

HOST DEFENSE INTRODUCTION

Immunology is a relatively new science. Although observations of immune phenomena are ancient and it has long been known that individuals who recovered from infectious disease often acquired complete, long-lasting immunity to the disease. Often, during severe epidemics, immune survivors of previous epidemics were the only individuals available to nurse the sick without risk to themselves. The practice of vaccination antedates Koch's conclusive proof that microbial agents cause infectious disease. Von Behring (in the 19th century) discovered antibody and its importance to immunity, but it was not until the 1930's that antibodies were shown to be proteins, and only in the late 1960's were certain lymphocytes shown to produce specific antibodies. The regulatory interactions of lymphocyte subsets and new lymphocyte subsets that are strongly involved in autoimmune diseases have been shown only in the last several years.

Immunology has made rapid and dramatic advances. Immunological studies at the molecular level have provided insights into structural and functional relationships of protein molecules and how they are genetically encoded in DNA. At the cellular level, we have learned that the immune response is governed and regulated by functionally different sets of cells. At the genetic level, the realization that there can be a broad spectrum of immune responses to a given stimulus is providing insights on how a disease can be so different from patient to patient.

At a practical level, immunology is progressing toward an intelligent manipulation of the immune system for the benefit of human beings. This area of clinical medicine is still in its infancy but there are several highly effective immunologic therapies already available to practicing physicians. We hope that you will take away from this course a basic knowledge of immunology. Our purpose is not only to provide the molecular and cellular basis of a subject that will impact upon the care you provide patients the rest of your career but also have you begin thinking like a physician-scientist.

Immunology requires a departure from the "read and memorize" approach to knowledge acquisition. Immunity, like the practice of medicine, is not a collection of absolutes; but rather requires an understanding of the complex interactions of different cells, tissues, and molecules. The most astounding paradox of the immune system is not only its redundancy but also its heterogeneity. Again, like medicine, immunology appears to ask more questions than it answers. Ideally, you should spend time thinking about the cellular interactions and processes that constitute an optimal immune response in order to gain an understanding of immunology. We hope you find immunology rewarding now and throughout your career.

GOALS OF THE HOST DEFENSE COURSE

At the completion of this course, you will be able to describe the immunologic strategies employed by humans responding to the threat of infection. Specifically, you will be able to describe the cellular and molecular components of the immune system, how they function in normal and pathologic responses and then visualize how a clinician can exploit this knowledge for the benefit of the patient.

HOST DEFENSE GENERAL INFORMATION

"How should I study for immunology?" This is a commonly asked question and one that must be addressed by the individual student. A combination of lecture and small group attendance, lecture handouts and classroom notes supplemented with text and contemporary journal articles is the best approach for most students. The lecture handouts provide the critical concepts of Immunology that a medical student must know. These concepts then provide the foundation for solving the clinical vignettes in the Small Group Problem Solving sessions.

The course is divided into five basic concepts; innate immunity, humoral immunity, cellular immunity, the ways that effector arms are amplified and regulated to provide adequate responses to pathogens and how diseases can arise from defects in or faulty regulation of this supersystem. Our understanding of immunology is a constantly expanding universe. It is essential to clearly understand the **fundamental concepts of immunology** so that new developments in clinical immunology can be fully appreciated. For those of you who have never had an immunology course, the early part of the course will be frustrating - remember; patience is a virtue. It will come together towards the end!!

Finally, it may be useful for some students to have access to a copy of Janeway, *Immunobiology*, 7th edition. The text is highly readable but any text in a rapidly expanding discipline like immunology cannot be completely up to date. Unfortunately the 8th edition of Janeway is not available until September, 2011. Please note that the reading assignments in Janeway are designated as **background** reading only. The flow of Host Defense does NOT mirror the text chapter sequences and you will be tested on material given in lectures and small group problem solving sessions only. You are encouraged to participate in the WEB forum for resolving questions concerning lecture and small group subject matter, access to relevant journal articles on current topics and discussions of controversial topics. Current medical journal articles relevant to concepts being discussed in lecture are posted on the Host Defense web site. It is highly recommended that you use them as your source of up-to-date immunology knowledge. This is what you will be doing the rest of your life, no matter what field of Medicine you enter.

LECTURING FACULTY

Faculty	Department	Bldg./Room	Extension/Email
John A. Robinson, M.D. Course Director	Medicine	54/113	6-5335 or Pager #68777-11118 jrobins@lumc.edu
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SMALL GROUP FACULTY

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John Robinson, MD	Medicine/Rheu matology	54/113	6-5335 or Pager # 68777-11118 jrobins@lumc.edu
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LAB FACULTY

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EXAMINATIONS

There will be two (2) examinations. Testing is cumulative. Each will comprise 50% of your final grade. The examinations will contain a minimum of three and a maximum of six questions from each lecture and there will be at least three questions from each Small Group Problem Solving Session and Lab. **Although the recommended text is as current as possible, content discussed in lectures, small groups and your lecture/small group notes ALWAYS supersedes book content. The text is never the final source for a test answer.**

GRADING METHODOLOGY

Numerical grade $> +1$ standard deviation (SD) is **HONORS**. A grade between the class mean and $+1$ (SD) is **HIGH PASS**. A grade less than the class mean and equal to or greater than 70 is **PASS**. Any grade < 70 is **FAIL** (no matter where it falls in the distribution curve).

REQUIRED TEXTBOOK

Immunobiology, 7th ed.

Charles A. Janeway, et al
ISBN 0-8153-3642-X

LUMEN

Relevant journal articles will be posted (with notice) on the Host Defense Page. A current course schedule will be updated as necessary. Please get in the habit of checking the Host Defense Forum page often.