Supplemental data Table 1. Overview of the contribution of the different collaborating institutes to the different patient cohorts

Collaborating institute	RA	RDCG[1]	HC	AAV	OA	PsA	ReA	SpA	SLE	pSS
Division of Rheumatology, Medical University of Vienna (Austria)	55	0	0	0	25	25	20	25	0	0
University Hospital Leuven (Belgium)	88	207	50	0	0	0	0	0	0	0
University Hospital Ghent (Belgium)	67	0	0	0	0	0	0	0	0	0
OLV Hospital Aalst (Belgium)	62	211	150	0	0	0	0	0	0	0
National Institute of Rheumatology and Physiotherapy Budapest (Hungary)	33	86	0	0	0	0	0	0	0	0
Centre Hospitalier de Luxembourg (Luxembourg)	9	0	0	0	0	0	0	0	0	0
University Medical Centre Ljubljana (Slovenia)	23	24	0	0	0	0	0	0	0	0
Sahlgrenska University Hospital Gothenburg (Sweden)	12	8	0	24	0	0	0	0	0	0
University Hospital Linköping (Sweden)	0	0	0	0	0	0	0	0	50	48
University Hospital Basel (Switzerland)	24	53	0	0	0	0	0	0	0	0
Kantonsspital Aarau (Switzerland)	25	67	0	0	0	0	0	0	0	0
Total	**398**	**656**	**200**	**24**	**25**	**25**	**20**	**25**	**50**	**48**

Abbreviations: RA, rheumatoid arthritis; RDCG, rheumatological consecutive control cohort; HC, healthy control; AAV, ANCA-associated vasculitis with arthritis; OA: osteoarthritis; PsA, psoriatic arthritis; ReA, reactive arthritis; SpA, spondyloarthritis, SLE, systemic lupus erythematosus; pSS, primary Sjögren's syndrome

[1] **RDCG (rheumatological consecutive control cohort):** this control cohort consisted of consecutive patients who for the first time consulted a rheumatologist and for whom no RA diagnosis was retained. Following patients were included: erosive hand osteoarthritis (n=16), osteoarthritis (n=39), polymyalgia rheumatica (n=35), reactive arthritis (n=15), psoriatic arthritis (n=55), spondyloarthritis (n=42), Adult Still syndrome (n=3), juvenile idiopathic arthritis (n=5), RS3PE (n=2), undifferentiated arthritis (n=8), primary Sjögren's syndrome (n=16), systemic lupus erythematosus (n=18), antiphosholipid syndrome (n=2), autoimmune myositis (n=3), cutaneous lupus erythematosus (n=2), mixed connective tissue disease (n=2), systemic sclerosis (n=1), undifferentiated SARD (n=15), fibromyalgia/psychological (n=30), gout (n=25), mechanical pain (n=258), other diseased controls (n=64; patients with: cardial disease (n=5), ophthalmologic disease (n=3), neurological disease (4), hematological disease (n=13), pneumological disease (n=6), sarcoidosis (n=5), infection (n=7), vasculitis (n=7), other diseases (n=14))

Supplemental data Table 2. Descriptive characteristics of rheumatoid arthritis (RA) patients

	Early RA (< 6 weeks)	Established RA (≥ 6 weeks)	Total
Number (% total RA cohort)	67 (16.8%)	331 (83.2%)	398
Female (%)	45 (59.2%)	228 (68.9%)	273 (68.6%)
Median age (min-max)	58.5 (25-82)	56 (18-86)	57 (18-86)
CRP positive[1] (%)	45 (67.2%)	202 (61.0%)	247 (62.1%)
ESR positive[1] (%)	49 (73.1%)	210 (63.4%)	259 (65.1%)
Serology[2]			
RF IgM and ACPA IgG negative	19 (28.4%)	97 (29.3%)	116 (29.1%)
Only RF IgM positive	4 (6.0%)	27 (8.2%)	31 (7.8%)
Only ACPA IgG positive	7 (10.4%)	27 (8.2%)	34 (8.5%)
RF IgM and ACPA IgG positive	37 (55.2%)	180 (54.4%)	217 (54.5%)
Joint involvement[3]			
1 large joint	3 (4.5%)	16 (4.8%)	19 (4.8%)
2-10 large joints	4 (6.0%)	24 (7.3%)	28 (7.0%)
1-3 small joints (large joints not counted)	17 (25.4%)	64 (19.3%)	81 (20.4%)
4-10 small joints (large joints not counted)	30 (44.8%)	132 (39.9%)	162 (40.7%)
> 10 joints including at least one small joint	13 (19.4%)	95 (28.7%)	108 (27.1%)
ACR/EULAR RA classification criteria positive[1,2,3]	42 (62.7%)	245 (74.0%)	287 (72.1%)

[1]based on the cut-offs as defined by the manufacturers of the tests used

[2]based on serology tests and cut-offs of Thermo Fisher Scientific

[3]as included in the 2010 ACR/EULAR RA classification criteria(11)

Abbreviations: CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; RF, rheumatoid factor; ACPA, anti-citrullinated protein/peptide antibodies

Supplemental data Table 3. Demographic features of the different patient cohorts

a) Total patient cohorts

	RA	HC	RDCG	AAV	OA	PsA	ReA	SpA	SLE	pSS	Control total
number	398	200	656	24	25	25	20	25	50	48	1073
min age	18	19	11	22	43	41	20	18	24	32	11
max age	86	87	92	78	81	81	69	67	92	82	92
median age	57	46	53	59	61	54	48	44	52	65	53
Female	273	123	469	13	23	9	12	6	45	45	745
(%)	(68.8%)	(61.5%)	(71.5%)	(54.2%)	(92.0%)	(36.0%)	(60.0%)	(24.0%)	(90.0%)	(93.8%)	(69.4%)

b) Patient cohorts of the postponed analysis (S RF, S ACPA, B ACPA)[a]

	RA	HC	RDCG	AAV	OA	PsA	ReA	SpA	SLE	pSS	Control total
number	362	196	594	21	24	25	20	24	49	43	996
min age	18	21	11	22	43	41	20	18	24	32	11
max age	86	87	92	78	81	81	69	67	92	82	92
median age	56	46	54	58	61	54	48	45	52	66	53
Female	252	120	431	12	22	9	12	6	44	40	696
(%)	(69.6%)	(61.2)	(72.6%)	(57.1%)	(91.7%)	(36.0%)	(60.0%)	(25.0%)	(89.8%)	(93.0%)	(69.9%)

Abbreviations: RA, rheumatoid arthritis; HC, healthy control; RDCG, rheumatological disease controls; AAV, ANCA associated vasculitis with arthritis; OA: osteoarthritis; PsA, psoriatic arthritis; ReA, reactive arthritis; SpA, spondyloarthritis, SLE, systemic lupus erythematosus; pSS, primary Sjögren's syndrome

[a] Due to the unavailability of reagents or an instrument in Belgium, the analyses of respectively ACPA Bio-Rad and RF/ACPA Siemens were performed after the 19 analyses batches of the other analysis runs. These analyses was performed on a smaller cohort of samples consisting of 362 RA patients, 594 RDCG, 206 DCG and 196 HC samples.

Supplemental data Table 4. Assay characteristics

Assay (Company)	Instrument (Company)	Measuring principle	Units	Measuring range		Cut-off
Rheumatoid Factor (RF)				**Min.**	**Max.**	
EliA RF IgM (Thermo Fisher Scientific)	Phadia® 250 (Thermo Fisher Scientific)	FEIA	IU/mL	0.4	200	5*
AUTOZYME RF IgM (Cambridge Life Science)	QUANTA-Lyser® 2 (Inova Diagnostics)	ELISA	U/mL	1.1	600	15.3
Alegria® RF IgM (Orgentec)	Alegria (Orgentec)	ELISA	U/mL	1	500	20
RF II (Roche Diagnostics)	cobas c 501 (Roche Diagnostics)	Turbidimetry	IU/mL	10	130	14
Diagam RF (Diagam)	cobas c 501 (Roche Diagnostics)	Turbidimetry	kIU/L	2.2	120	20
Alinity c RF (Abbott)	Alinity c (Abbott)	Turbidimetry	IU/mL	20	200	30
Vitros® RF (Ortho-Clinical Diagnostics)	VITROS 4600 (Ortho-Clinical Diagnostics)	Turbidimetry	IU/mL	8.6	120	12
Beckman Coulter AU RF (Beckman Coulter)	AU680 (Beckman Coulter)	Turbidimetry	IU/mL	10	120	14
Atellica® CH RF (Siemens Healthineers)	Atellica® CH-930 (Siemens Healthineers)	Turbidimetry	IU/mL	3.5	90	14
Anti-cyclic citrullinated peptide antibodies (ACPA)						
EliA CCP IgG (Thermo Fisher Scientific)	Phadia® 250 (Thermo Fisher Scientific)	FEIA	U/mL	0.4	340	10**
Elecsys® Anti-CCP IgG (Roche Diagnostics)	cobas e 601 (Roche Diagnostics)	ECLIA	U/mL	7	500	17
IMMUNOSCAN CCPlus® (Svar Life Science)	QUANTA-Lyser® 2 (Inova Diagnostics)	ELISA	U/mL	25	3200	25
IDS CCP (Immunodiagnostic Systems [IDS])	IDS-iSYS (ids)	CLIA	AU/mL	1.2	320	5
Alegria® Anti-CCP hs® (Orgentec)	Alegria (Orgentec)	ELISA	U/mL	1	1000	20
Alinity i Anti-CCP IgG (Abbott)	Alinity i (Abbott)	CMIA	U/mL	0.5	195.6	5
Anti-CCP ELISA (IgG) (Euroimmun)	Analyzer I-2P (Euroimmun)	ELISA	RU/mL	1	200	5
BioPlex CCP (Bio-Rad Laboratories)	BioPlex 2200 (Bio-Rad Laboratories)	Multiplex Flow Immunoassay	U/mL	0.5	300	3
Atellica® IM anti-CCP IgG (Siemens Healthineers)	Atellica® IM 1300 (Siemens Healthineers)	CLIA	U/mL	0.54	200	5

* Equivocal 3.5-5; ** Equivocal 7-10

Abbreviations: FEIA, fluorescence immunoassay; ELISA, enzyme linked immunosorbant assay; ECLIA, electrochemiluminescence immunoassay; CLIA: chemiluminescence immunoassay; CMIA, chemiluminescent microparticle immunoassay; NIBSC, national institute of biological standards and controls

Supplemental data Table 5. Median (range) RF (Panel A) and ACPA IgG (Panel B) concentrations in RA and control cohorts obtained with different assays.

Statistical comparison with RA is given for each of the control groups (Mann-Whitney test).

