DEPARTMENT OF BIOTECHNOLOGY

Note: These guidelines are issued with approval of the competent authority and come into effect immediately i.e. from 14th September'2016 onwards.

SUB: GUIDELINES FOR THEORETICAL AND COMPUTATIONAL BIOLOGY (TCB) TASK FORCE (Formerly called as Task Force on 'Bio-informatics, Computational and Systems Biology')

The recent genomic revolution needs substantial expansion of the available data, which demands the development of new tools and techniques for data storage, retrieval, visualization and above all data analysis and validation of analytical outcomes. A multidisciplinary approach is required to converge biological and computational disciplines. To foster cutting-edge, interdisciplinary, cross-campus and inter-institutional research using computational and quantitative methods to initiate the quantification of Biological discipline for solving the complex scientific problems in strategic research areas including Systems Biology, Energy and Environmental Studies, and Translational Medicine, Department of Biotechnology is enhancing the scope of a Task Force formally called as 'Bio-informatics, Computational and Systems Biology' through renaming it as 'Theoretical And Computational Biology'.

SCOPE
The task force on the theoretical and computational biology will encompass the Theoretical Biology, Bioinformatics and Computational biology in general. However, the scope also includes the Big Data Analysis and any futuristic development in the relevant areas. The broad definitions of the subject areas are as follows:

Theoretical Biology (or Mathematical Biology or Biomathematics) is an interdisciplinary scientific research field for mathematical representation, treatment and modeling of biological processes using variety of mathematical tools and techniques. It has both theoretical and practical applications in biological, biomedical and biotechnology research.

Bioinformatics: Research, development, or application of computational tools and approaches for expanding the use of biological, medical, behavioral or health data, including those to acquire, store, organize, archive, analyze, or visualize such data.

Computational Biology: The development and application of data-analytical and theoretical methods, mathematical modeling and computational simulation techniques to the study of biological, behavioral, and social systems.

OBJECTIVES
1. To foster the development of computation based tools and techniques in the frontier areas of biotechnology
2. To conduct data driven R&D and innovative algorithm development in Biological sciences

3. To enhance skilled human resource in all the above subject areas including Big Data analysis and Genome Sequencing/editing
4. To encourage the networking among research institutions and association with industries
5. To build capacity to deliver the solution for Biological challenges
6. To foster international cooperation for sharing of expertise and resources

TYPES OF GRANT

1. **Computational Grants** - to solve a key biological problem through utilizing the individual scientific expertise and restricted to only strong computational biology research.

2. **Laboratory Networks** - to foster the interdisciplinary computational solution to biology problems. These networks may utilize the expertise of the collaborators and their existing facilities e.g. An expert possess expertise in molecular modeling may collaborate with a Structural biologist to validate their hypothesis/research outcome. Proposals displaying networking of investigators having similar expertise will NOT be considered for Laboratory Networks.

3. **Data Centers** – for development and application of computational tools, techniques and technologies for studying the broad scale biological problem including the data analysis and its validation. Data Centres can be set up both for R&D activities and for charge based services. Data Centres are purely institutional in nature until upgraded to National Facilities as per the requirement of Government of India.

TYPES OF COLLABORATION(S)

1. Academic institutions only
2. Academic and Industry

ELIGIBILITY OF INSTITUTIONS/INDIVIDUAL

All Public funded organization(s) are eligible to apply. The private organizations, except private universities, can only apply through collaborating with public funded organization. All Indian citizens in individual capacity or as a part of a team, working in academic institutions, research organizations, government agencies, industry or entrepreneurial groups, may submit project proposal(s) aimed at developing a scientific knowledge, which will be useful on immediate basis the proof of concept or technology development with societal implications.

BUDGET TERMS

The following minimum criteria will be followed for allocating the Budget under this Programme -

A. Infrastructure Support

Department of Biotechnology will provide the full infrastructure support for Computational research grants. For Laboratory Network and Data Centres, the existing infrastructure (e.g. DIC, BIF, BITSNET etc.) needs to be utilized and support will be provided only for high end informatics infrastructure e.g. Servers of high computational power.

