Bimekizumab Demonstrated Similar Efficacy and Safety in Two Clinical Endotypes of Axial Spondyloarthritis: 1-Year Results from Two Phase 3 Trials

Félicie Costantino,[1,2] Ann-Sophie De Craemer,[3,4] Filip Van den Bosch,[3,4] Maxime Breban,[5] Vanessa Taieb,[6] Diana Voiniciuc,[7] Natasha de Peyrecave,[8] Dirk Elewaut,[4,9] Maria-Antonietta D'Agostino[10]

[1]Department of Rheumatology, Ambroise Paré Hospital, AP-HP, Paris, France; [2]Infection & Inflammation, UMR 1173, Inserm, UVSQ/Université Paris Saclay, Montigny-Le-Bretonneux, France; [3]Department of Internal Medicine and Pediatrics, Ghent University, Ghent, Belgium; [4]VIB Center for Inflammation Research, Ghent, Belgium; [5]CHU Ambroise-Paré, Boulogne-Billancourt, France; [6]UCB, Colombes, France; [7]UCB, Slough, UK; [8]UCB, Brussels, Belgium; [9]Ghent University Hospital, Department of Rheumatology, Ghent, Belgium; [10]Department of Rheumatology, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy

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Objective

To evaluate the differences in efficacy and safety between two clinical endotypes of axial spondyloarthritis (axSpA) upon dual interleukin (IL)-17A and IL-17F inhibition with bimekizumab (BKZ) to Week 52, using a validated clustering algorithm.

Introduction

- AxSpA mainly manifests in the axial domain (sacroiliac joints and spine); however, peripheral manifestations (arthritis, enthesitis and dactylitis) are also common in patients with axSpA, contributing significantly to the disease burden.[1]
- Previous cluster analyses have identified two axSpA endotypes: patients with predominantly axial disease (i.e. Endotype A), and patients with axial and peripheral manifestations (i.e. Endotype B), associated with higher disease activity and reduced quality of life.[1-4]
- BKZ, a monoclonal IgG1 antibody that selectively inhibits IL-17F in addition to IL-17A, has shown sustained efficacy and safety to Week 104 in patients across the full disease spectrum of axSpA in the phase 3 studies BE MOBILE 1 and 2 and their combined open-label extension (OLE), and to 5 years in the phase 2b BE AGILE study in radiographic (r-)axSpA.[5,6]
- Here, we report efficacy and safety with BKZ in the two axSpA endotypes to Week 52.

Methods

- BE MOBILE 1 (NCT03928704; non-radiographic [nr-]axSpA) and BE MOBILE 2 (NCT03928743; r-axSpA) study designs have been reported previously.[7] All patients received subcutaneous BKZ 160 mg every 4 weeks (Q4W) from Week 16.
- Patients, pooled across studies, were categorised into endotypes by a validated Classification and Regression Tree (CART) clustering algorithm using baseline characteristics; this approach has previously demonstrated value in identifying patients at risk of poorer outcomes.[3,4]
- Retention and efficacy data are reported to Week 52 for all randomised patients (N=586), stratified by endotype.
  - Efficacy was evaluated using ASAS40 response, ASDAS clinically important improvement (ASDAS-CII) and ASDAS major improvement (ASDAS-MI), reported using non-responder imputation (NRI) and observed case (OC), and ASDAS low disease activity (ASDAS LDA) and ASDAS change from baseline (ASDAS CfB), reported using multiple imputation (MI).
- Pooled safety data are reported for patients receiving ≥1 dose of BKZ to Week 52 (N=574), stratified by endotype.

Results

Patients

- Of the 586 patients randomised in BE MOBILE 1 and 2, 402 (68.6%) patients were categorised into Endotype A and 184 (31.4%) into Endotype B. Baseline characteristics by endotype are presented in **Table 1**.
- Kaplan-Meier retention rates at Week 52 were 88.3% in Endotype A and 89.7% in Endotype B.

