M20675: 1,5-anhydroglucitol (1,5-AG)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=375  N=29  N=92  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1727  N=373  N=29  N=93  N=17  N=88  N=175

M48153 : mannose
Clusters

M48152: glucose

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=374  N=29  N=93  N=17  N=88  N=176
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=373  N=29  N=93  N=17  N=87  N=176

M48195: fructose
M62864 : mannolate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1728, N=373, N=29, N=93, N=17, N=87, N=176
M52281: 2-hydroxybutyrate/2-hydroxyisobutyrate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1730 N=373 N=29 N=93 N=17 N=88 N=175
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD
M46225: pyroglutamine

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N values:
- Contr: N=1732
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M34396: choline phosphate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N values:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M62503 : 6-bromotryptophan

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M53031: methylsuccinoylcarnitine

N=1665
N=368
N=29
N=93
N=85
N=173
N=17
Methyl glucopyranoside (alpha + beta)

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=1711
- T2D: N=322
- SAID: N=17
- SIDD: N=57
- SIRD: N=13
- MOD: N=81
- MARD: N=171
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M12017 : 3-methoxytyrosine

N=1732
N=376
N=29
N=93
N=17
N=89
N=177
M43847: glycerol 3-phosphate

Clusters:
Contr: N=1721
T2D: N=375
SAID: N=29
SIDD: N=92
SIRD: N=17
MOD: N=89
MARD: N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1729  N=362  N=28  N=85  N=17  N=87  N=173

M49592: X - 11315
M33364 : gamma-glutamylthreonine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M63634: X − 25828

Clustering:
- Contr: N=1732
- T2D: N=376
- SAID: N=93
- SIDD: N=17
- SIRD: N=89
- MOD: N=177
- MARD: N=177
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M53: glutamine

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M4968: alpha-ketobutyrate

N=1399
N=315
N=24
N=84
N=15
N=73
N=143
M44526: 3-methyl-2-oxobutyrate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N values:
- Contr: N=1734
- T2D: N=376
- SAID: N=93
- SIDD: N=29
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Contr 2D SAID SIDD SIRD MOD MARD

−3 −2 −1 0 1 2 3

Clusters

M33422: gamma-glutamylphenylalanine

N=1734 N=376 N=29 N=93 N=17 N=89 N=177

-3 -2 -1 0 1 2 3

Clusters

Contr T2D SAID SIDD SIRD MOD MARD
M42370: S-1-pyrroline-5-carboxylate

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1712
N=371
N=29
N=90
N=17
N=88
N=176
M33442 : pseudouridine

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1734
N=376
N=29
N=93
N=17
N=89
N=177
M57463 : linoleoylcholine

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1716 N=372 N=29 N=89 N=177
M22116: 4-methyl-2-oxopentanoate

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1734 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
M42582 : pyruvate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M62947 : N,N,N-trimethyl-alanylproline betaine (TMAP)

- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Clusters

Contr: N=1733
T2D: N=376
SAID: N=29
SIDD: N=93
SIRD: N=17
MOD: N=89
MARD: N=177

M62363: X - 25343
The image shows a box plot for the variable `M35127 : pro-hydroxy-pro` across different clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, and MARD. Each cluster has a box plot indicating the distribution of values with the number of data points `N` provided for each cluster:

- **Contr**: N=1730
- **T2D**: N=374
- **SAID**: N=28
- **SIDD**: N=93
- **SIRD**: N=17
- **MOD**: N=88
- **MARD**: N=176

The box plots provide a visual summary of the data distribution, including the median, quartiles, and outliers.
Clusters

M52944 : palmitoylcholine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1717  N=375  N=29  N=92  N=17  N=89  N=177
M15676: 3-methyl-2-oxovalerate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=93  N=17  N=89  N=177
M33949 : gamma-glutamylglycine

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1733, N=376, N=29, N=93, N=17, N=89, N=177
M542: 3-hydroxybutyrate (BHBA)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
M57479 : sphingomyelin (d18:2/24:2)*

![Box plot diagram](image-url)
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1662  N=363  N=28  N=86  N=16  N=86  N=175

M53261 : arachidonoylcholine
M48491: sphingomyelin (d18:1/20:1, d18:2/20:0)*

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- N=1730
- N=376
- N=29
- N=93
- N=17
- N=89
- N=177
M5086 : dimethylglycine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M1769 : cortisone

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1661  N=362  N=26  N=91  N=17  N=82  N=172
M1712 : cortisol

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1721  N=374  N=29  N=93  N=17  N=87  N=177
M15990: glycerophosphorylcholine (GPC)

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- N=1733
- N=376
- N=29
- N=93
- N=17
- N=89
- N=177
M35678: hexadecanedioate (C16-DC)

Clusters:
- Contr: N=1732
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M63688 : deoxycholic acid 12-sulfate*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1623  N=348  N=25  N=85  N=14  N=81  N=168
M47154 : sphingomyelin (d18:2/14:0, d18:1/14:1)*

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

-3 -2 -1 0 1 2 3

N=1730
N=376
N=29
N=93
N=17
N=89
N=177
M48076 : X - 22771

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1648
N=368
N=92
N=29
N=17
N=170
N=89
Clusters

M18245: gamma-glutamylhistidine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=376  N=29  N=93  N=17  N=89  N=177
**Contr**

**T2D**

**SAID**

**SIDD**

**SIRD**

**MOD**

**MARD**

Cluster distribution and counts:
- **Clusters**
  - M60: leucine
  - N=1733
  - N=376
  - N=29
  - N=93
  - N=17
  - N=89
  - N=177
M44872 : gamma-glutamylmethionine

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1732 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
M1284: threonine

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters
Clusters

M43424: dimethyl sulfone

Contr T2D SAID SIDD SIRD MOD MARD

N=1498 N=353 N=28 N=90 N=17 N=84 N=162
M47510 : X − 12027

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1699  N=338  N=24  N=80  N=12  N=79  N=167
**M62924: 3-(3-amino-3-carboxypropyl)uridine**

- Control (Contr): N=1693
- T2D: N=348
- SAID: N=28
- SIDD: N=80
- SIRD: N=14
- MOD: N=85
- MARD: N=169
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M1302 : methionine

N=1734
N=376
N=29
N=93
N=17
N=89
N=177
M35157 : N6-carbamoylthreonyladenosine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M61833 : 5,6-dihydrouridine

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1702 | N=370 | N=29 | N=92 | N=17 | N=87 | N=174
Clusters

M15506 : choline

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=93  N=17  N=89  N=177
Clusters

M36754: octadecanedioate (C18-DC)

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1627, N=366, N=28, N=93, N=16, N=86, N=171
M64131 : ethyl beta-glucopyranoside

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1685 | N=358 | N=25 | N=85 | N=17 | N=86 | N=170
Clusters

M15586 : maltose

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1574  N=353  N=25  N=90  N=16  N=84  N=163
M57481 : sphingomyelin (d18:1/20:2, d18:2/20:1, d16:1/22:2)

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1669 N=360 N=29 N=86 N=171

N=86 N=17
Clusters

M34409 : stearoylcarnitine (C18)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1540  N=337  N=27  N=83  N=14  N=77  N=163
Clusters:

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

**M513:** creatinine

- N=1733
- N=376
- N=29
- N=93
- N=17
- N=89
- N=177
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M1899 : quinolinolate

N=1722
N=375
N=29
N=92
N=17
N=89
N=177
M52437: sphingomyelin (d18:2/24:1, d18:1/24:2)*

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1730 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
M62060: hydroxyasparagine

Clusters (N=1733)
- Contr: N=376
- T2D: N=29
- SAID: N=93
- SIDD: N=17
- SIRD: N=89
- MOD: N=177
- MARD: N=8
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M57699: cortolone glucuronide (1)

N=1713
N=372
N=29
N=93
N=17
N=85
N=177
M45413: O-sulfo-L-tyrosine

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1734, N=376, N=29, N=93, N=17, N=89, N=177
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1730
N=374
N=29
N=93
N=17
N=88
N=176

M1107: allantoin
Clusters

M527 : lactate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=374  N=29  N=93  N=17  N=88  N=176
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M59 : histidine
M46601: X - 11470

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1723, N=370, N=29, N=92, N=17, N=87, N=174
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1679  N=371  N=28  N=91  N=17  N=89  N=174

M46364: X - 12847
Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M1365: myristate (14:0)

- N=1734
- N=376
- N=29
- N=93
- N=17
- N=89
- N=177
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M62863 : 3-formylindole

N=1731
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

- Contr: N=1719
- T2D: N=373
- SAID: N=29
- SIDD: N=93
- SIRD: N=16
- MOD: N=87
- MARD: N=177

3683: branched-chain, straight-chain, or cyclopropyl 12:1 fatty acid*
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M1600: phosphoethanolamine

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M1585: N-acetylalanine
M1494: 5-oxoproline

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1734 N=376 N=29 N=93 N=177
M36808: dimethylarginine (SDMA + ADMA)

Clusters

Contr: N=1733
T2D: N=376
SAID: N=29
SIDD: N=93
SIRD: N=17
MOD: N=89
MARD: N=177
M36747 : deoxycarnitine

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177

M58: glycine
Clusters

M22132 : alpha-hydroxyisocaproate

N=1734
N=376
N=29
N=93
N=17
N=89
N=177

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M63151 : N,N-dimethylalanine

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1672
- T2D: N=306
- SAID: N=20
- SIDD: N=65
- SIRD: N=15
- MOD: N=77
- MARD: N=149
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M1638 : arginine

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
M57477 : sphingomyelin (d18:1/22:2, d18:2/22:1, d16:1/24:2)

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1730 N=376 N=29 N=93 N=17 N=89 N=177
Clusters

M63109: 2R,3R-dihydroxybutyrate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1729  N=374  N=29  N=93  N=17  N=88  N=176
Clusters

M62919 : tridecenedioate (C13:1−DC)*

-3 -2 -1 0 1 2 3

Contr T2D SAID SIDD SIRD MOD MARD

N=1702 N=369 N=29 N=90 N=16 N=87 N=176
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1734
N=376
N=29
N=93
N=17
N=89
N=177

Clusters

M1303 : malate
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M1645: laurate (12:0)
Clusters

- M1414: 3-phosphoglycerate

Contr: N=1704
T2D: N=370
SAID: N=28
SIDD: N=92
SIRD: N=17
MOD: N=86
MARD: N=175
M35137 : N2,N2-dimethylguanosine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M57482 : sphingomyelin (d18:2/23:1)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1731 | N=375 | N=29 | N=93 | N=17 | N=89 | N=176
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177

M2053 : 3-hydroxydecanoate
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1729  N=367  N=28  N=89  N=16  N=88  N=174

M514: cytidine
M36713: N6-carboxymethyllysine

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N = 1523, N = 331, N = 26, N = 79, N = 16, N = 81, N = 155
M52614:1-(1-enzyme-stearoyl)-2-oleoyl-GPE (P−18:0/18:1)

Clustering Analysis:

- **Contr**: N=1707
- **T2D**: N=373
- **SAID**: N=28
- **SIDD**: N=91
- **SIRD**: N=17
- **MOD**: N=89
- **MARD**: N=176
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=177  N=17  N=89

M32415 : docosadienoate (22:2n6)
Clusters:

- **Contr**
- **T2D**
- **SAID**
- **SIDD**
- **SIRD**
- **MOD**
- **MARD**

Sample sizes:

- **Contr**: N=1728
- **T2D**: N=373
- **SAID**: N=29
- **SIDD**: N=93
- **SIRD**: N=17
- **MOD**: N=88
- **MARD**: N=175

M3147: xanthine
M1498: N6, N6, N6-trimethyllysine

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M52474 : 1-(1-enyl-palmitoyl)-GPC (P−16:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1706  N=373  N=29  N=92  N=17  N=88  N=176

M1552: erucate (22:1n9)
M37529 : sphingomyelin (d18:1/18:1, d18:2/18:0)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1730, N=376, N=29, N=93, N=17, N=89, N=177
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1734 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177

M1361: pentadecanoate (15:0)
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1724  N=375  N=28  N=93  N=17  N=89  N=176

M33950 : N-acytylphenylalanine
M63436 : (2 or 3)−deconoate (10:1n7 or n8)

Clusters:
- Contr: N=1682
- T2D: N=370
- SAID: N=29
- SIDD: N=93
- SIRD: N=15
- MOD: N=87
- MARD: N=175

Graph shows the distribution of M63436 across different clusters with sample sizes indicated.
M61861: octadecenedioate (C18:1-DC)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N-values:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=661 | N=148 | N=12 | N=39 | N=6 | N=40 | N=63

M46539 : N-acetylglucosamine/N-acetylgalactosamine
M62276: dodecadienoate (12:2)*

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M48782 : C-glycosyltryptophan

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M62805: 2,3-dihydroxy-5-methylthio-4-pentenoate (DMTPA)
Contrast in M37443: cysteine sulfinic acid.

