

# Essentials in Immunology - Video course

## COURSE OUTLINE

The course is meant for post-graduate students. The course covers all aspects of the immune system from basic aspects like organs and cells of the system to cellular networks that are necessary for optimum immunological responses.

## COURSE DETAIL

S.No	Topics
1.	<b>(A) Introduction to the immune system (RMJ)</b> Lecture01. Introduction to the immune system
2.	<b>(B) Cells and Organs of the immune system (RMJ)</b>  Lecture02. Cells and Organs of the immune system – Part 1 Lecture03. Cells and Organs of the immune system – Part 2 Lecture04. Cells and Organs of the immune system – Part 3
3.	<b>(C) Innate immunity (DpN)</b>  Lecture05. Innate immunity - Part 1 Lecture06. Innate immunity - Part 2
4.	<b>(D) Cell receptors, activation &amp; differentiation (AAK)</b>  Lecture07. Development and differentiation of B cells - Part 1 Lecture08. Signaling in B cells
5.	<b>(E) Immunoglobulin genes and theory of antibody diversity (AAK)</b>  Lecture09. Organization of immunoglobulin genes and Mechanism of immunoglobulin gene rearrangement Lecture10. Generation of antibody diversity Lecture11. Immunoglobulin class switching Regulation of Immunoglobulin gene regulation
6.	<b>(F) Structure and Functions of Immunoglobulin (AAK)</b>  Lecture12. Structures and functions of Immunoglobulin's
7.	<b>(G) Complement system (AAK)</b>



NP-TEL

# NPTEL

<http://nptel.iitm.ac.in>

## Chemistry and Biochemistry

### Pre-requisites:

Biology and Chemistry

### Coordinators:

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	Lecture13. The three complement pathways
<b>8.</b>	<b>(H) Hypersensitivity (AAK)</b>
	Lecture14. Hypersensitivity type 1 Lecture15. Hypersensitivity types 2, 3 ,4 and Autoimmunity
<b>9.</b>	<b>(I) B cell autoimmunity, immunodeficiency &amp; cancer (AAK)</b>
	Lecture16. Autoimmunity Autoimmuno-deficiencies f the B cells Lecture17. Autoimmuno-deficiencies f the B cells Lecture18. Cancer
<b>10.</b>	<b>(J) The major histocompatibility complex (RMJ)</b>
	Lecture19. The major histocompatibility complex –Part 1 Lecture20. The major histocompatibility complex –Part 2 Lecture21. The major histocompatibility complex –Part 3
<b>11.</b>	<b>(K) Antigen Processing and Presentation (DpN)</b>
	Lecture22. The Major Histocompatibility Complex Lecture23. The Major Histocompatibility Complex: MHC class I pathway Lecture24. The Major Histocompatibility Complex: MHC class II pathway
<b>12.</b>	<b>(L) T cell receptors (RMJ)</b>
	Lecture25. T cell receptors
<b>13.</b>	<b>(M) T cell Activation &amp; differentiation (DpN)</b>
	Lecture26. T cell Activation Lecture27. T cell Activation / Differentiation
<b>14.</b>	<b>(N) T cell subsets (DpN)</b>
	Lecture28. T cell synapse, motility and subsets
<b>15.</b>	<b>(O) T cell survival (DpN)</b>
	Lecture29. T cell survival

16.	<b>(P) Cytokines (RMJ)</b>
	Lecture30. Cytokines – Part 1 Lecture31. Cytokines – Part 2
17.	<b>(Q) Autoimmune reactions and Immunodeficiency of T cells (DpN)</b>
	Lecture32. Autoimmunity Lecture33. Immunodeficiency
18.	<b>(R) Host response to infectious disease (DpN)</b>
	Lecture34. Host response mechanisms during infectious diseases – part 1 Lecture35. Host response mechanisms during infectious diseases – part 2
19.	<b>(S) Transplantation immunology (RMJ)</b>
	Lecture36. Transplantation immunology
20.	<b>(T) Vaccines (RMJ)</b>
	Lecture37. Vaccines
21.	<b>(U) Antigens and synthetic vaccines (AAK)</b>
	Lecture38. Antigens and Immunogens Lecture39. Synthetic vaccines
22.	<b>(V) Evolution of the immune system (RMJ)</b>
	Lecture40. Evolution of the immune system

**References:**

1. Immunology, Janis Kuby, Freeman Press
2. Fundamental Immunology, William Paul, Raven Press
3. Essential Immunology, Ivan roitt, Blackwell Science