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SF1: A Standardised Fraction of *Clinacanthus nutans* that Inhibits the Stemness Properties of Cancer Stem-Like Cells Derived from Cervical Cancer [(SF1: Fraksi Piawaian *Clinacanthus nutans* yang Merencat Sifat Stem Sel Menyerupai Sel Stem Kanser Diperolehi daripada Kanser Serviks)]
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Abstract

Cancer stem cells (CSCs) are a small population of tumour cells that are responsible for tumour initiation, metastases, recurrence, and resistance to conventional therapy. Hence, targeting CSCs is crucial in the fight against cancer. SF1, a standardised fraction from *Clinacanthus nutans* leaf extract, has been reported to exhibit potent and selective antineoplastic effects against cervical cancer cells. In this study, the potential of SF1 to inhibit the stemness of cervical cancer stem-like cells has been evaluated. SF1 extraction was carried out using the dry column vacuum chromatography technique. SiHa cell lines were cultured as spheres in CSC-conditioned medium (cervospheres), and the IC50 of SF1 against cervospheres was determined using the OZBlue Cell Viability Kit. The effects of SF1 on the cervosphere's stemness markers, including CD49f, CK17, SOX2, OCT4, and NANOG, were assessed using a flow cytometry assay. Self-renewal inhibition and anti-tumorigenesis effects of SF1 in cervospheres were evaluated using a sphere formation assay and a xenograft mouse model. The present study shows that SF1 treatment at an IC50 of 17.07 µg/mL inhibited the proliferation, self-renewal, and tumorigenic capacity of SiHa cervospheres in vitro and in vivo. A decrease in the expressions of CK17, SOX2, CD49f, and OCT4 in cervical CSCs indicated that SF1's inhibitory effects were also associated with the suppression of stemness markers. These results suggest that SF1 possesses an antitumor effect against cervical CSCs and may be regarded as a promising approach to the development of targeted anticancer agents for cervical cancer. © 2024 Penerbit Universiti Kebangsaan Malaysia. All rights reserved.

Author Keywords

Anticancer; cancer stem cells; cervical cancer; *Clinacanthus nutans*; stemness

Index Keywords

cancer, cell, inhibitor, medicinal plant, tumor

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