Practical and Theorical Course on Arbovirus Diagnostics

Group A from March 8th to March 12th 2021

Group B from March 15th to March 19th 2021

Virology Laboratory/ LIM-52 –Tropical Medicine Institute, Sao Paulo University

COURSE COORDINATORS: Maria Cássia Mendes Correa, Florence Pradel, Tânia Regina Tozetto Mendonza, Gláucia Baccala, José Eduardo Levi

COURSE DESCRIPTION

This course will review different aspects of the human arboviruses infections.
Workshop program will combine an online course (Theorical Part) with a one-week period of intensive practical activities (Practical Course).

The Theorical Part of the **course** will include **recorded** video lectures.
Different aspects of arboviruses infections **will be discussed during these lectures.**
All participants will have access to the recorded lectures one month before they initiate Practical sessions.
Practical sessions (**Practical Course)** will cover serologic and molecular methods of diagnostics, as well as viral culture and interpretation of the results observed according to the different methods.
The course will be delivered by a group of experts on arboviruses from Brazil, through a dynamic mix of presentations, practical sessions and case scenarios.

TARGET AUDIENCE
- Laboratory staff, doctors, nurses or any graduates in life science with relevant curriculum or professional experience in Brazil, who might be involved in the identification, diagnosis or treatment of patients with arbovirus infections.
A maximum of 10 participants for practical training will be selected after application review.

Course Period:
Group A from March 8th to March 12th 2021 (5 students)
Group B from March 15th to March 19th 2021 (5 students)

LOCATION The course will be held at Virology Laboratory, **Tropical Medicine Institute, Sao Paulo University.**
ACCOMODATION will be provided in hotels nearby **Tropical Medicine Institute, Sao Paulo University.**

TIME: 08:00 - 18:30

ATTENDANCE GRANTS: Fondation Mérieux will provide 10 attendance grants for the 10 selected participants for the practical and theorical course.

The grant for the course will cover the registration fee, travel expenses, accommodation, course materials and meals for the full period of the course.

Theorical Program

The Theorical Part of the **course** will include **recorded** video lectures, as follows:

		Duration
Video 1	Opening/Welcome - *Florence Pradel/Fondation Mérieux*	15 minutes
Video 2	Course aims and structure – *Maria Cassia Mendes Correa/Virology Laboratory*	15 minutes
Video 3	Arboviruses as a Global Health Threat – *To be confirmed*	40 minutes
Video 4	Epidemiological Situation of Arboviruses in Latin America – *Julio Croda/FIOCRUZ/MS*	40 minutes
Video 5	PCR and Real-Time PCR - *José Eduardo Levi/IMT-USP*	40 minutes
Video 6	Phylogeny of Alpha and Flaviviruses: implications for diagnostic assays - *Camila Malta Romano/IMT-USP*	40 minutes
Video 7	Sequencing technologies and viral discovery - *Ester Sabino/FMUSP/IMT*	40 minutes
Video 8	Arbovirus Infections Clinical Diagnosis - *To be confirmed*	40 minutes
Video 9	Laboratory Algorithms for Arbovirus Infections – *to be confirmed*	40 minutes
Video 10	Vaccines for arboviral diseases - *Ana Marli Sartori/FMUSP*	40 minutes
Video 11	Epidemiological situation of Yellow Fever in Brazil and Predictors of mortality – *to be confirmed*	40 minutes

Practical Program

Practical Course will be provided for 10 students, divided in 2 groups :

Group A from March 8th to March 12th 2021 (5 students)

Group B from March 15th to March 19th 2021 (5 students)

Practical Molecular Biology Module - Program
Real time PCR to detect 4 arboviruses: dengue, zika, chikungunya and yellow fever
Sanger
New generation sequencing methods: Illumina and MinIon
Practical Serology Module - Program
Different serological methods to detect 4 arboviruses: dengue, zika, chkv and yellow fever
Plaque Reduction Neutralization Test (PRNT)

