Supplemental Table 3

Page 1

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient (significance) |
| **Triacylglycerols (TAG)**TAG 44:0TAG 46:0TAG 46:1TAG 46:2TAG 47:1TAG 47:2TAG 48:1TAG 48:2TAG 48:3TAG 49:1TAG 49:2TAG 49:3TAG 50:1TAG 50:2TAG 50:3TAG 50:4TAG 50:5TAG 51:1TAG 51:2TAG 51:3TAG 51:4 | 0.366(0.001)0.463(<0.001)0.444(<0.001)0.413(<0.001)0.413(<0.001)0.332(0.004)0.459(<0.001)0.410(<0.001)0.440(<0.001)0.457(<0.001)0.390(<0.001)0.371(0.001)0.494(<0.001)0.410(<0.001)0.365(0.001)0.346(0.003)0.390(<0.001)0.489(<0.001)0.387(<0.001)0.279(<0.019)0.183(0.131)  | -0.229(0.074)-0.291(0.024)-0.257(0.046)-0.210(0.099)-0.249(0.053)-0.186(0.147)-0.307(0.018)-0.262(0.042)-0.253(0.050)-0.348(0.009)-0.319(0.015)-0.288(0.026)-0.360(0.008)-0.334(0.012)-0.326(0.012)-0.233(0.068)-0.234(0.068)-0.337(0.011)-0.315(0.015)-0.271(0.035)-0.206(0.107) | -0.395(<0.001)-0.483(<0.001)-0.452(<0.001)-0.400(<0.001)-0.394(<0.001)-0.343(0.002)-0.483(<0.001)-0.437(<0.001)-0.407(<0.001)-0.426(<0.001)-0.406(<0.001)-0.412(<0.001) -0.508(<0.001)-0.454(<0.001)-0.440(<0.001)-0.388(<0.001)-0.399(<0.001)-0.415(<0.001)-0.412(<0.001)-0.289(0.011) -0.220(0.060) | -0.226(0.072)-0.291(0.022)-0.274(0.031)-0.232(0.065)-0.219(0.080)-0.194(0.120)-0.291(0.022)-0.265(0.037)-0.217(0.083)-0.210(0.093)-0.226(0.072)-0.238(0.059)-0.287(0.024)-0.301(0.019)-0.297(0.020)-0.247(0.051)-0.224(0.074)-0.152(0.237)-0.207(0.098)-0.155(0.230)-0.051(0.704) |

Supplemental Table 3

Page 2

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(significance) |
| **Triacylglycerols (TAG)**TAG 51:5TAG 52:2TAG 52:3TAG 52:4TAG 52:5TAG 52:6TAG 52:7TAG 53:2TAG 53:3TAG 53:4TAG 53:5TAG 53:6TAG 53:7TAG 54:1TAG 54:2TAG 54:3TAG 54:4TAG 54:5TAG 54:6TAG 54:7TAG 54:8 | 0.334(0.004)0.419(<0.001)0.163(0.183)0.089(0.468)0.156(0.206)0.276(0.020)0.289(0.015)0.312(0.007)0.240(0.044)0.132(0.281)0.238(0.046)0.317(0.006)0.147(0.234)0.260(0.030)0.504(<0.001)0.204(0.090)0.052(0.680)0.105(0.400)0.177(0.144)0.183(0.131)0.189(0.120) | -0.230(0.072)-0.315(0.015)-0.198(0.121)-0.177(0.173)-0.239(0.063)-0.156(0.241)-0.106(0.431)-0.275(0.033)-0.277(0.033)-0.216(0.089)-0.249(0.053)-0.272(0.034)-0.226(0.075)-0.223(0.079)-0.318(0.015)-0.128(0.340)-0.102(0.440)-0.153(0.249)-0.191(0.134)-0.096(0.462)-0.106(0.431) | -0.437(<0.001)-0.410(<0.001)-0.193(0.101)-0.134(0.259)-0.199(0.090)-0.295(0.010)-0.301(0.008)-0.278(0.015)-0.183(0.119)-0.152(0.195)-0.224(0.055)-0.413(<0.001)-0.252(0.029)-0.169(0.149)-0.379(<0.001)-0.136(0.253)0.013(0.912)-0.094(0.436)-0.215(0.067)-0.180(0.126)-0.155(0.188) | -0.334(0.011)-0.259(0.042)-0.114(0.395)-0.067(0.639)-0.140(0.277)-0.252(0.047)-0.243(0.054)-0.110(0.406)-0.040(0.777)-0.037(0.787)-0.064(0.639)-0.343(0.010)-0.219(0.080)-0.057(0.675)-0.139(0.280)-0.074(0.592)0.061(0.651)-0.028(0.832)-0.179(0.158)-0.170(0.181)-0.144(0.262) |

