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医学研究

有机金属钌抗癌药物与G-四链体DNA的相互作用研究

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摘要

关键词

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Investigation of Interactions between Organometallic Ruthenium Anticancer Complexes and G-quadruplex DNA

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Abstract Guanine-rich sequence TTAGGG can form G-quadruplex(G4) at the end of human telomeres, which protect chromosomal ends from unwanted recombination and degradation and inhibit the activity of telomerase enzyme, The telomerase was shown to be active in 85%-90% of human cancer cells, but inactive in healthy and somatic cells. DNA is the potential target of organometallic ruthenium(II) anticancer complexes. It is of great importance to study the interaction of ruthenium complex with the senior structural DNA G4. The present work focused on investigating the interactions between organometallic ruthenium complexes and G-quadruplex. The pilot studies show that $NH4^{+}$ can stabilize the G4 structure to reduce the binding of biphenyl ruthenium complexes to guanine bases, but the inhibitory effects disappeared as the concentration of ruthenium complexes increases. This result suggests that the coordination of ruthenium complexes may distort and even unwind the G-quadruplex so that further coordination of ruthenium to the linear DNA fragment occurred.

Key words HPLC _ MS _ organometallic ruthenium complexes _ anticancer agents _ G-quadruplex

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