Bimekizumab Efficacy and Safety in Patients with Active Psoriatic Arthritis and Psoriasis: 52-Week Results from the BE OPTIMAL and BE COMPLETE Phase 3 Randomised, Placebo-Controlled Studies

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Disclosures

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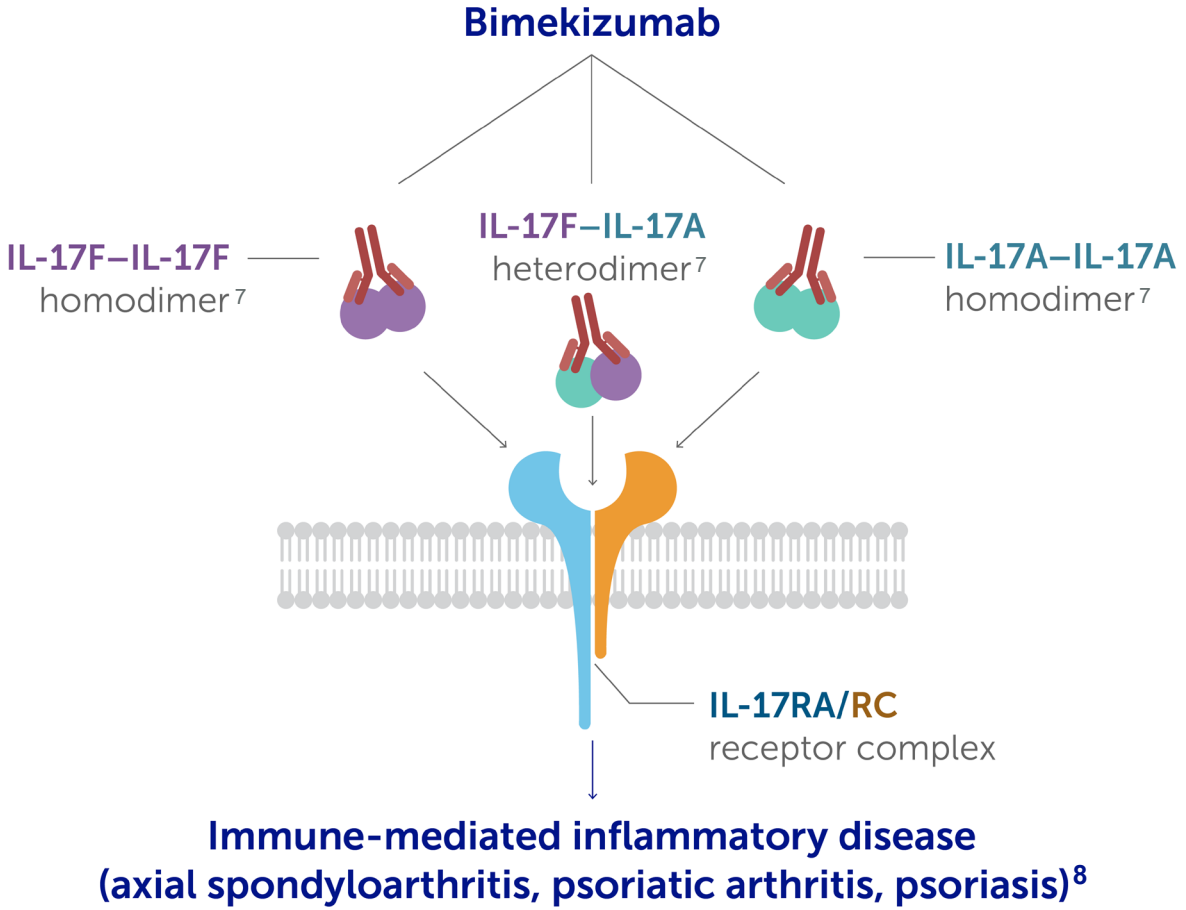
Introduction

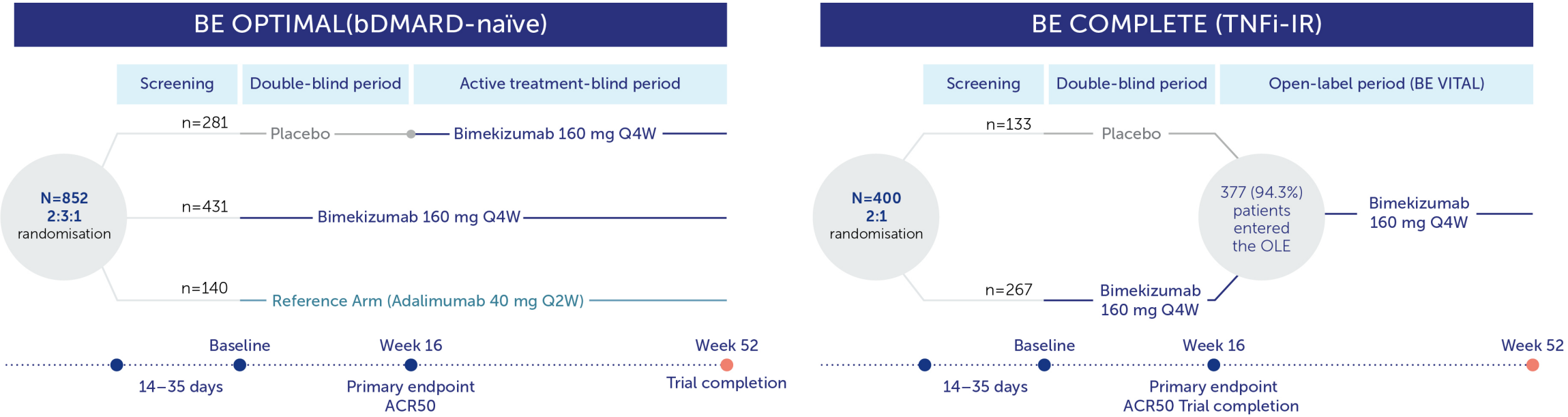
- Skin symptoms in psoriatic arthritis (PsA) can have a profound impact on quality of life.[1,2] Understanding treatment efficacy in patients with clinically relevant skin involvement is therefore of interest.
- Bimekizumab (BKZ), a monoclonal IgG1 antibody that selectively inhibits interleukin (IL)-17F in addition to IL-17A, has shown efficacy and tolerability to 52 weeks in patients with PsA in the BE OPTIMAL and BE COMPLETE studies.[3–6]



