

Factor Correlations											
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	SYMPTOM_COUGH	.10	-.03	.25	.29	.19	.06	.28	-.14	.01	1.00
	Fever	.00	-.10	-.15	-.20	.09	.27	-.21	-.09	1.00	.01
	Vacc_status	.06	.46	.09	-.02	-.05	.13	.07	1.00	-.09	-.14
	Type	.16	.30	.19	.03	.22	-.02	1.00	.07	-.21	.28
	Post_visit_treatment	-.00	.01	.18	.34	.12	1.00	-.02	.13	.27	.06
	Patient_diagnosis	.09	-.19	.22	.07	1.00	.12	.22	-.05	.09	.19
	Medical_complications	-.04	.18	.18	1.00	.07	.34	.03	-.02	-.20	.29
	Host_Gender	.03	-.10	1.00	.18	.22	.18	.19	.09	-.15	.25
	Host_Age	.07	1.00	-.10	.18	-.19	.01	.30	.46	-.10	-.03
	daynumber_for_collection	1.00	.07	.03	-.04	.09	-.00	.16	.06	.00	.10
	daynumber_for_collection	Host_Age	Host_Gender	Medical_complications	Patient_diagnosis	Post_visit_treatment	Type	Vacc_status	Fever	SYMPTOM_COUGH	

Reference factor levels:

Patient: p33  
daynumber\_for\_collection: None (ordered factor)  
Host\_Age: None (ordered factor)  
Host\_Gender: M  
Medical\_complications: None (ordered factor)  
Patient\_diagnosis: None (ordered factor)  
Post\_visit\_treatment: None (ordered factor)  
Type: None (ordered factor)  
Vacc\_status: N  
Fever: None (ordered factor)  
SYMPTOM\_COUGH: None (ordered factor)

Number of Samples: 128

Description of Factor Levels and Samples:

Patient	daynumber_for_collection	Host_Age	Host_Gender
p18	:11 Min. : 0.000	Min. : 1.20	M:56
p3	:11 1st Qu.: 2.000	1st Qu.:21.00	F:68
p12	: 9 Median : 3.000	Median :54.00	
p15	: 9 Mean : 5.508	Mean :46.63	
p20	: 9 3rd Qu.: 7.000	3rd Qu.:72.00	
p2	: 7 Max. :22.000	Max. :97.00	
(Other):68			
Medical_complications	Patient_diagnosis	Post_visit_treatment	Type
Min. :0.0000	Min. :1.000	Min. :0.000	Min. :0.0000
1st Qu.:0.0000	1st Qu.:1.000	1st Qu.:3.000	1st Qu.:0.0000
Median :1.0000	Median :1.000	Median :3.000	Median :1.0000
Mean :0.8065	Mean :1.532	Mean :2.718	Mean :0.6694
3rd Qu.:1.0000	3rd Qu.:2.000	3rd Qu.:3.000	3rd Qu.:1.0000
Max. :2.0000	Max. :3.000	Max. :3.000	Max. :1.0000

Vacc_status	Fever	SYMPTOM_COUGH
N:100	Min. :0.000	Min. :0.000
Y: 24	1st Qu.:1.000	1st Qu.:2.000
	Median :1.000	Median :2.000
	Mean :1.468	Mean :2.089
	3rd Qu.:2.000	3rd Qu.:3.000
	Max. :3.000	Max. :3.000

Multivariate Regression with 20 top taxa

Proportion of overall mean abundance represented: 0.899084979434395

Analysis of Variance Table

	Df	Pillai	approx F	num Df	den Df	Pr(>F)
(Intercept)	1	0.9942	634.86	20	74	< 2.2e-16 ***
Patient	20	6.7295	2.36	400	1860	< 2.2e-16 ***
daynumber_for_collection	1	0.2216	1.05	20	74	0.41518
Host_Age	1	0.7012	8.68	20	74	1.953e-12 ***
Host_Gender	1	0.4918	3.58	20	74	3.219e-05 ***
Medical_complications	1	0.6103	5.79	20	74	1.096e-08 ***
Patient_diagnosis	1	0.3307	1.83	20	74	0.03270 *
Post_visit_treatment	1	0.7053	8.85	20	74	1.232e-12 ***
Type	1	0.6623	7.25	20	74	1.107e-10 ***
Vacc_status	1	0.3335	1.85	20	74	0.02997 *
Fever	1	0.3354	1.87	20	74	0.02819 *
SYMPTOM_COUGH	1	0.5778	5.06	20	74	1.329e-07 ***
Residuals	93					

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

		Taxonomic Correlations																			
		Pseudomonas	Staphylococcus	Corynebacterium	Ochrobactrum	family:Pseudomonadaceae	Haemophilus	family:Xanthomonadaceae	Delftia	Streptococcus	Dyella	Stenotrophomonas	order:Rhizobiales	Dolosigranulum	Achromobacter	Propionibacterium	Rhizobium	Moraxella	Prevotella	order:Actinomycetales	Rhodococcus
order:Actinomycetales	Rhodococcus	.17	-.03	.01	.14	.17	.15	-.33	.12	.04	-.39	.26	.13	.07	-.29	-.19	.67	.11	.21	.32	1.00
		-.13	.18	.72	.04	-.13	.23	-.35	-.04	.21	-.28	.04	-.05	.50	-.26	.19	.15	.46	.24	1.00	.32
	Prevotella	-.12	.07	.21	.00	-.08	.15	-.21	-.18	.31	-.22	-.01	.01	.07	-.16	-.11	.15	.13	1.00	.24	.21
	Moraxella	-.08	.15	.47	-.11	-.06	.24	-.18	.06	.16	-.10	.01	-.13	.57	-.10	-.03	.01	1.00	.13	.46	.11
	Rhizobium	.07	-.05	-.05	-.02	.09	.10	-.12	.12	-.10	-.20	.25	.21	-.08	-.05	-.19	1.00	.01	.15	.15	.67
	Propionibacterium	.23	.28	.17	.12	.24	-.14	.21	-.12	.02	.24	-.15	.09	-.03	.26	1.00	-.19	-.03	-.11	.19	-.19
	Achromobacter	.38	.13	-.17	-.02	.32	-.31	.76	-.09	-.07	.71	.00	.11	-.21	1.00	.26	-.05	-.10	-.16	-.26	-.29
	Dolosigranulum	-.12	.19	.57	.03	-.11	.21	-.19	-.02	.22	-.09	-.03	-.15	1.00	-.21	-.03	-.08	.57	.07	.50	.07
order:Rhizobiales		.35	-.06	-.10	.80	.42	.02	.00	.01	-.23	-.12	-.03	1.00	-.15	.11	.09	.21	-.13	.01	-.05	.13
	Stenotrophomonas	-.06	-.20	-.09	-.14	-.07	-.01	.03	.59	-.04	-.02	1.00	-.03	-.03	.00	-.15	.25	.01	-.01	.04	.26
	Dyella	.29	.17	-.15	-.19	.21	-.39	.81	-.08	-.02	1.00	-.02	-.12	-.09	.71	.24	-.20	-.10	-.22	-.28	-.39
	Streptococcus	-.16	.17	.26	-.05	-.21	.19	-.07	-.15	1.00	-.02	-.04	-.23	.22	-.07	.02	-.10	.16	.31	.21	.04
	Delftia	-.06	-.19	-.13	-.17	-.11	.08	-.00	1.00	-.15	-.08	.59	.01	-.02	-.09	-.12	.12	.06	-.18	-.04	.12
family:Xanthomonadaceae		.49	.16	-.30	-.10	.41	-.48	1.00	.00	-.07	.81	.03	.00	-.19	.76	.21	-.12	-.18	-.21	-.35	-.33
	Haemophilus	-.25	-.12	.24	.06	-.13	1.00	-.48	.08	.19	-.39	-.01	.02	.21	-.31	-.14	.10	.24	.15	.23	.15
family:Pseudomonadaceae		.92	-.05	-.19	.39	1.00	.13	.41	-.11	-.21	.21	-.07	.42	-.11	.32	.24	.09	-.06	-.08	-.13	.17
	Ochrobactrum	.34	.07	.05	1.00	.39	.06	-.10	-.17	-.05	-.19	-.14	.80	.03	-.02	.12	-.02	-.11	.00	.04	.14
	Corynebacterium	-.19	.35	1.00	.05	-.19	.24	-.30	-.13	.26	-.15	-.09	-.10	.57	-.17	.17	-.05	.47	.21	.72	.01
	Staphylococcus	.01	1.00	.35	.07	-.05	-.12	.16	-.19	.17	.17	-.20	-.06	.19	.13	.28	-.05	.15	.07	.18	-.03
	Pseudomonas	1.00	.01	-.19	.34	.92	-.25	.49	-.06	-.16	.29	-.06	.35	-.12	.38	.23	.07	-.08	-.12	-.13	.17

Univariate Pr(>F)											
Rhodococcus	.00	.52	.07	.06	.76	.72	.05	.80	.04	.94	.69
order:Actinomycetales	.00	.55	.20	.52	.17	.39	.10	.08	.58	.05	.86
Prevotella	.00	.44	.01	.06	.30	.14	.01	.02	.27	.35	.92
Moraxella	.00	.20	.00	.96	.20	.15	.98	.49	.01	.82	.98
Rhizobium	.02	.06	.00	.00	.55	.91	.03	.31	.36	.90	.75
Propionibacterium	.01	.53	.00	.24	.97	.88	.08	.07	.64	.03	.63
Achromobacter	.00	.66	.34	.07	.67	.32	.73	.84	.01	.61	.07
Dolosigranulum	.00	.46	.67	.83	.40	.98	.52	.85	.16	.88	.70
order:Rhizobiales	.00	.09	.00	.19	.74	.05	.55	.00	.91	.58	.22
Stenotrophomonas	.00	.76	.00	.26	.18	.47	.00	.03	.21	.09	.00
Dyella	.01	.28	.37	.14	.93	.24	.77	.04	.00	.15	.17
Streptococcus	.01	.33	.08	.64	.12	.07	.46	.95	.79	.91	.56
Delftia	.00	.66	.00	.00	.00	.48	.00	.00	.12	.03	.00
family:Xanthomonadaceae	.00	.86	.44	.23	.33	.05	.77	.04	.01	.39	.28
Haemophilus	.00	.73	.04	.31	.01	.00	.05	.00	.24	.67	.69
family:Pseudomonadaceae	.03	.35	.00	.79	.45	.27	.43	.54	.56	.55	.19
Ochrobactrum	.01	.26	.00	.02	.10	.02	.06	.00	.34	.23	.33
Corynebacterium	.00	.35	.70	.14	.28	.01	.03	.70	.86	.24	.80
Staphylococcus	.00	.15	.78	.90	.85	.01	.53	.57	.92	.00	.61
Pseudomonas	.04	.96	.02	.46	.37	.20	.50	.97	.71	.82	.13
	Patient	daynumber_for_collection	Host_Age	Host_Gender	Medical_complications	Patient_diagnosis	Post_visit_treatment	Type	Vacc_status	Fever	SYMPTOM_COUGH

Univariate R Squared		
Rhodococcus	.50	.33
order:Actinomycetales	.55	.40
Prevotella	.50	.34
Moraxella	.65	.54
Rhizobium	.46	.28
Propionibacterium	.41	.22
Achromobacter	.53	.38
Dolosigranulum	.63	.51
order:Rhizobiales	.55	.40
Stenotrophomonas	.58	.45
Dyella	.41	.23
Streptococcus	.38	.17
Delftia	.89	.85
family:Xanthomonadaceae	.51	.35
Haemophilus	.61	.49
family:Pseudomonadaceae	.37	.17
Ochrobactrum	.58	.44
Corynebacterium	.60	.47
Staphylococcus	.52	.36
Pseudomonas	.34	.12
	R <sup>2</sup>	Adjusted R <sup>2</sup>

# Univariate Regression:

1.) Pseudomonas

Mean abundance: 29.5%

R^2: 0.3364

Adjusted R^2: 0.1223

## Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	119.47	5.9734	1.7553	0.03790	*
daynumber_for_collection	1	0.01	0.0067	0.0020	0.96469	
Host_Age	1	19.74	19.7425	5.8013	0.01799	*
Host_Gender	1	1.89	1.8874	0.5546	0.45831	
Medical_complications	1	3.52	3.5175	1.0336	0.31195	
Patient_diagnosis	1	5.78	5.7821	1.6991	0.19563	
Post_visit_treatment	1	1.53	1.5293	0.4494	0.50428	
Type	1	0.01	0.0051	0.0015	0.96921	
Vacc_status	1	0.47	0.4738	0.1392	0.70989	
Fever	1	0.17	0.1702	0.0500	0.82352	
SYMPTOM_COUGH	1	7.85	7.8468	2.3058	0.13229	
Residuals	93	316.49	3.4031			

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

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Call:
lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-7.1882	-0.9347	-0.0018	0.9169	5.8528

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	10.950811	5.711395	1.917	0.0583 .
Patientp1	15.239193	11.941573	1.276	0.2051
Patientp10	12.496611	13.807591	0.905	0.3678
Patientp12	-28.984667	20.206643	-1.434	0.1548
Patientp13	-12.373966	7.032221	-1.760	0.0818 .
Patientp15	-15.042798	10.550179	-1.426	0.1573
Patientp18	10.153825	6.650545	1.527	0.1302
Patientp19	9.921609	10.941343	0.907	0.3669
Patientp2	2.793490	3.798263	0.735	0.4639
Patientp20	-41.159327	27.436161	-1.500	0.1370
Patientp22	4.319937	4.212806	1.025	0.3078
Patientp23	9.246469	9.759003	0.947	0.3458
Patientp24	10.256166	8.310058	1.234	0.2202
Patientp25	-3.579341	3.635522	-0.985	0.3274
Patientp28	-25.847273	17.468340	-1.480	0.1423
Patientp3	-8.497635	7.637714	-1.113	0.2688
Patientp31	-17.562236	10.363558	-1.695	0.0935 .
Patientp32	-12.845942	10.116038	-1.270	0.2073
Patientp4	-1.266304	2.009335	-0.630	0.5301
Patientp6	-12.843950	8.981149	-1.430	0.1560
Patientp9	-4.401697	3.299913	-1.334	0.1855
daynumber_for_collection	0.007681	0.028560	0.269	0.7886
Host_Age	-0.017768	0.053139	-0.334	0.7388
Host_GenderF	-1.902426	1.562281	-1.218	0.2264
Medical_complications	-14.177955	9.512854	-1.490	0.1395
Patient_diagnosis	-10.964249	7.877853	-1.392	0.1673
Post_visit_treatment	7.534322	5.899321	1.277	0.2047
Type	10.288000	7.613919	1.351	0.1799
Vacc_statusY	-12.863917	9.370758	-1.373	0.1731
Fever	6.006706	4.230064	1.420	0.1590
SYMPTOM_COUGH	-3.241815	2.134909	-1.518	0.1323

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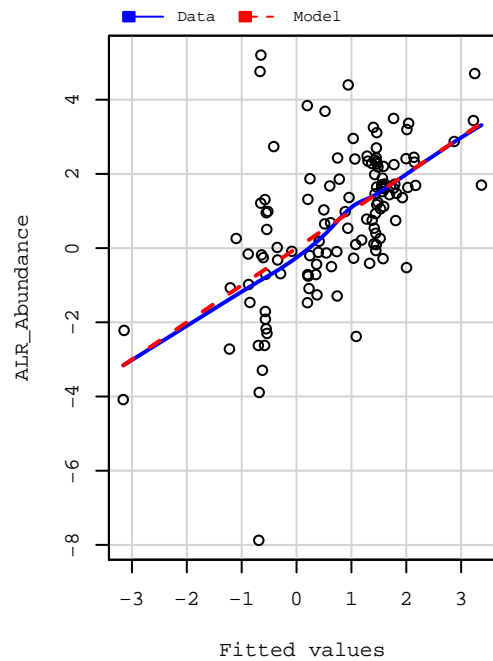
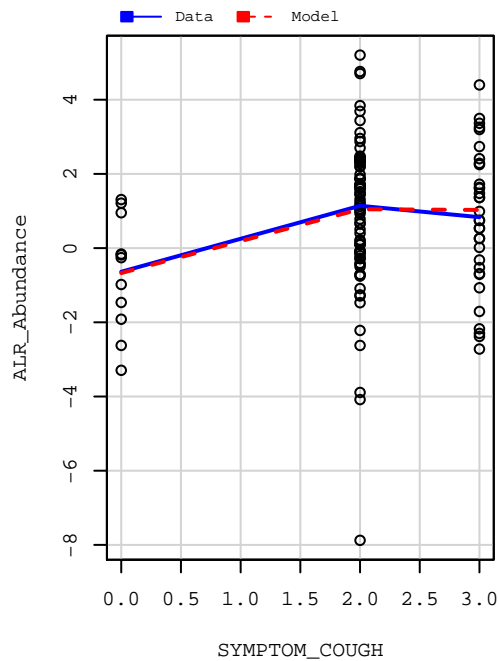
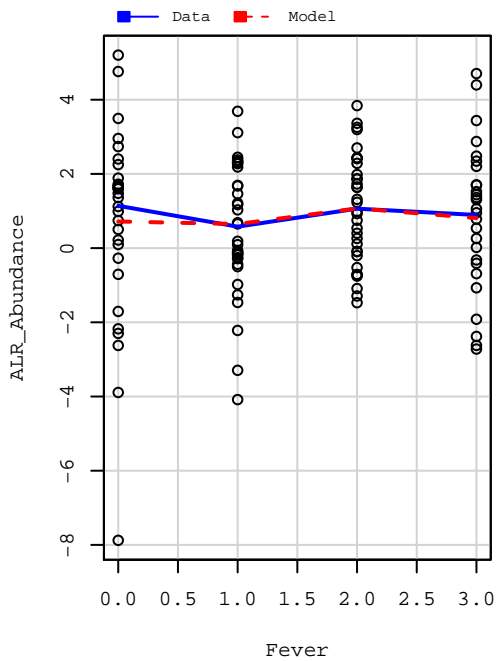
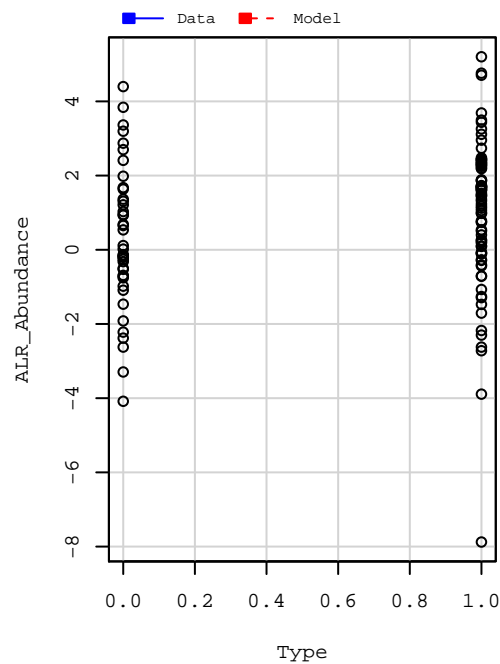
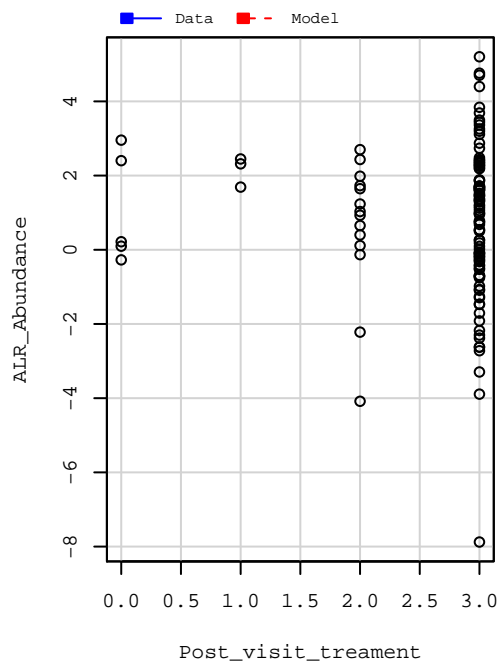
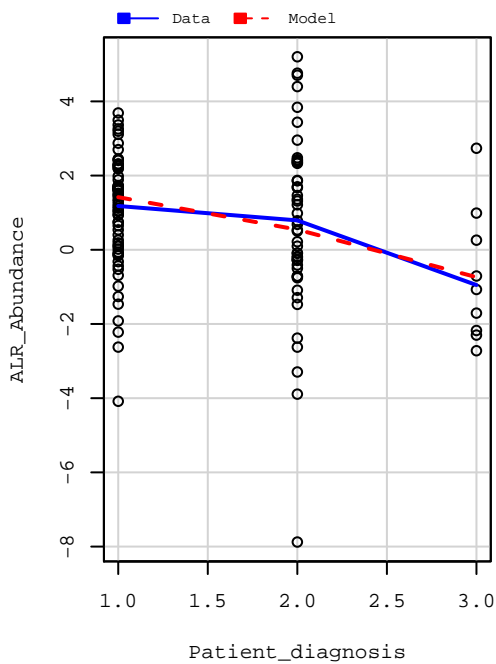
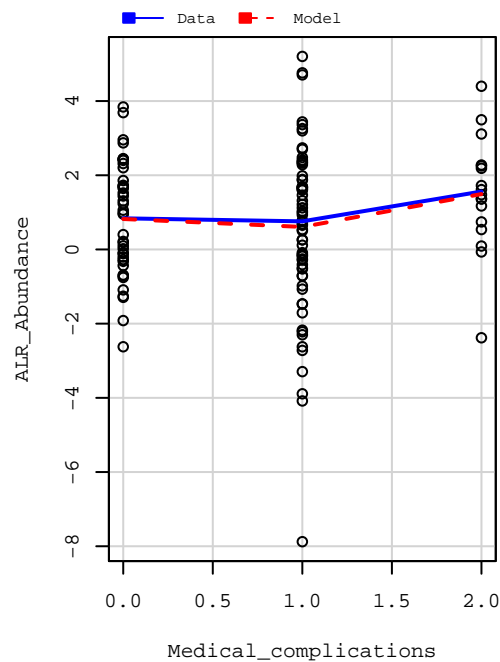
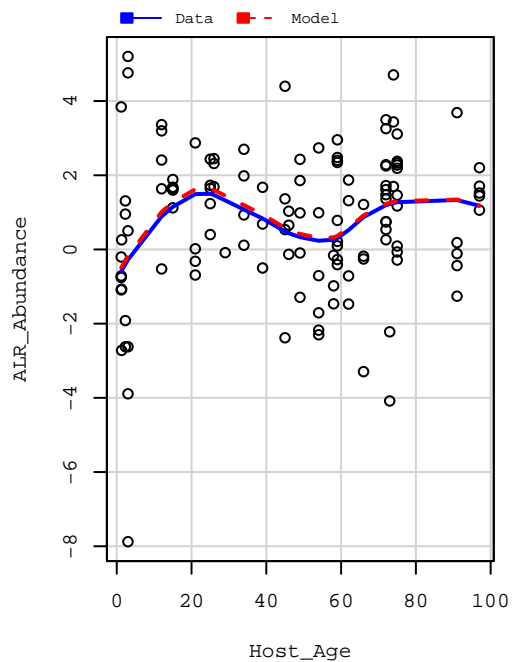
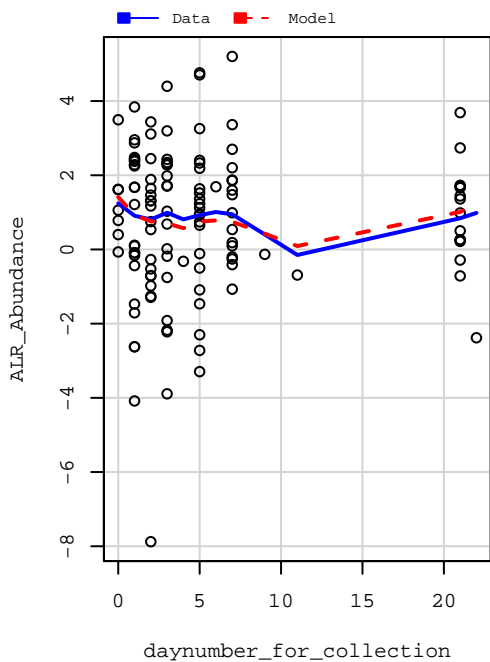
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Residual standard error: 1.845 on 93 degrees of freedom

Multiple R-squared: 0.3364, Adjusted R-squared: 0.1223

F-statistic: 1.571 on 30 and 93 DF, p-value: 0.0525





Univariate Regression:

2.) Staphylococcus

Mean abundance: 12.1%

R<sup>2</sup>: 0.5189

Adjusted R<sup>2</sup>: 0.3637

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	772.52	38.626	3.9911	2.586e-06	***
daynumber_for_collection	1	20.61	20.613	2.1299	0.147818	
Host_Age	1	0.79	0.789	0.0816	0.775820	
Host_Gender	1	0.16	0.162	0.0168	0.897225	
Medical_complications	1	0.36	0.360	0.0372	0.847511	
Patient_diagnosis	1	63.49	63.488	6.5600	0.012038	*
Post_visit_treatment	1	3.80	3.801	0.3928	0.532385	
Type	1	3.14	3.144	0.3248	0.570085	
Vacc_status	1	0.11	0.106	0.0110	0.916800	
Fever	1	103.20	103.196	10.6629	0.001531	**
SYMPTOM_COUGH	1	2.49	2.487	0.2570	0.613416	
Residuals	93	900.06	9.678			

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

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lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-9.0176	-1.0922	0.2292	1.5620	6.6536

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-15.31687	9.63164	-1.590	0.115169
Patientp1	-31.87193	20.13815	-1.583	0.116893
Patientp10	-21.80227	23.28498	-0.936	0.351532
Patientp12	43.88801	34.07627	1.288	0.200964
Patientp13	-5.31440	11.85906	-0.448	0.655102
Patientp15	12.67551	17.79171	0.712	0.477977
Patientp18	-2.09500	11.21541	-0.187	0.852227
Patientp19	-29.10007	18.45137	-1.577	0.118163
Patientp2	-2.80300	6.40535	-0.438	0.662689
Patientp20	48.22765	46.26806	1.042	0.299950
Patientp22	-11.56185	7.10443	-1.627	0.107033
Patientp23	-26.72908	16.45748	-1.624	0.107733
Patientp24	-20.18832	14.01400	-1.441	0.153061
Patientp25	16.94085	6.13091	2.763	0.006900 **
Patientp28	26.09800	29.45843	0.886	0.377942
Patientp3	25.06080	12.88016	1.946	0.054712 .
Patientp31	20.36448	17.47700	1.165	0.246911
Patientp32	15.48615	17.05958	0.908	0.366347
Patientp4	13.48236	3.38852	3.979	0.000137 ***
Patientp6	21.42388	15.14572	1.415	0.160549
Patientp9	7.83860	5.56494	1.409	0.162297
daynumber_for_collection	0.04277	0.04816	0.888	0.376781
Host_Age	0.25745	0.08961	2.873	0.005038 **
Host_GenderF	3.68511	2.63461	1.399	0.165221
Medical_complications	12.18472	16.04238	0.760	0.449455
Patient_diagnosis	23.85071	13.28513	1.795	0.075855 .
Post_visit_treatment	-11.13521	9.94855	-1.119	0.265904
Type	-18.95810	12.84003	-1.476	0.143192
Vacc_statusY	12.75880	15.80275	0.807	0.421509
Fever	-8.77747	7.13354	-1.230	0.221632
SYMPTOM_COUGH	-1.82503	3.60029	-0.507	0.613416

