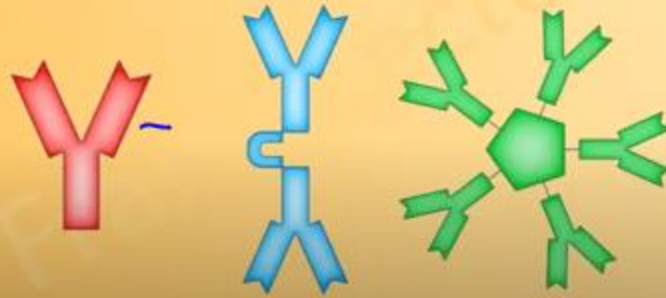


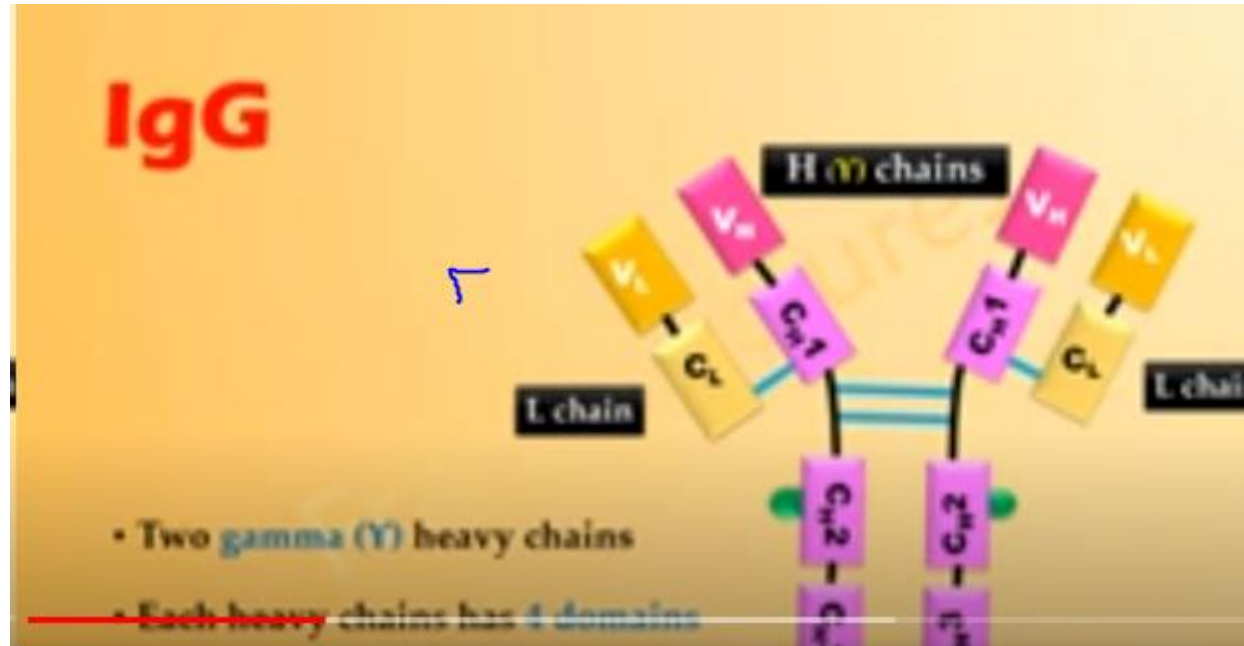
Antibody Classes



Play (k)

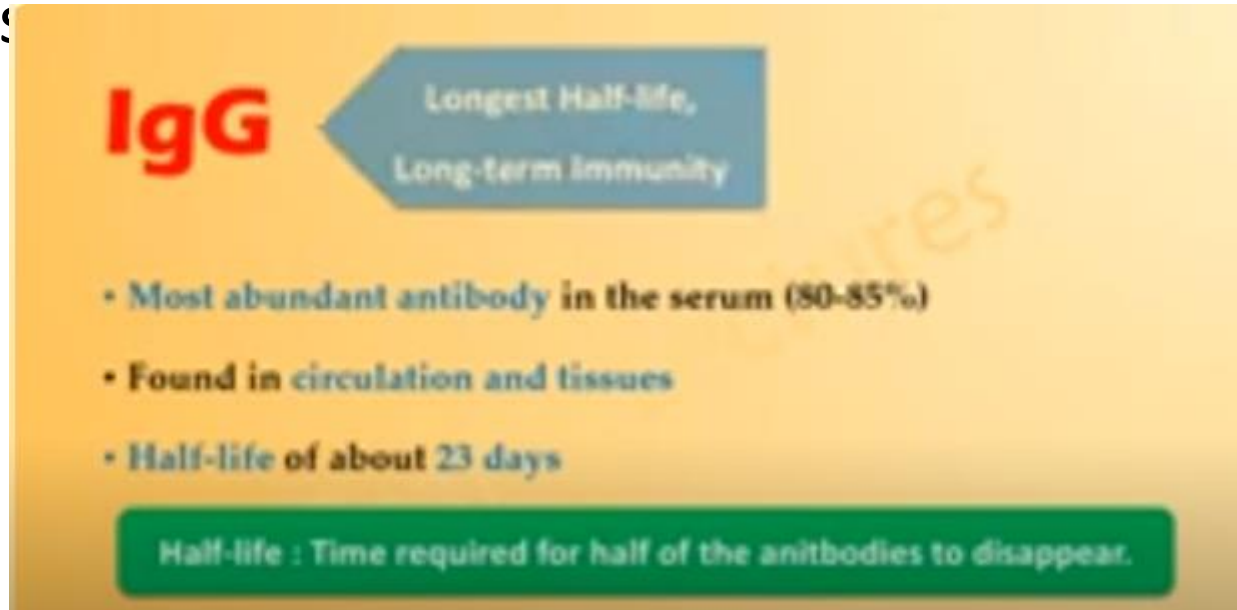
IgG

- IgG structure



IgG

- IgG characters



The infographic features a yellow background with a blue arrow pointing left towards the text 'IgG'. The arrow contains the text 'Longest Half-life, Long-term immunity'. Below this, there is a list of three bullet points. At the bottom, a green rounded rectangle contains a definition of half-life. A faint watermark 'Studydrive' is visible in the background.

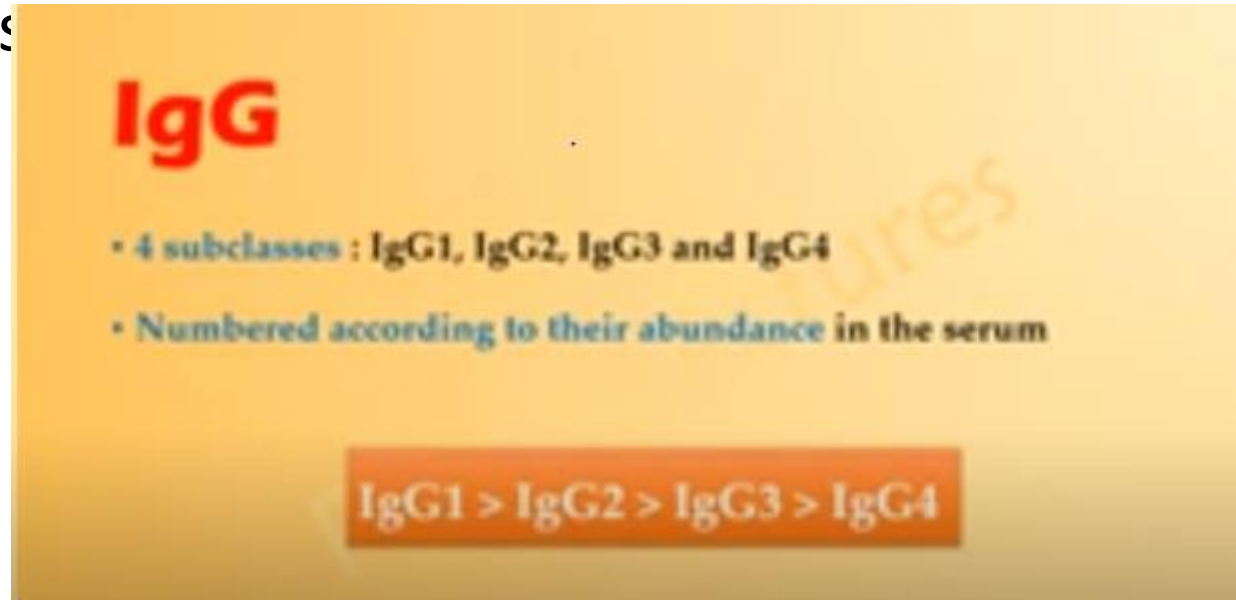
IgG Longest Half-life, Long-term immunity

- Most abundant antibody in the serum (80-85%)
- Found in circulation and tissues
- Half-life of about 23 days

Half-life : Time required for half of the antibodies to disappear.

