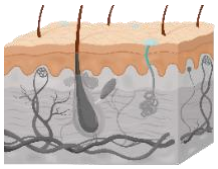
TOPIC: THE EPIDERMIS: CELLS

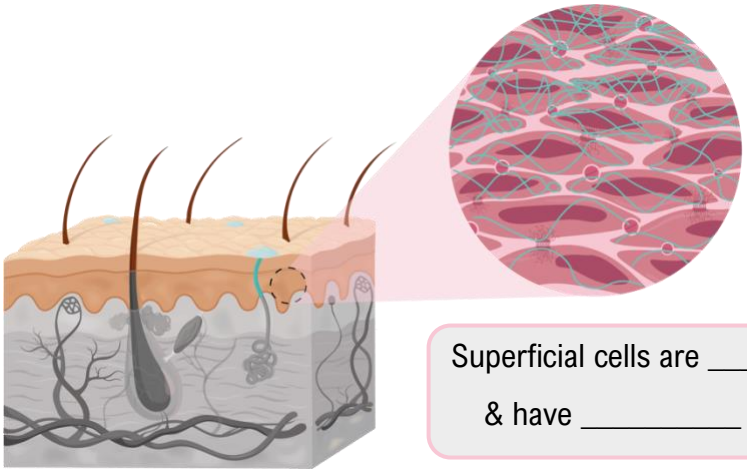


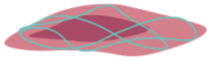
- Recall: Epidermis (outer layer of skin) is composed of *stratified squamous* epithelial tissue.
- There are _____ main types of cells in the epidermis:

1. Keratinocytes. 2. Melanocytes. 3. Dendritic Cells. 4. Tactile Epithelial Cells.

1) Keratinocytes

- **Keratinocytes**: most _____ cell type in epidermis; responsible for _____ production.
  - Connected by tight junctions (leak-proof barrier) & desmosomes (for mechanical resilience).
- **Keratin**: tough, fibrous, water-resistant *protein* that gives the epidermis _____ properties.
  - Provides mechanical & tensile _____ to epidermis (keratin is also main component of hair & nails).





1. _____

Keratin

Superficial cells are _____ & have _____ keratin.

EXAMPLE: Use the words in the word-bank to fill in the blanks and complete the sentences:

Word-Bank:	Desmosomes	Proteins	Tight Junctions	Water	Barrier

Keratin is one of the most abundant & important _____ in the human body. One of its primary roles is forming the skin _____. The _____ between keratinocytes in the epidermis protect the body from _____ loss, pathogens, and other harmful substances. _____ also connect keratinocytes to each other, providing mechanical strength to the skin.

PRACTICE: Would you expect to find more keratin in keratinocytes closer to the external surface of the skin (more superficial) or further from the external surface of the skin (deeper)?

a) Deeper, because it's more important that the skin is water-resistant in deeper areas.

b) More superficial because skin on the external surface needs to be tougher and more resistant.

c) Neither, all keratinocytes have approximately the same amount of keratin.

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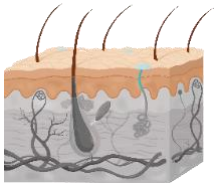
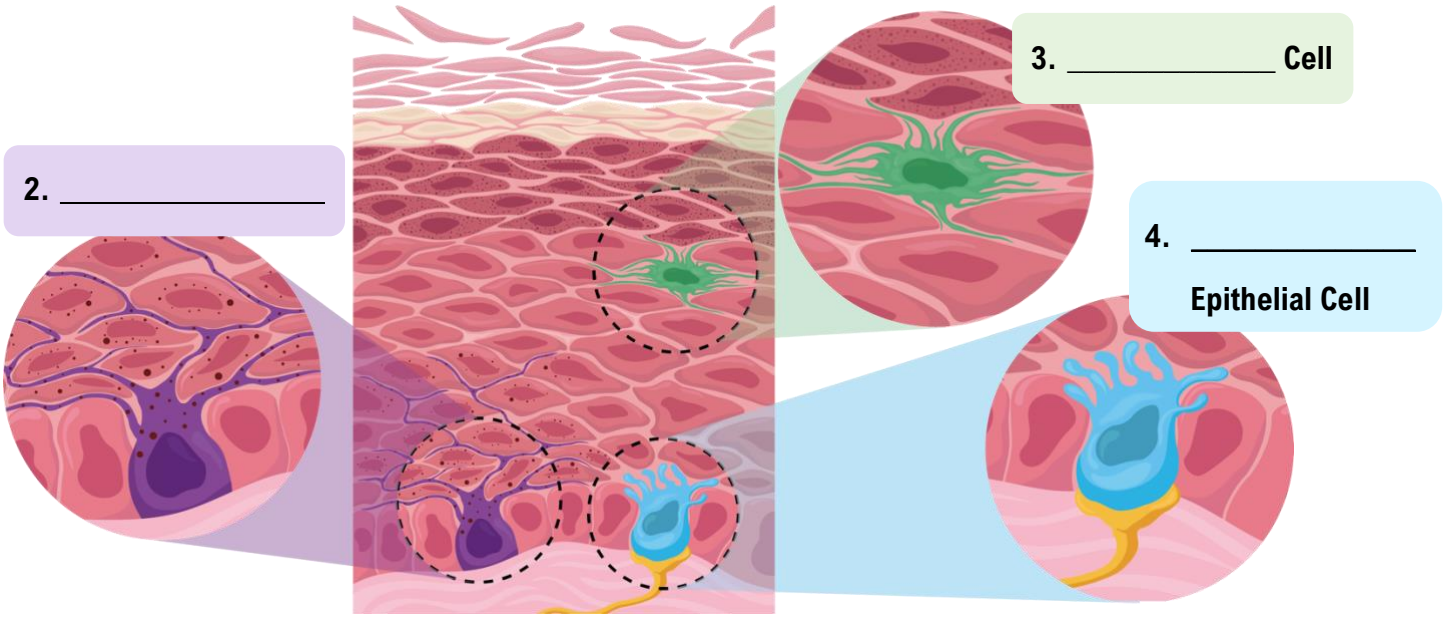


2-4) Other Epidermal Cells

- In addition to keratinocytes, there are _____ other types of cells in the epidermis:
  2. **Melanocytes:** produce _____, a pigment that protects skin from UV damage.
  3. **Dendritic Cells (Langerhans cells):** help initiate _____ responses.
  4. **Tactile Epithelial Cells (Merkel cells):** specialized epithelial cells work with nerves to detect _____.



EXAMPLE: Which cell types in the epidermis are responsible for preventing a pathogen from entering the body and causing infection?

a) Keratinocytes and dendritic cells.

b) Melanocytes and tactile epithelial cells.

c) Dendritic cells and tactile epithelial cells.

d) Keratinocytes and tactile epithelial cells.

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PRACTICE: Which type of cells play the most important role in preventing skin cancer?

a) Keratinocytes

b) Melanocytes

c) Dendritic cells

d) Tactile epithelial cells

PRACTICE: Which epidermal cell can roam in and out of the epidermis?

a) Keratinocytes.

b) Melanocytes.

c) Dendritic cells.

d) Tactile epithelial cells.

PRACTICE: Imagine you're a doctor, and a patient comes to you with a rare medical condition. It seems that their epidermal cells are not producing keratin. Which of the following symptoms are they most likely to experience?

a) They will have reduced sensitivity to touch.

b) They're much more prone to sunburn.

c) Their skin will tear easily upon exposure to mechanical stress.

d) Their skin will harden significantly.