ADVANCED COURSE ON MOLECULAR MODELING AND PROTEIN-LIGAND INTERACTIONS

December 14-18, 2007 Scientific Coordinator: R Sowdhamini *NCBS*

This workshop was dedicated to the particular area of computational biology. There was an interesting series of talks about the theory of protein-ligand interactions, along with special lectures on biological perspectives as well. The talks were accompanied by ample amount of hands-on experience (practical sessions) which was led by a team of software engineers from VLife Sciences, Pune.

V N Balaji *Jubliant Biosystems, India* Docking studies in the active site of GSK-3.
N Chandra *Indian Institute of Science, India* Characterization of molecular recognition : Protein-Ligand Interface.
M Puranik *NCBS* Quantum mechanics of modeling ligands.
K Seshadri *Astra Zeneca, India* Assessment of protein druggability by structural features: Application to enzyme.
R Sowdhamini *NCBS* Protein-ligand interactions: Locks-and-keys?
R Sowdhamini *NCBS* Protein databank and Cambridge small molecule databases.
N Srinivasan *Indian Institute of Science, India* Modeling pentraxins and inferring ligand specificities.
L Tripathi *NCBS* Softwares employed for docking.
P Xavier *Avesthagen. India* Structure-based drug design and its applications in modern drug discovery research.

WORKSHOPS ORGANIZED ELSEWHERE

Evolution of Development Mechanisms *Mahabaleswar, India* January 21-26, 2005 Scientific Coordinators: K VijayRaghavan and V Rodrigues

Genes, Development and the Emergence of Behaviour *Trieste, Italy* April 25 – May 13, 2005 Scientific Coordinators: K VijayRaghavan, M Bate and V Rodrigues

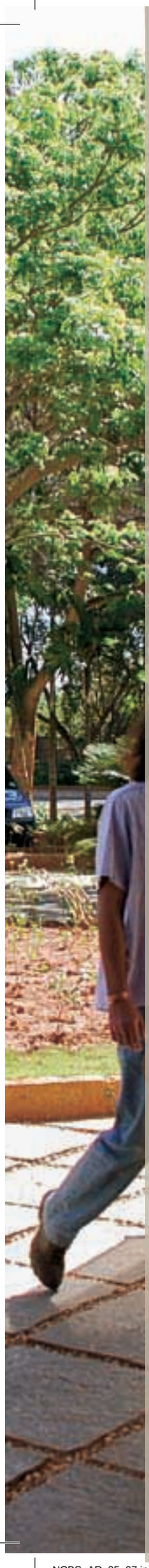
8th IBRO School of Neuroscience – Asia-Pacific Region: Brain Storming in Bombay *Tata Institute of Fundamental Research, Mumbai* September 02-10, 2006 Scientific Coordinators: V Rodrigues, V Vaidya, R Mallick and S Tole

Ecological Modeling *Nature Conservation Foundation, Mysore, India* October 18-19, 2007 Scientific Coordinators: S Quader and K Isvaran

ACADEMIC ACTIVITIES

143 Overview | 144 Programs | 145 Degrees | 146 Courses | 149 Lectures and Visits

153 Trainees | 156 MSc Wild Life Program



overview

The academic community in NCBS has diversified further over the past two years with the addition of several international scholars to almost all our academic programs. Our graduate programs leading to PhD degrees come in two flavours. Many of our students join for a PhD after a Masters degree in a basic science discipline or after a Bachelors degree in an applied science discipline like Engineering or Medicine. We also have students joining for an Integrated MS-PhD program after a Bachelors degree in basic sciences. In addition, we have a few students working towards a Masters by research. All our students undertake a rigorous coursework programme and participate in research leading to a thesis to be submitted for evaluation. Through a separate entrance test we will now also admit students for a Masters program in Wildlife Biology & Conservation, in collaboration with Centre for Wildlife Studies, Bangalore.

The majority of students register with TIFR at Mumbai. However, for several years we have had an excellent relationship with the Manipal Academy for Higher Education (MAHE) and students working at NCBS can continue to register with either MAHE or Mysore University if needed. This is particularly so for students working on externally-funded PhDs, like those on grants and with their own fellowships from agencies such as CSIR, DBT or ICMR. We continue our close ties with our former hosts, the Indian Institute of Science and our current hosts, the University of Agricultural Sciences. New links are being built through Memoranda of Understanding with several other institutions in India and abroad.

Apart from students working towards academic degrees, we have a comparable number of young folk working on projects funded by external agencies. A smaller population of enthusiastic Post Doctoral Fellows brings with them both the expertise and the perspectives of their respective graduate programmes from all over the country and abroad. More transiently, we have an almost continuous stream of trainees visiting from all over the country and carrying out short 6-8 week projects at NCBS, getting some exposure to biological research here and spreading the excitement on their return to their home institutions. We also host a limited number of Masters students for their MSc thesis projects usually carried out over a 6-month period. With the recent NCBS/Harvard-MIT student exchange program in place we have begun hosting undergraduates from these internationally renowned institutions for a period of three months every summer. Similar student exchange programs with other international Universities, including the University of Cambridge, are planned. A large number of scientists both national and international and students from all over the country participate in our Annual Symposia.

Intellectual diversity is as important for us as cultural variety and both are critical for driving interdisciplinary research. We have an active iBio (integrative Biology) program in collaboration with the Raman Research Institute and enthusiastic interactions with chemists and physicists from several institutions. We are keen to foster relations with medical institutions and to this end have initiated several joint programs for research with faculty at the Christian Medical College, Vellore. With the energy of youth and the vigorous admixture of inputs from diverse backgrounds, the Centre is kept in a ferment, receptive of new ideas and striving to build on accomplishments.

Gaiti Hasan

Head, Academic Activities

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Programs

PhD Program

The National Centre for Biological Sciences has academic programs leading to PhD and Integrated PhD degrees. The **PhD** program at NCBS accepts candidates with a Masters in any basic science discipline or a basic degree in any applied science such as Medicine, Engineering, Pharmacy and Veterinary Science. The **Integrated PhD** program takes on students with an excellent academic record at the BSc level and who are strongly motivated to pursue a career in research.

Interdisciplinary Research Program

iBio is a interdisciplinary program that seeks to apply the experimental and theoretical tools of the physical sciences to the study of challenging biological problems. The program provides a stimulating research environment, with dynamic young faculty, state-of-the-art equipment, and international exposure through conferences, workshops, and visiting scientists from around the world. The iBio faculty at NCBS includes chemists, physicists, neuroscientists, and computational biologists. Exceptional candidates with strong backgrounds in the physical sciences, including experimental and theoretical physicists, chemists, mathematicians, computer scientists, and engineers are eligible to enter the iBio PhD and postdoctoral programs.

We also encourage talented medical students with an interest in **biomedical** research to pursue a PhD degree at NCBS.

The academic programs at NCBS include basic and advanced courses, but emphasise research. The programs are full-time and students often put in over 12 hours of work in a day between course work and a research program. A qualifying examination is held during the second year of each of these programs to decide on whether a student is eligible to go on to work toward a PhD. Students register with the Tata Institute of Fundamental Research.

Advertisements for applications to all programs appear in leading national newspapers in September/October each year, for a nation-wide written test conducted in mid December. Past academic performance, letters of recommendation from current/former teachers, performance in the written test, and individual write ups in the applications are considered in short listing candidates for the interview held at the end of May/ beginning of June. The new academic year begins in August.

Visiting Students/Training Program

The training program at NCBS is open to interested and motivated pre-doctoral candidates and usually comprises M.Sc. students between their first and second years. Many students also do their Masters projects here. Engineering and medical students are also encouraged to apply.

Applications are accepted all through the year. Individual faculty members choose the students they will accommodate in their laboratories.

Many of the Centre's trainees find their research experience invaluable. Perhaps the most tangible benefits of this program are manifest in the number of such trainees who are enrolled for a degree in the best research laboratories within the country and outside.

Teacher Trainees

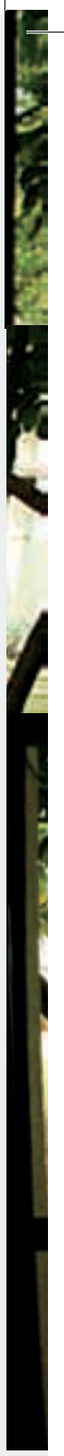
In addition to training fresh graduates, NCBS also has an active Teacher Training program wherein college and university teachers carry out research leading to a PhD degree. It is hoped that such programs will improve the interaction between universities and research institutes in a mutually beneficial manner. Our recruitment to this program is extremely informal. A teacher who is interested contacts a faculty member at NCBS whose research interests most closely match his/her own. On the faculty member's recommendation, the candidacy is evaluated by a committee on a case-by-case basis.

Postdoctoral Positions

NCBS has an active postdoctoral (visiting) fellow training program. Postdoctoral fellows usually work with one of the existing groups. Fellowships are tenable for one to three years. Interested individuals are encouraged to write to the Head, Academic Activities with their curriculum vitae and the names of at least three referees. Applications will be accepted throughout the year. Decisions on award of postdoctoral fellowships are made twice a year, in February and August.

In addition to NCBS-funded Fellowships, some grants also fund Post-doctoral and Junior Research Fellow positions. Appointments to these positions are made as and when they become available, and applications are accepted through the year.

For further information about these programs, e-mail us at:
Postdoc: acadoffice@ncbs.res.in | PhD.: phd@ncbs.res.in | Training: stp@ncbs.res.in
For further details about admissions/positions are available at: http://www.ncbs.res.in



Degrees

PhD

- **Sriram M Ajay** *Electrophysiological and biochemical analysis of temporal tuning in a hippocampal synaptic network* (Guide: U S Bhalla)
- **Santanu Banerjee** *Investigating the role of $InsP_3$ receptor gene in Drosophila flight* (Guide: G Hasan)
- **Arjun Guha** *The role of Dynamin in endocytosis in primary cultured cells in Drosophila* (Guide: S Mayor)
- **Debkanya Dutta** *Molecular and cellular mechanisms of founder cell function in adult Drosophila myogenesis* (Guide: K VijayRaghavan)
- **Ashwini H Godbole** *Functional characterization of VDAC: A conserved element of programmed cell death pathways* (Guide: M K Mathew)
- **N Parikh** *Regulation of localization and function of the pro-apoptotic protein Bax* (Guide: A Sarin)
- **Raghav Rajan** *Odour localisation by rats* (Guide: U S Bhalla)
- **M Raghuprasad Rao** *Genome analysis of receptor superfamilies* (Guide : R Sowdhamini)
- **B S Sharath** *Experience dependant plasticity: A study of structure-function relationships in the hippocampus and amygdala* (Guide: S Chattarji)
- **Gautam Vivek Soni** *Understanding physical interactions leading to structure-function dependence in biological systems* (Guide : G V Shivashankar)
- **Deepa Subramanyam** *Epithelial-stromal cell cross-talk maintains notch signaling in cancer* (Guide: S Krishna)
- **Y Sushama** *Role of the gene brinker in antero-posterior patterning of Drosophila Malpighian tubules* (Guide: K VijayRaghavan)
- **Rajat R Varma** *Exploring the organization of GPI-anchored proteins in living cells* (Guide: S Mayor)

MSc

- **Sugat Dabholkar** *Development of techniques to probe bacterial genetic networks* (Guide: M Thattai)
- **Kumar Gaurav** *Biological sequence analysis for protein annotation based on motif descriptors* (Guide: R Sowdhamini)
- **Girija Goyal** *Mechanism of HID induced apoptosis in Drosophila melanogaster* (Guide: A Sarin)

Courses

NCBS offers courses at the basic and advanced levels. At the basic level we offer courses in Biochemistry and Biophysics; Cell Biology; Neurobiology; Immunology; Molecular Biology and Genetics, Developmental Biology and Physical Methods.

As in the past, our students attend basic and advanced courses at the Indian Institute of Science in the Departments of Biochemistry, Ecological Sciences, Microbiology and Cell Biology, Molecular Reproduction, Development and Genetics, Physics and Molecular Biophysics Unit. Our students also attend courses offered by Jawaharlal Nehru Centre for Advanced Scientific Research and University of Agricultural Sciences, Bangalore.

Courses offered at NCBS

Neurobiology	Basic/August 2005	S Chattarji and U S Bhalla
Cell Biology	Basic/August 2005	S Mayor
Diffusion for Biologists	Basic/August 2005	K Banerjee
Developmental Biology	Basic/August 2005	K VijayRaghavan and M Inamdar
Conservation genetics: Theory and from theory to practice	Advanced/August 2005	U Ramakrishnan
DNA Dyamics: Transposition and Recombination	Advanced/December 2005	G Simchen
Systems and Synthetic Biology	Advanced/January 2006	M Thattai
Scientific Writing	Advanced/January 2006	G Hyde
Molecular spectroscopy and imaging: A survey of concepts and techniques	Advanced/February 2006	M Puranik and K Rau
Membrane Trafficking	Advanced/February 2006	S Mayor and V Malhotra
Membrane Biophysics	Advanced/March 2006	M K Mathew
Immunology	Basic/August 2006	S Krishna and S Pillai
Biophysical Chemistry	Basic/August 2006	J B Udgaonkar and M K Mathew

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Developmental Biology	Basic/August 2006	K VijayRaghavan and M Inamdar
Bioinformatics	Basic/August 2006	R Sowdhamini
Genetics	Basic/ August 2006	S P Koushika and U Ramakrishnan
Scientific Writing	Advanced/August 2006	G Hyde
Cellular Biophysics	Advanced/September 2006	G V Shivashankar
Benny Shilo Course in Developmental Biology	Advanced/December 2006	B Shilo and S Cohen
Simulations in Biology	Advanced/January 2007	U S Bhalla and M Thattai
Intracellular Transport	Advanced/April 2007	S P Koushika
Physical Biochemistry	Basic/August 2007	J B Udgaonkar and M K Mathew
Cell Biology	Basic/August 2007	S Mayor
Chemical Biology	Basic/September 2007	Y Krishnan
Developmental Biology	Basic/September 2007	K VijayRaghavan and M Inamdar
Molecular Biology	Basic/September 2007	M M Panicker

Short courses offered elsewhere

S P Koushika | One module in molecular genetics *Indian Institute of Science, India* (April - May, 2005).

R Sowdhamini | History and biological impact of protein structure determination *Reunion University, France* (April, 2007)

Courses attended elsewhere

N Agrawal | Neural systems and behavior, *Marine Biological Laboratory, USA* (June – August, 2006).

