



# Treatment for Lung Cancer



Learning about treatment for lung cancer is an important step in gaining control over your life with cancer. The more you know, the better you will be able to work with your health care team to find a treatment plan that is right for you. Your treatment options will depend on the type and stage of your lung cancer, as well as other factors such as the genetic makeup of your tumor.

This booklet covers current lung cancer treatment options including chemotherapy, immunotherapy, and targeted therapy. Additional information can be found in our *Frankly Speaking About Cancer: Lung Cancer* book. For information about lung cancer and how to cope, visit [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung).



# Chemotherapy for Lung Cancer

Chemotherapy (also called chemo) uses drugs to attack and kill cancer cells. These drugs attack fast-growing cells like cancer. Chemotherapy is used to treat both NSCLC and SCLC.

Most chemotherapy drugs are given by IV (through a vein). Some chemotherapy drugs can be taken orally, as a pill. Because the drugs continue to work for days or weeks after they are taken, a period of rest and recovery follows each dose or cycle.

Chemotherapy is given as a single drug or as a combination of drugs. Chemo also may be given at the same time as immunotherapy, radiation, or targeted therapy. Sometimes chemo and radiation are given on different days.

**This is the latest information on chemotherapy drugs used most often to treat non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC) as of June 2021.** New treatments become available all the time, so this information may change. For information on specific drugs and the latest approvals, go to [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung).

## SIDE EFFECTS OF CHEMOTHERAPY

Chemotherapy works by destroying fast-growing cancer cells. It may harm fast-growing normal cells as well. This can cause side effects. Keep in mind that you may not have all or even most of these side effects. Most side effects are only short-term and most can be treated.

**Before you start treatment:** Ask about the side effects of any drug you consider and how to manage them. Also ask about whom to contact if you experience serious side effects. There may be medicine that can prevent or ease symptoms. Also, for drugs taken as pills, be sure to ask if they should be taken with food or if any foods should be avoided.

**During/after treatment:** Report any side effects or changes to your health care team. Some side effects can get worse quickly if they are not treated.

For more information about managing side effects, go to Chapter 5 of our *Frankly Speaking About Cancer: Lung Cancer* book.

## CHEMOTHERAPY DRUGS APPROVED FOR LUNG CANCER

(as of June 2021)

TYPE OF CHEMOTHERAPY	NSCLC	SCLC	GIVEN AS	COMMON SIDE EFFECTS
<b>ALKYLATING AGENTS</b>	<b>X</b>	<b>X</b>	IV or pill	<ul style="list-style-type: none"> <li>• Low blood counts and risk for infection, anemia, and bleeding</li> <li>• Fatigue and weakness</li> <li>• Nausea and vomiting</li> <li>• Constipation and diarrhea</li> <li>• Taste changes</li> <li>• Changes in appetite</li> <li>• Hearing changes</li> <li>• Headache</li> <li>• Cough</li> <li>• Hair loss</li> <li>• Muscle and joint pain</li> <li>• Increased blood sugar (glucose)</li> <li>• Kidney problems</li> </ul>

# CHEMOTHERAPY DRUGS APPROVED FOR LUNG CANCER

(as of June 2021)

