New organoruthenium complexes with dipyrido[3,2-a:2',3'-c]phenazine based ligands

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Ruthenium complexes with dipyrido[3,2-a:2',3'-c]phenazine (dppz) ligands have been extensively investigated as potential anticancer agents due to possibility of modulation of their intracellular accumulation and respective anticancer mechanism of action [1,2]. In recent years we have explored the anticancer activity of a variety of ruthenium(II)-arene complexes with dppz based ligands and some of them demonstrated remarkable cytotoxic activity [3]. Following these studies here we present a series of Ru(II)-arene complexes with the general formula $[(\eta^6\text{-arene})Ru(dppz\text{-}R)Cl]PF_6$, where arene fragment was benzene, toluene or *p*-cymene and R was $-NO_2$, -Me or -COOMe with aim to study influence of both of half-sandwich Ru(II)-arene fragments and the variation of dppz ligands on improvement of the therapeutic potential of those complexes. All compounds were fully characterized by physico-chemical methods. The anticancer activity of dppz ligands and respective Ru complexes was assessed against MDA-MB-231, HCT116 and CT26 cancer cell lines and healthy MRC5 lung fibroblasts. *In vivo* efficacy of lead Ru-dppz complex revealed significantly reduction of tumor burden in mice with colorectal cancers without inducing liver and kidney toxicity. Thus, all the results indicated that introducing appropriate dppz into ruthenium-arene scaffold was a promising strategy for developing potent antitumor agents.

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