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A Study of TAK-227 in Healthy Adult Participants

# THANK YOU!

**Thank you to all of the participants who took part in this study.**

Takeda sponsored this study and thinks it is important to share the results with the study participants and the public.

This summary reports the main results.

## Key points of the study:

TAK-227 is being studied as a potential treatment for people with Celiac disease (CeD). Researchers wanted to see how the presence of food may affect the way TAK-227 is processed by the body. In this study, healthy adults were given TAK-227 along with different food diets and calorie content. They compared it to when participants took TAK-227 on an empty stomach. Researchers also checked for medical problems throughout the study.

Overall, the results showed that the presence of food lowered the levels of TAK-227 in the blood. TAK-227 was also found to be safe in healthy adult participants.

## Why was this study done?

Celiac disease (CeD) is an autoimmune disease. An autoimmune disease is caused by the body's immune system attacking itself. The immune system is the part of the body that normally fights germs and infections. In people with CeD, the body reacts to gluten. Gluten is a type of protein found in wheat, rye, and barley. When people with CeD eat gluten, it triggers an immune response where the body attacks the small intestine. Repeated attacks can damage the small intestine which prevents it from absorbing nutrients.

People with CeD can have diarrhea, bloating, difficulty in passing stools, vomiting, and weight loss. If left untreated, CeD can cause serious health problems.

Currently, the only treatment for CeD is to be on a strict gluten-free diet. But for some people, changing their diet does not fully control symptoms or intestinal damage. Therefore, new treatments are needed to help people with CeD. TAK-227 is a medicine being developed to treat CeD. It may be able to help stop the immune system from attacking the small intestine.

When people eat food, it can affect how medication works. It may cause the medicine to either work more quickly or slowly. In this study, researchers wanted to learn about how food affects the levels of TAK-227 found in blood. Healthy adult participants were given different diets and food of different calories. TAK-227 was taken with or without food. Researchers also checked for medical problems and how much TAK-227 stays in participants' blood over time.

## What were the main questions?

Researchers wanted to learn how the presence of food affected the levels of TAK-227 in the blood of healthy participants. To do this, they compared the levels of TAK-227 while fasting or with the presence of food in the body. Researchers wanted to answer the following questions:

- **What was the maximum amount of TAK-227 found in the blood?**
- **What was the overall amount of TAK-227 found in the blood after dosing until it could no longer be detected by blood tests?**
- **What was the total amount of TAK-227 found in the blood over time?**

Any medical problems that happened during the study were also recorded. Medical problems are any new or worsening problems that the participants had after they took the study medications. They may or may not be related to the study drug.

# How was the study done?

## What type of study was this?

Clinical studies are done as part of the development of a new treatment. The type of clinical study depends on the stage, or phase, of development. These studies are called Phase 1 to Phase 4 studies.

- This was a Phase 1 study where a small number of healthy people received the potential medicine. This was done to check its safety, and to learn how the presence of food affects the medicine.
- This was an open-label study. This means participants, doctors, and other study clinic staff knew which treatment each participant received.

## What treatments were studied?

The participants received 1 medicine:

TAK-227, 50 milligrams (mg), taken as a capsule by mouth.

## What happened during the study?

The study doctors checked that each participant met the study rules before they joined the study. Researchers wanted to see how the presence of food affected the levels of TAK-227. The study was done in the following parts:

**Screening**

- All participants were screened to make sure they were a good fit for the study.
- The screening period lasted for 28 days. During the screening, researchers performed a few health checks including physical exam, blood and urine tests, weight, height, and vital sign measurements.