Clusters:
- Contr: N=1510
- T2D: N=317
- SAID: N=26
- SIDD: N=78
- SIRD: N=13
- MOD: N=74
- MARD: N=152
M554 : adenine

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1732 N=376 N=29 N=93 N=17 N=89 N=177
M43582: 5-(galactosylhydroxy)-L-lysine

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1700, N=368, N=28, N=90, N=17, N=87, N=174
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1663  N=359  N=27  N=86  N=17  N=82  N=174
M57687: N,N,N-trimethyl-5-aminovalerate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

- N=1730
- N=373
- N=29
- N=93
- N=17
- N=88
- N=175

M42420 : erythronate*

* N=373
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M44656 : isovalerate (i5:0)

N=1734
N=376
N=29
N=93
N=17
N=89
N=177
M61887: glucuronide of C10H18O2 (7)*

Clusters:

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:

- N=1228
- N=317
- N=24
- N=78
- N=14
- N=76
- N=149
M53263: docosahexaenooylcholine

Clusters:
- Contr: \( N = 1151 \)
- T2D: \( N = 241 \)
- SAID: \( N = 15 \)
- SIDD: \( N = 46 \)
- SIRD: \( N = 9 \)
- MOD: \( N = 58 \)
- MARD: \( N = 128 \)
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1599
N=355
N=28
N=89
N=16
N=82
N=168

M46685 : X − 16964
M35669 : tetracendecioate (C14−DC)

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1728
N=374
N=29
N=93
N=17
N=89
N=175
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M33587: eicosenoate (20:1)
N=1731
N=376
N=29
N=93
N=17
N=89
N=177

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Clusters

M1444: pipecolate
M57474: sphingomyelin (d18:2/18:1)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M46261: X - 19438

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1666 N=359 N=28 N=87 N=16 N=85 N=171
M33939: N-acetyltthreonine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1719  N=373  N=29  N=92  N=16  N=89  N=176
Clusters M36752 : N6-acetyllysine

- Contr: N=1718
- T2D: N=371
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=88
- MARD: N=173
M57480: sphingomyelin (d18:2/21:0, d16:2/23:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M54907 \(:\) hexanoylglutamine
M48762: 1,2,3-benzenetriol sulfate (2)

Clusters

- Contr: N=505
- T2D: N=114
- SAID: N=10
- SIDD: N=35
- SIRD: N=9
- MOD: N=24
- MARD: N=46
M62959 : hydroxy-N6,N6,N6-trimethyllysine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M36746 : 2-hydroxy-3-methylvalerate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1734 N=376 N=29 N=93 N=17 N=89 N=177
Clusters

M32388: dodecanedioate (C12-DC)

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1732, N=375, N=29, N=92, N=17, N=89, N=177
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
M52460: 1-palmitoyl-2-linoleoyl-GPC (16:0/18:2)

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

Clustering of samples by M52460 abundance.
M48351: N1-methylinosine

Clusters:

- **Contr**: N=1645
- **T2D**: N=363
- **SAID**: N=29
- **SIDD**: N=91
- **SIRD**: N=16
- **MOD**: N=86
- **MARD**: N=170
Clusters

N=1703
N=369
N=28
N=90
N=15
N=88
N=176

M33941 : decanoylcarnitine (C10)

Contr T2D SAID SIDD SIRD MOD MARD
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1692  N=365  N=29  N=90  N=17  N=86  N=172

M47800 : X − 15666
Clusters

M20693 : tartronate (hydroxymalonate)

N=1707
N=368
N=29
N=90
N=17
N=87
N=174
M62104: gamma-glutamylcitrulline

Clusters:

- Contr: N=1730
- T2D: N=375
- SAID: N=28
- SIDD: N=92
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Figure showing box plots for different clusters of M19258: 1-myristoyl-2-palmitoyl-GPC (14:0/16:0). Clusters include Contr, T2D, SAID, SIDD, SIRD, MOD, and MARD. The box plots display the distribution of values with the number of samples indicated for each cluster. The y-axis represents the log scale.
M32306: trans-4-hydroxyproline

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1733 N=376 N=29 N=93 N=177 N=89 N=17
M63264: pentose acid

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1427  N=325  N=25  N=88  N=12  N=74  N=151
M53230: 3-hydroxyhexanoate

Clusters:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M52461: 1-palmitoyl-2-oleoyl-GPC (16:0/18:1)
M62064: 3-hydroxybutyroylglycine**

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1717  N=374  N=29  N=92  N=17  N=88  N=177
M42459 : sphingomyelin (d18:2/16:0, d18:1/16:1)*

Clusters

Contr  | T2D  | SAID | SIDD | SIRD | MOD  | MARD

N=1730 | N=376| N=29 | N=93 | N=17 | N=89 | N=177
Clusters

M62068 : N-methylhydroxyproline**

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1480  N=327  N=23  N=76  N=14  N=76  N=161
Clusters

- Contr: N=1674
- T2D: N=359
- SAID: N=27
- SIDD: N=89
- SIRD: N=14
- MOD: N=88
- MARD: N=168

M33936: octanoylcarnitine (C8)
M46957 : guloenate*

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1700
N=360
N=26
N=84
N=16
N=87
N=173
Clusters

M46909 : X − 21740

N=1638
N=359
N=26
N=91
N=16
N=88
N=164
M49515: X - 23639

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=376  N=29  N=93  N=17  N=89  N=177
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M52464 : 1-palmitoyl-2-arachidonoyl-GPE (16:0/20:4)

N=1729
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

-3  -2  -1  0  1  2  3

M61486: androsterone glucuronide

N=1710  N=367  N=28  N=90  N=17  N=88  N=172
M1567 : vanillylmandelate (VMA)

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1679
N=360
N=29
N=88
N=17
N=87
N=168
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=887  N=205  N=14  N=45  N=10  N=38  N=112
M55072 : 2-oxoarginine

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1733, N=376, N=29, N=93, N=17, N=89, N=177
M36095 : thymol sulfate
M20694 : oxalate (ethanedioate)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M63685: decadienedioic acid (C10:2-DC)**

N=1587
N=338
N=29
N=86
N=15
N=81
N=156
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M33953 : N-acetylarginine

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1722, N=369, N=29, N=90, N=16, N=88, N=175

M52478 : 1-(1-enyln-palmitoyl)-2-oleoyl-GPC (P-16:0:18:1)
M35160: oleoylcarnitine (C18:1)

N=1657
N=362
N=28
N=91
N=16
N=86
N=169

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD
### M32390 : N-acetytyrosine

| Cluster | N  |
|---------|----|
| Contr   | 1704 |
| T2D     | 367  |
| SAID    | 29   |
| SIDD    | 91   |
| SIRD    | 16   |
| MOD     | 87   |
| MARD    | 173  |
M62851: hydroxypalmitoyl sphingomyelin (d18:1/16:0(OH))

Clusters

Contr N=1730
T2D N=376
SAID N=29
SIDD N=93
SIRD N=17
MOD N=89
MARD N=177
Clusters

M22001 : 3-hydroxyoctanoate

Contr N=1734
T2D N=376
SAID N=29
SIDD N=93
SIRD N=17
MOD N=89
MARD N=177
M32827: andro steroid monosulfate C19H28O6S (1)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1717  N=366  N=28  N=88  N=17  N=87  N=174
Clusters

M15140: kynurenine

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1706, N=371, N=29, N=92, N=16, N=87, N=176
M33972: 10-nonadecenoate (19:1n9)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1731  N=376  N=29  N=93  N=17  N=89  N=177
M63061 : pantoate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=988 N=226 N=19 N=58 N=47 N=112
Clusters

M33969 : stearidonate (18:4n3)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1724  N=375  N=29  N=93  N=17  N=89  N=176
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1719
N=372
N=29
N=91
N=17
N=89
N=175

M2761 : thyroxine

Clusters

N=1719
N=372
N=29
N=91
N=17
N=89
N=175
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

$M48457: 4$-methoxyphenol sulfate

$N=1450$, $N=322$, $N=19$, $N=73$, $N=13$, $N=81$, $N=155$
Clusters of data with different sample sizes:

- **Contr**: N=1532
- **T2D**: N=312
- **SAID**: N=27
- **SIDD**: N=73
- **SIRD**: N=15
- **MOD**: N=74
- **MARD**: N=150
Clusters

N=1730
N=376
N=29
N=93
N=89
N=177

M52462: 1-palmitoyl-2-arachidonoyl-GPC (16:0/20:4n6)
Clusters:

Contr: N=1734
T2D: N=376
SAID: N=29
SIDD: N=93
SIRD: N=17
MOD: N=89
MARD: N=177

3-carboxy-4-methyl-5-pentyl-2-furanpropionate (3-CMPFP)**
M34387 : N-acetylproline

Clusters:

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1718
N=369
N=29
N=93
N=16
N=87
N=173
M54923 : beta-citrylglutamate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M44681: palmitoylcarnitine (C16)

N=1716, N=374, N=29, N=92, N=17, N=89, N=176
M34035 : linolenate [alpha or gamma; (18:3n3 or 6)]

Clusters

Contr

T2D

SAID

SIDD

SIRD

MOD

MARD

N=1734

N=376

N=29

N=93

N=17

N=89

N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1723  N=371  N=29  N=93  N=17  N=87  N=174

M1124: myo-inositol
M18374 : methionine sulfoxide

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1733 N=376 N=29 N=93 N=17 N=89 N=177
M57453 : glycosyl ceramide (d18:2/24:1, d18:1/24:2)∗

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1370
N=257
N=22
N=52
N=14
N=70
N=121
M35186: 1- arachidonoyl-GPE (20:4n6)*

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1728 N=376 N=29 N=93 N=17 N=89 N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

M62278 : histidine betaine (hercynine)*

N=1401  N=311  N=22  N=70  N=15  N=79  N=147
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M32397 : 3-hydroxy-2-ethylpropionate
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1732 N=376 N=29 N=93 N=17 N=89 N=177

M33937: alpha-hydroxyisovalerate
M47153 : sphingomyelin (d18:1/24:1, d18:2/24:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

M43488 : N-acetylcarnosine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1722  N=370  N=27  N=92  N=17  N=87  N=174
Clusters

M2342 : serotonin
N=1603
N=347
N=26
N=88
N=16
N=78
N=165
M33959 : N-acetylttryptophan

Clusters:
- Contr: N=1726
- T2D: N=375
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=176
M33955: 1-palmitoyl-GPC (16:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M32807: taurocholenate sulfate*
M42382 : S-adenosylhomocysteine (SAH)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1639, N=362, N=29, N=88, N=17, N=89, N=168
Clusters

M512: asparagine

Contr T2D SAID SIDD SIRD MOD MARD

N=1733 N=376 N=29 N=93 N=17 N=89 N=177
Clusters M35637 : cysteinylglycine

- Contr: N=1538
- T2D: N=339
- SAID: N=26
- SIDD: N=83
- SIRD: N=16
- MOD: N=79
- MARD: N=161
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M63339 : (S)-a-amino-omega-caprolactam

N=1606
N=356
N=27
N=88
N=17
N=86
N=165
M27665: 1-methylnicotinamide

Clusters:
- Contr: N=1721
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M46173 : aconitate [cis or trans]

- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clustering results for M36738: gamma-glutamylglutamate

- N=1712
- N=373
- N=29
- N=92
- N=16
- N=89
- N=176
M62873: cis-4-decenoate (10:1n6)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1697  N=370  N=29  N=92  N=16  N=88  N=174
M62733 : 3-hydroxyphenylacetoylglutamine

