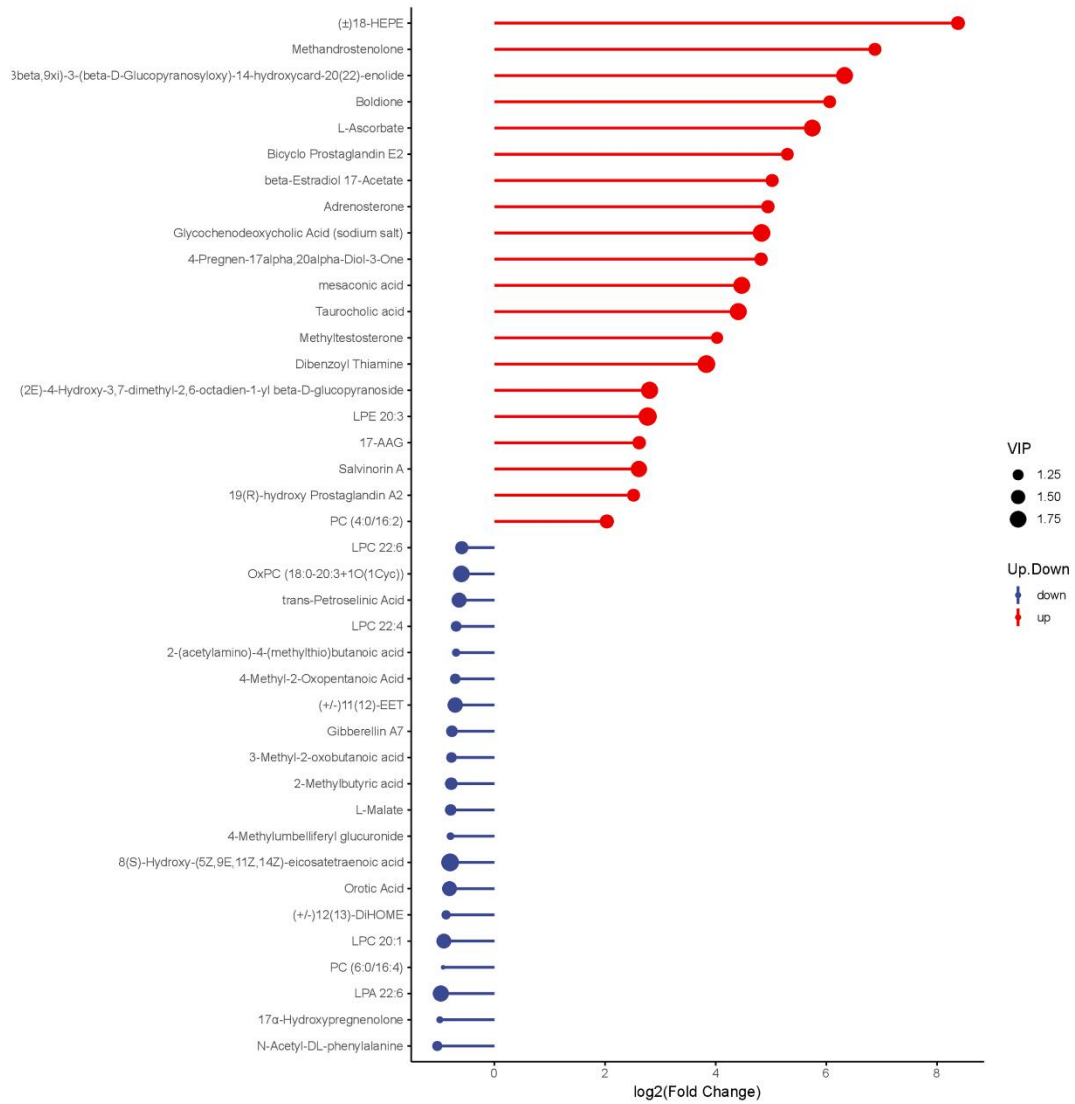
