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**Table 2.** Summary of the most highly associated regions at  $P < 1 \times 10^{-5}$  identified in Phase 1 for each of the 4 traits analysed genome-wide.

Trait	Marker	Chr	Position	Effect Allele	Allele Frequency	Phase 1			Phase 2a		Phase 2b		
						$\beta^a$ (95% CI)	P-value	$I^2$ (%)	$\beta^a$ (95% CI)	P-value	$\beta^a$ (95% CI)	P-value	Genes <sup>b</sup>
DAS28	rs2372751	3	81124821	C	0.49	0.17 (0.10, 0.24)	$2.8 \times 10^{-6}$	0	-0.02 (-0.14, 0.10)	0.77	0.13 (-0.08, 0.34)	0.23	<i>LINC02027</i>
	rs58840038	5	125773164	T	0.31	-0.17 (-0.24, -0.09)	$8.0 \times 10^{-6}$	0	-0.04 (-0.16, 0.09)	0.57	0.03 (-0.16, 0.23)	0.73	<i>GRAMD3</i>
	rs6903359	6	21986214	C	0.13	-0.23 (-0.34, -0.13)	$7.4 \times 10^{-6}$	0	0.07 (-0.12, 0.27)	0.46	0.10 (-0.17, 0.38)	0.45	<i>CASC15</i>
	rs168201	10	84610081	G	0.48	0.18 (0.12, 0.25)	$9.8 \times 10^{-8}$	0	-0.10 (-0.21, 0.02)	0.091	0.08 (-0.10, 0.26)	0.38	<i>NRG3</i>
	rs57816977	18	4012466	C	0.18	-0.22 (-0.31, -0.12)	$5.3 \times 10^{-6}$	0	0.12 (-0.03, 0.27)	0.10	0.00 (-0.24, 0.25)	1.00	<i>DLGAP1</i>
$\log_e(\text{CRP}+1)$	rs79244342	6	54660244	G	0.09	-0.26 (-0.37, -0.15)	$3.3 \times 10^{-6}$	0	-0.05 (-0.24, 0.13)	0.57	0.02 (-0.34, 0.37)	0.93	<i>KRASP1</i>
	rs1889339	9	96053928	G	0.18	0.19 (0.11, 0.27)	$5.7 \times 10^{-6}$	0	-0.06 (-0.20, 0.07)	0.38	0.17 (-0.05, 0.39)	0.14	<i>WNK2</i>
SJC28	rs35179427	1	95670888	A	0.08	0.21 (0.12, 0.30)	$7.8 \times 10^{-6}$	0	-0.05 (-0.20, 0.09)	0.49	-0.25 (-0.54, 0.04)	0.10	<i>RWDD3</i>
	rs1453301	2	138080695	A	0.16	0.15 (0.09, 0.22)	$7.1 \times 10^{-6}$	0	-0.05 (-0.16, 0.06)	0.39	-0.03 (-0.22, 0.17)	0.79	<i>TMEM56-</i> <i>THSD7B</i>
	rs77458347	4	109896081	T	0.14	0.18 (0.10, 0.26)	$6.7 \times 10^{-6}$	0	-0.02 (-0.14, 0.10)	0.77	0.18 (-0.10, 0.47)	0.21	<i>COL25A1</i>
	rs144940912	4	155092290	T	0.07	0.26 (0.15, 0.36)	$1.4 \times 10^{-6}$	16	0.11 (-0.05, 0.27)	0.20	0.11 (-0.32, 0.53)	0.62	
	rs12663189	6	162730663	C	0.43	0.12 (0.07, 0.17)	$2.0 \times 10^{-6}$	0	-0.01 (-0.09, 0.08)	0.87	0.04 (-0.12, 0.20)	0.64	<i>PARK2</i>
	rs314637	7	4421893	A	0.22	0.15 (0.08, 0.21)	$2.9 \times 10^{-6}$	13	0.08 (-0.02, 0.18)	0.11	0.19 (-0.01, 0.38)	0.06	
	rs113798271	7	145059089	G	0.21	0.14 (0.08, 0.21)	$9.4 \times 10^{-6}$	29	0.02 (-0.08, 0.12)	0.67	0.02 (-0.16, 0.21)	0.81	
	rs1175813	19	49737486	G	0.11	0.20 (0.12, 0.29)	$1.4 \times 10^{-6}$	0	-0.15 (-0.27, -0.03)	0.012	0.00 (-0.24, 0.25)	0.98	
	rs1042579	20	23028724	A	0.23	0.15 (0.08, 0.21)	$6.9 \times 10^{-6}$	0	0.02 (-0.09, 0.12)	0.76	0.24 (0.04, 0.44)	0.020	<i>THBD</i>
	rs2836915	21	40509189	T	0.31	-0.13 (-0.18, -0.07)	$4.5 \times 10^{-6}$	0	-0.05 (-0.14, 0.04)	0.26	-0.06 (-0.24, 0.12)	0.51	

TJC28	rs10058818	5	56808696	G	0.21	0.17 (0.10, 0.25)	$2.4 \times 10^{-6}$	8	0.06 (-0.06, 0.17)	0.31	-0.10 (-0.32, 0.12)	0.37	<i>LINCR-0003</i>
	rs10515242	5	95982675	C	0.06	0.28 (0.16, 0.40)	$4.8 \times 10^{-6}$	0	0.17 (-0.01, 0.35)	0.069	-0.08 (-0.42, 0.26)	0.64	
	rs2026708	6	21986895	G	0.14	-0.22 (-0.31, -0.13)	$1.9 \times 10^{-6}$	0	0.02 (-0.14, 0.19)	0.78	0.06 (-0.19, 0.30)	0.65	<i>CASC15</i>
	rs2776898	6	37541111	T	0.35	0.16 (0.10, 0.23)	$9.9 \times 10^{-7}$	0	-0.11 (-0.21, -0.01)	0.027	0.14 (-0.03, 0.32)	0.11	
	rs114461403	7	16547268	T	0.33	0.15 (0.08, 0.21)	$7.5 \times 10^{-6}$	0	0.00 (-0.11, 0.10)	0.98	-0.12 (-0.30, 0.07)	0.21	
	rs28442057	15	55110958	T	0.34	0.14 (0.08, 0.21)	$7.9 \times 10^{-6}$	0	-0.01 (-0.11, 0.09)	0.82	0.04 (-0.15, 0.22)	0.68	
	rs12446816	16	14092341	G	0.38	0.15 (0.09, 0.21)	$5.1 \times 10^{-6}$	0	-0.01 (-0.11, 0.08)	0.77	0.01 (-0.16, 0.17)	0.95	
													<i>CCDC103</i>
													<i>EFTUD2</i>
	rs9910936	17	42949168	T	0.28	0.15 (0.09, 0.22)	$6.7 \times 10^{-6}$	0	0.05 (-0.06, 0.16)	0.38	0.08 (-0.11, 0.28)	0.40	<i>GFAP KIF18B</i>

Abbreviations: DAS28, disease activity score in 28 joints; CRP, C-reactive protein; SJC28, swollen joint count 28; TJC tender joint count 28; Chr chromosome;  $\beta$  beta; CI confidence interval;  $I^2$  Heterogeneity statistic <sup>a</sup> Per-allele for change in outcome in number of standard deviations, positive values correspond to worse response. <sup>b</sup> SNP or supporting SNPs with  $P < 5 \times 10^{-5}$  located within gene.