Panel A: RF

	Thermo Fisher RF IgM (IU/mL)	Cambridge RF IgM (U/mL)	Orgentec RF IgM (U/mL)	Roche RF (IU/mL)	Diagam RF (kIU/L)	Abbott RF (IU/mL)	Ortho RF (IU/mL)	Beckman RF (IU/mL)	Siemens RF (IU/mL)
RA	14.0	20.2	22.0	28.8	26.8	34.1	28.5	31.5	32.5
	(0.2-200)	(0.6-600.0)	(0.5-500.0)	(5.0-130.0)	(1.1-120.0)	(10.0-200.0)	(4.3-120.0)	(5.0-120.0)	(1.8-90.0)
RDCG	1.0	2.7	3.8	5.0	4.1	10.0	10.7	5.0	10.0
	(0.2-200.0)	(0.6-424.6)	(0.5-500.0)	(5.0-130.0)	(1.1-120.0)	(10.0-200.0)	(4.3-120.0)	(5.0-120.0)	(1.8-90.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
HC	0.9	4.2	4.2	5.0	1.1	10.0	4.3	5.0	9.0
	(0.2-97.0)	(0.6-86.8)	(0.5-500)	(5.0-59.4)	(1.1-63.9)	(10.0-72.8)	(4.3-57.9)	(5.0-69.0)	(1.8-67.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
AAV	1.1	2.4	3.8	5.0	6.6	10.0	10.4	5.0	9.0
	(0.2-154.0)	(0.6-306.5)	(0.5-500.0)	(5.0-108.1)	(6.3-120.0)	(10.0-144.5)	(4.3-109.6)	(5.0-109.0)	(1.8-90.0)
	p=0.0001	p<0.0001	p<0.0001	p<0.0001	p=0.0035	p<0.0001	p<0.0001	p<0.0001	p<0.0001
OA	0.7	2.6	3.0	5.0	1.1	10.0	9.2	5.0	12.0
	(0.2-2.9)	(0.6-8.7)	(0.5-37.8)	(5.0-16.0)	(1.1-9.3)	(10.0-25.0)	(4.3-17.9)	(5.0-18.0)	(7.0-20.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
PsA	0.8	2.4	4.1	5.0	1.1	10.0	9.1	5.0	10.0
	(0.2-15.0)	(0.6-22.1)	(0.5-13.6)	(5.0-13.5)	(1.1-14.9)	(10.0-23.3)	(4.3-15.9)	(5.0-15.0)	(6.0-18.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
ReA	1.1	4.0	4.4	5.0	1.1	10.0	10.0	5.0	12.0
	(0.2-200.0)	(1.4-465.6)	(0.5-396.5)	(5.0-130.0)	(1.1-120.0)	(10.0-200.0)	(4.3-120.0)	(5.0-120.0)	(10.0-90.0)
	p=0.0002	p=0.0039	p=0.0001	p=0.0001	p<0.0001	p<0.0001	p<0.0001	p=0.0001	p=0.0031
SpA	0.9	2.7	4.5	5.0	1.1	10.0	9.3	5.0	9.5
	(0.2-13.0)	(1.1-18.2)	(1.1-14.6)	(5.0-24.4)	(1.1-18.8)	(10.0-56.1)	(4.3-23.0)	(5.0-27.0)	(1.8-30.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
SLE	1.0	3.2	5.3	5.0	2.8	10.0	10.6	5.0	12.0
	(0.2-200.0)	(0.6-600.0)	(0.5-333.5)	(5.0-130.0)	(1.1-120.0)	(10.0-200.0)	(4.3-120.0)	(5.0-120.0)	(5.0-90.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
pSS	6.7	24.7	21.6	18.7	17.4	59.8	22.2	26.5	24.0
	(0.2-117.0)	(1.3-411.8)	(1.8-500.0)	(5.0-130.0)	(1.1-120.0)	(10.0-200.0)	(4.3-120.0)	(5.0-120.0)	(7.0-90.0)
	p=0.1575	p=0.3505	p=0.5528	p=0.3038	p=0.2327	p=01990	p=0.5187	p=0.9771	p=0.7592

Panel B: ACPA IgG

	Thermo Fisher ACPA (U/mL)	Roche ACPA (U/mL)	Svar ACPA (U/mL)	IDS ACPA (AU/mL)	Orgentec ACPA (U/mL)	Abbott ACPA (U/mL)	Euroimmun ACPA (RU/mL)	BioRad ACPA (U/mL)	Siemens ACPA (U/mL)
RA	80.5	124.2	147.1	42.5	68.8	29.6	43.6	33.7	51.9
	(0.4-340.0)	(3.5-500.0)	(0.8-3200.0)	(0.6-320.0)	(0.5-1000.0)	(0.2-195.6)	(0.5-200.0)	(0.3-300.0)	(0.3-200.0)
RDCG	1.7	3.5	0.8	0.6	3.0	0.2	1.2	5.0	10.0
	(0.4-340.0)	(3.5-500.0)	(0.8-738.1)	(0.6-245.5)	(0.5-100.0)	(0.2-195.6)	(0.5-200.0)	(5.0-120.0)	(1.8-90.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
HC	1.2	3.5	0.8	0.6	2.2	0.2	1.1	0.5	0.3
	(0.4-115.0)	(3.5-157.6)	(0.8-120.7)	(0.6-26.9)	(0.5-190.6)	(0.2-22.0)	(0.5-28.1)	(0.3-74.7)	(0.3-30.6)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
AAV	1.3	3.5	0.8	0.6	2.0	0.2	1.0	0.3	0.3
	(0.5-9.7)	(3.5-47.3)	(0.8-13.6)	(0.6-7.1)	(0.5-15.7)	(0.2-144.5)	(0.5-4.6)	(0.3-3.4)	(0.3-5.1)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
OA	1.1	3.5	0.8	1.2	2.3	0.2	1.3	0.3	0.3
	(0.5-2.4)	(3.5-3.5)	(0.8-5.8)	(0.6-5.7)	(1.3-6.5)	(0.2-1.1)	(0.5-2.9)	(0.3-1.4)	(0.3-0.8)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
PsA	1.0	3.5	1.7	0.6	3.0	0.2	0.5	0.3	0.3
	(0.5-1.8)	(3.5-3.5)	(0.8-5.7)	(0.6-1.9)	(1.9-7.0)	(0.2-2.3)	(0.5-2.2)	(0.3-1.3)	(0.3-0.8)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
ReA	1.1	3.5	0.8	0.6	3.7	0.2	1.3	0.3	0.3
	(0.5-340.0)	(3.5-500.0)	(0.8-364.7)	(0.6-320.0)	(0.5-291.2)	(0.2-195.6)	(0.5-200.0)	(0.3-300.0)	(0.3-200.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
SpA	1.2	3.5	0.8	0.6	3.5	0.2	1.4	0.3	0.3
	(0.8-160.0)	(3.5-337.4)	(0.8-176.2)	(0.6-74.3)	(1.6-32.0)	(0.2-92.9)	(0.5-88.2)	(0.3-129.5)	(0.3-119.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
SLE	1.2	3.5	0.8	0.6	3.8	0.2	1.6	0.6	0.3
	(0.8-340.0)	(3.5-500.0)	(0.8-397.8)	(0.6-320.0)	(1.1-1000.0)	(0.2-195.6)	(0.5-200.0)	(0.3-300.0)	(0.3-200.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001
pSS	1.9	3.5	1.9	0.6	4.0	0.2	1.5	0.8	0.6
	(1.0-203.0)	(3.5-500.0)	(0.8-322.8)	(0.6-131.5)	(1.2-1000.0)	(0.2-111.7)	(0.5-114.7)	(0.3-300.0)	(0.3-162.0)
	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001

Abbreviations: RF, rheumatoid factor; ACPA, anti-citrullinated protein/peptide antibodies; RA, rheumatoid arthritis; HC, healthy control; RDCG, rheumatological disease controls; AAV, ANCA associated vasculitis with arthritis; OA: osteoarthritis; PsA, psoriatic arthritis; ReA, reactive arthritis; SpA, spondyloarthritis, SLE, systemic lupus erythematosus; pSS, primary Sjögren's syndrome.

Supplemental data Table 6. Median (range) RF IgM (Panel A) and ACPA IgG concentrations (Panel B) for the different subgroups of the total rheumatological consecutive patient cohort (RDCG; n=656). Statistical comparison with RA is given for each of the RDCG subgroups (Mann-Whitney test). A detailed description of the total RDCG cohort is provided in supplemental data Table 1.

Panel A: RF IgM Thermo Fisher (IU/mL)

	RA	**RDCG total**	**RDCG subgroups**						
	(n=398)	**(n=656)**	**EOA (n=16)**	**OA (n=39)**	**PMR (n=35)**	**ReA (n=15)**	**PSA (n=55)**	**SPA (n=42)**	**Other arthritis[a] (n=18)**
RF IgM	14.0 (0.2-200)	1.0 (0.2-200.0) p<0.0001	0.8 (0.5-6.4) p<0.0001	0.9 (0.2-112.0) p<0.0001	0.9 (0.2-7.6) p<0.0001	1.0 (0.2-6.3) p=0.0001	1.0 (0.2-5.9) p<0.0001	0.9 (0.2-11.0) p<0.0001	0.8 (0.2-9.2) p<0.0001
			pSS (n=16)	**SLE (n=18)**	**Other SARD[b] (n=25)**	**Gout (n=25)**	**Mechanical pain (n=258)**	**FM (n=30)**	**Other diseased controls[c] (n=64)**
			5.5 (0.5-116.0) p=0.1588	0.7 (0.2-11.0) p<0.0001	1.4 (0.2-200.0) p=0.0001	1.1 (0.2-19.0) p<0.0001	1.0 (0.2-200.0) p<0.0001	0.8 (0.2-12.0) p<0.0001	1.0 (0.2-99.0) p<0.0001

Abbreviations: EOA, erosive hand osteoarthritis; OA, osteoarthritis; PMR, polymyalgia rheumatica; ReA, reactive arthritis; PSA, psoriatic arthritis; SPA, spondyloarthritis; pSS, primary Sjögren's syndrome; SLE, systemic lupus erythematosus; SARD, systemic autoimmune rheumatic disease; FM, fibromyalgia.

[a]**Other arthritis** comprised patients with: Adult Still's disease (n=3), juvenile idiopathic arthritis (n=5), RS3PE (n=2), undifferentiated arthritis (n=8)

[b]**Other SARD** comprised patients with: antiphosholipid syndrome (n=2), autoimmune myositis (n=3), cutaneous lupus erythematosus (n=2), mixed connective tissue disease (n=2), systemic sclerosis (n=1), undifferentiated SARD (n=15)

[c]**Other diseased controls** comprised patients with: cardiac disease (n=5), ophthalmologic disease (n=3), neurological disease (4), hematological disease (n=13), pneumological disease (n=6), sarcoidosis (n=5), infection (n=7), vasculitis (n=7), other diseases (n=14)

Panel B: ACPA IgG Thermo Fisher (U/mL)

	RA (n=398)	RDCG total (n=656)	RDCG subgroups						
			EOA (n=16)	OA (n=39)	PMR (n=35)	ReA (n=15)	PSA (n=55)	SPA (n=42)	Other arthritis[a] (n=18)
ACPA IgG	80.5 (0.4-340.0)	1.7 (0.4-340.0) p<0.0001	2.6 (1.0-4.4) p=0.0002	1.7 (0.4-6.2) p<0.0001	1.7 (0.8-233.0) p<0.0002	2.1 (0.8-4.0) p<0.0001	1.6 (0.6-13.0) p<0.0001	1.9 (0.7-4.2) p<0.0001	1.8 (0.8-79.0) p<0.0001
			SS (n=16)	SLE (n=18)	Other SARD (n=25)	Gout (n=25)	Mechanical pain (n=258)	FM (n=30)	Other diseased controls (n=64)
			2.4 (0.7-340.0) p=0.0014	1.5 (0.6-6.2) p<0.0001	1.8 (1.0-67.0) p<0.0001	2.1 (0.7-112.0) p<0.0001	1.6 (0.5-187.0) p<0.0001	1.5 (0.7-8.9) p<0.0001	1.5 (0.5-28.0) p<0.0001

Abbreviations: EOA, erosive hand osteoarthritis; OA, osteoarthritis; PMR, polymyalgia rheumatica; ReA, reactive arthritis; PSA, psoriatic arthritis; SPA, spondyloarthritis; pSS, Sjögren Syndrome; SLE, systemic lupus erythematosus; SARD, systemic autoimmune rheumatic disease; FM, fibromyalgia.

