Bimekizumab Improves Physical Function and Health-Related Quality of Life in Patients with Axial Spondyloarthritis: Results from Two Phase 3 Studies

Maureen Dubreuil,[1] Karl Gaffney,[2] Lianne S. Gensler,[3] Jonathan Kay,[4] Victoria Navarro-Compán,[5] Christine de la Loge,[6] Alicia M. Ellis,[7] Carmen Fleuranck,[6] Marga Oortgiesen,[7] Vanessa Taieb,[8] Atul Deodhar[9]

Presented at ACR Convergence 2022 | Philadelphia, Pennsylvania, USA | November 10–14

1280939

Objective

To report the impact of bimekizumab (BKZ) versus placebo (PBO) on physical function and health-related quality of life (HRQoL) in patients with non-radiographic axial spondyloarthritis (nr-axSpA) and active ankylosing spondylitis (AS; i.e radiographic axSpA).

Background

- The clinical symptoms of axSpA severely impact patients' physical function and HRQoL.[1]
- BKZ, a monoclonal IgG1 antibody that selectively inhibits interleukin (IL)-17F in addition to IL-17A, has demonstrated sustained efficacy and was well tolerated up to 24 weeks in patients across the axSpA disease spectrum (active nr-axSpA and AS) in the phase 3 studies BE MOBILE 1 and 2.[2,3]
- In both studies, all primary and ranked secondary endpoints at Week 16 were met, including change from baseline (CfB) in physical function (BASFI, SF-36 PCS) and HRQoL (ASQoL) measures. Here, results are reported to Week 24.

Methods

- BE MOBILE 1 (NCT03928704; nr-axSpA) and BE MOBILE 2 (NCT03928743; AS) were conducted in parallel and comprised a 16-week double-blind period followed by a 36-week maintenance period (**Figure 1**).[2,3]

Outcomes

- Here we report, for the Week 24 interim analysis for both studies, the proportion of patients achieving the following outcomes using non-responder imputation (NRI):
  - Low BASFI scores (≤0/1/2/3/4) at Week 16.
  - Clinically relevant improvements in SF-36 Physical Component Summary (PCS): ≥5-point increase from baseline[5]) to Week 24.
  - Clinically relevant improvements in HRQoL: ASQoL ≥4-point reduction from baseline; to Week 24.[4]
- Mean CfB in BASFI, SF-36 PCS and ASQoL are also reported to Week 24, using multiple imputation (MI).

Results

Patients

- 254 patients with nr-axSpA (BKZ: 128; PBO: 126) and 332 with AS (BKZ: 221; PBO: 111) were randomized; 94.5% and 94.3% completed to Week 24, respectively.
- Mean baseline BASFI, SF-36 PCS and ASQoL scores indicated impaired physical function and HRQoL across nr-axSpA and AS (**Table 1**).
- Mean baseline SF-36 Mental Component Summary (MCS) score indicated non-impaired mental function in both studies which was maintained to Week 24; therefore the impact of BKZ on SF-36 MCS vs PBO is not reported.

Physical Function & Health-Related Quality of Life

- At Week 16, a higher proportion of nr-axSpA and AS patients treated with BKZ vs PBO achieved:
  - Low BASFI and ≥5-point improvement in SF-36 PCS scores
  - ≥4-point improvement in ASQoL (**Figure 2**).
- Greater mean CfB with BKZ vs PBO at Week 16 was also achieved in: BASFI, SF-36 PCS and ASQoL scores (**Figure 3**), with separation from PBO at the first post-baseline assessment.
- Improvements continued with BKZ to Week 24 and, for patients who switched from PBO to BKZ at Week 16, responses at Week 24 approached or reached similar levels to those seen in BKZ-randomized patients (**Figures 2–3**).

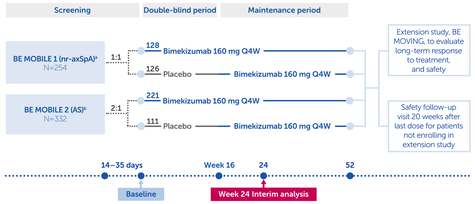
Summary

Patients with active non-radiographic axial spondyloarthritis and ankylosing spondylitis receiving bimekizumab showed similar clinically relevant improvements in:

Physical function
BASFI and SF-36 Physical Component Summary scores

Health-related quality of life
ASQoL score

Figure 1 BE MOBILE 1 and BE MOBILE 2 study designs



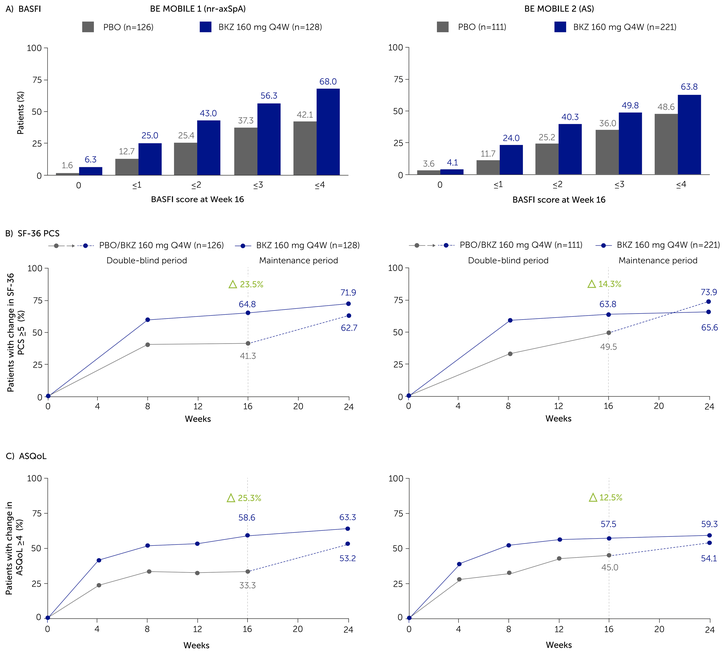
Patients were eligible to receive non-biologic rescue therapy from Week 20 at the discretion of the investigator, while continuing to receive BKZ. All patients had active nr-axSpA or AS at baseline (BASDAI ≥4 and spinal pain ≥4). [a]Included patients had adult-onset nr-axSpA fulfilling ASAS classification criteria and objective signs of inflammation (active sacroiliitis on MRI and/or elevated CRP [≥6 mg/L]); [b]Included patients had radiographic evidence of AS fulfilling modified New York criteria.

Table 1 Baseline characteristics

Baseline characteristics	BE MOBILE 1 (nr-axSpA)		BE MOBILE 2 (AS)	
	PBO n=126	BKZ 160 mg Q4W n=128	PBO n=111	BKZ 160 mg Q4W n=221
Age, years, mean (SD)	39.4 (11.8)	39.5 (11.1)	39.2 (12.6)	41.0 (12.1)
Sex, male, n (%)	65 (51.6)	73 (57.0)	80 (72.1)	160 (72.4)
HLA-B27 positive, n (%)	94 (74.6)	103 (80.5)	93 (83.8)	191 (86.4)
Symptom duration, years, mean (SD)	9.0 (9.0)	9.1 (8.7)	11.9 (8.6)	14.2 (11.0)
BASDAI, mean (SD)	6.7 (1.3)	6.9 (1.2)	6.5 (1.3)	6.5 (1.3)
ASDAS-CRP, mean (SD)	3.7 (0.7)	3.7 (0.8)	3.7 (0.8)	3.7 (0.8)
Total spinal pain, mean (SD)	7.1 (1.6)	7.3 (1.5)	7.2 (1.2)	7.1 (1.6)
Nocturnal spinal pain, mean (SD)	6.7 (2.1)	6.9 (2.0)	6.8 (1.8)	6.6 (1.9)
hs-CRP, mg/L, geometric mean (geometric CV %)	5.0 (230.5)	4.6 (297.7)	6.7 (197.4)	6.5 (275.0)
BASFI, mean (SD)	5.3 (2.3)	5.5 (2.2)	5.2 (2.0)	5.3 (2.2)
ASQoL, mean (SD)	9.4 (4.4)	9.5 (4.6)	8.5 (4.3)	9.1 (4.7)
SF-36 PCS, mean (SD)	33.6 (8.7)	33.3 (8.3)	34.6 (8.7)	34.3 (8.5)
SF-36 MCS, mean (SD)	51.9 (9.0)	51.3 (10.2)	51.9 (9.2)	50.8 (9.2)
TNFi-IR, n (%)	17 (13.5)	10 (7.8)	17 (15.3)	37 (16.7)

