

Table S1: Accession numbers of added genomes

Species	Accession Numbers
<i>Gorilla gorilla</i>	NC_044602.1 - NC_044625.1
<i>Pongo abelii</i>	NC_036903.1 - NC_036926.1
<i>Microcebus Murinus</i>	NC_033660.1 - NC_033692.1
<i>Microtus ochrogaster</i>	NC_022009.1 - NC_022036.1
<i>Ochotona princeps</i>	NC_050536.1 - NC_050568.1
<i>Macaca mulatta</i>	NC_027893.1 - NC_027914.1

Table S2: Correlation values and significance levels between dinucleotide pairs: Pearson correlation values of normalized chromosomal dinucleotide contents for empirical content and model contents (model1: binomial, model2: Chargaff binomial). The significance levels are calculated by dividing the difference between empirical and model values by the respective error of the correlation value.

dinucleotides		empirical correlation value	model1 correlation value	model1 significance level	model2 correlation value	model2 significance level
TT	AA	1.00	-0.01 ± 0.10	10.57	0.37 ± 0.10	6.26
AT	AA	-0.56	0.01 ± 0.10	-5.50	0.01 ± 0.10	-5.66
AT	TT	-0.56	0.03 ± 0.10	-5.81	0.02 ± 0.10	-5.86
TA	AA	-0.63	-0.02 ± 0.12	-5.32	-0.00 ± 0.11	-5.53
TA	TT	-0.64	-0.01 ± 0.11	-5.48	0.01 ± 0.10	-6.47
TA	AT	0.69	0.01 ± 0.07	9.10	0.05 ± 0.13	4.98
AC	AA	-0.36	0.03 ± 0.09	-4.47	0.04 ± 0.14	-2.89
AC	TT	-0.36	-0.00 ± 0.13	-2.76	-0.04 ± 0.13	-2.51
AC	AT	0.21	-0.02 ± 0.10	2.39	-0.07 ± 0.08	3.49
AC	TA	0.34	0.03 ± 0.11	2.83	-0.02 ± 0.11	3.25
CA	AA	-0.18	0.04 ± 0.10	-2.15	0.05 ± 0.11	-2.00
CA	TT	-0.18	0.08 ± 0.09	-2.71	0.05 ± 0.12	-1.88
CA	AT	-0.44	0.06 ± 0.11	-4.62	-0.05 ± 0.12	-3.24
CA	TA	-0.31	-0.04 ± 0.1	-2.69	-0.02 ± 0.09	-3.07
CA	AC	-0.05	0.00 ± 0.12	-0.41	0.18 ± 0.11	-2.13
TG	AA	-0.18	0.01 ± 0.10	-1.98	0.08 ± 0.13	-1.97
TG	TT	-0.18	0.03 ± 0.07	-2.97	0.06 ± 0.10	-2.46
TG	AT	-0.44	0.00 ± 0.05	-9.19	-0.06 ± 0.12	-3.19
TG	TA	-0.3	0.04 ± 0.10	-3.59	-0.06 ± 0.14	-1.69
TG	AC	-0.04	-0.01 ± 0.08	-0.49	0.22 ± 0.14	-1.88
TG	CA	1.0	-0.02 ± 0.06	17.64	0.43 ± 0.10	5.63
GT	AA	-0.36	-0.00 ± 0.06	-5.52	0.04 ± 0.11	-3.49
GT	TT	-0.36	0.05 ± 0.05	-8.03	0.05 ± 0.10	-4.03
GT	AT	0.21	0.01 ± 0.08	2.59	-0.01 ± 0.14	1.59
GT	TA	0.34	-0.03 ± 0.08	4.56	-0.03 ± 0.13	2.78
GT	AC	0.99	-0.01 ± 0.07	15.01	0.43 ± 0.11	5.18
GT	CA	-0.05	0.03 ± 0.08	-1.06	0.16 ± 0.10	-2.24
GT	TG	-0.04	-0.01 ± 0.07	-0.53	0.18 ± 0.09	-2.60
AG	AA	-0.15	0.03 ± 0.08	-2.30	-0.01 ± 0.12	-1.15
AG	TT	-0.15	-0.03 ± 0.08	-1.41	-0.06 ± 0.15	-0.63
AG	AT	-0.53	-0.00 ± 0.11	-4.83	0.04 ± 0.12	-4.77

AG	TA	-0.28	-0.02 ± 0.06	-4.47	0.02 ± 0.14	-2.14
AG	AC	-0.56	0.02 ± 0.09	-6.21	-0.15 ± 0.17	-2.45
AG	CA	0.59	-0.02 ± 0.09	7.13	-0.22 ± 0.15	5.37
AG	TG	0.59	0.03 ± 0.05	11.81	-0.26 ± 0.12	7.05
AG	GT	-0.56	0.01 ± 0.08	-7.28	-0.15 ± 0.09	-4.81
GA	AA	-0.11	-0.02 ± 0.07	-1.10	-0.04 ± 0.12	-0.51
GA	TT	-0.1	-0.05 ± 0.10	-0.54	-0.02 ± 0.07	-1.10
GA	AT	0.27	-0.03 ± 0.07	4.54	0.05 ± 0.10	2.24
GA	TA	-0.19	0.01 ± 0.05	-3.72	0.00 ± 0.11	-1.73
GA	AC	0.04	0.02 ± 0.05	0.37	-0.17 ± 0.11	1.98
GA	CA	-0.57	-0.01 ± 0.12	-4.63	-0.17 ± 0.08	-4.89
GA	TG	-0.57	0.01 ± 0.06	-9.61	-0.21 ± 0.05	-6.78
GA	GT	0.03	-0.02 ± 0.07	0.80	-0.12 ± 0.10	1.54
GA	AG	-0.17	-0.04 ± 0.04	-3.08	0.22 ± 0.10	-4.04
TC	AA	-0.1	-0.01 ± 0.05	-1.80	-0.08 ± 0.13	-0.19
TC	TT	-0.1	0.02 ± 0.07	-1.91	-0.05 ± 0.15	-0.33
TC	AT	0.27	-0.02 ± 0.08	3.56	-0.02 ± 0.11	2.78
TC	TA	-0.19	0.01 ± 0.1	-2.06	0.05 ± 0.12	-1.94
TC	AC	0.03	0.04 ± 0.11	-0.05	-0.12 ± 0.12	1.28
TC	CA	-0.57	0.01 ± 0.10	-5.89	-0.19 ± 0.11	-3.34
TC	TG	-0.57	0.00 ± 0.07	-8.35	-0.19 ± 0.14	-2.77
TC	GT	0.03	-0.05 ± 0.07	1.19	-0.11 ± 0.13	1.09
TC	AG	-0.17	0.03 ± 0.07	-2.90	0.18 ± 0.18	-1.95
TC	GA	1.0	0.01 ± 0.07	14.56	0.46 ± 0.11	5.03
CT	AA	-0.15	0.01 ± 0.06	-2.93	-0.05 ± 0.11	-0.96
CT	TT	-0.15	0.02 ± 0.10	-1.66	-0.04 ± 0.10	-1.04
CT	AT	-0.53	0.03 ± 0.12	-4.72	0.07 ± 0.10	-6.12
CT	TA	-0.28	0.08 ± 0.07	-5.29	-0.00 ± 0.13	-2.10
CT	AC	-0.55	-0.03 ± 0.12	-4.50	-0.16 ± 0.13	-3.05
CT	CA	0.59	0.05 ± 0.09	6.09	-0.18 ± 0.15	5.19
CT	TG	0.59	0.01 ± 0.07	7.74	-0.23 ± 0.08	9.84
CT	GT	-0.56	0.00 ± 0.09	-6.48	-0.20 ± 0.05	-7.85
CT	AG	1.0	-0.00 ± 0.10	9.83	0.49 ± 0.08	6.44
CT	GA	-0.17	0.03 ± 0.08	-2.38	0.23 ± 0.05	-7.66
CT	TC	-0.17	-0.03 ± 0.11	-1.35	0.23 ± 0.15	-2.78
CC	AA	0.28	-0.02 ± 0.06	4.78	0.11 ± 0.19	0.86
CC	TT	0.28	-0.04 ± 0.14	2.29	0.12 ± 0.17	0.91
CC	AT	-0.26	-0.00 ± 0.08	-3.45	-0.09 ± 0.17	-1.03
CC	TA	-0.1	-0.01 ± 0.13	-0.72	-0.08 ± 0.19	-0.12
CC	AC	-0.63	-0.02 ± 0.12	-5.11	0.30 ± 0.17	-5.44
CC	CA	0.34	0.02 ± 0.06	5.52	0.30 ± 0.17	0.23
CC	TG	0.34	-0.03 ± 0.04	8.42	0.37 ± 0.08	-0.41
CC	GT	-0.62	0.02 ± 0.11	-5.94	0.34 ± 0.11	-9.05
CC	AG	0.43	-0.04 ± 0.10	4.47	-0.37 ± 0.12	6.75
CC	GA	-0.57	0.03 ± 0.13	-4.66	-0.31 ± 0.08	-3.23
CC	TC	-0.57	-0.02 ± 0.08	-6.84	-0.32 ± 0.22	-1.12
CC	CT	0.42	0.03 ± 0.12	3.22	-0.37 ± 0.09	9.05

