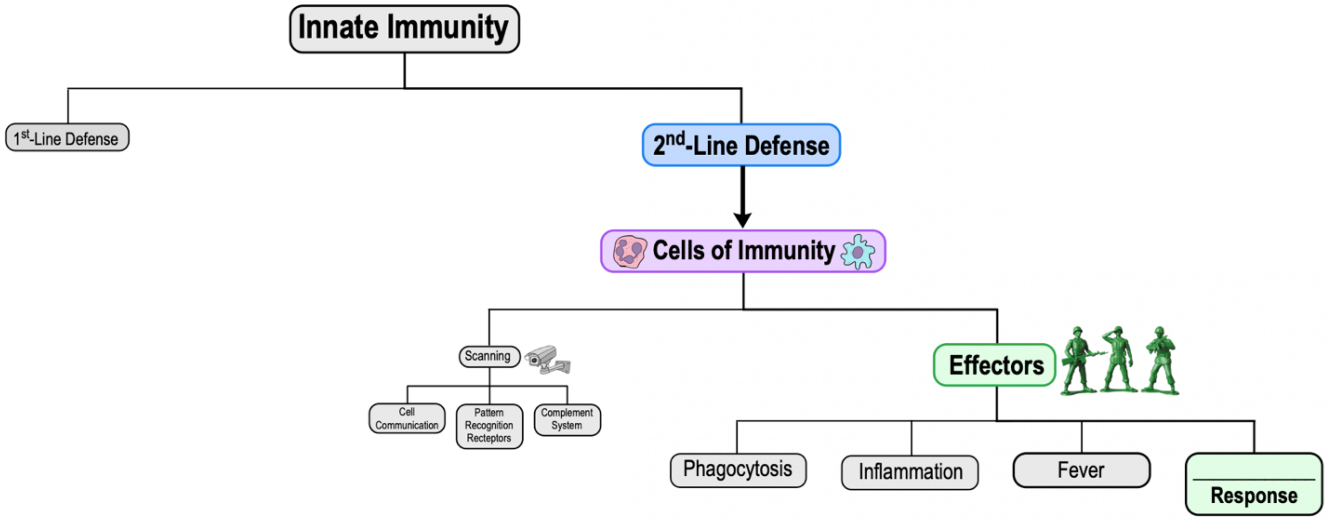
CONCEPT: INTERFERON RESPONSE

●*Recall:* **Interferons (IFNs):** *cytokines* providing _____-*viral* effects (defense against viruses) to *neighboring* cells.

