

**SUPPLEMENTARY MATERIALS:**

**REDUCTION IN ERYTHROCYTE BOUND COMPLEMENT ACTIVATION PRODUCTS AND  
TITERS OF ANTI-C1q ANTIBODIES ASSOCIATE WITH CLINICAL IMPROVEMENT IN  
SYSTEMIC LUPUS ERYTHEMATOSUS**

**Supplementary Table I:** ACR criteria fulfilled by SLE patients enrolled in the study

	N (%)
<b>Malar rash</b>	18 (50%)
<b>Discoid rash</b>	7 (19%)
<b>Photosensitivity</b>	7 (19%)
<b>Oral ulcers</b>	7 (19%)
<b>Arthritis</b>	25 (69%)
<b>Serositis</b>	8 (22%)
<b>Pleuritis</b>	6 (17%)
<b>Pericarditis</b>	2 (6%)
<b>Renal disorder:</b>	23 (64%)
<b>Proteinuria &gt;0.5 g/d</b>	23 (64%)
<b>3+ cellular casts</b>	0
<b>Neurologic disorder:</b>	2 (6%)
<b>Seizures</b>	0
<b>psychosis without other causes</b>	1 (3%)
<b>Hematologic disorder:</b>	19 (53%)
<b>Hemolytic anemia</b>	2 (6%)
<b>Leukopenia (&lt;4000/L)</b>	7 (19%)
<b>Lymphopenia (&lt;1500/L)</b>	7 (19%)
<b>Thrombocytopenia (&lt;100,000/L)</b>	2 (6%)
<b>Immunologic disorder:</b>	35 (97%)
<b>anti-dsDNA</b>	33 (92%)
<b>anti-Sm</b>	1 (3%)
<b>anti-phospholipid</b>	0 (0%)
<b>Antinuclear antibodies</b>	35 (97%)

**Supplementary Table II:** Organ involvement at baseline using the BILAG scoring system.

	% (N)	% (N) A score	% (N) B score	% (N) C score
<b>Constitutional</b>	13.9% (5)	2.7% (1)	8.3% (3)	2.8% (1)
<b>Mucocutaneous</b>	55.6% (20)	11.1% (4)	33.3% (12)	11.1% (4)
<b>Neuropsychiatric</b>	8.3% (3)	2.7% (1)	5.6% (2)	0% (0)
<b>Musculoskeletal</b>	47.2% (17)	19.4% (7)	11.1% (4)	16.7% (6)
<b>Cardiac</b>	5.6% (2)	0% (0)	5.6% (2)	0% (0)
<b>Gastrointestinal</b>	0% (0)	0% (0)	0% (0)	0% (0)
<b>Ophthalmic</b>	2.8% (1)	2.7% (1)	0% (0)	0% (0)
<b>Renal*</b>	38.9% (14)	13.9% (5)	22.2% (8)	2.8% (1)
<b>Hematological</b>	72.2% (26)	0% (0)	13.9% (5)	58.3% (21)

Not able to evaluate the Renal BILAG for 22 subjects due to not having a previous visit for establishing the criteria.

**Supplementary Table III:** Treatment information at baseline

	Percent patient	Median dose (range)
Prednisone equivalent (mg/kg/day)	67% (24)	0.07 (0-1.05)
Hydroxychloroquine (mg/day)	83% (30)	400 (200-400)
Azathioprine (mg/day)	19% (7)	100 (50-300)
Mycophenolate (g/day)	53% (19)	2 (2-2)
Methotrexate (mg/week)	8% (3)	10 (7.5-20)
Belimumab (mg/kg/month)	11% (4)	10 (10-10)
Cyclophosphamide (mg/m <sup>2</sup> )	3% (1)	500 (500-500)

**Supplementary Table IV:** SF-36 scores at baseline and last follow-up visit.

Higher numbers indicate improvements. Linear mixed model estimates for the number of months of follow-up is indicated. All domains of the SF-36 improved during the study

Domain	Baseline Average (SEM)	Last visit Average (SEM)	Wilcoxon P value	Estimate±SEM
Physical function	62±5	77±3	0.004	0.88+0.19 p<0.001
Role Physical	53±5	67±4	0.002	1.09+0.19 p<0.001
Bodily pain	43±5	68±4	<0.001	1.08+0.26 p<0.001
General health	41±3	46±3	0.025	0.42+0.13 p=0.001
Vitality	43±3	54±4	0.019	0.35+0.16 p=0.001
Social functioning	56±5	72±4	0.004	0.89+0.21 p<0.001
Role emotional	67±5	75±5	0.076	0.59+0.21 p=0.006
Mental Health	63±3	77±3	0.003	0.91+0.14 p<0.001

**Supplementary Table V:** Linear mixed models of ns-SELENA-SLEDAI with biomarkers and prednisone equivalent dosage.

Intercept and estimates with p value are given for each of the marker. For example, a one unit decrease in log EC4d was associated with a 0.9 unit decrease in ns-SELENA-SLEDAI.