J Bajaj, B C Choudhary, S Gupta and Vishal | Molecular oncology, *Indian Institute of Science, India* (January – May, 2006).

J Bajaj and M G Swetha | Human molecular genetics, *Indian Institute of Science, India* (January – May, 2006).

A Bhattacharya | IBRO-ISN Neuroscience School, *The National University of Singapore, Singapore* (June, 2006).

N K Chakraborty and J Kumar | Molecular genetics, *Indian Institute of Science, India* (January – May, 2006).

B C Choudhary, L Harini, K Rathore, S Gupta, T Gupte, T S Sharangdhar, S Velumani and Vishal | Statistical methods, *University of Agricultural Sciences, India* (October, 2005).

P D Deepalakshmi | QToF Ultima API small molecule operator training course, *Waters, UK* (June, 2005) **|** Mass spectrometry for proteomics, *Munnar, India* (January, 2006).

A Dasgupta | DNA-protein interaction, regulation of gene expression, nanobiology, *Indian Institute of Science, India* (August – December, 2007).

A Dasgupta and M N Modi | Protein structure, folding and design, *Indian Institute of Science, India* (January – May, 2007).

A Dasgupta and A Nilesh | Introduction to biophysical chemistry, *Indian Institute of Science, India* (August – December, 2007).

Dhanya P | Neural networks, *Indian Institute of Science, India* (January – May, 2006).

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Dhanya P | Okinawa computational neuroscience course, *Japan* (June – July, 2006).

Divya P S | Computational approaches to drug discovery, *Indian Institute of Science, India* (January – May, 2006).

Divya P S and S Kedia | Molecular oncology, *Indian Institute of Science, India* (January – December, 2007).

Divya P S, N Kumar and P Raychaudhuri | Molecular spectroscopy and structure, *Indian Institute of Science, India* (August – December, 2005).

S P Goswami, S Gupta and M Sehgal | Molecular basis of signal propagation and synaptic transmission in neurons, *Indian Institute of Science, India* (January – December, 2007).

S Jain and S Kumar | Introduction to biophysical chemistry, *Indian Institute of Science, India* (August – December, 2005)

N Jayanth | Human molecular genetics, *Indian Institute of Science, India* (January – May, 2007).

K V Iyer, A Kumar and A Sharma | Biological physics, *Indian Institute of Science, India* (January – May, 2007).

N Jayanth and P Raychaudhuri | Conformational and structural aspects of biopolymers, *Indian Institute of Science, India* (August - December, 2006).

Kavitha S | IBRO-VLTP course in Neuroscience, *National Institute of Mental Health and Neuro Sciences, India* (August – September, 2005) **|** Symposium on the emerging trends in neurosciences and the Annual Meeting of the Indian Academy of Neurosciences, *National Institute of Mental Health and Neuro Sciences, India* (December, 2005) **|** 4th Congress of Federation of Asian-Osceanian Neuroscience Societies, *Hong Kong* (November – December, 2006) **|** 9th IBRO School of Neurosciences, *Hong Kong* (December, 2006).

J Kumar and S Kumar | General biochemistry, *Indian Institute of Science, India* (August – December, 2005)

A Nilesh | Proteomics, *Indian Institute of Science, India* (January – December, 2007).

A Purandare, T Shivanand and S Velumani | Population and quantitative genetics, *Jawaharlal Nehru Centre for Advanced Scientific Research, India* (August - December, 2006).

U Raheja and S Velumani | Evolutionary biology, *Indian Institute of Science, India* (January – May, 2006).

G Ramakrishnan | Elements of structural biology, *Indian Institute of Science, India* (January 2007).

G Ramakrishnan, A Sharma, K V Iyer and A Kumar | Quantum mechanics, *Indian Institute of Science, India* (August - December, 2006).

S Ray | High performance computing (August – December, 2006), Parallel programming, cognition and machine learning (January – June, 2007), *Indian Institute of Science, India*

S Ravinder, P Raychaudhuri, U Raheja and K Rathore | Molecular basis of signal propagation and synaptic transmission in neurons, *Indian Institute of Science, India* (January – May, 2006).

P Raychaudhuri | Introduction to biophysical chemistry, *Indian Institute of Science, India* (August - December, 2006).

S Sarangi | Molecular spectroscopy and structure, *Indian Institute of Science, India* (August - December, 2006).

A Sharma | Cell biology, *Indian Institute of Science, India* (August – December, 2007),

M Sehgal and T Shivanand | Basic quantitative tools in biology, *Jawaharlal Nehru Centre for Advanced Scientific Research, India* (August – December, 2007).

A Sethy | Introduction to biophysical chemistry (August – December, 2005), Parallel programming and data analysis and visualization (January – May, 2006), *Indian Institute of Science, India.*

T Shivanand | Population and quantitative genetics, *Jawaharlal Nehru Centre for Advanced Scientific Research, India* (August – December, 2007).

A Tomar | Indo-German Lecture workshop on Behavioral Neurobiology, *National Institute of Mental Health and Neuro Sciences, India* (September, 2006). **|** IBRO – Visiting Lecture Training Program in Neuroscience, *National Institute of Mental Health and Neuro Sciences, India* (August, 2005)

S Velumani | Mathematics and statistics for biologists, I*ndian Institute of Science, India* (January – May, 2006).

A H Wani | Advanced molecular biology, *Jawaharlal Nehru Centre for Advanced Scientific Research, India* (August – December, 2005)

Lectures and Visits

J Bajaj

Notch-Wnt cross-talk in hematopoietic stem cells. *International Conference of the Stem Cell Research Forum of India, India (January, 2007).*

Sumantra Chattarji

Synaptic basis of anxiety in the amygdala *1st Symposium of Molecular & Cellular Cognition Society - Asia, Japan (September, 2005)* • **Effects of stress on the amygdala: from cells to behavior** *Max-Planck Institut, Germany (September, 2005)* • **Effects of tianeptine on stress-induced plasticity in the amygdala** *The 4th ENCEPHALE Congress, France (January, 2006)* • **The amygdala and affective symptoms of stress disorders** *GSK International Symposium on Neurodegeneration and the Neurobiology of Cognition, Singapore (February, 2006)* • **Affective symptoms of Fragile X Syndrome and synaptic plasticity in the amygdala** *Banbury Symposium on Fragile X Syndrome - Basic Mechanisms and Treatment Implications, Cold Spring Harbor Laboratory, USA (March, 2006); 10th International Fragile X Conference, The National Fragile X Foundation, USA (July, 2006)* • **Effects of stress on the amygdala: "good plasticity" in a "bad neighborhood"** *Frontiers in Neuroscience, Stanford University, USA (May, 2006)* • **From memories to molecules and back** *Indo-German Workshop on Behavioral Neurobiology, India (September, 2006)* • **The amygdala and emotional symptoms of stress disorders** *Wellcome Trust Senior Fellows Meeting, U.K. (October, 2006)* • **Emotional symptoms of stress disorders and neuroplasticity in the amygdala** *7th Annual National Conference of the Indian Association of Private Psychiatry, India (November, 2006)***;** *59th Annual National Conference of the Indian Psychiatric Society, India (January, 2007)* • **Silent synapses speak up in the amygdala** *2nd Indo-American Frontiers of Science Symposium, U.S. National Academy of Sciences, USA (January,2007)*; *UK-Asia Pacific Developmental Biology Network Meeting* on *"Development and the Emergence of Function in the Nervous System", RIKEN Center for Developmental Biology, Japan (February, 2007)* • **Fragile X mental retardation protein and spine plasticity in the amygdala.** *Banbury Symposium on Fragile X Syndrome & Mechanisms of Synaptic Translation, Cold Spring Harbor Laboratory, USA (April, 2007)* • **"Good plasticity" in a "bad neighborhood": implications for stress disorders** *Distinguished Lecturer Series, Mood & Anxiety Disorders Program, National Institute of Mental Health, NIH,USA (July, 2007)*; *Invited Speaker, Gordon Research Conference, "The Amygdala in Health and Disease", USA (August, 2007).* • **The impact of experiences on the brain: implications for innovation and creativity.** *Oracle Corporation, India (August, 2007)* • **Modulation of fear and anxiety: "good plasticity" in a "bad neighborhood"** *2nd International Symposium of the Molecular & Cellular Cognition Society – Asia, Japan (September, 2007)* • **The changing brain: How visual and other behavioral experiences influence the brain.** *Plenary Lecture, 45th Annual Meeting of the International Society for Clinical Electrophysiology of Vision, India (September, 2007)* • **Effects of chronic stress on the amygdala & its prevention** *Invited Lecture, 5e Workshop International Neuroplasticité, France (September, 2007)* • **Impact of stress on the amygdala** *University of Lausanne, Switzerland (October, 2007)* • **Effects of behavioral stress on cells and synapses of the amygdala** *University of Zurich, Switzerland (October, 2007)* • **Stress, anxiety and the amygdala: postcards from a bad neighborhood** *Friedrich Miescher Institute, Switzerland (October, 2005)* • **Genetic rescue of symptoms of fragile X syndrome in mice**. *2nd International Conference on Early Intervention in Mental Retardation, India (Decmeber, 2007)*

P D Deepalakshmi

Attempting to sequence a full length protein by low resolution mass spectrometry. *Sir William Dunn School of Pathology, UK (July, 2005).* • **Top-down approach of sequencing proteins using Qtof.** *10th ISMAS Triennial Symposium on Mass Spectrometry, USA (January, 2006).* • **From genomics to proteomics.** *Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore (February, 2006).* • **Top-down sequencing and characterisation of large peptides by quadrupole time-of-flight mass sectrometry.** *Indian Institute of Science, India (November, 2006).*

A K Ghani

Uncovering underlying input functions in rat olfactory bulb neural responses: The central role of respiration phase locked firing. *Salk Institute, USA (February, 2007).*

G Hasan

InsP3 signaling: Acute or chronic? *Brandeis University, USA (October, 2005).* • The InsP3 receptor and calcium homeostasis in neuronal function. *Annual Meeting of the Society for Biological Chemists, Central Drug Research Institute, India (November, 2005).* • Genetic interactions of InsP3 receptor mutants reveal differential modes of intracellular calcium signaling. *International Workshop on Molecular Physiology of intracellular calcium signaling at Coorg, India (December, 2005).* • Co-ordination of the *Drosophila* flight circuit by the Inositol 1,4,5-trisphosphate receptor. *8th NBNI meeting, Japan (July, 2006).* • The Inositol 1,4,5-trisphosphate receptor and neuronal calcium homeostasis. *Frontiers of Science invited lecture, Bangalore University, India (February, 2007).* • Calcium homeostasis and *Drosophila* flight. *University of Cambridge, UK (April, 2007).* • Calcium homeostasis and *Drosophila* flight ~V when multiple wrongs make a right. *National Brain Research Centre, India (June, 2007).*

S P Koushika

Motoring along neurons to make and clean up the synapse: A view from *C. elegans*. *Indian Institute of Science, India (July, 2005).* • *Indian Institute of Technology, India (November, 2005).* • Motoring along neurons to clean up the synapse: A *C. elegans* perspective. *SBC Meeting at Lucknow, India (November, 2005). ISDB Meeting at Pune, India (March, 2006).* • Mitochondrial transport in *C. elegans* neurons. *Indo-US Mitochondrial Meeting, Centre for Cellular and Molecular Biology, India (January, 2007).* • Model organisms and axonal transport motors. *Traffic workshop at TIFR, India (March, 2007).* • Cell biology of retrograde transport. *Anna University, India (April, 2007).*

K S Krishnan

Genetics of synaptic vesicle recycling. *Gulbarga University, India (August, 2006).* • Cone snail venoms. *Guwahati University, India (November, 2006).* • Brain basics. *Meerut University, India (February, 2007).* • Biodiversity. *St. Stephen's College, India (May, 2007).*

Y Krishnan

First blueprint, now bricks – DNA reinvented. *DBS Annual Talks, Tata Institute of Fundamental Research, India (August, 2005). Monsoon Meeting, SCRAC, ACTREC (August, 2005).* • Creating novel functional nanostructures using Four-stranded DNA. *Workshop on Healthcare and Nanotechnology, Shanmugha Arts, Science, Technology & Research Academy, India (May, 2005).* • Unusual nucleic acid structures through the eyes of human telomerase RNA. *Bioblooms 2006. MS Ramaiah Institute of Technology, India (March, 2006).* • Structural DNA Nanotechnology – DNA as construction material on the nanoscale. *Nanomaterials: An emerging area of nanotechnology. Dr Ambedkar Institute of Technology, India (April, 2006.).* • DNA as construction material on the nanoscale. *Mid Year Meeting, Indian Academy of Sciences, India (July, 2006).* • First blueprint, now bricks – DNA is construction material on the nanoscale. *Building futures. First Indo-UK Nanotechnology Conference at Kolkata, India (November, 2006).* • First Blueprint, now Bricks – DNA is construction material on the nanoscale. *St. Joseph's College, India (December, 2006).* • Stringing quartets: Fourstranded DNA nanowires: Nucleation, aggregation and growth. Jawaharlal Nehru Centre for Advanced Scientific Research, India *(January, 2007).* • Fourplay with DNA: I-tetraplexes and structural DNA nanotechnology. *University of Cambridge, UK (March, 2007).* • Alternative approaches to structural DNA nanotechnology. *1st International Symposium of Nano Medicine - from basic to applications, Japan (April, 2007). The XVth Conversation, USA (June, 2007). Arizona State University, USA (June, 2007). New design paradigms in structural DNA nanotechnology. Stanford University, USA (June, 2007).*

M K Mathew

Architecture and choreography in a membrane protein: The Voltage-Gated K^+-channel. *Centre for Cellular and Molecular Biology, India (April, 2005).* • Form and function in a transmembrane protein: The Voltage - Gated K^+-channel. *Indian Institute of Technology at Chennai, India (July, 2005).* • Ion transport mechanisms in salt tolerance: A rice story. *Centre for Cellular and Molecular Biology, India (December, 2005).* • The Voltage Dependent Anion Channel of mitochondria: A conserved element of cell death pathways in plants and animals. *Central University, India (April, 2006).* • Tunneling through the biological membrane: The architecture of a Voltage-Gated Ion Channel. *School of Life Sciences, Central University, India (April, 2006).* • Ion transport systems and salt tolerance in plants: A rice story. *School of Life Sciences, Central University, India (April, 2006).* • Salt tolerance: A rice story. *Planetarium, Bangalore (June, 2006).* • Form and function in a membrane protein: The Voltage-Gated K^+-channel. *Bharatiar University, India (October, 2006).* • Transducing voltage sensing into channel opening: Cooperativity in a K^+-channel. *Society for Biological Chemists, India (February, 2007).*

