

Additional file 1

Supplementary Table 1. Components of the disease activity measures used

Disease activity measures	Components	Computation	Cutoff points	
			LDA	Remission
MDA [1]	TJC ≤ 1	NA	$\geq 5/7^a$	NA
VLDA [2]	SJC ≤ 1		NA	7/7
	PASI ≤ 1 or an affected BSA $\leq 3\%$			
	Patient arthritis pain (VAS) ≤ 15 mm			
	Patient global assessment of arthritis (VAS) ≤ 20 mm			
	HAQ-DI ≤ 0.5			
	Tender entheses points (using LEI) ≤ 1			
PASDAS (range 0–10) [3]	TJC68	PASDAS = $\{(0.18 \times \sqrt{\text{physician's global assessment}} + (0.159 \times \sqrt{\text{patient's global assessment}}) - (0.253 \times \sqrt{\text{SF-36 PCS}}) + [0.101 \times \ln(\text{SJC66} + 1)] + [0.048 \times \ln(\text{TJC68} + 1)] + [0.23 \times \ln(\text{LEI score count} + 1)] +$	$> 1.9 - < 3.2$ [4]	$\leq 1.9^b$ [2]
	SJC66			
	Patient's global assessment (VAS)			
	Physician's global assessment (VAS)			

	LEI score	$[0.377 \ln(\text{tender dactylitis count} + 1)] + [0.102 \times$		
	Tender dactylitis digit score	$\ln(\text{CRP} + 1)] + 2\} \times 1.5$		
	SF-36 PCS			
	CRP (mg/L)			
DAPSA [5]	TJC68	DAPSA = TJC68 + SJC66 + CRP + patient's pain	> 4–≤ 14 [6]	≤ 4
	SJC66	assessment + patient's global assessment of arthritis		
	Patient's global assessment of arthritis (VAS)			
	Patient's pain assessment (VAS)			
	CRP (mg/dL)			
CPDAI	TJC68	Disease activity under the following domains were	> 2–≤ 4 [8]	≤ 2 [2]
(range 0–15) [7]	SJC66	graded as none (0), mild (1), moderate (2), or severe		
	HAQ	(3):		
	PASI	Peripheral arthritis		
	DLQI	1. None: no involvement		
	LEI score			

Dactylitis digit score	2. Mild: TJC/SJC $\leq$ 4; normal function
BASDAI	(HAQ < 0.5)
ASQoL	3. Moderate: TJC/SJC $\leq$ 4 but function impaired or TJC/SJC > 4 and normal function
	4. Severe: TJC/SJC > 4 and function impaired
Skin disease	
	1. None: no involvement
	2. Mild: PASI $\leq$ 10 and DLQI $\leq$ 10
	3. Moderate: PASI $\leq$ 10 but DLQI > 10 or PASI > 10 and DLQI $\leq$ 10
	4. Severe: PASI > 10 and DLQI > 10
Enthesitis	
	1. None: no involvement
	2. Mild: LEI $\leq$ 3 sites; normal function (HAQ < 0.5)

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3. Moderate: $LEI \leq 3$ sites but function impaired or $LEI > 3$ and normal function
 4. Severe: $LEI > 3$ and function impaired

Dactylitis

1. None: no involvement
2. Mild: ≤ 3 digits; normal function (HAQ < 0.5)
3. Moderate: ≤ 3 digits but function impaired or > 3 digits and normal function
4. Severe: > 3 digits and function impaired

Spinal disease

1. None: no involvement
 2. Mild: $BASDAI \leq 4$; normal function ($ASQoL \leq 6$)
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3. Moderate: BASDAI ≤ 4 but function impaired or BASDAI > 4 and normal function
 4. Severe: BASDAI > 4 and function impaired
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^aIncluded patients who fulfilled 6/7 and 7/7 MDA criteria

^bPASDAS near remission

ASQoL, Ankylosing Spondylitis Quality of Life; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; BSA, body surface area; CPDAI, Composite Psoriatic Disease Activity Index; CRP, C-reactive protein; DAPSA, Disease Activity Index for Psoriatic Arthritis; DLQI, Dermatology Life Quality Index; HAQ-DI, Health Assessment Questionnaire-Disability Index; LEI, Leeds Enthesitis Index; LDA, low disease activity; MDA, minimal disease activity; NA, not available; PASDAS, Psoriatic Arthritis Disease Activity Score; PASI, Psoriasis Area and Severity Index; SF-36 PCS, Short Form-36 Health Survey physical component summary; SJC66, swollen joint count (out of 66 joints); TJC, tender joint count (out of 68 joints); VAS, Visual Analog Scale; VLDA, very low disease activity

Supplementary Table 2. Demographics and baseline disease characteristics of patients with LEI = 0 and SPARCC = 0 at baseline

Patients with LEI = 0 and SPARCC = 0	
	(N =136)
Tofacitinib 5 mg BID	N = 49
Tofacitinib 10 mg BID	N = 39
<i>Placebo</i>	<i>N = 48</i>
Female, <i>n</i> (%)	26 (53.1)
	22 (56.4)
	27 (56.3)
Age, years, mean (SD)	50.8 (12.2)
	47.2 (10.8)
	46.9 (10.2)
Race, White, <i>n</i> (%)	46 (93.9)
	38 (97.4)
	45 (93.8)
BMI, kg/m ² , mean (SD)	29.4 (6.0)
	31.3 (6.6)
	27.6 (5.3)
PsA duration, mean (SD)	10.0 (9.1)
	6.1 (5.3)
	7.6 (8.4)
CRP, mg/L, mean (SD)	7.1 (9.9)
	7.6 (9.7)
	9.8 (18.5)