[a]**Other arthritis** comprised patients with: Adult Still's disease (n=3), juvenile idiopathic arthritis (n=5), RS3PE (n=2), undifferentiated arthritis (n=8)

[b]**Other SARD** comprised patients with: antiphosholipid syndrome (n=2), autoimmune myositis (n=3), cutaneous lupus erythematosus (n=2), mixed connective tissue disease (n=2), systemic sclerosis (n=1), undifferentiated SARD (n=15)

[c]**Other diseased controls** comprised patients with: cardial disease (n=5), ophthalmologic disease (n=3), neurological disease (4), hematological disease (n=13), pneumological disease (n=6), sarcoidosis (n=5), infection (n=7), vasculitis (n=7), other diseases (n=14)

Supplemental Table 7. Sensitivity and likelihood ratios for predefined specificities (90%, 92.5%, 95%, 97.5%) for RF (**Panel A**) and ACPA (90%, 97.5%, 99%, 99.75%) assays (**Panel B**).

Panel A

Manufacturer	Threshold	Sensitivity	(95% CI)	Specificity	(95% CI)	LR (+)	(95% CI)	LR (-)	(95% CI)
Thermo Fisher	> 5.0	62.31	57.3 - 67.1	89.75	87.8 - 91.5	6.08	5.0 - 7.4	0.42	0.4 - 0.5
RF IgM	> 7.5	56.53	51.5 - 61.5	92.45	90.7 - 94.0	7.49	6.0 - 9.4	0.47	0.4 - 0.5
CO=10 IU/mL	> 15.0	47.99	43.0 - 53.0	95.15	93.7 - 96.4	9.90	7.5 - 13.2	0.55	0.5 - 0.6
	> 45.0	29.15	24.7 - 33.9	97.67	96.6 - 98.5	12.51	8.2 - 19.0	0.73	0.7 - 0.8
Cambridge	> 12.3	57.29	52.3 - 62.2	89.93	88.0 - 91.7	5.69	4.7 - 6.9	0.47	0.4 - 0.5
RF IgM	> 17.2	51.76	46.7 - 56.8	92.45	90.7 - 94.0	6.86	5.4 - 8.6	0.52	0.5 - 0.6
CO=15.3 U/mL	> 26.5	45.98	41.0 - 51.0	94.97	93.5 - 96.2	9.14	6.9 - 12.1	0.57	0.5 - 0.6
	> 126.0	22.61	18.6 - 27.0	97.48	96.4 - 98.3	8.99	5.9 - 13.6	0.79	0.8 - 0.8
Orgentec	> 15.6	54.27	49.2 - 59.2	90.12	88.2 - 91.8	5.49	4.5 - 6.7	0.51	0.5 - 0.6
RF IgM	> 22.8	49.50	44.5 - 54.5	92.64	90.9 - 94.1	6.72	5.3 - 8.5	0.55	0.5 - 0.6
CO=20 IU/mL	> 33.5	42.96	38.0 - 48.0	94.97	93.5 - 96.2	8.54	6.4 - 11.3	0.60	0.6 - 0.7
	> 95.8	30.65	26.2 - 35.4	97.48	96.4 - 98.3	12.18	8.2 - 18.2	0.71	0.7 - 0.8
Roche RF	> 14.6	63.82	58.9 - 68.5	90.03	88.1 - 91.8	6.40	5.3 - 7.8	0.40	0.4 - 0.5
CO=14 IU/mL	> 17.3	61.56	56.6 - 66.4	92.45	90.7 - 94.0	8.15	6.5 - 10.2	0.42	0.4 - 0.5
	> 25.5	52.01	47.0 - 57.0	94.97	93.5 - 96.2	10.33	7.8 - 13.6	0.51	0.5 - 0.6
	> 57.2	39.20	34.4 - 44.2	97.48	96.4 - 98.3	15.58	10.5 - 23.1	0.62	0.6 - 0.7
Diagam RF	> 10.9	64.82	59.9 - 69.5	90.03	88.1 - 91.8	6.50	5.4 - 7.9	0.39	0.3 - 0.4
CO=20 kIU/L	> 16.9	57.79	52.8 - 62.7	92.45	90.7 - 94.0	7.66	6.1 - 9.6	0.46	0.4 - 0.5
	> 24.6	51.26	46.2 - 56.3	94.97	93.5 - 96.2	10.18	7.7 - 13.4	0.51	0.5 - 0.6
	> 57.9	35.43	30.7 - 40.3	97.48	96.4 - 98.3	14.08	9.5 - 20.9	0.66	0.6 - 0.7
Abbott RF	> 10.0	57.29	52.3 - 62.2	91.52	89.7 - 93.1	6.75	5.5 - 8.4	0.47	0.4 - 0.5
CO=30 IU/mL	> 24.6	53.77	48.7 - 58.7	92.45	90.7 - 94.0	7.12	5.7 - 8.9	0.50	0.4 - 0.6
	> 45.4	45.98	41.0 - 51.0	94.97	93.5 - 96.2	9.14	6.9 - 12.1	0.57	0.5 - 0.6
	> 107.6	27.14	22.8 - 31.8	97.48	96.4 - 98.3	10.78	7.2 - 16.2	0.75	0.7 - 0.8
Ortho RF	> 16.3	64.82	59.9 - 69.5	90.03	88.1 - 91.8	6.50	5.4 - 7.9	0.39	0.3 - 0.4
CO=12 IU/mL	> 19.7	60.05	55.1 - 64.9	92.54	90.8 - 94.0	8.05	6.4 - 10.1	0.43	0.4 - 0.5
	> 28.4	50.00	45.0 - 55.0	94.97	93.5 - 96.2	9.94	7.5 - 13.1	0.53	0.5 - 0.6
	> 60.0	37.44	32.7 - 42.4	97.48	96.4 - 98.3	14.88	10.0 - 22.1	0.64	0.6 - 0.7
Beckman RF	> 16.8	64.57	59.7 - 69.3	89.93	88.0 - 91.7	6.42	5.3 - 7.8	0.39	0.3 - 0.5
CO=14 IU/mL	> 21.0	59.05	54.0 - 63.9	92.73	91.0 - 94.2	8.12	6.5 - 10.2	0.44	0.4 - 0.5
	> 30.0	50.5	45.5 - 55.5	95.06	93.6 - 96.3	10.22	7.7 - 13.5	0.52	0.5 - 0.6
	> 69.8	35.68	31.0 - 40.6	97.48	96.4 - 98.3	14.18	9.6 - 21.0	0.66	0.6 - 0.7
Siemens RF	> 18.0	63.81	58.6 - 68.8	90.26	88.2 - 92.0	6.55	5.3 - 8.0	0.4	0.3 - 0.5
CO=14 IU/mL	> 22.0	59.12	53.9 - 64.2	92.67	90.9 - 94.2	8.07	6.4 - 10.2	0.44	0.4 - 0.5
	> 32.0	50.00	44.7 - 55.3	95.18	93.7 - 96.4	10.37	7.7 - 13.9	0.53	0.5 - 0.6
	> 75.1	36.19	31.2 - 41.4	97.49	96.3 - 98.4	14.42	9.6 - 21.7	0.65	0.6 - 0.7

