NOVARTIS

Clinical Trial Results Summary

A clinical trial to learn about the effects and safety of TIN816 in people with a high chance of acute kidney injury after heart surgery

Thank you!

Thank you to the participants who took part in the clinical trial for **acute kidney injury after heart surgery**. Every participant helped to learn more about the trial drug **TIN816**.

Novartis sponsored this trial. We believe it is important to share what was learned from the results of this trial with the participants and the public. We hope this helps the participants understand their important role in medical research.

Trial information

Trial number: CTIN816A12201

Novartis drug studied: TIN816

Sponsor: Novartis

If you were a participant and have any questions about the results, please talk to your doctor or staff at the trial site.

This summary only shows the results of a single clinical trial. Other clinical trials may have different results.

What was the main purpose of this trial?

The purpose of this trial was to learn about the effects and safety of **TIN816** for people who had a high chance of having **acute kidney injury after heart surgery**.

Acute kidney injury, or **AKI**, means that the kidneys are injured and do not work to filter waste from the blood as well as they should.

AKI can lead to:

- Higher levels of waste products in the blood
- High blood pressure
- Blood or protein in the urine
- Kidney failure, which means the kidneys stop working completely

Heart surgery that uses a cardiopulmonary bypass, or CPB, raises the chance of having AKI. **CPB** is a machine that takes over for the heart and lungs during heart surgery.

TIN816 is a trial drug created to prevent AKI.

The trial's purpose was to answer these main questions:

- Did TIN816 prevent participants' kidneys from working less?
- What medical problems, also called adverse events, happened during this trial?
  - ↳ **Adverse events** reported are any sign or symptom that participants had during this trial. Adverse events **may** or **may not** be caused by treatments in this trial.

How long was this trial?

The trial began in March 2023 and ended in June 2025. The participants started the trial on different dates.

The trial ended early because there was enough data to know that **TIN816** did not seem to prevent kidneys from working less after heart surgery compared to **placebo**. The decision to stop was not related to the safety of **TIN816**.

Even though the trial ended early, Novartis is committed to providing a report of results. This summary is based on that report.

Who was in this trial?

98 participants who had a high chance of **AKI after heart surgery** received treatment in this trial – 71 males and 27 females. Participants' ages ranged from 53 to 86 years. Their average age was 71 years.

The table below shows the number of participants by race.

Race					
16	Asian	2	Black or African American	53	White
1	Unknown	26	Not reported		

The participants could take part in this trial if they:

- Had kidneys that were already not working very well (low kidney function)
- Had a scheduled heart surgery that was major, such as a combined bypass surgery and valve surgery, or surgery on at least 2 heart valves
  - If surgery was not major (such as surgery on one valve only), then participants had another factor that also raised the chance of having AKI after surgery. For example, being 70 years old or older.
- Were planned to be on CPB for at least 1 hour during the heart surgery

98 participants from 14 countries received treatment. The map below shows the number of participants who took part in each country.

What treatments did the participants receive?

The treatments in this trial were:

TIN816 – received through a needle in a vein, called an intravenous (IV) infusion, one time. This trial looked at 2 doses of **TIN816**:

- **Lower dose**: 2 milligrams per kilogram of body weight
- **Higher dose**: 4 milligrams per kilogram of body weight

Placebo – received an IV infusion one time. It looks like the trial drug but does not have any drug in it. Researchers use a placebo to better understand the effect of a trial drug.

Treatments were given as a 2-hour infusion.

Participants received their assigned treatment within one hour after their heart surgery.

Researchers used a computer to randomly assign participants to their treatment.

The participants, researchers, and trial staff did not know what treatment the participants were receiving. Some trials are done this way because knowing what treatment the participants receive can affect the results of the trial. Doing a trial this way helps to make sure that the results are looked at with fairness across all treatments.

