PROBING THE GOLD BINDING SITE IN SERUM ALBUMIN

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The antiarthritic drug, auranofin ("Ridaura") is an orally-active antiarthritic drug containing linear Au(I). The gold is co-ordinated by triethylphosphine and the sulfur of tetraacetyl- β -D-1-thioglucose (HSATg). Deacetylation occurs during absorption and then the thioglucose is displaced *via* ligand displacement reactions. Over 80% of the gold in the blood is carried by serum albumin,¹ a 66 kDa single-chain protein with high helical content and three structurally similar domains.²

Previous studies have shown that the gold binds to cysteine-34 in domain I of albumin, which has an unusually low pK_a (<5).^{3,4}

We have now synthesised a number of potentially antiarthritic gold complexes with a variety of substitution patterns, including the chiral phosphine complex [PhMeEtPAuCl], **1**, and studied their binding to serum albumin by 1H and ^{31}P NMR spectroscopy. The structural changes induced in albumin by these gold complexes, and comparative reactions with other thiols will be discussed.

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References

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