Contr T2D SAID SIDD SIRD MOD MARD

N=964 N=253 N=19 N=58 N=14 N=60 N=121
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1593  N=324  N=23  N=76  N=14  N=75  N=159

M46623 : X − 12729
M63042: 2,6-dihydroxybenzoic acid

Clusters
Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M52285: oleate/vaccenate (18:1)
M47790 : X − 13684

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1728  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M62295: sulfate of piperine metabolite C16H19NO3 (2)*
M38125: 4-cholesten-3-one

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=818  N=226  N=16  N=60  N=11  N=59  N=96
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M63660: glutamine conjugate of C6H10O2 (2)*

N=1616
N=354
N=28
N=91
N=17
N=84
N=162
M17805: dihomo-linoleate (20:2n6)

Clusters

Contr.  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

M12129 : beta-hydroxyisovalerate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733 N=376 N=29  N=93  N=17  N=89  N=177
M1644: heptanoate (7:0)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1730, N=375, N=29, N=93, N=17, N=89, N=176
M19130: 1,2-dipalmitoyl-GPC (16:0/16:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=93  N=17  N=89  N=177
M46707: X - 17653

Clustering:
- Contr: N=1668
- T2D: N=361
- SAID: N=28
- SIDD: N=90
- SIRD: N=16
- MOD: N=85
- MARD: N=170
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=586  N=122  N=7  N=28  N=3  N=32  N=59

M47643: X - 12125
Clusters

N=1513
N=330
N=28
N=84
N=14
N=75
N=157

M46354 : X - 21310
Clusters

M1114 : deoxycholate

N=1431  N=317  N=24  N=81  N=13  N=73  N=150

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M38599 : celecoxib

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=20
N=15
N=3
N=1
N=3
N=3
N=8
Clustering analysis for M48255: arabonate/xylonate

- Contr: N=1698
- T2D: N=365
- SAID: N=29
- SIDD: N=93
- SIRD: N=16
- MOD: N=85
- MARD: N=171
Contrast analysis of N-acetyl-1-methylhistidine across different clusters:

- **Contr:** N=1550
- **T2D:** N=334
- **SAID:** N=27
- **SIDD:** N=79
- **SIRD:** N=13
- **MOD:** N=80
- **MARD:** N=162

The box plots depict the distribution of N-acetyl-1-methylhistidine across these clusters, with the y-axis showing the value range and the x-axis indicating the clusters.
Clustering analysis of myristoleate (14:1n5) across different conditions.

- M32418: myristoleate (14:1n5)
- Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
- Sample sizes: N=1734, N=376, N=93, N=17, N=89, N=177

Graphical representation showing the distribution of myristoleate across clusters.
M6357: 2-hydroxysebacate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1393 N=304 N=21 N=74 N=14 N=83 N=133
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=987  N=201  N=12  N=44  N=14  N=37  N=106

M48418 : 4-methylguaiacol sulfate
M33173: 2-hydroxyacetaminophen sulfate*

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=353 N=88 N=8 N=17 N=6 N=22 N=42
Clusters

M32504 : docosapentaenoate (n3 DPA; 22:5n3)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1720  N=376  N=28  N=93  N=17  N=89  N=177
M15650 : N1-methyladenosine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M62954: N2-acetyl, N6-methyllysine

Clusters

Contr T2D SAID SIDD SIRD MOD MARD
N=1591 N=325 N=24 N=74 N=15 N=77 N=159
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1727  N=374  N=29  N=91  N=17  N=89  N=177

M32346 : glycochenodeoxycholate
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1566 | N=346 | N=28 | N=83 | N=17 | N=78 | N=168

M40703: prolylglycine
M57652: hexadecadienoate (16:2n6)

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1723 N=373 N=28 N=93 N=175
M44878: methionine sulfone

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M32350: 1-methyl-4-imidazoleacetate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1733, N=376, N=29, N=93, N=17, N=89, N=177
Clusters

M1643: fumarate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1689  N=371  N=29  N=93  N=17  N=87  N=174
M53195: 1-myristoyl-2-arachidonoyl-GPC (14:0/20:4)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1723  N=374  N=29  N=93  N=17  N=88  N=176
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M48433: N-formylphenylalanine

N=1476
N=311
N=18
N=71
N=15
N=81
N=144
Clustered box plot of hexadecenedioate (C16:1-DC) in different groups:

- Contr: N=1675
- T2D: N=362
- SAID: N=27
- SIDD: N=91
- SIRD: N=17
- MOD: N=85
- MARD: N=169

The x-axis represents different clusters, and the y-axis represents the concentration level.
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1732 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
M37202 : androstenediol (3beta, 17beta) disulfate (1)

Clustering of various conditions:
- Contr: N=1734
- T2D: N=375
- SAID: N=29
- SIDD: N=92
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1734, N=376, N=29, N=93, N=17, N=89, N=177

M1105: linoleate (18:2n6)
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=376  N=29  N=93  N=177  N=89

M55015: gamma-glutamyl-alpha-lysine
M52748: 1-(1-enyl-stearoyl)-2-linoleoyl-GPE (P−18:0/18:2)
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1577  N=339  N=26  N=85  N=14  N=83  N=157

M48182: myristoleoylcarnitine (C14:1)*
M61881: glucuronide of C10H18O2 (1)*

Clusters:
- Contr: N=658
- T2D: N=187
- SAID: N=13
- SIDD: N=40
- SIRD: N=9
- MOD: N=46
- MARD: N=92
M594: nicotinamide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=129  N=93  N=17  N=89  N=177
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

M19265 : 1-stearoyl-2-oleoyl-GPS (18:0/18:1)

N=1224  N=263  N=23  N=68  N=10  N=60  N=125
Clusters

M47301: X − 18887

N=1249
N=225
N=12
N=50
N=5
N=68
N=102
M57483 : sphingomyelin (d17:2/16:0, d18:2/15:0)*

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1709 N=370 N=29 N=90 N=17 N=89 N=174
Clusters

M62564 : 1-carboxyethyltyrosine

N=818
N=255
N=20
N=68
N=14
N=59
N=114
Clusters
Contr T2D SAID SIDD SIRD MOD MARD
N=1630 N=348 N=28 N=79 N=17 N=85 N=167
Clusters

M22176: cysteine s-sulfate

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1729
N=375
N=29
N=93
N=17
N=89
N=176
M33968 : 5-dodecenoate (12:1n7)

- Contr: N=1728
- T2D: N=375
- SAID: N=93
- SIDD: N=17
- SIRD: N=89
- MOD: N=176
- MARD: N=29
M37200 : 5α-pregnan-3β,20α-diol monosulfate (2)
Contrast analysis of clusters M63560

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1730
- T2D: N=374
- SAID: N=29
- SIDD: N=92
- SIRD: N=16
- MOD: N=89
- MARD: N=177

Graph showing box plots for each cluster.
M43378 : S–methylcysteine sulfoxide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M52449 : 1–stearyoyl–2–arachidonoyl–GPI (18:0/20:4)

N=1730
N=372
N=29
N=93
N=17
N=87
N=175
M62071: perfluorooctanoate (PFOA)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1704  N=373  N=28  N=91  N=17  N=89  N=176
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=376  N=29  N=93  N=17  N=89  N=177

M39609 : 16-hydroxypalmitate
M43249: N-delta-acetylornithine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Clusters

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M63120 : 2-ketocaprylate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1731  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1363  N=304  N=24  N=77  N=13  N=67  N=147

M33946 : N-acetylhistidine
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M48394: pregnanolone/allopregnanolone sulfate

Clusters

N=1310
N=204
N=13
N=48
N=12
N=45
N=99
M19263: 1-palmitoyl-2-oleoyl-GPE (16:0/18:1)
Clusters

M528 : alpha-ketoglutarate

Contr T2D SAID SIDD SIRD MOD MARD

N=1730 N=374 N=29 N=93 N=17 N=88 N=176
M37092: gamma-glutamyl-2-aminobutyrate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1694  N=367  N=29  N=92  N=16  N=86  N=173
M31536 : N−(2−furoyl)glycine

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1264, N=283, N=18, N=66, N=17, N=67, N=133
M57554: 2'-O-methylcytidine

- Contr: N=1703
- T2D: N=373
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=174

Clusters
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M41888 : succinimide

N=1219
N=254
N=20
N=59
N=14
N=58
N=123
M27672 : 3-indoxyl sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

Contr

N=1002

T2D

N=219

SAID

N=13

SIDD

N=47

SIRD

N=8

MOD

N=57

MARD

N=107

M47929: X - 12707
M64177 : S-carboxyethylcysteine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1714  N=366  N=29  N=91  N=17  N=86  N=172
M1589 : N-acetylmethionine

Clusters:
- Contr: N=1733
- T2D: N=374
- SAID: N=29
- SIDD: N=92
- SIRD: N=17
- MOD: N=89
- MARD: N=176
M37114: N6-methyladenosine

Clusters

Contr T2D SAID SIDD SIRD MOD MARD
Clusters

M35136: 5-methyluridine (ribothymidine)

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1734
N=376
N=29
N=93
N=17
N=89
N=177
M52682 : 1-(1-enyl-palmitoyl)-2-linoleoyl-GPC (P−16:0/18:2)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M52286: X - 24243

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1456
N=319
N=21
N=83
N=14
N=74
N=148
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1514  N=299  N=17  N=61  N=14  N=77  N=147
Clusters

M52340 : N-carbamoylalanine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1311  N=286  N=22  N=63  N=14  N=65  N=144
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1581  N=344  N=27  N=87  N=17  N=78  N=162

M396: glutarate (C5-DC)
M42109: phosphate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1733, N=376, N=93, N=17, N=89, N=177
Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1712, N=372, N=29, N=92, N=16, N=88, N=176

Clusters

M46283 : X − 15461
M46673 : X − 16576

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1645 N=348 N=24 N=84 N=14 N=83 N=167
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1376  N=319  N=24  N=77  N=16  N=76  N=150

M46798: oleoyl-linoleoyl-glycerol (18:1/18:2) [1]
Clusters M53172: X - 24736

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=759  N=161  N=13  N=39  N=4  N=43  N=75
Clusters M46610: X - 12007

- Contr: N=895
- T2D: N=231
- SAID: N=17
- SIDD: N=69
- SIRD: N=15
- MOD: N=49
- MARD: N=98
M2829: N-formylmethionine

Clusters:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
$52713 : 1-(1\text{-enyl-palmitoyl})-2\text{-palmitoleoyl}\text{-GPC (P-16:0/16:1)}^*$

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

$N=1644$, $N=347$, $N=27$, $N=82$, $N=15$, $N=84$, $N=166$
Clusters

N=1730
N=376
N=29
N=93
N=17
N=89
N=177

M35631: 1-palmitoyl-GPE (16:0)
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1199 | N=237 | N=15 | N=52 | N=15 | N=56 | N=114

M46970 : X − 17676
Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1690  N=362  N=28  N=91  N=17  N=88  N=166

Clusters

M39837: docosadioate (C22-DC)
M48187 : N-acetyltaurine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1135  N=282  N=21  N=69  N=13  N=68  N=132
Clusters

M57516: cerotoylcarnitine (C26)
M47114: ferulic acid 4-sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1047  N=260  N=19  N=61  N=16  N=66  N=117
M47031: 2-methoxyacetaminophen sulfate*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=254  N=60  N=6  N=11  N=3  N=16  N=30
M1356: nonadecanoate (19:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M41220: 2-stearoyl-GPE (18:0)*

N=1708
N=366
N=29
N=93
N=16
N=87
N=170

-2
0
2
4
M42489 : 2-hydroxydecanoate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M64093 : meloxicam

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=93  N=31  N=3  N=4  N=3  N=7  N=17
Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1729  N=376  N=29  N=93  N=17  N=89  N=177

Clusters

M42398 : 1-steinoyl-GPE (18:0)
M17769 : sphinganine

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=728
N=173
N=18
N=52
N=9
N=41
N=71
M21127.1-palmitoylglycerol (16:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1605  N=359  N=26  N=89  N=14  N=87  N=169
Clusters

