Antitumour and Anti-Inflammatory Effects of Palladium(II) Complexes on Ehrlich Tumour

Marcela B. Quilles[a], Camila B. A. Carli[a], Sandra R. Ananias[b], Lucas S. Ferreira[a], Livia C. A. Ribeiro[a], Danielle C. G. Maia[a], Flávia A. Resende[a], Antônio C. Moro[b], Eliana A. Varanda[a], Marisa Campos Polesi Placeres[a], Antonio E. Mauro[b], and Iracilda Z. Carlos[a,*]

[a] UNESP – São Paulo State University, Pharmaceutical Sciences Faculty, C. Postal 502, 14801–902, Araraquara, SP, Brazil. Fax: +55 16 3322-0073. E-mail: carlosiz@fcfar.com.br
[b] UNESP – São Paulo State University, Chemical Institute of Araraquara, C. Postal 355, 14801–970, Araraquara, SP, Brazil

* Author for correspondence and reprint requests

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Palladium(II) complexes are an important class of cyclopalladated compounds that play a pivotal role in various pharmaceutical applications. Here, we investigated the antitumour, anti-inflammatory, and mutagenic effects of two complexes: [Pd(dmba)(Cl)tu] (**1**) and [Pd(dmba)(N_3)tu] (**2**) (dmba = *N*,*N*-dimethylbenzylamine and tu = thiourea), on Ehrlich ascites tumour (EAT) cells and peritoneal exudate cells (PECs) from mice bearing solid Ehrlich tumour. The cytotoxic effects of the complexes on EAT cells and PECs were assessed using the 3-(4,5-dimethylthiazol-3-yl)-2,5-diphenyl-tetrazolium bromide (MTT) assay. The effects of the complexes on the immune system were assessed based on the production of nitric oxide (NO) (Griess assay) and tumour necrosis factor-Ŭ (TNF-Ŭ), interleukin-12 (IL-12), and interleukin-10 (IL-10) (ELISA). Finally the mutagenic activity was assessed by the Ames test using the *Salmonella typhimurium* strain TA 98. Cisplatin was used as a standard. The IC_{50} ranges for the growth inhibition of EAT cells and PECs were found to be (72.8 ± 3.23) μM and (137.65 ± 0.22) μM for **1** and (39.7 ± 0.30) μM and (146.51 ± 2.67) μM for **2**, respectively. The production of NO, IL-12, and TNF-Ŭ, but not IL-10, was induced by both complexes and cisplatin. The complexes showed no mutagenicity *in vitro*, unlike cisplatin, which was mutagenic in the strain. These results indicate that the complexes are not mutagenic and have potential immunological and antitumour activities. These properties make them promising alternatives to cisplatin.

Key words: Macrophages, Ehrlich Tumour, Organometallic, Mutagenicity