T cell

Recently, many classmates caught a cold. Our immune system plays an important role in recovery. Do you know how the immune system works? Now we want to introduce a vital part of it--T cell. T cell, also called T-lymphocyte, is a kind of lymphocyte that can recognize and destroy antigens. It originates from lymphoid stem cells in the bone marrow, differentiating and developing in the thymus, which is an immune organ between our lungs. When they are mature, they will distribute to immune organs and tissues throughout the whole body,so that they can detect any potential hazards.What’s special about T cell is that they have specific receptors on the membrane.The receptor is essentially protein, each with unique structure.These structures is the basis of recognizing specific parts of antigens.One receptor can only recognize one type of antigen.According to function and surface marker, T cell can be divided into 4 categories(Can you guess how many categories they are divided into?): helper T cell, cytotoxic T cell, suppressor T cell, and memory T cell. Helper T cell can be combined with specific parts of antigens, and then release lymphokine, a signal molecule that can activate cellular immunity and humoral immunity. Cytotoxic T cell also recognize the specific parts of antigens, with stimulation of lymphokine, they can release a chemical called perforin to specifically kill the target cells. Suppressor T cell is responsible for regulating the body’s immune response to maintain self-tolerance and avoid excessive immune response causing body damage. Memory T cell has the ability to form immune memory.That means, if your body is invaded by the same antigen again, it can proliferate and differentiate quickly to build up your immunity to the disease.

If we need to explain the T cell to 16-year-old students, we will delete some terms and simplify long sentences.And here is the simplified version that is easier to understand.T cell is a kind of white blood cell that can recognize and destroy antigens.If you wonder what are antigens,they are something tiny like bacteria and virus that induce our immune response.In general,they can make us sick. T cell originates in the bone marrow, growing in the thymus, which is an immune organ between our lungs. When they are mature, they will move all over the body and act as the guard against antigens.On the T cell membrane, there are specific receptors, a kind of protein. Like the key combined with the lock, receptors can recognize the specific parts of antigens. According to different functions, T cell can be divided into 4 categories: helper T cell, cytotoxic T cell, suppressor T cell, and memory T cell. Helper T cell can be combined with specific parts of antigens, and then release a signal molecule that can activate immunity response. Cytotoxic T cell also recognize the specific parts of antigens, with the signal from helper T cell, then specifically kill the infected cells. Suppressor T cell can control the body’s immune response to maintain a healthy physical state. Memory T cell, as the name implies, can memorize antigens. For example, if you are infected by the same antigen again, it can help to ease the symptoms, or even prevent you from the illness.

Of course, there are many more types and functions of T cell. We just introduce a small part. Thanks for everyone’s listening.