GG	AA	0.27	0.01 ± 0.06	4.44	0.12 ± 0.18	0.86
GG	TT	0.28	-0.00 ± 0.06	4.81	0.13 ± 0.17	0.89
GG	AT	-0.26	0.03 ± 0.05	-6.17	-0.10 ± 0.15	-1.08
GG	TA	-0.1	0.02 ± 0.07	-1.60	-0.05 ± 0.18	-0.28
GG	AC	-0.63	-0.03 ± 0.08	-7.39	0.27 ± 0.14	-6.40
GG	CA	0.34	-0.03 ± 0.07	5.21	0.30 ± 0.17	0.26
GG	TG	0.34	0.02 ± 0.06	5.29	0.40 ± 0.08	-0.79
GG	GT	-0.63	0.01 ± 0.08	-7.58	0.31 ± 0.10	-9.02
GG	AG	0.42	-0.03 ± 0.09	5.04	-0.38 ± 0.09	9.18
GG	GA	-0.57	-0.02 ± 0.07	-8.03	-0.30 ± 0.10	-2.75
GG	TC	-0.57	0.01 ± 0.08	-7.66	-0.31 ± 0.21	-1.23
GG	CT	0.42	0.05 ± 0.07	5.25	-0.40 ± 0.10	8.06
GG	CC	1.0	0.02 ± 0.10	9.82	0.76 ± 0.05	4.59
GC	AA	-0.09	0.03 ± 0.14	-0.84	-0.09 ± 0.19	-0.01
GC	TT	-0.09	-0.01 ± 0.06	-1.34	-0.09 ± 0.15	0.03
GC	AT	0.03	-0.06 ± 0.09	1.05	0.10 ± 0.14	-0.48
GC	TA	0.08	-0.05 ± 0.09	1.58	0.06 ± 0.16	0.11
GC	AC	0.26	0.02 ± 0.12	1.95	-0.29 ± 0.16	3.37
GC	CA	-0.02	-0.03 ± 0.10	0.13	-0.28 ± 0.16	1.67
GC	TG	-0.01	0.03 ± 0.06	-0.72	-0.35 ± 0.09	3.62
GC	GT	0.26	-0.01 ± 0.06	4.59	-0.32 ± 0.10	5.64
GC	AG	-0.13	0.03 ± 0.06	-2.56	0.33 ± 0.12	-3.98
GC	GA	0.01	-0.02 ± 0.07	0.44	0.30 ± 0.12	-2.41
GC	TC	0.01	0.01 ± 0.11	0.07	0.29 ± 0.21	-1.29
GC	CT	-0.13	-0.02 ± 0.08	-1.35	0.34 ± 0.06	-7.29
GC	CC	-0.7	0.01 ± 0.06	-11.74	-0.61 ± 0.05	-1.96
GC	GG	-0.7	0.00 ± 0.05	-13.49	-0.59 ± 0.05	-2.14
CG	AA	-0.03	0.01 ± 0.07	-0.59	-0.11 ± 0.17	0.45
CG	TT	-0.03	-0.00 ± 0.10	-0.33	-0.08 ± 0.13	0.38
CG	AT	0.49	-0.03 ± 0.12	4.53	0.09 ± 0.15	2.66
CG	TA	0.26	0.04 ± 0.1	2.21	0.08 ± 0.16	1.09
CG	AC	0.56	0.06 ± 0.09	5.49	-0.30 ± 0.15	5.8
CG	CA	-0.75	0.02 ± 0.08	-9.34	-0.30 ± 0.16	-2.76
CG	TG	-0.75	0.01 ± 0.11	-7.00	-0.38 ± 0.08	-4.33
CG	GT	0.56	-0.02 ± 0.06	9.68	-0.31 ± 0.11	7.58
CG	AG	-0.8	0.03 ± 0.08	-10.05	0.34 ± 0.13	-8.80
CG	GA	0.57	0.00 ± 0.07	8.41	0.29 ± 0.07	3.84
CG	TC	0.57	0.00 ± 0.06	8.85	0.32 ± 0.15	1.71
CG	CT	-0.8	0.02 ± 0.09	-8.88	0.36 ± 0.09	-12.75
CG	CC	-0.82	-0.03 ± 0.10	-7.65	-0.59 ± 0.07	-3.23
CG	GG	-0.82	-0.03 ± 0.10	-8.05	-0.59 ± 0.05	-4.96

Table S3: Correlation values between dinucleotide content and attributes: Pearson correlation values between normalized chromosomal dinucleotide contents and attributes (genes: content genes, CDS: content of CDS, G+C: G+C content, enhancer: normalized enhancer counts, see 2.2 for details) for empirical dinucleotide contents and model contents (Chargaff binomial model).

dinucleotide	correlated	empirical	Chargaf model
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	attribute	correlation value	Correlation value	
AA	genes	-0.009	0.014	± 0.027
AA	CDS	-0.135	0.014	± 0.037
AA	enhancer	0.004	-0.004	± 0.084
AA	G+C	-0.300	0.006	± 0.025
AA	length	0.030	-0.004	± 0.012
TT	genes	-0.007	-0.003	± 0.023
TT	CDS	-0.134	-0.001	± 0.028
TT	enhancer	0.009	0.007	± 0.080
TT	G+C	-0.300	0.010	± 0.017
TT	length	0.031	-0.002	± 0.012
AT	genes	0.007	-0.012	± 0.029
AT	CDS	0.367	-0.015	± 0.039
AT	enhancer	-0.093	-0.038	± 0.058
AT	G+C	-0.009	-0.019	± 0.021
AT	length	-0.200	0.003	± 0.017
TA	genes	-0.073	0.002	± 0.014
TA	CDS	0.007	0.000	± 0.022
TA	enhancer	-0.019	-0.003	± 0.055
TA	G+C	0.021	-0.007	± 0.024
TA	length	-0.016	0.004	± 0.011
AC	genes	0.214	0.000	± 0.033
AC	CDS	0.289	-0.001	± 0.039
AC	enhancer	-0.055	-0.011	± 0.075
AC	G+C	0.178	0.005	± 0.028
AC	length	-0.194	-0.002	± 0.013
CA	genes	-0.072	0.008	± 0.018
CA	CDS	-0.396	0.013	± 0.026
CA	enhancer	0.081	-0.031	± 0.084
CA	G+C	-0.017	0.012	± 0.027
CA	length	0.198	-0.004	± 0.013
TG	genes	-0.072	0.003	± 0.020
TG	CDS	-0.395	0.007	± 0.021
TG	enhancer	0.082	-0.006	± 0.074
TG	G+C	-0.016	-0.000	± 0.031
TG	length	0.197	-0.004	± 0.011
GT	genes	0.211	0.013	± 0.019
GT	CDS	0.283	0.020	± 0.032
GT	enhancer	-0.060	-0.022	± 0.070
GT	G+C	0.170	0.009	± 0.035
GT	length	-0.193	-0.009	± 0.013
AG	genes	-0.148	-0.005	± 0.021
AG	CDS	-0.406	-0.007	± 0.027
AG	enhancer	0.064	0.014	± 0.054
AG	G+C	0.155	-0.004	± 0.024
AG	length	0.286	0.003	± 0.012
GA	genes	0.181	0.007	± 0.023
GA	CDS	0.593	0.014	± 0.032

GA	enhancer	-0.087	-0.008	± 0.098
GA	G+C	0.322	0.004	± 0.023
GA	length	-0.240	-0.006	± 0.010
TC	genes	0.179	-0.008	± 0.022
TC	CDS	0.592	-0.009	± 0.030
TC	enhancer	-0.097	-0.019	± 0.084
TC	G+C	0.321	-0.003	± 0.030
TC	length	-0.240	0.001	0.011
CT	genes	-0.147	0.009	0.020
CT	CDS	-0.403	-0.007	0.030
CT	enhancer	0.063	-0.012	0.082
CT	G+C	0.160	-0.005	0.023
CT	length	0.284	0.003	0.015
CC	genes	-0.300	0.000	0.030
CC	CDS	-0.613	-0.008	0.023
CC	enhancer	-0.006	0.001	0.110
CC	G+C	-0.524	-0.008	0.032
CC	length	0.319	0.004	0.011
GG	genes	-0.300	-0.004	0.026
GG	CDS	-0.612	-0.007	0.042
GG	enhancer	-0.008	-0.019	0.056
GG	G+C	-0.522	0.015	0.032
GG	length	0.319	0.002	0.015
GC	genes	0.181	-0.017	0.012
GC	CDS	0.274	-0.016	0.022
GC	enhancer	0.114	0.017	0.070
GC	G+C	0.468	-0.002	0.030
GC	length	-0.172	0.005	0.011
CG	genes	0.243	0.000	0.016
CG	CDS	0.620	0.004	0.035
CG	enhancer	-0.058	0.006	0.076
CG	G+C	0.236	0.004	0.033
CG	length	-0.347	-0.002	0.015

Table S4: Relative DNA property changes induced by dinucleotide contents: mean values of relative changes (change divided by original value) of physical/structural DNA properties for each dinucleotide (see 2.7 for details on calculations).

id	property name	AA	TT	AT	TA	AC	GT	CA	TG	AG	TC	GA	CT	CC	GG	GC	CG
79	Adenine content (79)	0.23 ± 0.03	-0.09 ± 0.03	0.05 ± 0.0	0.04 ± 0.01	0.04 ± 0.02	-0.05 ± 0.01	0.05 ± 0.02	-0.07 ± 0.01	0.05 ± 0.02	-0.06 ± 0.01	0.05 ± 0.02	-0.06 ± 0.01	-0.05 ± 0.02	-0.05 ± 0.02	-0.05 ± 0.02	-0.03 ± 0.03
4	Bend (4)	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.01	0.07 ± 0.02	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
21	Clash Strength (21)	-0.04 ± 0.01	-0.04 ± 0.01	0.05 ± 0.02	-0.06 ± 0.03	-0.01 ± 0.0	-0.01 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	0.09 ± 0.01	-0.06 ± 0.01	-0.06 ± 0.01	0.09 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	-0.04 ± 0.02	0.04 ± 0.03
81	Cytosine content (81)	-0.09 ± 0.03	-0.09 ± 0.03	-0.08 ± 0.03	-0.06 ± 0.02	0.07 ± 0.02	-0.05 ± 0.01	0.1 ± 0.03	-0.07 ± 0.01	-0.06 ± 0.01	0.09 ± 0.02	-0.06 ± 0.01	0.09 ± 0.02	0.18 ± 0.03	-0.05 ± 0.02	0.06 ± 0.01	0.04 ± 0.02
100	Direction (100)	-2.39 ± 4.5	2.2 ± 4.17	-0.08 ± 0.03	-0.06 ± 0.03	0.98 ± 0.96	-1.08 ± 0.93	-0.66 ± 0.5	0.52 ± 0.49	-0.04 ± 0.02	-1.05 ± 0.79	0.93 ± 0.85	-0.08 ± 0.02	-0.4 ± 0.16	0.3 ± 0.16	0.96 ± 0.25	-0.03 ± 0.03
123	Enthalpy (123)	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.01

