

What the Taq? The Influence of Different Hi-Fidelity Taq Polymerase on 16S rRNA Sequencing

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Supplemental

Table S1: ANOVA Results of Number of OTUs Differences between HiFi Taq in Fecal Samples

DF	Sum Squares	Mean Squares	F value	P-value	BH	Cycle	Sub-Sample Depth
4	3.66	0.91	1.25	3.5e-01	3.5e-01	20x	1000
4	6.90	1.73	2.84	6.1e-02	1.2e-01	25x	1000
3	4.67	1.56	2.55	1.0e-01	1.4e-01	30x	1000
4	13.01	3.25	16.35	2.4e-05	9.7e-05	35x	1000
4	5.15	1.29	4.57	1.2e-01	1.2e-01	20x	5000
4	8.11	2.03	4.98	1.3e-02	1.8e-02	25x	5000
3	10.36	3.45	25.24	1.8e-05	3.6e-05	30x	5000
4	14.38	3.59	81.00	1.6e-09	6.4e-09	35x	5000
2	2.85	1.43	3.73	1.5e-01	1.5e-01	20x	10000
4	10.39	2.60	11.92	3.8e-04	5.1e-04	25x	10000
3	11.22	3.74	57.90	2.1e-07	4.2e-07	30x	10000
4	13.25	3.31	57.20	4.0e-08	1.6e-07	35x	10000
2	0.27	0.13	0.10	9.1e-01	9.1e-01	20x	15000
4	8.69	2.17	7.23	4.1e-03	5.5e-03	25x	15000
3	10.40	3.47	25.95	1.6e-05	3.1e-05	30x	15000
4	12.24	3.06	48.03	2.7e-07	1.1e-06	35x	15000
1	1.00	1.00	NA	NA	NA	20x	20000
4	9.84	2.46	12.50	4.5e-04	4.5e-04	25x	20000
3	10.65	3.55	31.67	5.5e-06	8.3e-06	30x	20000
3	11.61	3.87	119.82	3.3e-09	9.9e-09	35x	20000

Table S2: Tukey Post-Hoc Results of Number of OTUs Differences between HiFi Taq in Fecal Samples

Difference	Lower	Upper	P Adjusted	Comparison	Cycle	Sub-Sample Depth
299.50	88.49	510.51	5.7e-03	PL-ACC	35x	20000
192.50	53.41	331.59	5.8e-03	PL-ACC	35x	10000
251.75	52.99	450.51	1.2e-02	PL-ACC	35x	15000
119.92	14.60	225.23	2.3e-02	PL-K	35x	5000
155.50	16.41	294.59	2.6e-02	PL-PHU	35x	10000
108.00	10.50	205.50	2.7e-02	PL-ACC	35x	5000
235.75	24.74	446.76	2.7e-02	PL-PHU	35x	20000
187.00	16.65	357.35	2.9e-02	PL-K	35x	10000

Table S3: ANOVA Results of Number of OTUs Differences between HiFi Taq in Mock Samples

DF	Sum Squares	Mean Squares	F value	P-value	BH	Cycle	Sub-Sample Depth
2	364.56	182.28	15.82	1.7e-03	2.2e-03	20x	1000
4	3478.53	869.63	75.15	2.7e-09	1.1e-08	25x	1000
4	2206.58	551.64	10.28	1.8e-05	3.6e-05	30x	1000
4	1971.92	492.98	2.31	1.0e-01	1.0e-01	35x	1000
3	267.19	89.06	9.44	1.8e-03	2.0e-03	25x	5000
3	7731.36	2577.12	80.88	1.1e-12	3.3e-12	30x	5000
3	13086.29	4362.10	8.67	2.0e-03	2.0e-03	35x	5000
3	400.50	133.50	7.14	5.2e-03	5.2e-03	25x	10000
3	18644.56	6214.85	115.99	5.0e-14	1.5e-13	30x	10000
3	50519.50	16839.83	435.98	1.6e-12	2.5e-12	35x	10000

Table S4: Tukey Post-Hoc Results of Number of OTUs Differences between HiFi Tag in Mock Samples

