Infrastructure or ZINCO Enable

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Technology description

This article
The research and development of metal complexes with antitumor properties are greatly influenced by the identification of antitumor properties of cisplatin. The compound was approved by the FDA in 1978 for the treatment of testicular and ovarian cancer.
The success of the compound has spurred research into the chemistry of platinum complexes, leading to the development of a range of other, active complexes from the metal center that are now used in cancer medicine.
Although effective for some cancers, platinum compounds such as cisplatin and oxaliplatin unfortunately have a number of limitations in their use, in part because of poor selectivity, resulting in damage to both tumor cells and healthy cells and a range of adverse side effects. In the case of cisplatin, side effects include nephrotoxicity.
Therefore, different coordination compounds are being developed to provide new cancer treatment alternatives. Thus, the use of enzyme scaffolds already present in cells (which are used to acting in the presence of compounds of these metals) is essential to the human body in the form of metal centers such as iron, copper, zinc, and molybdenum.
However, none of the literature predicts the use of copper-or zinc-containing complexes to bind to bispyridine molecules or derivatives, and there are also two vanadium-based ligands that produce octahedral structures to treat cancer.
A method for synthesize a copper or zinc octahedral complex contain in its structure a diimine ligand, or a derivative thereof, such as bipyridine, phenanthroline and phenazine, and two vanillin ligands, such as vanillin, eugenol and capsaicin, and their use or pharmaceutical compositions, has an anti-tumor effect.
These compounds show expressive results in vitro studies with tumor cells and DNA, making them promising drug candidates for cancer treatment. The results showed high toxicity to different tumor cell lines (renal adenocarcinoma, melanoma and hepatocellular carcinoma), coupled with the ability to terminate the assessment of cell division and cell death by apoptosis mechanisms.

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Advantages

To develop drugs for the treatment of cancer in the pharmaceutical industry.

Institution

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