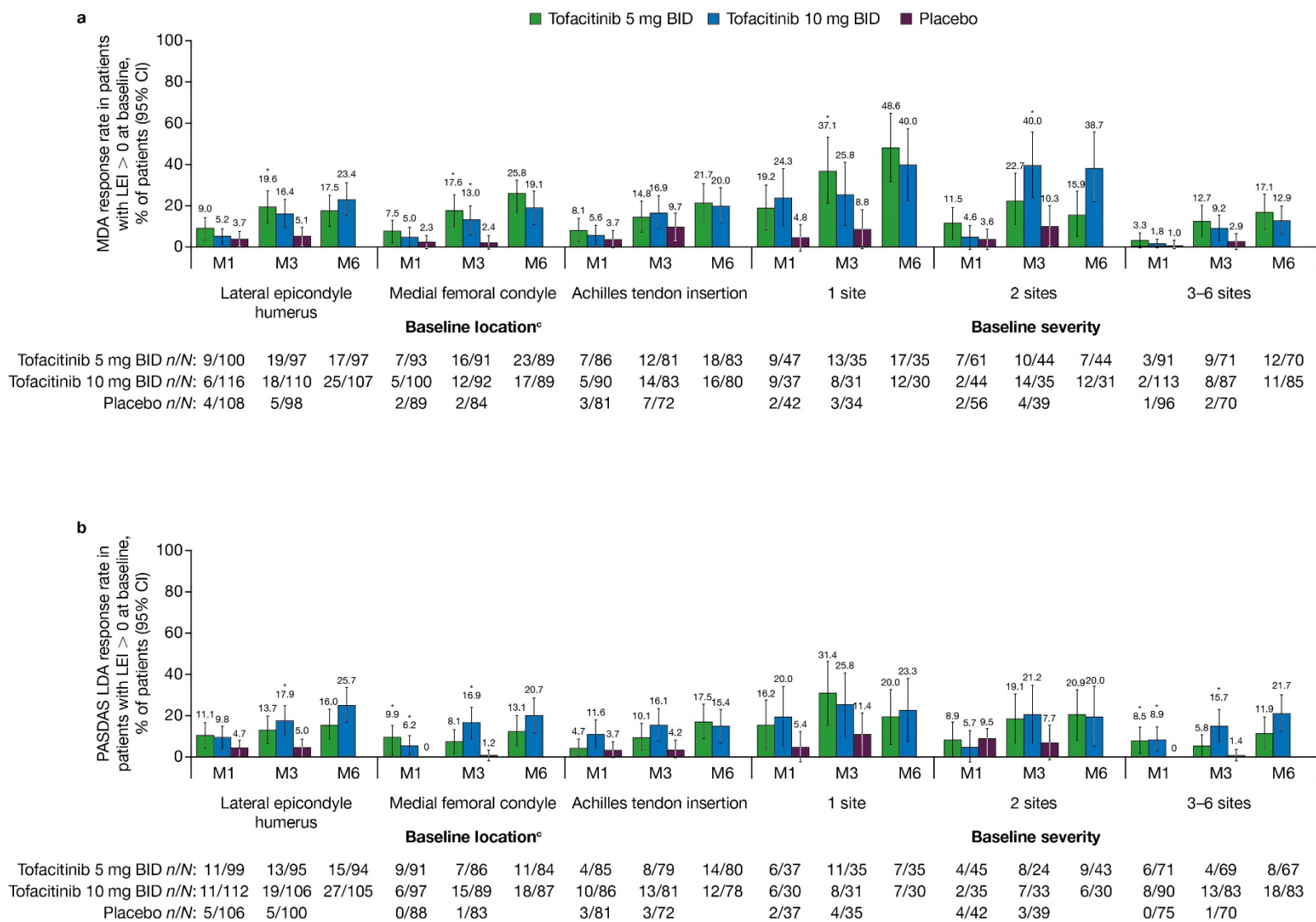
Dactylitis presence,	18 (36.7)
DSS > 0, <i>n</i> (%)	16 (41.0)
	<i>20 (41.7)</i>
TJC68, mean (SD) [NI] ^a	13.4 (6.6) [17]
	12.0 (5.4) [20]
	<i>11.2 (6.4) [25]</i>
SJC66, mean (SD) [NI] ^a	7.8 (3.0) [17]
	8.1 (3.2) [20]
	<i>8.6 (4.9) [25]</i>
PASDAS, mean (SD) [NI] ^a	5.3 (1.0) [46]
	5.1 (1.0) [38]
	<i>5.2 (1.1) [48]</i>
DAPSA, mean (SD)	33.2 (15.4)
	30.2 (11.5)
	<i>29.2 (11.5)</i>
CPDAI, mean (SD) [NI] ^b	7.6 (1.8) [36]
	8.0 (2.1) [27]
	<i>7.3 (2.1) [37]</i>
FACIT-F total score, mean	30.6 (10.5)
(SD)	31.9 (10.0)
	<i>30.7 (10.0)</i>
Arthritis pain (VAS), mean	49.3 (27.1)
(SD)	45.9 (20.7)
	<i>51.0 (27.2)</i>

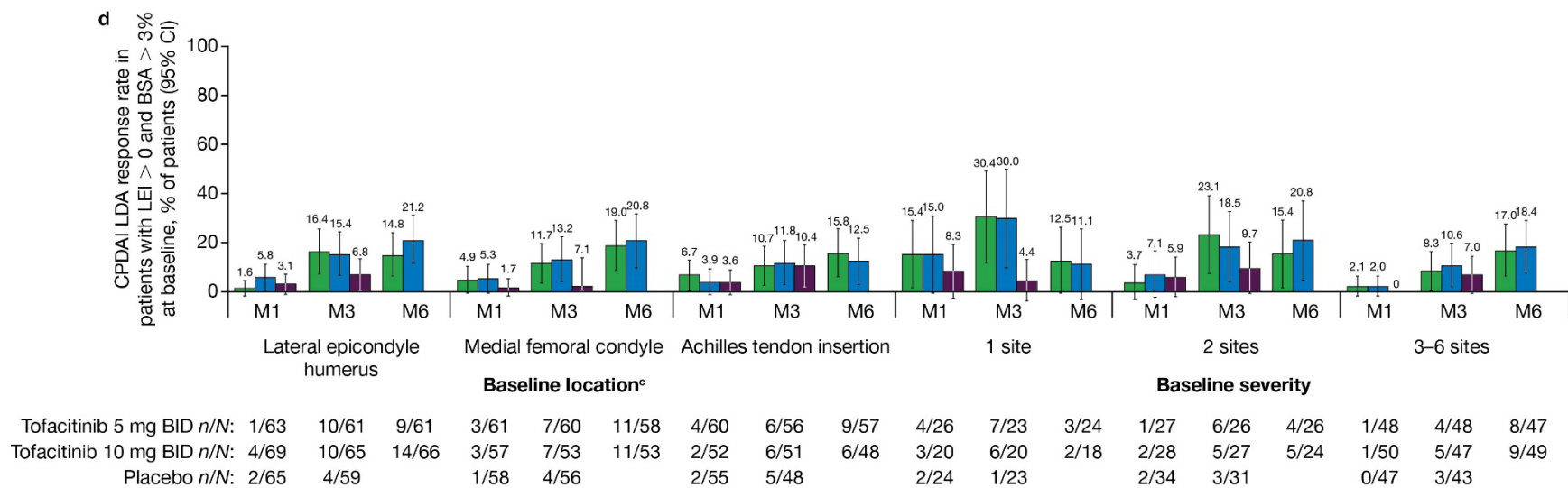
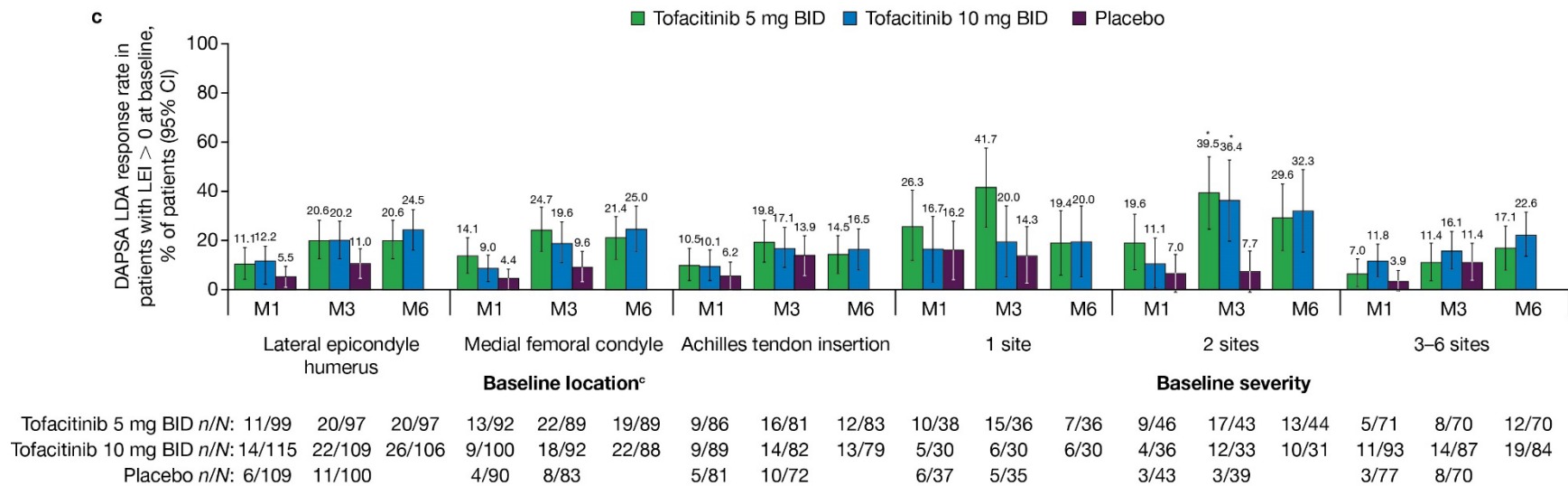
^a NI = number of patients with non-missing data, if different from N

