Report

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

1. Name and designation of ICMR-IF: Jayanti Mania-Pramanik, Ph.D., Scientist E

2. Address: National Institute for Research in Reproductive Health(ICMR/DHR)
   J.M. Street, Parel, Mumbai-400012

3. Frontline area of research in which training/research was carried out: Biomedical, Please refer Annexure 1

4. Name and address of Professor and host institute

   Dr Wilhelmina May Huston, Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia.

5. Duration of fellowship: 12th January to 26th January 2014.

6. Highlights of work conducted:

   i) Technique/expertise acquired:

   (a) Training on use of QUT Prototype Peptide 11 Assay for screening of women at risk of developing infertility following *Chlamydia trachomatis* infection.Use of Multiplex ELISA assay.

   (b) Observed the steps involved in *Chlamydia* culture: McCoy Cell line propagation, Infection of McCoy Cell line with *Chlamydia* wild type and mutant type, Observation of inclusion bodies (IB) at 24 hours,48 hours, harvesting the *Chlamydia* elementary bodies(EB),preservation of EB for further propagation.

   (c) Identification of Chlamydia inclusion using confocal microscopy.

   ii) Research results, including any papers, prepared/submitted for publication: Not applicable, however a retrospective study is planned, to have a joint publication in future.

   iii) Proposed utilization of the experience in India: Please refer Annexure 2

Jayanti Mania-Pramanik

Signature of ICMR-IF

ICMR Sanction No. INDO/FRC/452/(S-19)/2013-14-IHD

Annexure 1

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

The objectives of the visit was;

i. To form a base for collaborative research program with "The *Chlamydia* research team" at Institute of Health and Biomedical Innovation, Queensland University of Technology(QUT).

Objective achieved:

Discussion was held with the research team headed by Dr Huston. The research proposal aims to use the indigenously developed serodiagnosis "QUT Prototype Peptide 11 Assay" in Indian women with history of infertility with or without *Chlamydia trachomatis* infection and evaluate its sensitivity and specificity with respect to identifying women with risk of developing infertility due to *Chlamydia* infection. This may be done as a retrospective study as well as proposing a prospective study. Similarly QUT can analyse if the host genetic factor identified as a protective factor in Indian women can be reproducible in Australian women. In both the case human sample and reagents will be exchanged between the two collaborators. Institutional ethic clearance as well as other clearance will be taken (Clearance of Scientific Advisory Committee of NIRRH) before initiation of this project.

ii. To have a hand on experience of relevant methodologies used at QUT in *Chlamydia* specialised laboratory. One of these is on use QUT Prototype Peptide 11 Assay, an indigenous development of QUT in identification of women at risk of developing infertility.

Objective achieved:

(a) I had the opportunity to observe the QUT Prototype Peptide 11 assay to diagnose and differentiate women who would develop clinical complication such as infertility and who would not have such complications in spite of having *Chlamydia trachomatis* infection. The results were also further assessed using another commercial kit that utilises three assays to differentiate such clinical complication following Chlamydia infection.

This indigenously developed assay is patented by QUT. Once the collaborative proposal is accepted by both Indian Institute and QUT, Indian Institute can validate this assay in samples from Indian women. This in future may help to identify women at risk of clinical complication, following *Chlamydia* infection. We have developed the indigenous detection kit of *Chlamydia* and further use of Peptide 11 assay would confirm the risk associated with infertility following *Chlamydia* infection.

(b) I had the opportunity to see the different steps in *Chlamydia* culture which is accepted as a reference standard of detecting current infection. Each step of culture is very important to get the cell infected and isolation of infection.

(c) Use of Confocal microscopy to identify the growth of Chlamydia was also another method learned during this visit.

iii. To develop link in International quality control assessment.

Objective achieved:

We have agreed for exchange of samples and reagents to assess the quality of different tests developed by either of the Institute for assessment of its sensitivity and specificity.

Other activities:

I delivered a lecture on research activities of our Department. There were several questions and good suggestions. Professor Kenneth Beagley, a leading immunologist at QUT and Dr Huston, both expressed their willingness to collaborate with our group as well as with the Institute. A project proposal has been outlined for submission as soon as possible with the clearance of relevant authorities. I had a meeting with Professor Kenneth Beagley, who wants to collaborate on immunology of *Chlamydia* infection. He had expressed his interest to visit our Institute for a future collaboration.

