Supplemental Table 1. Baseline Demographic and Clinical Parameters

	Flare (n = 28)	NF (n = 28)
Average Age (± SD)	46.9 (14.0)	47.2 (12.3)
Median Age at Diagnosis	39.5	41.0
Average Number of ACR Criteria	5.5	5.0
Baseline Average SELENA-SLEDAI (± SD)[a]	3.8 (3.7)	2.6 (3.2)
Baseline Average ESR (± SD)[b]	25.5 (21.3)	16.8 (9.6)
Medications (Number of SLE patients treated)		
• Prednisone	11	8
• Immunosuppressants[c]	12	10
• Anti-malarials[d]	21	21
• Biologics[e]	2	2
	Flare (n = 13)	**SNF (n = 13)**
Baseline Average SELENA-SLEDAI (± SD)[a]	3.0 (4.3)	2.9 (2.0)
Baseline Average ESR (± SD)[b]	31.3 (23.0)	27.0 (21.4)
Medications (Number of SLE patients treated)		
• Prednisone	5	3
• Immunosuppressants[c]	7	8
• Anti-malarials[d]	10	9
• Biologics[e]	1	1

[a] Flare vs NF *p = 0.2451* ; Flare vs SNF *p = 0.7065* by Wilcoxon matched-pairs test

[b] Flare vs NF *p = 0.0870* ; Flare vs SNF *p = 0.5967* by Wilcoxon matched-pairs test

[c] azathioprine, mycophenolate mofetil, or methotrexate

[d] hydroxychloroquine or quinacrine

[e] infliximab or etanercept

Supplemental Table 2. Soluble mediators tested in SLE and control plasma

Innate	Th1-like	NGF/TNFR Superfamily
IL-1α	IL-12 (p70)	BLyS*
IL-1β	IFN-γ	APRIL*
IL-1RA	IL-2	sCD40L
IFN-α**	IL-2RA	sFas
IFN-β**		sFasL
G-CSF**	Th-17 like	TNF-α
	IL-17A	TNFRI (p55)
Homeostasis	IL-21	TNFRII (p75)
IL-7**	IL-23	TRAIL**
IL-15	IL-6	NGFβ**
Other	Th2-like	Chemokine/Adhesion molecules
LIF**	IL-4**	IL-8/CXCL8
PAI-1**	IL-5	IP-10/CXCL10
PDGF-BB**	IL-13	RANTES/CCL5**
Resistin**		MIP-1α/CCL3
Leptin	Regulatory	MIP-1β/CCL4
SCF	IL-10	MCP-1/CCL2
	TGF-β	MCP-3/CCL7
		GROα/CXCL1**
		SDF-1/CXCL12
		MIG/CXCL9
		Eotaxin/CCL11**
		ICAM-1
*assessed by ELISA		VCAM-1**
** no statistical difference between		sE-selectin
SLE patients and healthy controls		VEGF-A**

