

Start pH 7		Time 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
IPPAS P507	OD	0.343 ± 0.006	0.364 ± 0.001	0.353 ± 0.001	0.312 ± 0.002	0.313 ± 0.005	0.317 ± 0.001	0.372 ± 0.004
	pH	7.00 ± 0.02	7.01 ± 1.10	6.98 ± 0.90	7.02 ± 0.60	6.97 ± 0.70	6.99 ± 0.60	7.01 ± 0.50
ACUF769	OD	0.335 ± 0.006	0.277 ± 0.002	0.317 ± 0.001	0.313 ± 0.005	0.360 ± 0.018	0.313 ± 0.005	0.310 ± 0.001
	pH	6.46 ± 0.01	6.05 ± 0.11	4.76 ± 0.62	3.16 ± 0.11	2.80 ± 0.08	2.52 ± 0.05	2.33 ± 0.03
ACUF722	OD	0.310 ± 0.001	0.257 ± 0.054	0.313 ± 0.004	0.321 ± 0.005	0.326 ± 0.002	0.325 ± 0.001	0.324 ± 0.011
	pH	6.50 ± 0.04	6.12 ± 0.04	4.26 ± 0.13	3.05 ± 0.04	2.74 ± 0.02	2.47 ± 0.01	2.25 ± 0.00
CloneT18	OD	0.326 ± 0.002	0.296 ± 0.029	0.324 ± 0.001	0.355 ± 0.011	0.348 ± 0.001	0.335 ± 0.006	0.332 ± 0.001
	pH	6.51 ± 0.09	6.29 ± 0.00	5.33 ± 0.32	3.34 ± 0.16	2.81 ± 0.08	2.55 ± 0.08	2.37 ± 0.06
ACUF773	OD	0.335 ± 0.006	0.340 ± 0.001	0.306 ± 0.005	0.343 ± 0.006	0.303 ± 0.001	0.343 ± 0.008	0.346 ± 0.001
	pH	6.55 ± 0.01	5.86 ± 0.04	3.39 ± 0.45	2.90 ± 0.06	2.66 ± 0.03	2.44 ± 0.02	2.17 ± 0.01
ACUF648	OD	0.356 ± 0.001	0.351 ± 0.005	0.352 ± 0.002	0.292 ± 0.005	0.310 ± 0.001	0.303 ± 0.011	0.352 ± 0.006
	pH	6.38 ± 0.01	5.67 ± 0.01	3.42 ± 0.06	2.81 ± 0.30	2.77 ± 0.02	2.56 ± 0.04	2.420 ± 0.01
ACUF731	OD	0.321 ± 0.005	0.299 ± 0.005	0.317 ± 0.020	0.364 ± 0.011	0.313 ± 0.005	0.307 ± 0.006	0.356 ± 0.001
	pH	6.58 ± 0.04	6.48 ± 0.03	6.14 ± 0.17	4.64 ± 0.00	3.00 ± 0.01	2.62 ± 0.04	2.22 ± 0.06
ACUF551	OD	0.360 ± 0.006	0.328 ± 0.005	0.324 ± 0.001	0.327 ± 0.005	0.313 ± 0.021	0.337 ± 0.016	0.343 ± 0.006
	pH	6.48 ± 0.03	6.09 ± 0.13	3.54 ± 0.02	3.00 ± 0.00	2.72 ± 0.03	2.40 ± 0.05	2.16 ± 0.14
Start pH 6.5		Time 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
IPPAS P507	OD	0.388 ± 0.006	0.462 ± 0.018	0.564 ± 0.052	0.652 ± 0.068	0.721 ± 0.045	0.801 ± 0.119	1.402 ± 0.136
	pH	6.51 ± 0.00	6.40 ± 0.06	6.33 ± 0.04	6.27 ± 0.17	6.19 ± 0.14	5.98 ± 0.21	5.68 ± 0.57
ACUF769	OD	0.353 ± 0.001	0.505 ± 0.094	0.738 ± 0.059	1.282 ± 0.201	1.910 ± 0.144	3.930 ± 0.255	5.470 ± 0.422
