Supporting information

Cross-species molecular imaging of bile salts and lipids in liver: identification of molecular structural markers in health and disease.

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Special staining of frozen tissue sections

\mathbf{HE}

- Fixation: 10 minutes in formalin 10% at 4°C
- Airdry, staining on room temperature
- Dip in demin water
- Haematoxyline Gill III (Prosan)(or Harris): 2 minutes
- Tap water: 8 dipsDemin water: 8 dips
- Phosphotungstic acid 2 %: 4 dips
- Demin water: 8 dips
- Sodiumacetate 2%: 4 dips
- Demin water: 8 dips
- Eosin 1% (Prosan): 1 min
- Ethanol 96 %: 2 x 8 dips
- Ethanol absolute: 2 x 8 dips
- Xylene: 2 x 1 minute
- Mount with synthetic mounting medium

Masson's Trichrome

Preparation of reagents

- Ponceau de xylidine 1 %: solve 3 g of Ponceau de Xylidine in 300 ml cooking demin water and let it cook for 1 or 2 minutes, then add 3 ml acetic acid and filter the solution.
- Acid anilin blue 0.5 %: solve 1 g of anilin blue in 200 ml demin water. Add 4 ml acetic acid.
- Phosphotungstic acid 3 %: solve 6 g of phosphotungstic acid in 200 ml demin water.
- Acetic acid 1 %: dilute 2 ml acetic acid in 200 ml demin water
- Mayer's haematoxylin: bought solution (Sigma Aldrich)

Staining:

- Fixation: 10 minutes in formalin 10 % at 4°C
- Airdry, staining on room temperature
- Mayer's haematoxylin: 10 minutes
- Running tap water: 10 minutes
- Rinse in demin water
- Phosphotungstic acid 3 %: 7 minutes
- Rinse in demin water
- Acid anilin blue 0.5 %: 4 minutes
- Acetic acid solution 1 %: dip a few times
- Ethanol 96 %: 2 x 2 minutes
- Ethanol absolute: 2 x 2 minutes
- Xylene: 2 x 2 minutes
- Mount with synthetic mounting medium

Immunohistochemistry

- Dry slides: 15-30 minutes
- Fix section: 10 minutes in acetone -20°C
- Rinse with PBS
- Encircle tissue section with DAKO-Cytomation pen
- Rinse with PBS
- Block endogenous peroxidases with $0.3\%~H_2O_2$ in methanol: 30 minutes 1 ml $30\%~H_2O_2 + 100$ ml methanol
- Rinse with PBS: 3 x 3 minutes
- Block with 5% BSA-PBS: 30 minutes

2 ml PBS + 2 ml 10% BSA

- Incubate with 1:2000 α –Cytokeratin (DAKO Z0622) in DB: 1 hour
- Rinse with PBS: 3 x 3 minutes
- Incubate with 1:500 Goat- α Rabbit-HRP in DB: 1 hour
- Rinse with PBS: 3 x 3 minutes
- Incubate with AEC

19 ml 0.5M NaAc 171 ml with MQ

9 ml DMSO

Before use; add 69 μ l H₂O₂ + 1 ml 4% DMSO-AEC

- Rinse with demi water: \pm 5 minutes
- Stain with Haematoxylin GIII staining: 1-2 min (liver)
- Rinse with tap water: ± 5 minutes
- Dry slides
- Mount with DAKO Faramount aqueous mounting medium ready-to-use S3025

Name	R1	R2	R3	R4
CA	Н	α-ОН	OH	ОН
CDCA	H	α-ОН	Н	ОН
LCA	Н	Н	Н	OH
DCA	H	Н	ОН	ОН
TCA	H	α-ОН	ОН	$NH(CH_2)_2SO_3H$
TCDCA	H	α-ОН	Н	$NH(CH_2)_2SO_3H$
TDCA	H	Н	OH	$NH(CH_2)_2SO_3H$
GCA	H	α-ОН	ОН	NHCH2CO2H
GCDCA	H	α-ОН	Н	NHCH2CO2H
GDCA	H	Н	OH	NHCH ₂ CO ₂ H

C

Name	e Type Formula		Mass ([M-H]-)
CA	Primary	$C_{24}H_{39}O_5$	407.26
CDCA	Primary	$C_{24}H_{39}O_4$	391.26
LCA	Secondary	$C_{24}H_{39}O_3$	375.27
DCA	Secondary	$C_{24}H_{39}O_4$	391.26
TCA	Primary	$C_{26}H_{44}NO_7S$	514.28
TCDCA	Primary	$\mathrm{C}_{26}\mathrm{H}_{44}\mathrm{NO}_{6}\mathrm{S}$	498.28
TDCA	Secondary	$\mathrm{C}_{26}\mathrm{H}_{44}\mathrm{NO}_{6}\mathrm{S}$	498.28
GCA	Primary	$\mathrm{C}_{26}\mathrm{H}_{42}\mathrm{NO}_{6}$	464.30
GCDCA	Primary	$\mathrm{C}_{26}\mathrm{H}_{42}\mathrm{NO}_5$	448.30
GDCA	Secondary	$C_{26}H_{42}NO_5$	448.30

Figure S1. Information on bile acids. (A) Base structure of bile acids and (B) positions of the hydroxyl groups and site of conjugation. (C) Observed masses of bile acid standards in negative ion mode.

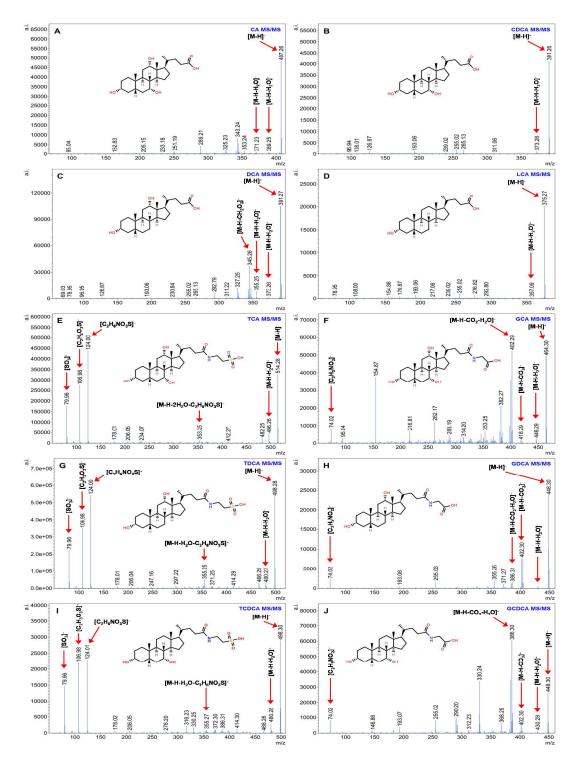


Figure S2. MALDI-MS/MS spectra of deprotonated ([M-H]⁻) bile acid standards in negative ion mode. (A) cholic acid (*m/z* 407.26), (B) chenodeoxycholic acid (*m/z* 391.27), (C) deoxycholic acid (*m/z* 391.27), (D) lithocholic acid (*m/z* 375.27), (E) taurocholic acid (*m/z* 514.28), (F) glycocholic acid (*m/z* 464.30), (G) taurodeoxycholic acid (*m/z* 498.30), (H) glycodeoxycholic acid (*m/z* 448.30), (I) taurochenodeoxycholic acid (*m/z* 498.30), (J) glycochenodeoxycholic acid (*m/z* 448.30).

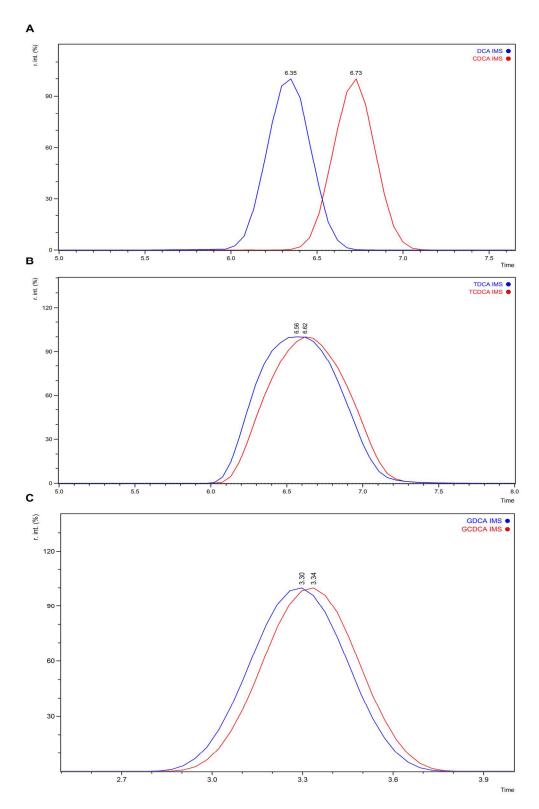


Figure S3. MALDI-IMS-MS of isomeric bile acids in negative ion mode. Mobilograms of (A) DCA/CDCA (*m/z* 391.27), (B) TDCA/TCDCA (*m/z* 498.28) and (C) GDCA/GCDCA (*m/z* 448.30).

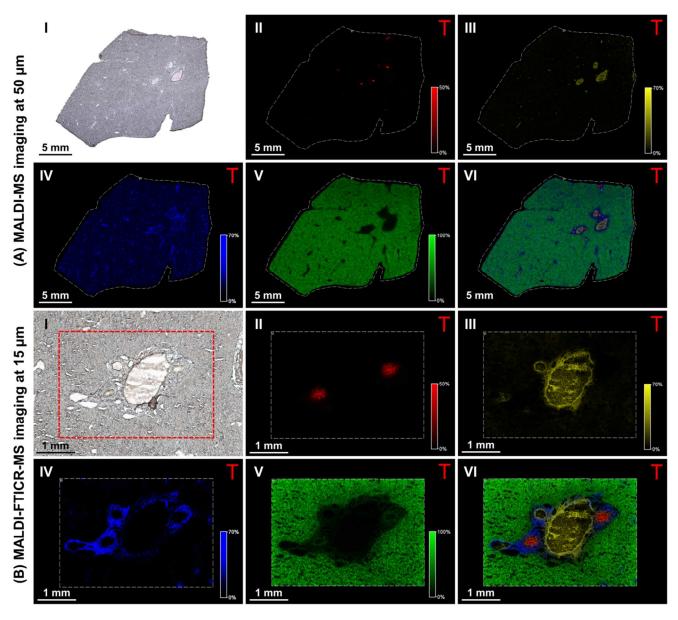
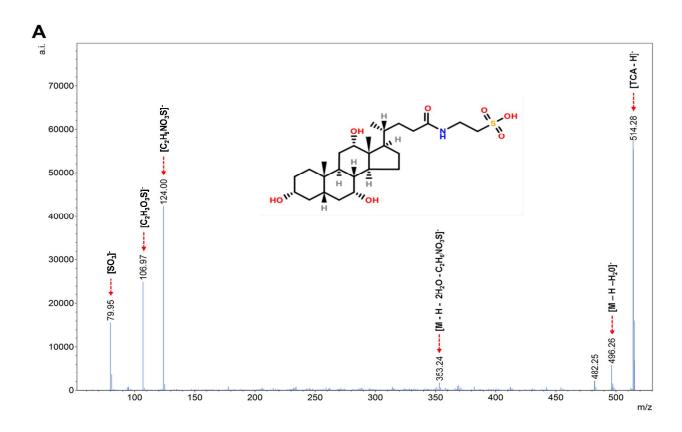
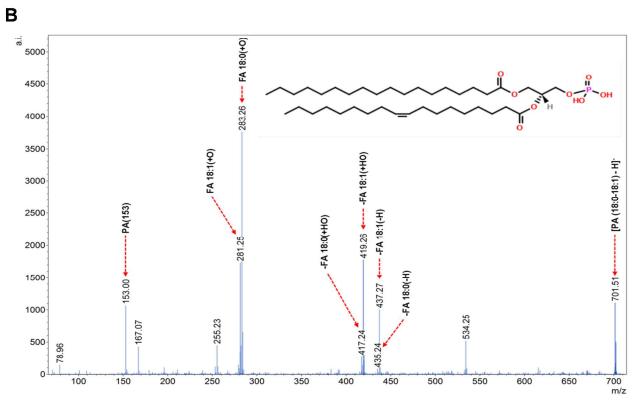


Figure S4. Multimodal imaging of healthy dog liver tissue. (I) Optical image of the tissue section prior to matrix application. Positive-ion mode (A) MALDI-MS and (B) MALDI-FTICR-MS images showing the distribution of selected molecular species in the (II) bile duct lumen (unknown at *m/z* 576.2418), (III) blood vessels (heme [M]⁺ at *m/z* 616.1804), (IV) connective tissue ([PC (32:0)+K]⁺ at *m/z* 772.5254), (V) parenchyma ([PC (38:4)+K]⁺ at *m/z* 848.5564) and (VI) overlay of the selected species. (Designated masses are from MALDI-FTICR-MS imaging measurements, MALDI-MS image field of view 141828 pixels, area 124 mm² and spatial resolution 50 μm, MALDI-FTICR-MS image field of view 41700 pixels, 9.3 mm² area and spatial resolution 15 μm. Both images normalized with TIC).