M Puranik

Dynamics of CO binding to heme proteins. *Discussion meeting on Applications of Spectroscopy, Bangalore, India (February, 2005).* • Protein and nucleic acid structure and dynamics from resonance Raman spectroscopy. *Max Planck Institute for Biophysical Chemistry, Germany (September, 2005).* • Mechanisms of DNA damage and repair. *Department of Physics and Astronomy. University of Aalborg, Denmark (October, 2005).* • Dynamics of CO binding to heme

proteins. *Indo-Japan Symposium, Bangalore, India (February, 2006).* • Biological applications of Raman spectroscopy. *Discussion meeting on applications of Free Electron Lasers, Goa, India (March, 2006).* • Biophysical and computational studies of DNA damage and repair mechanisms. *NCBS-JNCASR-Harvard Symposium on "Interdisciplinary Materials Science, Computation and Biology", Bangalore, India (August, 2006).* • Nanosecond dynamics during protein-ligand interaction. *Manipal University, India (October, 2006).* • Ultraviolet resonance Raman markers for protein-nucleic acid interaction. *Asian Spectroscopy Conference, Bangalore, India (January, 2007).* • Resonance Raman spectroscopy of protein ligands as a probe of their amino acid environment. *Indo-Australia Meeting on 'Raman imaging to understand processes in live cells' at Bangalore, India (August, 2007).* • Ultraviolet resonance Raman markers for damaged DNA. *LS Symposium, Bhabha Atomic Research Centre, India (December, 2007).* • Quantum mechanical modeling of ligands. *Advanced course on Molecular Modeling and Protein-Ligand Interactions at Bangalore, India. (December, 2007).*

S Quader

Sexual size dimorphism and variance in reproductive success. *University of Cambridge, UK (March, 2005).* • Sexual selection and the evolution of sexual size dimorphism in birds: A comparative analysis. *Indian Institute of Science, India (August, 2005).* • Setting spatial priorities for conservation. *University of Aberdeen, UK (October, 2006).* • Prioritising conservation across species' ranges. *Royal Society for the Protection of Birds, UK (October, 2006).*

U Ramakrishnan

Genetic insights into the evolution of humans and culture, science and spirituality. *Bangalore University, India (August, 2005).* • Multi-locus approaches to understanding the history of human populations. *Annual meeting of the Anthropological Survey of India, India (March, 2006).* • Evolution in action: What ancient DNA tells us about the past. *Asia Pacific International Molecular Biology Network Annual meeting, Kuala Lumpur, Malaysia (September, 2006).* • Genetic time travel: What ancient DNA tells us about the past. *Frontiers of Science, Irvine. (November, 2006).* • Genetic time travel: Understanding the past using ancient and modern DNA. *National University of Singapore, Singapore (March, 2007). Workshop in Molecular Ecology, Coorg, India (March, 2007).* • Indian tigers retain more than their share of genetic variation. *Population genetics and Animal conservation, India (September, 2007).* • Discovering cryptic biodiversity in the Eastern Himalayas using molecular tools and phylogenetic approaches. *Conservation genetics, India (September, 2007).* • Genetic time travel in South Asia. *Cardiff University, USA (October, 2007).*

K R Rau

Pulsed laser-induced damage in rat corneas: Time-resolved Imaging of physical effects and acute biological response. *Conference on Frontiers in Optics, USA (September, 2007).*

V Rodrigues

Neural basis of behavioral modification in *Drosophila*. *Institute of Molecular and Cell Biology, Singapore (September, 2005).* • Change and stability in olfactory circuits. *Tamasek Life Science Laboratories, Singapore (September, 2005).*

A Sarin

Intramolecular interactions in Bax regulate inhibition by Bcl-2/Bcl-xl, *Annual meeting of the Society of Biological Chemists, Lucknow, India. (November, 2005).* • Pathways regulating activated T-cell survival. *Molecular Insights into Digestive Disorders, Fourth International Winter Symposium, Christian Medical College, India. (December, 2005).* • Dying to remember – regulated deletion of activated T-cells and the implications for immune memory. *Annual Talks, Tata Institute of Fundamental Research, India (August, 2006).*

G V Shivashankar

Functional organization of chromatin assembly within living cells. *Annual Talks, Tata Institute of Fundamental Research, India (August, 2006).*

R Sowdhamini

Enhanced Prediction of substrate specificity and accurate function association to gene products by the study of conserved motifs. *Genome Institute of Singapore, Singapore (September, 2005).* • Protein structural databases in BIOINFO 2005. *Asian Bioinformatics meeting, Busan, Korea (September, 2005).* • Genomic distribution of protein domain superfamilies *Navodaya School, India (October,2005).* • Structural motifs in protein domain superfamilies. *Central Drug Research Institute, India (November, 2005)* • Computational approaches to structure prediction of proteins. *Shanmugha Arts, Science, Technology & Research Academy, India (January, 2006).* • Structural domains and domain excursions in proteins. *National Workshop on Application of Bioinformatics in Molecular & Structural Biology, Bose Institute, India (February, 2006).* • Integration of structural bioinformatics and gene expression for enhanced function prediction of gene products. *CSIR-NSFC workshop on Genome Informatics between India and China, Institute of Genomics and Integrative Biology, India (June, 2006).* • Genome-wide survey of O-protein phosphatases. *Laboratory of Molecular Biology, UK (August 2006). INCOB 2006 satellite meeting on Computational Insights into Biological Systems, Indian Institute of Science, India (December, 2006).* • Computational approaches to protein science. *John Innes Centre, UK (August, 2006).* • Integrated sequence databases and clustering of functional groups. *University College, Ireland*

(August, 2006). • **Domain architectures of genes containing O-protein phosphatases model organisms.** *36th National Seminar on Crystallography, University of Madras, India (January, 2007).* • **O-protein phosphatases in signal transduction pathways.** *One-day Bioinformatics meeting, Bharathiar University, India (February, 2007).* • **Cross-genome comparisons of plant serine proteases.** *Structural Biology symposium, Centre for Cellular and Molecular Biology, India (February, 2007)* • **Structural motifs in protein superfamilies** *Indian Institute of Technology, Delhi (March, 2007).* • **Genome-wide survey of plant serine proteases.** *Reunion University, France (April, 2007).* • **Structurally conserved and variant regions in protein domain superfamilies: Themes emerging from evolutionary divergence.** *Albany conference: The 15th Conversation, USA (June, 2007).* • **Cross-genome comparisons of plant serine proteases.** *Genome Science Center, Japan (October, 2007).*

V Sriram

Study of membrane remodeling using genetic model system - *Drosophila melanogaster* *Indian Institute of Technology (June, 2005).* • **Study of mitochondrial remodeling using a genetic model system *Drosophila melanogaster.*** *DBS Annual talks, Tata Institute of Fundamental Research, India (August, 2005). International workshop on molecular physiology of intracellular calcium signaling, Coorg (December, 2005).* • **Mechanisms of mitochondrial remodeling**. *Christian Medical College, India (February, 2006). Centre for Cellular and Molecular Biology, India (October, 2006).* • **Study of mitochondrial remodeling using genetic model system- *Drosophila melanogaster.*** *Shanmuga Arts, Science, Technology and Research Academy, India (December, 2006).* • **Role of mitochondrial fission and fusion during programmed cell death.** *Indian Academy of Sciences, India (July, 2007)* • **Mechanisms of mitochondrial remodeling.** *Annual meeting of the Indian Society for Developmental Biologists, Agra, India (October, 2007).*

M Thattai

The persistence of cellular memory. *Indian Institute of Technology, Chennai, India (September, 2005).* • **Anticipation and response in cell signaling.** *International Conference on Systems Biology, Harvard Medical School, USA (October, 2005).* • **Gene networks in theory and practice**. *Indo-US Frontiers in Engineering Symposium, Agra, India (March, 2006).* • **General Motors Research Meeting,** *Bangalore India (March, 2006). University of California at Berkeley, USA (July, 2006).* • **Encoding evolvability: The hierarchical language of polyketide synthase protein interactions**. *University of California at Berkeley, USA (July, 2006). University of Tuebingen, Germany (September, 2006).* • **Gene networks in theory and practice**. *John F. Welch Technology Centre, Bangalore, India (September, 2006). Indian Institute of Science, India (October, 2006). Unilever Research Centre at Bangalore, India (October, 2006).* • **Synchronizing bacterial cell cycles using a synthetic genetic network.** *International Genetically Engineered Machines Competition, Massachusetts Institute of Technology, USA (November, 2006).* • **The origins of specificity in polyketide synthease protein interactions.** *Harvard University, USA (November, 2006). National Chemical Laboratories, India (November, 2006). Computational Insights into Biological Systems Meeting, Indian Institute of Science, India (December, 2006).* • **How to build and test a genetic network in six weeks.** Shaastra Engineering Festival, Indian Institute of Technology, Chennai, India (October, 2007).

J B Udgaonkar

How do proteins fold, unfold and misfold? *National Symposium on molecules interaction and design: A biophysical perspective organized by the Indian Biophysical Society, Bose Institute, India (January, 2006).* • **Collapse and cooperativity in protein folding.** *Asia-Pacific workshop on Biological Physics, Singapore (July, 2006). International Conference on Structure and Dynamics, Indian Institute of Chemical Biology, India (December, 2006).* • **Cooperativity in protein folding.** *National Symposium on 21st Century Research in Biochemistry & Biophysics, University of Kalyani, India (February, 2007)*

K VijayRaghavan

***Drosophila* as a model system for molecular genetics.** *Indian Institute of Science, India (April, 2005).* • **Patterning muscle founders in adult *Drosophila* by the autonomous action of *Hox* genes.** *International Society of Developmental Biology Meeting, Australia (September, 2005).* • **Creating, building and sustaining world- class institutions**. *National Symposium on Competitiveness and Preparedness of India in S&T in the coming decades: Challenges, opportunities and strategies, National Institute of Advanced Studies, India (October, 2005).* • **Maggots and the mechanisms of making movement.** *74th Annual General Body Meeting of the Society of Biological Chemists, Central Drug Research Institute, India (November, 2005).* • **Treating human disease and understanding fly development: Divergent paths linked by genetics and cell-biology.** *Christian Medical College, India (February, 2006).* • **Genes, neurons and the development of locomotion.** *National Science Day celebration, University of Hyderabad, India (February, 2006).* • **Frontier areas in biotechnology.** *Maharani Lakshmi Ammanni College, India (September, 2006).* • **Genes and the development of behaviour.** *Strand Life Sciences, India (October, 2006).* • **Development of locomotive ability.** *Indian Institute of Science, India (October 2006).* • **Human Genomics.** *4th NIAS-DST Training Program on Multidisciplinary perspectives on Science & Technology, National Institute of Advanced Studies, India (November, 2006).* • **Molecular marker techniques and gene gun use in crop improvement.** *University of Agricultural Sciences, India (January, 2007).*

E Vivien

Notch1 signalization pathway in human epithelial cancer. *Reva Institute of Management, India (March, 2007).*