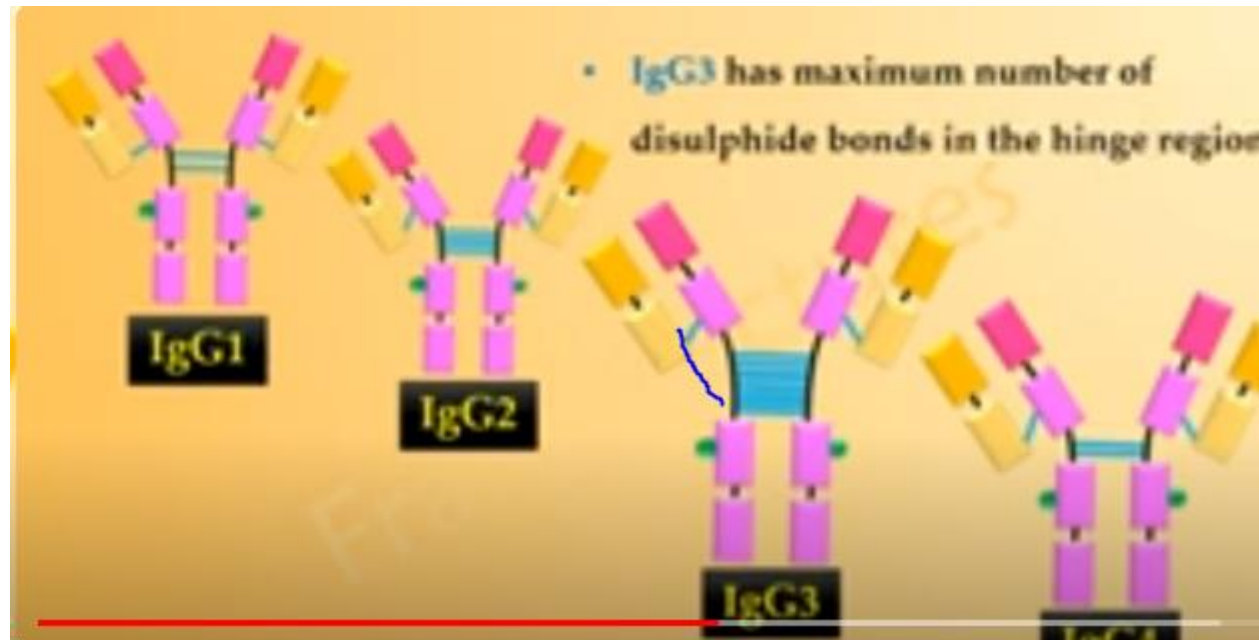
IgG

- IgG subtypes



IgG

- IgG subtypes



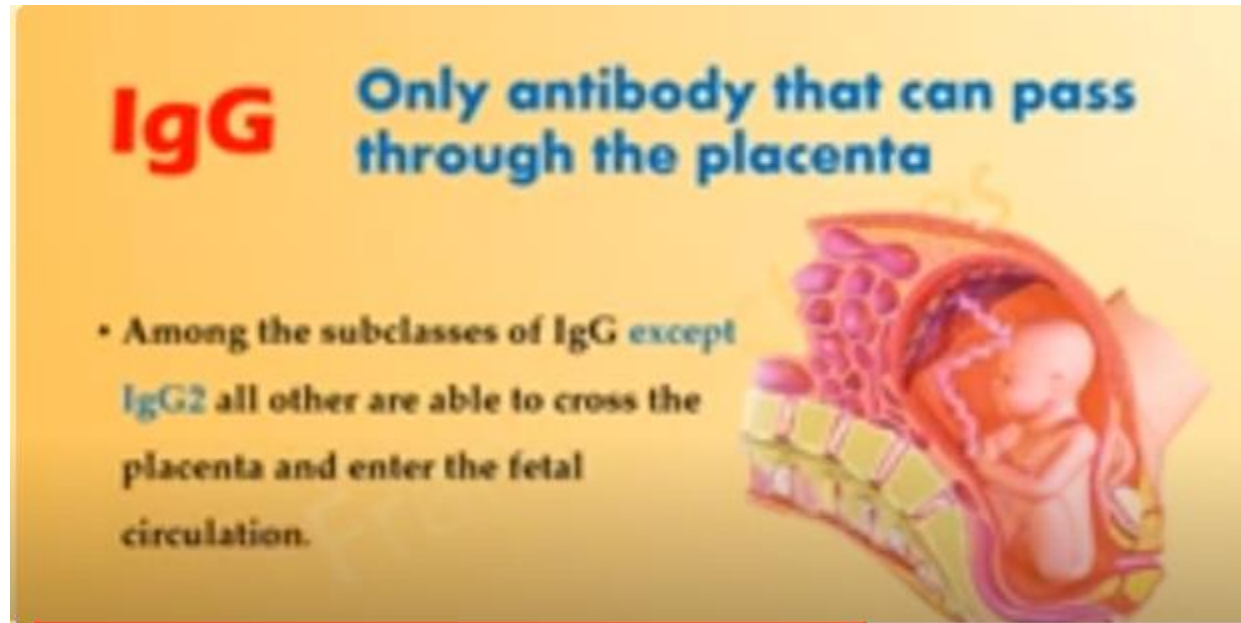
IgG

- IgG function



IgG

- IgG function



IgG

- IgG function



IgG

- IgG function



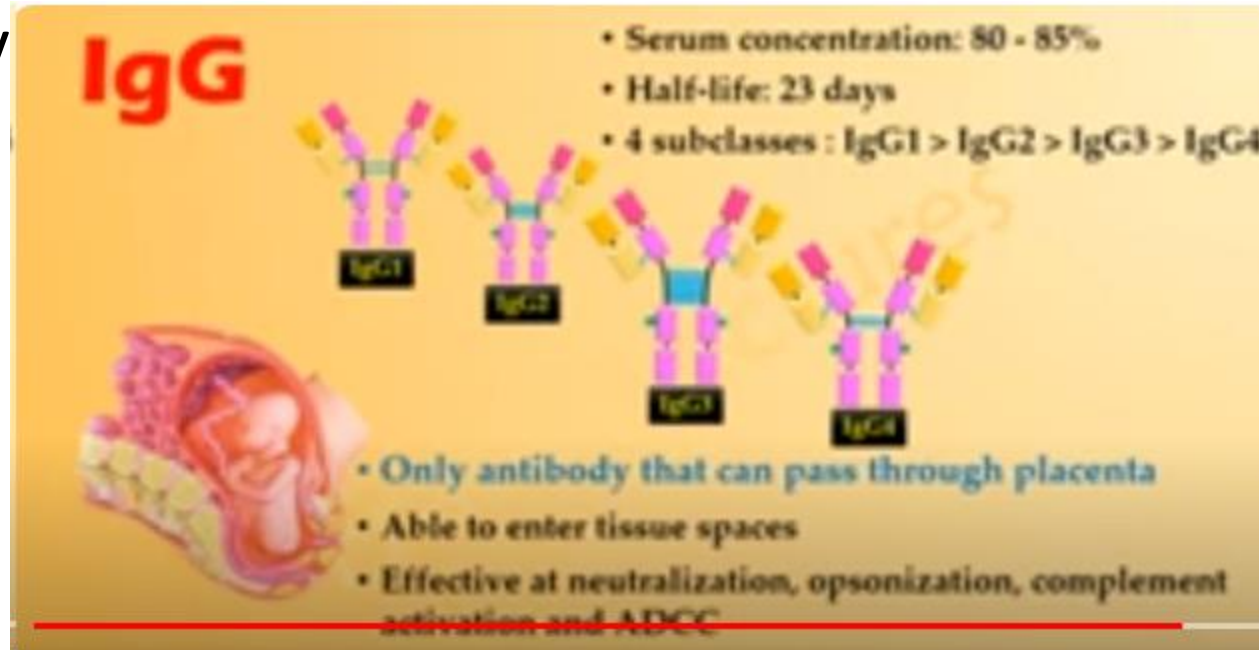
IgG

- IgG function



IgG

- IgG-Summary



IgM

- IgM

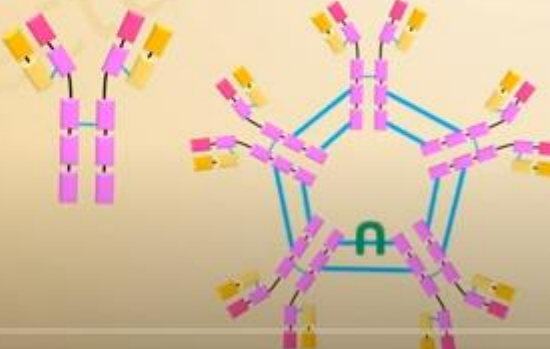


IgM

- IgM

IgM

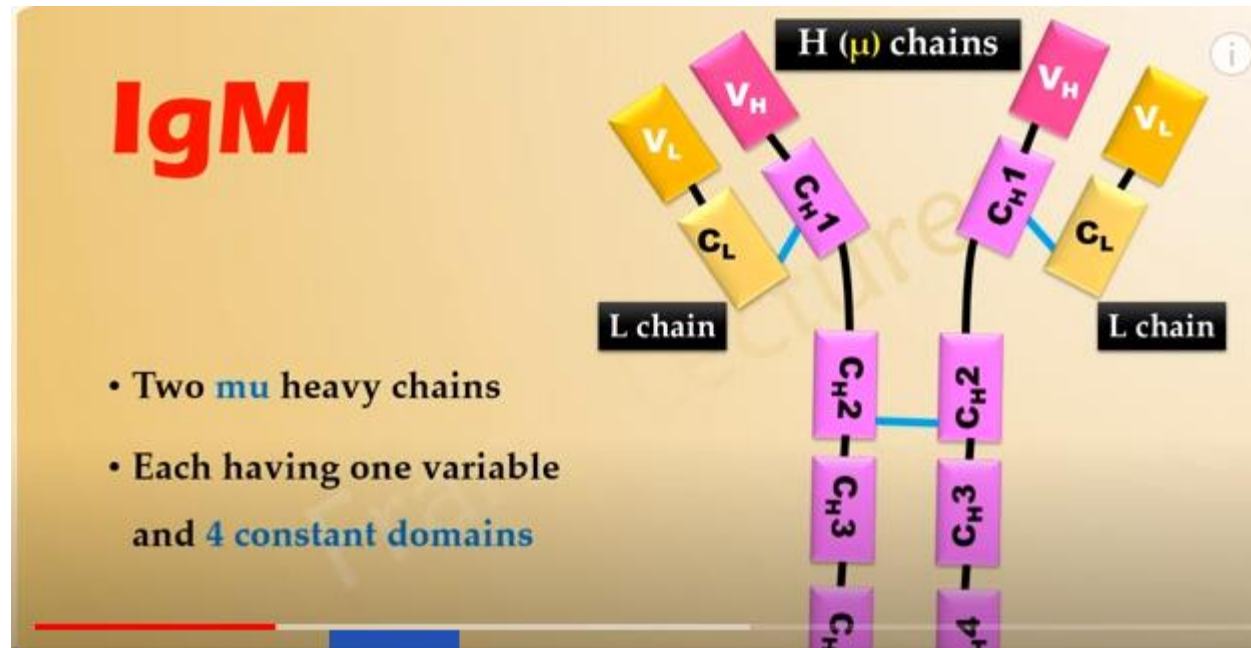
- Serum concentration: 5-10%
- Monomer and Pentamer



The diagram illustrates the structure of IgM antibody. It shows a monomer (left) and a pentamer (right) structure. The monomer consists of two heavy chain domains (pink) and two light chain domains (yellow). The pentamer consists of five heavy chain domains (pink) and five light chain domains (yellow) arranged in a circular pattern, connected by disulfide bonds (blue lines). A green 'A' is visible in the center of the pentamer structure.

