NOVARTIS

Clinical Trial Results Summary

A clinical trial to learn about the long-term effects and safety of AIN457 compared to a standard treatment in people with ankylosing spondylitis

Clinical trial protocol number: CAIN457K2340

Thank you!

Thank you to the participants who took part in the clinical trial for the drug **AIN457**, also known as **secukinumab**.

All of the participants helped the researchers learn more about how AIN457 works in people with **ankylosing spondylitis**. Novartis sponsored this clinical trial and believes 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.

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

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

Why was the research needed?

Researchers are looking for a better way to treat **ankylosing spondylitis (AS)**. AS is a long-term type of arthritis that causes inflammation (swelling, pain, and stiffness) mainly in the joints in the spine, especially in the lower back. Symptoms often start before age 45. The inflammation can lead to severe, long-lasting pain, and damage to the spine. For example, AS can cause the spine to curve or some bones in the spine (vertebrae) to fuse together, making them less flexible. The spinal damage can get worse over time.

Who is more likely to be diagnosed with AS?

AS is more commonly diagnosed in men and people who are White.

There are many treatments to lower inflammation in people with AS. Some of these treatments are designed to block proteins in the immune system that cause inflammation. This trial looked at 2 of these treatments:

- **AIN457**, also known as secukinumab (pronounced sek-ue-KIN-ue-mab), which is a drug that is approved for use in many countries to treat inflammatory diseases, including AS. It is designed to lower inflammation by blocking a protein in the body called **interleukin 17a (IL-17a)**.
- **GP2017,** which is a drug that was approved during the trial for use in many countries to treat AS. It is similar to a standard of care for AS called adalimumab and has the same effect. It is designed to lower inflammation by blocking a protein in the body called **tumor necrosis factor alpha (TNF-α)**.

Because these 2 treatments block different proteins, researchers wanted to compare the treatments to learn which works best to prevent spinal damage from getting worse.

Trial purpose

The main purpose of this trial was to compare the long-term effects of AIN457 on spinal damage from AS to GP2017, a drug similar to a standard AS treatment called adalimumab, and to learn more about the long-term safety of AIN457 in people with AS.

The main questions the researchers wanted to answer in this trial were:

- Did AIN457 prevent spinal damage from getting worse compared to GP2017 after 2 years of treatment?
- What medical problems did the participants have during the trial?

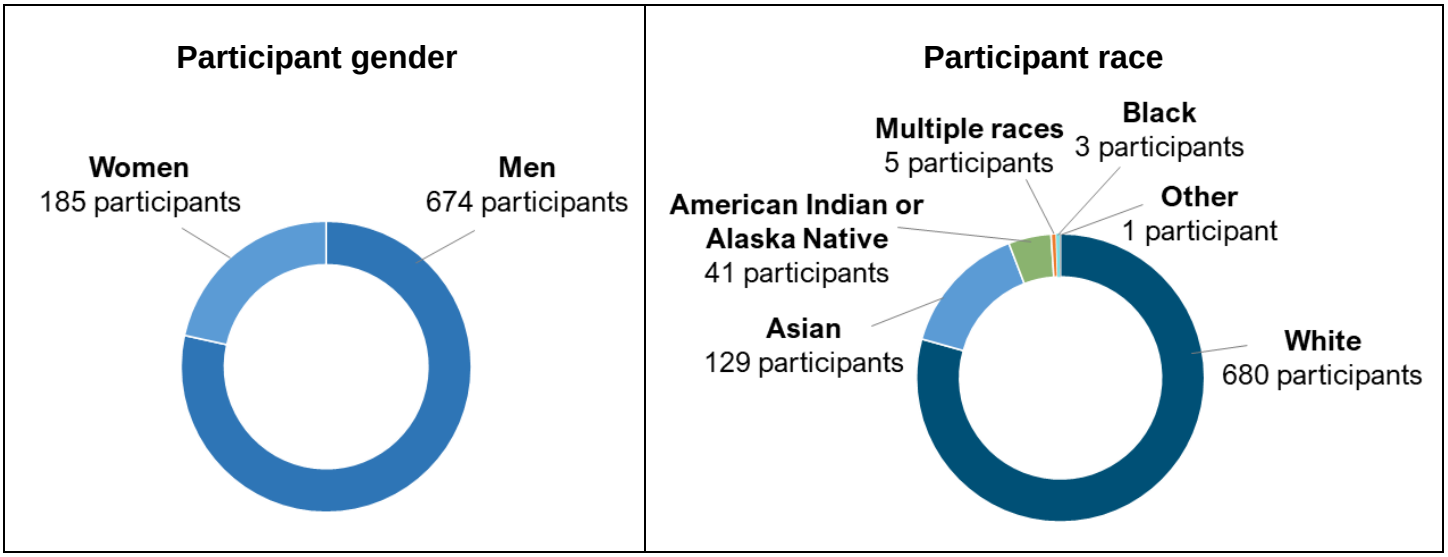
How long was this trial?