B. Maintenance Grant

The maintenance grant will be provided only to Data Centres considering their usefulness and vastness of scope to the scientific community. Such grant is subject to critical evaluation based on significant outcome and need to maintain in the wider scientific and national interest.

C. Industrial Contribution

The industrial partner has to contribute 70% of recurring grant in an Academic-Industrial research project.

D. Revenue Model for Service providing Data Centres

Data Centres offering charge based services will have to submit a suitable revenue model, which may lead to the sustainability of the Centre after the completion of the project support. Extension to service providing Data Centres can ONLY be provided for significant expansion of the centre subjected to their outstanding service capability and the profitability through revenue generation.

Department of Biotechnology reserve the right NOT to support any recommended proposal in a given financial year.

MANDATORY SUBMISSIONS

Each application must accompany the following mandatory documents –
1. A valid Department of Scientific and Industrial Research (DSIR) Certificate for R&D Purpose
2. Ethical clearances such as Institutional Biosafety & Clinical Data Processing
3. A non-disclosure agreement to maintain privacy of human or human originated data
4. The following Certificate(s) stating that
   i. 'any sensitive data will be published or shared with prior approval of Department of Biotechnology'
   ii. 'Data will not be forged/manipulated/Commercialized for personal interest'. The commercial interest of an industry may be adequately protected
   iii. 'a copy of Data Generated especially the Human or human origin sequential/genetic data may be submitted to a designated Data Centre if not published or deposited in a public domain'
   iv. 'No grant-in-Aid is pending for rendition against the Central/State Government'
   v. 'Proposal is NOT submitted/under consideration by some other funding agency'
   vi. 'Proposal does not contain any material liable for plagiarism or submitted for reproducing the results already published'

RESERVATION POLICY: As per GOI Guidelines

PROPOSAL SUBMISSION AND DURATION

All proposals must be submitted through eProMIS, an online project submission software of Department of Biotechnology.

Each year, the proposals can be submitted between January to April and July to October only.

ASSESSMENT CRITERIA

Reviews are based around three core criteria:

- **Importance:** how important are the questions, or gaps in knowledge, that are being addressed?
- **Scientific potential:** what are the prospects for good scientific progress?
- **Resources requested:** are the funds requested essential for the work, and do the importance and scientific potential justify funding on the scale requested?

The reviewers may be asked to consider other aspects of the research such as the potential impact, Ethical issues, Data management plans, methodological design, the research environment etc. including the applicant's track record.

REVIEW AND MONITORING OF PROJECT PROPOSALS

A full proposal will be screened internally and if required through reviewers selected based on their expertise. The decision after internal screening of the proposals may be communicated via eProMIS. The screened proposal will be reviewed and evaluated by an Expert Committee/Task Force. The Committee reserves the right to accept (as it is), seek major/minor revision, reject with an advice for submission of a revised version, or reject the proposal outright.

Once approved and supported, progress of each project will be routinely monitored and reviewed through reports, defence, visits or demonstration by appropriate Monitoring Committee as per the declared milestones, deliverables and time frame.

The Review/Monitoring Committee may advise major revision, course correction, fore-closure, or even termination depending on the progress of the project as per its own mandate.

COMMUNICATION OF DECISION AFTER SCREENING OR REVIEW

Decision of the Expert Committee/Task Force will be electronically communicated by email or web based message delivery system and if possible also via a letter.

The review report and feedback from the Expert Committee/reviewer(s), and instructions for submitting the final proposal will be sent via email.

Project appraisal process will consist of: screening, submission of final proposal and reviewing, evaluation and approval by Expert Committee/Task Force.

Decision of the Expert Committee/Task Force will be final and cannot be disputed. However, Department of Biotechnology reserve the right to support a proposal after accommodating further revision(s) or completion of any documentary requirements or priority for a particular financial year.

