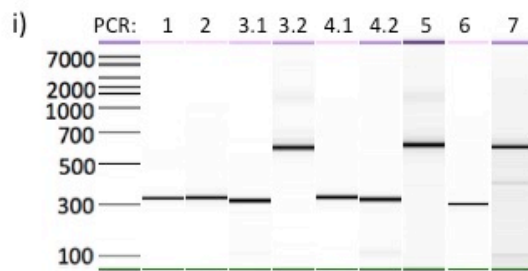


Supplementary Information

1. Thue Rule Recognition and Implementation

Supplementary Figure 1: Thue rule implementation.

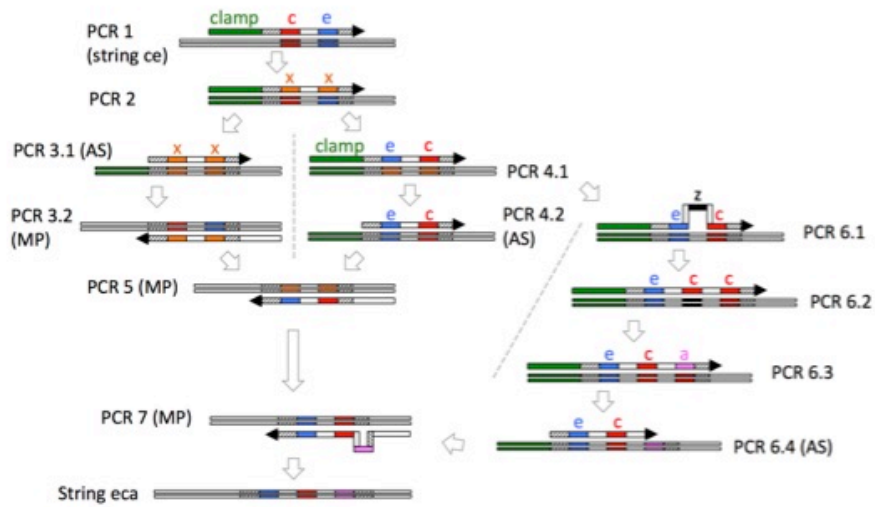


ii)

String EC	GTG	CTG	GTG	TGG	GTG
PCR 1	GCG	CTG	GTG	TGG	GCG
PCR 2	GCG	CGG	GTG	CGG	GCG
PCR 4.1	GCG	CGG	GTG	CGG	GCG
PCR 5	GCG	TGG	GTG	CTG	GCG
PCR 7	GCG	TGG	GTG	CTG	GCG

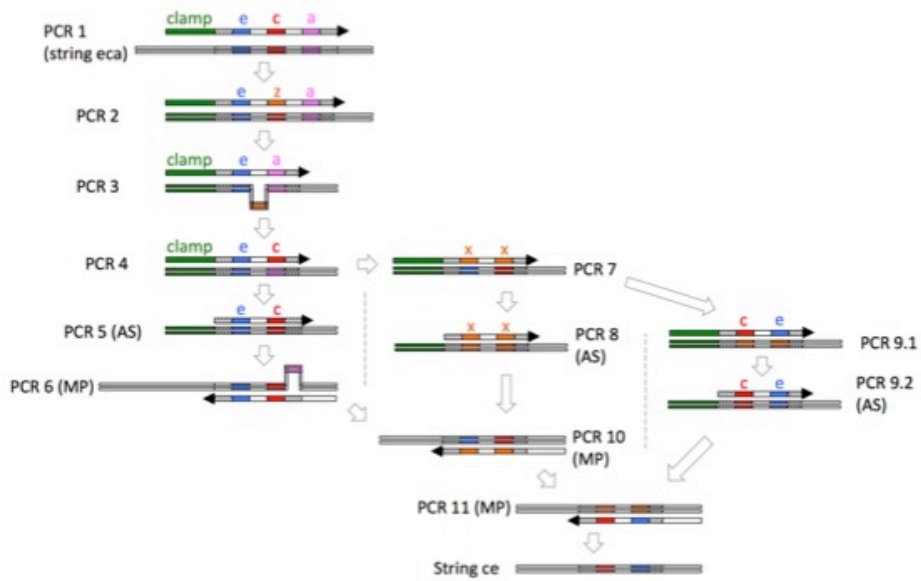
a)

Microprogram and results for swapping $ce \rightarrow ec$. The microprogram is the same as shown in Fig. 5a, except the symbol sequences are transposed. i) Capillary electrophoresis analysis. ii) sequencing data alignment of each step.

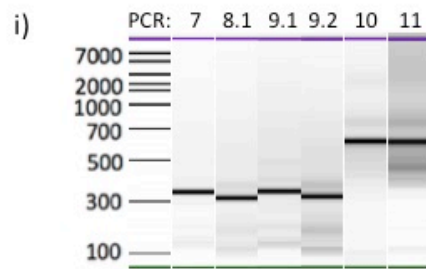


b)

The full microprogram for the Thue rule $ce \rightarrow eca$. This combines the transposition $ce \rightarrow ec$ and the insertion $ec \rightarrow eca$. To improve the overall efficiency of the PCRs *in vitro* we utilised DNA templates from earlier in the scheme (PCR 4.1) to implement the insertion rule in parallel with the transposition.



c)
 The full microprogram for the Thue rule $eca \rightarrow ce$. This combines the transposition $ec \rightarrow ce$ and the deletion $eca \rightarrow ec$. The rest of the microprogram mirrors that of the inverse Thue rule $ce \rightarrow eca$.



ii)

PCR 6	GCG	CTG	GTG	TGG	GCG
PCR 7	GCG	CGG	GTG	CGG	GCG
PCR 9.1	GCG	TGG	GTG	CTG	GCG
PCR 10	GCG	CGG	GTG	CGG	GCG
PCR 11	GCG	TGG	GTG	CTG	GCG

d)

Completion of Thue rule microprogram for $\mathbf{eca} \rightarrow \mathbf{ce}$. Show is the additional swap microprogram $\mathbf{ec} \leftrightarrow \mathbf{ce}$ that is performed following the deletion microprogram (Fig. 5c). i) Capillary electrophoresis analysis. ii) sequencing alignment of the PCR steps.

Materials and methods

The template DNA sequence, symbols, clamp and spacers were designed using GeneGenie [1] to ensure minimal erroneous hybridisations between the symbols and non-coding DNA template. Additional calculations of DNA hybridisation kinetics were performed using MFold [2], DINAMelt [3], and UNAFold [4] software with parameters matching the PCR conditions (50mM NaCl, 2mM MgCl₂, 500nM primers). All oligonucleotides were synthesised by Integrated DNA Technologies.

DNA templates (initial states) were synthesised by gene synthesis using the SpeedyGenes method [5]. PCR amplification was performed in both symmetric and asymmetric conditions, producing double- and single-stranded DNA products, respectively. For symmetric PCR the reaction contained 500nM of each forward and reverse primer together with 0.5ng DNA template, 0.2mM dNTP mix (New England Biolabs), ThermoPol reaction buffer and 1 unit Deep vent (exo-) DNA polymerase (New England Biolabs). The PCR had an initial denaturation at 95°C for 2 min, then 25 cycles of 95°C for 30 s, 60°C (or other T_m) for 40 s and 72°C for 1 min. PCR products were then purified using a PCR purification kit (Qiagen), following the manufacturer's protocol. These PCR products then served as the template for subsequent PCR steps in the microprogram using the same conditions.

For asymmetric PCR the concentration of primers was altered, with the 25nM forward (limiting) primer and 500nM reverse (excess) primer. All other buffer constituents and PCR conditions were the same as for symmetric PCR. Following purification, the ssDNA product was then used as a megaprimer in the subsequent PCR. This reaction contained 25-50% purified megaprimer and 250nM corresponding forward primer (all other components remained the same). The PCR contained an initial denaturation at 95°C for 2 min, followed by 25 cycles of 95°C for 30 s, 65°C (or other T_m) for 40 s and 72°C for 1 min. Samples were analysed by capillary electrophoresis using a 2100 Bioanalyzer instrument using the DNA 7500 kit (Agilent), following the manufacturer's instructions.