<b>TAXANES</b>	<b>X</b>	<b>X</b>	IV	<ul style="list-style-type: none"> <li>• Low blood counts and risk for infection, anemia, and bleeding</li> <li>• Nausea and vomiting</li> <li>• Hearing changes</li> <li>• Fluid retention and swelling</li> <li>• Neuropathy (numbness, tingling, or swelling in the hands or feet)</li> <li>• Diarrhea</li> <li>• Mouth sores</li> <li>• Hair loss</li> <li>• Fatigue and weakness</li> <li>• Nail changes</li> <li>• Muscle and joint pain</li> <li>• Changes in appetite</li> <li>• Fever</li> <li>• Kidney problems</li> </ul>
<b>TOPOISOMERASE INHIBITORS</b>	<b>X</b>	<b>X</b>	IV or pill	<ul style="list-style-type: none"> <li>• Low blood counts and risk for infection, anemia, and bleeding</li> <li>• Hair loss</li> <li>• Menopause</li> <li>• Fertility issues</li> <li>• Nausea and vomiting</li> <li>• Low blood pressure</li> <li>• Diarrhea</li> </ul>
<b>ANTIMETABOLITES</b>	<b>X</b>		IV	<ul style="list-style-type: none"> <li>• Low blood counts and risk for infection, anemia, and bleeding</li> <li>• Muscle and joint pain</li> <li>• Headache</li> <li>• Fever</li> <li>• Fatigue</li> <li>• Nausea and vomiting</li> <li>• Changes in appetite</li> <li>• Skin rash</li> <li>• Blood in the urine</li> </ul>
<b>VINCA ALKALOID</b>	<b>X</b>	<b>X</b>	IV	<ul style="list-style-type: none"> <li>• Low blood counts and risk for infection, anemia, and bleeding</li> <li>• Nausea and vomiting</li> <li>• Muscle weakness</li> <li>• Constipation</li> </ul>

\* Platinum chemotherapy for lung cancer includes cisplatin (Platinol<sup>®</sup>, Platinol<sup>®</sup>-AQ, CDDP) or carboplatin (Paraplatin<sup>®</sup>).



# Immunotherapy for Lung Cancer

Immunotherapy is a type of cancer treatment that uses the body's natural defenses (the immune system) to identify, attack, and kill cancer cells. Immunotherapy drugs approved to treat lung cancer belong to a class of drugs called checkpoint inhibitors. They most often target proteins called PD-1 or PD-L1. New research is looking at other kinds of immunotherapy to treat lung cancer. These include vaccines or T-cell therapy. Ask your doctor about clinical trials.

Checkpoint inhibitors are given by IV (through a vein). Treatments usually take place at your doctor's office or an infusion clinic.

**This is the latest information on immunotherapy drugs are used to treat non small cell lung cancer (NSCLC) and small cell lung cancer (SCLC) as of June 2021.** New treatments become available all the time, so this information may change. For information on specific drugs and the latest approvals, go to [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung).

## SIDE EFFECTS OF IMMUNOTHERAPY

Keep in mind that not all people get all side effects, and some people have few side effects. Immunotherapy side effects most often show up weeks or months after you start treatment, but may recur even years later. Most side effects can be managed if treated early.

If you are on immunotherapy, it is very important to let your health care team know right away about any changes in side effects or symptoms.

### Common side effects include:

- Diarrhea or Constipation
- Cough

- Decreased appetite
- Fatigue
- Fever
- Hair loss
- Headache
- Infection or swelling around the lungs
- Nausea
- Pain in muscles, bones, joints, or stomach
- Shortness of breath
- Skin rash or itching
- Urinary tract infection

### Rare but serious side effects may include:

- Hepatitis (inflammation of the liver)
- Colitis (inflammation of the colon)
- Inflammation in the lungs
- Severe infections
- Severe skin problems
- Problems in the kidneys, hormone glands, or other organs
- Hormone gland problems (especially thyroid, pituitary, adrenal glands, and pancreas)

**Before you start treatment:** Ask about the side effects of any drug you consider and how to manage them. Also ask about whom to contact if you experience serious side effects. There may be medicine that can prevent or ease symptoms.

**During/after treatment:** Report any side effects or changes to your health care team. Some side effects can get worse quickly if they are not treated.

For more information about managing side effects, go to Chapter 5 of our *Frankly Speaking About Cancer: Lung Cancer* book.