ELECTRONIC TRANSFER OF FUNDS (Interest bearing Account Only)

As per the Government of India Policy, the funds need to be transfer electronically in an Interest bearing account only. Therefore, each project must accompany the following financial details –

  i.   Accounts Holder's Name
  ii. Name of the Bank
  iii. Account Number
  iv. IFSC code

     v.   MICR code
    vi.   Email of the Beneficiary

GENERAL CRITERIA

A. Principal Investigator & Co-Investigator (s) and the Implementing Institution

i. The Principal Investigator (PI) has the primary responsibility of the implementation of the project. The project team consists of the PI, Co-Investigator(s) and the project personnel appointed as per the sanction order. It is necessary to ensure that the project is carried out by the project team in a cohesive manner. Periodic meetings of the team are essential for this purpose.

ii. In case of PIs who would be superannuating during the duration of the project, association of an "in-service" Co-Investigator should be ensured. In such cases, the Institute authorities should inform to this Department, well in advance, about their "no objection" for providing the infrastructural facilities to the PI for implementation of the project after his superannuation.

iii. Having accepted the responsibility for the implementation of the project, the PI should be committed to implement the project over its duration and should have no plans to go on long leave.

iv. In case, the PI is shifting to another institution on new appointment/ transfer/ long term deputation, the project could be transferred to that institution with the mutual consent of both the institutions and of this Department. Such requests for transfer of the project should be sent well in advance and should be accompanied with 'No Objection' certificates from both the institutions and the Endorsement Certificate from the new Institution.

v. In case the PI leaves the project due to unforeseen circumstances, the Co-Investigator could be considered as the PI subject to the approval of the PI, Head of the Institute and this Department. Such a request should be sent at least 4-6 months in advance along with a detailed bio-data of the Co-Investigator.

vi. The PI as well as the implementing institution has the responsibility of informing this Department about any change in the status of the PI/ Co-Investigator including relieving them on short term deputation for a continuous period of 3 months or more.

vii. The project stands terminated in the absence of the PI/ Co-Investigator for a continuous period of 6 months without intimation to this Department.

viii. The implementing institution has an important role to play and in consultation with this Department should take steps to ensure successful completion of the project, before relieving the PI.

ix. The implementing Institute should provide full infrastructural facilities such as accommodation, water, electricity, library, and communication facilities etc. for smooth implementation of the project.

B. Project Staff

i. All the personnel including Research personnel appointed under the project, for the full/ part duration of the project, are to be treated as temporary employees and will be governed by the Administrative rules/ service conditions of the implementing Institute. No reference on these issues should be made to this Department. The Department will have no liability, whatsoever, for the project staff after completion of the project duration.

ii.   The sanction order specifies the number of personnel, in different categories along with their consolidated/Stipendiary/Fellowship emoluments, sanctioned under the project.

iii. Scale and emoluments for the posts not covered under this order are governed by norms prevalent in the implementing Institution or as may be decided by this Department.

iv.   In case of recruitment of JRF/ SRF candidates who have been declared successful at NET/ GATE may be preferred. In exceptional cases, candidates without NET/ GATE may be recruited through a proper selection procedure. It is desirable to have DBT Nominee in the selection process and such requests for nominees may be sent well in advance.

v.   Projects staff can avail the leaves as per the leave rules of the project implementing organization. The duration of employment of the project staff is limited to the project period only. The recruitment of the project staff will be as per rules of the project implementing organization.