Supplementary Table 3. Soluble Mediators in Flare vs. NF SLE Patients

	Pre-flare Concentration (pg/ml)						Pre-flare Mediator vs. SELENA-SLEDAI score (at Flare)			Soluble Mediator Score Component						
Analyte	Flare mean	SEM	NF mean	SEM	p value[a]	q value[b]	Spearman r	95% CI	P value[c]	Flare mean	SD	NF mean	SD	Or[d]	95% CI	P value[e]
Fas	118.01	34.69	14.26	6.36	*0.001*	*0.006*	0.4077	0.1544 to 0.6107	0.0018	0.1840	0.3842	-0.1840	0.3475	6.25	1.96 to 19.9	*0.0029*
IL-1β	5.46	1.79	2.31	0.55	*0.019*	*0.045*	0.2737	0.0036 to 0.5066	0.0412	0.0414	0.2530	-0.0414	0.2916	1.67	0.53 to 5.28	*0.5619*
IL-2	27.99	10.41	4.90	1.35	*0.020*	*0.045*	0.3695	0.1102 to 0.5818	0.0051	0.0837	0.3578	-0.0837	0.3681	1.88	0.62 to 5.69	*0.4032*
IL-4	11.01	1.77	16.32	3.96	*0.578*	*0.658*	0.2032	-0.0710 to 0.4489	0.1331	0.0127	0.1075	-0.0127	0.2687	1.17	0.39 to 3.55	*1.0000*
IL-5	90.54	19.18	35.91	5.35	*0.002*	*0.008*	0.2522	-0.0195 to 0.4892	0.0607	0.0300	0.2698	-0.0300	0.2343	1.67	0.53 to 5.28	*0.5619*
IL-6	21.22	5.41	8.11	1.38	*0.050*	*0.094*	0.2568	-0.0146 to 0.4929	0.0561	0.0184	0.3326	-0.0184	0.1517	1.00	0.35 to 2.86	*1.0000*
IL-7	67.60	19.15	32.30	12.19	*0.002*	*0.008*	0.1137	-0.1617 to 0.3726	0.4042	0.0271	0.1293	-0.0271	0.0900	4.00	1.28 to 12.5	*0.0288*
IL-8	5.94	1.61	1.72	0.24	*0.004*	*0.012*	0.2463	-0.0257 to 0.4844	0.0672	0.0446	0.2622	-0.0446	0.2252	2.25	0.72 to 7.01	*0.2588*
IL-10	4.67	1.34	10.72	3.06	*0.091*	*0.134*	0.0896	-0.1852 to 0.3515	0.5112	-0.0037	0.0823	0.0037	0.0978	1.62	0.53 to 4.94	*0.5731*
TGF-β	9.91	2.21	20.08	4.05	*0.073*	*0.112*	0.1210	-0.1544 to 0.3790	0.3743	0.0057	0.1011	-0.0057	0.1397	1.00	0.31 to 3.19	*1.0000*
IFN-β	331.53	249.36	34.60	7.77	*0.884*	*0.920*	-0.1394	-0.3949 to 0.1361	0.3056	0.0328	0.1748	-0.0328	0.0825	6.25	1.52 to 25.7	*0.0141*
IL-12(p70)	47.54	9.80	24.24	4.60	*0.001*	*0.006*	0.2761	0.0062 to 0.5085	0.0394	0.0251	0.3486	-0.0251	0.1802	1.54	0.54 to 4.42	*0.5932*
IL-13	40.13	16.12	7.93	1.61	*0.059*	*0.103*	0.1787	-0.0963 to 0.4283	0.1876	0.0225	0.1766	-0.0225	0.1811	0.72	0.23 to 2.22	*0.7753*
IL-23(p19)	163.70	59.56	28.19	4.95	*0.070*	*0.110*	0.3465	0.0841 to 0.5641	0.0089	0.0555	0.3809	-0.0555	0.3051	1.16	0.40 to 3.32	*1.0000*
IFN-γ	61.95	16.45	20.37	3.77	*0.120*	*0.164*	0.2841	0.0148 to 0.5149	0.0339	0.0892	0.1533	-0.0892	0.3528	1.67	0.53 to 5.28	*0.5619*
TNF-α	20.90	7.31	4.60	0.89	*0.008*	*0.020*	0.3133	0.0470 to 0.5381	0.0187	0.1014	0.2015	-0.1014	0.3715	1.00	0.34 to 2.98	*1.0000*
G-CSF	14.63	3.76	6.63	2.43	*0.034*	*0.073*	0.2776	0.0078 to 0.5097	0.0383	0.0464	0.2899	-0.0464	0.2616	1.80	0.62 to 5.25	*0.4182*
IFN-α	19.37	9.56	3.10	1.61	*0.051*	*0.094*	0.2070	-0.0671 to 0.4521	0.1258	0.0683	0.2166	-0.0683	0.1751	4.00	1.28 to 12.5	*0.0288*
IL-1α	76.85	13.30	38.38	8.33	*0.002*	*0.008*	0.2870	0.0181 to 0.5173	0.0320	0.0701	0.2115	-0.0701	0.3360	1.78	0.62 to 5.16	*0.4218*
IL-1RA	53.99	9.00	121.71	16.77	*< 0.0001*	*< 0.0001*	-0.2680	-0.5020 to 0.0025	0.0458	0.1242	0.2326	-0.1242	0.2455	6.25	1.96 to 19.9	*0.0029*
IL-15	43.10	18.89	30.41	10.18	*1.000*	*1.000*	0.2010	-0.0733 to 0.4471	0.1373	-0.0124	0.2072	0.0124	0.1976	0.74	0.25 to 2.17	*0.7848*
IL-21	90.45	32.26	21.57	2.20	*< 0.0001*	*< 0.0001*	0.4239	0.1735 to 0.6229	0.0011	0.0691	0.5785	-0.0691	0.1464	3.80	1.26 to 11.5	*0.0315*
ICAM-1	117965.41	7238.79	65233.03	6607.47	*< 0.0001*	*< 0.0001*	0.3807	0.1230 to 0.5903	0.0038	0.2301	0.2194	-0.2301	0.3706	17.59	4.18 to 74.0	*< 0.0001*
IL-17A	11.41	2.37	4.46	0.55	*0.005*	*0.016*	0.2460	-0.0261 to 0.4841	0.0677	0.0430	0.2353	-0.0430	0.2531	1.94	0.62 to 6.09	*0.3911*
NGF-β	99.16	29.41	144.46	35.68	*0.362*	*0.448*	0.1554	-0.1200 to 0.4086	0.2528	-0.0023	0.1307	0.0023	0.1792	0.47	0.16 to 1.40	*0.2772*
Leptin	25046.06	5202.72	46704.99	6244.91	*0.002*	*0.008*	-0.1416	-0.3967 to 0.1339	0.2980	0.0624	0.1497	-0.0624	0.1017	4.50	1.46 to 13.9	*0.0151*