Abbreviations: RF, rheumatoid factor; CO, cut-off defined by the manufacturer

Panel B

Manufacturer	Threshold	Sensitivity	(95% CI)	Specificity	(95% CI)	LR (+)	(95% CI)	LR (-)	(95% CI)
Thermo Fisher	> 3.3	70.1	65.3 - 74.6	90.21	88.3 - 91.9	7.16	5.9 - 8.7	0.33	0.3 - 0.4
ACPA	> 9.5	63.57	58.7 - 68.2	97.48	96.4 - 98.3	25.26	17.3 - 36.9	0.37	0.3 - 0.4
CO=10 U/mL	> 79.8	50.25	45.4 - 55.1	98.97	98.2 - 99.4	49.02	27.0 – 89.0	0.50	0.5 - 0.6
	> 324.6	29.15	24.7 - 33.9	99.72	99.2 - 99.9	104.24	33.3 - 326.1	0.71	0.7 - 0.8
Roche ACPA	> 3.5	63.82	58.9 - 68.5	95.53	94.1 - 96.7	14.27	10.7 - 19.0	0.38	0.3 - 0.4
CO=17 U/mL	> 36.1	60.80	55.9 – 65.5	97.48	96.4 - 98.3	24.16	16.5 - 35.4	0.40	0.4 - 0.5
	> 230.4	41.46	22.2 – 73.6	98.97	98.2 - 99.4	40.44	22.2 - 73.6	0.59	0.5 - 0.6
Svar ACPA	> 4.3	64.82	59.9 - 69.5	89.84	87.9 - 91.6	6.38	5.3 - 7.7	0.39	0.3 - 0.4
CO=25 U/mL	> 26.6	61.31	56.4 - 66.0	97.48	96.4 - 98.3	24.36	16.7 - 35.6	0.40	0.4 - 0.4
	> 147.8	50.00	45.1 - 54.9	98.97	98.2 - 99.4	48.77	26.9 - 88.5	0.51	0.5 - 0.6
	> 398.0	27.39	23.1 - 32.1	99.81	99.3 - 100.0	146.93	36.5 - 592.2	0.73	0.7 - 0.8
IDS ACPA	> 2.0	71.86	67.2 - 76.2	90.40	88.5 - 92.1	7.49	6.2 - 9.1	0.31	0.3 - 0.4
CO= 5 AU/mL	> 7.7	61.81	56.8 - 66.6	97.48	96.4 - 98.3	24.56	16.8 - 35.9	0.39	0.3 - 0.4
	> 43.4	49.75	44.7 - 54.8	98.97	98.2 - 99.5	48.53	26.7 - 88.1	0.51	0.5 - 0.6
	> 236.8	22.36	18.4 - 26.8	99.72	99.2 - 99.9	79.98	25.5 - 251.3	0.78	0.7 - 0.8
Orgentec	> 5.8	68.59	63.8 - 73.1	90.03	88.1 - 91.8	6.88	5.7 - 8.3	0.35	0.3 - 0.4
ACPA	> 14.7	60.55	55.6 - 65.4	97.48	96.4 - 98.3	24.06	16.4 - 35.2	0.40	0.4 - 0.5
CO=20 U/mL	> 137.7	44.97	40.0 - 50.0	98.97	98.2 - 99.5	43.87	24.1 - 79.8	0.56	0.5 - 0.6
	> 926.0	27.14	22.8 - 31.8	99.72	99.2 - 99.9	97.06	31.0 - 303.9	0.73	0.7 - 0.8
Abbott ACPA	> 1.0	68.59	63.8 - 73.1	91.33	89.5 - 92.9	7.91	6.4 - 9.7	0.34	0.3 - 0.4
CO=5 U/mL	> 4.5	62.31	57.3 - 67.1	97.48	96.4 - 98.3	24.76	16.9 - 36.2	0.39	0.3 - 0.4
	> 53.1	43.72	38.8 - 48.7	98.97	98.2 - 99.5	42.65	23.4 - 77.6	0.57	0.5 - 0.6
	> 188.2	25.13	20.9 - 29.7	99.72	99.2 - 99.9	89.87	28.7 - 281.7	0.75	0.7 - 0.8
Euroimmun	> 3.0	68.09	63.3 - 72.6	90.12	88.2 - 91.8	6.89	5.7 - 8.4	0.35	0.3 - 0.4
ACPA	> 9.9	61.06	56.1 - 65.9	97.48	96.4 - 98.3	24.26	16.6 - 35.5	0.40	0.4 - 0.5
CO=5 RU/mL	> 37.5	50.50	45.5 - 55.5	98.97	98.2 - 99.5	49.26	27.1 - 89.4	0.50	0.5 - 0.6
	> 187.7	22.86	18.8 - 27.3	99.72	99.2 - 99.9	81.78	26.0 - 256.8	0.77	0.7 - 0.8
BioRad	> 1.5	66.57	61.5 - 71.4	91.16	89.2 - 92.9	7.54	6.1 - 9.3	0.37	0.3 - 0.4
ACPA	> 5.5	58.84	53.6 - 64.0	97.49	96.3 - 98.4	23.44	15.8 - 34.8	0.42	0.4 - 0.5
CO=3 U/mL	> 127.5	42.82	37.7 - 48.1	99.00	98.2 - 99.5	42.65	22.8 - 79.9	0.58	0.5 - 0.6
Siemens	> 1.1	72.65	67.7 - 77.2	90.36	88.4 - 92.1	7.54	6.2 - 9.2	0.30	0.3 - 0.4
ACPA	> 5.6	63.26	58.1 - 68.2	97.49	96.3 - 98.4	25.20	17.0 - 37.4	0.38	0.3 - 0.4
CO=5 U/mL	> 57.8	47.79	42.5 - 53.1	99.00	98.2 - 99.5	47.60	25.5 - 89.0	0.53	0.5 - 0.6

Abbreviations: ACPA, anti-citrullinated peptide antibody; CO, cut-off defined by the manufacturer

Supplemental data Table 8. Thresholds, sensitivity and LR of the different RF (Panel A) and ACPA (Panel B) assays, with respect to different compositions of control populations. All: all control groups included; HC: healthy controls; RDCG: rheumatic disease control group; pSS: primary Sjögren's syndrome; SLE systemic lupus erythematosus.

Panel A

RF	All			HC only			RDCG only			All excl. HC, pSS and SLE		
Percentile	Thres-hold	Sens	LR	Thres-hold	Sens	LR	Thres-hold	Sens	LR	Thres-hold	Sens	LR
TF												
<0.9	*na*	*na*	0.42	*na*	*na*	0.32	*na*	*na*	0.39	*na*	*na*	0.39
0.9	5.0	0.623	2.14	2.3	0.714	2.26	4.0	0.648	1.43	4.1	0.648	1.36
0.925	7.5	0.565	3.16	3.1	0.668	0.75	5.3	0.616	2.33	5.5	0.613	3.28
0.95	15.0	0.480	7.49	4.2	0.646	4.27	8.5	0.555	7.11	10.3	0.533	6.35
0.975	45.0	0.291	12.50	7.8	0.560	22.41	27.6	0.382	14.74	28.7	0.377	14.60
Cambridge												
<0.9	*na*	*na*	0.47	*na*	*na*	0.42	*na*	*na*	0.41	*na*	*na*	0.42
0.9	12.3	0.573	2.20	9.9	0.623	1.51	9.1	0.631	1.13	9.4	0.626	0.92
0.925	17.2	0.518	2.30	11.6	0.585	0.70	10.8	0.603	2.91	11.0	0.603	3.31
0.95	26.5	0.460	9.29	13.1	0.568	2.31	16.1	0.528	3.61	17.1	0.518	3.89
0.975	126.0	0.226	8.99	18.3	0.510	20.40	33.7	0.440	16.97	39.4	0.422	16.36
Orgentec												
<0.9	*na*	*na*	0.51	*na*	*na*	0.39	*na*	*na*	0.48	*na*	*na*	0.48
0.9	15.6	0.543	1.90	9.4	0.648	2.11	14.2	0.568	1.16	13.8	0.570	1.23
0.925	22.8	0.495	2.80	11.7	0.595	1.41	16.3	0.538	2.16	16.1	0.540	2.25
0.95	33.5	0.430	4.89	14.3	0.560	4.12	24.4	0.485	3.39	24.4	0.485	3.69
0.975	95.8	0.307	12.18	27.0	0.457	18.29	41.2	0.397	16.28	41.7	0.394	15.29
Roche												
<0.9	*na*	*na*	0.40	*na*	*na*	0.31	*na*	*na*	0.38	*na*	*na*	0.38
0.9	14.6	0.638	0.93	<LOQ	0.714	1.38	13.0	0.661	0.97	13.0	0.656	0.87
0.925	17.3	0.616	3.79	10.8	0.686	0.50	15.3	0.636	1.03	15.4	0.636	1.36
0.95	25.5	0.520	5.09	12.0	0.673	5.53	17.8	0.611	6.59	18.4	0.601	5.84
0.975	57.2	0.392	15.58	21.0	0.563	22.51	38.3	0.450	17.36	36.6	0.457	17.72
Diagam												
<0.9	*na*	*na*	0.39	*na*	*na*	0.23	*na*	*na*	0.38	*na*	*na*	0.37
0.9	10.9	0.648	2.90	4.9	0.794	1.81	10.2	0.661	1.10	10.1	0.668	1.95
0.925	16.9	0.578	2.60	6.1	0.749	2.18	12.2	0.636	2.75	13.2	0.621	2.23
0.95	24.6	0.513	6.29	8.3	0.683	6.16	18.2	0.560	3.74	18.2	0.560	3.68
0.975	57.9	0.354	14.08	18.5	0.560	22.41	30.5	0.475	18.32	30.5	0.475	18.40
Abbott												
<0.9	*na*	*na*	0.47	*na*	*na*	0.44	*na*	*na*	0.45	*na*	*na*	0.45
0.9	<LOQ	0.573	3.77	<LOQ	0.573	*na*	<LOQ	0.573	na	<LOQ	0.573	*na*
0.925	24.6	0.538	3.10	<LOQ	0.573	*na*	<LOQ	0.573	5.36	<LOQ	0.573	5.45
0.95	45.4	0.460	7.49	<LOQ	0.573	*na*	23.9	0.540	4.43	23.9	0.538	4.30
0.975	107.6	0.271	10.78	<LOQ	0.573	22.91	52.2	0.432	16.68	52.3	0.432	16.75
Ortho												
<0.9	*na*	*na*	0.39	*na*	*na*	0.30	*na*	*na*	0.37	*na*	*na*	0.38
0.9	16.3	0.648	1.83	12.4	0.726	0.70	15.1	0.668	1.03	15.2	0.661	0.76
0.925	19.7	0.601	4.15	12.8	0.709	0.50	16.9	0.643	1.65	16.9	0.643	1.66
0.95	28.4	0.500	4.99	13.3	0.696	5.63	19.7	0.601	5.87	19.7	0.601	5.84
0.975	60.0	0.374	14.88	22.8	0.555	22.21	38.3	0.457	17.65	38.4	0.457	17.72
Beckman												
<0.9	*na*	*na*	0.39	*na*	*na*	0.33	*na*	*na*	0.38	*na*	*na*	0.38
0.9	16.8	0.646	1.98	11.0	0.701	1.13	14.0	0.658	0.73	14.0	0.658	0.74
0.925	21.0	0.590	3.67	12.1	0.678	0.17	17.0	0.638	2.09	17.0	0.638	2.18
0.95	30.0	0.505	6.12	13.0	0.673	5.13	21.0	0.590	6.85	21.0	0.590	6.33
0.975	69.8	0.357	14.18	26.0	0.545	27.26	42.9	0.455	17.55	40.3	0.460	17.82
Siemens												
<0.9	*na*	*na*	0.40	*na*	*na*	0.34	*na*	*na*	0.36	*na*	*na*	0.36
0.9	18.0	0.638	1.95	13.0	0.691	0.54	15.0	0.674	2.13	15.0	0.674	1.96
0.925	22.0	0.591	3.63	14.4	0.682	0.76	18.5	0.638	2.01	19.0	0.638	2.05
0.95	32.0	0.500	5.98	16.3	0.663	4.22	23.0	0.577	7.11	23.0	0.577	6.65
0.975	75.1	0.362	14.42	25.4	0.555	21.77	48.0	0.434	17.17	46.3	0.436	17.17

