

Supplementary file

Supplementary Table S1. The minor allele frequency (MAF) of seven chosen SNPs: IL-1 β (rs16944, rs1143634), IL-10 (rs1800872, rs1800896) and TNF- α (rs1800629, rs361525, rs1800610).

SNP ID	Allele	SNP type	MAF		
			1000Genomes – EU	Controls	SLE
IL-1 β -511 rs16944	A>G	Single Nucleotide Variation	0.35	0.12	0.33
IL-1 β +3953 rs1143634	G>A	Single Nucleotide Variation	0.25	0.08	0.14
IL-10 -592 rs1800872	T>G	Single Nucleotide Variation	0.24	0.10	0.15
IL-10 -1082 rs1800896	T>C	Single Nucleotide Variation	0.45	0.27	0.21
TNF- α -308 rs1800629	G>A	Single Nucleotide Variation	0.13	0.11	0.07
TNF- α -238 rs361525	G>A	Single Nucleotide Variation	0.06	0.01	0.02
TNF- α +489 rs1800610	G>A	Single Nucleotide Variation	0.09	0.08	0.09

Supplementary Table S2. The Hardy-Weinberg Equilibrium (HWE) for seven chosen SNPs: IL-1 β -511, IL-1 β +3953, IL-10 -592, IL-10 -1082, TNF- α -308, TNF- α -238, and TNF- α +489 in SLE patients and healthy controls.

Genotypes	Homozygote reference		Heterozygote		Homozygote variant		Var allele freq		χ^2		χ^2 p-value	
	SLE	Controls	SLE	Controls	SLE	Controls	SLE	Controls	SLE	Controls	SLE	Controls
IL-1 β -511	102	74	103	28	25	11	0.333	0.221	0.017	8.917	0.895	0.003
IL-1 β +3953	43	85	32	24	3	4	0.244	0.142	1.001	1.802	0.317	0.179
IL-10 -592	114	243	83	102	14	16	0.263	0.186	0.045	1.541	0.832	0.214
IL-10 -1082	53	118	36	148	20	71	0.349	0.430	8.111	3.662	0.004	0.056
TNF- α -308	149	218	40	102	4	17	0.124	0.202	0.451	1.230	0.502	0.267
TNF- α -238	188	323	12	15	1	0	0.035	0.022	2.518	0.174	0.113	0.677
TNF- α +489	132	226	49	83	5	2	0.159	0.140	0.031	3.706	0.860	0.054

Supplementary Table S3. The disease activity and laboratory parameters in relation to IL-1 β +3953 C/T, dominant model.

