Supplemental Table 1

Demographic and clinical variables for patients with systemic lupus erythematosus (SLE).

Category	Feature	Patients with SLE (n=60)
Demographic	Age, years, median (range)	33 (19-61)
	Female, n (%)	53 (88.33)
Disease variables	Rash, n (%)	40 (66.7)
	Oral ulcers, n (%)	21 (35.0)
	Arthritis, n (%)	32 (53.3)
	Polyserositis, n (%)	13 (21.7)
	Nephritis, n (%)	16 (26.7)
	Central nervous system involvement, n (%)	1 (1.7)
	Hematological disorder*, n (%)	28 (46.7)
	SLEDAI-2K, median (range)	4 (0-22)
	Anti-dsDNA, IU/mL, mean ± SD	153.80 ± 336.00
	C3, mg/dL, mean ± SD	107.20 ± 28.47
	C4, mg/dL, mean ± SD	16.82 ± 12.03
	CRP, mg/L, mean ± SD	12.56 ± 46.00
	WBC, x 10^9/L, mean ± SD	5.63 ± 2.29
	Neutrophil %, mean ± SD	67.89 ± 12.59
	Neutrophil, x 10^9/L, mean ± SD	3.90 ± 2.18
Medications	Prednisone, n (%)	55 (91.67)
	Antimalarials, n (%)	51 (85.00)
	Azathioprine, n (%)	21 (35.00)
	Mycophenolate mofetil, n (%)	20 (33.33)
	Methotrexate, n (%)	21 (35.00)

Cyclosporine, n (%)	9 (15.00)

Clinical variables and treatment recorded at first clinical assessment. Continuous variables are expressed as mean ± standard deviation (SD) and categorical variables are displayed as number (percent). SLEDAI-2K: SLE Disease Activity Index; anti-dsDNA: anti-double stranded DNA; C3: complement component 3; C4: complement component 4; CRP: C-reactive protein; WBC: white blood cell. *: anemia, leukopenia, and thrombocytopenia.

Supplemental Table 2

Antibodies used for flow cytometry

Antibodies	Clone	Company
CD19	HIB19	BioLegend
CD27	LG.7F9	E-Bioscience
CD38	HB7	E-Bioscience
CD86	IT2.2	BioLegend
IgD	IA6-2	BioLegend