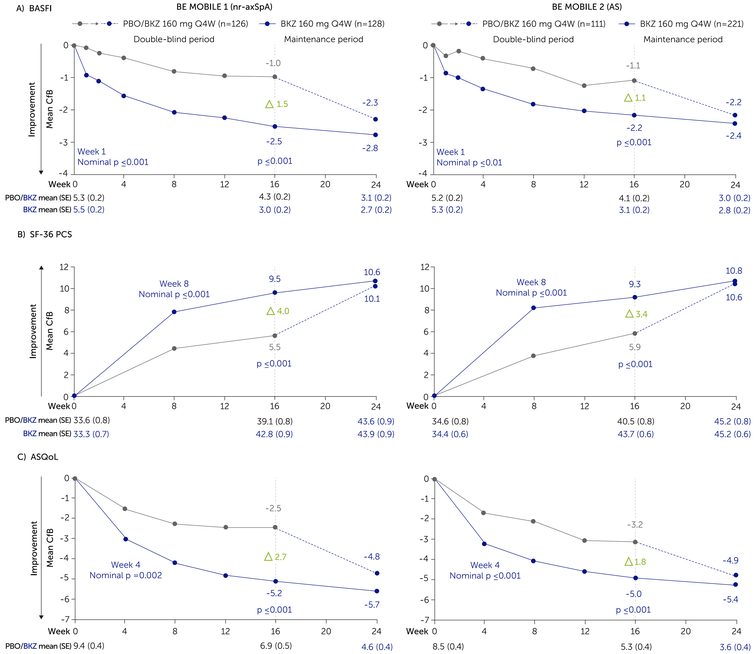
Randomized set. Data reported for patients with nr-axSpA (BE MOBILE 1) and patients with AS (BE MOBILE 2).

Figure 2 Achievement of (A) BASFI score at or below multiple thresholds at Week 16, (B) improvement in SF-36 PCS score of ≥5 points to Week 24 and (C) improvement of ASQoL score ≥4 points (NRI)



Randomized set. NRI. Percentage of patients each week achieving response who did not discontinue study treatment prior to given week. (A) BASFI scores range from 0–10, a higher score reflects greater impact on physical function. (B) SF-36 PCS scores are standardized with a mean of 50 and standard deviation of 10 in the general population of the United States. (C) ASQoL scores range from 0–18 with a higher score reflecting greater impact on HRQoL. A meaningful improvement threshold of ≥5-point improvement in SF-36 PCS and ≥4-point improvement in ASQoL was applied. Percentages are calculated based on the number of patients in the treatment group.

Figure 3 Improvement in physical function and HRQoL: mean change from baseline in (A) BASFI, (B) SF-36 PCS to Week 24 and (C) ASQoL (MI)



Randomized set. MI. (A) BASFI scores range from 0–10 with a higher score reflecting greater impact on physical function. (B) SF-36 PCS scores are standardized with a mean of 50 and standard deviation of 10 in the general population of the United States; a mean score below 47 reflects impaired HRQoL. (C) ASQoL scores range from 0–18 with a higher score reflecting greater impact on HRQoL. Nominal p values were calculated for first post-baseline assessment (BASFI: Week 1; SF-36: Week 8; ASQoL: Week 4) and do not control for multiplicity. p values calculated at Week 16 were part of a hierarchical gatekeeping strategy and used reference-based MI.

Conclusions

Inhibition of IL-17F in addition to IL-17A with BKZ resulted in rapid and significant improvements in physical function and HRQoL in patients across the spectrum of axSpA, with rapid separation from PBO from first post-baseline assessment. Greater proportions of BKZ- vs PBO-treated patients at Week 16 also reached multiple thresholds for improvement in BASFI and clinically relevant thresholds for improvement in SF-36 PCS and ASQoL. These results emphasize the benefit of BKZ for physical function and HRQoL in axSpA patients.

AS: ankylosing spondylitis; **ASAS:** Assessment of SpondyloArthritis International Society; **ASDAS:** Ankylosing Spondylitis Disease Activity Score; **ASQoL:** Ankylosing Spondylitis Quality of Life Questionnaire; **axSpA:** axial spondyloarthritis; **BASDAI:** Bath Ankylosing Spondylitis Disease Activity Index; **BASFI:** Bath Ankylosing Spondylitis Functional Index; **BKZ:** bimekizumab; **CfB:** change from baseline; **CRP:** C-reactive protein; **CV**: coefficient of variation; **HLA-B27:** human leukocyte antigen-B27; **HRQoL:** health-related quality of life; **IL:** interleukin; **MCS:** Mental Component Summary; **MI:** multiple imputation; **MRI:** magnetic resonance imaging; **nr-axSpA:** non-radiographic axial spondyloarthritis; **NSAID:** non-steroidal anti-inflammatory drug; **NRI:** non-responder imputation; **PBO:** placebo; **PCS:** Physical Component Summary; **Q4W:** every 4 weeks; **SF-36:** Short-Form 36-Item Health Survey; **SD:** standard deviation; **TNFi-IR:** tumour necrosis factor inhibitor inadequate responder.