# IMMUNOTHERAPY DRUGS APPROVED FOR LUNG CANCER

(as of June 2021)

## TYPE OF IMMUNOTHERAPY    WHEN IT IS USED

### PD-1 CHECKPOINT INHIBITOR

- For advanced non-squamous non-small cell lung cancer (NSCLC) that is PD-L1+ and EGFR- and ALK-
- For advanced NSCLC for which platinum chemotherapy\* did not work or stopped working
  - And, if EGFR+ or ALK+, targeted therapy did not work or stopped working
- For advanced NSCLC that is PD-L1+ and EGFR-, ALK-, and ROS1-
  - And that cannot be treated with surgery or chemoradiation

### PD-L1 CHECKPOINT INHIBITOR

- For advanced NSCLC that is EGFR- and ALK-
- For advanced NSCLC that is PD-L1+ and EGFR- and/or ALK-
- For NSCLC for which platinum chemotherapy\* did not work or stopped working
  - And, if EGFR+ or ALK+, targeted therapy did not work or stopped working
  - And, if PDL+, platinum chemotherapy\* did not work or stopped working
- For Stage III NSCLC that cannot be treated with surgery or chemoradiation
- For advanced squamous NSCLC
- For advanced small cell lung cancer (SCLC)
- For any type of advanced lung cancer that tests positive for MSI-High, TMB-High, or dMMR when prior treatment did not work or stopped working
- Sometimes given at the same time as chemotherapy or other drugs

\* Platinum chemotherapy for lung cancer includes cisplatin (Platinol®, Platinol®-AQ, CDDP) or carboplatin (Paraplatin®).



# Targeted Therapy for Lung Cancer

Targeted therapy is a newer form of cancer treatment. It may be used to treat NSCLC.

Targeted therapy drugs keep cancer from growing and spreading with less harm to cells that are not cancer. A biomarker is something that can be measured in your blood, tissue, or bodily fluid. In cancer, biomarkers are often used to help choose the best treatment for you. Biomarker testing helps your doctor match therapy drugs to the specific subtype of cancer you have. This sample is sent to a lab to test for biomarkers to help guide your treatment options. Biomarkers tell your doctor about the subtype of the cancer in your body.

Most lung cancer targeted therapies are taken by mouth as a pill. Treatments usually take place at home once or twice a day. A few targeted drugs are given by IV (through a vein), sometimes in combination with chemotherapy. If this is the case, you may have to go into the hospital every 3 to 4 weeks for treatment.

**This is the latest information on targeted therapies that is available as of June 2021.**

New treatments become available all the time, so this information may change. For information on specific drugs and the latest approvals, go to [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung).

## SIDE EFFECTS OF TARGETED THERAPY

**Before you start treatment:** Ask about the side effects of any drug you consider and how to manage them. Also ask about whom to contact if you experience serious side effects. There may be medicine you can take or use to prevent or ease symptoms.

**During/after treatment:** Report any side effects or changes to your health care team. Some side effects can get worse quickly if they are not treated.

For more information about managing side effects, go to Chapter 5 of our *Frankly Speaking About Cancer: Lung Cancer* book.

## APPROVED TARGETED THERAPIES FOR LUNG CANCER BY BIOMARKER (as of June 2021)

New treatments become available all the time so this information may change. **This is the latest information on targeted therapies that is available as of June 2021.** For information on specific drugs and the latest approvals, go to [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung).

### TYPE OF THERAPY

### DRUG NOTES

(+ means a positive test)

### ALK INHIBITORS

- For ALK+ metastatic NSCLC
- Given as a once-daily or twice-daily pill

### BRAF INHIBITORS

- For BRAF+ NSCLC
- Given as a once-daily or twice-daily pill
- Drugs are given in combination with each other

# APPROVED TARGETED THERAPIES FOR LUNG CANCER BY BIOMARKER (as of June 2021)

## EGFR INHIBITORS

- For EGFR+ metastatic NSCLC
  - Depending on the exact EGFR mutation, can be used as 1st treatment
  - Can be used when other EGFR drugs have stopped working
  - Given as a once-daily pill
- For EGFR+ earlier-stage NSCLC
  - Depending on the exact EGFR mutation, can be used as treatment after surgery
- For advanced squamous cell NSCLC
  - Given by IV (in the vein) in combination with chemotherapy

## BISPECIFIC ANTIBODY

- For EGFR+ metastatic NSCLC
  - Depending on the exact EGFR mutation, can be used as 1st treatment
- Given by IV (in the vein) every 2-4 weeks

