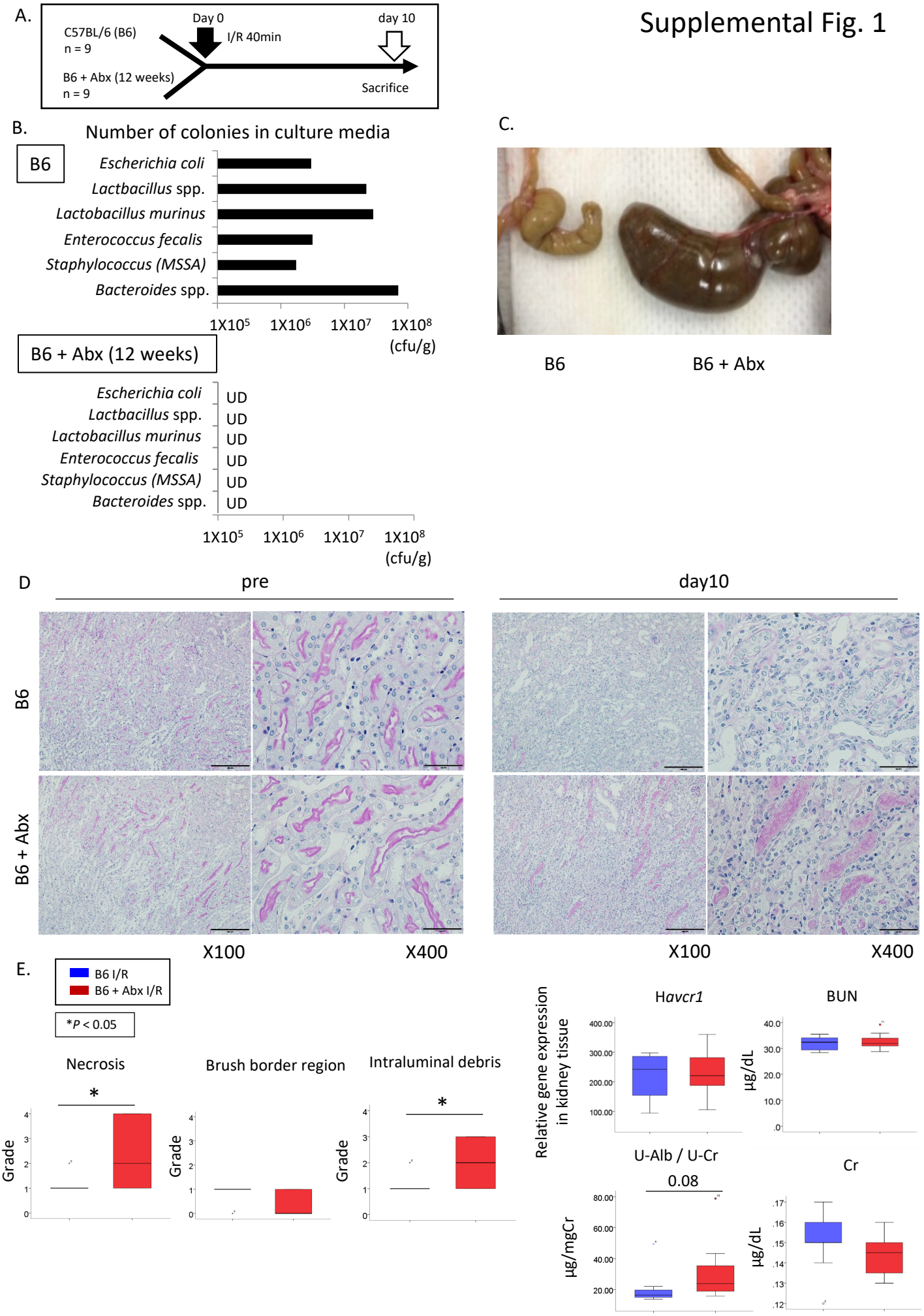
Supplemental Fig. 1

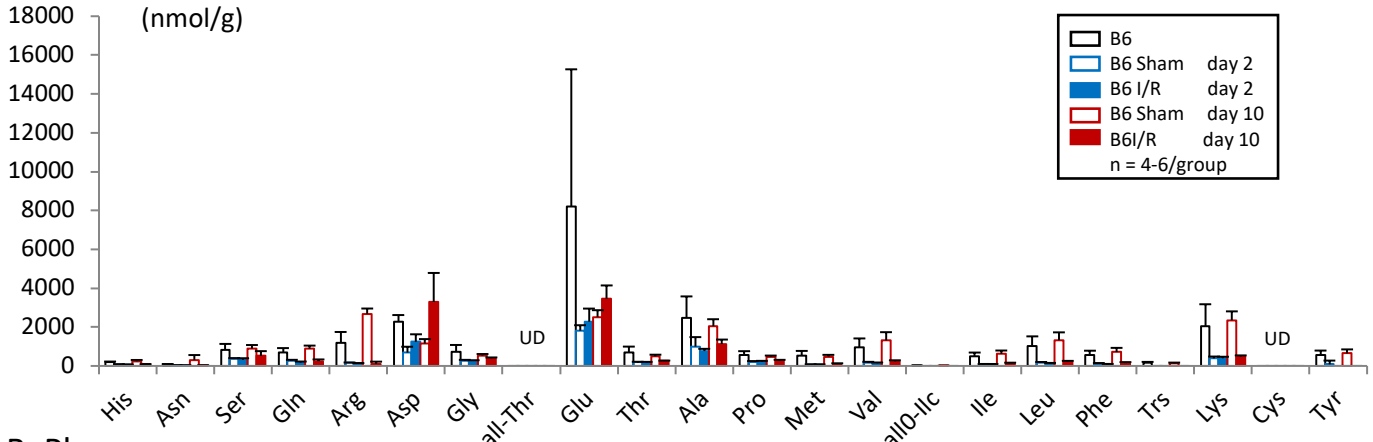


Supplemental Figure 1. Gut microbiota againsts from tubular injury in a mouse model of AKI. (A) The protocol of antibiotic treatment and I/R induction in C57BL/6 (B6) mice. Prior to I/R, WT mice were treated with 1 g/L ampicillin sodium salt , 1 g/L neomycin sulfate, 1 g/L metronidazole, 0.5 g/L vancomycin hydrochloride, and 0.5 g/L gentamicin sulfate in drinking water for 12 weeks prior to I/R. (B) The gut microbiota was reduced to below 1×10^5 colony-forming units (cfu)/g after treatment with antibiotics. (C) The administration of antibiotics led to an enlargement of the cecum in B6 mice. (D, E) The antibiotic-treated mice showed more severe tubular injury, as reflected in the acute tubular necrosis (ATN) score, compared with the untreated mice on day 10 after I/R. Statistical analysis was performed using Student's *t* test. $*P < 0.05$. Abx, antibiotic treatment.

