Summary of Clinical Trial Results

A study to compare how the body processes a single subcutaneous injection of pertuzumab and trastuzumab using either a hand-held syringe or an on-body delivery system

See the end of the summary for the full title of the study.

About this summary

This is a summary of the results of a clinical trial (called a 'study' in this document) – written for:

- members of the public and
- people who took part in the study.

This summary is based on information known at the time of writing.

The study started in May 2022 and finished in October 2023. This summary was written after the study had ended.

No single study can tell us everything about the risks and benefits of a medicine. It takes lots of people in many studies to find out everything we need to know. The results from this study may be different from other studies with the same medicine.

- This means that you should not make decisions based on this one summary – always speak to your doctor before making any decisions about your treatment.

Contents of the summary

Glossary

- Bioequivalence = the biochemical similarity of two or more drugs that share the same active ingredient(s) and desired outcome(s) for people taking the drugs.
- Pharmacokinetics = how the medicine/study treatment gets to different parts of the body and how the body changes and gets rid of it.

Thank you to the people who took part in this study

The people who took part in this study helped researchers to answer important questions about the similarities and differences in how the body processes a single fixed-dose subcutaneous injection of two study medicines ("pertuzumab" and "trastuzumab") using either a "hand-held syringe" or an on-body injector device (called by its abbreviation "OBI").

Key information about this study

- This study was done to compare how the body processes the medicines (pertuzumab and trastuzumab) when administered subcutaneously as a single injection by using either a hand-held syringe or an on-body injector (OBI) device. The study also looked at the safety of using the OBI device.
    - An OBI device is a battery-operated device that is applied to a person's skin and automatically administers a single injection of medicine within a specified time after being applied.
- In this study, people were given both the medicines being studied (called 'pertuzumab' and 'trastuzumab') as a single subcutaneous injection under the skin by either a hand-held syringe or an OBI device – it was decided by chance which form of administration of the medicines each person was given.
- This study included 151 people in two countries.
- The main finding was that similar amounts of the study medicines were found in the blood regardless of the method of administration (i.e., subcutaneous injection by either a hand-held syringe or an OBI device).
- During this study, around 88% of people using the hand-held syringe (63 of 72) compared with 82% of people using the OBI device (61 of 74) had an unwanted effect related to the study treatment. None of these effects were considered serious.

1. General information about this study

Why was this study done?

Approximately 20% of breast cancer cells have higher-than-normal levels of a receptor (a type of protein found on some cancer cells) called HER2 on their surface, which stimulates them to grow. This type of breast cancer is called 'HER2-positive breast cancer'.

Anti-cancer medicines that block the HER2 receptor are known as 'HER2-targeted therapies' and include drugs such as 'pertuzumab' and 'trastuzumab'. People with HER2-positive breast cancer often receive HER2-targeted therapies before and after surgery. HER2-targeted therapies are often given by drip into a vein (we call this 'giving by intravenous infusion').

When pertuzumab and trastuzumab are given intravenously, they are given one after the other. This takes a long time – 30 to 60 minutes for pertuzumab and 30 to 90 minutes for trastuzumab. After each infusion, a person typically stays in the clinic, and a nurse checks on them from time to time to see if they are having unwanted effects. This 'observation period' may be as long as 60 minutes after pertuzumab and as long as 6 hours after trastuzumab. These long time periods in the clinic are inconvenient for someone receiving treatment every 3 weeks for a year.

When pertuzumab and trastuzumab are given by a single subcutaneous injection (an injection given under the skin), they are given together as a single injection in one syringe through one needle. This procedure using the "hand-held syringe" takes from 5 to 8 minutes. The 'observation period' lasts for 30 minutes after the injection at the first visit and 15 minutes after the injection at each additional visit.

To increase people's flexibility and convenience, an OBI device was explored so that a single subcutaneous injection of pertuzumab in combination with trastuzumab could be administered by caregivers or people using the device themselves at home. This study was designed to compare how the body processes the study medicines (pertuzumab and trastuzumab) when administered subcutaneously as a single combined dose by using either a hand-held syringe or an OBI device. The study also looked at how safe it was to use the OBI device.

What were the study medicines?