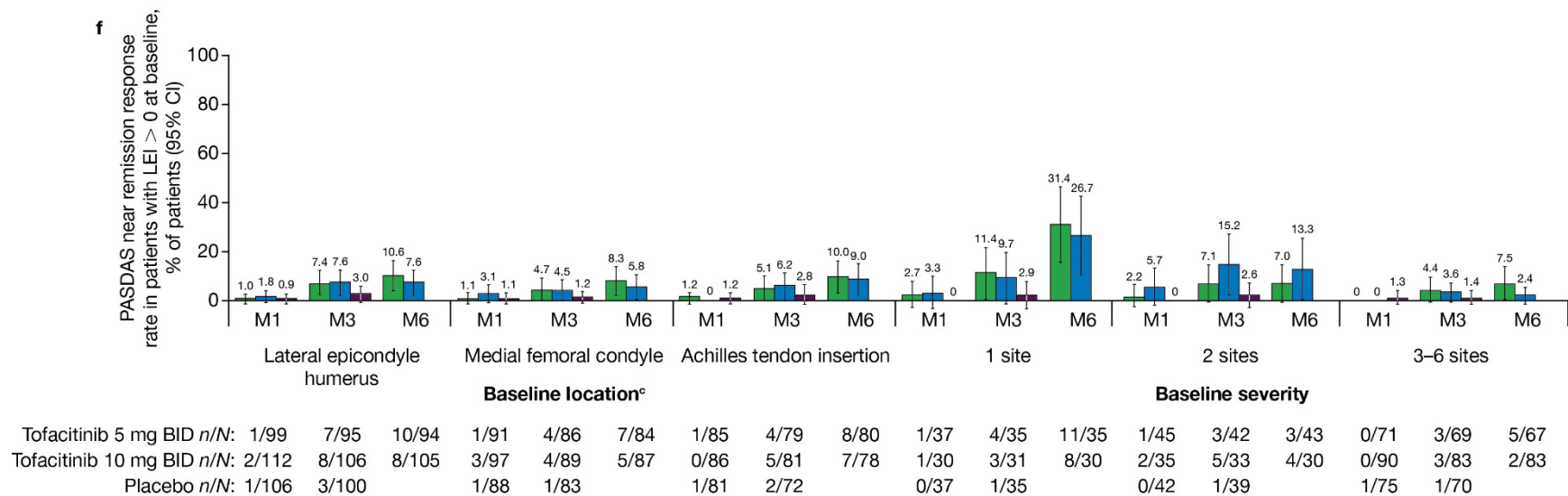
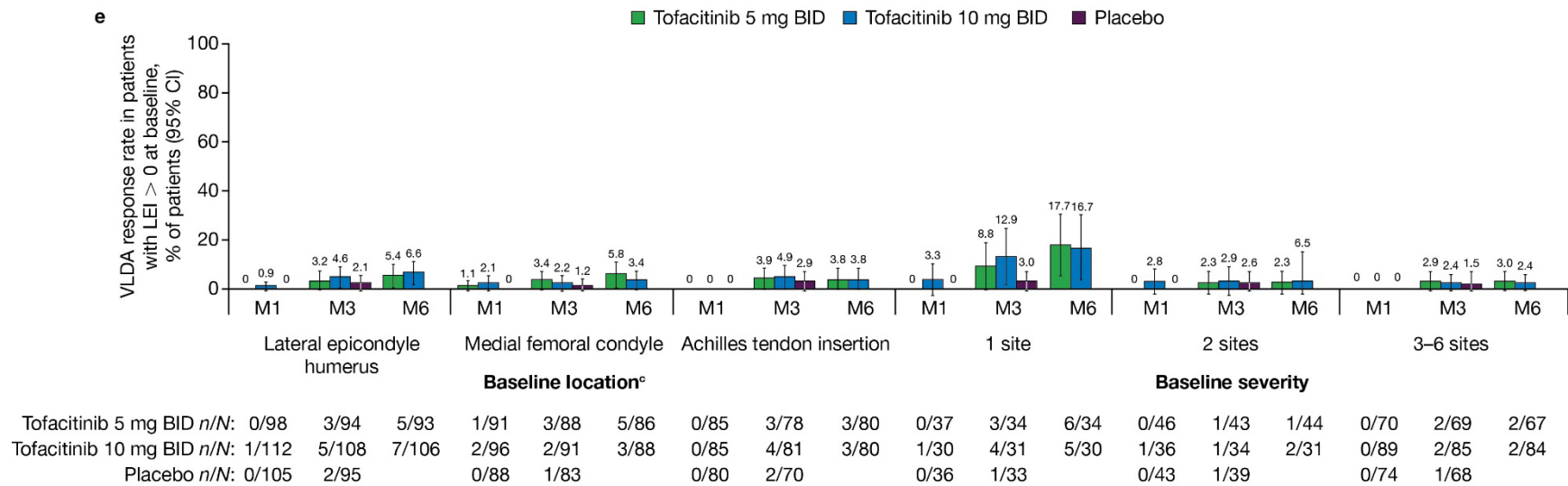
^b NI = number of patients with non-missing data and baseline affected BSA $\geq 3\%$, if different from N

BID, twice daily; BMI, body mass index; BSA, body surface area; CPDAI, Composite Psoriatic Disease Activity in Psoriatic Arthritis; CRP, C-reactive protein; DAPSA, Disease Activity Index for Psoriatic Arthritis; DSS, Dactylitis Severity Score; FACIT-F, Functional Assessment of Chronic Illness Therapy-Fatigue; LEI, Leeds Enthesitis Index; N , total number of patients; n , number of patients applicable for each category; PASDAS, Psoriatic Arthritis Disease Activity Score; PsA, psoriatic arthritis; SD, standard deviation; SJC66, swollen joint count (out of 66 joints); SPARCC, Spondyloarthritis Research Consortium of Canada Enthesitis Index; TJC68, tender joint count (out of 68 joints); VAS, Visual Analog Scale

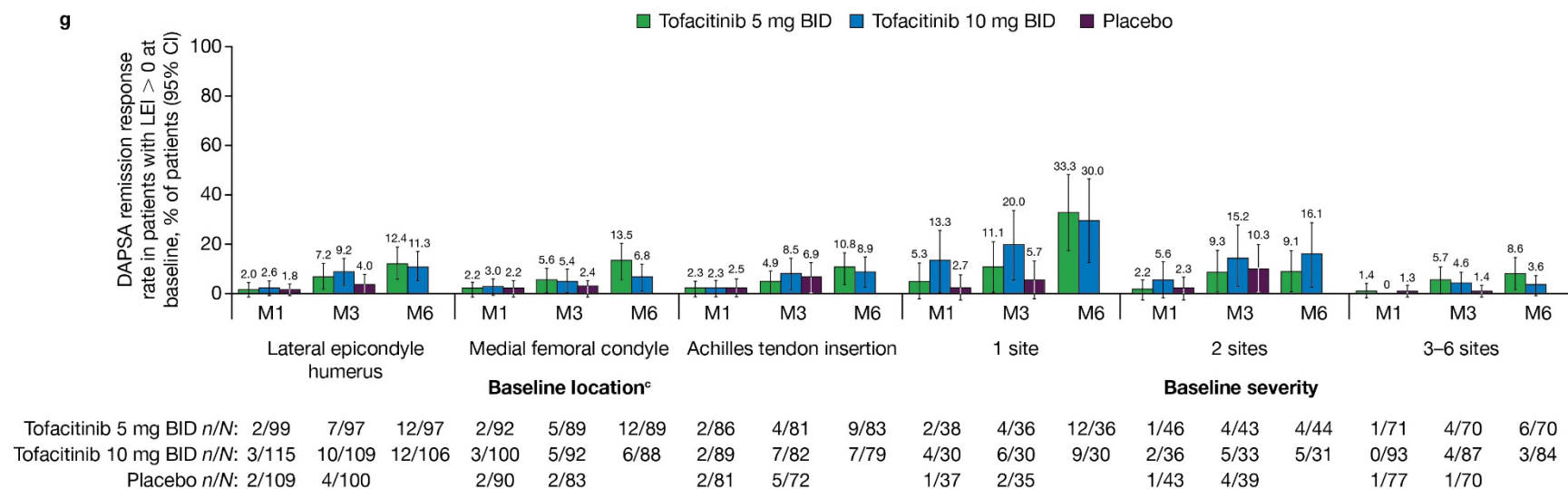
Supplementary Fig. 1 LDA and remission rates, based on MDA or VLDA, PASDAS^a, DAPSA, and CPDAI^b criteria (patients with LEI > 0 at baseline)