OBJECTIVE: To assess the efficacy and safety of subcutaneous bimekizumab versus placebo in patients with active PsA and psoriasis up to 52 weeks in the phase 3 BE OPTIMAL (bDMARD-naïve patients) and BE COMPLETE (TNFi-IR patients) studies.

1. Gudu T. Expert Rev Clin Immunol 2018;14:405–17; 2. Coates L. Clin Med 2017;17:65–70; 3. McInnes IB. Lancet 2023;401:25–37; 4. Merola JF. Lancet 2023;401:38–48;
5. Ritchlin C. Ann Rheum Dis 2023; epub: doi:10.1136/ard-2023-224431; 6. Coates L. Annals of the Rheumatic Diseases 2023;82:346–47; 7. Yang XO. J Exp Med 2008;1063–75; 8. Glatt S. Ann Rheum Dis 2018;77:523–32.
bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; IL: interleukin; PsA: psoriatic arthritis; RA: receptor A; RC: receptor C; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

Methods



- In BE OPTIMAL (NCT03895203; bDMARD-naïve) and BE COMPLETE (NCT03896581; TNFi-IR) patients were randomised to subcutaneous BKZ 160 mg[a] or placebo (PBO) every 4 weeks (Q4W). After a 16-week, double-blind, PBO-controlled period, PBO patients switched to BKZ.
- In this post hoc analysis, we assessed the efficacy and safety of BKZ versus placebo (PBO) in patients with PsA and psoriasis affecting ≥3% body surface area (BSA) at baseline.
- Missing data were imputed using non-responder (discrete variables) or multiple (continuous variables) imputation.

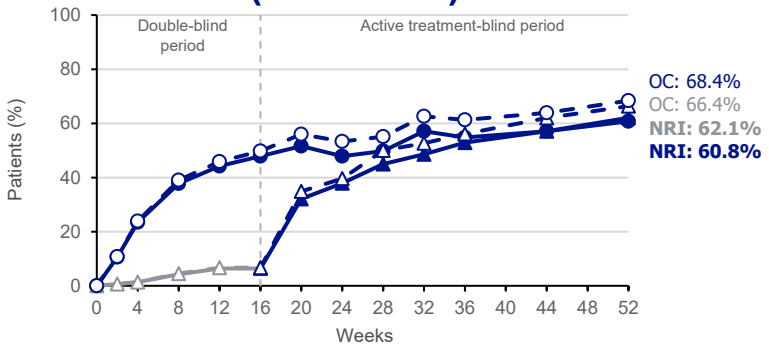
[a] In psoriasis trials, patients were randomised to subcutaneous BKZ 320 mg Q4W. ACR50: ≥50% improvement in American College of Rheumatology criteria; bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; BSA: body surface area; OLE: open-label extension; PBO: placebo; PsA: psoriatic arthritis; Q2W: every 2 weeks; Q4W: every 4 weeks; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

ACR50 responses to Week 52 in patients with BSA ≥3% at baseline (NRI and OC)

- Achievement of ACR50 was sustained from Week 16 to Week 52 in patients across skin severity levels at baseline receiving BKZ. Results were consistent between bDMARD-naïve and TNFi-IR populations.

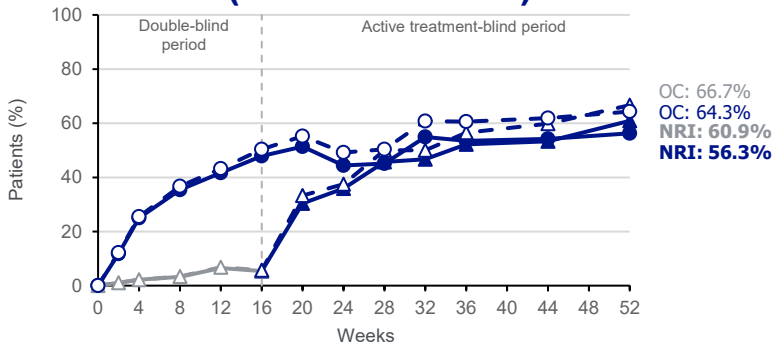
BE OPTIMAL (bDMARD-naïve)

ACR50 (BSA ≥3%)



