



McGill

McGill Summer Institute in
Infectious Diseases and
Global Health

MCGILL UNIVERSITY • MONTREAL • JUNE 18-22, 2018

GENOMIC EPIDEMIOLOGY OF INFECTIOUS DISEASES

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Mon • June 18	Tues • June 19	Wed • June 20	Thurs • June 21	Fri • June 22
8.00AM – 5.00PM	9.00AM – 5.00PM	9.00AM – 5.00PM	9.00AM – 5.00PM	9.00AM – 3.30PM
Introduction to Genomic Epidemiology and WGS data analysis I	WGS data analysis II	Using WGS to infer transmission of bacterial pathogens	Using WGS to predict antimicrobial resistance	Beyond bacteria: other applications & practical considerations

HOSTS



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GLOBAL HEALTH PROGRAMS

PROGRAMMES DE SANTÉ MONDIALE

Centre international de TB McGill



McGill International TB Centre



J.D. MacLean Centre for Tropical Diseases
Centre J.D. Maclean pour les Maladies Tropicales

Institut de recherche
Centre universitaire de santé McGill



Research Institute
McGill University Health Centre

Infectious Diseases and Immunity in Global Health Program
Programme en maladies infectieuses et immunité en santé mondiale



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Interdisciplinary Initiative in Infection and Immunity

Faculty and speaker information is available in the [Ukhova](#) event app

DAY 1 AGENDA

MONDAY, JUNE 18

Time	
8.00AM	Registration
8.30-9.00AM	<i>Welcome, introductions, and goals</i>
9.00-10.00AM	Introduction to genomic epidemiology and micro/molecular biology basics M Behr
10.00-10.30AM	<i>Coffee Break</i>
10.30-11.15AM	Intro to next-generation sequencing technology M Behr
11.15AM-12.00PM	Bioinformatics methods I T Seemann
12.00-12.45PM	<i>Lunch</i>
12.45-1.30PM	Bioinformatics methods II T Seemann
1.30-1.40PM	Introduction to practical workshops R Lee
1.40-2.00PM	Practical Exercises: Intro to Galaxy T Seemann
2.00-2.30PM	<i>Coffee Break</i>
2.30-3.30PM	Practical Exercises: WGS data quality T Seemann
3.30-4.45PM	Practical Exercises: Assembly T Seemann
4.45-5.00PM	Goals for tomorrow and introduction to journal clubs R Lee
5.15PM	<i>Group Picture</i>
5.30-6.30PM	<i>RECEPTION – To be confirmed</i> Venue:

DAY 2 AGENDA

TUESDAY, JUNE 19

Time

9.00-9.30AM

Laboratory considerations for genomic epidemiology
M Behr

9.30-10.00AM

Detecting contamination – Kraken
T Seemann

10.00-10.30AM

Coffee Break

10.30-11.15AM

Phylogenetics I
A Gonçalves da Silva

11.15AM-12.00PM

Journal Club
M Behr, A Gonçalves da Silva, R Lee, I Levade, T Seemann

12.00-12.45PM

Lunch

12.45-1.30PM

Phylogenetics II
A Gonçalves da Silva

1.30-3.30PM
*Coffee break
included*

Practical Exercises: Assessing for contamination, mapping to a reference
T Seemann

3.30-5.00PM

Practical Exercises: Building and interpreting a phylogenetic tree
A Gonçalves da Silva

DAY 3 AGENDA

WEDNESDAY, JUNE 20

Time	
9.00-10.00AM	Within-host diversity J Shapiro
10.00-10.30AM	<i>Coffee Break</i>
10.30-11.15AM	Molecular clocks and dating A Gonçalves da Silva
11.15AM-12.00PM	Journal club M Behr, A Gonçalves da Silva, R Lee, I Levade, T Seemann
12.00-12.45PM	<i>Lunch</i>
12.45-1.30PM	Making inferences about transmission and study design considerations in genomic epidemiology R Lee
1.30-5.00PM <i>Coffee break included</i>	Practical Exercise: Phylogenetic trees, SNP matrices and epi data - inferring (refuting) transmission, and data visualization R Lee

DAY 4 AGENDA

THURSDAY, JUNE 21

Time	
9.00-9.30AM	Mechanisms of antimicrobial resistance M Behr
9.30-10.00AM	How we currently predict antimicrobial resistance using genomic data T Seemann
10.00-10.30AM	<i>Coffee Break</i>
10.30AM-11.15AM	Metagenomics – analysis and applications J Shapiro
11.15-12.00PM	Journal Club M Behr, A Gonçalves da Silva, R Lee, I Levade, T Seemann
12.00-12.45PM	<i>Lunch</i>
12.45-1.30PM	Practical Exercise: Predicting antimicrobial resistance T Seemann
1.30-2.00PM	Practical Exercise: Metagenomics (16S) T Seemann
2.00PM-2.30PM	<i>Coffee break</i>
2.30-3.15PM	Other approaches for predicting resistance W Hanage
3.15PM-4.00PM	Nanopore sequencing – applications L Cowley
4.00PM-5.00PM	Practical Exercises: Working with nanopore data L Cowley

DAY 5 AGENDA

FRIDAY, JUNE 22

Time	
9.00-9.45AM	Application of WGS to parasites G Matlashewski
9.45-10.00AM	<i>Course evaluations</i>
10.00-10.30AM	<i>Coffee Break</i>
10.30-11.15AM	Host-pathogen interaction E Schurr
11.15-12.00PM	Incorporating WGS into the public health laboratory: Ontario's experience V Allen
12.00PM-12.45PM	<i>Lunch</i>
12.45AM-1.45PM	Panel discussion – the role (or potential role) of WGS in public health, research and clinical care V Allen, L Cowley, C Frenette, W Hanage, T Lee
1.45-2.45PM	Course summary R Lee
2.45-3.30PM	Question and answer period / continue with practical exercises (optional) All instructors

FUNDERS



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