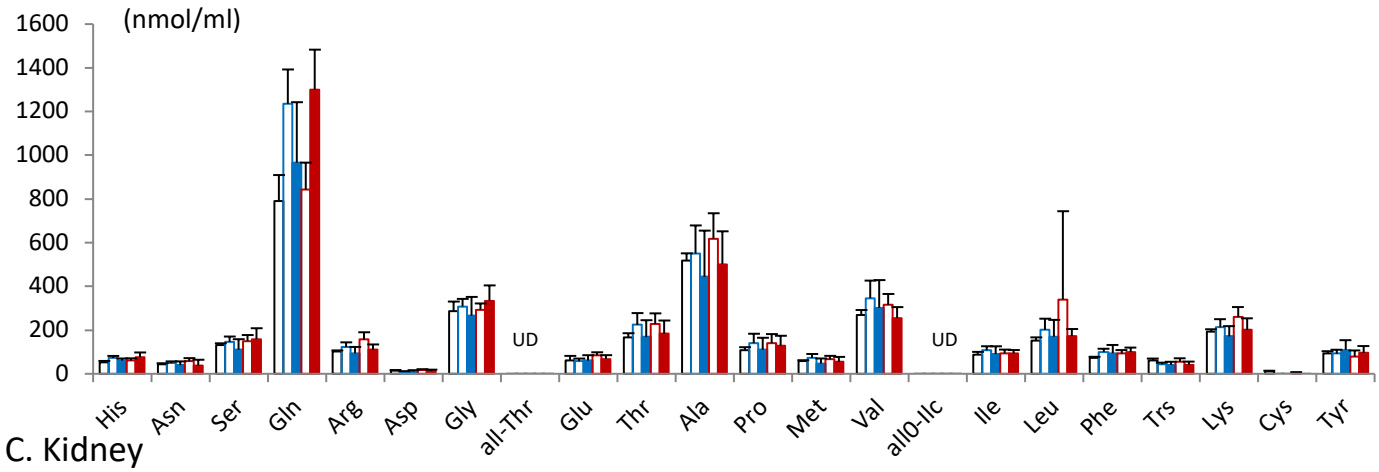
Supplemental Fig. 2

Total amino acid

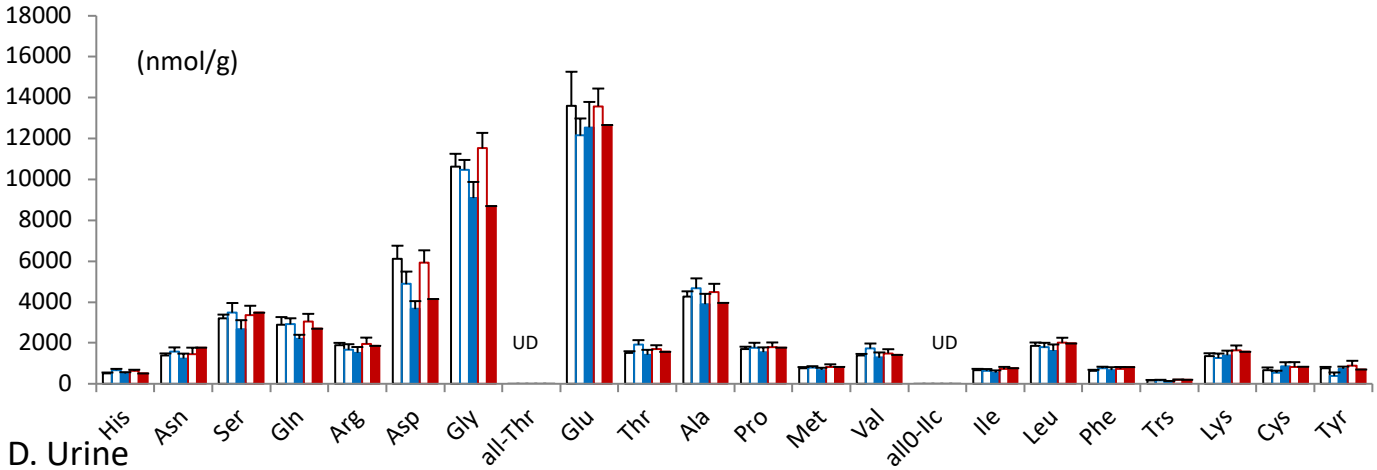
A. Feces (Gut)



