Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 12:50 pm GMT

PDB ID	:	6Q97
EMDB ID	:	EMD-4476
Title	:	Structure of tmRNA SmpB bound in A site of E. coli 70S ribosome
Authors	:	Rae, C.D.
Deposited on	:	2018-12-17
Resolution	:	3.90 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

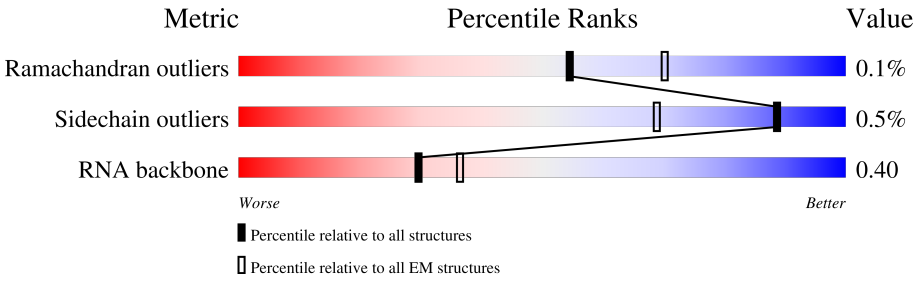
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.90 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	1	2903	87% 61% 35% ·
2	2	1534	83% 60% 34% 5%
3	3	120	94% 63% 33% ·
4	5	145	98% 95% 5%
5	6	28	86% 100%
6	8	77	92% 43% 52% 5%
7	9	6	83% 17% 33% 50%
8	B	270	81% 100%

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Mol	Chain	Length	Quality of chain
9	C	209	94% 100%
10	D	201	86% 100%
11	E	177	95% 98%
12	F	175	100% 99%
13	G	149	81% 99%
14	H	130	100% 98%
15	I	135	100% 99%
16	J	141	96% 100%
17	K	123	93% 99%
18	L	144	69% 99%
19	M	136	93% 100%
20	N	119	89% 99%
21	O	115	79% 100%
22	P	114	85% 99%
23	Q	117	87% 99%
24	R	103	88% 100%
25	S	108	76% 98%
26	T	94	80% 100%
27	U	103	79% 100%
28	V	94	98% 99%
29	W	76	91% 100%
30	X	77	78% 99%
31	Y	58	88% 100%
32	Z	56	88% 100%
33	a	66	97% 100%

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Mol	Chain	Length	Quality of chain
34	b	54	87% 100%
35	c	52	88% 100%
36	d	46	65% 100%
37	e	64	72% 95% 5%
38	f	37	100% 100%
39	g	225	100% 99%
40	h	208	98% 98%
41	i	205	99% 100%
42	j	156	99% 100%
43	k	104	76% 100%
44	l	151	66% 99%
45	m	129	99% 100%
46	n	126	80% 99%
47	o	99	97% 100%
48	p	117	85% 99%
49	q	123	76% 99%
50	r	115	70% 98%
51	s	100	90% 100%
52	t	87	60% 98%
53	u	81	98% 98%
54	v	80	88% 100%
55	w	65	85% 98%
56	x	82	85% 100%
57	y	85	76% 99%
58	z	70	81% 99%

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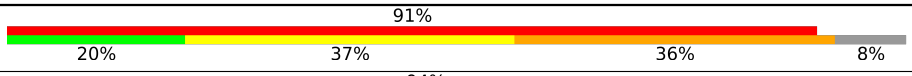
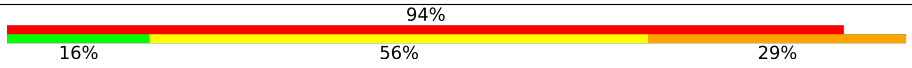
Mol	Chain	Length	Quality of chain
59	4	363	
60	7	77	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
1	6MZ	1	1618	X	-	-	-
1	PSU	1	1911	X	-	-	-
1	3TD	1	1915	X	-	-	-
1	PSU	1	1917	X	-	-	-
1	5MU	1	1939	X	-	-	-
1	6MZ	1	2030	X	-	-	-
1	G7M	1	2069	X	-	-	-
1	OMG	1	2251	X	-	-	-
1	PSU	1	2457	X	-	-	-
1	OMC	1	2498	X	-	-	-
1	2MA	1	2503	X	-	-	-
1	PSU	1	2504	X	-	-	-
1	OMU	1	2552	X	-	-	-
1	PSU	1	2580	X	-	-	-
1	PSU	1	2605	X	-	-	-
1	1MG	1	745	X	-	-	-
1	PSU	1	746	X	-	-	-
1	5MU	1	747	X	-	-	-
1	PSU	1	955	X	-	-	-
2	4OC	2	1402	X	-	-	-
2	PSU	2	516	X	-	-	-
2	7MG	2	527	X	-	-	-

2 Entry composition (i)

There are 63 unique types of molecules in this entry. The entry contains 156609 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	2903	62336	27816	11470	20147	2903	0	0

- Molecule 2 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1534	32929	14693	6041	10661	1534	0	0

- Molecule 3 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	3	120	2569	1144	468	837	120	0	0

- Molecule 4 is a protein called SsrA-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	5	145	1170	741	216	209	4	0	0

- Molecule 5 is a protein called Nascent peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	6	28	140	84	28	28	0	0

- Molecule 6 is a RNA chain called tRNA-Met.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	8	77	1638	732	291	538	77	0	0

- Molecule 7 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	9	6	Total	C	N	O	P	0	0
			128	57	22	43	6		

- Molecule 8 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	B	270	Total	C	N	O	S	0	0
			2078	1285	422	364	7		

- Molecule 9 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	C	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 10 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	D	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 11 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	E	177	Total	C	N	O	S	0	0
			1411	899	249	257	6		

- Molecule 12 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	F	175	Total	C	N	O	S	0	0
			1313	826	241	244	2		

- Molecule 13 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	G	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 14 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	H	130	Total	C	N	O	S	0	0
			980	620	174	182	4		

- Molecule 15 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	I	135	Total	C	N	O	S	0	0
			984	622	171	185	6		

- Molecule 16 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	J	141	Total	C	N	O	S	0	0
			1121	709	211	198	3		

- Molecule 17 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	K	123	Total	C	N	O	S	0	0
			946	593	181	166	6		

- Molecule 18 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	L	144	Total	C	N	O	S	0	0
			1053	654	207	190	2		

- Molecule 19 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	M	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 20 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	N	119	Total	C	N	O	S	0	0
			951	588	195	163	5		

- Molecule 21 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	O	115	Total 884	C 548	N 177	O 159	0	0

- Molecule 22 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	P	114	Total 917	C 574	N 179	O 163	S 1	0	0

- Molecule 23 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	Q	117	Total 947	C 604	N 192	O 151	0	0

- Molecule 24 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	R	103	Total 816	C 516	N 153	O 145	S 2	0	0

- Molecule 25 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	S	108	Total 840	C 522	N 164	O 152	S 2	0	0

- Molecule 26 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	T	94	Total 746	C 470	N 140	O 134	S 2	0	0

- Molecule 27 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	U	103	Total 788	C 498	N 148	O 142	0	0

- Molecule 28 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	V	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 29 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	W	76	Total	C	N	O	S	0	0
			582	360	117	104	1		

- Molecule 30 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	X	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 31 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Y	58	Total	C	N	O	S	0	0
			477	294	93	89	1		

- Molecule 32 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Z	56	Total	C	N	O	S	0	0
			434	272	84	76	2		

- Molecule 33 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	a	66	Total	C	N	O	S	0	0
			522	323	99	94	6		

- Molecule 34 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	b	54	Total	C	N	O	S	0	0
			429	260	91	77	1		

- Molecule 35 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	c	52	Total	C	N	O	0	0
			426	275	78	73		

- Molecule 36 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	d	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 37 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	e	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 38 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	f	37	Total	C	N	O	S	0	0
			297	183	64	46	4		

- Molecule 39 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	g	225	Total	C	N	O	S	0	0
			1760	1113	316	323	8		

- Molecule 40 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	h	208	Total	C	N	O	S	0	0
			1636	1036	307	290	3		

- Molecule 41 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	i	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 42 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	j	156	Total	C	N	O	S	0	0
			1152	717	217	212	6		

- Molecule 43 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	k	104	Total	C	N	O	S	0	0
			848	536	153	152	7		

- Molecule 44 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	l	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 45 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	m	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 46 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	n	126	Total	C	N	O	S	0	0
			1010	628	202	177	3		

- Molecule 47 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	o	99	Total	C	N	O	S	0	0
			790	495	151	143	1		

- Molecule 48 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	p	117	Total	C	N	O	S	0	0
			877	540	174	160	3		

- Molecule 49 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	q	123	Total	C	N	O	S	0	0
			957	591	196	165	5		

- Molecule 50 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	r	115	Total	C	N	O	S	0	0
			891	552	179	157	3		

- Molecule 51 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	s	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 52 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	t	87	Total	C	N	O	S	0	0
			708	436	143	128	1		

- Molecule 53 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	u	81	Total	C	N	O	S	0	0
			643	403	127	112	1		

- Molecule 54 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	v	80	Total	C	N	O	S	0	0
			649	411	121	114	3		

- Molecule 55 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	w	65	Total	C	N	O	S	0	0
			535	339	100	95	1		

- Molecule 56 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	x	82	Total	C	N	O	S	0	0
			658	421	125	110	2		

- Molecule 57 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	y	85	Total	C	N	O	S	0	0
			664	411	137	113	3		

- Molecule 58 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	z	70	Total	C	N	O	S	0	0
			589	366	125	97	1		

- Molecule 59 is a RNA chain called transfer-messenger RNA (tmRNA).

Mol	Chain	Residues	Atoms					AltConf	Trace
59	4	334	Total	C	N	O	P	0	0
			7134	3184	1286	2330	334		

- Molecule 60 is a RNA chain called tRNA-Val.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	7	77	Total	C	N	O	P	0	0
			1644	732	292	543	77		

- Molecule 61 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
61	1	294	Total	Mg	0
			294	294	
61	2	128	Total	Mg	0
			128	128	
61	3	8	Total	Mg	0
			8	8	
61	8	2	Total	Mg	0
			2	2	
61	M	1	Total	Mg	0
			1	1	
61	Q	1	Total	Mg	0
			1	1	

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Mol	Chain	Residues	Atoms	AltConf
61	X	1	Total Mg 1 1	0
61	y	1	Total Mg 1 1	0
61	7	3	Total Mg 3 3	0

- Molecule 62 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	AltConf
62	a	1	Total Zn 1 1	0
62	f	1	Total Zn 1 1	0

- Molecule 63 is water.

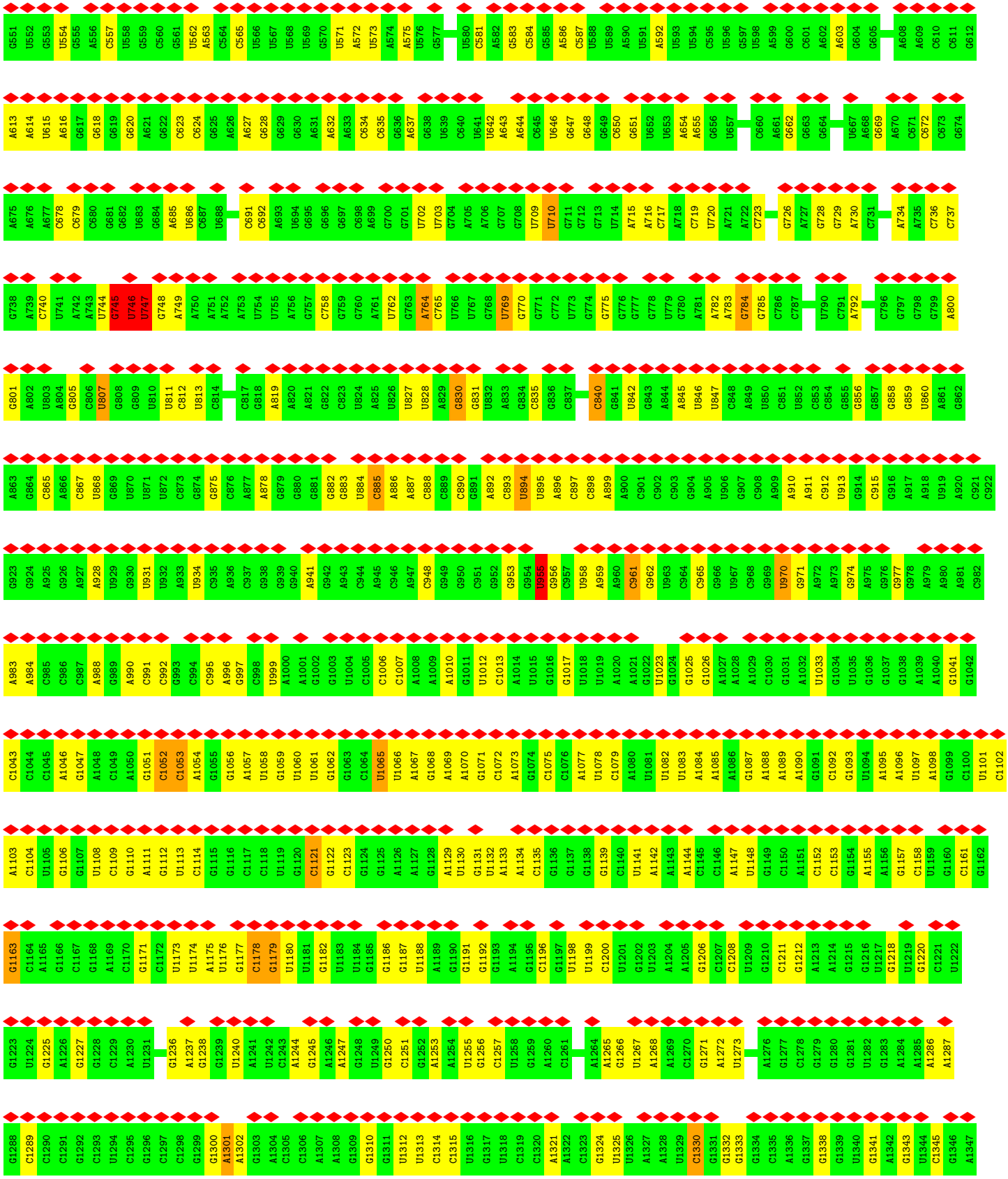
Mol	Chain	Residues	Atoms	AltConf
63	B	2	Total O 2 2	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 23S ribosomal RNA

Chain 1:


G551 U552 G553 U554 G555 A556 C557 U558 G559 C560 G561 U562 A563 C564 C565 U566 U567 U568 U569 G570 U571 A572 U573 A574 A575 U576 G577 U580 C581 A582 G583 C584 G585 A586 C587 U588 U589 A590 U591 A592 U593 U594 C595 U596 G597 U598 A599 G600 C601 A602 A603 G604 G605 A608 A609 C610 C611 G612
A613 A614 U615 A616 G617 G618 G619 G620 A621 G622 C623 C624 G625 A626 A627 G628 G629 G630 A631 A632 A633 C634 C635 G636 A637 G638 U639 C640 U641 U642 A643 A644 C645 U646 G647 G648 G649 C650 G651 U652 U653 A654 A655 G656 U657 C660 A661 G662 G663 G664 U667 A668 G669 A670 C671 C672 C673 G674
A675 A676 A677 C678 C679 C680 G681 G682 U683 G684 A685 U686 C687 U688 C691 C692 A693 U694 G695 G696 G697 C698 A699 G700 G701 U702 U703 G704 A705 A706 G707 G708 U709 U710 G711 G712 G713 U714 A715 A716 C717 A718 C719 U720 A721 A722 C723 G726 A727 G728 G729 A730 C731 A734 A735 C736 C737
G738 A739 C740 U741 A742 A743 U744 G745 U746 U747 G748 A749 A750 A751 A752 A753 U754 U755 A756 G757 C758 G759 G760 A761 U762 G763 A764 C765 U766 U767 G768 U769 G770 G771 C772 U773 G774 G775 G776 G777 G778 U779 G780 A781 A782 A783 G784 G785 C786 C787 U790 C791 A792 C796 G797 G798 G799 A800
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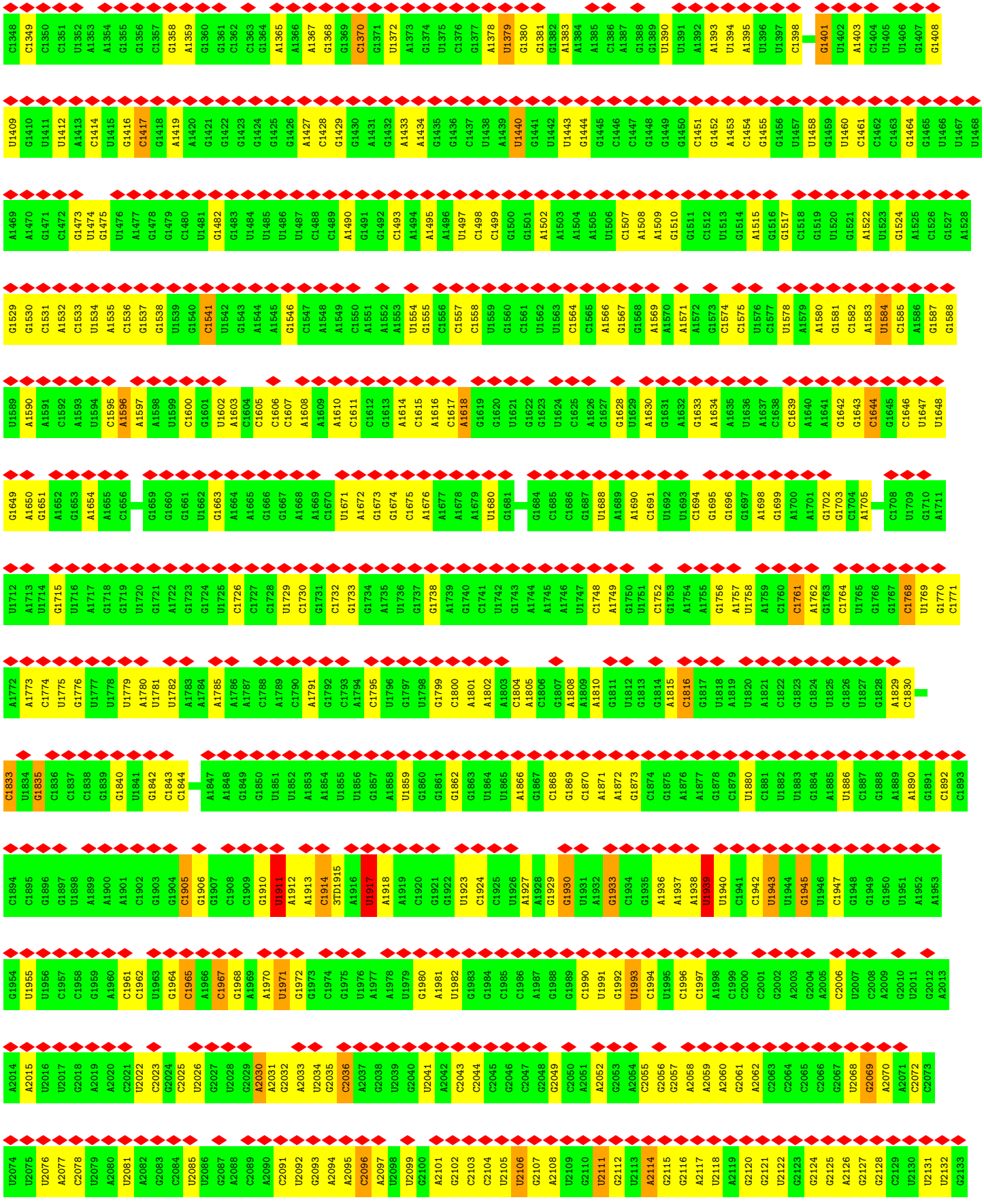
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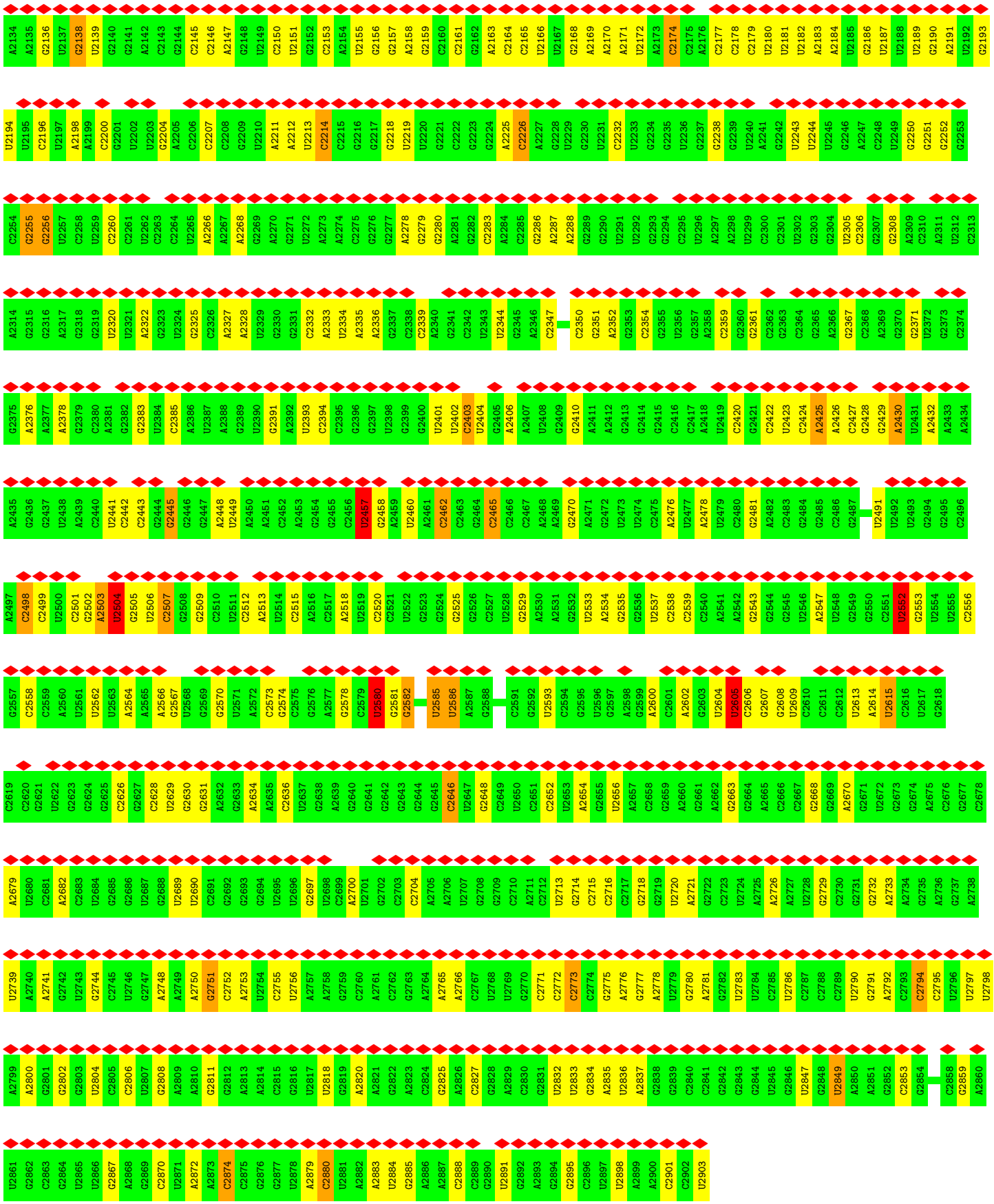
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• Molecule 2: 16S ribosomal RNA

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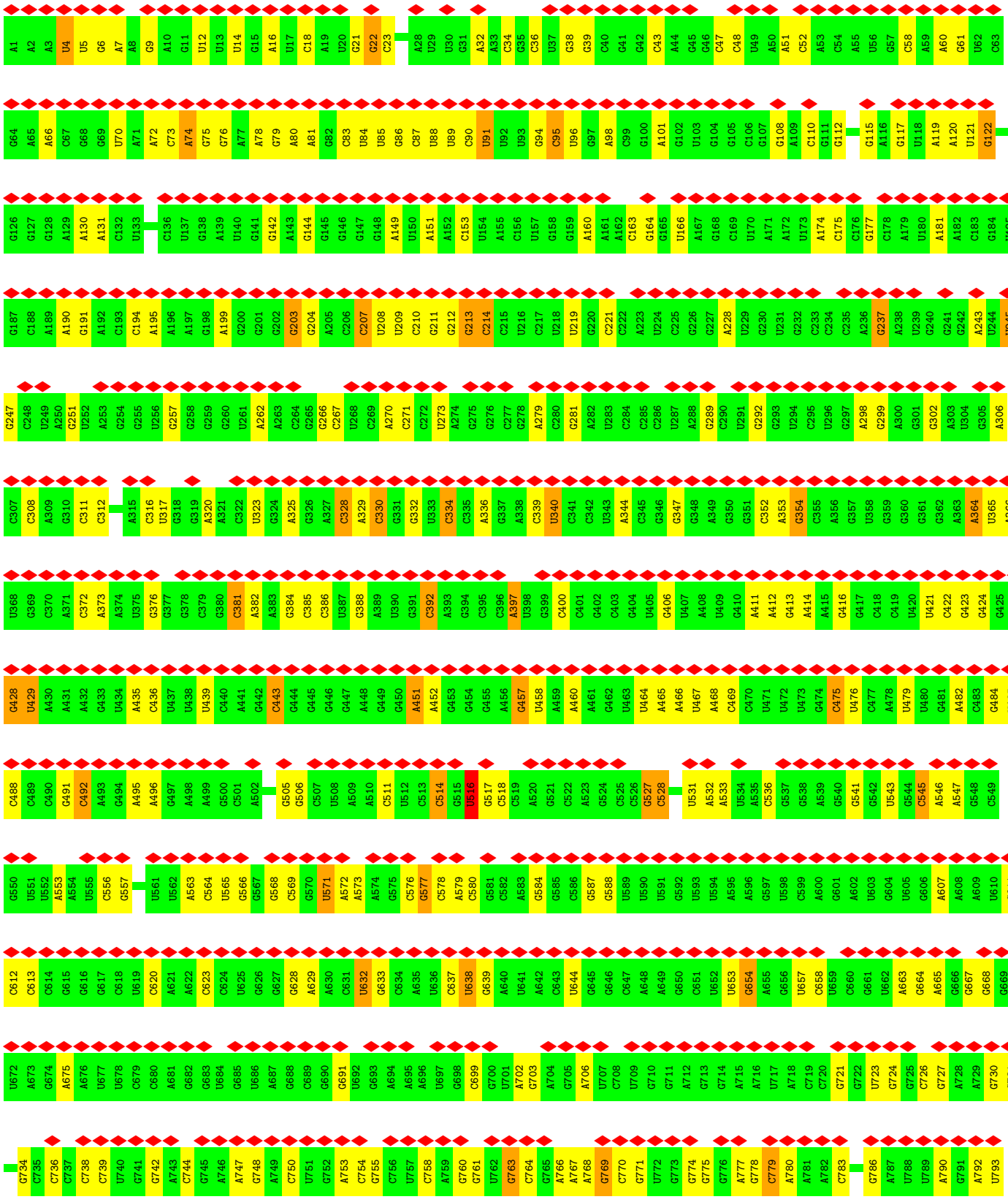

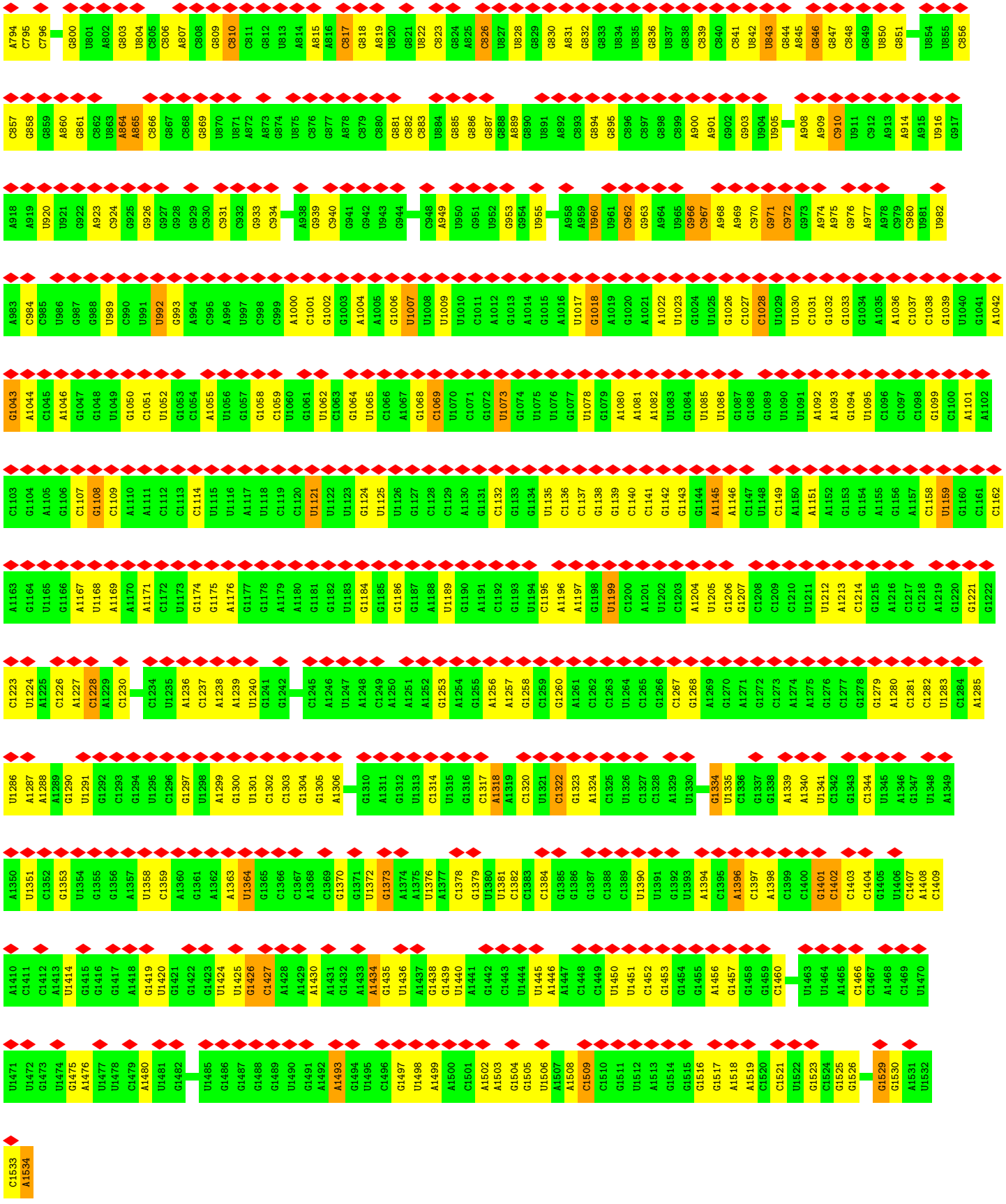

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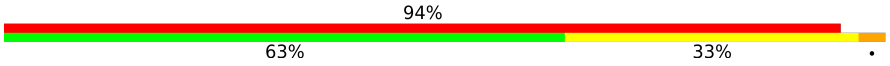

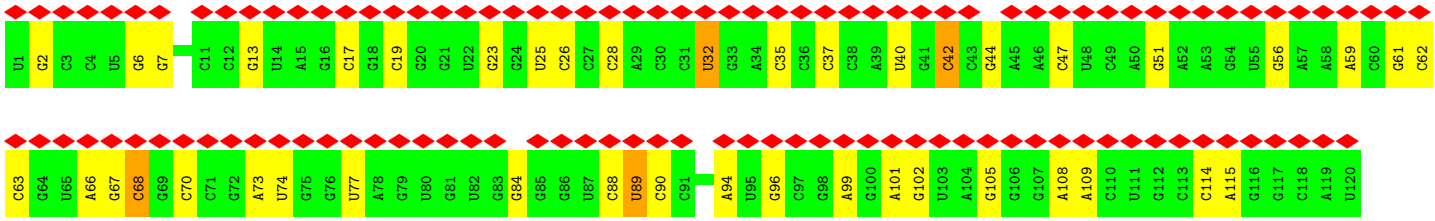

• Molecule 4: SsrA-binding protein

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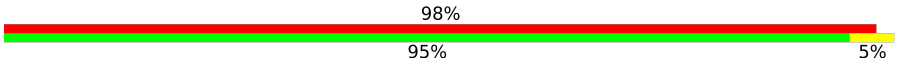

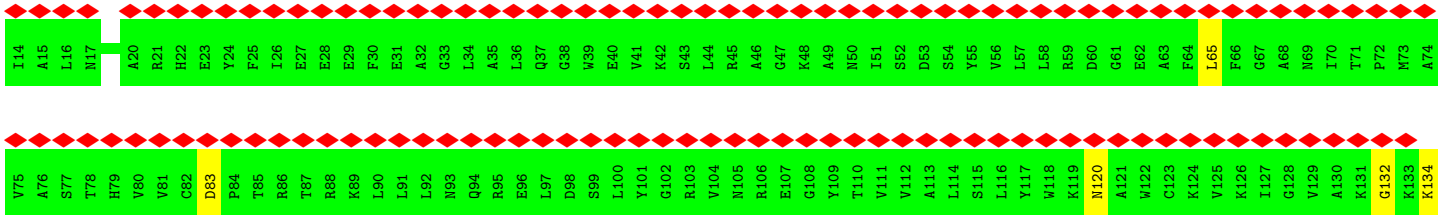

• Molecule 5: Nascent peptide

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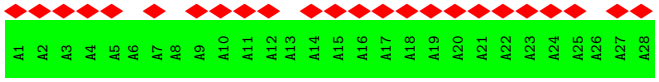

• Molecule 6: tRNA-Met

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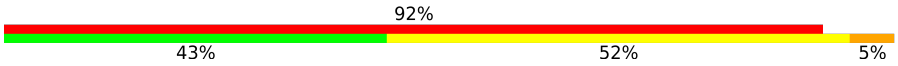

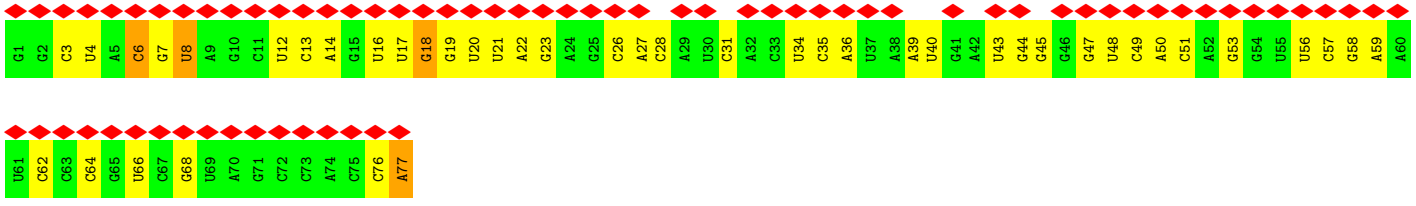

• Molecule 7: mRNA

Chain 9:

• Molecule 8: 50S ribosomal protein L2

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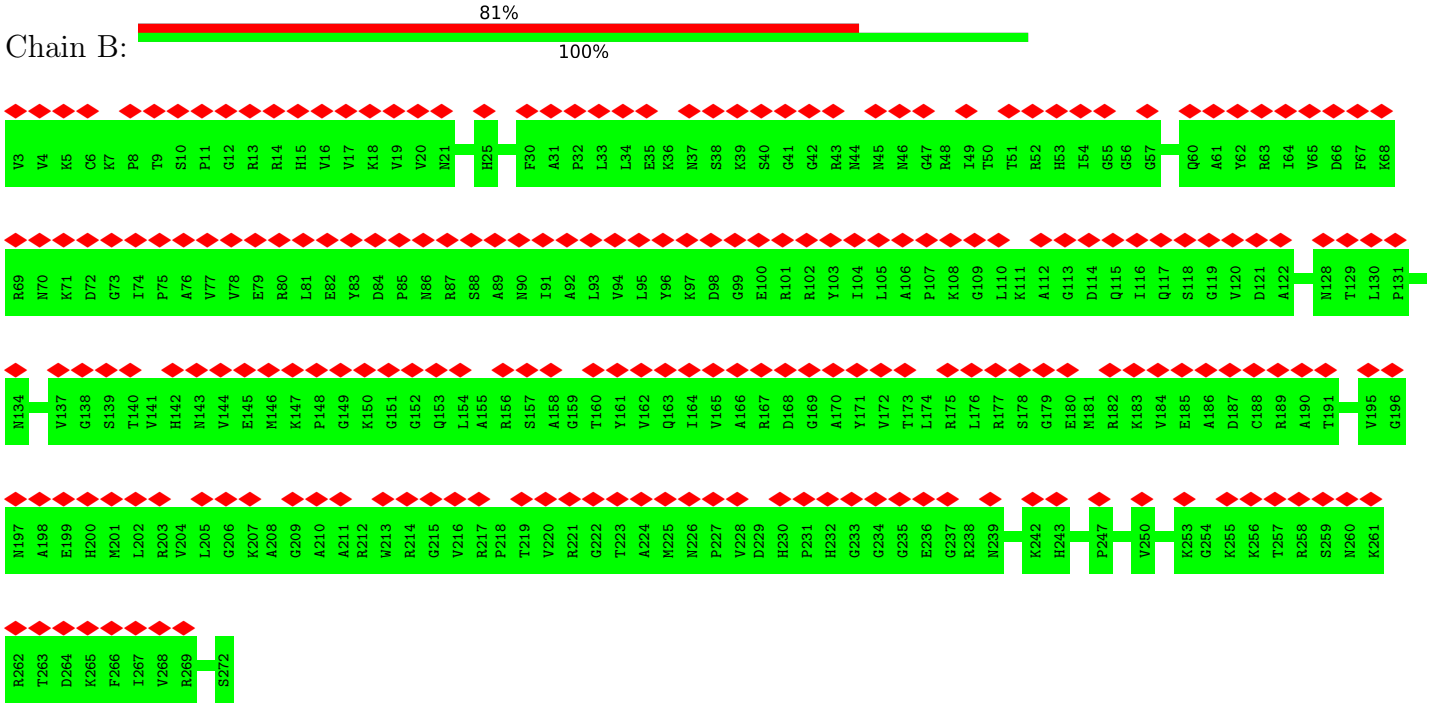

• Molecule 9: 50S ribosomal protein L3

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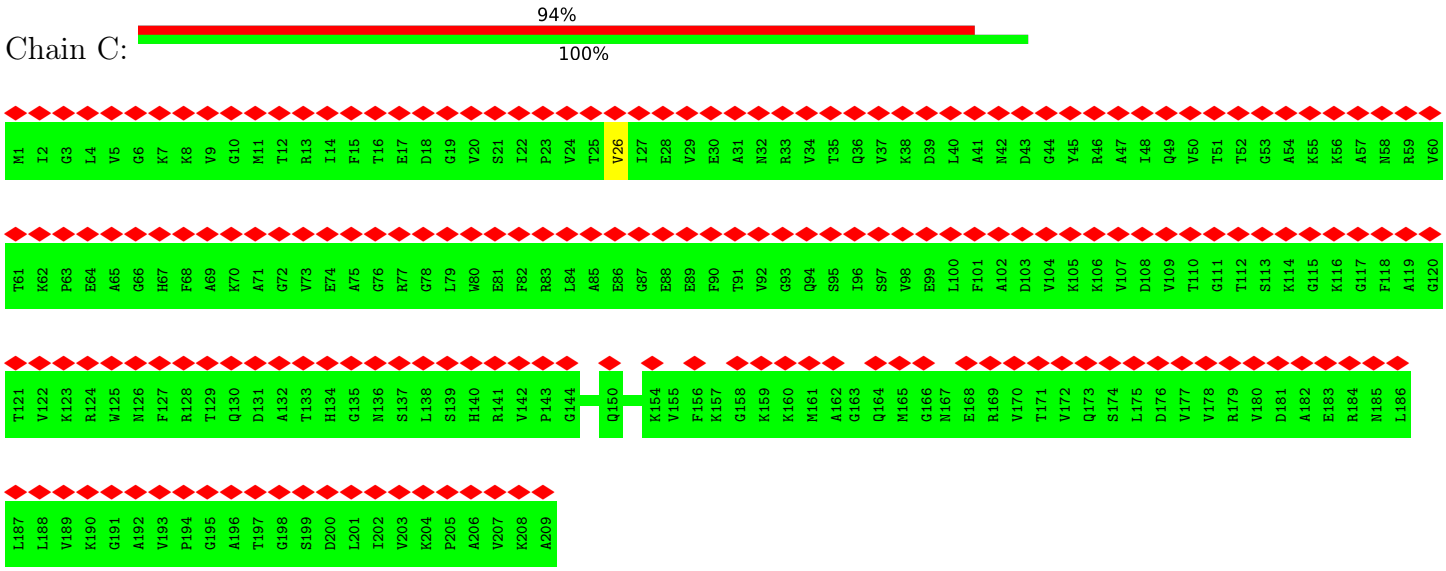

• Molecule 10: 50S ribosomal protein L4

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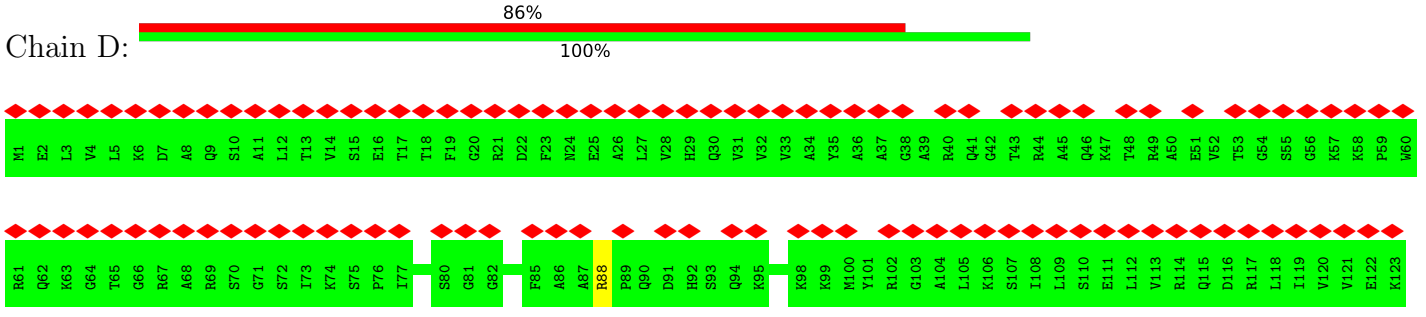

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• Molecule 11: 50S ribosomal protein L5

Chain E: 95% 98%

A2 K3 L4 H5 D6 Y7 Y8 K9 D10 E11 V12 V13 K14 K15 L16 M17 T18 E19 F20 N21 Y22 N23 S24 V25 M26 Q27 V28 P29 R30 V31 E32 K33 I34 T35 L36 N37 M38 G39 V40 G41 E42 A43 I44 A45 D46 K47 K48 L49 L50 D51 N52 A53 A54 A55 D56 L57 A58 A59 I60 S61

