Poster session 3. Drug profiles – preclinical

**P03.12 ANTICANCER EFFECT OF GREEN TEA NANOEXTRACT IS ASSOCIATED WITH MODIFICATIONS IN METHYLATION OF GENES INVOLVED IN PROLIFERATION AND APOPTOSIS**

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**Introduction:** As it was shown in our previous works, green tea polyphenols are able to retard mammary tumor growth in laboratory animals, and this is accompanied with inhibition of polyamines biosynthesis, suppression of NF-κB activation and diminished expression of the protein products of certain NF-κB-dependent oncogenes in the tumor cells.

**Aim:** to study the effects of nano-version of green tea extract (NanoGTE) and nano-composite of green tea with red wine lees (NanoGTRW) on experimental tumor growth in vivo and both global DNA methylation and methylation of certain genes involved in proliferation and apoptosis: ornithine decarboxylase (Odc1), ornithine decarboxylase antizyme 1 (Oaz1) and genes of NF-κB transcription factor subunits (Nfkβ1 and Rela).

**Methods:** NanoGTE and NanoGTRW were applied as 0.1% solutions in drinking water. Anticancer effect was evaluated by standard methods of experimental oncology. DNA isolation was performed using Thermo Scientific GeneJET Genomic DNA Purification Kit under manufacturer’s protocol www.thermoscientific.com/onebio). To investigate global DNA methylation, HPLC with 254 nm and 280 nm detection was used. Methylation of individual genes’ promoters was studied by EpiTect Methyl II PCR Primer Assay. Statistical significance of intergroup difference was evaluated by parametric and nonparametric criteria.

**Results:** NanoGTE and NanoGTRW significantly (for 27%-35%) retarded growth of grafted tumors (B16 melanoma, Ca755 carcinoma, Guerin’s carcinoma, L1210 and P388 leukemias). This was associated with certain epigenetic events in the tumor cells: significant (twice or more) magnified global DNA methylation as well as methylation of Odc1 and Nfkβ1 genes’ promoters and slight effect on Oaz1 and Rela genes’ promoters methylation.

**Conclusion:** NanoGTE and NanoGTRW anticancer effect may be related to methylation of the promoter regions of Odc1 and Nfkβ1 genes being essentially involved in control of cell proliferation and tumor progression.