Syllabus

ANTIMICROBIALS

Biology 6750-007 (42613) / 4750-003 (44154) Fall 2017
(created 8-4-17)

Readings and discussions on current topics related to antibacterial, antifungal, antiviral, antiprotozoan drugs including cellular/molecular targets, mechanisms of action, resistance, innate immunity, discovery and syntheses.

Instructor: Jon Y. Takemoto, Department of Biology jon.takemoto@usu.edu
office BNR 353, Tel: 797-0671

Format: Reading, review, and analysis of recent original literature with group discussions, presentations by the instructor and course enrollees.

Meeting Time and Location: TTH 10:30 am - 11:45 pm Huntsman Hall 126

Textbook: None required

Suggested General References:


Grading: Based on literature research paper/class presentation (66.7%) + 2 exams (33.3%) (details will be discussed)

Students with disabilities: Students with physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.

Schedule Fall Semester 2017 Antimicrobials (BIOL4750/6750)

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<tr>
<th>Topic</th>
<th>Date</th>
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<tbody>
<tr>
<td>I. Introduction</td>
<td>Aug 28 (Takemoto)</td>
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<td>II. Antimicrobials</td>
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A) Antibacterial
   - Bacterial cell surface: Aug 31 (Takemoto)
   - Cell surface inhibitors: Sept 7
   - Protein synthesis inhibitors: Sept 12
   - Other inhibitors: Sept 14

B) Antifungal
   - Sterol biosynthesis inhibitors: Sept 19
   - Other antifungals: Sept 21

C) Anti-Tuberculosis
   - TB and inhibitors: Sept 26

D) Antimicrobial testing (lab)
   - Sept 28/Oct 3 (lab BNR306)

E) Antiprotozoa, biocides
   - Oct 5

Exam: Oct 10

III. Resistance
   A) Resistance mechanisms: Oct 12
   B) Export (MDR) pumps: Oct 17

IV. Inherent Antimicrobials
   A) Innate immunity (defensins): Oct 24
   B) Non-mammalian (attine symbiosis): Oct 26

V. Antivirals
   A) Viruses overview: Oct 31 (Takemoto)
   B) Antivirals Institute @USU: Nov 2
   C) Institute Antiviral Research (visit): Nov 7
   D) Antivirals (special lecture): Nov 9

VI. Discovery
   A) Overview: new discovery strategies: Nov 14 (Takemoto)
   B) Redirecting old drugs: Nov 16
   C) Natural products discovery: Nov 19
   D) Synthetic biology or Phage therapy: Nov 28

VII. Societal issues
   A) Food security: Nov 30
   B) Biological warfare and antimicrobials: Dec 5
   C) Topic to be decided wrap-up, review: Dec 7

Exam (final): Dec 12 (11:30am)