22	Enthalpy (22)	-0.0 ± 0.0	-0.0 ± 0.0	-0.03 ± 0.01	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0
110	Enthalpy (RNA) (110)	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.03 ± 0.0	-0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.03 ± 0.01	-0.0 ± 0.01
114	Enthalpy (RNA) (114)	-0.03 ± 0.01	-0.03 ± 0.01	-0.01 ± 0.0	-0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.02 ± 0.01	-0.0 ± 0.0
124	Entropy (124)	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.01
23	Entropy (23)	0.0 ± 0.0	0.0 ± 0.0	-0.02 ± 0.01	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.02 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.01
111	Entropy (RNA) (111)	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.03 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.02 ± 0.01	-0.01 ± 0.01
115	Entropy (RNA) (115)	-0.03 ± 0.01	-0.03 ± 0.01	-0.0 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.02 ± 0.01	-0.0 ± 0.0
122	Flexibility_shift (122)	-0.01 ± 0.0	-0.01 ± 0.0	-0.06 ± 0.02	-0.02 ± 0.01	0.03 ± 0.0	0.03 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	0.03 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.03 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.03 ± 0.02	0.03 ± 0.03
121	Flexibility_slide (121)	0.06 ± 0.01	0.06 ± 0.01	0.03 ± 0.0	-0.01 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.06 ± 0.01	-0.06 ± 0.01	-0.01 ± 0.0	0.01 ± 0.01	0.01 ± 0.01	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.02 ± 0.01	-0.02 ± 0.01
125	Free energy (125)	-0.02 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.03 ± 0.01	0.02 ± 0.01
34	Free energy (34)	-0.04 ± 0.01	-0.04 ± 0.01	-0.03 ± 0.01	-0.02 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.03 ± 0.01	0.02 ± 0.01
35	Free energy (35)	0.0 ± 0.01	0.0 ± 0.01	-0.02 ± 0.0	-0.03 ± 0.01	-0.02 ± 0.0	-0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.02
36	Free energy (36)	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	-0.02 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.03 ± 0.01	0.02 ± 0.01
38	Free energy (38)	-0.04 ± 0.01	-0.04 ± 0.01	-0.05 ± 0.01	-0.05 ± 0.02	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.0 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.0 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	0.04 ± 0.01	0.03 ± 0.02
72	Free energy (72)	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	-0.03 ± 0.01	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.02 ± 0.01	0.03 ± 0.02
73	Free energy (73)	-0.02 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.03 ± 0.01	0.02 ± 0.01
74	Free energy (74)	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.01	-0.02 ± 0.01	0.0 ± 0.0	0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.03 ± 0.01	0.02 ± 0.01
75	Free energy (75)	-0.02 ± 0.0	-0.02 ± 0.0	-0.03 ± 0.0	-0.03 ± 0.01	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.01 ± 0.01
112	Free energy (RNA) (112)	-0.04 ± 0.01	-0.04 ± 0.01	-0.04 ± 0.01	-0.02 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.01	-0.0 ± 0.01	-0.0 ± 0.0	0.01 ± 0.01	0.02 ± 0.01	-0.0 ± 0.0	0.03 ± 0.0	0.03 ± 0.0	0.04 ± 0.01	0.0 ± 0.0
113	Free energy (RNA) (113)	-0.05 ± 0.01	-0.05 ± 0.01	-0.03 ± 0.01	-0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.0	0.01 ± 0.01	0.01 ± 0.01	0.0 ± 0.0	0.03 ± 0.0	0.03 ± 0.0	0.03 ± 0.01	0.0 ± 0.0
76	GC content (76)	-0.09 ± 0.03	-0.09 ± 0.03	-0.08 ± 0.03	-0.06 ± 0.02	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.02	0.01 ± 0.02	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.04 ± 0.02
80	Guanine content (80)	-0.09 ± 0.03	-0.09 ± 0.03	-0.08 ± 0.03	-0.06 ± 0.02	-0.05 ± 0.01	0.07 ± 0.02	-0.07 ± 0.01	0.1 ± 0.03	0.09 ± 0.02	-0.06 ± 0.01	0.09 ± 0.02	-0.06 ± 0.01	-0.05 ± 0.02	0.18 ± 0.03	0.06 ± 0.01	0.04 ± 0.02
29	Hydrophilicity (RNA) (29)	-0.08 ± 0.02	0.12 ± 0.04	-0.04 ± 0.01	-0.02 ± 0.01	-0.03 ± 0.0	-0.0 ± 0.0	-0.02 ± 0.0	0.02 ± 0.0	-0.05 ± 0.01	0.07 ± 0.01	-0.04 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	-0.03 ± 0.01	-0.01 ± 0.0	0.0 ± 0.0
31	Hydrophilicity (RNA) (31)	-0.08 ± 0.02	0.07 ± 0.02	-0.03 ± 0.01	-0.01 ± 0.0	-0.02 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.02 ± 0.0	-0.04 ± 0.01	0.05 ± 0.0	-0.04 ± 0.0	0.06 ± 0.01	0.04 ± 0.01	-0.02 ± 0.01	-0.0 ± 0.0	0.01 ± 0.01
6	Inclination (6)	-17.39 ± 9309.53	18.01 ± 9304.96	-0.07 ± 0.64	-0.06 ± 0.53	-2.14 ± 411.8	2.06 ± 411.5	61.23 ± 7112.29	-61.16 ± 7100.99	-50.21 ± 4606.19	10.32 ± 1411.37	-10.27 ± 1409.15	50.33 ± 4608.17	-65.5 ± 4882.08	65.1 ± 4872.58	-0.03 ± 0.45	-0.02 ± 0.34
78	Keto (GT) content (78)	-0.09 ± 0.03	0.12 ± 0.03	0.01 ± 0.0	0.01 ± 0.0	-0.05 ± 0.01	0.07 ± 0.01	-0.07 ± 0.01	0.01 ± 0.0	-0.06 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.05 ± 0.02	0.06 ± 0.02	0.01 ± 0.0	0.0 ± 0.0
8	Major Groove Depth (8)	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
10	Major Groove Distance (10)	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0
9	Major Groove Size (9)	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.01
7	Major Groove Width (7)	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
108	Melting Temperature (108)	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0

16	Melting Temperature (16)	-0.02 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	-0.03 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.04 ± 0.01	-0.0 ± 0.0
12	Minor Groove Depth (12)	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0
14	Minor Groove Distance (14)	-0.01 ± 0.0	-0.01 ± 0.0	0.02 ± 0.01	-0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.01	-0.0 ± 0.0
13	Minor Groove Size (13)	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	0.01 ± 0.01
11	Minor Groove Width (11)	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0
18	Mobility to bend towards major groove (18)	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
19	Mobility to bend towards minor groove (19)	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
15	Persistence Length (15)	-0.03 ± 0.01	-0.03 ± 0.01	-0.05 ± 0.01	-0.04 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.0 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.02 ± 0.0
17	Probability contacting nucleosome core (17)	0.05 ± 0.01	0.05 ± 0.01	-0.03 ± 0.01	-0.03 ± 0.01	-0.01 ± 0.0	-0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.03 ± 0.01	-0.03 ± 0.03
20	Propeller Twist (20)	0.03 ± 0.01	0.03 ± 0.01	0.02 ± 0.0	-0.01 ± 0.01	-0.03 ± 0.0	-0.03 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
77	Purine (AG) content (77)	0.09 ± 0.03	-0.09 ± 0.03	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.06 ± 0.01	-0.06 ± 0.01	0.06 ± 0.01	-0.06 ± 0.01	-0.05 ± 0.02	0.05 ± 0.02	0.0 ± 0.0	0.0 ± 0.0
3	Rise (3)	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
66	Rise (66)	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
97	Rise (97)	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
32	Rise (DNA-protein complex) (32)	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
87	Rise (DNA-protein complex) (87)	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
102	Rise (RNA) (102)	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0
107	Rise stiffness (107)	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.01 ± 0.01
47	Rise_roll (47)	-0.0 ± 0.0	-0.0 ± 0.0	0.03 ± 0.01	-0.02 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.01	-0.01 ± 0.01
116	Roll (116)	1.77 ± 96.97	1.67 ± 96.12	1.7 ± 94.67	-1.65 ± 83.64	0.35 ± 24.89	0.31 ± 23.95	-1.08 ± 79.98	-0.96 ± 78.4	-0.12 ± 9.07	-0.27 ± 18.34	-0.25 ± 17.92	-0.13 ± 9.22	-0.15 ± 10.2	-0.13 ± 9.78	0.4 ± 33.78	-0.47 ± 23.91
119	Roll (119)	0.01 ± 0.01	0.01 ± 0.01	-0.38 ± 0.14	0.19 ± 0.09	-0.1 ± 0.01	-0.1 ± 0.01	0.17 ± 0.02	0.17 ± 0.02	-0.05 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	-0.05 ± 0.01	-0.02 ± 0.01	-0.02 ± 0.01	-0.06 ± 0.03	0.06 ± 0.05
63	Roll (63)	0.03 ± 0.03	0.03 ± 0.03	-0.17 ± 0.07	-0.1 ± 0.05	0.01 ± 0.01	0.01 ± 0.01	-0.14 ± 0.02	-0.14 ± 0.02	0.24 ± 0.03	-0.04 ± 0.01	-0.04 ± 0.01	0.24 ± 0.03	0.12 ± 0.02	0.12 ± 0.02	-0.35 ± 0.14	0.15 ± 0.11
90	Roll (90)	-0.06 ± 0.01	-0.06 ± 0.01	-0.12 ± 0.04	0.07 ± 0.04	-0.04 ± 0.01	-0.04 ± 0.01	-0.01 ± 0.01	-0.01 ± 0.01	0.07 ± 0.01	-0.07 ± 0.01	-0.07 ± 0.01	0.07 ± 0.01	0.2 ± 0.04	0.2 ± 0.03	-0.32 ± 0.13	0.13 ± 0.1
94	Roll (94)	-0.07 ± 0.02	-0.07 ± 0.02	-0.14 ± 0.05	0.1 ± 0.06	-0.03 ± 0.01	-0.03 ± 0.01	-0.04 ± 0.01	-0.04 ± 0.01	0.19 ± 0.02	-0.14 ± 0.02	-0.14 ± 0.02	0.19 ± 0.02	0.22 ± 0.05	0.22 ± 0.04	-0.33 ± 0.16	0.06 ± 0.05
25	Roll (DNA-protein complex) (25)	-0.06 ± 0.02	-0.06 ± 0.02	-0.08 ± 0.03	0.01 ± 0.01	-0.06 ± 0.01	-0.06 ± 0.01	0.1 ± 0.01	0.1 ± 0.01	0.07 ± 0.01	-0.0 ± 0.0	-0.0 ± 0.0	0.07 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.09 ± 0.04	0.05 ± 0.04
84	Roll (DNA-protein complex) (84)	-0.07 ± 0.02	-0.07 ± 0.02	-0.04 ± 0.01	0.02 ± 0.02	-0.04 ± 0.0	-0.04 ± 0.0	0.06 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	-0.01 ± 0.0	-0.01 ± 0.0	0.05 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.04 ± 0.02	0.04 ± 0.03
104	Roll (RNA) (104)	-0.02 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	0.02 ± 0.01	-0.02 ± 0.0	-0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.02 ± 0.01	-0.01 ± 0.01	0.01 ± 0.01
69	Roll stiffness (69)	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.02 ± 0.01	-0.01 ± 0.01
59	Roll_roll (59)	2.84 ± 60.22	2.84 ± 60.1	-3.95 ± 86.01	1.39 ± 30.72	-2.95 ± 66.88	-2.94 ± 66.92	3.05 ± 70.35	3.04 ± 70.46	0.06 ± 2.61	0.4 ± 10.48	0.4 ± 10.51	0.06 ± 2.6	-0.09 ± 1.52	-0.09 ± 1.58	-2.83 ± 76.88	0.3 ± 10.55
41	Roll_roll (41)	0.01 ± 0.0	0.01 ± 0.0	0.02 ± 0.01	-0.02 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.01	-0.01 ± 0.01
57	Roll_shift (57)	0.31 ± 0.06	0.31 ± 0.06	0.11 ± 0.02	-0.23 ± 0.07	0.16 ± 0.06	0.16 ± 0.06	-0.12 ± 0.03	-0.12 ± 0.03	-0.33 ± 0.12	0.14 ± 0.05	0.14 ± 0.05	-0.33 ± 0.12	-0.12 ± 0.07	-0.12 ± 0.07	-0.07 ± 0.04	0.08 ± 0.09

