

AP Bio FRQ Fridays

2015 #8
Loss of B Cells in Immune System

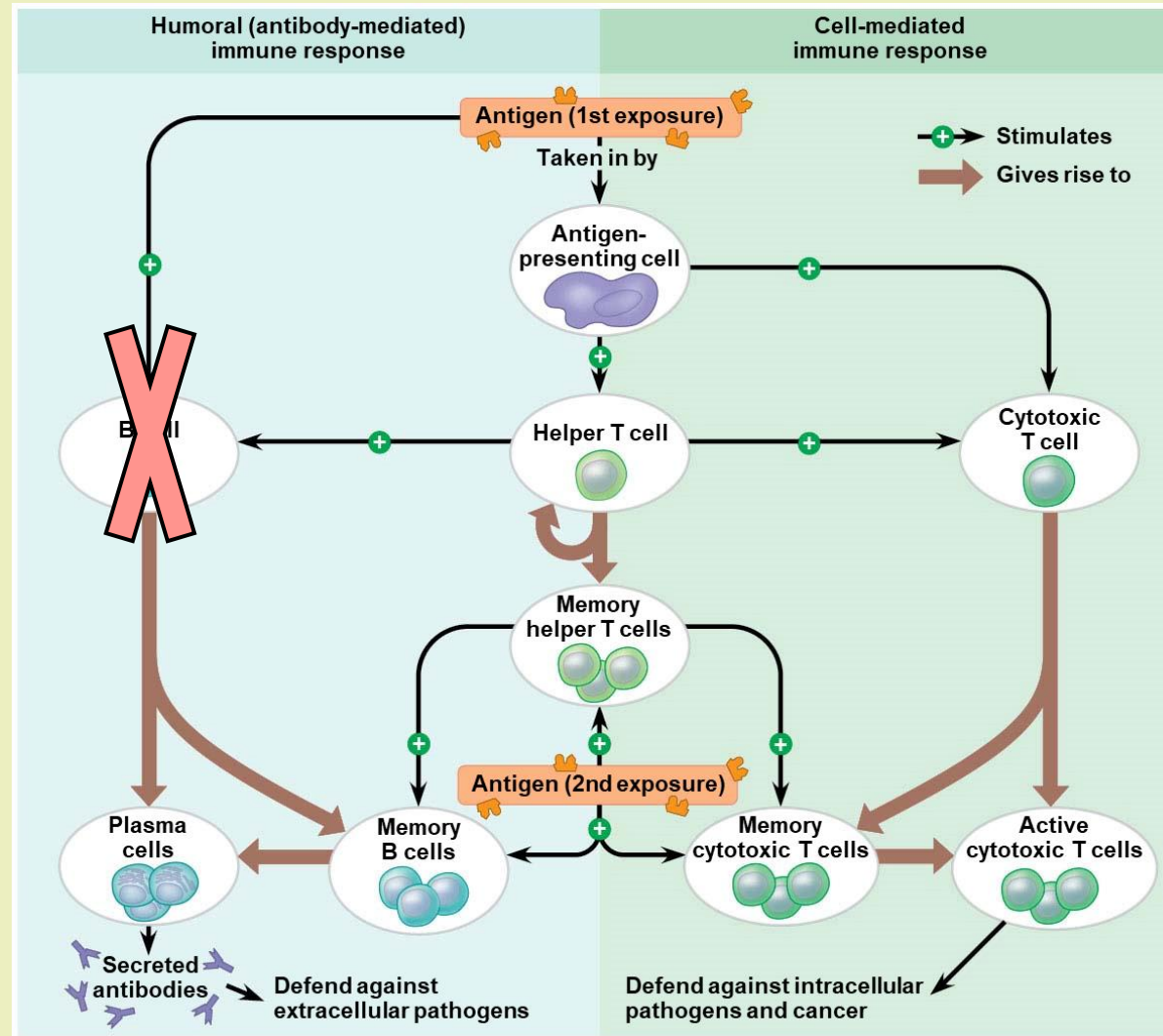


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An individual has lost the ability to activate B cells and mount a humoral immune response.