This trial was designed so that each participant could take part for about 2 and a half years. The trial started in November 2017 and ended in November 2021.

The researchers completed this trial as planned. When the trial ended, the researchers collected information on the trial treatments and created a report of the trial results. This summary is based on that report.

Who was in this trial?

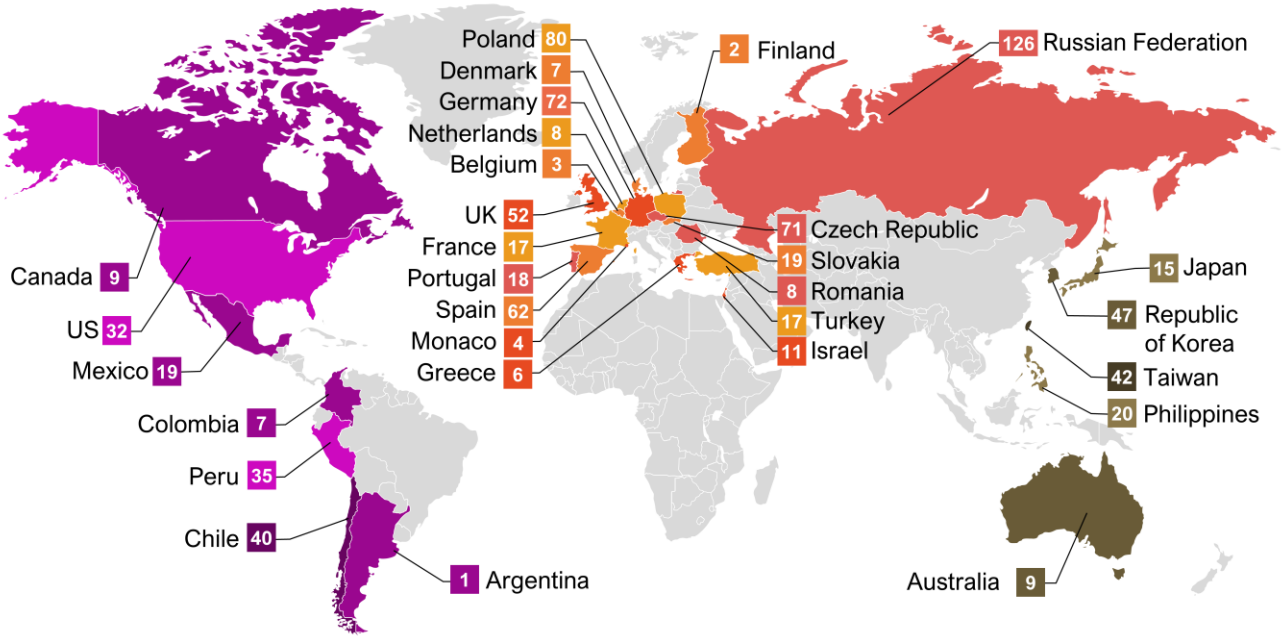
859 participants with AS were in this trial. Participants' ages ranged from 19 to 81 years. Their average age was 42 years.



The participants could take part in this trial if they had:

- Moderate to severe AS that couldn't be treated with nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and naproxen
- Spinal damage from AS that could be seen on X-ray images
- Not previously received treatments similar to AIN457 or GP2017

Participants took part at 171 trial sites in 30 countries. The map on the next page shows the number of participants who took part in each country.



What treatments did the participants receive?

