

Supplemental Table 1. Cell subset numbers determined by viSNE.

Cell Subset	Median Frequency (IQR)		KW p-value	FDR q-value
	MMF-	MMF+		
Total Cells/mL	2.80x10 ⁷ (2.40x10 ⁷ -3.42x10 ⁷)	1.30x10 ⁷ (1.30x10 ⁷ -2.30x10 ⁷)	0.1580	0.4550
Monocytes	3.03x10 ⁶ (1.53x10 ⁶ -3.62x10 ⁶)	1.42x10 ⁶ (1.18x10 ⁶ -1.96x10 ⁶)	0.2210	0.4550
Dendritic Cells	2.32x10 ⁵ (8.57x10 ⁴ -3.30x10 ⁵)	1.35x10 ⁵ (5.70x10 ⁴ -1.85x10 ⁵)	0.3910	0.5213
Plasmacytoid Dendritic Cells	1.40x10 ⁵ (7.64x10 ⁴ -4.32x10 ⁵)	9.24x10 ⁴ (5.45x10 ⁴ -1.05x10 ⁵)	0.2210	0.4550
CD4+ Monocytes	3.94x10 ⁵ (1.45x10 ⁵ -1.02x10 ⁶)	2.92x10 ⁵ (1.28x10 ⁵ -4.24x10 ⁵)	0.3270	0.4550
B Cells	2.49x10 ⁶ (9.31x10 ⁵ -5.64x10 ⁵)	1.15x10 ⁶ (1.02x10 ⁶ -1.66x10 ⁶)	0.3270	0.4550
Switched Memory B Cells	2.45x10 ⁵ (9.57x10 ⁴ -5.43x10 ⁵)	1.41x10 ⁵ (1.18x10 ⁵ -1.54x10 ⁵)	0.2700	0.4550
Plasmablasts	5.46x10 ⁴ (2.94x10 ⁴ -1.46x10 ⁵)	4914 (4578-8203)	0.0500	0.4550
Transitional B Cells	3696 (705-1.32x10 ⁴)	546 (0-3780)	0.5330	0.6400
Naïve B Cells	1.70x10 ⁶ (6.56x10 ⁵ -4.18x10 ⁶)	8.10x10 ⁵ (6.00x10 ⁵ -1.11x10 ⁶)	0.2700	0.4550
IgD-CD27- DN B cells	1.41x10 ⁵ (5.77x10 ⁴ -2.39x10 ⁵)	1.25x10 ⁵ (1.00x10 ⁵ -1.99x10 ⁵)	0.5400	0.6400
CCR6+ B Cells	9.30x10 ⁵ (4.93x10 ⁵ -1.41x10 ⁶)	2.59x10 ⁵ (2.03x10 ⁵ -3.52x10 ⁵)	0.0864	0.4550
T Cells	1.97x10 ⁷ (1.81x10 ⁷ -2.42x10 ⁷)	1.00x10 ⁷ (9.50x10 ⁶ -1.54x10 ⁷)	0.0500	0.4550
CD4+ T Cells	1.39x10 ⁷ (7.19x10 ⁶ -1.48x10 ⁷)	6.76x10 ⁶ (4.50x10 ⁶ -9.68x10 ⁶)	0.1110	0.4550
CD8+ T Cells	5.08x10 ⁶ (3.31x10 ⁶ -7.92x10 ⁶)	3.29x10 ⁶ (2.26x10 ⁶ -4.27x10 ⁶)	0.2210	0.4550
TCRγδ T Cells	1.88x10 ⁵ (1.33x10 ⁵ -4.74x10 ⁵)	1.17x10 ⁵ (1.16x10 ⁵ -2.17x10 ⁵)	0.3270	0.4550
CD4+ Memory T Cells	5.75x10 ⁶ (2.94x10 ⁶ -6.33x10 ⁶)	3.41x10 ⁶ (2.46x10 ⁶ -4.78x10 ⁶)	0.4620	0.5914
CD8+ Memory T Cells	7.89x10 ⁵ (4.98x10 ⁵ -1.17x10 ⁶)	4.38x10 ⁵ (2.99x10 ⁵ -6.85x10 ⁵)	0.1780	0.4550
CD4+ Central Memory T Cells	2.95x10 ⁶ (1.53x10 ⁶ -3.91x10 ⁶)	1.20x10 ⁶ (1.06x10 ⁶ -1.87x10 ⁶)	0.0864	0.4550
CD8+ Central Memory T Cells	5.36x10 ⁴ (3.55x10 ⁴ -1.18x10 ⁵)	4.94x10 ⁴ (4.26x10 ⁴ -8.03x10 ⁴)	0.8060	0.8597
CD4+ Effector Memory T Cells	1.60x10 ⁶ (1.13x10 ⁶ -2.26x10 ⁶)	1.34x10 ⁶ (1.23x10 ⁶ -1.72x10 ⁶)	0.9030	0.9030
CD8+ Effector Memory T Cells	4.96x10 ⁵ (2.62x10 ⁵ -5.33x10 ⁵)	1.79x10 ⁵ (1.55x10 ⁵ -3.60x10 ⁵)	0.1780	0.4550

