BINDING OF $[\text{Au}(\text{dien})\text{Cl}]\text{Cl}_2$ TO TRIPEPTIDES

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Gold(III) is isoelectronic ($5d^8$) and often isostructural (square-planar) with Pt(II) and might form the basis of active anticancer agents [1]. However little is known about the biochemistry of Au(III), a subject also of interest in connection with the side-effects of antiarthritic gold drugs [2]. In this work we have explored the binding of $[\text{Au}(\text{III})(\text{diethylenetriamine})\text{Cl}]\text{Cl}_2$ to tripeptides over the pH range 2-10.

Au(III) forms strong complexes with these peptides, free and bound peptide exhibiting slow exchange on the ^1H NMR timescale. Binding to the imidazole ring of glycylglycyl-L-histidine (GGH) occurs at pH's as low as 3, and in the pH range 3-6.5, three distinct species have been characterized. Binding to the NH_2 terminus of triglycine (GGG) is strong at pH >5. The preference of Au(III) for binding to amino groups, deprotonated amide nitrogen, carboxylate and amide oxygen and histidine $\text{N}\delta$ and $\text{N}\epsilon$ of peptides will be discussed.

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