Supplementary Materials

Exploring therapeutic potential of Bi-Qi capsule in treatment of gout by discovering crucial drug targets

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Table S1 Data sources of the research

Data Name	**Sources**
Differentially expressed genes（DEGs)in diseases	GEO database(GSE160170)
Drug targets	Swiss Target Prediction、TCMSP、STITCH
Mendelian randomization analysis	GWAS Database(GCST90038687,GCST008972)
Single cell RNA sequencing,	CDCP、Cell Blast、DISCO,BioGPS Database、mRNALocater Database
Transcription factor TF, endogenous RNA	ChEA3 Database、Starbase Database
Molecular docking	RSCB PDB Database

Table S2 MR analysis for causal relationship of crucial targets and gout.

Exposure	Outcome	method	pval	OR
eqtl-a-ENSG00000130037（KCNA5）	GOUT	MR Egger	0.5708	0.9938
		Weighted median	0.0356	0.9956
		Inverse variance weighted	0.0039	0.9947
		Simple mode	0.2626	0.9956
		Weighted mode	0.2075	0.9959
eqtl-a-ENSG00000073756（PTGS2）		MR Egger	0.3270	1.0007
		Weighted median	0.1306	1.0008
		Inverse variance weighted	0.0313	1.0010
		Simple mode	0.1178	1.0015
		Weighted mode	0.1627	1.0008
eqtl-a-ENSG00000232810（TNF）		MR Egger	0.1035	0.9970
		Weighted median	0.0004	0.9972
		Inverse variance weighted	0.0002	0.9971
		Simple mode	0.1966	0.9971
		Weighted mode	0.0114	0.9972

Table S3 Results for heterogeneity test and horizontal pleiotropic test of crucial targets and gout

Exposure	Outcome	MR Egger_intercept	MR Egger pval	Cochrane's Q test	Cochrane's Q pval
eqtl-a-ENSG00000130037（KCNA5）	Gout	8.35E-05	0.9245	1.3036	0.5211
eqtl-a-ENSG00000073756（PTGS2）		8.71E-05	0.5595	4.0501	0.8816
eqtl-a-ENSG00000232810（TNF）		2.45E-05	0.9230	8.5483	0.2867

Table S4 MR analysis for causal relationship of PTPRS and HUA.

Exposure	Outcome	Method	pval	OR
eqtl-a-ENSG00000105426(PTPRS)	HUA	Inverse variance weighted	0.0477	1.0457
		MR Egger	0.9817	0.9988
		Weighted median	0.1424	1.0359
		Simple mode	0.3995	1.0404
		Weighted mode	0.3494	1.0296

Table S5 Results for heterogeneity test and horizontal pleiotropic test of PTPRS and HUA.

Exposure	Outcome	MR Egger_intercept	MR Egger pval	Cochrane's Q test	Cochrane's Q pval
eqtl-a-ENSG00000105426(PTPRS)	HUA	0.005372	0.4292	2.2862	0.3188

Figures

Figure S1 (A) The expression level of KCNA5, PTGS2 and TNF in normal and gout group. (B) Funnel plots of the MR analysis for three crucial targets on gout. (C) Leave-one-out (LOO) analysis of the MR analysis for sensitivity analyses of three crucial targets on gout.

Figure S2 Funnel plots of the MR analysis for PTPRS and HUA, and LOO of the MR analysis for sensitivity analyses of PTPRS and HUA.

