

Supplementary data:

Table S1. DTLs of GF35 vs. GF30.

Lipid name	log2 (fold change)	VIP	Lipid name	log2 (fold change)	VIP
AcHexChE (18:1)	2.929293746	1.412428425	PE (16:0_18:1)	1.727510812	1.461013517
AcHexChE (18:2)	2.306939018	1.406505523	PE (34:2)	1.389193722	1.416662114
AcHexChE (18:3)	1.973972434	1.42171146	PE (36:1)	3.379417819	1.473085899
AcHexChE (26:0)	1.672123195	1.384675514	PE (36:2)	2.012488261	1.422288607
AcHexCmE (18:1)	2.106338679	1.444500115	PE (18:0_18:2)	1.279176752	1.373651766
AcHexCmE (18:2)	1.785615993	1.378709945	PE (18:0_18:3)	1.553400106	1.447274861
AcHexCmE (20:1)	2.772845796	1.459035905	PG (31:0)	1.15972898	1.40493168
AcHexCmE (20:2)	2.513425274	1.424688844	PG (28:0_18:1)	1.290725208	1.409017764
AcHexSiE (17:1)	2.106338679	1.444500115	PG (46:2)	3.130810233	1.480976441
AcHexSiE (18:1)	1.435231092	1.448757358	PG (28:1_18:1)	1.739006786	1.457262731
AcHexSiE (18:2)	0.915980281	1.391092513	PI (16:0_16:0)	-2.392720567	1.396531992
AcHexSiE (19:1)	2.267477082	1.423548898	PI (42:5)	1.036789596	1.385348767
AcHexSiE (20:1)	3.089213989	1.453052586	PS (16:0_18:3)	24.44397528	1.442777032
AcHexSiE (20:3)	1.4325449	1.401752591	SPH (t20:0)	0.548792425	1.401834772
AcHexSiE (24:0)	1.625337497	1.389697203	SQDG (18:1_18:1)	1.769392225	1.40168432
AcHexStE (18:0)	1.435874558	1.4489775	TG (6:0_12:0_18:1)	3.486609184	1.373133844
AcHexStE (18:1)	0.918542538	1.389675743	TG (6:0_12:1_18:1)	3.113871718	1.405769263
AcHexStE (18:3)	1.294712311	1.392598074	TG (38:2e)	2.86669018	1.459852218
AcHexStE (20:0)	3.089213989	1.453052586	TG (38:5)	3.11292087	1.410765577
AcHexStE (20:1)	0.978030687	1.418228977	TG (41:10)	2.29948597	1.447326976
AcHexStE (20:2)	1.43198254	1.401737293	TG (41:8e)	2.322743681	1.437536705
AcHexZyE (18:1)	2.240610353	1.406462237	TG (30:0_6:0_6:0)	2.089087858	1.46881114
AcHexZyE (19:0)	2.111697294	1.445731278	TG (6:0_18:3_18:3)	3.76078143	1.466062429
AcHexZyE (19:1)	1.785906063	1.378619056	TG (16:1_6:0_22:0)	0.673076547	1.393560509
AcHexZyE (22:2)	1.432567407	1.401689463	TG (16:0e_6:0_22:1)	2.404737792	1.459988794
BisMePA (17:0_18:3)	-4.135506018	1.395752146	TG (12:0e_10:0_22:1)	2.332368662	1.470475901
Cer (d28:0)	-0.838639384	1.369782856	TG (45:8e)	1.826999985	1.390163657
Cer (d34:0)	0.429374876	1.433074912	TG (18:3_14:1_18:3)	-1.069300666	1.376335322
ChE (23:5)	2.960747644	1.469166762	TG (52:6e)	1.439230325	1.452092343
CmE (26:6)	2.132279882	1.440958684	TG (16:1e_18:3_18:3)	1.010648953	1.421510066
CmE (28:6)	2.938231699	1.369905663	TG (52:9e)	1.348675018	1.394410351
CmE (32:2)	-0.246981341	1.399283363	TG (54:10e)	0.93512999	1.388880674
DG (32:1e)	1.393135096	1.488103225	TG (18:1_18:1_18:2)	1.515571037	1.387239281
DG (32:2e)	1.071705863	1.424997889	TG (18:1_18:2_18:2)	0.926462018	1.462614704
DG (34:1e)	1.790203226	1.439420944	TG (18:3e_18:3_18:3)	1.399180054	1.42913567
DG (34:5e)	1.064437216	1.417443601	TG (18:0_18:0_19:0)	0.195486842	1.412127473
DG (36:1)	4.195572129	1.484105588	TG (22:3_12:4_22:3)	1.500244209	1.443740133
DG (18:1_18:1)	2.379611695	1.424703888	TG (56:3)	-0.841021517	1.420536302

