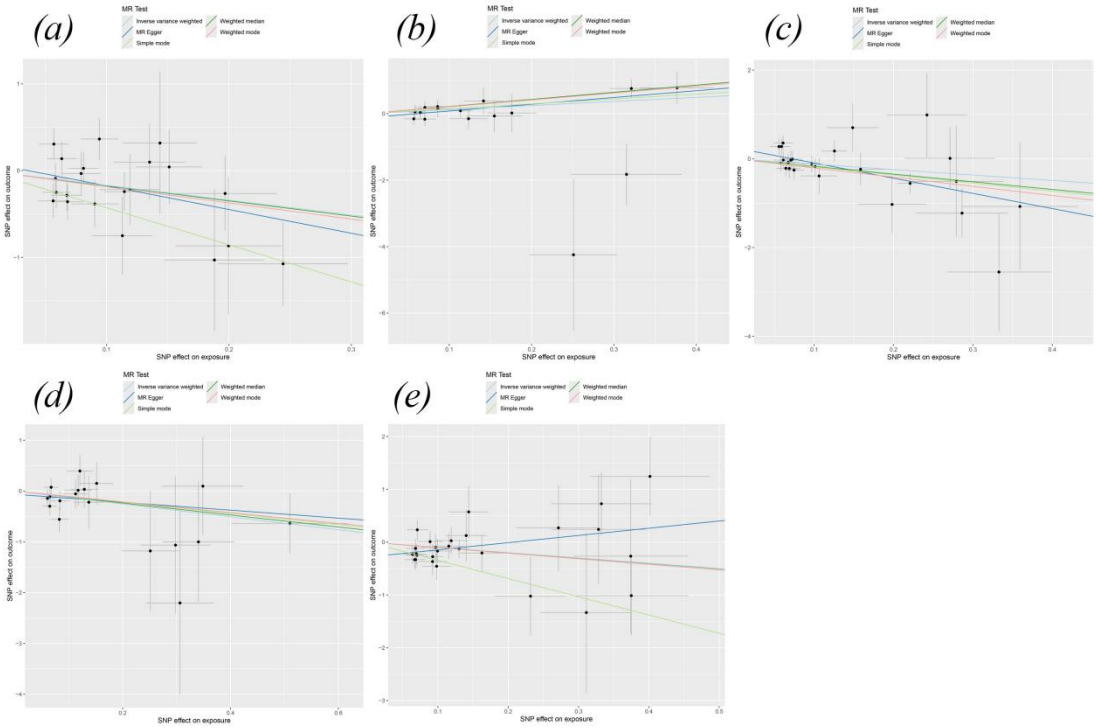
Supplementary figure

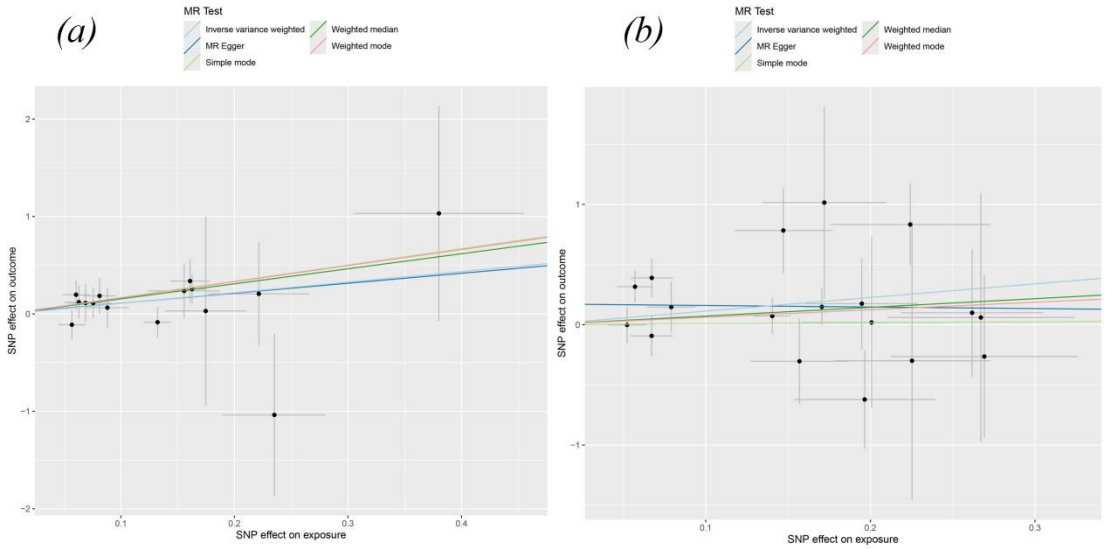
supplementary Figure S1-S4: Scatter plot of the Mendelian analysis.

supplementary Figure S5-S7: Funnel plot of Mendelian randomization analysis.

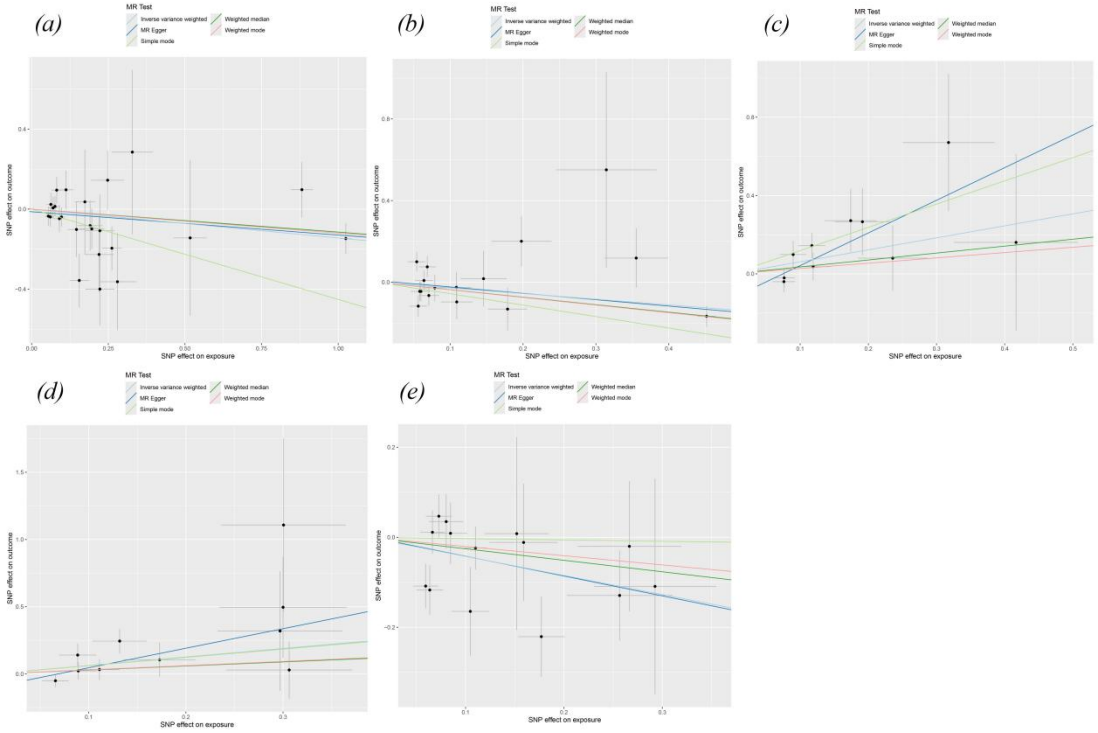
supplementary Figure S8-S13: Leave-one-out plot of the Mendelian analysis



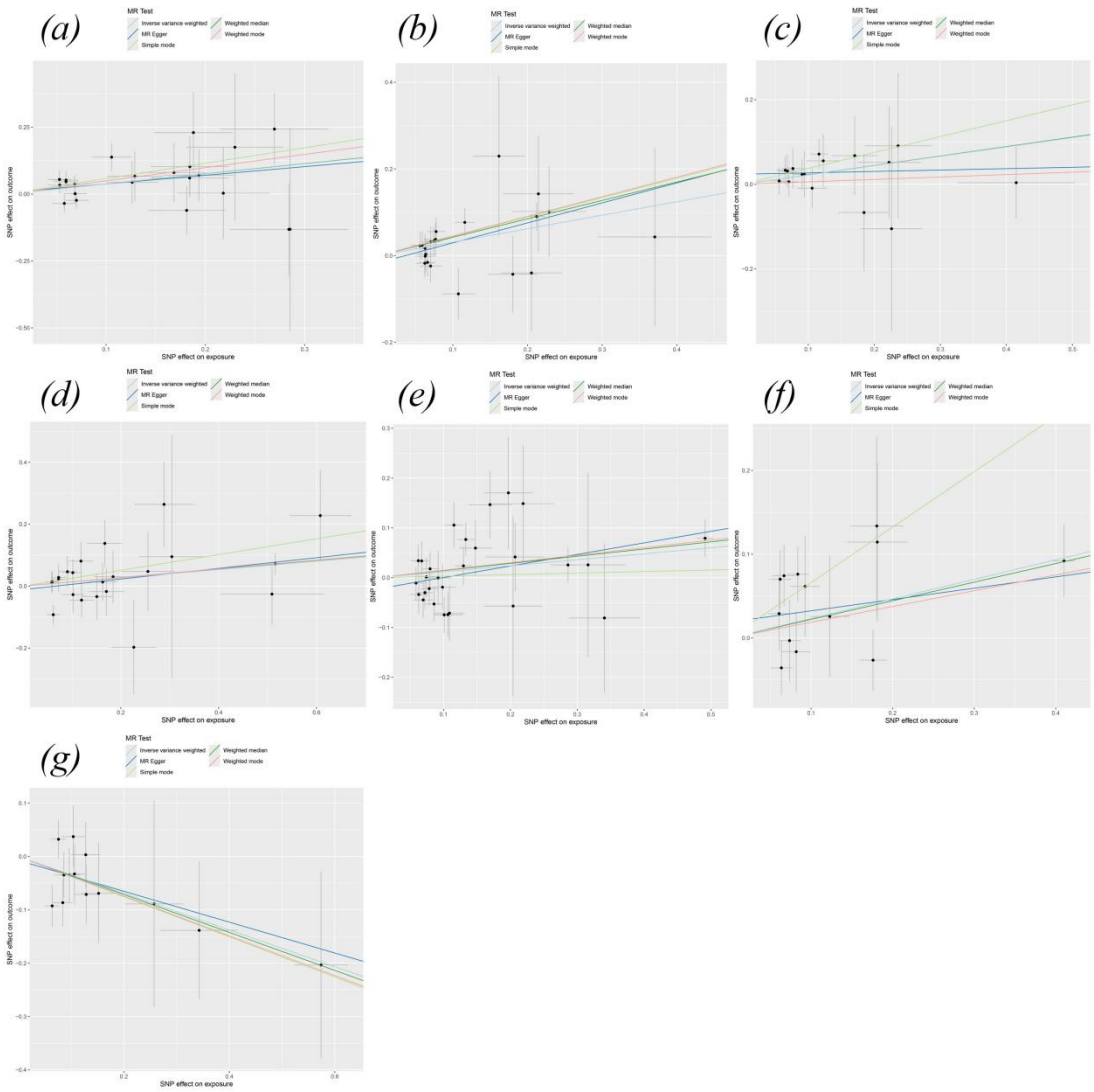
supplementary Figure S1: Scatter plot of the Mendelian analysis of inflammatory proteins for glossopharyngeal nerve disease. (a) CX3CL1. (b) MMP-1. (c) SLAMF1. (d) TNF. (e)TNFRSF9.



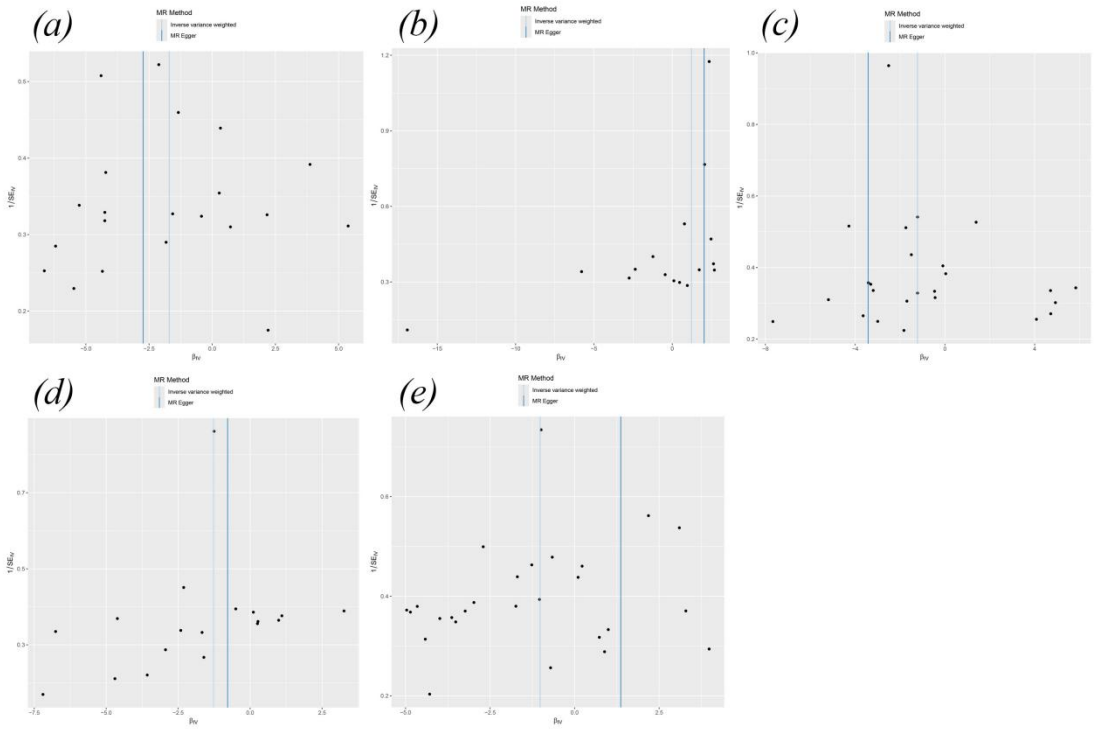
supplementary Figure S2. Scatter plot of the Mendelian analysis of inflammatory proteins for Phantom limb syndrome with pain. (a) FGF21. (b) Osteoprotegerin.



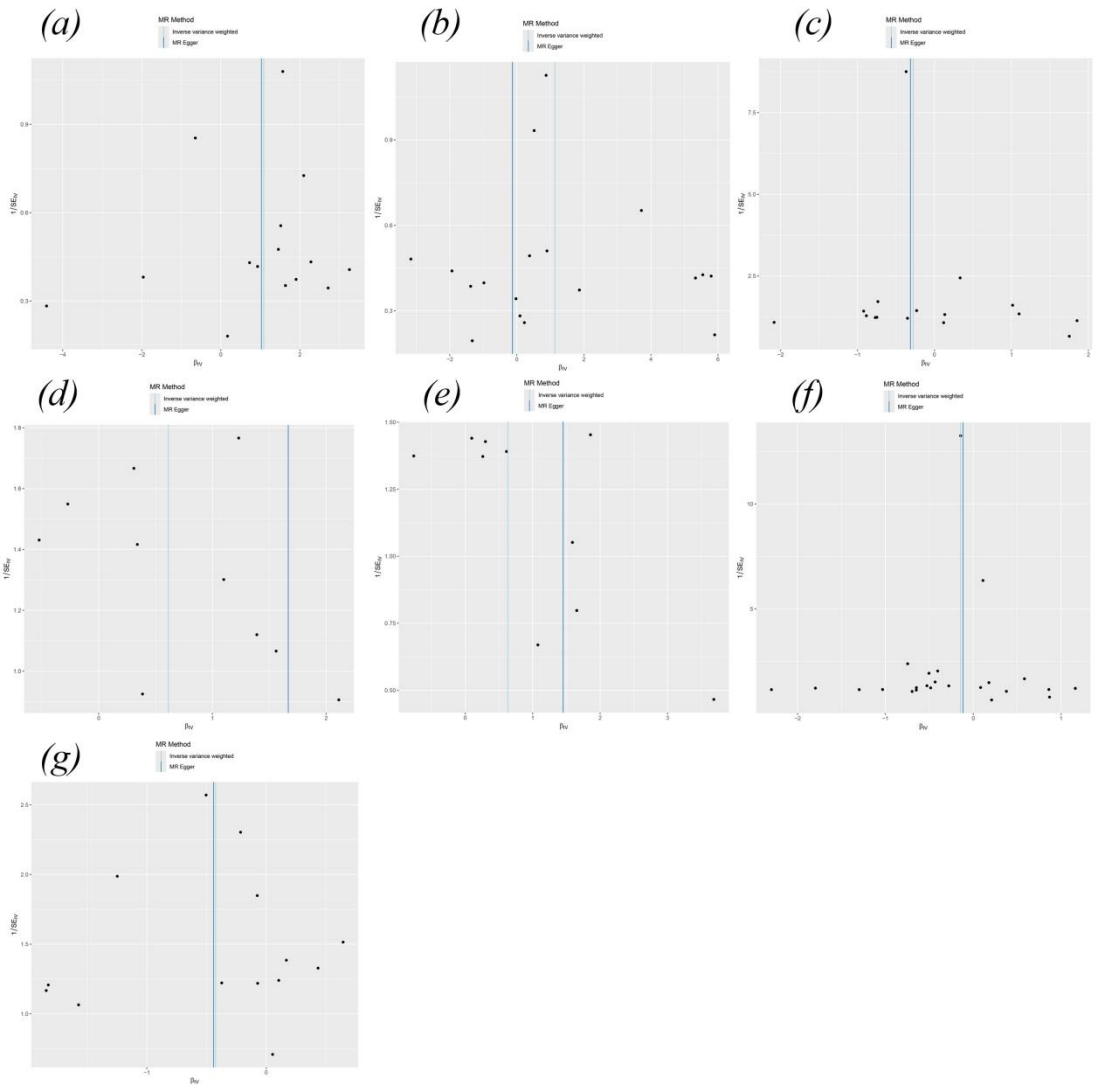
supplementary Figure S3: Scatter plot of the Mendelian analysis of inflammatory proteins for Small fiber neuropathy. (a) CD40LG. (b) IL-20RA. (c) IL-24. (d) CCL8. (e)OSM.



supplementary Figure S4: Scatter plot of the Mendelian analysis of inflammatory proteins for Unspecified neuralgia or neuritis. (a) CCL28. (b) CD244. (c) FGF23. (d) FGF5. (e)IL-12B. (f) CCL3.(g)SIRT2.



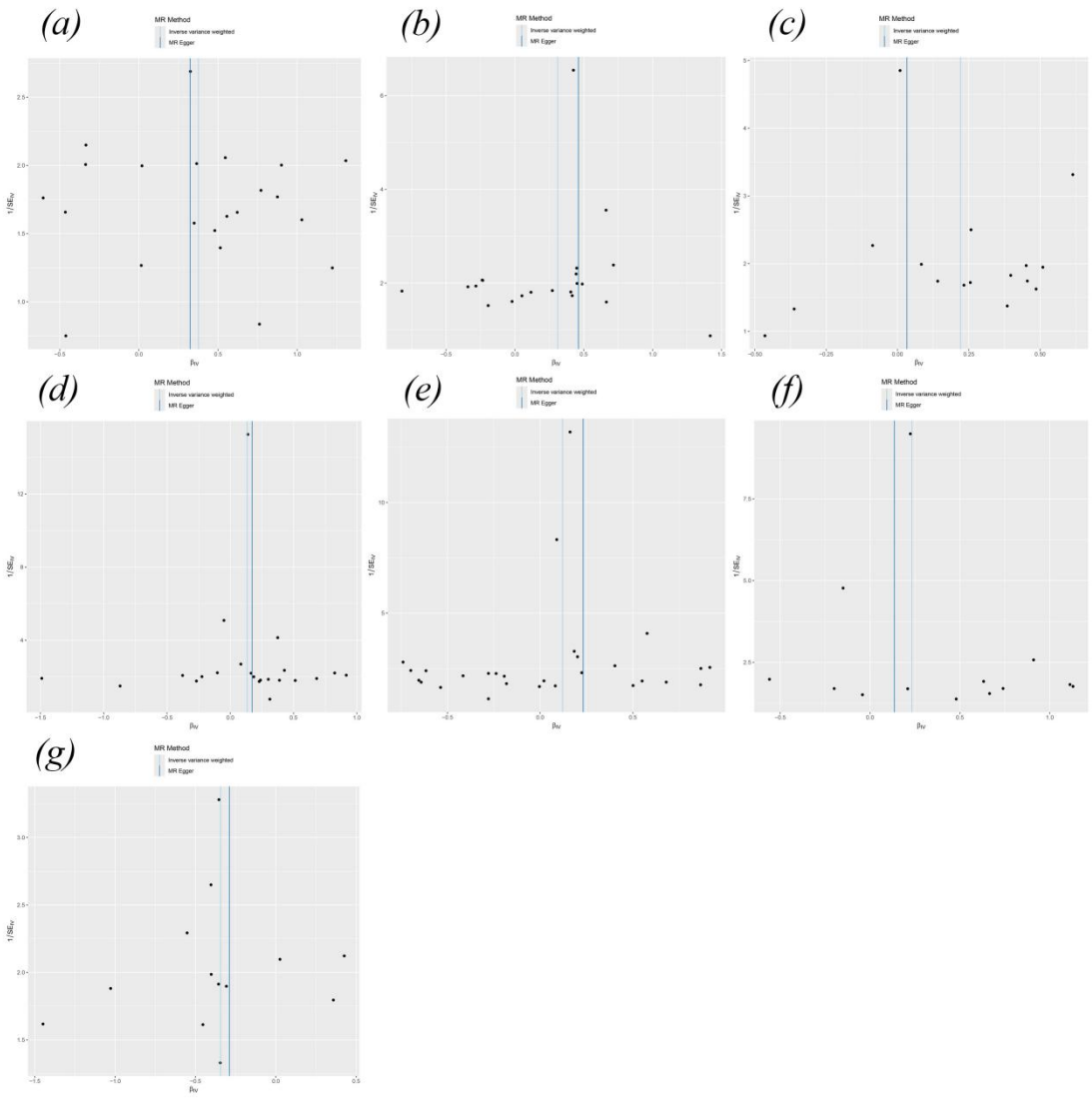
supplementary Figure S5: Funnel plot of Mendelian randomization analysis of inflammatory proteins for gloss opharyngeal nerve disease. (a) CX3CL1. (b) MMP-1. (c) SLAMF1. (d) TNF. (e) TNFRSF9.



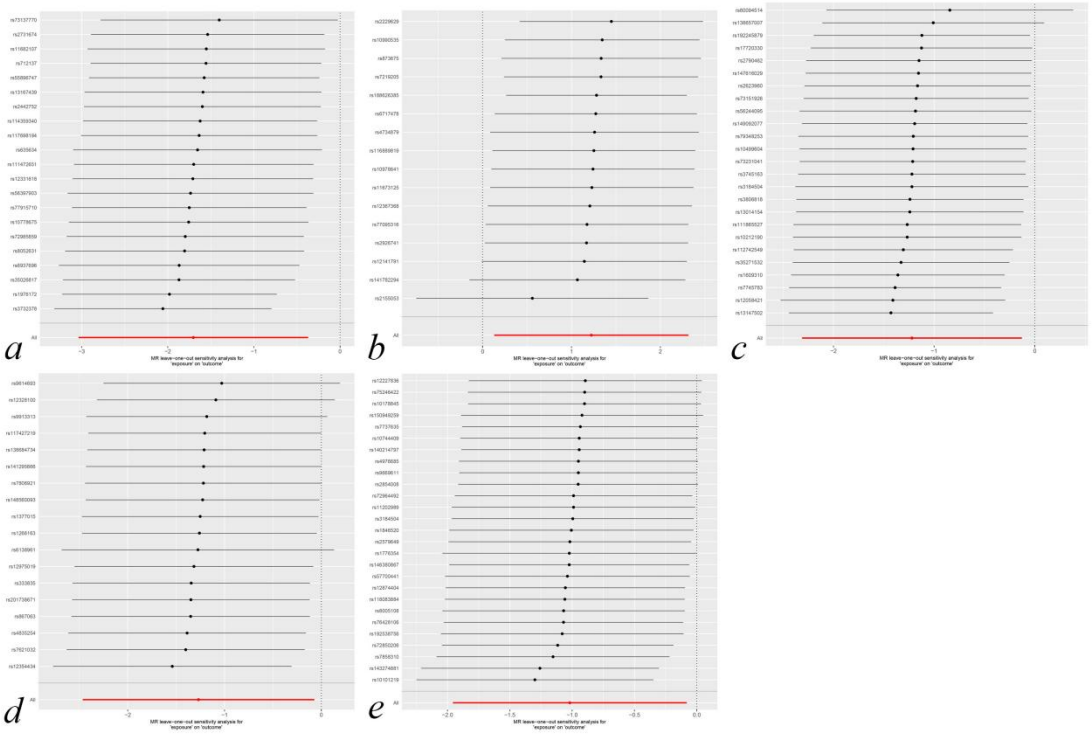
supplementary Figure S6:

(a),(b): Funnel plot of Mendelian randomization analysis of inflammatory proteins for Phantom limb syndrom e with pain. (a) FGF21. (b) Osteoprotegerin.

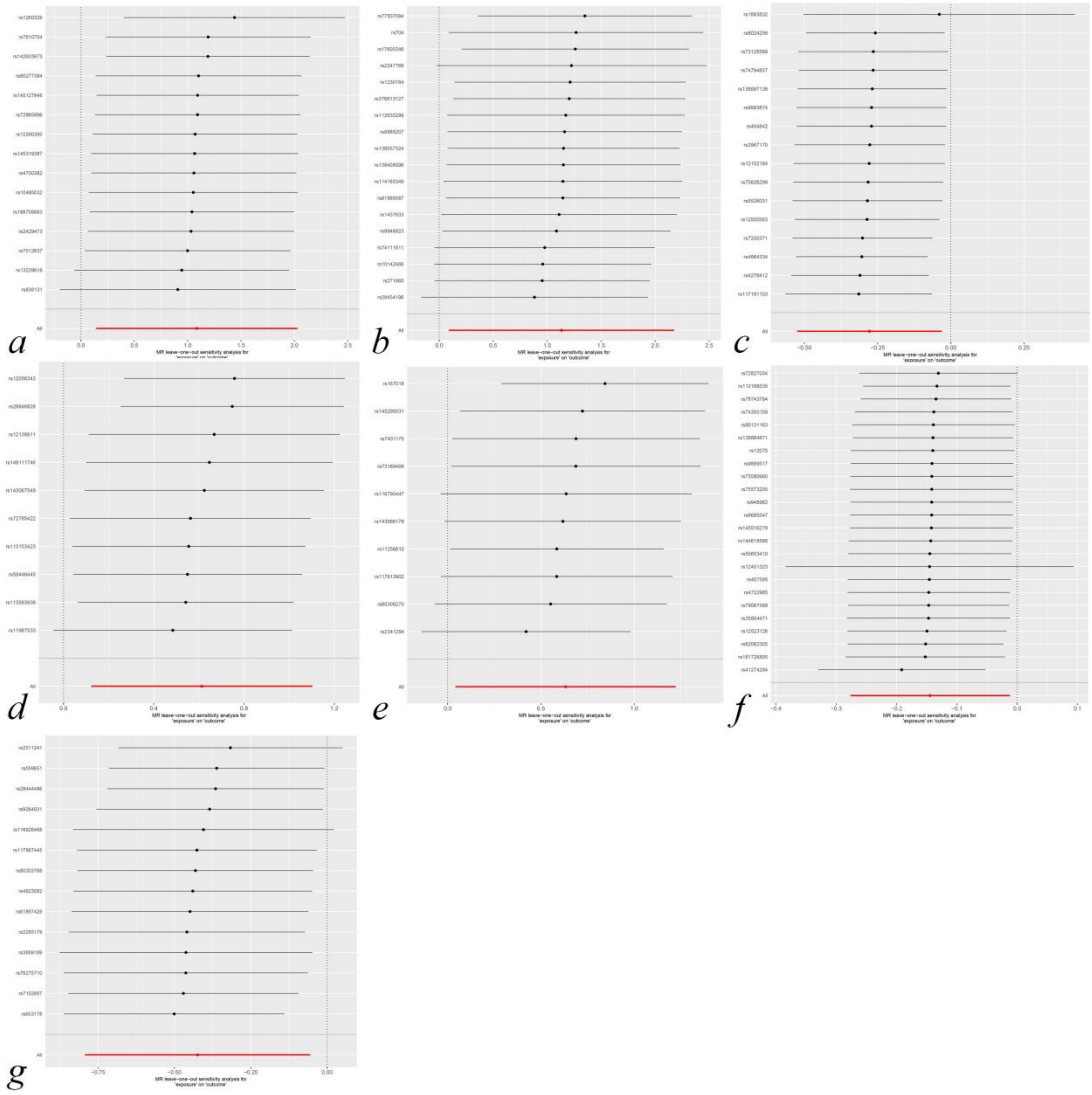
(c)-(g): Funnel plot of Mendelian randomization analysis of inflammatory proteins for Small fiber neuropathy. (c) CD40LG. (d) IL-20RA. (e) IL-24. (f) CCL8. (g) OSM



supplementary Figure S7: Funnel plot of Mendelian randomization analysis of inflammatory proteins for U nspecified neuralgia or neuritis. (a) CCL28. (b) CD244. (c) FGF23. (d) FGF5. (e) IL-12B. (f) CCL3. (g) SI RT2.



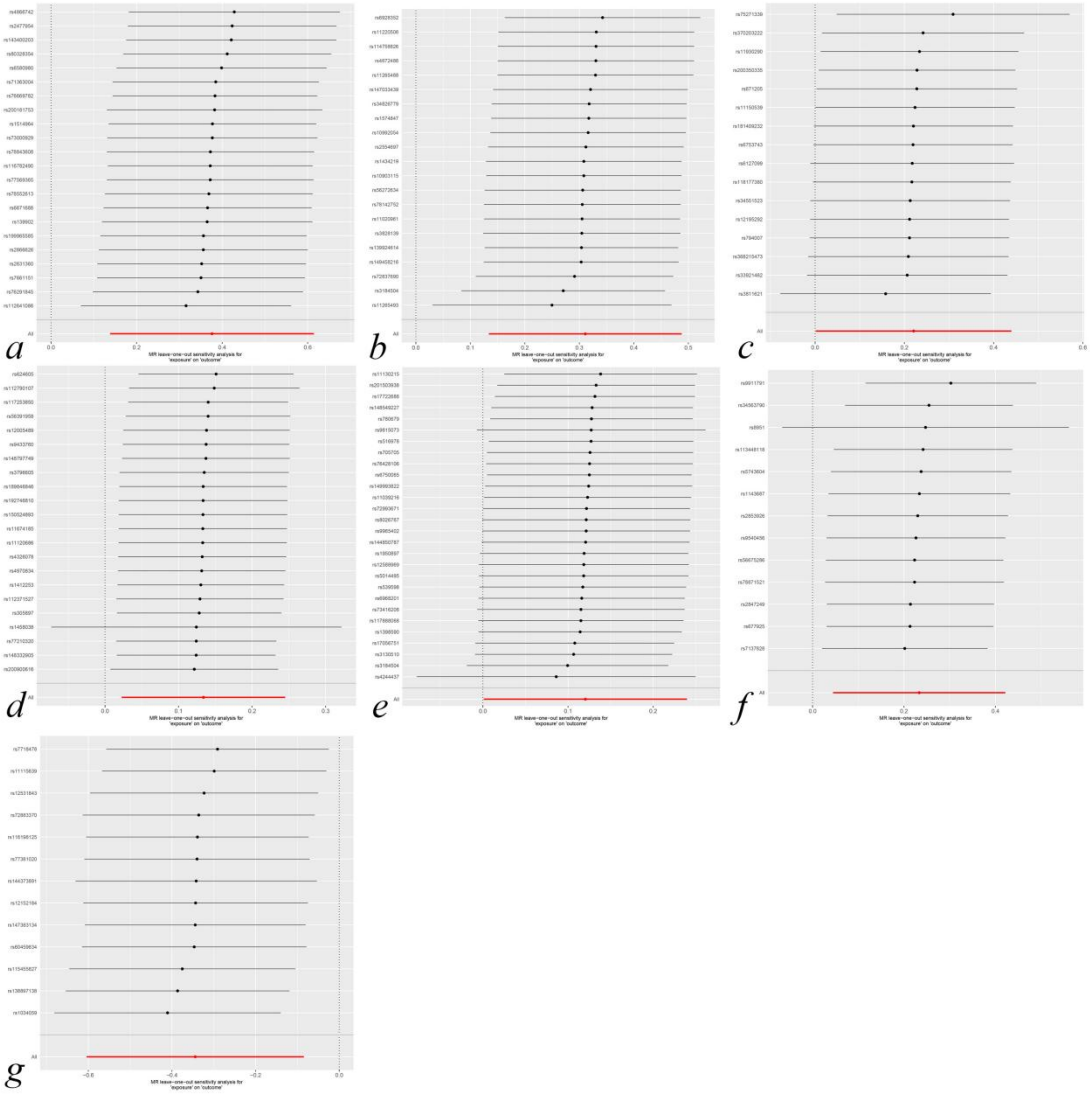
supplementary Figure S8: Leave-one-out plot of Mendelian randomization of inflammatory proteins to glossopharyngeal nerve disease. (a) CX3CL1. (b) MMP-1. (c) SLAMF1. (d) TNF. (e) TNFRSF9.



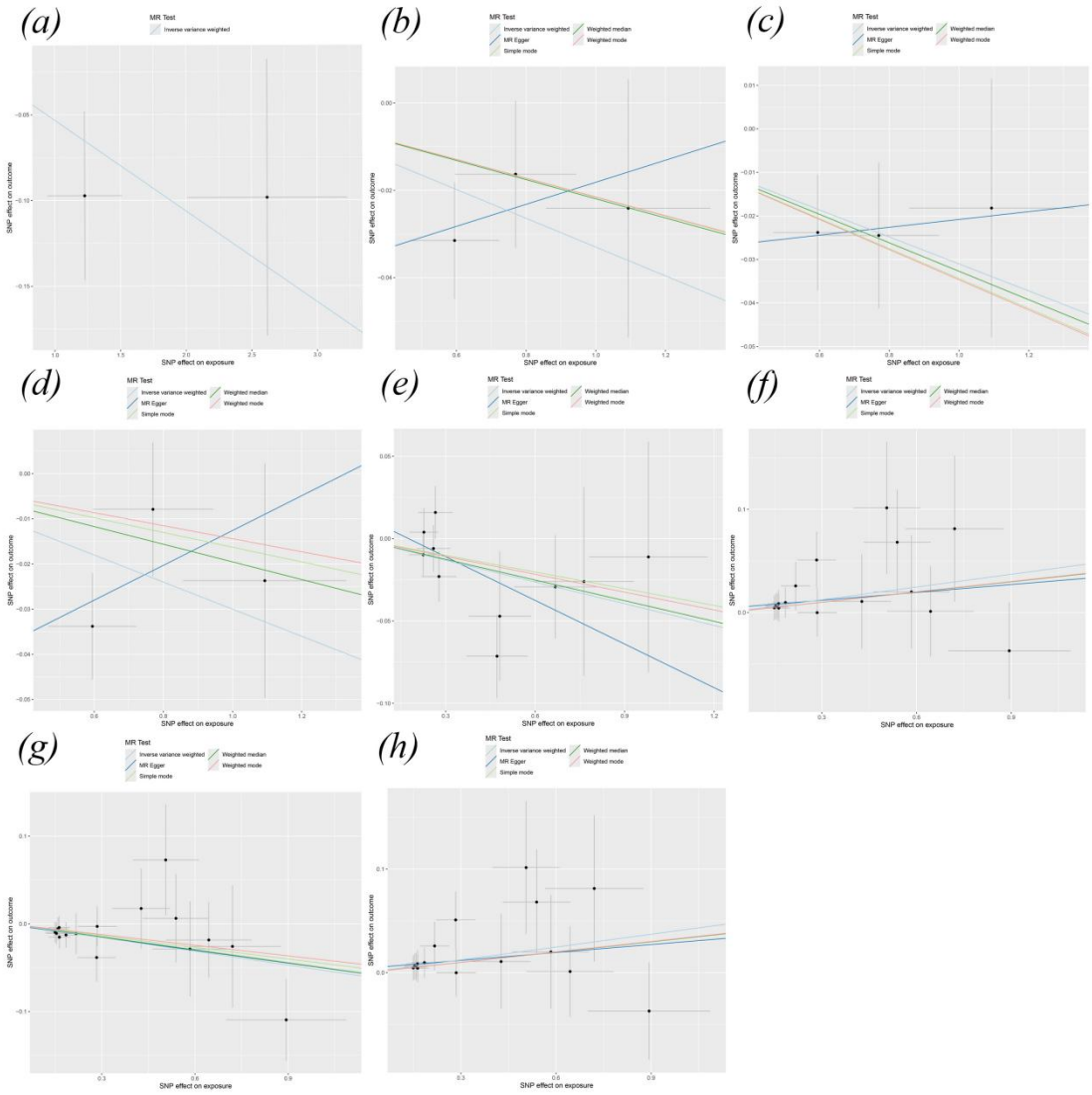
supplementary Figure S9:

(a),(b): Leave-one-out plot of Mendelian randomization of inflammatory proteins to Phantom limb syn drome with pain. (a) FGF21. (b) Osteoprotegerin.

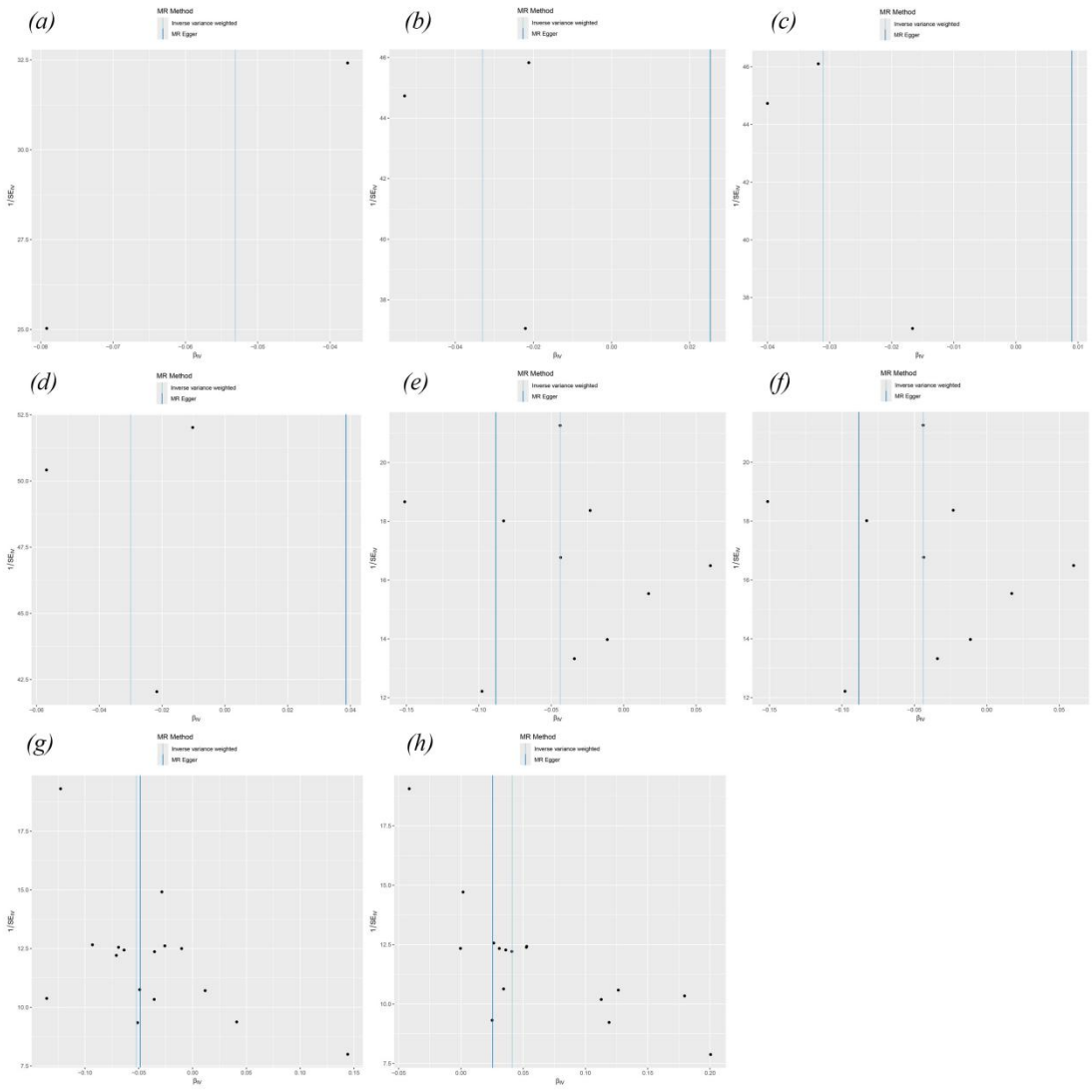
(c)-(g): Leave-one-out plot of Mendelian randomization analysis of inflammatory proteins for Small fiber ne uropathy. (c) CD40LG. (d) IL-20RA. (e) IL-24. (f) CCL8. (g) OSM



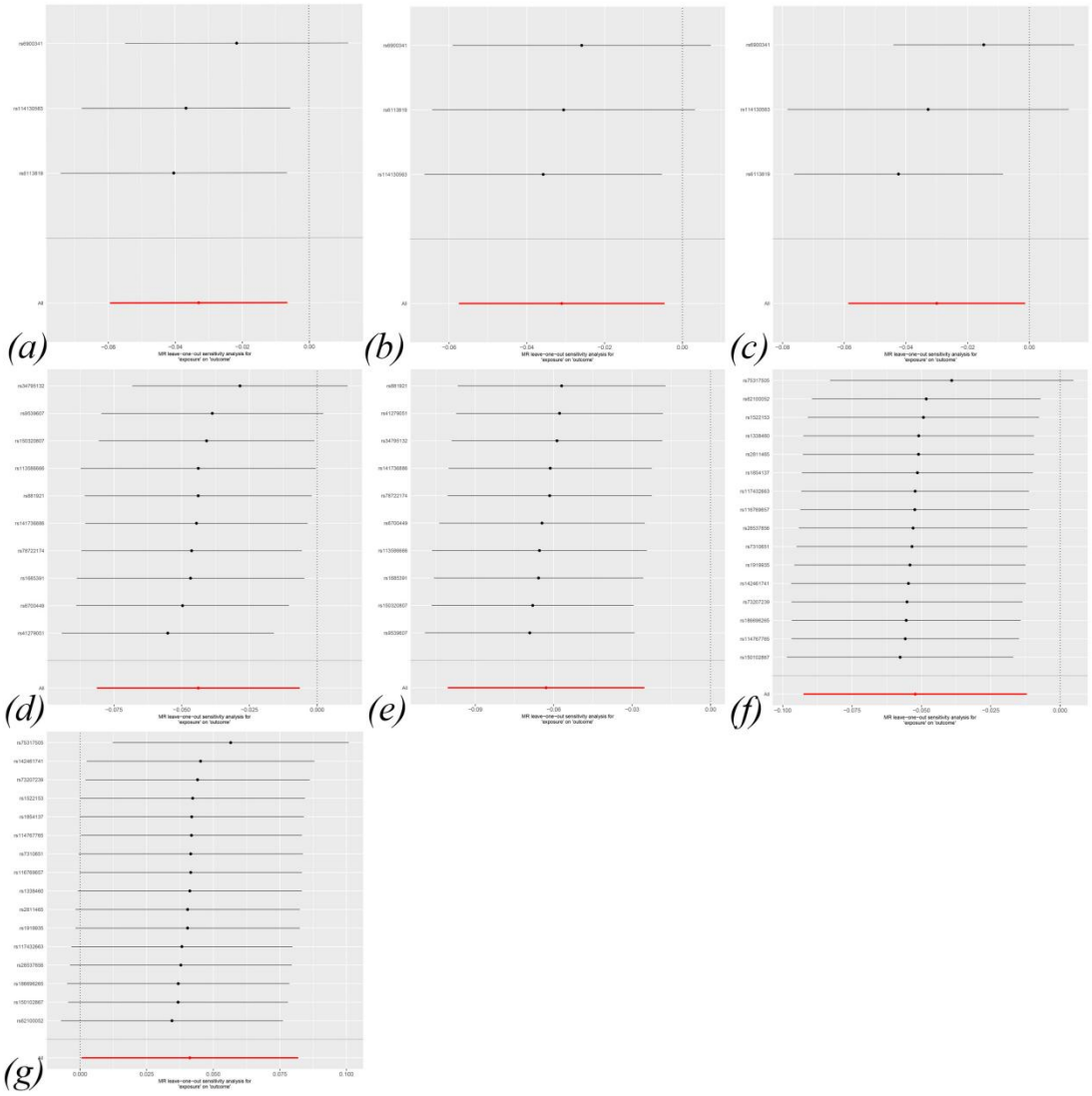
supplementary Figure S10: Leave-one-out plot of Mendelian randomization analysis of inflammatory protei ns for Unspecified neuralgia or neuritis. (a) CCL28. (b) CD244. (c) FGF23. (d) FGF5. (e) IL-12B. (f) CCL3. (g) SIRT2.



supplementary Figure S11: Scatter plot of the Mendelian analysis of Neuropathic pain for inflammatory proteins. (a)NT-3. (b) IL-10RA. (c) IL-17A. (d) TNFSF12. (e) IL-2RB. (f) IL-5. (g) CCL23. (h) CXCL5.



supplementary Figure S12: Funnel plot of the Mendelian analysis of Neuropathic pain for inflammatory proteins. (a)NT-3. (b) IL-10RA. (c) IL-17A. (d) TNFSF12. (e) IL-2RB. (f) IL-5. (g) CCL23. (h) CXCL5.



supplementary Figure S13: Leave-one-out plot of the Mendelian analysis of Neuropathic pain for inflammatory proteins. (a)IL-10RA. (b) IL-17A. (c) TNFSF12. (d) IL-2RB . (e) IL-5. (f) CCL23. (g) CXCL5.

Supplementary table

MR estimates of Inflammatory proteins on Neuropathic pain																	
			Inverse variance weighted			MR Egger			Weighted median			Simple mode			Weighted mode		
Outcome	Inflammatory proteins	nSNP	OR	95CI	pval	OR	95CI	pval	OR	95CI	pval	OR	95CI	pval	OR	95CI	pval
Glossopharyngeal nerve disease	CX3CL1	21	0.182	(0.048,0.691)	0.012	0.065	(0.002,2.013)	0.135	0.174	(0.027,1.14)	0.068	0.014	(0,0.457)	0.026	0.155	(0.008,3.144)	0.239
	MMP-1	16	3.399	(1.14,10.133)	0.028	7.635	(1.171,49.794)	0.052	8.536	(2.267,32.142)	0.002	4.341	(0.481,39.189)	0.211	7.904	(2.092,29.869)	0.008
	SLAMF1	25	0.295	(0.099,0.879)	0.028	0.033	(0.004,0.264)	0.004	0.178	(0.046,0.695)	0.013	0.161	(0.015,1.744)	0.146	0.126	(0.022,0.727)	0.029
	TNF	18	0.281	(0.085,0.931)	0.038	0.457	(0.053,3.967)	0.488	0.307	(0.051,1.834)	0.195	0.333	(0.029,3.806)	0.389	0.346	(0.049,2.419)	0.3
	TNFRSF9	27	0.361	(0.141,0.923)	0.033	3.921	(0.506,30.361)	0.203	0.365	(0.085,1.555)	0.173	0.032	(0.002,0.478)	0.019	0.349	(0.035,3.493)	0.379
Phantom limb syndrome with pain	FGF21	15	2.961	(1.152,7.614)	0.024	2.787	(0.287,27.032)	0.393	4.684	(1.242,17.659)	0.023	5.33	(0.785,36.187)	0.109	5.214	(1.027,26.479)	0.066
	Osteoprotegerin	18	3.103	(1.092,8.818)	0.034	0.879	(0.101,7.669)	0.909	2.06	(0.569,7.452)	0.271	1.086	(0.095,12.345)	0.948	1.865	(0.49,7.099)	0.373
Small fibre neuropathy	CD40LG	16	0.758	(0.592,0.97)	0.027	0.731	(0.513,1.042)	0.105	0.693	(0.56,0.858)	0.001	0.571	(0.274,1.19)	0.155	0.689	(0.545,0.87)	0.007
	IL-20RA	10	1.846	(1.131,3.013)	0.014	5.299	(1.579,17.777)	0.027	1.425	(0.723,2.808)	0.307	3.279	(0.98,10.972)	0.086	1.312	(0.484,3.56)	0.607
	IL-24	10	1.881	(1.042,3.396)	0.036	4.272	(1.116,16.352)	0.067	1.348	(0.629,2.891)	0.442	1.853	(0.591,5.812)	0.318	1.365	(0.545,3.42)	0.523
	CCL8	24	0.866	(0.758,0.988)	0.033	0.89	(0.757,1.047)	0.173	0.892	(0.771,1.031)	0.121	0.637	(0.372,1.091)	0.114	0.887	(0.772,1.018)	0.102
	OSM	14	0.655	(0.453,0.947)	0.024	0.644	(0.283,1.463)	0.314	0.775	(0.478,1.256)	0.3	0.971	(0.429,2.196)	0.945	0.815	(0.428,1.553)	0.545
Neuralgia and neuritis, unspecified	CCL28	22	1.457	(1.148,1.849)	0.002	1.383	(0.837,2.284)	0.22	1.461	(1.035,2.063)	0.031	1.781	(0.932,3.404)	0.095	1.639	(0.881,3.049)	0.134
	CD244	21	1.365	(1.143,1.629)	0.001	1.586	(1.089,2.309)	0.026	1.529	(1.179,1.983)	0.001	1.562	(1.003,2.433)	0.062	1.573	(1.195,2.071)	0.004
	FGF23	16	1.247	(1.002,1.553)	0.048	1.034	(0.673,1.587)	0.882	1.249	(0.924,1.69)	0.148	1.456	(0.868,2.441)	0.175	1.059	(0.707,1.587)	0.784
	FGF5	22	1.143	(1.023,1.278)	0.018	1.188	(1.013,1.392)	0.047	1.149	(1.018,1.298)	0.025	1.29	(0.935,1.78)	0.135	1.151	(1.023,1.295)	0.029
	IL-12B	28	1.128	(1.001,1.271)	0.048	1.261	(1.048,1.518)	0.021	1.155	(1.01,1.32)	0.035	1.031	(0.704,1.512)	0.875	1.163	(1.018,1.328)	0.034
	CCL3	13	1.263	(1.046,1.525)	0.015	1.145	(0.849,1.544)	0.395	1.249	(1.021,1.528)	0.031	1.938	(1.063,3.531)	0.052	1.207	(0.978,1.489)	0.105
	SIRT2	13	0.709	(0.547,0.919)	0.009	0.749	(0.442,1.268)	0.305	0.701	(0.486,1.009)	0.056	0.686	(0.393,1.2)	0.211	0.689	(0.428,1.111)	0.153

Supplementary Table S1: MR estimates of Inflammatory proteins on Neuropathic pain

MR estimates of Neuropathic pain on Inflammatory proteins

			Inverse variance weighted			MR Egger			Weighted median			Simple mode			Weighted mode		
Exposure	Inflammatory proteins	nSNP	beta	95CI	pval	beta	95CI	pval	beta	95CI	pval	beta	95CI	pval	beta	95CI	pval
Glossopharyngeal nerve disease	NT-3	2.000	-0.053	(-0.101,-0.005)	0.030	\	\	\	\	\	\	\	\	\	\	\	\
Phantom limb syndrome with pain	IL-10RA	3.000	-0.033	(-0.059,-0.007)	0.015	0.025	(-0.097,0.148)	0.755	-0.022	(-0.057,0.013)	0.217	-0.022	(-0.061,0.018)	0.397	-0.022	(-0.062,0.019)	0.410
	IL-17A	3.000	-0.031	(-0.057,-0.005)	0.021	0.009	(-0.114,0.132)	0.909	-0.033	(-0.065,0)	0.047	-0.034	(-0.071,0.002)	0.208	-0.035	(-0.075,0.006)	0.236
	TNFSF12	3.000	-0.030	(-0.059,-0.001)	0.040	0.039	(-0.089,0.166)	0.659	-0.020	(-0.052,0.013)	0.240	-0.016	(-0.057,0.024)	0.514	-0.014	(-0.054,0.025)	0.548
Small fibre neuropathy	IL-2RB	10.000	-0.044	(-0.081,-0.006)	0.022	-0.088	(-0.183,0.006)	0.105	-0.042	(-0.093,0.01)	0.111	-0.034	(-0.123,0.055)	0.475	-0.036	(-0.11,0.038)	0.366
	IL-5	10.000	-0.063	(-0.101,-0.025)	0.001	-0.057	(-0.152,0.038)	0.273	-0.056	(-0.105,-0.006)	0.027	-0.090	(-0.164,-0.016)	0.042	-0.048	(-0.118,0.022)	0.215
Neuralgia and neuritis, unspecified	CCL23	16.000	-0.052	(-0.092,-0.012)	0.011	-0.049	(-0.128,0.03)	0.248	-0.049	(-0.103,0.004)	0.069	-0.045	(-0.132,0.043)	0.336	-0.041	(-0.12,0.039)	0.333
	CXCL5	16.000	0.041	(0,0.082)	0.047	0.025	(-0.055,0.106)	0.544	0.033	(-0.023,0.089)	0.243	0.033	(-0.06,0.127)	0.493	0.033	(-0.048,0.115)	0.433

Supplementary Table S2: MR estimates of Neuropathic pain on Inflammatory proteins

SNPs information of inflammatory proteins with Glossopharyngeal nerve disease														
Exposure	SNP	effect_allele	other_allele	beta.exposure	beta.outcome	eaf.exposure	eaf.outcome	pval.outcome	se.outcome	se.exposure	pval.exposure	samplesize.exposure	R2	f
CX3CL1	rs10778675	A	C	0.079	-0.034	0.169	0.152	8.90E-01	0.244	0.016	5.37E-07	14295	1.75E-03	2.51E+01
	rs111472651	C	G	-0.119	0.217	0.936	0.950	5.96E-01	0.411	0.025	1.57E-06	14728	1.56E-03	2.31E+01
	rs114359340	A	G	-0.188	1.030	0.975	0.988	2.09E-01	0.819	0.041	3.41E-06	13651	1.58E-03	2.16E+01
	rs11682107	A	G	-0.068	0.284	0.557	0.544	1.08E-01	0.177	0.013	8.45E-08	12412	2.31E-03	2.87E+01
	rs117698194	A	G	-0.200	0.867	0.022	0.013	2.73E-01	0.792	0.043	3.83E-06	13859	1.54E-03	2.13E+01
	rs12331618	A	G	-0.058	0.091	0.491	0.426	6.09E-01	0.178	0.011	3.30E-07	14729	1.77E-03	2.61E+01
	rs13167439	T	C	-0.090	0.384	0.890	0.882	1.62E-01	0.274	0.019	2.89E-06	14295	1.53E-03	2.19E+01
	rs1976172	C	G	-0.057	-0.306	0.353	0.380	9.42E-02	0.183	0.012	2.12E-06	14732	1.52E-03	2.25E+01
	rs2442752	T	C	-0.059	0.250	0.618	0.655	1.76E-01	0.185	0.012	4.80E-07	14743	1.72E-03	2.53E+01
	rs2731674	T	G	-0.068	0.358	0.274	0.260	7.50E-02	0.201	0.013	1.04E-07	14740	1.92E-03	2.83E+01
	rs35026817	T	G	0.063	0.137	0.333	0.302	4.80E-01	0.194	0.012	2.12E-07	14740	1.82E-03	2.69E+01
	rs3732378	A	G	0.094	0.364	0.167	0.159	1.30E-01	0.240	0.015	9.94E-10	14740	2.53E-03	3.73E+01
	rs55896747	T	C	0.113	-0.750	0.937	0.961	9.32E-02	0.447	0.024	3.71E-06	14734	1.45E-03	2.14E+01
	rs56397903	A	G	0.197	-0.264	0.974	0.955	5.38E-01	0.428	0.042	3.46E-06	14743	1.46E-03	2.15E+01
	rs635634	T	C	-0.115	0.242	0.188	0.202	2.69E-01	0.219	0.017	5.29E-12	11792	4.02E-03	4.76E+01
	rs6937696	T	C	-0.081	-0.026	0.651	0.644	8.86E-01	0.185	0.012	1.40E-11	14742	3.09E-03	4.57E+01
	rs712137	A	C	0.056	-0.349	0.660	0.728	7.74E-02	0.198	0.012	2.71E-06	14737	1.49E-03	2.20E+01
	rs72985859	T	C	0.135	0.097	0.081	0.044	8.23E-01	0.436	0.029	3.72E-06	8297	2.57E-03	2.14E+01
	rs73137770	C	G	0.244	-1.074	0.981	0.988	2.55E-02	0.481	0.053	3.91E-06	13808	1.54E-03	2.13E+01
	rs77915710	A	G	-0.144	-0.317	0.040	0.012	6.99E-01	0.820	0.030	2.32E-06	14742	1.51E-03	2.23E+01
	rs8052631	A	G	-0.151	-0.042	0.946	0.954	9.22E-01	0.426	0.027	2.19E-08	14295	2.19E-03	3.13E+01
MMP-1	rs10978641	A	T	0.065	0.030	0.746	0.792	8.90E-01	0.218	0.014	3.56E-06	14296	1.50E-03	2.15E+01
	rs10990535	T	C	0.070	-0.166	0.253	0.265	4.07E-01	0.201	0.014	1.91E-07	14734	1.84E-03	2.71E+01
	rs11673125	T	C	-0.059	-0.056	0.296	0.248	7.84E-01	0.205	0.013	4.10E-06	14741	1.44E-03	2.12E+01
	rs116889819	A	G	-0.176	-0.018	0.046	0.025	9.75E-01	0.578	0.030	4.45E-09	14744	2.33E-03	3.44E+01
	rs12141791	A	G	0.086	0.212	0.698	0.634	2.45E-01	0.183	0.013	3.90E-11	14296	3.04E-03	4.37E+01
	rs12367368	T	G	0.086	0.148	0.115	0.150	5.49E-01	0.247	0.019	3.67E-06	14744	1.45E-03	2.14E+01
	rs141782294	A	G	0.377	0.777	0.978	0.968	1.14E-01	0.491	0.045	2.56E-17	14731	4.84E-03	7.16E+01
	rs188626385	T	C	-0.251	4.244	0.018	0.001	6.42E-02	2.293	0.053	2.20E-06	12935	1.73E-03	2.24E+01
	rs2155053	T	C	-0.321	-0.756	0.946	0.951	5.67E-03	0.273	0.026	4.68E-34	14741	9.94E-03	1.48E+02
	rs2229629	A	G	-0.315	1.825	0.014	0.011	4.85E-02	0.925	0.067	2.80E-06	10887	2.01E-03	2.19E+01
	rs2926741	T	C	-0.070	-0.185	0.344	0.310	3.28E-01	0.189	0.013	2.31E-08	14296	2.18E-03	3.12E+01
	rs4734879	A	G	0.114	0.088	0.742	0.779	6.80E-01	0.214	0.014	1.11E-16	14296	4.79E-03	6.87E+01
	rs6717478	A	T	0.155	-0.070	0.966	0.962	8.81E-01	0.471	0.034	4.65E-06	14742	1.42E-03	2.10E+01
	rs7219205	A	G	0.057	-0.157	0.502	0.579	3.85E-01	0.180	0.012	2.57E-06	14296	1.54E-03	2.21E+01
	rs77095316	T	G	-0.142	-0.380	0.071	0.050	3.51E-01	0.408	0.024	2.69E-09	14744	2.40E-03	3.54E+01
	rs873675	T	C	0.123	-0.153	0.068	0.092	6.21E-01	0.308	0.023	1.34E-07	14742	1.88E-03	2.78E+01
SLAMF1	rs10212190	A	T	0.073	-0.007	0.615	0.604	9.71E-01	0.180	0.012	1.88E-09	14285	2.52E-03	3.61E+01
	rs10499604	T	C	0.058	-0.098	0.327	0.313	6.04E-01	0.189	0.013	3.48E-06	14730	1.46E-03	2.15E+01
	rs111865527	T	C	0.271	0.010	0.986	0.985	9.89E-01	0.709	0.057	1.88E-06	14244	1.59E-03	2.27E+01
	rs112742549	T	C	0.242	0.988	0.979	0.992	2.97E-01	0.948	0.051	1.71E-06	13499	1.69E-03	2.29E+01
	rs12058421	A	C	-0.126	-0.175	0.162	0.166	4.64E-01	0.238	0.016	2.80E-15	14731	4.22E-03	6.24E+01
	rs13014154	A	G	-0.061	0.028	0.370	0.357	8.78E-01	0.183	0.012	6.50E-07	14285	1.73E-03	2.48E+01
	rs13147502	A	G	-0.061	-0.355	0.596	0.537	4.52E-02	0.177	0.013	1.62E-06	12843	1.79E-03	2.30E+01
	rs138657007	A	G	-0.286	1.225	0.018	0.008	2.73E-02	0.555	0.058	6.98E-07	12790	1.92E-03	2.46E+01
	rs147616029	T	C	-0.064	0.213	0.377	0.370	2.43E-01	0.182	0.013	4.87E-07	12850	1.97E-03	2.53E+01
	rs149092077	A	G	-0.359	1.075	0.989	0.996	4.55E-01	1.440	0.073	8.63E-07	11137	2.17E-03	2.42E+01
	rs1609310	T	G	-0.056	-0.274	0.514	0.362	1.37E-01	0.184	0.012	3.46E-06	14286	1.51E-03	2.15E+01
	rs17720330	C	G	-0.198	1.029	0.021	0.018	1.07E-01	0.639	0.043	4.04E-06	14727	1.44E-03	2.12E+01
	rs192245879	A	G	0.333	-2.551	0.989	0.996	5.62E-02	1.336	0.066	3.76E-07	13799	1.87E-03	2.58E+01
	rs2623960	T	C	0.069	-0.220	0.220	0.243	2.83E-01	0.205	0.014	1.50E-06	14286	1.62E-03	2.31E+01
	rs2790462	T	C	-0.075	0.255	0.298	0.228	2.22E-01	0.209	0.013	3.06E-09	14733	2.38E-03	3.51E+01
	rs3184504	T	C	0.097	-0.118	0.476	0.407	5.09E-01	0.179	0.013	8.55E-14	11783	4.70E-03	5.57E+01
	rs35271532	A	G	-0.149	-0.701	0.045	0.026	2.01E-01	0.549	0.032	4.51E-06	14286	1.47E-03	2.10E+01
	rs3745163	A	C	0.067	-0.082	0.230	0.242	6.88E-01	0.205	0.015	3.35E-06	13669	1.58E-03	2.16E+01
	rs3806818	A	G	0.071	-0.031	0.191	0.194	8.90E-01	0.224	0.015	3.82E-06	13853	1.54E-03	2.13E+01
	rs56244095	A	C	0.101	-0.176	0.212	0.282	3.74E-01	0.198	0.016	8.38E-11	14286	2.94E-03	4.22E+01
	rs60094514	T	C	0.221	-0.554	0.851	0.817	1.56E-02	0.229	0.016	2.45E-42	14732	1.25E-02	1.86E+02
	rs73151926	T	C	0.106	-0.387	0.081	0.052	3.34E-01	0.401	0.023	3.45E-06	14286	1.51E-03	2.15E+01
	rs73231041	C	G	-0.279	0.510	0.015	0.006	6.82E-01	1.245	0.060	3.05E-06	12735	1.71E-03	2.18E+01
	rs7745783	T	C	-0.059	-0.277	0.497	0.506	1.14E-01	0.175	0.012	7.44E-07	14286	1.71E-03	2.45E+01
	rs79348253	A	G	-0.159	0.237	0.045	0.063	5.14E-01	0.364	0.030	7.75E-08	14719	1.96E-03	2.89E+01
TNF	rs117427219	A	G	-0.306	2.203	0.017	0.002	2.22E-01	1.806	0.063	1.13E-06	10850	2.18E-03	2.37E+01
	rs12328100	A	G	-0.065	0.299	0.478	0.475	8.88E-02	0.176	0.013	5.97E-07	11784	2.11E-03	2.49E+01
	rs12354434	A	G	-0.121	-0.394	0.089	0.092	2.04E-01	0.310	0.025	1.03E-06	11337	2.10E-03	2.39E+01
	rs1266163	A	T	0.137	-0.221	0.062	0.030	6.68E-01	0.514	0.029	1.90E-06	11337	2.00E-03	2.27E+01
	rs12975019	C	G	-0.113	0.056	0.894	0.892	8.44E-01	0.286	0.023	6.14E-07	10278	2.41E-03	2.49E+01
	rs1377015	A	G	-0.065	0.109	0.286	0.292	5.79E-01	0.196	0.014	4.25E-06	11782	1.79E-03	2.11E+01
	rs138684734	A	G	0.251	-1.180	0.980	0.994	3.22E-01	1.190	0.053	2.44E-06	10850	2.04E-03	2.22E+01
	rs141295666	T	C	0.341	-1.001	0.013	0.006	3.99E-01	1.186	0.066	2.48E-07	11337	2.34E-03	2.66E+01
	rs148560093	A	G	-0.298	1.065	0.982	0.996	4.30E-01	1.351	0.065	3.97E-06	9984	2.13E-03	2.13E+01
	rs201738671	CT	C	-0.349	-0.095	0.015	0.009	9.21E-01	0.965	0.075	3.64E-06	7943	2.69E-03	2.14E+01
	rs333835	A	T	0.129	0.033	0.916	0.934	9.27E-01	0.362	0.025	3.88E-07	11337	2.27E-03	2.57E+01
	rs4835254	T	C	-0.152	-0.150	0.951	0.952	7.18E-01	0.416	0.031	9.90E-07	11770	2.03E-03	2.39E+01
	rs6138961	C	G	0.510	-0.639	0.009	0.023	2.80E-01	0.592	0.108	2.19E-06	7308	3.06E-03	2.24E+01
	rs7621032	T	C	0.067	0.074	0.451	0.417	6.78E-01	0.179	0.014	5.96E-07	11337	2.19E-03	2.49E+01
	rs7806921	T	C	-0.061	0.146	0.537	0.591	4.16E-01	0.179	0.013	3.73E-06	11778	1.81E-03	2.14E+01
	rs867063	T	C	0.118	0.013	0.078	0.092	9.65E-01	0.305	0.026	4.07E-06	11337	1.87E-03	2.12E+01
	rs9614693	T	C	0.083	-0.558	0.168	0.154	2.36E-02	0.247	0.018	3.06E-06	11763	1.85E-03	2.18E+01
	rs9913313	T	C	-0.084	0.193	0.344	0.353	2.98E-01	0.185	0.018	4.92E-06	7957	2.62E-03	2.09E+01
TNFRSF9	rs10101219	C	G	-0.402	-1.245	0.990	0.986	9.58E-02	0.747	0.085	2.13E-06	9540	2.35E-03	2.25E+01
	rs10178845	A	G	-0.068	0.331	0.304	0.345	7.38E-02	0.185	0.014	2.18E-06	11765	1.90E-03	2.24E+01
	rs10744409	A	G	0.064	-0.233	0.445	0.411	1.94E-01	0.179	0.013	1.03E-06	11764	2.02E-03	2.39E+01
	rs11202989	T	C	-0.100	0.168	0.122	0.187	4.57E-01	0.227	0.021	2.69E-06	11336	1.94E-03	2.20E+01
	rs118083884	A	G	0.328	0.240	0.019	0.007	8.16E-01	1.034	0.067	8.83E-07	9785	2.46E-03	2.42E+01
	rs12227836	A	G	-0.067	0.332	0.352	0.396	6.46E-02	0.180	0.014	1.77E-06	11336	2.01E-03	2.28E+01
	rs12874404	A	G	-0.140	-0.124	0.941	0.965	7.98E-01	0.486	0.030	2.17E-06	11336	1.98E-03	2.24E+01
	rs140214797	T	G	0.232	-1.023	0.980	0.986	1.66E-01	0.738	0.050	4.28E-06	11769	1.79E-03	2.11E+01
	rs143274881	A	T	-0.333	-0.727	0.977	0.977	2.20E-01	0.592	0.072	3.76E-06	9353	2.28E-03	2.14E+01
	rs146380867	A	G	0.374	-0.266	0.011	0.004	8.56E-01	1.460	0.081	4.29E-06	10849	1.94E-03	2.11E+01
	rs150949259	A	G	0.375	-1.014	0.010	0.014	1.77E-01	0.751	0.081	3.56E-06	8674	2.47E-03	2.15E+01
	rs1776354	A	G	-0.130	0.129	0.520	0.548	4.67E-01	0.177	0.013	1.41E-23	11783	8.43E-03	1.00E+02
	rs1846520	A	G	-0.163	0.206	0.953	0.935	5.58E-01	0.351	0.031	2.05E-07	11782	2.29E-03	2.70E+01
	rs192538756	A	T	0.119	0.026	0.874	0.857	9.18E-01	0.258	0.024	8.96E-07	9453	2.55E-03	2.41E+01
	rs2579649	A	C	-0.097	0.100	0.132	0.154	6.84E-01	0.246	0.020	1.15E-06	11336	2.08E-03	2.37E+01
	rs2854008	A	G	0.093	-0.276	0.263	0.168	2.49E-01	0.239	0.015	5.14E-10	11784	3.27E-03	3.86E+01
	rs3184504	T	C	0.068	-0.118	0.476	0.407	5.09E-01	0.179	0.013	1.62E-07	11784	2.32E-03	2.74E+01
	rs4976685	A	G	-0.069	0.224	0.670	0.670	2.31E-01	0.187	0.014	6.18E-07	11763	2.11E-03	2.49E+01
	rs57700441	C	G	-0.116	0.076	0.901	0.841	7.52E-01	0.241	0.023	4.07E-07	11773	2.18E-03	2.57E+01
	rs72850206	A	T	-0.144	-0.572	0.074	0.034	2.42E-01	0.489	0.028	3.10E-07	11336	2.30E-03	2.62E+01
	rs72964492	A	C	0.311	-1.334	0.987	0.997	3.83E-01	1.530	0.065	1.70E-06	9983	2.29E-03	2.29E+01
	rs75246422	T	C	-0.098	0.457	0.123	0.136	7.73E-02	0.259	0.020	1.32E-06	11784	1.98E-03	2.34E+01
	rs76428106	T	C	-0.271	-0.270	0.983	0.987	7.40E-01	0.815	0.059	4.72E-06	10849	1.93E-03	2.09E+01
	rs7737635	A	G	0.092	-0.368	0.195	0.137	1.57E-01	0.260	0.020	4.29E-06	9453	2.23E-03	2.11E+01
	rs7858310	A	G	0.071	0.233	0.717	0.692	2.23E-01	0.191	0.015	3.30E-06	11336	1.90E-03	2.16E+01
	rs8005108	C	G	0.089	0.009	0.283	0.264	9.64E-01	0.203	0.018	1.04E-06	9453	2.52E-03	2.39E+01
	rs9669611	T	C	0.070	-0.247	0.285	0.256	2.21E-01	0.202	0.015	2.78E-06	11783	1.86E-03	2.20E+01

Supplementary Table S3: SNPs used as instrumental variables in Mendelian Randomization analysis of inflammatory proteins on Glossopharyngeal nerve disease.

SNPs information of inflammatory proteins with Phantom limb syndrome with pain														
Exposure	**SNP**	**effect_allele**	**other_allele**	**beta.exposure**	**beta.outcome**	**eaf.exposure**	**eaf.outcome**	**pval.outcome**	**se.outcome**	**se.exposure**	**pval.exposure**	**samplesize.exposure**	**R2**	**f**
FGF21	rs10495032	T	G	-0.156	-0.236	0.038	0.072	4.00E-01	0.280	0.032	9.77E-07	14720	1.63E-03	2.40E+01
	rs12290350	T	C	-0.069	-0.113	0.217	0.180	5.65E-01	0.196	0.015	2.02E-06	14295	1.58E-03	2.26E+01
	rs1260326	T	C	0.132	-0.085	0.398	0.349	5.82E-01	0.155	0.012	1.03E-28	14730	8.32E-03	1.24E+02
	rs13229619	A	G	-0.161	-0.337	0.130	0.129	1.28E-01	0.222	0.018	6.13E-20	14743	5.64E-03	8.36E+01
	rs142603673	T	C	-0.235	1.037	0.023	0.009	2.12E-01	0.832	0.046	2.35E-07	14252	1.87E-03	2.67E+01
	rs145127946	A	G	-0.175	-0.030	0.037	0.008	9.76E-01	0.969	0.036	1.22E-06	14295	1.64E-03	2.35E+01
	rs145319387	G	GT	-0.076	-0.110	0.769	0.685	4.89E-01	0.159	0.016	3.06E-06	10893	2.00E-03	2.18E+01
	rs188758663	A	G	-0.380	-1.032	0.010	0.005	3.51E-01	1.105	0.075	3.88E-07	11668	2.20E-03	2.57E+01
	rs2429473	A	C	-0.081	-0.185	0.795	0.808	3.24E-01	0.188	0.015	3.32E-08	14295	2.13E-03	3.05E+01
	rs4700382	T	C	-0.063	-0.120	0.270	0.271	4.77E-01	0.169	0.014	3.62E-06	14295	1.50E-03	2.15E+01
	rs60277384	T	C	-0.088	-0.064	0.892	0.850	7.55E-01	0.205	0.019	3.54E-06	14742	1.46E-03	2.15E+01
	rs7012637	A	G	-0.061	-0.197	0.481	0.508	1.86E-01	0.149	0.012	4.61E-07	14295	1.77E-03	2.54E+01
	rs72965996	A	G	-0.222	-0.206	0.031	0.021	6.98E-01	0.531	0.044	6.08E-07	13808	1.80E-03	2.49E+01
	rs7610704	T	C	-0.057	0.112	0.464	0.526	4.55E-01	0.149	0.012	2.21E-06	14295	1.56E-03	2.24E+01
	rs838131	A	C	0.163	0.255	0.501	0.429	9.07E-02	0.151	0.013	6.15E-36	14294	1.08E-02	1.57E+02
Osteoprotegerin	rs10142466	A	G	0.057	0.316	0.490	0.514	1.80E-02	0.134	0.011	1.70E-07	14721	1.85E-03	2.73E+01
	rs112635299	T	G	0.262	0.100	0.021	0.020	8.51E-01	0.531	0.043	1.48E-09	14733	2.48E-03	3.66E+01
	rs114165349	C	G	-0.195	-0.175	0.034	0.037	6.46E-01	0.382	0.034	1.01E-08	14727	2.22E-03	3.28E+01
	rs1230164	C	G	-0.067	0.092	0.729	0.752	5.95E-01	0.174	0.013	1.98E-07	14285	1.89E-03	2.71E+01
	rs138408096	A	G	-0.201	-0.019	0.021	0.013	9.79E-01	0.711	0.042	2.09E-06	14721	1.53E-03	2.25E+01
	rs138557324	T	C	-0.225	0.299	0.020	0.005	7.96E-01	1.157	0.047	1.91E-06	14285	1.59E-03	2.27E+01
	rs1437633	A	C	-0.079	-0.147	0.207	0.151	4.86E-01	0.212	0.015	7.69E-08	12851	2.24E-03	2.89E+01
	rs17600346	T	C	-0.157	0.304	0.963	0.954	3.95E-01	0.357	0.030	1.54E-07	14723	1.87E-03	2.75E+01
	rs2247769	T	C	-0.171	-0.149	0.558	0.596	3.25E-01	0.151	0.011	1.42E-50	14285	1.54E-02	2.24E+02
	rs271665	T	C	-0.067	-0.390	0.748	0.681	1.45E-02	0.159	0.013	1.90E-07	14710	1.84E-03	2.71E+01
	rs28454196	C	G	-0.224	-0.833	0.976	0.977	1.54E-02	0.344	0.049	3.97E-06	14285	1.49E-03	2.13E+01
	rs376613127	A	G	-0.269	0.264	0.013	0.012	6.96E-01	0.676	0.057	2.14E-06	13154	1.70E-03	2.25E+01
	rs61968587	A	G	-0.267	-0.060	0.984	0.994	9.53E-01	1.034	0.057	2.47E-06	13798	1.61E-03	2.22E+01
	rs6985207	A	C	0.052	-0.001	0.556	0.587	9.93E-01	0.152	0.011	4.67E-06	14285	1.47E-03	2.10E+01
	rs704	A	G	-0.140	-0.073	0.473	0.418	6.30E-01	0.151	0.011	1.14E-36	14733	1.07E-02	1.60E+02
	rs74111611	T	C	-0.147	-0.784	0.960	0.978	2.70E-02	0.354	0.030	7.96E-07	14732	1.65E-03	2.44E+01
	rs77507094	A	G	0.197	-0.621	0.979	0.964	1.28E-01	0.408	0.043	4.64E-06	14726	1.42E-03	2.10E+01
	rs9946923	T	C	0.172	1.015	0.971	0.989	2.03E-01	0.798	0.038	4.77E-06	13230	1.58E-03	2.09E+01

Supplementary Table S4: SNPs used as instrumental variables in Mendelian Randomization analysis of inflammatory proteins Phantom limb syndrome with pain.

SNPs information of inflammatory proteins with Small fibre neuropathy														
Exposure	**SNP**	**effect_allele**	**other_allele**	**beta.exposure**	**beta.outcome**	**eaf.exposure**	**eaf.outcome**	**pval.outcome**	**se.outcome**	**se.exposure**	**pval.exposure**	**samplesize.exposure**	**R2**	**f**
CD40LG	rs117191103	T	C	0.355	0.118	0.021	0.028	4.16E-01	0.146	0.044	4.28E-16	14736	4.47E-03	6.61E+01
	rs12152184	A	G	0.109	-0.025	0.885	0.886	7.38E-01	0.075	0.021	1.21E-07	12402	2.25E-03	2.80E+01
	rs12500563	T	G	0.314	0.551	0.988	0.998	2.51E-01	0.480	0.069	4.76E-06	10795	1.94E-03	2.09E+01
	rs138897138	A	G	0.109	-0.097	0.914	0.916	2.56E-01	0.085	0.022	4.50E-07	14288	1.78E-03	2.55E+01
	rs1883832	T	C	-0.452	0.167	0.258	0.271	1.24E-03	0.052	0.013	1.00E-200	14736	8.03E-02	1.29E+03
	rs3967170	A	G	0.079	-0.028	0.135	0.159	6.72E-01	0.065	0.017	3.46E-06	14721	1.46E-03	2.15E+01
	rs404842	A	G	-0.060	0.045	0.643	0.596	3.55E-01	0.048	0.012	1.12E-06	14287	1.66E-03	2.37E+01
	rs4278412	C	G	0.198	0.201	0.020	0.039	1.04E-01	0.123	0.041	1.67E-06	14725	1.56E-03	2.29E+01
	rs4664334	T	C	0.054	0.100	0.500	0.484	3.60E-02	0.048	0.012	4.55E-06	14288	1.47E-03	2.10E+01
	rs7250371	T	C	0.069	0.075	0.365	0.312	1.41E-01	0.051	0.012	3.34E-09	14722	2.37E-03	3.50E+01
	rs73128569	A	T	-0.179	0.132	0.941	0.944	2.07E-01	0.104	0.027	2.53E-11	14288	3.11E-03	4.45E+01
	rs74794857	T	C	0.071	-0.065	0.413	0.375	1.89E-01	0.050	0.014	3.00E-07	11760	2.23E-03	2.62E+01
	rs75626299	C	G	0.146	0.017	0.964	0.968	8.99E-01	0.136	0.032	3.95E-06	14728	1.44E-03	2.13E+01
	rs8024256	A	G	-0.056	0.117	0.309	0.293	2.44E-02	0.052	0.012	3.41E-06	14736	1.46E-03	2.16E+01
	rs9526031	A	C	0.064	0.009	0.488	0.593	8.60E-01	0.049	0.012	9.64E-08	14288	1.99E-03	2.84E+01
	rs9993874	A	G	-0.058	0.045	0.488	0.487	3.45E-01	0.047	0.013	3.22E-06	12403	1.74E-03	2.17E+01
IL-20RA	rs113153423	A	G	0.191	0.266	0.972	0.981	1.19E-01	0.171	0.041	2.60E-06	11792	1.87E-03	2.21E+01
	rs113563938	A	T	0.318	0.671	0.987	0.995	5.59E-02	0.351	0.068	2.62E-06	11344	1.94E-03	2.21E+01
	rs11987533	A	G	0.117	0.144	0.137	0.151	2.96E-02	0.066	0.020	3.34E-09	11344	3.07E-03	3.50E+01
	rs12056343	T	G	-0.076	0.040	0.749	0.721	4.54E-01	0.053	0.017	4.55E-06	9894	2.12E-03	2.10E+01
	rs12138611	C	G	0.119	0.037	0.104	0.132	6.06E-01	0.071	0.026	3.34E-06	11344	1.90E-03	2.16E+01
	rs143067549	T	C	-0.417	-0.161	0.011	0.002	7.21E-01	0.450	0.091	4.69E-06	7315	2.86E-03	2.10E+01
	rs149111746	A	G	0.236	0.080	0.021	0.021	6.30E-01	0.166	0.051	3.98E-06	11783	1.80E-03	2.13E+01
	rs28846828	T	C	-0.077	0.021	0.423	0.365	6.74E-01	0.049	0.015	6.78E-07	8817	2.79E-03	2.47E+01
	rs59446445	A	G	0.174	0.272	0.032	0.022	9.63E-02	0.163	0.038	4.61E-06	11790	1.78E-03	2.10E+01
	rs72785422	T	C	0.090	0.099	0.831	0.860	1.52E-01	0.069	0.020	4.22E-06	11343	1.86E-03	2.12E+01
IL-24	rs11256610	A	G	0.301	1.108	0.015	0.001	8.60E-02	0.645	0.064	2.76E-06	10850	2.02E-03	2.20E+01
	rs116790447	T	C	0.173	0.106	0.052	0.039	3.95E-01	0.124	0.037	3.16E-06	9453	2.29E-03	2.17E+01
	rs117613902	A	G	-0.300	-0.496	0.986	0.996	1.87E-01	0.376	0.066	4.97E-06	10850	1.92E-03	2.08E+01
	rs143986178	A	G	0.297	0.320	0.014	0.003	4.71E-01	0.444	0.064	4.02E-06	10850	1.96E-03	2.13E+01
	rs145295031	A	T	0.306	0.030	0.014	0.013	8.89E-01	0.213	0.065	2.20E-06	11287	1.98E-03	2.24E+01
	rs167018	A	G	0.066	-0.050	0.444	0.458	2.94E-01	0.048	0.014	1.36E-06	11336	2.05E-03	2.33E+01
	rs2341294	A	G	-0.132	-0.245	0.072	0.083	6.95E-03	0.091	0.028	2.51E-06	9900	2.23E-03	2.22E+01
	rs60306270	A	G	-0.089	-0.141	0.140	0.087	9.46E-02	0.084	0.019	3.51E-06	11781	1.82E-03	2.15E+01
	rs73169406	A	G	0.111	0.033	0.133	0.105	6.69E-01	0.078	0.021	8.22E-08	11337	2.53E-03	2.87E+01
	rs7401175	A	T	0.089	0.023	0.239	0.164	7.20E-01	0.065	0.020	4.78E-06	7943	2.63E-03	2.09E+01
CCL8	rs112168535	T	C	-0.155	0.357	0.956	0.961	7.92E-03	0.134	0.032	8.90E-07	13670	1.76E-03	2.41E+01
	rs12075	A	G	-0.097	0.039	0.555	0.532	4.09E-01	0.048	0.012	4.95E-17	14733	4.75E-03	7.03E+01
	rs12451323	T	C	1.025	-0.147	0.884	0.895	5.69E-02	0.077	0.017	1.00E-200	14288	1.95E-01	3.47E+03
	rs12523126	A	T	0.112	0.096	0.075	0.066	3.18E-01	0.096	0.023	1.35E-06	14288	1.63E-03	2.33E+01
	rs138884871	T	C	0.220	-0.227	0.019	0.016	2.31E-01	0.189	0.047	3.37E-06	13672	1.58E-03	2.16E+01
	rs144618566	T	C	0.517	-0.144	0.017	0.004	7.10E-01	0.388	0.054	7.15E-22	13801	6.65E-03	9.24E+01
	rs145516279	A	G	0.223	-0.108	0.979	0.982	5.48E-01	0.180	0.048	3.56E-06	14288	1.50E-03	2.15E+01
	rs181726805	A	G	-0.248	-0.144	0.984	0.973	3.30E-01	0.148	0.054	3.75E-06	14736	1.45E-03	2.14E+01
	rs35904471	T	C	0.076	0.014	0.266	0.329	7.91E-01	0.051	0.017	3.99E-06	11337	1.87E-03	2.13E+01
	rs407595	A	C	0.070	0.006	0.207	0.240	9.17E-01	0.055	0.015	2.12E-06	14287	1.57E-03	2.25E+01
	rs41274294	T	C	0.882	0.097	0.968	0.970	4.84E-01	0.139	0.036	2.19E-135	14732	4.00E-02	6.13E+02
	rs4722985	T	C	-0.063	-0.024	0.709	0.788	6.86E-01	0.058	0.013	2.52E-06	14288	1.55E-03	2.22E+01
	rs55653410	A	T	-0.174	-0.036	0.042	0.008	8.90E-01	0.262	0.033	1.86E-07	14288	1.90E-03	2.72E+01
	rs62062305	T	G	0.082	0.095	0.855	0.854	1.58E-01	0.067	0.017	1.16E-06	14288	1.65E-03	2.36E+01
	rs6685547	A	G	0.146	-0.102	0.051	0.032	4.57E-01	0.137	0.029	4.22E-07	13239	1.93E-03	2.56E+01
	rs72827004	C	G	0.262	-0.195	0.046	0.050	7.47E-02	0.110	0.032	1.51E-16	14728	4.61E-03	6.81E+01
	rs74350159	A	G	0.280	-0.363	0.012	0.009	1.34E-01	0.242	0.061	4.19E-06	13801	1.53E-03	2.12E+01
	rs75573205	C	G	0.191	-0.083	0.976	0.962	5.09E-01	0.125	0.041	2.99E-06	14725	1.48E-03	2.18E+01
	rs75580960	T	C	-0.090	0.048	0.870	0.853	4.80E-01	0.067	0.019	1.52E-06	13224	1.75E-03	2.31E+01
	rs78743764	A	C	-0.223	0.400	0.019	0.017	2.77E-02	0.182	0.048	3.53E-06	13656	1.57E-03	2.15E+01
	rs79567569	A	C	-0.328	-0.285	0.988	0.997	4.87E-01	0.410	0.067	9.16E-07	13386	1.80E-03	2.41E+01
	rs80131163	A	G	0.196	-0.099	0.969	0.941	3.29E-01	0.101	0.040	8.77E-07	14730	1.64E-03	2.42E+01
	rs948962	A	C	0.054	-0.035	0.476	0.558	4.62E-01	0.048	0.012	4.84E-06	14736	1.42E-03	2.09E+01
	rs9889517	A	G	0.061	-0.039	0.478	0.405	4.18E-01	0.049	0.012	4.83E-07	14288	1.77E-03	2.53E+01
OSM	rs116928468	A	G	-0.257	0.129	0.019	0.062	1.96E-01	0.100	0.054	1.69E-06	11770	1.94E-03	2.29E+01
	rs117867445	C	G	0.293	-0.109	0.017	0.010	6.49E-01	0.239	0.062	2.46E-06	10471	2.12E-03	2.22E+01
	rs2285179	A	G	-0.066	-0.011	0.559	0.561	8.16E-01	0.048	0.012	5.50E-08	14288	2.06E-03	2.95E+01
	rs2511241	T	C	0.177	-0.221	0.916	0.923	1.32E-02	0.089	0.024	6.38E-14	13668	4.10E-03	5.62E+01
	rs28444486	A	G	0.064	-0.117	0.738	0.747	3.15E-02	0.054	0.014	2.92E-06	14735	1.48E-03	2.19E+01
	rs3859189	A	G	0.110	-0.024	0.537	0.558	6.21E-01	0.048	0.012	4.95E-21	14729	5.98E-03	8.85E+01
	rs4823082	C	G	-0.159	0.011	0.036	0.034	9.30E-01	0.130	0.035	4.32E-06	14724	1.43E-03	2.11E+01
	rs559651	T	C	-0.059	0.108	0.650	0.624	2.76E-02	0.049	0.013	2.01E-06	14715	1.53E-03	2.26E+01
	rs61897429	A	G	-0.085	-0.009	0.139	0.140	8.97E-01	0.068	0.017	6.28E-07	14735	1.68E-03	2.48E+01
	rs653178	T	C	-0.073	-0.047	0.522	0.586	3.30E-01	0.048	0.013	3.48E-08	11785	2.57E-03	3.04E+01
	rs7102957	T	C	-0.080	-0.035	0.863	0.805	5.64E-01	0.060	0.017	3.46E-06	14288	1.51E-03	2.15E+01
	rs76275710	A	G	0.267	-0.020	0.018	0.028	8.89E-01	0.144	0.053	3.85E-07	14735	1.75E-03	2.58E+01
	rs80303768	A	G	-0.152	-0.008	0.037	0.012	9.70E-01	0.214	0.033	3.35E-06	14722	1.47E-03	2.16E+01
	rs9264931	T	C	-0.105	0.165	0.881	0.939	9.45E-02	0.098	0.019	4.09E-08	14736	2.04E-03	3.01E+01

Supplementary Table S5: SNPs used as instrumental variables in Mendelian Randomization analysis of inflammatory proteins on Small fibre neuropathy.