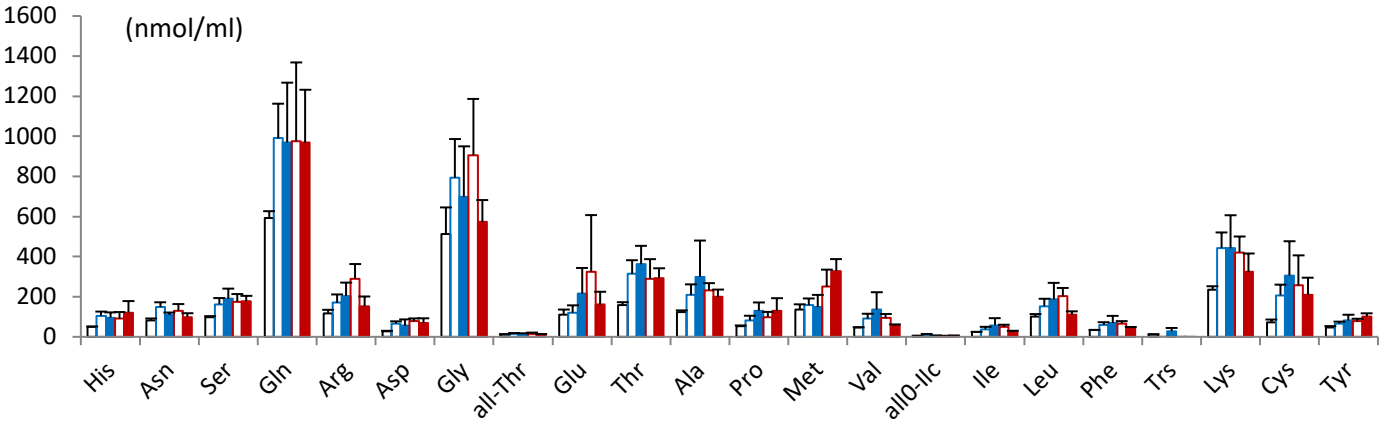
B. Plasma



C. Kidney



D. Urine

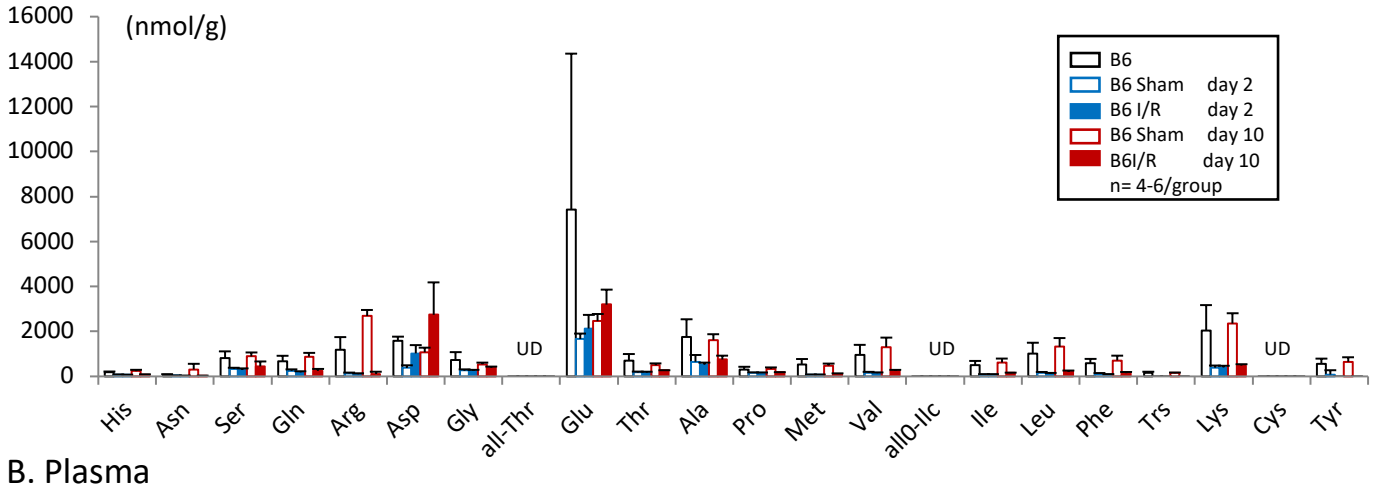


Supplemental Figure 2. The profile of all amino acids analyzed with 2D HPLC. We performed metabolomic analysis of the amino acids in the AKI mice. All amino acids were evaluated in the feces (A), plasma (B), kidney (C), and urine (D) of the mice with/without I/R on days 0, 2, and 10. Data are shown as means ± SEM.
UD, undetectable.

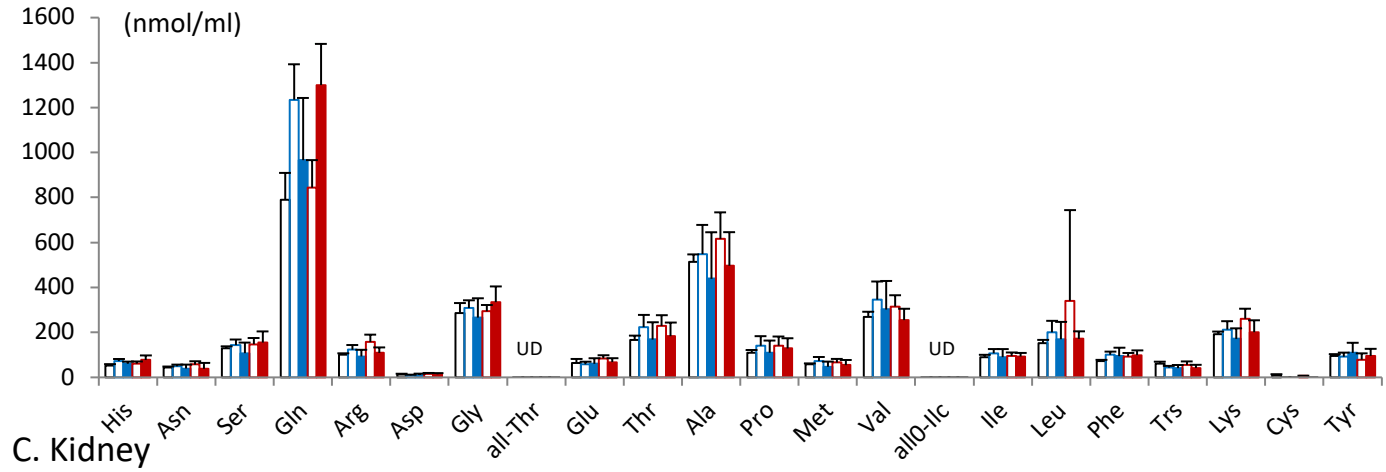
L-amino acid

Supplemental Fig. 3

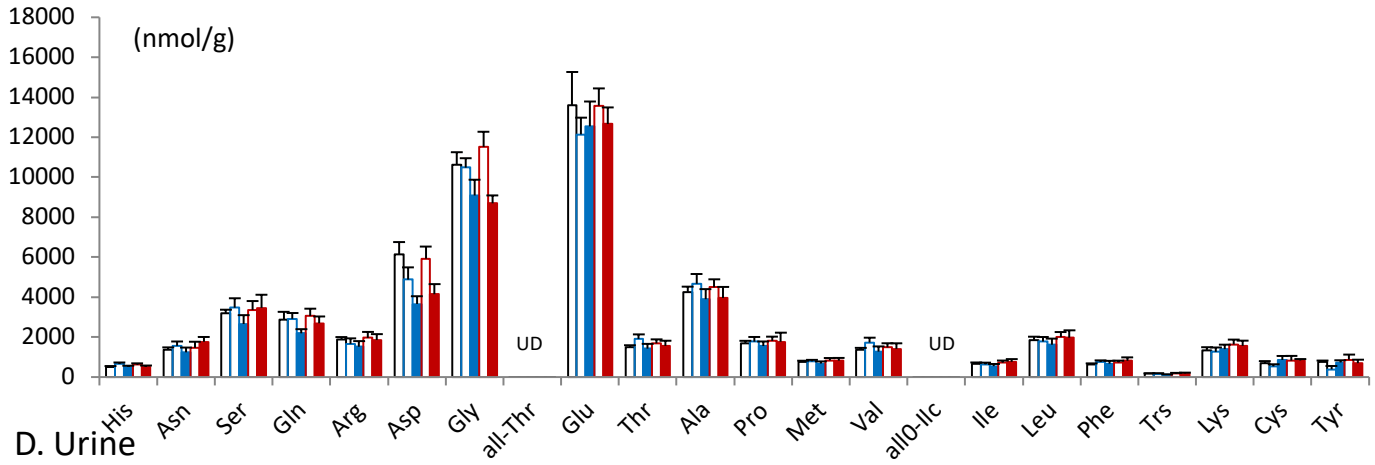
A. Faeces (Gut)



