



National Institute of
Allergy and
Infectious Diseases



Genomics and Bioinformatics of AMR Bacteria: Epidemiological and Clinical Application

August 24-25, 2017

ORGANIZERS

- Universidad El Bosque
- Office of Genomics and Advanced Technologies, National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), USA
- Computation Institute, University of Chicago, Chicago, Illinois, USA

LOCATION

Universidad El Bosque
Av Cra 9 131a-02, Bogotá, Colombia
Edificio Fundadores, Sala M402

AGENDA

Thursday, August 24, 2017

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|----------|---|
| 8:45 am | Welcome Remarks
<i>Lorena Diaz, Universidad El Bosque</i> |
| 9:00 am | Whole Genome Sequencing as a Starting Point to Understand Antimicrobial Resistance
<i>Lorena Diaz, Universidad El Bosque</i> |
| 9:30 am | Introduction to Next-Generation Sequencing (NGS) Platforms
<i>Rick Stevens, PATRIC</i> |
| 10:30 am | Morning Break |
| 10:45 am | Subsystems, Protein Families, and Annotation Propagation
<i>Maulik Shukla</i> |
| 11:30 am | Registering and Navigating the PATRIC System
<i>Tom Brettin, PATRIC</i> |
| 12:00 pm | Lunch |

Hands-On Sessions

- 1:00 pm Overview of PATRIC (www.patricbrc.org)
Rick Stevens, PATRIC
- 2:00 pm Assembling a Genome in PATRIC
Fangfang Xia, PATRIC
- Uploading reads and read libraries
 - Selecting assembly methods for comparison
 - Queuing jobs and retrieving results
 - Analyzing assembly output and comparisons
- 2:45 pm Annotating a Genome in PATRIC
Marcus Nguyen, PATRIC
- Uploading or selecting contigs in workspace
 - Selecting genome metadata and annotation options
 - Queuing jobs and retrieving results
 - Previewing an annotated genome
- 3:30 pm Afternoon *Break*
- 3:45 pm Proteome Comparison – Comparative Genomics
Maulik Shukla, PATRIC
- Selecting genomes for a study
 - Visualization of compared genomes
 - Download and analysis of results
- 4:30 pm Question and Answer
- *Rick Stevens*
 - *Fangfang Xia*
 - *Marcus Nguyen*
 - *Maulik Shukla*
 - *Tom Brettin*
- 5:00 pm Day 1: Adjourn

Friday, August 25, 2017

- 8:30 am Overview of AMR in Colombia
Maria Virginia Villegas, Universidad EL Bosque
- 9:00 am AMR in the ICU
Fangfang Xia, PATRIC
- 9:30 am Genomic Characterization of Vancomycin Resistant *Enterococcus faecium* in Latin America
Rafael A. Rios, Universidad El Bosque
- 10:00 am AMR Annotation Modules
Marcus Nguyen, PATRIC
- 10:30 am Morning Break

Hands-On Sessions

- 10:45 am Protein Family Sorter and Comparative Pathway Viewer: Comparative Genomics
Maulik Shukla, PATRIC
- Creating a genome group
 - Comparing by region, genes, proteins
 - Comparing pathways
 - Visualizing with heatmap viewer and downloads
 - Finding specific differences, downloading and saving results into private workspace
- 12:00 pm Lunch
- 1:00 pm Uploading and Analyzing RNA-Seq and Other 'omic in PATRIC
Thomas Brettin, PATRIC
- Uploading reads and specifying experimental conditions
 - Queuing jobs and monitoring progress
 - Filtering differentially expressed genes based on significance
 - Viewing results in heatmap viewer
 - Exploring public gene expression in datasets available in PATRIC



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- 2:00 pm SNP, MNP and indel analysis using PATRIC's variation service
Fangfang Xia, PATRIC
- Uploading reads data
 - Selecting genomes and mapping
 - Downloading and using data in PATRIC
- 3:00 pm Afternoon Break
- 3:15 pm Open Session Question and Answer
- *Rick Stevens*
 - *Fangfang Xia*
 - *Marcus Nguyen*
 - *Maulik Shukla*
 - *Tom Brettin*
- 5:00 pm Workshop Concludes