Efficacy

- At Week 16, higher ASAS40 response rates were observed with BKZ vs placebo (PBO) regardless of endotype; these rates continued to increase to Week 52 in patients receiving continuous BKZ (**Figure 1A**).
  - Similar patterns of improvement were largely observed for ASDAS-CII, ASDAS-MI and ASDAS LDA (**Figures 1B–D**).
- Across endotypes, greater reductions from baseline in ASDAS were observed with BKZ vs PBO at Week 16. These reductions continued to Week 52 in patients receiving continuous BKZ and were largely comparable across endotypes (**Figure 1E**).
- When evaluated separately in nr-axSpA and r-axSpA, efficacy outcomes were largely comparable across endotypes to the pooled patient population.
- Across most outcomes at Week 16, greater differences in responses with BKZ vs PBO were observed in Endotype B vs Endotype A, as illustrated by the respective odds ratios (**Figure 1**).

Safety

- The safety profile of BKZ was consistent across endotypes and the overall population (**Table 2**).

Conclusions

Bimekizumab demonstrated comparable retention, efficacy and safety in both endotypes across the full disease spectrum of axSpA through Week 52.

These results suggest bimekizumab may provide effective treatment for patients with axSpA, regardless of endotype.

Summary

Previous cluster analyses have identified **two clinical endotypes of axSpA**:

Endotype A
Predominantly axial manifestations

Endotype B
Axial and peripheral manifestations

where **Endotype B** has been associated with **higher disease activity**

Bimekizumab treatment demonstrated **similar retention, efficacy, and safety** at one year in both clinical endotypes across the full disease spectrum of axSpA

Table 1 Patient demographics and baseline characteristics, stratified by endotype

Mean (SD) unless otherwise specified	Endotype A *Predominantly axial manifestations* PBO n=168	Endotype A *Predominantly axial manifestations* BKZ 160 mg Q4W n=234	Endotype B *Axial and peripheral manifestations* PBO n=69	Endotype B *Axial and peripheral manifestations* BKZ 160 mg Q4W n=115	Overall N=586
Age, years	39.0 (11.6)	40.5 (11.4)	40.2 (13.4)	40.4 (12.6)	40.0 (11.9)
Sex, male, n (%)	110 (65.5)	161 (68.8)	35 (50.7)	72 (62.6)	378 (64.5)
HLA-B27 positive, n (%)	132 (78.6)	197 (84.2)	55 (79.7)	97 (84.3)	481 (82.1)
Symptom duration, years	9.9 (8.4)	12.5 (10.8)	11.4 (10.0)	12.1 (10.0)	11.5 (9.9)
Age at axSpA onset, years[a]	29.6 (8.6)	28.6 (8.3)	29.3 (8.4)	28.8 (8.6)	29.0 (8.5)
ASDAS	3.6 (0.7)	3.6 (0.8)[b]	3.8 (0.8)	4.0 (0.8)	3.7 (0.8)[c]
BASFI	5.0 (2.2)	5.1 (2.2)	5.8 (2.0)	5.9 (2.1)	5.3 (2.2)
ASQoL	8.4 (4.2)	8.8 (4.7)	10.5 (4.4)	10.1 (4.6)	9.1 (4.5)
SF-36 PCS	35.2 (8.6)	34.7 (8.3)[b]	31.3 (8.4)	32.5 (8.4)	34.0 (8.5)[c]
hs-CRP, mg/L, median (Q1, Q3)	7.0 (2.7, 13.2)	6.2 (1.8, 15.5)	5.9 (1.7, 19.8)	9.1 (2.6, 21.0)	7.0 (2.2, 15.9)
History of peripheral manifestations, n (%)					
Peripheral arthritis	24 (14.3)	21 (9.0)	69 (100)	115 (100)	229 (39.1)
Enthesitis[d]	94 (56.0)	133 (56.8)	65 (94.2)	93 (80.9)	385 (65.7)
Dactylitis	5 (3.0)	8 (3.4)	11 (15.9)	18 (15.7)	42 (7.2)
Uveitis	30 (17.9)	31 (13.2)	15 (21.7)	21 (18.3)	97 (16.6)
Psoriasis	10 (6.0)	13 (5.6)	7 (10.1)	12 (10.4)	42 (7.2)
Inflammatory bowel disease	2 (1.2)	3 (1.3)	0	3 (2.6)	8 (1.4)

Randomised sets. The CART algorithm was based on the following baseline characteristics: sex, onset age <40 years, disease duration <2 years, HLA-B27 status and presence of arthritis, enthesitis, dactylitis, uveitis, psoriasis and inflammatory bowel disease. Unlike the published algorithm, buttock pain, triggering infection and NSAID response were not used to determine endotype, as these data were not collected in BE MOBILE 1 and 2. **[a]** Age at first symptoms of axSpA; **[b]** n=233; **[c]** n=585; **[d]** Enthesitis is defined as MASES >0 at baseline.

