Bimekizumab efficacy in patients with moderate to severe plaque psoriasis and hypertension, elevated body mass index, or hyperglycemia: Results through 3 years of treatment in 5 phase 3/3b trials

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Synopsis

- Patients with moderate to severe plaque psoriasis have a higher risk of cardiometabolic comorbidities than the general population.[1,2]
- It is therefore important to understand if treatments are effective in subgroups of patients with such comorbidities.
- Bimekizumab (BKZ), a monoclonal IgG1 antibody that selectively inhibits interleukin (IL)-17F in addition to IL-17A.[3]
- BKZ has demonstrated rapid and superior efficacy in the treatment of patients with moderate to severe plaque psoriasis in head-to-head studies versus ustekinumab, adalimumab, and secukinumab, with established long-term durability of response.[4–8]

Objective

To evaluate responses to BKZ in patients with psoriasis and baseline hypertension, elevated body mass index (BMI), or hyperglycemia through 3 years.

Methods

- Data were pooled from the following trials: BE SURE, BE VIVID, BE READY, their open-label extension (OLE) BE BRIGHT, and BE RADIANT (48-week double-blinded period, plus 96-week OLE) (**Figure 1**).[4–8]
- Psoriasis Area and Severity Index (PASI) ≤2, PASI 90 (≥90% improvement from baseline in PASI), and PASI 100 responses were evaluated over 3 years in patients with psoriasis and concurrent:
  - Hypertension (systolic blood pressure >130 mmHg or diastolic blood pressure >85 mmHg);
  - Elevated BMI (>30 kg/m^2); or
  - Hyperglycemia (blood glucose ≥140 mg/dL or ≥7.8 mmol/L), based on objective measurements at baseline.
- Patients may have been receiving, or initiated, treatment for hypertension or hyperglycemia during the study. Baseline measurements may therefore indicate breakthrough hypertension or hyperglycemia despite treatment.
- PASI ≤2, PASI 90, and PASI 100 responses were also reported for all patients who received continuous BKZ treatment in the initial and maintenance periods, and then entered their respective OLE (BKZ Total).
- Data are reported using modified non-responder imputation (mNRI): patients who discontinued due to lack of efficacy or treatment-related adverse events were considered non-responders at subsequent timepoints; multiple imputation was used for all other missing data. Data are also reported using non-responder imputation (NRI) and as the observed case (OC) for all outcomes.

Results

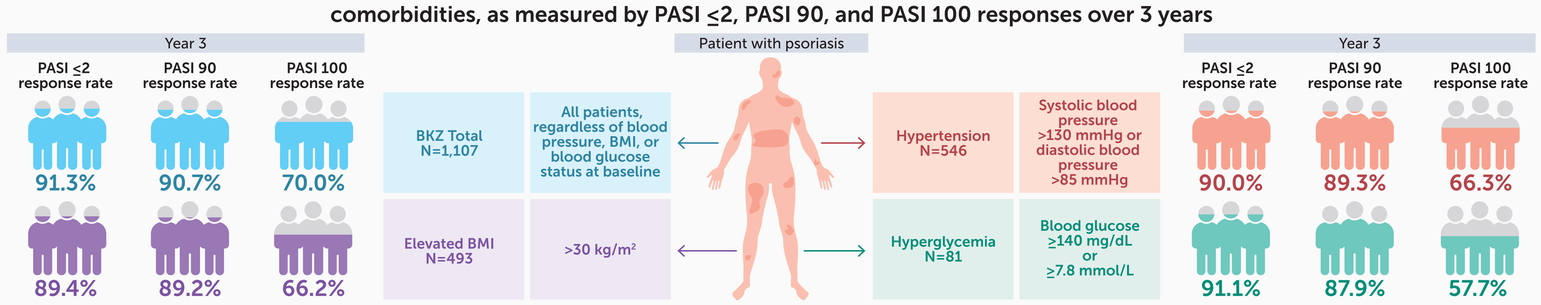
- 1,107 patients continuously treated with BKZ through to the end of the first year entered the OLEs.
- Of these patients, 546, 493, and 81 had hypertension, elevated BMI, and hyperglycemia at baseline, respectively (**Table 1**).
- High PASI ≤2 response rates were observed at Week 16 in those with hypertension, elevated BMI, or hyperglycemia, and were sustained to Year 3 (Week 144) (**Figure 2A**; **Table 2**).
  - Response rates were consistent with the overall response rate among all BKZ-treated patients.
- Similar trends were observed for PASI 90 and PASI 100 response rates, which were also high at Week 16 and durable to Year 3 across analyzed groups (**Figure 2B–C**; **Table 2**).
  - Numerically lower PASI 100 response rates were observed at Year 3 for patients with baseline hyperglycemia.