HER2-targeted therapies

'Trastuzumab'

- You say this as 'trass-too-zoo-mab'.
- Trastuzumab works by attaching to the HER2 protein on the surface of HER2-positive cancer cells. When trastuzumab attaches to HER2, it stops the protein from sending signals that make the cancer cells grow and make copies of themselves. It also makes cells in the immune system become active so that they can help attack the cancer.
- This may mean that trastuzumab helps make the tumour smaller before people have surgery.

'Pertuzumab'

- You say this as 'per-too-zoo-mab'.
- Pertuzumab works in a similar way to trastuzumab but attaches to a different part of the HER2 protein.

How were the HER2-targeted study medicines given to people in the study?

Subcutaneous injection

- Pertuzumab and trastuzumab were combined and injected under the skin as a single injection using either a hand-held syringe or an OBI device.

What did researchers want to find out?

Researchers did this study to see whether pertuzumab and trastuzumab administered by OBI device works the same as when it is administered by hand-held syringe. This was done by:

- Measuring the amount of pertuzumab and trastuzumab in the blood over time and comparing these measurements between the two different ways of giving the medicines.
- Seeing how safe the medicines were by comparing the two different ways of giving the medicines – by checking how many people had unwanted effects and seeing how serious they were, when taking each of the medicines during this study (see Section 5 "What were the unwanted effects?").

The main questions that researchers wanted to answer were:

1. Was the amount of each medicine in the blood similar when administered subcutaneously via a hand-held syringe compared to an OBI device?

2. Was the treatment equally safe when administered subcutaneously via a hand-held syringe compared to an OBI device?

The researchers also wanted to know how safe the device itself was to use and how it performed (e.g., was it easy to use, was it comfortable to wear etc.).

What kind of study was this?

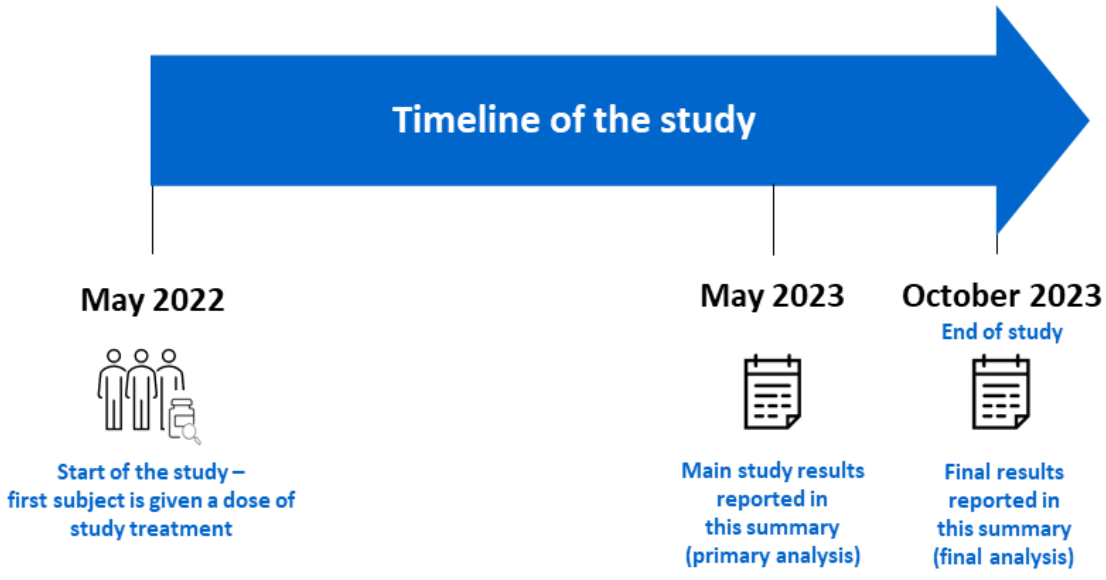
This study was a 'Phase 1' study, which means that this was one of the first studies investigating the use of an OBI device for subcutaneous injection of a single combined dose of pertuzumab and trastuzumab. A small number of healthy people (without HER2-positive breast cancer) took a single dose combination of pertuzumab and trastuzumab either by subcutaneous injection via a hand-held syringe or an OBI device, and the researchers did medical tests on the people who took part to find out more about how the body processes the medicines and the amount of medicines in the blood at the start and up to 63 days after treatment.

This was an 'open-label' study. This means that both the people taking part in the study and the study doctors knew how the HER2-targeted therapy was being administered.

