Clinical Study Results

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Study Sponsor:	UCB Biopharma SRL
Treatment Studied:	Bimekizumab
Protocol Number:	AS0011
Short Study Title:	A study to learn about how well bimekizumab works and about how safe it is in people with radiographic axial spondyloarthritis

Thank you

UCB thanks all the participants of this study. All the participants helped the researchers learn more about using bimekizumab in people living with radiographic axial spondyloarthritis, which is also called ankylosing spondylitis or just “AS”.

This is a summary of the main results of this study. This study is sometimes called the BE MOBILE 2 study. An independent, non-profit organization helped prepare this summary of the study results, which included feedback from patients.

We think it is important to share the results with the participants and the public. We hope this summary helps the participants understand their important role in medical research.

The purpose of this summary is only to share information. If you need medical advice, please contact your doctor. If you participated in this study and have questions about the results, please speak with study staff.

Overview of this study

Why was the research needed?

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Researchers are looking for a different way to treat AS. Before a treatment is available for all patients, researchers do clinical studies to find out how the treatment works and how safe it is.

What treatments did the participants receive?

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The participants in this study received bimekizumab or a placebo. A placebo looks like a treatment but does not have any treatment in it.

What were the results of the study?

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

- **Did receiving bimekizumab improve the participants' AS?**
  Yes. Overall, the researchers found that the participants who received bimekizumab had improvements in their AS compared with those who received the placebo.

- **What medical problems did the study doctors report as possibly related to the study treatment?**
  - In the **double-blind** period of the study, there were **36.6%** of participants who had medical problems that the study doctors reported as possibly being related to the study treatment. This was 85 out of 332 participants.
  - In the **maintenance** period of the study, there were **40.9%** of participants who had medical problems that the study doctors reported as possibly being related to the study treatment. This was 135 out of 332 participants.

More details about the study periods and the results of this study are included later in this summary.

Where can I learn more about this study?

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You can find more information about this study on the websites listed on the last page. If a full report of the study results is available, it can also be found on those websites.

Why was the research needed?

Before a treatment is available to all patients, researchers do clinical studies to get information about how well the treatment works and about how safe it is.

The researchers in this study wanted to learn if bimekizumab worked in a large number of participants living with AS. They also wanted to learn if the participants had any medical problems during the study.

AS is a type of chronic arthritis that affects the spine and the joints between the spine and pelvis, which are called the sacroiliac joints. Chronic means that a medical condition is long-term. AS happens when the immune system mistakenly attacks the spine and sacroiliac joints. This causes inflammation that can be seen on X-ray or MRI scans.

People with AS can experience symptoms including back pain and stiffness. These symptoms can especially happen during the night or while resting, and they can sometimes feel better with exercise. AS can also cause pain and fatigue, which is a type of tiredness that does not get better with sleep or rest. This can have an impact on people's wellbeing, daily activities, and quality of life. Over time, the inflammation that happens in AS can cause damage to the spine and sacroiliac joints. Inflammation can also make pain worse.

Bimekizumab is designed to block proteins called interleukin-17s (IL-17s) from working. IL-17 proteins help to activate certain parts of the body's immune system that cause inflammation in AS. Bimekizumab is a type of drug called a biologic. Researchers hope that blocking IL-17 proteins from working will lower inflammation in the spine and sacroiliac joints of people with AS. It is hoped that this could help to reduce symptoms like stiffness, swelling, and pain.

In this study, the researchers wanted to find out if bimekizumab worked in treating participants with AS.

What were the main questions studied?

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

- Did receiving bimekizumab improve the participants' AS?
- What medical problems did the study doctors report as possibly related to the study treatment?

Who participated in the study?

There were 332 men and women with AS who participated in this study. They were 19 to 80 years old when they joined.

The study included participants in 14 countries:

Country	Participants	Country	Participants
Belgium	10	Japan	12
Bulgaria	15	The Netherlands	2
China	44	Poland	87
Czech Republic	56	Spain	34
France	4	Turkey	5
Germany	37	The United Kingdom	12
Hungary	5	The United States	9

In this study, the researchers planned to include participants living with moderate to severe AS who had:

- Symptoms for at least 3 months, which started when they were younger than 45 years old.
- Already tried certain other treatments for their AS, but the treatments did not work or they had too many medical problems.