SCF	615.58	63.48	299.68	27.14	*< 0.0001*	*< 0.0001*	0.4385	0.1908 to 0.6337	0.0007	0.1904	0.4608	-0.1904	0.3227	7.50	2.29 to 24.5	*0.0011*
IL-2Rα	666.72	84.10	492.55	74.83	*0.050*	*0.094*	0.3445	0.0818 to 0.5625	0.0093	0.0832	0.3273	-0.0832	0.3468	2.39	0.82 to 6.98	*0.1810*
SDF-1	493.30	84.69	1431.00	203.50	*0.018*	*0.042*	-0.1609	-0.4133 to 0.1144	0.2360	0.0592	0.0918	-0.0592	0.1925	3.46	1.11 to 10.7	*0.0543*
MIG	1442.54	363.91	2007.84	447.56	*0.132*	*0.175*	0.0084	-0.2625 to 0.2781	0.9509	-0.0015	0.0082	0.0015	0.0084	0.36	0.12 to 1.06	*0.1078*
MIP-1α	1045.48	231.84	989.44	199.72	*0.678*	*0.735*	0.0960	-0.1790 to 0.3571	0.4815	-0.0014	0.1021	0.0014	0.0914	1.16	0.40 to 3.32	*1.0000*
MCP-3	3926.00	281.30	1907.11	246.21	*< 0.0001*	*< 0.0001*	0.4243	0.1739 to 0.6232	0.0011	0.2013	0.3480	-0.2013	0.4020	12.88	3.12 to 53.2	*0.0002*
PAI-1	11973.53	1473.37	11027.44	1665.52	*0.425*	*0.514*	0.2359	-0.0368 to 0.4759	0.0801	0.0126	0.2522	-0.0126	0.2223	1.34	0.46 to 3.87	*0.7875*
FasL	455.10	58.30	193.85	27.38	*0.0002*	*0.002*	0.3981	0.1432 to 0.6035	0.0024	0.2022	0.2894	-0.2022	0.3928	3.86	1.26 to 11.8	*0.0306*
IP-10	1233.17	89.37	668.14	55.37	*< 0.0001*	*< 0.0001*	0.4161	0.1642 to 0.6171	0.0014	0.2676	0.2795	-0.2676	0.3550	13.80	3.79 to 50.2	*< 0.0001*
PDGF-BB	6070.78	1247.68	7038.83	1697.21	*0.678*	*0.735*	0.0037	-0.2669 to 0.2738	0.9784	-0.0002	0.0036	0.0002	0.0038	0.49	0.17 to 1.41	*0.2847*
RANTES	4449.33	628.53	8611.44	1634.84	*0.008*	*0.020*	-0.1764	-0.4264 to 0.0987	0.1934	0.0682	0.1639	-0.0682	0.1639	2.78	0.94 to 8.22	*0.1078*
MIP1-β	824.79	231.91	517.56	83.75	*0.695*	*0.737*	-0.0040	-0.2740 to 0.2667	0.9768	-0.0003	0.0042	0.0003	0.0038	0.86	0.29 to 2.54	*1.0000*
LIF	16.22	3.91	23.24	2.83	*0.063*	*0.105*	-0.0225	-0.2910 to 0.2494	0.8695	0.0078	0.0238	-0.0078	0.0183	3.80	1.26 to 11.5	*0.0315*
MCP-1	143.85	16.23	89.89	9.06	*0.003*	*0.011*	0.3541	0.0927 to 0.5699	0.0074	0.1431	0.3288	-0.1431	0.3238	5.28	1.69 to 16.5	*0.0069*
Eotaxin	502.39	83.84	381.39	44.35	*0.104*	*0.150*	0.2320	-0.0410 to 0.4727	0.0854	0.0393	0.2205	-0.0393	0.2404	1.00	0.35 to 2.86	*1.0000*
VEGF	1271.98	859.61	413.95	193.94	*0.227*	*0.295*	-0.1318	-0.3883 to 0.1437	0.3329	0.0106	0.1584	-0.0106	0.1003	2.50	0.83 to 7.55	*0.1707*
TNFRI	2062.88	210.98	1295.66	95.93	*0.001*	*0.005*	0.3683	0.1087 to 0.5808	0.0052	0.1099	0.4230	-0.1099	0.2690	2.40	0.82 to 7.04	*0.1799*
TRAIL	10776.55	5367.60	920.54	173.12	*0.066*	*0.108*	0.1219	-0.1535 to 0.3798	0.3707	0.0238	0.1562	-0.0238	0.0686	1.83	0.62 to 5.42	*0.4121*
TNFRII	3933.13	364.60	2249.46	227.27	*0.0003*	*0.002*	0.4238	0.1733 to 0.6228	0.0011	0.2178	0.3594	-0.2178	0.3718	7.50	2.29 to 24.5	*0.0011*
GRO-α	145.67	20.06	202.53	19.46	*0.019*	*0.043*	-0.0826	-0.3452 to 0.1920	0.5450	0.0271	0.0801	-0.0271	0.0772	3.80	1.26 to 11.5	*0.0315*
E-selectin	6654.90	1054.13	9575.10	1169.84	*0.109*	*0.154*	-0.1051	-0.3651 to 0.1700	0.4406	0.0309	0.1090	-0.0309	0.0930	1.78	0.62 to 5.12	*0.4230*
CD40L	2112.31	350.82	764.60	130.10	*< 0.0001*	*< 0.0001*	0.2803	0.0108 to 0.5119	0.0364	0.1251	0.2683	-0.1251	0.2357	6.33	1.97 to 20.3	*0.0029*
Resistin	6829.88	760.92	8159.86	1112.94	*0.245*	*0.311*	0.0147	-0.2567 to 0.2839	0.9146	-0.0015	0.0137	0.0015	0.0157	0.74	0.25 to 2.17	*0.7848*
VCAM	16038.64	2323.07	17690.47	1960.88	*0.452*	*0.534*	-0.1239	-0.3815 to 0.1516	0.3630	0.0137	0.1265	-0.0137	0.1220	1.55	0.54 to 4.46	*0.5913*
BLyS	1431.47	237.39	1048.03	101.72	*0.582*	*0.658*	0.2108	-0.0632 to 0.4552	0.1189	0.0303	0.2497	-0.0303	0.1621	2.50	0.83 to 7.55	*0.1707*
APRIL	3833.97	740.04	5564.93	1625.30	*0.975*	*0.999*	0.0465	-0.2267 to 0.3129	0.7338	-0.0038	0.0501	0.0038	0.0432	0.65	0.18 to 2.37	*0.7458*
IL-1RA/IL-1β	24.35	6.66	62.03	12.10	*< 0.0001*	*N.D.*	-0.3497	-0.5665 to -0.0876	0.0083	0.1482	0.3345	-0.1482	0.3028	4.50	1.46 to 13.9	*0.0151*