Parameter	IL-1 β +3953 CC		IL-1 β +3953 CT+TT		<i>p</i> -value*
	Mean $\pm$ SD (median)				
Age [years]	35	(21 - 76)	44.5	(29 - 72)	0.131
Disease duration [years]	7	(1 - 43)	7.5	(0 - 30)	0.786
SELENA_SLEDAI	4	(0 - 18)	5.5	(0 - 16)	0.508
SLICC	1	(0 - 5)	1	(0 - 4)	0.238
APTT	34	(24.1 - 127)	29.7	(21.3 - 53)	0.064
ESR [mm/h]	46	(7 - 114)	29	(5 - 80)	0.115
CRP [mg/L]	11.5	(2 - 395)	8	(1 - 58)	0.307
Haemoglobin [g/dL]	11.60 $\pm$ 2.29		14.44 $\pm$ 2.02		0.182
Pt	11.4	(8.7 - 34)	10.7	(8.6 - 80)	0.449
INR	1.005	(0.7 - 3.3)	1	(0.8 - 5.4)	0.547
Urea	35	(16.7 - 296)	34.5	(20 - 62)	0.809
PLT [$\times 10^3/\text{mm}^3$]	202	(38 - 598)	228	(50 - 387)	0.603
Creatinine	0.8	(0.5 - 1.5)	0.8	(0.5 - 1.39)	0.689
C4	11.9	(3.09 - 31)	13.6	(4.67 - 102)	0.115
ALT [U/L]	48	(1 - 317)	30	(16 - 298)	0.259
AST [U/L]	31.5	(20 - 850)	27	(14 - 167)	0.346
Alkaline phosphatase	63.5	(33 - 316)	65	(40 - 107)	0.949
	N	n (%)	N	n (%)	<i>p</i> -value**
anti-SSA	35	22 (62.85)	21	13 (61.9)	0.831
anti-SSB	34	17 (50)	19	6 (31.57)	0.313
anti-SM	34	4 (11.76)	18	1 (5.55)	0.819
anti-Rib	34	6 (17.64)	19	4 (21.05)	0.950
anti-Jo	34	4 (11.76)	17	0 (0)	0.288
anti-Scl70	34	10 (29.41)	17	5 (29.41)	0.744
anti-CEN	34	1 (2.94)	18	0 (0)	1.000
anti-U1RNP	34	1 (2.94)	18	1 (5.55)	0.771
anti-IgM	33	8 (24.24)	17	4 (23.52)	0.769
anti-IgG	32	2 (6.25)	21	4 (19.04)	0.320
LAC	33	10 (30.3)	21	6 (28.57)	0.865
Sjögren's syndrome	33	10 (30.3)	21	6 (28.57)	0.865
Facial erythema	35	8 (22.85)	22	2 (9.09)	0.331
Arthritis	35	17 (48.57)	22	13 (59.09)	0.616
Lung fibrosis	35	23 (65.71)	22	10 (45.45)	0.218
Leucopenia	35	2 (5.71)	22	1 (4.54)	0.677
APS	30	7 (23.33)	19	4 (21.05)	0.869

N: number of patients with clinical information; n: number of patients with positive clinical manifestation. *p** Mann-Whitney U-test; *p*** χ^2 test; when expected values were less than 10 and sample size greater than 40 or expected values greater than 5- the Chi-squared test with Yates' correction was used; when sample size was lower than 40- Fisher's exact test was used; *p*<0.05 was considered significant.

Supplementary Table S4. The disease activity and laboratory parameters in relation to IL-10 -592 C/A, dominant model.

Parameter	IL-10 -592 CC		IL-10 -592 CA+AA		<i>p</i> -value*
	Mean $\pm$ SD (median)				
Age [years]	49.5	(21 - 72)	40	(21 - 87)	0.474
Disease duration [years]	8	(0 - 43)	8.5	(1 - 30)	0.883
SELENA_SLEDAI	5	(0 - 18)	8	(0 - 26)	0.497
SLICC	2	(0 - 5)	1	(0 - 4)	0.498
APTT	32	(24 - 53)	29.9	(21.3 - 127)	0.372
ESR-OB [mm/h]	29	(7 - 86)	25.5	(5 - 114)	0.991
CRP [mg/L]	13	(4 - 202)	8	(1 - 395)	0.131
Haemoglobin [g/dL]	12.7	(8.3 - 16)	12.15	(4.9 - 13.9)	0.451
Pt	11.35	(8.7 - 80)	10.7	(9.2 - 100)	0.314
INR	1.025	(0.7 - 5.4)	0.99	(0.8 - 3.3)	0.356
Urea	35	(18 - 296)	37	(16.7 - 78)	0.880
PLT [$\times 10^3/\text{mm}^3$]	209	(50 - 598)	241	(38 - 405)	0.533
Creatinine	0.8	(0.5 - 1.39)	0.8	(0.6 - 1.4)	0.971
C3	66.5	(36.6 - 153)	80	(33 - 127)	0.334
C4	11.9	(3.09 - 21.6)	14.2	(3.8 - 102)	0.065
ALT [U/L]	44	(1 - 298)	28.5	(9 - 79)	0.233
AST [U/L]	34	(14 - 167)	26	(16 - 77)	0.077
Alkaline phosphatase	65	(37 - 187)	66	(33 - 316)	0.744
	N	n (%)	N	n (%)	<i>p</i> -value**
anti-dsDNA	34	27 (79.41)	30	21 (70)	0.563
SSA	25	9 (36)	21	7 (33.33)	0.903
SSB	24	1 (4.16)	21	2 (9.52)	0.905
anti-SM	28	5 (17.85)	22	6 (27.27)	0.650
anti-Rib	24	3 (12.5)	20	1 (5)	0.738
anti-histone	24	7 (29.16)	20	5 (25)	0.975
anti-Scl70	28	4 (14.28)	27	7 (25.92)	0.458
anti-CEN	25	2 (8)	20	0 (0)	0.495
anti-U1RNP	26	7 (26.92)	25	8 (32)	0.928
aCLIgM	27	2 (7.4)	20	1 (5)	0.787
aCLIgG	27	9 (33.33)	21	4 (19.04)	0.437
LAC	27	7 (25.92)	21	5 (23.8)	0.867
Sjogren's syndrome	28	7 (25)	22	1 (4.54)	0.116
Facial erythema	28	15 (53.57)	22	16 (72.72)	0.275
Arthritis	31	19 (61.29)	24	15 (62.5)	0.851
Lung fibrosis	28	2 (7.14)	22	1 (4.54)	0.829
Leucopenia	28	9 (32.14)	22	6 (27.27)	0.950
APS	23	5 (21.73)	16	2 (12.5)	0.752