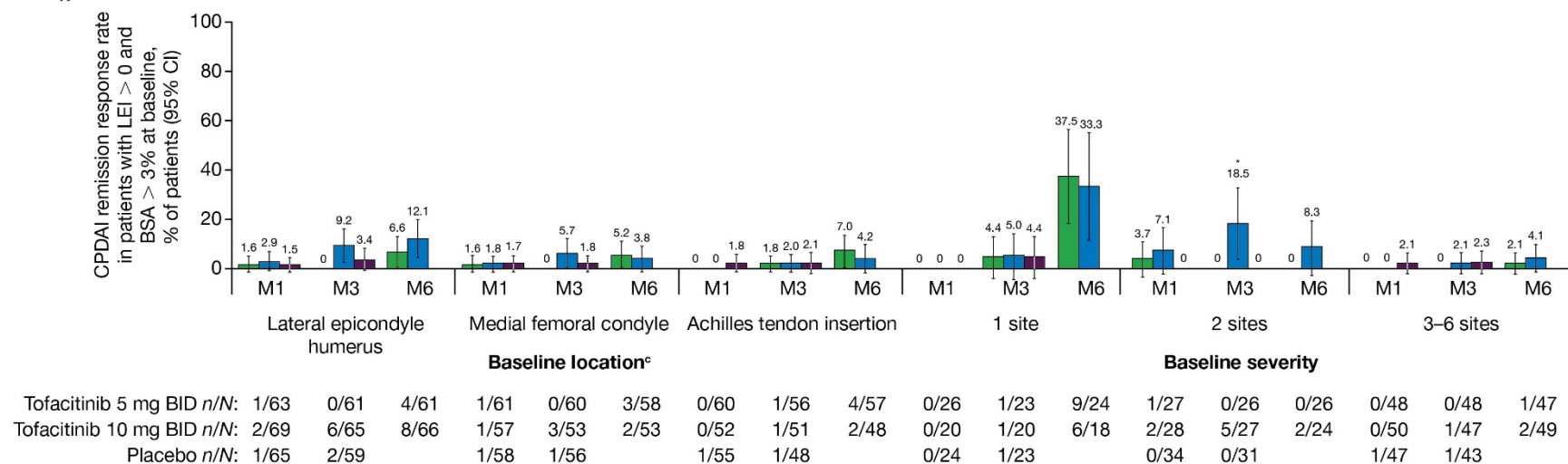




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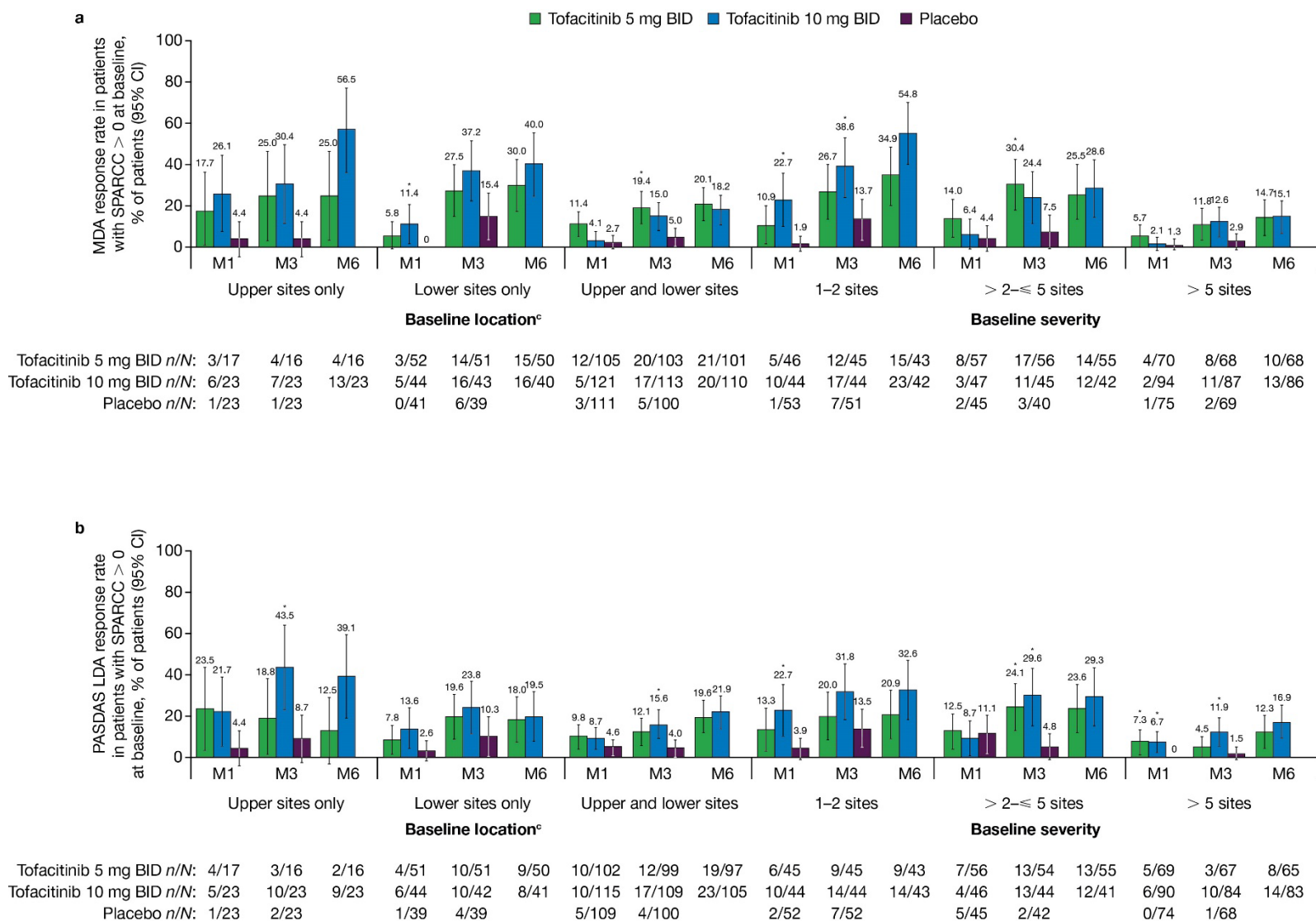
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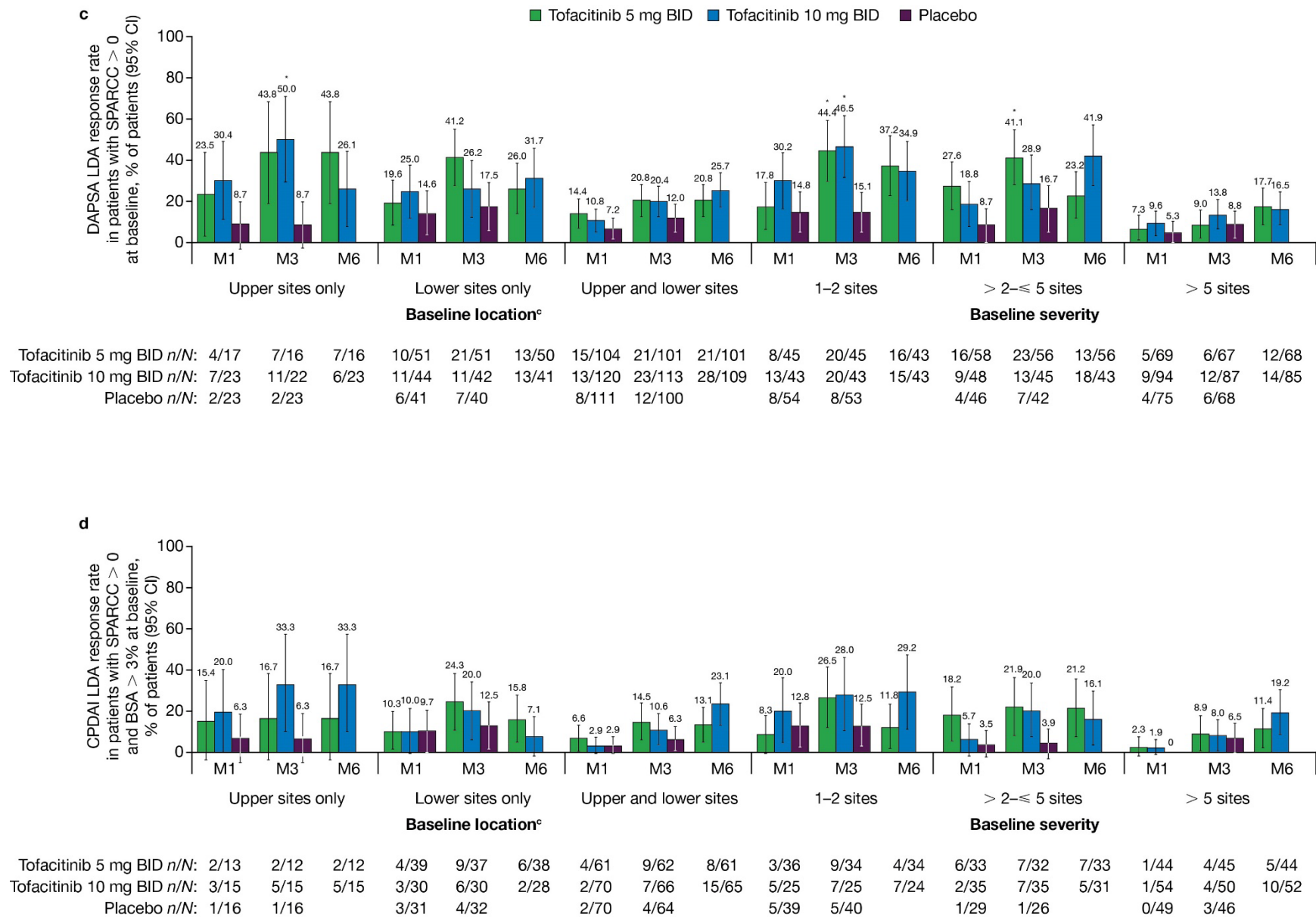