Figure S3 HPLC(A) and MS (B) fingerprints of Bi-Qi Capsules

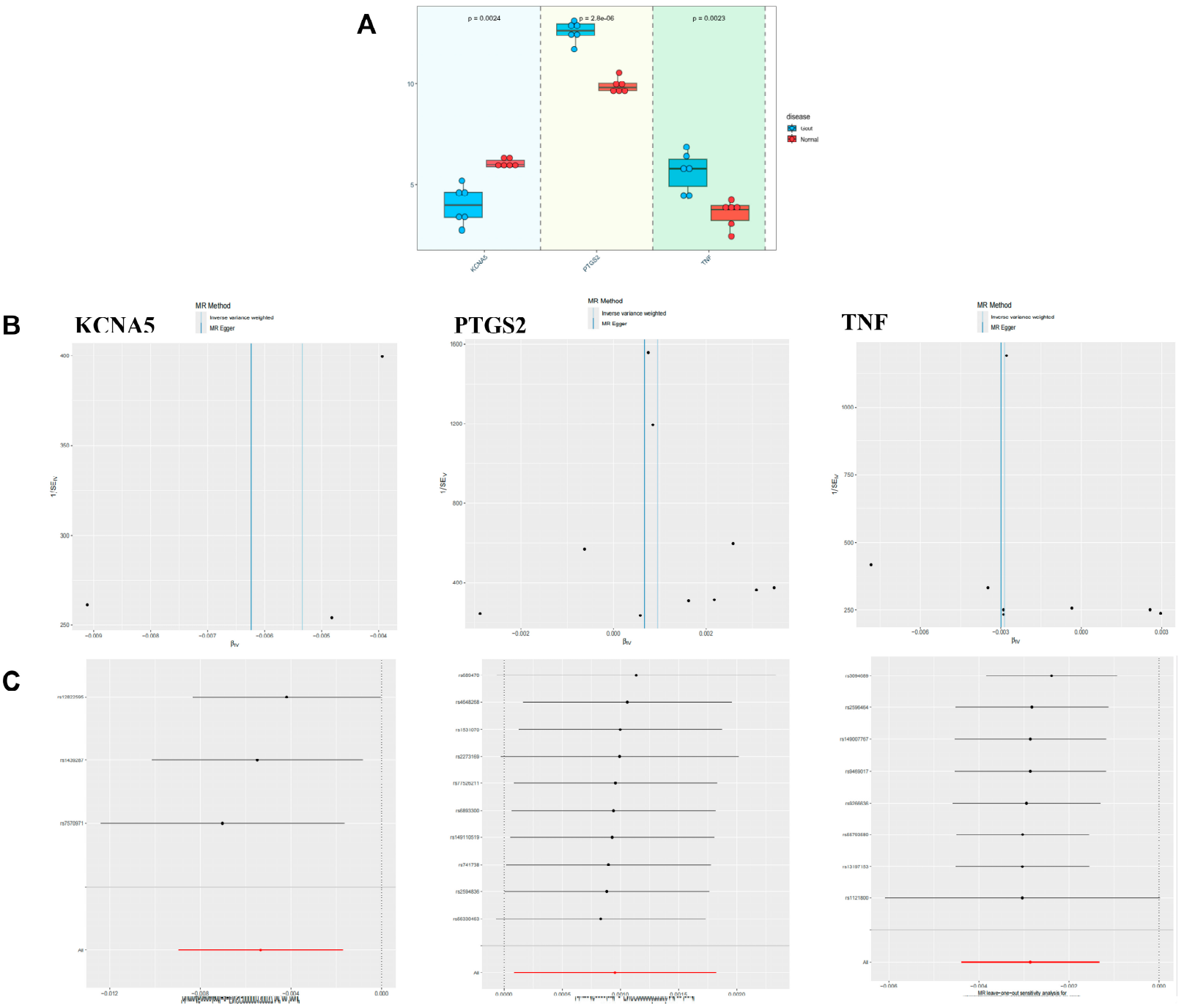


Figure S1 (A) The expression level of KCNA5, PTGS2 and TNF in normal and gout group. (B) Funnel plots of the MR analysis for three crucial targets on gout. (C) Leave-one-out (LOO) analysis of the MR analysis for sensitivity analyses of three crucial targets on gout.