Purified PCR products were subject to Sanger sequencing (Eurofins) using the same primers as used in the PCR. When required, these products were also ligated into a linearised plasmid (pET16b, Novagen) using the In-Fusion cloning kit (Clontech), following the manufacturer's protocol. Samples were then transformed into *E. coli* 5α competent cells (New England Biolabs), streaked onto LB agar (100µg ml⁻¹ ampicillin) and incubated overnight at 37°C, following the manufacturer's instructions. Individual colonies were then picked, incubated at 37°C at 200 rpm overnight and the plasmid extracted using a spin miniprep kit (Qiagen), following the manufacturer's protocol. Plasmids were then subject to DNA sequencing, as above.

1. Swainston N, Currin A, Day PJ, Kell DB. GeneGenie: optimized oligomer design for directed evolution. *Nucleic Acids Res.* 2014 Jul 1;42(W1):W395–400.
2. Zuker M. Mfold web server for nucleic acid folding and hybridization prediction. *Nucleic Acids Res.* 2003 Jul 1;31(13):3406–15.
3. Markham NR, Zuker M. DINAMelt web server for nucleic acid melting prediction. *Nucleic Acids Res.* 2005 Jul 1;33(suppl 2):W577–81.
4. Markham, N. R. & Zuker, M. UNAFold: software for nucleic acid folding and hybridization. In Keith, J. M., editor, 4 of 8 *Bioinformatics, Volume II. Structure, Functions and Applications*, number 453 in *Methods in Molecular Biology*, chapter 1, pages 3-31. Humana Press, Totowa, NJ. (2008).

5. Currin A, Swainston N, Day PJ, Kell DB. SpeedyGenes: an improved gene synthesis method for the efficient production of error-corrected, synthetic protein libraries for directed evolution. *Protein Eng Des Sel.* 2014 Sep 1;27(9):273–80.

2. Thue Rule Microprogramming Formalization.

Symbols:

H,T = Head, Tail the strings before and after a rewrite (H starts with start, T ends with end).

R = Thue rule head

s,t = {a,b,c,d,e} standard symbols, those in bold are activated (this involves changing spacer symbols).

x,y = special symbols, those in bold are primed

m = clamp

S = start

E = end

Operations:

1.

a) m R + E primers
 H R T template
 → m R T Insertion of clamp at rule head

b) R + E primers
 + m R T template
 → R T Removal of clamp at rule head

2.

a) m **s₁ s₂** + E primers
 m s₁ s₂ T template
 → m **s₁ s₂** T activate pair clamp

b) S + **s₁ s₂** T primers
 H s₁ s₂ T template
 → H **s₁ s₂** T activate pair unification

3.

a) m s₁ s₂ + E primers
 m **s₁ s₂** T template
 → m s₁ s₂ T deactivate pair clamp

b) S + s₁ s₂ T primers
 H **s₁ s₂** T template
 → H s₁ s₂ T deactivate pair unification

4.

- a) m $s_1 s_2 s_3$ + E primers
 + m $s_1 s_2 s_3 T$ template
 → m $s_1 s_2 s_3 T$ activate triplet clamp
- b) + S + $s_1 s_2 s_3 T$ primers
 H $s_1 s_2 s_3 T$ template
 → H $s_1 s_2 s_3 T$ activate triplet unification
- 5.
- a) m $s_1 s_2 s_3$ + E primers
 + m $s_1 s_2 s_3 T$ template
 → m $s_1 s_2 s_3 T$ deactivate triplet clamp
- b) S + $s_1 s_2 s_3 T$ primers
 H $s_1 s_2 s_3 T$ template
 → H $s_1 s_2 s_3 T$ deactivate triplet unification
- 6.
- a) m $t_1 s_2$ + E primers
 + m $s_1 s_2 T$ template
 → m $t_1 s_2 T$ change symbol clamp
- b) S + $t_1 s_2 T$ primers
 H $s_1 s_2 T$ template
 → H $t_1 s_2 T$ change symbol unification
- 7.
- a) m $s_1 t_2$ + E primers
 + m $s_1 s_2 T$ template
 → m $s_1 t_2 T$ change symbol clamp
- b) S + $s_1 t_2 T$ primers
 H $s_1 s_2 T$ template
 → H $s_1 t_2 T$ change symbol unification
- 8.
- a) m $x_1 x_2$ + E primers
 + m $s_1 s_2 T$ template
 → m $x_1 x_2 T$ change pair to xx clamp
- b) S + $x_1 x_2 T$ primers
 H $s_1 s_2 T$ template
 → H $x_1 x_2 T$ change pair to xx unification
- 9.
- a) m $s_1 s_2$ + E primers
 + m $x_1 x_2 T$ template
 → m $s_1 s_2 T$ change pair from xx clamp

- b) S + $s_1 s_2 T$ primers
 H $x_1 x_2 T$ template
 → H $s_1 s_2 T$ change pair from xx unification
- 10.
- a) m $t_1 s_2 s_3 + E$ primers
 m $s_1 s_2 s_3 T$ template
 → m $t_1 s_2 s_3 T$ change triplet symbol clamp
- b) S + $t_1 s_2 s_3 T$ primers
 H $s_1 s_2 s_3 T$ template
 → H $t_1 s_2 s_3 T$ change triplet symbol unification
- 11.
- a) m $s_1 s_2 t_3 + E$ primers
 m $s_1 s_2 s_3 T$ template
 → m $s_1 s_2 t_3 T$ change triplet symbol clamp
- b) S + $s_1 s_2 t_3 T$
 H $s_1 s_2 s_3 T$
 → H $s_1 s_2 t_3 T$ change triplet symbol unification
- 12.
- a) m $x_1 x_2 s_3 + E$ primers
 m $s_1 s_2 s_3 T$ template
 → m $x_1 x_2 s_3 T$ change triplet to xx clamp
- b) S + $x_1 x_2 s_3 T$ primers
 H $s_1 s_2 s_3 T$ template
 → H $x_1 x_2 s_3 T$ change triplet to xx unification
- 13.
- a) m $s_1 x_2 x_3 + E$ primers
 m $s_1 s_2 s_3 T$ template
 → m $s_1 x_2 x_3 T$ change triplet to xx clamp
- b) S + $s_1 x_2 x_3 T$
 H $s_1 s_2 s_3 T$
 → H $s_1 x_2 x_3 T$ change triplet to xx unification
- 14.
- a) m $s_1 s_2 s_3 + E$ primers
 m $x_1 x_2 s_3 T$ template
 → m $s_1 s_2 s_3 T$ change triplet from xx clamp
- b) S + $s_1 s_2 s_3 T$
 H $x_1 x_2 s_3 T$

- H $s_1 s_2 s_3$ T change triplet from xx unification
- 15.
- a) m $s_1 s_2 s_3$ + E primers
m $s_1 x_2 x_3$ T template
→ m $s_1 s_2 s_3$ T change triplet from xx clamp
- b) S + $s_1 s_2 s_3$ T primers
H $s_1 x_2 x_3$ T template
→ H $s_1 s_2 s_3$ T change triplet from xx unification
- 16.
- a) m $s_1 y_2 s_3$ + E primers
m $s_1 s_2 s_3$ T template
→ m $s_1 y_2 s_3$ T change middle to y clamp
- b) S + $s_1 y_2 s_3$ T primers
H $s_1 s_2 s_3$ T template
→ H $s_1 y_2 s_3$ T change middle to y unification
- 17.
- a) m $s_1 s_2 s_3$ + E primers
m $s_1 y_2 s_3$ T template
→ m $s_1 s_2 s_3$ T change middle from y clamp
- b) S + $s_1 s_2 s_3$ T primers
H $s_1 y_2 s_3$ T template
→ H $s_1 s_2 s_3$ T change middle from y unification
- 18.
- a) m $s_1 y s_2$ + E primers
m $s_1 s_2$ T template
→ m $s_1 y s_2$ T Insertion of y in middle clamp
- b) S + $s_1 s_2 s_3$ T primers
H $s_1 s_2$ template
→ H $s_1 s_2 s_3$ T Insertion of s in middle unification
- 19.
- a) m $s_1 s_2$ + E primers
m $s_1 y s_2$ T template
→ m $s_1 y s_2$ T Deletion of y in middle clamp
- b) S + $s_1 s_2$ T primers
H $s_1 s_2 s_3$ T template
→ H $s_1 s_2$ T Deletion of s in middle unification

