Bimekizumab Improves Key Patient-Reported Symptoms of Axial Spondyloarthritis Including Spinal Pain and Fatigue: Results from Two Phase 3 Studies

Philip J. Mease,[1] Atul Deodhar,[2] Maxime Dougados,[3] Maureen Dubreuil,[4] Marina Magrey,[5] Helena Marzo-Ortega,[6] Martin Rudwaleit,[7,8] Christine de la Loge,[9] Alicia M. Ellis,[10] Carmen Fleurinck,[11] Marga Oortgiesen,[10] Vanessa Taieb,[12] Lianne S. Gensler[13]

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

1280012

Objective

To report the impact of bimekizumab (BKZ) versus placebo (PBO) on spinal pain, stiffness, and fatigue in patients with active non-radiographic axial spondyloarthritis (nr-axSpA) and active ankylosing spondylitis (AS; i.e. radiographic axSpA).

Background

- Spinal pain, morning stiffness, and fatigue are major contributors to disease burden in patients with nr-axSpA and AS from the patient perspective.[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 nocturnal spinal pain.

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]
- Here we report, for both studies, the proportion of patients at Week 16 achieving the following outcomes using non-responder imputation (NRI):
  - Increasingly stringent total and nocturnal spinal pain scores (≤4/3/2/1/0).
  - Improvements in fatigue, indicated by a ≥4-point increase from baseline in Functional Assessment of Chronic Illness Therapy (FACIT)-Fatigue score.
- Mean CfB in total and nocturnal spinal pain, BASDAI morning stiffness (mean of BASDAI questions 5 and 6), and FACIT-Fatigue scores to Week 24 are also reported 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.
- Across both studies, mean baseline scores for all reported outcomes indicated high symptom severity (**Table 1**).

Pain, stiffness, and fatigue

- At Week 16 a greater proportion of nr-axSpA and AS patients treated with BKZ compared with PBO achieved:
  - Low total and nocturnal spinal pain scores (**Figure 2**).
  - ≥4-point improvement in FACIT-Fatigue score (nr-axSpA: 70.3% vs 45.2%; AS: 66.1% vs 49.5%).
- Greater mean CfB at Week 16 with BKZ vs PBO was achieved in: in total spinal pain, nocturnal spinal pain, BASDAI morning stiffness and FACIT-Fatigue scores, 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, mean CfB at Week 24 approached or reached similar levels to those seen in BKZ-randomized patients (**Figure 3**).

Summary

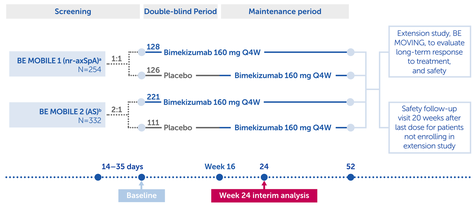
In patients with active non-radiographic axial spondyloarthritis and ankylosing spondylitis, bimekizumab resulted in similar clinically relevant improvements in:

Spinal pain
Total and nocturnal spinal pain scores

Morning stiffness
Mean of BASDAI questions 5 and 6

Fatigue
FACIT-Fatigue score

Figure 1 BE MOBILE 1 and BE MOBILE 2 study designs



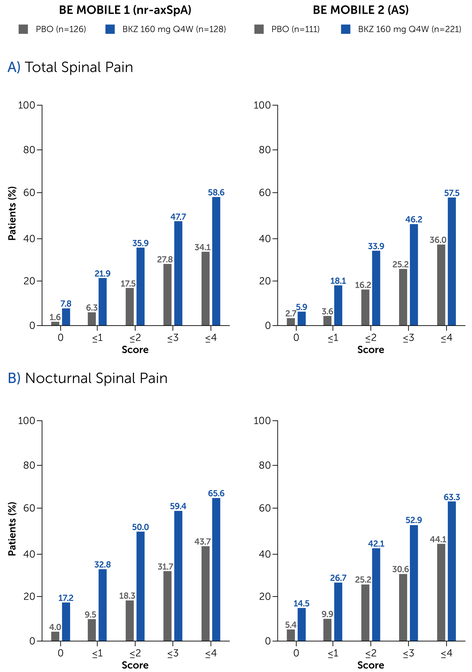
Patients were eligible to receive non-biologic rescue therapy from Week 20 at the discretion of the investigator, while continuing to receive BKZ. [a]Included patients had adult-onset nr-axSpA fulfilling Assessment of SpondyloArthritis International Society (ASAS) classification criteria and objective 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

