**Questions for my doctor.**

- What are my treatment options?
- Is targeted therapy right for me?
- Will my heart need to be monitored during treatment?
- What are the side effects and risks of the therapy you recommend for me?
- What can I do if my skin becomes more sensitive? If I develop breakouts, how should I treat them?
- Is there a clinical trial I could join?

**HER2-positive breast cancer**

HER2-positive breast cancers have a lot of a protein called HER2 on the surface of the cancer cells. The HER2 protein is important for cancer cell growth.

All breast cancers are tested for **HER2 status**. This information is part of breast cancer staging and helps guide treatment.

About 10 - 20 percent of newly diagnosed breast cancers are HER2-positive.

HER2-negative breast cancers have little or no HER2 protein.

**What are HER2-targeted therapies?**

HER2-targeted therapies treat HER2-positive breast cancers. They are only used to treat HER2-positive breast cancers. They have no role in the treatment of HER2-negative cancers.

**HER2-targeted therapy drugs for early breast cancer**

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Brand name</th>
<th>Pill, injection (given under the skin) or IV (given by vein through an IV) drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trastuzumab</td>
<td>Herceptin</td>
<td>IV drug or injection</td>
</tr>
<tr>
<td>Pertuzumab</td>
<td>Perjeta</td>
<td>IV drug or injection</td>
</tr>
<tr>
<td>Ado-trastuzumab emtansine</td>
<td>Kadcyla, T-DM1, trastuzumab emtansine</td>
<td>IV drug</td>
</tr>
<tr>
<td>Neratinib</td>
<td>Nerlynx</td>
<td>Pill</td>
</tr>
</tbody>
</table>

Other HER2-targeted therapy drugs are under study for early breast cancer treatment.

---

This fact sheet is intended to be a brief overview. For more information, visit komen.org or call Susan G. Komen’s Breast Care Helpline at 1-877 GO KOMEN (1-877-465-6636) Monday through Friday, 9 AM to 10 PM ET or email at helpline@komen.org.
**HER2-TARGETED THERAPIES FOR EARLY BREAST CANCER**

**How do HER2-targeted therapies work?**

- Trastuzumab and pertuzumab are specially made antibodies that target HER2-positive cancer cells. When attached to the HER2 protein, these drugs can slow or stop the growth of these cancer cells.

- Ado-trastuzumab emtansine (T-DM1) is an antibody-drug conjugate. It combines the antibody targeted therapy drug trastuzumab and a chemotherapy drug called DM1. This combination allows the targeted delivery of the chemotherapy to HER2-positive cancer cells.

- Neratinib is a tyrosine-kinase inhibitor. This drug targets enzymes important for cell functions called tyrosine-kinase enzymes. Tyrosine-kinase inhibitors can block these enzymes at many points along the HER2 cancer growth pathway.

**Side effects of targeted therapies**

Unlike chemotherapy, targeted therapies only kill cancer cells, with little harm to healthy cells. However, they have some possible side effects:

- Trastuzumab, pertuzumab and ado-trastuzumab emtansine can cause heart problems. Your heart will be checked before and during treatment to help ensure there are no problems.

- Neratinib can cause diarrhea. Your doctor will recommend medications to help control the diarrhea. It can also cause nausea, vomiting, rash and fatigue.

**Biosimilar forms of trastuzumab**

Biosimilars are “generic-like” versions of biologic drugs that are already approved by the Federal Drug Administration (FDA). They are made in or from living things like yeast, bacteria, plant or animal cells – not chemicals.

A generic drug has the exact same active chemical ingredients as the original drug. It’s not possible to make an exact copy of a biologic because it’s a living thing. However, a biosimilar is highly similar to the original biologic drug and works the same way in the body. So, it’s a “generic-like” version of a biologic drug.

There are several FDA-approved biosimilars for trastuzumab. Other biosimilars for breast cancer treatment are under study.

Your health care provider can tell you whether a biosimilar drug may be part of your breast cancer treatment plan. If you have questions about biosimilars, talk with your provider.

---

This content provided by Susan G. Komen® is designed for educational purposes only and is not exhaustive. Please consult with your personal physician.