**ISSN**

# Alterations In Sphingomyelin:Phosphatidylcholine Ratio In Chromatin Preparations From Rat Liver And Thymus Cells After The Cisplatin *In Vivo* Action

**Nune Hakobyan, Zhenya Yavroyan, Emil Gevorgyan**

*Yerevan State University, Yerevan, Armenia,*
*nhakobyan@ysu.am*

It is well known, that chromatin lipids are implicated in various processes such as DNA replication, transcription, chromatin assembly, acetylation and methylation of histones. The regulatory effects of chromatin lipids exhibit concentration depending disposition.

The results of our earlier investigations were revealed the dramatically changes in absolute quantities of all phospholipid fractions of chromatin preparations from rat liver and thymus cells after the antitumor drug cisplatin *in vivo* action. Along with decrease in quantities of other phospholipid fractions, a special interest was rendered to interdependent alterations of two choline inclusive lipids, namely sphingomyelin and phosphatidylcholine. Comparative analysis of alterations in absolute quantities and ratio of sphingomyelin and phosphatidylcholine in chromatin preparations from rat liver and thymus cells after the 24h. in *vivo* action of cisplatin was carried out.

We showed that the sphingomyelin:phosphatidylcholine ratio in rat liver and thymus chromatin preparations was equal to 0.47 and 0.36 respectively. The cisplatin action leads to multidirectional alterations in choline inclusive lipids absolute content and in sphingomyelin: phosphatidylcholine ratio in the investigated chromatin preparations. Thus, in liver chromatin the value of this ratio decreased up to 0.30, which is equal to 36% of diminition. On the contrary, in case of rat thymus chromatin the cisplatin caused increase in sphingomyelin: phosphatidylcholine ratio up to 0.53 (increase by about 49%).

These multidirectional alterations of absolute content and the ratio of chromatin choline inclusive lipids in rat liver and thymus may be explained by difference of metabolic status of these tissues as well as by differences in sensitivity to cisplatin treatment of enzymes, that catalyze the degradation of lipids in rat liver and thymus nuclei.

Taking into consideration the regulatory role of chromatin phospholipids as well as the crucial importance of sphingomyelin:phosphatidylcholine crosstalk in cell fate, one can assume that these cisplatin caused alterations may be connected with the antitumor effects of the drug.