G62 Q63 K64 P65 L66 I67 T68 K69 A70 R71 K72 S73 V74 A75 G76 F77 K78 I79 R80 Q81 G82 Y83 P84 I85 G86 C87 K88 V89 T90 L91 R92 G93 E94 R95 M96 W97 E98 F99 F100 E101 R102 L103 I104 T105 I106 A107 V108 P109 R110 I111 R112 D113 F114 R115 G116 L117 S118 A119 K120 S121

F122 D123 G124 R125 G126 N127 Y128 S129 M130 G131 V132 R133 E134 Q135 I136 I137 F138 P139 E140 I141 D142 Y143 V146 D147 R148 V149 R150 G151 L152 D153 I154 T155 I156 T157 T158 T159 A160 K161 S162 D163 E164 E165 G166 R167 A168 L169 L170 A171 A172 F173 D174 F175 P176 F177 R178

• Molecule 12: 50S ribosomal protein L6

Chain F: 100% 99%

S2 R3 V4 A5 K6 A7 P8 V9 V10 V11 P12 A13 G14 V15 D16 V17 K18 I19 N20 G21 Q22 V23 I24 T25 I26 K27 G28 K29 N30 G31 E32 L33 T34 R35 T36 L37 N38 D39 A40 V41 E42 V43 K44 H45 A46 D47 N48 T49 L50 T51 F52 G53 P54 R55 D56 G57 Y58 A59 D60 G61

W62 A63 Q64 A65 G66 T67 A68 R69 A70 L71 L72 N73 S74 M75 V76 I77 G78 V79 T80 E81 G82 F83 T84 K85 K86 L87 Q88 L89 V90 G91 V92 G93 Y94 R95 A96 A97 V98 K99 G100 N101 V102 I103 N104 L105 S106 L107 G108 F109 S110 H111 P112 V113 D114 H115 Q116 L117 P118 A119 G120 I121

T122 A123 E124 C125 P126 T127 Q128 T129 E130 I131 V132 L133 K134 G135 A136 D137 K138 Q139 V140 I141 G142 Q143 V144 A145 A146 D147 L148 R149 A150 Y151 R152 R153 P154 E155 P156 Y157 K158 G159 K160 G161 V162 R163 Y164 A165 D166 E167 V168 V169 R170 T171 K172 E173 A174 K175 K176

• Molecule 13: 50S ribosomal protein L9

Chain G: 81% 99%

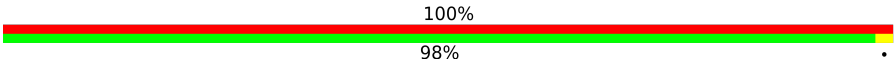
M1 Q2 V3 I4 L5 L6 D7 K8 V9 A10 N11 L12 G13 S14 L15 G16 D17 V21 K22 A23 G24 Y25 A26 R27 N28 F29 L30 V31 P32 Q33 G34 K35 A36 A39 T40 K41 K42 N43 I44 E45 F46 F47 E48 A49 R50 R51 A52 E53 L54 E55 A56 K57 L58 A59 E60 V61 L62 A63

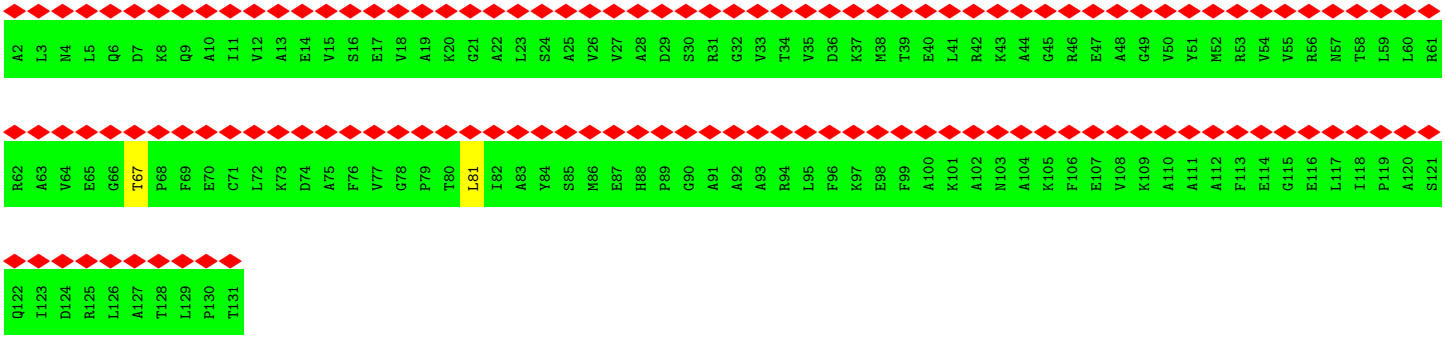
A64 A65 N66 A67 R68 A69 E70 K71 I72 N73 A74 L75 E76 I80 A81 S82 K83 L90 F91 T96 R97 D98 I99 A100 D101 A102 V103 T104 A105 A106 G107 V108 E109 V110 A111 K112 S113 E114 V115 R116 L117 P118 N119 G120 V121 L122 R123 T124 T125 G126 E127 S131 F132 Q133 V134 H135

S136 E137 V138 F139 A140 K141 V142 I143 V144 N145 V146 V147 A148 E149

• Molecule 14: 50S ribosomal protein L10

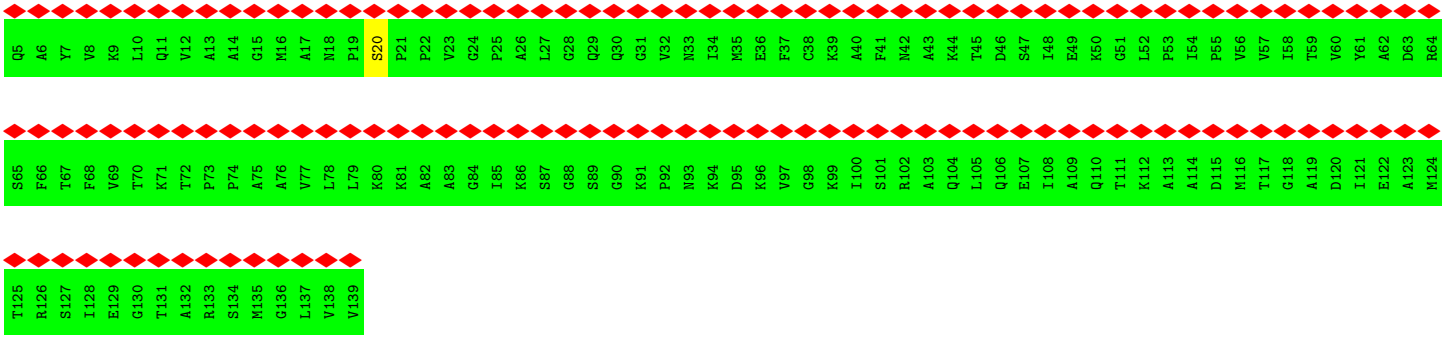
Chain H:





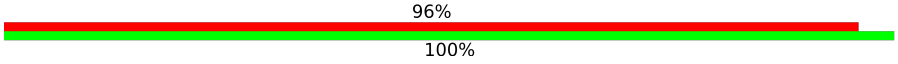
• Molecule 15: 50S ribosomal protein L11

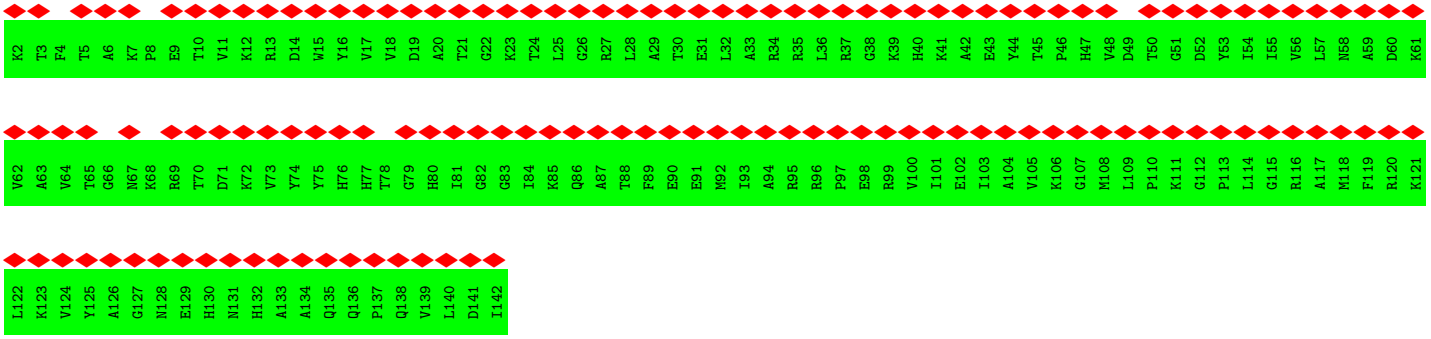
Chain I:



• Molecule 16: 50S ribosomal protein L13

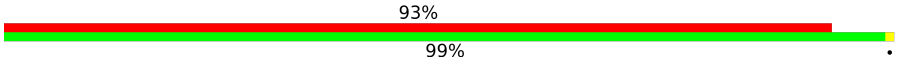
Chain J:

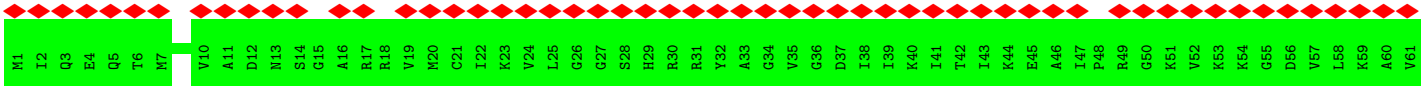


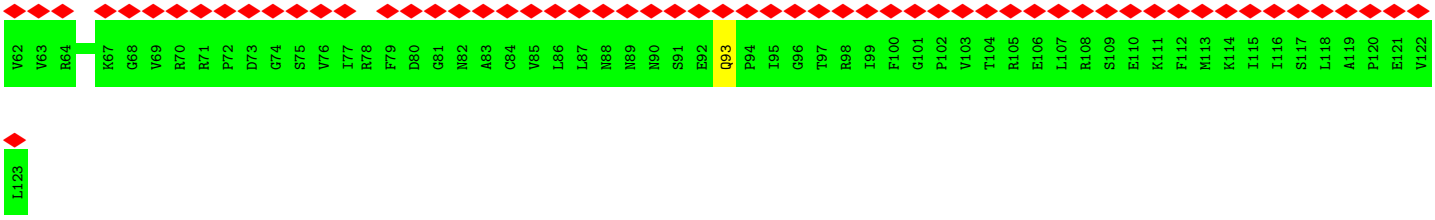


• Molecule 17: 50S ribosomal protein L14

Chain K:

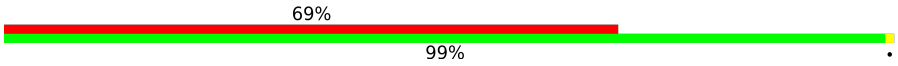


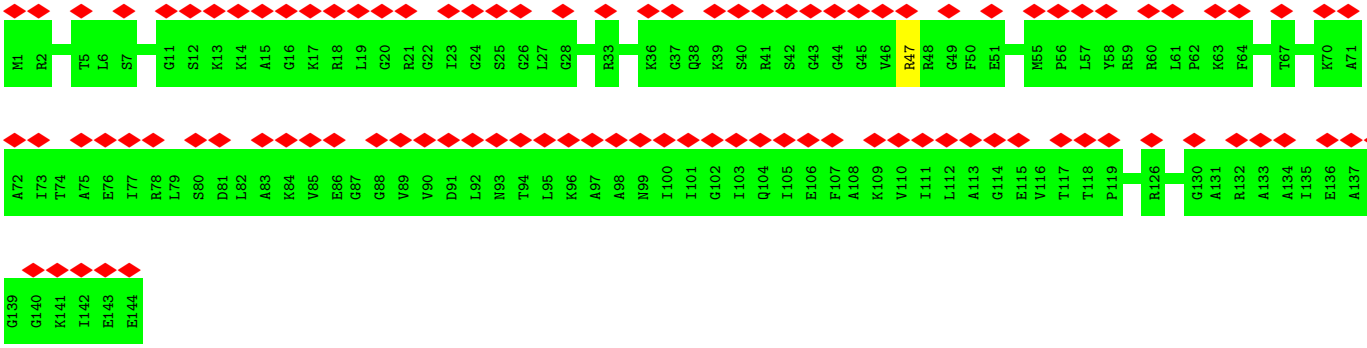




• Molecule 18: 50S ribosomal protein L15

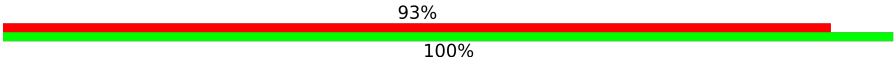
Chain L:

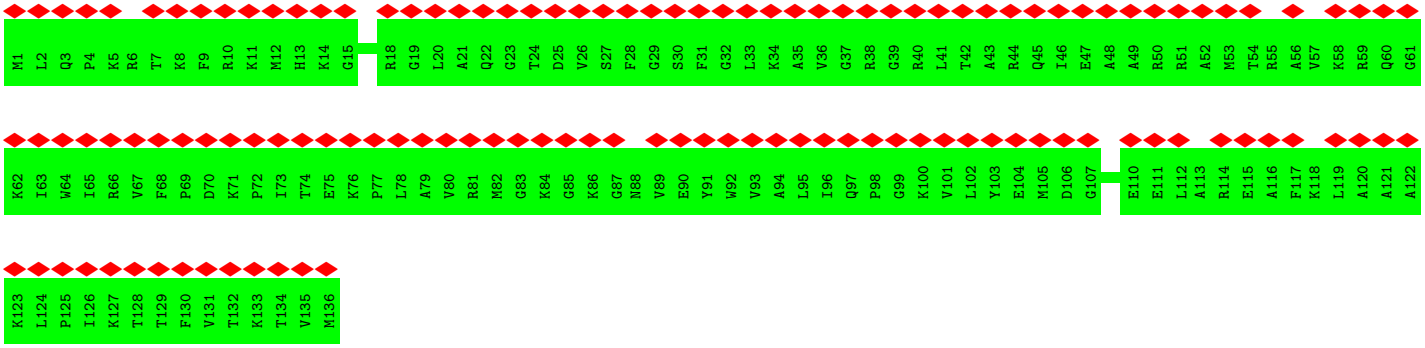




• Molecule 19: 50S ribosomal protein L16

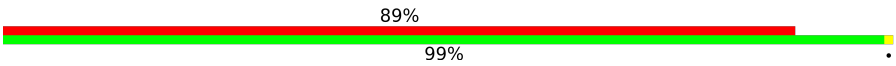
Chain M:

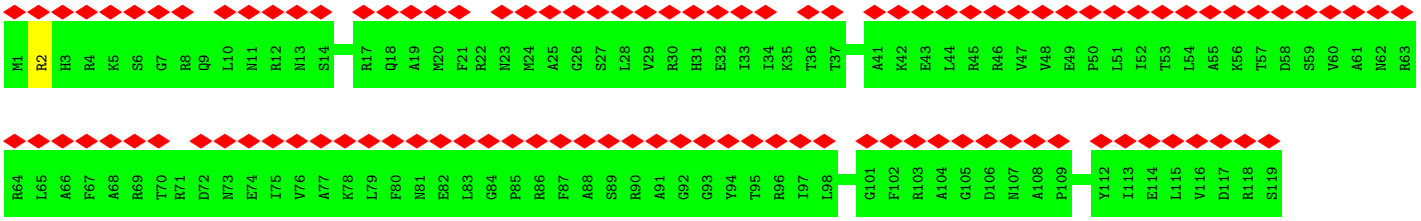




• Molecule 20: 50S ribosomal protein L17

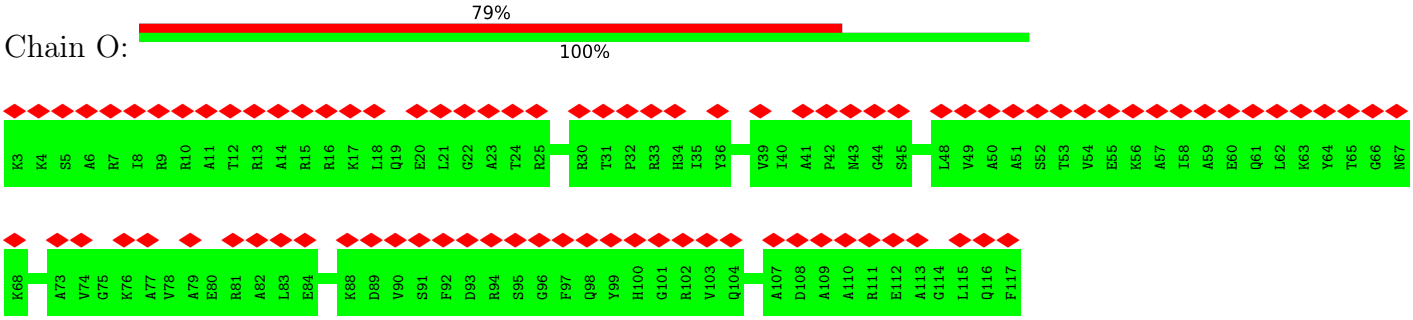
Chain N:





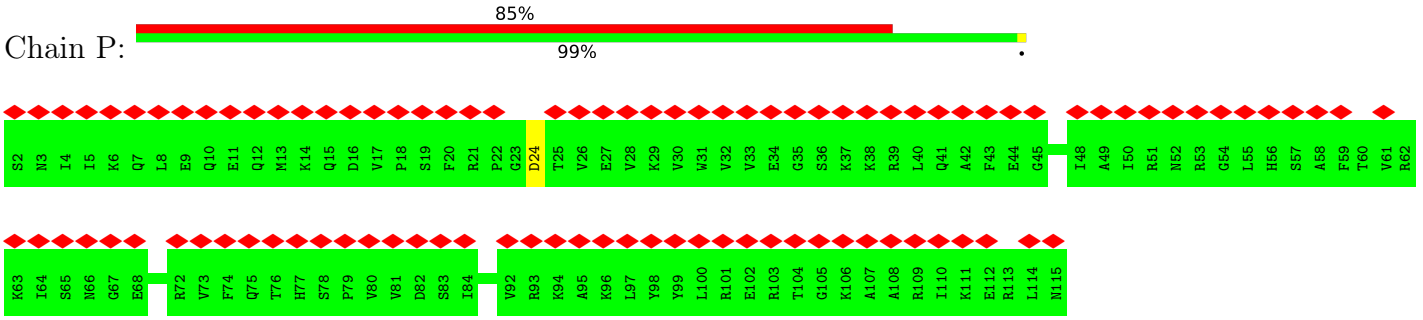
• Molecule 21: 50S ribosomal protein L18

Chain O:



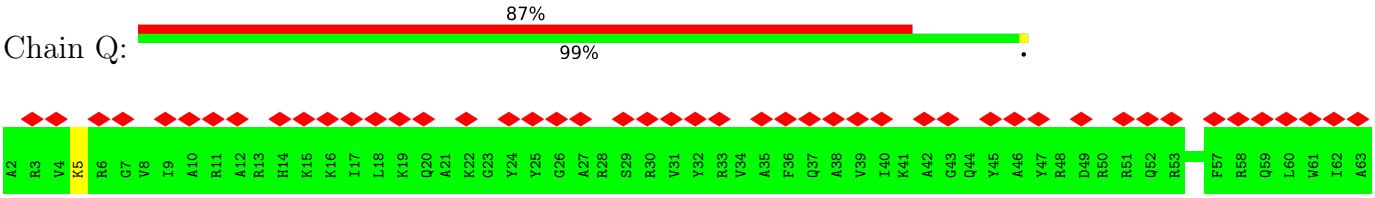
• Molecule 22: 50S ribosomal protein L19

Chain P:



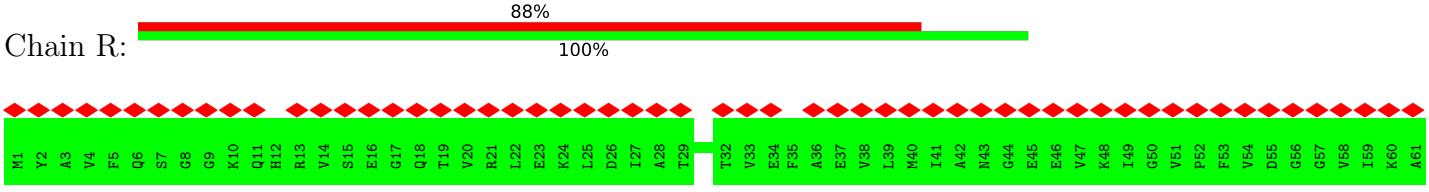
• Molecule 23: 50S ribosomal protein L20

Chain Q:



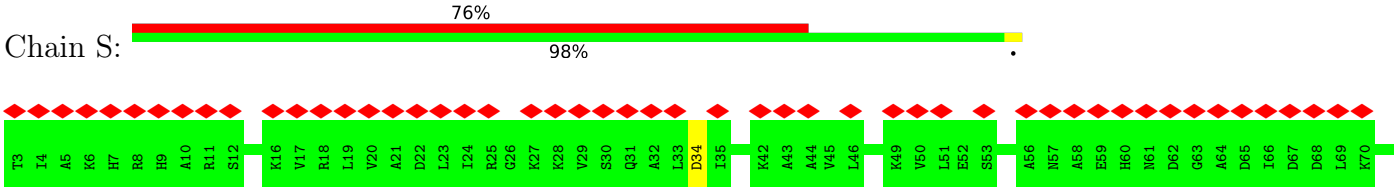
• Molecule 24: 50S ribosomal protein L21

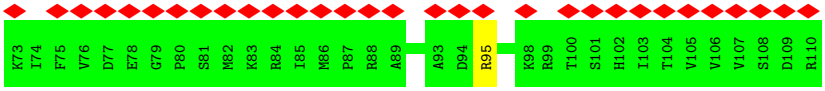
Chain R:



• Molecule 25: 50S ribosomal protein L22

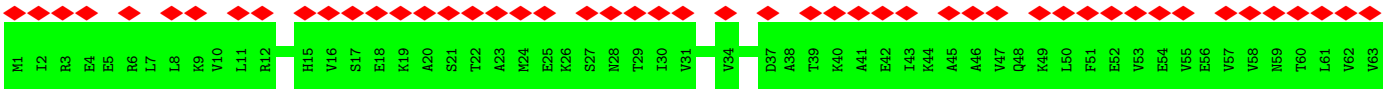
Chain S:

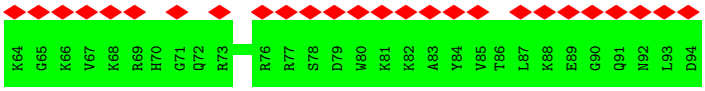




• Molecule 26: 50S ribosomal protein L23

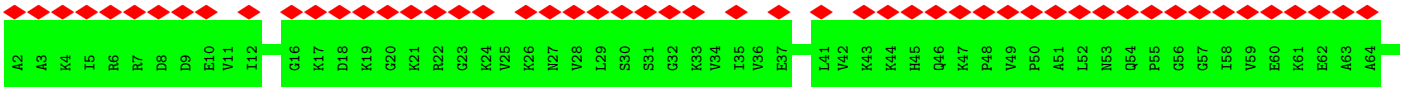
Chain T:

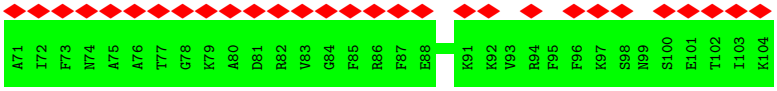




• Molecule 27: 50S ribosomal protein L24

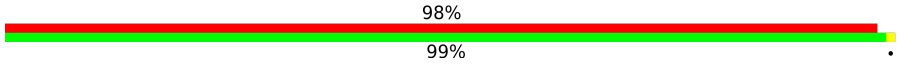
Chain U:

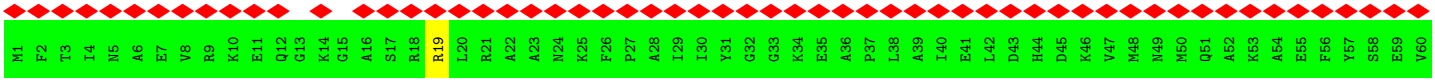


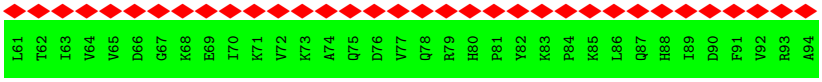


• Molecule 28: 50S ribosomal protein L25

Chain V:

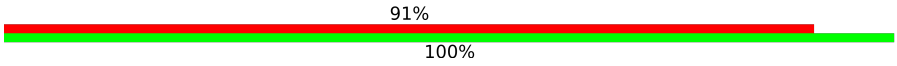


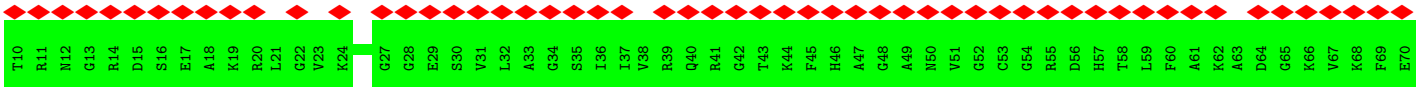


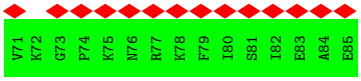


• Molecule 29: 50S ribosomal protein L27

Chain W:

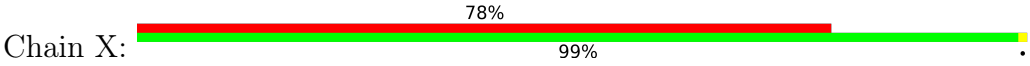


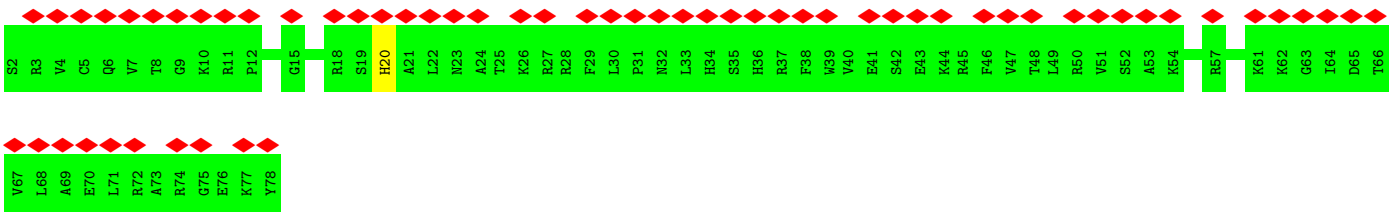




• Molecule 30: 50S ribosomal protein L28

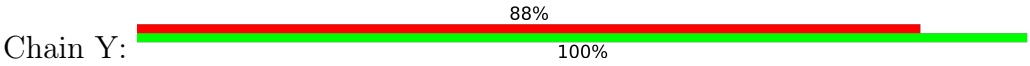
Chain X:

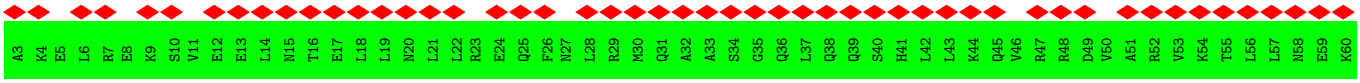




• Molecule 31: 50S ribosomal protein L29

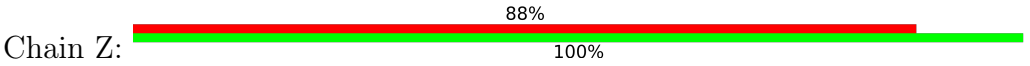
Chain Y:

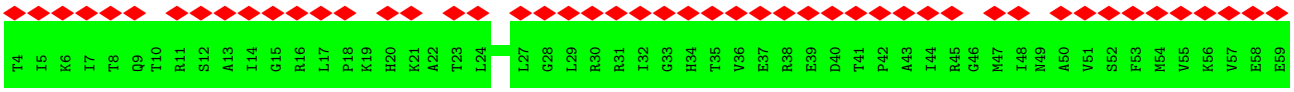




• Molecule 32: 50S ribosomal protein L30

Chain Z:



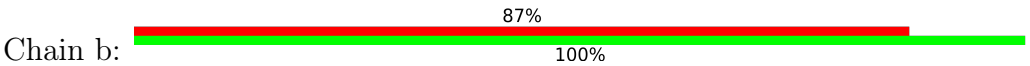


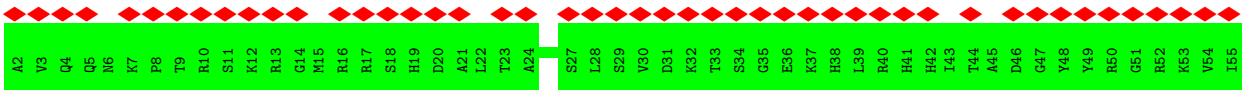
• Molecule 33: 50S ribosomal protein L31

Chain a:

• Molecule 34: 50S ribosomal protein L32

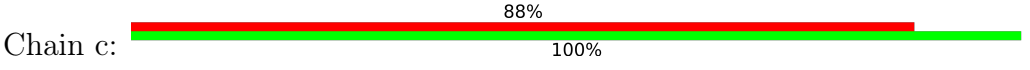
Chain b:

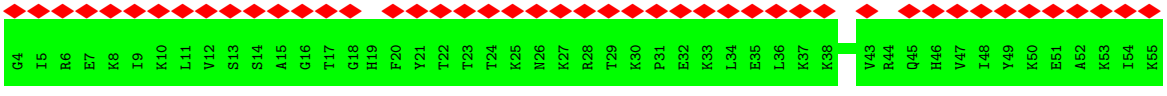




• Molecule 35: 50S ribosomal protein L33

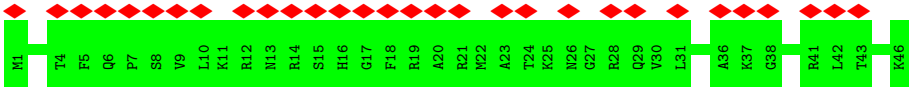
Chain c:





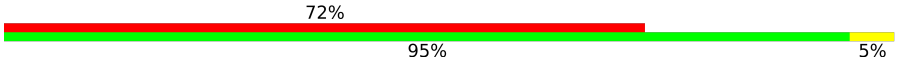
• Molecule 36: 50S ribosomal protein L34

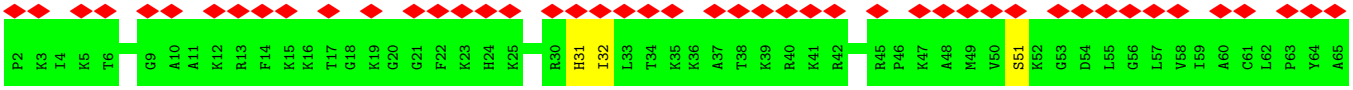
Chain d:



• Molecule 37: 50S ribosomal protein L35

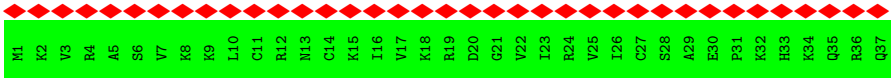
Chain e:





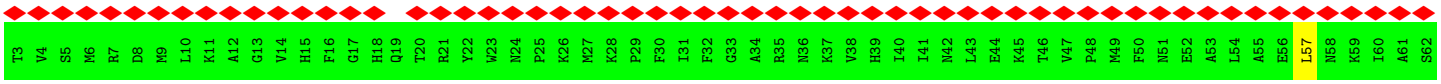
• Molecule 38: 50S ribosomal protein L36

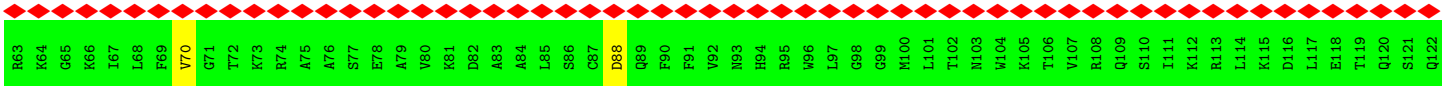
Chain f:

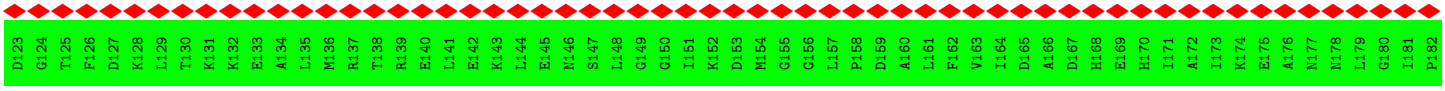


• Molecule 39: 30S ribosomal protein S2

Chain g:

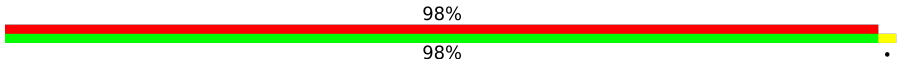


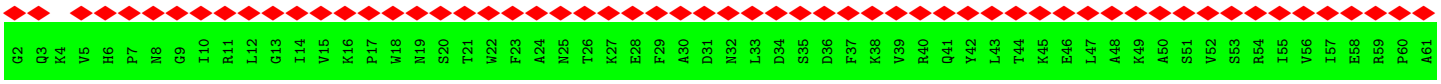




• Molecule 40: 30S ribosomal protein S3

Chain h:





K62 S63 I64 R65 V66 T67 I68 H69 T70 A71 R72 P73 G74 I75 V76 I77 G78 K79 K80 G81 E82 D83 V84 E85 K86 L87 R88 K89 V90 V91 A92 D93 I94 A95 G96 V97 P98 A99 Q100 I101 N102 I103 A104 E105 V106 R107 K108 P109 E110 L111 D112 A113 K114 L115 V116 A117 D118 S119 I120 T121

S122 Q123 L124 E125 R126 R127 V128 M129 F130 R131 R132 A133 M134 K135 R136 A137 V138 Q139 N140 A141 M142 R143 L144 G145 A146 K147 G148 I149 K150 V151 E152 V153 S154 G155 R156 L157 G158 G159 A160 E161 I162 A163 R164 T165 E166 W167 Y168 R169 E170 G171 R172 V173 P174 L175 H176 T177 L178 R179 A180 D181

I182 D183 Y184 N185 T186 S187 E188 A189 H190 T191 T192 Y193 G194 V195 I196 G197 V198 K199 V200 W201 I202 F203 K204 G205 E206 I207 L208 G209

• Molecule 41: 30S ribosomal protein S4

Chain i: 99% 100%

A2 R3 Y4 L5 G6 P7 K8 L9 K10 L11 S12 R13 R14 E15 G16 T17 D18 L19 F20 L21 K22 S23 G24 V25 R26 A27 I28 D29 T30 K31 C32 K33 I34 E35 Q36 A37 P38 G39 Q40 H41 G42 A43 R44 K45 P46 R47 L48 S49 D50 Y51 G52 V53 Q54 L55 R56 E57 K58 Q59 K60 V61

R62 R63 I64 Y65 G66 V67 L68 E69 R70 Q71 F72 R73 N74 Y75 Y76 K77 E78 A79 A80 R81 L82 K83 G84 N85 T86 G87 E88 N89 L90 L91 A92 L93 L94 E95 G96 R97 L98 D99 N100 V101 V102 Y103 R104 M105 G106 F107 G108 A109 T110 R111 A112 E113 A114 R115 Q116 L117 V118 S119 H120 K121

A122 I123 M124 V125 N126 G127 R128 V129 V130 N131 I132 A133 S134 Y135 Q136 V137 S138 P139 N140 D141 V142 V143 S144 I145 R146 E147 K148 A149 K150 K151 Q152 S153 R154 V155 K156 A157 A158 L159 E160 L161 A162 E163 Q164 R165 E166 K167 P168 T169 W170 L171 E172 V173 D174 A175 G176 K177 M178 E179 G180 T181

F182 K183 R184 K185 P186 E187 R188 S189 D190 L191 S192 A193 D194 I195 N196 E197 H198 L199 I200 V201 E202 L203 Y204 S205 K206

• Molecule 42: 30S ribosomal protein S5

Chain j: 99% 100%

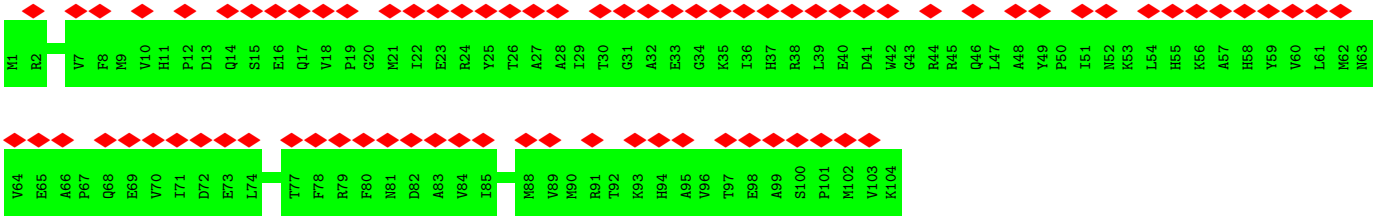
E10 L11 Q12 E13 K14 L15 I16 A17 V18 N19 R20 V21 S22 K23 T24 V25 K26 G27 G28 R29 I30 F31 S32 F33 T34 A35 L36 T37 V38 V39 G40 D41 G42 N43 G44 R45 V46 G47 F48 G49 Y50 G51 K52 A53 R54 E55 V56 P57 A58 A59 I60 Q61 K62 A63 M64 E65 K66 A67 R68 R69

N70 M71 I72 N73 V74 A75 L76 N77 N78 G79 T80 L81 Q82 H83 P84 V85 K86 G87 V88 H89 T90 G91 S92 R93 V94 F95 M96 Q97 P98 A99 S100 E101 G102 T103 G104 I105 I106 A107 G108 G109 A110 M111 R112 A113 V114 L115 E116 V117 A118 G119 V120 H121 N122 V123 L124 A125 K126 A127 Y128 G129

S130 T131 N132 P133 I134 N135 V136 V137 R138 A139 T140 I141 D142 G143 L144 E145 N146 M147 N148 S149 P150 E151 M152 V153 A154 A155 K156 R157 G158 K159 S160 V161 E162 E163 I164 L165

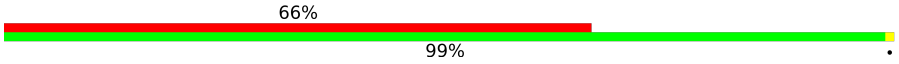
• Molecule 43: 30S ribosomal protein S6

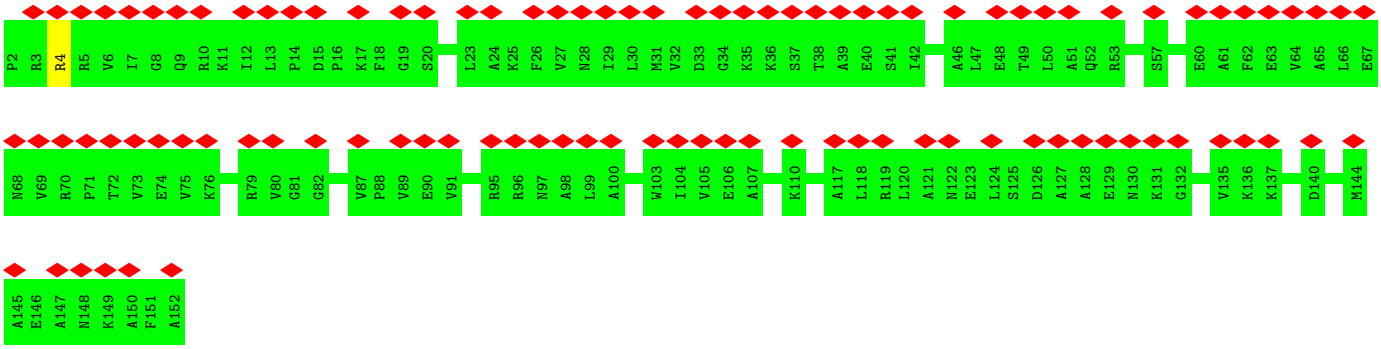
Chain k: 76% 100%



• Molecule 44: 30S ribosomal protein S7

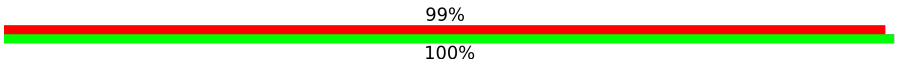
Chain l:

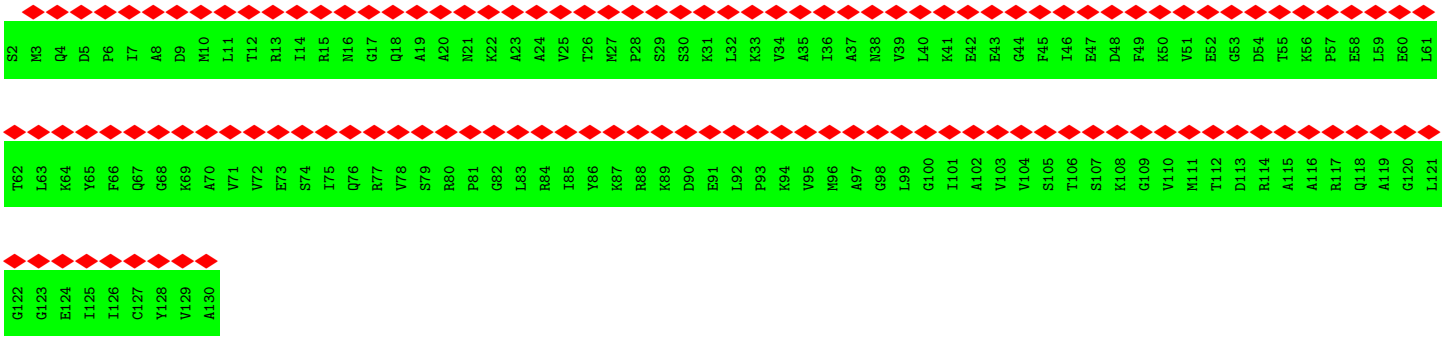




• Molecule 45: 30S ribosomal protein S8

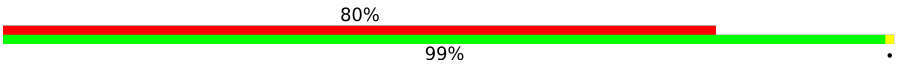
Chain m:

