

## Supplementary material

Supplementary Table S1. Disease status definitions (1-4).

	RA cohort	axSpA cohort
Low disease activity	DAS28 score $\leq 3.2$	BASDAI score $< 4.0$
Remission	DAS28 score $\leq 2.6$	NA
Worsening disease	Increase of $\geq 1.2$ points in DAS28 score AND DAS28 score $\geq 3.2$	NA
Improvement	Reduction of $\geq 1.2$ points in DAS28 score	NA

axSpA: axial spondyloarthritis; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; DAS28: Disease Activity Score 28; NA: not applicable; RA: rheumatoid arthritis.

1. GARRETT S, JENKINSON T, KENNEDY LG *et al.*: A new approach to defining disease status in ankylosing spondylitis: the Bath Ankylosing Spondylitis Disease Activity Index. *J Rheumatol* 1994. 21: 2286-91.
2. ANDERSON J, CAPLAN L, YAZDANY J *et al.*: Rheumatoid arthritis disease activity measures: American College of Rheumatology recommendations for use in clinical practice. *Arthritis Care Res* (Hoboken) 2012. 64: 640-7.
3. VAN DER MAAS A, LIE E, CHRISTENSEN R *et al.*: Construct and criterion validity of several proposed DAS28-based rheumatoid arthritis flare criteria: an OMERACT cohort validation study. *Ann Rheum Dis* 2013. 72: 1800-5.
4. PORTER D, VAN MELCKEKEBEKE J, DALE J *et al.*: Tumour necrosis factor inhibition versus rituximab for patients with rheumatoid arthritis who require biological treatment (ORBIT): an open-label, randomised controlled, non-inferiority, trial. *Lancet* 2016. 16; 388: 239-47.

Supplementary Table S2. Patient characteristics at transition by country.

