

The Institute continued its focus to enhance capacity building in the strengthening of human resources and infrastructure. Training to develop existing skills and expertise has been the mainstay of the Institute's race towards achieving excellence for staff in scientific, technical and administrative sections. The focus has also been towards acquiring additional equipment, both in the laboratories and offices.

12.1 Human Resource Development

The Scientists at the Institute are trained in biomedical, clinical or the social science specialties with expertise in the areas of cellular and molecular biology, functional genomics, clinical research development and assessment of newer methods of fertility regulation, diagnosis and prevention of RTIs/STIs, epidemiology, diagnostics, structure function relationship, operational research and undertake multidisciplinary studies. Faculty to strengthen ongoing programmes and to initiate newer preprogrammes in areas such as bioinformatics, toxicology, stem cell biology and population genetics has been inducted. The scientists are ably supported by 200 technical and administrative staff.

12.1.1 Strengthening of Technical Skills of Staff

Scientists are provided with opportunities to enhance their technical skills by training in appropriate institutions, for a duration of up to one year (Fig. 125). They are also encouraged to participate in national and international conferences, within and outside the country for which they are supported financially by the institute (Fig. 126).

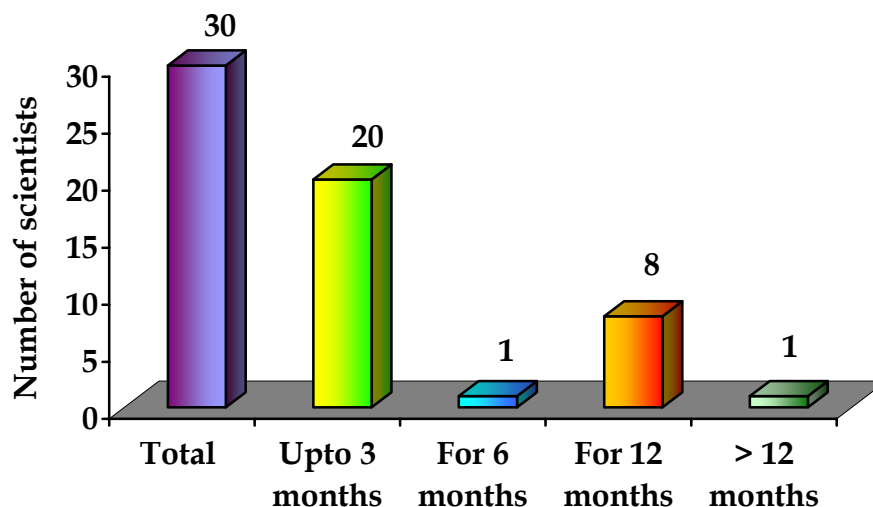


Fig. 125: Scientists trained in research institutions outside the country since 2002.

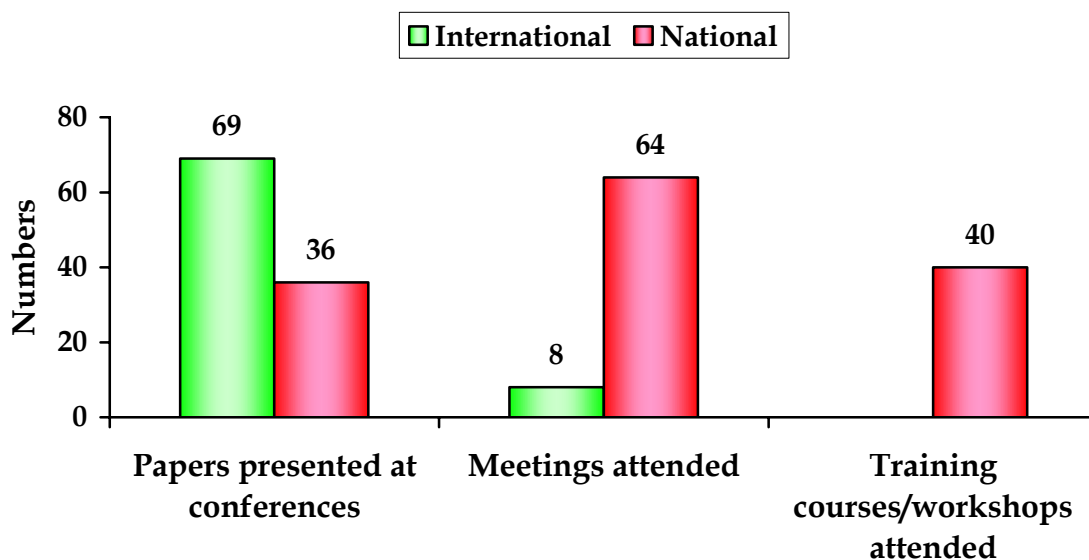


Fig. 126: Participation in national and international meetings during 2004-05.