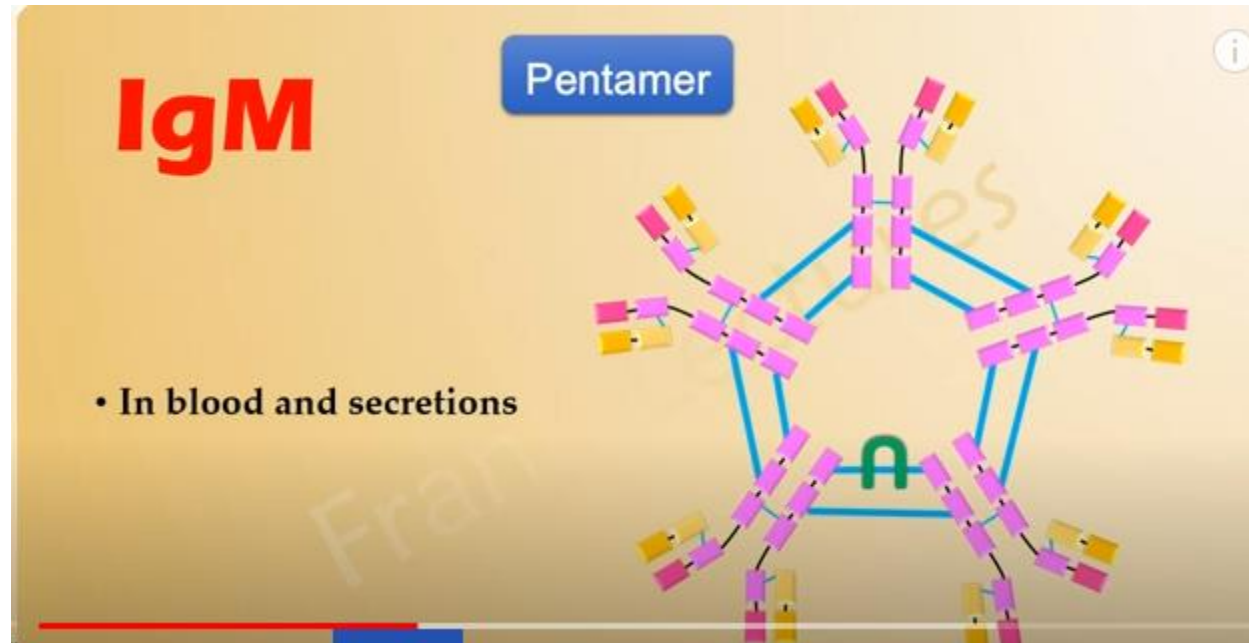
IgM

- IgM



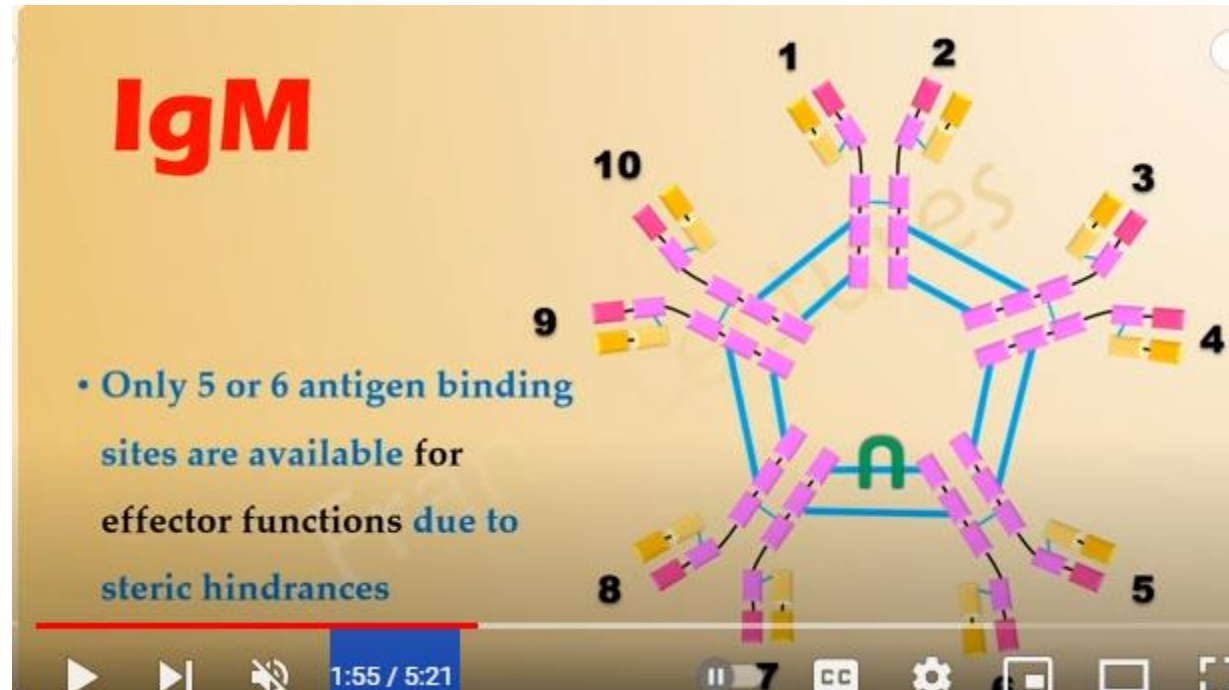
IgM

- IgM



IgM

- IgM



IgM

- IgM



IgM

- Found mostly in blood

IgM is unable to move freely because of its large size

- Half-life of about 5 days

The infographic has a light orange background. The title 'IgM' is in large red font. The first bullet point is in black. A green rounded rectangle contains the text 'IgM is unable to move freely because of its large size' in white. The second bullet point is in black, with '5 days' in blue. A small circular icon with an 'i' is in the top right corner.

IgM

- IgM

IgM

**First antibody that is
formed by the fetus**

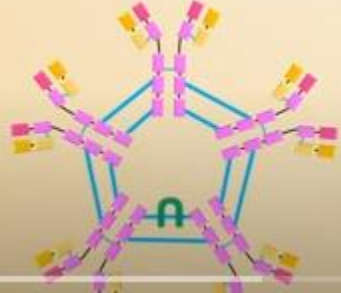
**First antibody to appear
during an immune response**

IgM

- IgM

IgM **Complement Activation**

- **Most efficient** antibody that activates complement
- **Classical complement pathway**



The diagram illustrates the structure of an IgM antibody, which is a pentamer. It consists of five Y-shaped antibody units (each with two heavy chain domains in pink and two light chain domains in yellow) joined at their C1H2 domains. The overall structure is a symmetrical pentamer with ten antigen-binding sites (Fab arms) extending outwards. A green 'n' is visible in the center of the pentamer structure.

IgM

- IgM



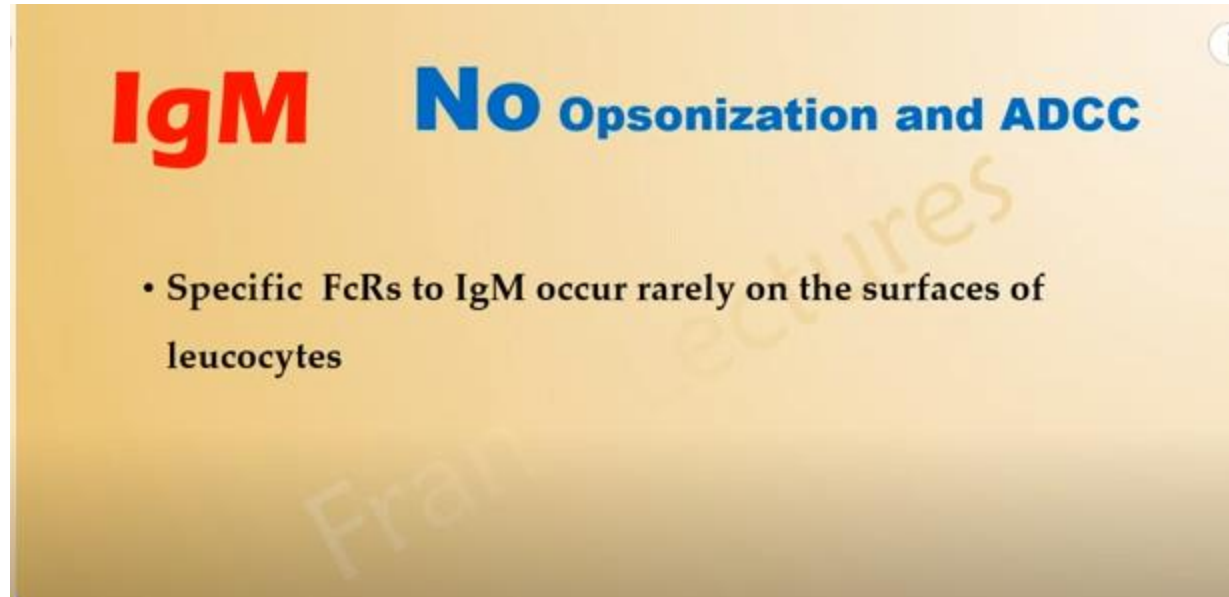
IgM **Neutralization**

- Important defense against bacterial diseases
- Very effective neutralizers

Frank Lectures

IgM

- IgM



IgM **No** Opsonization and ADCC

- Specific FcRs to IgM occur rarely on the surfaces of leucocytes

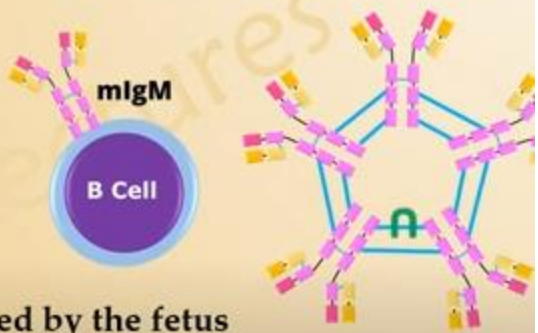
The slide has a light orange background. The text 'IgM' is in red, and 'No Opsonization and ADCC' is in blue. A small circular icon with an 'i' is in the top right corner. A faint watermark 'Frank Lectures' is visible diagonally across the slide.

IgM

- IgM

IgM

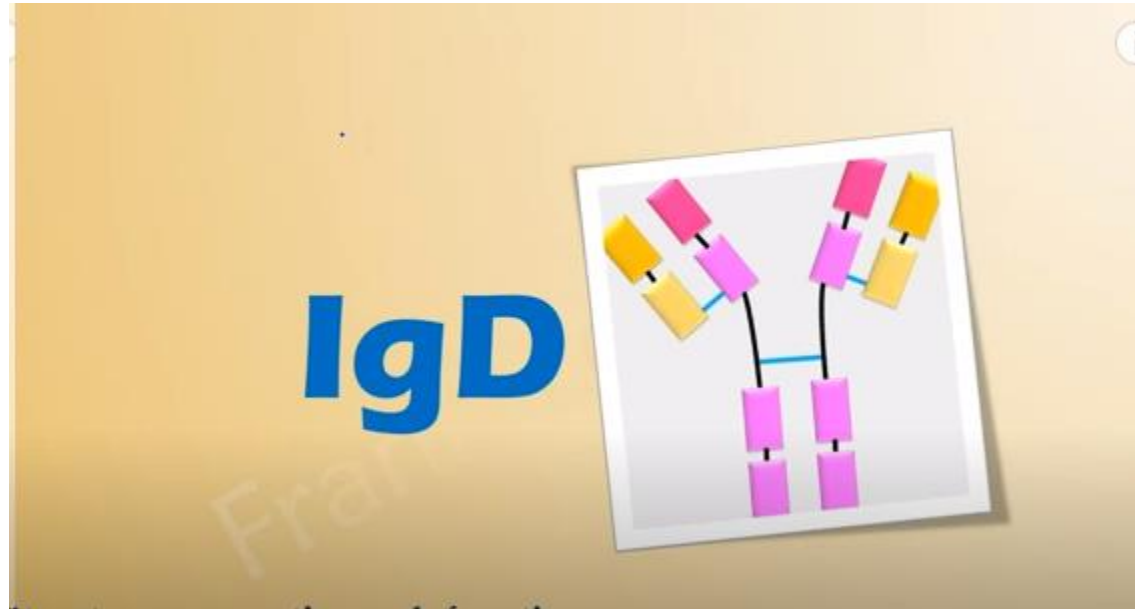
- Serum concentration: 5-10%
- Monomer: mIgM (Surface of B cells)
- Pentamer: sIgM (Blood)
- Half-life: 5 days
- First antibody that is formed by the fetus
- First antibody to appear during an immune response
- Mechanism of action: Complement Activation, Neutralization



The diagram illustrates the structure and function of IgM. On the left, a B cell is shown with mIgM (monomeric IgM) on its surface. On the right, a pentamer of sIgM (secreted IgM) is shown, consisting of five monomers joined at their C-termini. The pentamer has ten antigen-binding sites. A green 'A' is visible in the center of the pentamer structure.

