Full wwPDB EM Validation Report

Nov 10, 2024 – 02:50 am GMT

PDB ID	:	7QGH
EMDB ID	:	EMD-13955
Title	:	Structure of the E. coli disome - collided 70S ribosome
Authors	:	Kratzat, H.; Buschauer, R.; Berninghausen, O.; Beckmann, R.
Deposited on	:	2021-12-08
Resolution	:	4.48 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:

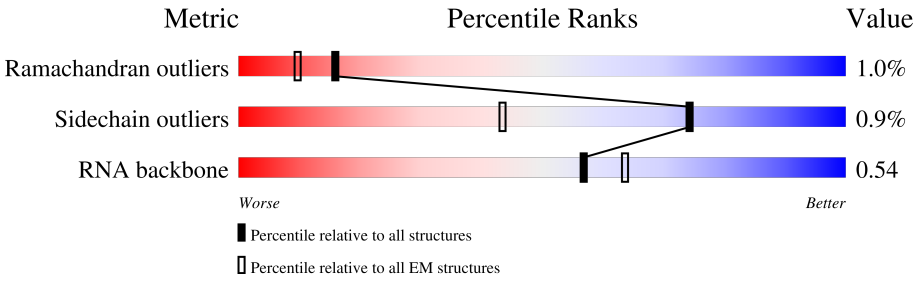
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 4.48 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	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	O	120	77% 19%
2	P	275	17% 87% 10%
3	Q	209	23% 93% 7%
4	R	201	95%
5	S	179	22% 97%
6	T	177	44% 98%
7	V	142	68% 99%
8	W	142	95% 5%

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Mol	Chain	Length	Quality of chain
9	X	123	32% 95%
10	Y	144	89% 8%
11	Z	137	15% 89% 9%
12	a	127	84% 9% 6%
13	b	117	38% 94% 5%
14	c	115	20% 91% 6%
15	d	118	8% 88% 10%
16	e	103	33% 95%
17	f	110	5% 97%
18	g	100	89% 7%
19	h	104	6% 94%
20	i	94	19% 100%
21	j	85	85% 12%
22	k	78	91% 8%
23	l	63	21% 94% 6%
24	m	59	7% 95%
25	n	57	82% 16%
26	o	55	31% 85% 5% 9%
27	p	47	13% 85% 13%
28	q	67	85% 9%
29	r	55	11% 60% 9% 31%
30	N	2903	66% 29% 5%
31	L	70	47% 73% 26%
32	C	223	60% 60% 40%
33	U	149	87% 98%

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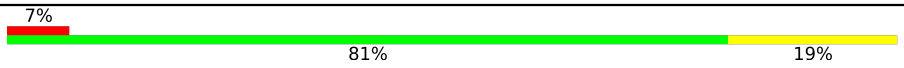
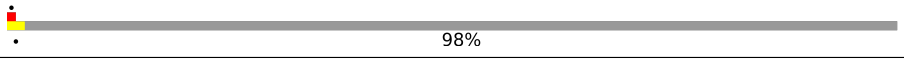
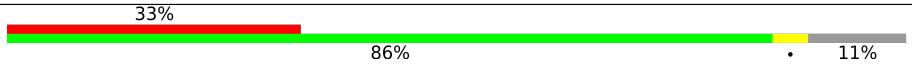
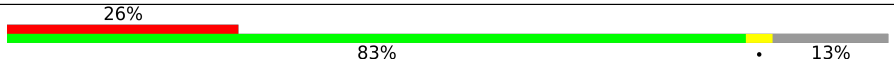
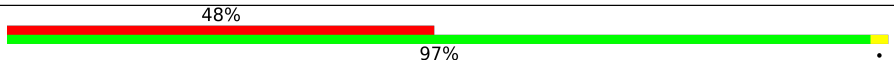
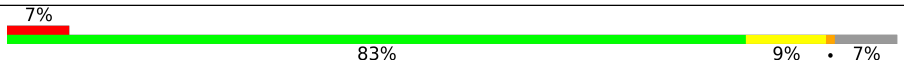
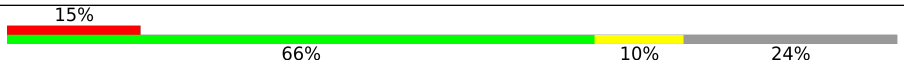
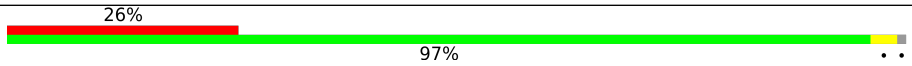
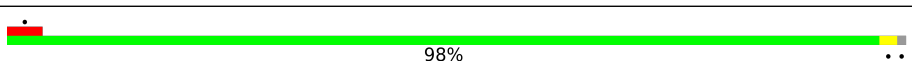
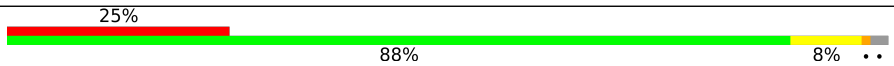
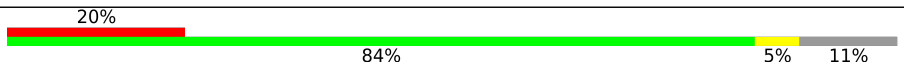
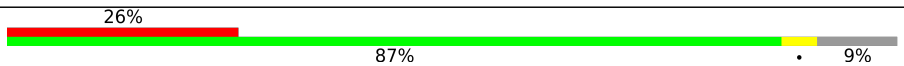
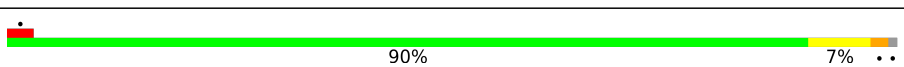
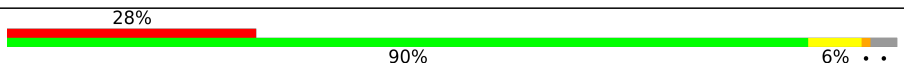
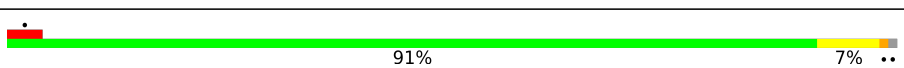
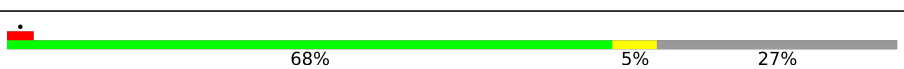
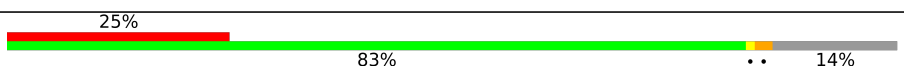
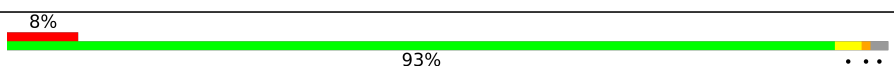
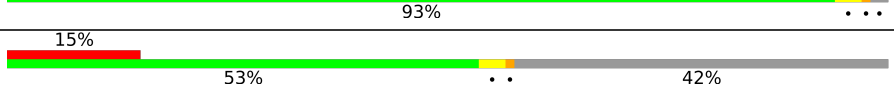
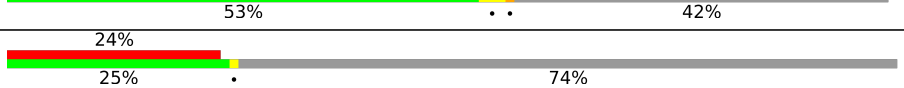
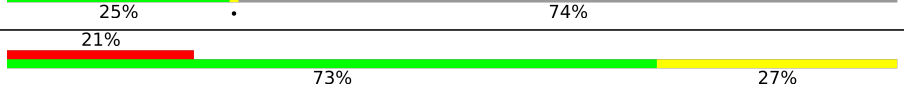
Mol	Chain	Length	Quality of chain
34	M	75	
35	x	692	
36	0	1539	
37	1	244	
38	2	237	
39	3	206	
40	4	162	
41	5	131	
42	6	152	
43	7	130	
44	8	130	
45	9	110	
46	A	129	
47	B	124	
48	D	118	
49	E	101	
50	F	89	
51	G	100	
52	H	84	
53	I	75	
54	J	92	
55	K	87	
56	s	88	
57	t	557	
58	u	73	

2 Entry composition

There are 61 unique types of molecules in this entry. The entry contains 147973 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 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	O	118	2529	1126	464	821	118	0	0

- Molecule 2 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	P	271	2082	1288	423	364	7	0	0

- Molecule 3 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	Q	209	1564	979	288	293	4	0	0

- Molecule 4 is a protein called 50S ribosomal protein L4.

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

- Molecule 5 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	S	177	1410	899	249	256	6	0	0

- Molecule 6 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	T	176	1322	832	243	245	2	0	0

- Molecule 7 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	V	141	Total	C	N	O	S	0	0
			1031	651	179	195	6		

- Molecule 8 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	W	142	Total	C	N	O	S	0	0
			1128	714	212	198	4		

- Molecule 9 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	X	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 10 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Y	143	Total	C	N	O	S	0	0
			1044	649	206	188	1		

- Molecule 11 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	Z	136	Total	C	N	O	S	0	0
			1073	686	205	176	6		

- Molecule 12 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	a	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	123	ALA	GLU	conflict	UNP P0AG44

- Molecule 13 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	b	116	Total 891	C 552	N 178	O 161	0	0

- Molecule 14 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	c	114	Total 915	C 573	N 179	O 162	S 1	0	0

- Molecule 15 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
15	d	117	Total 946	C 604	N 192	O 150	0	0

- Molecule 16 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	e	103	Total 815	C 516	N 153	O 144	S 2	0	0

- Molecule 17 is a protein called 50S ribosomal protein L22.

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

- Molecule 18 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	g	93	Total 738	C 466	N 139	O 131	S 2	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
g	98	SER	GLY	conflict	UNP P0ADZ0

- Molecule 19 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	h	102	Total 779	C 492	N 146	O 141	0	0

- Molecule 20 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	i	94	Total 752	C 479	N 137	O 133	S 3	0	0

- Molecule 21 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	j	75	Total 568	C 353	N 113	O 101	S 1	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
j	3	UNK	HIS	conflict	UNP P0A7L8

- Molecule 22 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	k	77	Total 624	C 388	N 129	O 105	S 2	0	0

- Molecule 23 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	l	63	Total 508	C 313	N 99	O 94	S 2	0	0

- Molecule 24 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	m	58	Total 448	C 281	N 87	O 78	S 2	0	0

- Molecule 25 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	n	56	Total	C	N	O	S	0	0
			443	269	94	79	1		

- Molecule 26 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	o	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 27 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	p	46	Total	C	N	O	S	0	0
			376	228	90	56	2		

- Molecule 28 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	q	64	Total	C	N	O	S	0	0
			503	323	105	73	2		

- Molecule 29 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	r	38	Total	C	N	O	S	0	0
			301	185	65	47	4		

- Molecule 30 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	N	2897	Total	C	N	O	P	1	0
			62215	27754	11448	20115	2898		

- Molecule 31 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	L	52	Total	C	N	O	S	0	0
			404	250	73	75	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	68	SER	GLY	conflict	UNP P0A7M9

- Molecule 32 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	C	134	Total	C	N	O	S	0	0
			1027	645	186	194	2		

- Molecule 33 is a protein called 50S ribosomal protein L9.

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

- Molecule 34 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	M	75	Total	C	N	O	P	0	0
			1594	711	281	527	75		

- Molecule 35 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	x	14	Total	C	N	O	P	0	0
			294	132	51	97	14		

- Molecule 36 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	0	1539	Total	C	N	O	P	0	0
			33015	14725	6052	10699	1539		

- Molecule 37 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	1	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 38 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	2	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 39 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	3	205	Total	C	N	O	S	0	0
			1642	1026	315	297	4		

- Molecule 40 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	4	150	Total	C	N	O	S	0	0
			1105	687	211	201	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
4	4	MET	ILE	conflict	UNP P0A7W1

- Molecule 41 is a protein called 30S ribosomal protein S6, non-modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	5	100	Total	C	N	O	S	0	0
			817	515	148	148	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5	101	SER	PRO	conflict	UNP P02358

- Molecule 42 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	6	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 43 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	7	129	Total	C	N	O	S	0	0
			978	616	173	183	6		

- Molecule 44 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	8	127	Total	C	N	O	S	0	0
			1021	634	206	178	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
8	3	ASP	GLU	conflict	UNP P0A7X3

- Molecule 45 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	9	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 46 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	A	117	Total	C	N	O	S	0	0
			876	540	174	159	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	5	ALA	PRO	conflict	UNP P0A7R9

- Molecule 47 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	B	123	Total	C	N	O	S	0	0
			954	590	196	164	4		

- Molecule 48 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	D	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	1	VAL	MET	conflict	UNP P0A7S9

- Molecule 49 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	E	96	Total	C	N	O	S	0	0
			773	483	160	127	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	40	ALA	ASP	conflict	UNP P0AG59

- Molecule 50 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	F	88	Total	C	N	O	S	0	0
			709	437	143	128	1		

- Molecule 51 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	G	82	Total	C	N	O	S	0	0
			648	406	128	113	1		

- Molecule 52 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	H	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	2	ALA	THR	conflict	UNP P0AG63

- Molecule 53 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
53	I	55	Total	C	N	O	0	0
			455	288	86	81		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	15	THR	ALA	conflict	UNP P0A7T7
I	19	VAL	GLN	conflict	UNP P0A7T7

- Molecule 54 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	J	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

- Molecule 55 is a protein called 30S ribosomal protein S20.

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

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
K	1	LEU	MET	conflict	UNP P0A7U7

- Molecule 56 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	s	51	Total	C	N	O	S	0	0
			425	265	86	73	1		

- Molecule 57 is a protein called 30S ribosomal protein S1.

Mol	Chain	Residues	Atoms				AltConf	Trace
57	t	143	Total	C	N	O	0	0
			704	418	143	143		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
t	241	VAL	ILE	conflict	UNP P0AG67

- Molecule 58 is a RNA chain called A-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	u	73	Total	C	N	O	P	0	0
			1561	695	279	514	73		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
u	3	G	C	conflict	GB 1851743410
u	70	C	G	conflict	GB 1851743410

- Molecule 59 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
59	u	2	Total	Mg	0
			2	2	

- Molecule 60 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
60	u	1	Total	K	0
			1	1	

- Molecule 61 is water.

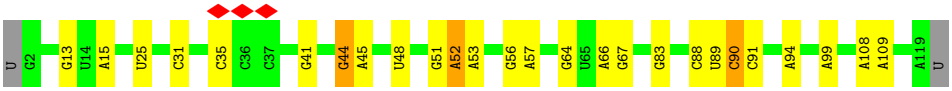
Mol	Chain	Residues	Atoms		AltConf
61	u	9	Total	O	0
			9	9	

3 Residue-property plots (i)

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

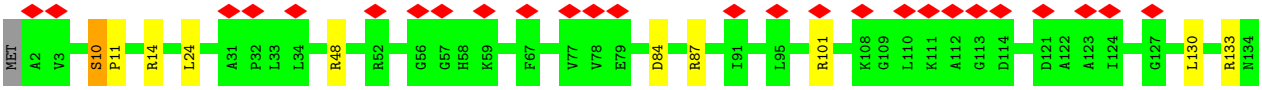
• Molecule 1: 5S rRNA

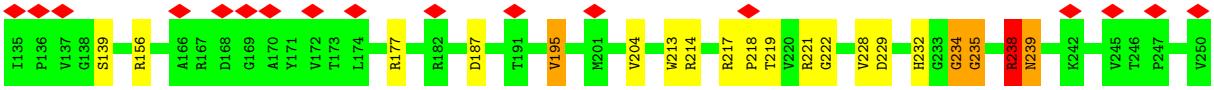
Chain O:

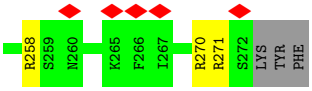


• Molecule 2: 50S ribosomal protein L2

Chain P:

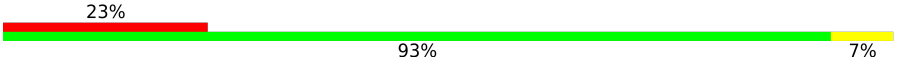


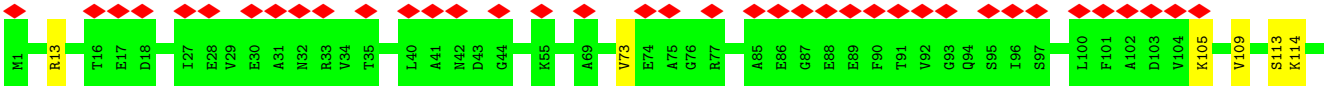


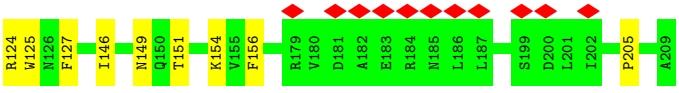


• Molecule 3: 50S ribosomal protein L3

Chain Q:

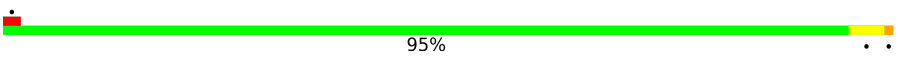






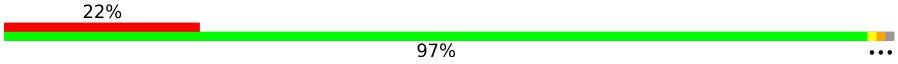
• Molecule 4: 50S ribosomal protein L4

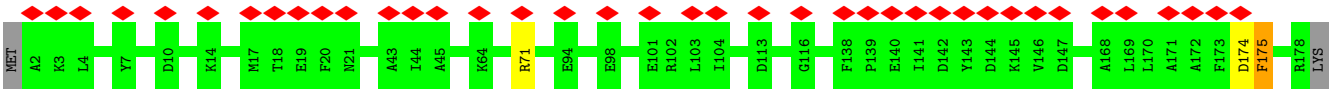
Chain R:



• Molecule 5: 50S ribosomal protein L5

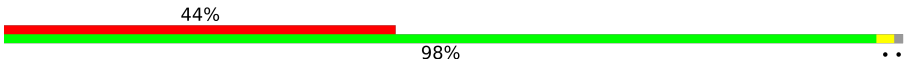
Chain S:

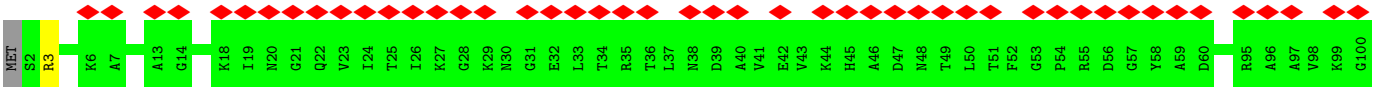


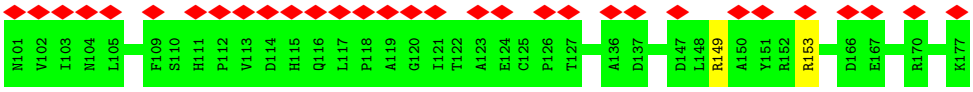


• Molecule 6: 50S ribosomal protein L6

Chain T:

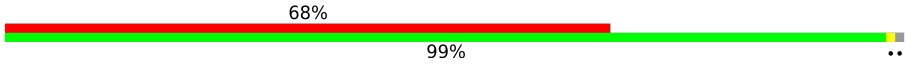


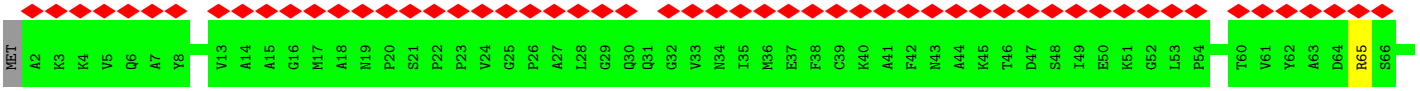


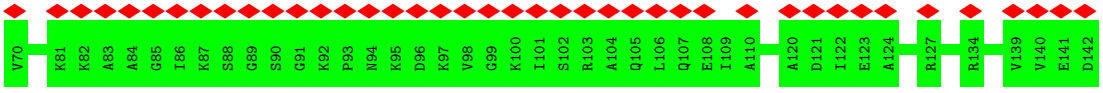


• Molecule 7: 50S ribosomal protein L11

Chain V:

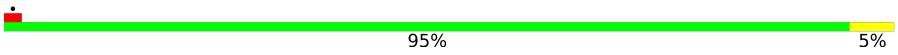






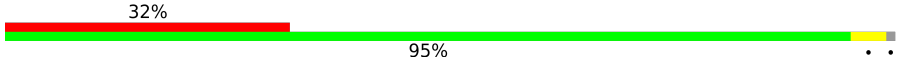
• Molecule 8: 50S ribosomal protein L13

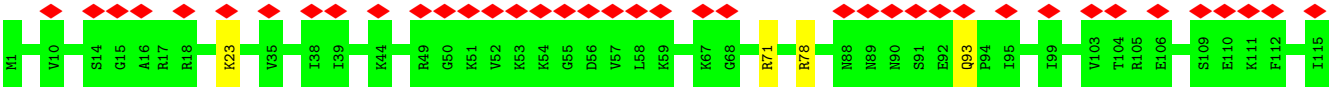
Chain W:



• Molecule 9: 50S ribosomal protein L14

Chain X:



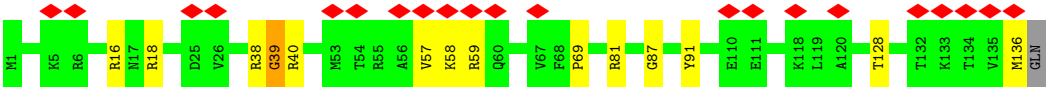


• Molecule 10: 50S ribosomal protein L15

Chain Y:

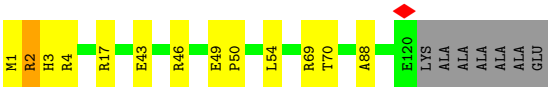
• Molecule 11: 50S ribosomal protein L16

Chain Z:



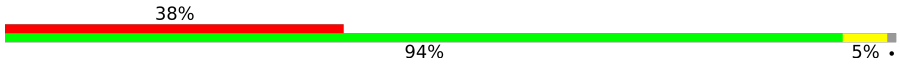
• Molecule 12: 50S ribosomal protein L17

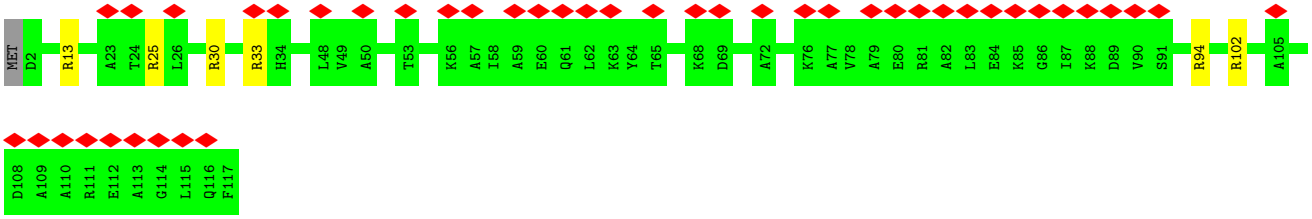
Chain a:



• Molecule 13: 50S ribosomal protein L18

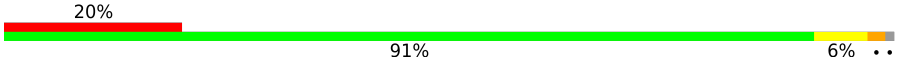
Chain b:

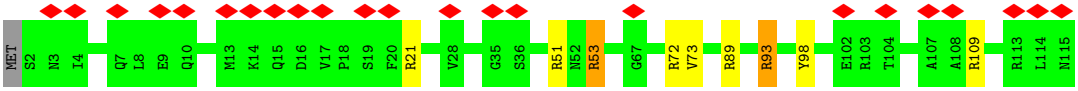




• Molecule 14: 50S ribosomal protein L19

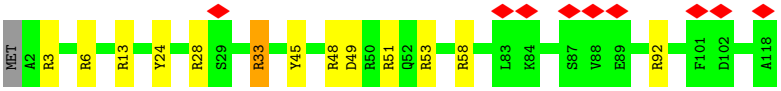
Chain c:



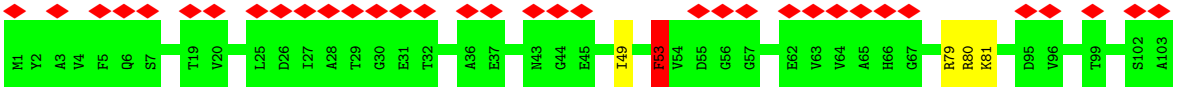


• Molecule 15: 50S ribosomal protein L20

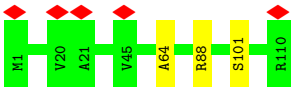
Chain d:



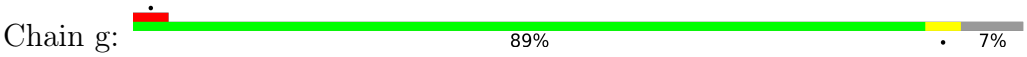
• Molecule 16: 50S ribosomal protein L21

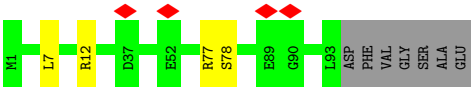


• Molecule 17: 50S ribosomal protein L22

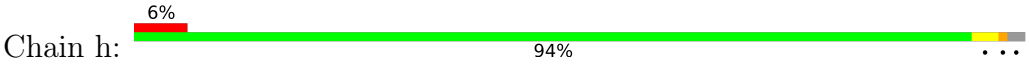


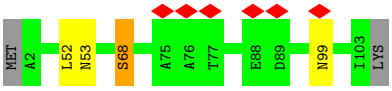
• Molecule 18: 50S ribosomal protein L23



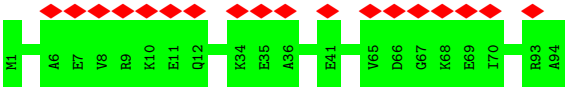


• Molecule 19: 50S ribosomal protein L24

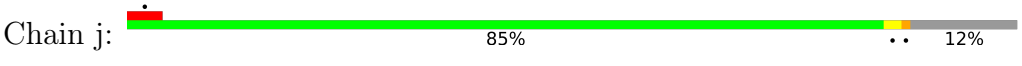


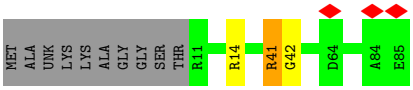


• Molecule 20: 50S ribosomal protein L25



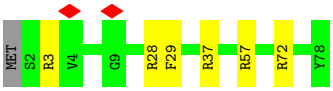
• Molecule 21: 50S ribosomal protein L27





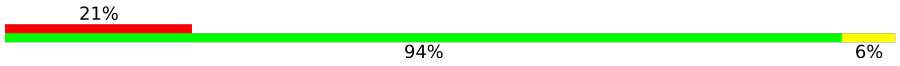
• Molecule 22: 50S ribosomal protein L28

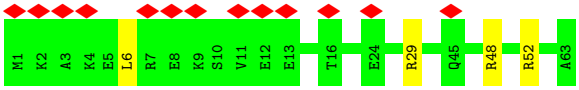
Chain k:



• Molecule 23: 50S ribosomal protein L29

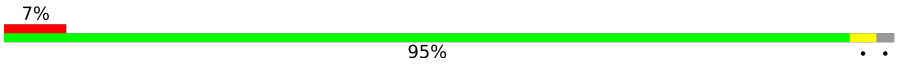
Chain l:

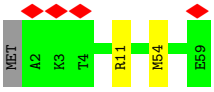




• Molecule 24: 50S ribosomal protein L30

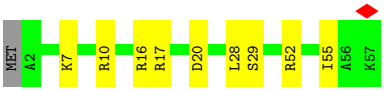
Chain m:





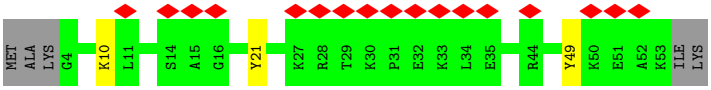
• Molecule 25: 50S ribosomal protein L32

Chain n:



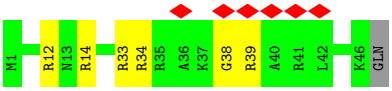
• Molecule 26: 50S ribosomal protein L33

Chain o:



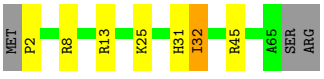
• Molecule 27: 50S ribosomal protein L34

Chain p:



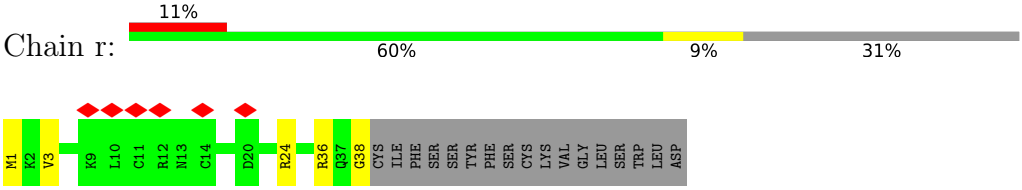
• Molecule 28: 50S ribosomal protein L35

Chain q:



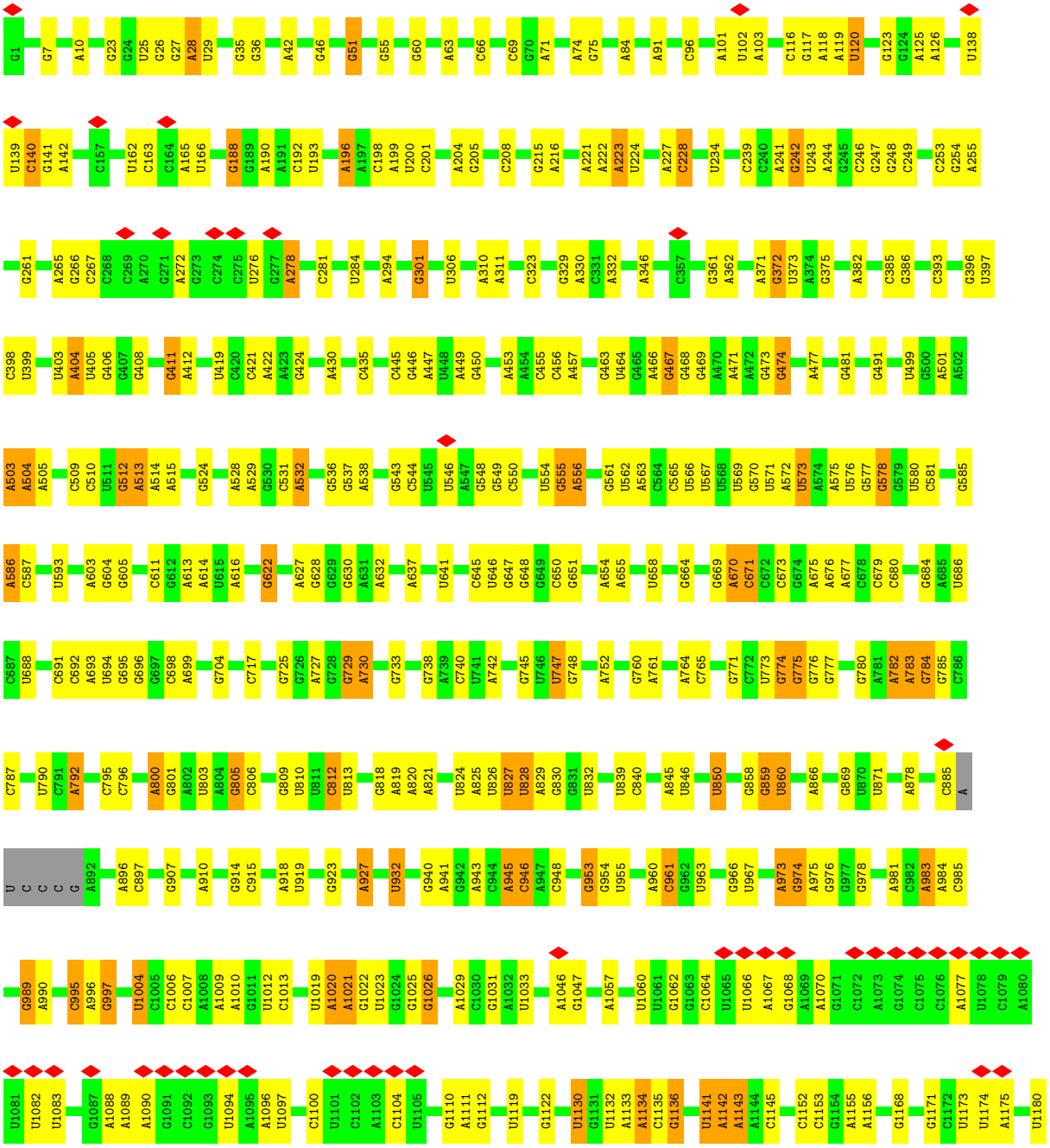
• Molecule 29: 50S ribosomal protein L36

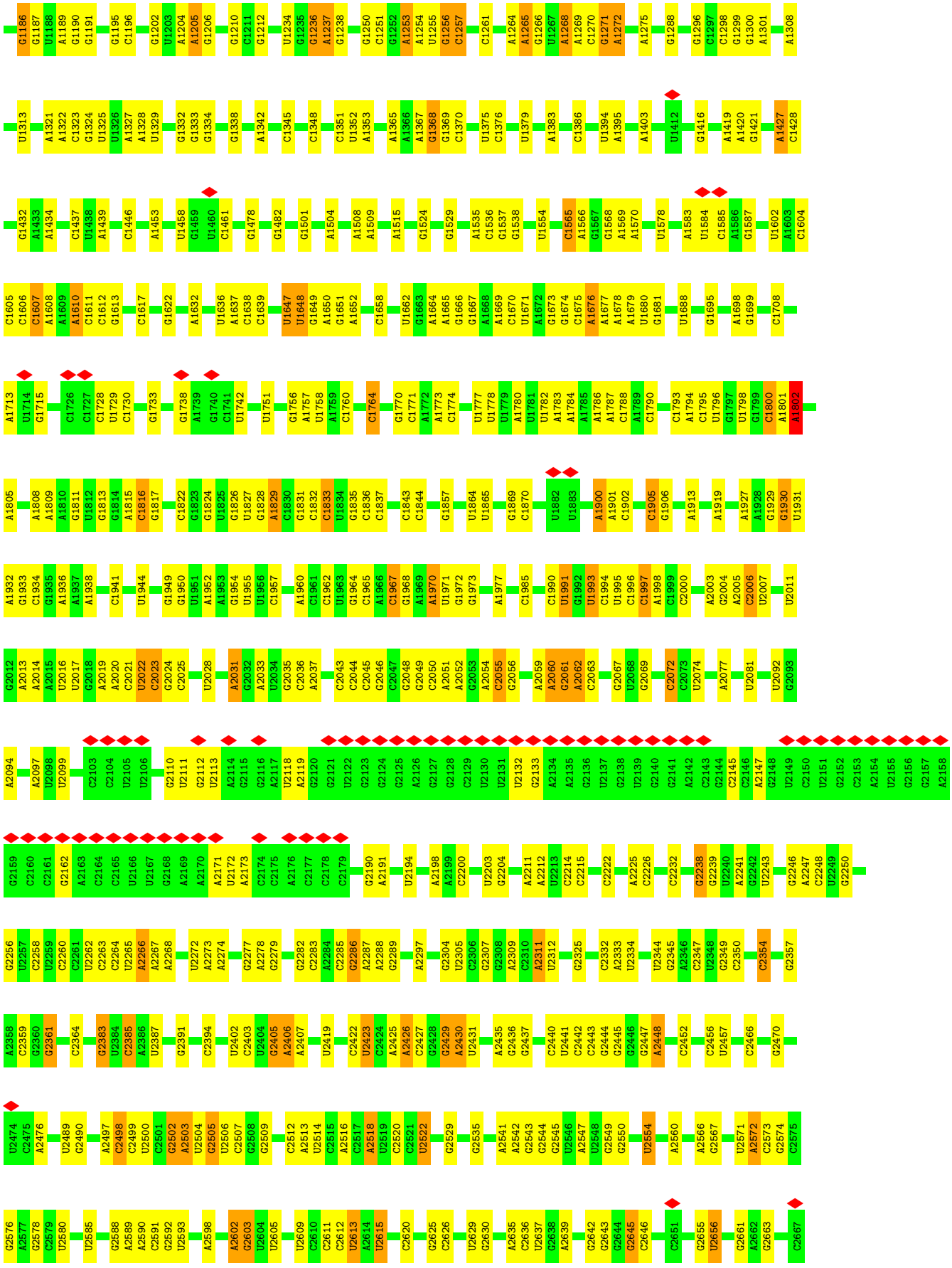
Chain r:

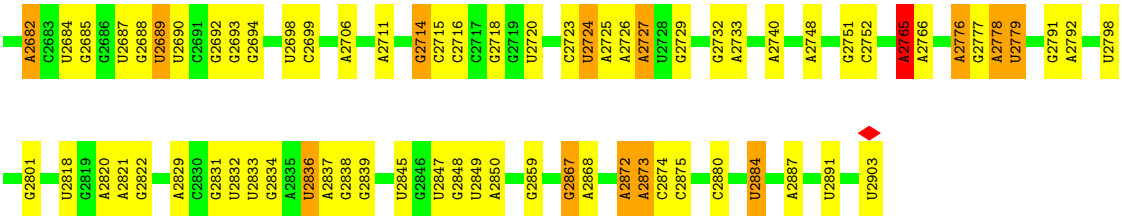


• Molecule 30: 23S rRNA

Chain N:

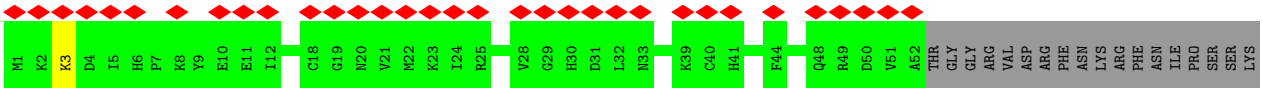






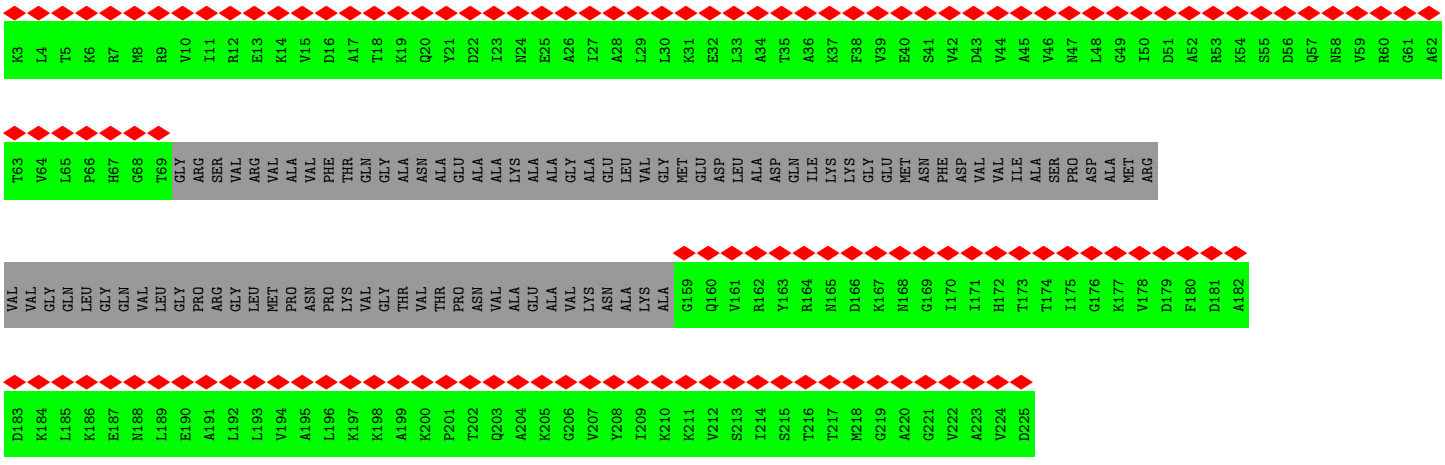
• Molecule 31: 50S ribosomal protein L31

Chain L:



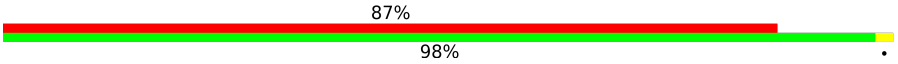
• Molecule 32: 50S ribosomal protein L1

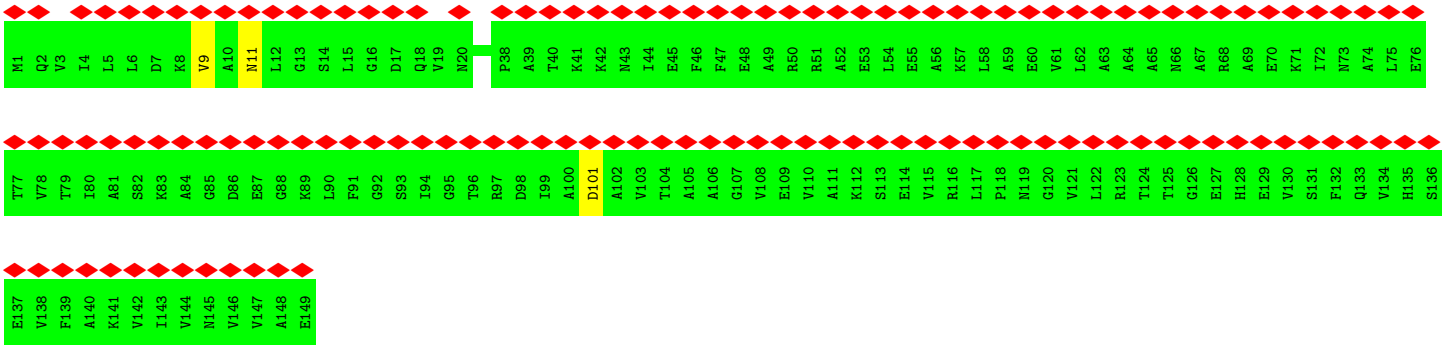
Chain C:



• Molecule 33: 50S ribosomal protein L9

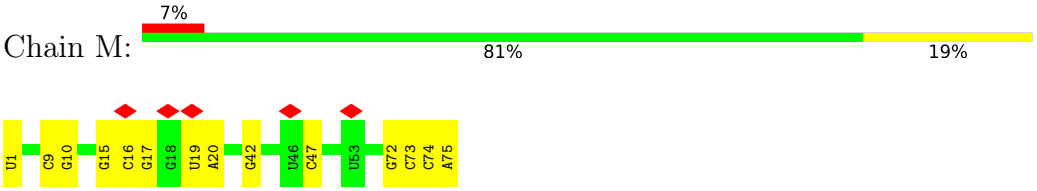
Chain U:





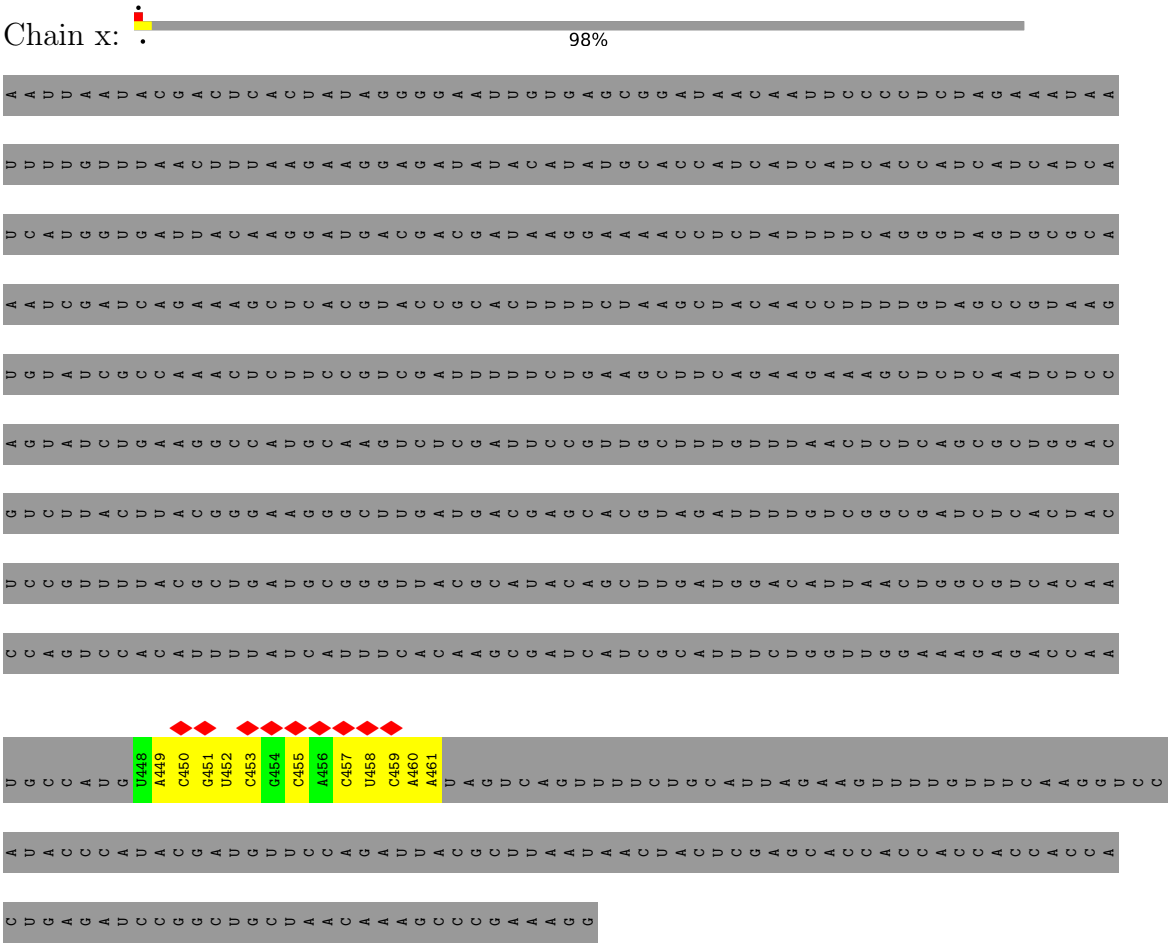
• Molecule 34: P-site tRNA

Chain M:



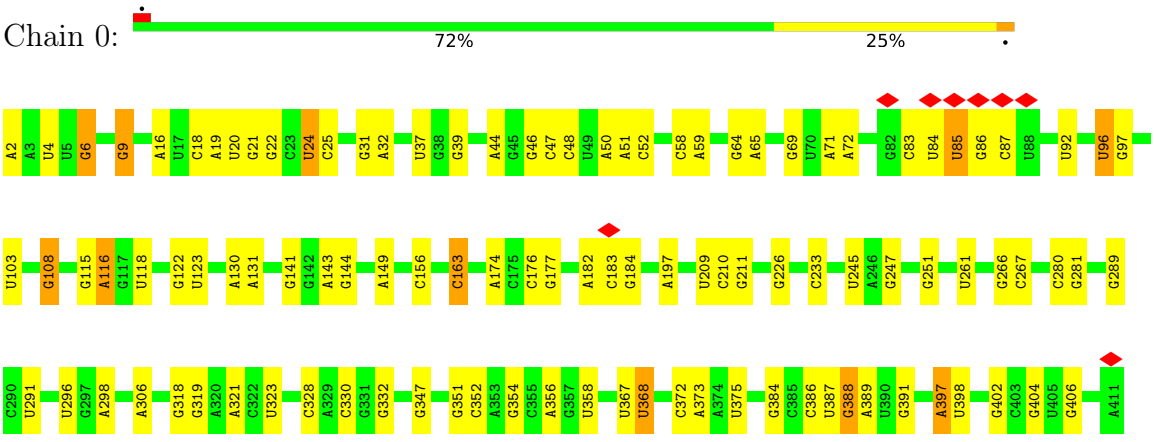
• Molecule 35: mRNA

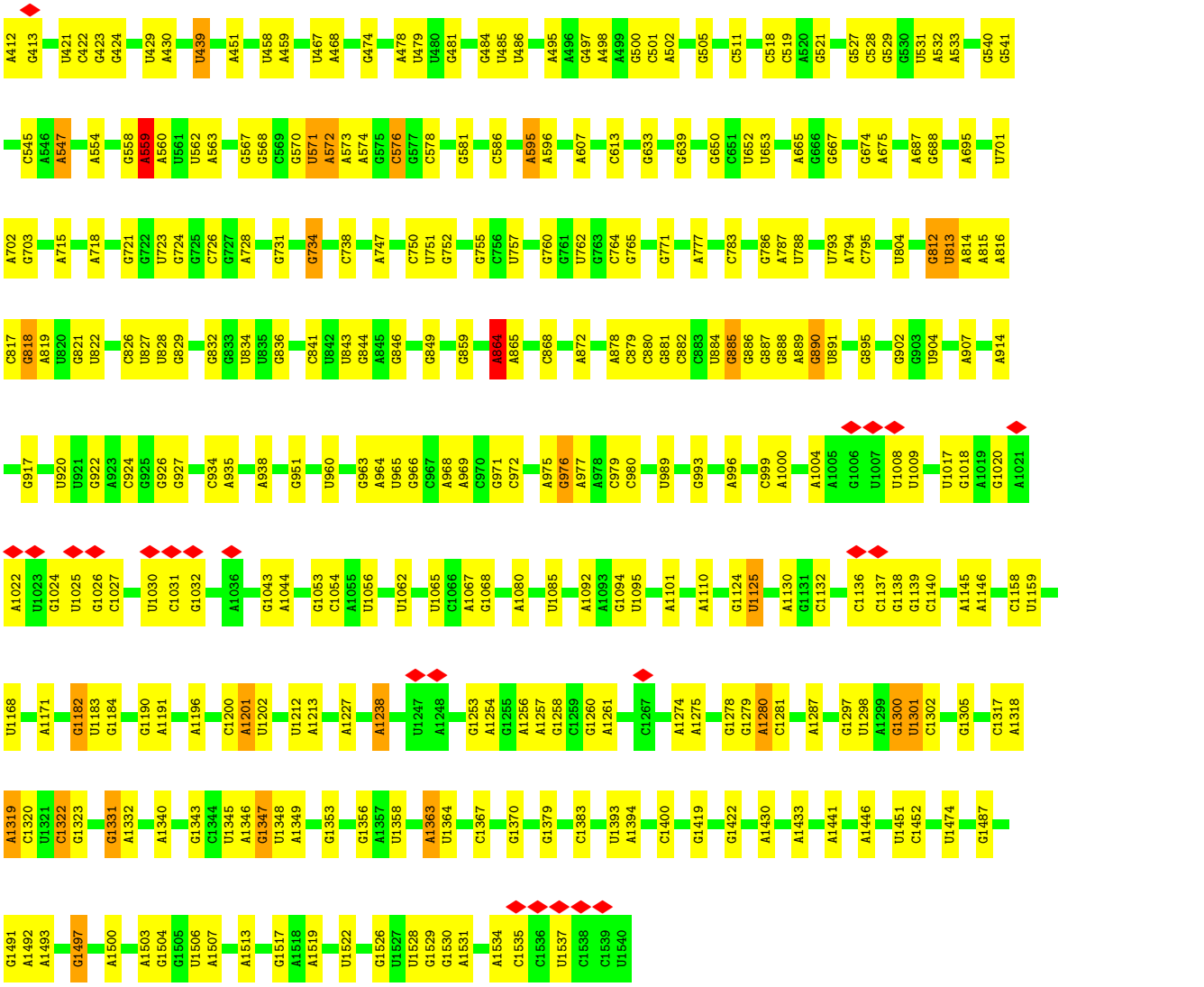
Chain x:



• Molecule 36: 16S rRNA

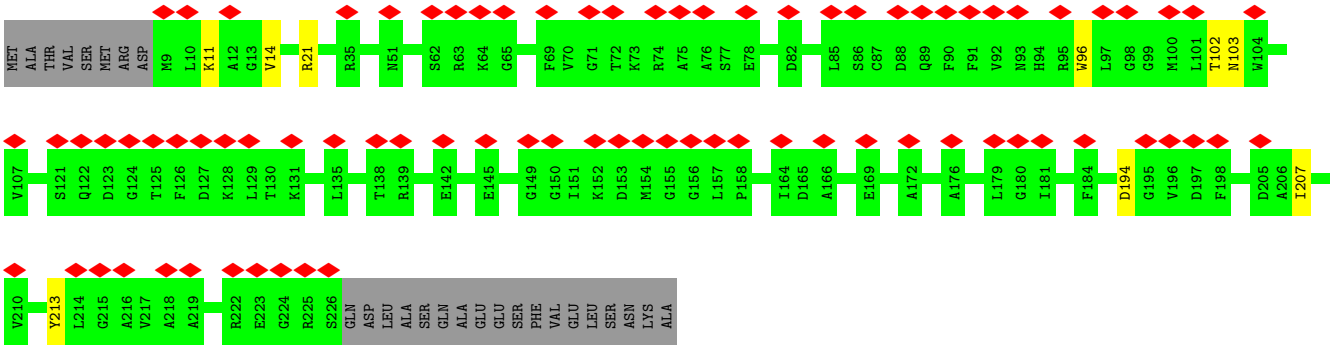
Chain 0:





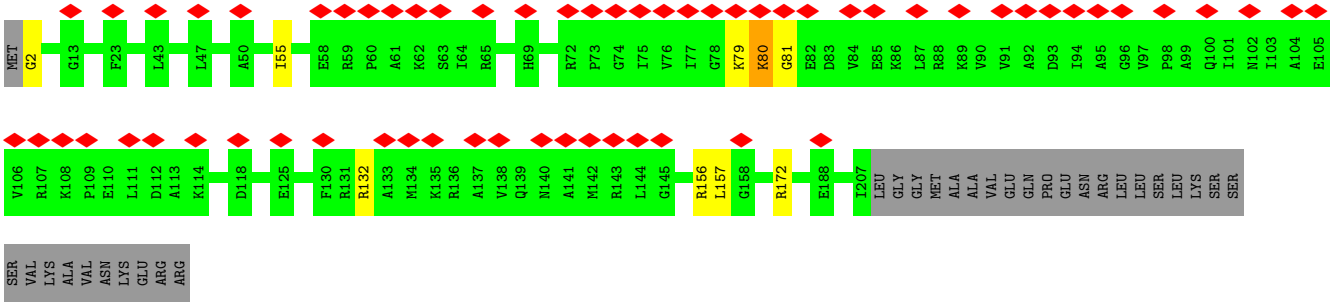
• Molecule 37: 30S ribosomal protein S2

Chain 1:

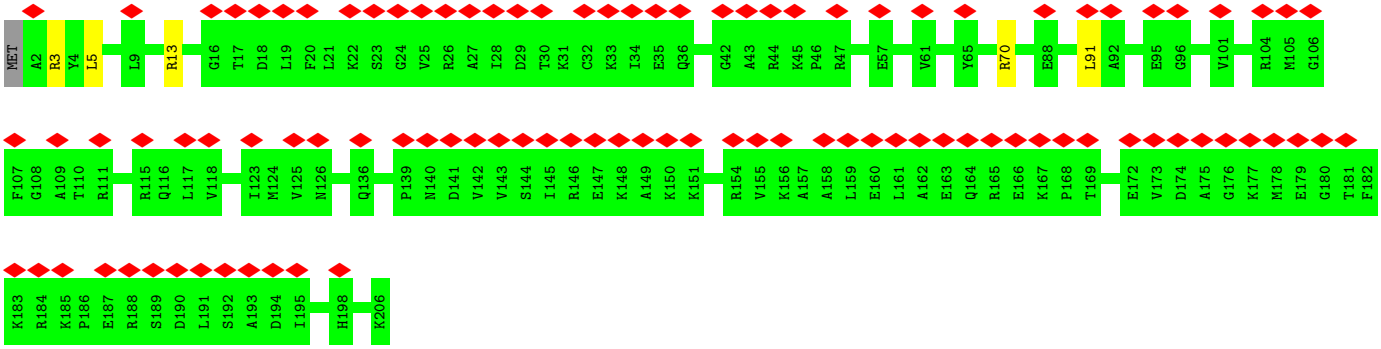


• Molecule 38: 30S ribosomal protein S3

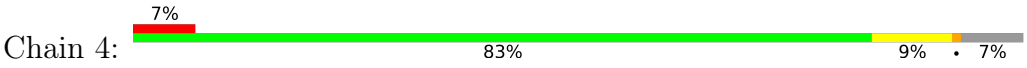
Chain 2:

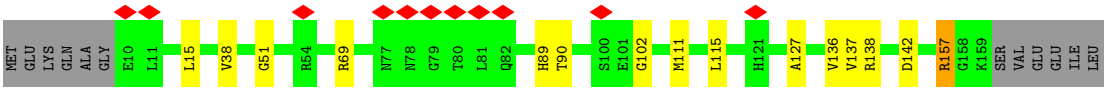


• Molecule 39: 30S ribosomal protein S4

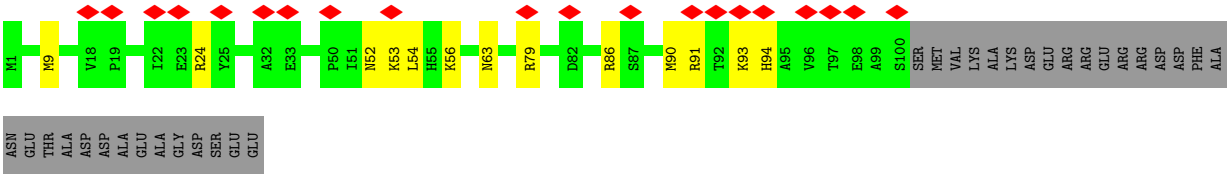


• Molecule 40: 30S ribosomal protein S5

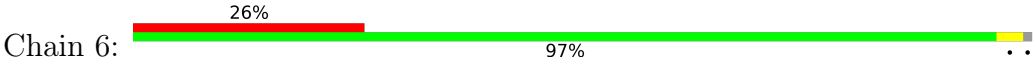


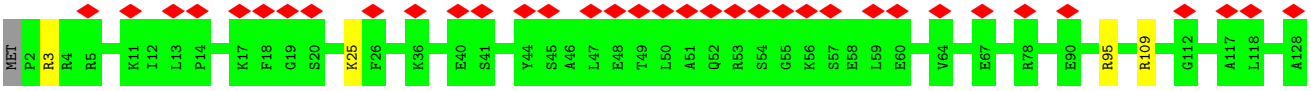


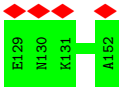
• Molecule 41: 30S ribosomal protein S6, non-modified isoform



• Molecule 42: 30S ribosomal protein S7

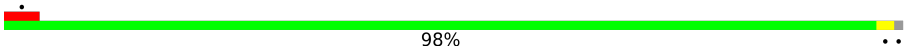


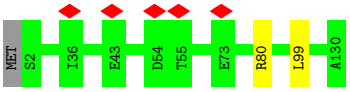




• Molecule 43: 30S ribosomal protein S8

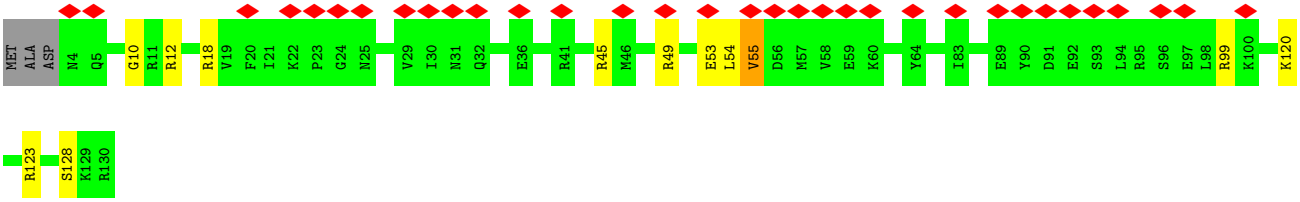
Chain 7:





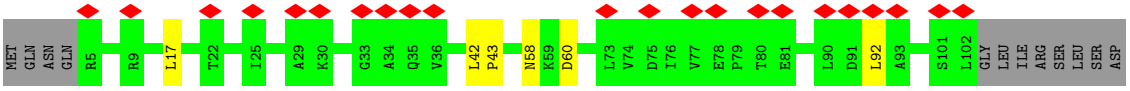
• Molecule 44: 30S ribosomal protein S9

Chain 8:



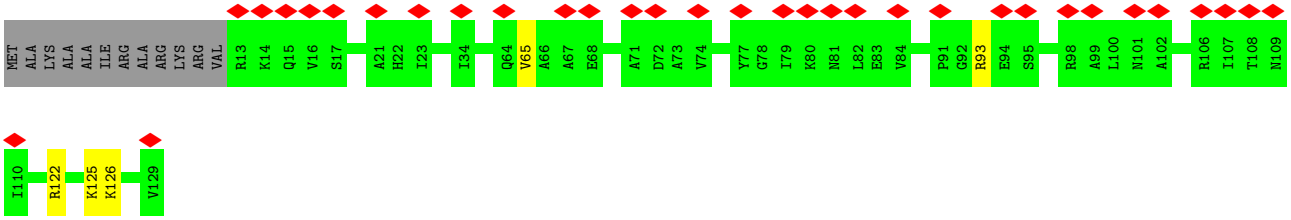
• Molecule 45: 30S ribosomal protein S10

Chain 9:



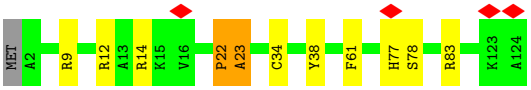
• Molecule 46: 30S ribosomal protein S11

Chain A:



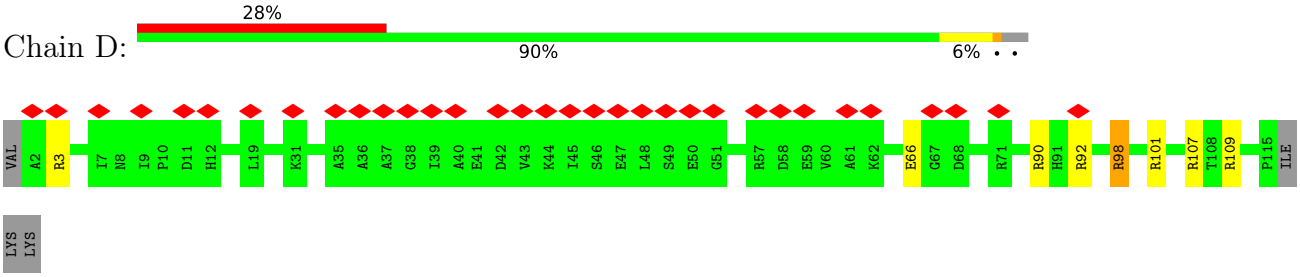
• Molecule 47: 30S ribosomal protein S12

Chain B:



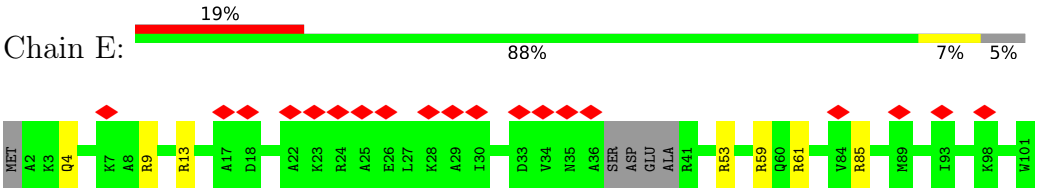
• Molecule 48: 30S ribosomal protein S13

Chain D:



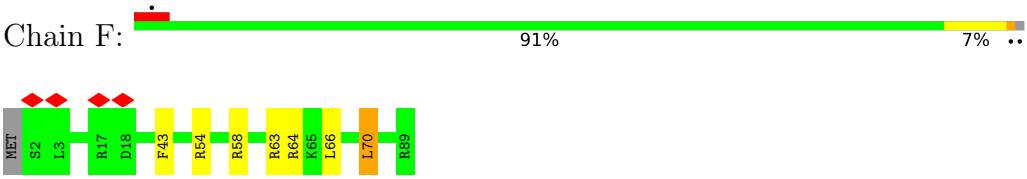
• Molecule 49: 30S ribosomal protein S14

Chain E:



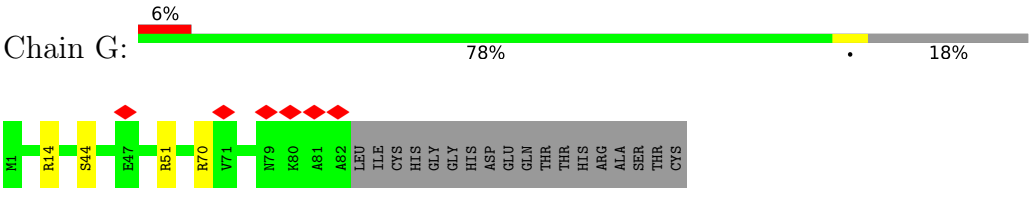
• Molecule 50: 30S ribosomal protein S15

Chain F:



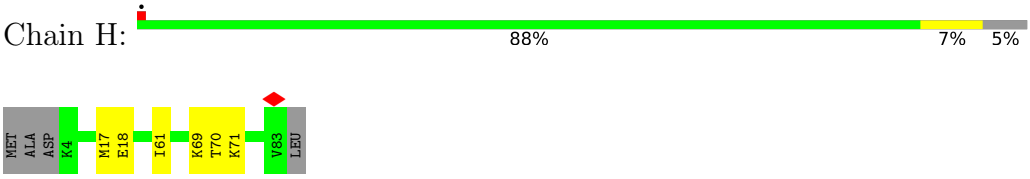
• Molecule 51: 30S ribosomal protein S16

Chain G:



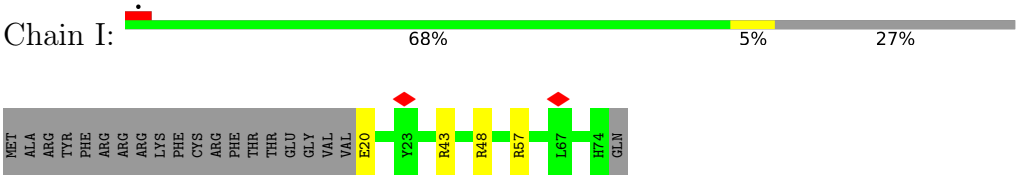
• Molecule 52: 30S ribosomal protein S17

Chain H:



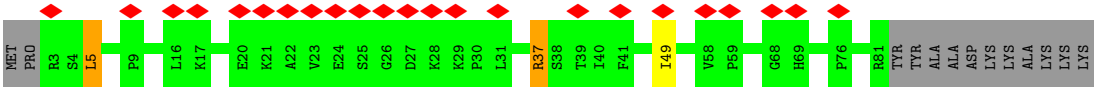
• Molecule 53: 30S ribosomal protein S18

Chain I:

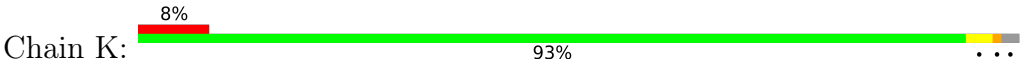


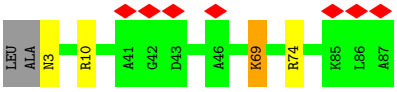
• Molecule 54: 30S ribosomal protein S19

Chain J:

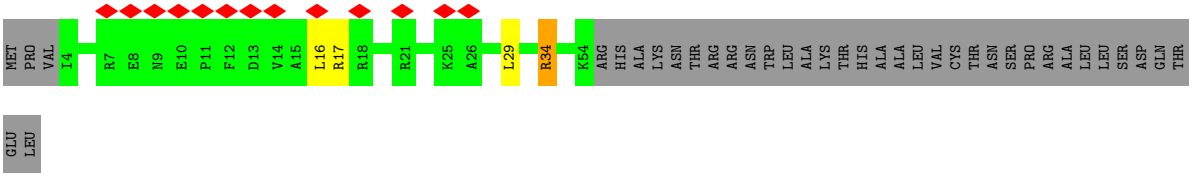


• Molecule 55: 30S ribosomal protein S20

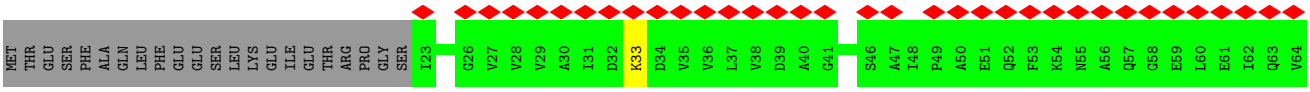


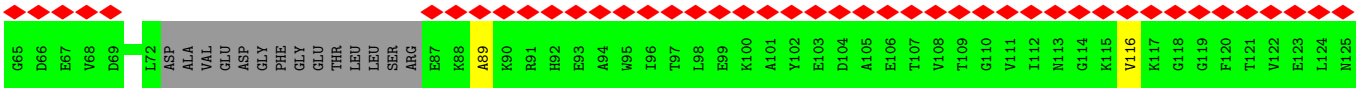


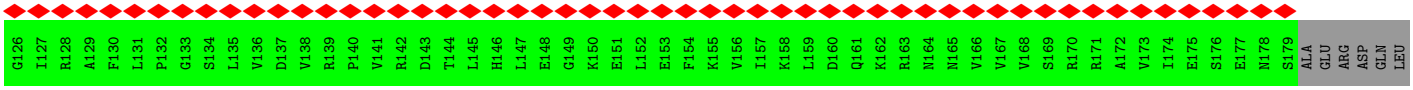
• Molecule 56: 30S ribosomal protein S21

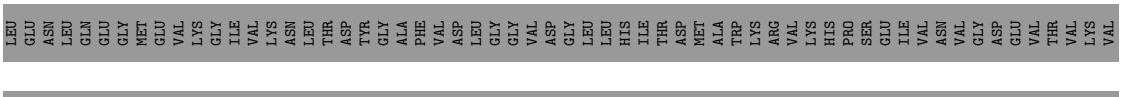


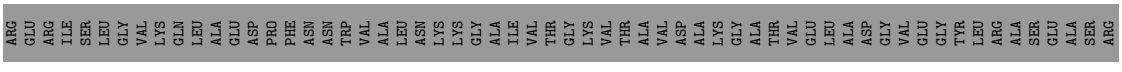
• Molecule 57: 30S ribosomal protein S1





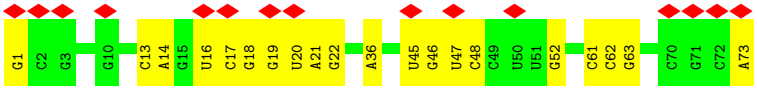






• Molecule 58: A-site tRNA

Chain u:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	75081	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	2.366	Depositor
Minimum map value	-0.728	Depositor
Average map value	-0.008	Depositor
Map value standard deviation	0.144	Depositor
Recommended contour level	0.45	Depositor
Map size (Å)	654.0, 654.0, 654.0	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.09, 1.09, 1.09	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: K, MG

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	O	0.80	1/2828 (0.0%)	0.88	6/4410 (0.1%)
2	P	1.41	21/2121 (1.0%)	1.32	27/2852 (0.9%)
3	Q	1.18	3/1585 (0.2%)	1.14	8/2134 (0.4%)
4	R	0.97	4/1571 (0.3%)	1.02	9/2113 (0.4%)
5	S	0.67	0/1434	0.85	1/1926 (0.1%)
6	T	0.67	0/1342	0.83	4/1816 (0.2%)
7	V	0.53	0/1045	0.65	0/1410
8	W	1.10	3/1151 (0.3%)	1.10	7/1551 (0.5%)
9	X	1.15	0/947	1.19	5/1268 (0.4%)
10	Y	1.30	4/1053 (0.4%)	1.38	11/1403 (0.8%)
11	Z	1.13	2/1092 (0.2%)	1.19	7/1460 (0.5%)
12	a	1.28	3/973 (0.3%)	1.30	8/1301 (0.6%)
13	b	0.84	2/901 (0.2%)	1.08	8/1209 (0.7%)
14	c	1.09	3/927 (0.3%)	1.19	8/1240 (0.6%)
15	d	1.32	4/959 (0.4%)	1.37	15/1278 (1.2%)
16	e	1.08	2/828 (0.2%)	1.08	3/1107 (0.3%)
17	f	1.02	1/864 (0.1%)	1.09	1/1156 (0.1%)
18	g	0.91	0/744	1.01	2/994 (0.2%)
19	h	0.82	1/787 (0.1%)	0.89	0/1051
20	i	0.78	0/765	0.87	0/1025
21	j	1.20	2/575 (0.3%)	1.29	5/762 (0.7%)
22	k	1.09	1/634 (0.2%)	1.15	6/848 (0.7%)
23	l	0.71	0/509	1.04	4/677 (0.6%)
24	m	0.86	0/452	1.08	2/605 (0.3%)
25	n	1.16	2/449 (0.4%)	1.42	7/599 (1.2%)
26	o	1.31	7/416 (1.7%)	0.97	1/554 (0.2%)
27	p	1.38	3/379 (0.8%)	1.75	7/498 (1.4%)
28	q	1.15	1/512 (0.2%)	1.26	6/676 (0.9%)
29	r	1.16	1/302 (0.3%)	1.35	5/397 (1.3%)
30	N	1.24	516/69681 (0.7%)	1.04	347/108706 (0.3%)
31	L	0.58	0/411	0.77	0/550
32	C	0.28	0/1034	0.51	0/1387

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	U	0.29	0/1122	0.58	0/1515
34	M	0.63	3/1779 (0.2%)	0.83	2/2768 (0.1%)
35	x	0.31	0/327	0.71	0/506
36	0	0.97	131/36966 (0.4%)	0.93	109/57666 (0.2%)
37	1	0.81	2/1735 (0.1%)	0.93	3/2338 (0.1%)
38	2	0.85	1/1651 (0.1%)	0.94	4/2225 (0.2%)
39	3	0.76	0/1664	0.98	6/2227 (0.3%)
40	4	1.11	1/1118 (0.1%)	1.22	7/1504 (0.5%)
41	5	0.90	1/835 (0.1%)	1.04	4/1128 (0.4%)
42	6	0.66	0/1195	0.96	5/1602 (0.3%)
43	7	0.88	0/988	0.99	2/1326 (0.2%)
44	8	0.85	0/1033	1.13	6/1375 (0.4%)
45	9	0.74	0/796	1.01	2/1077 (0.2%)
46	A	0.86	1/892 (0.1%)	1.03	3/1205 (0.2%)
47	B	1.09	3/968 (0.3%)	1.22	7/1300 (0.5%)
48	D	0.85	1/892 (0.1%)	1.12	9/1193 (0.8%)
49	E	0.86	0/784	1.14	7/1043 (0.7%)
50	F	0.94	0/717	1.14	8/959 (0.8%)
51	G	0.94	0/658	1.16	4/884 (0.5%)
52	H	0.82	0/657	1.02	0/881
53	I	0.98	1/462 (0.2%)	1.10	2/621 (0.3%)
54	J	0.82	0/652	1.05	3/877 (0.3%)
55	K	0.89	0/670	1.06	3/888 (0.3%)
56	s	1.07	1/430 (0.2%)	1.25	4/570 (0.7%)
57	t	0.34	0/702	0.44	0/973
58	u	0.67	1/1744 (0.1%)	0.86	0/2716
All	All	1.09	734/160708 (0.5%)	1.02	720/240330 (0.3%)

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
2	P	0	3
3	Q	0	1
5	S	0	2
10	Y	0	2
11	Z	0	2
19	h	0	1
28	q	0	1
30	N	0	6

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Mol	Chain	#Chirality outliers	#Planarity outliers
36	0	0	5
37	1	0	2
38	2	0	2
40	4	0	5
41	5	0	2
44	8	0	4
46	A	0	1
47	B	0	2
52	H	0	2
54	J	0	1
55	K	0	1
56	s	0	1
All	All	0	46

