



Full wwPDB EM Validation Report ⓘ

Apr 16, 2024 – 03:19 am BST

PDB ID : 5LZA
EMDB ID : EMD-4121
Title : Structure of the 70S ribosome with SECIS-mRNA and P-site tRNA (Initial complex, IC)
Authors : Fischer, N.; Neumann, P.; Bock, L.V.; Maracci, C.; Wang, Z.; Paleskava, A.; Konevega, A.L.; Schroeder, G.F.; Grubmueller, H.; Ficner, R.; Rodnina, M.V.; Stark, H.
Deposited on : 2016-09-29
Resolution : 3.60 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:

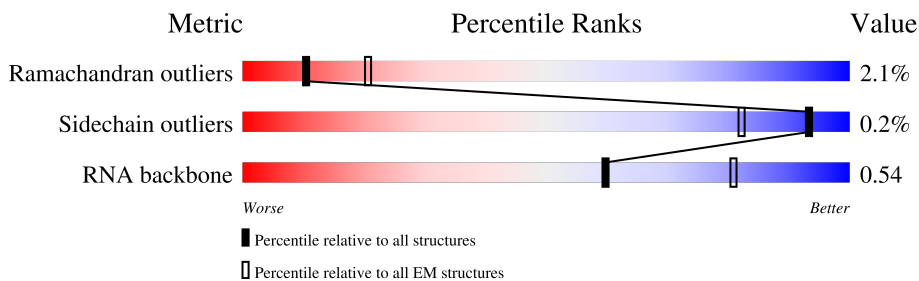
EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

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 3.60 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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	a	1539	73% 24% .
2	b	218	96% ..
3	c	206	100%
4	d	205	99% .
5	e	157	94% ..
6	f	100	93% 5% .
7	g	151	97% ..
8	h	129	98% .
9	i	127	94% 6%

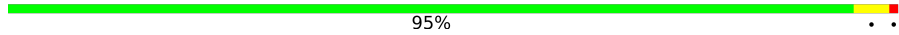
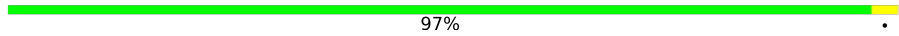
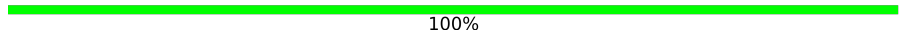
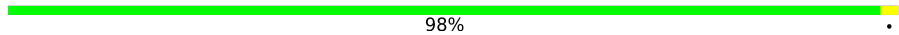
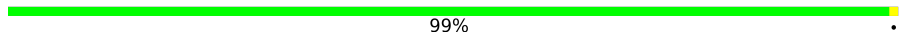
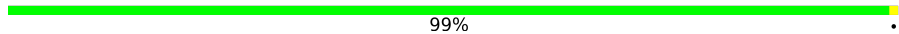
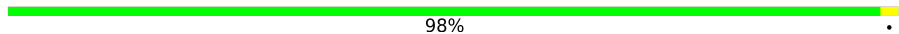
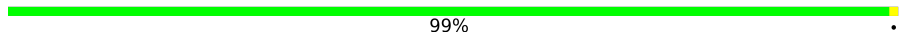
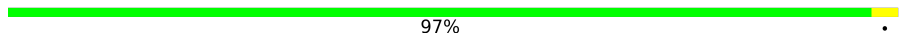
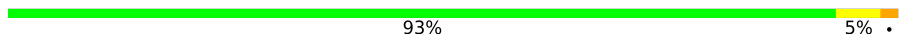
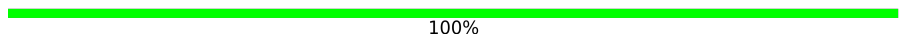

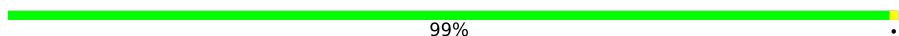
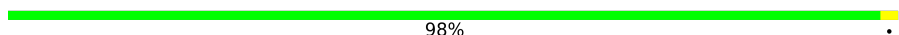
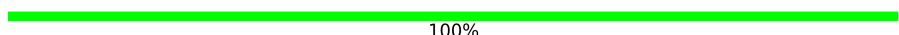
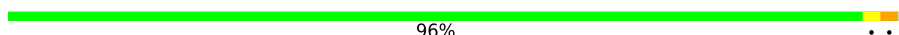
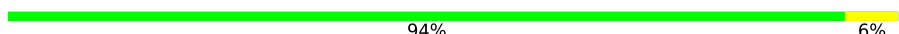
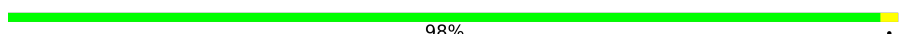
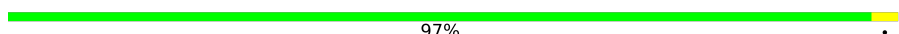
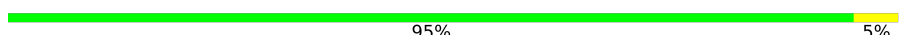
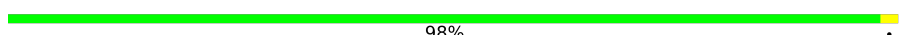
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Mol	Chain	Length	Quality of chain
10	j	98	93% 5%
11	k	116	97%
12	l	123	91% 8%
13	m	114	96%
14	n	100	97%
15	o	88	98%
16	p	82	95%
17	q	80	95%
18	r	65	91% 8%
19	s	79	97%
20	t	85	100%
21	u	65	94%
22	v	77	64% 34%
23	x	48	52% 48%
24	A	2903	72% 24%
25	B	120	72% 24%
26	C	271	98%
27	D	209	100%
28	E	201	98%
29	F	177	97%
30	G	176	95%
31	I	141	98%
32	H	149	96%
33	J	142	100%
34	K	122	93% 6%

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Mol	Chain	Length	Quality of chain
35	L	143	 95%
36	M	136	 97%
37	N	120	 100%
38	O	116	 98%
39	P	114	 99%
40	Q	117	 99%
41	R	103	 98%
42	S	110	 99%
43	T	93	 97%
44	U	102	 93% 5%
45	V	94	 100%
46	W	75	 99%
47	X	77	 99%
48	Y	63	 98%
49	Z	58	 100%
50	0	56	 96%
51	1	50	 94% 6%
52	2	46	 98%
53	3	64	 97%
54	4	38	 95% 5%
55	6	66	 98%

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	G7M	a	527	X	-	-	-
24	G7M	A	2069	X	-	-	-

2 Entry composition [i](#)

There are 56 unique types of molecules in this entry. The entry contains 146037 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 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	a	1539	33119	14778	6072	10726	1543	4	0

- Molecule 2 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	b	218	1705	1081	305	312	7	0	0

- Molecule 3 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	c	206	1625	1028	305	289	3	0	0

- Molecule 4 is a protein called 30S ribosomal protein S4.

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

- Molecule 5 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	e	157	1157	719	218	214	6	0	0

- Molecule 6 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	f	100	818	515	148	149	6	0	0

- Molecule 7 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	g	151	1182	735	227	216	4	0	0

- Molecule 8 is a protein called 30S ribosomal protein S8.

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

- Molecule 9 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	i	127	1022	634	206	179	3	0	0

- Molecule 10 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	j	98	787	493	150	143	1	0	0

- Molecule 11 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	k	116	870	535	173	159	3	0	0

- Molecule 12 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	l	123	955	590	196	165	4	0	0

- Molecule 13 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	m	114	884	546	178	157	3	0	0

- Molecule 14 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	n	100	Total	C	N	O	S	0	0
			794	495	164	132	3		

- Molecule 15 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	o	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 16 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	p	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 17 is a protein called 30S ribosomal protein S17.

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

- Molecule 18 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	r	65	Total	C	N	O	0	0
			505	317	96	92		

- Molecule 19 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	s	79	Total	C	N	O	S	0	0
			638	408	120	108	2		

- Molecule 20 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	t	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 21 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	u	65	Total	C	N	O	S	0	0
			496	307	100	88	1		

- Molecule 22 is a RNA chain called fMet-tRNA^{fMet}.

Mol	Chain	Residues	Atoms						AltConf	Trace
22	v	77	Total	C	N	O	P	S	0	0
			1644	733	297	536	77	1		

- Molecule 23 is a RNA chain called SECIS mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	x	48	Total	C	N	O	P	0	0
			1025	457	183	337	48		

- Molecule 24 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	A	2900	Total	C	N	O	P	1	0
			62296	27797	11464	20134	2901		

- Molecule 25 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	B	120	Total	C	N	O	P	0	0
			2570	1144	468	838	120		

- Molecule 26 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	C	271	Total	C	N	O	S	0	0
			2083	1288	423	365	7		

- Molecule 27 is a protein called 50S ribosomal protein L3.

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

- Molecule 28 is a protein called 50S ribosomal protein L4.

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

- Molecule 29 is a protein called 50S ribosomal protein L5.

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

- Molecule 30 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	G	176	1323	832	243	246	2	0	0

- Molecule 31 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	I	141	1032	651	179	196	6	0	0

- Molecule 32 is a protein called 50S ribosomal protein L9.

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

- Molecule 33 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	J	142	1129	714	212	199	4	0	0

- Molecule 34 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	K	122	939	587	180	166	6	0	0

- Molecule 35 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	L	143	1045	649	206	189	1	0	0

- Molecule 36 is a protein called 50S ribosomal protein L16.

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

- Molecule 37 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	N	120	961	593	196	167	5	0	0

- Molecule 38 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
38	O	116	892	552	178	162	0	0

- Molecule 39 is a protein called 50S ribosomal protein L19.

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

- Molecule 40 is a protein called 50S ribosomal protein L20.

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

- Molecule 41 is a protein called 50S ribosomal protein L21.

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

- Molecule 42 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	S	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 43 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	T	93	Total	C	N	O	S	0	0
			739	466	139	132	2		

- Molecule 44 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace	
44	U	102	Total	C	N	O		0	0
			780	492	146	142			

- Molecule 45 is a protein called 50S ribosomal protein L25.

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

- Molecule 46 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	W	75	Total	C	N	O	S	0	0
			575	356	116	102	1		

- Molecule 47 is a protein called 50S ribosomal protein L28.

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

- Molecule 48 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	Y	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

- Molecule 49 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	Z	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	0	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 51 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
51	1	50	Total	C	N	O	0	0
			410	263	75	72		

- Molecule 52 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	2	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 53 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	3	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 54 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	4	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 55 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	6	66	Total	C	N	O	S	0	0
			523	323	99	95	6		

- Molecule 56 is ZINC ION (three-letter code: ZN) (formula: Zn).

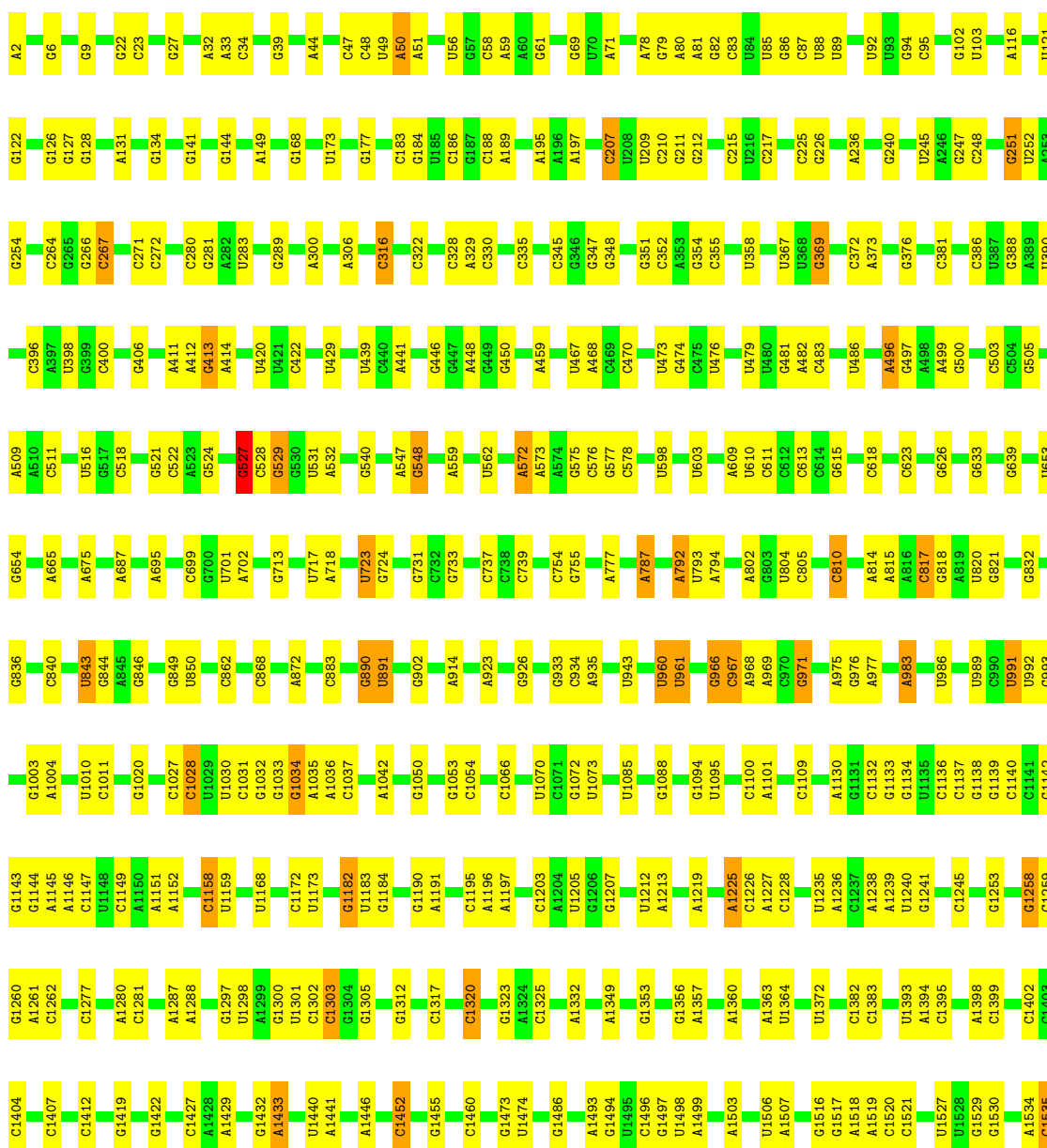
Mol	Chain	Residues	Atoms		AltConf
56	4	1	Total 1	Zn 1	0
56	6	1	Total 1	Zn 1	0

3 Residue-property plots

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. 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. 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: 16S ribosomal RNA

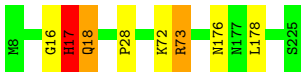
Chain a:  73% 24%





- Molecule 2: 30S ribosomal protein S2

Chain b: 96% ..



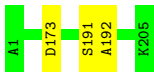
- Molecule 3: 30S ribosomal protein S3

Chain c: 100%



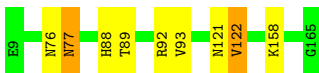
- Molecule 4: 30S ribosomal protein S4

Chain d: 99% .



- Molecule 5: 30S ribosomal protein S5

Chain e: 94% ..



- Molecule 6: 30S ribosomal protein S6

Chain f: 93% 5% ..



- Molecule 7: 30S ribosomal protein S7

Chain g: 97% ..



- Molecule 8: 30S ribosomal protein S8

Chain h: 98% .



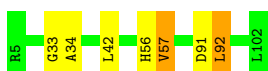
- Molecule 9: 30S ribosomal protein S9

Chain i: 94% 6%



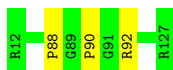
- Molecule 10: 30S ribosomal protein S10

Chain j: 93% 5%



- Molecule 11: 30S ribosomal protein S11

Chain k: 97%



- Molecule 12: 30S ribosomal protein S12

Chain l: 91% 8%



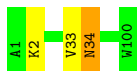
- Molecule 13: 30S ribosomal protein S13

Chain m: 96%



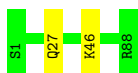
- Molecule 14: 30S ribosomal protein S14

Chain n: 97%

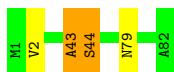


- Molecule 15: 30S ribosomal protein S15

Chain o: 98%



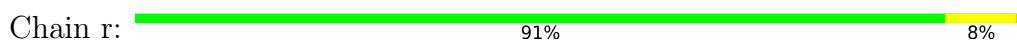
- Molecule 16: 30S ribosomal protein S16



- Molecule 17: 30S ribosomal protein S17



- Molecule 18: 30S ribosomal protein S18



- Molecule 19: 30S ribosomal protein S19

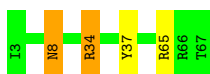


- Molecule 20: 30S ribosomal protein S20



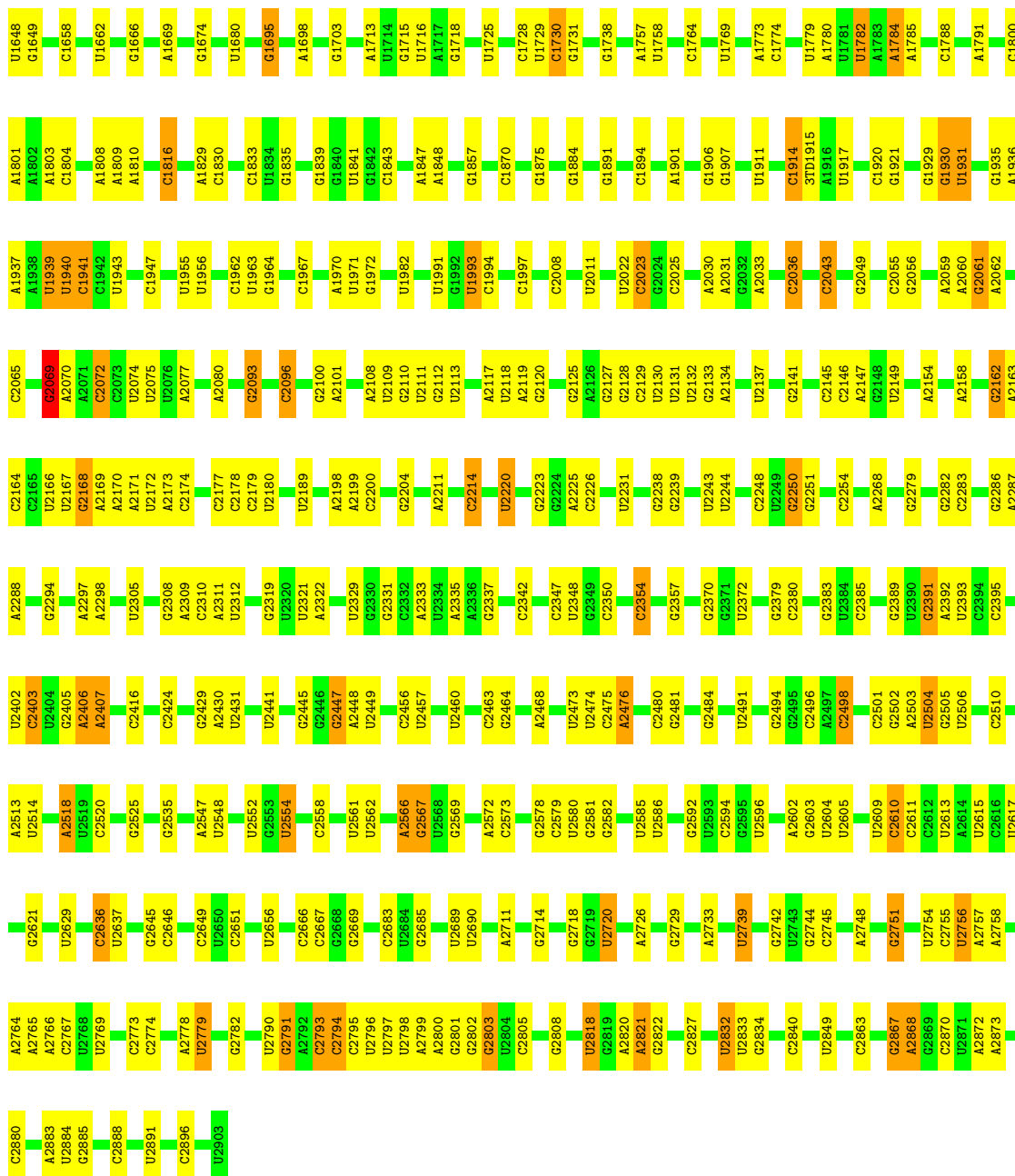
There are no outlier residues recorded for this chain.

