

1 **Expression of the aryl hydrocarbon receptor contributes to the establishment of**
2 **intestinal microbial community structure in mice.**

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13 **Supplementary information**

14 **Quantitative PCR oligonucleotide sequences**

| Target | Forward (5'-3') | Reverse (5'-3') |
|---------------------------|--------------------------|--------------------------|
| <i>Saa1</i> | acaccaggatgaagctactcacca | cccttggaaaggctcgtaacaaa |
| <i>Saa2</i> | agctggctgaaagatggagacaa | tgtcctctgccgaagaattcctga |
| <i>Saa3</i> | atgccagagaggctgttcagaagt | tatcttttaggcaggccagcaggt |
| <i>Cd14</i> | ttcagaatctaccgaccatggac | caattgaaagcgctggaccaa |
| <i>Il17a</i> | cagactacctaaccgttccac | tccagcttccctccgcattga |
| <i>Lcn2</i> | atttcccagagtgaactggc | aatgtcacctccatcctgg |
| <i>Rpl13a</i> | ttcggctgaaggctaccagaaagt | gcatcttgcctttccgtt |
| <i>16S Eubacteria</i> | actcctacgggaggcagcag | attaccgcggctgctgg |
| <i>16S Firmicutes</i> | gcagtaggaaatcttccg | attaccgcggctgctgg |
| <i>16S Bacteroidetes</i> | gtactgagacacggacca | attaccgcggctgctgg |
| <i>16S SFB</i> | gacgctgcggcatgagagcat | gacggcacggattttattca |
| <i>16S A. muciniphila</i> | cagcacgtgaagggtgggac | ccttgcggtggcttcagat |

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16 **Supplemental figures**

17 **Supplemental figure 1**

18 **Supplemental figure 1. Experimental schematic.** Illustration highlighting the overall
19 methodologies utilized in this study.

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21 **Supplemental figure 2**

22 **Supplemental figure 2. Genotypic segregation of *Ahr* ^{+/−} and *Ahr* ^{−/−} littermates alters**
23 **the community structure of the cecal microbiota.** Abundance of individual microbiota
24 phyla within the cecal luminal contents of genotypically segregated littermates (blue *Ahr* ^{−/−},
25 red *Ahr* ^{+/−}) as determined through 16S rDNA gene illumina MiSeq sequencing. Data
26 represent min-max percentage abundance with median indicated by a horizontal bar ($n =$
27 4/genotype; $p < 0.05^*$, $p < 0.01^{**}$ Student's *t*-test).

28

29 **Supplemental figure 3**

30 **Supplemental figure 3. Quantitative analysis of cecal bacterial burden and phyla**
31 **abundance in genotypically segregated *Ahr* ^{+/−} and *Ahr* ^{−/−} littermates. (a)** Real time
32 PCR quantification of bacterial burden and relative phyla abundance normalized to
33 eubacteria using phyla-specific primers upon cecal microbial DNA from *Ahr* ^{+/−} (blue) and
34 *Ahr* ^{−/−} (red) mice. **(b)** Real time PCR quantification of bacterial burden and relative phyla
35 abundance normalized to eukaryotic *Rpl13a* using phyla-specific primers upon cDNA
36 generated from total RNA isolated from intact cecal tissue (ceca and luminal contents)
37 from *Ahr* ^{+/−} (blue) and *Ahr* ^{−/−} (red) mice. Data represent mean ($n = 4/\text{genotype}$) 16S

38 rDNA or rRNA gene abundance -/+ SD. Analyses were performed using Student's *t*-test
39 $p < 0.05^*, p < 0.01^{**}$.

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41 **Supplemental figure 4**

42 **Supplemental figure 4. Analysis of correlative taxa-level interactions between cecal**
43 **microbiota in genotypically segregated *Ahr* ^{-/+} and *Ahr* ^{-/-} mice.** Heat map
44 representations of correlative taxa-level interactions of cecal microbiota from
45 genotypically segregated *Ahr* ^{-/+} and *Ahr* ^{-/-} littermates. Data represent Pearson
46 correlation (*r*) coefficients with positive to negative correlation indicated by red to blue,
47 respectively ($n = 4/\text{genotype}$). Correlation coefficients and *p* values are detailed in
48 Supplementary file 1.

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50 **Supplemental file 1**

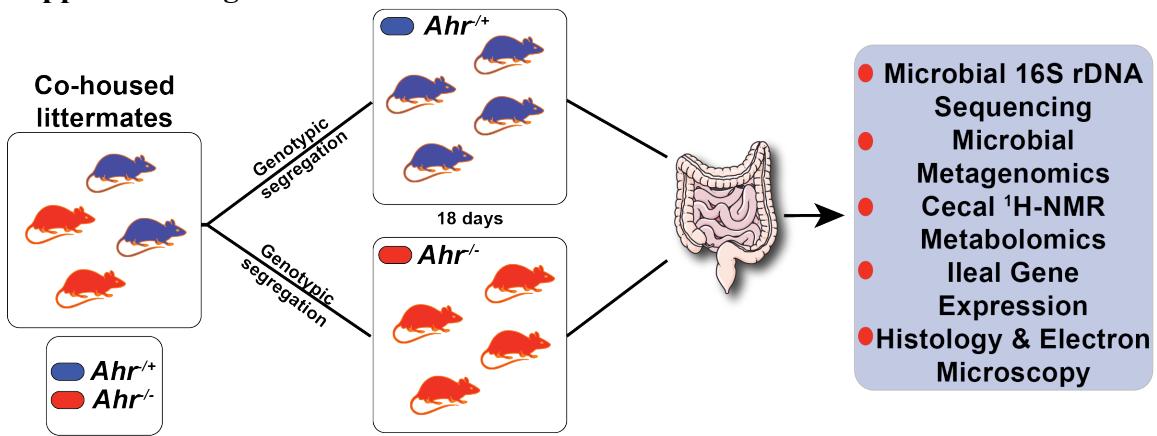
51 Excel worksheets containing Pearson correlation coefficients and associated *p* values for
52 taxa-taxa correlations. *Ahr* ^{-/+} genotype in column A (blue), *Ahr* ^{-/-} genotype in column A
53 (red). Positive correlations are colored red, negative correlations are colored blue and
54 those correlations with a $p < 0.05$ are presented in red text.

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56 **Supplemental file 2**

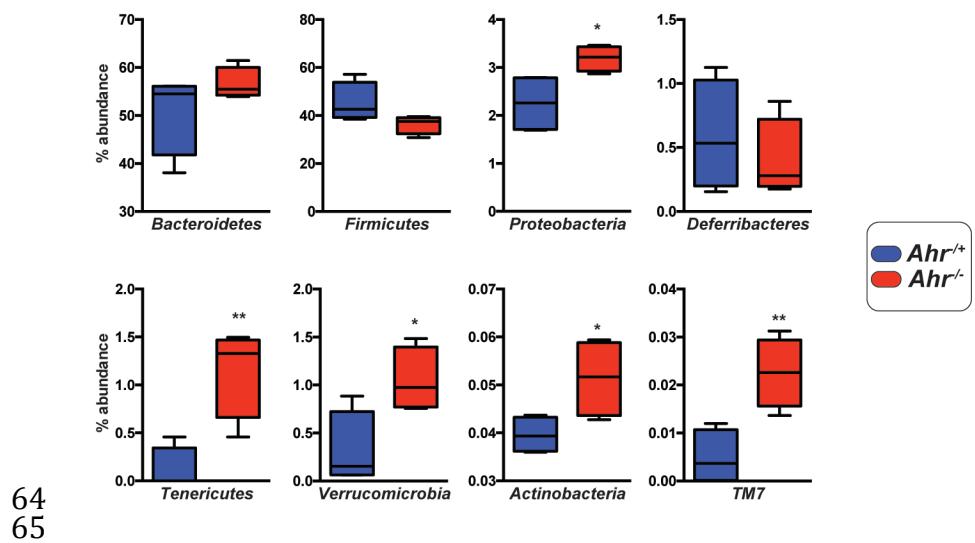
57 Excel worksheets containing Pearson correlation coefficients and associated *p* values for
58 taxa-cecal metabolite correlations. *Ahr* ^{-/+} genotype in column A (blue), *Ahr* ^{-/-} genotype
59 in column A (red). Positive correlations are colored red, negative correlations are colored
60 blue and those correlations with a $p < 0.05$ are presented in red text.

61 Supplemental figure 1



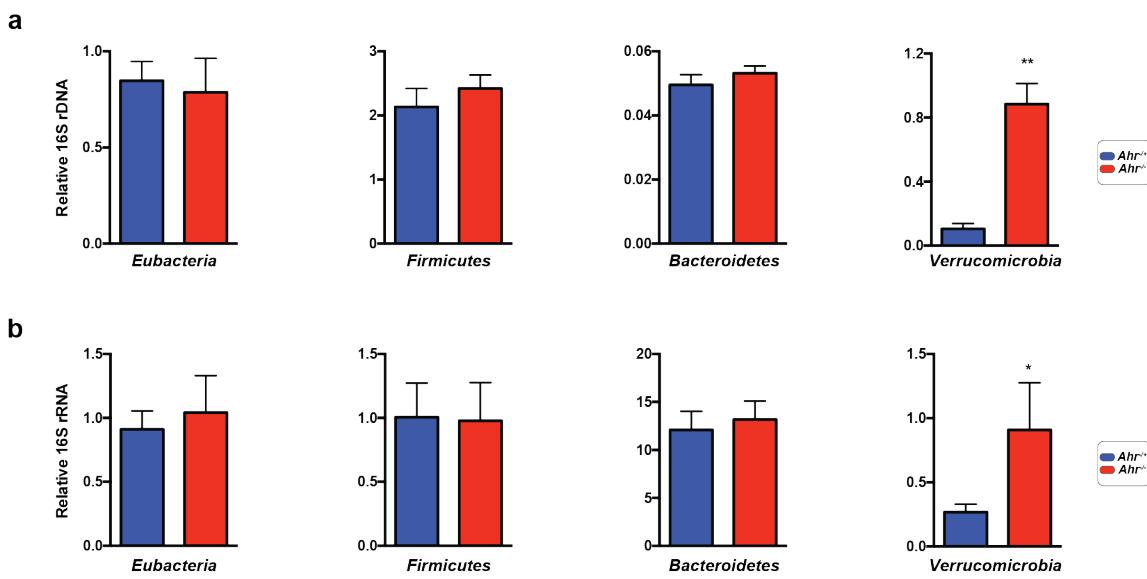
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63 Supplemental figure 2



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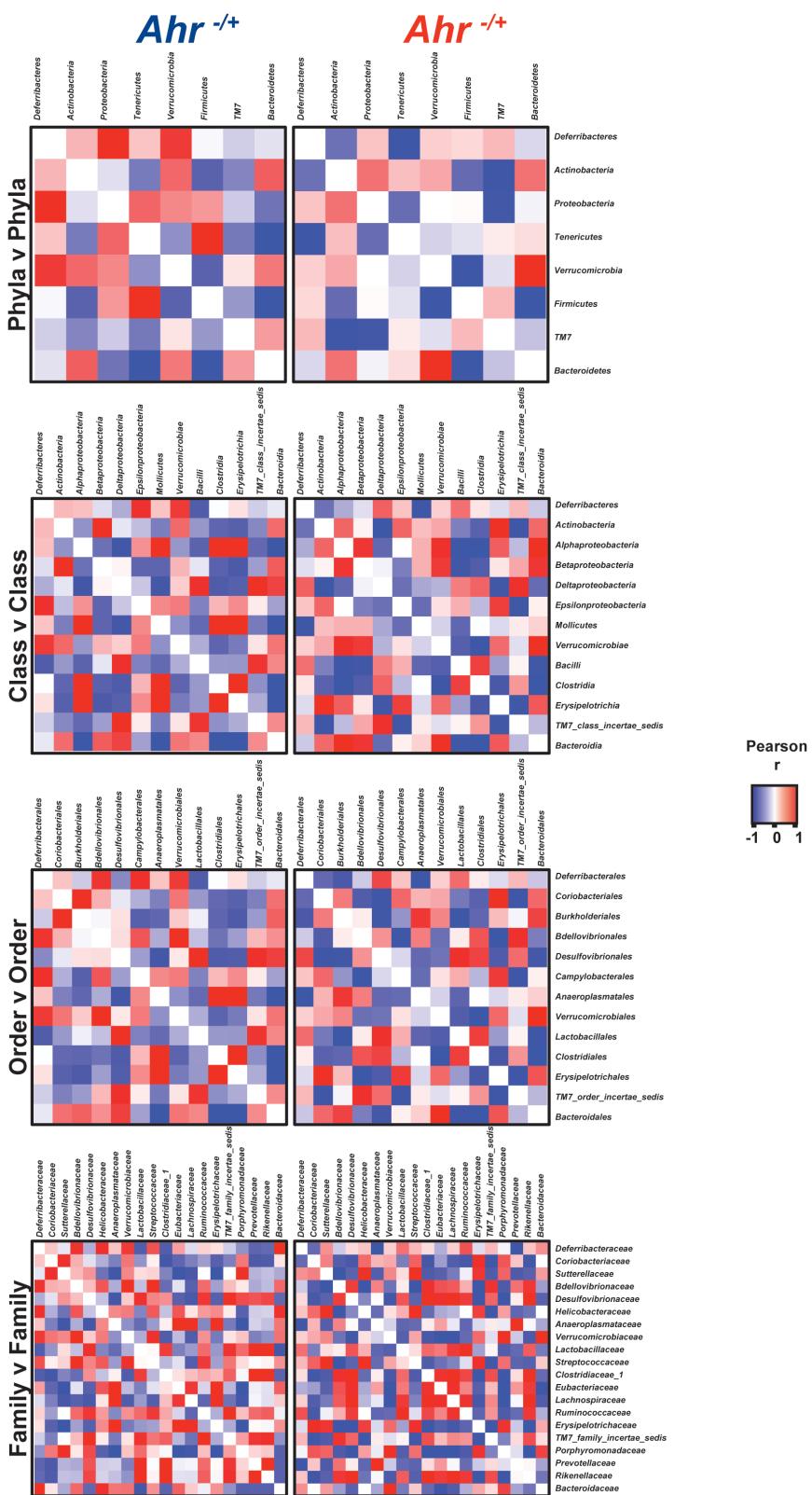
66 Supplemental figure 3