	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)[a]	9.0 (9.0)	9.1 (8.7)	11.9 (8.6)	14.2 (11.0)
ASDAS-CRP, mean (SD)[a]	3.7 (0.7)	3.7 (0.8)	3.7 (0.8)	3.7 (0.8)
CRP, mg/L, geometric mean (geometric CV %)	5.0 (230.5)	4.6 (297.7)	6.7 (197.4)	6.5 (275.0)
BASDAI, mean (SD)	6.7 (1.3)	6.9 (1.2)	6.5 (1.3)	6.5 (1.3)
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)
Morning stiffness (BASDAI Q5 and 6), mean (SD)	6.9 (1.6)	7.0 (1.8)	6.8 (1.6)	6.7 (1.9)
FACIT-Fatigue, mean (SE)	30.6 (1.0)	29.5 (0.9)	33.1 (1.0)	30.7 (0.7)
TNFi-IR, n (%)	17 (13.5)	10 (7.8)	17 (15.3)	37 (16.7)

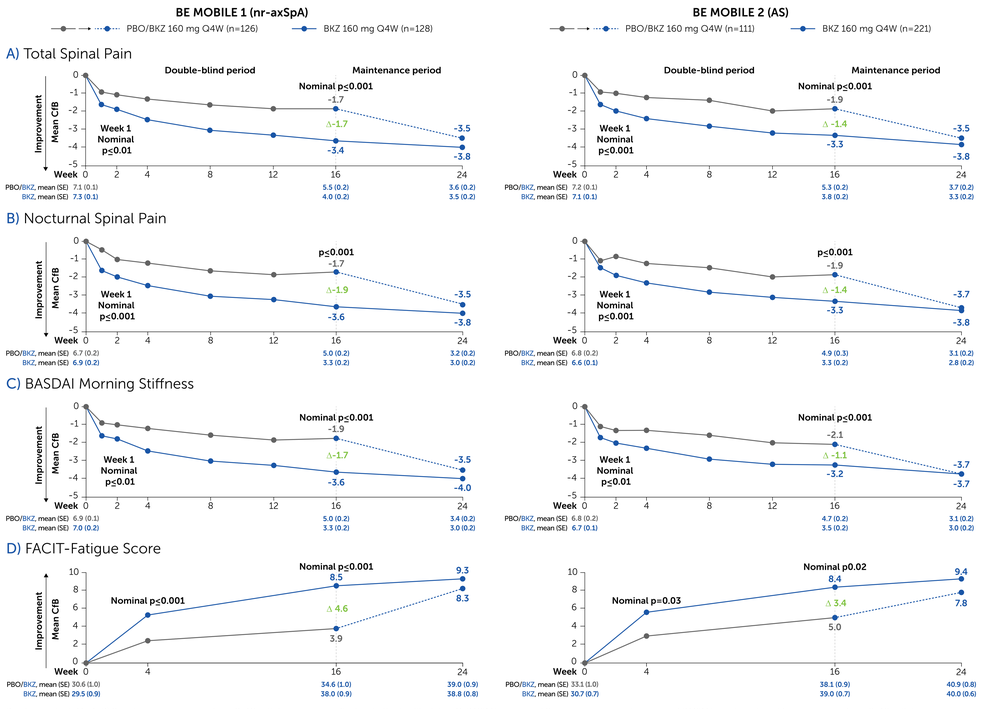
Randomized set. Data reported for patients with nr-axSpA (BE MOBILE 1) and patients with AS (BE MOBILE 2).

Figure 2 Achievement of (A) total and (B) nocturnal spinal pain scores below multiple thresholds at Week 16 (NRI)



Randomized set. NRI. Percentage of patients each week achieving given response who did not discontinue study treatment prior to Week 16. Spinal pain scores range from 0–10 with lower scores reflecting better health status.

Figure 3 Mean change from baseline in (A) total spinal pain, (B) nocturnal spinal pain, (C) BASDAI morning stiffness, and (D) FACIT-Fatigue scores to Week 24 (MI)



Randomized set. MI. A, B) Spinal pain scores range from 0–10 with lower scores reflecting better health status. C) BASDAI morning stiffness score assessed as mean of BASDAI questions 5 and 6; scores range from 0–10 with lower scores reflecting better health status. D) FACIT-Fatigue score ranges from 0–52 with higher scores reflecting better health status. P values without any multiplicity adjustment are indicated as nominal p values, and should not be used as an indication of statistical significance. P values calculated at Week 16 for nocturnal spinal pain 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, substantial, and clinically relevant improvements in spinal pain, morning stiffness, and fatigue in patients across the spectrum of axSpA, with separation from PBO at the first post-baseline assessment. These findings support the benefit of BKZ for clinical symptoms which are central to the patient experience and have significant impact on patients' daily lives.