M33228: 1-arachidonoyl-GPC (20:4n6)*

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Figure showing box plots for gene expression across different clusters. The y-axis represents the expression level of M62860 : N6-methyllysine. Each box plot represents a cluster, with labels for Contr, T2D, SAID, SIDD, SIRD, MOD, and MARD. The numbers inside each box indicate the sample size for each cluster.
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

M34407: isovalerylcarnitine (C5)

N=1629  N=356  N=28  N=91  N=17  N=82  N=166
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M35628 : 1-oleoyl-GPE (18:1)

N=1734, N=376, N=29, N=93, N=17, N=89, N=177
M52470 : 1-palmitoyl–2-palmitoleoyl–GPC (16:0/16:1)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177

M63 : cholesterol

-3  -2  -1  0  1  2  3
M48757 : N-acetyltrykynurenine (2)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=827  N=180  N=8  N=39  N=10  N=41  N=90
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177

M52495 : sphingomyelin (d18:1/21:0, d17:1/22:0, d16:1/23:0)
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1476  N=327  N=24  N=81  N=14  N=80  N=152

M53254: caffeic acid sulfate
Clusters

Contr: N=1733
T2D: N=376
SAID: N=29
SIDD: N=93
SIRD: N=17
MOD: N=89
MARD: N=177

M1493: ornithine
Clusters

M43829 : gamma-glutamylvaline

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=89  N=177
M5235 : 1-stearoyl-2-arachidonoyl-GPS (18:0/20:4)
M63658: glutamine conjugate of C7H12O2*
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1662  N=368  N=27  N=93  N=17  N=88  N=170
M32619: pregnenediol sulfate (C21H34O5S)
M52446 : 1-stearoyl-2-linoleoyl-GPE (18:0/18:2)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1707  N=370  N=29  N=91  N=17  N=87  N=175
M63251: 11beta-hydroxyandrosterone glucuronide

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=1719
- T2D: N=373
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=87
- MARD: N=176
M42463 : sphingomyelin (d18:1/14:0, d16:1/16:0)*

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1730 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
M48258: 1-oleoyl-GPC (18:1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M3971 : 10-heptadecenoate (17:1n7)
Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

Clusters

M27414 : beta-sitosterol

N=997
N=211
N=20
N=56
N=11
N=43
N=101
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M64: phenylalanine

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M53223: palmitoleoylcarnitine (C16:1)*

N=1320
N=298
N=22
N=70
N=12
N=76
N=140
M37210 : androstenediol (3beta, 17beta) monosulfate (2)

N=1500

N=331

N=25

N=80

N=13

N=82

N=156
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1521  N=345  N=27  N=83  N=15  N=81  N=166

M46799 : oleoyl-linoleoyl-glycerol (18:1/18:2) [2]
Clusters

M32980 : adrenate (22:4n6)

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1638
N=358
N=29
N=88
N=16
N=84
N=170
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1725  N=371  N=29  N=92  N=17  N=87  N=175

M39600 : 3-hydroxyhippurate
M2831: adenosine 3',5'-cyclic monophosphate (cAMP)
Clusters

M1566 : 3–aminoisobutyrate

Contr

T2D

SAID

SIDD

SIRD

MOD

MARD

N=1731

N=376

N=29

N=93

N=17

N=89

N=177
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1733
N=376
N=29
N=93
N=17
N=89
N=177

M2132 : citrulline
Clusters

- Contr: N=719
- T2D: N=137
- SAID: N=8
- SIDD: N=32
- SIRD: N=27
- MOD: N=5
- MARD: N=73

M47673: X - 19299
Clusters

M48493 : sphingomyelin (d18:1/22:1, d18:2/22:0, d16:1/24:1)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1729  N=376  N=29  N=93  N=17  N=89  N=177
Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M15716: imidazole lactate

N=1733, N=376, N=29, N=93, N=17, N=89, N=177
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1688
N=366
N=28
N=92
N=16
N=84
N=174

M47872: X - 17340
M21025: iminodiacetate (IDA)

Clusters:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M37183 : 5alpha-androstan-3alpha, 17alpha-diol monosulfate

Clusters

Contr

T2D

SAID

SIDD

SIRD

MOD

MARD

N=1363

N=245

N=17

N=60

N=44

N=12

N=129
52454 : 1-palmitoyl-2-dihomo-linolenoyl-GPC (16:0/20:3n3 or 6)*

N=1700
N=369
N=29
N=91
N=16
N=86
N=176

Clusters
Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
M43400 : 2-piperidinone

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M1559: 5,6-dihydrouracil

Clusters

N=1258
N=268
N=62
N=12
N=71
N=123
M52611 : 1−stearoyl−2−docosahexaenoyl−GPC (18:0/22:6)

Clusters

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N values:
- Contr: 1730
- T2D: 376
- SAID: 29
- SIDD: 93
- SIRD: 17
- MOD: 89
- MARD: 177
M63227: 3-hydroxy-2-methylpyridine sulfate

- Contr: N=436
- T2D: N=73
- SAID: N=7
- SIDD: N=12
- SIRD: N=7
- MOD: N=8
- MARD: N=46
M48698: 6-hydroxyindole sulfate

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1730, N=374, N=29, N=92, N=17, N=89, N=176
M62946: 1-methyl-5-imidazoleacetate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=1733
- T2D: N=375
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=88
- MARD: N=177
M38768 : (14 or 15)−methylpalmitate (a17:0 or i17:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1683  N=365  N=25  N=91  N=15  N=87  N=172
M52602 : 2'-deoxyuridine

N=1343
N=274
N=17
N=61
N=13
N=63
N=137

Clusters
Contr T2D SAID SIDD SIRD MOD MARD
M38170 : pregnenolone sulfate

N=1709
N=355
N=27
N=85
N=17
N=81
N=172
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1724  N=372  N=29  N=92  N=17  N=86  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=861  N=196  N=13  N=51  N=6  N=47  N=92

M41754 : heme
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1682  N=357  N=28  N=91  N=16  N=85  N=165
M62277 : hydroxy-CMPF*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M33997: campesterol

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=895, N=186, N=54, N=8, N=38, N=86
M52975: glycodeoxycholate 3-sulfate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1682, N=353, N=28, N=87, N=16, N=83, N=167
Clusters

M57461 : argininate*

-3 -2 -1 0 1 2 3

Contr T2D SAID SIDD SIRD MOD MARD

N=1733 N=376 N=29 N=93 N=17 N=89 N=177
$M46111 : guaiacol sulfate$

Clusters:
- Contr ($N=1732$)
- T2D ($N=376$)
- SAID ($N=29$)
- SIDD ($N=93$)
- SIRD ($N=17$)
- MOD ($N=89$)
- MARD ($N=177$)
M63589: 3,5-dichloro-2,6-dihydroxybenzoic acid

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
M46325: 1-arachidonoyl-GPA (20:4)

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

Clusters

N=981, N=219, N=20, N=59, N=13, N=43, N=104
M36850 : taurolithocholate 3-sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1706  N=361  N=26  N=87  N=16  N=85  N=173
Clusters

N=1478
N=346
N=28
N=85
N=17
N=81
N=163
M52710: 1-linoleoyl-2-arachidonoyl-GPC (18:2/20:4n6)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M32497: 10-undecenoate (11:1n1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M38296: (16 or 17)-methylstearate (a19:0 or i19:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1731  N=375  N=29  N=93  N=17  N=89  N=176
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1734
N=376
N=29
N=93
N=17
N=89
N=177

M18369: gamma-glutamylleucine
M52465 : 1-palmitoyl-2-docosahexaenoyl-GPE (16:0/22:6)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

M57855 : 4-acetamidobenzoate

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=380
N=94
N=4
N=28
N=3
N=20
N=43
Clusters:

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M48841: p-cresol glucuronide*
52673 : 1-(1-enyl-palmitoyl)-2-arachidonoyl-GPE (P-16:0/20:4)
Clusters M42002: lanthionine

Contr: N=1320, T2D: N=292, SAID: N=20, SIDD: N=70, SIRD: N=14, MOD: N=67, MARD: N=141
M48733: vanillic alcohol sulfate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1369  N=289  N=21  N=72  N=11  N=73  N=133

M47702: X - 12127
Clusters

M57476 : sphingomyelin (d18:0/20:0, d16:0/22:0)*

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1720  N=373  N=29  N=91  N=89  N=176
M63057: picolinoylglycine

Clusters

Contr: N=1599
T2D: N=366
SAID: N=28
SIDD: N=90
SIRD: N=17
MOD: N=88
MARD: N=171
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1500
N=249
N=13
N=54
N=11
N=58
N=126

M48046: X - 18838
M6146: 2-aminoadipate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1727, N=376, N=29, N=93, N=17, N=89, N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1576  N=329  N=28  N=87  N=16  N=74  N=152

M1512: picolinate
M54979 : N-stearoyl-sphingosine (d18:1/18:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1576  N=348  N=28  N=82  N=17  N=86  N=163
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M3447 : palmiroleate (16:1n7)
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M1572 : glycerate

N=1730
N=374
N=29
N=93
N=17
N=88
N=176
Clusters

M63583 : 3-indoleglyoxylic acid

Contr T2D SAID SIDD SIRD MOD MARD

N=1676 N=358 N=28 N=86 N=17 N=88 N=167
Clusters

M15681 : 4-guanidinobutanoate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=376  N=29  N=93  N=17  N=89  N=177
M62103: cysteinylglycine disulfide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1731  N=374  N=29  N=93  N=17  N=88  N=176
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1728, N=374, N=29, N=93, N=17, N=89, N=175

M3127: hypoxanthine
M32452: propionylcarnitine (C3)

Clusters

N=1522
N=340
N=86
N=13
N=80
N=161

Contr T2D SAID SIDD SIRD MOD MARD
M52669 : 1-palmitoyl-2-oleoyl-GPI (16:0/18:1)*

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- N=1682
- N=363
- N=27
- N=90
- N=17
- N=85
- N=171
Clusters

M46691 : X − 17146

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1472  N=313  N=23  N=76  N=14  N=75  N=148
Clustering Analysis:

- **Contr**: N=1174
- **T2D**: N=256
- **SAID**: N=19
- **SIDD**: N=70
- **SIRD**: N=12
- **MOD**: N=59
- **MARD**: N=115

Cluster representation with box plots showing distribution of data points for each category.
M63153: metabolonic lactone sulfate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- N=1730
- N=376
- N=29
- N=93
- N=17
- N=89
- N=177
M45966 : 1−stearoyl−GPS (18:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

M32197: 3-(4-hydroxyphenyl)lactate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M47135: 11-ketoetiocholanolone glucuronide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1172  N=245  N=13  N=45  N=9  N=66  N=125
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M15443 : glucuronate

N=1730
N=372
N=29
N=93
N=17
N=88
N=174
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M43266: 2-aminophenol sulfate

N=1699, N=372, N=29, N=92, N=17, N=89, N=174
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1730
N=376
N=29
N=93
N=17
N=89
N=177

Clusters

M52435 : sphingomyelin (d18:2/23:0, d18:1/23:1, d17:1/24:1)
M37211: androstenediol (3beta, 17beta) monosulfate (1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=375  N=29  N=92  N=17  N=89  N=177
M52747: phenol glucuronide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
The image contains a box plot with various clusters labeled as Contr, T2D, SAID, SIDD, SIRD, MOD, and MARD. Each cluster has a corresponding box plot indicating the distribution of data points with notches, indicating the variability of the data. The number of data points for each cluster is specified as follows: Contr (N=1368), T2D (N=315), SAID (N=22), SIDD (N=76), SIRD (N=12), MOD (N=77), and MARD (N=150).
M1419: 5-methylthioadenosine (MTA)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1727
N=373
N=29
N=91
N=17
N=89
N=176
M1417 : kynurenate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M32553: phenol sulfate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M48149: N-acetylgulcosaminylasparagine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1725  N=375  N=92  N=29  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1412  N=287  N=20  N=64  N=12  N=73  N=138

M62297: sulfate of piperine metabolite C18H21NO3 (1)*
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=371
N=78
N=22
N=3
N=3
N=15
N=38

