

A

Female 3-Feature

weight_change ~ p_Actinobacteria_c_Actinobacteria_o_Actinomycetales +
p_Actinobacteria_c_Coriobacteriia_o_Coriobacteriales +
p_Firmicutes_c_Bacilli_o_Lactobacillales_f_Lactobacillaceae_g_Lactobacillus_s_salivarius +
(1 | ratid)
Data: Female

REML criterion at convergence: 297

	R2m	R2c
	0.147515	0.3571853

model_null
model 0.02098 *

Pr(>Chisq)

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.3780	-0.1904	0.1907	0.5661	1.2777

Random effects:

Groups	Name	Variance	Std.Dev.
ratid	(Intercept)	6.503	2.550
Residual		19.936	4.465

Number of obs: 55, groups: ratid, 12

Correlation of Fixed Effects:

	(Intr)	p_A_A	p_A_C	p_F_B
p_A_A	-0.143			
p_A_C	-0.340	0.003		
p_F_B	-0.468	0.110	-0.405	

Fixed effects:

	Estimate	Std. Error
(Intercept)	-5.118	1.436
p_Actinobacteria_c_Actinobacteria_o_Actinomycetales	-87.021	42.723
p_Actinobacteria_c_Coriobacteriia_o_Coriobacteriales	38.819	31.796
p_Firmicutes_c_Bacilli_o_Lactobacillales_f_Lactobacillaceae_g_Lactobacillus_s_salivarius	114.689	92.917
day	-3.565	2.037
day:p_Actinobacteria_c_Actinobacteria_o_Actinomycetales	1.221	1.234
day:p_Actinobacteria_c_Coriobacteriia_o_Coriobacteriales	-2.057	1.221
day:p_Firmicutes_c_Bacilli_o_Lactobacillales_f_Lactobacillaceae_g_Lactobacillus_s_salivarius	1.234	1.234

B

3-Feature + Timepoint

Formula: weight_change ~ day * (p_Actinobacteria_c_Actinobacteria_o_Actinomycetales +
p_Actinobacteria_c_Coriobacteriia_o_Coriobacteriales +
p_Firmicutes_c_Bacilli_o_Lactobacillales_f_Lactobacillaceae_g_Lactobacillus_s_salivarius) +
(1 | ratid)
Data: Female

REML criterion at convergence: 253.4

	R2m	R2c
	0.331743	0.5658004

model_null
model 4.551e-05 ***

Pr(>Chisq)

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-3.2534	-0.2329	0.1389	0.4165	2.6486

Random effects:

Groups	Name	Variance	Std.Dev.
ratid	(Intercept)	7.273	2.697
Residual		13.492	3.673

Number of obs: 55, groups: ratid, 12

Fixed effects:

	Estimate	Std. Error
(Intercept)	1.2057	2.0178
day	-0.8671	0.2002
p_Actinobacteria_c_Actinobacteria_o_Actinomycetales	-6306.5476	6112.8741
p_Actinobacteria_c_Coriobacteriia_o_Coriobacteriales	-64.6171	44.1111
p_Firmicutes_c_Bacilli_o_Lactobacillales_f_Lactobacillaceae_g_Lactobacillus_s_salivarius	61.5774	133.9881
day:p_Actinobacteria_c_Actinobacteria_o_Actinomycetales	418.1510	407.6700
day:p_Actinobacteria_c_Coriobacteriia_o_Coriobacteriales	14.1557	4.8288
day:p_Firmicutes_c_Bacilli_o_Lactobacillales_f_Lactobacillaceae_g_Lactobacillus_s_salivarius	5.0092	13.5705

Correlation of Fixed Effects:

	(Intr)	day	p_A_A	p_A_C	p_F_B	d:_A_A	d:_A_C
day	-0.718						
p_A_A	-0.338	0.168					
p_A_C	-0.273	0.215	-0.095				
p_F_B	-0.541	0.445	0.025	-0.350			
d:_A_A	0.339	-0.170	-1.000	0.095	-0.025		
d:_A_C	0.214	-0.311	0.059	-0.787	0.281	-0.059	
d:_F_B	0.426	-0.528	0.022	0.323	-0.804	-0.022	-0.433

C

Final Treatment + Timepoint

Formula: weight_change ~ day * final_treatment + (1 | ratid)
Data: Female

REML criterion at convergence: 271.3

	R2m	R2c
	0.7502424	0.7502424

model_null
model 4.886e-15 ***

Pr(>Chisq)

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-4.6062	-0.2719	0.1370	0.4675	2.6652

Random effects:

Groups	Name	Variance	Std.Dev.
ratid	(Intercept)	2.277e-16	1.509e-08
Residual		8.161e+00	2.857e+00

Number of obs: 55, groups: ratid, 12

Correlation of Fixed Effects:

	(Intr)	day	fn_VEH
day	-0.797		
fn1_trtmVEH	-0.689	0.549	
fn1_tVEH	0.559	-0.702	-0.804

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	-0.3483	0.8931	-0.390
day	-0.9826	0.1145	-8.583
final_treatmentVEH	-0.6800	1.2961	-0.525
day:final_treatmentVEH	1.2318	0.1631	7.552

Supplementary Figure 5: R Summary Statistics of Taxonomic Analysis and LME Weight Change Modeling in Female Mice. LME models predicting percent weight change from baseline in female mice. Results of summary(model) and of r.squaredGLMM(model) in R. Marginal R² (R2M) and conditional R² (R2C) are highlighted in the blue box. Result of likelihood ratio test against null model is isolated in the red box. **A)** LME “3-feature model” for female mice predicting percent weight change using relative abundance of 3 bacterial taxonomic features. **B)** 3-Feature LME model for female mice with addition of timepoint (day). **C)** LME model for percent weight change using final treatment and timepoint (day).