

# NATIONAL INSTITUTE OF BIOMEDICAL GENOMICS

**Kalyani, West Bengal**

*An Autonomous Institution of the Government of India, Department of Biotechnology*

## ANNUAL REPORT

**2009-2010**



### Contents

Director's Message
Formation of the Institute
The NIBMG Society
Our Vision and Mission
Our Objectives
Our Governance
Governing Board
Finance and other Committees
International Advisory Committee
Establishment of the NIBMG Campus & Interim Facility
Staff Recruitment
International Cancer Genome Consortium – India Project
Projects Submitted for Extra-Mural Funding
Kalyani Cohort Study
Malaria Evolution in South Asia
Cardiovascular Genomics Study
Auditor's Report
Appendix: Committees of the Institute

## **From the Director's Desk**

We are delighted that the Government of India has decided to establish an autonomous institution devoted to research, teaching and translation in biomedical genomics. The Government of West Bengal has been generous in providing logistical and infrastructural facilities to hasten this decision. As our country is undergoing a rapid developmental transition, a transition is also taking place in our demographic and public health profiles. With decline in prevalence of infectious diseases, improvement in maternal and child health and increase in life expectancy at birth, the relative prevalence of chronic diseases is increasing. Rapid socio-economic development and urbanization has witnessed a marked change in dietary profiles, which is also contributing to an increase in prevalence of life-style related diseases. Most chronic diseases are complex and their aetiologies are poorly understood. Multiple genetic factors with interacting environmental and life-style factors are involved in the precipitation of such diseases. The establishment of this Institute will provide an impetus to research and translation to enable an understanding of the aetiologies, prevention and treatment of diseases and a reduction in public health burden of our country. Inadequacy of formal training programmes in human genetics has been a serious impediment to the development of biomedical genetics in our country. We hope that we will soon be able to fill this gap by initiating courses on genetics in medicine.

It is my hope that the Institute will soon become vibrant. The Secretary and officers of the Department of Biotechnology, New Delhi, are engaging themselves whole-heartedly to help establish this Institute. The Institute is currently functioning from an interim location. Relevant processes have been put in place for construction of the permanent campus of the Institute. Processes for recruitment of faculty members and administrative staff have also been established. Many of my colleagues in institutions located in India are participating in these recruitment processes.

We have been lucky to be able to obtain consent of a stellar group of scientists on our International Advisory Committee. They are also actively engaging themselves and providing advice on the establishment of this Institute.

I hope that in our next Annual Report we will be able to provide concrete evidence that the National Institute of Biomedical Genomics has become a vibrant institution and has started contributing to the development of biomedical genomics in India. I take this opportunity to thank everyone who has contributed to the decision to establish this Institute and to everyone who is contributing to the growth of this Institute.

Partha P. Majumder

## Formation of the Institute

On February 23, 2009, the Union Cabinet of India approved the establishment of the National Institute of Biomedical Genomics (NIBMG) as an autonomous institution of the Government of India, under the aegis of the Department of Biotechnology. The Institute is located in Kalyani, West Bengal, India, about 50 km. north of from Kolkata.

**Press Information Bureau  
Government of India**

**Monday, February 23, 2009**

Ministry of Science & Technology

---

**ESTABLISHMENT OF NATIONAL INSTITUTE OF BIOMEDICAL GENOMICS AT  
KALYANI, WEST BENGAL**

---

**20:52 IST**

The Union Cabinet today gave its approval to the establishment of National Institute of Biomedical Genomics (NIBMG) at Kalyani in Nadia District of West Bengal as an autonomous institution under the aegis of Department of Biotechnology, Ministry of Science & Technology with the budgetary provision of Rs. 210 crores. The institute will be a society registered under the Societies Registration Act, and will be governed by the Governing Body.

The Institute has emphasis towards enhancement of knowledge on human health & disease through genomics and translate the knowledge using appropriate technologies for promotion of well being and improvement of genomics-based health-care in India. NIBMG will create necessary physical infrastructure and build capacity to serve as the expert base for the establishment of principles and practice of biomedical genomics and promote cutting-edge research in biomedical genomics for better understanding and reduction of public-health burden in India. The grand vision is to provide personalised, predictive, preventive and therapeutic healthcare through the use of genomic knowledge.