DG (36:3e)	1.251644428	1.403310384	TG (20:1_18:2_18:2)	1.987238332	1.378736079
DG (20:1_18:1)	2.592117239	1.447469599	TG (18:4_14:3_24:0)	2.014092512	1.412066364
DG (20:1_18:2)	1.555148927	1.433674824	TG (20:1_18:3_18:3)	1.300615312	1.406870296
DG (38:6e)	1.251644428	1.403310384	TG (24:1_14:4_18:3)	1.846227807	1.429412631
DGDG (18:1_18:1)	2.684110335	1.479890486	TG (20:3e_18:1_18:4)	1.816291096	1.401233358
DGDG (18:1_18:3)	1.035624905	1.423331213	TG (18:3_18:3_21:1)	-1.428130179	1.373437123
Hex1Cer (d18:2_22:5)	-3.33887471	1.399337896	TG (18:1_18:1_23:1)	1.434685511	1.446099199
Hex1Cer (d18:2_24:1)	-0.848278825	1.383111194	TG (18:1_18:1_24:0)	3.53817035	1.398008078
Hex1Cer (d18:2_24:5)	-2.689054856	1.420252911	TG (18:1_18:2_24:0)	1.882359295	1.370228221
Hex1Cer (t42:2)	-1.481763662	1.42113076	TG (18:1_20:3_22:0)	2.255089561	1.459765295
LPE (20:1)	3.062762427	1.389602362	TG (24:1_18:2_18:2)	1.411340081	1.463909571
MG (22:1)	1.247416759	1.400957832	TG (24:0_18:3_18:3)	1.503262746	1.446672736
MG (24:1)	1.526718316	1.403013578	ZyE (21:4)	1.341482067	1.376398715
MGDG (18:1_18:2)	2.421385835	1.40201156	ZyE (23:4)	2.960091338	1.469308208
MePC (32:2)	-3.805227939	1.380230555	ZyE (33:1)	-0.246981341	1.399283363
MePC (34:2)	1.314596961	1.424033197	DGDG (18:2_18:3)	1.038156213	1.395811333
MePC (35:1)	2.265084044	1.381939618	DGDG (18:3_20:3)	0.73901626	1.456778286
PA (18:0_18:2)	1.727510812	1.461013517	LPMe (16:0)	-1.962904773	1.440842953
PA (18:1_18:2)	1.389193722	1.416662114	MGDG (18:1_18:1)	2.35444369	1.436073034
PA (36:3)	1.201807091	1.441078478	PA (20:1_18:1)	2.307714965	1.428825271
PC (18:1_13:0)	2.923978171	1.462839214	PA (20:1_18:2)	2.561542727	1.418717252
PC (18:0_14:2)	-4.133017738	1.394777267	PA (20:1_18:3)	3.118814674	1.475551839
PC (20:1_13:0)	3.379417819	1.473085899	PC (18:1_18:2)	1.826848076	1.474962759
PC (33:2)	1.292993922	1.377021196	PC (18:1_18:3)	1.799283165	1.466334862
PC (16:0_18:1)	1.195313934	1.404764482	PE (16:0_20:1)	1.587232297	1.464701413
PC (18:1_18:1)	2.157580428	1.460020122	PEt (18:1_18:2)	2.587103324	1.452468423
PC (19:1_18:1)	2.105400699	1.476974485	PG (34:2)	2.902785868	1.38981104
PC (38:4)	2.269306842	1.383434036	PG (34:4)	1.633404345	1.429123496
PC (41:1e)	1.572289816	1.45216311	PMe (18:0_18:3)	-4.555008203	1.440889212
PC (60:1)	4.554500477	1.440669748	SQDG (47:7)	2.934827468	1.404038052
PE (20:1e)	3.032696692	1.387594126	cPA (16:0)	-1.303898228	1.380870422
PE (18:0_16:0)	1.553400106	1.447274861			

Table S2. DTLs of WF35 vs. WF30.

