PO28

FLUORINATED DICHLORIDE PLATINUM COMPLEXES: A NEW SERIES OF PROMISING ANTICANCER AGENTS AGAINST ORPHAN TUMORS

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The only available treatment for Glioblastoma (GBM) and pancreatic cancer, both categorized as orphan tumors, is the maximal safe surgical resection followed by radiotherapy or chemotherapy with platinum drugs. Nevertheless, the survival rate is still very low (5-6% maximum).[1][2]
Based on this consideration, the aim of this work is focused on the synthesis of a new series of platinum complexes in which the diamine core is modified by the addition of a fluorine atom in different positions of the ring, starting from the already published **Pt-IV** complex,[3]. So, the goal is related to the modification of the solubility and, consequently, of the biological activity of the compound,[4] since one of the main problems for the very low efficacy of these drug is the bioavailability and the possibility to enter the cells.
In this way, two series of dichloride platinum complexes (**1** and **2**) bearing both 8-aminoquinoline and 8-aminoquinaldine with or without a fluorine atom were synthesized (**Figure 1**).

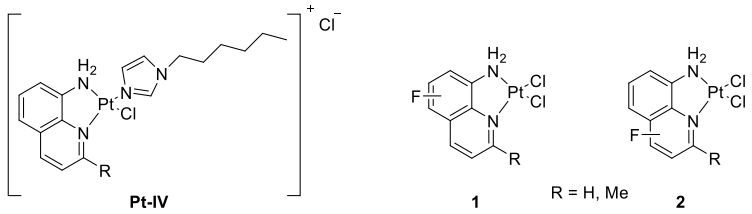

Figure 1. *The already published **Pt-IV** complex and the two new series of fluorinated compounds (**1** and **2**).*

All these new compounds were tested for their ability to bind the DNA using innovative techniques and for their cytotoxicity against tumoral cells, in comparison with cisplatin, the first-in-class drug, and the **Pt-IV**. Indeed, this compound has a known IC_{50} of 5.3 ± 0.55 μM against glioblastoma cell line (U87-MG), evaluated in terms of ability to affect cell proliferation.[5]
Is the fluorine atom able to influence the biological activity of the platinum complexes against different tumoral cell lines? Is this influence positive or negative?

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