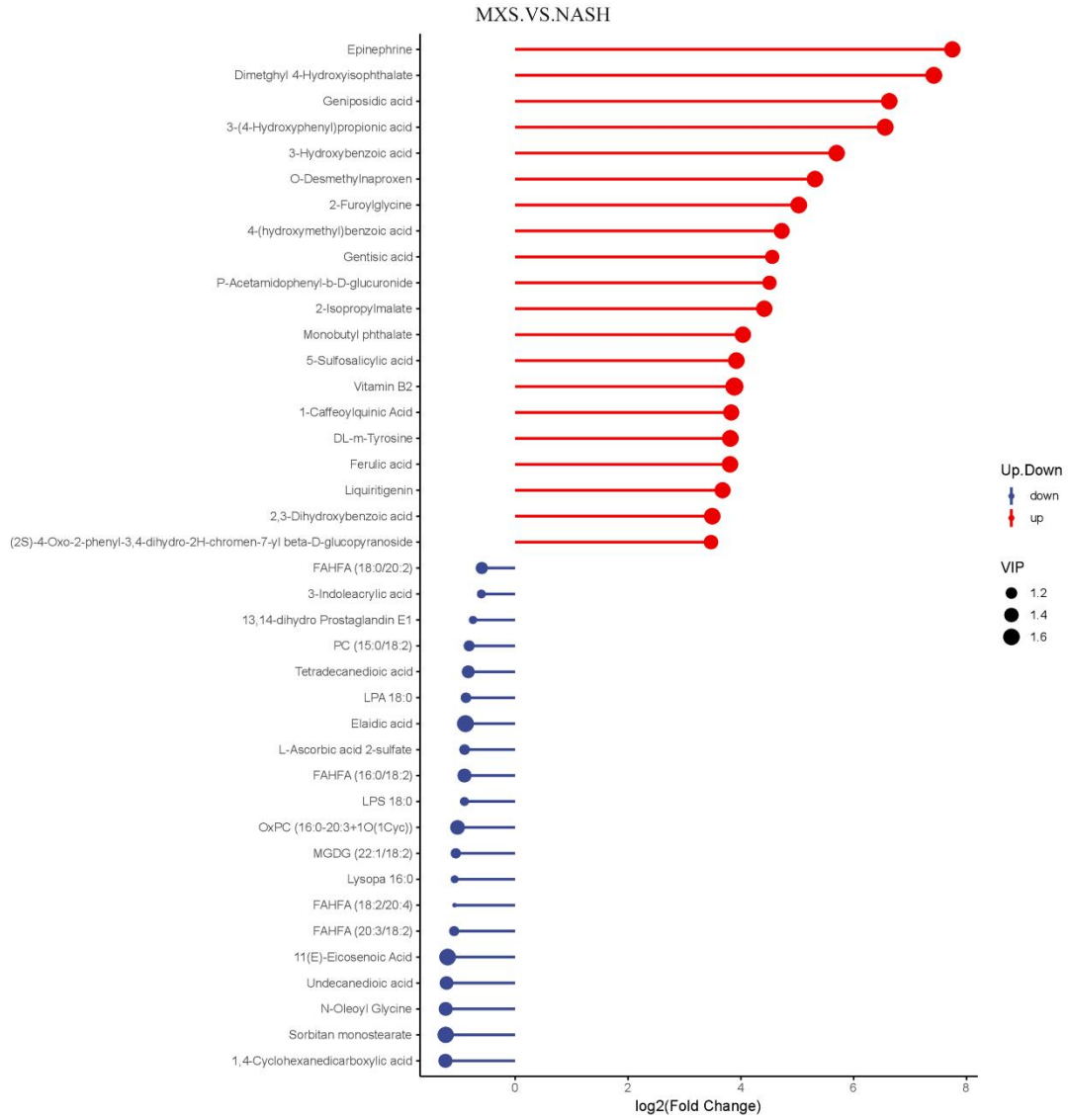