- Molecule 21: 30S ribosomal protein S21



- Molecule 22: fMet-tRNAfMet



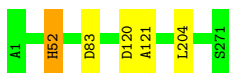


• Molecule 25: 5S ribosomal RNA



• Molecule 26: 50S ribosomal protein L2





- Molecule 27: 50S ribosomal protein L3

Chain D: 100%



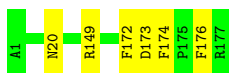
- Molecule 28: 50S ribosomal protein L4

Chain E: 98%



- Molecule 29: 50S ribosomal protein L5

Chain F: 97%



- Molecule 30: 50S ribosomal protein L6

Chain G: 95%



- Molecule 31: 50S ribosomal protein L11

Chain I: 98%



- Molecule 32: 50S ribosomal protein L9

Chain H: 96%



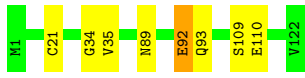
- Molecule 33: 50S ribosomal protein L13

Chain J: 100%

There are no outlier residues recorded for this chain.

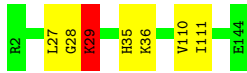
- Molecule 34: 50S ribosomal protein L14

Chain K:  93% 6%



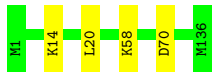
- Molecule 35: 50S ribosomal protein L15

Chain L:  95%



- Molecule 36: 50S ribosomal protein L16

Chain M:  97%



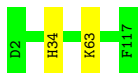
- Molecule 37: 50S ribosomal protein L17

Chain N:  100%

There are no outlier residues recorded for this chain.

- Molecule 38: 50S ribosomal protein L18

Chain O:  98%



- Molecule 39: 50S ribosomal protein L19

Chain P:  99%



- Molecule 40: 50S ribosomal protein L20

Chain Q:  99%



- Molecule 41: 50S ribosomal protein L21

Chain R:  98%



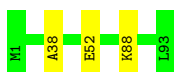
- Molecule 42: 50S ribosomal protein L22

Chain S:  99%



- Molecule 43: 50S ribosomal protein L23

Chain T:  97%



- Molecule 44: 50S ribosomal protein L24

Chain U:  93% 5%



- Molecule 45: 50S ribosomal protein L25

Chain V:  100%

There are no outlier residues recorded for this chain.

- Molecule 46: 50S ribosomal protein L27

Chain W:  99%



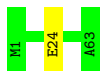
- Molecule 47: 50S ribosomal protein L28

Chain X:  99%



- Molecule 48: 50S ribosomal protein L29

Chain Y:  98%



- Molecule 49: 50S ribosomal protein L30

Chain Z: 100%

There are no outlier residues recorded for this chain.

- Molecule 50: 50S ribosomal protein L32

Chain 0: 96% ..



- Molecule 51: 50S ribosomal protein L33

Chain 1: 94% 6%



- Molecule 52: 50S ribosomal protein L34

Chain 2: 98% .



- Molecule 53: 50S ribosomal protein L35

Chain 3: 97% .



- Molecule 54: 50S ribosomal protein L36

Chain 4: 95% 5%



- Molecule 55: 50S ribosomal protein L31

Chain 6: 98% .



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	75176	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY; Local CTF correction, after MSA based classification and averaging of local power spectra	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON II (4k x 4k)	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: G7M, 4OC, OMC, OMG, 5MU, PSU, UR3, 6MZ, MA6, 1MG, 2MA, 4SU, OMU, H2U, ZN, 3TD, 5MC, 2MG

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	a	0.61	4/36803 (0.0%)	1.26	322/57406 (0.6%)
2	b	0.43	0/1736	0.66	3/2338 (0.1%)
3	c	0.40	0/1652	0.60	0/2225
4	d	0.43	0/1665	0.62	0/2227
5	e	0.44	0/1170	0.80	2/1573 (0.1%)
6	f	0.49	0/836	0.83	2/1128 (0.2%)
7	g	0.43	0/1196	0.70	3/1602 (0.2%)
8	h	0.42	0/989	0.66	0/1326
9	i	0.41	0/1034	0.69	0/1375
10	j	0.37	0/797	0.74	0/1077
11	k	0.40	0/886	0.71	0/1195
12	l	0.43	0/969	0.82	2/1300 (0.2%)
13	m	0.46	0/893	0.78	3/1193 (0.3%)
14	n	0.45	0/806	0.66	1/1074 (0.1%)
15	o	0.40	0/722	0.61	0/964
16	p	0.45	0/659	0.70	1/884 (0.1%)
17	q	0.45	0/658	0.78	1/881 (0.1%)
18	r	0.42	0/512	0.70	0/689
19	s	0.41	0/653	0.75	1/877 (0.1%)
20	t	0.42	0/671	0.60	0/888
21	u	0.53	0/501	0.84	1/668 (0.1%)
22	v	0.55	1/1747 (0.1%)	1.29	19/2721 (0.7%)
23	x	0.58	1/1145 (0.1%)	1.09	1/1781 (0.1%)
24	A	0.66	9/69196 (0.0%)	1.26	616/107943 (0.6%)
25	B	0.59	1/2873 (0.0%)	1.25	29/4478 (0.6%)
26	C	0.48	0/2122	0.73	1/2852 (0.0%)
27	D	0.44	0/1586	0.67	0/2134
28	E	0.43	0/1571	0.63	0/2113
29	F	0.43	0/1435	0.71	2/1926 (0.1%)
30	G	0.42	0/1343	0.67	4/1816 (0.2%)
31	I	0.38	0/1046	0.61	0/1410

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	H	0.38	0/1122	0.63	0/1515
33	J	0.46	0/1152	0.61	0/1551
34	K	0.46	0/948	0.69	0/1268
35	L	0.44	0/1054	0.74	1/1403 (0.1%)
36	M	0.46	0/1093	0.72	1/1460 (0.1%)
37	N	0.44	0/974	0.65	0/1301
38	O	0.42	0/902	0.59	0/1209
39	P	0.45	0/929	0.67	0/1242
40	Q	0.47	0/960	0.60	1/1278 (0.1%)
41	R	0.45	0/829	0.72	0/1107
42	S	0.40	0/864	0.62	0/1156
43	T	0.40	0/745	0.63	0/994
44	U	0.44	0/788	0.78	2/1051 (0.2%)
45	V	0.40	0/766	0.60	0/1025
46	W	0.41	0/582	0.62	0/769
47	X	0.38	0/635	0.59	0/848
48	Y	0.42	0/510	0.64	0/677
49	Z	0.40	0/453	0.60	0/605
50	0	0.41	0/450	0.72	0/599
51	1	0.42	0/417	0.84	1/554 (0.2%)
52	2	0.41	0/380	0.67	0/498
53	3	0.47	0/513	0.65	0/676
54	4	0.67	1/303 (0.3%)	0.78	0/397
55	6	0.42	0/532	0.62	0/709
All	All	0.59	17/157773 (0.0%)	1.14	1020/235956 (0.4%)

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	a	2	0
2	b	0	4
5	e	0	4
6	f	0	1
7	g	0	2
8	h	0	1
9	i	0	1
10	j	0	5
12	l	0	1
13	m	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
16	p	0	1
17	q	0	2
18	r	0	3
19	s	0	1
21	u	0	1
24	A	2	0
26	C	0	1
28	E	0	1
30	G	0	3
32	H	0	2
34	K	0	3
35	L	0	4
42	S	0	1
44	U	0	3
48	Y	0	1
50	0	0	2
51	1	0	1
53	3	0	1
All	All	4	51

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	x	87	A	OP3-P	-10.73	1.48	1.61
24	A	1	G	OP3-P	-10.59	1.48	1.61
25	B	1	U	OP3-P	-10.53	1.48	1.61
22	v	1	C	OP3-P	-10.52	1.48	1.61
1	a	2	A	OP3-P	-10.51	1.48	1.61
24	A	776	G	N7-C5	-7.66	1.34	1.39
24	A	1784	A	N7-C5	-7.38	1.34	1.39
54	4	11	CYS	CB-SG	-7.14	1.70	1.82
24	A	1779	U	C5-C6	-5.86	1.28	1.34
24	A	800	A	N9-C4	-5.79	1.34	1.37
1	a	89	U	C4-C5	-5.54	1.38	1.43
24	A	1803	A	N9-C4	-5.52	1.34	1.37
24	A	984	A	N9-C4	-5.30	1.34	1.37
24	A	2868	A	N9-C8	-5.26	1.33	1.37
24	A	613	A	N9-C4	5.21	1.41	1.37
1	a	792	A	N7-C5	-5.15	1.36	1.39
1	a	2	A	N7-C5	-5.12	1.36	1.39

