

Fig.S1 (a) HE staining morphology of liver tissue in normal, model and geniposide-treated group of mouse under microscope ($\times 200$). (b)~(g) The biochemical indexes analysis of mouse, including AST, ALT, GSH, MDA, TG and γ -GT in normal, model and geniposide-treated group. Compared with the control group, " * " represent a significant difference ($P < 0.05$); " ** " represent extremely difference ($P < 0.01$). Compared with the model group, "# " represent a significant difference ($P < 0.05$); "## " represent extremely difference ($P < 0.01$). C: control group; M: model group; G: geniposide-treated group.

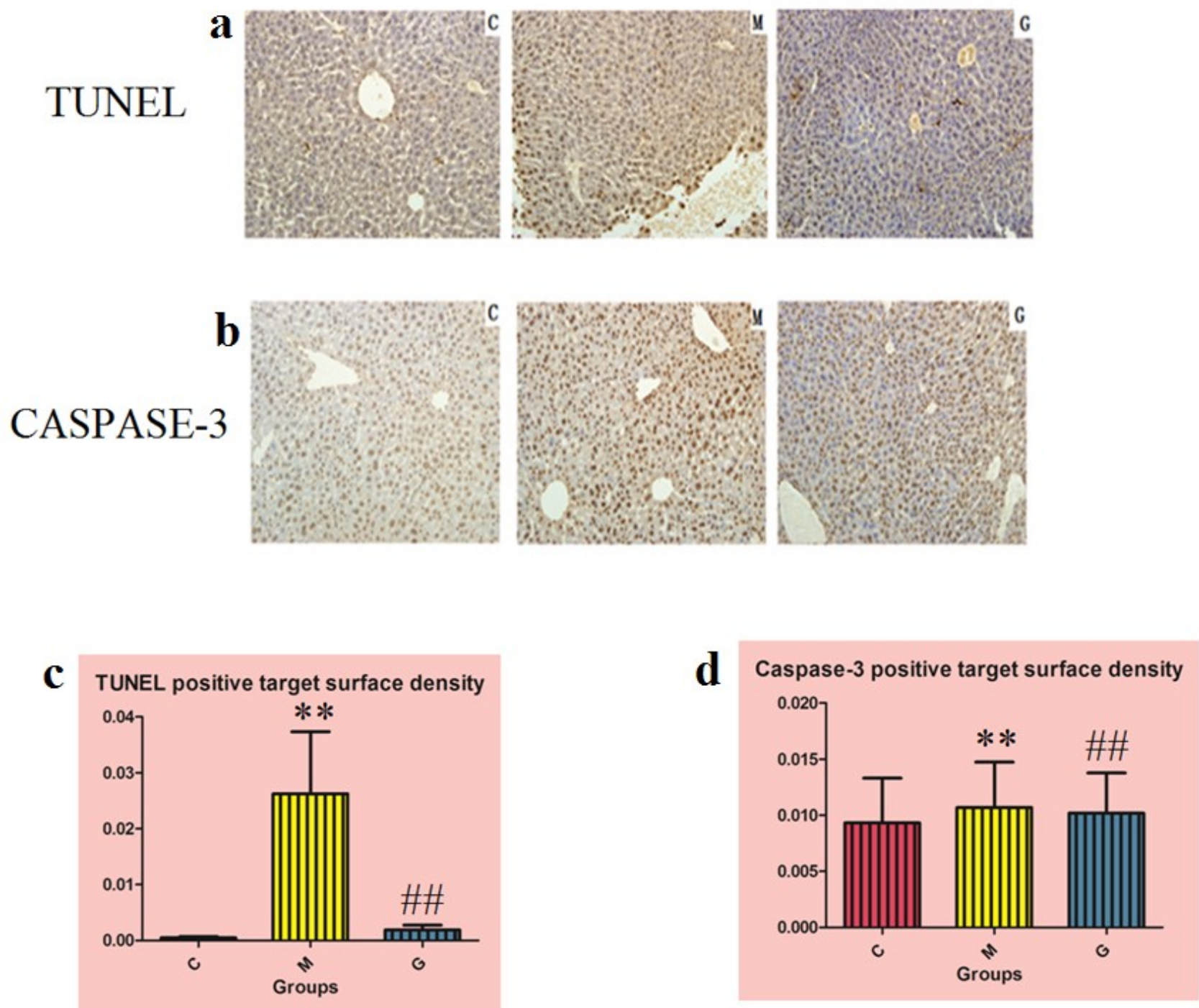


Fig.S2 The result of TUNEL in situ terminal apoptosis and CASSASE-3 positive expression in normal, model and geniposide-treated group. (a) and (c) shows TUNEL in situ terminal apoptosis; (b) and (d)shows positive expression for CASSASE-3. Compared with the control group, " * " represent a significant difference ($P<0.05$); "*** " represent extremely difference ($P<0.01$). Compared with the model group, "#" represent a significant difference ($P<0.05$); "## " represent extremely difference ($P<0.01$). C: control group; M: model group; G: geniposide-treated group.

