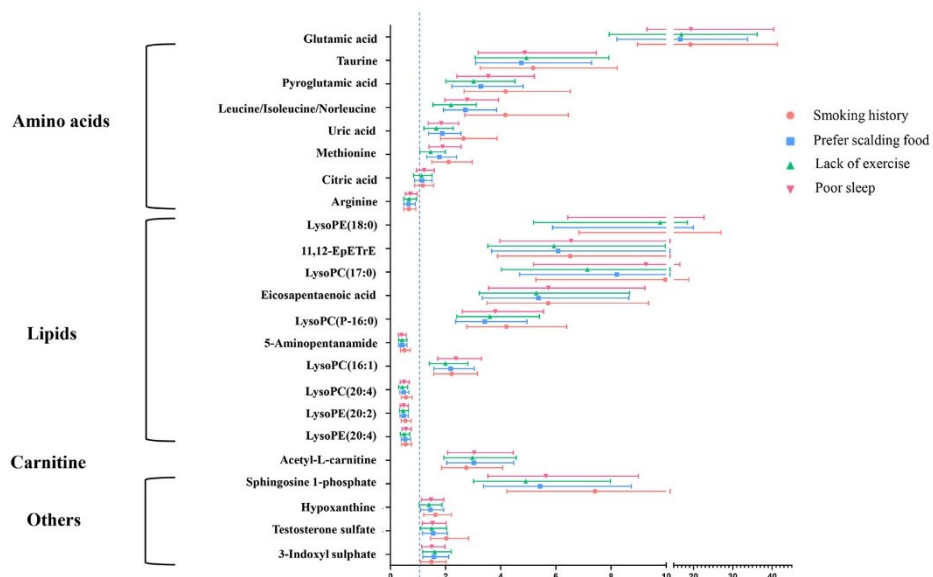
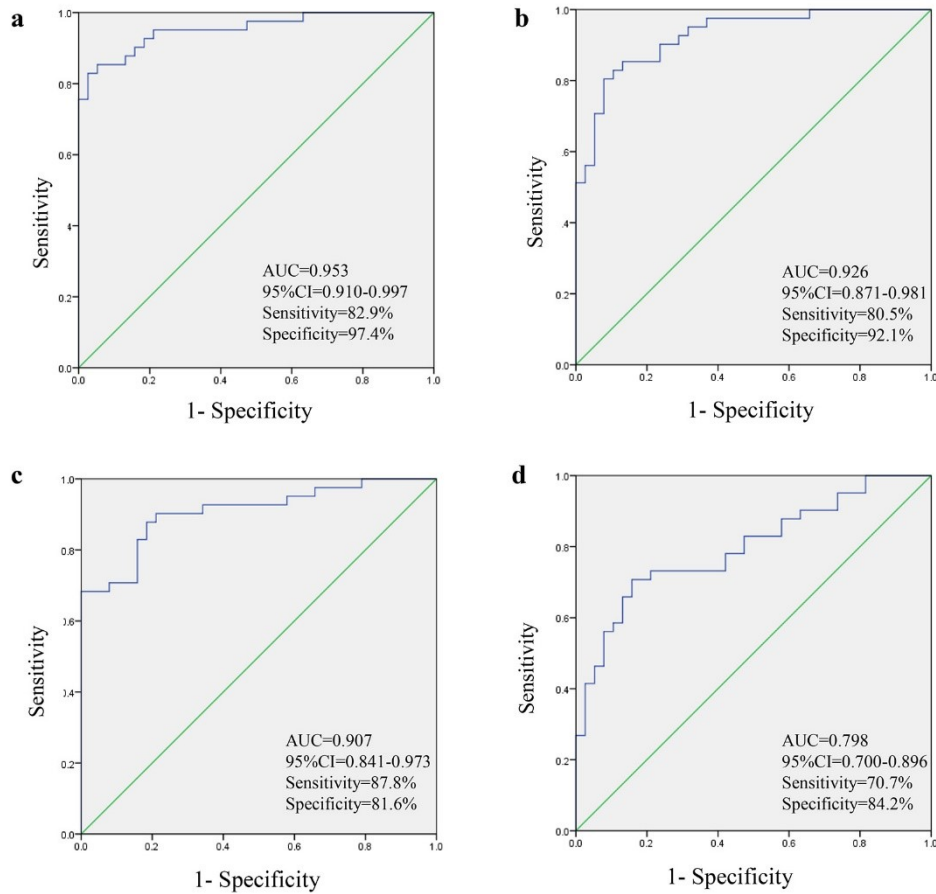


Supplementary Material



Supplementary Figure S1 ORs per SD increment (95% CI) of each metabolite based on results from multivariate-adjusted conditional logistic regression models.

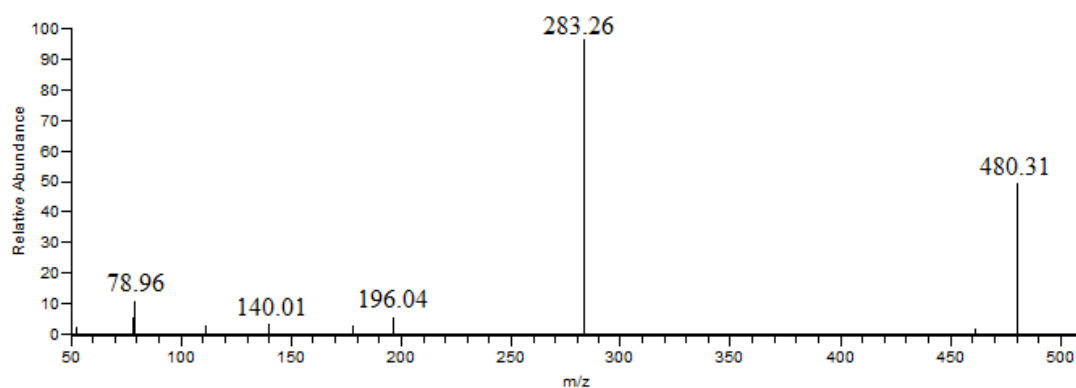


Supplementary Figure S2 The ROC curve with AUC, CI, sensitivity, specificity of (a) Diagnosis panel in training set, (b) Glutamic acid, (c) LysoPE(18:0) and (d) Taurine, respectively. AUC: Area under curve; CI: Confidence interval.

