

Preface

This Annual report of the year 2004-05 summarizes various activities of the Institute. These activities pertain to scientific output, progress and development in various spheres. The scientists and the staff of the Institute are making their best efforts to achieve the targets. This report will show that besides leprosy research, the Institute has not only made a good impact in cutting edge areas of tuberculosis but also is making in-roads into basic and applied aspects of HIV and filariasis.



During the year, major advances have been achieved in developing and improving the technologies for diagnosis, molecular epidemiology and drug resistance. Not only the Institute has significantly contributed in the development of technology but also has achieved significant progress in epidemiological and operational research in the areas of leprosy, tuberculosis and filariasis. The development of an alternative/signal immuno amplification method has been a significant recent development. While there has been some set back in pursuing different studies in immunology and electron microscopy, good data could be generated on signal transduction mechanisms by utilizing collaborative support. In continuation with the earlier development and application of different methods for assessment of viability by the Institute, a multicentric study to detect drug resistance in leprosy was launched during this year. Studies on molecular biology have continued to be very productive. Important information about the application of highly sensitive DNA Fingerprinting methods like MIRU-VNTR, FAFLP and spoligotyping to identify genotypes among *M. tuberculosis* isolates could be generated. Major success has been achieved in developing DNA Chips for partial genomes of *M. tuberculosis* and *M. leprae*. Utilizing these chips, new targets have been identified which have potential usefulness in the development of diagnostics, vaccine candidates and therapeutics. Similarly, novel proteins associated with drug resistance have been identified using proteomic approaches. Studies on the basic biology of different mycobacteria have provided information about several aspects including diversity, lipid biosynthesis and mechanisms of permeability. In the area of therapy, besides the follow-up studies, immunotherapy based research programmes in borderline leprosy and management of reactions have progressed well during the period under report. Initiation of a trial using combined chemotherapy and immunotherapy in category II TB patients at Ghatampur (a multi-centric study) is a significant development of the year. Wealth of information has been generated about prevalence, incidence of leprosy in Agra and Ghatampur, prevalence of drug resistance in TB in Kanpur districts and baseline data about filarial and leprosy co-infections. In the area of HIV-AIDS, newer understanding about the possible molecular mechanisms of peculiar association between leprosy/ TB and HIV infection has been generated. Besides a good quality science as evidenced by publications and other output parameters, the Institute

continued to play its important role as a national Repository and supporting centre for various studies requiring BSL-3 conditions. Like in the past the Institute continued to help in the development of human resources by training post-graduates in life sciences and medical subjects and other specialized manpower. In addition to earlier established training programmes for students and different kind of leprosy workers, the Institute has from this year, started training the personnels involved in the Revised National Tuberculosis Control Programme (RNTCP). The increasing proportion of extramural projects signifies a continued shift in the thinking of scientists of this Institute to compete and generate resources for their research.

All above progress has been possible with the administrative and financial support of the Director-General as well as other important functionaries and staff of ICMR Headquarters. The financial support of different agencies and the advice of experts of different committees of the Institute have been most valuable. Finally the hardwork of Dr. Deepa Bisht, Rahul Sharma, Dr. U.D. Gupta and other colleagues in preparing and editing this Annual Report needs to be mentioned and acknowledged. I hope that all these positive factors will continue to help the Institute in steadily moving on the path of progress and productivity.


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Director