AS: ankylosing spondylitis; **ASAS:** Assessment of SpondyloArthritis International Society; **axSpA:** axial spondyloarthritis; **BKZ:** bimekizumab; **BASDAI:** Bath Ankylosing Spondylitis Disease Activity Index; **CfB:** change from baseline; **CRP:** C-reactive protein; **FACIT:** Functional Assessment of Chronic Illness Therapy; **HLA-B27:** human leukocyte antigen-B27; **IL:** interleukin; **MI:** multiple imputation; **MRI:** magnetic resonance imaging; **nr-axSpA:** non-radiographic axial spondyloarthritis; **NRI:** non-responder imputation; **PBO:** placebo; **Q4W:** every 4 weeks; **SD:** standard deviation; **SE:** standard error; **TNFi-IR:** tumor necrosis factor inhibitor inadequate responder.

Institutions: [1]Swedish Medical Center/Providence St. Joseph Health and University of Washington, Seattle, WA, USA; [2]Oregon Health & Science University, Division of Arthritis & Rheumatic Diseases, Portland, OR, USA; [3]Department of Rheumatology, Hôpital Cochin, Paris, France; [4]Department of Rheumatology, Boston University School of Medicine, MA, USA; [5]Case Western Reserve University, University Hospital Cleveland, Cleveland, OH, USA; [6]NIHR Leeds Biomedical Research Centre, Leeds Teaching Hospitals NHS Trust and Leeds Institute of Molecular Medicine, University of Leeds, Leeds, UK; [7]University of Bielefeld, Klinikum Bielefeld, Bielefeld, Germany; [8]Klinikum Bielefeld and Charité Berlin, Germany, and Ghent University, Belgium; [9]PCOM Analytics, Avallon, France; [10]UCB Pharma, Raleigh, NC, USA; [11]UCB Pharma, Brussels, Belgium; [12]UCB Pharma, Colombes, France; [13]Department of Medicine/Rheumatology, University of California San Francisco, San Francisco, CA, USA.

References: [1]Strand V. J Clin Rheumatol 2017;23:383–91; [2]Deodhar A. Ann Rheum Dis 2022;81:772–3; [3]van der Heijde D. Ann Rheum Dis 2022;81:12–3. **Author Contributions:** Substantial contributions to study conception/design or acquisition/analysis/interpretation of data: **PJM, AD, MDo, MDu, MM, HMO, MR, CdlL, AME, CF, MO, VT, LSG;** drafting of the publication or revising it critically for important intellectual content: **PJM, AD, MDo, MDu, MM, HMO, MR, CdlL, AME, CF, MO, VT, LSG;** final approval of the publication: **PJM, AD, MDo, MDu, MM, HMO, MR, CdlL, AME, CF, MO, VT, LSG**. **Author Disclosures: PJM:** Speakers' bureau from AbbVie, Amgen, Eli Lilly, Janssen, Novartis, Pfizer, and UCB Pharma; consultancy fees from AbbVie, Aceyrin, Aclaris, Amgen, BMS, Boehringer Ingelheim, Eli Lilly, Galapagos, Gilead, GSK, Janssen, MoonLake, Novartis, Pfizer, Sun Pharma, and UCB Pharma; research grants from AbbVie, Amgen, BMS, Eli Lilly, Gilead, Janssen, Novartis, Pfizer, Sun Pharma, and 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; **MDo:** Consultancy/speaker fees/research grants from AbbVie, Eli Lilly, Merck, Novartis, Pfizer, and UCB Pharma; **MDu:** Educational grant from Pfizer paid to Institution; consulting fees (e.g. advisory boards) from Amgen, and UCB Pharma; **MM:** Consultancy fees from AbbVie, Eli Lilly, Novartis, Pfizer, and UCB Pharma; research grants from AbbVie, and UCB Pharma. **HMO:** Honoraria and/or grants from AbbVie, Eli Lilly, Janssen, MSD, Novartis, Pfizer, and UCB Pharma; **MR:** Speakers bureau from AbbVie, BMS, Boehringer Ingelheim, Chugai, Eli Lilly, Janssen, Novartis, Pfizer, and UCB Pharma; paid instructor for Janssen, Novartis, and UCB Pharma; consultant of AbbVie, Eli Lilly, Novartis, and UCB Pharma; **CdlL:** Consultant to UCB Pharma; **AME, CF, VT:** Employees of UCB Pharma; **MO:** Employee and stockholder of UCB Pharma; **LSG:** Grants from Novartis, Pfizer, and UCB Pharma, paid to Institution; consulting fees from AbbVie, Gilead, Janssen, Eli Lilly, MoonLake, Novartis, Pfizer, and UCB Pharma. **Acknowledgements:** 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, Jane Spingardi, DPhil, 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 receive a copy of this poster, scan the QR code or visit the website below

Website: [Website Placeholder]
Poster ID: 1280012

Link expiration: [Date Placeholder]