All (1020) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1313	U	N3-C2-O2	-14.71	111.90	122.20
24	A	2072	C	C6-N1-C2	-14.04	114.69	120.30
1	a	89	U	C5-C4-O4	-13.94	117.53	125.90
1	a	529	G	C5-C6-O6	-13.71	120.38	128.60
24	A	62	U	N1-C2-O2	13.14	132.00	122.80
24	A	893	C	C6-N1-C2	-13.07	115.07	120.30
24	A	1313	U	N1-C2-O2	12.96	131.87	122.80
24	A	137	U	N3-C2-O2	-12.35	113.56	122.20
24	A	2297	A	C6-N1-C2	12.25	125.95	118.60
24	A	2072	C	C5-C6-N1	12.25	127.12	121.00
24	A	2868	A	N7-C8-N9	12.13	119.86	113.80
24	A	2297	A	N1-C2-N3	-11.50	123.55	129.30
1	a	529	G	N1-C6-O6	11.49	126.80	119.90
24	A	2321	U	C4-C5-C6	11.37	126.52	119.70
24	A	62	U	N3-C2-O2	-11.36	114.25	122.20
24	A	548	G	N7-C8-N9	11.29	118.74	113.10
24	A	1112	G	N3-C2-N2	-11.13	112.11	119.90
19	s	4	LEU	CA-CB-CG	10.99	140.57	115.30
1	a	737	C	C5-C6-N1	10.92	126.46	121.00
1	a	737	C	C6-N1-C2	-10.91	115.94	120.30
1	a	215	C	N1-C2-O2	10.80	125.38	118.90
24	A	548	G	C8-N9-C4	-10.66	102.14	106.40
24	A	1313	U	C2-N1-C1'	10.60	130.42	117.70
5	e	77	ASN	N-CA-CB	-10.46	91.77	110.60
1	a	1027	C	C5-C6-N1	10.40	126.20	121.00
24	A	783	A	C8-N9-C4	-10.22	101.71	105.80
1	a	89	U	N3-C4-O4	10.19	126.53	119.40
24	A	776	G	N3-C4-C5	-10.18	123.51	128.60
24	A	883	G	N1-C6-O6	-9.95	113.93	119.90
24	A	62	U	C2-N1-C1'	9.89	129.56	117.70
1	a	413	G	C5-N7-C8	9.82	109.21	104.30
24	A	1451	C	N1-C2-O2	-9.82	113.01	118.90
24	A	2416	C	C6-N1-C2	-9.77	116.39	120.30
13	m	65	GLU	N-CA-CB	-9.73	93.08	110.60
24	A	1498	C	N1-C2-O2	9.60	124.66	118.90
1	a	503	C	C6-N1-C2	-9.41	116.54	120.30
24	A	2447	G	P-O3'-C3'	9.32	130.89	119.70
24	A	2481	G	C6-N1-C2	9.28	130.67	125.10
24	A	893	C	N3-C2-O2	-9.27	115.41	121.90
24	A	795	C	C5-C6-N1	9.26	125.63	121.00
24	A	783	A	N7-C8-N9	9.23	118.41	113.80
24	A	1314	C	C6-N1-C2	-9.21	116.62	120.30
24	A	2884	U	N3-C2-O2	-9.20	115.76	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	792	A	C5-N7-C8	9.17	108.48	103.90
24	A	1784	A	C5-N7-C8	9.13	108.47	103.90
24	A	2868	A	C8-N9-C4	-9.09	102.17	105.80
24	A	866	A	C5-C6-N6	-9.01	116.49	123.70
24	A	669	G	C2-N3-C4	8.97	116.38	111.90
1	a	1134	G	N3-C2-N2	-8.94	113.64	119.90
1	a	1028	C	C5-C6-N1	8.93	125.47	121.00
1	a	1003	G	N3-C2-N2	-8.88	113.69	119.90
1	a	891	U	C5-C6-N1	8.87	127.13	122.70
22	v	74	C	N1-C2-O2	8.85	124.21	118.90
1	a	1149	C	N1-C2-O2	8.82	124.19	118.90
24	A	2407	A	O5'-P-OP2	-8.81	97.77	105.70
24	A	2226	C	N1-C2-O2	8.76	124.16	118.90
1	a	1027	C	C6-N1-C2	-8.75	116.80	120.30
24	A	581	C	C5-C6-N1	8.71	125.35	121.00
24	A	1081	U	N3-C2-O2	-8.65	116.15	122.20
24	A	613	A	C2-N3-C4	8.64	114.92	110.60
16	p	44	SER	N-CA-CB	-8.62	97.58	110.50
24	A	1362	C	C6-N1-C2	-8.61	116.85	120.30
24	A	385	C	OP2-P-O3'	8.60	124.11	105.20
24	A	1716	U	C5-C6-N1	8.57	126.99	122.70
24	A	278	A	C2-N3-C4	8.51	114.85	110.60
1	a	943	U	N3-C2-O2	-8.45	116.28	122.20
24	A	67	U	C5-C4-O4	-8.45	120.83	125.90
24	A	1105	U	N3-C2-O2	-8.45	116.29	122.20
24	A	1451	C	C2-N3-C4	-8.38	115.71	119.90
25	B	31	C	C6-N1-C2	-8.38	116.95	120.30
24	A	1779	U	C4-C5-C6	8.37	124.72	119.70
24	A	893	C	C5-C6-N1	8.33	125.16	121.00
2	b	73	ARG	N-CA-CB	-8.31	95.64	110.60
1	a	168	G	C5-C6-O6	-8.28	123.63	128.60
24	A	2884	U	N1-C2-O2	8.27	128.59	122.80
24	A	1101	U	N3-C2-O2	-8.24	116.43	122.20
1	a	529	G	C4-C5-N7	8.22	114.09	110.80
24	A	67	U	N3-C4-O4	8.22	125.15	119.40
24	A	484	C	C5-C6-N1	8.18	125.09	121.00
44	U	51	LEU	N-CA-CB	-8.15	94.11	110.40
24	A	687	C	N1-C2-O2	8.13	123.78	118.90
24	A	281	C	C6-N1-C2	-8.09	117.06	120.30
24	A	2406	A	O5'-P-OP2	-8.07	98.44	105.70
24	A	1498	C	C6-N1-C2	-8.07	117.07	120.30
24	A	2473	U	N3-C2-O2	-8.06	116.56	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	v	34	C	N1-C2-O2	8.05	123.73	118.90
24	A	2226	C	N3-C2-O2	-8.03	116.28	121.90
1	a	522	C	C5-C4-N4	8.01	125.81	120.20
1	a	413	G	N7-C8-N9	-8.01	109.10	113.10
1	a	754	C	C2-N1-C1'	8.01	127.61	118.80
24	A	948	C	C5-C6-N1	8.00	125.00	121.00
24	A	1416	G	N3-C2-N2	-7.99	114.30	119.90
1	a	1158	C	C2-N1-C1'	7.95	127.55	118.80
24	A	1387	A	N7-C8-N9	7.95	117.78	113.80
24	A	1104	C	N1-C2-O2	7.94	123.66	118.90
24	A	1237	A	N7-C8-N9	7.92	117.76	113.80
24	A	1183	U	N3-C2-O2	-7.92	116.66	122.20
24	A	1507	C	C6-N1-C2	-7.89	117.14	120.30
1	a	1427	C	C6-N1-C2	-7.88	117.15	120.30
24	A	137	U	N1-C2-O2	7.87	128.31	122.80
24	A	1941	C	N1-C2-O2	7.86	123.62	118.90
24	A	1005	C	C6-N1-C2	-7.85	117.16	120.30
1	a	923	A	N7-C8-N9	7.83	117.72	113.80
24	A	1498	C	N3-C2-O2	-7.83	116.42	121.90
1	a	413	G	N1-C6-O6	-7.82	115.21	119.90
24	A	2791	G	N3-C2-N2	-7.79	114.44	119.90
24	A	2131	U	N3-C2-O2	-7.79	116.75	122.20
24	A	2069	G7M	P-O3'-C3'	7.78	129.03	119.70
24	A	1461	C	C6-N1-C2	-7.75	117.20	120.30
24	A	1680	U	N3-C2-O2	-7.75	116.78	122.20
24	A	281	C	C5-C6-N1	7.72	124.86	121.00
24	A	912	C	N1-C2-O2	7.71	123.53	118.90
24	A	2473	U	N1-C2-O2	7.71	128.20	122.80
17	q	69	THR	N-CA-CB	-7.70	95.68	110.30
22	v	19	G	N1-C6-O6	-7.69	115.29	119.90
12	l	101	LEU	N-CA-CB	-7.67	95.06	110.40
24	A	948	C	C6-N1-C2	-7.65	117.24	120.30
24	A	2758	A	N1-C6-N6	-7.65	114.01	118.60
7	g	110	ARG	N-CA-CB	-7.64	96.85	110.60
24	A	999	U	N3-C2-O2	-7.62	116.87	122.20
24	A	2868	A	C5-N7-C8	-7.62	100.09	103.90
1	a	413	G	OP2-P-O3'	7.58	121.88	105.20
24	A	795	C	C6-N1-C2	-7.58	117.27	120.30
1	a	87	C	C5-C6-N1	7.58	124.79	121.00
24	A	2424	C	N3-C4-C5	7.57	124.93	121.90
1	a	1028	C	C6-N1-C2	-7.57	117.27	120.30
24	A	141	G	C2-N3-C4	7.57	115.69	111.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	581	C	C6-N1-C2	-7.57	117.27	120.30
24	A	1843	C	C6-N1-C2	-7.57	117.27	120.30
1	a	1205	U	N3-C2-O2	-7.56	116.91	122.20
24	A	1402	U	N3-C2-O2	-7.55	116.91	122.20
1	a	422	C	N1-C2-O2	7.55	123.43	118.90
24	A	1539	U	C5-C6-N1	7.50	126.45	122.70
24	A	893	C	N1-C2-O2	7.50	123.40	118.90
24	A	2796	U	N3-C2-O2	-7.48	116.96	122.20
24	A	2074	U	N3-C2-O2	-7.48	116.97	122.20
1	a	1158	C	C6-N1-C2	-7.47	117.31	120.30
1	a	87	C	C6-N1-C2	-7.46	117.32	120.30
22	v	56	C	N1-C2-O2	7.46	123.37	118.90
1	a	754	C	N1-C2-O2	7.44	123.36	118.90
24	A	776	G	C4-N9-C1'	7.43	136.16	126.50
1	a	1197	A	O5'-P-OP2	-7.42	99.02	105.70
24	A	1507	C	C5-C6-N1	7.42	124.71	121.00
24	A	373	U	N3-C2-O2	-7.42	117.01	122.20
24	A	654	A	C2-N3-C4	7.41	114.31	110.60
25	B	26	C	N1-C2-O2	7.41	123.35	118.90
24	A	1314	C	C5-C6-N1	7.41	124.70	121.00
24	A	1005	C	N1-C2-O2	7.39	123.34	118.90
25	B	30	C	C6-N1-C2	-7.38	117.35	120.30
24	A	2243	U	O5'-P-OP1	-7.38	99.06	105.70
1	a	868	C	C6-N1-C2	-7.37	117.35	120.30
24	A	1774	C	N3-C2-O2	-7.36	116.75	121.90
1	a	1393	U	N3-C2-O2	-7.35	117.06	122.20
1	a	1497	G	N1-C6-O6	-7.35	115.49	119.90
24	A	2179	C	C5-C6-N1	7.34	124.67	121.00
24	A	198	C	C5-C6-N1	7.34	124.67	121.00
24	A	12	U	N3-C2-O2	-7.33	117.07	122.20
6	f	53	LYS	N-CA-CB	7.32	123.78	110.60
24	A	548	G	C5-N7-C8	-7.32	100.64	104.30
24	A	776	G	N3-C4-N9	7.31	130.39	126.00
1	a	529	G	N9-C4-C5	-7.31	102.48	105.40
1	a	1149	C	N3-C2-O2	-7.31	116.78	121.90
24	A	361	G	C5-C6-O6	-7.30	124.22	128.60
24	A	867	C	N1-C2-O2	7.30	123.28	118.90
24	A	484	C	C6-N1-C2	-7.30	117.38	120.30
1	a	215	C	N3-C4-N4	7.30	123.11	118.00
1	a	623	C	C6-N1-C2	-7.30	117.38	120.30
1	a	1132	C	N3-C2-O2	-7.29	116.80	121.90
24	A	1313	U	C6-N1-C2	-7.28	116.63	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	1225	A	C2-N3-C4	7.27	114.24	110.60
30	G	46	ASP	N-CA-CB	-7.27	97.51	110.60
1	a	215	C	N3-C2-O2	-7.24	116.83	121.90
24	A	2827	C	C6-N1-C2	-7.23	117.41	120.30
24	A	1237	A	C8-N9-C4	-7.21	102.92	105.80
24	A	1081	U	N1-C2-O2	7.21	127.84	122.80
24	A	1843	C	C5-C6-N1	7.20	124.60	121.00
1	a	225	C	C6-N1-C2	-7.20	117.42	120.30
26	C	83	ASP	CB-CG-OD1	7.20	124.78	118.30
1	a	1395	C	N1-C2-O2	7.18	123.21	118.90
24	A	139	U	N3-C2-O2	-7.16	117.19	122.20
1	a	522	C	N3-C4-C5	-7.16	119.04	121.90
24	A	2179	C	C6-N1-C2	-7.16	117.44	120.30
25	B	26	C	N3-C2-O2	-7.15	116.89	121.90
24	A	1340	U	N3-C2-O2	-7.13	117.21	122.20
1	a	168	G	N1-C6-O6	7.12	124.17	119.90
24	A	1387	A	C8-N9-C4	-7.10	102.96	105.80
24	A	2250	G	N3-C4-C5	7.09	132.14	128.60
1	a	1277	C	N3-C2-O2	-7.08	116.94	121.90
1	a	225	C	C5-C6-N1	7.07	124.53	121.00
24	A	883	G	C5-C6-O6	7.06	132.84	128.60
1	a	1195	C	N1-C2-O2	7.06	123.14	118.90
24	A	669	G	N3-C4-C5	-7.06	125.07	128.60
24	A	1183	U	N1-C2-O2	7.05	127.74	122.80
24	A	776	G	C4-C5-C6	7.05	123.03	118.80
24	A	2610	C	P-O3'-C3'	7.03	128.14	119.70
1	a	177	G	C2-N3-C4	7.03	115.41	111.90
1	a	264	C	C5-C6-N1	7.03	124.51	121.00
24	A	32	C	C6-N1-C2	-7.02	117.49	120.30
24	A	2476	A	N1-C2-N3	7.02	132.81	129.30
1	a	450	G	N1-C6-O6	-7.00	115.70	119.90
24	A	1848	A	N7-C8-N9	7.00	117.30	113.80
22	v	56	C	N3-C2-O2	-6.98	117.01	121.90
24	A	2840	C	C5-C6-N1	6.98	124.49	121.00
24	A	2821	A	O5'-P-OP1	-6.98	99.42	105.70
24	A	1076	C	C6-N1-C2	-6.97	117.51	120.30
24	A	1841	U	N3-C2-O2	-6.97	117.32	122.20
1	a	739	C	C6-N1-C2	-6.97	117.51	120.30
1	a	1132	C	N1-C2-O2	6.97	123.08	118.90
24	A	1212	G	P-O3'-C3'	6.97	128.06	119.70
1	a	236	A	N7-C8-N9	6.94	117.27	113.80
24	A	1211	C	OP2-P-O3'	6.94	120.47	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1914	C	C4-C5-C6	6.93	120.86	117.40
24	A	645	C	N1-C2-O2	6.90	123.04	118.90
24	A	1044	C	N3-C4-N4	-6.90	113.17	118.00
24	A	2162	G	OP2-P-O3'	6.89	120.36	105.20
24	A	228	C	P-O3'-C3'	6.89	127.97	119.70
29	F	173	ASP	CB-CG-OD1	6.89	124.50	118.30
1	a	623	C	N1-C2-O2	6.88	123.03	118.90
1	a	1412	C	C6-N1-C2	-6.87	117.55	120.30
24	A	2416	C	C5-C6-N1	6.87	124.44	121.00
1	a	1395	C	N3-C2-O2	-6.87	117.09	121.90
1	a	1520	C	C6-N1-C2	-6.87	117.55	120.30
24	A	2822	G	O5'-P-OP1	-6.87	99.52	105.70
24	A	2131	U	N1-C2-O2	6.86	127.60	122.80
1	a	267	C	N1-C2-O2	6.85	123.01	118.90
1	a	78	A	N1-C2-N3	-6.85	125.88	129.30
24	A	2793	C	N3-C4-N4	-6.85	113.21	118.00
24	A	2474	U	N3-C2-O2	-6.84	117.41	122.20
1	a	186	C	C6-N1-C2	-6.83	117.57	120.30
1	a	1455	G	N1-C6-O6	6.83	124.00	119.90
1	a	1173	U	C5-C6-N1	6.82	126.11	122.70
1	a	960	U	P-O3'-C3'	6.81	127.87	119.70
1	a	598	U	N3-C2-O2	-6.80	117.44	122.20
1	a	1433	A	N7-C8-N9	6.80	117.20	113.80
24	A	2888	C	C6-N1-C2	-6.80	117.58	120.30
1	a	527	G7M	P-O3'-C3'	6.80	127.86	119.70
24	A	205	G	O4'-C1'-N9	6.79	113.64	108.20
1	a	1143	G	N3-C2-N2	-6.79	115.15	119.90
24	A	2011	U	N3-C2-O2	-6.79	117.45	122.20
1	a	1297	G	P-O3'-C3'	6.79	127.85	119.70
24	A	1290	C	C5-C6-N1	6.79	124.39	121.00
1	a	960	U	N1-C2-O2	6.78	127.55	122.80
24	A	257	C	N1-C2-O2	6.78	122.97	118.90
24	A	1305	C	C6-N1-C2	-6.78	117.59	120.30
24	A	2248	C	N1-C2-O2	6.78	122.97	118.90
24	A	867	C	N3-C2-O2	-6.77	117.16	121.90
1	a	1496	C	C6-N1-C2	-6.77	117.59	120.30
25	B	68	C	C6-N1-C2	-6.74	117.60	120.30
24	A	1362	C	C5-C6-N1	6.74	124.37	121.00
24	A	1600	C	C6-N1-C2	-6.72	117.61	120.30
1	a	754	C	N3-C2-O2	-6.72	117.20	121.90
24	A	866	A	N1-C6-N6	6.72	122.63	118.60
1	a	422	C	N3-C2-O2	-6.71	117.20	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	755	G	O5'-P-OP2	-6.70	99.67	105.70
24	A	327	G	N3-C2-N2	-6.70	115.21	119.90
24	A	1371	G	N3-C4-N9	-6.70	121.98	126.00
24	A	365	U	C5-C6-N1	6.70	126.05	122.70
1	a	522	C	C6-N1-C2	-6.70	117.62	120.30
24	A	1399	C	C5-C6-N1	6.70	124.35	121.00
24	A	2745	C	N1-C2-O2	6.70	122.92	118.90
24	A	2561	U	N1-C2-N3	6.69	118.92	114.90
24	A	847	U	N3-C2-O2	-6.69	117.52	122.20
24	A	1578	U	N3-C2-O2	-6.69	117.52	122.20
24	A	12	U	N1-C2-O2	6.68	127.48	122.80
24	A	758	C	N3-C2-O2	-6.68	117.22	121.90
24	A	2617	U	N3-C2-O2	-6.68	117.52	122.20
24	A	2554	U	O5'-P-OP1	-6.68	99.69	105.70
24	A	1498	C	C2-N1-C1'	6.68	126.15	118.80
1	a	1455	G	C6-C5-N7	-6.68	126.39	130.40
24	A	912	C	C2-N1-C1'	6.67	126.14	118.80
1	a	1404	C	C6-N1-C2	-6.67	117.63	120.30
1	a	264	C	C6-N1-C2	-6.66	117.64	120.30
1	a	252	U	N3-C2-O2	-6.65	117.55	122.20
24	A	1624	U	N3-C2-O2	-6.65	117.55	122.20
24	A	1022	G	N3-C2-N2	-6.64	115.25	119.90
1	a	529	G	C6-C5-N7	-6.64	126.42	130.40
1	a	817	C	N1-C2-O2	6.62	122.87	118.90
1	a	623	C	C5-C6-N1	6.61	124.31	121.00
24	A	2649	C	C5-C6-N1	6.61	124.31	121.00
24	A	361	G	N1-C6-O6	6.61	123.87	119.90
24	A	373	U	N1-C2-O2	6.61	127.42	122.80
1	a	386	C	C6-N1-C2	-6.60	117.66	120.30
24	A	2354	C	C6-N1-C2	-6.60	117.66	120.30
24	A	2774	C	C6-N1-C2	-6.60	117.66	120.30
24	A	1365	A	C2-N3-C4	6.59	113.90	110.60
24	A	143	C	C6-N1-C2	-6.59	117.66	120.30
24	A	1005	C	N3-C2-O2	-6.58	117.29	121.90
24	A	2036	C	C6-N1-C2	-6.58	117.67	120.30
24	A	2796	U	N1-C2-N3	6.57	118.84	114.90
24	A	1294	U	N3-C2-O2	-6.57	117.60	122.20
24	A	62	U	C5-C6-N1	6.55	125.98	122.70
1	a	792	A	N7-C8-N9	-6.54	110.53	113.80
1	a	1027	C	C2-N3-C4	6.53	123.16	119.90
24	A	714	U	N3-C2-O2	-6.53	117.63	122.20
24	A	2403	C	C6-N1-C2	-6.52	117.69	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	783	A	C5-N7-C8	-6.51	100.64	103.90
24	A	528	A	N7-C8-N9	6.51	117.05	113.80
24	A	91	A	P-O3'-C3'	6.51	127.51	119.70
1	a	1372	U	N3-C2-O2	-6.50	117.65	122.20
24	A	687	C	N3-C2-O2	-6.50	117.35	121.90
1	a	400	C	C5-C6-N1	6.49	124.25	121.00
24	A	550	C	C5-C6-N1	6.49	124.25	121.00
1	a	1172	C	C6-N1-C2	-6.48	117.71	120.30
1	a	217	C	C5-C6-N1	6.47	124.23	121.00
24	A	1658	C	C6-N1-C2	-6.47	117.71	120.30
24	A	1947	C	C6-N1-C2	-6.47	117.71	120.30
24	A	758	C	C6-N1-C2	-6.46	117.71	120.30
13	m	4	ALA	N-CA-CB	-6.46	101.05	110.10
25	B	42	C	N1-C2-O2	6.46	122.78	118.90
1	a	1494[A]	G	C8-N9-C4	-6.44	103.82	106.40
1	a	1494[C]	G	C8-N9-C4	-6.44	103.82	106.40
24	A	2561	U	C2-N3-C4	-6.44	123.13	127.00
1	a	983	A	C2-N3-C4	6.44	113.82	110.60
24	A	62	U	C2-N3-C4	6.44	130.86	127.00
1	a	1225	A	N3-C4-N9	6.43	132.54	127.40
24	A	807	U	N3-C2-O2	-6.43	117.70	122.20
24	A	2424	C	C5-C4-N4	-6.43	115.70	120.20
24	A	121	G	N1-C6-O6	6.42	123.75	119.90
24	A	1994	C	N3-C2-O2	-6.41	117.41	121.90
25	B	60	C	C5-C6-N1	6.41	124.21	121.00
24	A	1348	C	N1-C2-O2	6.41	122.75	118.90
24	A	386	G	O5'-P-OP2	-6.41	99.93	105.70
24	A	2321	U	N3-C4-O4	6.41	123.88	119.40
25	B	17	C	N1-C2-O2	6.41	122.74	118.90
2	b	17	HIS	N-CA-CB	-6.40	99.07	110.60
24	A	2870	C	C6-N1-C2	-6.40	117.74	120.30
1	a	610	U	N3-C2-O2	-6.40	117.72	122.20
24	A	2372	U	N3-C2-O2	-6.40	117.72	122.20
24	A	2481	G	C5-C6-N1	-6.40	108.30	111.50
1	a	1205	U	N1-C2-O2	6.39	127.28	122.80
24	A	2312	U	C5-C6-N1	6.39	125.90	122.70
24	A	807	U	N1-C2-O2	6.39	127.27	122.80
22	v	74	C	N3-C2-O2	-6.39	117.43	121.90
1	a	810	C	C5-C6-N1	6.38	124.19	121.00
1	a	923	A	C8-N9-C4	-6.38	103.25	105.80
24	A	919	U	N1-C2-O2	6.37	127.26	122.80
24	A	866	A	C5-C6-N1	6.36	120.88	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1804	C	C6-N1-C2	-6.36	117.76	120.30
24	A	1848	A	C8-N9-C4	-6.35	103.26	105.80
