IMMUNE RESPONSE / IMMUNE DEFICIENCY STATE & ORGAN TRANSPLANT
**IMMUNE RESPONSE**

- Specific reactivity induced in host by an antigenic stimulus – *immune response*

- Antigen–living or nonliving

- Response may be *beneficial*, *indifferent* or *injurious*

- Two type: Humoral (antibody mediated)
  Cellular (cell mediated)

- Develop together, one or other predominate or exclusive

- Act in conjunction or opposition.
IMMUNE RESPONSE

- Humoral (antibody mediated)
  Primary defence against extracellular bacterial pathogens
  Defence against viruses that infect through respiratory/intestinal tracts
  Pathogenesis of immediate type 1, 2, 3 hypersensitivity.

- Cell mediated immunity:
  Fungi, viruses, intracellular bacterial pathogens
  Rejection of homograft, graft verse host reaction
  Immunity against cancer,
  Delayed (type 4) hypersensitivity
  Autoimmune diseases
Humoral immune response

- Entry of antigen (afferent limb),
  Processing of antigen (central function)
  Secretion of antibody (efferent limb)

- Antibody production follows path
  Lag phase
  Log phase
  A plateau phase
  Phase of decline
Humoral immune response

- Primary response: Initial response to antigen
  Differ from subsequent stimuli (qualitative & quantitatively)
  Slow, sluggish, short lived,
  Long lag phase, low antibody titre (IgM)

- Secondary response: Powerful, prolong
  Short lag phase
  Higher antibody titre (IgG)
Antigen: Fate depends on physical & chemical nature, Dose, route of entry. Primary or secondary response.

Antigen in circulation:
Localized spleen liver bone marrow kidneys & lungs. Breakdown by RE cells & excreted in urine.

Antigen in circulation:
- Antigen in SC: Localized in lymph nodes

- Antigen (soluble) three phase,
  Phase of equilibration–diffusion of antigen to extravascular space
  Metabolic phase -- Antigen falls due to catabolism,
  Immune phase -- Antigen– antibody complex formation
    Tissue damage & serum sickness
Component of immunity

- Three types of cell
  - Antigen processing cell (APC) -- macrophages & dendritic cells
  - T cells & B cells

- Cytokines:
  - Biologically active substance released by activated T lymphocytes
  - Interleukin 1–13
  - Colony stimulating factors
  - Tumor necrosis factor
  - Interferons
Factors influencing antibody production

Genetic factors

Age

Nutritional status

Immunosuppressive agents

Radiomimetic drugs (cyclophosphamide)

Corticosteroids

Antimetabolites – folic acid antagonist (methotrexate)

5FU