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Antitumor potential of novel triphenyltin(IV) complexes with carboxylato *N*-functionalized 2-quinolone ligands

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Cancer is responsible for millions of deaths worldwide each year and, although great advances have been made in the treatment options, there are still many issues that must be addressed in order to improve cancer therapy. In the present work, anticancer effect of three novel Ph_3SnL complexes ($L1^-$,3-(4-methyl-2-oxoquinolinyl-1(2H)-yl)propanoato; $L2^-$,2-(4-methyl-2-oxoquinolin-1(2H)-yl)ethanoato; $L3^-$,2-(4-hydroxy-2-oxoquinolin-1(2H)-yl)ethanoato), was evaluated against several cancer cell lines (MCA-7, A375, HCT116, 4T1, B16 and CT26). The applied treatment decreased cell viability of all cell lines after 72 h in a dose-dependent manner with IC_{50} values in the low micromolar range. Flow cytometric assessment revealed apoptotic cell death in A375 but not B16 culture, exposed to tested drug. Morphological signs of apoptosis such as shrunk nuclei and condensed chromatin were further confirmed by fluorescent microscopy. Same treatment in B16 lead to cell division block coupled with two-fold increase in the amount of melanin and tyrosinase activity, indicating the differentiation of B16 cells towards melanocytes. In the background of different response of two melanoma cell lines lies dissimilar redox response to the treatment. While in A375 cultures, ROS/RNS production is inhibited in comparison to control, in B16 cells compound Ph_3SnL1 provokes ROS/RNS generation. Finally, when applied in therapeutic regiment, Ph_3SnL1 significantly reduced tumor volume in C57BL/6 mice.

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