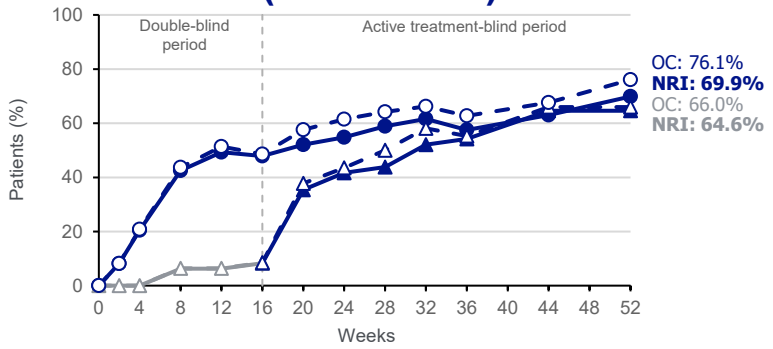
NRI: PBO/BKZ n=140; BKZ n=217
OC n values (Week 52): PBO/BKZ 87/131; BKZ 132/193

ACR50 (BSA ≥3–≤10%)



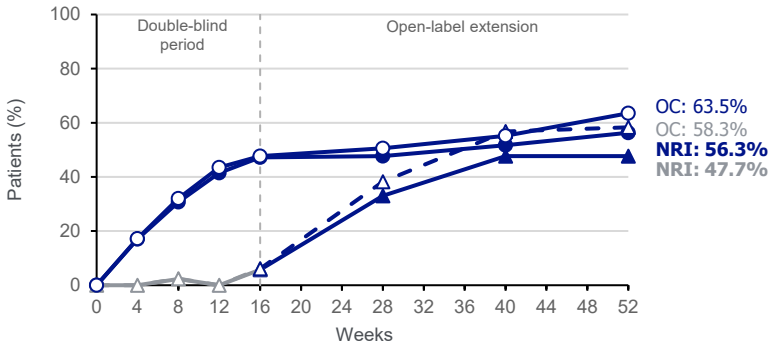
NRI: PBO/BKZ n=92; BKZ n=144
OC n values (Week 52): PBO/BKZ 56/84; BKZ 81/126

ACR50 (BSA >10%)

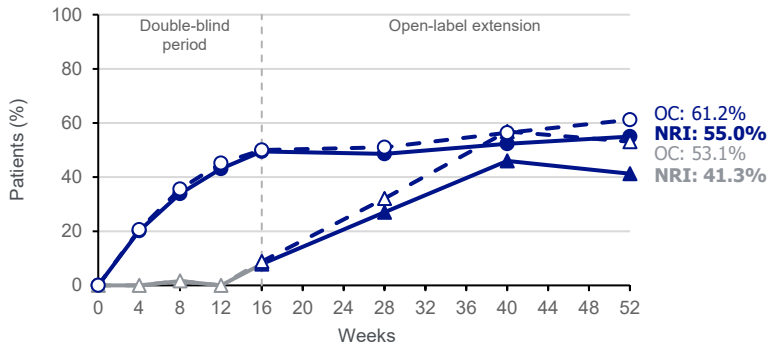


NRI: PBO/BKZ n=48; BKZ n=73
OC n values (Week 52): PBO/BKZ 31/47; BKZ 51/67

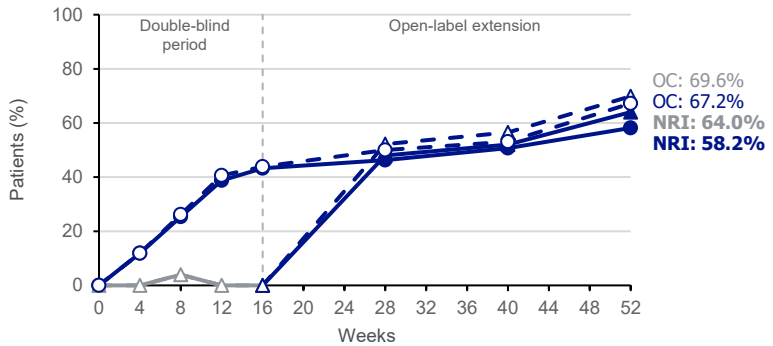
BE COMPLETE (TNFi-IR)



NRI:PBO/BKZ n=88; BKZ n=176
OC n values (Week 52): PBO/BKZ 42/72; BKZ 99/156



NRI: PBO/BKZ n=63; BKZ n=109
OC n values (Week 52): PBO/BKZ 26/49; BKZ 60/98



NRI: PBO/BKZ n=25; BKZ n=67
OC n values (Week 52): PBO/BKZ 16/23; BKZ 39/58

Placebo/BKZ 160 mg Q4W; NRI — BKZ 160 mg Q4W; NRI — Placebo/BKZ 160 mg Q4W; OC — BKZ 160 mg Q4W; OC

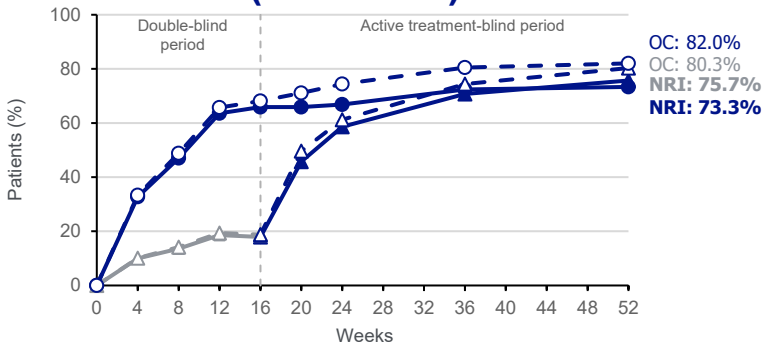
Randomised set, in patients with psoriasis affecting ≥3% of BSA at BL. ACR50: ≥50% improvement in American College of Rheumatology criteria; bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; BSA: body surface area; NRI: non-responder imputation; OC: observed case; PBO: placebo; Q4W: every 4 weeks; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

