

**ONLINE SUPPLEMENTARY DATA**

**Supplementary Table 1.** Subject characteristics- RA validation cohort.

	RA (N=32)	Control (N=32)	P
Age, years	52 [35, 60]	53 [38, 58]	0.79
Race, #Caucasian	31 (97)	31 (97)	0.99
Sex, #female	23 (72)	24 (75)	0.78
Disease duration, years	8 [3, 14]	-	-
DAS28 score, units	2.80 [1.85, 4.59]	-	-
Tender joints, #	3 [0, 9]	-	-
Swollen joints, #	1 [0, 4]	-	-
ESR, mm/hr	12 [5, 19]	6 [3, 12]	0.02
hsCRP, mg/L	1.7 [0.6, 6.0]	1.4 [0.5, 2.5]	0.23
RF positive, #	15 (54)	-	-
CCP positive, #	10 (59)	-	-
Methotrexate, #	25 (78)	-	-
Leflunomide, #	0 (0)	-	-
Hydroxychloroquine, #	4 (13)	-	-
Corticosteroids, #	9 (28)	-	-
Anti-TNF, #	14 (44)	-	-
Abatacept, #	1 (3)	-	-
Tofactinib, #	1 (3)	-	-

Data are presented as median [interquartile range] and number (%). DAS28=disease activity based on 28 joints using erythrocyte sedimentation rate, ESR=erythrocyte sedimentation rate, hsCRP= high sensitivity C-reactive protein, RF= rheumatoid factor (data available on 28 patients with RA). CCP= anti-cyclic citrullinated peptide antibody (data available on 17 patients with RA).

**Supplementary Table 2.** Subject characteristics- SLE validation cohort

	SLE (N=12)
Age, years	45 [39, 58]
Race, # Caucasian	12 (100)
Sex, # female	7 (58)
Disease duration, years	8 [4, 16]
ESR, mm/hr	33 [28, 49]
hsCRP, mg/L	3.7 [1.1, 6.9]
SLEDAI, score	4 [0, 6]
SLICC, score	1 [0, 3]
Musculoskeletal, #	11 [92]
Mucocutaneous, #	11(92)
Hematological, #	4 (33)
Renal, #	1 (8)
Methotrexate, #	1 (8)
Hydroxychloroquine, #	7 (58)
Mycophenolate, #	1 (8)
Azathioprine, #	2 (17)
Cyclophosphomide, #	0 (0)
Corticosteroids, #	6 (50)

Data are presented as median [interquartile range] and number (%). ESR=erythrocyte sedimentation rate, hsCRP= high sensitivity C-reactive protein, SLEDAI= Systemic Lupus Erythematosus Disease Activity Index, SLICC=Systemic Lupus International Collaborating Clinics/ American College of Rheumatology Damage Index. Disease manifestations are counted if ever present. Drugs refer to current use.

**Supplementary Figure 1.** RA panel miRNAs can target RA-specific pathways. Using Ingenuity Pathway Analysis of experimentally validated or highly predicted targets of the panel miRNAs, one of the top related canonical pathways was “role of osteoblasts, osteoclasts and chondrocytes in RA”.