24	A	2168	G	N3-C4-C5	-6.33	125.43	128.60
24	A	999	U	N1-C2-O2	6.33	127.23	122.80
1	a	413	G	C2-N3-C4	6.33	115.06	111.90
22	v	67	C	N1-C2-O2	6.33	122.70	118.90
24	A	2168	G	C2-N3-C4	6.33	115.06	111.90
1	a	207	C	N3-C2-O2	-6.33	117.47	121.90
24	A	894	U	N3-C2-O2	-6.32	117.77	122.20
24	A	512	G	O4'-C1'-N9	6.32	113.25	108.20
24	A	547	A	C2-N3-C4	6.31	113.75	110.60
1	a	618	C	N1-C2-O2	6.31	122.68	118.90
1	a	1011	C	C5-C6-N1	6.31	124.15	121.00
24	A	1669	A	C2-N3-C4	6.31	113.75	110.60
25	B	12	C	N3-C2-O2	-6.31	117.48	121.90
24	A	454	A	OP2-P-O3'	6.30	119.06	105.20
1	a	960	U	N3-C2-O2	-6.29	117.79	122.20
24	A	1314	C	C2-N1-C1'	6.29	125.72	118.80
24	A	1567	G	P-O3'-C3'	6.29	127.25	119.70
24	A	2755	C	N1-C2-O2	6.29	122.67	118.90
1	a	413	G	C4-C5-N7	-6.29	108.29	110.80
1	a	483	C	C6-N1-C2	-6.28	117.79	120.30
24	A	2025	C	C6-N1-C2	-6.28	117.79	120.30
24	A	2250	G	N3-C4-N9	-6.28	122.23	126.00
24	A	366	C	C6-N1-C2	-6.28	117.79	120.30
25	B	37	C	N1-C2-O2	6.26	122.66	118.90
1	a	1538	C	C6-N1-C2	-6.26	117.80	120.30
24	A	2220	U	C5-C6-N1	6.26	125.83	122.70
1	a	1258	G	N1-C6-O6	-6.25	116.15	119.90
24	A	1784	A	N7-C8-N9	-6.24	110.68	113.80
1	a	33	A	N7-C8-N9	6.24	116.92	113.80
24	A	314	C	C6-N1-C2	-6.24	117.80	120.30
1	a	1011	C	C6-N1-C2	-6.24	117.81	120.30
1	a	80	A	N1-C2-N3	6.24	132.42	129.30
1	a	369	G	C6-C5-N7	-6.21	126.67	130.40
1	a	186	C	N1-C2-O2	6.21	122.62	118.90
25	B	37	C	N3-C2-O2	-6.20	117.56	121.90
24	A	16	C	C6-N1-C2	-6.20	117.82	120.30
24	A	205	G	OP2-P-O3'	6.20	118.83	105.20
24	A	581	C	O5'-P-OP1	-6.19	100.13	105.70
1	a	500	G	N1-C6-O6	6.19	123.61	119.90
24	A	1920	C	C6-N1-C2	-6.18	117.83	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	276	U	N1-C2-O2	6.17	127.12	122.80
24	A	287	G	C6-N1-C2	-6.17	121.40	125.10
24	A	1081	U	N3-C4-C5	6.17	118.30	114.60
24	A	2794	C	C6-N1-C2	-6.17	117.83	120.30
1	a	810	C	C6-N1-C2	-6.17	117.83	120.30
1	a	1320	C	N1-C2-O2	6.17	122.60	118.90
24	A	1399	C	C6-N1-C2	-6.17	117.83	120.30
24	A	2782	G	C6-C5-N7	-6.17	126.70	130.40
1	a	207	C	N1-C2-O2	6.16	122.60	118.90
22	v	56	C	C6-N1-C2	-6.16	117.83	120.30
24	A	2561	U	N3-C2-O2	-6.16	117.89	122.20
24	A	1044	C	C5-C4-N4	6.16	124.51	120.20
24	A	2405	G	OP2-P-O3'	6.16	118.75	105.20
1	a	1432	G	P-O3'-C3'	6.15	127.08	119.70
24	A	198	C	N1-C2-O2	6.15	122.59	118.90
1	a	316	C	N1-C2-O2	6.14	122.59	118.90
1	a	754	C	OP1-P-O3'	6.14	118.72	105.20
1	a	1134	G	C6-N1-C2	-6.14	121.41	125.10
24	A	805	G	N9-C4-C5	-6.14	102.94	105.40
25	B	68	C	C5-C6-N1	6.14	124.07	121.00
1	a	1383	C	N1-C2-O2	6.13	122.58	118.90
24	A	2742	G	C4-C5-N7	6.13	113.25	110.80
1	a	1301	U	P-O3'-C3'	6.12	127.05	119.70
24	A	106	C	C6-N1-C2	-6.12	117.85	120.30
1	a	1497	G	N3-C2-N2	-6.12	115.62	119.90
1	a	961	U	N3-C2-O2	-6.12	117.92	122.20
24	A	512	G	OP2-P-O3'	6.11	118.63	105.20
1	a	890	G	P-O3'-C3'	6.10	127.02	119.70
1	a	1262	C	N1-C2-O2	6.10	122.56	118.90
24	A	832	U	N1-C2-N3	6.10	118.56	114.90
25	B	38	C	C5-C4-N4	-6.10	115.93	120.20
24	A	1584	U	C5-C6-N1	6.10	125.75	122.70
24	A	1716	U	C2-N1-C1'	6.10	125.02	117.70
25	B	28	C	C6-N1-C2	-6.09	117.86	120.30
1	a	1277	C	C6-N1-C2	-6.09	117.86	120.30
24	A	2566	A	P-O3'-C3'	6.09	127.00	119.70
24	A	2683	C	N3-C2-O2	-6.08	117.64	121.90
1	a	840	C	N3-C4-N4	-6.08	113.74	118.00
1	a	272	C	C6-N1-C2	-6.07	117.87	120.30
1	a	578	C	C6-N1-C2	-6.07	117.87	120.30
24	A	353	C	C6-N1-C2	-6.07	117.87	120.30
1	a	548	G	N1-C6-O6	6.06	123.54	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	847	U	N1-C2-O2	6.06	127.04	122.80
1	a	1357	A	N7-C8-N9	6.05	116.83	113.80
1	a	991	U	N1-C2-O2	6.05	127.04	122.80
1	a	1303	C	N1-C2-O2	6.05	122.53	118.90
24	A	1994	C	C6-N1-C2	-6.05	117.88	120.30
24	A	2074	U	N1-C2-O2	6.04	127.03	122.80
24	A	385	C	P-O3'-C3'	6.04	126.95	119.70
1	a	503	C	C5-C6-N1	6.04	124.02	121.00
24	A	349	U	N1-C2-O2	6.03	127.02	122.80
24	A	2244	U	C5-C4-O4	-6.03	122.28	125.90
24	A	2141	G	N7-C8-N9	6.03	116.12	113.10
25	B	27	C	N1-C2-O2	6.03	122.52	118.90
1	a	883	C	N1-C2-O2	6.02	122.51	118.90
24	A	214	G	N3-C4-C5	-6.02	125.59	128.60
40	Q	27	ARG	NE-CZ-NH1	-6.02	117.29	120.30
5	e	122	VAL	N-CA-CB	-6.02	98.26	111.50
24	A	935	C	C6-N1-C2	-6.02	117.89	120.30
1	a	215	C	C2-N1-C1'	6.01	125.42	118.80
24	A	672	C	C6-N1-C2	-6.01	117.89	120.30
24	A	1894	C	N1-C2-O2	6.01	122.51	118.90
24	A	2061	G	P-O3'-C3'	6.01	126.92	119.70
1	a	626	G	C6-C5-N7	-6.01	126.79	130.40
24	A	2496	C	N1-C2-O2	6.01	122.50	118.90
1	a	1494[A]	G	N7-C8-N9	6.00	116.10	113.10
1	a	1494[C]	G	N7-C8-N9	6.00	116.10	113.10
24	A	1340	U	N1-C2-O2	6.00	127.00	122.80
24	A	2720	U	N3-C2-O2	-6.00	118.00	122.20
24	A	1784	A	C4-C5-C6	6.00	120.00	117.00
24	A	2558	C	C5-C6-N1	6.00	124.00	121.00
24	A	366	C	C5-C6-N1	5.99	124.00	121.00
1	a	248	C	C6-N1-C2	-5.99	117.90	120.30
24	A	2379	G	N1-C6-O6	5.99	123.49	119.90
24	A	543	G	N1-C6-O6	5.99	123.49	119.90
24	A	284	U	N3-C2-O2	-5.99	118.01	122.20
24	A	284	U	N1-C2-O2	5.98	126.99	122.80
24	A	528	A	C5-N7-C8	-5.98	100.91	103.90
24	A	1023	U	N1-C2-O2	5.98	126.99	122.80
24	A	62	U	C6-N1-C1'	-5.98	112.83	121.20
24	A	528	A	C8-N9-C4	-5.98	103.41	105.80
1	a	1147	C	N1-C2-O2	5.97	122.48	118.90
24	A	2463	C	C5-C6-N1	5.97	123.99	121.00
1	a	50	A	C2-N3-C4	5.97	113.58	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1578	U	N1-C2-O2	5.97	126.98	122.80
24	A	2711	A	O5'-P-OP2	5.97	117.86	110.70
24	A	1313	U	C6-N1-C1'	-5.97	112.85	121.20
1	a	943	U	N1-C2-O2	5.96	126.97	122.80
24	A	2329	U	C5-C6-N1	5.96	125.68	122.70
29	F	172	PHE	C-N-CA	5.96	136.59	121.70
1	a	1140	C	N1-C2-O2	5.96	122.47	118.90
1	a	626	G	N3-C4-N9	5.94	129.56	126.00
24	A	2518	A	C2-N3-C4	5.94	113.57	110.60
22	v	36	U	N3-C2-O2	-5.94	118.04	122.20
24	A	919	U	N3-C2-O2	-5.94	118.04	122.20
24	A	2254	C	N1-C2-O2	5.94	122.46	118.90
30	G	174	LYS	N-CA-CB	5.94	121.29	110.60
24	A	81	G	N3-C2-N2	-5.93	115.75	119.90
24	A	866	A	N9-C4-C5	-5.93	103.43	105.80
1	a	1037	C	C6-N1-C2	-5.92	117.93	120.30
1	a	1455	G	N3-C4-N9	5.92	129.56	126.00
24	A	62	U	C6-N1-C2	-5.92	117.45	121.00
1	a	56	U	C5-C4-O4	-5.92	122.35	125.90
1	a	1228	C	C6-N1-C2	-5.91	117.94	120.30
24	A	1782	U	O5'-P-OP1	-5.91	100.38	105.70
24	A	456	C	O5'-P-OP2	-5.90	100.39	105.70
1	a	1109	C	C6-N1-C2	-5.90	117.94	120.30
24	A	1020	A	P-O3'-C3'	5.90	126.78	119.70
24	A	1112	G	N3-C4-N9	-5.90	122.46	126.00
24	A	140	C	C6-N1-C2	-5.90	117.94	120.30
25	B	49	C	C6-N1-C2	-5.89	117.94	120.30
1	a	322	C	C5-C6-N1	5.89	123.95	121.00
24	A	51	G	P-O3'-C3'	5.89	126.77	119.70
1	a	369	G	N1-C6-O6	5.89	123.43	119.90
24	A	758	C	N1-C2-O2	5.89	122.43	118.90
24	A	1020	A	OP2-P-O3'	5.89	118.16	105.20
1	a	217	C	C6-N1-C2	-5.88	117.95	120.30
24	A	1994	C	N1-C2-O2	5.88	122.42	118.90
25	B	42	C	N3-C2-O2	-5.87	117.79	121.90
24	A	141	G	N3-C4-C5	-5.87	125.67	128.60
25	B	12	C	N1-C2-O2	5.87	122.42	118.90
25	B	38	C	N3-C4-N4	5.87	122.11	118.00
24	A	1830	C	N1-C2-O2	5.87	122.42	118.90
1	a	1535	C	C5-C6-N1	5.87	123.93	121.00
24	A	435	C	C6-N1-C2	-5.86	117.95	120.30
24	A	1054	A	N1-C2-N3	-5.86	126.37	129.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	2782	G	N3-C4-N9	5.86	129.52	126.00
24	A	1810	A	C8-N9-C4	-5.85	103.46	105.80
24	A	2036	C	C5-C6-N1	5.85	123.93	121.00
24	A	2867	G	N9-C4-C5	-5.85	103.06	105.40
24	A	2282	G	N1-C6-O6	-5.85	116.39	119.90
24	A	2794	C	C2-N1-C1'	5.84	125.23	118.80
25	B	5	U	N3-C2-O2	-5.84	118.11	122.20
1	a	723	U	C5-C6-N1	5.84	125.62	122.70
24	A	1455	G	N3-C4-N9	5.84	129.50	126.00
1	a	1433	A	C8-N9-C4	-5.83	103.47	105.80
24	A	288	U	C5-C6-N1	5.83	125.62	122.70
24	A	2354	C	C5-C6-N1	5.83	123.92	121.00
24	A	776	G	C8-N9-C1'	-5.82	119.43	127.00
24	A	2096	C	O5'-P-OP2	-5.82	100.46	105.70
24	A	2773	C	C6-N1-C2	-5.82	117.97	120.30
1	a	850	U	C5-C6-N1	5.81	125.61	122.70
24	A	2683	C	N1-C2-O2	5.81	122.39	118.90
24	A	2581	G	N3-C4-N9	5.81	129.49	126.00
24	A	805	G	N3-C4-N9	5.80	129.48	126.00
25	B	12	C	C6-N1-C2	-5.80	117.98	120.30
24	A	965	C	C6-N1-C2	-5.80	117.98	120.30
24	A	305	C	C5-C6-N1	5.80	123.90	121.00
24	A	2180	U	C2-N3-C4	5.79	130.48	127.00
24	A	1135	C	OP1-P-O3'	5.79	117.93	105.20
1	a	1190	G	P-O3'-C3'	5.78	126.64	119.70
22	v	34	C	C5-C4-N4	-5.78	116.16	120.20
1	a	1245	C	C5-C6-N1	5.78	123.89	121.00
25	B	31	C	N3-C2-O2	-5.78	117.86	121.90
24	A	866	A	C4-C5-N7	5.77	113.58	110.70
1	a	1538	C	C5-C6-N1	5.76	123.88	121.00
24	A	2072	C	C2-N1-C1'	5.76	125.14	118.80
24	A	714	U	N1-C2-O2	5.76	126.83	122.80
24	A	893	C	N3-C4-C5	-5.76	119.60	121.90
24	A	2739	U	N1-C2-O2	5.76	126.83	122.80
24	A	1180	U	C5-C4-O4	-5.75	122.45	125.90
1	a	188	C	N1-C2-O2	5.75	122.35	118.90
13	m	57	ASP	CB-CG-OD1	5.75	123.48	118.30
24	A	1105	U	C2-N3-C4	-5.75	123.55	127.00
24	A	1213	A	C2-N3-C4	5.75	113.48	110.60
24	A	1769	U	N3-C2-O2	-5.75	118.17	122.20
24	A	1305	C	C5-C6-N1	5.75	123.88	121.00
1	a	316	C	N3-C2-O2	-5.75	117.88	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1539	U	C2-N3-C4	5.74	130.45	127.00
24	A	8	C	C5-C6-N1	5.74	123.87	121.00
24	A	984	A	C2-N3-C4	-5.74	107.73	110.60
1	a	186	C	C5-C6-N1	5.74	123.87	121.00
24	A	1159	U	N1-C2-O2	5.74	126.81	122.80
24	A	2370	G	C6-N1-C2	-5.74	121.66	125.10
30	G	174	LYS	N-CA-C	-5.73	95.52	111.00
24	A	1930	G	O4'-C1'-N9	5.73	112.79	108.20
24	A	91	A	OP2-P-O3'	5.73	117.81	105.20
24	A	2803	G	C6-C5-N7	-5.73	126.96	130.40
24	A	1940	U	P-O3'-C3'	5.73	126.57	119.70
24	A	1416	G	C6-N1-C2	-5.73	121.67	125.10
24	A	1920	C	C5-C6-N1	5.73	123.86	121.00
1	a	215	C	C5-C4-N4	-5.72	116.19	120.20
1	a	1182	G	P-O3'-C3'	5.72	126.57	119.70
24	A	383	C	N1-C2-O2	5.72	122.33	118.90
24	A	1159	U	N3-C2-O2	-5.72	118.20	122.20
24	A	1303	G	N1-C6-O6	5.72	123.33	119.90
1	a	611	C	N1-C2-O2	5.72	122.33	118.90
1	a	623	C	N3-C4-N4	5.72	122.00	118.00
1	a	1320	C	N3-C2-O2	-5.72	117.90	121.90
22	v	34	C	C2-N1-C1'	5.71	125.08	118.80
24	A	1728	C	N1-C2-O2	-5.71	115.47	118.90
24	A	205	G	C8-N9-C4	5.71	108.68	106.40
24	A	2649	C	C6-N1-C2	-5.71	118.02	120.30
24	A	2321	U	N3-C4-C5	-5.70	111.18	114.60
24	A	2594	C	C6-N1-C2	-5.70	118.02	120.30
24	A	1533	C	N3-C4-N4	-5.70	114.01	118.00
24	A	1461	C	C5-C6-N1	5.70	123.85	121.00
24	A	2226	C	C6-N1-C2	-5.70	118.02	120.30
24	A	2827	C	C5-C6-N1	5.70	123.85	121.00
24	A	2370	G	N3-C4-C5	-5.70	125.75	128.60
24	A	640	C	C6-N1-C2	-5.69	118.02	120.30
24	A	2403	C	N1-C2-O2	5.69	122.31	118.90
24	A	2405	G	P-O3'-C3'	5.69	126.53	119.70
24	A	557	C	N1-C2-O2	5.69	122.31	118.90
1	a	572	A	P-O3'-C3'	5.68	126.52	119.70
24	A	2867	G	C8-N9-C4	5.68	108.67	106.40
1	a	369	G	N3-C4-N9	5.68	129.41	126.00
1	a	470	C	C6-N1-C2	-5.68	118.03	120.30
24	A	1730	C	C6-N1-C2	-5.67	118.03	120.30
7	g	22	LEU	CA-CB-CG	5.67	128.34	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	l	101	LEU	CA-CB-CG	5.67	128.33	115.30
1	a	1034	G	N1-C6-O6	-5.67	116.50	119.90
1	a	717	U	N1-C2-O2	5.66	126.76	122.80
1	a	891	U	C6-N1-C2	-5.66	117.60	121.00
24	A	1021	A	C2-N3-C4	5.66	113.43	110.60
1	a	1158	C	N3-C2-O2	-5.66	117.94	121.90
24	A	2174	C	N1-C2-O2	5.65	122.29	118.90
1	a	883	C	C6-N1-C2	-5.65	118.04	120.30
22	v	34	C	N3-C4-N4	5.65	121.95	118.00
24	A	1314	C	N1-C2-O2	5.65	122.29	118.90
35	L	29	LYS	N-CA-CB	-5.65	100.43	110.60
24	A	349	U	N3-C2-O2	-5.64	118.25	122.20
24	A	1662	U	N3-C2-O2	-5.64	118.25	122.20
1	a	348	G	N1-C6-O6	5.64	123.28	119.90
1	a	1356	G	N3-C2-N2	5.64	123.85	119.90
24	A	961	C	C6-N1-C2	-5.64	118.04	120.30
24	A	1043	C	C6-N1-C2	-5.64	118.04	120.30
24	A	2884	U	C2-N1-C1'	5.64	124.47	117.70
24	A	645	C	N3-C2-O2	-5.64	117.95	121.90
24	A	1816	C	N1-C2-O2	5.64	122.28	118.90
1	a	613	C	C6-N1-C2	-5.64	118.05	120.30
24	A	2244	U	N3-C4-O4	5.64	123.35	119.40
1	a	754	C	C6-N1-C1'	-5.63	114.04	120.80
24	A	1142	A	C2-N3-C4	-5.63	107.78	110.60
1	a	1303	C	N3-C2-O2	-5.63	117.96	121.90
1	a	1455	G	C5-C6-O6	-5.63	125.22	128.60
24	A	1963	U	C5-C6-N1	5.63	125.51	122.70
24	A	2162	G	OP1-P-OP2	-5.63	111.16	119.60
24	A	1290	C	C6-N1-C2	-5.63	118.05	120.30
24	A	805	G	C4-C5-N7	5.62	113.05	110.80
24	A	1680	U	N1-C2-O2	5.62	126.74	122.80
1	a	1382	C	N1-C2-O2	5.62	122.27	118.90
24	A	484	C	N1-C2-O2	5.62	122.27	118.90
24	A	1585	C	N1-C2-O2	5.62	122.27	118.90
24	A	2474	U	N1-C2-O2	5.62	126.73	122.80
24	A	2795	C	C6-N1-C2	-5.62	118.05	120.30
1	a	961	U	N1-C2-O2	5.62	126.73	122.80
24	A	542	C	N3-C4-N4	-5.61	114.07	118.00
24	A	901	C	N1-C2-O2	5.61	122.27	118.90
1	a	413	G	C8-N9-C4	5.61	108.64	106.40
1	a	1149	C	C6-N1-C2	-5.61	118.06	120.30
24	A	1323	C	N3-C2-O2	-5.60	117.98	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	348	G	C6-C5-N7	-5.59	127.05	130.40
24	A	2496	C	N3-C2-O2	-5.59	117.99	121.90
24	A	2796	U	C2-N3-C4	-5.59	123.65	127.00
1	a	413	G	N3-C4-N9	5.59	129.35	126.00
1	a	251	G	O4'-C1'-N9	-5.58	103.73	108.20
1	a	1173	U	C5-C4-O4	-5.58	122.55	125.90
22	v	71	C	C6-N1-C2	-5.58	118.07	120.30
24	A	1839	G	C2-N3-C4	5.58	114.69	111.90
24	A	1105	U	N1-C2-O2	5.58	126.70	122.80
24	A	872	U	C5-C6-N1	5.58	125.49	122.70
24	A	912	C	N3-C2-O2	-5.58	118.00	121.90
24	A	1526	C	C6-N1-C2	-5.58	118.07	120.30
24	A	1104	C	N3-C4-N4	5.57	121.90	118.00
30	G	46	ASP	N-CA-C	5.57	126.04	111.00
24	A	1269	A	N1-C2-N3	-5.57	126.52	129.30
24	A	1407	G	C4-C5-N7	5.57	113.03	110.80
24	A	1371	G	N3-C4-C5	5.56	131.38	128.60
24	A	2312	U	C6-N1-C2	-5.56	117.66	121.00
24	A	1081	U	C2-N3-C4	-5.56	123.67	127.00
1	a	316	C	C2-N1-C1'	5.56	124.91	118.80
1	a	986	U	C5-C6-N1	5.56	125.48	122.70
24	A	2562	U	N3-C2-O2	-5.56	118.31	122.20
1	a	1261	A	C2-N3-C4	5.55	113.38	110.60
24	A	1005	C	C2-N1-C1'	5.55	124.91	118.80
24	A	1500	G	N1-C6-O6	5.55	123.23	119.90
24	A	198	C	C6-N1-C2	-5.55	118.08	120.30
24	A	1402	U	N1-C2-O2	5.55	126.69	122.80
24	A	2562	U	N1-C2-O2	5.55	126.69	122.80
24	A	205	G	P-O3'-C3'	5.55	126.36	119.70
1	a	814	A	C2-N3-C4	5.55	113.37	110.60
1	a	1003	G	N1-C2-N2	5.55	121.19	116.20
1	a	1277	C	N1-C2-O2	5.55	122.23	118.90
24	A	2782	G	N1-C6-O6	5.55	123.23	119.90
24	A	2863	C	C6-N1-C2	-5.54	118.08	120.30
24	A	1731	G	C8-N9-C4	-5.54	104.18	106.40
24	A	2818	U	N1-C2-O2	5.54	126.68	122.80
1	a	843	U	C5-C6-N1	5.54	125.47	122.70
24	A	2739	U	N3-C2-O2	-5.54	118.32	122.20
1	a	322	C	C6-N1-C2	-5.54	118.09	120.30
24	A	1102	C	N3-C2-O2	-5.54	118.03	121.90
24	A	1941	C	N3-C2-O2	-5.54	118.03	121.90
24	A	1930	G	P-O3'-C3'	5.53	126.34	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	935	C	C5-C6-N1	5.53	123.76	121.00
1	a	991	U	N3-C2-O2	-5.53	118.33	122.20
44	U	88	ASP	N-CA-CB	-5.52	100.66	110.60
24	A	2751	G	O5'-P-OP2	5.52	117.33	110.70
1	a	1195	C	N3-C2-O2	-5.52	118.04	121.90
1	a	737	C	C2-N3-C4	5.52	122.66	119.90
24	A	1138	G	N1-C6-O6	-5.51	116.59	119.90