	RA cohort				axSpA cohort			
	France n=89	Germany n=147	Italy n=79	Spain n=43	France n=65	Germany n=87	Italy n=32	Spain n=15
Age, mean (SD), years	60.7 (12.5)	61.7 (12.6)	59.8 (11.0)	60.9 (9.7)	47.7 (13.1)	50.1 (13.2)	54.8 (13.2)	48.1 (13.8)
Sex, n (%)								
Male	29 (32.6)	36 (24.5)	16 (20.3)	13 (30.2)	51 (78.5)	58 (66.7)	23 (71.9)	13 (86.7)
Female	60 (67.4)	111 (75.5)	63 (79.7)	30 (69.8)	14 (21.5)	29 (33.3)	9 (28.1)	2 (13.3)
Weight, kg								
n	48	76	22	16	34	26	7	5
mean (SD)	73.1 (13.6)	77.1 (17.6)	71.7 (18.1)	72.7 (10.0)	79.6 (14.7)	87.3 (17.2)	83.0 (14.6)	75.2 (7.7)
Height, cm								
n	37	73	18	13	27	24	6	3
mean (SD)	163.8 (9.2)	167.0 (8.1)	163.5 (7.6)	163.9 (9.0)	168.8 (9.1)	174.4 (10.6)	177.8 (8.8)	163.0 (9.5)
BMI, kg/m <sup>2</sup>								
n	37	73	18	13	25	24	6	3
mean (SD)	27.7 (5.9)	27.5 (5.8)	27.3 (5.5)	27.1 (4.5)	27.1 (3.9)	28.2 (4.0)	26.3 (2.9)	27.4 (3.2)
Employment status, n (%)								
Full-time	23 (25.8)	50 (34.0)	42 (53.2)	10 (23.3)	38 (58.5)	56 (64.4)	23 (71.9)	9 (60.0)
Part-time	5 (5.6)	8 (5.4)	2 (2.5)	4 (9.3)	6 (9.2)	8 (9.2)	2 (6.3)	2 (13.3)
Unemployed	57 (64.0)	89 (60.5)	35 (44.3)	29 (67.4)	16 (24.6)	21 (24.1)	7 (21.9)	4 (26.7)
Smoking history, n (%)								
Current smoker	12 (13.5)	19 (12.9)	10 (12.7)	6 (14.0)	15 (23.1)	19 (21.8)	4 (12.5)	3 (20.0)
Ex-smoker	17 (19.1)	3 (2.0)	3 (3.8)	7 (16.3)	12 (18.5)	5 (5.7)	4 (12.5)	1 (6.7)
Non-smoker	59 (66.3)	124 (84.4)	66 (83.5)	30 (69.8)	38 (58.5)	62 (71.3)	24 (75.0)	11 (73.3)
Duration of smoking, mean (SD), years <sup>a</sup>	29.9 (13.0)	31.2 (11.1)	19.8 (13.0)	26.8 (16.9)	19.5 (11.9)	21.9 (11.4)	16.2 (6.0)	23.8 (10.5)
Duration of disease, mean (SD), years	16.3 (9.7)	12.8 (9.0)	14.2 (9.0)	18.3 (9.9)	13.9 (12.1)	12.0 (9.6)	11.1 (6.7)	17.0 (11.1)
median	14.6	10.3	12.1	18.1	10.7	10.1	9.6	11.5
Q1, Q3	7.8, 23.0	6.0, 18.0	7.6, 19.9	10.3, 23.3	4.0, 19.5	5.1, 14.7	6.7, 13.5	8.0, 23.7
Disease activity								
Patients with available disease score at transition, n (%)	82 (92.1)	139 (87.8)	79 (100)	42 (97.7)	57 (87.7)	86 (98.9)	31 (96.9)	13 (86.7)
Mean DAS28 (RA) or BASDAI (axSpA) score (SD)	1.9 (0.74)	2.3 (0.96)	1.7 (0.67)	1.9 (0.65)	2.2 (1.56)	3.0 (2.11)	1.7 (1.70)	2.4 (1.98)
$\geq 1$ concomitant medication to SB4, n (%)	62 (69.7)	105 (71.4)	63 (79.7)	34 (79.1)	24 (36.9)	40 (46.0)	22 (68.8)	6 (40.0)
Conventional synthetic DMARD, n (%)	57 (64.0)	59 (40.1)	47 (59.5)	27 (62.8)	5 (7.7)	10 (11.5)	13 (40.6)	1 (6.7)
NSAID, n (%)	8 (9.0)	22 (15.0)	11 (13.9)	8 (18.6)	13 (20.0)	21 (24.1)	5 (15.6)	3 (20.0)
Steroid, n (%)	6 (6.7)	60 (40.8)	22 (27.8)	11 (25.6)	0	4 (4.6)	2 (6.3)	0

<sup>a</sup>Data for 24, 22, 12 and 13 patients from France, Germany, Italy and Spain, respectively, in the RA cohort and for 17, 23, 6 and 4 patients in France, Germany, Italy and Spain, respectively, in the axSpA cohort.

axSpA: axial spondyloarthritis; BMI: body mass index; DAS28: Disease Activity Score 28; DMARD: disease-modifying anti-rheumatic drug; NSAID: non-steroidal anti-inflammatory drug; RA: rheumatoid arthritis; SD: standard deviation.

**Supplementary Table S3.** MMRM of change in DAS28 score from transition in the RA cohort.

	MMRM (centre and country as random effects) <sup>a</sup>	MMRM (country as fixed effect) <sup>b</sup>
3 months		
n	258	258
least squares mean (SE)	-0.06 (0.05)	-0.08 (0.05)
95% CI	-0.15, 0.03	-0.16, 0.1
6 months		
n	252	252
least squares mean (SE)	0.05 (0.05)	0.03 (0.05)
95% CI	-0.05, 0.15	-0.06, 0.13

CI: confidence interval; DAS28: Disease Activity Score 28; MMRM: mixed model for repeated measurements; RA: rheumatoid arthritis; SE: standard error.