Supplementary Figure 1 PCA score plot of the metabolic profile. (A) PCA score plot classifying the 3 groups. (B) PCA score plot of the distributive tendencies classifying 2 groups (NASH .VS. Control). (C) PCA score plot of the distributive tendencies classifying 2 groups (MXS .VS. NASH).

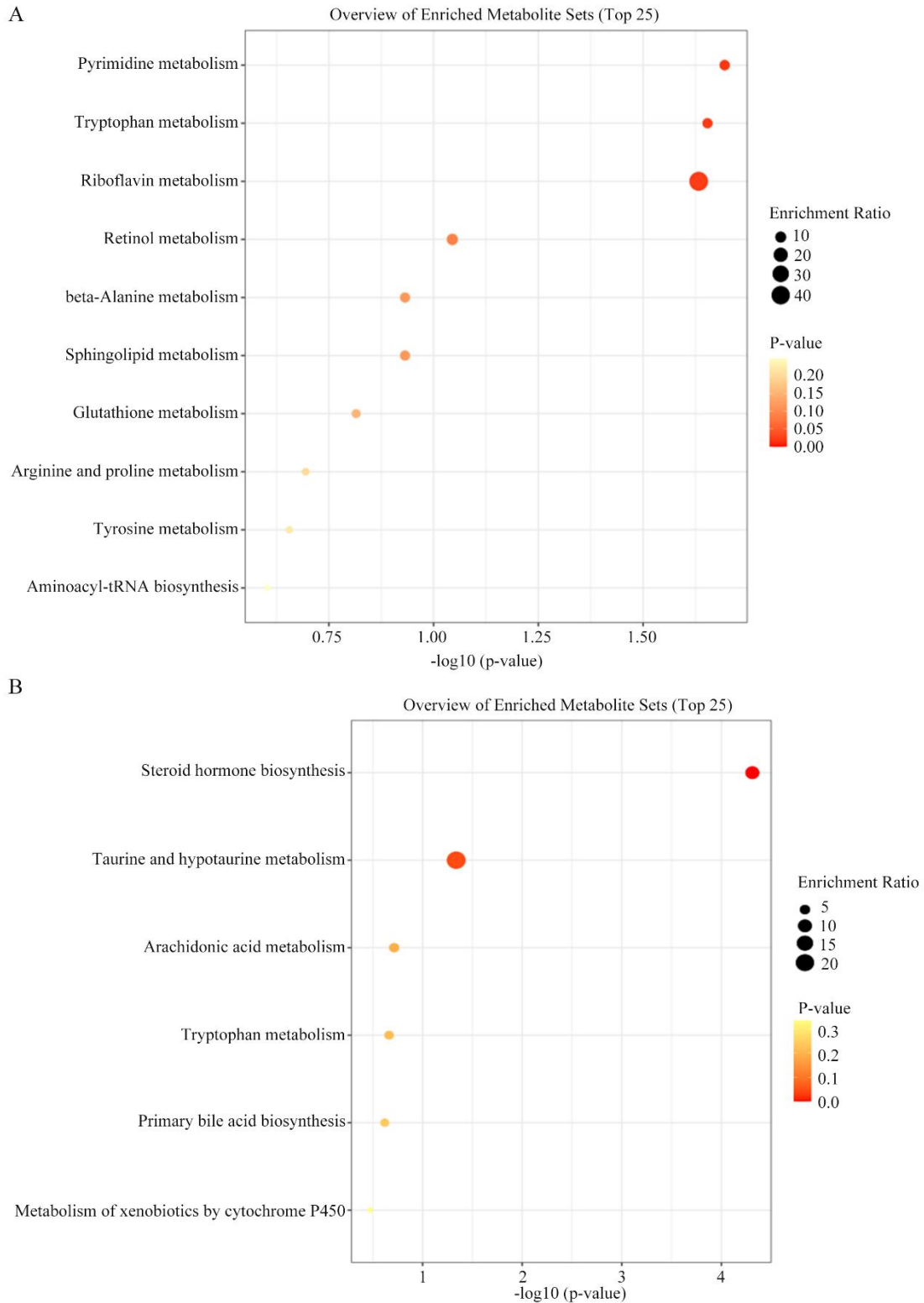
NASH.VS.Control



Supplementary Figure 2 Stem plot of top 20 significantly changed metabolites between groups (NASH .VS. Control).

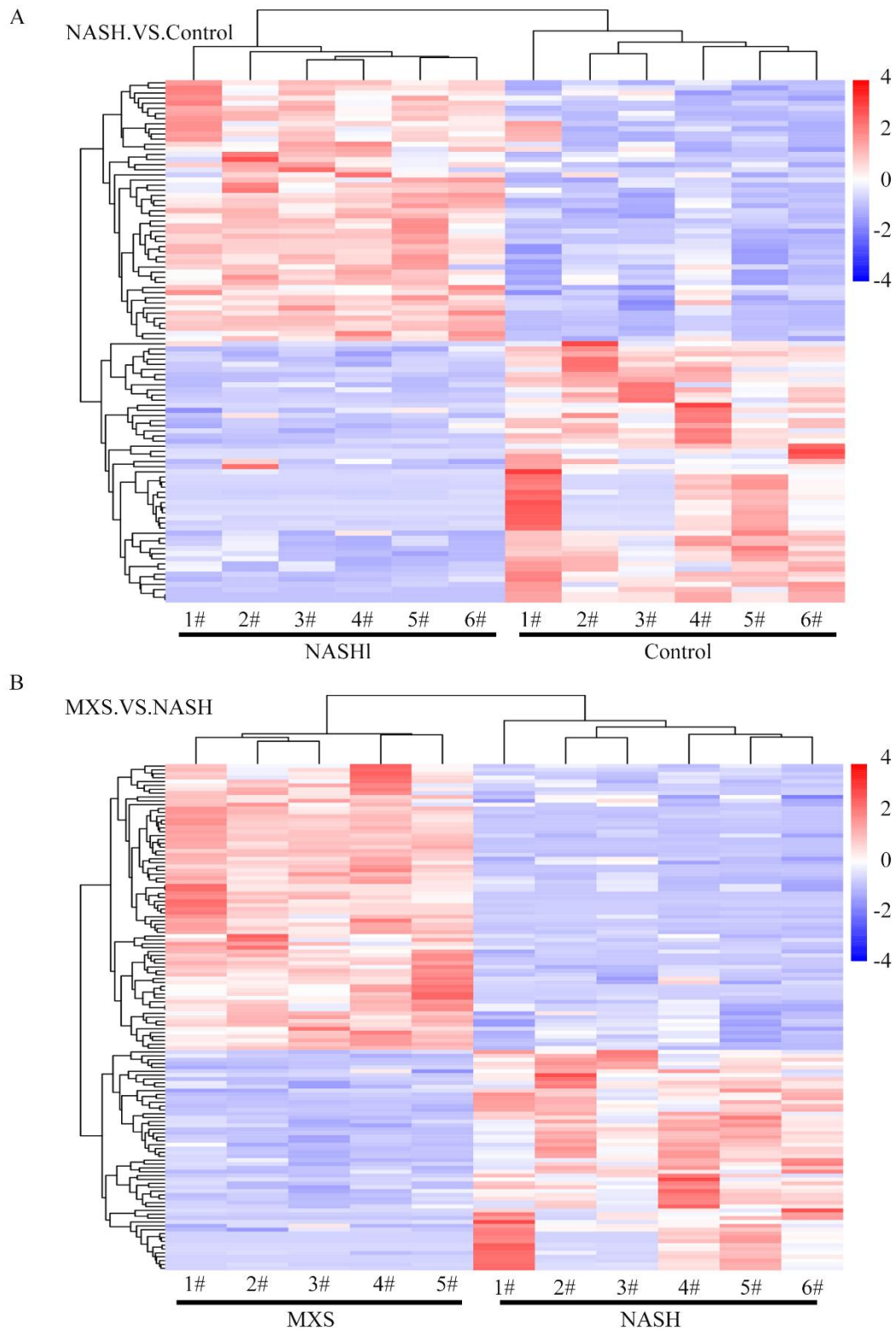


Supplementary Figure 3 Stem plot of top 20 significantly changed metabolites between groups (MXS .VS. NASH).



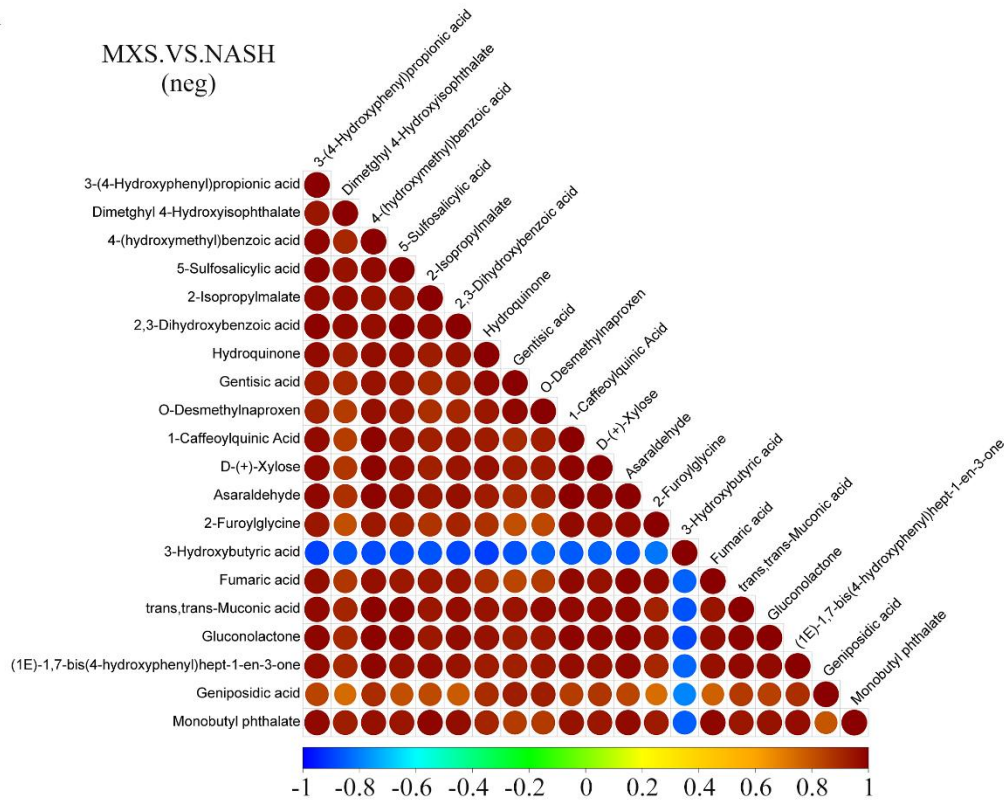
Supplementary Figure 6 Overview of enriched metabolite sets between groups. (A) Top 25 metabolites that decreased in the NASH model group but recovered or increased after MXS treatment. (B) Top 25 metabolites that unusually increased in the NASH model group but recovered or

downregulated after MXS treatment.