CD4+ Naïve/Effector T Cells	6.48x10 ⁶ (3.85x10 ⁶ -9.22x10 ⁶)	3.32x10 ⁶ (2.02x10 ⁶ -3.46x10 ⁶)	0.0662	0.4550
CD8+ Naïve/Effector T Cells	4.25x10 ⁶ (2.43x10 ⁶ -5.74x10 ⁶)	2.39x10 ⁶ (1.96x10 ⁶ -3.72x10 ⁶)	0.2210	0.4550
CD4+ CXCR5+ T Cells	7.44x10 ⁵ (4.44x10 ⁵ -1.37x10 ⁶)	4.63x10 ⁵ (2.86x10 ⁵ -8.64x10 ⁵)	0.3270	0.4550
CD4+ Th1-type T Cells	1.67x10 ⁶ (8.94x10 ⁵ -2.29x10 ⁶)	6.96x10 ⁵ (6.41x10 ⁵ -9.03x10 ⁵)	0.2700	0.4550
CD8+ Tc1-type T Cells	1.18x10 ⁶ (7.49x10 ⁵ -2.13x10 ⁶)	7.73x10 ⁵ (4.99x10 ⁵ -7.81x10 ⁵)	0.2700	0.4550
CD4+ CCR6+ T Cells	3.44x10 ⁵ (1.74x10 ⁵ -5.80x10 ⁵)	1.00x10 ⁵ (9.30x10 ⁴ -1.48x10 ⁵)	0.0500	0.4550
NKT Cells	5.56x10 ⁴ (1.59x10 ⁴ -1.26x10 ⁵)	8.36x10 ⁴ (7.16x10 ⁴ -1.66x10 ⁵)	0.8060	0.8597
NK Cells	1.23x10 ⁶ (6.55x10 ⁵ -2.09x10 ⁶)	9.37x10 ⁵ (5.79x10 ⁵ -1.47x10 ⁶)	0.6240	0.7131
CD57+ NK Cells	5.04x10 ⁵ (2.54x10 ⁵ -8.54x10 ⁵)	3.93x10 ⁵ (2.64x10 ⁵ -8.48x10 ⁵)	0.9030	0.9030
CD57- NK Cells	5.77x10 ⁵ (3.23x10 ⁵ -7.71x10 ⁵)	4.16x10 ⁵ (3.14x10 ⁵ -5.22x10 ⁵)	0.3270	0.4550

Supplemental Table 2. Cell numbers determined by bivariate plots.

