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16th ADNAT Convention

Association for
Promotion of
DNA Fingerprinting
and other DNA
Technologies



www.adnat.in

Workshop on Genomics & Beyond 6th to 16th December, 2012

Recent advances in sequencing and high through-put technologies have generated enormous amount of genomic data that led to the paradigm change in biology and medicine. Thanks to the emerging innovations in sequencing technologies, \$1000 per genome sequencing is close to becoming a reality. The low-cost sequencing technologies will result in generation of massive amount of genomic data sets in biology and medicine. The objective of the workshop is to narrow the gap between the genomic data generation and the ability to process and analyze the resulting data. This workshop introduces the essential tools

and strategies necessary for practicing 21st century biology and medicine. The topics include experimental genomics as well as wide range of cutting-edge computational techniques on next generation sequencing, Omics data analysis and drug discovery. The workshop is to train graduate students, post-doctoral fellows, young investigators and industry representatives involved in genomic data generation, data analysis, and drug discovery process. The workshop will have lectures and hands-on training using state of the art laboratory facilities and computer based classrooms.

Resource Persons

Prof. Hartmut Kuhn

University Clinics Charité,
Humboldt University, Germany

Dr. Raja Jothi

National Institute of Environmental
Health Sciences, National Institutes
of Health, USA

Dr. Saumyadipta Pyne

Dana Farber Cancer Institute
USA

Dr. Sreenivasulu Kurukuti

University of Hyderabad, India

Dr. David Fargo

National Institute of Environmental
Health Sciences, National Institutes
of Health, USA

Dr. Obul Reddy

Molecular Medicine Partnership
Unit, EMBL-University of Heidelberg,
Germany

Dr. Bindu Madhava Reddy

University of Hyderabad, India

Dr. Manimaran P

C. R. Rao Advanced Institute
of Mathematics, Statistics and
Computer Science, India

Dr. Syed Asad Rahman

European Bioinformatics
Institute, EMBL Outstation -
Hinxton, Germany

Dr. Sailu Yellaboina

C. R. Rao Advanced Institute
of Mathematics, Statistics and
Computer Science, India

Dr. Sarath Chandra Janga

Indiana & Purdue Universities,
USA

Dr. Lalitha Guruprasad

University of Hyderabad, India

Prof. M. Rami Reddy

Rational Labs, USA

Dr. Aparoy P

University of Hyderabad, India

Dr. Subhash Basak

University of Minnesota,
Duluth, USA

Program for Workshop on Genomics & Beyond

Module I: Experimental methods to study DNA & RNA

- Theory and methods of analysis of DNA and RNA
- Quantitative real Time PCR-methodology and applications
- Microarray and next generation sequencing-Part-I
- Microarray and next generation sequencing-Part-II

Module II: R programming

- Basics of R-programming
- Garden of graphics in Genomics
- Statistics in Bioinformatics

Module III: Computational analysis of microarrays and NGS data

- Assessing the quality and normalizing the data
- Clustering and heatmaps
- Detecting differentially expressed genes
- NGS data formats & mapping reads to the genome
- ChIP-Seq: Mapping DNA binding sites and epigenetic modifications
- RNA-seq data analysis
- Retrieving and analysis of publicly available Omic data sets
- Meta-analysis of Omics data sets

Module IV: Analysis of protein complexes, pathways and networks in Omics data

- Omics data sets, gene lists and gene sets
- Statistical methods for gene-set enrichment analysis
- Computational analysis and inference of biological networks
- Hands on experience with standalone and online tools for network analysis

Module V: Drug design

- Target identification using metabolic data
- Target identification & validation using genomic data
- Structural insights for drug development
- Protein-drug interactions and structure activity relationships
- Importance of database selection and generation in virtual screening
- Standalone tools and R packages for cheminformatics

Module VI: Systems pharmacology and pharmacogenomics

- Networking of drugs, targets, proteins and diseases
- Computational methods for drug repositioning
- Predicting adverse drug reactions
- Standalone software tools and online databases

Venue:

C R Rao AIMSCS, UoH Campus
Prof. C.R. Rao Road, Gachibowli
Hyderabad-500046

Registration Fee

ADNAT Members: Rs.20,000
Non-members: Rs.25,000
Private: Rs.50,000

Includes conference registration

Deadlines

Application submission
October 15th, 2012

**Notification of
selected candidates**
October 31st, 2012

Registration Fee
November 15th, 2012

Co-organizers:

www.crraoaimscs.org



www.uohyd.ac.in

Correspondence:

16th ADNAT Convention Secretariat

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