

Investigation of genetically-regulated gene expression
and response to treatment in rheumatoid arthritis
highlights an association between *IL18RAP* expression
and treatment response

Online Supplementary Material

Table S1. Effect sizes and significance levels achieved at *IL18RAP* when using either the full 3158-person expanded European ancestry cohort or when it is divided into its constituent UK (1575 people) and US/EU (1583 people) sub-cohorts.

Reference panel	Gene	UK		US/EU		Full	
		Effect size	<i>P</i> -value	Effect size	<i>P</i> -value	Effect size	<i>P</i> -value
MATURA	<i>IL18RAP</i>	-0.210	0.00021	-0.054	0.17344	-0.131	0.00014
GTE _x	<i>IL18RAP</i>	-0.235	0.00105	-0.076	0.11999	-0.152	0.00040
DGN	<i>IL18RAP</i>	-0.128	0.00025	-0.030	0.21817	-0.079	0.00023

Table S2. The columns “Effect MATURA”, “Effect GTE_x” and “Effect DGN” represent the effects of the SNPs in the prediction models when using the MATURA (77 SNPs), GTE_x (46 SNPs) and DGN (86 SNPs) reference panels. The columns “Coeff” and “*P*-value” represent the coefficient and the *P*-value from the association between the SNPs and the phenotype in the UK data set.

SNP	BP	Effect MATURA	Effect GTE _x	Effect DGN	Coeff	<i>P</i> -value
rs13413645	-	-	-0.040	-	-	-
rs6759556	-	-	0.216	-	-	-
rs2310220	-	-	0.094	-	-	-
rs11465677	-	-	-0.003	-	-	-
rs17775170	-	-	0.009	-	-	-
rs10178585	-	-	-0.028	-	-	-
rs10185170	-	-	0.068	-	-	-
rs12328682	-	-	0.004	-	-	-
rs7599071	-	-	-0.010	-	-	-
rs1093515	-	-	-	0.015	-	-
rs13427957	-	-	-	-0.015	-	-
rs266064	-	-	-	-0.004	-	-
rs4319952	-	-	-	-0.021	-	-
rs7589943	102038936	-	0.055	-	0.006	0.96600
rs290772	102126220	-	-	0.007	-0.065	0.34800
rs75094400	102142042	0.080	-	-	-0.236	0.02390
rs17201799	102179247	-	0.054	-	-0.038	0.37600
rs12990046	102543479	0.039	-	-	-0.007	0.85600
rs11678842	102674806	-0.010	-	-	0.074	0.08400
rs13388182	102722402	-	-	-0.020	0.032	0.38700
rs13029804	102723017	-	-	0.014	-0.072	0.11000
rs1812326	102860411	-0.031	-	-	0.069	0.05930
rs10186746	102866377	-0.026	-	-	0.065	0.07800
rs62151694	102899464	0.049	-	-	-0.072	0.25500
rs13007174	102960487	0.006	-	-	-0.081	0.17300
rs13014044	102961366	0.005	-	-	-0.087	0.14800
rs1946131	102961929	0.005	-	-	-0.077	0.19600
rs1054096	102962350	0.005	-	-	-0.079	0.18600
rs12989197	102962739	0.004	-	-	-0.075	0.21100
rs12996097	102963628	0.004	-	-	-0.081	0.17400
rs13028993	102963949	0.004	-	-	-0.076	0.20100
rs12999542	102965392	-	-	0.017	-0.083	0.16300
rs13014644	102971363	0.015	-	-	-0.079	0.18500
rs13015714	102971865	-	0.018	-	0.111	0.00955
rs11465567	102978400	0.006	-	-	-0.072	0.22800

