|  |  |  |
| --- | --- | --- |
| Strain | Accession number | Link |
| Natrarchaeobaculum sulfurireducens AArc1 | NR\_176502.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_176502.1> |
| Natrarchaeobius chitinivorans AArcht-Bj | KT247970.1 | <https://www.ncbi.nlm.nih.gov/nuccore/KT247970.1> |
| Natronorubrum sulfidifaciens JCM 14089 | NR\_029142.2 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_029142.2> |
| Halodesulfurarchaeum formicicum HSR6 | NR\_149760.1 | https://www.ncbi.nlm.nih.gov/nuccore/NR\_149760.1 |
| Halobacterium salinarum 91-R6  | NR\_025555.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_025555.1> |
| Halococcoides cellulosivorans HArcel1 | NR\_177325.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_177325.1> |
| Haloarcula marismortui ATCC 43049 | NR\_121590.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_121590.1> |
| Halorubrum sodomense ATCC 33755 | NR\_043389.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_043389.1> |
| Halorubrum lacusprofundi ATCC 49239 | NR\_028244.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_028244.1> |
| Haloplanus natans RE 101 | NR\_043803.1 | <https://www.ncbi.nlm.nih.gov/nuccore/NR_043803.1> |

**Table S1** Accession numbers and links of 10 reference 16S rRNA gene sequences from NCBI.

**Table S2** Detailed information of annotated lipids, including average retention time, metabolite name, formula, adduct type, theoretical m/z and detected m/z, and the mass error of the annotation.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lipid type | Lipid group | Metabolite name | Formula | Adduct type | Library Mz | Average Mz | Mass error (ppm) | S/N |
| Archaeol | Archaeol | Archaeol (20:0\_20:0) | C43H88O3 | [M+H]+ | 653.68  | 653.69  | 8.27  | 25431.95 |
| Archaeol | Archaeol | Archaeol (20:0\_20:0) | C43H88O3 | [M+NH4]+ | 670.71  | 670.71  | 1.48  | 11322.29 |
| Archaeol | Archaeol | Archaeol (20:0\_25:0) | C48H98O3 | [M+H]+ | 723.76  | 723.76  | 1.63  | 8155.11 |
| Archaeol | Archaeol | Archaeol (20:0\_25:0) | C48H98O3 | [M+NH4]+ | 740.79  | 740.78  | 1.59  | 4058.09 |
| Archaeol | Archaeol | Archaeol (20:0\_25:1) | C48H96O3 | [M+NH4]+ | 738.77  | 738.77  | 6.93  | 228.08 |
| Archaeol | Archaeol | Archaeol (20:0\_25:2) | C48H94O3 | [M+NH4]+ | 736.75  | 736.76  | 2.20  | 103.88 |
| Archaeol | Archaeol | Archaeol (20:1\_20:0) | C43H86O3 | [M+H]+ | 651.67  | 651.67  | 1.13  | 5764.58 |
| Archaeol | Archaeol | Archaeol (20:1\_20:0) | C43H86O3 | [M+NH4]+ | 668.69  | 668.69  | 1.84  | 2385.31 |
| Archaeol | Archaeol | Archaeol (20:1\_20:2) | C43H82O3 | [M+NH4]+ | 664.66  | 664.66  | 1.11  | 397.05 |
| Archaeol | Archaeol | Archaeol (20:1\_20:3) | C43H80O3 | [M+H]+ | 645.62  | 645.62  | 1.58  | 158.98 |
