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Anticancer Effect of La(III) Complex of Orotic Acid

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Our work allowed to study antiproliferative and antiangiogenic effects of orotic acid (OA) and its sodium salt (NaOA) and La(III) salt (LaOA) *in vitro* conditions. The investigated compounds were tested for the cytotoxic activities on tumor cell lines and endothelial cells (HUVEC).

Incubation of HeLa, A-549, MCF-7 and MDA cancer cells with LaOA at a concentration of 10^{-4}mol l^{-1} for 72 h caused 74.6, 81.3, 86.9 and 83.7 % reduction in cell survival. The ligand (OA and NaOA) exerted a very weak antiproliferative effect on these cells. Colony formation assay also confirmed growth-inhibitory effects of compound LaOA. Furthermore, pretreatment of HeLa cells with LaOA resulted in marked apoptosis as detected by DNA fragmentation. The same compound at a concentration of 10^{-5}mol l^{-1} inhibited HUVEC migration *in vitro*.

The results from antiproliferative and antiangiogenic effects of OA, NaOA and La(III) complex demostrate the anticancer potential of the La(III) complex. The complex formation proved to be beneficial for the efficacy vs. the corresponding ligands.

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