

Skin Integumentary system

What does this tissue do?

Acts as a protective barrier! The skin protects the body from various harmful things in the outside world, such as moisture, the cold, the sun's rays, germs and toxic materials. The skin also helps to regulate the body's temperature and is responsible for sensations of touch, heat and cold.

Main parts:

Epidermis – The outer layer of the skin that provides a waterproof barrier

Dermis – The inner layer of the skin, containing:

Nerve endings

Sweat glands

Oil glands

Hair follicles

Blood vessels

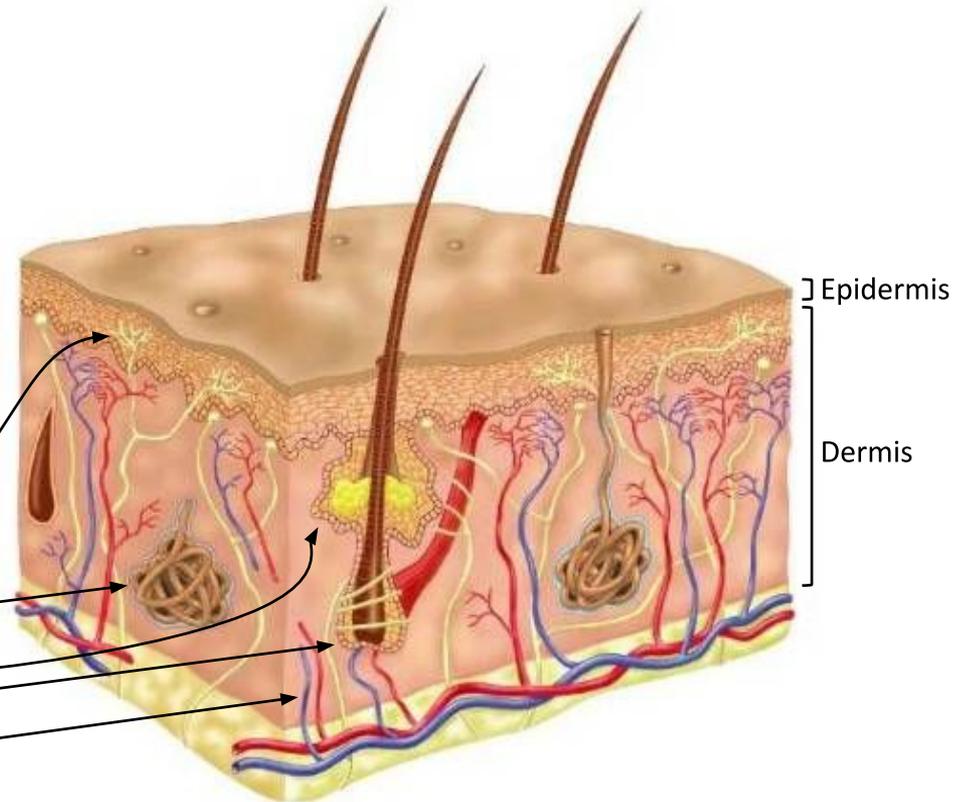
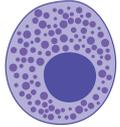


Illustration	Key cell types	Abundance	Function	Special features	Super powers
	Keratinocyte	Very common	Building blocks of the skin	They undergo many changes (<i>differentiate</i>) during their lifecycle	<u>Form a waterproof protective barrier</u>
	Langerhans cell	Common	Forms part of the immune system	Capture germs like bacteria & viruses (<i>phagocytosis</i>) and fight off injuries like cuts & scrapes	<u>Fight infection</u>
	Melanocyte	Common	Responsible for skin colour (pigment)	Produces <i>pigment (melanin)</i> which protects the skin from the harmful effects of the sun's rays	<u>Produce more protective pigment if exposed to sun – a sun tan!</u>
	Fibroblast	Common	Produce the scaffolding (<i>matrix</i>) to hold cells in the skin	They can produce lots of different proteins, including collagen	<u>Play an important role in skin healing</u>
	Mast cell	Uncommon	Forms part of the immune system	Play a protective role against germs and allergies	<u>Multi-tasking</u>
	Hair follicle stem cell	Rare	Generate growing hair	Able to make more of themselves and also turn into other cells	<u>Self-renewal</u>

DEFINITIONS

SCIENTIFIC TERM

DESCRIPTION

Differentiation

A process where stem cells change in shape and function into a more mature (specialised) cell type. This is important in developmental biology, for example, when an organism changes from a fertilised egg to a complex system of tissues and cell types.

Phagocytosis

White blood cells (including Langerhans cells and mast cells) protect the body by eating or engulfing various harmful things, including dirt, bacteria, viruses, dead or dying cells. This is important for fighting infections and keeping the body healthy.

Melanin

Melanin is a special pigment of the epidermis (the outer layer of the skin). It helps protect the body from the sun's radiation (ultraviolet radiation), because too much exposure (e.g. when you get a sunburn) can cause harmful changes in the cells of the skin.

Extracellular matrix

Extracellular (outside a cell) matrix is any scaffold material outside cells in a tissue. The structure varies by each organ, but is usually made up of proteins such as collagen and proteoglycans. As well as providing structural support for cells, it also helps regulate cell behaviour and function!