| Archaeol | Archaeol | Archaeol (20:1\_20:3) | C43H80O3 | [M+NH4]+ | 662.65  | 662.64  | 1.54  | 512.2 |
| Archaeol | Archaeol | Archaeol (20:1\_25:4) | C48H88O3 | [M+NH4]+ | 730.71  | 730.71  | 2.94  | 485.21 |
| Archaeol | Archaeol | Archaeol (20:2\_20:0) | C43H84O3 | [M+H]+ | 649.65  | 649.65  | 0.23  | 1557.49 |
| Archaeol | Archaeol | Archaeol (20:2\_20:0) | C43H84O3 | [M+NH4]+ | 666.68  | 666.68  | 1.14  | 319.45 |
| Archaeol | Archaeol | Archaeol (20:2\_20:3) | C43H78O3 | [M+NH4]+ | 660.63  | 660.63  | 0.76  | 415.49 |
| Archaeol | Archaeol | Archaeol (20:2\_20:3) | C43H78O3 | [M+NH4]+ | 660.63  | 660.63  | 0.30  | 352.57 |
| Archaeol | Archaeol | Archaeol (20:2\_25:0) | C48H94O3 | [M+NH4]+ | 736.75  | 736.75  | 1.96  | 455.51 |
| Archaeol | Archaeol | Archaeol (20:3\_20:3) | C43H76O3 | [M+NH4]+ | 658.61  | 658.61  | 0.29  | 569.45 |
| Archaeol | Archaeol | Archaeol (20:3\_25:0) | C48H92O3 | [M+NH4]+ | 734.74  | 734.74  | 0.73  | 792.46 |
| Archaeol | Archaeol | Archaeol (20:3\_25:3) | C48H86O3 | [M+NH4]+ | 728.69  | 728.69  | 5.27  | 400.95 |
| Archaeol | Archaeol | Archaeol (20:3\_25:4) | C48H84O3 | [M+NH4]+ | 726.68  | 726.67  | 2.73  | 974.82 |
| Archaeol | Archaeol | Archaeol (20:4\_20:4) | C43H72O3 | [M+NH4]+ | 654.58  | 654.58  | 2.70  | 70.08 |
| Phospholipids | PA | PA (20:0\_20:0) | C43H89O6P | [M+H]+ | 733.65  | 733.65  | 0.02  | 129.79 |
| Phospholipids | PE | PE (20:0\_20:0) | C45H94O6NP | [M+H]+ | 776.69  | 776.69  | 0.56  | 1467.11 |
| Phospholipids | PE | PE (20:0\_25:0) | C50H104O6NP | [M+H]+ | 846.77  | 846.77  | 3.67  | 180.74 |
| Phospholipids | Me-PGP | Me-PGP (20:0\_20:0) | C47H98O11P2 | [M+H]+ | 901.67  | 901.67  | 9.47  | 31449.71 |
| Phospholipids | Me-PGP | Me-PGP (20:0\_20:0) | C47H98O11P2 | [M+H]+ | 901.67  | 901.68  | 9.94  | 3597.79 |
| Phospholipids | Me-PGP | Me-PGP (20:0\_25:0) | C52H108O11P2 | [M+H]+ | 971.74  | 971.75  | 5.20  | 25425.45 |
| Phospholipids | Me-PGP | Me-PGP (20:0\_25:2) | C52H104O11P2 | [M+H]+ | 967.71  | 967.71  | 0.46  | 118.48 |
| Phospholipids | Me-PGP | Me-PGP (20:0\_25:2) | C52H104O11P2 | [M+H]+ | 967.71  | 967.71  | 0.23  | 226.85 |
| Phospholipids | Me-PGP | Me-PGP (20:1\_20:0) | C47H96O11P2 | [M+H]+ | 899.65  | 899.65  | 0.43  | 2037.87 |
| Phospholipids | Me-PGP | Me-PGP (20:1\_20:2) | C47H92O11P2 | [M+H]+ | 895.62  | 895.62  | 0.19  | 414.77 |
| Phospholipids | Me-PGP | Me-PGP (20:1\_20:2) | C47H92O11P2 | [M+H]+ | 895.62  | 895.62  | 1.65  | 477.64 |
| Phospholipids | Me-PGP | Me-PGP (20:1\_25:0) | C52H106O11P2 | [M+H]+ | 969.73  | 969.73  | 0.67  | 573.13 |
| Phospholipids | Me-PGP | Me-PGP (20:2\_20:0) | C47H94O11P2 | [M+H]+ | 897.63  | 897.64  | 2.22  | 1555.46 |
| Phospholipids | Me-PGP | Me-PGP (20:2\_20:2) | C47H90O11P2 | [M+H]+ | 893.60  | 893.60  | 0.93  | 232.15 |
