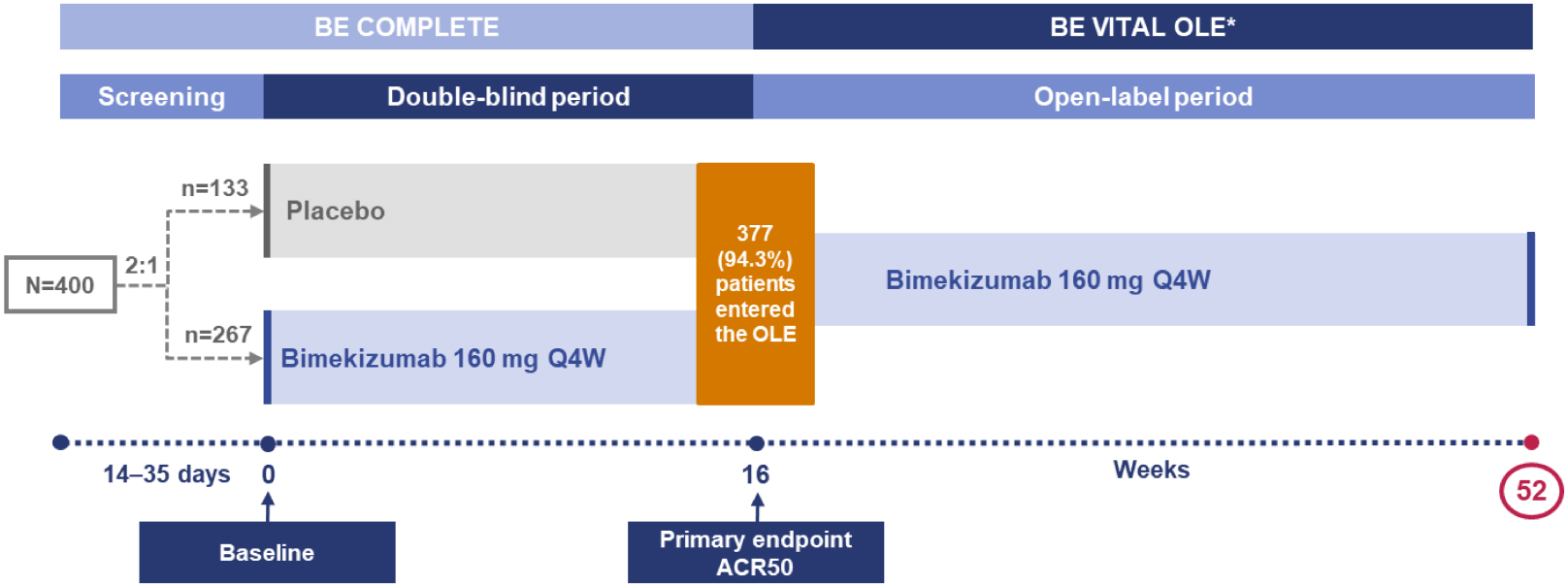
SUPPLEMENTARY APPENDIX

Supplementary Figure 1. Study design



*BE VITAL includes patients from the BE OPTIMAL or BE COMPLETE studies; results here are only presented for patients from BE COMPLETE. ACR: American College of Rheumatology; BKZ: bimekizumab; OLE: open-label extension; Q4W: every 4 weeks; TNFi: tumour necrosis factor inhibitor.