M62521: X − 25279

Clusters
M52436 : tricosanoyl sphingomyelin (d18:1/23:0)*

- Clusters
  - Contr: N=1673
  - T2D: N=363
  - SAID: N=28
  - SIDD: N=88
  - SIRD: N=17
  - MOD: N=87
  - MARD: N=171
M62890: taurochenodeoxycholic acid 3-sulfate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1597
- T2D: N=310
- SAID: N=21
- SIDD: N=69
- SIRD: N=17
- MOD: N=79
- MARD: N=145
M61858: ribulonate/xylulonate/lyxonate

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1696
N=354
N=26
N=85
N=14
N=81
N=174
Clusters

M48696 : maltol sulfate

N=424
N=87
N=7
N=18
N=11
N=15
N=43
Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N = 834, 165, 10, 36, 7, 50, 72

M52892: X - 24571
M64049: 2-methoxyhydroquinone sulfate (1)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N-values:
- N=966
- N=252
- N=19
- N=59
- N=14
- N=66
- N=113
M57577: isoursodeoxycholate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=375  N=29  N=93  N=17  N=89  N=176
M38168: 16a-hydroxy DHEA 3-sulfate

Clustering and analysis of different clusters:
- Contr: N=1732
- T2D: N=373
- SAID: N=29
- SIDD: N=91
- SIRD: N=17
- MOD: N=88
- MARD: N=177
Clusters

- **Contr**
  - N=1618

- **T2D**
  - N=356

- **SAID**
  - N=25

- **SIDD**
  - N=89

- **SIRD**
  - N=14

- **MOD**
  - N=84

- **MARD**
  - N=169

M62520 : 2-naphthol sulfate
Clusters

M57716 : X - 24949

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1631
N=355
N=28
N=89
N=17
N=85
N=164
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=224
N=50
N=6
N=9
N=1
N=11
N=29
M32599 : glycocholenate sulfate*

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

Clusters
N=1719
N=361
N=29
N=89
N=17
N=84
N=171

M37196 : 5alpha-pregnan-3beta,20beta-diol monosulfate (1)

Clusters

Contr 
T2D 
SAID 
SIDD 
SIRD 
MOD 
MARD
Clusters

N=1598
N=348
N=25
N=84
N=16
N=87
N=161

M46363 : X - 21319
Clusters

M48428 : pyrraline

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1657
N=361
N=27
N=87
N=17
N=84
N=173
M36602 : 1-oleoyl-GPI (18:1)

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1729 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1347  N=313  N=21  N=71  N=16  N=80  N=146
M42448 : 1-stearoyl-2-oleoyl-GPE (18:0/18:1)

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1694 N=368 N=29 N=90 N=17 N=87 N=174
M1605 : ursodeoxycholate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1576  N=329  N=26  N=83  N=14  N=81  N=151
M43591 : N2,N5-diacylornithine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1187  N=299  N=21  N=71  N=78  N=141
M47784 : X = 22520

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
N=831  N=231  N=15  N=58  N=12  N=53  N=108
M62059: N-acetyl-2-aminoocanoate*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M62571: cholic acid glucuronide

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=858, N=179, N=12, N=46, N=10, N=43, N=80
M63699: GlcNAc sulfate conjugate of C21H34O2 steroid**

- Contr: N=1443
- T2D: N=289
- SAID: N=23
- SIDD: N=67
- SIRD: N=12
- MOD: N=69
- MARD: N=141
Clusters

M20676: maleate

- Contr: N=1371
- T2D: N=314
- SAID: N=22
- SIDD: N=76
- SIRD: N=17
- MOD: N=75
- MARD: N=146
Clusters

M42087 : indoleacetylglutamine

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1399
N=331
N=23
N=83
N=15
N=76
N=157
M33161: 2-methoxyacetaminophen glucuronide

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=255, N=59, N=7, N=10, N=3, N=18, N=28
M57637: carotene diol (3)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M22185: N-acetylaspartate (NAA)

N=1668, N=358, N=28, N=89, N=16, N=86, N=167

−2 −1 0 1 2 3 4
| Clusters | N |
|----------|---|
| Contr    | 1707 |
| T2D      | 373  |
| SAID     | 29   |
| SIDD     | 93   |
| SIRD     | 17   |
| MOD      | 89   |
| MARD     | 174  |
M52604: N-palmitoyl-sphinganine (d18:0/16:0)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1109
- T2D: N=242
- SAID: N=58
- SIDD: N=57
- SIRD: N=114
M37506: palmitoyl sphingomyelin (d18:1/16:0)

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1730
N=376
N=29
N=93
N=17
N=89
N=177
M52234: glycosyl-N-stearoyl-sphingosine (d18:1/18:0)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1727 N=372 N=29 N=93 N=17 N=87 N=175

M37076: N-acetylserine
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1553
N=353
N=23
N=87
N=15
N=87
N=164
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1699  N=368  N=28  N=92  N=17  N=88  N=171

M46266 : X − 15486
M62923: eicosenedioate (C20:1−DC)∗

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1655 N=336 N=26 N=80 N=17 N=79 N=160
Figure showing box plots for M33973: epiandrosterone sulfate across different clusters.

Clusters:
- Contr (N=1734)
- T2D (N=375)
- SAID (N=29)
- SIDD (N=92)
- SIRD (N=17)
- MOD (N=89)
- MARD (N=177)
M38662: cotinine N-oxide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=305  N=46  N=4  N=18  N=1  N=5  N=22
M39271 : 1-(1-enyl-stearoyl)-GPE (P-18:0)*

Clusters

Contr   T2D   SAID   SIDD   SIRD   MOD   MARD

N=1730  N=376  N=29   N=93   N=17   N=89   N=177
M35635 : 3-(3-hydroxyphenyl)propionate
M1299 : tyrosine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Clusters

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M35253 : 2-palmitoyl-GPC (16:0)*

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1733 N=374 N=29 N=92 N=17 N=89 N=176
M18467 : eicosapentaenoate (EPA; 20:5n3)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M42381: gamma-CEHC glucuronide*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1134  N=254  N=18  N=62  N=13  N=65  N=114
M63236 : 3-hydroxypyridine glucuronide

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=384
- T2D: N=65
- SAID: N=6
- SIDD: N=16
- SIRD: N=2
- MOD: N=10
- MARD: N=37
Clusters

-2 0 2 4 6 8 10

Contr T2D SAID SIDD SIRD MOD MARD

N=1704 N=356 N=25 N=83 N=17 N=83 N=173

M40708 : pregnanediol-3-glucuronide
M52974: glycochenodeoxycholate 3-sulfate
M32492 : caprylate (8:0)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M46516: X = 21471

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1724, N=374, N=29, N=92, N=17, N=89, N=176
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1447 N=311 N=24 N=71 N=16 N=76 N=148

M35172: orotidine
M47886: bilirubin (E,Z or Z,E)*

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1369
N=292
N=21
N=72
N=11
N=70
N=139
Clusters

M54910 : vanillactate

N=939
N=187
N=13
N=37
N=8
N=54
N=88

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Clustering diagram showing distribution of M54910 : vanillactate across different clusters with the following sample sizes:

- Contr: N=939
- T2D: N=187
- SAID: N=13
- SIDD: N=37
- SIRD: N=8
- MOD: N=54
- MARD: N=88
Clusters

M44621: 1-(1-enthyl-oleoyl)-GPE (P-18:1)*

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M12032: 4-acetamidophenol

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=439  N=107  N=10  N=22  N=6  N=29  N=50
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M46608: X − 11880

−3  −2  −1  0  1  2  3
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M46976 : X − 17365

N=253
N=77
N=4
N=15
N=20
N=41
Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M22138: homocitrulline

N=1566, N=347, N=29, N=81, N=16, N=84, N=166
Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N values:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Clusters

M15500 : carnitine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M63590 : ascorbic acid 2-sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1518  N=330  N=28  N=80  N=14  N=78  N=158
M43333 : carboxyibuprofen

N=52

N=14

N=3

N=4

N=2

N=7
M19260 : 1-oleoyl-GPS (18:1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=903  N=165  N=14  N=46  N=9  N=40  N=70
Clusters

M62527 : lithocholic acid sulfate (2)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

- Contr: N=1720
- T2D: N=371
- SAID: N=29
- SIDD: N=91
- SIRD: N=17
- MOD: N=87
- MARD: N=176

M31787 : 3-carboxy-4-methyl-5-propyl-2-furanpropanoate (CMPF)
M52914: 5-hydroxyindole sulfate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=922 N=195 N=11 N=40 N=12 N=44 N=99
M48407: dopamine 3-O-sulfate

Clusters:

Contr: N=1698
T2D: N=367
SAID: N=29
SIDD: N=91
SIRD: N=17
MOD: N=88
MARD: N=171
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

$M_{61864}$ : dodecenedioate (C12:1−DC)*

$N=1661$
$N=363$
$N=29$
$N=90$
$N=16$
$N=84$
$N=173$
Clusters

N=135
N=64
N=5
N=16
N=6
N=16
N=26

M54736: phenylacetylmethionine
M48429 : methyl-4-hydroxybenzoate sulfate

N=1473
N=309
N=24
N=72
N=12
N=80
N=145
M46633: X - 12844

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
M19503: stearoyl sphingomyelin (d18:1/18:0)

- Contr: N=1730
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M40469 : N1-Methyl-2-pyridone-5-carboxamide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M62296: sulfate of piperine metabolite C16H19NO3 (3)*
N=1553  N=321  N=25  N=69  N=14  N=83  N=155
Clusters
Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M48460: propyl 4-hydroxybenzoate sulfate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=527
- T2D: N=128
- SAID: N=9
- SIDD: N=24
- SIRD: N=5
- MOD: N=42
- MARD: N=57
M52925: phenylacetylglutamate

Clusters:
- Contr: N=924
- T2D: N=211
- SAID: N=19
- SIDD: N=54
- SIRD: N=10
- MOD: N=47
- MARD: N=100

The box plots show the distribution of phenylacetylglutamate across different clusters, with Contr having the highest number of observations (N=924) and MARD having the lowest (N=100).
M63739: 2-hydroxy-4-(methylthio)butanoic acid

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
Clusters:

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M42395 : undecanedioate (C11-DC)

N=1579
N=332
N=27
N=80
N=16
N=81
N=155
Clusters of p-cresol sulfate:

- Contr: N=1734
- T2D: N=376
- SAID: N=93
- SIDD: N=17
- SIRD: N=89
- MOD: N=177

M36103: p-cresol sulfate graph with box plots for each cluster.
M1508 : pantothenate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1733 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177

M1301: lysine
$M5^2467 : 1$-palmitoyl-$2$-arachidonoyl-GPI (16:0/20:4)
M53176 : 1-linoleoyl-2-linolenoyl-GPC (18:2/18:3)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1602  N=339  N=24  N=84  N=15  N=80  N=160
Clusters

N=1726
N=374
N=29
N=93
N=17
N=88
N=176

N=29

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M33947: gamma-glutamyltryptophan

Counts:
- Contr: N=1313
- T2D: N=284
- SAID: N=22
- SIDD: N=71
- SIRD: N=15
- MOD: N=67
- MARD: N=131
M37445: 4-hydroxycoumarin

Clustering:
- Contr: N=1070
- T2D: N=229
- SAID: N=19
- SIDD: N=59
- SIRD: N=11
- MOD: N=42
- MARD: N=117
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1233  N=245  N=17  N=60  N=13  N=56  N=116
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1383  N=305  N=22  N=76  N=9  N=75  N=145
Clusters

M40406: trimethylamine N-oxide
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD
N=1733
N=376
N=29
N=93
N=17
N=89
N=177
M34456 : gamma-glutamylisoleucine*
Clusters
Contr T2D SAID SIDD SIRD MOD MARD
N=1733 N=376 N=29 N=93 N=17 N=89 N=177
-3 -2 -1 0 1 2 3
-3 -2 -1 0 1 2 3
M34456 : gamma-glutamylisoleucine*
M35665: N-acetyl-aspartyl-glutamate (NAAG)
M57636: carotene diol (2)

Clusters:
- Contr: N=1701
- T2D: N=371
- SAID: N=91
- SIDD: N=17
- SIRD: N=88
- MOD: N=175
- MARD: N=71
M39831 : eicosanedioate (C20–DC)

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1733 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M15745: methylsuccinate

N=1422
N=300
N=25
N=76
N=12
N=69
N=143
M48492 : behenoyl sphingomyelin (d18:1/22:0)*

