DukeNUS Medical School

CSCB Cancer and Stem Cell Biology Seminar Series

CVMD Cardiovascular and Metabolic Disorders

Insights from structural biology into mechanisms of drug resistance

Abstract:

The main research interests of my lab, which often overlap are (1) to understand how the membrane bilayer and specific membrane enzymes and transporters interact to accommodate lipidic substrates and (2) to use structural biology techniques to understand the molecular bases of drug resistance. Combining x-ray crystallography and single-particle cryo-electron microscopy (cryo-EM) with cellular and biochemical assays, we have been able to determine atomic-level structures and characterize the molecular mechanisms of exemplar membrane enzyme families which process lipidic substrates and which play a role in how bacteria develop resistance to specific classes of antibiotics. We have also determined the structure of the chloroquine resistance transporter from Plasmodium falciparum (PfCRT), combining cryo-EM, biochemistry, genetics and parasitology to start to unveil the molecular basis of resistance to the common antimalarials of the 4-aminoquinoline family (chloroquine and piperaquine). I will present the most recent data from my lab aimed at furthering our understanding on mechanisms of antibiotic resistance and of resistance to antimalarials.

Date:

5 March 2020 (Thursday)

Venue:

Amphitheatre, Level 2
Duke-NUS Medical School
8, College Road,
Singapore 169857

Time:

12:00 - 1:00 p.m.

Speaker:

Filippo Mancia
Associate Professor and Co-Director of Graduate Education

Department of Physiology and Cellular Biophysics
Columbia University, New York

Filippo Mancia is a structural biologist with experience in x-ray crystallography single particle cryo-electron microscopy, and in production and characterization of membrane proteins for structural studies. He has also been a key member of the NIH funded Center on Membrane Protein Production and Analysis (COMPPÅ) – where he has played a role in the design, development, implementation and optimization of high-throughput cloning and protein production and characterization platforms for membrane proteins.

Host:

David Virshup
Professor & Director
Programme in Cancer & Stem Cell Biology, Duke-NUS

Co-Host:

David Silver
Professor & Deputy Director
Programme in Cardiovascular & Metabolic Disorders, Duke-NUS

No registration is required. All are welcome.
Any enquiries, please contact:
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