	pH	6.46 ± 0.01	6.05 ± 0.11	4.76 ± 0.62	3.16 ± 0.11	2.80 ± 0.08	2.52 ± 0.05	2.33 ± 0.03
ACUF722	OD	0.365 ± 0.007	0.518 ± 0.017	0.614 ± 0.023	0.827 ± 0.052	1.318 ± 0.003	1.980 ± 0.035	3.055 ± 0.120
	pH	6.50 ± 0.04	6.12 ± 0.04	4.26 ± 0.13	3.05 ± 0.04	2.74 ± 0.02	2.47 ± 0.01	2.25 ± 0.00

CloneT18	OD	0.372 ± 0.021	0.354 ± 0.073	0.702 ± 0.006	0.748 ± 0.046	1.107 ± 0.052	2.705 ± 0.134	4.020 ± 0.156
	pH	6.51 ± 0.09	6.29 ± 0.00	5.33 ± 0.32	3.34 ± 0.16	2.81 ± 0.08	2.55 ± 0.08	2.37 ± 0.06
ACUF773	OD	0.382 ± 0.001	0.735 ± 0.013	1.045 ± 0.052	1.331 ± 0.064	2.042 ± 0.048	3.480 ± 0.064	5.175 ± 0.120
	pH	6.55 ± 0.01	5.86 ± 0.04	3.39 ± 0.45	2.90 ± 0.06	2.66 ± 0.03	2.44 ± 0.02	2.17 ± 0.01
ACUF648	OD	0.433 ± 0.003	0.545 ± 0.011	1.342 ± 0.011	2.702 ± 0.054	4.830 ± 0.141	6.745 ± 0.064	11.730 ± 0.099
	pH	6.38 ± 0.01	5.67 ± 0.01	3.42 ± 0.06	2.81 ± 0.30	2.77 ± 0.02	2.56 ± 0.04	2.420 ± 0.01
ACUF731	OD	0.324 ± 0.004	0.184 ± 0.010	0.379 ± 0.001	0.877 ± 0.002	2.214 ± 0.001	4.890 ± 0.140	14.863 ± 0.614
	pH	6.58 ± 0.04	6.48 ± 0.03	6.14 ± 0.17	4.64 ± 0.00	3.00 ± 0.01	2.62 ± 0.04	2.22 ± 0.06
ACUF551	OD	0.305 ± 0.028	0.721 ± 0.090	1.556 ± 0.002	2.492 ± 0.001	6.910 ± 0.163	11.200 ± 0.366	17.583 ± 0.738
	pH	6.48 ± 0.03	6.09 ± 0.13	3.54 ± 0.02	3.00 ± 0.00	2.72 ± 0.03	2.40 ± 0.05	2.16 ± 0.14
Start pH 6		Time 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
IPPAS P507	OD	0.349 ± 0.011	0.853 ± 0.033	1.568 ± 0.017	2.644 ± 0.057	4.030 ± 0.057	5.845 ± 0.106	8.670 ± 0.156
	pH	5.88 ± 0.03	3.89 ± 0.29	3.08 ± 0.15	2.77 ± 0.12	2.58 ± 0.11	2.43 ± 0.11	2.25 ± 0.14
ACUF769	OD	0.285 ± 0.013	0.587 ± 0.024	1.266 ± 0.096	2.753 ± 0.158	6.040 ± 0.003	9.640 ± 0.002	14.820 ± 0.003
	pH	5.83 ± 0.01	3.52 ± 0.00	2.90 ± 0.02	2.58 ± 0.06	2.34 ± 0.00	2.14 ± 0.02	1.84 ± 0.03
ACUF722	OD	0.238 ± 0.052	0.562 ± 0.011	0.856 ± 0.051	1.592 ± 0.028	2.483 ± 0.152	2.818 ± 0.236	3.745 ± 0.148
	pH	5.81 ± 0.01	3.76 ± 0.00	2.99 ± 0.13	2.68 ± 0.14	2.47 ± 0.11	2.32 ± 0.09	2.10 ± 0.14
CloneT18	OD	0.271 ± 0.036	0.430 ± 0.045	0.636 ± 0.006	1.524 ± 0.037	3.860 ± 0.071	6.673 ± 0.046	8.196 ± 0.303
	pH	5.86 ± 0.01	4.08 ± 0.30	3.18 ± 0.08	2.81 ± 0.04	2.57 ± 0.02	2.34 ± 0.03	2.16 ± 0.06