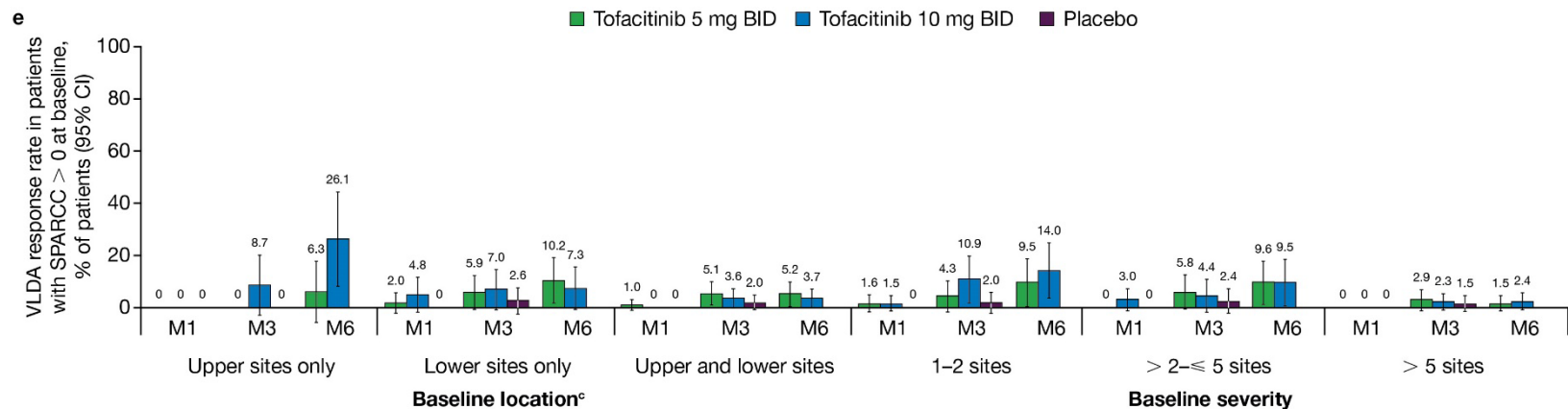
LDA and remission, based on MDA ($\geq 5/7$ criteria; included patients who fulfilled 6/7 and 7/7 MDA criteria)/VLDA (7/7 MDA criteria), PASDAS ($> 1.9 - < 3.2 \leq 1.9$ [near remission]), DAPSA ($> 4 - \leq 14 \leq 4$), and CPDAI ($> 2 - \leq 4 \leq 2$). *Indicates a comparison where the 95% CI for tofacitinib does not overlap with the 95% CI for placebo

^aPASDAS LDA/near remission. ^bAssessed only in patients with LEI > 0 and BSA $\geq 3\%$ at baseline. ^cEach site was assessed bilaterally, and results were combined. BID, twice daily; BSA, body surface area; CI, confidence interval; CPDAI, Composite Psoriatic Disease Activity in Psoriatic Arthritis; DAPSA, Disease Activity Index for Psoriatic Arthritis; LDA, low disease activity; LEI, Leeds Enthesitis Index; M, month; MDA, minimal disease activity; *N*, total number of patients with LEI > 0 at baseline in that particular location or number of affected sites; *n*, number of patients achieving outcome; PASDAS, Psoriatic Arthritis Disease Activity Score; VLDA, very low disease activity

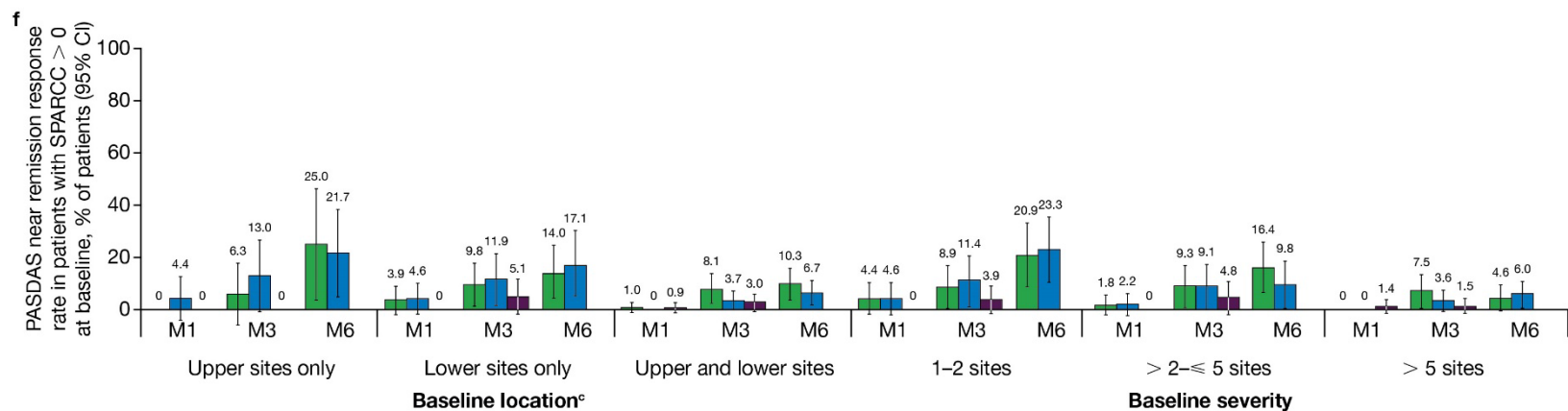
Supplementary Fig. 2 LDA and remission rates, based on MDA or VLDA, PASDAS^a, DAPSA, and CPDAI^b criteria (patients with SPARCC > 0 at baseline)



