

**Table S1.** Calculation of doses of particular mycotoxins in the study.

Mycotoxin	Concentration of mycotoxins in milk thistle-based dietary supplement (ng/g)*	Concentration of mycotoxins considered for administration of mice (multiplied by 1000), ng/g	Producer's recommended daily dose (DD) of preparation		ng of mycotoxins in daily dose	ng of mycotoxins per kg of b. w. and day	ng of mycotoxins per mouse (0.03 kg) and day
			No of tablets*	Weight of the tablet (g)*			
AOH	6 834	6 834 000	2	0.83	11 344 440	162 063	4 862
AME	2 441	2 441 000			4 052 060	57 887	1 737
DON	6 477	6 477 000			10 751 820	153 597	4 608
ZEA	282	282 000			468 120	6 687	201
T-2	5 958	5 958 000			9 890 280	141 290	4 239
HT-2	2 985	2 985 000			4 955 100	70 787	2 124
DAS	36	35 973			59 716	853	26
TEN	2 127	2 127 000			3 530 820	50 440	1 513
BEA	3 891	3 891 000			6 459 060	92 272	2 768
ENN-A	722	722 000			1 198 520	17 122	514
ENN-A1	1 142	1 142 000			1 895 720	27 082	812
ENN-B	2 918	2 918 000			4 843 880	69 198	2 076
ENN-B1	1 822	1 822 000			3 024 520	43 207	1 296

\* estimated based on our previous study (Fenclova et al., 2019), sample No 21, coded as CZ 2.

**Table S2:** The fold changes for 92 lipid features filtered by ANOVA. The lipids are ordered by the lipid class and fatty acid chains. The fold changes are expressed as  $\log_2(\text{FC})$ , so the breakpoint between downregulation and upregulation is equal to 0. The fold changes over 50% are highlighted in red).

Lipid name @ retention time (min) @ $m/z$		FC					
		B2 over A1	C3 over A1	D4 over A1	B2 over C3	B2 over D4	D4 over C3
CER	Cer(18:1/16:0)@9.69@596.5242	0.25	-0.03	0.18	0.28	0.07	0.21
	Cer(18:1/23:0)@12.76@694.6332	0.43	0.00	0.22	0.43	0.21	0.22
	Cer(18:2/23:0)@11.99@632.5962	0.41	0.03	0.22	0.38	0.18	0.19
	Cer(25:2/15:0)@11.84@678.6015	0.51	0.05	0.20	0.46	0.31	0.15
DG	DG(16:0/18:2)@9.99@610.5401	0.31	0.27	0.41	0.04	-0.10	0.14
	DG(18:1/18:1)@10.56@638.5713	0.37	0.22	0.57	0.15	-0.20	0.35
	DG(18:1/18:2)@10.01@636.5559	0.60	0.36	0.56	0.24	0.04	0.20
	DG(18:1/20:4)@9.82@660.5557	0.68	0.35	0.50	0.33	0.18	0.15
	DG(18:2/18:2)@9.47@634.5400	0.80	0.47	0.64	0.34	0.16	0.17
	DG(18:2/20:1)@10.75@664.5865	0.84	0.28	0.48	0.56	0.36	0.20
	DG(18:2/20:4)@9.18@658.5387	0.97	0.44	0.60	0.53	0.37	0.15
	DMPE(16:0/18:1)@9.65@744.5508	-0.25	-0.07	-0.06	-0.18	-0.19	0.01
FFA	FA(18:1)@5.16@281.2481	0.42	0.24	0.22	0.18	0.20	-0.02
	FA(22:5)@4.11@329.2476	1.08	0.45	0.02	0.63	1.06	-0.43
FAHFA	FAHFA(16:1/18:3)@3.79@529.4217	0.35	0.16	0.44	0.20	-0.09	0.29
	FAHFA(16:1/20:4)@3.86@555.4373	0.26	0.11	0.35	0.15	-0.09	0.24
	FAHFA(18:0/22:3)@6.28@615.5330	0.32	0.22	0.29	0.10	0.03	0.07
	FAHFA(20:1/22:3)@6.46@641.5474	0.99	0.40	0.34	0.59	0.65	-0.06
	FAHFA(20:4/18:3)@3.64@579.4372	0.04	0.14	0.29	-0.10	-0.25	0.15
	HexCer(18:1/22:1)@10.75@780.6329	-0.46	-0.01	-0.12	-0.45	-0.35	-0.10
	HexCer(22:1/16:0)@10.81@754.6174	-0.36	-0.04	-0.17	-0.32	-0.19	-0.13
LPC	LPC(18:0)@3.56@524.3706	0.39	0.16	0.24	0.23	0.15	0.08
	LPC(19:0)@4.56@538.3858	0.58	0.41	0.35	0.17	0.23	-0.06