12.1.2 Conferences/Workshops/Training Programmes Conducted by the Institute

1. Title: Symposium on Microbicides in Development and their Potential for Prevention of Sexually Transmitted Infections and Pregnancy
 Dates: June 21-22, 2004
 Coordinator: Dr S L Chauhan
2. Title: WHO Workshop on Reproductive Health Research Methodology
 Dates: June 23-July 2, 2004
 Coordinator: Dr S L Chauhan
3. Title: WHO In-Country Fellowship Training Programme on Insertion and Management of Complication with IUCD
 Dates: October 25-November 3, 2004
 Coordinators: Dr Rashmi S Shah and Dr Lalita Savardekar
4. Title: International Conference on Men as Partners in Sexual and Reproductive Health
 Dates: November 28-December 1, 2004
 Coordinator: Mr D Balaiah

5. Title: Training Course on Reproductive Health Techniques (IVF Program) for WHO-In Country Fellows
Dates: December 2-30, 2004
Coordinator: Dr Deepa Bhartiya
6. Title: Orientation Course in Obstetric and Gynecological Ultrasonography for WHO-In Country Fellows
Dates: December 6-10, 2004
Coordinators: Dr Shanta Chitlange and Dr Kamal T Hazari
7. Title: Training Course on Management of Infertility and Reproductive Disorders for WHO-In Country Fellows
Dates: December 6-15, 2004
Coordinators: Dr Pervin Meherji and Dr Jyotsna Gokral
8. Title: Training Course on Gynaecological Cytology and Colposcopy for WHO-In Country Fellows
Dates: December 27, 2004-January 7, 2005
Coordinators: Dr B N Mali and Dr Kamal T Hazari
9. Title: International Symposium on Advances and Challenges in Reproductive Health Research in the Post Genomic Era
Dates: January 9-12, 2005
Coordinators: Dr Vijaya Raghavan and Dr A H Bandivdekar
10. Title: Orientation Course in Reproductive Health for JJ Hospital Nurses
Dates: January 31-February 4, 2005
Coordinator: Dr Kamal T Hazari
11. Title: B.Sc. Nursing students educational visits
Dates: March 11, 2005
Coordinator: Dr Kamal T Hazari

12.1.3 Encouraging Inter-institutional Collaboration

The Institute is recognized as a WHO Collaborative Center for Research and Training in Reproductive Health, and also as a WHO Center of Excellence for Training in Diagnosis and Management of Infertility, Gynecological Ultrasonography and Cytological and Colposcopic Techniques for Detection of RTIs/STIs and Insertion of IUCDs and Management of Complications. Collaborative programmes with UNICEF, UNFPA, WHO and PARTNERS in

Population and Development have been initiated. Additionally scientists have research projects which are supported under the Indo-US Collaborative Programme on Contraception and Reproductive Health Research facilitating transfer of technology to the count.

12.1.4 Students

The University of Mumbai has recognized the Institute for M. Sc (by research) and Ph D degrees in the faculties of Biochemistry, Applied Biology and Life Sciences. Students undergo a selection process following which they are admitted to the above courses. A doctoral committee monitors the students' research progress every six months. The Institute also has a provision for short term training like summer training programme for students (Fig. 127).

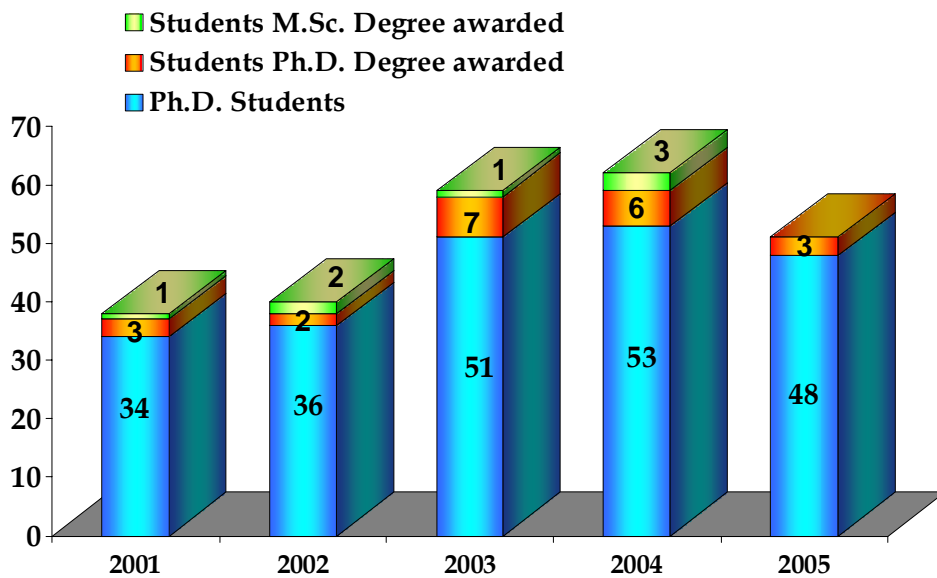


Fig. 127: Number of students pursuing M.Sc. and Ph.D. degree courses at the Institute.