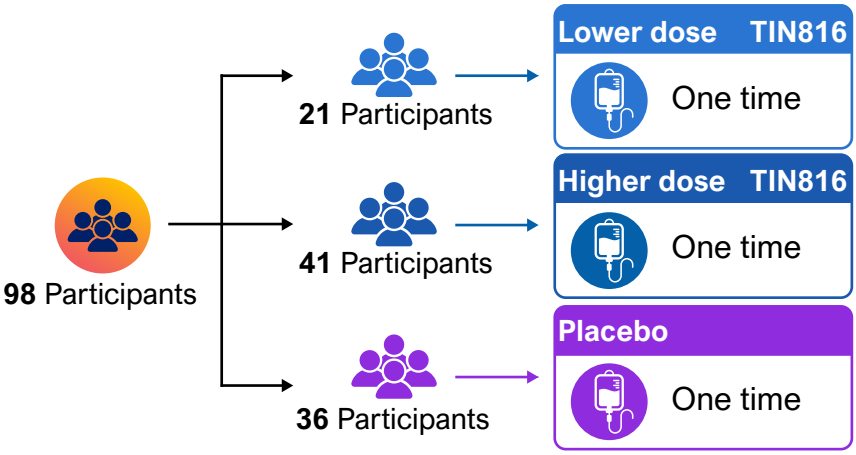
What happened during this trial?

Before treatment — 1 month

The trial staff checked to make sure the participants could be in this trial.

During treatment — About 1 week

The graphic below shows how many participants received each treatment within one hour after their heart surgery. Participants stayed at the hospital for about 1 week after surgery and treatment.



The first 30 participants received either the **lower dose of TIN816** or **placebo**. Researchers looked at the results from these participants during a planned review.

Since there were no safety concerns, researchers gave the rest of the participants either the **higher dose of TIN816** or **placebo**.

After treatment — Up to 3 months

Trial staff checked participants for any medical problems for up to 3 months after trial treatment.

Trial staff checked the participants' general health throughout the trial.

What were the main results of this trial?

Did TIN816 prevent participants' kidneys from working less?

Researchers concluded that **TIN816** did not seem to prevent participants' kidneys from working less compared to **placebo**.

To learn this, researchers measured the level of **creatinine** in participants' blood.

Researchers measured the creatinine level in each participant's blood before treatment and for 5 days after treatment. Next, researchers looked at the highest creatinine level in participants' blood after treatment. Then, they measured the change from before treatment to the highest creatinine level after treatment.

What is creatinine?

Creatinine is a waste product that healthy kidneys filter from the blood. When the creatinine level in the blood goes **up**, it is a sign that **the kidneys are doing less work**.

They compared the change in participants who received **TIN816** to those who received **placebo**. Overall, there was no meaningful difference between participants who received either dose of **TIN816** and those who received **placebo**.

The change in creatinine levels from before treatment to 5 days after treatment was similar for all groups.

What were the other results of this trial?

Did TIN816 affect participants' AKI after heart surgery?

TIN816 did not prevent AKI after heart surgery more than **placebo**.

To learn this, the trial staff took blood samples from participants to see how well their kidneys worked. They took samples before and after treatment. They measured the level of creatinine in the blood over 7 days.

Researchers scored the severity of a participant's AKI based on how much their creatinine level went up from before surgery to after treatment. They also measured how many participants who received **TIN816** developed AKI compared to **placebo**.

Did TIN816 affect how many participants had major kidney-related health problems?

More participants who received the **higher dose TIN816** had major kidney-related health problems compared to those who received the **lower dose TIN816** or **placebo**.

To learn this, researchers kept track of how many participants had the following major kidney-related health events:

- Started treatment for kidney failure, such as filtration or dialysis
- Had their kidney function go down by at least 25%, which means the kidneys were working less well than before surgery
- Death

They counted how many participants had any of the major kidney-related health events at 1 and 3 months after treatment.

What medical problems, also called adverse events, happened during this trial?

Trial doctors keep track of all medical problems, also called **adverse events**, that happen in trials. They do this even if they think the adverse events are not related to the trial treatments.

Researchers need results from many trials to decide if a drug or treatment causes an adverse event.

This section is a summary of the adverse events that happened from the day participants received the trial treatment until 3 months after treatment.

An **adverse event** is:

- Any **sign or symptom** that the participants have during a trial
- Considered **serious** when it is life-threatening, causes lasting problems, requires hospital care, or results in death

Treatments in the trial **may** or **may not** cause adverse events.

84 out of 98 participants had adverse events, including serious and other adverse events.