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69 Supplemental figure 4



Ahr -/+

Phyla v Phyla Pearson correlation r

| | "Deferribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | "Bacteroidetes" |
|-------------------|-------------------|------------------|------------------|---------------|-------------------|------------|--------|-----------------|
| "Deferribacteres" | | 0.2787 | 0.8973 | 0.2273 | 0.7911 | -0.02782 | -0.196 | -0.1136 |
| "Actinobacteria" | 0.2787 | | -0.1212 | -0.4919 | 0.588 | -0.6386 | -0.453 | 0.6281 |
| "Proteobacteria" | 0.8973 | | | -0.5945 | 0.4601 | 0.3896 | -0.205 | -0.5206 |
| "Tenericutes" | 0.2273 | -0.4919 | | 0.5945 | -0.4154 | 0.9639 | -0.502 | -0.9854 |
| "Verrucomicrobia" | 0.7911 | 0.588 | 0.4601 | | -0.6329 | 0.3103 | 0.5155 | |
| Firmicutes | -0.02782 | -0.6386 | 0.3896 | 0.9639 | | -0.392 | -0.392 | -0.9889 |
| TM7 | -0.196 | -0.453 | -0.205 | -0.502 | 0.1103 | | 0.3755 | |
| "Bacteroidetes" | -0.1136 | 0.6281 | -0.5206 | -0.9854 | 0.5155 | -0.9889 | 0.3755 | |

Ahr -/+

Phyla v Phyla Pearson correlation p

| | "Deferribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | "Bacteroidetes" |
|-------------------|-------------------|------------------|------------------|---------------|-------------------|------------|--------|-----------------|
| "Deferribacteres" | | 0.7213 | 0.1027 | 0.7727 | 0.2089 | 0.9722 | 0.8038 | 0.8864 |
| "Actinobacteria" | 0.7213 | | 0.8788 | 0.5081 | 0.412 | 0.3614 | 0.5474 | 0.3719 |
| "Proteobacteria" | 0.1027 | 0.8788 | | 0.4055 | 0.5399 | 0.6104 | 0.7947 | 0.4794 |
| "Tenericutes" | 0.7727 | 0.5081 | | 0.4055 | 0.5846 | 0.0361 | 0.4985 | 0.0146 |
| "Verrucomicrobia" | 0.2089 | 0.412 | 0.5399 | | 0.3671 | | 0.8897 | 0.4845 |
| Firmicutes | 0.9722 | 0.3614 | 0.6104 | 0.0361 | | 0.3671 | 0.608 | 0.0111 |
| TM7 | 0.8038 | 0.5474 | 0.7947 | 0.4985 | 0.8897 | | 0.6245 | |
| "Bacteroidetes" | 0.8864 | 0.3719 | 0.4794 | 0.0146 | 0.4845 | 0.0111 | 0.6245 | |

Ahr -/-

Phyla v Phyla Pearson correlation r

| | "Deferribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | "Bacteroidetes" |
|-------------------|-------------------|------------------|------------------|---------------|-------------------|------------|--------|-----------------|
| "Deferribacteres" | | -0.5413 | 0.2258 | -0.9361 | 0.1845 | 0.1543 | 0.2668 | -0.1568 |
| "Actinobacteria" | -0.5413 | | 0.5513 | 0.2545 | 0.3398 | -0.5689 | -0.897 | 0.5442 |
| "Proteobacteria" | 0.2258 | 0.5513 | | -0.5533 | -0.000918 | 0.01703 | -0.855 | -0.05405 |
| "Tenericutes" | -0.9361 | 0.2545 | -0.5533 | | -0.1768 | -0.1185 | 0.0843 | 0.134 |
| "Verrucomicrobia" | 0.1845 | 0.3398 | -0.000918 | | -0.9407 | -0.9407 | -0.121 | 0.9414 |
| Firmicutes | 0.1543 | -0.5689 | 0.01703 | -0.1185 | | 0.2711 | | -0.9993 |
| TM7 | 0.2668 | -0.8969 | -0.8549 | 0.08428 | -0.1212 | 0.2711 | | -0.2365 |
| "Bacteroidetes" | -0.1568 | 0.5442 | -0.05405 | 0.134 | 0.9414 | -0.9993 | -0.237 | |

Ahr -/-

Phyla v Phyla Pearson correlation p

| | "Deferribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | "Bacteroidetes" |
|-------------------|-------------------|------------------|------------------|---------------|-------------------|------------|--------|-----------------|
| "Deferribacteres" | | 0.4587 | 0.7742 | 0.0639 | 0.8155 | 0.8457 | 0.7332 | 0.8432 |
| "Actinobacteria" | 0.4587 | | 0.4487 | 0.7455 | 0.6602 | 0.4311 | 0.1031 | 0.4558 |
| "Proteobacteria" | 0.7742 | 0.4487 | | 0.4467 | 0.9991 | 0.983 | 0.1451 | 0.946 |
| "Tenericutes" | 0.0639 | 0.7455 | 0.4467 | | 0.8232 | 0.8815 | 0.9157 | 0.866 |
| "Verrucomicrobia" | 0.8155 | 0.6602 | 0.9991 | 0.8232 | | 0.0593 | 0.8788 | 0.0586 |
| Firmicutes | 0.8457 | 0.4311 | 0.983 | 0.8815 | | 0.7289 | | 0.0007 |
| TM7 | 0.7332 | 0.1031 | 0.1451 | 0.9157 | 0.8788 | 0.7289 | | 0.7635 |
| "Bacteroidetes" | 0.8432 | 0.4558 | 0.946 | 0.866 | 0.0586 | 0.0007 | 0.7635 | |

