

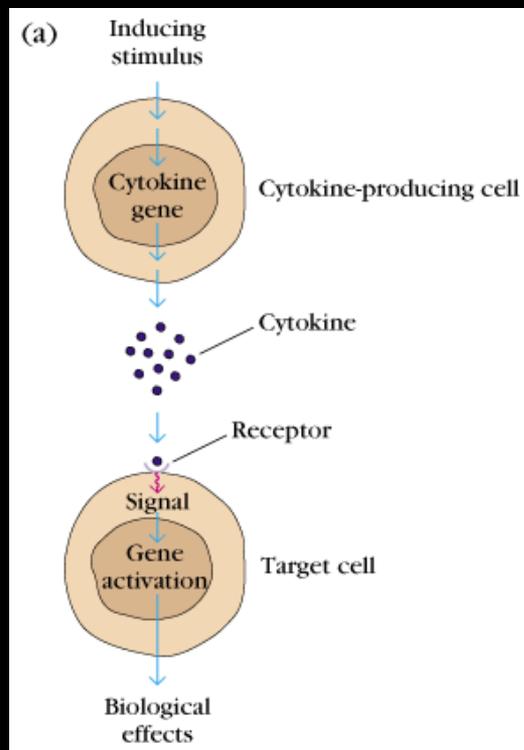
# **Leukocyte Differentiation Antigen and Adhesion Molecules (overview)**

**Ning Pan**

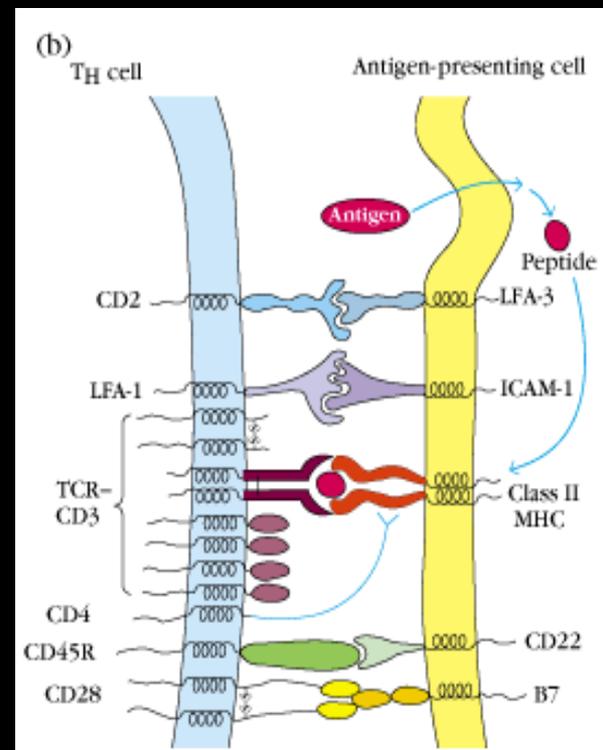
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# Communications between cells

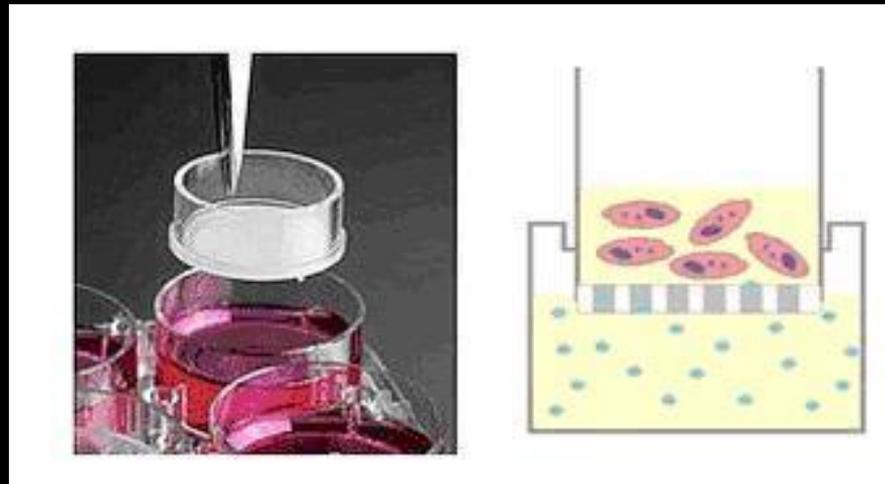
## •Soluble mediators



## •Cell-cell contact, ligand-receptor



# Soluble mediators or cell-cell contact?



- Trans-well assay

# terminology

# 1. Leukocyte Differentiation Antigens:

Leukocyte differentiation antigens are **cell surface molecules** which may appear on or disappear from cell membrane when stem cell differentiates into different lineage cells or when blood cells are in maturational stages and activation status.

Differentiation antigens also are found on erythrocytes and megakaryocytes/platelets, and non-hematopoietic cells including vascular endothelial cells, fibrocytes, epithelial cells and neuro-endocrine cells.