[a]Wilcoxon Matched-Pairs test (2-tailed); significant values ($p \leq 0.05$) highlighted in yellow

[b]Benjamini-Hochberg multiple testing procedure (False Discovery Rate ≤ 0.05) using R version 2.15.3; significant values ($q \leq 0.05$) highlighted in yellow

[c]Spearman Rank Correlation; significant values ($p < 0.05$) highlighted in blue

[d]Odds Ratio (# of Flare vs NF SLE patients with positive or negative soluble analyte score component value)

[e]Fisher's Exact test (2-tailed); significant values ($p < 0.05$) highlighted in green

N.D. = Not Determined

Supplementary Table 4. Soluble Mediators in Flare vs. SNF SLE Samples

	Pre-flare Concentration (pg/ml)						Pre-flare Mediator vs. SELENA-SLEDAI score (at Flare)			Soluble Mediator Score Component						
Analyte	Flare mean	SEM	SNF mean	SEM	p value[a]	q value[b]	Spearman r	95% CI	P value[d]	Flare mean	SD	SNF mean	SD	Orc	95% CI	P value[e]
Fas	78.73	22.63	26.43	8.31	*0.092*	*0.158*	0.4594	0.0756 to 0.7247	*0.0182*	0.0934	0.417	-0.0934	0.4971	1.00	0.16 to 6.20	*1.0000*
IL-1β	8.01	3.42	2.03	0.41	*0.001*	*0.014*	0.5381	0.1787 to 0.7708	*0.0046*	0.1850	0.537	-0.1850	0.4911	2.63	0.53 to 13.1	*0.4283*
IL-2	23.99	10.11	2.46	0.75	*0.001*	*0.014*	0.5140	0.1462 to 0.7569	*0.0072*	0.2263	0.354	-0.2263	0.5602	3.60	0.71 to 18.3	*0.2377*
IL-4	9.47	1.79	7.49	2.04	*0.266*	*0.355*	0.3616	-0.0421 to 0.6638	*0.0695*	0.0820	0.313	-0.0820	0.4000	2.56	0.53 to 12.4	*0.4338*
IL-5	108.64	31.62	43.84	11.04	*0.017*	*0.039*	0.5697	0.2224 to 0.7887	*0.0024*	0.0113	0.796	-0.0113	0.2060	10.30	1.02 to 104	*0.0730*
IL-6	15.21	5.05	5.95	1.74	*0.034*	*0.072*	0.3802	-0.0205 to 0.6757	*0.0553*	0.0404	0.408	-0.0404	0.3626	0.48	0.09 to 2.65	*0.6728*
IL-7	90.73	30.07	94.72	48.23	*0.094*	*0.158*	0.3000	-0.1108 to 0.6233	*0.1364*	0.0307	0.295	-0.0307	0.3141	1.37	0.29 to 6.54	*1.0000*
IL-8	5.84	1.63	1.79	0.42	*0.003*	*0.014*	0.2992	-0.1118 to 0.6227	*0.1376*	0.1427	0.311	-0.1427	0.2136	5.33	0.97 to 29.4	*0.1107*
IL-10	4.37	2.55	11.57	7.67	*0.569*	*0.657*	0.2466	-0.1675 to 0.5867	*0.2245*	0.0475	0.183	-0.0475	0.2971	3.44	0.53 to 22.4	*0.3783*
TGF-β	5.11	1.78	18.95	5.35	*0.016*	*0.045*	0.2186	-0.1961 to 0.5670	*0.2833*	-0.0605	0.228	0.0605	0.1995	0.38	0.08 to 1.90	*0.4283*
IFN-β	25.25	14.35	14.73	8.01	*0.078*	*0.144*	0.4109	0.0159 to 0.6950	*0.0370*	0.0808	0.405	-0.0808	0.4164	2.56	0.53 to 12.4	*0.4338*
IL-12(p70)	52.06	17.56	9.90	3.40	*0.001*	*0.005*	0.4128	0.0181 to 0.6962	*0.0361*	0.0791	0.547	-0.0791	0.2053	7.50	1.31 to 43.0	*0.0472*
IL-13	51.69	31.23	10.48	4.90	*0.002*	*0.019*	0.4867	0.1104 to 0.7409	*0.0117*	0.1480	0.394	-0.1480	0.5396	1.41	0.28 to 7.13	*1.0000*
IL-23(p19)	130.73	43.04	29.32	10.30	*0.011*	*0.030*	0.5549	0.2018 to 0.7804	*0.0033*	0.2047	0.58	-0.2047	0.4633	1.87	0.39 to 8.90	*0.6951*
