

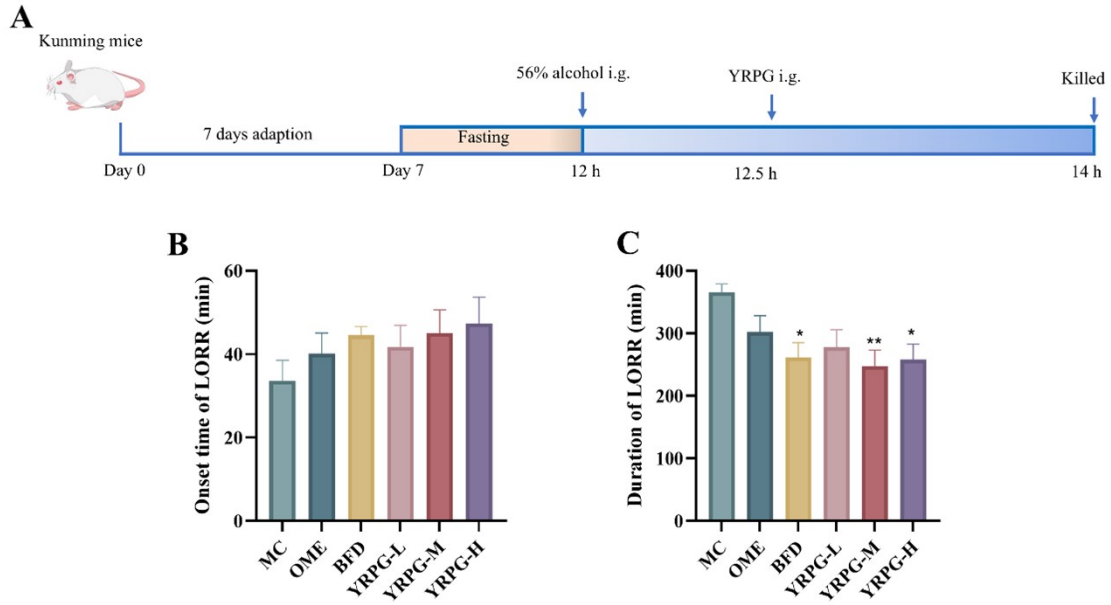
1 **Supplementary Information**

2 Table S.1 Primer sequences of related genes

Gene	Primer sequences (5'–3')
<i>PI3K</i>	Forward: ACACCACGGTTTGGACTATGG
	Reverse: GGCTACAGTAGTGGGCTTGG
<i>AKT</i>	Forward: ATGAACGACGTAGCCATTGTG
	Reverse: TTGTAGCCAATAAAGGTGCCAT
<i>FoxO3a</i>	Forward: CATGCGCGTTCAGAATGAAGG
	Reverse: GACTGTCTGTCTGCCGACTC
<i>GAPDH</i>	Forward: GGTTGTCTCCTGCGACTTCA
	Reverse: TGGTCCAGGGTTTCTTACTCC

3 Table S.2 Endogenous differential metabolites.

NO.	Index	Compounds	Formula	VIP	P-value	Fold Change	MC vs NC	YRPG-M vs MC
1	MEDP0577	Carnitine isoC4:0	C ₁₁ H ₂₁ NO ₄	1.59	0.00	0.35	down	up
2	MEDP0510	Carnitine C2:0	C ₉ H ₁₇ NO ₄	1.47	0.02	0.58	down	up
3	MW0103351	2'-Deoxyuridine	C ₉ H ₁₂ N ₂ O ₅	1.58	0.04	2.30	up	down
4	MW0105496	Alanylarginine	C ₉ H ₁₉ N ₅ O ₃	1.50	0.02	0.92	down	up
5	MEDP1321	LPC (0:0/22:5)	C ₃₀ H ₅₃ NO ₇ P	1.44	0.03	0.82	down	up
6	MW0152252	Leu-Asn-Trp	C ₂₁ H ₂₉ N ₅ O ₅	1.59	0.00	0.71	down	up
7	MW0169971	Tryptophan	C ₁₁ H ₁₂ N ₂ O ₂	1.47	0.04	0.72	down	up
8	MW0010797	5,6-EET	C ₂₀ H ₃₂ O ₃	1.40	0.03	0.89	down	up
9	MW0055349	Pelargonic acid	C ₉ H ₁₈ O ₂	1.47	0.03	0.65	down	up
10	MW0016123	3-Hydroxyisovaleric acid	C ₅ H ₁₀ O ₃	1.55	0.01	2.58	up	down
11	MW0054155	Isovaleric acid	C ₅ H ₁₀ O ₂	1.41	0.04	0.52	down	up
12	MW0005838	6-Phosphogluconic acid	C ₆ H ₁₃ O ₁₀ P	1.58	0.00	0.49	down	up
13	MW0110295	Tyrosyl-tryptophan	C ₂₀ H ₂₁ N ₃ O ₄	1.53	0.01	0.63	down	up
14	MEDN0338	DL-3-Phenyllactic acid	C ₉ H ₁₀ O ₃	1.47	0.04	0.19	down	up
15	MW0012113	11-Dodecenoic acid	C ₁₂ H ₂₂ O ₂	1.44	0.02	0.58	down	up
16	MW0124417	Indole-3-carboxylic acid	C ₉ H ₇ NO ₂	1.57	0.00	1.66	up	down
17	MEDP1593	S-Lactoylglutathione	C ₁₃ H ₂₁ N ₃ O ₈ S	1.62	0.00	0.52	down	up
18	MW0152284	Leu-Gln-Asn-Arg	C ₂₁ H ₃₉ N ₉ O ₇	1.64	0.00	3.99	up	down