SJC ≤1 responses to Week 52 in patients with BSA ≥3% at baseline (NRI and OC)

- Achievement of SJC ≤1 was sustained from Week 16 to Week 52 in patients across skin severity levels at baseline receiving BKZ. Results were consistent between bDMARD-naïve and TNFi-IR populations.

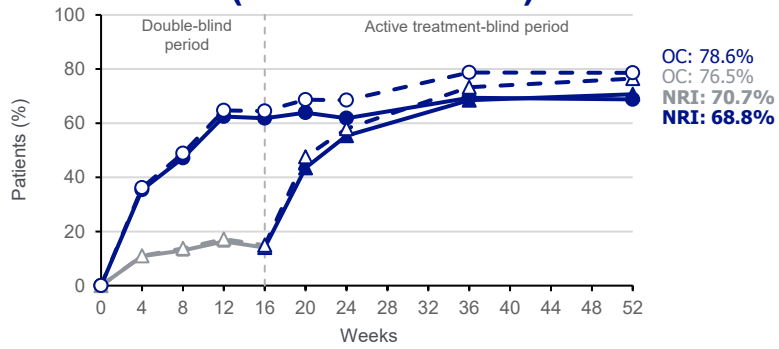
BE OPTIMAL (bDMARD-naïve)

SJC ≤1 (BSA ≥3%)



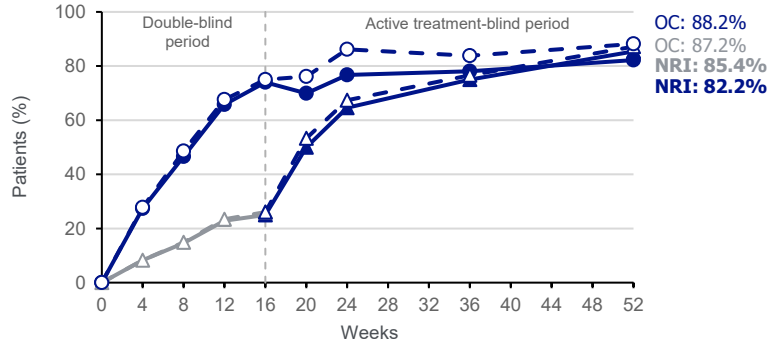
NRI: PBO/BKZ n=140; BKZ n=217
OC n values (Week 52): PBO/BKZ 106/132; BKZ 159/194

SJC ≤1 (BSA ≥3–≤10%)



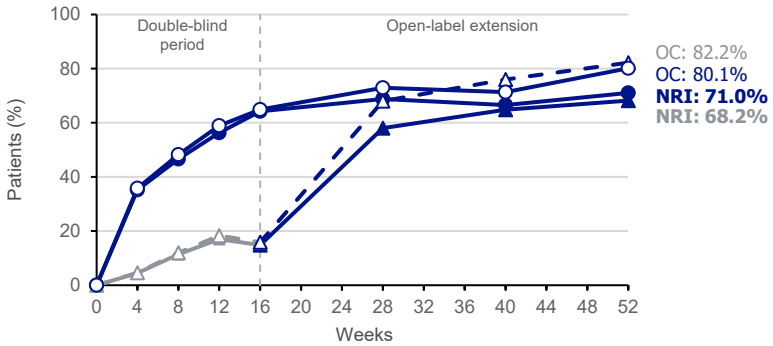
NRI: PBO/BKZ n=92; BKZ n=144
OC n values (Week 52): PBO/BKZ 65/85; BKZ 99/126

SJC ≤1 BSA >10%

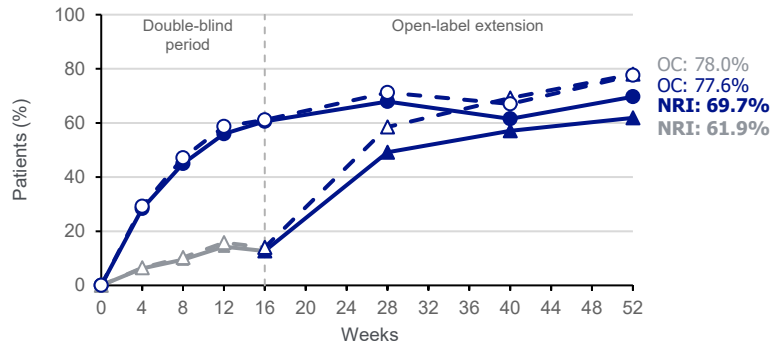


NRI: PBO/BKZ n=48; BKZ n=73
OC n values (Week 52): PBO/BKZ 41/47; BKZ 60/68

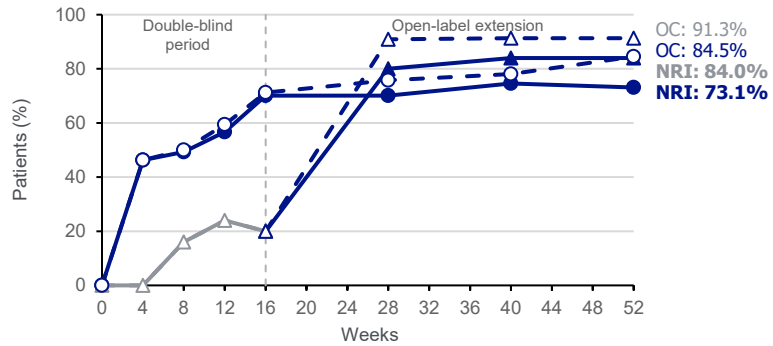
BE COMPLETE (TNFi-IR)