NIBMG will usher in the genomics era explicitly in the areas of medicine and public-health. It will undertake novel research, translational, educational & training programmes, network with relevant institutions through star alliance, and seed biomedical genomics activities in hospitals, medical school and other health-care institutions.

The Institute is being constructed on a 30-acre plot of land, with academic blocks, student and faculty housing, guest houses and a conference centre. An interim facility on about 120,000 sq. ft. of floor space, constructed on the upper storey of an adjacent infectious diseases hospital, has become functional with laboratories, classrooms, etc.

## **The NIBMG Society**

As an autonomous institution, the National Institute of Biomedical Genomics is a Registered Society under the *Societies Registration Act XXI of 1860*. The NIBMG Society was registered on August 6, 2009. The Registration Number of the Society is S/66514/2009. The Minister of Science & Technology & Earth Sciences, Government of India, is the President of the Society.

## **Our Vision & Mission**

We are grounded on the idea that genetics and genomics comprise a powerful body of knowledge and techniques to understand human health and disease. We strive to translate the scientific knowledge acquired by us to transform human health, focusing on health and disease issues that are of high relevance to our nation.

*Vision:* To enhance knowledge on human health and disease through genomics and translate the knowledge using appropriate technologies for promotion of well-being and improvement of genetics based health care in India.

*Mission:* To create necessary physical infrastructure and build capacity to serve as the expert base for the establishment of principles and practice of medical genetics and to conduct and promote cutting edge research in biomedical genomics for better understanding and containment of public health burden.

## **Our Objectives**

- To conduct and promote cutting-edge research in biomedical genomics of current and future medical relevance for the nation.
- To provide basic research evidence using biomedical genomic approaches for betterment of public health programmes and services.
- To establish state-of-the-art infrastructure for genomic and proteomic analyses, with the explicit goal of improving public health in India through use of genomic knowledge and technologies.
- To seed research, education, translation and service networks among clinicians and researchers from different disciplines for promotion of better public health through the establishment of genomics infrastructure in hospitals and medical colleges.

- To anchor young talent on the national soil and build capacity in Biomedical Genomics, through organizing post-graduate courses, training programmes and Ph.D. courses in Medical Biotechnology, Human Genetics, Molecular & Genetic Epidemiology and to facilitate their early participation in research, translation and services for promotion of genetics-based healthcare.
- To enable better understanding of new medical biotechnologies to permit faster but more discriminating uptake by health care providers.



Recognizing the facts that medical genetics cuts across various disciplines of science, and it is not possible to bring in all the expertise required for cutting-edge research and education in medical genetics under one roof, a **Star Alliance** is being formed to create synergy and symbiosis. The synergy is arising from the value-addition provided by various partners of NIBMG. It is believed that ultimately these alliances will become so interwoven that NIBMG and its partners will become completely dependent on each other for carrying out their research. Such symbiotic relationships, we believe, are essential to good science.

## Our Governance

The Institute is governed by a Governing Board that comprises eminent scientists and administrators. The current composition of our Governing Board is:

**Professor M.K. Bhan** (*Chairman*)

Secretary, Government of India, Department of Biotechnology, New Delhi

**Dr. Anuradha Acharya**

Chief Executive Officer, Ocimum Biosolutions Ltd., Hyderabad

**Professor S.K. Brahmachari**

Secretary, Department of Scientific & Industrial Research and Director-General, Council of Scientific and Industrial Research, New Delhi

**Dr. Mammen Chandy**

Director, Tata Medical Centre, Kolkata

**Dr. V.S. Chauhan**

Director, International Centre for Genetic Engineering and Biotechnology, New Delhi

**Professor Sushanta Dattagupta**

Director, Indian Institute of Science Education & Research, Kolkata

**Dr. V.M. Katoch**

Secretary, Department of Health Research and Director-General, Indian Council of Medical Research, New Delhi

**Professor G. Padmanaban**

Department of Biochemistry, Indian Institute of Science, Bangalore

**Dr. M.N. Roy**

Secretary, Department of Health & Family Welfare, Government of West Bengal, Kolkata

**Mr. K.P. Pandian / Ms. Sheila Sangwan**

Finance Adviser, Department of Biotechnology, New Delhi

**Professor Kalyan B. Sinha**

Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore

**Shri S. Sinha**

Adviser (Medical), Department of Biotechnology, New Delhi

**Professor Partha P. Majumder** (*Ex-officio Member-Secretary*)

Director, National Institute of Biomedical Genomics

The Governing Board is assisted by other Committees that include the (a) *Finance Committee*, (b) *Scientific Advisory Committee*, (c) *Faculty Selection Committee*, (d) *Building Committee*, (e) *Technical & Purchase Committee*, and (f) *Institutional Ethics Committee*. The current compositions of these Committees are given in the Appendix.

