Influence of sulfur-nitrosyl iron complexes of "μ-S" structural type on NF-κB nuclear factor

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Nitrosyl iron complexes with functional sulfur-containing ligands are mimetics of the active sites of nitrosyl ferredoxines, donors of nitric oxide (NO) *in vivo*, and they are interesting for anticancer therapy [1]. Functional sulfur-containing ligands in such nitrosyl iron complexes are reversible inhibitors for synthesis of cellular DNA, and they suppress the growth of tumors of various genesis, while the NO group, being the second component of the hybrid complex, is a key signal molecule that controls the tumor growth. Recently, high anticancer activity has been first shown for a series of iron nitrosyl complexes of "μ-S" structural type with cysteamine $[Fe_2(\mu\text{-}S(CH_2)_2NH_3)_2(NO)_4]2.5H_2O$ (CysAm) and phenyl $[Fe_2(\mu\text{-}SC_6H_5)_2(NO)_4]$ (Ph) ligands.

In the work, the some mechanisms of the anticancer activity of these nitrosyl [2Fe-2S] complexes have been studied. Cytotoxicity of CysAm is higher than that of Ph complex. Both complexes affect the process of intranuclear accumulation of protein NF-κB and decrease the efficiency of its DNA binding. CysAm complex, but not Ph, induces nitrosylation of p65 subunit of NF-κB transcription factor. No nitrosylation of polypeptide p50 has been observed under the action of these complexes.

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References:

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