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Class - DIIS

(1)

Immunity (Type, Immunoglobulin)

- Dr. Dipa Kumar

Immunity is ability of the body to protect against all types of foreign body like bacteria, virus, toxic substance etc which enter the body.

When antigen introduced into the body antibodies are produced. All antibodies are called immunoglobulin.

There are two main types of immunity.

- (1) Innate or Natural or Nonspecific immunity
- (2) Acquired or adaptive or specific immunity.

(1) Innate or Natural or nonspecific immunity -

This is a basic immunity which is genetically transmitted from one generation to next.

This type of immunity is nonspecific as it is operating against a variety of micro-organisms. It is present throughout life.

Its 3 main types are (a) Species immunity

(b) Racial immunity (c) Individual immunity

(2) Acquired or adaptive or specific immunity -

This is the immunity acquired by human being. Acquired immunity can be divided into -

(i) Active immunity

(ii) Passive immunity.

(i) Active immunity - This immunity depends upon the humoral & cellular responses of the host.

(ii) Passive immunity - When immunity produced either by (a) transfer of maternal antibodies

(b) By administration of antibodies to patient.

(2)

Immunoglobulin

(Ig) - It is an antibodies produced by plasma cell of B lymphocytes, in response to antigenic challenge.

- It is found in blood & tissue fluid
- Formed from plasma cell of B lymphocytes

- Types - There are 5 types of Ig on the basis of heavy chain of Ig.

IgG, IgA, IgM, IgD, IgE

Structure - It is composed of glycoproteins. Each Ig consists of 2 light chain and two heavy chain joined together by disulfide bond.

- Each heavy & light chain divided into two regions - (i) variable region (ii) constant region.

(i) variable region - Vary from Ig to Ig i.e. it is different for each specific Ig. It contain antigen binding site where antigen binds with Ig.

(ii) constant region - These are constant in each Ig.

- Responsible for complement binding -

- Constant region of heavy chain are found in Fc region. Two other regions are Fab region and Fc region.

- On pepsin digestion - Ig splits into two parts.

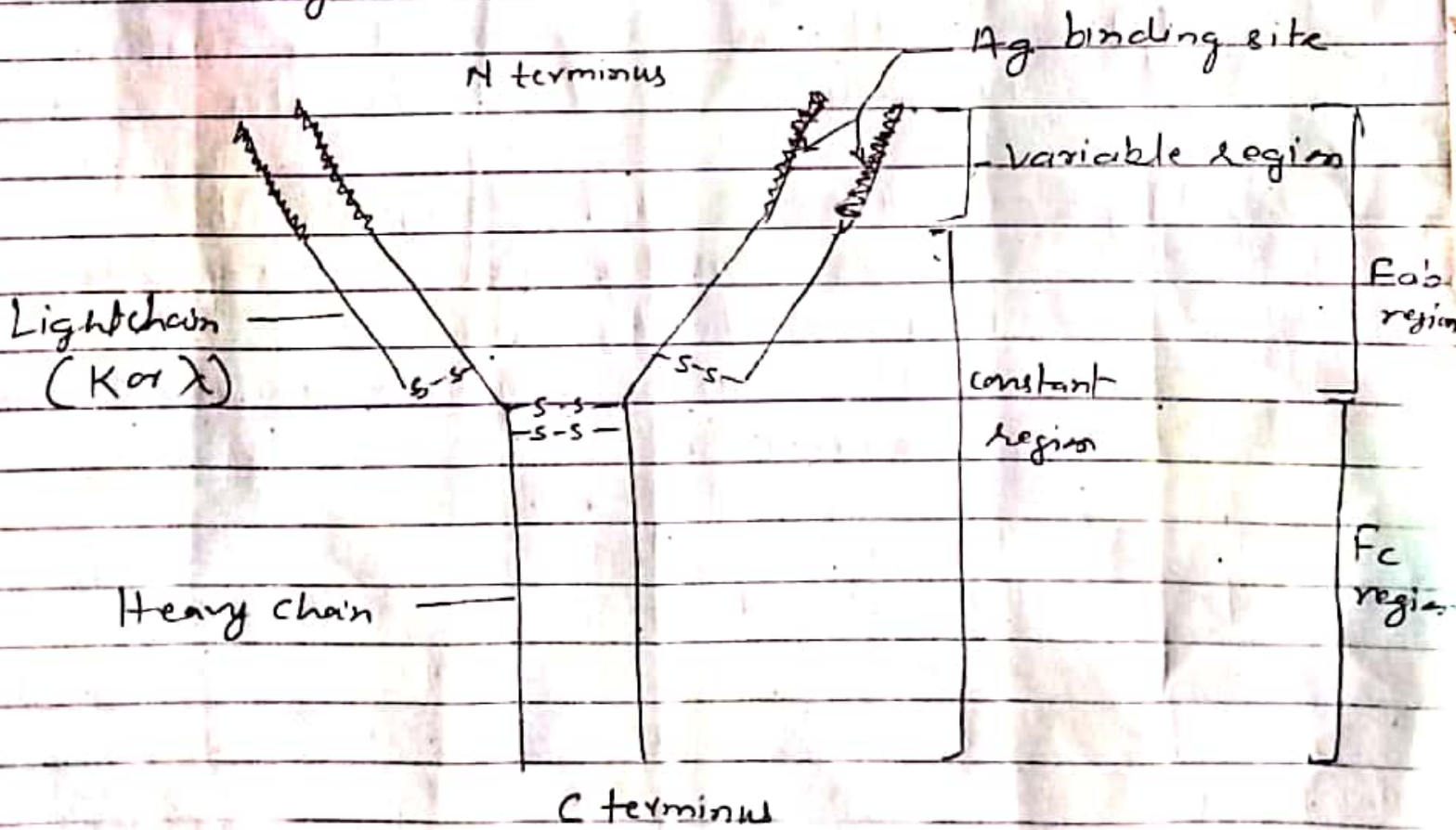
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On papain digestion Ig splits into 3 parts

Light chain of I_g is similar in all I_g
Two types of light chain are K or λ chain
In one I_g either K or λ chain found
but never both chain

Heavy chain - is structurally and
antigenically distinct in each I_g - 5 types
of heavy chain are

I_g	heavy chain
$I_g G$	γ
$I_g A$	δ
$I_g M$	μ
$I_g D$	δ
$I_g E$	ϵ



(4)

Role of different Ig.

IgG - Most abundant antibody
- Equally distributed in blood & ECF
- Crosses placenta
- Produce disease by forming autoantibodies

IgA - Found in high concentration in body secretion eg - Milk, tear, saliva
- Produce local immunity.

IgM - It is macromolecule
- Mostly intravascular
- It is first antibodies that produced after exposure to antigen
It activate the complement system

IgD - It is only found in surface of immature B lymphocytes

IgE - also called Renginic Ab
- Res possible for immediate hypersensitivity reaction.
- Protection against infection of helminthes.