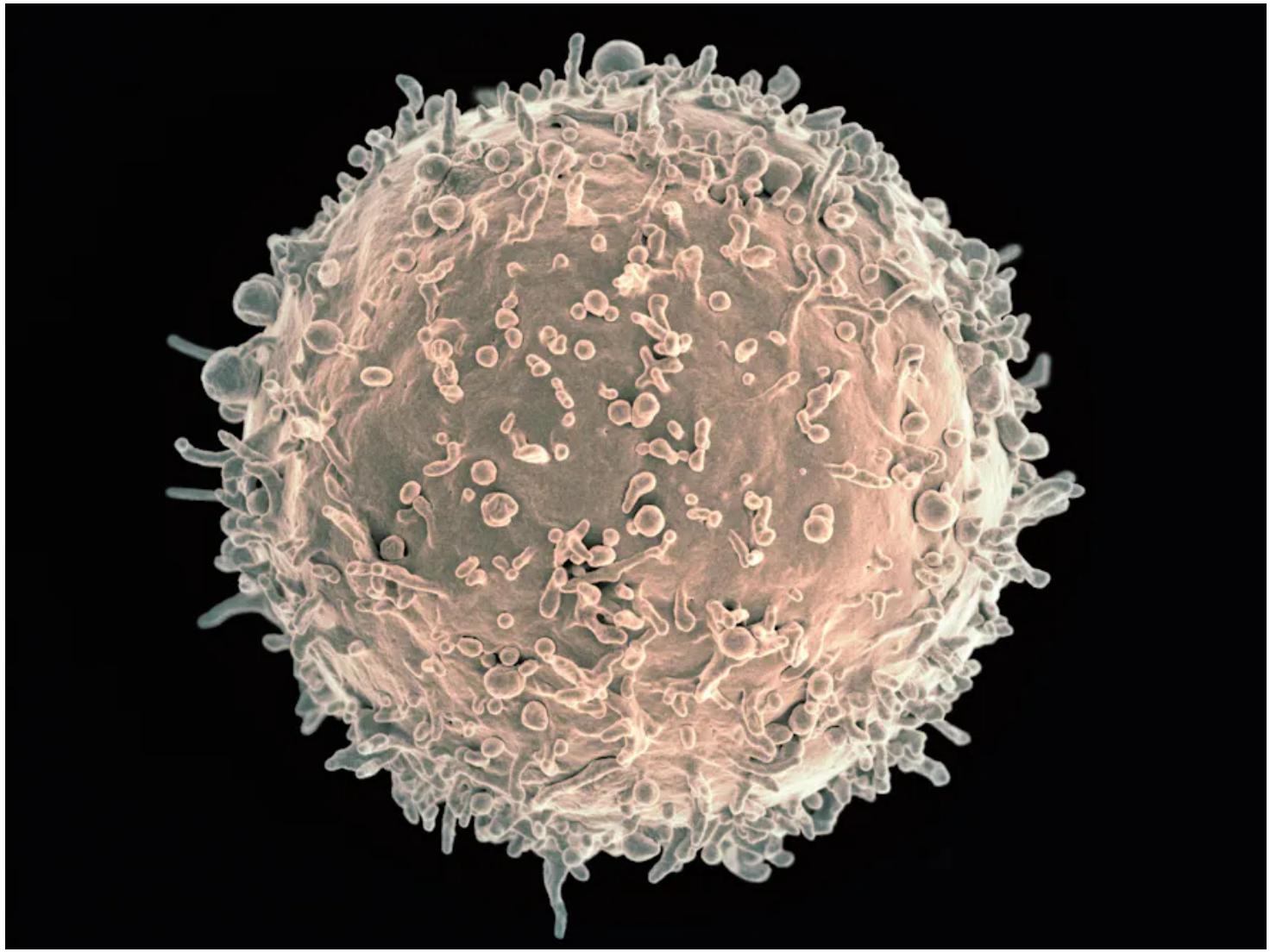


All the cells in the human body

By ThoughtCo., adapted by Newsela staff on 10.23.17

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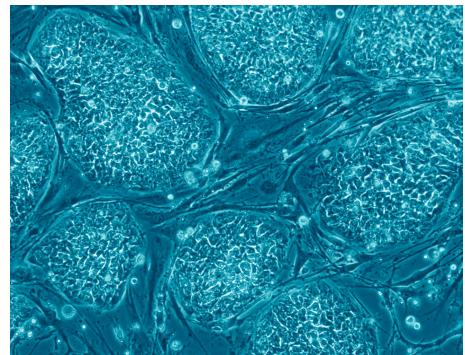
Colorized scanning of a lymphocyte, whose responsibility is to produce antibodies. Photo by: NIAID/Flickr.

