

A proteomics approach to discovery of DNA damage-sensing and repair proteins by polynuclear platinum-based agents with divergent cellular effects.

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Lay Language.

The medium to long term prognosis for cancer drug therapy is that it will consist of a combination of the newer targeted drugs which prove successful and newer improved cytotoxics. Platinum drugs are the most widely prescribed cytotoxic agents in the clinic. The combination of cytotoxics with newer, targeted drugs designed to affect specific molecular characteristics of cancer is an emerging area of great clinical relevance. Of particular interest, given the dominance of DNA as the ultimate target of platinum drugs, is modulation of various aspects of the DNA repair pathway. This project will contribute to an increased understanding of the biology and interaction of the DNA repair pathways of cancer cells with clinically useful drugs such as the platinum agents – it will develop ‘smart’ platinum drugs. Elucidating the mechanism of action of the new drugs in this project will lead to design of better, more specific drugs for treatment of cancer and expand the types of cancer treatable.