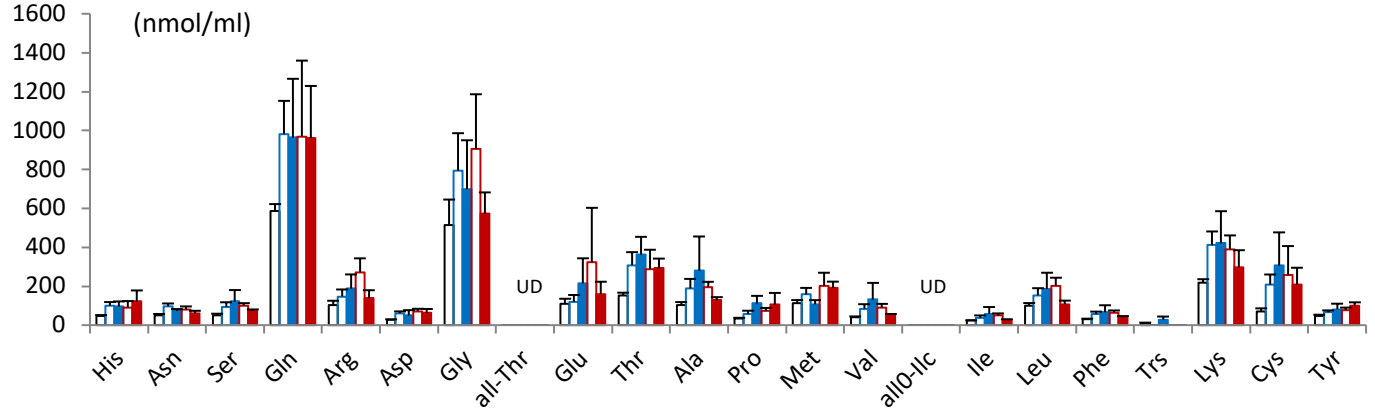
B. Plasma



C. Kidney



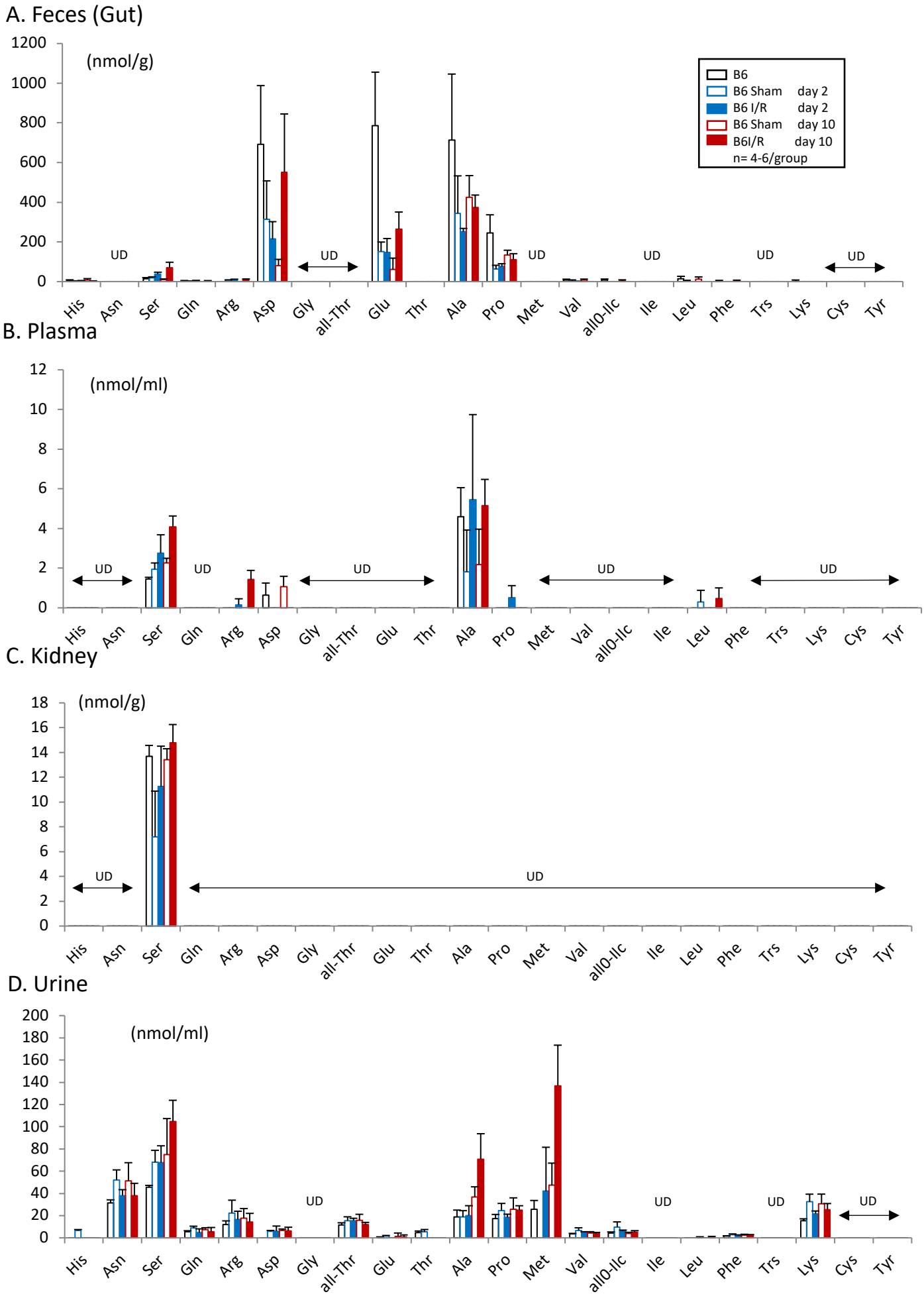
D. Urine



Supplemental Figure 3. The profile of L-amino acids analyzed with 2D HPLC. We performed metabolomic analysis of the amino acids in the AKI mice. The L-amino acids were evaluated in the feces (A), plasma (B), kidney (C), and urine (D) of the mice with/without I/R on days 0, 2, and 10. Data are shown as means ± SEM.
UD, undetectable.