%%

Swap ce->ec:

Step	In State1	In State2	Operation	Type	Out State
1)	HceT	-	1.a		mceT
2)	mceT	-	2.a		mceT
3)	mceT	-	8.a		mxxT
4)	mxxT	-	9.a		mecT
5)	mecT	-	3.a		mecT
6)	mceT	-	1.b		ceT
7)	mxxT	-	1.b		xxT
8)	mecT	-	1.b		ecT
9)	mecT	-	1.b		ecT
10)	HceT	ceT	2.b		HceT
11)	HceT	xxT	8.b		HxxT
12)	HxxT	ecT	9.b		HecT
13)	HecT	ecT	3.b		HecT

%%

Insertion ec->eca:

Step	In State1	In State2	Operation	Type	Out State
1)	HecT	-	1.a		mecT
2)	mecT	-	2.a		mecT
3)	mecT	-	18.a		meycT
4)	meycT	-	17.a		mecctT
5)	mecctT	-	11.a		mecaT
6)	mecaT	-	5.a		mecaT
7)	mecT	-	1.b		ecT
8)	mecaT	-	1.b		ecaT
9)	mecaT	-	1.b		ecaT
10)	HecT	ecT	2.b		HecT
11)	HecT	ecaT	18.b		HecaT
12)	HecaT	ecaT	5.b		HecaT

%%

Deletion eca->ec:

Step	In State1	In State2	Operation	Type	Out State
1)	HecaT	-	1.a		mecaT
2)	mecaT	-	4.a		mecaT

3)	mecaT	-	16.a	meyaT
4)	meyaT	-	19.a	meaT
5)	meaT	-	7.a	mecT
6)	mecT	-	3.a	mecT
7)	mecaT	-	1.b	ecaT
8)	mecT	-	1.b	ecT
9)	mecT	-	1.b	ecT
10)	HecaT	ecaT	4.b	HecaT
11)	HecaT	ecT	19.b	HecT
12)	HecT	ecT	3.b	HecT

%%

Rule ce->eca

Step	In State1	In State2	Operation Type	Out State
1)	HceT	-	1.a	mceT
2)	mceT	-	2.a	mceT
3)	mceT	-	8.a	mxxT
4)	mxxT	-	9.a	mecT
5)	mecT	-	18.a	meycT
6)	meycT	-	17.a	meccT
7)	meccT	-	11.a	mecaT
8)	mecaT	-	5.a	mecaT
9)	mceT	-	1.b	ceT
10)	mxxT	-	1.b	xxT
11)	mecT	-	1.b	ecT
12)	mecaT	-	1.b	ecaT
13)	mecaT	-	1.b	ecaT
14)	HceT	ceT	2.b	HceT
15)	HceT	xxT	8.b	HxxT
16)	HxxT	ecT	9.b	HecT
17)	HecT	ecaT	18.b	HecaT
18)	HecaT	ecaT	5.b	HecaT

%%

Rule eca->ce

Step	In State1	In State2	Operation Type	Out State
1)	HecaT	-	1.a	mecaT
2)	mecaT	-	4.a	mecaT
3)	mecaT	-	16.a	meyaT
4)	meyaT	-	19.a	meaT
5)	meaT	-	7.a	mecT
6)	mecT	-	8.a	mxxT

7)	mxxT	-	9.a	mceT
8)	mceT	-	3.a	mceT
9)	mecaT	-	1.b	ecaT
10)	mecT	-	1.b	ecT
11)	mxxT	-	1.b	xxT
12)	mceT	-	1.b	ceT
13)	mceT	-	1.b	ceT
14)	HecaT	ecaT	4.b	HecaT
15)	HecaT	ecT	19.b	HecT
16)	HecT	xxT	8.b	HxxT
17)	HxxT	ceT	9.b	HceT
18)	HceT	ceT	3.b	HceT

3. DNA Binding Estimates.

Rule Recognition Description

The rule recognition data set contains hybridisation data between the antecedent of each rewrite rule extended with the clamp and target sequences consisting of all relevant combinations of Thue symbols. For each rule antecedent we generated two sets of target sequences: matching and mismatching. The aim is to demonstrate that matching sequences are energetically more favourable compared to mismatching sequences.

Let us describe the data in more detail using the following example. Consider a rule $ac \rightarrow ca$ and its antecedent sequence extended with the clamp: $clamp_s_a_s_c_s$, where s is the spacer symbol.

The matching set consists of all sequences of the form $s_X_s_Y_s_Z_s_a_s_c_s$ where X, Y, Z are ranging over all Thue symbols. Let us note that the number of nucleobases in $s_X_s_Y_s_Z_s$ is greater than the number of nucleobases in the clamp and therefore $s_X_s_Y_s_Z_s_a_s_c_s$ covers all possible matching cases.

The mismatching set consists of all sequences of the form $s_X_s_Y_s_Z_s_U_s_c_s$ and $s_X_s_Y_s_Z_s_a_s_V_s$, which do not match $s_a_s_c_s$, where X, Y, Z, U, V are ranging over all symbols. Informally, these target sequences represent all symbol combinations which cover the clamp and all possible one symbol mismatches of the rule antecedent. These sequences represent all mismatches closest to the perfect match.

The matching data for the rule antecedent "ac" is contained in the file $s_a_s_c_s_matches_dG.data$ and the mismatching data is contained in the file $s_a_s_c_s_mismatches_dG.data$. The data is sorted in increasing order with respect to dG. The data set contains dG for matching and mismatching sequences for all rule antecedents of our universal Thue rewrite system.

The data is summarised below which contains maxima and minima of matching and mismatching energies for all rule antecedents. In all cases we can observe dG of matching sequences is lower than of mismatching sequences and therefore matching sequences are energetically more favorable than mismatching sequences.

The hybridisation energies were computed using the UNAFold v3.9 system [1] with parameters:

0.002M [Mg⁺⁺]

0.05M [Na⁺]

0.0000005M <total strand concentration>

[1] Markham, N. R. & Zuker, M. (2008) UNAFold: software for nucleic acid folding and hybridization. In Keith, J. M., editor, 4 of 8 Bioinformatics, Volume II. Structure, Functions and Applications, number 453 in Methods in Molecular Biology, chapter 1, pages 3-31. Humana Press, Totowa, NJ.