Panel B

ACPA	All			HC only			RDCG only			All excl. HC, pSS and SLE		
Percentile	Thres-hold	Sens	LR	Thres-hold	Sens	LR	Thres-hold	Sens	LR	Thres-hold	Sens	LR
TF												
<0.9	*na*	*na*	0.33	*na*	*na*	0.34	*na*	*na*	0.32	*na*	*na*	0.32
0.9	3.3	0.701	0.90	3.5	0.701	0.54	3.2	0.709	0.86	3.1	0.711	0.97
0.975	9.5	0.636	8.93	4.7	0.636	2.01	7.5	0.648	4.78	8.4	0.641	6.82
0.99	79.8	0.503	27.30	14.0	0.503	22.61	35.3	0.575	29.01	59.6	0.535	26.94
0.998	324.6	0.299	106.94	75.6	0.299	102.51	219.0	0.354	116.20	281.0	0.327	126.57
Roche												
<0.9	*na*	*na*	0.38	*na*	*na*	0.37	*na*	*na*	0.38	*na*	*na*	0.38
0.9	<LOQ	0.638	1.54	<LOQ	0.638	0.00	<LOQ	0.638	0.82	<LOQ	0.638	0.81
0.975	36.1	0.608	12.97	7.1	0.638	3.18	15.3	0.626	1.65	17.7	0.626	10.71
0.99	230.4	0.415	40.44	62.0	0.590	19.60	52.5	0.601	56.28	191.8	0.460	44.54
0.98	*na*	*na*	*na*	136.7	0.492	98.49	*na*	*na*	*na*	*na*	*na*	*na*
Svar												
<0.9	*na*	*na*	0.39	*na*	*na*	0.39	*na*	*na*	0.36	*na*	*na*	0.37
0.9	<LOQ	0.648	0.46	<LOQ	0.648	0.40	<LOQ	0.676	0.96	<LOQ	0.663	0.64
0.975	26.6	0.613	7.58	<LOQ	0.618	1.51	<LOQ	0.616	5.77	<LOQ	0.616	7.46
0.99	147.8	0.500	30.33	49.7	0.595	8.54	116.9	0.528	37.91	147.4	0.500	32.78
0.998	398.0	0.274	97.95	93.1	0.553	110.55	446.1	0.239	78.29	429.5	0.246	95.41
IDS												
<0.9	*na*	*na*	0.31	*na*	*na*	0.31	*na*	*na*	0.30	*na*	*na*	0.31
0.9	2.0	0.719	1.42	1.9	0.721	1.22	1.9	0.726	1.35	1.9	0.721	1.43
0.975	7.7	0.618	8.09	4.2	0.636	1.84	5.9	0.626	4.45	6.5	0.623	6.17
0.99	43.4	0.497	36.73	10.6	0.608	10.05	21.5	0.558	18.79	33.5	0.528	29.53
0.998	236.8	0.224	79.98	22.2	0.558	111.56	74.8	0.415	135.98	158.0	0.299	115.86
Orgentec												
<0.9	*na*	*na*	0.35	*na*	*na*	0.31	*na*	*na*	0.34	*na*	*na*	0.34
0.9	5.8	0.686	1.08	5.0	0.719	1.43	5.6	0.691	0.82	5.7	0.691	0.81
0.975	14.7	0.606	10.45	11.1	0.626	3.69	10.4	0.631	4.40	10.7	0.631	6.82
0.99	137.7	0.450	23.93	24.9	0.570	28.64	24.4	0.570	24.39	46.0	0.525	18.17
0.998	926.0	0.271	97.06	195.3	0.427	85.43	338.0	0.384	126.09	336.1	0.384	148.96
Abbott												
<0.9	*na*	*na*	0.34	*na*	*na*	0.35	*na*	*na*	0.34	*na*	*na*	0.33
0.9	1.0	0.686	1.02	1.0	0.686	0.50	0.9	0.693	0.80	0.9	0.704	0.97
0.975	4.5	0.623	12.47	1.6	0.653	2.01	2.9	0.643	9.39	4.0	0.631	11.20
0.99	53.1	0.437	24.94	4.5	0.623	13.57	29.0	0.500	21.76	43.6	0.457	24.66
0.998	188.2	0.251	89.87	16.2	0.555	111.06	103.0	0.334	109.61	167.6	0.266	103.20
Euroimmun												
<0.9	*na*	*na*	0.35	*na*	*na*	0.32	*na*	*na*	0.35	*na*	*na*	0.35
0.9	3.0	0.681	0.96	2.4	0.711	1.14	2.9	0.683	0.94	2.9	0.683	0.94
0.975	9.9	0.611	7.08	7.0	0.626	1.01	9.0	0.613	4.45	9.1	0.613	5.84
0.99	37.5	0.505	37.07	9.8	0.611	10.05	27.9	0.545	26.04	32.4	0.523	30.83
0.998	187.7	0.229	81.78	24.5	0.560	112.06	107.0	0.347	113.73	149.7	0.284	110.02
BioRad												
<0.9	*na*	*na*	0.37	*na*	*na*	0.33	*na*	*na*	0.37	*na*	*na*	0.37
0.9	1.5	0.666	1.22	1.1	0.704	0.83	1.5	0.666	0.82	1.5	0.666	0.96
0.975	5.5	0.588	10.64	1.7	0.649	3.97	2.6	0.610	4.92	3.2	0.608	11.54
0.99	127.5	0.428	42.65	5.9	0.588	24.36	20.5	0.544	29.54	93.4	0.445	39.36
0.998	*na*	*na*	*na*	60.1	0.464	90.96	293.3	0.345	102.56	*na*	*na*	*na*
Siemens												
<0.9	*na*	*na*	0.30	*na*	*na*	0.32	*na*	*na*	0.29	*na*	*na*	0.28
0.9	1.1	0.727	1.32	1.3	0.713	0.69	0.9	0.740	1.37	0.9	0.746	1.50
0.975	5.6	0.633	10.27	2.1	0.660	0.54	4.5	0.641	6.38	4.7	0.635	6.85
0.99	57.8	0.478	47.60	3.8	0.652	13.54	34.4	0.544	27.07	37.5	0.539	25.10
0.998	*na*	*na*	*na*	20.7	0.583	114.24	133.2	0.362	107.48	175.2	0.326	115.39

Supplemental data Table 9. RF test result-specific likelihood ratios determined for different compositions of the control population

Panel A. RF test result-specific likelihood ratios determined with healthy controls only

Thermo Fisher	Interval	Fraction of controls	Fraction of patients	LR	95% CI
RF IgM					
< 0.9	< 2.3	0.905	0.286	0.32	0.27 - 0.37
0.9-0.925	2.3 – 3.1	0.020	0.045	2.26	0.78 - 6.59
0.925-0.95	3.1 – 4.2	0.030	0.023	0.75	0.27 - 2.09
0.95-0.975	4.2 – 7.8	0.020	0.086	4.27	1.54 - 11.87
0.975-1.00	7.8 - ≥ 200	0.025	0.560	22.41	9.39 - 53.49
Cambridge RF IgM					
< 0.9	< 9.9	0.900	0.377	0.42	0.37 - 0.48
0.9-0.925	9.9 –11.6	0.025	0.038	1.51	0.56 – 4.09
0.925-0.95	11.6 – 13.1	0.025	0.017	0.70	0.23 - 2.19
0.95-0.975	13.1 – 18.3	0.025	0.058	2.31	0.90 - 5.99
0.975-1.00	18.3 - ≥ 600.0	0.025	0.510	20.40	8.54 - 48.74
Orgentec RF IgM					
< 0.9	< 9.4	0.900	0.352	0.39	0.34 - 0.45
0.9-0.925	9.4 - 11.7	0.025	0.053	2.11	0.81 - 5.51
0.925-0.95	11.7 - 14.3	0.025	0.035	1.41	0.51 - 3.85
0.95-0.975	14.3 – 27.0	0.025	0.103	4.12	1.65 - 10.27
0.975-1.00	27.0 - ≥ 500.0	0.025	0.457	18.29	7.65 - 43.75
Roche RF					
< 0.9	< LOQ	0.910	0.286	0.31	0.27 - 0.37
0.9-0.925	< LOQ - 10.8	0.020	0.028	1.38	0.45 - 4.29
0.925-0.95	10.8 - 12.0	0.025	0.012	0.50	0.15 - 1.72
0.95-0.975	12.0 - 21.0	0.020	0.111	5.53	2.02 - 15.17
0.975-1.00	21.0 - ≥ 130.0	0.025	0.563	22.51	9.43 - 53.73
Diagam RF					
< 0.9	< 4.9	0.900	0.206	0.23	0.19 - 0.28
0.9-0.925	4.9 - 6.1	0.025	0.045	1.81	0.68 - 4.80
0.925-0.95	6.1 - 8.3	0.030	0.065	2.18	0.91 - 5.20
0.95-0.975	8.3 – 18.5	0.020	0.123	6.16	2.25 - 16.82
0.975-1.00	18.5 - ≥ 120.0	0.025	0.561	22.41	9.39 - 53.49
Abbott RF					
< 0.9	< LOQ	0.975	0.427	0.44	0.39 - 0.49
0.9-0.925	< LOQ	0.000	0.000	na	na
0.925-0.95	< LOQ	0.000	0.000	na	na
0.95-0.975	< LOQ	0.000	0.000	na	na
0.975-1.00	< LOQ - ≥ 200	0.025	0.573	22.91	9.60 - 54.68
Ortho RF					
< 0.9	< 12.4	0.900	0.274	0.30	0.26 - 0.36
0.9-0.925	12.4 - 12.8	0.025	0.018	0.70	0.23 - 2.19
0.925-0.95	12.8 – 13.3	0.025	0.012	0.50	0.15 - 1.72
0.95-0.975	13.3 – 22.8	0.025	0.141	5.63	2.29 - 13.83
0.975-1.00	22.8 - ≥ 120.0	0.025	0.555	22.21	9.31 - 53.01
Beckman RF					
< 0.9	< 11.0	0.905	0.299	0.33	0.28 - 0.39
0.9-0.925	11.0 - 12.1	0.020	0.023	1.13	0.35 -3.63
0.925-0.95	12.1 - 13.0	0.030	0.005	0.17	0.03 - 0.82
0.95-0.975	13.0 - 26.0	0.025	0.128	5.13	2.08 - 12.64
0.975-1.00	26.0 - ≥ 120.0	0.020	0.545	27.26	10.29 - 72.22
Siemens RF					
< 0.9	< 13.0	0.908	0.310	0.34	0.29 - 0.40
0.9-0.925	13.0 - 14.4	0.015	0.008	0.54	0.11 - 2.66
0.925-0.95	14.4 - 16.3	0.025	0.019	0.76	0.24 - 2.36
0.95-0.975	16.3 - 25.4	0.026	0.108	4.22	1.69 - 10.54
0.975-1.00	25.4 - ≥ 90.0	0.026	0.555	21.77	9.12 - 51.96

Panel B. RF test result-specific likelihood ratios determined with rheumatologic consecutive controls only