Supplementary Table 1. Baseline patient demographics and disease characteristics

Patient Demographics	Placebo n=133	BKZ 160 mg Q4W n=267	All patients N=400
Age, years, mean (SD)	51.3 (12.9)	50.1 (12.4)	50.5 (12.5)
Sex, male, n (%)	60 (45.1)	130 (48.7)	190 (47.5)
BMI, kg/m^2,[a] mean (SD)	29.0 (5.4)	30.1 (6.5)	29.8 (6.2)
Race, white,[b] n (%)	128 (96.2)	256 (95.9)	384 (96.0)
Time since first diagnosis of psoriatic arthritis,[c] years, mean (SD)	9.2 (8.1)	9.6 (9.9)	9.5 (9.3)
Use of conventional synthetic DMARD at baseline, n (%)	63 (47.4)	139 (52.1)	202 (50.5)
Methotrexate	51 (38.3)	119 (44.6)	170 (42.5)
Prior TNFi exposure, n (%)			
Inadequate response to 1 TNFi	103 (77.4)	204 (76.4)	307 (76.8)
Inadequate response to 2 TNFi	15 (11.3)	29 (10.9)	44 (11.0)
Intolerance to TNFi	15 (11.3)	34 (12.7)	49 (12.3)
Tender joint count (of 68 joints), mean (SD)	19.3 (14.2)	18.4 (13.5)	18.7 (13.8)
Swollen joint count (of 66 joints), mean (SD)	10.3 (8.2)	9.7 (7.5)	9.9 (7.7)
hs-CRP ≥6 mg/L, n (%)	59 (44.4)	118 (44.2)	177 (44.3)
Psoriasis with ≥3% BSA, n (%)	88 (66.2)	176 (65.9)	264 (66.0)
PASI score,[d] mean (SD)	8.5 (6.6)	10.1 (9.1)	9.6 (8.4)
HAQ-DI score, mean (SD)	1.04 (0.69)	0.97 (0.59)	0.99 (0.62)
PtAAP score, mean (SD)	61.7 (24.6)	58.3 (24.2)	59.5 (24.3)
PhGA-PsA score,[e] mean (SD)	57.7 (18.8)	59.3 (17.2)	58.7 (17.7)
PGA-PsA score, mean (SD)	63.0 (22.0)	60.5 (22.5)	61.4 (22.3)
SF-36 PCS score, mean (SD)	35.9 (10.2)	36.4 (9.0)	36.3 (9.4)
PsAID-12 total score, mean (SD)	4.4 (2.0)	4.5 (2.1)	4.5 (2.0)
FACIT-Fatigue score, mean (SD)	36.3 (9.9)	35.3 (10.5)	35.6 (10.3)
Nail psoriasis (mNAPSI >0),[e] n (%)	83 (62.4)	159 (59.6)	242 (60.5)
mNAPSI score,[f] mean (SD)	4.5 (2.8)	4.3 (2.8)	4.4 (2.8)
Dactylitis (LDI >0),[e, g] n (%)	14 (10.5)	34 (12.7)	48 (12.0)
LDI score in patients with dactylitis,[h] mean (SD)	66.4 (127.6)	72.7 (114.4)	70.9 (117.0)
Enthesitis (LEI >0),[e, i] n (%)	36 (27.1)	106 (39.7)	142 (35.5)
LEI score in patients with enthesitis,[j] mean (SD)	2.9 (1.6)	2.6 (1.5)	2.7 (1.5)
Enthesitis (SPARCC >0),[e, k] n (%)	51 (38.3)	122 (45.7)	173 (43.3)
SPARCC score in patients with enthesitis,[j] mean (SD)	4.6 (3.5)	4.8 (3.7)	4.8 (3.6)

[a] The body-mass index is the weight in kilograms divided by the square of the height in meters. [b] Race was reported by the patient; [c] Data missing for 1 placebo patient; 1 BKZ patient; [d] In patients with psoriasis affecting ≥3% BSA at baseline; [e] Data missing for 1 placebo patient; [f] In patients with nail psoriasis at baseline; [g] Dactylitis defined by LDI >0; [h] In patients with dactylitis at baseline; [i] Enthesitis defined by LEI >0; [j] In patients with enthesitis at baseline; [k] Enthesitis defined by SPARCC >0. BKZ: bimekizumab; BMI: body mass index; DMARD: disease-modifying antirheumatic drug; HAQ-DI: Health Assessment Questionnaire-Disability Index; hs-CRP: high-sensitivity C-reactive protein; LDI: Leeds Dactylitis Index; LEI: Leeds Enthesitis Index; PASI: Psoriasis Area and Severity Index; PGA-PsA: Patient's Global Assessment of Psoriatic Arthritis; PhGA-PsA: Physician's Global Assessment of Psoriatic Arthritis; PsAID-12: Psoriatic Arthritis Impact of Disease-12; PtAAP: Patient's Assessment of Arthritis Pain; Q4W: every four weeks; SF-36 PCS: Short-Form 36-item Health Survey Physical Component Summary; SD: standard deviation; SPARCC: Spondyloarthritis Research Consortium of Canada; TNFi: tumour necrosis factor inhibitor.