| Phospholipids | Me-PGP | Me-PGP (20:2\_20:2) | C47H90O11P2 | [M+H]+ | 893.60  | 893.61  | 2.02  | 368.76 |
| Phospholipids | Me-PGP | Me-PGP (20:2\_20:3) | C47H88O11P2 | [M+H]+ | 891.59  | 891.59  | 2.67  | 214.9 |
| Phospholipids | PG | PG (20:0\_20:0) | C46H95O8P | [M+H]+ | 807.68  | 807.68  | 0.10  | 5731.43 |
| Phospholipids | PG | PG (20:0\_20:0) | C46H95O8P | [M+H]+ | 807.68  | 807.69  | 2.02  | 1778.32 |
| Phospholipids | PG | PG (20:0\_20:0) | C46H95O8P | [M+H]+ | 807.68  | 807.69  | 9.65  | 55860.47 |
| Phospholipids | PG | PG (20:0\_20:0) | C46H95O8P | [M+NH4]+ | 824.71  | 824.71  | 0.84  | 160.37 |
| Phospholipids | PG | PG (20:0\_25:0) | C51H105O8P | [M+H]+ | 877.76  | 877.76  | 1.76  | 1696.78 |
| Phospholipids | PG | PG (20:0\_25:0) | C51H105O8P | [M+H]+ | 877.76  | 877.77  | 3.80  | 13104.62 |
| Phospholipids | PG | PG (20:0\_25:0) | C51H105O8P | [M+NH4]+ | 894.79  | 894.79  | 0.91  | 73.1 |
| Phospholipids | PG | PG (20:0\_25:1) | C51H103O8P | [M+H]+ | 875.75  | 875.75  | 1.25  | 242.92 |
| Phospholipids | PG | PG (20:0\_25:2) | C51H101O8P | [M+H]+ | 873.73  | 873.73  | 2.20  | 225.5 |
| Phospholipids | PG | PG (20:1\_20:0) | C46H93O8P | [M+H]+ | 805.67  | 805.67  | 0.54  | 4248.41 |
| Phospholipids | PG | PG (20:1\_20:2) | C46H89O8P | [M+H]+ | 801.64  | 801.64  | 1.30  | 393.05 |
| Phospholipids | PG | PG (20:1\_25:4) | C51H95O8P | [M+NH4]+ | 884.71  | 884.71  | 2.23  | 121.44 |
| Phospholipids | PG | PG (20:1\_25:5) | C51H93O8P | [M+NH4]+ | 882.70  | 882.69  | 2.62  | 262.26 |
| Phospholipids | PG | PG (20:2\_20:0) | C46H91O8P | [M+H]+ | 803.65  | 803.65  | 1.71  | 4154.4 |
| Phospholipids | PG | PG (20:2\_20:2) | C46H87O8P | [M+H]+ | 799.62  | 799.62  | 3.25  | 387.06 |
| Phospholipids | PG | PG (20:2\_20:3) | C46H85O8P | [M+H]+ | 797.61  | 797.60  | 2.16  | 106.98 |
| Phospholipids | PG | PG (20:3\_20:3) | C46H83O8P | [M+H]+ | 795.59  | 795.59  | 1.02  | 376.58 |
| Phospholipids | PG | PG (20:3\_20:3) | C46H83O8P | [M+NH4]+ | 812.62  | 812.62  | 1.14  | 290.18 |
| Phospholipids | PG | PG (20:3\_25:4) | C51H91O8P | [M+NH4]+ | 880.68  | 880.68  | 0.73  | 122.56 |
| Phospholipids | PGS | PGS (20:0\_20:0) | C46H95O11PS | [M+H]+ | 887.64  | 887.64  | 0.19  | 6621.69 |
| Phospholipids | PGS | PGS (20:0\_20:0) | C46H95O11PS | [M+NH4]+ | 904.67  | 904.67  | 0.32  | 720.18 |
| Phospholipids | PGS | PGS (20:0\_25:0) | C51H105O11PS | [M+H]+ | 957.72  | 957.72  | 0.44  | 2160.36 |
| Phospholipids | PGS | PGS (20:0\_25:0) | C51H105O11PS | [M+NH4]+ | 974.75  | 974.75  | 0.80  | 243.53 |
| Phospholipids | PI | PI (20:0\_20:0) | C49H99O11P | [M+H]+ | 895.70  | 895.70  | 2.26  | 221.4 |
| Phospholipids | Gly-PG | Gly-PG (20:0\_20:0) | C52H105O13P | [M+H]+ | 969.74  | 969.74  | 0.64  | 2440.64 |
| Phospholipids | Gly-PG | Gly-PG (20:0\_25:0) | C57H115O13P | [M+H]+ | 1039.82  | 1039.82  | 0.43  | 868.07 |