Supplemental Table 3

Page 3

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient (significance) |
| **Triacylglycerols (TAG)**TAG 55:6TAG 55:7TAG 56:3TAG 56:4TAG 56:5TAG 56:6TAG 56:7TAG 56:8TAG 56:9TAG 58:6TAG 58:7TAG 58:8TAG 58:9TAG 58:10**Diacylglycerols (DAG)**DAG 34:1DAG 34:2DAG 36:2DAG 36:3DAG 36:4DAG 38:5 | 0.277(0.020)0.275(0.021)0.226(0.058)0.184(0.131)0.180(0.139)0.080(0.515)0.250(0.037)0.142(0.249)0.183(0.131)0.333(0.004)0.343(0.003)0.129(0.291)0.116(0.346)0.121(0.324)0.397(<0.001)0.239(0.045)0.233(0.051)0.049(0.694)0.073(0.551)0.259(0.031) | -0.200(0.120)-0.210(0.099)-0.115(0.394)-0.138(0.301)-0.213(0.094)-0.123(0.357)-0.234(0.068)-0.096(0.462)-0.134(0.317)-0.315(0.015)-0.329(0.012)-0.096(0.462)-0.071(0.582)-0.054(0.684)-0.319(0.015)-0.249(0.053)-0.243(0.058)-0.154 (0.243)-0.164(0.215)-0.246(0.055) | -0.336(0.003)-0.286(0.012)-0.206(0.080)-0.185(0.118)-0.180(0.126)-0.179(0.127)-0.239(0.039)-0.092(0.448)-0.140(0.235)-0.467(<0.001)-0.393(<0.001)-0.107(0.371)-0.097(0.424)-0.085(0.482)-0.420(<0.001)-0.310(0.006)-0.262(0.023)-0.044(0.719)-0.079(0.511)0.345(0.002) | -0.232(0.065)-0.241(0.056)-0.198(0.113)-0.164(0.199)-0.125(0.337)-0.264(0.038)-0.206(0.098)-0.064(0.639)-0.108(0.416)-0.403(0.003)-0.327(0.012)-0.110(0.408)-0.064(0.639)-0.090(0.513)-0.324(0.012)-0.288(0.023)-0.282(0.025)-0.038(0.786)-0.064(0.639)-0.256(0.044) |

Supplemental Table 3

Page 4

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Cholesterylester (CE)**CE 14:0CE 15:0CE 16:0CE 16:1CE 17:1CE 18:1CE 18:2CE 18:3CE 19:2CE 20:3CE 20:4CE 20:5CE 22:6**Ceramides (Cer)**Cer 40:1:2Cer 41:1:2Cer 42:1:2Cer 42:2:2**Phosphatidylcholines (PC)**PC 30:0PC 32:0PC 32:1 | 0.136(0.270)-0.099(0.429)-0.169(0.166)0.141(0.252)-0.032(0.794)-0.010(0.934)-0.090(0.488)-0.037(0.771)-0.425(<0.001)0.152(0.220)-0.210(0.083)-0.020(0.864)-0.245(0.040)0.086(0.482)0.088(0.470)-0.177(0.144)-0.151(0.223)0.095(0.439)-0.434(<0.001)0.097(0.431)  | -0.148(0.264)0.052(0.691)-0.221(0.083)-0.130 (0.334)0.069(0.597)-0.057 (0.666)-0.144(0.241)0.077 (0.594)0.342(0.010)-0.220 (0.083)0.061 (0.636)0.123(0.357)0.227(0.075)-0.115(0.394)-0.149(0.263)0.101(0.442)0.111(0.417)-0.043(0.747)0.368(0.007)-0.037(0.783) | -0.127(0.287)0.161(0.169)0.234 (0.044)-0.245 (0.034)0.057(0.640)-0.036(0.767)0.148(0.239)0.012 (0.919)0.556(<0.001)-0.094(0.436)0.153(0.192)0.072(0.549)0.308(0.007)-0.128(0.282)-0.168 (0.152)0.119 (0.321)0.055(0.650)-0.146(0.217)0.442(<0.001)-0.193(0.101) | -0.132 (0.310)0.177(0.163)0.054(0.691)-0.289 (0.023)0.028(0.832)0.074(0.592)-0.047(0.976)-0.013(0.927)0.333(0.011)0.035(0.800)0.063(0.640)0.022(0.871)0.110(0.406)-0.093 (0.499)-0.030 (0.823)0.054(0.691)-0.112(0.399)-0.085(0.536)-0.260(0.042)-0.245(0.053)  |