D-amino acid

Supplemental Fig. 4

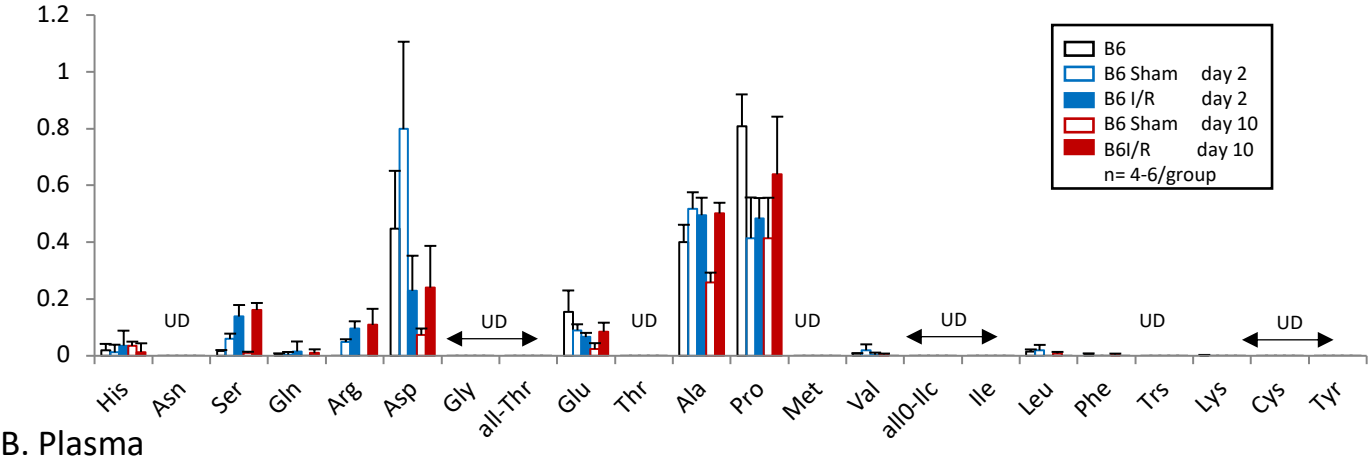


Supplemental Figure 4. The profile of D-amino acids analyzed with 2D HPLC. We performed metabolomic analysis of the amino acids in AKI mice. The D-amino acids were evaluated in the feces (A), plasma (B), kidney (C), and urine (D) of the mice with/without I/R on days 0, 2, and 10. Data are shown as means ± SEM.
UD, undetectable.

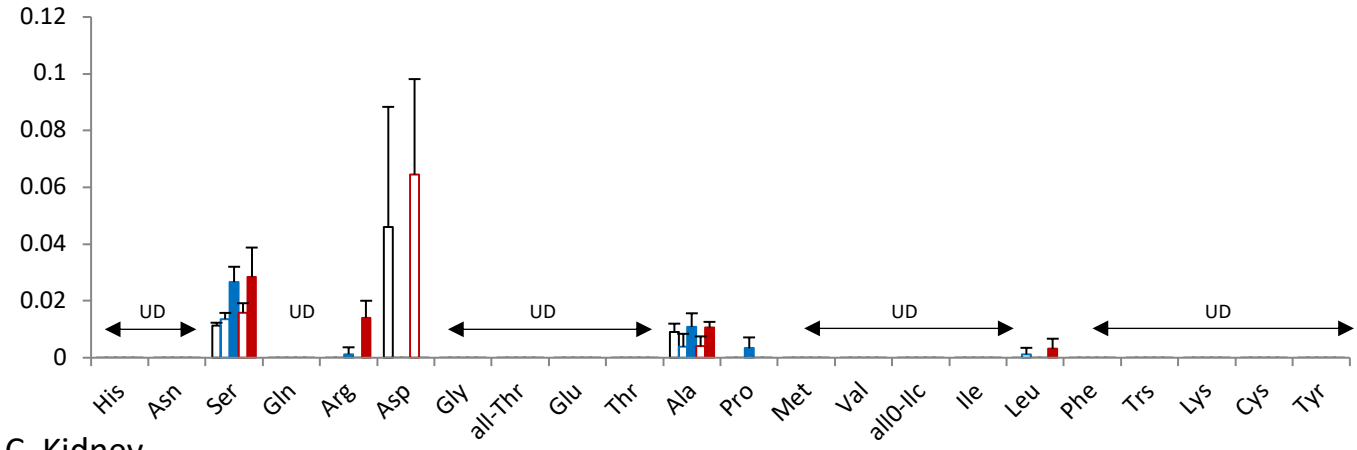
Supplemental Fig. 5

D-amino acid/L-amino acid

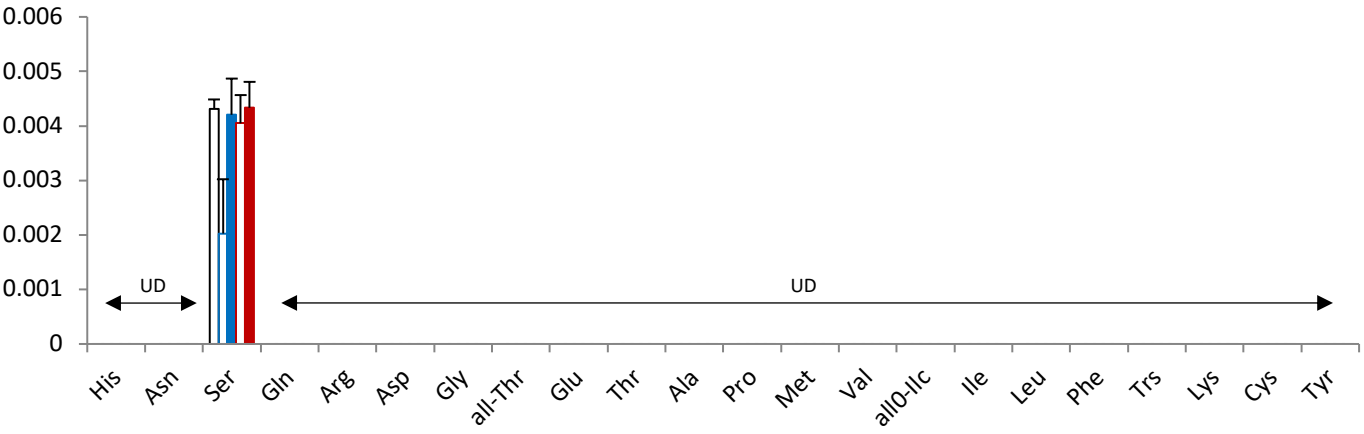
A. Feces (Gut)