| Glycolipids | MGD | MGD (20:0\_20:0) | C49H98O8 | [M+NH4]+ | 832.76  | 832.76  | 0.05  | 1026.1 |
| Glycolipids | MGD | MGD (20:0\_20:0) | C49H98O8 | [M+NH4]+ | 832.76  | 832.76  | 0.54  | 104.97 |
| Glycolipids | MGD | MGD (20:0\_20:0) | C49H98O8 | [M+NH4]+ | 832.76  | 832.76  | 2.29  | 1116.74 |
| Glycolipids | MGD | MGD (20:0\_20:0) | C49H98O8 | [M+NH4]+ | 832.76  | 832.76  | 2.50  | 377.51 |
| Glycolipids | MGD | MGD (20:0\_25:0) | C54H108O8 | [M+NH4]+ | 902.84  | 902.84  | 0.46  | 402.72 |
| Glycolipids | S-MGD | S-MGD (20:0\_20:0) | C49H98O11S | [M+NH4]+ | 912.72  | 912.72  | 0.28  | 170.26 |
| Glycolipids | DGD | DGD (20:0\_20:0) | C55H108O13 | [M+NH4]+ | 994.81  | 994.81  | 0.99  | 838.59 |
| Glycolipids | DGD | DGD (20:0\_25:0) | C60H118O13 | [M+NH4]+ | 1064.89  | 1064.89  | 1.62  | 93.62 |
| Glycolipids | DGD | DGD (20:1\_20:0) | C55H106O13 | [M+NH4]+ | 992.80  | 992.80  | 0.81  | 1349.29 |
| Glycolipids | DGD | DGD (20:2\_20:0) | C55H104O13 | [M+NH4]+ | 990.78  | 990.78  | 1.44  | 374.76 |
| Glycolipids | DGD | DGD (20:2\_20:2) | C55H100O13 | [M+NH4]+ | 986.75  | 986.75  | 0.34  | 161.75 |
| Glycolipids | S-DGD | S-DGD (20:0\_20:0) | C55H108O16S | [M+NH4]+ | 1074.77  | 1074.77  | 0.64  | 2302.89 |
| Glycolipids | S-DGD | S-DGD (20:0\_20:0) | C55H108O16S | [M+NH4]+ | 1074.77  | 1074.78  | 5.19  | 28830.26 |
| Glycolipids | S-DGD | S-DGD (20:0\_25:0) | C60H118O16S | [M+NH4]+ | 1144.85  | 1144.85  | 1.21  | 405.47 |
| Glycolipids | S-DGD | S-DGD (20:0\_25:0) | C60H118O16S | [M+NH4]+ | 1144.85  | 1144.85  | 1.24  | 1056.94 |
| Glycolipids | S-DGD | S-DGD (20:1\_20:0) | C55H106O16S | [M+NH4]+ | 1072.75  | 1072.76  | 0.67  | 2042.39 |
| Glycolipids | S-DGD | S-DGD (20:1\_20:2) | C55H102O16S | [M+NH4]+ | 1068.72  | 1068.72  | 3.28  | 112.08 |
| Glycolipids | S-DGD | S-DGD (20:2\_20:0) | C55H104O16S | [M+NH4]+ | 1070.74  | 1070.74  | 1.13  | 1300.08 |
| Glycolipids | S-DGD | S-DGD (20:2\_20:2) | C55H100O16S | [M+NH4]+ | 1066.71  | 1066.71  | 1.77  | 150.25 |
| Glycolipids | 2S-DGD | 2S-DGD (20:0\_20:0) | C55H108O19S2 | [M+NH4]+ | 1154.73  | 1154.73  | 2.48  | 681.53 |
| Glycolipids | 2S-DGD | 2S-DGD (20:0\_25:0) | C60H118O19S2 | [M+NH4]+ | 1224.81  | 1224.81  | 0.14  | 1514.98 |
| Glycolipids | TGD | TGD (20:0\_20:0) | C61H118O18 | [M+H]+ | 1139.84  | 1139.84  | 1.24  | 74.84 |
| Glycolipids | TGD | TGD (20:0\_20:0) | C61H118O18 | [M+H]+ | 1139.84  | 1139.84  | 1.36  | 2974.58 |
| Glycolipids | TGD | TGD (20:0\_20:0) | C61H118O18 | [M+NH4]+ | 1156.87  | 1156.86  | 1.25  | 11768.16 |
| Glycolipids | TGD | TGD (20:0\_20:0) | C61H118O18 | [M+NH4]+ | 1156.87  | 1156.87  | 2.02  | 10236.25 |
| Glycolipids | TGD | TGD (20:0\_25:0) | C66H128O18 | [M+NH4]+ | 1226.94  | 1226.95  | 0.91  | 2786.71 |