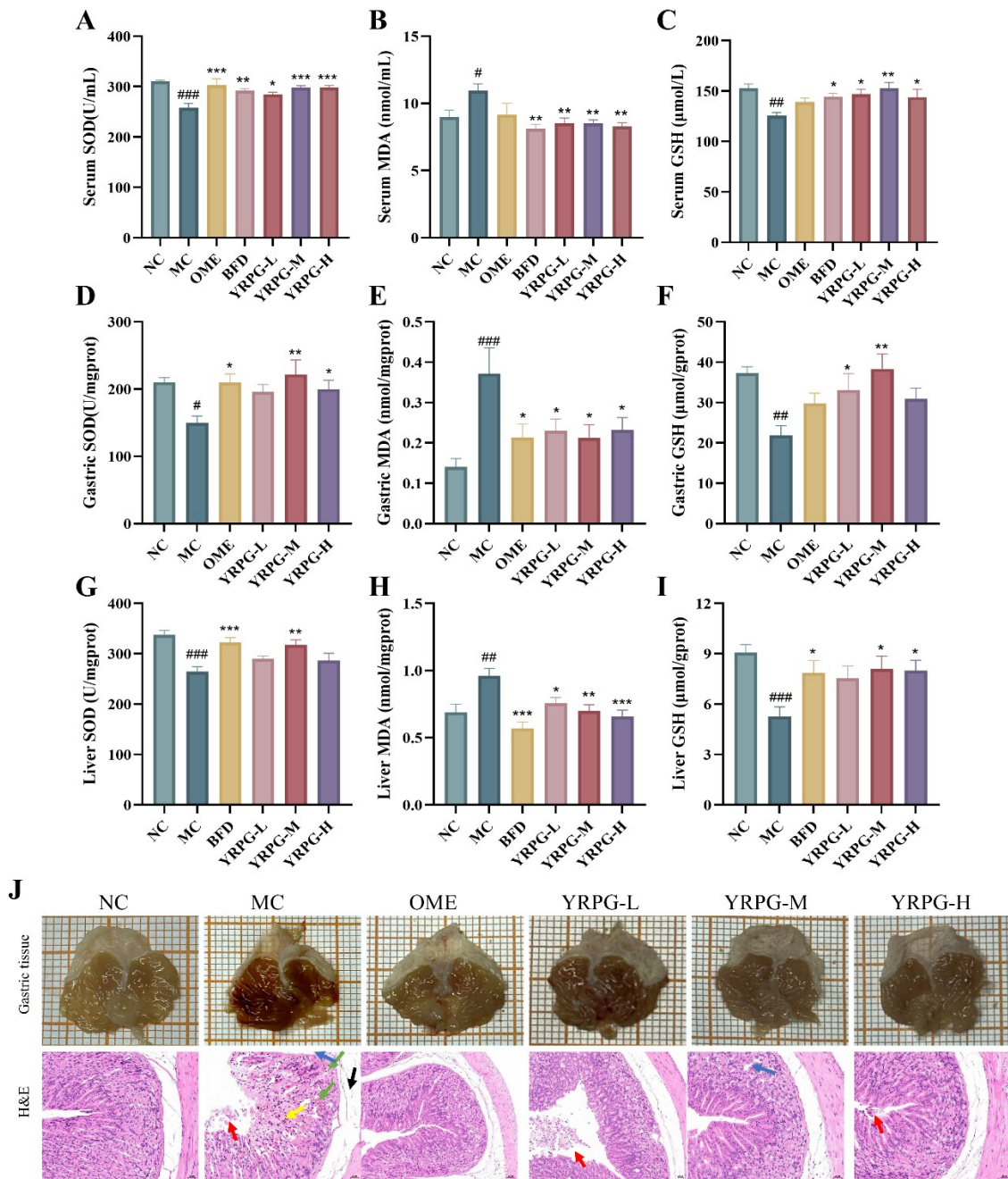


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5 **Fig. S.1** Reparative effect of YRPG in AAI mice. (A) Experimental arrangement. (B) The onset