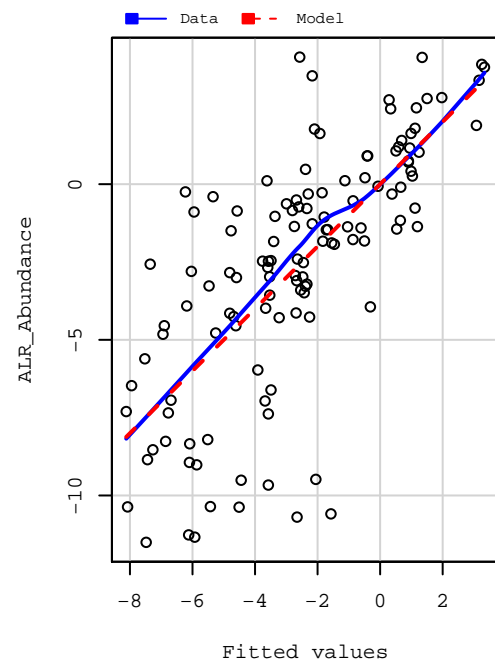
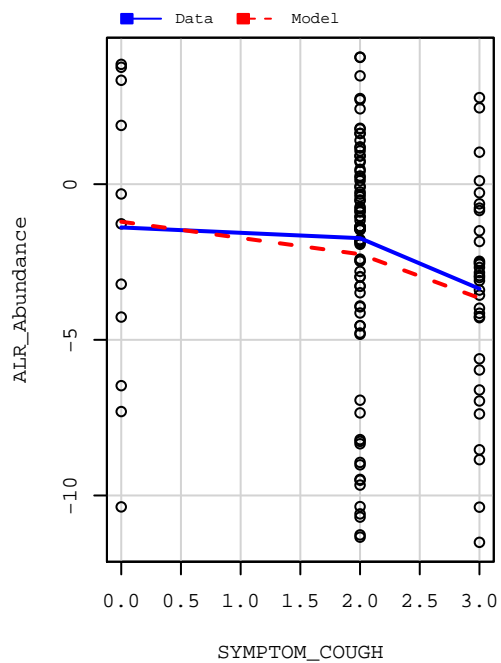
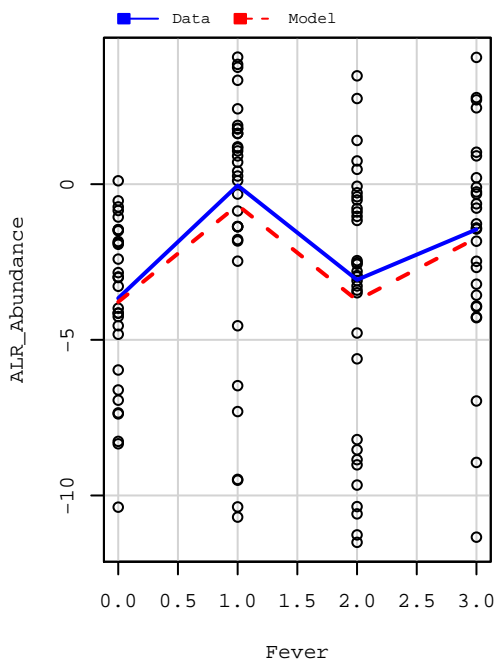
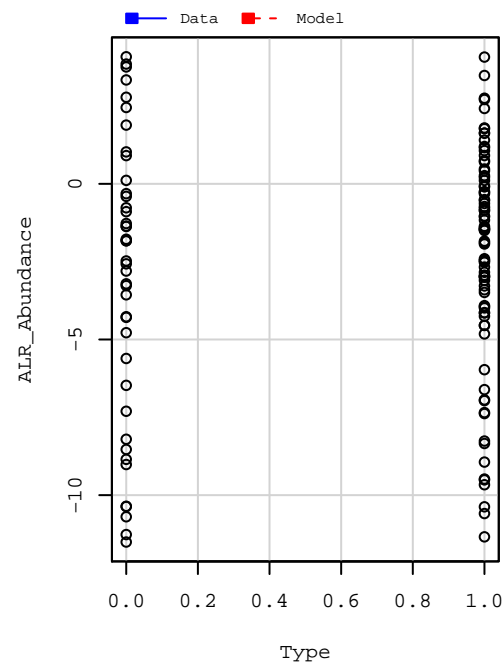
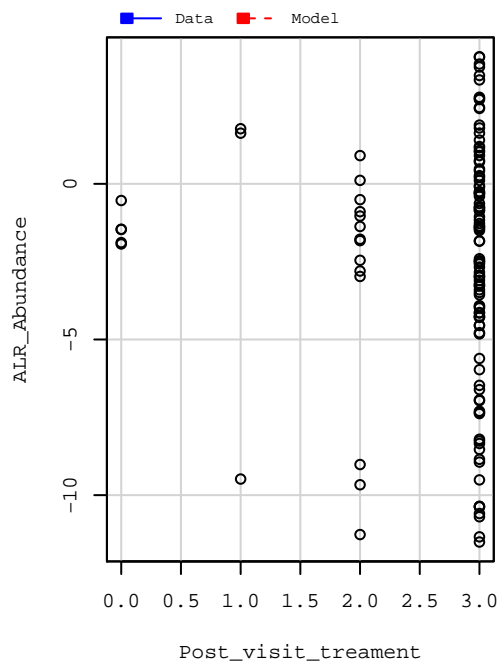
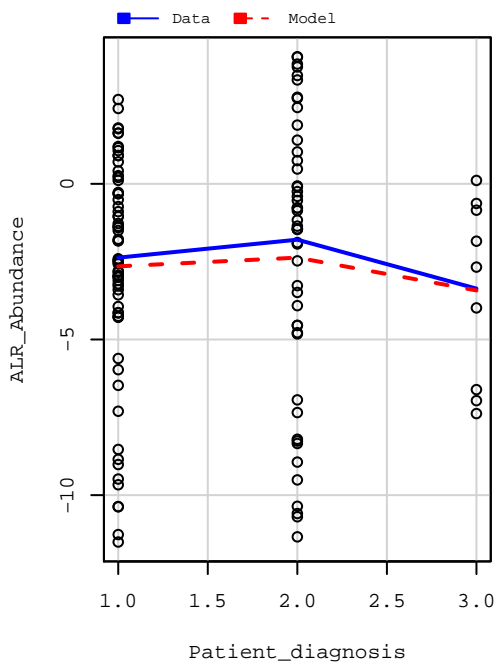
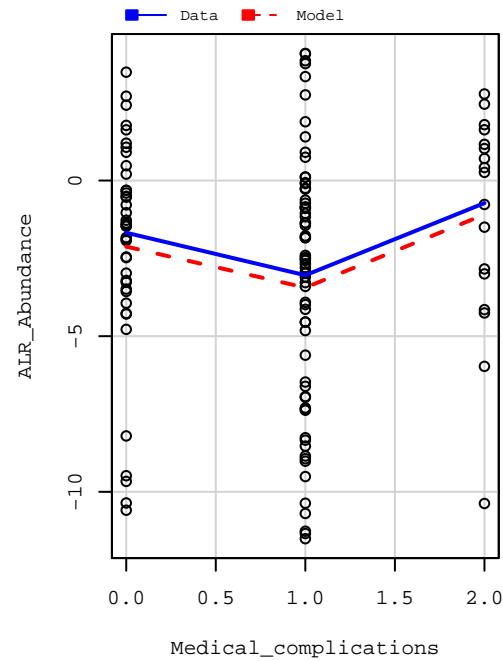
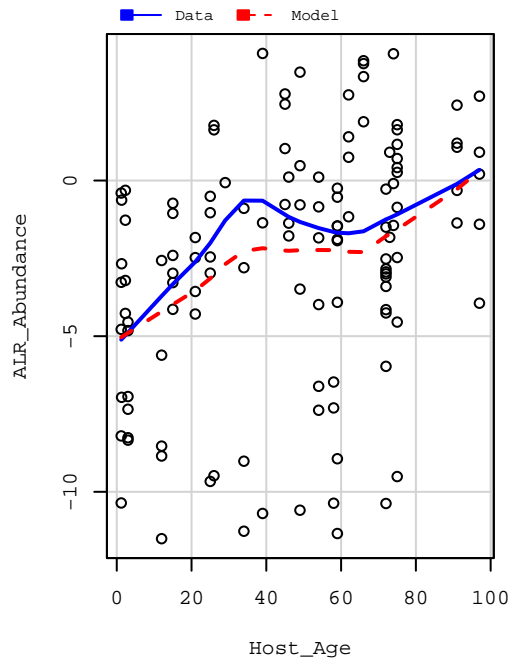
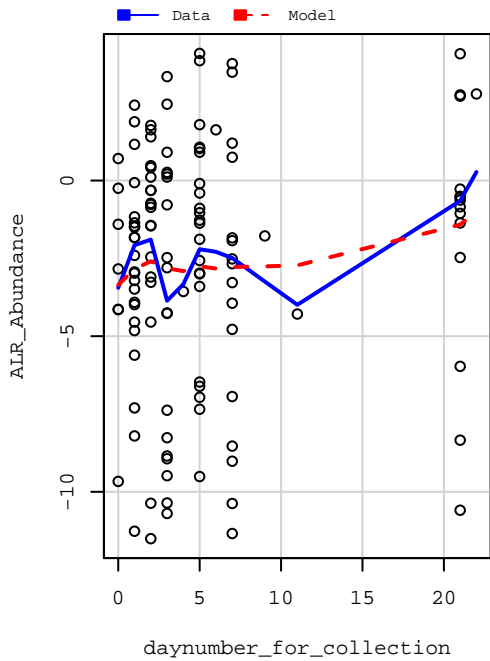
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.111 on 93 degrees of freedom

Multiple R-squared: 0.5189, Adjusted R-squared: 0.3637

F-statistic: 3.343 on 30 and 93 DF, p-value: 4.631e-06



Univariate Regression:

3.) Corynebacterium

Mean abundance: 10.0%

R<sup>2</sup>: 0.5983

Adjusted R<sup>2</sup>: 0.4687

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	1336.08	66.804	6.0459	7.189e-10	***
daynumber_for_collection	1	9.66	9.658	0.8741	0.35225	
Host_Age	1	1.66	1.659	0.1501	0.69931	
Host_Gender	1	24.86	24.864	2.2503	0.13698	
Medical_complications	1	13.02	13.023	1.1786	0.28046	
Patient_diagnosis	1	71.72	71.715	6.4903	0.01249	*
Post_visit_treatment	1	55.43	55.432	5.0167	0.02749	*
Type	1	1.63	1.628	0.1474	0.70195	
Vacc_status	1	0.33	0.327	0.0296	0.86376	
Fever	1	15.46	15.463	1.3994	0.23984	
SYMPTOM_COUGH	1	0.72	0.717	0.0649	0.79955	
Residuals	93	1027.61	11.050			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-7.521	-1.903	0.267	2.059	5.768

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-4.25521	10.29149	-0.413	0.6802
Patientp1	-27.94550	21.51778	-1.299	0.1973
Patientp10	-16.67097	24.88020	-0.670	0.5045
Patientp12	25.22673	36.41079	0.693	0.4901
Patientp13	-1.30412	12.67151	-0.103	0.9183
Patientp15	7.55725	19.01060	0.398	0.6919
Patientp18	-11.39316	11.98376	-0.951	0.3442
Patientp19	-20.93808	19.71544	-1.062	0.2910
Patientp2	-9.99580	6.84417	-1.460	0.1475
Patientp20	40.72938	49.43781	0.824	0.4121
Patientp22	-16.90669	7.59115	-2.227	0.0283 *
Patientp23	-23.82251	17.58496	-1.355	0.1788
Patientp24	-15.79499	14.97407	-1.055	0.2942
Patientp25	3.82303	6.55093	0.584	0.5609
Patientp28	14.58265	31.47658	0.463	0.6442
Patientp3	6.67197	13.76256	0.485	0.6290
Patientp31	16.84843	18.67432	0.902	0.3693
Patientp32	2.01304	18.22831	0.110	0.9123
Patientp4	-5.17665	3.62066	-1.430	0.1561
Patientp6	6.25088	16.18333	0.386	0.7002
Patientp9	-3.42301	5.94618	-0.576	0.5662
daynumber_for_collection	-0.07323	0.05146	-1.423	0.1581
Host_Age	0.10122	0.09575	1.057	0.2932
Host_GenderF	0.91495	2.81511	0.325	0.7459
Medical_complications	13.63693	17.14142	0.796	0.4283
Patient_diagnosis	17.04676	14.19527	1.201	0.2328
Post_visit_treatment	-11.04178	10.63011	-1.039	0.3016
Type	-11.22003	13.71969	-0.818	0.4156
Vacc_statusY	10.84839	16.88537	0.642	0.5221
Fever	-6.27077	7.62224	-0.823	0.4128
SYMPTOM_COUGH	0.97967	3.84694	0.255	0.7995

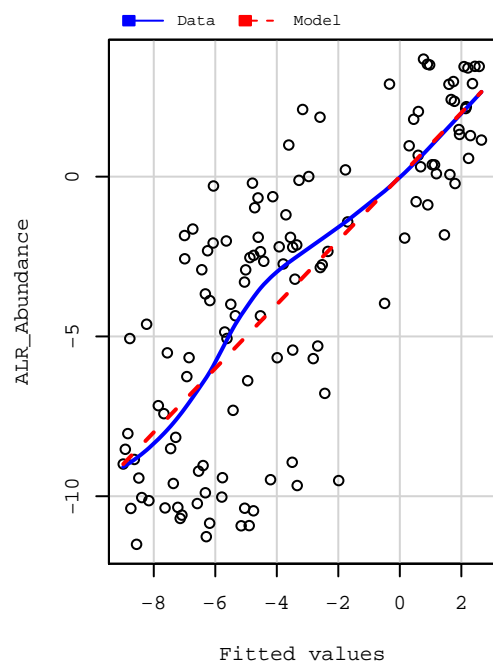
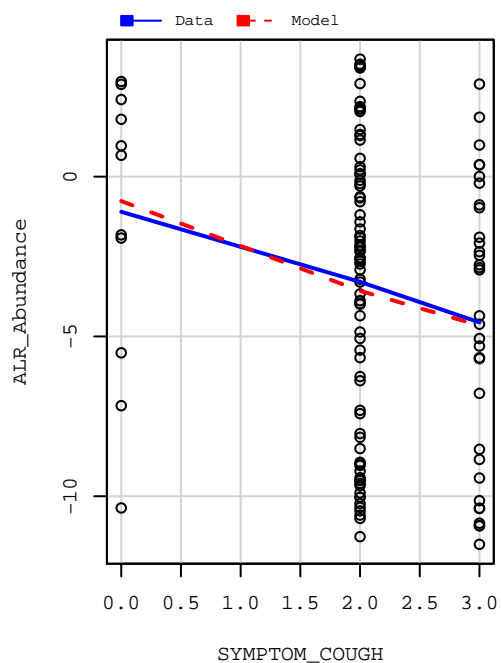
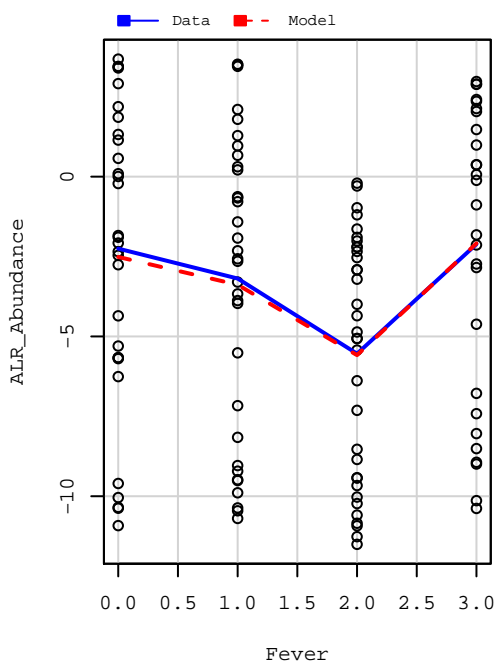
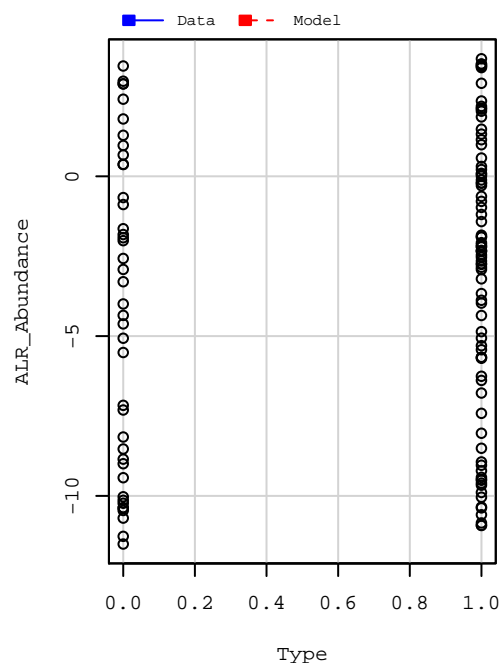
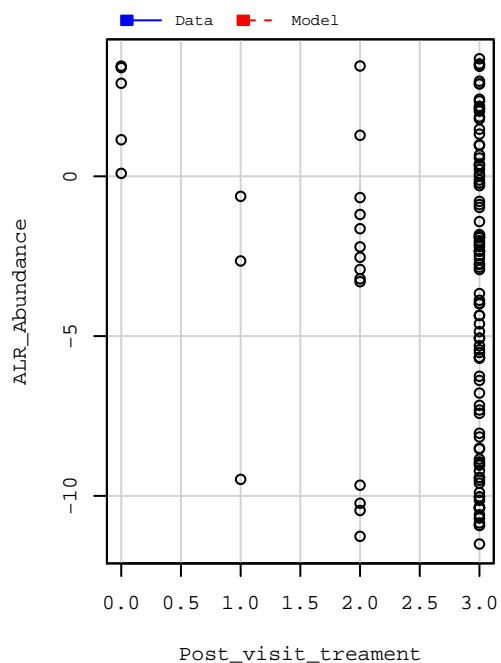
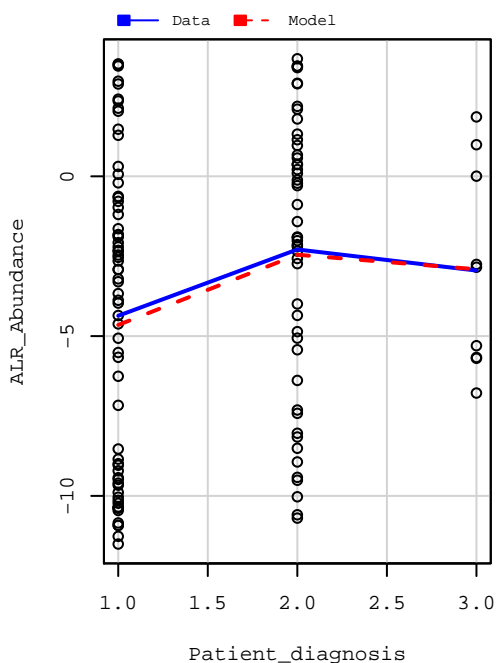
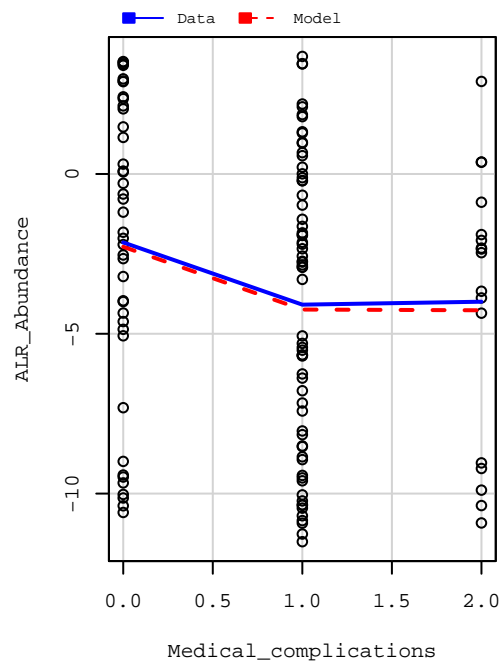
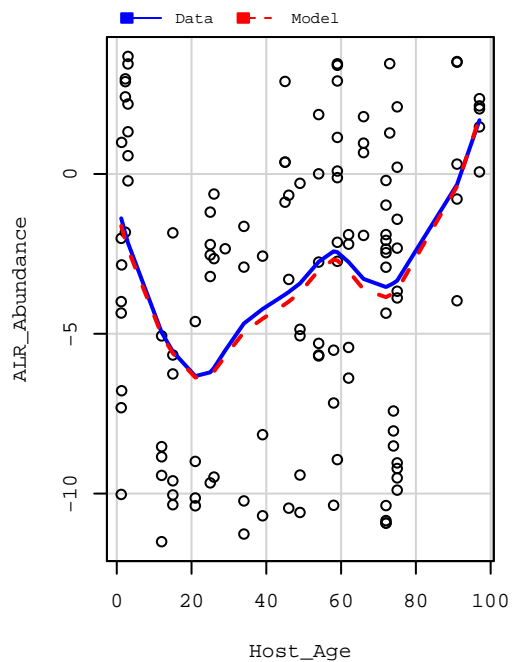
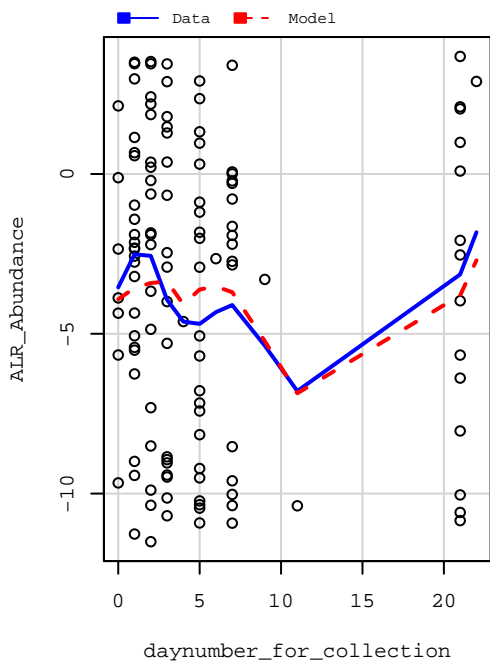
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.324 on 93 degrees of freedom

Multiple R-squared: 0.5983, Adjusted R-squared: 0.4687

F-statistic: 4.617 on 30 and 93 DF, p-value: 7.042e-09



Univariate Regression:

4.) Ochrobactrum

Mean abundance: 9.2%

R<sup>2</sup>: 0.5783

Adjusted R<sup>2</sup>: 0.4422

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	516.14	25.81	2.0641	0.01075	*
daynumber_for_collection	1	16.27	16.27	1.3014	0.25689	
Host_Age	1	268.45	268.45	21.4706	1.167e-05	***
Host_Gender	1	72.50	72.50	5.7990	0.01801	*
Medical_complications	1	35.51	35.51	2.8400	0.09530	.
Patient_diagnosis	1	65.87	65.87	5.2682	0.02397	*
Post_visit_treatment	1	46.98	46.98	3.7575	0.05560	.
Type	1	530.78	530.78	42.4520	3.676e-09	***
Vacc_status	1	11.63	11.63	0.9301	0.33734	
Fever	1	18.57	18.57	1.4854	0.22602	
SYMPTOM_COUGH	1	11.74	11.74	0.9393	0.33497	
Residuals	93	1162.77	12.50			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1



Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-10.2345	-1.7024	0.0649	2.0491	7.2348

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-12.43606	10.94743	-1.136	0.2589
Patientp1	12.56191	22.88925	0.549	0.5844
Patientp10	23.55413	26.46598	0.890	0.3758
Patientp12	-6.05873	38.73149	-0.156	0.8760
Patientp13	-0.95484	13.47915	-0.071	0.9437
Patientp15	-1.22700	20.22227	-0.061	0.9517
Patientp18	14.14398	12.74757	1.110	0.2701
Patientp19	7.14934	20.97204	0.341	0.7339
Patientp2	12.54665	7.28040	1.723	0.0881
Patientp20	-17.46447	52.58882	-0.332	0.7406
Patientp22	9.73792	8.07498	1.206	0.2309
Patientp23	10.30047	18.70577	0.551	0.5832
Patientp24	13.54385	15.92847	0.850	0.3973
Patientp25	9.30249	6.96846	1.335	0.1852
Patientp28	-18.13994	33.48279	-0.542	0.5893
Patientp3	3.36188	14.63974	0.230	0.8189
Patientp31	-9.46058	19.86456	-0.476	0.6350
Patientp32	-0.31909	19.39012	-0.016	0.9869
Patientp4	3.95398	3.85143	1.027	0.3073
Patientp6	-2.88254	17.21480	-0.167	0.8674
Patientp9	5.77638	6.32517	0.913	0.3635
daynumber_for_collection	-0.09761	0.05474	-1.783	0.0778
Host_Age	0.02508	0.10185	0.246	0.8061
Host_GenderF	-3.88353	2.99453	-1.297	0.1979
Medical_complications	-9.82112	18.23395	-0.539	0.5914
Patient_diagnosis	-3.69571	15.10003	-0.245	0.8072
Post_visit_treatment	7.54959	11.30764	0.668	0.5060
Type	12.76119	14.59413	0.874	0.3842
Vacc_statusY	-11.02564	17.96159	-0.614	0.5408
Fever	1.71505	8.10806	0.212	0.8329
SYMPTOM_COUGH	-3.96600	4.09213	-0.969	0.3350

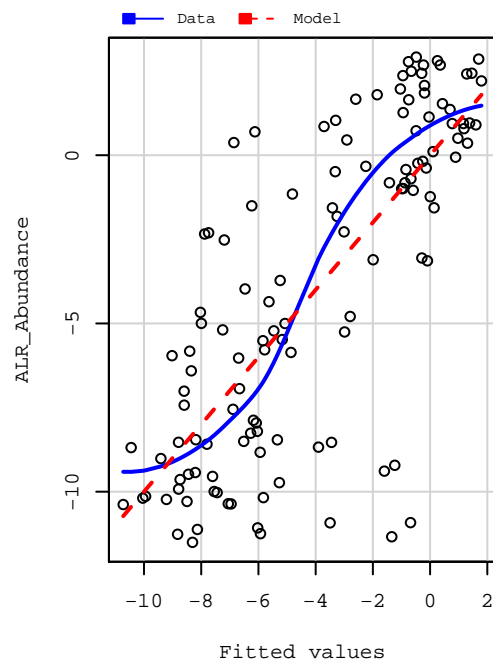
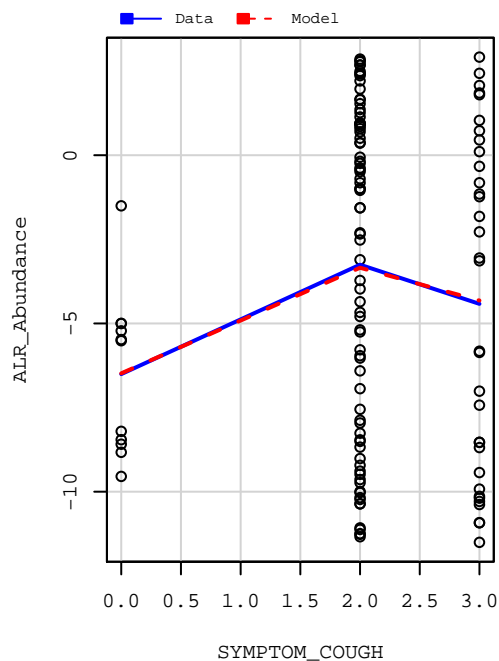
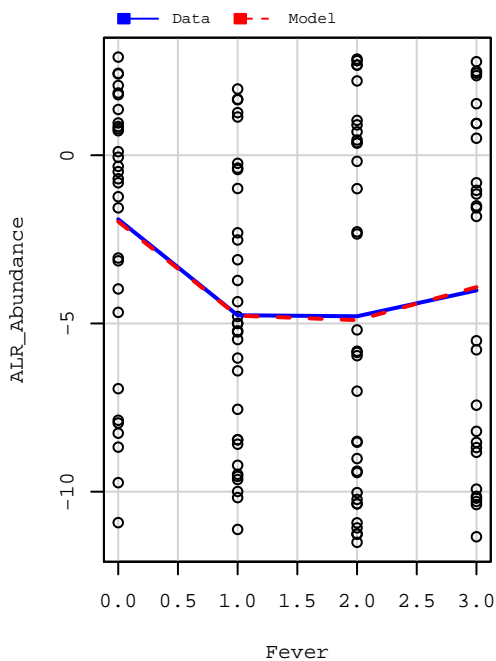
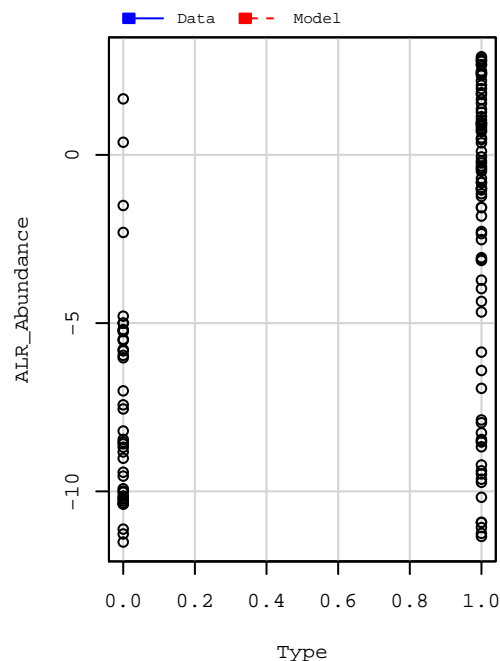
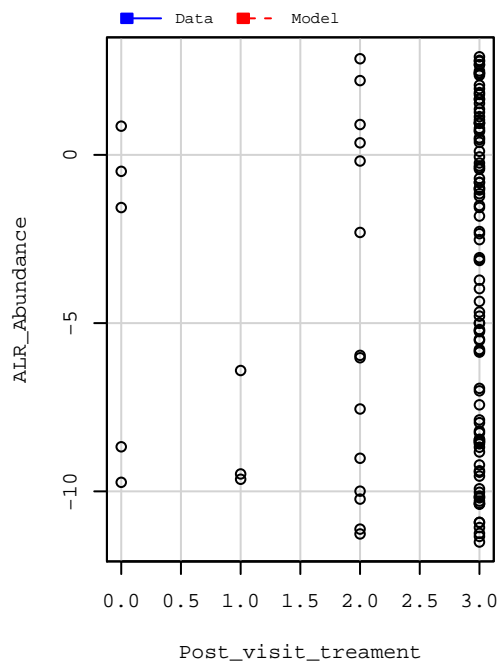
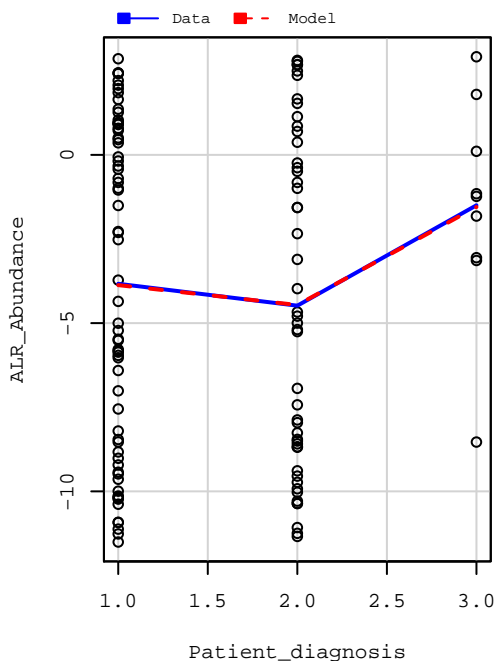
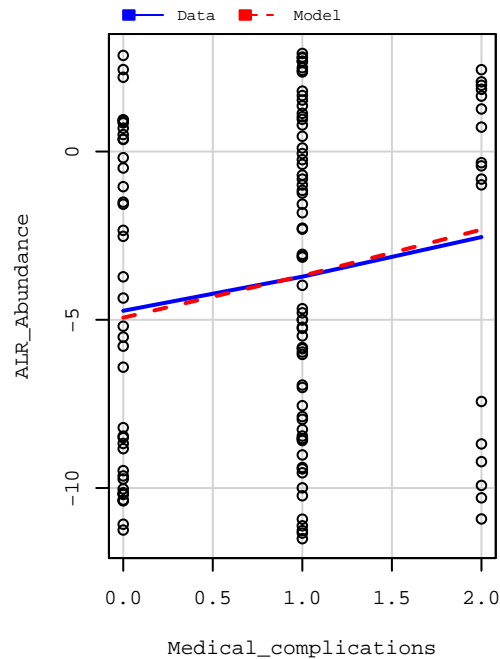
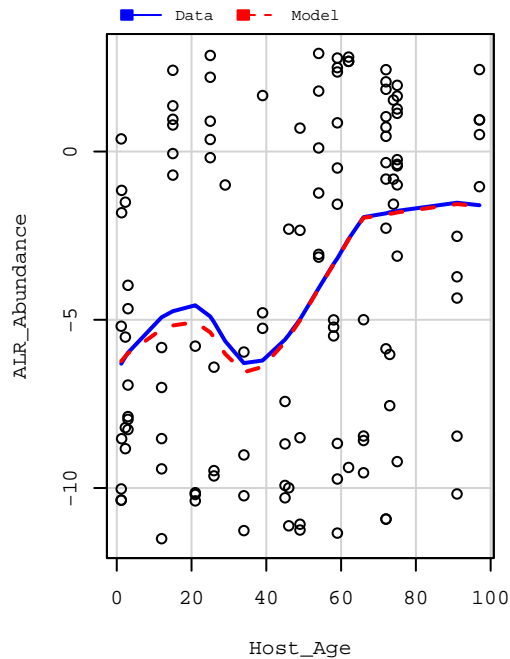
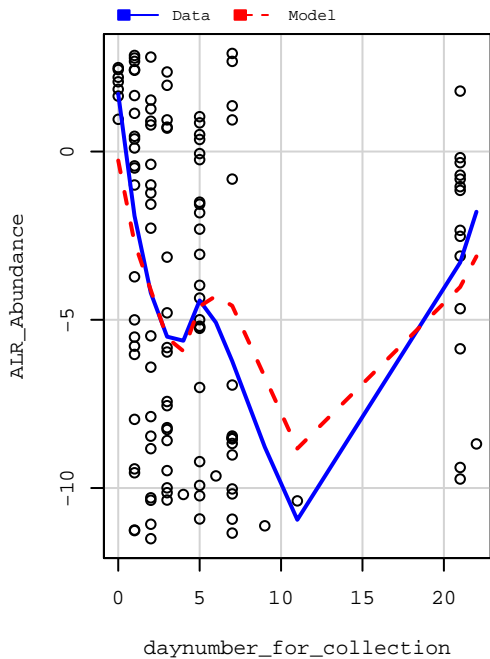
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.536 on 93 degrees of freedom