Positive mode

Negative mode

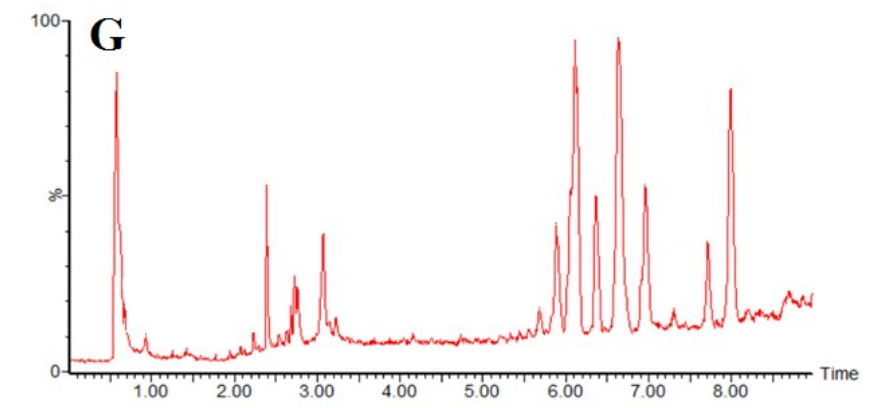
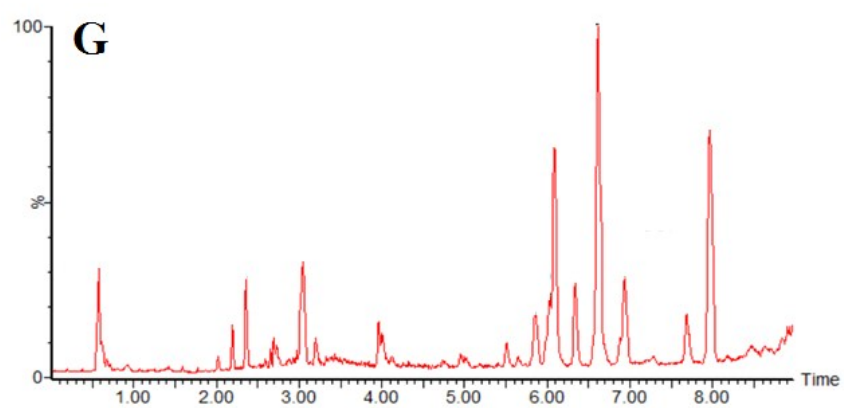
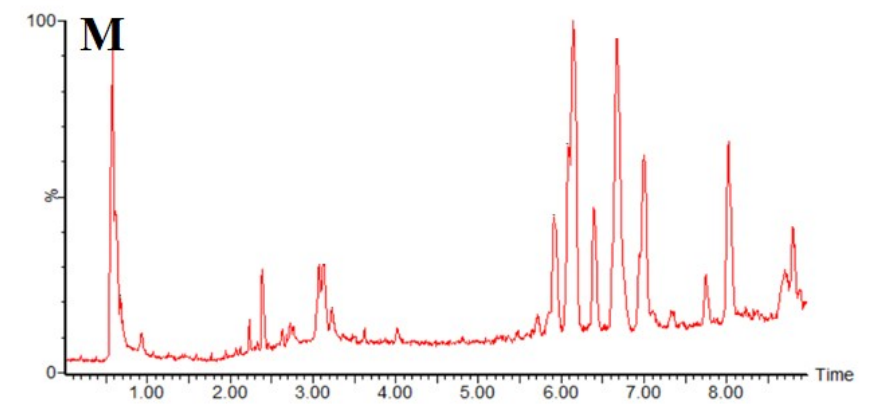
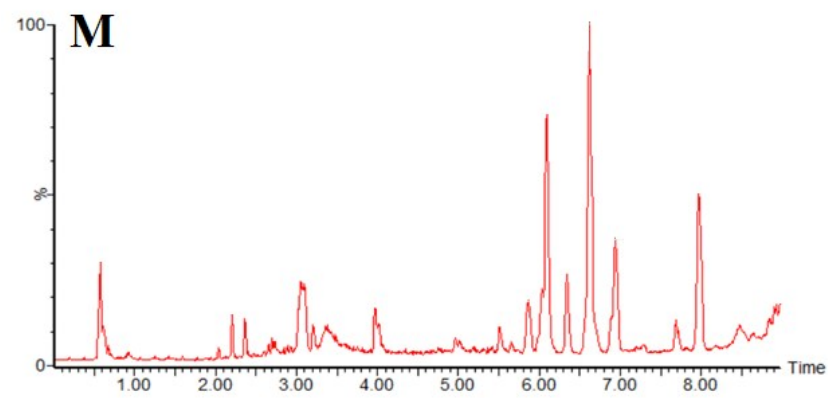
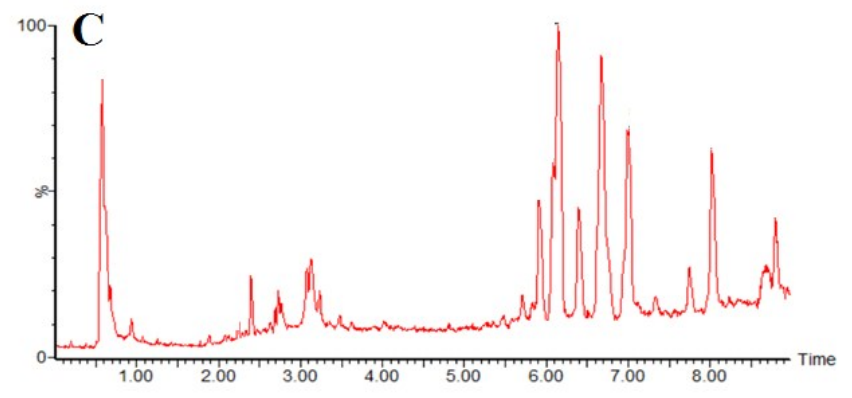
