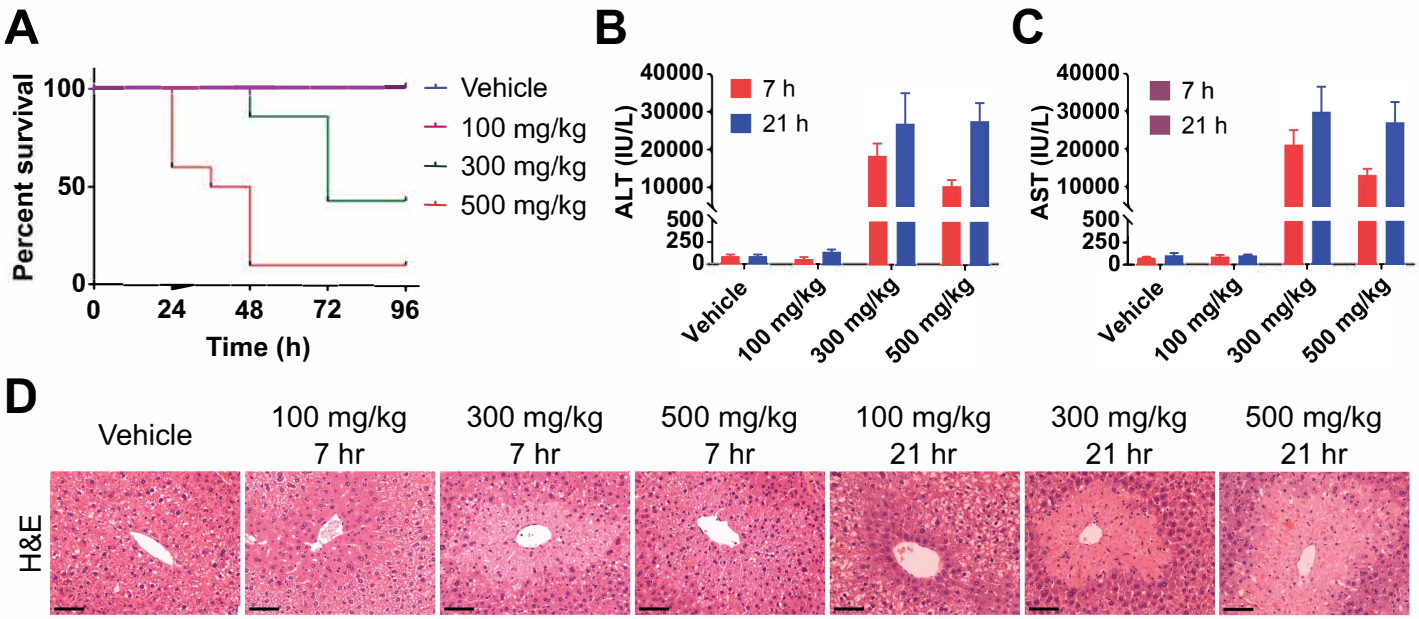

Figure 1: A mouse model of drug-induced liver injury. (A) A Kaplan Meier curve displaying percent survival after treating mice with saline vehicle or 100, 300, or 500 mg/kg acetaminophen. Vehicle: *n*=8; 100 mg/kg: *n*=8; 300 mg/kg: *n*=14; 500 mg/kg: *n*=10. (B) Serum ALT and (C) AST values from mice treated with saline vehicle or 100, 300, or 500 mg/kg acetaminophen for 7 and 21 h. 7 hours, all doses: *n*=6; 21 hours, vehicle: *n*=4; 100 and 300 mg/kg: *n*=6; 500 mg/kg: *n*=5. (D) H&E stained liver sections from mice treated with saline vehicle or 100, 300, or 500 mg/kg acetaminophen for 7 and 21 h. Scale bars represent 100 microns.

