Supplementary Information (SI) for Molecular Omics.

Supporting Information

Comprehensive Untargeted Lipidomic Profiling of Third Generation Lentiviral Vectors and Packaging Cells

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Supporting Methods and Materials

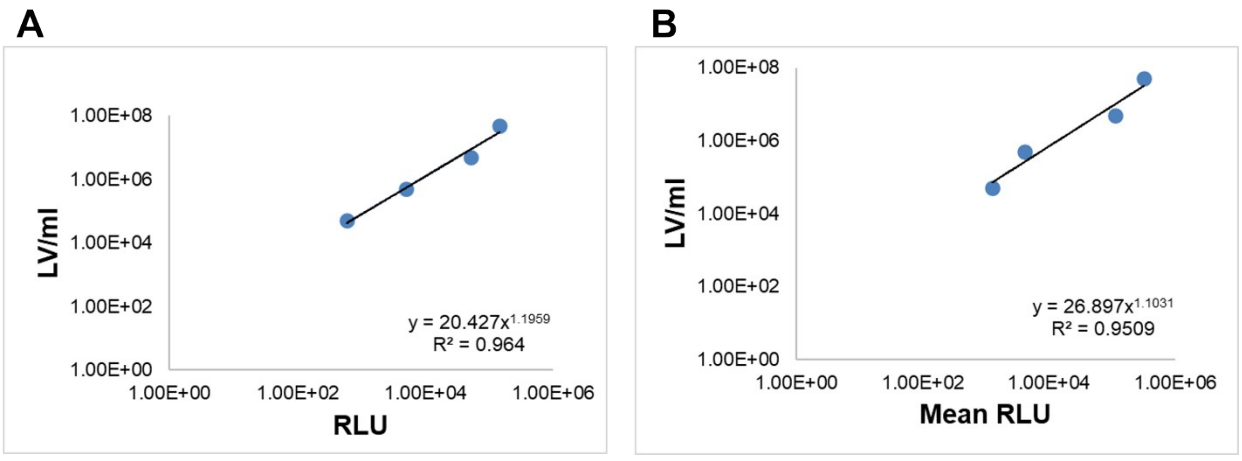
Data Acquisition: All data were acquired on an Agilent 6546 QToF with an Agilent 1260 HPLC system with the following source parameters: gas temp 200°C, drying gas 10 L/min, nebulizer 50 psi, sheath gas temp 300°C, sheath gas flow 12 L/min, Vcap 3500 V, fragmentor 150 V, skimmer 75 V, Oct 1 RF Vpp 750 V, mass range of m/z 40-1700 and an acquisition rate of 3 spectra/s. An Agilent Poroshell 120, EC-C18 2.7 um, 2.1x100 mm column heated to 45°C was used for all injections, 5 and 10 µL injection volumes were used for positive and negative polarities, respectively. Injections were separated using a binary HPLC gradient, solvent A contained water:methanol (1:1 v/v) with 10 mM ammonium formate, and solvent B was methanol:isopropanol (1:3 v/v) with 10 mM ammonium formate. The flow rate was constant at 0.4 mL/min, injections in positive

polarity used the following LC gradient program: 0 min 20% B, 0.35 min 20% B, 0.4 min 32% B, 9.6 min 44% B, 9.7 min 65% B, 11.5 min 65% B, 26.8 min 82%, 27.3 min 87% B, 37 min 96% B, 37.1 min 100% B, 44 min 100% B. Injections in negative polarity used a modified gradient program: 0 min 20% B, 0.35 min 20% B, 0.4 min 32% B, 9.6 min 44% B, 9.7 min 65% B, 11.5 min 65% B, 30.0 min 86% B, 30.1 min 100% B, 39 min 100% B. The HPLC was run at 20% B for 5 minutes following each injection to re-equilibrate the column. Samples were sorted randomly and first injected with the QToF acquiring MS-level only scans, each sample was analyzed in both positive and negative polarity with sequential injections. Technical triplicates for each sample in both polarities were recorded. Blank samples of methanol were injected after every 15 analyses to ensure no sample carry-over and FBS lipid extract was injected at the same interval as a quality assurance control. RT drift, mass accuracy, and abundance for 100±10 lipids were monitored using FBS throughout the batch. Synthetic lipid internal standards (lysophophatidylcholine (LPC) 13:0 (10 µM), lysophosphatidylethanolamine (LPE) 13:0 (20 µM), phosphatidylcholine (PC) 19:0/19:0 (10 µM) and cholesteryl ester (CE) 17:0 (20 µM), all purchased from Avanti Polar Lipids) were spiked in each sample as well as the FBS control and were monitored throughout the workflow for mass accuracy and retention time (RT) drift. There were 2 acceptance criteria when monitoring the FBS control during the batch. The first was to observe >100 lipids in positive and negative polarity, separately with <10 ppm mass accuracy. The second criterion was that the abundances and RTs of these lipids must not fluctuate more than 10% or 0.25 min when comparing FBS injections to the first FBS injection of the batch. Mass checks and calibrations were performed in both polarities at the start of each batch and every 24 hours while the batch was running.

Once triplicates were recorded for each sample in both polarities at MS-level only, replicates for each sample were pooled together and injected using a data-dependent MS/MS acquisition method with a quadrupole isolation width of 1.3 m/z and the following settings: 10 precursors/cycle, absolute threshold 5000 counts, active exclusion enabled after 1 spectra and released after 0.15 min, abundance dependent accumulation of 25000 counts/spectrum, purity stringency of 70% and a purity cut-off of 0%. Each sample was injected twice in positive and negative polarity using the same data-dependent MS/MS with the iterative injections feature activated: excluding features ± 20 ppm and ± 0.15 min RT from the previous injection.

Data Analysis: Lipids were identified in pooled samples using Agilent Lipid Annotator with the software default settings. All annotations were exported as a .csv file and reconfigured to a format suitable to serve as the input for the "Targeted Feature Extraction" module in Mzmine. A list of abbreviations for all lipid classes detected in the analysis is provided in Supporting Table S1. MS-level only data files were converted to .mzML format using MSConvert and imported into Mzmine 3.3.0. All files were processed with the mass detection module using the centroid detector and 5E3 noise levels. The targeted feature extraction module was then used with the following settings: 25% intensity tolerance, m/z tolerance of 0 m/z or 10 ppm, and an RT tolerance of ± 0.10 min (absolute). RTs on feature lists were calibrated using the following settings: m/z tolerances 0 or 10 ppm, RT tolerance ± 0.5 min (absolute) and minimum standard intensity of 1E4. Features were then aligned using the "Join aligner" module with the following settings: m/z tolerance 0 m/z or 10 ppm, weight for m/z 50, RT tolerance ± 0.20 min, weight for RT 50 and were required to have the same identity. Internal standards were monitored in each sample to

assess the MZmine module settings for mass and RT accuracy during data preprocessing. The steps were performed on files for each polarity separately, then peak areas were exported from Mzmine and combined into the same feature list. Features were removed from the dataset following the “modified 80% rule”, where features were only kept if they were detected in 80% of samples from at least one treatment group. Feature lists were then imported into R (R-4.0.3), normalized with normalizeCyclicLoess, and batch corrected using removeBatchEffect, both from the Limma Package (ver. 3.46.0). For HEK293T samples, missing values were imputed using the Quantile Regression Imputation of Left-Censored (QRILC) method impute.QRILC from the imputeLCMD package (ver. 2.1). *P* values were calculated using Microsoft Excel using 2-tailed distributions assuming unequal variance. FDR correction of *P* values was applied using p.adjust in R. For LV data, missing values were zero-filled and the normalized non-log_2-transformed values from the culture media blank were subtracted from the LV samples. Any values which became 0 or negative after this step were removed from the dataset. Internal standards were not used to normalize or correct abundances for any lipid classes during data processing.



Supporting Figure S1: Luminescence standard curve used to determine LV titers produced from HEK 293T cell cultures in T75 flasks (**A**) and 6-well plates (**B**). Pure LV stock carrying firefly luciferase is diluted to 4 solutions ($5x10^4$ to $5x10^7$ TU/mL) in culture media and is added to HT1080 cells. After incubation for 72 hr the luminescence is recorded for the culture and a standard curve is produced.

Supporting Table S1. Abbreviations and formal names used for all lipid classes.

Abbreviation	Lipid Class	Polarity
LPC	Lysophophatidylcholine	Positive
Cer_NS	Ceramide non-hydroxyfatty acid-sphingosine	Positive
DG	Diacylglycerol	Positive
CE	Cholesteryl ester	Positive
SM	Sphingomyelin	Positive
PC	Phosphatidylcholine	Positive
CerP	Ceramide-1-phosphates	Positive
TG	Triacylglycerol	Positive
BMP	Bis(monoacylglycerol)phosphate	Positive
FA	Free fatty acid	Negative
LPE	Lysophosphatidylethanolamine	Negative
LPC	Lysophophatidylcholine	Negative
EtherPE	Ether-linked phosphatidylethanolamine	Negative
PE	Phosphatidylethanolamine	Negative
PS	Phosphatidylserine	Negative
EtherPC	Ether-linked phosphatidylcholine	Negative
HexCer_NS	Hexosylceramide non-hydroxyfatty acid-sphingosine	Negative
PG	Phosphatidylglycerol	Negative
SHexCer	Sulfatide	Negative
PI	Phosphatidylinositol	Negative
GM3	monosialodihexosylganglioside	Negative
CL	Cardiolipin	Negative

Supporting Table S2. List of identified lipids from FBS lipid extract, including their respective CV before and after batch correction.

Compound Name	Lipid Class	*m/z*	RT (min)	CV (%)	CV Batch Effect (%)
CE 16:1	CE	640.6027	33.31	11.35	2.36
CE 16:0	CE	642.6183	34.27	54.67	23.41
CE 17:1	CE	654.6185	33.87	26.90	13.23
CE 18:3	CE	664.6026	32.96	32.09	21.74

Compound Name	Lipid Class	*m/z*	RT (min)	CV (%)	CV Batch Effect (%)
CE 18:2	CE	666.6187	33.63	33.75	28.29
CE 18:1	CE	668.6344	34.42	25.32	16.95
CE 18:0	CE	670.6496	35.45	8.93	1.97
CE 20:5	CE	688.6028	32.63	5.64	2.08
CE 20:4	CE	690.6189	33.33	61.58	39.18
CE 20:3	CE	692.6336	33.92	17.54	6.01
CE 20:2	CE	694.6497	34.67	13.36	8.69
CE 20:1	CE	696.6652	35.56	2.98	2.68
CE 22:6	CE	714.6184	33.13	29.58	17.63
CE 22:5	CE	716.6337	33.57	27.52	8.83
LPC 14:0/0:0	LPC	468.3087	5.59	0.71	0.58
LPC 15:0/0:0	LPC	482.3242	6.81	0.75	0.59
LPC 16:1/0:0	LPC	494.3242	6.34	0.81	0.39
LPC 0:0/16:1	LPC	494.3244	5.87	38.30	7.12
LPC 0:0/16:0	LPC	496.3398	7.58	1.59	1.43
LPC 16:0/0:0	LPC	496.3401	8.24	0.48	0.40
LPC 17:1/0:0	LPC	508.3399	7.56	1.81	0.56
LPC 17:0/0:0	LPC	510.3554	9.28	26.17	25.77
LPC 17:0/0:0	LPC	510.3557	9.94	1.92	1.70
LPC 18:2/0:0	LPC	520.3398	7.22	1.26	1.16
LPC 0:0/18:2	LPC	520.3400	6.69	5.02	2.40
LPC 18:2/0:0	LPC	520.3400	7.79	19.17	11.23
LPC 0:0/18:1	LPC	522.3555	8.40	2.99	2.73
LPC 18:1/0:0	LPC	522.3557	9.05	1.33	0.48
LPC 0:0/18:0	LPC	524.3713	10.96	4.90	0.94
LPC 18:0/0:0	LPC	524.3713	11.80	2.03	0.20
LPC 19:0/0:0	LPC	538.3870	12.92	8.65	7.42
LPC 20:5/0:0	LPC	542.3244	5.96	7.02	2.68
LPC 0:0/20:4	LPC	544.3397	6.75	1.07	0.92
LPC 20:4/0:0	LPC	544.3399	7.24	1.84	0.66
LPC 20:3/0:0	LPC	546.3548	9.04	28.34	16.72
LPC 20:3/0:0	LPC	546.3554	8.39	2.39	0.59
LPC 20:2/0:0	LPC	548.3708	10.28	1.99	1.89
LPC 20:1/0:0	LPC	550.3869	12.38	3.52	0.68
LPC 20:0/0:0	LPC	552.4026	13.57	11.86	9.63
LPC 22:6/0:0	LPC	568.3397	7.24	2.62	1.60
LPC 0:0/22:6	LPC	568.3398	6.76	32.52	20.64
LPC 22:5/0:0	LPC	570.3553	8.09	1.97	0.64
LPC 22:5/0:0	LPC	570.3556	8.76	4.29	3.12
LPC 22:4/0:0	LPC	572.3714	9.74	3.77	1.12
PC 14:0_16:0	PC	706.5381	17.87	8.15	5.40
PC 15:0_16:0	PC	720.5536	18.73	15.33	12.00