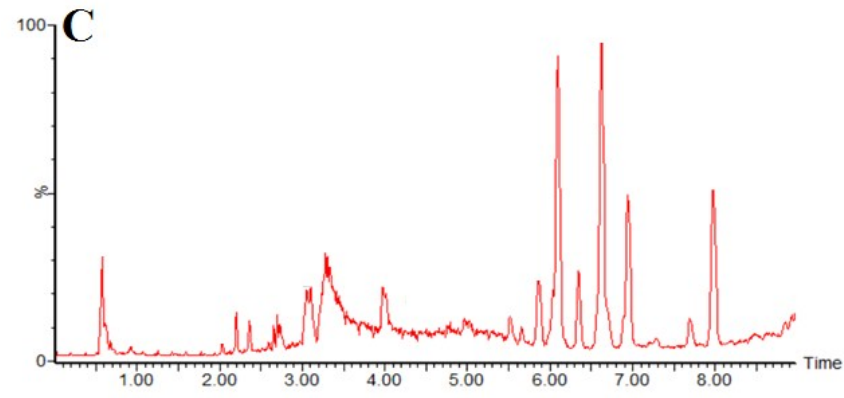


Fig.S3 UPLC-Q/TOF-MS total ion chromatogram of blood samples from the control, model group and geniposide-treated group in positive and negative ion mode. C: control group; M: model group; G: geniposide-treated group.

