ABOUT THE WORKSHOP

With the advent of next-generation sequencing (NGS) technologies, there arose a need to identify candidate mutations for causality. A challenge often faced in identifying and inferring the causal SNPs from sequence data is that different methods need to be preferentially used to predict the effect of mutations for determining bona fidelity. While there are approaches focused on a wide array of highly sensitive, if not less stringent methods that the NGS has delivered in the recent past, this workshop aims to bridge the gap in using systems genomic approach taking command line scripts to Galaxy based workflows. A special focus of this workshop is on the current trends in genome analyses with special insights into NGS analysis. The sessions largely focus on whole exome sequencing (WES) and whole transcriptome shotgun sequencing (WTSS) or RNA-seq pipelines, and Galaxy integrated workflows, latest trends on single cell sequencing with vivid demonstration of various steps of data analysis including quality control and generation of variant calls, gene expression. An ample time will be set aside for discussing case studies on various diseased phenotypes

INTENDED AUDIENCE AND LEVEL

The tutorial is intended for all biologists with a flair for bioinformatics, Linux command line interface. The participants who do not have an a prior experience of Linux commands will be allowed to acclimatise fast with precomputed scripts made available. The Galaxy framework will ease participants who are not familiar with Linux command line interface. The tutorial is open for all those semi-experienced or experienced researchers who want to analyse their own data using NGS pipelines.

ORGANIZING COMMITTEE

Chief Patron
Dr. G. Viswanathan
Chancellor, Vellore Institute of Technology

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Mr. Sankar Viswanathan, Vice President, VIT
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School of Bio Sciences and Technology, VIT, Vellore

Organizing Secretaries
Dr. Jayanthi A, Associate Dean
Dr. Vino S, Associate Professor and Head
Dr. Sajitha Lulu S, Assistant Professor Senior

Register and pay ₹2500 before July 15, 2022 to secure your slot.

Registration Fee includes Workshop Kit, Lunch and Refreshments

Limited seats of 40 on a first come first serve basis

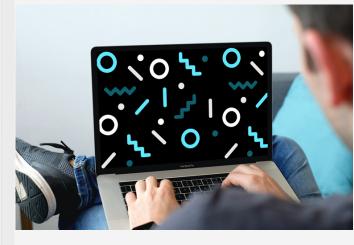To do this, simply go to https://events.vit.ac.in/

QUERIES:
DR. SAJITHA LULU S   9944807641

SCHOOL OF BIO SCIENCES AND TECHNOLOGY

Two days hands-on workshop on "A Practical Foundation on Next Generation Sequencing Data Analysis"

26-27 July 2022
SMV 209

Resource Persons
Dr. Prashanth N Suravajhala
Founder, Bioclues.org, India
&
Ms. Shalini Rajagopal

VIT-A place to learn; A Chance to grow

About VIT

Vellore Institute of Technology (VIT) is a private deemed University located in Vellore, India. VIT has campuses in Vellore, Amravati, Bhopal and Chennai. VIT has been consistently ranked among the best institutions of the country, and is aspiring to emerge as a global leader. The National Institutional Ranking Framework (NIRF) of the MHRD, Government of India, has identified VIT as the best Private Engineering Institution in India. With students from all the states of India and from more than 50 countries, the cosmopolitan VIT provides an appropriate ambience for holistic learning and comfortable living. VIT holds an exemplary placement record by consistently placing more than ninety percentage of the students in good companies. The VIT's international linkages provide ample opportunities for students and faculty to gain global exposure. VIT alumni, spread across the world, are serving the most advanced as well as the most deprived societies. FICCI awarded "Excellence in enabling Research Environment" for the year 2019.

About SBST

The School of Bio Sciences and Technology consists of four departments namely Biotechnology, Integrative Biology, Bio-Sciences and Bio-Medical Sciences headed by well-trained professors. The school offers an undergraduate (B.Tech. Biotechnology) and six Postgraduate (M.Sc. and M. Tech.) programme. It also offers Integrated Ph.D. and Ph.D. programme. The priority of the SBST is developing entrepreneurship skills and mentoring students to become future scientists for the improvement of humanity. Our efforts are strengthened by collaboration with national, international Universities and multinational companies. Consultancy research and commercialization of products at the University are undertaken as a part of the program. The school houses excellent infrastructure and well-trained faculty members which makes SBST one among the top ten Bio School in the country.

Schedule

DAY 1

9:00-11:00
Introduction to Biology of systems and Q & A

11:00-11:15
Coffee Break

11:15 -12:00
Systems Genomics in the age of next generation sequencing (NGS)

12:00-12:30
Advances in NGS

12:30-13:00
Teasers and hands-on bash liners

13:00-14:00
Lunch

14:00-15:15
Hands-on NGS pipelines

15:15-15:30
Tea break

15:30-16:45
Analyze results – case studies, automated Galaxy workflows bioinformatics cloud platform for NGS - Part II

16:45-17:15
Automated Galaxy workflows for NGS - Part I

DAY 2

09:00 - 13:00
Automated Galaxy workflows for NGS - Part II and Hands-on

13:00 - 13:45
Lunch

13:45 - 15:30
Hands-on

15:30
Closing Remarks

Prashanth N Suravajhala, Ph.D.

(Prash) is a Principal Scientist and Group leader, systems genomics Lab, Amrita University, Kerala, India and Founder, Bioclues.org, India. A PhD in Systems Biology from Aalborg University, Denmark., Prash went on to gain more than 7 years of postdoctoral experience across four different laboratories. Prash worked for Birla Institute of Scientific Research, Jaipur on his return to India in 2016 where he successfully led three projects in the areas of systems genomics of rare diseases and next generation sequencing analysis of cancers and diabetes. He has interests exploring the known unknown regions in the human genome, primarily working on the top-down systems biology approaches of hypothetical proteins. Over the last 10 years, he has developed an interest in long noncoding RNAs in humans, elucidating the mechanisms underpinning small molecular interactions through clinical exomes. His group has benchmarked pipelines and developed methods for systems genomic integration. He is an Associate Editor of Frontiers in Genetics/Systems Biology, Bio-Protocol, Biomolecules and BMC Medical Genomics to mention a few. Prash is the founder of Bioclues.org, India's largest bioinformatics society, an affiliate of ISCB. He strongly advocates open access and open science. His group page can be reached at http://www.bioinformatics.org/wiki/Prash

Shalini Rajagopal from Systems Genomics Lab has been instrumental in benchmarking various NGS pipelines and workflows for command line and Galaxy workflows. She worked for Sugarcane Breeding Institute and has over 5 years of experience.