

12th World Congress on **Pharmaceutical Sciences and Innovations in Pharma Industry**

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9th Edition of International Conference on **Alternative Medicine**

February 26-28, 2018 London, UK

Transition metal complexes/organometallic compounds as anticancer/anti-HIV drugs or in pharmaceutical industry

Prakash Kinthada

Sri Vidyanyikethan Engineering College, India

Cancer is a dreadful disease and any practical solution in combating this disease is of paramount importance to public health. Cancer patients have burdened by drug induced toxic side effects, and no turned to seek help from the complementary and alternative medicine hoping for a better cure. Research on Platinum based drugs and non-platinum-based drugs is a Multi-Million Dollar Industry in USA and there is every need to produce safe drugs for the cure of this monstrous disease. Flavonoids have a long history of use in traditional medicines in many cultures. The main emphasis of my talk would be on different class of ligands, their Schiff's Bases and transition metal complexes especially Au, Pt, Pd and Ru, with the main aim of designing, developing very novel small molecules, as possible and extremely potential candidates as anti-cancer and anti-HIV drugs. The talk would provide an overview of current programs being undertaken in our laboratories, especially focused on the development of potent ligands capable of recognizing binding sites and diverse strategies employed by my group for elucidation of anti-Cancer and anti-HIV drug leads to circumvent the problem caused by cisplatin. We have synthesized and characterized several phytochemicals from traditional medicinal plants and isolated some phytochemicals and made the corresponding oximes, thiosemicarbazones and substituted thiosemicarbazones as ligands and synthesized, characterized, structurally elucidated their transition metal complexes especially with gold, platinum, palladium, ruthenium, copper etc. and studied their anticancer activity, nuclease activity etc. and tested their potential as anticancer drugs. The main aim of our research is design, development and synthesis of transition metal complexes/ organometallic compounds that would certainly help to bring this force of nature from BENCH to BEDSIDE and enhance cancer killing with less toxic effects and would certainly lead to initiation of clinical trials.