Trainees

Biochemistry, Biophysics and Bioinformatics

Priya Sivaramakrishnan *Stella Maris College, Chennai* • Krishna Kumar *Indian Institute of Technology, Mumbai* • Jai Prakash *Indian Institute of Science, Bangalore* • Ankur Jain *Indian Institute of Technology, Kharagpur* • Himanshu Sharma *Indian Institute of Technology, Kharagpur* • K C Sushma *Bangalore University, Bangalore* • R Vidhya *Centre for Biotechnology Anna University, Chennai* • R Sandeep *Anna University, Chennai* • Vinay Ramabhadran *Anna University, Chennai* • Nimish Gupta *Indian Institute of Technology, Chennai* • R Krishnan *Anna University, Chennai* • Pankaj Barah *Hindustan College of Arts & Science, Tamil Nadu* • P Sethuramasundaram *Anna University, Chennai* • R Premraj *Anna university, Chennai* • Asha Narayan Sharma *Anna university, Chennai* • M Padmanabhan *Anna university, Chennai* • Prabuddha Bansal *Indian Institute of Technology, Chennai* • Peeyush *Birla Institute of Technology and Sciences, Pilani* • Aakash Basu *Indian Institute of Technology, Kanpur* • Sidhartha Goyal *Princeton University, USA* • Reshma Padmini Shetty *Massachusetts Institute of Technology, USA* • Manash Shankar Chatterjee *Visveswaraiah Technological University, Belgaum* • P J Gregor *Bharathiyar University, Coimbatore* • Rakesh Mishra *Anna University, Chennai* • Sujitha Mary *Bharathiar University Coimbatore* • Srinivas Ramachandran *Anna University, Chennai* • Anchal Chandra *Vellore Institute of Technology, Tamil Nadu* • Arthi Deiva *Anna University, Chennai* • Akshay Surendra *Shanmugha Arts, Science, Technology & Research Academy University, Tamil Nadu* • Vinay Ramachandran *Anna University, Chennai* • Soumik Basuray *Madurai Kamaraj University, Madurai* • M N Kiran Kumar *Mysore University, Mysore* • A Yamini *Anna University, Chennai* • Harsha N Baver *Amrita Vishwa Vidyapeetham, Kerala* • R. Hayagreevan *Anna University, Chennai* • Garrit Jenstck *University of Gottingen, Germany* • Shabana Mehtab Shaik *Sri Krishna Devaraya Unviersity, Anantapur* • Venkatessh Moktali *Vellore Institute of Technology, Tamil Nadu* • A Sharmila *Bharathidasan University, Coimbatore* • M C Ritika *Rajiv Gandhi University of Health Sciences, Bangalore* • S Saranya *Anna University, Chennai* • Sandeep Kumar *Indian Institute of Technology, Kanpur* • Angika Basant *University of Delhi, Delhi* • Sayantan Chatterjee *National Institute of Technology, Surathkal* • Ashish Pancholi *Indian Institute of Technology, Kanpur* • Nutan *Guru Nanak Deo University, Panjab* • S Jagadish *Anna University, Chennai* • M Abishek *Anna University, Chennai* • Pradeep Lal *Indian Institute of Technology, Chennai* • Antony Augustin *Madurai Kamaraj University, Chennai* • R Kalpana *Shanmugha Arts, Science, Technology & Research Academy University, Tamil Nadu* • Ramya Krishnan *Cochin University of Science and Technology, Cochin* • L R Veena *Vishveswaraiah Technological University, Bangalore* • V Pavan Kumar Reddy *Bangalore University, Bangalore* • Manish Kumar *SBSPG Institute, UP* • V Ramya *Anna University, Chennai* • Rohan Mitra *Bangalore University, Bangalore* • C Omeena *Bangalore University, Bangalore* • Animesh Bhattacharya *Madurai Kamaraj University, Madurai* • G Muthukumar *Alagappa University, Tamil Nadu* • P Soumya *University of Mysore, Mysore* • Elizabeth Bannon *Drew University, USA* • P Sreenivasula Reddy *Bangalore University, Bangalore* • S Vinod Kumar *Bharathiyar University, Coimbatore* • Shreyasi Thakur *University of Pune, Pune* • Nivedh Jayanth *Bangalore University, Bangalore* • Asifkhan *Bharathiar University, Coimbatore* • G Kavitha *Anna University, Chennai* • Paras Chopra *Delhi University, Delhi* • Nitya Ramkumar *Vellore Institute of Technology, Tamil Nadu* • S Radhika *Bharathiar University, Tamil Nadu* • Gaurav Jain *Vellore Institute of Technology, Tamil Nadu* • P Mithun *Madurai Kamaraj University, Madurai* • P Nagarajan *Bharathiar University, Tamil Nadu* • Ratnadeep Mukherjee *Bangalore University, Bangalore* • Shipra Gupta *Vellore Institute of Technology, Tamil Nadu* • Divya Varma *Amrita Vishwa Vidyapeetham, Kerala* • R Sharanya *Madras University, Chennai* • S Harish *University of Madras, Chennai* • Chaitanya Gokhale *Sikkim Manipal University, Gangtok* • R Vijeta *University of Mysore, Mysore* • Chaitra S Rao *University of Mysore, Mysore* • Angelina John *Bangalore University, Bangalore* • M Senthil Kumar *Anna University, Chennai* • Gourab Chatterjee *Indian Institute of Technology, Kharagpur* • Afreen Ferdoash *Indian Institute of Technology, Kharagpur* • Krishna Ramkumar *Indian Institute of Technology, Mumbai* • Varun Sreenivasan *University of Mumbai, Mumbai* • Raashi Sreenivasan *Anna University, Chennai* • Parwathi Shankara Menon *Sheffield Hallam University, UK* • Nimi Goapalakrishnan *Cochin University of Science & Technology, Cochin* • Bhaskar Bhushan *Delhi University, Delhi* • P G Sai Srinivas *Indian Institute of Technology, Chennai* • S Sivaraman *Bharathiyar University, Coimbatore* • Sunaina Surana *Calcutta University, Kolkata* • Shashanka Sekhar Kundu *Delhi University, Delhi* • Navneet Rai *Indian Institute of Technology, Mumbai* • Sushant Nivasrao More *Indian Institute of Science Education and Research, Pune* • Aahana Nibidita Ganguly *University of Delhi, Delhi* • Nirmala Ogirala *Bharathidasan University, Chennai* • Vini Gautam *University of Delhi, Delhi* • Manav Singh *Birla Institute of Technology & Science, Pilani* • Shaik Naseer Pasha *Bangalore University, Bangalore* • K Gayathri *Anna University, Chennai* • Sonali Bhattacharjee *Bangalore University, Bangalore* • S Renuka *Annamalai University, Chennai* • Aparna Sunil Sherlekar *Manipal University, Manipal* • H Kitdorlang Dkhar *The Maharaja Sayajirao University of Baroda, Gujarat* • A Gopi *Bangalore University, Bangalore* • Gunja Bansal *Charan Singh University, Meerut* • Ashvini Kumar Dubey *University of Mysore, Mysore* • R Sai Sudha *Shamugha Arts Science, Technology & Rersearch Academy, Tamil Nadu* • B Poornima *Shamugha Arts Science, Technology & Rersearch Academy, Tamil Nadu* • S Marudachalam *Bharathiar University, Kerala* • Vinay Ganapathy *Banaras Hindu University, Varanasi*

Cellular Organization and Signaling

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Genetics and Development

R V Silpa *PSG College of Technology, Coimbatore* • Vinita Vasanth *Anna University, Chennai* • Amritha Ramakrishnan *Anna University, Chennai* • Vibha Chattoo *Dharm Singh Desai Institute of Technology, Gujarat* • Aditya Saxena, *University of Madras, Chennai* • Archana Murali *University of Madras, Chennai* • Kalyani Lal *H.N.B Garhwal University, Srinagar* • Thejaswi Shivanand *University of Mysore, Mysore* • D. Senthil Kumar *Alagappa University, Tamil Nadu* • Md. Farhan Alam *A.P.S. University, Patna* • Lakshmi Venugopal *Vellore Institute of Technology, Tamil Nadu* • Shilpa Harshan *Cochin University of Science & Technology, Cochin* • Ann Maria *Cochin University of Science & Technology, Cochin* • Jiffy James Vadakkan *Manipal University, Manipal* • Pramod Kumar *Madhav Institute of Technology & Sciences, Gwalior* • Tulip Nuwal *Anna University, Chennai* • Nidhi Singhal *Anna University, Chennai* • Poojitha Sitaram *Anna University, Chennai* • N Divya *Anna University, Chennai* • Abhishek Jayant Kulkarni *Banaras Hindu University, Varanasi* • Shantala A Hari Dass *Vellore Institute of Technology, Tamil Nadu* • S Nithya *University of Madras, Chennai* • S N Navya Shree *Kuvempu University, Bhadravathi* • Navneet A Vasistha *University of Delhi, Delhi* • Jazzier Sultan Parram *University of Kashmir, Kashmir* • T S Bhuvanesih *Anna University, Chennai* • Gudu Basha Shaik *Bharathidasan University, Tamil Nadu* • Zahoor Ahmad *Bangalore University, Bangalore* • Budhaditya Chowdhury *Visva Bharati Universtiy, West Bengal* • Kumar Vishal *Madurai Kamaraj University, Madurai* • S Chellam Gayathri *Anna university, Chennai* • Swathi Krishnan *Anna University, Chennai* • Akila Sridhar *Vellore Institute of Technology, Tamil Nadu* • J Michael Joseph *Alagappa University, Tamil Nadu* • A Madhan Kumar *Anna University, Chennai* • Sandeep Pawar *Madras University, Chennai* • Syed Mubarak Hussain *University of Kashmir, Srinagar* • Rozario Ilaventhan T *Anna University, Chennai* • Chua Ying Shi Physilia *Ngee Ann Polytechnic, Singapore* • Chia Kai Lin *Ngee Ann Polytechnic, Singapore* • Palvi Korgaonkar *University of Mumbai, Mumbai* • S Subhaashini *Anna University, Chennai* • Nimesh Jain *Indian Institute of Technology, Chennai* • B Swathi *University of Madras, Chennai* • P P Devika Sharanya *University of*

Madras, Chennai • **Megan L Srinivas** *Harvard University, USA* • **Neha Dewan** *TERI University, Delhi* • **Ambika Kamath** *Delhi University, Delhi* • **Melanie M Smith** *University of Pennsylvania, USA* • **Sahil Mahajan** *University of Madras, Chennai* • **Chandrima Home** *Saurashtra University, Gujarat* • **Meghna Rajendra Thakkar** *Dr. D.Y. Patil Vidyahpeeth, Mumbai* • **T V Krishnapriya** *Visveswaraiah Technological University, Belgaum* • **Nikhil Abraham** *Rajiv Gandhi University of Health Sciences, Bangalore* • **Bhagawat S Chandrasekar** *Alagappa University,Chennai* • **V N Nithu Prihya** *Anna University, Chennai* • **Usharani Parida** *Vellore Institute of Technology, Vellore* • **Rashmit Kaur** *Vellore Institute of Technology, Vellore*

Neurobiology

Sakshi Lalitkumar Goenka *St. Xaviers College, Gujarat* • **Bhumika S Shah** *St. Xaviers College, Gujarat* • **Sadhana Sridharan** *Visveswaraiah Technological University, Belgaum* • **Abhishek Chatterjee** *Calcutta University, Kolkata* • **V Archana** *Anna University, Chennai* • **S Preethi** *Anna University, Chennai* • **P Aravindakshna** *Birla Institute of Technology & Science, Pilani* • **Guruprasad Reddy Sure** *Himachal Pradesh University, Shimla* • **A. Shajahan** *Bharathidasan University,* Tamil Nadu • **Gargi Khare** *Massachusetts Institute of Techonology, USA* • **P Vasudeva** *Sri Venkateswara University, Tirupathi* • **Divya Sekhar** *Vellore Institute of Technology, Tamil Nadu* • **Sherin Mary Kurian** *Mahatma Gandhi University, Kerala* • **Shaili N Johri** *The Maharaja Sayajirao University, Gujarat* • **Sarit Pati Goswami** *Shanmugha Arts Science Technology & Research Academy, Tamil Nadu* • **Dushyant Mishra** *Vellore Institute of Technology, Tamil Nadu* • **Shiva Kumar** *Vellore Institute of Technology, Tamil Nadu* • **Meera Jayan** *Bharathiar University, Kerala* • **Satyajit Mahapatra** *Anna University, Chennai* • **H R Dharni Kumar** *Anna University, Chennai* • **Agila Somasundaram** *Anna University, Chennai* • **K Shilali** *University of Mysore, Mysore* • **Praveen Kumar** *University of Mysore, Mysore* • **Deepika Kaveri** *Bangalore University, Bangalore* • **G Thirupugal** *Madurai Kamraj University, Madurai* • **Kailash Tiwari** *Devi Ahilya Vishwavidyalaya, Indore* • **H S Sanjay** *Visveswaraiah Technological University, Belgaum* • **Seby John** *Rajiv Gandhi University of Health Sciences, Bangalore* • **Rashmi Sarniak** *Indian Institute of Technology Bombay, Mumbai* • **L Charanya** *Delhi University, New Delhi* • **Nisha Sambamurthy** *Anna University, Chennai* • **Sucharita Sen** *Banaras Hindu University, Varanasi* • **Suma Jaini** *Indian Institute of Technology, Kharagpur* • **Gopika G Nair** *Vellore Institute of Technology, Tamil Nadu* • **S Shobhana** *Anna University, Chennai* • **S Deepitha** *Anna University, Chennai* • **Saranya Ravi** *Bangalore University, Bangalore* • **Rajshri Joshi** *Delhi University, New Delhi* • **Samayita Das** *Visva Bharati University, West Bengal* • **Anjana Khanduri** *Vellore Institute of Technology, Tamil Nadu* • **P Sanjay Kumar** *Periyar University, Tamil Nadu* • **S Karthik** *Visveswaraiah Technological University, Belgaum* • **Debashis Banerjee** *Bangalore University, Bangalore* • **Malavika Murugan** *Vellore Institute of Technology, Tamil Nadu* • **M Latha** *Vellore Institute of Technology, Tamil Nadu* • **Hemant Kakkar** *Vellore Institute of Technology, Tamil Nadu* • **Nisha Venugopal** *Amrita Vishwa vidyapeetham, Kerala* • **Swathi Devireddy** *Sri Venkateshwara University, Tirupati* • **Nivin Scaria Varghese** *Al-Azhar College of Arts and Science, Kerala* • **Rishabh Kasliwal** *Indian Institute of Technology, Mumbai* • **Sucheta Kulkarni** *University of Pune* • **Joanna Chiang** *Bangalore University, Bangalore* • **Jyoti Khanna** *Trinity College, Spain* • **Robiya Joseph** *Calicut University, Kerala* • **P A Aswathy** *Bharathiyar University, Coimbatore* • **Kevin Y Zhang** *Harvard College, UK* • **Shafquat Azim** *Aligarh Muslim University, Varanasi* • **A S Asfa** *Anna University, Chennai* • **Atulya Iyengar** *University of Iowa, USA* • **Vishnu Anand** *Anna University, Chennai* • **Anupriya Srivastava** *Vellore Institute of Technology, Tamil Nadu* • **Koneru Sneha Latha** *Birla Institute of Technology & Science, Pilani* • **Marta Castellano Palomino** *University of VIC, Canada* • **G S Srinivas** *University of Delhi, Delhi* • **N Sundar Ram** *Anna University, Chennai* • **Sunjay Jude Fernandes** *Bangalore University, Bangalore* • **Monique Coersmeyer** *Ruhr-University, Germany* • **Neha Joshi** *Osmania University, Hyderabad* • **Shikha** *Panjab University, Panjab* • **Priya P Selvam** *Periyar University, Kerala* • **I Jennifer Sinthiya** *Bharathidasan University, Coimbatore* • **L Ramya** *Anna University, Chennai* • **N Srilakshmi** *Vellore Institute of Technology, Tamil Nadu* • **M K Renuga Devi** *Vellore Institute of Technology, Tamil Nadu* • **Madhuvika Murugan** *Vellore Institute of Technology, Tamil Nadu* • **P R Sudharshan** *Vellore Institute of Technology, Tamil Nadu*

Research Facility

Thomas Antony Choolackal *Madras University, Chennai*

MSc in Wildlife Biology and Conservation

Flying dragons: what do we know about them? Very little at the moment; but this will change once Dipti Humraskar finishes her Master's research. Her work on the ecology and behaviour of these amazing little gliding lizards of the Western Ghats is soon to begin. Dipti is one of 15 students in the second batch of the MSc course in Wildlife Biology & Conservation, run jointly by a consortium of organizations and housed at NCBS. She and her classmates are busy getting ready for the last semester of their program, in which each will design and execute a research study and write a dissertation based on it.

Why do leopards kill livestock and what can be done to mitigate the resulting conflict with humans? What are the causes of mortality of hatchling sea turtles emerging from their nests? Do rodents alter the population dynamics of rainforest trees by carrying away and burying seeds? What explains variation in the gut parasites of Gir lions? What are the habitat requirements of Gangetic dolphins? These are some of the questions that will be addressed by students of the 2006–2008 batch. They come from a diversity of backgrounds: Medicine, Veterinary Science, English, Geography, Zoology and Psychology. But they share a deep passion for nature and the environment, and are preparing to fan out across India to do their projects: from Rajasthan to Arunachal Pradesh, and from Kerala to Himachal Pradesh.

