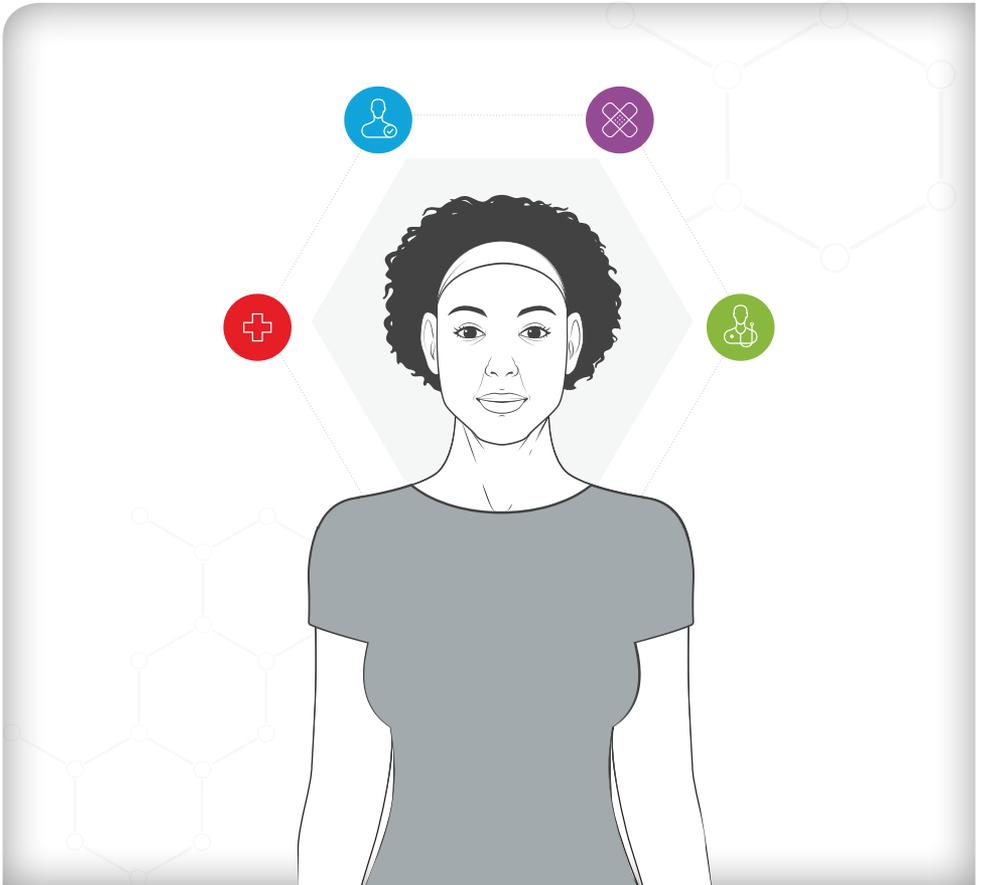


What You Need to Know About Lung Cancer Immunotherapy



What is immunotherapy?

Immunotherapy for cancer, sometimes called immune-oncology, is a type of medicine that treats cancer using the body's own immune system. Your immune system protects you from harmful foreign agents like bacteria and viruses. When it is working well, it attacks what shouldn't be in your body. The immune system also has measures in place that keep it from attacking things that should be there, like normal organs of the body. Cancer is a tricky problem for the immune system because cancer cells used to be normal organ cells, so they have some familiar features. But when cells convert to cancer, they acquire some new features that ideally should be recognized as foreign and labeled for immune destruction. Immunotherapy drugs for lung cancer help your body recognize the cancer as foreign and harmful so your body can fight it.

How does it work?

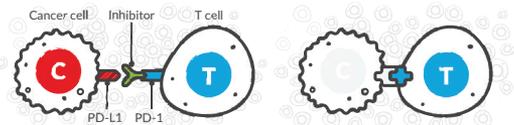
The immune system is made up of cells, tissues and organs that communicate with each other to protect the body. Your immune system uses different ways to communicate and gather information about whether to attack something it encounters or leave it alone.