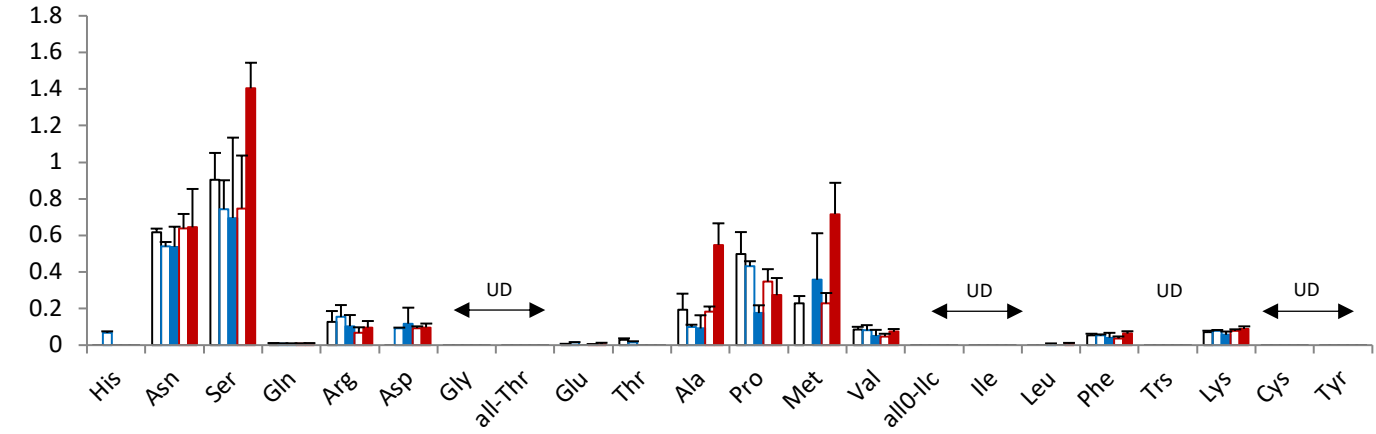
B. Plasma



C. Kidney



D. Urine

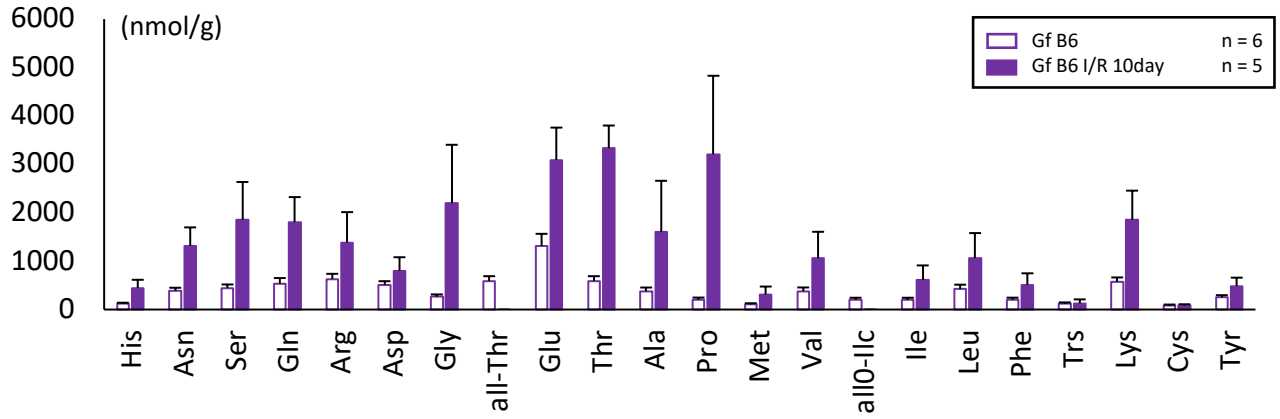


Supplemental Figure 5. The profile of amino acids analyzed with 2D HPLC. We performed metabolomic analysis of the amino acids in in germ-free mice with AKI. The ratios of the D-/L-amino acids were evaluated in the feces (A), plasma (B), kidney (C), and urine (D) of the mice with/without I/R on days 0, 2, and 10. Data are shown as meanS ± SEM.
UD, undetectable.

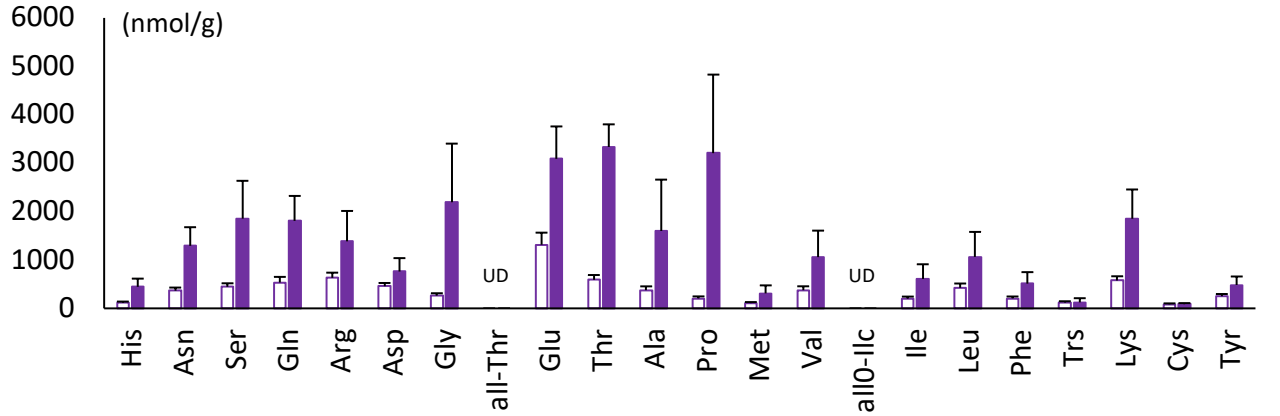
Feces (Gut)

