

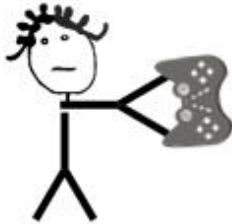
CONCEPT: CLASSES OF ANTIBODIES

- There are ____ classes of immunoglobulins based on differences in their heavy chains:

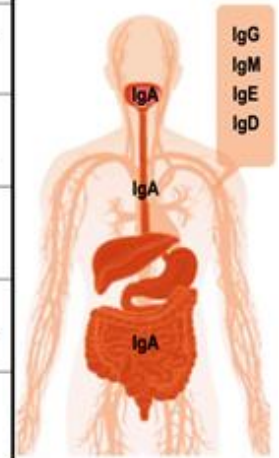
1) Ig____ 2) Ig____ 3) Ig____ 4) Ig____ 5) Ig____

EXAMPLE: Classes of Antibodies.

GAMED



Ig Class	Structure	Heavy Chain	Light Chain	Molecular Mass (kDa)	Primary Feature
IgG		γ	κ or λ	150	Protects against ____ types of infections.
IgA		α	κ or λ	180-720	Highly concentrated in ____ membranes.
IgM		μ	κ or λ	950	____ antibody produced upon infection.
IgE		ϵ	κ or λ	190	Defends against ____.
IgD		δ	κ or λ	160	____ B-cells.

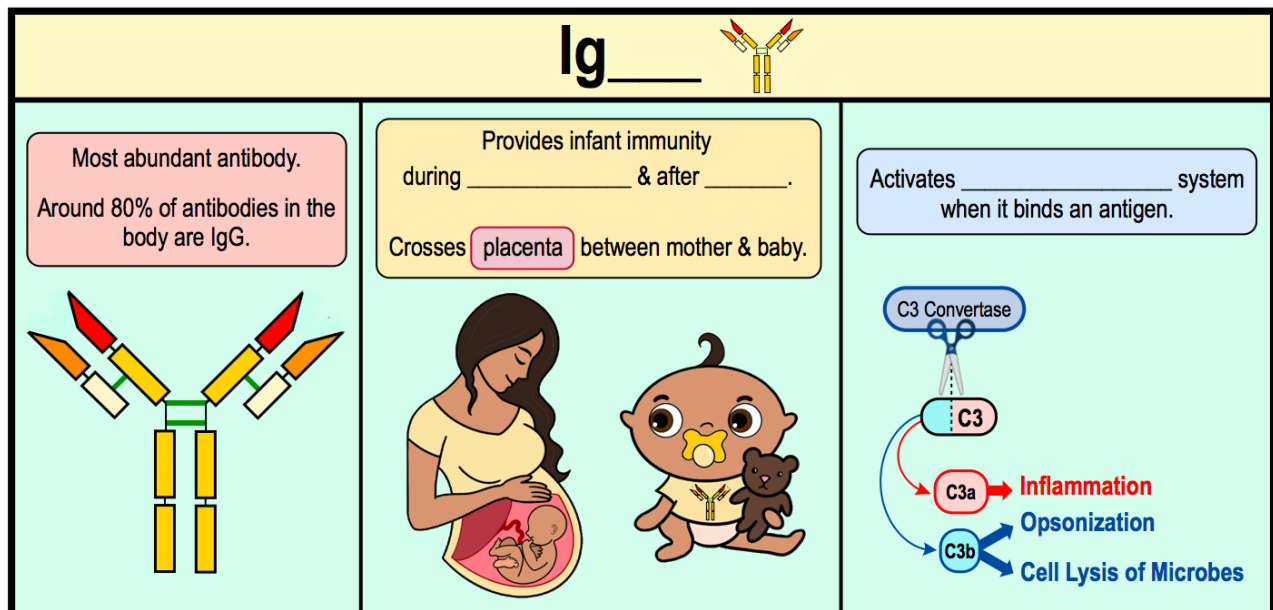


PRACTICE: Which of the following is NOT an immunoglobulin class?

- a) IgM. b) IgH. c) IgG. d) IgE. e) IgD.