One way your immune system communicates is through connections between molecules on the surface of immune cells (like T lymphocyte cells also known as T cells) and foreign cells (like cancer cells).

Cancer cells have found ways to trick the immune system and keep it from destroying them. One way some cancer cells do this is by producing a protein called PD-L1. This protein binds to PD-1 receptors on T cells and turns them off. This prevents the immune system from killing the cancer cell. Current FDA-approved lung cancer immunotherapy drugs work to stop the cancer cells from turning off the T cells. Approved drugs either target the PD-L1 protein or the PD-1 receptor. No matter which they target, they have the same goal of blocking or "inhibiting" the contact between the PD-L1 protein and the PD-1 receptor on the T cell.

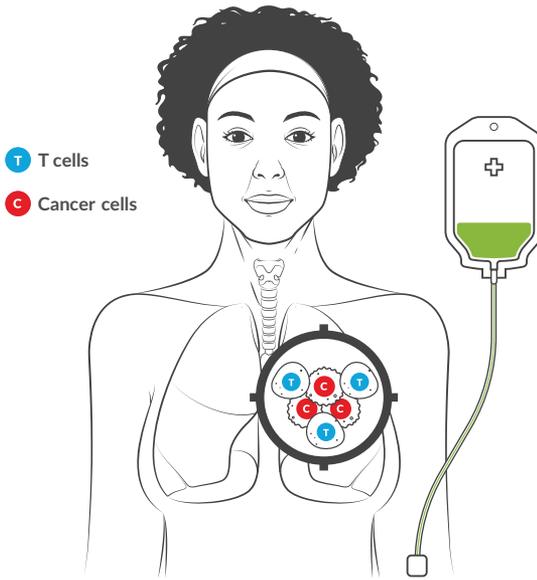
This re-activates the T cells and turns the immune system back on, helping it fight the cancer. There are other drugs

in immunotherapy clinical trials for lung cancer. Some of these drugs target other pathways in the immune system.



How are these drugs given?

These drugs are given through an IV into your veins. This is called an infusion. Patients get infusions every few weeks. Most patients stay on immunotherapy for several months. Some patients may stay on for longer or shorter periods of time, depending on their side effects. Immunotherapy drugs have been shown to keep working for a period of time even after treatment is stopped.



Who is eligible for immunotherapy?

There are several FDA-approved lung cancer immunotherapy drugs for patients with advanced stage lung cancer. There are more options within immunotherapy than ever before. There are now first-line, second-line and combination immunotherapy treatments available. Each drug has specific indications based upon the type of lung cancer you have, whether or not you have any mutations or biomarkers, what treatment (if any) you have tried in the past and your general health. Work with your doctor to understand your options.

Your doctor may want to test your tumor to see if it expresses certain levels of PD-L1 before you try immunotherapy. This may help predict how you will respond to immunotherapy, and the best drug choice for you. Certain other health conditions, such as auto-immune diseases like lupus, rheumatoid arthritis or interstitial lung disease might make it unsafe for you to be on immunotherapy. You and your doctor can work together to decide if immunotherapy is the right treatment option for you.

How is immunotherapy different from other lung cancer treatments?

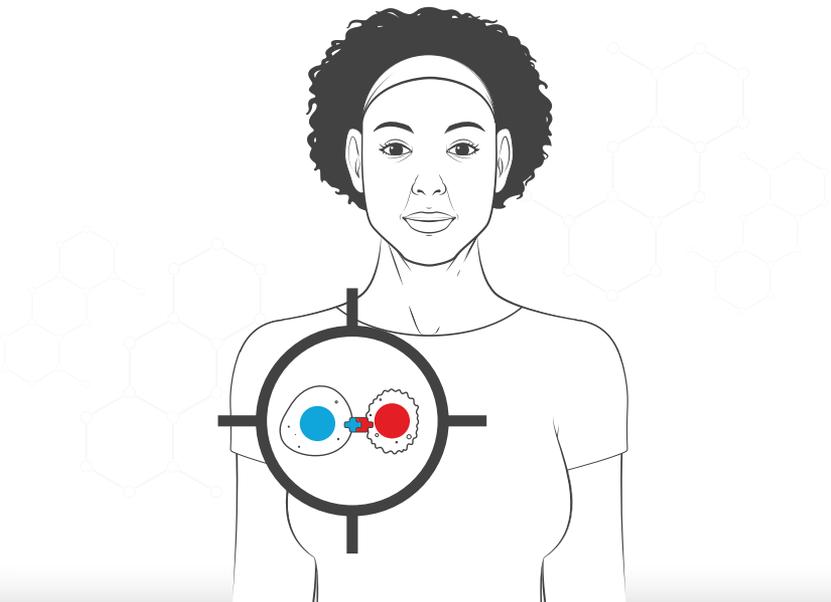
Immunotherapy works differently than other lung cancer treatments like traditional chemotherapy, targeted therapy and radiation.