Conclusions

High and durable levels of complete/near-complete skin clearance were achieved through 3 years of BKZ treatment in psoriasis patients, including those who had baseline hypertension, elevated BMI, or hyperglycemia.

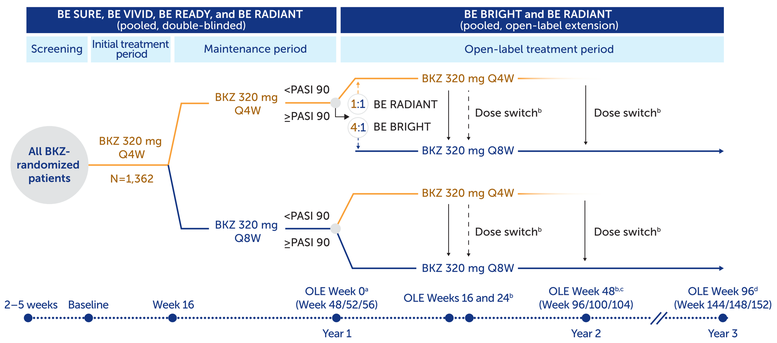
Summary

Treatment with BKZ was efficacious in patients with psoriasis who had concurrent cardiometabolic comorbidities, as measured by PASI ≤2, PASI 90, and PASI 100 responses over 3 years



Definitions for comorbidities were based on the criteria for metabolic syndrome where possible and aligned to other similar studies in the field.[9]

Figure 1 Study design (included patients)



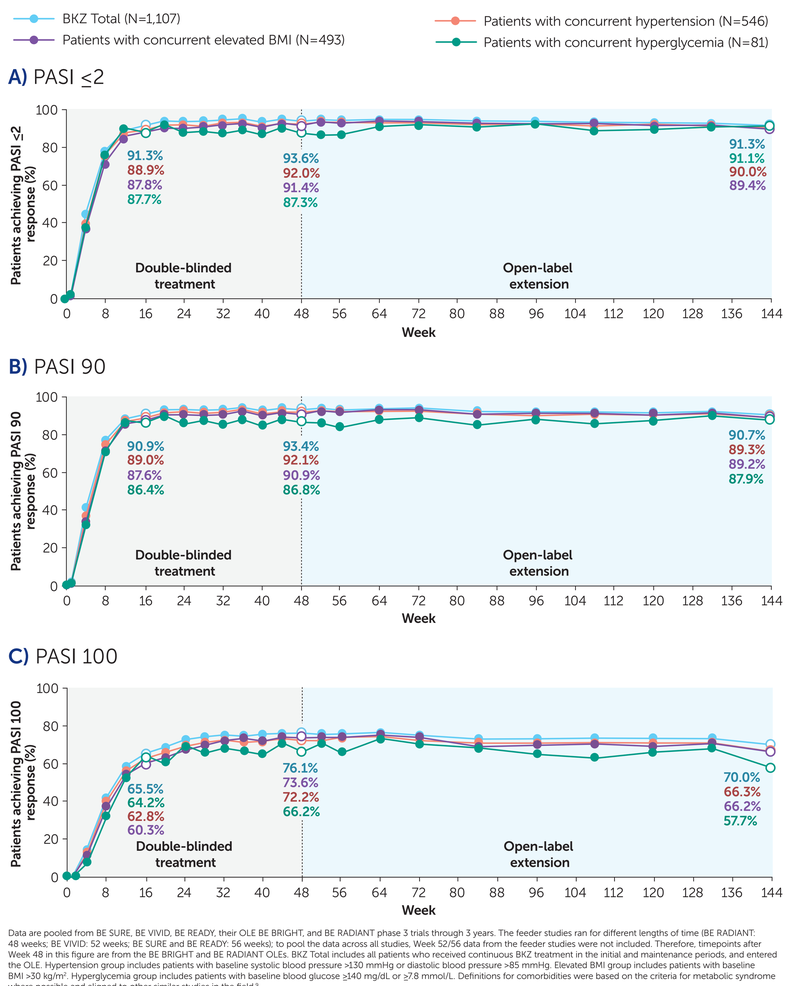
Included patients were randomized to BKZ in the initial treatment period and continued to receive BKZ in the maintenance period and OLE. Patients randomized to treatments other than BKZ, and those who did not receive BKZ continuously throughout the study period (including those who were re-randomized to placebo at Week 16 in BE READY [n=105]), were not included in this analysis. [a]Patients receiving BKZ 320 mg Q4W who achieved PASI 90 at the end of the feeder studies (BE RADIANT: Week 48; BE VIVID: Week 52; BE SURE and BE READY: Week 56) were randomized 1:1 in BE RADIANT and 4:1 in BE BRIGHT to BKZ 320 mg Q4W or Q8W; patients receiving BKZ 320 mg Q8W who achieved PASI 90 at the end of the feeder studies remained on Q8W dosing. [b]In the BE RADIANT OLE, all patients switched to BKZ Q8W at OLE Week 16 or the next scheduled clinic visit following a protocol amendment; in BE BRIGHT, at OLE Week 24, patients on BKZ Q4W achieving ≥PASI 90 could switch to Q8W at the investigator's discretion; all patients were re-assigned to BKZ Q8W at OLE Week 48 or the next scheduled clinic visit following protocol amendment. [c]OLE Week 48 (the end of Year 2) corresponds to BE RADIANT Week 96, BE VIVID/BE BRIGHT Week 100, and BE READY/BE BRIGHT and BE SURE/BE BRIGHT Week 104; [d]OLE Week 96 (the end of Year 3) corresponds to BE RADIANT Week 144, BE VIVID/BE BRIGHT Week 148, and BE READY/BE BRIGHT and BE SURE/BE BRIGHT Week 152.

