



ANNOUNCEMENT



Centre for Advanced Faculty Training

on

*Next Generation Sequencing and its Applications in
Crop Science
28 Aug-17- Sep, 2018*



Organized by

ICAR-National Research Centre on Plant
Biotechnology
Pusa Campus, New Delhi -110 012
India

www.nrcpb.res.in

Traveling Allowance: Lodging and Boarding

Participants will be paid travel fare for to and fro journey by rail or bus as per their entitlement class of travel restricted however to the maximum of AC II Tier. TA will be paid on production of a copy of the tickets. Free boarding and lodging (shared basis for 4 participants in one room) will be provided at Farmers Hostel, IARI, Pusa Campus to the participants during the training program.

How to reach NRCPB

NRCPB is situated within the LBS Building at IARI, Pusa campus which is well connected to all the three major railway stations at Delhi by metro (Rajendra place station), local bus, pre-paid auto and taxi services. It is located about 8 km west of New Delhi railway station and 10 km from the interstate bus terminal. It is 20 km away from New Delhi Air Port.

Weather

Delhi is situated at 28.38° North and 77.13° East and falls in northern India. Weather during this period will be mild with an average temperatures around 26-27°C.

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Background and Objectives

The National Research Centre on Plant Biotechnology, Pusa Campus, New Delhi is a premier research institute of ICAR engaged in research and human resource development in frontier areas of Plant Molecular Biology and Biotechnology. The programme intends to impart hands on training to the participants on next generation sequencing (NGS) data analysis pertaining to whole genome assembly and annotation, molecular marker discovery, transcriptome analysis, miRNAs lncRNAs discovery etc. This will also cover the basic orientation about linux, R packages and CLC Genomics etc.

About the training

The centre is organizing a training on “*Next generation sequencing and its applications in crop science*” sponsored by ICAR, New Delhi on **28 Aug-17 Sep, 2018** for the teachers/research personnel of State Agricultural Universities, ICAR Institutes and other equivalent Govt organizations. Next generation sequencing are recent techniques which have wide applications in Agriculture. In this training , various

techniques related to sequence driven research will be taught. The program has been designed with the objective to develop trained human resource on various techniques related to NGS, analysis and annotation of genomic as well as transcriptomic data, to identify differentially expressed genes and development of high throughput put genotyping markers.

Following topics will be covered during practical classes

- *Introduction to lines (Ubuntu)*
- *Introduction to R programming language*
- *NGS data quality check, raw data quality assessment*
- *Genome and transcriptom assembly*
- *CLC genomics workbench and BLAS2GO*
- *RNAseq analysis for differential gene expression*
- *Genome wide repeat analysis and phylogenetic analysis*
- *Construction of high density lineage map and QTL mapping*
- *Genetic diversity, population structure and GWAS analysis*
- *Data analysis for highthroughput SNP genotyping using SNP chips*
- *Identification of SSR, designing of SSR specific primers, identification of SNP/InDels*
- *Plant DNA and RNA extraction for NGS library preparation*
- *Illumina Hi-Seq library preparation*
- *Visit to the super computing facility of ICAR*

Curriculum

A series of lectures and practicals will cover principles and applications of gene identification, isolation and functional characterization for application in crop improvement. Structured hands on training by the experienced faculty in various routine and contemporary techniques will get special emphasis in the program. An educational tour to facilities of IASRI and other institutions carrying out research in the area of bioinformatics and biotechnology will also be arranged.

Faculty

The faculties are experienced scientists from the NRCPB for delivering lectures and conducting practicals. Guest faculty comprising of experts from IARI, NBPGR, NIPGR, Delhi University and other reputed institutions of India including private companies will be invited to deliver lectures on specific areas of specialization on NGS data analysis, its application in plant science

Facilities

The Centre has molecular biology laboratories equipped with state-of-the-art equipments and facilities. Apart from routine instrumental facilities for molecular biology work it has developed high throughput genomics and proteomics facilities, which, include Next generation sequencing systems, High throughput genotyping, Microarray, 2D Gel Electrophoresis, MALDI -TOF/TOF System, Variable Mode Digital Imager, MALDI Spotter, Robotic Spot Picker, well developed tissue culture facility for plant transformation etc. The centre has also developed a high capacity Bioinformatics facility with multiple terminals. For conducting trait analyses the Centre has developed a Transgenic Glass House facility and controlled environment and phenotyping facility.

How to apply

Candidates desirous of participating in the course and fulfilling the eligibility conditions shall apply through proper channel. The participants should submit their applications **only through online** using CBP portal (<http://cbp.icar.gov.in>). After filling the online application, take a print out and get it approved by the competent authority of the organization. Upload the scanned copy of application again through CBP portal. The last date for uploading of complete application (proper channel) at CBP portal is 26-7-2018. Selected candidates will be informed at least 3 weeks prior to the start of the training program. Application will be accepted strictly on line only through CBP portal.

Eligibility

Applicant must be a post graduate in Agriculture / Molecular Biology/ Biotechnology/ Genetics/ Physiology/ Biochemistry/ Microbiology or any other related discipline working in the cadre of Scientist/ Senior Scientist/ Principal Scientist and or equivalent position in any of the ICAR Institutes/ SAUs/CAUs or equivalent Govt Organizations.

Desirable : Working knowledge of computer uses, internet and basic bioinformatics.

Important Dates

Last date for receiving application: 26. 07. 2018

Intimation of selection : 1. 8. 2018

Commencement of the course : 28. 8. 2018