Lipid name	log2 (fold change)	VIP	Lipid name	log2 (fold change)	VIP
AcHexCmE (18:2)	-1.375817716	1.296589513	ST (t18:1_24:0+O)	-2.139959266	1.297388359
AcHexCmE (18:3)	-1.536361769	1.335395663	TG (14:0e_6:0_11:1)	-3.33352273	1.313531419
AcHexCmE (20:3)	-1.254446481	1.289382322	TG (33:1e)	-1.822269396	1.298489498
AcHexCmE (28:0)	2.620287184	1.352800036	TG (16:0e_6:0_11:4)	-3.002736832	1.303294115
AcHexStE (18:3)	-1.985766981	1.357945471	TG (33:6e)	-3.847638011	1.355278301
AcHexZyE (19:1)	-1.374141235	1.296554174	TG (14:1e_10:1_10:1)	-1.015299005	1.368242869
AcHexZyE (19:2)	-1.53547918	1.335025947	TG (34:4e)	-3.661767066	1.401951787
AcHexZyE (19:3)	-3.053824866	1.354687694	TG (18:2e_6:0_11:2)	-1.838424567	1.300599269
AcHexZyE (21:2)	-1.254446481	1.289382322	TG (20:0e_6:0_10:0)	-1.240113288	1.296989759
Cer (d18:2_16:0+O)	-1.583036724	1.320134593	TG (18:0e_6:0_12:1)	-0.592208445	1.291177908
Cer (d18:2_16:1)	-1.715180709	1.316170802	TG (6:0_12:1_18:1)	-1.096845574	1.299579515
Cer (d18:0_24:0)	1.309277865	1.344912555	TG (12:0e_6:0_18:3)	-0.970348445	1.298509182
Cer (d18:1_24:0+O)	-2.070026473	1.32930103	TG (6:0_12:2_18:2)	-1.540645131	1.292378241
Cer (d18:0_25:0)	4.639572815	1.369545089	TG (6:0_12:2_18:3)	-1.74056661	1.312283586
Cer (d18:1_26:0+O)	-3.158867267	1.375455725	TG (12:1e_6:0_18:4)	-1.669375514	1.385769255
Cer (d18:2_26:0+O)	-1.715668625	1.314800537	TG (14:1e_11:3_11:3)	-1.75634546	1.297135978
Cer (t18:0_20:0)	-1.03039768	1.289901793	TG (12:1e_10:3_14:3)	-3.960086828	1.372078467
Cer (t18:0_20:0+O)	-0.972654107	1.307434167	TG (38:2e)	-1.28292143	1.371091226
Cer (t18:0_23:0)	1.948923449	1.342183236	TG (14:0e_6:0_18:3)	-2.146584016	1.343938991
CerP (d37:1+O)	-2.632470917	1.33443706	TG (4:0_14:2_20:3)	-2.171065003	1.359705587
DG (6:0_12:2)	-3.259776034	1.377133871	TG (38:5)	-1.590391839	1.323363515
DG (18:4)	-5.098948162	1.338367281	TG (38:6e)	-1.598863459	1.373651232
DG (16:0_16:0)	-0.944589837	1.364999525	TG (39:8e)	0.922245332	1.387329332
DG (34:3)	-1.425491144	1.303120802	TG (20:1e_10:1_10:1)	-0.867852607	1.359805677
DG (16:0_18:3)	-1.252759596	1.366473279	TG (45:7)	-1.583311111	1.349145223
DG (34:4)	-1.724250203	1.291940995	TG (12:0_18:2_18:2)	-1.560930798	1.306105888
DG (35:4)	-1.838424567	1.300599269	TG (12:0_18:2_18:3)	-3.029791825	1.388318629
DG (18:0_18:3)	-1.077797253	1.321851068	TG (12:0_18:3_18:3)	-3.391615829	1.344897155
DG (18:3_18:2)	-1.077330683	1.331515156	TG (16:0_13:0_20:4)	-0.778910792	1.30734101
DG (18:3_18:3)	-1.837505535	1.398375758	TG (16:1_16:1_18:2)	-1.252512659	1.330616434
DG (36:7)	-1.749103024	1.300143737	TG (18:2_14:1_18:2)	-2.104224461	1.353176004
DG (20:1_18:2)	-1.356827434	1.330369465	TG (14:0_18:2_18:3)	-1.010619858	1.337428281
DG (20:3_18:2)	-0.973623376	1.323204412	TG (14:0_18:3_18:3)	-2.077229039	1.398921377
DG (18:3_20:3)	-1.598863459	1.373651232	TG (18:3_14:2_18:3)	-5.970177158	1.379811446
DG (38:7e)	-1.754513736	1.313214348	TG (18:3_14:3_18:3)	-5.304694479	1.368592931
DG (40:4)	-0.936368409	1.30069785	TG (29:0_6:0_16:1)	-0.635578712	1.390258876
DG (26:0_18:3)	0.885850074	1.293460611	TG (15:0_18:2_18:2)	-1.096765498	1.334715611
DGDG (16:0_16:0)	-1.558639854	1.317515814	TG (15:0_18:2_18:3)	-1.113416535	1.302342699
DGDG (16:0_18:1)	-2.17312234	1.33395659	TG (15:0_18:3_18:3)	-1.504397749	1.376881525

