

**Table S1.** Effects of different antibiotics on taxa in the faecal microbiome. Only genera or higher taxon present in at least 20% of the samples are shown. The colored cells indicate the time points at which a significant difference in the relative abundance of the taxon was observed in the antibiotic group compared to the respective placebo group. Red – decrease, green – increase compared to the placebo (Mann-Whitney test,  $p < 0.005$ ). Only taxa in the dark-colored cells remained significant after Bonferroni correction for multiple comparisons. BL – baseline, W1 – week 1, M1 – month 1, M2 – month 2, M4 – month 4, M12 – month 12. Mean - average relative abundance of each taxon per study.

| Taxon   | KI study   |   |    |     |             |    |    |     | HP study    |    |    |     |             |    |    |      | Mean (%) |      |      |
|---|--|---|----|-----|-------------|----|----|-----|-------------|----|----|-----|-------------|----|----|------|----------|------|------|
|   | Ciprofloxacin  |   |    |     | Clindamycin |    |    |     | Amoxicillin |    |    |     | Minocycline |    |    |      | KI       | HP   |      |
|   | BL   | W1  | M1 | M12 | BL          | W1 | M1 | M12 | BL          | W1 | M1 | M12 | BL          | W1 | M1 | M12  |          |      |      |
| Actinobacteria  | <i>Actinobacteria;Bifidobacteriales;Bifidobacteriaceae;Bifidobacterium</i>   |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.17     | 0.25 |      |
|   | <i>Actinobacteria;Bifidobacteriales;Bifidobacteriaceae;Gardnerella</i>       |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.16     | 0.36 |      |
|   | <i>Coriobacteria;Coriobacteriales;Coriobacteriaceae;Adlercreutzia</i>        |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.02     | 0.03 |      |
|   | <i>Coriobacteria;Coriobacteriales;Coriobacteriaceae;Collinsella</i>          |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.01     | 0.04 |      |
|   | <i>Coriobacteria;Coriobacteriales;Coriobacteriaceae;Eggerthella</i>          |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.19     | 0.03 |      |
|   | <i>Coriobacteria;Coriobacteriales;Coriobacteriaceae;Other</i>                |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.01     | 0.03 |      |
|   | <i>Coriobacteria;Coriobacteriales;Coriobacteriaceae;Uncultured</i>           |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.05     | 0.03 |      |
|   | Bacteroidetes  | <i>Bacteroidia;Bacteroidales;Bacteroidaceae;Bacteroides</i>                 |    |     |             |    |    |     |             |    |    |     |             |    |    |      |          | 20.2 | 18.6 |
| <i>Bacteroidia;Bacteroidales;Other;Other</i>  |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 6.05 | 12.5     |      |      |
| <i>Bacteroidia;Bacteroidales;Porphyromonadaceae;Barnesiella</i>                             |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.63 | 0.76     |      |      |
| <i>Bacteroidia;Bacteroidales;Porphyromonadaceae;Butyrivimonas</i>                           |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.05 | 0.07     |      |      |
| <i>Bacteroidia;Bacteroidales;Porphyromonadaceae;Odoribacter</i>                             |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.28 | 0.28     |      |      |
| <i>Bacteroidia;Bacteroidales;Porphyromonadaceae;Parabacteroides</i>                         |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 1.81 | 2.58     |      |      |
| <i>Bacteroidia;Bacteroidales;Prevotellaceae;Paraprevotella</i>                              |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.23 | 0.31     |      |      |
| <i>Bacteroidia;Bacteroidales;Prevotellaceae;Prevotella</i>                                  |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 5.6  | 10.4     |      |      |
| <i>Bacteroidia;Bacteroidales;Ratan060301c;Ratan060301c</i>                                  |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 5.2  | 3.58     |      |      |
| <i>Bacteroidia;Bacteroidales;Rikenellaceae;Alistipes</i>                                    |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 2.6  | 2.66     |      |      |
| <i>Bacteroidia;Bacteroidales;S24-7;S24-7</i>  |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.90 | 0.42     |      |      |
| Firmicutes  |  | <i>Bacilli;Lactobacillales;Streptococcaceae;Streptococcus</i>               |    |     |             |    |    |     |             |    |    |     |             |    |    |      |          | 0.37 | 0.42 |
|   | <i>Clostridia;Clostridiales;Clostridiaceae;Clostridium</i>                   |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.04     | 0.05 |      |
|   | <i>Clostridia;Clostridiales;Family_xiii_incertae_sedis;Other</i>             |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.03     | 0.03 |      |
|   | <i>Clostridia;Clostridiales;Family_xiii_incertae_sedis;Uncultured</i>        |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.12     | 0.16 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Anaerostipes</i>                 |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 1.0      | 0.92 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Blautia</i>                      |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 2.1      | 2.07 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Christensenella</i>              |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.06     | 0.03 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Coprococcus</i>                  |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.74     | 0.66 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Dorea</i>                        |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.50     | 0.93 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Incertae_sedis</i>               |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.26     | 0.18 