PROGRAM AT-A-GLANCE- PRACTICAL COURSE

Group A from March 8th to March 12th 2021 (5 participants)

Group B from March 15th to March 19th 2021 (5 participants)

	Monday		**Tuesday**		**Wednesday**		**Thursday**		**Friday**
8:00-12:00	1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology	**9:00 10:00**	Laboratory Algorithms for Arbovirus Infections/ Clinical Discussion *Celso Granato*
10:00 10:30	Coffee Break								
	1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology	**10:30 12:00**	Evaluation of the training course and Concluding comments *Cassia Mendes Correa*
Lunch									
13:30-18:00	1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		1-PRNT- 2-Serology: 3-Molecular Biology		

Capacity building training on arbovirus diagnostics

Expected knowledge prior to the course:

- Routine molecular techniques theoretical and practical background
- Serology theoretical background

Pre-course background reading will be provided

Theorical and Practical Program

LEARNING OBJECTIVES

- To be aware of the impact of arboviruses in terms of global public health;
-To understand the role of mosquitoes and non-primates in the spread of arboviruses worldwide;
- To understand the origin and spread of Zika virus;
- To discuss the Zika neurologic syndrome and the importance of diagnostic for pregnant woman;
- To learn the spectrum of clinical manifestations associated with the different arboviruses;
- To learn how to read and interpret DIAGNOSTIC TESTS;
- To understand the complexity of the Arboviruses genetic diversity (Flaviruses and Alphaviruses);
- To be aware of the adequate sampling and the optimal samples required for molecular test at different phases of disease;
- To be aware of molecular techniques available for diagnostic of the main arboviral infections;
- To get insights on molecular based experimental design (primer design; conventional and real time PCR);
- Overview on sequencing and phylogenetic methods used in epidemiological studies
- To provide a basic introduction to the field of phylogenetics, with an emphasis on flavivirus phylogeny;
- Overview on the best genes to answer the key questions on phylogenetics: What genes/regions should I use to build a phylogeny?
- To learn how to read and interpret a flavivirus simple tree;
- To describe the applications of phylogenetics;
- To understand the principles and limitations of the different serological assays available for arboviral diagnosis;
- To learn about cross-reactivity in serology testing;

REGISTRATION PROCEDURE

The application must contain the 3 following documents:

- A cover letter presenting the activity carried out or to be developed requiring knowledge on flavivirus diagnosis
- A letter or the supervisor from the home institution
- A detailed CURRICULUM VITAE
- Please apply before 3rd February 2021.

- **The documents have to be sent by email** before 3rd February, 2021**, to *workshop.arbovirus.imt@usp.br***

SARS CoV2 Baseline Viral Testing

To protect the health and safety of all workshop participants, as well as Virology Laboratory Faculty and staff, it will be requested that:
All participants confirm they have been free of COVID-19 for the past 7 days at Laboratory arrival.
All participants will have to complete a baseline viral test for SARS-COV-2 within the first 24 hours at IMT. Virology laboratory will administer the test at no cost to each participant.
Practical and theorical will be held at Sao Paulo Tropical Medicine Institute following University of São Paulo's policies and guidelines regarding public health precautions. Exceptionally, practical classes may be canceled if there is any regulation in this regard, due to the epidemiological situation of COVID 19, in the city of São Paulo.

COURSE COORDINATORS: Maria Cássia Mendes Correa, Florence Pradel, Tânia Regina Tozetto Mendonza, Gláucia Baccala, José Eduardo Levi

FACULTY MEMBERS: Ester Sabino IMT-USP/SP; Camila Romano IMT-USP/SP; José Eduardo Levi IMT-USP/SP; Celso Granato IMT-USP/SP; Maria Cassia Mendes Correa IMT-USP/SP

LAB. PRACTICE TEAM: José Eduardo Levi, Tania Regina Tozetto Mendoza; Lucy Santos Vilas Boas; Alvina Clara Félix; Anderson Vicente de Paula; Ana Carolina Mamana; Noely Evangelista Ferreira

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