Clinical Trial Results

NOVARTIS

Research Sponsor:	Novartis
Location of Headquarters:	Basel, Switzerland
Drug Studied:	LIK066
Protocol #:	CLIK066X2201
Full Trial Title:	A randomized, double-blind, placebo-controlled, parallel group, 2-part study investigating the effect of LIK066 on body weight in dysglycemic (pre-diabetes or Type 2 diabetes) and normoglycemic subjects with elevated body mass index
Full Scientific Summary:	www.novctrd.com
Trial Date:	June 2015 to April 2016

Thank you!

Thank you for taking part in the clinical trial for a drug called LIK066. You helped researchers learn how LIK066 works in people with high body mass index, or BMI.

Novartis, the sponsor of this trial, thanks you for your help and thinks it is important for you to know the results of your trial. An independent non-profit organization called CISCRP prepared this summary of the trial results for you. We hope it helps you understand your important role in medical research.

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

What has happened since the trial ended?

This trial had 2 parts. Each participant took part in only 1 part of the trial. If you were enrolled in Part 1, you were in this trial for about 18 weeks. If you were enrolled in Part 2, you were in this trial for about 8 weeks. The whole trial took almost 1 year to complete.

The trial included 181 participants from 2 trial sites in the United States. When the trial ended in April 2016, the sponsor reviewed the data and created a report of the results. This is a summary of that report.

Why was the research needed?

Obesity can cause a lot of diseases, such as diabetes, high blood pressure, high cholesterol, and heart disease. Researchers are looking for a better way to help obese people lose extra weight and also lessen the chances of these diseases from happening. The body breaks down food into glucose, also called blood sugar. When there is too much blood sugar, the blood sugar can be changed into body fat. Researchers think that having less sugar in the blood can help obese people lose weight.

In this trial, researchers wanted to find out if the trial drug LIK066 can help participants lose weight. LIK066 lessens the body's ability to take up blood sugar from the gut and helps the body remove blood sugar from the kidneys. Researchers compared LIK066 with a placebo. A placebo looks like medicine but does not have any real medicine in it.

In your trial, researchers wanted to know:

- Did participants who took LIK066 lose more weight than participants who took the placebo?
- Did participants with high blood sugar levels lose more weight than participants with normal blood sugar levels after taking the trial drug 2 or 3 times a day?
- How much LIK066 got into the blood?
- What medical problems did participants have during the trial?

To answer these questions, researchers asked for the help of men and women like you. The participants in this trial were 19 to 65 years old. They were all obese and either had normal blood sugar levels or had high blood sugar levels, such as having pre-diabetes or type 2 diabetes.

What kind of trial was this?

This trial was "double-blind". This means that none of the participants, trial doctors, trial staff, or sponsor staff knew if participants were taking LIK066 or the placebo.

Some trials are done this way because knowing what treatment each participant is taking can affect the results of the trial. Doing a trial this way helps to make sure that the results are looked at fairly.

When the trial ended, the research sponsor found out what all the participants took so they could create a report of the trial results.

What happened during the trial?

Before the trial started, the trial doctors did tests and determined the BMI of each participant to make sure they could join the trial. Measuring the BMI of participants helps trial doctors understand how much body fat participants have based on their height and weight.

During Part 1 of the trial, participants took their trial treatments for up to 12 weeks. Participants were randomly assigned to take either:

- 150 milligrams, or mg, of LIK066 once a day before lunch
- A placebo once a day before lunch

During Part 2 of the trial, participants got their trial treatments for 2 weeks. Participants were randomly assigned to get either:

- 75 mg of LIK066 twice a day before breakfast and dinner and a placebo before lunch
- 50 mg of LIK066 three times a day before breakfast, lunch, and dinner
- A placebo three times a day before breakfast, lunch, and dinner

The chart below shows how many participants took each treatment:

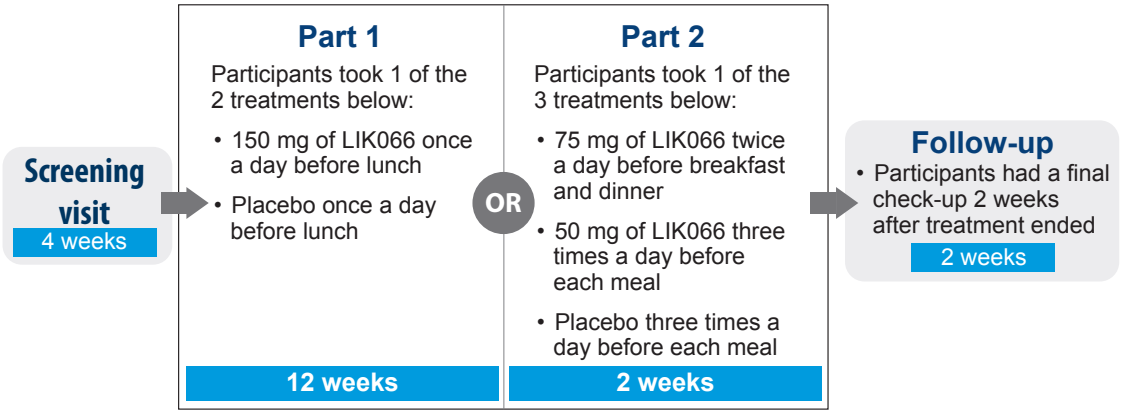
Part 1 Treatment: 88 Participants	Part 2 Treatment: 93 Participants
44 participants took 150 mg of LIK066 once a day	40 participants took 75 mg of LIK066 twice a day
44 participants took the placebo once a day	43 participants took 50 mg of LIK066 three times a day
	10 participants took the placebo three times a day

Each participant was in only 1 part of the trial.

At each trial site visit, the trial doctors did tests, checked the weight of each participant and measured around their waist to see how well the treatment was working.

After treatment ended, participants had a final check-up 2 weeks later.

The chart below shows how the trial was done for each part:



What were the results of the trial?

This is a summary of the overall results of your trial, not your individual results. The results presented here are for a single trial. Researchers look at the results of many trials to decide which drugs work best and are safest for patients. Other trials may provide new information or different results. You should not make changes to your treatment based on the results of a single trial without first talking to your doctor.

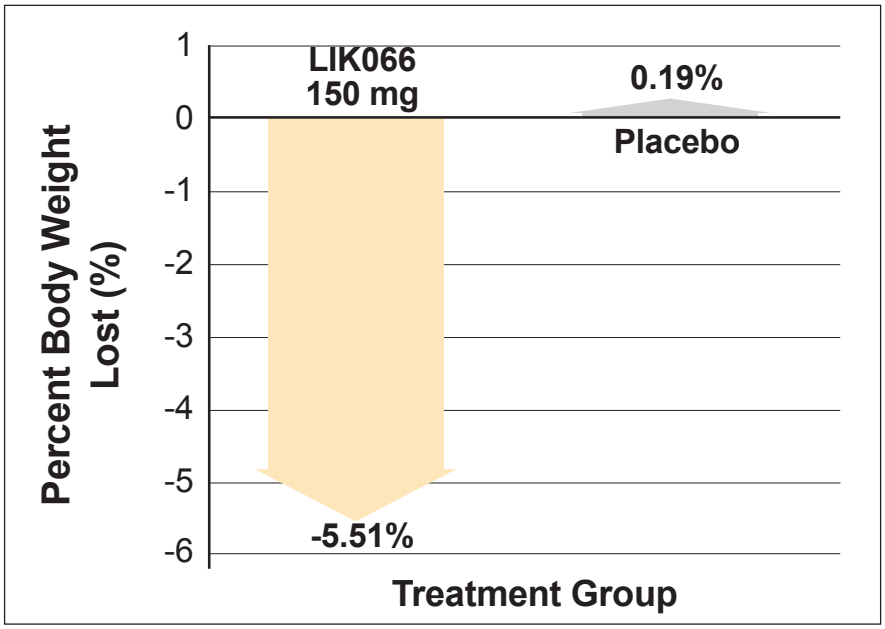
Did participants who took LIK066 lose more weight than participants who took the placebo?
Yes. Participants who took LIK066 lost more weight compared to participants who took the placebo in both parts of the trial.

After 12 weeks of treatment In Part 1: participants who took LIK066 lost weight. Participants who took the placebo did not have much of a change in their weight.

- Participants who took LIK066 lost an average of 5.51% of their body weight.
- Participants who took the placebo gained an average of 0.19% of their body weight.