IgD

- IgD



IgD

- IgD structure

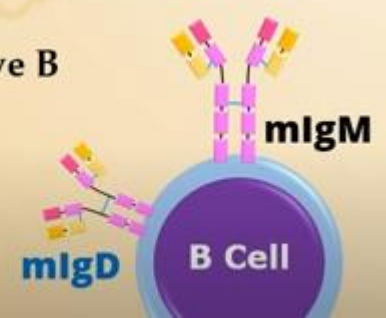


IgD

- IgD character

IgD

- **Membrane bound IgD**
- It is found on the surface of mature naïve B cells **in association with IgM.**



The diagram illustrates a B cell, represented as a purple sphere with a blue outline. On its surface, there are two types of Y-shaped antibody molecules. One is labeled 'mIgM' in black text, and the other is labeled 'mIgD' in blue text. Both molecules have pink and yellow tips. A 'Play (k)' button is visible in the bottom left corner of the slide.

IgD

- IgD characters

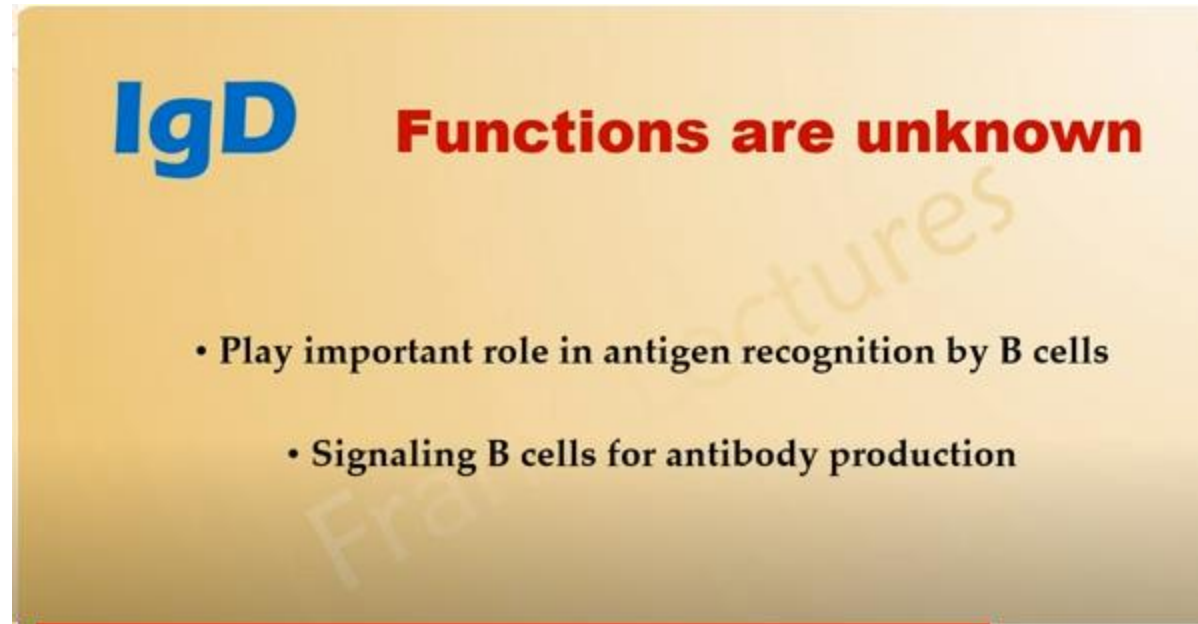


A presentation slide with a light beige background. The title 'IgD' is in large blue font at the top left. Below it, two bullet points are listed: '• Serum concentration : less than 1%' and '• Half life of 3 days'. A faint watermark 'Frank Lectures' is visible diagonally across the center. In the bottom right corner, there is a 3D molecular model of a protein structure with yellow, pink, and purple components. A red progress bar is at the bottom.

IgD

- Serum concentration : **less than 1%**
- Half life of **3 days**

- IgD function



IgD **Functions are unknown**

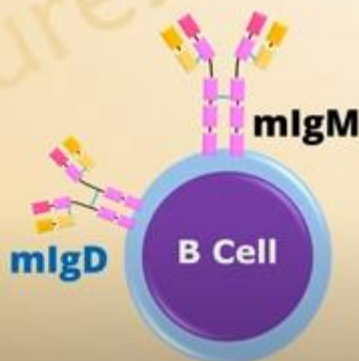
- Play important role in antigen recognition by B cells
- Signaling B cells for antibody production

IgD

- IgD-summary

IgD

- Serum concentration: **less than 1%**
- Monomer
- Membrane bound immunoglobulin (**mIgD**)
- Half-life: **3 days**



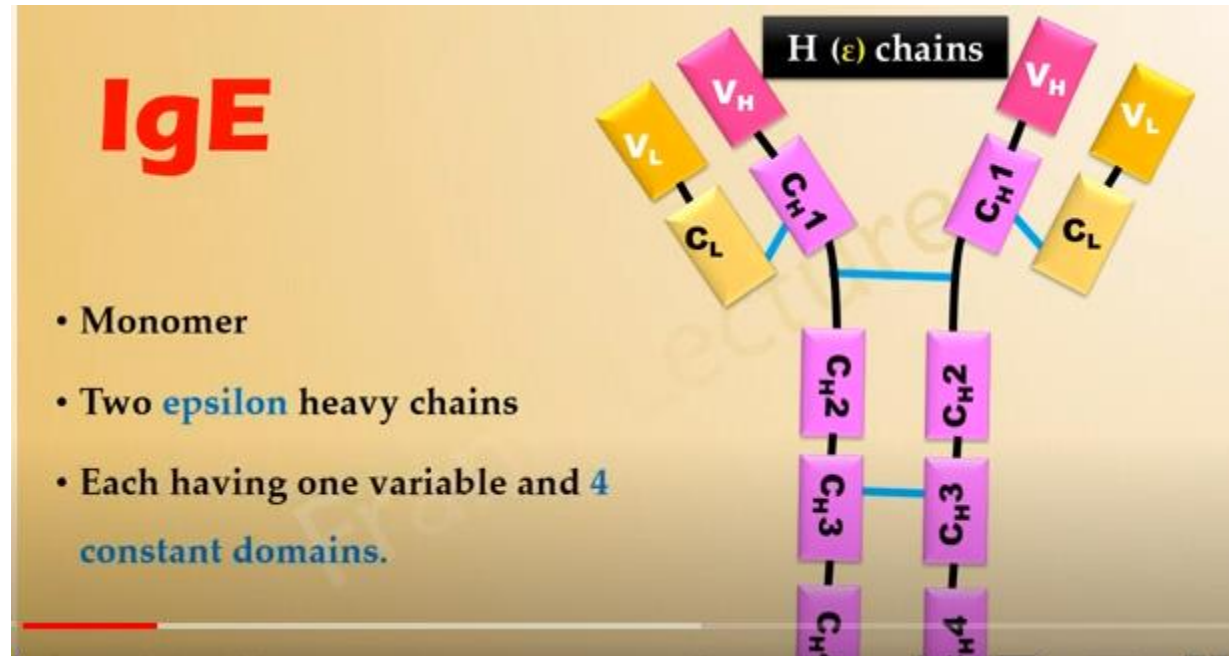
The diagram illustrates a B Cell, represented as a purple circle with a blue border. Two Y-shaped receptors are shown on the cell surface. One receptor, labeled 'mIgD' in blue, is partially embedded in the membrane. The other receptor, labeled 'mIgM' in black, is fully embedded in the membrane. Both receptors have pink and yellow tips. A faint watermark 'Lectures' is visible in the background.

IgE



IgE

- IgE structure



IgE

- IgE characters

IgE

- Serum concentration: **less than 1%**
- Half-life: **2 days**



Least abundant immunoglobulin in the serum

The diagram illustrates the structure of an IgE antibody molecule. It consists of two heavy chains (represented by pink rectangles) and two light chains (represented by yellow rectangles). The chains are connected by disulfide bonds, forming a Y-shaped structure. The heavy chains are longer and form the stem of the Y, while the light chains are shorter and form the arms. The molecule is shown in a 3D perspective, with the heavy chains being more prominent.

IgE

- IgE functions

IgE

- **Allergic reactions**
- **Defense against parasitic worms**



The image is a composite slide with a light beige background. It features the text 'IgE' in large red font at the top left. Below it, two bullet points in blue text list 'Allergic reactions' and 'Defense against parasitic worms'. To the right of the first bullet point is a small rectangular photo of a person in a red jacket sneezing into a white tissue in a field of yellow flowers. Below the second bullet point is a small circular inset showing a microscopic view of a parasitic worm. A red horizontal line is at the bottom left, and a faint 'Lectures' watermark is visible in the center.