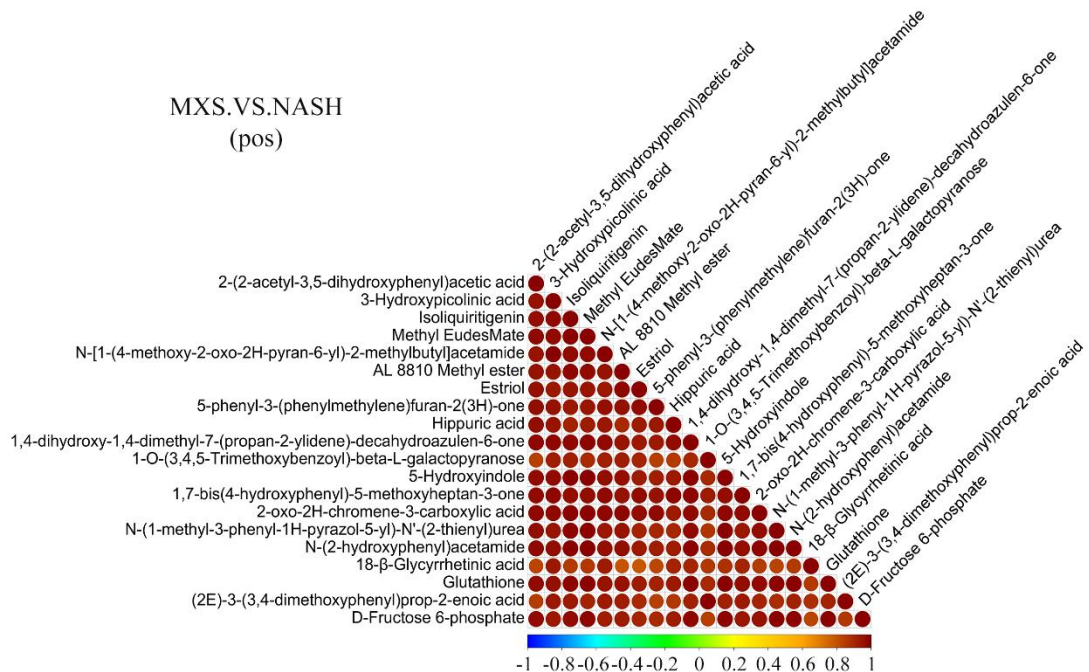


Supplementary Figure 7 Cluster analysis of differential metabolites between groups. (A) NASH .VS. Control. (B) MXS .VS. NASH.