The chart below shows the change in participants' body weight after 12 weeks of treatment during Part 1 of the trial.

Part 1: Change in body weight by Day 85

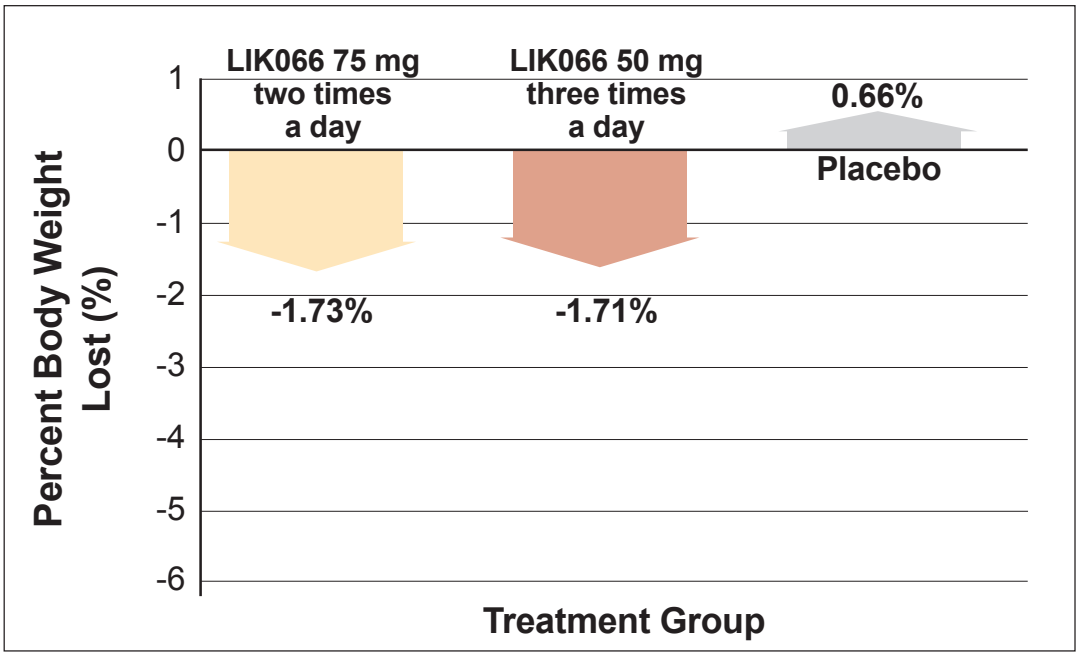


After 2 weeks of treatment in Part 2, participants who took LIK066 lost weight. Participants who took the placebo gained weight.

- Participants who took LIK066 75 mg twice a day lost an average of 1.73% of their body weight.
- Participants who took LIK066 50 mg three times a day lost an average of 1.71% of their body weight.
- Participants who took the placebo gained an average of 0.66% of their body weight.

The chart below shows how much weight participants lost after 2 weeks of treatment during Part 2 of the trial.

Part 2: Change in body weight by Day 14



Did participants with high blood sugar levels lose more weight than participants with normal blood sugar levels after taking the trial drug 2 or 3 times a day?

No. Participants with high blood sugar levels lost slightly more body weight than participants with normal blood sugar levels. This happened whether they took the trial drug 2 or 3 times a day. But, the differences were too similar for researchers to know if participants with high blood sugar levels lost more weight. The differences seen could have been due to chance.

How much LIK066 got into the blood?

Researchers also wanted to know how much LIK066 got into the blood and if the amount was different between participants with normal blood sugar levels compared with participants with high blood sugar levels.

In Part 1:

- The highest amount of LIK066 in the blood was similar between participants with normal blood sugar levels and participants with high blood sugar levels.
- The amount of time it took LIK066 to reach its highest amount in the blood ranged from 30 minutes to 6 hours.

In Part 2:

- The highest amount of LIK066 in the blood was similar between participants with normal blood sugar levels and participants with high blood sugar levels.
- The amount of time it took LIK066 to reach its highest amount in the blood ranged from 30 minutes to 4.5 hours.

What medical problems did participants have?

A lot of research is needed to know whether a drug causes a medical problem. So when new drugs are being studied, researchers keep track of all medical problems that participants have. These medical problems are called "adverse events". An adverse event is any sign or symptom that may or may not be caused by the trial treatment.

