

## Posttranslational Modifications of Histone H3 in Tumor Tissue Isolated from Silver and Gold Nanoparticles Treated Mice

**Authors :** Lucyna Kapka-Skrzypczak, Barbara Sochanowicz, Magdalena Matysiak-Kucharek, Magdalena Czajka, Krzysztof Sawicki, Marcin Kruszewski

**Abstract :** Due to the strong antimicrobial activity silver nanoparticles (AgNPs) are widely used in various medical and general applications, among others, in cosmetics, odour resistant textiles, etc. The aim of this study was to compare effect of AgNPs and gold NPs (AuNPs) on histones posttranslational modifications. Histone molecule posttranscriptional modifications are responsible for chromatin compaction and repackaging. In this study, BALB/c mice were inoculated with murine mammary carcinoma 4T1 cells and treated with AgNPs coated with citrate (AgNPs(cit) or PEG (AgNPs(PEG), or AuNPs. Thereafter the histone H3 acetylation on Lys9 and H3 methylation on Lys4, Lys9, Lys29 was investigated. All NPs tested decreased H3 methylation, while no effect was observed for H3 acetylation. Modification of histone H3 methylation dependent on type of NPs used its coating, site of methylation and treatment used. Conclusion, epigenetic effects of nanomaterials depend on nanomaterial composition, its coating, and way of application. This work was supported by National Science Centre grant No. 2014/15/B/NZ7/01036 (MK, LKS, MMK, MC, KS), statutory funding for INTC (BS).

**Keywords :** gold nanoparticles, histone, methylation, silver nanoparticles

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