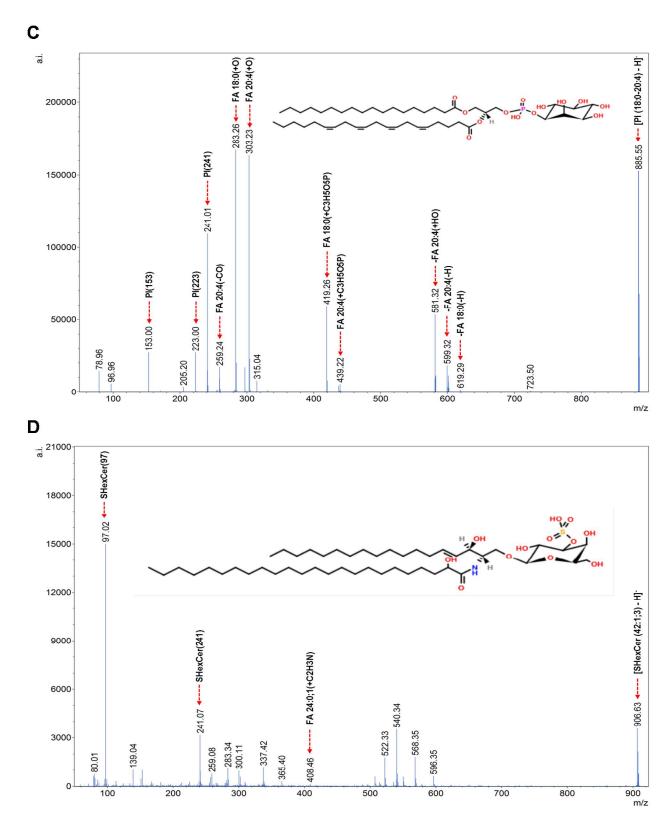


Figure S5. MALDI-MS/MS spectra of structural molecular markers for (A) bile duct lumen, (B) connective tissue, (C) parenchyma and (D) bile duct. Spectra obtained from healthy dog liver tissue.

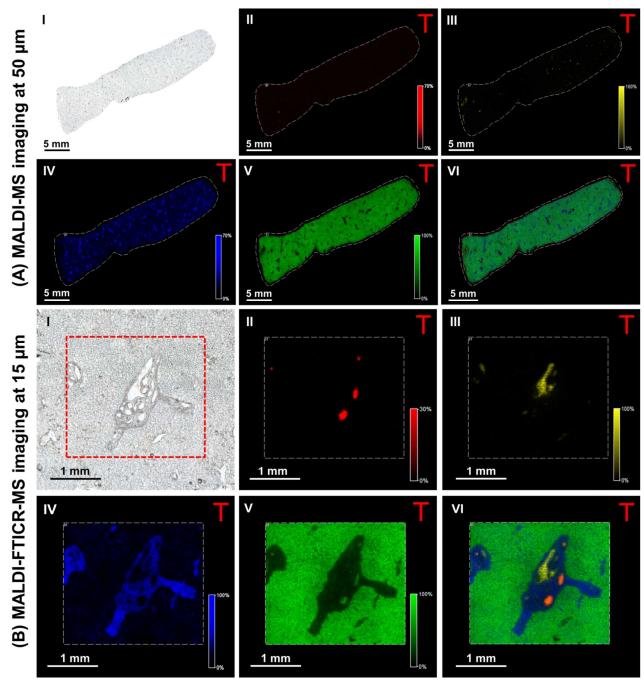


Figure S6. Multimodal imaging of healthy human liver tissue. (I) Optical image of tissue section prior to matrix application. Positive-ion mode (A) MALDI-MS and (B) MALDI-FTICR-MS images showing the distribution of selected molecular species in the (II) bile duct lumen (unknown at *m/z* 560.2427), (III) blood vessels (heme [M]⁺ at *m/z* 616.1782), (IV) connective tissue ([PC (32:0)+K]⁺ at *m/z* 772.5254), (V) parenchyma ([PC (34:2)+K]⁺ at *m/z* 796.5252) and (VI) overlay of the selected species. (Designated masses are from MALDI-FTICR-MS imaging measurements, MALDI-MS image field of view 72058 pixels, area 110 mm² and spatial resolution 50 μm, MALDI-FTICR-MS image field of view 22338 pixels, 5 mm² area and spatial resolution 15 μm. Images normalized with TIC).

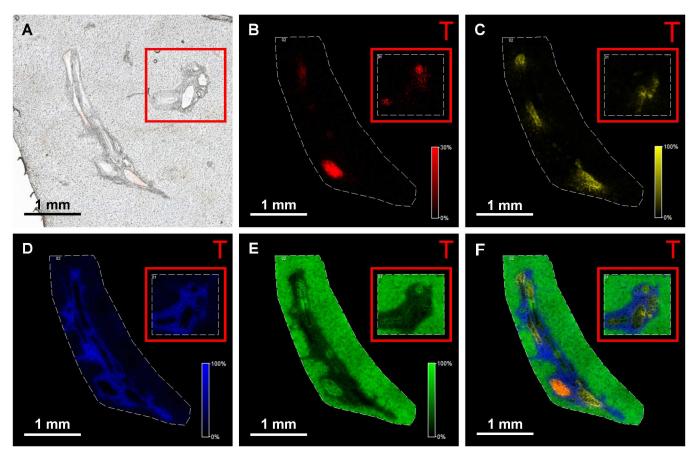


Figure S7. Multimodal imaging of liver from a patient with mild PSC (case 1). (A) Optical image of tissue section prior to matrix application. Positive-ion mode MALDI-FTICR-MS images showing the distribution of selected molecular species in the (B) bile duct lumen (unknown at m/z 560.2434), (C) heme ([M]⁺) at m/z 616.1804, (D) connective tissue ([PC (32:0)+K]⁺ at m/z 772.5251), (E) parenchyma ([PC (34:2)+K]⁺ at m/z 796.5254) and (F) overlay of the selected species. (Designated masses are from MALDI-FTICR-MS imaging measurements, field of view 20238 pixels, area 10 mm² and spatial resolution 15 μm. Images normalized with TIC).

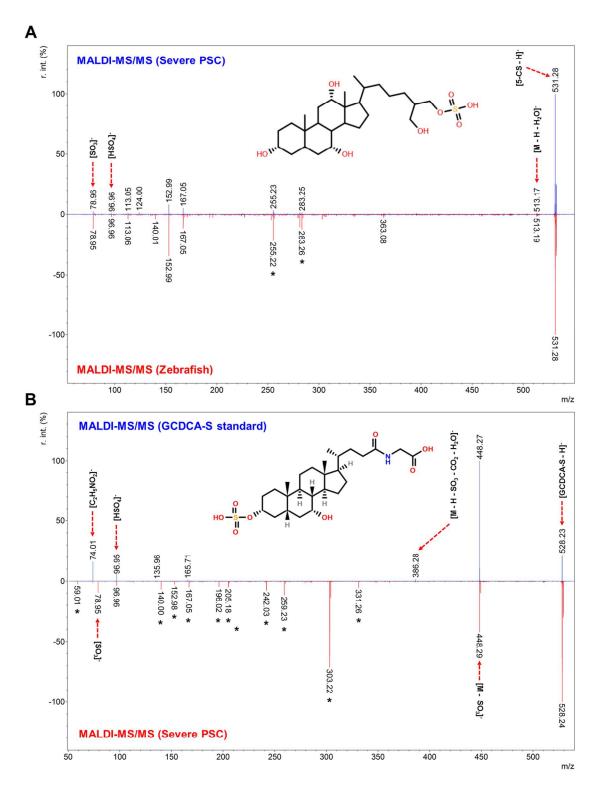


Figure S8. MALDI-MS/MS spectra of 5-CS and GCDCA-S in negative ion mode. A) MALDI-MS/MS spectra of 5-CS at m/z 531.3 obtained from severe PSC liver (blue) and whole-body zebrafish (red) tissue sections. B) MALDI-MS/MS spectra of G(C)DCA-S at m/z 528.2 obtained from pure standard (blue) and severe PSC liver tissue section (red). * indicated peaks come from unidentified endogenous species tentatively identified as fatty acids.

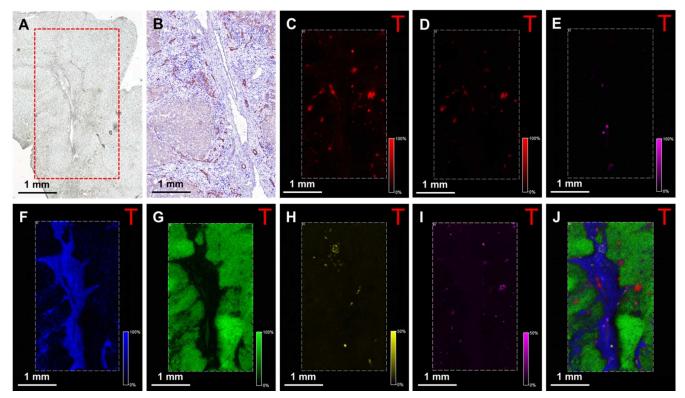


Figure S9. Comparison of immunohistochemical stain and MALDI-MS images from a patient with severe PSC (case 2). (A) Optical image of tissue section prior to matrix application and (B) cytokeratin staining of a consecutive tissue section. Negative-ion mode MALDI-MS images showing the distribution of (C) [TCA-H]⁻ at *m/z* 514.28, (D) 5-cyprinolsulfate ([M-H]⁻) at *m/z* 531.30, (E) heme ([M-H]⁻) at *m/z* 615.17, (F) [PA (18:0_18:1)-H]⁻ at *m/z* 701.51, (G) [PI (18:0_20:4)-H]⁻ at *m/z* 885.55, (H) [ST-OH (18:1_24:0)-H]⁻ at *m/z* 906.63 and (I) bilirubin diglucuronide ([M-H]⁻) at *m/z* 935.32. (J) Overlay of the selected species. (Field of view 81186 pixels, area 8 mm² and spatial resolution 10 μm. Images normalized with TIC).

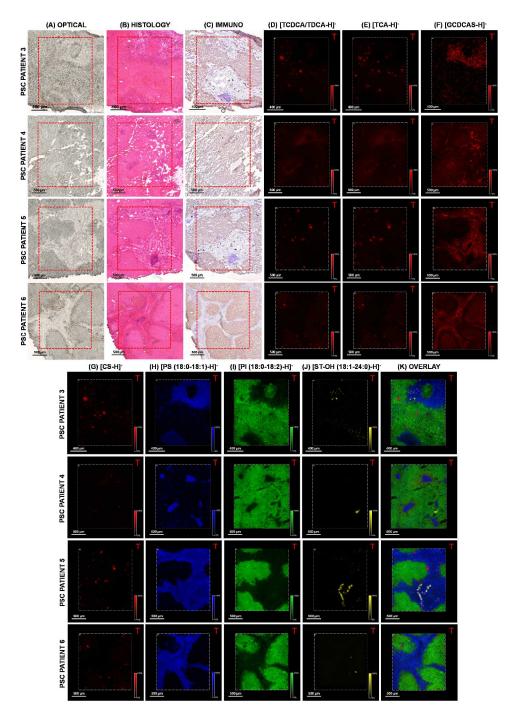


Figure S10. Multimodal imaging of liver tissue from patients with severe PSC (cases 3-6). (A) Optical image of tissue section prior to matrix application, (B) H&E staining of tissue sections post imaging and (C) cytokeratin staining of a consecutive tissue section. Negative-ion mode MALDI-FTICR-MS images showing the distribution of (D) [TCDCATDCA-H]⁻ at *m/z* 498.2896, (E) [TCA-H]⁻ at *m/z* 514.2844, (F) [G(C)DCAS-H]⁻ at *m/z* 528.2639, (G) [5-CS-H]⁻ at *m/z* 531.2998, (H) [PS (18:0_18:1)-H]⁻ at *m/z* 788.5449, (I) [PI (18:0_18:2)-H]⁻ at *m/z* 861.5502, (J) [ST-OH (18:1_24:0)-H]⁻ at *m/z* 906.6352 and (K) overlay of the selected species. (PSC 1-4 fields of view 10356, 25482, 18987 and 21872 pixels and areas 2.3, 5.7, 4.2 and 4.8 mm² respectively. Spatial resolution of all images 15 μm, normalized with TIC).

