OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Cancer Science & Therapy

October 21-23, 2013 DoubleTree by Hilton Hotel San Francisco Airport, CA, USA

Anticancer role of novel saturated fatty acid ester conjugates on cultured cancer cells

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Anti-cancer drugs despite showing progress in treatment of malignant diseases are frequently associated with systemic toxicity and other side-effects.The common approach to overcome such obstacles is to use thedrug conjugate.The therapeutic effects of dietary fatty acids on cancer cell progression are supported by both in vitro and in vivo studies. Among fatty acids, stearic acid and palmetic acid are two of the dietary saturated fatty acids and are freely present in serum. Both stearic acid and palmetic acid have shown specific cytotoxicity towards cancer cells. Stearic acid and palmetic acid, two of the dietary saturated fatty acids were coupled to the C1-OH position of 2,6-diisopropylphenol (Propofol) which is an intravenous sedative-hypnotic agent in humans and animals and features antioxidant properties (30). The structures of new ester conjugates were characterized by UV, NMR (C^{13}, H^{1})and FAB mass spectroscopy. The conjugates were also examined in vitro, for anticancer activity on five different human cancer cell lines: HepG2, Lovo, HT1080, A549 and MDA-MB-231. Propofol stearate exhibited strong cytotoxicity against MDA-MB-231 cancer cells whereas Propofolpalmetate strongly inhibited proliferation of A549 cancer cells. Two of the new conjugates were found to achieve the significant ($p<0.05$) growth inhibition of cancer cells in a dose-dependent manner.

Biography

Alanazi has completed his Ph.D. on 2010 from University of Georgia in Athens, GA, USA. He was hired as an Assistant Professor 0n Jan 2011 at the College of Pharmacy, King Saud University, Saudi Arabia and he is currently the chairman of Pharmaceutical Chemistry Department. He has published more than 20 papers in reputed journals and has ongoing three government funded research grants.

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