Rule Recognition Summary

=====
s_a_s_c_s_matches_dG.data

```

1 >s_a_s_c_s_d_s_a_s_c_s GTGTCTGTGTGGGTGACGGTGTCTGTGTGGGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACACTATCATGTTGACATTCC; dG = -17.4 (min dG)
125 >s_d_s_e_s_d_s_a_s_c_s GTGACGGTGTGGTGACGGTGTCTGTGTGGGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACACTATCATGTTGACATTCC; dG = -17.1 (max dG)

s_a_s_c_s_mismatches_dG.data
1 >s_b_s_b_s_c_s_d_s_c_s GTGGCTGTGGCTGTGTGGGTGACGGTGTGGGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACACTATCATGTTGACATTCC; dG = -16.0 (min dG)
896 >s_e_s_e_s_e_s_a_s_b_s GTGCTGGTGTGGTGTGGTGTCTGTGGCTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACACTATCATGTTGACATTCC; dG = -9.9 (max dG)

=====
s_a_s_d_s_matches_dG.data
1 >s_a_s_d_s_d_s_a_s_d_s GTGTCTGTGACGGTGACGGTGTCTGTGACGGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACACTATCATGTTGACATTCC; dG = -17.6 (min dG)
125 >s_d_s_e_s_d_s_a_s_d_s GTGACGGTGTGGTGACGGTGTCTGTGACGGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACACTATCATGTTGACATTCC; dG = -17.2 (max dG)

s_a_s_d_s_mismatches_dG.data
1 >s_a_s_a_s_b_s_d_s_d_s GTGTCTGTGTCTGTGGCTGTGACGGTGACGGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACACTATCATGTTGACATTCC; dG = -16.2 (min dG)
896 >s_e_s_e_s_e_s_a_s_a_s GTGCTGGTGTGGTGTGGTGTCTGTGTCTGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACACTATCATGTTGACATTCC; dG = -9.4 (max dG)

=====
s_b_s_c_s_matches_dG.data
1 >s_b_s_b_s_c_s_b_s_c_s GTGGCTGTGGCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.8 (min dG)
125 >s_d_s_e_s_d_s_b_s_c_s GTGACGGTGTGGTGACGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4 (max dG)

s_b_s_c_s_mismatches_dG.data
1 >s_b_s_a_s_c_s_d_s_c_s GTGGCTGTGTCTGTGTGGGTGACGGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -13.6 (min dG)
896 >s_e_s_e_s_e_s_d_s_c_s GTGCTGGTGTGGTGTGGTGTGGTGTGGTGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -10.1 (max dG)

=====
s_b_s_d_s_matches_dG.data
1 >s_b_s_b_s_d_s_b_s_d_s GTGGCTGTGGCTGTGACGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -19.0 (min dG)
125 >s_d_s_e_s_d_s_b_s_d_s GTGACGGTGTGGTGACGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6 (max dG)

s_b_s_d_s_mismatches_dG.data
1 >s_b_s_b_s_a_s_d_s_d_s GTGGCTGTGGCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.2 (min dG)
896 >s_e_s_e_s_e_s_e_s_d_s GTGCTGGTGTGGTGTGGTGTGGTGTGGTGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -10.3 (max dG)

=====
s_c_s_a_s_matches_dG.data
1 >s_a_s_c_s_a_s_c_s_a_s GTGTCTGTGTGGGTGTCTGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.4 (min dG)
125 >s_d_s_e_s_d_s_c_s_a_s GTGACGGTGTGGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1 (max dG)

s_c_s_a_s_mismatches_dG.data
1 >s_b_s_c_s_b_s_d_s_a_s GTGGCTGTGTGGGTGGCTGTGACGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -16.0 (min dG)
896 >s_e_s_e_s_e_s_b_s_a_s GTGCTGGTGTGGTGTGGTGTGGTGTGGTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0 (max dG)

=====
s_c_s_b_s_matches_dG.data
1 >s_c_s_b_s_d_s_c_s_b_s GTGTGGGTGGCTGTGACGGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.8 (min dG)
125 >s_d_s_e_s_d_s_c_s_b_s GTGACGGTGTGGTGACGGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4 (max dG)

s_c_s_b_s_mismatches_dG.data
1 >s_b_s_c_s_a_s_d_s_b_s GTGGCTGTGTGGGTGTCTGTGACGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -13.6 (min dG)

```

896 >s_e_s_e_s_e_s_c_s_c_s GTGCTGGTGCTGGTGCTGGTGCTGGTGCTGGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -10.5 (max dG)

=====
s_c_s_d_s_c_s_a_s_e_s_matches_dG.data

1 >s_a_s_a_s_a_s_c_s_d_s_c_s_a_s_e_s
GTGTCTGTGTCTGTGTCTGTGTGGGTGACGGTGTGGGTGTCTGTGTCTGGTG; >clamp_s_c_s_d_s_c_s_a_s_e_s:compl:rev
CACCAGCACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -42.6 (min dG)

125 >s_d_s_e_s_d_s_c_s_d_s_c_s_a_s_e_s
GTGACGGTGTGGTGACGGTGTGGGTGACGGTGTGGGTGTCTGTGTCTGGTG; >clamp_s_c_s_d_s_c_s_a_s_e_s:compl:rev
CACCAGCACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -42.5 (max dG)

s_c_s_d_s_c_s_a_s_e_s_mismatches_dG.data

1 >s_c_s_a_s_a_s_c_s_d_s_c_s_b_s_e_s
GTGTGGGTGTCTGTGTCTGTGTGGGTGACGGTGTGGGTGGCTGTGTCTGGTG; >clamp_s_c_s_d_s_c_s_a_s_e_s:compl:rev
CACCAGCACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -40.6 (min dG)

2500 >s_b_s_e_s_e_s_c_s_a_s_c_s_a_s_e_s
GTGGCTGTGTGGTGCTGGTGTGGGTGTCTGTGTGGGTGTCTGTGTCTGGTG; >clamp_s_c_s_d_s_c_s_a_s_e_s:compl:rev
CACCAGCACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -33.1 (max dG)

=====
s_c_s_d_s_c_s_a_s_matches_dG.data

1 >s_a_s_a_s_a_s_c_s_d_s_c_s_a_s GTGTCTGTGTCTGTGTCTGTGTGGGTGACGGTGTGGGTGTCTGTGTG;
>clamp_s_c_s_d_s_c_s_a_s:compl:rev CACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -34.0
(min dG)

125 >s_d_s_e_s_d_s_c_s_d_s_c_s_a_s GTGACGGTGCTGGTGACGGTGTGGGTGACGGTGTGGGTGTCTGTGTG;
>clamp_s_c_s_d_s_c_s_a_s:compl:rev CACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -33.9
(max dG)

s_c_s_d_s_c_s_a_s_mismatches_dG.data

1 >s_c_s_d_s_c_s_b_s_d_s_c_s_a_s GTGTGGGTGACGGTGTGGGTGGCTGTGACGGTGTGGGTGTCTGTGTG;
>clamp_s_c_s_d_s_c_s_a_s:compl:rev CACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -32.3
(min dG)

1994 >s_a_s_b_s_a_s_c_s_a_s_c_s_a_s GTGTCTGTGGCTGTGTCTGTGTGGGTGTCTGTGTGGGTGTCTGTGTG;
>clamp_s_c_s_d_s_c_s_a_s:compl:rev CACAGACACCCACACCGTCACCCACACTATCATGTTGACATTCC; dG = -24.5
(max dG)

=====
s_c_s_e_s_matches_dG.data

1 >s_c_s_e_s_d_s_c_s_e_s GTGTGGGTGCTGGTGACGGTGTGGGTGTCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCCACACTATCATGTTGACATTCC; dG = -18.8 (min dG)

125 >s_d_s_e_s_d_s_c_s_e_s GTGACGGTGTGGTGACGGTGTGGGTGTCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCCACACTATCATGTTGACATTCC; dG = -18.4 (max dG)

s_c_s_e_s_mismatches_dG.data

1 >s_a_s_a_s_c_s_c_s_d_s GTGTCTGTGTCTGTGTGGGTGTGGGTGACGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCCACACTATCATGTTGACATTCC; dG = -13.8 (min dG)

896 >s_e_s_d_s_d_s_c_s_a_s GTGCTGGTGACGGTGACGGTGTGGGTGTCTGTGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCCACACTATCATGTTGACATTCC; dG = -10.7 (max dG)

=====
s_d_s_a_s_matches_dG.data

1 >s_e_s_d_s_a_s_d_s_a_s GTGCTGGTGACGGTGTCTGTGACGGTGTCTGTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -18.1 (min dG)

125 >s_d_s_e_s_d_s_d_s_a_s GTGACGGTGTGGTGACGGTGTGGGTGTCTGTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.2 (max dG)

s_d_s_a_s_mismatches_dG.data

1 >s_a_s_d_s_b_s_d_s_e_s GTGTCTGTGACGGTGGCTGTGACGGTGTCTGGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -16.2 (min dG)

896 >s_a_s_a_s_a_s_a_s_a_s GTGTCTGTGTCTGTGTCTGTGTGGGTGTCTGTGTGTCTGTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -8.8 (max dG)

=====
s_d_s_b_s_matches_dG.data

1 >s_a_s_d_s_b_s_d_s_b_s GTGTCTGTGACGGTGGCTGTGACGGTGGCTGTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -19.5 (min dG)