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These participants **had not**:

- Had any drugs that target IL-17 in the past.
- Had more than 1 TNFα inhibitor drug or more than 2 other biologic drugs to try to stop their AS inflammation.
- Had an inflammatory condition of the eye called uveitis in the 6 weeks before starting the study.
- Gotten an active infection, or had:
  - An infection in the past 2 weeks.
  - A serious infection where they needed to go to the hospital in the past 2 months.
  - Regular infections with microbes that are not usually harmful.

Each participant was in the study for up to 18 months, but the whole study lasted for a little more than 3 years. The study started in April 2019 and ended in August 2022.

What treatments did the participants receive?

The participants in this study received bimekizumab or a placebo as injections just under the skin. The placebo injections did not have any bimekizumab in them. The researchers used the placebo to help make sure the effects they found in the study were actually caused by bimekizumab. Doses of bimekizumab were measured in milligrams (mg).

None of the participants or study doctors knew what treatment each participant was receiving during the main period of the study. UCB staff also did not know. Some studies are done this way because knowing what treatment the participants are receiving can affect the results of the study. After the study was completed, UCB learned what treatment each participant received so they could create a report of the results.

The researchers used a computer program to randomly choose if the participants received bimekizumab or the placebo. This helped make sure the treatments were chosen fairly and comparing the results for the treatments was as accurate as possible.

This treatment period was called the **double-blind** period.

After 16 weeks of receiving bimekizumab or the placebo in the double-blind period, all of the participants were switched to receive bimekizumab for another 8 months. This was called the **maintenance** period. The participants, study doctors, study staff, and UCB staff knew that the participants were receiving bimekizumab during this period. No participants received the placebo during the maintenance period. At the end of the maintenance period the participants could choose to either continue to receive bimekizumab in another study or they could stop taking bimekizumab.

The participants who stopped taking bimekizumab were checked by the researchers for any medical problems. This happened 5 months after their last dose of study treatment. This is called a safety follow-up period.

The chart below shows the treatments the researchers planned to study:

	Bimekizumab	Placebo
	For the first 16 weeks (double-blind period)	
	221 participants	111 participants
	160 mg of bimekizumab as an injection under the skin	The placebo as an injection under the skin
	Once every 4 weeks	
	For the next 8 months (maintenance period)	
	All participants received 160 mg of bimekizumab as an injection under the skin	
	Once every 4 weeks	

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What happened during this study?

This section shows how the study was planned to be done.

Before joining the study, the participants visited their clinic at least 2 times. All the participants first learned about the study and then decided to join. This is called “informed consent”. Then, the study doctors and study staff asked the participants about their medical history and checked their health to make sure they could join the study. This part lasted up to 5 weeks.

At these visits, the study doctors:

Checked the participants’ health through physical exams

Asked the participants about any medical problems they were having and the medicines they were taking

Took blood and urine samples

Checked the participants’ heart health using an electrocardiogram (ECG)

Took X-ray scans of each participant’s chest, spine, and sacroiliac joints, unless the participant had already had these types of X-rays recently

The study participants:

Completed questionnaires about their AS symptoms, how the symptoms were affecting their lives, and their wellbeing

At the beginning of the study, the doctors asked the participants to stop taking certain medications. This part is called a “washout period”. It was done so that these medications could leave the participants’ bodies before they received any study treatment. This washout period helped the researchers understand if effects they saw during the study were related to the study treatment.

During the study, the participants visited the clinic up to 15 times. At some of these visits, the study doctors did some of the tests and measurements that were done at the first visit. The study doctors kept track of any medical problems reported by the participants or observed by the doctors or study staff.

After completing the study treatment, the participants could choose to continue taking bimekizumab in another study, or they could choose to stop taking bimekizumab. The participants who stopped taking bimekizumab were asked to visit the clinic again, where the study doctors checked the participants' health and asked about any medical problems they were having.

What were the results of the study?

This is a summary of the main results from this study. These are the results from all the participants combined. The individual results of each participant might be different and are not in this summary.

Deciding which treatments work best usually takes results from several studies. Other studies may provide new information or different results. Always talk to a doctor before making any treatment decisions.

Did receiving bimekizumab improve the participants' AS?

Yes. Overall, the researchers found that the participants who received bimekizumab had improvements in their AS compared with those who received the placebo.

In this study, the researchers used a measurement called ASAS40. This measures whether participants with AS have responded to treatment or not. The ASAS40 was measured after 16 weeks of treatment in the double-blind period. There are different aspects of AS that are measured in ASAS40, including:

- Changes in AS symptoms
- Physical function
- Back pain
- Back stiffness and inflammation

The researchers got this information from the questionnaires completed by the participants before receiving study treatment and after 16 weeks of receiving study treatment. To have responded to treatment after 16 weeks, participants needed to have:

- Improved by at least 40% in at least 3 of the 4 aspects measured in the ASAS40.
- Not shown any worsening in the 1 aspect that did not improve by 40% in the ASAS40.