Multiple R-squared: 0.5783, Adjusted R-squared: 0.4422

F-statistic: 4.251 on 30 and 93 DF, p-value: 4.286e-08



Univariate Regression:

5.) family:Pseudomonadaceae

Mean abundance: 4.4%

R^2: 0.3721

Adjusted R^2: 0.1696

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	146.85	7.343	1.7801	0.0343423	*
daynumber_for_collection	1	3.59	3.587	0.8696	0.3534671	
Host_Age	1	55.02	55.019	13.3390	0.0004296	***
Host_Gender	1	0.29	0.290	0.0703	0.7914747	
Medical_complications	1	2.34	2.338	0.5668	0.4534251	
Patient_diagnosis	1	5.16	5.157	1.2502	0.2663922	
Post_visit_treatment	1	2.58	2.575	0.6244	0.4314284	
Type	1	1.58	1.580	0.3832	0.5374194	
Vacc_status	1	1.43	1.433	0.3474	0.5570109	
Fever	1	1.46	1.458	0.3534	0.5536414	
SYMPTOM_COUGH	1	7.07	7.070	1.7141	0.1936822	
Residuals	93	383.60	4.125			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-6.0707	-1.0900	0.0007	0.8868	4.7796

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	8.96275	6.28784	1.425	0.1574
Patientp1	16.25705	13.14682	1.237	0.2194
Patientp10	14.84621	15.20117	0.977	0.3313
Patientp12	-33.48815	22.24607	-1.505	0.1356
Patientp13	-13.48839	7.74197	-1.742	0.0848 .
Patientp15	-17.20246	11.61499	-1.481	0.1420
Patientp18	9.53714	7.32178	1.303	0.1959
Patientp19	13.75263	12.04564	1.142	0.2565
Patientp2	3.80131	4.18162	0.909	0.3657
Patientp20	-47.03027	30.20526	-1.557	0.1229
Patientp22	4.54931	4.63800	0.981	0.3292
Patientp23	11.21346	10.74397	1.044	0.2993
Patientp24	12.47719	9.14878	1.364	0.1759
Patientp25	-4.23269	4.00245	-1.058	0.2930
Patientp28	-30.67289	19.23140	-1.595	0.1141
Patientp3	-11.22489	8.40858	-1.335	0.1852
Patientp31	-19.93891	11.40954	-1.748	0.0838 .
Patientp32	-15.20401	11.13704	-1.365	0.1755
Patientp4	-3.47763	2.21213	-1.572	0.1193
Patientp6	-15.27212	9.88760	-1.545	0.1258
Patientp9	-5.35384	3.63297	-1.474	0.1439
daynumber_for_collection	-0.02508	0.03144	-0.798	0.4270
Host_Age	-0.02804	0.05850	-0.479	0.6329
Host_GenderF	-2.57623	1.71996	-1.498	0.1376
Medical_complications	-15.76321	10.47297	-1.505	0.1357
Patient_diagnosis	-12.88110	8.67295	-1.485	0.1409
Post_visit_treatment	9.08244	6.49473	1.398	0.1653
Type	12.64752	8.38238	1.509	0.1347
Vacc_statusY	-15.78150	10.31654	-1.530	0.1295
Fever	6.65619	4.65700	1.429	0.1563
SYMPTOM_COUGH	-3.07719	2.35038	-1.309	0.1937

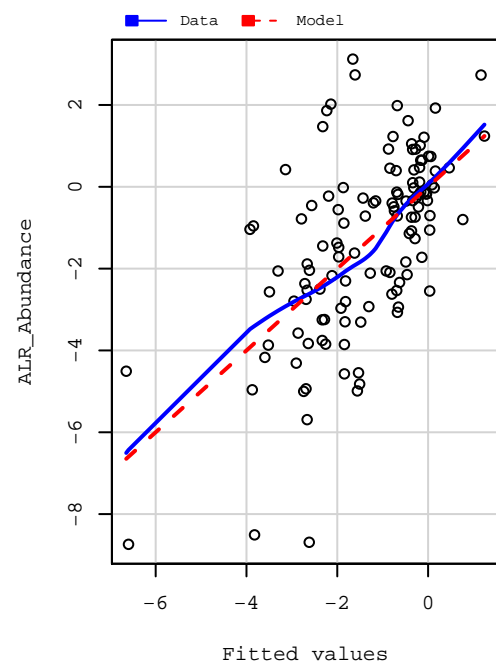
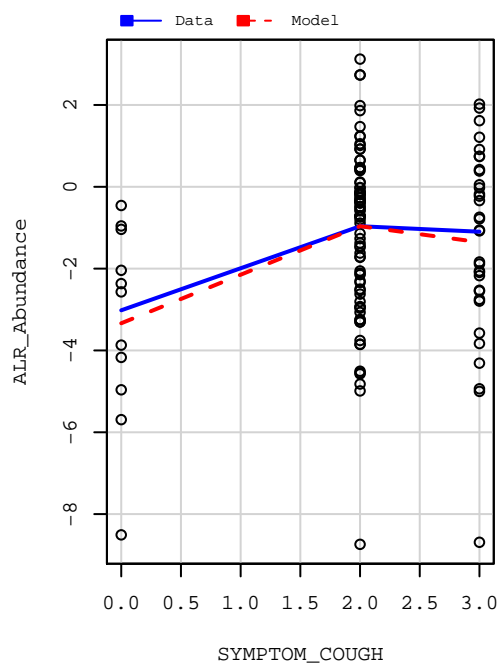
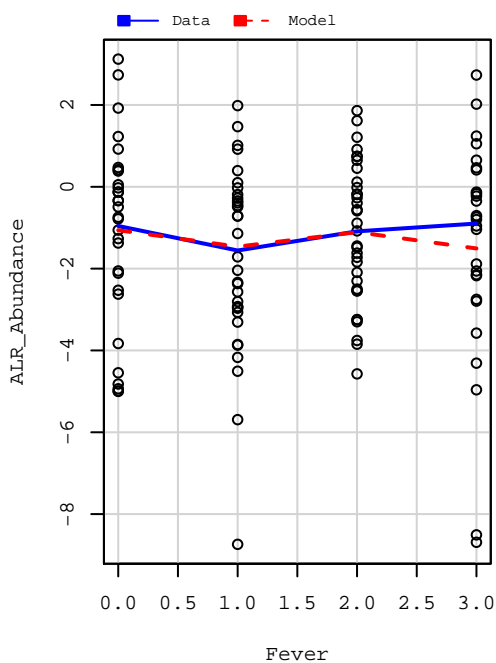
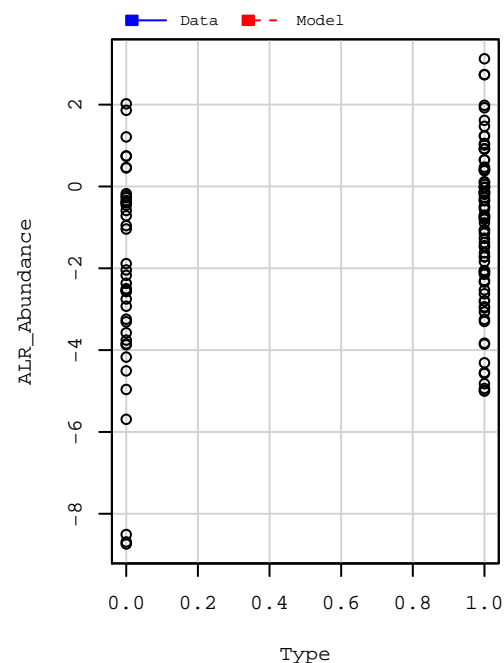
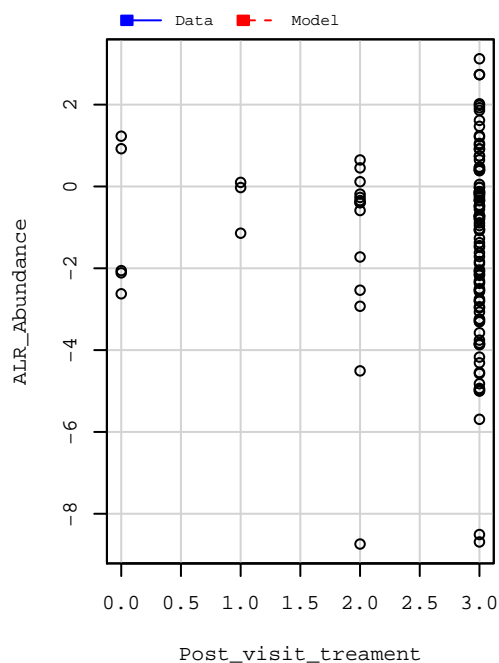
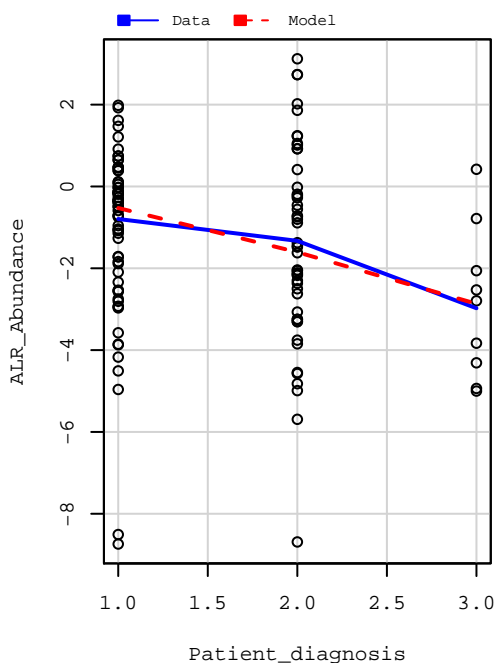
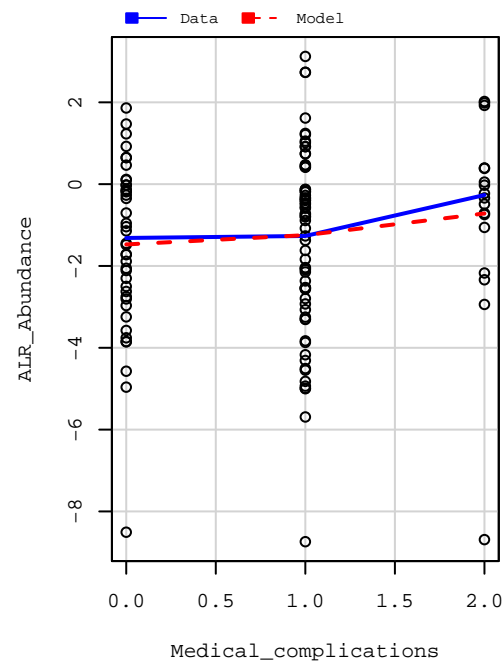
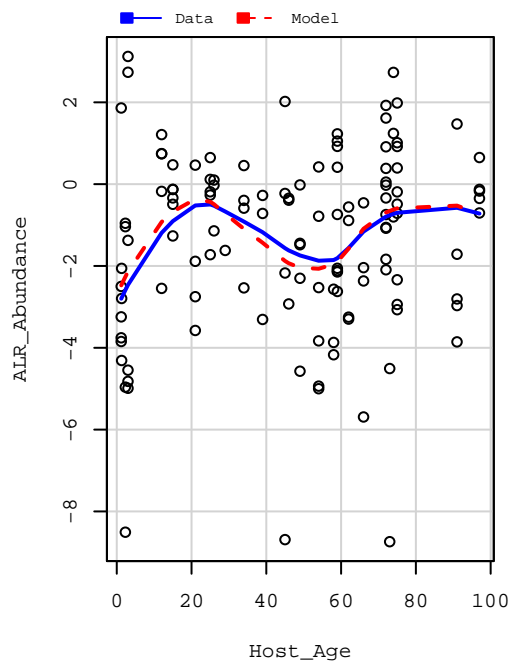
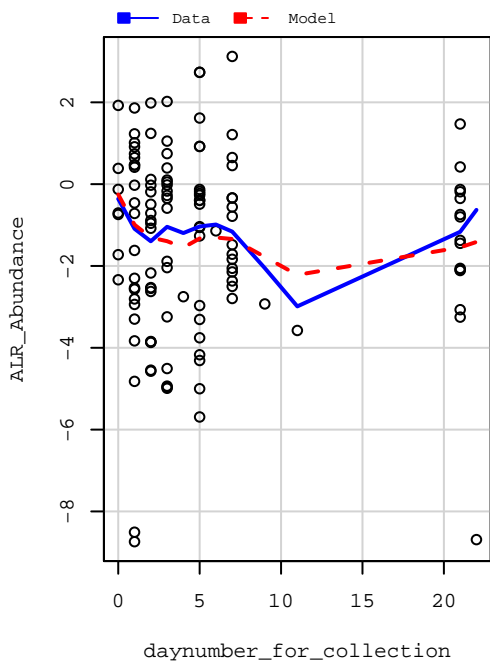
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.031 on 93 degrees of freedom

Multiple R-squared: 0.3721, Adjusted R-squared: 0.1696

F-statistic: 1.837 on 30 and 93 DF, p-value: 0.01435



Univariate Regression:

6.) Haemophilus

Mean abundance: 3.3%

R<sup>2</sup>: 0.6131

Adjusted R<sup>2</sup>: 0.4883

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	682.41	34.120	5.1626	2.133e-08	***
daynumber_for_collection	1	0.80	0.798	0.1208	0.7289477	
Host_Age	1	29.17	29.168	4.4133	0.0383663	*
Host_Gender	1	6.99	6.989	1.0575	0.3064520	
Medical_complications	1	49.40	49.398	7.4743	0.0074931	**
Patient_diagnosis	1	63.60	63.599	9.6229	0.0025446	**
Post_visit_treatment	1	26.80	26.805	4.0557	0.0469118	*
Type	1	103.48	103.480	15.6570	0.0001483	***
Vacc_status	1	9.24	9.243	1.3985	0.2399972	
Fever	1	1.23	1.233	0.1865	0.6668324	
SYMPTOM_COUGH	1	1.05	1.048	0.1585	0.6914291	
Residuals	93	614.65	6.609			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-8.0030	-1.2246	-0.0451	1.0935	5.8239

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.48240	7.95936	0.940	0.3496
Patientp1	4.55848	16.64170	0.274	0.7848
Patientp10	15.30328	19.24217	0.795	0.4285
Patientp12	-27.90245	28.15985	-0.991	0.3243
Patientp13	-6.26615	9.80006	-0.639	0.5241
Patientp15	-15.34943	14.70266	-1.044	0.2992
Patientp18	6.30711	9.26816	0.681	0.4979
Patientp19	6.64565	15.24779	0.436	0.6640
Patientp2	0.32556	5.29324	0.062	0.9511
Patientp20	-35.97994	38.23486	-0.941	0.3491
Patientp22	-3.28856	5.87094	-0.560	0.5767
Patientp23	-6.35914	13.60008	-0.468	0.6412
Patientp24	3.53896	11.58084	0.306	0.7606
Patientp25	-4.71492	5.06644	-0.931	0.3545
Patientp28	-33.84737	24.34377	-1.390	0.1677
Patientp3	-12.61510	10.64387	-1.185	0.2390
Patientp31	-20.38273	14.44259	-1.411	0.1615
Patientp32	-12.26985	14.09765	-0.870	0.3864
Patientp4	-2.05538	2.80020	-0.734	0.4648
Patientp6	-21.33264	12.51607	-1.704	0.0916 .
Patientp9	-8.90245	4.59874	-1.936	0.0559 .
daynumber_for_collection	-0.01198	0.03980	-0.301	0.7642
Host_Age	-0.09407	0.07405	-1.270	0.2072
Host_GenderF	-5.21092	2.17718	-2.393	0.0187 *
Medical_complications	-15.12328	13.25705	-1.141	0.2569
Patient_diagnosis	-5.73749	10.97853	-0.523	0.6025
Post_visit_treatment	5.59307	8.22126	0.680	0.4980
Type	11.31784	10.61071	1.067	0.2889
Vacc_statusY	-10.10334	13.05903	-0.774	0.4411
Fever	3.31770	5.89499	0.563	0.5749
SYMPTOM_COUGH	-1.18459	2.97520	-0.398	0.6914

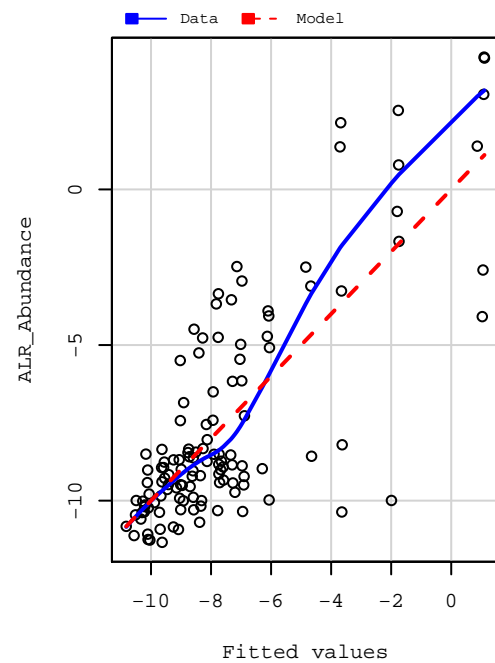
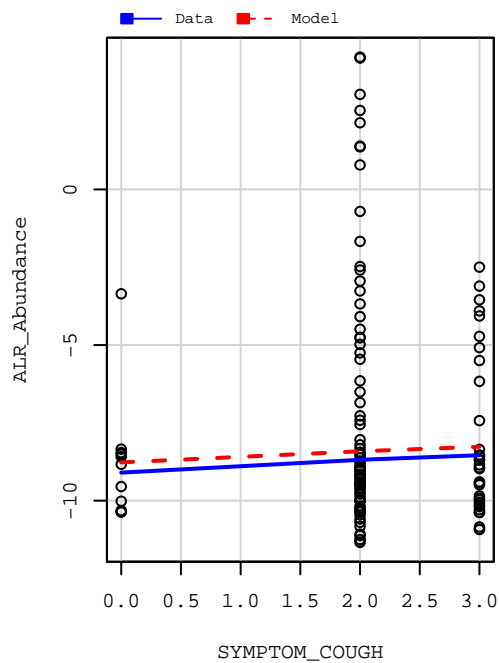
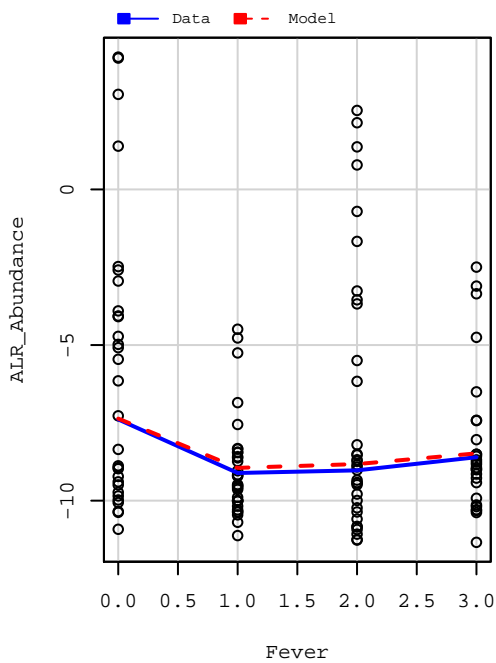
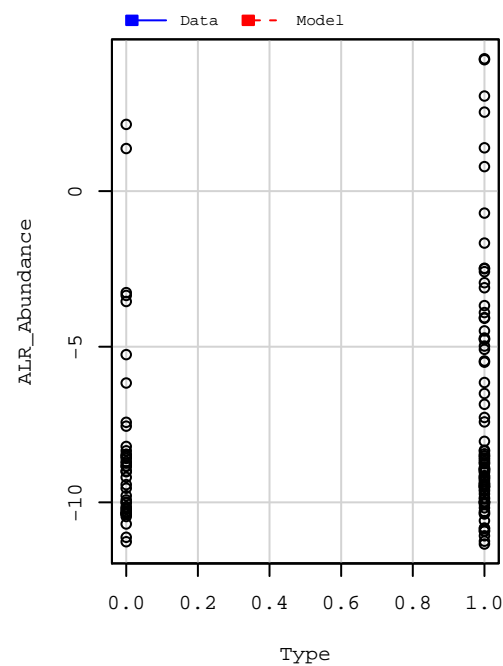
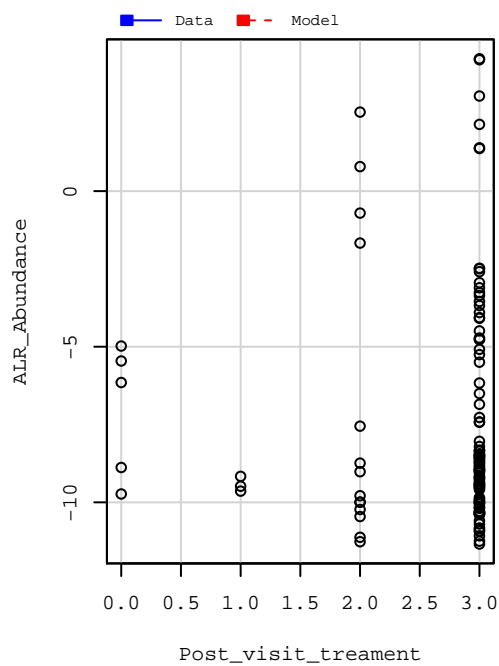
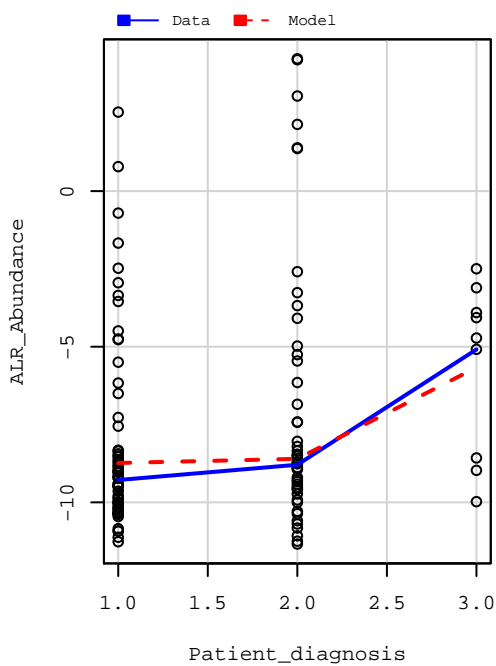
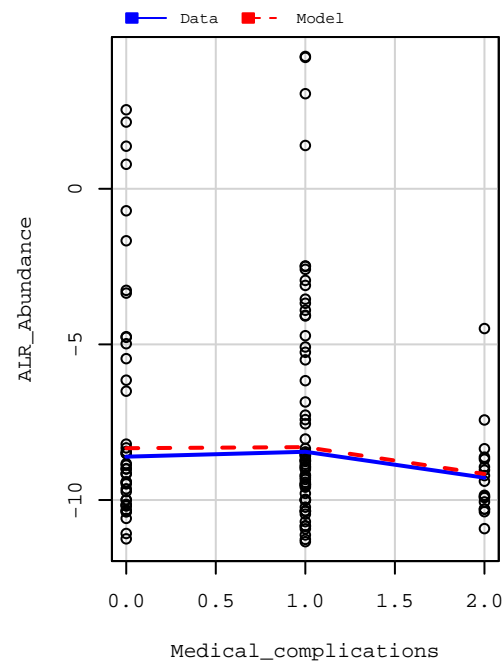
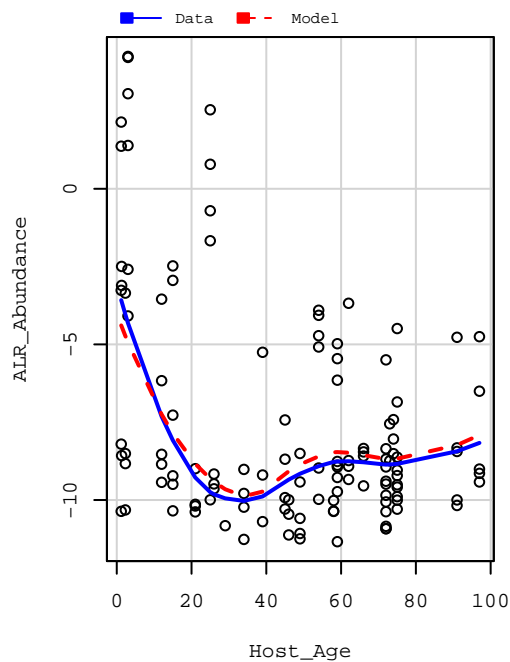
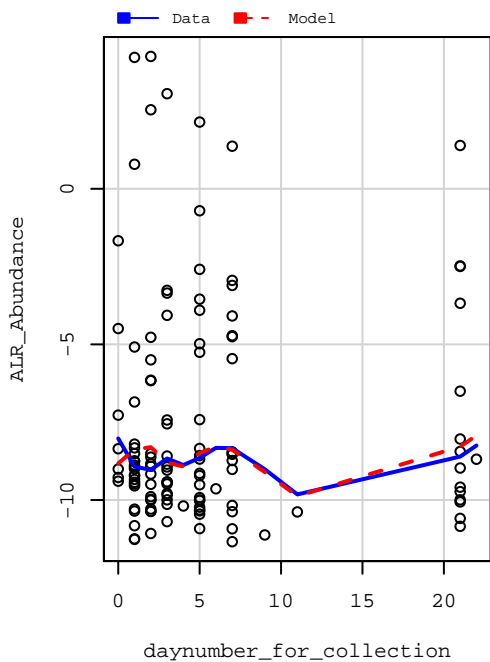
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.571 on 93 degrees of freedom

Multiple R-squared: 0.6131, Adjusted R-squared: 0.4883

F-statistic: 4.913 on 30 and 93 DF, p-value: 1.701e-09





Univariate Regression:

7.) family:Xanthomonadaceae

Mean abundance: 3.2%

R<sup>2</sup>: 0.5088

Adjusted R<sup>2</sup>: 0.3503

Analysis of Variance Table

Response: ALR\_Abandance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	211.327	10.5663	3.7644	6.788e-06	***
daynumber_for_collection	1	0.090	0.0899	0.0320	0.858355	
Host_Age	1	1.701	1.7014	0.6061	0.438224	
Host_Gender	1	4.023	4.0225	1.4331	0.234307	
Medical_complications	1	2.727	2.7266	0.9714	0.326894	
Patient_diagnosis	1	11.457	11.4572	4.0818	0.046224	*
Post_visit_treatment	1	0.248	0.2485	0.0885	0.766731	
Type	1	11.931	11.9314	4.2507	0.042024	*
Vacc_status	1	21.535	21.5349	7.6721	0.006771	**
Fever	1	2.081	2.0811	0.7414	0.391424	
SYMPTOM_COUGH	1	3.278	3.2779	1.1678	0.282648	
Residuals	93	261.044	2.8069			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-5.2346	-0.7642	0.0254	0.8727	3.4989

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	2.41482	5.18706	0.466	0.643
Patientp1	5.86417	10.84527	0.541	0.590
Patientp10	-3.80940	12.53998	-0.304	0.762
Patientp12	-4.43299	18.35157	-0.242	0.810
Patientp13	-5.38300	6.38663	-0.843	0.401
Patientp15	-2.74569	9.58162	-0.287	0.775
Patientp18	5.17597	6.03999	0.857	0.394
Patientp19	-2.56644	9.93687	-0.258	0.797
Patientp2	-0.85775	3.44956	-0.249	0.804
Patientp20	-11.00203	24.91738	-0.442	0.660
Patientp22	2.80495	3.82605	0.733	0.465
Patientp23	1.26028	8.86307	0.142	0.887
Patientp24	0.98419	7.54715	0.130	0.897
Patientp25	-1.00408	3.30176	-0.304	0.762
Patientp28	-2.55171	15.86465	-0.161	0.873
Patientp3	2.79331	6.93653	0.403	0.688
Patientp31	-5.39353	9.41213	-0.573	0.568
Patientp32	-4.27224	9.18733	-0.465	0.643
Patientp4	3.30872	1.82487	1.813	0.073
Patientp6	-0.53800	8.15663	-0.066	0.948
Patientp9	1.40285	2.99696	0.468	0.641
daynumber_for_collection	0.01677	0.02594	0.647	0.520
Host_Age	0.04252	0.04826	0.881	0.381
Host_GenderF	0.88276	1.41885	0.622	0.535
Medical_complications	-3.69348	8.63952	-0.428	0.670
Patient_diagnosis	-2.24496	7.15462	-0.314	0.754
Post_visit_treatment	0.63790	5.35773	0.119	0.905
Type	0.08167	6.91492	0.012	0.991
Vacc_statusY	-0.48884	8.51047	-0.057	0.954
Fever	1.88220	3.84172	0.490	0.625
SYMPTOM_COUGH	-2.09528	1.93891	-1.081	0.283

