Eslam EL-SAWY et al., Med Chem (Los Angeles) 2017, 7:8(Suppl)
DOI: 10.4172/2161-0444-C1-033

Synthesis and molecular docking of novel non-Cytotoxic, anti-Angiogenic sulfonyl coumarin derivatives against hepatocellular carcinoma cells *In Vitro*

Eslam EL-SAWY[1], Manal EBAID[1], Hanaa RADY[1], Aziza SHALBY[2], Khadiga AHMED[1] and **Heba ABO-SALEM[1]**
National Research Centre, Egypt

Resistance to conventional chemotherapy, leads to the need for development of novel safe and effective cancer therapies with new mechanism of action. Anti-angiogenic drugs are major example of such newly developed targeted therapeutics .In cancer drug development arena, coumarin-type compounds have been reported to bosses marked cytotoxic activities, in addition act as novel angiogenesis inhibitors. In this respect,a new series of coumarin derivatives was synthesized starting from 2-oxo-2*H-coumarin*-6-sulfonyl chloride (**1**), 6-nitro-2-oxo-2*H-coumarin*-3-sulfonyl chloride (**10**) and 6-amino coumarin-2-one (**19**). Reaction of **1** or **10** with **2**-cyanoacetohydrazide, 2`-acetyl-2-cyanoacetohydrazide or 3-amino-5-pyrazolone afforded pyrazoline derivatives. While reaction of **1** or **10** with malononitrile followed by reaction with hyadrazine hydrate, urea, thiourea or guanidine led to the formation of pyrazole and pyrimidine derivatives. On the other hand, compound **19** on reaction with VilsmeierHaack reagent yielded the corresponding aldehyde**20**. Compound **20** under reaction with chlorosulfonylisocyanate afforded N-chlorosulfonyl amid which cyclized to give pyranobenzothiazine derivative **25**. The tested compounds **4, 5, 8, 12, 13** and **14** were non-cytotoxic against hepatocellular carcinoma cells (HepG2) using MMT. These non-cytotoxic compounds were evaluated as anti-angiogenicagent. Collectively, our results indicate that, coumarin molecules **4, 5, 8, 13** and **14** can be utilized as lead compounds to develop potential non-toxic angiogenesis inhibitors and small molecular ligands to target (HepG2), which was in concomitant with molecular docking results. 1-Acetyl-5-amino-4-(2-oxo-2H-chromene-6-sulfonyl)-1,2-dihydro-pyrazol-3-one (**4**) considered a promising anti-angiogenic agent, where it exhibited MMP-dependent anti-migratory activity and down regulated CD105.

Biography

El-Sawy has completed her PhD at the age of 28 years from Al-Azher University and postdoctoral studies from National Research Centre, Cairo Egypt. She has published more than 34 papers in reputed journals. Current position: Professor Doctor of Organic Chemistry at Chemistry of Natural Compounds Department, National Research Centre (NRC).

eslamelsawy@gmail.com

Notes: