

SUPPLEMENTARY MATERIAL

Impact of immune cells on stroke limited to specific subtypes: Evidence from Mendelian randomization study

Chen Chen¹ Qi Liu² Yao Li³ Jingwen Yu³ Shudi Wang³ Jiali Xu³ Li Liu^{1*}

1: The First Department of Cardiovascular, First Affiliated Hospital, Heilongjiang University of Chinese Medicine.

2 : Department of the Treatment Center, the Second Affiliated Hospital of Heilongjiang University of Traditional Chinese Medicine.

3: Department of the Graduate School, Heilongjiang University of Traditional Chinese Medicine.

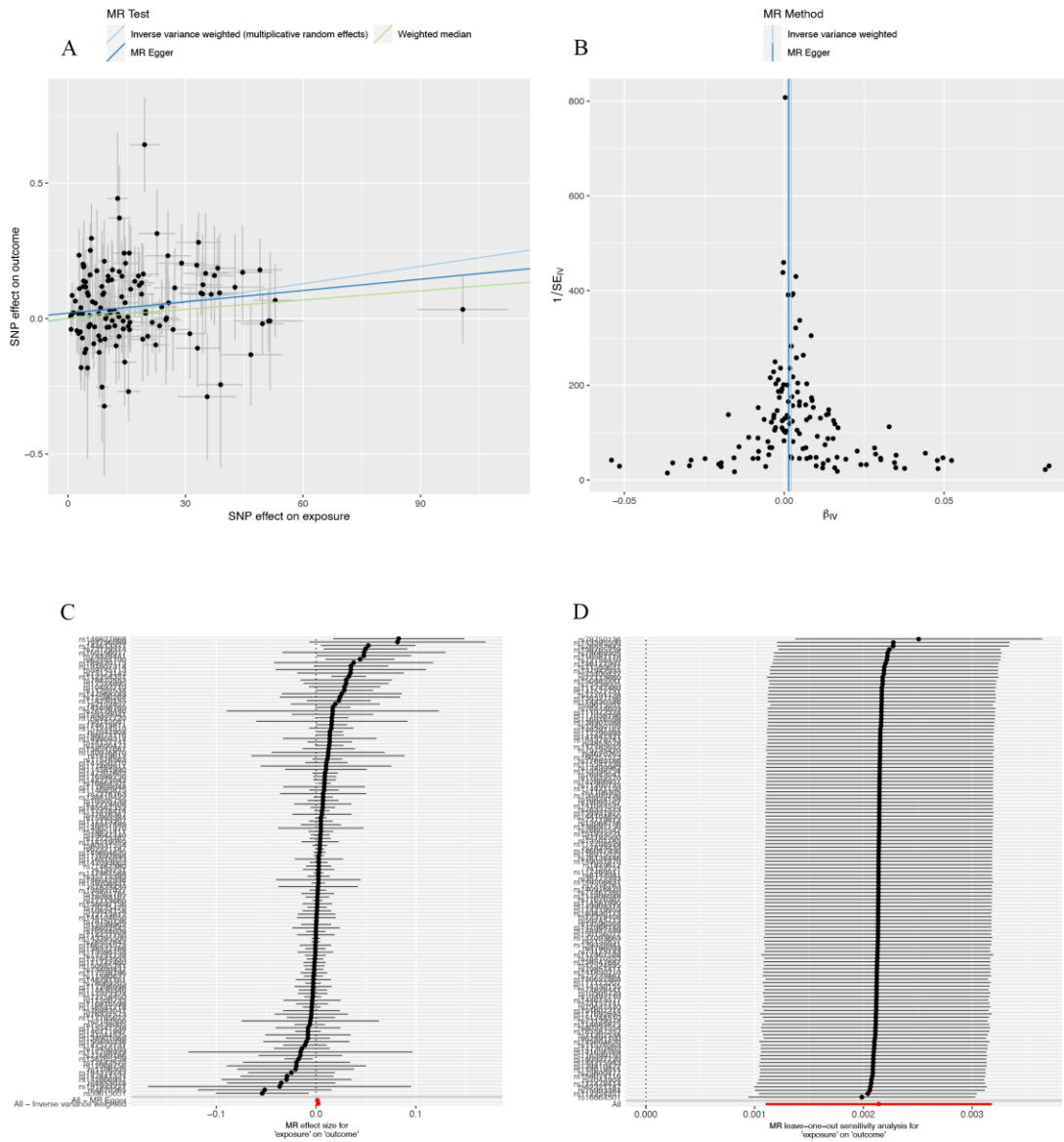
* Correspondence:

Li Liu

Heping Road 26, Xiangfang District, Harbin, China.

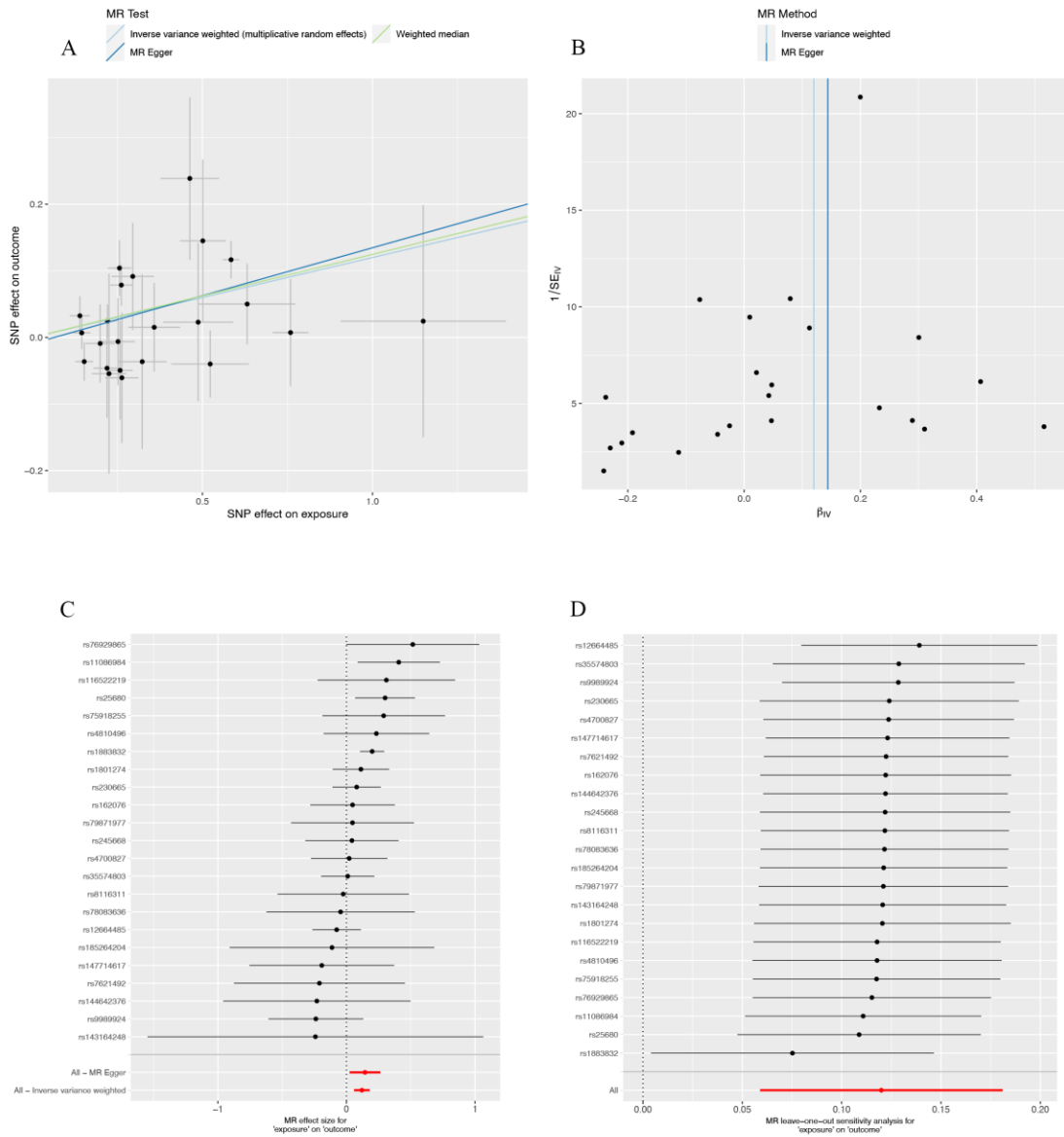
postal code: 150000

E-mail: liliu_429@126.com



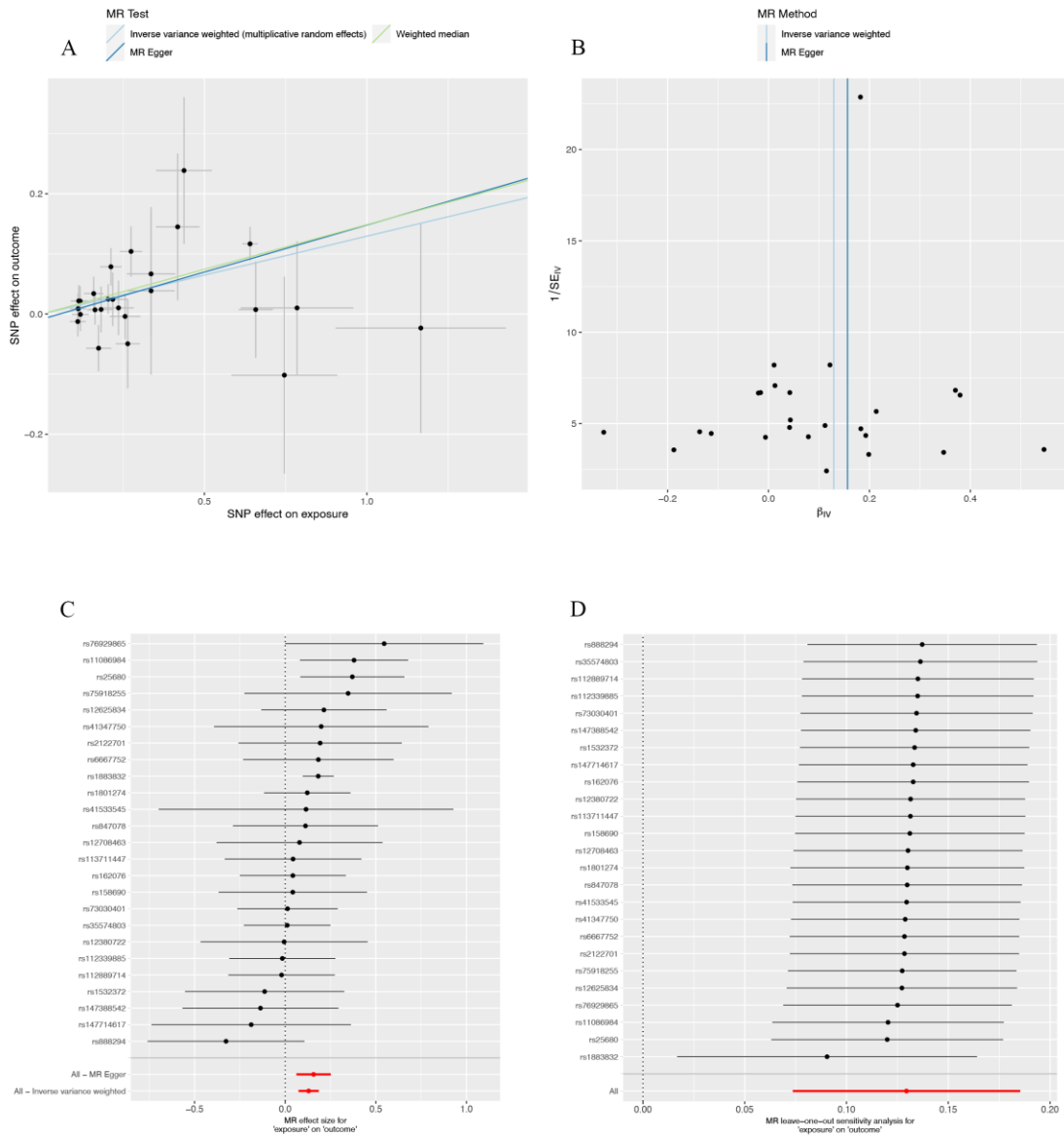
Supplementary Figure 1

MR study of the effects of immunophenotypes on large artery stroke. Scatter plot (A), funnel plot (B), forest plot (C), and leave-one-out sensitivity analysis (D) of the effect of AS on neck fractures.



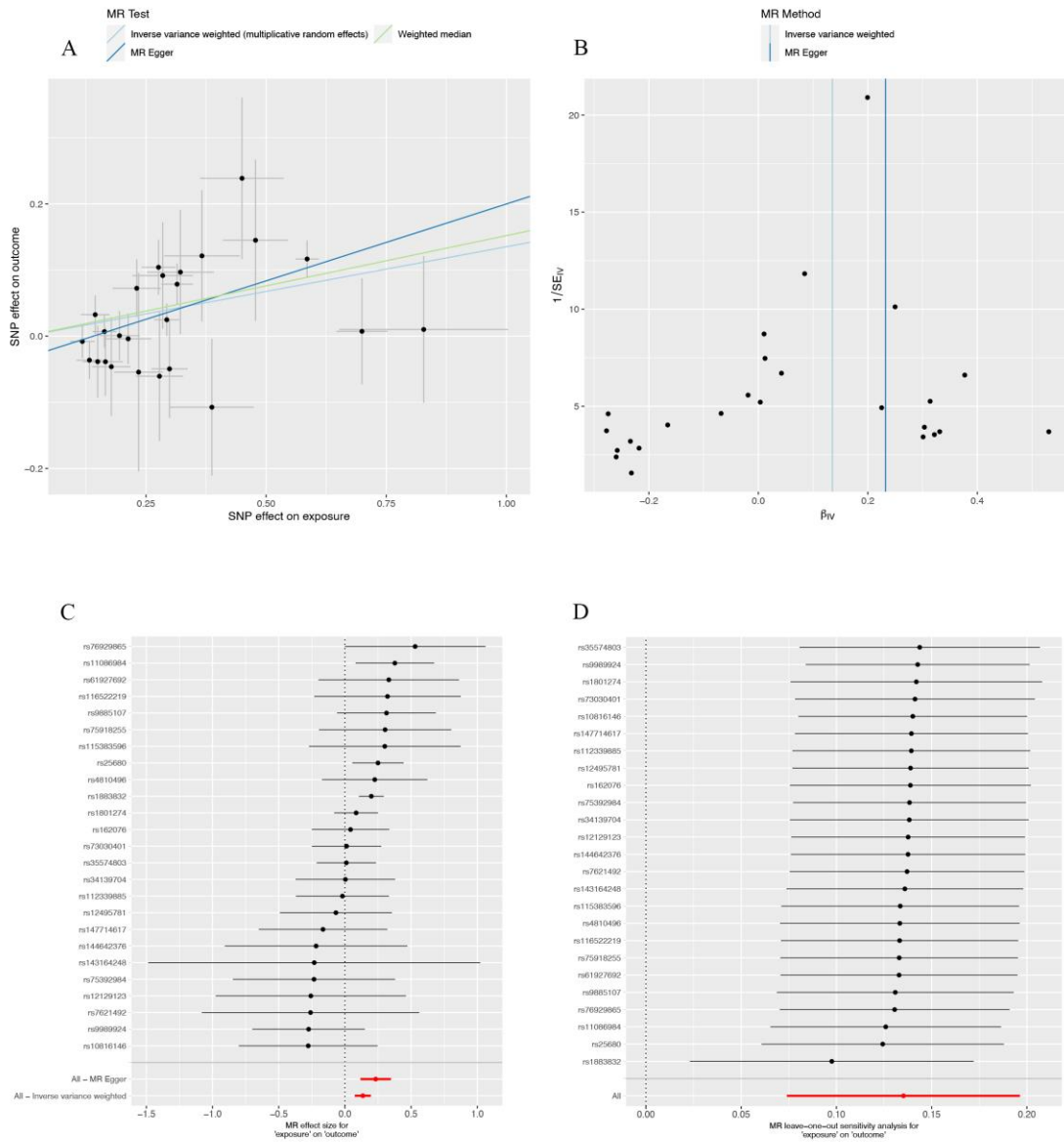
Supplementary Figure 2

MR study of the effects of immunophenotypes on large artery stroke. Scatter plot (A), funnel plot (B), forest plot (C), and leave-one-out sensitivity analysis (D) of the effect of AS on neck fractures.



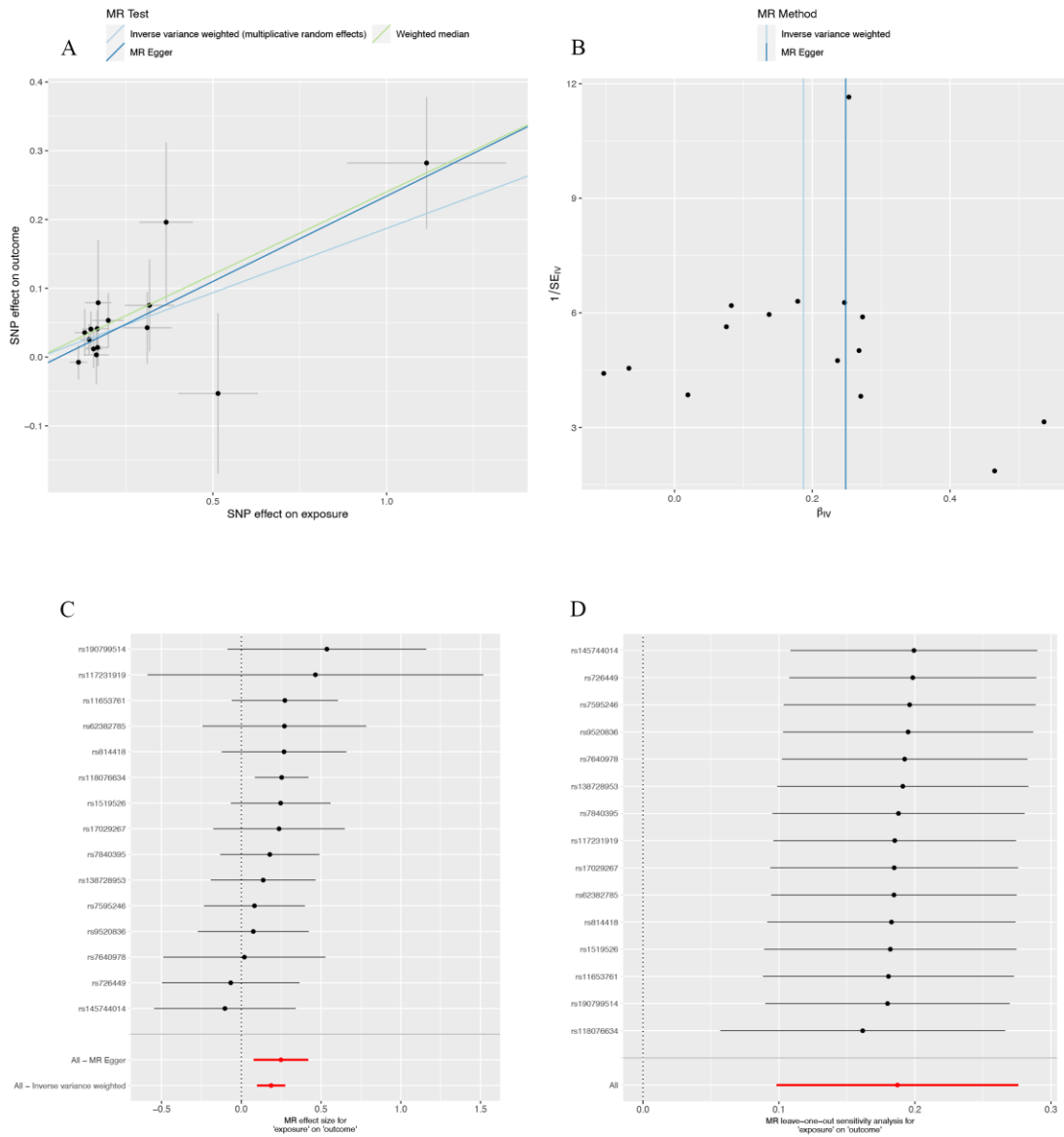
Supplementary Figure 3

MR study of the effects of immunophenotypes on large artery stroke. Scatter plot (A), funnel plot (B), forest plot (C), and leave-one-out sensitivity analysis (D) of the effect of AS on neck fractures.



Supplementary Figure 4

MR study of the effects of immunophenotypes on large artery stroke. Scatter plot (A), funnel plot (B), forest plot (C), and leave-one-out sensitivity analysis (D) of the effect of AS on neck fractures.



Supplementary Figure 5

MR study of the effects of immunophenotypes on small vessel stroke. Scatter plot (A), funnel plot (B), forest plot (C), and leave-one-out sensitivity analysis (D) of the effect of AS on neck fractures.

Supplementary Table 1 SNP detailed information selected in CD45RA+ CD28- CD8+ T cell %T cell

SNP	EA	O A	Sample size	Beta	SE	<i>P</i>	Variance, %	F
rs10492710	A	G	3425	5.636	1.205	3.02E-06	6.35E-03	21.86
rs10505739	C	A	3425	18.81	3.393	3.21E-08	8.89E-03	30.72
rs10824158	T	G	3425	9.768	1.725	1.62E-08	9.28E-03	32.05
rs1106305	T	C	3425	2.681	0.5792	3.82E-06	6.22E-03	21.41
rs111747460	A	G	3425	26.82	4.296	4.81E-10	1.13E-02	38.95
rs111972324	A	C	3425	9.939	2.208	7.00E-06	5.88E-03	20.25
rs11200733	A	G	3425	5.664	1.165	1.21E-06	6.85E-03	23.62
rs11202534	T	G	3425	13.13	2.792	2.66E-06	6.42E-03	22.10
rs112254351	A	G	3425	19.55	3.788	2.60E-07	7.72E-03	26.62
rs113598754	G	A	3425	11.3	2.457	4.39E-06	6.14E-03	21.14
rs114219959	T	G	3425	14.57	3.276	8.91E-06	5.74E-03	19.77
rs114230155	A	G	3425	9.265	1.585	5.47E-09	9.88E-03	34.15
rs114421150	A	C	3425	25	4.08	1.00E-09	1.08E-02	37.52
rs114430346	A	G	3425	20.36	4.31	2.42E-06	6.47E-03	22.30
rs114581990	G	A	3425	8.874	1.564	1.51E-08	9.31E-03	32.17
rs114619811	G	A	3425	15.63	2.895	7.15E-08	8.44E-03	29.13
rs114685875	A	G	3425	17.06	3.509	1.22E-06	6.85E-03	23.62
rs115541238	A	G	3425	9.457	2.127	9.02E-06	5.74E-03	19.76
rs11576563	T	C	3425	13.78	2.988	4.16E-06	6.17E-03	21.26
rs11580627	C	T	3425	15.69	3.028	2.33E-07	7.78E-03	26.83
rs116399750	A	G	3425	17.96	3.205	2.27E-08	9.09E-03	31.38
rs116581718	C	T	3425	22.4	3.301	1.35E-11	1.33E-02	46.02
rs116915023	T	C	3425	10.65	1.782	2.50E-09	1.03E-02	35.70
rs116916598	G	A	3425	19.07	3.407	2.33E-08	9.06E-03	31.31
rs117038196	A	G	3425	11.96	2.665	7.38E-06	5.85E-03	20.13
rs117173207	A	G	3425	18.77	3.342	2.10E-08	9.13E-03	31.53
rs117296998	T	C	3425	10.5	2.211	2.10E-06	6.54E-03	22.54
rs117469911	A	C	3425	6.228	1.155	7.39E-08	8.42E-03	29.06
rs117478414	T	C	3425	32.87	5.796	1.53E-08	9.30E-03	32.14
rs117692894	T	G	3425	33.95	5.804	5.41E-09	9.89E-03	34.20
rs117708929	C	T	3425	3.153	0.6419	9.43E-07	7.00E-03	24.11
rs117785622	T	G	3425	13.02	2.395	5.79E-08	8.55E-03	29.54
rs117808048	A	G	3425	6.969	1.557	7.90E-06	5.82E-03	20.02
rs117867588	A	G	3425	36.56	6.272	6.06E-09	9.82E-03	33.96
rs12068756	C	T	3425	2.264	0.4741	1.86E-06	6.61E-03	22.79
rs12279408	T	C	3425	16	2.92	4.60E-08	8.69E-03	30.01
rs12450105	C	T	3425	6.576	1.424	4.02E-06	6.19E-03	21.31

rs12499962	G	A	3425	25.15	3.141	1.59E-15	1.84E-02	64.07
rs12501785	A	G	3425	10.8	1.881	1.00E-08	9.53E-03	32.95
rs12596264	A	G	3425	7.351	1.534	1.72E-06	6.66E-03	22.95
rs132751	T	C	3425	11.84	2.178	5.73E-08	8.55E-03	29.53
rs137942933	T	G	3425	23.37	3.154	1.58E-13	1.58E-02	54.87
rs138327786	A	G	3425	21.5	3.886	3.38E-08	8.86E-03	30.59
rs138410422	A	G	3425	28.99	5.954	1.17E-06	6.87E-03	23.69
rs138547687	A	G	3425	11.19	2.452	5.22E-06	6.04E-03	20.81
rs138697156	G	A	3425	12.79	2.872	8.71E-06	5.76E-03	19.82
rs138765259	G	T	3425	15.44	2.921	1.33E-07	8.09E-03	27.92
rs138901088	A	C	3425	12.28	2.651	3.74E-06	6.23E-03	21.44
rs138937927	T	C	3425	23.94	3.906	9.81E-10	1.08E-02	37.54
rs139329941	T	C	3425	5.185	1.061	1.07E-06	6.92E-03	23.87
rs140976870	T	C	3425	3.271	0.7129	4.64E-06	6.11E-03	21.04
rs141044525	T	C	3425	7.807	1.526	3.27E-07	7.58E-03	26.16
rs141656769	T	G	3425	14.34	2.896	7.73E-07	7.11E-03	24.50
rs141850210	A	G	3425	9.155	1.747	1.71E-07	7.95E-03	27.45
rs142866937	C	A	3425	4.265	0.9493	7.28E-06	5.86E-03	20.17
rs143395500	T	C	3425	51.17	8.845	7.92E-09	9.68E-03	33.45
rs144104650	A	G	3425	15.28	3.08	7.31E-07	7.13E-03	24.60
rs144275943	G	T	3425	19.21	4.183	4.53E-06	6.12E-03	21.08
rs144613377	C	T	3425	3.834	0.7616	5.04E-07	7.34E-03	25.33
rs145604620	G	A	3425	34.45	4.832	1.23E-12	1.46E-02	50.80
rs146047936	C	A	3425	7.861	1.731	5.79E-06	5.99E-03	20.61
rs146171997	G	A	3425	35.54	7.417	1.73E-06	6.66E-03	22.95
rs146627868	A	G	3425	2.823	0.6163	4.79E-06	6.09E-03	20.97
rs147093663	T	G	3425	42.63	7.413	9.65E-09	9.56E-03	33.05
rs147207602	A	G	3425	25.5	5.734	8.99E-06	5.74E-03	19.77
rs147572731	T	C	3425	14.48	3.001	1.44E-06	6.75E-03	23.27
rs147841321	T	C	3425	8.69	1.67	2.08E-07	7.84E-03	27.06
rs147968748	G	A	3425	4.517	0.9486	2.00E-06	6.58E-03	22.66
rs148291161	G	A	3425	14.11	2.744	2.86E-07	7.66E-03	26.43
rs148947489	T	C	3425	8.302	1.533	6.58E-08	8.49E-03	29.31
rs149021870	G	A	3425	3.698	0.7669	1.49E-06	6.74E-03	23.24
rs149208831	C	A	3425	25.69	4.095	3.97E-10	1.14E-02	39.33
rs149908314	T	C	3425	8.634	1.919	7.01E-06	5.88E-03	20.23
rs150156077	G	A	3425	4.047	0.8896	5.56E-06	6.01E-03	20.68
rs150400236	T	C	3425	8.214	1.748	2.70E-06	6.41E-03	22.07
rs150885241	A	G	3425	31.1	3.924	3.08E-15	1.80E-02	62.78
rs151244510	A	G	3425	10.23	2.22	4.19E-06	6.16E-03	21.22

rs16864501	A	G	3425	33.31	5.744	7.31E-09	9.72E-03	33.61
rs17524895	T	C	3425	4.477	0.9611	3.31E-06	6.30E-03	21.69
rs17642570	C	T	3425	3.649	0.7857	3.54E-06	6.26E-03	21.56
rs17791728	C	T	3425	15.79	2.811	2.10E-08	9.13E-03	31.53
rs180927720	G	A	3425	11.34	2.525	7.39E-06	5.85E-03	20.16
rs184379743	T	C	3425	4.563	0.9092	5.48E-07	7.30E-03	25.17
rs185587352	A	G	3425	18.17	3.072	3.62E-09	1.01E-02	34.96
rs186251573	C	A	3425	14.06	2.974	2.35E-06	6.48E-03	22.34
rs1879612	C	T	3425	-0.674	0.1475	5.05E-06	6.06E-03	20.87
rs188074116	A	G	3425	22.71	4.723	1.59E-06	6.71E-03	23.11
rs189420173	G	T	3425	2.937	0.5459	7.95E-08	8.38E-03	28.93
rs191607214	A	C	3425	12.67	2.608	1.23E-06	6.84E-03	23.59
rs191923221	A	G	3425	4.991	0.8815	1.62E-08	9.27E-03	32.04
rs2152857	G	A	3425	4.942	0.9868	5.77E-07	7.27E-03	25.07
rs2192500	G	A	3425	5.306	1.184	7.66E-06	5.83E-03	20.07
rs35772393	T	C	3425	38.7	6.463	2.34E-09	1.04E-02	35.83
rs4670265	G	T	3425	0.773	0.1507	3.07E-07	7.62E-03	26.30
rs4796089	C	T	3425	-1.046	0.2225	2.70E-06	6.41E-03	22.09
rs4853078	G	T	3425	9.274	1.681	3.74E-08	8.81E-03	30.42
rs59615051	C	T	3425	3.355	0.6746	6.91E-07	7.17E-03	24.72
rs59745713	A	G	3425	3.978	0.8973	9.60E-06	5.71E-03	19.64
rs62321187	T	C	3425	49	5.703	1.26E-17	2.11E-02	73.78
rs62491100	T	C	3425	5.693	1.172	1.24E-06	6.84E-03	23.58
rs7044904	G	A	3425	-14.67	3.168	3.78E-06	6.22E-03	21.43
rs72719812	G	A	3425	13.01	2.45	1.16E-07	8.17E-03	28.18
rs72723467	A	G	3425	27.24	5.333	3.44E-07	7.56E-03	26.07
rs72758450	C	T	3425	33.05	5.644	5.19E-09	9.91E-03	34.27
rs7276763	A	G	3425	2.646	0.5398	9.94E-07	6.97E-03	24.01
rs73129374	A	G	3425	5.971	1.268	2.60E-06	6.43E-03	22.16
rs73173143	C	T	3425	1.87	0.4185	8.16E-06	5.80E-03	19.95
rs73400437	T	C	3425	15.37	3.316	3.72E-06	6.23E-03	21.47
rs74157741	T	C	3425	10.21	2.298	9.19E-06	5.73E-03	19.73
rs74828441	C	A	3425	3.976	0.8718	5.29E-06	6.04E-03	20.79
rs75438005	A	G	3425	38.95	5.695	9.31E-12	1.35E-02	46.75
rs75600477	G	T	3425	13.07	2.441	9.25E-08	8.30E-03	28.65
rs75993384	C	T	3425	38.22	4.737	9.74E-16	1.87E-02	65.06
rs76128446	G	A	3425	0.9087	0.2045	9.10E-06	5.73E-03	19.73
rs76337573	G	A	3425	5.366	1.027	1.86E-07	7.91E-03	27.28
rs76444609	A	G	3425	51.58	5.751	4.82E-19	2.29E-02	80.39
rs76552842	A	G	3425	49.64	5.557	6.60E-19	2.28E-02	79.75

rs76602542	T	C	3425	9.611	2.144	7.59E-06	5.83E-03	20.08
rs76942041	A	G	3425	6.779	1.373	8.28E-07	7.07E-03	24.36
rs77113660	G	A	3425	52.91	5.64	1.16E-20	2.51E-02	87.96
rs77467380	T	C	3425	34.38	5.85	4.56E-09	9.98E-03	34.52
rs77676367	C	T	3425	13.71	2.962	3.80E-06	6.22E-03	21.41
rs77689186	A	C	3425	7.95	1.654	1.61E-06	6.70E-03	23.09
rs78069205	G	A	3425	46.68	7.967	5.07E-09	9.92E-03	34.31
rs78088167	G	A	3425	19.81	3.224	8.99E-10	1.09E-02	37.73
rs7823439	C	T	3425	5.545	1.177	2.54E-06	6.44E-03	22.18
rs78470553	A	G	3425	3.909	0.7324	1.01E-07	8.25E-03	28.47
rs78750136	C	T	3425	100.8	11.59	5.21E-18	2.16E-02	75.60
rs79647440	T	C	3425	37.38	4.922	3.94E-14	1.66E-02	57.64
rs79725470	C	T	3425	19.78	3.684	8.40E-08	8.35E-03	28.81
rs79851411	A	G	3425	35.15	5.793	1.44E-09	1.06E-02	36.80
rs80331554	G	A	3425	44.6	7.703	7.70E-09	9.69E-03	33.50
rs8142081	A	G	3425	1.373	0.2961	3.68E-06	6.24E-03	21.49

SNP, single-nucleotide polymorphism; EA, effect allele; OA, other_allele; Beta, the regression coefficient based on CD45RA+ CD28- CD8+ T cell %T cell raising effect allele; SE, standardized error; Variance, proportion of variance in CD45RA+ CD28- CD8+ T cell %T cell explained by each SNP.

Supplementary Table 2 SNP detailed information selected in CD27 on CD24+ CD27+ B cell

SNP	EA	OA	Samplesize	Beta	SE	P	Variance, %	F
rs11086984	T	C	3657	0.256	0.03444	1.30E-13	1.49E-02	55.22
rs116522219	A	G	3657	0.2952	0.06225	2.19E-06	6.11E-03	22.48
rs12664485	C	T	3657	0.5228	0.1137	4.45E-06	5.75E-03	21.13
rs143164248	A	G	3657	0.2253	0.05034	7.85E-06	5.45E-03	20.02
rs144642376	G	A	3657	0.2632	0.04883	7.51E-08	7.88E-03	29.04
rs147714617	T	C	3657	0.2579	0.03725	5.23E-12	1.29E-02	47.91
rs162076	A	G	3657	-0.1453	0.02494	6.20E-09	9.20E-03	33.92
rs1801274	G	A	3657	-0.2208	0.02632	7.07E-17	1.89E-02	70.34
rs185264204	T	C	3657	0.323	0.07164	6.72E-06	5.53E-03	20.32
rs1883832	C	T	3657	-0.5841	0.02417	8.47E-120	1.38E-01	583.69
rs230665	A	G	3657	0.6315	0.142	8.96E-06	5.38E-03	19.77
rs245668	A	G	3657	0.3582	0.07588	2.44E-06	6.06E-03	22.27
rs25680	A	G	3657	-0.2616	0.03299	2.87E-15	1.69E-02	62.85
rs35574803	C	T	3657	0.7589	0.05246	3.63E-46	5.41E-02	209.16
rs4700827	G	A	3657	-1.149	0.243	2.33E-06	6.08E-03	22.35
rs4810496	A	G	3657	-0.1397	0.02969	2.65E-06	6.02E-03	22.13
rs75918255	A	G	3657	0.5011	0.06717	1.07E-13	1.50E-02	55.62
rs7621492	A	G	3657	0.2196	0.03939	2.67E-08	8.43E-03	31.06
rs76929865	C	A	3657	0.4628	0.08601	7.88E-08	7.85E-03	28.94
rs78083636	G	T	3657	-0.1994	0.04317	3.97E-06	5.80E-03	21.32
rs79871977	A	C	3657	0.4874	0.103	2.31E-06	6.09E-03	22.38
rs8116311	T	C	3657	0.2517	0.0498	4.53E-07	6.94E-03	25.53
rs9989924	C	T	3657	0.1525	0.02627	7.02E-09	9.13E-03	33.68

SNP, single-nucleotide polymorphism; EA, effect allele; OA, other_allele; Beta, the regression coefficient based on CD27 on CD24+ CD27+ B cell raising effect allele; SE, standardized error; Variance, proportion of variance in CD27 on CD24+ CD27+ B cell explained by each SNP.

Supplementary Table 3 SNP detailed information selected in CD27 on IgD- CD38dim B cell

rs11086984	T	C	3657	0.2742	0.03426	1.59E-15	1.72E-02	64.02
rs112339885	C	T	3657	0.2558	0.0472	6.32E-08	7.97E-03	29.35
rs112889714	A	G	3657	1.166	0.2618	8.72E-06	5.39E-03	19.83
rs113711447	G	T	3657	-0.2355	0.04702	5.72E-07	6.81E-03	25.07
rs12380722	T	C	3657	0.1182	0.02624	6.86E-06	5.52E-03	20.28
rs12625834	A	G	3657	-0.1592	0.03012	1.32E-07	7.58E-03	27.92
rs12708463	A	G	3657	-0.1113	0.02452	5.85E-06	5.60E-03	20.59
rs147388542	C	A	3657	0.746	0.1629	4.83E-06	5.70E-03	20.96
rs147714617	T	C	3657	0.264	0.03709	1.33E-12	1.37E-02	50.64
rs1532372	C	T	3657	-0.1102	0.02459	7.58E-06	5.46E-03	20.07
rs158690	G	A	3657	0.182	0.0383	2.10E-06	6.14E-03	22.57
rs162076	A	G	3657	-0.1634	0.02479	5.03E-11	1.17E-02	43.42
rs1801274	G	A	3657	-0.2036	0.02626	1.14E-14	1.62E-02	60.08
rs1883832	C	T	3657	-0.6404	0.02368	6.21E-147	1.67E-01	730.97
rs2122701	T	C	3657	-0.1131	0.02485	5.54E-06	5.63E-03	20.70
rs25680	A	G	3657	-0.2122	0.03291	1.29E-10	1.12E-02	41.55
rs35574803	C	T	3657	0.6579	0.05259	3.42E-35	4.10E-02	156.41
rs41347750	T	C	3657	0.3357	0.07433	6.49E-06	5.55E-03	20.39
rs41533545	G	A	3657	0.3358	0.07241	3.67E-06	5.85E-03	21.49
rs6667752	G	T	3657	0.1175	0.02605	6.63E-06	5.53E-03	20.33
rs73030401	G	A	3657	0.785	0.1732	6.03E-06	5.59E-03	20.53
rs75918255	A	G	3657	0.4177	0.06693	4.84E-10	1.05E-02	38.93
rs76929865	C	A	3657	0.4372	0.08573	3.57E-07	7.06E-03	25.99
rs847078	G	A	3657	0.2178	0.04643	2.82E-06	5.98E-03	21.99
rs888294	T	C	3657	0.1743	0.03847	6.10E-06	5.58E-03	20.52

SNP, single-nucleotide polymorphism; EA, effect allele; OA, other_allele; Beta, the regression coefficient based on CD27 on IgD- CD38dim B cell raising effect allele; SE, standardized error; Variance, proportion of variance in CD27 on IgD- CD38dim B cell explained by each SNP.

Supplementary Table 4 SNP detailed information selected in CD27 on switched memory B cell

SNP	EA	OA	Samplesize	Beta	SE	P	Variance, %	F
rs10816146	T	C	-0.3872	3657	0.08721	9.29E-06	5.36E-03	19.70
rs11086984	T	C	0.2761	3657	0.03467	2.23E-15	1.70E-02	63.39
rs112339885	C	T	0.2129	3657	0.04782	8.78E-06	5.39E-03	19.81
rs115383596	C	T	0.3216	3657	0.0697	4.09E-06	5.79E-03	21.28
rs116522219	A	G	0.2849	3657	0.06277	5.85E-06	5.60E-03	20.59
rs12129123	T	C	0.1494	3657	0.03066	1.14E-06	6.45E-03	23.73
rs12495781	C	T	-0.1176	3657	0.02554	4.30E-06	5.76E-03	21.19
rs143164248	A	G	0.2346	3657	0.05074	3.91E-06	5.81E-03	21.37
rs144642376	G	A	0.2781	3657	0.0492	1.69E-08	8.66E-03	31.93
rs147714617	T	C	0.299	3657	0.03747	1.93E-15	1.71E-02	63.64
rs162076	A	G	-0.1635	3657	0.02512	8.52E-11	1.15E-02	42.34
rs1801274	G	A	-0.2933	3657	0.02635	2.48E-28	3.28E-02	123.83
rs1883832	C	T	-0.5853	3657	0.02439	2.53E-118	1.36E-01	575.57
rs25680	A	G	-0.3147	3657	0.03313	3.76E-21	2.41E-02	90.18
rs34139704	C	T	-0.1949	3657	0.04227	4.13E-06	5.78E-03	21.25
rs35574803	C	T	0.6995	3657	0.05313	1.02E-38	4.53E-02	173.24
rs4810496	A	G	-0.1443	3657	0.02993	1.49E-06	6.32E-03	23.23
rs61927692	T	C	0.3665	3657	0.07867	3.30E-06	5.90E-03	21.69
rs73030401	G	A	0.828	3657	0.1759	2.61E-06	6.02E-03	22.15
rs75392984	T	G	-0.1656	3657	0.03635	5.35E-06	5.64E-03	20.74
rs75918255	A	G	0.478	3657	0.06777	2.09E-12	1.34E-02	49.72
rs7621492	A	G	0.1779	3657	0.03976	7.92E-06	5.44E-03	20.01
rs76929865	C	A	0.4499	3657	0.08672	2.24E-07	7.31E-03	26.90
rs9885107	A	G	0.2307	3657	0.05047	5.01E-06	5.68E-03	20.88
rs9989924	C	T	0.1323	3657	0.02651	6.36E-07	6.76E-03	24.89

SNP, single-nucleotide polymorphism; EA, effect allele; OA, other_allele; Beta, the regression coefficient based on CD27 on switched memory B cell raising effect allele; SE, standardized error; Variance, proportion of variance in CD27 on switched memory B cell explained by each SNP.

Supplementary Table 5 SNP detailed information selected in switched memory B cell % lymphocyte

SNP	EA	OA	Samplesize	Beta	SE	<i>P</i>	Variance, %	F
rs11653761	T	G	3656	-0.1491	0.02489	2.30E-09	9.72E-03	35.86
rs117231919	T	C	3656	0.17	0.03776	6.95E-06	5.51E-03	20.26
rs118076634	T	C	3656	1.115	0.2283	1.08E-06	6.48E-03	23.84
rs138728953	A	C	3656	0.311	0.06986	8.78E-06	5.39E-03	19.81
rs145744014	T	C	3656	0.5148	0.1143	6.92E-06	5.52E-03	20.27
rs1519526	C	T	3656	0.1674	0.03168	1.34E-07	7.58E-03	27.91
rs17029267	T	C	3656	0.3178	0.07088	7.56E-06	5.47E-03	20.09
rs190799514	C	T	3656	0.3656	0.07711	2.20E-06	6.11E-03	22.47
rs62382785	A	G	3656	0.1313	0.02902	6.23E-06	5.57E-03	20.46
rs726449	T	C	3656	0.1133	0.02505	6.36E-06	5.56E-03	20.45
rs7595246	C	T	3656	0.1684	0.03143	8.92E-08	7.79E-03	28.69
rs7640978	T	C	3656	0.1649	0.0355	3.54E-06	5.87E-03	21.56
rs7840395	G	A	3656	-0.1437	0.02516	1.21E-08	8.84E-03	32.60
rs814418	T	G	3656	0.199	0.04491	9.68E-06	5.34E-03	19.62

rs9520836	T	C	3656	0.1567	0.02479	2.91E-10	1.08E-02	39.93
rs11653761	G	A	3656	-0.1491	0.02489	2.30E-09	9.72E-03	35.86

SNP, single-nucleotide polymorphism; EA, effect allele; OA, other_allele; Beta, the regression coefficient based on switched memory B cell % lymphocyte raising effect allele; SE, standardized error; Variance, proportion of variance in switched memory B cell % lymphocyte explained by each SNP.

Supplementary Table 6 MR Sensitivity Analyses of Genetically Predicted immunophenotypes on Large artery stroke and Small vessel stroke

Outcome	Exposure	Heterogeneity tests		Directional horizontal pleiotropyCest	
		Methods	Cochran'sQ(P)	MR-Egger intercept (P)	Ppleiotropy*
Large artery stroke	CD45RA+ CD28- CD8+ T cell %T cell	MR Egger , IVW	110.42(0.23) ,113.21(0.21)	0.01(0.08)	0.16
	CD27 on CD24+ CD27+ B cell	MR Egger,IVW	25.59(0.22) , 25.85(0.25)	-0.007(0.24)	0.21
	CD27 on IgD- CD38dim B cell	MR Egger,IVW	22.42(0.49) , 22.90(0.52)	-0.004(0.37)	0.48
	CD27 on switched memory B cell	MR Egger,IVW	23.85(0.41) , 27.65(0.27)	-0.08(0.11)	0.22
Small vessel stroke	Switched memory B cell %lymphocyte	MR Egger,IVW	6.40(0.93) , 7.07(0.93)	-0.01(0.34)	0.31

*detect by MR-PRESSO Global Test; MR-Egger, Mendelian randomization-Egger; IVW, inverse-variance weighted.