Full wwPDB EM Validation Report ⓘ

Nov 10, 2024 – 10:55 am GMT

PDB ID	:	7QG8
EMDB ID	:	EMD-13952
Title	:	Structure of the collided E. coli disome - VemP-stalled 70S ribosome
Authors	:	Kratzat, H.; Buschauer, R.; Berninghausen, O.; Beckmann, R.
Deposited on	:	2021-12-07
Resolution	:	3.97 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:

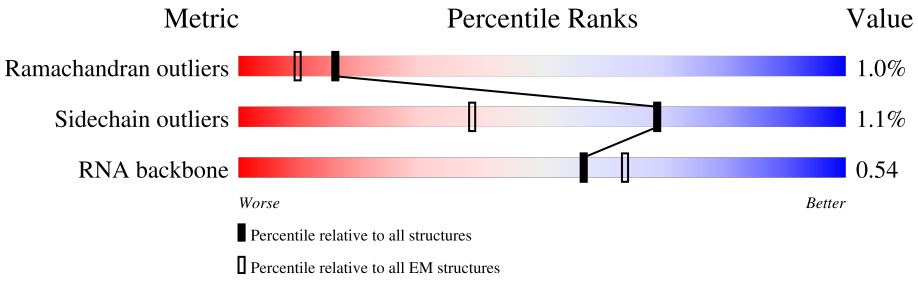
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	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 3.97 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	A	73	14% 70% 30%
2	s	179	20% 79%
3	M	75	81% 19%
4	O	120	76% 20%
5	P	273	6% 87% 10%
6	Q	209	7% 93% 7%
7	R	201	10% 95%
8	S	179	11% 98%

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Mol	Chain	Length	Quality of chain
9	T	177	6% 98%
10	U	149	55% 93% 7%
11	V	142	39% 98%
12	W	142	95% 5%
13	X	123	41% 95%
14	Y	144	12% 89% 8%
15	Z	136	90% 9%
16	a	127	83% 10% 6%
17	b	117	94% 5%
18	c	115	17% 91% 6%
19	d	118	88% 10%
20	e	103	17% 95%
21	f	110	97%
22	g	100	8% 90% 7%
23	h	104	7% 94%
24	i	94	7% 100%
25	j	85	85% 12%
26	k	78	8% 91% 8%
27	l	63	29% 94% 6%
28	m	59	5% 95%
29	n	57	5% 82% 16%
30	o	55	5% 85% 5% 9%
31	p	46	89% 11%
32	q	65	88% 9%
33	r	55	60% 9% 31%

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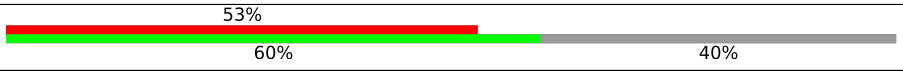
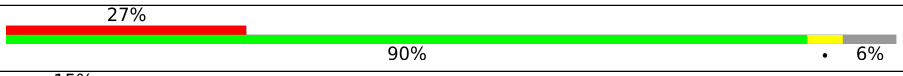
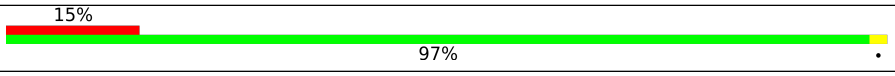
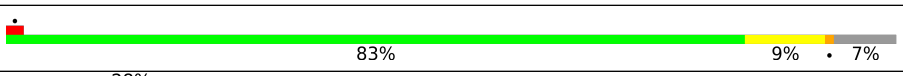
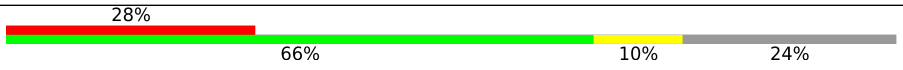
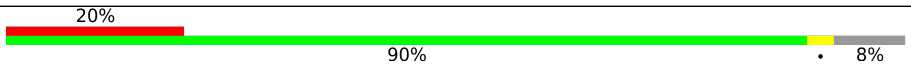
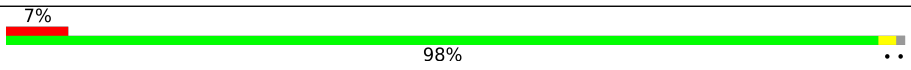
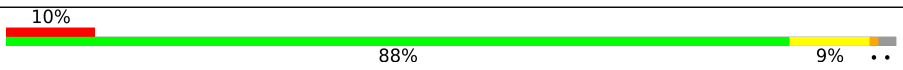
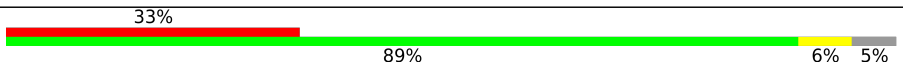
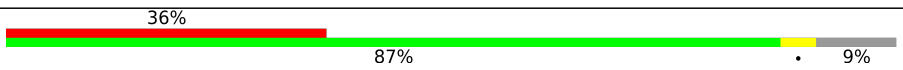
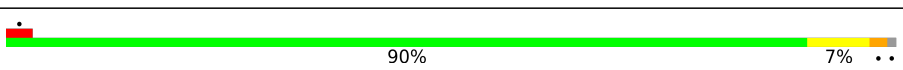
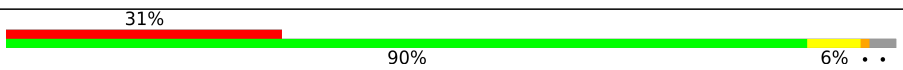
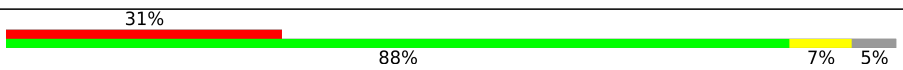
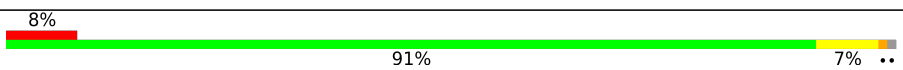
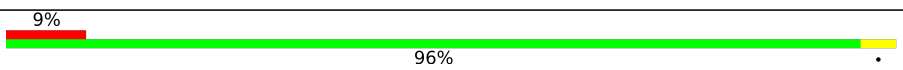
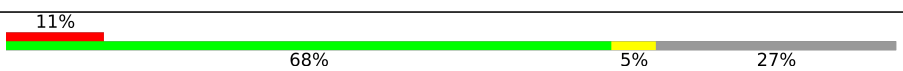
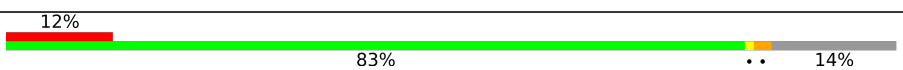
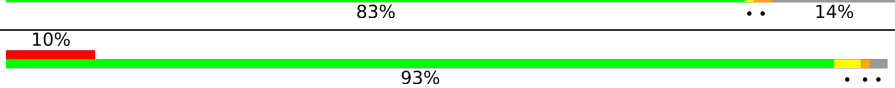
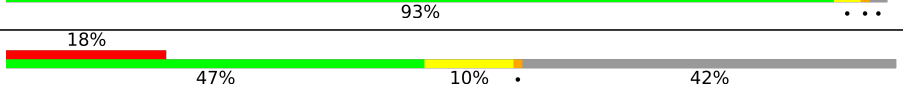
Mol	Chain	Length	Quality of chain
34	N	2903	
35	L	70	
36	C	223	
37	0	1539	
38	1	239	
39	2	218	
40	3	206	
41	4	162	
42	5	131	
43	6	156	
44	7	130	
45	8	130	
46	9	103	
47	D	129	
48	E	124	
49	F	118	
50	G	101	
51	H	89	
52	I	82	
53	J	84	
54	K	75	
55	t	92	
56	u	87	
57	v	88	