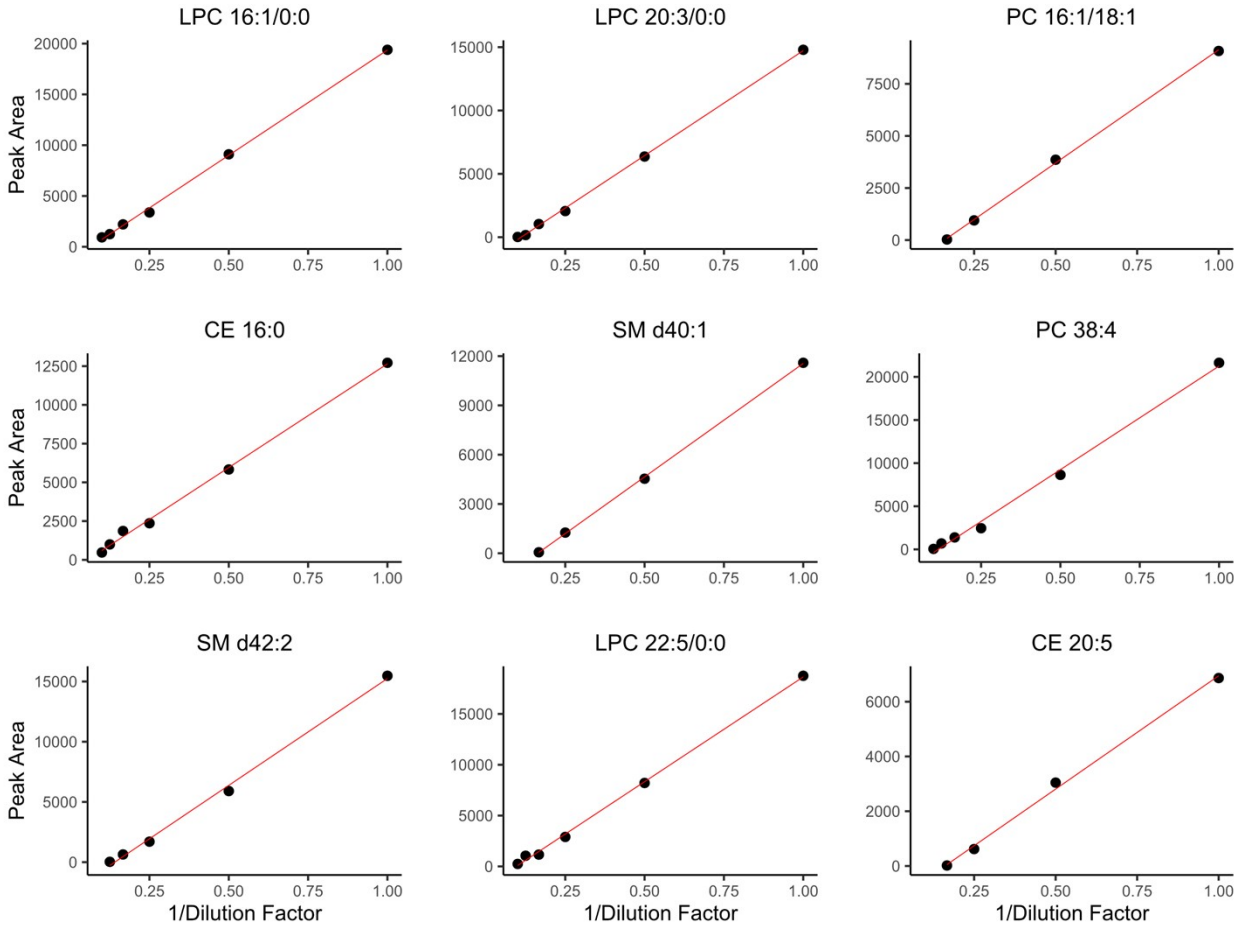
Compound Name	Lipid Class	*m/z*	RT (min)	CV (%)	CV Batch Effect (%)
PC 16:0_16:1	PC	732.5539	18.31	3.58	3.47
PC 16:0_16:0	PC	734.5694	19.61	2.48	0.49
PC 16:0_17:1	PC	746.5698	19.11	14.02	9.65
PC 16:0_17:0	PC	748.5855	20.48	12.00	8.35
PC 16:1_18:1	PC	758.5695	18.83	10.74	6.63
PC 16:0_18:1	PC	760.5855	19.94	0.36	0.36
PC 16:0_18:0	PC	762.6008	21.51	1.18	0.48
PC 17:1_18:1	PC	772.5856	19.70	39.33	27.01
PC 17:0_18:1	PC	774.6007	20.88	0.75	0.38
PC 16:0_20:4	PC	782.5692	18.84	3.01	0.24
PC 16:0_20:3	PC	784.5832	21.49	1.27	0.85
PC 16:0_20:3	PC	784.5849	19.49	7.59	4.25
PC 18:0_18:2	PC	786.6005	20.43	1.44	1.41
PC 18:0_18:1	PC	788.6165	21.88	0.51	0.26
PC 19:1_18:3	PC	796.5852	19.78	2.35	0.58
PC 17:0_20:3	PC	798.6001	20.48	37.90	8.89
PC 37:1	PC	802.6319	22.91	2.51	0.84
PC 16:0_22:6	PC	806.5677	19.51	56.29	29.78
PC 16:0_22:6	PC	806.5690	18.74	2.12	1.88
PC 18:1_20:4	PC	808.5829	20.34	1.20	1.11
PC 18:1_20:4	PC	808.5848	19.20	2.44	0.23
PC 38:4	PC	810.5982	21.87	5.47	5.04
PC 16:0_22:4	PC	810.6001	19.84	13.67	15.79
PC 16:0_22:4	PC	810.6003	20.17	26.63	17.23
PC 18:0_20:4	PC	810.6007	20.65	0.48	0.47
PC 18:0_20:3	PC	812.6153	21.71	7.01	4.96
PC 18:0_20:3	PC	812.6159	21.39	2.10	0.25
PC 18:0_20:2	PC	814.6317	22.44	6.26	4.50
PC 17:0_22:5	PC	822.6004	20.05	32.55	16.79
PC 20:3_20:4	PC	832.5836	19.09	5.45	0.66
PC 18:0_22:6	PC	834.5987	21.36	1.87	1.44
PC 18:0_22:6	PC	834.6002	20.53	2.44	0.98
PC 18:1_22:5	PC	834.6004	19.55	63.95	43.15
PC 18:0_22:5	PC	836.6158	21.03	1.58	0.89
PC 18:0_22:4	PC	838.6317	22.09	0.75	0.40
SM d32:1	SM	675.5437	16.07	4.43	0.46
SM d33:1	SM	689.5593	16.77	5.78	2.78
SM d33:1	SM	689.5597	17.19	6.22	4.01
SM d34:2	SM	701.5593	16.45	1.36	0.33
SM d34:1	SM	703.5751	17.48	0.61	0.25
SM d34:0	SM	705.5902	18.12	2.87	1.85
SM d35:1	SM	717.5906	18.33	32.45	15.76

Compound Name	Lipid Class	*m/z*	RT (min)	CV (%)	CV Batch Effect (%)
SM d36:2	SM	729.5906	17.98	1.98	0.90
SM d36:1	SM	731.6061	19.18	1.28	1.26
SM d38:2	SM	757.6209	19.78	23.09	14.09
SM d38:1	SM	759.6378	21.06	12.81	9.60
SM d39:1	SM	773.6531	22.03	7.22	1.80
SM d40:2	SM	785.6533	21.61	2.17	0.57
SM d40:1	SM	787.6687	23.02	38.35	26.26
SM d41:2	SM	799.6689	22.23	3.91	3.12
SM d41:1	SM	801.6844	24.04	38.68	27.37
SM d42:3	SM	811.6687	21.79	2.39	0.28
SM d42:2	SM	813.6843	23.14	2.05	0.22
SM d42:1	SM	815.7003	25.06	1.15	0.49
TG 14:0_16:0_16:0	TG	796.7387	33.07	58.11	32.06
TG 48:1	TG	822.7548	33.25	23.34	10.27
TG 16:0_16:0_16:0	TG	824.7703	33.96	34.45	24.12
TG 15:0_16:0_18:1	TG	836.7699	33.65	38.14	28.01
TG 16:0_16:1_18:1	TG	848.7701	33.45	15.07	3.13
TG 16:0_16:0_18:1	TG	850.7860	34.09	46.35	7.09
TG 16:0_16:0_18:0	TG	852.8014	34.82	45.63	34.92
TG 16:0_17:1_18:1	TG	862.7858	33.88	14.69	6.50
TG 16:0_18:1_18:2	TG	874.7857	33.64	12.67	9.28
TG 16:0_18:1_18:1	TG	876.8014	34.24	27.61	18.69
TG 16:0_18:0_18:1	TG	878.8175	34.96	24.37	20.05
TG 16:0_18:1_20:4	TG	898.7857	33.54	28.90	16.71

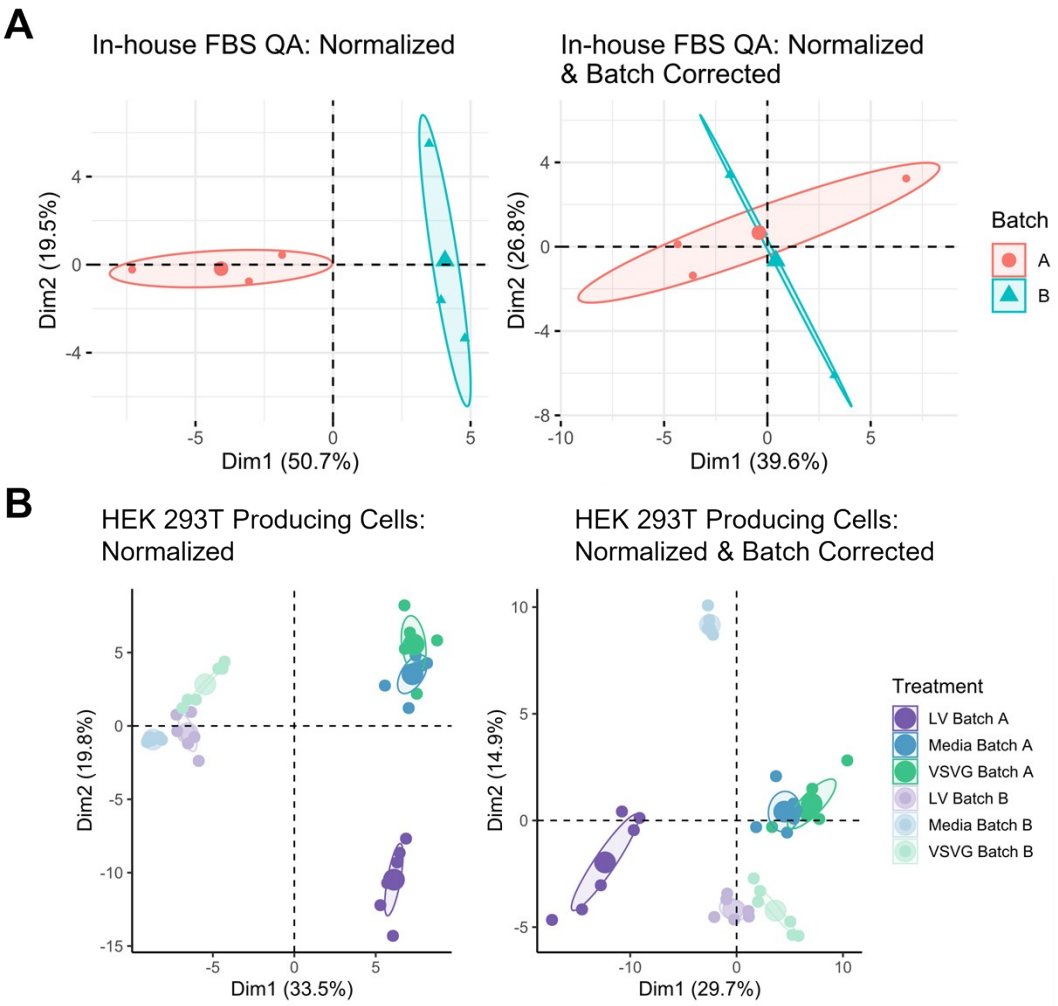
Supporting Table S3. Lipids identified in FBS extract with three or more data points at different dilution levels including R^2 values of the calibration curves and the average peak areas.