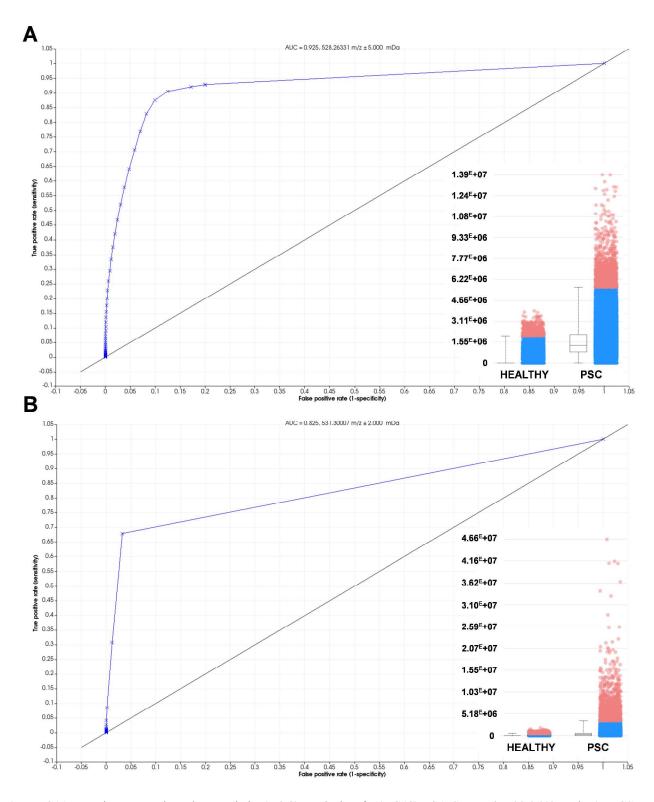


Figure S11. Receiver operating characteristic (ROC) analysis of A) G(C)DCA-S at m/z 528.2642 and B) 5-CS at m/z 531.2999 from healthy liver tissue and tissue from severe PSC cases. Inserts show the relative ion intensity of the displayed ions.

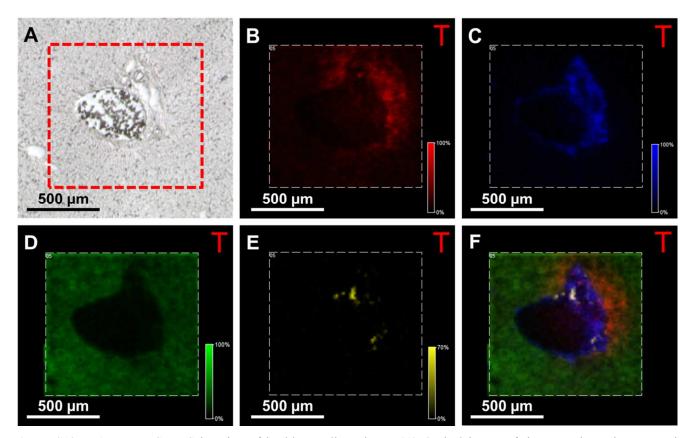


Figure S12. MALDI-FTICR-MS imaging of healthy rat liver tissue. (A) Optical image of tissue section prior to matrix application. Negative-ion mode MALDI-FTICR-MS images showing the distribution of selected molecular species in the (B) bile duct lumen ([TCA-H]⁻ at *m/z* 514.2845), (C) connective tissue ([PA (18:0_18:1)-H]⁻ at *m/z* 701.5129), (D) parenchyma ([PI (18:0_20:4)-H]⁻ at *m/z* 885.5499), (E) bile duct ([ST-OH (18:1_24:0)-H]⁻ at *m/z* 906.6348) and (F) overlay of the selected species. (Designated masses are from MALDI-FTICR-MS imaging measurements, field of view 4352 pixels, area 1 mm² and spatial resolution 15 μm. Images normalized with TIC).

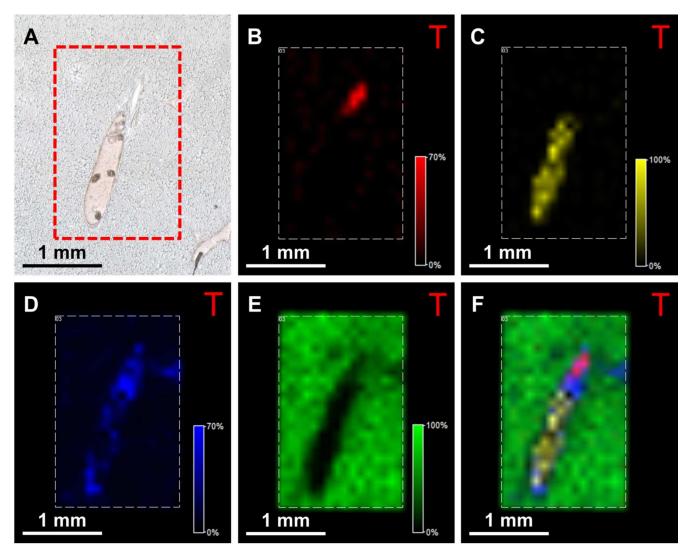


Figure S13. MALDI-FTICR-MS imaging of healthy rat liver tissue. (A) Optical image of tissue section prior to matrix application. Positive-ion mode MALDI-FTICR-MS images showing the distribution of selected molecular species in the (B) bile duct lumen (unknown at *m/z* 560.2414), (C) heme ([M]⁺) at *m/z* 616.1775, (D) connective tissue ([PC (32:0)+K]⁺ at *m/z* 772.5254), (E) parenchyma ([PC (38:4)+K]⁺ at *m/z* 848.5566) and (F) overlay of the selected species. (Designated masses are from MALDI-FTICR-MS imaging measurements, field of view 400 pixels, area 3.8 mm² and spatial resolution 100 μm. Images normalized with TIC).

Sample	Bilirubin (umol/L)	ALT (U/L)	AST (U/L)	ALP (U/L)	GGT (U/L)	INR
1 (mild)	15	15	19	N/A	21	1.05
2 (severe)	48*	76*	79*	365*	229*	1.1
3 (mild)	7	48*	56*	52	61*	N/A
4 (mild/severe)	56*	39	46*	110	21	1.6*
5 (severe)	80*	56*	83*	373*	146*	N/A
6 (severe)	147*	157*	258*	240*	104*	1.4*

Key: Alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), gamma glutamyltransferase (GGT), international normalized ratio (INR). * Represents values above the reference range.

Table S1. Serum biochemistry of PSC patients.

CONNECTIVE TISSUE	PARENCHYMA		
741.5309 851.6399 725.5568 835.6658 772.5254 756.5508 734.5691 703.5749 769.5626	Mass 796.5252 798.5410 780.5513 824.5561 820.5248 808.5847 758.5695 822.5406 806.5672 848.5562		
2.34E+10 2.34E+10 2.24E+10 2.23E+10 2.03E+10 1.96E+10 1.59E+10 7.59E+09 6.53E+09 6.18E+09 8.07E+08	Intensity 2.54E+11 1.44E+11 1.42E+11 1.11E+11 8.76E+10 7.15E+10 7.15E+10 6.76E+10 4.83E+10 4.53E+10		
[SM (34:1)+K]* [SM (32:1)+Na]* [SM (32:1)+Na]* [PC (32:0)+K]* [PC (32:0)+N]* [PC (18:1_16:0)+I]* [SM (36:1)+K]* [PC (18:0_18:0)+I]*	Identification [PC (34:2)+M*] [PC (34:2)+M*] [PC (34:2)+Na]* [PC (36:2)+N4]* [PC (36:3)+M*] [PC (180_20:5)+1]* [PC (180_18:2)+1]* [PC (36:3)+Ma]* [PC (36:3)+Ma]*	E CONNECTIVE TISSUE	PARENCHYMA
NOT THE	+ + + + + + + + + +	772.5254 774.5310 744.5310 851.6403 851.6403 852.6249 752.5258 800.5569 769.5623 762.6008	Mass 848.5566 820.5252 810.6008 782.5690 796.5253 846.5413 824.5565 844.5253 832.5827 798.5409
C39H79N2O6PK C47H93N2O6PK C47H93N2O6PNa C47H93N2O6PNa C40H80NO3PNa C40H80NO3PNa C40H81NO8P C40H83N2O6PK	Formula C42H80N08PK C42H80N09PN C42H80N09PN C44H80N08PK C44H8N08PK C44H8N08P C42H81N08P C42H81N08P C44H82N08PK C44H82N08PK	4 5.37E+08 0 4.66E+08 3 3.17E+08 4 2.85E+08 9 2.24E+08 5 1.74E+08 8 1.36E+03 9 1.13E+08 9 1.36E+08 9 1.36E+07	Intensity 6 6.36E+09 2 6.48E+09 8 2.93E+09 0 2.23E+09 3 1.98E+09 3 1.55E+09 3 1.51E+09 3 1.51E+09 9 1.27E+09
Na 0.285 Na 0.045 Na 0.045 Na 0.085 Na 0.778	Error (ppm) K 0.080 K 0.094 4a 0.094 C 0.581 C 0.471 O 0.110 C 0.487 4a 0.199 A 0.544	PC (32:0)+K *	RAT
741.5308 772.5251 851.6407 725.5569 756.5518 825.6243 835.6659 734.5694 703.5744	Mass 796.5254 824.5567 758.5697 820.5252 820.525410 786.6008 806.5665 784.5852 846.5414 794.5099		
1.34E+10 1.05E+10 8.95E+09 7.83E+09 6.50E+09 6.50E+09 5.95E+09 4.80E+09 4.71E+09 3.78E+09 3.21E+09	Intensity 8.38E+10 4.01E+10 3.33E+10 3.13E+10 2.31E+10 1.58E+10 1.27E+10 9.19E+09 7.99E+09 6.93E+09	C40H80NO8PK C39H79N2O6PK C47H93N2O6PK C40H81NC8P C40H81NC8PR C40H80NO8PNa C39H79N2O6PNa C42H84NO8PK C41H83N2O6PK C41H83N2O6PK C41H83N2O6PK	Formula C46H84NO8PK C44H80NO8PK C44H80NO8PK C46H85NC8P C42H80NO8PK C46H82NO8PK C46H82NO8PK C46H80NO8PK C46H80NO8PK C46H80NO8PK C46H80NO8PK
[SM (34:1)+K]* [PC (32:0)+K]* [SM (42:2)+K]* [SM (34:1)+Na]* [PC (32:0)+Na]* [SM (40:1)+K]* [SM (40:1)+K]* [SM (40:1)+K]* [PC (160_16:0)+H]* [SM (40:1)+Na]**	PC (34:2)+K PC (36:2)+K PC (36:2)+K PC (36:2)+K PC (36:3)+K PC (38:3)+K	0.122 0.396 0.017 -0.034 0.288 0.174 0.008 0.326 0.314 0.131	Error (ppm) 0.015 -0.184 0.113 -0.578 -0.002 0.340 -0.129 -0.036 -0.009 -0.057
		725.5570 756.5518 835.6663 741.5311 753.5886 809.6510 851.6405 772.5254 703.5750 734.5695	Mass 832.5825 848.5564 808.5851 810.6007 780.5517 824.5568 796.5256 782.5695 804.5517 820.5255
C39H79N2O6PK C40H80NO8PK C47H83N2O6PK C47H83N2O6PN C40H80NO8PN C45H91N2O6PN C47H93N2O6PN C47H93N2O6PN C47H93N2O6PN C49H80N2O6P C39H80N2O6P	C42H80NOSPK C44H84NOSPK C44H84NOSPK C44H82NOSPK C44H82NOSPK C44H82NOSPK C44H82NOSPN C44H82NOSPN C44H82NOSPK	1.61E+10 8 7.65E+09 3 7.47E+09 1 6.84E+09 6 5.34E+09 6 5.34E+09 6 5.34E+09 7 3.04E+09 9 3.04E+09 9 3.04E+09 9 3.04E+09 9 3.04E+09 9 3.04E+09	Intensity 5 1.27E+11 7 5.51E+10 7 7.13E+10 7 5.55E+10 8 4.57E+10 6 4.23E+10 6 4.23E+10 5 4.21E+10 7 4.05E+10 5 2.81E+10
0.140 -0.322 0.447 0.183 0.559 -0.356 -0.213 0.006 -0.575 -0.253	Error (ppm) 0.052 0.118 0.328 0.198 0.047 0.096 0.597 0.197 0.489 0.309	SM(34.1)+Na * PC(32.0)+Na * SM(42.2)+Na * SM(34.1)+K * SM(36.1)+Na * SM(40.1)+Na * SM(40.1)+Na * SM(42.2)+K * PC(32.0)+K * SM(18.1 16.0)+H *	DOG Identification Identification IDENTIFICATION IDENTIFICATION IDENTIFIC
756.5512 835.6666 772.5253 725.5569 851.6406 741.5308 734.5695 703.5750 800.5570 769.5623	Mass 796.5254 782.5692 798.5410 780.5514 808.5851 824.5568 804.5562 822.5411 760.5851		
3.05E+09 2.98E+09 2.74E+09 2.74E+09 2.50E+09 2.14E+09 1.89E+09 9.94E+08 5.28E+08 3.89E+08	Intensity 1.40E+10 1.39E+10 1.33E+10 1.32E+10 1.34E+10 9.35E+09 8.08E+09 5.72E+09 5.66E+09 4.79E+09 4.49E+09	C39H79N2O6PNa C40H80NO8PNa C47H9SN2O6PNa C39H79N2O6PK C41H83N2O6PNa C45H91N2O6PNa C47H93N2O6PK C47H93N2O6PK C40H80NO8PK C40H80NO8PK C39H80N2O6P	Formula C46H84NO8PNa C46H84NO8PN C46H83NO8P C46H85NO8P C42H80NO8PNa C44H84NO8PN C44H80NO8PNa C44H80NO8PNa C44H80NO8PNa C44H80NO8PNa
[PC (32:0)+Na]* [SM (42:2)+Na]* [PC (32:0)+K]* [PC (32:0)+K]* [SM (34:1)+Na]* [SM (34:1)+K]* [SM (34:1)+K]* [PC (16:0_16:0)+H]* [PC (16:0_16:0)+H]* [SM (36:1)+K]*	C42H C42PH C42H C42H C42H C42H	0.289 0.556 0.339 0.445 0.675 0.327 0.327 0.327 0.326 0.129 0.284 0.136	Error (ppm) -0.223 -0.304 -0.012 -0.018 -0.385 -0.244 -0.343 -0.029 -0.432 -0.432
C40H80NO8PNa C47H93N2O6PNa C40H80NO8PK C39H79N2O6PNa C47H93N2O6PNa C47H9N2O6PK C39H80N2O6P C40H81NO8PK C42H84NO8PK C41H83N2O6PK	C42H80NO8PK C42H80NO8PK C42H80NO8PK C42H80NO8PN C42H80NO8PN C42H80NO8PN C44H80NO8PN C44H80NO8PN C44H80NO8PK C44H80NO8PK C42H83NO8PK C42H83NO8PK		
0.264 0.359 -0.078 0.138 0.352 0.135 0.136 0.284 0.499 0.389	Error (ppm) 0.125 -0.277 0.125 0.125 0.128 0.055 0.242 -0.248 -0.121 0.122 0.054		