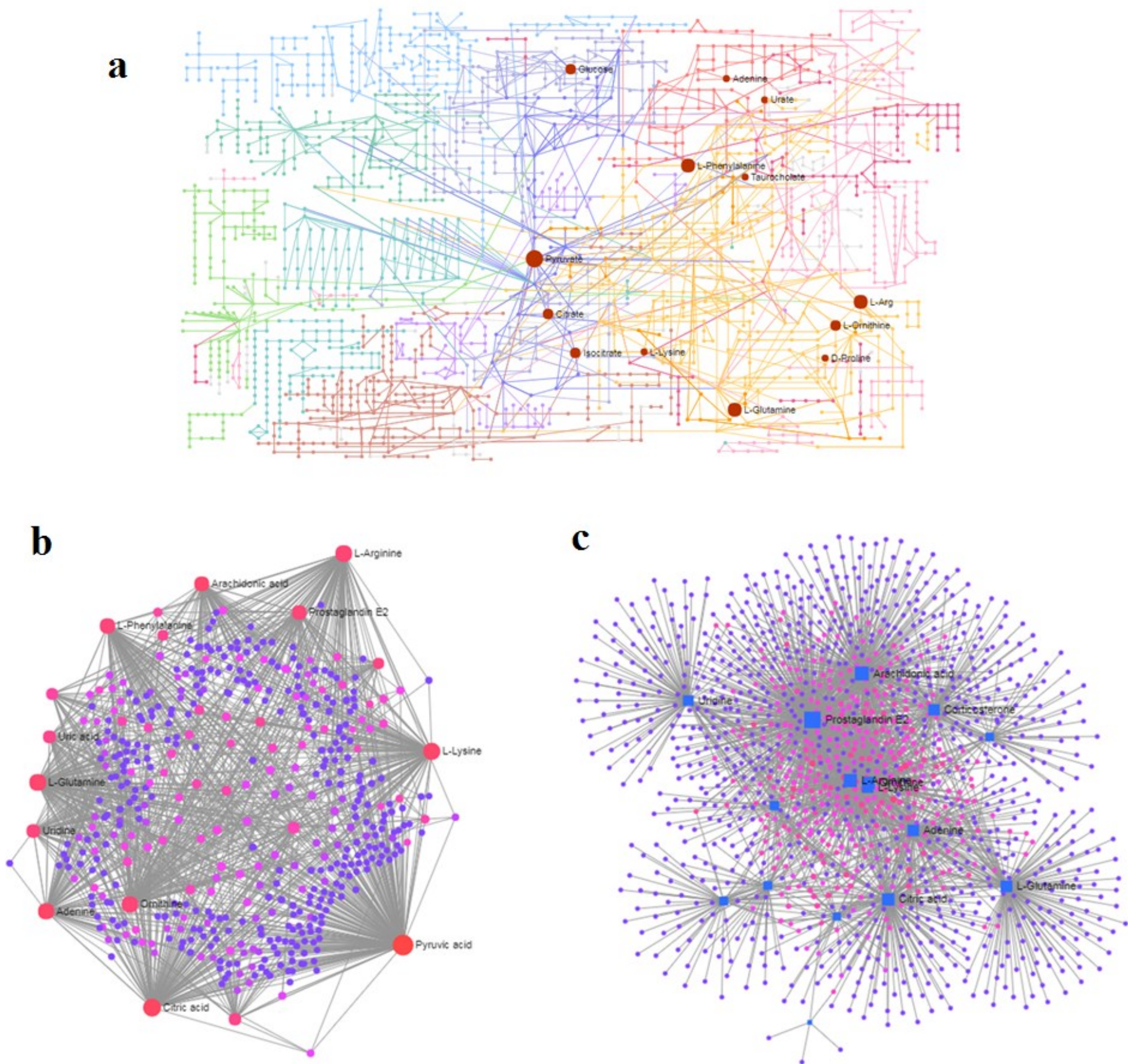


Fig.S4 (a) KEGG global metabolic network related with geniposide against ALD. Metabolite-metabolite (b) and metabolites-gene(c) interaction network associated with geniposide therapeutic effect on ALD mouse.

