

Supplementary Table S1. Baseline characteristics of flare (flare = loss of DAS28 remission) vs. sustained remission in the non-taper cohort (n=83).

Univariate analysis	Total n.	Flare (n=17)	Sustained Rem (n=66)	p-value	OR (95%CI)	AUC (95%CI) p-value
<i>Demographic variables</i>						
Female, n (%)	83	14 (87.5%)	43 (65%)	0.076	3.912 (0.813 to 18.815)	0.386 (0.243 to 0.528) p=0.158
Age (years)*	83	53.5 (19)	62 (17.8)	0.835	0.990 (0.945 to 1.038)	0.517 (0.355 to 0.679) p=0.836
Disease duration (months)*	79	26.3 (23.2)	41 (44.6)	0.007	1.018 (0.998 to 1.038)	0.280 (0.125 to 0.434) p=0.007
Remission duration (months)	83	8 (23.1)	12.5 (7.7)	0.352	1.010 (0.969 to 1.053)	0.425 (0.250 to 0.599) p=0.352
RF+, n (%)	83	10 (62.5%)	40 (60.6%)	0.855	1.111 (0.360 to 3.430)	0.488 (0.329 to 0.646) p=0.877
ACPA+, n (%)	83	10 (62.5%)	43 (65%)	0.874	0.913 (0.294 to 2.833)	0.511 (0.351 to 0.670) p=0.896
Smoking, n (%)						
Never	81	6 (35%)	29 (44.6%)	0.286	0.533 (0.166 to 1.713)	0.574 (0.419 to 0.728) p=0.363
Ever		11 (65%)	35 (53%)			
<i>Clinical variables</i>						
TJC28*	83	0 (0.75)	0 (1)	0.390	1.805 (0.619 to 5.263)	0.480 (0.312 to 0.649) p=0.826
SJC28*	83	0 (0.75)	0 (0)	0.055	0.210 (0.038 to 1.157)	0.551 (0.369 to 0.734) p=0.563
CRP (mg/L)*	83	6.5 (<5 to 8.5)	0 (0)	0.003	0.941 (0.871 to 1.018)	0.634 (0.457 to 0.812) p=0.132
ESR (mm/h)*	75	24.5 (28.8)	9.5 (8.7)	<0.0001	0.909 (0.857 to 0.963)	0.844 (0.751 to 0.937) p<0.0001
EMS (mins)*	82	30 (60)	0 (6.3)	0.902	0.439 (0.159 to 1.212)	0.587 (0.333 to 0.841) p=0.477
<i>Patient-reported outcome variables</i>						
VAS PGA*	82	22 (46.8)	8.5 (27)	0.809	1.004 (0.974 to 1.035)	0.499 (0.321 to 0.678) p=0.994
VAS Pain*	69	17.5 (7)	9 (21.7)	0.910	1.015 (0.978 to 1.054)	0.500 (0.286 to 0.714) p=1
VAS DA*	70	23.5 (42.5)	10.5 (32.2)	0.678	1.005 (0.891 to 1.030)	0.483 (0.263 to 0.703) p=0.887
VAS Fatigue*	69	56.5 (56.8)	9.5 (43.3)	0.723	0.999 (0.978 to 1.021)	0.699 (0.532 to 0.866) p=0.102
HAQ-DI*	65	0.56 (0.59)	0 (0.31)	0.322	0.526 (0.143 to 1.942)	0.864 (0.752 to 0.975) p=0.003
RaQoL*	66	7 (8.7)	1 (2)	0.774	0.970 (0.878 to 1.072)	0.894 (0.795 to 0.993) p=0.001
<i>Ultrasound variables</i>						
Total PD*	56	0 (3)	0 (0)	0.526	0.944 (0.598 to 1.490)	0.552 (0.307 to 0.797) p=0.669
Total GS*	56	18.5 (10.2)	14 (11.5)	0.546	0.968 (0.875 to 1.072)	0.645 (0.437 to 0.853) p=0.233
<i>Immunological (T-cell variables)</i>						
Normalised naïve*	56	19.11 (23.01)	12.22 (19.11)	0.405	1.021 (0.980 to 1.064)	0.498 (0.290 to 0.705) p=0.983
Normalised Treg*	59	-3.16 (2.41)	-3.28 (6.4)	0.728	1.025 (0.753 to 1.394)	0.473 (0.306 to 0.640) p=0.784
IRC*	59	2.00 (2)	2.40 (3)	0.802	1.060 (0.860 to 1.305)	0.468 (0.298 to 0.637) p=0.784
<i>Drug category</i>						
Monotherapy, n (%)	48	7/17 (41%)	39/66 (59%)	0.185	0.539 (0.220 to 1.322)	0.603 (0.449-0.758) p=0.202
Combination therapy n (%)	35	10/17 (59%)	27/66 (41%)			