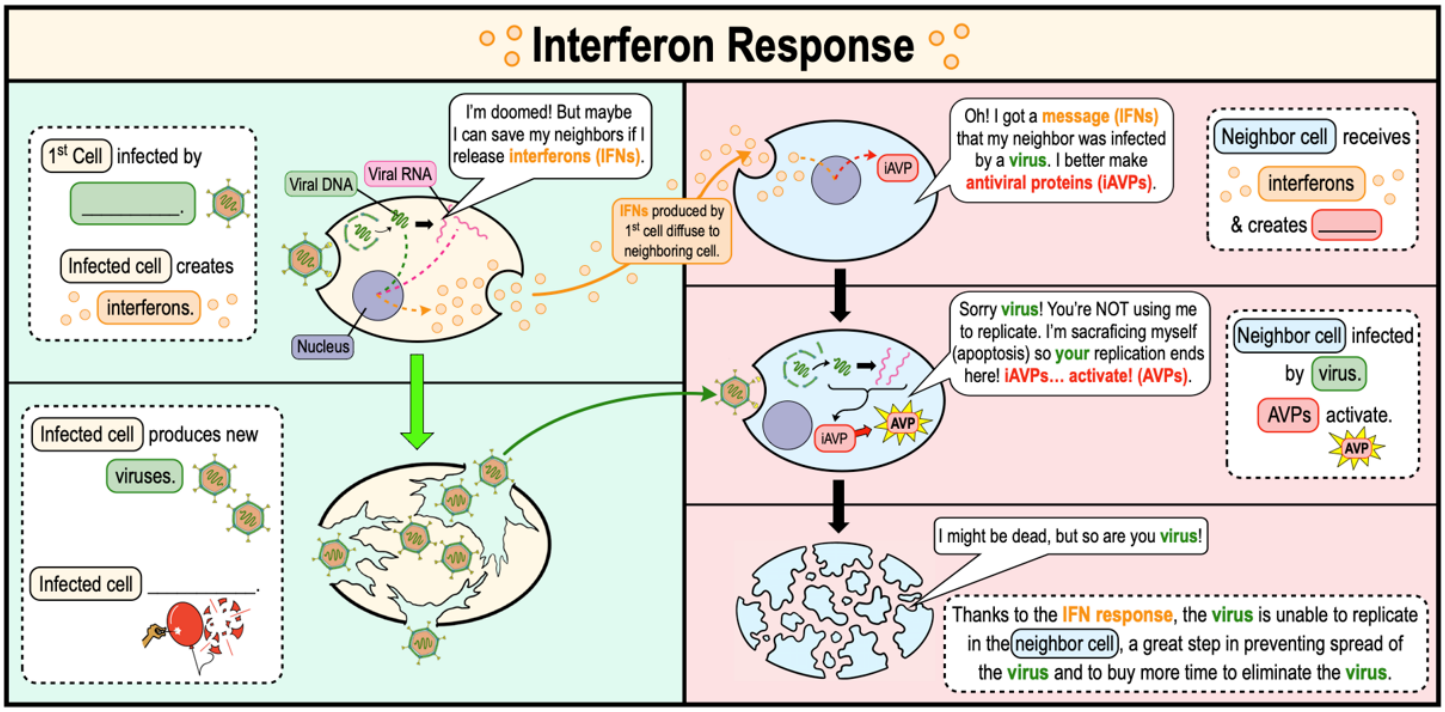


Steps of the Interferon Response

●When PRRs of an infected cell detect viral RNA, it can *produce* & *secrete* IFNs that _____ to & "warn" other cells.

- □ IFN binds to neighboring cells (not yet infected) leading to production of *inactive antiviral proteins* (___AVPs).
- □ If neighboring cell is infected by virus; detection of *viral dsRNA* activates its iAVPS, forming _____s.
- □ AVPs stop translation of the cell by degrading the cell's mRNA, which triggers _____.
- □ Apoptosis kills the cell but _____ the virus from using the cell as a host to replicate.

●In summary, IFNs function to prevent/limit viral replication by warning neighboring cells to build antiviral proteins.



CONCEPT: INTERFERON RESPONSE

PRACTICE: How does the interferon response provide anti-viral protection?

a) Interferons bind to the virus neutralizing it.
b) Interferons stimulate neighboring cells to produce anti-viral proteins.
c) Interferons prevent the virus from entering the cell.
d) Interferons prevent the virus from leaving the infected cell and infecting neighboring cells.

PRACTICE: If a cell produces antiviral proteins (AVPs) what occurs when that cell encounters dsRNA?

a) The antiviral proteins trigger the production of iAVPs.
b) The antiviral proteins cease protein translation in the cell so no viral proteins can be made.
c) The antiviral proteins become activated and the cell undergoes apoptosis to stop the viral spread.
d) The antiviral proteins trigger the production of interferon proteins to warn neighboring cells of viral infection.

PRACTICE: How does the interferon response to an invading virus result in the infected cell undergoing apoptosis?

a) Detection of viral RNA triggers the degradation of host RNA and stops translation which results in cell death.
b) Detection of viral proteins inactivates the AVPs which triggers cells death.
c) Detect of viral RNA ceases all functions of the cell and results in cell lysis and release of newly made viruses.
d) Detection of viral proteins causes pores to form in the surface of the cell resulting in apoptosis.

PRACTICE: Which of the following cells can induce viral-infected cells to undergo apoptosis?

a) Neutrophils.
b) NK cells.
c) Eosinophils.
d) B cells.
e) Basophils.
f) Red blood cells.

PRACTICE: Which of the following statements about interferon is incorrect?

a) It only works on a few specific types of virus.
b) It makes cells resistant to viral infection.
c) It is a species-specific molecule.
d) It does not directly inactivate viruses.