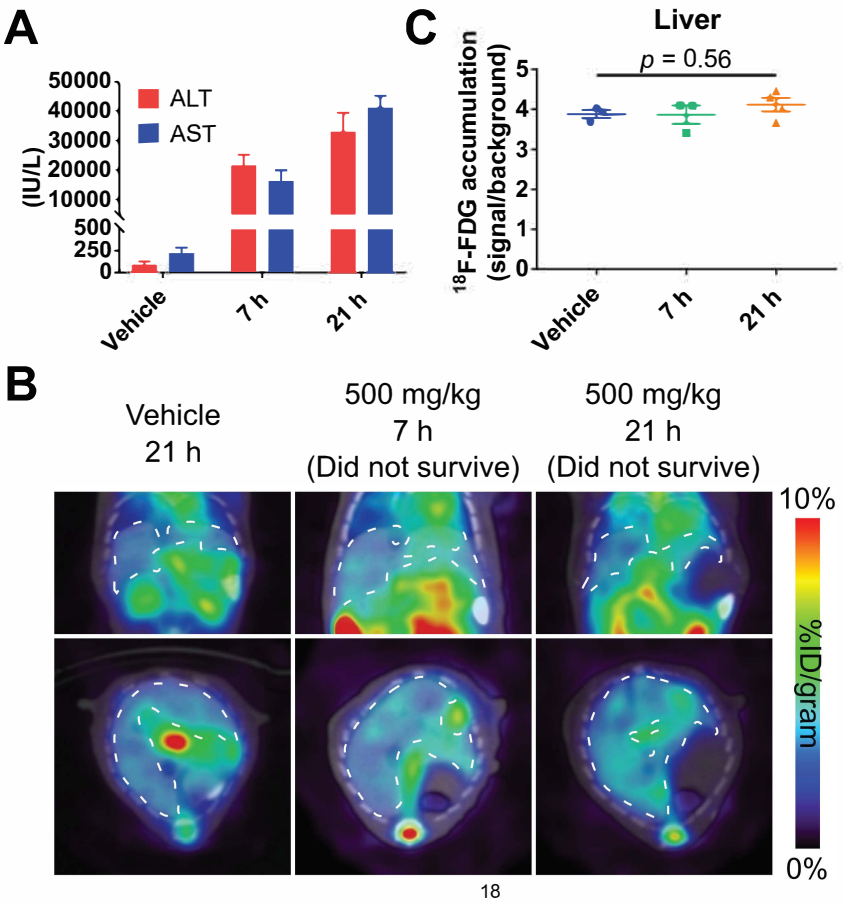

Figure 2: PET imaging with ^{18}F-FDG cannot distinguish vehicle-treated from high dose acetaminophen-treated mice. (A) Serum ALT and AST values from mice treated with saline vehicle or 500 mg/kg acetaminophen for 7 and 21 h. Vehicle and 7 hours: *n*=3; 21 hours: *n*=4. (B) Representative coronal and transverse ^{18}F-FDG PET images of mice treated with saline vehicle or 500 mg/kg acetaminophen for 7 and 21 h. (C) Quantification of hepatic ^{18}F-FDG PET accumulation in mice treated with saline vehicle or 500 mg/kg acetaminophen for 7 and 21 h. Vehicle and 7 hours: *n*=3; 21 hours: *n*=4. One-way ANOVA.