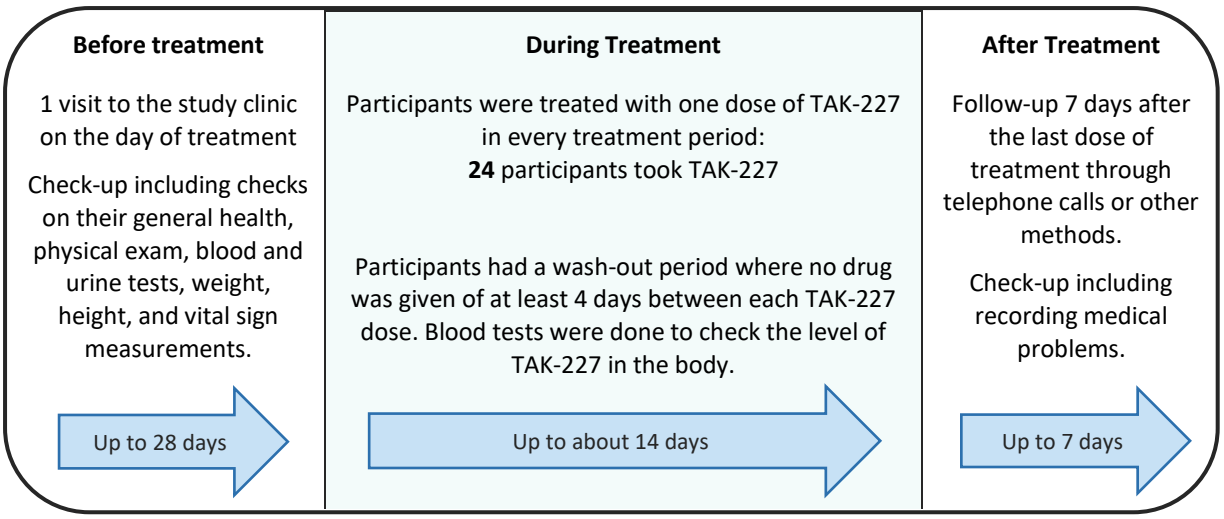
**Treatment**

- After screening, participants were placed into 1 of 6 treatment groups.
- On Day 1 of each treatment period, they received a single dose of TAK-227 given by mouth.
- Participants were not allowed to drink water 1 hour before and after TAK-227 was given.

- Participants were required to fast for at least 10 hours before each treatment.
- The 3 treatments were based on the following food conditions:
  - Treatment A: TAK-227 was given after at least 10 hours of fasting
  - Treatment B: TAK-227 was given 30 minutes after a high fat/ high calorie meal
  - Treatment C: TAK-227 was given 30 minutes before a high fat/ high calorie meal
- Each participant received a single dose of TAK-227 under all three treatments within the six groups.
- Participants had a wash-out period of at least 4 days between each TAK-227 dose. A wash-out period is the amount of time that a participant stops taking a study medication to stop its effects.
- Researchers checked their vital signs (including temperature, blood pressure, and heart rate), blood tests, performed physical exams, and recorded medical problems. Blood tests were done to check the level of TAK-227 in the body.
- They contacted the participants through telephone or other methods after 7 days of the last TAK-227 dose. Participants stayed in the clinic until the 2nd day of the last treatment period.

The table below shows the number of participants in each group and how treatments were given.

| Groups | Number of Participants | Treatment Period 1 | | Treatment Period 2 | | Treatment Period 3 |
|---|---|---|---|---|---|---|
| Group 1 | 4 | Treatment A | Washout Period | Treatment B | Washout Period | Treatment C |
| Group 2 | 4 | Treatment B | | Treatment C | | Treatment A |
| Group 3 | 4 | Treatment C | | Treatment A | | Treatment B |
| Group 4 | 4 | Treatment A | | Treatment C | | Treatment B |
| Group 5 | 4 | Treatment B | | Treatment A | | Treatment C |
| Group 6 | 4 | Treatment C | | Treatment B | | Treatment A |




## Who took part in the study?

Potential participants could take part if:

- They were healthy adults aged 18 to 55 years.
- They had a body mass index (BMI) between 18 to 32 kilograms per square meter ($kg/m^2$). BMI is a measure of body weight in relation to height.

Potential participants could not take part if:

- They had a history of alcoholism or drug abuse.
- They had another illness or condition that could affect their health or the results of the study.
- They donated blood or had lost a significant amount of blood within 56 days of starting study treatment.

All 24 participants who joined the study were treated.

They were from 25 to 55 years old when they joined the study. There were 11 (46%) women and 13 (54%) men.

### Where was the study done?

This study took place in 1 study clinic in the United States.