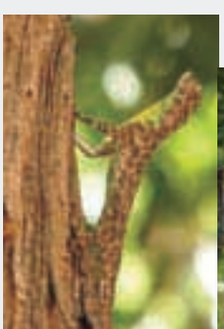
The earth's biodiversity is declining rapidly because of changes in the environment at global and local scales. Faced with this decline, it has become critical for us to understand patterns of biodiversity and natural resources, the ecological and evolutionary processes they depend on, their value to humans, their role in ecosystems, the causes underlying their decline, and ways to halt and reverse this decline. The "wildlife course" (as it is known for short) teaches enthusiastic students from all over the country how to address these issues. The dissertation projects follow one and a half years of coursework on the philosophy of science, quantitative methods, conservation genetics, ecological principles, animal behaviour, the social sciences and much more.

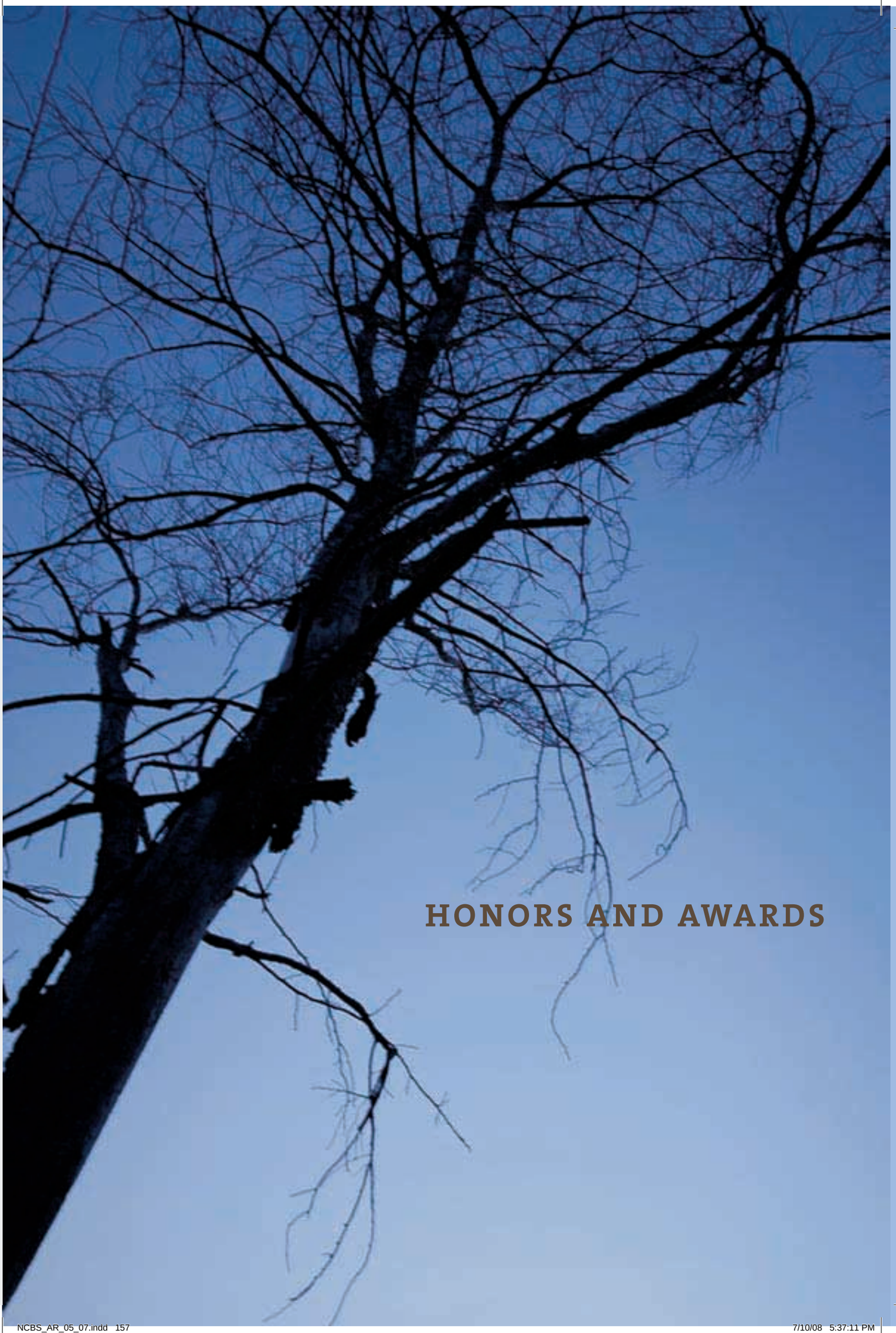
Sprinkled in between courses are field trips to a variety of natural areas to give the students hands-on experience in designing research projects and in practicing field techniques. Field trips always generate humorous anecdotes: about an instructor's bright magenta leech-proof socks, about malfunctioning GPS units causing a wild-goose chase in Periyar, about a student's uncanny ability to smell elephants at 400 metres... But it's certainly not all fun and games – there are real hazards associated with fieldwork, including poisonous plants, ticks, leeches and snakes; being mock-charged by an elephant in Nagarahole is not an experience the second batch is likely to forget soon.

The course was started in 2004 by the Centre for Wildlife Studies (CWS), the National Institute for Advanced Studies (NIAS), the Manipal Academy for Higher Education (MAHE), and NCBS. Students are taught by faculty from these organizations as well as by guest faculty from across the country. The course has attracted great interest, with nearly 300 candidates applying for the first batch and nearly 500 for the second. The 15 students of the first batch (which ended in 2006) have now dispersed; some have joined PhD programs and others are working for wildlife and conservation NGOs. Since they graduated, they have published papers in leading journals in the field, and have won awards at international conferences for their dissertation research.

The success of the first two batches and the growing importance of this field of biology have prompted NCBS to take a larger role. From the third batch (beginning in August 2008), the course will be run by NCBS (with continuing financial and academic support from CWS), and the degree awarded by TIFR. With this, NCBS formally brings under its umbrella training and research in wildlife, ecology, and the environment; critical areas for continued human well-being in a rapidly changing world.

Suhel Quader





HONORS AND AWARDS

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Honors

U S Bhalla	Department of Atomic Energy Science Research Council – Outstanding Research Investigator award (2005) | Board member, International Society for Systems Biology (2006) | Shanti Swarup Bhatnagar Award (2007)
S Chattarji	Research Award from the Fragile X Research Foundation (FRAXA), USA (2005) | Appointed to the Editorial Board of "Neural Plasticity" (2006) | Elected to the Council of the Molecular and Cellular Cognition Society (MCCS) (2006) | Elected to serve as the Secretary of MCCS-Asia (2006) | Awarded Indo-Swiss Bilateral Research Initiative Fellowship (2006) | Appointed to the Editorial Board of "Journal of Neurophysiology" (2007) | Appointed to serve as Review Editor for "Frontiers in Systems Neuroscience" (2007) | Distinguished Lecturer, Mood & Anxiety Disorders Program, National Institute of Mental Health, NIH, USA (2007)
G Hasan	Elected Fellow of the Indian National Science Academy (2005) | Elected Fellow of the Indian Academy of Sciences (2006)
Y Krishnan	Associate of the Indian Academy of Sciences (2005) | Innovative Young Biotechnologist Award, Department of Biotechnology, Government of India (2007). | Award from the British Council, India (2007)
S Mayor	S Mayor and Aki Kusumi were awarded ICORP grant by the JST for the years 2005-2010 for studying membrane mechanisms. | Appointed to the Editorial Board of "Traffic"(2005) | Appointed to the Reviewing Board of "Molecular Biology of the Cell" (2005) | J C Bose Fellowship (2007)
M Puranik	Max Planck-India Fellow (2004-2008) | Innovative Young Biotechnologist Award, Department of Biotechnology, Government of India (2007)
S Quader	Editor, Forktail, The Journal of Asian Ornithology. | Member of the Red List Index working group under the Biodiversity Assessments sub-committee of the Species Survival Commission Steering Committee of the IUCN. | Appointed to the Editorial Board of "Current Conservation"
U Ramakrishnan	Research Fellow, Wildlife Conservation Society, India (2005) | Kavli Frontiers of Science Fellow, National Academy of Sciences (2006)
K R Rau	Fogarty International Research Collaboration Award from NIH, USA (2005-2008)
V Rodrigues	J C Bose Fellowship (2007)
A Sarin	National Bioscience award for Career Development, Department of Biotechnology, Government of India (2005-2006)
V Sriram	Appointed Associate of the Indian Academy of Sciences (2006) | Innovative Young Biotechnologist Award, Department of Biotechnology, Government of India (2007) | Young Scientist Award, Indian National Science Academy (2007)
P Sharma	Awarded the INSA Young Scientist Medal (2005)
O Siddiqi	Padma Vibhushan (2006) | Honorary Degree DSc (honoris causa) from Jamia Millia Islamia (2006) | Honorary Degree DSc (honoris causa) from Indian Institute of Technology, Mumbai (2006)
R Sowdhamini	National Woman Bioscientist award under the Young Category (2006) | DBT National Bioscience Career Development Award (2007) | Appointed to the Editorial Board of "Journal of Biomolecular Structure and Dynamics" | Appointed Associate Editor in "Bioinformation Journal" | Visiting Professorship offered to work in Laboratoire Biologie Genetique Moleculaire (2007) | Visiting Professorship in Bharathidasan University (2007)
G V Shivashankar	BM Birla Science Prize (2006)
M Thattai	Associate, Indian Academy of Sciences (2005-2009) | Max Planck-India Fellow (2004-2008)
J B Udgaonkar	J C Bose Fellowship (2007)
K VijayRaghavan	J C Bose Fellowship (2006)

Awards

N Agrawal	Howard A Schneiderman Endowed Scholarship, Surdna Foundation and International Brain Research Organization Scholarship to attend the Neural Systems and Behavior course at Marine Biological Laboratory, USA (2006)
A Bhattacharya	IBRO/ISN travel grant to attend the Neurochemistry School at the National University of Singapore, Singapore (2006) | The Tokuji Ikenaka prize for the best poster presentation at the 7th Biennial meet of the Asia-Pacific Society for Neurochemistry, Singapore (2006)
T S Chakraborty	Journal of Experimental Biology, Company of Biologist Travel Award to work in Chun-Fang Wu's laboratory in University of Iowa, USA (2006) | IBRO-FAONS Travel Award to present poster at 4th FAONS Congress, Hong Kong (2006) | CCSTDS Travel Award to present poster at the Annual Meeting of Society for Neuroscience, San Diego, USA (2007)
A Chiang	IBRO and DBT travel awards for an oral presentation in the "Synapses: From molecules to circuits and behavior" meeting at Cold Spring Harbor Laboratory, USA (2007)
R Dixit	Received a fellowship from the Society for Neuroscience and International Brain Research Organization to attend the "Neurobiology of *Drosophila* course" at Cold Spring Harbor Laboratory, USA (2005) | Awarded travel fellowship from the Society for Neuroscience to attend the Annual meeting of the Society (2006) | Fellowship from the Company of Biologists and Sarojini Damodaran Fellowship to visit Michael Bate's laboratory at University of Cambridge, UK (2005)
D Dutta	NCBS-DBS Best Publication Award (2005)
Gayathri, V N Jayanth, A Suvrathan, N Vyas and MSc wildlife students	Best poster awards in the NCBS Annual Review talks (February, 2007)
S K Jha	1st prize for poster presentation in biological sciences at "10th ISMAS Triennial International Symposium on Mass Spectrometry", India (2006)
A G Khan	IBRO Travel Fellowship to attend FENS Forum in Vienna, Austria (July, 2006) | IBRO studentship to work in Cold Spring Harbor Laboratory, USA (2007)
S Kavitha	IBRO Fellowship to attend the 9th IBRO School at Hong Kong (2006)
T T Maliekal	Award from Department of Science & Technology, SERC Fast Track Scheme for young scientists (2005)
M N Modi	Best 1st year Integrated PhD student award (2006)
S Maharana	Best 1st year PhD student award (2006)
R Rajan	Fellowship from CNS 2005 and from the Department of Science and Technology, India for attending CNS 2005, USA. | Best poster presentation award at CNS 2005, USA.
S Ravinder	Best 1st year Integrated PhD student award (2005)
B Roy	Sarojini Damodaran Fellowship to visit Erich Buchner's laboratory, University of Wuerzburg, Germany (2005)
K Sridevi	TAA-Zita Lobo memorial award for the best thesis in Biological/Chemical Sciences, TIFR (2005)
M G Swetha	Best 1st year PhD student award (2005)
A H Wani	2nd prize for poster presentation in biological sciences at "10th ISMAS Triennial International Symposium on Mass Spectrometry", India (2006)
S Ziegenhorn	National Science Foundation International Research Fellowship, USA (2007-2009)

SUPPORT

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Research facilities

In the next few years, NCBS will have a new research building. Existing laboratory space will more than double in size, and it will allow NCBS to grow to a critical mass of more than forty faculty members and investigators. Ample space will become available to initiate or augment existing centralized research facilities. These will include a transgenic animal facility as well as a spectroscopy and mass spectrometry facility. Imaging, computing and the library will have new space to expand into.

Much effort has gone into planning the new building by our project and engineering staff. Intensive discussions with scientists at NCBS and elsewhere, as well as visits to laboratories in other countries, were part of the planning process. A new architect was selected, and a plan has been finalized for a new modern-looking building juxtaposed next to our now ten year old castle-like building. Major highlights of the design of the new building include shared rather than individual laboratory space, and a built-in flexibility that will allow easy reorganization for any new activity, for many years to come.

The past two years have seen the establishment of a genuinely world-class central imaging and flow facility (CIFF), largely due to the perseverance of Drs Mayor and Shivashankar. The range of optical and force microscopy imaging, as well as cell flow capabilities, now available at NCBS, matches or surpasses that available at most biology departments anywhere else in the world.

In this context, it is important to appreciate the efforts of the people who manage our evolving centralized research facilities. Dr Krishnamoorthy of the CIFF, Dr Mohan of the Animal Facility, Dr Deepalakshmi of the Mass Spectrometry Facility, and Dr Ain of the budding Transgenic Animal Facility play specialized roles that enable students to carry out their experiments in many different and innovative ways.

Major reorganization of existing laboratories has also occurred over the past year, with the joining of a Young Investigator, Dr Quader as well as two new faculty members, Drs Nair and Sane. In addition, two joint faculty members, Drs Rodrigues and Krishnan transferred their research activities fully to NCBS from TIFR, Mumbai. Administration and engineering staff moved from occupying laboratory space to a swanky new building. Staff members of the Research Services and Engineering Services, the Project office, as well as of the Administration, ensured that the reorganization of laboratory space occurred with relatively little disruption to ongoing activities.