N: number of patients with clinical information; n: number of patients with positive clinical manifestation. *p** Mann-Whitney U-test; *p*** χ^2 test; when expected values were less than 10 and sample size greater than 40 or expected values greater than 5- the Chi-squared test with Yates' correction was used; when sample size was lower than 40- Fisher's exact test was used; *p*<0.05 was considered significant.

Supplementary Table S5. The disease activity and laboratory parameters in relation to IL-10 -1082 A/G, dominant model.

Parameter	IL-10 -1082 AA		IL-10 -1082 AG+GG		<i>p</i> -value*
	Mean $\pm$ SD (median)				
Age [years]	40	(21 - 87)	42	(26 - 72)	0.959
Disease duration [years]	10	(0 - 43)	16	(1 - 30)	0.507
SELENA_SLEDAI	3	(0 - 18)	6	(0 - 14)	0.862
SLICC	2	(0 - 5)	2	(0 - 3)	0.510
APTT	30.3	(21.3 - 45.9)	35	(24 - 53)	0.073
ESR-OB [mm/h]	33.5	(7 - 86)	26	(7 - 88)	0.678
CRP [mg/L]	11.5	(2 - 202)	15	(5 - 262)	0.739
Hemoglobin [g/dL]	12.15	(8.3 - 16)	13.3	(4.9 - 14.1)	0.912
Pt	10.7	(8.7 - 80)	12	(10 - 29)	0.234
INR	1	(0.7 - 5.4)	1.1	(0.9 - 2.8)	0.320
Urea	36	(18 - 296)	28	(20 - 78)	0.505
PLT [$\times 10^3/\text{mm}^3$]	231	(50 - 598)	161	(111 - 596)	0.142
Creatinine	0.8	(0.6 - 1.39)	0.7	(0.5 - 1.3)	0.383
C3	80	(36.6 - 153)	65	(34 - 84)	0.182
ALT [U/L]	38	(1 - 92)	28	(16 - 79)	0.894
AST [U/L]	32.5	(14 - 62)	32	(25 - 77)	0.438
Alkaline phosphatase	67.5	(37 - 107)	60	(40 - 316)	0.478
	N	n (%)	N	n (%)	<i>p</i> -value**
anti-dsDNA	25	19 (76)	16	14 (87.5)	0.615
SSA	20	6 (30)	7	1 (14.28)	0.633
SSB	19	1 (5.26)	7	0 (0)	1.000
anti-SM	23	6 (26.08)	9	2 (22.22)	1.000
anti-Rib	19	2 (10.52)	7	0 (0)	1.000
anti-histone	19	4 (21.05)	7	3 (42.85)	0.340
anti-Scl70	24	4 (16.66)	12	6 (50)	0.053
anti-CEN	20	2 (10)	7	0 (0)	1.000
anti-U1RNP	22	7 (31.81)	12	5 (41.66)	0.711
aCLIgM	21	2 (9.52)	7	0 (0)	1.000
aCLIgG	22	4 (18.18)	7	4 (57.14)	0.067
LAC	22	4 (18.18)	7	2 (28.57)	0.612
Sjogren's syndrome	23	5 (21.73)	7	0 (0)	0.304
Facial erythema	23	11 (47.82)	7	4 (57.14)	1.000
Arthritis	24	11 (45.83)	10	8 (80)	0.128
Lung fibrosis	23	1 (4.34)	7	1 (14.28)	0.418
Leucopenia	23	10 (43.47)	7	1 (14.28)	0.215
APS	16	2 (12.5)	7	2 (28.57)	0.557

