Table S1. Characteristics of atopic wheezers at 5 years comparing those included in with those excluded from the analysis. Inclusion in the analysis was based on having a stool sample collected at 3 months of age.

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Included  (n=27) | Excluded  (n=32) | P value |
| **Child**  Sex  Male  Female  Breastfeeding  No  Yes  Period breastfeeding (months)  Median (range)  Type of delivery  Vaginal  Caesarean  Birth order  1st  2nd -3rd  ≥4th | 13 (48%)  14 (52%)  1 (4%)  26 (96%)  13 (4-20)  17 (63%)  10 (37%)  9 (33%)  11 (41%)  7 (26%) | 21 (66%)  11 (34%)  0 (0%)  32 (100%)  13 (10-18)  23 (72%)  9 (28%)  6 (19%)  14 (44%)  12 (37%) | 0.176  0.280  0.948  0.465  0.230 |
| **Household**  Maternal educational status  Illiterate  Primary complete  Secondary complete  Socioeconomic level  Low  Medium  High  Agricultural activities  No  Yes  Potable water  No  Yes  Bathroom  Latrine/Field  WC | 1 (4%)  21 (78%)  5 (18%)  10 (37%)  9 (33%)  8 (30%)  13 (48%)  14 (52%)  15 (56%)  12 (44%)  17 (63%)  10 (37%) | 4 (12%)  16 (50%)  12 (38%)  9 (28%)  9 (28%)  14 (44%)  15 (47%)  17 (53%)  21 (66%)  11 (34%)  23 (72%)  9 (28%) | 0.083  0.529  0.922  0.429  0.465 |
| **Antibiotics and infections**  Antibiotics  Maternal antibiotics in pregnancy  No  Yes  Period (days)  Median (IQR)  During first year of life (courses)  0  1  2-4  Infections during first year  Acute respiratory (episodes)  0  1  2  3-5  Acute diarrhoea  No  Yes | 9 (33%)  18 (67%)  10 (3-21)  14 (52%)  11 (41%)  2 (7%)  0 (0%)  3 (26%)  11 (41%)  9 (33%)  13 (48%)  14 (52%) | 14 (44%)  18 (56%)  8 (5-10)  18 (56%)  9 (28%)  5 (16%)  2 (6%)  9 (28%)  12 (38%)  9 (28%)  12 (38%)  20 (62%) | 0.414  0.101  0.455  0.597  0.410 |

Table S2. Characteristics of study subjects in reduced cohort for whom fungal sequencing data were analysed

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Atopic wheezers  (n=10) | Controls  (n=22) | P value |
| **Child**  Sex  Male  Female  Breastfeeding  No  Yes  Period breastfeeding (months)  Median (range)  Type of delivery  Vaginal  Caesarean  Birth order  1st  2nd -3rd  ≥4th | 7 (70%)  3 (30%)  0 (0%)  10 (100%)  14 (9-16)  7 (70%)  3 (30%)  5 (50%)  2 (20%)  3 (30%) | 11 (50%)  11 (50%)  0 (0%)  22 (100%)  13 (12-16)  18 (82%)  4 (18%)  7 (32%)  9 (41%)  6 (27%) | 0.253  -  0.962  0.376  0.412 |
| **Household**  Maternal educational status  Illiterate  Primary complete  Secondary complete  Socioeconomic level  Low  Medium  High  Agricultural activities  No  Yes  Potable water  No  Yes  Bathroom  Latrine/Field  WC | 0 (0%)  9 (90%)  1 (10%)  2 (20%)  3 (30%)  5 (50%)  6 (60%)  4 (40%)  4 (40%)  6 (60%)  8 (80%)  2 (20%) | 1 (5%)  14 (64%)  7 (32%)  10 (45%)  7 (32%)  5 (23%)  10 (45%)  12 (55%)  13 (59%)  9 (41%)  16 (73%)  6 (27%) | 0.358  0.318  0.352  0.267  0.512 |
| **Antibiotics and infections**  Antibiotics  Maternal antibiotics in pregnancy  No  Yes  Period (days)  Median (IQR)  During first year of life (courses)  0  1  2-4  Infections during first year  Acute respiratory (episodes)  0  1  2  3-5  Acute diarrhoea  No  Yes | 3 (30%)  7 (70%)  7 (0-9)  7 (70%)  3 (30%)  0 (0%)  0 (0%)  3 (30%)  4 (40%)  3 (30%)  5 (50%)  5 (50%) | 13 (59%)  9 (41%)  0 (0-5)  12 (55%)  8 (36%)  3 (13%)  1 (5%)  14 (63%)  6 (27%)  1 (5%)  10 (45%)  12 (55%) | 0.126  0.109  0.631  0.12  0.81 |

Table S3. Differentially abundant microbial OTUs (FDR<0.05) between atopic wheezers and controls calculated by DESeq2. P values are corrected for false discovery rate. OTUs shaded in grey remained statistically significant after controlling for confounding (Table S4).



Table S4. Microbial taxa associated with atopic wheezing corrected for major confounding effects known to affect microbiome composition using MaAsLin. Direction of the correlation coefficient is in relation to the control group. P values are corrected for false discovery rate. Gray shading represents the same OTUs identified as significant by DESeq2 analysis (Table S3)

