

Supplementary table 1.

	Healthy control	Non-renal SLE	Renal SLE	P value
<i>Discovery cohort</i>				
No. of patients	309	206	70	
Age (mean $\pm$ SD, years)	45.40 $\pm$ 12.6	45.58 $\pm$ 13.7	44.57 $\pm$ 12.68	0.5115
Female sex (n, %)	309 (100%)	206 (100%)	70 (100%)	
Ethnic origin (n, %)				*, 0.023
<i>Caucasian/White</i>	306 (99 %)	199 (97.1 %)	63 (90 %)	
<i>Black/African American</i>	0 (0%)	3 (1.5 %)	1 (1.4%)	
<i>Asian</i>	1 (0.3 %)	1 (0.5 %)	3 (4.3 %)	
<i>Other</i>	2 (0.6%)	2 (1 %)	3 (4.3 %)	
Obesity (n, %)	24 (7.8%)	10 (4.9%)	5 (7.1%)	0.5873
Smoking (n, %)	47 (15.2%)	41 (20%)	15 (21.4%)	0.4668
Disease duration (mean $\pm$ SD, years)	N/A	14.03 $\pm$ 10.26	17.7 $\pm$ 9.48	**; 0.002
Medications (n, %)				
<i>Steroid usage</i>	N/A	106 (51.7%)	45 (64.28%)	0.0746
<i>Antimalarials</i>	N/A	144 (70.24%)	44 (62.85 %)	0.2913
<i>Immunosuppressants</i>	N/A	57 (27.8%)	39 (55.7%)	***, 0.0001
<i>Biologicals</i>	N/A	0 (0%)	0 (0%)	>0.999
SLEDAI (mean $\pm$ SD, score)	N/A	5.02 $\pm$ 6.38	5.27 $\pm$ 6.18	0.8989
Organ involvement (n; %)				
<i>Muscle-Skeletal</i>	N/A	32 (15.5%)	9 (12.8%)	0.6794
<i>Kidney</i>	N/A	0 (0%)	70 (100%)	****, <0.0001
<i>Skin and Mucosa</i>	N/A	119 (57.77%)	41 (58.57%)	0.999
<i>Heart</i>	N/A	53 (25.73%)	37 (52.85%)	***, 0.0001
<i>Lung</i>	N/A	10 (4.85%)	5 (7.14%)	0.5370
<i>Gastrointestinal</i>	N/A	37 (17.9%)	16 (22.8%)	0.4751
<i>Nervous system</i>	N/A	7 (3.4 %)	4 (5.7 %)	0.4869
<i>Vascular</i>	N/A	94 (45.6%)	41 (58.57%)	0.0876
Serological profile				
<i>Low C3 (n, %)</i>	N/A	66 (32.04%)	20 (28.57%)	0.6429
<i>Low C4 (n, %)</i>	N/A	43 (20.87%)	14 (20%)	0.999
<i>Anti-dsDNA (mean $\pm$ SD)*</i>	1.5 $\pm$ 4.75	49.04 $\pm$ 98.16	117.4 $\pm$ 188.9	****, <0.0001
<i>Anti-Chromatin (mean $\pm$ SD)*</i>	16.2 $\pm$ 34.7	215.6 $\pm$ 247.3	267.8 $\pm$ 271.5	****, <0.0001
<i>Anti-ENA (mean $\pm$ SD)*</i>	0.26 $\pm$ 0.42	4.33 $\pm$ 5.94	2.51 $\pm$ 3.92	****, <0.0001
<i>Anti-SM (mean $\pm$ SD)*</i>	0 $\pm$ 0	6.14 $\pm$ 37.9	4.32 $\pm$ 15.9	****, <0.0001
<i>Anti-SSA (mean $\pm$ SD)*</i>	2.83 $\pm$ 40.5	156 $\pm$ 249.3	95.5 $\pm$ 201.9	****, <0.0001
<i>Anti-SSA_52 (mean $\pm$ SD)*</i>	0.26 $\pm$ 4.2	119.3 $\pm$ 229.6	63.5 $\pm$ 167.7	****, <0.0001
<i>Anti-SSA_60 (mean $\pm$ SD)*</i>	2.56 $\pm$ 40.4	140.3 $\pm$ 247.5	105.5 $\pm$ 216	****, <0.0001
<i>Anti-SSB (mean $\pm$ SD)*</i>	0.002 $\pm$ 0.03	30.7 $\pm$ 125.3	3.24 $\pm$ 17.8	****, <0.0001
<i>Anti-U1_RNP (mean $\pm$ SD)*</i>	0.22 $\pm$ 1.68	13.67 $\pm$ 41.68	3.39 $\pm$ 7.64	****, <0.0001
<i>Validation cohort</i>				
No. of patients	30	30	30	
Age (mean $\pm$ SD, years)	48.69 $\pm$ 10.8	42.58 $\pm$ 14.7	41.96 $\pm$ 15.3	0.06
Female sex (n, %)	30 (100%)	30 (100%)	30 (100%)	
Ethnic origin (n, %)				*, 0.0156

