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### Evaluation of antitumor potential of magnetite nanoparticles on Ehrlich solid carcinoma bearing mice

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**M**agnetite Nanoparticles (MNPs) have been widely used as contrast agents and have promising approaches in cancer treatment. In the present study, we used Ehrlich Solid Carcinoma (ESC) bearing mice as a model to investigate MNPs antitumor activity, their effect on expression of p53 and p16 genes as an indicator for apoptotic induction in tumor tissues. MNPs coated with ascorbic acid (size: 25.0±5.0 nm) were synthesized by co-precipitation method and characterized. Ehrlich mice model were treated with MNPs using 60 mg/Kg day by day for 14 injections; intratumorally (IT) or intraperitoneally (IP). Tumor size, pathological changes and iron content in tumor and normal muscle tissues were assessed. We also assessed changes in expression levels of p53 and p16 genes in addition to p53 protein level by immunohistochemistry. Our results revealed that tumor growth was significantly reduced by IT and IP MNPs injection compared to untreated tumor. A significant increase in p53 and p16 mRNA expression was detected in Ehrlich solid tumors of IT and IP treated groups compared to untreated Ehrlich solid tumor. This increase was accompanied with increase in p53 protein expression. It is worth mentioning that no significant difference in expression of p53 and p16 could be detected between IT ESC and control group. MNPs might be more effective in breast cancer treatment if injected intratumorally to be directed to the tumor tissues.

#### Biography

Heba Bassiony is an Assistant Lecturer at Zoology department, Faculty of Science; Cairo University. She has completed her PhD recently in 2015 from Faculty of Science, Cairo University in the field of cytology and molecular biology. She has published two papers in reputed journals and third paper is in submission. She is interested in cancer research and molecular biology.

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