All (734) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	2873	A	C6-N1	-20.29	1.21	1.35
30	N	2765	A	C6-N1	-18.77	1.22	1.35
30	N	2502	G	P-OP2	16.62	1.77	1.49
30	N	503	A	C6-N1	-15.22	1.24	1.35
30	N	1156	A	P-OP2	15.18	1.74	1.49
36	0	24	U	N3-C4	-13.84	1.25	1.38
36	0	1238	A	C6-N1	-13.78	1.25	1.35
2	P	213	TRP	CD2-CE2	13.68	1.57	1.41
30	N	1333	G	P-OP2	12.83	1.70	1.49
30	N	783	A	P-OP2	12.70	1.70	1.49
30	N	945	A	P-OP2	12.30	1.69	1.49
30	N	1639	C	P-OP1	12.13	1.69	1.49
30	N	1664	A	P-OP2	11.91	1.69	1.49
30	N	945	A	P-OP1	11.82	1.69	1.49
30	N	310	A	C6-N1	-11.77	1.27	1.35
30	N	1670	C	P-OP1	11.57	1.68	1.49
2	P	213	TRP	CZ3-CH2	11.43	1.58	1.40
30	N	1141	U	N3-C4	-11.42	1.28	1.38
30	N	2074	U	P-OP1	11.41	1.68	1.49
36	0	559	A	N1-C2	11.38	1.44	1.34
30	N	234	U	N3-C4	-11.36	1.28	1.38
36	0	37	U	N3-C4	-11.16	1.28	1.38
36	0	368	U	N3-C4	-11.16	1.28	1.38
2	P	213	TRP	CB-CG	-11.05	1.30	1.50
30	N	2588	G	P-OP1	11.05	1.67	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	828	U	O3'-P	-10.82	1.48	1.61
30	N	2349	G	O3'-P	-10.79	1.48	1.61
30	N	2005	A	P-OP1	10.72	1.67	1.49
30	N	2272	U	N3-C4	-10.71	1.28	1.38
30	N	2445	G	O3'-P	-10.67	1.48	1.61
58	u	1	G	OP3-P	-10.65	1.48	1.61
30	N	827	U	P-OP1	10.62	1.67	1.49
30	N	450	G	P-OP2	10.61	1.67	1.49
30	N	2589	A	O3'-P	-10.43	1.48	1.61
30	N	963	U	O3'-P	-10.43	1.48	1.61
30	N	932	U	N3-C4	-10.40	1.29	1.38
30	N	1777	U	O3'-P	-10.32	1.48	1.61
30	N	943	A	P-OP2	10.31	1.66	1.49
36	0	757	U	O3'-P	-10.21	1.48	1.61
36	0	1301	U	N3-C4	10.20	1.47	1.38
19	h	68	SER	CB-OG	10.19	1.55	1.42
34	M	1	U	OP3-P	-10.15	1.49	1.61
30	N	2025	C	P-OP2	10.10	1.66	1.49
36	0	578	C	P-OP1	10.07	1.66	1.49
30	N	2060	A	O3'-P	-10.05	1.49	1.61
30	N	800	A	P-OP1	10.04	1.66	1.49
36	0	1358	U	N3-C4	-9.97	1.29	1.38
30	N	782	A	O3'-P	-9.95	1.49	1.61
30	N	567	U	P-OP1	9.92	1.65	1.49
30	N	825	A	O3'-P	-9.86	1.49	1.61
30	N	692	C	O3'-P	-9.85	1.49	1.61
30	N	787	C	O3'-P	-9.84	1.49	1.61
30	N	2720	U	C2-N3	9.84	1.44	1.37
36	0	24	U	C2-N3	9.82	1.44	1.37
30	N	1968	G	O3'-P	-9.78	1.49	1.61
26	o	21	TYR	CE2-CZ	-9.77	1.25	1.38
30	N	1604	C	P-OP1	9.74	1.65	1.49
36	0	20	U	O3'-P	-9.72	1.49	1.61
30	N	2687	U	O3'-P	-9.72	1.49	1.61
30	N	1009	A	O3'-P	-9.70	1.49	1.61
30	N	2615	U	P-OP1	9.69	1.65	1.49
30	N	1774	C	P-OP1	9.68	1.65	1.49
30	N	2522	U	C2-N3	9.68	1.44	1.37
36	0	21	G	P-OP1	9.65	1.65	1.49
30	N	585	G	O3'-P	-9.63	1.49	1.61
30	N	1257	C	O3'-P	-9.41	1.49	1.61
30	N	2344	U	N3-C4	-9.36	1.30	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	2019	A	O3'-P	-9.32	1.50	1.61
30	N	1828	G	P-OP2	9.31	1.64	1.49
30	N	963	U	P-OP1	9.29	1.64	1.49
30	N	554	U	O3'-P	-9.22	1.50	1.61
30	N	2025	C	O3'-P	-9.22	1.50	1.61
30	N	445	C	O3'-P	-9.22	1.50	1.61
30	N	809	G	O3'-P	-9.22	1.50	1.61
30	N	576	U	P-OP1	9.20	1.64	1.49
30	N	116	C	O3'-P	-9.19	1.50	1.61
30	N	984	A	O3'-P	-9.18	1.50	1.61
30	N	2593	U	O3'-P	-9.17	1.50	1.61
30	N	2550	G	O3'-P	-9.13	1.50	1.61
30	N	306	U	N3-C4	9.12	1.46	1.38
30	N	1269	A	P-OP2	9.11	1.64	1.49
30	N	948	C	P-OP1	9.04	1.64	1.49
36	0	667	G	O3'-P	-9.00	1.50	1.61
36	0	882	C	O3'-P	-8.96	1.50	1.61
30	N	2050	C	O3'-P	-8.93	1.50	1.61
30	N	1152	C	O3'-P	-8.92	1.50	1.61
30	N	2588	G	O3'-P	-8.89	1.50	1.61
30	N	1375	U	O3'-P	-8.82	1.50	1.61
30	N	397	U	O3'-P	-8.75	1.50	1.61
30	N	673	C	O3'-P	-8.74	1.50	1.61
30	N	2576	G	P-OP1	8.73	1.63	1.49
30	N	859	G	O3'-P	8.72	1.71	1.61
30	N	2588	G	P-OP2	8.69	1.63	1.49
30	N	2543	G	P-OP1	8.69	1.63	1.49
30	N	1019	U	O3'-P	-8.64	1.50	1.61
30	N	2052	A	O3'-P	-8.63	1.50	1.61
30	N	1774	C	O3'-P	-8.61	1.50	1.61
36	0	827	U	N3-C4	-8.61	1.30	1.38
30	N	120	U	P-OP1	8.58	1.63	1.49
30	N	2635	A	O3'-P	-8.57	1.50	1.61
30	N	1664	A	P-OP1	8.56	1.63	1.49
29	r	38	GLY	N-CA	8.53	1.58	1.46
30	N	2698	U	O3'-P	-8.50	1.50	1.61
30	N	1612	C	O3'-P	-8.49	1.50	1.61
30	N	2714	G	P-OP2	8.48	1.63	1.49
2	P	195	VAL	CB-CG1	-8.41	1.35	1.52
36	0	1500	A	O3'-P	-8.40	1.51	1.61
30	N	200	U	O3'-P	-8.38	1.51	1.61
30	N	1658	C	O3'-P	-8.36	1.51	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	1994	C	O3'-P	-8.35	1.51	1.61
30	N	2466	C	O3'-P	-8.32	1.51	1.61
30	N	2503	A	P-OP2	8.30	1.63	1.49
30	N	1751	U	O3'-P	-8.29	1.51	1.61
30	N	499	U	N3-C4	8.28	1.45	1.38
30	N	955	U	O3'-P	-8.27	1.51	1.61
30	N	503	A	N1-C2	8.26	1.41	1.34
30	N	641	U	O3'-P	-8.25	1.51	1.61
30	N	1900	A	O3'-P	8.25	1.71	1.61
30	N	1780	A	P-OP1	8.24	1.62	1.49
30	N	826	U	P-OP1	8.22	1.62	1.49
30	N	1831	G	O3'-P	-8.19	1.51	1.61
30	N	2498	C	P-OP2	8.19	1.62	1.49
30	N	1353	A	O3'-P	-8.18	1.51	1.61
30	N	2740	A	O3'-P	-8.16	1.51	1.61
36	0	812	G	O3'-P	8.16	1.71	1.61
30	N	2613	U	N3-C4	-8.16	1.31	1.38
30	N	453	A	P-OP1	8.12	1.62	1.49
30	N	2022	U	P-OP1	8.10	1.62	1.49
10	Y	18	ARG	CZ-NH1	8.06	1.43	1.33
30	N	1254	A	O3'-P	-8.06	1.51	1.61
30	N	2264	C	O3'-P	-8.01	1.51	1.61
30	N	2605	U	O3'-P	-7.97	1.51	1.61
30	N	2437	G	O3'-P	-7.96	1.51	1.61
30	N	2489	U	O3'-P	-7.92	1.51	1.61
30	N	1813	G	O3'-P	-7.92	1.51	1.61
30	N	1658	C	P-OP1	7.92	1.62	1.49
30	N	2502	G	O5'-C5'	-7.87	1.30	1.42
30	N	1782	U	P-OP1	7.86	1.62	1.49
30	N	2590	A	O3'-P	-7.85	1.51	1.61
30	N	839	U	O3'-P	-7.85	1.51	1.61
30	N	2006	C	P-OP1	7.83	1.62	1.49
30	N	2572	A	O3'-P	-7.79	1.51	1.61
30	N	733	G	O3'-P	-7.77	1.51	1.61
30	N	2062	A	P-OP2	7.75	1.62	1.49
30	N	2265	U	O3'-P	-7.75	1.51	1.61
36	0	726	C	O3'-P	-7.75	1.51	1.61
30	N	192	C	P-OP1	7.73	1.62	1.49
30	N	192	C	O3'-P	-7.72	1.51	1.61
30	N	372	G	O3'-P	7.72	1.70	1.61
30	N	2447	G	O3'-P	-7.72	1.51	1.61
30	N	1794	A	O3'-P	-7.70	1.51	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	1268	A	P-OP1	7.70	1.62	1.49
2	P	204	VAL	CB-CG2	-7.69	1.36	1.52
30	N	832	U	O3'-P	-7.67	1.51	1.61
36	0	884	U	C4-O4	-7.67	1.17	1.23
30	N	1189	A	O3'-P	-7.64	1.51	1.61
30	N	515	A	O3'-P	-7.63	1.51	1.61
30	N	1771	C	O3'-P	-7.61	1.52	1.61
30	N	2518	A	P-OP2	7.60	1.61	1.49
30	N	997	G	O3'-P	-7.59	1.52	1.61
30	N	821	A	O3'-P	-7.57	1.52	1.61
30	N	810	U	P-OP1	7.56	1.61	1.49
30	N	569	U	O3'-P	-7.55	1.52	1.61
30	N	1778	U	O3'-P	-7.54	1.52	1.61
30	N	1790	C	O3'-P	-7.52	1.52	1.61
36	0	1238	A	N1-C2	7.51	1.41	1.34
30	N	254	G	O3'-P	-7.51	1.52	1.61
10	Y	51	GLU	C-O	7.49	1.37	1.23
30	N	1828	G	P-OP1	7.49	1.61	1.49
13	b	30	ARG	CZ-NH1	7.49	1.42	1.33
30	N	2031	A	P-OP1	-7.49	1.36	1.49
30	N	2867	G	O3'-P	7.49	1.70	1.61
30	N	1970	A	P-OP2	7.48	1.61	1.49
30	N	2620	C	O3'-P	-7.47	1.52	1.61
30	N	1678	A	P-OP2	7.46	1.61	1.49
30	N	2822	G	O3'-P	-7.46	1.52	1.61
30	N	676	A	O3'-P	-7.46	1.52	1.61
30	N	464	U	O3'-P	-7.45	1.52	1.61
30	N	2061	G	C2'-O2'	7.45	1.51	1.41
36	0	1367	C	O3'-P	-7.44	1.52	1.61
30	N	2272	U	C4-O4	-7.44	1.17	1.23
10	Y	22	GLY	C-O	-7.43	1.11	1.23
41	5	63	ASN	C-O	-7.41	1.09	1.23
30	N	975	A	P-OP2	7.40	1.61	1.49
36	0	1393	U	O3'-P	-7.40	1.52	1.61
30	N	2625	G	O3'-P	-7.40	1.52	1.61
30	N	2072	C	O3'-P	-7.39	1.52	1.61
30	N	2081	U	O3'-P	-7.37	1.52	1.61
30	N	2247	A	O3'-P	-7.37	1.52	1.61
30	N	2637	U	O3'-P	-7.36	1.52	1.61
30	N	2359	C	O3'-P	-7.34	1.52	1.61
30	N	572	A	P-OP1	7.32	1.61	1.49
30	N	566	U	O3'-P	-7.32	1.52	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	2444	G	O3'-P	-7.31	1.52	1.61
36	0	387	U	O3'-P	-7.30	1.52	1.61
30	N	198	C	O3'-P	-7.29	1.52	1.61
30	N	538	A	O3'-P	-7.29	1.52	1.61
30	N	1822	C	O3'-P	-7.27	1.52	1.61
30	N	2837	A	O3'-P	-7.27	1.52	1.61
2	P	221	ARG	CB-CG	-7.26	1.32	1.52
30	N	2344	U	C2-N3	-7.25	1.32	1.37
30	N	2232	C	O3'-P	-7.24	1.52	1.61
30	N	2602	A	O3'-P	7.24	1.69	1.61
36	0	22	G	O3'-P	-7.22	1.52	1.61
30	N	1141	U	C2-N3	-7.20	1.32	1.37
30	N	2457	U	O3'-P	-7.19	1.52	1.61
36	0	505	G	O3'-P	-7.18	1.52	1.61
26	o	21	TYR	CG-CD1	-7.17	1.29	1.39
30	N	1261	C	O3'-P	-7.16	1.52	1.61
30	N	126	A	O3'-P	-7.16	1.52	1.61
30	N	2542	A	O3'-P	-7.16	1.52	1.61
30	N	2684	U	O3'-P	-7.16	1.52	1.61
30	N	2419	U	C4-O4	7.15	1.29	1.23
30	N	2598	A	O3'-P	-7.14	1.52	1.61
30	N	1805	A	O3'-P	-7.14	1.52	1.61
30	N	2013	A	O3'-P	-7.13	1.52	1.61
30	N	1298	C	O3'-P	-7.12	1.52	1.61
30	N	966	G	O3'-P	-7.12	1.52	1.61
30	N	818	G	P-OP2	7.11	1.61	1.49
30	N	2049	G	O3'-P	-7.09	1.52	1.61
30	N	1795	C	O3'-P	-7.08	1.52	1.61
36	0	563	A	C6-N6	-7.07	1.28	1.33
30	N	29	U	O3'-P	-7.06	1.52	1.61
30	N	571	U	O3'-P	-7.06	1.52	1.61
47	B	34	CYS	CB-SG	-7.05	1.70	1.82
1	O	83	G	O3'-P	-7.04	1.52	1.61
30	N	940	G	O3'-P	-7.04	1.52	1.61
30	N	2013	A	C6-N6	-7.04	1.28	1.33
30	N	2406	A	P-OP1	7.04	1.60	1.49
30	N	25	U	O3'-P	-7.04	1.52	1.61
26	o	21	TYR	CG-CD2	-7.03	1.30	1.39
30	N	671	C	P-OP2	7.03	1.60	1.49
30	N	1681	G	O3'-P	-7.00	1.52	1.61
30	N	680	C	O3'-P	-6.99	1.52	1.61
30	N	796	C	O3'-P	-6.97	1.52	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
36	0	764	C	O3'-P	-6.96	1.52	1.61
30	N	2829	A	O3'-P	-6.96	1.52	1.61
30	N	2016	U	O3'-P	-6.95	1.52	1.61
30	N	2385	C	P-OP1	6.95	1.60	1.49
30	N	773	U	O3'-P	-6.92	1.52	1.61
36	0	765	G	O3'-P	-6.92	1.52	1.61
30	N	2499	C	P-OP2	6.92	1.60	1.49
30	N	730	A	P-OP2	6.92	1.60	1.49
36	0	1358	U	C4-O4	-6.91	1.18	1.23
30	N	784	G	O3'-P	6.91	1.69	1.61
30	N	2443	C	C4'-C3'	-6.91	1.45	1.53
36	0	980	C	P-OP1	6.91	1.60	1.49
30	N	2436	G	O3'-P	-6.90	1.52	1.61
30	N	1949	G	O3'-P	-6.88	1.52	1.61
30	N	419	U	O3'-P	-6.82	1.52	1.61
30	N	2332	C	O3'-P	-6.82	1.52	1.61
12	a	1	MET	C-O	6.81	1.36	1.23
30	N	1824	G	P-OP2	6.81	1.60	1.49
30	N	2051	A	O3'-P	6.81	1.69	1.61
30	N	688	U	O3'-P	-6.80	1.52	1.61
30	N	2516	A	O3'-P	-6.77	1.53	1.61
30	N	927	A	N1-C2	6.76	1.40	1.34
30	N	2260	C	O3'-P	-6.74	1.53	1.61
30	N	2572	A	P-OP1	-6.71	1.37	1.49
30	N	578	G	P-OP2	6.69	1.60	1.49
30	N	2048	G	O3'-P	-6.69	1.53	1.61
36	0	814	A	P-OP2	6.68	1.60	1.49
30	N	1394	U	O3'-P	-6.68	1.53	1.61
30	N	2045	C	O3'-P	-6.67	1.53	1.61
30	N	2285	C	O3'-P	-6.66	1.53	1.61
30	N	239	C	O3'-P	-6.65	1.53	1.61
30	N	1662	U	P-OP2	6.65	1.60	1.49
30	N	117	G	O3'-P	-6.65	1.53	1.61
30	N	932	U	C4-O4	-6.65	1.18	1.23
30	N	2268	A	P-OP1	6.65	1.60	1.49
30	N	1234	U	O3'-P	-6.64	1.53	1.61
2	P	271	ARG	CZ-NH1	6.64	1.41	1.33
36	0	864	A	N1-C2	6.63	1.40	1.34
2	P	10	SER	CA-CB	6.62	1.62	1.52
30	N	923	G	O3'-P	-6.61	1.53	1.61
30	N	1977	A	O3'-P	-6.61	1.53	1.61
30	N	783	A	C4'-O4'	6.60	1.54	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	2499	C	P-OP1	6.58	1.60	1.49
30	N	2694	G	O3'-P	-6.58	1.53	1.61
30	N	1960	A	O3'-P	-6.57	1.53	1.61
30	N	1009	A	P-OP2	6.57	1.60	1.49
2	P	139	SER	CB-OG	-6.57	1.33	1.42
27	p	34	ARG	CG-CD	-6.57	1.35	1.51
30	N	2074	U	O3'-P	-6.57	1.53	1.61
14	c	98	TYR	CE1-CZ	6.56	1.47	1.38
30	N	2452	C	O3'-P	-6.56	1.53	1.61
30	N	393	C	P-OP1	6.56	1.60	1.49
30	N	1782	U	O3'-P	-6.56	1.53	1.61
30	N	2426	A	O3'-P	-6.55	1.53	1.61
30	N	2072	C	P-OP1	6.55	1.60	1.49
30	N	2289	G	O3'-P	-6.54	1.53	1.61
30	N	193	U	O3'-P	-6.54	1.53	1.61
30	N	698	C	O3'-P	-6.54	1.53	1.61
30	N	1010	A	P-OP2	6.54	1.60	1.49
36	0	37	U	C2-N3	-6.53	1.33	1.37
30	N	1432	G	O3'-P	-6.52	1.53	1.61
30	N	2248	C	P-OP2	6.51	1.60	1.49
30	N	761	A	P-OP1	6.51	1.60	1.49
30	N	1191	G	O3'-P	-6.51	1.53	1.61
36	0	1301	U	N1-C2	6.51	1.44	1.38
30	N	960	A	O3'-P	-6.50	1.53	1.61
30	N	2028	U	O3'-P	-6.50	1.53	1.61
40	4	127	ALA	C-O	-6.50	1.10	1.23
30	N	1649	G	O3'-P	-6.50	1.53	1.61
36	0	1182	G	O3'-P	6.49	1.69	1.61
36	0	368	U	C4-O4	-6.49	1.18	1.23
15	d	24	TYR	CG-CD1	6.48	1.47	1.39
30	N	2723	C	O3'-P	-6.48	1.53	1.61
30	N	1296	G	O3'-P	-6.47	1.53	1.61
36	0	812	G	C3'-C2'	-6.46	1.45	1.52
30	N	1680	U	O3'-P	-6.45	1.53	1.61
21	j	42	GLY	N-CA	6.44	1.55	1.46
36	0	19	A	O3'-P	-6.44	1.53	1.61
30	N	1671	U	P-OP2	6.43	1.59	1.49
30	N	1186	G	P-OP2	6.42	1.59	1.49
36	0	368	U	C2-N3	-6.42	1.33	1.37
30	N	1004	U	O3'-P	-6.42	1.53	1.61
30	N	694	U	O3'-P	-6.42	1.53	1.61
30	N	2727	A	O3'-P	-6.41	1.53	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	208	C	O3'-P	-6.41	1.53	1.61
30	N	28	A	P-O5'	-6.41	1.53	1.59
30	N	499	U	C4-O4	-6.39	1.18	1.23
30	N	1652	A	O3'-P	-6.39	1.53	1.61
15	d	49	ASP	CB-CG	6.39	1.65	1.51
30	N	2262	U	O3'-P	-6.38	1.53	1.61
30	N	2444	G	C2'-C1'	-6.38	1.46	1.53
3	Q	125	TRP	CE3-CZ3	-6.38	1.27	1.38
30	N	2699	C	O3'-P	-6.37	1.53	1.61
30	N	2243	U	P-OP1	6.37	1.59	1.49
30	N	632	A	O3'-P	-6.36	1.53	1.61
30	N	2502	G	O3'-P	-6.35	1.53	1.61
26	o	49	TYR	CE1-CZ	-6.35	1.30	1.38
30	N	1993	U	O5'-C5'	-6.35	1.32	1.42
30	N	1142	A	O3'-P	6.35	1.68	1.61
30	N	408	G	O3'-P	-6.35	1.53	1.61
30	N	1677	A	O3'-P	-6.35	1.53	1.61
30	N	745	G	O3'-P	-6.34	1.53	1.61
27	p	38	GLY	CA-C	-6.34	1.41	1.51
30	N	1186	G	O3'-P	-6.34	1.53	1.61
2	P	219	THR	C-O	6.33	1.35	1.23
30	N	1026	G	P-OP2	-6.33	1.38	1.49
30	N	1650	A	O3'-P	-6.33	1.53	1.61
36	0	715	A	O3'-P	-6.33	1.53	1.61
30	N	1334	G	O3'-P	-6.31	1.53	1.61
36	0	1062	U	O3'-P	-6.31	1.53	1.61
30	N	1141	U	C4-O4	-6.30	1.18	1.23
30	N	1367	A	O3'-P	-6.30	1.53	1.61
30	N	2000	C	O3'-P	-6.30	1.53	1.61
36	0	581	G	O3'-P	-6.29	1.53	1.61
36	0	787	A	O3'-P	-6.29	1.53	1.61
30	N	1327	A	P-OP2	6.28	1.59	1.49
36	0	37	U	C4-O4	-6.27	1.18	1.23
30	N	411	G	P-OP1	6.26	1.59	1.49
36	0	613	C	O3'-P	-6.26	1.53	1.61
36	0	884	U	N3-C4	-6.26	1.32	1.38
36	0	920	U	O3'-P	-6.26	1.53	1.61
30	N	253	C	O3'-P	-6.24	1.53	1.61
2	P	213	TRP	CD1-NE1	6.23	1.48	1.38
8	W	16	TYR	CG-CD1	-6.23	1.31	1.39
30	N	247	G	O3'-P	-6.23	1.53	1.61
30	N	1006	C	O3'-P	-6.23	1.53	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	7	G	O3'-P	-6.23	1.53	1.61
36	0	568	G	O3'-P	-6.23	1.53	1.61
36	0	1474	U	O3'-P	-6.23	1.53	1.61
30	N	783	A	C5-C6	-6.23	1.35	1.41
30	N	2554	U	P-OP2	-6.23	1.38	1.49
30	N	2263	C	O3'-P	-6.22	1.53	1.61
30	N	2543	G	O5'-C5'	-6.22	1.32	1.42
30	N	26	G	O3'-P	-6.22	1.53	1.61
30	N	1827	U	O3'-P	-6.21	1.53	1.61
56	s	34	ARG	CZ-NH1	6.21	1.41	1.33
30	N	398	C	O3'-P	-6.20	1.53	1.61
30	N	946	C	P-OP2	6.20	1.59	1.49
47	B	23	ALA	N-CA	6.19	1.58	1.46
30	N	593	U	O3'-P	-6.19	1.53	1.61
30	N	2776	A	C5-C6	-6.18	1.35	1.41
30	N	1816	C	O3'-P	-6.17	1.53	1.61
36	0	572	A	P-OP1	6.17	1.59	1.49
30	N	120	U	P-OP2	6.17	1.59	1.49
30	N	567	U	O3'-P	-6.17	1.53	1.61
36	0	498	A	N1-C2	6.16	1.39	1.34
30	N	576	U	O3'-P	-6.16	1.53	1.61
30	N	1342	A	P-OP2	6.15	1.59	1.49
30	N	244	A	O3'-P	-6.15	1.53	1.61
36	0	356	A	O3'-P	-6.15	1.53	1.61
30	N	1968	G	P-OP1	6.14	1.59	1.49
30	N	1142	A	C5-C6	-6.14	1.35	1.41
2	P	214	ARG	CZ-NH1	6.14	1.41	1.33
30	N	2277	G	O3'-P	-6.14	1.53	1.61
30	N	1793	C	O3'-P	-6.13	1.53	1.61
14	c	93	ARG	CD-NE	-6.13	1.36	1.46
30	N	2035	G	O5'-C5'	-6.11	1.33	1.42
36	0	1080	A	O3'-P	-6.11	1.53	1.61
30	N	777	G	O3'-P	-6.11	1.53	1.61
30	N	1134	A	O3'-P	6.10	1.68	1.61
30	N	2682	A	P-OP2	6.09	1.59	1.49
30	N	1636	U	O3'-P	-6.09	1.53	1.61
30	N	430	A	C6-N6	-6.09	1.29	1.33
30	N	725	G	O3'-P	-6.09	1.53	1.61
36	0	917	G	O3'-P	-6.09	1.53	1.61
36	0	1110	A	P-OP2	6.09	1.59	1.49
30	N	1905	C	O3'-P	-6.08	1.53	1.61
30	N	1153	C	P-OP2	6.08	1.59	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	1370	C	O3'-P	-6.08	1.53	1.61
30	N	2442	C	O3'-P	-6.08	1.53	1.61
12	a	2	ARG	C-O	-6.06	1.11	1.23
36	0	1522	U	O3'-P	-6.05	1.53	1.61
30	N	1676	A	O3'-P	-6.05	1.53	1.61
30	N	1196	C	O3'-P	-6.04	1.53	1.61
36	0	46	G	O3'-P	-6.04	1.53	1.61
30	N	1648	U	P-OP2	6.04	1.59	1.49
30	N	524	G	O3'-P	-6.04	1.53	1.61
30	N	123	G	O3'-P	-6.03	1.53	1.61
30	N	2642	G	O3'-P	-6.03	1.53	1.61
30	N	2003	A	O3'-P	-6.03	1.53	1.61
30	N	699	A	O3'-P	-6.03	1.53	1.61
30	N	1756	G	O3'-P	-6.03	1.53	1.61
30	N	1957	C	O3'-P	-6.02	1.53	1.61
36	0	439	U	C2-N3	6.01	1.42	1.37
30	N	963	U	P-OP2	6.01	1.59	1.49
30	N	2571	U	O3'-P	-6.01	1.53	1.61
36	0	1358	U	C2-N3	-6.00	1.33	1.37
36	0	1363	A	C6-N6	-6.00	1.29	1.33
30	N	190	A	O3'-P	-5.99	1.53	1.61
30	N	932	U	C2-N3	-5.99	1.33	1.37
30	N	2503	A	P-OP1	5.99	1.59	1.49
36	0	834	U	O3'-P	-5.98	1.53	1.61
36	0	816	A	O3'-P	-5.98	1.53	1.61
30	N	2250	G	C5-C6	-5.98	1.36	1.42
30	N	727	A	P-OP1	5.97	1.59	1.49
36	0	500	G	O3'-P	-5.97	1.53	1.61
36	0	813	U	P-O5'	-5.96	1.53	1.59
30	N	1368	G	O3'-P	-5.96	1.54	1.61
30	N	1369	G	O3'-P	-5.94	1.54	1.61
30	N	2626	C	O3'-P	-5.94	1.54	1.61
30	N	2014	A	O3'-P	-5.94	1.54	1.61
36	0	888	G	O3'-P	-5.94	1.54	1.61
30	N	577	G	O3'-P	-5.94	1.54	1.61
36	0	559	A	C2-N3	5.94	1.38	1.33
30	N	1610	A	O3'-P	-5.93	1.54	1.61
30	N	1205	A	O3'-P	5.93	1.68	1.61
30	N	2847	U	O3'-P	-5.93	1.54	1.61
4	R	80	SER	C-O	-5.92	1.12	1.23
36	0	1513	A	O3'-P	-5.92	1.54	1.61
36	0	879	C	O3'-P	-5.92	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	1187	G	P-OP2	5.91	1.59	1.49
36	0	1054	C	P-OP2	5.91	1.59	1.49
38	2	2	GLY	N-CA	5.91	1.54	1.46
30	N	580	U	O3'-P	-5.90	1.54	1.61
30	N	234	U	C2-N3	-5.90	1.33	1.37
30	N	2545	G	O3'-P	-5.90	1.54	1.61
30	N	2639	A	O3'-P	-5.90	1.54	1.61
30	N	1324	G	O3'-P	-5.89	1.54	1.61
30	N	1323	C	O3'-P	-5.89	1.54	1.61
30	N	1602	U	C4-O4	5.88	1.28	1.23
30	N	1007	C	O3'-P	-5.88	1.54	1.61
30	N	1676	A	P-OP2	5.87	1.58	1.49
36	0	498	A	C2-N3	5.85	1.38	1.33
30	N	1665	A	P-OP2	5.85	1.58	1.49
36	0	1430	A	O3'-P	-5.82	1.54	1.61
30	N	2025	C	O5'-C5'	-5.82	1.33	1.42
30	N	1264	A	O3'-P	-5.82	1.54	1.61
30	N	2238	G	O3'-P	5.81	1.68	1.61
34	M	72	G	O3'-P	-5.81	1.54	1.61
30	N	2272	U	O3'-P	-5.80	1.54	1.61
36	0	323	U	O3'-P	-5.80	1.54	1.61
30	N	2541	A	O3'-P	-5.79	1.54	1.61
30	N	605	G	O3'-P	-5.79	1.54	1.61
30	N	562	U	O3'-P	-5.79	1.54	1.61
30	N	499	U	O3'-P	-5.79	1.54	1.61
36	0	788	U	O3'-P	-5.79	1.54	1.61
30	N	310	A	C5-C6	-5.78	1.35	1.41
22	k	29	PHE	CG-CD2	-5.77	1.30	1.38
36	0	116	A	P-OP2	5.77	1.58	1.49
30	N	382	A	O3'-P	-5.77	1.54	1.61
30	N	2072	C	O5'-C5'	-5.77	1.33	1.42
30	N	1647	U	P-OP2	5.77	1.58	1.49
30	N	774	G	C2'-O2'	5.76	1.49	1.41
30	N	2779	U	O3'-P	-5.76	1.54	1.61
36	0	319	G	O3'-P	-5.75	1.54	1.61
30	N	1605	C	O3'-P	-5.75	1.54	1.61
36	0	1238	A	C5-C6	-5.75	1.35	1.41
30	N	565	C	O3'-P	-5.74	1.54	1.61
30	N	1796	U	O3'-P	-5.74	1.54	1.61
36	0	118	U	O3'-P	-5.74	1.54	1.61
36	0	545	C	O3'-P	-5.73	1.54	1.61
36	0	786	G	O3'-P	-5.73	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	P	213	TRP	CE3-CZ3	5.72	1.48	1.38
36	0	24	U	C4-O4	-5.71	1.19	1.23
30	N	570	G	O3'-P	-5.71	1.54	1.61
30	N	628	G	O3'-P	-5.70	1.54	1.61
36	0	804	U	O3'-P	-5.70	1.54	1.61
2	P	221	ARG	CA-C	-5.70	1.38	1.52
30	N	2688	G	O3'-P	-5.70	1.54	1.61
36	0	1068	G	O3'-P	-5.69	1.54	1.61
36	0	233	C	O3'-P	-5.69	1.54	1.61
30	N	2429	G	P-OP2	5.68	1.58	1.49
30	N	536	G	O3'-P	-5.68	1.54	1.61
30	N	2612	C	O3'-P	-5.68	1.54	1.61
8	W	30	THR	CB-CG2	-5.68	1.33	1.52
30	N	28	A	O3'-P	-5.67	1.54	1.61
36	0	404	G	O3'-P	-5.67	1.54	1.61
36	0	750	C	O3'-P	-5.67	1.54	1.61
25	n	29	SER	CB-OG	-5.67	1.34	1.42
36	0	868	C	O3'-P	-5.67	1.54	1.61
30	N	2448	A	P-OP1	5.66	1.58	1.49
30	N	2011	U	O3'-P	-5.66	1.54	1.61
30	N	691	C	O3'-P	-5.66	1.54	1.61
30	N	1338	G	O3'-P	-5.66	1.54	1.61
36	0	439	U	C4-O4	-5.66	1.19	1.23
30	N	2560	A	O3'-P	-5.65	1.54	1.61
30	N	2509	G	O3'-P	-5.65	1.54	1.61
36	0	826	C	O3'-P	-5.64	1.54	1.61
30	N	2272	U	C2-N3	-5.64	1.33	1.37
36	0	570	G	O3'-P	-5.64	1.54	1.61
30	N	310	A	N1-C2	5.63	1.39	1.34
36	0	895	G	O3'-P	-5.61	1.54	1.61
30	N	1446	C	O3'-P	-5.61	1.54	1.61
30	N	2732	G	C3'-O3'	5.60	1.50	1.42
2	P	238	ARG	C-O	5.60	1.33	1.23
30	N	2054	A	O3'-P	-5.59	1.54	1.61
36	0	878	A	O3'-P	-5.59	1.54	1.61
30	N	824	U	O3'-P	-5.59	1.54	1.61
30	N	2591	C	O3'-P	-5.58	1.54	1.61
4	R	81	GLY	N-CA	-5.58	1.37	1.46
30	N	2503	A	O3'-P	-5.58	1.54	1.61
30	N	1351	C	O3'-P	-5.58	1.54	1.61
30	N	1742	U	O3'-P	-5.57	1.54	1.61
36	0	547	A	P-OP1	5.56	1.58	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	2821	A	P-O5'	-5.56	1.54	1.59
30	N	1802	A	C5-C6	-5.56	1.36	1.41
30	N	1783	A	O3'-P	-5.55	1.54	1.61
30	N	1790	C	N1-C2	-5.55	1.34	1.40
30	N	810	U	O3'-P	-5.54	1.54	1.61
36	0	907	A	O3'-P	-5.54	1.54	1.61
30	N	2645	G	O3'-P	-5.54	1.54	1.61
17	f	101	SER	CB-OG	-5.54	1.35	1.42
30	N	234	U	C4-O4	-5.53	1.19	1.23
30	N	1770	G	O3'-P	-5.53	1.54	1.61
8	W	16	TYR	CE1-CZ	-5.53	1.31	1.38
30	N	464	U	C4'-O4'	-5.53	1.38	1.45
15	d	45	TYR	CG-CD1	-5.52	1.31	1.39
36	0	885	G	O3'-P	-5.52	1.54	1.61
30	N	375	G	P-OP1	5.51	1.58	1.49
30	N	784	G	C4'-C3'	-5.51	1.47	1.52
36	0	927	G	O3'-P	-5.51	1.54	1.61
30	N	246	C	O3'-P	-5.50	1.54	1.61
30	N	2685	G	O3'-P	-5.49	1.54	1.61
2	P	222	GLY	C-O	-5.49	1.14	1.23
30	N	2732	G	C2'-O2'	5.49	1.48	1.41
12	a	43	GLU	CG-CD	5.48	1.60	1.51
30	N	1568	G	O3'-P	-5.48	1.54	1.61
30	N	973	A	O3'-P	-5.47	1.54	1.61
30	N	693	A	O3'-P	-5.47	1.54	1.61
30	N	1189	A	P-OP2	5.46	1.58	1.49
30	N	1990	C	C2'-C1'	-5.46	1.47	1.53
30	N	2445	G	P-OP2	5.46	1.58	1.49
30	N	787	C	P-OP1	5.46	1.58	1.49
36	0	963	G	O3'-P	-5.45	1.54	1.61
30	N	528	A	C5-C6	-5.45	1.36	1.41
30	N	1995	U	P-OP1	5.45	1.58	1.49
34	M	73	C	O3'-P	-5.44	1.54	1.61
30	N	1328	A	O3'-P	-5.43	1.54	1.61
36	0	24	U	O3'-P	-5.43	1.54	1.61
30	N	840	C	O3'-P	-5.42	1.54	1.61
30	N	990	A	P-OP2	5.42	1.58	1.49
30	N	1837	C	O3'-P	-5.42	1.54	1.61
30	N	2266	A	P-OP1	5.42	1.58	1.49
36	0	528	C	O3'-P	-5.41	1.54	1.61
36	0	1497	G	O3'-P	-5.41	1.54	1.61
30	N	2062	A	O5'-C5'	-5.41	1.34	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	771	G	O3'-P	-5.41	1.54	1.61
30	N	261	G	O3'-P	-5.40	1.54	1.61
30	N	1708	C	O3'-P	-5.40	1.54	1.61
30	N	188	G	O3'-P	-5.40	1.54	1.61
30	N	1670	C	O3'-P	-5.40	1.54	1.61
30	N	1993	U	P-O5'	-5.39	1.54	1.59
30	N	783	A	N9-C4	-5.39	1.34	1.37
30	N	1934	C	O3'-P	-5.39	1.54	1.61
30	N	742	A	O3'-P	-5.38	1.54	1.61
30	N	2724	U	O3'-P	-5.38	1.54	1.61
30	N	468	G	O3'-P	-5.38	1.54	1.61
36	0	1322	C	O3'-P	5.38	1.67	1.61
30	N	1648	U	O3'-P	-5.38	1.54	1.61
30	N	1973	G	O3'-P	-5.38	1.54	1.61
30	N	1136	G	P-OP1	5.37	1.58	1.49
25	n	20	ASP	CB-CG	5.37	1.63	1.51
36	0	886	G	O3'-P	-5.37	1.54	1.61
30	N	561	G	O3'-P	-5.35	1.54	1.61
30	N	2720	U	C4-O4	-5.35	1.19	1.23
30	N	2643	G	O3'-P	-5.35	1.54	1.61
30	N	1265	A	P-O5'	-5.35	1.54	1.59
30	N	2274	A	O3'-P	-5.34	1.54	1.61
36	0	123	U	O3'-P	-5.34	1.54	1.61
30	N	2005	A	O3'-P	-5.34	1.54	1.61
30	N	2845	U	O3'-P	-5.34	1.54	1.61
36	0	827	U	C4-O4	-5.33	1.19	1.23
36	0	887	G	O3'-P	-5.33	1.54	1.61
53	I	20	GLU	CD-OE1	5.33	1.31	1.25
36	0	373	A	O3'-P	-5.33	1.54	1.61
30	N	385	C	O3'-P	-5.32	1.54	1.61
30	N	1272	A	O3'-P	-5.32	1.54	1.61
30	N	1832	C	O3'-P	-5.32	1.54	1.61
30	N	1632	A	O3'-P	-5.32	1.54	1.61
30	N	1021	A	C6-N6	-5.32	1.29	1.33
30	N	2549	G	O3'-P	-5.31	1.54	1.61
30	N	2715	C	O3'-P	-5.31	1.54	1.61
30	N	430	A	C6-N1	-5.31	1.31	1.35
30	N	927	A	C2-N3	5.30	1.38	1.33
30	N	2243	U	N3-C4	-5.30	1.33	1.38
30	N	1327	A	O3'-P	-5.30	1.54	1.61
30	N	1786	A	O3'-P	-5.30	1.54	1.61
30	N	973	A	P-O5'	-5.30	1.54	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	2500	U	O3'-P	-5.30	1.54	1.61
30	N	66	C	O3'-P	-5.29	1.54	1.61
36	0	1507	A	O3'-P	-5.29	1.54	1.61
13	b	102	ARG	CZ-NH2	5.29	1.40	1.33
30	N	2430	A	P-OP2	5.29	1.57	1.49
11	Z	39	GLY	C-O	-5.29	1.15	1.23
36	0	924	C	O3'-P	-5.29	1.54	1.61
36	0	554	A	O3'-P	-5.28	1.54	1.61
30	N	1141	U	C2-O2	-5.28	1.17	1.22
36	0	816	A	P-OP1	5.28	1.57	1.49
21	j	41	ARG	CG-CD	5.28	1.65	1.51
36	0	391	G	O3'-P	-5.28	1.54	1.61
36	0	964	A	P-OP1	5.27	1.57	1.49
48	D	101	ARG	CZ-NH1	5.27	1.40	1.33
27	p	39	ARG	NE-CZ	5.27	1.39	1.33
30	N	1255	U	O5'-C5'	-5.27	1.34	1.42
2	P	11	PRO	N-CA	5.26	1.56	1.47
30	N	2241	A	O3'-P	-5.26	1.54	1.61
36	0	751	U	O3'-P	-5.26	1.54	1.61
36	0	25	C	O3'-P	-5.25	1.54	1.61
30	N	223	A	O3'-P	-5.25	1.54	1.61
30	N	2023	C	O3'-P	-5.25	1.54	1.61
36	0	872	A	C6-N6	-5.25	1.29	1.33
30	N	1864	U	O3'-P	-5.24	1.54	1.61
30	N	1833	C	O3'-P	-5.24	1.54	1.61
30	N	2267	A	C6-N1	-5.24	1.31	1.35
30	N	2592	G	O3'-P	-5.24	1.54	1.61
2	P	48	ARG	C-O	-5.23	1.13	1.23
30	N	2024	G	O3'-P	-5.22	1.54	1.61
4	R	77	ILE	CB-CG1	-5.22	1.39	1.54
30	N	2036	C	O3'-P	-5.22	1.54	1.61
36	0	291	U	O3'-P	-5.22	1.54	1.61
30	N	604	G	O3'-P	-5.22	1.54	1.61
3	Q	127	PHE	CE1-CZ	-5.21	1.27	1.37
30	N	800	A	N9-C4	-5.21	1.34	1.37
47	B	38	TYR	CB-CG	-5.21	1.43	1.51
36	0	1500	A	P-OP2	5.21	1.57	1.49
37	1	213	TYR	CB-CG	-5.21	1.43	1.51
30	N	976	G	O3'-P	-5.20	1.54	1.61
26	o	49	TYR	CE2-CZ	-5.20	1.31	1.38
30	N	2267	A	P-OP1	5.20	1.57	1.49
30	N	981	A	P-OP1	5.20	1.57	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
36	0	397	A	C6-N6	-5.20	1.29	1.33
30	N	469	G	O3'-P	-5.19	1.54	1.61
30	N	989	G	C3'-O3'	5.19	1.49	1.42
14	c	53	ARG	CG-CD	-5.19	1.39	1.51
30	N	69	C	O3'-P	-5.19	1.54	1.61
30	N	2445	G	C2-N2	5.18	1.39	1.34
30	N	978	G	O3'-P	-5.18	1.54	1.61
30	N	467	G	O3'-P	-5.18	1.54	1.61
11	Z	91	TYR	CE1-CZ	-5.18	1.31	1.38
30	N	787	C	P-O5'	-5.18	1.54	1.59
36	0	586	C	O3'-P	-5.18	1.54	1.61
30	N	2448	A	P-OP2	5.17	1.57	1.49
30	N	2490	G	O3'-P	-5.17	1.54	1.61
26	o	21	TYR	CE1-CZ	-5.17	1.31	1.38
2	P	213	TRP	CA-C	-5.17	1.39	1.52
36	0	783	C	O3'-P	-5.17	1.54	1.61
30	N	1679	A	O3'-P	-5.17	1.54	1.61
30	N	2875	C	O3'-P	-5.16	1.54	1.61
2	P	234	GLY	C-O	-5.16	1.15	1.23
30	N	1991	U	O3'-P	-5.16	1.54	1.61
30	N	2839	G	O3'-P	-5.16	1.54	1.61
46	A	65	VAL	CB-CG1	-5.16	1.42	1.52
30	N	1826	G	O3'-P	-5.16	1.54	1.61
30	N	2838	G	O3'-P	-5.14	1.54	1.61
30	N	2766	A	O3'-P	-5.14	1.54	1.61
36	0	881	G	O3'-P	-5.14	1.54	1.61
30	N	419	U	P-OP1	5.14	1.57	1.49
36	0	938	A	O3'-P	-5.14	1.54	1.61
36	0	979	C	O3'-P	-5.14	1.54	1.61
16	e	80	ARG	CB-CG	-5.14	1.38	1.52
30	N	664	G	O3'-P	-5.13	1.54	1.61
30	N	1254	A	C2'-O2'	5.13	1.48	1.41
30	N	503	A	O3'-P	5.13	1.67	1.61
15	d	24	TYR	CE2-CZ	5.12	1.45	1.38
30	N	1637	A	O3'-P	-5.12	1.55	1.61
30	N	1817	G	O3'-P	-5.12	1.55	1.61
30	N	918	A	O3'-P	-5.12	1.55	1.61
36	0	318	G	O3'-P	-5.12	1.55	1.61
36	0	386	C	O3'-P	-5.12	1.55	1.61
30	N	784	G	P-OP1	5.11	1.57	1.49
30	N	1202	G	O3'-P	-5.11	1.55	1.61
30	N	2611	C	P-OP2	5.11	1.57	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	N	1985	C	O3'-P	-5.10	1.55	1.61
36	0	18	C	O3'-P	-5.10	1.55	1.61
36	0	951	G	O3'-P	-5.10	1.55	1.61
30	N	2706	A	O3'-P	-5.10	1.55	1.61
30	N	948	C	N1-C2	-5.09	1.35	1.40
30	N	954	G	O3'-P	-5.09	1.55	1.61
30	N	1638	C	P-O5'	-5.09	1.54	1.59
30	N	1313	U	P-OP1	5.08	1.57	1.49
30	N	2387	U	O3'-P	-5.08	1.55	1.61
37	1	96	TRP	CG-CD1	5.07	1.43	1.36
30	N	513	A	P-O5'	-5.07	1.54	1.59
2	P	235	GLY	CA-C	-5.07	1.43	1.51
3	Q	113	SER	CB-OG	-5.07	1.35	1.42
30	N	1954	G	O3'-P	-5.07	1.55	1.61
30	N	2017	U	N1-C2	-5.07	1.33	1.38
36	0	296	U	O3'-P	-5.06	1.55	1.61
30	N	587	C	O3'-P	-5.06	1.55	1.61
36	0	827	U	C2-N3	-5.06	1.34	1.37
30	N	1308	A	O3'-P	-5.05	1.55	1.61
30	N	2580	U	O3'-P	-5.05	1.55	1.61
30	N	752	A	P-O5'	-5.05	1.54	1.59
26	o	49	TYR	CG-CD1	-5.04	1.32	1.39
36	0	1526	G	O3'-P	-5.04	1.55	1.61
16	e	53	PHE	CG-CD1	5.04	1.46	1.38
30	N	2440	C	O3'-P	-5.04	1.55	1.61
4	R	69	ARG	CZ-NH1	5.03	1.39	1.33
30	N	2361	G	O3'-P	-5.03	1.55	1.61
30	N	449	A	O3'-P	-5.02	1.55	1.61
10	Y	76	GLU	CG-CD	5.02	1.59	1.51
30	N	658	U	O3'-P	-5.01	1.55	1.61
36	0	1301	U	C2-N3	5.01	1.41	1.37
30	N	1998	A	C2'-C1'	-5.01	1.47	1.53
30	N	622	G	P-OP2	5.01	1.57	1.49
28	q	8	ARG	CB-CG	-5.01	1.39	1.52
30	N	1237	A	P-OP2	5.01	1.57	1.49
36	0	771	G	P-OP2	5.01	1.57	1.49
30	N	1666	G	O3'-P	-5.00	1.55	1.61