IFN-γ	80.64	27.24	18.30	6.84	*0.002*	*0.014*	0.4340	0.0439 to 0.7093	*0.0267*	0.1798	0.213	-0.1798	0.5264	2.63	0.53 to 13.1	*0.4283*
TNF-α	12.53	5.29	5.82	1.87	*0.007*	*0.030*	0.5177	0.1512 to 0.7591	*0.0068*	0.1115	0.563	-0.1115	0.4631	1.00	0.21 to 4.86	*1.0000*
G-CSF	13.36	5.10	10.76	9.44	*0.297*	*0.355*	0.4366	0.0471 to 0.7108	*0.0258*	0.1127	0.459	-0.1127	0.3985	2.63	0.53 to 13.1	*0.4283*
IFN-α	12.73	8.38	6.19	4.31	*0.297*	*0.355*	0.3277	-0.0805 to 0.6417	*0.1022*	0.0935	0.338	-0.0935	0.3010	3.89	0.72 to 21.1	*0.2262*
IL-1α	56.95	15.53	13.39	2.53	*0.0002*	*0.005*	0.5528	0.1989 to 0.7792	*0.0034*	0.2547	0.586	-0.2547	0.3904	3.89	0.72 to 21.1	*0.2262*
IL-1RA	28.90	4.31	55.92	11.70	*0.022*	*0.045*	0.1157	-0.2955 to 0.4908	*0.5734*	-0.0272	0.073	0.0272	0.1448	0.19	0.03 to 1.03	*0.1107*
IL-15	38.97	28.90	25.86	15.91	*0.688*	*0.727*	0.3621	-0.0415 to 0.6641	*0.0691*	0.0280	0.374	-0.0280	0.3628	1.37	0.29 to 6.54	*1.0000*
IL-21	41.60	8.31	20.15	7.20	*0.008*	*0.025*	0.4780	0.0991 to 0.7358	*0.0135*	0.0593	0.619	-0.0593	0.2923	6.42	1.00 to 41.2	*0.0968*
ICAM-1	108578.24	8896.24	53713.29	10242.34	*0.002*	*0.014*	0.4169	0.0231 to 0.6988	*0.0341*	0.2695	0.209	-0.2695	0.4011	40.00	3.58 to 447	*0.0010*
IL-17A	11.13	4.45	2.52	1.28	*0.043*	*0.084*	0.5739	0.2283 to 0.7910	*0.0022*	0.2818	0.42	-0.2818	0.5810	12.40	1.83 to 83.8	*0.0154*
NGF-β	49.63	12.79	52.30	12.39	*0.946*	*0.946*	0.3124	-0.0973 to 0.6316	*0.1202*	-0.0251	0.336	0.0251	0.2980	0.73	0.15 to 3.48	*1.0000*
Leptin	18791.32	4971.67	43891.24	10809.80	*0.013*	*0.035*	-0.3479	-0.6550 to 0.0577	*0.0816*	0.1136	0.307	-0.1136	0.3606	2.56	0.53 to 12.4	*0.4338*
SCF	783.41	73.72	415.77	49.76	*0.001*	*0.005*	0.5428	0.1851 to 0.7735	*0.0042*	0.3598	0.358	-0.3598	0.4529	11.10	1.79 to 68.9	*0.0169*
IL-2Rα	706.23	114.17	487.98	70.99	*0.017*	*0.039*	0.4201	0.0269 to 0.7007	*0.0326*	0.1534	0.367	-0.1534	0.4264	1.00	0.21 to 4.68	*1.0000*
SDF-1	268.80	113.50	249.70	113.80	*0.273*	*0.355*	0.3078	-0.1024 to 0.6285	*0.1260*	0.0229	0.469	-0.0229	0.3834	0.735	0.16 to 3.44	*1.0000*
MIG	1741.82	574.77	1526.20	481.68	*0.946*	*0.946*	0.2308	-0.1837 to 0.5756	*0.2567*	0.0125	0.232	-0.0125	0.2384	0.73	0.15 to 3.48	*1.0000*
MIP-1α	1154.38	307.02	965.41	184.81	*0.414*	*0.513*	0.2109	-0.2038 to 0.5615	*0.3010*	0.0048	0.242	-0.0048	0.1841	0.73	0.15 to 3.48	*1.0000*
MCP-3	4529.77	363.54	2271.34	297.78	*0.001*	*0.005*	0.4560	0.0713 to 0.7226	*0.0192*	0.3169	0.264	-0.3169	0.3820	40.00	3.58 to 447	*0.0010*
PAI-1	16030.41	2507.20	18370.08	4762.39	*0.893*	*0.928*	0.2622	-0.1513 to 0.5975	*0.1957*	-0.0149	0.268	0.0149	0.2665	1.00	0.21 to 4.68	*1.0000*
FasL	507.27	90.16	92.31	35.15	*0.0002*	*0.0050*	0.4853	0.1086 to 0.7401	*0.0120*	0.3620	0.215	-0.3620	0.4008	40.00	3.58 to 447	*0.0010*