<i>Caucasian/White</i>	29 (96.7%)	29 (96.7%)	27 (90%)	
<i>Black/African American</i>	0 (0%)	0 (0%)	2 (6.7%)	
<i>Asian</i>	0 (0%)	0 (0%)	0 (0%)	
<i>Other</i>	1 (3.3%)	1 (3.3%)	1 (3.3%)	
Obesity (n, %)	3 (10%)	4 (13.3%)	2 (6.7%)	0.2436
Smoking (n, %)	5 (16.7%)	6 (20%)	3 (10%)	0.1416
Disease duration (mean $\pm$ SD, years)	NA	11.8 $\pm$ 13.7	30.3 $\pm$ 30.4	**; 0.0024
Medications (n, %) [†]				
<i>Steroid usage</i>	NA	11 (36.7%)	9 (30%)	0.3404
<i>Antimalarials</i>	NA	24 (80%)	11 (67.7%)	0.1412
<i>Immunosuppressants</i>	NA	7 (23.3%)	10 (58%)	****; <0.0001
<i>Biologicals</i>	NA	0 (0%)	0 (0%)	>0.999
SLEDAI (mean $\pm$ SD, score)	NA	17.8 $\pm$ 12.8	21.1 $\pm$ 16.6	0.7824
Organ involvement (n; %)				
<i>Muscle-Skeletal</i>	NA	7 (23.3%)	4 (13.36%)	0.0963
<i>Kidney</i>	NA	0 (0%)	30 (100%)	****; <0.0001
<i>Skin and Mucosa</i>	NA	20 (66.7%)	16 (53.3%)	0.0813
<i>Heart</i>	NA	4 (13.3%)	13 (43.3%)	****; <0.0001
<i>Lung</i>	NA	3 (10%)	2 (6.67%)	0.4353
<i>Gastrointestinal</i>	NA	6 (20%)	6 (20%)	>0.999
<i>Nervous system</i>	NA	1 (3.3%)	0 (0%)	0.2462
<i>Vascular</i>	NA	15 (50%)	14 (46.7%)	0.6712
Serological profile				
<i>Anti-dsDNA</i> (mean $\pm$ SD)	NA	69.87 $\pm$ 157.8	73 $\pm$ 92.3	0.6325
<i>Low C3</i> (n, %)	NA	4 (13.3%)	4 (13.3%)	>0.999
<i>Low C4</i> (n, %)	NA	3 (10%)	2 (6.7%)	0.4353

* No significant (ns) differences between non-renal and renal SLE patients (Kruskal-Wallis test)

[†] Data were missing from 10 renal SLE patients.

Supplementary Table 2.

Gene name	KO number	Primer forward (sense)	Primer reverse (antisense)
ilvC	K00053	AAT TGT ACG AAG CAG AAA TCG C	GGT CCT TTA GGA GCA CAC AT
leuC	K01703	TGA TGA GCG AGC CTA CAA TTA	TGC AAG TCA CTG AGA CGA G
ilvA	K01754	GGG ATT GAT TTC TGA AAC CTT G	TCC TCC AGA AAT GAT ACA ACA A
ilvH	K01653	TAC GGA TAA ACC ACA CTT GGA G	GTT GCA CGG AAA GGT TGA ATA A
ilvD	K01687	TCG TTG ATG GCG ATG TAG TC	ACC TTG TCT CCT TGA CCT TTA C
LeuDH	K00263	CTC GCC ACC AAG GAA GAT G	TTC TAG GCC GAC ATT GAT GAT G
pimC	K14335	ACT CGG TCG TGG CTA TCT	CCG GAT CTC GGC AAC TAT C
sco1	K07152	CAA TAT GTC CCG GCC TTC C	CCA TCG GCC TTG CGA TAA TA
selA	K01042	GAT GCC CTG GTC GTC AAT AA	AAA GAC CCG CCG ATT TCA
ABC.CD.A	K02003	GCC TAA TCT AAC AGT CAG ACA GAA	CCA AGT CCC AAA TCC TCG ATA A
ABCB-BAC	K06147	CCT CAT CAG CAG TTA TTT GAA GG	CTG TAT TAA CTG ACC CAC TCC A
transposase	K07483	TAT CAT GAA CAT CGG GAA CTC G	GCA TTT CGC CAT TGT CCT TC
ABC.CD.P	K02004	AGT CGA GAC TTG GTG ATT GG	GTC ATA GAA ACA CGA GAT TCT TTC TG
cysK	K01738	TGG TAG CGA AGG AAT GAA AGG	GTG TAC TTC TGG ATT AGC TGG ATT
lldG	K00782	AAG AAA TCG GCG CTG TAG AC	GCC ATA ATC GGC TTC GGT AA
16S		AAA CTC AAA KGA ATT GAC GGG G	GGG TTG CGC TCG TTR YGG