Clinical trial results

Research sponsor: F. Hoffmann-La Roche AG, in collaboration with Chugai Pharmaceutical Co. Ltd.

Drug studied: Satralizumab (subcutaneous)

ClinicalTrials.gov identifier: NCT02028884

Other identifiers: 2013-003752-21 (EudraCT Number)

Protocol number: SA-307JG

Trial dates: February 2014 to June 2018

Short trial title: SAkuraSky (Efficacy and Safety Study as Add-on Therapy of Satralizumab [SA237] to Treat NMO and NMOSD)

Date this summary was completed: 19 November 2019

Thank you

Thank you for taking part in the SAkuraSky study. This was a clinical study for satralizumab. You and all of the participants are helping researchers to answer important medical questions and possibly discover new medical treatments to help people with neuromyelitis optica spectrum disorder (NMOSD).

Roche, the sponsor of this study and manufacturer of satralizumab, consider it of great importance to share the study results with you and with interested members of the public. Chugai Pharmaceutical Co., Ltd. a member of the Roche group, designed the study, provided the study drug and placebo, and analysed the data.

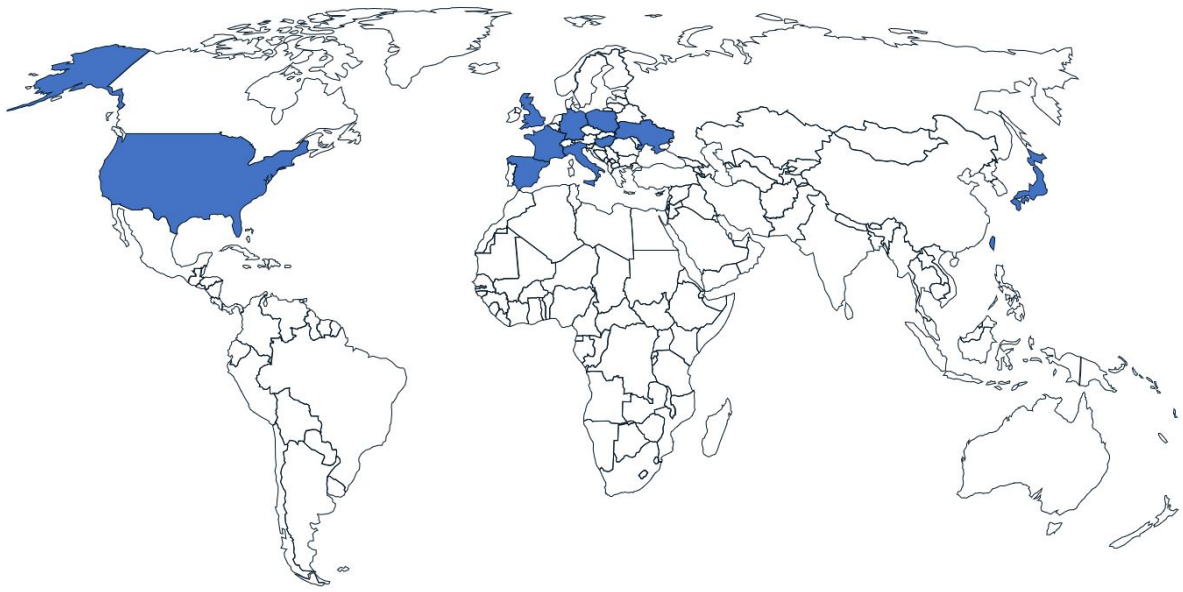
This is a summary of the final results of the SAkuraSky study. This summary was written after the study had ended.

If you have any questions about the results, please speak with your doctor or other medical staff at your study site.

When and where was the study done, and what has happened since?

You were among 83 people who took part in this study. It took about 52 months for the entire study to finish, after starting in February 2014. The study took place at 34 locations in 11 countries: France, Germany, Hungary, Italy, Japan, Poland, Spain, Taiwan, Ukraine, United Kingdom, and the United States. When the study ended in June 2018, Chugai and Roche reviewed all of the data and created a report of the final results.

Map of the study locations worldwide



Why was the study needed and who took part?

Neuromyelitis optica spectrum disorder (NMOSD) is a rare disease that affects the spinal cord and the nerves of the eyes (optic nerves). NMOSD is a broad term that includes people who have been diagnosed with neuromyelitis optica (NMO).