	LPC(20:4)@2.05@544.3383	0.51	0.49	0.17	0.02	0.35	-0.32
	LPC(22:5)@2.32@570.3545	0.30	0.57	-0.03	-0.27	0.33	-0.60
PC	PC(16:0/18:2)@9.20@816.5725	-0.24	-0.06	-0.04	-0.17	-0.20	0.03
	PC(16:0/20:1)@9.97@788.6163	-0.30	-0.15	-0.14	-0.15	-0.16	0.01
	PC(16:0/20:4)@8.51@782.5678	0.03	0.07	-0.04	-0.04	0.07	-0.11
	PC(16:0/22:6)@8.27@806.5675	0.04	0.08	-0.15	-0.05	0.19	-0.24
	PC(18:0/18:1)@10.52@846.6209	-0.33	-0.16	-0.08	-0.17	-0.25	0.08
	PC(18:0/18:2)@9.80@844.6046	-0.15	-0.08	0.00	-0.08	-0.16	0.08
	PC(18:0/20:3)@10.30@870.6196	-0.55	-0.02	0.19	-0.52	-0.73	0.21
	PC(18:0/20:3)@9.57@812.6147	-0.25	-0.11	-0.05	-0.15	-0.21	0.06
	PC(18:0/22:5)@9.96@894.6195	-0.12	0.26	-0.39	-0.38	0.27	-0.65
	PC(18:0/22:6)@9.02@834.5993	0.00	0.02	-0.18	-0.02	0.18	-0.19
	PC(18:1/18:2)@9.34@842.5886	-0.27	-0.01	0.02	-0.25	-0.29	0.03
	PC(18:1/20:3)@8.95@810.5973	-0.12	-0.02	-0.05	-0.11	-0.07	-0.03
	PC(18:1/22:6)@8.57@890.5885	0.10	0.13	-0.16	-0.03	0.27	-0.30
	PC(18:2/20:4)@8.04@864.5729	0.03	0.19	-0.07	-0.15	0.11	-0.26
	PC(18:2/22:6)@7.71@830.5656	0.17	0.36	-0.12	-0.18	0.29	-0.48
	PC(34:3)@8.03@778.5360	0.20	-0.01	0.14	0.21	0.06	0.16
	PC(36:1)@9.95@810.5989	-0.50	-0.27	-0.37	-0.23	-0.13	-0.10
	PC(38:2)@10.08@836.6136	-0.42	-0.21	-0.43	-0.21	0.01	-0.22
	PC(38:6)@7.92@828.5508	0.04	0.19	0.01	-0.16	0.03	-0.18
	PC(40:7)@8.38@854.5664	0.16	0.13	-0.02	0.03	0.19	-0.15
	PC(40:8)@7.71@852.5508	0.15	0.29	-0.10	-0.13	0.25	-0.39
PE	PE(16:0/18:2)@8.88@716.5229	-0.18	-0.13	0.11	-0.05	-0.29	0.24
	PE(16:0/18:2)@9.13@714.5057	-0.31	-0.14	0.04	-0.17	-0.35	0.18
	PE(16:0/20:4)@8.92@738.5059	-0.20	-0.06	-0.06	-0.14	-0.14	0.00
	PE(16:0/22:6)@8.65@762.5064	-0.06	0.00	-0.10	-0.06	0.04	-0.10
	PE(18:0/18:1)@10.73@744.5521	-0.10	-0.07	0.16	-0.02	-0.26	0.24
	PE(18:0/18:2)@10.02@742.5370	-0.27	-0.24	0.00	-0.03	-0.27	0.25

