



United Nations
Educational, Scientific and
Cultural Organization

REGIONAL CENTRE FOR BIOTECHNOLOGY

an institution of education, training and research

Established by the Dept. of Biotechnology, Govt. of India
Under the Auspices of UNESCO
180 Udyog Vihar Phase 1, Gurgaon - 122016, India

RCB
a profile



Regional Centre for Biotechnology

an institution of education, training and research

The Regional Centre for Biotechnology (RCB) is an autonomous institution of Education, Training and Research established under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO), by the Government of India (GoI), Department of Biotechnology. Designed to be a Centre of Excellence in biotechnology, RCB aims to be a platform for innovation, enterprise and industrial development. As an institution, RCB is beneficial to all countries in the region including India in carrying out biotechnology research of the highest caliber and developing highly skilled knowledge-rich human resource. Association with international organizations such as UNESCO facilitates RCB to provide world class education, conduct quality research and foster global connectivity and cooperation.

Roots

The Government of India and UNESCO signed a Memorandum of Understanding (MoU) on July 14, 2006 to establish Regional Centre for Biotechnology (RCB). The Centre is now recognized as a “Category II Centre” by “the principles and guidelines for the establishment and functioning of UNESCO Institutes and Centres”. Following approval from the Union Cabinet, the Centre became operational from its interim campus at Gurgaon, Haryana from April 20, 2009.

Mandate

The mandate of RCB is to provide a platform for biotechnology education, training and research at the interface of multiple disciplines. The programmes of the Centre are designed to create opportunities for students to engage in multi-disciplinary research where they learn biotechnology while integrating engineering, medicine and natural sciences to provide solutions for human and animal health, agriculture and environmental technologies.

RCB's Mission :

- To integrate science, medicine, and engineering to enable novel and affordable solutions in health, agriculture, environment and energy resources.
- To produce human resource, particularly in areas of new opportunities and also to fill talent gap in deficient areas.

Mandate

Towards fulfilling its mandate the Centre functions with the following objectives:

- ▲ To produce human resource for building a strong sustainable biotech industry through regional and international co-operation with emphasis on novel interdisciplinary education and training programmes, currently unavailable in the country.
- ▲ To develop research programmes of global quality through international partnerships.
- ▲ To establish technology policy development and information dissemination activities.
- ▲ To establish desired infrastructure and technology platforms to support above activities.
- ▲ To enable periodic experimentation in design and implementation of biotechnology education and training and to be a source of new concepts and programmes.
- ▲ To create a hub of biotechnology expertise in the countries in South Asian Association for Regional Cooperation (SAARC) region and more generally in the Asian subcontinent to address human resource needs.
- ▲ To promote and strengthen South-South and South- North co-operations around issues relevant to biotech education, training, innovation, commercialization and trade and promote a network of satellite Centres in these sub-regions.

Research Areas

RCB engages in contemporary research at the interface of disciplines constituting biotechnology in its broadest definition. Research programmes aim to integrate science, engineering, medicine and agriculture in biotechnology and emphasize on their relevance to the regional societies.

A broad range of research areas planned include:

- ▲ Biomedical Sciences
- ▲ Molecular and Cellular Biology
- ▲ Bioengineering and Devices
- ▲ Biophysics, Biochemistry and Structural Biology
- ▲ Climate science, Agriculture and Environment
- ▲ Biotechnology Regulatory Affairs, IPR and Policy

Academics and Training

RCB endeavors to be an institution with intimate contributions from regional countries and academic institutions worldwide. The following programmes have been designed with an underlying emphasis on innovation as the key to education and training methods.

- **Multidisciplinary Doctoral Programme** has been instituted for students who have completed masters in any relevant discipline of natural sciences, medicine, engineering and other related sciences. Presently RCB recruits Junior Research Fellowships (JRFs) twice during an academic year and already mentors 31 Research Fellows.
- **Young Investigator Post-doctoral Programme (RCB-YI award)** was initiated to nurture outstanding recent PhDs with innovative ideas and the drive to pursue novel discoveries under the mentorship of RCB faculty. RCB-YI award has been instituted for both Indian and Foreign nationals on the competitive basis with initial appointment for 3 years which is extendable on rigorous review for additional two years.
- **Project Research Positions (both post-doctoral and predoctoral)** are periodically filled for specific, time-bound extramurally funded projects conducted by the institutes's faculty and are announced in a need-based manner from time to time.
- **Short-term Training Programmes** are conducted at RCB by inducting post-graduate students of science from various universities/institutions/colleges to carry out their project/ dissertation work towards partial fulfillment of their postgraduate degrees.
- **Advanced Workshops/Training Courses** arranged by RCB periodically throughout the year, covering various frontier areas that could be broadly classified under biotechnology keeping in view the multi-disciplinary nature of the subject. During the week-long workshops, expert in-house and invited faculty deliver lectures and provide hands-on training to expose the participants to contemporary science/technology and explore their utility for addressing research problems in specific scientific areas.