Thermo Fisher RF IgM	Interval	Fraction of controls	Fraction of patients	LR	95% CI
< 0.9	< 4.0	0.901	0.352	0.39	0.34 - 0.45
0.9-0.925	4.0 - 5.3	0.023	0.033	1.43	0.69 - 2.96
0.925-0.95	5.3 -8.5	0.026	0.060	2.33	1.27 - 4.28
0.95-0.975	8.5 - 27.6	0.024	0.173	7.11	4.19 - 12.07
0.975-1.00	27.6 - ≥ 200	0.026	0.382	14.74	9.07 - 23.95
Cambridge RF IgM					
< 0.9	< 9.1	0.899	0.369	0.41	0.36 - 0.47
0.9-0.925	9.1 - 10.8	0.024	0.028	1.13	0.53 - 2.42
0.925-0.95	10.8 - 16.1	0.026	0.075	2.91	1.63 - 5.20
0.95-0.975	16.1 - 33.7	0.024	0.088	3.61	2.02 - 6.43
0.975-1.00	33.7 - ≥ 600.0	0.026	0.440	16.98	10.48 - 27.48
Orgentec RF IgM					
< 0.9	< 14.2	0.899	0.432	0.48	0.38 - 0.48
0.9-0.925	14.2 - 16.3	0.026	0.030	1.16	0.56 - 2.41
0.925-0.95	16.3 - 24.4	0.024	0.053	2.16	1.14 - 4.10
0.95-0.975	24.4 - 41.2	0.026	0.088	3.39	1.93 – 5.98
0.975-1.00	41.2 - ≥ 500.0	0.024	0.397	16.28	9.88 - 26.81
Roche RF					
< 0.9	< 13.0	0.900	0.339	0.38	0.33 - 0.43
0.9-0.925	13.0 - 15.3	0.026	0.025	0.97	0.45 - 2.10
0.925-0.95	15.3 - 17.8	0.024	0.025	1.03	2.35 - 6.13
0.95-0.975	17.8 - 38.3	0.024	0.161	6.59	3.87 - 11.24
0.975-1.00	38.3 - ≥ 130.0	0.026	0.450	17.36	18.26 - 51.71
Diagam RF					
< 0.9	< 10.2	0.901	0.339	0.38	0.33 - 0.43
0.9-0.925	10.2 - 12.2	0.023	0.025	1.10	0.50 - 2.42
0.925-0.95	12.2 - 18.2	0.027	0.075	2.75	1.55 - 4.86
0.95-0.975	18.2 - 30.5	0.023	0.086	3.74	2.06 - 6.77
0.975-1.00	30.5 - ≥ 120.0	0.026	0.475	18.32	11.33 - 29.63
Abbott RF					
< 0.9	< LOQ	0.944	0.427	0.45	0.40 - 0.51
0.9-0.925	< LOQ	0.000	0.000	na	na
0.925-0.95	< LOQ - 23.9	0.006	0.033	5.36	1.76 - 16.32
0.95-0.975	23.9 - 52.2	0.024	0.108	4.43	2.53 - 7.76
0.975-1.00	52.2 - ≥ 200	0.026	0.432	16.68	10.29 - 27.02
Ortho RF					
< 0.9	< 15.1	0.900	0.332	0.37	0.32 - 0.43
0.9-0.925	15.1 - 16.9	0.024	0.025	1.03	0.47 - 2.25
0.925-0.95	16.9 - 19.7	0.026	0.043	1.65	0.85 - 3.19
0.95-0.975	19.7 - 38.3	0.024	0.143	5.87	3.42 - 10.08
0.975-1.00	38.3 - ≥ 120.0	0.026	0.457	17.65	10.91 - 28.55
Beckman RF					
< 0.9	< 14.0	0.904	0.342	0.38	0.33 - 0.43
0.9-0.925	14.0 - 17.0	0.027	0.020	0.73	0.32 - 1.67
0.925-0.95	17.0 - 21.0	0.023	0.048	2.09	1.07 - 4.06
0.95-0.975	21.0 – 42.9	0.020	0.136	6.85	3.79 - 12.38
0.975-1.00	42.9 - ≥ 120.0	0.026	0.454	17.55	10.84 – 28.40
Siemens RF					
< 0.9	< 15.0	0.908	0.326	0.36	0.28 - 0.38
0.9-0.925	15.0 - 18.5	0.017	0.036	2.13	0.95 - 4.81
0.925-0.95	18.5 - 23.0	0.030	0.061	2.01	1.09 - 3.69
0.95-0.975	23.0 - 48.0	0.020	0.143	7.11	3.85 - 13.14
0.975-1.00	48.0 - ≥ 90.0	0.025	0.434	17.17	10.28 – 28.70

Panel C. RF test result-specific likelihood ratios determined with all control groups, excluding healthy controls, primary Sjögren's syndrome and systemic lupus erythematosus diseased control groups.

Thermo Fisher RF IgM	Interval	Fraction of controls	Fraction of patients	LR	95% CI
< 0.9	< 4.1	0.899	0.352	0.39	0.34 - 0.45
0.9-0.925	4.1 – 5.5	0.025	0.035	1.36	0.70 - 2.67
0.925-0.95	5.5 - 10.3	0.025	0.080	3.28	1.88 - 5.71
0.95-0.975	10.3 - 28.7	0.025	0.156	6.35	3.86 - 10.47
0.975-1.00	28.7 - ≥ 200	0.026	0.377	14.60	9.31 - 22.92
Cambridge RF IgM					
< 0.9	< 9.4	0.899	0.374	0.42	0.37 - 0.47
0.9-0.925	9.4 - 11.0	0.024	0.023	0.92	0.42 - 2.02
0.925-0.95	11.0 – 17.1	0.026	0.085	3.31	1.93 - 5.67
0.95-0.975	17.1 – 39.4	0.025	0.096	3.89	2.28 - 6.67
0.975-1.00	39.4 - ≥ 600.0	0.026	0.422	16.36	10.46 - 25.59
Orgentec RF IgM					
< 0.9	< 13.8	0.900	0.430	0.48	0.43 - 0.54
0.9-0.925	13.8 - 16.1	0.025	0.030	1.23	0.60 - 2.51
0.925-0.95	16.1 – 24.4	0.025	0.055	2.25	1.24 - 4.12
0.95-0.975	24.4 - 41.7	0.025	0.091	3.69	2.15 - 6.35
0.975-1.00	41.7 - ≥ 500.0	0.025	0.394	15.29	9.75 - 23.96
Roche RF					
< 0.9	< 13.0	0.901	0.345	0.38	0.33 - 0.44
0.9-0.925	13.0 - 15.4	0.023	0.020	0.87	0.38 - 1.97
0.925-0.95	15.4 - 18.4	0.026	0.035	1.36	0.70 - 2.67
0.95-0.975	18.4 - 36.6	0.024	0.143	5.84	3.53 - 9.68
0.975-1.00	36.6 - ≥ 130.0	0.026	0.457	17.72	11.35 - 27.67
Diagam RF					
< 0.9	< 10.1	0.899	0.332	0.37	0.32 - 0.43
0.9-0.925	10.1 - 13.2	0.025	0.048	1.95	1.04 - 3.64
0.925-0.95	13.2 - 18.2	0.027	0.060	2.22	1.25 - 3.95
0.95-0.975	18.2 - 30.5	0.023	0.085	3.68	2.10 - 6.43
0.975-1.00	30.5 - ≥ 120.0	0.026	0.475	18.40	11.80 - 28.71
Abbott RF					
< 0.9	< LOQ	0.943	0.427	0.45	0.40 - 0.51
0.9-0.925	< LOQ	na	na	na	na
0.925-0.95	< LOQ - 23.9	0.006	0.035	5.45	1.98 - 15.03
0.95-0.975	23.9 - 52.3	0.025	0.106	4.30	2.54 – 7.30
0.975-1.00	52.3 - ≥ 200	0.026	0.432	16.75	10.71 - 26.18
Ortho RF					
< 0.9	< 15.2	0.901	0.339	0.38	0.29 - 0.39
0.9-0.925	15.2 - 16.9	0.023	0.018	0.76	0.32 - 1.80
0.925-0.95	16.9 - 19.7	0.026	0.043	1.66	0.88 – 3.12
0.95-0.975	19.7 - 38.4	0.025	0.143	5.84	3.53 - 9.68
0.975-1.00	38.4 - ≥ 120.0	0.025	0.457	17.72	11.35 - 27.67
Beckman RF					
< 0.9	< 14.0	0.904	0.342	0.38	0.33 - 0.43
0.9-0.925	14.0 - 17.0	0.027	0.020	0.74	0.33 - 1.66
0.925-0.95	17.0 - 21.0	0.022	0.048	2.18	1.14 - 4.14
0.95-0.975	21.0 - 40.3	0.021	0.130	6.33	3.66 - 10.94
0.975-1.00	40.3 - ≥ 120.0	0.026	0.460	17.82	11.41 - 27.82
Siemens RF					
< 0.9	< 15.0	0.905	0.326	0.36	0.31 - 0.42
0.9-0.925	15.0 - 19.0	0.018	0.036	1.96	0.92 - 4.18
0.925-0.95	19.0 - 23.0	0.030	0.061	2.05	1.14 - 3.68
0.95-0.975	23.0 - 46.3	0.021	0.141	6.65	3.79 - 11.66
0.975-1.00	46.3 - ≥ 90.0	0.026	0.436	17.17	10.72 - 27.49

Supplemental data Table 10. ACPA test result-specific likelihood ratios determined for different compositions of the control population

Panel A. ACPA test result-specific likelihood ratios determined with healthy controls only

Thermo Fisher	Interval	Fraction of controls	Fraction of patients	LR	95% CI
ACPA					
< 0.9	< 3.5	0.905	0.307	0.34	0.29 - 0.40
0.9-0.975	3.5 - 4.7	0.070	0.038	0.54	0.27 - 1.09
0.975-0.99	4.7 - 14.0	0.015	0.030	2.01	0.57 - 7.04
0.99-0.998	14.0 - 75.6	0.005	0.113	22.61	3.14 - 162.85
0.998-1.00	75.6 - ≥340.0	0.005	0.512	102.51	14.48 - 725.88
Roche ACPA					
< 0.9	< LOQ	0.970	0.362	0.37	0.33 - 0.43
0.9-0.975	<LOQ - 7.1	0.005	0.000	0	na
0.975-0.99	7.1 - 62.0	0.015	0.048	3.18	0.95 - 10.63
0.99-0.998	62.0 - 136.7	0.005	0.098	19.60	2.71 - 141.61
0.998-1.00	136.7 - ≥500.0	0.005	0.492	98.49	13.91 - 697.55
Svar ACPA					
< 0.9	< LOQ	0.900	0.352	0.39	0.34 - 0.45
0.9-0.975	< LOQ	0.075	0.030	0.40	0.19 - 0.84
0.975-0.99	< LOQ - 49.7	0.015	0.023	1.51	0.41 - 5.51
0.99-0.998	49.7 - 93.1	0.005	0.042	8.54	1.15 - 63.73
0.998-1.00	93.1 - ≥3200.0	0.005	0.553	110.55	15.62 - 782.54
IDS ACPA					
< 0.9	< 1.9	0.905	0.279	0.31	0.26 - 0.36
0.9-0.975	1.9 - 4.2	0.070	0.085	1.22	0.67 - 2.22
0.975-0.99	4.2 - 10.6	0.015	0.028	1.84	0.52 - 6.53
0.99-0.998	10.6 - 22.2	0.005	0.050	10.05	1.36 - 74.35
0.998-1.00	22.2 - ≥320.0	0.005	0.558	111.56	15.76 - 789.62
Orgentec ACPA					
< 0.9	< 5.0	0.910	0.282	0.31	0.26 - 0.36
0.9-0.975	5.0 - 11.1	0.065	0.093	1.43	0.78 - 2.63
0.975-0.99	11.1 - 24.9	0.015	0.055	3.69	1.12 - 12.17
0.99-0.998	24.9 - 195.3	0.005	0.143	28.64	4.00 - 205.34
0.998-1.00	195.3 -≥1000.0	0.005	0.427	85.43	12.05 - 605.49
Abbott ACPA					
< 0.9	< 1.0	0.910	0.314	0.35	0.30 - 0.40
0.9-0.975	1.0 - 1.6	0.065	0.033	0.50	0.24 - 1.06
0.975-0.99	1.6 - 4.5	0.015	0.030	2.01	0.57 - 7.04
0.99-0.998	4.5 - 16.2	0.005	0.068	13.57	1.86 - 99.13
0.998-1.00	16.2 - ≥196.0	0.005	0.555	111.06	15.69 - 786.08
Euroimmun ACPA					
< 0.9	< 2.4	0.900	0.321	0.32	0.27 - 0.38
0.9-0.975	2.4 - 7.0	0.075	0.085	1.14	0.64 - 2.04
0.975-0.99	7.0 - 9.8	0.015	0.015	1.01	0.25 - 3.98
0.99-0.998	9.8 - 24.5	0.005	0.050	10.05	1.36 - 74.35
0.998-1.00	24.5 - ≥200.0	0.005	0.560	112.06	15.83 - 793.17
BioRad ACPA					
< 0.9	< 1.1	0.908	0.296	0.33	0.28 - 0.38
0.9-0.975	1.1 - 1.7	0.066	0.055	0.83	0.42 - 1.64
0.975-0.99	1.7 - 5.9	0.015	0.061	3.97	1.20 - 13.10
0.99-0.998	5.9 - 60.1	0.005	0.124	24.36	3.38 - 175.41
0.998-1.00	60.1 - ≥300.0	0.005	0.464	90.96	12.84 - 644.53
Siemens APCA					
< 0.9	< 1.3	0.898	0.287	0.32	0.27 - 0.38
0.9-0.975	1.3 - 2.1	0.077	0.053	0.69	0.36 - 1.32
0.975-0.99	2.1 - 3.8	0.015	0.008	0.54	0.11 - 2.66
0.99-0.998	3.8 - 20.7	0.005	0.069	13.54	1.85 - 99.14
0.998-1.00	20.7 - ≥200.0	0.005	0.583	114.24	16.14 - 808.54