There are trillions of cells in the human body, and they come in all shapes and sizes. These tiny structures are the basic units of living organisms. Cells make up tissues, and tissues make up organs. Organs form organ systems, and organ systems work together to keep an organism alive.

There are hundreds of different types of body cells. Each type has a certain job and is perfectly built to do it. Cells of the body depend on one another to keep the body working. Here are some examples of different types of cells in the human body.

Stem Cells

Unlike most cells, stem cells are not specialized for a particular job. However, they can change into specialized cells for certain organs or tissues. Stem cells are able to divide and replicate many times in order to repair broken tissue. Since stem cells are so useful, scientists are studying new ways to use them for medicine. Stem cells can be used to repair tissue, carry out organ transplants and treat diseases.



Bone Cells

Bone cells form bone, which is a combination of two materials, collagen and calcium phosphate minerals. There are three main types of bone cells in the body.

Osteoclasts are large cells that break down the bone so it can be absorbed into the body. Osteoblasts produce osteoid, which mineralizes, or hardens, to form new bone. Osteoblasts later turn into osteocytes, which also help form new bones and keep them healthy.

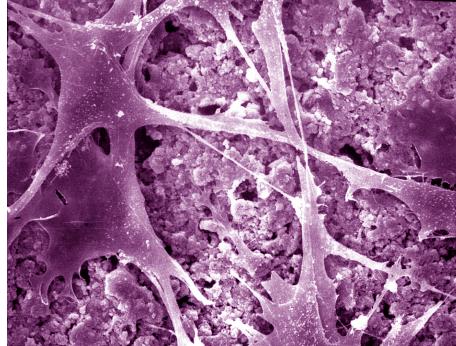


Image 2. Colorized scan shows bone cells attaching to a new type of bone cement.

Image: National Institute of Standards and Technology.

Blood Cells

Cells of the blood are key to life. They transport oxygen throughout the body and fight infection.

The three major types of cells in the blood are red blood cells, white blood cells and platelets. Red blood cells are the ones that transport oxygen. White blood cells destroy pathogens, or disease-causing organisms, and provide protection. When blood vessels, like arteries, break, platelets help to clot blood and prevent too much blood loss.

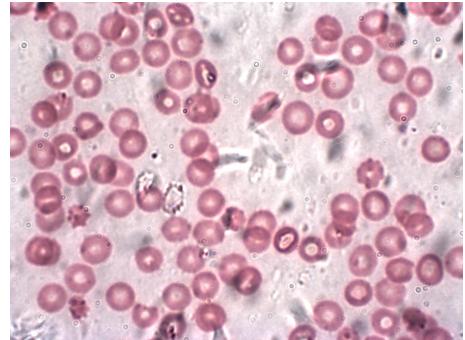
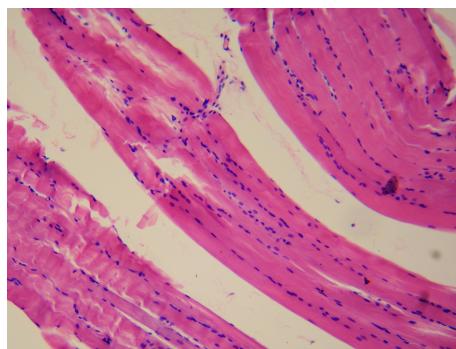


Image 3. Human red blood cells. Image: John Alan Elson/Wikimedia.

Muscle Cells

Muscle cells form muscle tissue, which is what makes the body move. Skeletal muscle tissue, like a tendon, attaches to bones, allowing us to move as we please.

Cardiac muscle cells form cardiac muscle in the heart.



These cells help the heart contract or relax to pump blood. Cardiac muscle is involuntary, which means it moves without us telling it to.

Smooth muscle is also a type of involuntary muscle. It forms the walls of many organs, including kidneys, intestines and blood vessels.

Fat Cells

Fat cells, or adipocytes, contain droplets of fat that can be stored and used for energy. When fat is being stored, adipocytes swell and become round in shape. When fat is being used, these cells shrink in size.

Fat cells also produce hormones. These can help regulate blood pressure, fat storage, blood clotting and cell signaling.

Skin Cells

The skin is composed of various layers of tissue. The outermost layer, called epidermis, is made up of flat cells that are closely packed together. Below the epidermis is another tissue called dermis. The skin protects the internal parts of the body from damage. It prevents dehydration, acts as a barrier against germs, stores fat and produces vitamins and hormones.

Image 4. Microscopic view of smooth muscle tissue, with the centers of muscle cells shown in purple. Image: Juan Carlos Fonseca Mata/Wikimedia.