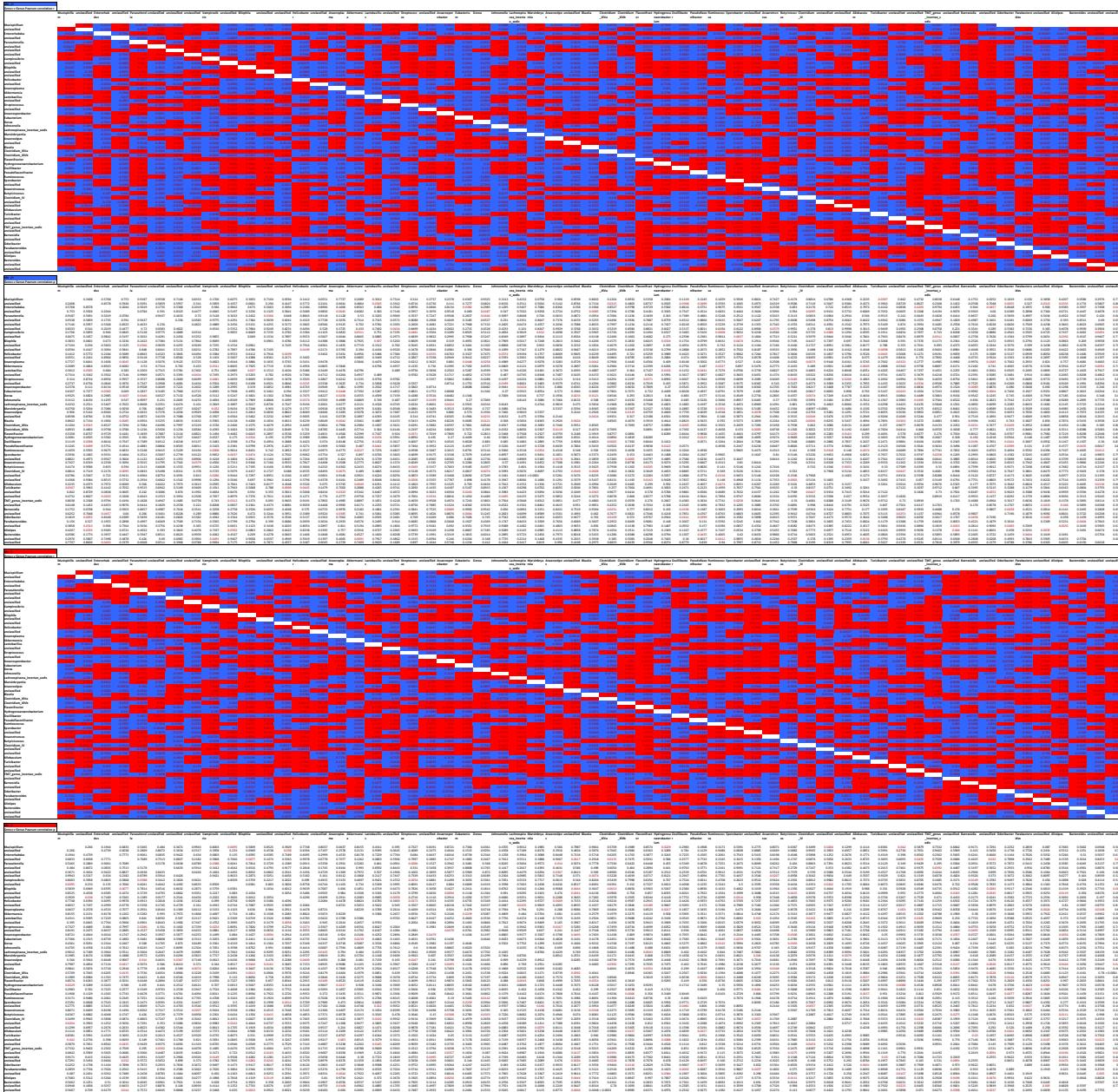
| Ahr -/+ | | Class v Class Pearson correlation r | | | | | | | | | | | | | | | | | |
|--------------------------|--|-------------------------------------|----------------|---------------------|--------------------|---------------------|-----------------------|--------------|------------|------------------|----------|------------|------------------|--------------|-------------|--------------|---------------|--------------|--------|
| | | Deferrribacteres | Actinobacteria | Alphaproteobacteria | Betaproteobacteria | Deltaproteobacteria | Epsilonproteobacteria | unclassified | Mollicutes | Verrucomicrobiae | Bacilli | Clostridia | Erysipelotrichia | unclassified | TM7_class_i | unclassified | "Bacteroides" | unclassified | |
| Deferrribacteres | | -0.2787 | -0.2454 | -0.1503 | -0.3163 | 0.0529 | 0.9446 | 0.2279 | 0.7936 | -0.7039 | -0.01016 | 0.0289 | 0.2204 | -0.1962 | -0.3852 | 0.09197 | 0.2293 | | |
| Actinobacteria | | 0.2787 | -0.4088 | -0.0497 | -0.1019 | -0.25 | -0.5929 | -0.4919 | 0.296 | -0.3932 | -0.6122 | -0.6639 | -0.6563 | -0.4526 | -0.8688 | -0.6707 | -0.8994 | | |
| Alphaproteobacteria | | 0.4546 | -0.4088 | -0.5393 | -0.86 | -0.4279 | 0.01333 | 0.9566 | 0.3929 | -0.6369 | 0.956 | 0.9546 | 0.6214 | -0.5819 | -0.0936 | -0.979 | -0.6607 | | |
| Betaproteobacteria | | -0.1303 | 0.9155 | -0.5393 | -0.04369 | -0.1644 | 0.1829 | -0.6165 | 0.2869 | -0.0972 | -0.6413 | -0.7501 | -0.9003 | -0.3695 | 0.7275 | 0.0412 | 0.8950 | | |
| Deltaproteobacteria | | -0.3163 | -0.1019 | -0.86 | -0.04369 | -0.2226 | -0.1948 | -0.8069 | 0.1969 | -0.3706 | -0.7208 | -0.6687 | -0.2988 | -0.3913 | -0.5832 | 0.7586 | 0.203 | | |
| Epsilonproteobacteria | | 0.2053 | -0.25 | -0.6715 | -0.6164 | -0.2226 | 0.05215 | 0.05215 | 0.5053 | 0.4703 | 0.2965 | 0.4501 | 0.3722 | 0.08172 | 0.09331 | 0.3612 | -0.6801 | | |
| unclassified | | 0.9449 | 0.5759 | -0.01533 | 0.1409 | 0.1945 | 0.0809 | 0.05245 | 0.9105 | 0.4703 | 0.4154 | 0.4154 | 0.5742 | 0.0703 | 0.0722 | 0.2108 | -0.5532 | 0.0825 | 0.0654 |
| Mollicutes | | 0.2272 | -0.4019 | -0.6715 | -0.6165 | 0.8069 | 0.4555 | 0.05215 | 0.7208 | -0.6196 | 0.3109 | 0.6196 | 0.3026 | 0.0722 | 0.1019 | -0.3829 | 0.3363 | 0.2591 | |
| Verrucomicrobiae | | 0.7911 | 0.68 | -0.3929 | 0.2847 | 0.1969 | 0.5057 | 0.9109 | 0.4154 | 0.5053 | 0.4703 | 0.2965 | 0.4501 | 0.3722 | 0.08172 | 0.09331 | 0.3612 | -0.6801 | |
| Bacilli | | -0.7039 | -0.3932 | -0.6369 | -0.09972 | -0.7070 | -0.4703 | -0.6503 | -0.5742 | -0.3109 | -0.3882 | -0.3882 | -0.3026 | -0.8775 | -0.7549 | -0.6867 | 0.3075 | 0.4075 | |
| Clostridia | | -0.01016 | -0.6122 | 0.959 | -0.6413 | -0.7208 | 0.2806 | -0.2926 | 0.9702 | -0.6196 | -0.3882 | -0.3882 | -0.3026 | -0.322 | 0.2103 | -0.8882 | 0.8314 | | |
| Erysipelotrichia | | 0.1266 | -0.6639 | 0.8539 | -0.7501 | -0.6687 | 0.4501 | -0.1807 | 0.3777 | -0.5 | -0.3979 | -0.9814 | 0.7779 | -0.101 | 0.3883 | -0.686 | 0.9479 | | |
| unclassified | | 0.5208 | -0.6563 | -0.6716 | -0.9003 | -0.2988 | 0.6722 | 0.7232 | 0.0424 | -0.3026 | -0.6197 | -0.7208 | -0.5887 | 0.8237 | -0.2182 | -0.0826 | 0.6023 | | |
| TM7_class_incertae_sedis | | -0.1962 | -0.4526 | -0.5819 | -0.3695 | 0.511 | 0.0817 | -0.2108 | -0.5015 | 0.1109 | 0.027 | -0.422 | -0.322 | 0.108 | -0.8247 | 0.45 | | | |
| unclassified | | -0.3852 | -0.8688 | -0.0936 | -0.7275 | 0.5811 | 0.0899 | 0.5532 | 0.05059 | 0.3825 | 0.7568 | 0.1481 | 0.1108 | 0.3883 | -0.875 | 0.3784 | | | |
| "Bacteroidia" | | -0.09197 | 0.5701 | -0.979 | 0.6412 | 0.7586 | -0.3612 | 0.1925 | -0.9899 | 0.5363 | 0.4667 | -0.9947 | -0.982 | -0.686 | -0.0705 | -0.08928 | -0.7484 | | |
| unclassified | | -0.2293 | 0.859 | -0.6607 | 0.9856 | 0.209 | -0.6803 | 0.0954 | -0.7271 | 0.2591 | 0.06794 | -0.7252 | -0.8314 | -0.9479 | -0.2182 | -0.6021 | 0.7306 | | |
| Ahr -/s | | Class v Class Pearson correlation p | | | | | | | | | | | | | | | | | |
| | | Deferrribacteres | Actinobacteria | Alphaproteobacteria | Betaproteobacteria | Deltaproteobacteria | Epsilonproteobacteria | unclassified | Mollicutes | Verrucomicrobiae | Bacilli | Clostridia | Erysipelotrichia | unclassified | TM7_class_i | unclassified | "Bacteroides" | unclassified | |
| Deferrribacteres | | 0.7213 | 0.7542 | 0.8697 | 0.6837 | 0.1408 | 0.0551 | 0.7727 | 0.2089 | 0.2961 | 0.9898 | 0.8734 | 0.4732 | 0.8038 | 0.6148 | 0.908 | 0.7707 | | |
| Actinobacteria | | 0.7213 | 0.5912 | 0.0843 | 0.8981 | 0.75 | 0.4421 | 0.5081 | 0.412 | 0.3878 | 0.3361 | 0.3437 | 0.5474 | 0.1312 | 0.4293 | 0.1406 | | | |
| Alphaproteobacteria | | 0.7542 | 0.5912 | 0.4607 | 0.14 | 0.5722 | 0.9847 | 0.0046 | 0.6071 | 0.3631 | 0.044 | 0.0464 | 0.3284 | 0.4181 | 0.9064 | 0.021 | 0.3393 | | |
| Betaproteobacteria | | 0.8657 | 0.0843 | 0.4607 | 0.9563 | 0.3836 | 0.8171 | 0.3835 | 0.7153 | 0.9003 | 0.3587 | 0.2499 | 0.0997 | 0.6305 | 0.2725 | 0.3588 | 0.0144 | | |
| Deltaproteobacteria | | 0.6837 | 0.8981 | 0.14 | 0.9563 | 0.7774 | 0.8052 | 0.1931 | 0.8031 | 0.1294 | 0.2792 | 0.3313 | 0.7012 | 0.089 | 0.4189 | 0.2414 | 0.797 | | |
| Epsilonproteobacteria | | 0.1408 | 0.75 | 0.5722 | 0.3836 | 0.7774 | 0.3394 | 0.5446 | 0.9478 | 0.0805 | 0.3497 | 0.7074 | 0.8193 | 0.776 | 0.7892 | 0.4468 | 0.8075 | 0.9045 | |
| unclassified | | 0.0551 | 0.4421 | 0.9847 | 0.8171 | 0.8052 | 0.3394 | 0.5446 | 0.9478 | 0.5846 | 0.4258 | 0.0298 | 0.223 | 0.2777 | 0.4985 | 0.9992 | 0.0101 | 0.2729 | |
| Mollicutes | | 0.7727 | 0.5081 | 0.0046 | 0.8385 | 0.1931 | 0.5446 | 0.9478 | 0.5846 | 0.4258 | 0.6891 | 0.3804 | 0.5 | 0.9758 | 0.8897 | 0.6171 | 0.4637 | 0.7409 | |
| Verrucomicrobiae | | 0.2089 | 0.412 | 0.6071 | 0.7153 | 0.8031 | 0.4943 | 0.0805 | 0.5846 | 0.6891 | 0.6118 | 0.6021 | 0.6974 | 0.1725 | 0.2451 | 0.5333 | 0.9325 | | |
| Bacilli | | 0.2961 | 0.6068 | 0.3631 | 0.9003 | 0.1294 | 0.5297 | 0.3497 | 0.4258 | 0.6891 | 0.0186 | 0.3573 | 0.578 | 0.8579 | 0.0053 | 0.2748 | | | |
| Clostridia | | 0.9898 | 0.3878 | 0.044 | 0.3587 | 0.2792 | 0.7194 | 0.7074 | 0.0298 | 0.3804 | 0.6118 | 0.0186 | 0.2221 | 0.678 | 0.7897 | 0.0118 | 0.1686 | | |
| Erysipelotrichia | | 0.8734 | 0.3361 | 0.0464 | 0.2499 | 0.3313 | 0.5499 | 0.8193 | 0.0223 | 0.5 | 0.6021 | 0.3573 | 0.2221 | 0.8919 | 0.6117 | 0.314 | 0.0521 | | |
| unclassified | | 0.4732 | 0.3437 | 0.3284 | 0.0997 | 0.7012 | 0.1278 | 0.776 | 0.2777 | 0.9758 | 0.6974 | 0.3573 | 0.2211 | 0.8919 | 0.1763 | 0.5474 | 0.7818 | | |
| TM7_class_incertae_sedis | | 0.8038 | 0.5474 | 0.4181 | 0.6305 | 0.089 | 0.9182 | 0.7892 | 0.4985 | 0.8897 | 0.1725 | 0.578 | 0.3573 | 0.2221 | 0.678 | 0.7897 | 0.0118 | 0.1686 | |
| unclassified | | 0.6148 | 0.1312 | 0.9064 | 0.2725 | 0.322 | 0.0899 | 0.5363 | 0.4667 | 0.0997 | 0.6171 | 0.2451 | 0.8919 | 0.6117 | 0.1763 | 0.5474 | 0.9107 | 0.3979 | |
| "Bacteroidia" | | 0.908 | 0.4293 | 0.021 | 0.3588 | 0.2414 | 0.6388 | 0.8075 | 0.0101 | 0.4637 | 0.5333 | 0.0053 | 0.0118 | 0.5474 | 0.9107 | 0.2636 | | | |
| unclassified | | 0.7707 | 0.1406 | 0.3393 | 0.0144 | 0.797 | 0.3197 | 0.9045 | 0.2729 | 0.7409 | 0.9325 | 0.2748 | 0.1686 | 0.0521 | 0.7818 | 0.3979 | 0.2636 | | |
| Ahr -/- | | Class v Class Pearson correlation r | | | | | | | | | | | | | | | | | |
| | | Deferrribacteres | Actinobacteria | Alphaproteobacteria | Betaproteobacteria | Deltaproteobacteria | Epsilonproteobacteria | unclassified | Mollicutes | Verrucomicrobiae | Bacilli | Clostridia | Erysipelotrichia | unclassified | TM7_class_i | unclassified | "Bacteroides" | unclassified | |
| Deferrribacteres | | -0.5413 | -0.3233 | -0.1208 | 0.6199 | 0.2255 | -0.1963 | -0.9361 | 0.1845 | 0.0569 | 0.0989 | -0.1372 | -0.9112 | -0.266 | -0.3158 | -0.2141 | -0.8493 | | |
| Actinobacteria | | -0.5413 | -0.6059 | 0.05047 | -0.9958 | 0.6042 | 0.5166 | 0.2545 | 0.3398 | -0.4786 | -0.6451 | 0.0937 | -0.4219 | -0.8669 | 0.8218 | 0.5826 | -0.7114 | | |
| Alphaproteobacteria | | -0.3233 | 0.6059 | 0.8199 | -0.5953 | 0.009949 | -0.3114 | 0.2953 | 0.7079 | -0.9286 | -0.9518 | 0.6303 | -0.9546 | -0.2596 | 0.935 | 0.9931 | -0.9879 | | |
| Betaproteobacteria | | -0.1208 | 0.05037 | 0.8199 | -0.05154 | -0.4905 | -0.7981 | 0.3006 | 0.7949 | -0.8621 | -0.6973 | 0.1008 | -0.1989 | -0.3387 | 0.5639 | 0.3138 | -0.7174 | | |
| Deltaproteobacteria | | 0.0113 | -0.9958 | -0.5953 | -0.05154 | -0.546 | -0.5538 | -0.3381 | -0.2912 | -0.3013 | -0.601 | -0.86 | -0.4322 | -0.8722 | -0.7996 | -0.5619 | -0.7001 | | |
| Epsilonproteobacteria | | 0.2302 | -0.0504 | -0.9405 | -0.546 | -0.2914 | -0.5525 | -0.1294 | -0.3284 | -0.3046 | -0.2686 | -0.7225 | -0.2857 | -0.8749 | -0.3446 | -0.0661 | -0.07609 | | |
| unclassified | | -0.1963 | 0.5606 | 0.3114 | -0.7981 | 0.5538 | -0.2914 | -0.1284 | -0.4347 | -0.4191 | -0.4763 | -0.5111 | -0.8285 | -0.03126 | -0.3101 | -0.3643 | | | |
| Mollicutes | | -0.9361 | 0.2454 | 0.2053 | 0.3006 | -0.3381 | -0.5526 | -0.1284 | -0.1768 | -0.6025 | -0.09665 | -0.1482 | -0.4764 | -0.08692 | 0.1641 | 0.1836 | -0.3643 | | |
| Verrucomicrobiae | | 0.1845 | 0.3398 | 0.8703 | 0.7043 | -0.2912 | 0.1176 | -0.4347 | -0.1768 | -0.5789 | -0.9354 | 0.5753 | -0.7798 | -0.11212 | 0.8031 | 0.4191 | -0.7959 | | |
| Bacilli | | 0.5598 | -0.4786 | -0.9286 | -0.8621 | 0.5013 | 0.3044 | -0.4359 | -0.6025 | -0.7678 | -0.7703 | -0.3681 | 0.05019 | -0.7812 | -0.8837 | 0.0244 | | | |
| Clostridia | | 0.09801 | -0.6451 | -0.9518 | -0.6973 | 0.6091 | -0.2686 | 0.1729 | -0.09654 | -0.9354 | -0.7794 | 0.8257 | 0.4049 | -0.9619 | -0.977 | 0.9344 | | | |
| Erysipelotrichia | | -0.1372 | 0.9025 | 0.6163 | -0.1009 | -0.86 | 0.7715 | 0.4752 | -0.1482 | -0.7274 | -0.3681 | -0.7794 | -0.3798 | -0.8316 | 0.4513 | -0.6901 | -0.6901 | | |
| unclassified | | -0.1429 | -0.4219 | -0.9546 | -0.9189 | 0.4321 | -0.2857 | 0.5113 | -0.4764 | -0.7748 | 0.0695 | -0.5277 | -0.3798 | -0.6626 | -0.7959 | 0.9268 | 0.0426 | | |
| TM7_class_incertae_sedis | | -0.2666 | -0.8569 | -0.2596 | 0.5587 | 0.5795 | -0.3499 | 0.6161 | -0.1641 | -0.8036 | -0.7812 | -0.9619 | -0.8583 | -0.7959 | -0.5808 | -0.4361 | -0.9602 | | |
| unclassified | | -0.3158 | 0.8216 | 0.935 | -0.5689 | -0.7956 | 0.3499 | 0.6161 | -0.1641 | -0.8036 | -0.7812 | -0.9619 | -0.8583 | -0.7959 | -0.5808 | -0.4361 | -0.9602 | | |
| "Bacteroidia" | | -0.2141 | 0.9524 | 0.5931 | 0.6163 | -0.5619 | 0.0680 | -0.3163 | 0.1816 | 0.4199 | -0.8837 | 0.5595 | -0.9268 | -0.2661 | -0.9362 | -0.4361 | -0.9705 | | |
| unclassified | | 0.4338 | -0.7114 | -0.9879 | -0.7374 | 0.7076 | -0.07609 | 0.1817 | -0.3641 | -0.7995 | 0.9244 | -0.6901 | 0.929 | 0.3727 | -0.9602 | -0.4361 | -0.9705 | | |