<sup>a</sup>Using unstructured covariance matrix with centre and centre nested within country as random effects and with value at transition, duration of reference etanercept prior to transition and visit [as categorical] as fixed effect covariates.

<sup>b</sup>Unstructured covariance matrix with value at transition, duration of reference etanercept prior to transition, country and visit [as categorical] as fixed effect covariates.

LITTLE RODERICK JA, RUBIN DONALD B: Statistical Analysis with Missing Data, second edition 26 August 2002; ISBN 9780471183860

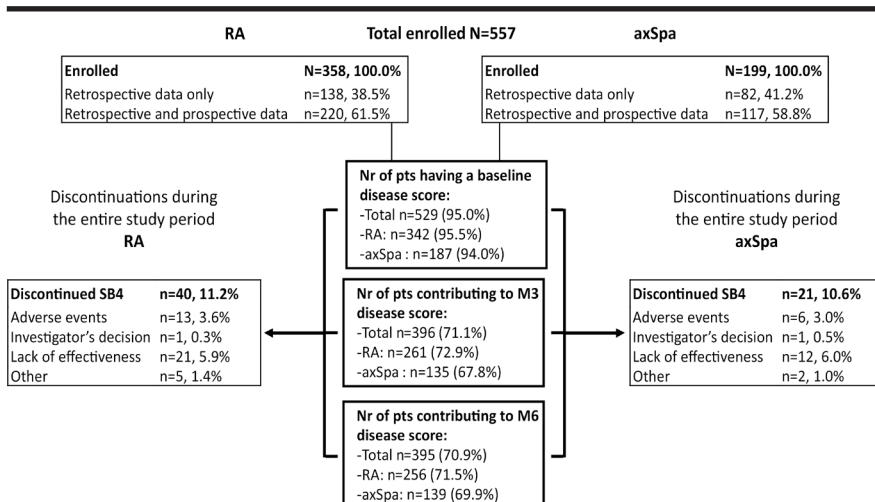
**Supplementary Table S4.** MMRM sensitivity analyses of change in BASDAI score from transition in the axSpA cohort.

	MMRM (centre and country as random effects) <sup>a</sup>	MMRM (country as fixed effect) <sup>b</sup>
3 months		
n	131	131
least squares mean (SE)	0.10 (0.12)	0.12 (0.14)
95% CI	-0.15, 0.35	-0.15, 0.39
6 months		
n	136	136
least squares mean (SE)	0.00 (0.12)	0.00 (0.13)
95% CI	-0.24, 0.24	-0.26, 0.26

axSpA, axial spondyloarthritis; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; CI, confidence interval; MMRM, mixed model for repeated measurements; SE, standard error.

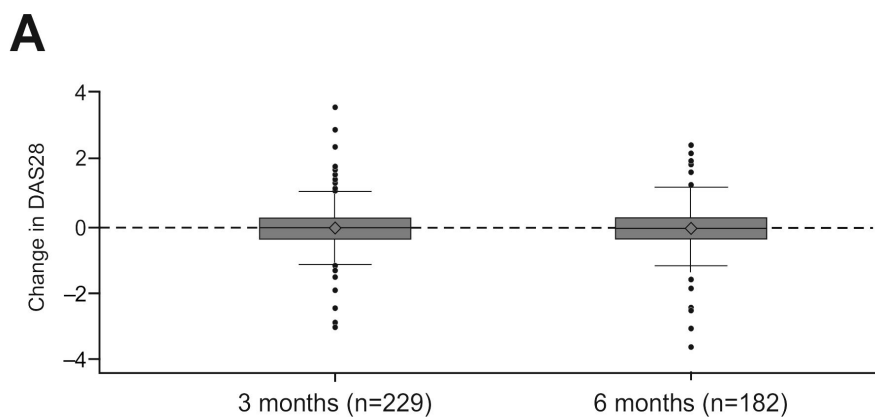
<sup>a</sup>Using unstructured covariance matrix with centre and centre nested within country as random effects and with value at transition, duration of reference etanercept prior to transition and visit [as categorical] as fixed effect covariates