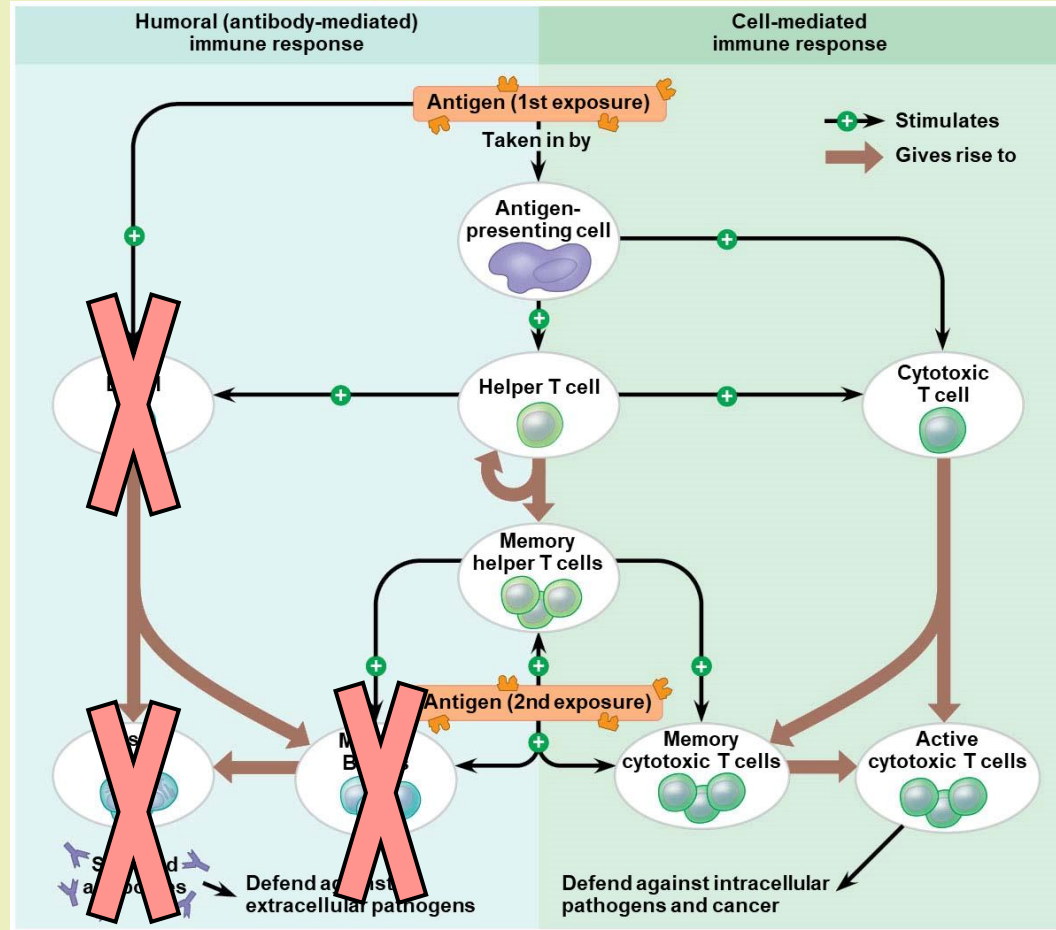
Immune system is out of scope of the CED, but can be used for as an illustrative example with information provided



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(a) Propose ONE direct consequence of the loss of B-cell activity on the individual's humoral immune response to the initial exposure to a bacterial pathogen.



Proposal (1 point)

- Does not produce antibodies
- Does not produce memory B cells

a) The individual will not be able to secrete antibodies to fight off the bacterial pathogen.



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(b) Propose ONE direct consequence of the loss of B-cell activity on the speed of the individual's humoral immune response to a second exposure to the bacterial pathogen.

Proposal (1 point)

- Does not mount a faster response than the first response
- Mounts a second response at the same speed as the first response
- Mounts a second response more slowly than would a normal individual

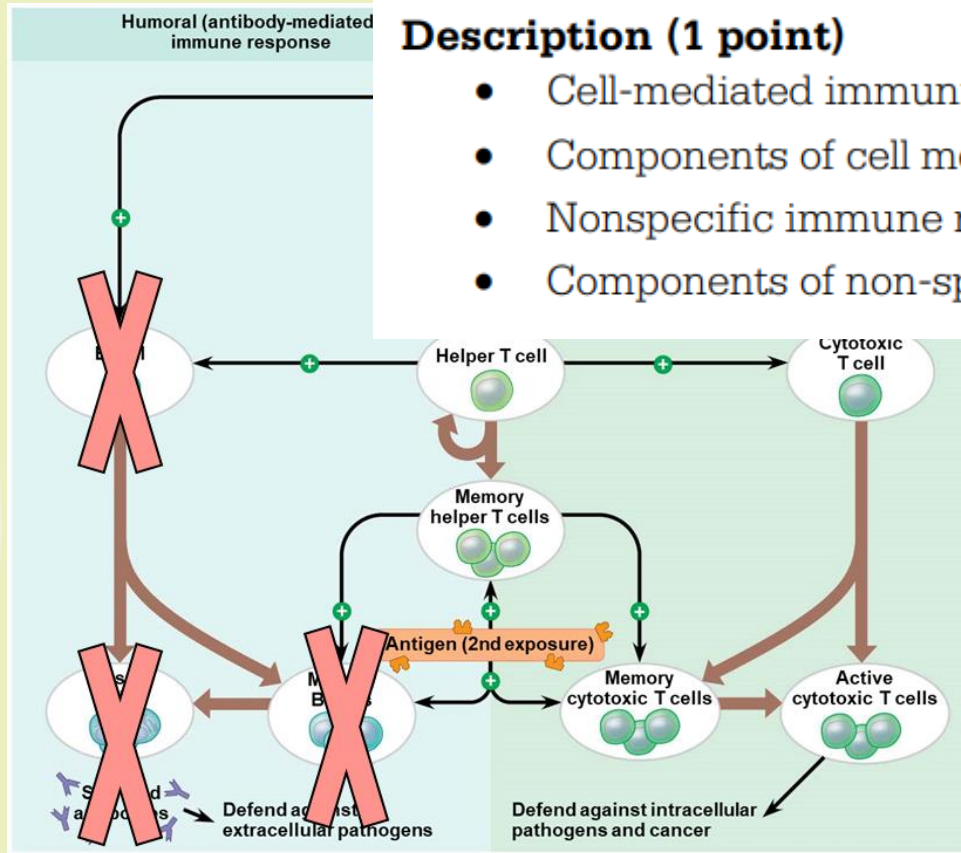
b) The individual will react very slowly as there are no memory B cells that recognize the bacterial pathogen, so the second response will be at the same rate as the primary response.



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(c) Describe ONE characteristic of the individual's immune response to the bacterial pathogen that is not affected by the loss of B cells.



c) The individual will still have helper-T cells, cytotoxic T-cells, and memory T cells that will defend against the pathogen.