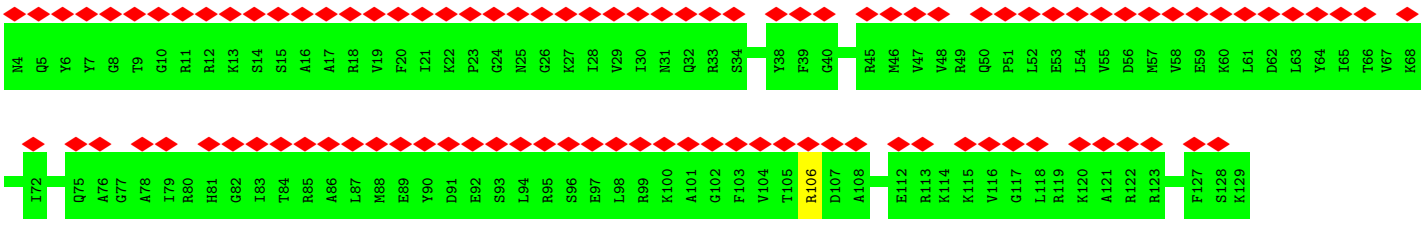




• Molecule 46: 30S ribosomal protein S9

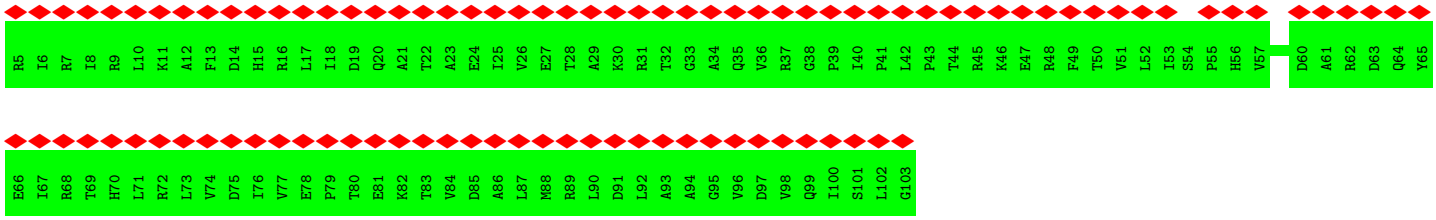
Chain n:





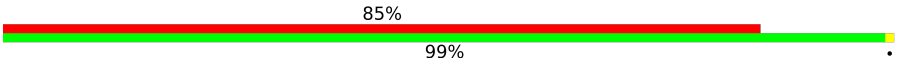
• Molecule 47: 30S ribosomal protein S10

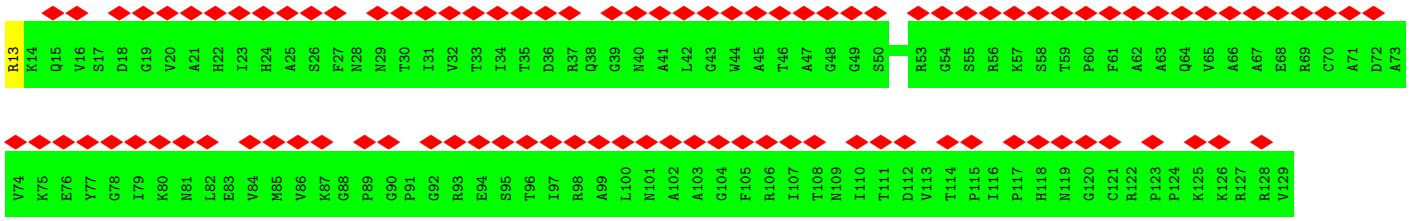
Chain o:



• Molecule 48: 30S ribosomal protein S11

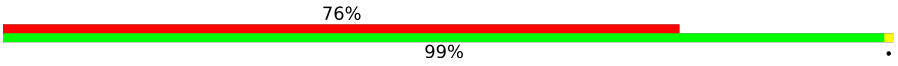
Chain p:

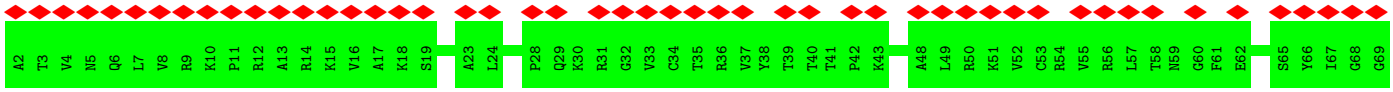


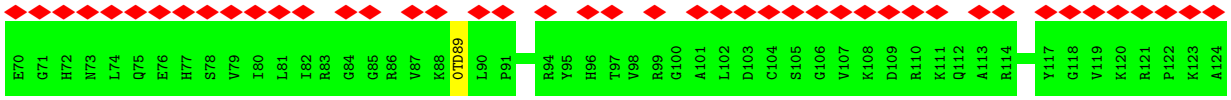


• Molecule 49: 30S ribosomal protein S12

Chain q:

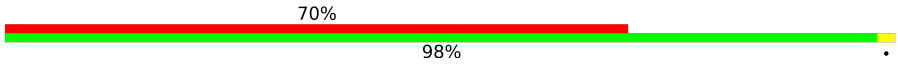


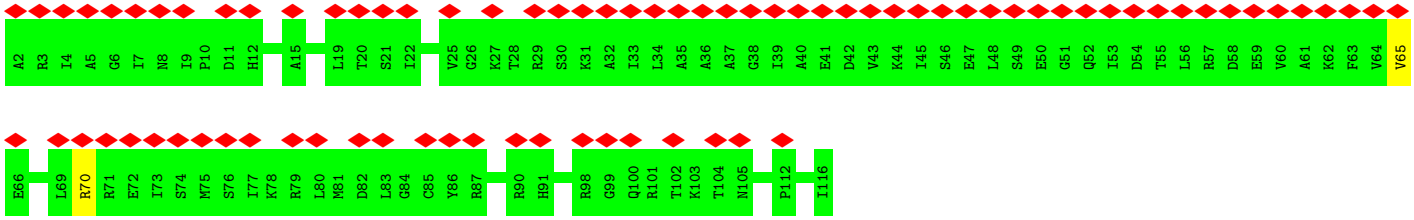




• Molecule 50: 30S ribosomal protein S13

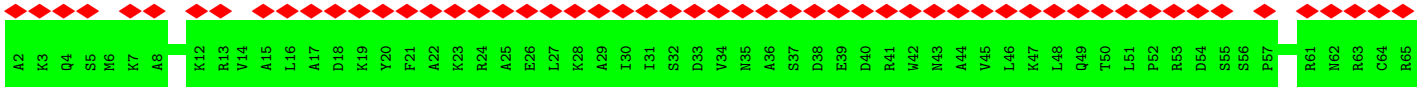
Chain r:

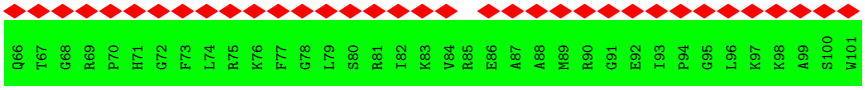




• Molecule 51: 30S ribosomal protein S14

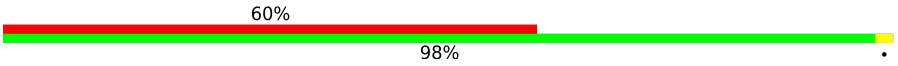
Chain s:

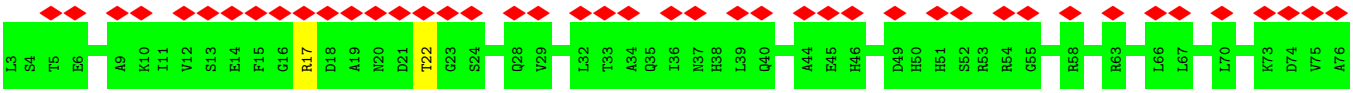


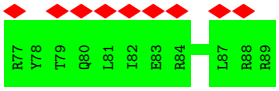


• Molecule 52: 30S ribosomal protein S15

Chain t:

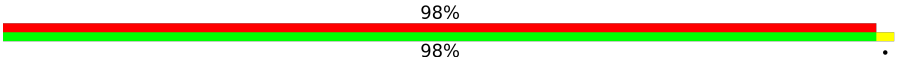


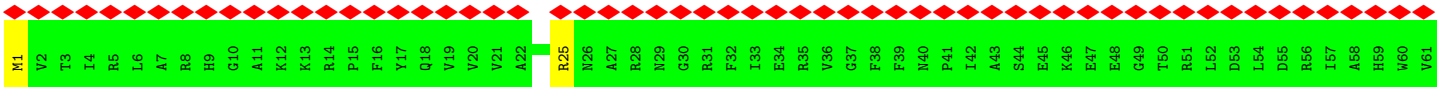


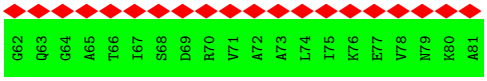


• Molecule 53: 30S ribosomal protein S16

Chain u:

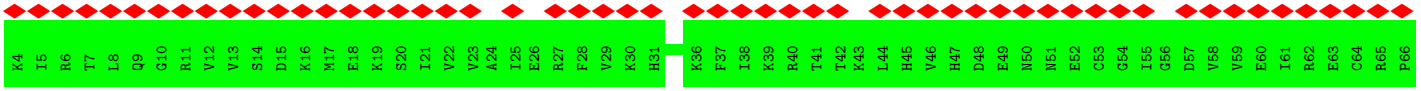


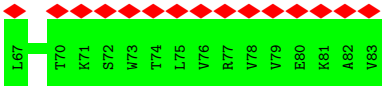




• Molecule 54: 30S ribosomal protein S17

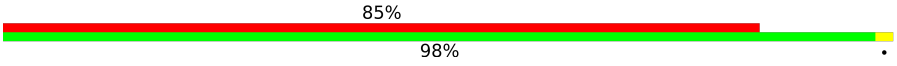
Chain v:

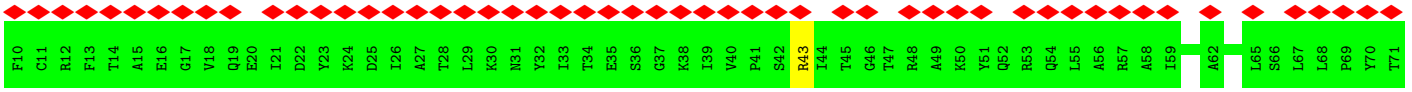




• Molecule 55: 30S ribosomal protein S18

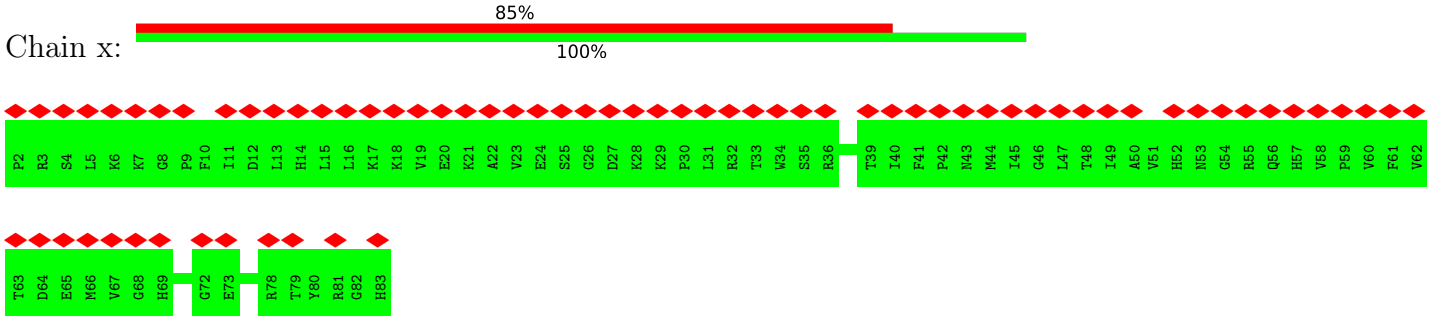
Chain w:





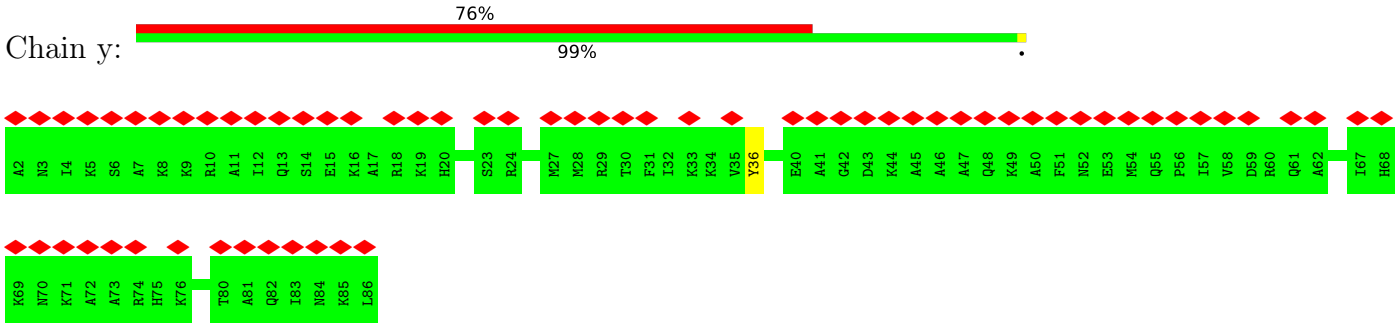
• Molecule 56: 30S ribosomal protein S19

Chain x:



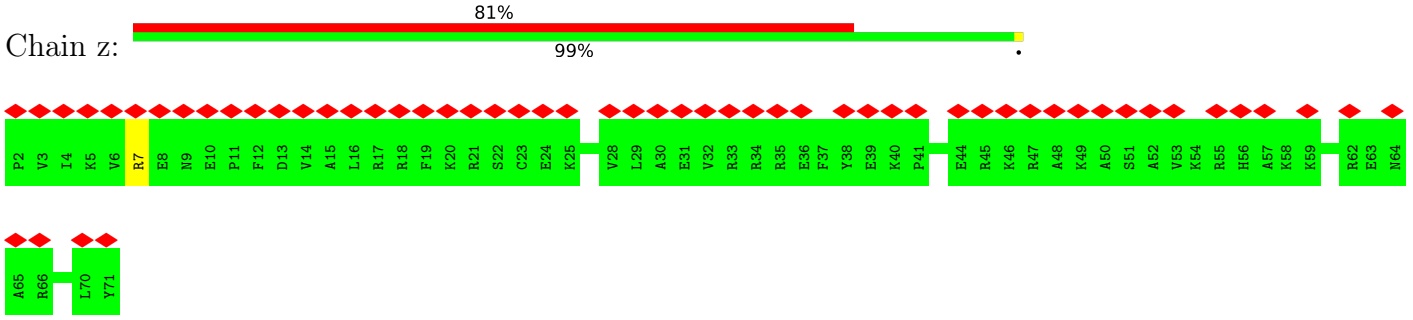
• Molecule 57: 30S ribosomal protein S20

Chain y:



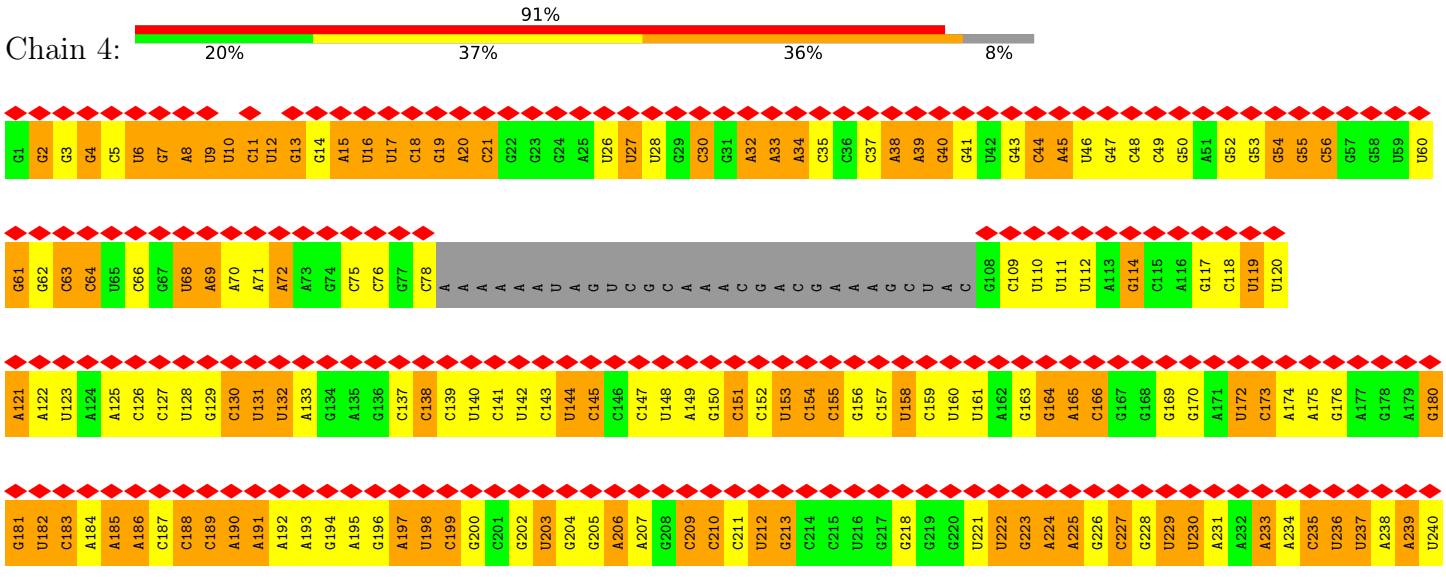
• Molecule 58: 30S ribosomal protein S21

Chain z:



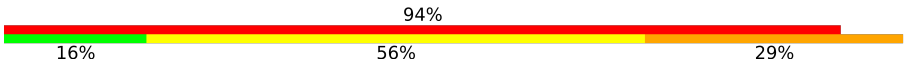
• Molecule 59: transfer-messenger RNA (tmRNA)

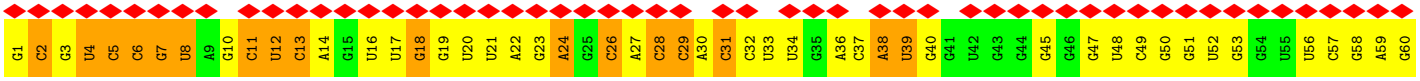
Chain 4:



• Molecule 60: tRNA-Val

Chain 7:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	47776	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	44	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.508	Depositor
Minimum map value	-0.282	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.013	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	406.6, 406.6, 406.6	wwPDB
Map dimensions	380, 380, 380	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 4OC, PSU, 7MG, 5MU, MG, 5MC, 3TD, OMG, 6MZ, UR3, 0TD, 1MG, OMC, ZN, 2MG, G7M, 2MA, MA6, OMU

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	1	1.04	5/69285 (0.0%)	1.22	519/108083 (0.5%)
2	2	1.31	47/36588 (0.1%)	1.40	436/57066 (0.8%)
3	3	0.50	0/2872	1.17	18/4478 (0.4%)
4	5	0.41	0/1191	0.71	1/1601 (0.1%)
5	6	0.33	0/139	0.91	0/193
6	8	5.08	5/1830 (0.3%)	1.48	17/2849 (0.6%)
7	9	0.93	1/142 (0.7%)	2.01	7/219 (3.2%)
8	B	0.46	0/2117	0.64	0/2845
9	C	0.34	0/1586	0.60	0/2134
10	D	0.31	0/1571	0.59	0/2113
11	E	0.35	0/1435	0.65	1/1926 (0.1%)
12	F	0.30	0/1333	0.57	0/1805
13	G	0.31	0/1122	0.64	1/1515 (0.1%)
14	H	0.32	0/993	0.69	1/1340 (0.1%)
15	I	0.31	0/998	0.66	0/1348
16	J	0.30	0/1144	0.56	0/1541
17	K	0.42	0/955	0.62	0/1279
18	L	0.30	0/1062	0.57	0/1413
19	M	0.33	0/1093	0.59	0/1460
20	N	0.33	0/964	0.64	0/1289
21	O	0.30	0/894	0.54	0/1198
22	P	0.40	0/929	0.59	1/1242 (0.1%)
23	Q	0.33	0/960	0.50	0/1278
24	R	0.31	0/829	0.56	0/1107
25	S	0.31	0/847	0.61	1/1134 (0.1%)
26	T	0.32	0/752	0.59	0/1005
27	U	0.30	0/796	0.53	0/1062
28	V	0.29	0/766	0.55	0/1025
29	W	0.35	0/589	0.55	0/779
30	X	0.37	0/635	0.62	0/848
31	Y	0.28	0/478	0.57	0/637

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	Z	0.27	0/438	0.60	0/587
33	a	0.34	0/531	0.55	0/709
34	b	0.31	0/435	0.58	0/581
35	c	0.33	0/433	0.55	0/576
36	d	0.33	0/380	0.53	0/498
37	e	0.34	0/513	0.66	0/676
38	f	0.29	0/298	0.56	0/392
39	g	0.46	0/1791	0.70	1/2413 (0.0%)
40	h	0.51	0/1663	0.65	0/2241
41	i	0.58	0/1665	0.64	0/2227
42	j	0.61	0/1165	0.70	0/1568
43	k	0.58	0/867	0.66	0/1171
44	l	0.47	0/1195	0.60	0/1602
45	m	0.60	0/989	0.67	0/1326
46	n	0.49	0/1022	0.65	0/1361
47	o	0.51	0/800	0.63	0/1082
48	p	0.51	0/893	0.60	0/1205
49	q	0.61	0/960	0.67	0/1286
50	r	0.40	0/900	0.68	1/1204 (0.1%)
51	s	0.50	0/817	0.58	0/1088
52	t	0.58	0/716	0.65	0/956
53	u	0.63	0/653	0.71	0/877
54	v	0.58	0/658	0.68	0/881
55	w	0.63	0/544	0.66	0/731
56	x	0.48	0/675	0.63	0/908
57	y	0.48	0/670	0.61	0/888
58	z	0.44	0/597	0.55	0/792
59	4	0.74	1/7978 (0.0%)	2.10	509/12434 (4.1%)
60	7	0.74	1/1836 (0.1%)	2.21	114/2861 (4.0%)
All	All	1.09	60/168977 (0.0%)	1.22	1628/252933 (0.6%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	1	34	0
2	2	5	0
14	H	0	1
15	I	0	1
17	K	0	1

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
23	Q	0	1
30	X	0	1
37	e	0	2
39	g	0	1
40	h	0	2
53	u	0	1
All	All	39	11

All (60) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	388	G	P-O5'	205.16	3.65	1.59
6	8	77	A	N9-C4	114.08	2.06	1.37
6	8	77	A	N7-C5	106.12	2.02	1.39
6	8	77	A	C8-N7	92.91	1.96	1.31
6	8	77	A	N9-C8	85.15	2.05	1.37
6	8	77	A	C5-C4	81.16	1.95	1.38
2	2	16	A	N9-C4	-8.07	1.33	1.37
2	2	1082	A	N9-C4	-6.67	1.33	1.37
2	2	1081	A	N9-C4	-6.60	1.33	1.37
2	2	580	C	N1-C6	-6.45	1.33	1.37
2	2	780	A	N7-C5	-6.41	1.35	1.39
7	9	1	A	N9-C4	6.34	1.41	1.37
2	2	864	A	N7-C5	-5.98	1.35	1.39
1	1	1365	A	N9-C4	-5.92	1.34	1.37
2	2	861	G	N7-C5	-5.91	1.35	1.39
2	2	1476	A	N9-C4	-5.86	1.34	1.37
2	2	858	G	C5-C6	-5.83	1.36	1.42
2	2	858	G	N7-C5	-5.81	1.35	1.39
2	2	817	C	N1-C6	-5.66	1.33	1.37
2	2	452	A	N9-C4	-5.62	1.34	1.37
1	1	2607	G	N3-C4	-5.49	1.31	1.35
2	2	364	A	N9-C4	-5.45	1.34	1.37
2	2	1434	A	N7-C5	-5.45	1.35	1.39
2	2	1504	G	N9-C8	-5.44	1.34	1.37
2	2	320	A	N9-C4	-5.41	1.34	1.37
2	2	112	G	N7-C5	-5.39	1.36	1.39
2	2	807	A	N7-C5	-5.37	1.36	1.39
2	2	115	G	N7-C5	-5.35	1.36	1.39
2	2	568	G	N7-C5	-5.33	1.36	1.39
60	7	13	C	N1-C2	5.32	1.45	1.40
2	2	354	G	N3-C4	-5.29	1.31	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1318	A	N9-C4	-5.29	1.34	1.37
2	2	302	G	N7-C5	-5.27	1.36	1.39
2	2	628	G	N3-C4	-5.22	1.31	1.35
2	2	553	A	N7-C5	-5.20	1.36	1.39
2	2	60	A	N3-C4	-5.20	1.31	1.34
2	2	865	A	N7-C5	-5.20	1.36	1.39
2	2	778	G	N7-C5	-5.18	1.36	1.39
2	2	668	G	N7-C5	-5.13	1.36	1.39
2	2	766	A	N9-C4	-5.12	1.34	1.37
2	2	675	A	N9-C4	-5.12	1.34	1.37
59	4	72	A	N9-C4	5.11	1.41	1.37
2	2	451	A	N9-C4	-5.09	1.34	1.37
2	2	663	A	N9-C4	-5.08	1.34	1.37
2	2	353	A	N9-C4	-5.08	1.34	1.37
2	2	16	A	N3-C4	-5.07	1.31	1.34
2	2	664	G	N7-C5	-5.07	1.36	1.39
1	1	2114	A	N9-C4	5.06	1.40	1.37
2	2	953	G	N7-C5	-5.06	1.36	1.39
2	2	1396	A	N9-C4	-5.06	1.34	1.37
2	2	823	C	N1-C6	-5.05	1.34	1.37
2	2	1080	A	N3-C4	-5.05	1.31	1.34
2	2	786	G	N7-C5	-5.05	1.36	1.39
1	1	1933	G	N7-C5	-5.04	1.36	1.39
2	2	774	G	N7-C5	-5.04	1.36	1.39
2	2	577	G	C5-C6	-5.03	1.37	1.42
2	2	1068	G	N7-C5	-5.02	1.36	1.39
2	2	667	G	N7-C5	-5.02	1.36	1.39
2	2	1526	G	N7-C5	-5.01	1.36	1.39
2	2	21	G	N7-C5	-5.00	1.36	1.39

