

# Brain Tumors: Targeted Therapy



Targeted therapy is the use of medicines that target the parts of cancer cells that make them unlike normal cells. Or the medicines can target other cells that help tumors grow. Targeted therapy might be used to treat a brain tumor when other treatments are not working well. These medicines tend to have less severe side effects than standard chemotherapy medicines. Be sure to ask your healthcare team which medicine you are taking and what side effects to watch for.

## Bevacizumab

This medicine is a type known as a monoclonal antibody. It's a lab-made version of an immune protein. Antibodies can be made to bind to specific targets and turn them on or off.

Bevacizumab targets a protein called VEGF. This protein helps tumors create the new blood vessels they need to keep growing. Blocking VEGF helps limit the size of the tumor. When added to chemotherapy, this medicine can help slow the growth of some types of tumors. It's often used for gliomas and glioblastomas. The medicine is given as an infusion into a vein once every 2 weeks. This medicine has many possible side effects, but the more common ones include:

- Feeling tired
- Joint or muscle aches
- High blood pressure
- Headaches
- Nausea
- Leg swelling

In some cases, more serious side effects can occur. These include:

- Blood clots causing deep vein thrombosis, pulmonary embolism, or rarely strokes or heart attacks.
- Internal bleeding (bleeding inside the body)
- Heart problems, including heart failure
- Holes (perforations) in the digestive tract
- Kidney damage.

## Everolimus

This medicine targets a protein known as mTOR. This protein helps cells grow and make new cells. Everolimus can help treat a type of brain tumor called a subependymal giant cell astrocytoma if it can't be treated with surgery. It's taken daily as a pill. Common side effects include:

- Mouth sores
- Nausea
- Loss of appetite
- Infections

- Feeling tired or weak
- Diarrhea
- Skin rashes

In some cases, it can damage the lungs. This can lead to breathing problems. Rarely the long-term immunosuppression can lead to secondary cancers like lymphoma.

## Larotrectinib and Entrectinib

These medicines target a specific genetic change called NTRK fusion. This genetic change is found in several types of tumors, including some brain tumors. These medicines are taken as a pill. Common side effects include:

- Fatigue
- Constipation
- Diarrhea
- Nausea
- Vomiting
- Dizziness
- Cough

In some cases, these medicines may cause damage to the liver, heart, and central nervous system. People who are pregnant or breastfeeding should not take these medicines because they may harm the fetus or baby.

## More medicines being tested

Few targeted medicines are currently used to treat brain tumors. But researchers continue to work on new medicines to treat these cancers. These new medicines are tested in clinical trials. If you want to be part of a clinical trial, talk with your healthcare provider. They can help you find out if a clinical trial would be right for you.

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