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Cytotoxic studies of luminescent cyclometalated Pt^{IV} compounds bearing phenanthroline-based ligands

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Luminescent cyclometalated complexes, in particular d⁶ (Ir^{III}) and d⁸ (Pt^{II}) systems, have been extensively studied due to their potential clinical significance. These complexes are excellent probes for cellular imaging or as photoactivable anticancer drugs, acting as multifunctional theranostic systems,¹ whereas luminescent Pt^{IV} complexes have received less attention. Our group has recently published two series [Pt^{IV}(pbt)₂(C₆F₅)L]ⁿ⁺ (pbt = 2-phenylbenzothiazole) with N-donor as auxiliary ligands, that have demonstrated promising antiproliferative activity.²

Following with our interest in the study of luminescent cyclometalated Pt^{IV} complexes, in this work we present a series of dicationic bis-cyclometalated Pt^{IV} compounds with phenanthroline-based ligands of the type [Pt(pbt)₂(N[^]N)](ClO₄)₂ (N[^]N = phen **2**; pyraphen **3**; NH₂-phen **4**), using [Pt(pbt)₂Cl₂] (**1**) as precursor. The *in-vitro* antiproliferative activity of **1-4** towards human tumour cell lines (A549 and HeLa) and their selectivity index against the non-tumor cell line BEAS-2B are presented.

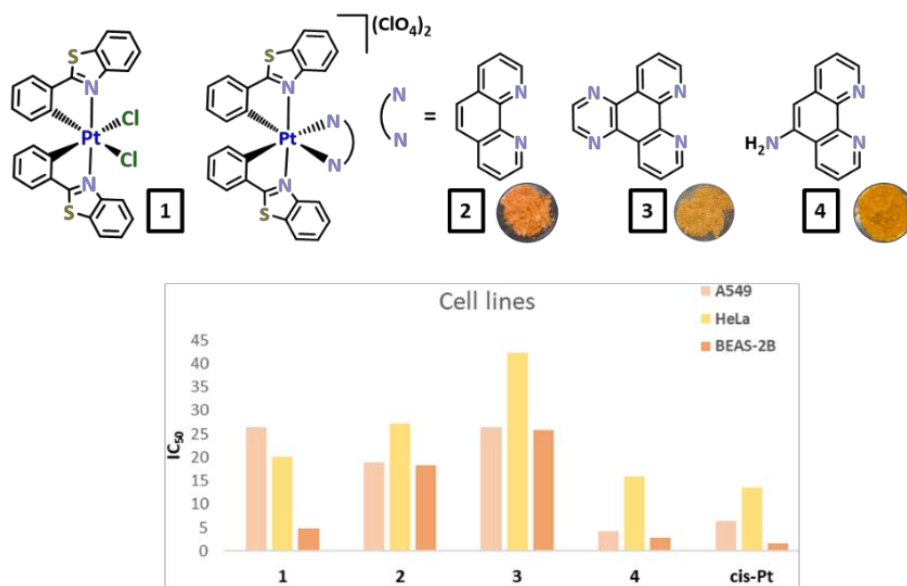


Figure 1. Synthesized compounds and tumoral cell results.

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¹ G. Millán, et al., *Dalton Trans.*, **2023**, 52, 6360-6374.

² D. Gómez de Segura, N. Giménez, et al., *Dalton Trans.*, **2023**, 52, 12390-12403.