DGDG (16:0_18:2)	-1.602327923	1.319355115	TG (18:4_15:0_18:3)	-2.241858639	1.397540836
DGDG (18:1_18:1)	-2.80861706	1.337541807	TG (18:3_11:2_22:4)	0.590788216	1.305358509
DGDG (18:1_18:2)	-1.975824287	1.358286667	TG (16:0_18:1_18:3)	-1.728479893	1.361531891
Hex1Cer (d18:2_16:0)	-1.315256576	1.306076599	TG (16:1_18:3_18:3)	-1.907441079	1.39476335
Hex1Cer (d18:2_16:1)	-1.614348977	1.332229174	TG (18:4_16:1_18:3)	-3.118980205	1.400981566
Hex1Cer (d18:1_20:0+O)	-1.252563108	1.345300722	TG (52:8)	-5.744506123	1.370183977
Hex1Cer (d18:2_22:5)	-2.485128915	1.350108951	TG (18:3_14:3_20:3)	-2.415512526	1.348606407
Hex1Cer (d18:2_24:1)	-1.070503192	1.309529209	TG (52:9e)	-2.021770152	1.355830979
Hex1Cer (d18:2_24:5)	-2.070026301	1.377390067	TG (18:3_17:1_18:3)	-1.249547245	1.330512314
Hex1Cer (d18:2_24:6)	-2.46917369	1.314808712	TG (18:4_17:1_18:3)	-2.37020522	1.400202394
Hex1Cer (t42:1+O)	-1.00177158	1.298329197	TG (18:3_13:0_22:6)	-4.237650879	1.404128573
MG (18:4)	-3.846915253	1.318707066	TG (18:1_18:2_18:2)	-0.851818954	1.292331579
MGDG (18:0_18:3)	-1.28066049	1.353886203	TG (18:2_18:2_18:2)	-1.378477599	1.353755475
MGDG (18:3_29:10)	-2.090716224	1.363397598	TG (18:1_18:3_18:3)	-1.340262937	1.395085837
MePC (31:0)	-2.140323496	1.358613277	TG (54:7)	-4.555265518	1.364030212
MePC (31:1)	-2.469085342	1.370824932	TG (18:3_18:2_18:3)	-1.230436609	1.400340886
MePC (32:0)	-1.640096882	1.313200046	TG (18:3_18:3_18:3)	-1.604995379	1.396916954
MePC (32:1)	-2.199380829	1.300267502	TG (18:3e_18:3_18:3)	-6.998475267	1.394209369
MePC (32:2)	-1.898057254	1.35352302	TG (55:13)	-1.622279911	1.396431731
MePC (33:0)	-1.773229948	1.360757747	TG (19:1_18:2_18:2)	-1.968100049	1.363822257
MePC (33:1)	-2.73225247	1.351859417	TG (18:1_17:1_20:4)	-1.513769661	1.307047126
MePC (33:2)	-2.624899242	1.391012973	TG (19:1_18:3_18:3)	-1.519065619	1.359863601
MePC (33:3)	-2.794573541	1.391036003	TG (19:1_18:3_18:4)	-1.964652398	1.387491988
MePC (34:2)	-2.600140362	1.379732261	TG (20:0_16:0_20:4)	-2.329490907	1.31264815
MePC (34:7)	-2.351811833	1.363534209	TG (20:0_18:2_18:2)	-2.380975786	1.307648576
MePC (35:0)	-1.718116644	1.342079089	TG (20:1_18:3_18:3)	-2.452849555	1.378757026
MePC (35:1)	-3.531823562	1.38134934	TG (18:3_18:2_20:3)	-2.143376885	1.404866321
MePC (35:3)	-3.055587517	1.392590997	TG (18:3_18:3_20:2)	-1.904468183	1.397083499
PA (15:0_18:2)	3.073580524	1.348988585	TG (18:4_14:3_24:2)	-2.239540663	1.319137292
PA (15:0_18:3)	1.38030769	1.38932937	TG (18:3_18:3_20:3)	-1.378477599	1.353755475
PC (10:0_18:2)	1.34782767	1.385406594	TG (20:1e_18:4_18:4)	-2.28462541	1.337252904
PC (30:2)	1.577150775	1.311420469	TG (22:0_12:1_23:1)	-3.821258615	1.298701864
PC (31:4)	-0.55187028	1.314827091	TG (18:3_18:3_21:0)	-1.684721198	1.299139274
PC (32:0)	-1.4510901	1.300721973	TG (18:3_18:3_21:1)	-2.34134835	1.36748125
PC (33:3)	-1.652678339	1.36559744	TG (18:4_18:4_21:0)	-2.651673403	1.379758529
PC (33:4)	-2.629791744	1.383760115	TG (20:2e_18:4_20:4)	-2.041333331	1.363642551
PC (16:0_18:1)	-1.860513479	1.337285063	TG (20:3e_18:4_20:3)	-2.514997951	1.355257126
PC (34:1)	-1.894343125	1.33820045	TG (18:3e_20:4_20:4)	-2.226133381	1.376690751
PC (34:3)	-1.924804997	1.313020368	TG (18:4_18:4_22:4)	-2.239540663	1.319137292
PC (34:4)	-2.317521317	1.347751836	TG (18:1_18:2_22:0)	-1.46127584	1.304154196
PC (34:5)	-1.498903035	1.363226615	TG (18:1_18:3_22:0)	-1.868101683	1.324673624
PC (35:5)	-1.883892389	1.370649014	TG (22:0_18:2_18:3)	-1.943287988	1.379480256