	Cell Surface Designation	Median (Interquartile Range)		KW p-value	FDR q-value
		MMF-	MMF+		
Total Cells/mL	All live intact cells	2.80x10 ⁷ (2.40x10 ⁷ -3.42x10 ⁷)	1.30x10 ⁷ (1.30x10 ⁷ -2.30x10 ⁷)	0.1580	0.4125
Monocytes	HLA-DR+CD11c+CD14+CD16±	1.70x10 ⁶ (7.32x10 ⁵ -2.66x10 ⁶)	7.86x10 ⁵ (7.63x10 ⁵ -8.42x10 ⁵)	0.3910	0.5001
Dendritic Cells	HLA-DR+CD11c+CD14-CD16-	4.09x10 ⁵ (2.53x10 ⁵ -5.16x10 ⁵)	1.61x10 ⁵ (1.45x10 ⁵ -3.82x10 ⁵)	0.2210	0.4125
Plasmacytoid Dendritic Cells	HLA-DR+CD11c-CD123+	3.35x10 ⁴ (2.49x10 ⁴ -7.70x10 ⁴)	1.38x10 ⁴ (1.09x10 ⁴ -1.75x10 ⁴)	0.0864	0.3394
Classical Monocytes	HLA-DR+CD11c+CD14+CD16-	1.50x10 ⁶ (6.91x10 ⁵ -2.49x10 ⁶)	6.98x10 ⁵ (6.80x10 ⁵ -8.04x10 ⁵)	0.3910	0.5001
Non-Classical Monocytes	HLA-DR+CD11c+CD14 ^{lo} CD16+	1.10x10 ⁵ (2.85x10 ⁴ -1.76x10 ⁵)	5.68x10 ⁴ (2.38x10 ⁴ -7.64x10 ⁵)	0.6240	0.6729
Intermediate Monocytes	HLA-DR+CD11c+CD14+CD16+	1.26 ⁴ (1642-1.68x10 ⁴)	2910 (1660-1.39x10 ⁴)	0.7120	0.7399
Mo-MDSCs*	CD14+CD11b+CD33+HLA-DR-	4394 (2256-2.83x10 ⁴)	5.60x10 ⁴ (3320-3.38x10 ⁵)	0.4620	0.5775
Conventional Dendritic Cells	HLA-DR+CD11c+CD14-CD16- CD11b+	2.21x10 ⁵ (1.33x10 ⁵ -2.64x10 ⁵)	7.86x10 ⁴ (5.48x10 ⁴ -1.83x10 ⁵)	0.2700	0.4125
CXCR3+ Dendritic Cells	HLA-DR+CD11c+CD14-CD16- CD11b+CXCR3+	5.31x10 ⁴ (4.13x10 ⁴ -8.35x10 ⁴)	2.46x10 ⁴ (2.02x10 ⁴ -3.53x10 ⁴)	0.0662	0.3394
Basophils	HLA-DR-CD11c-CD123+	4.03x10 ⁴ (1.71x10 ⁴ -6.74x10 ⁴)	2.06x10 ⁴ (3873-5.56x10 ⁴)	0.5400	0.6061
B Cells	CD3-CD19+	1.96x10 ⁶ (6.64x10 ⁵ -4.41x10 ⁶)	7.79x10 ⁵ (6.43x10 ⁵ -8.57x10 ⁵)	0.2210	0.4125
Switched Memory B Cells	CD3-CD19+IgD-CD27+CD38-	1.25x10 ⁵ (5.46x10 ⁴ -1.57x10 ⁵)	4.03x10 ⁴ (3.45x10 ⁴ -5.86x10 ⁴)	0.0864	0.3394
Non-switched Memory B cells	CD3-CD19+IgD+CD27+	1.28x10 ⁵ (5.79x10 ⁴ -2.31x10 ⁵)	5.31x10 ⁴ (4.07x10 ⁴ -1.15x10 ⁵)	0.3270	0.4861
Plasmablasts	CD3-CD19+IgD-CD27+CD38+	6.88x10 ⁴ (5.47x10 ⁴ -1.05x10 ⁵)	3.44x10 ⁴ (1.38x10 ⁴ -5.18x10 ⁴)	0.0864	0.3394
Transitional B Cells	CD3-CD19+IgD+CD27- CD24 ^{hi} CD38 ^{hi}	2.44x10 ⁴ (9268-4.18x10 ⁴)	1044 (593-8576)	0.0200	0.3394
Naïve B Cells	CD3-CD19+IgD+CD27- CD24±CD38±	1.27x10 ⁶ (3.87x10 ⁵ -2.75x10 ⁶)	4.10x10 ⁵ (3.12x10 ⁵ -5.28x10 ⁵)	0.2700	0.4125
IgD-CD27- DN B cells	CD3-CD19+IgD-CD27-	2.16x10 ⁵ (9.27x10 ⁴ -4.42x10 ⁵)	1.60x10 ⁵ (1.36x10 ⁵ -2.70x10 ⁵)	0.8060	0.8209