Table S2. Comparison of lipids present in the different areas of the liver across different species in positive ion mode.

									-									
r	Mass	T t-tit.		AT	F	[F()]	Mass	Internett.		OG	F/-	[Mass	1-1	HU Identificat	MAN	F	C()
-	Mass 885.5499	Intensity 2.73E+10	Identificati		Fomula C47H82O13P	0.039	885.549	Intensity 8 2.59E+10	Identification 201		Fomula C47H82O13P	-0.047	885.5501	Intensity 3.77E+11	0.000.000.000.000	0.000	Formula C47H82O13P	Error (ppm) 0.295
	766.5396	3.75E+09	[PI (18:0_20:		C47H82U13P	0.039	766.539		[PI (18:0_20:		C47H82O13P	0.504	861.5502	1.18E+11	[PI (18:0_20		C47H82O13P C45H82O13P	0.295
⋖	861.5497	3.68E+09	[PE (18:0_20		C45H77NO6F	-0.189	723.496		[PE (18:0_20:		C41H72O8P	-0.402	742.5394	7.19E+10	[PI (18:0_18		C45H62O13P	0.270
RENCHYMA	695.4658	3.13E+09	[PI (18:0 18: [PA (18:2_18		C39H68O8P	-0.169	742.539		[PE (18:0_18:		C41H77NO8P	-0.402	723.4970	5.23E+10	[PE (18:0 18 [PA (18:0 20		C41H77NO8P	-0.045
王	742.5393	3.06E+09			C41H77NO8P		695.465				C39H68O8P	-0.340	766.5395	4.95E+10			C43H77NO8P	0.314
ž	857.5188	2.95E+09	[PE (18:0_18		C45H78O13P		699.496		[PA (18:2_18 [PA (18:0_18		C39H72O8P	-0.314	835.5345	4.53E+10	[PE (18:0 20		C43H80O13P	0.374
쁜	833.5182	2.60E+09	[PI (16:0_20: [PI (16:0_18:		C43H78O13P	-0.454	764.523		[PE (18:1_20		C43H75NO8P	-0.582	695.4658	3.54E+10	[PI (16:0_18 [PA (18:2_18		C39H68O8P	0.133
PA	697.4813	1.79E+09	[PA (18:1 18		C39H70O8P	-0.110	794.570		[PE (18:0_22		C45H81NO8P	0.392	833.5187	2.93E+10	[PI (16:0_18		C43H78O13P	0.166
-	794.5707	1.65E+09	[PE (18:0_22		C45H81NO8P		861.549		[PI (18:0_18:		C45H82O13P	-0.323	747.4970	2.32E+10	[PA (18:0_22		C43H72O8P	-0.072
ļ	714.5081	1.46E+09	[PE (16:0_18		C39H73NO8P		697.48		[PA (18:1 18		C39H70O8P	-0.401	857.5185	2.05E+10	[PI (16:0 20		C45H78O13P	-0.096
_ [514.2845	2.61E+10	[TCA-H]		C26H44NO7S		514.284		[TCA-H]		C26H44NO7S	-0.264	498.2894	8.83E+09	[TCDCA/TD		C26H44NO6S	-0.106
LUMEN	512.2689	9.08E+09	[3-keto-TC/		C26H42NO7S		498.289		TCDCA/TDC		C26H44NO6S	-0.355	514.2844	6.68E+09	[ТСА-Н		C26H44NO7S	-0.044
5	498.2897	5.33E+09	[TCDCA/TD0		C26H44NO6S		512.268		[3-keto-TCA		C26H42NO7S C26H42NO6S	-0.273	496.2738	9.90E+08	[3-keto-TCDCA		C26H42NO6S	-0.108
	496.2738	3.65E+09	[3-keto-TCDCA/	IDCA-HJ	C26H42NO6S	-0.058	496.273		[3-keto-TCDCA/I		C26H42NO5S	-0.040 0.208	512.2688 448.3068	6.67E+08 1.40E+08	[3-keto-TC		C26H42NO7S C26H42NO5	0.126 -0.169
DUCT							482.294		[3 keto TLC/ [TLCA-H		C26H44NO5S	0.410	464.3016	1.11E+08	[GCDCA/GD [GCA-H		C26H42NO6	-0.316
7									ILOA-II	'			,	101.0.0=110.0	1-1-100]	ai .	((2,2,00)
빌																		
8																		
l																		
	878.6031 906.6346	3.11E+09 2.22E+09	[ST-OH (18:1_2 [ST-OH (18:1_2		C46H88NO128		906.634 878.603		[ST-OH (18:1_2 [ST-OH (18:1_2		C48H92NO12S C46H88NO12S	0.005 0.201	906.6346 794.5096	6.75E+08 3.02E+08	[ST-OH (18:1 [ST-OH (18:1		C48H92NO12S C40H76NO12S	0.069 0.258
	892.6186	1.75E+09	[ST-OH (18:1_2 [ST (41:1)		C47H90NO128	100000000000000000000000000000000000000	892.619	A CHARLEST CO.	[ST-OH (18:1_2 [ST (41:1)-		C47H90NO12S	0.201	904.6191	2.72E+08	[ST-OH (18:1		C48H90NO12S	0.235
c	904.6188	8.13E+08	[ST-OH (18:1_2		C48H90NO128		794.509		[ST-OH (18:1_1		C40H76NO12S	0.220	878.6034	2.52E+08	[ST-OH (18:1		C46H88NO12S	0.112
DUCT	876.5876	1.64E+08	[ST (40:2)		C46H86NO128		924.645		[ST (42:0)-		C48H94NO13S	0.432	924.6456	2.26E+08	[ST (42:0)		C48H94NO13S	0.540
ш	920.6500	1.14E+08	[ST(43:1)-		C49H94NO128		904.619		[ST-OH (18:1 2		C48H90NO12S	0.426	892.6188	2.11E+08	[ST (42.0)		C47H90NO12S	-0.112
	890.6398	9.56E+07	[ST (18:1 24		C48H92NO118		934.665		[ST-OH (18:1 2		C50H96NO12S	-0.320	922.6291	1.64E+08	[ST (41:1)		C48H92NO13S	-0.433
ш		Action of the second	,,.,			1000 (CO) (CO)	920.650	1 2.03E+08	[ST(43:1)-		C49H94NO12S	-0.108	778.5146	1.06E+08	[ST (18:1_16		C40H76NO11S	0.238
							896.613		[ST (40:0)-		C46H90NO13S	-0.111	890.6399	9.59E+07	[ST (18:1_24		C48H92NO11S	0.269
Į							778.514	3 1.10E+07	[ST (18:1 16:	:0)-H] ⁻	C40H76NO11S	-0.128	896.6135	9.14E+07	[ST (40:0))-H] ⁻	C46H90NO13S	-0.334
ш	701.5129		[PA (18:0_18	:1)-H] [*]	C39H74O8P	0.272	701.512		[PA (18:0_18		C39H74O8P	-0.192	701.5128	3.31E+10	[PA (18:0_18		C39H74O8P	0.142
TISSUE	788.5446	3.44E+09	[PS (18:0_18		C42H79NO10F		687.544		[SM (16:0_18:1		C38H76N2O6P	-0.145	687.5447	9.27E+09	[SM (16:0_18:		C38H76N2O6P	0.145
35	687.5448	2.99E+09	[SM (16:0_18:	1)-CH ₃]	C38H76N2O6F	0.290	788.544	8 4.88E+09	[PS (18:0_18	:1)-H] ⁻	C42H79NO10P	0.081	788.5449	8.88E+09	[PS (18:0_18	B:1)-HJ	C42H79NO10P	0.253
Η.													750.5441	4.34E+09	[PE (P-18:0_2	20:4)-H]	C43H77NO7P	-0.266
≥													812.5448	2.21E+09	[PS (18:0_20	0:3)-HJ	C44H79NO10P	0.123
C																		
Ä																		
CONNECTIVE																		
ö																		
						HUMAN (Mild PSC	1			ij	HUMAN (Adv	anced PS	C)				
				Mass	Intensity	Identificati	on	Formula	Error (ppm)	Mass	Intensity	Identification	on	Formula	Error (ppm)			
				885.549		[PI (18:0_20:		C47H82O13P	-0.033	861.549		[PI (18:0_18:	7.5.2	C45H82O13F C43H77NO8F				
			4	861.549 742.539		[PI (18:0_18:		C45H82O13P C41H77NO8P	0.027	766.539	2 1.18E+11	[PE (18:0_20:						
			Σ	142.539	3 9.94E+09	[PE (18:0_18												
				766 539	5 8 25F+09				0.080	887.565	3 1.02E+11	[PI (18:0-20:3	i)-H] (C47H84O13F	-0.294			
				766.539 723.497		[PE (18:0_20	:4)-H]	C43H77NO8P	0.332	835.534	3 1.02E+11 2 7.74E+10	[PI (18:0-20:3 [PI (16:0_18:	()-H] (C47H84O13F C43H80O13F	-0.294 -0.063			
			NC	766.539 723.497 697.481	0 6.31E+09	[PE (18:0_20 [PA (18:0_20	:4)-H] ⁻ :4)-H] ⁻	C43H77NO8P C41H72O8P	0.332 0.016	835.534 742.539	1.02E+11 7.74E+10 7.07E+10	[PI (18:0-20:3 [PI (16:0_18: [PE (18:0_18:	i)-H] (i)-H] (2)-H] (C47H84O13F C43H80O13F C41H77NO8F	-0.294 -0.063 -0.035			
			RENCI	766.539 723.497 697.481 835.534	0 6.31E+09 5 6.01E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18	:4)-H] :4)-H] :2)-H]	C43H77NO8P C41H72O8P C39H70O8P	0.332	835.534 742.539 857.518	1.02E+11 7.74E+10 7.07E+10 7.5.11E+10	[PI (18:0-20:3 [PI (16:0_18: [PE (18:0_18: [PI (16:0_20:4	i)-H] (i)-H] (2)-H] (i)-H] (C47H84O13F C43H80O13F C41H77NO8F C45H78O13F	-0.294 -0.063 -0.035 0.023			
			PARENCHYMA	766.539 723.497 697.481 835.534 883.534	0 6.31E+09 5 6.01E+09 5 5.38E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18 [PI (16:0_18:	:4)-H] :4)-H] :2)-H] 1)-H]	C43H77NO8P C41H72O8P	0.332 0.016 0.206	835.534 742.539	33 1.02E+11 7.74E+10 7.07E+10 7.5.11E+10 84 4.53E+10	[PI (18:0-20:3 [PI (16:0_18: [PE (18:0_18: [PI (16:0_20:4 [PI (16:0_18:3	i)-H] (i)-H] (2)-H] (i)-H] (2)-H] (C47H84O13F C43H80O13F C41H77NO8F	-0.294 -0.063 -0.035 -0.023 -0.036			
			PARENCI	766.539 723.497 697.481 835.534 883.534 695.466	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P	0.332 0.016 0.206 0.308	835.534 742.539 857.518 833.518	33 1.02E+11 42 7.74E+10 92 7.07E+10 87 5.11E+10 88 4.53E+10 79 4.12E+10	[PI (18:0-20:3 [PI (16:0_18: [PE (18:0_18: [PI (16:0_20:4	1)-H] (1)-H] (2)-H] (1)-H] (2)-H] (6)-H] (C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F	-0.294 -0.063 -0.035 -0.023 -0.336 -0.030			
			PARENCI		0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18 [PI (16:0_18: [PI (18:1_20:	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H] :2)-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P	0.332 0.016 0.206 0.308 -0.215	835.534 742.538 857.518 833.518 762.507	33 1.02E+11 12 7.74E+10 12 7.07E+10 13 5.11E+10 14 4.53E+10 15 4.12E+10 16 3.69E+10	[PI (18:0-20:3 [PI (16:0_18:1 [PE (18:0_18:1 [PI (16:0_20:4 [PI (16:0_18:1 [PE (16:0_22:4	1)-Hj (1)-Hj (2)-Hj (4)-Hj (2)-Hj (6)-Hj (4)-Hj (C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F C43H73NO8F	-0.294 -0.063 -0.035 -0.023 -0.336 -0.030 -0.389			
				695.466 833.518 498.289	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18 [PI (16:0_18: IPI (18:1_20: [PA (18:2_18 [PI (16:0_18: [TCDCA/TDC	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H] :2)-H] 2)-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H68O8P C43H78O13P	0.332 0.016 0.206 0.308 -0.215 0.352 0.231	835.534 742.539 857.518 833.518 762.500 810.529 859.534	33 1.02E+11 7.74E+10 12 7.07E+10 37 5.11E+10 88 4.53E+10 94 4.12E+10 14 3.69E+10 14 2.27E+10	[PI (18:0-20:3 [PI (16:0_18: [PE (18:0_18: [PI (16:0_20:4 [PI (16:0_22:4 [PS (18:0-20:4 [PI (16:0_20:4 [PI (16:0_20:4 [PI (16:0_20:4	(A)-HT (A	C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F C43H73NO8F C44H77NO10F C45H80O13F	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0336 0.0389 0.093			