The treatments in this trial were:

AIN457, which participants received as injections under the skin. Participants were assigned one of these doses:

- **Lower dose AIN457**
- **Higher dose AIN457**

GP2017, which participants received as an injection under the skin

Along with the treatments above, participants could continue to take certain other treatments for AS, including NSAIDs.

Researchers randomly assigned participants to treatment groups using a computer system. The participants, trial staff, and trial doctors:

- Knew if the participant was assigned GP2017 or AIN457
- Did not know which dose of AIN457 they were assigned

Doing a trial this way helps to make sure that the results for the two AIN457 doses are looked at with fairness towards all treatments.

What happened during this trial?

Up to 10 weeks before treatment

During screening

Trial doctors checked participants' health and AS to make sure they could be in this clinical trial.

859 participants took part in this trial.

Up to 2 years

During treatment

The participants were randomly assigned to receive 1 of 3 treatments:

- **Lower dose of AIN457**: 150 mg, usually once every 4 weeks
- **Higher dose of AIN457**: 300 mg, usually once every 4 weeks
- **GP2017:** 20 mg once every 2 weeks

The participants assigned AIN457 received the first 5 doses once a week, and then one dose every 4 weeks for about 2 years.

Along with the treatments above, participants could continue to take certain other treatments for AS, including NSAIDs.

Researchers checked the participants' AS and general health throughout the trial.

Up to 3 months

During follow-up

After they completed treatment, participants returned to their trial site 2 times for follow-up visits.

What were the main results of this trial?

Did AIN457 prevent spinal damage from getting worse compared to GP2017 after 2 years of treatment?

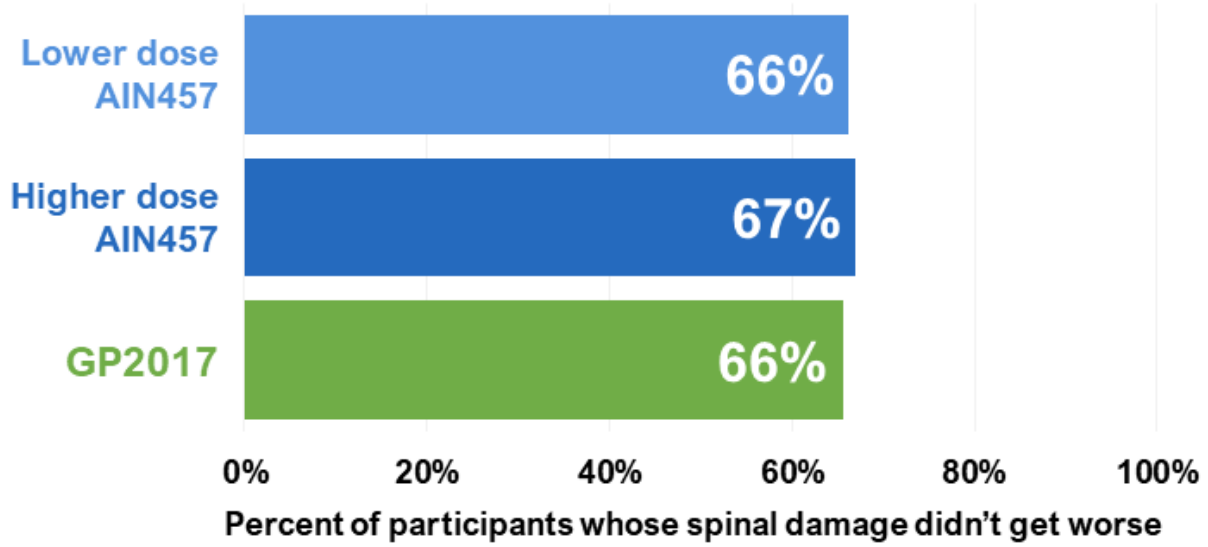
About the same percent of participants in each treatment group had no worsening of spinal damage after 2 years of treatment. The researchers concluded there was no meaningful difference between the 3 treatment groups.