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

M63610 : deoxycholic acid glucuronide

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1685, N=368, N=29, N=90, N=17, N=89, N=172
M62062 : 3-hydroxystachydrine∗

N=1323
N=307
N=22
N=78
N=16
N=67
N=146

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Clusters
Clusters

M55 : beta-alanine

N=1718

N=367

N=28

N=93

N=17

N=86

N=171
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

M39379: glycoursodeoxycholate

N=1733  N=375  N=28  N=92  N=17  N=89  N=177
Clusters

M56 : cystine

N=1733
N=376
N=29
N=93
N=17
N=89
N=177
M34393 : 1-linolenoylglycerol (18:3)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1362  N=331  N=26  N=80  N=17  N=80  N=154
Clusters

M48715: eugenol sulfate

Contr T2D SAID SIDD SIRD MOD MARD

N=1485 N=324 N=24 N=84 N=13 N=72 N=155
M63988: 4-chlorobenzoic acid

Clusters:
- Contr: N=1001
- T2D: N=211
- SAID: N=16
- SIDD: N=47
- SIRD: N=8
- MOD: N=52
- MARD: N=104
M37198 : 5alpha-pregnan-3beta,20alpha-diol disulfate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- N=1734
- N=376
- N=29
- N=93
- N=17
- N=89
- N=177
M15720 : N-acetylglutamate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1601  N=360  N=28  N=87  N=15  N=87  N=171
M52610 : 1-palmitoyl-2-docosahexaenoyl-GPC (16:0/22:6)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M43807 : bilirubin (Z,Z)

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1730 N=376 N=29 N=93 N=17 N=89 N=177
M31938: 5-hydroxyhexanoate

| Clusters | N  |
|----------|----|
| Contr    | 902|
| T2D      | 242|
| SAID     | 15 |
| SIDD     | 58 |
| SIRD     | 15 |
| MOD      | 53 |
| MARD     | 116|
Clusters

- Contr: N=1290
- T2D: N=338
- SAID: N=24
- SIDD: N=82
- SIRD: N=17
- MOD: N=83
- MARD: N=156

M62562: 1-carboxyethylvaline
M48441 : 4-hydroxychlorothalonil

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1714 N=368 N=29 N=89 N=17 N=87 N=175
Clusters

M64050: 2-methoxyhydroquinone sulfate (2)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=348  N=88  N=5  N=20  N=5  N=25  N=38
Clustering analysis for ethylmalonate:

- **Contr**: N=1717
- **T2D**: N=373
- **SAID**: N=29
- **SIDD**: N=93
- **SIRD**: N=17
- **MOD**: N=87
- **MARD**: N=176
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1434  N=299  N=23  N=67  N=17  N=65  N=150
M18474: estrone 3-sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=820  N=146  N=9  N=41  N=7  N=30  N=68
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1645
N=349
N=29
N=85
N=16
N=80
N=168

M63191 : branched chain 14:0 dicarboxylic acid**
Clusters

M1587 : N-acetylleucine

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1719, N=371, N=29, N=91, N=17, N=89, N=174
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=823 N=167 N=45 N=11 N=27 N=84
M37203: androstenediol (3β,17β) disulfate (2)

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1733
N=375
N=29
N=92
N=17
N=89
N=177
Clusters

- Contr: N=1159
- T2D: N=169
- SAID: N=12
- SIDD: N=44
- SIRD: N=6
- MOD: N=31
- MARD: N=88

M47028: X - 21851
M61888: glucuronide of C10H18O2 (8*)

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

Clusters

N=628, N=189, N=15, N=37, N=10, N=50, N=92
M63254: N2-acetyl, N6, N6-dimethyllysine

Clusters:
- Contr: N=1550
- T2D: N=328
- SAID: N=24
- SIDD: N=76
- SIRD: N=13
- MOD: N=82
- MARD: N=157

Graph showing box plots for each cluster with the number of observations.
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177

M22137 : homoarginine

-3 -2 -1 0 1 2 3
Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1563  N=336  N=27  N=84  N=14  N=77  N=161

M61769 : 5-dodecenoylcarnitine (C12:1)
M62793: tetrahydrocortisol sulfate (1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=978  N=241  N=11  N=55  N=9  N=56  N=121
M47016: X = 21839

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=667  N=146  N=13  N=27  N=9  N=33  N=77
Clusters

M45951: 1-linolenoyl-GPC (18:3)*

Contr: N=1730
T2D: N=376
SAID: N=29
SIDD: N=93
SIRD: N=17
MOD: N=89
MARD: N=177
Clusters

M573 : cytosine

Contr N=988
T2D N=209
SAID N=22
SIDD N=49
SIRD N=13
MOD N=48
MARD N=99
M57595: glycosyl ceramide (d18:1/20:0, d16:1/22:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1394  N=283  N=22  N=71  N=10  N=67  N=135
M63853: vanillic acid glycine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1227  N=254  N=21  N=57  N=14  N=60  N=123
M52450 : 1-palmitoyl-2-linoleoyl-GPI (16:0/18:2)

N=1700
N=365
N=28
N=91
N=16
N=85
N=173
M34445: sphingosine 1-phosphate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1730, N=376, N=29, N=93, N=17, N=89, N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1455  N=326  N=28  N=80  N=16  N=73  N=157

M61700 : 2−hydroxyarachidate*
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177

M1561: alpha-tocopherol
M46596: X - 11407

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1634  N=337  N=25  N=85  N=12  N=77  N=163
M44664 : glutarylcarnitine (C5-DC)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1292  N=244  N=18  N=67  N=10  N=57  N=110
M57564: perfluorooctanesulfonate (PFOS)

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1730 N=374 N=29 N=93 N=17 N=88 N=176
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1734 N=376 N=29 N=93 N=17 N=89 N=177
M57635 : carotene diol (1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
ContrT2DSAIDSIDDSIRDMODMARD

Clusters

N=1730 N=376 N=29 N=93 N=17 N=89 N=177

M33230 : 1-palmitoleoyl-GPC (16:1)*
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

N=448
N=119
N=7
N=30
N=9
N=23
N=57

M47967 : X - 13726
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M541 : 4-hydroxyphenylacetate

Clusters

N=1632
N=364
N=28
N=91
N=17
N=85
N=171
M62955 : 8-methoxykynurenate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=679  N=146  N=9  N=48  N=5  N=38  N=55
M38165: palmitoyl ethanolamide

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M62819: N,N-dimethyl-5-aminovalerate

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1330
N=304
N=26
N=69
N=14
N=79
N=142
Cluster analysis for M46223: linoleoylcarnitine (C18:2)*

- N=1648
- N=362
- N=25
- N=88
- N=15
- N=88
- N=171

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD
M38102: oleoyl ethanolamide

Clusters:
- Contr: N=1729
- T2D: N=375
- SAID: N=29
- SIDD: N=93
- SIRD: N=16
- MOD: N=89
- MARD: N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1350  N=280  N=67  N=75  N=129

M605 : uracil
M2133: inosine 5'-monophosphate (IMP)

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=652
N=131
N=13
N=42
N=7
N=28
N=54
M43256: N-acetyl-3-methylhistidine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=642  N=108  N=7  N=19  N=7  N=33  N=49
Clusters M37207 : androstenediol (3alpha, 17alpha) monosulfate (2)
M32620 : glycolithocholate sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=376  N=29  N=93  N=17  N=89  N=177
M48997: isoeugenol sulfate

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=736, N=183, N=10, N=42, N=8, N=40, N=93
M57547: 2,3-dihydroxy-2-methylbutyrate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=511  N=180  N=14  N=45  N=5  N=41  N=89
Clusters

- Contr: N=1656
- T2D: N=361
- SAID: N=27
- SIDD: N=92
- SIRD: N=16
- MOD: N=83
- MARD: N=170
M62299: sulfate of piperine metabolite C18H21NO3(3)*
M40007: carboxyethyl-GABA

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Participant counts:
- Contr: N=1648
- T2D: N=364
- SAID: N=29
- SIDD: N=91
- SIRD: N=17
- MOD: N=88
- MARD: N=168
$M38140: 1$-hydroxy-$2$-naphthalenecarboxylate

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr = 277
- T2D = 43
- SAID = 4
- SIDD = 10
- SIRD = 1
- MOD = 11
- MARD = 21
Clusters

M1868 : cysteine

Contr N=1733
T2D N=376
SAID N=29
SIDD N=93
SIRD N=17
MOD N=89
MARD N=177

Contractions:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
Clusters

Contr  |  T2D  |  SAID  |  SIDD  |  SIRD  |  MOD  |  MARD
N=495  |  N=84  |  N=5   |  N=18  |  N=5   |  N=20 |  N=41
M31932: propionylglycine

Clusters:
- Contr: N=1580
- T2D: N=334
- SAID: N=25
- SIDD: N=82
- SIRD: N=17
- MOD: N=74
- MARD: N=161
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=224  N=52  N=7  N=7  N=3  N=15  N=27

M45721 : 3-(N-acetyl-L-cystein-S-yl) acetaminophen
M37475: 4-acetaminophen sulfate

Clusters:
- Contr: N=685
- T2D: N=150
- SAID: N=16
- SIDD: N=28
- SIRD: N=8
- MOD: N=36
- MARD: N=78
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M32698 : X - 11381

N=1731
N=376
N=29
N=93
N=17
N=89
N=177
M48019: X − 17655

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=878  N=218  N=18  N=54  N=12  N=51  N=10
M47670 : X - 18899

| Clusters | N   |
|----------|-----|
| Contr    | 1734|
| T2D      | 375 |
| SAID     | 29  |
| SIDD     | 93  |
| SIRD     | 17  |
| MOD      | 89  |
| MARD     | 176 |
M37190 : 5alpha-androstan-3beta,17beta-diol disulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=375  N=29  N=92  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=375  N=29  N=92  N=17  N=89  N=177

M1591 : N-acetylvaline
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177

M18349 : indolelactate
M57416 : N-palmitoyl-sphingadienine (d18:2/16:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1297  N=272  N=21  N=62  N=14  N=72  N=124
M22842: cholate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1644  N=356  N=23  N=83  N=16  N=87  N=170
M48490: sphingomyelin (d18:1/20:0, d16:1/22:0)*

Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1730
N=376
N=29
N=93
N=17
N=89
N=177
M37480: 5α-pregn-3β-ol,20-one sulfate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=869, N=108, N=7, N=21, N=7, N=19, N=61
M1584: methyl indole-3-acetate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1721  N=375  N=29  N=93  N=17  N=89  N=176
M43239 : S-allylcysteine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M34109: metoprolol acid metabolite

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=98
- T2D: N=32
- SAID: N=3
- SIDD: N=8
- SIRD: N=1
- MOD: N=8
- MARD: N=15
M57591 : beta-cryptoxanthin

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N:
- Contr: 1724
- T2D: 372
- SAID: 29
- SIDD: 92
- SIRD: 17
- MOD: 87
- MARD: 176
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=260
N=43
N=4
N=5
N=2
N=12
N=24
Clusters

M38276 : 2,3-dihydroxyisovalerate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1603  N=362  N=29  N=88  N=17  N=86  N=171
M34424: 5-acetylamino-6-amino-3-methyluracil

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

N=1411
N=325
N=22
N=78
N=17
N=77
N=153

M40481: dihydroferulate
M35107: isovalerylglycine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1130  N=222  N=18  N=55  N=10  N=50  N=107
Clustering of 4-imidazoleacetate with $N=1062$.
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1725 N=374 N=29 N=93 N=175
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M57810 : nisinate (24:6n3)

N=1164
N=285
N=18
N=67
N=14
N=70
N=134
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=976  N=175  N=5  N=39  N=10  N=43  N=83
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M12261: taurodeoxycholate

N=1251
N=285
N=21
N=74
N=12
N=56
N=143
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Contr: N=1734
T2D: N=376
SAID: N=29
SIDD: N=93
SIRD: N=17
MOD: N=89
MARD: N=177

M35126: phenylacetylglutamine
Clusters

M52697 : 1-oleoyl-2-docosahexaenoyl-GPC (18:1/22:6)*

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1727 | N=375 | N=29 | N=92 | N=17 | N=89 | N=177
Clustering Analysis: M37496: N-acetylputrescine