Compound Name	Lipid Class	*m/z*	RT (min)	R^2	Number of Data Points	Average Peak Area in FBS +/- σ
CE 16:1	CE	640.60266	33.314	0.9699	6	4424 ± 133.72
CE 16:0	CE	642.61832	34.265	0.9978	6	152600 ± 556.78
CE 17:1	CE	654.61847	33.871	0.9496	3	8853 ± 286.94
CE 18:3	CE	664.60261	32.955	0.9991	3	118733 ± 802.08
CE 18:2	CE	666.61869	33.631	0.9364	6	4884 ± 282.26
CE 18:1	CE	668.63438	34.416	0.936	6	12716 ± 3158.2
CE 20:5	CE	688.60275	32.625	0.9973	4	4906 ± 114.67
CE 20:4	CE	690.61886	33.325	0.934	6	136967 ± 4606.88
CE 20:3	CE	692.63357	33.922	0.9969	6	5709 ± 87.5
CE 22:6	CE	714.61839	33.126	0.9772	6	4852 ± 107.61
CE 22:5	CE	716.6337	33.57	0.9611	3	3895 ± 175.79
LPC 14:0/0:0	LPC	468.30869	5.59	0.9861	4	21633 ± 448.37
LPC 15:0/0:0	LPC	482.32417	6.81	0.9937	3	6931 ± 48.27
LPC 16:1/0:0	LPC	494.32418	6.339	0.999	6	17893 ± 124.23
LPC 0:0/16:0	LPC	496.33975	7.582	0.9988	6	18753 ± 133.17
LPC 16:0/0:0	LPC	496.34012	8.241	0.9836	6	11593 ± 260.83

LPC 17:1/0:0	LPC	508.33987	7.555	0.9721	3	230500 ± 7175.65
LPC 18:2/0:0	LPC	520.33979	7.22	0.9984	6	14793 ± 141.54
LPC 0:0/18:1	LPC	522.35546	8.395	0.999	6	4129 ± 49.37
LPC 18:1/0:0	LPC	522.35572	9.054	0.9726	6	10673 ± 480.14
LPC 18:0/0:0	LPC	524.37127	11.799	0.9938	6	110767 ± 1619.67
LPC 0:0/18:0	LPC	524.3713	10.956	0.9991	4	50737 ± 580.46
LPC 0:0/20:4	LPC	544.33971	6.75	0.9934	6	22793 ± 654.93
LPC 20:4/0:0	LPC	544.3399	7.236	0.9946	6	25560 ± 407.8
LPC 20:3/0:0	LPC	546.35544	8.392	0.9992	6	24443 ± 37.86
LPC 22:6/0:0	LPC	568.33965	7.235	0.9797	6	15473 ± 516.27
LPC 22:5/0:0	LPC	570.35531	8.088	0.9984	6	11470 ± 43.59
PC 16:0_16:1	PC	732.55389	18.308	0.9782	3	6864 ± 241.17
PC 16:0_16:0	PC	734.56938	19.607	0.9949	6	9377 ± 55.43
PC 16:1_18:1	PC	758.5695	18.828	0.9994	4	3483 ± 29.31
PC 16:0_18:1	PC	760.58551	19.938	0.9857	6	133300 ± 2306.51
PC 16:0_18:0	PC	762.60075	21.511	0.9945	3	9651 ± 163.62
PC 17:0_18:1	PC	774.60067	20.878	0.9977	3	5386 ± 97.77
PC 16:0_20:4	PC	782.56915	18.841	0.9974	6	112333 ± 1569.5
PC 16:0_20:3	PC	784.58485	19.486	0.9996	4	8513 ± 26.91
PC 18:0_18:2	PC	786.60051	20.432	0.9898	6	6541 ± 218.74
PC 18:0_18:1	PC	788.61645	21.877	0.9558	6	22123 ± 841.09
PC 16:0_22:6	PC	806.56904	18.744	0.9949	6	25277 ± 372.87
PC 18:1_20:4	PC	808.58293	20.342	0.996	3	14577 ± 145.72
PC 18:1_20:4	PC	808.58476	19.195	0.9942	6	27143 ± 458.84
PC 38:4	PC	810.59824	21.87	0.9956	6	20180 ± 389.74
PC 16:0_22:4	PC	810.60033	20.169	0.9984	4	217300 ± 953.94
PC 18:0_20:4	PC	810.60072	20.645	0.9668	6	3823 ± 245.5
PC 18:0_20:3	PC	812.61533	21.713	0.9953	5	10062 ± 148.52
PC 18:0_20:3	PC	812.61593	21.387	0.9939	6	34357 ± 448.81
PC 18:0_22:6	PC	834.59867	21.364	0.9946	3	224933 ± 3842.31
PC 18:0_22:6	PC	834.60016	20.534	0.9904	6	24107 ± 502.92
PC 18:0_22:5	PC	836.61581	21.032	0.9924	6	5948 ± 131.91
PC 18:0_22:4	PC	838.63166	22.087	0.9944	3	3866 ± 2513.65
SM d34:2	SM	701.55926	16.454	0.9734	3	3650 ± 186.86
SM d34:1	SM	703.57507	17.479	0.9856	6	6447 ± 234.72
SM d36:1	SM	731.60607	19.178	0.9999	4	5604 ± 38.55
SM d40:1	SM	787.66866	23.022	0.9998	4	19390 ± 121.24
SM d42:2	SM	813.68426	23.142	0.9972	5	167333 ± 2419.37
TG 48:1	TG	822.75479	33.25	0.9662	3	135733 ± 4206.34
TG 16:0_16:1_18:1	TG	848.77014	33.446	0.9868	3	15237 ± 611.99
TG 16:0_16:0_18:1	TG	850.78602	34.087	0.9959	3	9077 ± 155.2
TG 16:0_18:1_18:1	TG	876.8014	34.243	0.9748	4	70353 ± 2358.44



Supporting Figure S2. Calibration curves of selected lipids from standard FBS lipid extract obtained through serial dilutions of factors of two, four, six, eight, and ten.



Supporting Figure S3. A) Batch differences between biological replicates of HEK 293T cells revealed through comparison to standard FBS sample. These batch differences can be corrected using the Limma package's removeBatchEffect function in R as illustrated before (left) and after (right) it is applied. B) PCA plots of before (left) and after (right) the removeBatchEffect function was applied to the datasets used in this work.

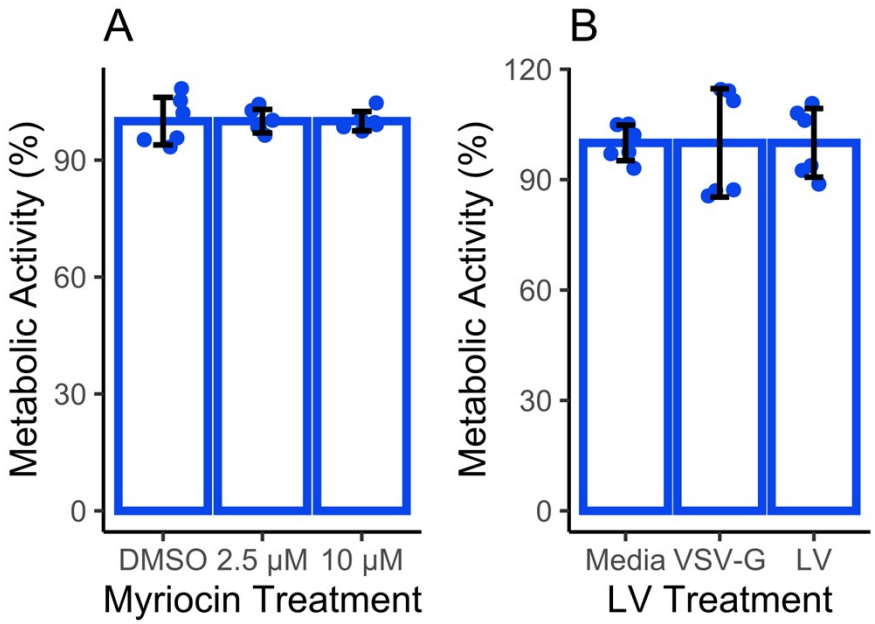
Supporting Table S4. Fold changes and FDR-corrected *P* values of lipids identified in HEK293T cells treated with 10 μM myriocin.

Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change Myr 10μM	FDR *P* Value Myr 10μM
BMP 18:1_18:1	BMP	792.575	17.257	0.022	0.9983
Cer_NS d18:1_16:0	Cer_NS	538.5197	19.236	-0.686	0.6269
Cer_NS d18:1_24:0	Cer_NS	650.6448	27.095	-1.279	0.2301
CL 68:4	CL	1399.962	31.199	-0.389	0.9983
CL 70:4	CL	1427.993	32.42	-0.012	0.9983
CL 72:7	CL	1449.975	32.414	0.1	0.9983
DG 14:0_16:0	DG	558.5093	21.035	-0.336	0.9983
DG 16:0_16:0	DG	586.5408	23.027	-0.027	0.9983

Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change Myr 10μM	FDR *P* Value Myr 10μM
DG 16:0_18:1	DG	612.5566	23.45	-0.105	0.9983
DG 16:0_18:0	DG	614.5721	25.04	0.047	0.9983
DG 18:1_18:1	DG	638.572	23.848	-0.025	0.9983
DG 18:0_18:1	DG	640.5877	25.461	-0.08	0.9983
EtherPC 16:1e_14:0	EtherPC	734.5324	19.312	-0.02	0.9983
EtherPC 16:0e_14:0	EtherPC	736.548	18.685	0.139	0.7972
EtherPC 16:1e_16:1	EtherPC	760.5481	18.85	0.093	0.9983
EtherPC 16:1e_16:0	EtherPC	762.5637	19.069	0.114	0.7972
EtherPC 16:0e_16:1	EtherPC	762.564	20.456	0.191	0.1533
EtherPC 16:0e_16:0	EtherPC	764.5795	19.277	0.118	0.9983
EtherPC 16:0e_17:1	EtherPC	776.5792	20.623	0.087	0.9983
EtherPC 18:1e_16:1	EtherPC	788.5786	20.106	0.114	0.9983
EtherPC 16:1e_18:1	EtherPC	788.5794	19.583	0.092	0.9983
EtherPC 16:0e_18:1	EtherPC	790.5954	20.811	0.07	0.9983
EtherPC 18:0e_16:0	EtherPC	792.6108	21.017	-0.018	0.9983
EtherPC 18:2e_18:1	EtherPC	814.5947	22.587	0.041	0.9983
EtherPC 18:1e_18:1	EtherPC	816.6105	21.378	-0.037	0.9983
EtherPC 18:1e_18:1	EtherPC	816.6106	22.74	-0.113	0.9983
EtherPC 18:0e_18:1	EtherPC	818.6264	22.986	0.009	0.9983
EtherPC 16:0e_20:0	EtherPC	820.6415	24.64	-0.251	0.7972
EtherPC 38:1e	EtherPC	846.6573	25.012	-0.41	0.9983
EtherPE 16:1e_16:1	EtherPE	672.4959	20.171	-0.451	0.9983
EtherPE 16:1e_17:1	EtherPE	686.5112	18.932	0.153	0.9983
EtherPE 16:1e_20:5	EtherPE	720.4956	19.863	0.028	0.9983
EtherPE 16:1e_20:4	EtherPE	722.5115	20.542	0.329	0.9983
EtherPE 16:1e_20:3	EtherPE	724.5268	20.988	0.12	0.9983
EtherPE 16:1e_20:3	EtherPE	724.5269	21.389	0.039	0.9983
EtherPE 36:2e	EtherPE	728.5585	22.907	0.063	0.9983
EtherPE 18:0e_18:1	EtherPE	730.573	23.107	-0.007	0.9983
EtherPE 16:1e_22:6	EtherPE	746.5114	19.729	-0.75	0.7972
EtherPE 18:2e_20:4	EtherPE	748.527	20.23	0.007	0.9983
EtherPE 18:1e_20:4	EtherPE	750.5427	21.721	-0.088	0.9983
EtherPE 18:1e_20:3	EtherPE	752.558	22.843	0.146	0.6269
EtherPE 38:4e	EtherPE	752.558	22.422	0.116	0.9983
EtherPE 18:1e_22:6	EtherPE	774.5423	21.579	-0.171	0.9983
EtherPE 18:1e_22:5	EtherPE	776.558	22.09	-0.344	0.9983
EtherPE 18:1e_22:4	EtherPE	778.5739	23.084	-0.041	0.9983
GM3 d34:1	GM3	1151.703	15.722	-2.025	0.0406
HexCer_NS d18:1_16:0	HexCer_NS	744.5616	17.801	-0.911	0.9983
HexCer_NS d18:1_24:0	HexCer_NS	856.6863	25.039	-2.379	0.1533
LPC 0:0/16:1	LPC	494.3242	5.84	-1.595	0.6177
LPC 16:0/0:0	LPC	496.3401	8.36	-0.241	0.9983
LPC 0:0/18:1	LPC	522.3557	8.507	-0.675	0.2549
LPC 18:0/0:0	LPC	524.3713	11.932	-0.26	0.9983
PC 14:0_14:0	PC	678.5072	16.364	0.167	0.9983
PC 14:0_15:0	PC	692.5227	17.272	0.024	0.9983
PC 14:0_16:1	PC	704.5226	17.273	-0.009	0.9983
PC 14:0_16:1	PC	704.5229	16.717	0.138	0.9983
PC 14:0_16:0	PC	706.539	17.843	0.107	0.9983
PC 15:0_16:1	PC	718.5385	17.432	0.033	0.9983
PC 15:0_16:0	PC	720.5541	18.333	0.012	0.9983
PC 16:1_16:1	PC	730.5388	17.278	0.119	0.9983
PC 17:0_15:1	PC	732.5537	21.037	0.198	0.9983
PC 16:0_16:1	PC	732.5559	18.233	0.098	0.7972
PC 16:0_16:0	PC	734.5704	19.527	0.172	0.9983
PC 33:1	PC	746.5695	18.738	0.044	0.9983
PC 15:0_18:1	PC	746.5699	21.984	0.11	0.427
PC 16:0_17:1	PC	746.5702	19.069	0.012	0.9983
PC 16:0_17:0	PC	748.5852	20.075	0.01	0.9983
PC 14:0_20:4	PC	754.5355	17.285	-0.209	0.9983
PC 16:1_18:2	PC	756.5536	17.581	-0.061	0.9983
PC 16:1_18:1	PC	758.5706	18.579	0.107	0.7972
PC 16:0_18:1	PC	760.5887	19.887	0.093	0.9983

Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change Myr 10μM	FDR *P* Value Myr 10μM
PC 16:0_18:0	PC	762.6011	21.409	0.154	0.8759
PC 17:1_18:1	PC	772.585	22.262	0.782	0.7972
PC 17:1_18:1	PC	772.5855	19.402	0.037	0.9983
PC 17:0_18:1	PC	774.6009	20.479	0.044	0.9983
PC 17:0_18:1	PC	774.6012	20.856	0.003	0.9983
PC 16:0_20:4	PC	782.5688	18.825	0.124	0.9983
PC 18:1_18:2	PC	784.5854	19.192	0.062	0.9983
PC 18:1_18:1	PC	786.6026	20.271	0.086	0.9983
PC 18:0_18:1	PC	788.6179	21.818	0.075	0.9983
PC 37:7	PC	790.5333	21.997	0.193	0.9983
PC 17:0_20:4	PC	796.5825	20.858	-0.338	0.9983
PC 18:1_19:1	PC	800.6164	21.229	1.127	0.8759
PC 16:0_22:6	PC	806.5692	18.732	-0.081	0.9983
PC 18:1_20:4	PC	808.5848	19.179	0.104	0.9983
PC 18:1_20:3	PC	810.6004	19.766	-0.089	0.9983
PC 18:1_20:2	PC	812.6162	20.912	-0.061	0.9983
PC 18:1_20:1	PC	814.6327	22.092	-0.015	0.9983
PC 38:1	PC	816.6476	23.853	1.447	0.7972
PC 18:1_22:6	PC	832.5848	19.029	-0.686	0.9983
PE 16:0_16:1	PE	688.4907	18.416	0.165	0.9983
PE 16:1_18:1	PE	714.5064	18.761	0.111	0.9983
PE 16:0_18:1	PE	716.5222	20.085	-0.325	0.9983
PE 17:1_18:1	PE	728.5216	19.595	-0.272	0.9983
PE 17:0_18:1	PE	730.5375	20.991	0.416	0.9983
PE 16:0_20:4	PE	738.5062	18.995	-0.127	0.9983
PE 18:1_18:1	PE	742.5378	20.432	-0.482	0.9983
PE 18:0_18:1	PE	744.5535	21.892	-0.414	0.9983
PE 18:1_20:4	PE	764.5218	19.349	0.071	0.9983
PE 18:0_20:4	PE	766.5375	20.784	-0.099	0.9983
PE 18:0_20:3	PE	768.5527	21.895	-0.442	0.9983
PE 18:1_20:1	PE	770.5687	22.225	0.113	0.9983
PE 20:0_18:1	PE	772.5835	23.808	0.326	0.9983
PE 18:0_22:6	PE	790.5375	20.667	0.074	0.9983
PG 16:1_18:1	PG	745.5008	16.005	-0.045	0.9983
PI 16:0_16:1	PI	807.5011	16.374	-0.02	0.9983
PI 16:1_18:1	PI	833.5167	16.638	-0.158	0.9983
PI 16:0_18:1	PI	835.5329	17.656	-0.428	0.9983
PI 16:0_18:0	PI	837.5476	18.853	0.38	0.9983
PI 17:1_18:1	PI	847.5323	17.308	-0.285	0.6085
PI 35:1	PI	849.5477	18.44	-0.021	0.9983
PI 16:0_20:4	PI	857.5166	16.853	0.197	0.9983
PI 18:1_18:2	PI	859.5323	17.697	-0.212	0.9983
PI 16:0_20:3	PI	859.5323	17.332	-0.117	0.9983
PI 36:2	PI	861.5484	17.998	0.297	0.7083
PI 17:0_20:3	PI	873.548	18.46	-0.31	0.9983
PI 18:0_19:2	PI	875.5632	19.07	-0.529	0.9983
PI 18:1_20:4	PI	883.5325	17.193	0.453	0.9983
PI 18:0_20:4	PI	885.5482	18.256	-0.716	0.9983
PI 38:3	PI	887.5635	18.82	-0.011	0.9983
PI 18:0_20:3	PI	887.5637	19.206	-0.015	0.9983
PI 38:2	PI	889.5792	19.705	0.005	0.9983
PI 38:1	PI	891.5946	20.768	0.07	0.9983
PI 18:0_22:6	PI	909.5477	18.21	-0.044	0.9983
PI 18:0_22:5	PI	911.5627	18.587	0.048	0.9983
PI 18:0_22:4	PI	913.5788	19.454	-1.152	0.244
SM d32:1	SM	675.5436	16.118	-0.148	0.9983
SM d33:1	SM	689.5593	16.813	-0.662	0.6269
SM d34:2	SM	701.5593	16.505	-0.207	0.9983
SM d34:1	SM	703.576	17.548	-0.349	0.0608
SM d36:2	SM	729.5904	18.024	-2.11	0.0949
SM d18:1_18:0	SM	731.6065	19.216	-0.985	0.0406
SM d40:1	SM	787.6688	23.028	-0.783	0.0949
SM d42:2	SM	813.6846	23.167	-0.611	0.0322

Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change Myr 10µM	FDR *P* Value Myr 10µM
SM d42:1	SM	815.7002	25.018	-0.91	0.0057
TG 14:0_16:0_16:1	TG	794.7234	32.443	-0.139	0.9983
TG 14:0_16:0_16:0	TG	796.7391	33.253	-0.031	0.9983
TG 14:0_16:0_18:1	TG	822.7551	33.412	0.002	0.9983
TG 16:0_16:0_16:0	TG	824.7705	34.185	-0.04	0.9983
TG 16:0_16:1_18:1	TG	848.7708	33.574	0.081	0.9983
TG 16:0_16:0_18:1	TG	850.7866	34.324	0.058	0.9983
TG 16:0_16:0_18:0	TG	852.8018	35.089	-0.064	0.9983
TG 16:1_18:1_18:1	TG	874.7861	33.736	0.121	0.9983
TG 16:0_18:1_18:1	TG	876.8023	34.464	-0.002	0.9983
TG 16:0_18:0_18:1	TG	878.8177	35.227	0.008	0.9983
TG 18:1_18:1_18:1	TG	902.8176	34.602	0.11	0.9983



Supporting Figure S4: Metabolic activity measured using a Resazurin assay for HEK 293T cells treated with myriocin (**A**) or producing VSV-G or LV (**B**).

Supporting Table S5. LV titers produced from HEK 293T cell cultures in T75 flasks and 6-well plates.

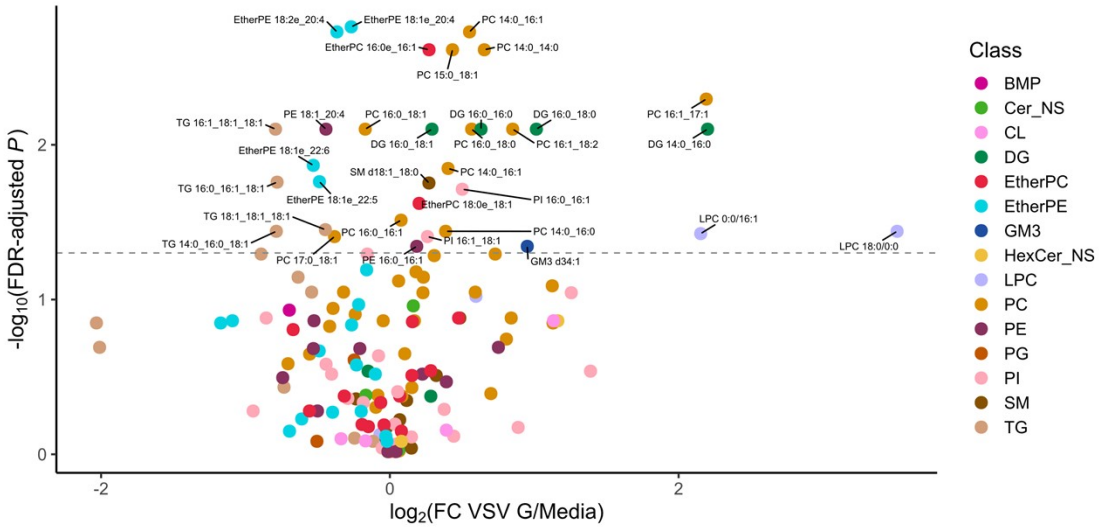
Sample Type	Average Titer (TU/mL)	Standard Deviation (TU/mL)
6-well plate	1.25E+06	2.02E+05
T75 Flasks	4.53E+07	7.50E+03

Supporting Table S6. Fold changes of lipids identified in LV and VSV G expressing HEK293T cells compared to cells treated only with standard culture media.