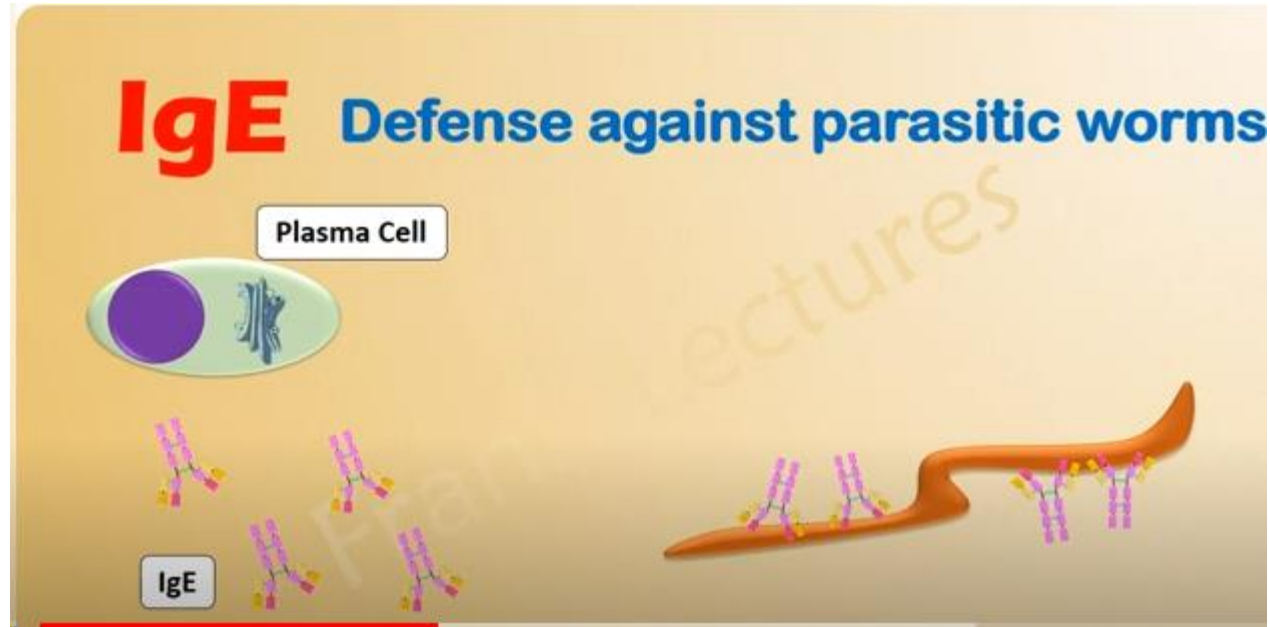
IgE

- IgE function



IgE

- Function



IgE

- IgE function



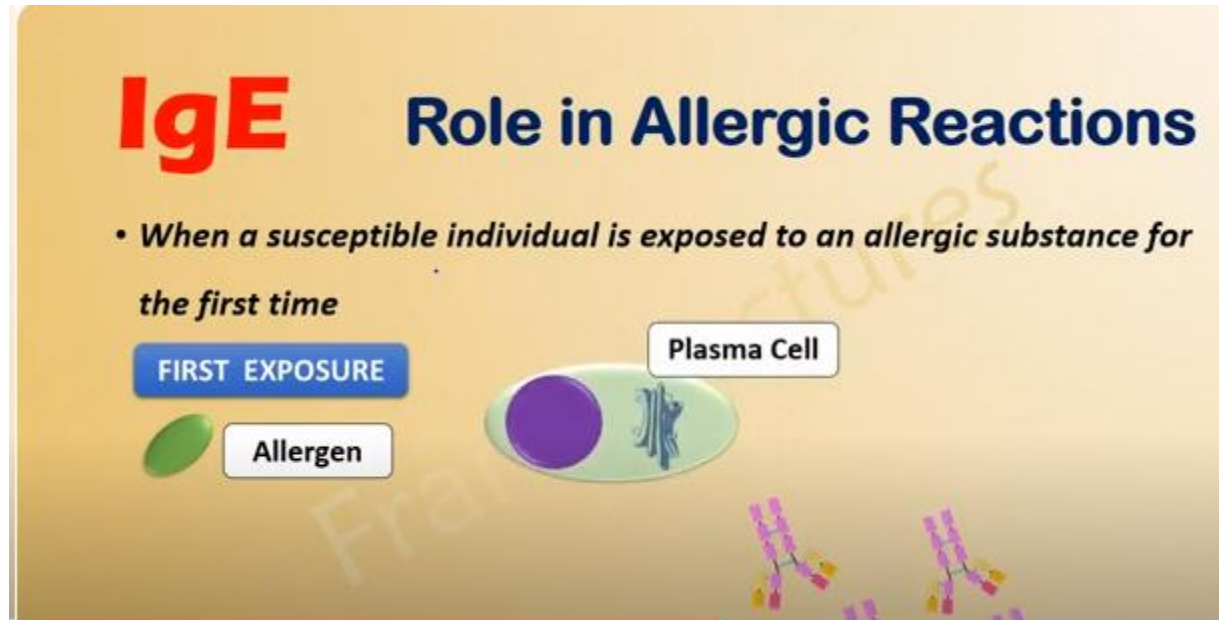
IgE

- IgE function



IgE

- IgE function



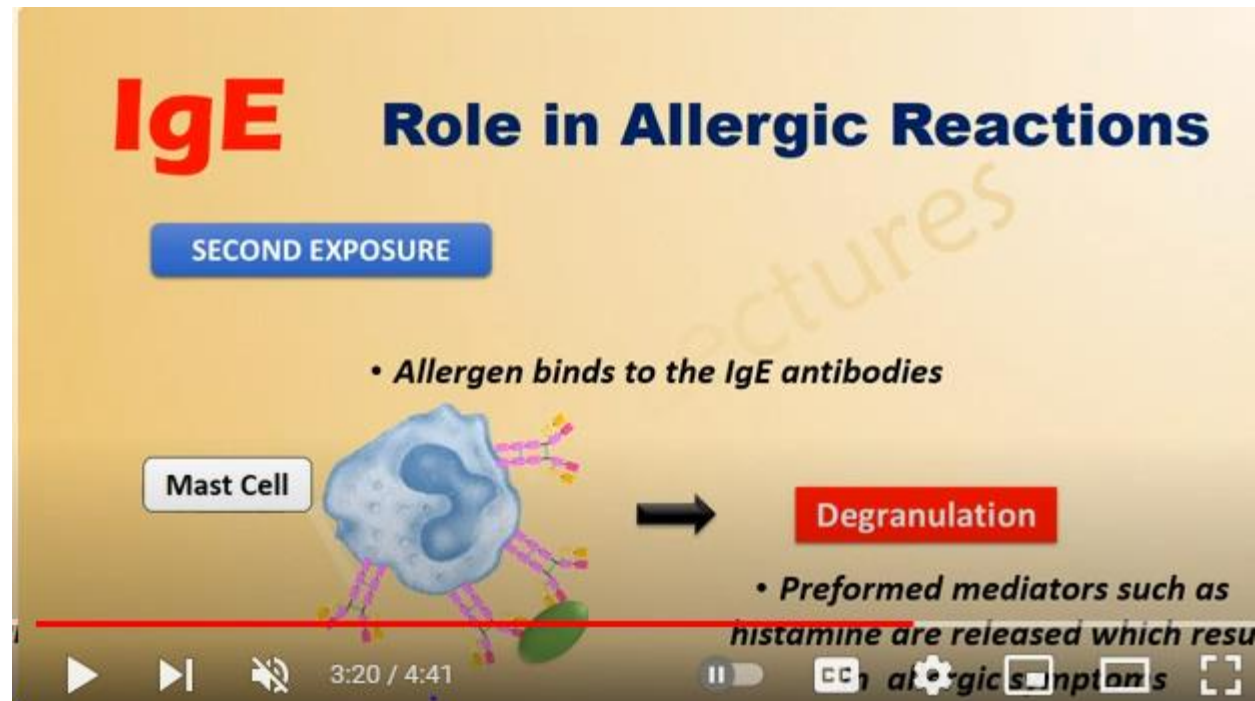
IgE

- IgE function



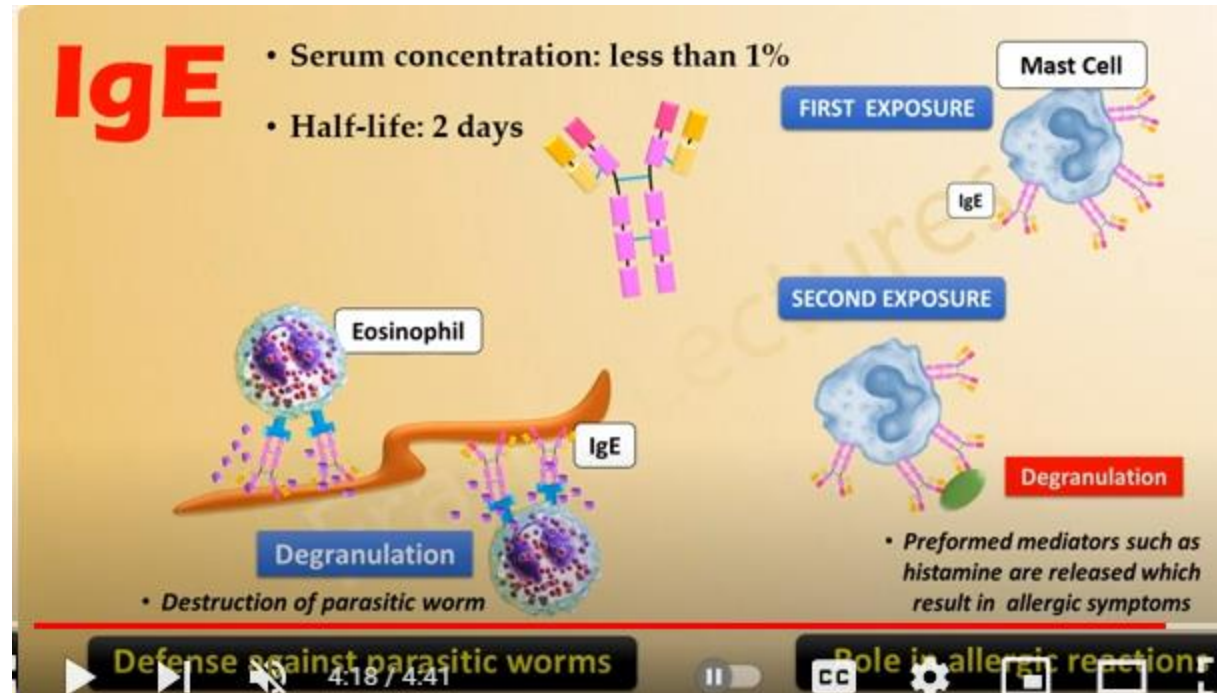
IgE

- IgE function



IgE

- IgE-summary



IgA

IgA

IgA

- IgA



The diagram shows a dimeric IgA molecule, consisting of two heavy chain domains (pink) and two light chain domains (yellow) joined by disulfide bonds (red lines). The molecule is shown in a 3D perspective view, with the heavy chain domains forming the main body and the light chain domains forming the arms. The molecule is oriented vertically, with the heavy chain domains at the top and the light chain domains at the bottom.

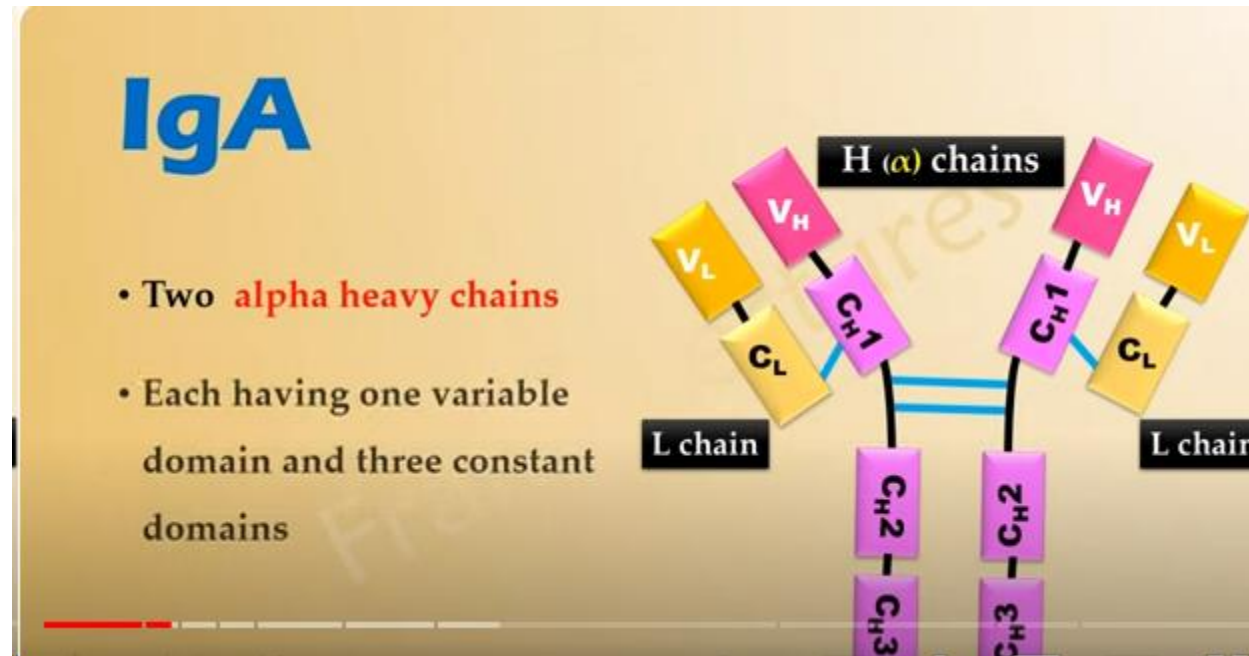
IgA

We will discuss...