NRI:PBO/BKZ n=88; BKZ n=176
OC n values (Week 52): PBO/BKZ 60/73; BKZ 125/156



NRI: PBO/BKZ n=63; BKZ n=109
OC n values (Week 52): PBO/BKZ 39/50; BKZ 76/98



NRI: PBO/BKZ n=25; BKZ n=67
OC n values (Week 52): PBO/BKZ 21/23; BKZ 49/58

Placebo/BKZ 160 mg Q4W; NRI — BKZ 160 mg Q4W; NRI — Placebo/BKZ 160 mg Q4W; OC — BKZ 160 mg Q4W; OC

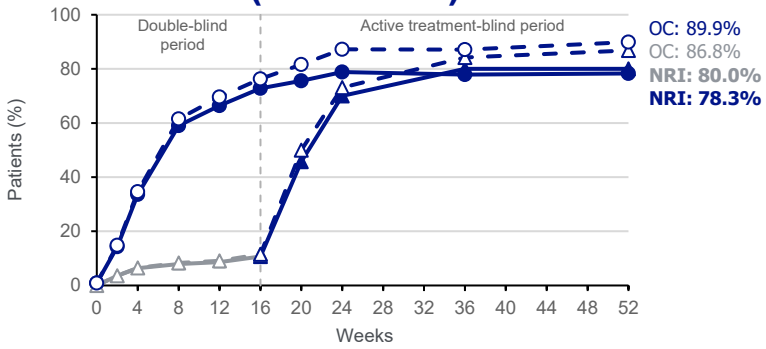
Randomised set, in patients with psoriasis affecting ≥3% of BSA at BL. bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; BSA: body surface area; NRI: non-responder imputation; OC: observed case; PBO: placebo; Q4W: every 4 weeks; SJC: swollen joint count; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

PASI ≤1 responses to Week 52 in patients with BSA ≥3% at baseline (NRI and OC)

- Achievement of PASI ≤1 was sustained from Week 16 to Week 52 in patients across skin severity levels at baseline receiving BKZ. Results were consistent between bDMARD-naïve and TNFi-IR populations.

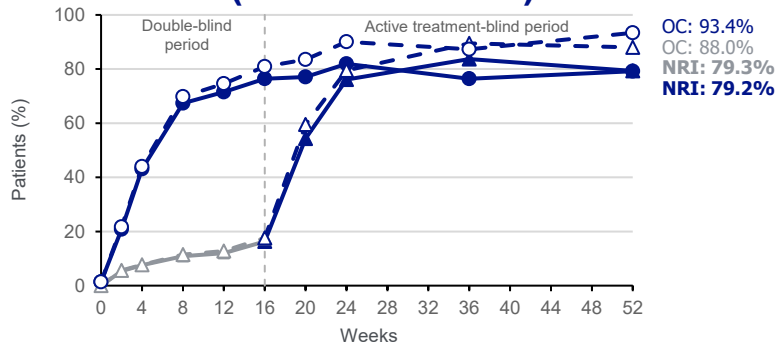
BE OPTIMAL (bDMARD-naïve)

PASI ≤1 (BSA ≥3%)



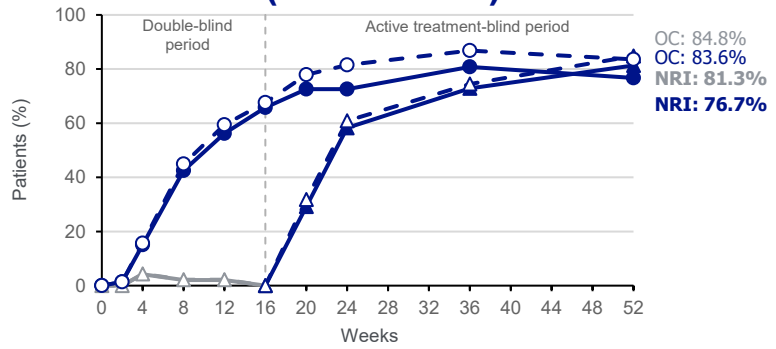
NRI: PBO/BKZ n=140; BKZ n=217
OC n values (Week 52): PBO/BKZ 112/129; BKZ 170/189

PASI ≤1 (BSA ≥3–≤10%)



