Department of Biotechnology
Ministry of Science and Technology Government of India

Call for proposals on

"Translational Research using GenomeIndia Data"

Last Date for Proposal Submission: 28th Feburary, 2025

Introduction

The GenomeIndia Project, supported by the Department of Biotechnology (DBT) recently completed sequencing of 10,000 Indian genomes with 20 collaborating institutions. The Genome India Project has the potential to make a significant impact on genomic research and healthcare in India.

The project aimed to map the genetic diversity of the Indian population and understand how genetic variations contribute to diseases, health conditions, and drug responses across different ethnic and regional groups. The long-term vision is to create an extensive database of genetic information that can be used to improve public health, drive medical innovations, and provide insights into human evolution, migration, and the environmental influences on genetics.

By understanding the genetic landscape of the Indian population, it will pave the way for more personalized healthcare, improved disease prevention, and better patient treatment strategies. However, the success of the project depends on its downstream application, ensuring privacy, ethical integrity, and responsible data usage.

Purpose of the Call:

Current call aims to facilitate organisations, researchers and health leaders with the expertise to work in partnership to exploit the opportunities of translational research using GIP data sets for addressing some of the critical personalized and community-wisse health issues of Indian population.

Project scope and focus areas include, but are not limited to:

1) **Reference Genome**: Develop comprehensive reference profiles for phenotypical and genotypical characteristics unique to specific Indian community groups
2) **Population Specific Genetic Risk Factors**: Identifying and mapping of rare and community-specific genetic variants, with a focus on demographic, geographical, and

disease associations (such as sickle cell anaemia in tribals of a specific state/ geographical region) and developing risk stratification/prediction tools for the same.

3) **Epigenetics**: Integrate gene-environment interaction studies with high-throughput genomic approaches to identify individual and population-level risk factors, enabling early risk prediction and precise modelling of multifactorial diseases
4) **Cost-Effective screening/Diagnostic Tools**: Development of cost-effective indigenous screening/diagnostic tools that incorporate population-specific genetic risk factors aiming to improve cost efficiency, reduce overdiagnosis, and enhance targeted disease screening for high-risk populations
5) **Precision Medicine**: Leverage gene-disease-drug associations, big data-driven AI/ML techniques, and bioinformatics to understand complex biological networks and enable personalized treatment optimization for improved clinical outcomes
6) **Genetic Variant Association and drug development**: Utilize SNP-based data from chronic disease association studies, comparing healthy individuals and diseased patients, to identify significant genetic variants, explore their functional roles, and evaluate their potential in refining diagnostic precision, and therapeutic targeting.
7) **Disease Outbreaks response strategies**: Development of technologies predicting spread of infectious diseases using genetic data and understand how genetic factors influence susceptibility to infections.

Guiding Principles of the Genome India Project:

The **Genome India Project**, coordinated by the Department of Biotechnology (DBT), followed the principles:

- Respect for participants' data sharing and privacy preferences.
- Transparency in governance and operations.
- Accountability to ethical, technological, and public outreach standards.
- Inclusivity by building trust with and reaching out to stakeholders.
- Collaboration to advance human health through data sharing.
- Innovation to foster progress in research.
- Agility in addressing urgent health challenges.
- Independence in structure and governance.

Terms and conditions

1) The proposals should be written with precise realistic research goals and identified deliverables and **should NOT have** primary data generation. It should not be very broad and generic, and objectives should not be exploratory in nature.
2) It is expected that all investigators will follow the highest principles and ethics of research and rules/regulations/Guidelines/laws related to the data protection, patient protection as enacted by the Govt. of India from time to time.
3) The host organization should have the requisite minimal infrastructure to undertake the project and have the experience in building any necessary interfaces and processes related to the proposed study objectives and future outcome. The proposal should only cover any additional requirement to execute this proposal and not establish a facility from scratch.