PC (36:1)	-1.601091014	1.298362457	TG (22:0_18:3_18:3)	-2.394167921	1.389713415
PC (18:1_18:1)	-2.100989943	1.33547551	TG (20:1_18:1_20:4)	-1.063752616	1.314564111
PC (36:3)	-1.804615624	1.35654015	TG (18:3_18:3_22:1)	-2.95503735	1.385344954
PC (19:0_18:3)	-1.412557736	1.358173524	TG (18:4_18:4_22:1)	-3.095091698	1.343098687
PC (37:5)	-2.716792807	1.382262452	TG (18:3_18:3_22:3)	-3.000281432	1.352878116
PC (38:3)	-1.718116644	1.342079089	TG (20:1e_18:4_20:4)	-1.956738814	1.325919004
PC (38:4)	-3.469813838	1.327185753	TG (18:1_18:1_23:1)	-2.020030691	1.366649479
PC (38:5)	-3.06315074	1.39543096	TG (18:2_18:2_23:0)	-4.078579178	1.358640637
PC (40:3)	-5.254207401	1.331603328	TG (17:0_18:3_24:2)	-4.965476789	1.382994793
PC (40:7)	-1.644833454	1.290545229	TG (59:5)	-1.732253902	1.35642647
PE (31:2)	1.378045581	1.389694866	TG (20:4e_20:4_20:4)	-1.948726554	1.326602217
PE (18:1_18:1)	-1.50861311	1.321139617	TG (60:13e)	-2.428258381	1.359586283
PE (37:5)	-1.130947324	1.310954571	TG (18:1_18:2_24:0)	-1.803599946	1.314531334
PE (16:0_22:0)	-2.482283438	1.303288326	TG (24:1_18:2_18:2)	-0.858254438	1.320208216
PE (16:0_22:5)	-1.50861311	1.321139617	TG (24:0_18:3_18:3)	-1.66293885	1.370815556
PE (40:6)	-2.01814064	1.297105013	TG (61:5)	-1.663971305	1.353589164
PE (59:7)	4.306554288	1.353596576	WE (26:0_18:3)	-4.501247895	1.333410791
PG (16:0_18:1)	-1.20895535	1.325394443	WE (28:0_18:4)	-2.524059463	1.316492465
PG (42:2)	-0.74218688	1.299828553	ZyE (15:0)	-1.513558697	1.318712827
PG (42:3)	-1.781280403	1.385376698	Cer (d40:0)	1.381209525	1.303476648
PG (46:1)	-3.034328721	1.379627647	Cer (t17:0_23:0)	2.369851647	1.350953722
PG (28:0_18:1)	-1.606342446	1.37919148	Cer (t17:0_25:0)	2.23505924	1.364963738
PG (28:1_18:2)	-0.807703274	1.332591025	Cer (t18:0_25:0)	2.235442314	1.365314658
PG (28:1_18:3)	-2.208879171	1.382229639	DGDG (16:0_18:3)	-1.644532867	1.331048239
PG (48:4)	-3.034328721	1.379627647	DGDG (18:2_18:3)	-2.219935367	1.375883841
PI (40:4)	-2.132271288	1.360916079	LPC (18:3)	-2.917488934	1.374985391
PI (42:4)	-1.569296786	1.323012941	LPE (18:3)	-1.626601605	1.296691347
PI (42:5)	-1.700708079	1.297519498	MGDG (47:12)	-2.463932329	1.374036874
PI (44:4)	-4.317575162	1.375510054	PC (15:0_18:3)	-1.532076705	1.310707603
PS (34:1)	-1.326948442	1.295971585	PC (16:0_18:3)	-1.532076705	1.310707603
SPH (d18:0)	-1.33584235	1.337314976	PC (18:3_18:2)	-1.945477058	1.36534717
SQDG (18:1_18:1)	-26.78070217	1.292181394	PEt (38:6e)	1.59097481	1.314812431
SQDG (18:1_18:3)	-1.889021163	1.324885865			

Table S3. Shared DTLs of GF35 vs. GF30 and WF35 vs. WF30.

Lipid name	GF35 vs. GF30 log2 (fold change)	WF35 vs. WF30 log2 (fold change)	Lipid name	GF35 vs. GF30 log2 (fold change)	WF35 vs. WF30 log2 (fold change)
AcHexCmE (18:2)	1.785615993	-1.375817716	PG (28:0_18:1)	1.290725208	-1.606342446
AcHexStE (18:3)	1.294712311	-1.985766981	PI (42:5)	1.036789596	-1.700708079
AcHexZyE (19:1)	1.785906063	-1.374141235	SQDG (18:1_18:1)	1.769392225	-26.78070217
DG (20:1_18:2)	1.555148927	-1.356827434	TG (18:1_18:1_23:1)	1.434685511	-2.020030691
DGDG (18:1_18:1)	2.684110335	-2.80861706	TG (18:1_18:2_18:2)	0.926462018	-0.851818954
DGDG (18:2_18:3)	1.038156213	-2.219935367	TG (18:1_18:2_24:0)	1.882359295	-1.803599946
Hex1Cer (d18:2_22:5)	-3.33887471	-2.485128915	TG (18:3_18:3_21:1)	-1.428130179	-2.34134835
Hex1Cer (d18:2_24:1)	-0.848278825	-1.070503192	TG (18:3e_18:3_18:3)	1.399180054	-6.998475267
Hex1Cer (d18:2_24:5)	-2.689054856	-2.070026301	TG (20:1_18:3_18:3)	1.300615312	-2.452849555
MePC (32:2)	-3.805227939	-1.898057254	TG (24:0_18:3_18:3)	1.503262746	-1.66293885
MePC (34:2)	1.314596961	-2.600140362	TG (24:1_18:2_18:2)	1.411340081	-0.858254438
MePC (35:1)	2.265084044	-3.531823562	TG (38:2e)	2.86669018	-1.28292143
PC (16:0_18:1)	1.195313934	-1.860513479	TG (38:5)	3.11292087	-1.590391839
PC (18:1_18:1)	2.157580428	-2.100989943	TG (52:9e)	1.348675018	-2.021770152
PC (38:4)	2.269306842	-3.469813838	TG (6:0_12:1_18:1)	3.113871718	-1.096845574

Table S4. Specific DTLs in GF35 vs. GF30.