All (720) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	2506[A]	U	OP1-P-O3'	17.12	142.87	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	2506[B]	U	OP1-P-O3'	17.12	142.87	105.20
27	p	39	ARG	NE-CZ-NH1	16.04	128.32	120.30
27	p	39	ARG	NE-CZ-NH2	-14.81	112.89	120.30
34	M	73	C	O3'-P-O5'	14.38	131.33	104.00
30	N	2522	U	C2-N3-C4	-13.72	118.77	127.00
30	N	2720	U	C2-N3-C4	-13.70	118.78	127.00
30	N	2062	A	O5'-P-OP1	-13.32	93.71	105.70
30	N	467	G	O5'-P-OP1	-13.10	93.91	105.70
30	N	2836	U	O5'-P-OP1	-12.82	94.16	105.70
54	J	5	LEU	CB-CG-CD2	12.64	132.48	111.00
15	d	53	ARG	NE-CZ-NH1	12.43	126.52	120.30
21	j	41	ARG	NE-CZ-NH1	12.29	126.44	120.30
30	N	2506[A]	U	O3'-P-O5'	-12.23	80.76	104.00
30	N	2506[B]	U	O3'-P-O5'	-12.23	80.76	104.00
30	N	2873	A	N1-C6-N6	-12.22	111.27	118.60
30	N	1996	C	O5'-P-OP2	-12.20	94.72	105.70
30	N	499	U	C2-N3-C4	-12.08	119.75	127.00
30	N	2821	A	O5'-P-OP1	-11.82	95.06	105.70
10	Y	18	ARG	NE-CZ-NH2	-11.78	114.41	120.30
22	k	28	ARG	NE-CZ-NH2	-11.72	114.44	120.30
25	n	20	ASP	CB-CG-OD1	11.50	128.65	118.30
36	0	559	A	C6-N1-C2	-11.32	111.81	118.60
36	0	1301	U	C2-N3-C4	-11.19	120.28	127.00
30	N	1665	A	O5'-P-OP1	-11.18	95.64	105.70
30	N	2505	G	P-O3'-C3'	-11.08	106.41	119.70
27	p	34	ARG	NE-CZ-NH1	-11.00	114.80	120.30
30	N	228	C	O5'-P-OP1	-10.98	95.82	105.70
36	0	752	G	O5'-P-OP1	-10.86	95.93	105.70
11	Z	16	ARG	NE-CZ-NH2	-10.86	114.87	120.30
8	W	116	ARG	NE-CZ-NH2	-10.84	114.88	120.30
30	N	2447	G	O5'-P-OP1	-10.78	96.00	105.70
2	P	214	ARG	NE-CZ-NH2	-10.74	114.93	120.30
30	N	2765	A	N1-C6-N6	-10.73	112.16	118.60
30	N	1941	C	O5'-P-OP1	-10.66	96.11	105.70
48	D	109	ARG	NE-CZ-NH1	10.58	125.59	120.30
46	A	122	ARG	NE-CZ-NH1	10.55	125.58	120.30
15	d	53	ARG	NE-CZ-NH2	-10.51	115.04	120.30
30	N	2067	G	O5'-P-OP1	-10.50	96.25	105.70
30	N	27	G	O5'-P-OP1	-10.47	96.28	105.70
36	0	16	A	O5'-P-OP1	-10.37	96.37	105.70
36	0	1497	G	O5'-P-OP2	-10.33	96.40	105.70
56	s	34	ARG	NE-CZ-NH2	-10.21	115.20	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	d	6	ARG	NE-CZ-NH2	10.17	125.39	120.30
30	N	1965	C	O5'-P-OP2	-10.14	96.58	105.70
3	Q	13	ARG	NE-CZ-NH2	10.13	125.36	120.30
37	1	21	ARG	NE-CZ-NH1	10.01	125.31	120.30
30	N	474	G	O5'-P-OP1	-9.96	96.74	105.70
30	N	953	G	O5'-P-OP1	-9.95	96.75	105.70
30	N	306	U	C2-N3-C4	-9.91	121.06	127.00
30	N	2059	A	O5'-P-OP2	-9.87	96.81	105.70
30	N	2060	A	O5'-P-OP1	-9.86	96.83	105.70
36	0	21	G	O5'-P-OP1	9.85	122.51	110.70
30	N	2072	C	O5'-P-OP1	-9.84	96.84	105.70
30	N	537	G	O5'-P-OP1	-9.63	97.03	105.70
30	N	801	G	O5'-P-OP2	-9.62	97.04	105.70
30	N	2726	A	O5'-P-OP1	-9.60	97.06	105.70
13	b	102	ARG	NE-CZ-NH2	9.57	125.09	120.30
30	N	2873	A	C5-C6-N6	9.56	131.35	123.70
42	6	109	ARG	NE-CZ-NH1	9.54	125.07	120.30
30	N	1809	A	O5'-P-OP1	-9.49	97.16	105.70
29	r	36	ARG	NE-CZ-NH1	-9.41	115.60	120.30
30	N	2776	A	C8-N9-C1'	-9.39	110.80	127.70
36	0	795	C	O5'-P-OP1	-9.39	97.25	105.70
30	N	2776	A	C4-N9-C1'	9.35	143.12	126.30
30	N	805	G	O5'-P-OP1	-9.31	97.32	105.70
30	N	2044	C	O5'-P-OP1	-9.29	97.34	105.70
10	Y	47	ARG	NE-CZ-NH2	9.27	124.94	120.30
30	N	2543	G	O5'-P-OP1	-9.25	97.38	105.70
30	N	1190	G	O5'-P-OP2	9.20	121.73	110.70
30	N	2711	A	O5'-P-OP2	9.16	121.69	110.70
2	P	258	ARG	NE-CZ-NH1	-9.12	115.74	120.30
40	4	111	MET	CG-SD-CE	-9.12	85.60	100.20
22	k	57	ARG	NE-CZ-NH2	9.10	124.85	120.30
30	N	1253	A	O5'-P-OP1	-9.09	97.52	105.70
30	N	2022	U	O5'-P-OP1	-9.09	97.52	105.70
30	N	2513	A	O5'-P-OP2	-9.08	97.53	105.70
30	N	1639	C	O5'-P-OP1	-9.07	97.53	105.70
14	c	72	ARG	NE-CZ-NH2	-9.05	115.78	120.30
37	1	21	ARG	NE-CZ-NH2	-9.00	115.80	120.30
13	b	102	ARG	NE-CZ-NH1	-8.99	115.81	120.30
48	D	92	ARG	NE-CZ-NH1	8.92	124.76	120.30
30	N	2456	C	O5'-P-OP1	-8.91	97.68	105.70
36	0	968	A	O5'-P-OP2	-8.85	97.73	105.70
30	N	684	G	O5'-P-OP1	-8.70	97.88	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	1798	U	O5'-P-OP2	-8.69	97.88	105.70
2	P	270	ARG	NE-CZ-NH2	-8.68	115.96	120.30
12	a	69	ARG	NE-CZ-NH2	8.66	124.63	120.30
30	N	2725	A	O5'-P-OP1	-8.66	97.91	105.70
13	b	30	ARG	NE-CZ-NH2	-8.63	115.98	120.30
10	Y	78	ARG	NE-CZ-NH2	8.62	124.61	120.30
14	c	21	ARG	NE-CZ-NH1	-8.62	115.99	120.30
50	F	54	ARG	NE-CZ-NH2	-8.60	116.00	120.30
30	N	2497	A	O5'-P-OP2	8.58	121.00	110.70
30	N	1994	C	O5'-P-OP1	-8.52	98.03	105.70
51	G	70	ARG	NE-CZ-NH1	8.50	124.55	120.30
1	O	90	C	O5'-P-OP1	-8.48	98.07	105.70
40	4	157	ARG	NE-CZ-NH1	-8.47	116.07	120.30
55	K	10	ARG	CB-CG-CD	-8.46	89.62	111.60
36	0	816	A	O5'-P-OP1	-8.45	98.09	105.70
28	q	8	ARG	NE-CZ-NH1	8.35	124.48	120.30
36	0	726	C	O5'-P-OP1	-8.32	98.21	105.70
36	0	1358	U	N3-C4-O4	-8.26	113.62	119.40
2	P	271	ARG	NE-CZ-NH2	-8.24	116.18	120.30
49	E	9	ARG	NE-CZ-NH1	8.24	124.42	120.30
2	P	221	ARG	CG-CD-NE	-8.23	94.52	111.80
30	N	234	U	N3-C4-O4	-8.19	113.67	119.40
30	N	2248	C	O5'-P-OP1	-8.18	98.34	105.70
30	N	2267	A	O5'-P-OP2	-8.13	98.39	105.70
30	N	812	C	O5'-P-OP2	-8.12	98.39	105.70
48	D	92	ARG	NE-CZ-NH2	-8.11	116.24	120.30
13	b	30	ARG	NE-CZ-NH1	8.10	124.35	120.30
30	N	671	C	O5'-P-OP1	-8.10	98.41	105.70
38	2	156	ARG	NE-CZ-NH1	8.09	124.35	120.30
4	R	61	ARG	NE-CZ-NH1	8.06	124.33	120.30
30	N	234	U	C5-C4-O4	8.05	130.73	125.90
34	M	73	C	OP1-P-O3'	-8.04	87.51	105.20
40	4	38	VAL	CG1-CB-CG2	-8.02	98.07	110.90
15	d	51	ARG	NE-CZ-NH2	-8.01	116.29	120.30
15	d	51	ARG	NE-CZ-NH1	7.99	124.30	120.30
30	N	1141	U	N3-C4-O4	-7.99	113.80	119.40
30	N	2222	C	O5'-P-OP1	-7.99	98.51	105.70
8	W	116	ARG	NE-CZ-NH1	7.98	124.29	120.30
15	d	13	ARG	NE-CZ-NH2	7.97	124.29	120.30
47	B	12	ARG	NE-CZ-NH1	-7.96	116.32	120.30
25	n	7	LYS	CD-CE-NZ	7.95	129.99	111.70
4	R	49	ARG	NE-CZ-NH1	-7.94	116.33	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	0	674	G	O5'-P-OP1	-7.94	98.56	105.70
9	X	78	ARG	NE-CZ-NH2	-7.93	116.33	120.30
36	0	439	U	C2-N3-C4	-7.92	122.25	127.00
36	0	1054	C	O5'-P-OP2	7.86	120.14	110.70
30	N	2061	G	O4'-C1'-N9	7.86	114.49	108.20
30	N	704	G	O5'-P-OP1	-7.85	98.64	105.70
41	5	79	ARG	NE-CZ-NH1	7.84	124.22	120.30
36	0	1191	A	O5'-P-OP1	-7.83	98.66	105.70
15	d	58	ARG	NE-CZ-NH2	-7.83	116.39	120.30
30	N	2847	U	O5'-P-OP1	-7.82	98.66	105.70
30	N	1141	U	C5-C4-O4	7.81	130.59	125.90
30	N	2277	G	O5'-P-OP1	-7.81	98.67	105.70
30	N	927	A	C6-N1-C2	-7.77	113.94	118.60
30	N	581	C	O5'-P-OP1	-7.75	98.73	105.70
44	8	49	ARG	NE-CZ-NH1	7.75	124.17	120.30
4	R	69	ARG	NE-CZ-NH2	-7.74	116.43	120.30
15	d	3	ARG	NE-CZ-NH1	-7.72	116.44	120.30
36	0	368	U	N3-C4-O4	-7.71	114.00	119.40
30	N	1611	C	O5'-P-OP2	-7.71	98.76	105.70
30	N	974	G	N9-C1'-C2'	7.70	124.01	114.00
30	N	1136	G	P-O5'-C5'	-7.69	108.60	120.90
30	N	1255	U	O5'-P-OP2	7.68	119.92	110.70
30	N	2344	U	N3-C4-O4	-7.66	114.03	119.40
42	6	3	ARG	NE-CZ-NH1	7.66	124.13	120.30
30	N	813	U	O5'-P-OP2	-7.66	98.81	105.70
30	N	2022	U	OP1-P-OP2	7.65	131.08	119.60
30	N	2765	A	C5-C6-N6	7.65	129.82	123.70
30	N	2544	G	O5'-P-OP2	-7.64	98.83	105.70
30	N	1255	U	O5'-P-OP1	-7.62	98.84	105.70
30	N	2447	G	P-O3'-C3'	7.62	128.84	119.70
30	N	2729	G	O5'-P-OP1	-7.62	98.85	105.70
30	N	430	A	N1-C6-N6	-7.61	114.04	118.60
30	N	512	G	P-O3'-C3'	7.61	128.83	119.70
30	N	698	C	O5'-P-OP2	-7.59	98.86	105.70
39	3	5	LEU	CA-CB-CG	7.59	132.75	115.30
30	N	787	C	O5'-P-OP1	7.58	119.80	110.70
36	0	37	U	N3-C4-O4	-7.58	114.09	119.40
23	l	52	ARG	NE-CZ-NH1	-7.54	116.53	120.30
30	N	2060	A	O5'-P-OP2	7.53	119.74	110.70
36	0	571	U	C2-N3-C4	-7.51	122.49	127.00
36	0	567	G	O5'-P-OP1	-7.51	98.94	105.70
2	P	177	ARG	NE-CZ-NH1	-7.51	116.55	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	784	G	C2'-C3'-O3'	7.48	125.97	109.50
30	N	2693	G	O5'-P-OP1	-7.48	98.97	105.70
36	0	498	A	C6-N1-C2	-7.48	114.11	118.60
30	N	1639	C	O5'-P-OP2	7.43	119.62	110.70
30	N	1900	A	P-O3'-C3'	7.43	128.62	119.70
30	N	1930	G	O5'-P-OP1	-7.41	99.03	105.70
36	0	1363	A	N1-C6-N6	-7.41	114.15	118.60
49	E	85	ARG	NE-CZ-NH1	7.40	124.00	120.30
36	0	501	C	O5'-P-OP1	-7.40	99.04	105.70
30	N	2256	G	O5'-P-OP1	-7.38	99.05	105.70
36	0	1331	G	O5'-P-OP1	-7.38	99.06	105.70
30	N	2542	A	O5'-P-OP2	-7.36	99.08	105.70
30	N	784	G	P-O3'-C3'	7.36	128.53	119.70
30	N	850	U	C2-N3-C4	-7.35	122.59	127.00
30	N	1932	A	O5'-P-OP1	-7.35	99.08	105.70
36	0	368	U	C5-C4-O4	7.34	130.30	125.90
30	N	932	U	N3-C4-O4	-7.32	114.28	119.40
43	7	80	ARG	NE-CZ-NH2	-7.31	116.65	120.30
10	Y	29	LYS	CD-CE-NZ	-7.30	94.91	111.70
30	N	2714	G	O5'-P-OP2	7.30	119.46	110.70
30	N	795	C	O5'-P-OP1	-7.28	99.14	105.70
30	N	2072	C	O5'-P-OP2	7.27	119.43	110.70
36	0	1507	A	O5'-P-OP1	-7.26	99.16	105.70
23	l	29	ARG	NE-CZ-NH1	-7.23	116.69	120.30
30	N	2497	A	C5'-C4'-C3'	-7.23	104.44	116.00
30	N	2692	G	O5'-P-OP2	-7.19	99.23	105.70
55	K	74	ARG	NE-CZ-NH1	7.19	123.90	120.30
21	j	14	ARG	CG-CD-NE	-7.18	96.72	111.80
30	N	760	G	OP1-P-O3'	7.18	120.99	105.20
10	Y	59	ARG	NE-CZ-NH1	7.16	123.88	120.30
30	N	2344	U	C5-C4-O4	7.15	130.19	125.90
10	Y	82	LEU	CA-CB-CG	7.13	131.70	115.30
4	R	81	GLY	C-N-CA	-7.12	107.34	122.30
30	N	1145	C	O5'-P-OP1	-7.12	99.29	105.70
30	N	510	C	O5'-P-OP2	-7.12	99.29	105.70
30	N	2506[A]	U	OP2-P-O3'	-7.10	89.59	105.20
30	N	2506[B]	U	OP2-P-O3'	-7.10	89.59	105.20
30	N	1236	G	P-O3'-C3'	7.07	128.19	119.70
54	J	5	LEU	CB-CG-CD1	-7.07	98.98	111.00
36	0	827	U	N3-C4-O4	-7.05	114.46	119.40
30	N	1026	G	O5'-P-OP2	-7.05	99.35	105.70
30	N	2637	U	O5'-P-OP1	-7.04	99.36	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	1962	C	O5'-P-OP1	-7.03	99.38	105.70
36	0	6	G	O5'-P-OP2	-7.01	99.39	105.70
30	N	2344	U	O5'-P-OP1	-7.00	99.40	105.70
39	3	3	ARG	NE-CZ-NH1	6.99	123.79	120.30
30	N	196	A	O5'-P-OP1	-6.97	99.42	105.70
30	N	578	G	O5'-P-OP1	6.97	119.06	110.70
36	0	24	U	N1-C2-O2	-6.95	117.94	122.80
3	Q	156	PHE	CB-CG-CD2	-6.94	115.94	120.80
30	N	1790	C	O5'-P-OP1	-6.94	99.45	105.70
30	N	967	U	O5'-P-OP1	-6.93	99.46	105.70
42	6	109	ARG	CG-CD-NE	-6.93	97.24	111.80
30	N	740	C	O5'-P-OP1	-6.93	99.46	105.70
30	N	2304	G	O5'-P-OP1	-6.92	99.48	105.70
36	0	37	U	C5-C4-O4	6.91	130.05	125.90
10	Y	59	ARG	NE-CZ-NH2	-6.91	116.85	120.30
30	N	2311	A	P-O3'-C3'	6.90	127.98	119.70
28	q	13	ARG	NE-CZ-NH1	-6.88	116.86	120.30
30	N	512	G	O4'-C1'-N9	6.86	113.69	108.20
30	N	1944	U	O5'-P-OP2	-6.86	99.52	105.70
30	N	2021	C	O5'-P-OP2	-6.86	99.53	105.70
14	c	93	ARG	CG-CD-NE	-6.85	97.42	111.80
30	N	2711	A	O5'-P-OP1	-6.85	99.54	105.70
53	I	43	ARG	NE-CZ-NH1	6.84	123.72	120.30
21	j	41	ARG	CD-NE-CZ	6.83	133.17	123.60
4	R	77	ILE	CG1-CB-CG2	-6.82	96.39	111.40
12	a	4	ARG	NE-CZ-NH2	-6.81	116.89	120.30
30	N	1021	A	N1-C6-N6	-6.81	114.52	118.60
30	N	2059	A	O5'-P-OP1	6.80	118.86	110.70
28	q	8	ARG	CD-NE-CZ	-6.80	114.08	123.60
30	N	1836	C	O5'-P-OP1	-6.80	99.58	105.70
30	N	2543	G	P-O5'-C5'	-6.79	110.04	120.90
36	0	1358	U	C5-C4-O4	6.78	129.97	125.90
2	P	101	ARG	NE-CZ-NH2	-6.76	116.92	120.30
36	0	904	U	O5'-P-OP1	-6.76	99.62	105.70
36	0	1343	G	O5'-P-OP1	-6.74	99.63	105.70
36	0	1349	A	O5'-P-OP2	6.74	118.79	110.70
30	N	630	G	O5'-P-OP1	-6.74	99.64	105.70
30	N	1607	C	O5'-P-OP1	-6.73	99.64	105.70
18	g	12	ARG	NE-CZ-NH1	6.73	123.67	120.30
36	0	812	G	P-O3'-C3'	6.73	127.78	119.70
30	N	679	C	O5'-P-OP1	-6.72	99.65	105.70
36	0	865	A	O5'-P-OP1	-6.72	99.66	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	2272	U	N3-C4-O4	-6.71	114.70	119.40
30	N	2576	G	O5'-P-OP2	-6.69	99.68	105.70
36	0	738	C	O5'-P-OP1	-6.67	99.70	105.70
36	0	261	U	O5'-P-OP1	-6.65	99.71	105.70
36	0	1280	A	O5'-P-OP2	-6.65	99.72	105.70
13	b	25	ARG	NE-CZ-NH1	-6.64	116.98	120.30
30	N	961	C	O5'-P-OP2	-6.63	99.73	105.70
36	0	864	A	C6-N1-C2	-6.63	114.62	118.60
27	p	14	ARG	NE-CZ-NH1	-6.62	116.99	120.30
38	2	172	ARG	NE-CZ-NH2	-6.62	116.99	120.30
30	N	932	U	C5-C4-O4	6.62	129.87	125.90
30	N	729	G	O5'-P-OP2	-6.59	99.76	105.70
30	N	2656	U	C2-N1-C1'	6.59	125.61	117.70
30	N	51	G	O4'-C1'-N9	6.58	113.47	108.20
41	5	24	ARG	NE-CZ-NH1	6.58	123.59	120.30
30	N	1648	U	P-O5'-C5'	-6.55	110.42	120.90
49	E	53	ARG	NE-CZ-NH1	-6.54	117.03	120.30
30	N	2516	A	O5'-P-OP1	-6.53	99.82	105.70
9	X	71	ARG	NE-CZ-NH1	6.52	123.56	120.30
30	N	2060	A	O3'-P-O5'	6.51	116.37	104.00
30	N	1666	G	O4'-C4'-C3'	-6.51	97.49	104.00
29	r	24	ARG	NE-CZ-NH2	6.50	123.55	120.30
30	N	1902	C	O5'-P-OP1	-6.49	99.86	105.70
30	N	963	U	O5'-P-OP2	6.49	118.48	110.70
30	N	188	G	O5'-P-OP1	-6.48	99.87	105.70
30	N	2048	G	O5'-P-OP1	-6.47	99.88	105.70
30	N	1439	A	O5'-P-OP1	-6.47	99.88	105.70
36	0	1279	G	N9-C1'-C2'	6.46	122.40	114.00
8	W	99	ARG	NE-CZ-NH1	6.46	123.53	120.30
30	N	204	A	O5'-P-OP2	-6.46	99.89	105.70
30	N	555	G	O5'-P-OP1	-6.46	99.89	105.70
30	N	1664	A	O5'-P-OP2	6.46	118.45	110.70
36	0	829	G	O5'-P-OP1	-6.45	99.89	105.70
54	J	37	ARG	NE-CZ-NH1	6.45	123.52	120.30
48	D	3	ARG	NE-CZ-NH1	6.44	123.52	120.30
6	T	3	ARG	NE-CZ-NH2	6.44	123.52	120.30
30	N	1933	G	O5'-P-OP1	-6.44	99.91	105.70
30	N	752	A	N9-C1'-C2'	6.42	122.35	114.00
21	j	41	ARG	NH1-CZ-NH2	-6.42	112.34	119.40
47	B	9	ARG	NE-CZ-NH1	6.41	123.50	120.30
2	P	229	ASP	CB-CG-OD1	-6.41	112.54	118.30
30	N	310	A	O5'-P-OP1	-6.41	99.93	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	747	U	O5'-P-OP1	-6.41	99.94	105.70
30	N	2074	U	O5'-P-OP2	-6.40	99.94	105.70
30	N	2522	U	N1-C2-O2	-6.39	118.33	122.80
30	N	2725	A	C3'-C2'-O2'	-6.39	94.78	113.30
30	N	1299	G	O5'-P-OP1	-6.38	99.96	105.70
48	D	90	ARG	NE-CZ-NH2	-6.38	117.11	120.30
30	N	2055	C	O5'-P-OP1	-6.36	99.98	105.70
30	N	1967	C	O5'-P-OP1	-6.36	99.98	105.70
30	N	1313	U	C2-N1-C1'	6.35	125.32	117.70
2	P	87	ARG	NE-CZ-NH2	6.34	123.47	120.30
12	a	69	ARG	NE-CZ-NH1	-6.32	117.14	120.30
30	N	2443	C	O4'-C4'-C3'	-6.32	97.68	104.00
30	N	792	A	O5'-P-OP1	-6.31	100.02	105.70
30	N	2061	G	O5'-P-OP1	-6.31	100.02	105.70
30	N	650	C	O5'-P-OP1	-6.31	100.02	105.70
36	0	827	U	C5-C4-O4	6.31	129.69	125.90
13	b	13	ARG	NE-CZ-NH1	6.30	123.45	120.30
17	f	88	ARG	NE-CZ-NH1	-6.29	117.15	120.30
24	m	11	ARG	NE-CZ-NH2	6.29	123.45	120.30
30	N	2423	U	O5'-P-OP2	-6.28	100.05	105.70
30	N	995	C	C4'-C3'-O3'	-6.27	96.23	109.40
42	6	95	ARG	NE-CZ-NH1	6.27	123.44	120.30
11	Z	40	ARG	NE-CZ-NH2	6.26	123.43	120.30
36	0	397	A	N1-C6-N6	-6.25	114.85	118.60
15	d	48	ARG	NE-CZ-NH2	6.25	123.42	120.30
25	n	17	ARG	NE-CZ-NH2	-6.24	117.18	120.30
36	0	563	A	N1-C6-N6	-6.24	114.86	118.60
56	s	34	ARG	NE-CZ-NH1	6.24	123.42	120.30
36	0	131	A	O5'-P-OP1	-6.24	100.09	105.70
25	n	20	ASP	CB-CG-OD2	-6.23	112.69	118.30
30	N	1205	A	P-O3'-C3'	6.22	127.17	119.70
36	0	880	C	O5'-P-OP2	-6.22	100.10	105.70
30	N	1141	U	N3-C2-O2	-6.21	117.85	122.20
30	N	2364	C	O4'-C4'-C3'	-6.20	97.80	104.00
30	N	140	C	C2-N1-C1'	6.20	125.62	118.80
30	N	983	A	C5'-C4'-O4'	-6.20	101.66	109.10
36	0	890	G	O4'-C1'-N9	6.20	113.16	108.20
36	0	1238	A	C6-C5-N7	-6.20	127.96	132.30
30	N	1313	U	N1-C1'-C2'	6.19	122.05	114.00
36	0	540	G	O5'-P-OP1	-6.18	100.13	105.70
39	3	3	ARG	NE-CZ-NH2	-6.18	117.21	120.30
30	N	1865	U	O5'-P-OP1	-6.18	100.14	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	1936	A	C4'-C3'-O3'	-6.18	96.43	109.40
47	B	83	ARG	NE-CZ-NH1	6.17	123.38	120.30
36	0	1054	C	O5'-P-OP1	-6.15	100.16	105.70
30	N	310	A	C6-C5-N7	-6.14	128.00	132.30
36	0	576	C	O5'-P-OP2	-6.14	100.17	105.70
46	A	122	ARG	NE-CZ-NH2	-6.14	117.23	120.30
30	N	2243	U	O5'-P-OP2	6.14	118.06	110.70
28	q	25	LYS	CD-CE-NZ	-6.12	97.62	111.70
30	N	91	A	O5'-P-OP2	-6.12	100.19	105.70
30	N	2258	C	O5'-P-OP1	-6.12	100.19	105.70
2	P	229	ASP	CB-CG-OD2	6.11	123.80	118.30
30	N	1264	A	O5'-P-OP1	-6.11	100.20	105.70
36	0	1356	G	O5'-P-OP1	-6.10	100.21	105.70
50	F	63	ARG	NE-CZ-NH1	6.10	123.35	120.30
2	P	228	VAL	CG1-CB-CG2	-6.10	101.14	110.90
8	W	37	ARG	NE-CZ-NH2	6.10	123.35	120.30
30	N	2725	A	O5'-P-OP2	6.09	118.01	110.70
30	N	503	A	C4-C5-C6	6.09	120.05	117.00
53	I	57	ARG	CA-CB-CG	6.08	126.79	113.40
30	N	1501	G	O5'-P-OP1	-6.08	100.23	105.70
36	0	762	U	O5'-P-OP1	-6.08	100.23	105.70
30	N	1844	C	O5'-P-OP1	-6.07	100.24	105.70
15	d	28	ARG	NE-CZ-NH1	6.06	123.33	120.30