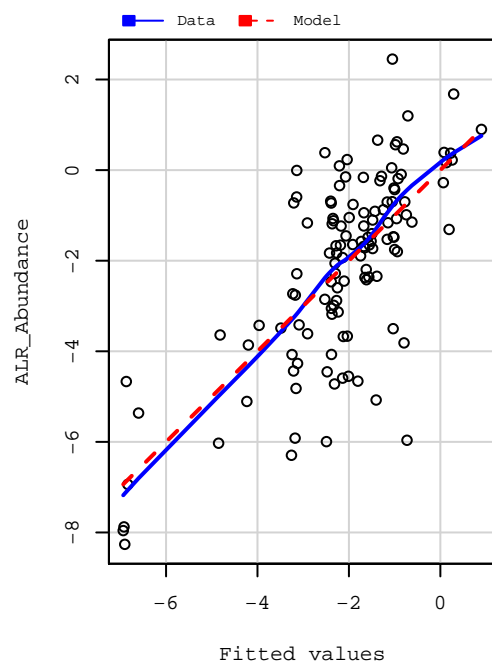
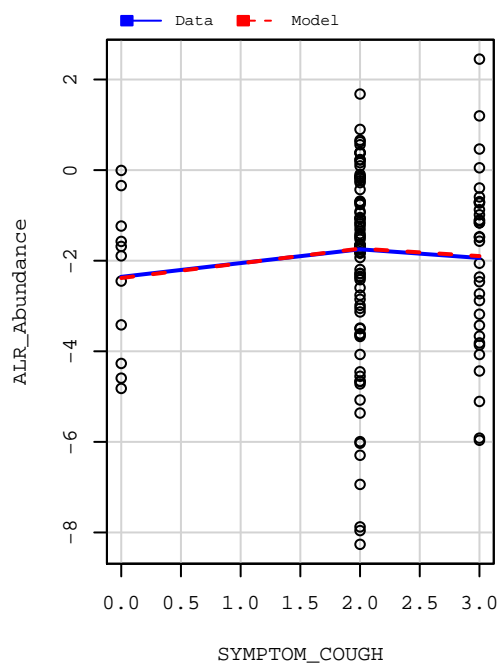
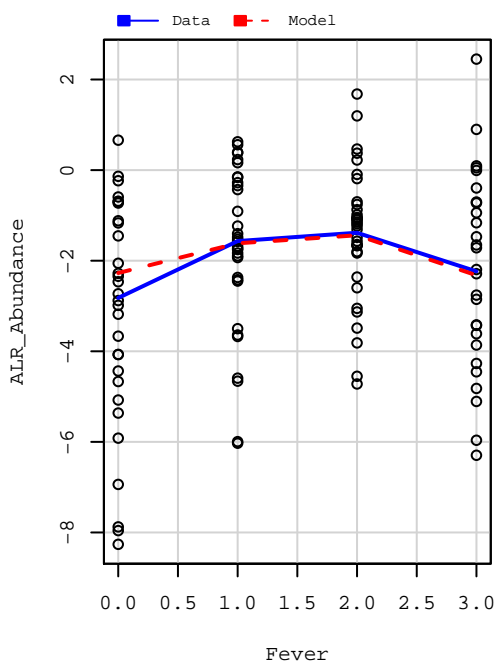
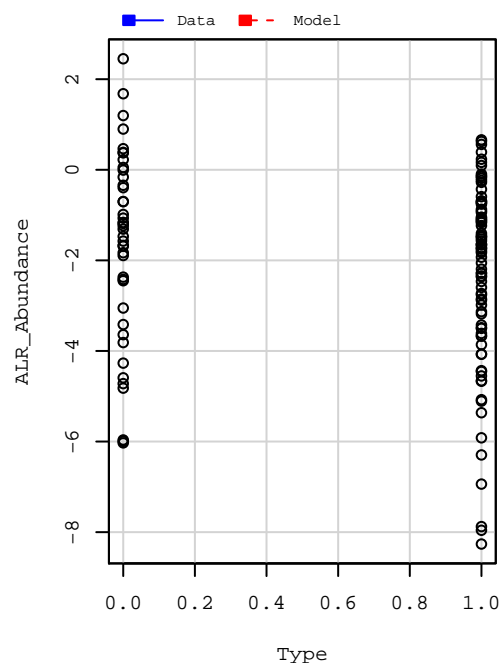
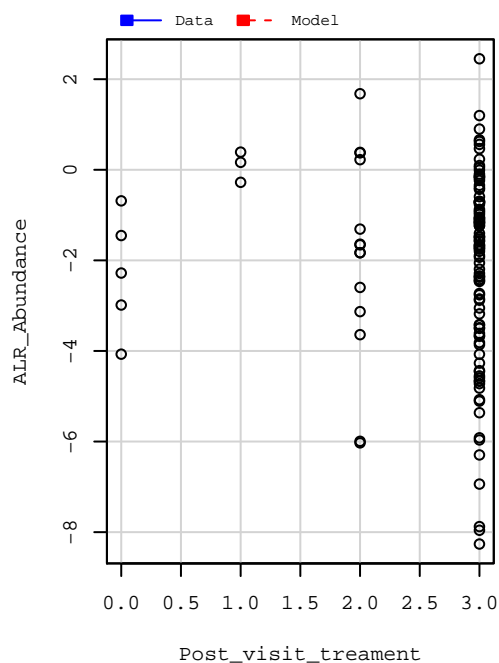
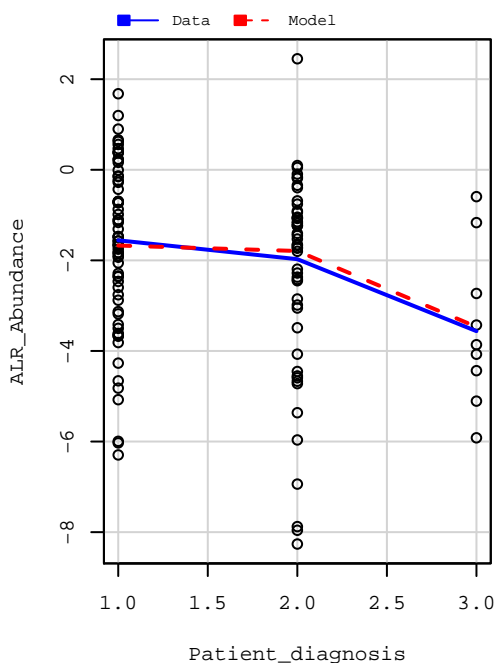
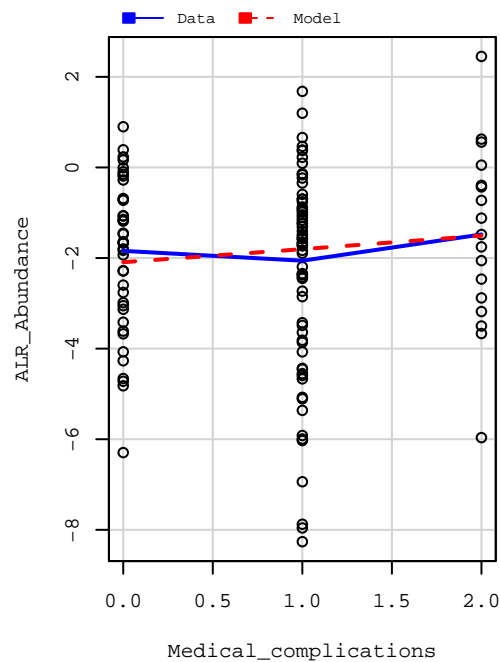
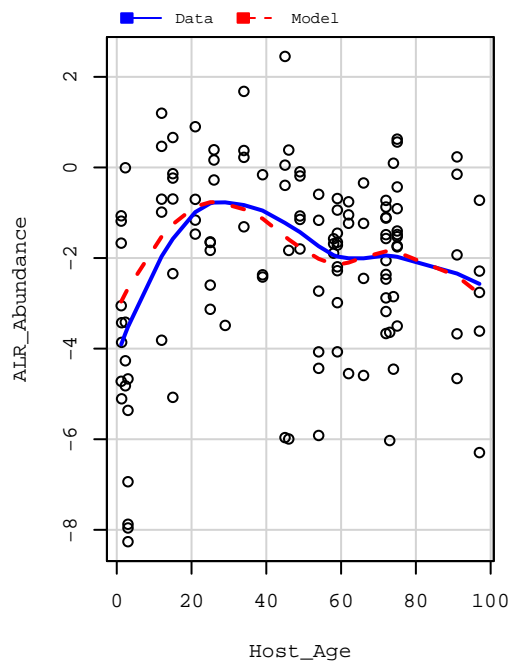
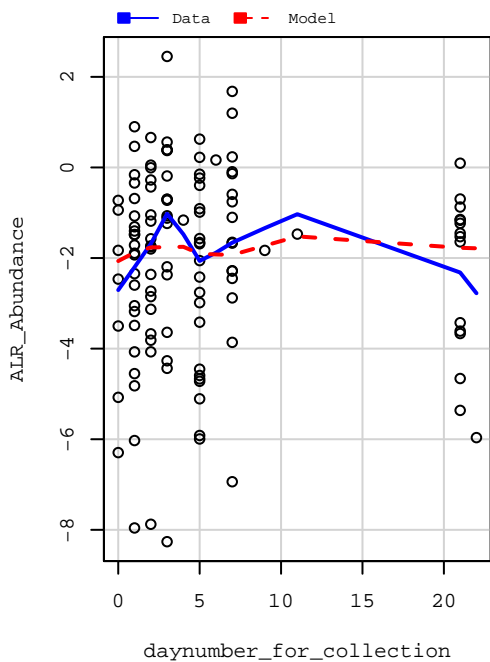
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.675 on 93 degrees of freedom

Multiple R-squared: 0.5088, Adjusted R-squared: 0.3503

F-statistic: 3.211 on 30 and 93 DF, p-value: 9.355e-06



Univariate Regression:

8.) Delftia

Mean abundance: 3.1%

R<sup>2</sup>: 0.8867

Adjusted R<sup>2</sup>: 0.8501

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	620.52	31.026	20.9534	< 2.2e-16	***
daynumber_for_collection	1	0.28	0.281	0.1895	0.664356	
Host_Age	1	50.66	50.662	34.2146	7.303e-08	***
Host_Gender	1	16.82	16.821	11.3602	0.001094	**
Medical_complications	1	117.06	117.065	79.0595	4.524e-14	***
Patient_diagnosis	1	0.75	0.748	0.5049	0.479153	
Post_visit_treatment	1	152.21	152.214	102.7977	< 2.2e-16	***
Type	1	31.06	31.059	20.9754	1.440e-05	***
Vacc_status	1	3.58	3.585	2.4211	0.123105	
Fever	1	7.15	7.155	4.8318	0.030421	*
SYMPTOM_COUGH	1	77.36	77.364	52.2479	1.340e-10	***
Residuals	93	137.71	1.481			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-2.5330	-0.6114	0.0031	0.4747	5.2928

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	-33.49048	3.76740	-8.890	4.57e-14	***
Patientp1	-57.98397	7.87700	-7.361	7.15e-11	***
Patientp10	-69.89042	9.10788	-7.674	1.62e-11	***
Patientp12	91.57944	13.32888	6.871	7.14e-10	***
Patientp13	35.92933	4.63865	7.746	1.15e-11	***
Patientp15	48.70678	6.95920	6.999	3.93e-10	***
Patientp18	-27.17012	4.38689	-6.193	1.58e-08	***
Patientp19	-51.71620	7.21722	-7.166	1.80e-10	***
Patientp2	-18.19813	2.50544	-7.263	1.14e-10	***
Patientp20	122.60965	18.09767	6.775	1.11e-09	***
Patientp22	-20.03491	2.77889	-7.210	1.46e-10	***
Patientp23	-39.26952	6.43732	-6.100	2.40e-08	***
Patientp24	-42.73533	5.48155	-7.796	9.01e-12	***
Patientp25	3.49051	2.39809	1.456	0.149	
Patientp28	74.95025	11.52262	6.505	3.86e-09	***
Patientp3	31.63321	5.03805	6.279	1.08e-08	***
Patientp31	35.49936	6.83610	5.193	1.21e-06	***
Patientp32	47.48096	6.67283	7.116	2.28e-10	***
Patientp4	8.90608	1.32541	6.719	1.44e-09	***
Patientp6	39.77176	5.92422	6.713	1.48e-09	***
Patientp9	12.70698	2.17672	5.838	7.69e-08	***
daynumber_for_collection	-0.01467	0.01884	-0.779	0.438	
Host_Age	0.19414	0.03505	5.539	2.81e-07	***
Host_GenderF	6.98833	1.03052	6.781	1.08e-09	***
Medical_complications	38.31849	6.27495	6.107	2.34e-08	***
Patient_diagnosis	35.51271	5.19646	6.834	8.47e-10	***
Post_visit_treatment	-24.19289	3.89136	-6.217	1.42e-08	***
Type	-38.89565	5.02236	-7.745	1.15e-11	***
Vacc_statusY	47.42872	6.18122	7.673	1.62e-11	***
Fever	-20.47491	2.79027	-7.338	7.98e-11	***
SYMPTOM_COUGH	10.17918	1.40825	7.228	1.34e-10	***

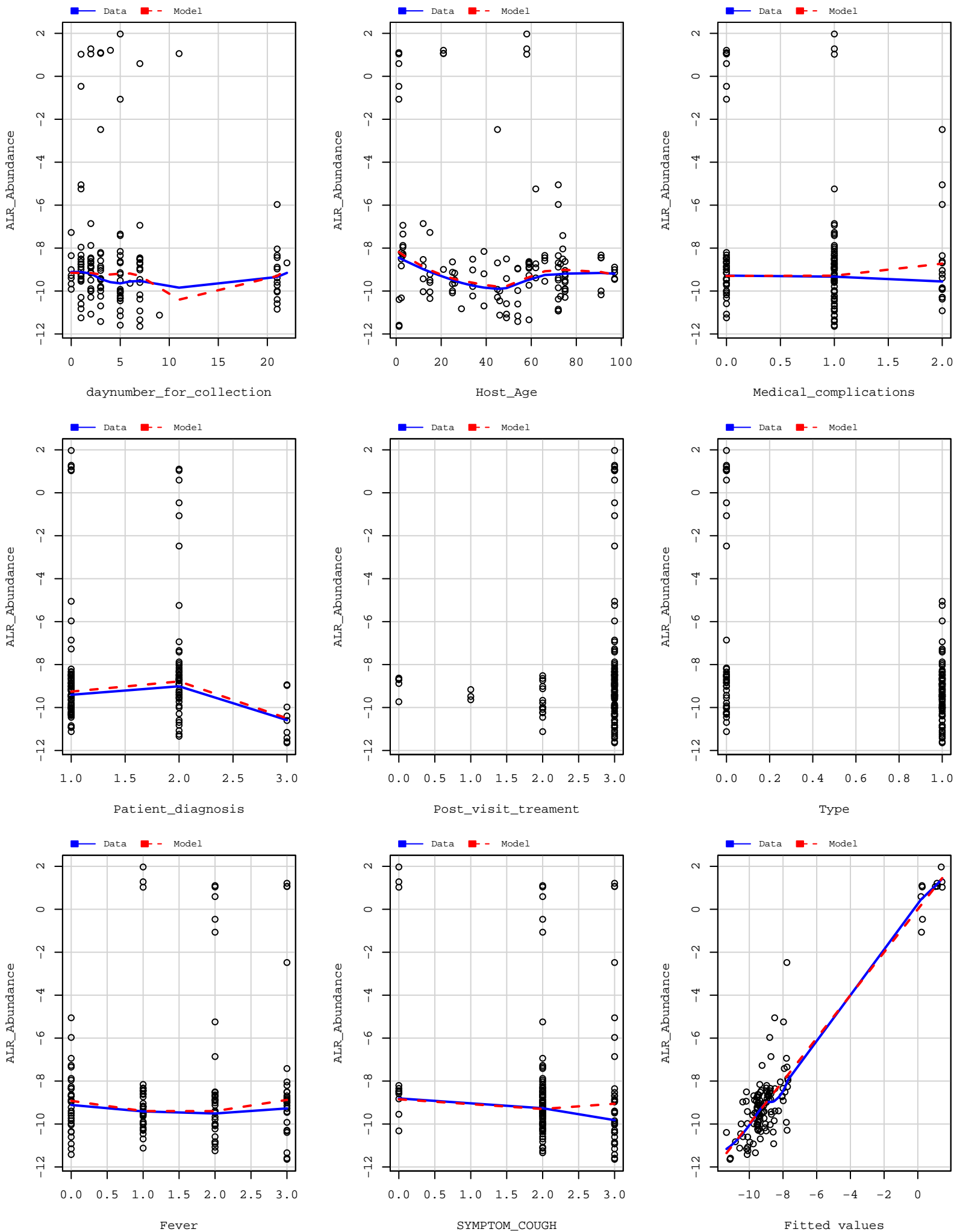
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.217 on 93 degrees of freedom

Multiple R-squared: 0.8867, Adjusted R-squared: 0.8501

F-statistic: 24.26 on 30 and 93 DF, p-value: < 2.2e-16



Univariate Regression:

9.) Streptococcus

Mean abundance: 2.4%

R<sup>2</sup>: 0.3757

Adjusted R<sup>2</sup>: 0.1743

Analysis of Variance Table

Response: ALR\_Abandance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	377.87	18.8934	2.2321	0.005277	**
daynumber_for_collection	1	8.13	8.1323	0.9608	0.329536	
Host_Age	1	27.05	27.0500	3.1957	0.077088	.
Host_Gender	1	1.84	1.8421	0.2176	0.641942	
Medical_complications	1	21.13	21.1267	2.4959	0.117535	
Patient_diagnosis	1	29.25	29.2508	3.4557	0.066195	.
Post_visit_treatment	1	4.72	4.7208	0.5577	0.457065	
Type	1	0.03	0.0326	0.0038	0.950662	
Vacc_status	1	0.61	0.6069	0.0717	0.789467	
Fever	1	0.11	0.1058	0.0125	0.911228	
SYMPTOM_COUGH	1	2.96	2.9606	0.3498	0.555678	
Residuals	93	787.19	8.4644			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

```
Call:
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-6.5777	-1.7677	0.2019	1.7974	6.0923

Coefficients:

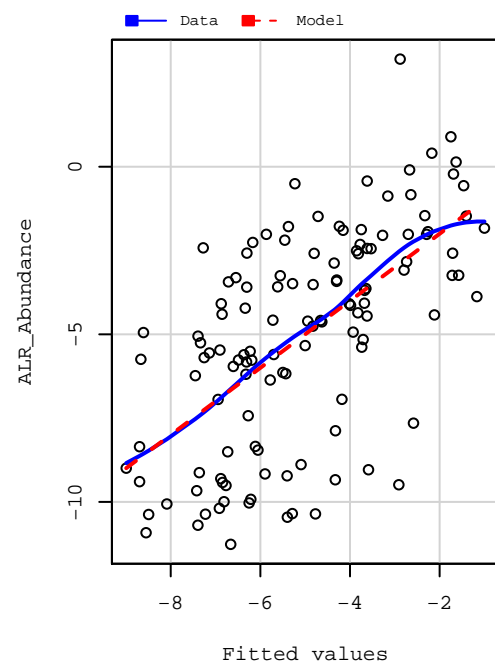
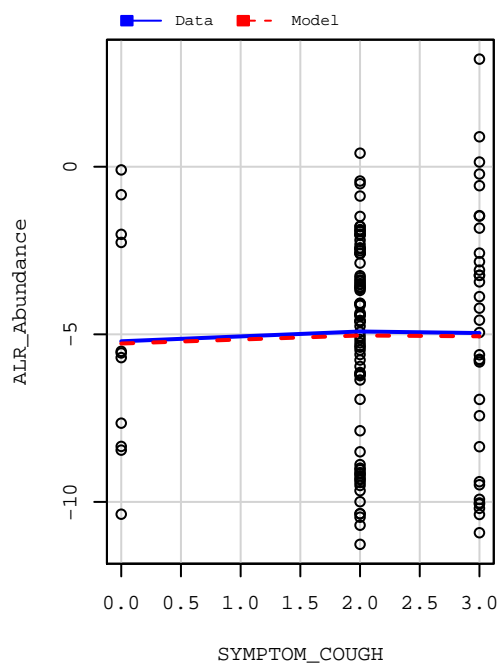
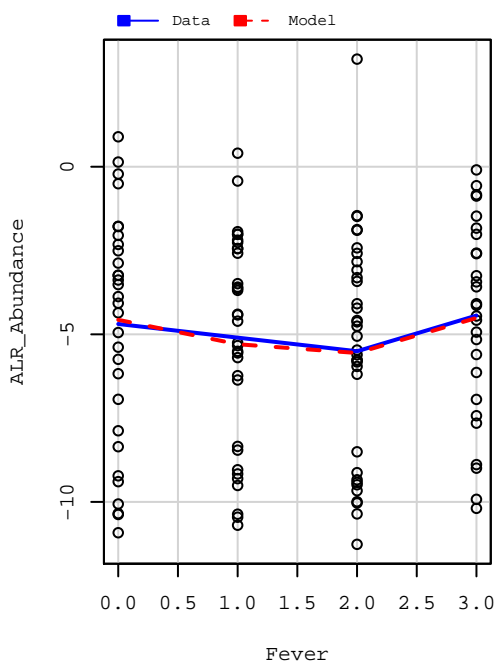
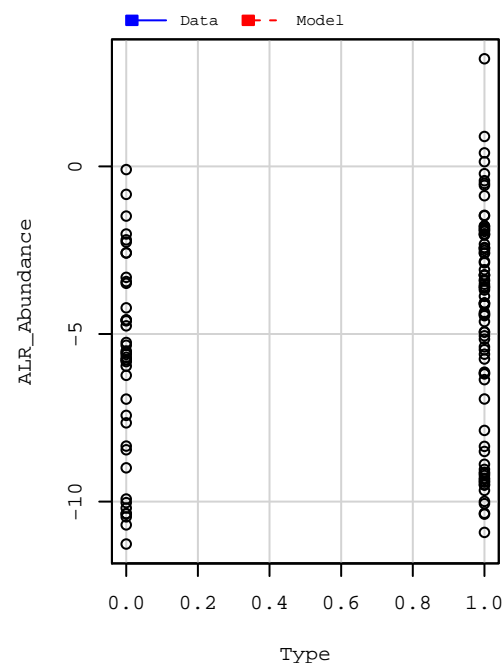
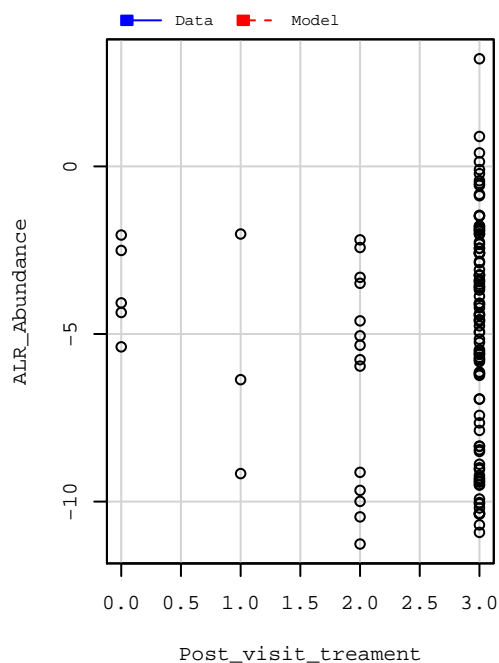
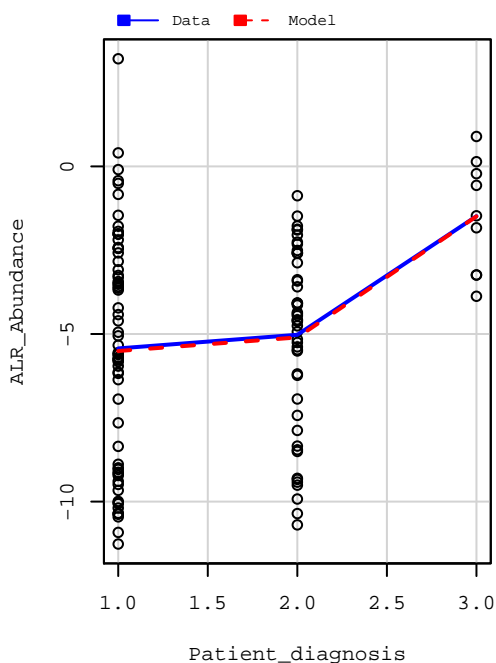
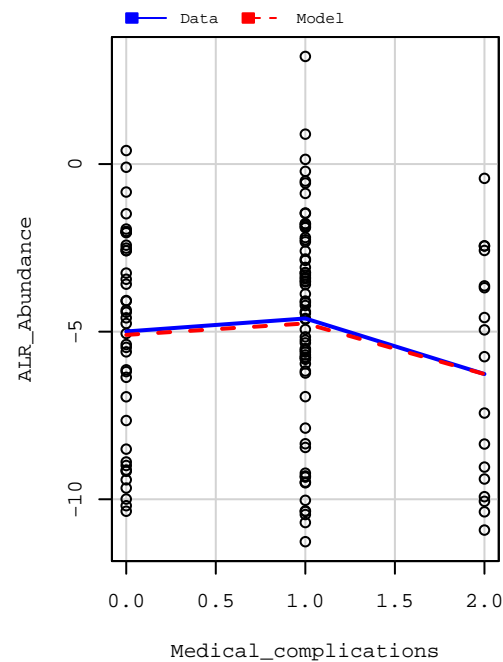
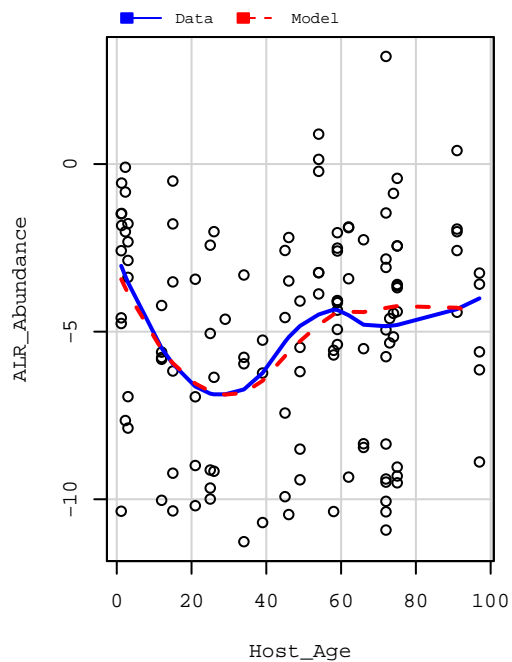
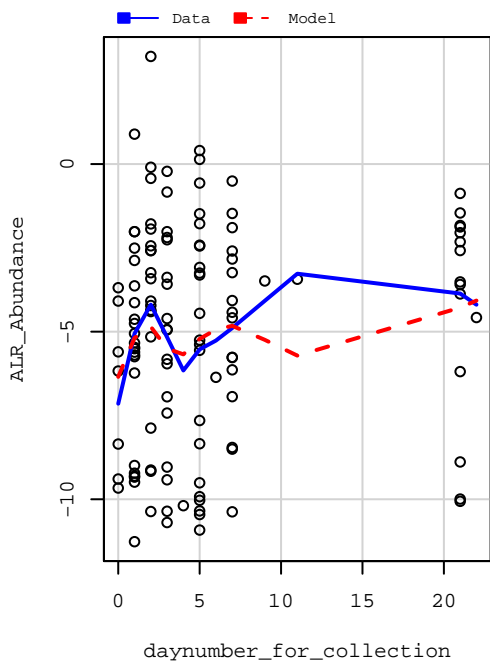
	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-13.31799	9.00750	-1.479	0.143
Patientp1	-8.24405	18.83319	-0.438	0.663
Patientp10	-10.34915	21.77610	-0.475	0.636
Patientp12	20.50496	31.86812	0.643	0.522
Patientp13	7.31454	11.09059	0.660	0.511
Patientp15	11.84153	16.63880	0.712	0.478
Patientp18	-8.58086	10.48865	-0.818	0.415
Patientp19	-7.86430	17.25571	-0.456	0.650
Patientp2	-1.60023	5.99028	-0.267	0.790
Patientp20	32.83670	43.26987	0.759	0.450
Patientp22	-3.80897	6.64406	-0.573	0.568
Patientp23	-5.68840	15.39103	-0.370	0.713
Patientp24	-7.89279	13.10588	-0.602	0.548
Patientp25	6.85305	5.73362	1.195	0.235
Patientp28	18.70122	27.54951	0.679	0.499
Patientp3	7.98248	12.04552	0.663	0.509
Patientp31	19.31816	16.34448	1.182	0.240
Patientp32	12.13547	15.95411	0.761	0.449
Patientp4	4.32131	3.16894	1.364	0.176
Patientp6	9.45240	14.16427	0.667	0.506
Patientp9	3.10000	5.20433	0.596	0.553
daynumber_for_collection	0.02899	0.04504	0.644	0.521
Host_Age	-0.00277	0.08381	-0.033	0.974
Host_GenderF	2.10805	2.46389	0.856	0.394
Medical_complications	11.46681	15.00283	0.764	0.447
Patient_diagnosis	8.99879	12.42425	0.724	0.471
Post_visit_treatment	-6.63965	9.30388	-0.714	0.477
Type	-6.69258	12.00800	-0.557	0.579
Vacc_statusY	9.33643	14.77872	0.632	0.529
Fever	-3.77366	6.67128	-0.566	0.573
SYMPTOM_COUGH	1.99128	3.36699	0.591	0.556

Residual standard error: 2.909 on 93 degrees of freedom

Multiple R-squared: 0.3757, Adjusted R-squared: 0.1743

F-statistic: 1.865 on 30 and 93 DF, p-value: 0.01245





Univariate Regression:

10.) Dyella

Mean abundance: 1.9%

R<sup>2</sup>: 0.4149

Adjusted R<sup>2</sup>: 0.2261

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	156.60	7.830	2.1043	0.009074	**
daynumber_for_collection	1	4.34	4.344	1.1676	0.282699	
Host_Age	1	3.02	3.016	0.8106	0.370275	
Host_Gender	1	8.23	8.232	2.2124	0.140288	
Medical_complications	1	0.03	0.028	0.0074	0.931515	
Patient_diagnosis	1	5.20	5.202	1.3979	0.240088	
Post_visit_treatment	1	0.31	0.312	0.0839	0.772734	
Type	1	16.77	16.765	4.5057	0.036439	*
Vacc_status	1	36.05	36.048	9.6879	0.002464	**
Fever	1	7.73	7.726	2.0762	0.152967	
SYMPTOM_COUGH	1	7.10	7.102	1.9086	0.170428	
Residuals	93	346.05	3.721			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-6.3224	-0.8044	0.0223	1.0797	4.1729

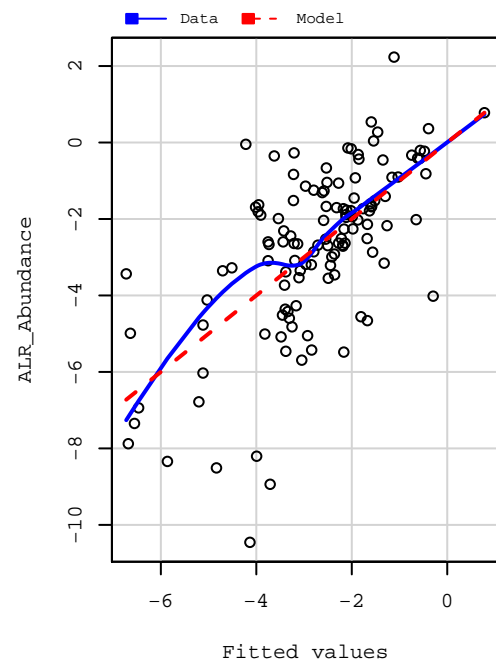
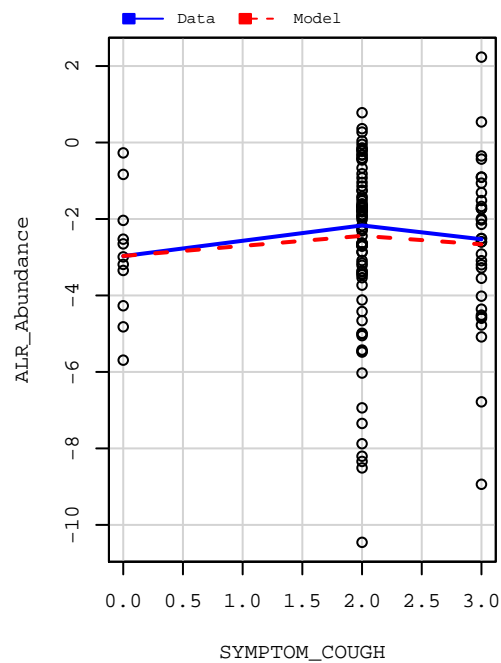
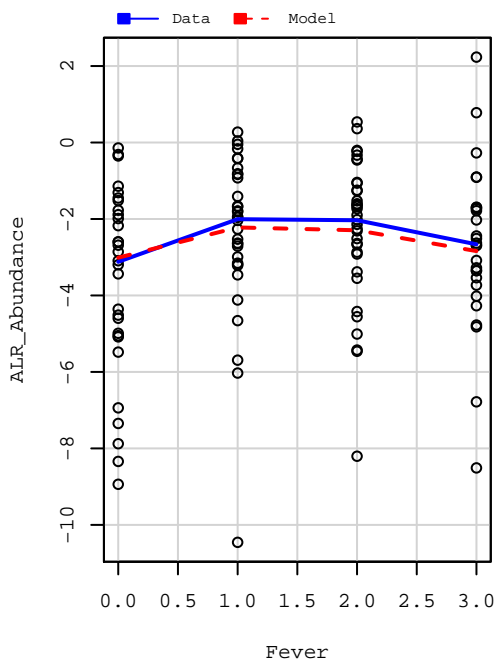
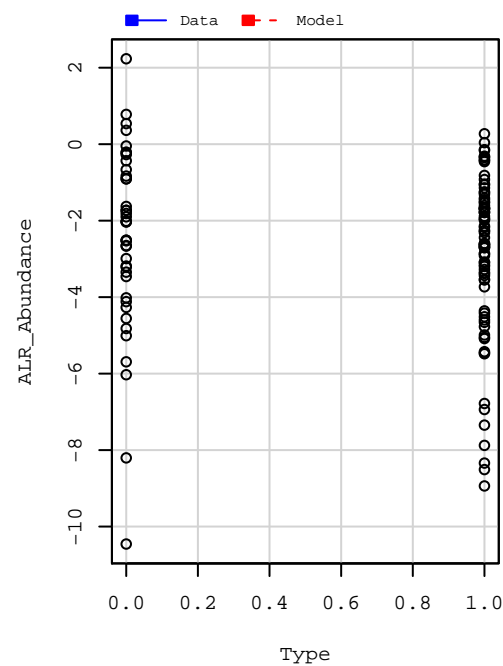
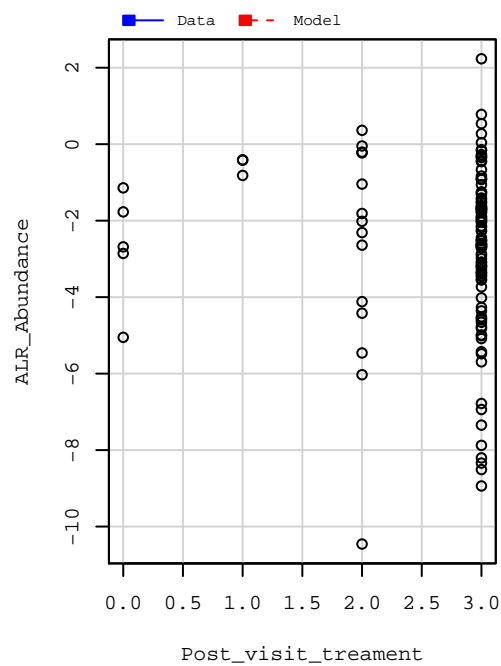
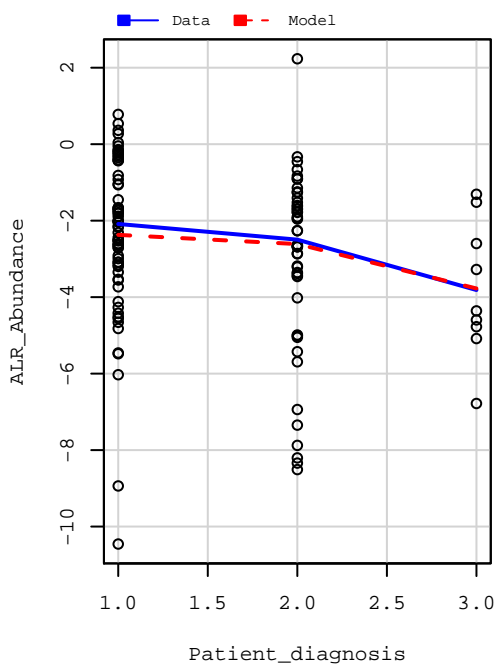
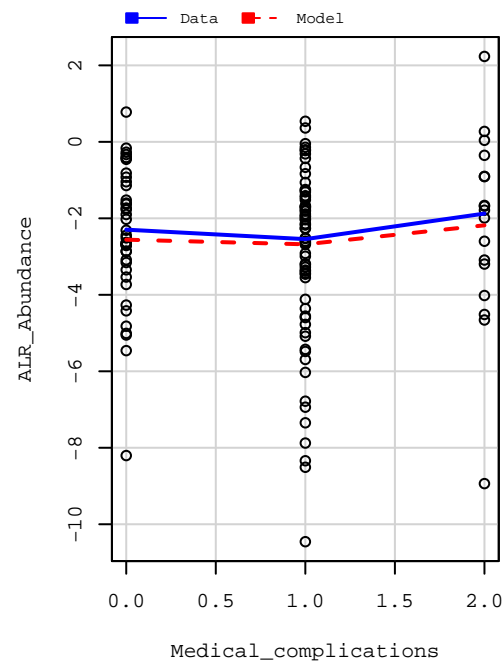
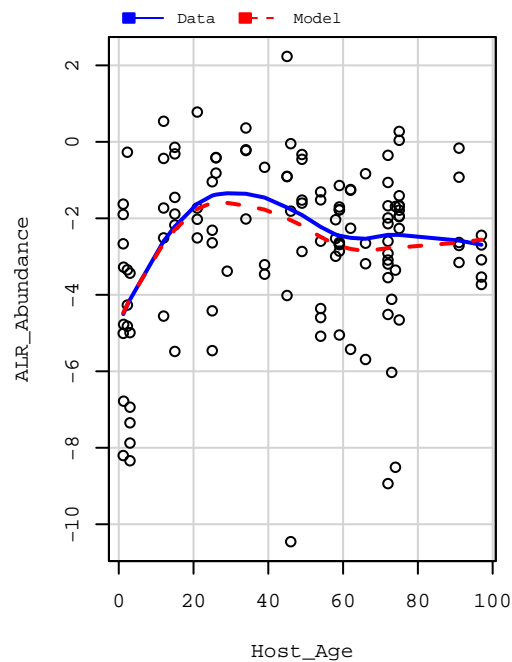
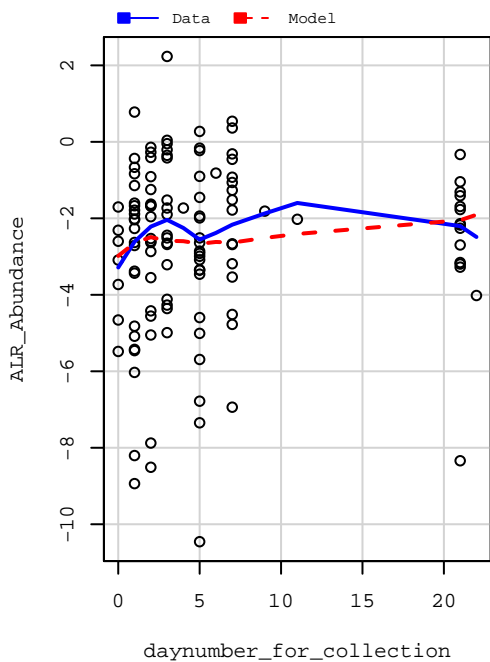
Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	3.11427	5.97218	0.521	0.603
Patientp1	3.79607	12.48683	0.304	0.762
Patientp10	-6.41643	14.43806	-0.444	0.658
Patientp12	-5.35742	21.12929	-0.254	0.800
Patientp13	-9.85425	7.35332	-1.340	0.183
Patientp15	-5.57800	11.03191	-0.506	0.614
Patientp18	3.70935	6.95421	0.533	0.595
Patientp19	-8.41137	11.44093	-0.735	0.464
Patientp2	-4.01185	3.97170	-1.010	0.315
Patientp20	-13.04013	28.68892	-0.455	0.651
Patientp22	0.03856	4.40517	0.009	0.993
Patientp23	-1.19355	10.20461	-0.117	0.907
Patientp24	-2.26396	8.68950	-0.261	0.795
Patientp25	-2.46879	3.80152	-0.649	0.518
Patientp28	-4.70467	18.26596	-0.258	0.797
Patientp3	2.61113	7.98646	0.327	0.744
Patientp31	-7.07940	10.83677	-0.653	0.515
Patientp32	-9.25666	10.57794	-0.875	0.384
Patientp4	1.66274	2.10108	0.791	0.431
Patientp6	-1.35411	9.39123	-0.144	0.886
Patientp9	-0.32387	3.45059	-0.094	0.925
daynumber_for_collection	0.04313	0.02986	1.444	0.152
Host_Age	0.07177	0.05557	1.292	0.200
Host_GenderF	1.17472	1.63362	0.719	0.474
Medical_complications	-3.69119	9.94722	-0.371	0.711
Patient_diagnosis	-1.12840	8.23756	-0.137	0.891
Post_visit_treatment	0.52864	6.16869	0.086	0.932
Type	-0.74206	7.96158	-0.093	0.926
Vacc_statusY	-0.34378	9.79863	-0.035	0.972
Fever	2.00270	4.42321	0.453	0.652
SYMPTOM_COUGH	-3.08410	2.23239	-1.382	0.170

Residual standard error: 1.929 on 93 degrees of freedom

Multiple R-squared: 0.4149, Adjusted R-squared: 0.2261

F-statistic: 2.198 on 30 and 93 DF, p-value: 0.002192



Univariate Regression:

11.) Stenotrophomonas

Mean abundance: 1.9%

R^2: 0.5818

Adjusted R^2: 0.4468

Analysis of Variance Table

Response: ALR\_Abandance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	586.60	29.330	4.0917	1.691e-06	***
daynumber_for_collection	1	0.68	0.683	0.0953	0.7582357	
Host_Age	1	80.65	80.652	11.2515	0.0011526	**
Host_Gender	1	9.40	9.399	1.3113	0.2551052	
Medical_complications	1	12.86	12.862	1.7943	0.1836715	
Patient_diagnosis	1	3.84	3.837	0.5353	0.4662450	
Post_visit_treatment	1	94.02	94.016	13.1158	0.0004767	***
Type	1	35.70	35.705	4.9810	0.0280290	*
Vacc_status	1	11.30	11.299	1.5763	0.2124344	
Fever	1	21.02	21.024	2.9330	0.0901195	.
SYMPTOM_COUGH	1	71.20	71.197	9.9324	0.0021855	**
Residuals	93	666.64	7.168			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-6.7161	-1.2336	-0.3712	0.8314	6.4360

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	-39.28408	8.28916	-4.739	7.69e-06	***
Patientp1	-56.66879	17.33124	-3.270	0.001510	**
Patientp10	-65.15285	20.03946	-3.251	0.001601	**
Patientp12	102.98716	29.32663	3.512	0.000689	***
Patientp13	36.07105	10.20612	3.534	0.000639	***
Patientp15	54.91773	15.31186	3.587	0.000536	***
Patientp18	-30.26280	9.65218	-3.135	0.002298	**
Patientp19	-48.70548	15.87957	-3.067	0.002830	**
Patientp2	-10.78555	5.51256	-1.957	0.053401	.
Patientp20	136.95314	39.81910	3.439	0.000874	***
Patientp22	-16.97322	6.11420	-2.776	0.006653	**
Patientp23	-36.53690	14.16359	-2.580	0.011457	*
Patientp24	-34.74301	12.06069	-2.881	0.004926	**
Patientp25	13.23314	5.27636	2.508	0.013875	*
Patientp28	85.04920	25.35244	3.355	0.001151	**
Patientp3	34.93151	11.08489	3.151	0.002188	**
Patientp31	50.52867	15.04101	3.359	0.001134	**
Patientp32	51.66824	14.68177	3.519	0.000672	***
Patientp4	8.16940	2.91622	2.801	0.006191	**
Patientp6	52.23485	13.03467	4.007	0.000124	***
Patientp9	14.66444	4.78928	3.062	0.002875	**
daynumber_for_collection	-0.01080	0.04145	-0.261	0.794973	
Host_Age	0.19965	0.07712	2.589	0.011178	*
Host_GenderF	6.77203	2.26739	2.987	0.003605	**
Medical_complications	44.20616	13.80635	3.202	0.001869	**
Patient_diagnosis	38.55089	11.43341	3.372	0.001090	**
Post_visit_treatment	-25.23882	8.56190	-2.948	0.004046	**
Type	-40.92540	11.05036	-3.704	0.000361	***
Vacc_statusY	43.81510	13.60012	3.222	0.001757	**
Fever	-22.00476	6.13925	-3.584	0.000541	***
SYMPTOM_COUGH	9.76506	3.09847	3.152	0.002185	**

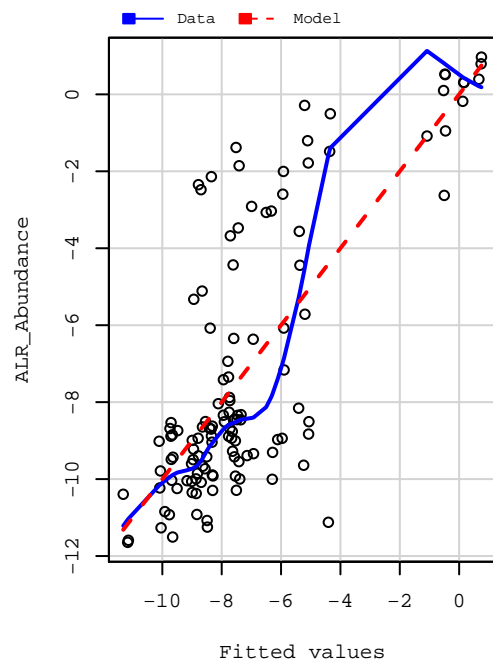
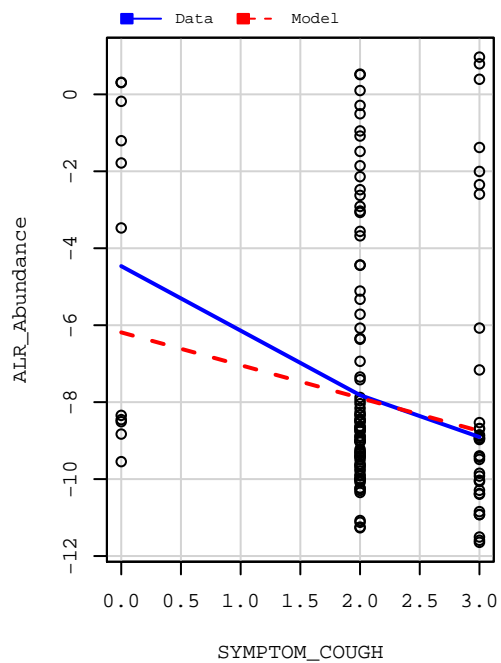
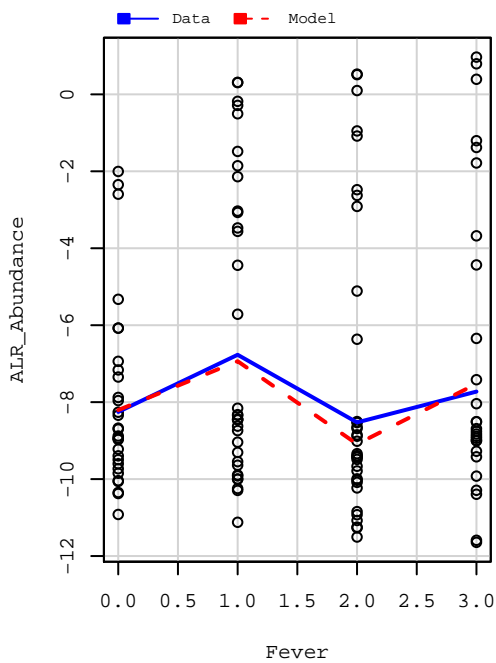
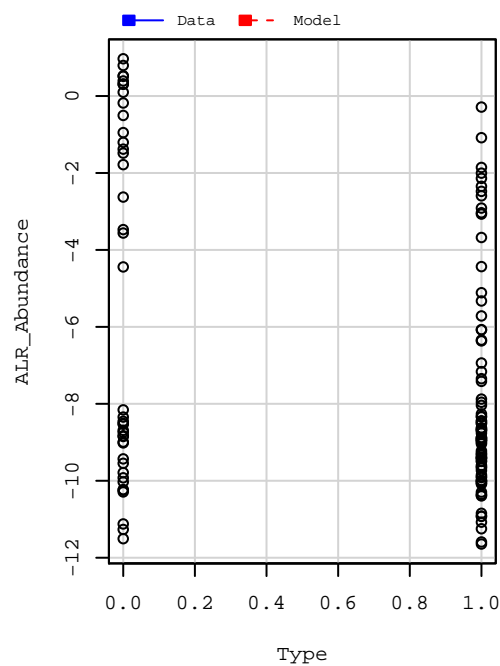
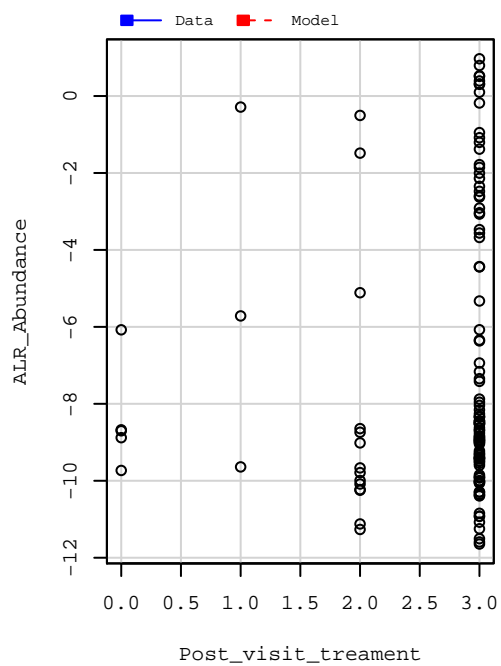
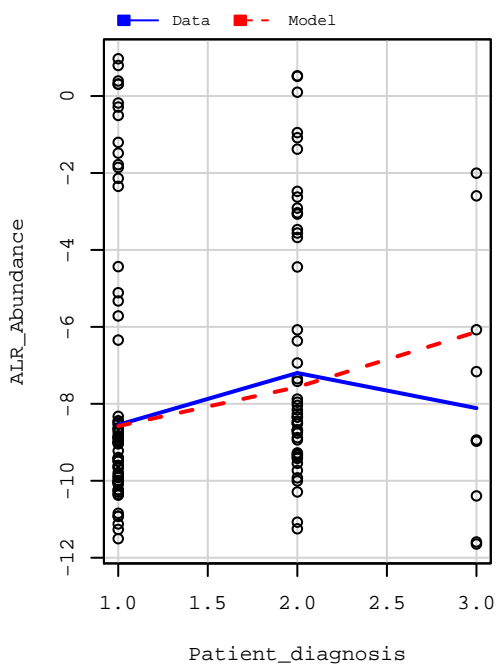
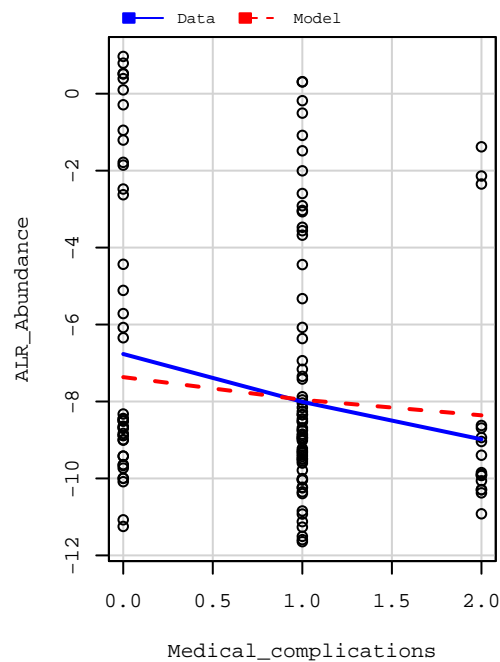
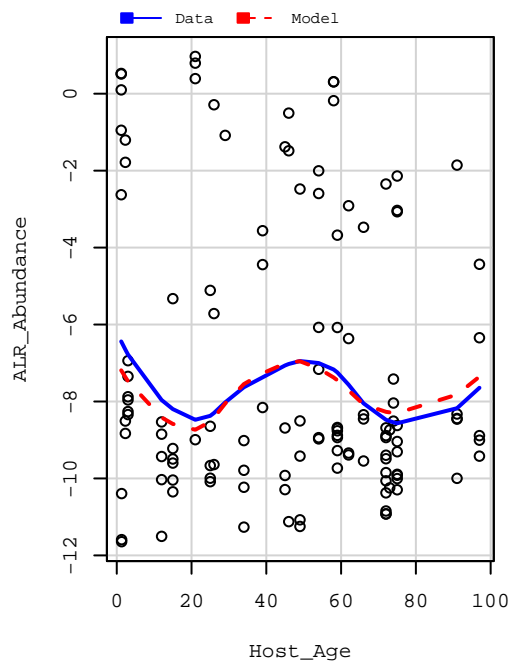
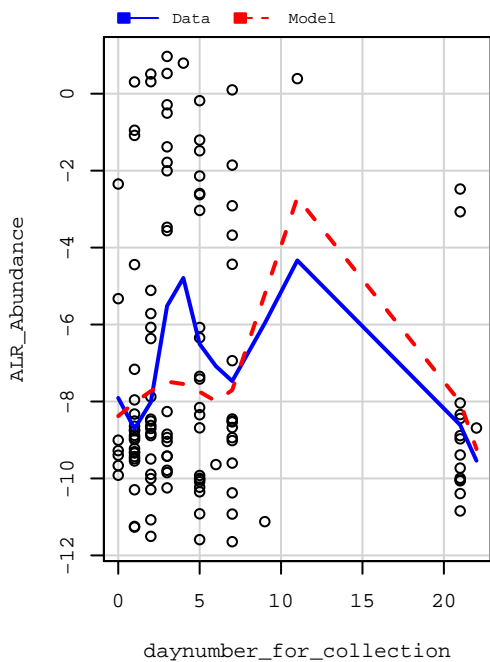
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.677 on 93 degrees of freedom

Multiple R-squared: 0.5818, Adjusted R-squared: 0.4468

F-statistic: 4.312 on 30 and 93 DF, p-value: 3.159e-08