SNPs information of inflammatory proteins with Unspecified neuralgia and neuritis														
Exposure	SNP	effect_allele	other_allele	beta.exposure	beta.outcome	eaf.exposure	eaf.outcome	pval.outcome	se.outcome	se.exposure	pval.exposure	samplesize.exposure	R2	f
CCL28	rs112641086	T	C	-0.106	-0.138	0.090	0.113	7.82E-03	0.052	0.020	9.64E-08	14731	1.93E-03	2.84E+01
	rs116782490	A	C	0.230	0.175	0.982	0.996	5.24E-01	0.275	0.049	2.49E-06	12633	1.75E-03	2.22E+01
	rs139902	A	C	0.068	0.037	0.366	0.366	2.61E-01	0.033	0.012	1.58E-08	14285	2.23E-03	3.20E+01
	rs143400203	T	C	0.181	-0.061	0.024	0.032	5.00E-01	0.090	0.039	3.79E-06	14722	1.45E-03	2.14E+01
	rs1514964	T	C	-0.126	-0.044	0.949	0.959	5.82E-01	0.080	0.026	1.72E-06	14734	1.55E-03	2.29E+01
	rs199965585	CT	C	0.188	0.230	0.028	0.012	1.27E-01	0.151	0.040	1.94E-06	11336	1.99E-03	2.26E+01
	rs200181753	T	TG	-0.184	-0.060	0.971	0.943	3.82E-01	0.069	0.039	2.32E-06	11339	1.96E-03	2.23E+01
	rs2477954	T	C	-0.058	0.035	0.621	0.608	2.87E-01	0.033	0.012	1.34E-06	14286	1.63E-03	2.34E+01
	rs2631360	A	G	0.060	0.052	0.548	0.655	1.21E-01	0.034	0.013	3.10E-06	11780	1.84E-03	2.17E+01
	rs2866626	C	G	-0.060	-0.046	0.608	0.604	1.61E-01	0.033	0.012	8.06E-07	14285	1.70E-03	2.43E+01
	rs4896742	T	C	0.070	-0.023	0.413	0.412	4.72E-01	0.033	0.012	8.71E-09	12829	2.57E-03	3.31E+01
	rs6580980	A	G	-0.069	-0.001	0.402	0.322	9.69E-01	0.034	0.012	5.53E-09	14285	2.37E-03	3.40E+01
	rs6671688	T	C	0.053	0.033	0.541	0.546	3.03E-01	0.032	0.012	4.16E-06	14286	1.48E-03	2.12E+01
	rs71363004	C	G	0.218	0.003	0.980	0.991	9.85E-01	0.172	0.047	2.87E-06	11982	1.82E-03	2.19E+01
	rs73000929	A	G	-0.194	-0.071	0.035	0.030	4.63E-01	0.096	0.036	5.02E-08	14734	2.01E-03	2.97E+01
	rs76291845	A	G	0.270	0.243	0.986	0.985	7.13E-02	0.135	0.054	6.55E-07	14244	1.73E-03	2.47E+01
	rs7661151	T	C	0.053	0.055	0.632	0.627	9.93E-02	0.033	0.012	4.70E-06	14730	1.42E-03	2.10E+01
	rs76669782	A	C	-0.285	0.132	0.018	0.002	7.29E-01	0.381	0.051	2.68E-08	12933	2.39E-03	3.09E+01
	rs77569365	T	G	0.129	0.066	0.956	0.969	4.73E-01	0.092	0.028	4.77E-06	14734	1.42E-03	2.09E+01
	rs78552613	T	C	-0.184	-0.103	0.027	0.021	3.66E-01	0.113	0.040	3.04E-06	14734	1.48E-03	2.18E+01
	rs78843608	A	G	-0.168	-0.081	0.038	0.023	4.65E-01	0.111	0.032	1.85E-07	14725	1.84E-03	2.72E+01
	rs80328354	A	T	-0.284	0.132	0.988	0.991	4.42E-01	0.171	0.060	2.11E-06	14734	1.52E-03	2.25E+01
CD244	rs10903115	A	G	-0.056	-0.023	0.443	0.446	4.71E-01	0.032	0.012	4.61E-06	14286	1.47E-03	2.10E+01
	rs10992054	T	C	-0.371	-0.043	0.987	0.993	8.34E-01	0.205	0.076	1.20E-06	12304	1.91E-03	2.36E+01
	rs11020961	A	G	0.077	0.038	0.817	0.777	3.33E-01	0.039	0.016	1.84E-06	14287	1.59E-03	2.28E+01
	rs11220506	A	G	-0.070	0.024	0.188	0.260	5.12E-01	0.037	0.015	1.79E-06	14729	1.55E-03	2.28E+01
	rs11265488	A	G	-0.062	0.018	0.468	0.442	5.83E-01	0.032	0.012	1.24E-07	14287	1.95E-03	2.80E+01
	rs11265493	A	G	0.212	0.090	0.407	0.396	5.45E-03	0.032	0.012	3.99E-71	14287	2.18E-02	3.18E+02
	rs114758826	A	G	-0.180	0.043	0.039	0.035	6.23E-01	0.087	0.034	8.65E-08	14728	1.94E-03	2.87E+01
	rs139924614	A	G	0.162	0.230	0.967	0.992	2.15E-01	0.185	0.035	3.33E-06	14725	1.47E-03	2.16E+01
	rs1434219	T	C	-0.059	-0.024	0.439	0.432	4.63E-01	0.033	0.012	1.68E-06	14287	1.60E-03	2.29E+01
	rs147033439	A	G	0.205	-0.040	0.025	0.015	7.68E-01	0.135	0.041	5.88E-07	14731	1.69E-03	2.49E+01
	rs149458216	A	C	-0.215	-0.143	0.018	0.015	2.89E-01	0.134	0.047	4.97E-06	14725	1.41E-03	2.08E+01
	rs1574847	C	G	-0.064	-0.003	0.237	0.254	9.30E-01	0.037	0.014	4.59E-06	14287	1.47E-03	2.10E+01
	rs2554697	A	G	0.063	0.017	0.635	0.665	6.17E-01	0.034	0.013	2.88E-06	11782	1.85E-03	2.19E+01
	rs3184504	T	C	0.116	0.077	0.476	0.406	1.86E-02	0.033	0.013	1.27E-19	11784	6.92E-03	8.21E+01
	rs34826779	A	G	0.063	-0.001	0.248	0.218	9.73E-01	0.039	0.014	4.99E-06	14287	1.46E-03	2.08E+01
	rs3828139	T	C	0.074	0.033	0.468	0.518	2.99E-01	0.032	0.012	4.05E-10	14286	2.73E-03	3.91E+01
	rs4672486	A	G	0.066	-0.015	0.433	0.450	6.30E-01	0.032	0.012	1.61E-08	14720	2.16E-03	3.19E+01
	rs56272634	T	C	0.070	0.032	0.699	0.709	3.69E-01	0.035	0.013	2.31E-08	14729	2.12E-03	3.12E+01
	rs6928352	A	G	-0.107	0.088	0.079	0.081	1.33E-01	0.059	0.022	5.87E-07	14731	1.69E-03	2.50E+01
	rs72837690	T	C	-0.078	-0.056	0.641	0.577	8.79E-02	0.033	0.013	5.37E-10	14287	2.69E-03	3.85E+01
	rs78142752	T	C	0.229	0.102	0.018	0.024	3.29E-01	0.104	0.050	4.15E-06	14734	1.44E-03	2.12E+01
FGF23	rs11150539	T	C	-0.056	-0.008	0.494	0.508	8.06E-01	0.032	0.012	2.53E-06	14287	1.55E-03	2.21E+01
	rs118177380	A	G	0.236	0.091	0.019	0.009	5.97E-01	0.172	0.051	3.18E-06	14287	1.52E-03	2.17E+01
	rs11930290	A	T	-0.185	0.067	0.975	0.986	6.30E-01	0.139	0.039	2.11E-06	12848	1.75E-03	2.25E+01
	rs12195292	A	G	-0.077	-0.037	0.863	0.866	4.30E-01	0.047	0.017	3.72E-06	14710	1.45E-03	2.14E+01
	rs181409232	A	C	-0.222	-0.052	0.019	0.015	6.95E-01	0.132	0.048	3.43E-06	12846	1.68E-03	2.16E+01
	rs200350335	T	TTA	0.226	-0.105	0.979	0.995	6.64E-01	0.242	0.047	1.27E-06	10852	2.16E-03	2.35E+01
	rs33921462	A	G	-0.065	-0.033	0.277	0.353	3.21E-01	0.034	0.014	1.32E-06	14287	1.63E-03	2.34E+01
	rs34551523	A	G	0.170	0.068	0.030	0.030	4.68E-01	0.093	0.035	9.75E-07	14730	1.63E-03	2.40E+01
	rs368215473	A	G	0.123	0.055	0.094	0.073	3.74E-01	0.062	0.026	1.77E-06	9397	2.42E-03	2.28E+01
	rs370203222	C	G	0.106	-0.009	0.100	0.139	8.43E-01	0.047	0.022	1.84E-06	11759	1.93E-03	2.28E+01
	rs3811621	C	G	0.116	0.071	0.290	0.295	4.17E-02	0.035	0.013	6.82E-19	14286	5.49E-03	7.88E+01
	rs6127099	A	T	0.091	0.023	0.706	0.731	5.20E-01	0.036	0.013	1.30E-11	14287	3.20E-03	4.58E+01
	rs671205	T	C	0.071	0.006	0.750	0.718	8.68E-01	0.036	0.014	1.93E-07	14287	1.89E-03	2.71E+01
	rs6753743	T	G	0.094	0.024	0.873	0.903	6.60E-01	0.055	0.019	3.65E-07	14287	1.81E-03	2.59E+01
	rs75271339	A	T	-0.415	-0.004	0.014	0.035	9.65E-01	0.086	0.089	3.12E-06	9947	2.18E-03	2.17E+01
	rs794007	T	C	0.069	0.031	0.241	0.216	4.28E-01	0.039	0.014	1.97E-06	12844	1.76E-03	2.26E+01
FGF5	rs11120686	T	C	-0.060	-0.014	0.604	0.615	6.65E-01	0.033	0.013	2.40E-06	11786	1.88E-03	2.22E+01
	rs112371527	A	ATGG	0.102	0.044	0.840	0.837	3.15E-01	0.043	0.020	3.58E-07	8389	3.08E-03	2.59E+01
	rs112790107	A	G	0.509	-0.026	0.006	0.027	7.98E-01	0.100	0.106	1.64E-06	9845	2.33E-03	2.30E+01
	rs11674185	A	G	-0.059	-0.013	0.364	0.352	6.90E-01	0.034	0.013	4.69E-06	11787	1.78E-03	2.10E+01
	rs117238350	T	C	0.227	-0.197	0.022	0.012	1.93E-01	0.152	0.045	5.67E-07	11781	2.12E-03	2.50E+01
	rs12005489	T	C	0.151	-0.034	0.046	0.047	6.53E-01	0.075	0.032	2.78E-06	10725	2.04E-03	2.20E+01
	rs1412253	A	G	-0.091	-0.047	0.880	0.886	3.57E-01	0.051	0.019	2.20E-06	11778	1.90E-03	2.24E+01
	rs1458038	T	C	0.516	0.072	0.317	0.347	3.43E-02	0.034	0.013	1.00E-200	11788	1.25E-01	1.68E+03
	rs148332905	T	C	0.288	0.264	0.017	0.014	5.59E-02	0.138	0.061	2.12E-06	11341	1.98E-03	2.25E+01
	rs148797749	A	G	-0.171	0.017	0.036	0.047	8.21E-01	0.077	0.036	2.32E-06	11785	1.89E-03	2.23E+01
	rs150524893	A	G	0.255	0.047	0.985	0.983	7.11E-01	0.128	0.055	3.71E-06	11298	1.89E-03	2.14E+01
	rs189846846	T	C	-0.304	-0.095	0.015	0.002	8.09E-01	0.394	0.066	3.91E-06	9980	2.13E-03	2.13E+01
	rs192746810	A	G	-0.184	-0.030	0.046	0.039	7.18E-01	0.084	0.040	3.11E-06	11341	1.91E-03	2.17E+01
	rs200900616	CA	C	-0.608	-0.228	0.021	0.012	1.21E-01	0.147	0.063	3.20E-22	7943	1.17E-02	9.39E+01
	rs305897	T	C	0.119	0.081	0.083	0.071	1.94E-01	0.062	0.025	1.95E-06	11341	1.99E-03	2.26E+01
	rs3796605	A	G	0.163	0.014	0.934	0.925	8.22E-01	0.061	0.028	8.60E-09	11782	2.80E-03	3.31E+01
	rs4326078	A	C	-0.073	-0.022	0.219	0.215	5.76E-01	0.039	0.015	1.21E-06	11789	1.99E-03	2.36E+01
	rs4970834	T	C	-0.073	-0.028	0.204	0.196	4.83E-01	0.040	0.016	2.56E-06	11786	1.87E-03	2.21E+01
	rs56391958	A	G	-0.120	0.045	0.082	0.085	4.34E-01	0.058	0.025	1.53E-06	11341	2.03E-03	2.31E+01
	rs624605	T	G	0.062	-0.092	0.420	0.439	4.37E-03	0.032	0.013	3.25E-06	11341	1.91E-03	2.17E+01
	rs77210320	A	T	0.167	0.138	0.965	0.952	6.89E-02	0.076	0.036	2.61E-06	11786	1.87E-03	2.21E+01
	rs9433760	A	G	0.102	-0.027	0.084	0.083	6.37E-01	0.058	0.022	4.95E-06	11788	1.77E-03	2.09E+01
IL-12B	rs11039216	T	C	0.059	-0.011	0.521	0.439	7.42E-01	0.032	0.012	4.00E-07	14730	1.74E-03	2.57E+01
	rs11130215	A	G	-0.101	0.075	0.815	0.730	3.95E-02	0.036	0.015	2.36E-11	14732	3.02E-03	4.46E+01
	rs117888068	T	C	0.219	0.149	0.979	0.981	2.01E-01	0.116	0.047	3.49E-06	11783	1.82E-03	2.15E+01
	rs12889969	C	G	-0.130	-0.024	0.688	0.792	5.47E-01	0.040	0.013	1.74E-24	14287	7.25E-03	1.04E+02
	rs1398590	A	G	-0.197	-0.170	0.030	0.021	1.28E-01	0.112	0.036	5.73E-08	14726	2.00E-03	2.94E+01
	rs148850787	T	G	0.316	0.026	0.987	0.992	8.89E-01	0.185	0.056	1.66E-08	14287	2.23E-03	3.19E+01
	rs148549227	T	C	0.109	-0.071	0.089	0.092	1.99E-01	0.055	0.023	1.82E-06	12403	1.83E-03	2.28E+01
	rs149993822	T	C	0.098	-0.019	0.166	0.153	6.78E-01	0.046	0.019	3.93E-07	14287	1.80E-03	2.57E+01
	rs17056751	A	G	0.169	0.147	0.959	0.941	3.04E-02	0.068	0.033	1.87E-07	14735	1.84E-03	2.72E+01
	rs17720688	T	C	-0.086	0.053	0.725	0.722	1.40E-01	0.036	0.013	6.07E-11	14729	2.90E-03	4.28E+01
	rs1950897	T	C	0.080	0.018	0.715	0.689	6.05E-01	0.035	0.013	4.34E-10	14735	2.63E-03	3.89E+01
	rs201303938	CTTGA	C	-0.106	0.074	0.112	0.157	9.30E-02	0.044	0.022	1.18E-06	10893	2.16E-03	2.36E+01
	rs3130510	A	G	0.116	0.106	0.228	0.150	1.98E-02	0.045	0.014	1.58E-16	14735	4.60E-03	6.81E+01
	rs3184504	T	C	0.133	0.077	0.477	0.406	1.86E-02	0.033	0.013	2.76E-24	11785	8.70E-03	1.03E+02
	rs4244437	A	G	0.491	0.079	0.698	0.749	3.36E-02	0.037	0.012	1.00E-200	14719	1.01E-01	1.65E+03
	rs5014495	T	C	0.207	0.042	0.036	0.064	5.42E-01	0.068	0.044	2.82E-06	10208	2.14E-03	2.19E+01
	rs516978	C	G	0.072	-0.030	0.347	0.372	3.68E-01	0.033	0.012	3.42E-09	14725	2.37E-03	3.49E+01
	rs539598	T	C	-0.067	-0.034	0.282	0.215	3.87E-01	0.039	0.013	1.90E-07	14731	1.84E-03	2.71E+01
	rs6750065	T	C	0.063	-0.034	0.733	0.773	3.78E-01	0.038	0.013	2.78E-06	14286	1.54E-03	2.20E+01
	rs6968201	T	G	-0.062	-0.034	0.543	0.480	2.88E-01	0.032	0.012	1.72E-07	14287	1.91E-03	2.73E+01
	rs705705	C	G	0.079	-0.022	0.323	0.319	5.26E-01	0.035	0.013	3.59E-09	12841	2.71E-03	3.48E+01
	rs72993671	A	G	-0.204	0.057	0.022	0.008	7.53E-01	0.181	0.044	2.74E-06	14246	1.54E-03	2.20E+01
	rs73416208	A	G	-0.148	-0.060	0.065	0.088	2.91E-01	0.056	0.025	1.92E-09	14729	2.44E-03	3.60E+01
	rs76428106	T	C	-0.341	0.001	0.983	0.987	5.90E-01	0.150	0.054	4.94E-10	13000	2.93E-03	4.05E+01
	rs7800679	T	C	-0.070	0.045	0.239	0.248	2.28E-01	0.037	0.014	5.73E-07	14729	1.69E-03	2.50E+01
	rs8026767	A	G	-0.074	-0.002	0.260	0.224	9.68E-01	0.038	0.013	1.81E-08	14734	2.15E-03	3.17E+01
	rs9815073	A	C	0.286	0.026	0.354	0.329	4.57E-01	0.034	0.013	2.43E-107	14287	3.28E-02	4.84E+02
	rs9965402	A	G	0.092	0.000	0.908	0.905	9.95E-01	0.055	0.020	4.94E-06	14729	1.41E-03	2.09E+01
CCL3	rs113448118	A	G	0.082	-0.016	0.153	0.127	7.35E-01	0.048	0.018	4.88E-06	11793	1.77E-03	2.09E+01
	rs1143687	T	C	-0.123	-0.026	0.063	0.053	7.23E-01	0.073	0.024	3.04E-07	14743	1.78E-03	2.62E+01
	rs2847249	T	C	-0.062	-0.070	0.261	0.297	4.66E-02	0.035	0.014	4.97E-06	14294	1.46E-03	2.08E+01
	rs2853926	A	G	-0.061	-0.029	0.739	0.841	5.10E-01	0.044	0.013	4.84E-06	14743	1.42E-03	2.09E+01
	rs34563790	G	GA	-0.064	0.036	0.544	0.489	2.68E-01	0.032	0.014	2.46E-06	10894	2.03E-03	2.22E+01
	rs56675286	A	C	-0.181	-0.134	0.038	0.024	2.09E-01	0.106	0.033	2.75E-08	14743	2.09E-03	3.09E+01
	rs5748604	A	G	-0.074	0.003	0.750	0.874	9.49E-01	0.049	0.014	4.98E-08	14737	2.01E-03	2.97E+01
	rs677925	T	C	-0.067	-0.074	0.728	0.744	4.31E-02	0.037	0.014	2.99E-06	12411	1.76E-03	2.18E+01
	rs71723828	T	C	-0.084	-0.076	0.525	0.587	1.95E-02	0.033	0.013	3.11E-10	11344	3.48E-03	3.96E+01
	rs78871521	T	C	0.181	0.115	0.030	0.031	2.26E-01	0.095	0.037	1.04E-06	13246	1.80E-03	2.39E+01
	rs8951	T	C	-0.410	-0.092	0.770	0.837	3.33E-02	0.043	0.014	1.00E-200	14295	6.07E-02	9.23E+02
	rs9540456	A	G	0.093	0.062	0.878	0.922	3.05E-01	0.060	0.018	3.12E-07	14295	1.83E-03	2.62E+01
	rs9911791	A	G	0.176	-0.026	0.821	0.744	4.74E-01	0.037	0.016	1.71E-27	14295	8.19E-03	1.18E+02
SIRT2	rs1034059	A	G	0.076	0.032	0.698	0.701	3.66E-01	0.036	0.015	1.59E-07	14288	1.92E-03	2.75E+01
	rs11115639	A	C	-0.084	0.086	0.886	0.850	5.30E-02	0.045	0.018	4.86E-06	14730	1.42E-03	2.09E+01
	rs115455827	A	G	0.128	0.003	0.951	0.926	9.57E-01	0.061	0.028	4.02E-06	14735	1.44E-03	2.13E+01
	rs116198125	T	C	-0.152	0.069	0.962	0.970	4.64E-01	0.094	0.033	3.78E-06	14727	1.45E-03	2.14E+01
	rs12152184	A	G	0.097	-0.034	0.885	0.886	4.95E-01	0.050	0.021	3.49E-06	12402	1.73E-03	2.15E+01
	rs12531843	C	G	-0.129	0.071	0.918	0.908	2.05E-01	0.056	0.024	1.21E-07	12404	2.25E-03	2.80E+01
	rs138897138	A	G	0.104	0.037	0.914	0.915	5.20E-01	0.058	0.022	1.84E-06	14288	1.59E-03	2.28E+01
	rs144373891	T	C	-0.574	0.203	0.016	0.009	2.45E-01	0.175	0.052	7.69E-29	14736	8.36E-03	1.24E+02
	rs147383134	T	C	0.257	-0.089	0.986	0.993	6.46E-01	0.193	0.055	3.02E-06	13801	1.58E-03	2.18E+01
	rs60459634	A	G	-0.106	0.033	0.089	0.092	5.59E-01	0.056	0.023	3.45E-06	14288	1.51E-03	2.15E+01
	rs72833370	A	G	-0.343	0.138	0.989	0.985	2.85E-01	0.129	0.074	3.30E-06	12737	1.70E-03	2.16E+01
	rs7718478	A	T	0.064	-0.093	0.750	0.790	1.90E-02	0.039	0.014	3.65E-06	14288	1.50E-03	2.14E+01
	rs77381020	T	C	0.086	-0.035	0.855	0.836	4.25E-01	0.043	0.018	2.80E-06	14288	1.53E-03	2.19E+01

Supplementary Table S6: SNPs used as instrumental variables in Mendelian Randomization analysis of inflammatory proteins on Unspecified neuralgia and neuritis.

