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Tracking anti-tumor drugs: Ruthenium(II)-cyclopentadienyl complexes as promising agents

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Ruthenium complexes hold great potential as alternatives in cancer treatment and have been the most widely studied non-platinum anticancer drug candidate. During the recent years our group has been involved in the synthesis of new half sandwich "Ru(η^5 -C₅H₅)" derived compounds, of which cytotoxicity was found, in most of the cases, better than that of cisplatin against several cancer cell lines of typically low, medium and high resistance to metallodrugs, namely ovarian, breast, colon and prostate human tumors (A2780, MCF7, MDAMB231, HT29 and PC3 cell lines). The therapeutic effect of one of these compounds was evaluated in an orthotopic triple negative breast cancer (TNBC) mouse model and has demonstrated the *in vivo* capacity to suppress tumor growth, not presenting the severe side-effects of other non-targeted chemotherapeutic agents. Moreover, autopsy of the animals did not show any metastasis in the lungs or other organs. In this presentation, we present an overview of our most recent progress in this field, highlighting our chief results. Thus, a new generation of compounds will be presented, based in the fragment "Ru(η^5 -C₅H₅)" with appended molecules, in order to optimize our best results already obtained, having also in view the recognition by cancer cells, for target therapy. Finally, studies to understand the pharmacokinetic and the involved mechanisms of action will also be presented.

Biography

M Helena Garcia is Associate Professor with "Habilitation" at University of Lisbon. Her scientific areas of research have been mainly centered in synthesis of organometallic compounds in view to potential applications with benefit to the society. She has authored over eighty publications and several book chapters. She has been leader of several national and European funded scientific research projects and is Member of the "Division of Organometallic Chemistry" of European Association for Chemical and Molecular Sciences, as delegate of Portuguese Chemical Society, since 1992. She is Coordinator of the International Office at Faculty of Sciences, University of Lisbon.

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