

REPORT

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

1. Name and designation of ICMR- IF:

Dr. Somnath Mukherjee,
Assoc. Professor

2. Address:

All India Institute of Medical
Sciences, Bhubaneswar

3. Frontline area of research in which training/research was carried out:

Stem Cell Biology, Immunology and Cellular Therapy

4. Name & address of Professor and host institute :

Dr. David Stroncek,
Director, Center of Cellular Engineering,
Department of Transfusion Medicine
National Institutes of Health Clinical center
Bethesda, Maryland

5. Duration of fellowship with exact date:

Five months (October 21st, 2019 until March 13th, 2020). It was originally scheduled to be six months in duration (October 21st, 2019 until April 18th, 2020) but due to sudden outbreak of COVID-19 it was reduced to five months.

6. Highlights of work conducted:

I have learned the many different aspects of cellular therapy product development and manufacturing. I have developed an extensive understating of products including anti-CD19 CAR T cells, anti-CD19/22 bispecific CAR T cells, anti-BCMA CAR T cells and anti-SLAMF 7 CAR T cells. I have also participated in team meetings pertaining to gene therapy clinical trials for sickle cell disease etc. I have worked on a research project evaluating recovery of clinical CD34+ hematopoietic stem cell and CD3+ lymphocytes following cryopreservation and thawing. I am also working on another project to validate and optimize measurements for clinical cell and gene therapies (cell counts, viability) using a new cell counter in the Center for Cellular Engineering product quality assurance laboratory.

i) *Technique/expertise acquired*

I learned all of different techniques or unit operations involved with the manufacturing of cellular therapy products specially CAR T cells, dendritic cells, antibody selected CD34+ cells and retro and lentiviral transduction for production of CAR T cells. I also learned about all of the quality

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and cGMP aspects involved with establishing cellular therapy facilities and manufacturing laboratory.

ii) *Research results, including any papers,*

I prepared/submitted for the following for publication: I have already prepared a manuscript with my mentor and other supervisors titled "Establishment of a cell processing laboratory to support hematopoietic stem cell transplant and chimeric antigen receptor (CAR)-T cell therapy". It is now pending submission to peer reviewed high impact journal.

iii) *Proposed utilization of the experience in India*

I hope that I will be able bring this learning and experience back home and that I will be able to establish cellular therapy facility and manufacturing laboratory in my Institute.

ICMR Sanction No: INDO/FRC/452/Y-20/2019-020-IHD
Dated 18 th October 2019


Signature of ICMR-IF

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