

THE CANCER WARRIOR: THE IMMUNE SYSTEM

Think of your immune system as the hero in an action-packed blockbuster. It exists to protect your body from harmful invaders. It is made up of two lines of defence: the innate and the adaptive immune systems.

The innate and the adaptive immune systems work together to protect us from germs and cancer. The innate immune system is fast acting and kick-starts the adaptive immune response; however, the innate immune system does not provide long-lasting

protection. The second line of defence, the adaptive immune system, provides lifelong immunity; it "remembers" germs or cancers so that it can protect your body against similar attacks in the future.

If the immune system is the cancer warrior, then T-cells are the key weapons in its arsenal. They attack and destroy cells that are infected. Each bears its own unique crest called the T-cell receptor that has the ability to recognize different parts of an enemy.

1 ALERTING T-CELLS TO A THREAT

In order for T-cells to be activated, the dendritic cell recognizes and processes an enemy in a format that the T-cell can recognize through its T-cell receptor.

DENDRITIC CELL

A specialized cell that initiates an immune response and directs the immune response against a certain kind of virus or cancer. It picks up and processes pathogens or tumor cells, so that T-cells can become activated to kill these targets.

HOW THE WARRIOR DEFENDS THE BODY

2 T-CELLS MULTIPLY AND ATTACK

Once activated, T-cells multiply in order to attack and destroy the threat. Once the infected cells are terminated, the germs die along with them. T-cells can work in a similar way to kill cancer cells.

3 END OF THE T-CELL RESPONSE

Once the threat to the body is gone some of those T-cells convert to "memory T-cells" and stay in the body. That way, the next time the body encounters another threat, these memory T-cells are ready to rapidly destroy it. This is how some vaccinations work.

CANCER CELLS