Supplementary Fig. S1. Representative negative ion mass spectra of serum FFAs from healthy control (a), one patient with BLD (b), and one patient with LC (c).

Supplementary Table S1. Baseline characteristics and time points of LC patients.

Patients	Age(years)	Sex	Histologic types	stages	time points (week)
#1	57	M	Squamous cell carcinoma	Ⅳ	0,4,8,16.24,32,40
#2	63	F	Adenocarcinoma	Ⅳ	0,4,8,16,24,32,40
#3	53	M	Squamous cell carcinoma	Ⅳ	0,4,16,24,32,48,64
#4	55	F	Adenocarcinoma	Ⅲb	0,4,8,16,20
#5	45	M	Adenocarcinoma	Ⅳ	0,4,10,16,22,46,52
#6	66	F	Adenocarcinoma	Unavailable	0,4,10,16,22,40,46,52
#7	46	F	Adenocarcinoma	Ⅲb	0,4,8,24,32,48
#8	60	M	Adenocarcinoma	Ⅳ	0,4,12,20

Supplementary Table S2. Linearity range, calibration equations, correlation coefficient (R^2), and results of QC sample of FAs.

FAs	Linearity (n=3)			QC (%)
	FA (nM)	Equation	R^2	
$C_{16:1}$	8.5-684.0	$Y=0.509(\pm0.023)X+0.088(\pm0.012)$	0.998	<7
$C_{18:3}$	2.0-163.5	$Y=1.470(\pm0.041)X-0.041(\pm0.016)$	0.995	<10
$C_{18:2}$	14.2-1138.0	$Y=1.619(\pm0.103)X-0.091(\pm0.035)$	0.996	<11
$C_{18:1}$	20.9-1672.0	$Y=1.513(\pm0.117)X+1.013(\pm0.210)$	0.998	<11
$C_{20:4}$	4.6-366.0	$Y=1.205(\pm0.083)X+0.121(\pm0.106)$	0.994	<15
$C_{22:6}$	1.4-112.3	$Y=2.069(\pm0.038)X-0.038(\pm0.018)$	0.992	<9

X: concentration ratios of FAs to ISs (83.3 nM for $C_{17:1}$ and 33.3 nM for $C_{21:0}$); Y: intensity ratios of FAs to ISs