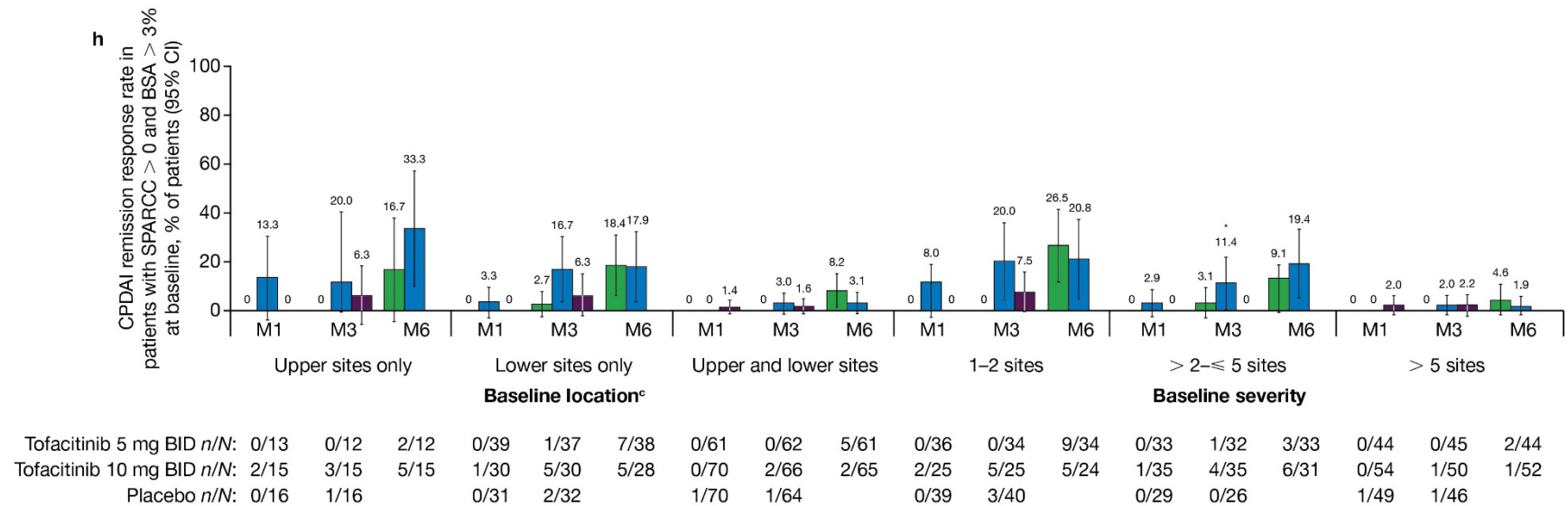
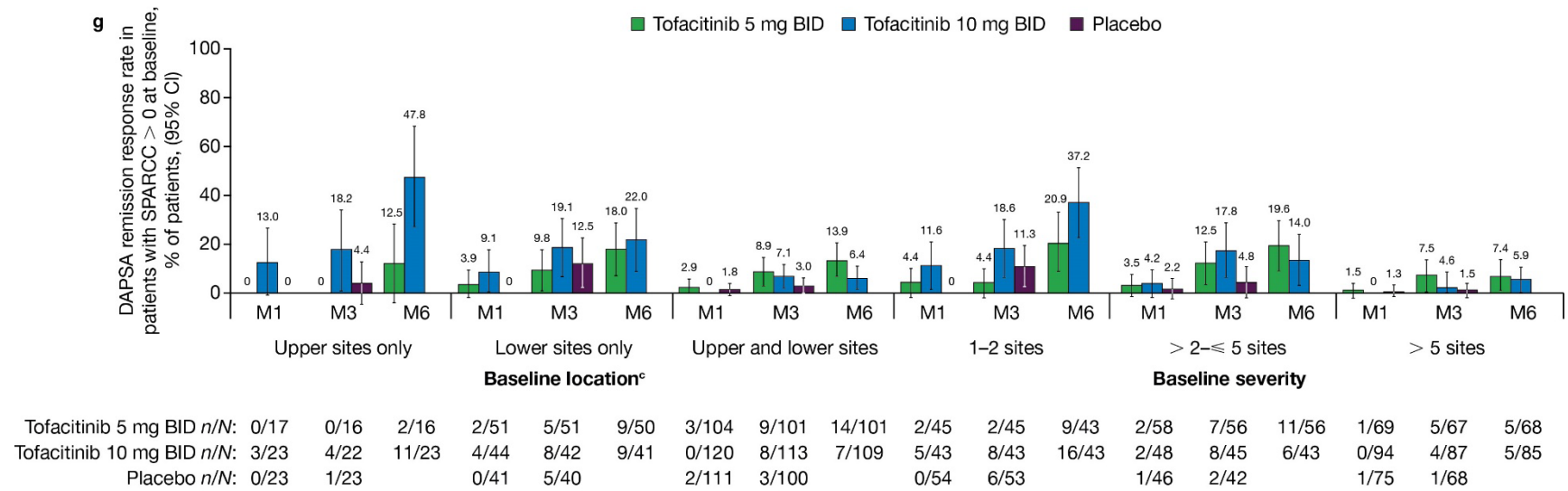




Tofacitinib 5 mg BID <i>n/N</i> :	0/17	0/16	1/16	1/50	3/51	5/49	1/103	5/98	5/96	1/63	2/47	4/42	0/87	3/52	5/52	0/95	2/68	1/66
Tofacitinib 10 mg BID <i>n/N</i> :	0/23	2/23	6/23	2/42	3/43	3/41	0/117	4/112	4/109	1/66	5/46	6/43	2/67	2/45	4/42	0/123	2/87	2/85
Placebo <i>n/N</i> :	0/23	0/22		0/40	1/39		0/109	2/98		0/78	1/50		0/59	1/41		0/109	1/67	

