REPORT

Report on participation of the ICMR International Fellow (ICMR-IF) in training / Research abroad.

1. **Name and Designation of ICMR –IF** : Dr Saumyaranjan Mallick
   Assistant Professor

2. **Address** : Department of Pathology
   Teaching Block, 1st Floor
   All India Institute of Medical Sciences
   New Delhi-110029

3. **Frontline Area of Research in which Training/ Research was carried out** : Cancer, Lymphoma Biology

4. **Name & Address of Professor of Host institute** : Dr Javeed Iqbal
   Associate Professor
   Department of Pathology & Microbiology
   James O. Armitagecentre for Haematological Malignancies Research
   University of Nebraska Medical Center
   Omaha, NE, USA

5. **Duration of Fellowship** : Three month

6. **Highlights of work Conducted**:

   I. Technique/ expertise acquired : Analytical skills for gene expression data analysis using BRB- Array Tools, RNA sequencing data analysis, Nano string, cloning, Clonality Assay for TCR γ

   II. **Research Result, including**: I worked on two assigned projects (a) **Characterization of tumor microenvoirment of Angioimmunoblastic T cell lymphoma (AITL) and correlation with prognosis**. This is continuation of the genomic studies published earlier by Iqbal's laboratory (Iqbal et.al; Blood. 2014; 123:2915–23), where distinct gene expression signatures associated with tumor microenviroment was associated with overall survival in AITL patients. . All the antibodies (CD68, CD163, CD141 and CD16) were procured and standardization completed on Tonsil. Immunohistochemistry completed in few cases only. The AITL cases will be classified based on the immunohistochemical expression into three groups (1) cases with monocyte rich cells (CD16), Cases with M2 macrophages (CD163) and cases with dendritic rich cells (CD141). Other than looking at AITL histology.

Once the immunohistochemistry completed, the images are will be uploaded in a cloud base system I will continue the work from India along with Dr Amador. (b)The second project is with post-doctoral fellow (Dr Lone) in Iqbal's lab entitled **"role of miR126 and miR145 in AITL pathogenesis"**. Genome-wide miRNA profiling of AITL, PTCL-NOS, ALCL was performed (Blood.2013; 122: 2083-92) and detailed analysis revealed that miR-126 and miR-145 are significantly overexpressed in AITL. Cloning of miR126 and 145 genes were done in lentiviral vectors and transduced in T cell lines (Jurkat T-cell line) and normal CD4 T cells. The transduced cells are selected with Puromycin and proliferation assay performed by staining with Presto blue. Western blot analysis for CMYC, PI3K, Sipra 2 were done taking action as control. Quantitative analysis for Polarization of CD4 T cell towards t helper cell phenotype (T_{FH}) was under process. The CD4T cells were collected form peripheral blood. The T cells are cultured in different cytokine combination like (IL2/IL12, IL2/IL21, IL2/IL12/IL21). The cells were checked for Tfh phenotype by flowcytometery for Tfh markers like PD1 and CXCR5, quantitative PCR for Bcl6 and PDRM1 gene.

As a part of didactic training, I also perform daily observership at the routine lymph node service in the Hematopathology division of the Pathology and Microbiology department from 1- 3pm, where diagnoses of various hematological diseases are performed for patients. During this period with Dr Greiner, Director of Hematopathology Fellowship, I learn the T cell Receptor (TCR) gene Clonality assay for PTCL diagnosis; he shared the protocol and primer sequence.

Proposed utilization of the Experience in India:

I will start Clonality assay for T cell receptor γ for routine patient service.

2. Planning for a project to perform whole exome analysis of refractory Diffuselarge B cell lymphoma Patients

3. One MTA (Material transfer agreement) signed with Dr Iqbal's to perform collaborative research on T cell lymphoma. The work will be start after the HSMC clearance.

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Signature of ICMR IF

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