Traditional chemotherapy uses chemicals to kill or damage cancer cells. These drugs can affect healthy cells too. This can cause side effects like nausea, fatigue and hair loss, lowering of the white blood cell count and possible infection.

Targeted therapy focuses on mutations that are in some lung cancer tumors. These therapies attack specific targets on or in the tumor cells that are causing the tumor to grow uncontrollably.

Radiation therapy uses powerful, high-energy X-rays to kill cancer cells or keep tumors from growing.

Immunotherapy is more specific and precise than traditional chemotherapy. However, it doesn't address the mutations in the tumors. Instead, it targets the communication between the immune system and the tumor to help the immune system fight the cancer.



What are some possible side effects?

All cancer treatments have possible side effects. When taking immunotherapy, some people experience very few side effects, while others have more serious complications. Some of the most common side effects of immunotherapy drugs are:



Fatigue



Cough



Shortness
of breath



Rash



Nausea



Loss of
appetite



Diarrhea



Muscle and
bone pain

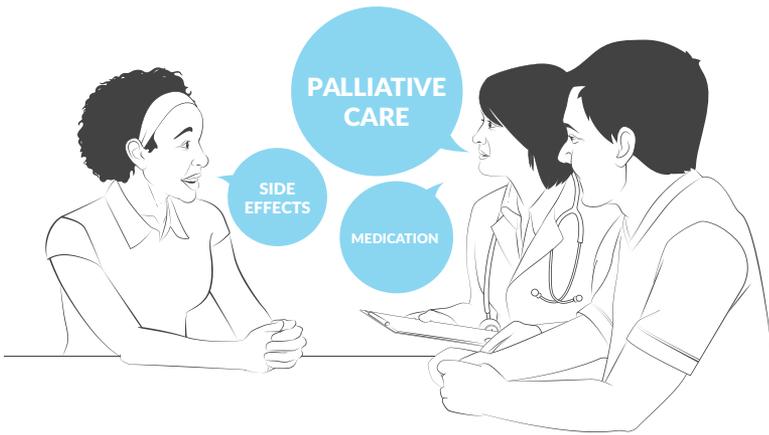
Immunotherapy may also cause inflammation in the organs of the body. Inflammation can happen in any organ of the body including: lung (pneumonitis), liver (hepatitis), colon (colitis/diarrhea) or thyroid gland. This can be very serious, and all possible side effects should be discussed with your doctor before you begin the drug.

Notes: _____

How do I cope with these side effects?

It is best to work very closely with your doctors and nurses to manage your side effects. Some side effects can be treated with over-the-counter medication. Other side effects may require prescription drugs or even time spent in the hospital. If side effects are managed early, it is easier to avoid major problems. If your side effects are well managed, it may also allow you to take only a short break or stay on the immunotherapy medication longer.

Ask about being connected with a palliative care team. Palliative care teams are made up of doctors, nurses and other healthcare professionals who are specially trained to help you manage your side effects and maintain a good quality of life.



Will immunotherapy work well for me?

Some patients have responded very well to immunotherapy, while others do not have the same positive response. No one can predict how your body will respond to any one treatment. Work with your doctor to understand what you can expect while on an immunotherapy drug, and if it is the right choice for you.

Visit Lung.org/immunotherapy to learn more.

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