Lipid name	log2 (fold change)	Lipid name	log2 (fold change)	Lipid name	log2 (fold change)
PS (16:0_18:3)	24.44397528	AcHexZyE (18:1)	2.240610353	PA (18:1_18:2)	1.389193722
PC (60:1)	4.554500477	CmE (26:6)	2.132279882	PE (34:2)	1.389193722
DG (36:1)	4.195572129	AcHexZyE (19:0)	2.111697294	ZyE (21:4)	1.341482067
TG (6:0_18:3_18:3)	3.76078143	AcHexCmE (18:1)	2.106338679	PC (33:2)	1.292993922
TG (18:1_18:1_24:0)	3.53817035	AcHexSiE (17:1)	2.106338679	PE (18:0_18:2)	1.279176752
TG (6:0_12:0_18:1)	3.486609184	PC (19:1_18:1)	2.105400699	DG (36:3e)	1.251644428
PC (20:1_13:0)	3.379417819	TG (30:0_6:0_6:0)	2.089087858	DG (38:6e)	1.251644428
PE (36:1)	3.379417819	TG (18:4_14:3_24:0)	2.014092512	MG (22:1)	1.247416759
PG (46:2)	3.130810233	PE (36:2)	2.012488261	PA (36:3)	1.201807091
PA (20:1_18:3)	3.118814674	TG (20:1_18:2_18:2)	1.987238332	PG (31:0)	1.15972898
AcHexSiE (20:1)	3.089213989	AcHexChE (18:3)	1.973972434	DG (32:2e)	1.071705863
AcHexStE (20:0)	3.089213989	TG (24:1_14:4_18:3)	1.846227807	DG (34:5e)	1.064437216
LPE (20:1)	3.062762427	TG (45:8e)	1.826999985	DGDG (18:1_18:3)	1.035624905
PE (20:1e)	3.032696692	PC (18:1_18:2)	1.826848076	TG (16:1e_18:3_18:3)	1.010648953
ChE (23:5)	2.960747644	TG (20:3e_18:1_18:4)	1.816291096	AcHexStE (20:1)	0.978030687
ZyE (23:4)	2.960091338	PC (18:1_18:3)	1.799283165	TG (54:10e)	0.93512999
CmE (28:6)	2.938231699	DG (34:1e)	1.790203226	AcHexStE (18:1)	0.918542538
SQDG (47:7)	2.934827468	PG (28:1_18:1)	1.739006786	AcHexSiE (18:2)	0.915980281
AcHexChE (18:1)	2.929293746	PA (18:0_18:2)	1.727510812	DGDG (18:3_20:3)	0.73901626
PC (18:1_13:0)	2.923978171	PE (16:0_18:1)	1.727510812	TG (16:1_6:0_22:0)	0.673076547
PG (34:2)	2.902785868	AcHexChE (26:0)	1.672123195	SPH (t20:0)	0.548792425
AcHexCmE (20:1)	2.772845796	PG (34:4)	1.633404345	Cer (d34:0)	0.429374876
DG (20:1_18:1)	2.592117239	AcHexSiE (24:0)	1.625337497	TG (18:0_18:0_19:0)	0.195486842
PEt (18:1_18:2)	2.587103324	PE (16:0_20:1)	1.587232297	CmE (32:2)	-0.246981341
PA (20:1_18:2)	2.561542727	PC (41:1e)	1.572289816	ZyE (33:1)	-0.246981341
AcHexCmE (20:2)	2.513425274	PE (18:0_16:0)	1.553400106	Cer (d28:0)	-0.838639384
MGDG (18:1_18:2)	2.421385835	PE (18:0_18:3)	1.553400106	TG (56:3)	-0.841021517
TG (16:0e_6:0_22:1)	2.404737792	MG (24:1)	1.526718316	TG (18:3_14:1_18:3)	-1.069300666
DG (18:1_18:1)	2.379611695	TG (18:1_18:1_18:2)	1.515571037	cPA (16:0)	-1.303898228
MGDG (18:1_18:1)	2.35444369	TG (22:3_12:4_22:3)	1.500244209	Hex1Cer (t42:2)	-1.481763662
TG (12:0e_10:0_22:1)	2.332368662	TG (52:6e)	1.439230325	LPMe (16:0)	-1.962904773
TG (41:8e)	2.322743681	AcHexStE (18:0)	1.435874558	PI (16:0_16:0)	-2.392720567
PA (20:1_18:1)	2.307714965	AcHexSiE (18:1)	1.435231092	PC (18:0_14:2)	-4.133017738
AcHexChE (18:2)	2.306939018	AcHexZyE (22:2)	1.432567407	BisMePA (17:0_18:3)	-4.135506018
TG (41:10)	2.29948597	AcHexSiE (20:3)	1.4325449	PMe (18:0_18:3)	-4.555008203
AcHexSiE (19:1)	2.267477082	AcHexStE (20:2)	1.43198254		
TG (18:1_20:3_22:0)	2.255089561	DG (32:1e)	1.393135096		

Table S5. Specific DTLs in WF35 vs. WF30.