## KRAS INHIBITORS

- For KRAS G12C+ metastatic NSCLC
- Given as a once-daily pill

## MET INHIBITORS

- For MET+ metastatic NSCLC
- Given as a once-daily or twice-daily pill

## NTRK INHIBITORS

- For NTRK+ metastatic solid tumors, including NSCLC
- Given as a once-daily or twice-daily pill

## RET INHIBITORS

- For metastatic NSCLC
- Given as a once-daily or twice-daily pill

## ROS1 INHIBITORS

- For ROS1+ metastatic NSCLC
- Given as a once-daily or twice-daily pill

## VEGF INHIBITORS

- For non-squamous advanced NSCLC
- For EGFR+ metastatic NSCLC
  - Given in combination with another drug
- Given by IV (in the vein) every 3 weeks, often in combination with chemo

# SIDE EFFECTS BY TYPE OF DRUG FOR LUNG CANCER

(as of June 2021)

Targeted therapies treat the cancer cells with less harm to normal cells. Not all people get all side effects. Be sure to tell your health care team about the side effects you have.

New treatments become available all the time so this information may change. **This is the latest information on targeted therapies that is available as of June 2021.** For information on specific drugs and the latest approvals, go to [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung).

TYPE OF THERAPY	COMMON SIDE EFFECTS
<b>ALK INHIBITORS</b>	<ul style="list-style-type: none"><li>• Changes in vision (blurry vision)</li><li>• Diarrhea</li><li>• Nausea and vomiting</li><li>• Constipation</li><li>• Fatigue</li><li>• Loss of appetite</li><li>• Swelling</li><li>• Numbness</li><li>• Confusion and changes in mood</li></ul> <p><b>Rare but serious side effects may include:</b></p> <ul style="list-style-type: none"><li>• Problems to the heart, liver, kidneys, or lungs</li><li>• High cholesterol and triglycerides</li></ul>
<b>BRAF INHIBITORS</b>	<ul style="list-style-type: none"><li>• Fever</li><li>• Changes to skin (thickening, rash, warts, dryness)</li><li>• Fatigue</li><li>• Nausea and vomiting</li><li>• Diarrhea</li><li>• Sensitivity to the sun</li></ul> <p><b>Rare but serious side effects may include:</b></p> <ul style="list-style-type: none"><li>• Increased blood sugar</li><li>• Allergic reaction</li><li>• Problems to the heart, lung, kidneys, eyes, or liver</li></ul>
<b>EGFR INHIBITORS</b>	<ul style="list-style-type: none"><li>• Skin changes (acne-like rash, dry skin, itchiness)</li><li>• Diarrhea</li><li>• Loss of appetite</li><li>• Mouth sores</li><li>• Fatigue</li><li>• Nail infection</li></ul> <p><b>Rare but serious side effects may include:</b></p> <ul style="list-style-type: none"><li>• Problems to the heart, lungs, liver, or eyes</li></ul>

# SIDE EFFECTS BY TYPE OF DRUG FOR LUNG CANCER

(as of June 2021)

## **BISPECIFIC ANTIBODY**

- Infusion reactions
- Rash
- Fatigue
- Nausea and vomiting
- Breathing problems
- Nail changes
- Swelling
- Constipation

### **Rare but serious side effects may include:**

- Increased blood sugar
- Problems to the heart, lungs, or liver

## **KRAS INHIBITORS**

- Diarrhea
- Nausea
- Fatigue
- Cough

### **Rare but serious side effects may include:**

- Problems to the heart, liver, kidneys, central nervous system, or lungs

## **MET INHIBITORS**

- Swelling
- Nausea
- Fatigue
- Confusion and changes in mood

### **Rare but serious side effects may include:**

- Problems to the liver and lungs

## **NTRK INHIBITORS**

- Fatigue
- Nausea and vomiting
- Constipation or diarrhea
- Dizziness
- Anemia
- Swelling
- Change in taste
- Abnormal touch sensation
- Shortness of breath

*Regular blood tests are needed to check liver function.*

### **Rare but serious side effects may include:**

- Problems with the liver, nervous system, heart, kidneys, or eyes

*Let your doctor know if you have dizziness, unclear speech, problems walking, or are feeling tingling, burning or numbness. (Most often occurs in the first 3 months.)*

