

Immunotherapy and Monoclonal Antibodies (mAbs)

Immunotherapy and chemotherapy are both cancer treatments but they work differently.

Chemotherapy uses powerful drugs to kill cells that reproduce rapidly. Cancer cells do reproduce very quickly, but so do some types of normal cells. When normal cells are killed or damaged, it causes many of the side effects expected from chemo – nausea, hair loss, etc. Immunotherapy identifies cancer cells in a targeted manner and stimulates your immune system to attack the cancer cells.

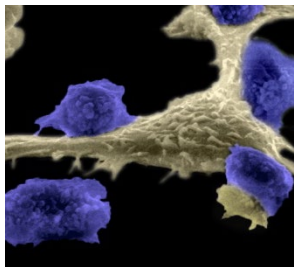
Your immune system protects your body from substances that can cause harm, such as bacteria, viruses, and cancer. One of the body's natural immune responses to foreign substances is to make antibodies that will attack a specific protein (antigen) found on the surface of the invader. Monoclonal antibodies, or mAbs, are man-made antibodies. They are created in a lab and engineered to target antigens on specific tumors.

Here's one example of how your immune system protects you:

- A foreign substance enters the body.
- Your body recognizes that it is a foreign body and activates your immune system.
- Fighter cells are released from your immune system
- The fighter cells attack and try to destroy the foreign substance.

When cancer takes over cells, those cells become “invisible” to your immune system. If your body can't recognize the abnormal cells, then the immune system doesn't activate. Immunotherapy drugs turn the immune system back on so that it recognizes and kills only specific cancer cells.

Many treatment regimens now include immunotherapy in addition to chemotherapy, radiation, and/or surgery.



Electron micrograph of a cancer cell (white) being attacked by cytotoxic T cells (blue), part of a natural immune response. (Provided by Dr. Sharon Evans and Dr. Maryann Mikucki, Roswell Park Comprehensive Cancer Center)

A major benefit of immunotherapy is that it has the potential to remain effective for a long time even after treatment ends. This feature is called “memory.” It works in the same way that a tetanus vaccine protects you for years after you get the shot.

In people with cancer, this memory effect can lead to long-term, cancer-free remission, and longer overall survival.

mAbs can be given through your IV (into a vein) or injected just under the skin (subcutaneous injection). Because these drugs target cancer cells, they do not usually affect healthy tissues and cells. This means fewer and less severe side effects than chemotherapy.

Your immune system is fighting the cancer and the side effects reflect that fight: flu-like symptoms (aches & pains, fever, chills), infusion reactions, and diarrhea. Most side effects associated with immunotherapy are easily managed if treated early, so be sure to carefully monitor how you feel during and after treatment.