2 Entry composition

There are 60 unique types of molecules in this entry. The entry contains 147108 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 A-site tRNA.

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

- Molecule 2 is a protein called VemP nascent chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	s	37	316	198	58	58	2	0	0

- Molecule 3 is a RNA chain called P-site tRNA.

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

- Molecule 4 is a RNA chain called 5S rRNA.

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

- Molecule 5 is a protein called 50S ribosomal protein L2.

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

- Molecule 6 is a protein called 50S ribosomal protein L3.

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

- Molecule 7 is a protein called 50S ribosomal protein L4.

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

- Molecule 8 is a protein called 50S ribosomal protein L5.

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

- Molecule 9 is a protein called 50S ribosomal protein L6.

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

- Molecule 10 is a protein called 50S ribosomal protein L9.

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

- Molecule 11 is a protein called 50S ribosomal protein L11.

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

- Molecule 12 is a protein called 50S ribosomal protein L13.

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

- Molecule 13 is a protein called 50S ribosomal protein L14.

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

- Molecule 14 is a protein called 50S ribosomal protein L15.

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

- Molecule 15 is a protein called 50S ribosomal protein L16.

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

- Molecule 16 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	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	variant	UNP P0AG44

- Molecule 17 is a protein called 50S ribosomal protein L18.

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

- Molecule 18 is a protein called 50S ribosomal protein L19.

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

- Molecule 19 is a protein called 50S ribosomal protein L20.

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

- Molecule 20 is a protein called 50S ribosomal protein L21.

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

- Molecule 21 is a protein called 50S ribosomal protein L22.

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

- Molecule 22 is a protein called 50S ribosomal protein L23.

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 23 is a protein called 50S ribosomal protein L24.

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

- Molecule 24 is a protein called 50S ribosomal protein L25.

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

- Molecule 25 is a protein called 50S ribosomal protein L27.

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 26 is a protein called 50S ribosomal protein L28.

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

- Molecule 27 is a protein called 50S ribosomal protein L29.

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

- Molecule 28 is a protein called 50S ribosomal protein L30.

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

- Molecule 29 is a protein called 50S ribosomal protein L32.

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

- Molecule 30 is a protein called 50S ribosomal protein L33.

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

- Molecule 31 is a protein called 50S ribosomal protein L34.

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

- Molecule 32 is a protein called 50S ribosomal protein L35.

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

- Molecule 33 is a protein called 50S ribosomal protein L36.

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

- Molecule 34 is a RNA chain called 23S rRNA.

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

- Molecule 35 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	L	55	Total	C	N	O	S	0	0
			419	258	76	79	6		

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 36 is a protein called 50S ribosomal protein L1.

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

- Molecule 37 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	0	1532	Total	C	N	O	P	0	0
			32873	14661	6031	10649	1532		

- Molecule 38 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	1	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 39 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	2	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 40 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	3	205	Total	C	N	O	S	0	0
			1642	1026	315	297	4		

- Molecule 41 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	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	variant	UNP P0A7W1

- Molecule 42 is a protein called 30S ribosomal protein S6, non-modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	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	variant	UNP P02358

- Molecule 43 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	6	144	Total	C	N	O	S	0	0
			1129	705	213	207	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
6	78	HIS	ARG	variant	UNP P02359

- Molecule 44 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	7	129	Total	C	N	O	S	0	0
			978	616	173	183	6		

- Molecule 45 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	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	variant	UNP P0A7X3

- Molecule 46 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	9	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 47 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	D	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
D	5	ALA	PRO	variant	UNP P0A7R9

- Molecule 48 is a protein called 30S ribosomal protein S12.

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

- Molecule 49 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	F	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
F	1	VAL	MET	variant	UNP P0A7S9

- Molecule 50 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	G	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
G	40	ALA	ASP	variant	UNP P0AG59

- Molecule 51 is a protein called 30S ribosomal protein S15.

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

- Molecule 52 is a protein called 30S ribosomal protein S16.

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

- Molecule 53 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	J	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
J	2	ALA	THR	variant	UNP P0AG63

- Molecule 54 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	K	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
K	15	THR	ALA	variant	UNP P0A7T7
K	19	VAL	GLN	variant	UNP P0A7T7

- Molecule 55 is a protein called 30S ribosomal protein S19.