| Glycolipids | TGD | TGD (20:1\_20:0) | C61H116O18 | [M+NH4]+ | 1154.85  | 1154.85  | 1.01  | 75.33 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:0\_20:0) | C55H111O16NS | [M+NH4]+ | 1091.80  | 1091.80  | 4.83  | 7387.49 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:0\_25:0) | C60H121O16NS | [M+NH4]+ | 1161.87  | 1161.87  | 4.18  | 91.26 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:0\_25:0) | C60H121O16NS | [M+NH4]+ | 1161.87  | 1161.87  | 1.88  | 136.07 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:1\_20:0) | C55H109O16NS | [M+NH4]+ | 1089.78  | 1089.78  | 0.49  | 611.57 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:2\_20:0) | C55H107O16NS | [M+NH4]+ | 1087.77  | 1087.76  | 0.95  | 276.26 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:2\_20:0) | C55H107O16NS | [M+NH4]+ | 1087.77  | 1087.77  | 0.85  | 394.32 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:2\_20:2) | C55H103O16NS | [M+NH4]+ | 1083.73  | 1083.73  | 0.56  | 94.7 |
| Glycolipids | S-Gly-AHH | S-Gly-AHH (20:3\_20:0) | C55H105O16NS | [M+NH4]+ | 1085.75  | 1085.75  | 0.20  | 84.93 |
| Glycolipids | 2S-Gly-AHH | 2S-Gly-AHH (20:0\_20:0) | C55H111O19NS2 | [M+NH4]+ | 1171.75  | 1171.76  | 1.35  | 799.87 |
| Glycolipids | 2S-Gly-AHH | 2S-Gly-AHH (20:0\_25:0) | C60H121O19NS2 | [M+NH4]+ | 1241.83  | 1241.83  | 0.88  | 411.1 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:0\_20:0) | C89H182O13P2 | [M+H]+ | 1522.31  | 1522.32  | 1.09  | 490.92 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:0\_20:0) | C88TH182O13P2 | [M+H]+ | 1523.32  | 1523.31  | 1.67  | 66.61 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:0\_20:2) | C89H178O13P2 | [M+H]+ | 1518.28  | 1518.28  | 0.25  | 116.08 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:0\_20:3) | C89H176O13P2 | [M+H]+ | 1516.27  | 1516.27  | 0.50  | 97.4 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:2\_20:3) | C89H172O13P2 | [M+H]+ | 1512.24  | 1512.22  | 7.12  | 288.95 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:2\_20:3) | C89H172O13P2 | [M+H]+ | 1512.24  | 1512.23  | 3.26  | 259.79 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:3\_20:3) | C89H170O13P2 | [M+H]+ | 1510.22  | 1510.22  | 0.56  | 232.41 |
| Cardiolipin | BPG | BPG (20:0\_20:0\_20:3\_20:3) | C88TH170O13P2 | [M+H]+ | 1511.22  | 1511.23  | 3.10  | 81.02 |
| Cardiolipin | BPG | BPG (20:0\_20:2\_20:2\_20:3) | C89H168O13P2 | [M+H]+ | 1508.20  | 1508.20  | 1.20  | 92.88 |
| Cardiolipin | BPG | BPG (20:0\_20:2\_20:3\_20:3) | C89H166O13P2 | [M+H]+ | 1506.19  | 1506.19  | 0.02  | 116.39 |
| Cardiolipin | MGD-PA | MGD-PA (20:0\_20:0\_20:0\_20:0) | C92H185O13P | [M+H]+ | 1530.36  | 1530.36  | 1.24  | 242.42 |
| Cardiolipin | MGD-PA | MGD-PA (20:0\_20:0\_20:0\_20:0) | C92H185O13P | [M+H]+ | 1530.36  | 1530.36  | 0.03  | 149.81 |
