

Molecular mechanisms of antitumor action of nano green tea extract and nanocomposite of green tea extract and red wine lees

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It was investigated the influence of nano green tea extract (nanoEGT) and nano composite of green tea extract and red wine lees (nanoEGT + RW) on the growth of grafted tumors of experimental animals and studied some molecular mechanisms of antitumor action (influence on global DNA methylation and on expression of protein products of some genes involved in tumor growth).

It was found that inhibition of growth of ascites and solid tumors (L1210 and P388 leukemia, Guerin carcinoma and it's strains resistant to cisplatin and doxorubicin), which is observed in animals consuming 0.1% solutions nanoEGT and nanoEGT + RW, is accompanied by increased of global methylation DNA level in tumor cells, changes in methylation of certain promoter sites of genes associated with biosynthesis and metabolism of polyamines (substances necessary for growth and cell proliferation).

It is also shown that nanoEGT and nanoEGT + RW in tumor cells reduce the level of odc protein (key enzyme of biosynthesis of polyamines), reduced the activation of NF-kB transcription factor important for tumor development and also reduced expression of protein products of NF-kB-dependent oncogenes (c-myc, bcl-xl, cox-2 and inos). These data suggest promising research nanoextracts based on green tea for their further use in the treatment of cancer patients.

Work is support by STCU, grant № 4894.

Biography

Olena Samoylenko has graduated from Kyiv State University (Ukraine), faculty of biology. She had prepared PhD thesis: "Molecular mechanisms of antitumor effect of plant polyphenols". She is a Researcher of Department of Tumor Growth Biochemistry in R.E. Kavetsky Institute of experimental pathology, oncology and radiobiology of NAS of Ukraine. She has published more than 15 papers in reputed journals and has received 3 Ukrainian patents.

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