58	Roll_slide (58)	0.07 ± 0.01	0.07 ± 0.01	0.23 ± 0.03	-0.03 ± 0.02	-0.05 ± 0.0	-0.05 ± 0.0	-0.12 ± 0.02	-0.12 ± 0.02	0.09 ± 0.03	-0.06 ± 0.01	-0.06 ± 0.01	0.09 ± 0.03	-0.02 ± 0.0	-0.02 ± 0.0	-0.08 ± 0.04	0.03 ± 0.04
64	Shift (64)	2.49 ± 20.28	2.5 ± 20.26	-4.57 ± 38.19	5.12 ± 43.84	-1.83 ± 16.61	-1.83 ± 16.59	-0.86 ± 7.69	-0.86 ± 7.68	-2.1 ± 19.24	-0.1 ± 0.76	-0.1 ± 0.76	-2.1 ± 19.26	-1.47 ± 13.58	-1.47 ± 13.66	7.47 ± 66.45	-0.98 ± 8.87
95	Shift (95)	-0.12 ± 0.77	-0.12 ± 0.8	-0.1 ± 0.66	-0.08 ± 0.65	-1.23 ± 7.54	-1.23 ± 7.84	-0.77 ± 4.22	-0.78 ± 4.42	2.28 ± 10.79	-0.07 ± 0.3	-0.07 ± 0.3	2.29 ± 10.89	-0.06 ± 0.24	-0.06 ± 0.24	-0.06 ± 0.23	-0.05 ± 0.22
30	Shift (DNA-protein complex) (30)	0.37 ± 0.33	0.37 ± 0.33	-0.07 ± 0.03	-0.05 ± 0.03	-0.3 ± 0.59	-0.3 ± 0.6	-0.06 ± 0.05	-0.06 ± 0.05	-0.67 ± 1.18	0.88 ± 1.32	0.87 ± 1.32	-0.67 ± 1.19	-0.04 ± 0.06	-0.04 ± 0.06	-0.04 ± 0.08	-0.02 ± 0.06
85	Shift (DNA-protein complex) (85)	0.71 ± 24.38	0.71 ± 24.41	0.05 ± 2.17	0.04 ± 1.6	-1.67 ± 56.97	-1.65 ± 57.12	-1.27 ± 45.92	-1.26 ± 46.11	-1.23 ± 43.14	4.89 ± 154.95	4.84 ± 155.14	-1.25 ± 43.14	-0.53 ± 19.26	-0.52 ± 19.25	0.07 ± 2.96	0.08 ± 2.98
24	Shift (RNA) (24)	-0.32 ± 0.49	-0.32 ± 0.49	-0.22 ± 0.33	-0.11 ± 0.11	0.29 ± 0.33	0.29 ± 0.32	0.14 ± 0.2	0.14 ± 0.2	-0.15 ± 0.08	0.05 ± 0.11	0.05 ± 0.11	-0.15 ± 0.08	-0.08 ± 0.03	-0.08 ± 0.03	0.04 ± 0.04	0.21 ± 0.14
68	Shift stiffness (68)	0.03 ± 0.01	0.03 ± 0.01	-0.02 ± 0.0	-0.03 ± 0.01	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0
49	Shift_rise (49)	0.29 ± 0.08	0.29 ± 0.08	-0.11 ± 0.03	-0.1 ± 0.04	-0.06 ± 0.01	-0.06 ± 0.01	-0.15 ± 0.02	-0.15 ± 0.02	-0.1 ± 0.02	-0.02 ± 0.01	-0.02 ± 0.01	-0.1 ± 0.02	0.18 ± 0.05	0.18 ± 0.05	0.09 ± 0.04	-0.06 ± 0.06
45	Shift_shift (45)	0.02 ± 0.01	0.02 ± 0.01	-0.02 ± 0.01	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	-0.01 ± 0.01
48	Shift_slide (48)	-2.37 ± 31.07	-2.38 ± 31.11	0.89 ± 13.16	-0.57 ± 7.33	0.89 ± 9.45	0.89 ± 9.47	2.12 ± 21.03	2.13 ± 21.13	0.09 ± 1.34	-0.28 ± 2.29	-0.28 ± 2.3	0.09 ± 1.34	-0.38 ± 2.54	-0.38 ± 2.55	-1.58 ± 9.74	0.52 ± 3.94
65	Slide (65)	-0.15 ± 0.07	-0.15 ± 0.07	-0.26 ± 0.18	0.05 ± 0.08	-0.14 ± 0.02	-0.14 ± 0.02	0.43 ± 0.1	0.43 ± 0.1	0.02 ± 0.02	-0.06 ± 0.01	-0.06 ± 0.01	0.02 ± 0.02	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.05 ± 0.03
91	Slide (91)	-0.1 ± 0.03	-0.1 ± 0.03	-0.16 ± 0.07	0.08 ± 0.06	-0.07 ± 0.01	-0.07 ± 0.01	0.23 ± 0.03	0.23 ± 0.03	0.03 ± 0.01	-0.07 ± 0.01	-0.07 ± 0.01	0.03 ± 0.01	0.04 ± 0.0	0.04 ± 0.0	-0.01 ± 0.01	0.03 ± 0.02
96	Slide (96)	-0.12 ± 0.04	-0.12 ± 0.04	-0.16 ± 0.07	0.1 ± 0.07	-0.08 ± 0.01	-0.08 ± 0.01	0.22 ± 0.03	0.23 ± 0.03	0.01 ± 0.01	-0.06 ± 0.01	-0.06 ± 0.01	0.01 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.0 ± 0.01	0.03 ± 0.02
28	Slide (DNA-protein complex) (28)	-0.24 ± 1.15	-0.24 ± 1.17	0.71 ± 4.37	-0.16 ± 0.48	0.44 ± 5.13	0.44 ± 5.13	-0.5 ± 3.4	-0.5 ± 3.41	0.22 ± 1.78	-0.16 ± 1.76	-0.16 ± 1.75	0.22 ± 1.81	0.03 ± 0.48	0.03 ± 0.48	0.18 ± 4.27	-0.39 ± 17.42
86	Slide (DNA-protein complex) (86)	-0.02 ± 0.01	-0.02 ± 0.01	0.39 ± 0.08	-0.1 ± 0.04	0.28 ± 0.06	0.28 ± 0.06	-0.46 ± 0.08	-0.46 ± 0.08	0.1 ± 0.02	-0.13 ± 0.03	-0.13 ± 0.03	0.1 ± 0.02	0.07 ± 0.03	0.07 ± 0.03	0.16 ± 0.1	-0.21 ± 0.22
101	Slide (RNA) (101)	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	0.01 ± 0.01
67	Slide stiffness (67)	0.0 ± 0.0	0.0 ± 0.0	0.06 ± 0.02	-0.03 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.01	-0.0 ± 0.0
50	Slide_rise (50)	-0.01 ± 0.0	-0.01 ± 0.0	0.05 ± 0.02	-0.03 ± 0.01	0.04 ± 0.0	0.04 ± 0.0	-0.03 ± 0.0	-0.03 ± 0.0	-0.01 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.03 ± 0.02	-0.0 ± 0.0
46	Slide_slide (46)	0.01 ± 0.0	0.01 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.01
109	Stacking energy (109)	-0.02 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	-0.02 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.04 ± 0.01	0.0 ± 0.0
2	Stacking energy (2)	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0
33	Stacking energy (33)	-0.03 ± 0.0	-0.03 ± 0.0	-0.01 ± 0.0	-0.03 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.04 ± 0.01	0.01 ± 0.0
60	Stacking energy (60)	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0
106	Stacking energy (RNA) (106)	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0
82	Thymine content (82)	-0.09 ± 0.03	0.23 ± 0.03	0.05 ± 0.0	0.04 ± 0.01	-0.05 ± 0.01	0.04 ± 0.02	-0.07 ± 0.01	0.05 ± 0.02	-0.06 ± 0.01	0.05 ± 0.02	-0.06 ± 0.01	0.05 ± 0.02	-0.05 ± 0.02	-0.05 ± 0.02	-0.05 ± 0.02	-0.03 ± 0.03
117	Tilt (117)	-12.61 ± 560.88	12.57 ± 560.53	-0.06 ± 0.37	-0.05 ± 0.31	-26.17 ± 1498.74	26.33 ± 1495.69	6.11 ± 300.79	-6.22 ± 299.97	-24.29 ± 1111.63	21.57 ± 1108.01	-21.3 ± 1106.24	24.44 ± 1112.79	6.09 ± 324.05	-6.11 ± 323.29	-0.04 ± 0.27	-0.03 ± 0.19
62	Tilt (62)	-0.0 ± 17.77	-0.01 ± 17.27	0.04 ± 32.9	0.06 ± 85.56	-0.23 ± 27.46	-0.23 ± 27.5	-0.01 ± 5.09	-0.01 ± 5.12	0.31 ± 35.09	0.02 ± 6.02	0.02 ± 6.23	0.28 ± 33.96	0.35 ± 27.11	0.37 ± 27.89	0.04 ± 5.88	0.05 ± 5.37
89	Tilt (89)	-0.03 ± 0.0	-0.03 ± 0.0	-0.08 ± 0.03	-0.06 ± 0.03	0.03 ± 0.01	0.03 ± 0.01	-0.14 ± 0.01	-0.14 ± 0.01	0.22 ± 0.01	-0.02 ± 0.01	-0.02 ± 0.01	0.22 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	-0.05 ± 0.03	-0.04 ± 0.03
93	Tilt (93)	-0.02 ± 0.01	-0.02 ± 0.01	-0.07 ± 0.03	-0.06 ± 0.03	-0.04 ± 0.01	-0.04 ± 0.01	-0.13 ± 0.01	-0.13 ± 0.01	0.18 ± 0.02	0.02 ± 0.01	0.02 ± 0.01	0.18 ± 0.02	0.13 ± 0.02	0.13 ± 0.02	-0.05 ± 0.03	-0.04 ± 0.04
27	Tilt (DNA-protein complex) (27)	0.11 ± 0.02	0.11 ± 0.02	-0.07 ± 0.02	-0.06 ± 0.02	-0.03 ± 0.0	-0.06 ± 0.01	-0.04 ± 0.0	-0.04 ± 0.0	0.03 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.03 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	-0.05 ± 0.02	-0.03 ± 0.03

