

**Supplementary Table 2. Model odds ratios for the US cohort. The numbers in parenthesis show the corresponding p-values. Significant changes (p < 0.05) are marked in bold.**

Metabolite ID	HCC vs. Cirrhosis	Stage comparison		Gender		Race		Alcoholic cirrhosis	
		Stage I vs. Cirrhosis	Stage II-III vs. Cirrhosis	Male (HCC vs. Cirrhosis)	Female (HCC vs. Cirrhosis)	Caucasian (HCC vs. Cirrhosis)	African American (HCC vs. Cirrhosis)	No (HCC vs. Cirrhosis)	Yes (HCC vs. Cirrhosis)
GDCA	0.76 (0.1200)	0.76 (0.1740)	0.84 (0.4671)	0.70 (0.1006)	1.07 (0.8626)	0.60 (0.0730)	1.14 (0.6853)	0.84 (0.3987)	0.61 (0.1415)
GCA	0.81 (0.2136)	0.76 (0.1635)	0.92 (0.7239)	0.82 (0.3038)	0.92 (0.8472)	0.84 (0.4956)	0.88 (0.6915)	0.85 (0.4324)	0.73 (0.3020)
TCDCa	0.96 (0.7575)	0.94 (0.6597)	0.99 (0.9389)	0.88 (0.4148)	1.46 (0.2245)	0.92 (0.6249)	1.23 (0.4855)	0.95 (0.7501)	0.99 (0.9612)
3sulfo-GCDCA	<b>0.55 (0.0093)</b>	<b>0.49 (0.0126)</b>	0.71 (0.2866)	<b>0.58 (0.0439)</b>	0.53 (0.1536)	<b>0.42 (0.0069)</b>	0.87 (0.7373)	0.76 (0.3143)	<b>0.26 (0.0081)</b>
<b>3β, 6β-Dihydroxy-5β-cholan-24-oic acid</b>	<b>0.60 (0.0059)</b>	<b>0.65 (0.0345)</b>	<b>0.64 (0.0451)</b>	<b>0.59 (0.0219)</b>	0.59 (0.1062)	<b>0.53 (0.0153)</b>	0.81 (0.5542)	<b>0.54 (0.0120)</b>	0.71 (0.2232)
LPC 17:0	1.85 (0.0973)	<b>2.72 (0.0319)</b>	1.29 (0.6349)	1.88 (0.1492)	1.43 (0.6399)	2.04 (0.1758)	1.67 (0.4205)	2.21 (0.0832)	1.26 (0.7295)
LPC 16:0	0.98 (0.9776)	1.03 (0.9750)	0.54 (0.6378)	0.75 (0.7849)	1.09 (0.9530)	1.21 (0.8711)	1.05 (0.9708)	1.03 (0.9763)	0.48 (0.7237)
LPC 18:0	1.97 (0.3498)	1.65 (0.5596)	1.35 (0.7689)	3.14 (0.2229)	0.83 (0.8721)	3.34 (0.2513)	1.28 (0.8529)	1.98 (0.3954)	1.73 (0.7282)
LPE 18:0	0.70 (0.5006)	0.79 (0.7099)	0.35 (0.1837)	0.69 (0.5403)	0.78 (0.8017)	0.49 (0.3374)	0.87 (0.8690)	1.13 (0.8383)	0.20 (0.1110)
LPE 16:0	0.79 (0.6274)	0.95 (0.9238)	0.50 (0.3178)	0.69 (0.5040)	1.13 (0.8980)	0.52 (0.3468)	1.38 (0.6840)	1.09 (0.8801)	0.36 (0.2472)
LPE 20:4	0.84 (0.5884)	0.84 (0.6450)	0.87 (0.7717)	0.82 (0.6075)	0.80 (0.6992)	0.87 (0.7550)	0.76 (0.6237)	1.09 (0.8346)	0.51 (0.2282)
LPE 22:6	1.06 (0.8118)	1.05 (0.8720)	1.15 (0.7107)	1.09 (0.7534)	0.86 (0.7927)	0.93 (0.8323)	0.94 (0.9067)	1.06 (0.8486)	1.01 (0.9892)
Phe-Phe	0.87 (0.6081)	0.86 (0.6441)	1.03 (0.9383)	0.93 (0.8357)	0.78 (0.5579)	0.87 (0.6988)	0.71 (0.5184)	0.91 (0.7621)	0.82 (0.6840)
Oleoyl carnitine	0.45 (0.1315)	0.50 (0.2836)	0.53 (0.4046)	0.83 (0.7573)	<b>0.10 (0.0443)</b>	0.65 (0.5539)	0.06 (0.0547)	0.42 (0.1879)	0.54 (0.5029)
Linoleaidyl carnitine	0.99 (0.9846)	1.09 (0.8900)	0.65 (0.5437)	1.55 (0.4486)	0.32 (0.2627)	0.91 (0.8764)	0.83 (0.8571)	0.83 (0.7497)	1.41 (0.6977)