C. Release of grants in yearly installment and financial management

i.   The grants for the project are released on the basis of yearly requirements taking note of the technical progress and expenditure incurred. The first sanction order indicates the budgetary allocation for the duration of the project under various heads like Equipment, Manpower, Travel, Consumable, Contingency etc.

ii.   The first installment of grant is released along with the Sanction order. The first year release consists of the entire or part of the Non-recurring grant and part of the recurring grant including 'Overheads'.

iii. Diversion of funds from non-recurring head to recurring head like Manpower, Consumable etc. is NOT allowed. However, any re-allocation/ re-appropriation of grants under different heads require prior approval of this Department.

iv.   The equipment sanctioned in the project should be procured at the earliest to avoid any cost escalation. The PI and the implementing Institute should complete all formalities in advance for placing the order. Institutions are NOT allowed to purchase equipments other than sanctioned in a project without DBT's prior permission.

v.   The subsequent installment of grant would be released annually on the basis of expenditure incurred in the previous financial year and expected expenditure in that year. However, any request for release of the next installment should be accompanied by the following documents:

a.   Utilization Certificate and Statement of Expenditure for the financial year (in original or copy if sent earlier) ending on 31st March, which is followed by submission audited statements for the same financial year up to May for the next financial year;

b.   Latest authenticated Utilization Certificate and Statement of Expenditure (may include Committed Expenditure), for expenditure since 1st April of that financial year till the previous month; and

c.   Technical Annual Progress Report, if not sent earlier.

d.   Consolidated Assets Certificate (including the name of the equipment, Date of purchase and Installation, Cost of the equipment in Indian and Foreign Currency),

e.   Manpower Certificate (including their qualification whether NET/BET/GATE/BINC etc. or similarly qualified, Date of Joining and Leaving, Salary paid per month and annum)

f. Un-spent non-recurring grant balance should be refunded via a Demand Draft drawn in favor of Drawing & Disbursing Officer (DDO), DBT, payable at New Delhi.

vii. The Statement of Accounts and the Utilization Certificates must be financial year wise and to be submitted within a period of one month from the 31st of March of that year. (ie. if date of start of the project is 12.06.2016, then the first statement of account and utilization certificate will be for the period 12.06.2016 to 31.03.2017, the next statement will be for the period 01.04.2017 to 31.03.2018 and so on).

viii. The implementing institute will maintain separate audited accounts for the project. Any interest earned should be reported to this Department and should be reflected in the Statement of Expenditure.

ix. The institute will not entrust the implementation of the work for which the grant is being sanctioned to another institution nor will it divert the grant to other institute as assistance. In case the Institute is not able to implement the project, it should refund to this Department the entire grant or the balance grant at the earliest.

x. For permanent, semi-permanent or infrastructural assets acquired solely from the project grants, an audited record in the form of a register in the prescribed format shall be maintained by the Institute. The term "Assets" include (a) the immovable property acquired out of the grant; and (b) movable property of capital nature where the value exceeds Rs 1,000/-. The Institute is required to send to this Department a list of assets acquired from the grant.

xi. The grant shall not be utilized for construction of any building unless specific provision is made for this purpose in the sanction order.

xii. All the assets acquired from the grant will be the property of Government of India and should not be disposed off or encumbered or utilized for purpose other than those for which the grant had been sanctioned, without the prior sanction of this Department.

xiii. After completion/ termination of the project, the Government of India will be free to sell or otherwise dispose of the assets which are the property of the Government. The Institute shall render to the Government necessary facilities for arranging the sale of these assets. The Government of India also has the discretion to gift the assets to the Institute or transfer them to any other Institute if it is considered appropriate and justified.

xiv. This Department reserves the right to terminate the project at any stage if it is convinced that the grant has not been properly utilized or appropriate progress is not being made.

xv. The Comptroller & Auditor General of India, at his discretion, shall have the right of access to the books and accounts of the Institute maintained in respect of the grant received from the Government of India.