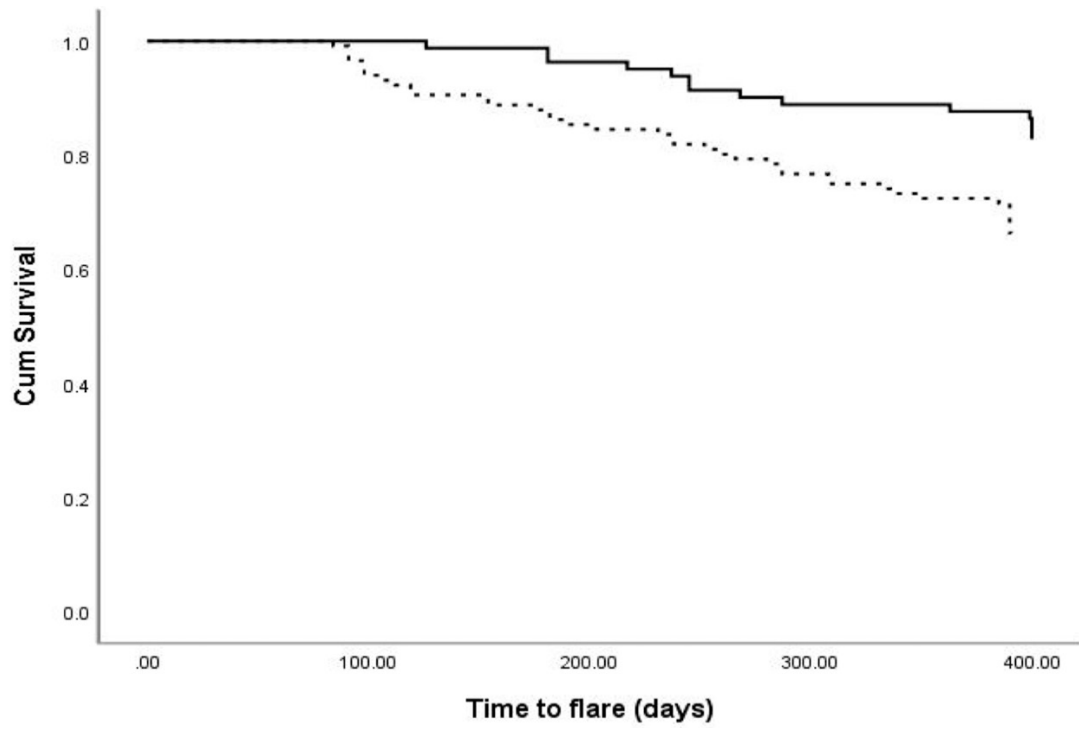
*Median (IQR); CRP <5 mg/l = lowest detectable limit.

RF: rheumatoid factor; CCP: anti-CCP antibody; TJC/SJC(28): number of tender and swollen joints out of 28; CRP: C-reactive protein, mg/l; ESR: erythrocyte sedimentation rate, mm/h; EMS: early morning stiffness, mins; VAS: visual analogue score; PGA: patient global assessment of disease; DA: disease activity; HAQ-DI: Health Assessment Questionnaire Disability Index; RAQoL: RA Quality of Life questionnaire score; PD: Power Doppler score; GS: Grey Scale synovial hypertrophy score; T-cell subsets (% of CD4⁺T-cells): naïve T-cells; IRC: inflammation related cells; Treg: T-regulatory cells.

Supplementary Table S2. Modelling the prediction of sustained remission after 12 m in tapering cohort using Cox regression (n=117), missing data were imputed: HR (95% CI) and p-value.

