**Supplementary Table S5** sPLS-DA statistic pipeline results from serum

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Stability2 | | | Significance3 | | |  |
| Metabolite1 | t | N(t) | *P* | t | N(t) | *P* | Direction4 |
| C0 | 1 | 895 | 0.895 | 0 | 1000 | 1 |  |
| C10 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C10:2 | 1 | 898 | 0.898 | 0 | 1000 | 1 |  |
| C12 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C12:DC | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C14 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C14:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C14:1-OH | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C14:2 | 2 | 799 | 0.799 | 0 | 1000 | 1 |  |
| C16 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C16-OH | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C16:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C16:2-OH | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C18 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C18:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C18:2 | 2 | 778 | 0.778 | 0 | 1000 | 1 |  |
| C2 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C3 | 3 | 721 | 0.721 | 0 | 1000 | 1 |  |
| C3-DC (C4:OH) | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C3-OH | 3 | 724 | 0.724 | 0 | 1000 | 1 |  |
| C3:1 | 2 | 803 | 0.803 | 0 | 1000 | 1 |  |
| C4 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C4:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C5 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C5-DC (C6:OH) | 2 | 819 | 0.819 | 0 | 1000 | 1 |  |
| C5-M-DC | 2 | 788 | 0.788 | 0 | 1000 | 1 |  |
| C5-OH (C3-DC-M) | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C5:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C6 (C4:1-DC) | 2 | 807 | 0.807 | 0 | 1000 | 1 |  |
| C6:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C8 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| C9 | 6 | 549 | 0.549 | 0 | 1000 | 1 |  |
| PC aa C28:1 | 1 | 898 | 0.898 | 0 | 1000 | 1 |  |
| PC aa C30:0 | 2 | 816 | 0.816 | 0 | 1000 | 1 |  |
| PC aa C32:0 | 2 | 819 | 0.819 | 0 | 1000 | 1 |  |
| PC aa C32:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C32:2 | 1 | 890 | 0.89 | 0 | 1000 | 1 |  |
| PC aa C32:3 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C34:1 | 1 | 888 | 0.888 | 0 | 1000 | 1 |  |
| PC aa C34:2 | 2 | 813 | 0.813 | 0 | 1000 | 1 |  |
| PC aa C34:3 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C34:4 | 1 | 888 | 0.888 | 0 | 1000 | 1 |  |
| PC aa C36:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C36:2 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C36:3 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C36:4 | 2 | 807 | 0.807 | 0 | 1000 | 1 |  |
| PC aa C36:5 | 2 | 811 | 0.811 | 0 | 1000 | 1 |  |
| PC aa C36:6 | 2 | 806 | 0.806 | 0 | 1000 | 1 |  |
| PC aa C38:0 | 3 | 733 | 0.733 | 0 | 1000 | 1 |  |
| PC aa C38:3 | 1 | 885 | 0.885 | 0 | 1000 | 1 |  |
| PC aa C38:4 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C38:5 | 1 | 890 | 0.89 | 0 | 1000 | 1 |  |
| PC aa C38:6 | 2 | 803 | 0.803 | 0 | 1000 | 1 |  |
| PC aa C40:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C40:2 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C40:3 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C40:4 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C40:5 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C40:6 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C42:0 | 1 | 902 | 0.902 | 0 | 1000 | 1 |  |
| PC aa C42:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC aa C42:2 | 3 | 729 | 0.729 | 0 | 1000 | 1 |  |
| PC aa C42:4 | 2 | 797 | 0.797 | 0 | 1000 | 1 |  |
| PC aa C42:5 | 1 | 908 | 0.908 | 0 | 1000 | 1 |  |
| PC aa C42:6 | 2 | 789 | 0.789 | 0 | 1000 | 1 |  |
| PC ae C30:0 | 2 | 799 | 0.799 | 0 | 1000 | 1 |  |
| PC ae C32:1 | 1 | 890 | 0.89 | 0 | 1000 | 1 |  |
| PC ae C34:0 | 2 | 817 | 0.817 | 0 | 1000 | 1 |  |
| PC ae C34:1 | 1 | 894 | 0.894 | 0 | 1000 | 1 |  |
| PC ae C34:2 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC ae C34:3 | 2 | 791 | 0.791 | 0 | 1000 | 1 |  |
| PC ae C36:1 | 1 | 901 | 0.901 | 0 | 1000 | 1 |  |
| PC ae C36:2 | 1 | 897 | 0.897 | 0 | 1000 | 1 |  |
| PC ae C36:3 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC ae C36:4 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC ae C36:5 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC ae C38:0 | 1 | 875 | 0.875 | 0 | 1000 | 1 |  |
| PC ae C38:1 | 2 | 812 | 0.812 | 0 | 1000 | 1 |  |
| PC ae C38:2 | 1 | 909 | 0.909 | 0 | 1000 | 1 |  |
| PC ae C38:3 | 2 | 815 | 0.815 | 0 | 1000 | 1 |  |
| PC ae C38:4 | 1 | 886 | 0.886 | 0 | 1000 | 1 |  |
| PC ae C38:5 | 1 | 883 | 0.883 | 0 | 1000 | 1 |  |
| PC ae C38:6 | 1 | 894 | 0.894 | 0 | 1000 | 1 |  |