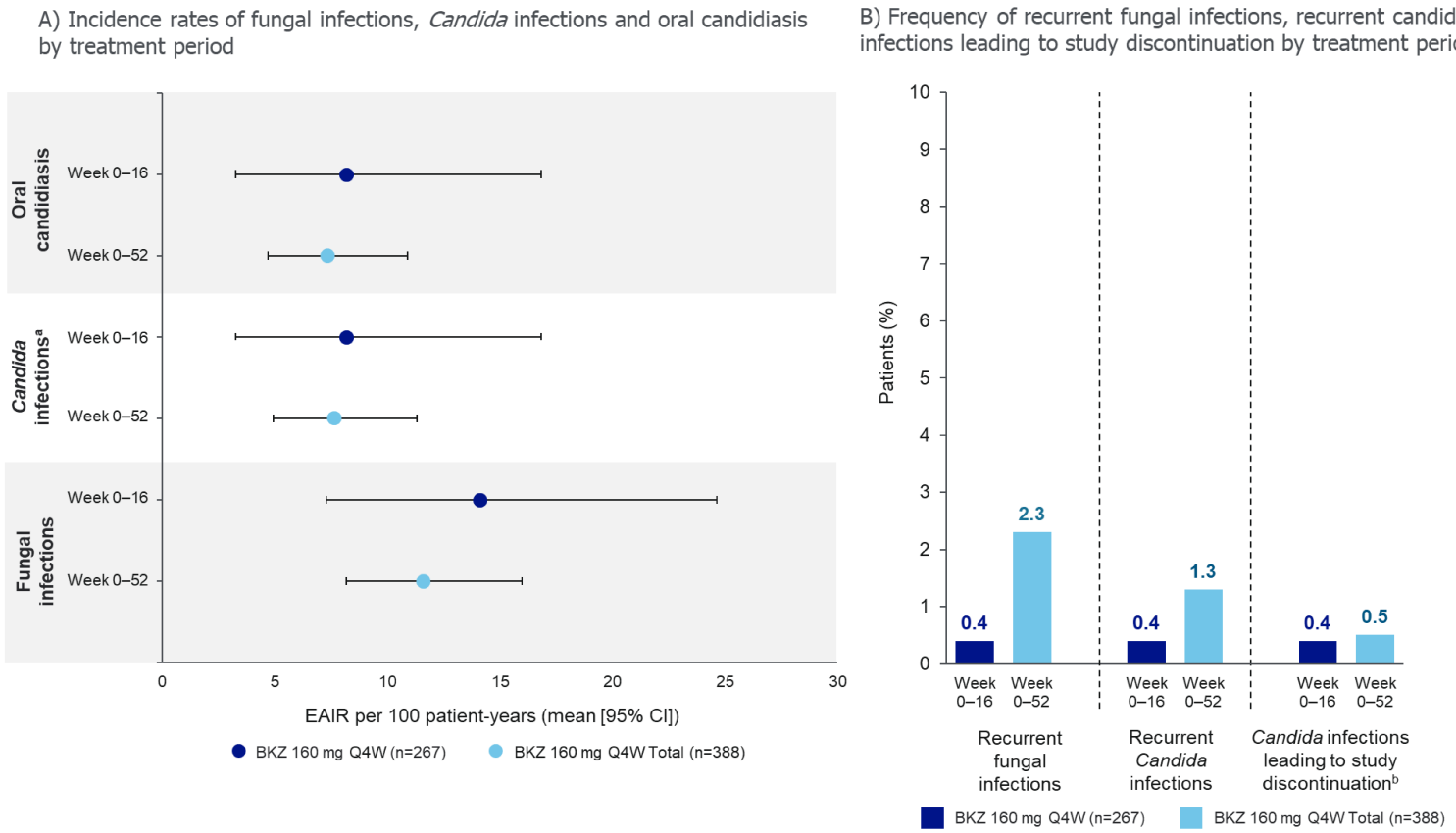
Supplementary Table 2. Fungal infections to Week 16 and Week 52