| Ahr_+/- | Class v Class Pearson correlation p | Deferrabacterales | Coriobacteriales | unclassified | Burkholderiales | unclassified | Bdellovibrionales | unclassified | Desulfovibrionales | Campylobacteriales | unclassified | Anaeroplasmatales | Verrucomicrobiales | Lactobacillales | Clostridioides unclassified | Erysipelotrichales | unclassified | TM7_order_incertae_sedis | unclassified | "Bacteroides"les" | | |
|--------------------------|-------------------------------------|-------------------|------------------|--------------|-----------------|--------------|-------------------|--------------|--------------------|--------------------|--------------|-------------------|--------------------|-----------------|-----------------------------|--------------------|--------------|--------------------------|--------------|-------------------|--------|--------|
| | | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | ales | | | |
| Deferribacteriales | | 0.777 | 0.753 | 0.786 | 0.833 | 0.748 | 0.675 | 0.553 | 0.108 | 0.051 | 0.727 | 0.288 | 0.242 | 0.0840 | 0.456 | 0.8734 | 0.4732 | 0.8038 | 0.1648 | 0.908 | 0.77 | |
| Coriobacteriales | unclassified | 0.777 | 0.6034 | 0.0905 | 0.0158 | 0.7019 | 0.3859 | 0.0909 | 0.0394 | 0.4953 | 0.194 | 0.4702 | 0.1214 | 0.1446 | 0.0973 | 0.3465 | 0.9156 | 0.1237 | 0.4474 | 0.1566 | 0.1237 | 0.4474 |
| Burkholderiales | unclassified | 0.753 | 0.6024 | 0.4703 | 0.4477 | 0.6793 | 0.5197 | 0.1236 | 0.3704 | 0.0856 | 0.0045 | 0.6082 | 0.3657 | 0.0445 | 0.5732 | 0.046 | 0.2358 | 0.4194 | 0.9076 | 0.0309 | 0.2358 | 0.4194 |
| Bdellovibrionales | unclassified | 0.7986 | 0.0905 | 0.4703 | | 0.0772 | 0.9656 | 0.5733 | 0.8736 | 0.3273 | 0.891 | 0.3057 | 0.7892 | 0.9316 | 0.3936 | 0.6818 | 0.268 | 0.0763 | 0.625 | 0.2964 | 0.381 | 0.01 |
| Desulfovibrionales | unclassified | 0.8333 | 0.0158 | 0.4477 | 0.0772 | 0.6556 | 0.5352 | 0.9142 | 0.605 | 0.528 | 0.3725 | 0.433 | 0.7654 | 0.2824 | 0.9998 | 0.2232 | 0.2508 | 0.5758 | 0.221 | 0.3088 | 0.07 | |
| Campylobacteriales | unclassified | 0.1748 | 0.7019 | 0.6793 | 0.9656 | 0.6556 | | 0.9758 | 0.871 | 0.3382 | 0.1147 | 0.6778 | 0.0325 | 0.7589 | 0.4745 | 0.1248 | 0.6339 | 0.7655 | 0.7336 | 0.8295 | 0.563 | 0.7 |
| Verrucomicrobiales | unclassified | 0.6075 | 0.3859 | 0.5197 | 0.5733 | 0.5352 | 0.9758 | | 0.1637 | 0.0958 | 0.5607 | 0.6044 | 0.8605 | 0.0982 | 0.7313 | 0.5046 | 0.8044 | 0.8979 | 0.0312 | 0.0837 | 0.6832 | 0.71 |
| Lactobacillales | unclassified | 0.5553 | 0.9099 | 0.1236 | 0.8736 | 0.9142 | 0.871 | 0.1637 | 0.6338 | 0.9693 | 0.171 | 0.9072 | 0.0902 | 0.2828 | 0.5429 | 0.3071 | 0.5908 | 0.1371 | 0.4433 | 0.2338 | 0.71 | |
| Clostridioides | unclassified | 0.1408 | 0.6934 | 0.5709 | 0.3273 | 0.6569 | 0.3832 | 0.9558 | 0.6335 | 0.3934 | 0.5446 | 0.9493 | 0.5295 | 0.7261 | 0.3783 | 0.5499 | 0.1278 | 0.9182 | 0.9061 | 0.6388 | 0.71 | |
| Erysipelotrichales | unclassified | 0.0551 | 0.5194 | 0.0045 | 0.891 | 0.528 | 0.1147 | 0.0538 | 0.5394 | 0.0948 | 0.0478 | 0.0805 | 0.3466 | 0.4798 | 0.4376 | 0.8193 | 0.1776 | 0.7869 | 0.4486 | 0.8078 | 0.007 | |
| Archaea | unclassified | 0.7729 | 0.5194 | 0.0045 | 0.891 | 0.528 | 0.1147 | 0.0538 | 0.5394 | 0.0948 | 0.0478 | 0.0805 | 0.3466 | 0.4798 | 0.4376 | 0.8193 | 0.1776 | 0.7869 | 0.4486 | 0.8078 | 0.007 | |
| Proteobacterales | unclassified | 0.2089 | 0.4702 | 0.6082 | 0.2892 | 0.433 | 0.0325 | 0.9605 | 0.0972 | 0.4943 | 0.0805 | 0.5846 | 0.6851 | 0.3765 | 0.2489 | 0.05 | 0.9758 | 0.8897 | 0.5171 | 0.4637 | 0.77 | |
| Verrucomicrobiales | unclassified | 0.2942 | 0.6124 | 0.3667 | 0.9316 | 0.7654 | 0.7589 | 0.0982 | 0.0902 | 0.5295 | 0.3466 | 0.4293 | 0.6851 | 0.616 | 0.813 | 0.606 | 0.6993 | 0.1735 | 0.2433 | 0.5372 | 0.93 | |
| Clostridioides | unclassified | 0.9849 | 0.4146 | 0.0445 | 0.3936 | 0.2824 | 0.4745 | 0.7313 | 0.2828 | 0.7261 | 0.0738 | 0.0307 | 0.3765 | 0.616 | 0.4958 | 0.0201 | 0.3631 | 0.5739 | 0.8614 | 0.0058 | 0.27 | |
| Erysipelotrichales | unclassified | 0.4368 | 0.8973 | 0.5732 | 0.6818 | 0.9996 | 0.1248 | 0.5046 | 0.5429 | 0.3783 | 0.4378 | 0.6161 | 0.2489 | 0.813 | 0.4958 | 0.6776 | 0.657 | 0.3149 | 0.6791 | 0.5526 | 0.79 | |
| Archaea | unclassified | 0.8734 | 0.3465 | 0.046 | 0.268 | 0.2232 | 0.6339 | 0.8044 | 0.3071 | 0.5499 | 0.1893 | 0.0223 | 0.5 | 0.606 | 0.2021 | 0.6776 | 0.2221 | 0.678 | 0.7897 | 0.0118 | 0.3104 | |
| TM7_order_incertae_sedis | unclassified | 0.4732 | 0.3091 | 0.3268 | 0.0763 | 0.2506 | 0.7655 | 0.8979 | 0.5908 | 0.1278 | 0.776 | 0.2777 | 0.9758 | 0.6993 | 0.3631 | 0.657 | 0.2221 | 0.8919 | 0.6117 | 0.305 | 0.4748 | |
| "Bacteroides" | unclassified | 0.8038 | 0.5166 | 0.4198 | 0.625 | 0.6758 | 0.7336 | 0.0312 | 0.1371 | 0.0918 | 0.7892 | 0.4985 | 0.8897 | 0.1735 | 0.5739 | 0.3149 | 0.678 | 0.8919 | 0.1617 | 0.1763 | 0.5474 | |
| "Bacteroides" | les | 0.6148 | 0.1227 | 0.9076 | 0.2964 | 0.221 | 0.8295 | 0.0837 | 0.4433 | 0.9061 | 0.0466 | 0.9992 | 0.6171 | 0.2433 | 0.8614 | 0.6791 | 0.7897 | 0.6117 | 0.1763 | 0.9107 | 0.39 | |
| "Bacteroides" | les | 0.908 | 0.4474 | 0.0209 | 0.381 | 0.3088 | 0.563 | 0.6832 | 0.2338 | 0.6588 | 0.8075 | 0.0101 | 0.6437 | 0.5372 | 0.0058 | 0.5526 | 0.0118 | 0.314 | 0.5474 | 0.9107 | 0.26 | |
| "Bacteroides" | les | 0.7707 | 0.1209 | 0.3379 | 0.0187 | 0.0788 | 0.9714 | 0.7175 | 0.3197 | 0.9045 | 0.2729 | 0.7409 | 0.9353 | 0.2798 | 0.7995 | 0.1686 | 0.0521 | 0.7818 | 0.3979 | 0.2636 | | |

| Ahr /-/ Order v Order Pearson correlation r | | Bacteroidales unclassified | | | | | | | | | | | | | | | | | | | |
|--|--|----------------------------|------------------|--------------|-----------------|--------------|-------------------|--------------|--------------------|--------------------|--------------|-------------------|--------------------|-----------------|----------------|--------------|--------------------|--------------|---------------------------|-----------------|--------------|
| | | Deferrabacterales | Coriobacteriales | unclassified | Burkholderiales | unclassified | Bdellovibrionales | unclassified | Desulfovibrionales | Campylobacteriales | unclassified | Anaeroplasmatales | Verrucomicrobiales | Lactobacillales | Clostridiiales | unclassified | Erysipelotrichales | unclassified | TM7_order_incertae_sediis | "Bacteroidales" | unclassified |
| Deferrabacterales | | -0.5684 | 0.2167 | 0.7422 | -0.6997 | 0.6524 | 0.6254 | 0.1960 | 0.5363 | 0.1444 | 0.1270 | 0.4932 | 0.6372 | -0.1564 | 0.1372 | 0.1372 | 0.4315 | 0.2141 | 0.7141 | | |
| Coriobacteriales | | -0.5684 | 0.2167 | 0.8121 | -0.6997 | 0.6514 | 0.6254 | 0.1876 | 0.5363 | 0.1444 | 0.1270 | 0.4932 | 0.6372 | -0.1564 | 0.1372 | 0.1372 | 0.4315 | 0.2141 | 0.7141 | | |
| Burkholderiales | | -0.3116 | 0.4949 | 0.8121 | -0.6997 | 0.6514 | 0.6254 | 0.1876 | 0.5363 | 0.1444 | 0.1270 | 0.4932 | 0.6372 | -0.1564 | 0.1372 | 0.1372 | 0.4315 | 0.2141 | 0.7141 | | |
| unclassified | | 0.7422 | 0.4949 | 0.8121 | -0.6997 | 0.6514 | 0.6254 | 0.1876 | 0.5363 | 0.1444 | 0.1270 | 0.4932 | 0.6372 | -0.1564 | 0.1372 | 0.1372 | 0.4315 | 0.2141 | 0.7141 | | |
| Bdellovibrionales | | -0.1997 | 0.6934 | -0.4124 | 0.0709 | 0.5679 | -0.1493 | 0.4908 | -0.901 | 0.5085 | 0.0852 | 0.5303 | 0.0993 | 0.0901 | 0.1367 | 0.9354 | 0.1390 | 0.8945 | 0.4826 | 0.4040 | |
| unclassified | | -0.1997 | 0.6934 | -0.4124 | 0.0709 | 0.5679 | -0.1493 | 0.4908 | -0.901 | 0.5085 | 0.0852 | 0.5303 | 0.0993 | 0.0901 | 0.1367 | 0.9354 | 0.1390 | 0.8945 | 0.4826 | 0.4040 | |
| Desulfovibrionales | | -0.9901 | -0.602 | -0.2334 | -0.6541 | -0.1040 | -0.1495 | -0.6789 | -0.3256 | -0.8959 | -0.8045 | -0.9441 | -0.1084 | -0.0541 | -0.1687 | 0.3054 | 0.3740 | 0.2778 | 0.1344 | 0.0371 | |
| Campylobacteriales | | -0.7118 | -0.8705 | -0.8419 | -0.8502 | -0.3821 | -0.0498 | -0.6789 | -0.3256 | -0.8959 | -0.8045 | -0.9441 | -0.1084 | -0.0541 | -0.1687 | 0.3054 | 0.3740 | 0.2778 | 0.1344 | 0.0371 | |
| Anaeroplasmatales | | -0.1963 | -0.5524 | -0.2222 | -0.3405 | -0.8209 | -0.0008 | -0.3256 | -0.1144 | -0.5079 | -0.5569 | -0.5124 | -0.1281 | -0.1281 | -0.1437 | -0.3244 | -0.7355 | 0.2057 | -0.8741 | 0.3469 | |
| Verrucomicrobiales | | -0.9342 | -0.3278 | -0.7138 | -0.6513 | -0.8111 | -0.5369 | -0.8095 | -0.5569 | -0.5124 | -0.1281 | -0.1281 | -0.6017 | -0.1774 | -0.1774 | -0.1195 | -0.0427 | -0.2283 | 0.0312 | -0.3104 | |
| Lactobacillales | | -0.3535 | -0.4932 | -0.3261 | -0.3643 | -0.7924 | -0.5613 | -0.4551 | -0.7474 | -0.4684 | -0.1241 | -0.0117 | -0.6791 | -0.5467 | -0.1774 | -0.1774 | -0.1774 | -0.1774 | -0.1774 | -0.3636 | |
| Clostridiiales | | -0.0700 | -0.5524 | -0.6272 | -0.9463 | -0.5872 | -0.6768 | -0.5601 | 0.0184 | 0.7244 | 0.1799 | 0.0141 | -0.5407 | -0.01 | -0.5581 | -0.3173 | -0.2029 | -0.7798 | -0.5311 | -0.8181 | |
| unclassified | | -0.9700 | -0.5524 | -0.6272 | -0.9463 | -0.5872 | -0.6768 | -0.5601 | 0.0184 | 0.7244 | 0.1799 | 0.0141 | -0.5407 | -0.01 | -0.5581 | -0.3173 | -0.2029 | -0.7798 | -0.5311 | -0.8181 | |
| Erysipelotrichales | | -0.1372 | -0.6098 | -0.4134 | -0.0166 | -0.9604 | -0.3554 | -0.1627 | -0.7026 | 0.7739 | 0.4752 | -0.1488 | -0.1043 | -0.3683 | -0.7784 | -0.8184 | -0.0400 | -0.9573 | -0.9743 | -0.8639 | |
| unclassified | | -0.1372 | -0.6098 | -0.4134 | -0.0166 | -0.9604 | -0.3554 | -0.1627 | -0.7026 | 0.7739 | 0.4752 | -0.1488 | -0.1043 | -0.3683 | -0.7784 | -0.8184 | -0.0400 | -0.9573 | -0.9743 | -0.8639 | |
| TM7_order_incertae_sediis | | -0.0908 | -0.8662 | -0.2493 | -0.3950 | -0.9109 | -0.8681 | -0.1205 | 0.3059 | 0.7476 | 0.0851 | 0.4759 | -0.7798 | 0.0669 | 0.0884 | 0.7602 | -0.0699 | -0.7959 | -0.9268 | 0.0908 | |
| "Bacteroidales" | | -0.3159 | -0.6182 | -0.3114 | -0.667 | -0.5179 | -0.6829 | -0.278 | -0.6911 | 0.3496 | 0.0320 | 0.0311 | -0.7613 | -0.4953 | -0.7304 | 0.8123 | -0.7959 | -0.5808 | -0.2561 | -0.9664 | |
| unclassified | | -0.2140 | -0.7126 | -0.9865 | -0.8367 | -0.6763 | -0.0160 | -0.4820 | -0.1134 | -0.2140 | -0.5610 | -0.5610 | -0.2969 | -0.8938 | -0.9742 | 0.6841 | -0.9268 | -0.2661 | -0.9747 | -0.9664 | |