Panel B. ACPA test result-specific likelihood ratios determined with rheumatologic consecutive disease controls only

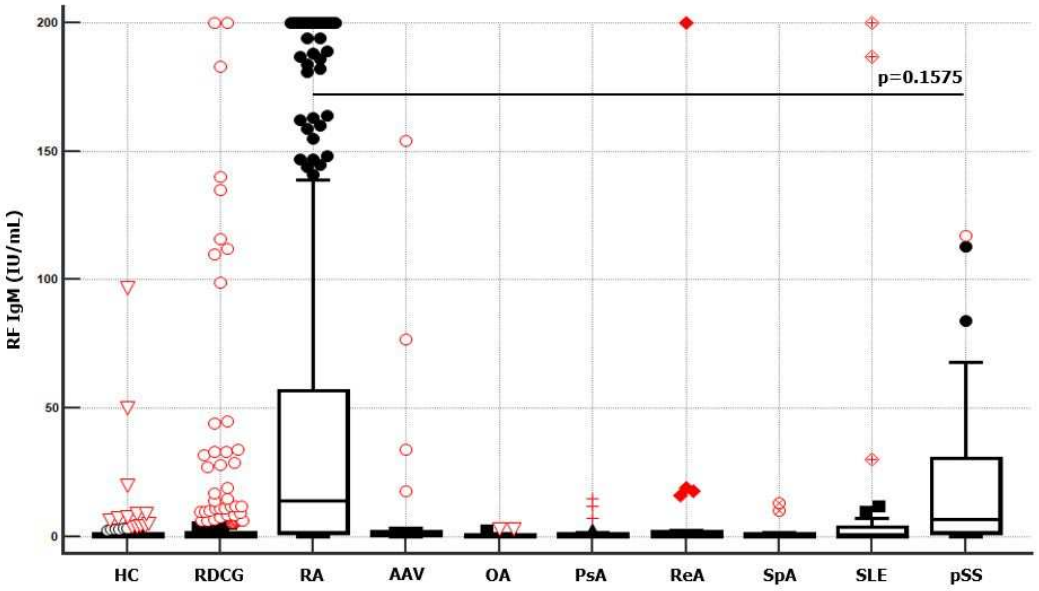
Thermo Fisher ACPA	Interval	Fraction of controls	Fraction of patients	LR	95% CI
< 0.9	< 3.2	0.904	0.291	0.32	0.28 - 0.38
0.9-0.975	3.2 - 7.5	0.070	0.060	0.86	0.53 - 1.39
0.975-0.99	7.5 - 35.3	0.015	0.073	4.78	2.36 - 9.70
0.99-0.998	35.3 - 219.0	0.008	0.221	29.01	11.88 - 70.81
0.998-1.00	219.0 - ≥340.0	0.003	0.354	116.20	28.93 - 466.59
Roche ACPA					
< 0.9	< LOQ	0.959	0.362	0.38	0.33 - 0.43
0.9-0.975	<LOQ - 15.3	0.015	0.013	0.82	0.28 - 2.39
0.975-0.99	15.3 - 52.5	0.015	0.025	1.65	0.69 - 3.93
0.99-1.00	52.5 - ≥500.0	0.011	0.600	56.28	26.82 - 118.09
Svar ACPA					
< 0.9	< LOQ	0.912	0.324	0.36	0.31 - 0.41
0.9-0.975	< LOQ	0.062	0.060	0.96	0.59 - 1.57
0.975-0.99	< LOQ - 116.9	0.015	0.088	5.77	2.89 - 11.52
0.99-0.998	116.9 - 446.1	0.008	0.289	37.91	15.62 - 92.01
0.998-1.00	446.1- ≥3200.0	0.003	0.239	78.29	25.11 - 418.69
IDS ACPA					
< 0.9	< 1.9	0.899	0.273	0.31	0.26 - 0.36
0.9-0.975	1.9 - 5.9	0.075	0.101	1.34	0.90 - 2.01
0.975-0.99	5.9 - 21.5	0.015	0.068	4.45	2.18 - 9.10
0.99-0.998	21.5 - 74.8	0.008	0.143	18.79	7.60 - 46.48
0.998-1.00	74.8 - ≥320.0	0.003	0.415	135.98	33.91 - 545.23
Orgentec ACPA					
< 0.9	< 5.6	0.902	0.309	0.34	0.30 - 0.40
0.9-0.975	5.6 - 10.4	0.073	0.060	0.82	0.51 - 1.32
0.975-0.99	10.4 - 24.4	0.014	0.060	4.40	2.06 - 9.36
0.99-0.998	24.4 – 338.0	0.008	0.186	24.39	9.95 - 59.82
0.998-1.00	338.0 -≥1000.0	0.003	0.384	126.09	31.43 - 505.91
Abbott ACPA					
< 0.9	< 0.9	0.912	0.307	0.34	0.29 - 0.39
0.9-0.975	0.9 - 2.9	0.062	0.050	0.80	0.48 - 1.35
0.975-0.99	2.9 - 29.0	0.015	0.143	9.39	4.85 - 18.18
0.99-0.998	29.0 - 103.0	0.008	0.166	21.76	8.84 - 53.54
0.998-1.00	103.0 - ≥196.0	0.003	0.334	109.61	27.28 - 440.38
Euroimmun ACPA					
< 0.9	< 2.9	0.899	0.317	0.35	0.27 - 0.36
0.9-0.975	2.9 - 9.0	0.075	0.070	0.94	0.60 - 1.47
0.975-0.99	9.0 – 27.9	0.015	0.068	4.45	2.18 - 9.10
0.99-0.998	27.9 – 107.0	0.008	0.198	26.04	10.64 – 63.75
0.998-1.00	107.0 - ≥200.0	0.003	0.347	113.73	28.32 - 456.76
BioRad ACPA					
< 0.9	< 1.5	0.909	0.334	0.37	0.32 - 0.43
0.9-0.975	1.5 - 2.6	0.067	0.055	0.82	0.49 - 1.38
0.975-0.99	2.6 - 20.5	0.013	0.066	4.92	2.24 - 10.84
0.99-0.998	20.5 - 293.3	0.007	0.199	29.54	10.88 - 80.15
0.998-1.00	293.3 - ≥300.0	0.003	0.345	102.56	25.52 - 412.08
Siemens APCA					
< 0.9	< 0.9	0.902	0.260	0.29	0.24 - 0.34
0.9-0.975	0.9 - 4.5	0.072	0.099	1.37	0.90 - 2.10
0.975-0.99	4.5 - 34.4	0.015	0.097	6,38	3.10 - 13.12
0.99-0.998	34.4 - 133.2	0.008	0.182	27.07	9.95 - 73.65
0.998-1.00	133.2 - ≥200.0	0.003	0.362	107.48	26.76 - 431.64

Panel C. ACPA test result-specific likelihood ratios determined with all control groups, excluding healthy controls, primary Sjögren's syndrome and systemic lupus erythematosus diseased control groups