83	Tilt (DNA-protein complex) (83)	0.12 ± 0.02	0.12 ± 0.02	-0.07 ± 0.03	-0.06 ± 0.03	-0.04 ± 0.01	-0.04 ± 0.01	-0.12 ± 0.02	-0.12 ± 0.02	0.12 ± 0.02	0.1 ± 0.02	0.1 ± 0.02	0.12 ± 0.02	-0.04 ± 0.01	-0.04 ± 0.01	-0.05 ± 0.02	-0.03 ± 0.03
103	Tilt (RNA) (103)	-0.3 ± 0.14	-0.3 ± 0.14	0.16 ± 0.12	-0.1 ± 0.05	0.06 ± 0.01	0.06 ± 0.01	0.11 ± 0.02	0.11 ± 0.02	0.02 ± 0.01	0.14 ± 0.03	0.14 ± 0.03	0.02 ± 0.01	-0.01 ± 0.01	-0.01 ± 0.01	-0.05 ± 0.02	-0.04 ± 0.04
70	Tilt stiffness (70)	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	-0.03 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	-0.01 ± 0.01
56	Tilt_rise (56)	0.29 ± 0.04	0.29 ± 0.04	-0.08 ± 0.03	-0.05 ± 0.02	-0.1 ± 0.02	-0.1 ± 0.02	-0.04 ± 0.0	-0.04 ± 0.0	-0.12 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	-0.12 ± 0.02	0.04 ± 0.02	0.04 ± 0.02	0.02 ± 0.02	-0.04 ± 0.03
44	Tilt_roll (44)	0.58 ± 8.37	0.56 ± 7.43	0.03 ± 1.19	-0.08 ± 0.24	0.45 ± 10.57	0.41 ± 8.57	0.13 ± 4.28	0.12 ± 3.49	-0.64 ± 12.67	-0.11 ± 1.31	-0.11 ± 1.19	-0.65 ± 12.95	-0.38 ± 11.04	-0.36 ± 10.16	-0.32 ± 7.74	0.15 ± 4.74
54	Tilt_shift (54)	-0.1 ± 0.04	-0.1 ± 0.04	-0.19 ± 0.89	-0.15 ± 0.75	-0.03 ± 0.05	-0.03 ± 0.05	-0.09 ± 0.05	-0.09 ± 0.05	0.03 ± 0.19	0.06 ± 0.3	0.06 ± 0.3	0.03 ± 0.19	0.2 ± 0.3	0.2 ± 0.29	0.12 ± 0.18	0.09 ± 0.13
55	Tilt_slide (55)	0.15 ± 0.02	0.15 ± 0.02	0.19 ± 0.03	-0.17 ± 0.06	0.2 ± 0.05	0.2 ± 0.05	-0.01 ± 0.01	-0.01 ± 0.01	-0.23 ± 0.06	-0.01 ± 0.01	-0.01 ± 0.01	-0.23 ± 0.06	-0.14 ± 0.07	-0.14 ± 0.07	0.3 ± 0.21	-0.17 ± 0.17
40	Tilt_tilt (40)	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.02 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	-0.01 ± 0.01
5	Tip (5)	0.01 ± 0.01	0.01 ± 0.01	0.02 ± 0.01	0.23 ± 0.05	0.02 ± 0.01	0.02 ± 0.01	-0.16 ± 0.03	-0.16 ± 0.03	-0.03 ± 0.01	-0.01 ± 0.01	-0.01 ± 0.01	-0.03 ± 0.01	-0.03 ± 0.01	-0.03 ± 0.01	0.04 ± 0.04	-0.03 ± 0.03
1	Twist (1)	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
118	Twist (118)	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
120	Twist (120)	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
61	Twist (61)	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0
88	Twist (88)	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
92	Twist (92)	-0.0 ± 0.0	-0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
98	Twist (98)	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0
26	Twist (DNA-protein complex) (26)	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
37	Twist (DNA-protein complex) (37)	0.0 ± 0.0	0.0 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0
105	Twist (RNA) (105)	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0
71	Twist stiffness (71)	0.0 ± 0.0	0.0 ± 0.0	0.02 ± 0.01	-0.02 ± 0.01	0.02 ± 0.0	0.02 ± 0.0	-0.03 ± 0.0	-0.03 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.02 ± 0.01
53	Twist_rise (53)	0.02 ± 0.01	0.02 ± 0.01	-0.03 ± 0.01	-0.02 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	-0.0 ± 0.0
43	Twist_roll (43)	0.02 ± 0.0	0.02 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	-0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	-0.01 ± 0.0	-0.02 ± 0.0	-0.02 ± 0.0	0.0 ± 0.0	-0.02 ± 0.02
51	Twist_shift (51)	0.59 ± 0.09	0.59 ± 0.09	-0.15 ± 0.04	-0.1 ± 0.04	-0.01 ± 0.0	-0.01 ± 0.0	-0.16 ± 0.04	-0.16 ± 0.04	-0.32 ± 0.1	-0.07 ± 0.01	-0.07 ± 0.01	-0.33 ± 0.1	0.12 ± 0.07	0.12 ± 0.07	-0.06 ± 0.03	0.08 ± 0.09
52	Twist_slide (52)	0.03 ± 0.01	0.03 ± 0.01	-0.02 ± 0.01	-0.03 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	-0.06 ± 0.01	-0.06 ± 0.01	0.01 ± 0.0	0.02 ± 0.0	0.02 ± 0.0	0.01 ± 0.0	0.02 ± 0.01	0.02 ± 0.01	0.01 ± 0.0	-0.02 ± 0.01
42	Twist_tilt (42)	0.65 ± 0.12	0.65 ± 0.12	-0.1 ± 0.03	-0.12 ± 0.04	0.01 ± 0.03	0.01 ± 0.03	-0.11 ± 0.04	-0.11 ± 0.04	-0.31 ± 0.15	-0.01 ± 0.02	-0.01 ± 0.02	-0.31 ± 0.16	-0.08 ± 0.05	-0.08 ± 0.05	-0.03 ± 0.01	0.06 ± 0.11
39	Twist_twist (39)	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	-0.03 ± 0.0	-0.03 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.01 ± 0.0	0.0 ± 0.0	-0.02 ± 0.01
99	Wedge (99)	0.06 ± 0.02	0.06 ± 0.02	-0.03 ± 0.01	-0.05 ± 0.02	-0.04 ± 0.0	-0.04 ± 0.0	-0.01 ± 0.0	-0.01 ± 0.0	0.05 ± 0.01	0.01 ± 0.0	0.01 ± 0.0	0.05 ± 0.01	-0.03 ± 0.01	-0.03 ± 0.01	0.01 ± 0.0	0.02 ± 0.02