| Phylum | Class | Genus | Species | Deferrabacterales | Corrobacteriales | unclassified | Burkholderiales | unclassified | Bdellovibrionales | unclassified | Desulfovibrionales | Campylobacterales | unclassified | Anaeroplasmatales | Verrucomicrobiales | Lactobacillales | Clostridiales | unclassified | Erysipelotrichales | TM7_order_incertae_sedi | unclassified | "Bacteroidales" | unclassified | |
|-------------------------|-------|-------|---------|-------------------|------------------|--------------|-----------------|--------------|-------------------|--------------|--------------------|-------------------|--------------|-------------------|--------------------|-----------------|---------------|--------------|--------------------|-------------------------|--------------|-----------------|--------------|------|
| Deferribacteres | | | | 0.4306 | 0.6833 | 0.2571 | 0.0943 | 0.8003 | 0.0005 | 0.2882 | 0.7748 | 0.0307 | 0.0638 | 0.8155 | 0.4454 | 0.8223 | 0.1399 | 0.8628 | 0.5879 | 0.7332 | 0.6842 | 0.7859 | 0.56 | |
| Corrobacteriales | | | | 0.4306 | 0.4016 | 0.5019 | 0.9600 | 0.3895 | 0.398 | 0.1234 | 0.4201 | 0.4772 | 0.713 | 0.0721 | 0.4946 | 0.3728 | 0.284 | 0.1156 | 0.5076 | 0.1138 | 0.1818 | 0.419 | 0.28 | |
| undclassified | | | | 0.6933 | 0.4016 | 0.1873 | 0.2182 | 0.5868 | 0.7666 | 0.1581 | 0.9978 | 0.6778 | 0.7038 | 0.1262 | 0.0707 | 0.0537 | 0.2633 | 0.3749 | 0.0345 | 0.7509 | 0.0586 | 0.0605 | 0.419 | 0.28 |
| Burkholderiales | | | | 0.2571 | 0.5019 | 0.1873 | 0.3444 | 0.9231 | 0.4959 | 0.4988 | 0.6095 | 0.5059 | 0.2065 | 0.5293 | 0.0557 | 0.4132 | 0.0003 | 0.243 | 0.0291 | 0.233 | 0.3205 | 0.46 | 0.28 | |
| undclassified | | | | 0.9943 | 0.9699 | 0.2182 | 0.3444 | 0.9421 | 0.8633 | 0.6173 | 0.5182 | 0.161 | 0.8113 | 0.1868 | 0.2056 | 0.3232 | 0.649 | 0.9349 | 0.1119 | 0.6078 | 0.4924 | 0.2185 | 0.322 | |
| Bdellovibrionales | | | | 0.8003 | 0.2086 | 0.5868 | 0.9231 | 0.9421 | 0.8509 | 0.5915 | 0.099 | 0.4915 | 0.5148 | 0.4697 | 0.9203 | 0.3399 | 0.8613 | 0.0646 | 0.8705 | 0.1685 | 0.3171 | 0.5174 | 0.54 | |
| unclassified | | | | 0.0095 | 0.398 | 0.7656 | 0.3459 | 0.8633 | 0.8509 | 0.3211 | 0.8758 | 0.6744 | 0.1105 | 0.734 | 0.5459 | 0.9812 | 0.1705 | 0.8133 | 0.6046 | 0.6476 | 0.722 | 0.866 | 0.08 | |
| Desulfovibrionales | | | | 0.2882 | 0.1234 | 0.1581 | 0.1498 | 0.6173 | 0.5915 | 0.3211 | 0.851 | 0.8857 | 0.4305 | 0.4927 | 0.1555 | 0.2538 | 0.0431 | 0.2974 | 0.2122 | 0.4447 | 0.1088 | 0.2022 | 0.08 | |
| Campylobacterales | | | | 0.7748 | 0.4201 | 0.9978 | 0.6095 | 0.5182 | 0.099 | 0.8758 | 0.851 | 0.2084 | 0.4474 | 0.8824 | 0.6958 | 0.7256 | 0.9206 | 0.2265 | 0.7143 | 0.1259 | 0.6502 | 0.9319 | 0.92 | |
| unclassified | | | | 0.8037 | 0.4472 | 0.6778 | 0.6505 | 0.161 | 0.4915 | 0.6744 | 0.8857 | 0.2084 | 0.8719 | 0.5653 | 0.5649 | 0.8205 | 0.9537 | 0.5248 | 0.4887 | 0.1715 | 0.9687 | 0.6889 | 0.81 | |
| Anaeroplasmatales | | | | 0.0638 | 0.713 | 0.708 | 0.209 | 0.8113 | 0.5148 | 0.1105 | 0.4309 | 0.0474 | 0.8719 | 0.3098 | 0.8986 | 0.2163 | 0.8515 | 0.5241 | 0.9156 | 0.8364 | 0.819 | 0.63 | | |
| Verrucomicrobiales | | | | 0.8155 | 0.6721 | 0.1262 | 0.5387 | 0.1868 | 0.4697 | 0.734 | 0.4927 | 0.8824 | 0.5653 | 0.8226 | 0.3209 | 0.0593 | 0.6827 | 0.4247 | 0.2202 | 0.8788 | 0.1969 | 0.0803 | 0.07 | |
| Verrucomicrobiales | | | | 0.4464 | 0.5068 | 0.0707 | 0.0357 | 0.2066 | 0.9203 | 0.5459 | 0.1555 | 0.6958 | 0.5649 | 0.3983 | 0.3209 | 0.24 | 0.152 | 0.6317 | 0.0131 | 0.9498 | 0.2187 | 0.1161 | 0.07 | |
| Lactobacillales | | | | 0.9223 | 0.3728 | 0.0537 | 0.4128 | 0.3232 | 0.3399 | 0.9812 | 0.2538 | 0.7256 | 0.8205 | 0.8986 | 0.0593 | 0.24 | 0.4419 | 0.2216 | 0.1816 | 0.5993 | 0.0427 | 0.0257 | 0.07 | |
| Clostridiales | | | | 0.1299 | 0.234 | 0.2633 | 0.0803 | 0.649 | 0.8613 | 0.1705 | 0.0431 | 0.9206 | 0.0537 | 0.2163 | 0.6827 | 0.152 | 0.4419 | 0.5202 | 0.2398 | 0.6066 | 0.2696 | 0.3359 | 0.17 | |
| unclassified | | | | 0.8628 | 0.1116 | 0.3767 | 0.743 | 0.9349 | 0.0646 | 0.8313 | 0.2974 | 0.2265 | 0.5248 | 0.8515 | 0.4247 | 0.6317 | 0.2216 | 0.5202 | 0.6202 | 0.1184 | 0.1377 | 0.3415 | 0.30 | |
| Erysipelotrichales | | | | 0.5879 | 0.5676 | 0.0435 | 0.0891 | 0.1319 | 0.8705 | 0.6946 | 0.2122 | 0.0743 | 0.4887 | 0.5241 | 0.2202 | 0.0131 | 0.1816 | 0.2398 | 0.6020 | 0.9931 | 0.2041 | 0.0732 | 0.0041 | |
| TM7_order_incertae_sedi | | | | 0.7332 | 0.1138 | 0.7509 | 0.9602 | 0.6078 | 0.1685 | 0.6476 | 0.4447 | 0.1259 | 0.1715 | 0.9156 | 0.8788 | 0.9498 | 0.5993 | 0.6066 | 0.1184 | 0.9931 | 0.4192 | 0.7339 | 0.62 | |
| undclassified | | | | 0.6842 | 0.1818 | 0.0666 | 0.333 | 0.4824 | 0.3171 | 0.722 | 0.1088 | 0.6502 | 0.9687 | 0.8364 | 0.1969 | 0.2187 | 0.0427 | 0.2696 | 0.1377 | 0.2041 | 0.4192 | 0.0618 | 0.03 | |
| "Bacteroidales" | | | | 0.7859 | 0.419 | 0.0065 | 0.2585 | 0.2185 | 0.5174 | 0.864 | 0.2022 | 0.9319 | 0.6839 | 0.819 | 0.0803 | 0.1161 | 0.0257 | 0.3359 | 0.3415 | 0.0732 | 0.7339 | 0.0618 | 0.03 | |

Family 1: Family Chrysomelidae



Ahr -/+
Phyla v Metabolite Pearson correlation r

| | "Deferrribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | unclassified | "Bacteroidetes" |
|---------------------|--------------------|------------------|------------------|---------------|-------------------|------------|----------|--------------|-----------------|
| cecal butyrate | -0.1276 | 0.7912 | -0.5523 | -0.9127 | 0.4636 | -0.9331 | 0.1062 | -0.4008 | 0.9595 |
| cecal propionate | 0.14 | 0.8372 | -0.3105 | -0.8705 | 0.6856 | -0.9554 | 0.1069 | -0.4587 | 0.9413 |
| cecal acetate | -0.969 | -0.5069 | -0.7771 | -0.08862 | -0.8543 | 0.1784 | 0.3047 | 0.5754 | -0.04925 |
| cecal baa | 0.3779 | 0.6764 | -0.04206 | -0.814 | 0.8652 | -0.9358 | 0.3102 | -0.2819 | 0.8749 |
| cecal lactate | 0.2768 | 0.7587 | -0.1641 | -0.8551 | 0.7997 | -0.962 | 0.2275 | -0.3633 | 0.9211 |
| cecal alanine | 0.5469 | 0.6907 | 0.1414 | -0.6871 | 0.9439 | -0.852 | 0.2133 | -0.3615 | 0.7693 |
| cecal lysine | 0.4778 | 0.4477 | 0.1283 | -0.7196 | 0.8923 | -0.8426 | 0.493 | -0.05885 | 0.7558 |
| cecal glutamate | 0.3016 | 0.5298 | 0.2687 | 0.4529 | 0.0188 | 0.3143 | -0.9916 | -0.8774 | -0.3132 |
| cecal tyrosine | 0.6465 | 0.7805 | 0.4316 | 0.1283 | 0.5419 | -0.09901 | -0.7746 | -0.9512 | 0.04202 |
| cecal phenylalanine | 0.7941 | 0.6869 | 0.4469 | -0.3871 | 0.9887 | -0.6168 | -0.03095 | -0.5173 | 0.5059 |
| cecal glucose | -0.1598 | -0.2971 | 0.1511 | 0.8613 | -0.6811 | 0.8944 | -0.7053 | -0.1792 | -0.8454 |
| cecal oligosacc | -0.6017 | -0.229 | -0.6849 | -0.7238 | -0.1205 | -0.5413 | 0.8521 | 0.6583 | 0.596 |

Ahr -/+
Phyla v Metabolite Pearson correlation p

| | "Deferrribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | unclassified | "Bacteroidetes" |
|---------------------|--------------------|------------------|------------------|---------------|-------------------|------------|--------|--------------|-----------------|
| cecal butyrate | 0.8724 | 0.2088 | 0.4477 | 0.0873 | 0.5364 | 0.0669 | 0.8938 | 0.5992 | 0.0405 |
| cecal propionate | 0.86 | 0.1628 | 0.6895 | 0.1295 | 0.3144 | 0.0446 | 0.8935 | 0.5413 | 0.0587 |
| cecal acetate | 0.031 | 0.4931 | 0.2229 | 0.9114 | 0.1457 | 0.8216 | 0.6953 | 0.4246 | 0.9507 |
| cecal baa | 0.6221 | 0.3236 | 0.9579 | 0.186 | 0.1348 | 0.0642 | 0.6898 | 0.7181 | 0.1251 |
| cecal lactate | 0.7232 | 0.2413 | 0.8359 | 0.1449 | 0.2003 | 0.038 | 0.7725 | 0.6367 | 0.0789 |
| cecal alanine | 0.4531 | 0.3093 | 0.8586 | 0.3129 | 0.0561 | 0.148 | 0.7869 | 0.6385 | 0.2307 |
| cecal lysine | 0.5222 | 0.5523 | 0.8717 | 0.2804 | 0.1077 | 0.1574 | 0.505 | 0.9412 | 0.2442 |
| cecal glutamate | 0.6984 | 0.4702 | 0.7313 | 0.5471 | 0.9812 | 0.6857 | 0.0084 | 0.1226 | 0.6868 |
| cecal tyrosine | 0.3535 | 0.2195 | 0.5684 | 0.8717 | 0.4581 | 0.901 | 0.2254 | 0.0488 | 0.958 |
| cecal phenylalanine | 0.2059 | 0.3131 | 0.5531 | 0.6129 | 0.0113 | 0.3832 | 0.969 | 0.4827 | 0.4941 |
| cecal glucose | 0.8402 | 0.7029 | 0.8389 | 0.1387 | 0.3189 | 0.1059 | 0.2947 | 0.8208 | 0.1546 |
| cecal oligosacc | 0.3983 | 0.771 | 0.3151 | 0.2762 | 0.8795 | 0.4587 | 0.1479 | 0.3417 | 0.404 |

