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Evaluation of Cell Death Pathways Induced by Pd(II) Complexes with Thiosemicarbazone

Isabella Cristina Prescilio [1], Mauro A. Lima, Dário B. Fortaleza, Jocely L. Dutra, Tamara T[1]. and Fillipe V. Rocha[1]

[1]Chemistry Department, Federal University of São Carlos, São Carlos, Brazil
E-mail: isabellacristinaprescilio@gmail.com

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Platinum complexes, such as cisplatin, are used in chemotherapy to treat various types of cancer, including testicular, ovarian, breast, and liver cancer. However, due to the resistance and toxic side effects of cisplatin, there is a need to develop new metal complexes as alternatives. In previous studies, Pd(II) complexes with different thiosemicarbazone and PPh3 ligands have been synthesized and evaluated for their anticancer potential. Previous studies have shown that [PdCl(L-B1)(PPh3)]Cl complex exhibits high cytotoxicity against various tumor cell lines, including A2780, A2780cis, MDA-MB-231, MCF-7, SK-BR-3, MCF-10-A, A549, MRC5, and A375. Thus, this work evaluates the cell death pathways induced by this Pd(II) complex through apoptosis assays, cell cycle analysis, morphological studies, and live/dead experiments. Our results show that the PdB1 complex inhibits colony formation and induces cell cycle arrest in the sub-G1 phase in a concentration-dependent manner in the A2780cis cell line. Furthermore, morphological analysis images showed significant changes in the cell shape. As a partial conclusion, our results indicate cell death via late apoptosis.

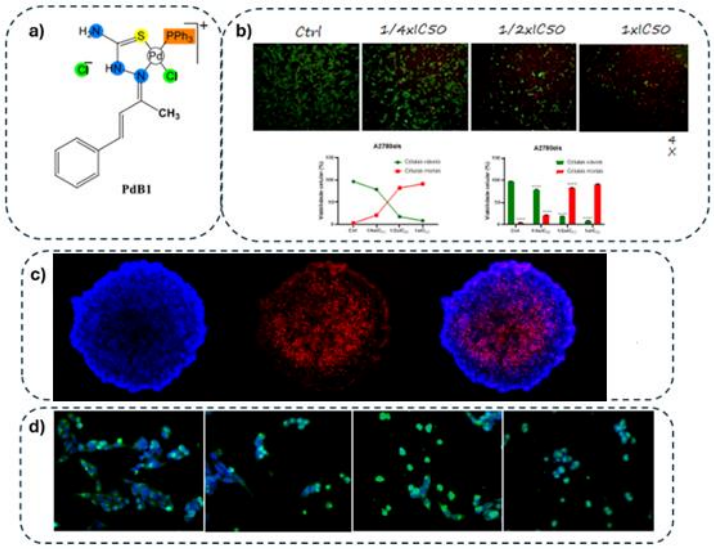

Fig 1: (a) Pd(II) complexs; (b) experiments of Life/Dead; (c) 3D cell viability; (d) morphological assay with green plasma/DAPI markers

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References

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