It was a good experience to spent time in an international laboratory headed by Dr Huston and interacting with her team. They have established laboratory facilities of international standard and making substantial contributions to our understanding of the disease and investigating the molecular biology of *Chlamydia trachomatis*, a sexually transmitted bacterial infection.

Annexure 2

iii) Proposed utilization of the experience in India:

This International Fellowship has helped me to have a face to face discussion with International Scientists who have similar research programmes. The experience gained through discussion, having an experience of the laboratory facilities available at this International Institute provides lots of scope to initiate a collaborative research project between the two institutes.

The experience started with the induction program of the Queensland University of Technology(QUT).This program aims to acquaint any new comer to the QUT with the rules and regulation one has to follow while in the University. There are a number of courses and depending on one's need, the number of courses is decided. I have to undergo 5 online courses. After successful completion of the one line course, the person is certified to have in-depended access to its facilities. It was good experience on how system works for the benefit of the University, for the person as well as the others working around.

This type of courses is required to be implemented in our research Institute/ University for good management of the system, specifically at the time of enrolment of Ph.D. students and appointment of new staff/project staff.

The experience learned on using QUT Prototype Peptide 11 assay, can be successfully utilized through a collaborative project proposal. This will help in detecting the women who are at risk of developing clinical complications following *Chlamydia trachomatis* infection. It may help the clinician in management of complications like infertility. At the Institute we have developed indigenous PCR for detection of *Chlamydia trachomatis* infection. Further utilization of this assay may assess the risk associated with it. However, this can be achieved through collaborative project as the reagents used are patent of QUT.

I had the opportunity to observe the culture of *Chlamydia*. It had helped me to understand why this bacterium is very difficult to propagate in vitro. If there is a requirement to initiate culture of *Chlamydia trachomatis* in our institute, experience and support from QUT will be very useful. I am also planning to initiate the culture at the Institute with this experience.

Hence, to conclude the experience from QUT will be utilised to submit a collaborative project proposal and to expand the research facility further at the Institute.

Tour Report

1	Name & Designation of the Scientist	Dr Jayanti Mania-Pramanik, M.Sc., Ph.D. Scientist E
2	Name of the Institute / Centre	National Institute for Research in Reproductive Health, Mumbai
3.	Date of visit	12th-26th January 2014
4	Period of visit	15 days
5.	Place of visit	Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia.
6	Purpose of the visit	I was awarded with ICMR International Fellowship for Senior Bio-Medical Scientist 2013-2014.The purpose of the visit was to discuss with Scientist of International laboratory of repute for possible collaboration, learning of advance technologies and to have International partner for quality control assessment of Indigenously developed methodologies.
7	Source of sponsorship of the visit	Indian Council of Medical Research- International Fellowship grant
8	A brief report on the meeting (in about 500 words)	Annexure 1
9	Relevance of the meeting to India/Ministry of Health/Deptt. Of Health Research/ICMR	I was selected for ICMR International Fellowship for Senior Bio-Medical Scientist 2013-2014 to visit a foreign laboratory during January 12-26,2014 with the following objectives; (i)To form a base for collaborative research program, (ii)To have experience on advance methodology for detection of risk factor associated with infertility, (iii) To develop possible international quality control program with Australia University In India, the current focus of Ministry of Health/DHR/ICMR is to prevent sexually transmitted infections (STIs) / HIV/ malaria/ tuberculosis. Early detection of different RTIs/STIs are under evaluation for prevention of associated complications. *Chlamydia trachomatis* is a sexually transmitted infection that causes pelvic inflammatory diseases, ectopic pregnancy and infertility. As the infection is asymptomatic, its diagnosis is very important. In the Institute, our group is also involved in development or in use of different diagnostics with respect to