NMOSD can cause a wide range of symptoms that vary from person to person. People with NMOSD may feel weak, lose vision in one or both eyes, and have nerve pain or muscle spasms. NMOSD also causes some people to

feel sick or to have problems with their bladder or bowels. People with NMOSD often have feelings of fatigue (tiredness).

People with NMOSD can have times where their symptoms get much worse. When this happens it is called an 'attack'. If it happens more than once it is called a 'relapse'. Attacks and relapses should be avoided as much as possible. This is because they can cause permanent damage to the body. It is very important for doctors to help reduce their patient's risk of having a relapse.

NMOSD is a complicated disease, and researchers are still trying to find out the exact causes. Up until very recently, people with NMOSD had to take medicines that are normally given to patients with other, more common diseases.

A new, experimental drug that could help people with NMOSD has been developed. The new drug is called satralizumab. The purpose of this clinical study was to find out if satralizumab helps to reduce the risk of relapse in people with NMOSD. The study also looked at whether participants had any side effects during the study.

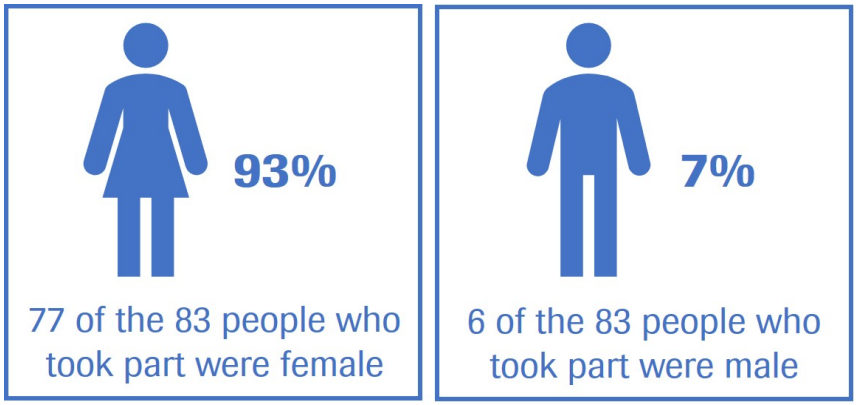
The main question that researchers wanted to answer was:

- Are patients with NMOSD less likely to have a relapse if they take satralizumab as well as their usual medicine?

Another question that researchers wanted to answer was:

- Do patients with NMOSD experience less pain or fatigue in their normal life if they take satralizumab?

To answer these questions, researchers asked for help from 77 female and six male volunteers. All participants had NMO or NMOSD. The youngest participant was 13 years old, and the oldest was 73 years old.



Youngest participant: 13 years old
Oldest participant: 73 years old

People were examined by a doctor and chosen to be in the study if they:

- Had been diagnosed with NMO or NMOSD.
- Were aged between 12 and 74 years old.
- Had at least two relapses in the last two years.
- Had not changed their NMO or NMOSD medicine in the last eight weeks.

What kind of study was this?

This study was a Phase 3, randomized clinical trial. Phase 1 and Phase 2 trials are used to test new drugs on small numbers of people. In Phase 3 trials, new drugs are tested in larger numbers of patients. Satralizumab has already been tested in a small number of people in Phase 1 and Phase 2 trials. This trial tested satralizumab in a larger number of patients with NMOSD.

In this study, satralizumab was compared with placebo. Placebo means a treatment that looks the same as the real drug but does not contain any medicine. All patients in the study carried on taking their usual NMO or NMOSD medicine.

The study was randomized. This means that a computer was used to decide who was given the drug and who was given placebo. The decision was completely random, like tossing a coin. Half of the participants were given satralizumab, and the other half were given placebo.

No one was told if their medicine was the real drug or placebo. Also, the doctor who gave patients their medicine did not know if it was the real drug

or placebo. This is called a 'double-blind' study. This was done to make sure that the study results were not biased in any way.

