CONCEPT: CELL COMMUNICATION: SURFACE RECEPTORS & ADHESION MOLECULES

●Cell surfaces contain many types of _____ *proteins* & *adhesive molecules* for communication during infection.

□ These allow cells of the immune system to signal an infection & migrate to that location in the body.

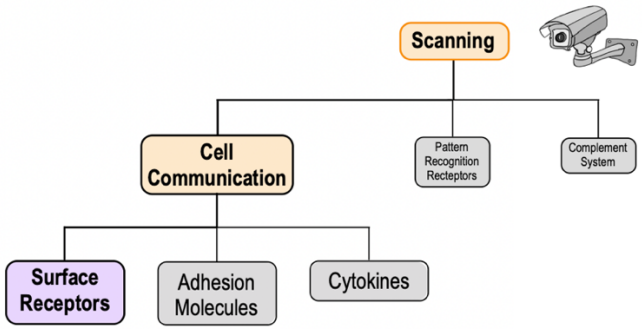
Cell Surface Receptors

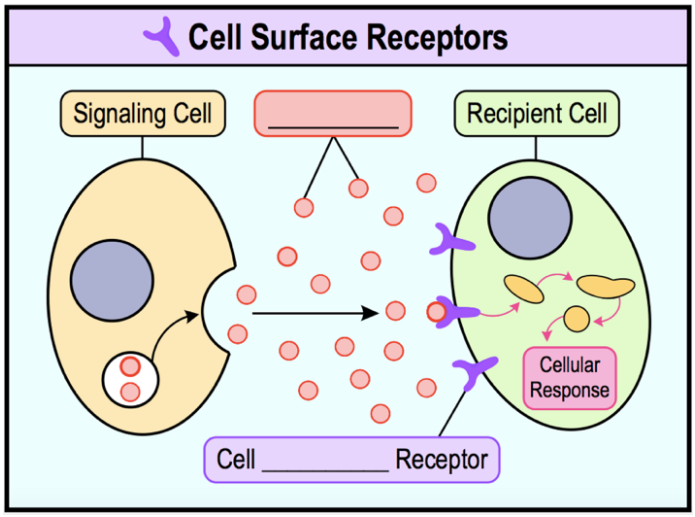
●**Surface Receptors:** proteins on the cell surface that allow a cell to *sense* & _____ to external signals.

□ Protein spans the *entire* _____ membrane, connecting the *outside* & *inside* of the cell.

□ Each receptor has a *specific* molecule it will bind to called a _____ that elicits a response inside the cell.

□ Cells alter the number/type of receptor allowing them to change the response rate/sensitivity to a certain ligand.





PRACTICE: Which of the following is likely to be a response by a receptor protein to an approaching signal molecule?

a) Recognize the receptor protein having the correct 3-D shape.
b) Receptor protein binds to signal if having complementary shape.
c) Once a signal binds to a receptor protein it induces a change in the receptor protein's shape.
d) Change in the receptor protein's shape results in a cellular response to the signal.
e) All of the above are correct.

PRACTICE: Which of the following statements about cell surface receptors is *incorrect*?

a) Cell surface receptors can span the entire plasma membrane connecting the exterior and interior cell environments.
b) Once differentiated, cells cannot change the number or type of cell surface receptors that they possess.
c) A cell has a wide range of surface receptors to allow it to respond to varying types of signals.
d) The immune system uses ligands and cell surface receptors to provide immune support for infected tissues.

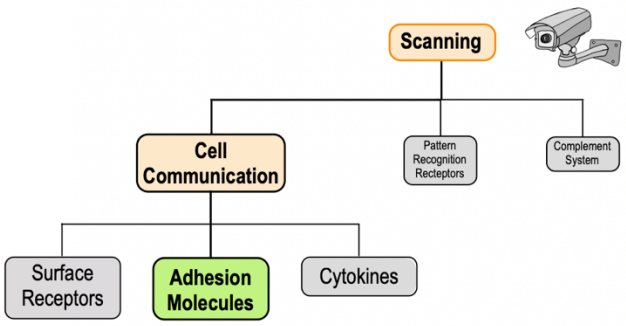
CONCEPT: CELL COMMUNICATION: SURFACE RECEPTORS & ADHESION MOLECULES

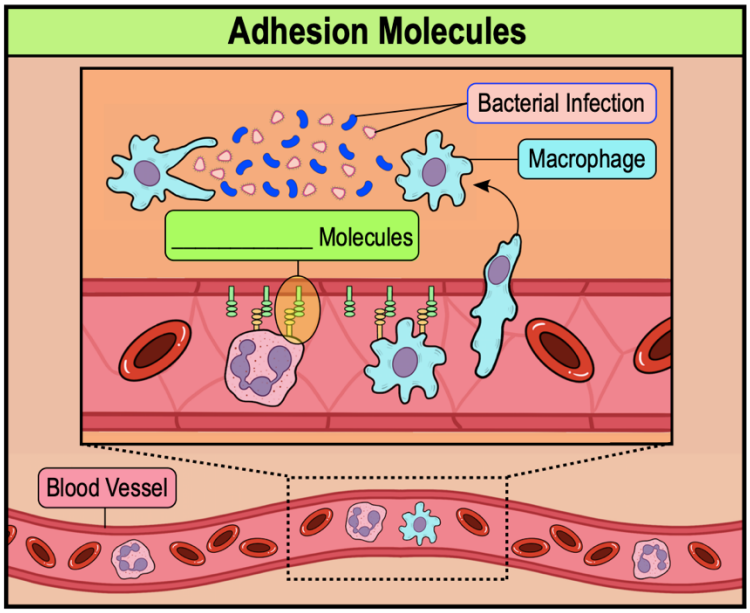
Adhesion Molecules

●**Adhesion Molecules:** cell surface proteins involved in _____ to *other cells*.

□ Immune system cells _____ to adhesion molecules of endothelial cells lining blood vessels to *enter* tissues.

□ Cells also use them to attach to other cells & _____ deliver signaling molecules.





PRACTICE: Why are adhesion molecules considered a form of cell communication in immune responses?

a) Adhesion molecules allow immune cells to attach to infected cells & signal immune responses.
b) Adhesion molecules allow immune cells to attach to endothelial cells & trigger immune cell entry into tissues.
c) Adhesion molecules act as channels that allow signals to travel between two neighboring cells.
d) Adhesion molecules are signals sent from immune cells to infected cells to trigger apoptosis.
e) A and B.
f) C and D.
g) All of the above.

PRACTICE: If the endothelial cells of the blood vessels in the body did not possess adhesion molecules, which of the following would occur?

a) The immune cells which respond to infection or injury would not be able to leave the blood stream.
b) The immune cells would not be able to detect where the infection is in the body.
c) The immune cells would not be able to phagocytose the infecting microbes and damaged tissue.
d) The blood vessels would adhere to the immune cells allowing them entry to infected regions of the body.