<sup>b</sup>Unstructured covariance matrix with value at transition, duration of reference etanercept prior to transition, country and visit [as categorical] as fixed effect covariates

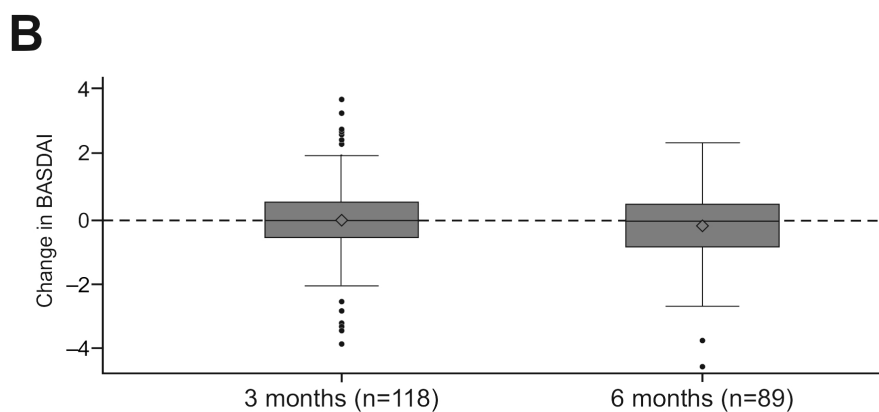


**Supplementary Fig. S1.** Patient flow in the RA cohort and axSpA cohort.

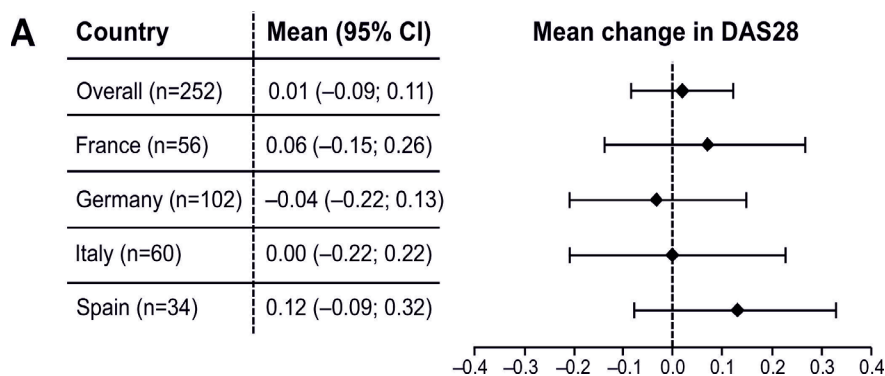
axSpA: axial spondyloarthritis; RA: rheumatoid arthritis.



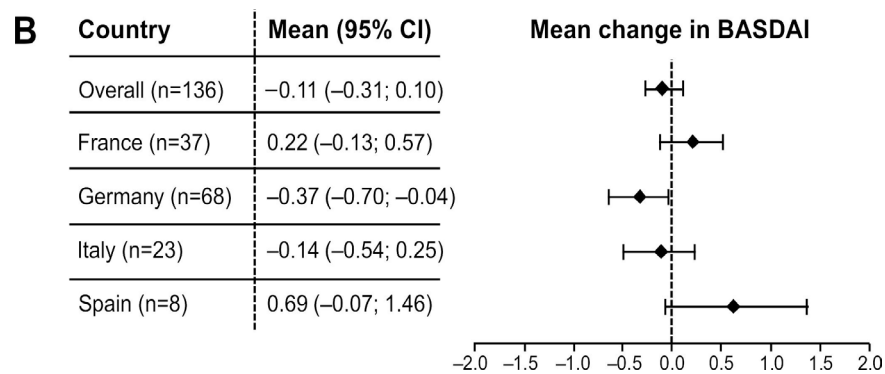
**Supplementary Fig. S2.** Sensitivity analysis of the change in (A) individual DAS28 scores from transition in the RA cohort and (B) individual BASDAI scores from transition in the axSpA cohort, in patients with >5 months on stable reference etanercept dose prior to transition to SB4.