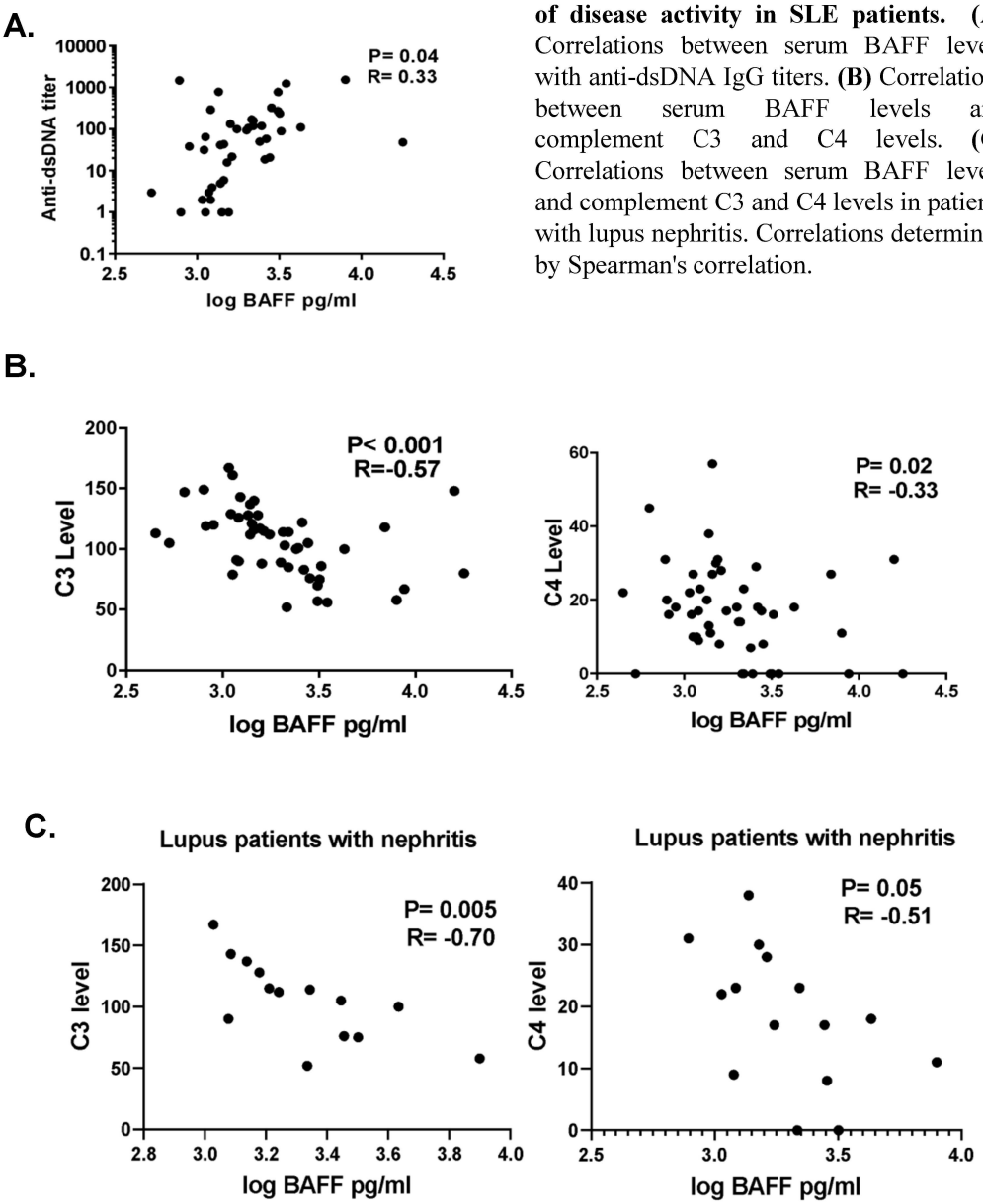
Supplemental Table 3

Clinical features of SLE patients at the time when blood was drawn for neutrophil and B cell co-culture experiment.

	SLE-1	SLE-2	SLE-3	SLE-4	SLE-5
Gender	Male	Female	Female	Female	Male
Disease duration (years)	1	5	3	6	16
Rash	NA	-	NA	+	NA
Oral ulcers	NA	-	NA	+	NA
Arthritis	NA	+	NA	+	NA
Polyserositis	NA	-	NA	-	NA
Nephritis	NA	-	NA	+	NA
Central nervous system involvement	NA	-	NA	-	NA
Hematological disorder*	NA	+	NA	+	NA
SLEDAI	NA	4	NA	12	NA
Hydroxychloroquine	+	+	+	+	+
Prednisone	+	+	+	+	-
Mycophenolate mofetil	+	-	+	+	+
Tacrolimus	-	-	-	+	-

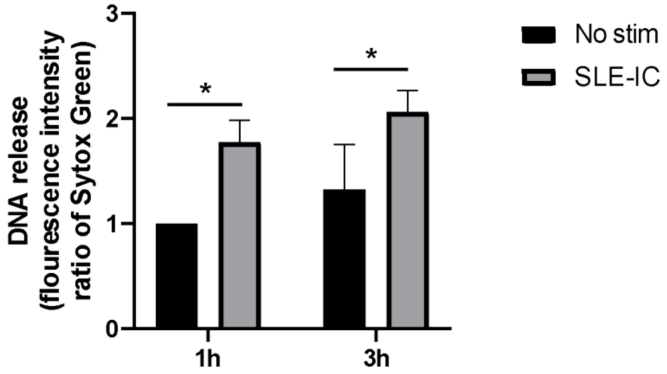
*: anemia, leukopenia, and thrombocytopenia.