	PE(18:0/20:3)@10.22@768.5502	-0.35	-0.27	-0.08	-0.07	-0.27	0.20
	PE(18:0/20:4)@9.85@766.5371	-0.16	-0.08	-0.07	-0.08	-0.08	0.01
	PE(18:0/22:6)@9.57@790.5376	-0.11	-0.14	-0.16	0.02	0.05	-0.03
	PE(18:1/18:2)@9.23@740.5214	-0.09	-0.07	0.10	-0.01	-0.18	0.17
	PE(18:1/20:3)@9.63@766.5366	-0.31	0.02	-0.12	-0.33	-0.19	-0.14
	PE(18:1/20:4)@9.27@764.5214	-0.08	0.18	-0.27	-0.26	0.19	-0.45
	PE(34:3)@8.23@714.5066	0.05	-0.03	0.34	0.08	-0.29	0.37
	PE(36:1)@10.15@746.5685	-0.13	-0.10	0.15	-0.04	-0.28	0.24
	PE(36:2)@9.60@744.5547	-0.09	-0.16	0.12	0.06	-0.22	0.28
	PE(36:3)@8.95@742.5382	0.02	-0.05	0.21	0.07	-0.19	0.25
	PE(36:4)@8.35@740.5220	0.01	0.06	0.32	-0.04	-0.31	0.27
	PE(38:3)@9.75@770.5680	-0.17	-0.15	-0.01	-0.01	-0.16	0.15
	PE(38:5)@9.61@766.5358	-0.02	-0.11	0.17	0.09	-0.19	0.28
	PE(40:6)@9.75@792.5513	-0.24	-0.16	0.07	-0.09	-0.32	0.23
	PI(18:0/20:3)@8.88@887.5625	-0.39	-0.32	-0.08	-0.07	-0.30	0.24
Plasmenyl	plasmanyl-PE(36:5)@9.07@724.5268	-0.12	-0.10	-0.13	-0.02	0.01	-0.04
	plasmanyl-PE(38:5)@9.79@752.5581	0.18	-0.06	-0.12	0.24	0.31	-0.06
	plasmenyl-PE(16:0/20:4)@9.36@722.5106	-0.22	-0.15	-0.29	-0.07	0.08	-0.15
	plasmenyl-PE(16:0/22:4)@10.00@750.5416	-0.34	-0.10	-0.19	-0.24	-0.15	-0.09
	plasmenyl-PE(16:0/22:6)@9.05@746.5101	0.11	-0.08	-0.27	0.19	0.38	-0.19
	plasmenyl-PE(18:0/22:6)@9.95@774.5413	0.33	-0.01	-0.27	0.34	0.60	-0.26
	plasmenyl-PE(18:1/18:1)@10.50@726.5417	0.76	0.08	0.58	0.69	0.18	0.50
	plasmenyl-PE(18:1/20:1)@11.28@754.5729	0.38	-0.12	0.32	0.50	0.05	0.45
	plasmenyl-PE(18:1/22:4)@10.13@776.5571	-0.05	-0.10	-0.22	0.05	0.17	-0.12
TG	plasmenyl-PE(18:1/22:6)@9.19@772.5261	0.63	0.17	-0.24	0.46	0.87	-0.40
	TG(16:0/16:0/18:1)@13.96@850.7850	-0.36	-0.15	0.18	-0.21	-0.54	0.34
	TG(16:0/18:0/18:1)@14.28@878.8157	-0.42	-0.27	0.18	-0.15	-0.60	0.45
	TG(16:0/18:1/22:6)@13.11@922.7855	1.02	0.26	0.28	0.76	0.74	0.02
	TG(16:0/18:1/22:6)@13.28@922.7855	0.87	0.22	0.11	0.65	0.76	-0.10