Lipid name	log2 (fold change)	Lipid name	log2 (fold change)	Lipid name	log2 (fold change)
Cer (d18:0_25:0)	4.639572815	TG (19:1_18:3_18:3)	-1.519065619	MePC (31:0)	-2.140323496
PE (59:7)	4.306554288	PC (15:0_18:3)	-1.532076705	TG (18:3_18:2_20:3)	-2.143376885
PA (15:0_18:2)	3.073580524	PC (16:0_18:3)	-1.532076705	TG (14:0e_6:0_18:3)	-2.146584016
AcHexCmE (28:0)	2.620287184	AcHexZyE (19:2)	-1.53547918	TG (4:0_14:2_20:3)	-2.171065003
Cer (t17:0_23:0)	2.369851647	AcHexCmE (18:3)	-1.536361769	DGDG (16:0_18:1)	-2.17312234
Cer (t18:0_25:0)	2.235442314	TG (6:0_12:2_18:2)	-1.540645131	MePC (32:1)	-2.199380829
Cer (t17:0_25:0)	2.23505924	DGDG (16:0_16:0)	-1.558639854	PG (28:1_18:3)	-2.208879171
Cer (t18:0_23:0)	1.948923449	TG (12:0_18:2_18:2)	-1.560930798	TG (18:3e_20:4_20:4)	-2.226133381
PEt (38:6e)	1.59097481	PI (42:4)	-1.569296786	TG (18:4_14:3_24:2)	-2.239540663
PC (30:2)	1.577150775	Cer (d18:2_16:0+O)	-1.583036724	TG (18:4_18:4_22:4)	-2.239540663
Cer (d40:0)	1.381209525	TG (45:7)	-1.583311111	TG (18:4_15:0_18:3)	-2.241858639
PA (15:0_18:3)	1.38030769	DG (18:3_20:3)	-1.598863459	TG (20:1e_18:4_18:4)	-2.28462541
PE (31:2)	1.378045581	TG (38:6e)	-1.598863459	PC (34:4)	-2.317521317
PC (10:0_18:2)	1.34782767	PC (36:1)	-1.601091014	TG (20:0_16:0_20:4)	-2.329490907
Cer (d18:0_24:0)	1.309277865	DGDG (16:0_18:2)	-1.602327923	MePC (34:7)	-2.351811833
TG (39:8e)	0.922245332	TG (18:3_18:3_18:3)	-1.604995379	TG (18:4_17:1_18:3)	-2.37020522
DG (26:0_18:3)	0.885850074	Hex1Cer (d18:2_16:1)	-1.614348977	TG (20:0_18:2_18:2)	-2.380975786
TG (18:3_11:2_22:4)	0.590788216	TG (55:13)	-1.622279911	TG (22:0_18:3_18:3)	-2.394167921
PC (31:4)	-0.55187028	LPE (18:3)	-1.626601605	TG (18:3_14:3_20:3)	-2.415512526
TG (18:0e_6:0_12:1)	-0.592208445	MePC (32:0)	-1.640096882	TG (60:13e)	-2.428258381
TG (29:0_6:0_16:1)	-0.635578712	DGDG (16:0_18:3)	-1.644532867	MGDG (47:12)	-2.463932329
PG (42:2)	-0.74218688	PC (40:7)	-1.644833454	MePC (31:1)	-2.469085342
TG (16:0_13:0_20:4)	-0.778910792	PC (33:3)	-1.652678339	Hex1Cer (d18:2_24:6)	-2.46917369
PG (28:1_18:2)	-0.807703274	TG (61:5)	-1.663971305	PE (16:0_22:0)	-2.482283438
TG (20:1e_10:1_10:1)	-0.867852607	TG (12:1e_6:0_18:4)	-1.669375514	TG (20:3e_18:4_20:3)	-2.514997951
DG (40:4)	-0.936368409	TG (18:3_18:3_21:0)	-1.684721198	WE (28:0_18:4)	-2.524059463
DG (16:0_16:0)	-0.944589837	Cer (d18:2_16:1)	-1.715180709	MePC (33:2)	-2.624899242
TG (12:0e_6:0_18:3)	-0.970348445	Cer (d18:2_26:0+O)	-1.715668625	PC (33:4)	-2.629791744
Cer (t18:0_20:0+O)	-0.972654107	MePC (35:0)	-1.718116644	CerP (d37:1+O)	-2.632470917
DG (20:3_18:2)	-0.973623376	PC (38:3)	-1.718116644	TG (18:4_18:4_21:0)	-2.651673403
Hex1Cer (t42:1+O)	-1.00177158	DG (34:4)	-1.724250203	PC (37:5)	-2.716792807
TG (14:0_18:2_18:3)	-1.010619858	TG (16:0_18:1_18:3)	-1.728479893	MePC (33:1)	-2.73225247
TG (14:1e_10:1_10:1)	-1.015299005	TG (59:5)	-1.732253902	MePC (33:3)	-2.794573541
Cer (t18:0_20:0)	-1.03039768	TG (6:0_12:2_18:3)	-1.74056661	LPC (18:3)	-2.917488934
TG (20:1_18:1_20:4)	-1.063752616	DG (36:7)	-1.749103024	TG (18:3_18:3_22:1)	-2.95503735
DG (18:3_18:2)	-1.077330683	DG (38:7e)	-1.754513736	TG (18:3_18:3_22:3)	-3.000281432
DG (18:0_18:3)	-1.077797253	TG (14:1e_11:3_11:3)	-1.75634546	TG (16:0e_6:0_11:4)	-3.002736832
TG (15:0_18:2_18:2)	-1.096765498	MePC (33:0)	-1.773229948	TG (12:0_18:2_18:3)	-3.029791825
TG (15:0_18:2_18:3)	-1.113416535	PG (42:3)	-1.781280403	PG (46:1)	-3.034328721

