Ferrocene Derivatives of Tamoxifen as Potential Anticancer Drugs

Poster Presentation

Approximately 2.8 million women in the U.S. currently have contracted breast cancer and it is estimated that 1 in 8 women will face this tragic odyssey in their lifetime. Current treatments, such as the drug Tamoxifen, are not efficient in targeting cellular elements, have difficulty in entering the cell, can be metabolized in the body, and can have severe side effects. The growing field of bioorganometallic chemistry, which is concerned with biochemically important compounds containing metal-carbon bonds, is revolutionizing the way cancer drugs work by enhancing their medicinal properties. One potentially important class of organometallic-based cancer drugs is ferrocifens, which are analogs of Tamoxifen with a ferrocene sandwich complex incorporated into the structure. Unlike current drugs on the market, ferrocifens have been found to have a diverse stereochemistry, have multiple routes of delivery to cancer cells, offer more control over hydrolysis reactions in the body, are kinetically stable, are permeable to cell membranes and can intercalate nuclear DNA, and have not been found to be toxic. Although there is still much research to be done, organometallic compounds such as ferrocifens have the potential to surpass what is being prescribed today and become leading chemotherapeutic agents.