A

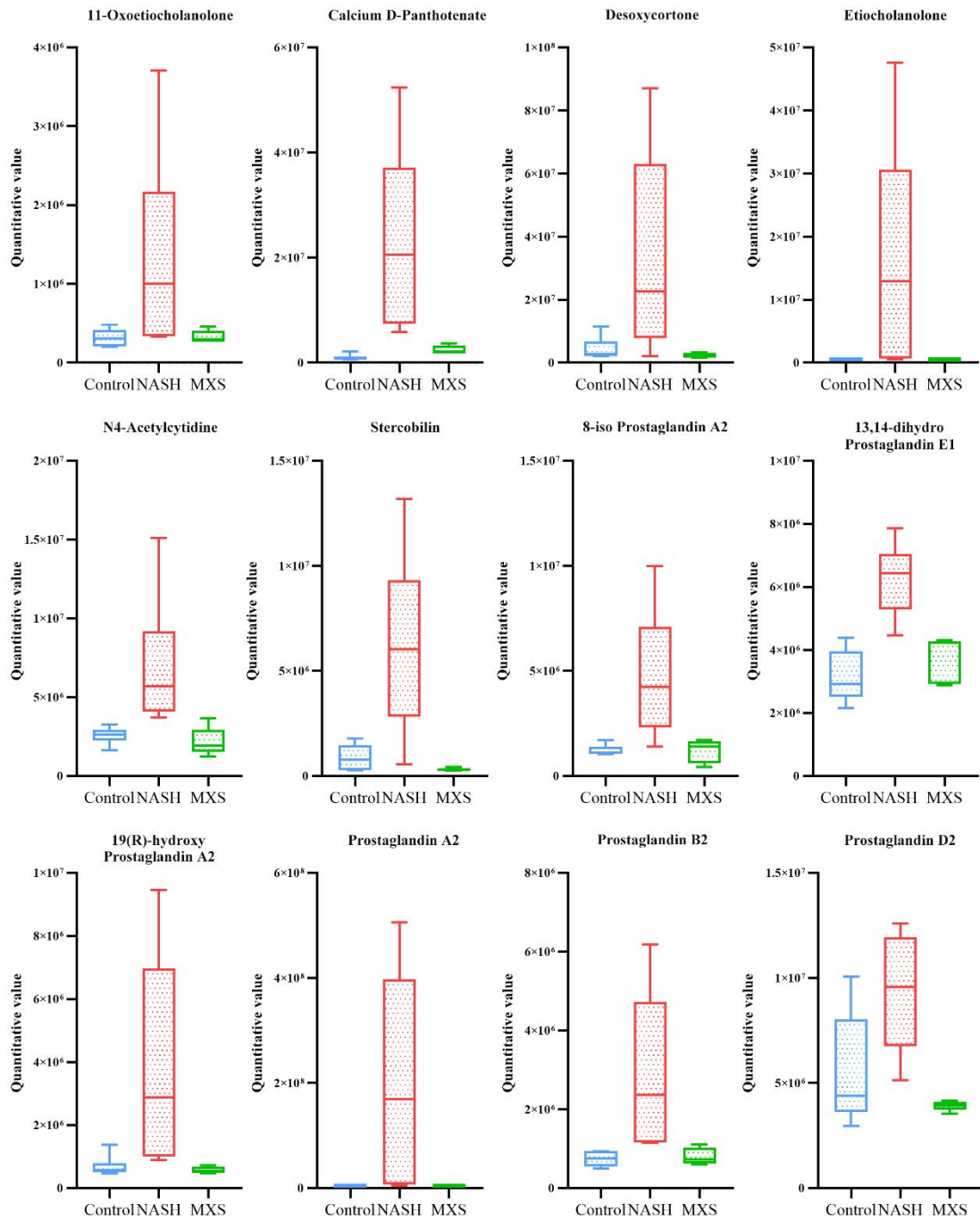


B



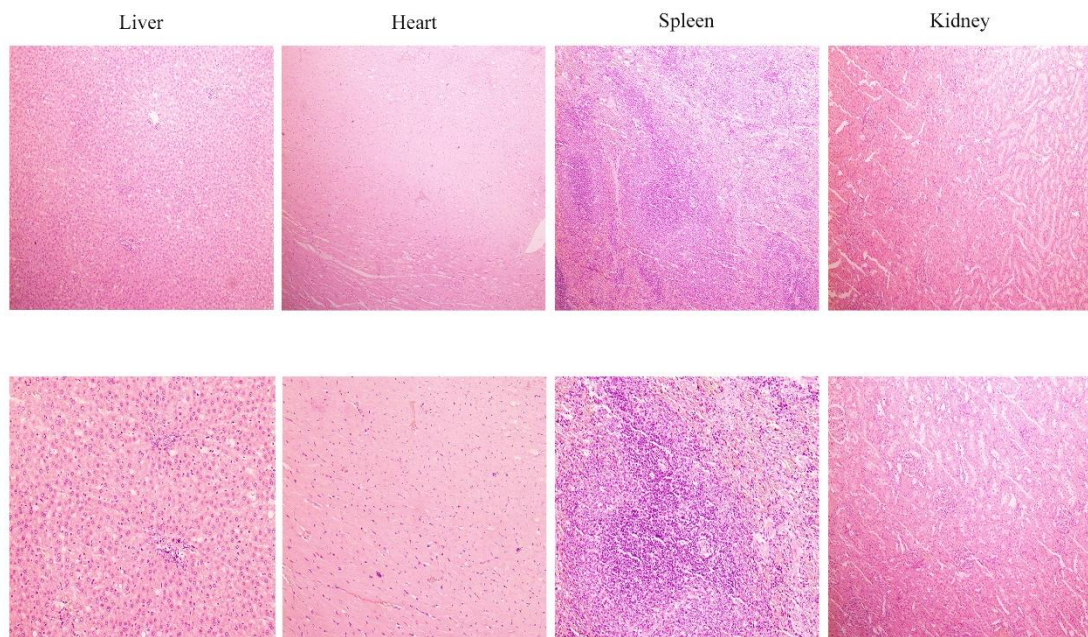
Supplementary Figure 8 Correlation analysis of differential metabolites between groups (MXS .VS. NASH). (A) In negative ion mode. (B) In positive ion mode. The highest correlation is 1, which is a perfect positive correlation

(red), the lowest correlation is -1, which is a perfect negative correlation (blue), and the part with no color indicates a P-value > 0.05. The figure shows the correlation of Top20 differential metabolites sorted from smallest to largest P-value.



Supplementary Figure 9 Histogram of the 12 metabolites related to

inflammation process.



Supplementary Figure 10 Pathological sections of liver, heart, spleen and kidney.

Supplementary Table 1 Rodent diets with 40 kcal% Fat, 20 kcal% fructose and 2% cholesterol

Product#	D09100310	
	gm%	kcal%
Protein	22.5	20
Carbohydrate	44.9	40
Fat	19.9	40
Total		
kcal/gm	4.49	
Ingredient	gm	Kcal
Casein	200	800
L-Cystine	3	12
Maltodextrin 10	100	400
Fructose	200	800
Sucrose	96	384
Cellulose	50	0
Soybean Oil	25	225
Lard	20	180
Paim Oli	135	1215
Mineral Mix S10026	10	0
DiCalcium Phosphate	13	0
Caluciu Carbonate	5.5	0
Potassium Citrate, 1 H ₂ O	16.5	0
Vitamin Mix V10001	10	40
Choline Bitartrate	2	0
Cholesterol	18	0
FD & C Red Dye #40	0.025	0
FD & C Red Dye #1	0.025	0
Total	904.05	4056