T Cells	CD3+CD56-	1.78x10 ⁷ (1.62x10 ⁶ -2.19x10 ⁷)	8.51x10 ⁶ (8.27x10 ⁶ -1.33x10 ⁷)	0.0500	0.3394
CD4+ T Cells	CD3+CD56-CD4+CD8-	1.17x10 ⁷ (6.62x10 ⁶ -1.35x10 ⁷)	5.70x10 ⁶ (3.77x10 ⁶ -8.26x10 ⁶)	0.0864	0.3394
CD8+ T Cells	CD3+CD56-CD4-CD8+	4.36x10 ⁶ (3.25x10 ⁶ -7.19x10 ⁶)	3.04x10 ⁶ (1.77x10 ⁶ -3.65x10 ⁶)	0.2700	0.4125
TCR $\gamma\delta$ T Cells	CD3+CD56-CD4-CD8-TCR $\gamma\delta$ +	8.20x10 ⁴ (3.78x10 ⁴ -2.27x10 ⁵)	2.58x10 ⁴ (1.48x10 ⁴ -1.15x10 ⁵)	0.2700	0.4125
CD4+ Memory T Cells	CD3+CD56-CD4+CD45RA-	6.40x10 ⁶ (4.20x10 ⁶ -7.08x10 ⁶)	3.13x10 ⁶ (2.52x10 ⁶ -5.71x10 ⁶)	0.1420	0.4125
CD8+ Memory T Cells	CD3+CD56-CD8+CD45RA-	1.46x10 ⁶ (7.69x10 ⁵ -1.98x10 ⁶)	8.03x10 ⁵ (5.45x10 ⁵ -1.35x10 ⁶)	0.3910	0.5001
CD4+ Central Memory T Cells	CD3+CD56-CD4+CD45RA-CCR7+	4.10x10 ⁶ (2.04x10 ⁶ -4.31x10 ⁶)	1.54x10 ⁶ (1.50x10 ⁶ -2.32x10 ⁶)	0.1110	0.4070
CD8+ Central Memory T Cells	CD3+CD56-CD8+CD45RA-CCR7+	1.02x10 ⁶ (4.99x10 ⁵ -1.14x10 ⁶)	6.43x10 ⁵ (4.35x10 ⁵ -7.55x10 ⁵)	0.3910	0.5001
CD4+ Effector Memory T Cells	CD3+CD56-CD4+CD45RA-CCR7-	2.43x10 ⁶ (1.82x10 ⁶ -2.85x10 ⁶)	1.62x10 ⁶ (1.01x10 ⁶ -2.44x10 ⁶)	0.5400	0.6061
CD8+ Effector Memory T Cells	CD3+CD56-CD8+CD45RA-CCR7-	4.48x10 ⁵ (2.12x10 ⁵ -7.00x10 ⁵)	1.80x10 ⁵ (1.52x10 ⁵ -4.20x10 ⁵)	0.1780	0.4125
CD4+ Naïve/Effector T Cells	CD3+CD56-CD4+CD45RA+	4.94x10 ⁶ (2.99x10 ⁶ -7.10x10 ⁶)	2.56x10 ⁶ (1.32x10 ⁶ -2.62x10 ⁶)	0.0864	0.3394
CD8+ Naïve/Effector T Cells	CD3+CD56-CD8+CD45RA+	2.84x10 ⁶ (1.84x10 ⁶ -4.81x10 ⁶)	1.66x10 ⁶ (1.20x10 ⁶ -2.47x10 ⁶)	0.2210	0.4125
CD4+ Treg-type T Cells	CD3+CD56-CD4+CD25+CD127-	5.66x10 ⁵ (3.22x10 ⁵ -7.05x10 ⁵)	2.11x10 ⁵ (1.97x10 ⁵ -2.97x10 ⁵)	0.0500	0.3394
CD8+ Treg-type T Cells	CD3+CD56-CD8+CD25+CD127-	8.87x10 ⁴ (6.42x10 ⁴ -2.89x10 ⁵)	6.25x10 ⁴ (3.67x10 ⁴ -8.52x10 ⁴)	0.1780	0.4125
CD4+ Tfh-type T Cells	CD3+CD56-CD4+CXCR5+PD-1+	1.04x10 ⁵ (6.69x10 ⁴ -2.04x10 ⁵)	7.64x10 ⁴ (5.26x10 ⁴ -1.52x10 ⁵)	0.5400	0.6061
CD8+ Tfh-type T Cells	CD3+CD56-CD8+CXCR5+PD-1+	1.79x10 ⁴ (1.09x10 ⁴ -2.79x10 ⁴)	1.06x10 ⁴ (9048-1.10x10 ⁴)	0.2210	0.4125
CD4+ Th1-type T Cells	CD3+CD56-CD4+CXCR3+	4.20x10 ⁶ (3.00x10 ⁶ -6.79x10 ⁶)	2.04x10 ⁶ (1.78x10 ⁶ -2.61x10 ⁶)	0.0864	0.3394
CD8+ Tc1-type T Cells	CD3+CD56-CD8+CXCR3+	2.58x10 ⁶ (1.86x10 ⁶ -3.47x10 ⁶)	1.83x10 ⁶ (9.82x10 ⁵ -2.11x10 ⁶)	0.1420	0.4125
CD4+ Th17-type T Cells	CD3+CD56-CD4+CCR6+CD161+	1.57x10 ⁵ (8.58x10 ⁴ -2.86x10 ⁵)	7.66x10 ⁴ (6.91x10 ⁴ -7.99x10 ⁴)	0.0373	0.3394
CD4+ CD57+ T Cells	CD3+CD56-CD4+CD57+	1.51x10 ⁵ (5.99x10 ⁴ -3.44x10 ⁵)	5.29x10 ⁴ (2.87x10 ⁴ -1.88x10 ⁵)	0.2700	0.4125
CD8+ CD57+ T Cells	CD3+CD56-CD8+CD57+	2.85x10 ⁴ (8939-5.97x10 ⁴)	5643 (2611-5934)	0.2210	0.4125
NKT Cells	CD3+CD56+	4.63x10 ⁵ (1.50x10 ⁵ -6.97x10 ⁵)	5.55x10 ⁵ (2.47x10 ⁵ -7.41x10 ⁵)	0.9030	0.9030
NK Cells	CD3-CD19-CD56+	1.24x10 ⁶ (5.82x10 ⁵ -2.46x10 ⁶)	2.96x10 ⁵ (2.23x10 ⁵ -1.71x10 ⁶)	0.1780	0.4125