All (1628) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	8	77	A	N7-C8-N9	-24.47	101.56	113.80
1	1	388	G	P-O5'-C5'	22.44	156.80	120.90
6	8	77	A	C5-N7-C8	20.39	114.09	103.90
60	7	72	G	OP1-P-O3'	-19.57	62.15	105.20
60	7	73	C	OP1-P-OP2	19.16	148.35	119.60
59	4	356	C	C6-N1-C2	-16.30	113.78	120.30
59	4	358	C	C6-N1-C2	-15.13	114.25	120.30
60	7	73	C	C5-C6-N1	15.08	128.54	121.00
60	7	29	C	C6-N1-C2	-14.93	114.33	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
60	7	76	C	N1-C2-O2	14.68	127.71	118.90
60	7	73	C	C6-N1-C2	-14.61	114.46	120.30
59	4	358	C	C5-C6-N1	14.30	128.15	121.00
59	4	173	C	N1-C2-O2	14.28	127.47	118.90
59	4	334	A	O4'-C1'-N9	14.28	119.62	108.20
59	4	132	U	O5'-P-OP2	-14.27	92.86	105.70
6	8	77	A	N1-C2-N3	14.11	136.36	129.30
59	4	34	A	O5'-P-OP1	-13.93	93.17	105.70
59	4	154	C	N1-C2-O2	13.92	127.25	118.90
6	8	77	A	C8-N9-C4	13.78	111.31	105.80
59	4	154	C	C2-N1-C1'	13.61	133.77	118.80
60	7	13	C	N1-C2-O2	13.60	127.06	118.90
59	4	39	A	O4'-C1'-N9	13.40	118.92	108.20
60	7	1	G	C8-N9-C4	-13.27	101.09	106.40
59	4	15	A	O5'-P-OP1	13.20	126.55	110.70
59	4	245	C	C6-N1-C2	-12.93	115.13	120.30
59	4	356	C	N1-C2-O2	12.81	126.59	118.90
59	4	299	C	C2-N1-C1'	12.80	132.88	118.80
60	7	13	C	C2-N1-C1'	12.52	132.57	118.80
6	8	77	A	C6-N1-C2	12.51	126.11	118.60
60	7	13	C	N3-C2-O2	-12.31	113.28	121.90
59	4	335	C	C2-N1-C1'	12.30	132.33	118.80
2	2	1052	U	C2-N1-C1'	12.18	132.32	117.70
59	4	237	U	N1-C2-O2	12.17	131.32	122.80
59	4	356	C	N3-C2-O2	-12.12	113.42	121.90
59	4	155	C	C2-N1-C1'	12.01	132.01	118.80
59	4	237	U	C2-N1-C1'	11.96	132.06	117.70
60	7	76	C	N3-C2-O2	-11.90	113.57	121.90
59	4	323	A	C8-N9-C4	-11.88	101.05	105.80
59	4	137	C	C6-N1-C2	-11.85	115.56	120.30
59	4	15	A	P-O3'-C3'	11.82	133.89	119.70
60	7	73	C	O5'-P-OP2	-11.80	95.08	105.70
60	7	63	C	C6-N1-C2	-11.77	115.59	120.30
60	7	13	C	O5'-P-OP1	11.70	124.74	110.70
60	7	29	C	C5-C6-N1	11.65	126.83	121.00
6	8	77	A	C6-C5-N7	11.65	140.46	132.30
60	7	28	C	C6-N1-C2	-11.63	115.65	120.30
59	4	356	C	C5-C6-N1	11.36	126.68	121.00
59	4	173	C	C2-N1-C1'	11.36	131.29	118.80
59	4	173	C	N3-C2-O2	-11.35	113.96	121.90
2	2	1052	U	N3-C2-O2	-11.31	114.28	122.20
1	1	431	U	C2-N1-C1'	11.28	131.24	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	237	U	N3-C2-O2	-11.28	114.31	122.20
59	4	343	C	C2-N1-C1'	11.27	131.19	118.80
59	4	154	C	N3-C2-O2	-11.22	114.05	121.90
1	1	431	U	N3-C2-O2	-11.18	114.37	122.20
59	4	245	C	C5-C6-N1	11.16	126.58	121.00
59	4	258	G	O5'-P-OP1	-11.12	95.69	105.70
60	7	1	G	N7-C8-N9	11.10	118.65	113.10
60	7	28	C	C5-C6-N1	11.00	126.50	121.00
60	7	76	C	C6-N1-C2	-10.96	115.92	120.30
60	7	5	C	C6-N1-C2	-10.88	115.95	120.30
59	4	335	C	N1-C2-O2	10.86	125.42	118.90
59	4	262	U	N3-C2-O2	-10.76	114.67	122.20
59	4	173	C	C6-N1-C2	-10.69	116.02	120.30
6	8	77	A	N3-C4-C5	-10.53	119.43	126.80
60	7	13	C	C6-N1-C2	-10.52	116.09	120.30
59	4	245	C	N1-C2-O2	10.52	125.21	118.90
59	4	262	U	N1-C2-O2	10.50	130.15	122.80
59	4	362	C	O5'-P-OP1	10.49	123.29	110.70
2	2	1052	U	N1-C2-O2	10.49	130.14	122.80
60	7	67	C	N1-C2-O2	10.49	125.19	118.90
59	4	21	C	C6-N1-C2	-10.41	116.13	120.30
39	g	88	ASP	CB-CG-OD1	10.38	127.65	118.30
1	1	1905	C	C6-N1-C2	-10.29	116.18	120.30
1	1	475	C	C2-N1-C1'	10.28	130.11	118.80
59	4	155	C	N1-C2-O2	10.25	125.05	118.90
2	2	1109	C	N1-C2-O2	10.21	125.02	118.90
59	4	266	C	P-O3'-C3'	10.20	131.94	119.70
59	4	63	C	N1-C2-O2	10.11	124.97	118.90
59	4	48	C	P-O3'-C3'	10.09	131.81	119.70
1	1	1065	U	N3-C2-O2	-10.08	115.14	122.20
2	2	569	C	C6-N1-C2	-10.07	116.27	120.30
60	7	76	C	C2-N1-C1'	10.01	129.81	118.80
2	2	613	C	C6-N1-C2	-10.00	116.30	120.30
2	2	1322	C	N3-C2-O2	-10.00	114.90	121.90
59	4	120	U	N3-C2-O2	-9.98	115.21	122.20
2	2	1322	C	C6-N1-C2	-9.98	116.31	120.30
59	4	173	C	C5-C6-N1	9.90	125.95	121.00
59	4	299	C	N1-C2-O2	9.90	124.84	118.90
1	1	1313	U	C2-N1-C1'	9.88	129.56	117.70
1	1	387	U	P-O3'-C3'	9.84	131.51	119.70
59	4	145	C	C6-N1-C2	-9.82	116.37	120.30
59	4	290	A	P-O3'-C3'	9.79	131.44	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
60	7	5	C	C5-C6-N1	9.75	125.88	121.00
60	7	73	C	N1-C2-O2	9.71	124.73	118.90
1	1	2255	G	C8-N9-C4	-9.71	102.52	106.40
59	4	300	U	N3-C2-O2	-9.70	115.41	122.20
59	4	13	G	N3-C4-N9	-9.69	120.18	126.00
1	1	475	C	N1-C2-O2	9.68	124.71	118.90
60	7	32	C	N1-C2-O2	9.66	124.70	118.90
1	1	431	U	N1-C2-O2	9.52	129.46	122.80
59	4	299	C	C6-N1-C1'	-9.49	109.41	120.80
59	4	9	U	P-O3'-C3'	9.47	131.07	119.70
59	4	64	C	C6-N1-C2	-9.45	116.52	120.30
59	4	154	C	C6-N1-C1'	-9.44	109.48	120.80
59	4	209	C	O5'-P-OP1	9.39	121.97	110.70
59	4	262	U	C2-N1-C1'	9.39	128.97	117.70
59	4	222	U	C5-C6-N1	9.37	127.38	122.70
2	2	1059	C	C6-N1-C2	-9.35	116.56	120.30
59	4	260	C	C6-N1-C2	-9.35	116.56	120.30
2	2	1427	C	C2-N1-C1'	9.31	129.04	118.80
59	4	154	C	C6-N1-C2	-9.29	116.58	120.30
59	4	341	U	N3-C2-O2	-9.28	115.70	122.20
59	4	48	C	C6-N1-C2	-9.23	116.61	120.30
1	1	1585	C	N1-C2-O2	9.22	124.43	118.90
2	2	858	G	C6-C5-N7	-9.19	124.88	130.40
1	1	2403	C	N1-C2-O2	9.19	124.42	118.90
2	2	1404	C	C6-N1-C2	-9.18	116.63	120.30
59	4	210	C	C6-N1-C2	-9.16	116.63	120.30
59	4	141	C	C6-N1-C2	-9.14	116.64	120.30
1	1	2096	C	C2-N1-C1'	9.12	128.84	118.80
59	4	39	A	N9-C1'-C2'	9.09	125.82	114.00
60	7	32	C	N3-C2-O2	-9.09	115.54	121.90
59	4	187	C	N3-C2-O2	-9.08	115.55	121.90
60	7	12	U	C6-N1-C2	-9.03	115.58	121.00
59	4	343	C	N1-C2-O2	9.03	124.32	118.90
2	2	1109	C	N3-C2-O2	-9.03	115.58	121.90
59	4	265	C	C6-N1-C2	-9.00	116.70	120.30
6	8	77	A	C4-C5-C6	-8.93	112.53	117.00
7	9	3	G	O4'-C1'-N9	8.93	115.35	108.20
1	1	387	U	OP2-P-O3'	-8.92	85.58	105.20
59	4	308	U	P-O3'-C3'	8.92	130.40	119.70
60	7	71	C	P-O3'-C3'	-8.89	109.03	119.70
6	8	77	A	N3-C4-N9	8.89	134.51	127.40
2	2	475	C	C2-N1-C1'	8.84	128.53	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	187	C	N1-C2-O2	8.84	124.20	118.90
59	4	37	C	C6-N1-C2	-8.82	116.77	120.30
59	4	158	U	C5-C6-N1	8.78	127.09	122.70
59	4	181	G	N3-C4-C5	-8.76	124.22	128.60
59	4	245	C	P-O3'-C3'	8.76	130.21	119.70
1	1	2460	U	N3-C2-O2	-8.75	116.08	122.20
7	9	1	A	C2-N3-C4	8.74	114.97	110.60
59	4	308	U	C5-C6-N1	8.74	127.07	122.70
1	1	343	C	N1-C2-O2	8.71	124.13	118.90
59	4	299	C	C5-C6-N1	8.70	125.35	121.00
59	4	137	C	C5-C6-N1	8.68	125.34	121.00
59	4	11	C	N1-C2-O2	8.68	124.11	118.90
59	4	199	C	C6-N1-C2	-8.65	116.84	120.30
59	4	181	G	O4'-C1'-N9	8.65	115.12	108.20
2	2	970	C	C6-N1-C2	-8.64	116.84	120.30
1	1	1060	U	N1-C2-O2	8.64	128.85	122.80
2	2	1159	U	N3-C2-O2	-8.63	116.16	122.20
59	4	120	U	N1-C2-O2	8.63	128.84	122.80
2	2	1158	C	N1-C2-O2	8.62	124.07	118.90
60	7	27	A	C8-N9-C4	-8.61	102.36	105.80
60	7	63	C	C5-C6-N1	8.61	125.30	121.00
1	1	385	C	N1-C2-O2	8.57	124.04	118.90
1	1	1065	U	N1-C2-O2	8.56	128.79	122.80
59	4	245	C	N3-C2-O2	-8.56	115.91	121.90
59	4	343	C	C6-N1-C2	-8.55	116.88	120.30
1	1	2585	U	N3-C2-O2	-8.55	116.22	122.20
1	1	1905	C	C5-C6-N1	8.54	125.27	121.00
60	7	27	A	N7-C8-N9	8.53	118.07	113.80
59	4	270	C	C6-N1-C2	-8.52	116.89	120.30
2	2	1007	U	N1-C2-O2	8.52	128.76	122.80
1	1	1816	C	N1-C2-O2	8.50	124.00	118.90
2	2	1158	C	C2-N1-C1'	8.49	128.15	118.80
59	4	7	G	C8-N9-C4	-8.48	103.01	106.40
59	4	335	C	C6-N1-C1'	-8.48	110.63	120.80
1	1	2460	U	N1-C2-O2	8.47	128.73	122.80
59	4	341	U	C6-N1-C2	-8.47	115.92	121.00
59	4	75	C	C6-N1-C2	-8.47	116.91	120.30
59	4	155	C	C6-N1-C2	-8.46	116.92	120.30
59	4	45	A	C8-N9-C4	-8.46	102.42	105.80
59	4	241	C	C6-N1-C2	-8.44	116.92	120.30
59	4	349	C	C6-N1-C2	-8.44	116.92	120.30
59	4	341	U	N1-C2-O2	8.44	128.71	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	120	U	C2-N1-C1'	8.44	127.83	117.70
59	4	341	U	C5-C6-N1	8.42	126.91	122.70
59	4	63	C	C2-N1-C1'	8.41	128.05	118.80
59	4	137	C	N3-C2-O2	-8.38	116.03	121.90
1	1	2207	C	N3-C2-O2	-8.37	116.04	121.90
60	7	75	C	C5-C6-N1	8.36	125.18	121.00
60	7	75	C	C6-N1-C2	-8.34	116.97	120.30
1	1	1816	C	C2-N1-C1'	8.33	127.97	118.80
59	4	300	U	N1-C2-O2	8.33	128.63	122.80
59	4	335	C	C5-C6-N1	8.32	125.16	121.00
60	7	76	C	C5-C6-N1	8.32	125.16	121.00
1	1	1892	C	N1-C2-O2	8.32	123.89	118.90
2	2	584	G	C6-C5-N7	-8.29	125.43	130.40
59	4	41	G	N7-C8-N9	8.28	117.24	113.10
1	1	1595	C	C6-N1-C2	-8.25	117.00	120.30
59	4	275	C	C6-N1-C2	-8.24	117.00	120.30
59	4	314	C	P-O3'-C3'	8.24	129.59	119.70
1	1	1971	U	N1-C2-O2	8.23	128.56	122.80
2	2	1279	G	C4-N9-C1'	8.23	137.20	126.50
59	4	152	C	N1-C2-O2	8.22	123.83	118.90
2	2	1303	C	N1-C2-O2	8.22	123.83	118.90
59	4	342	U	C5-C6-N1	8.22	126.81	122.70
59	4	147	C	C6-N1-C2	-8.20	117.02	120.30
2	2	1159	U	N1-C2-O2	8.19	128.53	122.80
59	4	8	A	C4-N9-C1'	8.19	141.04	126.30
59	4	11	C	OP2-P-O3'	8.19	123.21	105.20
59	4	335	C	C6-N1-C2	-8.17	117.03	120.30
59	4	45	A	N7-C8-N9	8.16	117.88	113.80
60	7	67	C	C2-N1-C1'	8.13	127.74	118.80
2	2	1521	C	C6-N1-C2	-8.13	117.05	120.30
60	7	67	C	C6-N1-C2	-8.13	117.05	120.30
59	4	308	U	C2-N1-C1'	8.12	127.45	117.70
1	1	1052	C	N1-C2-O2	8.11	123.77	118.90
59	4	155	C	C6-N1-C1'	-8.11	111.07	120.80
59	4	138	C	N3-C2-O2	-8.10	116.23	121.90
59	4	272	C	P-O3'-C3'	8.10	129.42	119.70
1	1	1060	U	N3-C2-O2	-8.10	116.53	122.20
2	2	1427	C	C5-C6-N1	8.09	125.04	121.00
59	4	183	C	N3-C2-O2	-8.09	116.24	121.90
2	2	568	G	C6-C5-N7	-8.08	125.55	130.40
60	7	73	C	N3-C2-O2	-8.08	116.24	121.90
1	1	1313	U	N1-C2-O2	8.08	128.46	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	475	C	C6-N1-C2	-8.07	117.07	120.30
59	4	158	U	C6-N1-C2	-8.07	116.16	121.00
59	4	323	A	N7-C8-N9	8.06	117.83	113.80
1	1	2006	C	C5-C6-N1	8.05	125.03	121.00
2	2	736	C	C6-N1-C2	-8.06	117.08	120.30
59	4	223	G	C4-N9-C1'	8.05	136.97	126.50
1	1	2888	C	N1-C2-O2	8.05	123.73	118.90
1	1	1313	U	N3-C2-O2	-8.03	116.58	122.20
1	1	1971	U	N3-C2-O2	-8.03	116.58	122.20
59	4	48	C	O3'-P-O5'	8.02	119.23	104.00
59	4	222	U	C2-N1-C1'	8.01	127.31	117.70
59	4	112	U	C5-C6-N1	8.01	126.70	122.70
59	4	54	G	C4-N9-C1'	8.01	136.91	126.50
1	1	2539	C	N3-C2-O2	-8.00	116.30	121.90
2	2	858	G	N1-C6-O6	8.00	124.70	119.90
2	2	1322	C	N1-C2-O2	7.99	123.70	118.90
59	4	10	U	P-O3'-C3'	7.99	129.29	119.70
59	4	138	C	N1-C2-O2	7.98	123.69	118.90
59	4	152	C	C6-N1-C2	-7.98	117.11	120.30
60	7	26	C	N1-C2-O2	7.97	123.68	118.90
1	1	2443	C	C6-N1-C2	-7.97	117.11	120.30
2	2	365	U	C2-N1-C1'	7.97	127.26	117.70
2	2	210	C	N1-C2-O2	7.95	123.67	118.90
59	4	154	C	O5'-P-OP2	-7.94	98.55	105.70
60	7	12	U	C5-C6-N1	7.94	126.67	122.70
59	4	155	C	N3-C2-O2	-7.93	116.35	121.90
59	4	137	C	N1-C2-O2	7.89	123.63	118.90
59	4	187	C	C6-N1-C2	-7.88	117.15	120.30
60	7	13	C	C6-N1-C1'	-7.88	111.34	120.80
59	4	54	G	N3-C4-C5	-7.88	124.66	128.60
2	2	210	C	C2-N1-C1'	7.87	127.45	118.80
59	4	38	A	P-O3'-C3'	7.85	129.12	119.70
59	4	181	G	N3-C4-N9	7.85	130.71	126.00
60	7	26	C	N3-C2-O2	-7.85	116.41	121.90
59	4	39	A	C4-N9-C1'	7.84	140.42	126.30
14	H	81	LEU	CA-CB-CG	7.84	133.33	115.30
59	4	12	U	N1-C2-O2	7.84	128.28	122.80
59	4	152	C	N3-C2-O2	-7.83	116.42	121.90
1	1	57	C	C6-N1-C2	-7.82	117.17	120.30
1	1	1401	G	N3-C2-N2	-7.81	114.43	119.90
1	1	2096	C	N1-C2-O2	7.81	123.59	118.90
2	2	328	C	N1-C2-O2	7.81	123.58	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
60	7	67	C	N3-C2-O2	-7.81	116.43	121.90
59	4	229	U	C5-C6-N1	7.80	126.60	122.70
59	4	222	U	N1-C2-O2	7.80	128.26	122.80
2	2	245	U	N1-C2-O2	7.80	128.26	122.80
2	2	858	G	C4-C5-N7	7.80	113.92	110.80
1	1	545	U	N1-C2-O2	7.79	128.25	122.80
2	2	95	C	N1-C2-O2	7.79	123.57	118.90
1	1	1401	G	C8-N9-C1'	7.79	137.12	127.00
2	2	1306	A	C8-N9-C4	-7.78	102.69	105.80
1	1	475	C	N3-C2-O2	-7.77	116.46	121.90
1	1	138	U	C2-N1-C1'	7.75	127.00	117.70
60	7	1	G	N3-C4-C5	-7.75	124.73	128.60
1	1	1401	G	N3-C4-N9	-7.74	121.36	126.00
59	4	329	U	C5-C6-N1	7.72	126.56	122.70
1	1	2465	C	C2-N1-C1'	7.72	127.29	118.80
2	2	804	U	C2-N1-C1'	7.72	126.96	117.70
1	1	1102	C	N1-C2-O2	7.72	123.53	118.90
1	1	192	C	C6-N1-C2	-7.69	117.22	120.30
2	2	1109	C	C2-N1-C1'	7.68	127.25	118.80
3	3	89	U	N1-C2-O2	7.66	128.16	122.80
59	4	225	A	C8-N9-C4	-7.66	102.74	105.80
59	4	343	C	C6-N1-C1'	-7.66	111.61	120.80
2	2	571	U	C5-C6-N1	7.66	126.53	122.70
59	4	155	C	C5-C6-N1	7.65	124.82	121.00
2	2	864	A	C8-N9-C4	-7.64	102.75	105.80
59	4	8	A	C8-N9-C1'	-7.64	113.95	127.70
59	4	357	U	C5-C6-N1	7.63	126.52	122.70
60	7	63	C	N1-C2-O2	7.63	123.48	118.90
59	4	237	U	C6-N1-C1'	-7.61	110.55	121.20
1	1	57	C	C5-C6-N1	7.60	124.80	121.00
59	4	225	A	N7-C8-N9	7.59	117.60	113.80
1	1	948	C	C6-N1-C2	-7.59	117.27	120.30
3	3	89	U	C2-N1-C1'	7.58	126.80	117.70
1	1	2255	G	N7-C8-N9	7.58	116.89	113.10
2	2	556	C	C6-N1-C2	-7.57	117.27	120.30
2	2	73	C	N1-C2-O2	7.56	123.44	118.90
2	2	1159	U	C2-N1-C1'	7.56	126.77	117.70
3	3	89	U	N3-C2-O2	-7.55	116.91	122.20
1	1	1585	C	N3-C2-O2	-7.55	116.62	121.90
3	3	26	C	N1-C2-O2	7.55	123.43	118.90
59	4	109	C	C5-C6-N1	7.54	124.77	121.00
2	2	1427	C	C6-N1-C2	-7.54	117.28	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	313	C	C5-C6-N1	7.53	124.77	121.00
2	2	571	U	C6-N1-C2	-7.53	116.48	121.00
59	4	223	G	N3-C4-N9	7.53	130.52	126.00
2	2	1306	A	N7-C8-N9	7.53	117.56	113.80
2	2	12	U	C6-N1-C2	-7.53	116.48	121.00
1	1	2585	U	N1-C2-O2	7.51	128.06	122.80
1	1	2226	C	N1-C2-O2	7.50	123.40	118.90
1	1	1109	C	N1-C2-O2	7.50	123.40	118.90
2	2	1426	G	C4-N9-C1'	7.49	136.24	126.50
1	1	970	U	N1-C2-O2	7.47	128.03	122.80
6	8	77	A	C4-C5-N7	-7.47	106.97	110.70
2	2	245	U	N3-C2-O2	-7.45	116.98	122.20
59	4	182	U	C6-N1-C2	-7.45	116.53	121.00
1	1	2442	C	C6-N1-C2	-7.44	117.32	120.30
1	1	2607	G	N3-C4-N9	-7.44	121.54	126.00
59	4	343	C	C5-C6-N1	7.43	124.72	121.00
2	2	761	G	C4-C5-N7	7.42	113.77	110.80
2	2	1052	U	C6-N1-C2	-7.41	116.56	121.00
2	2	984	C	C6-N1-C2	-7.41	117.34	120.30
1	1	545	U	C2-N1-C1'	7.40	126.58	117.70
2	2	843	U	C5-C6-N1	7.39	126.40	122.70
59	4	245	C	C2-N1-C1'	7.39	126.93	118.80
1	1	2006	C	C6-N1-C2	-7.38	117.35	120.30
22	P	24	ASP	CB-CG-OD1	7.37	124.93	118.30
1	1	885	C	C6-N1-C2	-7.37	117.35	120.30
59	4	15	A	O5'-P-OP2	-7.37	99.07	105.70
2	2	769	G	C4-N9-C1'	7.36	136.06	126.50
59	4	189	C	P-O3'-C3'	7.36	128.53	119.70
59	4	154	C	C5-C6-N1	7.35	124.67	121.00
59	4	222	U	N3-C2-O2	-7.34	117.06	122.20
1	1	2394	C	C5-C6-N1	7.34	124.67	121.00
1	1	281	C	O4'-C1'-N1	7.33	114.07	108.20
1	1	970	U	N3-C2-O2	-7.33	117.07	122.20
2	2	95	C	C2-N1-C1'	7.32	126.85	118.80
59	4	343	C	N3-C2-O2	-7.32	116.78	121.90
59	4	227	C	C5-C6-N1	7.31	124.66	121.00
1	1	2888	C	C2-N1-C1'	7.31	126.84	118.80
1	1	2771	C	N1-C2-O2	7.30	123.28	118.90
59	4	248	G	P-O3'-C3'	7.29	128.45	119.70
1	1	1196	C	C6-N1-C2	-7.29	117.39	120.30
1	1	2260	C	C6-N1-C2	-7.28	117.39	120.30
2	2	1052	U	C6-N1-C1'	-7.28	111.01	121.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	54	G	N3-C4-N9	7.28	130.37	126.00
59	4	320	U	P-O3'-C3'	7.27	128.43	119.70
1	1	545	U	N3-C2-O2	-7.27	117.11	122.20
2	2	1109	C	C6-N1-C2	-7.27	117.39	120.30
2	2	328	C	C2-N1-C1'	7.27	126.79	118.80
59	4	34	A	O4'-C1'-N9	7.26	114.01	108.20
59	4	182	U	C5-C6-N1	7.26	126.33	122.70
59	4	229	U	N3-C2-O2	-7.26	117.12	122.20
1	1	1967	C	C6-N1-C2	-7.26	117.40	120.30
59	4	361	C	C6-N1-C2	-7.26	117.40	120.30
59	4	181	G	C4-N9-C1'	7.24	135.91	126.50
59	4	222	U	C6-N1-C2	-7.24	116.66	121.00
1	1	1109	C	C6-N1-C2	-7.24	117.41	120.30
1	1	2656	U	C2-N1-C1'	7.24	126.38	117.70
59	4	9	U	C5'-C4'-O4'	-7.23	100.42	109.10
1	1	1010	A	C8-N9-C4	-7.23	102.91	105.80
2	2	316	C	C6-N1-C2	-7.23	117.41	120.30
59	4	229	U	OP1-P-O3'	7.22	121.09	105.20
59	4	111	U	C5-C6-N1	7.22	126.31	122.70
59	4	335	C	N3-C2-O2	-7.21	116.85	121.90
59	4	56	C	C6-N1-C2	-7.20	117.42	120.30
59	4	78	C	C6-N1-C2	-7.20	117.42	120.30
1	1	1065	U	C6-N1-C2	-7.19	116.68	121.00
60	7	11	C	N1-C2-O2	7.19	123.22	118.90
59	4	12	U	P-O3'-C3'	7.18	128.32	119.70
2	2	584	G	N1-C6-O6	7.18	124.21	119.90
1	1	431	U	C6-N1-C1'	-7.18	111.15	121.20
59	4	270	C	C5-C6-N1	7.17	124.59	121.00
59	4	163	G	P-O3'-C3'	7.17	128.30	119.70
1	1	2562	U	N3-C2-O2	-7.16	117.19	122.20
59	4	180	G	C8-N9-C4	-7.16	103.54	106.40
59	4	229	U	C6-N1-C2	-7.16	116.71	121.00
59	4	284	G	P-O3'-C3'	7.15	128.28	119.70
1	1	1927	A	N7-C8-N9	7.14	117.37	113.80
1	1	1153	C	C6-N1-C2	-7.14	117.44	120.30
60	7	74	A	C8-N9-C4	-7.14	102.94	105.80
59	4	13	G	C8-N9-C1'	7.13	136.27	127.00
59	4	181	G	C5'-C4'-O4'	7.12	117.65	109.10
59	4	223	G	N3-C4-C5	-7.12	125.04	128.60
59	4	292	A	C8-N9-C4	-7.11	102.96	105.80
1	1	2403	C	N3-C2-O2	-7.10	116.93	121.90
1	1	669	G	C4-N9-C1'	7.09	135.72	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	237	U	C5-C6-N1	7.09	126.25	122.70
59	4	335	C	C2-N3-C4	7.09	123.44	119.90
60	7	32	C	C6-N1-C2	-7.08	117.47	120.30
1	1	1927	A	C8-N9-C4	-7.08	102.97	105.80
2	2	960	U	C2-N1-C1'	7.07	126.19	117.70
1	1	1065	U	C2-N1-C1'	7.07	126.19	117.70
1	1	992	C	N1-C2-O2	7.07	123.14	118.90
59	4	21	C	O4'-C1'-N1	7.06	113.85	108.20
2	2	744	C	C6-N1-C2	-7.06	117.48	120.30
59	4	230	U	O4'-C1'-N1	7.06	113.85	108.20
1	1	2562	U	N1-C2-O2	7.05	127.73	122.80
59	4	186	A	O4'-C1'-N9	7.05	113.84	108.20
2	2	340	U	N3-C2-O2	-7.04	117.27	122.20
59	4	332	G	P-O3'-C3'	7.04	128.15	119.70
2	2	972	C	C6-N1-C2	-7.03	117.49	120.30
59	4	13	G	N9-C4-C5	7.03	108.21	105.40
59	4	11	C	P-O3'-C3'	7.03	128.13	119.70
2	2	882	C	C6-N1-C2	-7.02	117.49	120.30
60	7	63	C	N3-C2-O2	-7.02	116.98	121.90
1	1	1379	U	N3-C2-O2	-7.02	117.29	122.20
59	4	183	C	N1-C2-O2	7.02	123.11	118.90
60	7	2	C	O4'-C1'-N1	7.02	113.81	108.20
1	1	984	A	C2-N3-C4	7.01	114.11	110.60
2	2	73	C	C2-N1-C1'	7.00	126.50	118.80
1	1	2226	C	C6-N1-C2	-7.00	117.50	120.30
60	7	7	G	O4'-C1'-N9	7.00	113.80	108.20
2	2	568	G	N3-C4-N9	6.99	130.20	126.00
60	7	73	C	C4-C5-C6	-6.99	113.90	117.40
59	4	213	G	OP1-P-OP2	-6.99	109.12	119.60
1	1	1967	C	C5-C6-N1	6.99	124.49	121.00
2	2	1121	U	C2-N1-C1'	6.98	126.08	117.70
59	4	266	C	O3'-P-O5'	6.98	117.27	104.00
1	1	1582	C	C6-N1-C2	-6.98	117.51	120.30
1	1	2888	C	N3-C2-O2	-6.98	117.01	121.90
2	2	330	C	N1-C2-O2	6.98	123.09	118.90
2	2	861	G	C8-N9-C4	-6.98	103.61	106.40
1	1	475	C	C5-C6-N1	6.97	124.49	121.00
1	1	499	U	N1-C2-O2	6.97	127.68	122.80
1	1	97	C	N1-C2-O2	6.97	123.08	118.90
1	1	138	U	N3-C2-O2	-6.97	117.32	122.20
1	1	2880	C	N1-C2-O2	6.97	123.08	118.90
59	4	8	A	N7-C8-N9	6.97	117.28	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	299	C	C6-N1-C2	-6.96	117.52	120.30
2	2	108	G	C4-C5-N7	6.96	113.58	110.80
1	1	1585	C	C2-N1-C1'	6.95	126.45	118.80
59	4	131	U	OP2-P-O3'	6.95	120.50	105.20
1	1	2106	U	C2-N1-C1'	6.95	126.03	117.70
1	1	2244	U	C5-C6-N1	6.94	126.17	122.70
59	4	269	C	N1-C2-O2	6.94	123.06	118.90
1	1	499	U	C2-N1-C1'	6.93	126.02	117.70
59	4	78	C	C5-C6-N1	6.93	124.47	121.00
59	4	151	C	N1-C2-O2	6.93	123.06	118.90
59	4	223	G	C8-N9-C1'	-6.93	117.99	127.00
1	1	885	C	C5-C6-N1	6.93	124.46	121.00
1	1	1774	C	N3-C2-O2	-6.92	117.05	121.90
59	4	8	A	C8-N9-C4	-6.92	103.03	105.80
1	1	2214	C	C6-N1-C2	-6.92	117.53	120.30
1	1	1053	C	N1-C2-O2	6.92	123.05	118.90
59	4	15	A	OP1-P-OP2	-6.91	109.23	119.60
1	1	1967	C	C2-N1-C1'	6.91	126.40	118.80
59	4	63	C	N3-C2-O2	-6.90	117.07	121.90
1	1	1752	C	C5-C6-N1	6.90	124.45	121.00
2	2	654	G	C4-N9-C1'	6.90	135.47	126.50
59	4	265	C	C5-C6-N1	6.89	124.45	121.00
59	4	180	G	N7-C8-N9	6.89	116.55	113.10
1	1	2111	U	C2-N1-C1'	6.89	125.96	117.70
59	4	330	U	N3-C2-O2	-6.88	117.38	122.20
1	1	2773	C	N1-C2-O2	6.88	123.03	118.90
1	1	1109	C	N3-C2-O2	-6.88	117.08	121.90
1	1	2656	U	C5-C6-N1	6.87	126.14	122.70
60	7	26	C	C6-N1-C2	-6.87	117.55	120.30
59	4	32	A	C2-N3-C4	6.87	114.03	110.60
59	4	330	U	N1-C2-O2	6.87	127.61	122.80
59	4	11	C	C6-N1-C2	-6.86	117.55	120.30
1	1	2626	C	C6-N1-C2	-6.86	117.56	120.30
1	1	1533	C	C2-N1-C1'	6.86	126.34	118.80
59	4	147	C	O4'-C1'-N1	6.86	113.68	108.20
1	1	2652	C	N1-C2-O2	6.85	123.01	118.90
59	4	17	U	C6-N1-C2	-6.84	116.89	121.00
1	1	2773	C	N3-C2-O2	-6.84	117.11	121.90
2	2	108	G	C6-C5-N7	-6.84	126.30	130.40
1	1	2394	C	C6-N1-C2	-6.83	117.57	120.30
2	2	568	G	C4-C5-N7	6.83	113.53	110.80
59	4	229	U	C2-N1-C1'	6.83	125.90	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	304	C	C6-N1-C2	-6.83	117.57	120.30
1	1	138	U	N1-C2-O2	6.83	127.58	122.80
60	7	70	A	N7-C8-N9	6.82	117.21	113.80
1	1	106	C	N1-C2-O2	6.81	122.98	118.90
59	4	261	G	P-O3'-C3'	6.80	127.87	119.70
59	4	358	C	O4'-C1'-N1	6.80	113.64	108.20
59	4	362	C	C6-N1-C1'	6.80	128.96	120.80
2	2	578	C	C6-N1-C2	-6.80	117.58	120.30
2	2	12	U	C5-C6-N1	6.79	126.09	122.70
2	2	1279	G	C8-N9-C1'	-6.78	118.18	127.00
60	7	12	U	O4'-C1'-N1	6.78	113.63	108.20
1	1	758	C	C6-N1-C2	-6.78	117.59	120.30
1	1	2656	U	N1-C2-O2	6.77	127.54	122.80
2	2	786	G	C4-N9-C1'	6.77	135.31	126.50
59	4	356	C	C2-N3-C4	6.77	123.29	119.90
2	2	1493	A	O5'-P-OP2	6.77	118.82	110.70
1	1	2256	G	O5'-P-OP1	-6.77	99.61	105.70
59	4	2	G	C6-C5-N7	-6.76	126.34	130.40
59	4	151	C	N3-C2-O2	-6.76	117.17	121.90
59	4	173	C	C6-N1-C1'	-6.76	112.68	120.80
1	1	1079	C	C2-N1-C1'	6.76	126.24	118.80
60	7	66	U	C5-C6-N1	6.76	126.08	122.70
1	1	992	C	C6-N1-C2	-6.76	117.60	120.30
2	2	846	G	N3-C4-N9	6.75	130.05	126.00
2	2	117	G	C6-C5-N7	-6.75	126.35	130.40
2	2	488	C	C6-N1-C2	-6.75	117.60	120.30
1	1	475	C	C6-N1-C1'	-6.75	112.70	120.80
2	2	340	U	C2-N1-C1'	6.75	125.80	117.70
59	4	229	U	N1-C2-O2	6.75	127.53	122.80
59	4	357	U	C6-N1-C2	-6.75	116.95	121.00
59	4	41	G	C6-C5-N7	-6.74	126.36	130.40
2	2	1267	C	N1-C2-O2	6.74	122.94	118.90
1	1	894	U	P-O3'-C3'	6.73	127.77	119.70
1	1	2403	C	C6-N1-C2	-6.72	117.61	120.30
59	4	165	A	P-O3'-C3'	6.72	127.77	119.70
59	4	223	G	P-O3'-C3'	6.72	127.77	119.70
59	4	182	U	C2-N1-C1'	6.72	125.76	117.70
1	1	2607	G	N3-C2-N2	-6.71	115.20	119.90
2	2	848	C	C6-N1-C2	-6.71	117.62	120.30
2	2	654	G	C8-N9-C1'	-6.71	118.28	127.00
2	2	795	C	C2-N1-C1'	6.71	126.18	118.80
1	1	1053	C	C2-N1-C1'	6.71	126.18	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	182	U	N3-C2-O2	-6.70	117.51	122.20
1	1	1990	C	N3-C2-O2	-6.70	117.21	121.90
2	2	843	U	C2-N1-C1'	6.70	125.74	117.70
59	4	16	U	P-O3'-C3'	6.69	127.73	119.70
1	1	1752	C	C6-N1-C2	-6.69	117.62	120.30
2	2	843	U	C6-N1-C2	-6.69	116.99	121.00
2	2	568	G	C4-N9-C1'	6.69	135.19	126.50
59	4	54	G	C8-N9-C1'	-6.67	118.32	127.00
60	7	29	C	O4'-C1'-N1	6.67	113.54	108.20
1	1	2888	C	C6-N1-C2	-6.67	117.63	120.30
2	2	112	G	C6-C5-N7	-6.66	126.40	130.40
2	2	1158	C	N3-C2-O2	-6.66	117.24	121.90
1	1	1816	C	C5-C6-N1	6.66	124.33	121.00
1	1	840	C	N3-C2-O2	-6.66	117.24	121.90
59	4	11	C	C5-C6-N1	6.66	124.33	121.00
59	4	212	U	OP1-P-O3'	6.66	119.85	105.20
60	7	24	A	O5'-P-OP1	6.66	118.69	110.70
59	4	151	C	C6-N1-C2	-6.65	117.64	120.30
1	1	343	C	N3-C2-O2	-6.64	117.25	121.90
2	2	783	C	C6-N1-C2	-6.64	117.64	120.30
59	4	185	A	N7-C8-N9	6.64	117.12	113.80
2	2	1052	U	C5-C6-N1	6.64	126.02	122.70
2	2	1314	C	C6-N1-C2	-6.64	117.64	120.30
59	4	356	C	C2-N1-C1'	6.64	126.10	118.80
1	1	1079	C	C6-N1-C2	-6.64	117.64	120.30
1	1	2255	G	O4'-C1'-N9	6.64	113.51	108.20
1	1	97	C	C2-N1-C1'	6.63	126.10	118.80
60	7	36	A	N7-C8-N9	6.63	117.12	113.80
1	1	1417	C	C5-C6-N1	6.63	124.31	121.00
59	4	139	C	C6-N1-C2	-6.63	117.65	120.30
2	2	61	G	C6-C5-N7	-6.63	126.42	130.40
59	4	20	A	O4'-C1'-N9	6.63	113.50	108.20
2	2	1109	C	C3'-C2'-C1'	6.62	106.80	101.50
1	1	385	C	N3-C2-O2	-6.62	117.26	121.90
59	4	227	C	C6-N1-C2	-6.62	117.65	120.30
1	1	140	C	C2-N1-C1'	6.62	126.08	118.80
1	1	2226	C	N3-C2-O2	-6.61	117.27	121.90
60	7	1	G	C5-N7-C8	-6.61	100.99	104.30
59	4	38	A	OP1-P-O3'	6.61	119.74	105.20
2	2	1282	C	N1-C2-O2	6.60	122.86	118.90
1	1	1795	C	C6-N1-C2	-6.59	117.66	120.30
2	2	557	G	C4-N9-C1'	6.59	135.07	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
60	7	70	A	C8-N9-C4	-6.59	103.16	105.80
1	1	1314	C	N1-C2-O2	6.59	122.85	118.90
2	2	207	C	C6-N1-C2	-6.58	117.67	120.30
1	1	2460	U	C2-N1-C1'	6.57	125.58	117.70
1	1	1121	C	C2-N1-C1'	6.57	126.03	118.80
1	1	2525	G	C5-C6-O6	6.56	132.53	128.60
1	1	154	U	N3-C2-O2	-6.55	117.61	122.20
2	2	381	C	N1-C2-O2	6.55	122.83	118.90
1	1	2096	C	C6-N1-C1'	-6.55	112.94	120.80
2	2	1373	G	C4-C5-N7	6.55	113.42	110.80
1	1	970	U	C2-N1-C1'	6.54	125.55	117.70
2	2	96	U	N3-C2-O2	-6.54	117.62	122.20
59	4	314	C	OP1-P-O3'	6.54	119.59	105.20
59	4	32	A	P-O3'-C3'	6.54	127.55	119.70
1	1	1102	C	C2-N1-C1'	6.54	125.99	118.80
1	1	198	C	C2-N1-C1'	6.54	125.99	118.80
59	4	11	C	N3-C2-O2	-6.54	117.32	121.90
1	1	1315	C	C2-N1-C1'	6.54	125.99	118.80
6	8	8	U	N1-C2-O2	6.53	127.37	122.80
59	4	189	C	C6-N1-C2	-6.53	117.69	120.30
2	2	1303	C	N3-C2-O2	-6.53	117.33	121.90
60	7	11	C	C6-N1-C2	-6.52	117.69	120.30
1	1	2153	C	C5-C6-N1	6.52	124.26	121.00
2	2	1526	G	C6-C5-N7	-6.52	126.49	130.40
59	4	329	U	C6-N1-C2	-6.52	117.09	121.00
2	2	970	C	C6-N1-C1'	6.51	128.62	120.80
59	4	9	U	O5'-P-OP1	-6.51	99.84	105.70
59	4	13	G	C4-N9-C1'	-6.51	118.04	126.50
2	2	962	C	C6-N1-C2	-6.51	117.70	120.30
2	2	1466	C	N3-C2-O2	-6.51	117.35	121.90
2	2	475	C	C6-N1-C1'	-6.50	113.00	120.80
2	2	312	C	C6-N1-C2	-6.50	117.70	120.30
60	7	18	G	P-O3'-C3'	6.50	127.50	119.70
1	1	678	C	C6-N1-C2	-6.50	117.70	120.30
59	4	12	U	N3-C2-O2	-6.49	117.66	122.20
1	1	811	U	C6-N1-C2	-6.49	117.11	121.00
1	1	1052	C	N3-C2-O2	-6.49	117.36	121.90
2	2	1132	C	N1-C2-O2	6.49	122.79	118.90
59	4	41	G	C5-N7-C8	-6.49	101.06	104.30
2	2	761	G	C5-C6-O6	-6.48	124.71	128.60
2	2	429	U	C2-N1-C1'	-6.48	109.92	117.70
59	4	17	U	N3-C2-O2	-6.48	117.66	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	311	C	C6-N1-C2	-6.47	117.71	120.30
59	4	349	C	C5-C6-N1	6.47	124.24	121.00
1	1	198	C	N1-C2-O2	6.47	122.78	118.90
59	4	39	A	C8-N9-C1'	-6.47	116.06	127.70
2	2	795	C	N1-C2-O2	6.47	122.78	118.90
2	2	23	C	C5-C6-N1	6.46	124.23	121.00
2	2	1334	G	C4-N9-C1'	6.46	134.90	126.50
2	2	623	C	C6-N1-C2	-6.46	117.72	120.30
2	2	769	G	C8-N9-C1'	-6.46	118.60	127.00
59	4	333	G	C5'-C4'-O4'	-6.45	101.36	109.10
1	1	736	C	C6-N1-C2	-6.45	117.72	120.30
1	1	2880	C	C6-N1-C2	-6.45	117.72	120.30
59	4	158	U	C5'-C4'-O4'	-6.45	101.36	109.10
59	4	260	C	C5-C6-N1	6.45	124.22	121.00
1	1	2771	C	C2-N1-C1'	6.44	125.88	118.80
59	4	141	C	C5-C6-N1	6.44	124.22	121.00
59	4	233	A	P-O3'-C3'	6.44	127.43	119.70
1	1	1412	U	C5-C6-N1	6.44	125.92	122.70
59	4	262	U	C6-N1-C2	-6.44	117.14	121.00
2	2	638	U	C2-N1-C1'	6.43	125.42	117.70
59	4	279	C	C5-C6-N1	6.43	124.22	121.00
2	2	637	C	C6-N1-C2	-6.43	117.73	120.30
59	4	5	C	O4'-C1'-N1	6.43	113.34	108.20
59	4	40	G	N3-C4-C5	-6.42	125.39	128.60
1	1	2656	U	N3-C2-O2	-6.41	117.71	122.20
59	4	15	A	OP2-P-O3'	6.41	119.30	105.20
2	2	786	G	C6-C5-N7	-6.41	126.56	130.40
59	4	164	G	P-O3'-C3'	6.41	127.39	119.70
1	1	1680	U	N3-C2-O2	-6.40	117.72	122.20
59	4	2	G	C4-C5-N7	6.40	113.36	110.80
1	1	1313	U	C6-N1-C1'	-6.40	112.24	121.20
60	7	13	C	C5-C6-N1	6.40	124.20	121.00
1	1	970	U	C5-C6-N1	6.40	125.90	122.70
59	4	44	C	O4'-C1'-N1	6.40	113.32	108.20
1	1	1971	U	C2-N1-C1'	6.39	125.38	117.70
59	4	63	C	C6-N1-C1'	-6.39	113.13	120.80
59	4	324	G	N1-C6-O6	-6.38	116.07	119.90
2	2	569	C	C5-C6-N1	6.37	124.19	121.00
59	4	16	U	N3-C2-O2	-6.37	117.74	122.20
3	3	26	C	N3-C2-O2	-6.37	117.44	121.90
2	2	632	U	N1-C2-O2	6.36	127.25	122.80
2	2	810	C	C6-N1-C2	-6.36	117.75	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1059	C	C5-C6-N1	6.36	124.18	121.00
1	1	1840	G	N3-C4-N9	6.36	129.82	126.00
3	3	62	C	N3-C2-O2	-6.36	117.45	121.90
1	1	2006	C	N1-C2-O2	6.36	122.71	118.90
2	2	1282	C	N3-C2-O2	-6.36	117.45	121.90
59	4	130	C	P-O3'-C3'	6.36	127.33	119.70
1	1	1153	C	C2-N1-C1'	6.35	125.79	118.80
1	1	2525	G	N3-C4-N9	-6.35	122.19	126.00
1	1	1079	C	C5-C6-N1	6.35	124.17	121.00
2	2	806	C	C6-N1-C2	-6.35	117.76	120.30
2	2	22	G	C4-N9-C1'	6.35	134.75	126.50
59	4	247	A	P-O3'-C3'	6.35	127.32	119.70
60	7	76	C	C2-N3-C4	6.35	123.07	119.90
59	4	229	U	P-O3'-C3'	6.34	127.31	119.70
2	2	857	C	N3-C2-O2	-6.34	117.46	121.90
59	4	227	C	N1-C2-O2	6.34	122.70	118.90
60	7	65	C	C6-N1-C2	-6.34	117.77	120.30
2	2	861	G	C6-C5-N7	-6.33	126.60	130.40
1	1	106	C	N3-C2-O2	-6.33	117.47	121.90
1	1	679	C	C6-N1-C2	-6.33	117.77	120.30
2	2	810	C	C2-N1-C1'	6.33	125.76	118.80
7	9	1	A	N3-C4-C5	-6.33	122.37	126.80
1	1	1776	G	C4-N9-C1'	6.32	134.72	126.50
2	2	237	G	C4-N9-C1'	6.32	134.72	126.50
59	4	39	A	N7-C8-N9	6.32	116.96	113.80
2	2	214	C	N3-C2-O2	-6.32	117.48	121.90
1	1	2057	G	N3-C4-N9	-6.32	122.21	126.00
60	7	13	C	O5'-P-OP2	-6.32	100.02	105.70
59	4	72	A	C2-N3-C4	6.31	113.76	110.60
59	4	312	A	O4'-C1'-N9	6.31	113.25	108.20
59	4	356	C	N3-C4-C5	-6.31	119.38	121.90
2	2	858	G	C5-C6-O6	-6.31	124.81	128.60
2	2	1279	G	N3-C4-N9	6.31	129.79	126.00
1	1	723	C	N1-C2-O2	6.31	122.69	118.90
2	2	175	C	C6-N1-C2	-6.31	117.78	120.30
59	4	138	C	C6-N1-C2	-6.31	117.78	120.30
60	7	31	C	N3-C2-O2	-6.31	117.48	121.90
1	1	2404	U	C2-N1-C1'	6.30	125.27	117.70
59	4	157	C	C6-N1-C2	-6.30	117.78	120.30
1	1	2720	U	N3-C2-O2	-6.30	117.79	122.20
2	2	903	G	N3-C4-N9	-6.30	122.22	126.00
2	2	330	C	N3-C2-O2	-6.29	117.49	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	1060	U	C5-C4-O4	6.29	129.67	125.90
1	1	565	C	C5-C6-N1	6.29	124.14	121.00
1	1	1843	C	C6-N1-C2	-6.28	117.79	120.30
1	1	991	C	C5-C6-N1	6.28	124.14	121.00
1	1	2720	U	N1-C2-O2	6.28	127.20	122.80
2	2	1373	G	C6-C5-N7	-6.28	126.63	130.40
1	1	1092	C	N1-C2-O2	6.28	122.67	118.90
59	4	203	U	C5-C6-N1	6.28	125.84	122.70
1	1	992	C	N3-C2-O2	-6.27	117.51	121.90
2	2	1158	C	C6-N1-C1'	-6.27	113.27	120.80
1	1	1768	C	C6-N1-C2	-6.27	117.79	120.30
2	2	1043	G	N3-C4-N9	6.27	129.76	126.00
1	1	2880	C	N3-C2-O2	-6.26	117.52	121.90
2	2	1509	C	C6-N1-C2	-6.26	117.80	120.30
59	4	41	G	C4-C5-N7	6.26	113.30	110.80
59	4	316	A	C8-N9-C4	-6.25	103.30	105.80
1	1	2091	C	C6-N1-C2	-6.25	117.80	120.30
1	1	2615	U	C2-N1-C1'	6.25	125.20	117.70
59	4	66	C	P-O3'-C3'	6.25	127.20	119.70
2	2	1107	C	C5-C6-N1	6.25	124.12	121.00
1	1	2260	C	C5-C6-N1	6.24	124.12	121.00
1	1	2403	C	C2-N1-C1'	6.24	125.66	118.80
60	7	11	C	O4'-C1'-N1	6.23	113.19	108.20
1	1	515	A	N7-C8-N9	6.23	116.92	113.80
2	2	22	G	C8-N9-C1'	-6.23	118.90	127.00
1	1	1585	C	C6-N1-C2	-6.23	117.81	120.30
59	4	75	C	C5-C6-N1	6.23	124.11	121.00
2	2	1007	U	N3-C2-O2	-6.23	117.84	122.20
2	2	1460	C	C5-C6-N1	6.22	124.11	121.00
2	2	774	G	C4-N9-C1'	6.22	134.58	126.50
1	1	1401	G	N1-C6-O6	6.21	123.63	119.90
1	1	1990	C	C6-N1-C2	-6.21	117.82	120.30
2	2	528	C	N1-C2-O2	6.20	122.62	118.90
2	2	1426	G	C8-N9-C1'	-6.20	118.94	127.00
59	4	190	A	P-O3'-C3'	6.20	127.14	119.70
2	2	658	C	C6-N1-C2	-6.20	117.82	120.30
59	4	153	U	OP2-P-O3'	6.20	118.83	105.20
2	2	654	G	C6-C5-N7	-6.20	126.68	130.40
2	2	774	G	C6-C5-N7	-6.20	126.68	130.40
59	4	41	G	C8-N9-C4	-6.20	103.92	106.40
3	3	62	C	N1-C2-O2	6.19	122.62	118.90
59	4	313	C	C6-N1-C2	-6.19	117.82	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	292	A	N7-C8-N9	6.19	116.89	113.80
59	4	145	C	C5-C6-N1	6.19	124.09	121.00
59	4	362	C	O5'-P-OP2	-6.19	100.13	105.70
59	4	144	U	O5'-P-OP1	6.19	118.12	110.70
2	2	775	G	C8-N9-C4	-6.18	103.93	106.40
1	1	385	C	C6-N1-C2	-6.18	117.83	120.30
1	1	418	C	C6-N1-C2	-6.18	117.83	120.30
1	1	2558	C	C6-N1-C2	-6.18	117.83	120.30
2	2	760	G	N3-C4-N9	6.18	129.71	126.00
60	7	31	C	N1-C2-O2	6.18	122.61	118.90
2	2	830	G	N3-C4-N9	-6.17	122.30	126.00
1	1	691	C	C6-N1-C2	-6.17	117.83	120.30
59	4	12	U	C2-N1-C1'	6.17	125.10	117.70
59	4	76	C	C6-N1-C2	-6.17	117.83	120.30
1	1	2255	G	N3-C4-C5	-6.16	125.52	128.60
2	2	843	U	N3-C2-O2	-6.16	117.89	122.20
2	2	1427	C	C6-N1-C1'	-6.16	113.41	120.80
1	1	491	G	C4-N9-C1'	6.15	134.50	126.50
2	2	1438	G	C4-N9-C1'	6.15	134.50	126.50
59	4	21	C	C6-N1-C1'	6.15	128.18	120.80
1	1	2196	C	N1-C2-O2	6.15	122.59	118.90
59	4	334	A	OP2-P-O3'	6.15	118.72	105.20
1	1	2794	C	C6-N1-C2	-6.14	117.84	120.30
2	2	1162	C	C6-N1-C2	-6.14	117.84	120.30
59	4	37	C	P-O3'-C3'	6.14	127.07	119.70
59	4	45	A	C4-N9-C1'	6.14	137.36	126.30
1	1	991	C	C6-N1-C2	-6.14	117.84	120.30
2	2	699	C	C5-C6-N1	6.14	124.07	121.00
1	1	2465	C	N1-C2-O2	6.14	122.58	118.90
1	1	2827	C	C6-N1-C2	-6.13	117.85	120.30
2	2	428	G	N3-C4-N9	-6.13	122.32	126.00
1	1	1761	C	C5-C6-N1	6.12	124.06	121.00
1	1	1840	G	C8-N9-C1'	-6.12	119.05	127.00
1	1	2096	C	N3-C2-O2	-6.12	117.62	121.90
2	2	923	A	C8-N9-C4	-6.12	103.35	105.80
2	2	194	C	C6-N1-C2	-6.12	117.85	120.30
59	4	131	U	P-O3'-C3'	6.11	127.04	119.70
1	1	1644	C	N3-C2-O2	-6.11	117.62	121.90
2	2	5	U	C2-N1-C1'	6.11	125.03	117.70
60	7	31	C	O4'-C1'-N1	6.11	113.09	108.20
2	2	628	G	N3-C4-N9	-6.11	122.34	126.00
59	4	241	C	C5-C6-N1	6.11	124.05	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	279	C	C6-N1-C2	-6.11	117.86	120.30
3	3	70	C	C6-N1-C2	-6.10	117.86	120.30
60	7	12	U	N3-C2-O2	-6.10	117.93	122.20
6	8	18	G	OP2-P-O3'	6.09	118.61	105.20
59	4	225	A	P-O3'-C3'	6.09	127.01	119.70
1	1	764	A	O4'-C1'-N9	6.09	113.07	108.20
1	1	811	U	C5-C6-N1	6.09	125.75	122.70
59	4	8	A	N9-C1'-C2'	6.09	121.92	114.00
2	2	771	G	N3-C4-N9	-6.08	122.35	126.00
1	1	1892	C	N3-C2-O2	-6.08	117.64	121.90
2	2	1237	C	C6-N1-C2	-6.08	117.87	120.30
2	2	1279	G	N3-C4-C5	-6.08	125.56	128.60
59	4	266	C	C6-N1-C2	-6.08	117.87	120.30
1	1	1121	C	N1-C2-O2	6.08	122.55	118.90
59	4	114	G	C8-N9-C4	-6.07	103.97	106.40
59	4	224	A	O5'-P-OP1	-6.07	100.24	105.70
59	4	269	C	N3-C2-O2	-6.07	117.65	121.90
1	1	1370	C	C2-N1-C1'	6.07	125.47	118.80
2	2	1228	C	C6-N1-C2	-6.06	117.87	120.30
2	2	328	C	N3-C2-O2	-6.06	117.66	121.90
2	2	1109	C	O4'-C1'-N1	-6.06	103.35	108.20
1	1	404	A	P-O3'-C3'	6.06	126.97	119.70
59	4	300	U	C6-N1-C2	-6.06	117.36	121.00
2	2	429	U	O4'-C1'-N1	6.06	113.05	108.20
1	1	2394	C	C2-N1-C1'	6.06	125.46	118.80
2	2	210	C	N3-C2-O2	-6.06	117.66	121.90
1	1	669	G	N3-C4-N9	6.05	129.63	126.00
2	2	557	G	C8-N9-C1'	-6.05	119.14	127.00
59	4	39	A	C5'-C4'-O4'	6.05	116.36	109.10
1	1	2403	C	C5-C6-N1	6.05	124.02	121.00
1	1	1065	U	C5-C6-N1	6.05	125.72	122.70
59	4	16	U	N1-C2-O2	6.04	127.03	122.80
1	1	783	A	C4-N9-C1'	6.04	137.18	126.30
2	2	972	C	N3-C2-O2	-6.04	117.67	121.90
59	4	13	G	N3-C2-N2	-6.04	115.67	119.90
2	2	846	G	C8-N9-C1'	-6.04	119.15	127.00
6	8	18	G	P-O3'-C3'	6.04	126.95	119.70
59	4	2	G	N3-C4-N9	6.04	129.62	126.00
59	4	189	C	N1-C2-O2	6.04	122.52	118.90
2	2	786	G	C8-N9-C1'	-6.04	119.15	127.00
59	4	191	A	OP1-P-OP2	-6.04	110.54	119.60
1	1	1060	U	N3-C4-O4	-6.04	115.17	119.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	2562	U	C2-N1-C1'	6.04	124.94	117.70
59	4	263	G	C8-N9-C4	-6.04	103.99	106.40
1	1	2652	C	C2-N1-C1'	6.03	125.44	118.80
59	4	269	C	P-O3'-C3'	6.03	126.94	119.70
