CAMB 705 2019A Advanced Topics in Bacterial-Host Interactions

CAMB705: Advanced Topics in Bacterial-Host Interactions

Wednesday 3:30-5pm, starting January 23

Johnson 209

Course Co-Directors:

Igor Brodsky                                                              Sunny Shin
Associate Professor of Pathobiology                        Associate Professor of Microbiology
ibrodsky@vet.upenn.edu (mailto:ibrodsky@vet.upenn.edu)
sunshin@mail.med.upenn.edu (mailto:sunshin@mail.med.upenn.edu)
215-746-8426 (o)                                                      215-746-8410 (o)

Course Description: This course will delve into specific topics in general area of bacterial pathogenesis: bacteria-host interactions. We will explore key historical and current papers on topics related to bacterial invasion of and replication within host cells, bacterial interference with host cell signaling pathways, bacterial interactions with host mucosal tissues, and the role of bacterial colonization in shaping and instructing immune responses. Each week, a student will lead the class in the discussion of published papers on specific topic. The format of each class will be a 10-15-minute introduction of the key background and underlying questions to be presented by the student, followed by an in-depth analysis by all members of the class of one to two articles. Students will be graded based on their introductory presentation and active participation in the paper discussions.

The class will meet once per week for 1.5 hours, and will discuss 1-2 key papers for each topic, as well as relevant background.

General course background:


**Topics to be discussed:**

**1) Bacterial invasion of host cells**


Background:


**2) Bacterial secretion systems (I): intra-kingdom communication devices – Type III secretion**


**3) Life within the cell Part I: bacterial manipulation of membrane trafficking**

Discussion Paper:

Background Papers:


(4) **Bacterial secretion systems (II): intra-kingdom communication devices – Type IV secretion**


(5) **Life within the cell Part II: bacterial manipulation of membrane trafficking**


(6) **Life outside the cell: bacterial adhesion and invasion.**

Discussion Paper:


**Background Papers:**


**How Bacteria Use Type IV Pili Machinery on Surfaces.** [Source](https://proxy.library.upenn.edu:2063/pubmed/26497940) Maier B, Wong GC. Trends Microbiol. 2015 Dec;23(12):775-88.

(7) **Bacterial-Host Immune Response: Bacterial toxins and cell-surface receptors**

Discussion Paper:

Background Papers:


(8) **Bacterial evasion of TLR signaling**

Discussion Paper:


Background Paper:


(9) **Bacterial-Host Immune Response part: Bacterial engagement/evasion of cytosolic receptors**

Discussion Paper:

(10) **Bacterial-Host interactions: Mucosal immunity and the microbiota**

Discussion Paper:
## Course Summary:

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