Univariate Regression:

12.) order:Rhizobiales

Mean abundance: 1.8%

R<sup>2</sup>: 0.5493

Adjusted R<sup>2</sup>: 0.4039

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	508.68	25.434	3.1378	0.0001023	***
daynumber_for_collection	1	24.13	24.134	2.9774	0.0877581	.
Host_Age	1	152.82	152.817	18.8529	3.592e-05	***
Host_Gender	1	13.95	13.947	1.7206	0.1928387	
Medical_complications	1	0.91	0.913	0.1126	0.7379233	
Patient_diagnosis	1	32.42	32.417	3.9992	0.0484391	*
Post_visit_treatment	1	2.90	2.900	0.3578	0.5511824	
Type	1	168.05	168.049	20.7321	1.598e-05	***
Vacc_status	1	0.10	0.098	0.0120	0.9128788	
Fever	1	2.54	2.540	0.3133	0.5769924	
SYMPTOM_COUGH	1	12.17	12.172	1.5017	0.2235029	
Residuals	93	753.84	8.106			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1



Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-6.5792	-1.4326	0.0804	1.3225	5.7870

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	-23.15355	8.81460	-2.627	0.0101	*
Patientp1	-17.11345	18.42986	-0.929	0.3555	
Patientp10	-22.69412	21.30976	-1.065	0.2896	
Patientp12	44.20188	31.18565	1.417	0.1597	
Patientp13	19.43566	10.85308	1.791	0.0766	.
Patientp15	28.01391	16.28247	1.720	0.0887	.
Patientp18	-5.56626	10.26403	-0.542	0.5889	
Patientp19	-16.44120	16.88617	-0.974	0.3328	
Patientp2	0.34089	5.86200	0.058	0.9538	
Patientp20	56.41474	42.34322	1.332	0.1860	
Patientp22	0.01258	6.50178	0.002	0.9985	
Patientp23	-10.65669	15.06142	-0.708	0.4810	
Patientp24	-10.69860	12.82521	-0.834	0.4063	
Patientp25	6.64149	5.61083	1.184	0.2396	
Patientp28	30.90620	26.95952	1.146	0.2546	
Patientp3	20.01783	11.78756	1.698	0.0928	.
Patientp31	13.19163	15.99445	0.825	0.4116	
Patientp32	24.45565	15.61245	1.566	0.1206	
Patientp4	5.25397	3.10108	1.694	0.0936	.
Patientp6	19.51989	13.86093	1.408	0.1624	
Patientp9	10.42977	5.09288	2.048	0.0434	*
daynumber_for_collection	-0.10221	0.04408	-2.319	0.0226	*
Host_Age	0.08328	0.08201	1.015	0.3125	
Host_GenderF	0.19138	2.41112	0.079	0.9369	
Medical_complications	16.67420	14.68153	1.136	0.2590	
Patient_diagnosis	14.20793	12.15818	1.169	0.2456	
Post_visit_treatment	-9.30922	9.10464	-1.022	0.3092	
Type	-9.64820	11.75084	-0.821	0.4137	
Vacc_statusY	18.69512	14.46223	1.293	0.1993	
Fever	-8.74492	6.52841	-1.340	0.1837	
SYMPTOM_COUGH	4.03769	3.29488	1.225	0.2235	

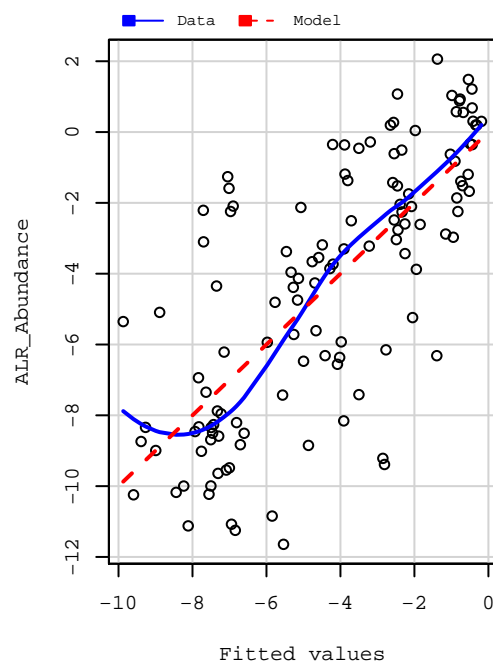
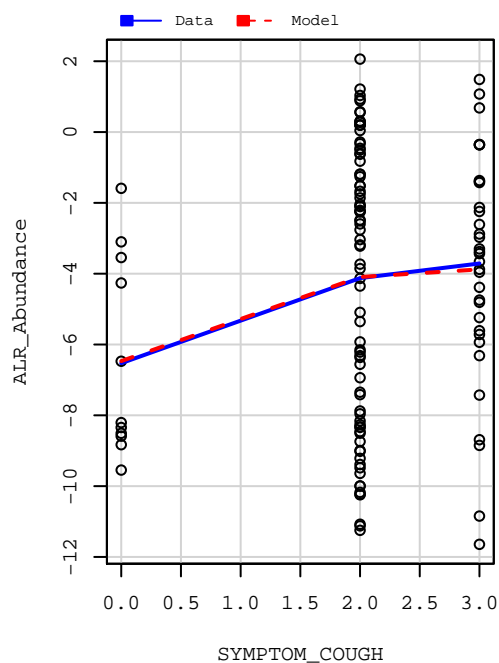
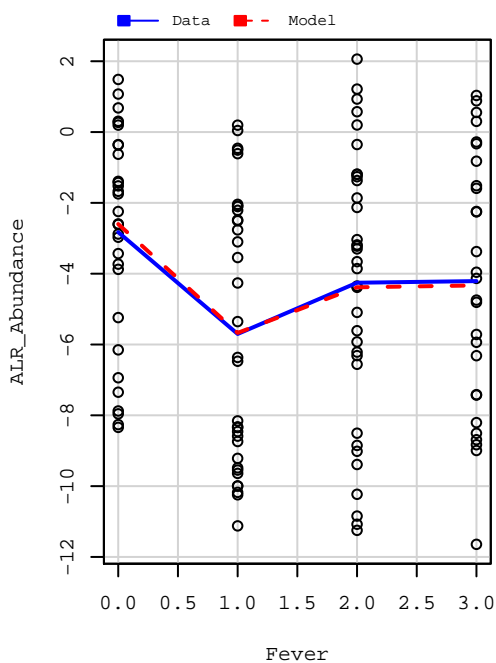
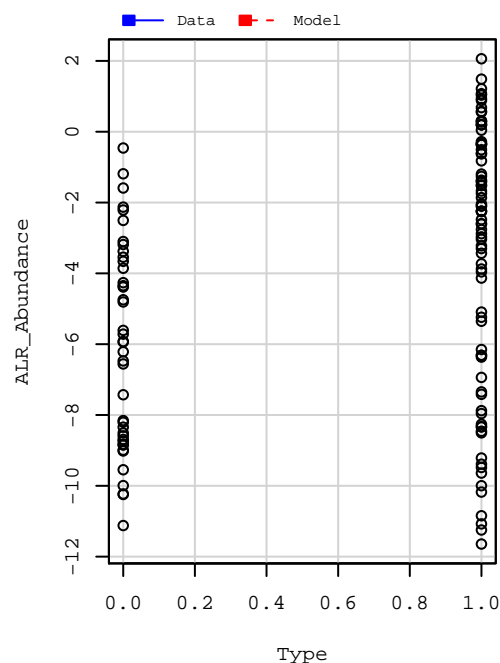
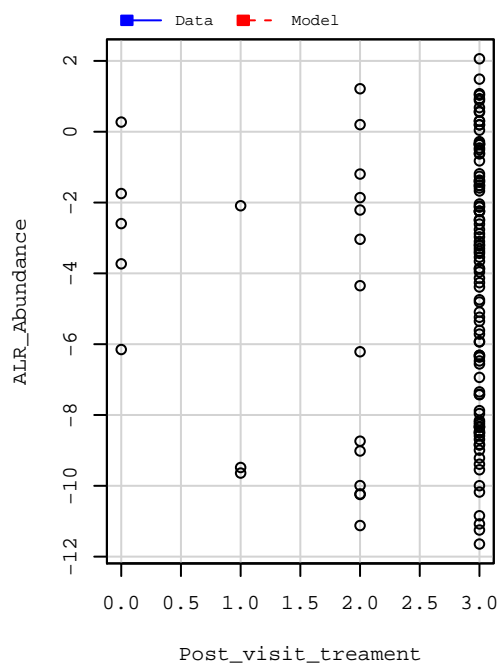
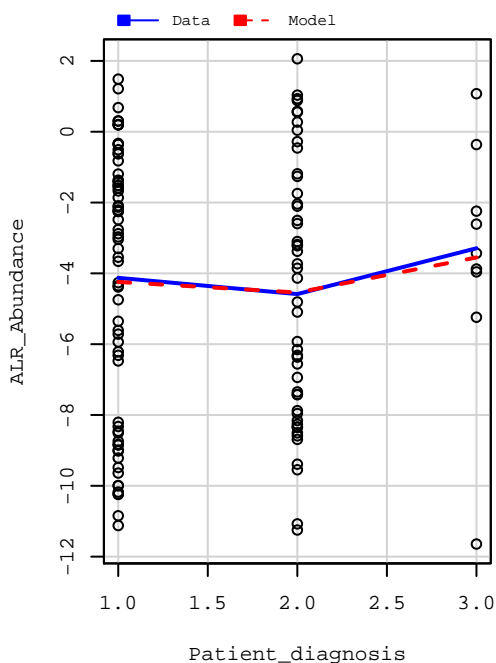
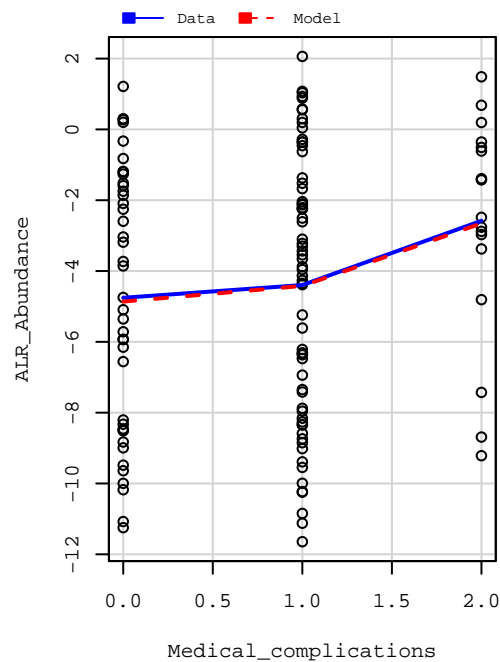
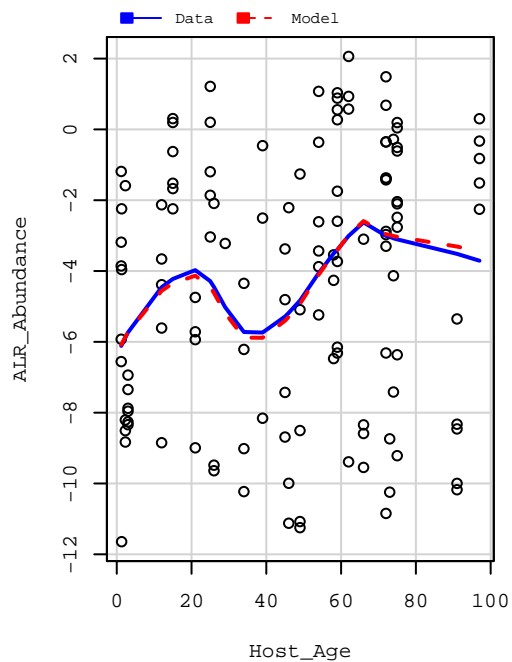
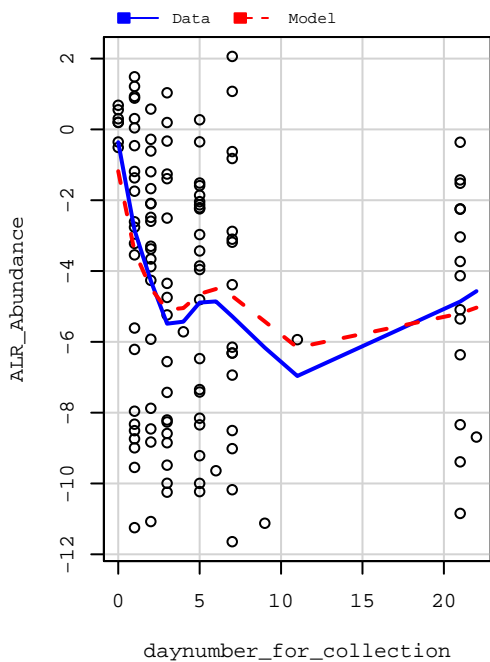
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.847 on 93 degrees of freedom

Multiple R-squared: 0.5493, Adjusted R-squared: 0.4039

F-statistic: 3.778 on 30 and 93 DF, p-value: 4.748e-07



Univariate Regression:

13.) Dolosigranulum

Mean abundance: 1.5%

R^2: 0.6283

Adjusted R^2: 0.5084

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Patient	20	955.03	47.752	7.6550	2.434e-12 ***
daynumber_for_collection	1	3.41	3.414	0.5473	0.4613
Host_Age	1	1.13	1.135	0.1819	0.6707
Host_Gender	1	0.30	0.302	0.0484	0.8264
Medical_complications	1	4.43	4.428	0.7099	0.4017
Patient_diagnosis	1	0.00	0.003	0.0005	0.9821
Post_visit_treatment	1	2.60	2.597	0.4163	0.5204
Type	1	0.22	0.224	0.0359	0.8501
Vacc_status	1	12.40	12.399	1.9876	0.1619
Fever	1	0.14	0.139	0.0224	0.8815
SYMPTOM_COUGH	1	0.94	0.936	0.1501	0.6993
Residuals	93	580.13	6.238		

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-9.7182	-0.7301	0.0122	0.7446	5.2707

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	1.01104	7.73261	0.131	0.8963
Patientp1	-0.01143	16.16759	-0.001	0.9994
Patientp10	-3.50629	18.69397	-0.188	0.8516
Patientp12	-14.16534	27.35759	-0.518	0.6058
Patientp13	-8.46489	9.52086	-0.889	0.3762
Patientp15	-9.57940	14.28379	-0.671	0.5041
Patientp18	-3.92250	9.00411	-0.436	0.6641
Patientp19	1.63984	14.81339	0.111	0.9121
Patientp2	-6.68423	5.14244	-1.300	0.1969
Patientp20	-8.32488	37.14558	-0.224	0.8232
Patientp22	-3.16829	5.70368	-0.555	0.5799
Patientp23	-1.83980	13.21263	-0.139	0.8896
Patientp24	1.48576	11.25091	0.132	0.8952
Patientp25	-9.51085	4.92210	-1.932	0.0564 .
Patientp28	-11.58132	23.65023	-0.490	0.6255
Patientp3	-9.17727	10.34063	-0.887	0.3771
Patientp31	-3.22828	14.03113	-0.230	0.8185
Patientp32	-8.83831	13.69601	-0.645	0.5203
Patientp4	-6.96102	2.72042	-2.559	0.0121 *
Patientp6	-10.81450	12.15950	-0.889	0.3761
Patientp9	-8.81248	4.46772	-1.972	0.0515 .
daynumber_for_collection	-0.02492	0.03867	-0.645	0.5208
Host_Age	-0.03291	0.07194	-0.457	0.6485
Host_GenderF	0.20390	2.11516	0.096	0.9234
Medical_complications	-2.22723	12.87937	-0.173	0.8631
Patient_diagnosis	-3.59001	10.66576	-0.337	0.7372
Post_visit_treatment	1.15600	7.98704	0.145	0.8852
Type	3.44623	10.30842	0.334	0.7389
Vacc_statusY	-1.34883	12.68699	-0.106	0.9156
Fever	2.34511	5.72705	0.409	0.6831
SYMPTOM_COUGH	-1.11985	2.89043	-0.387	0.6993

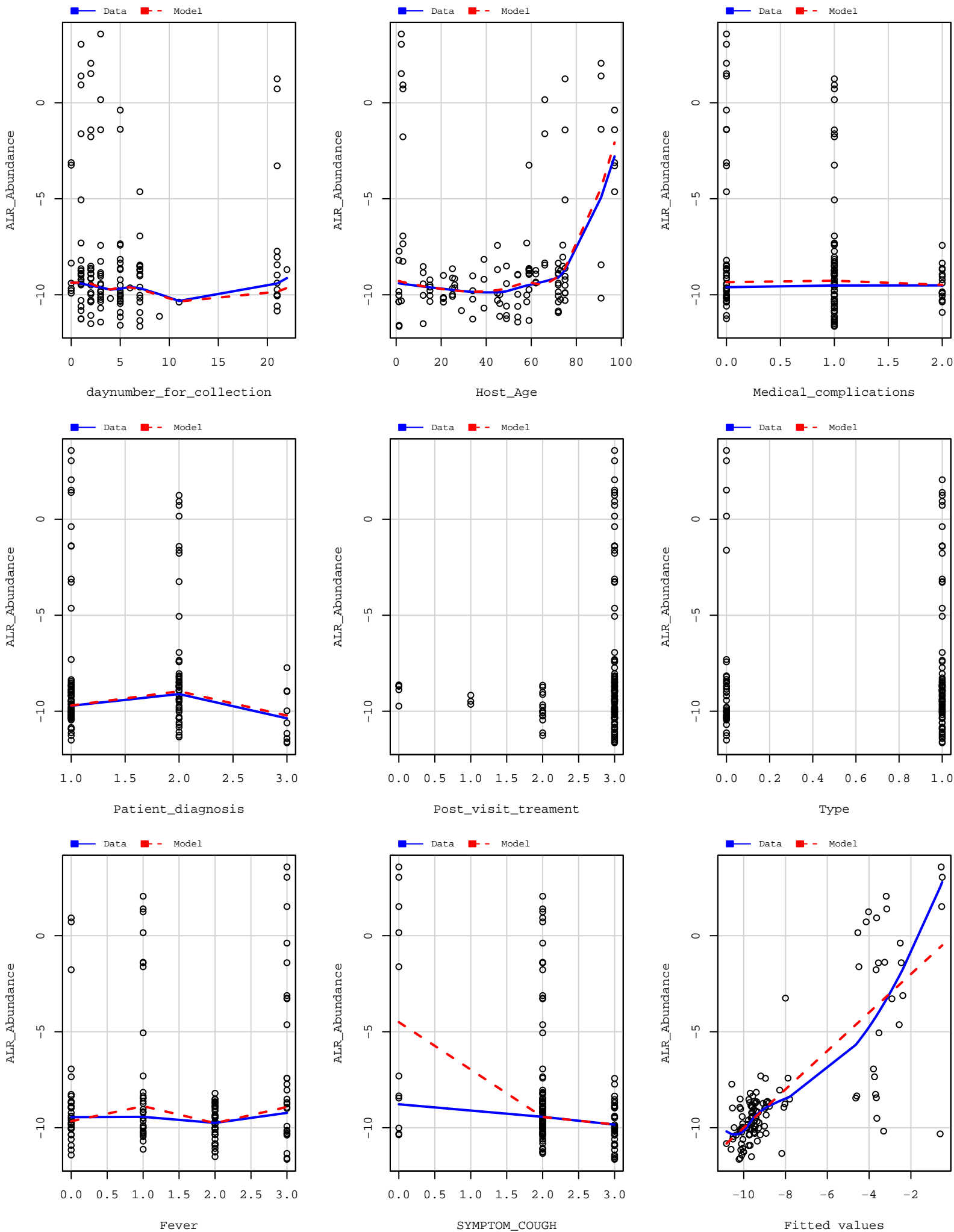
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.498 on 93 degrees of freedom

Multiple R-squared: 0.6283, Adjusted R-squared: 0.5084

F-statistic: 5.24 on 30 and 93 DF, p-value: 3.681e-10



Univariate Regression:

14.) Achromobacter

Mean abundance: 1.4%

R<sup>2</sup>: 0.5318

Adjusted R<sup>2</sup>: 0.3808

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	311.86	15.5929	4.4049	4.572e-07	***
daynumber_for_collection	1	0.68	0.6833	0.1930	0.661425	
Host_Age	1	3.27	3.2739	0.9249	0.338695	
Host_Gender	1	11.80	11.8022	3.3341	0.071067	.
Medical_complications	1	0.66	0.6643	0.1877	0.665862	
Patient_diagnosis	1	3.49	3.4934	0.9869	0.323088	
Post_visit_treatment	1	0.42	0.4196	0.1185	0.731410	
Type	1	0.15	0.1482	0.0419	0.838346	
Vacc_status	1	28.85	28.8534	8.1510	0.005307	**
Fever	1	0.93	0.9256	0.2615	0.610313	
SYMPTOM_COUGH	1	11.82	11.8249	3.3405	0.070800	.
Residuals	93	329.21	3.5399			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-7.3678	-0.6314	0.1099	0.8399	3.7602

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	5.355659	5.825041	0.919	0.3603
Patientp1	18.506360	12.179188	1.520	0.1320
Patientp10	8.136241	14.082335	0.578	0.5648
Patientp12	-22.826485	20.608716	-1.108	0.2709
Patientp13	-10.710800	7.172148	-1.493	0.1387
Patientp15	-11.736171	10.760107	-1.091	0.2782
Patientp18	11.792844	6.782878	1.739	0.0854 .
Patientp19	5.753583	11.159054	0.516	0.6074
Patientp2	2.069026	3.873841	0.534	0.5945
Patientp20	-35.885191	27.982088	-1.282	0.2029
Patientp22	6.395679	4.296633	1.489	0.1400
Patientp23	10.862098	9.953188	1.091	0.2780
Patientp24	7.943170	8.475412	0.937	0.3511
Patientp25	-3.211367	3.707862	-0.866	0.3887
Patientp28	-18.796140	17.815926	-1.055	0.2941
Patientp3	-3.241630	7.789690	-0.416	0.6783
Patientp31	-18.352484	10.569773	-1.736	0.0858 .
Patientp32	-15.552128	10.317328	-1.507	0.1351
Patientp4	1.883013	2.049316	0.919	0.3606
Patientp6	-7.528894	9.159856	-0.822	0.4132
Patientp9	-0.658715	3.365575	-0.196	0.8453
daynumber_for_collection	0.024849	0.029128	0.853	0.3958
Host_Age	-0.001096	0.054196	-0.020	0.9839
Host_GenderF	-1.362084	1.593367	-0.855	0.3948
Medical_complications	-12.394345	9.702141	-1.277	0.2046
Patient_diagnosis	-9.424542	8.034607	-1.173	0.2438
Post_visit_treatment	6.462461	6.016706	1.074	0.2856
Type	7.876379	7.765422	1.014	0.3131
Vacc_statusY	-8.074187	9.557217	-0.845	0.4004
Fever	5.655315	4.314235	1.311	0.1931
SYMPTOM_COUGH	-3.979629	2.177389	-1.828	0.0708 .

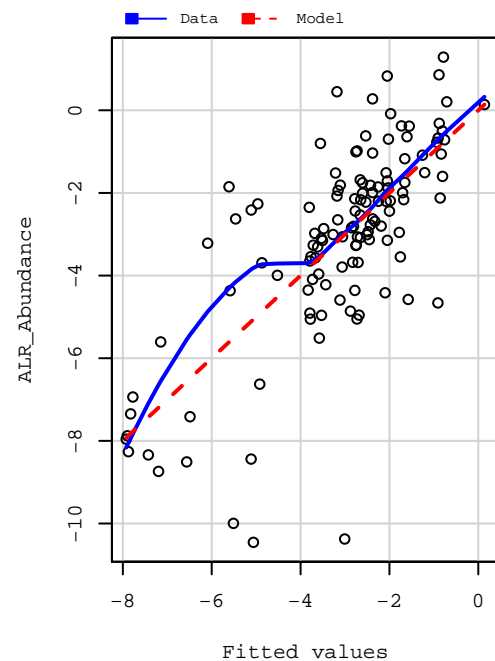
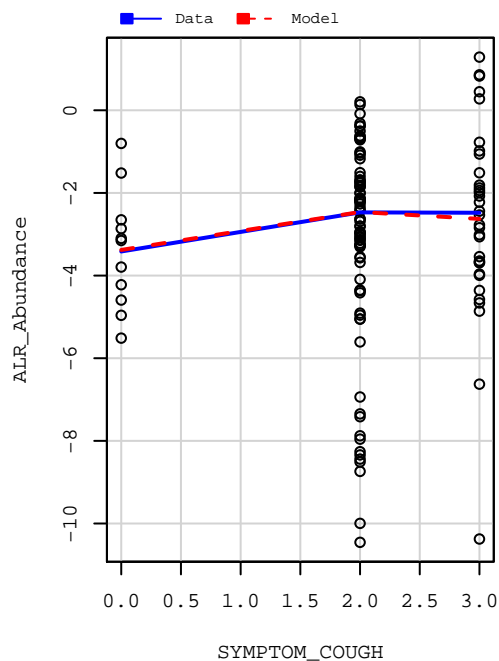
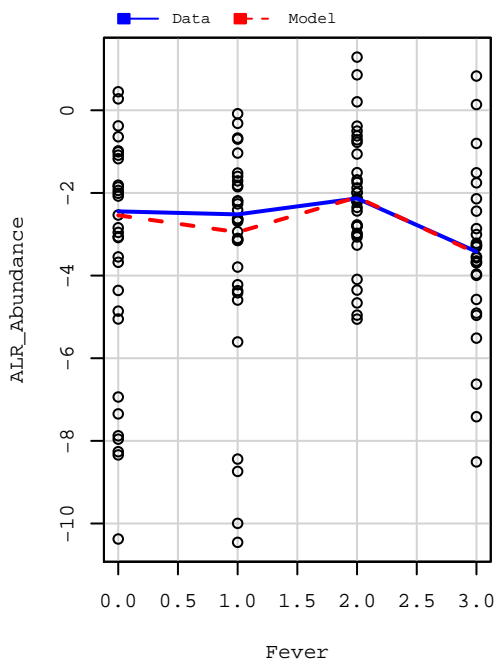
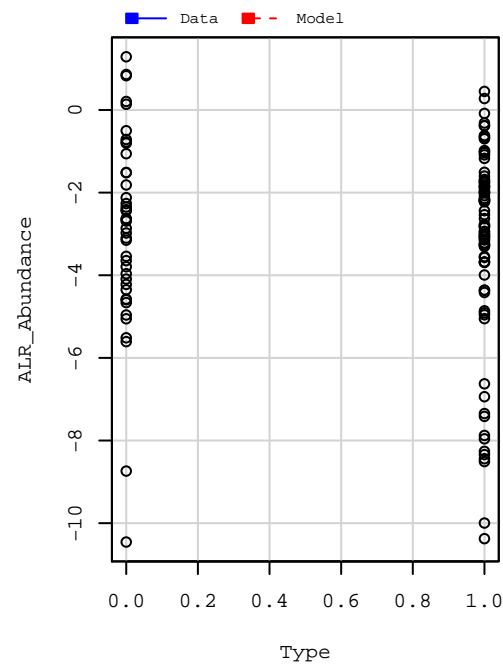
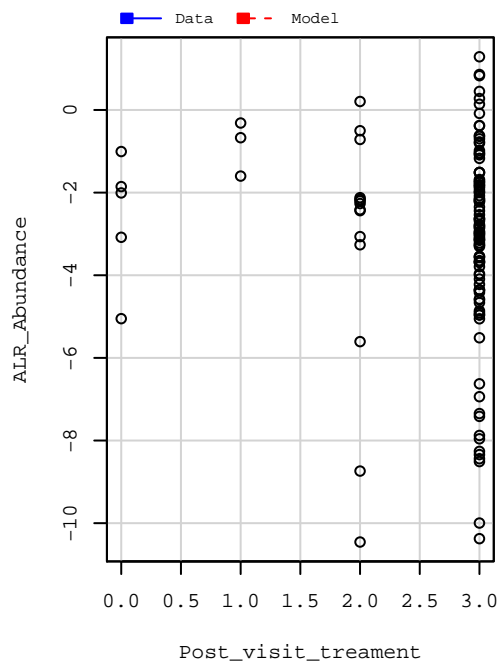
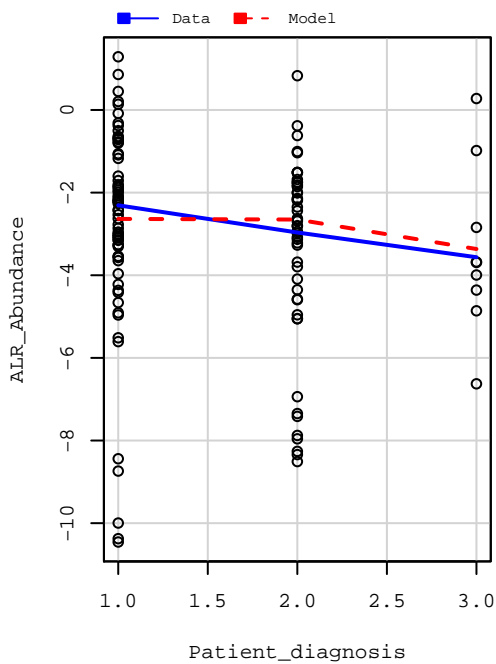
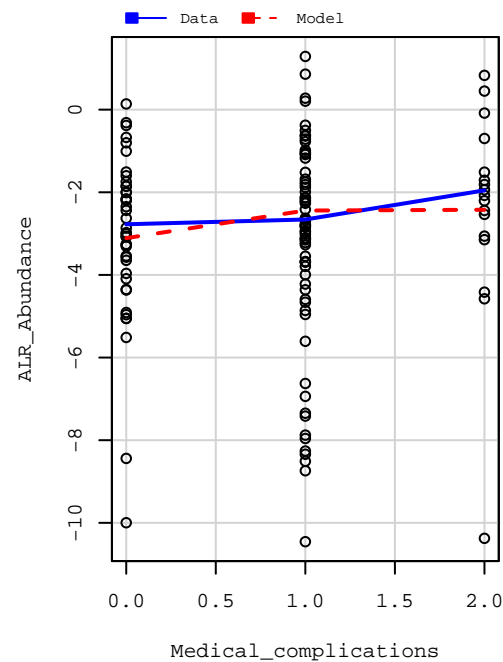
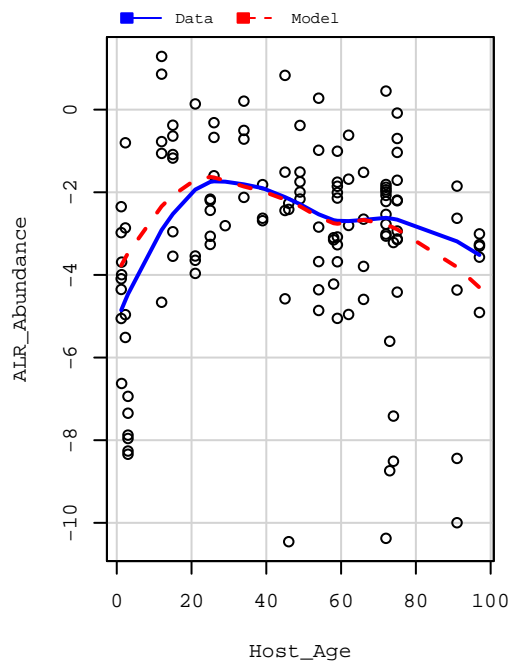
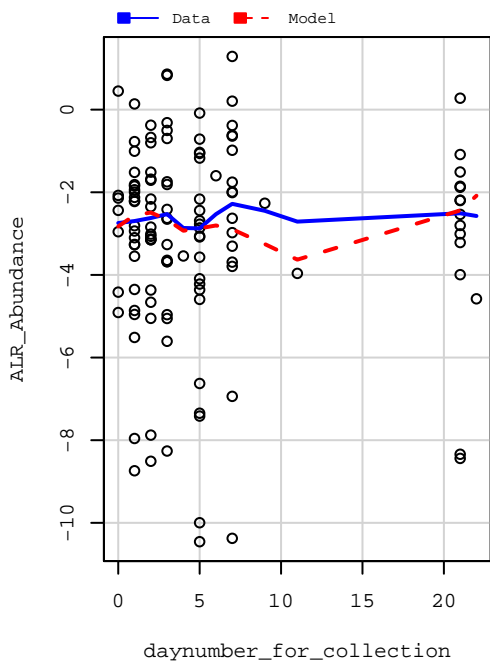
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.881 on 93 degrees of freedom

Multiple R-squared: 0.5318, Adjusted R-squared: 0.3808

F-statistic: 3.521 on 30 and 93 DF, p-value: 1.808e-06





Univariate Regression:

15.) Propionibacterium

Mean abundance: 0.9%

R<sup>2</sup>: 0.4139

Adjusted R<sup>2</sup>: 0.2248

Analysis of Variance Table

Response: ALR\_Abandance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	356.07	17.804	2.1047	0.009061	**
daynumber_for_collection	1	3.38	3.380	0.3996	0.528838	