## 2. Cluster of Differentiation:

Cell surface molecules can be recognized by particular monoclonal antibodies. All of the monoclonal antibodies that react with a particular membrane molecule are grouped together as a cluster of differentiation (CD)

### 3. Cell Adhesion molecules:

The molecules that mediate contact and binding between cells or between cells and extracellular matrix are referred to as cell adhesion molecules (**CAM**).

#### **4. CD v.s. CAM:**

- Most CAM has CD designation, a minority of cell adhesion molecules has not been given CD designation.**

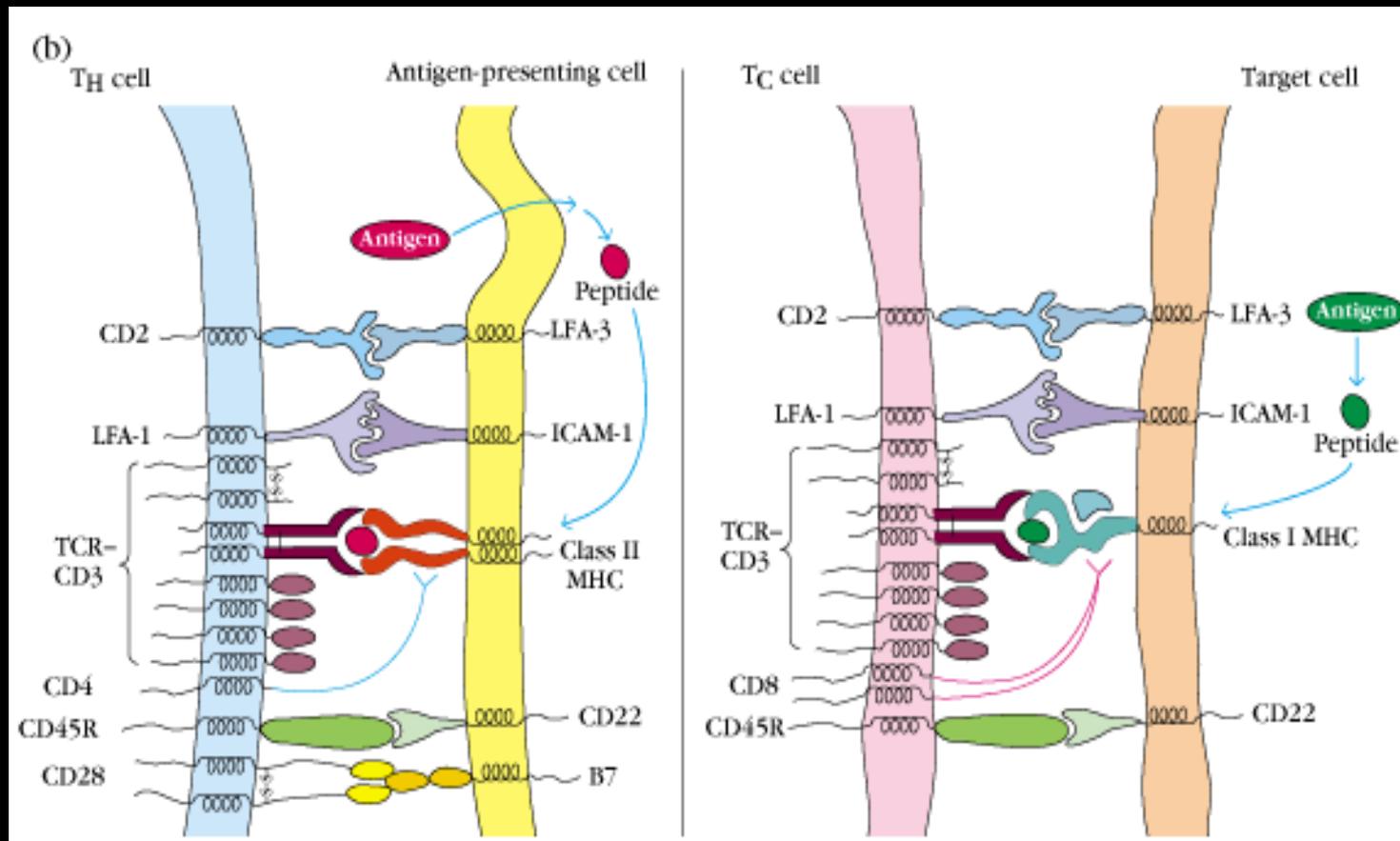
# Classification of CAM

- Intergrin family
- Selectin family
- Immunoglobulin superfamily
- Ca<sup>+</sup> dependent cell adhesion molecule
- Mucin-like molecule family
- ...
- Ungrouped molecules

## Main Functions of CAM

1. Co-stimulating molecules in immune cell recognition
2. Adhesion between leukocytes and vascular endothelial cells during inflammation
3. Leukocyte homing

# Co-stimulating molecules for T cell activation



The high endothelial venules (HEV) are the sites at which

- A. T cells enter the lymph node.**
- B. Plasma cells leave the lymph node.**
- C. Foreign antigen enters the lymph node**
- D. Mature B cells leave the lymph node.**
- E. Secreted antibody leaves the lymph node.**

# Summary

- **Definition of Leukocyte Differentiation Antigens, CD, and CAM**
- **Main functions of CAM**