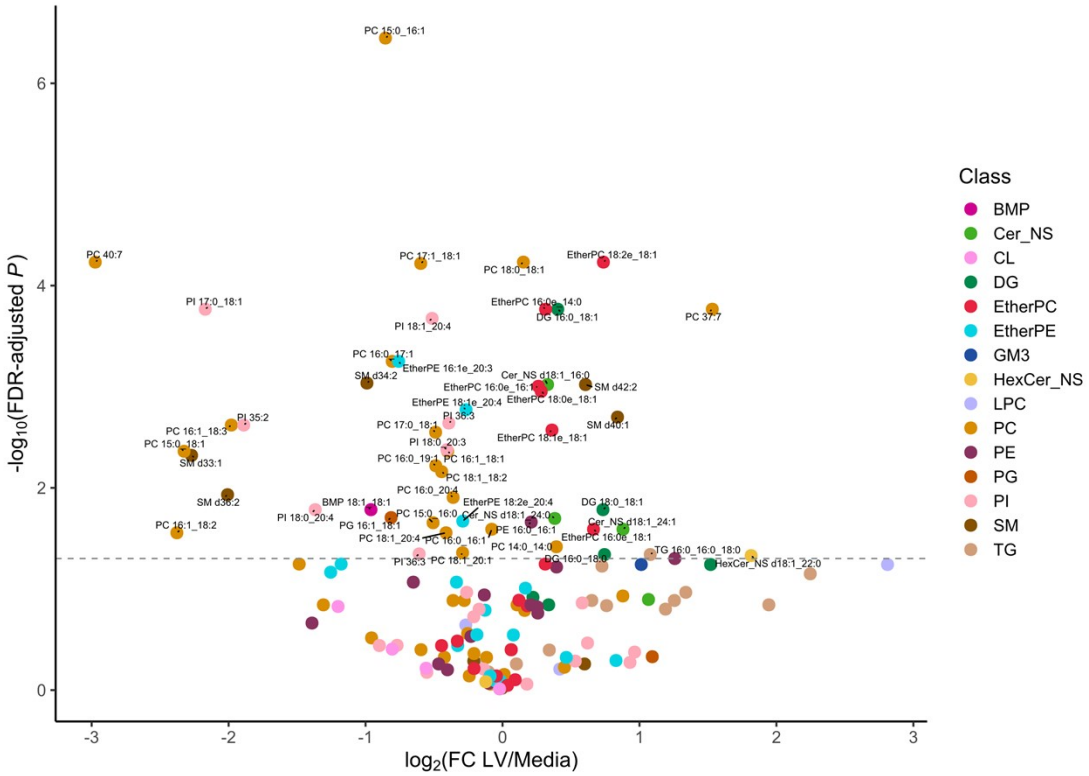
Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change LV	Log_2 Fold Change VSV G	FDR *P* value LV	FDR *P* value VSV G
BMP 18:1_18:1	BMP	792.57516	17.235	-0.9605	-0.6964	0.0164	0.1171
Cer_NS d18:1_16:0	Cer_NS	538.51986	19.225	0.3289	0.1623	0.0010	0.1098
Cer_NS d18:1_18:0	Cer_NS	566.55075	21.131	1.0657	0.0631	0.1270	0.9326
Cer_NS d18:1_24:1	Cer_NS	648.62931	25.283	0.8796	-0.0142	0.0257	0.9606
Cer_NS d18:1_24:0	Cer_NS	650.64506	27.088	0.3815	-0.1660	0.0201	0.4154
CL 68:4	CL	1399.9625	31.171	-0.8054	-0.3380	0.3932	0.7936
CL 70:7	CL	1421.9442	31.168	-0.0214	1.1339	0.9734	0.1371
CL 70:4	CL	1427.9932	32.398	-1.2006	-0.1682	0.1490	0.8190
CL 72:7	CL	1449.9753	32.387	-0.5576	0.3912	0.6078	0.6981
DG 14:0_16:0	DG	558.50941	21.024	1.5193	2.2005	0.0573	0.0079
DG 16:0_16:0	DG	586.54091	23.016	0.3369	0.6313	0.1434	0.0079
DG 16:0_18:1	DG	612.55668	23.438	0.4032	0.2917	0.0002	0.0079
DG 16:0_18:0	DG	614.57227	25.028	0.7446	1.0147	0.0457	0.0079
DG 18:1_18:1	DG	638.57211	23.836	0.2222	-0.1507	0.1208	0.2902
DG 18:0_18:1	DG	640.58796	25.45	0.7334	0.2837	0.0164	0.4214
EtherPC 16:1e_14:0	EtherPC	734.53235	18.684	0.1806	-0.0633	0.1467	0.4629
EtherPC 16:0e_14:0	EtherPC	736.54795	18.847	0.3144	0.0681	0.0002	0.4206
EtherPC 16:1e_16:1	EtherPC	760.54801	19.07	0.0639	-0.0032	0.3987	0.9600
EtherPC 16:1e_16:0	EtherPC	762.56361	20.459	0.1201	-0.0403	0.1293	0.6459
EtherPC 16:0e_16:1	EtherPC	762.56388	19.287	0.2616	0.2714	0.0010	0.0024
EtherPC 16:0e_16:0	EtherPC	764.57946	20.625	-0.3301	0.1530	0.3274	0.3095
EtherPC 16:0e_17:1	EtherPC	776.57885	20.107	-0.2079	-0.6700	0.6118	0.1564
EtherPC 16:1e_18:1	EtherPC	788.57937	20.804	-0.4450	-0.3157	0.3630	0.4206
EtherPC 16:0e_18:1	EtherPC	790.59527	21.017	0.6641	0.4763	0.0257	0.1317
EtherPC 18:0e_16:0	EtherPC	792.61056	22.592	-0.0444	-0.5568	0.7238	0.5249
EtherPC 18:2e_18:1	EtherPC	814.59469	21.177	0.7367	0.0798	0.0001	0.7087
EtherPC 18:1e_18:1	EtherPC	816.6105	22.741	0.3117	0.1565	0.0567	0.1391
EtherPC 18:1e_18:1	EtherPC	816.61053	21.372	0.3611	-0.1925	0.0027	0.6420
EtherPC 18:0e_18:1	EtherPC	818.62643	22.971	0.2828	0.2027	0.0011	0.0239
EtherPC 16:0e_20:0	EtherPC	820.64149	24.645	0.0360	0.2836	0.8982	0.2884
EtherPC 38:1e	EtherPC	846.65722	25.002	0.0926	-0.1483	0.7894	0.6626
EtherPE 16:1e_16:1	EtherPE	672.49588	19.313	-0.1276	-0.1608	0.1621	0.0643
EtherPE 16:1e_17:1	EtherPE	686.51061	20.162	-0.3272	-0.4895	0.3626	0.2147
EtherPE 16:1e_18:2	EtherPE	698.51145	19.814	-1.1782	-0.2313	0.0567	0.2647
EtherPE 16:1e_18:1	EtherPE	700.52737	21.025	0.8286	-0.6950	0.5093	0.7087
EtherPE 16:0e_18:1	EtherPE	702.53958	21.245	-0.0144	-0.0275	0.8165	0.7639
EtherPE 16:1e_20:5	EtherPE	720.49526	18.929	-1.2546	-1.1715	0.0683	0.1418
EtherPE 16:1e_20:4	EtherPE	722.51149	19.865	-0.3362	-1.0903	0.0856	0.1371
EtherPE 16:1e_20:3	EtherPE	724.52676	20.534	-0.7585	-0.2649	0.0006	0.1459
EtherPE 16:1e_20:3	EtherPE	724.52692	20.979	-0.0376	-0.2161	0.7894	0.1078
EtherPE 18:2e_18:1	EtherPE	726.54282	21.383	-0.0728	-0.3967	0.7895	0.5347
EtherPE 18:1e_18:1	EtherPE	728.5585	22.905	0.0793	-0.0197	0.2850	0.8242
EtherPE 18:0e_18:1	EtherPE	730.57271	23.092	0.1672	-0.1005	0.0982	0.3033
EtherPE 16:1e_22:6	EtherPE	746.5115	19.734	0.4657	-0.6104	0.4752	0.5909
EtherPE 18:2e_20:4	EtherPE	748.52688	20.22	-0.2903	-0.3664	0.0213	0.0019
EtherPE 18:1e_20:4	EtherPE	750.54268	21.712	-0.2660	-0.2674	0.0017	0.0017
EtherPE 18:1e_20:3	EtherPE	752.55817	22.843	-0.0905	-0.1984	0.7249	0.5275
EtherPE 18:1e_22:6	EtherPE	774.54244	21.573	-0.0493	-0.5302	0.8149	0.0136
EtherPE 18:1e_22:5	EtherPE	776.55798	22.087	-0.1870	-0.4875	0.2827	0.0173
GM3 d34:1	GM3	1151.7025	15.715	1.0129	0.9517	0.0573	0.0453
HexCer_NS d18:1_22:0	HexCer_NS	828.65456	23.161	1.8153	1.1634	0.0468	0.1371
HexCer_NS d18:1_24:0	HexCer_NS	856.68623	25.035	-0.1223	0.0801	0.8255	0.8242
LPC 0:0/16:1	LPC	494.32424	5.841	0.4182	2.1528	0.6198	0.0375
LPC 16:0/0:0	LPC	496.34028	8.358	-0.1991	0.5962	0.5342	0.0953
LPC 0:0/18:1	LPC	522.35582	8.504	-0.2680	-0.0686	0.2272	0.7450
LPC 18:0/0:0	LPC	524.37141	11.928	2.8111	3.5132	0.0573	0.0362
PC 14:0_14:0	PC	678.5073	16.356	0.3931	0.6544	0.0382	0.0024
PC 14:0_15:0	PC	692.52288	17.259	-1.3080	0.0642	0.1435	0.9499

Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change LV	Log_2 Fold Change VSV G	FDR *P* value LV	FDR *P* value VSV G
PC 14:0_16:1	PC	704.52288	17.269	-0.3611	0.4031	0.1299	0.0142
PC 14:0_16:1	PC	704.52305	16.714	-0.0429	0.5519	0.7966	0.0019
PC 14:0_16:0	PC	706.53921	17.848	-0.2546	0.3863	0.2757	0.0362
PC 15:0_16:1	PC	718.53859	17.42	-0.8547	-0.2398	0.0000	0.1246
PC 15:0_16:0	PC	720.55419	18.333	-0.5070	-0.3935	0.0221	0.1141
PC 16:1_16:1	PC	730.53879	17.22	-0.5953	1.1300	0.3987	0.1418
PC 17:0_15:1	PC	732.55376	21.033	0.8784	1.1248	0.1172	0.0815
PC 16:0_16:1	PC	732.55603	18.228	-0.0787	0.0777	0.0257	0.0307
PC 16:0_16:0	PC	734.57058	19.534	-0.2795	0.2292	0.1299	0.0904
PC 16:1_17:1	PC	744.55373	17.855	-0.2427	2.1914	0.7238	0.0051
PC 15:0_18:1	PC	746.5696	18.718	-2.3250	-0.4169	0.0043	0.1489
PC 15:0_18:1	PC	746.5701	21.978	0.1618	0.4339	0.1628	0.0024
PC 16:0_17:1	PC	746.57038	19.078	-0.8052	-0.0834	0.0006	0.4154
PC 16:0_17:0	PC	748.58546	20.08	-0.9562	-0.3205	0.3046	0.0896
PC 16:1_18:3	PC	754.53548	17.272	-1.9802	0.5917	0.0024	0.0896
PC 16:1_18:2	PC	756.55374	17.605	-2.3776	0.8508	0.0278	0.0079
PC 16:1_18:1	PC	758.57085	18.577	-0.4008	0.1032	0.0043	0.2240
PC 16:0_18:1	PC	760.58888	19.889	0.1063	-0.1706	0.1435	0.0079
PC 16:0_18:0	PC	762.60116	21.408	0.0476	0.5667	0.8255	0.0079
PC 15:1_20:1	PC	772.58539	22.247	-0.0884	0.8404	0.8722	0.1317
PC 17:1_18:1	PC	772.58561	19.405	-0.5970	0.0143	0.0001	0.9173
PC 17:0_18:1	PC	774.60117	20.477	-0.4885	-0.3833	0.0028	0.0392
PC 16:0_19:1	PC	774.60137	20.86	-0.4873	-0.0967	0.0061	0.4968
PC 16:0_20:4	PC	782.56885	18.819	-0.3607	0.1812	0.0124	0.0662
PC 18:1_18:2	PC	784.58567	19.189	-0.4441	0.3074	0.0069	0.0520
PC 18:1_18:1	PC	786.60289	20.267	0.0124	-0.0461	0.7002	0.1371
PC 18:0_18:1	PC	788.61811	21.816	0.1524	0.0607	0.0001	0.0759
PC 37:7	PC	790.53364	22.007	1.5318	0.8072	0.0002	0.1801
PC 37:4	PC	796.58263	20.851	-0.4247	-0.7052	0.4735	0.2599
PC 18:1_19:1	PC	800.61632	21.238	0.4521	0.6997	0.5935	0.4053
PC 16:0_22:6	PC	806.56958	18.731	-0.2083	0.1526	0.4349	0.3705
PC 18:1_20:4	PC	808.58502	19.173	-0.4124	0.0831	0.0278	0.4206
PC 18:1_20:3	PC	810.60052	19.766	-1.4846	0.7297	0.0567	0.0508
PC 38:3	PC	812.61638	20.918	-0.1167	0.2321	0.4752	0.0717
PC 18:1_20:1	PC	814.63297	22.094	-0.2916	0.1698	0.0438	0.1371
PC 40:7	PC	832.58484	19.037	-2.9735	-0.5554	0.0001	0.2251
PE 16:0_16:1	PE	688.4907	18.413	0.2096	0.1862	0.0218	0.0453
PE 16:1_18:1	PE	714.50636	18.755	-0.1330	-0.0261	0.1145	0.7936
PE 16:0_18:1	PE	716.52209	20.067	-1.3911	-0.5012	0.2172	0.5249
PE 17:1_18:1	PE	728.52091	19.582	-0.1005	0.3913	0.8538	0.3401
PE 17:0_18:1	PE	730.5374	20.983	-0.6512	-0.5254	0.0856	0.1371
PE 16:0_20:4	PE	738.50617	18.992	0.2576	0.2253	0.1729	0.3033
PE 18:1_18:1	PE	742.53774	20.432	-0.4661	0.0437	0.5513	0.9600
PE 18:0_18:1	PE	744.55339	21.895	-0.4020	-0.7419	0.6290	0.3197
PE 18:1_20:4	PE	764.52174	19.345	-0.2303	-0.4426	0.2944	0.0079
PE 18:0_20:4	PE	766.53755	20.778	0.2540	-0.5297	0.1505	0.2074
PE 18:1_20:1	PE	770.56869	22.2	0.2079	-0.2079	0.1435	0.2074
PE 20:0_18:1	PE	772.58394	23.801	1.2582	0.7517	0.0500	0.2036
PE 18:0_22:6	PE	790.53759	20.656	0.3945	-0.0133	0.0606	0.9600
PG 16:1_18:1	PG	745.50068	15.991	-0.8136	-0.2470	0.0197	0.2459
PG 18:1_18:1	PG	773.53249	17.255	1.0935	-0.5051	0.4671	0.8242
PI 16:0_16:1	PI	807.50096	16.365	-0.1380	0.5016	0.6190	0.0194
PI 14:0_18:0	PI	809.51684	17.331	-0.5525	-0.9469	0.6668	0.5249
PI 16:1_18:1	PI	833.5166	16.63	-0.2618	0.2603	0.1080	0.0392
PI 16:0_18:1	PI	835.53255	17.638	0.1780	0.4424	0.8722	0.7639
PI 16:0_18:0	PI	837.54766	18.837	0.5313	1.2564	0.5166	0.0904
PI 35:2	PI	847.53217	17.297	-1.8896	-0.2911	0.0024	0.4356
PI 17:0_18:1	PI	849.54785	18.409	-2.1703	-0.4417	0.0002	0.2618
PI 16:0_20:4	PI	857.51655	16.845	-0.2099	-0.1839	0.1883	0.4629
PI 36:3	PI	859.5321	17.321	-0.3919	0.0350	0.0023	0.6382
PI 36:3	PI	859.53214	17.687	-0.6087	0.0418	0.0450	0.8601
PI 36:2	PI	861.54813	17.992	0.9643	1.3898	0.4208	0.2902