Table S1 Changes of metabolites of ALD animals after geniposide treatment.

No.	Rt(min)	Ion form	m/z	Proposed compound	Formula	Trend in model	HMDB	Regulated by Geniposide
1	0.62	M-H	191.02	isocitric acid	C6H8O7	↓	HMDB00193	*
2	0.74	M-H	131.08	Ornithine	C5H12N2O2	↑	HMDB00214	*
3	0.87	M+H	175.12	Arginine	C6H14N4O2	↑	HMDB00517	*
4	1.06	M+H	147.11	Lysine	C6H14N2O2	↑	HMDB00182	*
5	1.27	M+H	169.04	Uric acid	C5H4N4O3	↑	HMDB00289	*
6	1.43	M-H	243.06	Uridine	C9H12N2O6	↓	HMDB00296	*
7	1.60	M+H	215.02	Citric acid	C6H8O7	↑	HMDB00094	*
8	1.76	M-H	131.05	Asparagine	C4H8N2O3	↓	HMDB33780	*
9	2.47	M+H	205.10	Tryptophan	C11H12N2O2	↓	HMDB13609	
10	2.72	M-H	212.00	Indoxyl sulfate	C8H7NO4S	↓	HMDB00682	
11	3.02	M+H	136.06	Adenine	C5H5N5	↓	HMDB00034	*
12	3.21	M-H	145.06	Glutamine	C5H10N2O3	↓	HMDB00641	*
13	3.36	M+H	181.07	Glucose	C6H12O6	↓	HMDB00122	*
14	3.68	M+H	144.08	N,N-dimethylglycine	C8H11N	↑	HMDB01020	
15	4.89	M+H	116.07	Proline	C5H9NO2	↑	HMDB03411	*
16	5.06	M-H	285.21	Hexadecanedioic acid	C16H30O4	↓	HMDB00672	
17	5.75	M+H	184.10	Carnitine	C7H15NO3	↑	HMDB00062	
18	5.88	M-H	514.28	Taurocholic acid	C26H45NO7S	↓	HMDB00036	*
19	6.05	M+H	265.17	Oxodecanoic acid	C14H26O3	↓	HMDB10730	
20	6.14	M+H	488.30	Glycocholic acid	C26H43NO6	↑	HMDB00138	
21	6.29	M-H	87.01	Pyruvic acid	C3H4O3	↓	HMDB00243	*
22	6.41	M+H	166.08	Phenylalanine	C9H11NO2	↑	HMDB00159	*
23	6.52	M-H	345.21	Corticosterone	C21H30O4	↑	HMDB01547	*
24	6.64	M+H	353.24	Prostaglandin E2	C20H32O5	↑	HMDB01220	*
25	6.75	M+H	300.29	Sphingosine	C18H37NO2	↑	HMDB00252	*
26	6.86	M+H	327.23	Arachidonic acid	C20H32O2	↑	HMDB01043	*
27	7.15	M-H	520.34	LysoPC(18:1)	C26H52NO7P	↓	HMDB02815	
28	7.60	M-H	508.34	LysoPC(17:0)	C25H52NO7P	↓	HMDB12108	
29	7.71	M+H	482.32	LysoPC(15:0)	C23H48NO7P	↓	HMDB10381	*
30	7.83	M+H	282.28	Oleamide	C18H35NO	↑	HMDB02117	
31	7.99	M-H	494.33	LysoPC(16:0)	C24H50NO7P	↓	HMDB10382	*
32	8.11	M+H	321.24	8-HETE	C20H32O3	↓	HMDB04679	
33	8.27	M-H	253.22	Palmitoleic acid	C16H30O2	↑	HMDB03229	