TG(16:0/18:2/18:3)@12.91@870.7547	0.20	-0.02	0.29	0.22	-0.09	0.31
TG(16:0/18:2/22:6)@12.93@920.7694	0.82	0.11	0.11	0.70	0.70	0.00
TG(16:0/18:3/18:3)@12.57@868.7386	0.34	-0.04	0.33	0.38	0.01	0.37
TG(16:0/18:3/18:3)@12.83@868.7386	0.07	-0.09	0.39	0.17	-0.32	0.49
TG(16:1/16:1/18:2)@12.86@844.7389	-0.08	-0.08	0.43	0.01	-0.50	0.51
TG(17:0/18:2/18:2)@13.44@886.7852	0.35	0.14	0.35	0.21	0.00	0.21
TG(18:1/18:1/20:1)@14.25@930.8480	0.51	0.09	0.38	0.42	0.13	0.29
TG(18:1/18:2/18:3)@12.91@896.7699	0.56	0.26	0.20	0.29	0.36	-0.06
TG(18:1/18:2/20:1)@14.01@928.8291	0.62	0.10	0.27	0.52	0.35	0.17
TG(18:1/18:3/20:1)@13.81@926.8165	0.47	0.08	0.17	0.39	0.30	0.09
TG(18:2/18:2/18:3)@12.78@894.7538	0.42	0.02	0.23	0.41	0.19	0.22

**Table S3:** The effect of mycotoxin exposure on hepatic lipid profile.

Data are from binary OPLS-DA models with VIP score > 1; B2 vs. A1 (38 lipids)

- higher intensity in B2 (mycotoxin-exposed mice)

- higher intensity in A1 (control mice)

OPLSDA B2 vs. A1	
Lipid name	VIP score
DG(18:2/20:4)	1.83
FAHFA(20:1/22:3)	1.79
TG(16:0/18:1/22:6)	1.78
FA(22:5)	1.76
TG(16:0/18:1/22:6)	1.73
DG(18:2/18:2)	1.72
DG(18:2/20:1)	1.70
TG(16:0/18:2/22:6)	1.70
plasmenyl-PE(18:1/18:1)	1.57
LPC(19:0)	1.55
DG(18:1/18:2)	1.46
TG(18:1/18:2/20:1)	1.44
DG(18:1/20:4)	1.43
TG(18:1/18:1/20:1)	1.34
TG(18:1/18:2/18:3)	1.34
Cer(25:2/15:0)	1.33
LPC(20:4)	1.30
Cer(18:1/23:0)	1.29
Cer(18:2/23:0)	1.20

TG(18:1/18:3/20:1)	1.19
TG(18:2/18:2/18:3)	1.18
FA(18:1)	1.17
LPC(18:0)	1.17
PEP(18:1/22:6)	1.08
FAHFA(16:1/18:3)	1.06
DG(18:1/18:1)	1.06
TG(17:0/18:2/18:2)	1.02
FAHFA(16:1/20:4)	1.01
PC(36:1)	1.36
PC(18:0/20:3)	1.29
PC(38:2)	1.19
plasmeyl-PE(16:0/22:4)	1.18
PE(18:0/20:3)	1.15
HexCer(18:1/22:1)	1.14
TG(16:0/18:0/18:1)	1.13
PI(18:0/20:3)	1.07
PC(18:0/18:1)	1.07
PE(16:0/18:2)	1.02

**Table S4:** The effect of mycotoxin plus silymarin exposure on hepatic lipid profile.

Data are from binary OPLS-DA models with VIP score > 1; C3 vs. A1 (29 lipids)

- higher intensity in C3 (silymarin-treated mice)

- higher intensity in A1 (control mice)

OPLSDA C3 vs. A1	
Lipid name	VIP score
LPC(22:5)	2.26
LPC(19:0)	1.96
DG(18:2/20:4)	1.94
DG(18:2/18:2)	1.94
FA(22:5)	1.85
PC(18:2/22:6)	1.80
LPC(20:4)	1.77
DG(18:1/20:4)	1.75
PC(40:8)	1.73
FAHFA(20:1/22:3)	1.73
DG(18:1/18:2)	1.65
DG(16:0/18:2)	1.51
DG(18:2/20:1)	1.41
FA(18:1)	1.32
FAHFA(18:0/22:3)	1.31
TG(18:1/18:2/18:3)	1.23
PC(38:6)	1.22
PC(18:0/22:5)	1.22



PC(18:2/20:4)	1.15
TG(16:0/18:1/22:6)	1.14
DG(18:1/18:1)	1.07
PI(18:0/20:3)	1.61
PE(18:0/20:3)	1.57
PE(18:0/18:2)	1.53
PC(36:1)	1.51
TG(16:0/18:0/18:1)	1.34
PC(38:2)	1.16
PE(36:2)	1.12
PE(38:3)	1.04