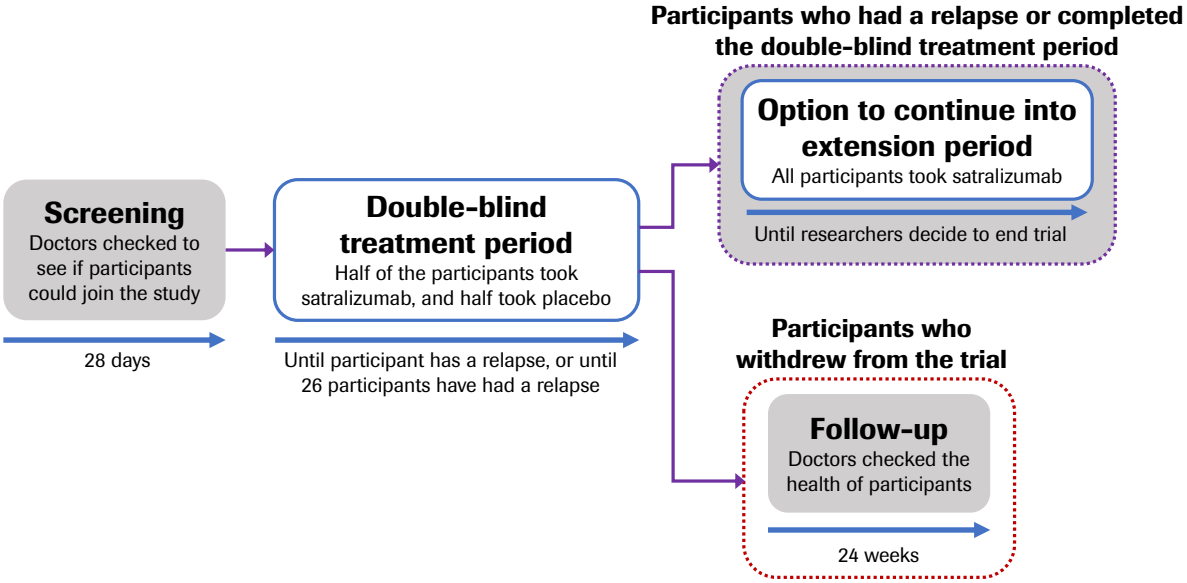
What happened during the study?

Participants took the treatment until they had a relapse, or until 26 participants in total had relapses.

The treatments that participants received were:

- Satralizumab 120 mg, as an injection just under the skin:
  - Once every two weeks for the first four weeks of the study.
  - Once every four weeks for the rest of the study.
- Placebo, as an injection just under the skin:
  - Once every two weeks for the first four weeks of the study.
  - Once every four weeks for the rest of the study.

Participants could take their usual NMO or NMOSD medicine during the study.



If doctors thought someone might be having a relapse, they performed a number of medical checks. These checks helped to make sure that other health problems were not being wrongly reported as NMOSD relapses.

What were the overall results of the study?

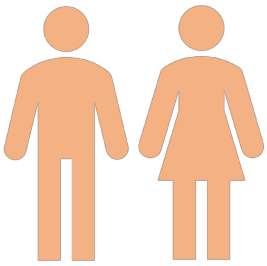
Participants who took satralizumab were less likely to have a relapse than those who took placebo. Satralizumab did not seem to make participants feel less pain or less tired in normal life. Satralizumab did not cause any serious side effects.

The following is a summary of the medical questions asked in the study, and the answers to those questions.

Question 1: Are patients with NMOSD less likely to have a relapse if they take satralizumab as well as their usual medicine?

Yes. Patients who took satralizumab were less likely to have a relapse than patients who took placebo. Eight patients who took satralizumab had a relapse during the study. 18 patients who took placebo had a relapse during the study.

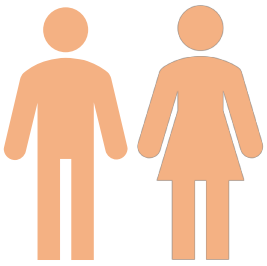
Satralizumab



20%
experienced a relapse

8 out of **41** participants who took satralizumab had a relapse

Placebo



43%
experienced a relapse

18 out of **42** participants who took placebo had a relapse

The study was completed as planned, and there were no issues that caused it to finish early.

Question 2: Do patients with NMOSD have less pain or fatigue in their normal life if they take satralizumab?

Overall, participants said that satralizumab did not affect their pain or fatigue.