Compound Name	Lipid Class	*m/z*	RT (min)	Log_2 Fold Change LV	Log_2 Fold Change VSV G	FDR *P* value LV	FDR *P* value VSV G
PI 18:0_18:1	PI	863.56404	19.152	0.9308	0.8886	0.5317	0.6703
PI 17:0_20:3	PI	873.54743	18.453	0.5820	-0.0529	0.1374	0.9114
PI 18:1_20:4	PI	883.53223	17.126	-0.5139	-0.4035	0.0002	0.3033
PI 18:0_20:4	PI	885.54832	18.244	-1.3676	-0.8565	0.0164	0.1317
PI 18:0_20:3	PI	887.56319	18.815	-0.4060	-0.1564	0.0042	0.0508
PI 18:0_20:3	PI	887.56366	19.196	-0.7699	-0.0784	0.3605	0.2309
PI 38:2	PI	889.57904	19.7	-0.1707	0.0544	0.1585	0.3942
PI 18:0_20:1	PI	891.59475	20.758	-0.8989	0.1495	0.3626	0.7730
PI 18:0_22:4	PI	913.57876	19.444	0.6208	0.3764	0.3422	0.5124
SM d32:1	SM	675.54368	16.11	-0.2098	0.4845	0.5166	0.1317
SM d33:1	SM	689.55938	16.813	-2.2705	-0.2349	0.0048	0.4386
SM d34:2	SM	701.55943	16.495	-0.9900	0.1162	0.0009	0.4485
SM d34:1	SM	703.57619	17.547	0.0630	-0.0253	0.3987	0.6756
SM d36:2	SM	729.59054	18.017	-2.0076	0.3214	0.0117	0.3095
SM d18:1_18:0	SM	731.60684	19.211	-0.0047	0.2707	0.9566	0.0177
SM d40:1	SM	787.669	23.029	0.8396	0.0328	0.0020	0.8860
SM d42:2	SM	813.68489	23.166	0.6059	0.0682	0.0010	0.5983
SM d42:1	SM	815.70045	25.032	0.5989	0.1492	0.5513	0.9114
TG 14:0_16:0_16:1	TG	794.72369	32.435	1.2550	-0.7331	0.1299	0.3686
TG 14:0_16:0_16:0	TG	796.73954	33.247	0.7599	-0.8917	0.1461	0.0508
TG 14:0_16:0_18:1	TG	822.75552	33.407	0.3416	-0.7861	0.4016	0.0362
TG 16:0_16:0_16:0	TG	824.77092	34.181	0.7261	-0.5418	0.0594	0.0896
TG 15:0_16:0_18:1	TG	836.77036	33.863	1.9446	-2.0103	0.1435	0.2036
TG 16:0_16:1_18:1	TG	848.7711	33.572	-0.0349	-0.7809	0.8982	0.0174
TG 16:0_16:0_18:1	TG	850.78703	34.314	1.3381	-0.2444	0.1080	0.7865
TG 16:0_16:0_18:0	TG	852.80214	35.074	1.0787	-0.1172	0.0456	0.8242
TG 16:0_17:1_18:1	TG	862.78612	34.009	2.2470	-2.0322	0.0708	0.1416
TG 16:1_18:1_18:1	TG	874.78648	33.731	-0.1034	-0.7920	0.6611	0.0079
TG 16:0_18:1_18:1	TG	876.8027	34.451	1.1899	0.0356	0.1582	0.9606
TG 16:0_18:0_18:1	TG	878.81814	35.215	0.6517	-0.6356	0.1299	0.0717
TG 18:1_18:1_18:1	TG	902.81813	34.596	0.1014	-0.4467	0.5513	0.0354



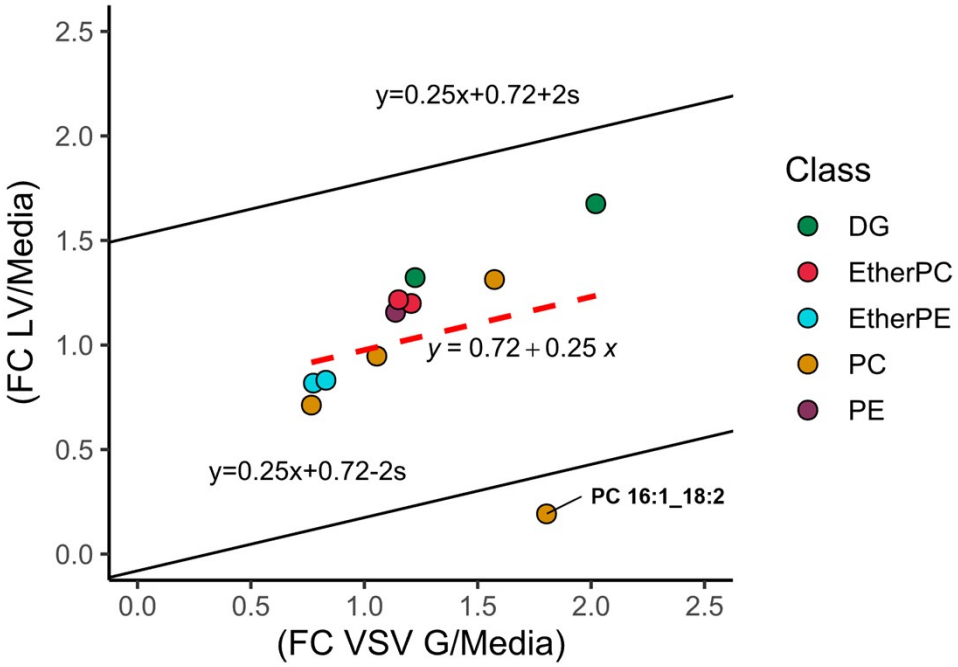
Supporting Figure S5. Volcano plot of HEK 293T VSV G expressing cells to accompany Figure 4A. All lipids with FDR-adjusted $P < 0.05$ are annotated.



Supporting Figure S6. Volcano plot of HEK 293T LV producing cells to accompany Figure 4A. All lipids with FDR-adjusted $P < 0.05$ are annotated.

Supporting Table S7. Lipid species incorporated into the correlation analysis of HEK 293T lipids with significant fold changes in both LV and VSV G treatment groups compared to control (media only) lipids.

Compound Name	Class	Fold Change LV	Fold Change VSV G
DG 16:0_18:0	DG	1.6755	2.0205
DG 16:0_18:1	DG	1.3224	1.2241
EtherPC 16:0e_16:1	EtherPC	1.1988	1.2069
EtherPC 18:0e_18:1	EtherPC	1.2166	1.1508
EtherPE 18:1e_20:4	EtherPE	0.8316	0.8308
EtherPE 18:2e_20:4	EtherPE	0.8177	0.7757
PC 14:0_14:0	PC	1.3133	1.5740
PC 16:0_16:1	PC	0.9469	1.0553
PC 16:1_18:2	PC	0.1924	1.8035
PC 17:0_18:1	PC	0.7128	0.7667
PE 16:0_16:1	PE	1.1564	1.1378



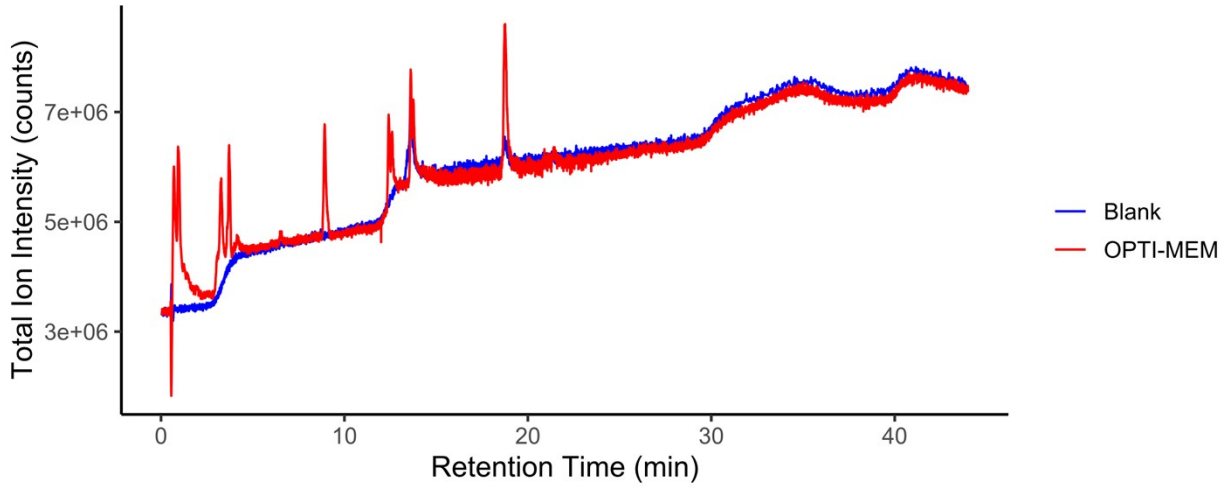
Supporting Figure S7. Correlation plot showing HEK 293T lipid fold changes for LV and VSV G treatments compared to control (media only) reveals 11 lipids that had FDR-adjusted *P*<0.05 in both groups. One major lipid, PC 16:1_18:2 was considered an outlier and rejected from the analysis. The red line is the line of best-fit and its equation is shown on the plot, the black lines show the line of best fit with its y-intercept ± 2×0.40067, the standard deviation of regression line, calculated using Microsoft Excel.

Supporting Table S8. List of lipids identified in HEK293T cells in media, VSV G, and LV treatments, including their CV before and after batch effect (BE). All CV data is expressed as a percentage (%).