Supplemental Figure 1



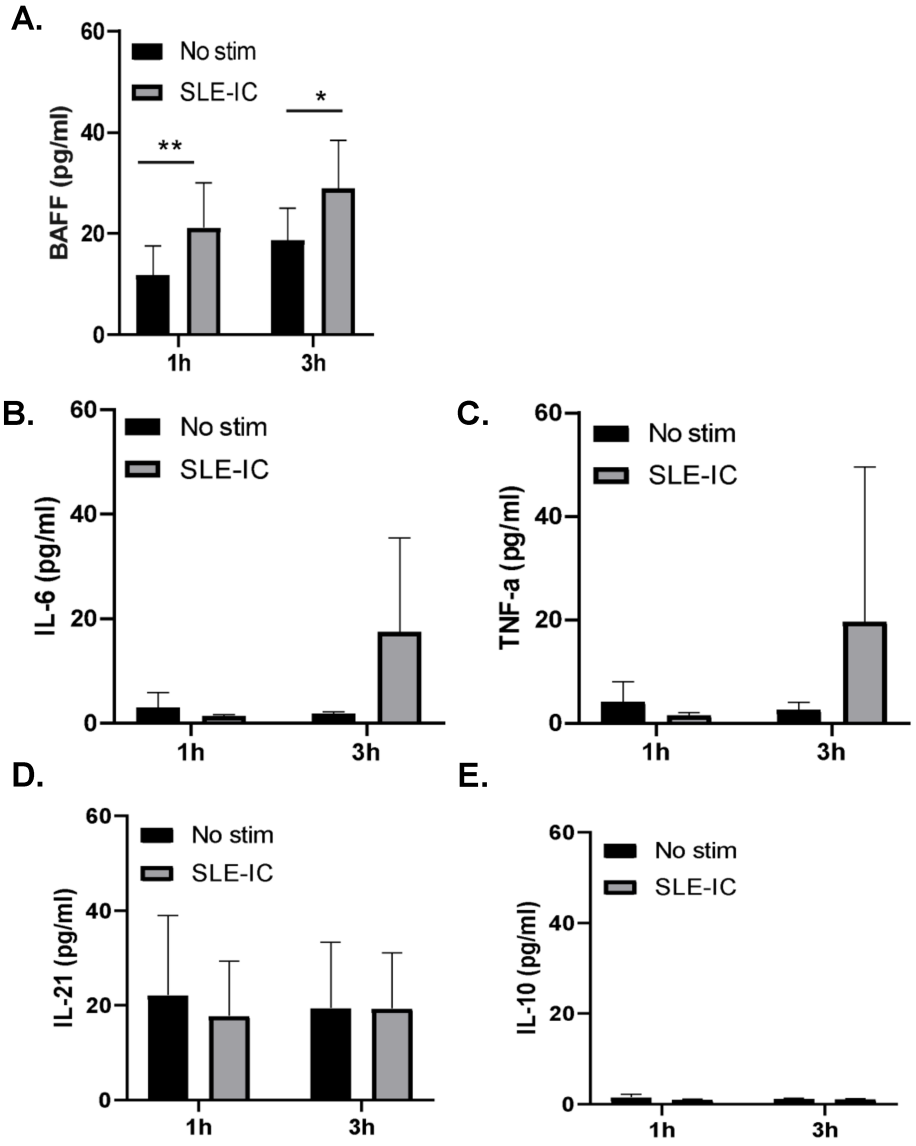
Supplemental Figure 1. Association between serum BAFF levels and markers of disease activity in SLE patients. (A) Correlations between serum BAFF levels with anti-dsDNA IgG titers. **(B)** Correlations between serum BAFF levels and complement C3 and C4 levels. **(C)** Correlations between serum BAFF levels and complement C3 and C4 levels in patients with lupus nephritis. Correlations determined by Spearman's correlation.