Supplemental Fig. 6

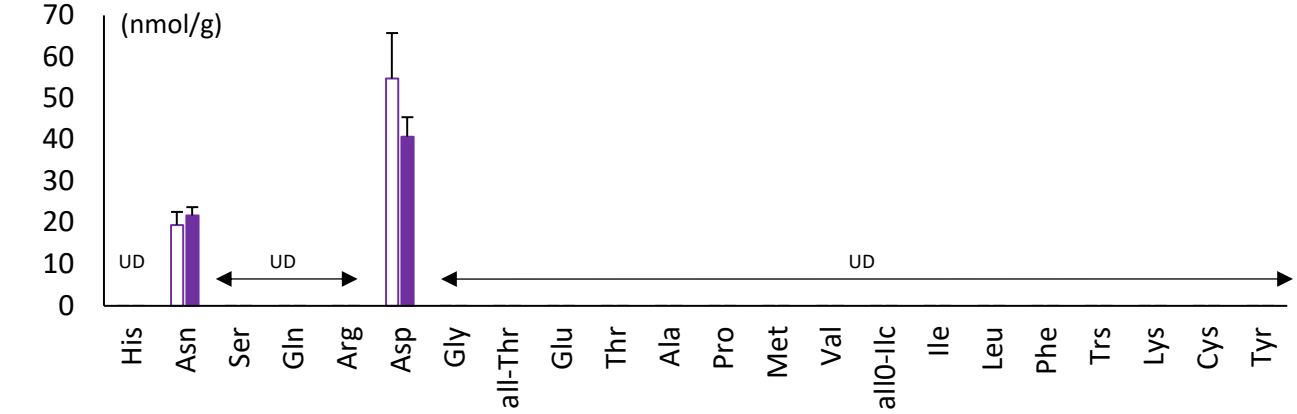
A. Total amino acid



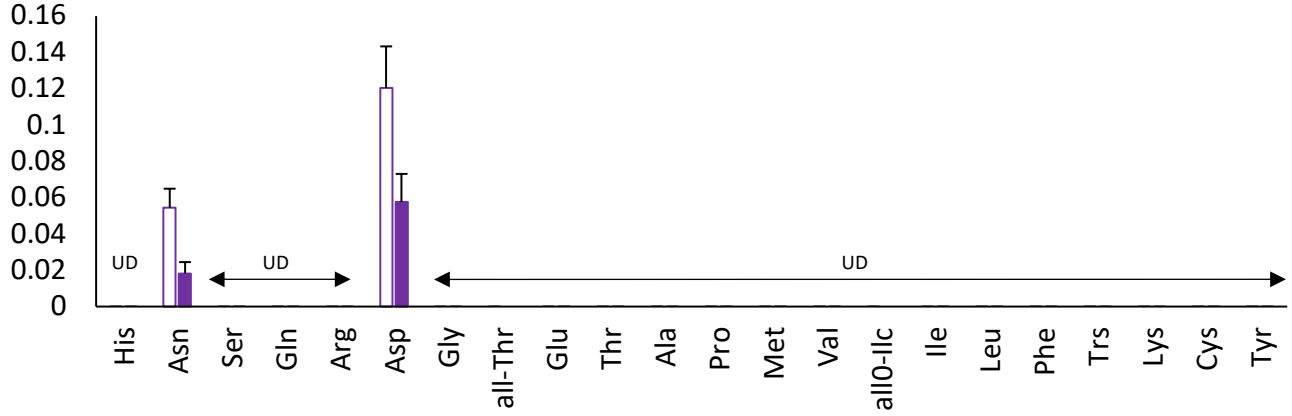
B. L-amino acid



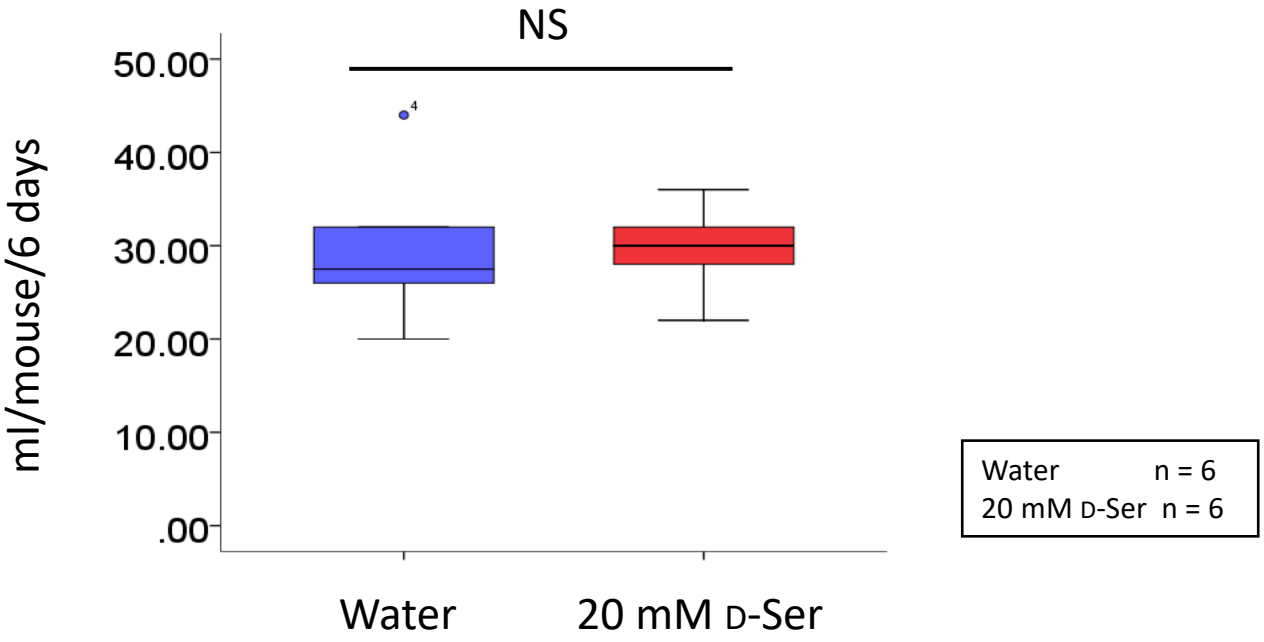
C. D-amino acid



D. D/L amino acid

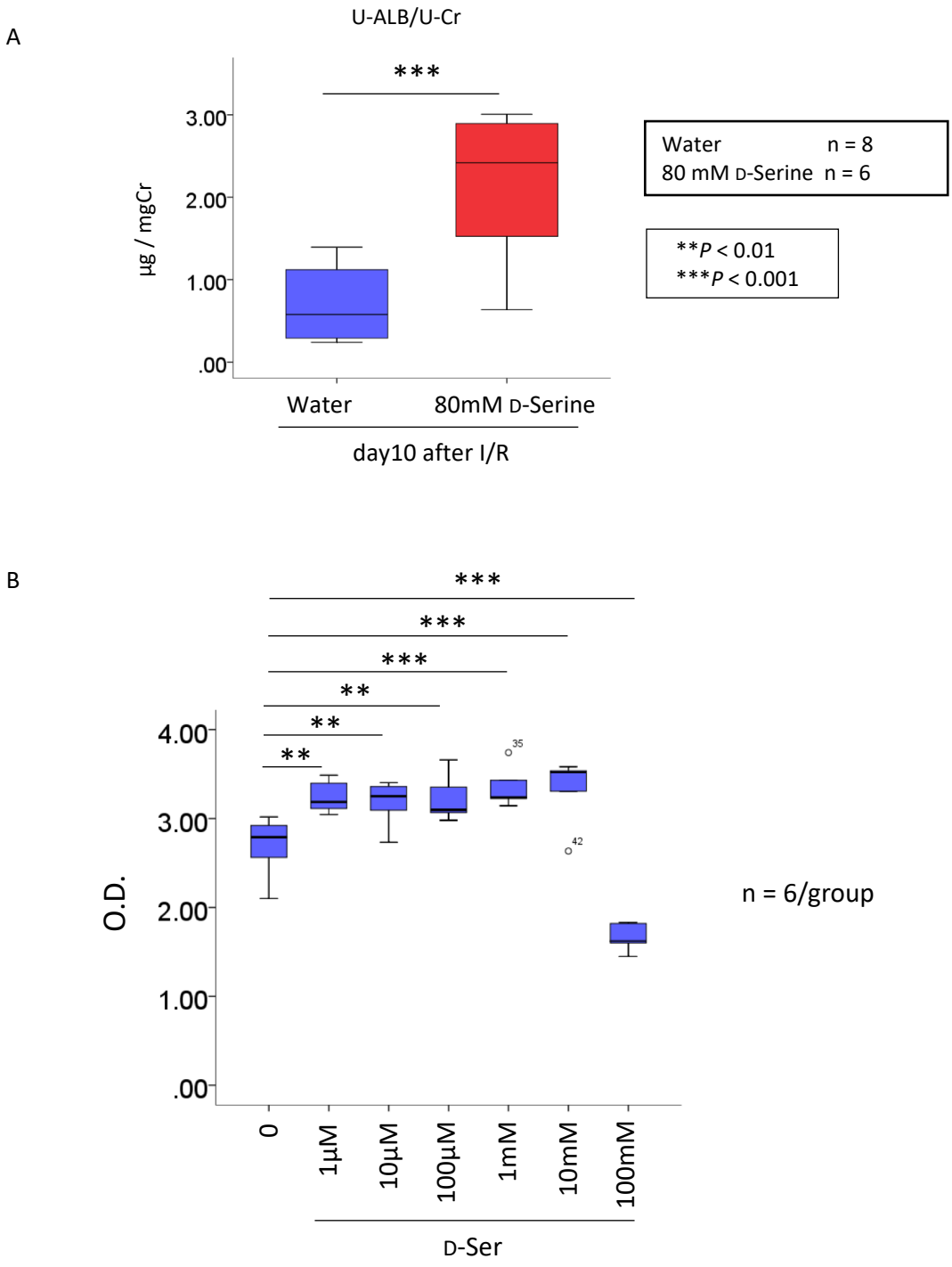


Supplemental Figure 6. The profile of amino acids analyzed with 2D HPLC in germ-free mice. We performed metabolomic analysis of the amino acids in the feces of germ-free mice. All amino acids (A), L-amino acids (B), D-amino acids (C) and the ratio of the D-/L-amino acids (D) were evaluated in the germ-free mice pre-I/R and on day 10 after I/R. Data are shown as means ± SEM.
UD, undetectable.

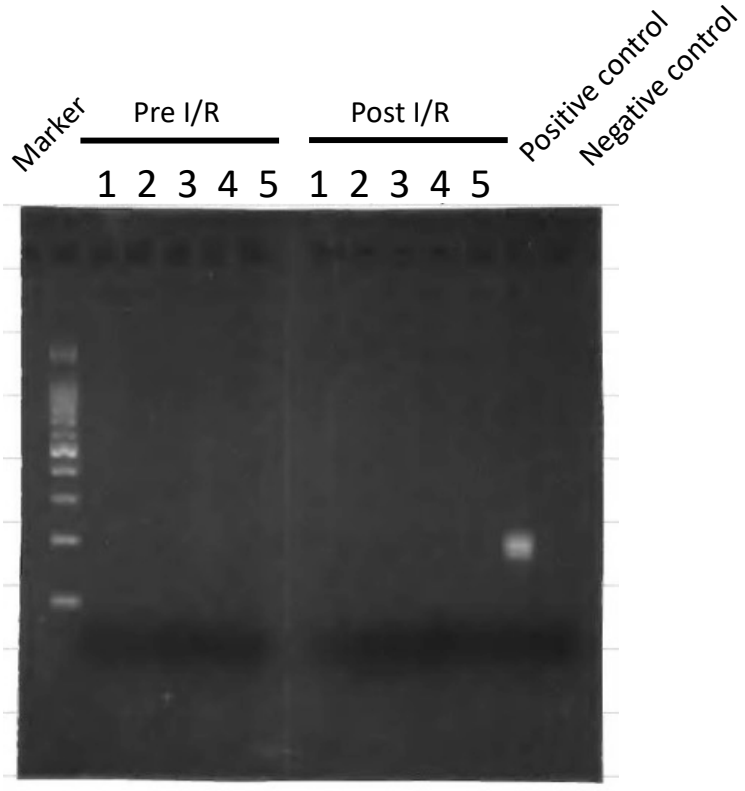


	Water	20 mM D-Ser
meas	29.50	29.71
SD	8.09	4.39
TTEST	0.96	

Supplemental Figure 7. The volume of water intake was similar between the untreated mice and the D-serine-treated mice. Statistical analysis was performed using Student's *t* test.
NS, not significant.



Supplemental Figure 8. Administration of high-dose D-serine augmented kidney injury. (A) Urine albumin excretion increased after high-dose administration of D-serine. (B) Post-hypoxic tubular proliferation was inhibited by D-serine at a dose of 100 mM. Statistical analysis was performed using Student's *t* test compare to control. *$P < 0.05$.



Supplemental Figure 9. Confirmation of the status of the germ-free mice by 16S rDNA PCR before and after I/R. No PCR product was detected in the feces of the germ-free mice before and after I/R.