1	1	669	G	C8-N9-C1'	-6.03	119.16	127.00
1	1	581	C	C6-N1-C2	-6.03	117.89	120.30
59	4	237	U	C6-N1-C2	-6.02	117.39	121.00
2	2	207	C	N1-C2-O2	6.01	122.51	118.90
1	1	2652	C	N3-C2-O2	-6.01	117.69	121.90
59	4	166	C	C6-N1-C2	-6.01	117.90	120.30
2	2	334	C	C5-C6-N1	6.01	124.00	121.00
2	2	1228	C	C5-C6-N1	6.01	124.00	121.00
1	1	2585	U	C6-N1-C2	-6.00	117.40	121.00
1	1	499	U	N3-C2-O2	-6.00	118.00	122.20
59	4	148	U	C5-C6-N1	5.99	125.70	122.70
59	4	210	C	C5-C6-N1	5.99	124.00	121.00
60	7	1	G	O4'-C1'-N9	5.99	113.00	108.20
1	1	1401	G	C4-N9-C1'	-5.99	118.71	126.50
59	4	63	C	P-O3'-C3'	5.99	126.88	119.70
59	4	195	A	P-O3'-C3'	5.99	126.88	119.70
6	8	6	C	N1-C2-O2	5.99	122.49	118.90
59	4	361	C	O5'-P-OP2	5.99	117.88	110.70
1	1	1053	C	N3-C2-O2	-5.98	117.71	121.90
1	1	1349	C	C6-N1-C2	-5.98	117.91	120.30
59	4	239	A	P-O3'-C3'	5.98	126.88	119.70
59	4	260	C	N3-C2-O2	-5.98	117.72	121.90
1	1	1123	C	C6-N1-C2	-5.98	117.91	120.30
1	1	1994	C	C6-N1-C2	-5.98	117.91	120.30
2	2	381	C	N3-C2-O2	-5.98	117.72	121.90
1	1	1947	C	C6-N1-C2	-5.97	117.91	120.30
2	2	213	G	C4-N9-C1'	5.97	134.27	126.50
2	2	207	C	C5-C6-N1	5.97	123.99	121.00
2	2	1145	A	P-O3'-C3'	5.97	126.87	119.70
2	2	843	U	N1-C2-O2	5.97	126.98	122.80
1	1	1315	C	C6-N1-C2	-5.97	117.91	120.30
2	2	810	C	C5-C6-N1	5.96	123.98	121.00
2	2	861	G	N7-C8-N9	5.96	116.08	113.10
59	4	161	U	C5-C6-N1	5.96	125.68	122.70
59	4	137	C	P-O3'-C3'	5.96	126.85	119.70
2	2	475	C	N1-C2-O2	5.96	122.47	118.90
2	2	1373	G	C5-C6-O6	-5.96	125.03	128.60
1	1	1691	C	C6-N1-C2	-5.95	117.92	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	750	C	C6-N1-C2	-5.95	117.92	120.30
59	4	68	U	P-O3'-C3'	5.95	126.84	119.70
1	1	1289	C	C2-N1-C1'	5.94	125.33	118.80
2	2	74	A	O4'-C1'-N9	5.94	112.95	108.20
59	4	109	C	C6-N1-C2	-5.94	117.92	120.30
59	4	299	C	N3-C2-O2	-5.94	117.74	121.90
1	1	1533	C	C6-N1-C2	-5.93	117.93	120.30
2	2	760	G	C5-C6-N1	5.93	114.47	111.50
2	2	1382	C	C6-N1-C2	-5.93	117.93	120.30
59	4	325	G	N3-C4-N9	5.93	129.56	126.00
1	1	462	C	C6-N1-C2	-5.93	117.93	120.30
2	2	397	A	C2-N3-C4	5.93	113.56	110.60
1	1	691	C	C5-C6-N1	5.93	123.97	121.00
2	2	1239	A	O4'-C1'-N9	5.93	112.94	108.20
60	7	11	C	C5-C6-N1	5.93	123.97	121.00
59	4	26	U	N3-C2-O2	-5.93	118.05	122.20
59	4	20	A	P-O3'-C3'	5.92	126.81	119.70
2	2	569	C	C6-N1-C1'	5.92	127.91	120.80
2	2	778	G	C4-N9-C1'	5.92	134.20	126.50
2	2	628	G	N9-C4-C5	5.92	107.77	105.40
1	1	1795	C	C5-C6-N1	5.92	123.96	121.00
2	2	4	U	N1-C2-O2	5.92	126.94	122.80
2	2	803	G	N3-C4-C5	-5.92	125.64	128.60
59	4	157	C	O4'-C1'-N1	5.92	112.93	108.20
59	4	270	C	N1-C2-O2	5.92	122.45	118.90
59	4	311	U	O4'-C1'-N1	5.91	112.93	108.20
59	4	269	C	O3'-P-O5'	5.91	115.23	104.00
59	4	196	G	P-O3'-C3'	5.91	126.79	119.70
2	2	726	C	C6-N1-C2	-5.90	117.94	120.30
59	4	272	C	C6-N1-C2	-5.90	117.94	120.30
59	4	362	C	C6-N1-C2	-5.90	117.94	120.30
2	2	73	C	N3-C2-O2	-5.90	117.77	121.90
59	4	328	U	C6-N1-C2	-5.90	117.46	121.00
60	7	39	U	O4'-C1'-N1	5.90	112.92	108.20
1	1	1401	G	C8-N9-C4	-5.90	104.04	106.40
1	1	2646	C	C6-N1-C2	-5.89	117.94	120.30
2	2	910	C	C2-N1-C1'	5.89	125.28	118.80
59	4	37	C	O4'-C1'-N1	5.89	112.91	108.20
2	2	91	U	N3-C2-O2	-5.89	118.08	122.20
3	3	74	U	N1-C2-O2	5.89	126.92	122.80
59	4	209	C	C6-N1-C2	-5.89	117.94	120.30
2	2	34	C	C6-N1-C2	-5.89	117.94	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1073	U	C5-C6-N1	5.89	125.64	122.70
2	2	452	A	C5-N7-C8	-5.88	100.96	103.90
2	2	778	G	C6-C5-N7	-5.88	126.87	130.40
1	1	970	U	C6-N1-C2	-5.88	117.47	121.00
1	1	1595	C	C5-C6-N1	5.88	123.94	121.00
3	3	28	C	C5-C6-N1	5.88	123.94	121.00
1	1	2076	U	C2-N1-C1'	5.88	124.75	117.70
59	4	110	U	C5-C6-N1	5.88	125.64	122.70
59	4	308	U	C5'-C4'-O4'	-5.88	102.05	109.10
1	1	2025	C	C2-N1-C1'	5.87	125.26	118.80
1	1	431	U	C6-N1-C2	-5.87	117.48	121.00
60	7	63	C	C2-N1-C1'	5.87	125.26	118.80
1	1	1315	C	C5-C6-N1	5.87	123.93	121.00
2	2	826	C	N1-C2-O2	5.87	122.42	118.90
1	1	784	G	P-O3'-C3'	5.86	126.74	119.70
1	1	1816	C	N3-C2-O2	-5.86	117.80	121.90
1	1	335	C	C6-N1-C2	-5.86	117.96	120.30
2	2	611	C	N1-C2-O2	5.86	122.42	118.90
1	1	1816	C	C6-N1-C1'	-5.86	113.77	120.80
2	2	90	C	C5-C6-N1	5.86	123.93	121.00
1	1	2339	C	C6-N1-C2	-5.85	117.96	120.30
59	4	39	A	P-O3'-C3'	5.85	126.72	119.70
1	1	418	C	C5-C6-N1	5.85	123.93	121.00
2	2	95	C	C5-C6-N1	5.85	123.92	121.00
59	4	137	C	O3'-P-O5'	5.85	115.11	104.00
2	2	761	G	C6-C5-N7	-5.84	126.89	130.40
1	1	1574	C	C6-N1-C2	-5.84	117.96	120.30
25	S	34	ASP	CB-CG-OD1	5.84	123.56	118.30
2	2	4	U	C2-N1-C1'	5.84	124.71	117.70
2	2	1055	A	C5-C6-N1	5.84	120.62	117.70
59	4	206	A	O4'-C1'-N9	-5.84	103.53	108.20
1	1	1052	C	C6-N1-C2	-5.83	117.97	120.30
59	4	257	U	OP1-P-O3'	5.83	118.03	105.20
60	7	6	C	O5'-P-OP1	5.83	117.70	110.70
2	2	334	C	C2-N3-C4	5.83	122.81	119.90
59	4	61	G	P-O3'-C3'	5.83	126.70	119.70
1	1	2425	A	P-O3'-C3'	5.83	126.69	119.70
59	4	198	U	P-O5'-C5'	-5.83	111.58	120.90
2	2	970	C	C5-C6-N1	5.83	123.91	121.00
59	4	147	C	C5-C6-N1	5.83	123.91	121.00
1	1	1153	C	C5-C6-N1	5.82	123.91	121.00
2	2	175	C	C6-N1-C1'	5.82	127.79	120.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
60	7	4	U	C5-C6-N1	5.82	125.61	122.70
1	1	1644	C	N1-C2-O2	5.82	122.39	118.90
59	4	341	U	C2-N1-C1'	5.82	124.68	117.70
60	7	13	C	OP1-P-OP2	-5.82	110.87	119.60
60	7	33	U	N3-C2-O2	-5.82	118.13	122.20
2	2	376	G	C4-N9-C1'	5.82	134.06	126.50
1	1	2025	C	N1-C2-O2	5.82	122.39	118.90
1	1	2460	U	C5-C6-N1	5.82	125.61	122.70
1	1	2585	U	C5-C6-N1	5.81	125.61	122.70
2	2	237	G	C8-N9-C1'	-5.81	119.44	127.00
1	1	1993	U	N3-C2-O2	-5.81	118.13	122.20
1	1	2593	U	C5-C6-N1	5.81	125.60	122.70
59	4	245	C	OP2-P-O3'	5.81	117.97	105.20
59	4	291	A	C2-N3-C4	5.81	113.50	110.60
1	1	1152	C	C6-N1-C2	-5.80	117.98	120.30
2	2	1058	G	C6-C5-N7	-5.80	126.92	130.40
2	2	1267	C	C2-N1-C1'	5.80	125.18	118.80
1	1	2076	U	N1-C2-O2	5.80	126.86	122.80
1	1	2226	C	C2-N1-C1'	5.80	125.18	118.80
60	7	10	G	C5'-C4'-O4'	5.80	116.06	109.10
1	1	304	U	N1-C2-O2	5.80	126.86	122.80
1	1	2827	C	N1-C2-O2	5.80	122.38	118.90
1	1	515	A	C8-N9-C4	-5.80	103.48	105.80
2	2	428	G	C4-N9-C1'	-5.80	118.96	126.50
60	7	11	C	C2-N1-C1'	5.80	125.17	118.80
2	2	1108	G	C4-N9-C1'	5.79	134.03	126.50
59	4	271	G	P-O3'-C3'	5.79	126.65	119.70
1	1	1993	U	N1-C2-O2	5.79	126.85	122.80
1	1	2874	C	N1-C2-O2	5.79	122.38	118.90
2	2	429	U	C5-C6-N1	-5.79	119.80	122.70
59	4	153	U	P-O3'-C3'	5.79	126.65	119.70
1	1	1092	C	C2-N1-C1'	5.79	125.16	118.80
1	1	495	G	N1-C6-O6	-5.78	116.43	119.90
1	1	2404	U	N3-C2-O2	-5.77	118.16	122.20
1	1	267	C	C6-N1-C2	-5.77	117.99	120.30
59	4	304	C	N3-C2-O2	-5.77	117.86	121.90
1	1	1178	C	N3-C2-O2	-5.76	117.86	121.90
1	1	35	G	N1-C6-O6	-5.76	116.44	119.90
1	1	1330	C	C2-N1-C1'	5.76	125.13	118.80
2	2	727	G	C6-C5-N7	-5.75	126.95	130.40
59	4	360	A	C8-N9-C4	-5.75	103.50	105.80
1	1	740	C	C5-C6-N1	5.75	123.87	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	1840	G	C4-N9-C1'	5.75	133.97	126.50
2	2	644	U	C5-C6-N1	5.75	125.57	122.70
7	9	1	A	N3-C4-N9	5.75	132.00	127.40
1	1	171	U	C2-N1-C1'	5.74	124.59	117.70
1	1	1314	C	C2-N1-C1'	5.74	125.12	118.80
1	1	2607	G	N9-C4-C5	5.74	107.70	105.40
1	1	2026	U	C5-C6-N1	5.74	125.57	122.70
2	2	340	U	N1-C2-O2	5.73	126.81	122.80
1	1	2460	U	C6-N1-C2	-5.73	117.56	121.00
2	2	869	G	C4-C5-N7	5.73	113.09	110.80
60	7	74	A	N7-C8-N9	5.73	116.67	113.80
2	2	221	C	C6-N1-C2	-5.73	118.01	120.30
59	4	189	C	C5-C6-N1	5.73	123.86	121.00
1	1	97	C	N3-C2-O2	-5.72	117.89	121.90
2	2	1460	C	C6-N1-C2	-5.72	118.01	120.30
59	4	275	C	O4'-C1'-N1	5.72	112.78	108.20
2	2	924	C	C6-N1-C2	-5.72	118.01	120.30
59	4	297	G	C8-N9-C4	-5.72	104.11	106.40
59	4	321	G	C8-N9-C4	-5.72	104.11	106.40
2	2	739	C	C6-N1-C2	-5.72	118.01	120.30
1	1	2036	C	C6-N1-C2	-5.71	118.02	120.30
1	1	2539	C	C6-N1-C2	-5.71	118.02	120.30
2	2	506	G	C4-C5-N7	5.71	113.08	110.80
59	4	5	C	C6-N1-C2	-5.71	118.02	120.30
1	1	2465	C	C6-N1-C2	-5.71	118.02	120.30
2	2	1420	U	C5-C6-N1	5.70	125.55	122.70
59	4	304	C	N1-C2-O2	5.70	122.32	118.90
2	2	1404	C	C5-C6-N1	5.70	123.85	121.00
59	4	148	U	C6-N1-C2	-5.70	117.58	121.00
1	1	1257	C	C6-N1-C2	-5.70	118.02	120.30
1	1	648	G	C8-N9-C4	-5.70	104.12	106.40
1	1	650	C	C5-C6-N1	5.69	123.85	121.00
59	4	39	A	C8-N9-C4	-5.69	103.52	105.80
1	1	343	C	C5-C6-N1	5.69	123.85	121.00
1	1	1079	C	N1-C2-O2	5.69	122.31	118.90
59	4	275	C	C5-C6-N1	5.69	123.84	121.00
1	1	445	C	N3-C2-O2	-5.68	117.92	121.90
59	4	159	C	C6-N1-C2	-5.68	118.03	120.30
59	4	33	A	OP1-P-O3'	5.68	117.70	105.20
1	1	984	A	C8-N9-C4	-5.68	103.53	105.80
1	1	2771	C	N3-C2-O2	-5.67	117.93	121.90
2	2	1303	C	C2-N1-C1'	5.67	125.04	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	783	A	N3-C4-N9	5.67	131.94	127.40
1	1	1776	G	C8-N9-C1'	-5.67	119.63	127.00
59	4	8	A	OP1-P-O3'	5.67	117.66	105.20
1	1	2427	C	N3-C2-O2	-5.66	117.94	121.90
2	2	667	G	C8-N9-C1'	-5.66	119.64	127.00
59	4	161	U	C6-N1-C2	-5.66	117.60	121.00
59	4	189	C	C2-N1-C1'	5.66	125.03	118.80
2	2	778	G	N3-C4-C5	-5.66	125.77	128.60
59	4	199	C	C5-C6-N1	5.66	123.83	121.00
2	2	830	G	C5-C6-O6	5.66	131.99	128.60
1	1	2096	C	C6-N1-C2	-5.66	118.04	120.30
1	1	2870	C	C6-N1-C2	-5.66	118.04	120.30
2	2	1340	A	C6-N1-C2	5.66	121.99	118.60
2	2	667	G	C4-N9-C1'	5.65	133.85	126.50
1	1	584	C	C6-N1-C2	-5.65	118.04	120.30
1	1	2226	C	C5-C6-N1	5.65	123.83	121.00
2	2	34	C	C5-C6-N1	5.65	123.83	121.00
1	1	1774	C	C6-N1-C2	-5.65	118.04	120.30
59	4	33	A	P-O3'-C3'	5.65	126.48	119.70
1	1	783	A	C2-N3-C4	5.65	113.42	110.60
2	2	316	C	C2-N1-C1'	5.65	125.01	118.80
2	2	323	U	C5-C6-N1	5.65	125.52	122.70
1	1	1417	C	C6-N1-C2	-5.65	118.04	120.30
2	2	1253	G	C4-N9-C1'	5.65	133.84	126.50
60	7	37	C	C6-N1-C2	-5.65	118.04	120.30
2	2	213	G	C8-N9-C1'	-5.64	119.67	127.00
2	2	429	U	C6-N1-C1'	5.64	129.10	121.20
3	3	32	U	N3-C2-O2	-5.64	118.25	122.20
2	2	117	G	N3-C4-N9	5.64	129.38	126.00
6	8	8	U	N3-C2-O2	-5.64	118.25	122.20
2	2	612	C	C5-C6-N1	5.64	123.82	121.00
59	4	328	U	C5-C6-N1	5.64	125.52	122.70
1	1	192	C	C5-C6-N1	5.63	123.82	121.00
59	4	362	C	OP1-P-OP2	-5.63	111.15	119.60
1	1	669	G	N3-C4-C5	-5.63	125.78	128.60
1	1	1584	U	C2-N1-C1'	5.63	124.46	117.70
2	2	846	G	C4-N9-C1'	5.63	133.81	126.50
2	2	117	G	C4-N9-C1'	5.62	133.81	126.50
1	1	48	G	N3-C4-N9	5.62	129.37	126.00
59	4	212	U	P-O3'-C3'	5.62	126.45	119.70
59	4	185	A	C8-N9-C4	-5.62	103.55	105.80
59	4	260	C	N1-C2-O2	5.62	122.27	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	214	C	N1-C2-O2	5.62	122.27	118.90
60	7	33	U	N1-C2-O2	5.62	126.73	122.80
1	1	1905	C	P-O3'-C3'	5.62	126.44	119.70
1	1	2394	C	N1-C2-O2	5.61	122.27	118.90
3	3	74	U	N3-C2-O2	-5.61	118.27	122.20
1	1	422	A	C2-N3-C4	-5.61	107.80	110.60
59	4	206	A	C2-N3-C4	5.61	113.40	110.60
2	2	826	C	C2-N1-C1'	5.60	124.97	118.80
1	1	2507	C	C6-N1-C2	-5.60	118.06	120.30
59	4	235	C	C6-N1-C2	-5.60	118.06	120.30
59	4	148	U	N3-C2-O2	-5.60	118.28	122.20
59	4	2	G	N9-C4-C5	-5.60	103.16	105.40
59	4	17	U	C5-C6-N1	5.60	125.50	122.70
59	4	222	U	P-O3'-C3'	5.60	126.42	119.70
59	4	37	C	C5-C6-N1	5.59	123.80	121.00
59	4	308	U	O4'-C1'-N1	-5.59	103.72	108.20
2	2	1223	C	C6-N1-C2	-5.59	118.06	120.30
2	2	385	C	C6-N1-C2	-5.58	118.07	120.30
59	4	13	G	P-O3'-C3'	5.58	126.40	119.70
1	1	2430	A	C4-N9-C1'	5.58	136.35	126.30
3	3	28	C	C6-N1-C2	-5.58	118.07	120.30
1	1	955	PSU	OP2-P-O3'	5.58	117.48	105.20
59	4	181	G	C2-N3-C4	5.58	114.69	111.90
59	4	225	A	C4-N9-C1'	5.58	136.34	126.30
59	4	248	G	C5'-C4'-O4'	-5.58	102.41	109.10
59	4	191	A	O3'-P-O5'	5.58	114.60	104.00
1	1	281	C	C6-N1-C2	-5.58	118.07	120.30
59	4	17	U	P-O3'-C3'	5.57	126.39	119.70
1	1	1401	G	N3-C4-C5	5.57	131.39	128.60
2	2	1279	G	N7-C8-N9	5.57	115.89	113.10
2	2	339	C	C6-N1-C2	-5.57	118.07	120.30
2	2	584	G	C4-N9-C1'	5.57	133.74	126.50
2	2	588	G	N3-C4-C5	-5.57	125.82	128.60
2	2	923	A	N7-C8-N9	5.57	116.58	113.80
2	2	400	C	C5-C6-N1	5.56	123.78	121.00
1	1	1776	G	N3-C4-N9	5.56	129.34	126.00
2	2	443	C	C6-N1-C2	-5.56	118.08	120.30
60	7	70	A	O4'-C1'-N9	5.56	112.65	108.20
59	4	181	G	C8-N9-C1'	-5.56	119.77	127.00
1	1	31	C	N1-C2-O2	5.55	122.23	118.90
59	4	202	G	N7-C8-N9	5.55	115.88	113.10
60	7	38	A	C8-N9-C4	-5.55	103.58	105.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	2783	U	N1-C2-O2	5.55	126.69	122.80
2	2	1018	G	C6-C5-N7	-5.55	127.07	130.40
59	4	16	U	C5-C6-N1	5.55	125.47	122.70
1	1	1255	U	C5-C6-N1	5.54	125.47	122.70
2	2	328	C	C6-N1-C1'	-5.54	114.15	120.80
60	7	13	C	P-O3'-C3'	5.54	126.35	119.70
59	4	72	A	N3-C4-N9	5.54	131.83	127.40
60	7	66	U	C6-N1-C2	-5.54	117.68	121.00
1	1	2422	C	N1-C2-O2	5.54	122.22	118.90
1	1	2179	C	C2-N1-C1'	-5.53	112.71	118.80
1	1	2200	C	C6-N1-C2	-5.53	118.09	120.30
59	4	181	G	C8-N9-C4	-5.53	104.19	106.40
2	2	654	G	C4-C5-N7	5.53	113.01	110.80
59	4	221	U	C6-N1-C2	-5.52	117.69	121.00
2	2	1230	C	C6-N1-C1'	5.52	127.43	120.80
59	4	48	C	N3-C2-O2	-5.52	118.03	121.90
60	7	7	G	OP2-P-O3'	5.52	117.35	105.20
60	7	60	G	C4-N9-C1'	5.52	133.68	126.50
2	2	365	U	N1-C2-O2	5.52	126.67	122.80
2	2	654	G	N3-C4-N9	5.52	129.31	126.00
1	1	48	G	N3-C4-C5	-5.52	125.84	128.60
2	2	1109	C	C5-C6-N1	5.52	123.76	121.00
1	1	783	A	C8-N9-C1'	-5.52	117.77	127.70
1	1	2539	C	C5-C4-N4	5.52	124.06	120.20
2	2	620	C	N1-C2-O2	5.52	122.21	118.90
59	4	144	U	OP2-P-O3'	5.52	117.34	105.20
1	1	2332	C	C6-N1-C2	-5.51	118.09	120.30
59	4	16	U	OP2-P-O3'	5.51	117.33	105.20
60	7	76	C	C6-N1-C1'	-5.51	114.18	120.80
1	1	650	C	N1-C2-O2	5.51	122.21	118.90
1	1	1600	C	C6-N1-C2	-5.51	118.09	120.30
60	7	72	G	OP2-P-O3'	-5.51	93.07	105.20
59	4	52	G	C8-N9-C4	-5.51	104.20	106.40
1	1	1473	G	N3-C4-N9	5.50	129.30	126.00
2	2	1282	C	C2-N1-C1'	5.50	124.85	118.80
2	2	488	C	C5-C6-N1	5.50	123.75	121.00
1	1	723	C	N3-C2-O2	-5.50	118.05	121.90
59	4	30	C	C6-N1-C2	-5.50	118.10	120.30
1	1	1833	C	C6-N1-C2	-5.50	118.10	120.30
59	4	323	A	N9-C4-C5	5.50	108.00	105.80
60	7	36	A	C8-N9-C4	-5.50	103.60	105.80
2	2	632	U	C2-N1-C1'	5.49	124.29	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	337	C	O5'-P-OP2	-5.49	100.76	105.70
1	1	1187	G	C8-N9-C1'	-5.49	119.86	127.00
1	1	1816	C	C6-N1-C2	-5.49	118.10	120.30
1	1	1053	C	C6-N1-C2	-5.49	118.11	120.30
1	1	1187	G	C4-N9-C1'	5.49	133.63	126.50
1	1	1892	C	C6-N1-C2	-5.49	118.10	120.30
1	1	1914	C	C6-N1-C2	-5.49	118.11	120.30
2	2	1466	C	N1-C2-O2	5.49	122.19	118.90
59	4	111	U	C6-N1-C2	-5.49	117.71	121.00
59	4	289	U	C5-C6-N1	5.49	125.44	122.70
2	2	739	C	C5-C6-N1	5.49	123.74	121.00
50	r	70	ARG	NE-CZ-NH2	-5.49	117.56	120.30
59	4	263	G	OP2-P-O3'	5.49	117.27	105.20
2	2	43	C	C6-N1-C2	-5.48	118.11	120.30
60	7	73	C	O4'-C1'-N1	5.48	112.58	108.20
2	2	90	C	C6-N1-C2	-5.48	118.11	120.30
2	2	270	A	C5-C6-N1	5.48	120.44	117.70
1	1	1768	C	C5-C6-N1	5.47	123.74	121.00
2	2	428	G	C8-N9-C1'	5.47	134.11	127.00
2	2	237	G	C6-C5-N7	-5.47	127.12	130.40
2	2	1086	U	N1-C2-O2	5.47	126.63	122.80
3	3	42	C	N1-C2-O2	5.47	122.18	118.90
1	1	2244	U	C2-N1-C1'	5.47	124.26	117.70
1	1	2626	C	C5-C6-N1	5.47	123.73	121.00
2	2	1132	C	C6-N1-C2	-5.47	118.11	120.30
2	2	568	G	C8-N9-C1'	-5.46	119.90	127.00
59	4	362	C	C2-N1-C1'	-5.46	112.79	118.80
1	1	1343	G	C4-N9-C1'	5.46	133.60	126.50
6	8	66	U	C5-C6-N1	5.46	125.43	122.70
1	1	206	U	C5-C6-N1	5.46	125.43	122.70
2	2	153	C	C2-N1-C1'	5.46	124.80	118.80
2	2	770	C	C6-N1-C2	-5.46	118.12	120.30
2	2	1376	U	C5-C6-N1	5.46	125.43	122.70
60	7	8	U	N3-C2-O2	-5.45	118.38	122.20
1	1	1892	C	C5-C6-N1	5.45	123.73	121.00
1	1	157	C	C6-N1-C1'	5.45	127.34	120.80
1	1	716	A	C8-N9-C4	-5.45	103.62	105.80
2	2	963	G	N3-C4-C5	-5.44	125.88	128.60
1	1	1208	C	C6-N1-C2	-5.44	118.12	120.30
59	4	358	C	C2-N3-C4	5.44	122.62	119.90
59	4	182	U	N1-C2-O2	5.44	126.61	122.80
1	1	1776	G	C6-C5-N7	-5.44	127.14	130.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	830	G	N9-C4-C5	5.44	107.58	105.40
2	2	1237	C	C5-C6-N1	5.44	123.72	121.00
1	1	1301	A	C4-N9-C1'	5.44	136.09	126.30
59	4	30	C	N3-C2-O2	-5.44	118.09	121.90
2	2	5	U	N1-C2-O2	5.44	126.61	122.80
1	1	1748	C	C6-N1-C2	-5.43	118.13	120.30
1	1	2525	G	N9-C4-C5	5.43	107.57	105.40
2	2	112	G	C4-N9-C1'	5.43	133.56	126.50
2	2	210	C	C6-N1-C1'	-5.43	114.28	120.80
2	2	568	G	N3-C4-C5	-5.43	125.88	128.60
59	4	126	C	C6-N1-C2	-5.43	118.13	120.30
59	4	325	G	N3-C4-C5	-5.43	125.88	128.60
2	2	514	C	C5-C6-N1	5.43	123.72	121.00
2	2	545	C	C5-C6-N1	5.43	123.72	121.00
59	4	4	G	O4'-C1'-N9	5.43	112.55	108.20
2	2	760	G	C5-C6-O6	-5.43	125.34	128.60
59	4	239	A	O3'-P-O5'	5.43	114.31	104.00
59	4	246	U	N1-C2-O2	5.43	126.60	122.80
59	4	286	A	O4'-C1'-N9	5.43	112.54	108.20
2	2	971	G	O4'-C1'-N9	5.43	112.54	108.20
1	1	1313	U	C5-C6-N1	5.43	125.41	122.70
2	2	1086	U	N3-C2-O2	-5.43	118.40	122.20
1	1	1379	U	C6-N1-C2	-5.42	117.75	121.00
3	3	68	C	C2-N1-C1'	5.42	124.77	118.80
59	4	44	C	O3'-P-O5'	5.42	114.31	104.00
2	2	91	U	N1-C2-O2	5.42	126.59	122.80
3	3	70	C	C5-C6-N1	5.42	123.71	121.00
59	4	235	C	C5-C6-N1	5.42	123.71	121.00
1	1	1324	G	O4'-C1'-N9	5.42	112.53	108.20
2	2	1149	C	C6-N1-C2	-5.42	118.13	120.30
59	4	285	A	P-O3'-C3'	5.42	126.20	119.70
1	1	491	G	N3-C4-C5	-5.42	125.89	128.60
1	1	2593	U	C6-N1-C2	-5.42	117.75	121.00
59	4	203	U	C6-N1-C2	-5.42	117.75	121.00
1	1	2582	G	C4-N9-C1'	5.42	133.54	126.50
59	4	152	C	C5-C6-N1	5.41	123.71	121.00
2	2	578	C	C5-C6-N1	5.41	123.71	121.00
1	1	1109	C	C5-C6-N1	5.41	123.70	121.00
1	1	1541	C	N1-C2-O2	5.41	122.15	118.90
1	1	2025	C	C6-N1-C2	-5.41	118.14	120.30
1	1	2515	C	C6-N1-C2	-5.41	118.14	120.30
2	2	528	C	C5-C6-N1	5.41	123.70	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	16	U	C6-N1-C2	-5.41	117.76	121.00
1	1	1596	A	C4-N9-C1'	5.40	136.03	126.30
2	2	18	C	C6-N1-C1'	5.40	127.28	120.80
60	7	8	U	N1-C2-O2	5.40	126.58	122.80
1	1	317	G	N3-C4-N9	5.40	129.24	126.00
1	1	2656	U	C6-N1-C2	-5.40	117.76	121.00
59	4	48	C	C5-C6-N1	5.40	123.70	121.00
3	3	77	U	N3-C2-O2	-5.39	118.42	122.20
59	4	353	C	C6-N1-C2	-5.39	118.14	120.30
1	1	1804	C	C6-N1-C2	-5.39	118.14	120.30
1	1	343	C	C6-N1-C2	-5.39	118.14	120.30
1	1	1644	C	C6-N1-C2	-5.39	118.14	120.30
2	2	528	C	C2-N1-C1'	5.39	124.73	118.80
1	1	2114	A	C2-N3-C4	5.39	113.29	110.60
1	1	2552	OMU	P-O3'-C3'	5.39	126.17	119.70
59	4	8	A	P-O3'-C3'	5.39	126.17	119.70
59	4	262	U	C6-N1-C1'	-5.39	113.66	121.20
2	2	760	G	C4-C5-N7	5.39	112.95	110.80
59	4	227	C	N3-C2-O2	-5.39	118.13	121.90
1	1	151	C	C6-N1-C2	-5.38	118.15	120.30
1	1	1102	C	C6-N1-C1'	-5.38	114.34	120.80
1	1	2196	C	N3-C2-O2	-5.38	118.13	121.90
1	1	2578	G	N3-C4-N9	-5.38	122.77	126.00
2	2	584	G	C4-C5-N7	5.38	112.95	110.80
60	7	1	G	C2-N3-C4	5.38	114.59	111.90
2	2	175	C	N1-C2-O2	-5.38	115.67	118.90
2	2	108	G	C5-N7-C8	-5.38	101.61	104.30
1	1	304	U	N3-C2-O2	-5.38	118.43	122.20
59	4	7	G	N7-C8-N9	5.38	115.79	113.10
59	4	172	U	C6-N1-C2	-5.38	117.77	121.00
7	9	1	A	C8-N9-C4	-5.38	103.65	105.80
2	2	475	C	C5-C6-N1	5.37	123.69	121.00
59	4	30	C	N1-C2-O2	5.37	122.12	118.90
1	1	2765	A	C4-N9-C1'	5.37	135.96	126.30
59	4	353	C	C5-C6-N1	5.37	123.69	121.00
1	1	48	G	C4-N9-C1'	5.37	133.48	126.50
1	1	2078	C	N1-C2-O2	5.37	122.12	118.90
59	4	202	G	C4-N9-C1'	5.37	133.48	126.50
2	2	637	C	C5-C6-N1	5.36	123.68	121.00
59	4	342	U	C6-N1-C2	-5.36	117.78	121.00
1	1	2827	C	N3-C2-O2	-5.36	118.15	121.90
1	1	1965	C	C6-N1-C2	-5.36	118.16	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	771	G	N9-C4-C5	5.36	107.54	105.40
2	2	1334	G	C8-N9-C1'	-5.36	120.03	127.00
59	4	299	C	C2-N3-C4	5.36	122.58	119.90
1	1	830	G	O4'-C1'-N9	-5.35	103.92	108.20
2	2	1239	A	C8-N9-C4	-5.35	103.66	105.80
59	4	299	C	P-O3'-C3'	5.35	126.12	119.70
1	1	43	G	N3-C4-N9	5.35	129.21	126.00
2	2	920	U	C2-N1-C1'	-5.35	111.28	117.70
2	2	584	G	N7-C8-N9	5.35	115.77	113.10
2	2	644	U	C6-N1-C2	-5.34	117.79	121.00
2	2	1132	C	C2-N1-C1'	5.34	124.68	118.80
2	2	1384	C	N1-C2-O2	5.34	122.11	118.90
59	4	329	U	N3-C2-O2	-5.34	118.46	122.20
59	4	138	C	P-O5'-C5'	5.34	129.45	120.90
2	2	804	U	N3-C2-O2	-5.34	118.46	122.20
1	1	1060	U	C2-N1-C1'	5.34	124.11	117.70
1	1	1198	U	C2-N1-C1'	5.34	124.11	117.70
1	1	1161	C	C6-N1-C2	-5.33	118.17	120.30
2	2	563	A	O4'-C1'-N9	5.33	112.47	108.20
2	2	365	U	C6-N1-C1'	-5.33	113.74	121.20
2	2	953	G	C4-N9-C1'	5.33	133.43	126.50
59	4	308	U	C6-N1-C1'	-5.33	113.74	121.20
2	2	543	U	C5-C6-N1	5.33	125.36	122.70
59	4	261	G	OP1-P-O3'	5.33	116.92	105.20
59	4	274	G	O4'-C1'-N9	5.33	112.46	108.20
60	7	18	G	OP2-P-O3'	5.33	116.92	105.20
2	2	536	C	C6-N1-C2	-5.33	118.17	120.30
2	2	73	C	C6-N1-C2	-5.32	118.17	120.30
2	2	775	G	N7-C8-N9	5.32	115.76	113.10
2	2	1435	G	N3-C4-C5	-5.32	125.94	128.60
59	4	181	G	O5'-C5'-C4'	5.32	121.81	111.70
2	2	439	U	C2-N1-C1'	5.32	124.08	117.70
1	1	2179	C	N3-C2-O2	-5.32	118.18	121.90
1	1	2783	U	N3-C2-O2	-5.32	118.48	122.20
59	4	130	C	C5-C6-N1	5.32	123.66	121.00
59	4	245	C	C2-N3-C4	5.32	122.56	119.90
59	4	241	C	N1-C2-O2	5.31	122.09	118.90
1	1	1330	C	N1-C2-O2	5.31	122.09	118.90
1	1	2179	C	C6-N1-C1'	5.31	127.17	120.80
2	2	12	U	C6-N1-C1'	5.31	128.64	121.20
7	9	7	G	N3-C4-C5	-5.31	125.94	128.60
59	4	53	G	OP1-P-O3'	5.31	116.89	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	388	G	O4'-C1'-N9	-5.31	103.95	108.20
1	1	2138	G	C6-C5-N7	-5.31	127.22	130.40
2	2	858	G	C5-N7-C8	-5.31	101.64	104.30
2	2	894	G	C6-C5-N7	-5.31	127.21	130.40
60	7	62	C	C6-N1-C2	-5.31	118.18	120.30
59	4	292	A	P-O3'-C3'	5.31	126.07	119.70
2	2	742	G	C8-N9-C4	-5.30	104.28	106.40
59	4	69	A	O4'-C1'-N9	-5.30	103.96	108.20
1	1	404	A	OP2-P-O3'	5.30	116.87	105.20
59	4	198	U	N1-C1'-C2'	5.30	120.89	114.00
1	1	1605	C	N1-C2-O2	5.30	122.08	118.90
1	1	2196	C	C2-N1-C1'	5.30	124.63	118.80
2	2	429	U	N1-C2-N3	5.30	118.08	114.90
2	2	475	C	C6-N1-C2	-5.30	118.18	120.30
59	4	27	U	C6-N1-C2	-5.30	117.82	121.00
59	4	325	G	C2-N3-C4	5.30	114.55	111.90
2	2	243	A	O4'-C1'-N9	-5.29	103.96	108.20
60	7	10	G	C8-N9-C4	-5.29	104.28	106.40
1	1	323	C	N1-C2-O2	5.29	122.08	118.90
1	1	2078	C	N3-C2-O2	-5.29	118.19	121.90
59	4	75	C	N3-C2-O2	-5.29	118.19	121.90
1	1	2106	U	N1-C2-O2	5.29	126.50	122.80
59	4	21	C	C5-C6-N1	5.29	123.64	121.00
1	1	2339	C	C2-N1-C1'	5.29	124.61	118.80
2	2	1069	C	C6-N1-C2	-5.29	118.19	120.30
59	4	151	C	O4'-C1'-N1	5.29	112.43	108.20
1	1	491	G	N3-C4-N9	5.28	129.17	126.00
2	2	108	G	C4-N9-C1'	5.28	133.37	126.50
59	4	141	C	N3-C2-O2	-5.28	118.20	121.90
1	1	2244	U	C6-N1-C2	-5.28	117.83	121.00
2	2	1504	G	N3-C4-N9	5.28	129.17	126.00
59	4	181	G	N7-C8-N9	5.28	115.74	113.10
1	1	491	G	C8-N9-C1'	-5.28	120.14	127.00
1	1	736	C	C5-C6-N1	5.27	123.64	121.00
2	2	1529	G	N3-C4-N9	5.27	129.16	126.00
1	1	388	G	O5'-P-OP2	5.27	117.02	110.70
59	4	188	C	O3'-P-O5'	5.27	114.01	104.00
1	1	2811	G	N3-C2-N2	-5.26	116.22	119.90
2	2	869	G	C5-N7-C8	-5.26	101.67	104.30
1	1	885	C	C2-N1-C1'	5.26	124.59	118.80
1	1	1943	U	N1-C2-O2	5.26	126.48	122.80
2	2	1204	A	C2-N3-C4	-5.26	107.97	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	267	G	P-O5'-C5'	5.26	129.32	120.90
1	1	385	C	C5-C6-N1	5.26	123.63	121.00
1	1	992	C	C2-N1-C1'	5.26	124.59	118.80
1	1	335	C	C2-N1-C1'	5.26	124.58	118.80
1	1	2465	C	C6-N1-C1'	-5.26	114.49	120.80
2	2	16	A	N3-C4-N9	-5.25	123.20	127.40
2	2	903	G	C2-N3-C4	-5.25	109.27	111.90
60	7	63	C	O4'-C1'-N1	5.25	112.40	108.20
2	2	800	G	C6-C5-N7	-5.25	127.25	130.40
2	2	864	A	N7-C8-N9	5.25	116.43	113.80
2	2	1114	C	C6-N1-C2	-5.25	118.20	120.30
59	4	140	U	O4'-C1'-N1	5.25	112.40	108.20
1	1	1301	A	C2-N3-C4	5.25	113.22	110.60
2	2	1121	U	N1-C2-O2	5.25	126.47	122.80
2	2	308	C	C6-N1-C2	-5.25	118.20	120.30
1	1	1844	C	C5-C6-N1	5.25	123.62	121.00
1	1	2772	C	C2-N1-C1'	5.25	124.57	118.80
59	4	75	C	N1-C2-O2	5.25	122.05	118.90
2	2	439	U	N3-C2-O2	-5.24	118.53	122.20
2	2	949	A	C6-N1-C2	-5.24	115.45	118.60
2	2	953	G	C6-C5-N7	-5.24	127.26	130.40
59	4	245	C	C4'-C3'-O3'	5.24	123.48	113.00
59	4	324	G	C2-N3-C4	5.24	114.52	111.90
1	1	737	C	C6-N1-C2	-5.24	118.20	120.30
2	2	491	G	N3-C4-C5	-5.24	125.98	128.60
59	4	209	C	N3-C2-O2	-5.24	118.23	121.90
2	2	436	C	C6-N1-C2	-5.24	118.20	120.30
1	1	417	C	C6-N1-C2	-5.23	118.21	120.30
1	1	1440	U	N3-C2-O2	-5.23	118.54	122.20
1	1	1255	U	C2-N1-C1'	5.23	123.98	117.70
2	2	4	U	N3-C2-O2	-5.23	118.54	122.20
1	1	807	U	N1-C2-O2	5.23	126.46	122.80
60	7	31	C	C6-N1-C2	-5.23	118.21	120.30
1	1	2512	C	C6-N1-C2	-5.23	118.21	120.30
2	2	822	U	C6-N1-C2	-5.23	117.86	121.00
1	1	304	U	C2-N1-C1'	5.22	123.97	117.70
1	1	955	PSU	P-O3'-C3'	5.22	125.97	119.70
60	7	1	G	C6-C5-N7	-5.22	127.27	130.40
1	1	650	C	C6-N1-C2	-5.22	118.21	120.30
1	1	2393	U	N1-C2-O2	5.22	126.46	122.80
1	1	1980	G	N3-C4-C5	-5.22	125.99	128.60
1	1	2580	PSU	P-O3'-C3'	5.22	125.96	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1159	U	C6-N1-C2	-5.22	117.87	121.00
1	1	154	U	N1-C2-O2	5.22	126.45	122.80
59	4	63	C	O3'-P-O5'	5.21	113.91	104.00
2	2	506	G	N9-C4-C5	-5.21	103.32	105.40
1	1	710	U	N1-C2-O2	5.21	126.44	122.80
2	2	219	U	C6-N1-C2	-5.21	117.88	121.00
2	2	809	G	C4-N9-C1'	5.21	133.27	126.50
59	4	64	C	C5-C6-N1	5.21	123.60	121.00
2	2	992	U	C6-N1-C2	-5.20	117.88	121.00
59	4	13	G	N3-C4-C5	5.20	131.20	128.60
59	4	289	U	C6-N1-C2	-5.20	117.88	121.00
7	9	2	U	O4'-C1'-N1	5.20	112.36	108.20
2	2	1132	C	N3-C2-O2	-5.20	118.26	121.90
59	4	209	C	N1-C2-O2	5.20	122.02	118.90
1	1	2880	C	C2-N1-C1'	5.20	124.52	118.80
59	4	63	C	C5-C6-N1	5.20	123.60	121.00
2	2	95	C	N3-C2-O2	-5.20	118.26	121.90
2	2	492	C	C6-N1-C2	-5.20	118.22	120.30
2	2	1409	C	C6-N1-C1'	5.19	127.03	120.80
6	8	6	C	N3-C2-O2	-5.19	118.26	121.90
2	2	16	A	C2-N3-C4	-5.19	108.00	110.60
2	2	761	G	N9-C4-C5	-5.19	103.32	105.40
1	1	43	G	C4-N9-C1'	5.19	133.25	126.50
1	1	1188	U	N3-C2-O2	-5.19	118.57	122.20
1	1	2570	G	C2-N3-C4	-5.19	109.31	111.90
59	4	41	G	N1-C6-O6	5.19	123.01	119.90
59	4	236	U	C5-C6-N1	5.18	125.29	122.70
1	1	1398	C	C2-N1-C1'	5.18	124.50	118.80
60	7	37	C	C5-C6-N1	5.18	123.59	121.00
1	1	2243	U	C5-C6-N1	5.18	125.29	122.70
1	1	2605	PSU	OP2-P-O3'	5.18	116.59	105.20
2	2	760	G	C6-C5-N7	-5.18	127.29	130.40
2	2	1322	C	C2-N1-C1'	5.18	124.49	118.80
1	1	984	A	N7-C8-N9	5.17	116.39	113.80
1	1	1564	C	C6-N1-C2	-5.17	118.23	120.30
1	1	1595	C	N3-C2-O2	-5.17	118.28	121.90
2	2	620	C	C6-N1-C2	-5.17	118.23	120.30
60	7	67	C	C2-N3-C4	5.17	122.49	119.90
2	2	22	G	C6-C5-N7	-5.17	127.30	130.40
1	1	624	C	C5-C6-N1	5.17	123.58	121.00
2	2	1376	U	C6-N1-C2	-5.17	117.90	121.00
59	4	45	A	C5-N7-C8	-5.17	101.32	103.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	120	U	C6-N1-C2	-5.17	117.90	121.00
59	4	112	U	C6-N1-C2	-5.16	117.90	121.00
59	4	291	A	C8-N9-C4	-5.16	103.73	105.80
1	1	2025	C	C5-C6-N1	5.16	123.58	121.00
2	2	804	U	N1-C2-O2	5.16	126.41	122.80
2	2	826	C	C5-C6-N1	5.16	123.58	121.00
59	4	358	C	N3-C4-N4	5.16	121.61	118.00
59	4	241	C	N3-C2-O2	-5.16	118.29	121.90
59	4	357	U	C6-N1-C1'	5.16	128.42	121.20
1	1	283	G	O4'-C1'-N9	5.16	112.32	108.20
1	1	2751	G	N1-C6-O6	-5.16	116.81	119.90
2	2	774	G	C8-N9-C1'	-5.16	120.30	127.00
1	1	164	C	C6-N1-C2	-5.15	118.24	120.30
1	1	1596	A	C8-N9-C1'	-5.15	118.42	127.70
1	1	2849	U	N3-C2-O2	-5.15	118.59	122.20
59	4	50	G	N3-C4-N9	5.15	129.09	126.00
1	1	139	U	C2-N1-C1'	5.15	123.88	117.70
1	1	268	C	C6-N1-C2	-5.15	118.24	120.30
1	1	2715	C	C6-N1-C2	-5.15	118.24	120.30
2	2	166	U	N3-C2-O2	-5.15	118.59	122.20
2	2	376	G	C6-C5-N7	-5.15	127.31	130.40
2	2	1253	G	C8-N9-C1'	-5.15	120.31	127.00
1	1	1163	G	C4-N9-C1'	5.15	133.19	126.50
2	2	1206	G	C6-C5-N7	-5.15	127.31	130.40
2	2	316	C	C5-C6-N1	5.15	123.57	121.00
59	4	56	C	C5-C6-N1	5.14	123.57	121.00
59	4	236	U	N3-C2-O2	-5.14	118.60	122.20
1	1	102	U	C2-N1-C1'	5.14	123.87	117.70
1	1	1092	C	N3-C2-O2	-5.14	118.30	121.90
1	1	1555	G	C4-N9-C1'	5.14	133.19	126.50
59	4	18	C	C6-N1-C1'	5.14	126.97	120.80
2	2	334	C	C4-C5-C6	-5.14	114.83	117.40
59	4	16	U	C2-N1-C1'	5.14	123.87	117.70
1	1	2586	U	N1-C2-O2	5.14	126.40	122.80
2	2	177	G	N3-C4-N9	5.14	129.08	126.00
2	2	632	U	N3-C2-O2	-5.14	118.60	122.20
59	4	209	C	P-O5'-C5'	5.14	129.12	120.90
1	1	915	C	C2-N1-C1'	5.14	124.45	118.80
1	1	915	C	N1-C2-O2	5.14	121.98	118.90
59	4	19	G	P-O3'-C3'	5.14	125.87	119.70
59	4	72	A	N3-C4-C5	-5.14	123.20	126.80
1	1	1945	G	C4-N9-C1'	5.14	133.18	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	6	U	O4'-C1'-N1	5.14	112.31	108.20
60	7	73	C	P-O5'-C5'	5.14	129.12	120.90
1	1	2586	U	C2-N1-C1'	5.13	123.86	117.70
1	1	499	U	C5-C6-N1	5.13	125.27	122.70
2	2	61	G	C4-C5-N7	5.13	112.85	110.80
59	4	270	C	N3-C2-O2	-5.13	118.31	121.90
13	G	117	LEU	CA-CB-CG	5.13	127.10	115.30
1	1	1840	G	N9-C4-C5	-5.13	103.35	105.40
1	1	1967	C	N1-C2-O2	5.13	121.98	118.90
1	1	1255	U	N3-C2-O2	-5.13	118.61	122.20
1	1	1771	C	C6-N1-C2	-5.12	118.25	120.30
2	2	883	C	C6-N1-C2	-5.12	118.25	120.30
1	1	2652	C	C6-N1-C2	-5.12	118.25	120.30
2	2	628	G	N1-C2-N3	5.12	126.97	123.90
2	2	1401	G	C4-N9-C1'	5.12	133.16	126.50
1	1	744	U	C5-C6-N1	5.12	125.26	122.70
1	1	1196	C	C5-C6-N1	5.12	123.56	121.00
2	2	36	C	C6-N1-C2	-5.12	118.25	120.30
2	2	1364	U	C2-N1-C1'	5.12	123.84	117.70
1	1	1930	G	O4'-C1'-N9	5.12	112.30	108.20
60	7	28	C	C2-N3-C4	5.12	122.46	119.90
1	1	1473	G	N3-C4-C5	-5.12	126.04	128.60
1	1	1255	U	C6-N1-C2	-5.12	117.93	121.00
2	2	122	G	C4-N9-C1'	5.12	133.15	126.50
2	2	365	U	C5-C6-N1	5.12	125.26	122.70
2	2	1239	A	N7-C8-N9	5.12	116.36	113.80
1	1	2057	G	C5-C6-O6	5.11	131.67	128.60
1	1	769	U	C5-C4-O4	-5.11	122.83	125.90
1	1	807	U	C2-N1-C1'	5.11	123.83	117.70
2	2	1159	U	C5-C6-N1	5.11	125.25	122.70
59	4	54	G	C2-N3-C4	5.11	114.45	111.90
59	4	55	G	O5'-P-OP2	-5.11	101.10	105.70
59	4	236	U	N1-C2-O2	5.11	126.38	122.80
1	1	2214	C	N1-C2-O2	5.11	121.97	118.90
59	4	342	U	C5-C4-O4	-5.11	122.84	125.90
1	1	2462	C	C6-N1-C2	-5.10	118.26	120.30
2	2	691	G	C6-C5-N7	-5.10	127.34	130.40
59	4	297	G	N7-C8-N9	5.10	115.65	113.10
1	1	245	G	C8-N9-C1'	-5.10	120.37	127.00
1	1	961	C	C6-N1-C2	-5.10	118.26	120.30
1	1	2404	U	N1-C2-O2	5.10	126.37	122.80
1	1	2457	PSU	P-O3'-C3'	5.10	125.82	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	203	G	N3-C4-N9	5.10	129.06	126.00
2	2	779	C	C2-N1-C1'	5.10	124.41	118.80
2	2	1043	G	C4-N9-C1'	5.10	133.13	126.50
1	1	1343	G	C8-N9-C1'	-5.10	120.38	127.00
1	1	1927	A	C5-N7-C8	-5.09	101.35	103.90
59	4	27	U	C5-C6-N1	5.09	125.25	122.70
1	1	129	C	N1-C2-O2	5.09	121.96	118.90
2	2	1344	C	C5-C6-N1	5.09	123.55	121.00
2	2	1504	G	N9-C4-C5	-5.09	103.36	105.40
2	2	6	G	C4-C5-N7	5.09	112.84	110.80
59	4	13	G	C8-N9-C4	-5.09	104.37	106.40
2	2	142	G	N3-C4-C5	-5.08	126.06	128.60
59	4	172	U	C5-C6-N1	5.08	125.24	122.70
1	1	1840	G	C6-C5-N7	-5.08	127.35	130.40
2	2	95	C	C6-N1-C1'	-5.08	114.70	120.80
2	2	210	C	C6-N1-C2	-5.08	118.27	120.30
59	4	118	C	C6-N1-C2	-5.08	118.27	120.30
2	2	18	C	C5-C6-N1	5.08	123.54	121.00
1	1	2585	U	C2-N1-C1'	5.08	123.79	117.70
2	2	292	G	N3-C4-C5	-5.08	126.06	128.60
1	1	2430	A	C8-N9-C1'	-5.08	118.56	127.70
1	1	1314	C	N3-C2-O2	-5.07	118.35	121.90
1	1	1343	G	N3-C4-N9	5.07	129.04	126.00
1	1	1696	G	C4-N9-C1'	5.07	133.09	126.50
59	4	121	A	P-O3'-C3'	5.07	125.78	119.70
59	4	265	C	O4'-C1'-N1	5.07	112.26	108.20
2	2	881	G	C8-N9-C4	-5.07	104.37	106.40
1	1	1179	G	C2-N3-C4	5.07	114.43	111.90
2	2	527	7MG	P-O3'-C3'	5.07	125.78	119.70
2	2	545	C	C6-N1-C2	-5.07	118.27	120.30
2	2	1043	G	C8-N9-C1'	-5.07	120.41	127.00
60	7	53	G	C8-N9-C4	-5.07	104.37	106.40
1	1	1507	C	C5-C6-N1	5.07	123.53	121.00
59	4	119	U	O4'-C1'-N1	5.07	112.25	108.20
2	2	1438	G	C8-N9-C1'	-5.06	120.42	127.00
1	1	2138	G	C4-C5-N7	5.06	112.83	110.80
2	2	754	C	C2-N1-C1'	5.06	124.37	118.80
2	2	1358	U	P-O3'-C3'	5.06	125.78	119.70
2	2	1534	A	C4-N9-C1'	5.06	135.41	126.30
59	4	290	A	O3'-P-O5'	5.06	113.62	104.00
1	1	1779	U	O4'-C1'-N1	5.06	112.25	108.20
2	2	112	G	N3-C4-N9	5.06	129.04	126.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
59	4	197	A	P-O3'-C3'	5.06	125.77	119.70
1	1	422	A	N1-C2-N3	5.06	131.83	129.30
1	1	484	C	C5-C6-N1	5.06	123.53	121.00
1	1	2628	C	C6-N1-C2	-5.06	118.28	120.30
2	2	905	U	N3-C2-O2	-5.06	118.66	122.20
4	5	65	LEU	CA-CB-CG	5.06	126.93	115.30
2	2	763	G	C4-C5-N7	5.06	112.82	110.80
59	4	18	C	O4'-C1'-N1	5.06	112.25	108.20
1	1	840	C	N1-C2-O2	5.05	121.93	118.90
60	7	1	G	C4-C5-N7	5.05	112.82	110.80
2	2	760	G	C6-N1-C2	-5.05	122.07	125.10
2	2	778	G	N3-C4-N9	5.05	129.03	126.00
2	2	1082	A	N3-C4-N9	-5.05	123.36	127.40
1	1	43	G	N3-C4-C5	-5.05	126.08	128.60
2	2	1199	U	N1-C2-O2	5.05	126.33	122.80
59	4	221	U	C5-C6-N1	5.05	125.22	122.70
2	2	1466	C	C6-N1-C2	-5.05	118.28	120.30
60	7	39	U	C6-N1-C2	-5.05	117.97	121.00
59	4	263	G	N7-C8-N9	5.04	115.62	113.10
1	1	1688	U	N3-C2-O2	-5.04	118.67	122.20
1	1	2636	C	N1-C2-O2	5.04	121.92	118.90
2	2	1199	U	C5-C6-N1	5.04	125.22	122.70
2	2	95	C	C6-N1-C2	-5.04	118.28	120.30
60	7	28	C	N1-C2-O2	5.04	121.92	118.90
1	1	867	C	N1-C2-O2	5.04	121.92	118.90
2	2	774	G	C4-C5-N7	5.04	112.82	110.80
11	E	174	ASP	CB-CG-OD1	5.04	122.83	118.30
59	4	130	C	C6-N1-C2	-5.04	118.28	120.30
2	2	769	G	C6-C5-N7	-5.04	127.38	130.40
1	1	1663	G	OP2-P-O3'	5.04	116.28	105.20
1	1	2704	C	N1-C2-O2	5.04	121.92	118.90
2	2	1069	C	C6-N1-C1'	5.04	126.84	120.80
59	4	283	C	O4'-C1'-N1	5.03	112.23	108.20
1	1	2174	C	N3-C2-O2	-5.03	118.38	121.90
2	2	392	C	C5-C6-N1	5.03	123.52	121.00
3	3	26	C	C2-N1-C1'	5.03	124.33	118.80
2	2	657	U	N3-C2-O2	-5.03	118.68	122.20
1	1	710	U	C2-N1-C1'	5.03	123.73	117.70
1	1	1571	A	C8-N9-C4	-5.03	103.79	105.80
2	2	730	G	N3-C4-C5	-5.03	126.09	128.60
2	2	457	G	C6-C5-N7	-5.03	127.39	130.40
2	2	949	A	C5-C6-N1	5.03	120.21	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1499	A	C2-N3-C4	5.03	113.11	110.60
1	1	140	C	N1-C2-O2	5.02	121.91	118.90
1	1	1675	C	C6-N1-C2	-5.02	118.29	120.30
1	1	206	U	C6-N1-C2	-5.02	117.99	121.00
59	4	130	C	OP2-P-O3'	5.02	116.24	105.20
59	4	142	U	C5-C6-N1	5.02	125.21	122.70
60	7	65	C	N1-C2-O2	5.02	121.91	118.90
1	1	1052	C	C5-C6-N1	5.01	123.51	121.00
1	1	1473	G	C4-N9-C1'	5.01	133.02	126.50
2	2	1028	C	N1-C2-O2	5.01	121.91	118.90
1	1	678	C	C5-C6-N1	5.01	123.50	121.00
59	4	358	C	C4-C5-C6	-5.01	114.89	117.40
1	1	495	G	C5-C6-O6	5.01	131.61	128.60
1	1	692	C	C6-N1-C2	-5.01	118.30	120.30
1	1	1775	U	C5-C4-O4	-5.01	122.90	125.90
59	4	265	C	C6-N1-C1'	5.01	126.81	120.80
59	4	21	C	O5'-P-OP1	-5.00	101.20	105.70
60	7	27	A	C4-N9-C1'	5.00	135.31	126.30
1	1	245	G	C4-N9-C1'	5.00	133.00	126.50
59	4	198	U	N3-C2-O2	-5.00	118.70	122.20
1	1	317	G	C4-N9-C1'	5.00	133.00	126.50
1	1	1595	C	N1-C2-O2	5.00	121.90	118.90
2	2	940	C	C6-N1-C2	-5.00	118.30	120.30