Supplemental Table 3

Page 5

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Phosphatidylcholines (PC)**PC 32:2PC 33:1PC 34:1PC 34:2PC 34:3PC 34:4PC 35:1PC 35:2PC 36:2PC 36:3PC 36:4PC 36:5PC 37:2PC 37:4PC 38:3PC 38:4PC 38:5PC 38:6PC 38:7PC 40:4PC 40:5 | 0.056(0.664)0.048(0.694)-0.080(0.515)-0.190(0.118)-0.176(0.146)0.140(0.254)-0.050(0.691)-0.366(0.001)-0.264(0.027)-0.195(0.110)-0.208(0.085)0.027(0.825)-0.331(0.004)-0.209(0.084)0.361(0.002)-0.222(0.063)-0.145(0.238)-0.327(0.005)-0.132(0.281)-0.094(0.446)0.012(0.918) | -0.005(0.962)-0.097(0.462)0.140 (0.294)0.195(0.127)0.227(0.075)-0.019(0.887)0.030(0.822)0.232(0.070)0.163(0.215)0.133(0.323)0.142(0.289)0.099(0.458)0.275(0.033)0.031(0.821)-0.369(0.007)0.080(0.535)0.116(0.394)0.272(0.034)0.162(0.219)-0.005(0.962)-0.063(0.627) | 0.053 (0.661)-0.062(0.611)-0.016 (0.894)0.416(<0.001)0.175(0.138)-0.164 (0.163)-0.032 (0.794)0.457(<0.001)0.466(<0.001) 0.258(0.025)0.174(0.138)0.027(0.824)0.433(<0.001)0.172(0.142)-0.352(0.002)0.156(0.185)-0.007(0.950)0.306(0.007)0.183 (0.119)-0.072(0.549)-0.185(0.118) | 0.084(0.536)0.012(0.927)-0.179(0.158)0.381(0.005)0.047(0.730)-0.148(0.254)-0.007(0.959)0.376(0.006)0.444(0.002)0.205(0.099)0.079(0.567)-0.052(0.699)0.359(0.007)0.147(0.254)-0.119(0.368)0.043(0.755)-0.203(0.103)0.105(0.428)-0.016(0.911)-0.147(0.254)-0.293(0.022) |

Supplemental Table 3

Page 6

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Phosphatidylcholines (PC)**PC 40:6PC 40:7PC 40:8**Lysophosphatidylcholines****(LPC)**LPC 14:0LPC 16:0LPC 16:1LPC 17:0LPC 18:0LPC 18:1LPC 18:2LPC 18:3LPC 20:3LPC 20:4LPC 20:5LPC 22:5LPC 22:6**Lysophosphatidyl-****ethanolamines (LPE)**LPE 16:0LPE 18:0LPE 18:1 | -0.105(0.400)-0.402(0.000)-0.079(0.520)0.096(0.437)-0.471(<0.001)-0.137(0.268)-0.333(0.004)-0.411(<0.001)-0.522(<0.001)-0.499(<0.001)-0.272(0.022)0.246(0.039)-0.438(<0.001)-0.120(0.326)-0.412(<0.001)-0.425(<0.001)-0.392(<0.001)-0.465(<0.001)-0.392(<0.001) | 0.081(0.533)0.290(0.025)0.092(0.475)0.009(0.946)0.417(0.002)0.063(0.627)0.226(0.074)0.292(0.024)0.480(<0.001)0.447(<0.001)0.345(0.010)0.144(0.282)0.358(0.008)0.196(0.125)0.297(0.023)0.407(0.002)0.409(0.002)0.425(0.001)0.466(<0.001) | 0.119(0.322)0.372(<0.001)-0.112(0.349)-0.085 (0.482)0.465(<0.001)0.078(0.517)0.329(0.003)0.438(<0.001)0.525(<0.001)0.602(<0.001)0.228(0.051)0.282 (0.013)0.402(<0.001)0.190(0.108)0.261(0.023)0.471(<0.001)0.316(0.005)0.437(<0.001)0.438(<0.001) | 0.087(0.531)0.127(0.332)-0.253(0.047)0.002(0.989)0.284 (0.025)-0.087 (0.531)0.241(0.056)0.323(0.012)0.283(0.025)0.435(0.002)0.075(0.591)0.211(0.092)0.220(0.080)0.065(0.639)-0.030(0.823)0.245(0.052)0.195(0.119)0.180(0.157)0.317(0.014) |

