| Compound                        | Mean (young) AUC | SD      | P-value (Benjamini-Hochberg corrected) |
|--------------------------------|-----------------|---------|--------------------------------------|
| L-Methionine                   | 3.30E+15        | 1.80E+13| 0.00139999                           |
| 4-aminobutanal                 | 1.88E+16        | 3.60E+05| 0.02752292                           |
| paspalicine                    | 1.47E+15        | 4.71E+09| 2.5888E-09                           |
| Dimethyl trisulfide            | 2.11E+08        | 9.70E+03| 0.02732789                           |
| (S)-Ureidoglycolate            | 3.16E+13        | 9.98E+09| 0.02733064                           |
| enol-oxaloacetate              | 1.96E+16        | 3.88E+07| 0.02733975                           |
| phenylphosphonate              | 1.00E+16        | 2.23E+06| 0.02734137                           |
| Crotanecine                    | 8.88E+12        | 1.12E+04| 0.02735396                           |
| Proxan                         | 1.22E+16        | 2.70E+05| 0.02736192                           |
| Dimethylsulfoxiocetate         | 9.90E+11        | 7.50E+06| 0.02736272                           |
| N-(Acetyloxy)benzenamine       | 2.70E+14        | 3.50E+09| 0.02737433                           |
| 2-Methylthiobenzothiazole      | 6.83E+15        | 2.80E+05| 0.0274043                            |
| N-Methylethanolamine phosphate | 2.09E+10        | 1.10E+05| 0.02743136                           |
| L-Phenylalanine                | 8.99E+16        | 1.12E+10| 0.02744793                           |
| 2-Chloro-4-hydroxy-6-amino-1,3,5-triazine | 1.43E+13 | 9.80E+12| 0.02754867                           |
| 2,3-Dimethylmaleate            | 5.71E+14        | 2.38E+12| 0.0281087                            |
| 3-Methyl-2-oxobutanoic acid    | 6.02E+14        | 8.77E+04| 0.02813047                           |
| (2Z)-2-amino-3-hydroxy-3-(4-hydroxyphenyl)prop-2-enoate | 7.45E+15 | 1.11E+11| 0.028274                             |
| 2-Aminobenzenesulfonate        | 3.30E+15        | 2.01E+13| 0.02827475                           |
| 4-chlorocatehol                | 1.82E+16        | 9.99E+09| 0.02843428                           |
| Phosphotyrosine                | 7.10E+15        | 7.20E+11| 0.02848907                           |
| Diphenidol                     | 9.00E+15        | 7.27E+11| 0.02857142                           |
| (S)-Malate                     | 8.88E+13        | 2.29E+08| 0.02858907                           |
| Sodium diethyldithiocarbamate  | 1.96E+15        | 9.22E+12| 0.02971486                           |
| 2-Pyridyl hydroxymethane sulfonic acid | 2.04E+16 | 4.77E+13| 0.0304367                            |
| Thiomorpholine 3-carboxylate    | 1.81E+17        | 1.77E+12| 0.03084678                           |
| Bronopol                       | 6.08E+15        | 6.43E+11| 0.03140168                           |
| Benzyl alcohol                 | 1.12E+15        | 8.73E+10| 0.03303162                           |
| acivicin                       | 4.01E+17        | 1.15E+09| 0.03321789                           |
| 4-amino-3-methoxybenzoate      | 3.54E+16        | 1.21E+14| 0.04084084                           |
| 4-Hydroxy-2-butynal            | 3.01E+15        | 3.32E+12| 0.04803409                           |
| Sulfate                        | 7.91E+15        | 6.31E+12| 0.01096798                           |
| 4-fluoroglutamate              | 8.72E+13        | 1.54E+11| 0.0273234                            |
| 4-Bromophenol                  | 7.99E+13        | 8.77E+08| 0.02733405                           |
| Cyclic 2,3-bisphospho-D-glycerate | 1.30E+13 | 9.97E+09| 0.02734942                           |
| GA                             | 1.19E+16        | 1.22E+11| 0.02735024                           |
| Phenelzine sulfate             | 5.12E+12        | 7.55E+07| 0.02741934                           |
| 5-Hydroxyindoleacetylglutamine | 9.46E+15        | 2.75E+11| 0.02758884                           |
| brassicene E                   | 1.60E+13        | 3.34E+11| 0.02759978                           |
### Downregulated in Geriatric