125 >s_d_s_e_s_d_s_d_s_b_s GTGACGGTGTGGTGACGGTGTGGGTGTCTGTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -18.6 (max dG)

s_d_s_b_s_mismatches_dG.data

1 >s_a_s_d_s_a_s_d_s_e_s GTGTCTGTGACGGTGTCTGTGACGGTGTCTGGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -13.8 (min dG)

896 >s_e_s_e_s_e_s_a_s_b_s GTGCTGGTGTGGTGTGCTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9 (max dG)

=====
s_d_s_e_s_matches_dG.data

1 >s_a_s_d_s_e_s_d_s_e_s GTGTCTGTGACGGTGTGGTGACGGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -19.5 (min dG)
125 >s_d_s_e_s_c_s_d_s_e_s GTGACGGTGTGGTGTGGGTGACGGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -18.6 (max dG)

s_d_s_e_s_mismatches_dG.data

1 >s_a_s_c_s_s_d_s_d_s GTGTCTGTGACGGTGTGGGTGACGGTGACGGTG; >clamp_s_d_s_e_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -13.9 (min dG)
896 >s_a_s_c_s_b_s_a_s_e_s GTGTCTGTGTGGGTGGTGTGTCTGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9 (max dG)

=====
s_e_s_c_s_a_s_matches_dG.data

1 >s_a_s_a_s_a_s_e_s_c_s_a_s GTGTCTGTGTCTGTGTCTGTGTGGTGTGGGTGTCTGTG; >clamp_s_e_s_c_s_a_s:compl:rev
CACAGACACCCACACCAGCACTATCATGTTGACATTCC; dG = -25.7 (min dG)
125 >s_d_s_e_s_d_s_e_s_c_s_a_s GTGACGGTGTGGTGTGGGTGTGGGTGTCTGTG; >clamp_s_e_s_c_s_a_s:compl:rev
CACAGACACCCACACCAGCACTATCATGTTGACATTCC; dG = -25.6 (max dG)

s_e_s_c_s_a_s_mismatches_dG.data

1 >s_e_s_c_s_b_s_d_s_c_s_a_s GTGCTGGTGTGGGTGGTGTGACGGTGTGGGTGTCTGTG; >clamp_s_e_s_c_s_a_s:compl:rev
CACAGACACCCACACCAGCACTATCATGTTGACATTCC; dG = -24.0 (min dG)
1483 >s_d_s_b_s_c_s_e_s_b_s_a_s GTGACGGTGGCTGTGTGGGTGTGGTGTGTCTGTG; >clamp_s_e_s_c_s_a_s:compl:rev
CACAGACACCCACACCAGCACTATCATGTTGACATTCC; dG = -16.5 (max dG)

=====
s_e_s_d_s_b_s_matches_dG.data

1 >s_a_s_a_s_a_s_e_s_d_s_b_s GTGTCTGTGTCTGTGTCTGTGTGGTGTGGGTGTGGTGTG; >clamp_s_e_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -27.2 (min dG)
125 >s_d_s_e_s_d_s_e_s_d_s_b_s GTGACGGTGTGGTGTGGGTGTGGTGTGGTGTG; >clamp_s_e_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -27.2 (max dG)

s_e_s_d_s_b_s_mismatches_dG.data

1 >s_d_s_c_s_d_s_b_s_d_s_b_s GTGACGGTGTGGGTGTGGTGTGGTGTGGTGTGGTGTG; >clamp_s_e_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -22.5 (min dG)
1483 >s_d_s_a_s_e_s_e_s_a_s_b_s GTGACGGTGTCTGTGTGGTGTGGTGTGGTGTG; >clamp_s_e_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -17.7 (max dG)

AC Matches

1 >s_a_s_c_s_d_s_a_s_c_s GTGTCTGTGTGGTGTGGTGTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.4
2 >s_b_s_a_s_s_a_s_c_s GTGGCTGTGTCTGTGGTGTGTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.4
3 >s_a_s_a_s_c_s_a_s_c_s GTGTCTGTGTCTGTGTGGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.4
4 >s_e_s_a_s_c_s_a_s_c_s GTGCTGGTGTCTGTGTGGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.3
5 >s_c_s_a_s_c_s_a_s_c_s GTGTGGTGTCTGTGTGGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.3
6 >s_d_s_a_s_c_s_a_s_c_s GTGACGGTGTCTGTGTGGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.3
7 >s_a_s_a_s_a_s_a_s_c_s GTGTCTGTGTCTGTGTCTGTGTCTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1
8 >s_a_s_b_s_e_s_a_s_c_s GTGTCTGTGGTGTCTGTGGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1
9 >s_d_s_e_s_e_s_a_s_c_s GTGACGGTGTGGTGTGGTGTGGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1
10 >s_e_s_a_s_a_s_a_s_c_s GTGCTGGTGTCTGTGTCTGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1
11 >s_e_s_a_s_b_s_a_s_c_s GTGCTGGTGTCTGTGGTGTGGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1
12 >s_e_s_a_s_d_s_a_s_c_s GTGCTGGTGTCTGTGGTGTCTGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1
13 >s_e_s_a_s_e_s_a_s_c_s GTGCTGGTGTCTGTGGTGTGGTGTGGTGTG; >clamp_s_a_s_c_s:compl:rev
CACCCACACAGACTATCATGTTGACATTCC; dG = -17.1

893 >s_e_s_c_s_c_s_a_s_a_s GTGCTGGTGTGGGTGTGGGTGTCTGTGTCTGTGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACTATCATGTTGACATTCC; dG = -9.4
894 >s_e_s_c_s_e_s_a_s_a_s GTGCTGGTGTGGGTGTGGGTGTCTGTGTCTGTGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACTATCATGTTGACATTCC; dG = -9.4
895 >s_e_s_e_s_c_s_a_s_a_s GTGCTGGTGTGGGTGTGGGTGTCTGTGTCTGTGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACTATCATGTTGACATTCC; dG = -9.4
896 >s_e_s_e_s_e_s_a_s_a_s GTGCTGGTGTGGGTGTGGGTGTCTGTGTCTGTGTG; >clamp_s_a_s_d_s:compl:rev
CACCGTCACAGACTATCATGTTGACATTCC; dG = -9.4

BC Matches

1 >s_b_s_b_s_c_s_b_s_c_s GTGGCTGTGGCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.8
2 >s_b_s_c_s_d_s_b_s_c_s GTGGCTGTGTGGGTGACGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.8
3 >s_a_s_b_s_c_s_b_s_c_s GTGTCTGTGGCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.8
4 >s_e_s_b_s_c_s_b_s_c_s GTGCTGGTGGCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.7
5 >s_c_s_b_s_c_s_b_s_c_s GTGTGGGTGGCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.7
6 >s_d_s_b_s_c_s_b_s_c_s GTGACGGTGGCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.7
7 >s_a_s_a_s_a_s_b_s_c_s GTGTCTGTGTCTGTGTCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
8 >s_a_s_b_s_e_s_b_s_c_s GTGTCTGTGGCTGTGTGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
9 >s_d_s_e_s_e_s_b_s_c_s GTGACGGTGTGGTGTGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
10 >s_e_s_a_s_a_s_b_s_c_s GTGCTGGTGTCTGTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
11 >s_e_s_a_s_b_s_b_s_c_s GTGCTGGTGTCTGTGGCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
12 >s_e_s_a_s_c_s_b_s_c_s GTGCTGGTGTCTGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
13 >s_e_s_a_s_d_s_b_s_c_s GTGCTGGTGTCTGTGACGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
14 >s_e_s_a_s_e_s_b_s_c_s GTGCTGGTGTCTGTGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
15 >s_e_s_b_s_a_s_b_s_c_s GTGCTGGTGGCTGTGTCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
16 >s_e_s_b_s_b_s_b_s_c_s GTGCTGGTGGCTGTGGCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
17 >s_e_s_b_s_d_s_b_s_c_s GTGCTGGTGGCTGTGACGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
18 >s_a_s_c_s_a_s_b_s_c_s GTGTCTGTGTGGGTGTCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
19 >s_e_s_b_s_e_s_b_s_c_s GTGCTGGTGGCTGTGCTGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
20 >s_e_s_c_s_a_s_b_s_c_s GTGCTGGTGTGGGTGTCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
21 >s_e_s_c_s_b_s_b_s_c_s GTGCTGGTGTGGGTGGCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
22 >s_e_s_c_s_c_s_b_s_c_s GTGCTGGTGTGGGTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
23 >s_e_s_c_s_d_s_b_s_c_s GTGCTGGTGTGGGTGACGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
24 >s_e_s_c_s_e_s_b_s_c_s GTGCTGGTGTGGGTGTGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
25 >s_e_s_d_s_a_s_b_s_c_s GTGCTGGTGGCTGTCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
26 >s_e_s_d_s_b_s_b_s_c_s GTGCTGGTGGCTGGCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
27 >s_e_s_d_s_c_s_b_s_c_s GTGCTGGTGGCTGTGGGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
28 >s_e_s_d_s_d_s_b_s_c_s GTGCTGGTGGCTGGCTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4
29 >s_a_s_c_s_b_s_b_s_c_s GTGTCTGTGTGGTGGCTGTGGCTGTGTGGGTG; >clamp_s_b_s_c_s:compl:rev
CACCCACACAGCCACTATCATGTTGACATTCC; dG = -18.4