Supplemental Table 3

Page 7

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Lysophosphatidyl-****ethanolamines (LPE)**LPE 18:2LPE 20:4LPE 22:6**Ether-linked phospha-****tidylcholines (PC O-)**PC O-32:0PC O-32:1PC O-34:1PC O-34:2PC O-34:3PC O-36:2PC O-36:3PC O-36:4PC O-36:5PC O-36:6PC O-38:4PC O-38:5PC O-38:6PC O-38:7PC O-40:7 | -0.387(<0.001)-0.394(<0.001)-0.369(0.001)-0.354(0.002)-0.360(0.002)-0.451(<0.001)-0.379(<0.001)-0.519(<0.001)-0.451(<0.001)-0.381(<0.001)-0.301(0.010)-0.416(<0.001)-0.127(0.297)-0.240 (0.044)-0.445(<0.001)-0.372(0.001)-0.305(0.009)-0.331(0.004) | 0.368(0.007)0.287(0.026)0.398(0.003)0.259(0.044)0.199(0.120)0.310(0.016)0.305(0.018)0.316(0.015)0.348(0.009)0.270(0.035)0.213(0.094)0.277(0.033)0.127(0.345)0.114(0.402)0.333(0.012)0.273(0.034)0.239(0.063)0.276(0.033) | 0.474(<0.001)0.264(0.022)0.345(0.002)0.448(<0.001)0.411(<0.001)0.511(<0.001)0.499(<0.001)0.592(<0.001)0.564(<0.001)0.492(<0.001)0.333(0.003)0.367(0.001)0.200(0.089)0.301(0.008)0.418(<0.001)0.403(<0.001)0.311(0.006)0.379(<0.001) | 0.413(0.003)0.157(0.222)0.175(0.166)0.244(0.053)0.258(0.042)0.334(0.011)0.258(0.042)0.402(0.003)0.359(0.007)0.301(0.019)0.123(0.349)0.170(0.181)0.171(0.180)0.229(0.069)0.180(0.157)0.142(0.270)0.154(0.233)0.211(0.092) |

Supplemental Table 3

Page 8

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Phosphatidylinositoles (PI)**PI 34:1PI 34:2PI 36:1PI 36:2PI 36:3PI 36:4PI 38:4PI 38:5PI 38:6PI 40:5PI 40:6**Phosphatidylethanol-****Amines (PE)**PE 34:1PE 34:2PE 36:2PE 36:3PE 36:4PE 38:4PE 38:5PE 38:6PE 40:6 | 0.253(0.035)0.063(0.619)0.053(0.680)-0.195(0.107)-0.150(0.224)0.039(0.755)-0.199(0.100)-0.517(<0.001)-0.050(0.691)0.103(0.404)0.034(0.784)0.149(0.227)0.033(0.790)0.091(0.460)-0.007(0.945)0.061(0.631)0.132(0.281)0.024(0.842)0.098(0.431)0.236(0.046) | -0.227(0.075)-0.109(0.420)-0.051(0.695)0.105(0.431)0.037(0.783)-0.143(0.284)0.093(0.471)0.323(0.014)0.012(0.933)-0.188(0.141)-0.042(0.752)-0.016 (0.911)0.023(0.868)-0.020(0.884)0.109(0.420)0.009(0.946)-0.084(0.518)0.086(0.508)0.027(0.846)-0.105(0.431) | -0.218(0.063)-0.021(0.864)0.101(0.401)0.252(0.028)0.112(0.349)-0.207(0.079)0.030(0.806)0.437(<0.001)-0.062(0.611)-0.210(0.073)0.044(0.720)-0.358(0.001)-0.114(0.341)-0.083(0.490)0.037(0.764)-0.265(0.021)-0.367(0.001)-0.284(0.013)-0.289(0.011)-0.392(<0.001) | -0.169(0.183)0.013(0.927)0.064(0.639)0.144(0.262)0.099(0.461)-0.206(0.098)-0.080(0.562)0.136(0.288)-0.185(0.144)-0.279(0.027)0.001(0.989)-0.300(0.019)-0.034(0.800)0.012(0.927)0.081(0.556)-0.239(0.058)-0.323(0.012)-0.342(0.010)-0.308(0.017)-0.321(0.013) |