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Lachnospira</i>                  |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 2.67     | 1.56 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Lachnospiraceae</i>              |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.14     | 0.13 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Marvinbryantia</i>               |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.06     | 0.04 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Other</i>                        |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 8.25     | 6.95 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Pseudobutyrvibrio</i>            |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 3.38     | 3.09 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Roseburia</i>                    |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 3.12     | 1.96 |      |
|   | <i>Clostridia;Clostridiales;Lachnospiraceae;Uncultured</i>                   |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 1.53     | 1.64 |      |
|   | <i>Clostridia;Clostridiales;Other;Other</i>                                  |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.06     | 0.07 |      |
|   | <i>Clostridia;Clostridiales;Peptococcaceae;Peptococcus</i>                   |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.02     | 0.03 |      |
|   | <i>Clostridia;Clostridiales;Peptostreptococcaceae;Incertae_sedis</i>         |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.12     | 0.21 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Anaerotruncus</i>                |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.25     | 0.27 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Faecalibacterium</i>             |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 11.8     | 9.78 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Incertae_sedis</i>               |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.89     | 0.38 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Oscillibacter</i>                |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.02     | 0.06 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Other</i>                        |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 3.78     | 3.52 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Ruminococcus</i>                 |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.85     | 0.89 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Subdoligranulum</i>              |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 4.27     | 3.17 |      |
|   | <i>Clostridia;Clostridiales;Ruminococcaceae;Uncultured</i>                   |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 3.02     | 1.79 |      |
|   | <i>Clostridia;Clostridiales;Veillonellaceae;Dialister</i>                    |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.27     | 0.20 |      |
|   | <i>Clostridia;Clostridiales;Veillonellaceae;Phascolarctobacterium</i>        |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.36     | 0.29 |      |
|   | <i>Clostridia;Clostridiales;Veillonellaceae;Veillonella</i>                  |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.04     | 0.06 |      |
|   | <i>Clostridia;Other;Other;Other</i>  |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.03     | 0.05 |      |
|   | <i>Erysipelotrichi;Erysipelotrichales;Erysipelotrichaceae;Holdemania</i>     |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.04     | 0.03 |      |
|   | <i>Erysipelotrichi;Erysipelotrichales;Erysipelotrichaceae;Incertae_sedis</i> |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.74     | 0.59 |      |
|   | <i>Erysipelotrichi;Erysipelotrichales;Erysipelotrichaceae;Turicibacter</i>   |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.04     | 0.03 |      |
|   | <i>Erysipelotrichi;Erysipelotrichales;Erysipelotrichaceae;Uncultured</i>     |   |    |     |             |    |    |     |             |    |    |     |             |    |    |      | 0.04     | 0.02 |      |
|   | Proteobacteria   | <i>Alphaproteobacteria;Rhodospirillales;Rhodospirillaceae;Thalassospira</i> |    |     |             |    |    |     |             |    |    |     |             |    |    |      |          | 0.13 | 0.11 |
|   |  | <i>Betaproteobacteria;Burkholderiales;Alcaligenaceae;Parasutterella</i>     |    |     |             |    |    |     |             |    |    |     |             |    |    |      |          | 0.15 | 0.07 |
|   |  | <i>Betaproteobacteria;Burkholderiales;Alcaligenaceae;Sutterella</i>         |    |     |             |    |    |     |             |    |    |     |             |    |    |      |          | 0.36 | 0.37 |
|   |  | <i>Deltaproteobacteria;Desulfovibrionales;Desulfovibrionaceae;Bilophila</i> |    |     |             |    |    |     |             |    |    |     |             |    |    |      |          | 0.07 | 0.12 |
| <i>Deltaproteobacteria;Desulfovibrionales;Desulfovibrionaceae;Desulfovibrio</i>             |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.1  | 0.10     |      |      |
| <i>Gammaproteobacteria;Enterobacteriales;Enterobacteriaceae;Escherichia-shigella</i>        |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.05 | 0.22     |      |      |
| <i>Gammaproteobacteria;Enterobacteriales;Enterobacteriaceae;Other</i>                       |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.08 | 0.19     |      |      |
| <i>Tenericutes;Mollicutes;Rf9;Uncultured_bacterium;Rf9</i>                                  |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.73 | 0.53     |      |      |
| <i>Unclassified Bacteria</i>  |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.20 | 0.14     |      |      |
| <i>Verrucomicrobia;Verrucomicrobiae;Verrucomicrobiales;Verrucomicrobiaceae; Akkermansia</i> |  |   |    |     |             |    |    |     |             |    |    |     |             |    |    | 0.47 | 0.41     |      |      |