ACUF773	OD	0.309 ± 0.010	0.752 ± 0.003	1.263 ± 0.061	2.565 ± 0.147	4.890 ± 0.268	7.500 ± 0.198	8.950 ± 0.028
	pH	5.79 ± 0.01	3.40 ± 0.08	2.88 ± 0.06	2.65 ± 0.08	2.50 ± 0.06	2.35 ± 0.08	2.33 ± 0.00
ACUF648	OD	0.354 ± 0.001	0.693 ± 0.063	1.769 ± 0.078	3.208 ± 0.060	4.980 ± 0.014	8.140 ± 0.095	14.240 ± 0.198
	pH	5.65 ± 0.25	3.87 ± 0.44	3.07 ± 0.09	2.84 ± 0.05	2.62 ± 0.05	2.46 ± 0.04	2.30 ± 0.01

ACUF731	OD	0.322 ± 0.023	0.729 ± 0.001	1.423 ± 0.086	1.947 ± 0.030	5.830 ± 0.121	9.520 ± 0.409	12.310 ± 0.592
	pH	6.17 ± 0.71	3.61 ± 0.08	3.20 ± 0.07	2.88 ± 0.07	2.67 ± 0.08	2.49 ± 0.11	2.31 ± 0.12
ACUF551	OD	0.354 ± 0.003	0.574 ± 0.013	1.556 ± 0.079	2.928 ± 0.040	4.230 ± 0.106	7.510 ± 0.099	13.920 ± 0.283
	pH	5.53 ± 0.25	3.61 ± 0.01	3.02 ± 0.04	2.83 ± 0.03	2.60 ± 0.03	2.43 ± 0.03	2.25 ± 0.04
Start pH 5		Time 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
IPPAS P507	OD	0.367 ± 0.027	1.084 ± 0.082	2.021 ± 0.096	3.605 ± 0.087	6.610 ± 0.042	16.080 ± 0.146	18.240 ± 0.423
	pH	5.058 ± 0.04	3.13 ± 0.19	2.80 ± 0.10	2.47 ± 0.13	2.32 ± 0.16	2.08 ± 0.24	2.16 ± 0.00
ACUF769	OD	0.279 ± 0.030	0.401 ± 0.058	1.140 ± 0.023	1.761 ± 0.055	3.705 ± 0.049	6.880 ± 0.127	11.040 ± 0.170
	pH	5.03 ± 0.05	3.41 ± 0.01	3.04 ± 0.06	2.77 ± 0.01	2.58 ± 0.01	2.42 ± 0.01	2.14 ± 0.04
ACUF722	OD	0.252 ± 0.028	0.610 ± 0.008	1.191 ± 0.016	1.880 ± 0.131	2.705 ± 0.167	2.602 ± 0.059	4.925 ± 0.256
	pH	4.88 ± 0.08	3.28 ± 0.04	2.93 ± 0.02	2.54 ± 0.04	2.43 ± 0.07	2.26 ± 0.03	2.16 ± 0.09
CloneT18	OD	0.366 ± 0.003	0.593 ± 0.008	1.201 ± 0.064	1.751 ± 0.069	3.360 ± 0.094	6.520 ± 0.072	10.960 ± 0.056
	pH	4.83 ± 0.004	3.71 ± 0.07	3.19 ± 0.13	2.80 ± 0.11	2.56 ± 0.07	2.32 ± 0.00	2.00 ± 0.01
ACUF773	OD	0.274 ± 0.010	0.860 ± 0.074	1.589 ± 0.038	3.123 ± 0.011	5.980 ± 0.141	8.030 ± 0.071	13.930 ± 0.042
	pH	4.70 ± 0.02	3.12 ± 0.03	2.81 ± 0.04	2.53 ± 0.01	2.46 ± 0.03	2.24 ± 0.05	2.14 ± 0.03
ACUF648	OD	0.391 ± 0.004	1.163 ± 0.033	1.902 ± 0.040	3.260 ± 0.092	5.535 ± 0.021	13.760 ± 0.311	12.350 ± 0.071
	pH	5.03 ± 0.18	3.27 ± 0.01	2.89 ± 0.08	2.75 ± 0.06	2.56 ± 0.05	2.44 ± 0.05	2.28 ± 0.07