112 >s_d_s_c_s_a_s_b_s_d_s GTGACGGTGTGGGTGTCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
113 >s_d_s_c_s_b_s_b_s_d_s GTGACGGTGTGGGTGGCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
114 >s_d_s_c_s_c_s_b_s_d_s GTGACGGTGTGGGTGGCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
115 >s_d_s_c_s_d_s_b_s_d_s GTGACGGTGTGGGTGACGGTGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
116 >s_d_s_c_s_e_s_b_s_d_s GTGACGGTGTGGGTGCTGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
117 >s_d_s_d_s_a_s_b_s_d_s GTGACGGTGACGGTGTCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
118 >s_d_s_d_s_b_s_b_s_d_s GTGACGGTGACGGTGGCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
119 >s_d_s_d_s_c_s_b_s_d_s GTGACGGTGACGGTGTGGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
120 >s_d_s_d_s_d_s_b_s_d_s GTGACGGTGACGGTGACGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
121 >s_d_s_d_s_e_s_b_s_d_s GTGACGGTGACGGTGGCTGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
122 >s_d_s_e_s_a_s_b_s_d_s GTGACGGTGTGGTGTCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
123 >s_d_s_e_s_b_s_b_s_d_s GTGACGGTGTGGTGGCTGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
124 >s_d_s_e_s_c_s_b_s_d_s GTGACGGTGTGGTGTGGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6
125 >s_d_s_e_s_d_s_b_s_d_s GTGACGGTGTGGTGACGGTGGCTGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -18.6

BD Mismatches

1 >s_b_s_b_s_a_s_d_s_d_s GTGGCTGTGGCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.2
2 >s_a_s_b_s_a_s_d_s_d_s GTGTCTGTGGCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.2
3 >s_b_s_b_s_c_s_d_s_d_s GTGGCTGTGGCTGTGTGGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
4 >s_b_s_b_s_e_s_d_s_d_s GTGGCTGTGGCTGTGTGGTGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
5 >s_c_s_b_s_a_s_d_s_d_s GTGTGGTGGCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
6 >s_c_s_b_s_c_s_d_s_d_s GTGTGGTGGCTGTGTGGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
7 >s_c_s_b_s_e_s_d_s_d_s GTGTGGTGGCTGTGTGGTGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
8 >s_d_s_b_s_a_s_d_s_d_s GTGACGGTGGCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
9 >s_d_s_b_s_c_s_d_s_d_s GTGACGGTGGCTGTGTGGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
10 >s_d_s_b_s_e_s_d_s_d_s GTGACGGTGGCTGTGTGGTGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
11 >s_a_s_b_s_c_s_d_s_d_s GTGTCTGTGGCTGTGTGGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
12 >s_a_s_b_s_e_s_d_s_d_s GTGTCTGTGGCTGTGTGGTGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
13 >s_e_s_b_s_a_s_d_s_d_s GTGCTGGTGGCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
14 >s_e_s_b_s_c_s_d_s_d_s GTGCTGGTGGCTGTGTGGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
15 >s_e_s_b_s_e_s_d_s_d_s GTGCTGGTGGCTGTGTGGTGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -14.1
16 >s_b_s_a_s_a_s_d_s_d_s GTGGCTGTGTCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -13.8
17 >s_b_s_a_s_d_s_d_s_d_s GTGGCTGTGTCTGTGACGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -13.8
18 >s_a_s_a_s_d_s_d_s_d_s GTGTCTGTGTCTGTGACGGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -13.8
19 >s_c_s_a_s_a_s_d_s_d_s GTGTGGTGTCTGTGTCTGTGACGGTGACGGTG; >clamp_s_b_s_d_s:compl:rev
CACCGTCACAGCCACTATCATGTTGACATTCC; dG = -13.8

119 >s_d_s_d_s_c_s_c_s_a_s GTGACGGTGACGGTGTGGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1
120 >s_d_s_d_s_d_s_c_s_a_s GTGACGGTGACGGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1
121 >s_d_s_d_s_e_s_c_s_a_s GTGACGGTGACGGTGTGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1
122 >s_d_s_e_s_a_s_c_s_a_s GTGACGGTGCTGGTGTCTGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1
123 >s_d_s_e_s_b_s_c_s_a_s GTGACGGTGTGGTGTGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1
124 >s_d_s_e_s_c_s_c_s_a_s GTGACGGTGTGGTGTGGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1
125 >s_d_s_e_s_d_s_c_s_a_s GTGACGGTGTGGTGTGGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -17.1

CA Mismatches

1 >s_b_s_c_s_b_s_d_s_a_s GTGGCTGTGTGGGTGGCTGTGACGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -16.0
2 >s_a_s_c_s_b_s_d_s_a_s GTGTCTGTGTGGGTGGCTGTGACGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -16.0
3 >s_c_s_c_s_b_s_d_s_a_s GTGTGGGTGTGGGTGGCTGTGACGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.9
4 >s_d_s_c_s_b_s_d_s_a_s GTGACGGTGTGGTGTGGTGTGACGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.9
5 >s_e_s_c_s_b_s_d_s_a_s GTGCTGGTGTGGTGGCTGTGACGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.9
6 >s_b_s_c_s_b_s_b_s_a_s GTGGCTGTGTGGGTGGCTGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
7 >s_c_s_b_s_d_s_c_s_e_s GTGTGGGTGGCTGTGACGGTGTGGGTGCTGGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
8 >s_c_s_b_s_d_s_c_s_d_s GTGTGGGTGGCTGTGACGGTGTGGGTGACGGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
9 >s_c_s_b_s_d_s_c_s_c_s GTGTGGGTGGCTGTGACGGTGTGGGTGTGGGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
10 >s_c_s_b_s_d_s_c_s_b_s GTGTGGGTGGCTGTGACGGTGTGGGTGGCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
11 >s_c_s_b_s_d_s_e_s_a_s GTGTGGGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
12 >s_c_s_b_s_d_s_d_s_a_s GTGTGGGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
13 >s_c_s_b_s_d_s_b_s_a_s GTGTGGGTGGCTGTGACGGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
14 >s_c_s_b_s_d_s_a_s_a_s GTGTGGGTGGCTGTGACGGTGTCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
15 >s_a_s_c_s_b_s_b_s_a_s GTGTCTGTGTGGTGGCTGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.5
16 >s_a_s_d_s_c_s_b_s_a_s GTGTCTGTGACGGTGTGGGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
17 >s_a_s_e_s_c_s_b_s_a_s GTGTCTGTGTGGTGGTGTGGGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
18 >s_b_s_a_s_c_s_b_s_a_s GTGGCTGTGTCTGTGTGGGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
19 >s_a_s_a_s_c_s_b_s_a_s GTGTCTGTGTCTGTGTGGGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
20 >s_b_s_b_s_c_s_b_s_a_s GTGGCTGTGGCTGTGTGGGTGGCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
21 >s_b_s_c_s_b_s_c_s_e_s GTGGCTGTGTGGTGGCTGTGTGGGTGTGGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
22 >s_b_s_c_s_b_s_c_s_d_s GTGGCTGTGTGGTGGCTGTGTGGGTGACGGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
23 >s_b_s_c_s_b_s_c_s_c_s GTGGCTGTGTGGTGGCTGTGTGGGTGTGGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
24 >s_b_s_c_s_b_s_c_s_b_s GTGGCTGTGTGGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
25 >s_b_s_c_s_b_s_a_s_a_s GTGGCTGTGTGGTGGCTGTGTCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4
26 >s_b_s_c_s_c_s_b_s_a_s GTGGCTGTGTGGTGGCTGTGTCTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -15.4