Table S5: Significance levels of DNA property changes induced by dinucleotide contents

property id	property name	AA	TT	AT	TA	AC	GT	CA	TG	AG	TC	GA	CT	CC	GG	GC	CG
79	Adenine content (79)	8.95	-3.54	11.95	6.78	2.19	-9.48	2.42	-8.79	2.42	-8.85	2.16	-7.08	-3.15	-3.17	-2.16	-1.15
4	Bend (4)	-0.65	-0.65	-2.01	3.06	-1.38	-1.38	3.02	3.01	-6.69	-7.55	-7.4	-6.78	-4.1	-4.12	-0.08	-2.01
21	Clash Strength (21)	-4.97	-5.02	2.03	-2.54	-1.58	-1.58	-4.03	-4.02	7.53	-8.53	-8.48	7.64	5.33	5.35	-2.03	1.34
81	Cytosine content (81)	-3.52	-3.54	-3.09	-2.54	3.45	-9.48	3.35	-8.79	-7.07	3.57	-8.77	3.79	7.12	-3.17	8.67	1.91

100	Direction (100)	-0.53	0.53	-2.8	$\bar{2.37}$	1.02	-1.16	-1.32	1.06	-2.68	-1.32	1.09	-4.89	$\bar{2.53}$	1.89	3.81	-1.23
123	Enthalpy (123)	-7.39	-7.5	-5.21	$\bar{3.64}$	2.05	2.05	2.79	2.8	-2.19	0.55	0.55	-2.17	$\bar{0.77}$	-0.78	3.01	1.3
22	Enthalpy (22)	-1.29	$\bar{1.29}$	-4.03	$\bar{3.68}$	3.2	3.2	-0.59	-0.59	-4.48	1.33	1.33	-4.44	5.17	5.18	4.3	1.44
110	Enthalpy (RNA) (110)	-5.5	$\bar{5.57}$	-4.12	$\bar{3.11}$	2.72	2.72	3.34	-3.52	-3.35	2.81	8.5	-3.32	5.64	5.66	3.18	-0.8
114	Enthalpy (RNA) (114)	-4.75	-4.8	-2.93	$\bar{3.62}$	2.21	2.21	0.15	0.15	0.23	4.57	4.53	0.22	5.93	5.94	3.47	-0.04
124	Entropy (124)	-7.1	-7.2	-4.32	$\bar{4.61}$	3.61	3.61	5.18	5.2	-4.16	2.17	2.17	-4.12	$\bar{2.61}$	-2.62	2.67	1.22
23	Entropy (23)	0.05	0.05	-3.9	$\bar{3.83}$	4.9	4.89	-1.61	-1.61	-5.29	2.11	2.11	-5.25	4.86	4.87	4.39	1.44
111	Entropy (RNA) (111)	-5.58	$\bar{5.65}$	-3.96	$\bar{0.76}$	3.26	3.26	4.75	-4.67	-4.26	3.4	10.21	-4.23	5.51	5.53	2.98	-0.94
115	Entropy (RNA) (115)	-4.7	$\bar{4.75}$	-0.01	$\bar{3.44}$	2.62	2.62	-0.17	-0.17	0.03	6.01	5.93	0.03	5.98	5.98	3.27	-0.45
122	Flexibility_shift (122)	-3.19	$\bar{3.21}$	-3.16	$\bar{3.37}$	11.08	11.02	-4.97	-4.97	7.15	-2.17	-2.18	7.25	$\bar{1.42}$	-1.43	-2.12	1.3
121	Flexibility_slide (121)	6.58	6.68	7.87	$\bar{1.45}$	1.81	1.81	-8.41	-8.43	-1.75	2.42	2.44	-1.74	$\bar{2.48}$	-2.49	-2.6	-1.26
125	Free energy (125)	-6.78	$\bar{6.87}$	-5.43	$\bar{2.94}$	1.22	1.22	1.38	1.38	-0.51	-0.26	-0.26	-0.51	5.94	5.92	3.94	1.56
34	Free energy (34)	-5.34	-5.4	-4.5	$\bar{3.67}$	1.88	1.88	0.96	0.96	0.74	0.09	0.09	0.74	5.97	5.95	4.3	1.58
35	Free energy (35)	0.27	0.27	-6.26	$\bar{2.94}$	-4.48	-4.47	1.16	1.15	-2.85	-2.15	-2.17	-2.82	5.31	5.31	3.98	1.47
36	Free energy (36)	-6.31	-6.4	-4.96	$\bar{3.54}$	1.48	1.48	1.78	1.78	-1.02	-0.94	0.22	-1.02	5.85	5.84	3.91	1.52
38	Free energy (38)	-5.36	$\bar{5.42}$	-3.79	$\bar{2.85}$	1.57	1.57	1.52	1.52	0.06	1.1	1.1	0.06	5.31	5.29	4.92	1.65
72	Free energy (72)	-6.81	-6.9	-4.43	$\bar{3.29}$	-0.3	-0.3	1.67	1.67	-0.32	-0.3	-0.3	-0.32	5.82	5.81	4.52	1.48
73	Free energy (73)	-6.78	$\bar{6.87}$	-5.43	$\bar{2.94}$	1.22	1.22	1.38	1.38	-0.51	-0.26	-0.26	-0.51	5.94	5.92	3.94	1.56
74	Free energy (74)	-6.42	$\bar{6.51}$	-4.79	$\bar{3.46}$	0.59	0.59	3.46	3.47	-2.74	0.94	0.95	-2.71	5.73	5.71	3.62	1.56
75	Free energy (75)	-6.4	-6.5	-5.1	$\bar{3.13}$	-0.24	-0.24	2.97	2.97	0.13	0.34	0.35	0.12	6.03	6.03	4.63	1.62
112	Free energy (RNA) (112)	-4.87	$\bar{4.92}$	-4.4	-3.8	2.02	2.02	0.24	-0.46	-0.5	2.05	3.16	-0.5	6.35	6.35	3.92	0.78
113	Free energy (RNA) (113)	-4.59	$\bar{4.63}$	-4.71	$\bar{4.04}$	1.47	1.47	0.79	0.79	0.62	2.09	2.09	0.61	6.33	6.33	4.3	1.65
76	GC content (76)	-3.52	$\bar{3.54}$	-3.09	$\bar{2.54}$	0.88	0.88	0.91	0.91	0.97	0.88	0.88	0.97	6.8	6.77	8.68	1.91
80	Guanine content (80)	-3.52	$\bar{3.54}$	-3.09	$\bar{2.54}$	-9.54	3.46	-8.78	3.37	3.79	-8.85	3.57	-7.08	$\bar{3.15}$	7.11	8.52	1.91
29	Hydrophilicity (RNA) (29)	-3.57	3.23	-3.27	$\bar{2.74}$	-8.27	-2.79	-7.62	8.77	-7.22	10.55	-8.46	7.86	3.52	-3.07	-1.66	1.44
31	Hydrophilicity (RNA) (31)	-3.6	2.77	-3.57	$\bar{3.92}$	-7.38	1.36	-4.55	6.59	-6.88	11.39	-7.79	7.79	4.02	-2.62	-0.08	1.43
6	Inclination (6)	-0.0	0.0	-0.11	$\bar{0.11}$	-0.01	0.01	0.01	-0.01	-0.01	0.01	-0.01	0.01	$\bar{0.01}$	0.01	-0.07	-0.06
78	Keto (GT) content (78)	-3.56	3.74	3.9	3.06	-9.59	9.0	-8.04	6.11	-6.6	6.54	6.43	5.23	$\bar{3.12}$	3.08	2.1	1.15
8	Major Groove Depth (8)	6.11	6.16	-0.35	3.12	5.18	5.17	-5.83	-5.85	-0.04	-4.86	-4.82	-0.04	-4.2	-4.22	-3.9	-1.96
10	Major Groove Distance (10)	-2.48	$\bar{2.49}$	-3.09	2.55	-9.55	-9.49	8.74	8.75	-5.89	1.45	1.44	-5.9	$\bar{2.77}$	-2.78	-2.16	1.14
9	Major Groove Size (9)	0.1	0.1	3.09	$\bar{2.54}$	0.1	0.1	0.1	0.1	7.08	-8.83	-8.75	7.09	0.1	0.1	-2.15	1.15
7	Major Groove Width (7)	-6.48	$\bar{6.58}$	-3.83	$\bar{4.26}$	-3.62	-3.62	1.19	1.19	0.86	2.99	2.99	0.85	4.6	4.61	4.43	1.69
108	Melting Temperature (108)	-7.46	$\bar{7.58}$	-7.7	$\bar{3.29}$	7.52	7.5	-3.68	-3.67	-2.86	4.85	4.81	-2.84	5.65	5.63	2.64	-0.06
16	Melting Temperature (16)	-6.54	$\bar{6.63}$	-6.95	$\bar{2.95}$	6.24	6.23	-4.22	-4.22	-3.18	4.28	4.25	-3.15	5.57	5.55	3.04	-0.03
12	Minor Groove Depth (12)	2.3	2.31	-2.97	0.6	-8.55	-8.51	6.86	6.87	-1.55	7.58	7.51	-1.56	$\bar{0.55}$	-0.55	-1.35	1.18
14	Minor Groove Distance (14)	-3.51	$\bar{3.54}$	3.1	$\bar{2.55}$	9.97	9.91	-8.47	-8.49	-6.83	-8.88	-8.79	-6.85	$\bar{3.14}$	-3.15	2.19	-1.15
13	Minor Groove Size (13)	-6.57	$\bar{6.67}$	-2.26	$\bar{3.24}$	-1.69	-1.69	3.5	3.51	5.81	-3.91	-3.93	5.89	5.42	5.43	-0.99	1.32
11	Minor Groove Width (11)	0.84	0.84	0.96	3.02	5.79	5.78	-6.61	-6.64	-0.73	-9.53	-9.27	-0.72	$\bar{4.26}$	-4.28	-3.26	-0.36
18	Mobility to bend towards major groove (18)	4.85	5.57	6.26	0.67	0.03	-4.66	0.01	-3.32	0.03	-3.54	1.72	-2.28	$\bar{4.83}$	-5.17	-3.14	-1.78
19	Mobility to bend towards minor groove (19)	-6.74	$\bar{6.84}$	-5.37	$\bar{4.36}$	-1.52	-0.99	2.08	5.75	-2.14	4.94	-0.44	2.17	4.85	5.15	4.19	1.48
15	Persistence Length (15)	-6.43	$\bar{6.52}$	-3.9	$\bar{3.01}$	0.32	0.32	0.36	0.36	0.34	0.31	0.31	0.34	6.24	6.26	7.68	1.98

