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OBPC P-41**DNA Interactions of Palladium (II) Complex Containing a Thioamide-Type Ligand**

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Thioamides and their derivatives are an interesting group of compounds because of their structural variations and also because of the combination of hard and soft donor atoms (S and N) that potentially allow coordination – in a variety of binding modes – to a wide range of metal centers, and also because of their biological significance.

In our previous studies, we have synthesized a palladium(II) complex with a thioamide-type ligand of the formula [PdL₂Cl₂] (L= ethyl 4-[1-amino-2-cyano-3-(methylamino)-3-thioxo-1-propen-1-yl]-1-piperazine-1-carboxylate), whose ability to interact with HSA was investigated fluorometrically.¹ In this work, research was continued toward the study of interactions with calf thymus DNA in the presence of EB (ethidium bromide) or HOE (Hoescht 33258), with the aim of determining the binding affinity, binding strength and the binding mode. The results obtained showed that this complex binds moderately to the DNA via the minor groove, and that the quenching mechanism is static (Table 1).

Table 1. The Stern–Volmer constants (K_{SV}) and binding constants (K_b) for Pd(II) complex from CT DNA-EB and CT DNA-HOE fluorescence.

Complex	$K_{SV(EB)}$ [M ⁻¹]	$K_{b(EB)}$ [M ⁻¹]	$K_{SV(HOE)}$ [M ⁻¹]	$K_{b(HOE)}$ [M ⁻¹]
[PdL ₂ Cl ₂]	2.58×10^4	6.59×10^3	3.77×10^4	2.76×10^5

Keywords: Palladium(II) complex; thioamides; DNA interaction; minor groove.

References

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