	Univariate	Unadjusted	Model 1 Clin only	Model 2 Clin + US	Model 3 Clin + PRO	Model 4 Clin + T-cells	Model 5 Clin + PRO + US	Model 6 Clin + PRO + T-cells	Model 7 Clin + US + T-cells	Model 8 Clin + PRO + US + T-cells
<i>Clinical variables</i>										
TJC28	0 (0-0) [0-5] p=0.001	1.465 (1.126-1.905) p=0.004	1.534 (1.178-1.997) p=0.001	1.561 (1.183-2.056) p=0.002	1.475 (1.116-1.949) p=0.006	1.439 (1.154-1.924) p=0.005	1.505 (1.117-2.028) p=0.007	Not selected by model	1.452 (1.106-1.907) p=0.007	1.511 (1.140-2.002) p=0.004
CRP	0 (0-0) [0-34] p=0.011	0.014 (1.011-1.103) p=0.04	1.065 (1.019-1.113) p=0.005	1.064 (1.016-1.114) P=0.009	Not selected by model	Not selected by model	Not selected by model 1	Not selected by model	Not selected by model	Not selected by model
EMS	0 (0-5) [0-180] p=0.011	1.009 (1.002-1.017) p=0.019	Not selected by model	Not selected by model	Not selected by model	Not selected by model	Not selected by model	Not selected by model	Not selected by model	Not selected by model
<i>PROs</i>										
VAS Pain	5 (2-15) [0-80] p=0.004	1.044 (1.021-1.068) p<0.0001	NA	NA	Not selected by model	NA	Not selected by model	Not selected by model	NA	Not selected by model
VAS PGA	10 (5-20) [0-77] p=0.058	1.030 (1.010-1.050) p<0.003	NA	NA	Not selected by model	NA	Not selected by model	Not selected by model	NA	Not selected by model
VAS DA	5 (2-14) [0-98] p=0.002	1.018 (1.005-1.031) p=0.007	NA	NA	Not selected by model	NA	Not selected by model	Not selected by model	NA	Not selected by model
VAS Fatigue	10 (4-24.5) [0-96] p=0.006	1.019 (1.007-1.030) p=0.001	NA	NA	Not selected by model	NA	Not selected by model	Not selected by model	NA	Not selected by model
HAQ-DI	0 (0-0.25) [0-2.88] p<0.0001	2.729 (1.755-4.241) p<0.0001	NA	NA	2.455 (1.171-3.260) p<0.001	NA	2.705 (1.718-4.259) p<0.001	Not selected by model	NA	2.063 (1.161-3.665) p=0.014
RaQoL	0 (0-3) [0-23] p=0.0001	1.120 (1.063-1.181) p<0.0001	NA	NA	Not selected by model	NA	Not selected by model	1.097 (1.032-1.166) p=0.003	NA	Not selected by model
<i>Ultrasound variables</i>										
Total PD	0 (0-1.00) [0-23] p=0.010	1.138 (1.043-1.242) p=0.004	NA	1.127 (1.032-1.231) p=0.008	NA	NA	1.127 (1.031-1.232) p=0.008	NA	1.163 (1.062-1.274) p=0.001	1.158 (1.057-1.267) p=0.002
Total GS	15 (11.25-250) [0-45] p=0.046	1.029 (0.998-1.061) p=0.066	NA	Not selected by model	NA	NA	Not selected by model	NA	Not selected by model	Not selected by model
<i>TT-cell Variables</i>										
IRC	1.25 (0.50-1.75) [0.20-17.00] p<0.0001	1.28 (1.190-1.380) p<0.0001	NA	NA	NA	1.291 (1.193-1.399) p<0.0001	NA	1.233 (1.142-1.331) p<0.0001	1.311 (1.211-1.419) p<0.001	1.244 (1.142-1.355) p<0.0001
AUC (95% CI)			0.474 (0.466-0.482)	0.584 (0.580-0.595)	0.559 (0.556-0.571)	0.675 (0.669-0.685)	0.651 (0.646-0.658)	0.692 (0.679-0.697)	0.729 (0.724-0.738)	0.761 (0.755-0.769)

RF: rheumatoid factor; CCP: anti-CCP antibody; TJC/SJC(28): number of tender and swollen joints out of 28; CRP: C-reactive protein, mg/l; ESR: erythrocyte sedimentation rate, mm/h; EMS: early morning stiffness, mins; VAS: visual analogue score; PGA: patient global assessment of disease; DA: disease activity; HAQ-DI: Health Assessment Questionnaire Disability Index; RAQoL: RA Quality of Life questionnaire score; PD: Power Doppler score; GS: Grey Scale synovial hypertrophy score; T-cell subsets (% of CD4⁺T-cells): naïve T-cells; IRC: inflammation related cells; Treg: T-regulatory cells.



Supplementary Fig. S1. Kaplan Meier Plot showing time to flare in the tapering (dashed line) and stable therapy (bold line) cohorts.