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

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
t	82	TYR	GLY	variant	UNP P0A7U3
t	83	TYR	HIS	variant	UNP P0A7U3

- Molecule 56 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	u	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
u	1	LEU	MET	variant	UNP P0A7U7

- Molecule 57 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	v	51	Total	C	N	O	S	0	0
			421	263	86	71	1		

- Molecule 58 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
58	A	2	Total Mg 2 2	0

- Molecule 59 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	AltConf
59	A	1	Total K 1 1	0

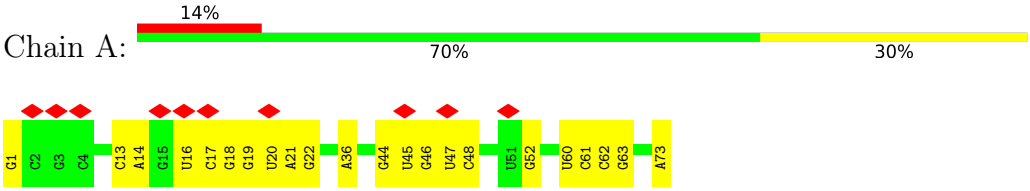
- Molecule 60 is water.

Mol	Chain	Residues	Atoms	AltConf
60	A	9	Total O 9 9	0

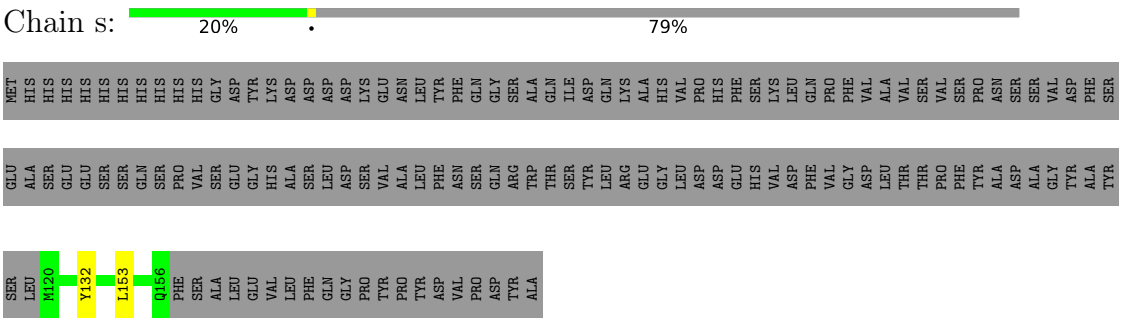
3 Residue-property plots (i)