PE (37:5)	-1.130947324	PC (36:3)	-1.804615624	PG (48:4)	-3.034328721
PG (16:0_18:1)	-1.20895535	TG (33:1e)	-1.822269396	AcHexZyE (19:3)	-3.053824866
TG (18:3_18:2_18:3)	-1.230436609	DG (18:3_18:3)	-1.837505535	MePC (35:3)	-3.055587517
TG (20:0e_6:0_10:0)	-1.240113288	DG (35:4)	-1.838424567	PC (38:5)	-3.06315074
TG (18:3_17:1_18:3)	-1.249547245	TG (18:2e_6:0_11:2)	-1.838424567	TG (18:4_18:4_22:1)	-3.095091698
TG (16:1_16:1_18:2)	-1.252512659	TG (18:1_18:3_22:0)	-1.868101683	TG (18:4_16:1_18:3)	-3.118980205
Hex1Cer (d18:1_20:0+O)	-1.252563108	PC (35:5)	-1.883892389	Cer (d18:1_26:0+O)	-3.158867267
DG (16:0_18:3)	-1.252759596	SQDG (18:1_18:3)	-1.889021163	DG (6:0_12:2)	-3.259776034
AcHexCmE (20:3)	-1.254446481	PC (34:1)	-1.894343125	TG (14:0e_6:0_11:1)	-3.33352273
AcHexZyE (21:2)	-1.254446481	TG (18:3_18:3_20:2)	-1.904468183	TG (12:0_18:3_18:3)	-3.391615829
MGDG (18:0_18:3)	-1.28066049	TG (16:1_18:3_18:3)	-1.907441079	TG (34:4e)	-3.661767066
Hex1Cer (d18:2_16:0)	-1.315256576	PC (34:3)	-1.924804997	TG (22:0_12:1_23:1)	-3.821258615
PS (34:1)	-1.326948442	TG (22:0_18:2_18:3)	-1.943287988	MG (18:4)	-3.846915253
SPH (d18:0)	-1.33584235	PC (18:3_18:2)	-1.945477058	TG (33:6e)	-3.847638011
TG (18:1_18:3_18:3)	-1.340262937	TG (20:4e_20:4_20:4)	-1.948726554	TG (12:1e_10:3_14:3)	-3.960086828
TG (18:2_18:2_18:2)	-1.378477599	TG (20:1e_18:4_20:4)	-1.956738814	TG (18:2_18:2_23:0)	-4.078579178
TG (18:3_18:3_20:3)	-1.378477599	TG (19:1_18:3_18:4)	-1.964652398	TG (18:3_13:0_22:6)	-4.237650879
PC (19:0_18:3)	-1.412557736	TG (19:1_18:2_18:2)	-1.968100049	PI (44:4)	-4.317575162
DG (34:3)	-1.425491144	DGDG (18:1_18:2)	-1.975824287	WE (26:0_18:3)	-4.501247895
PC (32:0)	-1.4510901	PE (40:6)	-2.01814064	TG (54:7)	-4.555265518
TG (18:1_18:2_22:0)	-1.46127584	TG (20:2e_18:4_20:4)	-2.041333331	TG (17:0_18:3_24:2)	-4.965476789
PC (34:5)	-1.498903035	Cer (d18:1_24:0+O)	-2.070026473	DG (18:4)	-5.098948162
TG (15:0_18:3_18:3)	-1.504397749	TG (14:0_18:3_18:3)	-2.077229039	PC (40:3)	-5.254207401
PE (16:0_22:5)	-1.50861311	MGDG (18:3_29:10)	-2.090716224	TG (18:3_14:3_18:3)	-5.304694479
PE (18:1_18:1)	-1.50861311	TG (18:2_14:1_18:2)	-2.104224461	TG (52:8)	-5.744506123
ZyE (15:0)	-1.513558697	PI (40:4)	-2.132271288	TG (18:3_14:2_18:3)	-5.970177158
TG (18:1_17:1_20:4)	-1.513769661	ST (t18:1_24:0+O)	-2.139959266		

Table S6. Statistics of lipid species in GF35 vs. GF30 and WF35 vs. WF30.

lipid name	DELs number in GF35 vs. GF30	proportion in GF35 vs. GF30	lipid name	DELs number in WF35 vs. WF30	proportion in WF35 vs. WF30
TG	35	25.2%	TG	96	42.3%
PC	12	8.6%	PC	25	11.0%
DG	10	7.2%	DG	17	7.5%
PE	9	6.5%	Cer	15	6.6%
AcHexSiE	7	5.0%	MePC	14	6.2%
AcHexStE	6	4.3%	Hex1Cer	8	3.5%
PA	6	4.3%	PG	8	3.5%
PG	6	4.3%	DGDG	7	3.1%
AcHexChE	4	2.9%	PE	7	3.1%
AcHexCmE	4	2.9%	AcHexCmE	4	1.8%
AcHexZyE	4	2.9%	AcHexZyE	4	1.8%
DGDG	4	2.9%	PI	4	1.8%
Hex1Cer	4	2.9%	MGDG	3	1.3%
CmE	3	2.2%	PA	2	0.9%
MePC	3	2.2%	SQDG	2	0.9%
ZyE	3	2.2%	WE	2	0.9%
Cer	2	1.4%	AcHexStE	1	0.4%
MG	2	1.4%	MG	1	0.4%
MGDG	2	1.4%	PS	1	0.4%
PI	2	1.4%	SPH	1	0.4%
SQDG	2	1.4%	ST	1	0.4%
BisMePA	1	0.7%	ZyE	1	0.4%
ChE	1	0.7%	LPC	1	0.4%
LPE	1	0.7%	LPE	1	0.4%
PS	1	0.7%	PEt	1	0.4%
SPH	1	0.7%			
LPMe	1	0.7%			
PEt	1	0.7%			
PMe	1	0.7%			
cPA	1	0.7%			