

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

**CALL FOR PRE-PROPOSALS**

**Artificial Intelligence Applications for Affordable and Accessible Healthcare -  
Big Data and Genomics**

**(Last date for submission extended till 25<sup>th</sup> May, 2019)**

**BACKGROUND**

Artificial intelligence (AI) aims to mimic human cognitive functions. It is bringing a paradigm shift to healthcare, powered by increasing availability of healthcare data and rapid progress of analytics techniques. Often requiring to perform repetitive tasks and analyzing millions of data - structured and unstructured, AI comes as a perfect way to deal with these challenges. Integration of AI approaches such as machine learning, deep learning, and natural language processing to tackle the challenges of scalability and high dimensionality of data, better understanding of genomics and find patterns in the data that makes sense and to transform big data into clinically actionable knowledge is expanding.

Department of Biotechnology (DBT) announces this Call under the new initiative “Artificial Intelligence Applications for Affordable and Accessible Healthcare - Big Data and Genomics”.

**PURPOSE**

The purpose of this ‘Call’ is to seek pre-proposals from Team of Researchers who intend to develop AI-based-solutions/tools to unlock clinically relevant information hidden in the massive amount of data, guided by relevant clinical questions, which in turn can assist clinical decision-making on disease prediction and prognosis evaluation, early detection and diagnosis, therapy choice, patient monitoring and care, etc.

**ELIGIBILITY**

This call for proposals is open to all applicants normally eligible for DBT funding. The Team of Researchers should be multi-disciplinary with expertise in the areas: Data Science (for example, capability to deal with large amount of data, having expertise in building prediction tools involving Computational Biology, Statistics, Machine Learning, Deep Learning, etc.), High-throughput Omics and Clinical expertise (for example, biologists, clinician, specialist in a specific disease in question).

Researchers working in the industry are not eligible to apply alone but can apply with academic partners.

## **SCOPE**

The pre-proposals may be focused on AI programs to be developed and applied to practices such as diagnosis processes; treatment protocol development; drug creation/development; personalized medicine; patient follow up; etc for priority diseases such as Cancer, Tuberculosis, Cardiomyopathy, Diabetic Retinopathy, Genetic Diseases and Rare Disorders. The application should contain information on: generation, quality assurance, storage, curation, annotation and distribution of either existing and/or new high-throughput data (for example, genomics, proteomics, metabolomics and such omics linked with clinical information) for AI-driven tool implementation. Relevant research Group/Institution/Organization/Hospital/s should be indicated as source in case existing data need to be accessed and leveraged for the purpose.

Under this Call, DBT encourages usage of existing bioresources/ biobanks/ databanks/ datasets in these proposals.

## **FINANCIAL SUPPORT**

The proposals will be considered for funding for 2/3/5 years. If the existing data/information is to be used, the proposal may be formulated for short duration.

## **MODE OF SUBMISSION**

Pre-Proposals may be submitted in the prescribed Format, clearly stating 'Pre-Proposal on Artificial Intelligence Applications for Affordable and Accessible Healthcare - Big Data and Genomics' in the subject line of the email and send it to [bioinformatics@dbt.nic.in](mailto:bioinformatics@dbt.nic.in). Your queries, if any, may be addressed to Dr. Suchita Ninawe, Adviser/Scientist 'G' at this same email ID. **The closing date of the call is 15<sup>th</sup> May, 2019.**

Subsequently, two hard copies should also be sent to: Bio-informatics Division, Department of Biotechnology, Block-2, Room No. 707, 7<sup>th</sup> Floor, CGO Complex, Lodhi Road, New Delhi-110003. Please mention 'Pre-Proposal on Artificial Intelligence Applications for Affordable and Accessible Healthcare - Big Data and Genomics' on the envelope. Hard copies should reach by 20<sup>th</sup> May, 2019.

## FORMAT

### Pre-proposal on Artificial Intelligence Applications for Affordable and Accessible Healthcare - Big Data and Genomics

**(The proposal may be prepared with utmost thinking, definite and serious intentions and after thorough knowledge search and required interactions with other relevant groups)**

1. Title:
2. Contact details of Centre Coordinator/PI/Co-PIs (Name, designation, address, email, mobile number):
3. Introduction/ Summary of Proposed Work:
4. Global and National Scenario:
5. Objective - Immediate and Long term:
6. Relevant expertise available, mention Name, Position and Expertise in tabular form (also enclose brief CV of not more than 3 most relevant researchers on separate sheets):
7. Infrastructure available (Specific major equipment and facilities available with reference to this proposal):
8. Brief description of the present related activities:
9. Bioresources/ biobanks/ databanks/ datasets available in your group:
10. Are you aware about other datasets/ information resources available in the country with other institutions? Modalities to access and utilize those resources/data sets/information and to form collaborations with them:
11. Are you proposing generation of new data? If yes, mention in brief – sample size and collaborations
12. Data/information that will be used is structured and unstructured?
13. Creation of new tools and technologies /softwares/ algorithms, etc:
14. Use of tools and technologies /softwares/ algorithms, etc available in public domain, if proposed; mention about IP issues
15. Linkages with industries and international organizations, if any.
16. Methodology and Technical Work Plan with reference to objectives:
17. Approximate funding requirement: Year wise and under different heads-Equipment(list to be enclosed), Manpower (Position and no. to be specified), Consumables and other costs [Give details separately for the main applicant and collaborators]
18. Anticipated outcome: Clear measurable deliverables - Immediate and Long term
19. Any other information that may strengthen your proposal (e.g. potential for commercialization, societal benefit, link to various national missions/initiatives etc.):

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***Note: The proposal should be more scientific and technical and should contain all the details and quantitative information e.g. size of data, algorithms, tools, softwares to be used, etc., that may require by the Committee to evaluate it. However, repetitions and not-relevant information may be avoided. The Pre-proposal document should not be more than 12 pages (including CVs and enclosures, if any), A4 size, Times New Roman, 12 font size, normal margins. Please follow this.***

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