## When was the study done?

The study started in May 2023 and ended in June 2023. Participants were in the study for about a month.

# What were the study results?

This summary gives the main results of this single study. Other studies may give different results. Researchers look at the results of many studies to decide which medicines work best and are safest for patients. Always speak with your doctor before changing your treatment.

Researchers wanted to find out more about how the presence of food affects the levels of TAK-227. They collected blood samples to check the level of TAK-227 in the body. They then compared the results of Treatment A (fasting) with Treatment B and C. Researchers answered the following questions:

- **What was the maximum amount of TAK-227 found in the blood?**

Researchers looked at the results after treatment with TAK-227. They found that the food intake with treatments B and C lowered the maximum amount of TAK-227 in blood by 59% and 20% respectively as compared to treatment A. However, researchers did not find these results to strongly affect the way TAK-227 works.

- **What was the overall amount of TAK-227 found in the blood after dosing until it could no longer be detected by blood tests?**

Researchers checked the overall amount of TAK-227 in the blood until it could no longer be detected by blood tests. They found that the food intake with treatments B and C lowered the overall amount of TAK-227 after dosing by 39% and 33% respectively as compared to treatment A.

- **What was the total amount of TAK-227 found in the blood over time?**

Researchers found that after treatments B and C, the total amount of TAK-227 found in the blood was lower by 41% and 35% respectively compared to treatment A.

## Were there any side effects?

In a clinical study, the study doctors record all medical problems the participants have during the study. They do this whether or not they think these problems were caused by the study treatment. These medical problems are called **adverse events**. If the study doctors think some of these medical problems might be caused by the study treatment, they are called **side effects**.

The side effects shown here are from a total of 24 participants who received at least 1 dose of the study drug.

Possible side effects in this study may be different to the side effects shown on package leaflets of approved medicines. This summary shows the side effects as the medical problems that happened **during this study** that the doctors thought might be caused by the study treatment. Other studies of the same treatment may report different side effects. It takes the results of many studies to understand if medical problems may be caused by a treatment.

### How many participants had side effects?

During this study, 6 out of 24 participants (25%) had side effects.

None of the participants stopped study treatment early due to side effects.

| Information on Side Effects | | | |
|---|---|---|---|
| | **Treatment A 24 participants** | **Treatment B 24 participants** | **Treatment C 24 participants** |
| How many participants had side effects? | 3 participants (13%) | 3 participants (13%) | 2 participants (8%) |

Side effects that happened in 2 or more participants are shown here.

| Side Effects in 2 or More Participants | | | |
|---|---|---|---|
| | **Treatment A 24 participants** | **Treatment B 24 participants** | **Treatment C 24 participants** |
| Constipation | 1 participant (4%) | 0 | 1 participant (4%) |
| Tiredness (fatigue) | 1 participant (4%) | 0 | 1 participant (4%) |
| Headache | 2 participants (8%) | 0 | 0 |

### How many participants had serious side effects?

Some side effects are called serious if they cause death, threaten life, cause ongoing health problems, or need a hospital stay or a longer stay in hospital.

None of the participants had any serious side effects in this study.

## How has this study helped?

This study has helped researchers learn how the presence of food affects how the body processes TAK-227. The study results showed that food reduced the levels of TAK-227 in healthy adult participants and that TAK-227 was safe and well tolerated.

The results from several studies are needed to decide which treatments work best and are safest. This summary only shows the main results from this 1 study. Other studies may provide new information or give different results.

Further studies with TAK-227 are ongoing.

## Where can I learn more about this study?

| | |
|---|---|
| **Title of this study:** | A Randomized, Open-Label, Single-Dose, Three-Way Crossover Evaluation of the Effect of Food on the Pharmacokinetics, Safety, and Tolerability of TAK-227 in Healthy Adult Participants |
| **Study number:** | TAK-227-1001 |
| **United States study number:** | NCT05818956 |

More information about the study results is available here:

| | |
|---|---|
| United States | www.clinicaltrials.gov<br>Search this website using the study number NCT05818956 |
| Takeda website | https://clinicaltrials.takeda.com/<br>Use the detailed search using the Study Identifier TAK-227-1001 |

Takeda sponsored this study.

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