

***In vitro* activity of Tamoxifen-loaded magnetite nanoparticles against MCF-7 breast cancer**

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In recent years, as an alternative and the most promising trend in terms of practical use, priority was given to the works in the field of creating "nanoclinics" – the multilevel magnetosensitive nanocomposites having the complex of functions that are characteristic of nanorobots, including recognition of specific microbiological objects in biological media, targeted delivery of drugs to organs or cells, diagnostics and treatment of diseases at the cellular and genetic levels, adsorption of cells, decomposition products after exposure to the drug or therapeutic hyperthermia, removing them from the body using magnetic fields, *etc.* [1].

Magnetite was conjugated with tamoxifen order to create highly effective anticancer nanocomposites. Tamoxifen belongs to a class of nonsteroidal triphenylethylene derivatives (Fig.), widely used the treatment for patients with all stages of breast cancer.

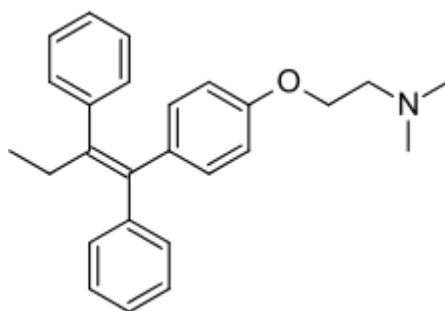


Fig. Tamoxifen chemical structure

Tamoxifen-loaded magnetite nanoparticles stabilized using sodium oleate. Physico-chemical characteristics (TEM, DLS, drug loading *etc.*) as well as *in vitro* activity were investigated.

1. P.P. Gorbyk, L.B. Lerman, A.L. Petranovska, S.P. Turanska, Ie.V. Pylypchuk, in: A. Grumezescu (Ed.), *Fabrication and Self-Assembly of Nanobiomaterials. Applications of Nanobiomaterials*, Elsevier: Amsterdam, 2016, p. 289.