirszfeld Institute of Immunology and Experimental Therapy, Polish Academy of Science. She has completed her M.Sc. of Biotechnology from University of Agriculture in Krakow and also M.Sc. of Medical Analytics from Jagiellonian University Medical College in Krakow. She has published about 15 papers as co-author in reputed journals and presented results of her research on a national and international conferences.