Supplementary Table 1: Characteristics of patients with primary Sjögren's syndrome (pSS), systemic lupus erythematosus (SLE), systemic sclerosis (SSc), rheumatoid arthritis (RA).

Characteristics of pSS patients	N	South N = 111[1]	North N = 108[1]	p-value[2]
Age	219	59 (11)	58 (13)	0.6
MD		0	0	
Gender	219			0.5
Female		108 / 111 (97%)	103 / 108 (95%)	
Male		3 / 111 (2.7%)	5 / 108 (4.6%)	
MD		0	0	
Ethnic origin	219			0.2
Asian		0 / 111 (0%)	1 / 108 (0.9%)	
Caucasian/White		111 / 111 (100%)	106 / 108 (98%)	
Other		0 / 111 (0%)	1 / 108 (0.9%)	
MD		0	0	
Obesity	208	13 / 102 (13%)	17 / 106 (16%)	0.5
MD		9	2	
Cigarette smoking	203	9 / 101 (8.9%)	10 / 102 (9.8%)	0.8
MD		10	6	
Duration disease	219	11 (7)	10 (7)	0.2
MD		0	0	
Physician global assessment	212	19 (17)	28 (18)	<0.001
MD		0	7	
Treatment				
Antimalarial	219	34 / 111 (31%)	41 / 108 (38%)	0.3
MD		0	0	
Immunosuppressors	219	13 / 111 (12%)	21 / 108 (19%)	0.11
MD		0	0	
Steroids	219	13 / 111 (12%)	27 / 108 (25%)	0.011
MD		0	0	
Anti TNF	219	0 / 111 (0%)	0 / 108 (0%)	
MD		0	0	
Tocilizumab	0	NA (NA)	NA (NA)	
MD		111	108	
Abatacept	0	NA (NA)	NA (NA)	
MD		111	108	

MD, Missing data

[1] Mean (SD); n / N (%)

[2] Wilcoxon rank sum test; Fisher's exact test; Pearson's Chi-squared test

Characteristics of SLE patients	N	South N = 149[1]	North N = 155[1]	p-value[2]
Age	304	47 (13)	45 (15)	0.14

	N			
MD		0	0	
Gender	304			0.9
Female		140 / 149 (94%)	145 / 155 (94%)	
Male		9 / 149 (6.0%)	10 / 155 (6.5%)	
MD		0	0	
Ethnic origin	304			0.6
Asian		1 / 149 (0.7%)	2 / 155 (1.3%)	
Black/African American		1 / 149 (0.7%)	3 / 155 (1.9%)	
Caucasian/White		142 / 149 (95%)	147 / 155 (95%)	
Other		5 / 149 (3.4%)	3 / 155 (1.9%)	
MD		0	0	
Obesity	292	14 / 140 (10%)	15 / 152 (9.9%)	>0.9
MD		9	3	
Cigarette.Smoking	282	32 / 140 (23%)	27 / 142 (19%)	0.4
MD		9	13	
Duration.disease	304	15 (9)	14 (10)	0.2
MD		0	0	
Physician global assessment	291	17 (18)	20 (18)	0.026
MD		0	13	
Treatment				
Antimalarial	304	88 / 149 (59%)	119 / 155 (77%)	<0.001
MD		0	0	
Immunosuppressors	304	40 / 149 (27%)	67 / 155 (43%)	0.003
MD		0	0	
Steroids	304	68 / 149 (46%)	96 / 155 (62%)	0.004
MD		0	0	
Anti TNF	304	0 / 149 (0%)	0 / 155 (0%)	
MD		0	0	
Tocilizumab	0	NA (NA)	NA (NA)	
MD		149	155	
Abatacept	0	NA (NA)	NA (NA)	
MD		149	155	

MD, Missing data

[1] Mean (SD); n / N (%)

[2] Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test

Characteristics of SSc patients	N	South N = 153[1]	North N = 117[1]	p-value[2]
Age	270	59 (12)	59 (13)	>0.9
MD		0	0	
Gender	270			0.6
Female		138 / 153 (90%)	103 / 117 (88%)	
Male		15 / 153 (9.8%)	14 / 117 (12%)	
MD		0	0	

	N			
Ethnic origin	270			0.2
Asian		0 / 153 (0%)	3 / 117 (2.6%)	
Caucasian/White		150 / 153 (98%)	113 / 117 (97%)	
Native Hawaiian/ Other Pacific Islander		1 / 153 (0.7%)	0 / 117 (0%)	
Other		2 / 153 (1.3%)	1 / 117 (0.9%)	
MD		0	0	
Obesity	262	17 / 145 (12%)	9 / 117 (7.7%)	0.3
MD		8	0	
Cigarette smoking	253	15 / 142 (11%)	9 / 111 (8.1%)	0.5
MD		11	6	
Duration disease	270	13 (10)	10 (8)	0.004
MD		0	0	
Physician global assessment	262	27 (16)	42 (22)	<0.001
MD		0	8	
Treatment				
Antimalarial	270	14 / 153 (9.2%)	7 / 117 (6.0%)	0.3
MD		0	0	
Immunosuppressors	270	29 / 153 (19%)	31 / 117 (26%)	0.14
MD		0	0	
Steroids	270	38 / 153 (25%)	23 / 117 (20%)	0.3
MD		0	0	
Anti TNF	270	9 / 153 (5.9%)	0 / 117 (0%)	0.006
MD		0	0	
Tocilizumab	4	4 / 4 (100%)	0 / 0 (NA%)	
MD		149	117	
Abatacept	3	3 / 3 (100%)	0 / 0 (NA%)	
MD		150	117	

MD, Missing data
[1] Mean (SD); n / N (%)

[2] Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test

Characteristics of RA patients	N	South N = 110[1]	North N = 174[1]	p-value[2]
Age	284	57 (12)	59 (13)	0.2
MD		0	0	
Gender	284			0.3
Female		89 / 110 (81%)	132 / 174 (76%)	
Male		21 / 110 (19%)	42 / 174 (24%)	
MD		0	0	
Ethnic origin	284			>0.9
Black/African American		0 / 110 (0%)	1 / 174 (0.6%)	
Caucasian/White		109 / 110 (99%)	172 / 174 (99%)	
Other		1 / 110 (0.9%)	1 / 174 (0.6%)	

MD		0	0	
Obesity	277	18 / 103 (17%)	29 / 174 (17%)	0.9
MD		7	0	
Cigarette.Smoking	261	18 / 96 (19%)	45 / 165 (27%)	0.12
MD		14	9	
Duration.disease	284	12 (9)	14 (11)	0.071
MD		0	0	
Physician global assessment	283	24 (21)	19 (20)	0.021
MD		0	1	
Treatment				
Antimalarial	284	31 / 110 (28%)	15 / 174 (8.6%)	<0.001
MD		0	0	
Immunosuppressors	284	83 / 110 (75%)	122 / 174 (70%)	0.3
MD		0	0	
Steroids	284	59 / 110 (54%)	71 / 174 (41%)	0.034
MD		0	0	
Anti TNF	284	38 / 110 (35%)	92 / 174 (53%)	0.003
MD		0	0	
Tocilizumab	35	8 / 8 (100%)	27 / 27 (100%)	
MD		102	147	
Abatacept	24	8 / 8 (100%)	16 / 16 (100%)	
MD		102	158	

MD, Missing data

[1] Mean (SD); n / N (%)

[2] Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test