To help the Institute attain global heights, advice is obtained from a set of internationally renowned scientists who form the *International Advisory Committee*. This Committee currently comprises:

**Professor Aravinda Chakravarti**

Director, Center for Complex Disease Genomics, McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University School of Medicine, Baltimore, U.S.A.

**Professor Takashi Gojobori**

Director, Center for Information Biology and DNA Data Bank of Japan, National Institute of Genetics, Japan

**Professor Edison Liu**

Executive Director, Genome Institute of Singapore, Singapore

**Professor David J. Lipman**

Director, National Center for Biological Information, National Institutes of Health, Bethesda, U.S.A.

**Professor G. Padmanaban**

UNESCO Chair Professor in Biotechnology, Indian Institute of Science, Bangalore

**Professor Terry P. Speed**

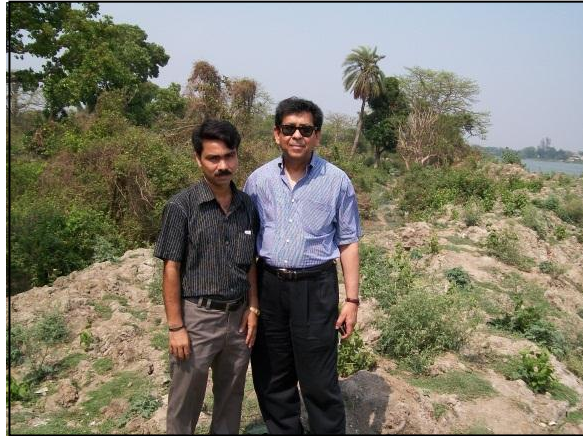
Head of Bioinformatics Division, Walter & Eliza Hall Institute of Medical Research, Australia

**Professor Michael Stratton**

Director, Wellcome Trust Sanger Institute, Hinxton, U.K.

**Professor Huan-Ming Yang**

Director, Beijing Genomics Institute-Shenzhen, China



Professor Aravinda Chakravarti [Right], Member of the Institute's International Advisory Committee, with a worker of the Institute on the campus-site of the Institute

### **Establishment of NIBMG Campus & Interim Facility**

On July 1, 2010, the Director, National Institute of Biomedical Genomics, under authorization from the Secretary, Department of Biotechnology, Ministry of Science & Technology, Government of India, has taken possession of thirty acres of land provided, free of cost, by the Government of West Bengal for establishment of the National Institute of Biomedical Genomics in Kalyani, Dist. Nadia, West Bengal.

The land is being cleared of weeds and bushes to facilitate initiation of the process of construction of perimeter wall and buildings. This work has been undertaken by the Gayeshpur Municipality, Kalyani. Modalities for construction of Perimeter Wall, Soil Testing & Total Station Survey are being formulated.



Clearance of land for the construction of the Institute's campus in progress

Processes required for initiation of construction of buildings on the campus are in progress.

In addition, the interim space provided by the Government of West Bengal on the 2<sup>nd</sup> floor of the Netaji Subhas Sanatorium (measuring ~100,000 sq. ft.) has been made fully functional with laboratories, class rooms, seminar halls, offices for faculty members, research fellows, technicians and administrative staff.



Glimpses of work being carried out in the laboratories of the Institute

## **Staff Recruitment**

The process of selection of both faculty and non faculty members were initiated. Advertisements for faculty positions were placed in reputed journals. Initiatives were taken for filling up vacancies in administrative positions, as well. Processes for selection were also established.