D. Progress Evaluation and Monitoring

i. The PI through the implementing Institute will furnish to this Department an electronic copy and the desired number of hard copies of Annual Scientific & Technical Progress report for the work carried on the project on an annual basis. (ie. if the date of start of a project is 12.01.2000 the first Annual Technical Progress report shall be for the period 12.01.2000 to 31.01.2001, the next will be from 01.02.2001 to 31.01.2002 and so on).

ii. In addition, this Department may designate Scientist/ Specialist or an Expert Panel to visit the Institute periodically to review the progress of the work being carried out and to suggest suitable measures to ensure realization of the objectives of the project. The

implementing Institute will provide all facilities to the visiting scientist/ specialist or the Expert Panel by way of accommodation etc. at the time of their visit.

iii. This Department also organizes Monitoring Workshops/ Experts committee meetings wherein the PIs/ Co-PIs and research staff are invited to present the technical progress of their project. The Investigators should attend such workshops since it provides an opportunity to review their progress based on which any midterm requests by the PIs for additional grants/ extension in duration etc. are considered by this Department. Subsequent releases of grant would be based on the reviewing and monitoring committee's recommendations.

iv. On completion of the project, the PI through the Institute should send the following documents to this Department to enable us to settle the account:

    a. Consolidated Project Completion Report (Both soft copies and desired number of hard copies) with a summary sheet as first page indicating that Number of People Trained (separately as JRF, SRF, RA, Assistant Prof. etc.), Number of Patents (Filed and Granted separately), Number of Research Publications (total as well as with IF >3 separately), Achievement of the project in bullet format, Number and name of the lead molecules;

    b. Consolidated audited Statement of Expenditure and Utilization certificates (Financial Year wise);

    c. Consolidated Assets Certificate (including the name of the equipment, Date of purchase and Installation, Cost of the equipment in Indian and Foreign Currency),

    d. Manpower Certificate (including their qualification whether NET/BET/GATE or similarly qualified, Date of Joining and Leaving, Salary paid per month and annum)

    e. Un-spent balance should be sent through a Demand Draft drawn in favor of Drawing & Disbursing Officer (DDO), DBT, payable at New Delhi.

E. Guidelines for publication of results

i. It is mandatory to acknowledge financial support provided by DBT via inclusion of Reference/Grant number, Name of the Department (i.e. DBT) and the duration of the financial support including the dates in acknowledgement section of publications/patents/technology transfer documents vide notification no. DBT/PCAH/Gen/01 dated 7th June 2012.

ii. The Investigator(s) should not enter into collaboration with a foreign party (individual/ industry) without prior approval of this Department.

iii. Investigators are also requested to publish some of the research papers emerging out of the project work in leading Indian Journals.

iv. If the results of research are to be legally protected, the results should not be published without action being taken to secure legal protection for the research results.

F. Guidelines/ Instructions for Technology Transfer and Intellectual Property Rights

DST's General guidelines for Technology Transfer and Intellectual Property Rights are applicable.

These guidelines are issued with approval of the competent authority and come into effect immediately i.e. from 14th Septmeber'2016 onwards.

REQUEST FOR EXTENSION

Note: In general, the request for extension must be made ONLY via eProMIS through PI's login, wherever the online request is not possible, kindly forward the extension request in the following format (to be sent at least three months prior to the Date of Expiry of the Project):

1. DBT Project Number:
2. Name of the Investigator:
3. Title of the Project:
4. Approved duration of the project from _____ to _____.
5. Requested extension from _____ to _____.
6. Original objectives (quoted from project proposal)
   a.
   b.
   c.
7. Results achieved so far (in relation to attainment of objectives)
8. Clear statement of objectives that have not been achieved so far but will be achieved during the extended period:
9. Financial implications:
   A. Total Sanctioned Amount:
   B. Total expected expenditure till the end of present sanctioned duration:
   C. Expected expenditure during extended period:
      C.1 Manpower costs (at the existing level)
          Existing level means average of last 6-12 months expenditure
      C.2 Consumables (at existing level)
      C.3 Travel (if absolutely necessary)
      C.4 Contingencies
   D. Expected amount to be refunded to DBT or Expected amount in addition to the sanctioned amount.

Name and Signature of PI