Figure 1 ASAS40, ASDAS-CII, ASDAS-MI, ASDAS LDA and ASDAS CfB to Week 52, stratified by endotype

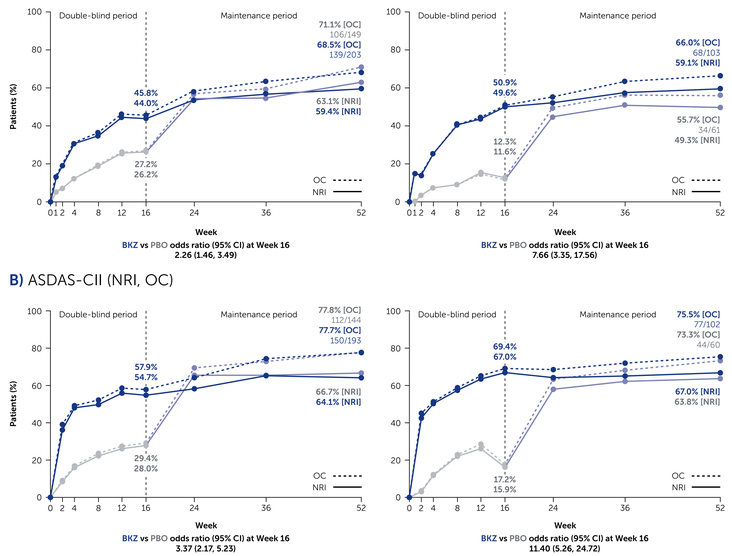
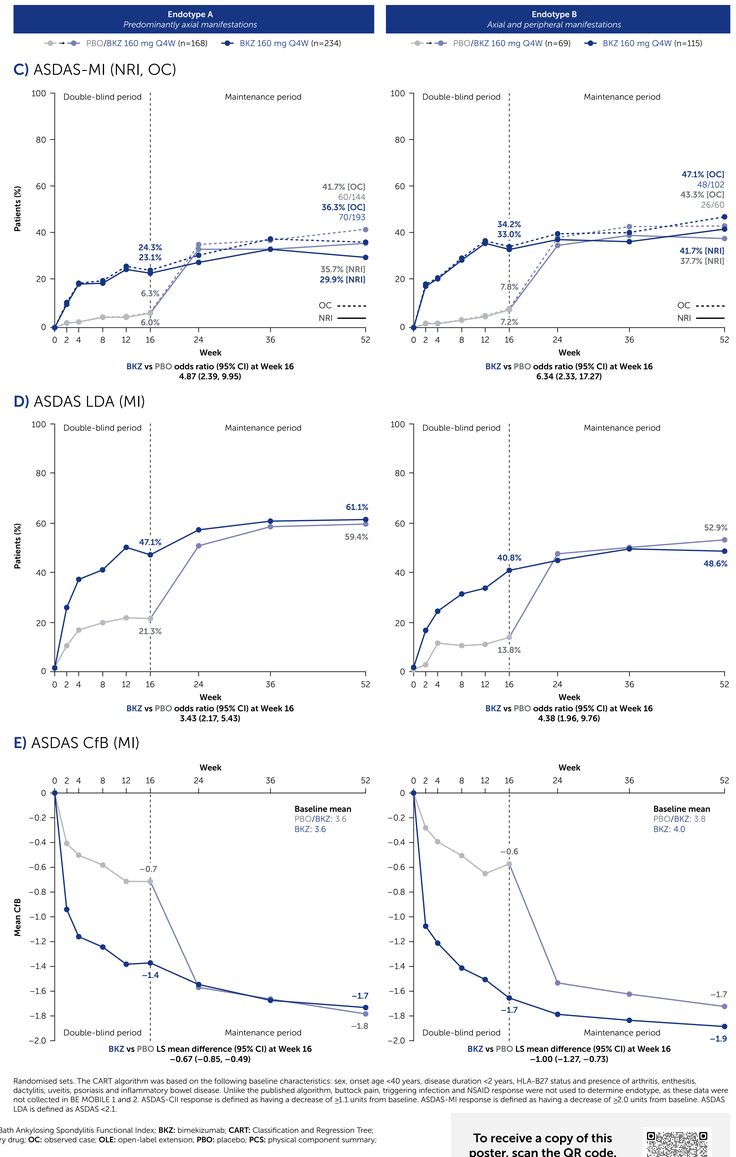


