COPPER AND PLATINUM COMPLEXES IN CANCER THERAPY

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Copper is a metal ion essential for aerobic microorganisms, plants and animals, involved in the electron transport [1]. In the human body its concentration is regulated by the homeostatic system. Being an essential metal ion, copper has been selected for the synthesis of new antitumour drugs. Although platinum does not manifest a known natural biological function, platinum-based antineoplastic agents are widely used in chemotherapy, showing good activity against some tumors. The most important platinum complex currently used in medicine is the cis-diamminedichloroplatinum(II) (cisplatin) [2]. The major limitations of the use of cisplatin in clinical practice are the severe side effects and the inherited or acquired resistance. In fact, after few treatments, almost any kind of tumour may become less responsive to the drug. With the goal to develop more effective and less toxic drugs, several metal complexes of ions such as ruthenium, gold, iron, arsenic, or copper are currently tested. Advanced strategies of drug combinations are also under development to defeat platinum-resistance [3, 4].

In this presentation several complexes of copper and platinum are presented. Their cytotoxicity against normal and tumoral cell lines are discussed. In particular, the different biological activity against wild type, resistant and multi-drug resistant cells is discussed.

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