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March 14th -15th, 2024

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Luminescent Cyclometalated Pt(II) complexes with potentially theranostic ligands: synthesis, optical and biological properties

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There is an increasing interest in the development of multifunctional agents capable of localising, treating, and monitoring diseased tissues, resulting in theranostic systems.¹ In this context cycloplatinated(II) complexes have strong σ (Pt-C) bonds, which increase their stability under physiological conditions, preventing off-target reactions and simplifying potential therapeutic applications. In addition, their inherent luminescence makes them useful for electroluminescent devices² and as luminescent labels for intracellular imaging in living cells.

In this work, we evaluated the biological effect of replacing the DMSO molecule with functionalized phosphine ligands on four luminescent precursors [Pt(C^N)(C₆F₅)(DMSO)] (Figure 1, **1a-d**). Previous studies have demonstrated that Pt complexes containing functionalised phosphines exhibit cytotoxic activity.³ In this report, we present the synthesis, characterisation, optical properties, and biological data on their in vitro activity against the tumour cell lines A549 (lung carcinoma), HeLa (cervix carcinoma), and the non-tumorigenic BEAS-2B (bronchial epithelium).

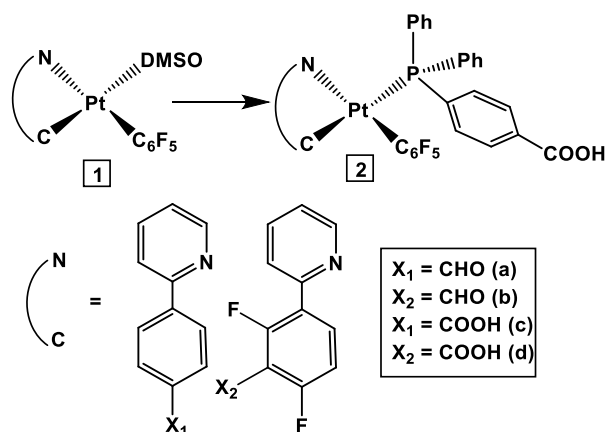


Figure 1. Synthesis of compounds 1-2 (a, b, c and d).

Acknowledgements: Ministerio de Ciencia e Innovación (Project PID2019-109742GB-I00).

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