

# Immunology

## 2<sup>nd</sup> Lecture

### Lymphoid System and Immune cells

These are some main points I gathered from the 2nd lecture.. And some extra points to help elaborate some vocabulary in the lecture..You will understand them better if you open the lecture while you go through them. They are in the Order of the Slides..Hopefully they are correct and Hope you find them Useful.

Good Luck to everyone.

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# Immunology

## 2<sup>nd</sup> Lecture

### Lymphoid System and Immune Cells

*Some main points you can go through and revise from:*

Where do Immune System Cells Originate from? →  
Hematopoietic Stem Cell (Self Renewing)

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CD “Cluster of Differentiation System”:

Different Cells = Different Functions = Unique CD cell  
surface protein

.....

Over 300 CD molecules have been described

.....

Lymphoid Lineage (Cell Descending From Lymphoid) or  
(The Lymphoid Children so to speak):

**\*3 Types of Cells:**

T-Lymphocytes (Mature in Thymus) → 2 Subpopulations  
(Very important to know) → \*Helper CD4, \*Cytotoxic CD8

B-Lymphocytes (Mature in Bone Marrow)

Natural Killer Cells

.....

T Lymphocytes **CAN NOT** Identify Antigens In Blood..  
They **Must** be on a Cell..

.....

**Antibody-Dependent Cell-Mediated Cytotoxicity (ADCC)**  
→ \*Effector Cell → Lyses Target cell (Which has  
Antibodies on it)

.....

T-Cells -> CD3

Helper T Cell = CD4

Cytotoxic T Cell = CD8

B-Cells -> CD 19 & 20

Developing Thymocytes -> CD1

Natural Killers -> CD 56

MALT is one of the major secondary lymphoid organs, along with the lymph nodes and spleen.

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MALT is based on location, and, therefore, MALT includes gut-associated lymphoid tissue (GALT), bronchial/tracheal-associated lymphoid tissue (BALT)

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Hassall's Corpuscles → In Medulla of Thymus

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How do we know it is a B-Cell ? Presence of Immunoglobulin (BCR) on its surface.

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B-Cells → Surface Immunoglobulin M → Serves as Antigen Receptor

Surface Immunoglobulin D → Sometimes Does the same Job as IgM

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Pre B-Cells → In Bone Marrow

Mature B-Cells → In Bloodstream

## B-Cell Development:

Antigen Binds to B-Cell → B-Cell Proliferates to form clone cell (which now Identifies the Antigen )

Cloned B-Cells → Turn into Antibody producing Plasma Cells → secrete antibody specific to that antigen

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Dendritic Cells → Messengers between Innate and Adaptive Immunity

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## Follicles = Nodules →

\*Primary = Dense (No Germinal Center), Dark, Inactive

\*Secondary = Light, Have Germinal Center, Active

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Germinal Center → Site of B-Cell Proliferation

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MALT → Located Below Epithelium

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Myeloid → suggests an origin in the bone marrow or spinal cord