rs11465572	102980223	0.001	-	-	-0.071	0.23200
rs4134504	102982223	0.005	-	-	-0.081	0.17000
rs2058622	102985424	-	-	0.016	0.112	0.00945
rs2058623	102986170	-	-	0.015	0.113	0.00863
rs1465321	102986618	-	-	0.002	0.113	0.00863
rs11465597	102987213	-	-	0.006	-0.057	0.33600
rs10439410	102990788	0.007	-	0.031	-0.143	0.00005
rs6731157	102991191	0.006	-	-	-0.143	0.00005
rs6745614	102991213	0.007	-	-	-0.143	0.00005
rs6758936	102991369	0.007	-	0.016	-0.143	0.00005
rs2270297	102992675	-	0.011	0.050	0.115	0.00729
rs11465623	102993039	-	0.058	0.019	-0.020	0.76900
rs6753717	102993161	-	0.012	0.048	0.115	0.00729
rs2041739	102994333	0.012	-	0.018	-0.143	0.00006
rs6750020	102994714	-	0.013	0.046	0.114	0.00807
rs10208196	102996345	0.007	-	0.019	-0.143	0.00005
rs7556917	102997720	0.008	-	-	-0.143	0.00005
rs7584093	102997721	0.008	-	-	-0.143	0.00006
rs3213733	102997884	-	-	0.001	-0.102	0.03120
rs3213732	102998279	0.008	-	0.021	-0.144	0.00005
rs10204757	102998974	0.008	-	-	-0.143	0.00005
rs6760621	102999952	0.008	-	0.021	-0.143	0.00005
rs11465641	103000868	0.009	-	-	-0.143	0.00005
rs17651485	103001650	-	0.057	0.086	-0.027	0.68000
rs3771161	103003961	-	-	0.001	-0.099	0.03470
rs3771159	103004958	0.009	-	-	-0.143	0.00005
rs11903946	103005330	0.009	-	-	-0.143	0.00005
rs6706002	103006104	0.009	-	0.023	-0.143	0.00005
rs6749014	103006448	0.009	-	0.022	-0.144	0.00005
rs12712146	103008714	0.006	-	-	-0.156	0.00002
rs4851004	103009537	0.009	-	0.023	-0.144	0.00005
rs6732138	103009662	0.009	-	-	-0.146	0.00004
rs3771158	103009894	-	-	0.018	-0.095	0.04320
rs1420096	103010912	0.009	-	-	-0.145	0.00005
rs2287033	103011237	0.009	-	0.022	-0.145	0.00005
rs1568681	103014696	-0.044	-	-	0.118	0.00606
rs1420094	103015687	0.011	-	0.023	-0.143	0.00005
rs6710528	103016142	0.009	-	0.022	-0.142	0.00006
rs3732124	103018052	-	-	0.022	-0.143	0.00005
rs4851571	103019000	-	-	0.022	-0.144	0.00005
rs4851572	103019031	0.009	-	0.022	-0.144	0.00005
rs10202813	103019740	-	-	0.014	-0.099	0.03460