24	A	2456	C	C6-N1-C2	-5.51	118.10	120.30
24	A	257	C	N3-C2-O2	-5.51	118.05	121.90
24	A	1111	A	P-O3'-C3'	5.50	126.30	119.70
1	a	1486	G	N3-C4-C5	-5.50	125.85	128.60
1	a	102	G	N1-C6-O6	-5.50	116.60	119.90
1	a	717	U	N3-C2-O2	-5.50	118.35	122.20
24	A	2168	G	N3-C4-N9	5.50	129.30	126.00
1	a	618	C	N3-C2-O2	-5.50	118.05	121.90
24	A	776	G	C8-N9-C4	-5.50	104.20	106.40
24	A	845	A	N1-C2-N3	-5.50	126.55	129.30
24	A	933	A	C2-N3-C4	5.50	113.35	110.60
1	a	34	C	C5-C6-N1	5.49	123.75	121.00
1	a	804	U	N3-C2-O2	-5.49	118.36	122.20
24	A	1210	G	C2-N3-C4	5.49	114.65	111.90
24	A	2782	G	N9-C4-C5	-5.49	103.20	105.40
1	a	168	G	N3-C4-N9	5.49	129.29	126.00
1	a	1288	A	N7-C8-N9	5.49	116.55	113.80
24	A	1982	U	N1-C2-O2	5.49	126.64	122.80
24	A	916	G	C4-C5-N7	5.49	112.99	110.80
24	A	1498	C	C5-C6-N1	5.49	123.74	121.00
1	a	1372	U	N1-C2-O2	5.48	126.64	122.80
24	A	2023	C	N1-C2-O2	5.48	122.19	118.90
22	v	71	C	N3-C2-O2	-5.47	118.07	121.90
24	A	208	C	C6-N1-C2	-5.47	118.11	120.30
25	B	88	C	N1-C2-O2	5.47	122.18	118.90
1	a	1452	C	C6-N1-C2	-5.46	118.11	120.30
14	n	33	VAL	C-N-CA	5.46	135.36	121.70
24	A	314	C	C5-C6-N1	5.46	123.73	121.00
1	a	1088	G	N9-C4-C5	-5.46	103.22	105.40
24	A	2514	U	C5-C6-N1	5.46	125.43	122.70
1	a	1010	U	N3-C2-O2	-5.46	118.38	122.20
24	A	2867	G	P-O3'-C3'	5.46	126.25	119.70
1	a	1034	G	C5-C6-N1	5.45	114.22	111.50
1	a	1173	U	N3-C4-O4	5.45	123.22	119.40
24	A	789	A	OP2-P-O3'	5.45	117.18	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	613	A	N3-C4-C5	-5.45	122.99	126.80
1	a	1297	G	O5'-P-OP2	-5.44	100.80	105.70
24	A	383	C	N3-C2-O2	-5.44	118.09	121.90
1	a	1134	G	N1-C2-N2	5.44	121.10	116.20
1	a	188	C	C6-N1-C2	-5.44	118.12	120.30
24	A	1343	G	C4-N9-C1'	5.44	133.57	126.50
24	A	2510	C	C6-N1-C2	-5.44	118.13	120.30
1	a	890	G	OP2-P-O3'	5.43	117.16	105.20
24	A	1839	G	N3-C4-C5	-5.43	125.89	128.60
24	A	690	G	C4-N9-C1'	5.43	133.55	126.50
1	a	609	A	C2-N3-C4	5.42	113.31	110.60
24	A	215	G	OP1-P-O3'	5.42	117.13	105.20
24	A	435	C	N1-C2-O2	5.42	122.16	118.90
24	A	894	U	N1-C2-O2	5.42	126.60	122.80
24	A	2567	G	C4-N9-C1'	5.42	133.54	126.50
1	a	358	U	N3-C2-O2	-5.42	118.41	122.20
24	A	161	A	OP1-P-O3'	5.41	117.11	105.20
24	A	813	U	N3-C2-O2	-5.41	118.41	122.20
1	a	413	G	N3-C4-C5	-5.41	125.90	128.60
24	A	177	G	C4-N9-C1'	5.41	133.53	126.50
24	A	2754	U	N1-C2-O2	5.41	126.58	122.80
51	1	39	ASP	CB-CG-OD1	5.41	123.17	118.30
24	A	2793	C	N3-C2-O2	-5.40	118.12	121.90
24	A	609	A	C8-N9-C4	-5.40	103.64	105.80
1	a	1219	A	N7-C8-N9	5.40	116.50	113.80
1	a	1493[A]	A	P-O3'-C3'	5.40	126.18	119.70
1	a	1493[C]	A	P-O3'-C3'	5.40	126.18	119.70
1	a	335	C	C6-N1-C2	-5.40	118.14	120.30
24	A	32	C	C5-C6-N1	5.40	123.70	121.00
24	A	1875	G	OP2-P-O3'	5.40	117.07	105.20
24	A	2008	C	C6-N1-C2	-5.40	118.14	120.30
24	A	1112	G	C5-C6-O6	5.39	131.84	128.60
24	A	2581	G	C2-N3-C4	5.39	114.60	111.90
1	a	355	C	C6-N1-C2	-5.39	118.14	120.30
24	A	276	U	N3-C2-O2	-5.39	118.43	122.20
24	A	287	G	N3-C2-N2	-5.39	116.13	119.90
24	A	669	G	C4-N9-C1'	5.39	133.50	126.50
24	A	278	A	N3-C4-C5	-5.39	123.03	126.80
24	A	137	U	N1-C2-N3	5.38	118.13	114.90
1	a	1182	G	OP2-P-O3'	5.38	117.03	105.20
1	a	787	A	C2-N3-C4	5.38	113.29	110.60
1	a	58	C	N3-C4-N4	-5.38	114.24	118.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	623	C	C2-N1-C1'	5.38	124.71	118.80
1	a	1383	C	N3-C2-O2	-5.38	118.14	121.90
1	a	891	U	C2-N1-C1'	5.37	124.15	117.70
24	A	1104	C	C2-N1-C1'	5.37	124.71	118.80
24	A	2896	C	C5-C6-N1	5.37	123.69	121.00
24	A	1993	U	N1-C2-O2	5.37	126.56	122.80
1	a	500	G	C6-C5-N7	-5.37	127.18	130.40
1	a	1225	A	N1-C2-N3	-5.37	126.62	129.30
1	a	1432	G	OP2-P-O3'	5.37	117.01	105.20
1	a	603	U	C5-C6-N1	5.36	125.38	122.70
1	a	1399	C	N1-C2-O2	-5.36	115.68	118.90
24	A	2460	U	N1-C2-O2	5.36	126.56	122.80
24	A	672	C	C5-C6-N1	5.36	123.68	121.00
24	A	1956	U	N3-C2-O2	-5.35	118.45	122.20
24	A	2372	U	N1-C2-O2	5.35	126.55	122.80
24	A	2109	U	C5-C6-N1	5.35	125.38	122.70
24	A	2666	C	N1-C2-O2	5.35	122.11	118.90
24	A	2311	A	C5-N7-C8	5.35	106.57	103.90
1	a	1073	U	N3-C2-O2	-5.34	118.46	122.20
24	A	1407	G	C6-C5-N7	-5.34	127.19	130.40
24	A	1993	U	N3-C2-O2	-5.34	118.46	122.20
24	A	445	C	C6-N1-C2	-5.34	118.16	120.30
24	A	1026	G	C2-N3-C4	5.33	114.57	111.90
1	a	390	U	N3-C4-O4	5.33	123.13	119.40
24	A	2025	C	N1-C2-O2	5.33	122.10	118.90
24	A	456	C	C6-N1-C2	-5.33	118.17	120.30
24	A	335	C	C6-N1-C2	-5.33	118.17	120.30
24	A	1982	U	N3-C2-O2	-5.33	118.47	122.20
1	a	983	A	N3-C4-C5	-5.33	123.07	126.80
24	A	1102	C	N1-C2-O2	5.33	122.09	118.90
1	a	805	C	N1-C2-O2	5.32	122.09	118.90
1	a	1460	C	N1-C2-O2	5.32	122.09	118.90
24	A	1104	C	C2-N3-C4	5.32	122.56	119.90
1	a	23	C	C6-N1-C2	-5.32	118.17	120.30
1	a	1527	U	O5'-P-OP2	-5.32	100.92	105.70
24	A	2669	G	N1-C6-O6	-5.32	116.71	119.90
24	A	639	U	N3-C2-O2	-5.31	118.48	122.20
1	a	56	U	C5-C6-N1	5.31	125.36	122.70
1	a	540	G	C8-N9-C4	-5.31	104.28	106.40
1	a	1262	C	N3-C2-O2	-5.31	118.19	121.90
1	a	983	A	N3-C4-N9	5.31	131.65	127.40
1	a	883	C	N3-C2-O2	-5.30	118.19	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1371	G	C4-N9-C1'	-5.30	119.61	126.50
24	A	2220	U	N1-C2-O2	5.30	126.51	122.80
24	A	2794	C	C5-C6-N1	5.30	123.65	121.00
25	B	26	C	C6-N1-C2	-5.30	118.18	120.30
1	a	470	C	C5-C6-N1	5.29	123.64	121.00
1	a	529	G	OP2-P-O3'	5.29	116.84	105.20
24	A	1658	C	C5-C6-N1	5.29	123.65	121.00
1	a	1184	G	N3-C4-C5	-5.29	125.95	128.60
24	A	929	U	N3-C2-O2	-5.29	118.50	122.20
1	a	575	G	N3-C2-N2	-5.29	116.20	119.90
1	a	675	A	N7-C8-N9	5.29	116.44	113.80
22	v	41	C	C6-N1-C2	-5.29	118.19	120.30
24	A	1406	U	C5-C6-N1	5.29	125.34	122.70
24	A	1212	G	OP2-P-O3'	5.28	116.82	105.20
1	a	473	U	N3-C2-O2	-5.28	118.50	122.20
24	A	121	G	C6-C5-N7	-5.28	127.23	130.40
24	A	2075	U	C5-C6-N1	5.28	125.34	122.70
24	A	143	C	N1-C2-O2	5.28	122.07	118.90
1	a	78	A	N9-C4-C5	-5.28	103.69	105.80
24	A	327	G	C6-N1-C2	-5.28	121.93	125.10
24	A	2832	U	P-O3'-C3'	5.28	126.03	119.70
24	A	2337	G	N3-C4-C5	-5.28	125.96	128.60
1	a	27	G	C5-C6-O6	-5.27	125.44	128.60
7	g	110	ARG	N-CA-C	5.27	125.24	111.00
24	A	362	A	C2-N3-C4	5.27	113.24	110.60
1	a	188	C	N3-C2-O2	-5.27	118.21	121.90
24	A	2888	C	N3-C2-O2	-5.26	118.22	121.90
1	a	450	G	N3-C2-N2	-5.26	116.22	119.90
24	A	366	C	N1-C2-O2	5.25	122.05	118.90
24	A	998	C	C5-C6-N1	5.25	123.63	121.00
1	a	862	C	C6-N1-C2	-5.25	118.20	120.30
24	A	1830	C	C6-N1-C2	-5.25	118.20	120.30
24	A	2581	G	N3-C4-C5	-5.25	125.98	128.60
25	B	31	C	C2-N1-C1'	5.25	124.57	118.80
24	A	2645	G	C4-N9-C1'	5.25	133.32	126.50
25	B	73	A	C2-N3-C4	5.25	113.22	110.60
24	A	445	C	N3-C2-O2	-5.25	118.23	121.90
24	A	776	G	C6-C5-N7	-5.25	127.25	130.40
24	A	1894	C	N3-C2-O2	-5.24	118.23	121.90
1	a	971	G	C8-N9-C4	5.24	108.50	106.40
24	A	2093	G	C5-N7-C8	5.24	106.92	104.30
24	A	1921	G	N1-C6-O6	5.24	123.05	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	420	U	C5-C6-N1	5.24	125.32	122.70
24	A	2254	C	N3-C2-O2	-5.23	118.24	121.90
24	A	1200	C	C6-N1-C2	-5.23	118.21	120.30
24	A	1043	C	C5-C6-N1	5.22	123.61	121.00
24	A	1716	U	C6-N1-C2	-5.22	117.86	121.00
25	B	27	C	N3-C2-O2	-5.22	118.24	121.90
24	A	1782	U	C5-C6-N1	5.22	125.31	122.70
24	A	1151	A	N1-C2-N3	-5.22	126.69	129.30
1	a	810	C	C2-N1-C1'	5.22	124.54	118.80
24	A	1666	G	N1-C6-O6	-5.22	116.77	119.90
1	a	923	A	C5-N7-C8	-5.21	101.29	103.90
24	A	1788	C	C6-N1-C2	-5.21	118.21	120.30
24	A	2380	C	C6-N1-C2	-5.21	118.22	120.30
24	A	2395	C	C5-C6-N1	5.21	123.61	121.00
24	A	2558	C	C6-N1-C2	-5.21	118.21	120.30
24	A	1180	U	C2-N1-C1'	5.21	123.96	117.70
24	A	2592	G	C6-C5-N7	-5.21	127.27	130.40
6	f	54	LEU	CB-CG-CD1	5.21	119.85	111.00
24	A	2321	U	C5-C6-N1	-5.21	120.10	122.70
24	A	2818	U	N3-C2-O2	-5.21	118.56	122.20
24	A	2248	C	C5-C6-N1	5.20	123.60	121.00
1	a	236	A	C8-N9-C4	-5.20	103.72	105.80
1	a	496	A	C2-N3-C4	5.20	113.20	110.60
25	B	57	A	C8-N9-C4	-5.20	103.72	105.80
1	a	1349	A	O5'-P-OP1	-5.20	101.03	105.70
24	A	2200	C	N1-C2-O2	5.20	122.02	118.90
24	A	992	C	C6-N1-C2	-5.19	118.22	120.30
24	A	2870	C	C5-C6-N1	5.19	123.60	121.00
24	A	2779	U	O5'-P-OP2	-5.19	101.03	105.70
1	a	1245	C	C6-N1-C2	-5.19	118.22	120.30
1	a	1142	G	N3-C2-N2	5.19	123.53	119.90
24	A	139	U	C6-N1-C2	-5.19	117.89	121.00
24	A	1725	U	N3-C2-O2	-5.19	118.57	122.20
24	A	2348	U	N3-C2-O2	-5.19	118.57	122.20
24	A	2128	G	N1-C6-O6	5.18	123.01	119.90
1	a	1497	G	C6-C5-N7	5.18	133.51	130.40
22	v	51	C	C6-N1-C2	-5.18	118.23	120.30
24	A	121	G	N9-C4-C5	-5.18	103.33	105.40
24	A	1023	U	N3-C2-O2	-5.18	118.58	122.20
24	A	1103	A	OP1-P-O3'	5.18	116.59	105.20
1	a	1190	G	OP2-P-O3'	5.17	116.58	105.20
24	A	247	G	C5-N7-C8	5.17	106.89	104.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	27	G	N1-C6-O6	5.17	123.00	119.90
1	a	1142	G	C6-C5-N7	-5.17	127.30	130.40
1	a	1144	G	C8-N9-C4	-5.17	104.33	106.40
24	A	543	G	C5-C6-O6	-5.17	125.50	128.60
1	a	610	U	N1-C2-O2	5.17	126.42	122.80
1	a	1203	C	O5'-P-OP2	-5.17	101.05	105.70
24	A	435	C	N3-C2-O2	-5.17	118.28	121.90
24	A	2214	C	C6-N1-C2	-5.17	118.23	120.30
2	b	18	GLN	N-CA-CB	-5.17	101.30	110.60
24	A	1455	G	C6-C5-N7	-5.16	127.30	130.40
24	A	2101	A	N7-C8-N9	5.16	116.38	113.80
24	A	1461	C	N1-C2-O2	5.16	122.00	118.90
24	A	1935	G	OP2-P-O3'	5.16	116.55	105.20
1	a	1474	U	C5-C6-N1	5.16	125.28	122.70
25	B	71	C	C6-N1-C2	-5.16	118.24	120.30
1	a	1228	C	C5-C6-N1	5.15	123.58	121.00
24	A	293	U	N3-C2-O2	-5.15	118.59	122.20
24	A	2805	C	C6-N1-C2	-5.15	118.24	120.30
24	A	2636	C	N1-C2-O2	5.15	121.99	118.90
24	A	2669	G	N3-C2-N2	-5.15	116.29	119.90
24	A	1303	G	C6-C5-N7	-5.15	127.31	130.40
1	a	1147	C	N3-C2-O2	-5.15	118.30	121.90
24	A	2297	A	C2-N3-C4	5.15	113.17	110.60
24	A	2596	U	N3-C2-O2	-5.15	118.60	122.20
24	A	908	C	C6-N1-C2	-5.14	118.24	120.30
24	A	1487	U	N3-C2-O2	-5.14	118.60	122.20
24	A	2141	G	C8-N9-C4	-5.14	104.34	106.40
24	A	2231	U	C5-C6-N1	5.14	125.27	122.70
24	A	2667	C	N1-C2-O2	5.14	121.99	118.90
22	v	56	C	C2-N1-C1'	5.14	124.45	118.80
24	A	1233	C	C6-N1-C2	-5.14	118.24	120.30
24	A	543	G	C6-C5-N7	-5.14	127.32	130.40
1	a	1486	G	N3-C4-N9	5.14	129.08	126.00
24	A	2214	C	N1-C2-O2	5.14	121.98	118.90
24	A	2720	U	N1-C2-O2	5.13	126.39	122.80
1	a	381	C	C6-N1-C2	-5.13	118.25	120.30
1	a	450	G	N9-C4-C5	5.13	107.45	105.40
24	A	1236	G	P-O3'-C3'	5.13	125.86	119.70
1	a	476	U	N3-C2-O2	-5.13	118.61	122.20
1	a	737	C	N3-C4-N4	5.13	121.59	118.00
23	x	123	C	N1-C2-O2	5.13	121.98	118.90
24	A	639	U	N1-C2-O2	5.13	126.39	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	1325	C	C6-N1-C2	-5.12	118.25	120.30
24	A	51	G	C8-N9-C4	-5.12	104.35	106.40
1	a	355	C	N1-C2-O2	5.12	121.97	118.90
1	a	524	G	C6-C5-N7	-5.12	127.33	130.40
24	A	1022	G	N3-C4-N9	-5.12	122.93	126.00
24	A	1348	C	N3-C2-O2	-5.12	118.31	121.90
1	a	1382	C	N3-C2-O2	-5.12	118.31	121.90
1	a	1521	C	C6-N1-C2	-5.12	118.25	120.30
24	A	2802	G	C6-N1-C2	-5.12	122.03	125.10
24	A	1323	C	C6-N1-C2	-5.12	118.25	120.30
24	A	610	C	N1-C2-O2	5.11	121.97	118.90
24	A	2025	C	C5-C6-N1	5.11	123.56	121.00
24	A	2867	G	OP2-P-O3'	5.11	116.45	105.20
24	A	420	C	C6-N1-C2	-5.11	118.26	120.30
1	a	1259	C	N1-C2-O2	5.11	121.97	118.90
24	A	2342	C	C5-C6-N1	5.11	123.55	121.00
1	a	316	C	C6-N1-C2	-5.10	118.26	120.30
1	a	386	C	N3-C2-O2	-5.10	118.33	121.90
24	A	1695	G	N3-C4-N9	5.10	129.06	126.00
1	a	1003	G	C6-N1-C2	-5.10	122.04	125.10
22	v	51	C	N1-C2-O2	5.10	121.96	118.90
24	A	1303	G	N3-C4-N9	5.10	129.06	126.00
24	A	2065	C	C5-C6-N1	5.10	123.55	121.00
24	A	484	C	C2-N3-C4	5.09	122.45	119.90
24	A	2395	C	C6-N1-C2	-5.09	118.26	120.30
24	A	266	G	N3-C4-N9	5.09	129.06	126.00
24	A	1446	C	C6-N1-C2	-5.09	118.26	120.30
1	a	390	U	C5-C4-O4	-5.09	122.85	125.90
24	A	1053	C	C5-C6-N1	5.09	123.55	121.00
24	A	2637	U	N1-C2-O2	5.09	126.36	122.80
24	A	1376	C	N1-C2-O2	5.09	121.95	118.90
1	a	1493[A]	A	OP2-P-O3'	5.08	116.39	105.20
1	a	1493[C]	A	OP2-P-O3'	5.08	116.39	105.20
24	A	669	G	C8-N9-C4	-5.08	104.37	106.40
1	a	413	G	C6-C5-N7	5.08	133.45	130.40
1	a	1225	A	N3-C4-C5	-5.08	123.24	126.80
24	A	2774	C	N1-C2-O2	5.08	121.95	118.90
1	a	396	C	C6-N1-C2	-5.07	118.27	120.30
1	a	1235	U	C5-C4-O4	-5.07	122.86	125.90
24	A	2782	G	C4-C5-N7	5.07	112.83	110.80
24	A	1627	G	N3-C4-N9	5.07	129.04	126.00
24	A	2043	C	C6-N1-C2	-5.07	118.27	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	1134	G	C5-C6-O6	-5.07	125.56	128.60
24	A	911	A	N7-C8-N9	5.07	116.33	113.80
22	v	28	C	N1-C2-O2	5.06	121.94	118.90
24	A	234	U	N3-C2-O2	-5.06	118.66	122.20
24	A	1629	U	N1-C2-N3	5.06	117.94	114.90
24	A	2651	C	C6-N1-C2	-5.06	118.28	120.30
24	A	717	C	C6-N1-C2	-5.06	118.28	120.30
24	A	1313	U	C5-C6-N1	5.06	125.23	122.70
1	a	496	A	C8-N9-C4	-5.06	103.78	105.80
24	A	946	C	N1-C2-O2	5.05	121.93	118.90
24	A	2755	C	N3-C2-O2	-5.05	118.36	121.90
24	A	2756	U	OP1-P-O3'	5.05	116.31	105.20
1	a	459	A	N1-C2-N3	-5.05	126.78	129.30
1	a	699	C	C6-N1-C2	-5.05	118.28	120.30
24	A	2456	C	C5-C6-N1	5.05	123.52	121.00
24	A	1931	U	C2-N1-C1'	5.05	123.75	117.70
1	a	89	U	C2-N1-C1'	5.04	123.75	117.70
1	a	1072	G	N3-C2-N2	5.04	123.43	119.90
1	a	87	C	C2-N3-C4	5.04	122.42	119.90
1	a	1473	G	N1-C6-O6	-5.04	116.88	119.90
24	A	2888	C	N1-C2-O2	5.04	121.92	118.90
36	M	20	LEU	CA-CB-CG	5.04	126.89	115.30
24	A	177	G	C8-N9-C4	-5.04	104.38	106.40
24	A	158	U	N1-C2-O2	5.04	126.33	122.80
24	A	2149	U	N1-C2-O2	5.04	126.33	122.80
24	A	2297	A	C5-C6-N1	-5.03	115.18	117.70
1	a	254	G	O5'-P-OP1	-5.03	101.17	105.70
1	a	1144	G	N7-C8-N9	5.03	115.61	113.10
24	A	512	G	O5'-P-OP2	-5.03	101.17	105.70
24	A	1314	C	N3-C4-N4	5.03	121.52	118.00
24	A	2579	C	C5-C6-N1	5.03	123.52	121.00
24	A	2782	G	C5-C6-O6	-5.03	125.58	128.60
24	A	618	G	N3-C4-C5	-5.03	126.08	128.60
24	A	2074	U	C6-N1-C2	-5.03	117.98	121.00
24	A	2177	C	C5-C6-N1	5.03	123.51	121.00
1	a	103	U	N3-C2-O2	-5.03	118.68	122.20
21	u	34	ARG	NE-CZ-NH1	5.03	122.81	120.30
24	A	2180	U	C5-C6-N1	5.02	125.21	122.70
1	a	283	U	N1-C2-O2	5.02	126.31	122.80
1	a	1184	G	C2-N3-C4	5.02	114.41	111.90
1	a	271	C	C5-C6-N1	5.02	123.51	121.00
24	A	359	G	N3-C2-N2	-5.02	116.39	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	2129	C	C6-N1-C2	-5.02	118.29	120.30
24	A	1774	C	C6-N1-C2	-5.02	118.29	120.30
24	A	2745	C	N3-C2-O2	-5.02	118.39	121.90
24	A	1169	A	C5-C6-N1	5.01	120.21	117.70
24	A	2767	C	N1-C2-O2	5.01	121.91	118.90
1	a	754	C	C6-N1-C2	-5.01	118.30	120.30
24	A	2393	U	N3-C2-O2	-5.01	118.69	122.20
24	A	2645	G	O4'-C1'-N9	5.00	112.20	108.20
24	A	2391	G	P-O3'-C3'	5.00	125.70	119.70
1	a	1356	G	N9-C4-C5	-5.00	103.40	105.40
24	A	640	C	C5-C6-N1	5.00	123.50	121.00