As the centre has continued to grow, with now 25 independent research groups, it has become necessary to share responsibilities in more formal ways. Dr Mayor became Chairman of our Engineering and Maintenance Services Committee, and now oversees the functioning of an activity critical to the efficient functioning of the centre. Dr Bhalla became Chairman of the Research Services Committee, and supervises the functioning of our research support staff, which enables efficiency in our research endeavors.

Jayant Udgaonkar
Dean and Head, Research facilities

Artist representation of the laboratory building.
Construction starting soon.

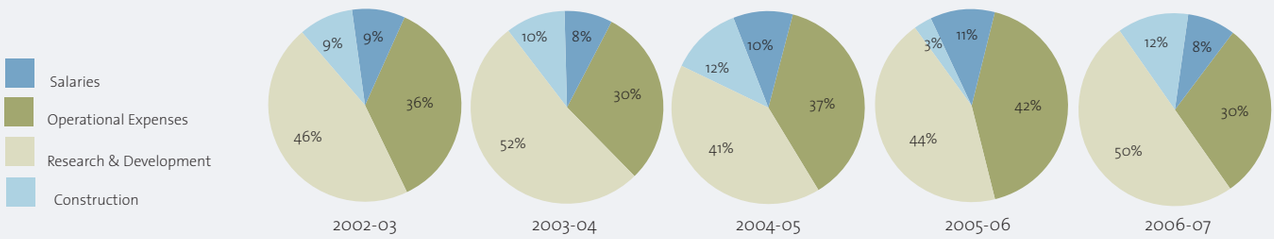
Administration Finance and Engineering Services

What is loosely called the 'administration' at NCBS is really the mesh of services that range from engineering and architecture, laboratory maintenance, campus services, new developments and the core finance and general administration required for all of these. The efficient functioning of the centre is a consequence of all of us interacting as a team. Each major area has its head, who reports to the NCBS Director. As Head of Administrator and Finance, this report only touches on most aspects non-academic functioning and is intended as an overview.

During this period, we have constructed an extension to our existing academic and research block building, set up a state-of-the-art imaging and flow facility and established new laboratories for our scientists. Along with this, we have handled a range of administrative and financial functions ranging from recruitment of faculty, staff, research scholars, financial budget & accounts and have managed our ever growing meetings and workshop programme.

If managing our growth over the last five years is viewed as being, at least, modestly successful we are also aware that every success had its challenges. We have viewed every challenge in a positive manner and have negotiated them in an innovative way.

The chart below summarises our financial position for last five fiscal years (April 02 - March 07):



As can be seen from the table, we have continued to spend a major portion of our budget on research. Our salary budget constitutes around 9 percent of our total budget and has remained at this level for the last five years. Part of the reason is that to be operationally effective and cost efficient, we outsource our routine maintenance and support services. However in doing so, we ensure that the contractual obligations are fulfilled with quality.

We have continued to receive a significant portion of our budgetary support from Extra Mural Grants. Our scientists have been extraordinarily successful in generating national and international funding. From Rs.36 million in 2002-03 we have been able to raise our extra mural funding to the level of Rs.125 million in 2006-07. The strong external support that we have obtained speaks highly about the drive of our various research groups.

To facilitate effective research, in addition to an excellent administration and finance group, we have a highly dedicated and competent Engineering Services & Maintenance Group. The role of this group has been crucial, as they have been instrumental in construction of our Mandara Hostel, Extension Block to the current Academic and Research Block, Central Imaging and Flow Facility and modification of various laboratories for the scientists during the last five years. The Engineering Services and Maintenance Group have ensured that these facilities are constructed in an aesthetic manner. Currently, this group is concentrating its efforts on construction of a state-of-the-art laboratory building for scientists who

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would be carrying out research in frontier areas of biology and other inter-disciplinary areas. Along with this, a new dining-cum-sports complex at the present campus and a housing complex at Chikkabommasandra is also being planned. It is expected that the construction will be completed by the middle of 2010.

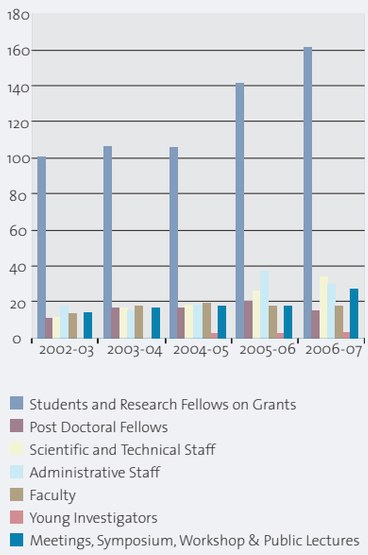
Given the growth that we have experienced during the last five years as service providers (Administration, Accounts, Purchase and Engineering Services) we have strived to adopt the best practices that enable us to provide 'just-in-time' service to our scientific community to facilitate their research pursuits. In the coming years we also hope to pay substantial attention to ensuring that the best employee welfare and benefits programme are put in place. This and a robust mechanism of feedback from employees and other comments in general will be a major goal. We will continue to function in an innovative manner that will enable us to harness our available resources in an efficient manner.

NCBS during the next coming years is headed for a phase that will create a lasting impression in the scientific world. One thing we know for sure that, the last five years has been the most interesting phase and the future holds surprises. We need to create a capacity to respond to such surprises. We view the modest success that we have met in the past as not our destination but a journey. In this journey we are committed to the idea of creating value and will endeavour to build a set of institutional values. We are certain that these institutional values will help all in the long run.

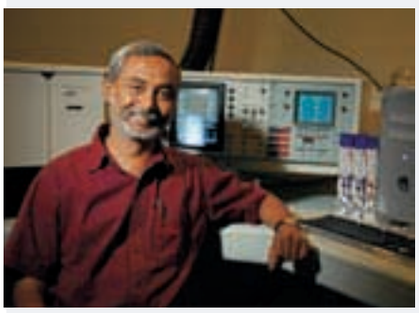
Before I end, I would like to sincerely thank all my colleagues for their support. The support of my colleagues have helped us to tide over the difficult times and testing phases in a successful manner. I am confident that all my colleagues will continue to do the same.

Pradip Pyne
Head, Administration and Finance

Our growth over the last five years is summarised below:



The Central Imaging and Flow Cytometry Facility (CIFF)



Many research programs at NCBS rely heavily on the latest methods in bio-imaging and flow cytometry. The Central Imaging and Flow Cytometry Facility (CIFF), with its state-of-the-art equipment, has been set up to meet these needs. Although conceptualized in 2005, it was fully realized in 2006-2007 through national and international funds generated by NCBS faculty. The CIFF not only caters to our institutional needs but also to researchers from all over India and abroad. Further, we train individual researchers to operate microscopes and flow cytometers at the CIFF. To this end, the CIFF offers regular training programs for new users and it currently has more than 90 well-trained users.

NCBS has also formed strong links with several well-known manufacturers of high-end microscopes and flow cytometers. This, in turn, has enabled these manufacturers to station several imaging systems at the CIFF. The open usage system at the CIFF coupled with its strong training program make it worthwhile for these manufacturers to demonstrate the versatility and performance of their instruments to potential buyers, while they serve the imaging needs of NCBS. These facilities are briefly described below. Additional details on workshops and training programs conducted at these facilties, along with a list of research publications from these, are available at http://www.ncbs.res.in/researchinfra/flowcytometry.htm

NCBS-Olympus micro-imaging centre (NOMIC)

This centre was created in association with the Olympus Corporation, Japan. Olympus has installed six high-end fluorescence microscopes at NCBS for two years, which will be used for conducting imaging workshops and microscopy courses.

NCBS-ZEISS advanced imaging and microscopy training platform

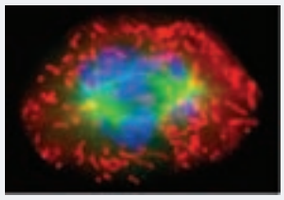
A similar understanding has been reached with Carl ZEISS, Germany where an advanced imaging and microscopy platform has been installed in the CIFF. Carl ZEISS has located its LSM 5 LIVE system as well as the LSM 510 Meta at NCBS. These imaging platforms will also be part of microscopy training programs and workshops.

BD-NCBS centre for excellence in flow cytometry

This centre, which has been set up in association with Becton Dickinson, India, has led to the installation of a high-speed sorter, the FACS Aria, for user-training and workshops.

Facility Manager: H Krishnamurthy
CIFF staff: B S Srinag, B Smitha and S Gopal
Faculty Coordinators: S Mayor and A Sarin

Core Facilities



Transgenic and knockout mice facility

Transgenic and knockout mice are a key resource in cell and developmental biology. NCBS has now reached a size where several faculty members have steady, yet small, requirements for their respective programs. Generating these mice require technologies that are well-established. Yet, implementing them in an efficient and sustainable manner would require NCBS to establish the necessary infrastructure and technical expertise. To this end, NCBS has signed an agreement with the RIKEN Cell and Developmental Biology (CDB) Institute at Kobe, Japan. The CDB mouse facility, led by Dr. Shin Aizawa, has agreed to make several transgenic and knockout mice for NCBS each year. In addition, CDB is working closely with NCBS to establish our mouse facility and provide technical advice.

Facility Manager: Rupasri Ain
Faculty Co-ordinators: K VijayRaghavan and S Chattarji
Staff: S Uma and S Srinivasan

Drosophila stock maintenance and screening facility

The availability of the complete annotated sequence of the *Drosophila* genome coupled with the invention of a number of elegant genetic techniques has made the fruit fly a more attractive model system than ever before. It is the system of choice, not only for the investigation of a variety of basic cellular principles, but also for the more applied areas of clinically driven research, drug testing and pharmacology. There is a resurgence of interest in carrying out large scale, genome wide, screens to identify genes important for understanding mechanisms in cell biology, neuroscience and the development of behavior. The *Drosophila* centre maintains a large number of mutant strains and transgenic lines. In addition, the facility offers a microinjection service for the generation of transgenic lines. The facility aims to hold frequent meetings, discussion sessions and co-ordinate with other research groups to facilitate large scale genetic screens.

Staff: S G Gajendra
Faculty Co-ordinator: V Rodrigues

Technology centre for nanobiosystems (TCNB)

The TCNB was created through generous funding obtained from the NanoScience and Technology Initiative of the Department of Science and Technology, India in 2005. The primary aim of TCNB is to augment infrastructure capabilities at NCBS to study nano-scale architecture and phenomena in living systems in real time, with a focus on developing new bio-inspired nanodevices. These devices and technologies are likely to be deployed in the visualization of sub-cellular and cellular processes at temporal and spatial resolution previously unachievable. Additional details on the wide range of exciting research and technology emerging from this centre is available at: **www.ncbs.res.in**

Faculty Co-ordinators: G V Shivashankar, S Mayor, Y Krishnan and K VijayRaghavan

Cell-based high content screening facility

New molecular players in cellular processes are being identified worldwide through large-scale screens. Given its strengths in imaging, NCBS is perfectly positioned to establish, in an academic setting, high content high throughput (HCHT) imaging-based screens. The Technology Centre for NanoBiosystems has created a screening facility that will establish the HCHT approach initially through genome-wide RNAi screens for cellular scale phenomena of interest at NCBS. The know-how from the establishment of such screens will subsequently be adapted for HCHT approaches for screening small-molecule libraries.

Facility Manager: Gagan Gupta
Staff: S Krishnamoorthy and K Ramesh Kumar
Faculty Coordinators: S Mayor, G V Shivashankar and Y Krishnan

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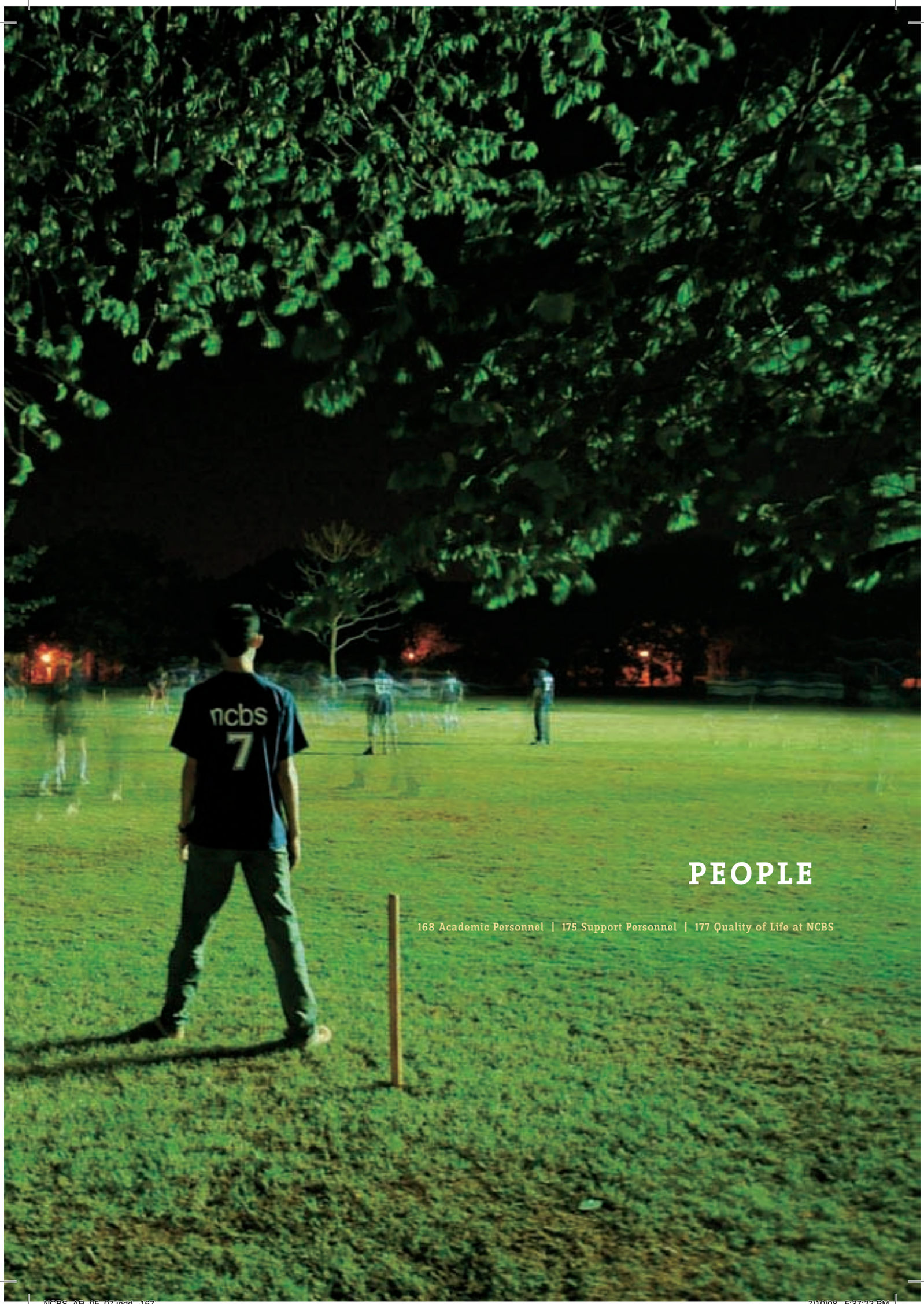
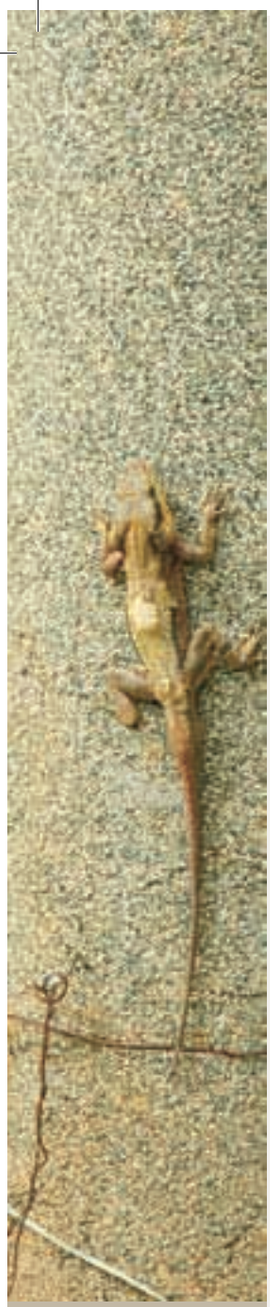