- Structure, properties and function
- Difference between secreted IgA and secretory IgA

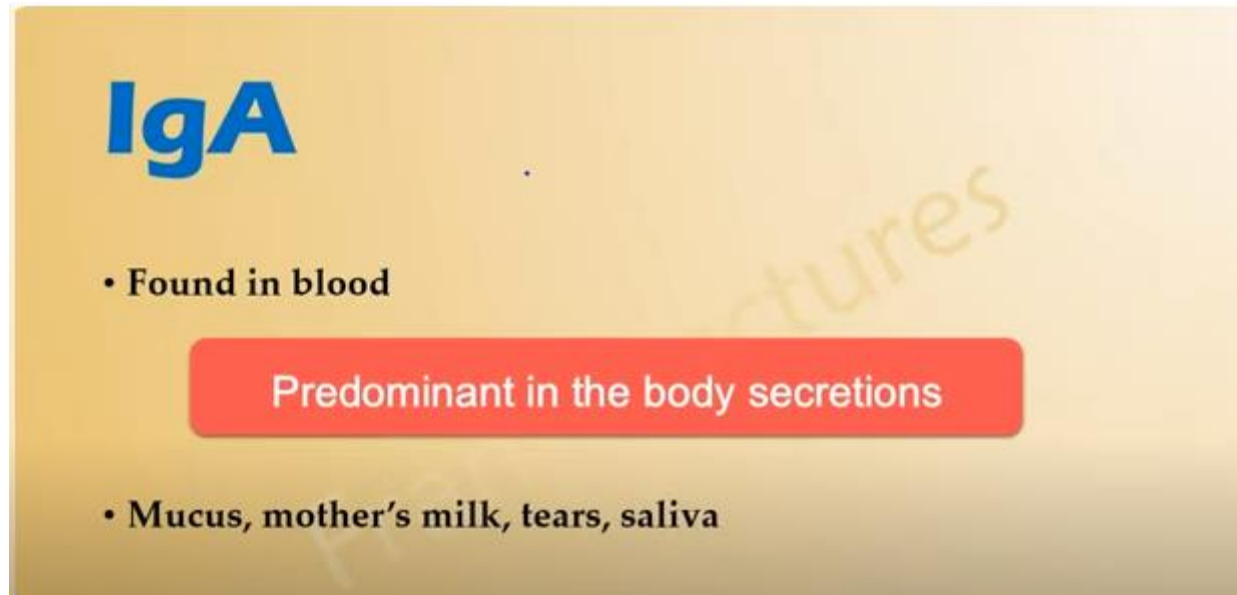
IgA

- IgA



IgA

- IgA



The infographic has a light beige background with a faint, diagonal watermark that reads 'pictures'. At the top left, the text 'IgA' is written in a large, bold, blue font. Below this, there is a bulleted list item: '• Found in blood'. In the center, there is a red rounded rectangular box containing the text 'Predominant in the body secretions' in white. At the bottom, there is another bulleted list item: '• Mucus, mother's milk, tears, saliva'.

IgA

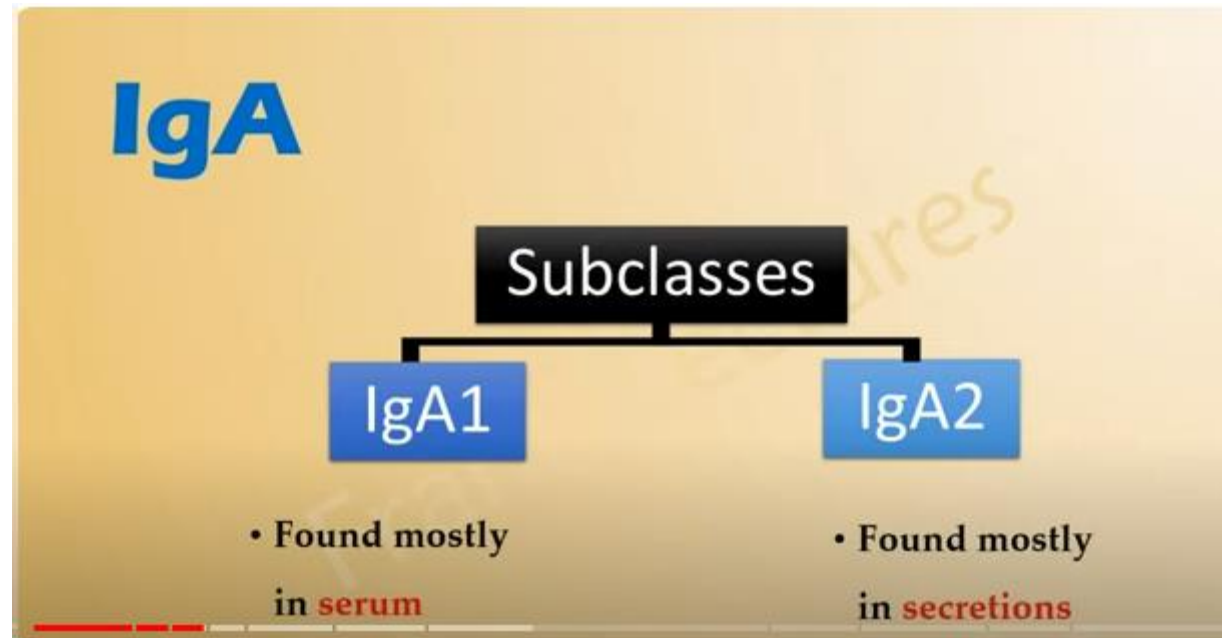
- Found in blood

Predominant in the body secretions

- Mucus, mother's milk, tears, saliva

IgA

- IgA



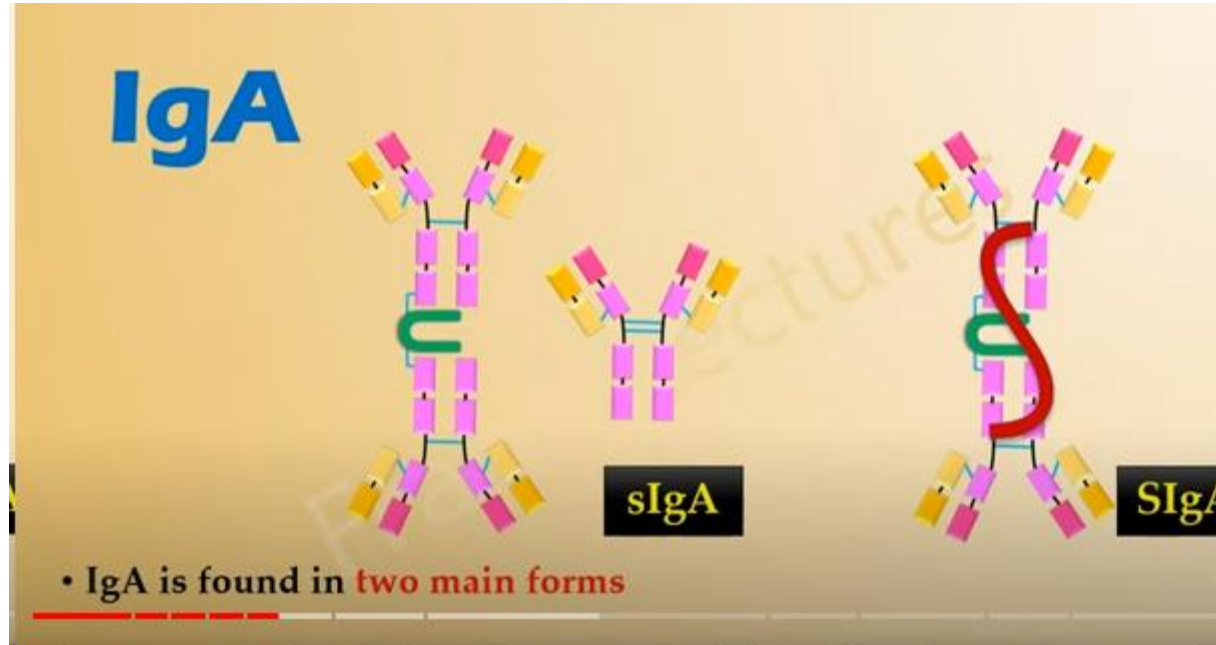
IgA

- IgA



IgA

- IgA



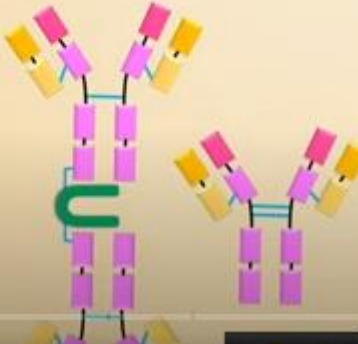
IgA

- IgA

IgA

Secreted IgA (sIgA)

- Serum IgA, circulates in blood
- Monomer, dimer or rarely trimer



The diagram illustrates a dimeric IgA molecule, which is a common form of secreted IgA (sIgA). It consists of two Y-shaped antibody units linked together by a green J chain. Each Y-shape has two antigen-binding sites, represented by pink and yellow shapes. The molecule is shown in a simplified, schematic manner.

IgA

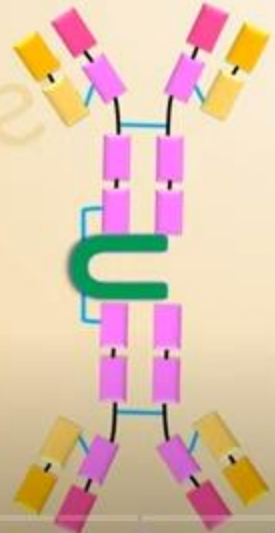
- IgA

IgA **Secreted IgA (sIgA)**

- IgA monomers are held together by a **J chain**
- J stands for “**joining**”
- J chain is **also synthesized by plasma cells**

Disulphide bond

J chain



The diagram illustrates the structure of Secreted IgA (sIgA). It consists of two monomers, each represented by a Y-shaped structure with pink and yellow segments. These monomers are held together by a central green U-shaped J chain. Blue lines represent disulphide bonds that connect the monomers to the J chain and to each other. A detailed inset at the bottom left shows a close-up of the J chain (green) and a monomer (pink and yellow) connected by a disulphide bond (blue line). A red dashed line is visible at the bottom of the slide.