To learn if participants' spinal damage got worse, researchers looked at X-ray images of participants' spines. Researchers compared X-ray images that were taken before treatment to X-ray images taken after 2 years of treatment. A participant's spinal damage was defined as not getting worse if they had very few changes in:

- Boney growths in their spine
- The shape of their spinal bones
- Fused bones in their spine

The researchers kept track of the percent of participants who did not have worse spinal damage at 2 years after treatment. In each group, about 2 out of 3 participants did not have worsening spinal damage.

The bar chart below shows the percent of participants in each treatment group who did not have worsening spinal damage. The chart only includes participants who had X-ray images before treatment.



What medical problems did the participants have during the trial?

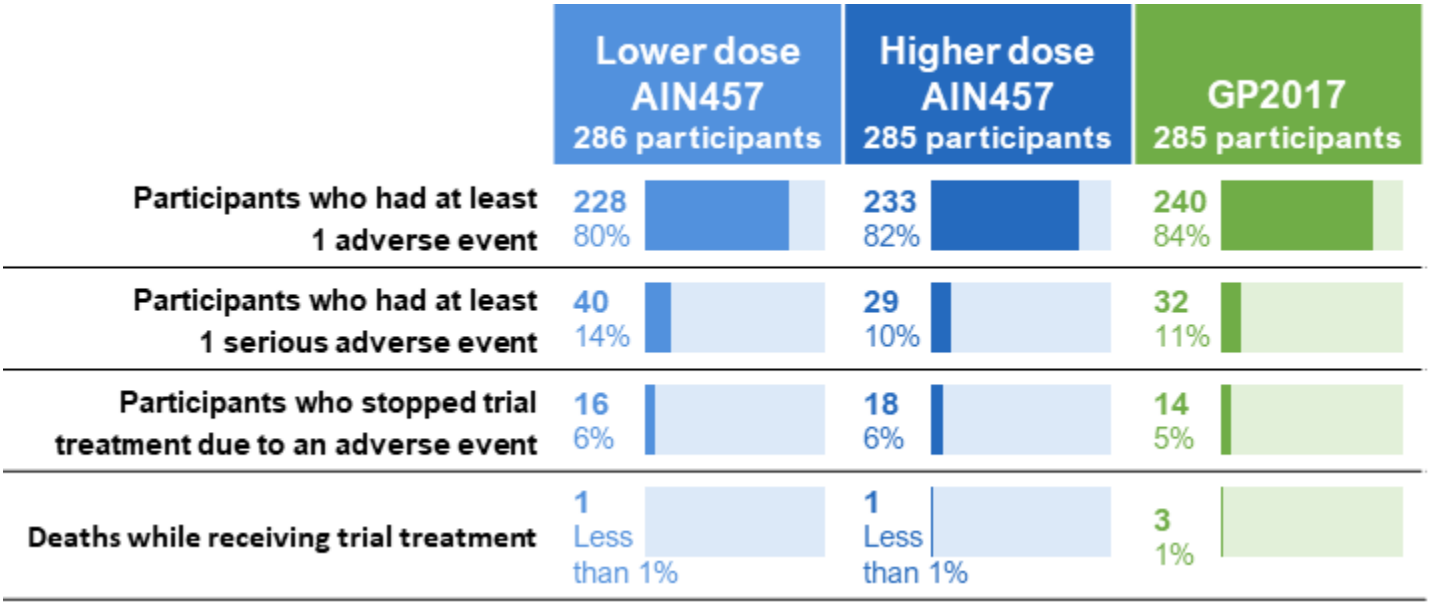
Medical problems that happen in clinical trials are called "**adverse events**".

A lot of research is needed to know whether a drug causes an adverse event. So, when drugs are being studied, researchers keep track of all adverse events the participants have, whether or not they are thought to be caused by the trial treatment.

This section is a summary of the adverse events that happened during the trial. The websites listed at the end of this summary have more information about the adverse events that happened in this trial.

An **adverse event** is any sign or symptom that participants have during a trial. An adverse event is considered "**serious**" when it is life-threatening, causes lasting problems, or the participant needs hospital care. These problems may or may not be caused by the trial treatment.

How many participants had adverse events?



What were the most common serious adverse events?

