



APPLIED IMMUNOLOGY IN INFECTIOUS DISEASES for Physicians and ID Trainees

1) 6th August, 2025

Overview of the Immune System -

Dr. Shivraj Padiyar

- key cellular components (e.g., neutrophils, macrophages, dendritic cells, B and T lymphocytes, NK cells) and mediators (cytokines, chemokines, complement) of the immune system.
- Explain how these components interact dynamically across immune compartments (bone marrow, lymph nodes, mucosa, bloodstream).
- Describe the step-by-step coordinated immune response during an infection using a clinical model.

2) 13th August, 2025

Innate Immunity-First line of defense !

Dr. Anu S

- Understand the evolutionary role of innate immunity and its rapid, non-specific defense functions.
- Learn how the human body differentiates self from non-self through "pattern recognition"
- Describe the role of pattern recognition receptors (PRRs), pathogen-associated molecular patterns (PAMPs), and damage-associated molecular patterns (DAMPs).
- Explain how innate cell types (e.g., neutrophils, macrophages, dendritic cells) engage in pathogen recognition, phagocytosis, and antigen presentation.

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Registration



Course Fee

₹ 5,000/- per participant
Includes all sessions,
reading material, and certification



Scan for UPI
Payment

Course Coordinators

Dr. Abhishek Patil

HOD & Consultant - Rheumatology &
Clinical Immunology



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Dr. Neha Mishra

Consultant - Infectious Diseases



3) 20th August, 2025

Disorders of Innate Deficiency -

Dr. Neha Mishra

- Identify key phagocytic and complement pathway deficiencies: CGD, LAD, C3 / C5 / terminal component defects.
- Introduce first-line diagnostic workup: DHR test for CGD, CH50 for complement, basic neutrophil count/function.
- Understand clinical red flags prompting referral

4) 27th August, 2025

Adaptive immunity - B cells-

Dr. Abhishek G P

- Trace B cell development from bone marrow to peripheral lymphoid organs.
- Describe structure and function of immunoglobulin molecules (IgM, IgG, IgA, IgE, IgD).
- Differentiate naïve, memory, and plasma B cells in immune response.

5) 3rd September, 2025

Innate system overactivity- Autoinflammatory disorders -

Dr. Abhishek Patil

- Learn the practical implication of innate system hyperactivity
- Highlight how common polygenic disorders such as: Gout, AOSD, AS pathogenetically differ from their autoimmune counterparts
- HLH and MAS
- Monogenic autoinflammatory disease

6) 10th September, 2025

B cell deficiency -

Dr. Praveen Tirlangi

- Recognize and distinguish CVID and XLA based on clinical phenotype and immunologic testing.
- Learn how to interpret quantitative Ig levels, flow cytometry for CD19+ B cells, and vaccine responses.
- Outline management strategies: IVIG replacement, prophylactic antibiotics, vaccination guidance

7) 17th September, 2025

Adaptive immunity - T cells -

Dr. Prathyusha

- Describe thymic T cell development, positive and negative selection, and lineage commitment (CD4/CD8).
- Understand how central tolerance prevents autoreactivity.
- Outline TCR structure, HLA restriction, and their relevance to antigen-specific immunity



8) 24th September, 2025

T cell dysregulation -

Dr. Ankur Jindal

- Identify features of T cell predominant immunodeficiencies (e.g., SCID, CHH, DiGeorge).
- Understand how CD3/CD4/CD8 panels guide diagnosis and monitoring.
- Highlight role of T cells in controlling intracellular infections (e.g., fungi, viruses, mycobacteria)

9) 1st October, 2025

Major Histocompatibility complex -

Dr. Abhishek Patil

- Explore MHC class I and II structure, function, and polymorphism.
- Discuss MHC-disease associations (e.g., HLA-B27 with spondyloarthropathy, HLA-DQ2/DQ8 with celiac disease).

10) 8th October, 2025

Complement pathway and defects -

Dr. Abhilasha Manwatkar

- Describe classical, alternative, and lectin pathways with respective triggers and end-point effects.
- Identify roles of C3, C5, and MAC in opsonization, chemotaxis, and cell lysis.
- Recognize clinical syndromes of complement deficiency and overactivation (e.g., SLE, HAE, aHUS).

11) 15th October, 2025

Cytokines -

Dr. Avanish Jha

- Illustrate the roles of cytokines (e.g., IL-1, IL-6, TNF-Alpha, IFN-Gamma, IL-10) in maintaining immune homeostasis and orchestrating host defense.
- Explain cytokine networks and feedback loops during infection, inflammation, and resolution phases.

12) 22nd October, 2025

Vaccine Immunology -

Dr. Neha Mishra

- Describe how vaccines induce immunity via activation of B cells, T cells, and antigen-presenting cells.
- Compare different vaccine platforms: live-attenuated, inactivated, mRNA, subunit, toxoid.
- Define the concepts of primary vs secondary response, adjuvants, and immune memory.



13) 29th October, 2025

Laboratory tools in Immunology -

Dr. Akshatha R

- Familiarize with diagnostic modalities: ELISA, nephelometry, immunoblot, flow cytometry, PCR.
- Learn how to interpret Ig profiles, lymphocyte subsets, complement assays, autoantibodies.
- Identify testing errors, pre-analytic pitfalls, and false positives.
- Decide when and how to escalate to advanced diagnostics or specialist referral.

14) 5th November, 2025

Immunopathogenesis of TB and HIV -

Dr. Selwyn Selwakumar

- Explain immune evasion mechanisms by M. tuberculosis (e.g., granuloma formation, latency).
- Describe the immunologic trajectory of HIV infection: CD4 depletion, immune exhaustion, chronic activation.
- Understand Immune Reconstitution Inflammatory Syndrome (IRIS)
- Correlate immune dysfunction with diagnostic and treatment challenges.

15) 12th November, 2025

Hypersensitivity reactions -

Dr. Sundaram TG

- Classify the four types of hypersensitivity reactions with mechanistic clarity.
- Link immune mediators (IgE, IgG, immune complexes, T cells) to each hypersensitivity type.
- Illustrate clinical syndromes: anaphylaxis, hemolytic anemia, serum sickness, SJS/TEN.
- Integrate hypersensitivity concepts across infections, drugs, and autoimmune settings.

16) 19th November, 2025

Transplant Immunology -

Dr. Anupa

- Illustrate how the immune system influences outcomes in organ transplantation using real-world clinical scenarios
- Recap HLA's central role in antigen presentation
- pre-transplant immunologic assessments: HLA typing, cross-matching (complement-dependent and flow cytometry), and detection of donor-specific antibodies.
- Outline mechanisms of graft rejection (hyperacute, acute cellular, antibody-mediated, and chronic rejection).

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