				695.466 833.518 498.289	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18 [PI (16:0_18: [PI (18:1_20: [PA (18:2_18 [PI (16:0_18: [TCDCA/TDC [GCDCA/GDC	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H] :2)-H] 2)-H] CA-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H68O8P C43H78O13P C26H44NO6S C26H42NO5	0.332 0.016 0.206 0.308 -0.215 0.352 0.231	835.534 742.538 857.518 833.518 762.503 810.528 859.534	33 1.02E+11 7.74E+10 12 7.07E+10 13 7.511E+10 13 4.53E+10 19 4.12E+10 14 3.69E+10 11 3.48E+10 14 2.27E+10 14 1.93E+10	[PI (18:0-20:3 [PI (16:0_18: [PE (18:0_18: [PI (16:0_20: [PI (16:0_20: [PI (16:0_20: [PI (16:0_20:3 [TCA-H]]	(A H)	C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F C43H73NO8F C44H77NO10F C45H80O13F C26H44NO7S C26H44NO8S	0.294 -0.063 -0.035 -0.023 -0.336 -0.030 -0.389 -0.093			
				695.466 833.518 498.289	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 8 1.32E+09	[PE (18:0_20 [PA (18:0_20 [PA (18:1_8] [PI (16:0_18: [PI (18:1_20: [PA (18:2_18] [PI (16:0_18: [TCDCA/TDC [GCDCA/GDD [3-keto-TCDCA/	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H] :2)-H] 2)-H] CA-H] TDCA-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H68O8P C43H78O13P C26H44NO6S C26H42NO5 C26H42NO6S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231	835.534 742.538 857.518 833.518 762.507 810.528 859.534 514.284 498.288 531.298	33 1.02E+11 122 7.74E+10 27 7.07E+10 37 5.11E+10 88 4.53E+10 94 4.12E+10 94 3.69E+10 94 3.48E+10	[PI (18:0-20:3 PI (16:0_18: PE (18:0_18: PI (16:0_20:3 PE (16:0_18:3 PE (16:0_20:3 PI (16:0_20:3 PI (16:0_20:3 TDCA/TCDC Cyprinolsulfat)-H ()-H ()-H ()-H ()-H ()-H ()-H ()-H (C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H73NO8F C43H73NO8F C44H77NO10F C45H80O13F C26H44NO7S C26H44NO6S C27H47O8S	0 -0.294 -0.063 -0.035 -0.023 -0.030 -0.030 -0.030 -0.030 -0.093 -0.093			
			LOMEN	695.466 833.518 498.289 448.306 496.273 514.284	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 8 1.32E+09 4 9.69E+08	[PE (18:0_20 [PA (18:0_20 [PA (18:1_18) [PI (16:0_18: [PI (16:0_18: [PI (16:0_18: [TCDCA/TDC [GCDCA/GDG [3-keto-TCDCA/ [TCA-H]	:4)-H] :4)-H] :2)-H] 1)-H] 4)-Hi :2)-Hi 2)-Hi CA-H] CA-H]	C43H77NO8P C41H72O8P C39H70O8P C47H80O13P C47H80O13P C39H68O8P C43H78O13P C26H44NO6S C26H42NO5 C26H42NO5 C26H44NO7S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056	835.534 742.539 857.518 833.518 762.507 810.529 859.534 514.284 498.289 531.299 935.320	33 1.02E+11 12 7.74E+10 27 7.07E+10 37 5.11E+10 38 4.53E+10 99 4.12E+10 11 3.48E+10 14 2.27E+10 44 2.27E+10 66 1.95E+09 13 6.34E+08	[PI (18:0-20:3 [PI (16:0_18:] [PE (18:0_18:] [PI (16:0_20:] [PE (16:0_22:] [PS (18:0-20:] [PI (16:0_20:3 [TCA-H] [TDCA/TCDC [Cyprinolsulfat [Bilirubin DiGI)-Hi (1)-Hi (2)-Hi (2)-	C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F C43H73NO8F C44H77NO10F C45H80O13F C26H44NO7S C26H44NO8S C45H51N4O16	0 -0.294 -0.063 -0.035 -0.035 -0.036 -0.030 -0.030 -0.0389 -0.093 -0.021 -0.126 -0.173 -0.130			
			LOMEN	695.466 833.518 498.289 448.306 496.273 514.284	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 4 9.68E+08 5 7.60E+08	[PE (18:0_20) [PA (18:0_20) [PA (18:0_18:1_18) [PI (16:0_18:1] [PI (16:0_18:1) [PA (18:2_18) [PI (16:0_18:1] [TCDCA/TDC] [GCDCA/GDC] [3-keto-TCDCA/TDC] [TCA-H] [TLCA-H]	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H] 2)-H] 2)-H] CA-H] CA-H] TDCA-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H88O8P C43H78O13P C26H44NO6S C26H44NO6S C26H42NO5 C26H44NO7S C26H44NO7S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085	835.534 742.538 857.518 833.518 762.507 810.528 859.534 514.284 498.288 531.298 935.320 528.263	33 1.02E+11 12 7.74E+10 15 7.74E+10 16 7 5.11E+10 18 4.53E+10 14 3.69E+10 14 3.48E+10 14 2.27E+10 14 1.93E+10 14 1.93E+10 16 1.95E+09 16 1.95E+09 17 5.63E+08 18 5.63E+08	[PI (18:0-20:3 PI (16:0_18:3] PE (18:0_18:3] PI (16:0_20:3] PI (16:0_20:3) PE (16:0_20:3) PE (16:0_20:3) TCA-H] TDCA/TCDC Cyprinolsulfat Bilirubin DIG GCDCA sulfat	(A H) (C e e H) (C te	C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F C43H73NO8F 44H77NO10I C45H80O13F C26H44NO6S C27H47O8S 445H51N4O11 C26H42NO8S	0 -0.294 -0.063 -0.035 -0.035 -0.036 -0.030 -0.030 -0.039 -0.093 -0.093 -0.126 -0.173 -0.173 -0.130 -0.389			
			LOMEN	695.466 833.518 498.289 448.306 496.273 514.284	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 8 1.32E+09 4 9.69E+08 5 7.60E+08 9 2.95E+08	[PE (18:0_20) [PA (18:0_20) [PA (18:0_18: [PI (16:0_18: [PI (16:0_18: [PI (16:0_18: [TCDCA/TDC] [GCDCA/GDC] [3-keto-TCDCA/ [TCA-H] [TLCA-H] [3-keto-TLC]	:4)-H] :4)-H] :2)-H] 1)-H] 4)-H] :2)-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H68O8P C43H78O13P C26H44NO6S C26H42NO6S C26H42NO6S C26H44NO7S C26H44NO7S C26H42NO5S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029	835.534 742.538 857.518 833.518 762.501 810.528 859.534 514.284 498.286 531.299 935.320 528.260 759.288	33 1.02E+11 12 7.74E+10 12 7.74E+10 12 7.77E+10 13 5.11E+10 19 4.12E+10 14 3.69E+10 14 3.69E+10 14 1.93E+10 16 1.95E+09 13 6.4E+08 15 5.63E+08 12 4.68E+08	[PI (18:0-20:3 [PI (16:0_18:1)] [PI (18:0_20:4)] [PI (16:0_20:4)] [PI (16:0_20:4)] [PS (18:0-20:4)] [PS (18:0-20:4)] [TCA-H]] [TDCA/TCDC] [Cyprinolsulfat [Bilirubin Glu]	A H Co-H Co-H Co-H Co-H Co-H Co-H Co-H Co	247H84013F 243H80013F 245H78013F 245H78013F 243H73N08F 444H77N010I 245H80013F 226H44N07S 226H44N06S C27H4708S 445H51N401i 226H42N08S	0 -0.294 -0.063 -0.063 -0.035 -0.035 -0.036 -0.336 -0.336 -0.338 -0.093 -0.093 -0.173 -0.173 -0.173 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.173			
			E DUCT LUMEN	695.466 833.518 498.289 448.306 496.273 514.284 482.294 480.278 512.268	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 8 1.32E+09 4 9.69E+08 5 7.60E+08 5 2.95E+08 7 1.76E+08	[PE (18:0_20) [PA (18:0_20) [PA (18:1_18) [PI (16:0_18: [PI (16:0_18: [PI (16:0_18: [PI (16:0_18: [TCDCA/TDC] [GCDCA/GDC] [3-keto-TCDCA/TC	(4)-H] (4)-H] (4)-H] (1)-H] (4)-H] (2)-H] (2)-H] (2)-H] (2)-H] (3)-H] (4)-H] (5)-H] (6)-H] (7)-H] (7)-H] (8)-H] (8)-H] (8)-H] (8)-H] (8)-H] (8)-H] (8)-H] (8)-H]	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H88O8P C43H78O13P C26H44NO6S C26H44NO6S C26H42NO5 C26H44NO7S C26H44NO7S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085	835.534 742.538 857.518 833.518 762.507 810.528 859.534 514.284 498.288 531.298 935.320 528.263	33 1.02E+11 12 7.74E+10 12 7.74E+10 12 7.77E+10 13 5.11E+10 19 4.12E+10 14 3.69E+10 14 3.69E+10 14 1.93E+10 16 1.95E+09 13 6.4E+08 15 5.63E+08 12 4.68E+08	[PI (18:0-20:3 PI (16:0_18:3] PE (18:0_18:3] PI (16:0_20:3] PI (16:0_20:3) PE (16:0_20:3) PE (16:0_20:3) TCA-H] TDCA/TCDC Cyprinolsulfat Bilirubin DIG GCDCA sulfat	A H Co-H Co-H Co-H Co-H Co-H Co-H Co-H Co	C47H84O13F C43H80O13F C41H77NO8F C45H78O13F C43H78O13F C43H73NO8F 44H77NO10I C45H80O13F C26H44NO6S C27H47O8S 445H51N4O11 C26H42NO8S	0 -0.294 -0.063 -0.063 -0.035 -0.035 -0.030 -0.030 -0.030 -0.093 -0.093 -0.093 -0.126 -0.173 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.126 -0.126 -0.173 -0.389 -0.136 -0.126 -0.173 -0.136 -0.126 -0.173 -0.136			
			DUCT LUMEN	695.466 833.518 498.289 448.306 496.273 514.284 482.294 480.278 512.268	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 4 9.69E+08 5 7.60E+08 9 2.95E+08 0 6.60E+07	[PE (18:0_20) [PA (18:0_20) [PA (18:0_18: [PI (16:0_18: [PI (16:0_18: [PI (16:0_18: [TCDCA/TDC] [GCDCA/GDC] [3-keto-TCDCA/ [TCA-H] [TLCA-H] [3-keto-TLC]	(4)-Hī (4)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (3)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (7)-Hī (7	C43H77N08P C41H7Z08P C39H7008P C43H80013P C47H80013P C43H78013P C26H44N06S C26H42N06S C26H42N06S C26H44N07S C26H44N05S C26H44N05S C26H44N05S C26H42N05S C26H42N05S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.061	835.534 742.538 857.518 833.518 762.501 810.528 859.534 514.284 498.286 531.299 935.320 528.260 759.288	33 1.02E+11 12 7.74E+10 12 7.74E+10 12 7.77E+10 13 5.11E+10 19 4.12E+10 14 3.69E+10 14 3.69E+10 14 1.93E+10 16 1.95E+09 13 6.4E+08 15 5.63E+08 12 4.68E+08	[PI (18:0-20:3 [PI (16:0_18:1)] [PI (18:0_20:4)] [PI (16:0_20:4)] [PI (16:0_20:4)] [PS (18:0-20:4)] [PS (18:0-20:4)] [TCA-H]] [TDCA/TCDC] [Cyprinolsulfat [Bilirubin Glu]	A H Co-H Co-H Co-H Co-H Co-H Co-H Co-H Co	247H84013F 243H80013F 245H78013F 245H78013F 243H73N08F 444H77N010I 245H80013F 226H44N07S 226H44N06S C27H4708S 445H51N401i 226H42N08S	0 -0.294 -0.063 -0.063 -0.035 -0.035 -0.036 -0.336 -0.336 -0.338 -0.093 -0.093 -0.173 -0.173 -0.173 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.173			