**Table S5:** The effect of mycotoxin plus silymarin exposure on hepatic lipid profile.

Data are from binary OPLS-DA models with VIP score > 1; D4 vs. A1 (33 lipids)

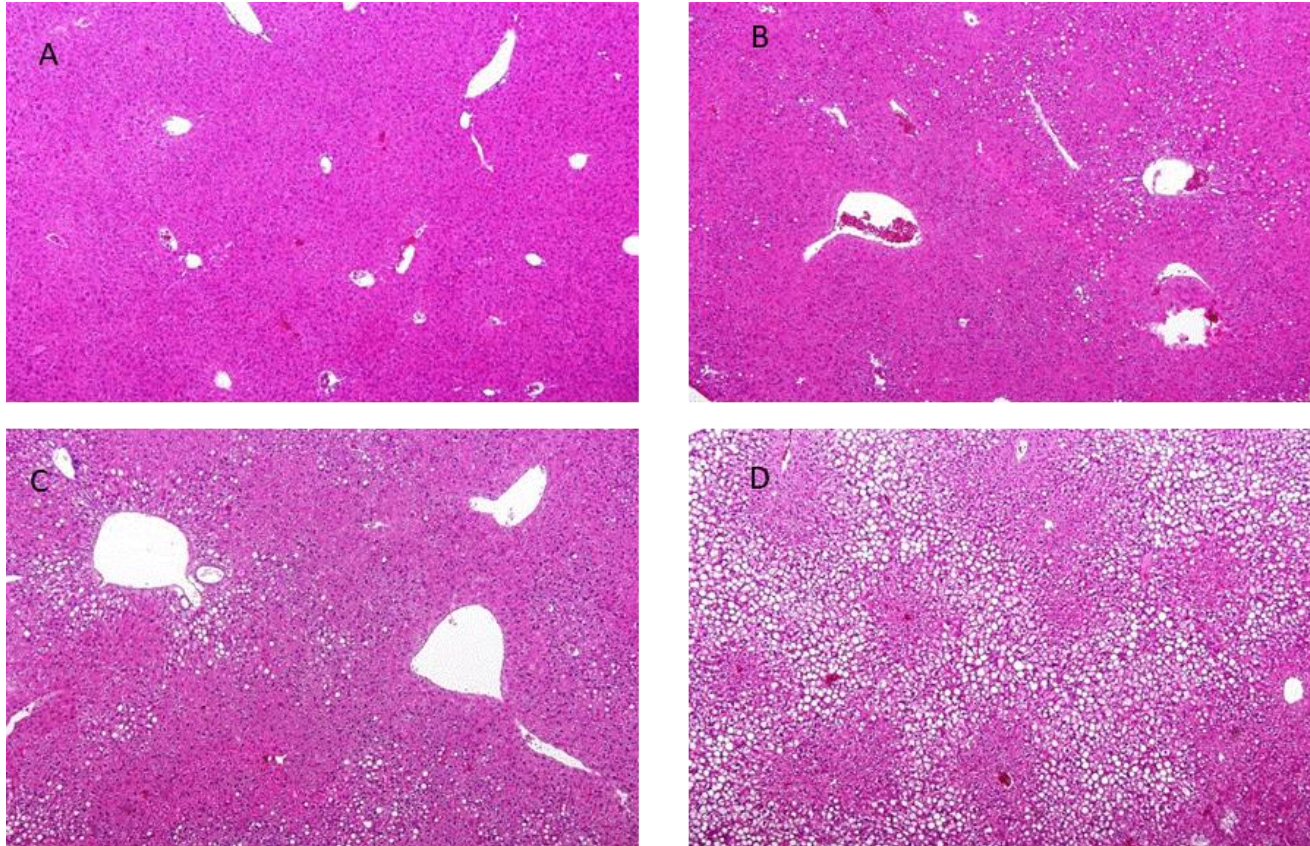
- higher intensity in D4 (mycotoxin plus silymarin-exposed mice)

- higher intensity in A1 (control mice)