| Cardiolipin | DGD-PA | DGD-PA (20:0\_20:0\_20:0\_20:0) | C98H195O18P | [M+H]+ | 1692.42  | 1692.42  | 0.02  | 1250.37 |
| Cardiolipin | DGD-PA | DGD-PA (20:0\_20:0\_20:0\_20:0) | C98H195O18P | [M+H]+ | 1692.42  | 1692.42  | 0.63  | 281.38 |
| Cardiolipin | DGD-PA | DGD-PA (20:0\_20:0\_20:0\_20:0) | C97TH195O18P | [M+NH4]+ | 1710.45  | 1710.37  | 45.62  | 84.81 |
| Cardiolipin | DGD-PA | DGD-PA (20:0\_20:1\_20:0\_20:0) | C98H193O18P | [M+H]+ | 1690.40  | 1690.40  | 1.44  | 127.64 |
| Cardiolipin | DGD-PA | DGD-PA (20:0\_20:2\_20:0\_20:0) | C98H191O18P | [M+H]+ | 1688.38  | 1688.38  | 0.57  | 80.47 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:0) | C98H195O21PS | [M+H]+ | 1772.37  | 1772.37  | 2.86  | 134.41 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:0) | C98H195O21PS | [M+H]+ | 1772.37  | 1772.37  | 0.31  | 2013.12 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:0) | C97TH195O21PS | [M+H]+ | 1773.38  | 1773.38  | 0.49  | 95.49 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:0) | C98H195O21PS | [M+NH4]+ | 1789.40  | 1789.40  | 0.34  | 4447.67 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:0) | C97TH195O21PS | [M+NH4]+ | 1790.40  | 1790.40  | 0.99  | 6161.82 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:2) | C98H191O21PS | [M+NH4]+ | 1785.37  | 1785.28  | 50.44  | 59.33 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:3) | C98H189O21PS | [M+NH4]+ | 1783.35  | 1783.35  | 1.53  | 244.59 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:0\_20:3) | C97TH189O21PS | [M+NH4]+ | 1784.36  | 1784.28  | 39.87  | 54.71 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:2\_20:3) | C98H185O21PS | [M+NH4]+ | 1779.32  | 1779.31  | 4.67  | 322.97 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:0\_20:2\_20:3) | C98H185O21PS | [M+NH4]+ | 1779.32  | 1779.31  | 3.71  | 297.82 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:1\_20:0\_20:0) | C98H193O21PS | [M+H]+ | 1770.36  | 1770.36  | 1.01  | 210.02 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:1\_20:0\_20:0) | C98H193O21PS | [M+NH4]+ | 1787.38  | 1787.39  | 1.45  | 541.5 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:1\_20:1\_20:2) | C97TH187O21PS | [M+NH4]+ | 1782.34  | 1782.34  | 2.37  | 291.04 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:1\_20:1\_20:4) | C98H183O21PS | [M+NH4]+ | 1777.31  | 1777.31  | 1.66  | 383.52 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:1\_20:1\_20:4) | C97TH183O21PS | [M+NH4]+ | 1778.31  | 1778.31  | 2.86  | 481.15 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:1\_20:2\_20:2) | C97TH185O21PS | [M+NH4]+ | 1780.32  | 1780.31  | 7.23  | 101.88 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:2\_20:0\_20:0) | C98H191O21PS | [M+H]+ | 1768.34  | 1768.34  | 0.68  | 115.43 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:2\_20:0\_20:0) | C98H191O21PS | [M+NH4]+ | 1785.37  | 1785.37  | 1.05  | 484.86 |
