DNA binding and activity of some new *cis*-planaramineplatinum(II) complexes

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Currently attention is given to rule breaker platinum compounds, such as *trans*-planaramineplatinum(II) complexes, with the idea that the different nature of interaction with DNA would translate into a different spectrum of activity. In our laboratory a number of tumour-active *trans*-planaramineplatinum(II) complexes of the forms: *trans*-$PtL(NH_3)Cl_2$ and PtL_2Cl_2 where L = a planaramine ligand, have been prepared, some of which have been found to be active. Since *cis*-planaramineplatinum(II) complexes can also be tumour active, in the present study a number of new *cis*-planaramine platinum(II) complexes of the type *cis*-PtL_2Cl_2 and *cis*-$Pt(NH_3)LCl_2$, where L stands for 3-hydroxypyridine, imidazo(1,2-a)pyridine and 2,3-diaminepyridine have been prepared and investigated for their antitumour activity and nature of binding with DNA. Compounds shown in Figure 1 have been synthesized using modified Dhara method (Dhara 1970) and characterized by elemental analyses and IR, Raman, mass and ^{1}H NMR spectral studies. Interaction with DNA is studied using gel-electrophoresis, HPLC, AAS, UV-visible spectrophotometry and restriction enzyme digestion. Activity against human cancer cell-lines is determined using MTT reduction assay.

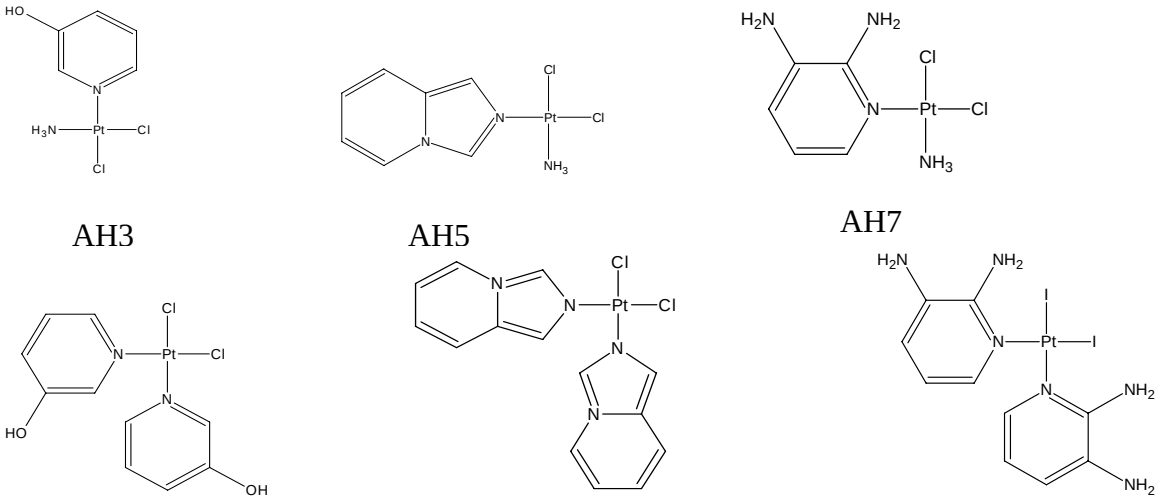

Figure 1 Structures of synthesized compounds

The variations in activity of the compounds and the nature of binding with pBR322 plasmid and salmon sperm DNAs illustrate structure-activity relationship.