Table 1 Baseline characteristics

	BKZ Total[a] (N=1,107)	Patients with concurrent hypertension (N=546)	Patients with concurrent elevated BMI (N=493)	Patients with concurrent hyperglycemia (N=81)
Age (years), mean ± SD	45.5 ± 13.7	47.7 ± 12.9	48.1 ± 12.5	52.5 ± 10.7
White, n (%)	968 (87.4)	477 (87.4)	439 (89.0)	61 (75.3)
Weight (kg), mean ± SD	89.8 ± 21.2	94.4 ± 21.6	106.5 ± 17.4	98.8 ± 22.4
Duration of psoriasis (years), mean ± SD	18.5 ± 12.8	19.6 ± 12.7	19.5 ± 13.2	21.8 ± 14.0
PASI, mean ± SD	20.9 ± 7.6	21.1 ± 7.8	21.3 ± 7.8	20.7 ± 8.0
BSA (%), mean ± SD	26.5 ± 15.7	27.5 ± 16.4	26.8 ± 16.2	25.0 ± 13.4
IGA, n (%)				
3: moderate	722 (65.2)	341 (62.5)	298 (60.4)	55 (67.9)
4: severe	382 (34.5)	205 (37.5)	194 (39.4)	26 (32.1)
DLQI total score, mean ± SD	10.6 ± 6.4	10.3 ± 6.5	10.3 ± 6.4	10.0 ± 5.9
Any prior systemic therapy, n (%)	859 (77.6)	426 (78.0)	363 (73.6)	61 (75.3)
Any prior biologic therapy, n (%)	423 (38.2)	207 (37.9)	195 (39.6)	34 (42.0)
Anti-TNF	176 (15.9)	93 (17.0)	94 (19.1)	15 (18.5)
Anti-IL-17	229 (20.7)	109 (20.0)	94 (19.1)	20 (24.7)
Anti-IL-12/23	66 (6.0)	35 (6.4)	31 (6.3)	7 (8.6)
Anti-IL-23	58 (5.2)	27 (4.9)	26 (5.3)	3 (3.7)

[a]BKZ Total includes all patients who received continuous BKZ treatment in the initial and maintenance periods, and entered the OLEs.

