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α,β-unsaturated compounds derived from arylamines as possible new treatment against leukemia

Sánchez-Labastida Luis Angel, Bribiesca-Carlos José, Andrade-Jorge Erik, Vasquez-Moctezuma Ismael and **Trujillo-Ferrara José Guadalupe**
National Polytechnic Institute, Mexico

L5178 cells are an experimental lymphocytic leukemia in mice, associated with hyperplasia of the lymphoid tissues and a high number of circulating malignant lymphocytes and lymphoblast, this cellular line was used to evaluate the activity of a maleimide and a maleimide of phenethylamine, as a possible new treatment for leukemia. Previous studies have shown that α,β-unsaturated compounds have important pharmacological properties, as an anti-tumoral activity, this through reducing glutathione levels and increasing oxidative stress, causing cytotoxicity, reduced viability, and death by apoptosis. As the first step, α,β-unsaturated compounds were designed from phenylethylamine, the two best candidates were selected. New green synthesis techniques were designed for both compounds and were synthesized, the chemical structure and purity were confirmed by NMR ^{1}H and ^{13}C, mass spectrometry and IR. The compounds were tested in an in vitro experiment with L5178-Y cell culture (50,000 cells approximately per well), treated with the compounds at concentrations of $1x10^{-3}$ to $1x10^{-9}$ M in both cases. Maleimide derivative showed an activity on cells in concentrations of $1x10^{-6}$ to $1x10^{-4}$ M, evidenced by the MTT assay at 24 and 48 hours, after that, the field was opened at a concentration between $1x10^{-6}$ to $10x10^{-6}$ M, and it was obtained an EC_{50} of $5x10^{-6}$. For the case of maleimide, it was found an activity at $1x10^{-3}$ to $1x10^{-5}$ M, and the open field between $1x10^{-5}$ to $1x10^{-4}$ M showed an EC_{50} of $3x10^{-5}$ M. The experiment results lead us the possibility to evaluate these compounds in an in vivo models such as survival experiments or LD_{50} in mice.

langelsl96@gmail.com

Association of immunomodulating risk factors with the impairment of anti-HBs development

Modhusudon Shaha[1] and **Sabita Rezwana Rahman**[2]
[1]National Institute of Biotechnology, Bangladesh
[2]University of Dhaka, Bangladesh

Hepatitis B infection is one of the major causes of liver dysfunction and hepatocellular carcinoma in the world. Although a safe and effective vaccine is available since more than 30 years, the disease is still prevailing globally, especially in developing countries like Bangladesh. Non-responsiveness (<10 IU/ml) to hepatitis B vaccine is a common phenomenon even after complete vaccination, but the reason behind this is still unknown. In this study, we investigated whether several immunomodulating risk factors such as age, gender, cigarette smoking and diabetes have an effect on the impairment of anti-HBs development among vaccinated health-care workers through a cross-sectional study. Among the cigarette smokers, production of anti-HBs was found significantly less (POR 0.1129 [95% CI 0.03146–0.4052]; p=0.001) than the non-smokers after complete hepatitis B vaccination. However, the association of age, gender, and diabetes with the development of anti-HBs was not significant. The above data suggest that the prevention of smoking may help in reduction of non-responders and recommend testing anti-HBs status among smokers after vaccination and administering a booster vaccination if the anti-HBs titer is below the protective level

msshaha146@gmail.com