Host_Age	1	84.26	84.255	9.9602	0.002156	**
Host_Gender	1	11.88	11.885	1.4049	0.238918	
Medical_complications	1	0.01	0.014	0.0016	0.968178	
Patient_diagnosis	1	0.21	0.210	0.0248	0.875112	
Post_visit_treatment	1	26.69	26.693	3.1555	0.078941	.
Type	1	28.65	28.655	3.3874	0.068884	.
Vacc_status	1	1.81	1.809	0.2138	0.644862	
Fever	1	40.54	40.539	4.7924	0.031089	*
SYMPTOM_COUGH	1	1.99	1.993	0.2356	0.628523	
Residuals	93	786.70	8.459			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-7.2235	-1.4719	0.1608	1.6067	7.0092

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-7.36959	9.00470	-0.818	0.41521
Patientp1	-25.03963	18.82731	-1.330	0.18678
Patientp10	-18.68198	21.76931	-0.858	0.39300
Patientp12	25.08027	31.85818	0.787	0.43314
Patientp13	-9.77558	11.08713	-0.882	0.38021
Patientp15	3.34757	16.63361	0.201	0.84094
Patientp18	-7.18808	10.48538	-0.686	0.49471
Patientp19	-24.62628	17.25033	-1.428	0.15676
Patientp2	-9.74276	5.98841	-1.627	0.10713
Patientp20	23.53412	43.25638	0.544	0.58770
Patientp22	-9.49656	6.64199	-1.430	0.15613
Patientp23	-21.44341	15.38623	-1.394	0.16674
Patientp24	-11.79136	13.10180	-0.900	0.37046
Patientp25	8.33651	5.73183	1.454	0.14920
Patientp28	12.93030	27.54092	0.469	0.63982
Patientp3	14.90215	12.04177	1.238	0.21900
Patientp31	8.11124	16.33938	0.496	0.62077
Patientp32	-0.53603	15.94914	-0.034	0.97326
Patientp4	4.30983	3.16796	1.360	0.17698
Patientp6	9.66572	14.15985	0.683	0.49655
Patientp9	1.52350	5.20271	0.293	0.77031
daynumber_for_collection	0.01438	0.04503	0.319	0.75015
Host_Age	0.22186	0.08378	2.648	0.00951 **
Host_GenderF	4.54394	2.46312	1.845	0.06825 .
Medical_complications	7.69339	14.99815	0.513	0.60920
Patient_diagnosis	13.98737	12.42037	1.126	0.26299
Post_visit_treatment	-8.33348	9.30098	-0.896	0.37258
Type	-11.93652	12.00425	-0.994	0.32263
Vacc_statusY	4.39004	14.77412	0.297	0.76702
Fever	-4.66649	6.66920	-0.700	0.48586
SYMPTOM_COUGH	-1.63388	3.36594	-0.485	0.62852

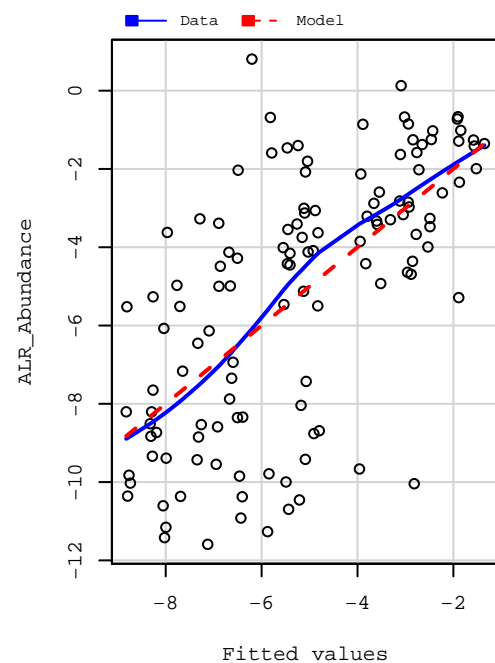
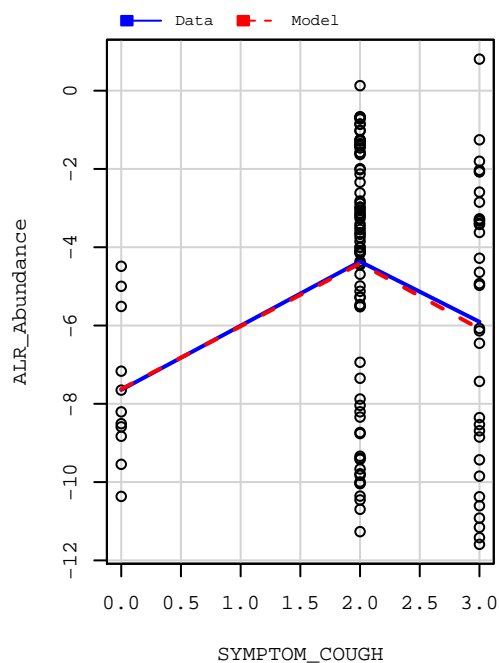
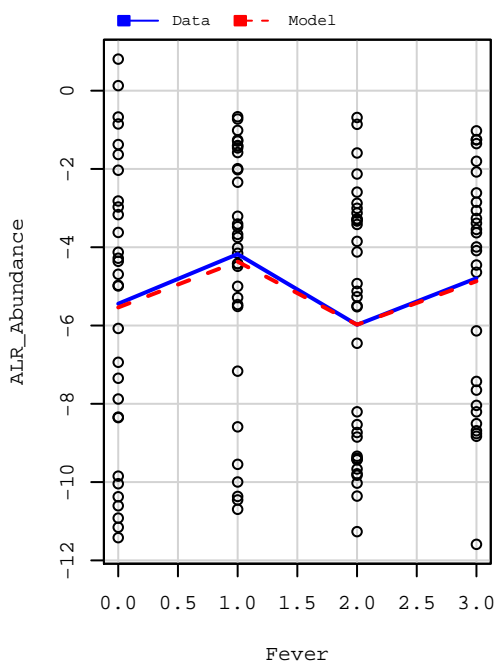
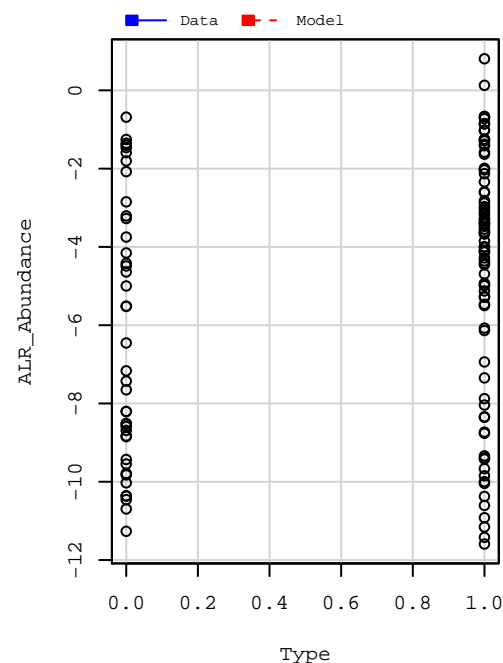
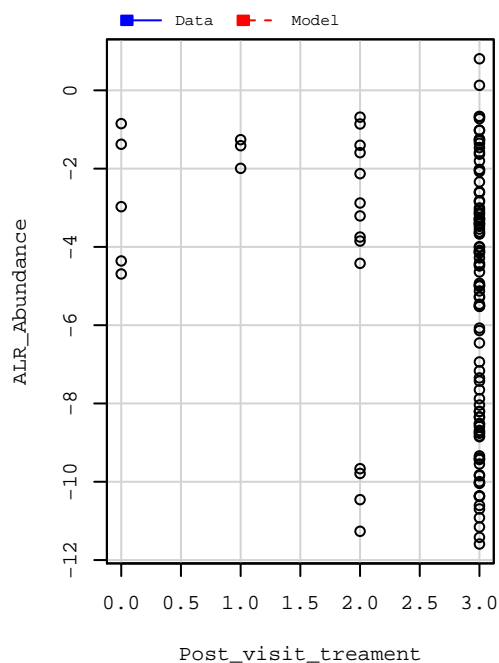
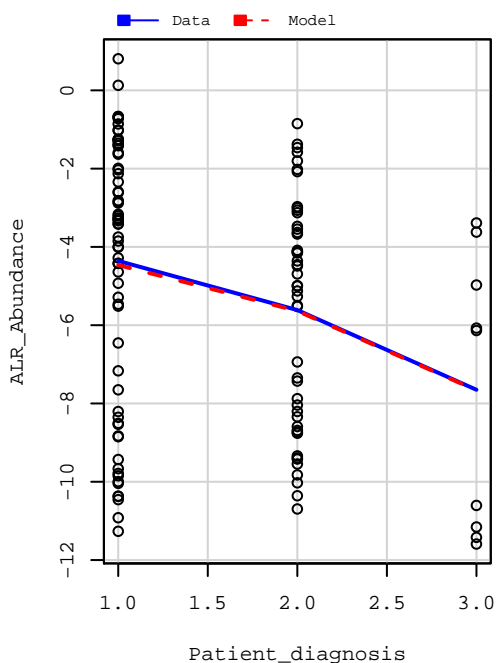
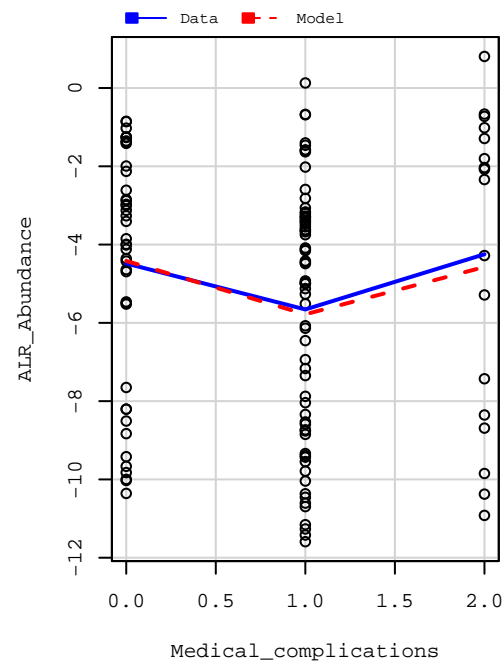
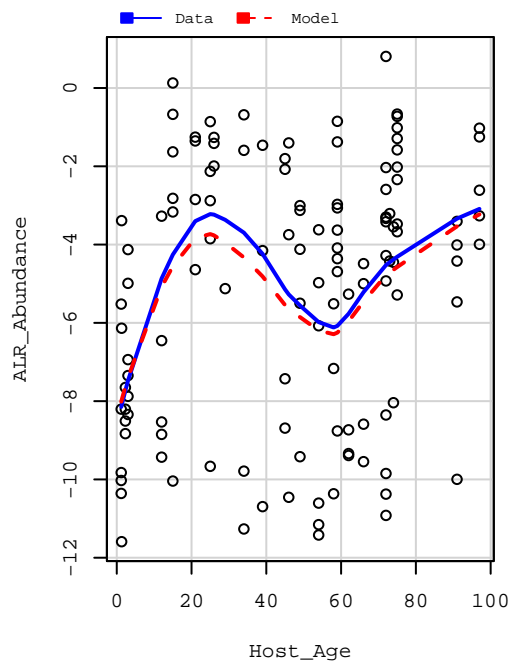
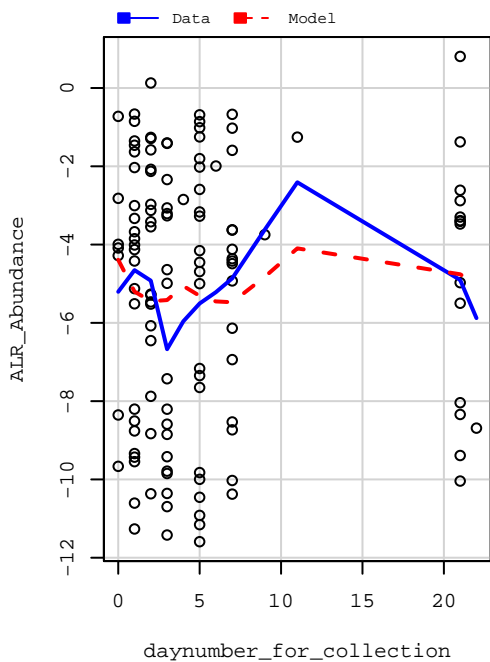
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.908 on 93 degrees of freedom

Multiple R-squared: 0.4139, Adjusted R-squared: 0.2248

F-statistic: 2.189 on 30 and 93 DF, p-value: 0.002302



Univariate Regression:

16.) Rhizobium

Mean abundance: 0.9%

R<sup>2</sup>: 0.4558

Adjusted R<sup>2</sup>: 0.2802

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	266.34	13.317	1.9805	0.015219	*
daynumber_for_collection	1	24.76	24.761	3.6825	0.058054	.
Host_Age	1	57.99	57.990	8.6242	0.004181	**
Host_Gender	1	125.82	125.824	18.7123	3.819e-05	***
Medical_complications	1	2.46	2.464	0.3664	0.546423	
Patient_diagnosis	1	0.09	0.085	0.0127	0.910573	
Post_visit_treatment	1	32.88	32.878	4.8895	0.029471	*
Type	1	6.88	6.877	1.0228	0.314483	
Vacc_status	1	5.67	5.670	0.8432	0.360845	
Fever	1	0.11	0.108	0.0160	0.899580	
SYMPTOM_COUGH	1	0.67	0.675	0.1003	0.752152	
Residuals	93	625.34	6.724			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-5.9666	-1.1760	-0.0888	0.7267	7.6793

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-4.89363	8.02831	-0.610	0.5436
Patientp1	8.43886	16.78585	0.503	0.6163
Patientp10	10.11744	19.40884	0.521	0.6034
Patientp12	-15.71878	28.40376	-0.553	0.5813
Patientp13	-2.95797	9.88494	-0.299	0.7654
Patientp15	-5.82984	14.83001	-0.393	0.6951
Patientp18	4.49606	9.34844	0.481	0.6317
Patientp19	4.41952	15.37986	0.287	0.7745
Patientp2	4.83787	5.33908	0.906	0.3672
Patientp20	-20.43183	38.56604	-0.530	0.5975
Patientp22	1.55650	5.92179	0.263	0.7933
Patientp23	7.30533	13.71789	0.533	0.5956
Patientp24	6.00236	11.68115	0.514	0.6086
Patientp25	0.14568	5.11032	0.029	0.9773
Patientp28	-16.79679	24.55463	-0.684	0.4956
Patientp3	-4.42593	10.73606	-0.412	0.6811
Patientp31	-9.59879	14.56769	-0.659	0.5116
Patientp32	-1.26797	14.21976	-0.089	0.9291
Patientp4	-3.20470	2.82445	-1.135	0.2594
Patientp6	-2.91458	12.62448	-0.231	0.8179
Patientp9	-3.76531	4.63857	-0.812	0.4190
daynumber_for_collection	-0.05879	0.04015	-1.464	0.1465
Host_Age	-0.03915	0.07470	-0.524	0.6014
Host_GenderF	-4.88228	2.19604	-2.223	0.0286 *
Medical_complications	-7.34559	13.37188	-0.549	0.5841
Patient_diagnosis	-4.51891	11.07362	-0.408	0.6842
Post_visit_treatment	5.93069	8.29247	0.715	0.4763
Type	2.98077	10.70262	0.279	0.7812
Vacc_statusY	-6.95733	13.17214	-0.528	0.5986
Fever	2.00361	5.94605	0.337	0.7369
SYMPTOM_COUGH	-0.95052	3.00097	-0.317	0.7522

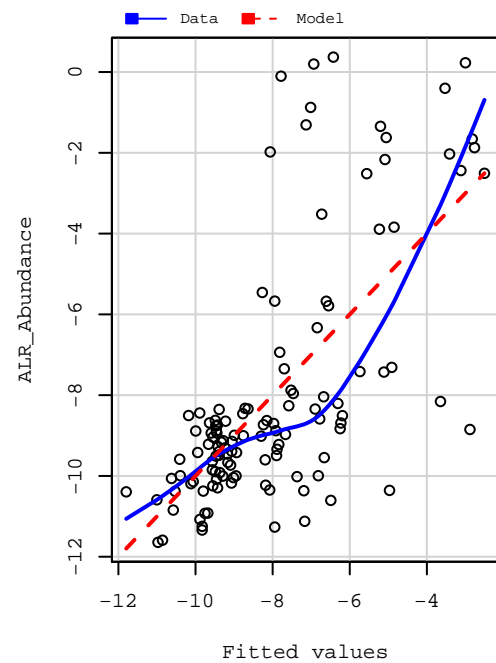
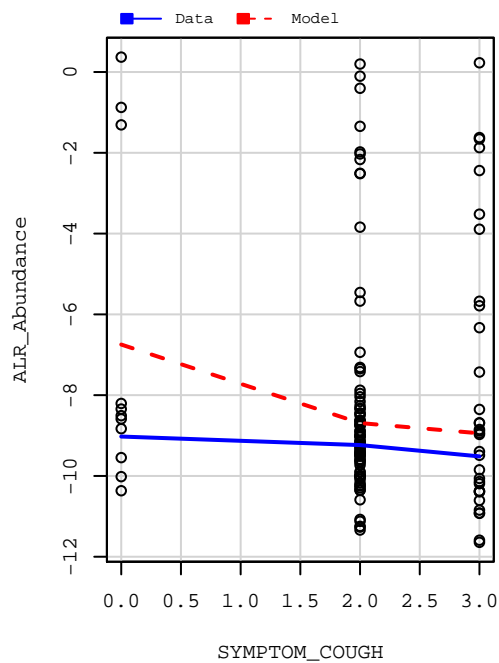
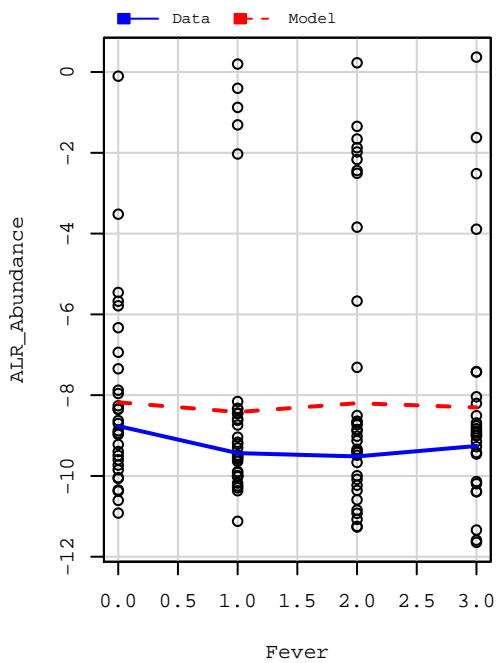
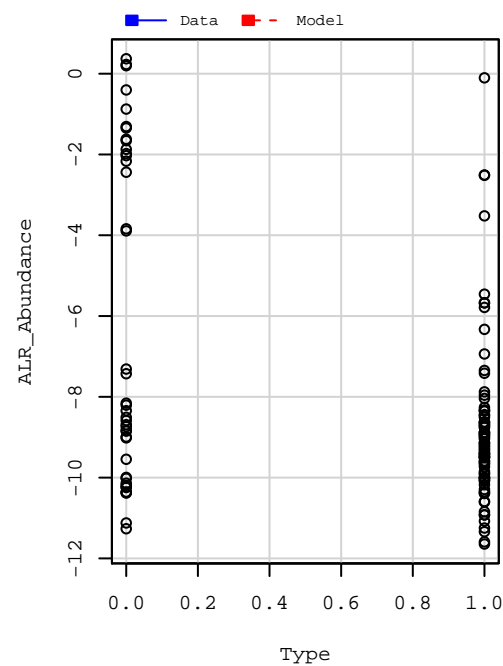
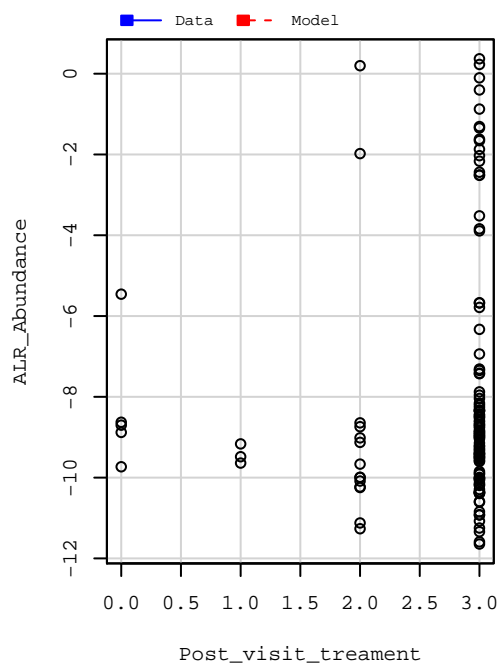
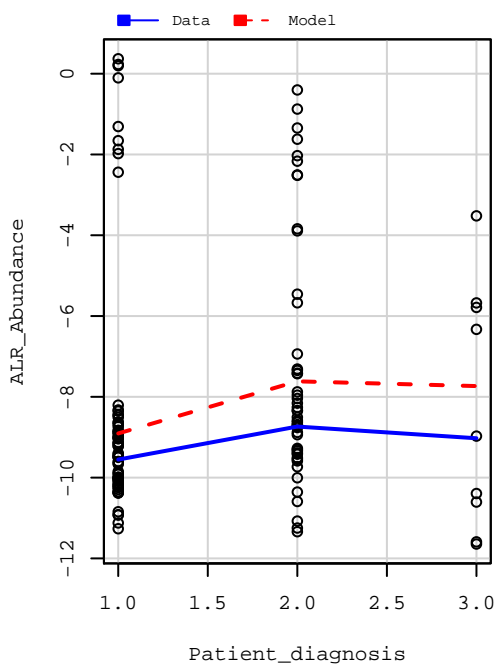
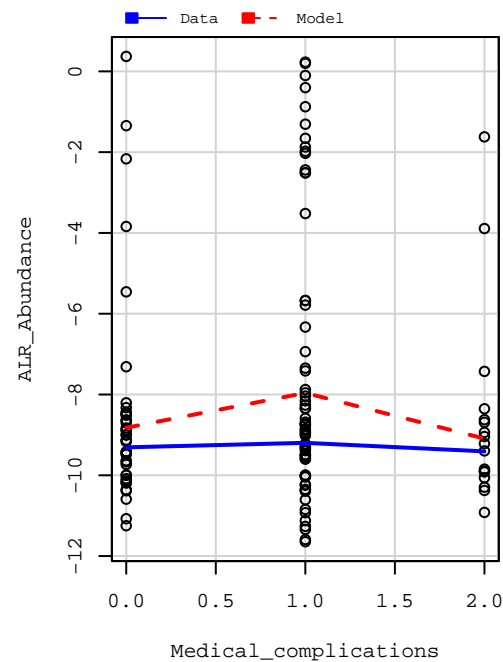
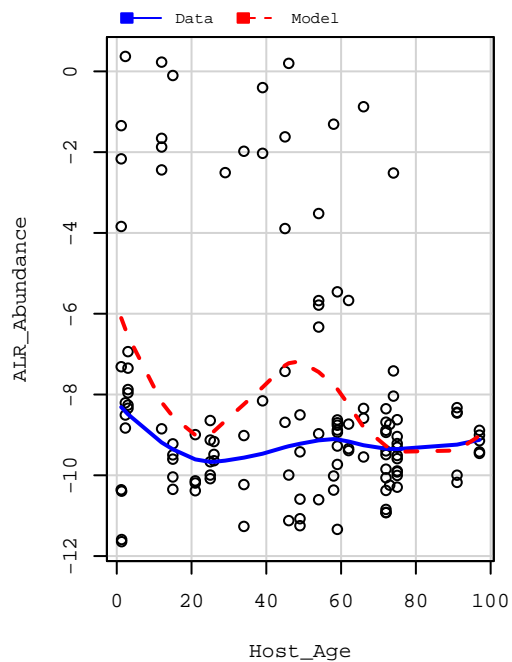
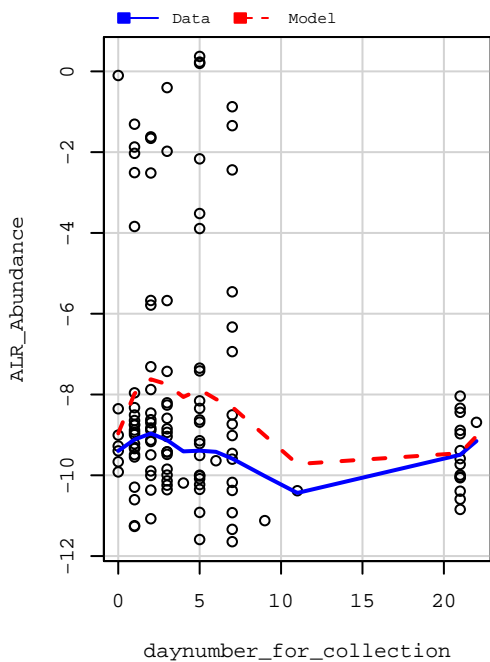
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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.593 on 93 degrees of freedom

Multiple R-squared: 0.4558, Adjusted R-squared: 0.2802

F-statistic: 2.596 on 30 and 93 DF, p-value: 0.0002577



Univariate Regression:

17.) Moraxella

Mean abundance: 0.7%

R^2: 0.6514

Adjusted R^2: 0.5390

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	543.60	27.180	7.1682	1.277e-11	***
daynumber_for_collection	1	6.34	6.338	1.6716	0.199252	
Host_Age	1	63.75	63.752	16.8135	8.822e-05	***
Host_Gender	1	0.01	0.011	0.0028	0.957618	
Medical_complications	1	6.40	6.403	1.6886	0.197002	
Patient_diagnosis	1	7.97	7.969	2.1018	0.150494	
Post_visit_treatment	1	0.00	0.003	0.0008	0.976839	
Type	1	1.78	1.782	0.4699	0.494743	
Vacc_status	1	28.92	28.922	7.6277	0.006926	**
Fever	1	0.19	0.192	0.0505	0.822672	
SYMPTOM_COUGH	1	0.00	0.003	0.0007	0.978618	
Residuals	93	352.63	3.792			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-7.9164	-0.7322	-0.0053	0.6582	5.1765

Coefficients:

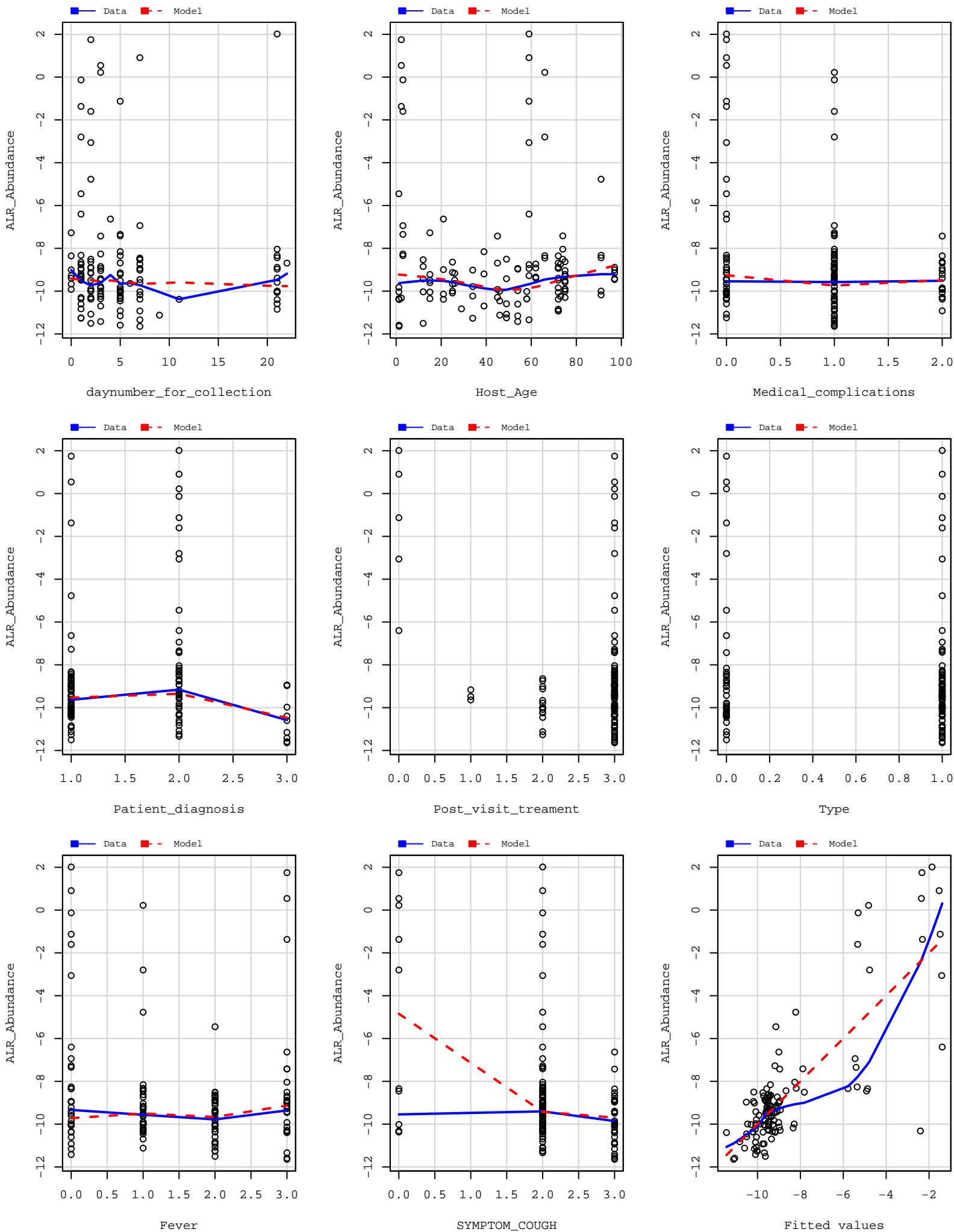
	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-3.29351	6.02870	-0.546	0.586
Patientp1	-2.68963	12.60501	-0.213	0.831
Patientp10	-10.78760	14.57470	-0.740	0.461
Patientp12	2.80319	21.32926	0.131	0.896
Patientp13	-2.78187	7.42291	-0.375	0.709
Patientp15	0.50141	11.13631	0.045	0.964
Patientp18	-5.44744	7.02003	-0.776	0.440
Patientp19	-2.98633	11.54921	-0.259	0.797
Patientp2	-6.24030	4.00928	-1.556	0.123
Patientp20	9.99505	28.96043	0.345	0.731
Patientp22	-2.14374	4.44686	-0.482	0.631
Patientp23	5.78712	10.30118	0.562	0.576
Patientp24	-6.70496	8.77174	-0.764	0.447
Patientp25	-5.95426	3.83750	-1.552	0.124
Patientp28	5.39555	18.43883	0.293	0.770
Patientp3	-2.77051	8.06204	-0.344	0.732
Patientp31	2.41210	10.93932	0.220	0.826
Patientp32	3.02049	10.67805	0.283	0.778
Patientp4	-3.13995	2.12097	-1.480	0.142
Patientp6	-1.59916	9.48011	-0.169	0.866
Patientp9	-4.48419	3.48325	-1.287	0.201
daynumber_for_collection	-0.02373	0.03015	-0.787	0.433
Host_Age	-0.05154	0.05609	-0.919	0.361
Host_GenderF	1.34949	1.64908	0.818	0.415
Medical_complications	5.16851	10.04136	0.515	0.608
Patient_diagnosis	0.51606	8.31552	0.062	0.951
Post_visit_treatment	-2.51237	6.22707	-0.403	0.688
Type	-1.96812	8.03692	-0.245	0.807
Vacc_statusY	6.88391	9.89137	0.696	0.488
Fever	-0.61529	4.46507	-0.138	0.891
SYMPTOM_COUGH	0.06056	2.25352	0.027	0.979

Residual standard error: 1.947 on 93 degrees of freedom

Multiple R-squared: 0.6514, Adjusted R-squared: 0.539

F-statistic: 5.793 on 30 and 93 DF, p-value: 3.025e-11





Univariate Regression:

18.) Prevotella

Mean abundance: 0.6%

R<sup>2</sup>: 0.5037

Adjusted R<sup>2</sup>: 0.3435

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Patient	20	366.02	18.301	3.3381	4.274e-05 ***
daynumber_for_collection	1	3.34	3.337	0.6086	0.43729
Host_Age	1	36.39	36.392	6.6379	0.01156 *
Host_Gender	1	19.28	19.276	3.5159	0.06392 .
Medical_complications	1	5.90	5.902	1.0765	0.30217
Patient_diagnosis	1	12.09	12.095	2.2060	0.14085
Post_visit_treatment	1	33.88	33.882	6.1800	0.01471 *
Type	1	28.84	28.838	5.2600	0.02407 *
Vacc_status	1	6.72	6.719	1.2256	0.27112
Fever	1	4.87	4.869	0.8880	0.34846
SYMPTOM_COUGH	1	0.05	0.052	0.0094	0.92284
Residuals	93	509.87	5.482		

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Call:

```
lm(formula = model_string, data = factors)
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Residuals:

Min	1Q	Median	3Q	Max
-5.6829	-1.3531	-0.2552	0.9587	5.8561

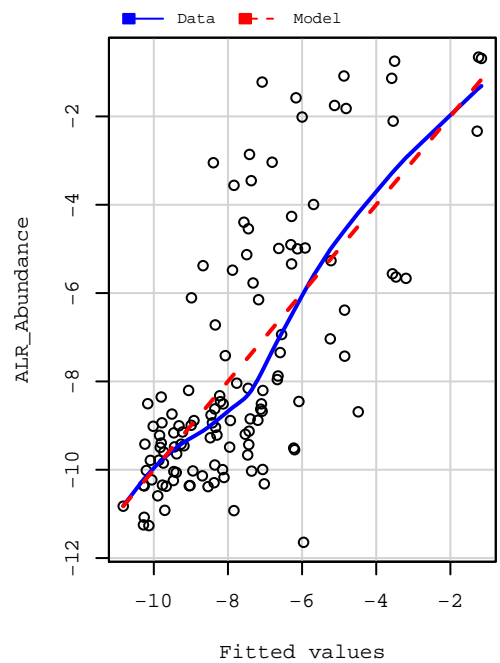
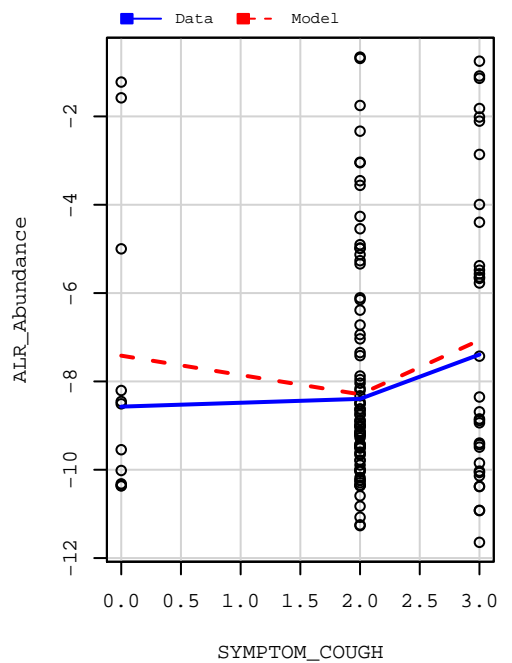
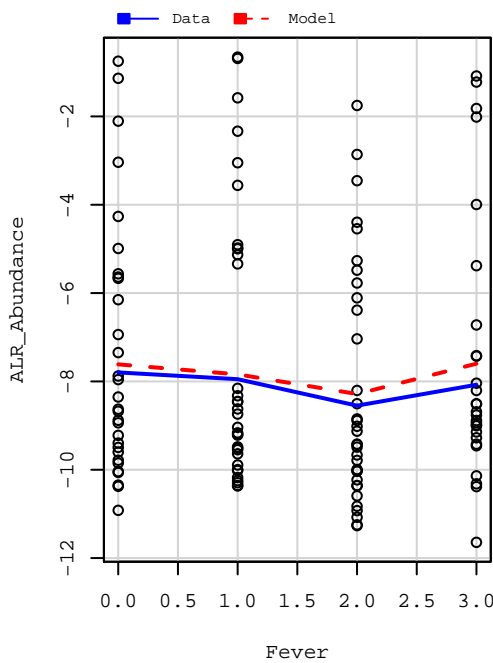
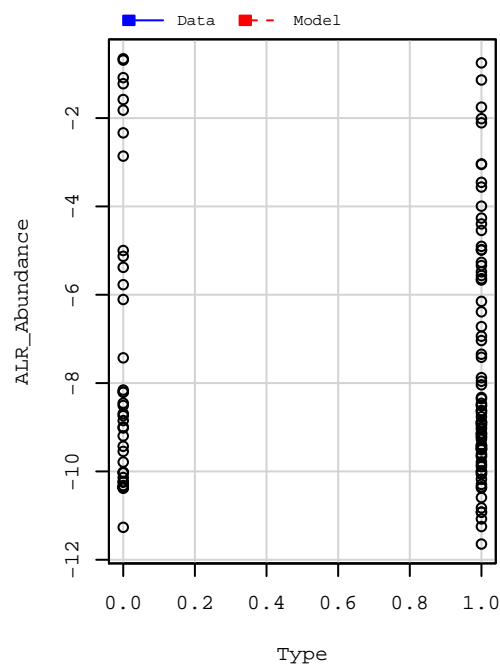
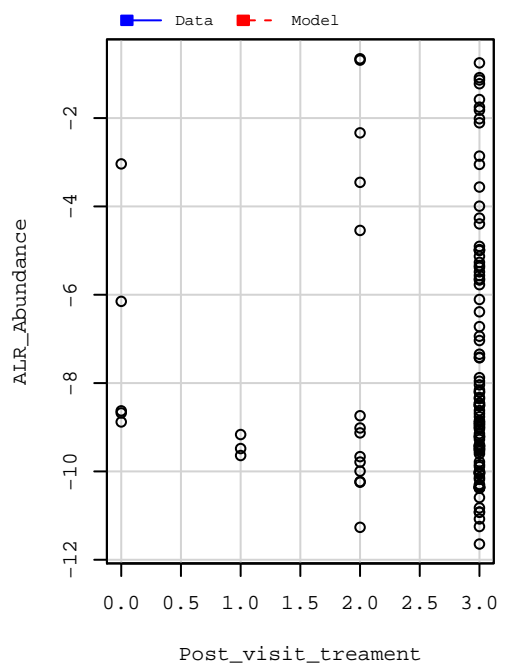
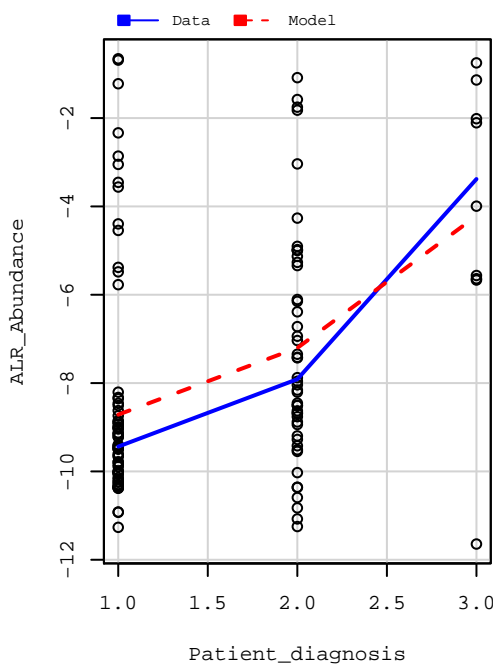
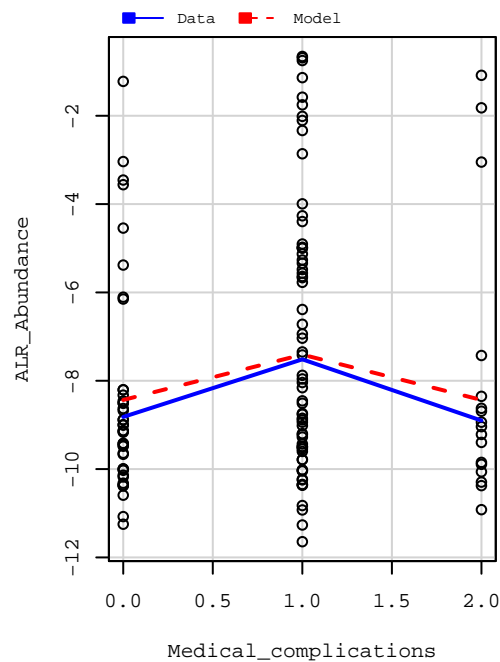
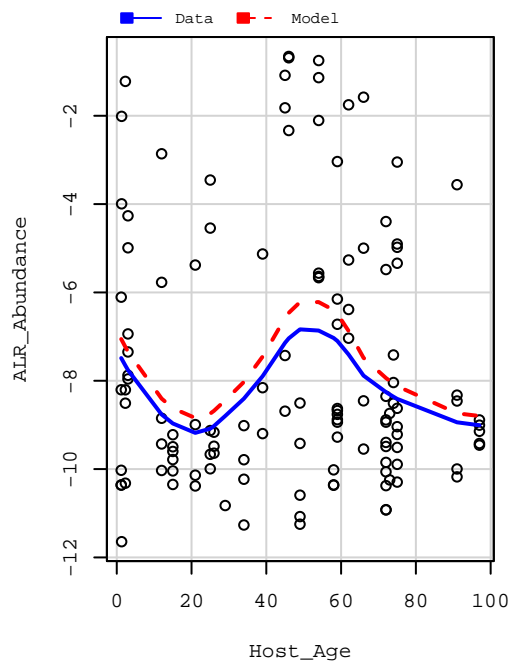
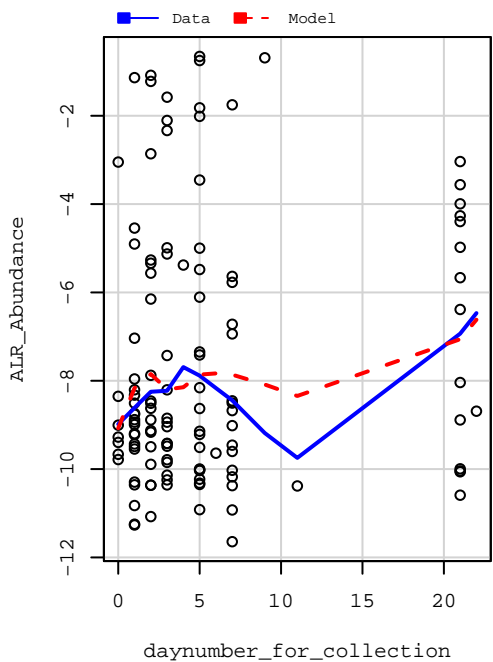
Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-3.98750	7.24928	-0.550	0.584
Patientp1	6.42811	15.15703	0.424	0.672
Patientp10	5.83790	17.52550	0.333	0.740
Patientp12	-6.72520	25.64759	-0.262	0.794
Patientp13	-0.26191	8.92575	-0.029	0.977
Patientp15	-5.03891	13.39098	-0.376	0.708
Patientp18	0.64463	8.44131	0.076	0.939
Patientp19	10.71353	13.88747	0.771	0.442
Patientp2	6.49747	4.82100	1.348	0.181
Patientp20	-5.65897	34.82377	-0.163	0.871
Patientp22	1.32079	5.34717	0.247	0.805
Patientp23	-1.55716	12.38677	-0.126	0.900
Patientp24	8.29947	10.54767	0.787	0.433
Patientp25	3.34670	4.61444	0.725	0.470
Patientp28	-6.46723	22.17196	-0.292	0.771
Patientp3	-3.23672	9.69429	-0.334	0.739
Patientp31	5.36663	13.15411	0.408	0.684
Patientp32	-3.88647	12.83994	-0.303	0.763
Patientp4	0.04579	2.55038	0.018	0.986
Patientp6	-7.26457	11.39946	-0.637	0.526
Patientp9	-5.43140	4.18847	-1.297	0.198
daynumber_for_collection	0.01926	0.03625	0.531	0.596
Host_Age	-0.05626	0.06745	-0.834	0.406
Host_GenderF	-0.30360	1.98295	-0.153	0.879
Medical_complications	-0.87392	12.07434	-0.072	0.942
Patient_diagnosis	-0.73582	9.99909	-0.074	0.941
Post_visit_treatment	-1.00176	7.48780	-0.134	0.894
Type	2.59673	9.66408	0.269	0.789
Vacc_statusY	-6.01673	11.89398	-0.506	0.614
Fever	2.13354	5.36907	0.397	0.692
SYMPTOM_COUGH	0.26316	2.70977	0.097	0.923

Residual standard error: 2.341 on 93 degrees of freedom

Multiple R-squared: 0.5037, Adjusted R-squared: 0.3435

F-statistic: 3.146 on 30 and 93 DF, p-value: 1.328e-05



Univariate Regression:

19.) order:Actinomycetales

Mean abundance: 0.6%

R^2: 0.5465

Adjusted R^2: 0.4002

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Patient	20	532.29	26.6143	4.8381	7.79e-08	***
daynumber_for_collection	1	1.96	1.9608	0.3564	0.55194	
Host_Age	1	9.13	9.1337	1.6604	0.20075	
Host_Gender	1	2.31	2.3125	0.4204	0.51835	
Medical_complications	1	10.42	10.4183	1.8939	0.17207	
Patient_diagnosis	1	4.05	4.0539	0.7369	0.39285	
Post_visit_treatment	1	14.91	14.9140	2.7111	0.10302	
Type	1	17.81	17.8089	3.2374	0.07522	.
Vacc_status	1	1.67	1.6659	0.3028	0.58343	
Fever	1	21.78	21.7843	3.9601	0.04953	*
SYMPTOM_COUGH	1	0.18	0.1770	0.0322	0.85801	
Residuals	93	511.59	5.5010			

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

```
Call:
lm(formula = model_string, data = factors)
```

Residuals:

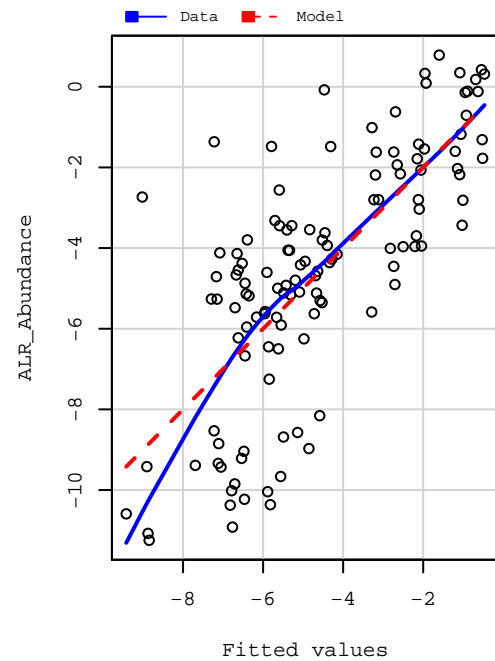
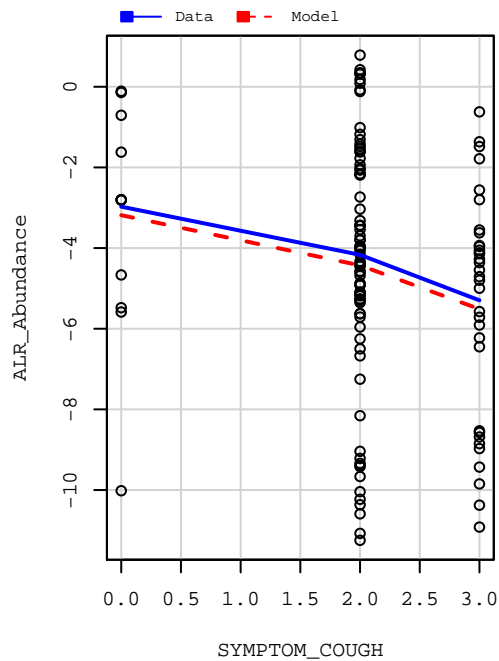
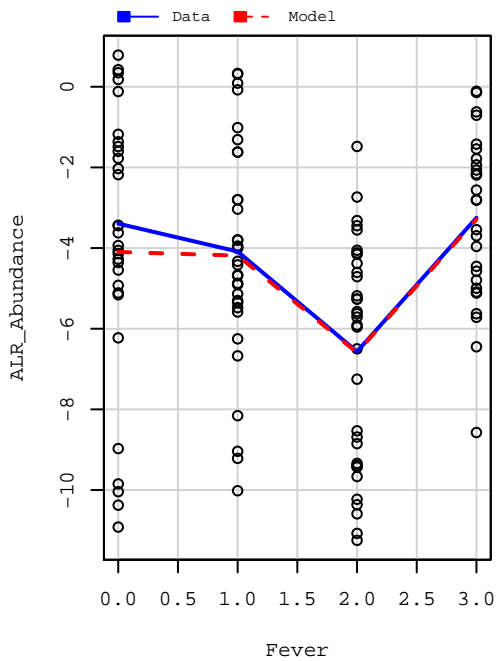
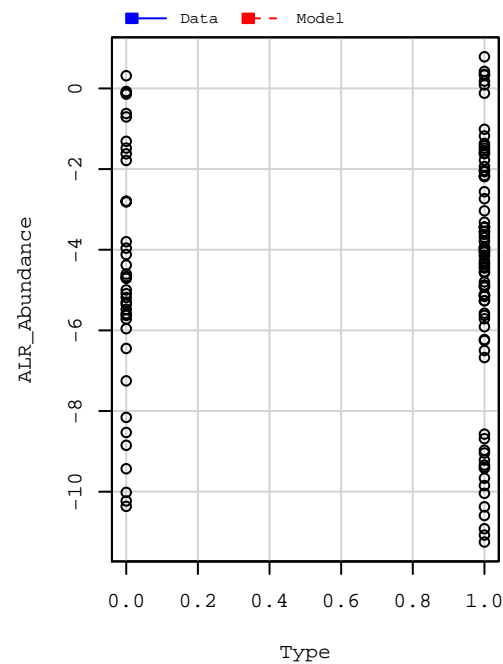
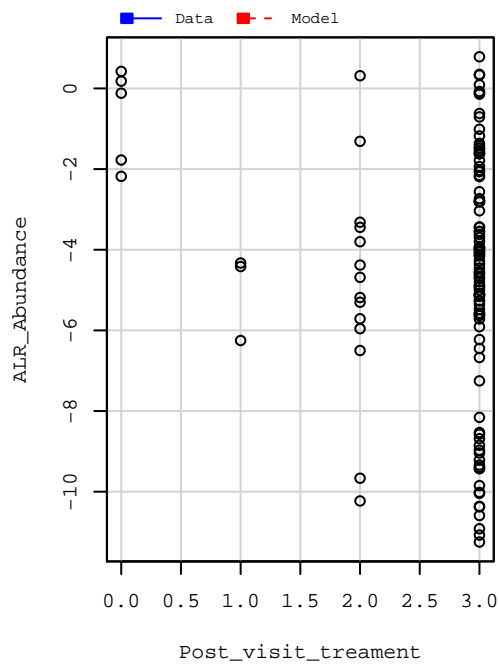
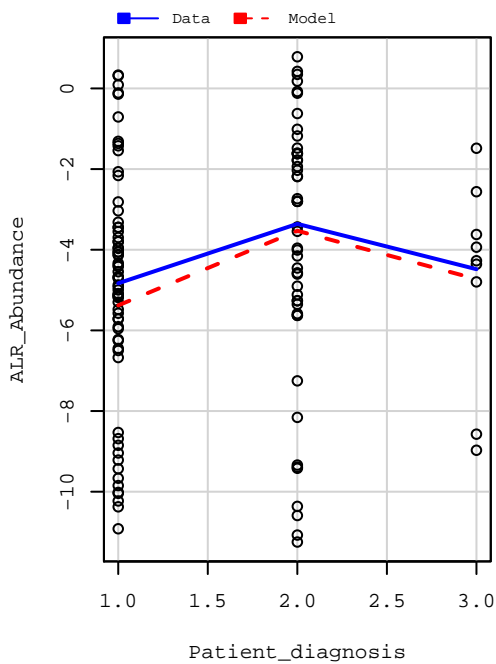
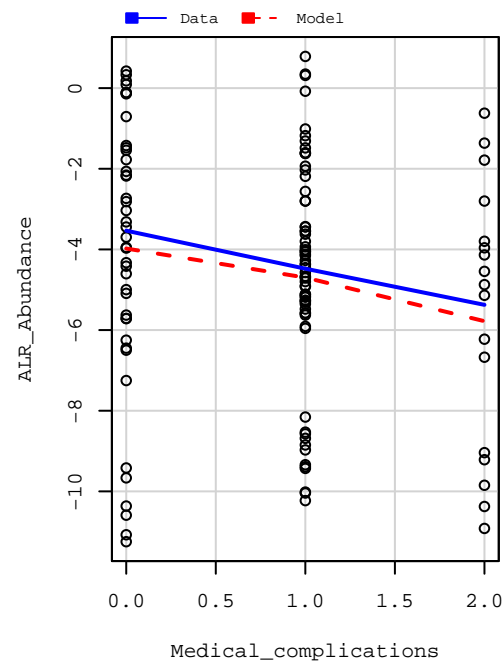
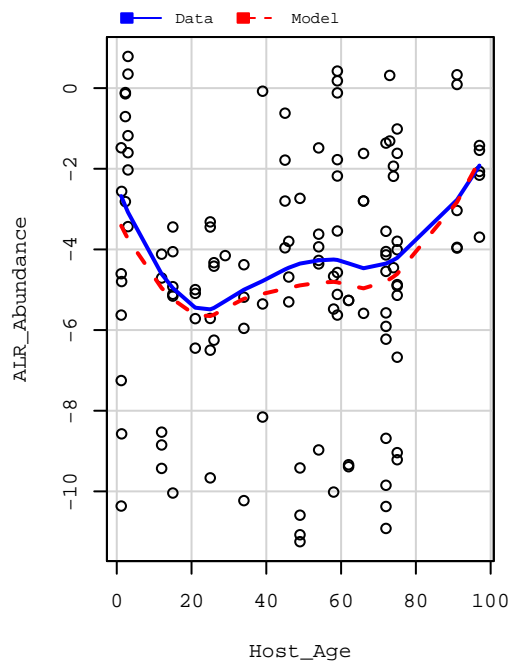
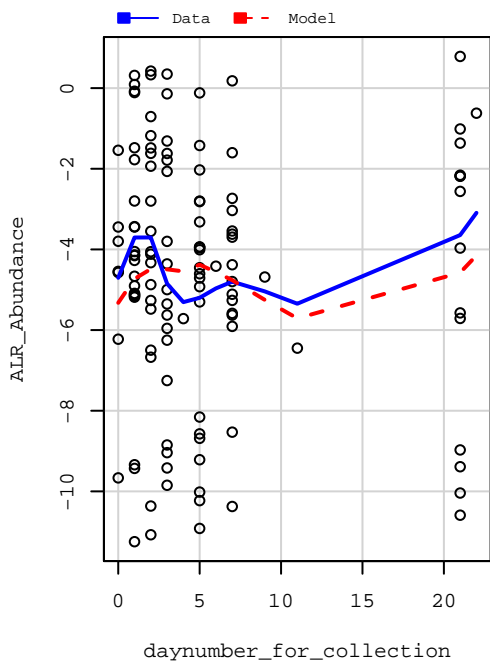
	Min	1Q	Median	3Q	Max
	-4.5442	-1.2800	0.3255	1.2851	6.2851

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-4.94716	7.26150	-0.681	0.4974
Patientp1	-21.72661	15.18259	-1.431	0.1558
Patientp10	-13.99582	17.55506	-0.797	0.4273
Patientp12	20.15533	25.69086	0.785	0.4347
Patientp13	-5.94391	8.94081	-0.665	0.5078
Patientp15	3.90163	13.41357	0.291	0.7718
Patientp18	-9.87873	8.45555	-1.168	0.2457
Patientp19	-19.63007	13.91089	-1.411	0.1615
Patientp2	-9.22499	4.82914	-1.910	0.0592 .
Patientp20	28.03268	34.88251	0.804	0.4237
Patientp22	-11.24917	5.35619	-2.100	0.0384 *
Patientp23	-16.71908	12.40766	-1.347	0.1811
Patientp24	-10.91807	10.56546	-1.033	0.3041
Patientp25	5.03983	4.62223	1.090	0.2784
Patientp28	8.83289	22.20936	0.398	0.6918
Patientp3	7.52147	9.71064	0.775	0.4406
Patientp31	13.82352	13.17629	1.049	0.2968
Patientp32	4.24343	12.86160	0.330	0.7422
Patientp4	-3.31477	2.55468	-1.298	0.1977
Patientp6	5.71807	11.41869	0.501	0.6177
Patientp9	-2.58957	4.19553	-0.617	0.5386
daynumber_for_collection	-0.02864	0.03631	-0.789	0.4323
Host_Age	0.11351	0.06756	1.680	0.0963 .
Host_GenderF	2.53160	1.98629	1.275	0.2056
Medical_complications	10.07897	12.09470	0.833	0.4068
Patient_diagnosis	13.16875	10.01595	1.315	0.1918
Post_visit_treatment	-7.82805	7.50043	-1.044	0.2993
Type	-10.88226	9.68039	-1.124	0.2638
Vacc_statusY	5.69788	11.91404	0.478	0.6336
Fever	-4.63188	5.37813	-0.861	0.3913
SYMPTOM_COUGH	-0.48696	2.71434	-0.179	0.8580

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 2.345 on 93 degrees of freedom
Multiple R-squared:  0.5465, Adjusted R-squared:  0.4002
F-statistic: 3.736 on 30 and 93 DF,  p-value: 5.903e-07
```



Univariate Regression:

20.) Rhodococcus

Mean abundance: 0.5%

R<sup>2</sup>: 0.4955

Adjusted R<sup>2</sup>: 0.3328

Analysis of Variance Table

Response: ALR\_Abundance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Patient	20	488.92	24.4462	3.7728	6.549e-06 ***
daynumber_for_collection	1	2.75	2.7477	0.4241	0.51653
Host_Age	1	21.63	21.6280	3.3378	0.07091 .
Host_Gender	1	23.18	23.1846	3.5781	0.06166 .
Medical_complications	1	0.61	0.6059	0.0935	0.76045
Patient_diagnosis	1	0.82	0.8161	0.1260	0.72347
Post_visit_treatment	1	25.37	25.3719	3.9156	0.05080 .
Type	1	0.43	0.4345	0.0671	0.79624
Vacc_status	1	27.18	27.1844	4.1954	0.04335 *
Fever	1	0.04	0.0358	0.0055	0.94089
SYMPTOM_COUGH	1	1.04	1.0387	0.1603	0.68980
Residuals	93	602.61	6.4797		

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1



Call:

```
lm(formula = model_string, data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-5.1718	-1.2692	-0.1501	0.7571	6.5250

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-6.43639	7.88101	-0.817	0.4162
Patientp1	6.89568	16.47788	0.418	0.6766
Patientp10	13.23051	19.05275	0.694	0.4892
Patientp12	-17.30555	27.88264	-0.621	0.5363
Patientp13	-5.35145	9.70358	-0.551	0.5826
Patientp15	-7.54977	14.55793	-0.519	0.6053
Patientp18	2.22175	9.17692	0.242	0.8092
Patientp19	6.84886	15.09768	0.454	0.6511
Patientp2	6.43580	5.24113	1.228	0.2226
Patientp20	-22.29667	37.85847	-0.589	0.5573
Patientp22	2.28769	5.81315	0.394	0.6948
Patientp23	8.27049	13.46620	0.614	0.5406
Patientp24	6.59149	11.46684	0.575	0.5668
Patientp25	0.36010	5.01657	0.072	0.9429
Patientp28	-19.07522	24.10412	-0.791	0.4307
Patientp3	-8.01104	10.53909	-0.760	0.4491
Patientp31	-8.72127	14.30041	-0.610	0.5434
Patientp32	2.13294	13.95887	0.153	0.8789
Patientp4	-4.70478	2.77263	-1.697	0.0931 .
Patientp6	-3.81924	12.39286	-0.308	0.7586
Patientp9	-4.75841	4.55347	-1.045	0.2987
daynumber_for_collection	-0.01300	0.03941	-0.330	0.7422
Host_Age	-0.03826	0.07332	-0.522	0.6031
Host_GenderF	-4.23457	2.15575	-1.964	0.0525 .
Medical_complications	-8.15999	13.12655	-0.622	0.5357
Patient_diagnosis	-5.34288	10.87045	-0.492	0.6242
Post_visit_treatment	7.37905	8.14033	0.906	0.3670
Type	4.63814	10.50626	0.441	0.6599
Vacc_statusY	-9.91743	12.93047	-0.767	0.4450
Fever	1.78828	5.83696	0.306	0.7600
SYMPTOM_COUGH	-1.17947	2.94591	-0.400	0.6898

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.546 on 93 degrees of freedom

Multiple R-squared: 0.4955, Adjusted R-squared: 0.3328

F-statistic: 3.045 on 30 and 93 DF, p-value: 2.275e-05

