



## Trastuzumab (Herceptin®)

**Pronounce:** tras-TU-zoo-mab

**Classification:** Monoclonal Antibody

### About Trastuzumab (Herceptin®)

Monoclonal antibodies are created in a lab to attach to the targets found on specific types of cancer cells. The antibody “calls” the immune system to attack the cell it is attached to, resulting in the immune system killing the cell. These antibodies can work in different ways, including stimulating the immune system to kill the cell, blocking cell growth, or other functions necessary for cell growth. Trastuzumab is thought to block these receptors, preventing them from turning on cell growth.

Trastuzumab is a type of monoclonal antibody that targets HER-2-positive breast cancer cells. HER2 is overexpressed in some breast cancers. HER2 receptors on cells send signals telling the cell to grow and divide. Cancers that overexpress HER2 have too many receptors, which cause the cells to grow and divide more quickly. By inhibiting HER2, signals are sent to these cells to slow their growth.

### How to Take Trastuzumab

Trastuzumab is given by intravenous (IV, into a vein) infusion. The amount of time the infusion will take will depend on your treatment plan and if you tolerate the medication. The dose is based on your body size and type of cancer. The frequency of doses and adjuvant chemotherapy depends on the regimen used. Because trastuzumab is indicated only for the treatment of HER2-positive cancer, a sample of your tumor will be tested in a lab to determine if it is HER2-positive prior to starting treatment.

### Possible Side Effects of Trastuzumab

There are a number of things you can do to manage the side effects of trastuzumab. Talk to your care team about these recommendations. They can help you decide what will work best for you. These are some of the most common or important side effects:

#### Heart Problems

Trastuzumab can cause heart problems, or worsen pre-existing heart problems, including congestive heart failure. Your heart function will be tested using an echocardiogram or MUGA scan prior to starting treatment with trastuzumab, and every couple of months while on treatment and after completion of treatment. Notify your healthcare provider if you have a sudden weight gain or swelling in the ankles or legs. If heart function decreases, trastuzumab will be stopped. The risk of heart problems is greater when trastuzumab is given in combination with anthracycline chemotherapy medications.

#### Infusion-Related Side Effects

Some patients experience chills and fever within 24 hours of the first infusion. The first trastuzumab infusion can also cause the patient to have nausea/vomiting, pain at the tumor site, headache, dizziness, and rash. For these reactions, the infusion will be stopped, acetaminophen and/or diphenhydramine given to lessen the reactions, and the infusion restarted at a slower rate once symptoms resolve. This typically does not happen with subsequent infusions.

More serious reactions can occur but are rare. Symptoms of a serious reaction include shortness of breath, wheezing, low blood pressure, and an increase in heart rate. The infusion will be stopped if this happens and the doctor will determine whether or not it is safe to restart the infusion. Notify your nurse right away if you develop any concerning symptoms.

## Lung Problems

Trastuzumab can cause toxicity to the lungs, including swelling, fluid, and/or scarring within the lungs. You should report any new or worsening shortness of breath, trouble breathing, cough, or fever to your care team as these may be signs of lung toxicity.

## Low White Blood Cell Count (Leukopenia or Neutropenia)

White blood cells (WBC) are important for fighting infection. While receiving treatment, your [WBC count can drop](#), putting you at a higher risk of getting an infection. You should let your doctor or nurse know right away if you have a fever (temperature greater than 100.4°F or 38°C), sore throat or cold, shortness of breath, cough, burning with urination, or a sore that doesn't heal.

### Tips to preventing infection:

- [Washing hands](#), both yours and your visitors, is the best way to prevent the spread of infection.
- Avoid large crowds and people who are sick (i.e.: those who have a cold, fever, or cough or live with someone with these symptoms).
- When working in your yard, wear protective clothing including long pants and gloves.
- Do not handle pet waste.
- Keep all cuts or scratches clean.
- Shower or bathe daily and perform frequent [mouth care](#).
- Do not cut cuticles or ingrown nails. You may wear nail polish, but not fake nails.
- Ask your oncology care team before scheduling dental appointments or procedures.
- Ask your oncology care team before you, or someone you live with has any vaccinations.

## Fatigue

[Fatigue](#) is very common during cancer treatment and is an overwhelming feeling of exhaustion that is not usually relieved by rest. While on cancer treatment, and for a period after, you may need to adjust your schedule to manage fatigue. Plan times to rest during the day and conserve energy for more important activities. Exercise can help combat fatigue; a simple daily walk with a friend can help. Talk to your healthcare team for helpful tips on dealing with this side effect.

## Nausea and/or Vomiting

Talk to your oncology care team so they can prescribe medications to help you manage [nausea and vomiting](#). In addition, dietary changes may help. Avoid things that may worsen the symptoms, such as heavy or greasy/fatty, spicy or acidic foods (lemons, tomatoes, oranges). Try saltines, or ginger ale to lessen symptoms.

Call your oncology care team if you are unable to keep fluids down for more than 12 hours or if you feel lightheaded or dizzy at any time.

## Diarrhea

Your oncology team can recommend medications to relieve [diarrhea](#). Also, try eating [low-fiber](#), bland foods, such as white rice and boiled or baked chicken. Avoid raw fruits, vegetables, whole grain breads, cereals and seeds. Soluble fiber is found in some foods and absorbs fluid, which can help relieve diarrhea. Foods high in soluble fiber include applesauce, bananas (ripe), canned fruit, orange sections, boiled potatoes, white rice, products made with white flour, oatmeal, cream of rice, cream of wheat, and farina. Drink 8-10 glasses of non-

alcoholic, un-caffeinated fluid a day to prevent dehydration.

### Less common but important side effects can include:

- **Kidney problems:** this medication can cause a decrease in kidney function or damage to the kidney. For this reason, your healthcare team will monitor your kidney function with blood tests while receiving trastuzumab. Some patients will need to stop the medication due to kidney function changes. Notify your provider if you notice any blood in your urine, decrease in urination, or darkening of the urine.

### Reproductive Concerns

Exposure of an unborn child to this medication could cause birth defects, so you should not become pregnant or father a child while on this medication. Effective birth control is necessary during treatment and for at least 7 months after treatment. Even if your menstrual cycle stops or you believe you are not producing sperm, you could still be fertile and conceive. If you become pregnant within 7 months of receiving this medication, talk with your provider about the pregnancy registry for pregnancies after exposure to trastuzumab. You should not breastfeed while receiving this medication.

### Current Biosimilars

There are biosimilar versions of trastuzumab. A biosimilar is a medication that has been approved by the FDA because it is very similar to an FDA-approved medication (called a reference product, or the medication it is being compared to), and there are no meaningful differences between the biosimilar product and the reference product. These medications may be used interchangeably.

The biosimilar versions of this medication include trastuzumab-anns, trastuzumab-dkst, trastuzumab-dttb, trastuzumab-pkrb, trastuzuma-qyyp and trastuzumab-strf.

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