

THE UNIVERSITY OF NAIROBI

SCHOOL OF MEDICINE

DEPARTMENT OF IMMUNOLOGY

TYPE IV HYPERSENSITIVITY REACTIONS

- Encounter from time to time
- Not very agent
- Def
 - o Is a reaction characterized by a cell mediated immune response that tends to be occasionally exaggerated
- Examples of reactions
 - o Administration of mantoux – this is the admin of purified protein derivatives of the tubercle bacilli subcutaneously to evaluate previous contacts with mycoTb bovis or hominis.
 - o Foreign bodies on the skin
 - o Fungal infections
- Using mantoux tests premodule, we discuss type IV hypersensitivity
- Upon admin of 1ml of purified protein derivative on the fore-arm subcutaneously, a cell mediated immune response will occur
- The ppd will be taken up by an Antigen presenting cell, processed in the proteosomes, combined with MHC II and together expressed on the surface of the cell.
- T-lymphocytes CD4+ responds; the biological activity in the CD4+ (th1 class) translates into a secretion of cytokines
- The cytokines produced are IL-2 (Mobilize other lymphocytes), gamma interferon (mobilize macrophages), IL 12 ----Formation of a granuloma
- Once the macrophages bind the cytokines, they are activated by gamma interferon.
- Properties of activated macrophages:
 - o They elaborate their metabolic infrastructure making their phagocytic properties more aggressive and allow them to persist in tissues for longer periods of time
 - o They activate more antigen presenting cells and CD4+ th1 cells
 - o They produce IL 12 and gamma interferon
 - o Enhance MHC expression on the cell surfaces and that of Ag presenting cells
- Effects
 - o Granuloma formation- extensive phagocytosis
 - o Activation of immune cells (Forward feeding Immune response)