CD16-CD56hi NK Cells	CD3-CD19-CD56-CD16+	1.06×10^5 (3.17×10^4 - 1.30×10^5)	3.27×10^4 (2.78×10^4 - 7.29×10^4)	0.2700	0.4125
CD16+CD56med NK Cells	CD3-CD19-CD56+CD16+	6.81×10^5 (3.07×10^5 - 1.34×10^6)	9.13×10^4 (7.96×10^4 - 1.56×10^6)	0.3910	0.5001
CD16-CD56lo NK Cells	CD3-CD19-CD56+CD16-	1.14×10^5 (3.66×10^4 - 4.60×10^5)	2.76×10^4 (2.63×10^4 - 1.03×10^5)	0.2210	0.4125
CD94hiCD56hi NK Cells	CD3-CD19-CD56 ^{hi} CD94 ^{hi}	3.19×10^4 (9557 - 1.52×10^5)	7375 (4177 - 7.23×10^4)	0.5400	0.6061
CD94+CD56med NK Cells	CD3-CD19-CD56+CD94+	6.27×10^5 (3.65×10^5 - 1.32×10^6)	1.90×10^5 (1.71×10^5 - 1.32×10^6)	0.2700	0.4125
CD94-CD56med NK Cells	CD3-CD19-CD56+CD94-	5.59×10^5 (2.01×10^5 - 7.22×10^5)	9.11×10^4 (4.63×10^4 - 2.31×10^5)	0.0662	0.3394
CD8hiCD56hi NK Cells	CD3-CD19-hiCD56+CD8hi	2.40×10^4 (2887 - 1.73×10^5)	3951 (2066 - 1.24×10^5)	0.6240	0.6729
CD8loCD56hi NK Cells	CD3-CD19-loCD56+CD8lo	4.89×10^4 (1.37×10^4 - 1.68×10^5)	5918 (5794 - 6.36×10^4)	0.3910	0.5001
CD8hiCD56med NK Cells	CD3-CD19-hiCD56+CD8hi	3.19×10^5 (1.10×10^5 - 4.61×10^5)	1.10×10^5 (2.33×10^4 - 7.61×10^5)	0.7130	0.7399
CD8medCD56med NK Cells	CD3-CD19-medCD56+CD8me	2.09×10^5 (7.67×10^4 - 3.87×10^5)	4.06×10^4 (2.23×10^4 - 3.36×10^5)	0.2210	0.4125
CD8loCD56med NK Cells	CD3-CD19-loCD56+CD8lo	5.45×10^5 (2.89×10^5 - 1.01×10^6)	1.70×10^5 (1.31×10^5 - 3.06×10^5)	0.0373	0.3394
CD57+CD56+ NK Cells	CD3-CD19-CD56+CD57+	5.16×10^5 (2.29×10^5 - 8.36×10^5)	1.55×10^5 (8.34×10^4 - 8.07×10^5)	0.2700	0.4125
CD57-CD56+ NK Cells	CD3-CD19-CD56+CD57-	6.00×10^5 (3.26×10^5 - 8.39×10^5)	1.25×10^5 (1.23×10^4 - 5.91×10^5)	0.0864	0.3394
CD57-CD56hi NK Cells	CD3-CD19-CD56+CD57-	9.41×10^4 (2.32×10^4 - 3.28×10^5)	1.27×10^4 (1.21×10^4 - 1.83×10^5)	0.5400	0.6061

Supplemental Table 3. Significant frequency differences in surface marker expression by cell subset.