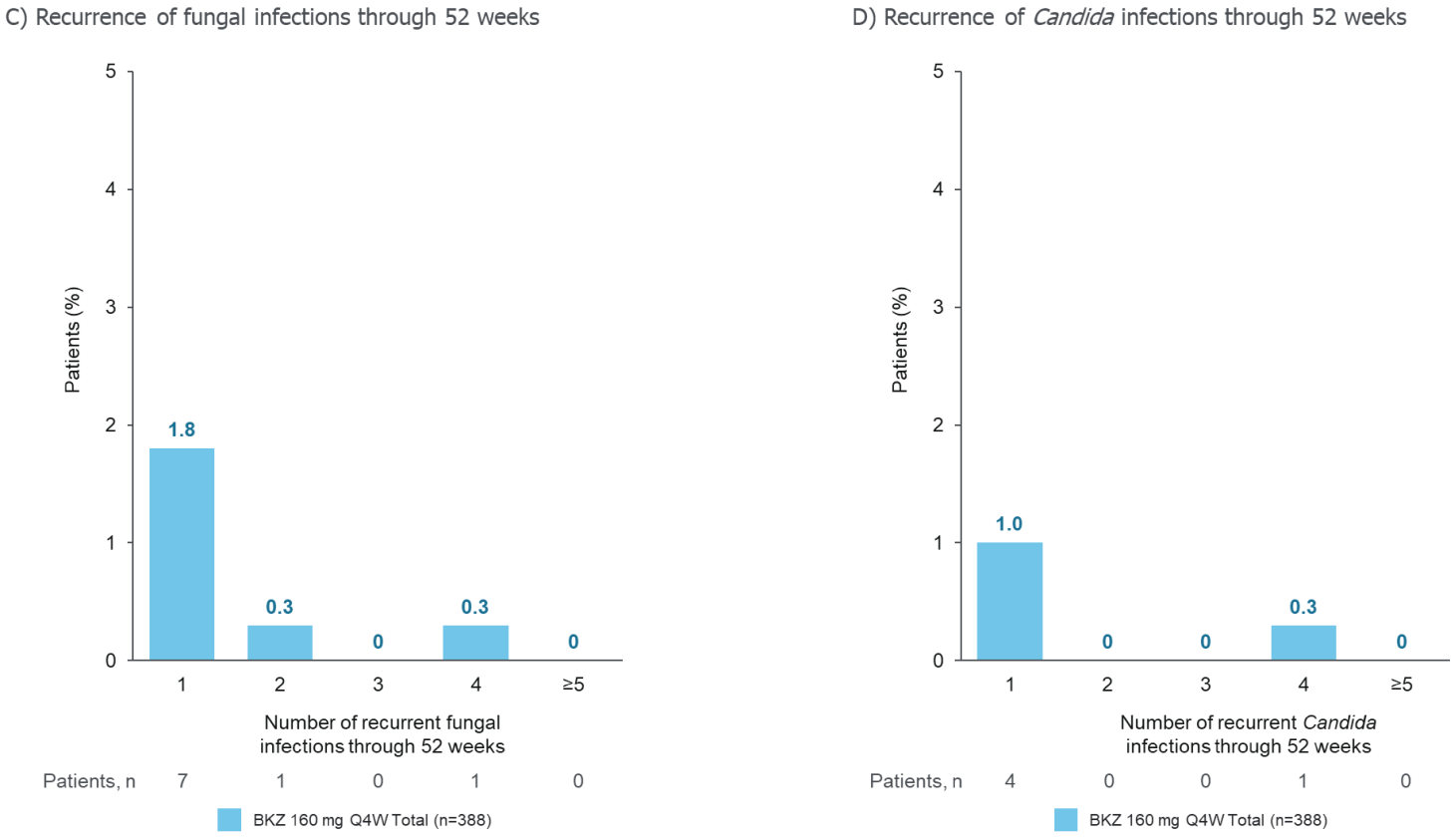
	Weeks 0–16 (Double-blind period)		Weeks 16–52 (Open-label period)	Weeks 0–52 (Overall study period)	
n (%) [EAIR] [a]	**Placebo n=132 (PYAR: 42.5)**	**BKZ 160 mg Q4W n=267 (PYAR: 87.1)**	**Placebo/BKZ 160 mg Q4W [b] n=121 (PYAR: 80.3)**	**BKZ 160 mg Q4W n=267 (PYAR: 259.5)**	**BKZ 160 mg Q4W Total [b] n=388 (PYAR: 339.8)**
Fungal infections	0	12 (4.5)	12 (9.9) [16.0]	25 (9.4) [10.3]	37 (9.5) [11.6]
Candida infections	0	7 (2.6)	8 (6.6) [10.4] [c]	17 (6.4) [6.8]	25 (6.4) [7.7] [c]
Oral candidiasis	0	7 (2.6)	7 (5.8) [9.0]	17 (6.4) [6.8]	24 (6.2) [7.3]
Oesophageal candidiasis	0	0	2 (1.7) [2.5]	0	2 (0.5) [0.6]
Fungal infections NEC (HLT)	0	4 (1.5)	3 (2.5) [3.8]	9 (3.4) [3.5]	12 (3.1) [3.6]
