J Cancer Sci Ther 2013, 5:10
http://dx.doi.org/10.4172/1948-5956.S1.030

OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Cancer Science & Therapy

October 21-23, 2013 DoubleTree by Hilton Hotel San Francisco Airport, CA, USA

EMT enhances migration ability of CD133+ fraction in A549 lung cell line

Giuseppe Pirozzi
National Cancer Institute, Italy

Objective: Metastasis is the leading cause of death by cancer. The epithelial-to-mesenchymal transition (EMT) plays a key role in metastasis. TGFβ1 is the major inductor of EMT. In many tumors there are genes that have excesses or defects in their methylation or acetylation. Aim of this study was to investigate the role of TGFβ1: 1) on cancer stem cells (CSCs) and non-CSCs starting from A549 lung cell line, 2) on the epigenetic regulation.

Methods: A549 cell line was sorted for CD133 surface expression and side population (SP) profile by flow cytometry. A549 cells fraction obtained were treated with TGFβ1. After incubation, all cell fractions were analyzed by Immunofluorescence, RT-PCR, western blot, wound-healing and soft agar assay.

Results: TGFβ1 induced EMT in all fractions of A549 sorted. It increased the percentage of cells migrating except for $CD133^-$ fraction. Wound size revealed that TGF-β1 enhanced motility in all cell fractions except for $CD133^-$ and SP- cells. Assessment of growth kinetics revealed major colony-forming efficiency in $CD133^+$ A549 cells. RT-PCR and WB analyses showed that MMP-9 expression levels were increased in all sorted fractions and it's higher in CD133+. For stemness, TGFβ1 induces an increase of OCT4 in all treated fractions except for CD133-. Preliminary epigenetic studies showed that TGF-β1 induced upregulation of H3K4me3 and downregulation of H3K27me3 in SP^+ fraction. Further studies are ongoing.

Conclusion: The results obtained suggest that TGFβ1 induces EMT in both CSCs that in the non-CSCs. It increases stemness and migration characteristics in all cell fractions. In particular TGFβ1 highlights two subpopulations of CSCs that appear to show different characteristics: a migrant ($CD133^+$) and a resident subpopulation (SP^+).

Biography

Giuseppe Pirozzi has studied tumour biology since 1992, during which time has authored more than 70 peer-reviewed reports. He is editorial board for the PLoS One and he is referee for numerous scientific journals. He is a Senior Investigator at National Cancer Institute of Naples, Department of Experimental Oncology, heading a group studying the role of Cancer Stem Cells (CSCs) in genesis and progression of solid tumours (lung, gastric, breast, head-neck cancers, bone sarcomas and melanoma). He is vice-president of the National School of Cytometry and Member of ISAC (International Society for Advancement in Cytometry) and he teaches Immunology and Clinical Pathology at University of Naples "Federico II".

giuseppe.pirozzii@alice.it

Evaluation xenotropic murine leukemia virus related virus and R426Q polymorphism in patients with prostate cancer in Iran

MalekpourAfshar Reza[1], GadariFahimeh[1] and Mollaie Hamid Reza[2]
[1]Kerman University of Medical Sciences, Iran
[2]Tehran University of Medical Sciences,Iran

After determination of xenotropic murine leukemia virus (XMRV) There are questions regarding the prevalence of XMRV in patients with prostate cancer and its association with the RNASEL R462Q polymorphism. We therefore investigated whether XMRV infection could be found in patients with prostate cancer from the Southeast of Iran, and we sought to verify the association with the R462Q using real time PCR method. Prostate tissue specimens of 200 patients with prostate cancer from the Southeast of Iran were genotyped for R462Q by real time polymerase chain reaction allelic discrimination and were screened for XMRV proviral DNA by real time polymerase chain reaction specific for the envelope gene. Of 200 patients in this study 8 (4%) cases was positive for XMRV. In patients with positive XMRV result, QQ allele was the most frequency of R426Q polymorphism and in negative patients RQ allele was the most prevalent polymorphism. There was significant correlation between high pathological scores and XMRV positive samples. A significant relationship was not found between age groups and XMRV results. XMRV in some patients with QQ and RQ alleles, carrying XMRV gene but no RR patient can be found having XMRV gene. XMRV is detectable in tumor prostate tissue from patients with prostate cancer, independent of R462Q.

hamid2008kmu@gmail.com