1	O	94	A	O5'-P-OP1	-6.06	100.25	105.70
12	a	54	LEU	CB-CG-CD1	-6.06	100.70	111.00
25	n	52	ARG	NE-CZ-NH2	6.04	123.32	120.30
11	Z	81	ARG	NE-CZ-NH2	-6.04	117.28	120.30
23	l	6	LEU	CB-CG-CD1	6.04	121.26	111.00
36	0	687	A	O5'-P-OP1	-6.03	100.27	105.70
3	Q	109	VAL	CG1-CB-CG2	-6.03	101.25	110.90
30	N	2603	G	O5'-P-OP1	-6.03	100.28	105.70
30	N	670	A	P-O3'-C3'	6.02	126.93	119.70
36	0	31	G	O5'-P-OP2	-6.02	100.28	105.70
36	0	1238	A	C4-C5-C6	6.01	120.00	117.00
36	0	2	A	O5'-P-OP1	-6.00	100.30	105.70
45	9	60	ASP	CB-CG-OD2	6.00	123.70	118.30
44	8	12	ARG	NE-CZ-NH2	-5.99	117.30	120.30
30	N	2576	G	O5'-P-OP1	5.99	117.88	110.70
6	T	153	ARG	NE-CZ-NH2	5.98	123.29	120.30
48	D	107	ARG	NE-CZ-NH2	-5.98	117.31	120.30
30	N	948	C	O5'-P-OP1	5.98	117.87	110.70
36	0	529	G	O5'-P-OP2	-5.98	100.32	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	0	388	G	P-O3'-C3'	5.97	126.86	119.70
40	4	138	ARG	NE-CZ-NH1	-5.96	117.32	120.30
30	N	536	G	O5'-P-OP2	-5.96	100.33	105.70
12	a	69	ARG	CG-CD-NE	5.96	124.32	111.80
30	N	310	A	C4-C5-C6	5.96	119.98	117.00
30	N	2267	A	N1-C6-N6	-5.96	115.03	118.60
30	N	673	C	O5'-P-OP1	5.95	117.84	110.70
30	N	1328	A	O5'-P-OP1	5.94	117.83	110.70
2	P	177	ARG	CG-CD-NE	-5.94	99.33	111.80
30	N	2512	C	O5'-P-OP1	-5.94	100.36	105.70
28	q	45	ARG	NE-CZ-NH1	5.93	123.27	120.30
47	B	14	ARG	NE-CZ-NH1	5.92	123.26	120.30
28	q	8	ARG	CG-CD-NE	5.92	124.24	111.80
9	X	23	LYS	CD-CE-NZ	-5.92	98.09	111.70
30	N	1134	A	P-O3'-C3'	5.92	126.80	119.70
36	0	1347	G	P-O3'-C3'	5.92	126.80	119.70
4	R	81	GLY	O-C-N	-5.91	113.15	123.20
30	N	2273	A	O5'-P-OP1	-5.91	100.38	105.70
30	N	466	A	O5'-P-OP1	5.91	117.79	110.70
49	E	59	ARG	NE-CZ-NH1	5.91	123.25	120.30
30	N	820	A	O4'-C4'-C3'	-5.90	98.10	104.00
36	0	1301	U	N1-C1'-C2'	5.90	121.67	114.00
2	P	133	ARG	NE-CZ-NH2	5.90	123.25	120.30
26	o	10	LYS	CD-CE-NZ	5.90	125.27	111.70
44	8	18	ARG	CB-CG-CD	-5.89	96.29	111.60
30	N	1795	C	O5'-P-OP1	-5.89	100.40	105.70
44	8	45	ARG	NE-CZ-NH1	5.88	123.24	120.30
30	N	1427	A	O5'-P-OP1	-5.87	100.42	105.70
30	N	2503	A	OP1-P-OP2	-5.87	110.80	119.60
11	Z	136	MET	CG-SD-CE	5.86	109.58	100.20
30	N	404	A	P-O3'-C3'	5.86	126.73	119.70
30	N	1617	C	O5'-P-OP2	-5.86	100.42	105.70
36	0	59	A	O5'-P-OP1	5.86	117.73	110.70
36	0	1182	G	P-O3'-C3'	5.85	126.72	119.70
39	3	91	LEU	CB-CG-CD1	-5.85	101.05	111.00
30	N	503	A	C6-C5-N7	-5.85	128.21	132.30
30	N	578	G	O5'-P-OP2	-5.85	100.44	105.70
30	N	2383	G	O5'-P-OP2	-5.84	100.44	105.70
30	N	2699	C	O5'-P-OP1	-5.84	100.45	105.70
4	R	65	THR	C-N-CA	-5.83	110.06	122.30
10	Y	30	THR	N-CA-CB	5.83	121.37	110.30
30	N	2028	U	O5'-P-OP1	-5.83	100.45	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	2246	G	O4'-C4'-C3'	-5.83	98.17	104.00
36	0	884	U	N3-C4-O4	-5.82	115.32	119.40
30	N	27	G	C5'-C4'-O4'	-5.82	102.12	109.10
36	0	9	G	O5'-P-OP1	5.81	117.67	110.70
30	N	1673	G	O5'-P-OP2	5.81	117.67	110.70
30	N	2272	U	C5-C4-O4	5.81	129.39	125.90
30	N	775	G	O5'-P-OP1	-5.80	100.48	105.70
27	p	12	ARG	CA-CB-CG	5.80	126.16	113.40
30	N	679	C	OP1-P-OP2	5.80	128.30	119.60
16	e	80	ARG	NE-CZ-NH2	-5.79	117.40	120.30
36	0	1201	A	P-O3'-C3'	5.79	126.65	119.70
30	N	301	G	C4-N9-C1'	-5.79	118.97	126.50
30	N	2689	U	OP1-P-OP2	5.79	128.28	119.60
30	N	783	A	O5'-P-OP2	-5.78	100.49	105.70
27	p	12	ARG	NE-CZ-NH1	-5.78	117.41	120.30
49	E	61	ARG	NE-CZ-NH2	-5.78	117.41	120.30
22	k	37	ARG	NE-CZ-NH2	5.78	123.19	120.30
30	N	1348	C	O5'-P-OP1	-5.77	100.51	105.70
30	N	675	A	O5'-P-OP2	5.76	117.61	110.70
40	4	69	ARG	NE-CZ-NH1	5.76	123.18	120.30
30	N	859	G	P-O3'-C3'	5.76	126.61	119.70
30	N	2682	A	O5'-P-OP2	5.75	117.60	110.70
39	3	70	ARG	NE-CZ-NH1	5.74	123.17	120.30
41	5	90	MET	C-N-CA	5.74	136.05	121.70
50	F	54	ARG	NE-CZ-NH1	5.74	123.17	120.30
30	N	504	A	O5'-P-OP2	-5.74	100.54	105.70
12	a	49	GLU	OE1-CD-OE2	-5.73	116.43	123.30
30	N	1130	U	O5'-P-OP1	-5.73	100.55	105.70
36	0	1254	A	O5'-P-OP1	-5.72	100.55	105.70
1	O	44	G	N9-C1'-C2'	5.71	121.43	114.00
3	Q	124	ARG	NE-CZ-NH1	5.71	123.16	120.30
56	s	17	ARG	NE-CZ-NH2	-5.71	117.44	120.30
30	N	1565	C	C5'-C4'-C3'	-5.71	106.87	116.00
30	N	477	A	O5'-P-OP2	-5.70	100.57	105.70
36	0	176	C	O5'-P-OP1	-5.70	100.57	105.70
30	N	2688	G	O5'-P-OP1	-5.70	100.57	105.70
2	P	130	LEU	CA-CB-CG	5.69	128.38	115.30
36	0	1067	A	O5'-P-OP1	-5.69	100.58	105.70
50	F	70	LEU	CB-CG-CD2	-5.69	101.33	111.00
30	N	2645	G	C5'-C4'-C3'	-5.68	106.91	116.00
30	N	1788	C	OP1-P-O3'	5.68	117.69	105.20
30	N	780	G	O5'-P-OP2	-5.68	100.59	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
44	8	123	ARG	NE-CZ-NH1	5.68	123.14	120.30
30	N	242	G	C4'-C3'-O3'	5.67	124.35	113.00
30	N	1143	A	O5'-P-OP2	-5.67	100.59	105.70
30	N	2720	U	N1-C2-O2	-5.67	118.83	122.80
36	0	1331	G	O4'-C1'-N9	5.66	112.73	108.20
50	F	43	PHE	CB-CG-CD1	-5.66	116.83	120.80
30	N	1676	A	O5'-P-OP2	5.66	117.49	110.70
30	N	1570	A	O5'-P-OP1	-5.66	100.61	105.70
30	N	860	U	OP1-P-OP2	-5.64	111.13	119.60
30	N	1843	C	O5'-P-OP1	-5.64	100.62	105.70
40	4	138	ARG	N-CA-CB	5.64	120.75	110.60
30	N	2499	C	O5'-P-OP1	5.62	117.45	110.70
2	P	156	ARG	NE-CZ-NH1	5.62	123.11	120.30
30	N	1952	A	O5'-P-OP1	-5.62	100.64	105.70
44	8	99	ARG	NE-CZ-NH2	-5.61	117.49	120.30
2	P	187	ASP	CB-CG-OD1	5.61	123.35	118.30
30	N	2873	A	C3'-C2'-C1'	5.60	105.98	101.50
30	N	205	G	O4'-C1'-N9	5.60	112.68	108.20
30	N	2725	A	C5'-C4'-O4'	-5.60	102.38	109.10
30	N	1029	A	O5'-P-OP1	-5.59	100.67	105.70
6	T	149	ARG	NE-CZ-NH2	-5.59	117.51	120.30
30	N	1612	C	O5'-P-OP1	-5.58	100.67	105.70
30	N	1261	C	O4'-C4'-C3'	-5.58	98.42	104.00
36	0	1474	U	O5'-P-OP1	-5.58	100.68	105.70
25	n	16	ARG	NE-CZ-NH1	-5.58	117.51	120.30
14	c	89	ARG	NE-CZ-NH2	5.57	123.08	120.30
15	d	28	ARG	NE-CZ-NH2	-5.57	117.52	120.30
30	N	528	A	C8-N9-C1'	5.56	137.71	127.70
38	2	132	ARG	NE-CZ-NH1	5.56	123.08	120.30
30	N	803	U	O5'-P-OP1	-5.56	100.70	105.70
14	c	21	ARG	NH1-CZ-NH2	5.55	125.50	119.40
2	P	232	HIS	O-C-N	-5.55	113.77	123.20
30	N	2776	A	C2'-C3'-O3'	5.54	122.57	113.70
15	d	6	ARG	NE-CZ-NH1	-5.54	117.53	120.30
30	N	1990	C	O5'-P-OP1	-5.54	100.71	105.70
2	P	156	ARG	CG-CD-NE	5.54	123.44	111.80
30	N	1688	U	O5'-P-OP1	-5.54	100.72	105.70
30	N	2359	C	O5'-P-OP1	-5.53	100.72	105.70
23	l	48	ARG	NE-CZ-NH2	-5.53	117.53	120.30
30	N	2498	C	OP1-P-OP2	5.53	127.89	119.60
36	0	567	G	OP1-P-OP2	5.51	127.86	119.60
30	N	573	U	P-O3'-C3'	5.51	126.31	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	W	39	LYS	CD-CE-NZ	-5.50	99.04	111.70
30	N	2580	U	O5'-P-OP2	-5.50	100.75	105.70
15	d	92	ARG	NE-CZ-NH2	5.50	123.05	120.30
30	N	234	U	N3-C2-O2	-5.50	118.35	122.20
30	N	2260	C	O5'-P-OP1	-5.50	100.75	105.70
2	P	239	ASN	N-CA-C	5.49	125.83	111.00
30	N	825	A	O5'-P-OP2	-5.49	100.76	105.70
30	N	2543	G	C5'-C4'-C3'	-5.49	107.22	116.00
36	0	330	C	P-O5'-C5'	-5.48	112.13	120.90
30	N	372	G	P-O3'-C3'	5.48	126.28	119.70
36	0	37	U	N3-C2-O2	-5.48	118.36	122.20
30	N	790	U	O5'-P-OP2	-5.48	100.77	105.70
36	0	734	G	O5'-P-OP1	-5.48	100.77	105.70
30	N	1695	G	O5'-P-OP2	-5.48	100.77	105.70
30	N	2848	G	O4'-C1'-N9	5.48	112.58	108.20
30	N	871	U	P-O5'-C5'	-5.47	112.14	120.90
30	N	2452	C	O5'-P-OP2	-5.47	100.77	105.70
36	0	818	G	N9-C1'-C2'	5.47	121.11	114.00
48	D	109	ARG	NE-CZ-NH2	-5.47	117.56	120.30
30	N	670	A	C2'-C3'-O3'	5.47	122.45	113.70
36	0	816	A	O5'-P-OP2	5.47	117.26	110.70
30	N	2720	U	N3-C4-C5	5.46	117.88	114.60
30	N	463	G	O5'-P-OP2	-5.45	100.80	105.70
12	a	46	ARG	NE-CZ-NH1	-5.44	117.58	120.30
30	N	774	G	C1'-C2'-O2'	-5.44	94.27	110.60
30	N	2037	A	C5'-C4'-O4'	-5.44	102.57	109.10
30	N	2873	A	P-O5'-C5'	-5.44	112.20	120.90
30	N	301	G	C8-N9-C1'	5.44	134.07	127.00
30	N	2266	A	C4'-C3'-O3'	-5.44	97.98	109.40
30	N	1322	A	O5'-P-OP1	-5.43	100.81	105.70
13	b	94	ARG	NE-CZ-NH1	-5.43	117.58	120.30
1	O	48	U	O5'-P-OP1	-5.43	100.82	105.70
45	9	92	LEU	CA-CB-CG	5.43	127.78	115.30
30	N	514	A	O5'-P-OP1	-5.42	100.82	105.70
30	N	2514	U	O5'-P-OP2	-5.42	100.82	105.70
30	N	1669	A	C8-N9-C1'	-5.42	117.94	127.70
50	F	64	ARG	CG-CD-NE	-5.42	100.43	111.80
24	m	54	MET	CG-SD-CE	-5.41	91.54	100.20
30	N	1325	U	O5'-P-OP2	-5.41	100.83	105.70
38	2	157	LEU	CA-CB-CG	5.40	127.73	115.30
30	N	2405	G	P-O3'-C3'	5.40	126.18	119.70
10	Y	52	GLY	C-N-CA	-5.40	110.97	122.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	2872	A	O5'-P-OP1	-5.39	100.85	105.70
36	0	653	U	O5'-P-OP1	-5.39	100.85	105.70
36	0	886	G	O5'-P-OP1	-5.39	100.85	105.70
30	N	2613	U	N3-C4-O4	-5.38	115.63	119.40
2	P	195	VAL	CG1-CB-CG2	-5.38	102.29	110.90
8	W	124	VAL	CG1-CB-CG2	-5.38	102.29	110.90
25	n	10	ARG	NE-CZ-NH2	5.38	122.99	120.30
13	b	33	ARG	NE-CZ-NH2	-5.38	117.61	120.30
36	0	976	G	O5'-P-OP2	5.38	117.15	110.70
3	Q	146	ILE	CG1-CB-CG2	-5.37	99.58	111.40
4	R	88	ARG	NE-CZ-NH1	-5.37	117.61	120.30
30	N	2848	G	O5'-P-OP1	-5.37	100.87	105.70
36	0	368	U	N3-C2-O2	-5.37	118.44	122.20
36	0	1500	A	O5'-P-OP2	-5.37	100.87	105.70
30	N	2765	A	C2-N3-C4	-5.37	107.92	110.60
36	0	1363	A	C5-C6-N6	5.37	128.00	123.70
11	Z	40	ARG	NE-CZ-NH1	-5.37	117.62	120.30
30	N	1142	A	P-O3'-C3'	5.37	126.14	119.70
2	P	14	ARG	NE-CZ-NH1	5.36	122.98	120.30
47	B	38	TYR	CB-CG-CD1	-5.35	117.79	121.00
30	N	932	U	N3-C2-O2	-5.35	118.45	122.20
8	W	99	ARG	NE-CZ-NH2	-5.35	117.63	120.30
36	0	1301	U	C6-N1-C1'	-5.35	113.71	121.20
30	N	748	G	O5'-P-OP2	-5.34	100.89	105.70
30	N	1031	G	O5'-P-OP2	-5.34	100.89	105.70
30	N	2286	G	P-O3'-C3'	5.34	126.11	119.70
36	0	560	A	O5'-P-OP1	-5.34	100.89	105.70
30	N	1256	G	O4'-C1'-N9	-5.34	103.93	108.20
49	E	13	ARG	NE-CZ-NH2	-5.33	117.64	120.30
36	0	804	U	O5'-P-OP1	-5.32	100.91	105.70
36	0	574	A	O5'-P-OP1	-5.32	100.91	105.70
30	N	752	A	O4'-C1'-N9	5.32	112.45	108.20
36	0	728	A	O5'-P-OP2	-5.32	100.91	105.70
2	P	217	ARG	NE-CZ-NH1	-5.32	117.64	120.30
30	N	1142	A	C3'-C2'-C1'	5.31	105.75	101.50
30	N	1669	A	C4-N9-C1'	5.31	135.86	126.30
36	0	96	U	C2'-C3'-O3'	5.31	122.19	113.70
2	P	221	ARG	N-CA-CB	5.31	120.15	110.60
30	N	1783	A	O5'-P-OP1	5.30	117.06	110.70
21	j	41	ARG	CB-CG-CD	5.30	125.39	111.60
42	6	3	ARG	NE-CZ-NH2	-5.30	117.65	120.30
3	Q	154	LYS	CD-CE-NZ	-5.29	99.52	111.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	1021	A	C5-C6-N6	5.29	127.94	123.70
30	N	430	A	C5-C6-N6	5.29	127.93	123.70
29	r	1	MET	CB-CG-SD	-5.29	96.53	112.40
56	s	16	LEU	CA-CB-CG	5.29	127.47	115.30
9	X	23	LYS	N-CA-CB	5.29	120.12	110.60
30	N	528	A	C4-N9-C1'	-5.29	116.78	126.30
36	0	880	C	O5'-P-OP1	5.29	117.04	110.70
48	D	98	ARG	CG-CD-NE	5.28	122.89	111.80
36	0	108	G	O4'-C1'-N9	5.28	112.42	108.20
43	7	99	LEU	CB-CG-CD1	-5.28	102.03	111.00
30	N	1800	C	O5'-P-OP2	-5.27	100.95	105.70
30	N	2832	U	P-O3'-C3'	5.27	126.02	119.70
36	0	890	G	P-O3'-C3'	5.27	126.02	119.70
30	N	140	C	C6-N1-C1'	-5.26	114.48	120.80
30	N	2884	U	O4'-C1'-N1	5.26	112.41	108.20
36	0	1319	A	O5'-P-OP1	-5.25	100.97	105.70
36	0	822	U	O5'-P-OP1	-5.25	100.97	105.70
22	k	28	ARG	NH1-CZ-NH2	5.25	125.17	119.40
30	N	1829	A	O5'-P-OP2	-5.25	100.98	105.70
2	P	84	ASP	CB-CG-OD1	5.24	123.02	118.30
30	N	1271	G	O5'-P-OP1	5.24	116.99	110.70
10	Y	78	ARG	NE-CZ-NH1	-5.24	117.68	120.30
30	N	611	C	O5'-P-OP1	-5.24	100.98	105.70
36	0	558	G	O5'-P-OP1	5.24	116.99	110.70
30	N	2867	G	P-O3'-C3'	5.24	125.99	119.70
36	0	1504	G	O5'-P-OP2	-5.24	100.99	105.70
6	T	149	ARG	NE-CZ-NH1	5.24	122.92	120.30
30	N	771	G	O5'-P-OP1	-5.24	100.99	105.70
14	c	109	ARG	NE-CZ-NH2	5.23	122.92	120.30
29	r	36	ARG	CG-CD-NE	-5.22	100.83	111.80
29	r	3	VAL	CG1-CB-CG2	-5.22	102.55	110.90
30	N	2394	C	O4'-C4'-C3'	-5.22	98.78	104.00
30	N	532	A	O5'-P-OP2	-5.22	101.00	105.70
30	N	499	U	N3-C4-C5	5.21	117.73	114.60
30	N	2243	U	O5'-P-OP1	-5.21	101.01	105.70
15	d	3	ARG	NE-CZ-NH2	5.21	122.90	120.30
30	N	2049	G	O4'-C4'-C3'	-5.21	98.80	104.00
22	k	57	ARG	NE-CZ-NH1	-5.20	117.70	120.30
15	d	33	ARG	CB-CG-CD	-5.20	98.09	111.60
36	0	163	C	O5'-P-OP1	-5.20	101.02	105.70
30	N	915	C	O5'-P-OP2	-5.19	101.03	105.70
36	0	595	A	P-O3'-C3'	5.19	125.93	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	N	1313	U	C6-N1-C1'	-5.19	113.94	121.20
30	N	2831	G	O5'-P-OP1	-5.19	101.03	105.70
30	N	825	A	OP1-P-O3'	5.18	116.60	105.20
30	N	1815	A	C5'-C4'-O4'	-5.18	102.89	109.10
37	1	103	ASN	N-CA-CB	5.17	119.92	110.60
30	N	1606	C	O5'-P-OP2	-5.17	101.05	105.70
30	N	1998	A	O4'-C4'-C3'	-5.17	98.83	104.00
30	N	2007	U	O5'-P-OP2	-5.17	101.05	105.70
30	N	2215	C	O5'-P-OP1	-5.16	101.05	105.70
16	e	79	ARG	CD-NE-CZ	-5.16	116.37	123.60
22	k	72	ARG	NE-CZ-NH1	5.16	122.88	120.30
36	0	887	G	O5'-P-OP2	-5.16	101.06	105.70
14	c	51	ARG	NE-CZ-NH2	-5.15	117.72	120.30
30	N	2874	C	O5'-P-OP2	-5.15	101.06	105.70
2	P	156	ARG	CB-CG-CD	-5.14	98.22	111.60
30	N	704	G	O4'-C1'-N9	5.14	112.31	108.20
30	N	1270	C	O5'-P-OP1	-5.13	101.08	105.70
47	B	61	PHE	CB-CG-CD1	5.13	124.39	120.80
12	a	17	ARG	NE-CZ-NH2	5.13	122.87	120.30
30	N	578	G	OP1-P-OP2	-5.13	111.90	119.60
30	N	1667	G	O5'-P-OP2	5.13	116.86	110.70
48	D	3	ARG	CD-NE-CZ	5.13	130.78	123.60
36	0	1125	U	C2-N1-C1'	5.13	123.85	117.70
30	N	555	G	P-O3'-C3'	5.12	125.85	119.70
30	N	830	G	O4'-C1'-N9	-5.12	104.10	108.20
30	N	140	C	N1-C1'-C2'	5.12	120.66	114.00
30	N	2645	G	P-O5'-C5'	-5.12	112.70	120.90
36	0	1358	U	N3-C2-O2	-5.12	118.61	122.20
51	G	70	ARG	CG-CD-NE	5.12	122.55	111.80
30	N	2049	G	OP1-P-OP2	-5.12	111.92	119.60
27	p	33	ARG	NE-CZ-NH1	5.12	122.86	120.30
30	N	1288	G	C4-N9-C1'	5.12	133.15	126.50
14	c	53	ARG	CB-CG-CD	-5.11	98.31	111.60
30	N	1020	A	P-O3'-C3'	5.11	125.83	119.70
30	N	2656	U	C6-N1-C1'	-5.11	114.05	121.20
3	Q	124	ARG	NE-CZ-NH2	-5.11	117.75	120.30
47	B	22	PRO	O-C-N	-5.11	114.53	122.70
11	Z	18	ARG	NE-CZ-NH2	5.10	122.85	120.30
40	4	138	ARG	NE-CZ-NH2	-5.10	117.75	120.30
30	N	1950	G	O5'-P-OP1	-5.10	101.11	105.70
2	P	24	LEU	CB-CG-CD1	-5.10	102.34	111.00
2	P	217	ARG	CG-CD-NE	-5.10	101.10	111.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	0	502	A	O5'-P-OP2	-5.09	101.11	105.70
51	G	51	ARG	NE-CZ-NH1	5.09	122.85	120.30
30	N	997	G	O5'-P-OP1	-5.09	101.12	105.70
1	O	52	A	P-O3'-C3'	5.09	125.81	119.70
30	N	651	G	O5'-P-OP2	-5.09	101.12	105.70
30	N	1236	G	C5'-C4'-O4'	-5.09	102.99	109.10
30	N	953	G	OP1-P-OP2	5.09	127.23	119.60
46	A	126	LYS	CB-CA-C	5.09	120.57	110.40
49	E	85	ARG	NE-CZ-NH2	-5.09	117.76	120.30
4	R	65	THR	O-C-N	-5.08	114.56	123.20
50	F	66	LEU	CB-CG-CD2	-5.08	102.37	111.00
9	X	71	ARG	NE-CZ-NH2	-5.08	117.76	120.30
11	Z	38	ARG	NE-CZ-NH2	-5.07	117.76	120.30
30	N	1764	C	O5'-P-OP1	-5.07	101.14	105.70
30	N	2765	A	C4-N9-C1'	5.07	135.42	126.30
30	N	2720	U	N1-C2-N3	5.07	117.94	114.90
3	Q	114	LYS	CA-CB-CG	5.06	124.53	113.40
16	e	81	LYS	CD-CE-NZ	5.05	123.33	111.70
36	0	85	U	P-O3'-C3'	5.05	125.77	119.70
36	0	103	U	O5'-P-OP1	-5.05	101.15	105.70
30	N	658	U	O5'-P-OP2	-5.05	101.15	105.70
30	N	278	A	C4-N9-C1'	5.05	135.39	126.30
50	F	58	ARG	NE-CZ-NH1	5.05	122.82	120.30
30	N	2267	A	N9-C1'-C2'	5.04	120.56	114.00
51	G	14	ARG	NE-CZ-NH2	-5.04	117.78	120.30
30	N	2778	A	O5'-P-OP2	-5.04	101.16	105.70
36	0	402	G	O5'-P-OP2	-5.04	101.16	105.70
36	0	1347	G	O4'-C1'-N9	5.04	112.23	108.20
30	N	918	A	O5'-P-OP1	-5.04	101.17	105.70
30	N	2013	A	N1-C6-N6	-5.04	115.58	118.60
36	0	541	G	O5'-P-OP1	-5.03	101.17	105.70
36	0	578	C	O5'-P-OP1	5.03	116.73	110.70
41	5	24	ARG	NE-CZ-NH2	-5.03	117.79	120.30
30	N	1026	G	O5'-P-OP1	5.02	116.72	110.70
1	O	15	A	O4'-C1'-N9	5.02	112.21	108.20
30	N	818	G	O5'-P-OP1	-5.02	101.19	105.70
30	N	828	U	O5'-P-OP1	-5.01	101.19	105.70
36	0	1300	G	P-O3'-C3'	5.01	125.72	119.70
5	S	71	ARG	NE-CZ-NH2	5.01	122.81	120.30
30	N	556	A	O5'-P-OP1	-5.01	101.19	105.70
55	K	69	LYS	N-CA-C	5.01	124.53	111.00
10	Y	3	LEU	CB-CG-CD1	-5.01	102.48	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	g	7	LEU	CA-CB-CG	5.01	126.82	115.30
30	N	2006	C	O5'-P-OP1	5.01	116.71	110.70
30	N	2354	C	C5'-C4'-C3'	-5.00	107.99	116.00
30	N	1997	C	O4'-C4'-C3'	-5.00	99.00	104.00
39	3	13	ARG	NE-CZ-NH1	5.00	122.80	120.30