Fungal skin infection	0	1 (0.4)	1 (0.8) [1.3]	3 (1.1) [1.2]	4 (1.0) [1.2]
Vulvovaginal mycotic infection	0	2 (0.7)	1 (0.8) [1.3]	3 (1.1) [1.2]	4 (1.0) [1.2]
Oral fungal infection	0	0	1 (0.8) [1.3]	1 (0.4) [0.4]	2 (0.5) [0.6]
Eye infection fungal	0	0	0	1 (0.4) [0.4]	1 (0.3) [0.3]
Tongue fungal infection	0	1 (0.4)	0	1 (0.4) [0.4]	1 (0.3) [0.3]
Tinea infections	0	1 (0.4)	2 (1.7) [2.5]	2 (0.7) [0.8] [d]	4 (1.0) [1.2] [d]
Body tinea	0	0	0	1 (0.4) [0.4]	1 (0.3) [0.3]
Tinea infection	0	0	0	1 (0.4) [0.4]	1 (0.3) [0.3]
Tinea pedis	0	1 (0.4)	0	1 (0.4) [0.4]	1 (0.3) [0.3]
Tinea cruris	0	0	1 (0.8) [1.3]	0	1 (0.3) [0.3]
Tinea versicolor	0	0	1 (0.8) [1.3]	0	1 (0.3) [0.3]
Serious fungal infections	0	0	0	0	0
Fungal infections NEC (HLT) leading to study discontinuation	0	0	1 (0.8) [1.3] [e]	0	1 (0.3) [0.3] [e]