N: number of patients with clinical information; n: number of patients with positive clinical manifestation. *p** Mann-Whitney U-test; *p*** χ^2 test; when expected values were less than 10 and sample size greater than 40 or expected values greater than 5- the Chi-squared test with Yates' correction was used; when sample size was lower than 40- Fisher's exact test was used; *p*<0.05 was considered significant.

Supplementary Table S6. The disease activity and laboratory parameters in relation to TNF- α -308 G/A, dominant model.

Parameter	TNF- α -308 GG	TNF- α -308 GA+AA	<i>p</i> -value*
Mean $\pm$ SD (median)			
Age [years]	39 (21 - 77)	43 (28 - 87)	0.749
Disease duration [years]	8 (0 - 43)	2.5 (1 - 30)	0.525
SELENA_SLEDAI	4 (0 - 26)	5 (0 - 10)	0.672
SLICC	1 (0 - 5)	0.5 (0 - 3)	0.515
APTT	32 (23.7 - 78.4)	30.8 (27.5 - 127)	0.560
ESR-OB [mm/h]	30.5 (5 - 114)	61 (14 - 70)	0.178
CRP [mg/L]	10 (1 - 395)	22.5 (4 - 163)	0.310
Haemoglobin [g/dL]	12.3 (4.9 - 16)	11.6 (9.4 - 15.3)	0.888
Pt	10.95 (8.6 - 100)	11.4 (10 - 34)	0.446
INR	1 (0.7 - 5.4)	1 (0.9 - 3.3)	0.266
Urea	35.7 (16.7 - 296)	32 (23 - 38)	0.262
PLT [$\times 10^3/\text{mm}^3$]	221.5 (38 - 596)	238 (95 - 598)	0.393
Creatinine	0.8 (0.5 - 1.5)	0.75 (0.6 - 0.9)	0.119
C3	68.5 (33 - 162)	85 (37.8 - 119)	0.152
C4	12.1 (3.1 - 102)	14.55 (3.09 - 21)	0.385
ALT [U/L]	31 (1 - 317)	43.5 (24 - 70)	0.455
AST [U/L]	28 (14 - 850)	29.5 (20 - 54)	0.972
Alkaline phosphatase	63 (33 - 316)	79 (55 - 103)	0.105
	N: number of patients with clinical information	n (%): number of patients with positive clinical manifestation	<i>N</i> <i>n</i> (%) <i>p</i> -value**
anti-dsDNA	64	44 (68.75)	11 7 (63.63) 0.989
SSA	47	18 (38.29)	8 6 (75) 0.121
SSB	47	5 (10.63)	8 0 (0) 1.000
anti-SM	51	13 (25.49)	8 1 (12.5) 0.666
anti-Rib	46	3 (6.52)	8 1 (12.5) 0.892
anti-histone	46	13 (28.26)	8 1 (12.5) 0.616
anti-Scl70	53	7 (13.2)	10 2 (20) 0.944
anti-CEN	47	2 (4.25)	8 0 (0) 1.000
anti-U1RNP	51	17 (33.33)	10 4 (40) 0.967
aCLIgM	47	6 (12.76)	8 0 (0) 0.577
aCLIgG	48	16 (33.33)	8 1 (12.5) 0.441
LAC	47	12 (25.53)	8 3 (37.5) 0.785
Sjogren's syndrome	51	9 (17.64)	8 1 (12.5) 0.884
Facial erythema	51	29 (56.86)	8 5 (62.5) 0.932
Arthritis	54	31 (57.4)	9 7 (77.77) 0.430
Lung fibrosis	51	3 (5.88)	8 0 (0) 1.000
Leucopenia	51	16 (31.37)	8 4 (50) 0.527
APS	40	9 (22.5)	8 2 (25) 0.759