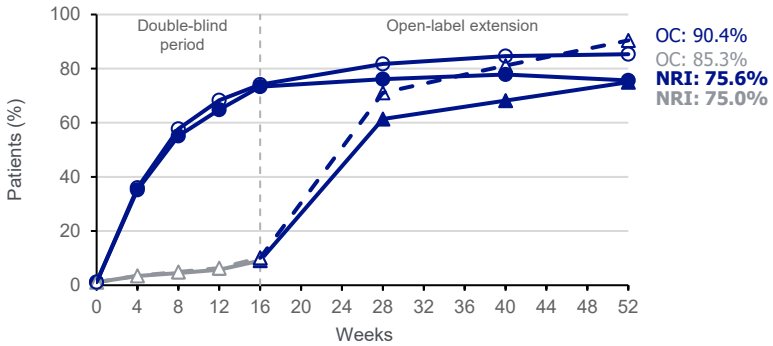
NRI: PBO/BKZ n=92; BKZ n=144
OC n values (Week 52): PBO/BKZ 73/83; BKZ 114/122

PASI ≤1 (BSA >10%)

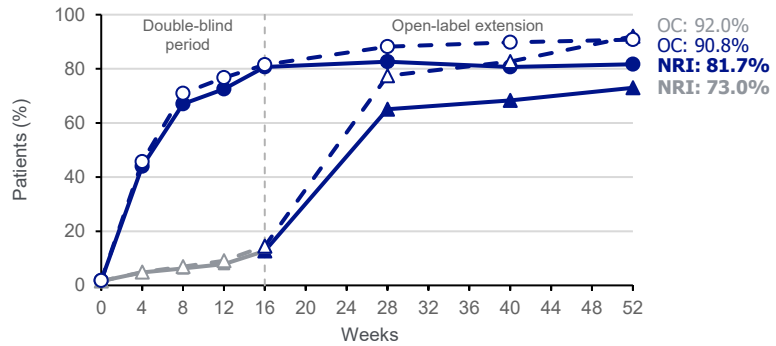


NRI: PBO/BKZ n=48; BKZ n=73
OC n values (Week 52): PBO/BKZ 39/46; BKZ 56/67

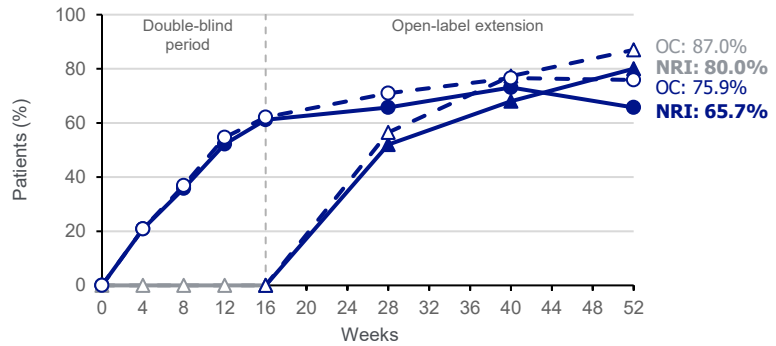
BE COMPLETE (TNFi-IR)



NRI:PBO/BKZ n=88; BKZ n=176
OC n values (Week 52): PBO/BKZ 66/73; BKZ 133/156



NRI: PBO/BKZ n=63; BKZ n=109
OC n values (Week 52): PBO/BKZ 46/50; BKZ 89/98



NRI: PBO/BKZ n=25; BKZ n=67
OC n values (Week 52): PBO/BKZ 20/23; BKZ 44/58

Placebo/BKZ 160 mg Q4W; NRI — BKZ 160 mg Q4W; NRI — Placebo/BKZ 160 mg Q4W; OC — BKZ 160 mg Q4W; OC

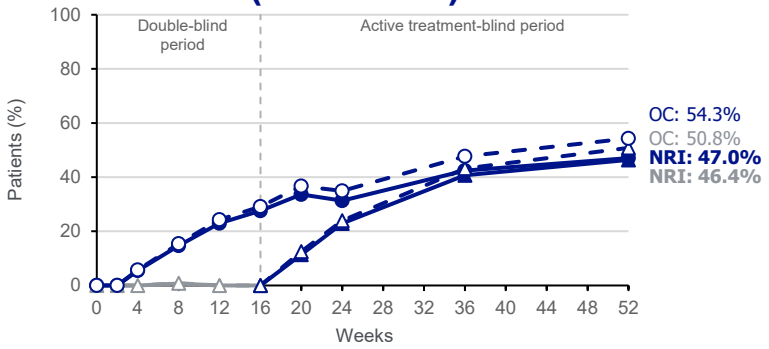
Randomised set, in patients with psoriasis affecting ≥3% of BSA at BL. bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; BSA: body surface area; NRI: non-responder imputation; OC: observed case; PASI: Psoriasis Area and Severity Index; PBO: placebo; Q4W: every 4 weeks; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

Achievement of ACR50+PASI100 to Week 52 in patients with BSA ≥3% at baseline (NRI and OC)

- Achievement of ACR50+PASI100 was sustained from Week 16 to Week 52 in patients across skin severity levels at baseline receiving BKZ. Results were consistent between bDMARD-naïve and TNFi-IR populations.