| Cardiolipin | S-DGD-PA | S-DGD-PA (20:0\_20:4\_20:0\_20:0) | C98H187O21PS | [M+NH4]+ | 1781.34  | 1781.33  | 2.96  | 195.55 |
| Cardiolipin | TGD-PA | TGD-PA (20:0\_20:0\_20:0\_20:0) | C104H205O23P | [M+H]+ | 1854.47  | 1854.47  | 0.00  | 3053.16 |
| Cardiolipin | TGD-PA | TGD-PA (20:0\_20:0\_20:0\_20:0) | C103TH205O23P | [M+H]+ | 1855.47  | 1855.47  | 0.69  | 14560.74 |
| Cardiolipin | TGD-PA | TGD-PA (20:0\_20:0\_20:0\_20:0) | C104H205O23P | [M+NH4]+ | 1871.50  | 1871.50  | 1.07  | 5695.11 |
| Cardiolipin | TGD-PA | TGD-PA (20:0\_20:0\_20:0\_20:0) | C103TH205O23P | [M+NH4]+ | 1872.50  | 1872.50  | 0.78  | 7076.25 |
| Caroteinoid | Bacterioruberin | Bacterioruberin | C50H76O4 | [M+H]+ | 741.58  | 741.58  | 2.18  | 7252.06 |
| Caroteinoid | Bacterioruberin | Monoanhydrobacterioruberin | C50H74O3 | [M+H]+ | 723.57  | 723.57  | 1.48  | 102.27 |
| Caroteinoid | Bacterioruberin | Monoanhydrobacterioruberin | C50H74O3 | [M+H]+ | 723.57  | 723.57  | 1.56  | 1113.61 |
| Caroteinoid | Bacterioruberin | Bisanhydrobacterioruberin | C50H72O2 | [M+H]+ | 705.56  | 705.56  | 1.77  | 1256.08 |
| Caroteinoid | Bacterioruberin | Trisanhydrobacterioruberin | C50H70O | [M+H]+ | 687.55  | 687.55  | 0.51  | 325.70  |
| Quinone | MK | MK (4:2) | C31H44O2 | [M+H]+ | 449.34  | 449.31  | 76.15  | 1003.6 |
| Quinone | MK | MK (4:3) | C31H42O2 | [M+H]+ | 447.33  | 447.29  | 75.35  | 184.63 |
| Quinone | MK | MK (7:6) | C46H66O2 | [M+H]+ | 651.51  | 651.51  | 0.76  | 102.17 |
| Quinone | MK | MK (7:6) | C46H66O2 | [M+NH4]+ | 668.54  | 668.54  | 1.82  | 57.41 |
| Quinone | MK | MK (7:7) | C46H64O2 | [M+H]+ | 649.50  | 649.49  | 6.92  | 313.04 |
| Quinone | MK | MK (7:7) | C46H64O2 | [M+NH4]+ | 666.53  | 666.52  | 0.25  | 68.78 |
| Quinone | MK | MK (8:6) | C51H76O2 | [M+NH4]+ | 738.62  | 738.62  | 5.22  | 138.57 |
| Quinone | MK | MK (8:7) | C51H74O2 | [M+H]+ | 719.58  | 719.57  | 5.15  | 4968.84 |
| Quinone | MK | MK (8:7) | C51H74O2 | [M+H]+ | 719.58  | 719.58  | 0.23  | 761.06 |
| Quinone | MK | MK (8:7) | C51H74O2 | [M+NH4]+ | 736.60  | 736.60  | 2.71  | 5022.35 |
| Quinone | MK | MK (8:7) | C51H74O2 | [M+NH4]+ | 736.60  | 736.60  | 0.73  | 2200.18 |
| Quinone | MK | MK (8:8) | C51H72O2 | [M+H]+ | 717.56  | 717.56  | 4.29  | 241.79 |
| Quinone | MK | MK (8:8) | C51H72O2 | [M+H]+ | 717.56  | 717.56  | 4.05  | 22903.23 |
| Quinone | MK | MK (8:8) | C51H72O2 | [M+NH4]+ | 734.59  | 734.59  | 5.04  | 23083.4 |
| Quinone | MK | MK (9:9) | C56H80O2 | [M+H]+ | 785.62  | 785.62  | 0.24  | 68.93 |
| Quinone | MK | MK (9:9) | C56H80O2 | [M+NH4]+ | 802.65  | 802.65  | 4.34  | 96.2 |