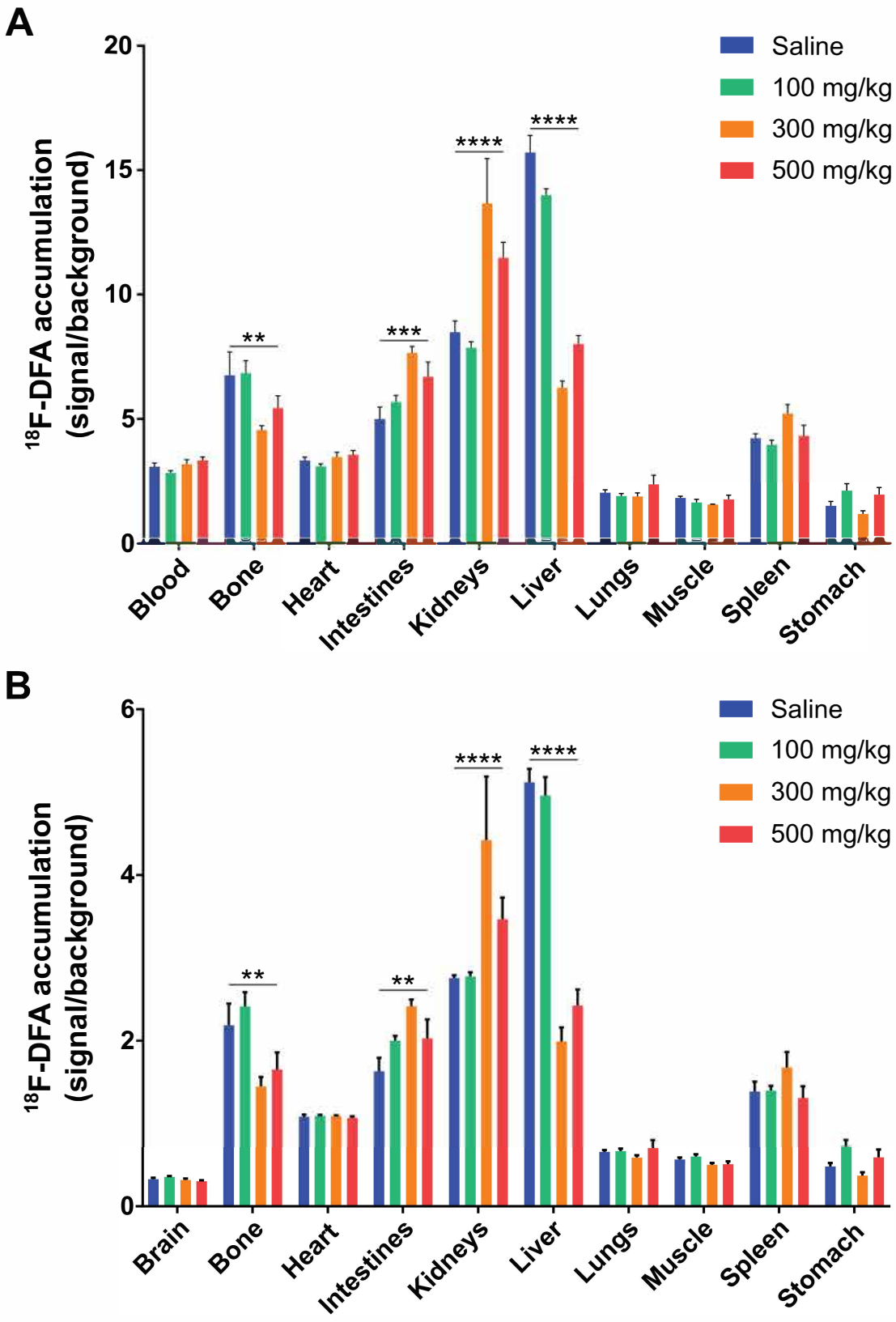

Figure 3: High dose (300 and 500 mg/kg) acetaminophen treatments alter the biodistribution of ^{18}F-DFA accumulation. (A) ^{18}F-DFA accumulation in various organs, normalized to brain ^{18}F-DFA accumulation. (B) ^{18}F-DFA accumulation in various organs, normalized to image-derived blood ^{18}F-DFA levels. All doses: n=4. Two-way ANOVA with Dunnett correction. **: p<0.01, ***: p<0.001, ****: p<0.0001.