17	Probability contacting nucleosome core (17)	4.94	5.0	-2.62	-2.3	-3.53	-3.52	4.95	4.93	3.89	-0.54	-0.54	3.83	-4.09	-4.08	-2.29	-1.11
20	Propeller Twist (20)	5.17	5.23	4.78	-1.77	-10.04	-9.97	-9.03	-9.07	3.14	3.81	3.83	3.12	0.16	0.16	-6.56	-1.54
77	Purine (AG) content (77)	3.53	-3.54	0.05	0.05	0.07	0.07	0.07	0.07	7.11	-8.85	8.86	-7.08	-3.15	3.17	0.06	0.06
3	Rise (3)	-5.18	-5.24	2.35	-3.53	-1.84	-1.83	-4.94	-4.93	3.32	-0.61	-0.62	3.33	4.15	4.17	3.62	1.71
66	Rise (66)	-5.49	-5.55	-5.51	1.87	-6.19	-6.17	-0.99	-0.99	-4.61	9.9	9.64	-4.57	4.44	4.45	2.39	-0.99
97	Rise (97)	-5.68	-5.75	-5.05	2.01	-3.86	-3.85	5.86	5.87	-3.93	-3.67	-3.69	-3.89	4.76	4.77	2.54	1.49
32	Rise (DNA-protein complex) (32)	-4.76	-4.81	-4.28	1.48	3.54	3.54	3.42	3.43	3.61	3.65	3.63	3.63	4.88	4.87	5.62	1.85
87	Rise (DNA-protein complex) (87)	-4.68	-4.73	-5.39	2.06	1.22	1.22	-2.27	-2.27	-1.23	2.62	2.61	-1.23	4.45	4.47	3.67	1.62
102	Rise (RNA) (102)	-4.71	-4.75	-0.74	1.22	-0.93	-0.93	-7.59	-7.59	6.2	10.54	10.29	6.28	4.19	4.21	-1.35	1.42
107	Rise stiffness (107)	-6.72	-6.8	2.91	-2.62	10.47	10.39	-8.39	-8.39	-6.45	10.34	10.14	-6.43	4.21	4.23	2.26	-1.12
47	Rise_rise (47)	-0.87	-0.87	3.2	-2.51	8.85	8.8	-8.98	-9.0	-7.19	6.98	6.98	-7.22	-4.12	-4.13	2.07	-1.15
116	Roll (116)	0.02	0.02	0.02	-0.02	0.01	0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.01	-0.02
119	Roll (119)	1.09	1.1	-2.62	2.08	-11.5	-11.42	9.04	9.1	-6.59	12.38	11.94	-6.6	-2.51	-2.52	-2.26	1.29
63	Roll (63)	0.97	0.97	-2.32	-2.12	1.6	1.6	-7.75	-7.77	7.43	-5.87	-5.92	7.52	5.52	5.59	-2.49	1.37
90	Roll (90)	-4.99	-5.04	-2.89	1.58	-5.39	-5.37	-1.56	-1.55	5.03	-7.17	-7.19	5.08	5.58	5.63	-2.51	1.38
94	Roll (94)	-4.15	-4.19	-2.73	1.74	-3.72	-3.72	-4.83	-4.8	10.0	-5.8	-5.8	10.13	4.84	4.89	-2.03	1.2
25	Roll (DNA-protein complex) (25)	-3.86	-3.89	-3.03	0.57	-9.39	-9.33	8.9	8.96	8.58	-0.99	-0.99	8.74	7.72	7.69	-2.28	1.3
84	Roll (DNA-protein complex) (84)	-3.77	-3.8	-3.72	1.47	-8.18	-8.13	7.49	7.53	7.23	-3.47	-3.48	7.35	6.46	6.47	-2.1	1.34
104	Roll (RNA) (104)	-4.62	-4.66	-4.18	2.21	-8.38	-8.33	7.3	7.34	0.83	7.63	7.5	0.83	2.45	3.77	-1.92	1.25
69	Roll stiffness (69)	2.38	2.38	2.91	-2.59	10.24	10.17	-8.46	-8.47	-5.9	6.86	6.74	-5.87	-2.67	-2.69	2.22	-1.13
59	Roll_rise (59)	0.05	0.05	-0.05	0.05	-0.04	-0.04	0.04	0.04	0.02	0.04	0.04	0.02	-0.06	-0.06	-0.04	0.03
41	Roll_roll (41)	3.03	3.04	2.95	-2.56	10.08	10.01	-8.6	-8.6	5.99	-6.34	-6.35	6.07	3.57	3.58	2.23	-1.12
57	Roll_shift (57)	4.85	4.89	5.29	-3.27	2.81	2.82	-3.38	-3.4	-2.76	2.65	2.67	-2.75	-1.65	-1.65	-1.85	0.89
58	Roll_slide (58)	8.24	8.3	6.98	-1.73	-9.2	-9.15	-6.08	-6.07	3.19	-9.84	-9.8	3.15	-5.22	-5.22	-1.89	0.78
64	Shift (64)	0.12	0.12	-0.12	0.12	-0.11	-0.11	-0.11	-0.11	-0.11	-0.14	-0.14	-0.11	-0.11	-0.11	0.11	-0.11
95	Shift (95)	-0.15	-0.15	-0.15	-0.13	-0.16	-0.16	-0.18	-0.18	0.21	-0.24	-0.24	0.21	-0.24	-0.24	-0.25	-0.22
30	Shift (DNA-protein complex) (30)	1.14	1.13	-1.88	-1.76	-0.51	-0.51	-1.03	-1.02	-0.57	0.66	0.66	-0.57	-0.62	-0.62	-0.46	-0.39
85	Shift (DNA-protein complex) (85)	0.03	0.03	0.02	0.02	-0.03	-0.03	-0.03	-0.03	-0.03	0.03	0.03	-0.03	-0.03	-0.03	0.02	0.03
24	Shift (RNA) (24)	-0.66	-0.66	-0.66	-1.02	0.9	0.9	0.68	0.68	-1.95	0.48	0.48	-1.96	-2.43	-2.43	0.9	1.49
68	Shift stiffness (68)	3.52	3.54	-3.09	-2.52	9.15	9.1	-8.85	-8.85	7.34	8.83	8.75	7.34	3.18	3.2	-2.1	-1.13
49	Shift_rise (49)	3.81	3.84	-3.14	-2.54	-5.08	-5.06	-6.63	-6.61	-6.18	-3.55	-3.58	-6.11	3.47	3.49	2.22	-1.03
45	Shift_shift (45)	3.47	3.49	-3.1	-2.52	-8.35	-8.3	-1.5	-1.49	4.79	-7.32	-7.32	4.84	3.36	3.38	2.47	-1.08
48	Shift_slide (48)	-0.08	-0.08	0.07	-0.08	0.09	0.09	0.1	0.1	0.07	-0.12	-0.12	0.07	-0.15	-0.15	-0.16	0.13
65	Slide (65)	-2.27	-2.28	-1.47	0.62	-6.94	-6.93	4.15	4.17	1.5	-5.98	-5.93	1.5	0.67	0.67	1.28	1.55
91	Slide (91)	-3.3	-3.33	-2.41	1.47	-9.26	-9.2	8.11	8.15	3.1	-6.91	-6.84	3.12	8.47	8.41	-0.83	1.53
96	Slide (96)	-3.11	-3.12	-2.37	1.45	-9.6	-9.53	6.97	7.01	0.72	-6.36	-6.32	0.72	8.39	8.34	0.27	1.63
28	Slide (DNA-protein complex) (28)	-0.21	-0.2	0.16	-0.33	0.09	0.09	-0.15	-0.15	0.13	-0.09	-0.09	0.12	0.06	0.06	0.04	-0.02
86	Slide (DNA-protein complex) (86)	-1.94	-1.94	4.77	-2.89	4.43	4.42	-5.97	-5.95	4.32	-4.99	-5.0	4.26	2.14	2.15	1.52	-0.94
101	Slide (RNA) (101)	-5.34	-5.4	-7.23	-1.53	-1.98	-1.98	-1.21	-1.21	0.08	7.14	7.02	0.08	4.8	4.82	-1.31	1.35
67	Slide stiffness (67)	1.42	1.42	3.48	-2.45	7.23	7.2	-8.39	-8.43	-5.42	-9.88	-9.6	-5.48	-3.6	-3.61	1.72	-1.5
50	Slide_rise (50)	-3.68	-3.71	3.08	-2.57	10.43	10.36	-8.28	-8.3	-6.58	-8.77	-8.69	-6.58	-3.03	-3.04	2.27	-1.02
46	Slide_slide (46)	4.27	4.3	3.35	-2.42	7.44	7.41	-9.48	-9.49	-3.63	-10.34	-10.19	-3.66	3.01	3.02	-5.21	-1.14