There are no chirality outliers.

All (46) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
36	0	24	U	Sidechain
36	0	368	U	Sidechain
36	0	559	A	Sidechain
36	0	571	U	Sidechain
36	0	864	A	Sidechain
37	1	102	THR	Peptide
37	1	14	VAL	Peptide
38	2	79	LYS	Peptide
38	2	80	LYS	Peptide
40	4	102	GLY	Peptide
40	4	136	VAL	Peptide
40	4	137	VAL	Peptide
40	4	142	ASP	Peptide
40	4	89	HIS	Peptide
41	5	52	ASN	Peptide
41	5	93	LYS	Peptide
44	8	128	SER	Peptide
44	8	53	GLU	Peptide
44	8	54	LEU	Peptide
44	8	55	VAL	Peptide
46	A	125	LYS	Peptide
47	B	22	PRO	Peptide
47	B	77	HIS	Peptide
52	H	17	MET	Peptide
52	H	69	LYS	Peptide
54	J	37	ARG	Peptide
55	K	3	ASN	Peptide
30	N	1802	A	Sidechain
30	N	2522	U	Sidechain
30	N	2765	A	Sidechain
30	N	586	A	Sidechain
30	N	850	U	Sidechain

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Mol	Chain	Res	Type	Group
30	N	927	A	Sidechain
2	P	195	VAL	Peptide
2	P	234	GLY	Peptide
2	P	238	ARG	Peptide
3	Q	151	THR	Peptide
5	S	174	ASP	Peptide
5	S	175	PHE	Peptide
10	Y	114	GLY	Peptide
10	Y	82	LEU	Peptide
11	Z	57	VAL	Peptide,Mainchain
19	h	52	LEU	Peptide
28	q	31	HIS	Peptide
56	s	34	ARG	Peptide

5.2 Too-close contacts

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

5.3 Torsion angles

5.3.1 Protein backbone

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	P	269/275 (98%)	247 (92%)	18 (7%)	4 (2%)	8 39
3	Q	207/209 (99%)	195 (94%)	11 (5%)	1 (0%)	25 64
4	R	199/201 (99%)	191 (96%)	8 (4%)	0	100 100
5	S	175/179 (98%)	163 (93%)	11 (6%)	1 (1%)	22 60
6	T	174/177 (98%)	164 (94%)	10 (6%)	0	100 100
7	V	139/142 (98%)	112 (81%)	27 (19%)	0	100 100
8	W	140/142 (99%)	136 (97%)	4 (3%)	0	100 100
9	X	120/123 (98%)	109 (91%)	9 (8%)	2 (2%)	7 36

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
10	Y	141/144 (98%)	121 (86%)	16 (11%)	4 (3%)	4 25
11	Z	134/137 (98%)	118 (88%)	11 (8%)	5 (4%)	2 20
12	a	118/127 (93%)	103 (87%)	13 (11%)	2 (2%)	7 36
13	b	114/117 (97%)	108 (95%)	6 (5%)	0	100 100
14	c	112/115 (97%)	104 (93%)	8 (7%)	0	100 100
15	d	115/118 (98%)	115 (100%)	0	0	100 100
16	e	101/103 (98%)	92 (91%)	8 (8%)	1 (1%)	13 49
17	f	108/110 (98%)	100 (93%)	7 (6%)	1 (1%)	14 51
18	g	91/100 (91%)	80 (88%)	9 (10%)	2 (2%)	5 29
19	h	100/104 (96%)	84 (84%)	14 (14%)	2 (2%)	6 32
20	i	92/94 (98%)	89 (97%)	3 (3%)	0	100 100
21	j	73/85 (86%)	71 (97%)	2 (3%)	0	100 100
22	k	75/78 (96%)	71 (95%)	3 (4%)	1 (1%)	10 42
23	l	61/63 (97%)	56 (92%)	5 (8%)	0	100 100
24	m	56/59 (95%)	52 (93%)	4 (7%)	0	100 100
25	n	54/57 (95%)	48 (89%)	5 (9%)	1 (2%)	6 33
26	o	48/55 (87%)	45 (94%)	3 (6%)	0	100 100
27	p	44/47 (94%)	40 (91%)	4 (9%)	0	100 100
28	q	62/67 (92%)	56 (90%)	5 (8%)	1 (2%)	8 38
29	r	36/55 (66%)	35 (97%)	1 (3%)	0	100 100
31	L	50/70 (71%)	44 (88%)	5 (10%)	1 (2%)	6 32
32	C	130/223 (58%)	123 (95%)	7 (5%)	0	100 100
33	U	147/149 (99%)	124 (84%)	21 (14%)	2 (1%)	9 40
37	1	216/244 (88%)	188 (87%)	27 (12%)	1 (0%)	25 64
38	2	204/237 (86%)	186 (91%)	16 (8%)	2 (1%)	13 49
39	3	203/206 (98%)	182 (90%)	21 (10%)	0	100 100
40	4	148/162 (91%)	116 (78%)	30 (20%)	2 (1%)	9 40
41	5	98/131 (75%)	81 (83%)	11 (11%)	6 (6%)	1 14
42	6	149/152 (98%)	139 (93%)	10 (7%)	0	100 100
43	7	127/130 (98%)	121 (95%)	6 (5%)	0	100 100
44	8	125/130 (96%)	103 (82%)	20 (16%)	2 (2%)	8 38

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
45	9	96/110 (87%)	84 (88%)	9 (9%)	3 (3%)	3 22
46	A	115/129 (89%)	102 (89%)	13 (11%)	0	100 100
47	B	121/124 (98%)	104 (86%)	15 (12%)	2 (2%)	7 36
48	D	112/118 (95%)	103 (92%)	8 (7%)	1 (1%)	14 51
49	E	92/101 (91%)	78 (85%)	13 (14%)	1 (1%)	12 46
50	F	86/89 (97%)	81 (94%)	5 (6%)	0	100 100
51	G	80/100 (80%)	69 (86%)	10 (12%)	1 (1%)	10 42
52	H	78/84 (93%)	66 (85%)	9 (12%)	3 (4%)	2 20
53	I	53/75 (71%)	49 (92%)	3 (6%)	1 (2%)	6 33
54	J	77/92 (84%)	73 (95%)	4 (5%)	0	100 100
55	K	83/87 (95%)	78 (94%)	4 (5%)	1 (1%)	11 44
56	s	49/88 (56%)	40 (82%)	9 (18%)	0	100 100
57	t	139/557 (25%)	115 (83%)	21 (15%)	3 (2%)	5 29
All	All	5936/6871 (86%)	5354 (90%)	522 (9%)	60 (1%)	16 49

All (60) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	P	239	ASN
10	Y	36	LYS
11	Z	58	LYS
16	e	53	PHE
25	n	55	ILE
28	q	32	ILE
33	U	9	VAL
41	5	53	LYS
45	9	58	ASN
51	G	44	SER
52	H	70	THR
11	Z	59	ARG
12	a	3	HIS
33	U	11	ASN
38	2	81	GLY
41	5	56	LYS
41	5	91	ARG
44	8	55	VAL
47	B	23	ALA

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Mol	Chain	Res	Type
52	H	18	GLU
55	K	69	LYS
57	t	33	LYS
2	P	235	GLY
11	Z	39	GLY
18	g	77	ARG
18	g	78	SER
19	h	99	ASN
22	k	3	ARG
38	2	80	LYS
41	5	54	LEU
41	5	94	HIS
45	9	43	PRO
47	B	78	SER
52	H	71	LYS
53	I	48	ARG
2	P	10	SER
2	P	238	ARG
3	Q	149	ASN
5	S	175	PHE
9	X	93	GLN
10	Y	29	LYS
10	Y	30	THR
10	Y	31	GLY
11	Z	69	PRO
31	L	3	LYS
40	4	51	GLY
41	5	86	ARG
48	D	66	GLU
57	t	116	VAL
12	a	88	ALA
17	f	64	ALA
19	h	53	ASN
37	1	194	ASP
40	4	90	THR
49	E	4	GLN
57	t	89	ALA
11	Z	87	GLY
45	9	42	LEU
9	X	119	ALA
44	8	10	GLY

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	P	216/220 (98%)	215 (100%)	1 (0%)	86 89
3	Q	164/164 (100%)	161 (98%)	3 (2%)	54 71
4	R	165/165 (100%)	161 (98%)	4 (2%)	44 63
5	S	148/150 (99%)	148 (100%)	0	100 100
6	T	137/138 (99%)	137 (100%)	0	100 100
7	V	109/110 (99%)	108 (99%)	1 (1%)	75 83
8	W	116/116 (100%)	116 (100%)	0	100 100
9	X	103/104 (99%)	103 (100%)	0	100 100
10	Y	102/103 (99%)	102 (100%)	0	100 100
11	Z	109/110 (99%)	108 (99%)	1 (1%)	75 83
12	a	100/102 (98%)	97 (97%)	3 (3%)	36 56
13	b	86/87 (99%)	86 (100%)	0	100 100
14	c	98/100 (98%)	95 (97%)	3 (3%)	35 55
15	d	89/90 (99%)	88 (99%)	1 (1%)	70 80
16	e	84/84 (100%)	82 (98%)	2 (2%)	44 63
17	f	93/93 (100%)	93 (100%)	0	100 100
18	g	80/85 (94%)	80 (100%)	0	100 100
19	h	83/85 (98%)	82 (99%)	1 (1%)	67 79
20	i	78/78 (100%)	78 (100%)	0	100 100
21	j	56/62 (90%)	55 (98%)	1 (2%)	54 71
22	k	67/68 (98%)	67 (100%)	0	100 100
23	l	55/55 (100%)	55 (100%)	0	100 100
24	m	48/49 (98%)	48 (100%)	0	100 100
25	n	47/48 (98%)	46 (98%)	1 (2%)	48 67
26	o	45/49 (92%)	45 (100%)	0	100 100
27	p	38/39 (97%)	38 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
28	q	51/54 (94%)	49 (96%)	2 (4%)	27 49
29	r	34/50 (68%)	34 (100%)	0	100 100
31	L	47/63 (75%)	47 (100%)	0	100 100
32	C	110/174 (63%)	110 (100%)	0	100 100
33	U	114/114 (100%)	113 (99%)	1 (1%)	75 83
37	1	180/202 (89%)	178 (99%)	2 (1%)	70 80
38	2	170/196 (87%)	169 (99%)	1 (1%)	84 88
39	3	172/173 (99%)	172 (100%)	0	100 100
40	4	113/123 (92%)	110 (97%)	3 (3%)	40 60
41	5	87/112 (78%)	86 (99%)	1 (1%)	70 80
42	6	124/125 (99%)	123 (99%)	1 (1%)	79 84
43	7	104/105 (99%)	104 (100%)	0	100 100
44	8	105/107 (98%)	104 (99%)	1 (1%)	73 81
45	9	86/97 (89%)	85 (99%)	1 (1%)	67 79
46	A	90/98 (92%)	89 (99%)	1 (1%)	70 80
47	B	103/104 (99%)	103 (100%)	0	100 100
48	D	92/96 (96%)	91 (99%)	1 (1%)	70 80
49	E	79/83 (95%)	79 (100%)	0	100 100
50	F	75/77 (97%)	74 (99%)	1 (1%)	65 77
51	G	65/80 (81%)	65 (100%)	0	100 100
52	H	74/77 (96%)	73 (99%)	1 (1%)	62 75
53	I	48/66 (73%)	48 (100%)	0	100 100
54	J	70/80 (88%)	68 (97%)	2 (3%)	37 58
55	K	65/66 (98%)	65 (100%)	0	100 100
56	s	44/76 (58%)	43 (98%)	1 (2%)	45 64
All	All	4818/5152 (94%)	4776 (99%)	42 (1%)	74 83

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	P	218	PRO
3	Q	73	VAL
3	Q	105	LYS

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Mol	Chain	Res	Type
3	Q	205	PRO
4	R	61	ARG
4	R	69	ARG
4	R	149	ILE
4	R	163	ASN
7	V	65	ARG
11	Z	128	THR
12	a	2	ARG
12	a	50	PRO
12	a	70	THR
14	c	53	ARG
14	c	73	VAL
14	c	93	ARG
15	d	33	ARG
16	e	49	ILE
16	e	53	PHE
19	h	68	SER
21	j	41	ARG
25	n	28	LEU
28	q	2	PRO
28	q	32	ILE
33	U	101	ASP
37	1	11	LYS
37	1	207	ILE
38	2	55	ILE
40	4	15	LEU
40	4	115	LEU
40	4	157	ARG
41	5	9	MET
42	6	25	LYS
44	8	120	LYS
45	9	17	LEU
46	A	93	ARG
48	D	98	ARG
50	F	70	LEU
52	H	61	ILE
54	J	5	LEU
54	J	49	ILE
56	s	29	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (43) such sidechains are listed below:

Mol	Chain	Res	Type
2	P	53	HIS
2	P	86	ASN
2	P	134	ASN
2	P	260	ASN
3	Q	49	GLN
3	Q	149	ASN
3	Q	150	GLN
4	R	163	ASN
4	R	165	HIS
6	T	22	GLN
6	T	143	GLN
7	V	12	GLN
8	W	40	HIS
13	b	29	HIS
13	b	38	GLN
14	c	12	GLN
15	d	37	GLN
15	d	44	GLN
17	f	15	GLN
23	l	27	ASN
23	l	58	ASN
25	n	6	ASN
26	o	19	HIS
31	L	20	ASN
32	C	57	GLN
32	C	58	ASN
32	C	172	HIS
32	C	188	ASN
33	U	2	GLN
33	U	18	GLN
33	U	28	ASN
33	U	43	ASN
40	4	89	HIS
41	5	3	HIS
41	5	11	HIS
41	5	55	HIS
44	8	32	GLN
46	A	118	HIS
48	D	8	ASN
49	E	49	GLN
51	G	63	GLN
52	H	31	HIS
53	I	52	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	O	117/120 (97%)	21 (17%)	1 (0%)
30	N	2894/2903 (99%)	520 (17%)	34 (1%)
34	M	74/75 (98%)	11 (14%)	0
35	x	13/692 (1%)	11 (84%)	0
36	0	1538/1539 (99%)	281 (18%)	21 (1%)
58	u	72/73 (98%)	19 (26%)	0
All	All	4708/5402 (87%)	863 (18%)	56 (1%)

All (863) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	O	13	G
1	O	25	U
1	O	31	C
1	O	35	C
1	O	41	G
1	O	44	G
1	O	45	A
1	O	51	G
1	O	53	A
1	O	56	G
1	O	57	A
1	O	64	G
1	O	66	A
1	O	67	G
1	O	88	C
1	O	89	U
1	O	90	C
1	O	91	C
1	O	99	A
1	O	108	A
1	O	109	A
30	N	10	A
30	N	23	G
30	N	28	A
30	N	35	G
30	N	36	G
30	N	42	A
30	N	46	G
30	N	51	G
30	N	55	G

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Mol	Chain	Res	Type
30	N	60	G
30	N	63	A
30	N	71	A
30	N	74	A
30	N	75	G
30	N	84	A
30	N	96	C
30	N	101	A
30	N	102	U
30	N	103	A
30	N	118	A
30	N	119	A
30	N	120	U
30	N	125	A
30	N	138	U
30	N	139	U
30	N	140	C
30	N	141	G
30	N	142	A
30	N	162	U
30	N	163	C
30	N	165	A
30	N	166	U
30	N	188	G
30	N	196	A
30	N	199	A
30	N	201	C
30	N	215	G
30	N	216	A
30	N	221	A
30	N	222	A
30	N	223	A
30	N	224	U
30	N	228	C
30	N	241	A
30	N	242	G
30	N	243	U
30	N	248	G
30	N	255	A
30	N	265	A
30	N	266	G
30	N	267	C

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Mol	Chain	Res	Type
30	N	272	A
30	N	276	U
30	N	278	A
30	N	281	C
30	N	284	U
30	N	294	A
30	N	301	G
30	N	311	A
30	N	323	C
30	N	329	G
30	N	330	A
30	N	332	A
30	N	346	A
30	N	361	G
30	N	362	A
30	N	371	A
30	N	372	G
30	N	373	U
30	N	386	G
30	N	396	G
30	N	399	U
30	N	403	U
30	N	404	A
30	N	405	U
30	N	406	G
30	N	411	G
30	N	412	A
30	N	421	C
30	N	422	A
30	N	424	G
30	N	435	C
30	N	447	A
30	N	455	C
30	N	456	C
30	N	457	A
30	N	467	G
30	N	471	A
30	N	473	G
30	N	481	G
30	N	491	G
30	N	501	A
30	N	504	A

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Mol	Chain	Res	Type
30	N	505	A
30	N	509	C
30	N	513	A
30	N	529	A
30	N	531	C
30	N	532	A
30	N	543	G
30	N	544	C
30	N	546	U
30	N	548	G
30	N	549	G
30	N	550	C
30	N	556	A
30	N	563	A
30	N	573	U
30	N	575	A
30	N	578	G
30	N	586	A
30	N	603	A
30	N	613	A
30	N	614	A
30	N	616	A
30	N	622	G
30	N	627	A
30	N	637	A
30	N	645	C
30	N	646	U
30	N	647	G
30	N	648	G
30	N	654	A
30	N	655	A
30	N	669	G
30	N	670	A
30	N	671	C
30	N	677	A
30	N	686	U
30	N	695	G
30	N	696	G
30	N	717	C
30	N	729	G
30	N	730	A
30	N	738	G

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Mol	Chain	Res	Type
30	N	747	U
30	N	764	A
30	N	765	C
30	N	775	G
30	N	776	G
30	N	782	A
30	N	783	A
30	N	784	G
30	N	785	G
30	N	792	A
30	N	800	A
30	N	805	G
30	N	806	C
30	N	812	C
30	N	819	A
30	N	827	U
30	N	828	U
30	N	829	A
30	N	845	A
30	N	846	U
30	N	858	G
30	N	860	U
30	N	866	A
30	N	869	G
30	N	878	A
30	N	885	C
30	N	896	A
30	N	897	C
30	N	907	G
30	N	910	A
30	N	914	G
30	N	919	U
30	N	932	U
30	N	941	A
30	N	945	A
30	N	946	C
30	N	953	G
30	N	961	C
30	N	973	A
30	N	974	G
30	N	983	A
30	N	985	C

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Mol	Chain	Res	Type
30	N	989	G
30	N	995	C
30	N	996	A
30	N	997	G
30	N	1004	U
30	N	1012	U
30	N	1013	C
30	N	1020	A
30	N	1021	A
30	N	1022	G
30	N	1023	U
30	N	1025	G
30	N	1026	G
30	N	1033	U
30	N	1046	A
30	N	1047	G
30	N	1057	A
30	N	1060	U
30	N	1062	G
30	N	1064	C
30	N	1066	U
30	N	1067	A
30	N	1068	G
30	N	1070	A
30	N	1077	A
30	N	1082	U
30	N	1083	U
30	N	1088	A
30	N	1089	A
30	N	1090	A
30	N	1094	U
30	N	1096	A
30	N	1097	U
30	N	1100	C
30	N	1104	C
30	N	1110	G
30	N	1111	A
30	N	1112	G
30	N	1119	U
30	N	1122	G
30	N	1130	U
30	N	1132	U

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Mol	Chain	Res	Type
30	N	1133	A
30	N	1135	C
30	N	1136	G
30	N	1141	U
30	N	1142	A
30	N	1143	A
30	N	1155	A
30	N	1168	G
30	N	1171	G
30	N	1173	U
30	N	1174	U
30	N	1175	A
30	N	1180	U
30	N	1186	G
30	N	1195	G
30	N	1204	A
30	N	1205	A
30	N	1206	G
30	N	1210	G
30	N	1212	G
30	N	1237	A
30	N	1238	G
30	N	1250	G
30	N	1251	C
30	N	1253	A
30	N	1256	G
30	N	1257	C
30	N	1265	A
30	N	1266	G
30	N	1268	A
30	N	1271	G
30	N	1272	A
30	N	1275	A
30	N	1300	G
30	N	1301	A
30	N	1321	A
30	N	1329	U
30	N	1332	G
30	N	1345	C
30	N	1352	U
30	N	1365	A
30	N	1368	G

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Mol	Chain	Res	Type
30	N	1376	C
30	N	1379	U
30	N	1383	A
30	N	1386	C
30	N	1395	A
30	N	1403	A
30	N	1416	G
30	N	1419	A
30	N	1420	A
30	N	1421	G
30	N	1427	A
30	N	1428	C
30	N	1434	A
30	N	1437	C
30	N	1453	A
30	N	1458	U
30	N	1461	C
30	N	1478	G
30	N	1482	G
30	N	1504	A
30	N	1508	A
30	N	1509	A
30	N	1515	A
30	N	1524	G
30	N	1529	G
30	N	1535	A
30	N	1536	C
30	N	1537	G
30	N	1538	G
30	N	1554	U
30	N	1565	C
30	N	1566	A
30	N	1569	A
30	N	1578	U
30	N	1583	A
30	N	1584	U
30	N	1585	C
30	N	1587	G
30	N	1607	C
30	N	1608	A
30	N	1610	A
30	N	1613	G

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Mol	Chain	Res	Type
30	N	1622	G
30	N	1647	U
30	N	1648	U
30	N	1651	G
30	N	1674	G
30	N	1675	C
30	N	1676	A
30	N	1698	A
30	N	1699	G
30	N	1713	A
30	N	1715	G
30	N	1728	C
30	N	1729	U
30	N	1730	C
30	N	1733	G
30	N	1738	G
30	N	1757	A
30	N	1758	U
30	N	1760	C
30	N	1764	C
30	N	1773	A
30	N	1784	A
30	N	1787	A
30	N	1800	C
30	N	1801	A
30	N	1802	A
30	N	1808	A
30	N	1811	G
30	N	1816	C
30	N	1829	A
30	N	1833	C
30	N	1835	G
30	N	1857	G
30	N	1869	G
30	N	1870	C
30	N	1900	A
30	N	1901	A
30	N	1905	C
30	N	1906	G
30	N	1913	A
30	N	1919	A
30	N	1927	A

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Mol	Chain	Res	Type
30	N	1929	G
30	N	1930	G
30	N	1931	U
30	N	1938	A
30	N	1955	U
30	N	1964	G
30	N	1967	C
30	N	1970	A
30	N	1971	U
30	N	1972	G
30	N	1991	U
30	N	1993	U
30	N	1997	C
30	N	2004	G
30	N	2006	C
30	N	2020	A
30	N	2022	U
30	N	2023	C
30	N	2031	A
30	N	2033	A
30	N	2043	C
30	N	2046	G
30	N	2055	C
30	N	2056	G
30	N	2060	A
30	N	2061	G
30	N	2062	A
30	N	2063	C
30	N	2069	G
30	N	2072	C
30	N	2077	A
30	N	2092	U
30	N	2094	A
30	N	2097	A
30	N	2099	U
30	N	2110	G
30	N	2111	U
30	N	2112	G
30	N	2113	U
30	N	2118	U
30	N	2119	A
30	N	2132	U

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Mol	Chain	Res	Type
30	N	2133	G
30	N	2145	C
30	N	2147	A
30	N	2162	G
30	N	2171	A
30	N	2172	U
30	N	2173	A
30	N	2190	G
30	N	2191	A
30	N	2194	U
30	N	2198	A
30	N	2200	C
30	N	2203	U
30	N	2204	G
30	N	2211	A
30	N	2212	A
30	N	2214	C
30	N	2225	A
30	N	2226	C
30	N	2238	G
30	N	2239	G
30	N	2266	A
30	N	2278	A
30	N	2279	G
30	N	2283	C
30	N	2286	G
30	N	2287	A
30	N	2288	A
30	N	2297	A
30	N	2305	U
30	N	2307	G
30	N	2309	A
30	N	2312	U
30	N	2325	G
30	N	2333	A
30	N	2334	U
30	N	2345	G
30	N	2347	C
30	N	2350	C
30	N	2354	C
30	N	2357	G
30	N	2361	G

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Mol	Chain	Res	Type
30	N	2383	G
30	N	2385	C
30	N	2391	G
30	N	2402	U
30	N	2403	C
30	N	2406	A
30	N	2407	A
30	N	2422	C
30	N	2423	U
30	N	2425	A
30	N	2426	A
30	N	2427	C
30	N	2429	G
30	N	2430	A
30	N	2431	U
30	N	2435	A
30	N	2441	U
30	N	2448	A
30	N	2470	G
30	N	2476	A
30	N	2498	C
30	N	2502	G
30	N	2503	A
30	N	2504	U
30	N	2505	G
30	N	2507	C
30	N	2518	A
30	N	2520	C
30	N	2529	G
30	N	2535	G
30	N	2547	A
30	N	2554	U
30	N	2566	A
30	N	2567	G
30	N	2572	A
30	N	2573	C
30	N	2574	G
30	N	2578	G
30	N	2585	U
30	N	2602	A
30	N	2603	G
30	N	2609	U

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Mol	Chain	Res	Type
30	N	2613	U
30	N	2615	U
30	N	2629	U
30	N	2630	G
30	N	2636	C
30	N	2645	G
30	N	2646	C
30	N	2655	G
30	N	2656	U
30	N	2661	G
30	N	2663	G
30	N	2682	A
30	N	2689	U
30	N	2690	U
30	N	2714	G
30	N	2716	C
30	N	2718	G
30	N	2724	U
30	N	2727	A
30	N	2733	A
30	N	2748	A
30	N	2751	G
30	N	2752	C
30	N	2765	A
30	N	2776	A
30	N	2777	G
30	N	2778	A
30	N	2779	U
30	N	2791	G
30	N	2792	A
30	N	2798	U
30	N	2801	G
30	N	2818	U
30	N	2820	A
30	N	2833	U
30	N	2834	G
30	N	2836	U
30	N	2849	U
30	N	2850	A
30	N	2859	G
30	N	2867	G
30	N	2868	A

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Mol	Chain	Res	Type
30	N	2872	A
30	N	2873	A
30	N	2880	C
30	N	2884	U
30	N	2887	A
30	N	2891	U
30	N	2903	U
34	M	9	C
34	M	10	G
34	M	15	G
34	M	16	C
34	M	17	G
34	M	19	U
34	M	20	A
34	M	42	G
34	M	47	C
34	M	74	C
34	M	75	A
35	x	449	A
35	x	450	C
35	x	451	G
35	x	452	U
35	x	453	C
35	x	455	C
35	x	457	C
35	x	458	U
35	x	459	C
35	x	460	A
35	x	461	A
36	0	4	U
36	0	6	G
36	0	9	G
36	0	32	A
36	0	39	G
36	0	44	A
36	0	47	C
36	0	48	C
36	0	50	A
36	0	51	A
36	0	52	C
36	0	58	C
36	0	65	A

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Mol	Chain	Res	Type
36	0	69	G
36	0	71	A
36	0	72	A
36	0	83	C
36	0	84	U
36	0	85	U
36	0	86	G
36	0	87	C
36	0	92	U
36	0	97	G
36	0	108	G
36	0	115	G
36	0	116	A
36	0	122	G
36	0	130	A
36	0	141	G
36	0	143	A
36	0	144	G
36	0	149	A
36	0	156	C
36	0	163	C
36	0	174	A
36	0	177	G
36	0	182	A
36	0	183	C
36	0	184	G
36	0	197	A
36	0	209	U
36	0	210	C
36	0	211	G
36	0	226	G
36	0	245	U
36	0	247	G
36	0	251	G
36	0	266	G
36	0	267	C
36	0	280	C
36	0	281	G
36	0	289	G
36	0	298	A
36	0	306	A
36	0	321	A

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Mol	Chain	Res	Type
36	0	328	C
36	0	332	G
36	0	347	G
36	0	351	G
36	0	352	C
36	0	354	G
36	0	358	U
36	0	367	U
36	0	372	C
36	0	375	U
36	0	384	G
36	0	389	A
36	0	397	A
36	0	398	U
36	0	406	G
36	0	412	A
36	0	413	G
36	0	421	U
36	0	422	C
36	0	423	G
36	0	424	G
36	0	429	U
36	0	430	A
36	0	439	U
36	0	451	A
36	0	458	U
36	0	459	A
36	0	467	U
36	0	468	A
36	0	474	G
36	0	478	A
36	0	479	U
36	0	481	G
36	0	484	G
36	0	485	U
36	0	486	U
36	0	495	A
36	0	497	G
36	0	511	C
36	0	518	C
36	0	519	C
36	0	521	G

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Mol	Chain	Res	Type
36	0	527	G
36	0	531	U
36	0	532	A
36	0	533	A
36	0	547	A
36	0	559	A
36	0	562	U
36	0	572	A
36	0	573	A
36	0	576	C
36	0	596	A
36	0	607	A
36	0	633	G
36	0	639	G
36	0	650	G
36	0	652	U
36	0	665	A
36	0	675	A
36	0	688	G
36	0	695	A
36	0	701	U
36	0	702	A
36	0	703	G
36	0	718	A
36	0	721	G
36	0	723	U
36	0	724	G
36	0	731	G
36	0	734	G
36	0	747	A
36	0	755	G
36	0	760	G
36	0	777	A
36	0	793	U
36	0	794	A
36	0	813	U
36	0	815	A
36	0	817	C
36	0	818	G
36	0	819	A
36	0	821	G
36	0	828	U

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Mol	Chain	Res	Type
36	0	832	G
36	0	836	G
36	0	841	C
36	0	843	U
36	0	844	G
36	0	846	G
36	0	849	G
36	0	859	G
36	0	864	A
36	0	885	G
36	0	889	A
36	0	890	G
36	0	891	U
36	0	902	G
36	0	914	A
36	0	922	G
36	0	926	G
36	0	934	C
36	0	935	A
36	0	960	U
36	0	965	U
36	0	966	G
36	0	969	A
36	0	971	G
36	0	972	C
36	0	975	A
36	0	976	G
36	0	977	A
36	0	989	U
36	0	993	G
36	0	996	A
36	0	999	C
36	0	1000	A
36	0	1004	A
36	0	1008	U
36	0	1009	U
36	0	1017	U
36	0	1018	G
36	0	1020	G
36	0	1022	A
36	0	1024	G
36	0	1025	U

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Mol	Chain	Res	Type
36	0	1026	G
36	0	1027	C
36	0	1030	U
36	0	1031	C
36	0	1032	G
36	0	1043	G
36	0	1044	A
36	0	1053	G
36	0	1056	U
36	0	1065	U
36	0	1085	U
36	0	1092	A
36	0	1094	G
36	0	1095	U
36	0	1101	A
36	0	1125	U
36	0	1130	A
36	0	1132	C
36	0	1136	C
36	0	1137	C
36	0	1138	G
36	0	1139	G
36	0	1140	C
36	0	1146	A
36	0	1158	C
36	0	1159	U
36	0	1168	U
36	0	1171	A
36	0	1182	G
36	0	1183	U
36	0	1184	G
36	0	1190	G
36	0	1196	A
36	0	1200	C
36	0	1201	A
36	0	1202	U
36	0	1212	U
36	0	1213	A
36	0	1227	A
36	0	1238	A
36	0	1253	G
36	0	1256	A

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Mol	Chain	Res	Type
36	0	1257	A
36	0	1258	G
36	0	1260	G
36	0	1261	A
36	0	1274	A
36	0	1275	A
36	0	1278	G
36	0	1280	A
36	0	1281	C
36	0	1287	A
36	0	1297	G
36	0	1298	U
36	0	1300	G
36	0	1301	U
36	0	1302	C
36	0	1305	G
36	0	1317	C
36	0	1318	A
36	0	1319	A
36	0	1320	C
36	0	1322	C
36	0	1323	G
36	0	1331	G
36	0	1332	A
36	0	1340	A
36	0	1346	A
36	0	1347	G
36	0	1348	U
36	0	1353	G
36	0	1363	A
36	0	1364	U
36	0	1370	G
36	0	1379	G
36	0	1383	C
36	0	1394	A
36	0	1400	C
36	0	1419	G
36	0	1422	G
36	0	1433	A
36	0	1441	A
36	0	1446	A
36	0	1451	U

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Mol	Chain	Res	Type
36	0	1452	C
36	0	1487	G
36	0	1491	G
36	0	1492	A
36	0	1493	A
36	0	1497	G
36	0	1503	A
36	0	1506	U
36	0	1517	G
36	0	1519	A
36	0	1529	G
36	0	1530	G
36	0	1531	A
36	0	1534	A
36	0	1535	C
36	0	1537	U
58	u	13	C
58	u	14	A
58	u	16	U
58	u	17	C
58	u	18	G
58	u	19	G
58	u	20	U
58	u	21	A
58	u	22	G
58	u	36	A
58	u	45	U
58	u	46	G
58	u	47	U
58	u	48	C
58	u	52	G
58	u	61	C
58	u	62	C
58	u	63	G
58	u	73	A

All (56) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	O	52	A
30	N	60	G
30	N	227	A

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Mol	Chain	Res	Type
30	N	242	G
30	N	249	C
30	N	372	G
30	N	404	A
30	N	421	C
30	N	446	G
30	N	456	C
30	N	474	G
30	N	503	A
30	N	512	G
30	N	555	G
30	N	670	A
30	N	774	G
30	N	784	G
30	N	859	G
30	N	995	C
30	N	1020	A
30	N	1134	A
30	N	1141	U
30	N	1142	A
30	N	1236	G
30	N	1900	A
30	N	2062	A
30	N	2225	A
30	N	2282	G
30	N	2286	G
30	N	2311	A
30	N	2405	G
30	N	2655	G
30	N	2776	A
30	N	2867	G
30	N	2873	A
36	0	64	G
36	0	85	U
36	0	96	U
36	0	115	G
36	0	388	G
36	0	429	U
36	0	518	C
36	0	595	A
36	0	812	G
36	0	890	G

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Mol	Chain	Res	Type
36	0	965	U
36	0	1124	G
36	0	1145	A
36	0	1182	G
36	0	1190	G
36	0	1201	A
36	0	1300	G
36	0	1345	U
36	0	1347	G
36	0	1491	G
36	0	1528	U

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

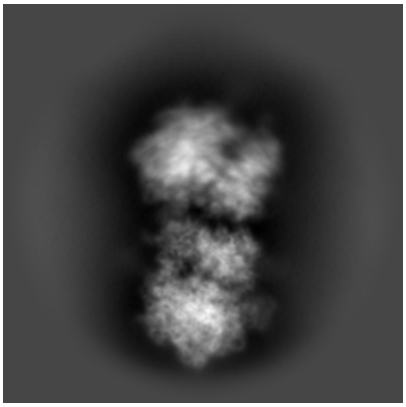
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-13955. These allow visual inspection of the internal detail of the map and identification of artifacts.