All (39) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	1	745	1MG	C2',C1'
1	1	746	PSU	C4',C3'
1	1	747	5MU	C4',C2'
1	1	955	PSU	C4',C3'
1	1	1618	6MZ	C2',C3'
1	1	1911	PSU	C4',C3'
1	1	1915	3TD	C3'
1	1	1917	PSU	C4',C3'
1	1	1939	5MU	C4',C2'
1	1	2030	6MZ	C2',C3'
1	1	2069	G7M	C2'
1	1	2251	OMG	C2'
1	1	2457	PSU	C4',C3'
1	1	2498	OMC	C4'
1	1	2503	2MA	C2',C3'

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Mol	Chain	Res	Type	Atom
1	1	2504	PSU	C4',C3'
1	1	2552	OMU	C2',C3'
1	1	2580	PSU	C4',C3'
1	1	2605	PSU	C4',C3'
2	2	516	PSU	C4',C3'
2	2	527	7MG	C3'
2	2	1402	4OC	C1',C3'

All (11) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
14	H	67	THR	Peptide
15	I	20	SER	Peptide
17	K	93	GLN	Peptide
23	Q	5	LYS	Peptide
30	X	20	HIS	Peptide
37	e	31	HIS	Peptide
37	e	51	SER	Peptide
39	g	57	LEU	Peptide
40	h	75	ILE	Peptide
40	h	76	VAL	Peptide
53	u	1	MET	Peptide

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
4	5	143/145 (99%)	112 (78%)	27 (19%)	4 (3%)	5 34

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	6	26/28 (93%)	17 (65%)	9 (35%)	0	100	100
8	B	268/270 (99%)	243 (91%)	25 (9%)	0	100	100
9	C	207/209 (99%)	194 (94%)	13 (6%)	0	100	100
10	D	199/201 (99%)	176 (88%)	23 (12%)	0	100	100
11	E	175/177 (99%)	157 (90%)	18 (10%)	0	100	100
12	F	173/175 (99%)	151 (87%)	22 (13%)	0	100	100
13	G	147/149 (99%)	133 (90%)	14 (10%)	0	100	100
14	H	128/130 (98%)	103 (80%)	25 (20%)	0	100	100
15	I	133/135 (98%)	108 (81%)	25 (19%)	0	100	100
16	J	139/141 (99%)	129 (93%)	10 (7%)	0	100	100
17	K	121/123 (98%)	105 (87%)	16 (13%)	0	100	100
18	L	142/144 (99%)	124 (87%)	18 (13%)	0	100	100
19	M	134/136 (98%)	128 (96%)	6 (4%)	0	100	100
20	N	117/119 (98%)	102 (87%)	15 (13%)	0	100	100
21	O	113/115 (98%)	103 (91%)	10 (9%)	0	100	100
22	P	112/114 (98%)	102 (91%)	10 (9%)	0	100	100
23	Q	115/117 (98%)	109 (95%)	6 (5%)	0	100	100
24	R	101/103 (98%)	90 (89%)	11 (11%)	0	100	100
25	S	106/108 (98%)	97 (92%)	9 (8%)	0	100	100
26	T	92/94 (98%)	85 (92%)	7 (8%)	0	100	100
27	U	101/103 (98%)	91 (90%)	10 (10%)	0	100	100
28	V	92/94 (98%)	86 (94%)	6 (6%)	0	100	100
29	W	74/76 (97%)	65 (88%)	9 (12%)	0	100	100
30	X	75/77 (97%)	66 (88%)	9 (12%)	0	100	100
31	Y	56/58 (97%)	55 (98%)	1 (2%)	0	100	100
32	Z	54/56 (96%)	51 (94%)	3 (6%)	0	100	100
33	a	64/66 (97%)	57 (89%)	7 (11%)	0	100	100
34	b	52/54 (96%)	44 (85%)	8 (15%)	0	100	100
35	c	50/52 (96%)	45 (90%)	5 (10%)	0	100	100
36	d	44/46 (96%)	40 (91%)	4 (9%)	0	100	100
37	e	62/64 (97%)	53 (86%)	8 (13%)	1 (2%)	9	44

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	f	35/37 (95%)	35 (100%)	0	0	100	100
39	g	223/225 (99%)	198 (89%)	25 (11%)	0	100	100
40	h	206/208 (99%)	188 (91%)	17 (8%)	1 (0%)	29	67
41	i	203/205 (99%)	190 (94%)	13 (6%)	0	100	100
42	j	154/156 (99%)	135 (88%)	19 (12%)	0	100	100
43	k	102/104 (98%)	96 (94%)	6 (6%)	0	100	100
44	l	149/151 (99%)	140 (94%)	9 (6%)	0	100	100
45	m	127/129 (98%)	113 (89%)	14 (11%)	0	100	100
46	n	124/126 (98%)	113 (91%)	11 (9%)	0	100	100
47	o	97/99 (98%)	87 (90%)	10 (10%)	0	100	100
48	p	115/117 (98%)	103 (90%)	12 (10%)	0	100	100
49	q	120/123 (98%)	105 (88%)	15 (12%)	0	100	100
50	r	113/115 (98%)	100 (88%)	13 (12%)	0	100	100
51	s	98/100 (98%)	86 (88%)	12 (12%)	0	100	100
52	t	85/87 (98%)	79 (93%)	5 (6%)	1 (1%)	13	49
53	u	79/81 (98%)	71 (90%)	8 (10%)	0	100	100
54	v	78/80 (98%)	69 (88%)	9 (12%)	0	100	100
55	w	63/65 (97%)	57 (90%)	6 (10%)	0	100	100
56	x	80/82 (98%)	75 (94%)	5 (6%)	0	100	100
57	y	83/85 (98%)	76 (92%)	7 (8%)	0	100	100
58	z	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
All	All	6017/6124 (98%)	5403 (90%)	607 (10%)	7 (0%)	54	84

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	5	137	ASP
52	t	22	THR
4	5	135	GLN
4	5	132	GLY
4	5	120	ASN
40	h	77	ILE
37	e	32	ILE

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	5	121/121 (100%)	119 (98%)	2 (2%)	60 78
8	B	216/216 (100%)	216 (100%)	0	100 100
9	C	164/164 (100%)	163 (99%)	1 (1%)	86 91
10	D	165/165 (100%)	164 (99%)	1 (1%)	86 91
11	E	148/148 (100%)	146 (99%)	2 (1%)	67 81
12	F	136/136 (100%)	134 (98%)	2 (2%)	65 80
13	G	114/114 (100%)	113 (99%)	1 (1%)	78 87
14	H	99/99 (100%)	99 (100%)	0	100 100
15	I	104/104 (100%)	104 (100%)	0	100 100
16	J	115/115 (100%)	115 (100%)	0	100 100
17	K	104/104 (100%)	104 (100%)	0	100 100
18	L	103/103 (100%)	102 (99%)	1 (1%)	76 86
19	M	109/109 (100%)	109 (100%)	0	100 100
20	N	99/99 (100%)	98 (99%)	1 (1%)	76 86
21	O	85/85 (100%)	85 (100%)	0	100 100
22	P	99/99 (100%)	99 (100%)	0	100 100
23	Q	89/89 (100%)	89 (100%)	0	100 100
24	R	84/84 (100%)	84 (100%)	0	100 100
25	S	91/91 (100%)	90 (99%)	1 (1%)	73 84
26	T	81/81 (100%)	81 (100%)	0	100 100
27	U	84/84 (100%)	84 (100%)	0	100 100
28	V	78/78 (100%)	77 (99%)	1 (1%)	69 82
29	W	58/58 (100%)	58 (100%)	0	100 100
30	X	67/67 (100%)	67 (100%)	0	100 100
31	Y	53/53 (100%)	53 (100%)	0	100 100
32	Z	47/47 (100%)	47 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
33	a	59/59 (100%)	59 (100%)	0	100 100
34	b	46/46 (100%)	46 (100%)	0	100 100
35	c	47/47 (100%)	47 (100%)	0	100 100
36	d	38/38 (100%)	38 (100%)	0	100 100
37	e	51/51 (100%)	51 (100%)	0	100 100
38	f	34/34 (100%)	34 (100%)	0	100 100
39	g	187/187 (100%)	186 (100%)	1 (0%)	88 93
40	h	171/171 (100%)	170 (99%)	1 (1%)	86 91
41	i	172/172 (100%)	172 (100%)	0	100 100
42	j	119/119 (100%)	119 (100%)	0	100 100
43	k	91/91 (100%)	91 (100%)	0	100 100
44	l	124/124 (100%)	123 (99%)	1 (1%)	81 89
45	m	104/104 (100%)	104 (100%)	0	100 100
46	n	104/104 (100%)	103 (99%)	1 (1%)	76 86
47	o	86/86 (100%)	86 (100%)	0	100 100
48	p	90/90 (100%)	89 (99%)	1 (1%)	73 84
49	q	102/102 (100%)	102 (100%)	0	100 100
50	r	93/93 (100%)	92 (99%)	1 (1%)	73 84
51	s	83/83 (100%)	83 (100%)	0	100 100
52	t	75/75 (100%)	74 (99%)	1 (1%)	69 82
53	u	65/65 (100%)	64 (98%)	1 (2%)	65 80
54	v	74/74 (100%)	74 (100%)	0	100 100
55	w	56/56 (100%)	55 (98%)	1 (2%)	59 77
56	x	72/72 (100%)	72 (100%)	0	100 100
57	y	65/65 (100%)	64 (98%)	1 (2%)	65 80
58	z	60/60 (100%)	59 (98%)	1 (2%)	60 78
All	All	4981/4981 (100%)	4957 (100%)	24 (0%)	89 93

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	5	83	ASP
4	5	134	LYS

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Mol	Chain	Res	Type
9	C	26	VAL
10	D	88	ARG
11	E	30	ARG
11	E	150	ARG
12	F	44	LYS
12	F	60	ASP
13	G	50	ARG
18	L	47	ARG
20	N	2	ARG
25	S	95	ARG
28	V	19	ARG
39	g	70	VAL
40	h	164	ARG
44	l	4	ARG
46	n	106	ARG
48	p	13	ARG
50	r	65	VAL
52	t	17	ARG
53	u	25	ARG
55	w	43	ARG
57	y	36	TYR
58	z	7	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (62) such sidechains are listed below:

Mol	Chain	Res	Type
4	5	93	ASN
8	B	86	ASN
8	B	128	ASN
8	B	153	GLN
8	B	251	GLN
9	C	49	GLN
9	C	130	GLN
9	C	164	GLN
11	E	52	ASN
11	E	127	ASN
13	G	43	ASN
13	G	128	HIS
14	H	103	ASN
15	I	30	GLN
15	I	104	GLN
15	I	110	GLN

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Mol	Chain	Res	Type
17	K	3	GLN
20	N	31	HIS
20	N	81	ASN
22	P	10	GLN
22	P	12	GLN
23	Q	20	GLN
25	S	60	HIS
25	S	61	ASN
26	T	28	ASN
26	T	91	GLN
27	U	45	HIS
27	U	66	GLN
27	U	99	ASN
28	V	5	ASN
28	V	75	GLN
30	X	16	ASN
31	Y	20	ASN
31	Y	36	GLN
31	Y	58	ASN
33	a	20	ASN
37	e	26	HIS
37	e	28	ASN
38	f	33	HIS
38	f	37	GLN
39	g	109	GLN
40	h	25	ASN
41	i	198	HIS
44	l	97	ASN
45	m	18	GLN
45	m	21	ASN
46	n	31	ASN
46	n	75	GLN
46	n	81	HIS
46	n	126	GLN
48	p	15	GLN
48	p	22	HIS
48	p	64	GLN
49	q	5	ASN
49	q	46	ASN
50	r	105	ASN
52	t	46	HIS
52	t	50	HIS

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Mol	Chain	Res	Type
56	x	52	HIS
57	y	3	ASN
57	y	13	GLN
57	y	70	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2897/2903 (99%)	951 (32%)	24 (0%)
2	2	1526/1534 (99%)	428 (28%)	7 (0%)
3	3	119/120 (99%)	38 (31%)	0
59	4	332/363 (91%)	198 (59%)	33 (9%)
6	8	76/77 (98%)	43 (56%)	1 (1%)
60	7	76/77 (98%)	49 (64%)	2 (2%)
7	9	5/6 (83%)	4 (80%)	0
All	All	5031/5080 (99%)	1711 (34%)	67 (1%)

All (1711) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	2	G
1	1	10	A
1	1	11	C
1	1	12	U
1	1	18	U
1	1	23	G
1	1	28	A
1	1	33	C
1	1	42	A
1	1	43	G
1	1	46	G
1	1	48	G
1	1	49	A
1	1	54	G
1	1	56	A
1	1	58	G
1	1	60	G
1	1	63	A
1	1	71	A
1	1	72	U
1	1	73	A

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Mol	Chain	Res	Type
1	1	74	A
1	1	75	G
1	1	80	G
1	1	84	A
1	1	85	G
1	1	88	G
1	1	91	A
1	1	93	G
1	1	94	A
1	1	100	U
1	1	101	A
1	1	102	U
1	1	110	G
1	1	118	A
1	1	119	A
1	1	120	U
1	1	125	A
1	1	126	A
1	1	136	G
1	1	137	U
1	1	139	U
1	1	140	C
1	1	141	G
1	1	142	A
1	1	154	U
1	1	155	A
1	1	159	G
1	1	163	C
1	1	165	A
1	1	169	G
1	1	180	G
1	1	190	A
1	1	192	C
1	1	196	A
1	1	197	A
1	1	198	C
1	1	199	A
1	1	204	A
1	1	205	G
1	1	215	G
1	1	216	A
1	1	219	A

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Mol	Chain	Res	Type
1	1	221	A
1	1	222	A
1	1	223	A
1	1	227	A
1	1	228	C
1	1	229	C
1	1	230	G
1	1	241	A
1	1	244	A
1	1	248	G
1	1	250	G
1	1	263	G
1	1	266	G
1	1	271	G
1	1	272	A
1	1	274	C
1	1	275	C
1	1	276	U
1	1	277	G
1	1	278	A
1	1	279	A
1	1	281	C
1	1	282	A
1	1	283	G
1	1	284	U
1	1	285	G
1	1	293	U
1	1	294	A
1	1	295	G
1	1	303	G
1	1	304	U
1	1	305	C
1	1	306	U
1	1	310	A
1	1	311	A
1	1	312	G
1	1	320	A
1	1	321	U
1	1	322	A
1	1	323	C
1	1	324	A
1	1	329	G

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Mol	Chain	Res	Type
1	1	330	A
1	1	331	C
1	1	333	G
1	1	338	G
1	1	345	A
1	1	348	A
1	1	352	A
1	1	356	G
1	1	357	C
1	1	359	G
1	1	360	U
1	1	361	G
1	1	367	G
1	1	371	A
1	1	372	G
1	1	373	U
1	1	386	G
1	1	387	U
1	1	388	G
1	1	396	G
1	1	400	G
1	1	401	A
1	1	403	U
1	1	404	A
1	1	405	U
1	1	411	G
1	1	412	A
1	1	413	C
1	1	414	C
1	1	425	G
1	1	446	G
1	1	456	C
1	1	457	A
1	1	458	G
1	1	459	U
1	1	464	U
1	1	466	A
1	1	475	C
1	1	477	A
1	1	480	A
1	1	481	G
1	1	485	C

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Mol	Chain	Res	Type
1	1	489	G
1	1	490	C
1	1	491	G
1	1	492	A
1	1	496	G
1	1	499	U
1	1	501	A
1	1	504	A
1	1	505	A
1	1	508	A
1	1	509	C
1	1	513	A
1	1	519	U
1	1	527	C
1	1	529	A
1	1	530	G
1	1	531	C
1	1	532	A
1	1	533	G
1	1	536	G
1	1	542	C
1	1	544	C
1	1	545	U
1	1	547	A
1	1	548	G
1	1	549	G
1	1	554	U
1	1	557	C
1	1	562	U
1	1	563	A
1	1	571	U
1	1	572	A
1	1	573	U
1	1	575	A
1	1	583	G
1	1	586	A
1	1	587	C
1	1	592	A
1	1	603	A
1	1	613	A
1	1	614	A
1	1	615	U

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Mol	Chain	Res	Type
1	1	616	A
1	1	618	G
1	1	620	G
1	1	623	C
1	1	627	A
1	1	628	G
1	1	632	A
1	1	634	C
1	1	635	C
1	1	637	A
1	1	642	U
1	1	643	A
1	1	644	A
1	1	646	U
1	1	647	G
1	1	651	G
1	1	654	A
1	1	655	A
1	1	662	G
1	1	672	C
1	1	685	A
1	1	686	U
1	1	702	U
1	1	703	U
1	1	709	U
1	1	710	U
1	1	715	A
1	1	717	C
1	1	719	C
1	1	720	U
1	1	726	G
1	1	728	G
1	1	729	G
1	1	730	A
1	1	734	A
1	1	745	1MG
1	1	746	PSU
1	1	747	5MU
1	1	748	G
1	1	749	A
1	1	762	U
1	1	764	A

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Mol	Chain	Res	Type
1	1	765	C
1	1	769	U
1	1	770	G
1	1	775	G
1	1	782	A
1	1	784	G
1	1	785	G
1	1	792	A
1	1	800	A
1	1	801	G
1	1	805	G
1	1	807	U
1	1	812	C
1	1	813	U
1	1	819	A
1	1	827	U
1	1	828	U
1	1	830	G
1	1	831	G
1	1	835	C
1	1	840	C
1	1	842	U
1	1	845	A
1	1	846	U
1	1	847	U
1	1	856	G
1	1	858	G
1	1	859	G
1	1	860	U
1	1	865	C
1	1	868	U
1	1	875	G
1	1	878	A
1	1	882	G
1	1	883	G
1	1	884	U
1	1	885	C
1	1	886	A
1	1	887	A
1	1	888	C
1	1	890	C
1	1	892	A

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Mol	Chain	Res	Type
1	1	893	C
1	1	894	U
1	1	895	U
1	1	896	A
1	1	897	C
1	1	898	C
1	1	899	A
1	1	910	A
1	1	911	A
1	1	912	C
1	1	913	U
1	1	928	A
1	1	931	U
1	1	934	U
1	1	941	A
1	1	953	G
1	1	955	PSU
1	1	956	G
1	1	958	U
1	1	959	A
1	1	961	C
1	1	962	G
1	1	965	C
1	1	970	U
1	1	971	G
1	1	974	G
1	1	977	G
1	1	983	A
1	1	988	A
1	1	990	A
1	1	995	C
1	1	996	A
1	1	997	G
1	1	999	U
1	1	1006	C
1	1	1007	C
1	1	1012	U
1	1	1013	C
1	1	1017	G
1	1	1023	U
1	1	1025	G
1	1	1026	G

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Mol	Chain	Res	Type
1	1	1033	U
1	1	1041	G
1	1	1043	C
1	1	1046	A
1	1	1047	G
1	1	1051	G
1	1	1052	C
1	1	1053	C
1	1	1054	A
1	1	1056	G
1	1	1057	A
1	1	1058	U
1	1	1059	G
1	1	1061	U
1	1	1062	G
1	1	1065	U
1	1	1066	U
1	1	1067	A
1	1	1068	G
1	1	1069	A
1	1	1070	A
1	1	1071	G
1	1	1072	C
1	1	1073	A
1	1	1075	C
1	1	1077	A
1	1	1078	U
1	1	1082	U
1	1	1083	U
1	1	1084	A
1	1	1085	A
1	1	1087	G
1	1	1088	A
1	1	1089	A
1	1	1090	A
1	1	1093	G
1	1	1095	A
1	1	1096	A
1	1	1097	U
1	1	1098	A
1	1	1101	U
1	1	1103	A

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Mol	Chain	Res	Type
1	1	1104	C
1	1	1106	G
1	1	1108	U
1	1	1110	G
1	1	1111	A
1	1	1112	G
1	1	1113	U
1	1	1114	C
1	1	1121	C
1	1	1122	G
1	1	1129	A
1	1	1130	U
1	1	1131	G
1	1	1132	U
1	1	1133	A
1	1	1134	A
1	1	1135	C
1	1	1139	G
1	1	1141	U
1	1	1142	A
1	1	1144	A
1	1	1147	A
1	1	1148	U
1	1	1155	A
1	1	1157	G
1	1	1158	C
1	1	1163	G
1	1	1171	G
1	1	1173	U
1	1	1174	U
1	1	1175	A
1	1	1176	U
1	1	1177	G
1	1	1178	C
1	1	1179	G
1	1	1180	U
1	1	1182	G
1	1	1186	G
1	1	1191	G
1	1	1192	G
1	1	1199	U
1	1	1200	C

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Mol	Chain	Res	Type
1	1	1206	G
1	1	1211	C
1	1	1212	G
1	1	1218	G
1	1	1220	G
1	1	1225	G
1	1	1227	G
1	1	1236	G
1	1	1237	A
1	1	1238	G
1	1	1240	U
1	1	1244	A
1	1	1245	G
1	1	1247	A
1	1	1250	G
1	1	1251	C
1	1	1253	A
1	1	1256	G
1	1	1265	A
1	1	1266	G
1	1	1267	U
1	1	1268	A
1	1	1271	G
1	1	1272	A
1	1	1273	U
1	1	1286	A
1	1	1287	A
1	1	1300	G
1	1	1301	A
1	1	1302	A
1	1	1310	G
1	1	1312	U
1	1	1321	A
1	1	1325	U
1	1	1330	C
1	1	1332	G
1	1	1333	G
1	1	1338	G
1	1	1341	G
1	1	1345	C
1	1	1358	G
1	1	1359	A

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Mol	Chain	Res	Type
1	1	1367	A
1	1	1368	G
1	1	1370	C
1	1	1372	U
1	1	1378	A
1	1	1379	U
1	1	1380	G
1	1	1381	G
1	1	1383	A
1	1	1390	U
1	1	1393	A
1	1	1394	U
1	1	1395	A
1	1	1401	G
1	1	1403	A
1	1	1408	G
1	1	1409	U
1	1	1414	C
1	1	1416	G
1	1	1417	C
1	1	1419	A
1	1	1427	A
1	1	1428	C
1	1	1429	G
1	1	1433	A
1	1	1434	A
1	1	1440	U
1	1	1443	U
1	1	1444	G
1	1	1451	C
1	1	1452	G
1	1	1453	A
1	1	1454	C
1	1	1455	G
1	1	1458	U
1	1	1460	U
1	1	1461	C
1	1	1464	G
1	1	1474	U
1	1	1475	G
1	1	1482	G
1	1	1490	A

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Mol	Chain	Res	Type
1	1	1493	C
1	1	1495	A
1	1	1497	U
1	1	1498	C
1	1	1499	C
1	1	1502	A
1	1	1508	A
1	1	1509	A
1	1	1510	G
1	1	1515	A
1	1	1517	G
1	1	1522	A
1	1	1524	G
1	1	1529	G
1	1	1530	G
1	1	1531	C
1	1	1532	A
1	1	1534	U
1	1	1535	A
1	1	1536	C
1	1	1537	G
1	1	1538	G
1	1	1541	C
1	1	1546	G
1	1	1554	U
1	1	1557	C
1	1	1558	C
1	1	1566	A
1	1	1567	G
1	1	1569	A
1	1	1575	C
1	1	1578	U
1	1	1580	A
1	1	1581	G
1	1	1583	A
1	1	1584	U
1	1	1587	G
1	1	1588	G
1	1	1590	A
1	1	1596	A
1	1	1597	A
1	1	1602	U

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Mol	Chain	Res	Type
1	1	1603	A
1	1	1606	C
1	1	1607	C
1	1	1608	A
1	1	1610	A
1	1	1611	C
1	1	1614	A
1	1	1615	C
1	1	1616	A
1	1	1617	C
1	1	1628	G
1	1	1630	A
1	1	1633	G
1	1	1634	A
1	1	1639	C
1	1	1642	G
1	1	1643	G
1	1	1644	C
1	1	1646	C
1	1	1647	U
1	1	1648	U
1	1	1649	G
1	1	1650	A
1	1	1651	G
1	1	1654	A
1	1	1671	U
1	1	1672	A
1	1	1673	G
1	1	1674	G
1	1	1676	A
1	1	1690	A
1	1	1694	C
1	1	1695	G
1	1	1698	A
1	1	1699	G
1	1	1702	G
1	1	1703	G
1	1	1705	A
1	1	1715	G
1	1	1726	C
1	1	1729	U
1	1	1730	C

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Mol	Chain	Res	Type
1	1	1732	C
1	1	1733	G
1	1	1738	G
1	1	1749	A
1	1	1756	G
1	1	1757	A
1	1	1758	U
1	1	1761	C
1	1	1762	A
1	1	1764	C
1	1	1768	C
1	1	1769	U
1	1	1770	G
1	1	1773	A
1	1	1780	A
1	1	1781	U
1	1	1782	U
1	1	1785	A
1	1	1791	A
1	1	1799	G
1	1	1800	C
1	1	1801	A
1	1	1802	A
1	1	1805	A
1	1	1808	A
1	1	1810	A
1	1	1815	A
1	1	1816	C
1	1	1829	A
1	1	1830	C
1	1	1833	C
1	1	1835	2MG
1	1	1842	G
1	1	1859	U
1	1	1862	G
1	1	1866	A
1	1	1868	C
1	1	1869	G
1	1	1870	C
1	1	1871	A
1	1	1872	A
1	1	1873	G

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Mol	Chain	Res	Type
1	1	1880	U
1	1	1886	U
1	1	1890	A
1	1	1905	C
1	1	1906	G
1	1	1910	G
1	1	1911	PSU
1	1	1912	A
1	1	1913	A
1	1	1914	C
1	1	1917	PSU
1	1	1918	A
1	1	1923	U
1	1	1924	C
1	1	1929	G
1	1	1930	G
1	1	1933	G
1	1	1936	A
1	1	1937	A
1	1	1938	A
1	1	1939	5MU
1	1	1940	U
1	1	1942	C
1	1	1943	U
1	1	1945	G
1	1	1955	U
1	1	1961	C
1	1	1964	G
1	1	1965	C
1	1	1967	C
1	1	1968	G
1	1	1970	A
1	1	1971	U
1	1	1972	G
1	1	1981	A
1	1	1982	U
1	1	1991	U
1	1	1992	G
1	1	1993	U
1	1	1996	C
1	1	1997	C
1	1	2015	A

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Mol	Chain	Res	Type
1	1	2022	U
1	1	2023	C
1	1	2031	A
1	1	2032	G
1	1	2033	A
1	1	2034	U
1	1	2035	G
1	1	2036	C
1	1	2041	U
1	1	2043	C
1	1	2044	C
1	1	2049	G
1	1	2052	A
1	1	2055	C
1	1	2056	G
1	1	2058	A
1	1	2059	A
1	1	2060	A
1	1	2061	G
1	1	2062	A
1	1	2068	U
1	1	2069	G7M
1	1	2070	A
1	1	2072	C
1	1	2077	A
1	1	2081	U
1	1	2085	U
1	1	2092	U
1	1	2093	G
1	1	2094	A
1	1	2095	A
1	1	2096	C
1	1	2097	A
1	1	2099	U
1	1	2101	A
1	1	2102	G
1	1	2103	C
1	1	2104	C
1	1	2105	U
1	1	2106	U
1	1	2107	G
1	1	2108	A

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Mol	Chain	Res	Type
1	1	2111	U
1	1	2112	G
1	1	2114	A
1	1	2115	G
1	1	2116	G
1	1	2117	A
1	1	2118	U
1	1	2120	G
1	1	2121	G
1	1	2122	U
1	1	2124	G
1	1	2125	G
1	1	2126	A
1	1	2127	G
1	1	2128	G
1	1	2131	U
1	1	2132	U
1	1	2136	G
1	1	2138	G
1	1	2139	U
1	1	2145	C
1	1	2146	C
1	1	2147	A
1	1	2150	C
1	1	2151	U
1	1	2155	U
1	1	2156	G
1	1	2157	G
1	1	2158	A
1	1	2159	G
1	1	2161	C
1	1	2163	A
1	1	2164	C
1	1	2165	C
1	1	2166	U
1	1	2168	G
1	1	2169	A
1	1	2170	A
1	1	2171	A
1	1	2172	U
1	1	2174	C
1	1	2177	C

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Mol	Chain	Res	Type
1	1	2178	C
1	1	2180	U
1	1	2181	U
1	1	2182	U
1	1	2183	A
1	1	2184	A
1	1	2186	G
1	1	2187	U
1	1	2189	U
1	1	2190	G
1	1	2191	A
1	1	2193	G
1	1	2194	U
1	1	2198	A
1	1	2204	G
1	1	2211	A
1	1	2212	A
1	1	2213	U
1	1	2214	C
1	1	2218	G
1	1	2219	U
1	1	2226	C
1	1	2232	C
1	1	2238	G
1	1	2250	G
1	1	2252	G
1	1	2255	G
1	1	2256	G
1	1	2266	A
1	1	2268	A
1	1	2278	A
1	1	2279	G
1	1	2280	G
1	1	2283	C
1	1	2286	G
1	1	2287	A
1	1	2288	A
1	1	2305	U
1	1	2306	C
1	1	2308	G
1	1	2320	U
1	1	2322	A

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Mol	Chain	Res	Type
1	1	2325	G
1	1	2327	A
1	1	2328	A
1	1	2333	A
1	1	2334	U
1	1	2335	A
1	1	2336	A
1	1	2344	U
1	1	2347	C
1	1	2350	C
1	1	2351	G
1	1	2352	A
1	1	2354	C
1	1	2359	C
1	1	2361	G
1	1	2367	G
1	1	2371	G
1	1	2376	A
1	1	2378	A
1	1	2383	G
1	1	2385	C
1	1	2391	G
1	1	2401	U
1	1	2402	U
1	1	2403	C
1	1	2406	A
1	1	2410	G
1	1	2420	C
1	1	2423	U
1	1	2424	C
1	1	2425	A
1	1	2426	A
1	1	2428	G
1	1	2429	G
1	1	2430	A
1	1	2432	A
1	1	2441	U
1	1	2445	2MG
1	1	2448	A
1	1	2449	U
1	1	2457	PSU
1	1	2458	G