Difference	Lower	Upper	P Adjusted	Comparison	Cycle	Sub-Sample Depth
75.85	63.87	87.83	6.6e-14	PL-ACC	30x	10000
142.50	129.45	155.55	1.9e-12	PL-ACC	35x	10000
46.95	37.74	56.16	2.6e-12	PL-ACC	30x	5000
129.25	116.20	142.30	4.0e-12	PL-PHU	35x	10000
-108.25	-121.30	-95.20	4.6e-11	Q5-PL	35x	10000
-36.77	-46.07	-27.46	8.1e-10	Q5-PL	30x	10000
44.35	32.37	56.33	2.8e-09	PL-PHU	30x	10000
33.20	23.99	42.41	3.2e-09	PL-PHU	30x	5000
-38.50	-46.60	-30.40	5.1e-09	Q5-K	25x	1000
-37.50	-45.60	-29.40	7.3e-09	PHU-K	25x	1000
-23.60	-30.56	-16.64	1.0e-08	Q5-PL	30x	5000
36.50	28.40	44.60	1.1e-08	K-ACC	25x	1000
-35.50	-43.60	-27.40	1.5e-08	PL-K	25x	1000
39.08	26.91	51.26	3.9e-08	Q5-ACC	30x	10000
23.35	14.14	32.56	1.8e-06	Q5-ACC	30x	5000
31.50	17.18	45.82	1.9e-05	PHU-ACC	30x	10000
34.25	21.20	47.30	2.5e-05	Q5-ACC	35x	10000
22.03	9.31	34.74	1.8e-04	K-ACC	30x	1000
-15.48	-25.20	-5.75	5.7e-04	Q5-K	30x	1000
-13.50	-20.36	-6.64	1.3e-03	PL-PHU	20x	1000
-18.78	-31.49	-6.06	1.5e-03	PHU-K	30x	1000
21.00	7.95	34.05	2.2e-03	Q5-PHU	35x	10000
67.90	23.72	112.08	2.9e-03	PL-ACC	35x	5000

Difference	Lower	Upper	P Adjusted	Comparison	Cycle	Sub-Sample Depth
9.75	3.30	16.20	3.6e-03	PL-PHU	25x	5000
9.50	3.05	15.95	4.3e-03	PL-ACC	25x	5000
61.90	17.72	106.08	5.9e-03	PL-PHU	35x	5000
-9.00	-15.45	-2.55	6.4e-03	Q5-PL	25x	5000
-12.25	-21.33	-3.17	8.2e-03	Q5-PL	25x	10000
15.55	3.03	28.07	9.0e-03	PL-ACC	30x	1000
12.00	2.92	21.08	9.4e-03	PL-PHU	25x	10000
13.75	2.74	24.76	1.1e-02	PHU-ACC	30x	5000
9.75	0.67	18.83	3.4e-02	PL-ACC	25x	10000
9.60	0.39	18.81	3.9e-02	Q5-PHU	30x	5000
13.25	0.20	26.30	4.6e-02	PHU-ACC	35x	10000

**Table S5: Kruskal-Wallis Results of Per Base Error Rate Differences between HiFi
Taq in Mock Samples**

Rank	Sum	Statistic	DF	P-value	BH	Cycle	Sub-Sample Depth
	7.85		2	2.0e-02	4.0e-02	20x	1000
	9.47		4	5.0e-02	6.7e-02	25x	1000
	23.74		4	9.0e-05	3.6e-04	30x	1000
	6.56		4	1.6e-01	1.6e-01	35x	1000
	5.85		3	1.2e-01	1.2e-01	25x	5000
	14.31		3	2.5e-03	7.5e-03	30x	5000
	12.53		3	5.8e-03	8.7e-03	35x	5000
	9.42		3	2.4e-02	3.6e-02	25x	10000
	5.87		3	1.2e-01	1.2e-01	30x	10000
	11.71		3	8.4e-03	2.5e-02	35x	10000

Table S6: Dunn's Post-Hoc Results of Per Base Error Rate between HiFi Taq in Mock Samples

Chi Squared	Z Statistic	P Adjusted	Comparison	Cycle	Sub-Sample Depth
23.74	4.41	5.1e-06	K - PL	30x	1000
14.31	-3.28	5.2e-04	PL - Q5	30x	5000
11.71	-3.19	7.0e-04	PHU - PL	35x	10000
23.74	3.09	1.0e-03	K - PHU	30x	1000
12.53	-3.04	1.2e-03	PHU - PL	35x	5000
12.53	-2.89	1.9e-03	ACC - PL	35x	5000
7.85	2.77	2.8e-03	PHU - PL	20x	1000
23.74	2.67	3.8e-03	K - Q5	30x	1000
23.74	-2.57	5.1e-03	ACC - K	30x	1000
11.71	-2.52	5.8e-03	ACC - PL	35x	10000
9.42	2.38	8.7e-03	PL - Q5	25x	10000
9.42	2.30	1.1e-02	ACC - Q5	25x	10000
14.31	-2.28	1.1e-02	ACC - Q5	30x	5000
14.31	-2.26	1.2e-02	PHU - Q5	30x	5000
9.42	-2.01	2.2e-02	PHU - PL	25x	10000
9.42	1.93	2.7e-02	ACC - PHU	25x	10000
23.74	-1.80	3.6e-02	PL - Q5	30x	1000
11.71	-1.78	3.7e-02	PHU - Q5	35x	10000
7.85	-1.64	5.0e-02	PL - Q5	20x	1000