Compound Name	Lipid Class	RT (min)	*m/z*	CV LV	CV Med	CV VSVG	CV LV BE	CV Media BE	CV VSVG BE
BMP 18:1_18:1	BMP	17.235	792.5752	8.88	2.00	12.91	10.30	2.07	11.37
Cer_NS d18:1_16:0	Cer_NS	19.225	538.5199	3.66	5.31	5.55	1.41	1.27	1.58
Cer_NS d18:1_18:0	Cer_NS	21.131	566.5508	14.10	28.54	18.21	17.64	21.52	15.10
Cer_NS d18:1_24:1	Cer_NS	25.283	648.6293	2.83	14.39	13.81	7.74	7.79	7.89
Cer_NS d18:1_24:0	Cer_NS	27.088	650.6451	3.52	7.59	8.93	3.05	2.12	4.21
CL 68:4	CL	31.171	1399.9625	33.17	26.84	35.22	23.49	18.44	29.99
CL 70:7	CL	31.168	1421.9442	43.35	40.78	39.28	26.09	19.54	18.43
CL 70:4	CL	32.398	1427.9932	32.71	19.78	26.17	25.54	10.38	15.32
CL 72:7	CL	32.387	1449.9753	31.89	32.65	36.04	36.99	21.96	24.62
DG 14:0_16:0	DG	21.024	558.5094	10.05	29.49	5.33	15.24	22.70	4.02
DG 16:0_16:0	DG	23.016	586.5409	2.15	5.37	1.66	3.41	3.96	1.33
DG 16:0_18:1	DG	23.438	612.5567	1.37	1.19	1.78	1.11	1.56	1.33
DG 16:0_18:0	DG	25.028	614.5723	2.45	10.44	2.58	5.17	7.24	2.31
DG 18:1_18:1	DG	23.836	638.5721	2.99	2.20	2.96	3.02	2.09	2.95
DG 18:0_18:1	DG	25.450	640.5880	2.68	8.08	7.45	2.86	6.61	5.71
EtherPC 16:1e_14:0	EtherPC	18.684	734.5324	3.27	0.98	1.99	3.17	1.10	1.99
EtherPC 16:0e_14:0	EtherPC	18.847	736.5480	2.62	2.10	3.11	0.94	1.27	1.34
EtherPC 16:1e_16:1	EtherPC	19.070	760.5480	1.59	0.68	1.45	1.61	0.73	1.29
EtherPC 16:1e_16:0	EtherPC	20.459	762.5636	2.75	1.29	2.97	1.58	1.05	1.63

EtherPC 16:0e_16:1	EtherPC	19.287	762.5639	4.18	4.64	3.61	1.08	0.81	1.09
EtherPC 16:0e_16:0	EtherPC	20.625	764.5795	7.05	1.23	1.84	6.19	2.61	1.12
EtherPC 16:0e_17:1	EtherPC	20.107	776.5789	13.89	7.07	19.00	9.66	10.04	13.05
EtherPC 16:1e_18:1	EtherPC	20.804	788.5794	11.14	0.97	8.38	9.94	3.32	7.24
EtherPC 16:0e_18:1	EtherPC	21.017	790.5953	2.64	6.56	1.12	1.37	4.61	2.29
EtherPC 18:0e_16:0	EtherPC	22.592	792.6106	2.23	1.57	16.58	1.39	2.12	17.59
EtherPC 18:2e_18:1	EtherPC	21.177	814.5947	3.99	2.96	5.25	3.13	2.42	5.00
EtherPC 18:1e_18:1	EtherPC	21.372	816.6105	2.39	1.90	7.64	1.86	1.38	7.84
EtherPC 18:1e_18:1	EtherPC	22.741	816.6105	4.49	2.69	1.21	3.24	2.11	1.33
EtherPC 18:0e_18:1	EtherPC	22.971	818.6264	3.36	4.54	3.09	0.65	1.28	0.87
EtherPC 16:0e_20:0	EtherPC	24.645	820.6415	7.22	5.82	4.22	6.86	6.21	4.13
EtherPC 38:1e	EtherPC	25.002	846.6572	8.23	3.50	10.01	7.91	3.17	7.32
EtherPE 16:1e_16:1	EtherPE	19.313	672.4959	2.46	0.98	1.78	1.98	0.70	1.61
EtherPE 16:1e_17:1	EtherPE	20.162	686.5106	17.68	29.39	17.15	12.21	12.95	14.39
EtherPE 16:1e_18:2	EtherPE	19.814	698.5115	24.91	7.91	12.75	14.96	2.63	4.03
EtherPE 16:1e_18:1	EtherPE	21.025	700.5274	10.75	24.32	26.68	11.58	22.48	28.22
EtherPE 16:0e_18:1	EtherPE	21.245	702.5396	4.83	3.51	5.42	0.61	1.20	1.24
EtherPE 16:1e_20:5	EtherPE	18.929	720.4953	26.21	14.27	20.14	27.39	12.49	31.43
EtherPE 16:1e_20:4	EtherPE	19.865	722.5115	4.38	3.06	15.03	3.54	2.20	15.36
EtherPE 16:1e_20:3	EtherPE	20.534	724.5268	6.52	3.11	6.60	4.60	3.12	3.91
EtherPE 16:1e_20:3	EtherPE	20.979	724.5269	6.70	5.00	4.93	2.77	2.15	2.55
EtherPE 18:2e_18:1	EtherPE	21.383	726.5428	2.45	5.25	11.53	1.72	5.11	11.64
EtherPE 18:1e_18:1	EtherPE	22.905	728.5585	4.22	3.82	3.52	1.01	1.13	1.22
EtherPE 18:0e_18:1	EtherPE	23.092	730.5727	3.84	1.19	3.30	1.29	1.79	1.05
EtherPE 16:1e_22:6	EtherPE	19.734	746.5115	10.32	13.13	23.64	11.07	11.58	24.97
EtherPE 18:2e_20:4	EtherPE	20.220	748.5269	3.56	0.95	1.92	2.36	1.18	1.65
EtherPE 18:1e_20:4	EtherPE	21.712	750.5427	1.24	1.18	0.73	1.33	1.09	0.71
EtherPE 18:1e_20:3	EtherPE	22.843	752.5582	5.70	4.57	9.74	5.32	5.78	7.24
EtherPE 18:1e_22:6	EtherPE	21.573	774.5424	3.86	3.42	5.00	4.74	2.22	4.25
EtherPE 18:1e_22:5	EtherPE	22.087	776.5580	6.44	1.78	5.07	4.01	2.68	4.28
GM3 d34:1	GM3	15.715	1151.7025	28.99	26.19	23.28	18.56	16.13	13.44
HexCer_NS d18:1_22:0	HexCer_NS	23.161	828.6546	29.20	48.51	23.74	23.09	31.79	14.37
HexCer_NS d18:1_24:0	HexCer_NS	25.035	856.6862	13.22	14.60	9.09	12.87	7.94	3.25
LPC 0:0/16:1	LPC	5.841	494.3242	23.06	40.79	20.34	18.94	32.28	20.10
LPC 16:0/0:0	LPC	8.358	496.3403	7.63	13.51	10.99	3.15	6.14	3.49
LPC 0:0/18:1	LPC	8.504	522.3558	7.20	4.27	4.70	4.91	1.87	3.78
LPC 18:0/0:0	LPC	11.928	524.3714	15.35	46.65	14.55	6.43	55.25	4.14
PC 14:0_14:0	PC	16.356	678.5073	1.18	5.42	1.43	2.46	3.46	1.54
PC 14:0_15:0	PC	17.259	692.5229	48.25	50.10	42.66	42.61	13.52	29.89
PC 14:0_16:1	PC	17.269	704.5229	7.62	1.53	2.70	5.05	2.69	2.02
PC 14:0_16:1	PC	16.714	704.5231	2.58	7.17	4.79	2.67	2.53	1.38
PC 14:0_16:0	PC	17.848	706.5392	4.89	0.80	1.78	3.15	2.46	1.03
PC 15:0_16:1	PC	17.420	718.5386	2.91	3.15	1.65	1.90	1.80	2.67
PC 15:0_16:0	PC	18.333	720.5542	5.55	9.34	3.52	2.21	4.03	3.17
PC 16:1_16:1	PC	17.220	730.5388	18.36	17.81	12.97	12.24	10.26	11.72
PC 17:0_15:1	PC	21.033	732.5538	28.43	29.82	25.55	22.39	30.15	24.38
PC 16:0_16:1	PC	18.228	732.5560	0.94	0.41	0.48	0.41	0.28	0.37
PC 16:0_16:0	PC	19.534	734.5706	4.87	0.63	1.80	2.50	1.86	0.80
PC 16:1_17:1	PC	17.855	744.5537	37.23	47.44	32.26	29.49	25.76	17.56
PC 15:0_18:1	PC	18.718	746.5696	31.23	9.94	4.89	21.50	1.94	6.93
PC 15:0_18:1	PC	21.978	746.5701	1.29	3.90	2.23	1.60	1.89	1.40
PC 16:0_17:1	PC	19.078	746.5704	3.82	3.85	2.23	3.18	1.31	1.14
PC 16:0_17:0	PC	20.080	748.5855	21.59	5.69	1.58	22.29	3.20	2.42
PC 16:1_18:3	PC	17.272	754.5355	31.78	22.16	19.07	22.92	6.61	7.99
PC 16:1_18:2	PC	17.605	756.5537	33.39	7.20	6.31	41.47	6.43	5.58
PC 16:1_18:1	PC	18.577	758.5709	2.03	0.71	0.78	1.83	0.90	0.93
PC 16:0_18:1	PC	19.889	760.5889	1.93	0.74	1.12	0.80	0.63	0.46
PC 16:0_18:0	PC	21.408	762.6012	4.17	2.16	1.65	3.25	3.08	1.38
PC 15:1_20:1	PC	22.247	772.5854	23.42	15.00	14.39	21.19	14.32	15.19
PC 17:1_18:1	PC	19.405	772.5856	3.98	2.08	1.60	2.10	0.98	2.20
PC 17:0_18:1	PC	20.477	774.6012	2.30	5.28	1.31	1.17	2.80	2.43
PC 16:0_19:1	PC	20.860	774.6014	4.10	2.72	1.48	3.08	1.30	2.43
PC 16:0_20:4	PC	18.819	782.5689	2.44	2.02	2.38	2.77	1.16	1.64
PC 18:1_18:2	PC	19.189	784.5857	5.39	2.02	2.73	2.64	1.81	2.28
PC 18:1_18:1	PC	20.267	786.6029	1.25	0.88	1.06	0.32	0.34	0.27
PC 18:0_18:1	PC	21.816	788.6181	0.14	0.40	0.34	0.16	0.36	0.33

PC 37:7	PC	22.007	790.5336	5.25	13.79	17.06	5.07	10.05	16.37
PC 37:4	PC	20.851	796.5826	23.74	42.18	29.58	17.52	20.36	19.49
PC 18:1_19:1	PC	21.238	800.6163	20.46	27.11	16.35	16.62	17.48	14.28
PC 16:0_22:6	PC	18.731	806.5696	6.76	6.40	6.61	6.51	2.62	3.27
PC 18:1_20:4	PC	19.173	808.5850	4.42	1.06	1.66	4.05	1.17	1.97
PC 18:1_20:3	PC	19.766	810.6005	29.79	18.54	16.73	32.21	8.64	8.47
PC 38:3	PC	20.918	812.6164	5.36	3.97	2.09	3.61	1.99	2.19
PC 18:1_20:1	PC	22.094	814.6330	1.06	3.38	2.81	2.17	1.59	1.31
PC 40:7	PC	19.037	832.5848	20.11	6.51	15.99	23.78	5.76	14.43
PE 16:0_16:1	PE	18.413	688.4907	4.26	4.06	2.25	1.69	1.08	1.63
PE 16:1_18:1	PE	18.755	714.5064	2.81	2.58	2.57	1.21	1.40	1.35
PE 16:0_18:1	PE	20.067	716.5221	21.70	9.29	11.75	22.62	9.70	11.55
PE 17:1_18:1	PE	19.582	728.5209	21.50	28.57	17.15	29.45	17.47	14.53
PE 17:0_18:1	PE	20.983	730.5374	16.52	6.79	12.04	13.47	5.64	11.57
PE 16:0_20:4	PE	18.992	738.5062	6.08	3.12	9.59	4.83	3.78	5.38
PE 18:1_18:1	PE	20.432	742.5377	10.80	11.43	10.44	10.82	11.41	10.44
PE 18:0_18:1	PE	21.895	744.5534	14.48	9.48	13.29	13.11	11.14	9.88
PE 18:1_20:4	PE	19.345	764.5217	6.28	5.75	6.38	6.03	1.65	3.59
PE 18:0_20:4	PE	20.778	766.5376	2.02	1.61	10.40	3.40	2.35	9.15
PE 18:1_20:1	PE	22.200	770.5687	2.86	3.10	2.72	2.43	2.91	3.07
PE 20:0_18:1	PE	23.801	772.5839	16.51	32.97	14.40	19.83	23.14	17.05
PE 18:0_22:6	PE	20.656	790.5376	6.37	4.90	4.20	5.09	2.51	5.69
PG 16:1_18:1	PG	15.991	745.5007	8.27	3.61	6.29	9.07	2.71	5.11
PG 18:1_18:1	PG	17.255	773.5325	3.03	35.53	34.03	3.95	29.46	32.32
PI 16:0_16:1	PI	16.365	807.5010	3.42	8.29	4.15	5.56	4.28	0.99
PI 14:0_18:0	PI	17.331	809.5168	23.44	14.16	34.53	25.69	17.53	30.06
PI 16:1_18:1	PI	16.630	833.5166	2.82	6.27	5.02	3.27	2.18	1.67
PI 16:0_18:1	PI	17.638	835.5326	15.12	19.09	18.20	12.29	19.50	15.83
PI 16:0_18:0	PI	18.837	837.5477	13.63	20.49	5.94	15.01	18.79	6.69
PI 35:2	PI	17.297	847.5322	17.93	3.21	12.44	20.32	4.39	10.92
PI 17:0_18:1	PI	18.409	849.5479	21.77	6.75	12.05	19.14	6.76	12.05
PI 16:0_20:4	PI	16.845	857.5166	4.04	2.14	6.25	3.42	2.61	5.67
PI 36:3	PI	17.321	859.5321	2.06	2.23	2.25	2.36	1.17	0.99
PI 36:3	PI	17.687	859.5321	7.25	4.23	4.44	7.45	3.64	4.36
PI 36:2	PI	17.992	861.5481	2.97	27.07	7.74	2.23	25.47	7.73
PI 18:0_18:1	PI	19.152	863.5640	14.17	29.65	23.64	10.40	28.00	25.03
PI 17:0_20:3	PI	18.453	873.5474	26.66	18.34	21.32	14.18	15.59	15.10
PI 18:1_20:4	PI	17.126	883.5322	2.36	1.29	8.48	2.27	1.47	8.46
PI 18:0_20:4	PI	18.244	885.5483	15.92	5.54	12.88	10.14	5.58	9.60
PI 18:0_20:3	PI	18.815	887.5632	2.70	0.91	1.22	2.60	0.88	1.36
PI 18:0_20:3	PI	19.196	887.5637	21.10	1.10	1.42	18.37	0.92	0.99
PI 38:2	PI	19.700	889.5790	2.66	1.30	1.66	2.62	0.76	1.08
PI 18:0_20:1	PI	20.758	891.5948	23.79	3.53	15.28	31.16	10.04	9.27
PI 18:0_22:4	PI	19.444	913.5788	34.72	24.65	27.42	22.51	27.85	13.02
SM d32:1	SM	16.110	675.5437	22.07	10.96	13.57	9.88	7.70	8.10
SM d33:1	SM	16.813	689.5594	20.80	4.32	12.37	34.65	5.28	9.46
SM d34:2	SM	16.495	701.5594	8.11	1.75	2.51	6.95	2.44	3.34
SM d34:1	SM	17.547	703.5762	1.80	0.36	0.68	0.95	0.71	0.50
SM d36:2	SM	18.017	729.5905	26.85	6.01	5.26	23.24	5.66	6.15
SM d18:1_18:0	SM	19.211	731.6068	2.24	1.00	1.87	1.53	1.26	1.61
SM d40:1	SM	23.029	787.6690	4.42	4.11	2.63	4.43	4.10	2.62
SM d42:2	SM	23.166	813.6849	3.48	1.37	1.57	2.88	1.86	1.93
SM d42:1	SM	25.032	815.7005	19.71	17.42	19.41	16.47	19.68	20.62
TG 14:0_16:0_16:1	TG	32.435	794.7237	2.19	30.27	19.64	11.43	18.71	9.95
TG 14:0_16:0_16:0	TG	33.247	796.7395	0.95	17.52	12.29	8.77	9.08	3.57
TG 14:0_16:0_18:1	TG	33.407	822.7555	1.80	9.54	4.73	5.35	5.93	2.22
TG 16:0_16:0_16:0	TG	34.181	824.7709	1.87	9.50	7.06	5.95	5.48	3.25
TG 15:0_16:0_18:1	TG	33.863	836.7704	2.14	49.85	47.33	3.47	46.31	37.32
TG 16:0_16:1_18:1	TG	33.572	848.7711	1.05	7.95	3.32	3.53	4.88	2.34
TG 16:0_16:0_18:1	TG	34.314	850.7870	3.57	15.03	4.64	5.55	13.90	4.22
TG 16:0_16:0_18:0	TG	35.074	852.8021	1.19	13.42	7.88	6.04	9.79	3.04
TG 16:0_17:1_18:1	TG	34.009	862.7861	7.39	54.21	47.75	11.48	40.68	35.13
TG 16:1_18:1_18:1	TG	33.731	874.7865	4.73	10.62	5.88	2.28	4.57	3.48
TG 16:0_18:1_18:1	TG	34.451	876.8027	2.82	15.97	2.77	4.76	14.95	2.75
TG 16:0_18:0_18:1	TG	35.215	878.8181	5.23	6.30	2.85	5.94	5.63	2.33
TG 18:1_18:1_18:1	TG	34.596	902.8181	1.18	4.36	2.38	1.43	3.18	2.23