	Candida infections leading to study discontinuation	0	1 (0.4)	0	2 (0.7) [0.8][f]	2 (0.5) [0.6][f]

Safety set (all randomised subjects who received at least one dose of the study drug); one placebo-randomised patient withdrew from the study before receiving study drug. [a] EAIRs are reported for treatment duration greater than 16 weeks, where available; [b] Includes patients who switched from placebo to BKZ and only includes TEAEs occurring whilst receiving BKZ; [c] 1 patient had both oral candidiasis and oesophageal candidiasis infection; [d] 1 patient had both body tinea and tinea infection; [e] 1 fungal skin infection; [f] 2 oral candidiasis, 1 during the double-blind period and 1 during the open label period. BKZ: bimekizumab; EAIR: exposure-adjusted incidence rate; HLT: high-level term; NEC: not elsewhere classified; PYAR: patient-years at risk; Q4W: every 4 weeks.

Supplementary Figure 2. Fungal infections to Week 16 and Week 52

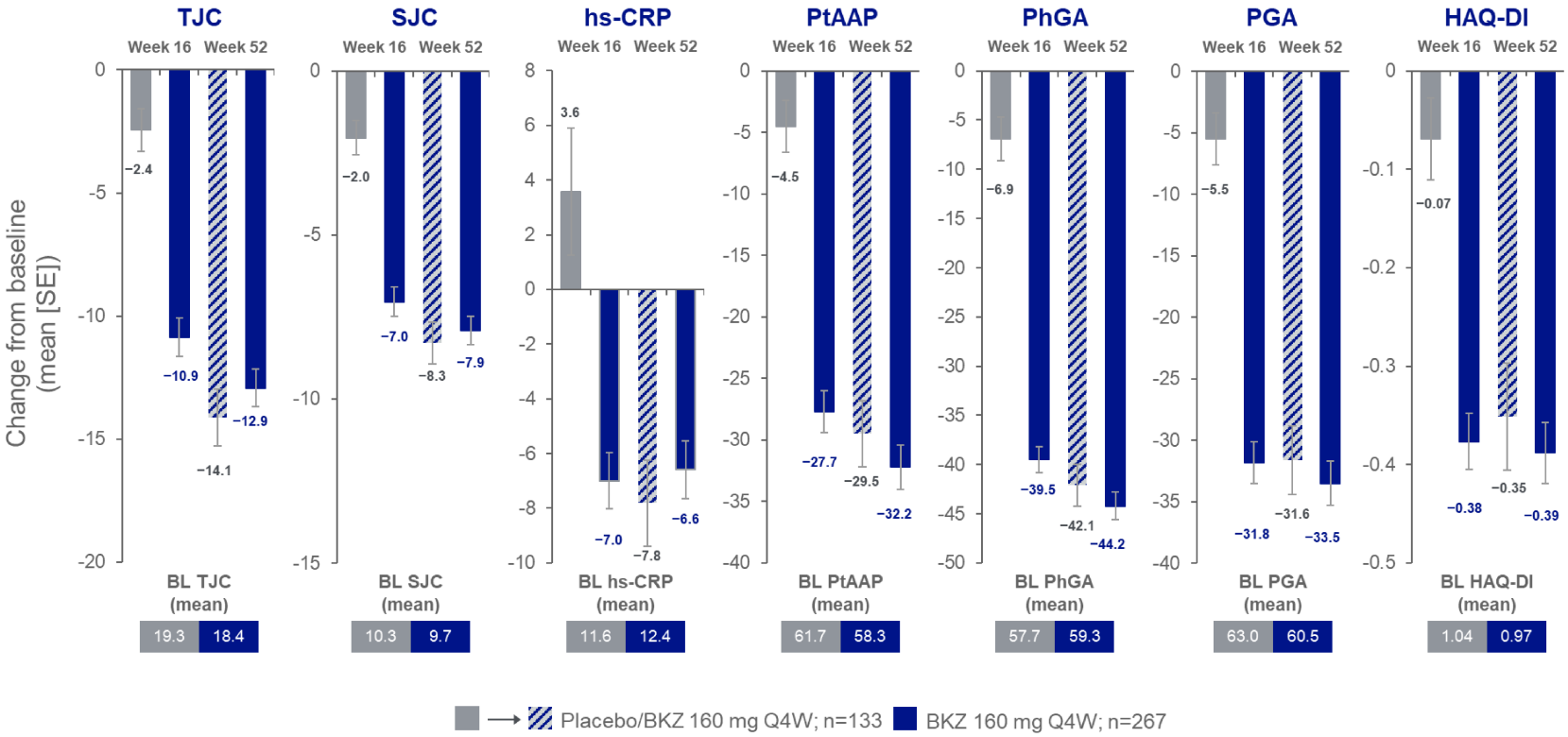




Safety set (all randomised subjects who received at least one dose of the study drug); one placebo-randomised patient withdrew from the study before receiving study drug. BKZ 160 mg Q4W includes patients randomised to bimekizumab. BKZ 160 mg Q4W Total includes all patients that received ≥1 dose of bimekizumab, including those who switched from placebo at Week 16. No fungal infections were reported in placebo-randomised patients prior to Week 16. [a] 24 of the 25 reported *Candida* infections were oral