All (4) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	a	527	G7M	C4',C3'
24	A	2069	G7M	C4',C3'

All (51) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
50	0	1	ALA	Mainchain,Peptide
51	1	3	GLY	Mainchain
53	3	30	HIS	Peptide
26	C	120	ASP	Peptide
28	E	82	GLY	Peptide
30	G	117	PRO	Mainchain
30	G	118	ALA	Mainchain
30	G	173	ALA	Mainchain
32	H	2	GLN	Peptide
32	H	8	LYS	Peptide
34	K	34	GLY	Peptide
34	K	89	ASN	Mainchain
34	K	92	GLU	Mainchain
35	L	110	VAL	Mainchain
35	L	28	GLY	Mainchain
35	L	29	LYS	Mainchain
35	L	35	HIS	Mainchain
42	S	64	ALA	Mainchain
44	U	50	ALA	Peptide
44	U	87	GLU	Mainchain,Peptide
48	Y	24	GLU	Mainchain

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Mol	Chain	Res	Type	Group
2	b	16	GLY	Peptide
2	b	17	HIS	Mainchain,Peptide
2	b	72	LYS	Peptide
5	e	121	ASN	Peptide
5	e	76	ASN	Peptide
5	e	88	HIS	Peptide
5	e	92	ARG	Peptide
6	f	52	ASN	Mainchain
7	g	109	LYS	Mainchain,Peptide
8	h	46	GLU	Mainchain
9	i	56	MET	Peptide
10	j	33	GLY	Peptide
10	j	56	HIS	Mainchain
10	j	57	VAL	Mainchain
10	j	91	ASP	Mainchain
10	j	92	LEU	Mainchain
12	l	100	ALA	Peptide
13	m	3	ILE	Peptide
16	p	43	ALA	Peptide
17	q	48	GLU	Mainchain
17	q	68	LYS	Peptide
18	r	10	CYS	Peptide
18	r	11	ARG	Mainchain
18	r	16	GLY	Peptide
19	s	3	SER	Peptide
21	u	8	ASN	Mainchain

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	
2	b	216/218 (99%)	189 (88%)	23 (11%)	4 (2%)	8	42
3	c	204/206 (99%)	190 (93%)	13 (6%)	1 (0%)	29	68
4	d	203/205 (99%)	187 (92%)	14 (7%)	2 (1%)	15	55
5	e	155/157 (99%)	134 (86%)	16 (10%)	5 (3%)	4	31
6	f	98/100 (98%)	82 (84%)	10 (10%)	6 (6%)	1	17
7	g	149/151 (99%)	135 (91%)	11 (7%)	3 (2%)	7	41
8	h	127/129 (98%)	115 (91%)	11 (9%)	1 (1%)	19	59
9	i	125/127 (98%)	104 (83%)	15 (12%)	6 (5%)	2	22
10	j	96/98 (98%)	82 (85%)	10 (10%)	4 (4%)	3	25
11	k	114/116 (98%)	100 (88%)	11 (10%)	3 (3%)	5	35
12	l	121/123 (98%)	98 (81%)	14 (12%)	9 (7%)	1	13
13	m	112/114 (98%)	97 (87%)	12 (11%)	3 (3%)	5	35
14	n	98/100 (98%)	83 (85%)	13 (13%)	2 (2%)	7	41
15	o	86/88 (98%)	73 (85%)	11 (13%)	2 (2%)	6	38
16	p	80/82 (98%)	71 (89%)	6 (8%)	3 (4%)	3	27
17	q	78/80 (98%)	66 (85%)	10 (13%)	2 (3%)	5	35
18	r	63/65 (97%)	57 (90%)	2 (3%)	4 (6%)	1	17
19	s	77/79 (98%)	70 (91%)	6 (8%)	1 (1%)	12	50
20	t	83/85 (98%)	77 (93%)	6 (7%)	0	100	100
21	u	63/65 (97%)	50 (79%)	9 (14%)	4 (6%)	1	17
26	C	269/271 (99%)	246 (91%)	20 (7%)	3 (1%)	14	53
27	D	207/209 (99%)	193 (93%)	13 (6%)	1 (0%)	29	68
28	E	199/201 (99%)	184 (92%)	12 (6%)	3 (2%)	10	47
29	F	175/177 (99%)	158 (90%)	13 (7%)	4 (2%)	6	38
30	G	174/176 (99%)	157 (90%)	11 (6%)	6 (3%)	3	31
31	I	139/141 (99%)	121 (87%)	15 (11%)	3 (2%)	6	39
32	H	147/149 (99%)	129 (88%)	14 (10%)	4 (3%)	5	35
33	J	140/142 (99%)	136 (97%)	4 (3%)	0	100	100
34	K	120/122 (98%)	105 (88%)	10 (8%)	5 (4%)	3	25
35	L	141/143 (99%)	129 (92%)	9 (6%)	3 (2%)	7	40
36	M	134/136 (98%)	124 (92%)	7 (5%)	3 (2%)	6	39
37	N	118/120 (98%)	106 (90%)	12 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	O	114/116 (98%)	104 (91%)	8 (7%)	2 (2%)	8	43
39	P	112/114 (98%)	104 (93%)	7 (6%)	1 (1%)	17	57
40	Q	115/117 (98%)	108 (94%)	7 (6%)	0	100	100
41	R	101/103 (98%)	91 (90%)	8 (8%)	2 (2%)	7	41
42	S	108/110 (98%)	102 (94%)	6 (6%)	0	100	100
43	T	91/93 (98%)	81 (89%)	7 (8%)	3 (3%)	4	31
44	U	100/102 (98%)	89 (89%)	6 (6%)	5 (5%)	2	21
45	V	92/94 (98%)	90 (98%)	2 (2%)	0	100	100
46	W	73/75 (97%)	68 (93%)	4 (6%)	1 (1%)	11	48
47	X	75/77 (97%)	71 (95%)	4 (5%)	0	100	100
48	Y	61/63 (97%)	57 (93%)	4 (7%)	0	100	100
49	Z	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
50	0	54/56 (96%)	49 (91%)	4 (7%)	1 (2%)	8	42
51	1	48/50 (96%)	45 (94%)	2 (4%)	1 (2%)	7	40
52	2	44/46 (96%)	41 (93%)	2 (4%)	1 (2%)	6	38
53	3	62/64 (97%)	57 (92%)	4 (6%)	1 (2%)	9	46
54	4	36/38 (95%)	33 (92%)	2 (6%)	1 (3%)	5	34
55	6	64/66 (97%)	59 (92%)	4 (6%)	1 (2%)	9	46
All	All	5717/5817 (98%)	5150 (90%)	447 (8%)	120 (2%)	10	40

All (120) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	b	17	HIS
2	b	18	GLN
2	b	73	ARG
4	d	192	ALA
5	e	77	ASN
5	e	89	THR
5	e	122	VAL
5	e	158	LYS
6	f	53	LYS
6	f	54	LEU
6	f	86	ARG
7	g	110	ARG
8	h	47	ASP

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Mol	Chain	Res	Type
9	i	90	ASP
10	j	34	ALA
10	j	57	VAL
10	j	92	LEU
11	k	92	ARG
12	l	101	LEU
13	m	65	GLU
15	o	46	LYS
16	p	44	SER
16	p	79	ASN
17	q	49	ASN
17	q	69	THR
18	r	11	ARG
18	r	17	VAL
19	s	4	LEU
21	u	8	ASN
21	u	34	ARG
21	u	37	TYR
26	C	121	ALA
26	C	204	LEU
28	E	83	VAL
29	F	174	PHE
30	G	46	ASP
30	G	108	PHE
30	G	118	ALA
30	G	174	LYS
32	H	9	VAL
34	K	92	GLU
35	L	29	LYS
35	L	36	LYS
35	L	111	ILE
38	O	63	LYS
44	U	6	ARG
44	U	51	LEU
44	U	88	ASP
50	0	2	VAL
51	1	4	ILE
53	3	31	ILE
5	e	93	VAL
7	g	29	LEU
7	g	95	ARG
9	i	57	VAL

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Mol	Chain	Res	Type
9	i	125	GLN
10	j	42	LEU
11	k	88	PRO
12	l	75	GLU
13	m	4	ALA
13	m	6	ILE
14	n	2	LYS
29	F	20	ASN
30	G	45	ALA
32	H	3	VAL
32	H	11	ASN
32	H	41	LYS
34	K	35	VAL
34	K	110	GLU
36	M	58	LYS
36	M	70	ASP
41	R	54	VAL
41	R	55	ASP
43	T	38	ALA
43	T	52	GLU
55	6	3	LYS
9	i	12	LYS
9	i	122	ARG
14	n	34	ASN
16	p	43	ALA
18	r	18	GLN
26	C	52	HIS
27	D	149	ASN
28	E	184	ASP
31	I	22	PRO
36	M	14	LYS
43	T	88	LYS
44	U	39	ASN
46	W	17	LEU
54	4	37	GLN
3	c	96	VAL
4	d	191	SER
6	f	92	THR
6	f	99	ALA
12	l	2	THR
12	l	23	LEU
12	l	45	ASN

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Mol	Chain	Res	Type
12	l	46	SER
12	l	77	SER
12	l	88	ASP
15	o	27	GLN
18	r	46	THR
21	u	65	ARG
29	F	149	ARG
29	F	176	PHE
34	K	109	SER
6	f	93	LYS
28	E	122	GLU
30	G	109	SER
31	I	20	SER
38	O	34	HIS
39	P	86	LYS
52	2	23	ALA
34	K	93	GLN
9	i	71	ILE
44	U	54	PRO
11	k	90	PRO
12	l	41	PRO
2	b	28	PRO
31	I	92	PRO

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	
2	b	180/180 (100%)	178 (99%)	2 (1%)	73	88
3	c	170/170 (100%)	170 (100%)	0	100	100
4	d	172/172 (100%)	171 (99%)	1 (1%)	86	94
5	e	119/119 (100%)	119 (100%)	0	100	100
6	f	87/87 (100%)	87 (100%)	0	100	100
7	g	124/124 (100%)	124 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	h	104/104 (100%)	104 (100%)	0	100	100
9	i	105/105 (100%)	105 (100%)	0	100	100
10	j	86/86 (100%)	86 (100%)	0	100	100
11	k	89/89 (100%)	89 (100%)	0	100	100
12	l	103/103 (100%)	102 (99%)	1 (1%)	76	88
13	m	92/92 (100%)	92 (100%)	0	100	100
14	n	79/83 (95%)	78 (99%)	1 (1%)	69	86
15	o	76/76 (100%)	76 (100%)	0	100	100
16	p	65/65 (100%)	64 (98%)	1 (2%)	65	84
17	q	74/74 (100%)	74 (100%)	0	100	100
18	r	48/56 (86%)	48 (100%)	0	100	100
19	s	70/70 (100%)	70 (100%)	0	100	100
20	t	65/65 (100%)	65 (100%)	0	100	100
21	u	44/55 (80%)	44 (100%)	0	100	100
26	C	216/216 (100%)	215 (100%)	1 (0%)	88	95
27	D	164/164 (100%)	164 (100%)	0	100	100
28	E	165/165 (100%)	165 (100%)	0	100	100
29	F	148/148 (100%)	148 (100%)	0	100	100
30	G	137/137 (100%)	137 (100%)	0	100	100
31	I	109/109 (100%)	109 (100%)	0	100	100
32	H	114/114 (100%)	114 (100%)	0	100	100
33	J	116/116 (100%)	116 (100%)	0	100	100
34	K	103/103 (100%)	102 (99%)	1 (1%)	76	88
35	L	102/102 (100%)	101 (99%)	1 (1%)	76	88
36	M	109/109 (100%)	109 (100%)	0	100	100
37	N	100/100 (100%)	100 (100%)	0	100	100
38	O	86/86 (100%)	86 (100%)	0	100	100
39	P	99/99 (100%)	99 (100%)	0	100	100
40	Q	89/89 (100%)	89 (100%)	0	100	100
41	R	84/84 (100%)	84 (100%)	0	100	100
42	S	93/93 (100%)	93 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
43	T	80/80 (100%)	80 (100%)	0	100	100
44	U	83/83 (100%)	83 (100%)	0	100	100
45	V	78/78 (100%)	78 (100%)	0	100	100
46	W	57/57 (100%)	57 (100%)	0	100	100
47	X	67/67 (100%)	66 (98%)	1 (2%)	65	84
48	Y	55/55 (100%)	55 (100%)	0	100	100
49	Z	48/48 (100%)	48 (100%)	0	100	100
50	0	47/47 (100%)	46 (98%)	1 (2%)	53	78
51	1	45/45 (100%)	45 (100%)	0	100	100
52	2	38/38 (100%)	38 (100%)	0	100	100
53	3	51/51 (100%)	51 (100%)	0	100	100
54	4	34/34 (100%)	34 (100%)	0	100	100
55	6	59/59 (100%)	59 (100%)	0	100	100
All	All	4728/4751 (100%)	4717 (100%)	11 (0%)	93	98

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	b	176	ASN
2	b	178	LEU
4	d	173	ASP
12	l	33	CYS
14	n	34	ASN
16	p	2	VAL
26	C	52	HIS
34	K	21	CYS
35	L	27	LEU
47	X	4	CYS
50	0	2	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
3	c	40	GLN
3	c	122	GLN
8	h	20	ASN

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Mol	Chain	Res	Type
9	i	31	GLN
12	l	72	ASN
16	p	26	ASN
20	t	12	GLN
26	C	44	ASN
27	D	49	GLN
30	G	21	GLN
35	L	38	GLN
35	L	99	ASN
37	N	62	ASN
37	N	81	ASN
44	U	39	ASN
54	4	35	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	a	1531/1539 (99%)	260 (16%)	0
22	v	76/77 (98%)	15 (19%)	0
23	x	47/48 (97%)	21 (44%)	0
24	A	2893/2903 (99%)	540 (18%)	34 (1%)
25	B	119/120 (99%)	17 (14%)	3 (2%)
All	All	4666/4687 (99%)	853 (18%)	37 (0%)

All (853) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	a	6	G
1	a	9	G
1	a	22	G
1	a	32	A
1	a	39	G
1	a	44	A
1	a	47	C
1	a	48	C
1	a	49	U
1	a	50	A
1	a	51	A
1	a	59	A
1	a	61	G
1	a	69	G

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Mol	Chain	Res	Type
1	a	71	A
1	a	79	G
1	a	81	A
1	a	82	G
1	a	83	C
1	a	85	U
1	a	86	G
1	a	88	U
1	a	92	U
1	a	94	G
1	a	95	C
1	a	116	A
1	a	121	U
1	a	122	G
1	a	126	G
1	a	127	G
1	a	128	G
1	a	131	A
1	a	134	G
1	a	141	G
1	a	144	G
1	a	149	A
1	a	173	U
1	a	183	C
1	a	184	G
1	a	189	A
1	a	195	A
1	a	197	A
1	a	207	C
1	a	209	U
1	a	210	C
1	a	211	G
1	a	212	G
1	a	226	G
1	a	240	G
1	a	245	U
1	a	247	G
1	a	251	G
1	a	266	G
1	a	267	C
1	a	280	C
1	a	281	G

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Mol	Chain	Res	Type
1	a	289	G
1	a	300	A
1	a	306	A
1	a	316	C
1	a	328	C
1	a	329	A
1	a	330	C
1	a	345	C
1	a	347	G
1	a	351	G
1	a	352	C
1	a	354	G
1	a	367	U
1	a	369	G
1	a	372	C
1	a	373	A
1	a	376	G
1	a	388	G
1	a	398	U
1	a	406	G
1	a	411	A
1	a	412	A
1	a	413	G
1	a	414	A
1	a	429	U
1	a	439	U
1	a	441	A
1	a	446	G
1	a	448	A
1	a	467	U
1	a	468	A
1	a	474	G
1	a	479	U
1	a	481	G
1	a	482	A
1	a	486	U
1	a	496	A
1	a	497	G
1	a	499	A
1	a	505	G
1	a	509	A
1	a	511	C

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Mol	Chain	Res	Type
1	a	518	C
1	a	521	G
1	a	527	G7M
1	a	528	C
1	a	529	G
1	a	531	U
1	a	532	A
1	a	547	A
1	a	548	G
1	a	559	A
1	a	562	U
1	a	572	A
1	a	573	A
1	a	576	C
1	a	577	G
1	a	615	G
1	a	633	G
1	a	639	G
1	a	653	U
1	a	654	G
1	a	665	A
1	a	687	A
1	a	695	A
1	a	701	U
1	a	702	A
1	a	713	G
1	a	718	A
1	a	723	U
1	a	724	G
1	a	731	G
1	a	733	G
1	a	777	A
1	a	787	A
1	a	792	A
1	a	793	U
1	a	794	A
1	a	802	A
1	a	810	C
1	a	815	A
1	a	817	C
1	a	818	G
1	a	820	U

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Mol	Chain	Res	Type
1	a	821	G
1	a	832	G
1	a	836	G
1	a	843	U
1	a	844	G
1	a	846	G
1	a	849	G
1	a	872	A
1	a	890	G
1	a	891	U
1	a	902	G
1	a	914	A
1	a	926	G
1	a	933	G
1	a	934	C
1	a	935	A
1	a	960	U
1	a	961	U
1	a	966	2MG
1	a	967	5MC
1	a	968	A
1	a	969	A
1	a	971	G
1	a	975	A
1	a	976	G
1	a	977	A
1	a	983	A
1	a	989	U
1	a	991	U
1	a	992	U
1	a	993	G
1	a	1004	A
1	a	1020	G
1	a	1028	C
1	a	1030	U
1	a	1031	C
1	a	1032	G
1	a	1033	G
1	a	1034	G
1	a	1035	A
1	a	1036	A
1	a	1042	A

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Mol	Chain	Res	Type
1	a	1050	G
1	a	1053	G
1	a	1054	C
1	a	1066	C
1	a	1070	U
1	a	1085	U
1	a	1094	G
1	a	1095	U
1	a	1100	C
1	a	1101	A
1	a	1130	A
1	a	1133	G
1	a	1136	C
1	a	1137	C
1	a	1138	G
1	a	1139	G
1	a	1145	A
1	a	1146	A
1	a	1151	A
1	a	1152	A
1	a	1158	C
1	a	1159	U
1	a	1168	U
1	a	1182	G
1	a	1183	U
1	a	1191	A
1	a	1196	A
1	a	1212	U
1	a	1213	A
1	a	1225	A
1	a	1226	C
1	a	1227	A
1	a	1236	A
1	a	1238	A
1	a	1239	A
1	a	1240	U
1	a	1241	G
1	a	1253	G
1	a	1258	G
1	a	1260	G
1	a	1280	A
1	a	1281	C

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Mol	Chain	Res	Type
1	a	1287	A
1	a	1298	U
1	a	1300	G
1	a	1302	C
1	a	1303	C
1	a	1305	G
1	a	1312	G
1	a	1317	C
1	a	1320	C
1	a	1323	G
1	a	1332	A
1	a	1353	G
1	a	1360	A
1	a	1363	A
1	a	1364	U
1	a	1394	A
1	a	1398	A
1	a	1419	G
1	a	1422	G
1	a	1429	A
1	a	1433	A
1	a	1440	U
1	a	1441	A
1	a	1446	A
1	a	1452	C
1	a	1499	A
1	a	1503	A
1	a	1506	U
1	a	1507	A
1	a	1517	G
1	a	1529	G
1	a	1530	G
1	a	1534	A
1	a	1535	C
1	a	1536	C
1	a	1537	U
22	v	9	G
22	v	14	A
22	v	16	C
22	v	17	C
22	v	17(A)	U
22	v	18	G

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Mol	Chain	Res	Type
22	v	19	G
22	v	20	H2U
22	v	21	A
22	v	22	G
22	v	47	U
22	v	48	C
22	v	58	A
22	v	75	C
22	v	76	A
23	x	88	A
23	x	90	G
23	x	91	A
23	x	93	G
23	x	96	C
23	x	98	U
23	x	99	U
23	x	104	U
23	x	109	C
23	x	110	G
23	x	113	C
23	x	115	A
23	x	117	C
23	x	118	G
23	x	120	U
23	x	121	U
23	x	126	G
23	x	127	U
23	x	129	U
23	x	130	G
23	x	134	C
24	A	10	A
24	A	14	A
24	A	34	U
24	A	35	G
24	A	43	G
24	A	45	G
24	A	46	G
24	A	50	U
24	A	51	G
24	A	52	A
24	A	63	A
24	A	71	A

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Mol	Chain	Res	Type
24	A	73	A
24	A	74	A
24	A	75	G
24	A	84	A
24	A	92	U
24	A	96	C
24	A	98	G
24	A	102	U
24	A	103	A
24	A	114	U
24	A	118	A
24	A	119	A
24	A	120	U
24	A	131	A
24	A	138	U
24	A	139	U
24	A	141	G
24	A	142	A
24	A	161	A
24	A	162	U
24	A	163	C
24	A	165	A
24	A	178	G
24	A	196	A
24	A	204	A
24	A	205	G
24	A	206	U
24	A	215	G
24	A	216	A
24	A	221	A
24	A	222	A
24	A	228	C
24	A	229	C
24	A	241	A
24	A	245	G
24	A	247	G
24	A	248	G
24	A	250	G
24	A	255	A
24	A	266	G
24	A	276	U
24	A	277	G

