UNIVERSITY OF TORONTO

Microbiology & Infectious Diseases Research Days

Monday, June 3rd, 2019 – Trainee Day (Selected from Abstracts)
Tuesday, June 4th, 2019 – Invited Lectures & Poster Session

Talks in Medical Sciences Building, Room 2170

Posters & Lunch in Medical Sciences Building, Room 2171 (C. David Naylor Student Commons)

Website: http://microbeto.ca/mid-2019/

Monday, June 3rd, 2019

9:30 - 9:40 WELCOME ADDRESS

9:45 – 10:00: Avid Mohammadi
Characterizing the impact of penile-vaginal sex on HIV-susceptible CD4+ T cell subsets in the female genital tract

10:05 - 10:20: Erin O. Y. Wong
Developing defined microbiota to model inflammation in the mouse gut

10:25 - 10:40: Nora Mellouk
An ATG16L1-dependent pathway promotes plasma membrane repair and limits Listeria monocytogenes cell-to-cell spread

10:45 - 11:15: COFFEE BREAK

11:20 - 11:35: Jean-Paul R. Soucy
Joint modelling of resistance to six antimicrobials in urinary *Escherichia coli* isolates in Quebec, Canada

11:40 – 11:55: Sarah Birstonas
EHEC utilizes two-component systems to modulate expression of major flagellar subunit protein, FliC, in response to host intestinal cues

12:00 - 12:15: Nathaniel Winsor
NLRP6 regulates the colonic mucus layer during Tritrichomonas infection

12:35 – 1:30: LUNCH

1:35 - 12:50: Samuel Salamun
Epstein-Barr Virus Protein BMRF1 Modulates Cellular SUMO and DNA Damage Response Pathways by Binding the Cellular NuRD Complex

1:55 - 2:10: Nicola Case
Elucidating the mechanism of Candida albicans morphogenesis in response to phagocytosis by macrophages

2:15 - 2:30: Sarah Kronheim
A small molecule anti-phage defense mechanism in Streptomyces

2.30 - 3:00: COFFEE BREAK

3:05 - 3:20: Alexandra Willis
Understanding inherited immunity using a *C. elegans* model of microsporidia infection

3:25 - 3:40: Genevieve Mailhot
Differentiating between protective and pathogenic neutrophil responses during *Neisseria gonorrhoeae* infection

3:45 – 4:00: Tiffany Fitzpatrick
Successes of anti-RSV prophylaxis among infants in Ontario: results from a multi-decade, population-based controlled interrupted time series analysis using health administrative data

Poster Presentations

80) Intercurrent Flaviviral Viremia in Ill Returned Travelers with *Plasmodium vivax* Malaria

Ruwandi Kariyawasam, Katherine Tan, Min Qun Chen, Ruben Cuidamat, Aisha Khatib, Rachel Lau, Filip Ralevski, Andrea K. Boggild

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Background: Similar epidemiology and clinical presentations of arboviral infections and malaria coupled with the typically sequential approach to diagnostic testing, where malaria is confirmed or excluded urgently in febrile returned travelers, may mask the true epidemiology of co-infections. Flaviviruses are known to trigger relapsing forms of malaria, including Plasmodium vivax, long after primary malaria infection, and this may delay the diagnosis of malaria.

Objective: We aim to understand the incidence of intercurrent flaviviral infection in confirmed Plasmodium vivax infection.

Method: DNA and RNA from biobanked isolates of P. vivax detected in whole blood at the Public Health Ontario Laboratory between 2006 and 2019 were extracted and screened for intercurrent flaviviral infections using previously validated real-time PCR (qPCR) assays targeting multiple flaviviruses (pan-FLAV) and, specifically, dengue virus types 1-4 (DEN1, DEN2, DEN3, DEN4).

Results: Five hundred and two unique isolates of P. vivax were identified, of which 175 have been tested to date. Males accounted for 69.1% (n=121/175) of P. vivax cases, while females accounted for 28.6% (n=50/175), and sex was unassigned in 2.3% (4/175). Median age of P. vivax cases was 34.2 years (range 3.7 years – 87.6 years; IQR 24.0 – 51.9 years). Median parasitemia was 0.1% (range < 0.01% - 1.1%). Sixty-eight (38.9%) P. vivax cases had documented travel history exclusively to South Asia, with India as the most common source country (34/175 [19.4%]). Pan-FLAV assay yielded a 0.6% (1/175) positivity rate. DENV assay yielded a 0.6% (1/175) positivity rate. Type-specific real-time PCR revealed DEN1, which was also detected on both Pan-FLAV and pan-DENV assays.

Conclusion: Intercurrent flaviviral viremia, was noted in at least 0.6%, which may suggest that primary flaviviral infection, in this case, DEN1, triggered a relapse of P. vivax. Alternatively, such co-occurrence may suggest primary infection with both organisms known to cause fever in returning travelers. Consideration of flaviviral coinfection should be given to the P. vivax patient with deep thrombocytopenia, lymphopenia, and high-yield arboviral symptomatology such as rash and retro-orbital headache.