IP-10	1287.41	111.39	718.69	81.67	*0.005*	*0.017*	0.4274	0.0358 to 0.7052	*0.0294*	0.2737	0.287	-0.2737	0.3687	7.50	1.31 to 43.0	*0.0472*
PDGF-BB	7955.58	2038.23	5183.78	604.69	*0.244*	*0.355*	-0.1471	-0.5147 to 0.2661	*0.4733*	-0.0217	0.185	0.0217	0.1000	1.00	0.21 to 4.86	*1.0000*
RANTES	3822.87	995.56	3673.48	816.08	*0.340*	*0.431*	0.2583	-0.1553 to 0.5949	*0.2026*	-0.0097	0.287	0.0097	0.2373	0.73	0.15 to 3.48	*1.0000*
MIP1-β	806.02	300.32	118.10	60.86	*0.002*	*0.014*	0.2500	-0.1640 to 0.5891	*0.2181*	0.1341	0.23	-0.1341	0.1956	7.50	1.31 to 43.0	*0.0472*
LIF	7.15	1.01	9.82	2.16	*0.168*	*0.273*	0.1362	-0.2765 to 0.5064	*0.5072*	-0.0117	0.108	0.0117	0.1634	0.73	0.15 to 3.48	*1.0000*
MCP-1	141.54	13.89	113.53	10.56	*0.001*	*0.011*	0.2845	-0.1276 to 0.6128	*0.1590*	0.0868	0.28	-0.0868	0.2723	3.60	0.71 to 18.3	*0.2377*
Eotaxin	661.07	159.16	550.32	69.89	*0.455*	*0.550*	0.2737	-0.1391 to 0.6054	*0.1761*	0.0106	0.318	-0.0106	0.2336	0.38	0.08 to 1.90	*0.4283*
VEGF	575.04	436.33	358.62	236.66	*0.685*	*0.727*	0.2210	-0.1937 to 0.5687	*0.2779*	0.0071	0.237	-0.0071	0.2127	0.52	0.10 to 2.58	*0.6882*
TNFRI	2534.61	267.16	1604.96	197.11	*0.008*	*0.025*	0.5187	0.1526 to 0.7597	*0.0066*	0.2294	0.517	-0.2294	0.4236	18.30	2.52 to 133	*0.0048*
TRAIL	22588.03	10857.20	13627.54	7721.25	*0.588*	*0.679*	0.0750	-0.3326 to 0.4589	*0.7159*	0.0058	0.084	-0.0058	0.0677	1.48	0.26 to 8.50	*1.0000*
TNFRII	4550.71	657.88	2606.88	282.64	*0.017*	*0.039*	0.5254	0.1614 to 0.7635	*0.0058*	0.2417	0.559	-0.2417	0.3692	7.50	1.31 to 43.0	*0.0472*
GRO-α	124.01	13.63	147.66	22.99	*0.191*	*0.292*	0.1318	-0.2806 to 0.5031	*0.5211*	-0.0116	0.103	0.0116	0.1592	0.54	0.11 to 2.55	*0.6951*
E-selectin	3861.51	698.22	3901.71	852.66	*0.685*	*0.727*	0.3493	-0.0561 to 0.6559	*0.0803*	0.0209	0.312	-0.0209	0.3946	1.37	0.29 to 6.54	*1.0000*
CD40L	2173.43	383.13	1152.51	162.68	*0.003*	*0.014*	0.2329	-0.1816 to 0.5771	*0.2523*	0.1064	0.166	-0.1064	0.2466	3.60	0.71 to 18.3	*0.2377*
Resistin	6135.91	618.15	6396.30	856.48	*0.685*	*0.727*	-0.2127	-0.5627 to 0.2021	*0.2969*	0.0013	0.194	-0.0013	0.2382	1.00	0.21 to 4.68	*1.0000*
VCAM	17983.25	3556.02	8977.59	844.15	*0.027*	*0.053*	0.3709	-0.0314 to 0.6698	*0.0621*	0.1776	0.406	-0.1776	0.2307	12.40	1.83 to 83.8	*0.0154*
BLyS	1394.01	424.73	1593.04	423.06	*0.191*	*0.292*	0.1774	-0.2369 to 0.5372	*0.3858*	-0.0176	0.177	0.0176	0.1837	0.71	0.14 to 3.61	*1.0000*
APRIL	5423.03	1224.79	9246.06	1812.95	*0.266*	*0.355*	0.1417	-0.2713 to 0.5106	*0.4900*	0.0038	0.122	-0.0038	0.1644	1.00	0.12 to 8.43	*1.0000*
IL-1RA/IL-1β	7.42	1.88	20.38	3.98	*0.001*	*N.D.*	-0.3493	-0.6559 to 0.0561	*0.0803*	0.1559	0.322	-0.1559	0.3130	3.89	0.72 to 21.1	*0.2262*