Summer trainees

Eight Postgraduate summer trainees from Xt. Xavier's college, University of Mumbai, Kalina and from Maharashtra Institute of Medical Sciences and Technology were trained on various methodologies used for detection of common reproductive tract infections. They were also trained on molecular techniques like PCR and southern blotting, Immuno-PCR for diagnosis of *Chlamydia trachomatis*, *Neisseria gonorrhoea* and Human papilloma virus. Two MBBS doctors in basic public health research methodology, both of them succeeded in getting admission with scholarship to Master of Public Health Course at American Universities.

12.2 Infrastructure Development

The Institute's infrastructure development programs are on the increase since the decision to add extra floors to the existing premises. The Institute places on record the spontaneous and comprehensive support of the Director General, ICMR in bringing the project to fruition. During the period under report, three storeys have been erected and the process of shifting was initiated. Emphasis was also on initiating, procuring and implementing newer technologies like proteomics, 2D, bioinformatics which will be used in many projects to understand various intricacies of processes like spermatogenesis, embryogenesis, drug development etc.

12.2.1 Central Equipment Facility

Electron microscopy

The Electron Microscopy Department is engaged with both inter and intra-institutional services. This year 101 samples (e.g human semen, testis, monkey fallopian tube & endometrium, rat and murine ovaries) from within the institute were processed for conventional electron microscopy. In addition, twelve samples were subjected to post embedding immunogold localization. Immunohistochemistry on semithin sections (0.6 μ) was standardized with 10 specimens (human oviduct and bonnet monkey fallopian tube and endometrial tissues) for various antigens PKAR1, ER, COX-2, and OGP. Further, this method was used to evaluate in-situ hybridization on semi-thin sections to look at the PR gene expression in the human testis. Immunogold localization on embedment-free whole sperm mounts was demonstrated for the first time at the institute. A procedure involving negative staining and visualization of bacterial cell suspension was undertaken for a doctoral dissertation (Applied Biology) of student from BARC at a nominal charge. This facility was also extended to Tata Memorial Hospital for viewing grids from biopsies of children suffering from cancer.

Flow cytometry

Flow cytometry has been continued providing services for research conducted at the Institute as well as for outsiders. The cell cycle analysis, apoptosis and immunophenotyping have been evaluated for somatic as well as germ cells. This year, special attention was paid to differentiate various developmental stages of spermatogenesis in rat testis for flow cytometry and to analyze calcium mobilization in sperm. Dr Krishnamurthy from BCBS, Bangalore was present in April for 3 days to assist as an expert in flow cytometry, to discuss and help in some of the problems.

The samples analyzed for the Institute staff and students were approximately 1000. Researchers from outside the Institute were from Institute for Immunohaematology (25), BARC (360), BYL Nair Hospital (168) and SPARC (8) who were assisted for flow cytometric analysis of various cell lines. The total number of samples analysed during one year were approximately 1500.

DNA Sequencing Facility

The core facility for DNA sequencing was established in October 2003 and provides sequencing services to all institutional projects. The departments that availed of the facility during the year were Molecular Endocrinology, Primate Biology, Biochemistry, Immunology, Neuroendocrinology, Structural Biology, Gamete Immunobiology, Reproductive Endocrinology, Infertility and Department of RTI/STI. During the year, bidirectional nucleotide sequencing was carried out for 200 samples related to projects on i) mutation screening in reproductive dysfunctions ii) endometrial receptivity iii) oviductal glycoproteins iv) reproductive tract infections v) HIV receptors vi) sperm and epididymal antigens and vii) transgenic animals. Lecture demonstrations were also organized during the year by experts, for users of the facility.

12.2.2 Additional Laboratory Space

The research agenda of the Institute has been expanded across the broad field of sexual and reproductive health, reflecting the needs and priorities as projected in the National Population Policy 2000. The expanded mandate necessitates employing new faculty with expertise in various disciplines such as epidemiology, social sciences, clinicians including microbiologists; expanding the institute building to create more laboratory and clinic space; acquiring new technologies; expanding the experimental animal facility by incorporating space for genetically modified animals. During the year, the divisions of structural biology, immunology and stem cell biology have moved on to the newer premises. Tissue culture rooms, centralized equipment facility, cold rooms, etc. are being fine tuned to provide adequate functional ability to accommodate the requirements of scientists and students (Fig. 128).

12.2.3 National Centre for Primate Breeding and Research

As mentioned in the previous technical reports, the Institute has planned to establish a National Centre for Primate Breeding and Research with an objective of having inhouse bred monkeys of known health status and pedigree for various research programmes. The foundation stone for this centre was solemnized on 9 January 2005 and the construction work has just started. The

first phase of the project which will include a quarantine building with outdoor breeding corals and conncribs is expected to be functional by June 2007.

The second phase of the facility would include the experimental animal facility, indoor breeding facility, laboratories, administrative block and residential facility for housekeeping staff, veterinary staff and visitors.



Fig. 128: Newly constructed Structural Biology Laboratory and Centralised Equipment Facility on the fourth floor of the Institute building.