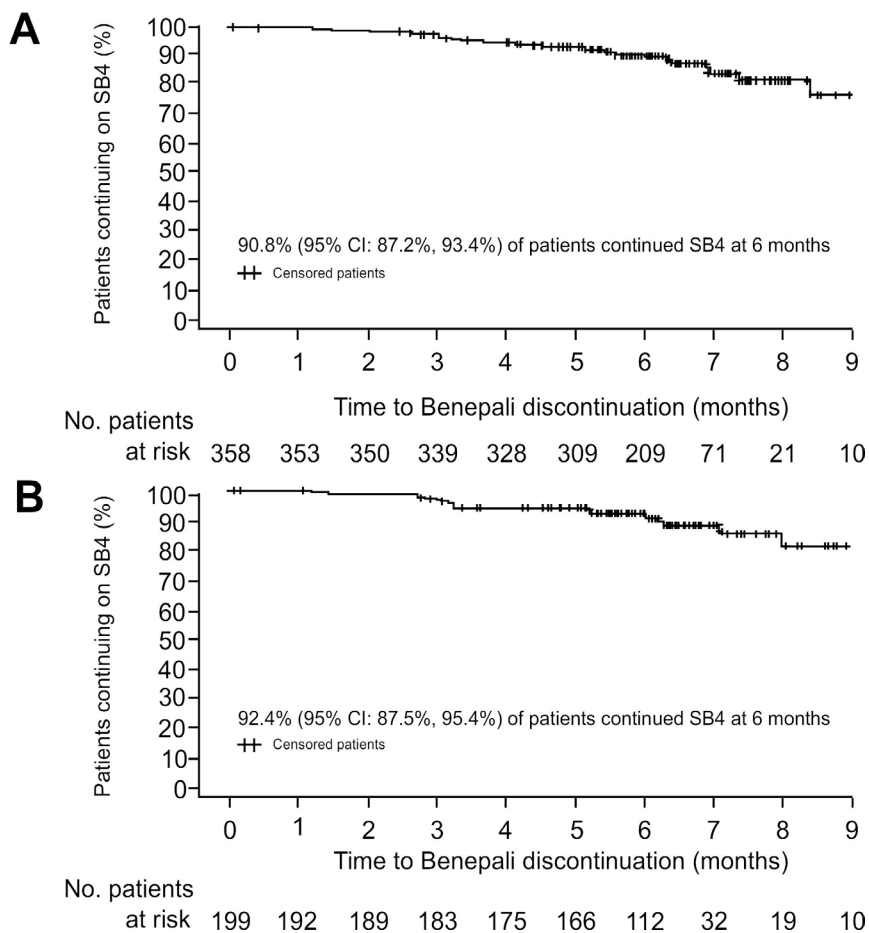
axSpA: axial spondyloarthritis; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; DAS28: Disease Activity Score 28; RA: rheumatoid arthritis.



**Supplementary Fig. S3.** Mean individual change (95% CI) in disease score at 6 months by country in the A) RA cohort and B) axSpA cohort.



axSpA: axial spondyloarthritis; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; CI: confidence interval; DAS28: Disease Activity Score 28; RA: rheumatoid arthritis.



**Supplementary Fig. S4.** Kaplan-Meier curve for the proportions of patients receiving SB4 during the study **A**) in the RA cohort and **B**) in the axSpA cohort.  
axSpA: axial spondyloarthritis; RA: rheumatoid arthritis.