OPLSDA D4 vs. A1	
Lipid name	VIP score
DG(18:2/18:2)	2.11
DG(18:1/18:1)	1.99
DG(18:1/18:2)	1.97
DG(18:2/20:4)	1.89
DG(18:1/20:4)	1.75
plasmenyl-PE(18:1/18:1)	1.74
DG(18:2/20:1)	1.67
DG(16:0/18:2)	1.62
FAHFA(16:1/18:3)	1.58
FAHFA(16:1/20:4)	1.52
TG(16:0/18:3/18:3)	1.51
TG(16:1/16:1/18:2)	1.43
TG(17:0/18:2/18:2)	1.43
LPC(19:0)	1.42
PE(34:3)	1.38
PE(36:4)	1.35
TG(18:1/18:1/20:1)	1.34
FAHFA(18:0/22:3)	1.28

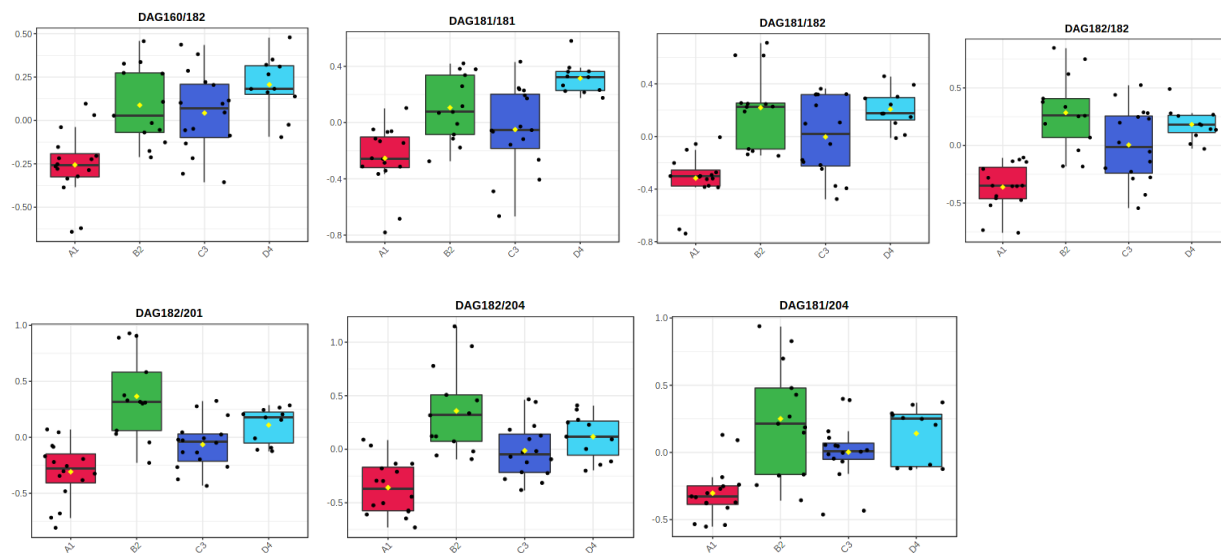
TG(16:0/18:3/18:3)	1.28
FAHFA(20:4/18:3)	1.28
TG(16:0/18:2/18:3)	1.21
LPC(18:0)	1.09
plasmenyl-PE(18:1/20:1)	1.07
PE(36:3)	1.07
TG(18:1/18:2/20:1)	1.02
TG(16:0/18:1/22:6)	1.02
PC(38:2)	1.57
PC(36:1)	1.43
PC(18:0/22:5)	1.26
plasmenyl-PE(16:0/22:6)	1.16
plasmenyl-PE(18:0/22:6)	1.12
plasmenyl-PE(16:0/20:4)	1.05
PE(18:1/20:4)	1.01

**Figure S1:** Liver steatosis staging: A - score 0 (steatosis of less than 5 % of liver cells), B - score 1 (steatosis of up to 33 % of liver cells), C - score 2 (steatosis of up to 66 % of liver cells), D - score 3 (steatosis of more than 66 % of liver cells).

