Immunology

Lec. 6

Antigen presenting cell (APC)

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- An antigen-presenting cell (APC) or (accessory cell) is a cell that displays foreign antigens complexed with major histocompatibility complexes (MHC's) on their surfaces. T-cells may recognize these complexes using their T-cell receptors (TCRs). These cells process antigens and present them to T-cells.

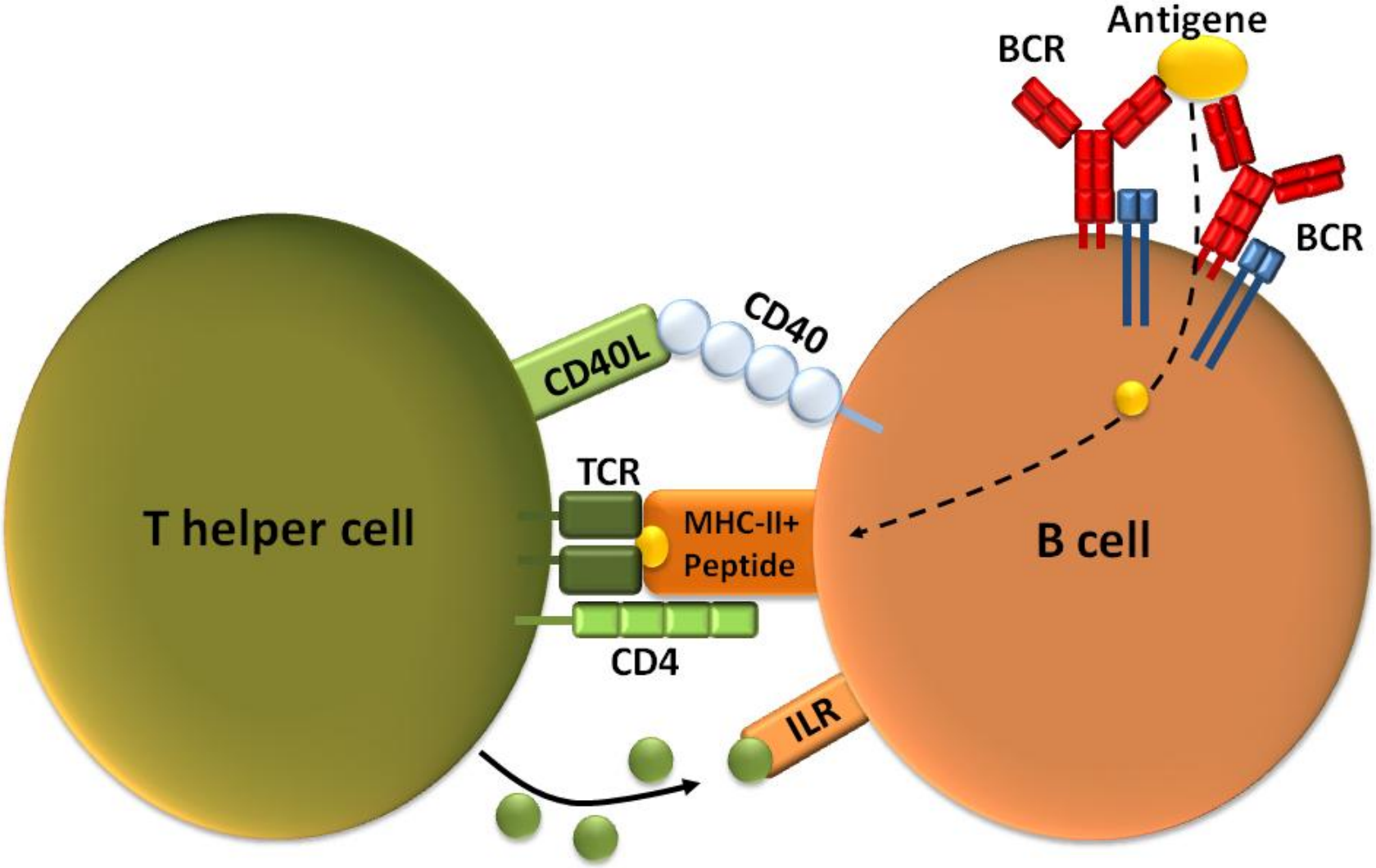
Types of APC

1- Professional APCs

- Dendritic cells (DCs): which have the broadest range of antigen presentation, and are probably the most important APC.
- Macrophages: which are also CD4+ cells and are therefore susceptible to infection by HIV as well, since HIV invades immune cells through CD4+ receptor interactions.
- Certain B-cells: which express (as B cell receptor) and secrete a specific antibody, can internalize the antigen, which bind to its BCR and present it incorporated to MHC II molecule, but are inefficient APC for most other antigens.

2- Non-professional

- A non-professional APC does not constitutively express the Major Histocompatibility Complex class II (MHC class II) proteins required for interaction with simple T cells; these are expressed only upon stimulation of the non-professional APC by certain cytokines such as IFN-γ. Non-professional APCs include:
- Fibroblasts (skin)
- Thymic epithelial cells
- Thyroid epithelial cells
- Glial cells (brain)
- Pancreatic beta cells
- Vascular endothelial cells


Antigene
BCR
BCR
CD40L
CD40
TCR
MHC-II+
Peptide
T helper cell
B cell
CD4
ILR