# SIDE EFFECTS BY TYPE OF DRUG FOR LUNG CANCER

(as of June 2021)

## RET INHIBITORS

- Diarrhea
- Constipation
- Dry mouth
- Fatigue
- Swelling
- High blood pressure
- Heart rhythm changes

### **Rare but serious side effects may include:**

- Liver, lung, and/or bleeding problems

## ROS1 INHIBITORS

- Changes in vision (blurry vision)
- Diarrhea
- Nausea and vomiting
- Constipation
- Fatigue
- Loss of appetite or change in taste
- Swelling
- Dizziness
- Abnormal touch sensation
- Shortness of breath

### **Rare but serious side effects may include:**

- Problems to the heart, liver, kidneys, eyes, central nervous system, or lungs

## VEGF OR ANGIOGENESIS INHIBITORS

- High blood pressure
- Changes to skin (dryness, rash)
- Diarrhea
- Nosebleeds
- Loss of appetite
- Low blood counts
- Weakness
- Upper respiratory infection
- Runny nose

### **Rare but serious side effects may include:**

- Bleeding problems
- Stroke
- Heart attack
- Blood clots
- Wounds that may not heal
- Tears in the stomach or bowel wall

**FOR MORE INFORMATION ON MANAGING THE SIDE EFFECTS OF LUNG  
CANCER TREATMENT:**

- See Chapter 5 of our *Frankly Speaking About Cancer: Lung Cancer* book, available at [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung)
- Visit [www.CancerSupportCommunity.org/SideEffects](http://www.CancerSupportCommunity.org/SideEffects)
- Call our Helpline (888-793-9355) to mail order our *Lung Cancer* or *Coping with Side Effects* materials



# Cancer Support Community Resources

**Cancer Support Helpline®** — Have questions, concerns or looking for resources? Call CSC's toll-free Cancer Support Helpline (888-793-9355), available in 200 languages Mon - Fri 9am - 9pm ET.

**Open to Options®** — Preparing for your next appointment? Our trained specialists can help you create a list of questions to share with your doctor. Make an appointment by calling 888-793-9355 or by contacting your local CSC or Gilda's Club.

**Frankly Speaking About Cancer®** — Trusted information for cancer patients and their loved ones is available through publications, online, and in-person programs at [www.CancerSupportCommunity.org/FranklySpeakingAboutCancer](http://www.CancerSupportCommunity.org/FranklySpeakingAboutCancer).

**Services at Local CSCs and Gilda's Clubs** — With the help of 170 locations, CSC and Gilda's Club affiliates provide services free of charge to people touched by cancer. Attend support groups, educational sessions, wellness programs, and more at a location near you. [www.CancerSupportCommunity.org/FindLocation](http://www.CancerSupportCommunity.org/FindLocation)

**Cancer Experience Registry®** — Help others by sharing your cancer patient or cancer caregiver experience via survey at [www.CancerExperienceRegistry.org](http://www.CancerExperienceRegistry.org).

**MyLifeLine** — CSC's private, online community allows patients and caregivers to easily connect with friends and family to receive social, emotional, and practical support throughout the cancer journey and beyond. Sign up at [www.MyLifeLine.org](http://www.MyLifeLine.org).

**Grassroots Network** — Make sure your voice is heard by federal and state policy makers on issues affecting cancer patients and survivors by joining our Network at [www.CancerSupportCommunity.org/become-advocate](http://www.CancerSupportCommunity.org/become-advocate).

**THIS PROGRAM WAS MADE POSSIBLE WITH GENEROUS SUPPORT FROM:**



This book is available to download and print yourself at [www.CancerSupportCommunity.org/Lung](http://www.CancerSupportCommunity.org/Lung). For print copies of this booklet or other information about coping with cancer, visit [Orders.CancerSupportCommunity.org](http://Orders.CancerSupportCommunity.org).

The Cancer Support Community provides this information as a service. This publication is not intended to take the place of medical care or the advice of your doctor. We strongly suggest consulting your doctor or other health care professionals to answer questions and learn more.

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