- **Clusters**: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
- **Sample Sizes**:
  - Contr: N=1730
  - T2D: N=375
  - SAID: N=29
  - SIDD: N=93
  - SIRD: N=17
  - MOD: N=88
  - MARD: N=177

The box plots illustrate the distribution of the N-acetylputrescine levels across different clusters, indicating variations in the levels across conditions.
M37478: docosapentaenoate (n6 DPA; 22:5n6)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1700  N=358  N=87  N=87  N=15  N=87  N=169
Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=375  N=29  N=92  N=17  N=89  N=177

M62921 : pregnenetriol disulfate*
M46507: X - 11850

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1587 N=336 N=26 N=81 N=16 N=75 N=164
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=942  N=185  N=9  N=48  N=10  N=26  N=101
M62798: 4-acetylcatechol sulfate (1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=476  N=96  N=8  N=19  N=6  N=22  N=49
M17665 : p-hydroxybenzaldehyde

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1640, N=361, N=26, N=88, N=84, N=172
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=789  N=167  N=16  N=36  N=8  N=40  N=83

M37530 : leukotriene B4
M44877: N-palmitoyl-sphingosine (d18:1/16:0)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1725, N=375, N=29, N=93, N=17, N=88, N=177
M61866 : heptenedioate (C7:1−DC)*

N=1097
N=245
N=22
N=66
N=10
N=57
N=112
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1018  N=230  N=15  N=53  N=11  N=64  N=102
M62853: 3-amino-2-piperidone

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1733 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
Clusters of pregnenediol disulfate (C21H34O8S2)
Clusters

M27447 : 1-linoleoylglycerol (18:2)

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1715  N=373  N=29  N=92  N=17  N=89  N=175
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1514  N=346  N=26  N=87  N=17  N=84  N=158

M52431 : 1-palmitoleoylglycerol (16:1)*
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=348, N=58, N=3, N=14, N=2, N=14, N=28
Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

M57747: 3-methylglutaconate

Clusters

Contr: N=1567
T2D: N=352
SAID: N=25
SIDD: N=86
SIRD: N=17
MOD: N=83
MARD: N=166
Clusters

M18254 : paraxanthine

Contr T2D SAID SIDD SIRD MOD MARD

N=1664 N=370 N=29 N=90 N=17 N=88 N=175
M37184 : 5alpha-androstan-3alpha, 17beta-diol disulfate
M57473: sphingomyelin (d18:0/18:0, d19:0/17:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

M38661 : hydroxycotinine

N=463
N=75
N=7
N=25
N=2
N=10
N=38

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

Contr

T2D

SAID

SIDD

SIRD

MOD

MARD

N=1655

N=355

N=27

N=90

N=17

N=79

N=169

M46510 : X - 12544
M34214: 1-arachidonoyl-GPI (20:4)*

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1734, N=376, N=29, N=93, N=17, N=89, N=177
Clusters of homovanillate (HVA) levels:

- **Contr**: N=1387
- **T2D**: N=303
- **SAID**: N=17
- **SIDD**: N=71
- **SIRD**: N=9
- **MOD**: N=75
- **MARD**: N=148
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1442
N=322
N=21
N=82
N=14
N=73
N=153

M62524: dihydrocaffeate sulfate (2)
Clustering analysis of M57746: anthranilate

- Contrast (Contr)
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- N=1325
- N=311
- N=19
- N=74
- N=15
- N=72
- N=150
M52433 : sphingomyelin (d17:1/16:0, d18:1/15:0, d16:1/17:0)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1730, N=376, N=29, N=93, N=17, N=89, N=177
M37209 : androstenediol (3alpha, 17alpha) monosulfate (3)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1732  N=373  N=29  N=91  N=17  N=88  N=177
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=923, N=167, N=12, N=30, N=4, N=39, N=94

M53224: pimeloylcarnitine/3-methyladipoylcarnitine (C7-DC)
M37192 : 5alpha-androstan-3beta, 17beta-diol monosulfate (2)

Clusters

Contr   T2D   SAID   SIDD   SIRD   MOD   MARD

N=1613   N=326   N=27   N=84   N=15   N=65   N=162
M61876 : glucuronide of C14H26O4 (1)*

- Contr: N=704
- T2D: N=153
- SAID: N=12
- SIDD: N=31
- SIRD: N=16
- MOD: N=30
- MARD: N=76
M62152 : sphingomyelin (d17:1/14:0, d16:1/15:0)
M48763 : 3-methoxycatechol sulfate (1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1490  N=339  N=26  N=83  N=15  N=80  N=161
Clustering M22130: phenyllactate (PLA)

- Control (Contr): N=1733
- T2D: N=376
- SAID: N=29
- Sidd: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177

Box plots showing distribution of phenyllactate in different clusters.
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=918  N=232  N=18  N=67  N=10  N=58  N=97

M31943: 3-hydroxysebacate
M52716 : 1-(1-enyl-palmitoyl)-2-palmitoyl-GPC (P-16:0/16:0)*

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1726 N=374 N=29 N=93 N=17 N=89 N=175
Clusters

- **Contr**
  - N=1486

- **T2D**
  - N=334

- **SAID**
  - N=26

- **SIDD**
  - N=82

- **SIRD**
  - N=14

- **MOD**
  - N=80

- **MARD**
  - N=158

**M47112**: etiocholanolone glucuronide
M48445: 2-methoxyresorcinol sulfate

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=619 | N=145 | N=10 | N=33 | N=8 | N=31 | N=73
Clusters:

- Contr: N=14
- T2D: N=27
- SAID: N=3
- SIDD: N=10
- SIRD: N=1
- MOD: N=10
- MARD: N=6

M39625: hydrochlorothiazide
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1514  N=326  N=20  N=75  N=81  N=153

M18497: taurocholate
M46165: 3-methyl catechol sulfate (1)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1360 N=286 N=21  N=69  N=14  N=62  N=141
M52438: 1-stearoyl-2-oleoyl-GPC (18:0/18:1)

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1729, N=376, N=29, N=93, N=17, N=89, N=177
M34365: 3-(cystein-S-yl)acetaminophen

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

Sample sizes:
- Contr: N=256
- T2D: N=58
- SAID: N=8
- SIDD: N=9
- SIRD: N=4
- MOD: N=14
- MARD: N=31
M39270 : 1-(1-enyl-palmitoyl)-GPE (P−16:0)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M37181 : 4-allylphenol sulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

M33967 : N-acetylisoisoleucine

- Contr
c- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N = 1717
N = 371
N = 91
N = 17
N = 88
N = 175
Clustering of M1519: sucrase

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1142
- T2D: N=237
- SAID: N=17
- SIDD: N=52
- SIRD: N=15
- MOD: N=55
- MARD: N=115
M531: 3-hydroxy-3-methylglutarate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1498  N=327  N=26  N=79  N=13  N=79  N=156
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=291  N=61  N=8   N=12  N=3   N=17  N=29

M46359 : X - 21315
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1600  N=350  N=25  N=89  N=15  N=83  N=163

M62749 : X − 25433
M1648: serine

- Contr: N=1733
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=89
- MOD: N=177

Clusters
M46639 : X − 12851

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1160  N=277  N=17  N=72  N=9  N=55  N=141
M36776 : 7-alpha-hydroxy-3-oxo-4-cholestenoate (7-Hoca)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
M47155: glycerophosphoinositol

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1705  N=373  N=27  N=93  N=17  N=88  N=175
M33384 : salicyluric glucuronide

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=722  N=217  N=21  N=56  N=10  N=47  N=104
Contrast in branched, straight-chain, or cyclopropyl 10:1 fatty acid distribution

Clusters:
- Contr: N=1728
- T2D: N=375
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=176
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M47671: X - 18921

N=1724
N=369
N=28
N=93
N=16
N=88
N=172
M46172: 5alpha-pregnan-diol disulfate

Clusters:
- Contr: N=1622
- T2D: N=292
- SAID: N=19
- SIDD: N=70
- SIRD: N=14
- MOD: N=62
- MARD: N=146
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1718 N=371 N=29 N=93 N=17 N=87 N=174

M63687: ascorbic acid 3-sulfate*
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M52615: sphingomyelin (d18:1/17:0, d17:1/18:0, d19:1/16:0)

N=1730
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1712  N=371  N=92  N=16  N=88  N=175

−1.5  −0.5  0.0  0.5  1.0  1.5
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M46977: X - 15503

N=1588
N=362
N=28
N=89
N=16
N=87
N=170
Clusters

Contr.t
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1601
N=357
N=27
N=87
N=16
N=85
N=169

M40730 : imidazole propionate
M61860 : octadecadienedioate (C18:2−DC)∗

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

Clusters
M45415: 3-(3-hydroxyphenyl)propionate sulfate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1165, N=272, N=21, N=70, N=68, N=7, N=127
M17945: 2-hydroxystearate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

M43470 : 3-hydroxycotinine glucuronide

N=361
N=54
N=6
N=19
N=2
N=27

Contr T2D SAID SIDD SIRD MOD MARD
M1898 : proline

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M46993 : X − 21816

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=723 N=148 N=8 N=45 N=7 N=37 N=59
M63731 : glycoursodeoxycholic acid sulfate (1)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- N=1200
- N=254
- N=18
- N=64
- N=14
- N=67
- N=109
Clusters

M27738: threonate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1722  N=372  N=29  N=93  N=17  N=87  N=175
M36751: N2-acetyllysine

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1121 N=272 N=22 N=62 N=10 N=68 N=132
M43549 : N-formylantranilic acid

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1603  N=351  N=25  N=83  N=17  N=85  N=166
M62889: taurodeoxycholic acid 3-sulfate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
Clusters

M34390 : 7-methylxanthine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
N=1705  N=374  N=28  N=92  N=17  N=89  N=176
M46297 : 5-HEPE

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=375  N=105  N=7  N=25  N=32  N=47
Clusters

M62309 : N-acetyl-isoputreanine

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1733  N=376  N=29  N=93  N=17  N=89  N=177
M62862 : N6,N6-dimethyllysine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1609  N=354  N=26  N=82  N=17  N=85  N=170
M37482: 17α-hydroxyprogrenolone 3-sulfate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1496, N=285, N=21, N=68, N=68, N=137
M38116: indole-3-carboxylate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1475  N=303  N=21  N=73  N=11  N=73  N=146
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M53010 : lactosyl-N-palmitoyl-sphingosine (d18:1/16:0)

N=1730
N=376
N=29
N=93
N=17
N=89
N=177

-3 -2 -1 0 1 2 3
Clustering analysis for M62714: X - 25417

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=826
- T2D: N=179
- SAID: N=12
- SIDD: N=37
- SIRD: N=6
- MOD: N=45
- MARD: N=91
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1509  N=325  N=26  N=81  N=16  N=72  N=156

M57745 : phenylacetate
M52636 : X − 24422

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1700  N=371  N=28  N=91  N=17  N=89  N=174
M63657: glutamine conjugate of C6H10O2 (1)*

Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1462 | N=325 | N=25 | N=78 | N=14 | N=85 | N=148
M63613: undecenoic carnitine (C11:1)

Clusters:
- Contr: N=1394
- T2D: N=307
- SAID: N=20
- SIDD: N=70
- SIRD: N=14
- MOD: N=73
- MARD: N=150
Clusters

M61874: glucuronide of C12H22O4 (1)*

Contr   T2D   SAID   SIDD   SIRD   MOD   MARD

N=906   N=213   N=13   N=45   N=17   N=46   N=105
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=978  N=149  N=10  N=30  N=11  N=37  N=71

M33983: tauro-beta-muricholate
Clusters

M63990: 2-O-methylascorbic acid

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1726
N=371
N=29
N=92
N=17
N=88
N=174
Contr T2D SAID SIDD SIRD MOD MARD

\[ \begin{align*}
\text{Clusters} & : \\
\text{Contr} & : N=1734 \\
\text{T2D} & : N=375 \\
\text{SAID} & : N=29 \\
\text{SIDD} & : N=92 \\
\text{SIRD} & : N=17 \\
\text{MOD} & : N=89 \\
\text{MARD} & : N=177
\end{align*} \]
M36600 : 1−linoleoyl−GPE (18:2)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=17  N=89  N=177
M37186 : 5a-androstan-3alpha, 17beta-diol monosulfate (1)
M34400 : 1,7-dimethylurate