Figure 2 Response to BKZ treatment in patients with concurrent hypertension, elevated BMI, and hyperglycemia at baseline (mNRI)



Data are pooled from BE SURE, BE VIVID, BE READY, their OLE BE BRIGHT, and BE RADIANT phase 3 trials through 3 years. The feeder studies ran for different lengths of time (BE RADIANT: 48 weeks; BE VIVID: 52 weeks; BE SURE and BE READY: 56 weeks); to pool the data across all studies, Week 52/56 data from the feeder studies were not included. Therefore, timepoints after Week 48 in this figure are from the BE BRIGHT and BE RADIANT OLEs. BKZ Total includes all patients who received continuous BKZ treatment in the initial and maintenance periods, and entered the OLE. Hypertension group includes patients with baseline systolic blood pressure >130 mmHg or diastolic blood pressure >85 mmHg. Elevated BMI group includes patients with baseline BMI >30 kg/m^2. Hyperglycemia group includes patients with baseline blood glucose ≥140 mg/dL or ≥7.8 mmol/L. Definitions for comorbidities were based on the criteria for metabolic syndrome where possible and aligned to other similar studies in the field.[9]

Table 2 Summary of efficacy outcomes (NRI and OC)

	BKZ Total (N=1,107)		Patients with concurrent hypertension (N=546)		Patients with concurrent elevated BMI (N=493)		Patients with concurrent hyperglycemia (N=81)	
	NRI, n (%)[a]	**OC,** n/Nsub (%)[b]	**NRI,** n (%)[a]	**OC,** n/Nsub (%)[b]	**NRI,** n (%)[a]	**OC,** n/Nsub (%)[b]	**NRI,** n (%)[a]	**OC,** n/Nsub (%)[b]
PASI ≤2								
Week 16	1,002 (90.5)	1,002/1,096 (91.4)	483 (88.5)	483/543 (89.0)	431 (87.4)	431/491 (87.8)	71 (87.7)	71/81 (87.7)
Year 1	998 (90.2)	998/1,047 (95.3)	487 (89.2)	487/518 (94.0)	432 (87.6)	432/463 (93.3)	65 (80.2)	65/72 (90.3)
Year 3	907 (81.9)	907/957 (94.8)	443 (81.1)	443/475 (93.3)	386 (78.3)	386/419 (92.1)	64 (79.0)	64/66 (97.0)
PASI 90								
Week 16	998 (90.2)	998/1,096 (91.1)	484 (88.6)	484/543 (89.1)	430 (87.2)	430/491 (87.6)	70 (86.4)	70/81 (86.4)
Year 1	998 (90.2)	998/1,047 (95.3)	489 (89.6)	489/518 (94.4)	431 (87.4)	431/463 (93.1)	65 (80.2)	65/72 (90.3)
Year 3	902 (81.5)	902/957 (94.3)	440 (80.6)	440/475 (92.6)	385 (78.1)	385/419 (91.9)	61 (75.3)	61/66 (92.4)
PASI 100								
Week 16	721 (65.1)	721/1,096 (65.8)	342 (62.6)	342/543 (63.0)	297 (60.2)	297/491 (60.5)	52 (64.2)	52/81 (64.2)
Year 1	826 (74.6)	826/1,047 (78.9)	388 (71.1)	388/518 (74.9)	356 (72.2)	356/463 (76.9)	51 (63.0)	51/72 (70.8)
Year 3	733 (66.2)	733/957 (76.6)	344 (63.0)	344/475 (72.4)	306 (62.1)	306/419 (73.0)	43 (53.1)	43/66 (65.2)

Data are pooled from BE SURE, BE VIVID, BE READY, their OLE BE BRIGHT, and BE RADIANT phase 3 trials through 3 years. Year 1 refers to Week 48. Year 3 refers to Week 144. BKZ Total includes all patients who received continuous BKZ treatment in the initial and maintenance periods, and entered the OLE. Hypertension group includes patients with baseline systolic blood pressure >130 mmHg or diastolic blood pressure >85 mmHg. Elevated BMI group includes patients with baseline BMI >30 kg/m^2. Hyperglycemia group includes patients with baseline blood glucose ≥140 mg/dL or ≥7.8 mmol/L. Definitions for comorbidities were based on the criteria for metabolic syndrome where possible and aligned to other similar studies in the field.[9] [a]Patients with missing data at a given week were counted as non-responders; [b]Nsub represents the number of subjects with a non-missing measurement, and percentages were calculated accordingly.

