

Title: Design and synthesis of polysapartamide co-drugs of platinum and methotrexate as anticancer agents

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Abstract

Literature reports several recent attempts to load a single drug onto one carrier to improve drug efficacy. An ideal anticancer drug would result from anchoring two anticancer drugs on a single carrier to exploit the advantage of possible synergistic interactions between the drugs, whilst targeting different sites in the cancer cell. This work presents the results of the synthesis and analysis of water-soluble polyaspartamide carriers, which were loaded with platinum along with methotrexate. Platinum was anchored by coordination and methotrexate by amide bonds. In all cases, drug incorporation in the molecule was assessed to be 100%. NMR was used for methotrexate conjugate analysis, while platinum incorporation was evaluated by CHN analysis. The *in vitro* antiproliferative activity against breast cancer displayed a very good cytotoxic activity by the co-conjugates over the free drugs and their simple conjugates.

Biography

Dr. K. J. Diainabo has completed his PhD at the age of 45 years from the University of the Witwatersrand where he is working as a postdoctoral fellow on design and synthesis of composite materials for wastewater treatment. He is a member of the South African Chemical Institue, he has published 2 papers in well reputed journals and is a reviewer to the journal of inorganic and organometallic polymer materials.

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