REPORT

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

1.	Name and designation of ICMR – IF	:	Dr. Ritu Gupta
2.	Address	:	Laboratory Oncology Unit, Dr. BRAIRCH, AIIMS, New Delhi
3.	Frontline area of research in which training/ research was carried out	:	Hemato-Oncology
4.	Name & address of Professor and host institute	:	Prof. Shaji Kumar, Mayo Clinic, Rochester, USA
5.	Duration of fellowship with exact date	:	March 27, 2023 – June 27, 2023
6.	Highlights of work conducted	:	

i) **Technique/ expertise acquired:** I learnt cutting edge laboratory technique of monitoring monoclonal protein in plasma cell proliferative disorders using mass spectrometry and special protein assays including alpha-1 anti-trypsin disorders and multiple sclerosis and monitoring of monoclonal antibody therapy. I also learnt the single cell cytomics using state of art CyTOF technology that is useful for study of tumour immunology. I also spent time in the Protein, Immunology and Genomics cores and Molecular cytogenetics to update knowledge on methods and technologies in genomics and proteomics.

ii) **Research results, including any papers, prepared/ submitted for publication**: I was involved in ongoing research projects at the host institute and I am in the process of writing the study results. The manuscripts under preparation include the following:

- Optimized FCMI based clinically relevant response criteria for multiple myeloma (MM) with special reference to Non-Secretory MM
- Multi-parametric flow cytometry in the evaluation of plasma cell proliferative disorders- Current paradigm for clinical practice.

iii) **Proposed utilization of the experience in India:** In this fellowship, I learnt the nuances of the mass spectrometry-based approach, also called monoclonal immunoglobulin rapid accurate mass measurement (miRAMM) and Mass-Fix, for diagnosis and therapeutic monitoring of multiple myeloma, especially those receiving monoclonal antibody therapy. I will now be able to implement this technology in India as currently, the technical knowledge and expertise in this domain is lacking in India. I also learnt the deep immune profiling using CyTOF and now better equipped to establish this technology at AIIMS, New Delhi. I participated in ongoing research on measurable residual disease monitoring in stem cell transplant recipients at the Mayo clinic and I am hopeful to generate an algorithm for clinical monitoring of patients with oligo-secretory and non-secretory multiple myeloma. I also participated in clinical and scientific discussions in the genomics core, cytogenetics and molecular hematopathology departments and the knowledge gained would be used to improve clinical practice at my institute.

Ritu Gupta

ICMR Sanction No. INDO/FRC/452/(S-59)/2022-23-IH&HRD dated 19/10/2022.

Signature of ICMR-IF

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