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

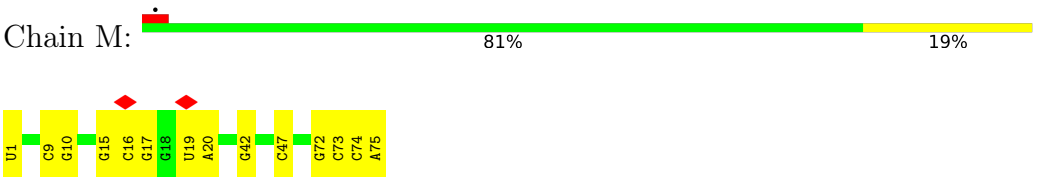
• Molecule 1: A-site tRNA



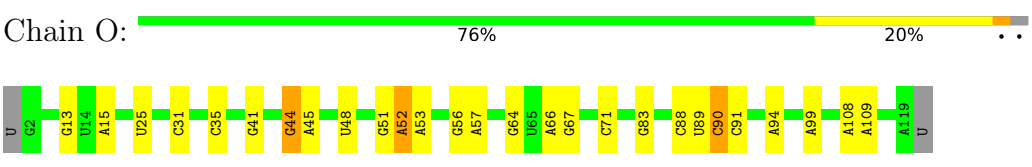
• Molecule 2: VemP nascent chain



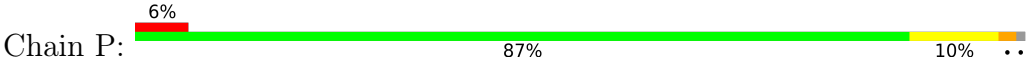
• Molecule 3: P-site tRNA

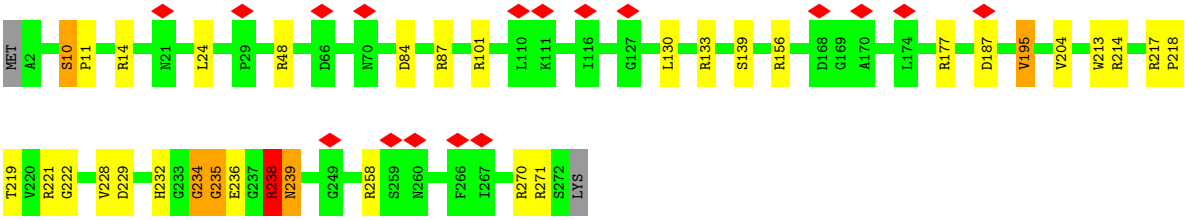


• Molecule 4: 5S rRNA

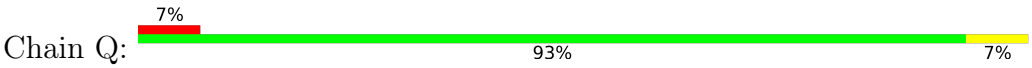


• Molecule 5: 50S ribosomal protein L2

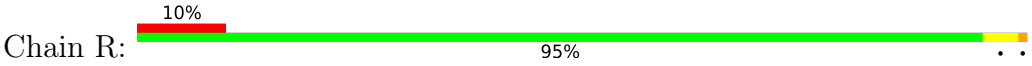


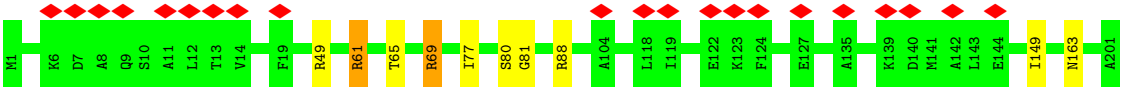


• Molecule 6: 50S ribosomal protein L3

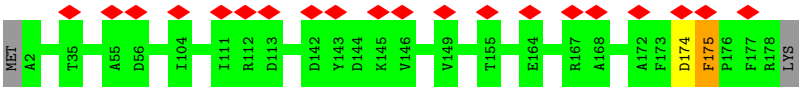


• Molecule 7: 50S ribosomal protein L4

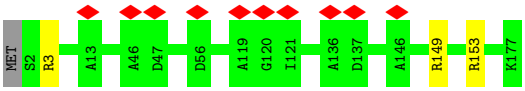




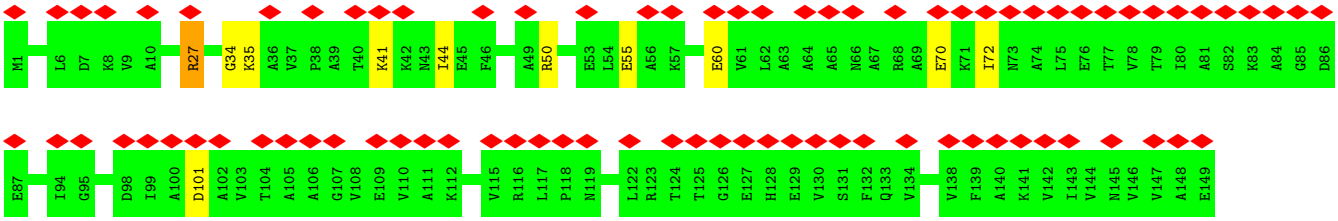
• Molecule 8: 50S ribosomal protein L5



• Molecule 9: 50S ribosomal protein L6

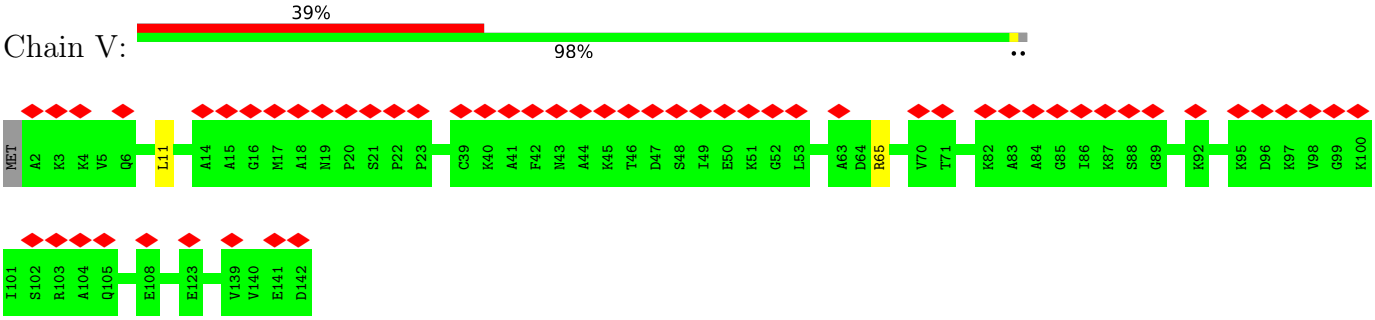


• Molecule 10: 50S ribosomal protein L9



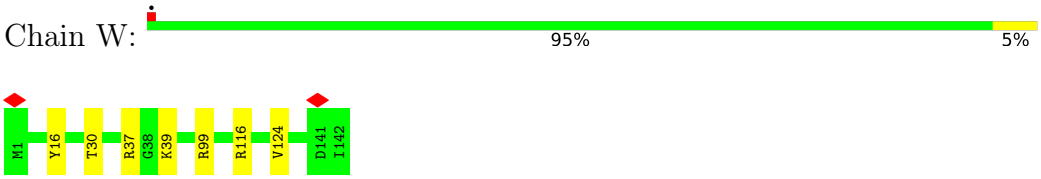
• Molecule 11: 50S ribosomal protein L11

Chain V:



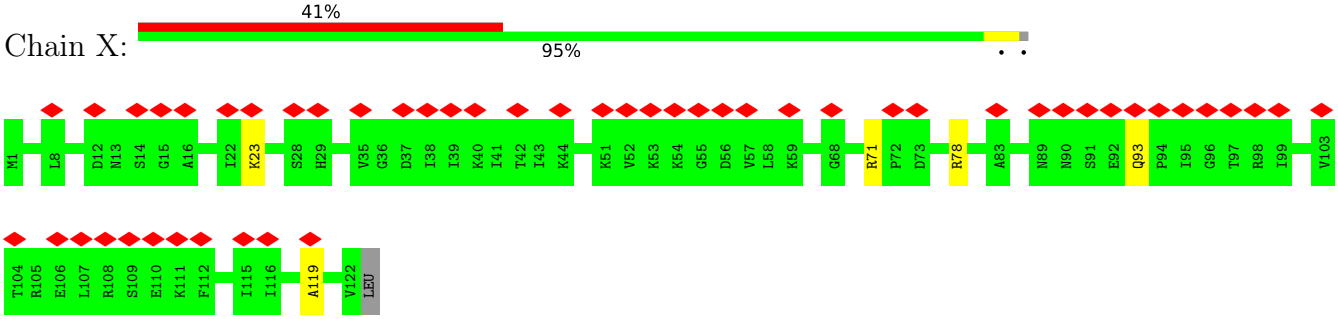
• Molecule 12: 50S ribosomal protein L13

Chain W:



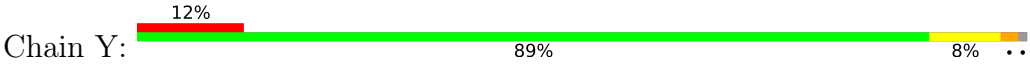
• Molecule 13: 50S ribosomal protein L14

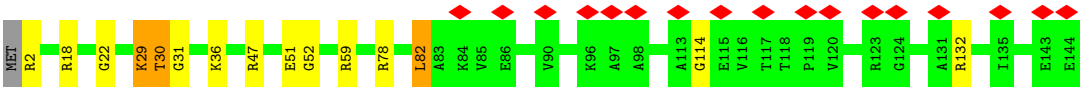
Chain X:



• Molecule 14: 50S ribosomal protein L15

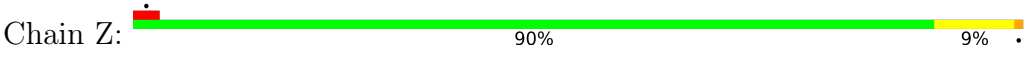
Chain Y:

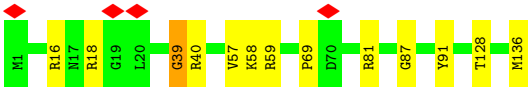




• Molecule 15: 50S ribosomal protein L16

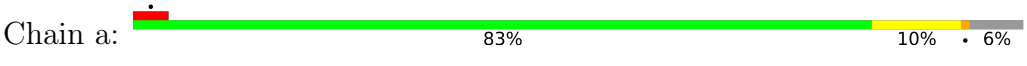
Chain Z:

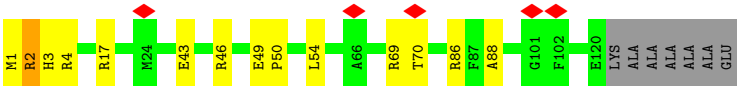




• Molecule 16: 50S ribosomal protein L17

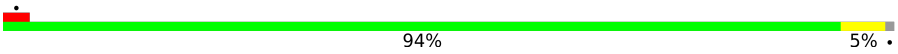
Chain a:

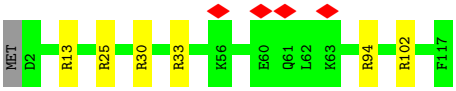




• Molecule 17: 50S ribosomal protein L18

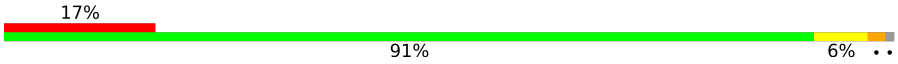
Chain b:

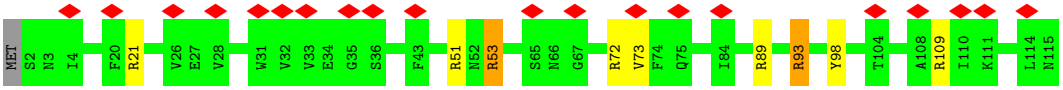




• Molecule 18: 50S ribosomal protein L19

Chain c:



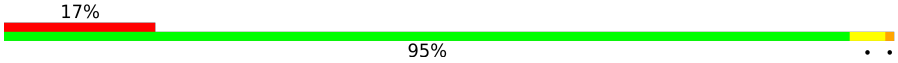


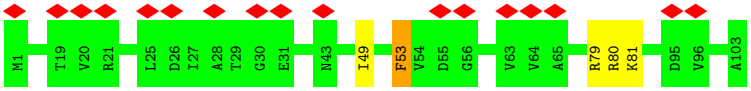
• Molecule 19: 50S ribosomal protein L20

Chain d:

• Molecule 20: 50S ribosomal protein L21

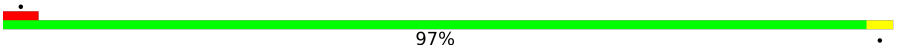
Chain e:

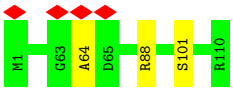




• Molecule 21: 50S ribosomal protein L22

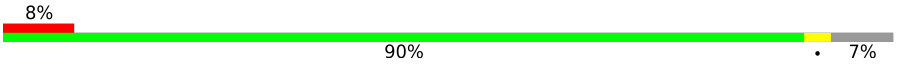
Chain f:

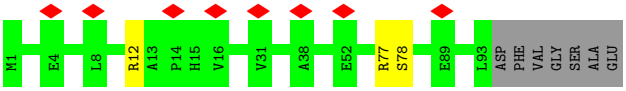




• Molecule 22: 50S ribosomal protein L23

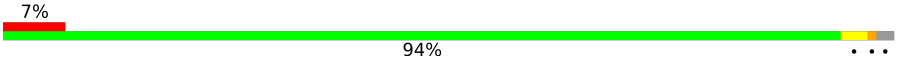
Chain g:

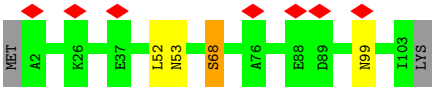




• Molecule 23: 50S ribosomal protein L24

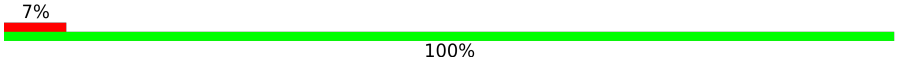
Chain h:

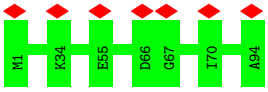




• Molecule 24: 50S ribosomal protein L25

Chain i:



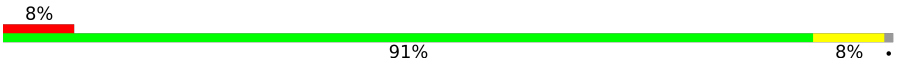


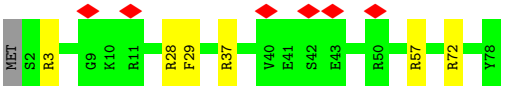
• Molecule 25: 50S ribosomal protein L27

Chain j:

• Molecule 26: 50S ribosomal protein L28

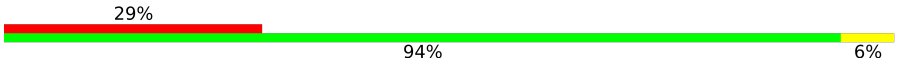
Chain k:

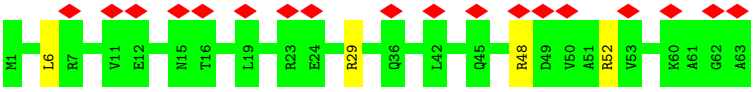




• Molecule 27: 50S ribosomal protein L29

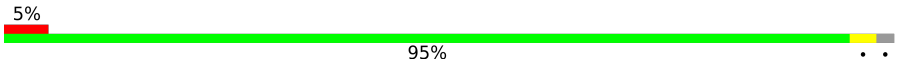
Chain l:

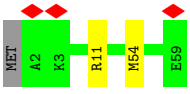




• Molecule 28: 50S ribosomal protein L30

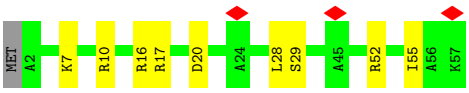
Chain m:





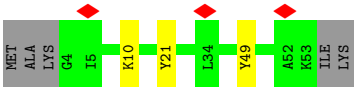
• Molecule 29: 50S ribosomal protein L32