[a]Wilcoxon Matched-Pairs test (2-tailed); significant values ($p \leq 0.05$) highlighted in yellow

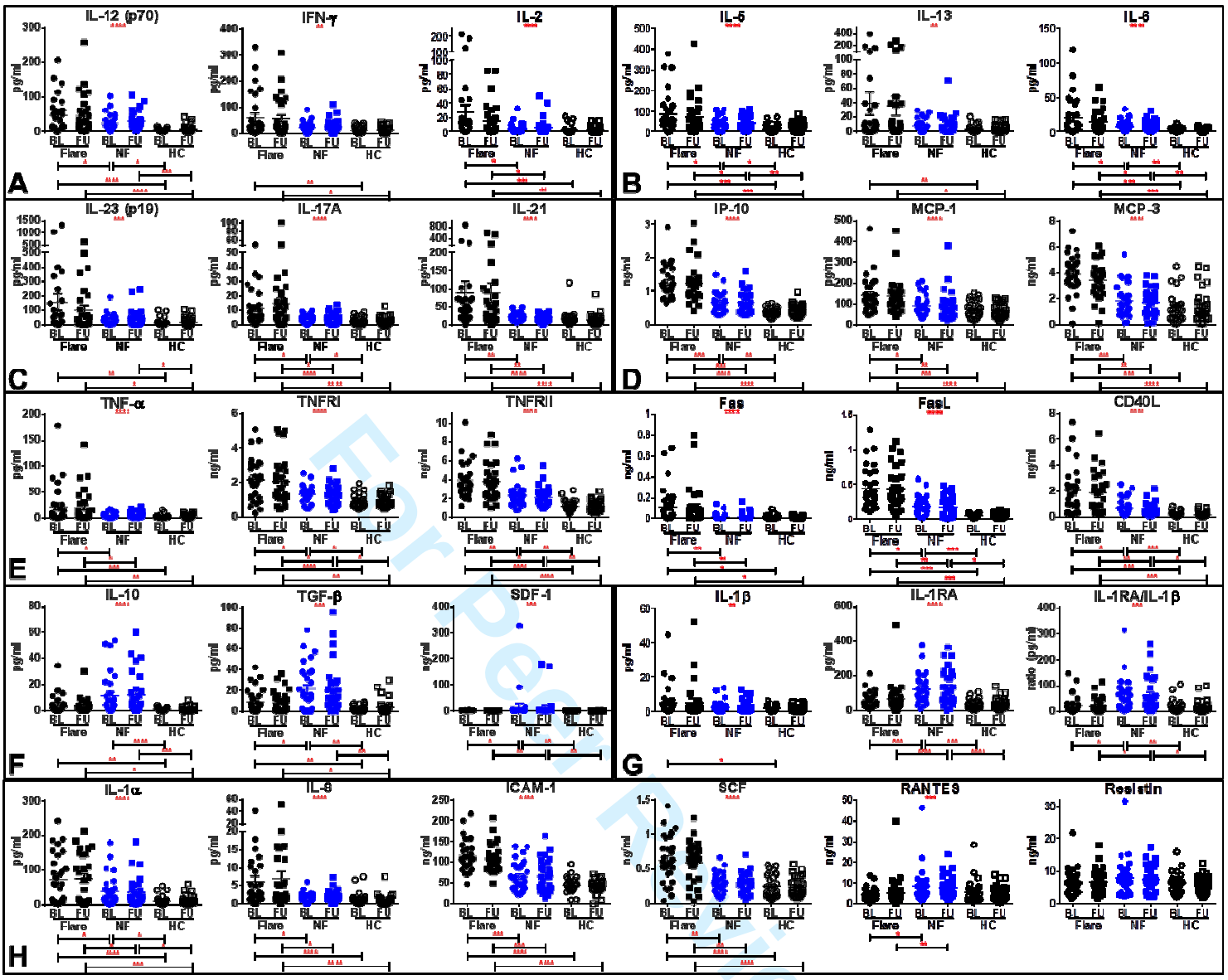
[b]Benjamini-Hochberg multiple testing procedure (False Discovery Rate ≤ 0.05) using R version 2.15.3; significant values ($q \leq 0.05$) highlighted in yellow

[c]Spearman Rank Correlation; significant values ($p < 0.05$) highlighted in blue

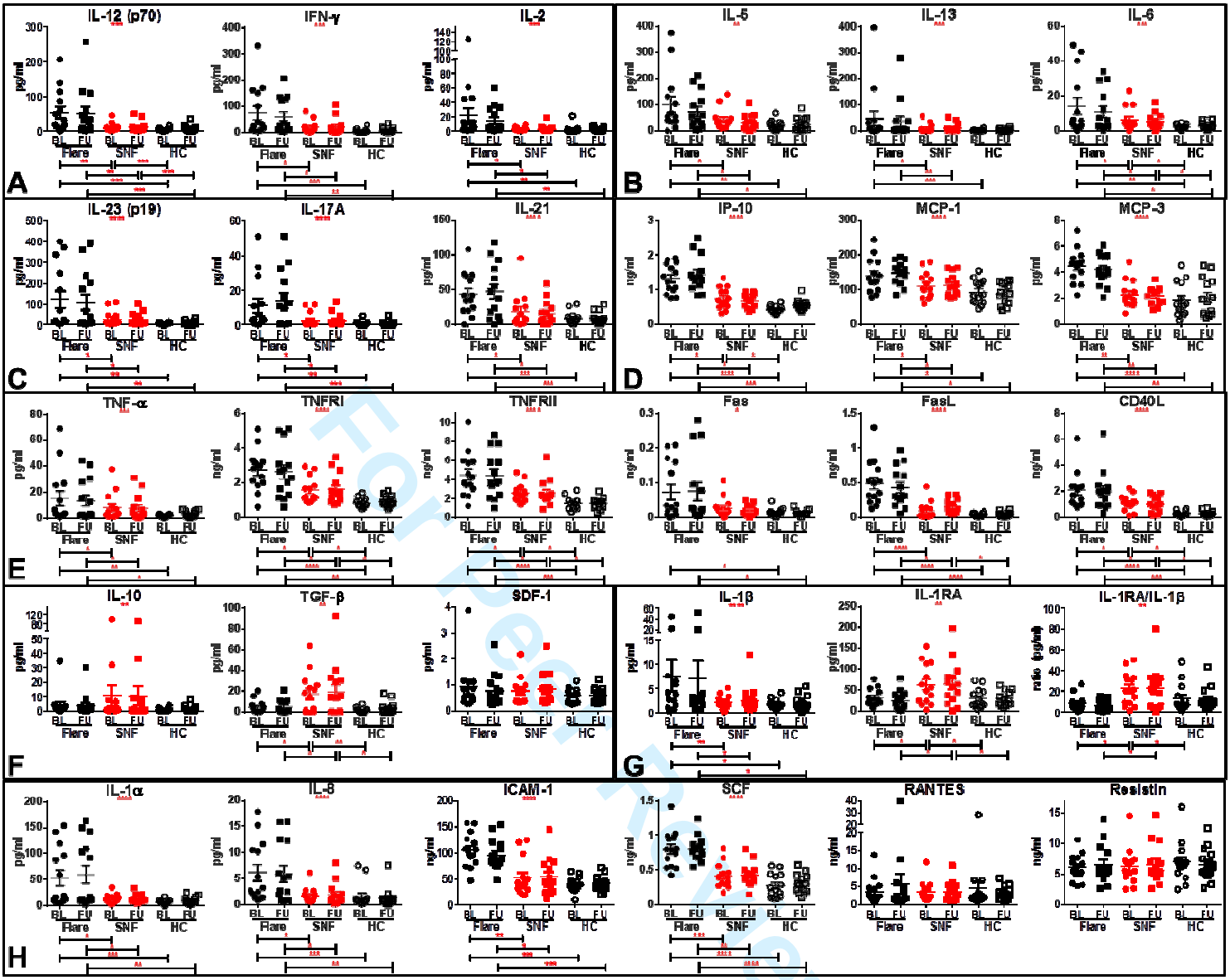
[d]Odds Ratio (# of Flare vs NF SLE patients with positive or negative soluble analyte score component value)

