

## What is the immune system?

The immune system protects the body from bacteria, viruses, parasites, allergens, and cancerous cells. Without the immune system, your body will be vulnerable to diseases. The most important component of the immune system is the white blood cells that are spread out across the body to detect and eliminate infections.

## NK cells' role in the immune system

Natural Killer (NK) Cells are a type of white blood cells that act as the front line of defense against invading viruses and bacteria. NK cells respond quickly to infections and are able to distinguish good cells from abnormal ones. This is why NK cells are 100 times more effective in fighting against cancer than other white blood cells.

People who have low NK cells are more likely to succumb to sickness than people with high NK cells. Their immune system is weak, inefficient, and unable to protect the body from bacteria and cancerous cells.

## How to count and measure the effectiveness of NK cells?

Flow cytometry is one of the fastest and most accurate methods to detect and measure the characteristics and effectiveness of NK cells. The test involves using special reagents to dilute blood cells. These blood cells are passed through a flow cells, irradiated by laser, and thoroughly analyzed.

NK Cells count		Flow cytometry	
Technique	: Flow cytometry	<p>Flow cytometry is a laser-based method to count and analyze the size, shape, and characteristics of cells. A cell population is suspended in a clear saline solution, and then funneled through a nozzle that forges a single-cell stream. The population then flows past the laser one cell at a time. This helps ensure that every cell is analyzed independently.</p>	
Pros	: Convenient, fast, and accurate		
Blood sample	: 3 milliliters of blood in 2 vials Patient don't have to abstain from food and drink		
Time	: 5 days		
Reference values	: Male: 140–1,103 cells/uL Female: 96–998 cells/uL		
Microfluorometry (Calcein-AM Cytotoxicity Assay)		NK Activity	
<p>Microfluorimetry is a technique that measures the effectiveness of NK cells based on the number of cancer cells destroyed within a specified amount of time. Cancer cells are put together with NK cells in a laboratory with real-time surveillance. The number of cancer cells that were eliminated within four hours will be used to measure the effectiveness of NK cells.</p>		Technique	: Microfluorometry (Calcein-AM Cytotoxicity Assay)
		Pros	: High accuracy
		Blood sample	: 10 milliliters of blood in 1 vial Patients don't have to abstain from food and drink
		Time	: 5 days
		Reference values	: Male: 43–58% Female: 35–51%

## How to interpret results?

### Lower than the reference value

- The patient has cancer or has a high risk of developing cancer.
- The patient leads an unhealthy lifestyle, such as being constantly under stress, smoking, and drinking alcohol.
- The patient has poor eating habits and is overweight or underweight.
- The patient has been receiving certain medications, such as chemotherapy or immunosuppressant drugs.

### Equal the reference value

- The immune system is functioning properly.

### Higher than the reference value

- The immune system is overactive, which could be the result of an infection.

## Additional advice

- If your NK cells are lower or higher than the reference value, you should consult a doctor to avoid undesirable diseases.
- If your NK cells are lower than the reference value, there's a procedure to inject NK cells directly into your body.
- If your NK cells are close to the reference value, you can consult a doctor to learn how to maintain your NK cells in the long run. Take a health evaluation test once every 4–6 weeks.



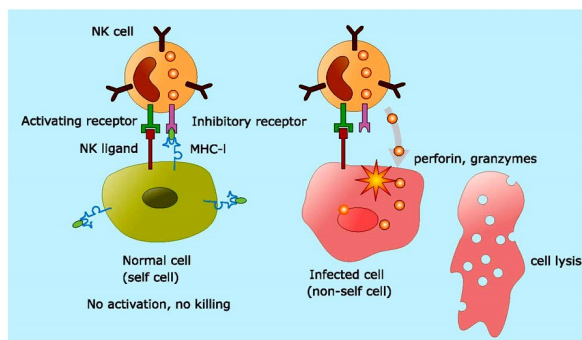
## What to do when you have low, inefficient NK cells?

There are many ways to increase the number of NK cells in the body:

### 1. Change your lifestyle for the better

- Eat healthy, nutritious food, especially vegetables, lean meat, and soy milk.
- Stop smoking and drinking alcohol.
- Exercise regularly.
- Sleep at least seven hours.
- Take supplementary pills that enhance the effectiveness of NK cells.

These are meant to be guidelines and results may vary from one person to another.



### 2. Inject NK cells directly into the body

NK cells can be extracted from the body and cultivated in a lab. The process usually takes no longer than two weeks, after which the NK cells will be ready to be injected back into the body through the bloodstream. The procedure is safer and more effective than trying to increase NK cells by modifying your lifestyle.

Although NK cell cultivation is much more affordable these days, there are some factors that you need to consider before the procedure. You should entrust the procedure to experienced, certified specialists to ensure the cultivated NK cells are safe and have high quality.

## How to cultivate and increase the number of NK cells?

1. Pre-screening: Evaluate the patient's NK cells prior to treatment.
2. Blood Drawing: Prepare the patient's blood to be used for NK cells cultivation.
3. NK culture: Increase the quantity and quality of NK cells.
4. NK Treatment: Inject NK cells back into the body.

## Who should be concerned about NK cells?

NK cells are a matter of concern for people who:

- Have family members diagnosed with cancer.
- Are suffering from infections and health issues.
- Have chronic diseases such as liver disease, kidney disease, and diabetes.
- Have chronic hepatitis from viruses.
- Have cancer and is undergoing treatment.
- Have an unhealthy lifestyle, such as not exercising, smoking, and drinking alcohol.
- Have malnutrition from bad food choices.
- Want to learn more about the quantity and quality of their NK cells for preventive purposes.



## NK cells is an effective treatment for a variety of diseases

**Cancer** ● Leukemia ● Ovarian cancer ● Breast cancer (HER-2 +ve) ● Neuroblastoma

**Non-cancer symptoms** ● Viral Infection ● Autoimmune Disease ● Type I diabetes

LINE



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