rs1035129	103019785	0.009	-	-	-0.145	0.00005
rs1035127	103019919	-0.045	0.027	0.049	0.114	0.00767
rs6710034	103023678	0.010	-	0.021	-0.144	0.00005
rs7589142	103024660	0.010	-	-	-0.145	0.00004
rs4851007	103024813	-0.045	0.026	0.047	0.114	0.00767
rs4851575	103025203	-0.045	0.171	0.046	0.113	0.00811
rs10181785	103025274	-	-	0.010	-0.097	0.03900
rs12712148	103025547	-	-	0.007	-0.096	0.03990
rs11687768	103025738	-	-	0.005	-0.096	0.04110
rs6543126	103027104	0.009	-	-	-0.144	0.00005
rs10203558	103027640	0.007	-	0.021	-0.144	0.00005
rs10200952	103027651	0.007	-	0.021	-0.143	0.00006
rs7586983	103028066	-	-	0.008	-0.096	0.04110
rs6543127	103028301	0.009	-	-	-0.143	0.00005
rs4851576	103028895	0.012	-	0.022	-0.143	0.00005
rs4851577	103028921	0.017	-	0.021	-0.143	0.00005
rs4851579	103028984	0.009	-	0.021	-0.143	0.00005
rs6543132	103029410	-0.044	-	-	0.114	0.00799
rs1807782	103033147	-0.017	0.023	0.045	0.115	0.00765
rs1035125	103033839	0.005	-	-	-0.143	0.00005
rs2160201	103033961	0.017	-	-	-0.143	0.00005
rs1420106	103035044	-0.043	0.022	0.045	0.113	0.00857
rs1420105	103035119	0.017	-	0.020	-0.143	0.00005
rs11465673	103035375	-	-	0.010	-0.028	0.67400
rs2293223	103035468	-	-	0.003	-0.097	0.03880
rs2293224	103035779	0.009	-	0.019	-0.143	0.00005
rs6756407	103036101	-	-	0.011	-0.026	0.68800
rs6743516	103036335	0.009	-	0.019	-0.143	0.00005
rs1420100	103037002	0.008	-	0.019	-0.143	0.00005
rs3771155	103037826	0.009	-	0.021	-0.144	0.00005
rs3755267	103038587	-0.043	0.023	0.032	0.113	0.00860
rs10206291	103038863	0.009	-	0.030	-0.144	0.00005
rs885088	103039044	0.017	-	0.019	-0.143	0.00005
rs3771154	103039360	0.017	-	0.020	-0.143	0.00005
rs2272128	103039929	-0.042	0.023	0.029	0.116	0.00728
rs6759479	103040047	0.016	-	0.020	-0.143	0.00005
rs11465689	103040167	-	-	0.036	-0.030	0.65000
rs12997015	103042401	0.002	-	-	0.011	0.91800
rs3755266	103042712	-	-	0.021	-0.143	0.00005
rs11694658	103045020	-	-	0.006	0.108	0.01160
rs7559845	103046214	-	-	0.021	-0.142	0.00006
rs2310300	103049074	-	-	0.022	-0.142	0.00006

rs10166330	103050390	-	-	0.009	-0.088	0.06110
rs3755265	103052816	-	0.052	0.018	-0.142	0.00006
rs10176820	103054420	-	-	0.009	-0.089	0.05920
rs2058659	103054556	-	0.053	0.016	-0.142	0.00006
rs13021177	103056493	-	0.042	0.029	-0.143	0.00005
rs2075186	103057251	-	-	0.002	-0.091	0.05410
rs11465736	103067930	-	-	2.79e-05	-0.096	0.04130
rs17821875	103071030	-	-	0.127	-0.014	0.82500
rs10169676	103074919	-	-	2.87e-05	-0.089	0.05970
rs10210176	103079516	-	-	0.001	-0.082	0.08120
rs10172116	103087573	-	-	2.31e-04	-0.110	0.02050
rs1403552	103088777	-	-	0.001	-0.088	0.06140
rs7597819	103092906	-	-	0.021	0.113	0.00947
rs6737668	103093081	-	0.026	0.027	0.113	0.00941
rs10469840	103093243	-	-	0.032	0.107	0.01430
rs759382	103094213	-	0.011	-	0.105	0.01420
rs9989749	103123642	-	0.033	-	0.065	0.15300
rs6751949	103125138	-	0.009	-	0.070	0.11200
rs4851607	103125632	-	0.002	-	0.079	0.07400
rs10195948	103125736	-	0.004	-	0.085	0.05510
rs2192757	103132378	-	0.004	-	0.080	0.06250
rs1916307	103134180	-0.042	-	-	0.089	0.03680
rs1523203	103135759	-	0.020	-	0.082	0.05570
rs1403551	103136446	-	0.021	-	0.082	0.05510
rs4851613	103137990	-	0.021	-	0.084	0.05080
rs6750851	103138761	-	0.021	-	0.081	0.05790
rs6750971	103138825	-	0.021	-	0.083	0.05240
rs10193407	103139298	-	0.042	-	0.083	0.05350
rs17774619	103216776	0.115	-	-	-0.393	0.02020
rs1016160	103245025	-	-	0.011	0.086	0.09020
rs17027893	103370379	-	-0.008	-	-0.022	0.65500
rs10172680	103376383	-	-0.011	-	-0.011	0.81800
rs2080294	103382425	-	-0.012	-	-0.012	0.81600
rs6705433	103386225	-	-0.011	-	-0.016	0.74600
rs6705568	103386368	-	-0.010	-	-0.014	0.77400
rs2310358	103413658	-	-0.041	-	-0.076	0.27400
rs75535834	103784955	0.154	-	-	0.157	0.29300
rs6740972	103837781	0.028	-	-	-0.042	0.29600
rs7582789	103860075	-0.003	-	-	0.126	0.20300