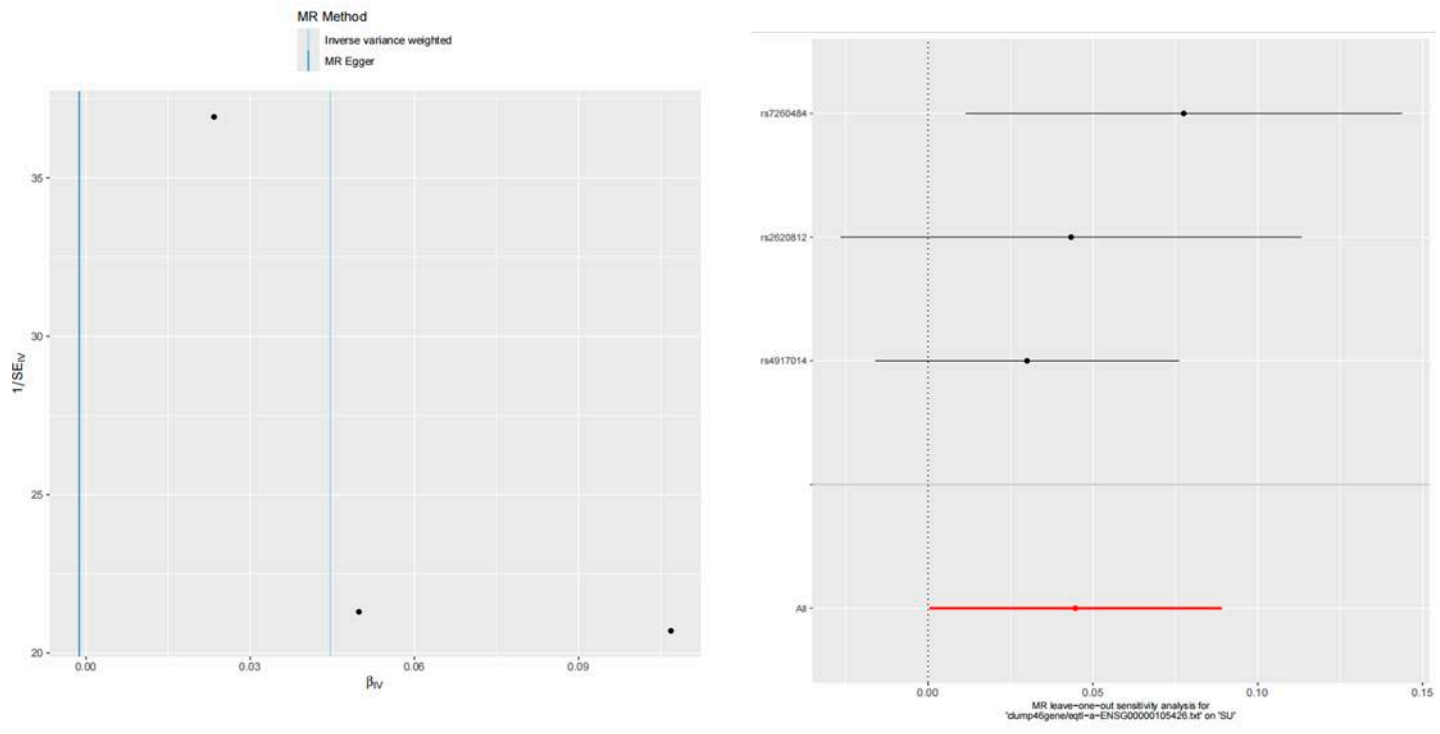


Figure S2 Funnel plots of the MR analysis for PTPRS and HUA, and LOO of the MR analysis for sensitivity analyses of PTPRS and HUA.

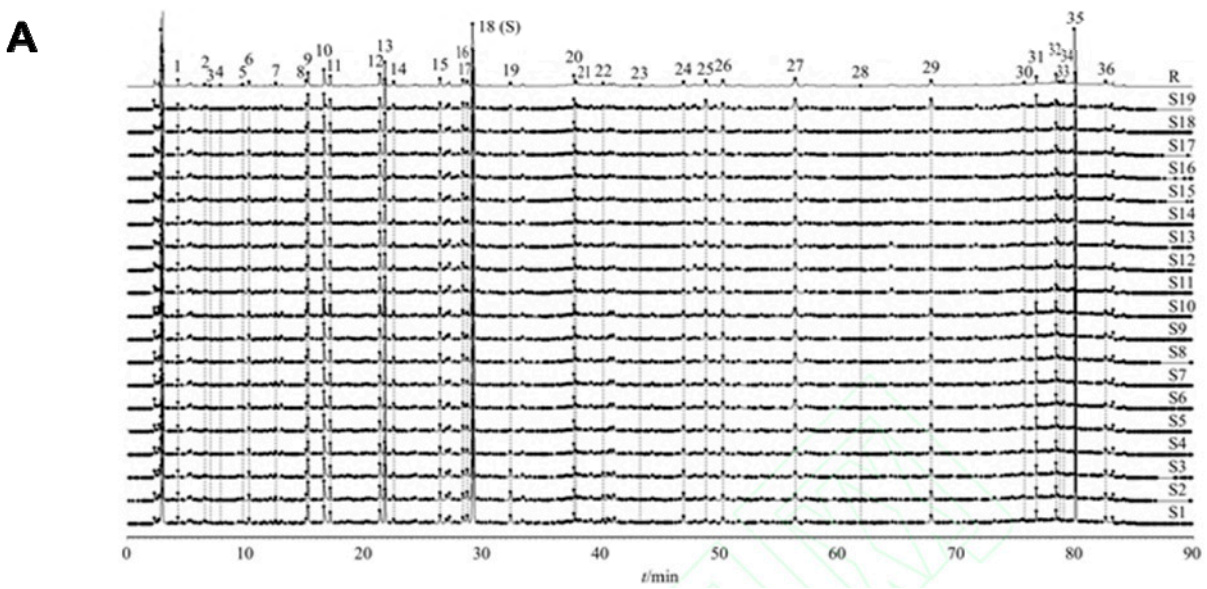


Figure S3 HPLC(A) and MS (B) fingerprints of Bi-Qi Capsules.

(A) Danshensu (peak 6), strychnine (peak 10), brucine (peak 11), liquiritin (peak 13), ferulic acid (peak 14), rosmarinic acid (peak 15), ginsenoside Rg1 (peak 16), salvianolic acid B (peak 18), ginsenoside Rb1(peak 20), ammonium glycyrrhizinate (peak 22), ligustilide (peak 27), tanshinone IIA(peak 30), pachymic acid (peak 33)