

CADDE Workshop on Portable Metagenomics for Pathogen Surveillance

13–17 March, São Paulo, Brazil

Monday 13 March 2023

Location: Mario Camargo Auditorium, IMT

Responsible: Ester Sabino and Nuno Faria

Time	Topic
08:00 – 09:00	Registration
09:00 – 09:30	Introduction Nuno Faria (ICL/USP/Oxford) Ester Sabino (USP)
09:30 – 10:00	Global arbovirus surveillance initiative Diana Rojas (World Health Organization, Switzerland)
10:00 – 10:30	Surveillance of outbreaks in Latin America Jairo Mendez (Pan American Health Organization, USA)
10:30 – 11:00	Coffee break
11:00 – 11:30	Public policies for surveillance in Brazil Daniel Ramos (Ministry of Health, Brazil)
11:30 – 12:00	Outbreaks, public health, and decision making in São Paulo Adriano Pinter (Pasteur Sao Paulo, Brazil)
12:00 – 13:30	Lunch break
13:30 – 14:00	Genomic surveillance in the Caribbean Christine Carrington (University of West Indies, Trinidad & Tobago)
14:00 – 14:30	Genomic surveillance in Ecuador Paul Cardenas (Universidad San Francisco de Quito, Ecuador)
14:30 – 15:00	Coffee break
15:00 – 15:30	Coordinating a SARS-CoV-2 national genomic surveillance programme Fernando Spilki (Feevale, Rede CoronaOmica, Brazil)
15:30 – 16:00	Coffee break
16:00 – 16:30	Tracking emerging zoonotic viruses and their zoonotic potential in Brazilian bats: a one health approach Helena Ferreira Lage (USP, Brazil)
16:30 – 17:00	Metagenomics applied to the study of viral diversity in the Brazilian fauna Mirela D'Arc (UFRJ, Brazil)
17:00 – 17:30	Wastewater surveillance of human pathogens Alex Shaw (ICL, UK)

Tuesday 14 March 2023

Location (AM): Mario Camargo Amphitheatre, IMT

Location (PM): IMT Molecular Laboratories

Responsible: Ingra Claro, Jaqueline Goes, Jeremy Mirza

Time	Topic
08:00 – 8:30	Introduction to Nanopore Sequencing Natalia Cortes and Aaron Pomerantz (ONT, UK)
08:30 – 09:30	Introduction to Nanopore Sequencing Nanopore Sequencing, walking through the protocols, tilling amplicon, metagenomic and shotgun sequencing Ingra Morales Claro (ICL/USP, Brazil/UK) and Filipe Romero (UFRJ/ICL, Brazil/UK)
09:30 – 09:45	Coffee break
09:45 – 11:30	Library Preparation Part 1 (Groups 1 and 2) Barcoding, End Repair and Clean Up Ingra Morales Claro (ICL/USP, UK/Brazil) Darlan Candido (ICL, UK) Filipe Romero (UFRJ/ICL, Brazil/UK) Chris Kent (UoB, UK) Jaqueline Goes de Jesus (USP/Baiana, Brazil) Alex Shaw (ICL, UK) Natalie Sparks (UoB, UK) Jeremy Mirza (UoB, UK) Esmeria (USP, Brazil) Mayara Bethane (USP, Brazil) Sam Wilkinson (UoB, UK)
	Library Preparation Part 2 (Groups 1 and 2) Adaptor ligation, clean-up and QuBit

11:30 – 13:00	Ingra Morales Claro (ICL/USP, UK/Brazil) Darlan Candido (ICL, UK) Filipe Romero (UFRJ/ICL, Brazil/UK) Chris Kent (UoB, UK) Jaqueline Goes de Jesus (USP/Baiana, Brazil) Alex Shaw (ICL, UK) Natalie Sparks (UoB, UK) Jeremy Mirza (UoB, UK) Esmeria (USP, Brazil) Mayara Bethane (USP, Brazil) Sam Wilkinson (UoB, UK)
13:00 – 14:30	<i>Lunch break</i>
14:30 – 17:30	ONT Sequencing <i>Real-time Metagenomic Sequencing using Rampart</i> Ingra Morales Claro (ICL/USP, UK/Brazil) Darlan Candido (ICL, UK) Filipe Romero (UFRJ/ICL, Brazil/UK) Chris Kent (UoB, UK) Jaqueline Goes de Jesus (USP/Baiana, Brazil) Alex Shaw (ICL, UK) Natalie Sparks (UoB, UK) Jeremy Mirza (UoB, UK) Esmeria (USP, Brazil) Mayara Bethane (USP, Brazil) Sam Wilkinson (UoB, UK)