The study was 'randomised'. This means that it was decided by chance which way the medicines were given to people in the study – like tossing a coin. Randomly choosing the way to give the medicines makes it more likely that the types of people in both groups (for example, age, race) will be a similar mix. Apart from the way the medicines were given in each group, all other aspects of care were the same between the groups.

When and where did the study take place?

The study started in May 2022 and this summary includes the complete results up until the end of the study in October 2023. This summary was written after the study had ended.



This study has ended and the symbol on the timeline (📋) shows when the information shown in this summary was collected – May and October 2023.
The study took place at five study centres – across two countries in one region. The countries were: Australia and New Zealand.

2. Who took part in this study?

In this study, 151 healthy men without HER2-positive breast cancer took part.

Those who took part in the study were between 18 and 46 years of age.
People could take part in the study if:

- They were male and had a body mass index of between 18 and 32 kilograms per square metre.
- They did not have any significant co-existing health conditions.
- They had intact normal skin without pigmentation or lesions in the area for intended injections on the thighs.

People could not take part in the study if:

- They had a positive urine test for drugs of abuse.
- They had systolic blood pressure ≥140 mm Hg or <90 mm Hg or diastolic blood pressure >90 mm Hg or <50 mm Hg.
- They tested positive for hepatitis B or C virus or human immunodeficiency virus.

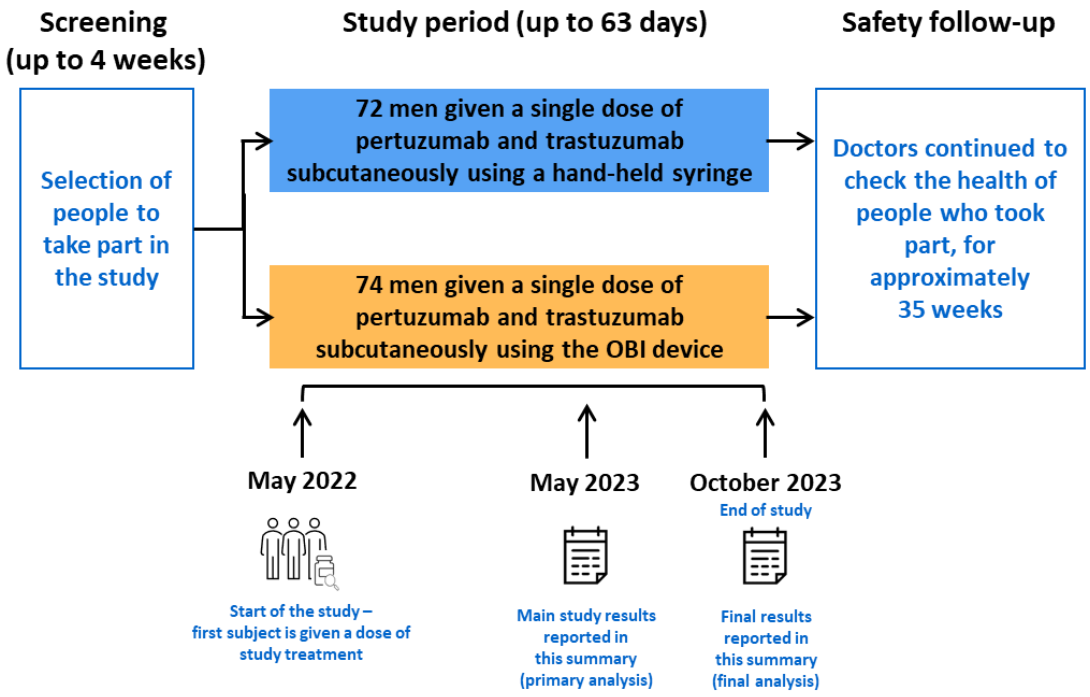
3. What happened during the study?

During the study, people were selected by chance to get the treatments in one of two ways. The way of giving the treatments were selected at random – by a computer.

The treatment groups were:

- One group of people who were given pertuzumab and trastuzumab as a single dose combination injected subcutaneously using a hand-held syringe.
- A second group of people who were given pertuzumab and trastuzumab as a single dose combination injected subcutaneously using an OBI device.

The following diagram shows the different steps that were followed during this study. More than 90% of people in both groups completed the study and follow-up period.



People in the study received one dose of the treatment at the start of the study, and doctors continued to check the health of the people in the study for approximately 35 weeks.