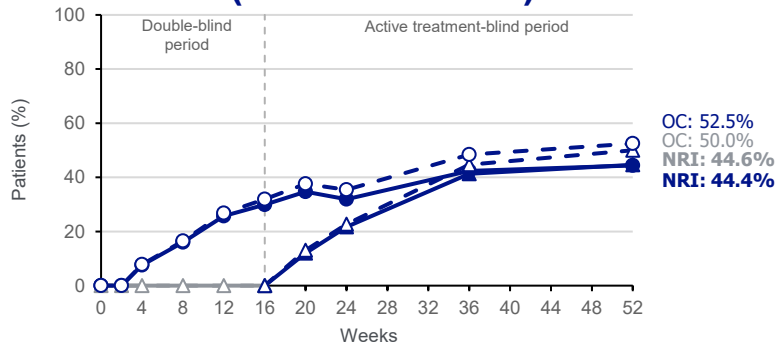
BE OPTIMAL (bDMARD-naïve)

ACR50+PASI100 (BSA ≥3%)



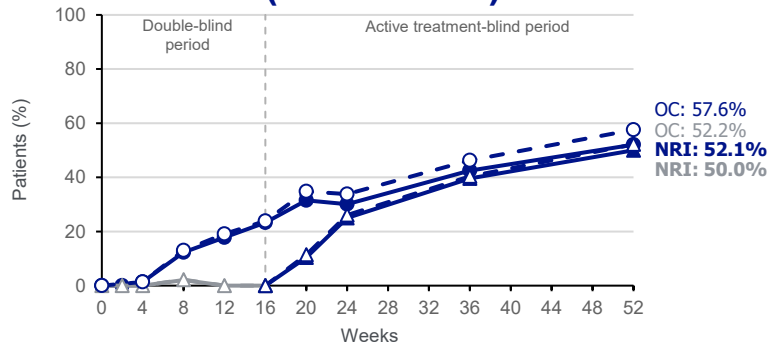
NRI: PBO/BKZ n=140; BKZ n=217
OC n values (Week 52): PBO/BKZ 65/128; BKZ 102/188

ACR50+PASI100 (BSA ≥3–≤10%)



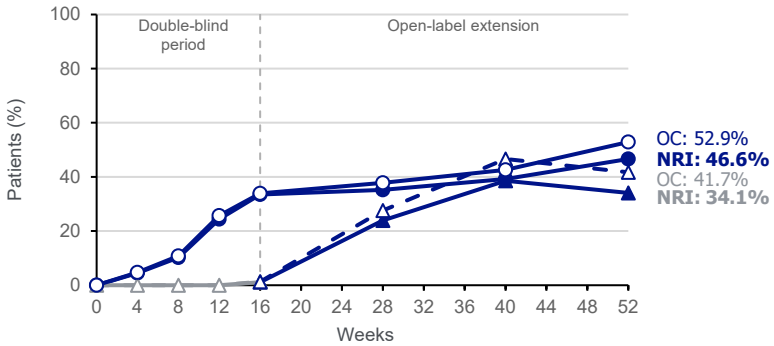
NRI: PBO/BKZ n=92; BKZ n=144
OC n values (Week 52): PBO/BKZ 41/82; BKZ 64/122

ACR50+PASI100 (BSA >10%)

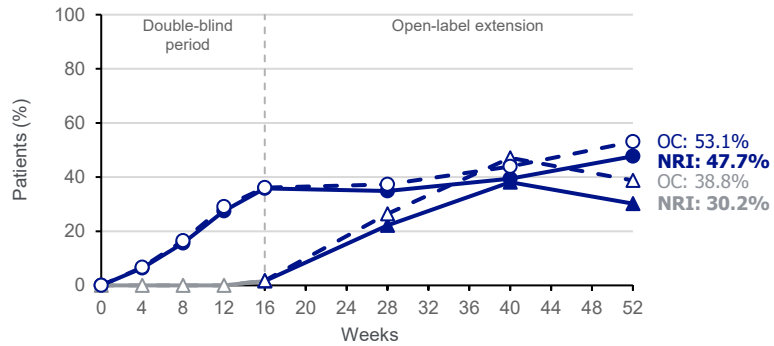


NRI: PBO/BKZ n=48; BKZ n=73
OC n values (Week 52): PBO/BKZ 24/46; BKZ 38/66

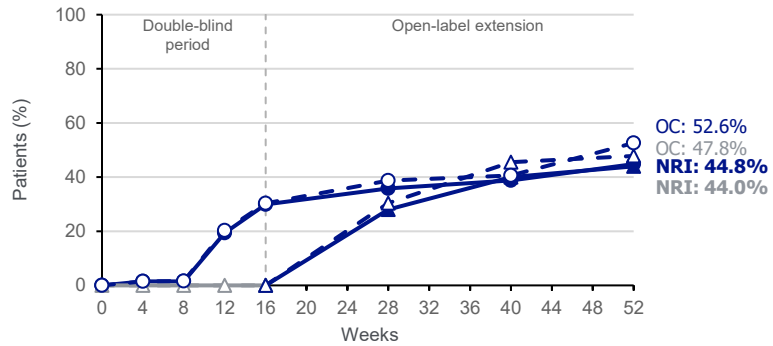
BE COMPLETE (TNFi-IR)



NRI:PBO/BKZ n=88; BKZ n=176
OC n values (Week 52): PBO/BKZ 30/72; BKZ 82/155



NRI: PBO/BKZ n=63; BKZ n=109
OC n values (Week 52): PBO/BKZ 19/49; BKZ 52/98



NRI: PBO/BKZ n=25; BKZ n=67
OC n values (Week 52): PBO/BKZ 11/23; BKZ 30/57

Placebo/BKZ 160 mg Q4W; NRI — BKZ 160 mg Q4W; NRI — Placebo/BKZ 160 mg Q4W; OC — BKZ 160 mg Q4W; OC