Wednesday 15 March 2023

Location (PM): Horto Florestal Sao Paulo

Responsible: Jeremy Mirza, Juliana Telles, Sam Wilkinson

Time	Topic
07:45 – 8:45	<i>Transport to Horto Florestal</i>
09:30 – 10:00	<i>Introduction to the YFV outbreak in São Paulo</i> Juliana Telles de Deus (Pasteur Sao Paulo) and Márcio Carvalho
10:00 – 11:00	<i>Entomology crash course</i> Maria Anice Sallum (USP-SPH)
11:00 – 11:30	<i>Coffee break</i>
11:30 – 12:30	<i>Bioinformatic pipelines for consensus sequence generation of ONT data</i> Sam Wilkinson (UoB) and Filipe Romero (UFRJ/ICL) - Concepts in Consensus Sequence Generation
12:30 - 14:00	<i>Lunch</i>
14:00 – 16:00	<i>Metagenomics tabletop exercise: Can YOU prevent an outbreak becoming the next pandemic?</i> Sam Wilkinson (UoB) and Jeremy Mirza (UoB)
15:30 – 16:00	<i>Coffee break</i>
16:00 – 17:00	<i>Host vector pathogen dynamics for metagenomic sequencing of mosquitos</i> Jeremy Mirza (UoB), Esmeria Coelho (IMT/USP) and Ingra Claro (IMT/USP)

Thursday 16 March 2023

Location (PM): Faculty of Medicine Room 2155

Responsible: Nuno Faria, Camila Romano, Filipe Romero, Anderson Brito

Time	Topic
08:00 – 09:00	<i>Ester's Lightning Talks (for selected posters)</i>
09:00 – 09:45	<i>Maximizing the impact of genomic sequencing in public health</i> Nuno Faria (ICL/USP/Oxford)
09:45 – 10:30	<i>Building curated genomic datasets with associated metadata</i> Camila Romano (USP)
10:30 – 11:00	<i>Coffee break</i>
11:00 – 11:30	<i>From viral genome sequences to phylogenetic trees</i> Camila Romano (USP) and Darlan Candido (ICL/USP)
11:30 – 13:00	<i>Phylogenetic tree interpretation and visualization with FigTree and MicroReact</i> Darlan Candido (ICL/USP) and Ian Nunes (USP)
13:00 – 14:30	<i>Lunch break</i>
14:30 – 16:30	<i>Automated genomic epidemiology analyses with nextstrain</i> Anderson Brito (ITPS), Filipe Romero (UFRJ/ICL) and Ian Nunes (USP)
16:30 – 17:30	<i>Poster session</i>

19:00 – 21:00	Workshop dinner
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Friday 17 March 2023

Location (PM): Faculty of Medicine Room 2155

Responsible: *Charlie Whittaker, Sam Hog, Sabrina Li, Marcia Castro*

Time	Topic
08:30 – 10:00	Dated Bayesian phylogenetic analysis to infer parameters of epidemiological interest Sam Hong (KUL, Belgium)
10:30 - 11:00	Coffe Break
11:00 – 11:30	Characterising pathogen transmissibility: an introduction to the reproduction number Charlie Whittaker (ICL, UK)
11:30 – 13:00	Estimating time varying reproduction numbers using EpiEstim Charlie Whittaker (ICL, UK)
12:30 – 14:00	Lunch break
14:30 – 16:00	Geospatial modelling to assess drivers of infectious disease spread Sabrina Li (Southampton, UK)
16:00 – 16:30	<i>Coffee break</i>
16:30 – 17:30	Climate change and deforestation of Brazil's tropical forests Marcia Castro (Harvard, US)
17:30 – 18:00	Concluding remarks