



**Department of Biotechnology
Ministry of Science & Technology
Government of India**

**GENERAL CALL FOR PROPOSAL
IN
AQUACULTURE & MARINE BIOTECHNOLOGY**

**For
COMPREHENSIVE STUDIES INVOLVING GENOME SEQUENCING,
FUNCTIONAL GENOMICS OF FISHES AND THEIR PATHOGENS, FISH FEED
DEVELOPMENT & NUTRITION, DIAGNOSTIC KITS, FISH MICROBIOME
AND IMPACT OF CLIMATE ON FISHES**

Last Date of Submission

30th June'2022

The Global Fish food consumption is a major source of protein and other nutrients. The growing population demands the immediate expansion of the fisheries sector in a sustainable manner. The fisheries sector is currently facing number of challenges such as overexploitation of available resources, germplasm degradation, climate change and diseases. Therefore, it is important to find solutions for these challenges.

The Department of Biotechnology is announcing this Call for Proposal in order to undertake the whole genome sequencing, functional genomics; fish feed development and nutritional studies, diagnostic kit development, fish gut and impact of climate change on fish production. This Call is open to Indian Scientists/Faculties, Engineers, Nutritionist, Breeders & Biotechnologists, Industries or a team involving some or all of them.

OBJECTIVES

The major goal is to start the novel & innovative biotechnology based research and development activities in the domain of Aqua & Marine biotechnology for creating adequate knowledge, integrated databases for targeting the enhanced fish production & for developing indigenous fish-feed production, target identification for eradication of diseases and monitoring etc. The objectives may be as follows -

1. Whole Genome sequencing & Functional Genomics
2. To enhance fish production
3. To identify the susceptibility/resistance to diseases
4. Automated monitoring tools
5. Production of indigenous feed for variety of fishes

PRIORITY AREAS

The following priority areas have been identified in Aquaculture & Marine Biotechnology to achieve the objectives:

1. Whole Genome sequencing of two Freshwater [Mrigal (*Cirrhinus mrigala*), Golden Mahseer (*Tor Putitora*)], Brackish Water [Mud Crab (*Scylla setarra*)] and two marine animals [Ribbon fish (*Trichiurus lepturus*)/ Indian Backwater Oyster (*Crassostrea bilineata*)/Indian pompano (*Trachinotus mookalee*)] having high economic value (includes complete chain from sequencing to database creation, sharing & integrating with other agencies as well as data analysis)
2. Whole Genome Sequencing of pathogens of fishes and other animals and establishment or strengthened existing repository for aquatic animal pathogens
3. Genome sequencing of gut microbiome & their application and marker assisted genomic selection of indigenous fish species and molecular breeding
4. The functional genomics/proteomics of the aqua & marine animals species and their pathogens based on the available genome sequencing/proteome knowledge
5. Input based production enhancement such as live feed, brood stock and larval feed, larval breeding technology, alternative to antimicrobials, environmental management, bioremediation, sex identification techniques, marine bioprocess Engineering, repositories
6. Tools for automated monitoring of fish production/farming using advanced systems such as artificial intelligence and biosensors
7. To develop highly innovative solutions for production of indigenous fish feed including live feed /feed ingredients/species specific diet development and replacement of fish meal in feed formulation
8. Development of onsite diagnostics tools and techniques farmer friendly field level diagnostic kits for existing and emerging pathogens in Indian aquaculture system and as well as integrated diagnostic platforms.
9. Mitigation measures against the diseases by developing vaccines
10. Production of high value human therapeutic fish proteins using fish cell lines.
11. Strengthen the existing fish cell line repository and focus on their applications
12. Climate resilient culturing methods/practices
13. Marine synthetic biology
14. Ornamental invertebrates of high demand- captive breeding and propagation
15. To establish Centre of excellence (2) namely in Genome sequencing & its application and feed/nutrition development including live feed

WHO CAN APPLY

Any Indian National holding a regular position in any Indian academic and scientific institution may apply.

CRITERIA FOR PROPOSAL SUBMISSION

The minimum requirement for proposal submission is as follows:

- a. A Proposal should be written in English language ONLY
- b. Investigator must hold a regular position in an academic and scientific institution

- c. Proposals of exceptional quality leading to thorough execution of the priority areas and likely to deliver after the completion of the project will be preferred.
- d. The proposal should have clear objectives, rationale, clearly specified deliverables and a detailed & complimentary work plan.
- e. Any collaborative/network proposal must clearly define the role of each collaborator. The role of collaborator must be complementary in nature rather than repetitive/independent.
- f. A proposal encompassing the comprehensive approach for achieving the defined priority areas will be preferred.
- g. Investigator(s) having a track record for technology development will be preferred
- h. The Indian principal investigator must have at least four years of the employment remaining in the institution at the time of proposal submission

FINANCIAL SUPPORT

Funding procedures and eligible costs are subject to National regulations. Apart from the terms and conditions of the grant, the additional condition for this call is as follows -

- a. DBT will provide the financial support only to an academic and scientific institution, however, an industry may collaborate with them to develop a product
- b. The subsequent year funding depends upon timely submission of the annual progress report, financial documents as well as other documents desired and based on the performance appraisal of the project.
- c. The support will be provided only for a period of three years from the date of sanction of the project. An extension of one year may be provided based on the performance/outcome of the project.

MANDATORY REQUIREMENTS

Once the proposal is recommended for support the following documents must be submitted -

- a. Declaration/Certificate, including the check list, from the Head of the institution
- b. Applicable clearances of the Institutional Biosafety Committee, Certificate for Animal Ethics Committee, Institutional Ethics Committee etc.
- c. Each investigator has to follow the 'National Biodiversity Act (2002)'
- d. Any project involves product / technology development / transfer / commercialization; an applicant has to submit a declaration certificate duly endorsed by the Institution along with the proposal that to the best of the knowledge, the submission is original and does not violate or misappropriate any third party trade secret, "know-how," copyright, patent or other intellectual property right. Applicant also warrant and represent that there are no obligations of any nature, legal or otherwise, which would prohibit, restrict, or interfere with their participation in the call or submission of their design report, and agree to obtain any necessary clearances, authorizations and/or approvals prior to participation
- e. Any other clearance applicable in the process

MONITORING AND FOLLOW UP OF THE PROJECT EXECUTION

The Investigator is required to submit a progress report for evaluation by an expert committee as per DBT's guidelines or as and when required. The extension will be based purely on performance/outcome of the project.

PROPOSAL FORMAT & SUBMISSION

Electronic copy of a proposal needs to be submitted through DBT's online proposal submission system (<http://dbtepromis.nic.in/login.aspx>) under Call for Proposal created under 'Aquaculture and Marine Biotechnology' Programme. The following may be noted -

- a. Incomplete or wrongly filled up application with lack of essential information/ documents will be summarily rejected.
- b. Proposal submitted through e-mail will not be entertained.
- c. Proposals received after the last date of submission will not be considered.

For any information, kindly contact to **Dr. Rajneesh K. Gaur**, Scientist 'E', Department of Biotechnology, 814, Block-2, CGO complex, Lodhi Road, New Delhi-110003. Email: rajneesh.gaur@nic.in