REPORT

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

1.	Name and designation of ICMR- IF	:	Shakir Ali, Professor
2.	Address	:	Department of Biochemistry School of Chemical & Life Sciences Jamia Hamdard (Deemed University) Hamdard Nagar, New Delhi 110 062
3.	Frontline area of research in which training/research was carried out	:	Cancer Research – Prevention & Control (Prostate cancer, Clinical translational)
4.	Name/address of Professor and host Institute	:	Ömer Küçük, MD Professor, Hematology-Oncology & Urology Director, Integrative Medicine Center Director, Multidisciplinary Genitourinary Oncology Group, Chief, Genitourinary Medical Oncology Service, and Leader, Prostate Cancer Research Program Georgia Research Alliance Distinguished Scientist, Winship Cancer Institute of Emory University, 1365 Clifton Road NE, Atlanta, Georgia, GA 30322, USA
5.	Duration of fellowship	:	15 Days, Dec 1-15, 2018
6.	Highlights of work conducted	:	Pl see the attached 'Report on Participation'

i) Technique/expertise acquired
ii) Research results, including any papers, prepared/submitted for publication
iii) Proposed utilization of the experience in India :

Report enclosed

Signature of ICMR-IF

29.1.19

Prof Shakir Ali
Department of Biochemistry
School of Chemical & Life Sciences
Jamia Hamdard (Deemed to be University)
Hamdard Nagar, New Delhi - 110062

ICMR Sanction No. INDO/FRC/452(S-05)/2018-19-IHD

Report on participation

The focus of training was to understand and develop strategies for clinical intervention to improve the life and survival of Prostate cancer (PCa) patients in advanced stages with compounds of natural origin such as genistein, lycopene and boron in combination with conventional therapies. Boron has been reported by the awardee to augment the innate immune response and may help in adoptive T cell therapy (ATT) of PCa, either alone or in combination with compounds such as lycopene and genistein, natural compounds which have been found beneficial in PCa.

During the visit, presentations and discussions were held and results were shared. Host, Dr. Küçük, shared the results of clinical trials conducted by him on lycopene supplementation in PCa patients and the effects of micronutrients and phytochemicals on biomarkers of cell growth, differentiation, metastasis, inflammation, DNA methylation and gene expression. He was intrigued by the idea of using boron as supplement in PCa patients, as the innate immune system plays an important role in PCa and boron may provide additional advantage. More specifically, ATT usually focuses on the infusion of tumor antigen-specific cytotoxic T cells (CTLs) to (directly) kill tumor cells. However, cells such as $CD4^+$ Th cells have a broader functionality and can recruit cells of the innate immune system such as the macrophage and dendritic cells to assist in antigen presentation. The antigen-primed Th cells directly activate tumor antigen-specific CTL and, in addition to direct contact, can activate CTL through cytokines such as IL-2 which stimulate the growth and expansion of effector T cells. Boron, which can induce the synthesis and secretion of cytokines, may be beneficial in PCa tumor microenvironment and can be used as nutritional supplement in combination with conventional therapy.

Highlights

(1) First-hand technical knowledge and experience of Clinical translational research protocols and strategies in advanced prostate cancer patients

(2) Presentations and discussions to look into the potential use of boron in adoptive T cell therapy of PCa in combination with conventional therapies and nutritional supplementation

(3) Discussions on future line of action with regard to the use of a combination of selected natural ingredients for the prevention of spread and control of PCa in advanced stages in patients

(4) Plans to generate data, initially using computational approach for a mechanistic insight for identification of new therapeutic targets in PCa

(5) A manuscript entitled, "Soy isoflavones may increase efficacy and decrease adverse effects of chemotherapy and radiotherapy in prostate cancer" was prepared and communicated for publication

(6) Proposed utilization of the experience: It was mutually agreed that joint research proposals may be prepared for Clinical translational research particularly with regard to the nutritional supplementation of boron in PCa either alone or with other potent natural compounds in combination with conventional therapies for improving efficacy in advanced stages of cancer

(7) The opportunity was used for professional networking, where discussions were held with senior researchers from various backgrounds working in the area of prostate cancer

Shakir Ali
Awardee, ICMR-IF

ICMR Sanction No. INDO/FRC/452(S-05)/2018-19-IHD

29.5.19

Prof Shakir Ali
Department of Biochemistry
School of Chemical & Life Sciences
Jamia Hamdard (Deemed to be University)
Hamdard Nagar, New Delhi - 110062