	Median (Interquartile Range)		KW	FDR
	MMF-	MMF+	p-value	q-value
CXCR3+ Dendritic Cells				
CD38+	86.86 (79.04-89.08)	68.27 (68.00-73.47)	0.0101	0.0441
CXCR5+	5.05 (3.27-12.14)	16.55 (16.27-16.77)	0.0143	0.0441
Basophils				
CCR7+	1.83 (0.00-1.54)	21.39 (6.06-23.81)	0.0261	0.0441
CD85j+	2.19 (1.01-7.73)	12.70 (11.76-23.53)	0.0373	0.0441
B Cells				
CD28+	0.65 (0.44-1.54)	5.33 (2.33-6.00)	0.0275	0.0441
CD38+	50.10 (46.01-56.56)	39.86 (32.13-41.04)	0.0373	0.0441
Memory B Cells				
CD28+	0.82 (0.19-1.66)	2.53 (1.87-3.18)	0.0142	0.0441
HLA-DR+	98.46 (97.34-99.60)	95.48 (95.45-95.70)	0.0275	0.0441
CD86+	46.72 (38.61-50.01)	18.48 (7.32-38.88)	0.0373	0.0441
Non-switched Memory B cells				
PD-1+	0.09 (0.00-0.19)	0.47 (0.43-0.50)	0.0126	0.0441
CCR6+	24.15 (22.79-47.22)	17.09 (15.28-17.52)	0.0200	0.0441
Plasmablasts				
CD28+	1.08 (0.39-3.08)	10.89 (5.65-17.83)	0.0101	0.0441
CCR6+	21.24 (17.45-27.85)	8.60 (6.69-8.97)	0.0373	0.0441
Transitional B Cells				
HLA-DR^{Hi}	47.54 (35.77-54.41)	25.00 (7.25-30.88)	0.0083	0.0441
Naïve B cells				
CCR6+	40.25 (28.29-55.18)	22.33 (21.65-24.73)	0.0143	0.0441
CD38+	58.04 (49.88-70.51)	34.35 (34.32-38.44)	0.0275	0.0441
CD86+	20.11 (12.87-24.65)	5.73 (5.02-9.68)	0.0373	0.0441
T Cells				
CCR6+	1.70 (1.17-2.34)	0.94 (0.72-1.28)	0.0500	0.0500
CD8+ T Cells				
CCR6+	0.76 (0.57-0.92)	0.24 (0.35-0.45)	0.0500	0.0500
CD4+ T Cells				
CD38+	34.45 (29.10-39.99)	20.87 (19.49-26.54)	0.0500	0.0500
TCR$\gamma$$\delta$ T cells				
HLA-DR+	8.52 (5.94-10.17)	4.87 (3.09-5.44)	0.0275	0.0441
CXCR5+	1.19 (0.92-1.96)	3.37 (2.28-3.70)	0.0500	0.0500

CD8+ Memory T Cells				
HLA-DR^{Hi}	0.48 (0.27-0.60)	0.10 (0.10-0.17)	0.0071	0.0441
CCR6+	1.06 (0.62-3.02)	0.42 (0.27-0.57)	0.0275	0.0441
CD8+ Central Memory T Cells				
HLA-DR^{Hi}	0.35 (0.21-0.85)	0.12 (0.10-0.14)	0.0101	0.0441
CCR6+	1.39 (0.78-2.04)	0.41 (0.24-0.63)	0.0275	0.0441
CD4+ Effector Memory T Cells				
CCR6+	3.69 (3.00-6.53)	2.17 (1.69-2.53)	0.0275	0.0441
HLA-DR+	11.87 (5.98-14.60)	4.62 (3.92-6.29)	0.0373	0.0441
CD4+ Naïve/Effector T Cells				
ICOS+	0.47 (0.29-0.84)	1.13 (0.91-1.50)	0.0373	0.0441
CD4+ Treg-type Cells				
CCR6+	1.18 (0.77-1.92)	0.48 (0.38-0.58)	0.0485	0.0500
CD8+ Treg-type Cells				
HLA-DR^{Hi}	4.10 (3.58-4.52)	1.60 (1.10-3.24)	0.0373	0.0441
CD4+ Tfh-type Cells				
CCR6+	3.11 (2.53-4.26)	1.75 (1.34-1.94)	0.0373	0.0441
CD8+ Tc17-type Cells				
CXCR3+	37.83 (26.92-51.49)	20.00 (17.97-28.57)	0.0275	0.0441
CD4+CD57+ T Cells				
HLA-DR+	19.38 (15.26-24.71)	12.34 (8.31-13.61)	0.0200	0.0441
HLA-DR^{Hi}	2.09 (0.93-2.66)	0.33 (0.31-0.46)	0.0233	0.0441
NKT Cells				
CCR6+	5.36 (3.17-6.96)	1.22 (0.84-4.68)	0.0500	0.0500
CXCR3+	28.37 (23.72-32.35)	16.07 (15.71-19.78)	0.0500	0.0500

Supplemental Table 4. Plasma soluble mediator levels.