Pain

Participants were asked to rate their pain at the start of the study. They were then asked to rate their pain again 24 weeks later. People rated their pain by placing a mark on a 100-millimetre line. One end of the line represented 'no pain'. The other end represented 'pain as bad as it could be'.

In general, participants did not rate their pain differently the second time around. This means that taking satralizumab did not make people feel less pain at the end of 24 weeks.

Fatigue (tiredness)

Overall, satralizumab did not make participants feel less fatigue. People took a fatigue survey at the start of the study. They then took the same survey again 24 weeks later. Each survey was given a score out of 52. Higher scores meant less fatigue.

In total, participants did not have changes in how fatigued they felt. This means that taking satralizumab or placebo did not make people feel less fatigue.

This section only shows the key results from the study. Information about all other, minor results may be available on the websites listed at the end of this summary.

What side effects did participants have?

Side effects are medical problems that happen during a study. Doctors checked to see if satralizumab affected the number of medical problems participants had.

When someone has a health problem during a study, it can be hard to tell exactly what caused it. Sometimes the health problem is a side effect of one of the treatments. Other times the health problem can be caused by a patient's long-term disease, or by a new illness.

Did any participants have serious side effects?

A side effect is considered 'serious' if it is life-threatening, requires hospital care, or causes lasting problems.

Seven people (17%) had serious medical problems while taking satralizumab. Nine people (21%) had serious medical problems while taking placebo. Three people taking satralizumab left the study early due to medical problems. Five people taking placebo left the study early due to medical problems.

There were no deaths and no serious allergic reactions.

What were the most common medical problems that participants experienced in this study?

More than 9 out of 10 participants experienced a medical problem at some point during the study. Participants taking placebo had the same number of medical problems as those taking satralizumab. The most common medical problems were common cold, upper respiratory tract infection, headache and urinary tract infection.

The table below shows the most common types of medical problems that participants experienced during the study.

Most common medical problems	Satralizumab (41 participants)	Placebo (42 participants)
Nasopharyngitis (common cold)	10 participants (24%)	7 participants (17%)
Upper respiratory tract infection (infection in the nose or throat)	10 participants (24%)	6 participants (14%)
Headache	10 participants (24%)	4 participants (10%)
Urinary tract infection (bladder infection)	7 participants (17%)	7 participants (17%)

This section only shows the most frequently reported medical problems. Information about medical problems that were not common may be available on the websites listed at the end of this summary.

How has this study helped patients and researchers?

The results presented here are from a single study, which involved 83 people with NMO or NMOSD. These results helped researchers learn more about how satralizumab may help people who have NMO or NMOSD.

One drawback of this study was that there were not many participants. NMOSD is a rare condition, and finding the right people to take part in studies can be difficult. When there are not many people in a study, it can be harder to assess if something happened by chance or because of the drug.

No single clinical study can give a complete understanding of the risks and benefits of a drug, so researchers look at the results of many studies to understand which drugs work and how they work. It takes lots of participants in many studies all around the world to advance medical science.

Always speak to your doctor before making any changes to your treatment.

Are there plans for other studies?

Another clinical trial with satralizumab also took place. The other study is called SAkuraStar. SAkuraStar is very similar to SAkuraSky, but patients are not allowed to keep taking their usual NMO or NMOSD medicines during the trial. Further information is available at www.clinicaltrials.gov. Use the trial identifier NCT02073279.

No other clinical studies involving satralizumab are ongoing, but some may be conducted in the future. These will be listed on a number of public websites, such as those listed at the end of this summary.

Where can I learn more about this study?

The full title of this study is *Efficacy and Safety Study as Add-on Therapy of Satralizumab (SA237) to Treat NMO and NMOSD.*

You can find more information about this study at:

- https://clinicaltrials.gov/ct2/show/NCT02028884

Trial identifier: NCT02028884

The results of this study have been published in the *New England Journal of Medicine*, and can be found at:
https://www.nejm.org/doi/full/10.1056/NEJMoa1901747

This study was sponsored by F. Hoffmann-La Roche AG and has its headquarters at Grenzacherstrasse 124, CH-4070 Basel, Switzerland.

If you have any further questions, please contact a representative at your local Roche office.

If you took part in this study and have any questions about the results, please speak with your doctor or other medical staff at your study site.