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Mol	Chain	Res	Type
24	A	278	A
24	A	281	C
24	A	282	A
24	A	285	G
24	A	294	A
24	A	295	G
24	A	310	A
24	A	317	G
24	A	322	A
24	A	323	C
24	A	329	G
24	A	330	A
24	A	346	A
24	A	349	U
24	A	359	G
24	A	361	G
24	A	362	A
24	A	371	A
24	A	372	G
24	A	373	U
24	A	386	G
24	A	387	U
24	A	404	A
24	A	406	G
24	A	411	G
24	A	412	A
24	A	424	G
24	A	456	C
24	A	457	A
24	A	481	G
24	A	490	C
24	A	491	G
24	A	496	G
24	A	504	A
24	A	505	A
24	A	509	C
24	A	510	C
24	A	513	A
24	A	522	A
24	A	527	C
24	A	529	A
24	A	531	C

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Mol	Chain	Res	Type
24	A	532	A
24	A	533	G
24	A	544	C
24	A	545	U
24	A	549	G
24	A	556	A
24	A	563	A
24	A	573	U
24	A	575	A
24	A	588	U
24	A	592	A
24	A	603	A
24	A	613	A
24	A	614	A
24	A	627	A
24	A	632	A
24	A	637	A
24	A	645	C
24	A	646	U
24	A	647	G
24	A	654	A
24	A	655	A
24	A	656	G
24	A	669	G
24	A	677	A
24	A	686	U
24	A	690	G
24	A	694	U
24	A	695	G
24	A	699	A
24	A	714	U
24	A	729	G
24	A	730	A
24	A	746	PSU
24	A	747	5MU
24	A	752	A
24	A	764	A
24	A	774	G
24	A	775	G
24	A	776	G
24	A	782	A
24	A	784	G

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Mol	Chain	Res	Type
24	A	785	G
24	A	805	G
24	A	812	C
24	A	819	A
24	A	827	U
24	A	828	U
24	A	844	A
24	A	845	A
24	A	846	U
24	A	858	G
24	A	859	G
24	A	869	G
24	A	878	A
24	A	884	U
24	A	886	A
24	A	892	A
24	A	896	A
24	A	897	C
24	A	910	A
24	A	941	A
24	A	944	C
24	A	945	A
24	A	946	C
24	A	961	C
24	A	962	G
24	A	974	G
24	A	983	A
24	A	985	C
24	A	990	A
24	A	995	C
24	A	996	A
24	A	1003	G
24	A	1012	U
24	A	1013	C
24	A	1021	A
24	A	1022	G
24	A	1023	U
24	A	1026	G
24	A	1033	U
24	A	1040	A
24	A	1046	A
24	A	1053	C

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Mol	Chain	Res	Type
24	A	1054	A
24	A	1060	U
24	A	1061	U
24	A	1062	G
24	A	1064	C
24	A	1065	U
24	A	1066	U
24	A	1067	A
24	A	1068	G
24	A	1069	A
24	A	1070	A
24	A	1071	G
24	A	1072	C
24	A	1073	A
24	A	1075	C
24	A	1076	C
24	A	1077	A
24	A	1079	C
24	A	1084	A
24	A	1087	G
24	A	1088	A
24	A	1097	U
24	A	1104	C
24	A	1111	A
24	A	1112	G
24	A	1116	G
24	A	1119	U
24	A	1130	U
24	A	1131	G
24	A	1132	U
24	A	1135	C
24	A	1136	G
24	A	1142	A
24	A	1143	A
24	A	1151	A
24	A	1165	A
24	A	1172	C
24	A	1174	U
24	A	1175	A
24	A	1178	C
24	A	1179	G
24	A	1180	U

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Mol	Chain	Res	Type
24	A	1183	U
24	A	1205	A
24	A	1206	G
24	A	1210	G
24	A	1212	G
24	A	1213	A
24	A	1221	C
24	A	1237	A
24	A	1247	A
24	A	1248	G
24	A	1250	G
24	A	1251	C
24	A	1253	A
24	A	1256	G
24	A	1270	C
24	A	1271	G
24	A	1272	A
24	A	1273	U
24	A	1300	G
24	A	1301	A
24	A	1306	C
24	A	1311	G
24	A	1313	U
24	A	1314	C
24	A	1325	U
24	A	1332	G
24	A	1341	G
24	A	1345	C
24	A	1359	A
24	A	1365	A
24	A	1368	G
24	A	1378	A
24	A	1379	U
24	A	1383	A
24	A	1386	C
24	A	1395	A
24	A	1396	U
24	A	1403	A
24	A	1407	G
24	A	1414	C
24	A	1416	G
24	A	1421	G

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Mol	Chain	Res	Type
24	A	1428	C
24	A	1437	C
24	A	1454	C
24	A	1458	U
24	A	1459	G
24	A	1461	C
24	A	1475	G
24	A	1482	G
24	A	1490	A
24	A	1493	C
24	A	1498	C
24	A	1504	A
24	A	1509	A
24	A	1515	A
24	A	1523	U
24	A	1524	G
24	A	1529	G
24	A	1533	C
24	A	1534	U
24	A	1535	A
24	A	1536	C
24	A	1537	G
24	A	1559	U
24	A	1560	G
24	A	1565	C
24	A	1568	G
24	A	1569	A
24	A	1578	U
24	A	1584	U
24	A	1614	A
24	A	1616	A
24	A	1633	G
24	A	1634	A
24	A	1643	G
24	A	1647	U
24	A	1648	U
24	A	1649	G
24	A	1674	G
24	A	1695	G
24	A	1698	A
24	A	1703	G
24	A	1713	A

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Mol	Chain	Res	Type
24	A	1715	G
24	A	1718	G
24	A	1729	U
24	A	1730	C
24	A	1738	G
24	A	1757	A
24	A	1758	U
24	A	1764	C
24	A	1773	A
24	A	1780	A
24	A	1782	U
24	A	1784	A
24	A	1785	A
24	A	1791	A
24	A	1800	C
24	A	1801	A
24	A	1808	A
24	A	1809	A
24	A	1816	C
24	A	1829	A
24	A	1833	C
24	A	1847	A
24	A	1857	G
24	A	1870	C
24	A	1884	G
24	A	1891	G
24	A	1901	A
24	A	1906	G
24	A	1907	G
24	A	1914	C
24	A	1929	G
24	A	1930	G
24	A	1931	U
24	A	1936	A
24	A	1937	A
24	A	1939	5MU
24	A	1940	U
24	A	1941	C
24	A	1943	U
24	A	1955	U
24	A	1964	G
24	A	1967	C

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Mol	Chain	Res	Type
24	A	1970	A
24	A	1971	U
24	A	1972	G
24	A	1991	U
24	A	1993	U
24	A	1997	C
24	A	2022	U
24	A	2023	C
24	A	2031	A
24	A	2033	A
24	A	2036	C
24	A	2043	C
24	A	2049	G
24	A	2055	C
24	A	2056	G
24	A	2059	A
24	A	2060	A
24	A	2061	G
24	A	2062	A
24	A	2069	G7M
24	A	2070	A
24	A	2072	C
24	A	2077	A
24	A	2080	A
24	A	2093	G
24	A	2096	C
24	A	2100	G
24	A	2108	A
24	A	2110	G
24	A	2111	U
24	A	2112	G
24	A	2113	U
24	A	2117	A
24	A	2118	U
24	A	2119	A
24	A	2120	G
24	A	2125	G
24	A	2127	G
24	A	2130	U
24	A	2132	U
24	A	2133	G
24	A	2134	A

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Mol	Chain	Res	Type
24	A	2137	U
24	A	2145	C
24	A	2146	C
24	A	2147	A
24	A	2154	A
24	A	2158	A
24	A	2162	G
24	A	2163	A
24	A	2164	C
24	A	2166	U
24	A	2167	U
24	A	2168	G
24	A	2169	A
24	A	2170	A
24	A	2171	A
24	A	2172	U
24	A	2173	A
24	A	2178	C
24	A	2189	U
24	A	2198	A
24	A	2199	A
24	A	2204	G
24	A	2211	A
24	A	2214	C
24	A	2220	U
24	A	2223	G
24	A	2225	A
24	A	2238	G
24	A	2239	G
24	A	2250	G
24	A	2268	A
24	A	2279	G
24	A	2283	C
24	A	2286	G
24	A	2287	A
24	A	2288	A
24	A	2294	G
24	A	2298	A
24	A	2305	U
24	A	2309	A
24	A	2310	C
24	A	2319	G

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Mol	Chain	Res	Type
24	A	2322	A
24	A	2331	G
24	A	2333	A
24	A	2335	A
24	A	2347	C
24	A	2350	C
24	A	2354	C
24	A	2357	G
24	A	2383	G
24	A	2385	C
24	A	2389	G
24	A	2392	A
24	A	2402	U
24	A	2403	C
24	A	2406	A
24	A	2407	A
24	A	2429	G
24	A	2430	A
24	A	2431	U
24	A	2441	U
24	A	2448	A
24	A	2464	G
24	A	2468	A
24	A	2475	C
24	A	2476	A
24	A	2480	C
24	A	2484	G
24	A	2491	U
24	A	2494	G
24	A	2498	OMC
24	A	2501	C
24	A	2502	G
24	A	2504	PSU
24	A	2505	G
24	A	2506	U
24	A	2513	A
24	A	2518	A
24	A	2520	C
24	A	2525	G
24	A	2535	G
24	A	2547	A
24	A	2548	U

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Mol	Chain	Res	Type
24	A	2554	U
24	A	2567	G
24	A	2569	G
24	A	2572	A
24	A	2573	C
24	A	2578	G
24	A	2582	G
24	A	2585	U
24	A	2586	U
24	A	2602	A
24	A	2603	G
24	A	2609	U
24	A	2610	C
24	A	2611	C
24	A	2613	U
24	A	2615	U
24	A	2621	G
24	A	2629	U
24	A	2636	C
24	A	2646	C
24	A	2656	U
24	A	2685	G
24	A	2689	U
24	A	2690	U
24	A	2714	G
24	A	2718	G
24	A	2720	U
24	A	2726	A
24	A	2729	G
24	A	2733	A
24	A	2739	U
24	A	2744	G
24	A	2748	A
24	A	2751	G
24	A	2757	A
24	A	2764	A
24	A	2765	A
24	A	2766	A
24	A	2769	U
24	A	2778	A
24	A	2779	U
24	A	2790	U

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Mol	Chain	Res	Type
24	A	2791	G
24	A	2793	C
24	A	2794	C
24	A	2797	U
24	A	2798	U
24	A	2799	A
24	A	2800	A
24	A	2801	G
24	A	2803	G
24	A	2808	G
24	A	2818	U
24	A	2820	A
24	A	2821	A
24	A	2833	U
24	A	2834	G
24	A	2849	U
24	A	2867	G
24	A	2868	A
24	A	2872	A
24	A	2873	A
24	A	2880	C
24	A	2883	A
24	A	2885	G
24	A	2891	U
25	B	4	C
25	B	13	G
25	B	16	G
25	B	25	U
25	B	30	C
25	B	35	C
25	B	41	G
25	B	44	G
25	B	57	A
25	B	67	G
25	B	68	C
25	B	73	A
25	B	89	U
25	B	90	C
25	B	96	G
25	B	108	A
25	B	109	A

All (37) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
24	A	51	G
24	A	91	A
24	A	205	G
24	A	228	C
24	A	385	C
24	A	512	G
24	A	555	G
24	A	572	A
24	A	774	G
24	A	830	G
24	A	989	G
24	A	1020	A
24	A	1070	A
24	A	1111	A
24	A	1182	G
24	A	1190	G
24	A	1211	C
24	A	1212	G
24	A	1251	C
24	A	1432	G
24	A	1458	U
24	A	1567	G
24	A	1930	G
24	A	1940	U
24	A	2061	G
24	A	2308	G
24	A	2391	G
24	A	2447	G
24	A	2566	A
24	A	2610	C
24	A	2756	U
24	A	2820	A
24	A	2832	U
24	A	2867	G
25	B	3	C
25	B	66	A
25	B	88	C

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

39 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
24	5MU	A	1939	24	19,22,23	1.45	4 (21%)	28,32,35	2.18	5 (17%)
24	G7M	A	2069	24	20,26,27	1.41	3 (15%)	17,39,42	1.59	2 (11%)
24	PSU	A	2504	24	18,21,22	1.44	3 (16%)	22,30,33	1.84	3 (13%)
22	4SU	v	8	22	18,21,22	1.80	4 (22%)	26,30,33	2.35	5 (19%)
24	PSU	A	2580	24	18,21,22	1.51	3 (16%)	22,30,33	1.94	3 (13%)
24	2MA	A	2503	24	17,25,26	1.00	1 (5%)	17,37,40	0.96	2 (11%)
24	6MZ	A	1618	24	18,25,26	0.94	1 (5%)	16,36,39	2.35	4 (25%)
1	PSU	a	516	1	18,21,22	1.39	3 (16%)	22,30,33	1.87	4 (18%)
22	PSU	v	55	22	18,21,22	1.38	3 (16%)	22,30,33	1.86	4 (18%)
22	H2U	v	20	22	18,21,22	0.94	2 (11%)	21,30,33	1.26	3 (14%)
1	UR3	a	1498	1	19,22,23	1.13	2 (10%)	26,32,35	2.06	5 (19%)
24	PSU	A	955	24	18,21,22	1.42	4 (22%)	22,30,33	1.94	3 (13%)
1	2MG	a	1516	1	18,26,27	0.89	1 (5%)	16,38,41	1.15	2 (12%)
24	PSU	A	2457	24	18,21,22	1.55	4 (22%)	22,30,33	2.11	5 (22%)
24	PSU	A	746	24	18,21,22	1.34	2 (11%)	22,30,33	1.74	4 (18%)
1	G7M	a	527	1	20,26,27	1.74	5 (25%)	17,39,42	1.94	6 (35%)
24	3TD	A	1915	24	18,22,23	4.06	7 (38%)	22,32,35	1.79	3 (13%)
1	MA6	a	1519	1	18,26,27	0.92	1 (5%)	19,38,41	1.84	4 (21%)
1	5MC	a	1407	1	18,22,23	0.89	2 (11%)	26,32,35	1.19	3 (11%)
1	MA6	a	1518	1	18,26,27	0.96	1 (5%)	19,38,41	1.69	4 (21%)
24	OMG	A	2251	22,24	18,26,27	1.01	1 (5%)	19,38,41	1.19	2 (10%)
24	6MZ	A	2030	24	18,25,26	0.95	1 (5%)	16,36,39	2.69	4 (25%)
24	5MU	A	747	24	19,22,23	1.42	5 (26%)	28,32,35	2.06	8 (28%)
24	5MC	A	1962	24	18,22,23	1.00	1 (5%)	26,32,35	1.49	3 (11%)
24	2MG	A	1835	24	18,26,27	0.91	1 (5%)	16,38,41	1.22	3 (18%)
24	PSU	A	2605	24	18,21,22	1.40	3 (16%)	22,30,33	1.90	4 (18%)
24	1MG	A	745	24	18,26,27	0.81	1 (5%)	19,39,42	1.07	2 (10%)
24	PSU	A	2604	24	18,21,22	1.48	3 (16%)	22,30,33	1.84	4 (18%)
1	4OC	a	1402	1	20,23,24	0.77	0	26,32,35	0.98	2 (7%)
24	2MG	A	2445	24	18,26,27	0.98	1 (5%)	16,38,41	1.19	3 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
24	PSU	A	1911	24	18,21,22	1.38	3 (16%)	22,30,33	1.94	3 (13%)
1	2MG	a	1207	1	18,26,27	1.02	1 (5%)	16,38,41	1.04	2 (12%)
1	5MC	a	967	1	18,22,23	0.92	2 (11%)	26,32,35	1.10	3 (11%)
1	2MG	a	966	1	18,26,27	0.91	1 (5%)	16,38,41	1.22	2 (12%)
24	OMU	A	2552	24	19,22,23	1.23	2 (10%)	26,31,34	1.94	7 (26%)
24	OMC	A	2498	24	19,22,23	0.88	1 (5%)	26,31,34	1.13	2 (7%)
24	H2U	A	2449	24	18,21,22	1.05	2 (11%)	21,30,33	1.76	3 (14%)
22	5MU	v	54	22	19,22,23	1.40	6 (31%)	28,32,35	2.05	6 (21%)
24	PSU	A	1917	24	18,21,22	1.42	3 (16%)	22,30,33	1.93	3 (13%)

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
24	5MU	A	1939	24	-	2/7/25/26	0/2/2/2
24	G7M	A	2069	24	2/2/5/5	2/3/25/26	0/3/3/3
24	PSU	A	2504	24	-	2/7/25/26	0/2/2/2
22	4SU	v	8	22	-	0/7/25/26	0/2/2/2
24	PSU	A	2580	24	-	2/7/25/26	0/2/2/2
24	2MA	A	2503	24	-	2/3/25/26	0/3/3/3
24	6MZ	A	1618	24	-	0/5/27/28	0/3/3/3
1	PSU	a	516	1	-	0/7/25/26	0/2/2/2
22	PSU	v	55	22	-	2/7/25/26	0/2/2/2
22	H2U	v	20	22	-	0/7/38/39	0/2/2/2
1	UR3	a	1498	1	-	2/7/25/26	0/2/2/2
24	PSU	A	955	24	-	0/7/25/26	0/2/2/2
1	2MG	a	1516	1	-	0/5/27/28	0/3/3/3
24	PSU	A	2457	24	-	2/7/25/26	0/2/2/2
24	PSU	A	746	24	-	2/7/25/26	0/2/2/2
1	G7M	a	527	1	2/2/5/5	1/3/25/26	0/3/3/3
24	3TD	A	1915	24	-	5/7/25/26	0/2/2/2
1	MA6	a	1519	1	-	3/7/29/30	0/3/3/3
1	5MC	a	1407	1	-	0/7/25/26	0/2/2/2
1	MA6	a	1518	1	-	3/7/29/30	0/3/3/3
24	OMG	A	2251	22,24	-	3/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
24	6MZ	A	2030	24	-	3/5/27/28	0/3/3/3
24	5MU	A	747	24	-	1/7/25/26	0/2/2/2
24	5MC	A	1962	24	-	4/7/25/26	0/2/2/2
24	2MG	A	1835	24	-	2/5/27/28	0/3/3/3
24	PSU	A	2605	24	-	0/7/25/26	0/2/2/2
24	1MG	A	745	24	-	0/3/25/26	0/3/3/3
24	PSU	A	2604	24	-	1/7/25/26	0/2/2/2
1	4OC	a	1402	1	-	0/9/29/30	0/2/2/2
24	2MG	A	2445	24	-	3/5/27/28	0/3/3/3
24	PSU	A	1911	24	-	0/7/25/26	0/2/2/2
1	2MG	a	1207	1	-	0/5/27/28	0/3/3/3
1	5MC	a	967	1	-	2/7/25/26	0/2/2/2
1	2MG	a	966	1	-	0/5/27/28	0/3/3/3
24	OMU	A	2552	24	-	2/9/27/28	0/2/2/2
24	OMC	A	2498	24	-	2/9/27/28	0/2/2/2
24	H2U	A	2449	24	-	0/7/38/39	0/2/2/2
22	5MU	v	54	22	-	0/7/25/26	0/2/2/2
24	PSU	A	1917	24	-	0/7/25/26	0/2/2/2