Randomised set, in patients with psoriasis affecting ≥3% of BSA at BL. ACR50: ≥50% improvement in American College of Rheumatology criteria; bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; BSA: body surface area; NRI: non-responder imputation; OC: observed case; PASI100: 100% improvement in Psoriasis Area and Severity Index; PBO: placebo; Q4W: every 4 weeks; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

Safety to Week 52 in patients with BSA ≥3% at baseline

n (%) [EAIR][a]	BE OPTIMAL (bDMARD-naïve) BKZ 160 mg Q4W Total[b] n=356 (PYAR: 307.7)	BE COMPLETE (TNFi-IR) BKZ 160 mg Q4W Total[b] n=255 (PYAR: 223.9)
Any TEAE	267 (75.0) [186.5]	142 (55.7) [102.3]
Severe TEAEs	12 (3.4)	12 (4.7)
Study discontinuation due to TEAEs	10 (2.8) [3.3]	9 (3.5) [4.1]
Drug-related TEAEs	90 (25.3)	51 (20.0)
Serious TEAEs	18 (5.1) [6.0]	15 (5.9) [6.9]
Deaths	1 (0.3)[c]	1 (0.4)[d]
Most frequent TEAEs[e]		
Nasopharyngitis	44 (12.4) [15.8]	14 (5.5) [6.5]
Headache	19 (5.3) [6.4]	7 (2.7) [3.2]
Upper respiratory tract infection	18 (5.1) [6.1]	6 (2.4) [2.7]
Urinary tract infection	17 (4.8) [5.6]	17 (6.7) [7.9]
Corona virus infection	11 (3.1) [3.6]	20 (7.8) [9.2]
Serious infections	2 (0.6) [0.7]	5 (2.0) [2.3]
Opportunistic infections	5 (1.4) [1.6][f]	1 (0.4) [0.5][g]
Fungal infections	35 (9.8) [12.1]	16 (6.3) [7.5]
Candida infections	24 (6.7) [8.1]	7 (2.7) [3.2]
Oral candidiasis	16 (4.5) [5.3]	6 (2.4) [2.7]
Neutropenia	6 (1.7) [2.0]	4 (1.6) [1.8]
Hypersensitivity	24 (6.7) [8.1][h,i]	6 (2.4) [2.7][i, j]
Injection site reactions	5 (1.4) [1.6]	3 (1.2) [1.4]
Adjudicated MACE	1 (0.3) [0.3]	2 (0.8) [0.9]
Malignancies excluding non-melanoma skin cancer	0	2 (0.8) [0.9][k]
Non-melanoma skin cancer	1 (0.3) [0.3][l]	0

To Week 52, all *Candida* infections were mild or moderate and none were systemic; the majority were oral candidiasis.

Safety set. [a] EAIRs are reported where available; [b] Includes patients who switched from placebo to BKZ and only includes TEAEs that occurred whilst receiving BKZ; [c] Cause of death was a motorcycle accident, unrelated to treatment; [d] Sudden death in 54-year old patient with a history of hypertension, aortic regurgitation, electrocardiogram changes of coronary artery disease (no further information available; no autopsy was performed); [e] Most frequent adverse events are those occurring in ≥5% of patients in either study; [f] 2 oesophageal candidiasis, 1 oropharyngeal candidiasis, 1 fungal oesophagitis, 1 laryngitis fungal; [g] 1 oesophageal candidiasis; [h] 11 dermatitis and eczema; [i] No serious hypersensitivity events were reported; [j] 2 dermatitis and eczema; [k] 1 endometrial cancer stage I, 1 gastric cancer recurrent; [l] 1 basal cell carcinoma. bDMARD: biologic disease-modifying antirheumatic drug; BKZ: bimekizumab; BSA: body surface area; EAIR: exposure-adjusted incident rate per 100 patient-years; MACE: major adverse cardiovascular event; NRI: non-responder imputation; PYAR: patient years at risk; Q4W: every 4 weeks; TEAE: treatment-emergent adverse event; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.

Conclusions

- BE OPTIMAL and BE COMPLETE demonstrated the efficacy and tolerability of bimekizumab up to Week 52 across a range of key PsA domains in bDMARD-naïve and TNFi-IR patients with active PsA and increasing severity of skin symptoms.
- Improvements observed at Week 16 were sustained to Week 52 in patients initially randomised to bimekizumab, and patients that switched from placebo to bimekizumab at Week 16 showed similar responder rates by Week 52.
- Bimekizumab was well tolerated and the safety profile was consistent with previous reports;[1–4] no new safety signals were observed.

Bimekizumab treatment demonstrated sustained efficacy across multiple clinical outcomes up to Week 52, in both bDMARD-naïve and TNFi-IR patients with PsA and psoriasis, regardless of psoriasis severity.

1. McInnes IB. Lancet 2023;401:25–37; 2. Merola JF. Lancet 2023;401:38–48; 3. Ritchlin C. Ann Rheum Dis 2023; epub: doi:10.1136/ard-2023-224431; 4. Coates L. Annals of the Rheumatic Diseases 2023;82:346–47.
bDMARD: biologic disease-modifying antirheumatic drug; BSA: body surface area; PBO: placebo; PsA: psoriatic arthritis; TNFi: tumour necrosis factor inhibitor; TNFi-IR: inadequate response or intolerance to TNFi.