| PC ae C40:1 | 2 | 790 | 0.79 | 0 | 1000 | 1 |  |
| PC ae C40:2 | 1 | 893 | 0.893 | 0 | 1000 | 1 |  |
| PC ae C40:3 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC ae C40:4 | 1 | 895 | 0.895 | 0 | 1000 | 1 |  |
| PC ae C40:5 | 2 | 800 | 0.8 | 0 | 1000 | 1 |  |
| PC ae C40:6 | 2 | 794 | 0.794 | 0 | 1000 | 1 |  |
| PC ae C42:0 | 2 | 812 | 0.812 | 0 | 1000 | 1 |  |
| PC ae C42:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| PC ae C42:2 | 1 | 886 | 0.886 | 0 | 1000 | 1 |  |
| PC ae C42:3 | 2 | 795 | 0.795 | 0 | 1000 | 1 |  |
| PC ae C42:4 | 2 | 813 | 0.813 | 0 | 1000 | 1 |  |
| PC ae C42:5 | 1 | 903 | 0.903 | 0 | 1000 | 1 |  |
| PC ae C44:4 | 1 | 902 | 0.902 | 0 | 1000 | 1 |  |
| PC ae C44:5 | 1 | 897 | 0.897 | 0 | 1000 | 1 |  |
| PC ae C44:6 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| lysoPC a C14:0 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| lysoPC a C16:0 | 1 | 892 | 0.892 | 0 | 1000 | 1 |  |
| lysoPC a C16:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| lysoPC a C17:0 | 1 | 899 | 0.899 | 0 | 1000 | 1 |  |
| lysoPC a C18:0 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| lysoPC a C18:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| lysoPC a C18:2 | 2 | 819 | 0.819 | 0 | 1000 | 1 |  |
| lysoPC a C20:3 | 2 | 804 | 0.804 | 0 | 1000 | 1 |  |
| lysoPC a C20:4 | 2 | 809 | 0.809 | 0 | 1000 | 1 |  |
| lysoPC a C26:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| SM (OH) C14:1 | 24 | 29 | 0.029 | 0.2798 | 8 | 0.008 | ID |
| SM (OH) C16:1 | 22 | 84 | 0.084 | 0.2957 | 12 | 0.012 | ID |
| SM (OH) C22:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| SM (OH) C22:2 | 3 | 720 | 0.72 | 0 | 1000 | 1 |  |
| SM (OH) C24:1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| SM C16:0 | 24 | 21 | 0.021 | 0.3759 | 2 | 0.002 | ID |
| SM C16:1 | 8 | 470 | 0.47 | 0 | 1000 | 1 |  |
| SM C18:0 | 1 | 897 | 0.897 | 0 | 1000 | 1 |  |
| SM C18:1 | 2 | 810 | 0.81 | 0 | 1000 | 1 |  |
| SM C20:2 | 5 | 616 | 0.616 | 0 | 1000 | 1 |  |
| SM C24:0 | 2 | 814 | 0.814 | 0 | 1000 | 1 |  |
| SM C24:1 | 14 | 246 | 0.246 | 0 | 1000 | 1 |  |
| H1 | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Ala | 2 | 798 | 0.798 | 0 | 1000 | 1 |  |
| Arg | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Asn | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Cit | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Gln | 1 | 900 | 0.9 | 0 | 1000 | 1 |  |
| Glu | 1 | 887 | 0.887 | 0 | 1000 | 1 |  |
| Gly | 2 | 808 | 0.808 | 0 | 1000 | 1 |  |
| His | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Ile | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Leu | 1 | 883 | 0.883 | 0 | 1000 | 1 |  |
| Lys | 1 | 895 | 0.895 | 0 | 1000 | 1 |  |
| Met | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Orn | 2 | 801 | 0.801 | 0 | 1000 | 1 |  |
| Phe | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Pro | 1 | 884 | 0.884 | 0 | 1000 | 1 |  |
| Ser | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Thr | 1 | 882 | 0.882 | 0 | 1000 | 1 |  |
| Trp | 3 | 723 | 0.723 | 0 | 1000 | 1 |  |
| Tyr | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Val | 1 | 885 | 0.885 | 0 | 1000 | 1 |  |
| Ac-Orn | 24 | 52 | 0.052 | -1.1162 | 1 | 0.001 | ILW |
| Carnosine | 1 | 890 | 0.89 | 0 | 1000 | 1 |  |
| Creatinine | 1 | 882 | 0.882 | 0 | 1000 | 1 |  |
| Kynurenine | 12 | 311 | 0.311 | 0 | 1000 | 1 |  |
| Met-SO | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Putrescine | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Sarcosine | 2 | 797 | 0.797 | 0 | 1000 | 1 |  |
| Serotonin | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Spermidine | 1 | 909 | 0.909 | 0 | 1000 | 1 |  |
| Spermine | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| Taurine | 0 | 1000 | 1 | 0 | 1000 | 1 |  |
| alpha-AAA | 1 | 889 | 0.889 | 0 | 1000 | 1 |  |
| total-DMA | 2 | 798 | 0.798 | 0 | 1000 | 1 |  |

1Full names are listed in Supplementary Table S1. Metabolite concentrations are reported in *μM*.

2For the stability “t” represent the number of time that the metabolite was selected in the leave one out procedure (LOO) while “t\*” represents the number of time that the metabolites was selected in the LOO obtained after the permutation. N(t) indicates the number of times that (t\* ≥ t) and *P* the associated probability.

3For the significance“t” represents the absolute value of the regression coefficient of the metabolite. while t\* represents the relative one obtained after the permutation. N(t) indicates the number of times that (|t\*| ≥ |t|) and *P* the associated probability.

4Direction: “ID” indicates metabolite concentration higher in Italian Duroc; “ILW” indicates metabolite concentration higher in Italian Large White. “-” indicates metabolites that did not have any weight in the classification.