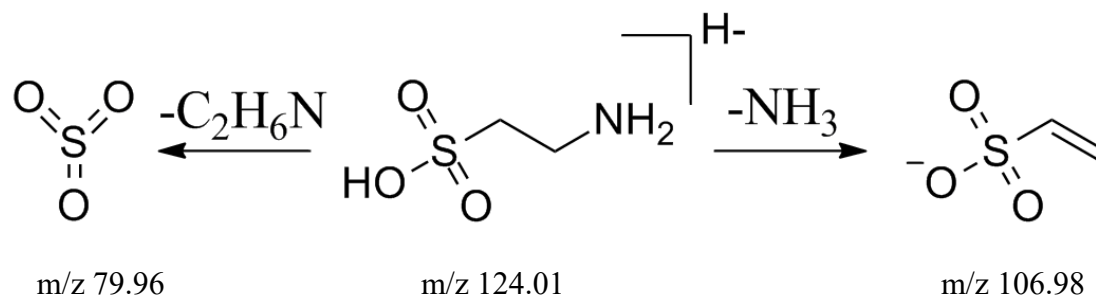
m/z 128.04 m/z 146.05 m/z 102.06 m/z 85.03



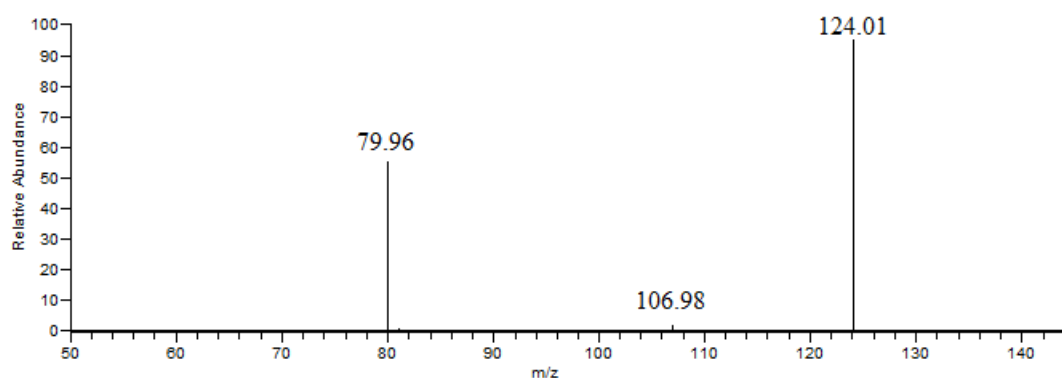
QC-N-400-1200 #1803 RT: 9.59 AV: 1 NL: 1.16E5
 F: FTMS - p ESI d Full ms2 480.3090@hcd40.00 [50.0000-510.0000]



c



QC-N-80-180 #321 RT: 1.03 AV: 1 NL: 5.11E5
 F: FTMS - p ESI d Full ms2 124.0070@hcd40.00 [50.0000-145.0000]



Supplementary Figure S3 The structures of three metabolic biomarkers and the mass fragmentation pathways. (a) Glutamic acid ($\text{C}_5\text{H}_9\text{NO}_4$) was observed under negative mode (m/z 146.05), and the fragment ions were 128.04 [$\text{M}-\text{H}-\text{H}_2\text{O}$] $^-$, 102.06 [$\text{M}-\text{H}-\text{CO}_2$] $^-$ and 85.03 [$\text{M}-\text{H}-\text{CO}_2-\text{NH}_3$] $^-$; (b) LysoPE(18:0) ($\text{C}_{23}\text{H}_{48}\text{NO}_7\text{P}$) was observed under negative mode (m/z 480.31), and the fragment ions were 283.26 [$\text{M}-\text{H}-\text{C}_5\text{H}_{12}\text{O}_5\text{NP}$] $^-$, 196.04 [$\text{M}-\text{H}-\text{C}_{18}\text{H}_{36}\text{O}_2$] $^-$, 140.01 [$\text{M}-\text{H}-\text{C}_{18}\text{H}_{36}\text{O}_2-\text{C}_3\text{H}_4\text{O}$] $^-$, 78.96 [$\text{M}-\text{H}-\text{C}_{18}\text{H}_{36}\text{O}_2-\text{C}_3\text{H}_4\text{O}-\text{C}_2\text{H}_7\text{ON}$] $^-$; (c) Taurine ($\text{C}_2\text{H}_7\text{NO}_3\text{S}$) was observed under negative mode (m/z 124.01), and the fragment ions were 106.98 [$\text{M}-\text{H}-\text{NH}_3$] $^-$, 79.96 [$\text{M}-\text{H}-\text{C}_2\text{H}_6\text{N}$] $^-$.