			E DUCT LUMEN	695.466 833.518 498.289 448.306 496.273 514.284 482.294 480.278 512.268	0 6.31E+09 5 6.01E+09 5 5.38E+09 0 5.25E+09 0 5.01E+09 7 4.97E+09 5 1.58E+10 9 1.57E+09 4 9.69E+08 5 7.60E+08 9 2.95E+08 0 6.60E+07	[PE (18.0_20) [PA (18.1_18) [P] (18.1_18) [TCDCA/TDC [GCDCA/GDC [3-keto-TCDCA/F] [TCA-H] [TCA-H] [S-keto-TC, [3-keto-TC, [GLCA-H] [GLCA-H]	(4)-Hī (4)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (3)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (7)-Hī (7	C43H77NO8P C41H72O8P C39H70O8P C43H80O13P C47H80O13P C43H78O13P C26H44NO6S C26H44NO6S C26H44NO5S C26H44NO5S C26H44NO5S C26H44NO5S C26H42NO5S C26H42NO5S C26H42NO5S C26H42NO5S C26H42NO5S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.081 0.189	835.534 742.538 857.518 833.518 762.501 810.528 859.534 514.284 498.286 531.299 935.320 528.260 759.288	33 1.02E+11 12 7.74E+10 12 7.74E+10 12 7.77E+10 13 5.11E+10 19 4.12E+10 14 3.69E+10 14 3.69E+10 14 1.93E+10 16 1.95E+09 13 6.4E+08 15 5.63E+08 12 4.68E+08	[PI (18:0-20:3 [PI (16:0_18:1)] [PI (18:0_20:4)] [PI (16:0_20:4)] [PI (16:0_20:4)] [PS (18:0-20:4)] [PS (18:0-20:4)] [TCA-H]] [TDCA/TCDC] [Cyprinolsulfat [Bilirubin Glu]	A H Co-H Co-H Co-H Co-H Co-H Co-H Co-H Co	247H84013F 243H80013F 245H78013F 245H78013F 243H73N08F 444H77N010I 245H80013F 226H44N07S 226H44N06S C27H4708S 445H51N401i 226H42N08S	0 -0.294 -0.063 -0.063 -0.035 -0.035 -0.036 -0.336 -0.336 -0.338 -0.093 -0.093 -0.173 -0.173 -0.173 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.389 -0.173			
			E DUCT LUMEN	695,466 833,518 498,289 448,306 496,273 514,284 480,278 512,266 432,312 464,301	0 6.31±409 5 6.01±409 5 5.38±409 0 5.25±409 0 5.01±409 7 4.97±409 8 1.32±409 4 9.69±408 7 1.76±40 9 2.95±408 7 1.76±40 6.60±407 7 4.69±407 4 4.69±407	PE (18.0, 20 PA (18.0, 20 PA (18.0, 20 PA (18.1, 18 PP (16.0, 18: 18 PP (16.0, 18: 18: 18: 18: 18: 18: 18: 18: 18: 18:	(4)-Hī (4)-Hī (4)-Hī (2)-Hī (4)-Hī (2)-Hī (2)-Hī (2)-Hī (2)-Hī (3)-Hī (4)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (7)-Hī (7)-Hī (7)-Hī (8)-Hī (9)-Hī (9)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (1)-Hī (2)-Hī (3)-Hī (4)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (7)-Hī	C43H77MOBP C41H72OBP C39H70OBP C43H80O13P C47H80O13P C47H80O13P C47H80O13P C26H442NO5 C26H442NO5 C26H442NO5 C26H442NO5 C26H442NO5 C26H442NO5 C26H42NO5 C26H42NO5 C26H42NO5 C26H42NO5 C26H42NO5 C26H42NO5 C26H42NO6	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.029 -0.081 0.189 -0.150	835.534 742.538 857.518 833.518 762.507 810.529 859.534 514.284 498.286 531.299 935.320 528.263 759.286 533.256	33 1,02E+11 7,74E+10 12 7,74E+10 12 7,07E+10 77 5,11E+10 17 5,11E+10 19 4,12E+10 14 1,2E+10 14 2,27E+10 14 2,27E+10 14 1,93E+10 14 2,48E+10 14 2,48E+10 14 1,93E+10 15,53E+08 15,53E+08 16 1,53E+08 17 4,21E+07	PI (18.0-20:) PI (18.0-20:) PI (18.0-18:) PE (18.0-18:) PI (18.0-20:) PI (1	아버 () 아	247H80013F 243H80013F 241H77N08D 245H78013F 243H78013F 243H78013F 243H73N08E 243H73N08E 243H47N010I 245H44N07S 226H44N07S 226H44N07S 226H44N08S 339H43N401 333H35N406	2 - 0.224 - 0.063 - 0.063 - 0.023 - 0.035 - 0.036 - 0.030 - 0.899 - 0.030 - 0.099 - 0.093 - 0.173 - 0.173 - 0.389 - 0.179 - 0.243 - 0.244 - 0.173 - 0.389 - 0.039 -			
			E DUCT LUMEN	695,466 833,518 498,289 448,306 496,273 514,284 480,278 512,266 432,312 464,301	0 6.31E+09 5 5.38E+09 5 5.38E+09 0 5.28E+09 0 5.28E+09 7 4.97E+09 7 4.97E+09 8 1.32E+09 4 9.69E+08 5 7.60E+08 9 2.98E+08 0 6.60E+07 7 4.69E+07 4 1.50E+08 0 1.50E+08 0 1.50E+09	PE (18.0_20 PA (18.0_20	(4)-HT (4	C43H77NOSP C41H72OSP C39H70OSP C43H80013P C47H80013P C39H88OSP C49H78013P C26H44NOSS C26H44NOSS C26H44NOSS C26H44NOSS C26H44NOSS C26H42NOSS C26H42NOSS C26H42NOS C26H42NOS C26H42NOS C26H42NOS C26H42NOS C26H42NOS C26H42NOS	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.081 0.189 -0.150	835.534 742.538 857.518 833.518 762.507 810.529 859.534 514.284 498.289 531.299 935.329 528.263 759.288 583.250	33 1.02E+11 17.74E+10 12 7.74E+10 12 7.76E+10 17 5.11E+10 18 4.53E+10 19 4.12E+10 14 3.69E+10 14 2.27E+10 14 1.03E+10 1.13E+08 11 1.13E+08 11 1.13E+08	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-18: P (16.0-18: P (16.0-20: P	아버 (1) 아버 (2) 아버 (1) 아버 (2) 아	247H84013F 243H80013F 243H780013F 243H78013F 243H78013F 243H78013F 243H78013F 243H78013F 244H77N010I 245H80013F 226H44NO25 226H44NO25 227H47085 245H51N4011 226H42N085 339H33N401 233H33N406	0.0294 0.063 0.0035 0.023 0.0336 0.0306 0.0030 0.039 0.039 0.021 0.0126 0.0126 0.0128 0.0173 0.0			
			BILE DUCT LUMEN	695.466 833.518 498.289 448.306 496.273 514.284 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603	0 6.31E+00 5 0.30E+00 5 0.30E+00 0 5.25E+00 0 5.25E+00 7 1.50E+00 0 1.57E+00 8 1.32E+00 1 0.60E+07 7 2.95E+00 0 6.60E+07 7 4.60E+07 4 1.50E+00 0 5.15E+00 0 5.15E+00 1 4.86E+00	PE (18.0_20 PP (18.0_20 PP (18.0_20 PA (18.0_20 PA (18.1_18 PP (16.0_18:1_18 PP (16.0_18:1_18 PP (16.0_18:1_18 PP (16.0_18:1_18 PP (16.0_18:1_18 PP (16.0_18 PP	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (4)-Hī (2)-Hī (2	C48H77NOBP C41H72OBP C41H72OBP C43H70OBP C43H80O13P C43H80O13P C39H880BP C43H78013P C28H44NO6S C28H44NO6S C28H44NO7S C28H44NO7S C28H44NO7S C28H44NO5S C28H44NO5S C28H44NO5S C28H44NO5S C28H44NO5S C28H42NO5S C28H42NO5S C28H42NO5S C28H42NO5S C28H42NO5S C28H43NO5S C28	0.332 0.016 0.208 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.0189 -0.150	835.534 742.538 857.5118 833.514 762.500 810.526 859.534 514.284 498.285 531.299 935.320 528.266 759.288 583.256	33 1.02E+11 7.74E+10 12 7.74E+10 12 7.07E+10 37 5.11E+10 38 4.53E+10 99 4.12E+10 43 .69E+10 44 3.69E+10 44 1.93E+10 44 1.93E+10 45 5.63E+08 55 5.63E+08 50 4.88E+08 51 1.13E+08	P (18.0-20: P (18.0-20: P (18.0-20: P (18.0-18: P (18.0-18: P (18.0-20: P	() 나 비 () 나 () 나	247H80013F 243H80013F 243H78013F 243H78013F 243H78013F 243H78013F 243H73N03B 243H73N03B 245H44N075 226H44N075 226H44N075 226H44N075 226H42N038 339H43N401 333H43N401 448H92N0124 448H92N0124 448H90N0124	0.0294 0.063 0.0035 0.023 0.336 0.030 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.00			
			BILE DUCT LUMEN	695.466 833.518 498.269 448.306 496.273 514.264 482.294 480.278 512.268 432.312 464.301 906.634 892.619 878.603 904.619	0 6.318-00 5 50 6.0118-00 5 5 5.38E-00 0 5.25E-00 0 5.25E-00 0 5.018-00 5 7 4.97E-00 5 1.59E+10 9 2.95E-00 7 6.60E-07 7 4.69E-07 4 1.50E-00 0 5.15E+00 1 4.86E-00 1 3.86E-00 1 6.00E-07	PE (18.0, 20 PA ((4)-Hī (4)-Hī (2)-Hī (1)-Hī (4)-Hī (2)-Hī (2)-HI (2	C43H77NOBP C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H88O08P C39H88O08P C43H78013P C26H44NO5S C26H42NO5S C26H42NO5S C26H42NO5S C26H42NO5C C26H43NO5C C2	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.086 -0.085 -0.029 -0.081 0.189 -0.150	835.534 742.538 857.518 833.518 762.503 810.528 859.534 514.284 498.286 531.299 935.326 528.266 759.286 583.256	33 1,02E+11 2 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,07E+10 17 5,11E+10 18 4,5E+10 19 4,12E+10 14 3,8E+10 14 1,93E+10 14 1,93E+10 14 1,93E+10 14 1,93E+10 14 1,93E+10 14 1,93E+10 16 1,95E+09 16 1,13E+08 17 1,13E+08 17 4,21E+07 18 2,19E+07 17 1,17E+07 17 17 1,17E+07 17 17 17 17 17 17 17 17 17 17 17 17 17	P (18.0-20:) P (18.0-20:) P (18.0-18:) P (18.0-18:) P (18.0-18:) P (18.0-20:) P (1	아버 (아) 바 (아) 나 (아) 바 (아) 나 (아	247H84013F 243H80013F 243H80013F 243H78013B 243H78013B 243H78013B 243H78013B 243H78013B 243H80013B 225H444NO7S 225H444NO7S 225H444NO7S 225H444NO3S 235H43N401 226H42NO8S 339H43N401 233H33N401 248H92N012 448H92N012 448H92N012 448H92N012	0.024 -0.083 -0.003 -0.			
			DUCT BILE DUCT LUMEN	695.466 833.518 498.269 448.306 496.273 514.284 480.278 512.268 432.312 464.301 906.634 892.619 878.603 904.649 924.645	0 6,31E-00 0 6,31E-00 5 0 150E-00 0 5,25E-00 0 5,25E-00 0 5,25E-00 0 1,57E-00 8 1,32E-00 4 9,69E+00 7 1,70E-00 0 6,60E+07 7 4,69E+07 4 1,50E-00 0 5,15E-00 1 1,86E-00 1 3,86E-00 1 3,8	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (1)-Hī (2)-Hī (2	C43H77MOBP C41H72OBP C39H70OBP C43H80013P C43H80013P C43H80013P C43H80013P C43H8013P C39H880BP C43H78/013P C26H44NOS C26H44NOS C26H44NOS C26H44NOS C26H44NOS C26H44NOS C26H42NOS	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 -0.175 0.145 0.108	835.53- 742.538 857.518 833.518 762.501 810.529 859.532 514.284 498.288 531.299 935.320 528.265 759.288 563.256	33 1.02E+11 7.74E+10 12 7.74E+10 12 7.74E+10 13 5.11E+10 14 3.69E+10 14 3.69E+10 14 3.69E+10 14 1.93E+10 15 5.63E+08 16 3.48E+08 17 4.21E+07 18 2.19E+07 18 2.19E+07 17 4.7E+07 18 2.19E+07 18 2.19E+07 17 5.8.76E+06	P (18.0-20: P (18.0-20: P (18.0-20: P (18.0-18: P (18.0-18: P (18.0-20: P	아버 (아) 아이 (아) 아	247H84013F 243H80013F 243H80013F 243H78013F 243H78013F 243H78013F 243H78013F 243H78013F 245H80013F 226H44N075 226H44N075 226H44N075 236H43N086 237H4708S 248H93N012 248H93N012 248H93N012 248H93N012 248H93N012 248H93N012 248H93N012	0.0294 0.063 0.0035 0.023 0.0306 0.0030 0.0030 0.0030 0.0030 0.0031 0.0126			