ACUF731	OD	0.321 ± 0.019	0.796 ± 0.038	1.443 ± 0.126	2.718 ± 0.165	4.740 ± 0.077	7.325 ± 0.357	10.523 ± 0.034
	pH	4.84 ± 0.23	3.44 ± 0.11	3.16 ± 0.06	2.86 ± 0.07	2.69 ± 0.07	2.55 ± 0.09	2.22 ± 0.02
ACUF551	OD	0.340 ± 0.001	0.810 ± 0.061	1.950 ± 0.034	2.445 ± 0.118	6.010 ± 0.098	7.825 ± 0.161	14.450 ± 0.576
	pH	5.12 ± 0.25	3.35 ± 0.05	2.94 ± 0.04	2.81 ± 0.08	2.55 ± 0.08	2.40 ± 0.10	2.27 ± 0.12
Start pH 1.5		Time 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
IPPAS P507	OD	0.361 ± 0.004	1.002 ± 0.059	2.102 ± 0.082	3.655 ± 0.168	6.925 ± 0.234	11.450 ± 0.241	19.670 ± 0.268
	pH	1.29 ± 0.00	1.12 ± 0.01	1.24 ± 0.03	1.57 ± 0.00	1.11 ± 0.05	1.06 ± 0.07	1.13 ± 0.10

ACUF769	OD	0.396 ± 0.006	0.808 ± 0.003	1.768 ± 0.032	3.228 ± 0.049	5.750 ± 0.077	7.835 ± 0.070	13.420 ± 0.077
	pH	1.42 ± 0.00	1.23 ± 0.01	1.44 ± 0.01	1.72 ± 0.01	1.26 ± 0.02	1.22 ± 0.01	1.33 ± 0.04
ACUF722	OD	0.383 ± 0.008	0.842 ± 0.043	1.910 ± 0.088	3.475 ± 0.114	6.001 ± 0.085	8.503 ± 0.005	16.240 ± 0.003
	pH	1.30 ± 0.00	1.13 ± 0.01	1.29 ± 0.00	1.76 ± 0.04	1.12 ± 0.00	1.13 ± 0.02	1.15 ± 0.01
CloneT18	OD	0.405 ± 0.025	0.629 ± 0.007	1.394 ± 0.059	2.234 ± 0.085	4.470 ± 0.164	7.110 ± 0.159	13.910 ± 0.211
	pH	1.30 ± 0.02	1.10 ± 0.00	1.34 ± 0.04	1.82 ± 0.02	1.14 ± 0.01	1.12 ± 0.01	1.24 ± 0.01
ACUF773	OD	0.382 ± 0.009	0.667 ± 0.001	1.574 ± 0.062	2.873 ± 0.060	5.120 ± 0.071	6.990 ± 0.078	13.070 ± 0.123
	pH	1.33 ± 0.04	1.12 ± 0.04	1.36 ± 0.03	1.80 ± 0.11	1.17 ± 0.01	1.21 ± 0.02	1.21 ± 0.01
ACUF648	OD	0.404 ± 0.008	1.263 ± 0.049	2.504 ± 0.034	4.218 ± 0.085	7.800 ± 0.113	13.540 ± 0.221	13.910 ± 0.410
	pH	1.49 ± 0.01	1.38 ± 0.03	1.54 ± 0.06	1.91 ± 0.02	1.30 ± 0.03	1.26 ± 0.01	1.18 ± 0.05
ACUF731	OD	0.394 ± 0.011	1.101 ± 0.043	2.170 ± 0.096	3.505 ± 0.112	6.370 ± 0.118	9.985 ± 0.206	18.660 ± 0.218
	pH	1.33 ± 0.01	1.18 ± 0.04	1.35 ± 0.01	1.83 ± 0.11	1.19 ± 0.01	1.14 ± 0.09	1.15 ± 0.016
ACUF551	OD	0.401 ± 0.016	0.835 ± 0.038	1.918 ± 0.025	3.965 ± 0.147	6.305 ± 0.203	9.940 ± 0.363	15.860 ± 0.401
	pH	1.46 ± 0.01	1.49 ± 0.02	1.37 ± 0.01	1.38 ± 0.01	1.47 ± 0.01	1.29 ± 0.01	1.20 ± 0.04