Ahr -/-
Phyla v Metabolite Pearson correlation r

| | "Deferrribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | unclassified | "Bacteroidetes" |
|---------------------|--------------------|------------------|------------------|---------------|-------------------|------------|---------|--------------|-----------------|
| cecal butyrate | -0.7403 | 0.3043 | -0.6262 | 0.8489 | 0.3548 | -0.5793 | 0.1419 | 0.5085 | 0.5986 |
| cecal propionate | 0.8501 | -0.2019 | 0.6751 | -0.9665 | -0.0385 | 0.2969 | -0.2009 | -0.2654 | -0.3175 |
| cecal acetate | 0.5602 | 0.25 | 0.9325 | -0.8141 | 0.02859 | 0.1102 | -0.6193 | 0.05626 | -0.1425 |
| cecal baa | 0.1826 | 0.6983 | 0.945 | -0.5031 | 0.3127 | -0.3103 | -0.8929 | 0.5333 | 0.275 |
| cecal lactate | 0.7258 | -0.1464 | 0.05366 | -0.6532 | 0.8051 | -0.5562 | 0.1538 | 0.3392 | 0.5583 |
| cecal alanine | 0.2855 | 0.6212 | 0.6592 | -0.4962 | 0.7513 | -0.6969 | -0.6565 | 0.7666 | 0.673 |
| cecal lysine | -0.1823 | 0.924 | 0.7121 | -0.1128 | 0.5288 | -0.6422 | -0.9058 | 0.8498 | 0.6135 |
| cecal glutamate | -0.2412 | -0.6549 | -0.9486 | 0.5548 | -0.3139 | 0.2909 | 0.8657 | -0.5025 | -0.2559 |
| cecal tyrosine | 0.5151 | 0.128 | 0.8961 | -0.7572 | -0.2407 | 0.3675 | -0.5485 | -0.1764 | -0.3986 |
| cecal phenylalanine | 0.3202 | 0.1557 | 0.8641 | -0.5755 | -0.4542 | 0.5153 | -0.5733 | -0.2715 | -0.5463 |
| cecal glucose | 0.734 | -0.9028 | -0.1407 | -0.5648 | -0.4417 | 0.7135 | 0.623 | -0.8704 | -0.7034 |
| cecal oligosacc | 0.5201 | -0.9876 | -0.4686 | -0.2637 | -0.473 | 0.6902 | 0.8349 | -0.8999 | -0.6687 |

Ahr -/-
Phyla v Metabolite Pearson correlation p

| | "Deferrribacteres" | "Actinobacteria" | "Proteobacteria" | "Tenericutes" | "Verrucomicrobia" | Firmicutes | TM7 | unclassified | "Bacteroidetes" |
|---------------------|--------------------|------------------|------------------|---------------|-------------------|------------|--------|--------------|-----------------|
| cecal butyrate | 0.2597 | 0.6957 | 0.3738 | 0.1511 | 0.6452 | 0.4207 | 0.8581 | 0.4915 | 0.4014 |
| cecal propionate | 0.1499 | 0.7981 | 0.3249 | 0.0335 | 0.9615 | 0.7031 | 0.7991 | 0.7346 | 0.6825 |
| cecal acetate | 0.4398 | 0.75 | 0.0675 | 0.1859 | 0.9714 | 0.8898 | 0.3807 | 0.9437 | 0.8575 |
| cecal baa | 0.8174 | 0.3017 | 0.055 | 0.4969 | 0.6873 | 0.6897 | 0.1071 | 0.4667 | 0.725 |
| cecal lactate | 0.2742 | 0.8536 | 0.9463 | 0.3468 | 0.1949 | 0.4438 | 0.8462 | 0.6608 | 0.4417 |
| cecal alanine | 0.7145 | 0.3788 | 0.3408 | 0.5038 | 0.2487 | 0.3031 | 0.3435 | 0.2334 | 0.327 |
| cecal lysine | 0.8177 | 0.076 | 0.2879 | 0.8872 | 0.4712 | 0.3578 | 0.0942 | 0.1502 | 0.3865 |
| cecal glutamate | 0.7588 | 0.3451 | 0.0514 | 0.4457 | 0.6861 | 0.7091 | 0.1343 | 0.4975 | 0.7441 |
| cecal tyrosine | 0.4849 | 0.872 | 0.1039 | 0.2428 | 0.7593 | 0.6325 | 0.4515 | 0.8236 | 0.6014 |
| cecal phenylalanine | 0.6798 | 0.8443 | 0.1359 | 0.4245 | 0.5458 | 0.4847 | 0.4267 | 0.7285 | 0.4537 |
| cecal glucose | 0.266 | 0.0972 | 0.8593 | 0.4352 | 0.5583 | 0.2865 | 0.379 | 0.1296 | 0.2966 |
| cecal oligosacc | 0.4799 | 0.0124 | 0.5314 | 0.7363 | 0.527 | 0.3098 | 0.1655 | 0.1001 | 0.3313 |

Ahr -/+

Class v Metabolite Pearson correlation r

| | Deferrabact eres | Actinobacte ria | Alphaprote obacteria | Betaproteo bacteria | Deltaproteo bacteria | Epsilonprot eobacteria | unclassified | Mollicutes | Verrucomic robiae | Bacilli | Clostridia | Erysipelotri chia | unclassified | TM7_class_i | unclassified | "Bacteroidi a" | unclassified |
|---------------------|------------------|-----------------|----------------------|---------------------|----------------------|------------------------|--------------|------------|-------------------|---------|------------|-------------------|--------------|-------------|--------------|----------------|--------------|
| cecal butyrate | -0.1276 | 0.703 | -0.8693 | 0.8787 | 0.493 | -0.5267 | 0.1948 | -0.9127 | 0.4635 | 0.2582 | -0.9256 | -0.9748 | -0.862 | 0.1093 | -0.4008 | 0.5297 | 0.931 |
| cecal propionate | 0.14 | 0.0378 | -0.8266 | 0.8153 | 0.4549 | -0.2796 | 0.4487 | -0.8705 | 0.8556 | 0.09093 | -0.9447 | -0.95 | -0.7031 | 0.1086 | -0.4587 | 0.5231 | 0.8846 |
| cecal acetate | -0.969 | 0.5068 | -0.1272 | -0.1179 | 0.3237 | -0.7063 | -0.9897 | -0.08862 | 0.8543 | 0.7322 | 0.3124 | 0.0141 | -0.3064 | 0.3047 | -0.1151 | -0.0533 | -0.01275 |
| cecal baa | 0.3779 | 0.0765 | -0.7932 | 0.3528 | 0.5421 | 0.2794 | 0.6049 | -0.814 | 0.04006 | 0.09453 | -0.9296 | -0.8632 | 0.406 | 0.3102 | -0.2818 | 0.0692 | 0.3947 |
| cecal lactate | 0.2708 | 0.756 | -0.8239 | 0.6788 | 0.510 | -0.09529 | 0.5533 | -0.8531 | 0.799 | 0.0349 | -0.9538 | -0.9181 | -0.546 | 0.247 | -0.5633 | 0.5195 | 0.7175 |
| cecal alanine | 0.3469 | 0.6901 | -0.6617 | 0.4934 | 0.4089 | 0.2116 | 0.7599 | -0.6871 | 0.943 | 0.07208 | -0.8419 | -0.7579 | -0.2752 | 0.2133 | -0.3615 | 0.7819 | 0.5001 |
| cecal lysine | 0.4778 | 0.447 | -0.7251 | 0.2768 | 0.6114 | 0.2796 | 0.6451 | -0.7196 | 0.892 | 0.1908 | -0.8427 | -0.7272 | -0.1461 | 0.0108 | -0.0588 | 0.1786 | 0.3273 |
| cecal glutamate | 0.3016 | 0.5298 | 0.5368 | 0.4062 | -0.892 | -0.01412 | 0.3321 | 0.4529 | 0.018 | -0.8739 | -0.4841 | -0.865 | -0.1027 | -0.9916 | -0.8774 | -0.3879 | 0.2548 |
| cecal tyrosine | 0.6465 | 0.7805 | 0.2129 | 0.5277 | -0.6283 | 0.2176 | 0.7526 | 0.1283 | 0.5413 | -0.8808 | -0.6534 | -0.8585 | -0.1157 | -0.7746 | -0.9512 | -0.01185 | 0.3862 |
| cecal phenylalanine | 0.7941 | 0.6869 | -0.3508 | 0.3836 | 0.08958 | 0.4514 | 0.943 | -0.3871 | 0.988 | -0.4092 | -0.599 | -0.4994 | -0.0428 | -0.03095 | -0.5173 | 0.5133 | 0.3398 |
| cecal glucose | -0.1598 | 0.2971 | -0.6933 | -0.2566 | -0.8482 | -0.04524 | 0.3404 | 0.9635 | -0.6811 | -0.4806 | -0.3038 | 0.3233 | 0.2903 | -0.7053 | -0.1792 | -0.8893 | -0.3608 |
| cecal oligosacc | 0.6017 | 0.229 | -0.7788 | 0.02915 | 0.360 | -0.4494 | 0.4971 | -0.7238 | 0.1203 | 0.5719 | -0.5687 | -0.5661 | -0.3846 | 0.4521 | 0.0593 | 0.6355 | 0.197 |

Ahr -/+

Class v Metabolite Pearson correlation p

| | Deferrabact eres | Actinobacte ria | Alphaprote obacteria | Betaproteo bacteria | Deltaproteo bacteria | Epsilonprot eobacteria | unclassified | Mollicutes | Verrucomic robiae | Bacilli | Clostridia | Erysipelotri chia | unclassified | TM7_class_i | unclassified | "Bacteroidi a" | unclassified |
|---------------------|------------------|-----------------|----------------------|---------------------|----------------------|------------------------|--------------|------------|-------------------|---------|------------|-------------------|--------------|-------------|--------------|----------------|--------------|
| cecal butyrate | 0.8724 | 0.2088 | 0.1308 | 0.1213 | 0.5047 | 0.4733 | 0.8002 | 0.0873 | 0.5364 | 0.7518 | 0.0744 | 0.0252 | 0.138 | 0.8938 | 0.5992 | 0.0703 | 0.0682 |
| cecal propionate | 0.86 | 0.1628 | 0.1734 | 0.1849 | 0.5456 | 0.7204 | 0.5513 | 0.1295 | 0.3144 | 0.9031 | 0.0553 | 0.05 | 0.2969 | 0.8935 | 0.5413 | 0.0779 | 0.1512 |
| cecal acetate | 0.031 | 0.4931 | 0.8728 | 0.8821 | 0.6767 | 0.2937 | 0.0103 | 0.9114 | 0.1457 | 0.2578 | 0.8445 | 0.9526 | 0.6936 | 0.6953 | 0.4246 | 0.9469 | 0.9873 |
| cecal baa | 0.6221 | 0.3236 | 0.2068 | 0.4474 | 0.4549 | 0.947 | 0.3794 | 0.186 | 0.1348 | 0.9055 | 0.0704 | 0.1368 | 0.594 | 0.6898 | 0.7181 | 0.1131 | 0.4071 |
| cecal lactate | 0.7232 | 0.2413 | 0.3212 | 0.4831 | 0.9047 | 0.4467 | 0.1449 | 0.2003 | 0.8999 | 0.0462 | 0.0819 | 0.454 | 0.7725 | 0.6367 | 0.0805 | 0.2827 | |
| cecal alanine | 0.4531 | 0.3093 | 0.3383 | 0.5046 | 0.5911 | 0.7884 | 0.2403 | 0.3129 | 0.0561 | 0.9229 | 0.1581 | 0.2421 | 0.7248 | 0.7869 | 0.6385 | 0.2181 | 0.4919 |
| cecal lysine | 0.5222 | 0.5523 | 0.2763 | 0.7232 | 0.3826 | 0.7205 | 0.3549 | 0.2804 | 0.1077 | 0.8492 | 0.1573 | 0.2728 | 0.8539 | 0.505 | 0.9412 | 0.206 | 0.6707 |
| cecal glutamate | 0.6984 | 0.4702 | 0.4634 | 0.5938 | 0.108 | 0.9859 | 0.6679 | 0.5471 | 0.9812 | 0.1261 | 0.6539 | 0.7386 | 0.8973 | 0.0084 | 0.1226 | 0.6121 | 0.7496 |
| cecal tyrosine | 0.3535 | 0.2195 | 0.7877 | 0.4723 | 0.3717 | 0.7624 | 0.2474 | 0.8717 | 0.4581 | 0.1192 | 0.9349 | 0.9215 | 0.8843 | 0.2254 | 0.0488 | 0.9881 | 0.6138 |
| cecal phenylalanine | 0.2059 | 0.3131 | 0.6492 | 0.6164 | 0.9104 | 0.5486 | 0.059 | 0.6129 | 0.0113 | 0.5908 | 0.401 | 0.5006 | 0.9572 | 0.969 | 0.4827 | 0.4867 | 0.6602 |
| cecal glucose | 0.8402 | 0.7029 | 0.1167 | 0.7434 | 0.1518 | 0.9548 | 0.6596 | 0.1387 | 0.3189 | 0.5194 | 0.0962 | 0.1877 | 0.7197 | 0.2947 | 0.8208 | 0.1107 | 0.6392 |
| cecal oligosacc | 0.3983 | 0.771 | 0.2212 | 0.9708 | 0.0536 | 0.5506 | 0.5029 | 0.2762 | 0.8795 | 0.022 | 0.4313 | 0.6154 | 0.1479 | 0.3417 | 0.3645 | 0.8023 | |