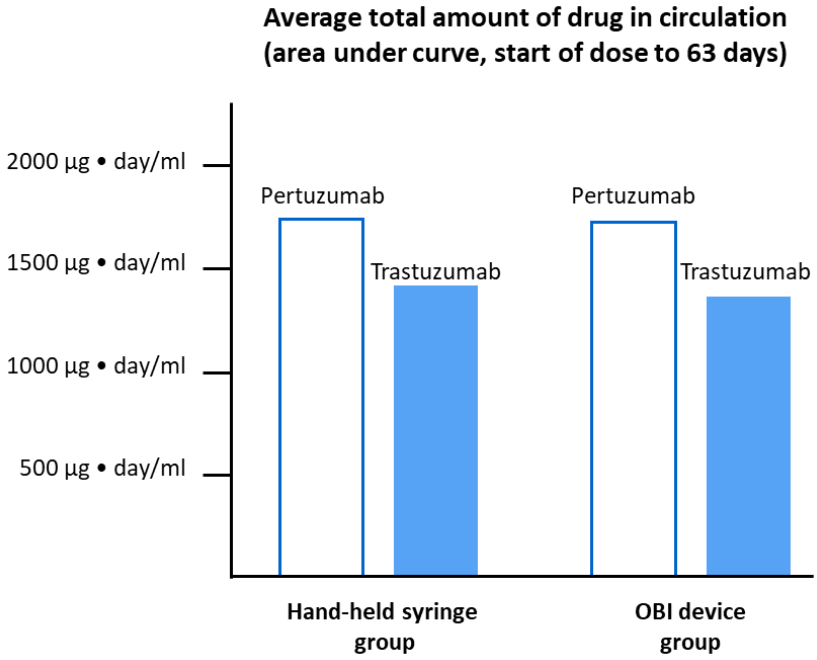
4. What were the results of the study?

Question 1: Was the amount of each medicine in the blood similar when administered subcutaneously via a hand-held syringe compared with an OBI device?

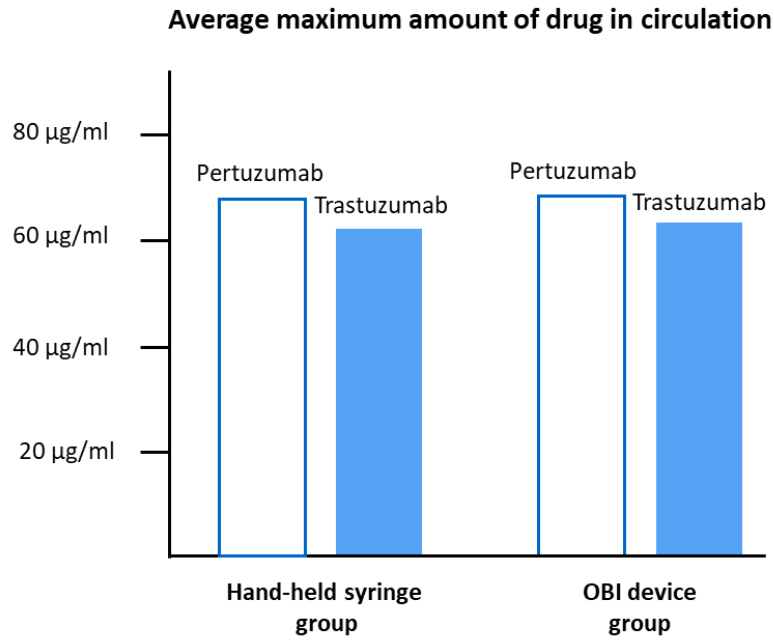
Information from the first study results (primary analysis) was included in this section.

Researchers measured the amount of pertuzumab and trastuzumab in serum at the start of treatment and up to Day 63 after treatment. Serum is the liquid that is left when blood collected in a tube is allowed to clot.

The average total amount of pertuzumab and trastuzumab in people's serum is shown in the figure on the next page. There was no difference in the average total amounts of pertuzumab or trastuzumab found in the people's serum between the treatment groups.



The average maximum amount of pertuzumab and trastuzumab in the people's serum is shown in the figure below. There was no difference in the average maximum amount of pertuzumab or trastuzumab found in the people's serum between the treatment groups.



Overall, these results mean that the amount of pertuzumab and trastuzumab that entered the blood was similar after an injection under the skin using either a hand-held syringe or an OBI device.