N: number of patients with clinical information; n: number of patients with positive clinical manifestation. *p** Mann-Whitney U-test; *p*** χ^2 test; when expected values were less than 10 and sample size greater than 40 or expected values greater than 5- the Chi-squared test with Yates' correction was used; when sample size was lower than 40- Fisher's exact test was used; *p*<0.05 was considered significant.

Supplementary Table S7. The disease activity and laboratory parameters in relation to TNF- α -238 G/A, dominant model

Parameter	TNF- α -238 GG		TNF- α -238 GA+AA		<i>p</i> -value*
Mean $\pm$ SD (median)					
Age [years]	40	(21 - 87)	54	(35 - 76)	0.256
Disease duration [years]	7	(0 - 43)	12	(10 - 14)	0.643
SELENA_SLEDAI	4	(0 - 24)	13	(0 - 26)	0.866
APTT	32	(23.7 - 127)			
ESR-OB [mm/h]	41	(5 - 114)	36.5	(24 - 49)	0.877
CRP [mg/L]	11	(1 - 395)	19	(8 - 30)	0.605
Hemoglobin [g/dL]	12.2	(4.9 - 16)	11.35	(10 - 12.7)	0.643
Pt	11.1	(8.6 - 100)			
INR	1	(0.7 - 5.4)			
Urea	34.5	(16.7 - 296)	40.95	(40.9 - 41)	0.314
PLT [$\times 10^3/\text{mm}^3$]	223.5	(38 - 598)	265.5	(189 - 342)	0.741
Creatinine	0.8	(0.5 - 1.5)	0.89	(0.8 - 0.98)	0.391
C3	70.4	(33 - 162)	88	(49 - 127)	0.686
C4	12.2	(3.09 - 102)	21.5	(12 - 31)	0.332
ALT [U/L]	35	(1 - 317)	36	(19 - 53)	0.696
AST [U/L]	28	(14 - 850)	37	(16 - 58)	0.791
Alkaline phosphatase	65	(33 - 316)	70	(70 - 70)	1.000
	N: number of patients with clinical information	n (%): number of patients with positive clinical manifestation	N	n (%)	<i>p</i> -value**
anti-dsDNA	73	50 (68.49)	4	3 (75)	0.779
SSA	53	24 (45.28)	2	0 (0)	0.499
SSB	53	5 (9.43)	2	0 (0)	1.000
anti-SM	58	15 (25.86)	2	0 (0)	1.000
anti-Rib	52	4 (7.69)	2	0 (0)	1.000
anti-histone	52	14 (26.92)	2	0 (0)	1.000
anti-Scl70	62	10 (16.12)	2	0 (0)	1.000
anti-CEN	53	2 (3.77)	2	0 (0)	1.000
anti-U1RNP	59	21 (35.59)	4	2 (50)	0.966
aCLIgM	54	6 (11.11)	1	0 (0)	1.000
aCLIgG	54	16 (29.62)	2	1 (50)	0.867
LAC	53	15 (28.3)	2	0 (0)	1.000
Sjogren's syndrome	57	10 (17.54)	2	0 (0)	1.000
Facial erythema	57	33 (57.89)	2	1 (50)	0.613
Arthritis	62	38 (61.29)	3	2 (66.66)	0.674
Lung fibrosis	57	3 (5.26)	2	0 (0)	1.000
Leucopenia	57	20 (35.08)	2	0 (0)	0.544
APS	48	11 (22.91)	0	0 (0)	-

N: number of patients with clinical information; n: number of patients with positive clinical manifestation. *p** Mann-Whitney U-test; *p*** χ^2 test; when expected values were less than 10 and sample size greater than 40 or expected values greater than 5- the Chi-squared test with Yates' correction was used; when sample size was lower than 40- Fisher's exact test was used; *p*<0.05 was considered significant.