Institutions: [1]Department of Rheumatology, Boston University School of Medicine, MA, USA; [2]Norfolk and Norwich University Hospital NHS Trust, Norfolk, UK; [3]University of California San Francisco, San Francisco, CA, USA; [4]Division of Rheumatology, Department of Medicine, UMass Chan Medical School and UMass Memorial Medical Center, Worcester, MA, USA; [5]Department of Rheumatology, La Paz University Hospital, IdiPaz, Madrid, Spain; [6]UCB Pharma, Brussels, Belgium; [7]UCB Pharma, Raleigh, NC, USA; [8]UCB Pharma, Colombes, France; [9]Oregon Health & Science University, Portland, OR, USA.

References: [1]Strand V. J Clin Rheumatol 2017;23(7):383–91; [2]Deodhar A. Ann Rheum Dis 2022;81:772–3; [3]van der Heijde D. Ann Rheum Dis 2022;81:12–3; [4]Hoepken B. Qual Life Res. 2021;30(3):945–54; [5]Revelle JD. Value Health 2020;23(10):1281–5. **Author Contributions:** Substantial contributions to study conception/design or acquisition/analysis/interpretation of data: **MD, KG, LSG, JK, VN-C, CdiL, AME, CF, MO, VT, AD**; drafting of the publication or revising it critically for important intellectual content: **MD, KG, LSG, JK, VN-C, CdiL, AME, CF, MO, VT, AD**; final approval of the publication: **MD, KG, LSG, JK, VN-C, CdiL, AME, CF, MO, VT, AD**. **Author Disclosures: MD:** Educational Grant from Pfizer paid to institution; consulting Fees (e.g. advisory boards) from Amgen and UCB Pharma. **KG:** Speakers bureau from AbbVie, Eli Lilly, Novartis, and UCB Pharma; consultant of AbbVie, Eli Lilly, Novartis, and UCB Pharma; grant/research support from AbbVie, Eli Lilly, Gilead, Novartis, and UCB Pharma. **LSG:** Grants from Novartis, Pfizer, and UCB Pharma, paid to institution; consulting fees from AbbVie, Eli Lilly, Gilead, Janssen, MoonLake, Novartis, Pfizer, and UCB Pharma. **JK:** Consulting fees from Alvotech Swiss AG, Boehringer Ingelheim GmbH, Organon, Ridgeline Discovery, Samsung Bioepis, Sandoz Inc., Scipher Medicine, and UCB Pharma; grant/research support paid to Institution from Gilead and Novartis. **VNC:** Speakers bureau from AbbVie, Eli Lilly, Janssen, MSD, Novartis, Pfizer, and UCB Pharma; consultancy from AbbVie, Eli Lilly, MSD, Novartis, Pfizer, and UCB Pharma; research grants from AbbVie and Novartis. **CdiL:** Consultant to UCB Pharma. **AE, CF, VT:** Employee of UCB Pharma. **MO:** Employee and stockholder of UCB Pharma. **AD:** Speaker for Janssen, Novartis and Pfizer; consulting fees from AbbVie, Amgen, Aurinia, BMS, Celgene, Eli Lilly, GSK, Janssen, MoonLake, Novartis, Pfizer, and UCB Pharma; research grants from AbbVie, BMS, Eli Lilly, GSK, Novartis, Pfizer, and UCB Pharma. **Acknowledgments:** We would like to thank the patients and their caregivers in addition to all the investigators and their teams who contributed to this study. The authors acknowledge Celia Menckeberg, PhD, UCB Pharma, for publication coordination, Faye Bolan, PhD, Costello Medical, Cambridge, UK for medical writing and editorial assistance, and the Costello Medical Design Team for design support. This study was funded by UCB Pharma. All costs associated with development of this presentation were funded by UCB Pharma.

To download a copy of this poster, scan the QR code or visit the website below.
Website: [Website Placeholder]
Poster ID: 1280939 **Link expiration:** [Date Placeholder]