[e]Fisher's Exact test (2-tailed); significant values ($p < 0.05$) highlighted in green

N.D. = Not Determined



Supplementary Figure 1. Altered adaptive immunity and soluble TNF superfamily members in SLE patients with impending and concurrent disease flare. Plasma Th1 (**A**, IL-12p70, IFN-g, and IL-2), Th2 (**B**, IL-5, IL-13, and IL-6), and Th17 (**C**, IL-23p19, IL-17A, and IL-21) type cytokines, as well as chemokines (**D**, IP-10, MCP-1, and MCP-3), soluble TNF superfamily members (**E**, TNF-a, TNFRI, TNFRII, Fas, FasL, and CD40L), regulatory mediators (**F**, IL-10, TGF-b, SDF-1), IL-RA/IL-1b balance (**G**, IL-1b, IL-1RA, and ratio of IL-1RA:IL-1b), and other inflammatory mediators (**H**, IL-1a, IL-8, ICAM-1, SCF, RANTES, and Resistin) (mean ± SEM) were measured (mean ± SEM) by xMAP multiplex assay according to manufacturer protocol (Affymetrix, Santa Clara, CA) and read on a Bio-plex 200 reader (Bio-Rad, Hercules, CA). Samples were procured at baseline (BL)/pre-vaccination (circle) from 28 EA SLE patients who exhibited disease flare (black symbol) 6 to12 weeks later (follow-up [FU], square) vs. age (± 5 years)/race/gender/time of sample procurement matched SLE patients who did not flare (NF, blue symbol) vs. age (± 5 years)/race/gender/time of sample procurement matched unrelated/unaffected healthy controls (HC, open symbol) . Significance determined by Friedman test with Dunn's multiple comparison (Friedman test significance listed under each title). ** p< 0.05, **p < 0.01, *** p < 0.001, **** p , 0.0001*



Supplementary Figure 2. SLE patients with impending and concurrent disease flare have altered adaptive immunity and soluble TNF superfamily members compared to corresponding period of non-flare. Plasma Th1 (**A**, IL-12p70, IFNg, and IL-2), Th2 (**B**, IL-5, IL-13, and IL-6), and Th17 (**C**, IL-23p19, IL-17A, and IL-21) type cytokines, as well as chemokines (**D**, IP-10, MCP-1, and MCP-3), soluble TNF superfamily members (**E**, TNF-a, TNFRI, TNFRII, Fas, FasL, and CD40L), regulatory mediators (**F**, IL-10, TGF-b, SDF-1), IL-RA/IL-1b balance (**G**, IL-1b, IL-1RA, and ratio of IL-1RA:IL-1b), and other inflammatory mediators (**H**, IL-1a, IL-8, ICAM-1, SCF, RANTES, and Resistin) (mean ± SEM) were measured (mean ± SEM) by xMAP multiplex assay according to manufacturer protocol (Affymetrix, Santa Clara, CA) and read on a Bio-plex 200 Luminex-type reader (Bio-Rad, Hercules, CA). Samples were procured at baseline (BL)/pre-vaccination (circle) from 13 EA SLE patients who exhibited disease flare (black symbol) 6-12 weeks later (follow-up [FU], square) vs. the *same* SLE patients in a separate influenza season when they did not exhibit disease flare post-vaccination (SNF, red symbol) vs. age (± 5 years)/race/gender/time of sample procurement matched unrelated/unaffected healthy controls (HC, open symbol). Significance determined by Friedman test with Dunn's multiple comparison (Friedman test significance listed under each title). ** p< 0.05, **p < 0.01, *** p < 0.001, **** p , 0.0001*