6 time of LORR. (C) The duration of LORR. Results were expressed as mean \pm SEM (n=8). * P <

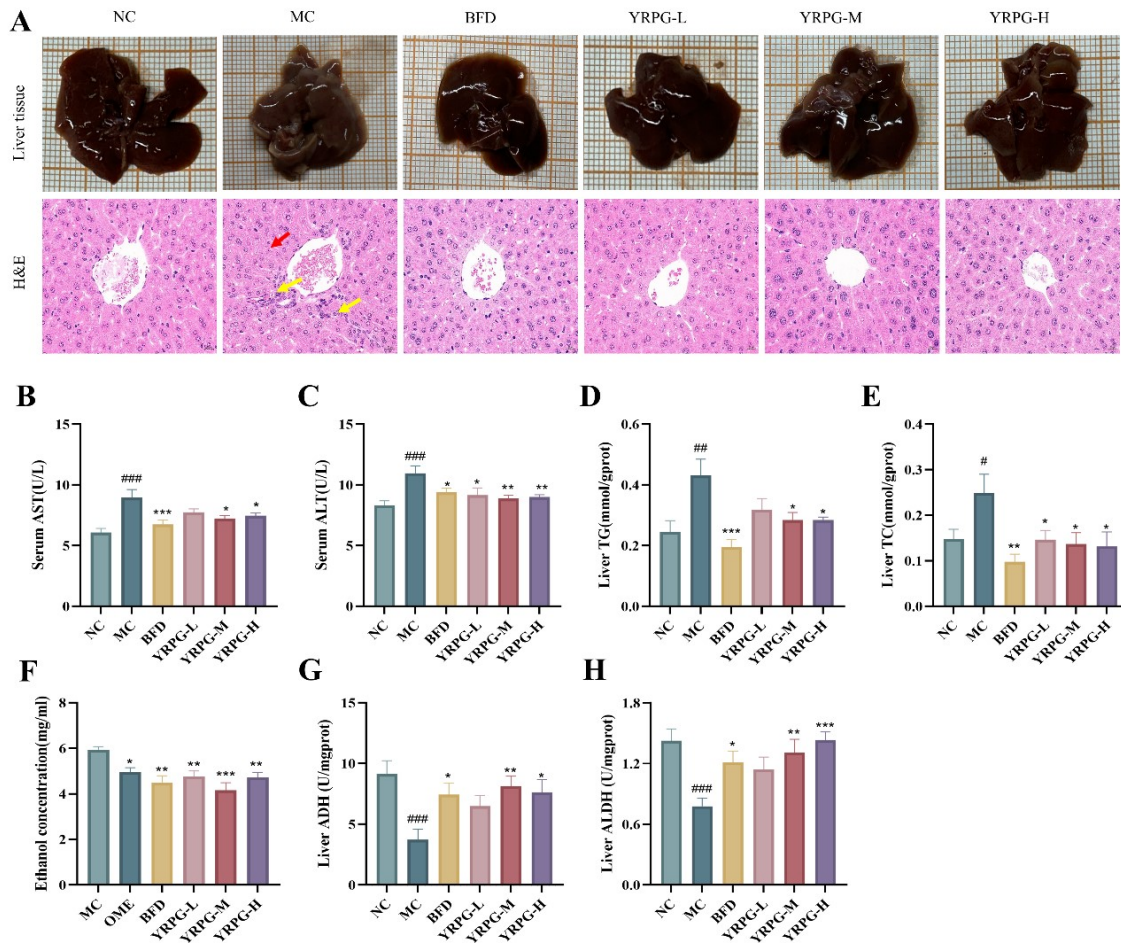
7 0.05, ** P < 0.01 compared with MC group.



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9 **Fig. S.2** Reparative effect of YRPG on gastric injury in acute alcohol injury mice. (A) Serum SOD
 10 activity. (B) Serum MDA level. (C) Serum GSH level. (D) Gastric SOD activity. (E) Gastric
 11 MDA level. (F) Gastric GSH level. (G) Liver SOD activity. (H) Liver MDA level. (I) Liver GSH
 12 level. (J) Gastric morphology and H&E staining (Magnification 200×. Scale bar = 100 μm. The
 13 image shows HE section analysis with annotations: The red arrow indicates loss of epithelial cells.