In this study, the researchers calculated the number of participants who responded to treatment based on their ASAS40 results.

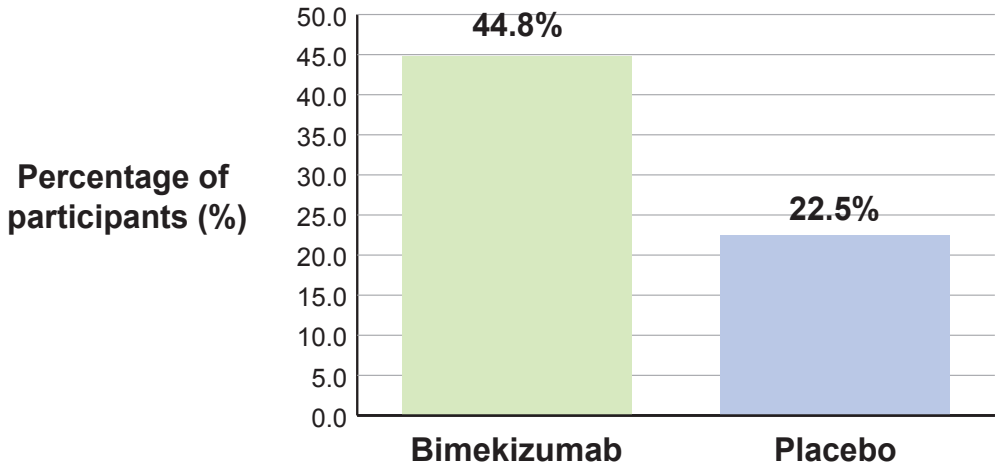
After 16 weeks of treatment:

- In the **bimekizumab** group, **44.8%** of participants had responded to treatment, based on their ASAS40 results. This was 99 out of 221 participants.
- In the **placebo** group, **22.5%** of participants had responded to treatment, based on their ASAS40 results. This was 25 out of 111 participants.

The researchers found that there were significant differences between the bimekizumab group and the placebo group. For this reason, the researchers concluded that bimekizumab improved AS compared with the placebo.

The graph below shows these results.

Percentage of participants who responded to treatment after 16 weeks, based on their ASAS40 results



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What medical problems did the study doctors think might be related to the study treatment?

This section is a summary of the medical problems that the participants had during the study that the doctors reported as **possibly related** to the study treatment. These medical problems are called "**adverse reactions**".

In the double-blind period of this study, the doctors did not know whether the participants were receiving bimekizumab or the placebo when medical problems happened. This was only in the first 16 weeks of study treatment. After 16 weeks, all participants received bimekizumab for the next 8 months during the maintenance period.

Some participants had more than 1 adverse reaction.

This summary also includes information about serious adverse reactions. An adverse reaction is considered "serious" when it is life-threatening, causes lasting problems, or requires hospital care.

Other studies may or may not show that these medical problems were related to the study treatment. The results from several studies are often needed to decide if a treatment causes an adverse reaction. Always talk to a doctor before making any treatment decisions.

Did any adverse reactions happen during the double-blind period of the study?

The results below include 332 participants in the double-blind period. This was all 332 participants who received at least 1 dose of study treatment.

Adverse reactions in the double-blind period of the study

	Group 1 Bimekizumab (out of 221 participants)	**Group 2 Placebo** (out of 111 participants)
How many participants had adverse reactions?	29.9% (66 participants)	17.1% (19 participants)
How many participants had serious adverse reactions?	0.9% (2 participants)	0.9% (1 participant)
How many participants left the study due to adverse reactions?	none	none

What adverse reactions did the participants have in the double-blind period of the study?

The table below shows the adverse reactions that happened during the double-blind period of the study. These happened in 2% or more participants. There were other adverse reactions, but these happened in fewer participants.

Adverse reaction	**Bimekizumab** (out of 221 participants)	**Placebo** (out of 111 participants)
Headache	3.6% (8)	2.7% (3)
Infection of the nose, sinuses, and throat (Upper respiratory tract infection)	5.4% (6)	1.4% (3)
Infection of the mouth caused by yeast (Oral candidiasis)	4.1% (9)	none
Pain where the injection was given	2.7% (6)	0.9% (1)
Common cold	2.7% (6)	0.9% (1)

What serious adverse reactions did the participants have during the double-blind period of the study?

