

Supplementary material

Supplementary table S1: Baseline disease activity measures in PAD_{Act} positive patients, comparing differences by ACPA status. All values are median [25,75 percentile], p-value marked in bold for statistically significant differences.

	PAD _{Act} positive ACPA positive n=87	PAD _{Act} positive ACPA negative n=8	p-value
DAS	3.4 [2.8, 4.3]	4.5 [2.8, 4.7]	0.24
CDAI	22.5 [15.6, 30.2]	35.8 [19.2, 42.4]	0.11
SJC44	10 [5, 14]	19 [14, 27]	0.03
ESR	18 [12, 30]	16 [11, 27]	0.75
CRP	7 [4, 17]	18 [5, 53]	0.31
Ultrasound grey scale	19 [10, 27]	43 [35, 53]	<0.01
Ultrasound power Doppler	7 [3, 13]	18 [10, 30]	0.01

Abbreviations: PAD_{Act}, peptidylarginine deiminase4 activating capacity; ACPA, anti-citrullinated protein antibody; DAS, Disease Activity Score (0-10); CDAI, Clinical Disease Activity Index (0-76); SJC, swollen joint count (0-44); ESR, erythrocyte sedimentation rate (millimeter/hour); CRP, C-reactive protein (milligram/Liter)

Supplementary table S2: Spearman correlations (p-values in parenthesis) between baseline PAD_{Act} levels and disease activity measures.

	All patients n=225	PAD _{Act} positive n=95	PAD _{Act} positive ACPA positive n=87
DAS	0.06 (p=0.36)	-0.20 (p=0.06)	-0.16 (p=0.14)
CDAI	0.02 (p=0.78)	-0.19 (p=0.07)	-0.12 (p=0.27)
SJC44	-0.03 (p=0.68)	-0.18 (p=0.08)	-0.09 (p=0.42)
ESR	0.00 (p=0.95)	0.09 (p=0.36)	0.11 (p=0.31)
CRP	0.11 (p=0.10)	0.05 (p=0.64)	0.07 (p=0.53)
Ultrasound grey scale	0.00 (p=0.98)	-0.19 (p=0.07)	-0.06 (p=0.55)
Ultrasound power Doppler	-0.01 (p=0.86)	-0.21 (p=0.04)	-0.12 (p=0.27)

Abbreviations: PAD_{Act}, peptidylarginine deiminase4 activating capacity; ACPA, anti-citrullinated protein antibody; DAS, Disease Activity Score (0-10); CDAI, Clinical Disease Activity Index (0-76); SJC, swollen joint count (0-44); ESR, erythrocyte sedimentation rate (millimeter/hour); CRP, C-reactive protein (milligram/Liter)

Supplementary table S3: Median baseline PAD_{Act} level by response/remission status for patients on methotrexate monotherapy.

	Median PAD _{Act} level non response/remission	Median PAD _{Act} level response/remission	p value
EULAR non vs good/moderate response 3 months	9074	8275	0.11
DAS remission no/yes (<1.6) 6 months	8802	8480	0.77
ACR/EULAR Boolean remission no/yes 6 months	8354	8566	0.60

Abbreviations: PAD_{Act}, peptidylarginine deiminase4 activating capacity; EULAR, European League Against Rheumatism; DAS, Disease Activity Score; ACR, American College of Rheumatology

Supplementary table S4: PAD_{Act} baseline status by response/remission status for patients on methotrexate monotherapy.

	PAD _{Act} Lower 20%	PAD _{Act} Upper 20%	p- value	PAD _{Act} negative	PAD _{Act} positive	p- value
EULAR non vs. good/moderate response 3 months	0.49 (21/43)	0.32 (14/44)	0.16	0.45 (56/124)	0.37 (34/92)	0.29
DAS remission no/yes (<1.6) 6 months	0.77 (27/35)	0.72 (23/32)	0.83	0.71 (70/99)	0.71 (44/62)	1.00
ACR/EULAR Boolean remission no/yes 6 months	0.49 (17/35)	0.56 (18/32)	0.70	0.41 (41/99)	0.48 (29/61)	0.55

Abbreviations: PAD_{Act}, peptidylarginine deiminase4 activating capacity; EULAR, European League Against Rheumatism; DAS, Disease Activity Score; ACR, American College of Rheumatology

Supplementary table S5: PAD_{Act} baseline activity status and radiographic progression.

Baseline PAD _{Act} -status and median change in vdHSS over 24 months	1.3, 1.0; p=0.5
Baseline PAD _{Act} -status and erosive disease at 24 months (vdHS erosion≥3, 24 months)	p=0.26
Baseline PAD _{Act} -status and progression at 24 months (vdHSS>2, 24 months)	p=0.83

Abbreviations: PAD_{Act}, peptidylarginine deiminase4 activating capacity; vdHSS, van der Heijde modified Sharp score