BKZ: bimekizumab; **BMI:** body mass index; **BSA:** body surface area; **DLQI:** Dermatology Life Quality Index; **IGA:** Investigator's Global Assessment; **IL:** interleukin; **mNRI:** modified non-responder imputation; **NRI:** non-responder imputation; **OC:** observed case; **OLE:** open-label extension; **PASI:** Psoriasis Area and Severity Index; **PASI 90/100:** ≥90%/100% improvement from baseline in PASI; **Q4W:** every 4 weeks; **Q8W:** every 8 weeks; **SD:** standard deviation; **TNF:** tumor necrosis factor.

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References: [1]Qureshi AA et al. Arch Dermatol 2009;145:379–82; [2]Bremmer S et al. J Am Acad Dermatol 2010;63:1058–69; [3]Adams R et al. Front Immunol 2020;11:1894; [4]Warren RB et al. N Engl J Med 2021;385:130–41. NCT03412747; [5]Reich K et al. Lancet 2021;397:487–98. NCT03370133; [6]Gordon KB et al. Lancet 2021;397:475–86. NCT03410992; [7]Reich K et al. N Engl J Med 2021;385:142–52. NCT03536884; [8]Strober B et al. Br J Dermatol 2023;188:749–59. NCT03598790; [9]Cornier MA et al. Endocr Rev 2008;29:777–822. **Author Contributions:** Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: **AA**, **SRF**, **PG**, **MS**, **LD**, **SW**, **NC**, **UM**; Drafting of the publication, or reviewing it critically for important intellectual content: **AA**, **SRF**, **PG**, **MS**, **LD**, **SW**, **NC**, **UM**; Final approval of the publication: **AA**, **SRF**, **PG**, **MS**, **LD**, **SW**, **NC**, **UM**. **Author Disclosures: AA:** Has served as a research investigator and/or scientific advisor to AbbVie, Almirall, Arcutis, ASLAN, Boehringer Ingelheim, Bristol Myers Squibb, Dermavant, Dermira, Eli Lilly, EPI, Incyte, Janssen, LEO Pharma, Nimbus, Novartis, Ortho Dermatologics, Pfizer, Regeneron, Sanofi, Sun Pharma, and UCB Pharma. **SRF:** Received research, speaking and/or consulting support from AbbVie, Advance Medical, Almirall, Alvotech, Boehringer Ingelheim, Bristol Myers Squibb, Caremark, Celgene, Eli Lilly, Galderma, GSK/Stiefel, Informa, Janssen, LEO Pharma, Menlo, Merck, Mylan, National Biological Corporation, National Psoriasis Foundation, Novan, Novartis, Ortho Dermatology, Pfizer, Qurient, Regeneron, Samsung, Sanofi, Sun Pharma, Suncare Research, and UpToDate. Consults for other stakeholders through Guidepoint Global, Gerson Lehrman and other consulting organizations. Founder and majority owner of www.DrScore.com, and founder and part owner of Causa Research, a company dedicated to enhancing patients' adherence to treatment. **PG:** Consultant for AbbVie, Abiogen, Almirall, Celgene, Eli Lilly, Janssen, LEO Pharma, Merck, MSD, Novartis, Otsuka, Pfizer, Pierre Fabre, Sanofi, and UCB Pharma. **MS:** Has received honararia for participating in advisory boards and has given lectures for AbbVie, Celgene, Eli Lilly, LEO Pharma, Lipidor, Novartis, Pfizer, and UCB Pharma. **LD**, **SW**, **NC**: Employees and shareholders of UCB Pharma. **UM:** Advisor and/or clinical study investigator for, and/or received honoraria and/or grants from AbbVie, Aditxt, Almirall, Amgen, Aristea, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Dr. Reddy's, Eli Lilly, Formycon, Immunic, Janssen-Cilag, LEO Pharma, MSD, MetrioPharm, Novartis, Phi-Stone, Sanofi-Aventis, UCB Pharma, and UNION therapeutics. **Acknowledgements:** This study was funded by UCB Pharma. We thank the patients and their caregivers in addition to the investigators and their teams who contributed to this study. The authors acknowledge Joe Dixon, PhD, UCB Pharma, Slough, UK for publication coordination, Jack Wardle, MSc, Costello Medical, Cambridge, UK, for medical writing and editorial assistance, and the Creative team at Costello Medical for graphic design assistance. All costs associated with development of this poster were funded by UCB Pharma.

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