Table 2 Summary of TEAEs reported to Week 52, stratified by endotype

n (%)	Any BKZ 160 mg Q4W: Endotype A *(Predominantly axial manifestations)* n=395	Any BKZ 160 mg Q4W: Endotype B *(Axial and peripheral manifestations)* n=179	Any BKZ 160 mg Q4W: Overall N=574
Any TEAEs	352 (89.1)	162 (90.5)	514 (89.5)
Serious TEAEs	48 (12.2)	24 (13.4)	72 (12.5)
TEAEs leading to study discontinuation	23 (5.8)	11 (6.1)	34 (5.9)
TEAEs leading to treatment discontinuation	27 (6.8)	12 (6.7)	39 (6.8)
Drug-related TEAEs	196 (49.6)	87 (48.6)	283 (49.3)
Severe TEAEs	31 (7.8)	15 (8.4)	46 (8.0)
Deaths	0	0	0

Data to the most recent data-cut (July 2023) shown. This analysis includes patients who received ≥1 dose of BKZ 160 mg Q4W in the phase 3 studies and their ongoing OLE. n reports the number of patients experiencing ≥1 TEAE in each category. The CART algorithm was based on the following baseline characteristics: sex, onset age <40 years, disease duration <2 years, HLA-B27 status and presence of arthritis, enthesitis, dactylitis, uveitis, psoriasis, and inflammatory bowel disease. Unlike the published algorithm, buttock pain, triggering infection and NSAID response were not used to determine endotype, as these data were not collected in BE MOBILE 1 and 2.

Figure 1 cont. ASAS40, ASDAS-CII, ASDAS-MI, ASDAS LDA and ASDAS CfB to Week 52, stratified by endotype



Randomised sets. The CART algorithm was based on the following baseline characteristics: sex, onset age <40 years, disease duration <2 years, HLA-B27 status and presence of arthritis, enthesitis, dactylitis, uveitis, psoriasis and inflammatory bowel disease. Unlike the published algorithm, buttock pain, triggering infection and NSAID response were not used to determine endotype, as these data were not collected in BE MOBILE 1 and 2. ASDAS-CII response is defined as having a decrease of ≥1.1 units from baseline. ASDAS-MI response is defined as having a decrease of ≥2.0 units from baseline. ASDAS LDA is defined as ASDAS <2.1.

ASAS40: Assessment of SpondyloArthritis international Society 40% response; **ASDAS:** Axial Spondyloarthritis Disease Activity Score; **ASDAS-CII:** ASDAS clinically important improvement; **ASDAS LDA:** ASDAS low disease activity; **ASDAS-MI:** ASDAS major improvement; **ASQoL:** Ankylosing Spondylitis Quality of Life; **axSpA:** axial spondyloarthritis; **BASFI:** Bath Ankylosing Spondylitis Functional Index; **BKZ:** bimekizumab; **CART:** Classification and Regression Tree; **CI:** confidence interval; **CfB:** change from baseline; **HLA:** human leukocytic antigen; **hs-CRP:** high-sensitivity C-reactive protein; **IL:** interleukin; **LS:** least squares; **MI:** multiple imputation; **MASES:** Maastricht Ankylosing Spondylitis Enthesitis Score; **nr-axSpA:** non-radiographic axSpA; **NRI:** non-responder imputation; **NSAID:** non-steroidal anti-inflammatory drug. **OC:** observed case; **OLE:** open-label extension; **PBO:** placebo; **PCS:** physical component summary; **Q:** quartile; **Q4W:** every 4 weeks; **r-axSpA:** radiographic axSpA; **SD:** standard deviation; **SF-36:** 36-Item Short Form Survey; **TEAE:** treatment-emergent adverse event.

References: [1]Costantino F. Rheumatology (Oxford) 2022;61:3289–98; [2]De Winter JJ. Arthritis Res Ther 2016;18:196; [3]De Craemer A-S. Rheumatology (Oxford) 2022;61:3279–88; [4]Costantino F. Arthritis Rheumatol 2016;68:1660–8; [5]Baraliakos X. Rheumatology (Oxford) 2025;keaf009; [6]Deodhar A. RMD Open 2025;11:e005081; [7]Baraliakos X. Ann Rheum Dis 2024;83:199–213.

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