Ahr -/-

Class v Metabolite Pearson correlation r

| | Deferrabact eres | Actinobacte ria | Alphaprote obacteria | Betaproteo bacteria | Deltaproteo bacteria | Epsilonprot eobacteria | unclassified | Mollicutes | Verrucomic robiae | Bacilli | Clostridia | Erysipelotri chia | unclassified | TM7_class_i | unclassified | "Bacteroidi a" | unclassified |
|---------------------|------------------|-----------------|----------------------|---------------------|----------------------|------------------------|--------------|------------|-------------------|---------|------------|-------------------|--------------|-------------|--------------|----------------|--------------|
| cecal butyrate | -0.7403 | 0.9044 | 0.7046 | -0.7404 | -0.5646 | -0.4586 | 0.6489 | 0.0468 | -0.9189 | -0.4578 | 0.0567 | -0.8609 | -0.4149 | 0.5488 | -0.6475 | -0.7198 | |
| cecal propionate | -0.8903 | 0.2019 | -0.4582 | 0.5328 | -0.774 | 0.6496 | 0.349 | -0.9665 | 0.7499 | 0.079 | 0.1419 | 0.6431 | -0.2009 | -0.2654 | -0.3555 | -0.4948 | |
| cecal acetate | 0.5602 | 0.23 | -0.245 | -0.579 | -0.1762 | 0.9214 | 0.6573 | -0.8141 | 0.02859 | 0.5758 | -0.5444 | 0.5196 | 0.5182 | -0.6193 | 0.0562 | -0.1596 | 0.224 |
| cecal baa | 0.1826 | 0.6983 | 0.2188 | -0.2975 | -0.6373 | 0.9773 | 0.6895 | -0.5031 | 0.3127 | 0.1093 | -0.4665 | 0.9822 | 0.08031 | -0.8929 | 0.5333 | 0.2775 | -0.2761 |
| cecal lactate | 0.7258 | 0.1464 | 0.4107 | 0.5246 | 0.2211 | 0.1358 | -0.4933 | -0.6532 | 0.8095 | -0.1612 | -0.5729 | 0.253 | -0.3177 | 0.1538 | 0.3392 | 0.5079 | -0.2876 |
| cecal alanine | 0.2855 | 0.3123 | 0.5867 | 0.207 | -0.5491 | 0.7436 | 0.249 | -0.4902 | 0.7813 | -0.2473 | -0.8043 | 0.8965 | -0.3291 | -0.5665 | 0.2766 | 0.6598 | -0.5815 |
| cecal lysine | -0.1823 | 0.924 | 0.6083 | 0.06324 | -0.8892 | 0.7897 | 0.5176 | -0.1128 | 0.5282 | -0.3573 | -0.7506 | 0.85 | -0.3593 | -0.9058 | 0.3498 | 0.6313 | -0.6771 |
| cecal glutamate | -0.2412 | 0.6549 | -0.1905 | 0.3071 | -0.4 | -0.9797 | -0.6727 | 0.654 | 0.3139 | -0.1469 | 0.440 | -0.2601 | -0.1102 | 0.6404 | 0.5025 | -0.2549 | 0.2447 |
| cecal tyrosine | 0.5101 | 0.112 | -0.4821 | -0.7731 | -0.0705 | 0.053 | 0.7894 | -0.7572 | 0.240 | 0.732 | 0.2074 | 0.333 | 0.7206 | -0.5485 | -0.1764 | -0.4107 | 0.4447 |
| cecal phenylalanine | 0.3202 | 0.4556 | -0.59 | -0.902 | -0.18 | 0.7994 | 0.6548 | -0.5755 | -0.4542 | 0.7887 | 0.3626 | 0.5253 | 0.7986 | -0.5733 | -0.2715 | -0.545 | 0.3244 |
| cecal glucose | 0.714 | -0.9028 | -0.7963 | -0.3914 | 0.9226 | -0.2114 | -0.2105 | -0.5648 | -0.441 | 0.7886 | 0.7126 | -0.7255 | 0.7225 | 0.64 | -0.8704 | -0.7446 | 0.8842 |
| cecal oligosacc | 0.6243 | 0.9876 | -0.7221 | -0.2027 | 0.980 | -0.5376 | -0.4281 | -0.2637 | -0.473 | 0.5932 | 0.782 | -0.9147 | 0.5402 | 0.0335 | -0.8999 | -0.702 | 0.81 |

Ahr -/-

Class v Metabolite Pearson correlation p

| | Deferrabact eres | Actinobacte ria | Alphaprote obacteria | Betaproteo bacteria | Deltaproteo bacteria | Epsilonprot eobacteria | unclassified | Mollicutes | Verrucomic robiae | Bacilli | Clostridia | Erysipelotri chia | unclassified | TM7_class_i | unclassified | "Bacteroidi a" | unclassified |
|------------------|------------------|-----------------|----------------------|---------------------|----------------------|------------------------|--------------|---------------|-------------------|---------|------------|-------------------|--------------|-------------|--------------|----------------|--------------|
| cecal butyrate | 0.2597 | 0.6957 | 0.292 | 0.251 | 0.6406 | 0.4354 | 0.5414 | 0.1511 | 0.6452 | 0.0811 | 0.5422 | 0.9433 | 0.1391 | 0.8581 | 0.4915 | 0.3725 | 0.2802 |
| cecal propionate | 0.1499 | 0.7981 | 0.5418 | 0.4672 | 0.7226 | 0.3504 | 0.651 | 0.0335 | 0.9615 | 0.2501 | 0.8321 | 0.8581 | 0.3459 | 0.7991 | 0.7346 | 0.6445 | 0.5062 |
| cecal acetate | 0.4398 | 0.75 | 0.755 | 0.421 | 0.8218 | 0.0786 | 0.3427 | 0.1859 | 0.9714 | 0.4244 | 0.9456 | 0.4804 | 0.4818 | 0.3807 | 0.9437 | 0.8404 | 0.7779 |
| cecal baa | 0.8174 | 0.3017 | 0.7812 | 0.7025 | 0.3629 | 0.0227 | 0.3105 | 0.4969 | 0.6873 | 0.8907 | 0.5335 | 0.1176 | 0.9197 | 0.1071 | 0.4667 | 0.7225 | 0.7239 |
| cecal lactate | 0.2742 | 0.8536 | 0.5893 | 0.4754 | 0.7789 | 0.8642 | 0.5067 | 0.3468 | 0.1949 | 0.8388 | 0.4271 | 0.7469 | 0.6823 | 0.8462 | 0.6608 | 0.4925 | 0.7124 |
| cecal alanine | 0.7145 | 0.3788 | 0.4133 | 0.793 | 0.4509 | 0.2564 | 0.7703 | 0.5038 | 0.2487 | 0.7527 | 0.1957 | 0.1036 | 0.6709 | 0.3435 | 0.2334 | 0.3404 | 0.4185 |
| cecal lysine | 0.8177 | 0.076 | 0.3917 | 0.9368 | 0.1148 | 0.2203 | 0.4824 | 0.8872 | 0.4712 | 0.6427 | 0.2494 | 0.002 | 0.6407 | 0.0942 | 0.1502 | 0.3689 | 0.3229 |
| cecal glutamate | 0.7588 | 0.3451 | 0.8095 | 0.6929 | 0.41 | 0.0203 | 0.3273 | 0.4457 | 0.6861 | 0.8531 | 0.5511 | 0.1399 | 0.8898 | 0.1343 | 0.4975 | 0.7451 | 0.7592 |
| cecal tyrosine | 0.8484 | 0.872 | 0.5179 | 0.2269 | 0.9295 | 0.147 | 0.2608 | 0.2428 | 0.759 | 0.248 | | | | | | | |

| Ahr-/- | | Order v Metabolite Pearson correlation r | | Deferrribact | | Coriobacteri unclassified | | Burkholderi unclassified | | Bdellovibrio unclassified | | Desulfovibr | | Campylobac unclassified | | Anaeropla | | Verrucomic | | Lactobacilli | | Clostridiales unclassified | | Erysipelotri | | unclassified | | TM7_order | | unclassified | | "Bacteroida unclassified | | | |
|---------------------|--|--|---------|--------------|---------|---------------------------|----------|--------------------------|-----------|---------------------------|---------|-------------|---------|-------------------------|---------|-----------|---------|------------|----------|--------------|---------|----------------------------|---------|--------------|---------|--------------|---------|-----------|---------|--------------|---------|--------------------------|---------|--------|--------|
| | | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | | | | |
| cecal butyrate | | -0.327 | 0.079 | -0.699 | 0.564 | -0.603 | -0.064 | -0.031 | 0.570 | -0.526 | 0.489 | -0.912 | 0.563 | -0.544 | -0.929 | 0.11 | -0.974 | -0.86 | -0.908 | 0.4008 | -0.097 | -0.911 | -0.86 | -0.86 | -0.098 | -0.097 | -0.911 | -0.86 | -0.098 | -0.911 | | | | | |
| cecal propionate | | 0.318 | -0.048 | -0.260 | 0.780 | 0.047 | 0.520 | -0.052 | 0.479 | -0.276 | 0.486 | -0.876 | 0.580 | 0.01264 | -0.943 | -0.936 | -0.95 | -0.703 | 0.190 | -0.587 | 0.0233 | -0.086 | -0.587 | -0.304 | -0.086 | -0.587 | -0.304 | -0.086 | -0.587 | -0.304 | | | | | |
| cecal acetate | | -0.969 | 0.4560 | -0.1281 | -0.0452 | -0.408 | -0.826 | 0.105 | 0.433 | -0.7063 | -0.8897 | -0.8862 | -0.8541 | 0.7449 | -0.8861 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | -0.849 | | | | |
| cecal baa | | 0.4770 | -0.049 | -0.7927 | 0.4993 | 0.735 | -0.785 | 0.00803 | 0.5944 | -0.809 | 0.4299 | -0.818 | 0.8552 | 0.00 | -0.9113 | 0.6042 | -0.8632 | -0.409 | 0.3102 | -0.2819 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | | | | |
| cecal lactate | | 0.2705 | 0.7296 | -0.250 | 0.6129 | 0.8227 | 0.682 | 0.4059 | -0.6924 | 0.355 | 0.479 | 0.795 | 0.795 | 0.5000 | -0.8876 | 0.5424 | -0.5000 | -0.8876 | 0.5424 | -0.5000 | -0.8876 | 0.5424 | -0.5000 | -0.8876 | 0.5424 | -0.5000 | -0.8876 | 0.5424 | -0.5000 | -0.8876 | 0.5424 | | | | |
| cecal alanine | | 0.2040 | -0.0511 | -0.1258 | 0.1028 | 0.16 | 0.0224 | 0.0079 | 0.1209 | 0.0079 | 0.0079 | 0.0079 | 0.0079 | 0.0079 | -0.7579 | -0.275 | -0.1121 | -0.117 | -0.7746 | -0.9512 | -0.1185 | 0.3905 | -0.2271 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | | | | |
| cecal lysine | | 0.1739 | 0.3130 | -0.7316 | 0.1104 | 0.2104 | 0.0504 | 0.0079 | 0.3310 | 0.0079 | 0.0079 | 0.0079 | 0.0079 | 0.0079 | -0.8465 | -0.3130 | -0.7317 | -0.146 | -0.8465 | -0.3130 | -0.7317 | -0.146 | -0.8465 | -0.3130 | -0.7317 | -0.146 | -0.8465 | -0.3130 | -0.7317 | -0.146 | | | | | |
| cecal glutamate | | 0.3016 | 0.5531 | -0.3216 | 0.403 | 0.851 | -0.402 | -0.042 | -0.402 | 0.574 | -0.0113 | 0.8574 | -0.0113 | 0.8135 | -0.1209 | 0.8558 | -0.8734 | -0.8465 | -0.501 | -0.1027 | -0.8015 | -0.8776 | -0.5579 | -0.2105 | -0.8015 | -0.8776 | -0.5579 | -0.2105 | | | | | | | |
| cecal tyrosine | | 0.0465 | 0.7307 | -0.2117 | 0.4993 | 0.604 | -0.051 | -0.0069 | 0.6496 | -0.1209 | 0.7526 | 0.1208 | 0.3411 | -0.8282 | -0.0685 | -0.1121 | -0.0785 | -0.1157 | -0.7746 | -0.9512 | -0.1185 | 0.3905 | -0.2271 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | -0.2271 | 0.8869 | 0.5000 | | | | |
| cecal phenylalanine | | 0.7841 | 0.3349 | -0.3701 | 0.3114 | 0.6532 | 0.321 | -0.2775 | -0.002719 | 0.4714 | 0.9305 | -0.3871 | 0.9881 | -0.4332 | -0.602 | -0.8015 | -0.4994 | -0.0428 | -0.03095 | -0.5173 | -0.3137 | -0.8137 | -0.3137 | -0.8137 | -0.3137 | -0.8137 | -0.3137 | -0.8137 | | | | | | | |
| cecal glucose | | -0.1598 | 0.2531 | -0.084 | -0.216 | -0.4053 | -0.6893 | -0.0326 | -0.7922 | -0.0424 | -0.3404 | -0.861 | -0.6811 | -0.4767 | -0.8601 | -0.7958 | -0.8186 | -0.8601 | -0.7053 | -0.1792 | -0.8593 | -0.8601 | -0.7053 | -0.1792 | -0.8593 | -0.8601 | -0.7053 | -0.1792 | -0.8593 | -0.8601 | | | | | |
| cecal oligosacc | | -0.6017 | 0.2286 | -0.7785 | 0.4506 | -0.06091 | -0.06975 | 0.3707 | 0.3708 | -0.4494 | -0.4971 | -0.7238 | -0.1205 | -0.0777 | -0.569 | -0.5103 | -0.5661 | -0.3846 | -0.0627 | -0.0683 | -0.6743 | -0.6743 | -0.0627 | -0.0683 | -0.6743 | -0.6743 | -0.0627 | -0.0683 | -0.6743 | -0.6743 | | | | | |
| Ahr-/- | | Order v Metabolite Pearson correlation r | | Deferrribact | | Coriobacteri unclassified | | Burkholderi unclassified | | Bdellovibrio unclassified | | Desulfovibr | | Campylobac unclassified | | Anaeropla | | Verrucomic | | Lactobacilli | | Clostridiales unclassified | | Erysipelotri | | unclassified | | TM7_order | | unclassified | | "Bacteroida unclassified | | | |
| | | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | erales | ales | | | | |
| cecal butyrate | | 0.8724 | 0.21 | 0.1301 | 0.136 | 0.1167 | 0.7152 | 0.9897 | 0.4625 | 0.4733 | 0.8002 | 0.0873 | 0.5364 | 0.7556 | 0.0771 | 0.85 | 0.0252 | 0.138 | 0.8938 | 0.5092 | 0.0703 | 0.0682 | 0.8938 | 0.5092 | 0.0703 | 0.0682 | 0.8938 | 0.5092 | 0.0703 | 0.0682 | 0.8938 | 0.5092 | 0.0703 | 0.0682 | |
| cecal propionate | | 0.86 | 0.1812 | 0.2171 | 0.2194 | 0.0953 | 0.4736 | 0.9347 | 0.5421 | 0.7204 | 0.5513 | 0.3144 | 0.0704 | 0.0564 | 0.6568 | 0.05 | 0.2969 | 0.8935 | 0.5413 | 0.0779 | 0.1512 | 0.8935 | 0.5413 | 0.0779 | 0.1512 | 0.8935 | 0.5413 | 0.0779 | 0.1512 | 0.8935 | 0.5413 | 0.0779 | 0.1512 | | |
| cecal acetate | | 0.5432 | 0.8719 | 0.0335 | 0.5929 | 0.175 | 0.4835 | 0.568 | 0.2937 | 0.0303 | 0.9114 | 0.1457 | 0.2552 | 0.849 | 0.0451 | 0.5151 | 0.9526 | 0.6936 | 0.6953 | 0.4246 | 0.9469 | 0.9873 | 0.1621 | 0.4246 | 0.9469 | 0.9873 | 0.1621 | 0.4246 | 0.9469 | 0.9873 | 0.1621 | 0.4246 | 0.9469 | 0.9873 | |
| cecal baa | | 0.6222 | 0.3654 | 0.2073 | 0.5007 | 0.265 | 0.2165 | 0.907 | 0.0506 | 0.947 | 0.3794 | 0.186 | 0.1346 | 0.9074 | 0.0687 | 0.3378 | 0.1368 | 0.509 | 0.1781 | 0.1131 | 0.4071 | 0.1131 | 0.4071 | 0.1131 | 0.4071 | 0.1131 | 0.4071 | 0.1131 | 0.4071 | 0.1131 | 0.4071 | 0.1131 | | | |
| cecal lactate | | 0.7232 | 0.2734 | 0.1763 | 0.3671 | 0.1773 | 0.3177 | 0.9731 | 0.5105 | 0.9047 | 0.4467 | 0.1449 | 0.2003 | 0.9044 | 0.0457 | 0.4674 | 0.0819 | 0.7725 | 0.6367 | 0.0805 | 0.2827 | 0.6367 | 0.0805 | 0.2827 | 0.6367 | 0.0805 | 0.2827 | 0.6367 | 0.0805 | 0.2827 | 0.6367 | 0.0805 | | | |
| cecal alanine | | 0.4531 | 0.3574 | 0.3889 | 0.5672 | 0.2813 | 0.13 | 0.9768 | 0.6068 | 0.7884 | 0.2403 | 0.3129 | 0.5031 | 0.051 | 0.184 | 0.1558 | 0.3062 | 0.2421 | 0.7248 | 0.7869 | 0.2181 | 0.4919 | 0.2181 | 0.4919 | 0.2181 | 0.4919 | 0.2181 | 0.4919 | 0.2181 | 0.4919 | 0.2181 | | | | |
| cecal lysine | | 0.6984 | 0.4469 | -0.4647 | 0.598 | 0.6024 | 0.851 | -0.073 | 0.1426 | 0.9859 | 0.6679 | 0.5471 | 0.9812 | 0.1266 | 0.6562 | 0.409 | 0.7386 | 0.8973 | 0.0804 | 0.1236 | 0.6121 | 0.7496 | 0.0804 | 0.1236 | 0.6121 | 0.7496 | 0.0804 | 0.1236 | 0.6121 | 0.7496 | 0.0804 | 0.1236 | | | |
| cecal glutamate | | 0.6984 | 0.4469 | -0.4647 | 0.598 | 0.6024 | 0.851 | -0.073 | 0.1426 | 0.9859 | 0.6679 | 0.5471 | 0.9812 | 0.1266 | 0.6562 | 0.409 | 0.7386 | 0.8973 | 0.0804 | 0.1236 | 0.6121 | 0.7496 | 0.0804 | 0.1236 | 0.6121 | 0.7496 | 0.0804 | 0.1236 | 0.6121 | 0.7496 | 0.0804 | 0.1236 | | | |
| cecal tyrosine | | 0.3535 | 0.2293 | 0.7883 | 0.5137 | 0.337 | 0.6184 | 0.0931 | 0.3504 | 0.7824 | 0.2474 | 0.8171 | 0.4581 | 0.1174 | 0.9361 | 0.8879 | 0.9215 | 0.8843 | 0.2254 | 0.9881 | 0.6138 | 0.0488 | 0.9881 | 0.6138 | 0.0488 | 0.9881 | 0.6138 | 0.0488 | 0.9881 | 0.6138 | 0.0488 | 0.9881 | 0.6138 | | |
| cecal phenylalanine | | 0.2059 | 0.3656 | 0.6499 | 0.6886 | 0.0763 | 0.763 | 0.1990 | 0.0763 | 0.7601 | 0.0763 | 0.5486 | 0.059 | 0.6129 | 0.0586 | 0.8868 | 0.3565 | 0.5006 | 0.9572 | 0.969 | 0.4867 | 0.4867 | 0.6068 | 0.4925 | 0.7124 | 0.4867 | 0.6068 | 0.4925 | 0.7124 | 0.4867 | 0.6068 | 0.4925 | 0.7124 | 0.4867 | 0.6068 |
| cecal glucose | | 0.7142 | 0.3134 | -0.7895 | -0.8079 | -0.2869 | -0.1003 | 0.3143 | 0.095 | -0.2214 | -0.2105 | -0.5645 | -0.4411 | 0.2780 | -0.7397 | 0.9530 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | -0.7215 | | |
| cecal oligosacc | | 0.5201 | -0.987 | -0.714 | -0.564 | -0.1217 | 0.7153 | 0.5342 | 0.9138 | -0.5376 | -0.4281 | -0.2634 | -0.471 | 0.5123 | 0.743 | 0.785 | -0.9147 | 0.5502 | 0.0345 | -0.8999 | -0.7027 | 0.8108 | 0.0345 | -0.8999 | -0.7027 | 0.8108 | 0.0345 | -0.8999 | -0.7027 | 0.8108 | 0.0345 | -0.8999 | -0.7027 | 0.8108 | |