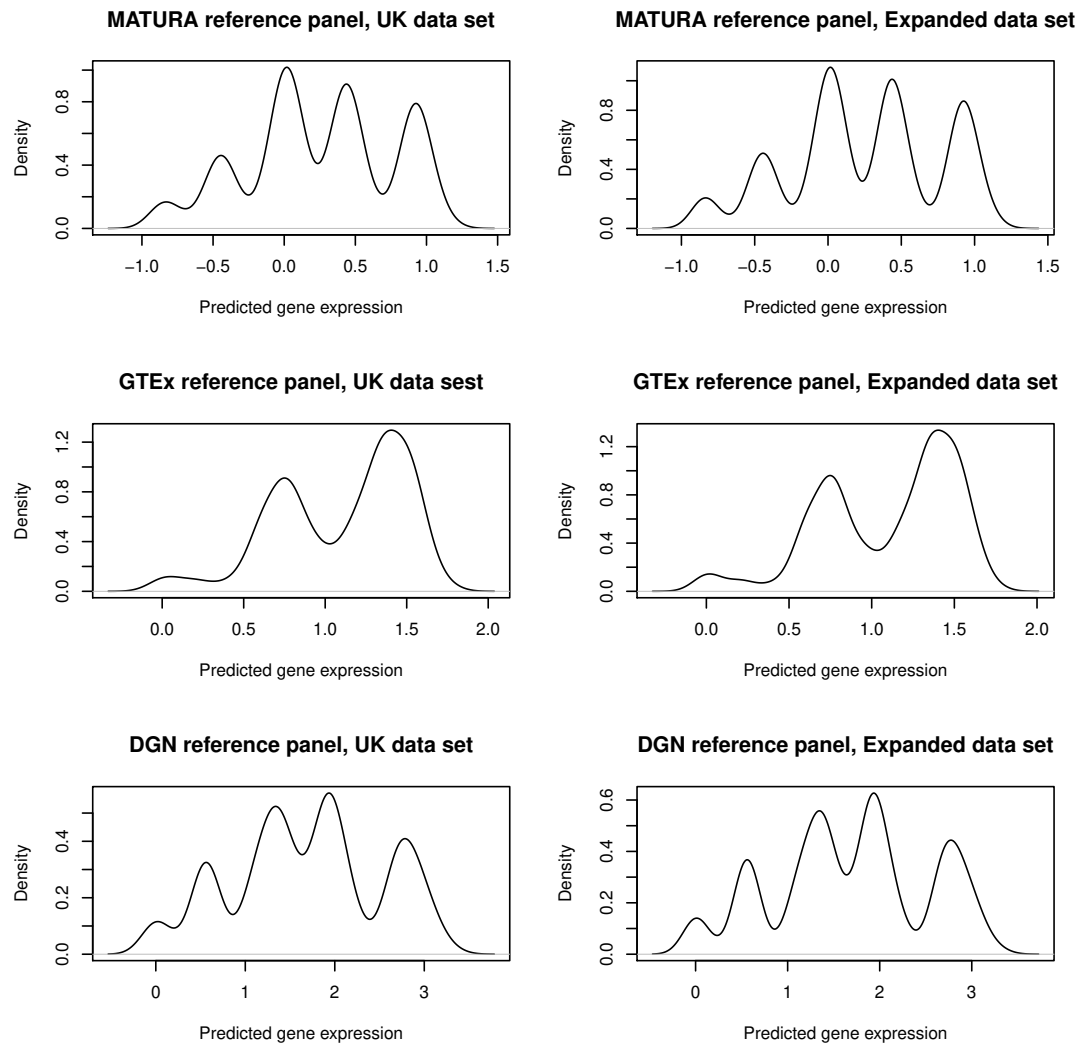


Figure S1. Density estimates (calculated using the `density()` function in R) of the predicted genetically-regulated gene expression at *IL18RAP* in the UK and expanded European ancestry cohorts.

