

Combinatorial chemistry in synthesis of organometallic compound to treat cancer

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The ovarian cancer is the fourth most leading cause for death in the world. From the ancient times metals are used for the treatment of many diseases in Egypt and Greece, in Ayurvedic medicine, Asian medicine, or by the Aztecs metals in elementary form. The synthesis of compounds using combinatorial method helps in the formation of several analogues in a single synthetic route. Therefore we focused on the synthesis of Fe-SP using combinatorial method. We choose Fe-SP (Iron (III)-Salophene), an organometallic compound which shows selective cytotoxicity against SKOV-3 and OVCAR-3 (ovarian epithelial adenocarcinoma) cell lines at concentrations between 100 nM and 1 mM. Fe-SP exerted effects as an anti-proliferative agent with an IC₅₀ value of 300 nM and caused delayed progression of cells through S-phase phase of the cell cycle resulting in a complete S-phase arrest. The studies suggests that Fe-SP has potential for suppressing growth in vitro for cell lines derived from ovarian cancer and in vivo it may result in a potential therapeutic drug to treat such tumors.

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