Question 2: Was the treatment equally safe when administered subcutaneously via a hand-held syringe compared with an OBI device?

Another piece of information that researchers collected was what unwanted effects people had throughout the study. The final safety results from the study are reported here (final analysis).

Overall, in the group who received the treatment using the hand-held syringe,

- 1 in 72 people had a serious side effect, which was not considered related to the study treatment.

Overall, in the group who received the treatment using the OBI device,

- 0 in 74 people had a serious side effect.

More information on unwanted effects is shown in Section 5.

This section only shows the key results from this study. You can find information about all other results on the websites at the end of this summary (see Section 8).

5. What were the unwanted effects?

Unwanted effects are medical problems (such as feeling dizzy) that happen during the study.

- They are described in this summary because the study doctor believes the unwanted effects were related to the treatments in the study.
- Not all of the people in this study had all of the unwanted effects.
- Unwanted effects may be mild to very serious and can be different from person to person.
- It is important to be aware that the unwanted effects reported here are from this single study. Therefore, the unwanted effects shown here may be different from those seen in other studies, or those that appear on the medicine leaflets.
- Serious and common unwanted effects are listed in the following sections.

Serious unwanted effects

An unwanted effect is considered 'serious' if it is life-threatening, needs hospital care, or causes lasting problems.

- During this study, around 1% of people (1 of 72) using the hand-held syringe had a serious unwanted effect, compared with 0% of people using the OBI device.
- The serious unwanted effect in the person who used the hand-held syringe was not related to the study treatment.
- No one in the study died due to unwanted effects.

Most common unwanted effects

- During this study, around 88% of people using the hand-held syringe (63 of 72) compared with 82% of people using the OBI device (61 of 74) had an unwanted effect related to the study treatment. None of these were considered serious.

The most common unwanted effects are shown in the following table – these are the three most common unwanted effects across both treatment groups. Some people had more than one unwanted effect – this means that they are included in more than one row in the table.

Most common unwanted effects reported in this study	**Hand-held syringe administration** (72 people total)	**OBI device administration** (74 people total)
Bodily reactions caused by the treatment injected	67% (48 out of 72)	47% (35 out of 74)
Reactions at the site of injection	24% (17 out of 72)	24% (18 out of 74)
Headache	11% (8 out of 72)	15% (11 out of 74)

Other unwanted effects

You can find information about other unwanted effects (not shown in the sections above) on the websites listed at the end of this summary – see Section 8.

6. How has this study helped research?

The information presented here is from a single study of 151 people without HER2-positive breast cancer. These results helped researchers learn more about injecting pertuzumab and trastuzumab subcutaneously using an OBI device.

No single study can tell us everything about the risks and benefits of a medicine or device. It takes lots of people in many studies to find out everything we need to know. The results from this study may be different from other studies with the same medicine.

- **This means that you should not make decisions based on this one summary – always speak to your doctor before making any decisions about your treatment.**

7. Are there plans for other studies?

At the time of writing this summary, no more studies looking at pertuzumab and trastuzumab given subcutaneously using an OBI device are planned.

8. Where can I find more information?

You can find more information about this study on the websites listed below:

- https://clinicaltrials.gov/ct2/show/results/NCT05275010.
- https://forpatients.roche.com/en/trials/healthy-volunteers/a-study-in-healthy-male-subjects-to-investigate-the-com-31356.html.

Who can I contact if I have questions about this study?

If you have any further questions after reading this summary:

- Visit the ForPatients platform and fill out the contact form – https://forpatients.roche.com/en/trials/healthy-volunteers/a-study-in-healthy-male-subjects-to-investigate-the-com-31356.html.
- Contact a representative at your local Roche office.

If you took part in this study and have any questions about the results:

- Speak with the study doctor or staff at the study hospital or clinic.

If you have questions about your own treatment:

- Speak to the doctor in charge of your treatment.

Who organised and paid for this study?

This study was organised and paid for by F. Hoffmann-La Roche Ltd who have their headquarters in Basel, Switzerland.

Full title of the study and other identifying information

The full title of this study is: “A Study in Healthy Male Subjects to Investigate the Comparability of Pharmacokinetics of the Fixed-Dose Combination of Pertuzumab and Trastuzumab Administered Subcutaneously Using a Handheld Syringe or Using the On-Body Delivery System”.

- The protocol number for this study is: WP42873.
- The ClinicalTrials.gov identifier for this study is: NCT05275010.