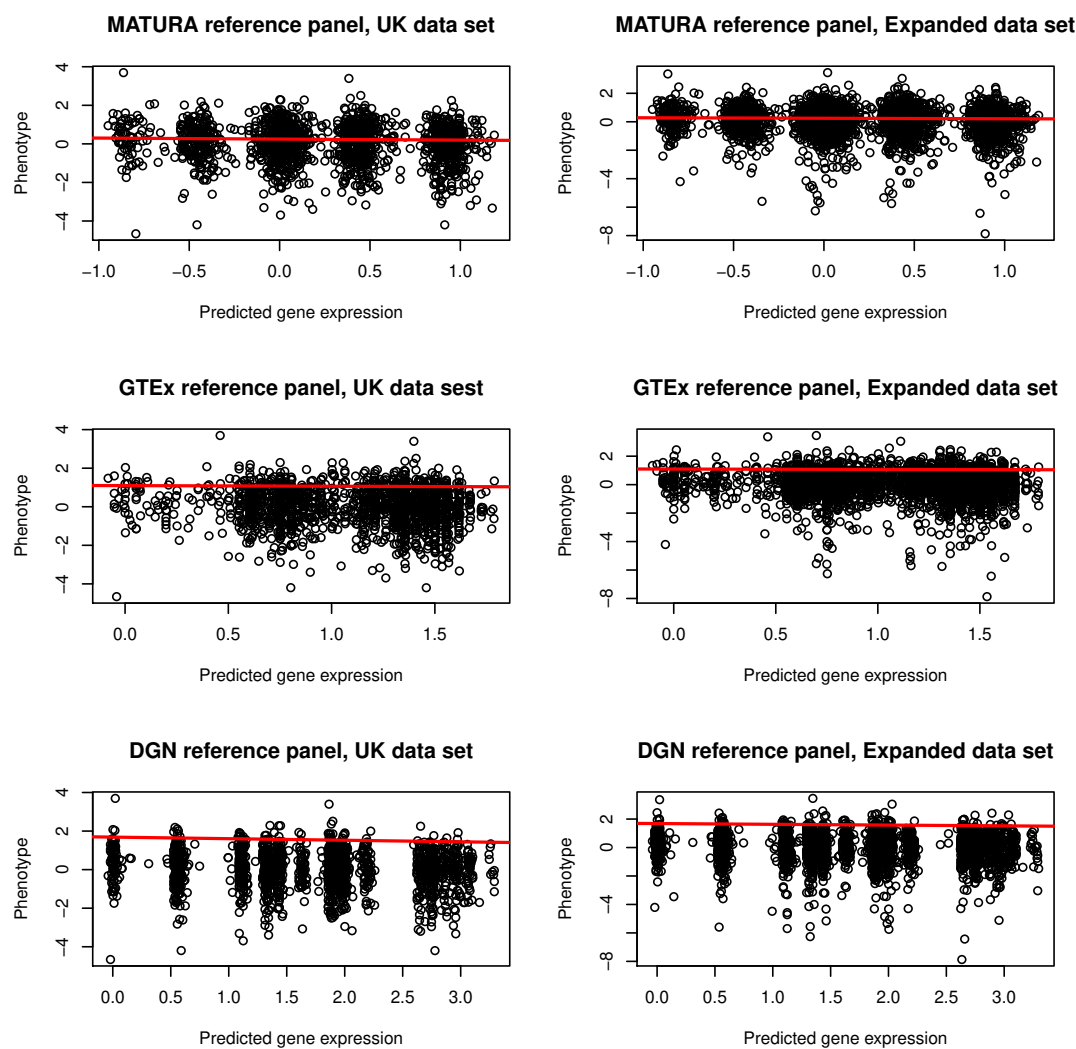


Figure S2. Plots of the linear regressions that are being fitted at *IL18RAP* in the UK and expanded European ancestry cohorts. Estimated regression lines are shown in red.