SNPs information of Neuropathic pain with inflammatory proteins															
Exposure	inflammatory proteins	SNP	effect_allele	other_allele	beta.exposure	beta.outcome	eaf.exposure	eaf.outcome	se.outcome	pval.outcome	se.exposure	pval.exposure	samplesize.exposure	R2	f
Glossopharyngeal nerve disease	NT-3	rs117369515	T	C	2.619	-0.098	0.002	0.010	0.081	2.23E-01	0.611	1.83E-05	435435	4.22E-05	18.357
		rs144095072	A	G	1.229	-0.097	0.034	0.019	0.049	4.75E-02	0.283	1.42E-05	435435	4.33E-05	18.838
Phantom limb syndrome with pain	IL-10RA	rs114130563	C	A	1.093	-0.024	0.043	0.057	0.030	4.14E-01	0.236	3.62E-06	262495	8.17E-05	21.456
		rs6113819	C	T	-0.770	0.016	0.242	0.216	0.017	3.32E-01	0.173	9.08E-06	262495	7.50E-05	19.695
		rs6900341	G	T	0.595	-0.032	0.377	0.388	0.013	1.79E-02	0.128	3.11E-06	262495	8.28E-05	21.748
	IL-17A	rs114130563	C	A	1.093	-0.018	0.043	0.057	0.030	5.39E-01	0.236	3.62E-06	262495	8.17E-05	21.456
		rs6113819	C	T	-0.770	0.025	0.242	0.216	0.017	1.42E-01	0.173	9.08E-06	262495	7.50E-05	19.695
		rs6900341	G	T	0.595	-0.024	0.377	0.388	0.013	7.35E-02	0.128	3.11E-06	262495	8.28E-05	21.748
	TNFSF12	rs114130563	C	A	1.093	-0.024	0.043	0.056	0.026	3.62E-01	0.236	3.62E-06	262495	8.17E-05	21.456
		rs6113819	C	T	-0.770	0.008	0.242	0.214	0.015	5.93E-01	0.173	9.08E-06	262495	7.50E-05	19.695
		rs6900341	G	T	0.595	-0.034	0.377	0.389	0.012	4.18E-03	0.128	3.11E-06	262495	8.28E-05	21.748
Small fibre neuropathy	IL-2RB	rs113586666	A	T	-0.668	0.029	0.044	0.048	0.031	3.51E-01	0.138	1.28E-06	492478	4.76E-05	23.449
		rs141736886	T	C	0.764	-0.026	0.012	0.015	0.057	6.50E-01	0.167	4.82E-06	492478	4.25E-05	20.907
		rs150320807	G	T	0.481	-0.047	0.039	0.0328	0.039	2.32E-01	0.105	4.26E-06	492478	4.29E-05	21.144
		rs1685391	G	A	-0.259	0.006	0.252	0.293	0.014	6.70E-01	0.056	3.73E-06	492478	4.34E-05	21.397
		rs34795132	C	G	-0.472	0.071	0.072	0.079	0.025	4.77E-03	0.103	4.35E-06	492478	4.28E-05	21.103
		rs41279051	T	C	-0.265	-0.016	0.237	0.205	0.016	3.23E-01	0.058	4.26E-06	492478	4.29E-05	21.145
		rs6700449	A	G	0.227	0.004	0.317	0.269	0.015	7.89E-01	0.049	3.49E-06	492478	4.37E-05	21.528
		rs78722174	T	C	0.980	-0.011	0.008	0.016	0.070	8.74E-01	0.199	8.69E-07	492478	4.91E-05	24.198
		rs881921	A	G	0.225	-0.010	0.604	0.541	0.013	4.65E-01	0.049	3.73E-06	492478	4.35E-05	21.401
		rs9539607	T	C	-0.277	0.023	0.224	0.247	0.015	1.35E-01	0.059	2.26E-06	492478	4.54E-05	22.363
	IL-5	rs113586666	A	T	-0.668	0.033	0.044	0.049	0.032	2.98E-01	0.138	1.28E-06	492478	4.76E-05	23.449
		rs141736886	T	C	0.764	-0.066	0.012	0.015	0.058	2.58E-01	0.167	4.82E-06	492478	4.25E-05	20.907
		rs150320807	G	T	0.481	0.013	0.039	0.033	0.040	7.38E-01	0.105	4.26E-06	492478	4.29E-05	21.144
		rs1685391	G	A	-0.259	0.011	0.252	0.293	0.015	4.61E-01	0.056	3.73E-06	492478	4.34E-05	21.397
		rs34795132	C	G	-0.472	0.043	0.072	0.079	0.025	8.79E-02	0.103	4.35E-06	492478	4.28E-05	21.103
		rs41279051	T	C	-0.265	0.030	0.237	0.206	0.017	7.19E-02	0.058	4.26E-06	492478	4.29E-05	21.145
		rs6700449	A	G	0.227	-0.011	0.317	0.271	0.015	4.81E-01	0.049	3.49E-06	492478	4.37E-05	21.528
		rs78722174	T	C	0.980	-0.079	0.008	0.016	0.070	2.58E-01	0.199	8.69E-07	492478	4.91E-05	24.198
		rs881921	A	G	0.225	-0.026	0.604	0.541	0.013	5.51E-02	0.049	3.73E-06	492478	4.35E-05	21.401
		rs9539607	T	C	-0.277	0.005	0.224	0.247	0.015	7.60E-01	0.059	2.26E-06	492478	4.54E-05	22.363
Neuralgia and neuritis, unspecified	CCL23	rs114767765	T	C	0.427	0.018	0.022	0.019	0.046	7.01E-01	0.093	4.64E-06	359521	5.84E-05	20.981
		rs116769657	T	C	0.584	-0.029	0.012	0.018	0.054	5.97E-01	0.120	1.20E-06	359521	6.56E-05	23.585
		rs117432663	A	G	0.217	-0.011	0.121	0.071	0.023	6.32E-01	0.046	2.61E-06	359521	6.14E-05	22.086
		rs1338460	G	A	0.154	-0.011	0.614	0.655	0.013	3.87E-01	0.033	3.48E-06	359521	5.99E-05	21.530
		rs142461741	C	T	-0.644	0.018	0.020	0.022	0.043	6.70E-01	0.138	2.92E-06	359521	6.08E-05	21.870
		rs150102867	G	A	0.506	0.073	0.018	0.014	0.063	2.49E-01	0.106	1.64E-06	359521	6.39E-05	22.971
		rs1522153	A	G	0.163	-0.015	0.685	0.705	0.013	2.39E-01	0.035	3.19E-06	359521	6.03E-05	21.696
		rs1854137	G	C	-0.149	0.010	0.623	0.601	0.012	4.29E-01	0.032	4.03E-06	359521	5.91E-05	21.251
		rs186696265	T	C	0.539	0.006	0.016	0.018	0.050	9.00E-01	0.107	4.35E-07	359521	7.10E-05	25.530
		rs1919935	C	T	-0.163	0.004	0.319	0.281	0.013	7.45E-01	0.035	3.06E-06	359521	6.06E-05	21.779
		rs2811465	C	T	-0.185	0.013	0.215	0.230	0.015	3.88E-01	0.040	4.03E-06	359521	5.91E-05	21.250
		rs28537856	G	C	0.721	-0.026	0.007	0.016	0.070	7.12E-01	0.155	3.51E-06	359521	5.98E-05	21.515
		rs62100052	T	C	0.283	-0.038	0.062	0.068	0.027	1.60E-01	0.062	4.38E-06	359521	5.87E-05	21.091
		rs7310651	T	C	0.158	-0.006	0.289	0.323	0.013	6.62E-01	0.035	4.51E-06	359521	5.85E-05	21.036
		rs73207239	C	A	-0.285	0.003	0.082	0.071	0.023	8.99E-01	0.062	4.89E-06	359521	5.81E-05	20.878
		rs75317505	C	G	0.894	-0.110	0.004	0.020	0.046	1.79E-02	0.193	3.82E-06	359521	5.94E-05	21.355
	CXCL5	rs114767765	T	C	0.427	0.011	0.022	0.019	0.046	8.15E-01	0.093	4.64E-06	359521	5.84E-05	20.981
		rs116769657	T	C	0.584	0.020	0.012	0.018	0.055	7.16E-01	0.120	1.20E-06	359521	6.56E-05	23.585
		rs117432663	A	G	0.217	0.026	0.121	0.071	0.024	2.72E-01	0.046	2.61E-06	359521	6.14E-05	22.086
		rs1338460	G	A	0.154	0.006	0.614	0.655	0.013	6.17E-01	0.033	3.48E-06	359521	5.99E-05	21.530
		rs142461741	C	T	-0.644	-0.001	0.020	0.022	0.044	9.80E-01	0.138	2.92E-06	359521	6.08E-05	21.870
		rs150102867	G	A	0.506	0.101	0.018	0.014	0.064	1.14E-01	0.106	1.64E-06	359521	6.39E-05	22.971
		rs1522153	A	G	0.163	0.004	0.685	0.705	0.013	7.41E-01	0.035	3.19E-06	359521	6.03E-05	21.696
		rs1854137	G	C	-0.149	-0.005	0.623	0.602	0.012	7.04E-01	0.032	4.03E-06	359521	5.91E-05	21.251
		rs186696265	T	C	0.539	0.068	0.016	0.018	0.051	1.81E-01	0.107	4.35E-07	359521	7.10E-05	25.530
		rs1919935	C	T	-0.163	-0.009	0.319	0.281	0.013	5.12E-01	0.035	3.06E-06	359521	6.06E-05	21.779
		rs2811465	C	T	-0.185	-0.010	0.215	0.230	0.015	5.15E-01	0.040	4.03E-06	359521	5.91E-05	21.250
		rs28537856	G	C	0.721	0.081	0.007	0.0156	0.071	2.51E-01	0.155	3.51E-06	359521	5.98E-05	21.515
		rs62100052	T	C	0.283	0.051	0.062	0.068	0.027	6.32E-02	0.062	4.38E-06	359521	5.87E-05	21.091
		rs7310651	T	C	0.158	0.006	0.289	0.323	0.013	6.59E-01	0.035	4.51E-06	359521	5.85E-05	21.036
		rs73207239	C	A	-0.285	1.00E-04	0.082	0.071	0.023	9.97E-01	0.062	4.89E-06	359521	5.81E-05	20.878
		rs75317505	C	G	0.894	-0.037	0.004	0.021	0.047	4.29E-01	0.193	3.82E-06	359521	5.94E-05	21.355

Supplementary Table S7: SNPs used as instrumental variables in Mendelian Randomization analysis of neuropathic pain on inflammatory proteins.

STROBE-MR checklist of recommended items to address in reports of Mendelian randomization studies

Item No.	Section	Checklist item	Page No.	Relevant text from manuscript
1	**TITLE and ABSTRACT**	Indicate Mendelian randomization (MR) as the study's design in the title and/or the abstract if that is a main purpose of the study		Title: Association of circulating inflammatory proteins with neuropathic pain: A Mendelian randomization.
	INTRODUCTION			
2	**Background**	Explain the scientific background and rationale for the reported study. What is the exposure? Is a potential causal relationship between exposure and outcome plausible? Justify why MR is a helpful method to address the study question		Exposure involved 91 inflammatory protein GWAS data with an outcome of SP. The use of MR Methods can not only study the causal effects of inflammatory proteins on SP but also show potential in identifying prospective biomarkers associated with SP and assessing risk and protective factors.
3	**Objectives**	State specific objectives clearly, including pre-specified causal hypotheses (if any). State that MR is a method that, under specific assumptions, intends to estimate causal effects		MR is a statistical method that utilizes genetic variations as a tool to evaluate causal relationships between inflammatory proteins and SP.
	METHODS			
4	**Study design and data sources**	Present key elements of the study design early in the article. Consider including a table listing sources of data for all phases of the study. For each data source contributing to the analysis, describe the following:		
	a)	Setting: Describe the study design and the underlying population, if possible. Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection, when available.		This study describes the study design and underlying population, and specific populations and numbers have been reported.
	b)	Participants: Give the eligibility criteria, and the sources and methods of selection of participants. Report the sample size, and whether any power or sample size calculations were carried out prior to the main analysis		This paper reports the specific sources of GWAS data,as well as details on sample size and population demographics.
	c)	Describe measurement, quality control and selection of genetic variants		This paper describes the sources of instrumental variables and details the selection process and criteria for instrumental variables.
	d)	For each exposure, outcome, and other relevant variables, describe methods of assessment and diagnostic criteria for diseases		Inflammatory proteins as exposed, NP as outcome in Finland in the database are described.
	e)	Provide details of ethics committee approval and participant informed consent, if relevant		\
5	**Assumptions**	Explicitly state the three core IV assumptions for the main analysis (relevance, independence and exclusion restriction) as well		Figure 1 illustrates the three core assumptions.
6	**Statistical methods: main analysis**	Describe statistical methods and statistics used		
	a)	Describe how quantitative variables were handled in the analyses (i.e., scale, units, model)		For MR analysis, we use Wald the wire method to analyze only a IV of the protein, fixed effects inverse variance weighting method (IVW) applies to have two or three IVs protein, random effects IVW method suitable for protein with four or more IVs.
	b)	Describe how genetic variants were handled in the analyses and, if applicable, how their weights were selected		(1) SNPS associated with exposure at the genome-wide significance level (GWAS, P≤5× 10-6); (2)The clustering of LD threshold is set to r2 = 0.001, clustering the window size is set to 10000KB (3) IVs with F-statistic <10 were considered as weak IVs and excluded from subsequent analysis. The rest of the SNP for subsequent analysis of MR.
	c)	Describe the MR estimator (e.g. two-stage least squares, Wald ratio) and related statistics. Detail the included covariates and, in case of two-sample MR, whether the same covariate set was used for adjustment in the two samples		For MR analysis, we use Wald the wire method to analyze only a IV of the protein, fixed effects inverse variance weighting method (IVW) applies to have two or three IVs protein, random effects IVW method suitable for protein with four or more IVs.
	d)	Explain how missing data were addressed		This paper does not have any missing values.
	e)	If applicable, indicate how multiple testing was addressed		This paper did not employ multivariable MR.
7	**Assessment of assumptions**	Describe any methods or prior knowledge used to assess the assumptions or justify their validity		This paper reports the use of F-statistics to estimate statistical power.
8	**Sensitivity analyses and additional analyses**	Describe any sensitivity analyses or additional analyses performed (e.g. comparison of effect estimates from different approaches, independent replication, bias analytic techniques, validation of instruments, simulations)		This paper employs The Cochran's Q to assess theheterogeneity of individual causal effects. MR-Egger's intercept term and MR-PRESSO method are also used to evaluate horizontalpleiotropy,Furthermore,F-statistics are used to assessstatistical power.
9	**Software and pre-registration**			
	a)	Name statistical software and package(s), including version and settings used		This paper utilized R software,with R packages including TwoSample MR and MR-PRESSO, all of which are available for free on the official R software website.
	b)	State whether the study protocol and details were pre-registered (as well as when and where)		This paper does not provide registration information such as time and address.
	RESULTS			
10	**Descriptive data**			
	a)	Report the numbers of individuals at each stage of included studies and reasons for exclusion. Consider use of a flow diagram		In the methodology section, the paper provides information about the sample population size, while the results section does not include demographic information about the population. Additionally, the paper does not present details about excluded individuals or the reasons for their exclusion.
	b)	Report summary statistics for phenotypic exposure(s), outcome(s), and other relevant variables (e.g. means, SDs, proportions)		This paper provides a detailed description of the exposure and outcome data.
	c)	If the data sources include meta-analyses of previous studies, provide the assessments of heterogeneity across these studies		The original data does not include meta analysis.
	d)	For two-sample MR: i. Provide justification of the similarity of the genetic variant-exposure associations between the exposure and outcome samples ii. Provide information on the number of individuals who overlap between the exposure and outcome studies		This paper falls under the category of two-sample MR with all sample populations originating from Europe, resulting in significant population heterogeneity. There is no information about overlapping populations, and there are no common subjects.
11	**Main results**			
	a)	Report the associations between genetic variant and exposure, and between genetic variant and outcome, preferably on an interpretable scale		This paper in the MR results section describes the relationship between instrumental variables and the exposure and outcome.
	b)	Report MR estimates of the relationship between exposure and outcome, and the measures of uncertainty from the MR analysis, on an interpretable scale, such as odds ratio or relative risk per SD difference		This paper reports the odds ratio(OR)and 95% confidence interval(CI) for the association between exposure and outcome in the MR results.
	c)	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		This paper reports which inflammatory proteins are risk for PN in the MR results.
	d)	Consider plots to visualize results (e.g. forest plot, scatterplot of associations between genetic variants and outcome versus between genetic variants and exposure)		Figure 2 and Figure3.
12	**Assessment of assumptions**			
	a)	Report the assessment of the validity of the assumptions		This paper reports the use of F-statistics to estimate statistical power.
	b)	Report any additional statistics (e.g., assessments of heterogeneity across genetic variants, such as I^2, Q statistic or E-value)		This paper employs The Cochran's Q to assess the heterogeneity of individual causal effects. MR-Egger's intercept term is also used to evaluate horizontal pleiotropy, Furthermore, F-statistics are used to assess statistical power.
13	**Sensitivity analyses and additional analyses**			
	a)	Report any sensitivity analyses to assess the robustness of the main results to violations of the assumptions		The Cochran's Q to assess the heterogeneity of individual causal effects. MR-Egger's intercept term is also used to evaluate horizontal pleiotropy.
	b)	Report results from other sensitivity analyses or additional analyses		The results of sensitivity analyses are reported.
	c)	Report any assessment of direction of causal relationship (e.g., bidirectional MR)		Two-way MR Method is adopted in this paper.
	d)	When relevant, report and compare with estimates from non-MR analyses		Results with other non-MR analyses are not reported in this report
	e)	Consider additional plots to visualize results (e.g., leave-one-out analyses)		Supplementary figure

	DISCUSSION			
14	**Key results**	Summarize key results with reference to study objectives		This paper summarizes key MR results in Supplementary tables
15	**Limitations**	Discuss limitations of the study, taking into account the validity of the IV assumptions, other sources of potential bias, and imprecision. Discuss both direction and magnitude of any potential bias and any efforts to address them		This paper discusses the limitations of the study, including data sources, the three major assumptions, and the analytical process, providing detailed content.
16	**Interpretation**			
	a)	Meaning: Give a cautious overall interpretation of results in the context of their limitations and in comparison with other studies		This paper dedicates a substantial portion to discussing
	b)	Mechanism: Discuss underlying biological mechanisms that could drive a potential causal relationship between the investigated exposure and the outcome, and whether the gene-environment equivalence assumption is reasonable. Use causal language carefully, clarifying that IV estimates may provide causal effects only under certain assumptions		Various positive proteins provide a reasonable interpretation of MR results by comparing them with multiple previously published studies.
	c)	Clinical relevance: Discuss whether the results have clinical or public policy relevance, and to what extent they inform effect sizes of possible interventions		The various biological mechanisms by which inflammatory proteins are involved in neuropathic pain are discussed.
17	**Generalizability**	Discuss the generalizability of the study results (a) to other populations, (b) across other exposure periods/timings, and (c) across other levels of exposure		Limitations of the study and the population used are reported.
	OTHER INFORMATION			
18	**Funding**	Describe sources of funding and the role of funders in the present study and, if applicable, sources of funding for the databases and original study or studies on which the present study is based		No funding was received for the current study.
19	**Data and data sharing**	Provide the data used to perform all analyses or report where and how the data can be accessed, and reference these sources in the article. Provide the statistical code needed to reproduce the results in the article, or report whether the code is publicly accessible and if so, where		The data in this manuscript are all available in publicly available databases and are referenced by link in the article.
20	**Conflicts of Interest**	All authors should declare all potential conflicts of interest		The authors have no relevant financial or non-financial interests to disclose.

Supplementary Table S8: STROBE-MR checklist of recommended items to address in reports of Mendelian randomization studies