Supporting Figure S8. Total ion chromatograms in positive polarity of a methanol blank and a Bligh-Dyer extraction of OPTI-MEM media used to resuspend the LV pellet after ultracentrifugation. No lipids were detected in OPTI-MEM when searching the data-dependent tandem MS datafile against Agilent's Lipid Annotator software.

Supporting Table S9. Lipids identified in LV fraction after concentration by ultracentrifugation. LV are produced from HEK 293T cells over 48 hr. Datafiles for LV and media blank samples were processed using the data processing pipeline described in the Material and Methods section of the main manuscript. The background signal from the media blank was then subtracted from the processed LV data. Lipids which are labelled "TRUE" were only identified in the LV fraction.

Compound Name	Lipid Class	RT (min)	*m/z*	Log_2 Abundance	Unique To LV Production
CE 16:1	CE	33.45	640.6017	11.595	FALSE
CE 16:0	CE	34.43	642.6176	11.170	FALSE
CE 17:1	CE	34.02	654.6175	9.095	TRUE
CE 18:3	CE	33.08	664.6017	7.437	TRUE
CE 18:2	CE	33.78	666.6178	14.514	FALSE
CE 18:1	CE	34.51	668.6329	14.159	FALSE
CE 18:1	CE	34.82	668.6329	12.941	FALSE
CE 18:0	CE	35.67	670.65	7.443	TRUE
CE 20:5	CE	32.78	688.6016	8.877	TRUE
CE 20:4	CE	33.46	690.6176	15.733	FALSE
CE 20:3	CE	34.28	692.633	9.004	TRUE
CE 20:3	CE	34.1	692.6335	10.917	TRUE
CE 22:6	CE	33.26	714.6171	11.956	FALSE
CE 22:5	CE	33.7	716.6328	5.102	TRUE
Cer_NS d18:1_16:0	Cer_NS	19.18	538.5186	9.613	TRUE
DG 16:0_18:1	DG	23.43	612.5557	6.322	TRUE
EtherPC 16:0e_14:0	EtherPC	18.89	736.5498	10.582	TRUE

Compound Name	Lipid Class	RT (min)	*m/z*	Log_2 Abundance	Unique To LV Production
EtherPC 16:1e_16:0	EtherPC	20.51	762.5654	9.902	TRUE
EtherPC 16:0e_16:1	EtherPC	19.3	762.5656	11.149	FALSE
EtherPC 16:0e_16:0	EtherPC	20.65	764.5823	13.756	FALSE
EtherPC 16:1e_18:1	EtherPC	20.85	788.5816	10.068	TRUE
EtherPC 16:0e_18:1	EtherPC	21.07	790.5977	12.738	FALSE
EtherPC 18:0e_16:0	EtherPC	22.66	792.6129	12.151	FALSE
EtherPC 36:1e	EtherPC	23.02	818.6281	9.942	TRUE
EtherPE 16:1e_16:1	EtherPE	19.27	672.4976	11.036	TRUE
EtherPE 18:2e_16:1	EtherPE	19.6	698.5126	6.190	TRUE
EtherPE 16:1e_18:1	EtherPE	20.99	700.5295	13.234	FALSE
EtherPE 16:1e_20:4	EtherPE	19.81	722.5136	11.830	FALSE
EtherPE 16:1e_20:3	EtherPE	20.94	724.5284	8.307	TRUE
EtherPE 18:2e_18:1	EtherPE	21.31	726.5452	11.770	FALSE
EtherPE 16:1e_20:1	EtherPE	22.82	728.5605	12.381	TRUE
EtherPE 16:1e_22:6	EtherPE	19.7	746.5134	11.694	FALSE
EtherPE 38:6e	EtherPE	20.18	748.5292	11.617	FALSE
EtherPE 16:1e_22:4	EtherPE	21.24	750.5445	10.518	TRUE
EtherPE 18:1e_20:4	EtherPE	21.63	750.5454	11.077	FALSE
EtherPE 16:1e_22:3	EtherPE	22.39	752.5597	4.874	TRUE
EtherPE 18:2e_22:6	EtherPE	20.04	772.5282	6.696	TRUE
EtherPE 18:1e_22:6	EtherPE	21.5	774.5446	9.685	TRUE
EtherPE 18:1e_22:5	EtherPE	22.03	776.5594	5.404	TRUE
FA 16:0	FA	11.45	255.2334	9.068	FALSE
FA 16:0	FA	11.12	255.2335	11.381	FALSE
FA 18:0	FA	13.58	283.2648	14.244	FALSE
HexCer_NS d18:1_16:0	HexCer_NS	17.77	744.5635	11.180	FALSE
HexCer_NS d40:1	HexCer_NS	23.1	828.6572	9.544	TRUE
HexCer_NS d18:1_24:1	HexCer_NS	23.26	854.6725	6.883	TRUE
HexCer_NS d42:1	HexCer_NS	25	856.6883	9.781	TRUE
LPC 16:0/0:0	LPC	8.29	496.3389	10.787	FALSE
LPC 18:1/0:0	LPC	9.08	522.3545	9.268	FALSE
LPC 18:0/0:0	LPC	11.84	524.3701	9.174	FALSE
PC 14:0_16:0	PC	17.84	706.5369	13.284	FALSE
PC 31:0	PC	18.69	720.5529	7.378	TRUE
PC 16:0_16:1	PC	18.24	732.5525	13.477	FALSE
PC 16:0_16:0	PC	19.54	734.5683	15.134	FALSE
PC 15:0_18:1	PC	19.09	746.5684	10.518	TRUE
PC 16:0_17:0	PC	20.12	748.5844	9.095	TRUE
PC 16:0_18:2	PC	18.83	758.5681	11.053	FALSE
PC 16:0_18:1	PC	19.91	760.5843	17.288	FALSE
PC 16:0_18:0	PC	21.43	762.5991	12.341	FALSE
PC 17:0_18:1	PC	20.9	774.5999	10.229	TRUE
PC 16:0_20:4	PC	18.81	782.5678	10.434	FALSE
PC 16:0_20:3	PC	19.48	784.5836	10.229	TRUE
PC 18:1_18:1	PC	20.28	786.5993	13.042	FALSE
PC 16:0_20:1	PC	21.83	788.6154	14.087	FALSE
PC 16:0_22:6	PC	18.71	806.568	10.214	FALSE
PC 16:0_22:5	PC	19.18	808.5834	11.108	FALSE
PC 18:0_20:4	PC	20.62	810.5992	12.468	FALSE
PC 38:4	PC	20.21	810.5999	9.942	TRUE
PC 18:0_20:3	PC	21.79	812.614	10.233	TRUE
PC 18:0_20:3	PC	21.33	812.6147	11.384	FALSE
PC 18:0_22:6	PC	20.5	834.599	11.138	FALSE
PC 18:0_22:5	PC	21.02	836.6148	11.517	FALSE
PE 16:1_18:1	PE	18.71	714.508	8.322	TRUE
PE 16:0_18:1	PE	20.07	716.5234	10.787	TRUE
PE 18:1_18:1	PE	20.38	742.5398	11.613	TRUE
PE 18:0_18:1	PE	21.89	744.555	9.138	TRUE
PI 32:0	PI	17.36	809.518	7.112	TRUE
PI 16:0_18:1	PI	17.69	835.534	10.416	TRUE
PI 18:0_18:1	PI	19.2	863.5661	10.314	FALSE
PI 18:0_20:4	PI	18.28	885.552	10.209	FALSE
PS 16:0_18:1	PS	18.05	760.5134	11.840	TRUE
PS 36:4	PS	18.04	782.4951	10.451	TRUE

Compound Name	Lipid Class	RT (min)	*m/z*	Log_2 Abundance	Unique To LV Production
PS 18:1_18:1	PS	18.45	786.5288	7.549	TRUE
PS 18:0_18:1	PS	19.64	788.5447	11.919	FALSE
PS 38:4	PS	19.6	810.5265	10.045	TRUE
SM d32:1	SM	16.1	675.5424	9.374	TRUE
SM d33:1	SM	16.79	689.5582	9.551	TRUE
SM d34:2	SM	16.47	701.5577	10.492	FALSE
SM d34:1	SM	17.52	703.5743	17.505	FALSE
SM d34:0	SM	18.17	705.5892	11.188	TRUE
SM d36:2	SM	18.01	729.589	10.229	TRUE
SM d18:1_18:0	SM	19.19	731.6049	12.847	FALSE
SM d38:1	SM	21.12	759.6368	9.971	TRUE
SM d40:2	SM	21.3	785.6518	9.245	TRUE
SM d40:2	SM	21.64	785.6519	10.416	TRUE
SM d40:1	SM	23.02	787.6676	12.198	FALSE
SM d42:3	SM	21.8	811.6675	10.866	TRUE
SM d42:2	SM	23.52	813.6831	11.247	FALSE
SM d42:2	SM	23.15	813.6833	13.204	FALSE
SM d42:1	SM	25.02	815.6993	11.409	FALSE
TG 16:0_16:0_16:0	TG	34.09	824.7687	5.015	TRUE
TG 16:0_16:1_18:1	TG	33.55	848.7678	6.486	TRUE
TG 16:0_16:0_18:1	TG	34.28	850.7852	9.570	TRUE