A meeting of the Institute's Faculty Selection Committee in progress

## **Memorandum of Understanding**

A memorandum of understanding has been signed with the West Bengal University of Health Sciences (WBUHS) for a period of five years, with the following objectives:

- To participate in the identification of research projects in the areas of genetic epidemiology and genetics of diseases of public health interest, including infectious diseases and vaccines, jointly with other similar institutions (if necessary);
- To collaboratively prepare and submit proposals to funding agencies for obtaining funds for the conduct of research, translation and capacity-building;

- To share facilities, infrastructure and manpower for execution of projects identified jointly by NIBMG and WBUHS and their affiliate and collaborating institutions, including hospitals;
- To jointly participate in the organization and teaching of relevant courses conducted by NIBMG or WBUHS and their affiliate institutions;
- To permit the registration and award of Ph.D. degrees by WBUHS for research fellows enrolled in NIBMG, following the rules laid down by WBUHS.

## **International Cancer Genome Consortium – India Project**



Members of the Scientific Advisory Committee of the Institute visiting the ICGC laboratories

To obtain a comprehensive description of genomic, transcriptomic and epigenomic changes in 50 different tumor types and/or subtypes which are of clinical and societal importance across the globe, an International Cancer Genome Consortium (ICGC) has been organized. The primary goals of the ICGC are to generate comprehensive catalogues of genomic abnormalities (somatic mutations, abnormal expression of genes, epigenetic modifications) in tumors from 50 different cancer types and/or subtypes which are of clinical and societal importance across the globe and make the data available to the entire research community as rapidly as possible, and with minimal restrictions, to accelerate research into the causes and control of cancer. The ICGC will facilitate communication among the members and provide a forum for coordination with the objective of maximizing efficiency among the scientists working to understand, treat, and prevent these diseases.

Current ICGC members include:

**Australia:** National Health and Medical Research Council

**Canada:** Ontario Institute for Cancer Research

**China:** Chinese Cancer Genome Consortium

**France:** Institut National du Cancer

**India:** Department of Biotechnology, Ministry of Science & Technology

**Japan:** RIKEN; National Cancer Center

**Singapore:** Genome Institute of Singapore

**Spain:** Spanish Ministry of Science and Innovation

**United Kingdom:** The Wellcome Trust; Wellcome Trust Sanger Institute

**United States:** National Institutes of Health

India is conducting research on oral cancer, as a part of the ICGC. The National Institute of Biomedical Genomics and the Advanced Centre for Treatment, Research & Education in Cancer, Mumbai, are the research sites of the ICGC-India Project.

Work on this project has been initiated and is progressing well. The current focus is to carry out deep-resequencing of tumour and normal tissues from oral cancer patients to identify germ-line and somatic mutations.

## Projects Submitted for Extra-Mural Funding

### **Kalyani Cohort Study**

To establish a cohort of about 20,000 individuals drawn from villages in and around Kalyani, that will serve as a platform for prospective studies on genomics of health and disease, to be carried out under the leadership of the National Institute of Biomedical Genomics (NIBMG), Kalyani, a project proposal has been submitted for funding to the Department of Biotechnology, Government of West Bengal.

### **Malaria Evolution in South Asia**

With the overarching goal of studying the evolution of malaria in India, a project proposal has been submitted for funding to the National Institutes of Health, USA, in collaboration with the University of Washington, Seattle, USA, and SphaeraPharma, New Delhi. NIBMG's role in this project will be to study the genomics of susceptibility to malaria. NIBMG will also serve as the Data and Statistical Analysis Centre for the entire project.



A joint meeting of the team working on preparation of the proposal on malaria

### **Cardiovascular Genomics Study**

To study the genomics of myocardial infarction, a project proposal has been submitted to the Apollo Hospitals Education & Research Foundation. If funded, this project will be carried out in collaboration with the Apollo Hospitals Group and the Institute of Genomics & Integrative Biology, Delhi.