			E DUCT BILE DUCT LUMEN	695.466 833.518 498.289 448.306 496.273 514.284 480.278 512.268 432.312 464.301 906.634 892.619 878.603 904.645 890.639	0 6.31E-09 5 6.75E-09 5 7.75E-09 6 7.75E-09 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	PE (18.0, 20 PA (18.0, 20 PA (18.0, 20 PA (18.1, 20 PA (18.1, 20 PA (18.1, 20 PA (18.2, 20 PA (18.1, 20 PA ((4)-Hī (2)-Hī (1)-Hī (2)-Hī (2	C43H77NOSP C41H72OSP C39H70OSP C43H80O13P C43H80O13P C39H88O3P C39H88O3P C43H78013P C26H44NO5S C26H42NO5S C26H42NO5S C26H42NO5 C26H43NO1012 C46H93N0112 C46H93N0112 C46H93N0112 C46H93N0112	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.086 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 -0.115 0.112 -0.175 0.145 0.108 0.108	835.53- 742.536 837.518 833.518 762.500 859.534 514.284 498.286 531.299 935.3256 906.634 904.618 778.514 878.603 890.636	33 1,02E+11 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,77E+10 13 5,5E+10 14 1,2E+10 14 1,34E+10 14 1,34E+10 14 1,34E+10 15 1,34E+10 16 1,95E+09 17 1,34E+08 18 2,19E+07 18 2,19E+07 18 1,13E+08 17 4,21E+07 18 1,19E+07 17 1,19E+07 18 1,76E+06 18 6,87E+06 18 6,87E+06	P (18.0-20:) P (18.0-20:) P (18.0-18:) P (18.0-18:) P (18.0-18:) P (18.0-20:) P (1	아버 (아) 아이 (아) 아	247-840-013F 241-77-008F 241-77-018F 241-77-018F 241-77-018F 241-77-019F 241-	0.0294 0.063 0.063 0.0336 0.0336 0.0336 0.0336 0.0399 0.0993 0.0173 0.021 0.0173 0.0389 0			
			DUCT BILE DUCT LUMEN	995.466 833.518 498.289 448.306 496.273 514.284 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.638 920.650	0 6.318-00 6.019-00 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.258-00 9.0 5.158-00 9.	PE (18.0_20 PP (18.0_20	(4)-Hī (2)-Hī (1)-Hī (2)-Hī (1)-Hī (2)-Hī (3)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (6)-Hī (7)-Hī (7)-HI (7	C49H77NOBP C41H72OBP C39H70OBP C43H80O13P C47H80O13P C47H80O13P C39H68OBP C49H78O13P C26H44NOS C26H44NOS C26H44NOS C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.029 -0.061 0.189 -0.150 0.112 -0.175 0.145 0.108 0.112 0.112 0.112 0.217	835.53- 742.536 837.518 833.518 762.500 859.534 514.284 498.286 531.299 935.3256 906.634 904.618 778.514 878.603 890.636	33 1.02E+11 7.74E+10 12 7.74E+10 12 7.74E+10 13 5.11E+10 14 3.69E+10 14 3.69E+10 14 3.69E+10 14 1.93E+10 15 5.63E+08 16 3.48E+08 17 4.21E+07 18 2.19E+07 18 2.19E+07 17 4.7E+07 18 2.19E+07 18 2.19E+07 17 5.8.76E+06	P (18.0-20: P (18.0-20: P (18.0-20: P (18.0-18: P (18.0-18: P (18.0-20: P	아버 (아) 아이 (아) 아	247H84013F 243H80013F 243H80013F 243H78013F 243H78013F 243H78013F 243H78013F 243H78013F 245H80013F 226H44N075 226H44N075 226H44N075 236H43N086 237H4708S 248H93N012 248H93N012 248H93N012 248H93N012 248H93N012 248H93N012 248H93N012	0.0294 0.063 0.063 0.0336 0.0336 0.0336 0.0336 0.0399 0.0899 0.0993 0.0173 0.0173 0.021 0.0173 0.0389 0.0173 0.0389 0			
			E DUCT BILE DUCT LUMEN	695.466 833.518 498.269 448.306 496.273 514.2264 480.278 512.268 432.312 464.301 906.634 892.619 878.603 904.645 890.639 924.645 890.638 920.650 862.608	0 6.31E-00 6.31E-00 7 6.31E-00 7 6.31E-00 7 6.31E-00 7 6.31E-00 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	IPE (18.0, 20 IPA (18.0, 2	(4)-Hī (2)-Hī (1)-Hī (2)-Hī (3)-Hī (4) (4)-Hī (5)-Hī (6)-Hī (7)-Hī (7)-H	C49H77NOSP C41H72O8P C39H70OSP C43H80O13P C47H80O13P C39H86O3P C39H86O3P C43H78013P C26H442NOS C26H42NOSS C26H42NOSS C26H42NOSS C26H42NOS C26H44NOS C26H44NO	0.332 0.016 0.208 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.061 0.189 -0.150 -0.112 -0.115 0.112 -0.175 0.145 0.112 0.112 0.112 0.115 0.112 0.115 0.112 0.115 0.112 0.115 0.112 0.115 0.115 0.112 0.115	835.53- 742.536 837.518 833.518 762.500 859.534 514.284 498.286 531.299 935.3256 906.634 904.618 778.514 878.603 890.636	33 1,02E+11 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,77E+10 13 5,5E+10 14 1,2E+10 14 1,34E+10 14 1,34E+10 14 1,34E+10 15 1,34E+10 16 1,95E+09 17 1,34E+08 18 2,19E+07 18 2,19E+07 18 1,13E+08 17 4,21E+07 18 1,19E+07 17 1,19E+07 18 1,76E+06 18 6,87E+06 18 6,87E+06	P (18.0-20:) P (18.0-20:) P (18.0-18:) P (18.0-18:) P (18.0-18:) P (18.0-20:) P (1	아버 (아) 아이 (아) 아	247-840-013F 241-77-008F 241-77-018F 241-77-018F 241-77-018F 241-77-019F 241-	0.0294 0.063 0.063 0.0336 0.0336 0.0336 0.0336 0.0399 0.0993 0.0173 0.021 0.0173 0.0389 0			
			E DUCT BILE DUCT LUMEN	995.466 833.518 498.289 448.306 496.273 514.284 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.638 920.650	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.25E-00 9 7 4.97E-00 5 1.59E-10 9 1.57E-00 8 1.32E-00 9 2.95E-00 9 2.95E-00 7 4.69E-07 7 4.69E-07 1 4.69E-07 1 3.68E-00 1 4.69E-00 1 5.15E-00 6 8.03E-07 6 6.73E-07 6 6.73E	PE (18.0_20 PP (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (1)-Hī (2)-Hī (3)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (6)-Hī (7)-Hī (7)-HI (7	C49H77NOBP C41H72OBP C39H70OBP C43H80013P C47H80013P C47H80013P C39H68OBP C49H78013P C26H44NOS C26H44NOS C26H44NOS C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.175 0.145 0.108 0.112 0.217 0.277 -0.385	835.53- 742.536 837.518 833.518 762.500 859.534 514.284 498.286 531.299 935.3256 906.634 904.618 778.514 878.603 890.636	33 1,02E+11 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,77E+10 13 5,5E+10 14 1,2E+10 14 1,34E+10 14 1,34E+10 14 1,34E+10 15 1,34E+10 16 1,95E+09 17 1,34E+08 18 2,19E+07 18 2,19E+07 18 1,13E+08 17 4,21E+07 18 1,19E+07 17 1,19E+07 18 1,76E+06 18 6,87E+06 18 6,87E+06	P (18.0-20:) P (18.0-20:) P (18.0-18:) P (18.0-18:) P (18.0-18:) P (18.0-20:) P (1	아버 (아) 아이 (아) 아	247-840-013F 241-77-008F 241-77-018F 241-77-018F 241-77-018F 241-77-019F 241-	0.0294 0.063 0.063 0.0336 0.0336 0.0336 0.0336 0.0399 0.0993 0.0173 0.021 0.0173 0.0389 0			
			BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.289 448.306 496.273 514.284 480.278 512.268 432.312 464.301 906.634 892.619 878.603 994.645 890.639 920.650 862.608 778.514 704.500	0 6.318-00 5 5.38E-00 90 5.25E-00 90 5.15E-00 90 90 5.15E-00 90 90 90 90 90 90 90 90 90 90 90 90 9	PE (18.0, 20 PA (18.0, 20 PA (18.0, 20 PA (18.1, 18 PA (18.0, 20 PA (18.1, 18 PA (18.0, 20 PA (18.2, 18 PA (18.0, 20 PA (18.1, 20 PA ((4)-HI (4)-HI (2)-HI (1)-HI (2)-HI (3)-HI (4)-HI (4)-HI (4)-HI (5)-HI (6)-HI (6)-HI	C48H77NOSP C41H72O8P C39H70OSP C43H80O13P C43H80O13P C39H880OSP C39H880OSP C43H78013P C26H442NOSS C26H42NOSS C26H42NOSS C26H42NOSS C26H42NOS C26H49NOS C26H4	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.086 -0.085 -0.029 -0.081 0.112 -0.150 -0.150 -0.145 0.108 0.112 0.145 0.108 0.112 0.175 0.145 0.108 0.112 0.217 0.385 -0.314	835.53-55-55-74.28-55-75-28-75	33 1,02E+11 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 12 7,74E+10 13 5,0E+10 14 1,12E+10 14 1,12E+10 14 1,13E+10 14 2,27E+10 14 1,93E+10 14 2,27E+10 14 1,93E+10 15 5,63E+08 15 5,63E+08 16 1,13E+08 17 4,21E+07 18 2,19E+07 18 1,19E+07 18 1,19E+0	P (18.0-20:) P (18.0-20:) P (18.0-18:) P (18.0-18:) P (18.0-18:) P (18.0-20:) P (1	아버 (아) 아	247-840-135-241-87	0.0294 0.0083 0.0083 0.0336 0.0336 0.0336 0.0309 0.			
			E BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.288 448.305 514.284 480.273 514.286 432.312.486 432.312 464.301 906.634 892.619 878.603 904.645 890.633 904.645 890.633 920.650 862.608 778.514 704.500	0 6,318-00 6 0,000 6 0	PE (18.0_20 PP (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (3)-Hī (3)-Hī (4)-Hī (3)-Hī (4)-Hī (3)-Hī (4)-Hī (4)-Hī (4)-Hī (5)-Hī (6)-Hī (6	C49H77NOBP C41H72OBP C39H70OBP C43H80013P C43H80013P C47H80013P C39H68OBP C49H78013P C26H44NOS6 C26H44NOS6 C26H44NOS6 C26H44NOS7 C26H44NOS7 C26H44NOS7 C26H44NOS7 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H44NOS7 C26H42NOS6 C26H44NOS7 C26H42NOS6 C26H42NOS6 C26H42NOS6 C26H44NOS7 C26H42NOS6 C39H74NOS6 C39H74OSP	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.029 -0.081 0.189 -0.150 0.112 -0.175 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	33 1.02E+11 27.74E+10 12 7.74E+10 17 75:11E+10 18 4.53E+10 19 4.12E+10 14 3.69E+10 14 2.27E+10 14 1.93E+10 14 2.27E+10 14 1.93E+10 15 5.03E+08 15 6.34E+08 15 6.34E+08 17 4.21E+07 18 2.19E+07 17 1.19E+07 15 1.27E+07 16 7.6E+06 17 1.19E+07 17 1.19E+07 18 3.44E+06 17 6.26E+10 17 6.26E+10 17 6.26E+10	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-18: P (16.0-18: P (16.0-20: P	()-)-비 ()-)-비 ()-)-비 ()-)-비 ()-)-비 ()-)-비 ()	247-840-13F 243-1800-13F 243-14780-13F 243-14780-13F 243-14780-13F 243-14780-13F 243-14780-13F 2261-144NO-8 2261-144NO-8 2261-144NO-8 2261-144NO-8 2261-142NO-8 391-143NO-12 244-192NO-12 2481-192NO-12 2481-192NO-12 2481-1481-1481-1481-1481-1481-1481-1481-	0.0294 0.063 0.0035 0.0336 0.0336 0.0306 0.0030 0.0399 0.0126 0.0126 0.0128 0.0128 0.0128 0.0129 0.0399 0.0389 0.0213 0.0213 0.0213 0.0306 0.0309 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399 0.0399			