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1702, N=371, N=29, N=92, N=17, N=87, N=175
Clusters

M63926: alpha-CMBHC glucuronide
M57655: 2'-O-methyluridine

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N values:
- Contr: N=1683
- T2D: N=364
- SAID: N=27
- SIDD: N=89
- SIRD: N=17
- MOD: N=85
- MARD: N=173
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1421  N=326  N=27  N=82  N=15  N=78  N=151
M35159: cysteine-glutathione disulfide

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
**Contrast**

- M62567: 3-(methylthio)acetaminophen sulfate*

Cluster sizes:
- Contr: N=394
- T2D: N=76
- SAID: N=7
- SIDD: N=11
- SIRD: N=6
- MOD: N=24
- MARD: N=35
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M1806: retinol (Vitamin A)

N=1730
N=376
N=29
N=93
N=17
N=89
N=177
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1117 N=261 N=20 N=64 N=15 N=59 N=123

M48408: tyramine O-sulfate
Cluster M37058: succinylcarnitine (C4-DC)

- Contr: N=1535
- T2D: N=341
- SAID: N=21
- SIDD: N=85
- SIRD: N=15
- MOD: N=81
- MARD: N=160
M52647: X - 24418

Clusters

| Clusters | N |
|----------|---|
| Contr    | 881 |
| T2D      | 215 |
| SAID     | 11  |
| SIDD     | 49  |
| SIRD     | 8   |
| MOD      | 42  |
| MARD     | 116 |
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1730 N=375 N=29 N=93 N=89 N=176

M52434 : palmitoyl dihydrospingomyelin (d18:0/16:0)*
M47773: X - 22509

- Contr: N=697
- T2D: N=173
- SAID: N=13
- SIDD: N=43
- SIRD: N=10
- MOD: N=37
- MARD: N=83
M57720 : X − 24953

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1508 N=313 N=22 N=72 N=13 N=80 N=148
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=863
N=194
N=55
N=38
N=94

M47493 : X - 11632
Clusters

M52690 : 1-linoleoyl-GPA (18:2)∗

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1693  N=361  N=29  N=87  N=17  N=85  N=172
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

N=1717
N=371
N=93
N=16
N=87
N=175

M49681: X - 23782
M35718 : dihomo-linolenate (20:3n3 or n6)

N=1734

N=376

N=29

N=93

N=17

N=89

N=177

Clusters: Contr, T2D, SAID, SIDD, SIRD, MOD, MARD
M32586 : bilirubin (E,E)*

Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1683
N=364
N=27
N=90
N=15
N=89
N=170
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1410  N=297  N=20  N=68  N=17  N=69  N=143

M1432: 2-hydroxyphenylacetate
M437: 5-hydroxyindoleacetate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M45095: 2-methylbutyrylcarnitine (C5)

N=1285  N=278  N=27  N=68  N=16  N=69  N=125
M32425 : dehydroepiandrosterone sulfate (DHEA-S)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1626  N=342  N=27  N=90  N=17  N=79  N=156
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1201  N=268  N=21  N=70  N=10  N=65  N=123

M38309 : 4-hydroxynonenal
Cluster M34404: 1,3,7-trimethylurate

- **Contr**: N=1243
- **T2D**: N=310
- **SAID**: N=76
- **SIDD**: N=14
- **SIRD**: N=74
- **MOD**: N=146

Cluster sizes and distribution.
M43343 : 2-aminooctanoate

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Clusters

N=1704
N=368
N=26
N=88
N=16
N=88
N=176
M44675: docosahexaenoate (DHA; 22:6n3)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N values:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
G46409 : X - 21364

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1731  N=375  N=29  N=92  N=17  N=89  N=177
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=547  N=143  N=10  N=45  N=7  N=30  N=61
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1734 | N=376 | N=29 | N=93 | N=17 | N=89 | N=177
M48679: N-acetylhistamine

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Counts:
- Contr: N=412
- T2D: N=122
- SAID: N=5
- SIDD: N=27
- SIRD: N=36
- MOD: N=54
Clusters

- M34395: 1-methylurate

Contr: N=1595
T2D: N=369
SAID: N=29
SIDD: N=92
SIRD: N=17
MOD: N=86
MARD: N=174
Clusters of M18392: theobromine

- Contr: N=1726
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M52677: 1-(1-enyl-palmitoyl)-2-linoleoyl-GPE (P-16:0/18:2)
M37432: N-acetyl-beta-alanine

Clusters:
- Contr: N=1483
- T2D: N=318
- SAID: N=24
- SIDD: N=76
- SIRD: N=14
- MOD: N=75
- MARD: N=153
M31912: glycolithocholate

Clusters:

- Contr: N=1005
- T2D: N=227
- SAID: N=13
- SIDD: N=53
- SIRD: N=15
- MOD: N=47
- MARD: N=112

Graph showing the distribution of M31912: glycolithocholate across different clusters.
M52468 : 1-stearoyl-2-linoleoyl-GPI (18:0/18:2)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1727  N=371  N=29  N=93  N=17  N=86  N=175
Clusters of M54968 : linoleoyl-linoleoyl-glycerol (18:2/18:2) [1]*

- **Contr**: N=1276
- **T2D**: N=294
- **SAID**: N=22
- **SIDD**: N=72
- **SIRD**: N=15
- **MOD**: N=61
- **MARD**: N=146
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=693  N=209  N=16  N=58  N=8  N=56  N=87
M38754: gamma-carboxyglutamate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1375  N=328  N=26  N=82  N=15  N=79  N=152
Clusters

- **Contr**
  - N=1696

- **T2D**
  - N=365

- **SAID**
  - N=29

- **SIDD**
  - N=92

- **SIRD**
  - N=17

- **MOD**
  - N=86

- **MARD**
  - N=170

**M32377 : N-acetylenuraminate**

Box plots showing the distribution of N-acetylenuraminate across different clusters.
The image contains a box plot for different clusters labeled as Contr, T2D, SAID, SIDD, SIRD, MOD, and MARD. The x-axis represents the clusters, and the y-axis shows the range of values from -3 to 3. Each cluster has a corresponding box plot indicating the distribution of values within that cluster. The number of observations (N) for each cluster is also indicated: N=1136 for Contr, N=254 for T2D, N=22 for SAID, N=58 for SIDD, N=14 for SIRD, N=59 for MOD, and N=123 for MARD.
M43507: 3β-hydroxy-5-choleenoic acid

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- Contr: N=1291
- T2D: N=253
- SAID: N=17
- SIDD: N=63
- SIRD: N=10
- MOD: N=55
- MARD: N=125
M18281: 2-hydroxyhippurate (saliylurate)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD
Clusters

M15749: 3-phenylpropionate (hydrocinnamate)

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1704 | N=363 | N=25 | N=89 | N=17 | N=86 | N=171
Cluster Analysis of M46932: X - 12104

Number of samples:
- Contr: 1602
- T2D: 358
- SAID: 27
- SIDD: 87
- SIRD: 17
- MOD: 88
- MARD: 166
Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1487, N=265, N=19, N=61, N=14, N=57, N=133

M62066: glyco-beta-muricholate**
$57814 : (N(1) + N(8))$ - acetylspermidine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M63230 : 5-hydroxy-2-methylpyridine sulfate

Clusters:
- Contr: N=511
- T2D: N=72
- SAID: N=7
- SIDD: N=15
- SIRD: N=5
- MOD: N=13
- MARD: N=39
M62918: tetradecadienedioate (C14:2−DC)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1446  N=296  N=22  N=71  N=9  N=75  N=141
M54885 : 1-linoleoyl-GPG (18:2)*

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=843  N=195  N=16  N=54  N=12  N=35  N=94
M18362: azelate (C9–DC)

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1730  N=376  N=29  N=93  N=177  N=89  N=17

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

N=1207
N=262
N=17
N=67
N=14
N=64
N=117

M34428 : 1-palmitoyl-GPA (16:0)

Clusters
Contrast

M62530 : 3-hydroxyhippurate sulfate

Clusters

Contr N=994
T2D N=250
SAID N=16
SIDD N=62
SIRD N=8
MOD N=68
MARD N=112
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=1688 N=362 N=27 N=88 N=17 N=83 N=174
M37063: gamma-glutamylalanine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1361  N=294  N=23  N=68  N=13  N=77  N=136
M48341: 1-dihomo-linolenylglycerol (20:3)

Clusters:
- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

Sample sizes:
- N=1370
- N=329
- N=22
- N=81
- N=15
- N=80
- N=153
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M15778: benzoate

N=1671
N=362
N=27
N=89
N=17
N=86
N=170
M39378 : tauroursodeoxycholate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
M3575: 2-hydroxypalmitate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1734  N=376  N=29  N=93  N=17  N=89  N=177
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1419 | N=289 | N=21 | N=66 | N=11 | N=72 | N=140

M63072: 4-ethylcatechol sulfate
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=762  N=214  N=17  N=57  N=103

M62857: dihydroferulic acid sulfate
Clusters

- Contr: N=1081
- T2D: N=198
- SAID: N=49
- SIDD: N=9
- SIRD: N=42
- MOD: N=98
- MARD: N=98

M46972: X - 21796
Clusters

Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

M46115: 21-hydroxyprogrenolone disulfate

N=1732
N=375
N=29
N=92
N=17
N=89
N=177
M37459 : ergothioneine

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1575  N=351  N=25  N=88  N=16  N=80  N=167
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M57782 : norcotinine

N=298
N=47
N=5
N=18
N=1
N=5
N=23
M46657: X - 14939

Clusters:
- Contr: N=1734
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177
M42450 : 1-stearoyl-2-arachidonoyl-GPC (18:0/20:4)

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

N=1730
N=376
N=29
N=93
N=17
N=89
N=177
M46146: 4-methylcatechol sulfate

Clusters:
- Contr: N=1730
- T2D: N=375
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=88
- MARD: N=177

Graph showing box plots for different clusters.
M48442: 4-vinylguaiacol sulfate

Clusters

Contr T2D SAID SIDD SIRD MOD MARD

N=743 N=154 N=10 N=29 N=78
M36803: 3β,7α-dihydroxy-5-cholestenoate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

N=1697  N=368  N=29  N=91  N=17  N=86  N=174
Clusters

Contr T2D SAID SIDD SIRD MOD MARD

M52452 : 1-stearoyl-2-linoleoyl-GPC (18:0/18:2)*

N=1730 N=374 N=29 N=93 N=17 N=88 N=176

-3 -2 -1 0 1 2 3
Clusters

- Contr: N=1732
- T2D: N=376
- SAID: N=29
- SIDD: N=93
- SIRD: N=17
- MOD: N=89
- MARD: N=177

M40605 : butyrate/isobutyrate (4:0)
M37187: 5alpha-androstane-3beta, 17alpha-diol disulfate

Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
N=1628  N=346  N=27  N=88  N=15  N=73  N=170
Contr
T2D
SAID
SIDD
SIRD
MOD
MARD

Clusters

M18477 : glycodeoxycholate

N=1491
N=320
N=21
N=80
N=15
N=68
N=157
M62566 : 1-carboxyethylphenylalanine

Clusters

Contr, T2D, SAID, SIDD, SIRD, MOD, MARD

N=1732, N=374, N=29, N=92, N=17, N=88, N=177
M32391 : 1,3-dimethylurate

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD
N=1613  N=366  N=29  N=91  N=17  N=85  N=173
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=1615 | N=350 | N=24 | N=89 | N=16 | N=83 | N=162

M1505 : orotate
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

M47708 : X - 12283

N=1248  N=297  N=20  N=66  N=15  N=76  N=140
Clusters

- Contr
- T2D
- SAID
- SIDD
- SIRD
- MOD
- MARD

M34389 : 1-methylxanthine

N=1662
N=369
N=28
N=93
N=17
N=86
N=173
Clusters

Contr  T2D  SAID  SIDD  SIRD  MOD  MARD

M33441: isobutyrylcarnitine (C4)

N=1711  N=369  N=28  N=93  N=17  N=86  N=173
Clusters

Contr | T2D | SAID | SIDD | SIRD | MOD | MARD

N=919 | N=165 | N=16 | N=40 | N=11 | N=31 | N=83

M553 : cotinine