## **APPENDIX**

### **COMMITTEES OF THE INSTITUTE**

## Scientific Advisory Committee

1. Professor Sandip K. Basu ... Chairman  
[Professor of Eminence, National Institute of Immunology, New Delhi]
2. Professor Alok Bhattacharya ... Member  
[Jawaharlal Nehru University, New Delhi]
3. Professor Nitai P. Bhattacharyya ... Member  
[Saha Institute of Nuclear Physics, Kolkata]
4. Dr. Amitabha Chattopadhyay ... Member  
[Centre for Cellular & Molecular Biology, Hyderabad]
5. Professor Probal Chaudhuri ... Member  
[Indian Statistical Institute, Kolkata]
6. Professor Abhijit Chowdhury ... Member  
[Institute of Post-Graduate Medical Education & Research, Kolkata]
7. Professor P.K. Deb ... Member  
[Vice-Chancellor, West Bengal University of Health Sciences, Kolkata]
8. Dr. Pramod Garg ... Member  
[All India Institute of Medical Sciences, New Delhi]
9. Dr. Rajesh Gokhale ... Member  
[Director, Institute of Genomics & Integrative Biology, New Delhi]
10. Dr. G. Balakrish Nair ... Member  
[Director, National Institute of Cholera & Enteric Diseases, Kolkata]
11. Professor V. Nanjundiah ... Member  
[Indian Institute of Science, Bangalore]
12. Dr. Kanury V.S. Rao ... Member  
[International Centre for Genetic Engineering & Biotechnology, New Delhi]
13. Professor M.R.S. Rao ... Member  
[President, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore]
14. Dr. Satyajit Rath ... Member  
[National Institute of Immunology, New Delhi]
15. Dr. Kunal Ray ... Member  
[Indian Institute of Chemical Biology, Kolkata]
16. Dr. Chittaranjan S. Yajnik ... Member  
[K.E.M. Hospital & Research Centre, Pune]
17. Mr. S. Sinha ... Member  
[Advisor (Medical), Department of Biotechnology, New Delhi]
18. Professor Partha P. Majumder ... Ex-officio Member-Secretary  
[Director, National Institute of Biomedical Genomics, Kalyani]



Glimpses of a meeting of the Scientific Advisory Committee of the Institute

## Faculty Selection Committee

Professor K. Muralidhar University of Delhi, Delhi	... Chairman
Professor B.K. Thelma University of Delhi, South Campus, New Delhi	... Member
Dr. Shahid Jameel International Centre for Genetic Engineering & Biotechnology, New Delhi	... Member
Professor Narinder K. Mehra All-India Institute of Medical Sciences, New Delhi	... Member
Professor Umesh Varshney Indian Institute of Science, Bangalore	... Member
Professor V. Nanjundiah Indian Institute of Science, Bangalore	... Member
Dr. Susanta Roychoudhury Indian Institute of Chemical Biology, Kolkata	... Member
Professor Partha P. Majumder Director, National Institute of Biomedical Genomics	... (Ex-officio Member-Secretary)

## NIBMG-Fellowship Selection Committee

Dr. Amit Ghosh National Institute of Cholera & Enteric Diseases Kolkata	... Chairman
Professor Anuradha Lohia Bose Institute Kolkata	... Member
Dr. J. Nagaraju Centre for DNA Fingerprinting & Diagnostics Hyderabad	... Member
Dr. Kunal Ray Indian Institute of Chemical Biology Kolkata	... Member
Professor Partha P. Majumder National Institute of Biomedical Genomics Kalyani	... Member-Secretary

## Finance Committee

Professor M.K. Bhan ... Chairman  
Secretary, Government of India  
Department of Biotechnology  
Block 2, 7th Floor  
C.G.O. Complex  
Lodi Road, New Delhi 110003

Mr. K.P. Pandian/Ms. Sheila Sangwan ... Member  
Finance Adviser  
Department of Biotechnology  
Block 2, 7th Floor  
C.G.O. Complex  
Lodi Road, New Delhi 110003

Shri S. Sinha ... Member  
Adviser (Medical)  
Department of Biotechnology  
Block 2, 7th Floor  
C.G.O. Complex  
Lodi Road, New Delhi 110003

Professor Subrata Majumder ... Member  
Division of Molecular Medicine  
Bose Institute  
P 1/12, C. I. T. Road, Scheme - VIIM  
Kolkata – 700054

Dr. G. B. Nair ... Member  
Director  
National Institute of Cholera and Enteric Diseases  
P-33, CIT Road Scheme XM  
Post Box No.177, Beliaghata, Kolkata-700010

Dr. G.C. Mishra ... Member  
Director  
National Centre for Cell Science  
NCCS Complex, Ganeshkhind  
Pune, Maharashtra 411007