**Table S7: Kruskal-Wallis Results of Sequences with Error Differences between HiFi
Taq in Mock Samples**

Rank Sum	Statistic	DF	P-value	BH	Cycle	Sub-Sample Depth
7.88		2	1.9e-02	2.6e-02	20x	1000
14.24		4	6.6e-03	1.3e-02	25x	1000
24.73		4	5.7e-05	2.3e-04	30x	1000
9.79		4	4.4e-02	4.4e-02	35x	1000
12.77		3	5.2e-03	5.2e-03	25x	5000
19.86		3	1.8e-04	5.4e-04	30x	5000
13.71		3	3.3e-03	5.0e-03	35x	5000
12.94		3	4.8e-03	4.8e-03	25x	10000
18.58		3	3.3e-04	1.0e-03	30x	10000
13.06		3	4.5e-03	4.8e-03	35x	10000

Table S8: Dunn's Post-Hoc Results of Sequences with Error Differences between HiFi Taq in Mock Samples

Chi Squared	Z Statistic	P Adjusted	Comparison	Cycle	Sub-Sample Depth
24.73	3.79	7.6e-05	K - Q5	30x	1000
19.86	-3.65	1.3e-04	PHU - PL	30x	5000
24.73	3.62	1.5e-04	K - PHU	30x	1000
13.71	-3.62	1.5e-04	PHU - PL	35x	5000
13.06	-3.56	1.8e-04	PHU - PL	35x	10000
18.58	-3.41	3.3e-04	PHU - PL	30x	10000
12.77	3.35	4.0e-04	ACC - PHU	25x	5000
12.94	3.20	6.9e-04	ACC - PHU	25x	10000
19.86	3.18	7.4e-04	PL - Q5	30x	5000
18.58	3.16	7.8e-04	PL - Q5	30x	10000
14.24	3.07	1.1e-03	K - PHU	25x	1000
14.24	2.95	1.6e-03	K - PL	25x	1000
24.73	-2.89	2.0e-03	PHU - PL	30x	1000
9.79	-2.88	2.0e-03	PHU - PL	35x	1000
24.73	2.85	2.2e-03	PL - Q5	30x	1000
7.88	2.78	2.7e-03	PHU - PL	20x	1000
12.94	2.75	3.0e-03	ACC - Q5	25x	10000
19.86	2.60	4.7e-03	ACC - PHU	30x	5000
18.58	2.50	6.2e-03	ACC - PHU	30x	10000
12.77	2.50	6.3e-03	ACC - Q5	25x	5000
24.73	2.41	8.0e-03	ACC - PHU	30x	1000
14.24	2.30	1.1e-02	ACC - PHU	25x	1000
9.79	2.29	1.1e-02	PL - Q5	35x	1000

Chi Squared	Z Statistic	P Adjusted	Comparison	Cycle	Sub-Sample Depth
13.71	2.29	1.1e-02	PL - Q5	35x	5000
14.24	2.18	1.5e-02	ACC - PL	25x	1000
24.73	2.16	1.6e-02	ACC - Q5	30x	1000
18.58	2.12	1.7e-02	ACC - Q5	30x	10000
13.06	2.08	1.9e-02	ACC - PHU	35x	10000
13.06	2.08	1.9e-02	PL - Q5	35x	10000
19.86	2.07	1.9e-02	ACC - Q5	30x	5000
12.77	-2.05	2.0e-02	PHU - PL	25x	5000
12.94	-2.01	2.2e-02	PHU - PL	25x	10000
14.24	1.93	2.7e-02	K - Q5	25x	1000
13.71	1.89	2.9e-02	ACC - PHU	35x	5000
7.88	-1.65	5.0e-02	PL - Q5	20x	1000