Chain n:



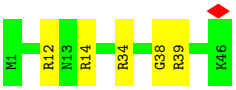
• Molecule 30: 50S ribosomal protein L33

Chain o:



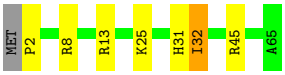
• Molecule 31: 50S ribosomal protein L34

Chain p:



• Molecule 32: 50S ribosomal protein L35

Chain q:

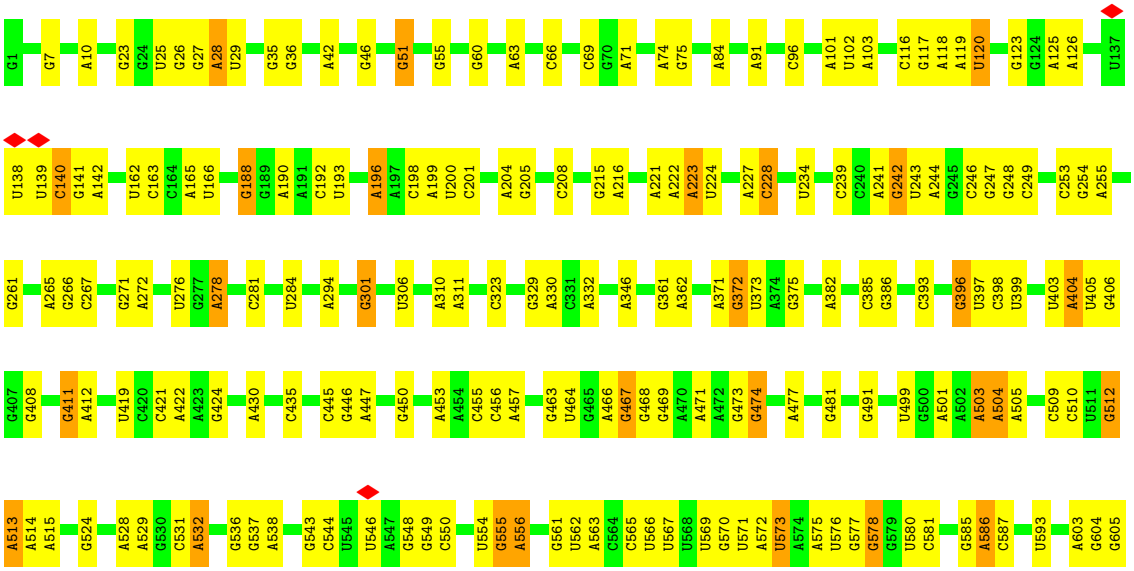


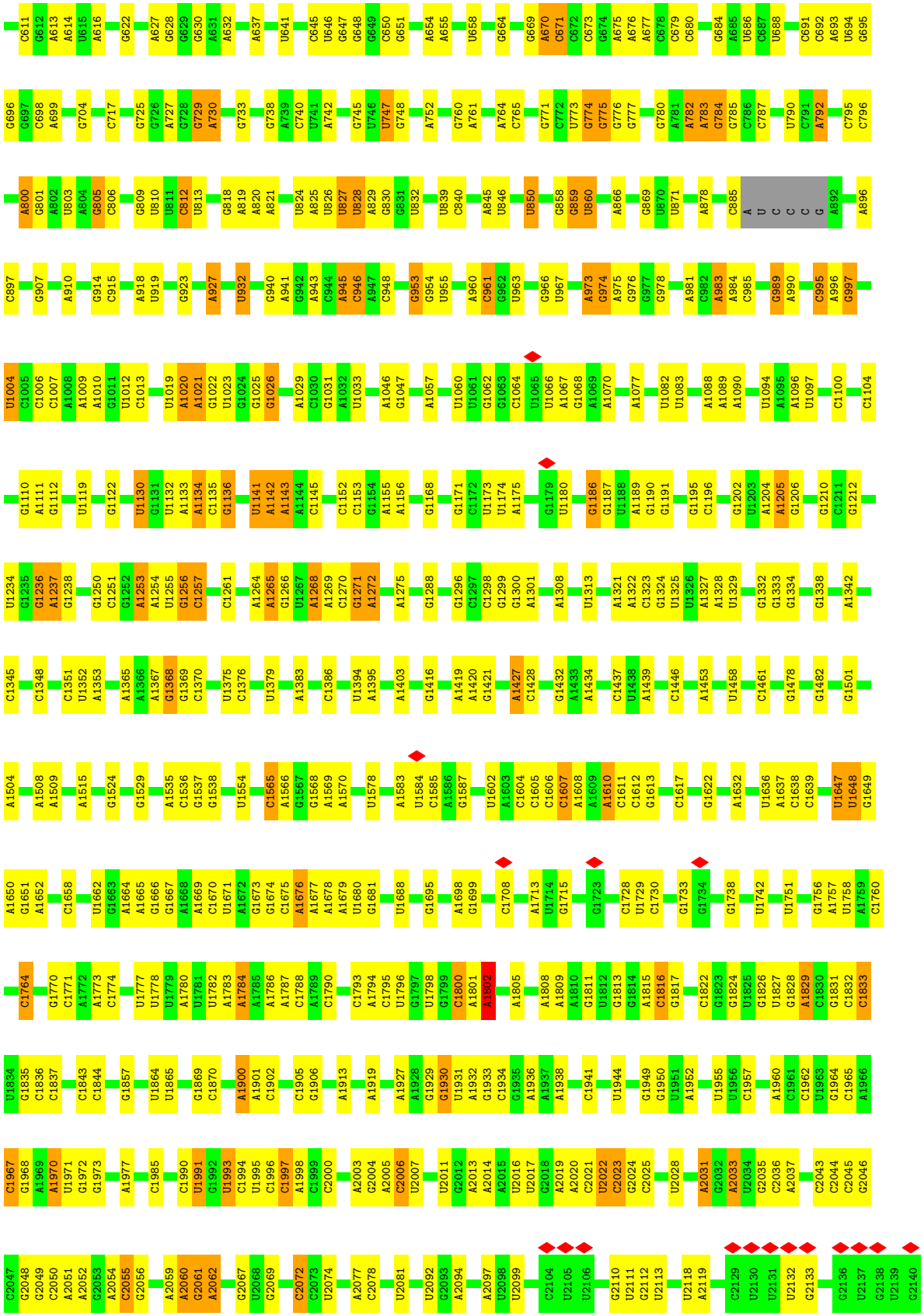
• Molecule 33: 50S ribosomal protein L36

