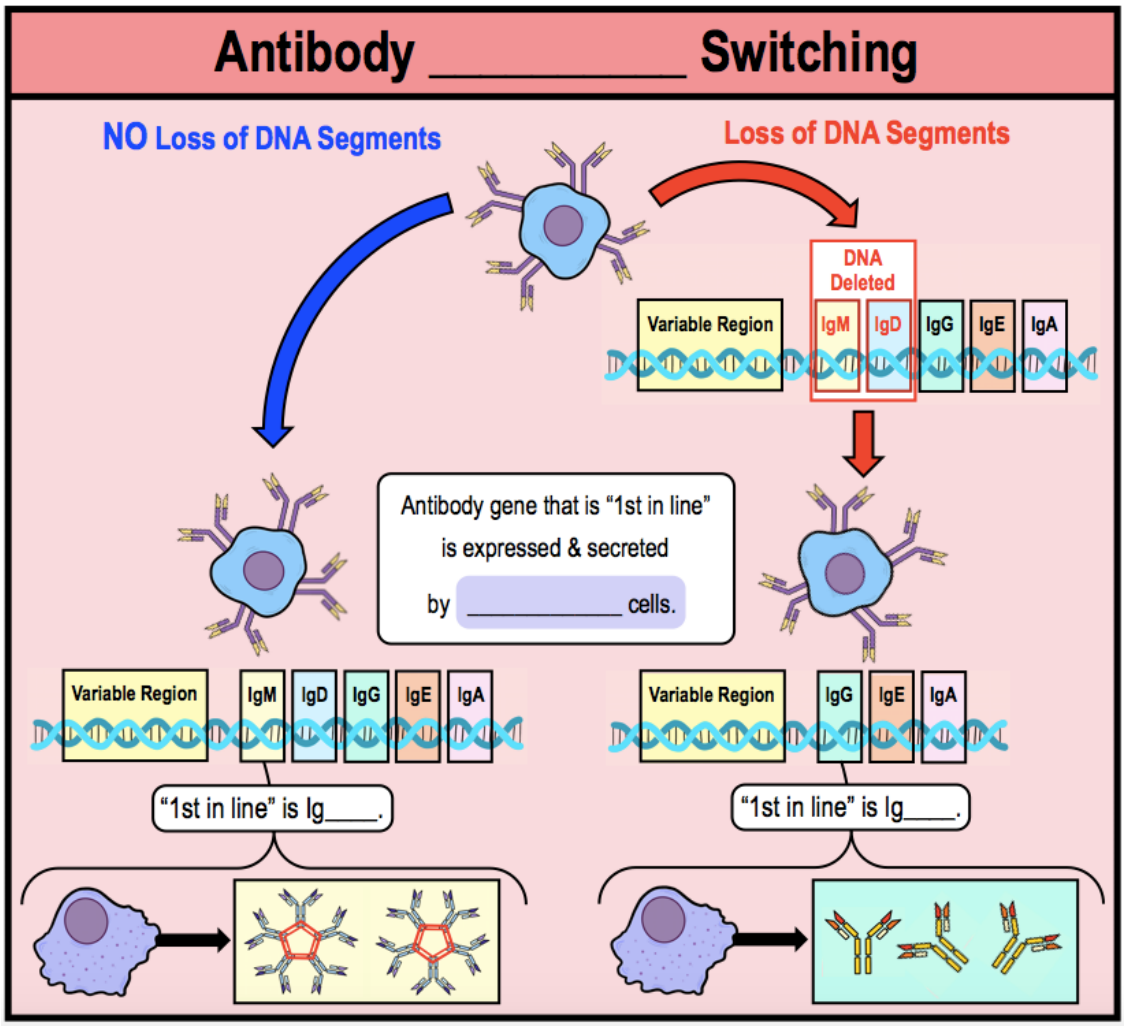
CONCEPT: ANTIBODY CLASS SWITCHING

- *Recall:* When plasma cells are first formed from B cells, they *initially* begin producing/secreting the antibody Ig_____.
- However, as B cells multiply, some undergo a process known as *antibody* _____ *switching.*
  - □ **Antibody Class Switching:** changes in DNA allowing a plasma cell to change its antibody class (ex. IgM→IgG).
  - □ Occurs via genetic *rearrangement* of DNA encoding the antibody's _____ region.
  - □ New antibody class still maintains specificity for _____ epitope of *same* antigen (variable region *unchanged*).
  - □ Deleted gene segments are _____ expressed, & gene segment for constant region **"1st in line"** is expressed.



PRACTICE: Class switching occurs when which of the following scenarios occur?

a) The deletion of specific heavy chain genes in the B cell DNA.

b) Genetic variation of the variable region in an antibody gene within a B cell.

c) Large deletions of genes encoding the variable region of antibodies in B cells.

d) Gene rearrangements in a T cytotoxic cell causing the cell to become a T helper cell.

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PRACTICE: Which lymphocyte is responsible for inducing class switching in B cells?

a) Regulatory T cells.
b) Cytotoxic T cells.
c) Helper T cells.
d) Memory T cells.

PRACTICE: Why is class switching of antibodies during an infection important for effectively fighting the infection?

a) Class switching allows the immune system to choose the most effective antibody class for fighting the infection.
b) Different antibody classes have different strengths and functions.
c) Certain antibody classes will not bind or recognize specific antigens/pathogens.
d) A and B.
e) B and C.
f) A and C.
g) All of the above.

PRACTICE: Antibody class switching rearranges the genes within a B cell which controls the type of antibody secreted by the plasma B cell. During this gene rearrangement, the _____ region of the antibody is affected and the _____ region of the antibody is unaffected. This means that antibody class switching is antigen specificity _____.

a) Constant region; Variable region; Independent.
b) Variable region; Constant region; Independent.
c) Constant region; Variable region; Dependent.
d) Variable region; Constant region; Dependent.