Supplemental Table 3

Page 9

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Phosphatidylethanol-****amines (PE)**PE 40:7**Ether-linked Phosphatidyl-****ethanolamines (PE O-)**PE O-34:3PE O-36:3PE O-36:4PE O-36:5PE O-36:6PE O-38:4PE O-38:5PE O-38:6PE O-38:7PE O-40:7PE O-40:8**Sphingomyelins (SM)**SM 32:1:1SM 32:2:1SM 33:1:1SM 34:1:1SM 34:2:1 | -0.123(0.317)-0.212(0.079)-0.280(0.019)-0.203(0.092)-0.153(0.216)-0.026(0.825)-0.167(0.173)-0.256(0.032)-0.253(0.035)-0.205(0.089)-0.270(0.023)-0.247(0.039)-0.247(0.039)-0.247(0.039)-0.288(0.015)-0.442(<0.001)-0.484(<0.001) | 0.193(0.130)0.192(0.132)0.199(0.120)0.164(0.215)0.126(0.348)0.103(0.439)0.087(0.508)0.178(0.172)0.249(0.053)0.247(0.055)0.264(0.041)0.294(0.024)0.164(0.214)0.072(0.580)0.172 (0.187)0.293(0.024)0.293(0.024) | -0.062(0.611)0.345(0.002)0.379(<0.001)0.330(0.003)0.211(0.072)0.142(0.229)0.195(0.099)0.277(0.015)0.301(0.008)0.240(0.038)0.337(0.003)0.340(0.003)0.405(<0.001)0.349(0.002)0.364(0.001)0.530(<0.001)0.558(<0.001) | -0.211(0.092)0.329(0.011)0.315(0.014)0.251(0.047)0.210(0.093)0.145(0.259)0.237(0.059)0.227(0.071)0.180(0.157)0.157(0.222)0.272(0.032)0.251(0.047)0.363(0.007)0.339(0.011)0.331(0.012)0.401(0.003)0.396(0.003) |

Supplemental Table 3

Page 10

Correlations of lipid species with different insulin sensitivity indices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lipid species | HOMA-IR | GSI | ISI | DI |
| Spearman’s nonparametric rank correlation coefficient(Significance) |
| **Sphingomyelins (SM)**SM 35:1:1SM 36:1:1SM 36:2:1SM 36:3:1SM 37:1:1SM 38:1:1SM 38:2:1SM 39:1:1SM 39:2:1SM 40:1:1SM 40:2:1SM 40:3:1SM 41:1:1SM 41:2:1SM 41:3:1SM 42:1:1SM 42:2:1SM 42:3:1SM 42:4:1SM 43:2:1 | -0.237(0.046)-0.301(0.010)-0.489(<0.001)-0.243(0.041)-0.112(0.362)-0.333(0.004)-0.489(<0.001)-0.165(0.176)-0.207(0.086)-0.257(0.032)-0.465(<0.001)-0.339(0.003)-0.351(0.002)-0.383(<0.001)-0.308(0.008)-0.132(0.281)-0.475(<0.001)-0.511(<0.001)-0.523(<0.001)-0.227(0.058) | 0.077(0.550)0.155(0.243)0.238(0.065)0.098(0.459)-0.011(0.937)0.261(0.043)0.338(0.011)0.081(0.533)0.107(0.429)0.154(0.243)0.329(0.012)0.095(0.464)0.218(0.085)0.274 (0.034)0.130(0.334)0.039(0.773)0.329(0.012)0.348 (0.009)0.237(0.065)0.137(0.306) | 0.320(0.005)0.372(0.001)0.478(<0.001)0.296(0.009)0.171(0.145)0.422(<0.001)0.451(<0.001)0.259(0.024)0.258(0.025)0.343(0.002)0.525(<0.001)0.389(<0.001)0.396(<0.001)0.425(<0.001)0.375(<0.001)0.184(0.119)0.489(<0.001)0.536(<0.001)0.484(<0.001)0.309(0.007) | 0.341(0.011)0.302(0.019)0.364(0.007)0.230(0.069)0.219(0.080)0.308(0.017)0.320(0.013)0.267(0.036)0.303(0.019)0.295(0.021)0.360(0.007)0.350(0.009)0.271(0.033)0.329(0.012)0.358(0.007)0.098(0.468)0.276(0.029)0.297(0.020)0.305(0.018)0.220(0.080) |