| Compound                                      | Mean (young) AUC | SD (young) | Mean (old) AUC | SD (old) | P-value (Benjamini-Hochberg corrected) |
|-----------------------------------------------|------------------|------------|----------------|----------|----------------------------------------|
| 2'-aminobiphenyl-2,3-diol                     | 3.16E+15         | 8.82E+10   | 2.25E+04       | 7.00E+02 | 0.00431054                             |
| 2-Hydroxy pyridine                            | 3.66E+14         | 1.87E+12   | 7.22E+10       | 2.79E+05 | 0.0003155                              |
| 2,3,5-Trihydroxytoluene                      | 2.88E+16         | 1.01E+13   | 5.39E+09       | 1.59E+07 | 0.00112588                             |
| Maleamate                                     | 7.69E+16         | 1.12E+15   | 4.22E+08       | 2.25E+06 | 0.0047555                              |
| DL-norvaline                                  | 2.61E+16         | 8.97E+13   | 5.12E+09       | 4.10E+07 | 0.00561044                             |
| Retinoate                                     | 4.07E+15         | 2.66E+12   | 8.51E+11       | 2.11E+08 | 0.0033131                              |
| Halocinate                                    | 2.99E+13         | 5.54E+11   | 6.64E+08       | 1.21E+06 | 0.04231169                             |
| (9Z)-Octadecenoic acid                        | 1.97E+15         | 1.12E+14   | 2.97E+13       | 4.54E+10 | 0.04881578                             |
| S-Hydroxyindole acetamide                    | 1.68E+15         | 9.92E+13   | 8.77E+09       | 1.01E+09 | 0.00701656                             |
| Cyclic 2,3-bisphospho-D-glycerate             | 4.06E+14         | 2.27E+13   | 5.54E+12       | 1.66E+12 | 0.00134309                             |
| glorin                                        | 3.56E+13         | 9.77E+12   | 1.59E+10       | 2.58E+09 | 0.00465609                             |
| N-Methylindolo[3,2-b]-Salpha-cholest-ene      | 1.49E+14         | 7.99E+12   | 8.89E+09       | 3.94E+08 | 0.02359062                             |
| Jatrophone                                     | 6.84E+15         | 8.22E+13   | 6.87E+11       | 9.44E+10 | 0.03969174                             |
| 7,8-Dihydroneotide                            | 1.02E+16         | 3.57E+12   | 2.99E+05       | 1.49E+04 | 0.01869177                             |
| 4-Chlorophenylacetonitrile                    | 3.51E+13         | 8.77E+11   | 2.04E+10       | 4.64E+09 | 0.04069298                             |
| Halocinate                                    | 1.58E+17         | 9.88E+16   | 1.84E+04       | 8.79E+03 | 0.0467077                              |
| Cyclic 2,3-bisphospho-D-glycerate             | 8.89E+12         | 7.46E+11   | 6.73E+09       | 7.67E+08 | 0.01290866                             |
| Lichenin                                      | 4.82E+14         | 8.02E+10   | 2.93E+12       | 9.91E+11 | 0.0481721                              |
| AA861                                         | 2.31E+15         | 1.97E+12   | 7.79E+07       | 2.79E+03 | 0.0097712                              |
| Orthophosphate                                | 7.59E+14         | 1.22E+13   | 6.54E+05       | 1.18E+04 | 0.02772643                             |
| L-Arginine                                    | 2.75E+16         | 7.76E+12   | 9.88E+12       | 3.28E+08 | 0.01925691                             |
| S-Hydroxyindole acetamide                    | 4.79E+13         | 4.24E+10   | 3.86E+11       | 2.42E+08 | 0.02663235                             |
| (2S,3R)-2-[(2-aminophenyl)amino]-3-carboxy-3-oxopropanoate | 9.82E+15 | 4.32E+14 | 6.71E+09 | 8.98E+08 | 0.0322514                              |

### Upregulated in Geriatric

| Compound                                      | Mean (young) AUC | SD (young) | Mean (old) AUC | SD (old) | P-value (Benjamini-Hochberg corrected) |
|-----------------------------------------------|------------------|------------|----------------|----------|----------------------------------------|
| 3,4-Dichloroaniline                           | 7.79E+14         | 8.66E+11   | 2.11E+17       | 1.01E+14 | 0.00330997                             |
| O-Phospho-L-homoserine                        | 5.87E+11         | 2.95E+08   | 7.74E+16       | 2.39E+15 | 0.04016044                             |