5 deaths happened during trial treatment. The deaths were from:

- Cancer (Myeloid sarcoma) – 1 participant who received the lower dose of AIN457
- COVID-19 – 1 participant who received GP2017
- Life-threatening infection (sepsis) – 1 participant who received GP2017
- Unknown cause (no autopsy performed) – 1 participant who received the lower dose of AIN457
- Sudden death of unknown cause (no autopsy performed) – 1 participant who received GP2017

101 participants had serious adverse events. The table below shows the **most common serious adverse events** that happened in 3 or more participants in any group (about 1% or more):

	Lower dose AIN457 286 participants	Higher dose AIN457 285 participants	GP2017 285 participants
A type of arthritis in the joints Osteoarthritis	3 1%	1 Less than 1%	1 Less than 1%
A type of inflammation in the intestines Crohn's disease	2 1%	3 1%	0 0%
A type of severe inflammation in the intestines Colitis	3 1%	0 0%	0 0%

What were the most common non-serious adverse events?

312 participants had adverse events that were not considered serious.

The table below shows the **non-serious adverse events** that happened in **17** or more participants in any group (about **6**% or more):

	Lower dose AIN457 286 participants	Higher dose AIN457 285 participants	GP2017 285 participants
The common cold Nasopharyngitis	47 16%	40 14%	44 15%
Infection of the upper airways that cause irritation and swelling Upper respiratory tract infection	17 6%	25 9%	18 6%
Frequent, loose, or watery stool Diarrhea	21 7%	22 8%	11 4%
Headache	16 6%	17 6%	17 6%
AS gets worse Ankylosing spondylitis	11 4%	17 6%	12 4%

How has this trial helped?

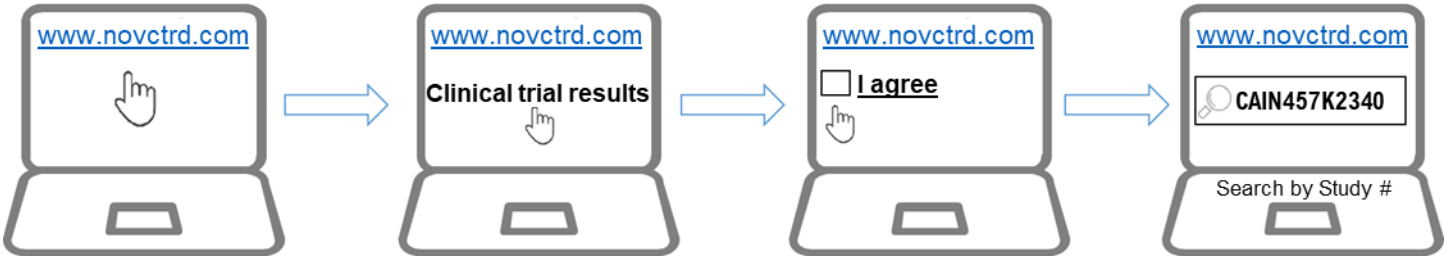
This trial helped researchers learn how well AIN457 works long-term and its safety in people with AS. About the same percent of participants in each treatment group had no worsening of spinal damage after 2 years of treatment. The researchers concluded there was no meaningful difference between the 3 treatment groups.

The researchers found no new safety concerns for the participants in this trial. The safety results were consistent with previous trials where participants with AS received AIN457 or GP2017.

Where can I learn more about this trial?

More information about the results and adverse events in this trial can be found in the scientific summary of the results available on the Novartis Clinical Trial Results website (www.novctrd.com).

Follow these steps to find the scientific summary:



You can find more information about this trial on these websites:

- www.clinicaltrials.gov. Use the NCT identifier **NCT03259074** in the search field.
- www.clinicaltrialsregister.eu. Use the EudraCT identifier **2017-000679-10** in the search field.

Full clinical trial title: A randomized, partially-blinded, active-controlled multicenter study of secukinumab to demonstrate reduction of radiographic progression versus GP2017 (adalimumab biosimilar) at 104 weeks and to assess the long term safety, tolerability and efficacy up to 2 years in patients with active ankylosing spondylitis

Thank you

Thank you for taking part in this trial. As a clinical trial participant, you belong to a large community of participants around the world. You helped researchers answer important health questions and test new medical treatments.

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Novartis is a global healthcare company based in Switzerland that provides solutions to address the evolving needs of patients worldwide.

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