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Role of beta tubulin in leukemia progression

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Microtubules regulation helps in the development and maintenance of cell shape, growth, division, motility and in intercellular signaling. As a result the unstable state of these microtubules can be crucial for proper functioning of cell including development of cancer cell. One of the well known leukemia type CML is also progressed by microtubules. The aim was to study the expression of tubulin isoforms during the CML chronic and blast phases and also the influence of transcription factors, activated by BCR/ABL, on the expression of these beta tubulins. It was found during our bioinformatics transcription factors cyclosporine A (CREB) is involved to inhibit the tubulin gene. The leukemia cell lines KU812 and TCC-S were cultured and after incubation we seed and treat the cell lines with (cyclosporine A) with different concentration and time of interval. Cell proliferation result revealed that after 24 and 48 hours, TCC-S cells incubation with 1mM concentration of cyclosporine A inhibitor (CREB) inhibits TCC-S cell line proliferation effectively in blast phase while 10mM concentration of cyclosporine A inhibitor (CREB) is significant to inhibit KU812 cells in chronic phase of leukaemia. Western blotting was also done to identify the change in tubulin protein but it didn't give any result however it could be repeated for future work. Furthermore we assess the change in tubulin gene by using qPCR with different tubulin isoforms and we found that the relative expression of tubulins isoforms in tubulin gene is usually up and high regulated in chronic phase comparatively blast phase of leukemia. That suggests that TUBB could be used as biomarkers for leukemia pathology. It is also believe that in chronic phase of leukemia, there would be high ratio of these markers.

Biography

Raza Faizan currently holding a master's degree from Nottingham Trent University (UK) in Applied Bio Science (Molecular Biology). He was awarded for Bachelor's degree in laboratory Science from DUHS-IMT Karachi in December 2009. His academic credentials are certified from World Education Services (WES) Canada. During the period of undergraduate studies besides his course work he had involved in part time work related to his field in a well known organization/ Hospital (NIBD), Pakistan. Therefore, he enhanced his technical skills from those extracurricular activities and later these skills also proved to be very helpful in his professional carrier. He worked as permanent employ in the molecular department of National Institute of Blood Disease from January 2010 - June 2012. This institute is a teaching Hospital for different division of Pathology (Hematology, Molecular biology, Blood transfusion, Microbiology/Immunology and others). He is working with NHS- Blood and Transplant in Immunogenetics department to explore his technical skills on Molecular level.

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