| Family x Maternal Pearson correlation | | Unadjusted | | | | | | | | | | | | Adjusted | | | | | | | | | | | | Unadjusted | | Adjusted | | | | | | | | | | | |
|---------------------------------------|--|------------|-----------|----------|----------|-----------|----------|----------|-----------|----------|------------|-----------|----------|----------|-----------|----------|----------|-----------|----------|----------|-----------|----------|------------|-----------|----------|------------|-----------|----------|----------|-----------|----------|---------|--------|--------|--------|--------|--------|--------|--|
| | | Genotype | | | Allele | | | Sibship | | | Unadjusted | | | Genotype | | | Allele | | | Sibship | | | Unadjusted | | | Genotype | | | Allele | | | Sibship | | | | | | | |
| | | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | dominant | recessive | additive | | | | | | | | |
| male sibship | | 0.8724 | 0.21 | 0.1301 | 0.0054 | 0.727 | 0.1677 | 0.7157 | 0.9897 | 0.4901 | 0.3795 | 0.473 | 0.8202 | 0.0873 | 0.5164 | 0.768 | 0.7803 | 0.2721 | 0.0505 | 0.0404 | 0.1683 | 0.3074 | 0.9405 | 0.85 | 0.0252 | 0.1198 | 0.5992 | 0.0699 | 0.7799 | 0.8549 | 0.6174 | 0.4042 | 0.0682 | | | | | | |
| male propulsive | | 0.86 | 0.382 | 0.1731 | 0.0059 | 0.8546 | 0.0953 | 0.4735 | 0.9847 | 0.3955 | 0.4085 | 0.72 | 0.5513 | 0.2295 | 0.3144 | 0.976 | 0.562 | 0.482 | 0.4055 | 0.15 | 0.1073 | 0.3868 | 0.6758 | 0.6588 | 0.05 | 0.2969 | 0.8935 | 0.5431 | 0.1707 | 0.8763 | 0.7413 | 0.8588 | 0.2392 | 0.0682 | | | | | |
| male total | | 0.8311 | 0.242 | 0.1731 | 0.0059 | 0.8546 | 0.0953 | 0.4735 | 0.9847 | 0.3955 | 0.4085 | 0.72 | 0.5513 | 0.2295 | 0.3144 | 0.976 | 0.562 | 0.482 | 0.4055 | 0.15 | 0.1073 | 0.3868 | 0.6758 | 0.6588 | 0.05 | 0.2969 | 0.8935 | 0.5431 | 0.1707 | 0.8763 | 0.7413 | 0.8588 | 0.2392 | 0.0682 | | | | | |
| male total sib | | 0.6221 | 0.3564 | 0.2073 | 0.2084 | 0.8107 | 0.265 | 0.2177 | 0.907 | 0.645 | 0.6853 | 0.4795 | 0.3794 | 0.1386 | 0.1348 | 0.7152 | 0.2306 | 0.7984 | 0.6842 | 0.2895 | 0.0448 | 0.1386 | 0.3738 | 0.1168 | 0.594 | 0.6898 | 0.7181 | 0.3154 | 0.7026 | 0.8406 | 0.9411 | 0.0783 | 0.4077 | | | | | | |
| male lateral | | 0.7322 | 0.2734 | 0.1763 | 0.1195 | 0.9498 | 0.1773 | 0.3183 | 0.9711 | 0.4773 | 0.9195 | 0.0403 | 0.4667 | 0.1449 | 0.2003 | 0.919 | 0.3815 | 0.651 | 0.4292 | 0.12 | 0.0546 | 0.6362 | 0.505 | 0.4674 | 0.0119 | 0.457 | 0.7275 | 0.2712 | 0.971 | 0.9586 | 0.1133 | 0.2822 | 0.8588 | 0.2392 | 0.0682 | | | | |
| male lateral sib | | 0.5422 | 0.2076 | 0.1763 | 0.1195 | 0.9498 | 0.1773 | 0.3183 | 0.9711 | 0.4773 | 0.9195 | 0.0403 | 0.4667 | 0.1449 | 0.2003 | 0.919 | 0.3815 | 0.651 | 0.4292 | 0.12 | 0.0546 | 0.6362 | 0.505 | 0.4674 | 0.0119 | 0.457 | 0.7275 | 0.2712 | 0.971 | 0.9586 | 0.1133 | 0.2822 | 0.8588 | 0.2392 | 0.0682 | | | | |
| male primary | | 0.5222 | 0.0676 | 0.1474 | 0.1523 | 0.5165 | 0.1795 | 0.2766 | 0.7295 | 0.3496 | 0.2020 | 0.1074 | 0.5031 | 0.9523 | 0.6822 | 0.471 | 0.073 | 0.0302 | 0.1202 | 0.0546 | 0.0988 | 0.2446 | 0.2748 | 0.8139 | 0.505 | 0.9423 | 0.6467 | 0.0465 | 0.9898 | 0.2465 | 0.0111 | 0.6702 | 0.8701 | 0.0251 | 0.9821 | 0.0051 | | | |
| male primary sib | | 0.4469 | 0.4647 | 0.9449 | 0.2071 | 0.0204 | 0.678 | 0.0701 | 0.1209 | 0.859 | 0.859 | 0.679 | 0.5471 | 0.812 | 0.2105 | 0.5758 | 0.8678 | 0.2901 | 0.1537 | 0.0572 | 0.1214 | 0.0467 | 0.490 | 0.7386 | 0.8703 | 0.0304 | 0.1226 | 0.5981 | 0.0746 | 0.0541 | 0.1148 | 0.9798 | 0.5191 | 0.9385 | 0.7413 | 0.8588 | 0.2392 | 0.0682 | |
| male primary lateral | | 0.4469 | 0.4647 | 0.9449 | 0.2071 | 0.0204 | 0.678 | 0.0701 | 0.1209 | 0.859 | 0.859 | 0.679 | 0.5471 | 0.812 | 0.2105 | 0.5758 | 0.8678 | 0.2901 | 0.1537 | 0.0572 | 0.1214 | 0.0467 | 0.490 | 0.7386 | 0.8703 | 0.0304 | 0.1226 | 0.5981 | 0.0746 | 0.0541 | 0.1148 | 0.9798 | 0.5191 | 0.9385 | 0.7413 | 0.8588 | 0.2392 | 0.0682 | |
| male primary lateral sib | | 0.2059 | 0.3656 | 0.4499 | 0.4875 | 0.8545 | 0.3765 | 0.7225 | 0.905 | 0.4238 | 0.549 | 0.059 | 0.6219 | 0.2113 | 0.585 | 0.2377 | 0.9703 | 0.1966 | 0.7238 | 0.3364 | 0.712 | 0.134 | 0.956 | 0.5056 | 0.9572 | 0.699 | 0.4827 | 0.7758 | 0.1962 | 0.4281 | 0.235 | 0.6602 | 0.8588 | 0.2392 | 0.0682 | | | | |
| male primary lateral sib sib | | 0.8402 | 0.7469 | 0.1771 | 0.3907 | 0.4762 | 0.5947 | 0.1361 | 0.6764 | 0.1488 | 0.955 | 0.051 | 0.6596 | 0.1837 | 0.318 | 0.3247 | 0.256 | 0.8402 | 0.5199 | 0.3122 | 0.0317 | 0.216 | 0.4873 | 0.202 | 0.1737 | 0.7197 | 0.2947 | 0.2462 | 0.2911 | 0.7924 | 0.7022 | 0.8136 | 0.2159 | 0.0783 | 0.4077 | | | | |
| male primary lateral sib sib sib | | 0.0893 | 0.7174 | 0.2115 | 0.0787 | 0.8129 | 0.3214 | 0.2113 | 0.4741 | 0.4337 | 0.1005 | 0.2678 | 0.2705 | 0.0745 | 0.0811 | 0.5205 | 0.6464 | 0.3702 | 0.4124 | 0.3121 | 0.7195 | 0.6879 | 0.6499 | 0.0154 | 0.4749 | 0.3417 | 0.2044 | 0.3111 | 0.1595 | 0.0951 | 0.8021 | 0.0051 | 0.2521 | 0.9821 | | | | | |