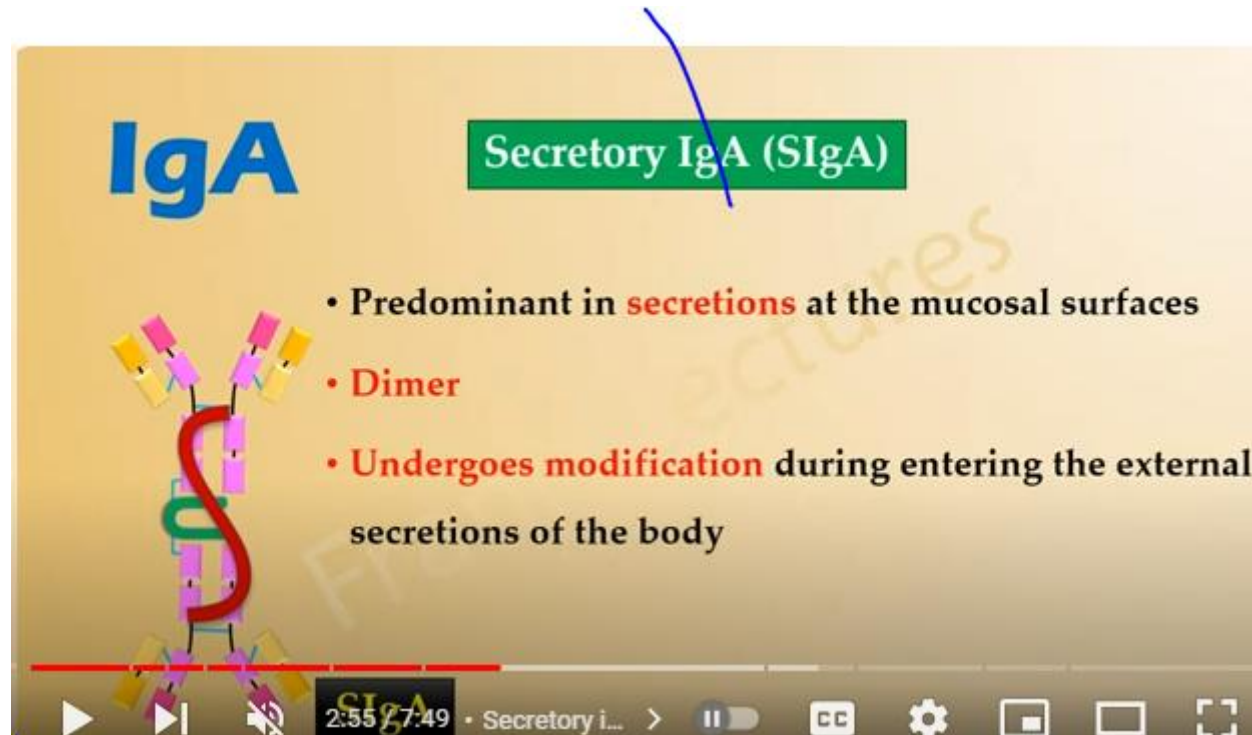
IgA

- Secreted IgA



IgA

- Secretory IgA



IgA

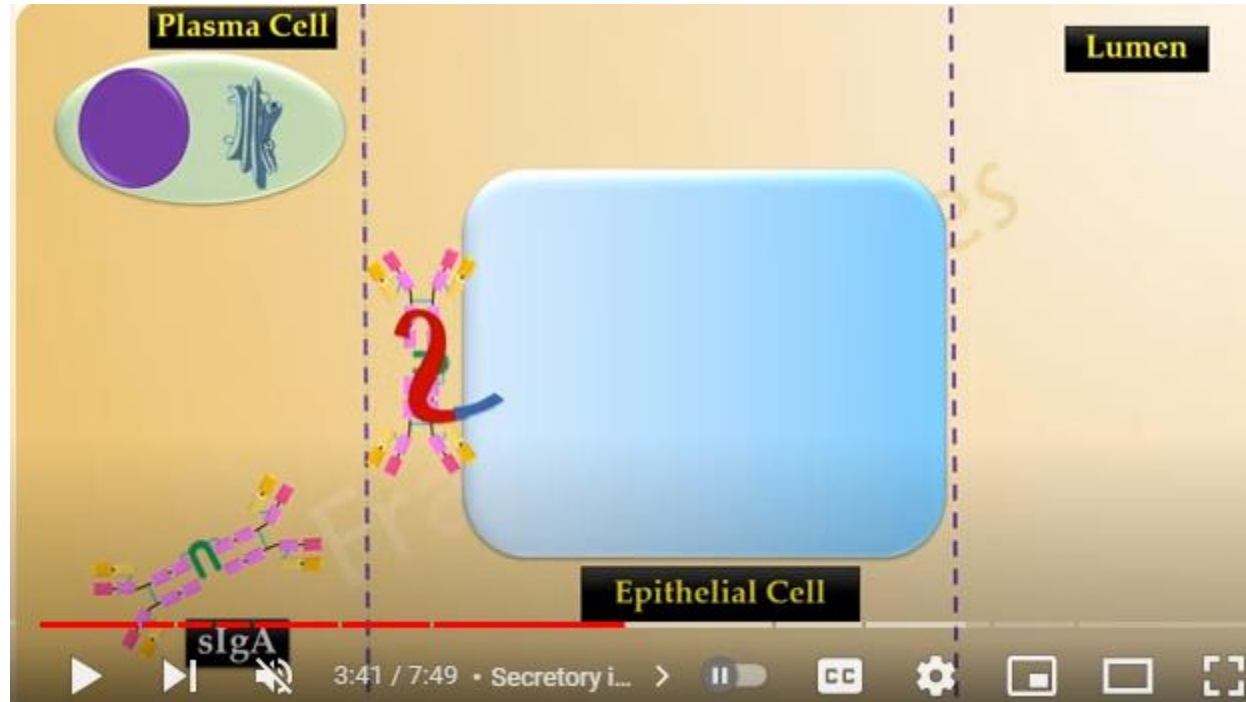
Secretory IgA (SIgA)

- Predominant in **secretions** at the mucosal surfaces
- **Dimer**
- **Undergoes modification** during entering the external secretions of the body

2:55 / 7:49 • Secretory i...