How many participants had adverse events during the trial?

Most participants in each treatment group had some adverse events. In Part 1, slightly more participants in the LIK066 group had adverse events compared to the placebo group. All participants in Part 2 had at least 1 adverse event. The table below shows how many participants had adverse events during this trial.

Adverse events in this trial

	Part 1		Part 2		
	LIK066 150 mg once a day Out of 44 participants	Placebo once a day Out of 44 participants	LIK066 75 mg 2 times a day Out of 40 participants	LIK066 50 mg 3 times a day Out of 43 participants	Placebo 3 times a day Out of 10 participants
How many participants had adverse events?	43 (97.7%)	39 (88.6%)	40 (100.0%)	43 (100.0%)	10 (100.0%)
How many participants had adverse events thought to be related to trial treatment?	41 (93.2%)	19 (43.2%)	40 (100.0%)	43 (100.0%)	8 (80.0%)
How many participants had serious adverse events?	1 (2.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
How many participants stopped taking the treatment because of adverse events?	1 (2.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Did any participants have serious adverse events?

An adverse event is considered "serious" when it is life-threatening, causes lasting problems, or leads to hospitalization. During the trial, all serious adverse events were reported and written down, whether or not they were caused by the trial drug. No participants died during the trial.

In this trial, 1 serious adverse event happened. There was 1 participant in Part 1 who took 150 mg of LIK066 who had his or her appendix burst or rupture. This participant stopped participating in the trial. The trial doctors did not think that this serious adverse event was related to taking the trial treatments.

What were the most non-serious common adverse events?

The most common non-serious adverse event in both parts of the trial was diarrhea. This adverse event happened in all treatment groups.

The table below shows the most common non-serious adverse events that happened to at least 20% of participants in any treatment group in the trial.

Most common non-serious adverse events in any treatment group in this trial

	Part 1		Part 2		
Most common non-serious adverse event	LIK066 150 mg once a day Out of 44 participants	Placebo once a day Out of 44 participants	LIK066 75 mg 2 times a day Out of 40 participants	LIK066 50 mg 3 times a day Out of 43 participants	Placebo 3 times a day Out of 10 participants
Diarrhea	40 (90.9%)	11 (25.0%)	40 (100.0%)	42 (97.7%)	8 (80.0%)
Having gas	19 (43.2%)	4 (9.1%)	9 (22.5%)	12 (27.9%)	0 (0.0%)
Stomach pain	12 (27.3%)	5 (11.4%)	5 (12.5%)	8 (18.6%)	0 (0.0%)
Bloating	11 (25.0%)	4 (9.1%)	9 (22.5%)	9 (20.9%)	0 (0.0%)
Headache	9 (20.5%)	16 (36.4%)	13 (32.5%)	10 (23.3%)	2 (20.0%)
Hard stools	0 (0.0%)	0 (0.0%)	10 (25.0%)	8 (18.6%)	6 (60.0%)

What were the overall limits of the trial?

The results presented here are for a single trial. Researchers look at the results of many trials to decide which drugs work best and are safest for participants.

This trial was done in participants who were all obese and either had normal blood sugar levels or had high blood sugar levels, such as having pre-diabetes or type 2 diabetes.

Where can I learn more about this trial?

More information about the results and the full list of adverse events that happened in this trial can be found in the scientific summary of the results available on the Novartis Clinical Trial Results website (www.novctrd.com). Once on the site, click **"Clinical trial results"** at the bottom of the page. After agreeing to enter the Novartis website, type **CLIK066X2201** into the keyword search box and click **"Search"**. If you have questions about the results, please speak with the trial doctor or staff at your trial site.

This trial was registered on the following website:

- Clinical Trials.gov (https://clinicaltrials.gov/) - National Clinical Trial # NCT02470403

Researchers look at the results of many trials to decide which drugs work best and are safest for patients. It takes volunteers in many trials all around the world to advance medical science.

Thank you

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.

CISCRP
THE CENTER FOR INFORMATION & STUDY ON CLINICAL RESEARCH PARTICIPATION

The Center for Information & Study on Clinical Research Participation (CISCRP) is a non-profit organization focused on educating and informing the public about clinical research participation. CISCRP is not involved in recruiting participants for clinical trials, nor is it involved in conducting clinical trials.

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