



Genome Mining: From Functional Readouts to Practical Applications

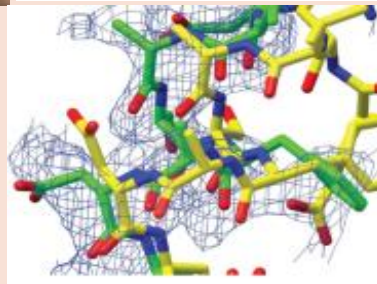
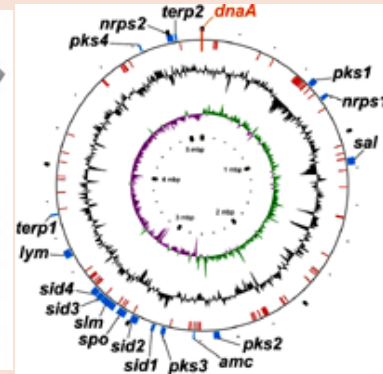
National Training Program

From

06 to 17 December, 2011

under

National Agricultural Bioinformatics Grid
National Agricultural Innovation Project (NAIP)
Indian Council of Agricultural Research (ICAR)



National Bureau of Agriculturally Important Microorganisms

Kusmaur, Maunath Bhanjan-275101 UP

Bioinformatics

Bioinformatics in the present day microbiological research is an inevitable subject area that encompasses biological resources and high end computational skills in order to unravel the coded and encrypted information within the life. The area has seen tremendous developmental pattern in the last few decades due to the emerging computational technologies dedicated for uncovering the complex but vital biological information that not only essentially constitute the basis of life but entails about the evolutionary diversification and multi-phasic interactions among the microorganisms with their own environment. The task is not only confined to the identity of genetic or phenotypic traits in the microbes but within the boundaries of the current knowledge, it encompasses origin and diversity of life on earth, evolutionary diversification, basic principles of survival and adaptation, habitat-wise distribution of life-forms, characterization of valuable traits leading to sustenance within the species, multitrophic interactions within and between communities, adoptive behavior of organisms in response to biotic and abiotic stresses, sustainable crop productivity, challenges of the climate change in environment and even more complex but often least deciphered characters of the microbes, plants and animals.

Objectives

- ✓ To provide insights among National Agricultural Research Scientists in analyzing & organizing data related to biological complexity
- ✓ To make an understanding of bioinformatics tools and software employed for the data analysis
- ✓ To update the strategies for integrating bioinformatics tools for data mining and computational biology

Themes of the training

- Computational genomics
- Microbial whole genome sequencing : tools & techniques
- Genome annotation: assembly & functional readouts
- Gene mining: tools and approaches
- Metabolic regulatory networks: databases and structural complexity
- Gene expression: microarray data analysis and mining approaches
- Biosynthetic pathways and metabolomics
- Genome mining : practical applications in natural product discovery
- Genomic, proteomic and metabolomic databases
- Data mining for pattern analysis: machine learning approaches

The tasks

The training is designed to be provided in a very interactive mode with the help of renowned researchers in the field of bioinformatics in India. The key feature of this training is the presence of one eminent foreign scientist for a full week with the trainees to impart training on the basis of his expertise and experiences in the area of genomics and computational biology so that the trainees can connect the needs of both these interdependent fields for their future research.

Benefits

- Enhanced understanding of different bioinformatics tools
- Applications of databases and web-resources
- Increased usage of bioinformatics in day-to-day research &
- Intensification of knowledge-based approaches among the scientists for molecular biological research

NBAIM



National Bureau of Agriculturally Important Microorganisms (NBAIM) is among the premier institutions of Indian council of Agricultural Research (ICAR) for microbiological research in India. The Bureau is aimed to work for the collection, conservation and preservation of agriculturally important microbial cultures and their genomic resources for future needs. The Bureau is engaged in the cutting-edge research themes in microbial biotechnology and bioinformatics for the development of technologies, processes, protocols and products which will ultimately benefit Indian academics, research institutions and farmers. As part of our Human Resource Development (HRD) Programs, we have successfully organized 21 National training programs on different areas of molecular microbial identification, characterization, molecular taxonomy, biocontrol, plant-microbe interactions and the applications of bioinformatics in gene mining since the inception of the Bureau.

Well developed laboratory units including molecular biology, genomics, microbial culture collection, Microbial Genomic Resource Repository equipped with Pyrosequencer, confocal laser microscope and electron microscope, along with other sophisticated instrumentation are the back bone of regular facilities at NBAIM. Central library, CERA and ARIS cell facilitate access to digital literature data-bases. The Bureau has also initiated Grid-based bioinformatics facility under the project “National Agricultural Bioinformatics Grid”.

Microbial research at NBAIM

Microbial research at NBAIM basically focus in the areas of microbial diversity analysis from extreme habitats, biological control of plant diseases, plant growth promotion, plant-microbe

interaction, microbial genomics and proteomics, metabolomics, stress tolerance in microbes and bioinformatics.

Who can attend?

Scientists/faculty members from NARS system and departments working in biological sciences from various agricultural universities/institutes

How to apply?

Scientists working with NARS system/ Universities/SAUs may write to the Director, NBAIM along with their RESUME on/or before Nov., 15, 2011. Selected candidates will be informed regarding their participation.

Duration : Dec., 06 to 17, 2011 (12 days)

Total no. of participants : 25 (Twenty five)

Last date for submission of application/nominations: Nov., 15, 2011

For further details, please contact:

The Director, National Bureau of Agriculturally Important Microorganisms, Kusmaur, P.O. Kaithauli, Mau Nath Bhanjan-275101 (U.P.) Phone: 0547-2530080, Fax: 0547-2530358, e mail: nbaimicar@gmail.com; website: www.nbaim.org.in **or**

Dr. Dhananjaya P. Singh, Senior Scientist & CCPI, NABG Project, NBAIM, Mau; contact no.: 09415291703; e mail- dpsfarm@rediffmail.com

Additional information:

1. There is no training fee and all the boarding/lodging arrangements will be borne by the organizer.
2. TA restricted to both side II AC rail fare (as per the NAIP guidelines) is admissible only to limited participants on the first come first find basis.

APPLICATION FORMAT

Subject Matter Training

Genome Mining: From Functional Readouts to Practical Applications

06 to 17 December, 2011

NBAIM, Mau

Name of the Applicant : -----

Designation : -----

Affiliation :

Official address : -----

Telephone No. : -----

Mobile. :-----

E-mail address : -----

(Compulsory)

Bioinformatics Related Experience:.....

Expectation from the training:.....

Signature of the applicant

Forwarded by :

INSTRUCTIONS TO CANDIDATES

1. The complete application should be emailed to the Director, NBAIM at nbaimicar@gmail.com latest by Nov., 15, 2011.
2. The applications should be submitted through proper channel.
3. Training details are also available online at <http://www.nbaim.org/>.
4. Only limited provision for TA (as per ICAR/NAIP norms) is available for the participants
5. Food & accommodation will be provided by training organizer.