PEOPLE

168 Academic Personnel | 175 Support Personnel | 177 Quality of Life at NCBS



Academic personnel

Research Groups (as on December, 2007)

Biochemistry, Biophysics and Bioinformatics

Yamuna Krishnan	**Structure and dynamics of nucleic acids**
Visiting fellow:	Gourishankar R Aland, until July 2007
PhD students:	Dhiraj Devidas Bhatia
	Saikat Chakraborty
	Souvik Modi
	Sonali Saha
	Suruchi Sharma
Graduate trainee:	S Chamundeeswari, until January 2006
Junior research fellows:	Shruti K Gowda
	Jyothsna Gunturu, until April 2006
	Ramya Krishnan, until September 2007
	Shabana Mehtab
	Vidhya Rangaraju, until June 2007
	Poulami Sengupta
M K Mathew	**Exploring the architecture and function of transmembrane ion channels**
Visiting fellows:	Kavitha P G
	Veena S Anil, until December 2007
PhD students:	Anirban Baral
	Sanjeev Kumar
	Pinky Raychaudhuri
	Hyder Usman
Junior research fellow:	Amit Kumar Sachan
Students registered elsewhere:	Sam Kuruvilla
	K Pannaga
	Susan M Philip
	Lakshmana Reddy D L
Deepak T Nair	**Structural biology and macromolecular crystallography**
PhD student:	Amit Sharma
Mrinalini Puranik	**Structure and dynamics of biomolecules**
PhD students:	Spriha Gogia
	Namrata Jayanth
	Gopakumar Ramakrishnan, until July 2007
Teacher trainee:	Erix A Milan Grace
Graduate trainees:	C Megha, until January 2006
	Parvati S Menon, until November 2007
	G Jonah Unnatha Nesson, until September 2006
	Silja Poulose, until November 2007
Junior research fellows:	Shreya M Ankolekar, until July 2006
	Mandar Satish Paingakar, until June 2005
	Shagolsem Lenin Singh
Kaustubh Rau	**Mechanisms of damage by laser pulses to single cells and tissue**
PhD student:	Amit Sharma, until May 2007
Graduate trainee:	G D Rajesh, until July 2006
Junior research fellows:	Anoop V Cherian, until October 2007
	Nimi Gopalakrishnan
	Arcot Raghupathi Lokanathan
	G Nageswara Rao
	P Senthil
G V Shivashankar	**Cellular architecture of genome regulation**
Visiting fellows:	V V N Ravi Kishore, until May 2007
	Indulakshmi Radhakrishnan
	Bindu Radhamany, until July 2005

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PhD students:	Bidisha Banerjee, until July 2007
	Feroz Meeran Hameed
	Abhishek Kumar
	K Venkatesan Iyer
	Shovamayee Maharana
	Aprotim Mazumder
	M Padmanabhan
	Deepak Kumar Sinha, until October 2007
	Gautam V Soni, until January 2006
	Shefali Talwar
Graduate trainees:	Annie Miriam, until July 2007
	V Ramya
Junior research fellow:	Kaushik Ghosh, until February 2006
Students registered elsewhere:	Dipanjan Bhattacharya
	T Roopa
	M Vijayalakshmi

R Sowdhamini — **Computational approaches to protein science**

PhD students:	P S Divya
	Anirban Bhaduri, until April 2005
	M Raghuprasad Rao, until September 2006
	C Chandrasekar Reddy
	Sandhya Sankaran
	Lokesh P Tripathi
MSc student:	Kumar Gaurav, until September 2005
Junior research fellows:	K Harini, until December 2006
	Caroline Koshy, until January 2007
	A Manonmani, until April 2005
	K Manjunath, until February 2007
	P Nagarajan
	Agnel Praveen, until March 2007
	G Pugalenthi
	Aswathy Sebastian, until July 2006
	Ambika Subramaniam
	Chengala Sairam Swamy, until December 2005
	Ramakrishnan Vigneshwar, until November 2005
Students registered elsewhere:	K Kanagarajadurai
	P K Shameer
	P Sundaramurthy

Mukund Thattai — **The dynamics and evolution of living networks**

PhD student:	Sugat P Dabholkar, until July 2007
	Rohini Ramdas
Junior research fellows:	S Vivek Raj
	Senthil, until April 2007

Jayant B Udgaonkar — **How do proteins fold, unfold and misfold?**

Visiting fellows:	N Earanna
	Rupali A Gadkari, until November 2006
	Subhendu K Mohanty, until July 2007
PhD students:	Amrita Dasgupta
	Shweta Jain
	Santosh Kumar Jha
	Megha Kishore
	Santosh Kumar
	K Aghera Nilesh
	Ashish Kumar Patra
	Gayathri Ramachandran
	Shmilona Sarangi
	Amrita Sekhar
	Kalyan K Sinha
	Vishal
	Ajazul Hamid Wani
Junior research fellows:	K Durga, until August 2007
	K C Vishwanatha

Cellular Organization and Signaling

Sudhir Krishna	**The role of papillomaviruses and Notch signaling in the progression of human cervical cancers**
Visiting fellows:	R Bharathi, until April 2006
	Tessy Thomas Maliekal
	Sweta Srivastava
	Deepa Subramanyam, until July 2006
	Eric Vivien
PhD students:	Jeevisha Bajaj
	P Chitra
	Azham Roohi, until April 2006
	Megha Sehgal
Junior research fellows:	Ajay Abraham
	V Krishna Chaitanya
	Mausita Karmakar
	T Senthil Kumar, until February 2006
	Michael Rahman, until November 2006
K S Krishnan	**Cell biology of the synapse**
Visiting fellows:	S Kavitha
	M Santhana Ramasamy
	K A Subramanian, until October 2005
PhD students:	Hanumae Gowd
	Riddhi Majumdar
Junior research fellows:	M Deepa
	Jayaseelan Benjamin Franclin, until June 2007
	Amitabha Mazumdar, until December 2005
	C Omeena
	Saravanan Palani
	Shobha V Ramagiri, until December 2005
	Suneel A Reddy
	Y Saikumari
	Supriya Syal, until July 2005
	Manisha A Tole
Satyajit Mayor	**Mechanisms of endocytosis in metazoan cells**
Visiting fellows:	Gagan Gupta, until July 2007
	Niloufer Gillan Irani
	Manjula Kalia, unti April 2007
	Indranil Mitra, until April 2006
PhD students:	H L Anupama
	Sameera Bilgrami, until October 2007
	Rahul Chadda
	Subhashri Ghosh
	Debanjan Goswami
	Sudha Kumari
	Suvrajit Saha
	M G Swetha
MSc students:	Gautam Dey
	Abhijit Kale, until August 2005
	A Vijay Subba Rao, until May 2007
Junior research fellows:	Revu Alexander
	Brojo Kishore Chowdhury, until January 2007
	Jayanthi Menon
	Sindhu A Menon
	Garima Singhal
	Nina Sabu Teresa
	Thulasi Warrier, until May 2006
Students registered elsewhere:	Riya Raghupathy
	Neha Vyas

Madan Rao (Adjunct faculty member)	**Physical principles of organization in biological systems**
Junior fellow:	V S Gayathri
Apurva Sarin	**Mechanisms of apoptosis**
Visiting fellows:	G Aparna, until October 2007
	Manjula Nagala
PhD students:	Soumya Gupta
	Neha Parikh, until June 2007
	Lakshmi Revathy Perumalsamy
MSc student:	Girija Goyal, until July 2006
Junior research fellows:	Megha Garg
	B Geetha, until September 2005
	Ganesh Maruti Mohite
	Varsha Pattu, until January 2006
	Ravish Rashpa
	S Uma, until January 2007
	Ashwath Vishwanathan
Students registered elsewhere:	P Divya
	D Vaigundan
V Sriram	**Mechanisms of mitochondrial remodeling**
PhD students:	Ruchika Anand
	Swagata Dey
	Pankaj Kumar Vijaykant Dubey
	Gaurav Goyal
	Tejas M Gupte
Graduate trainee:	Shamik Banerjee
Junior research fellows:	Kondadi Arunkumar
	Nagaraju Dhanyasi
	Ram Kannan
	Kokilavani S

Genetics and Development

Gaiti Hasan	**Inositol 1,4,5-trisphosphate signaling in cellular and systemic physiology**
Visiting fellows:	Santanu Banerjee, until May 2006
	Debleena Dey
	Mamta Fuloria
	Sonal Patel, until November 2005
	Suzanne Lynn Ziegenhorn
PhD students:	Neha Agrawal
	Gayatri V
	Prakash V Subramanyam, until July 2005
Junior research fellows:	Nikhil Abraham
	V Bhaskar, until July 2005
	Sandeep Grover, until January 2007
	Satish Kumar
	D Senthil Kumar
	Nisha Padmanabhan
	Veena S Patil, until December 2005
	Rashmi N Prasad
Students registered elsewhere:	Manivannan S
	Shalima Nair, until July 2007
Suhel Quader	**Evolutionary ecology and environmental conservation**
Project associate:	Rashid Hasnain Raza
Graduate trainee:	Kedar Suresh Champhekar

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Uma Ramakrishnan	**Evolutionary history of human and animal populations: Understanding the past and predicting the future**
Visiting fellows:	Kavita Isvaran, until April 2007
	Shomitha Mukherjee
	S Ramaswamy
PhD students:	Anagh Purandare
	Thejaswi Shivanand
	S Velumani, until November 2007
Junior research fellows:	Jiffy James, until November 2007
	Bhairavi Swaminathan
	Vidhya Ranganathan, until May 2006
Graduate trainees:	Jeevan Karloss, until March 2006
	Krishnapriya Tamma
Students registered elsewhere:	Debapriyo Chakraborty
	Samrat Mondol

Veronica Rodrigues	**Developmental neurobiology of the olfactory system**
Visiting fellow:	R C Sarasij, until February 2006
Junior research fellows:	T S Bhuvaneish, until April 2007
	Varun Chaudhary, until August 2005
	Sudeshna Das
	Aditi Deshpande, until December 2006
	Abu Farhan
	Syed Mubarak Hussain
	Utham Kashyap
	Abhilasha S Kumar, until August 2005
	Kiran Kumar, until May 2007
	Amit Kundnani, until May 2007
	Archana Murali, until August 2006
	Darshana Narayanan, until May 2006
	Tulip Nuwal, until August 2006
	Hetal Pandya, until May 2005
	Rashi Priya
	Vijay Kumar Ranka, until August 2006
	Michelle R Rebello, until March 2006
	Ashlesha Rodrigues, until October 2006
	Sahithya Y R, until Sept. 2007
	Aditya Saxena, until May 2006
	Gudubasha Shaik, until June 2007
	Ashish Shukla, until August 2005
	Arvind Suresh
	S Vinayaka, until July 2007
Students registered elsewhere:	Pinky Kain
	Sonia Sen
	Keshava Subramanya

K VijayRaghavan	**Nerves, muscles and the development of behaviour**
Visiting fellows:	T Sajith Dass, until November 2007
	S Vijayalakshmi
PhD students:	Albert Chiang
	Richa Dixit
	S Krithiga, until April 2007
	Kirthi Rathore
	Bidisha Roy
	Pushpam Kumar Sinha, until June 2005
Junior research fellows:	Rajaguru Aradhya, TC
	Sajesh Abu, until March 2006
	A M Barve, until May 2005
	Ankita Chadda
	Kitdorlang Dkhar
	Swathi Krishnan
	Arun Kumar

	Neha Lodha, until December 2006
	Ann Maria
	Priyankana Mukherjee
	Aijaz ul Noor
	Aeijaz Sultan Parry
	Narendra Solanki, until June 2007
	G S Sreeranjini, until May 2005
	Akila Sridhar
	Sudhir P
	Swetha B M
	Umashankar M
Students registered elsewhere:	Guruharsha K G, until October 2007
	O Venkateswara Reddy