IgG

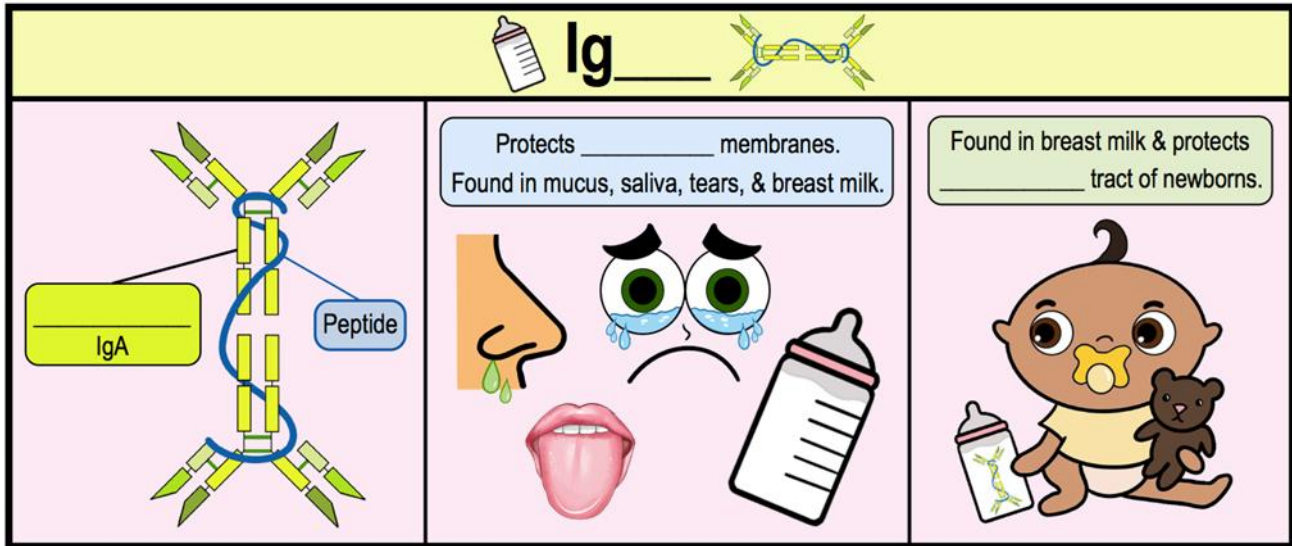
- IgG:** the _____ abundant antibody class in the blood/tissues making up ~80% of all immunoglobulins
 - Binds to antigens & eliminates pathogens by activating the complement system classical pathway.
 - Provides immunity to a developing _____ during pregnancy & after the child has been born.
 - Long half-life extends time of protection through first few months after birth.



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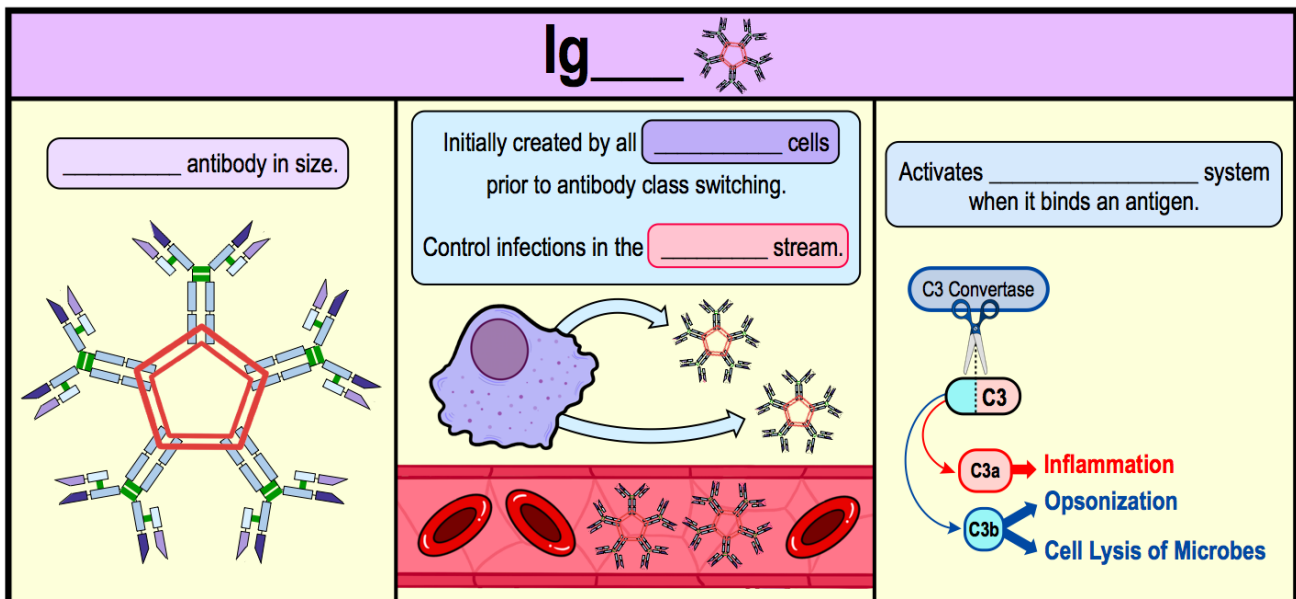
IgA