			E BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.288 448.305 514.284 480.273 514.286 432.312.486 432.312 464.301 906.634 892.619 878.603 904.645 890.633 904.645 890.633 920.650 862.608 778.514 704.500	0 6.31E+00 0 6.31E+00 1 5.38E+00 0 5.25E+00 0 6.25E+00 0 5.25E+00 0 6.25E+00	IP (18.0, 20 IPA (18.0, 20	(4)-HT (4)-HT (2)-HT (4)-HT (4	C49H7ANOSP C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H86O8P C39H86O8P C43H78013P C26H442NOS C26H42NOS C36H40NOS C36H40NOS C36H40NOS C36H40NOS C36H40NOS C39H740S C39H740S C39H740S C39H740S C39H740S C39H740S	0.332 0.016 0.208 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.056 -0.085 -0.029 -0.061 0.112 -0.1150 -0.1150 -0.1150 -0.112 -0.175 0.145 0.112 0.217 0.385 -0.335 -0.314	835.53.6 857.514.833.515.7514 833.515.7514 830.525 850.532 514.288.6 531.299 906.633.296 906.633.296 907.851 907.851 908.851 9	33 1.02E+11 7.74E+10 17.74E+10 17.74	P (18.0-20: P (18.0-20: P (18.0-20: P (18.0-18: P (18.0-18: P (18.0-18: P (18.0-20: P	아버 () 아	247-840-13F 241-477-108F 241-478-013F 243-478-013F 243-478-013F 243-478-013F 243-478-013F 243-478-013F 226-444-108-6 246-48-108-108-108-108-108-108-108-108-108-10	0.0294 0.063 0.0035 0.023 0.336 0.030 0.093 0.099			
			TISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.284 448.306 496.273 514.284 480.278 512.266 432.312 464.301 906.634 892.619 924.645 890.639 924.645 704.500 778.514 704.500	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.5E-00 9 1.57E-00 8 1.58E-10 9 1.57E-00 8 1.58E-00 1 1 1.58E-00 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2)-HI (2	C43H77AOBP C43H80013P C43H80013P C43H80013P C33H8800B C43H8013P C33H8800B C43H78013P C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-20: P	아버 () 아	247-840-135-243-140-135-243-140-135-243-140-135-243-140-135-2261-444NO-135-2261-44NO-135-2261-44NO-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-1	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			
			ETISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.268 448.306 496.273 514.264 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.639 920.650 862.608 778.514 774.500	0 6.318-00 5 5 5.38E-00 9 0 5.25E-00 90 5 5.58E-00 90 5 5.58E-00 90 5 6.58E-00 90 5.58E-00	IP (18.0, 20 IPA (18.0, 20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2)-HI (2	C49H7ANOSP C41H72O8P C39H70O8P C43H80O13P C47H80O13P C39H86O8P C39H86O8P C43H78013P C26H442NOS C26H42NOS C36H40NOS C36H40NOS C36H40NOS C36H40NOS C36H40NOS C39H740S C39H740S C39H740S C39H740S C39H740S C39H740S	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53.6 857.514.833.515.7514 833.515.7514 830.525 850.532 514.288.6 531.299 906.633.296 906.633.296 907.851 907.851 908.851 9	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (18.0-18: P (18.0-18: P (18.0-18: P (18.0-20: P	아버 () 아	247-840-13F 241-477-108F 241-478-013F 243-478-013F 243-478-013F 243-478-013F 243-478-013F 243-478-013F 226-444-108-6 246-48-108-108-108-108-108-108-108-108-108-10	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			
			ETISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.268 448.306 496.273 514.264 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.639 920.650 862.608 778.514 774.500	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.5E-00 9 1.57E-00 8 1.58E-10 9 1.57E-00 8 1.58E-00 1 1 1.58E-00 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2)-HI (2	C43H77AOBP C43H80013P C43H80013P C43H80013P C33H8800B C43H8013P C33H8800B C43H78013P C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-20: P	아버 () 아	247-840-135-243-140-135-243-140-135-243-140-135-243-140-135-2261-444NO-135-2261-44NO-135-2261-44NO-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-1	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			
			ETISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.268 448.306 496.273 514.264 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.639 920.650 862.608 778.514 774.500	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.5E-00 9 1.57E-00 8 1.58E-10 9 1.57E-00 8 1.58E-00 1 1 1.58E-00 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2)-HI (2	C43H77AOBP C43H80013P C43H80013P C43H80013P C33H8800B C43H8013P C33H8800B C43H78013P C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-20: P	아버 () 아	247-840-135-243-140-135-243-140-135-243-140-135-243-140-135-2261-444NO-135-2261-44NO-135-2261-44NO-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-1	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			
			ETISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.268 448.306 496.273 514.264 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.639 920.650 862.608 778.514 774.500	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.5E-00 9 1.57E-00 8 1.58E-10 9 1.57E-00 8 1.58E-00 1 1 1.58E-00 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2)-HI (2	C43H77AOBP C43H80013P C43H80013P C43H80013P C33H8800B C43H8013P C33H8800B C43H78013P C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-20: P	아버 () 아	247-840-135-243-140-135-243-140-135-243-140-135-243-140-135-2261-444NO-135-2261-44NO-135-2261-44NO-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-1	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			
			TISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.268 448.306 496.273 514.264 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.639 920.650 862.608 778.514 774.500	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.5E-00 9 1.57E-00 8 1.58E-10 9 1.57E-00 8 1.58E-00 1 1 1.58E-00 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2)-HI (2	C43H77AOBP C43H80013P C43H80013P C43H80013P C33H8800B C43H8013P C33H8800B C43H78013P C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-20: P	아버 () 아	247-840-135-243-140-135-243-140-135-243-140-135-243-140-135-2261-444NO-135-2261-44NO-135-2261-44NO-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-1	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			
NOT			ETISSUE BILE DUCT BILE DUCT LUMEN	695.466 833.518 498.268 448.306 496.273 514.264 482.294 480.278 512.266 432.312 464.301 906.634 892.619 878.603 904.619 924.645 890.639 920.650 862.608 778.514 774.500	0 6.318-00 5 5 5.38E-00 9 5.25E-00 9 5.25E-00 9 5.5E-00 9 1.57E-00 8 1.58E-10 9 1.57E-00 8 1.58E-00 1 1 1.58E-00 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1.58E-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PE (18.0_20 PA (18.0_20	(4)-Hī (4)-Hī (2)-Hī (1)-Hī (2)-Hī (2	C43H77AOBP C43H80013P C43H80013P C43H80013P C33H8800B C43H8013P C33H8800B C43H78013P C26H44NOS C26H42NOS C	0.332 0.016 0.206 0.308 -0.215 0.352 0.231 0.090 0.086 0.030 -0.085 -0.029 -0.081 0.189 -0.150 -0.112 0.112 0.112 0.115 0.145 0.108 0.112 0.217 0.277 -0.385 -0.314	835.53-53-53-53-53-53-53-53-53-53-53-53-53-5	133 1.02E+11 1	P (18.0-20: P (18.0-20: P (18.0-20: P (16.0-20: P	아버 () 아	247-840-135-243-140-135-243-140-135-243-140-135-243-140-135-2261-444NO-135-2261-44NO-135-2261-44NO-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-135-2361-4380-1	0.0294 0.063 0.0035 0.023 0.0336 0.0336 0.0396 0.021 0.0126 0.0126 0.0128 0.0179 0.021 0.0179 0.0243 0.0141 0.			

NOTES

All peaks identified by MALDI-FTICR-MS, MALDI-MS/MS and databases/literature.
Species in negative ion species were observed exclusively as deprotonated ((M-H]-) species.

Key: Bile acids (BA), Phosphatidic acid (PA), Phosphatidylethanolamine (PE), Phosphatidylserine (PS),

Phosphatidylinositol (P1), Phosphatidylsholline (PC), Sphingomyelin (SM), Sulfatide (SM) and Hydroxyl-sulfatide (ST-OH).

Table S3. Comparison of lipids present in the different areas of the liver across different species in negative ion mode.

Identity	Mass	ROC value
[TCDCA/TDCA-H]	498,2896	0.626
[TCA-H]	514,2844	0.721
[Bilirubin-H] ⁻	583,2561	0.568
[PS (18:0-18:1)-H] ⁻	788,5449	0.684
[PI (18:0-18:2)-H] ⁻	861,5502	0.551
[ST-OH (18:1-24:0)-H] ⁻	906,6352	0.439

Table S4. ROC values for other molecular markers.