878 >s_b_s_d_s_d_s_b_s_a_s GTGGCTGTGACGGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
879 >s_b_s_d_s_e_s_b_s_a_s GTGGCTGTGACGGTGTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
880 >s_b_s_e_s_d_s_b_s_a_s GTGGCTGTGCTGGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
881 >s_b_s_e_s_e_s_b_s_a_s GTGGCTGTGCTGGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
882 >s_a_s_a_s_e_s_b_s_a_s GTGTCTGTGCTGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
883 >s_d_s_b_s_d_s_b_s_a_s GTGACGGTGGCTGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
884 >s_d_s_b_s_e_s_b_s_a_s GTGACGGTGGCTGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
885 >s_d_s_d_s_d_s_b_s_a_s GTGACGGTGGCTGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
886 >s_d_s_d_s_e_s_b_s_a_s GTGACGGTGGCTGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
887 >s_a_s_b_s_d_s_b_s_a_s GTGTCTGTGGCTGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
888 >s_d_s_e_s_d_s_b_s_a_s GTGACGGTGGCTGGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
889 >s_d_s_e_s_e_s_b_s_a_s GTGACGGTGGCTGGTGTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
890 >s_a_s_b_s_e_s_b_s_a_s GTGTCTGTGGCTGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
891 >s_e_s_b_s_d_s_b_s_a_s GTGCTGGTGGCTGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
892 >s_e_s_b_s_e_s_b_s_a_s GTGCTGGTGGCTGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
893 >s_e_s_d_s_d_s_b_s_a_s GTGCTGGTGACGGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
894 >s_e_s_d_s_e_s_b_s_a_s GTGCTGGTGACGGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
895 >s_e_s_e_s_d_s_b_s_a_s GTGCTGGTGCTGGTGACGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0
896 >s_e_s_e_s_e_s_b_s_a_s GTGCTGGTGCTGGTGCTGGTGGCTGTGTCTGTG; >clamp_s_c_s_a_s:compl:rev
CACAGACACCCACACTATCATGTTGACATTCC; dG = -10.0

CB Matches

1 >s_c_s_b_s_d_s_c_s_b_s GTGTGGGTGGCTGTGACGGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.8
2 >s_e_s_c_s_b_s_c_s_b_s GTGCTGGTGTGGGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.7
3 >s_a_s_c_s_b_s_c_s_b_s GTGTCTGTGCTGGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.7
4 >s_b_s_c_s_b_s_c_s_b_s GTGGCTGTGTGGGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.7
5 >s_c_s_c_s_b_s_c_s_b_s GTGTGGGTGGTGGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.7
6 >s_d_s_c_s_b_s_c_s_b_s GTGACGGTGTGGGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.7
7 >s_a_s_a_s_a_s_c_s_b_s GTGTCTGTGCTGTGTCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
8 >s_a_s_b_s_e_s_c_s_b_s GTGTCTGTGGCTGTGCTGGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
9 >s_d_s_e_s_e_s_c_s_b_s GTGACGGTGGCTGGTGGTGGTGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
10 >s_e_s_a_s_a_s_c_s_b_s GTGCTGGTGTCTGTGTCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
11 >s_e_s_a_s_b_s_c_s_b_s GTGCTGGTGTCTGTGGCTGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
12 >s_e_s_a_s_c_s_c_s_b_s GTGCTGGTGTCTGTGTGGTGGTGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
13 >s_e_s_a_s_d_s_c_s_b_s GTGCTGGTGTCTGTGACGGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4
14 >s_e_s_a_s_e_s_c_s_b_s GTGCTGGTGTCTGTGCTGGTGTGGGTGGCTGTG; >clamp_s_c_s_b_s:compl:rev
CACAGCCACCCACACTATCATGTTGACATTCC; dG = -18.4

95 >s_a_s_b_s_b_s_c_s_e_s GTGTCTGTGGCTGTGGCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

96 >s_c_s_d_s_e_s_c_s_e_s GTGTGGGTGACGGTGCTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

97 >s_c_s_e_s_a_s_c_s_e_s GTGTGGGTGCTGGTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

98 >s_c_s_e_s_b_s_c_s_e_s GTGTGGGTGCTGGTGGCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

99 >s_c_s_e_s_c_s_c_s_e_s GTGTGGGTGCTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

100 >s_c_s_e_s_e_s_c_s_e_s GTGTGGGTGCTGGTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

101 >s_d_s_a_s_a_s_c_s_e_s GTGACGGTGTCTGTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

102 >s_d_s_a_s_b_s_c_s_e_s GTGACGGTGTCTGTGGCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

103 >s_d_s_a_s_c_s_c_s_e_s GTGACGGTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

104 >s_d_s_a_s_d_s_c_s_e_s GTGACGGTGTCTGTGACGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

105 >s_a_s_b_s_c_s_c_s_e_s GTGTCTGTGGCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

106 >s_d_s_a_s_e_s_c_s_e_s GTGACGGTGTCTGTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

107 >s_d_s_b_s_a_s_c_s_e_s GTGACGGTGGCTGTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

108 >s_d_s_b_s_b_s_c_s_e_s GTGACGGTGGCTGTGGTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

109 >s_d_s_b_s_c_s_c_s_e_s GTGACGGTGGCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

110 >s_d_s_b_s_d_s_c_s_e_s GTGACGGTGGCTGTGACGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

111 >s_d_s_b_s_e_s_c_s_e_s GTGACGGTGGCTGTGCTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

112 >s_d_s_c_s_a_s_c_s_e_s GTGACGGTGGCTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

113 >s_d_s_c_s_b_s_c_s_e_s GTGACGGTGTGGTGGCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

114 >s_d_s_c_s_c_s_c_s_e_s GTGACGGTGGCTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

115 >s_d_s_c_s_d_s_c_s_e_s GTGACGGTGTGGGTGACGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

116 >s_a_s_b_s_d_s_c_s_e_s GTGTCTGTGGCTGTGACGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

117 >s_d_s_d_s_a_s_c_s_e_s GTGACGGTGGCTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

118 >s_d_s_d_s_b_s_c_s_e_s GTGACGGTGGCTGGTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

119 >s_d_s_d_s_c_s_c_s_e_s GTGACGGTGGCTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

120 >s_d_s_d_s_d_s_c_s_e_s GTGACGGTGGCTGGTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

121 >s_d_s_d_s_e_s_c_s_e_s GTGACGGTGGCTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

122 >s_d_s_e_s_a_s_c_s_e_s GTGACGGTGGTGTCTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

123 >s_d_s_e_s_b_s_c_s_e_s GTGACGGTGGTGGTGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

124 >s_d_s_e_s_c_s_c_s_e_s GTGACGGTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

125 >s_d_s_e_s_d_s_c_s_e_s GTGACGGTGGTGGTGTGGGTGCTGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -18.4

CE Mismatches

1 >s_a_s_a_s_c_s_c_s_d_s GTGTCTGTGTCTGTGTGGGTGCTGGTGACGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -13.8

2 >s_b_s_a_s_c_s_c_s_d_s GTGGCTGTGTGTGGGTGCTGGTGACGGTG; >clamp_s_c_s_e_s:compl:rev
CACCAGCACCACACTATCATGTTGACATTCC; dG = -13.8

