



UNIVERSITÀ  
DEGLI STUDI DI BARI  
ALDO MORO

## BARI ENGLISH MEDICAL CURRICULUM (BEMC)

### **Immunology – II year II semester – III year – I semester (Prof. Stefano Castellani)**

#### **TOPICS COVERED BY THE COURSE:**

General organisation of Immune system : Innate and adaptive immunity. Organisation of secondary lymphoid organs.

Innate immune response: Natural barriers, Neutrophils, monocytes/macrophages, Dendritic cells, Natural killer cells; Toll-like receptors, Nod-like receptors, Phagocytosis and killing, Respiratory burst, Reactive oxygen species, Nitric oxide; Extracellular traps of neutrophils, Macrophages polarization, Complement system.

Ontogenesis of T lymphocytes, TCR rearrangement, Antigen Presenting cells; MHC molecules and antigen processing and presentation, co-stimulatory molecules; positive and negative selection.

Ontogenesis of B lymphocytes, Antibody: structure and function, Class switching, Somatic hypermutation ; Interaction between T and B lymphocytes.

Adaptive immune response: Cell-mediated immune response: T helper (Th1, Th2, T regulatory and Th17 cells), T cytotoxic cells, Cytokines and chemokines; Central and peripheral tolerance; T cytotoxic cells; Innate lymphoid cells, Superantigens.

Humoral Immune response; Different subclasses of antibodies.

Role of immunological memory.

Mucosal Immunology; Peyer's Patches, Inflammatory bowel disease, Intestinal microbiota.

Primary immunodeficiency: defects in phagocytic cells: Chronic granulomatous disease, leukocyte adhesion deficiencies, Chediak-Higashi syndrome; Severe combined immunodeficiencies; Wiskott-Aldrich syndrome, Di George syndrome, MHC class I and MHC class II immunodeficiencies; Bruton disease; Hyper IgM syndrome, Hyper IgE syndrome; IgA deficiency; IgG deficiencies; Complement factors deficiencies; HIV-1 infection.

Evasion of the immune response by bacteria and viruses: Infection and immune response, Hepatitis B virus infection, Hepatitis C virus infection, Epstein-Barr virus infection, Cytomegalovirus infection;

Hypersensitivity reactions, Mast cells: Role in different pathologies; Role of immune system in celiac disease; Nickel-mediated allergic contact dermatitis;

Self-tolerance and autoimmune diseases.

Transplant immunology.

Immune check point blockers in malignancies.



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**SUGGESTED COURSEBOOKS:**

Abbas, Lichtman and Pillai: “Cellular and Molecular Immunology”. Eds. Elsevier

or

Weaver and Murphy. “Janeway's Immunobiology”

PROF. Stefano Castellani

