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Sulfasalazine/Dasatinib: A Novel Combined Therapy in Hepatocellular Carcinoma Cell Line

Marium Shamaa
Arab Academy for Science, Technology and Maritime Transport, Egypt

Hepatocellular carcinoma (HCC) is one of the most common human malignancies. Lack of efficient therapy for advanced HCC is a pressing problem worldwide. Dasatinib is an oral dual BCR/ABL and Src family tyrosine kinase inhibitor approved for use in patients with chronic myelogenous leukemia (CML). The main targets of dasatinib, are BCRABL, SRC and GFR. NFκB is one of widely recognized positive regulator of cancer cell proliferation. It could be worthy to combine multikinase inhibitor with NFκB inhibitor for targeting of multiple signaling pathways involved in carcinogenesis. This study aimed to evaluate the potential anti-carcinogenic effects of either dasatinib and/or sulfasalazine on HEPG2 cell line as a model of HCC. The current study was conducted on 4 groups.

For determination of the specific doses for the selected drugs MTT assay was done. While for laboratory investigations; cell lysates and nuclear extracts were subjected to ELISA and QRT-PCR. Both drugs have modulated RAF/ERK, BCR/ABL and NFκB pathways. Additionally, sulfasalazine confirmed its antiproliferative effects by lowering cyclin-D1, its apoptotic effect by improving the level of caspase-3, and its antiangiogenic effect by lowering VEGF level in a pattern similar to that of dasatinib. On the molecular level, dasatinib and sulfasalazine downregulated the gene expression level of *c-MET*. On almost all the parameters, the sulfasalazine effects were more superior when compared to that of dasatinib, while the combination regimen showed the best effects. The author present study showed for the first time the beneficial anticarcinogenic effects of dasatinib and sulfasalazine coadministration on HCC cells.

Biography:

Dr. Marium Shamaa was Born in 1986, graduate of Elekbal Elkawmeya language school in Alexandria (class 2002), studied pharmaceutical science (2003–2007) at Alexandria University, Egypt. She received her master degree (2012) in Pharmacogenomics (IGSR, Alexandria University) and PhD degree (2016) in Biochemistry and Molecular Biology (IGSR, Alexandria University). She is studying the Clinical Pharmacotherapy Course at the active training company. She is now Lecturer of Biochemistry and Molecular Biology, college of Pharmacy, Arab Academy for Science, Technology and Maritime Transport, Alexandria, Egypt and simultaneously a member in the editorial board of the Universal Journal of Pharmaceutical Research. Her professional interests focus Pharmacotherapy, Pharmacogenetics, Oncology and Liver diseases.