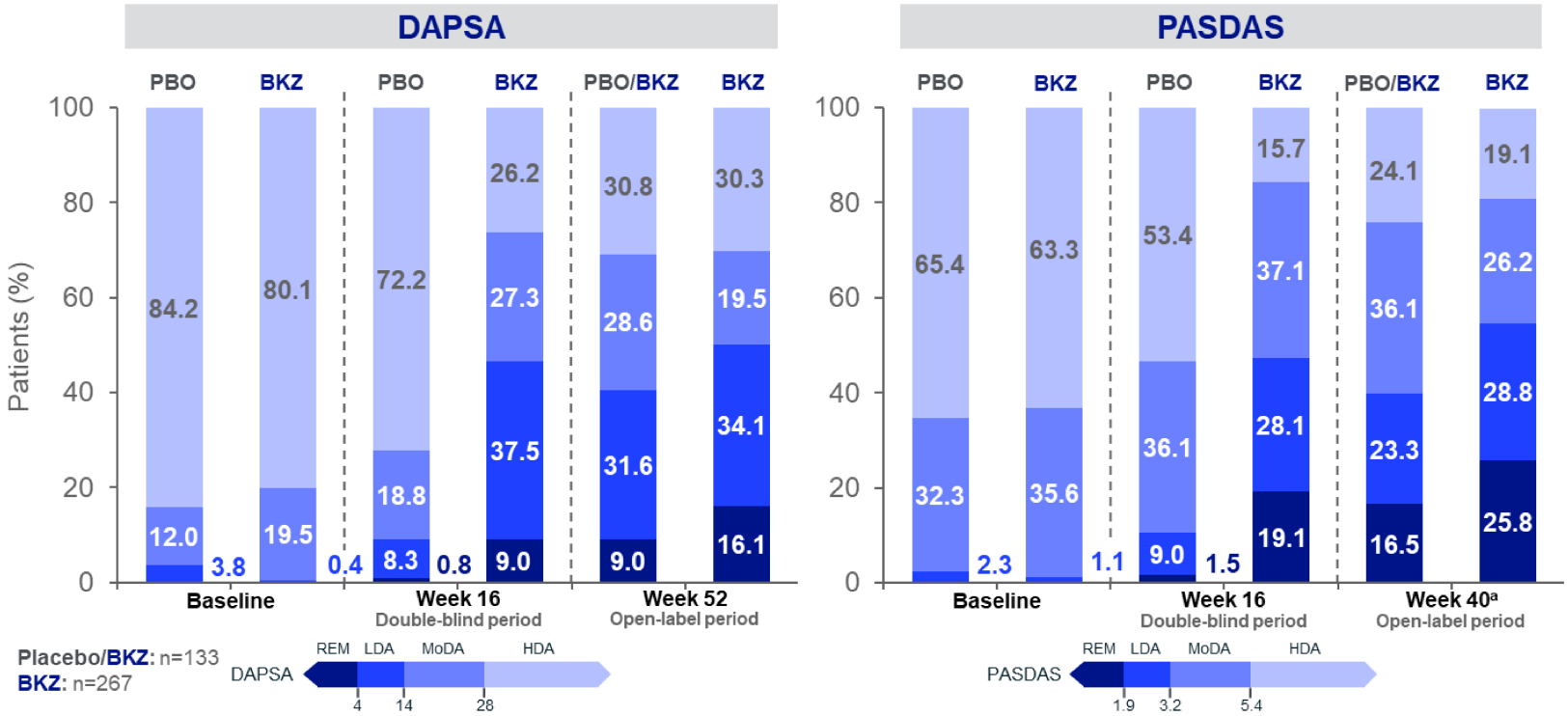
candidiasis; [b] 2 oral candidiasis, 1 during the double-blind period and 1 during the open label period. BKZ: bimekizumab; CI: confidence interval; EAIR: exposure-adjusted incidence rate; Q4W: every 4 weeks.

Supplementary Figure 3. Change in individual ACR components at Week 52 (MI)



Previously reported data through Week 16 included for reference.[14] Randomised set. BKZ: bimekizumab; BL: baseline; HAQ-DI: Health Assessment Questionnaire-Disability Index; hs-CRP: high-sensitivity C-reactive protein; MI: multiple imputation; PGA: Patient's Global Assessment; PhGA: Physician's Global Assessment; PtAAP: Patient's Assessment of Arthritis Pain; Q4W: every four weeks; SE: standard error; SJC: swollen joint count; TJC: tender joint count.

Supplementary Figure 4. DAPSA and PASDAS responses over time to Week 52 (WCI)



Randomised set. [a] Data not collected at Week 52. BKZ: bimekizumab; DAPSA: Disease Activity Index for Psoriatic Arthritis; HDA: high disease activity; LDA: low disease activity; MoDA: moderate disease activity; PASDAS; Psoriatic Arthritis Disease Activity Score; Q4W: every 4 weeks; REM: remission; WCI: worst category imputation.