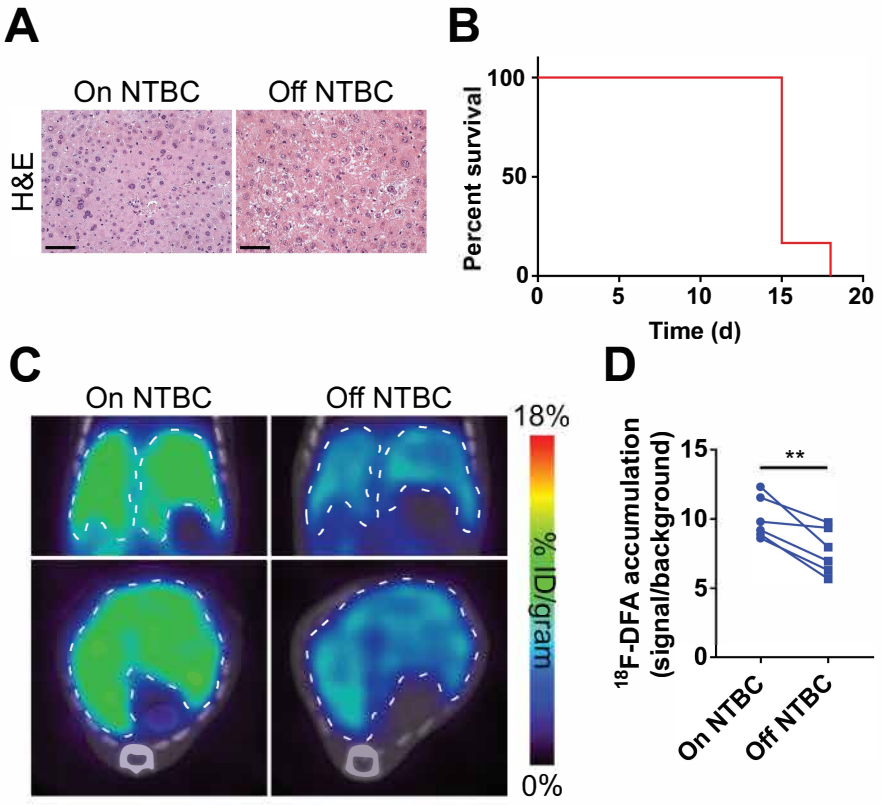

Figure 4: PET imaging with ^{18}F-DFA can distinguish healthy mice from mice in acute liver failure induced by a toxic metabolite. (A) H&E stained liver sections from mice maintained on NTBC or withdrawn from NTBC for 2 weeks. (B) A Kaplan Meier curve displaying percent survival of FRG mice following withdrawal of NTBC. (C) Representative transverse and coronal ^{18}F-DFA PET/CT images, immediately prior to and 2 weeks after withdrawal of NTBC. Dotted white lines encircle the livers. (D) Quantification of hepatic ^{18}F-DFA accumulation in mice immediately prior to and 2 weeks after withdrawal of NTBC. *n*=6. Unpaired t test. Scale bars represent 100 microns. **: $p<0.01$.

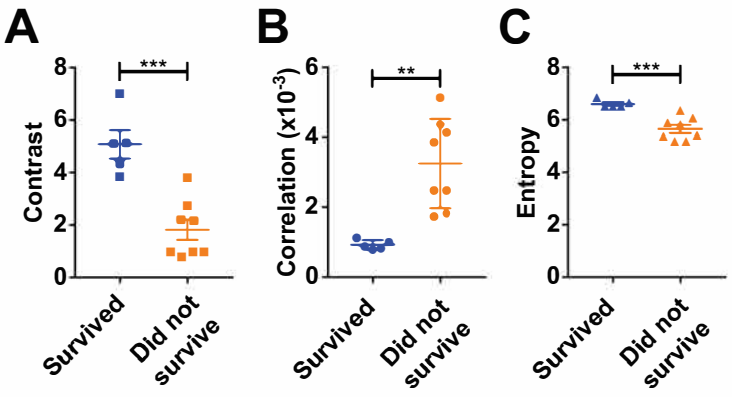

Figure 5: PET imaging with ^{18}F-DFA 21 hours after acetaminophen treatment can distinguish mice that will survive high dose acetaminophen from mice that will not. Quantification of hepatic ^{18}F-DFA (A) contrast, (B) correlation, and (C) entropy values in mice, 21 hours after treatment with high dose acetaminophen, plotted by survival status. Survived: *n*=5; did not survive: *n*=8. Unpaired t tests. **: $p<0.01$; ***: $p<0.001$.

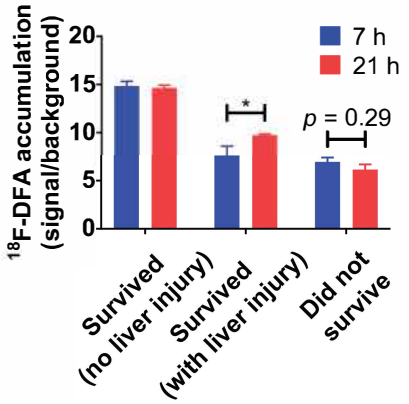

Figure 6: A kinetic picture of the liver responding to acetaminophen.

Tabulated hepatic ^{18}F-DFA accumulation, plotted by time point and survival status. Survived (no liver injury), both time points: *n*=8; survived (with liver injury) – 7 h: *n*=2; 21 h: *n*=5; did not survive – 7 h: *n*=6; 21 h: *n*=8. Unpaired t tests. *: $p<0.05$.