Table S8. The disease activity and laboratory parameters in relation to TNF- α +489 C/T, dominant model.

Parameter	TNF- α +489 CC	TNF- α +489 CT+TT	<i>p</i> -value*		
Mean $\pm$ SD (median)					
Age [years]	49 (21 - 77)	37 (21 - 87)	0.113		
Disease duration [years]	12 (0 - 43)	2.5 (1 - 20)	0.057		
SELENA_SLEDAI	4 (0 - 26)	5 (0 - 18)	0.890		
SLICC	1 (0 - 5)	0.5 (0 - 3)	0.422		
APTT	32 (24 - 127)	30.25 (23.7 - 40)	0.377		
ESR-OB [mm/h]	41 (7 - 114)	39 (5 - 114)	0.876		
CRP [mg/L]	11.5 (1 - 395)	8 (3 - 63)	0.797		
Hemoglobin [g/dL]	11.56 $\pm$ 2.33	12.77 $\pm$ 1.53	0.053		
Urea	35 (16.7 - 296)	34 (18 - 52)	0.439		
PLT [$\times 10^3/\text{mm}^3$]	222.75 $\pm$ 102.64	282.56 $\pm$ 133.37	0.074		
Creatinine	0.8 (0.5 - 1.4)	0.8 (0.5 - 1.5)	0.794		
C3	74.05 (33 - 153)	70.5 (39 - 162)	0.879		
C4	13.15 (3.09 - 102)	11.9 (3.9 - 31)	0.925		
ALT [U/L]	30 (1 - 92)	41 (15 - 317)	0.451		
AST [U/L]	28 (14 - 77)	28 (23 - 850)	0.457		
Alkaline phosphatase	64 (40 - 316)	69 (33 - 142)	0.754		
	N: number of patients with clinical information	n (%): number of patients with positive clinical manifestation	N	n (%)	<i>p</i> -value**
anti-dsDNA	51	35 (68.62)	21	14 (66.66)	0.908
SSA	36	18 (50)	17	6 (35.29)	0.479
SSB	36	3 (8.33)	17	2 (11.76)	0.651
anti-SM	39	9 (23.07)	19	6 (31.57)	0.708
anti-Rib	35	4 (11.42)	17	0 (0)	0.290
anti-histone	35	12 (34.28)	17	2 (11.76)	0.166
anti-Scl70	41	5 (12.19)	21	4 (19.04)	0.731
anti-CEN	36	2 (5.55)	17	0 (0)	1.000
anti-U1RNP	39	11 (28.2)	19	9 (47.36)	0.251
aCLIgM	37	5 (13.51)	16	1 (6.25)	0.769
aCLIgG	37	14 (37.83)	17	2 (11.76)	0.104
LAC	37	12 (32.43)	16	3 (18.75)	0.495
Sjogren's syndrome	39	6 (15.38)	18	3 (16.66)	0.789
Facial erythema	39	25 (64.1)	18	8 (44.44)	0.268
Arthritis	43	28 (65.11)	18	9 (50)	0.415
Lung fibrosis	39	2 (5.12)	18	0 (0)	1.000
Leucopenia	39	15 (38.46)	18	4 (22.22)	0.365
APS	31	9 (29.03)	15	2 (13.33)	0.423

N: number of patients with clinical information; n: number of patients with positive clinical manifestation. *p** Mann-Whitney U-test; *p*** χ^2 test; when expected values were less than 10 and sample size greater than 40 or expected values greater than 5- the Chi-squared test with Yates' correction was used; when sample size was lower than 40- Fisher's exact test was used; *p*<0.05 was considered significant.