- **IgA:** Protects _____ membranes & can be found in body secretions (saliva, tears, breast milk).
 - Commonly found as a dimer called *secretory IgA* (____) where monomers are held together by a peptide.
 - sIgA in breast milk protects intestinal tract of breast-fed newborns.



IgM

- **IgM:** Control infections in blood & is _____ antibody *initially* produced by plasma cells *before* “class switching”.
 - Largest class (in size) that is a *pentamer* composed of _____ Y-shaped subunits (10 antigen binding sites).
 - Large size *prevents* it from _____ the blood into tissues.
 - Most *efficient* antibody to activate the complement system via classical pathway.



CONCEPT: CLASSES OF ANTIBODIES

PRACTICE: Which antibody class crosses the placenta from mother to child?

- a) IgA.
- b) IgE.
- c) IgM.
- d) IgG.

PRACTICE: _____ is the immunoglobulin class that neutralizes viruses in the intestinal tract.

- a) IgG.
- b) IgA.
- c) IgD.
- d) IgE.

PRACTICE: Which of the following antibodies is involved in causing basophils to release histamine when the antibody encounters an allergen?

- a) IgG.
- b) IgA.
- c) IgD.
- d) IgE.

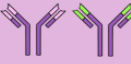
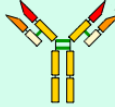
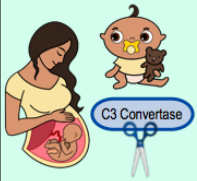
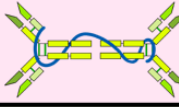
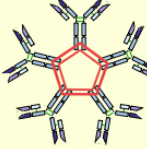
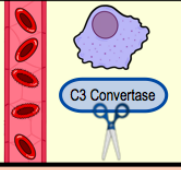
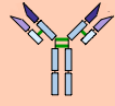
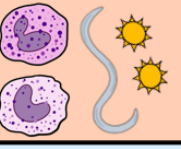
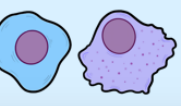
PRACTICE: The primary B-cell receptor is:

- a) IgD.
- b) IgA.
- c) IgE.
- d) IgG.

CONCEPT: CLASSES OF ANTIBODIES

Review Table of Immunoglobulin Classes

- Now let's review the different classes of immunoglobins (antibodies).

 Review of Antibodies 				
IgG		Half Life	- Most abundant antibody. Around 80% of all antibodies are IgG. - Crosses placenta between mother & baby. - Provides _____ immunity during pregnancy & after birth. - Activates complement system.	
		LONG		
IgA		MEDIUM	- Protects _____ membranes. - Found in breast milk protecting infant intestinal systems.	
IgM		MEDIUM	- Initially created by all plasma cells prior to antibody class switching. - Controls infections in the _____ stream. - Activates complement system.	
IgE		SHORT	- Found on _____ & mast cells. - Triggers the release of inflammatory mediators & allergic reactions. - Protects against parasitic infections.	
IgD		SHORT	- Found on _____ cells. - Triggers B cell activation & differentiation into _____ cells.	

PRACTICE: Each class of antibody is specifically defined by its

- Amino acid sequence of the variable region of the light chain.
- Amino acid sequence of the constant region of the heavy chain.
- Ability to cross the placenta.
- Disulfide bonds.

PRACTICE: Match the following antibody classes with their description:

- a) IgA. b) IgG. c) IgE. d) IgM. e) IgD.

_____ First antibody produced during primary response.

_____ Protects mucous membranes.

_____ Most abundant antibody.

_____ Found on the surface of B cells.

_____ Triggers allergic reactions to allergens.