		RTIs/STIs and specifically our detection system for *Chlamydia trachomatis* is ready for commercialization. This visit was very useful to initiate an international collaboration on assessment of risk of developing infertility following *Chlamydia trachomatis* infection. I had the opportunity to learn the different techniques used in this international laboratory to assess this risk. A collaborative project proposal will be submitted in assessment of risk factor associated with infertility following *Chlamydia* infection after relevant clearance.
10	Scientists Contribution in about 200 words (Attach copies of relevant presentation(s)	**Annexure 2**
11	How the skills acquired by the scientist will be utilized?	**Present visit has provided opportunity for possible collaboration with the foreign Institute for use of advance methodology for detection of risk factor associated with infertility and to initiate international quality control program with Queensland University of Technology. Our research focuses on development of simple, cost effective detection system for *Chlamydia trachomatis* and use of additional method in assessing the risk of infertility will be an important achievement. Acquired knowledge will also be passed to the other scientists of the Institute through discussion to make them aware of these developments.**
12	Comments of Director/ Director-in-Charge on the report of Scientists (B to F)	Forwarded & recommended
	Whether the tour report is satisfactory?.	Yes

5/2/2014

Jayanti Mania-Pramanik ,Ph.D.
Scientist E

10/2

Dr S.D. Kholkute,
Director

Annexure 1

8. A brief report on the meeting (in about 500 words)

I visited the laboratory of Dr Wilhelmina May Huston, Senior lecturer and Research Group Leader, Infectious diseases Program at Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia with the ICMR-IF during 12th January to 26th January 2014.

During this visit, I had to undergo induction courses.This program aims to acquaint any new comer to the QUT with the rules and regulation one has to follow while in the University. After successful completion of the one line course, the person is certified to have in-depended access to its facilities. It was good experience on how system works for the benefit of the University, for the person as well as the others working around.

I had spent most of my time in her laboratory to understand the principle of their developed indigenous "QUT Prototype Peptide 11 Assay" and also observed the protocol of the assay. Two assays were put up to evaluate how this screening method could differentiate chronic or current *Chlamydia trachomatis* infection and also in evaluating *Chlamydia trachomatis* infected women at risk of developing infertility due to presence of specific antibody against the Peptide 11. The results were also further assessed using another commercial kit that utilizes three assays to differentiate such clinical complication following Chlamydia infection. This indigenously developed assay is patented by QUT.

I observed the different steps in *Chlamydia* culture. *Chlamydia* culture is accepted as a reference standard of detecting current infection. Each step of culture is very important to get the cell infected and isolation of infection. I as an observer saw the propagation of Mc Coy cell line, infection of the cell lines with *Chlamydia trachomatis* wild and mutant type. At 24 hours, 48 hours the infectivity of the cell lines was observed. The infectivity of mutant type was faster compared to the wild type; the mechanism behind this infectivity was yet to be explored. Harvesting the *Chlamydia* from cell line and its preservation for further propagation was learned during this visit.

I visited their Confocal microscopy facility to study the propagation of *Chlamydia* at different point of time.

I delivered a lecture on research activities of our Department. It was a good interactive session and they were happy that we have cost effective developed kit for *Chlamydia trachomatis* detection.

I had a meeting with Dr Huston research group, who briefed about their work. I had also a discussion with Professor Kenneth Beagley, a leading immunologist at QUT who

wants to collaborate on immunology of *Chlamydia* infection. He had expressed his interest to visit our Institute in near future for collaboration.

I thank ICMR-IF grant for providing this opportunity that will help me in expanding the research activities of the Institute.

Annexure 2

10. Scientists Contribution in about 200 words (Attach copies of relevant presentation(s)

The ICMR-International Fellowship has helped me to have a face to face discussion with International Scientists who have similar research program.

We proposed to have one collaborative study between the two Institutes to validate the QUT developed indigenous "Prototype Peptide 11 assay", in samples from Indian women. This in future may help to identify women at risk of clinical complication, following *Chlamydia* infection. It may help the clinician in management of complications like infertility. At NIRRH, we have developed the indigenous detection kit of *Chlamydia* and further use of Peptide 11 assay would confirm the risk associated with infertility. This is planned to be done as a retrospective study as well as proposing a prospective study. Similarly QUT can analyze if the host genetic factor identified as a protective factor in Indian women can be tested in Australian women.

I delivered a lecture on research activities related to different sexually transmitted infections of our Department. It was a good interactive session. They were happy that we have cost effective developed kit for *Chlamydia trachomatis* detection.

Hence, to conclude the experience from QUT will be utilized to submit a collaborative project proposal and to expand the research facility at the Institute.