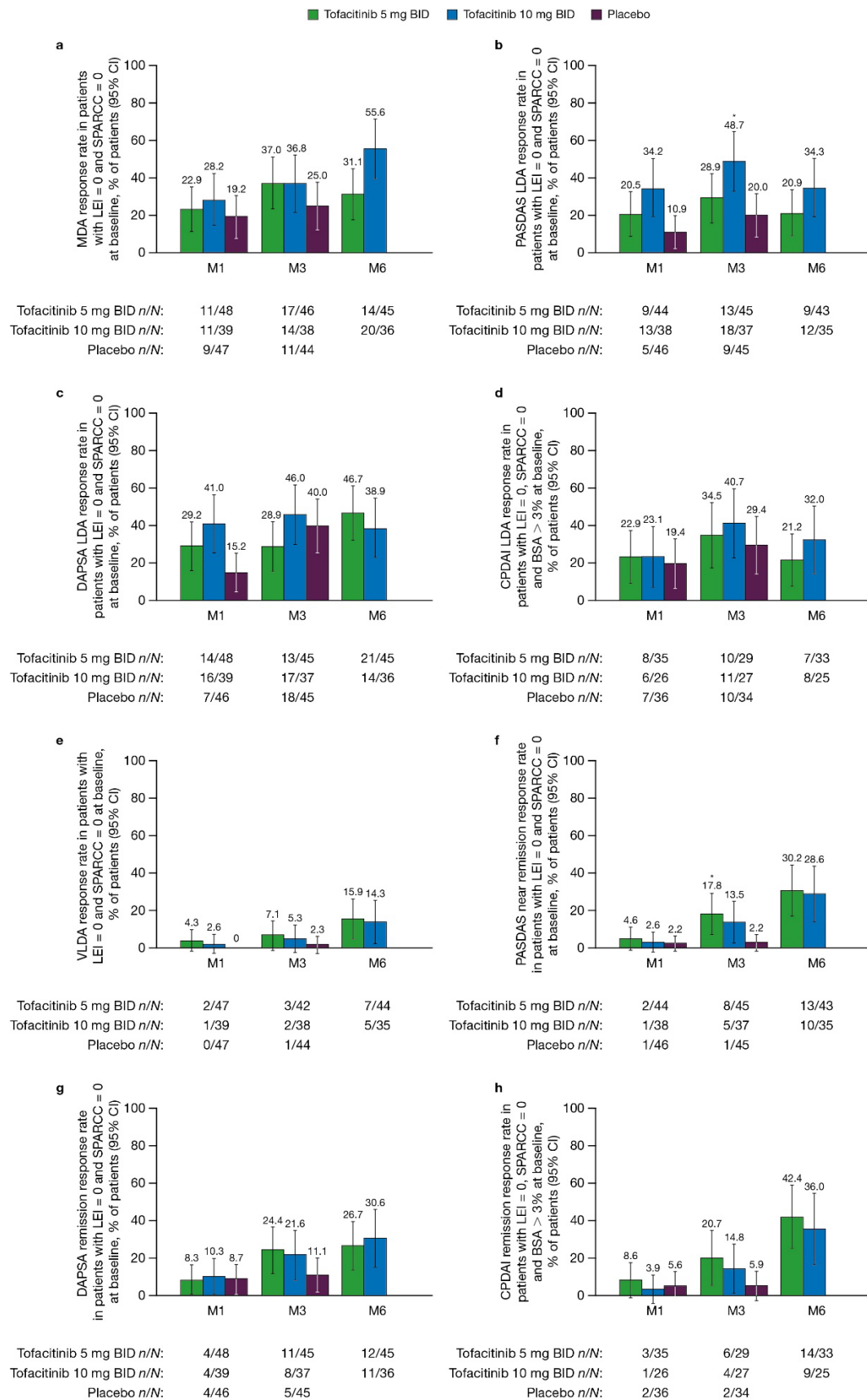


Tofacitinib 5 mg BID <i>n/N</i> :	0/17	1/16	4/16	2/51	5/51	7/50	1/102	8/99	10/97	2/45	4/45	9/43	1/56	5/54	9/55	0/69	5/67	3/65
Tofacitinib 10 mg BID <i>n/N</i> :	1/23	3/23	5/23	2/44	5/42	7/41	0/115	4/109	7/105	2/44	5/44	10/43	1/46	4/44	4/41	0/90	3/84	5/83
Placebo <i>n/N</i> :	0/23	0/23		0/39	2/39		1/109	3/100		0/52	2/52		0/45	2/42		1/74	1/68	



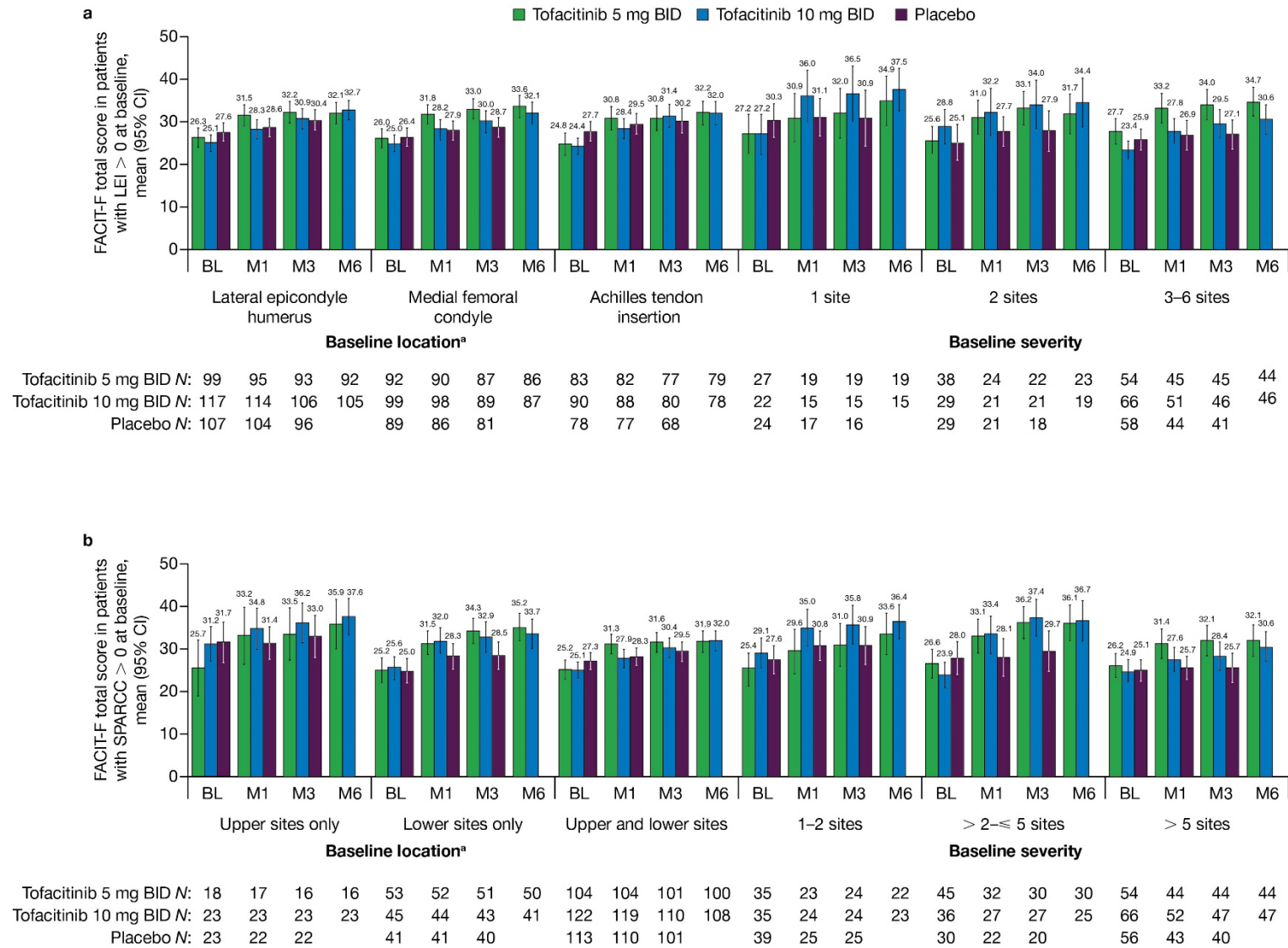
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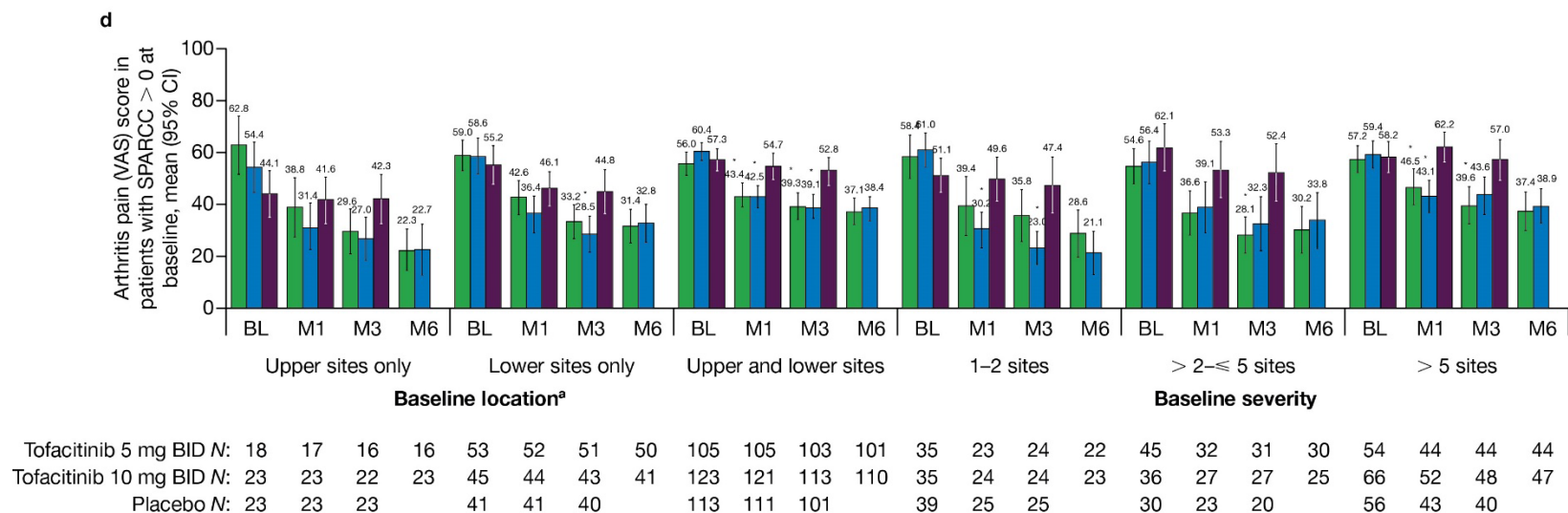
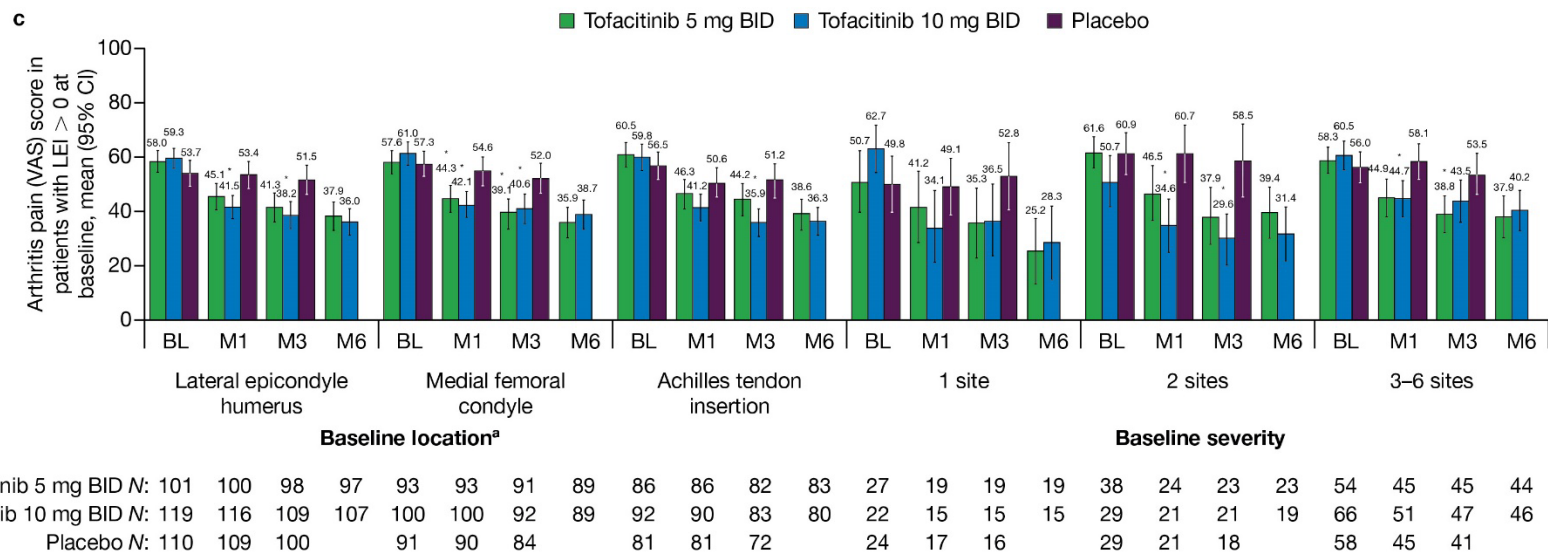
Supplementary Fig. 3 LDA and remission rates, based on MDA or VLDA, PASDAS^a, DAPSA, and CPDAI^b criteria (patients with LEI = 0 and SPARCC = 0 at baseline)