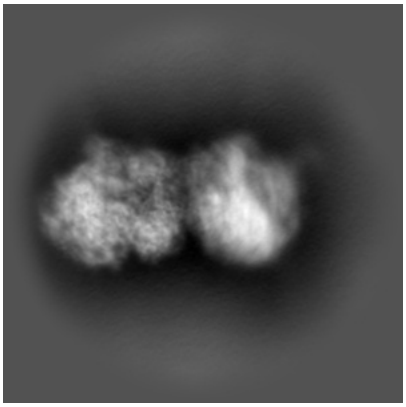
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

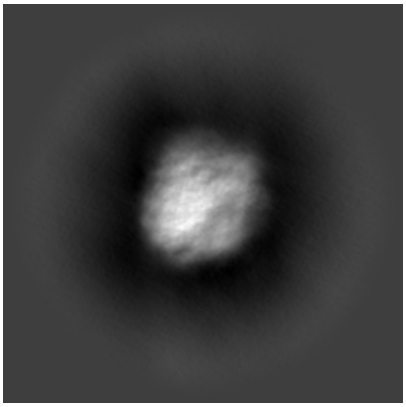
6.1.1 Primary map



X



Y

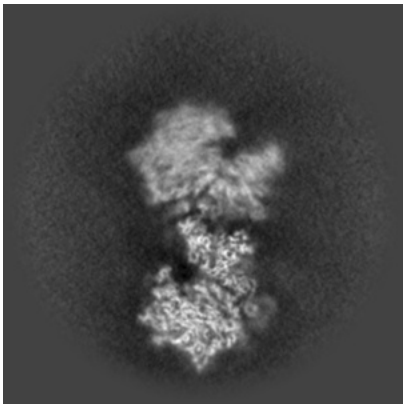


Z

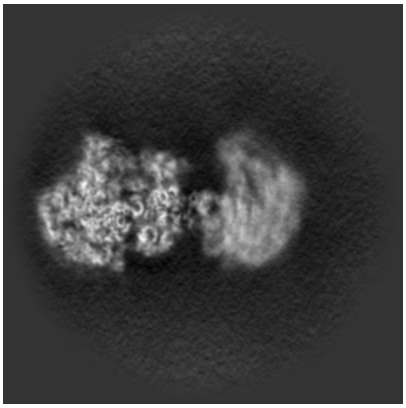
The images above show the map projected in three orthogonal directions.

6.2 Central slices

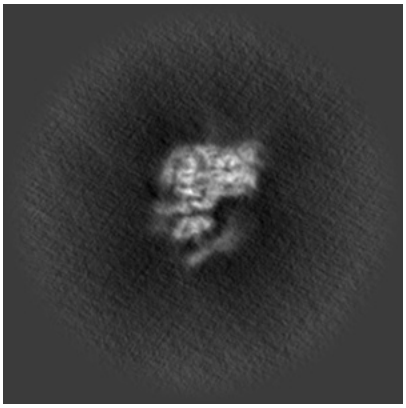
6.2.1 Primary map



X Index: 300



Y Index: 300

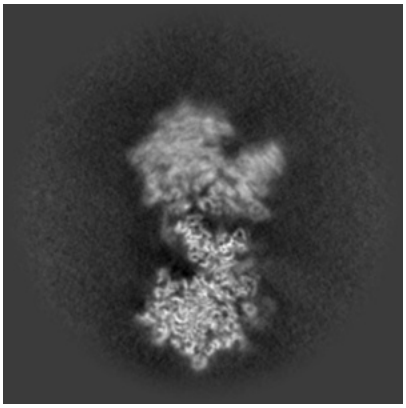


Z Index: 300

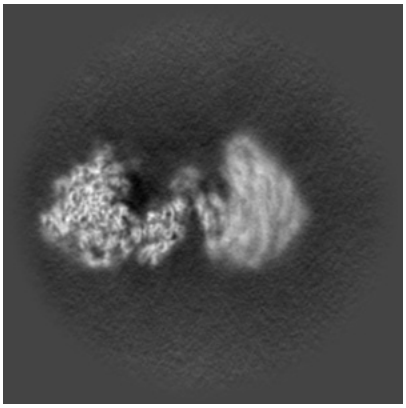
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

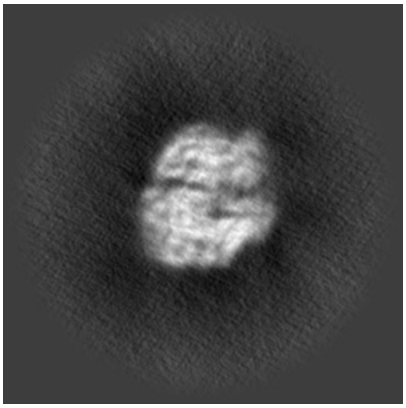
6.3.1 Primary map



X Index: 294



Y Index: 273

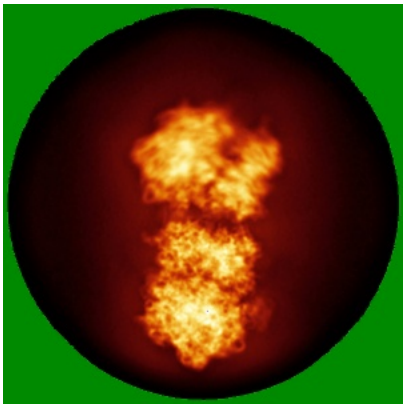


Z Index: 348

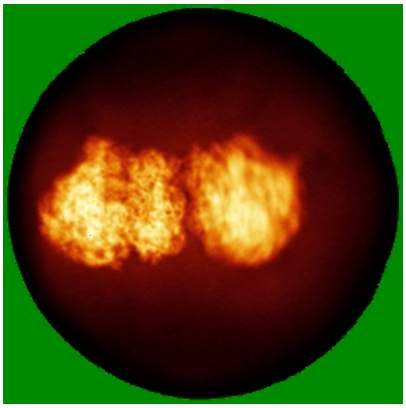
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

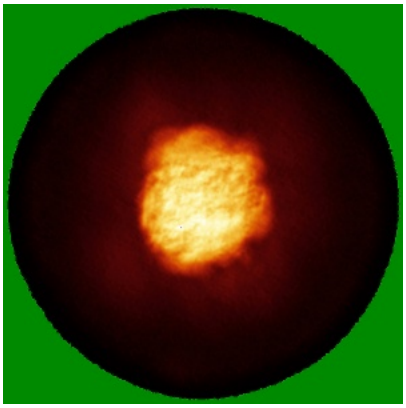
6.4.1 Primary map



X



Y

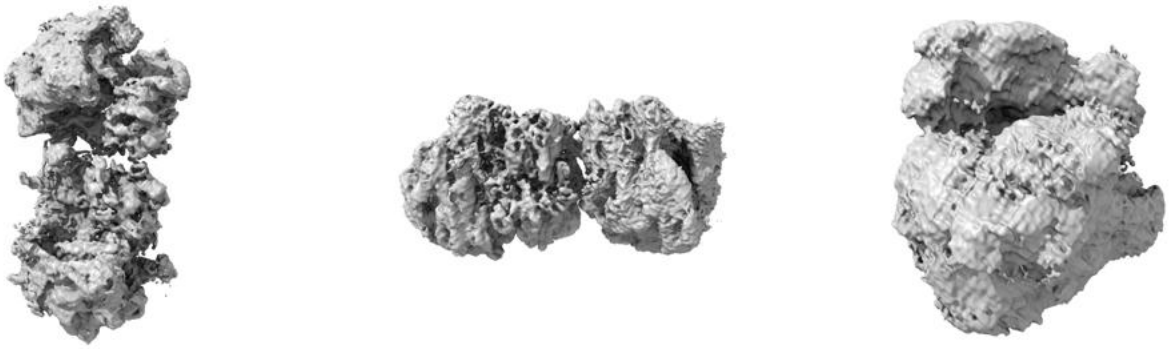


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.45. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

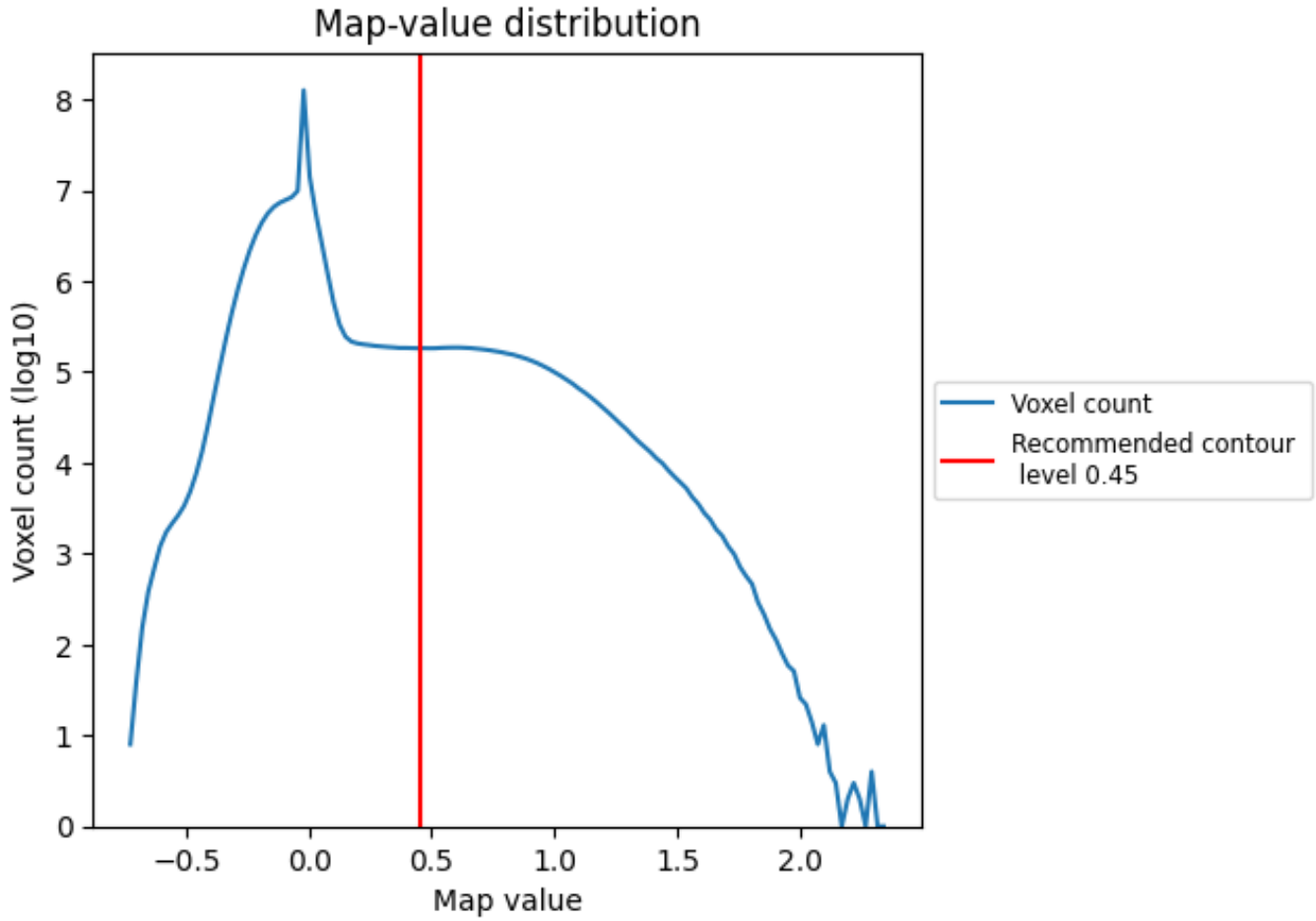
6.6 Mask visualisation (i)

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

7 Map analysis

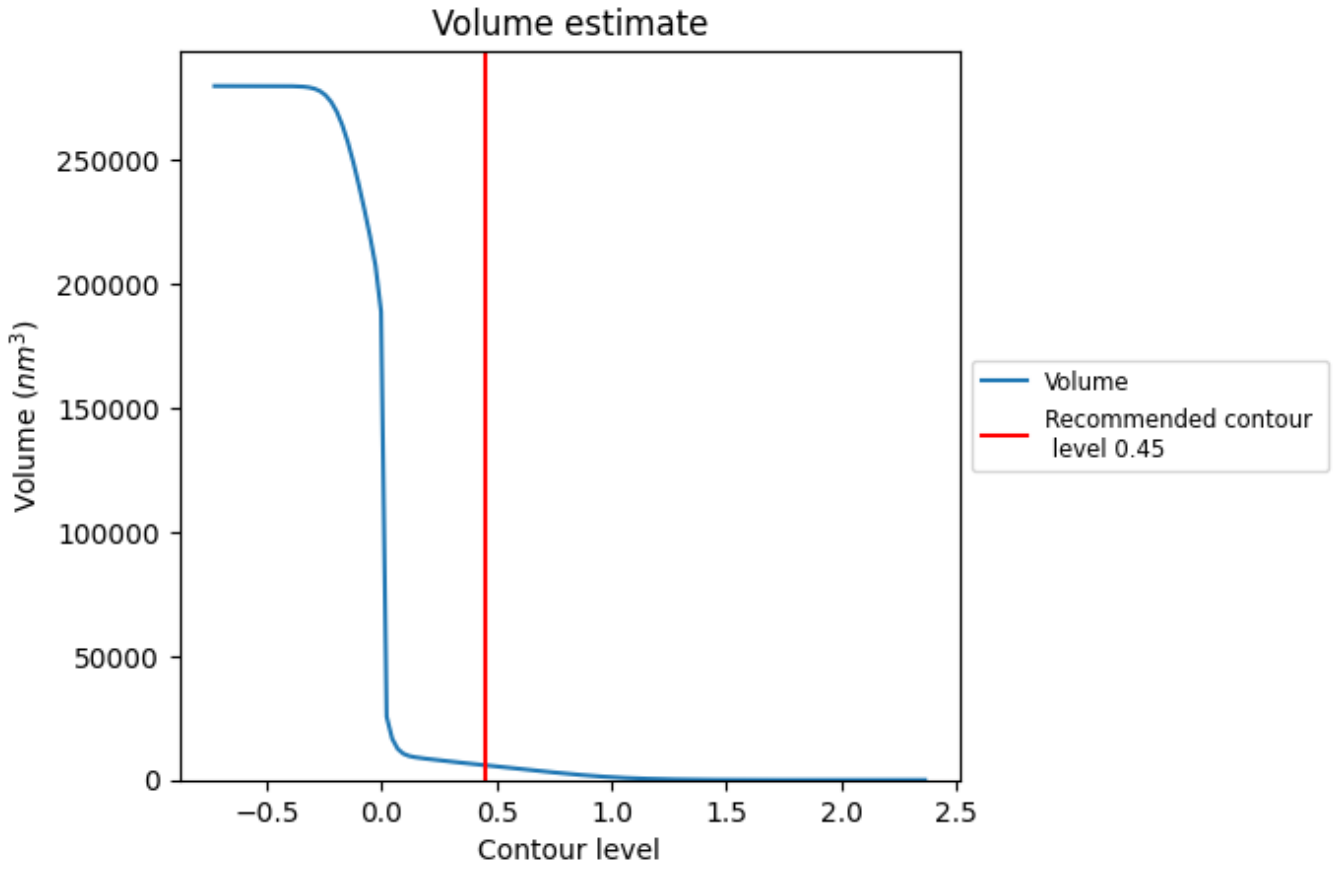
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

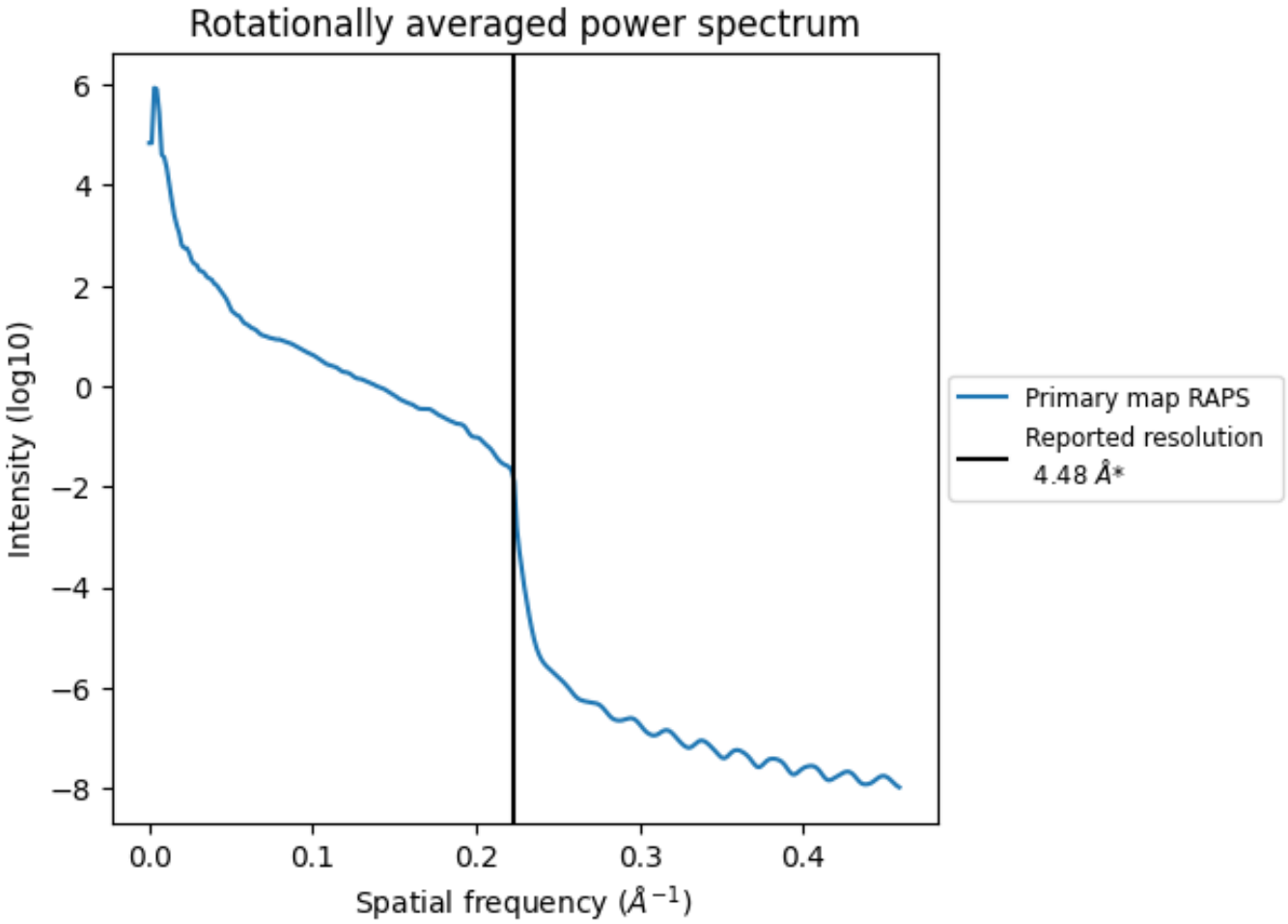
7.2 Volume estimate



The volume at the recommended contour level is 5945 nm^3; this corresponds to an approximate mass of 5371 kDa.

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

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.223 Å^{-1}

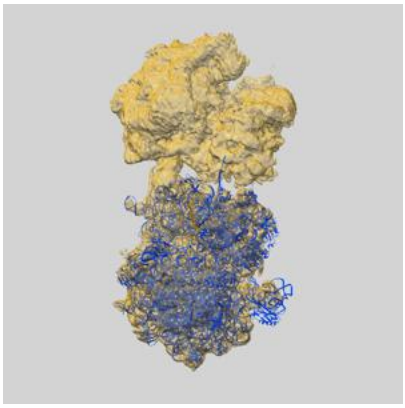
8 Fourier-Shell correlation

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

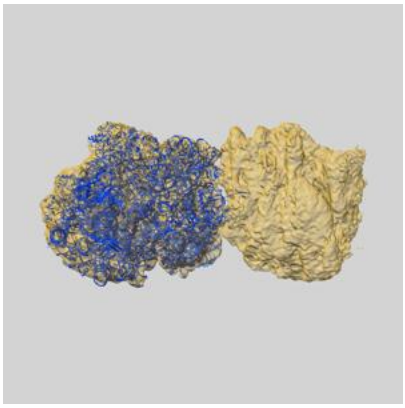
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-13955 and PDB model 7QGH. Per-residue inclusion information can be found in section 3 on page 16.

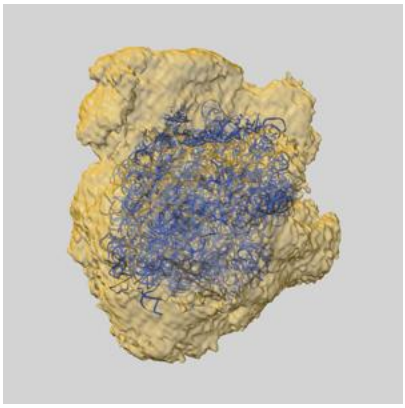
9.1 Map-model overlay



X



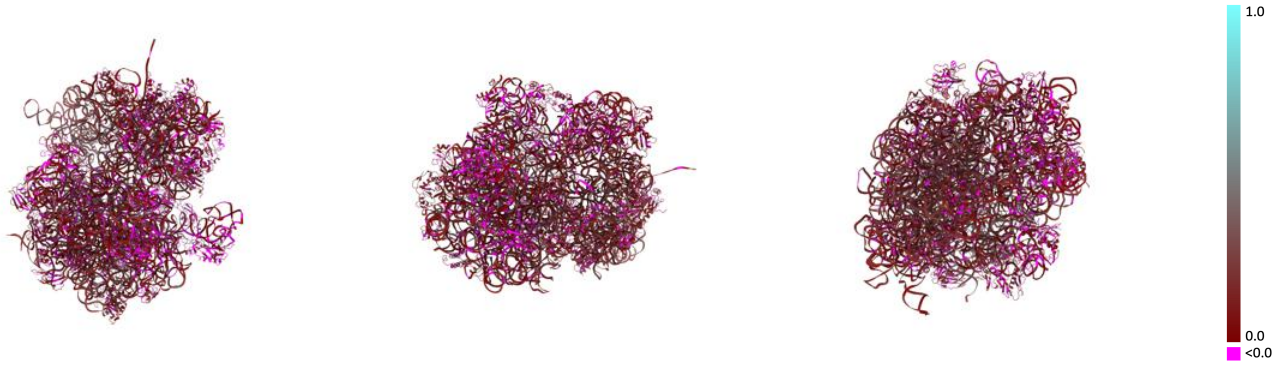
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.45 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

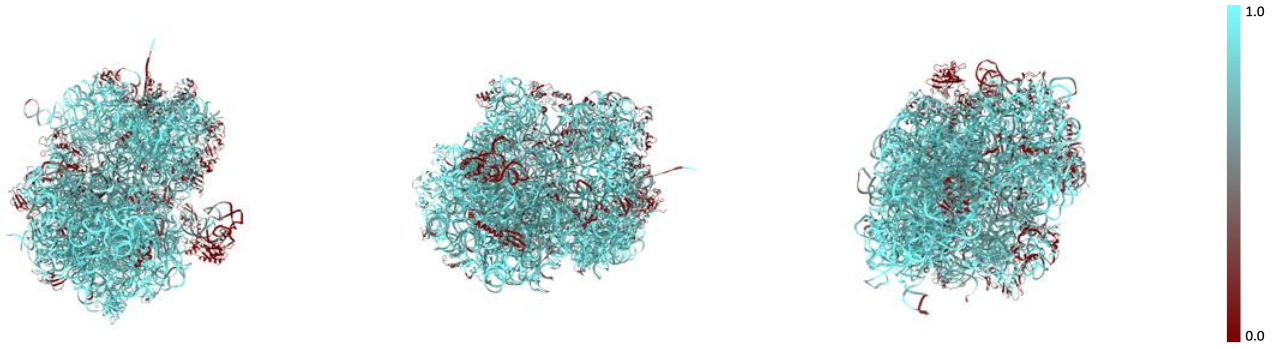
9.2 Q-score mapped to coordinate model



X Y Z

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

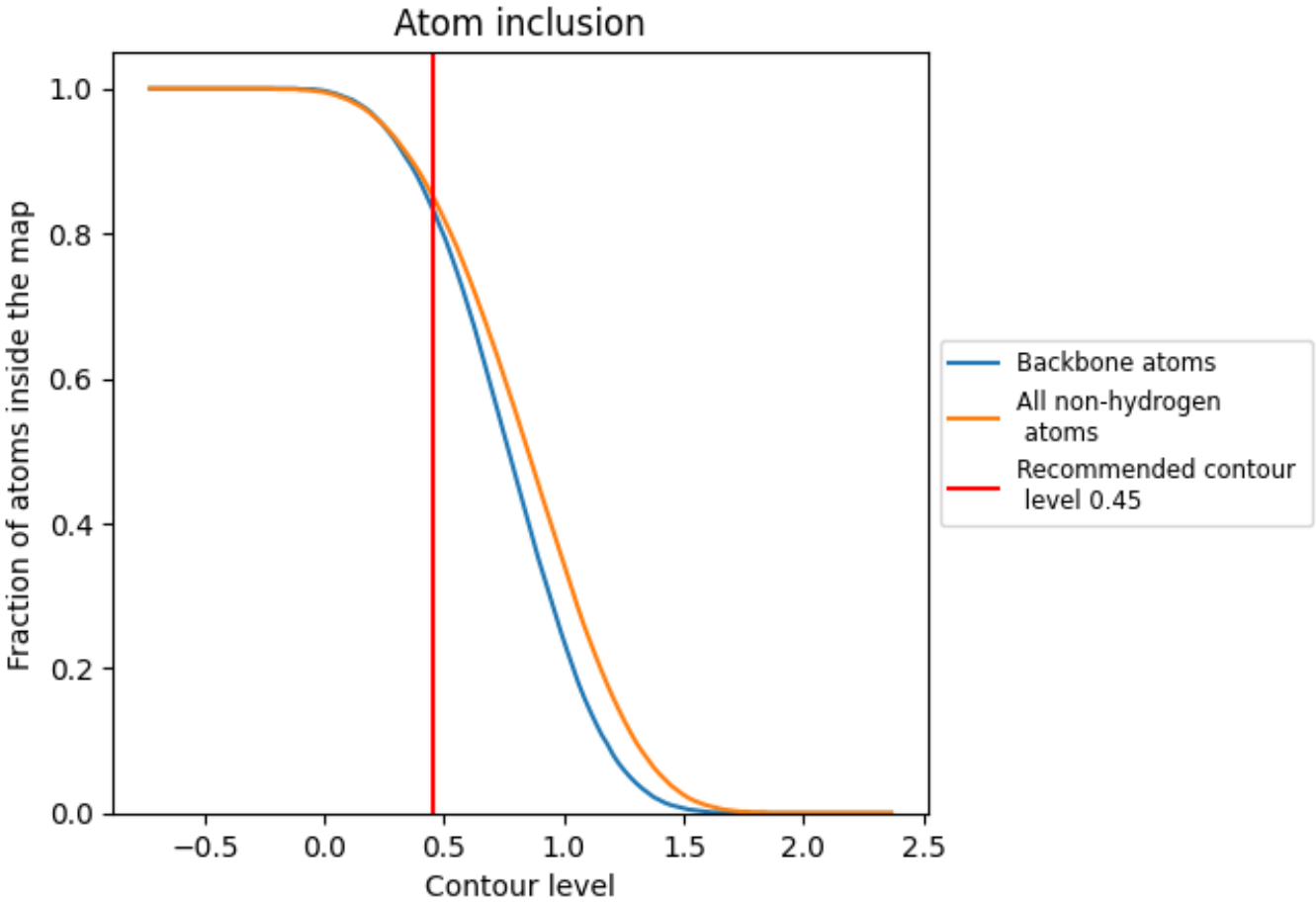
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.45).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 85% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.45) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8530	0.1260
0	0.9470	0.1750
1	0.5300	0.1370
2	0.5970	0.1260
3	0.4370	0.1170
4	0.7880	0.1780
5	0.6680	0.1140
6	0.6370	0.1040
7	0.8380	0.1220
8	0.6570	0.0640
9	0.6870	0.0780
A	0.6270	0.1110
B	0.8960	0.1470
C	0.0020	0.0400
D	0.6710	0.0590
E	0.7250	0.0510
F	0.8700	0.1310
G	0.8510	0.1410
H	0.8840	0.1200
I	0.8530	0.1100
J	0.6140	0.0190
K	0.8520	0.1010
L	0.3380	0.0890
M	0.8590	0.1080
N	0.9270	0.1290
O	0.9350	0.1110
P	0.7520	0.0440
Q	0.7160	0.0520
R	0.9240	0.1200
S	0.7110	0.0620
T	0.4970	0.0780
U	0.1410	0.0450
V	0.3040	0.0550
W	0.9390	0.0820
X	0.6060	0.0450

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Chain	Atom inclusion	Q-score
Y	0.9340	0.0880
Z	0.7980	0.0800
a	0.9430	0.0940
b	0.6200	0.0510
c	0.7010	0.0640
d	0.8750	0.0840
e	0.6420	0.0980
f	0.8530	0.1010
g	0.9090	0.1010
h	0.8460	0.1170
i	0.7480	0.0790
j	0.9530	0.0720
k	0.9550	0.0540
l	0.6830	0.1010
m	0.8900	0.1020
n	0.9130	0.1070
o	0.5640	0.0540
p	0.8360	0.0530
q	0.9760	0.0870
r	0.7220	0.0730
s	0.6380	0.1440
t	0.0670	0.0660
u	0.6700	0.0970
x	0.3500	0.0950