Academics and Training

New initiatives are also being contemplated to fill in relevant/gap areas, like a Masters programme in Medical sciences (MMSc) is being planned with the objective to provide knowledge in life sciences emphasizing on human biology, clinical and translational research. The programme shall be offered deriving not only the in-house expertise at RCB but also the expertise and knowledge from national level institutions including those in the immediate neighborhood such as All India Institute of Medical Sciences (AIIMS), National Institute of Immunology (NII), Translational Health Science and Technology Institute (THSTI), National Institute of Biomedical Genomics (NIBMG) and others.



Short-term training programmes in platform technologies towards skill development in multiple areas such as cell and tissue engineering, nano-biosciences, biomedical engineering, climate sciences and energy resource management are planned. Towards contributing to critical human resource generation, short-term training programmes on relevant topics designed specifically for physicians, engineers and entrepreneurs have been planned for the near future.

RCB Faculty

Research groups headed by RCB faculty pursue research in various frontier areas of biotechnology with a common goal to excel globally in their respective areas of expertise. In addition, RCB provides an environment that encourages creation of unique and novel niche research areas at the interface of diverse disciplines, by encouraging research collaborations with scientists both within and outside the institution. In an on-going process, faculties with potential for intellectual leadership as well as passion for research and teaching in various frontier areas of biotechnology are being recruited through a stringent search-cum-selection process.

Research Facilities

Leading infrastructural and technological tools, facilities and advanced laboratories form a vital ingredient towards making cutting edge science a reality. RCB has established necessary infrastructural facilities in its interim campus at Gurgaon where it is presently functioning. Centre is expected to expand further when it moves to its permanent campus in Faridabad, within the NCR Biotech Science Cluster, later this year. Presently, RCB has established major specialized facilities that include: high resolution optical imaging (Atomic Force Microscopy, Confocal Microscopy, Fluorescence Microscopy), synthesis chemistry facilities, Protein sequencer, Protein purification systems, biophysical (Isothermal Titration Calorimetry, Differential Scanning Calorimetry, Circular Dichroism, SPR, NMR, FTIR, Dynamic Light Scattering), structural biology (Crystallization Robotics, X-ray Diffraction), proteomics (ABSciEx Triple TOF 5600), flow cytometry, plant, bacterial and animal cell/ tissue culture facilities, tissue sectioning and insect culture facilities.

In addition, researchers at RCB have access to the Advanced Technology Platform Center (ATPC) of the Biotech Science Cluster Faridabad. The ATPC already houses an operational flow cytometry and proteomics facilities. Other high-end facilities planned to be operational in near future include complete optical imaging, electron microscopy and next-generation sequencing.



Partnerships

Towards fulfilling its mandate, RCB is spreading its wings across the globe by collaborating with various national and international institutions of repute. The partnerships are meant for exchange of ideas, information sharing, training, networking, conducting scientific colloquia, workshops, academic exchange programmes and student study visits within (and outside) India and for students of the Asia-Pacific region.



RCB and the National Institute of Advanced Industrial Science & Technology (AIST), Japan announced a partnership to further capacity building initiatives in bio-imaging and biotechnology. The agreement offers an excellent opportunity for both the institutions in capacity building, training and research collaborations, benefitting young scientists not only in India and Japan, but also from the UNESCO member countries in the Asia-Pacific and SAARC regions.

In its continuing effort to fulfill the core mandate, RCB is actively engaged in a range of research and related activities in partnership with other academic institutions, which form part of the NCR Biotech Science Cluster, Faridabad. Shared facilities such as Advanced Technology Platform Centre (ATPC), and Bioincubators (supported by Biotechnology Industry Research Assistance Council (BIRAC)), which is meant to support the budding biotechnology entrepreneurs, are being established.

Governance

Regional Centre for Biotechnology (RCB) is an institution of international importance in biotechnology, education, training and research. Board of Governors (BoG) comprising eminent scientists and specialists in the field of biotechnology, representing Government of India and UNESCO are responsible for the governance of the Centre. The Programme Advisory Committee (PAC) comprising of reputed experts within India and abroad provide support and guidance for the Centre's education, training and research programmes. On behalf of the Governing body, the Executive Director executes policies and functions of the Centre with the guidance of a duly constituted Executive Committee.

ENERGY BIOTECHNOLOGY
 ACADEMIC SKILL INSTITUTION
 EDUCATION PATENTS
 TECHNOLOGY INNOVATION
 GLOBAL TRAINING
 LIFE SCIENCE
 PARTNERSHIP
 AGREEMENTS
 TECHNOLOGY RESEARCH
 MULTIDISCIPLINARY
 SCIENTIST
 RESEARCH
 GLOBAL
 PROGRAMME
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