

BT/MED/12011/4/2006
Government of India
Ministry of Science and Technology
Department of Biotechnology
Block-2, 6–8th Floor, CGO Complex
Lodi Road, New Delhi 110 003

Subject: Call for Research Proposals in the area of 'Bioengineering'

The Department of Biotechnology (DBT) invites proposals in the area of 'Bioengineering' on basic research leading to product development, upscaling of the developed implants, devices bioinstruments, etc. The purpose of the announcement/advertisement is to promote application oriented research in this area and to create close collaborative network of basic researchers, clinicians and industry. Multi-centric and multi-investigator proposals will be encouraged with proper milestones, time schedule and defined role of individual institutes/centres based on their expertise. Several rounds of meetings, specific brainstorming sessions and workshops were organized by the Department to identify the priority areas in the field of tissue engineering, biomaterials, bioinstrumentations and biosensors. Some of the identified areas of interest are:

Tissue Engineering and Stem Cells

- Development of matrices and scaffolds for three dimensional culture configurations to promote 3D tissue organization.
- Cellular interactions with scaffolds.
- Development of rapid prototyping and other engineering techniques.
- Tissue engineered organs/organ support systems treatment/replacement of cornea, skin, cartilage, bone, urinary bladder, nerve regeneration, etc.
- Hybrid artificial organs.
- Growth factor and cell delivery.
- Protection of cells against inflammation and immune attack.
- Use of engineered tissues for drug testing.

Biomaterials for Therapeutics

- New materials for cartilage, blood vessels, nerves, valves, occlusion devices, implantable devices; hollow-fibers for dialysis and oxygenation, etc.
- Development of matrices – degradable and non-degradable polymers of synthetic or biological origins; ceramics and their composites for applications in delivery of drugs, genes, vaccines, growth factors, etc.
- Development of membranes for selective filtration and adsorption of peptides, antibodies, hemodialysis, etc.
- Development of materials that are capable of releasing macromolecules such as proteins and peptides, intelligent delivery systems.
- New degradable materials for delivering molecules through the skin and lungs.
- Development of bio-membranes for wound dressing.

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Biomedical Instrumentation

- Development of cellular/molecular imaging technology.
- Fabrication of medical devices, implants and bio-instrumentation such as optoelectromechanics, micro-robotics for surgery, recovery and rehabilitation.
- Advanced data acquisition systems to record signals from arrays of biomedical sensors.

Biosensors

- Development of biosensors using molecular imprinting and other techniques for measurement of clinically relevant compounds.
- Ultrasensitive biosensors for diagnosis of diseases and detection of biological agents.
- Development of miniature electrode arrays and other microsensors that record unique signals from many neurons simultaneously.
- Integrated circuit biomedical electrodes for detecting bioelectrical and biochemical potentials.
- To develop low cost disposable biosensors for rapid diagnosis of diseases.
- Development of MEMS biosensor using multi-parameter approach.

WHO CAN APPLY

Grant applications are solicited from scientists, clinicians, groups/individuals working in universities, research institutions, medical schools, public and private organizations having sound scientific and clinical research track records. The research groups are expected to be involved in coordinated research activities with the participation of basic, applied and biomedical scientists; clinicians from relevant disciplines. Ideally, the collaborative efforts would involve and develop linkages between the investigators within the same institute or across other institutes. Industry may also apply for collaborative proposals as public-private partnership through SBIRI scheme of the Department of Biotechnology.

HOW TO APPLY

Applicants are requested to send a Letter of Intent (LOI) focused on basic research, product development or upscaling of the developed products as per the guidelines provided in the LOI submission format as detailed below. The details of SBIRI scheme for public-private partnership proposals may be obtained from DBT websites: www.dbtindia.org OR www.dbtindia.nic.in

DATE OF SUBMISSION

LOIs should be sent by **20 June 2006** to Joint Secretary, Department of Biotechnology, Ministry of Science and Technology, Block-2, CGO Complex, Lodi Road, New Delhi. Any additional enquiry may be addressed at Telephone: 24362982/24363699; e-mail: unbehera@dbt.nic.in; alka@dbt.nic.in

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TIME LINE

Receipt of LOI	:	20 June 2006
Call for Full Proposals	:	20 July 2006
Full Proposal Submission Deadline	:	30 August 2006
Award Notification	:	31 October 2006

REVIEW PROCESS

Letters of Intent will be reviewed by a panel of experts. On the basis of the recommendations of this panel, the PIs of the shortlisted LOIs would be invited to submit full research projects. These would then be reviewed and the applicants would be informed regarding the funding decisions.

AWARD CRITERIA

Proposals should be conceived as complementary to and not duplicative of ongoing efforts. Criteria for award decision will primarily include the following:

1. Scientific merit and priority of the proposed area.
2. Expertise and leadership qualities of the Principal Investigator(s) and the team.
3. Ability to integrate collaborative arrangements, if applicable.
4. Availability of core infrastructure and support facilities to carry out the proposed project at host institute(s).

Letter of Intent (LOI) format (not more than 2–3 pages)

1. Project title :
2. Area (please '√' mark in the relevant box) :
 Basic Research
 Product Development and Upscaling of the developed products
3. Name of the Principal Investigators (PI) and Co-PIs (Address, Phone, E-mail, etc.) :
4. Institutional Affiliation(s)/Sponsor(s) :
5. Project Hypothesis :
6. Objectives :
7. Brief Research Plan :