The table below shows the serious adverse reactions that happened during the double-blind period of the study.

None of the participants died due to serious adverse reactions.

Serious adverse reactions during the double-blind period of the study

Serious adverse reaction	**Bimekizumab** (out of 221 participants)	**Placebo** (out of 111 participants)
Inflamed large intestine and rectum (Ulcerative colitis)	0.45% (1)	none
An inflammatory disease that affects the lining of the digestive tract (Crohn's disease)	0.45% (1)	none
Viral infection	none	0.9% (1)

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Did any adverse reactions happen during the whole study?

The results below are for the adverse reactions that happened during the whole study. This includes the double-blind period and the maintenance period. In the maintenance period, study participants received bimekizumab for 8 months. But, the participants were observed for any medical problems for another month after their last dose of bimekizumab. So, the maintenance period was 9 months long.

There were 2 participants who stopped receiving study treatment after the double-blind period and did not have bimekizumab treatment in the maintenance period. So, the results below for the whole study, including the maintenance period, are for 330 participants.

Adverse reactions in the whole study, including the 9-month maintenance period

	Bimekizumab (out of 330 participants)
How many participants had adverse reactions?	40.9% (135 participants)
How many participants had serious adverse reactions?	2.1% (7 participants)
How many participants left the study due to adverse reactions?	2.7% (9 participants)

What adverse reactions did the participants have?

The table below shows the adverse reactions that happened during the whole study, including the 9-month maintenance period. These happened in 2% or more participants. There were other adverse reactions, but these happened in fewer participants.

Adverse reactions during the whole study, including the 9-month maintenance period

Adverse reaction	**Bimekizumab** (out of 330 participants)
Infection of the mouth caused by yeast (Oral candidiasis)	5.5% (18)
Common cold	3.6% (12)
Infection of the nose, sinuses, and throat (Upper respiratory tract infection)	3.6% (12)
Headache	2.7% (9)
Pain where the injection was given	2.4% (8)
Itchy skin (Pruritus)	2.1% (7)

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What serious adverse reactions did the participants have?

The table below shows the serious adverse reactions that happened during the study. Some of the participants had more than 1 serious adverse reaction.

None of the participants died due to serious adverse reactions.

Serious adverse reactions during the whole study, including the 9-month maintenance period

Serious adverse reaction	**Bimekizumab** (out of 330 participants)
Inflamed large intestine and rectum (Ulcerative colitis)	0.3% (1)
An inflammatory disease that affects the lining of the digestive tract (Crohn's disease)	0.3% (1)
Inflammation or infection in the small pouches of the digestive tract (Diverticulitis)	0.3% (1)
Infection in the deeper layer of the skin (Cellulitis)	0.3% (1)
Infection of the middle part of the ear (Otitis media)	0.3% (1)
Infection of the upper layers of the skin (Erysipelas)	0.3% (1)
Fainting (Syncope)	0.3% (1)
Thinking about suicide (Suicidal ideation)	0.3% (1)

What did the researchers learn from this study?

The results of this study have helped researchers learn more about using bimekizumab in people living with AS.

Deciding which treatments work best for patients almost always takes results from several studies. This summary shows only the main results from this one study. Other studies may provide new information or different results.

The purpose of this summary is only to share information. If you need medical advice about your own health or situation, please contact your doctor.

When this document was approved, further clinical studies with bimekizumab were ongoing.

Where can I learn more about this study?

You can find more information about this study at the website listed below:

- www.clinicaltrials.gov/ct2/show/study/NCT03928743

If you have questions about this study, or the disease, see:

- www.ucb.com/UCBcares
- www.ucb.com/disease-areas/Axial-Spondyloarthritis

Study Information

Protocol Number: AS0011

Study Sponsor: UCB Biopharma SRL sponsored this study. It is referred to as UCB in this summary.

Full Study Title: A Phase 3, Multicenter, Randomized, Double-Blind, Placebo-Controlled Study Evaluating the Efficacy and Safety of Bimekizumab in Subjects With Active Ankylosing Spondylitis

National Clinical Study Number: NCT03928743

Thank you

Participants in clinical studies belong to a large community of people who take part in clinical research around the world. They help researchers answer important health questions and find medical treatments for patients.

CISCRP REVIEW PANEL

This summary was last updated on 28 November 2023.
The final clinical study report is dated 25 January 2023.