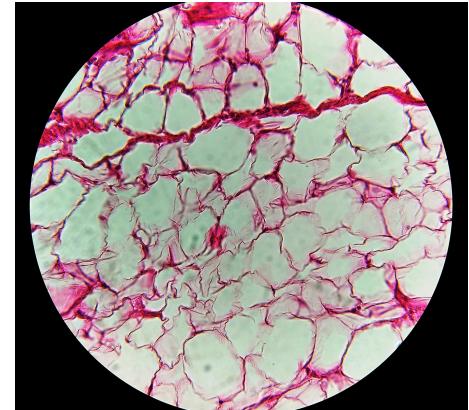


Image 5. White fat tissue. Image: Falty14/Wikimedia.

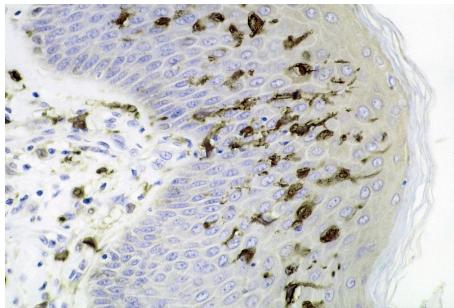


Image 6. Section of skin showing large numbers of dendritic (Langerhans? width=750&compression=85) cells in the epidermis. Image from public domain.

Nerve Cells

Nerve cells, or neurons, are the basic units of the nervous system. Nerves send signals between the brain, spinal cord and various body organs. A neuron consists of two major parts, a cell body and nerve processes. The cell body contains the neuron's nucleus, or center. Nerve processes are called axons and dendrites. They extend from the cell body and are able to create and send signals elsewhere.

Endothelial Cells

Endothelial cells make up the inner layer of blood vessels

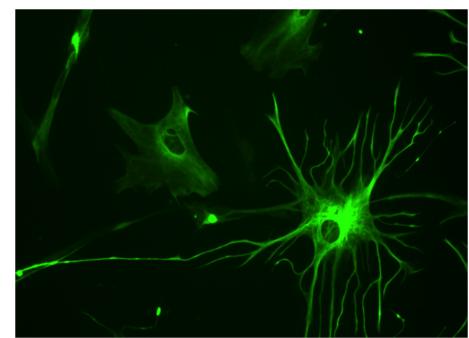


Image 7. Human astrocyte, a type of cell located in the brain and spinal cord. This

and of various organs. For example, they are found in the brain, lungs, skin and heart. These cells help create new blood vessels and also regulate the movement of gases and fluid between the blood and surrounding tissues.

Sex Cells

Sex cells, or gametes, exist for the purposes of reproduction. Male sex cells, or sperm, are able to move by using a long, tail-like part called a flagellum. Female sex cells, or ova, do not move and are relatively large in comparison to the male cells. By combining, these sex cells are able to create a new life.

Cancer Cells

Cancer forms when cells stop working normally. Cells are supposed to go through a process called apoptosis, which is a programmed death. This prevents cells from multiplying forever. Yet, cancer cells are able to avoid this process, which causes cells to divide uncontrollably and spread to other locations.

The development of cancer cells can be caused by mutations. These may form when someone is exposed to certain chemicals, radiation or viruses.

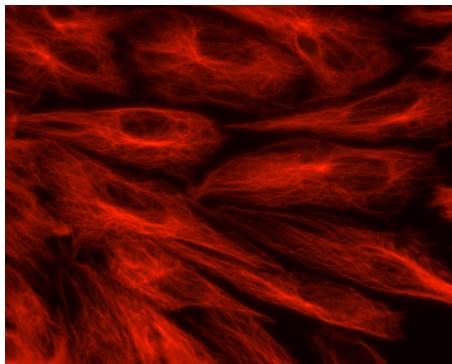


Image 8. Endothelial cells. Image: Phaeton1/Wikimedia.

cell has various purposes, mainly to support neurons. Image: Bruno Pascal/Wikimedia.

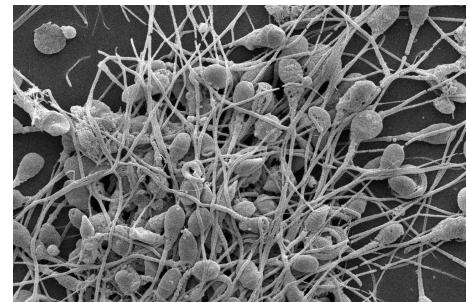


Image 9. Human spermatozoa. Image: Enver Kerem Dirican/Wikimedia.

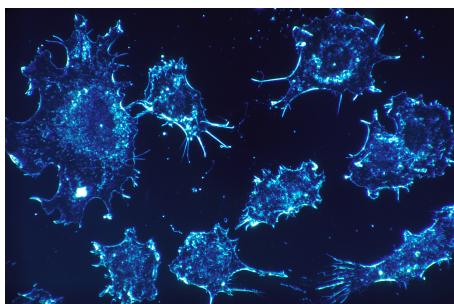


Image 10. Cancer cells from human connective tissue. Image: National Cancer Institute.