891 >s_d_s_b_s_d_s_c_s_a_s GTGACGGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_e_s:compl:rev
CACAGCACCCACACTATCATGTTGACATTCC; dG = -10.7
892 >s_d_s_d_s_d_s_c_s_a_s GTGACGGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_e_s:compl:rev
CACAGCACCCACACTATCATGTTGACATTCC; dG = -10.7
893 >s_a_s_b_s_d_s_c_s_a_s GTGCTGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_e_s:compl:rev
CACAGCACCCACACTATCATGTTGACATTCC; dG = -10.7
894 >s_e_s_a_s_d_s_c_s_a_s GTGCTGGTGTCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_e_s:compl:rev
CACAGCACCCACACTATCATGTTGACATTCC; dG = -10.7
895 >s_e_s_b_s_d_s_c_s_a_s GTGCTGGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_e_s:compl:rev
CACAGCACCCACACTATCATGTTGACATTCC; dG = -10.7
896 >s_e_s_d_s_d_s_c_s_a_s GTGCTGGTGGCTGTGACGGTGTGGGTGTCTGTG; >clamp_s_c_s_e_s:compl:rev
CACAGCACCCACACTATCATGTTGACATTCC; dG = -10.7

DA Matches

1 >s_e_s_d_s_a_s_d_s_a_s GTGCTGGTGGCTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -18.1
2 >s_a_s_d_s_a_s_d_s_a_s GTGCTGTGACGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -18.1
3 >s_b_s_d_s_a_s_d_s_a_s GTGGCTGTGACGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -18.1
4 >s_c_s_d_s_a_s_d_s_a_s GTGTTGGTGGCTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -18.1
5 >s_d_s_d_s_a_s_d_s_a_s GTGACGGTGGCTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -18.1
6 >s_d_s_a_s_d_s_d_s_a_s GTGACGGTGGCTGTGACGGTGGCTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.6
7 >s_a_s_a_s_a_s_d_s_a_s GTGCTGTGTCTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
8 >s_e_s_a_s_d_s_d_s_a_s GTGCTGGTGGCTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
9 >s_e_s_a_s_b_s_d_s_a_s GTGCTGGTGTCTGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
10 >s_e_s_b_s_a_s_d_s_a_s GTGCTGGTGGCTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
11 >s_e_s_b_s_b_s_d_s_a_s GTGCTGGTGGCTGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
12 >s_a_s_c_s_a_s_d_s_a_s GTGCTGTGTGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
13 >s_e_s_c_s_a_s_d_s_a_s GTGCTGGTGTGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
14 >s_e_s_c_s_b_s_d_s_a_s GTGCTGGTGTGGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
15 >s_e_s_d_s_b_s_d_s_a_s GTGCTGGTGGCTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
16 >s_a_s_c_s_b_s_d_s_a_s GTGCTGTGTGGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
17 >s_e_s_e_s_a_s_d_s_a_s GTGCTGGTGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
18 >s_e_s_e_s_b_s_d_s_a_s GTGCTGGTGGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
19 >s_a_s_d_s_b_s_d_s_a_s GTGCTGTGACGGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
20 >s_a_s_a_s_b_s_d_s_a_s GTGCTGTGTCTGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
21 >s_a_s_e_s_a_s_d_s_a_s GTGCTGTGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
22 >s_a_s_e_s_b_s_d_s_a_s GTGCTGTGTGGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
23 >s_b_s_a_s_a_s_d_s_a_s GTGGCTGTGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
24 >s_b_s_a_s_b_s_d_s_a_s GTGGCTGTGTCTGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
25 >s_b_s_b_s_a_s_d_s_a_s GTGGCTGTGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
26 >s_b_s_b_s_b_s_d_s_a_s GTGGCTGTGGCTGTGGCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3
27 >s_b_s_c_s_a_s_d_s_a_s GTGGCTGTGGTGTCTGTGACGGTGTCTGTG; >clamp_s_d_s_a_s:compl:rev
CACAGACACCGTCACTATCATGTTGACATTCC; dG = -17.3

868 >s_b_s_a_s_e_s_a_s_b_s GTGGCTGTGCTGTGCTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

869 >s_a_s_a_s_c_s_a_s_b_s GTGCTGTGCTGTGCTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

870 >s_b_s_c_s_a_s_a_s_b_s GTGGCTGTGCTGGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

871 >s_b_s_c_s_c_s_a_s_b_s GTGGCTGTGCTGGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

872 >s_b_s_c_s_e_s_a_s_b_s GTGGCTGTGCTGGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

873 >s_b_s_e_s_a_s_a_s_b_s GTGGCTGTGCTGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

874 >s_b_s_e_s_c_s_a_s_b_s GTGGCTGTGCTGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

875 >s_b_s_e_s_e_s_a_s_b_s GTGGCTGTGCTGGTGTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

876 >s_c_s_a_s_a_s_a_s_b_s GTGTGGGTGTCTGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

877 >s_a_s_a_s_e_s_a_s_b_s GTGCTGTGCTGTGCTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

878 >s_c_s_a_s_c_s_a_s_b_s GTGTGGGTGTCTGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

879 >s_c_s_a_s_e_s_a_s_b_s GTGTGGGTGTCTGTGCTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

880 >s_c_s_c_s_a_s_a_s_b_s GTGTGGGTGTGGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

881 >s_c_s_c_s_c_s_a_s_b_s GTGTGGGTGTGGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

882 >s_c_s_c_s_e_s_a_s_b_s GTGTGGGTGTGGGTGTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

883 >s_c_s_e_s_a_s_a_s_b_s GTGTGGGTGTGGTGTGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

884 >s_c_s_e_s_c_s_a_s_b_s GTGTGGGTGTGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

885 >s_c_s_e_s_e_s_a_s_b_s GTGTGGGTGTGGTGTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

886 >s_e_s_a_s_a_s_a_s_b_s GTGCTGGTGTCTGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

887 >s_e_s_a_s_c_s_a_s_b_s GTGCTGGTGTCTGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

888 >s_e_s_a_s_e_s_a_s_b_s GTGCTGGTGTCTGTGCTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

889 >s_e_s_c_s_a_s_a_s_b_s GTGCTGGTGTGGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

890 >s_a_s_a_s_a_s_a_s_b_s GTGCTGTGCTGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

891 >s_e_s_c_s_c_s_a_s_b_s GTGCTGGTGTGGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

892 >s_e_s_c_s_e_s_a_s_b_s GTGCTGGTGTGGGTGTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

893 >s_a_s_c_s_a_s_a_s_b_s GTGCTGTGCTGGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

894 >s_e_s_e_s_a_s_a_s_b_s GTGCTGGTGTGGTGTCTGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

895 >s_e_s_e_s_c_s_a_s_b_s GTGCTGGTGTGGTGTGGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

896 >s_e_s_e_s_e_s_a_s_b_s GTGCTGGTGTGGTGTGGTGTCTGTGGCTGTG; >clamp_s_d_s_b_s:compl:rev
CACAGCCACCGTCACTATCATGTTGACATTCC; dG = -9.9

DE Matches

1 >s_a_s_d_s_e_s_d_s_e_s GTGCTGTGACGGTGTGGTGTGACGGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACCAGCACCGTCACTATCATGTTGACATTCC; dG = -19.5

2 >s_b_s_d_s_e_s_d_s_e_s GTGGCTGTGACGGTGTGGTGTGACGGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACCAGCACCGTCACTATCATGTTGACATTCC; dG = -19.5

3 >s_e_s_d_s_e_s_d_s_e_s GTGCTGGTGTGACGGTGTGGTGTGACGGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACCAGCACCGTCACTATCATGTTGACATTCC; dG = -19.4

4 >s_c_s_d_s_e_s_d_s_e_s GTGTGGGTGTGGTGTGGTGTGACGGTGTGGTGTG; >clamp_s_d_s_e_s:compl:rev
CACCAGCACCGTCACTATCATGTTGACATTCC; dG = -19.4