	Intercept + Estimate SE	P value
EC4d (Log Net MFI)	1.2±1.4 + 0.9±0.4	0.036
EC3d (Log Net MFI)	3.1±0.7 + 0.8±0.3	0.013
ECR1(Log Net MFI)	6.7±1.3 -1.1±0.5	0.027
C3 (mg/dl)	6.9±1.1 -0.03±0.01	0.004
C4 (mg/dl)	6.4±0.9 -0.13±0.04	0.001
Anti-dsDNA (Units)	2.8±0.8 + 0.002±0.001	0.022
Anti-C1q (Units)	3.4±0.6 + 0.01±0.006	0.010
<b>Prednisone (mg/kg/day)</b>	<b>3.4±0.6 + 4.0±1.25</b>	<b>0.001</b>

**Supplementary Table VI:** Linear mixed models of BILAG Index Scores with biomarkers and prednisone equivalent dosage

	Intercept + Estimate SE	P value
EC4d (Log Net MFI)	5.5±2.6 + 1.7±0.8	0.026
EC3d (Log Net MFI)	8.2±1.3 + 2.4±0.6	<0.001
ECR1(Log Net MFI)	14.5±2.4 - 1.5±0.9	0.088
C3 (mg/dl)	15.7±2.0 -0.06±0.02	0.007
C4 (mg/dl)	16.4±1.7 -0.31±0.07	<0.001
Anti-dsDNA (Units)	10.4±1.4 + 0.001±0.002	0.669
Anti-C1q (Units)	9.5±1.1 + 0.03±0.01	0.001
<b>Prednisone (mg/kg/day)</b>	<b>9.3±1.0 + 9.9±2.0</b>	<b>&lt;0.001</b>

**Supplementary Table VII:** Linear mixed models of random urine uPCR with biomarkers and prednisone equivalent dosage

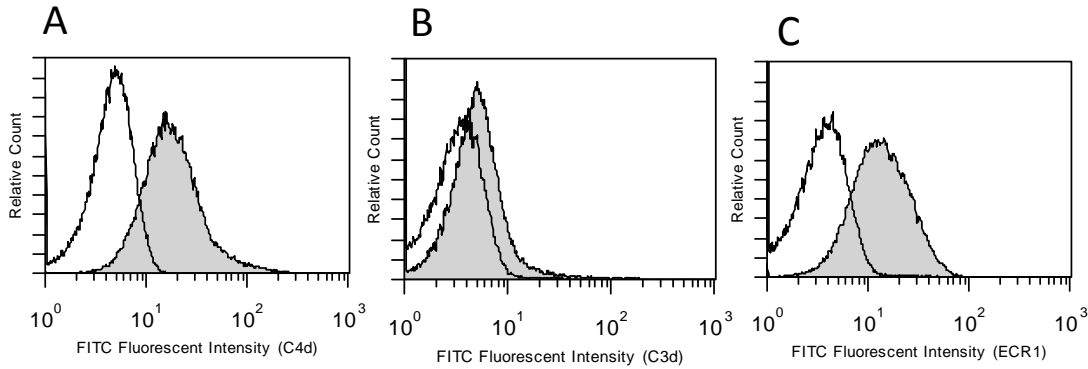
	Intercept + Estimate SE	P value
EC4d (Log Net MFI)	-1.4±0.8 + 0.9±0.2	<0.001
EC3d (Log Net MFI)	1.2±0.4 + 0.2±0.2	0.247
ECR1(Log Net MFI)	3.1±0.7 - 0.7±0.2	0.006
C3 (mg/dl)	3.0±0.6 - 0.02±0.01	0.004
C4 (mg/dl)	2.5±0.5 - 0.06±0.02	0.004
Anti-dsDNA (Units)	1.3 ±0.4 + 0.000±0.001	0.588
Anti-C1q (Units)	1.2 ±0.4 + 0.006±0.003	0.026
<b>Prednisone (mg/kg/day)</b>	<b>1.3±0.3 + 0.5±0.6</b>	<b>0.43</b>

**Supplementary Table VIII:** Median (Interquartile range[IQR]) changes from baseline for all markers and disease activity measures.

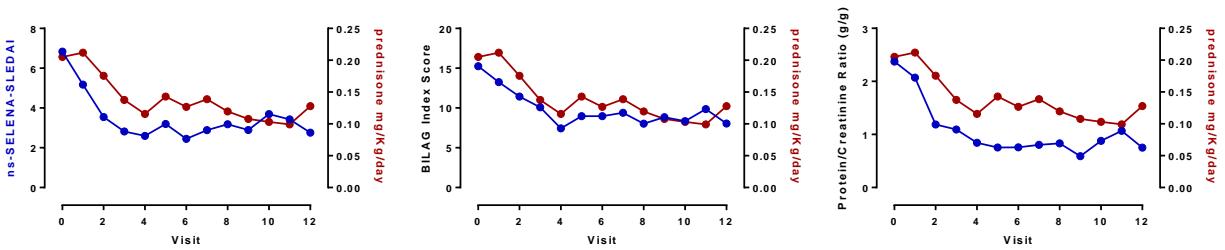
Baseline median (IQR) are given for visit 0. Median (IQR) change from baseline is given.