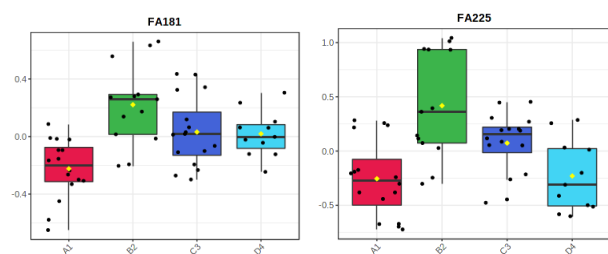


**Figure S2:** Boxplots for all 28 significant lipids with OPLS-DA VIP score >1, significantly contributing to group separation in at least two binary comparisons.

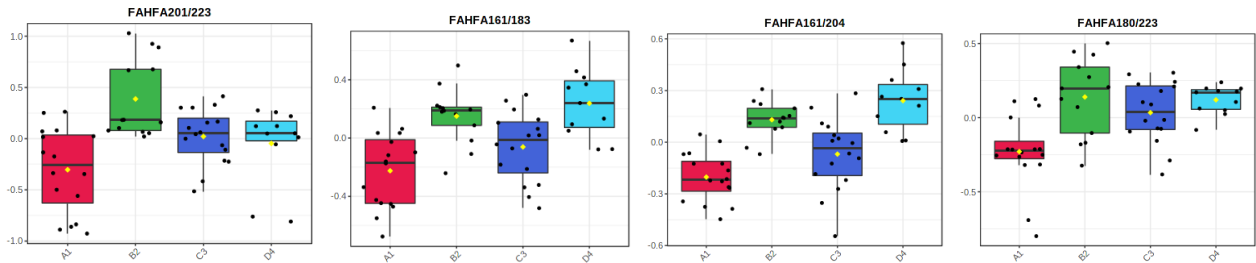
**DG:**



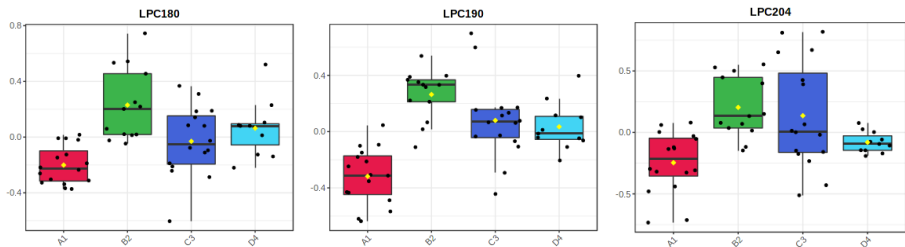
**FA:**



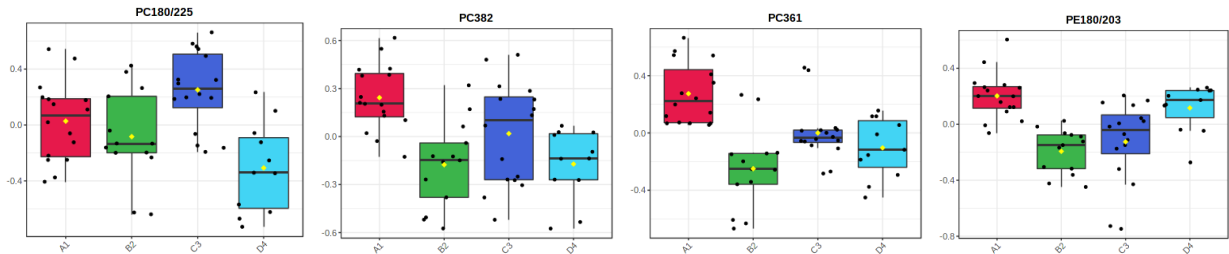
FAHFA:

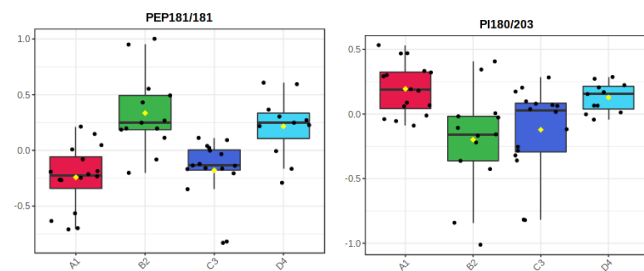


LPC:



PL:





TG:

