World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Protective Effect of hsa-miR-124 against to Bacillus anthracis Toxins on Human Macrophage Cells

Authors : Ali Oztuna, Meral Sarper, Deniz Torun, Fatma Bayrakdar, Selcuk Kilic, Mehmet Baysallar

Abstract : Bacillus anthracis is one of the biological agents most likely to be used in case of bioterrorist attack as well as being the cause of anthrax. The bacterium's major virulence factors are the anthrax toxins and an antiphagocytic polyglutamic capsule. TEM8 (ANTXR1) and CMG2 (ANTXR2) are ubiquitously expressed type I transmembrane proteins, and ANTXR2 is the major receptor for anthrax toxins. MicroRNAs are 21-24 bp small noncoding RNAs that regulate gene expression by base pairing with the 3' UTR (untranslated regions) of their target mRNAs resulting in mRNA degradation and/or translational repression. MicroRNAs contribute to regulation of most biological processes and influence numerous pathological states like infectious disease. In this study, post-exposure (toxins) protective effect of the hsa-miR-124-3p against Bacillus anthracis was examined. In this context, i) THP-1 and U937 cells were differentiated to MΦ macrophage, ii) miRNA transfection efficiencies were evaluated by flow cytometry and qPCR, iii) protection against Bacillus anthracis toxins were investigated by XTT, cAMP ELISA and MEK2 cleavage assays. Acknowledgements: This work was supported by the Scientific and Technological Research Council of Turkey (TUBITAK) under Grant SBAG-218S467.

Keywords : ANTXR2, hsa-miR-124-3p, MΦ macrophage, THP-1, U937
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020