- 31 participants had serious adverse events
- 3 participants died due to any cause

The researchers concluded there were no new safety concerns for **TIN816** in this trial.

What serious adverse events did the participants have?

31 participants had serious adverse events.

The table below shows the most common serious adverse events that happened in **3 or more** participants. Additional serious adverse events happened in fewer participants.

	Lower dose TIN816 21 participants	Higher dose TIN816 41 participants	Placebo 36 participants
Bleeding due to blood not clotting normally Coagulopathy	1 of 21 5%	1 of 41 2%	3 of 36 8%
Heart failure Cardiac failure	3 of 21 14%	2 of 41 5%	0 of 36 0%
Severe AKI Acute kidney injury	0 of 21 0%	3 of 41 7%	0 of 36 0%
Abnormal electrical signals in the heart Atrioventricular block complete	0 of 21 0%	0 of 41 0%	3 of 36 8%

What other (not including serious) adverse events did the participants have?

The table below shows the most common other adverse events that happened in **9 or more** participants. Additional other adverse events happened in fewer participants.

	Lower dose TIN816 21 participants	Higher dose TIN816 41 participants	Placebo 36 participants
Mild or moderate AKI Acute kidney injury	3 of 21 14%	16 of 41 39%	9 of 36 25%
Irregular heartbeat Atrial fibrillation	6 of 21 29%	14 of 41 34%	5 of 36 14%
Low level of red blood cells Anemia	5 of 21 24%	11 of 41 27%	8 of 36 22%
Low blood pressure Hypotension	2 of 21 10%	5 of 41 12%	5 of 36 14%
Low level of platelets that help blood to clot Thrombocytopenia	2 of 21 10%	4 of 41 10%	3 of 36 8%
Too much fluid in the body Hypervolemia	1 of 21 5%	4 of 41 10%	4 of 36 11%

What was learned from this trial?

Researchers learned about the effects and safety of **TIN816** for people who had a high chance of having **acute kidney injury (AKI) after heart surgery**. The trial ended early because there was enough data to know that **TIN816** did not seem to affect creatinine levels.

The researchers concluded that:

- **TIN816** did not seem to prevent participants' kidneys from working less compared to **placebo**
- **TIN816** did not prevent AKI after heart surgery more than **placebo**

More participants who received the **higher dose TIN816** had major kidney-related health problems compared to those who received the **lower dose TIN816** or **placebo**.

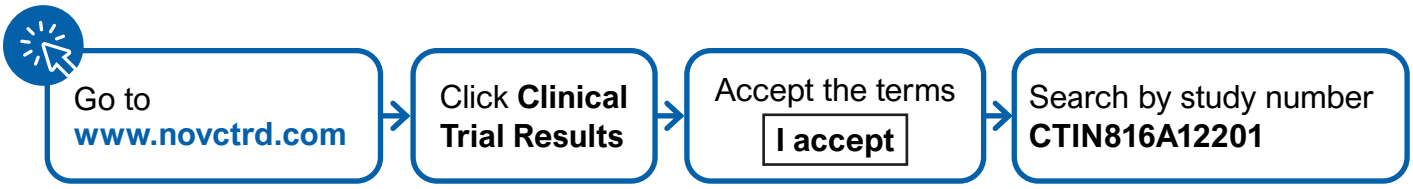
The researchers concluded there were no new safety concerns for **TIN816** in this trial.

When this summary was written, Novartis had an ongoing trial of **TIN816** in people who could have AKI from a different cause.

Where can I learn more about this trial?

To learn more about the results and adverse events in this trial, read the scientific summary of the results. It is available on the Novartis Clinical Trial Results website **www.novctrd.com**

Follow these steps to find the scientific summary:



For more information about this trial, go to any of these websites:

- **clinicaltrials.gov** – search using the number **NCT05524051**
- **euclinicaltrials.eu** – search using the number **2024-511621-64-00**

Other trials of **TIN816** may appear on the public websites above. When there, search for **TIN816**.

Full clinical trial title: A randomized, multi-centric, placebo-controlled, participant and investigator-blinded study to evaluate the safety, tolerability and efficacy of TIN816 in adult patients at risk for acute kidney injury following cardiac surgery

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