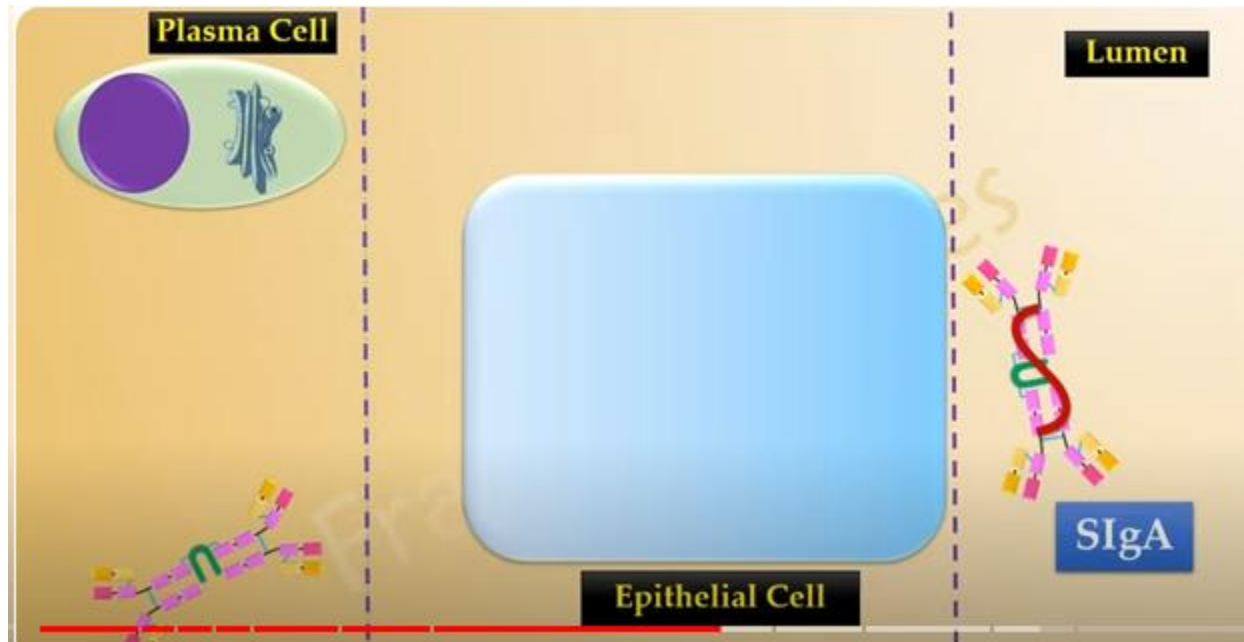
IgA

- Secretory IgA



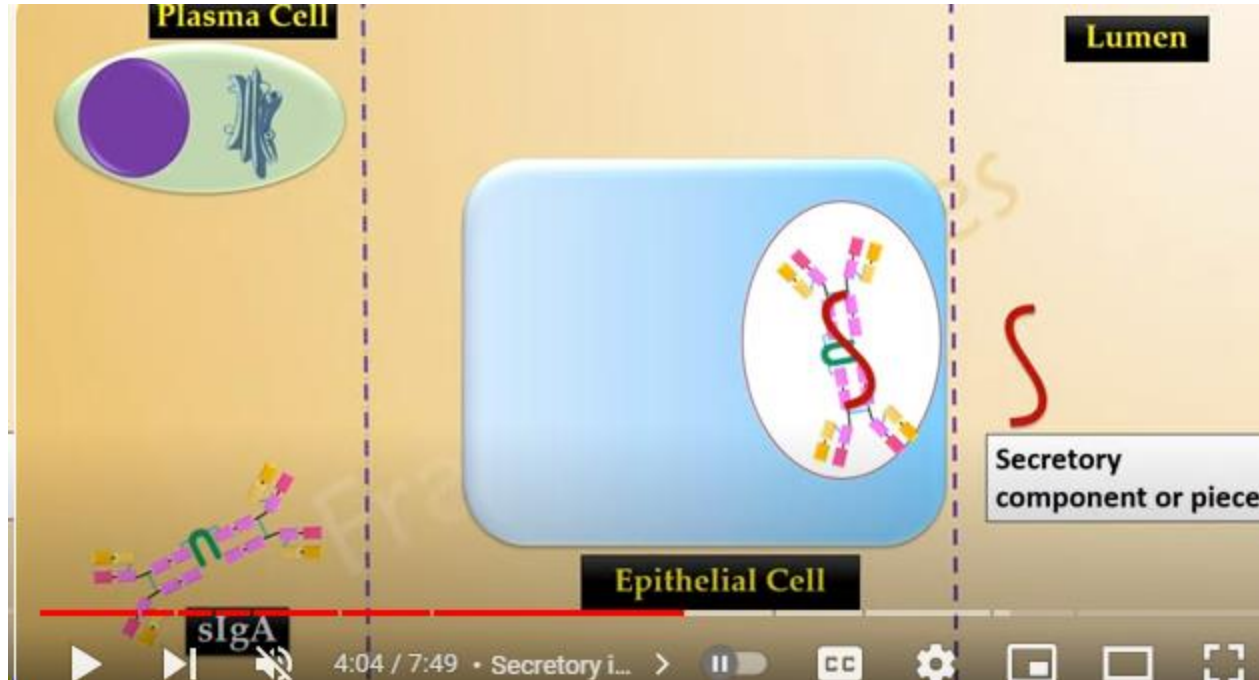
IgA

- Secretory IgA



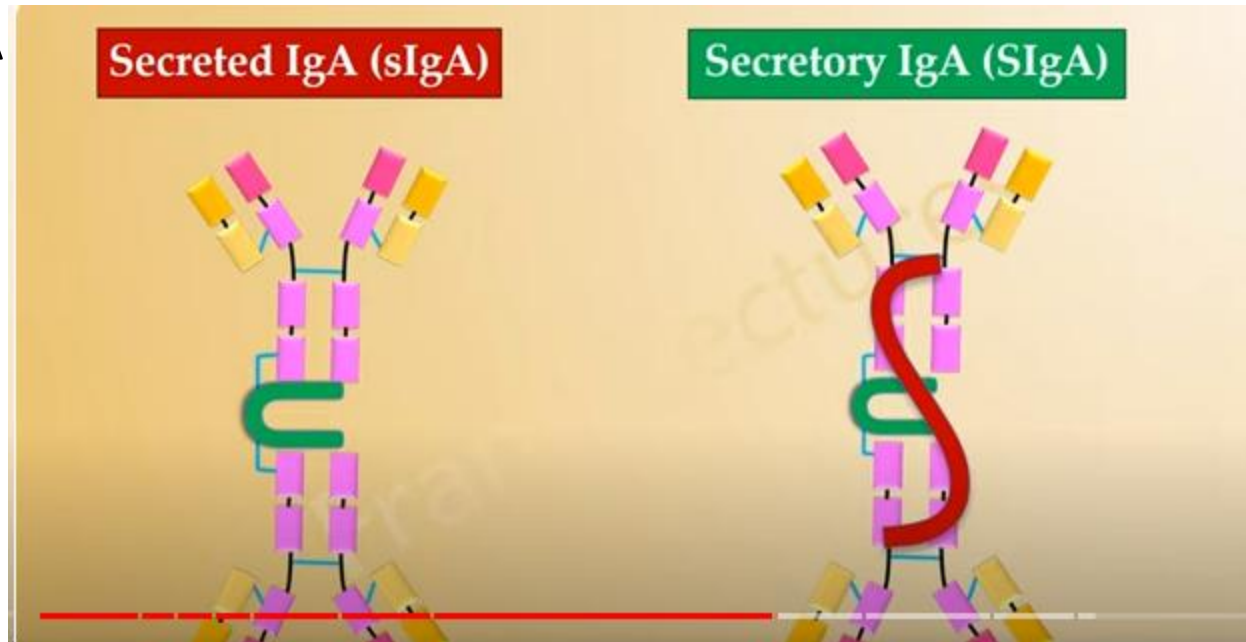
IgA

- Secretory IgA



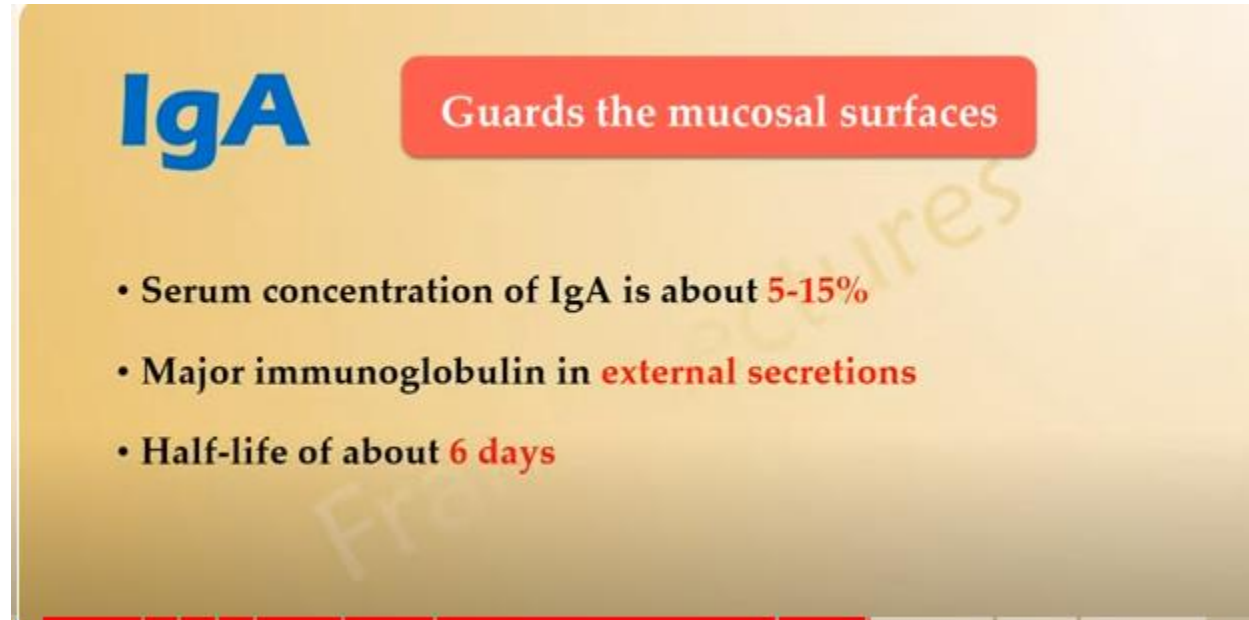
IgA

- sIgA and SIgA



IgA

- IgA

An infographic with a light beige background. At the top left, the text 'IgA' is written in a large, bold, blue font. To its right, a red rounded rectangle contains the text 'Guards the mucosal surfaces' in white. Below these, a list of three bullet points is displayed. A faint, diagonal watermark reading 'Free lectures' is visible across the middle of the infographic.

IgA Guards the mucosal surfaces

- Serum concentration of IgA is about **5-15%**
- Major immunoglobulin in **external secretions**
- Half-life of about **6 days**

IgA

- IgA

IgA

- IgG is the most abundant antibody in the human serum

IgA is the most abundant antibody in the human body

- In terms of **quantity**

The quantity of IgA produced per day in an adult human is more than all other antibodies combined

IgA

- IgA

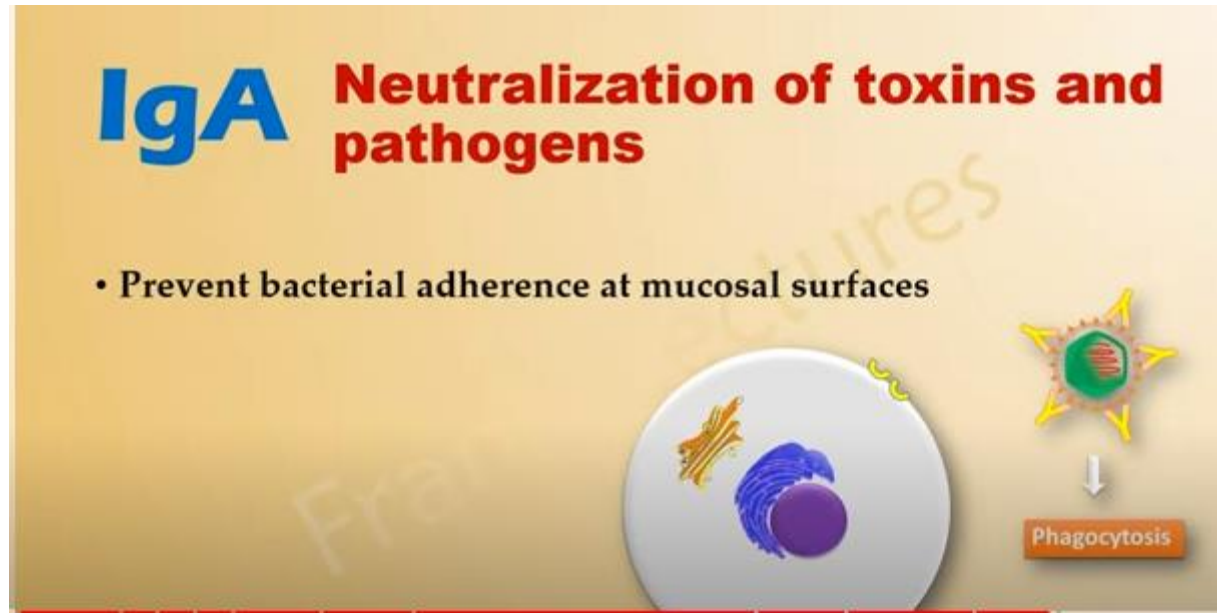
IgA **Present in mother's milk**

- Provides **passive immunity** to the infant
- Protects from gastrointestinal infections during first few weeks after birth

A pink silhouette of a mother holding a baby, positioned on the right side of the slide. The background is a light beige gradient with faint, diagonal text that reads 'Free lectures'.

IgA

- IgA



IgA

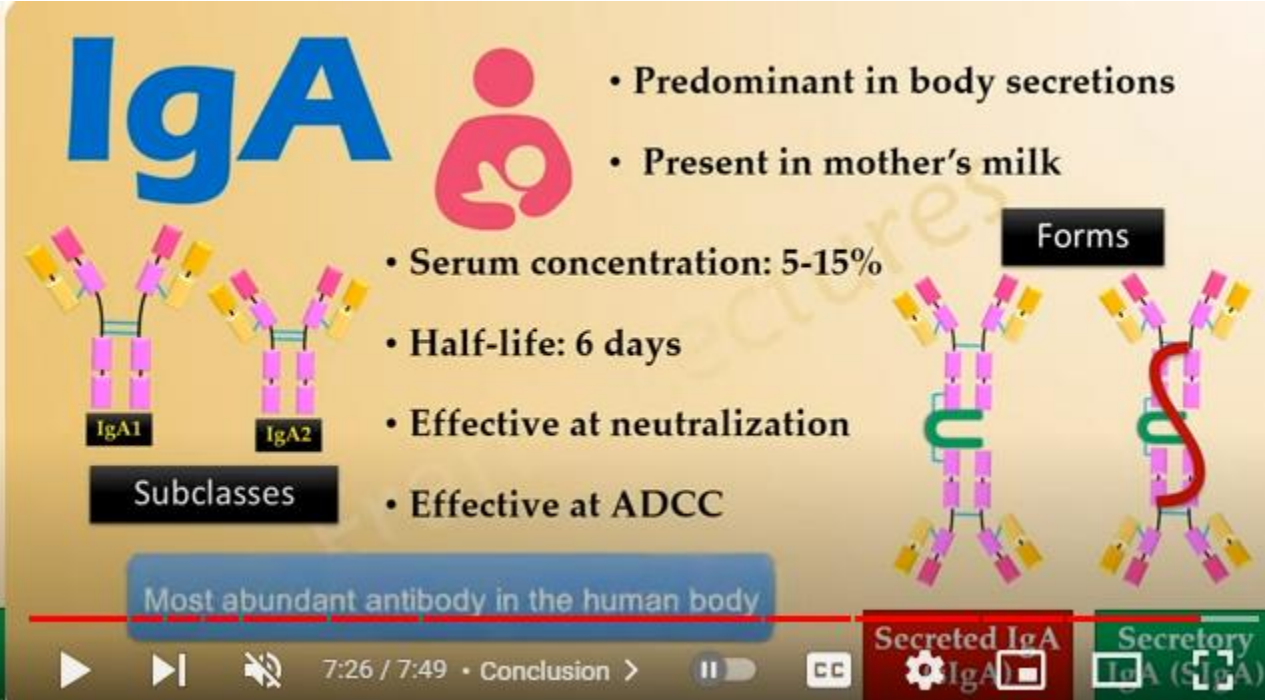
- IgA

IgA

- Triggers **degranulation** of granulocytes
- **ADCC:** Specific Fc receptors are present on the killer cells
- **Poor** complement fixers and opsonins

IgA

- IgA summary



IgA

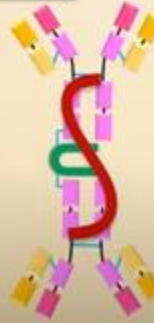


- Predominant in body secretions
- Present in mother's milk

Subclasses

Forms

- Serum concentration: 5-15%
- Half-life: 6 days
- Effective at neutralization
- Effective at ADCC

Most abundant antibody in the human body

Secreted IgA (IgA)

Secretory IgA (SIgA)

7:26 / 7:49 • Conclusion >