

## THE LOCAL PANGENOME, SAN JUAN DE ALICANTE, OCTOBER 25-28, 2023

Wednesday, October 25, 2023

16:00 Welcoming address

16:30-18:30

### Session 1 . Defining the pangenome

#### **Martin Polz (Vienna, Austria)**

Defining the role of the pangenome within a population genomic framework.

#### **Kostas Konstantinidis ((Georgia Institute of Technology, USA)**

An ANI-gap within species to define strains and the mechanism that underlies the species and subspecies gaps

#### **Ramunas Stepanauskas (Bigelow Laboratory for Ocean Sciences, USA).**

High rates and blurry boundaries of horizontal gene transfer in marine prokaryoplankton

#### **Matthew Kellom (JGI, USA)**

Metagenome-assembled genomes, isolate genomes, and pangenomics in large-scale data."

18:30 informal gathering with drinks and food

Thursday, October 26, 2023

09:00-11:00

### Session 2. Genomics of the Pangenome

#### **Federico Rosconi (Boston College, USA)**

Bacterial pangenomes shape essentiality and gene-phenotype associations

#### **Aitor Blanco-Míguez (University of Trento, Italy)**

A large-scale pangenome-based framework for improved meta-omics profiling

#### **Eduardo Rocha (Institute Pasteur, Paris, France)**

The contribution of interactions between mobile elements to the bacterial pangenome

#### **Yusuke Okazaki (Kyoto University, Japan)**

Single-cell genomics uncovers microbial genomic microdiversity and virus-host interactions that had eluded high-resolution metagenomics

11:00-11:30 Coffee Break

11:30-13:30

### Session 3. Evolution of the pangenome

#### **David Ussery (University of Arkansas, USA)**

Functions are conserved in the ongoing evolution of life in distinct ecological niches, but protein sequences are not

#### **Alex Mira (FISABIO, Valencia, Spain)**

Do Darwinian evolutionary principles apply to prokaryotes?

#### **Tal Dagan (University of Kiel, Germany)**

Multilevel drift and selection in the evolution of prokaryotic plasmids

#### **Carolina A. Martinez-Gutierrez (University of North Carolina, Greensboro, USA)**

Prevalence and Evolutionary Implications of Genome Rearrangements in Bacteria and Archaea

13:30-15:00 Lunch Break

15:00-17:00

#### **Session 4. Ecology and the pangenome**

**Rachel Whitaker (University of Illinois, Urbana-Champaign, USA)**

Contributions of multiscale symbiosis to the dynamics of pangenome

**Mattias Hotzinger (Swedish University of Agricultural Sciences, Uppsala, Sweden)**

The bipartite flexible genome of a freshwater bacterial species - Strain individuality and additive physiological functions

**Joshua Hamm (NIOZ Texel, The Netherlands)**

Strain-level variation alters host-symbiont interaction dynamics in the Halorubrum lacusprofundi - Candidatus Nanohaloarchaeum antarcticus system

**Mario Lopez-Perez (University Miguel Hernandez, San Juan de Alicante, Spain)**

Pangenome evolution in the marine bacterium SAR11

17:00-19:00

Flash talks

Friday October 27, 2023

09:00-11:00

#### **Sesion 5 Dynamics of the pangenome**

**Jose Penades (Imperial College London, UK)**

Redefining mobility in bacterial genetics and its impact on infectious disease

**Miguel Rodriguez Rojas (University of Innsbruck, Austria)**

Quantifying genetic variation at the edge of metagenomic resolution to characterize in situ population dynamics

**Franz Baumdicker (University of Tübingen, Germany)**

Common misconceptions when disentangling the processes that shape pangenomes

**Joao Botelho (INIA-CSIC, Madrid, Spain)**

Regions of Genome Plasticity: A Comparative Analysis of Mobility and Retention Patterns in Bacterial and Archaeal Pangenomes

11:00-11:30 Coffe Break

11:30-13:30

#### **Sesion 6. Phages and pangenome**

**Rafal Mostowy (Jagiellonian University, Kraków, Poland)**

Using a pan-genome approach to better understand how phages interact and coevolve with bacterial hosts

**Chris Bellas (University of Innsbruck, Austria)**

Bacteriophage pangenomes from metagenomes

**Mart Kuprovic (Pasteur Institute, Paris, France)**

The pangenomics and macroevolution of viruses

**Fiona J. Whelan (University of Nottingham, UK)**

Using a pan-genome approach to better understand how phages interact and coevolve with bacterial hosts

13:30-15:00 Lunch Break

15:00-17:00

**Session 7 Pangenomes of animal/plant denizens**

**Aiswarya Prasad (University of Lausanne, Switzerland)**

Variation and specialization of structure and function of gut microbial community across host species

**Jaime Iranzo (University Politecnica Madrid, Spain)**

High-order metabolic interdependencies dominate the human gut microbiome

**Anne Kupczok (Wageningen University, The Netherlands)**

Most orphan genes in the human gut microbiome have native origins

**Sheila Roitman (Max Planck Institute for Biology, Tuebingen, Germany)**

Expanding the plant holobiont

17:00-19:00 Flash talks

19:30-20:30

Closing keynote lecture

**Eugene Koonin (National Center for Biotechnology Information, Bethesda, USA)**

Evolution and global ecology of the virosphere