Soluble Mediator	Median Frequency (IQR)		KW p-value	FDR q-value
	MMF-	MMF+		
BLyS	883.10 (683.73-1027.10)	862.70 (741.37-1011.90)	1.0000	1.0000
CXCL13	234.93 (167.46-298.66)	218.70 (194.67-247.67)	0.7130	0.8793
Eotaxin	33.33 (27.50-59.24)	45.48 (32.87-49.43)	0.6240	0.8793
G-CSF	0.00 (0.00-22.89)	20.26 (0.00-20.26)	0.6890	0.8793
ICAM-1	555305 (84520-555305)	154883 (113997-220361)	0.8060	0.8793
IFN- β	2.74 (0.00-8.33)	2.29 (0.00-10.9)	0.5270	0.8793
IL-1RA	384.46 (96.37-418.22)	385.46 (385.46-385.46)	0.4730	0.8793
IL-2	0.00 (0.00-22.67)	41.39 (0.00-42.00)	0.1440	0.5760
IL-21	6.58 (0.00-40.10)	8.19 (6.58-14.31)	1.0000	1.0000
IL-2RA	8058.11 (5240.00-15103.22)	9719.10 (7894.57-13657.32)	0.6240	0.8793
IL-5	6.22 (0.00-12.44)	0.00 (0.00-0.00)	0.0614	0.3615
IL-6	0.00 (0.00-19.84)	19.84 (0.00-19.84)	0.6290	0.8793
IL-7	5.60 (4.93-9.23)	2.64 (1.38-4.83)	0.0662	0.3615
IL-8	1.69 (0.00-3.38)	3.38 (0.00-12.20)	0.7920	0.8793
IP-10	49.49 (28.92-60.26)	29.19 (18.77-31.13)	0.2210	0.7956
Leptin	34352.56 (22645.50-40222.22)	40222 (36869-40222)	0.7400	0.8793
LIF	6.66 (6.25-10.52)	7.72 (8.44-13.76)	0.2700	0.8793
MCP-1	32.30 (26.58-44.11)	19.14 (11.87-30.48)	0.0864	0.3888
MCP-3	113.36 (74.06-145.44)	91.42 (44.86-130.01)	0.5400	0.8793
MIG	146.47 (114.22-172.00)	87.41 (78.77-105.76)	0.0200	0.3300
MIP-1 α	11.92 (8.72-33.26)	23.88 (18.85-46.59)	0.3910	0.8793
MIP-1 β	99.79 (65.46-165.50)	117.32 (46.73-130.74)	0.7130	0.8793
PAI-1	15064 (12095-20488)	18252 (17866-19639)	0.9020	0.9288
PDGF-BB	1142.36 (479.40-2311.40)	279.96 (183.88-388.33)	0.0373	0.3357
RANTES	0.00 (0.00-0.00)	144.24 (0.00-147.41)	0.0703	0.3615
Resistin	3314.38 (2193.02-4237.60)	1912.41 (1853.43-4429.27)	0.8060	0.8793
sCD40L	252.50 (174.49-356.69)	159.97 (144.17-564.86)	0.5400	0.8793
SCF	34.33 (21.27-51.56)	38.16 (31.23-42.83)	0.4620	0.8793
SDF-1 α	367.06 (313.04-496.03)	240.74 (213.65-253.91)	0.0275	0.3300
sEselectin	78474 (83598-94323)	70697 (57367-83236)	0.7130	0.8793
sFasL	13.91 (4.12-17.97)	5.99 (4.12-9.51)	0.3180	0.8793
TNF- α	4.36 (1.09-4.36)	4.36 (4.36-4.36)	0.6900	0.8793
TNFR1	1344.54 (1044.84-2165.68)	2186.00 (1729.40-2304.82)	0.3270	0.8793
TNFR2	320.30 (288.57-385.19)	385.19 (308.54-385.19)	0.5190	0.8793
TRAIL	27.58 (18.82-35.77)	26.20 (22.59-28.38)	0.9030	0.9288
VCAM-1	4281.48 (4281.48-4281.48)	4281.48 (4281.48-4281.48)	0.4800	0.8793
VEGF-A	417.23 (303.83-741.27)	157.76 (115.70-188.67)	0.0007	0.0792

Supplemental Table 5. SLE patient demographics, medications and clinical features.

Mycophenolate Mofetil Treatment Demographics			
	MMF- (n=10)	MMF+ (n=5)	p-value
Age (Mean±SD)	47.2 (8.0)	42.8 (9.8)	0.3556
Mean SLEDAI (Range)	3.8 (0-8)	3.2 (0-6)	0.8122
Gender (Female)	10 (100%)	5 (100%)	-
Race (European)	4 (40%)	2 (40%)	-
Race (African)	6 (60%)	3 (60%)	-
Medication			
Prednisone	4 (40%)	3 (60%)	-
Azathioprine	2 (20%)	0 (0%)	-
Hydroxychloroquine/Quinacrine	7 (70%)	4 (80%)	-
Infliximab	1 (10%)	0 (0%)	-
Manifestations			
Arthritis	10 (100%)	5 (100%)	-
Oral Ulcers	8 (80%)	5 (100%)	-
Malar Rash	9 (90%)	3 (60%)	-
Photosensitivity	5 (50%)	3 (60%)	-
Immunologic Criteria	2 (20%)	3 (60%)	-
Serositis	6 (60%)	3 (60%)	-
Leukopenia	1 (10%)	2 (40%)	-
Lymphopenia	3 (30%)	2 (40%)	-
Renal Disease	3 (30%)	2 (40%)	-
CNS Disease	0 (0%)	1 (20%)	-
Discoid Rash	2 (20%)	1 (20%)	-
Hemolytic Anemia	1 (10%)	0 (0%)	-
Thrombocytopenia	1 (10%)	0 (0%)	-

Supplemental Table 6. Antibodies and elemental isotope tags.