## Building Committee

<b>Dr. V.S. Chauhan</b> Director, International Centre for Genetic Engineering and Biotechnology, Aruna Asaf Ali Marg, New Delhi 110 067	... Chairman
<b>Shri K.P. Pandian / Ms. Sheila Sangwan</b> Finance Adviser, Department of Biotechnology, Block 2, 7th Floor, C.G.O. Complex, Lodi Road, New Delhi 110003	... Member
<b>Dr. B. Ravindran</b> Director, Institute of Life Sciences, Bhubaneswar	... Member
<b>Shri S. Sinha</b> Adviser (Medical), Department of Biotechnology, Block 2, 7th Floor, C.G.O. Complex, Lodi Road, New Delhi 110003	... Member
<b>Shri B. Bose</b> New Delhi	... Member
<b>Professor Partha P. Majumder</b> Director, National Institute of Biomedical Genomics	... Ex-officio Member-Secretary

## **Institutional Ethics Committee**

### ***Committee for Protection of Research Risks to Humans***

Professor BarunMukhopadhyay Biological Anthropology Unit 203 B.T. Road Indian Statistical Institute Kolkata 700108	... Chairman
Professor Samar Deb Principal College of Medicine & J.N.M. Hospital West Bengal University of Health Sciences P.O-Kalyani, Dist-Nadia West Bengal 741235	... Vice-Chairman
Professor Niladri Biswas Centre for Adult Continuing Education & Extension University of Kalyani Dist.: Nadia West Bengal 741 235	... Member
Dr. Nirupam Biswas Superintendent College of Medicine & J.N.M. Hospital West Bengal University of Health Sciences P.O-Kalyani, Dist-Nadia West Bengal 741235	... Member
Mr. Dipayan Chakraborty B-13/136 Kalyani Dist.: Nadia West Bengal 741 235	... Member
Mr. Satyabrata Mondal Advocate B-14, Buddhadebpally P.O. & P.S.: Kalyani Dist.: Nadia West Bengal 741 235	... Member
Dr. Susmita Mukhopadhyay Biological Anthropology Unit 203 B.T. Road Indian Statistical Institute Kolkata 700108	... Member
Dr. Surajit Dhara National Institute of Biomedical Genomics Kalyani	... Member-Secretary

## Technical & Purchase Committee

<p>Dr. Sekhar Chakrabarti National Institute of Cholera and Enteric Diseases P-33, C.I.T. Road, Scheme-XM, Beliaghata, Kolkata – 700 010.</p>	... Chairman
<p>Professor Nitai P. Bhattacharyya Saha Institute of Nuclear Physics Sector-1,Block-AF Bidhannagar Kolkata-700064</p>	... Vice-Chairman
<p>Dr. Susanta Roychoudhury Indian Institute of Chemical Biology 4,Raja S.C.Mullick Road,Jadavpur Kolkata-700032</p>	... Member
<p>Mr. P. Sen Former Accounts Officer &amp; Financial Consultant National Institute of Cholera and Enteric Diseases P-33, C.I.T. Road, Scheme-XM, Beliaghata, Kolkata 700 010</p>	... Member
<p>Dr. Arindam Maitra, Project Manager, ICGC India Project, NIBMG</p>	... Member
<p>Dr. Subrata Majumdar, Bose Institute P 1/12, C. I. T. Road, Scheme - VIIM Kolkata - 700054 West Bengal, India</p>	... Member
<p>Dr. Siddhartha S. Jana, IACS 2A &amp; 2B Raja S C Mullick Road Kolkata 700032, INDIA.</p>	... Member
<p>Mr. P.C. Biswas Engineering Consultant, NIBMG</p>	... Member
<p>Professor Partha P. Majumder Director, NIBMG</p>	... Convener

# **NATIONAL INSTITUTE OF BIOMEDICAL GENOMICS**



**Netaji Subhas Sanatorium (T.B. Hospital), 2nd Floor**

**P.O.: N.S.S., Kalyani 741251**

**West Bengal**

**INDIA**

**Telefax: +91-33-25892151**

**E-mail: [nibmg@nibmg.ac.in](mailto:nibmg@nibmg.ac.in)**

**Website: [www.nibmg.ac.in](http://www.nibmg.ac.in)**