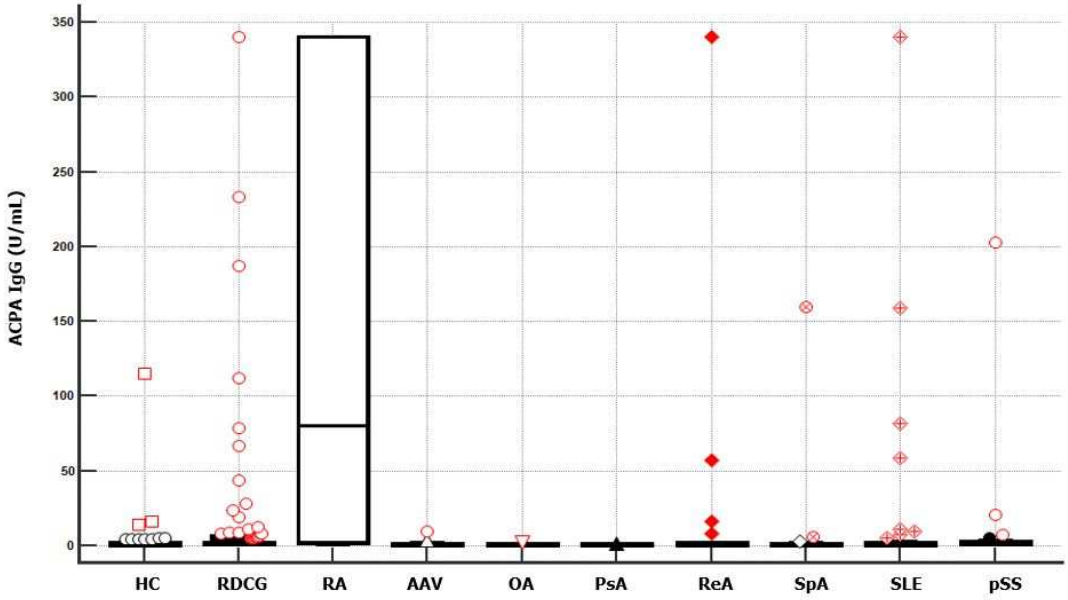
Thermo Fisher ACPA	Interval	Fraction of controls	Fraction of patients	LR	95% CI
< 0.9	< 3.1	0.902	0.289	0.32	0.27 - 0.37
0.9-0.975	3.1 - 8.4	0.072	0.070	0.97	0.63 - 1.51
0.975-0.99	8.4 - 59.6	0.015	0.105	6.82	3.63 - 12.80
0.99-0.998	59.6 - 281.0	0.008	0.209	26.94	11.87 - 61.14
0.998-1.00	281.0 - ≥340.0	0.003	0.327	126.57	31.49 - 508.81
Roche ACPA					
< 0.9	< LOQ	0.959	0.361	0.38	0.33 - 0.43
0.9-0.975	<LOQ - 17.7	0.015	0.013	0.81	0.29 - 2.29
0.975-0.99	17.7 - 191.9	0.015	0.166	10.71	5.86 - 19.58
0.99-1.00	191.9 - ≥500.0	0.011	0.460	44.54	22.17 - 89.48
Svar ACPA					
< 0.9	< LOQ	0.899	0.337	0.37	0.33 - 0.43
0.9-0.975	< LOQ	0.075	0.048	0.64	0.39 - 1.06
0.975-0.99	< LOQ - 147.4	0.015	0.115	7.46	4.00 - 13.93
0.99-0.998	147.4 - 429.5	0.008	0.254	32.78	14.51 - 74.03
0.998-1.00	429.5- ≥3200.0	0.003	0.246	95.41	23.65 - 384.90
IDS ACPA					
< 0.9	< 1.9	0.906	0.279	0.31	0.26 - 0.36
0.9-0.975	1.9 - 6.5	0.068	0.098	1.43	0.97 - 2.13
0.975-0.99	6.5 - 33.5	0.015	0.095	6.17	3.26 - 11.67
0.99-0.998	33.5 - 158.0	0.008	0.229	29.53	13.04 - 66.87
0.998-1.00	158.0 - ≥320.0	0.003	0.299	115.86	28.79 - 466.22
Orgentec ACPA					
< 0.9	< 5.7	0.899	0.309	0.34	0.30 - 0.40
0.9-0.975	5.7 - 10.7	0.075	0.060	0.80	0.51 - 1.28
0.975-0.99	10.7 - 46.0	0.015	0.106	6.82	3.63 - 12.80
0.99-0.998	46.0 - 336.1	0.008	0.141	18.17	7.90 - 41.81
0.998-1.00	336.1 -≥1000.0	0.003	0.384	148.96	37.12 - 597.88
Abbott ACPA					
< 0.9	< 0.9	0.899	0.297	0.33	0.28 - 0.38
0.9-0.975	0.9 - 4.0	0.075	0.073	0.97	0.63 - 1.45
0.975-0.99	4.0 - 43.6	0.015	0.173	11.20	6.14 - 20.42
0.99-0.998	43.6 - 167.6	0.008	0.191	24.66	10.84 - 56.13
0.998-1.00	167.6 - ≥196.0	0.003	0.266	103.20	25.61 - 415.88
Euroimmun ACPA					
< 0.9	< 2.9	0.899	0.316	0.35	0.30 - 0.41
0.9-0.975	2.9 - 9.1	0.075	0.070	0.94	0.61 - 1.45
0.975-0.99	9.1 - 32.4	0.015	0.090	5.84	3.07 - 11.10
0.99-0.998	32.4 - 149.7	0.008	0.239	30.83	13.63 - 69.73
0.998-1.00	149.7 - ≥200.0	0.003	0.234	110.02	27.32 – 442.98
BioRad ACPA					
< 0.9	< 1.5	0.914	0.334	0.37	0.32 - 0.42
0.9-0.975	1.5 - 3.2	0.061	0.058	0.96	0.58 - 1.59
0.975-0.99	3.2 - 93.4	0.014	0.163	11.54	5.98 - 22.29
0.99-1.00	93.4 - ≥300.0	0.011	0.445	39.36	19.57 - 79.15
Siemens APCA					
< 0.9	< 0.9	0.901	0.282	0.28	0.24 - 0.34
0.9-0.975	0.9 - 4.7	0.073	0.111	1.50	1.02 - 2.23
0.975-0.99	4.7 - 37.5	0.014	0.097	6.85	3.43 - 13.67
0.99-0.998	37.5 - 175.2	0.009	0.212	25.10	11.04 - 57.05
0.998-1.00	175.2 - ≥200.0	0.003	0.326	115.39	41.88 - 695.86

Supplemental data Figure 1. Results of serum RF IgM (A; TF RF IgM), ACPA IgG (B; TF ACPA) in rheumatoid arthritis (RA) patients and control groups (HC, healthy control; RDCG, rheumatological disease control group; AAV, ANCA associated vasculitis and arthritis; OA: osteoarthritis; PsA, psoriatic arthritis; ReA, reactive arthritis; SpA, spondyloarthritis, SLE, systemic lupus erythematosus; pSS, primary Sjögren's syndrome). Statistical comparison between RA and controls (Mann-Whitney test) is indicated for p >0.05. See Supplemental data Table 5 for further details. Values outside the 'upper outer fence' (=3rd quartile + 3 x inter-quartile range) are indicated in red. Results are shown for TF assays, but similar results were obtained for the other RF and ACPA assays included in the study.

Panel A.

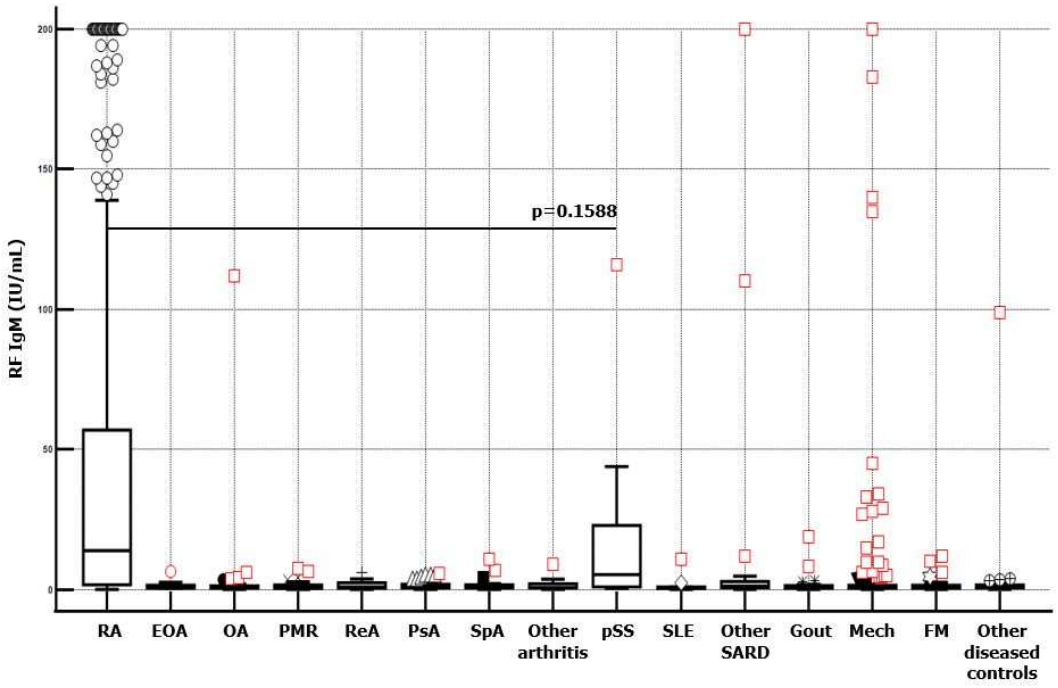


Panel B.

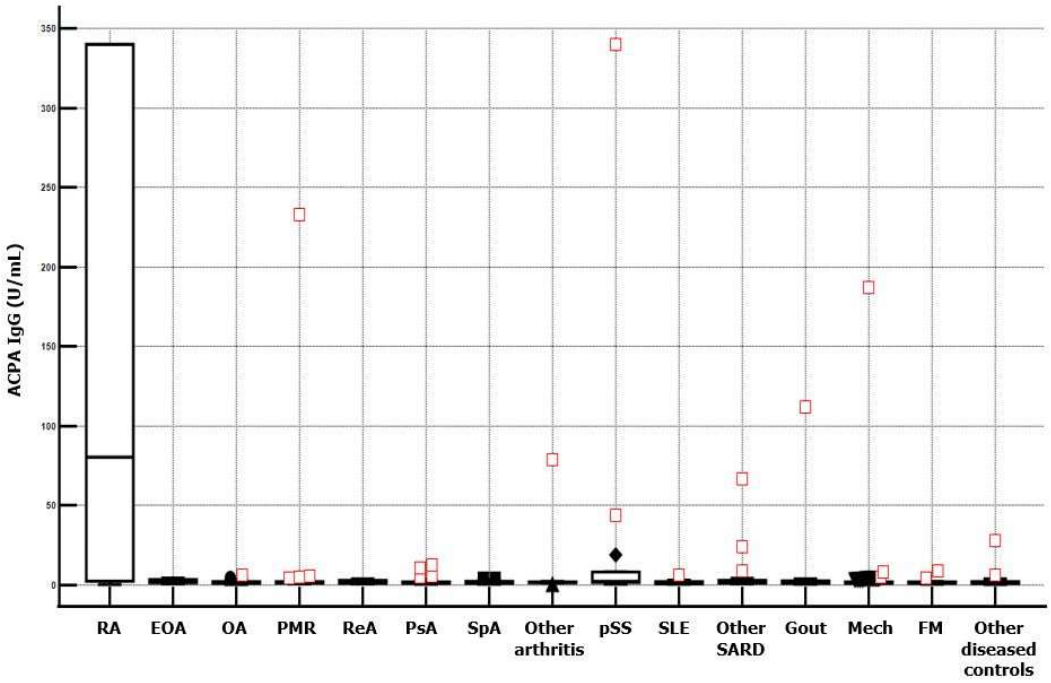

ACPA IgG (U/mL)
350
300
250
200
150
100
50
0
HC
RDCG
RA
AAV
OA
PsA
ReA
SpA
SLE
pSS

Supplemental data Figure 2. Results of serum RF IgM (A; TF RF IgM), ACPA IgG (B; TF ACPA) in rheumatoid arthritis (RA) patients, the total consecutive rheumatological disease control cohort (RDCG) and the RDCG subgroups (EOA, erosive hand osteoarthritis; OA: osteoarthritis; PMR, polymyalgia rheumatica; ReA, reactive arthritis; PsA, psoriatic arthritis; Other arthritis; pSS, primary Sjögren's syndrome; SLE, systemic lupus erythematosus; other systemic rheumatic diseases; Gout; Mech, mechanical pain; FM, fibromyalgia; other diseased controls). Statistical comparison between RA and controls (Mann-Whitney test) is indicated for p >0.05. See Supplemental data Table 6 for further details. Values outside the 'upper outer fence' (=3rd quartile + 3 x inter-quartile range) are indicated in red. Results are shown for TF assays, but similar results were obtained for the other RF and ACPA assays included in the study.

Panel A.



Panel B.


ACPA IgG (U/mL)
350
300
250
200
150
100
50
0
RA
EOA
OA
PMR
ReA
PsA
SpA
Other arthritis
pSS
SLE
Other SARD
Gout
Mech
FM
Other diseased controls