Neurobiology

Upinder S Bhalla	**Computational Neuroscience**
Visiting fellows:	Sriram M Ajay, until May 2006
	Radhika Madhavan
	Raghav Rajan, until August 2006
PhD students:	Dhanya P
	Ashesh Dhawale
	Niraj Dudani
	Priyanka Gupta
	Adil Ghani Khan
	Mehrab N Modi
	Urvashi Raheja
	Subhasis Ray
	Anmol Sethi, until December 2006
Junior research fellows:	Prasoon Agarwal, until September 2006
	Abhishek Banerjee, until July 2006
	James Premdoss Clement, until May 2006
	Raamesh Deshpande
	Rinaldo R D'Souza, until July 2006
	Shaista Hussain, until November 2005
	Pragathi Jain, until September 2006
	Poorvi Kaushik, until May 2007
	Pradeep Kumar, until July 2004
	Priyamvada Rajasethupathy, until June 2005
	G V Harsha Rani
	Rajnish Ranjan, until September 2005
	B M Ravikumar, until March 2004
	Vinay Sutrawe, until July 2007
	Karthika Valli, until February 2004
	Karan Vasudeva, until December 2003
	Adithya Vasudevan, until March 2004
	Sharat J Vayttaden, until August 2005
	Sanal Viswanathan, until March 2005
Student registered elsewhere:	K Parthasarathy

Sumantra Chattarji	**Plasticity in the amygdala: implications for stress disorders and mental retardation**
Visiting fellows:	Ganesh Bagler
	Rajnish P Rao
PhD students:	Roy Thomas Daniel
	Supriya Ghosh
	Swati Gupta
	L Harini
	Sonal Kedia
	Ruchi Malik
	Anup G Pillai
	Shilpa Ravinder
	Sharath B S, until September 2005
	K Manish Sharma
	Aparna Suvrathan
Junior research fellows:	Shobha Anil Kumar
	Amrita Kuthiala, until August 2005
	Deepti Rao, until July 2005
	Anand Karthik Sharma, until July 2005
Student registered elsewhere:	Anupratap Tomar

Sandhya P Koushika	**Genetic approaches to understand axonal transport**
Visiting fellows:	Nivedita Chatterjee, until June 2007
	Eva M Romareo
PhD students:	Niloy Kumar Chakraborty, until September 2007
	Bikash Chandra Choudhary
	Jitendra Kumar
Graduate trainees:	Swati Devidreddy
	Swetha Mohan, until July 2007
	Dharnikumar Rajasekar, until February 2007
Junior research fellows:	Jaffar Mohd. Bhat
	Shaili Johri, until January 2007
	Rajshri Joshi, until August 2007
	Sucheta S Kulkarni
Student registered elsewhere:	Guruprasad Reddy Sure
Mitradas M Panicker	**Gene regulation in the mammalian nervous system**
Visiting fellows:	M S Geetha, until June 2005
	Odity Mukherjee
PhD students:	Basudha Basu, until July 2006
	Aditi Bhattacharya
	Ishier Raote
	Tejaswini S Sharangdhar
Junior research fellows:	Meenakshi Balaraman, until May 2006
	Rupam Choudhury
	S P Suresh Kannan, until January 2006
	Deepika Kaveri
	Ashita P Magal, until May 2006
	Sushmita Saha, until August 2006
	Aparna Shah
	Imtiaz Zafar
Sanjay Sane	**Neural and physical basis of insect flight**
PhD students:	Anand Krishnan
	Nitesh Saxena
Graduate trainee:	Janani Subramanian
Obaid Siddiqi	**Genetic analysis of chemosensory perception**
Junior research fellows:	Dushyant Mishra, until April 2007
	Sunil Prabhakar, until June 2006
	K J Stanley
Students registered elsewhere:	Jawaid Ahsan
	Mohammed Bin Abu Baker
	Tuhin S Chakraborty
	Sarit Pati Goswami
Junior research fellows with collaborators	
With R Varadarajan, IISc	P Shaik Syed Ali, until August 2006
	C Sandhanakrishnan, until August 2006
With Maneesha Inamdar, JNC	M Harsha, until May 2005

Support personnel

Scientific Services

Prasanta Kumar Baruah
Veerana Bentoor
A Charles, until February, 2006
Avinash D Chinchure
S Devakumar
Sourabh N Gaikwad, until February, 2007
Prem Chand Gautam
R Jayaprakash
P Kothandan
P C Kottureswara, until July 2006
S Senthil Selva Kumar, until June, 2007
G H Mohan
S Naganand, until February 2007
G Aswatha Narayana
P P Ranjith
M Saravanan, until July, 2006
Pranesh Shantaram, until July 2007
S Umashashi
K Vasudeva, until Janury 2007
H S Venkataramana

Facilities

Rupasri Ain
P D Deepalakshmi
S Gajendra, until October 2005
Sneha Gopal
R Kanimozhi, until June 2007
T Shabana Khanum, until May 2007
H Krishnamurthy
S Krishnamoorthy
Sasirekha Krishnan
K Ramesh Kumar
Gayathri Manjunath
Sanchari Roy
B Smitha
B S Srinag
Lavanya Sivashanmugam
Sharanya Srinivasan
S Uma

Technical Services

H M Basavaraja
Chakrapani
Bheeman Gouda
Satyanarayan Guntur, until December 2005
Mallesh N. Harogeri, until March 2007
H V Harsha
Basavaraj Jalihal
T S Govindaraju, until June 2005
M N Krishnaiah, until May 2007
Bhavani R Kulkarni
P B Mahadeva Kumar
S Sujeeth Kumar, until March 2006
Ravindra Munshi
K M Nagaraj, until August 2007
P V Narayana Rao
T Natarajan
M Ananda Prakash
U B Poornima
T Rajath, until September 2007
D Ravikiran, until February 2007
H R Revanna, until October 2005
B M Sathishkumar
K S Savitha
Khalendar Sharief, until February 2006
Abdul K Sharrif
R M Somashekara, until September 2005
Jaishree M Somwanchi, until July 2006
S Sujeeth Kumar, until March 2006
Sidhartha S Swain
Seethalakshmi Shivaswamy, until May 2006
K S Shivananda Swamy

ADMINISTRATION AND FINANCE

Administrative Officers

Pradip Pyne
B S Ramamurthy, until October 2006
K V Ramanathan
S Ashok Rao
T M Sahadevan
S B Saraswathi
N N Shanthakumary
Purushottam V Suryarao
Shaju Varghese

Consultants/Medical Officers

H V Chandralekha
A V R Murthy, until May 2005
Vishwanath N Patil, until July 2005
R Padmanabhan, until July, 2007
P H Prasad
S Rajagopalan
G Prakash Rao, until April 2006
V R Rengasamy

Meetings and Workshops

Papiya Bhattacharya, until August 2006
Nidhi Srivastava
Reena Shrivastav

Administration, Accounts, Secretarial and Auxiliary staff

M Amalanathan, until June 2006
A Anandaraj
N S Kannan Kasturi
C Prashanth Murthy
Seetharam Naik
R N Nagaraj
P Lakshmi Priya
K S Nirmala
A N Rajendra
N Ramaprasad
Maithly Ramesh
P M Rathnakaran
R N Shalini
N Sujatha
H R Uma
V S Shailaja, until January 2007
S V Swetha
H R Uma
S Venkataramani
K S Vishalakshi

Trainees/Project Assistants

Savitha J Balakrishna, until December 2006
S R Chetana
Vidhya V Dixit, until August 2007
Amit Gaikwad, until December 2005
J S Gayatri
E Geetha, until March 2007
M S Gunasheelan
K V Hamsaveni
Suraiya Hussain, until June 2006
S Kavitha
Nazia Kauser, until December 2005
Jyothi Khanna, until June 2007
S Girish Kumar
B S Vasanth Kumar, until December 2005
V V Lakshmi
M Latha, until March 2006
K R Madhu, until May 2007
S Madhu, until February 2006
N Malathi
S N Manjula, until June 2007
N Mithra
K Lakshmi Narasimha, until June 2006
K R Padma, until October 2007
R Pallavi, until June 2006
J Poornima, until May 2007
R N Pratibha
M Pushpalatha, until June 2005
K Rakshitha
J Ramya
Vibha Rao, until April 2007
A Rathna
C S Sangeetha, until June 2006
M Saravanan
C G Seema, until July 2007
S Shanthalakshmi
B N Shobha
V Sindhu, until July 2007
M R Smitha, until May 2006
A Shwetha, until February 2007
Praveen Tiwari, until November 2005
V Udaya
M Veena, until December 2005
Nishu Verma, until June 2007

Thanking a Dean and welcoming another

Professor Jayant Udgaonkar steps down as Dean from March 31, 2008 after over 11 years on the job. Jayant, whose science has been extraordinary in quality and in volume for several years, would like to devote more time to his laboratory.

Jayant joined us before NCBS formally came into being. It can rightly be said that while the concept of NCBS required Obaid Siddiqi, transforming this into reality required Jayant Udgaonkar. Jayant has been the pillar of robust good-sense and best-practice and the pivot around which all aspects of NCBS have grown. Our hiring of faculty and staff, administrative structure, buildings, architecture, landscape: indeed every facet has relied on him to set the standards for both innovation and correctness. This afforded several of us the invaluable luxury of being sloppy, speculative and irresponsible. We could always explore freely, in the full confidence that our moral and scientific pivot would not allow us to stray and translate a poorly-formulated whim or fancy of the day into unwise action. Jayant thus developed a paradigm for a structure that could be innovative, yet structured. NCBS owes him a great debt – he would typically say that he was just doing his job – and we are fortunate that we will continue to have him advise and participate in our forthcoming ventures.

Satyajit Mayor takes over as our new Dean. Jitu has become a world-leader in his area of research in cell biology. NCBS may lay claims to have nurtured him, and be pleased, but this is a man who would have done great work anywhere and no place could have stopped him (we didn't try). In addition to his science, Jitu has taken the leadership to establish one of the best imaging and cell-sorting facilities in the world and is now following this up to establish a genetic screening facility of a similar quality. His science, his leadership and his judgement ensure that, in him, we have a Dean of the highest quality.

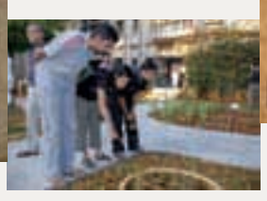
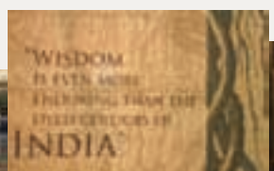
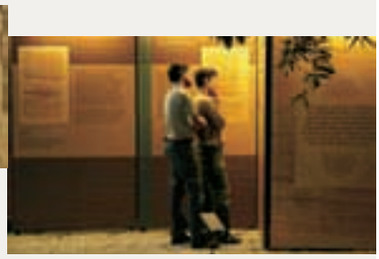
Quality of life at NCBS: What we have and where we aim to be

The NCBS campus is lucky to have open green spaces, many trees, bushes (w-free), flowering plants, migrating butterflies, geckos, bees and bats. We are located in the postgraduate campus of the University of Agricultural Sciences, which has generously leased us 20 acres. Our visitors and us have a pleasant, quiet and green environment to work and relax. We have terrace cafeterias where coffee, snacks and light meals are served and birthdays celebrated. Several handy chalkboards have made these cafeterias centers for discussion. Some of these discussions have recently crystallized into a student-run symposium exploring different areas in biology. A larger (soon to be expanded) canteen serves full meals from breakfast to dinner. The canteen is located near a pond fed by harvested rainwater and clean water from treated sewage. The pond-side is where we gather for dinner after on-campus symposia and public lectures. We have an amphitheater that serves as an interactive place for tea after scientifically exciting seminars. Facilities for tennis, basketball, volleyball, badminton, table tennis and a gym are all available. We provide transport to all members of the community into the ever-expanding Bangalore city. We also help our staff and faculty with their commute to work. We have excellent accommodation for students and post-doctoral fellows. We accommodate some faculty on campus and the rest in comfortable apartments and houses close to campus. We do need to expand our campus housing for faculty as well as our excellent administrative and technical staff. In the near future we hope to expand our hostel, sports facilities and housing to keep pace with our scientific growth.

One major factor that enhances the quality of life on campus is our on-campus child-care and after-school program. This facility aims to be a complete one-stop solution for child-care for children from the ages of 1 to 10 years. The campus environment provides space, lush greenery, a park and a sand pit for children to play and learn. Over the years, our teachers, staff, several visiting consultants, parents and exceptional institutional support have helped develop the childcare center into an excellent facility. The day-to-day affairs of the facility are coordinated by several experienced teachers. The NCBS community at large provides a rich learning environment. We have several artists, wildlife lovers, storytellers and musicians on campus who informally participate in various activities at the child care center. We have age appropriate fun and educational activities for infants, toddlers, pre-school and school going children. Current efforts are geared towards developing a stimulating after-school program supplemented with off-campus activities such as swimming, volunteer work and music in addition to homework and examination-related studies. We also undertake field trips to various locations such as parks, science museums, circuses and dance concerts. Good childcare is a major factor that achieves a supportive workplace for working parents. We aim to provide a facility that recognizes the needs of working parents while providing children with a nurturing environment.

Such Treasure and Rich Merchandize

The stunning and innovative exhibit "Such Treasure and Rich Merchandize" at the National Center For Biological Sciences/TIFR held in early 2008 *brought together science, art and social history in a compelling fashion. The exhibit began with a large walk-through drop down of an Indian Ficus tree from John Gerard's Herbal and ended with a list of 50 single molecule drugs in use today isolated from botanicals. Beautiful botanical illustrations of Indian plants in European books published from the 16th and 17th centuries, maps, and cityscapes of Indian port cities were used to trace the story of how the search for spices led to the discovery of a wealth of information on Indian plants, their medicinal uses available in India and the importance of that knowledge to science and medicine in Europe and also to the development of botany as a science.*

Woven into the narrative were excerpts from Shakespeare, the Portuguese poet Camoens, Milton and other writers of the period and a marvelous image of the Indian elephant "Hanno" by the renaissance master Raphael, evocatively represented on a variety of materials such as glass, stone and fabric. You could walk through a herbal garden based on many of the plants described in the volumes or browse through a digital flipbook of the book in focus – the Hortus Malabaricus. This exhibit offered something for the scientist, artist, social historian and everyone interested in the history of India.

The exhibit was curated by Annamma Spudich, Scholar in Residence at NCBS. Annamma Spudich is a cell biologist (Ph.D., Stanford University) with a life long interest in the history of Indian scientific traditions in the natural sciences. In 2003 Dr. Spudich curated the exhibit "From Forreine Places All the Varietie of Herbes" at The Cantor Center for Visual Arts, Stanford University. The exhibition at the NCBS and related collateral was designed and coordinated by Sarita Sundar and her team at Trapeze, a multi-disciplinary design consultancy and studio. The design team worked with the curator to reproduce and present material from various libraries and collections throughout the world and present an informative and novel look at the history of East-West interaction in the pre-colonial period, focused on the natural sciences.