visit	n	EC3d Net MFI	EC4d Net MFI	ECR1 Net MFI	C4 mg/dl	C3 mg/dl	Anti-C1q units	uPCR g/g	BILAG Index	ns- SELENA SLEDAI
0	36	3.1 [1.6;6.4]	23.4 [16.7;34.6]	13 [9.8;16.7]	13.1 [10.2;18.7]	95.9 [70.3;131.6]	32.1 [15.6;75]	0.42 [0.09;2.84]	13 [9;20]	6 [4;8]
1	36	-0.8 [-1.9;0.9]	-3 [-11.5;1.4]	-0.7 [-2.9;1.8]	2.3 [-1;5.8]	5.2 [-11;22]	-4 [-20.7;2.4]	-0.01 [-0.18;0.12]	-0.5 [-8;4]	-2 [-4;0]
2	36	-0.4 [-2.6;1]	-2.4 [-12.1;-0.4]	1.4 [-0.9;5.3]	2.9 [-1;5.7]	11.2 [-10.2;25.7]	-7.6 [-18;0.8]	-0.03 [-0.52;0.02]	-4 [-11.2;1]	-3 [-4.5;0]
3	33	-0.4 [-2.8;1.2]	-3.1 [-12.5;-0.3]	-0.1 [-3.4;4.6]	1.8 [-1.7;8.1]	0.7 [-14.9;20.6]	-8.7 [-17.4;-1.3]	-0.02 [-0.5;0.04]	-4 [-11;0]	-3 [-6;0]
4	32	-0.5 [-2.9;1.4]	-4.5 [-13.4;-1.5]	-0.1 [-3;4.7]	3.9 [-1;8.6]	4.6 [-16.4;15.3]	-12.2 [-22.7;-0.4]	-0.02 [-0.62;0.04]	-7 [-11;-0.8]	-4 [-6;0]
5	31	-1 [-3.4;1.4]	-5.9 [-17.5;-1]	0.1 [-2.6;5.3]	3.5 [-1.1;7.4]	0.7 [-21;20]	-12.7 [-26.5;2]	-0.02 [-0.66;0.2]	-3 [-8.5;1]	-4 [-5.5;0]
6	32	0.1 [-3.4;1.2]	-8 [-17.3;-1.5]	-0.3 [-3.1;4.3]	2.9 [-0.4;8.5]	-2.7 [-13.1;16]	-12.9 [-28;-0.9]	-0.01 [-0.48;0.07]	-6 [-10.2;1.8]	-3 [-6;0]
7	28	-0.7 [-2.9;0.9]	-2.9 [-15;1.2]	-1 [-4;2.1]	2.8 [-1.1;8.2]	-1.1 [-17.8;20.6]	-12.9 [-26.4;-0.4]	0 [-0.27;0.1]	-5.5 [-10.2;1]	-3 [-6;0]
8	28	-0.7 [-3.3;0.5]	-1.9 [-15.2;2.8]	-1.4 [-3.4;1.9]	2.2 [-3;8.1]	-12.7 [-36;24.4]	-8.9 [-21.5;-1.2]	-0.01 [-0.45;0.27]	-7.5 [-11.2;0]	-4 [-4.5;0]
9	27	-0.5 [-3.5;0.4]	-0.2 [-6.5;2.5]	-0.2 [-2.9;2.9]	1.6 [-1.7;4.9]	-6.8 [-21.2;16.2]	-12.7 [-22.5;0.2]	0 [-0.29;0.17]	-4 [-10.5;0]	-4 [-4;0]
10	23	-0.9 [-2.9;1.2]	0 [-8.2;5.9]	0.1 [-3.1;4.4]	4.8 [0.9;6.8]	-2.2 [-8.3;12]	-9.8 [-20.4;-2.2]	0.02 [-0.03;0.27]	-7 [-14;5]	-3 [-6;2]
11	22	-0.4 [-4;1.3]	-3.3 [-11.7;5.5]	-1.1 [-3.3;5.6]	4.8 [2.1;7.2]	2.1 [-21.8;24.8]	-10.1 [-25.2;-1.7]	0.04 [-0.51;0.17]	-3.5 [-7.8;0]	-4 [-5;0]
12	21	-0.3 [-4;0.4]	-2.7 [-15.3;2.5]	-1.5 [-3.7;4.3]	3 [0.2;7.7]	-0.3 [-22;21.3]	-14.9 [-30.7;-2.3]	0.03 [-0.02;0.12]	-6 [-15;-1]	-4 [-5;0]

**Supplementary Figure 1:** Representative histograms for EC4d (Panel A), EC3d (Panel B) and ECR1 (Panel C). The net MFI is determined by subtracting the non-specific MFI from the specific MFI results. Net MFI is 19 for EC4d, 4 for EC3d and 15 for ECR1.



**Supplementary Figure 2:** Reduction in prednisone dosage (equivalent mg/kg/day) and disease activity measures. Each point represents the mean at each given study visit



**Supplementary Figure 3:** Mean change in QuantaLite anti-dsDNA and disease activity measures. Cutoff for positive anti-dsDNA was 301 units. Each point represents the mean at each given study visit

