Major Histocompatibility Complex

- has major role in:

1- Antigen presentation

2- Transplantation

3- Autoimmue disease

MHC molecules

→ it's located at the short arm of the Chromosome 6

MHC I

- located in A, B, C regions
- in all nucleated cells
- Present the Ag to Tc

Protein structure

- Heavy chain (α_1 / α_2 / α_3)
- microglobulin B_2
- transmembrane and cytoplasmic tail
- α_3 is the Constant region binds to CD8

Nature of Ag presented

- endogenous origin
- Enzyme involved in peptide generation ⇒ proteosome

Function

- Ag presentation to CTL to cheak normal expression of Cellular proteins

MHC II

- located at D region
- in APCs
  - basophiles
  - DCs
  - MΦ
- Present Ag to T_H

Protein structure

- Four domains (α_1 / α_2 / B_1 / B_2)
  - * Hyper variable parts (α_1 / B_1)
  - * B_2 is the Constant region binds to CD4
- transmembrane and cytoplasmic tail

Nature of Ag presented

extracellular proteins

- Enzyme involved in peptide generation ⇒ endosomal Proteases (Cathepsins)

Function

- extracellular antigen presentation

MHC III

- Code for Complement and TNF proteins
- it's secreted proteins

Has an immune functio

1- Complement sys

2- inflammatory molecules