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Mol	Chain	Res	Type
1	1	2462	C
1	1	2465	C
1	1	2470	G
1	1	2476	A
1	1	2478	A
1	1	2481	G
1	1	2491	U
1	1	2498	OMC
1	1	2499	C
1	1	2501	C
1	1	2502	G
1	1	2504	PSU
1	1	2505	G
1	1	2506	U
1	1	2507	C
1	1	2509	G
1	1	2513	A
1	1	2518	A
1	1	2520	C
1	1	2529	G
1	1	2533	U
1	1	2534	A
1	1	2535	G
1	1	2537	U
1	1	2538	C
1	1	2543	G
1	1	2547	A
1	1	2552	OMU
1	1	2553	G
1	1	2556	C
1	1	2564	A
1	1	2566	A
1	1	2567	G
1	1	2573	C
1	1	2574	G
1	1	2580	PSU
1	1	2581	G
1	1	2582	G
1	1	2585	U
1	1	2586	U
1	1	2600	A
1	1	2602	A

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Mol	Chain	Res	Type
1	1	2604	U
1	1	2605	PSU
1	1	2606	C
1	1	2608	G
1	1	2609	U
1	1	2613	U
1	1	2614	A
1	1	2615	U
1	1	2629	U
1	1	2630	G
1	1	2631	G
1	1	2634	A
1	1	2646	C
1	1	2648	G
1	1	2654	A
1	1	2663	G
1	1	2668	G
1	1	2670	A
1	1	2679	A
1	1	2682	A
1	1	2689	U
1	1	2690	U
1	1	2697	G
1	1	2700	A
1	1	2713	U
1	1	2714	G
1	1	2716	C
1	1	2718	G
1	1	2721	A
1	1	2726	A
1	1	2729	G
1	1	2732	G
1	1	2733	A
1	1	2739	U
1	1	2741	A
1	1	2744	G
1	1	2748	A
1	1	2750	A
1	1	2751	G
1	1	2752	C
1	1	2753	A
1	1	2755	C

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Mol	Chain	Res	Type
1	1	2756	U
1	1	2766	A
1	1	2773	C
1	1	2775	G
1	1	2776	A
1	1	2777	G
1	1	2778	A
1	1	2780	G
1	1	2781	A
1	1	2786	U
1	1	2790	U
1	1	2791	G
1	1	2792	A
1	1	2794	C
1	1	2795	C
1	1	2797	U
1	1	2798	U
1	1	2800	A
1	1	2802	G
1	1	2804	U
1	1	2806	C
1	1	2808	G
1	1	2818	U
1	1	2820	A
1	1	2825	G
1	1	2832	U
1	1	2833	U
1	1	2834	G
1	1	2835	A
1	1	2836	U
1	1	2837	A
1	1	2847	U
1	1	2849	U
1	1	2853	C
1	1	2859	G
1	1	2867	G
1	1	2872	A
1	1	2874	C
1	1	2879	A
1	1	2880	C
1	1	2883	A
1	1	2884	U

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Mol	Chain	Res	Type
1	1	2885	G
1	1	2891	U
1	1	2895	G
1	1	2898	U
1	1	2901	C
1	1	2903	U
2	2	4	U
2	2	7	A
2	2	9	G
2	2	14	U
2	2	22	G
2	2	32	A
2	2	38	G
2	2	39	G
2	2	47	C
2	2	48	C
2	2	51	A
2	2	52	C
2	2	58	C
2	2	66	A
2	2	70	U
2	2	72	A
2	2	74	A
2	2	75	G
2	2	76	G
2	2	78	A
2	2	79	G
2	2	80	A
2	2	81	A
2	2	83	C
2	2	84	U
2	2	85	U
2	2	86	G
2	2	87	C
2	2	88	U
2	2	89	U
2	2	91	U
2	2	94	G
2	2	95	C
2	2	98	A
2	2	101	A
2	2	110	C

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Mol	Chain	Res	Type
2	2	119	A
2	2	120	A
2	2	121	U
2	2	122	G
2	2	130	A
2	2	131	A
2	2	144	G
2	2	149	A
2	2	151	A
2	2	160	A
2	2	163	C
2	2	164	G
2	2	174	A
2	2	181	A
2	2	190	A
2	2	191	G
2	2	195	A
2	2	199	A
2	2	203	G
2	2	204	G
2	2	207	C
2	2	208	U
2	2	209	U
2	2	211	G
2	2	212	G
2	2	213	G
2	2	214	C
2	2	228	A
2	2	237	G
2	2	245	U
2	2	247	G
2	2	251	G
2	2	257	G
2	2	262	A
2	2	266	G
2	2	267	C
2	2	271	C
2	2	273	U
2	2	279	A
2	2	281	G
2	2	289	G
2	2	298	A

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Mol	Chain	Res	Type
2	2	299	G
2	2	306	A
2	2	317	U
2	2	325	A
2	2	328	C
2	2	329	A
2	2	330	C
2	2	332	G
2	2	334	C
2	2	336	A
2	2	340	U
2	2	344	A
2	2	347	G
2	2	352	C
2	2	354	G
2	2	364	A
2	2	366	A
2	2	367	U
2	2	372	C
2	2	373	A
2	2	381	C
2	2	382	A
2	2	384	G
2	2	386	C
2	2	388	G
2	2	392	C
2	2	397	A
2	2	406	G
2	2	411	A
2	2	412	A
2	2	413	G
2	2	414	A
2	2	416	G
2	2	421	U
2	2	422	C
2	2	423	G
2	2	424	G
2	2	428	G
2	2	429	U
2	2	435	A
2	2	443	C
2	2	451	A

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Mol	Chain	Res	Type
2	2	457	G
2	2	458	U
2	2	460	A
2	2	464	U
2	2	465	A
2	2	466	A
2	2	467	U
2	2	468	A
2	2	469	C
2	2	475	C
2	2	476	U
2	2	479	U
2	2	482	A
2	2	484	G
2	2	485	U
2	2	486	U
2	2	492	C
2	2	495	A
2	2	496	A
2	2	505	G
2	2	511	C
2	2	514	C
2	2	516	PSU
2	2	517	G
2	2	518	C
2	2	527	7MG
2	2	528	C
2	2	531	U
2	2	532	A
2	2	533	A
2	2	541	G
2	2	545	C
2	2	546	A
2	2	547	A
2	2	564	C
2	2	565	U
2	2	566	G
2	2	571	U
2	2	572	A
2	2	573	A
2	2	576	C
2	2	577	G

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Mol	Chain	Res	Type
2	2	579	A
2	2	587	G
2	2	607	A
2	2	629	A
2	2	632	U
2	2	633	G
2	2	638	U
2	2	639	G
2	2	653	U
2	2	654	G
2	2	665	A
2	2	702	A
2	2	703	G
2	2	706	A
2	2	721	G
2	2	723	U
2	2	724	G
2	2	731	G
2	2	734	G
2	2	738	C
2	2	747	A
2	2	748	G
2	2	753	A
2	2	755	G
2	2	758	C
2	2	763	G
2	2	764	C
2	2	767	A
2	2	768	A
2	2	769	G
2	2	777	A
2	2	779	C
2	2	790	A
2	2	792	A
2	2	793	U
2	2	794	A
2	2	796	C
2	2	810	C
2	2	815	A
2	2	817	C
2	2	818	G
2	2	819	A

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Mol	Chain	Res	Type
2	2	826	C
2	2	828	U
2	2	831	A
2	2	832	G
2	2	836	G
2	2	839	C
2	2	841	C
2	2	842	U
2	2	843	U
2	2	844	G
2	2	845	A
2	2	846	G
2	2	847	G
2	2	850	U
2	2	851	G
2	2	856	C
2	2	860	A
2	2	864	A
2	2	865	A
2	2	866	C
2	2	885	G
2	2	886	G
2	2	887	G
2	2	889	A
2	2	895	G
2	2	900	A
2	2	901	A
2	2	908	A
2	2	909	A
2	2	910	C
2	2	914	A
2	2	916	U
2	2	926	G
2	2	931	C
2	2	933	G
2	2	934	C
2	2	939	G
2	2	955	U
2	2	960	U
2	2	962	C
2	2	966	2MG
2	2	967	5MC

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Mol	Chain	Res	Type
2	2	968	A
2	2	969	A
2	2	971	G
2	2	972	C
2	2	974	A
2	2	975	A
2	2	976	G
2	2	977	A
2	2	980	C
2	2	982	U
2	2	989	U
2	2	992	U
2	2	993	G
2	2	1000	A
2	2	1001	C
2	2	1002	G
2	2	1004	A
2	2	1006	G
2	2	1007	U
2	2	1009	U
2	2	1017	U
2	2	1018	G
2	2	1022	A
2	2	1023	U
2	2	1026	G
2	2	1027	C
2	2	1028	C
2	2	1030	U
2	2	1031	C
2	2	1032	G
2	2	1033	G
2	2	1036	A
2	2	1037	C
2	2	1038	C
2	2	1039	G
2	2	1042	A
2	2	1043	G
2	2	1044	A
2	2	1046	A
2	2	1050	G
2	2	1051	C
2	2	1062	U

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Mol	Chain	Res	Type
2	2	1064	G
2	2	1065	U
2	2	1069	C
2	2	1073	U
2	2	1078	U
2	2	1085	U
2	2	1092	A
2	2	1093	A
2	2	1094	G
2	2	1095	U
2	2	1099	G
2	2	1101	A
2	2	1108	G
2	2	1121	U
2	2	1124	G
2	2	1125	U
2	2	1135	U
2	2	1136	C
2	2	1137	C
2	2	1138	G
2	2	1139	G
2	2	1140	C
2	2	1141	C
2	2	1142	G
2	2	1143	G
2	2	1146	A
2	2	1151	A
2	2	1159	U
2	2	1167	A
2	2	1168	U
2	2	1169	A
2	2	1171	A
2	2	1174	G
2	2	1175	G
2	2	1176	A
2	2	1184	G
2	2	1186	G
2	2	1189	U
2	2	1195	C
2	2	1196	A
2	2	1197	A
2	2	1199	U

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Mol	Chain	Res	Type
2	2	1205	U
2	2	1212	U
2	2	1213	A
2	2	1214	C
2	2	1221	G
2	2	1224	U
2	2	1226	C
2	2	1227	A
2	2	1228	C
2	2	1236	A
2	2	1238	A
2	2	1240	U
2	2	1256	A
2	2	1257	A
2	2	1258	G
2	2	1260	G
2	2	1268	G
2	2	1280	A
2	2	1281	C
2	2	1283	U
2	2	1285	A
2	2	1286	U
2	2	1287	A
2	2	1288	A
2	2	1290	G
2	2	1291	U
2	2	1297	G
2	2	1299	A
2	2	1300	G
2	2	1301	U
2	2	1302	C
2	2	1304	G
2	2	1305	G
2	2	1317	C
2	2	1318	A
2	2	1320	C
2	2	1322	C
2	2	1323	G
2	2	1324	A
2	2	1334	G
2	2	1335	U
2	2	1339	A

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Mol	Chain	Res	Type
2	2	1341	U
2	2	1351	U
2	2	1353	G
2	2	1359	C
2	2	1363	A
2	2	1364	U
2	2	1370	G
2	2	1372	U
2	2	1373	G
2	2	1378	C
2	2	1379	G
2	2	1381	U
2	2	1390	U
2	2	1394	A
2	2	1396	A
2	2	1397	C
2	2	1398	A
2	2	1401	G
2	2	1403	C
2	2	1408	A
2	2	1414	U
2	2	1419	G
2	2	1424	U
2	2	1425	U
2	2	1426	G
2	2	1427	C
2	2	1430	A
2	2	1434	A
2	2	1436	U
2	2	1439	G
2	2	1440	U
2	2	1445	U
2	2	1446	A
2	2	1450	U
2	2	1451	U
2	2	1452	C
2	2	1453	G
2	2	1456	A
2	2	1457	G
2	2	1475	G
2	2	1480	A
2	2	1493	A

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Mol	Chain	Res	Type
2	2	1497	G
2	2	1502	A
2	2	1503	A
2	2	1505	G
2	2	1506	U
2	2	1508	A
2	2	1509	C
2	2	1517	G
2	2	1523	G
2	2	1525	G
2	2	1529	G
2	2	1530	G
2	2	1533	C
2	2	1534	A
3	3	2	G
3	3	6	G
3	3	7	G
3	3	13	G
3	3	17	C
3	3	19	C
3	3	23	G
3	3	25	U
3	3	32	U
3	3	35	C
3	3	37	C
3	3	40	U
3	3	42	C
3	3	44	G
3	3	47	C
3	3	51	G
3	3	56	G
3	3	59	A
3	3	61	G
3	3	63	C
3	3	66	A
3	3	67	G
3	3	68	C
3	3	73	A
3	3	84	G
3	3	88	C
3	3	89	U
3	3	90	C

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Mol	Chain	Res	Type
3	3	94	A
3	3	96	G
3	3	99	A
3	3	101	A
3	3	102	G
3	3	105	G
3	3	108	A
3	3	109	A
3	3	114	C
3	3	115	A
6	8	3	C
6	8	4	U
6	8	6	C
6	8	7	G
6	8	8	U
6	8	12	U
6	8	13	C
6	8	14	A
6	8	16	U
6	8	17	U
6	8	18	G
6	8	19	G
6	8	20	U
6	8	21	U
6	8	22	A
6	8	23	G
6	8	26	C
6	8	27	A
6	8	28	C
6	8	31	C
6	8	34	U
6	8	35	C
6	8	36	A
6	8	39	A
6	8	40	U
6	8	43	U
6	8	44	G
6	8	45	G
6	8	47	G
6	8	48	U
6	8	49	C
6	8	50	A

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Mol	Chain	Res	Type
6	8	51	C
6	8	53	G
6	8	56	U
6	8	57	C
6	8	58	G
6	8	59	A
6	8	62	C
6	8	64	C
6	8	68	G
6	8	76	C
6	8	77	A
7	9	2	U
7	9	3	G
7	9	7	G
7	9	9	C
59	4	2	G
59	4	3	G
59	4	4	G
59	4	6	U
59	4	7	G
59	4	8	A
59	4	9	U
59	4	10	U
59	4	11	C
59	4	12	U
59	4	13	G
59	4	14	G
59	4	15	A
59	4	16	U
59	4	17	U
59	4	18	C
59	4	20	A
59	4	21	C
59	4	27	U
59	4	28	U
59	4	30	C
59	4	32	A
59	4	33	A
59	4	34	A
59	4	35	C
59	4	38	A
59	4	39	A

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Mol	Chain	Res	Type
59	4	40	G
59	4	43	G
59	4	44	C
59	4	45	A
59	4	46	U
59	4	47	G
59	4	49	C
59	4	54	G
59	4	55	G
59	4	56	C
59	4	60	U
59	4	61	G
59	4	62	G
59	4	63	C
59	4	64	C
59	4	68	U
59	4	69	A
59	4	70	A
59	4	71	A
59	4	72	A
59	4	114	G
59	4	117	G
59	4	119	U
59	4	121	A
59	4	122	A
59	4	123	U
59	4	125	A
59	4	127	C
59	4	128	U
59	4	129	G
59	4	130	C
59	4	131	U
59	4	132	U
59	4	133	A
59	4	138	C
59	4	143	C
59	4	144	U
59	4	145	C
59	4	149	A
59	4	150	G
59	4	151	C
59	4	154	C

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Mol	Chain	Res	Type
59	4	155	C
59	4	156	G
59	4	158	U
59	4	160	U
59	4	164	G
59	4	165	A
59	4	166	C
59	4	169	G
59	4	170	G
59	4	172	U
59	4	173	C
59	4	174	A
59	4	175	A
59	4	176	G
59	4	180	G
59	4	181	G
59	4	182	U
59	4	183	C
59	4	184	A
59	4	185	A
59	4	186	A
59	4	188	C
59	4	189	C
59	4	190	A
59	4	191	A
59	4	192	A
59	4	193	A
59	4	194	G
59	4	197	A
59	4	198	U
59	4	199	C
59	4	200	G
59	4	203	U
59	4	204	G
59	4	205	G
59	4	206	A
59	4	207	A
59	4	209	C
59	4	210	C
59	4	211	C
59	4	213	G
59	4	218	G

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Mol	Chain	Res	Type
59	4	222	U
59	4	223	G
59	4	224	A
59	4	225	A
59	4	226	G
59	4	227	C
59	4	228	G
59	4	230	U
59	4	231	A
59	4	233	A
59	4	234	A
59	4	235	C
59	4	236	U
59	4	237	U
59	4	238	A
59	4	239	A
59	4	240	U
59	4	241	C
59	4	242	A
59	4	244	G
59	4	245	C
59	4	246	U
59	4	248	G
59	4	249	U
59	4	250	U
59	4	257	U
59	4	258	G
59	4	261	G
59	4	262	U
59	4	263	G
59	4	264	U
59	4	266	C
59	4	267	G
59	4	268	U
59	4	269	C
59	4	270	C
59	4	273	A
59	4	274	G
59	4	282	G
59	4	285	A
59	4	286	A
59	4	287	U

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Mol	Chain	Res	Type
59	4	288	G
59	4	291	A
59	4	292	A
59	4	293	G
59	4	296	U
59	4	299	C
59	4	300	U
59	4	301	A
59	4	302	A
59	4	303	G
59	4	308	U
59	4	309	A
59	4	310	G
59	4	312	A
59	4	315	G
59	4	316	A
59	4	317	G
59	4	318	G
59	4	319	A
59	4	321	G
59	4	322	U
59	4	323	A
59	4	324	G
59	4	325	G
59	4	332	G
59	4	333	G
59	4	334	A
59	4	335	C
59	4	336	G
59	4	339	G
59	4	340	G
59	4	341	U
59	4	342	U
59	4	343	C
59	4	344	A
59	4	347	U
59	4	348	C
59	4	351	G
59	4	356	C
59	4	357	U
59	4	359	C
59	4	360	A

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Mol	Chain	Res	Type
59	4	361	C
59	4	362	C
59	4	363	A
60	7	2	C
60	7	3	G
60	7	4	U
60	7	5	C
60	7	6	C
60	7	7	G
60	7	8	U
60	7	11	C
60	7	12	U
60	7	13	C
60	7	14	A
60	7	16	U
60	7	17	U
60	7	18	G
60	7	19	G
60	7	20	U
60	7	21	U
60	7	22	A
60	7	23	G
60	7	24	A
60	7	26	C
60	7	28	C
60	7	29	C
60	7	30	A
60	7	31	C
60	7	34	U
60	7	38	A
60	7	39	U
60	7	40	G
60	7	45	G
60	7	47	G
60	7	48	U
60	7	49	C
60	7	50	G
60	7	51	G
60	7	52	U
60	7	56	U
60	7	57	C
60	7	58	G

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Mol	Chain	Res	Type
60	7	59	A
60	7	62	C
60	7	63	C
60	7	64	A
60	7	68	G
60	7	69	G
60	7	70	A
60	7	73	C
60	7	74	A
60	7	77	A

All (67) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	278	A
1	1	387	U
1	1	404	A
1	1	747	5MU
1	1	784	G
1	1	894	U
1	1	955	PSU
1	1	1332	G
1	1	1379	U
1	1	1614	A
1	1	1905	C
1	1	1911	PSU
1	1	1917	PSU
1	1	1939	5MU
1	1	2193	G
1	1	2225	A
1	1	2255	G
1	1	2425	A
1	1	2457	PSU
1	1	2498	OMC
1	1	2504	PSU
1	1	2506	U
1	1	2580	PSU
1	1	2605	PSU
2	2	120	A
2	2	149	A
2	2	516	PSU
2	2	527	7MG

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Mol	Chain	Res	Type
2	2	1145	A
2	2	1151	A
2	2	1281	C
6	8	18	G
59	4	9	U
59	4	11	C
59	4	13	G
59	4	14	G
59	4	15	A
59	4	16	U
59	4	17	U
59	4	19	G
59	4	20	A
59	4	32	A
59	4	33	A
59	4	38	A
59	4	68	U
59	4	130	C
59	4	131	U
59	4	153	U
59	4	183	C
59	4	185	A
59	4	212	U
59	4	223	G
59	4	229	U
59	4	233	A
59	4	245	C
59	4	247	A
59	4	257	U
59	4	261	G
59	4	290	A
59	4	299	C
59	4	308	U
59	4	314	C
59	4	320	U
59	4	332	G
59	4	333	G
60	7	13	C
60	7	18	G

5.4 Non-standard residues in protein, DNA, RNA chains (i)

34 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	PSU	2	516	2	18,21,22	2.29	6 (33%)	22,30,33	2.50	6 (27%)
1	PSU	1	955	1	18,21,22	1.98	4 (22%)	22,30,33	2.17	5 (22%)
1	5MU	1	747	1	19,22,23	2.10	7 (36%)	28,32,35	4.58	10 (35%)
1	PSU	1	1917	1	18,21,22	2.09	5 (27%)	22,30,33	2.15	5 (22%)
1	PSU	1	1911	1	18,21,22	1.95	4 (22%)	22,30,33	2.22	4 (18%)
2	2MG	2	1207	2	18,26,27	3.02	6 (33%)	16,38,41	1.35	4 (25%)
2	MA6	2	1518	2	19,26,27	1.01	1 (5%)	18,38,41	1.50	2 (11%)
1	6MZ	1	2030	1	18,25,26	1.91	1 (5%)	16,36,39	3.25	5 (31%)
1	PSU	1	746	1	18,21,22	1.85	5 (27%)	22,30,33	2.00	4 (18%)
1	OMU	1	2552	61,1	19,22,23	2.76	7 (36%)	26,31,34	2.07	8 (30%)
1	PSU	1	2580	1	18,21,22	1.94	5 (27%)	22,30,33	2.16	6 (27%)
1	2MA	1	2503	61,1	17,25,26	1.52	3 (17%)	17,37,40	1.30	2 (11%)
2	4OC	2	1402	2	20,23,24	2.57	5 (25%)	26,32,35	2.03	8 (30%)
1	6MZ	1	1618	1	18,25,26	1.90	1 (5%)	16,36,39	2.53	5 (31%)
1	OMC	1	2498	61,1	19,22,23	1.70	4 (21%)	26,31,34	2.22	6 (23%)
49	0TD	q	89	49	7,9,10	1.39	0	6,11,13	1.90	2 (33%)
2	5MC	2	1407	2	18,22,23	2.05	3 (16%)	26,32,35	1.49	4 (15%)
2	2MG	2	966	2	18,26,27	2.95	6 (33%)	16,38,41	1.41	3 (18%)
1	OMG	1	2251	1	18,26,27	2.98	7 (38%)	19,38,41	1.55	4 (21%)
2	5MC	2	967	2	18,22,23	2.11	3 (16%)	26,32,35	1.52	4 (15%)
1	5MC	1	1962	1	18,22,23	2.15	3 (16%)	26,32,35	1.47	5 (19%)
2	UR3	2	1498	2	19,22,23	2.99	7 (36%)	26,32,35	1.55	5 (19%)
1	G7M	1	2069	1	20,26,27	2.82	5 (25%)	17,39,42	0.83	0
2	MA6	2	1519	2	19,26,27	1.13	1 (5%)	18,38,41	1.42	2 (11%)
1	PSU	1	2457	1	18,21,22	1.99	5 (27%)	22,30,33	2.10	7 (31%)
1	2MG	1	2445	1	18,26,27	2.90	5 (27%)	16,38,41	1.32	3 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
1	5MU	1	1939	61,1	19,22,23	2.49	7 (36%)	28,32,35	3.58	10 (35%)
1	2MG	1	1835	1	18,26,27	2.96	6 (33%)	16,38,41	1.78	4 (25%)
2	7MG	2	527	2	22,26,27	6.62	6 (27%)	29,39,42	2.60	9 (31%)
2	2MG	2	1516	2	18,26,27	2.94	6 (33%)	16,38,41	1.43	3 (18%)
1	PSU	1	2504	1	18,21,22	2.02	5 (27%)	22,30,33	2.24	6 (27%)
1	PSU	1	2605	1	18,21,22	2.07	6 (33%)	22,30,33	1.92	4 (18%)
1	1MG	1	745	1	18,26,27	2.97	7 (38%)	19,39,42	2.29	9 (47%)
1	3TD	1	1915	4,61,1	18,22,23	2.77	7 (38%)	22,32,35	1.87	4 (18%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PSU	2	516	2	2/2/5/5	7/7/25/26	0/2/2/2
1	PSU	1	955	1	2/2/5/5	4/7/25/26	0/2/2/2
1	5MU	1	747	1	2/2/5/5	5/7/25/26	0/2/2/2
1	PSU	1	1917	1	2/2/5/5	2/7/25/26	0/2/2/2
1	PSU	1	1911	1	2/2/5/5	1/7/25/26	0/2/2/2
2	2MG	2	1207	2	-	0/5/27/28	0/3/3/3
2	MA6	2	1518	2	-	4/7/29/30	0/3/3/3
1	6MZ	1	2030	1	2/2/5/6	3/5/27/28	0/3/3/3
1	PSU	1	746	1	2/2/5/5	5/7/25/26	0/2/2/2
1	OMU	1	2552	61,1	2/2/5/5	3/9/27/28	0/2/2/2
1	PSU	1	2580	1	2/2/5/5	4/7/25/26	0/2/2/2
1	2MA	1	2503	61,1	2/2/5/5	2/3/25/26	0/3/3/3
2	4OC	2	1402	2	2/2/5/6	5/9/29/30	0/2/2/2
1	OMC	1	2498	61,1	1/1/5/5	5/9/27/28	0/2/2/2
1	6MZ	1	1618	1	2/2/5/6	3/5/27/28	0/3/3/3
49	0TD	q	89	49	-	2/7/12/14	-
2	5MC	2	1407	2	-	0/7/25/26	0/2/2/2
2	2MG	2	966	2	-	2/5/27/28	0/3/3/3
1	OMG	1	2251	1	1/1/5/5	1/5/27/28	0/3/3/3
2	5MC	2	967	2	-	2/7/25/26	0/2/2/2
1	5MC	1	1962	1	-	4/7/25/26	0/2/2/2
2	UR3	2	1498	2	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	G7M	1	2069	1	1/1/5/5	1/3/25/26	0/3/3/3
2	MA6	2	1519	2	-	6/7/29/30	0/3/3/3
1	PSU	1	2457	1	2/2/5/5	2/7/25/26	0/2/2/2
1	5MU	1	1939	61,1	2/2/5/5	1/7/25/26	0/2/2/2
2	7MG	2	527	2	1/1/7/7	3/7/37/38	0/3/3/3
1	2MG	1	1835	1	-	2/5/27/28	0/3/3/3
1	2MG	1	2445	1	-	4/5/27/28	0/3/3/3
2	2MG	2	1516	2	-	2/5/27/28	0/3/3/3
1	PSU	1	2504	1	2/2/5/5	4/7/25/26	0/2/2/2
1	PSU	1	2605	1	2/2/5/5	3/7/25/26	0/2/2/2
1	1MG	1	745	1	2/2/5/5	1/3/25/26	0/3/3/3
1	3TD	1	1915	4,61,1	1/1/5/5	4/7/25/26	0/2/2/2

All (159) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	527	7MG	C8-N9	-28.63	1.30	1.46
1	1	2069	G7M	O6-C6	10.17	1.44	1.23
1	1	2251	OMG	O6-C6	9.17	1.41	1.23
2	2	1516	2MG	O6-C6	8.90	1.41	1.23
1	1	2445	2MG	O6-C6	8.76	1.41	1.23
2	2	966	2MG	O6-C6	8.67	1.40	1.23
2	2	1207	2MG	O6-C6	8.65	1.40	1.23
2	2	1402	4OC	O2-C2	8.48	1.39	1.23
1	1	745	1MG	O6-C6	8.46	1.39	1.22
2	2	1498	UR3	O4-C4	8.16	1.41	1.23
1	1	2552	OMU	O4-C4	8.04	1.40	1.24
1	1	1915	3TD	O4-C4	7.70	1.39	1.23
1	1	1835	2MG	O6-C6	7.58	1.38	1.23
1	1	1618	6MZ	C6-N6	7.26	1.46	1.35
2	2	527	7MG	O6-C6	7.23	1.37	1.23
1	1	2030	6MZ	C6-N6	6.76	1.46	1.35
2	2	967	5MC	C4-N4	6.40	1.50	1.34
1	1	1962	5MC	C4-N4	6.27	1.50	1.34
2	2	527	7MG	C2-N2	6.18	1.48	1.34
2	2	1407	5MC	C4-N4	5.98	1.49	1.34
2	2	966	2MG	C2-N2	5.96	1.46	1.33
1	1	745	1MG	C2-N2	5.77	1.44	1.34
2	2	1498	UR3	C2-N1	-5.70	1.30	1.38
2	2	516	PSU	C4-N3	-5.65	1.28	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1207	2MG	C2-N2	5.60	1.45	1.33
1	1	2445	2MG	C2-N2	5.52	1.45	1.33
1	1	1939	5MU	C2-N1	-5.45	1.29	1.38
1	1	1962	5MC	C2-N1	-5.26	1.28	1.40
2	2	1516	2MG	C2-N2	5.24	1.45	1.33
1	1	1835	2MG	C2-N2	5.07	1.44	1.33
2	2	527	7MG	C4-N9	-5.06	1.31	1.37
1	1	2251	OMG	C2-N2	4.95	1.46	1.34
1	1	2552	OMU	C2-N1	-4.89	1.30	1.38
1	1	745	1MG	C6-N1	-4.89	1.30	1.39
1	1	1835	2MG	C6-N1	-4.86	1.30	1.37
2	2	967	5MC	C2-N1	-4.82	1.29	1.40
1	1	2580	PSU	C4-N3	-4.79	1.29	1.38
2	2	1407	5MC	C2-N1	-4.76	1.29	1.40
1	1	2498	OMC	C4-N4	4.74	1.45	1.33
1	1	1917	PSU	C4-N3	-4.68	1.30	1.38
1	1	2457	PSU	C4-N3	-4.65	1.30	1.38
1	1	1915	3TD	C2-N1	-4.62	1.31	1.37
1	1	2069	G7M	C2-N2	4.58	1.45	1.34
1	1	2605	PSU	C4-N3	-4.52	1.30	1.38
1	1	1911	PSU	C4-N3	-4.50	1.30	1.38
2	2	1402	4OC	C2-N1	-4.39	1.30	1.40
2	2	1402	4OC	C4-N4	4.37	1.44	1.35
1	1	1915	3TD	C4-N3	-4.36	1.31	1.40
1	1	1835	2MG	C5-C6	-4.36	1.38	1.47
1	1	2605	PSU	C6-C5	4.35	1.40	1.35
1	1	2504	PSU	C6-C5	4.35	1.40	1.35
1	1	2504	PSU	C4-N3	-4.34	1.30	1.38
1	1	1939	5MU	C2-N3	-4.30	1.30	1.38
2	2	1498	UR3	C4-N3	-4.28	1.30	1.40
1	1	746	PSU	C4-N3	-4.28	1.30	1.38
2	2	1207	2MG	C6-N1	-4.25	1.31	1.37
1	1	955	PSU	C4-N3	-4.21	1.31	1.38
1	1	2503	2MA	C6-N6	4.09	1.45	1.28
1	1	955	PSU	C6-C5	4.06	1.40	1.35
1	1	1917	PSU	C2-N1	-4.06	1.31	1.36
1	1	1939	5MU	C6-C5	4.01	1.41	1.34
1	1	2251	OMG	C6-N1	-4.01	1.31	1.37
1	1	1911	PSU	C6-C5	4.00	1.40	1.35
1	1	1917	PSU	C6-C5	3.99	1.40	1.35
2	2	1516	2MG	C6-N1	-3.96	1.32	1.37
1	1	955	PSU	C2-N1	-3.95	1.31	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	2069	G7M	C6-N1	-3.93	1.32	1.37
2	2	516	PSU	C2-N3	-3.92	1.30	1.37
1	1	2457	PSU	C6-C5	3.86	1.39	1.35
1	1	1835	2MG	C2-N1	-3.82	1.30	1.36
1	1	747	5MU	C6-N1	-3.81	1.31	1.38
1	1	747	5MU	C2-N3	-3.80	1.31	1.38
1	1	2445	2MG	C6-N1	-3.79	1.32	1.37
2	2	966	2MG	C6-N1	-3.78	1.32	1.37
1	1	746	PSU	C6-C5	3.76	1.39	1.35
2	2	1207	2MG	C5-C6	-3.75	1.39	1.47
1	1	1939	5MU	C6-N1	-3.75	1.31	1.38
1	1	1939	5MU	C4-N3	-3.75	1.31	1.38
2	2	1498	UR3	C6-N1	-3.64	1.29	1.38
1	1	2580	PSU	C2-N1	-3.63	1.31	1.36
1	1	2552	OMU	C2-N3	-3.60	1.31	1.38
2	2	516	PSU	C2-N1	-3.59	1.31	1.36
1	1	747	5MU	C6-C5	3.56	1.40	1.34
1	1	1917	PSU	C6-N1	-3.55	1.30	1.36
2	2	1498	UR3	C2-N3	-3.54	1.32	1.39
1	1	2552	OMU	C4-N3	-3.52	1.32	1.38
1	1	2457	PSU	C6-N1	-3.49	1.30	1.36
1	1	746	PSU	C2-N1	-3.48	1.32	1.36
2	2	1498	UR3	O2-C2	-3.45	1.16	1.22
1	1	2605	PSU	C2-N1	-3.45	1.32	1.36
2	2	527	7MG	C6-N1	-3.44	1.32	1.38
1	1	2457	PSU	C2-N1	-3.44	1.32	1.36
2	2	516	PSU	C6-C5	3.43	1.39	1.35
2	2	1516	2MG	C5-C6	-3.43	1.40	1.47
1	1	2504	PSU	C2-N1	-3.42	1.32	1.36
1	1	955	PSU	C6-N1	-3.41	1.30	1.36
1	1	2504	PSU	C6-N1	-3.38	1.30	1.36
1	1	2445	2MG	C5-C6	-3.36	1.40	1.47
1	1	1911	PSU	C6-N1	-3.35	1.30	1.36
1	1	747	5MU	C4-N3	-3.32	1.32	1.38
2	2	1207	2MG	C2-N1	-3.31	1.31	1.36
1	1	1939	5MU	O4-C4	-3.26	1.17	1.23
2	2	966	2MG	C5-C6	-3.22	1.40	1.47
1	1	1911	PSU	C2-N1	-3.21	1.32	1.36
1	1	1915	3TD	C2-N3	-3.21	1.31	1.38
1	1	747	5MU	C2-N1	-3.15	1.33	1.38
1	1	2580	PSU	C6-N1	-3.12	1.31	1.36
2	2	516	PSU	C6-N1	-3.12	1.31	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	1939	5MU	O2-C2	-3.09	1.17	1.23
2	2	527	7MG	C2-N1	-3.07	1.30	1.37
2	2	1516	2MG	C2-N1	-3.02	1.31	1.36
2	2	1402	4OC	C2-N3	-2.98	1.30	1.36
1	1	2552	OMU	O2-C2	-2.96	1.17	1.23
1	1	2605	PSU	C6-N1	-2.92	1.31	1.36
1	1	2445	2MG	C2-N1	-2.91	1.32	1.36
1	1	2251	OMG	C5-C6	-2.90	1.41	1.47
1	1	747	5MU	O4-C4	-2.89	1.18	1.23
2	2	516	PSU	O4'-C1'	-2.87	1.39	1.43
1	1	1915	3TD	C6-N1	-2.86	1.31	1.36
1	1	746	PSU	C6-N1	-2.82	1.31	1.36
1	1	745	1MG	C5-C6	-2.80	1.39	1.47
2	2	966	2MG	C2-N1	-2.78	1.32	1.36
1	1	1915	3TD	O2-C2	-2.72	1.18	1.23
1	1	2251	OMG	C2-N1	-2.69	1.31	1.37
1	1	2580	PSU	C6-C5	2.68	1.38	1.35
1	1	2580	PSU	C2-N3	-2.68	1.32	1.37
1	1	1962	5MC	C2-N3	-2.65	1.31	1.36
1	1	747	5MU	O2-C2	-2.61	1.18	1.23
1	1	2498	OMC	O2-C2	-2.59	1.18	1.23
1	1	1835	2MG	C5-C4	-2.53	1.36	1.43
1	1	2552	OMU	C6-N1	-2.53	1.31	1.38
1	1	1917	PSU	C2-N3	-2.50	1.33	1.37
1	1	2498	OMC	C5-C4	-2.45	1.37	1.42
1	1	2251	OMG	O2'-CM2	-2.44	1.33	1.42
2	2	1498	UR3	C5-C4	-2.42	1.37	1.43
1	1	2503	2MA	C6-N1	-2.42	1.32	1.38
1	1	1915	3TD	C6-C5	2.39	1.38	1.35
1	1	2251	OMG	C5-C4	-2.38	1.37	1.43
2	2	1402	4OC	C6-N1	-2.37	1.32	1.38
1	1	2552	OMU	C5-C4	-2.35	1.38	1.43
2	2	1207	2MG	C5-C4	-2.33	1.37	1.43
1	1	2504	PSU	O4'-C1'	-2.32	1.40	1.43
1	1	2605	PSU	O4'-C1'	-2.32	1.40	1.43
2	2	967	5MC	C2-N3	-2.30	1.31	1.36
1	1	2069	G7M	C2-N1	-2.30	1.32	1.37
1	1	2457	PSU	C2-N3	-2.28	1.33	1.37
1	1	2503	2MA	C5-C4	-2.27	1.37	1.43
1	1	2498	OMC	C2-N3	-2.23	1.31	1.36
1	1	2605	PSU	C2-N3	-2.21	1.33	1.37
1	1	745	1MG	C2'-C1'	-2.17	1.50	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1407	5MC	C2-N3	-2.15	1.32	1.36
1	1	746	PSU	C2-N3	-2.13	1.33	1.37
1	1	745	1MG	C8-N7	-2.12	1.31	1.35
2	2	966	2MG	C5-C4	-2.06	1.37	1.43
2	2	1516	2MG	C5-C4	-2.06	1.37	1.43
2	2	1519	MA6	C4-N3	-2.06	1.32	1.35
1	1	745	1MG	C5-C4	-2.04	1.37	1.43
1	1	2069	G7M	C4-N3	-2.04	1.32	1.37
2	2	1518	MA6	C4-N3	-2.01	1.32	1.35

