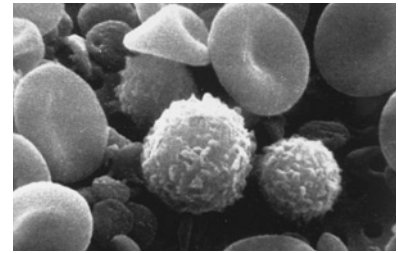


Body Wars

Every day, animals and plants are threatened by tiny, harmful organisms. These harmful organisms are called **pathogens**. Pathogens can cause disease. They can enter an organism through an opening like a nose or mouth. Animals' and plants' skin stops many pathogens from getting inside the body. The saliva in humans' and animals' mouths kills some pathogens. The digestive juices in the stomach kill others. Even tears wash some pathogens away. Plants have chemicals that help stop pathogens.

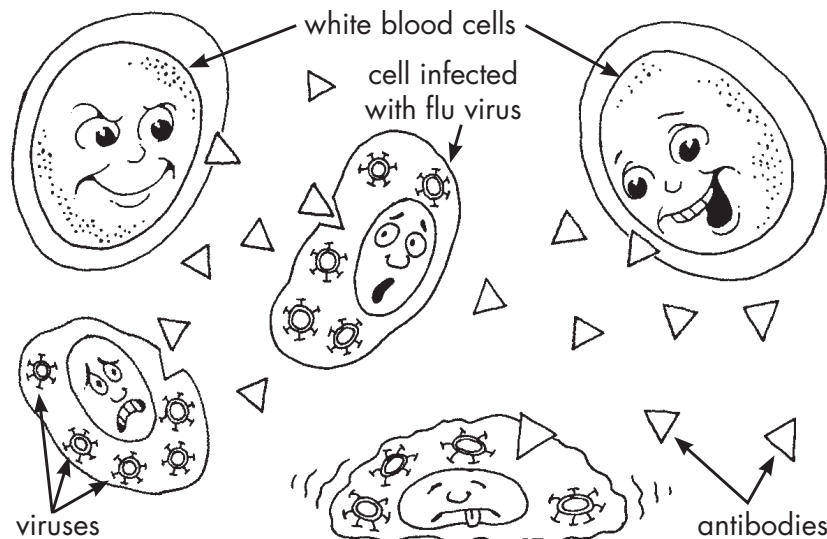


Some white blood cells look hairy under a microscope.

INFLUENZA • 8
Courtesy of Bruce Weizel/
Harry Schaefer/National
Cancer Institute

Some pathogens still break through an organism's defenses. They can infect cells and spread disease. That is when an organism's immune system enters the battle. In animals with blood, white blood cells recognize the invader. More white blood cells are quickly made. They attack the pathogens and kill them. They also kill the cells the pathogens have infected.

Other white blood cells produce **antibodies**. These are chemicals that kill certain kinds of pathogens. The antibodies cause the pathogens to clump together. As clumps, they are easier to recognize and destroy.

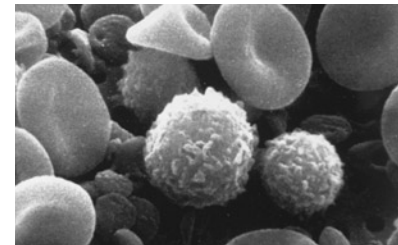


HOW YOUR BODY FIGHTS FLU • PRIMARY

Body Wars

Did you know that most organisms have a special system devoted to protecting them from other tiny, but harmful organisms? This is called the immune system. Every day, animals and plants are threatened by harmful bacteria, viruses, molds, fungi, protozoa, and other microorganisms that can cause disease. These microorganisms are known as **pathogens**.

Pathogens can enter an organism every day through its various openings. The organism works to keep out harmful pathogens. Animals' and plants' skin stops many of them. The saliva in humans' and other animals' mouths, and the digestive juices in the stomach kill some. Even tears wash pathogens away.



Courtesy of Bruce Wetzel/
Harry Schaefer/National
Cancer Institute

Some white blood cells look hairy under a microscope.

Some pathogens still succeed in breaking through outer defenses and threatening an organism's health. They can infect cells and spread disease. That is when an organism's immune system enters the battle. In animals with blood, white blood cells recognize the invader and quickly make more white blood cells. This large group of white blood cells attacks the pathogens and kills them along with the cells they have infected.

Meanwhile, other white blood cells produce **antibodies**, chemicals designed to kill certain kinds of pathogens. The antibodies cause the pathogens to clump together. As clumps, they are easier to recognize and destroy.

