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Abstract

PI3K Inhibitors of Novel Hydrazide Analogues Linked 2-Pyridinyl Quinazolone Scaffold as Anticancer Agents

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Abstract:

A series of novel 2-(pyridin-4-yl) quinazolin-4(3H)-ones bearing different heterocyclecores as potential PI3K have been synthesized and evaluated via MTT assay for their antiproliferative properties against selected HePG-2, MCF-7 and HCT116 cancer cell lines. Among them, compound & displayed significant activity against HePG-2 (IC50 = 60.29±1.06 µM) comparable to doxorubicin as a reference anti-cancer drug (IC50 = 69.60±1.50 µM). Kinase inhibitory assessment of target products against PI3K and docking studies revealed the promising binding affinities which match with the binding mode of the ligand, SW13 towards the active site of PI3K. Therefore, this work represents a promising matrix for developing novel potential anticancer candidates. Therefore, a great attention in the treatment of malignant tumors has been regarded to the compounds that inhibit the PI3K signal transduction pathway. In addition, quinazolinone derivatives constitute an important class of biologically active compounds. This heterocycle core has been associated with a broad spectrum of pharmacological properties as an anticancer agent. Idelalisib derivatives are known to contain quinazoline rings and are effective in the treatment of different kinds of cancer diseases via inhibition on PI3K. In summary, we have designed and synthesized novel twenty-five-quinazolin-4(3H)-one-based derivatives incorporating different moieties and evaluated their cytotoxic activities against HePG-2, MCF-7, and HCT-116

cancer cell lines. Kinase inhibition assay against PI3K and docking studies were performed using the MOE 2008.10 program to justify the biological activities of the synthesized compounds. All active compounds could interact with a key amino acid Asp911 with a characteristic hydrogen bond.

Biography:

Ahmed Salman has completed his PhD at the age of 30 years from Menofya University He is a researcher in National Resaerch center, Dokii, Cairo, Egypt

Recent Publications:

1. Ahmed Salman, et al Obes Surg, 2020
2. Ahmed Salman, et al Journal of Chemistry, 2019
3. Ahmed Salman, et al J Am Sci, 2014.

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