



Special Seminar: Interkingdom interactions that modulate disease: Viruses, bacteria and the host

Event Type: IBBR Seminar Series

Contact Person: Nicole Tenly

Event Info

Date: Jun 10 2019 - 11:00am to 12:00pm

Location: Auditorium

Details

Speaker/Presenter: Norberto Gonzalez-Juarbe

Speaker Affiliation: J. Craig Venter Institute (JCVI)

Event Description:

For almost a century, it has been recognized that influenza virus infections promote the development of a lethal form of bacterial disease. For example, during the 1918 influenza pandemic, *S. pneumoniae* was recovered in ~95% of all fatal cases. Herein, we aim to study the complex and synergistic interactions that occur during co- and secondary bacterial infections to influenza. Using immunological, bacterial pathogenesis and quantitative proteomic approaches we have discovered that primary influenza infection potentiates the cytotoxic activity of *S. pneumoniae* pore-forming toxin and promote cellular death by programmed necrosis (i.e. necroptosis). In addition, we found a direct link between potentiation of necroptosis and oxidative stress. We found that influenza directly interacts with *S. pneumoniae* to modulate bacterial fitness and its proteomic profile. Altering bacterial growth and its metabolic state. Finally, a link between influenza infection and cardiac infarct has been recently reported. Using a mouse model of secondary bacterial infection to influenza we observed that primary viral infection alters the biology of the cardiac tissue. In addition, these changes promote bacterial mediated cardiac damage. Our observations provide novel insight into the underlying molecular mechanisms of host-virus-bacterial interactions that promote this lethal synergism.

Setup

IT Setup: Projector

Laptop
Podium
Lavalier Microphone
Wireless PPT
Remote