Antigen Target (Human)	Clone Number	Supplier	Elemental Isotope
CCR6	IA9	BD	Gd155
CCR7	150503	R&D Systems	Gd160
CD11b	ICRF44	BioLegend	Eu153
CD11c	Bu15	BioLegend	Nd148
CD123	9F5	BD	Yb173
CD127	A019D5	BioLegend	Ho165
CD14	M5E2	BioLegend	Sm154
CD16	3G8	BioLegend	Sm149
CD161	DX12	BD	Er170
CD19	SJ25C1	Southern Biotech	Nd142
CD20	2H7	BioLegend	Dy164
CD24	ML5	BioLegend	Er168
CD25	M-A251	BD	Yb176
CD27	L128	BD	Sm152
CD28	L293	BD	Er167
CD3	UCHT1	BD	Nd150
CD33	P67.8	BD	Er166
CD38	HB-7	BD	Eu151
CD4	SK3	BioLegend	Nd143
CD45RA	HI100	BioLegend	Dy162
CD56	NCAM16.2	BD	Yb174
CD57	HCD57	BioLegend	In113
CD8	SK1	BioLegend	Nd144
CD85j	292319	R&D Systems	Sm147
CD86	IT2.2	BioLegend	Gd157
CD94	HP-3D9	BD	Gd156
CXCR3	G025H7	BioLegend	Tb159
CXCR5	RF8B2	BD	Gd158
HLADR	G46-6	BD	Lu175
ICOS	DX29	BD	Tm169
IgD	IA6-2	BioLegend	Nd146
PD-1	EH12.1	BD	Yb172
TCR $\gamma\delta$	B1	BioLegend	Yb171

MCP-1											X								
MIG											X	X							
MIP-1 α											X								
MIP-1 β											X								
PAI-1														X		X			
PDGF-BB			X						X									X	
SDF-1 α									X	X									
sFasL						X	X												
TNFR1						X													
TNFR2						X													
TRAIL						X													
VCAM-1																			X
VEGF-A			X															X	
T Cells													X						
CD4+ Th17-type cells														X					
CCR6+ T Cells															X				
CD4+ Treg-type cells															X				
CD38+ CD4+ T cells																X			
CD38+ B cells												X							
HLA-DR+ Memory B Cells													X						
CD86+ Memory B Cells													X						

CCR6+ Naïve B cells												X								
CD38+ Naïve B cells												X								
CD86+ Naïve B cells												X								
HLA-DR+ Transition al B Cells												X								
Transition al B Cells												X								
Plasmablas ts			X									X								
CD8lo CD56 med NK Cells														X						
CD38+ CXCR3+ DCs															X					

SUPPLEMENTAL FIGURE LEGEND.

Supplemental Figure 1. Bivariate gating analysis scheme. Bivariate plots were used to compare features of MMF+ and MMF- SLE patient PBMCs by mass cytometry. Density map correspond to proportional cell abundance for each population indicated above each plot. (A) Main cell populations were first gated off intact cells defined by iridium-intercalators. Intact singlets were defined using cell length, and live cells were gated on the absence of cisplatin staining. CD3 and CD19 were used to identify T cells and B cells. NKT cells were identified as CD3+CD56+ and CD4+ and CD8+ T cells were gated off of CD3+CD56- cells. B Cells were gated on CD27, IgD, CD24 and CD38 to identify DN B Cells (CD27-IgD-), transitional B cells (CD27-IgD+CD38+CD24+), Naïve B cells(CD27-IgD+CD38±CD24-), Non-switched memory B cells(CD27+IgD+), Switched memory B cells(CD27+IgD-CD38-) and plasmablasts (CD27+IgD-CD38+). Myeloid cells were gated off CD3-CD19- cells to gate pDCs (HLA-DR+CD11c-CD123+), classical monocytes (HLA-DR+CD11c+CD14+CD16-), intermediate monocytes (HLA-DR+CD11c+CD14+CD16+), non-classical monocytes (HLA-DR+CD11c+CD14-CD16+), and dendritic cells (HLA-DR+CD11c+CD14-). (B) NK cell subsets were gated off CD3-CD19- and then CD56+ cells. (C) T cells were gated off CD4+ or CD8+ for memory(CD45RA-) and naïve/effector(CD45RA+) cells, Treg-type cells(CD25+CD127-), Tfh-type cells(CXCR5+PD-1+), Th1-type cells (CXCR3+), Th17-type cells(CCR6+CD161+), CD57+ T cells. TCR $\gamma\delta$ + T cells were gated off CD3+CD56- cells.(D) Other myeloid cell subsets such as basophils (HLA-DR-CD11c-CD123+), conventional DCs(CD11b+ DCs), CXCR3+ DCs, and myeloid-derived suppressor cells (CD14+CD11b+CD33+HLA-DR-) were gated off CD3-CD19- gate.

Supplemental Figure 1