Supplemental Figure 2



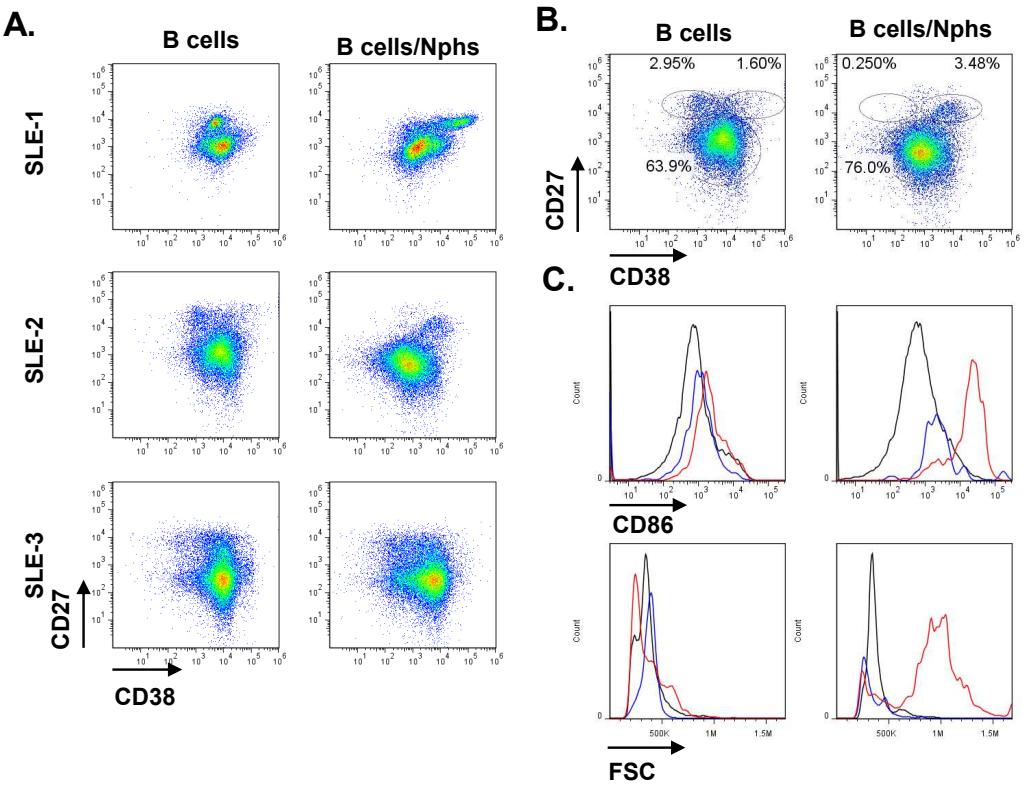
Supplemental Figure 2. **Immune complex (IC)-driven DNA release from neutrophils as a measure of NETs formation.** Neutrophils isolated from whole blood of SLE patients were left untreated or stimulated with SLE-ICs for 1 and 3 hours. DNA release were quantified by Sytox green labeling after enzymatic detachment of NETs. Summary data from three independent experiments. Shown are mean values ± SD, *p < 0.05, by Student's paired *t*-test.

Supplemental Figure 3



Supplemental Figure 3. **Cytokines production by neutrophils in response to SLE-IC stimulation *in vitro*.** Neutrophils isolated from whole blood of SLE patients were left untreated or stimulated with SLE-IC for 1 and 3 hours and cell-free supernatants were collected. **(A-E)** BAFF, IL-6, TNF-α, IL-21 and IL-10 production in the supernatants were measured by bead-based assay. Summary data from six independent experiments, using individual patients. Shown are mean values ±SD. *$p \leq 0.05$ and **$p < 0.01$ by Student's paired *t*-test.

Supplemental Figure 4



Supplemental Figure 4. **Neutrophils drive B cell differentiation *in vitro*.** B-cells isolated from PBMCs of SLE patients (n=5) were cultured alone (B cells), or co-cultured together with autologous neutrophils (B cells/Nphs) for 5 days and analyzed by flow cytometry. **(A)** Representative CD38/CD27 flow plots of gated live B cells in three individual SLE donors showing variations in the appearance of $CD27^{hi}CD38^{hi}$ in B cell/neutrophil co-cultures. **(B)** Analysis of B cell subsets, identified based on CD38 and CD27 expression (one representative SLE donor). **(C)** Histograms show CD86 expression, or FCS-A (forward scatter) of gated B cell subsets: $CD27^{lo}CD38^{+/int}$ (black lines), $CD27^{hi}CD38^{+/lo}$ (blue lines), and $CD27^{hi}CD38^{hi}$ (red lines).