All (94) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	A	1915	3TD	C6-C5	11.98	1.49	1.35
24	A	1915	3TD	C2-N1	8.97	1.48	1.37
24	A	1915	3TD	C6-N1	5.66	1.45	1.36
1	a	527	G7M	C5-C4	4.81	1.48	1.39
22	v	8	4SU	C4-S4	-4.62	1.59	1.68
24	A	2069	G7M	C5-C4	3.67	1.46	1.39
24	A	1915	3TD	C2-N3	3.50	1.46	1.38
24	A	2504	PSU	C6-C5	3.37	1.39	1.35
24	A	2457	PSU	C4-N3	-3.29	1.32	1.38
24	A	1917	PSU	C6-C5	3.28	1.39	1.35
22	v	8	4SU	C4-N3	-3.19	1.34	1.37
24	A	746	PSU	C6-C5	3.19	1.39	1.35
24	A	2580	PSU	C4-N3	-3.17	1.33	1.38
22	v	55	PSU	C6-C5	3.16	1.39	1.35
24	A	2604	PSU	C4-N3	-3.10	1.33	1.38
24	A	2605	PSU	C6-C5	3.09	1.38	1.35
24	A	955	PSU	C4-N3	-3.04	1.33	1.38
24	A	1962	5MC	C6-C5	3.04	1.39	1.34
24	A	747	5MU	C4-N3	-3.03	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	A	1939	5MU	C4-N3	-3.02	1.33	1.38
24	A	2457	PSU	C6-C5	3.00	1.38	1.35
24	A	2580	PSU	C6-C5	2.99	1.38	1.35
24	A	2030	6MZ	C5-C4	2.99	1.48	1.40
22	v	8	4SU	C5-C4	-2.98	1.38	1.42
24	A	1911	PSU	C4-N3	-2.95	1.33	1.38
1	a	1498	UR3	C2-N1	2.94	1.42	1.38
1	a	527	G7M	O6-C6	2.94	1.29	1.23
24	A	2251	OMG	C6-N1	-2.93	1.33	1.37
22	v	55	PSU	C4-N3	-2.91	1.33	1.38
1	a	516	PSU	C6-C5	2.91	1.38	1.35
24	A	2605	PSU	C4-N3	-2.90	1.33	1.38
24	A	1618	6MZ	C5-C4	2.90	1.48	1.40
24	A	2504	PSU	C4-N3	-2.87	1.33	1.38
1	a	1207	2MG	C6-N1	-2.86	1.33	1.37
24	A	2445	2MG	C6-N1	-2.85	1.33	1.37
24	A	1915	3TD	C4-N3	2.83	1.46	1.40
1	a	516	PSU	C4-N3	-2.83	1.33	1.38
24	A	747	5MU	C6-C5	2.78	1.39	1.34
22	v	54	5MU	C4-N3	-2.77	1.33	1.38
24	A	2604	PSU	C6-C5	2.76	1.38	1.35
24	A	1917	PSU	C4-N3	-2.68	1.33	1.38
1	a	527	G7M	C6-N1	-2.68	1.33	1.37
24	A	2449	H2U	C2-N3	-2.67	1.33	1.38
1	a	1518	MA6	C5-C4	2.67	1.48	1.40
1	a	967	5MC	C6-C5	2.63	1.38	1.34
24	A	2552	OMU	C4-N3	-2.63	1.33	1.38
24	A	2069	G7M	C6-N1	-2.62	1.34	1.37
24	A	2449	H2U	C4-N3	-2.62	1.33	1.37
1	a	966	2MG	C6-N1	-2.61	1.34	1.37
22	v	54	5MU	C6-C5	2.60	1.38	1.34
24	A	2604	PSU	C2-N3	-2.58	1.33	1.37
24	A	746	PSU	C4-N3	-2.58	1.34	1.38
24	A	1835	2MG	C6-N1	-2.56	1.34	1.37
24	A	1911	PSU	C6-C5	2.55	1.38	1.35
24	A	1939	5MU	C6-N1	-2.55	1.33	1.38
1	a	1516	2MG	C6-N1	-2.53	1.34	1.37
1	a	527	G7M	C5-C6	2.49	1.51	1.45
24	A	1939	5MU	C2-N3	-2.48	1.33	1.38
24	A	1915	3TD	O2-C2	-2.47	1.18	1.23
22	v	20	H2U	C2-N3	-2.44	1.33	1.38
1	a	1519	MA6	C5-C4	2.40	1.47	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
22	v	54	5MU	C6-N1	-2.38	1.34	1.38
24	A	1915	3TD	O4-C4	-2.37	1.18	1.23
24	A	1939	5MU	C6-C5	2.36	1.38	1.34
22	v	8	4SU	C2-N1	2.35	1.42	1.38
24	A	747	5MU	C2-N1	2.31	1.42	1.38
1	a	967	5MC	C6-N1	-2.31	1.34	1.38
24	A	2605	PSU	C2-N3	-2.28	1.33	1.37
24	A	955	PSU	C6-C5	2.27	1.38	1.35
24	A	2457	PSU	C2-N3	-2.26	1.33	1.37
24	A	2552	OMU	C2-N3	-2.26	1.33	1.38
1	a	1407	5MC	C6-N1	-2.25	1.34	1.38
24	A	1911	PSU	C2-N3	-2.25	1.33	1.37
24	A	2069	G7M	O2'-C2'	-2.24	1.37	1.43
22	v	54	5MU	C2-N1	2.21	1.42	1.38
22	v	55	PSU	C2-N3	-2.21	1.33	1.37
24	A	747	5MU	C6-N1	-2.18	1.34	1.38
24	A	745	1MG	C5-C4	2.18	1.48	1.43
24	A	747	5MU	C2-N3	-2.17	1.34	1.38
1	a	1407	5MC	C6-C5	2.16	1.38	1.34
22	v	54	5MU	C4-C5	2.14	1.48	1.44
1	a	516	PSU	C2-N3	-2.13	1.33	1.37
24	A	2580	PSU	C2-N3	-2.12	1.33	1.37
24	A	2503	2MA	C2-N3	2.12	1.35	1.31
24	A	955	PSU	C2-N1	-2.11	1.33	1.36
1	a	527	G7M	O2'-C2'	-2.08	1.38	1.43
22	v	54	5MU	C2-N3	-2.07	1.34	1.38
22	v	20	H2U	C4-N3	-2.07	1.34	1.37
24	A	2457	PSU	C2-N1	-2.05	1.34	1.36
24	A	2504	PSU	C2-N3	-2.03	1.34	1.37
24	A	955	PSU	C2-N3	-2.02	1.34	1.37
24	A	2498	OMC	C6-C5	2.01	1.39	1.35
24	A	1917	PSU	C2-N1	-2.01	1.34	1.36
1	a	1498	UR3	C5-C4	-2.00	1.38	1.43

All (140) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	2030	6MZ	C9-N6-C6	-7.16	116.71	122.87
24	A	2457	PSU	N1-C2-N3	6.97	123.03	115.13
22	v	8	4SU	C4-N3-C2	-6.82	120.71	127.34
24	A	1618	6MZ	C2-N1-C6	6.65	122.29	116.59
24	A	2449	H2U	C4-N3-C2	-6.55	120.36	125.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	2580	PSU	N1-C2-N3	6.55	122.55	115.13
24	A	2030	6MZ	C2-N1-C6	6.41	122.09	116.59
24	A	955	PSU	N1-C2-N3	6.14	122.09	115.13
22	v	8	4SU	C5-C4-N3	6.14	120.39	114.69
24	A	1911	PSU	N1-C2-N3	6.05	121.99	115.13
24	A	1917	PSU	N1-C2-N3	6.02	121.95	115.13
1	a	516	PSU	N1-C2-N3	5.97	121.89	115.13
24	A	2504	PSU	N1-C2-N3	5.96	121.89	115.13
24	A	1915	3TD	N1-C2-N3	5.81	120.72	116.14
24	A	2604	PSU	N1-C2-N3	5.74	121.64	115.13
1	a	1498	UR3	C1'-N1-C2	5.70	126.61	116.99
22	v	55	PSU	N1-C2-N3	5.65	121.53	115.13
24	A	747	5MU	N3-C2-N1	5.53	122.23	114.89
24	A	2605	PSU	N1-C2-N3	5.45	121.31	115.13
24	A	1939	5MU	C4-N3-C2	-5.42	120.33	127.35
24	A	1939	5MU	C5-C4-N3	5.15	119.70	115.31
22	v	54	5MU	C4-N3-C2	-5.05	120.82	127.35
1	a	1498	UR3	C4-N3-C2	-5.03	119.83	124.56
22	v	54	5MU	N3-C2-N1	4.91	121.41	114.89
24	A	747	5MU	C4-N3-C2	-4.89	121.03	127.35
1	a	1519	MA6	C4-C5-N7	-4.85	104.34	109.40
24	A	746	PSU	N1-C2-N3	4.84	120.61	115.13
22	v	8	4SU	C5-C4-S4	-4.79	118.29	124.47
24	A	1939	5MU	N3-C2-N1	4.75	121.19	114.89
1	a	1498	UR3	O2-C2-N3	-4.55	114.92	121.34
24	A	2552	OMU	N3-C2-N1	4.49	120.86	114.89
24	A	1618	6MZ	C9-N6-C6	-4.44	119.05	122.87
22	v	54	5MU	C5-C4-N3	4.40	119.07	115.31
1	a	1518	MA6	C4-C5-N7	-4.38	104.83	109.40
24	A	1962	5MC	C5-C6-N1	-4.28	118.94	123.34
24	A	2457	PSU	C4-N3-C2	-4.24	120.23	126.34
24	A	1917	PSU	O2-C2-N1	-4.22	118.14	122.79
24	A	1939	5MU	O4-C4-C5	-4.22	120.01	124.90
24	A	1939	5MU	C5-C6-N1	-4.21	119.00	123.34
24	A	2552	OMU	C4-N3-C2	-4.21	121.03	126.58
24	A	2552	OMU	C1'-N1-C2	4.16	125.10	117.57
24	A	2605	PSU	C4-N3-C2	-4.15	120.35	126.34
22	v	54	5MU	O4-C4-C5	-4.03	120.23	124.90
24	A	2069	G7M	O3'-C3'-C4'	4.00	122.61	111.05
24	A	955	PSU	O2-C2-N1	-3.97	118.42	122.79
24	A	747	5MU	O4-C4-C5	-3.92	120.35	124.90
22	v	8	4SU	N3-C2-N1	3.91	120.08	114.89

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1915	3TD	C4-N3-C2	-3.91	120.37	124.61
24	A	2498	OMC	O2-C2-N3	-3.89	116.01	122.33
24	A	955	PSU	C4-N3-C2	-3.88	120.74	126.34
24	A	1962	5MC	O2-C2-N3	-3.88	116.02	122.33
24	A	1911	PSU	C4-N3-C2	-3.83	120.82	126.34
1	a	516	PSU	C4-N3-C2	-3.82	120.83	126.34
22	v	55	PSU	C4-N3-C2	-3.80	120.87	126.34
24	A	747	5MU	C5-C4-N3	3.79	118.55	115.31
24	A	1911	PSU	O2-C2-N1	-3.75	118.67	122.79
24	A	1917	PSU	C4-N3-C2	-3.74	120.95	126.34
24	A	2504	PSU	C4-N3-C2	-3.71	120.99	126.34
22	v	20	H2U	C4-N3-C2	-3.61	122.79	125.79
1	a	1519	MA6	C10-N6-C6	-3.61	108.58	119.51
24	A	2604	PSU	C4-N3-C2	-3.57	121.19	126.34
24	A	746	PSU	C4-N3-C2	-3.56	121.21	126.34
24	A	2580	PSU	C4-N3-C2	-3.56	121.21	126.34
1	a	527	G7M	O3'-C3'-C4'	3.53	121.25	111.05
1	a	1519	MA6	N3-C2-N1	-3.51	123.19	128.68
1	a	967	5MC	C5-C6-N1	-3.51	119.73	123.34
24	A	2552	OMU	C5-C4-N3	3.49	120.07	114.84
1	a	527	G7M	O6-C6-N1	-3.47	116.56	120.65
1	a	1518	MA6	N3-C2-N1	-3.33	123.47	128.68
1	a	527	G7M	O3'-C3'-C2'	3.30	122.51	111.82
24	A	2457	PSU	O2-C2-N1	-3.30	119.15	122.79
1	a	1498	UR3	C6-N1-C2	-3.30	118.83	121.79
22	v	54	5MU	C5-C6-N1	-3.29	119.96	123.34
24	A	1618	6MZ	C4-C5-N7	-3.23	106.03	109.40
24	A	2030	6MZ	C4-C5-N7	-3.15	106.11	109.40
24	A	2580	PSU	O2-C2-N1	-3.11	119.36	122.79
1	a	516	PSU	O2-C2-N1	-3.11	119.37	122.79
24	A	2552	OMU	O2-C2-N3	-3.08	115.76	121.50
24	A	2030	6MZ	N3-C2-N1	-3.02	123.95	128.68
1	a	1518	MA6	C9-N6-C6	-3.02	110.38	119.51
1	a	1407	5MC	C5-C6-N1	-3.01	120.25	123.34
24	A	747	5MU	C5-C6-N1	-2.99	120.27	123.34
22	v	8	4SU	C1'-N1-C2	2.97	122.95	117.57
1	a	1407	5MC	O2-C2-N3	-2.95	117.53	122.33
1	a	1519	MA6	C10-N6-C9	-2.95	106.61	116.12
24	A	2605	PSU	C6-C5-C4	-2.94	116.14	118.20
1	a	1498	UR3	C1'-N1-C6	-2.88	114.55	120.84
24	A	1618	6MZ	N3-C2-N1	-2.87	124.20	128.68
24	A	746	PSU	C6-C5-C4	-2.80	116.24	118.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	A	1835	2MG	C5-C6-N1	2.76	118.83	113.95
24	A	746	PSU	O2-C2-N1	-2.75	119.76	122.79
1	a	1402	4OC	O2-C2-N3	-2.66	118.00	122.33
24	A	1962	5MC	C5-C4-N3	-2.64	118.82	121.67
1	a	1518	MA6	C10-N6-C9	-2.64	107.62	116.12
24	A	2504	PSU	O2-C2-N1	-2.63	119.89	122.79
22	v	55	PSU	C6-C5-C4	-2.62	116.36	118.20
1	a	966	2MG	C5-C6-N1	2.62	118.58	113.95
24	A	2605	PSU	O2-C2-N1	-2.55	119.98	122.79
22	v	55	PSU	O2-C2-N1	-2.55	119.98	122.79
24	A	2449	H2U	C5-C6-N1	-2.55	103.21	111.61
24	A	2552	OMU	O4-C4-C5	-2.52	120.73	125.16
24	A	2503	2MA	C5-C6-N1	2.51	118.35	114.02
24	A	2604	PSU	O2-C2-N1	-2.49	120.05	122.79
24	A	745	1MG	C8-N7-C5	2.49	107.73	102.99
24	A	2445	2MG	CM2-N2-C2	-2.45	118.45	123.86
1	a	527	G7M	C5'-C4'-C3'	2.43	124.30	115.18
24	A	2069	G7M	C3'-C2'-C1'	2.43	104.63	100.98
1	a	1516	2MG	C5-C6-N1	2.43	118.24	113.95
24	A	745	1MG	C5-C6-N1	2.42	117.55	113.90
24	A	2251	OMG	C5-C6-N1	2.41	118.20	113.95
1	a	966	2MG	C8-N7-C5	2.41	107.58	102.99
1	a	1207	2MG	C5-C6-N1	2.40	118.20	113.95
1	a	967	5MC	C5-C4-N3	-2.40	119.08	121.67
24	A	747	5MU	O2-C2-N3	-2.39	117.05	121.50
24	A	2604	PSU	C6-C5-C4	-2.37	116.54	118.20
24	A	2445	2MG	C5-C6-N1	2.30	118.01	113.95
24	A	747	5MU	C6-N1-C2	-2.29	118.97	121.30
24	A	2445	2MG	C8-N7-C5	2.29	107.35	102.99
24	A	1835	2MG	CM2-N2-C2	-2.29	118.81	123.86
24	A	1835	2MG	C8-N7-C5	2.27	107.32	102.99
24	A	747	5MU	C1'-N1-C2	2.26	121.67	117.57
24	A	2251	OMG	C8-N7-C5	2.26	107.29	102.99
1	a	1516	2MG	C8-N7-C5	2.25	107.28	102.99
24	A	2449	H2U	O4-C4-N3	2.25	123.84	120.28
24	A	2457	PSU	C5-C6-N1	-2.19	118.83	122.11
24	A	2552	OMU	C6-N1-C2	-2.17	118.21	120.99
22	v	20	H2U	C5-C6-N1	-2.16	104.50	111.61
22	v	20	H2U	C5-C4-N3	2.15	119.06	116.65
1	a	1407	5MC	C5-C4-N3	-2.14	119.36	121.67
24	A	1915	3TD	O4-C4-N3	-2.14	116.38	120.30
24	A	2457	PSU	O2-C2-N3	-2.13	117.80	121.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	v	54	5MU	O2-C2-N1	-2.13	119.96	122.79
1	a	527	G7M	C3'-C2'-C1'	2.13	104.18	100.98
24	A	2503	2MA	C8-N7-C5	2.12	107.03	102.99
24	A	2498	OMC	O2-C2-N1	2.07	123.18	118.89
1	a	516	PSU	O4'-C1'-C2'	2.06	108.05	105.14
1	a	1402	4OC	CM4-N4-C4	-2.05	118.44	122.45
1	a	527	G7M	O2'-C2'-C3'	2.02	118.37	111.82
1	a	1207	2MG	C8-N7-C5	2.00	106.81	102.99
1	a	967	5MC	O2-C2-N3	-2.00	119.08	122.33

All (4) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	a	527	G7M	C4'
1	a	527	G7M	C3'
24	A	2069	G7M	C4'
24	A	2069	G7M	C3'

All (53) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	a	967	5MC	O4'-C4'-C5'-O5'
1	a	967	5MC	C3'-C4'-C5'-O5'
1	a	1498	UR3	O4'-C1'-N1-C6
1	a	1498	UR3	O4'-C1'-N1-C2
1	a	1518	MA6	C5-C6-N6-C9
1	a	1518	MA6	C5-C6-N6-C10
1	a	1519	MA6	C5-C6-N6-C10
22	v	55	PSU	O4'-C1'-C5-C4
22	v	55	PSU	O4'-C1'-C5-C6
24	A	1915	3TD	O4'-C1'-C5-C4
24	A	1915	3TD	O4'-C1'-C5-C6
24	A	1915	3TD	C3'-C4'-C5'-O5'
24	A	1915	3TD	O4'-C4'-C5'-O5'
24	A	1962	5MC	C2'-C1'-N1-C2
24	A	1962	5MC	C2'-C1'-N1-C6
24	A	2445	2MG	O4'-C4'-C5'-O5'
24	A	2445	2MG	C3'-C4'-C5'-O5'
24	A	2504	PSU	C3'-C4'-C5'-O5'
24	A	2504	PSU	O4'-C4'-C5'-O5'
24	A	2552	OMU	O4'-C1'-N1-C2
24	A	746	PSU	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
24	A	746	PSU	O4'-C4'-C5'-O5'
24	A	2030	6MZ	C3'-C4'-C5'-O5'
24	A	2498	OMC	C3'-C4'-C5'-O5'
24	A	2498	OMC	O4'-C4'-C5'-O5'
24	A	2457	PSU	O4'-C4'-C5'-O5'
1	a	1518	MA6	N1-C6-N6-C9
1	a	1519	MA6	N1-C6-N6-C10
24	A	2552	OMU	O4'-C1'-N1-C6
24	A	2069	G7M	O4'-C4'-C5'-O5'
24	A	2069	G7M	C3'-C4'-C5'-O5'
24	A	2580	PSU	O4'-C4'-C5'-O5'
24	A	2030	6MZ	O4'-C4'-C5'-O5'
24	A	2251	OMG	O4'-C4'-C5'-O5'
24	A	1915	3TD	C4'-C5'-O5'-P
24	A	1962	5MC	O4'-C1'-N1-C6
24	A	1835	2MG	O4'-C4'-C5'-O5'
24	A	2030	6MZ	C4'-C5'-O5'-P
24	A	2251	OMG	C4'-C5'-O5'-P
24	A	1939	5MU	C3'-C4'-C5'-O5'
1	a	527	G7M	C4'-C5'-O5'-P
24	A	1962	5MC	O4'-C1'-N1-C2
24	A	2503	2MA	C4'-C5'-O5'-P
24	A	1835	2MG	C3'-C4'-C5'-O5'
24	A	747	5MU	C3'-C4'-C5'-O5'
24	A	2457	PSU	C3'-C4'-C5'-O5'
24	A	2580	PSU	C3'-C4'-C5'-O5'
1	a	1519	MA6	C3'-C4'-C5'-O5'
24	A	2604	PSU	O4'-C4'-C5'-O5'
24	A	2445	2MG	C4'-C5'-O5'-P
24	A	1939	5MU	O4'-C4'-C5'-O5'
24	A	2251	OMG	C3'-C4'-C5'-O5'
24	A	2503	2MA	O4'-C4'-C5'-O5'

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

Of 2 ligands modelled in this entry, 2 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Map visualisation

This section contains visualisations of the EMDB entry EMD-4121. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

This section was not generated.

6.2 Central slices

This section was not generated.

6.3 Largest variance slices

This section was not generated.

6.4 Orthogonal standard-deviation projections (False-color)

This section was not generated.

6.5 Orthogonal surface views

This section was not generated.

6.6 Mask visualisation

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

This section was not generated.

7.2 Volume estimate versus contour level

This section was not generated.

7.3 Rotationally averaged power spectrum

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

8 Fourier-Shell correlation

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

9 Map-model fit

This section was not generated.