Eligibility

1) Any Indian National holding a regular position in any Indian academic and scientific research institutions (Govt./Private) may apply. This call for proposal is open to all applicants eligible for Govt. funding. The research institutions must be recognized by DSIR as a Scientific and Industrial Research Organization (SIRO).
2) Private institutions/ NGOs should have proof of registration at 'NGO DARPAN' of NITI Aayog (http://ngodarpan.gov.in/), Certificate of registration under Society Registration Act, Organization's Memorandum of Association, Organization's Articles of Association, Valid DSIR-SIRO certificate/ DSIR in-house R&D recognition certificate (as applicable), and Duly audited account statements for the past three successive years.
3) There should be at least one co-investigator from each participating institute and either one of the PI or Co-PI should have remaining service in co-terminus to the duration of the project.
4) The Team of Researchers (PIs/Co-PIs) should be multi-disciplinary with expertise in the areas like genomics, precision medicine and data science etc., capable of dealing with large amount of data, having expertise in building prediction tools involving Computational Biology, Statistics, Machine Learning, Deep Learning, etc. through high-throughput omics approach.
5) **Use of free and open source Software is preferred and encouraged to for executing the project and to ensure usability of the data to the research community** at large.

FINANCIAL SUPPORT:

- The Department envisages grants-in-aid support for focused, multi-institutional projects of up to 2 years duration with the budgetary requirement per project shall not exceed Rs 50 Lakhs.
- NR cost should not be more than 20% of the total proposed cost and should mainly include compute and storage infrastructure-related budget.

Grant Component:

a) GIA-Capital (Non-Recurring Budget): Equipment & Other Accessories
b) GIA-General (Recurring): Manpower (as per Govt. of India guidelines),Consumables, Contingencies, Travel (Domestic only) Others (if any with proper justification)
c) GIA-General: Overheads

Processing of proposal:

All proposals submitted as per Letter of Interest (LoI) format within the due date of the call will be considered by the committee(s) approved by the Competent Authority of DBT as per the Competitive Research Grant System Guidelines of DBT. The project investigators may be invited to make a detailed presentation before the Expert Committee, if required as per DBT norms. The decision of DBT on the proposal will be the final and same will be communicated to the investigator. The deadline for proposal submission is **28th February, 2025.** For any queries related to this call, please contact:

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Please send your Letter of Interest to: rv.mahajan@dbt.nic.in

Letter of Interest Format

For applying for proposals on "Translational research using Genome India Project Data

1. Name of the PI:
2. Organization/Institute/University Name:
3. Name of PI(s) at partnering institute(s) with their address (if applicable)
4. What is the expertise and skills available with the investigator(s) and their team(s) executing the project?
5. Title of the project
6. Brief summary of the project (Less than 150 words)
7. What are the novel aspects of your proposal in the context of translational human genome research?
8. What is the background and rationale for the project? (Highlight the problem or gap being addressed by this research, significance of the research for India's population and healthcare)
9. State the Hypothesis/Research Question
10. Specify the scope of work, including particular focus areas of research (Reference Genome, Population Specific Genetic Risk Factors, Epigenetics, Cost-Effective Screening/Diagnostic Tools, Precision Medicine, Genetic Variant Association and Drug Development, Disease Outbreaks Response Strategies, Other)
11. What are the primary and secondary objectives of your research? Define in concise terms, focusing on measurable goals
12. Which are the specific GIP data sets and their format (e.g., FASTQ, VC), volume, and associated metadata proposed to be used in the research?
13. Describe how you will retrieve, store, process, and integrate the data for analysis. Will you use any additional tools or platforms for validation?
14. Explain the measures that will be taken to ensure secure data handling, compliance with ethical guidelines, and confidentiality
15. What are the expected outcomes and their indicators? How do you plan to evaluate these

outcomes?

16. Explain how teams will communicate with each other to generate, execute and communicate the data?

17. Provide details of the existing infrastructure at the hub and partnering institutes

18. What is the estimated duration of the project?

19. What are the budget requirements to accomplish the targeted goals (institutes-wise, if more than one institute require funds) and provide break-up and justifications for each item?