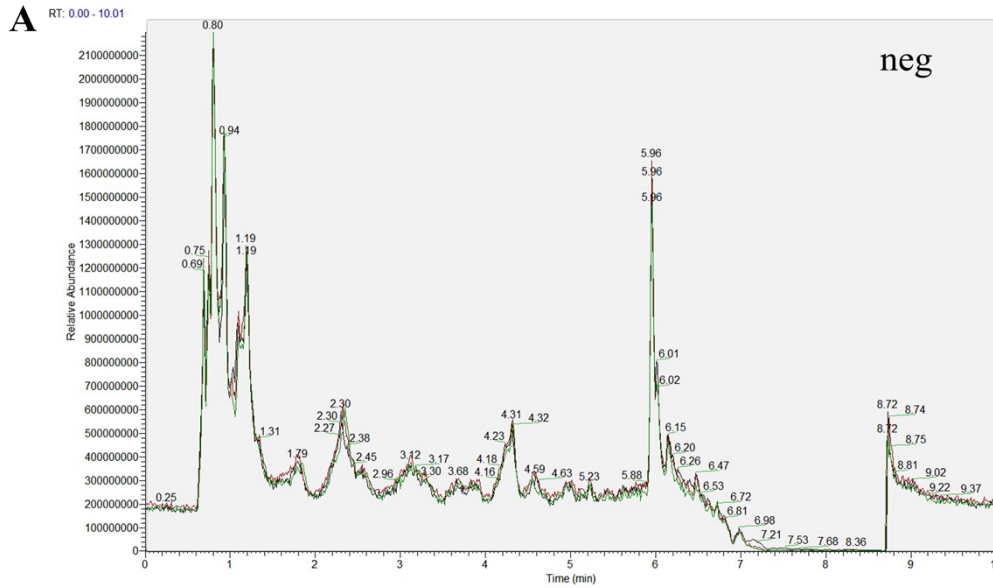
14 The yellow arrow points to inflammatory cells. The black arrow highlights submucosal edema.
 15 The blue arrow signifies destruction of glandular structure. The green arrow indicates bleeding
 16 sexual injury.). Results were expressed as mean \pm SEM (n=8). # $P < 0.05$, ## $P < 0.01$, ### $P < 0.001$
 17 compared with NC group. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ compared with MC group.



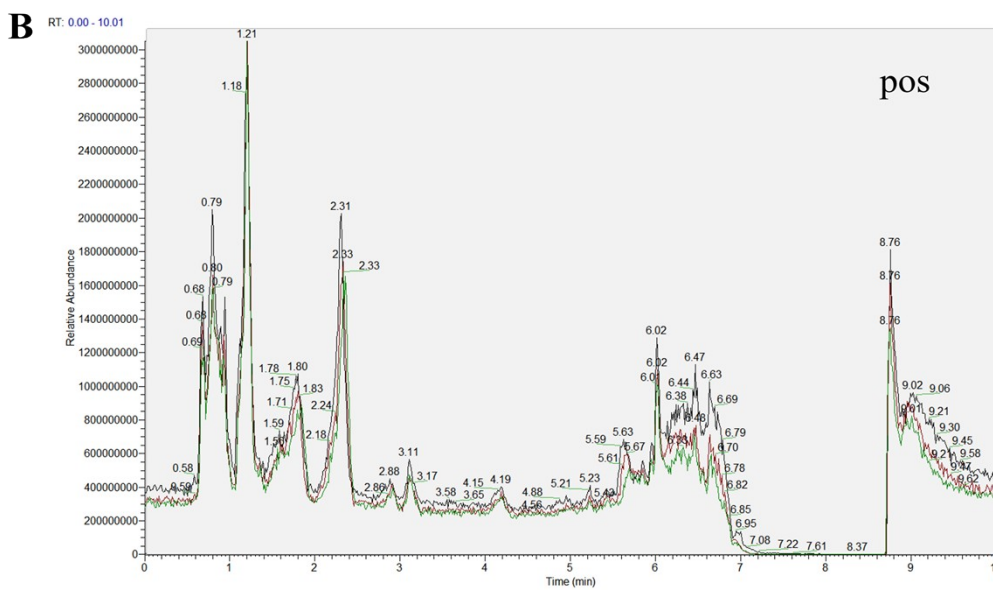
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 19 **Fig. S.3** Reparative effect of YRPG on liver injury and alcohol metabolism in acute alcohol injury
 20 in mice. (A) Liver morphology and H&E staining (Magnification 400 \times . Scale bar = 50 μ m. The
 21 image shows HE section analysis with annotations: The yellow arrow points to inflammatory cells.
 22 The red arrow represented the hepatocyte hypertrophy.). (B) Serum AST activity. (C) Serum ALT
 23 activity. (D) Liver TG level. (E) Liver TC level. (F) Blood alcohol level. (G) Liver ADH activity.
 24 (H) Liver ALDH activity. Results were expressed as mean \pm SEM (n=8). # $P < 0.05$, ## $P < 0.01$,

25 ### $P < 0.001$ compared with NC group. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ compared with MC

26 group.



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29 Fig. S.4 TIC of QC overlapped serum samples. (A) Negative ion mode. (B) Positive ion mode