109	Stacking energy (109)	-5.34	-5.4	-4.23	$\bar{3.14}$	7.1	7.09	-3.96	-3.95	-3.83	6.1	6.02	-3.8	0.25	0.25	2.94	1.99
2	Stacking energy (2)	3.45	3.47	-3.1	$\bar{2.57}$	8.34	8.29	8.82	8.83	-3.7	-7.36	-7.27	-3.72	$\bar{3.16}$	-3.18	2.15	1.14
33	Stacking energy (33)	-5.43	-5.5	-4.68	$\bar{2.93}$	5.76	5.75	-2.85	-2.84	-2.32	4.85	4.81	-2.3	1.25	1.26	3.14	1.85
60	Stacking energy (60)	6.04	6.13	-1.29	1.81	6.16	6.14	7.71	7.7	-6.76	$\bar{10.33}$	$\bar{10.11}$	-6.84	-3.6	-3.62	-2.44	1.07
106	Stacking energy (RNA) (106)	-2.35	$\bar{2.36}$	4.06	2.91	-5.46	-5.45	2.0	2.0	-2.77	-0.13	-0.13	-2.78	$\bar{3.36}$	-3.37	1.99	1.05
82	Thymine content (82)	-3.52	9.02	11.73	6.72	-9.54	2.21	-8.78	2.45	-7.07	2.16	-8.77	2.42	$\bar{3.15}$	-3.17	-2.16	-1.15
117	Tilt (117)	-0.02	0.02	-0.16	$\bar{0.15}$	-0.02	0.02	0.02	-0.02	-0.02	0.02	-0.02	0.02	0.02	-0.02	-0.14	-0.15
62	Tilt (62)	-0.0	-0.0	0.0	0.0	-0.01	-0.01	-0.0	-0.0	0.01	0.0	0.0	0.01	0.01	0.01	0.01	0.01
89	Tilt (89)	-5.0	$\bar{5.05}$	-2.83	$\bar{2.36}$	5.73	5.72	$\bar{11.27}$	$\bar{11.26}$	14.78	-3.52	-3.53	15.03	5.33	5.38	-1.95	-1.05
93	Tilt (93)	-3.7	$\bar{3.71}$	-2.94	$\bar{2.41}$	-5.34	-5.32	-9.98	-9.96	9.43	1.87	1.87	9.62	6.41	6.48	-1.8	-1.0
27	Tilt (DNA-protein complex) (27)	4.6	4.65	-2.96	$\bar{2.42}$	-8.18	-7.31	-9.19	-9.2	4.95	5.15	5.19	4.86	1.71	1.72	-2.0	-1.1
83	Tilt (DNA-protein complex) (83)	5.72	5.79	-2.85	$\bar{2.36}$	-7.98	-7.94	-7.11	-7.1	4.85	4.36	4.4	4.76	$\bar{3.37}$	-3.39	-2.1	-1.15
103	Tilt (RNA) (103)	-2.19	-2.2	1.31	$\bar{2.04}$	4.03	4.04	4.69	4.71	1.96	5.72	5.67	1.96	$\bar{1.66}$	-1.66	-2.22	-1.17
70	Tilt stiffness (70)	2.71	2.72	1.95	-2.6	9.64	9.59	-8.12	-8.11	6.73	10.6	10.29	6.82	3.73	3.76	4.49	-1.08
56	Tilt_rise (56)	7.1	7.23	-3.12	$\bar{2.38}$	-5.39	-5.37	-8.08	-8.07	-5.37	2.82	2.84	-5.3	1.8	1.81	1.11	-1.07
44	Tilt_roll (44)	0.07	0.08	0.03	$\bar{0.33}$	0.04	0.05	0.03	0.03	-0.05	-0.09	-0.09	-0.05	$\bar{0.03}$	-0.04	-0.04	0.03
54	Tilt_shift (54)	-2.19	$\bar{2.21}$	-0.21	-0.2	-0.59	-0.59	-1.81	-1.81	0.18	0.21	0.21	0.18	0.68	0.68	0.66	0.68
55	Tilt_slide (55)	7.92	8.09	6.41	$\bar{3.09}$	3.68	3.69	-1.19	-1.2	-4.22	-0.57	-0.57	-4.22	$\bar{1.99}$	-2.0	1.47	-0.99
40	Tilt_tilt (40)	2.98	2.99	2.77	$\bar{2.59}$	10.52	10.44	-8.51	-8.51	5.07	10.81	10.54	5.12	3.51	3.53	2.48	-1.11
5	Tip (5)	1.32	1.32	2.06	4.26	1.76	1.76	-5.67	-5.67	-4.67	-0.75	-0.75	-4.72	$\bar{4.18}$	-4.2	1.21	-1.21
1	Twist (1)	3.74	3.77	-2.92	$\bar{2.45}$	-9.82	-9.76	8.63	8.63	-7.18	8.23	8.19	-7.21	$\bar{3.67}$	-3.68	1.98	-1.18
118	Twist (118)	5.41	5.47	7.09	$\bar{0.01}$	-4.42	-4.42	-1.88	-1.88	-0.12	0.89	0.89	-0.12	$\bar{4.83}$	-4.85	-3.77	-1.62
120	Twist (120)	5.31	5.37	3.72	$\bar{2.01}$	-2.23	-2.23	-9.17	-9.21	-3.09	5.8	5.8	-3.1	$\bar{5.89}$	-5.88	1.63	-1.27
61	Twist (61)	-2.98	$\bar{2.99}$	-3.02	2.59	$\bar{10.03}$	-9.96	8.7	8.7	-7.14	8.22	8.17	-7.16	$\bar{3.82}$	-3.83	2.07	-1.16
88	Twist (88)	1.98	1.98	-2.54	2.81	1.41	1.41	5.2	5.19	-7.29	6.67	6.67	-7.33	$\bar{4.03}$	-4.05	1.82	-1.21
92	Twist (92)	-2.71	$\bar{2.72}$	-3.06	2.57	-9.89	-9.83	8.59	8.6	-7.02	8.64	8.58	-7.03	$\bar{3.26}$	-3.28	2.05	1.09
98	Twist (98)	3.98	4.01	-2.86	2.79	4.61	4.6	5.2	5.19	-7.19	7.84	7.79	-7.2	$\bar{4.65}$	-4.67	2.12	-1.16
26	Twist (DNA-protein complex) (26)	4.47	4.51	-2.92	2.69	$\bar{10.72}$	$\bar{10.64}$	6.92	7.01	-7.56	6.37	6.37	-7.61	$\bar{4.29}$	-4.31	1.42	0.98
37	Twist (DNA-protein complex) (37)	3.88	3.91	-3.04	2.6	-10.0	-9.93	8.47	8.48	-7.12	8.05	8.0	-7.15	$\bar{3.39}$	-3.4	-2.54	1.11
105	Twist (RNA) (105)	-2.84	$\bar{2.86}$	3.31	2.92	6.68	6.66	-8.15	-8.17	-7.36	6.21	6.19	-7.38	2.78	2.79	2.11	-1.15
71	Twist stiffness (71)	3.85	3.81	3.31	$\bar{2.48}$	8.26	8.21	-9.06	-9.08	6.68	-3.82	-3.8	6.63	1.03	1.04	-4.24	-1.15
53	Twist_rise (53)	3.2	3.22	-3.17	-2.6	10.84	10.76	-6.08	-6.08	8.39	-4.99	-4.99	8.45	$\bar{2.97}$	-2.98	2.25	-1.09
43	Twist_roll (43)	8.83	9.01	9.9	4.74	2.01	2.01	-7.13	-7.17	-4.52	3.39	3.41	-4.56	$\bar{4.06}$	-4.08	0.54	-1.23
51	Twist_shift (51)	6.64	6.73	-4.06	$\bar{2.98}$	-2.73	-2.73	-3.66	-3.66	-3.15	-4.79	-4.83	-3.12	1.76	1.78	-1.68	0.9
52	Twist_slide (52)	3.3	3.32	-3.24	$\bar{2.58}$	9.81	9.75	-8.56	-8.56	6.54	10.29	10.1	6.61	3.48	3.5	2.49	-1.11
42	Twist_tilt (42)	5.29	5.22	-3.71	$\bar{3.46}$	0.29	0.29	-2.89	-2.89	-2.04	-0.37	-0.38	-2.01	-1.6	-1.62	-3.4	0.56
39	Twist_twist (39)	4.53	4.57	4.0	$\bar{2.21}$	7.07	7.04	-9.04	-9.05	5.01	3.13	3.14	4.97	2.75	2.77	1.38	-1.15
99	Wedge (99)	3.67	3.7	-2.9	$\bar{2.45}$	-9.19	-9.14	-8.49	-8.52	7.05	7.35	7.35	7.04	$\bar{3.21}$	-3.23	1.81	1.12

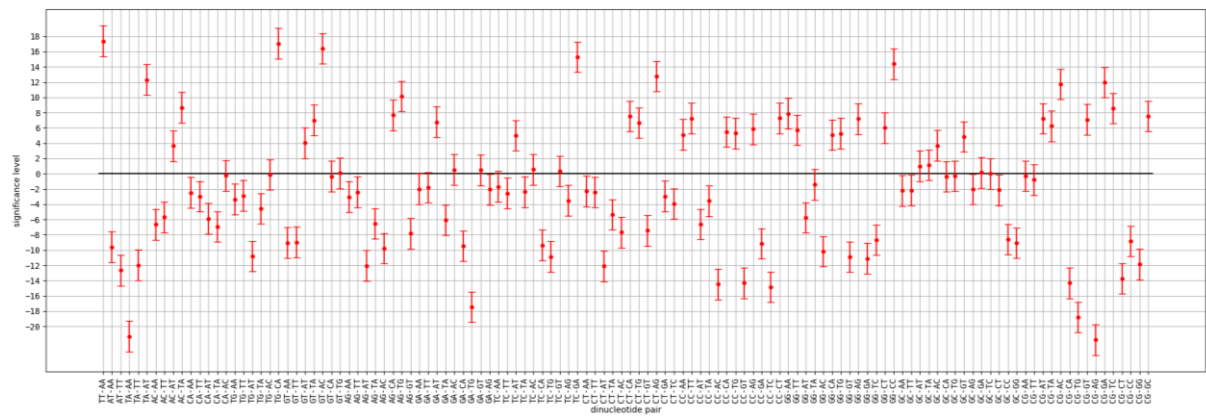


Figure S1: Significance levels of dimer-pairs: Significance levels for correlations (see 2.1) of all dinucleotide pairs (x-axis) in relation to Chargaff model. Deviations from zero larger than 1.0 were not expected by the model and are thus considered significant.