

AIBBC 2020 ONLINE CONFERENCE & TRAINING in the COVID-19 ERA

Workshop Courses

Thur, Nov. 5th, 2020

Instructors	Session	Session title	Instructor (s) in charge	Contents
COURSE 3 MOLECULAR DIAGNOSTICS				
Instructors Prof. Masood Kamali-Moghaddam (<i>Uppsala University, SWEDEN</i>), Prof. Collins Ouma (Maseno University, KENYA), Dr. Radosa Gallini (<i>Uppsala University, SWEDEN</i>), Mr. Martin Sifuna (<i>Chiba University, JAPAN</i>)				
14:00~14:30	Session C3-1	Molecular Diagnostics in Infectious and Non-Infectious Diseases (30 min)	Collins	This trainings will focus on the current molecular diagnostics in infectious and non-infectious diseases. The training will unravel molecular techniques most appropriate for infectious and non-infectious agents that are difficult to detect, identify or test for susceptibility in a timely fashion. Focus will be on the current molecular diagnostics in infectious and non-infectious diseases. The training will unravel molecular techniques most appropriate for infectious and non-infectious agents that are difficult to detect, identify or test for susceptibility in a timely fashion.
14:30~15:00	Session C3-2	Topic 1: Power of immuno-assays and Proximity Ligation Assays" (10 min)	Masood & Radosa	"Power of Immunoassays and Proximity Ligation Assays" A short presentation on the basics of immunoassays and how specificity can be an issue. How can it be solved? This session will focus on the advantage of combining multiple binders.
		Topic 2: Proximity Ligation as Diagnostic Tool (10min)		"Proximity Ligation as Diagnostic Tool" A short overview on in-solution assays and the quest to increase sensitivity. The presentation will illustrate the amplification-of-signals obtained by combining affinity binders with oligonucleotide sequences amplification.
15:00~15:30	Session C3-3	Molecular and genomic surveillance during COVID-19 pandemic (30 min)	Steven	The presentation will focus on techniques used to generate molecular and genomic data and how the data has been used during COVID-19 pandemic to inform transmission dynamics and understand spread of SARS-CoV-2 nationally, regionally and globally.
15:30~16:00	Session C3-4	Proximity Ligation on liquid samples - practical tutorial (30 min)	Masood & Radosa	This session will go into the details of a Proximity Ligation Assay on solution samples. The practical protocol will be covered and explained, step-by-step.
16:30~17:00	Session C3-5	Topic 1: How to be Quantitative with Quantitative PCR (20 min)		What is the difference between PCR, qPCR, and dPCR? For anyone that feels confused, or wants to refresh those blurry memories, this section will provide a short overview of the different PCR methods. The focus then will be on the analysis of qPCR results from a Proximity Ligation Assay, with a practical tutorial.
		Topic 2: Topology of molecules: how to detect colocalization? (10 min)		A brief summary of advantages and disadvantages of colocalization imaging methods, and how Proximity Ligation can be used as in situ detection assay.
17:00~17:30	Session C3-6	Topic 1: In Situ Proximity Ligation Assay - practical tutorial (20 min)		This session will go into the details of a Proximity Ligation Assay in situ. The practical protocol will be covered and explained, step-by-step.
		Topic 2: The hurdles of experimental design (10 min)		The previous sessions have focused on Proximity Ligation Assays, where the combination of affinity binders and oligonucleotide sequences amplification introduces additional variables to the experimental protocols. This brief presentation will address the importance of choosing the right controls to include in a Proximity Assay experiment.
17:30~18:00	Session C3-7	Practical application of label free diagnostics (30 min)	Martin	Extracorporeal circulation is vital in the management of cardiovascular diseases but risks of thrombus formation is a major concern. Current thrombogenesis monitoring procedures include activated clotting time (ACT) that enables rapid alteration in heparin infusion to maintain a constant anticoagulation prothrombin time (PT) and activated partial prothrombin time (aPTT) done at intervals during and after surgery as point of care thrombus monitoring procedures. Interval based measures thus are unreliable for real-time monitoring of thrombogenesis. This presentation introduces a practical application of electrical impedance spectroscopy as a label free approach to monitor and prevent thrombogenesis.
18:00~18:15	CLOSING CEREMONY		USE THE ZOOM LINK FOR OPENING AND CLOSING CEREMONY	