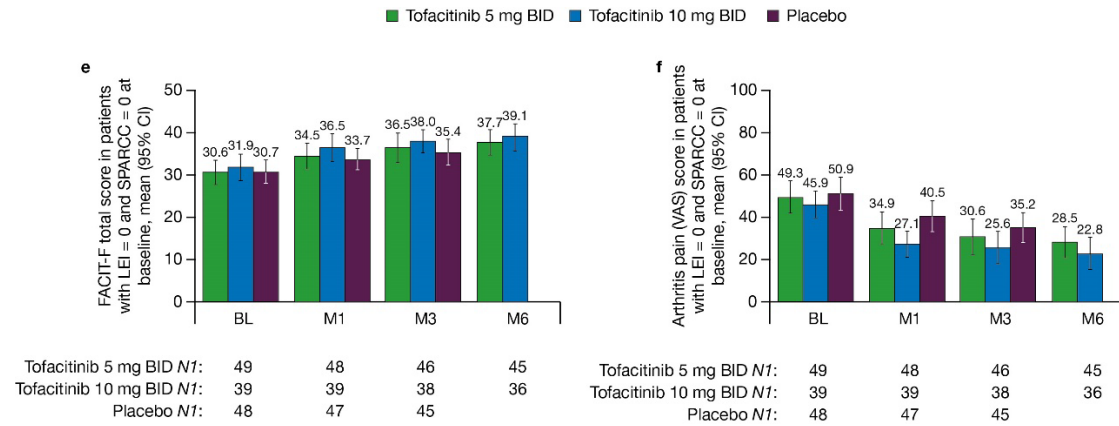


LDA and remission, based on MDA ($\geq 5/7$ criteria; included patients who fulfilled 6/7 and 7/7 MDA criteria)/VLDA (7/7 MDA criteria), PASDAS ($> 1.9 - < 3.2 / \leq 1.9$ [near remission]), DAPSA ($> 4 - \leq 14 / \leq 4$), and CPDAI ($> 2 - \leq 4 / \leq 2$). *Indicates a comparison where the 95% CI for tofacitinib does not overlap with the 95% CI for placebo. ^aPASDAS LDA/near remission. ^bAssessed only in patients with LEI = 0 and SPARCC = 0 and BSA $\geq 3\%$ at baseline. BID, twice daily; BSA, body surface area; CI, confidence interval; CPDAI, Composite Psoriatic Disease Activity in Psoriatic Arthritis; DAPSA, Disease Activity Index for Psoriatic Arthritis; LDA, low disease activity; LEI, Leeds Enthesitis Index; M, month; MDA, minimal disease activity; *N*, total number of patients with LEI = 0 and SPARCC = 0 at baseline; *n*, number of patients achieving outcome; PASDAS, Psoriatic Arthritis Disease Activity Score; SPARCC, Spondyloarthritis Research Consortium of Canada Enthesitis Index; VLDA, very low disease activity

Supplementary Fig. 4 FACIT-F total and arthritis pain (VAS) scores (patients with LEI > 0/SPARCC > 0/LEI = 0 and SPARCC = 0 at baseline)







*Indicates a comparison where the 95% CI for tofacitinib does not overlap with the 95% CI for placebo. ^aEach site was assessed bilaterally, and results were combined. BID, twice daily; BL, baseline; CI, confidence interval; FACIT-F, Functional Assessment of Chronic Illness Therapy-Fatigue; LEI, Leeds Enthesitis Index; M, month; N, total number of patients with LEI > 0 or SPARCC > 0 at baseline in that particular location or number of affected sites; *N*1, total number of patients with LEI = 0 and SPARCC = 0 at baseline; SPARCC, Spondyloarthritis Research Consortium of Canada Enthesitis Index; VAS, Visual Analog Score

References

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