All (168) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	747	5MU	C1'-N1-C2	10.73	136.99	117.57
1	1	747	5MU	C1'-N1-C6	-10.52	103.61	121.12
1	1	2030	6MZ	C9-N6-C6	-9.43	114.75	122.87
1	1	747	5MU	C5M-C5-C4	9.35	129.06	118.77
1	1	1939	5MU	N3-C2-N1	8.73	126.48	114.89
1	1	1939	5MU	C4-N3-C2	-8.03	116.96	127.35
1	1	747	5MU	N3-C2-N1	7.98	125.49	114.89
1	1	1939	5MU	C5M-C5-C4	7.40	126.91	118.77
1	1	747	5MU	C5M-C5-C6	-7.29	113.12	122.85
1	1	2498	OMC	O2-C2-N3	-7.05	110.87	122.33
1	1	747	5MU	C4-N3-C2	-6.85	118.48	127.35
2	2	516	PSU	N1-C2-N3	6.83	122.87	115.13
1	1	1911	PSU	N1-C2-N3	6.72	122.74	115.13
2	2	527	7MG	N9-C4-N3	6.46	135.13	125.47
1	1	747	5MU	O2-C2-N3	-6.41	109.56	121.50
2	2	527	7MG	C5-C6-N1	6.27	122.04	110.99
1	1	1939	5MU	C5-C6-N1	-6.22	116.94	123.34
1	1	2504	PSU	N1-C2-N3	6.16	122.11	115.13
1	1	2457	PSU	N1-C2-N3	6.12	122.06	115.13
1	1	1939	5MU	C5-C4-N3	6.11	120.52	115.31
1	1	1915	3TD	N1-C2-N3	5.97	120.85	116.14
1	1	1618	6MZ	C9-N6-C6	-5.80	117.88	122.87
1	1	2605	PSU	N1-C2-N3	5.78	121.68	115.13
1	1	1917	PSU	N1-C2-N3	5.78	121.68	115.13
2	2	967	5MC	C5-C6-N1	-5.77	117.40	123.34
1	1	1939	5MU	C5M-C5-C6	-5.75	115.17	122.85
1	1	2580	PSU	N1-C2-N3	5.66	121.54	115.13
1	1	2030	6MZ	C2-N1-C6	5.64	121.43	116.59
2	2	1402	4OC	O3'-C3'-C2'	5.55	126.93	111.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	955	PSU	N1-C2-N3	5.52	121.38	115.13
1	1	746	PSU	N1-C2-N3	5.43	121.28	115.13
1	1	1618	6MZ	C2-N1-C6	5.41	121.23	116.59
1	1	2030	6MZ	N3-C2-N1	-5.31	120.38	128.68
2	2	527	7MG	C2-N3-C4	5.17	121.52	112.30
2	2	516	PSU	C4-N3-C2	-5.12	118.97	126.34
1	1	747	5MU	C5-C4-N3	4.91	119.50	115.31
1	1	2580	PSU	C4-N3-C2	-4.73	119.53	126.34
1	1	1962	5MC	C5-C6-N1	-4.70	118.51	123.34
2	2	527	7MG	C5-C4-N3	-4.69	119.18	128.13
2	2	516	PSU	C6-C5-C4	-4.69	114.92	118.20
1	1	1939	5MU	O2-C2-N3	-4.68	112.79	121.50
2	2	1498	UR3	C4-N3-C2	-4.67	120.17	124.56
1	1	1618	6MZ	N3-C2-N1	-4.64	121.43	128.68
2	2	1518	MA6	N3-C2-N1	-4.56	121.55	128.68
1	1	2552	OMU	C4-N3-C2	-4.55	120.57	126.58
2	2	1519	MA6	N3-C2-N1	-4.54	121.59	128.68
1	1	955	PSU	C6-C5-C4	-4.41	115.12	118.20
1	1	745	1MG	O3'-C3'-C4'	4.40	123.78	111.05
1	1	955	PSU	O2-C2-N1	-4.40	117.95	122.79
1	1	2504	PSU	O2-C2-N1	-4.38	117.97	122.79
1	1	1835	2MG	C5-C6-N1	4.38	121.68	113.95
1	1	2552	OMU	N3-C2-N1	4.34	120.65	114.89
1	1	2498	OMC	O2-C2-N1	4.34	127.85	118.89
1	1	1911	PSU	O2-C2-N1	-4.26	118.10	122.79
1	1	2498	OMC	C1'-N1-C2	4.25	127.91	118.42
2	2	1402	4OC	O3'-C3'-C4'	4.23	123.29	111.05
1	1	2504	PSU	C4-N3-C2	-4.23	120.24	126.34
1	1	1911	PSU	C4-N3-C2	-4.11	120.42	126.34
1	1	1917	PSU	O2-C2-N1	-4.02	118.36	122.79
1	1	746	PSU	C4-N3-C2	-3.97	120.62	126.34
2	2	1407	5MC	O2-C2-N3	-3.96	115.90	122.33
1	1	2457	PSU	C4-N3-C2	-3.95	120.65	126.34
1	1	746	PSU	O2-C2-N1	-3.94	118.45	122.79
2	2	1407	5MC	C5-C6-N1	-3.94	119.29	123.34
1	1	1939	5MU	O4-C4-N3	-3.86	112.72	120.12
1	1	747	5MU	C5-C6-N1	-3.84	119.38	123.34
1	1	1917	PSU	C6-C5-C4	-3.80	115.54	118.20
1	1	745	1MG	O4'-C4'-C5'	3.78	121.82	109.37
2	2	1516	2MG	CM2-N2-C2	-3.78	115.51	123.86
1	1	2552	OMU	C5-C4-N3	3.67	120.33	114.84
2	2	1402	4OC	CM2-O2'-C2'	3.63	124.04	114.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	527	7MG	N9-C8-N7	3.57	108.48	103.38
1	1	2503	2MA	C5-C6-N1	3.55	120.15	114.02
1	1	2030	6MZ	C4-C5-N7	-3.54	105.71	109.40
1	1	2457	PSU	O2-C2-N1	-3.51	118.92	122.79
2	2	966	2MG	C5-C6-N1	3.44	120.03	113.95
1	1	2445	2MG	C5-C6-N1	3.44	120.03	113.95
1	1	2498	OMC	C6-N1-C2	-3.44	114.53	120.49
1	1	747	5MU	O4-C4-N3	-3.43	113.54	120.12
1	1	2251	OMG	C5-C6-N1	3.42	119.99	113.95
1	1	1835	2MG	O6-C6-C5	-3.42	117.70	124.37
1	1	2552	OMU	O3'-C3'-C4'	3.35	120.74	111.05
1	1	2580	PSU	O2-C2-N1	-3.33	119.12	122.79
1	1	955	PSU	C4-N3-C2	-3.32	121.55	126.34
1	1	2605	PSU	O2-C2-N1	-3.32	119.14	122.79
1	1	745	1MG	O2'-C2'-C3'	3.32	122.55	111.82
1	1	1917	PSU	C4-N3-C2	-3.29	121.61	126.34
2	2	527	7MG	C2-N1-C6	-3.27	119.14	125.10
1	1	1911	PSU	C6-N1-C2	-3.27	119.34	122.68
2	2	1518	MA6	C4-C5-N7	-3.25	106.01	109.40
49	q	89	0TD	OD2-CG-CB	3.22	120.10	113.15
1	1	746	PSU	C6-C5-C4	-3.18	115.98	118.20
2	2	1207	2MG	C5-C6-N1	3.17	119.55	113.95
1	1	2605	PSU	C4-N3-C2	-3.15	121.80	126.34
2	2	527	7MG	C6-C5-N7	3.12	136.83	131.91
1	1	2504	PSU	C6-C5-C4	-3.11	116.03	118.20
2	2	516	PSU	O2-C2-N3	-3.10	115.97	121.82
1	1	745	1MG	O3'-C3'-C2'	3.10	121.85	111.82
1	1	745	1MG	C5'-C4'-C3'	3.06	126.66	115.18
1	1	2552	OMU	O4-C4-C5	-3.05	119.79	125.16
2	2	527	7MG	C6-C5-C4	-3.05	116.33	122.62
1	1	1915	3TD	O3'-C3'-C4'	3.05	119.86	111.05
2	2	527	7MG	O6-C6-C5	-3.03	120.11	127.54
2	2	516	PSU	O4-C4-N3	-3.03	114.31	120.12
1	1	1835	2MG	CM2-N2-C2	-3.01	117.22	123.86
1	1	2251	OMG	C2-N1-C6	-3.00	119.57	125.10
1	1	2605	PSU	C6-N1-C2	-2.99	119.63	122.68
1	1	2503	2MA	C8-N7-C5	2.94	108.58	102.99
1	1	745	1MG	C5-C6-N1	2.90	118.26	113.90
1	1	1917	PSU	C6-N1-C2	-2.86	119.76	122.68
1	1	745	1MG	C8-N7-C5	2.82	108.37	102.99
2	2	1516	2MG	C5-C6-N1	2.79	118.88	113.95
1	1	1915	3TD	O3'-C3'-C2'	2.76	120.75	111.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	967	5MC	O2-C2-N3	-2.76	117.84	122.33
2	2	1402	4OC	C1'-N1-C6	-2.75	114.84	120.84
2	2	966	2MG	C8-N7-C5	2.73	108.19	102.99
1	1	1962	5MC	O2-C2-N3	-2.71	117.92	122.33
1	1	2504	PSU	C6-N1-C2	-2.68	119.94	122.68
2	2	1407	5MC	C5-C4-N3	-2.65	118.81	121.67
2	2	516	PSU	C5-C4-N3	2.63	122.54	116.58
1	1	745	1MG	O2'-C2'-C1'	2.63	120.55	110.85
1	1	1618	6MZ	C4-C5-N7	-2.62	106.67	109.40
2	2	1402	4OC	C1'-N1-C2	2.61	124.25	118.42
1	1	1915	3TD	C4-N3-C2	-2.60	121.79	124.61
1	1	2445	2MG	O6-C6-C5	-2.56	119.37	124.37
1	1	955	PSU	C6-N1-C2	-2.56	120.06	122.68
2	2	1207	2MG	C8-N7-C5	2.53	107.81	102.99
1	1	2552	OMU	O3'-C3'-C2'	2.49	118.25	111.17
2	2	1519	MA6	C4-C5-N7	-2.46	106.83	109.40
2	2	1498	UR3	C5-C6-N1	-2.41	117.77	121.81
2	2	1498	UR3	C1'-N1-C2	2.39	121.02	116.99
1	1	2498	OMC	C5-C6-N1	2.37	125.78	121.81
1	1	1962	5MC	N4-C4-N3	2.36	122.79	118.48
1	1	1618	6MZ	C1'-N9-C4	2.36	130.79	126.64
1	1	2498	OMC	C4-N3-C2	2.34	124.03	120.25
1	1	1962	5MC	C5-C4-N4	-2.33	117.99	121.48
1	1	2580	PSU	O3'-C3'-C4'	2.33	117.78	111.05
2	2	1498	UR3	C1'-N1-C6	-2.33	115.77	120.84
2	2	967	5MC	C5-C4-N3	-2.33	119.17	121.67
1	1	2457	PSU	C6-N1-C2	-2.29	120.34	122.68
1	1	1962	5MC	C5-C4-N3	-2.27	119.22	121.67
2	2	1407	5MC	N1-C2-N3	2.26	122.93	118.81
1	1	2251	OMG	O6-C6-C5	-2.26	119.95	124.37
1	1	1939	5MU	C1'-N1-C6	-2.25	117.38	121.12
2	2	1402	4OC	C2'-C3'-C4'	2.25	106.88	101.99
1	1	2580	PSU	C5-C6-N1	-2.24	118.75	122.11
1	1	2251	OMG	C8-N7-C5	2.24	107.25	102.99
2	2	966	2MG	O6-C6-C5	-2.19	120.10	124.37
2	2	1207	2MG	O6-C6-C5	-2.18	120.11	124.37
1	1	1835	2MG	C8-N7-C5	2.18	107.14	102.99
1	1	2445	2MG	C8-N7-C5	2.15	107.08	102.99
1	1	2580	PSU	O3'-C3'-C2'	2.13	118.72	111.82
49	q	89	0TD	OD1-CG-CB	-2.13	117.97	122.44
1	1	2552	OMU	O2-C2-N1	-2.13	119.95	122.79
2	2	1402	4OC	O4'-C1'-N1	2.13	113.22	108.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	1939	5MU	C1'-N1-C2	2.12	121.42	117.57
2	2	1207	2MG	CM2-N2-C2	-2.12	119.17	123.86
1	1	2457	PSU	O3'-C3'-C4'	2.11	117.15	111.05
2	2	1402	4OC	C3'-C2'-C1'	-2.09	98.95	102.89
2	2	1516	2MG	C8-N7-C5	2.08	106.95	102.99
1	1	2504	PSU	O4'-C1'-C2'	2.07	108.06	105.14
2	2	1498	UR3	O3'-C3'-C2'	-2.07	105.14	111.82
1	1	2552	OMU	CM2-O2'-C2'	-2.05	109.14	114.52
2	2	967	5MC	N1-C2-N3	2.05	122.54	118.81
1	1	2030	6MZ	C1'-N9-C4	-2.04	123.05	126.64
1	1	745	1MG	O4'-C1'-C2'	2.04	109.91	106.93
1	1	2457	PSU	C6-C5-C4	-2.02	116.79	118.20
1	1	2457	PSU	C3'-C2'-C1'	-2.01	99.30	101.64

All (39) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	1	745	1MG	C2'
1	1	745	1MG	C1'
1	1	746	PSU	C4'
1	1	746	PSU	C3'
1	1	747	5MU	C4'
1	1	747	5MU	C2'
1	1	955	PSU	C4'
1	1	955	PSU	C3'
1	1	1618	6MZ	C2'
1	1	1618	6MZ	C3'
1	1	1911	PSU	C4'
1	1	1911	PSU	C3'
1	1	1915	3TD	C3'
1	1	1917	PSU	C4'
1	1	1917	PSU	C3'
1	1	1939	5MU	C4'
1	1	1939	5MU	C2'
1	1	2030	6MZ	C2'
1	1	2030	6MZ	C3'
1	1	2069	G7M	C2'
1	1	2251	OMG	C2'
1	1	2457	PSU	C4'
1	1	2457	PSU	C3'
1	1	2498	OMC	C4'
1	1	2503	2MA	C2'

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Mol	Chain	Res	Type	Atom
1	1	2503	2MA	C3'
1	1	2504	PSU	C4'
1	1	2504	PSU	C3'
1	1	2552	OMU	C2'
1	1	2552	OMU	C3'
1	1	2580	PSU	C4'
1	1	2580	PSU	C3'
1	1	2605	PSU	C4'
1	1	2605	PSU	C3'
2	2	516	PSU	C4'
2	2	516	PSU	C3'
2	2	527	7MG	C3'
2	2	1402	4OC	C1'
2	2	1402	4OC	C3'

All (97) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	1	746	PSU	C2'-C1'-C5-C6
1	1	746	PSU	O4'-C1'-C5-C6
1	1	746	PSU	C3'-C4'-C5'-O5'
1	1	746	PSU	O4'-C4'-C5'-O5'
1	1	747	5MU	C3'-C4'-C5'-O5'
1	1	955	PSU	C2'-C1'-C5-C4
1	1	1618	6MZ	O4'-C4'-C5'-O5'
1	1	1618	6MZ	C3'-C4'-C5'-O5'
1	1	1915	3TD	O4'-C1'-C5-C6
1	1	1962	5MC	C2'-C1'-N1-C2
1	1	1962	5MC	C2'-C1'-N1-C6
1	1	2030	6MZ	N1-C6-N6-C9
1	1	2445	2MG	C3'-C4'-C5'-O5'
1	1	2445	2MG	N1-C2-N2-CM2
1	1	2445	2MG	N3-C2-N2-CM2
1	1	2498	OMC	C3'-C4'-C5'-O5'
1	1	2498	OMC	C4'-C5'-O5'-P
1	1	2504	PSU	C3'-C4'-C5'-O5'
1	1	2504	PSU	O4'-C4'-C5'-O5'
1	1	2552	OMU	O4'-C4'-C5'-O5'
1	1	2580	PSU	C2'-C1'-C5-C6
1	1	2580	PSU	C3'-C4'-C5'-O5'
1	1	2605	PSU	C4'-C5'-O5'-P
2	2	516	PSU	C2'-C1'-C5-C4

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Mol	Chain	Res	Type	Atoms
2	2	516	PSU	O4'-C1'-C5-C4
2	2	516	PSU	C2'-C1'-C5-C6
2	2	516	PSU	O4'-C1'-C5-C6
2	2	516	PSU	C3'-C4'-C5'-O5'
2	2	516	PSU	O4'-C4'-C5'-O5'
2	2	527	7MG	C3'-C4'-C5'-O5'
2	2	966	2MG	O4'-C4'-C5'-O5'
2	2	966	2MG	C3'-C4'-C5'-O5'
2	2	967	5MC	O4'-C4'-C5'-O5'
2	2	1402	4OC	C3'-C2'-O2'-CM2
2	2	1402	4OC	O4'-C1'-N1-C2
2	2	1402	4OC	O4'-C1'-N1-C6
2	2	1516	2MG	N1-C2-N2-CM2
2	2	1516	2MG	N3-C2-N2-CM2
2	2	1518	MA6	O4'-C4'-C5'-O5'
2	2	1518	MA6	C3'-C4'-C5'-O5'
2	2	1519	MA6	O4'-C4'-C5'-O5'
2	2	1519	MA6	C3'-C4'-C5'-O5'
2	2	1519	MA6	C5-C6-N6-C10
2	2	1519	MA6	N1-C6-N6-C10
1	1	747	5MU	C2'-C1'-N1-C6
1	1	747	5MU	C2'-C1'-N1-C2
1	1	745	1MG	C4'-C5'-O5'-P
1	1	2457	PSU	C4'-C5'-O5'-P
1	1	2030	6MZ	O4'-C4'-C5'-O5'
1	1	2030	6MZ	C3'-C4'-C5'-O5'
1	1	2503	2MA	O4'-C4'-C5'-O5'
1	1	2503	2MA	C3'-C4'-C5'-O5'
1	1	2552	OMU	C3'-C4'-C5'-O5'
1	1	2605	PSU	C3'-C4'-C5'-O5'
2	2	967	5MC	C3'-C4'-C5'-O5'
1	1	747	5MU	O4'-C4'-C5'-O5'
1	1	1835	2MG	O4'-C4'-C5'-O5'
1	1	1835	2MG	C3'-C4'-C5'-O5'
1	1	2445	2MG	O4'-C4'-C5'-O5'
1	1	2580	PSU	O4'-C4'-C5'-O5'
2	2	527	7MG	O4'-C4'-C5'-O5'
2	2	1402	4OC	O4'-C4'-C5'-O5'
1	1	955	PSU	C4'-C5'-O5'-P
1	1	2504	PSU	C4'-C5'-O5'-P
1	1	955	PSU	C3'-C4'-C5'-O5'
1	1	2498	OMC	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
1	1	2605	PSU	O4'-C4'-C5'-O5'
2	2	1518	MA6	C5-C6-N6-C9
2	2	1518	MA6	C5-C6-N6-C10
1	1	955	PSU	O4'-C4'-C5'-O5'
1	1	1915	3TD	C3'-C4'-C5'-O5'
1	1	2580	PSU	C4'-C5'-O5'-P
1	1	2552	OMU	C4'-C5'-O5'-P
49	q	89	0TD	SB-CB-CG-OD1
1	1	2498	OMC	C2'-C1'-N1-C6
1	1	1917	PSU	C4'-C5'-O5'-P
1	1	1939	5MU	C4'-C5'-O5'-P
1	1	1917	PSU	O4'-C4'-C5'-O5'
1	1	2457	PSU	C3'-C4'-C5'-O5'
1	1	1962	5MC	O4'-C1'-N1-C6
1	1	746	PSU	C4'-C5'-O5'-P
2	2	516	PSU	C4'-C5'-O5'-P
2	2	527	7MG	C4'-C5'-O5'-P
2	2	1519	MA6	C5-C6-N6-C9
1	1	2498	OMC	C2'-C1'-N1-C2
1	1	1915	3TD	C4'-C5'-O5'-P
1	1	1911	PSU	C4'-C5'-O5'-P
1	1	1962	5MC	O4'-C1'-N1-C2
1	1	2504	PSU	O4'-C1'-C5-C4
1	1	2251	OMG	C4'-C5'-O5'-P
1	1	747	5MU	C4'-C5'-O5'-P
2	2	1402	4OC	C3'-C4'-C5'-O5'
1	1	1915	3TD	O4'-C4'-C5'-O5'
1	1	2069	G7M	O4'-C4'-C5'-O5'
49	q	89	0TD	CG-CB-SB-CSB
2	2	1519	MA6	C4'-C5'-O5'-P
1	1	1618	6MZ	C4'-C5'-O5'-P

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 441 ligands modelled in this entry, 441 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	2	2
1	1	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	1	2314:A	O3'	2315:G	P	3.20
1	2	1276:G	O3'	1277:C	P	3.19
1	2	1383:C	O3'	1384:C	P	3.17

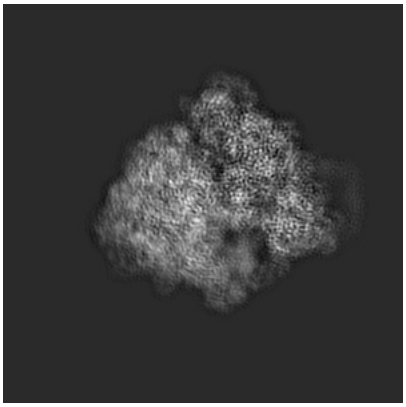
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-4476. These allow visual inspection of the internal detail of the map and identification of artifacts.

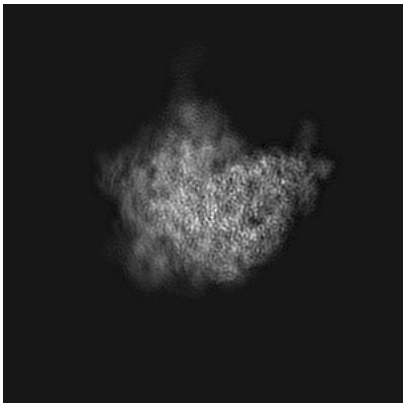
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

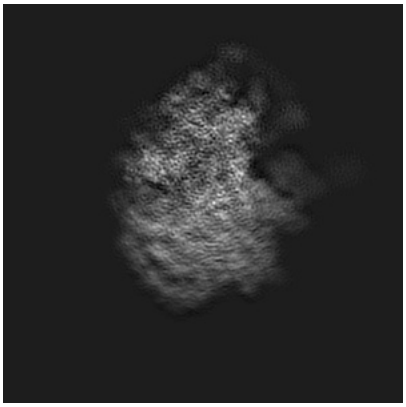
6.1.1 Primary map



X



Y

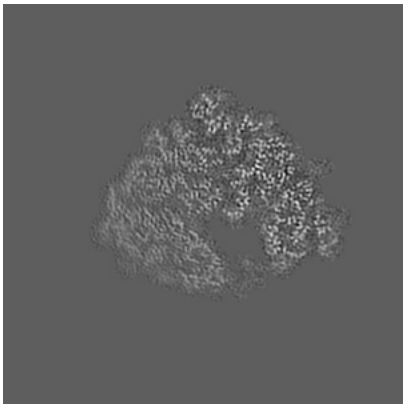


Z

The images above show the map projected in three orthogonal directions.

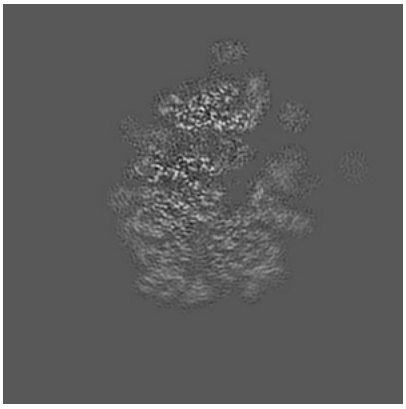
6.2 Central slices

6.2.1 Primary map



X Index: 190

Y Index: 190

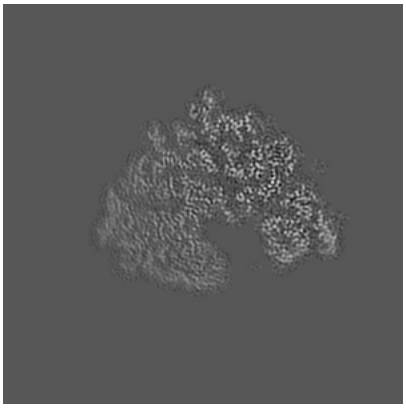


Z Index: 190

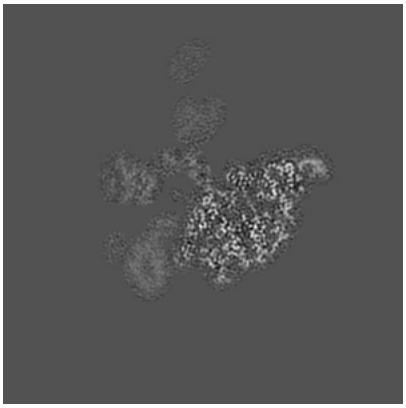
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

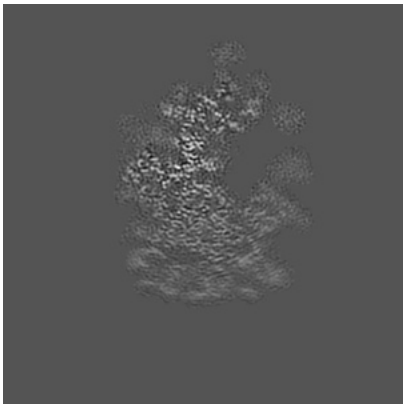
6.3.1 Primary map



X Index: 186



Y Index: 231

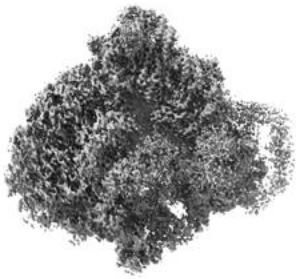


Z Index: 199

The images above show the largest variance slices of the map in three orthogonal directions.

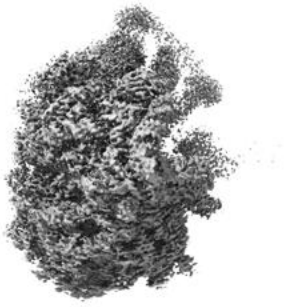
6.4 Orthogonal surface views (i)

6.4.1 Primary map



X

Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

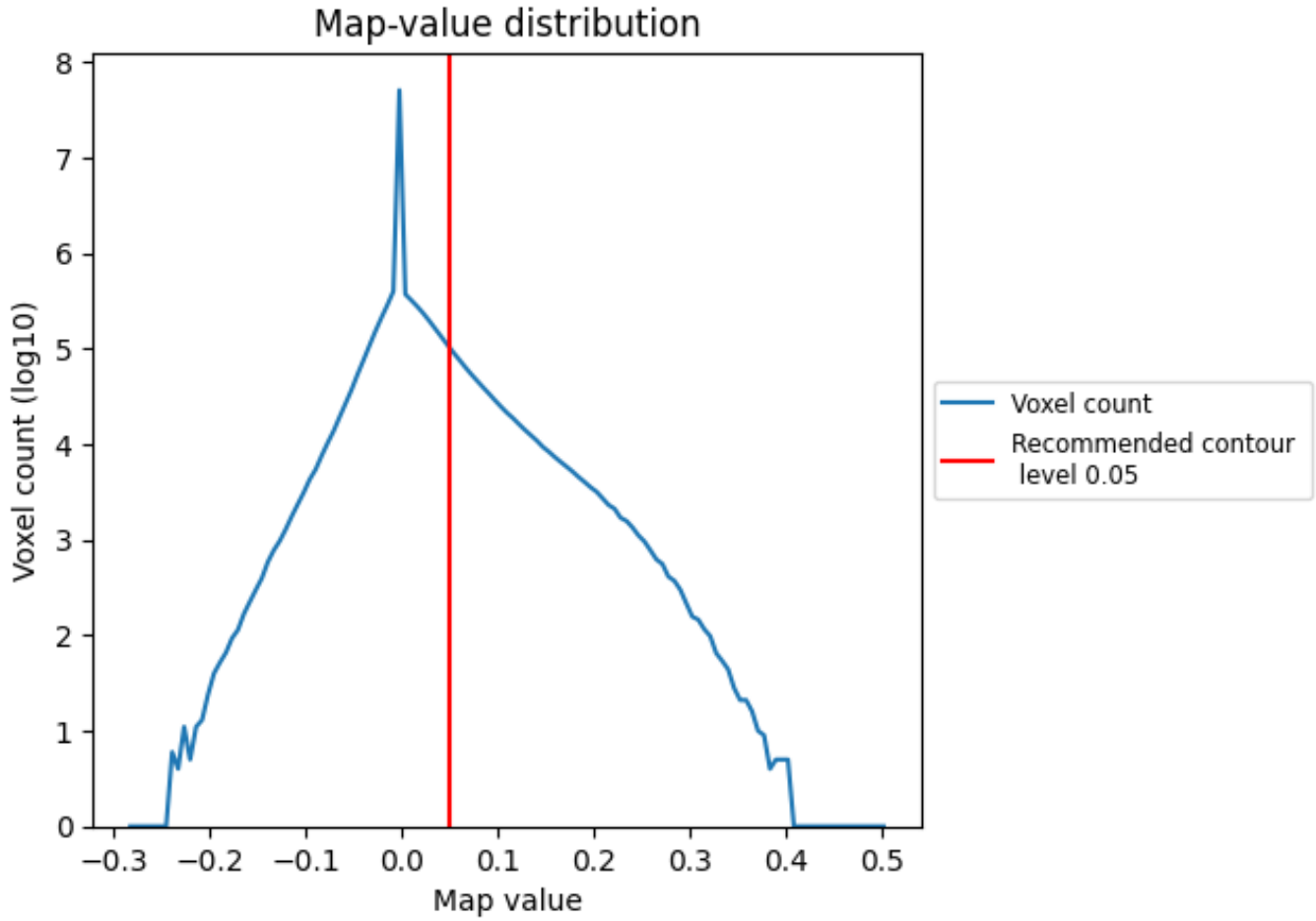
6.5 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis

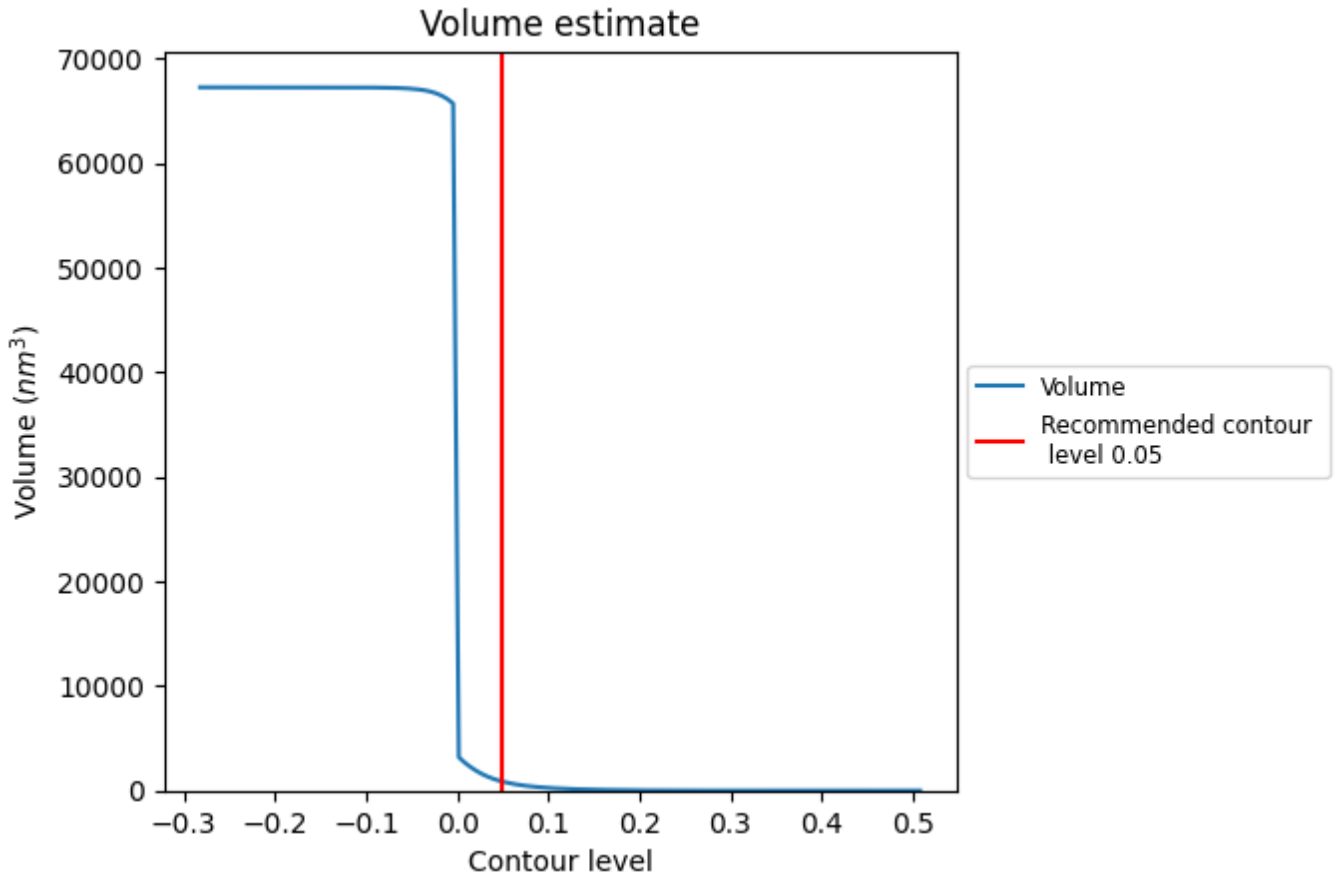
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

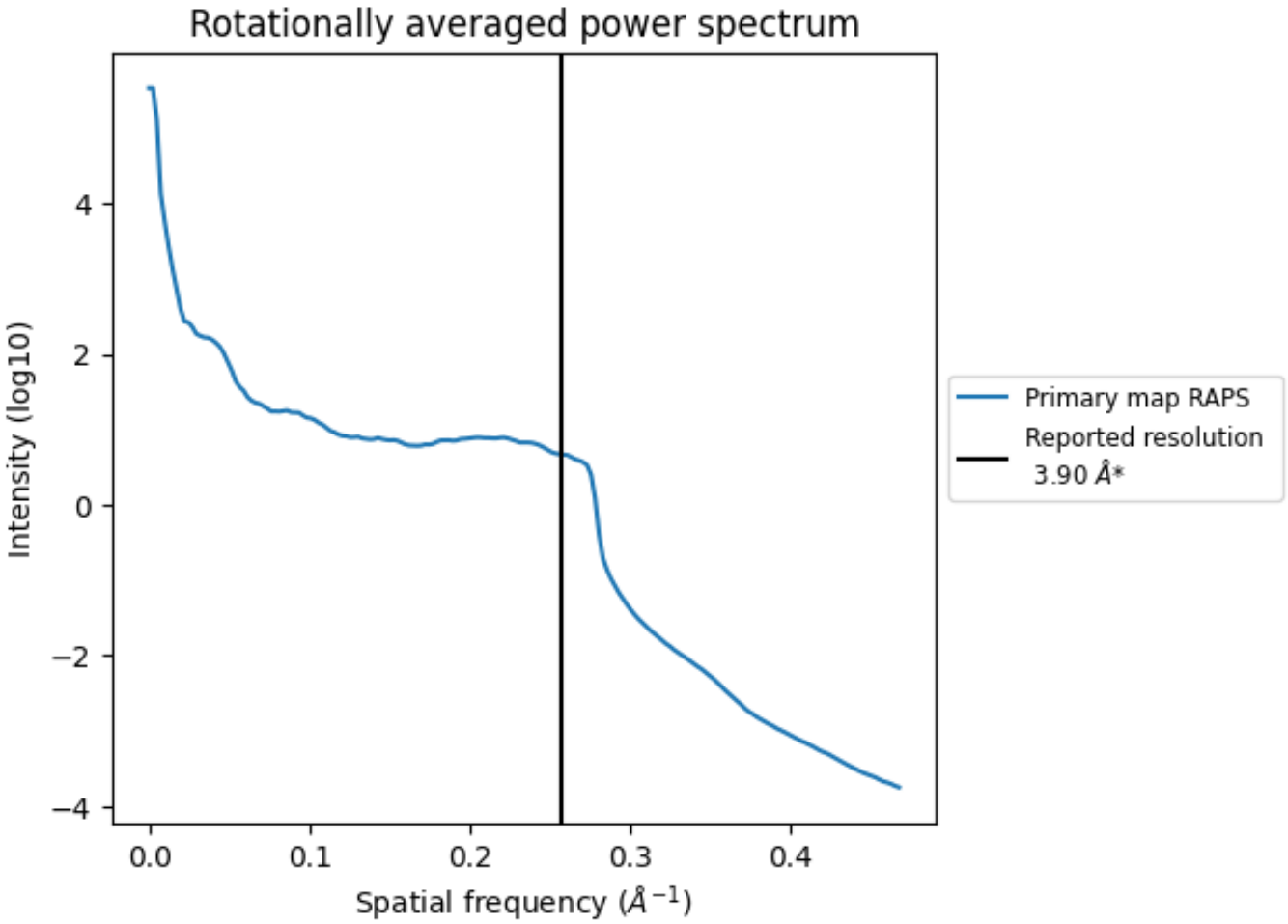
7.2 Volume estimate



The volume at the recommended contour level is 855 nm^3; this corresponds to an approximate mass of 773 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.256 Å^{-1}

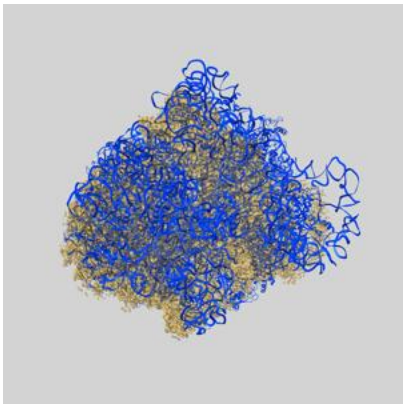
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

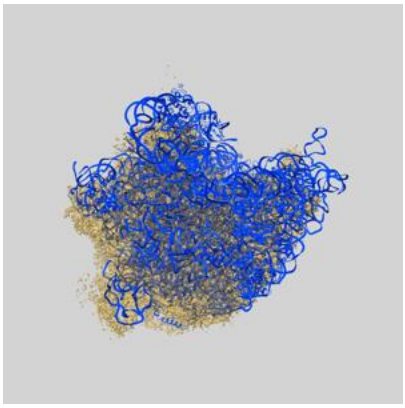
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-4476 and PDB model 6Q97. Per-residue inclusion information can be found in section 3 on page 16.

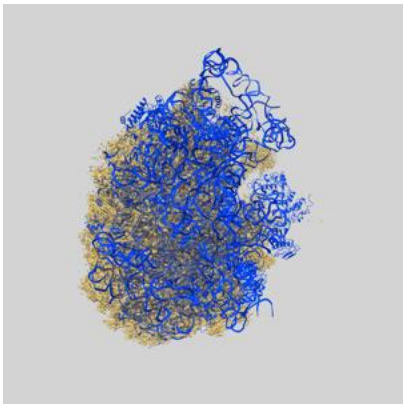
9.1 Map-model overlay



X



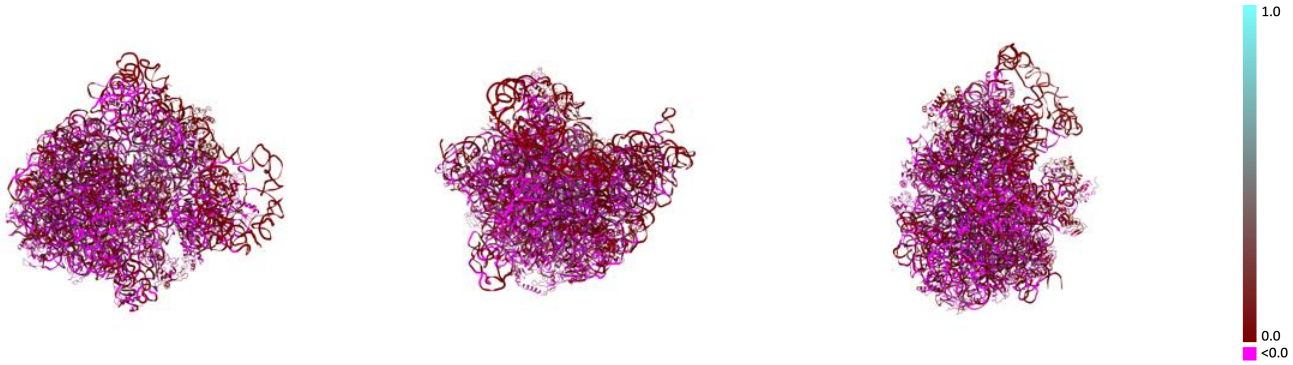
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

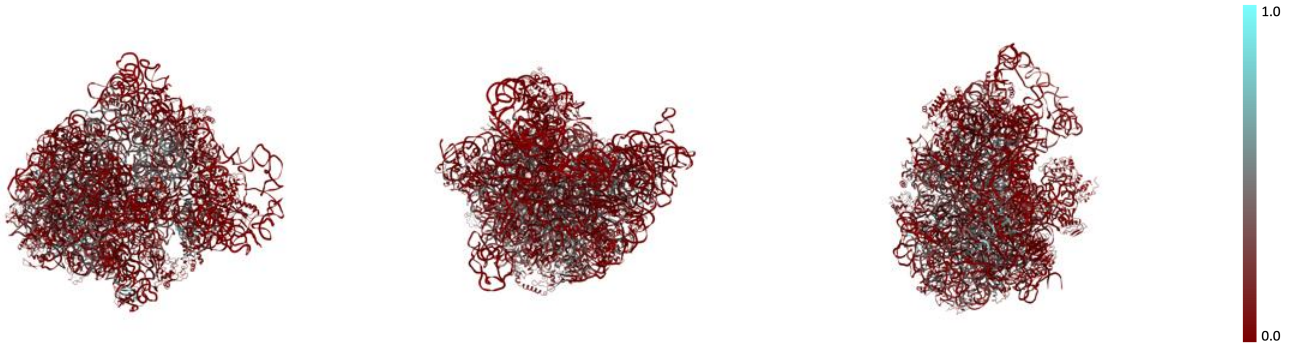
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

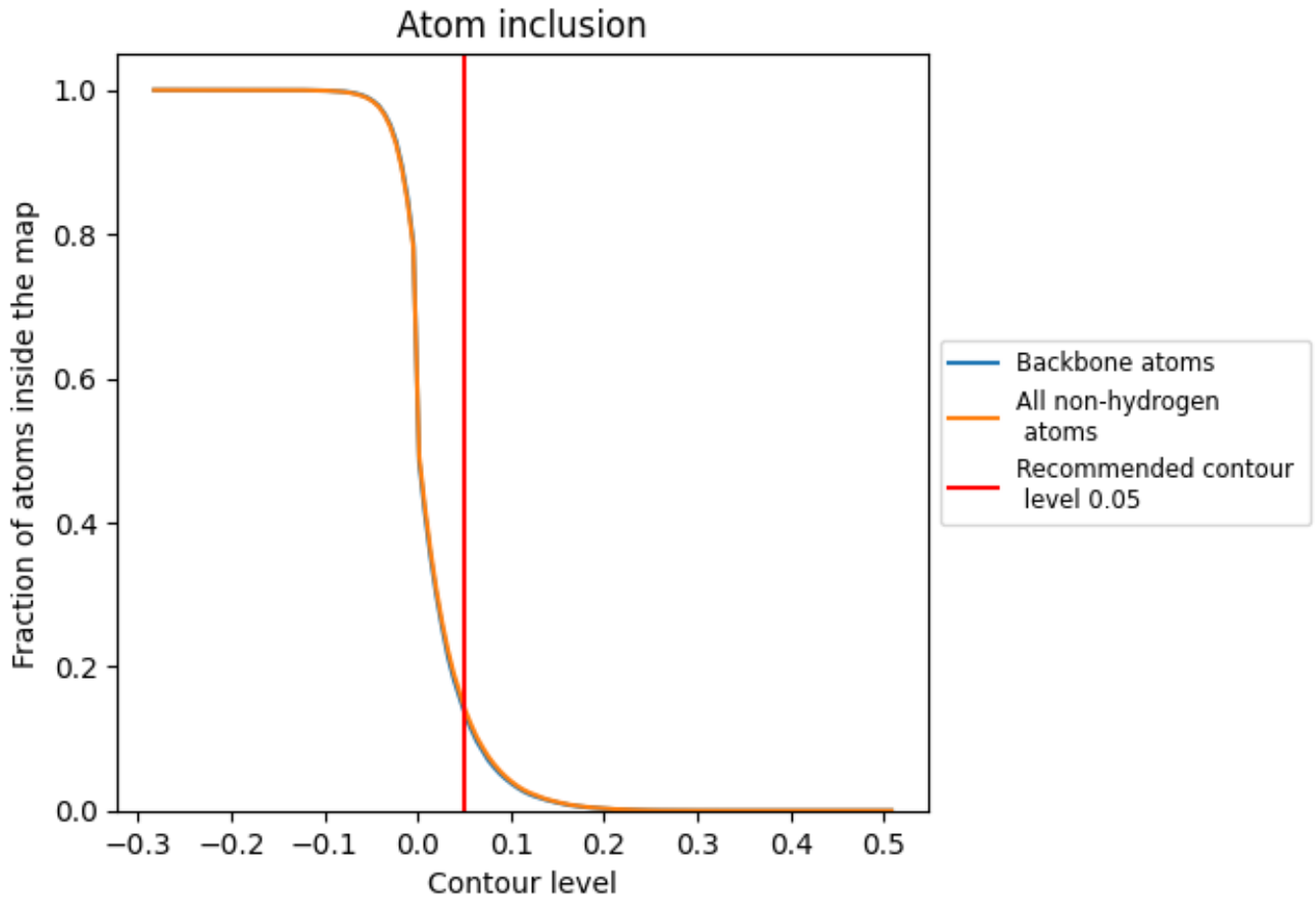
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).

9.4 Atom inclusion (i)



At the recommended contour level, 14% of all backbone atoms, 14% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.1437	-0.0010
1	0.1688	-0.0020
2	0.1671	-0.0030
3	0.0811	0.0030
4	0.0137	-0.0030
5	0.0264	0.0150
6	0.1857	-0.0290
7	0.1050	-0.0190
8	0.1049	0.0030
9	0.2344	-0.0170
B	0.1983	-0.0130
C	0.0559	0.0000
D	0.1421	-0.0190
E	0.0459	0.0070
F	0.0000	0.0060
G	0.1633	-0.0130
H	0.0000	0.0110
I	0.0000	0.0110
J	0.0650	-0.0030
K	0.0706	0.0030
L	0.2725	-0.0120
M	0.1045	0.0150
N	0.1369	0.0140
O	0.1825	0.0280
P	0.1137	-0.0400
Q	0.1331	0.0020
R	0.1355	0.0130
S	0.2234	-0.0050
T	0.1904	0.0030
U	0.1972	0.0040
V	0.0244	-0.0050
W	0.1237	-0.0310
X	0.2193	-0.0150
Y	0.1333	-0.0100
Z	0.0900	0.0510

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Chain	Atom inclusion	Q-score
a	0.0352	0.0220
b	0.1308	0.0080
c	0.0861	0.0350
d	0.2648	-0.0190
e	0.2749	-0.0030
f	0.0208	-0.0030
g	0.0093	0.0020
h	0.0377	0.0150
i	0.0226	0.0100
j	0.0257	0.0040
k	0.2406	-0.0250
l	0.3348	-0.0050
m	0.0073	-0.0010
n	0.1734	-0.0000
o	0.0575	-0.0180
p	0.1477	-0.0090
q	0.2102	0.0100
r	0.2561	0.0240
s	0.1085	0.0230
t	0.3319	-0.0030
u	0.0177	0.0080
v	0.0916	0.0220
w	0.1946	0.0020
x	0.1480	0.0230
y	0.2092	-0.0010
z	0.1431	-0.0070