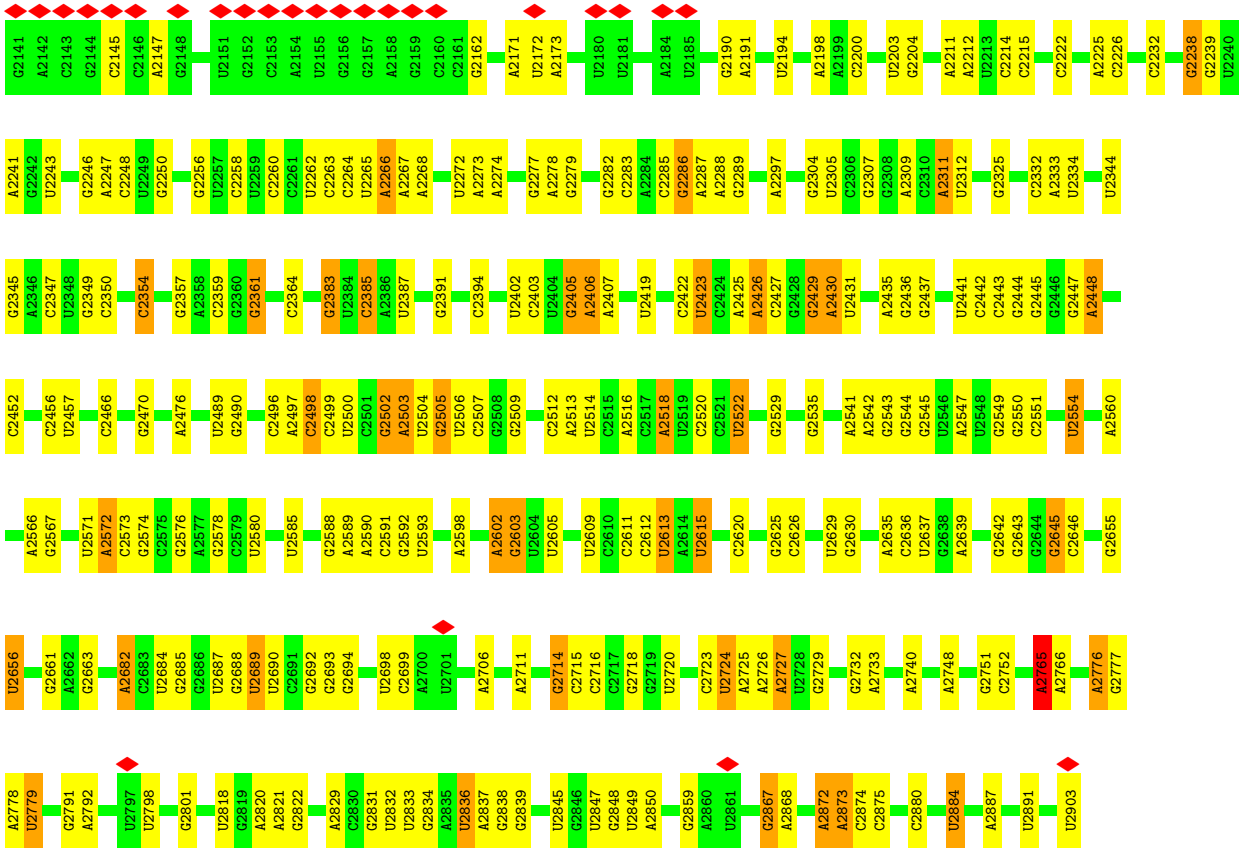
Chain r:

• Molecule 34: 23S rRNA

Chain N:

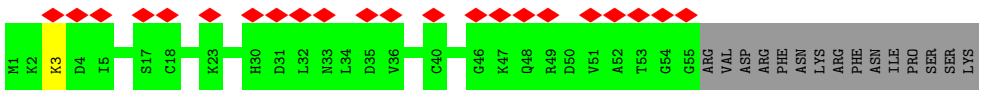



C611 G612 A613 A614 U615 A616 G622 A627 G628 G629 G630 A631 A632 A637 U641 C645 U646 G647 G648 G649 C650 G651 A654 A655 U658 G664 G669 A670 C671 C672 C673 G674 A675 A676 A677 C678 C679 C680 G684 A685 U686 C687 U688 C691 C692 A693 U694 G695
G696 G697 C698 A699 G704 C717 G725 G726 A727 G728 G729 A730 G733 G738 A739 C740 U741 A742 G745 U746 U747 G748 A752 G760 A761 A764 C765 G771 C772 U773 G774 G775 G776 G777 G780 A781 A782 A783 G784 G785 C786 C787 U790 C791 A792 C795 C796
A800 G801 A802 U803 A804 G805 C806 G809 U810 U811 C812 U813 G818 A819 A820 A821 U824 A825 U826 U827 U828 A829 G830 G831 U832 U839 C840 A845 U846 U850 G858 G859 U860 A866 G869 U870 U871 A878 C885 A U C C C G A892 A896
C897 G907 A910 G914 C915 A918 U919 G923 A927 U932 G940 A941 G942 A943 C944 A945 C946 A947 C948 G953 G954 U955 A960 C961 G962 U963 G966 U967 A973 G974 A975 G976 G977 G978 A981 C982 A983 A984 C985 G989 A990 C995 A996 G997
U1004 C1005 C1006 C1007 A1008 A1009 A1010 G1011 U1012 C1013 U1019 A1020 A1021 G1022 U1023 G1024 G1025 G1026 A1029 C1030 G1031 A1032 U1033 A1046 G1047 A1057 U1060 U1061 G1062 G1063 C1064 U1065 U1066 A1067 G1068 A1069 A1070 A1077 U1082 U1083 A1088 A1089 A1090 U1094 A1095 A1096 U1097 C1100 C1104
G1110 A1111 G1112 U1119 G1122 U1130 G1131 U1132 A1133 A1134 C1135 G1136 U1141 A1142 A1143 A1144 C1145 C1152 C1153 G1154 A1155 A1156 G1168 G1171 C1172 U1173 U1174 A1175 C1179 U1180 C1186 G1187 U1188 A1189 G1190 G1191 G1195 C1196 G1202 U1203 A1204 A1205 G1206 G1210 C1211 G1212
U1234 G1235 G1236 A1237 G1238 G1250 C1251 G1252 A1253 A1254 U1255 G1256 C1257 C1261 A1264 A1265 U1266 U1267 A1268 A1269 C1270 G1271 A1272 A1275 G1288 G1296 C1297 C1298 G1299 G1300 A1301 A1308 U1313 A1321 A1322 C1323 G1324 U1325 U1326 A1327 A1328 U1329 G1332 G1333 G1334 G1338 A1342
C1345 C1348 C1351 U1352 A1353 A1365 A1366 A1367 G1368 G1369 C1370 U1375 C1376 U1379 A1383 C1386 U1394 A1395 A1403 G1416 A1419 A1420 G1421 A1427 C1428 G1432 A1433 A1434 C1437 U1438 A1439 C1446 A1453 U1458 C1461 G1478 G1482 G1501
A1504 A1508 A1509 A1515 G1524 G1529 A1535 C1536 G1537 G1538 U1554 C1565 A1566 C1567 G1568 A1569 A1570 U1578 A1583 U1584 C1585 A1586 G1587 U1602 A1603 C1604 C1605 C1606 C1607 A1608 A1609 A1610 C1611 C1612 G1613 C1617 G1622 A1632 U1636 A1637 C1638 C1639 U1647 U1648 G1649
A1650 G1651 A1652 C1658 U1662 G1663 A1664 A1665 A1666 G1667 A1668 A1669 C1670 U1671 A1672 G1673 G1674 C1675 A1676 A1677 A1678 A1679 U1680 G1681 U1688 G1695 A1698 G1699 C1708 A1713 U1714 G1715 G1723 C1728 U1729 C1730 G1733 G1734 G1738 U1742 U1751 G1756 A1757 U1758 A1759 C1760
C1764 G1770 C1771 A1772 A1773 C1774 U1777 U1778 U1779 A1780 U1781 U1782 A1783 A1784 A1785 A1786 A1787 C1788 A1789 C1790 C1793 A1794 C1795 U1796 G1797 U1798 G1799 C1800 A1801 A1802 A1805 A1808 A1809 A1810 G1811 U1812 G1813 G1814 A1815 C1816 G1817 C1822 G1823 G1824 U1825 G1826 U1827 G1828 A1829 C1830 G1831 C1832 C1833
U1834 G1835 C1836 C1837 C1843 C1844 G1857 U1864 U1865 G1869 C1870 A1900 A1901 C1902 C1905 G1906 A1913 A1919 A1927 A1928 G1929 G1930 U1931 A1932 G1933 C1934 G1935 A1936 A1937 A1938 C1941 U1944 G1949 G1950 U1951 A1952 U1955 U1956 C1957 A1960 C1961 C1962 U1963 G1964 C1965 A1966
C1967 G1968 A1969 A1970 U1971 G1972 G1973 A1977 C1985 C1990 U1991 G1992 U1993 C1994 U1995 C1996 C1997 A1998 C1999 C2000 A2003 G2004 A2005 C2006 U2007 U2011 G2012 A2013 A2014 A2015 U2016 U2017 G2018 A2019 A2020 C2021 U2022 C2023 G2024 C2025 U2028 A2031 G2032 A2033 U2034 G2035 C2036 A2037 C2043 C2044 C2045 G2046
C2047 G2048 G2049 C2050 A2051 A2052 G2053 A2054 C2055 G2056 A2059 A2060 G2061 A2062 G2067 U2068 G2069 C2072 C2073 U2074 A2077 C2078 U2081 U2092 G2093 A2094 A2097 U2098 U2099 C2104 U2105 U2106 G2110 U2111 G2112 U2113 U2118 A2119 C2129 U2130 U2131 U2132 G2133 G2136 U2137 G2138 U2139 G2140



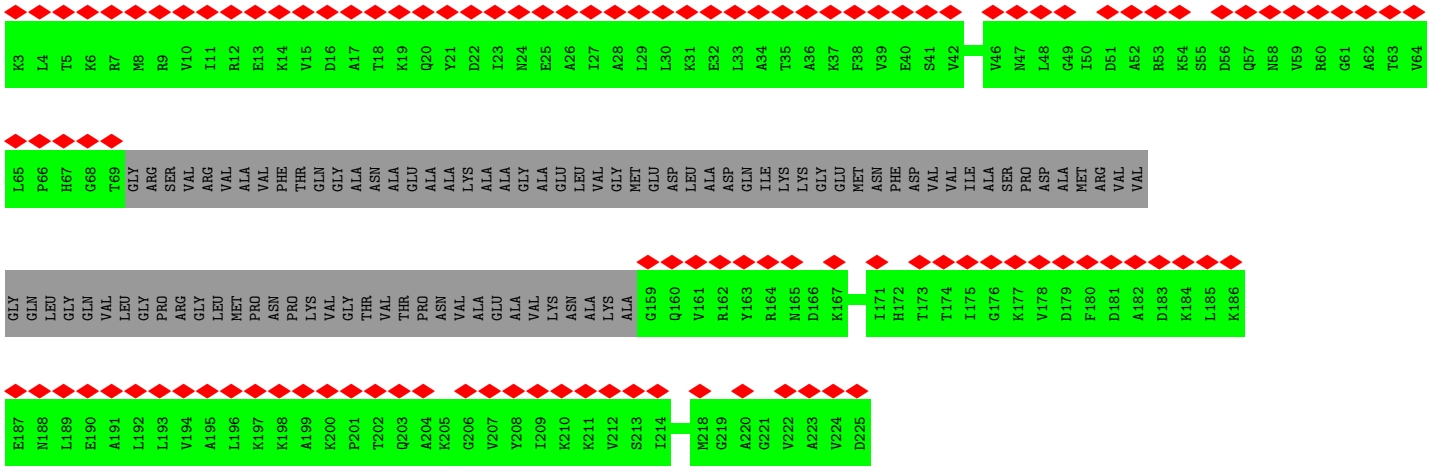
• Molecule 35: 50S ribosomal protein L31

Chain L:



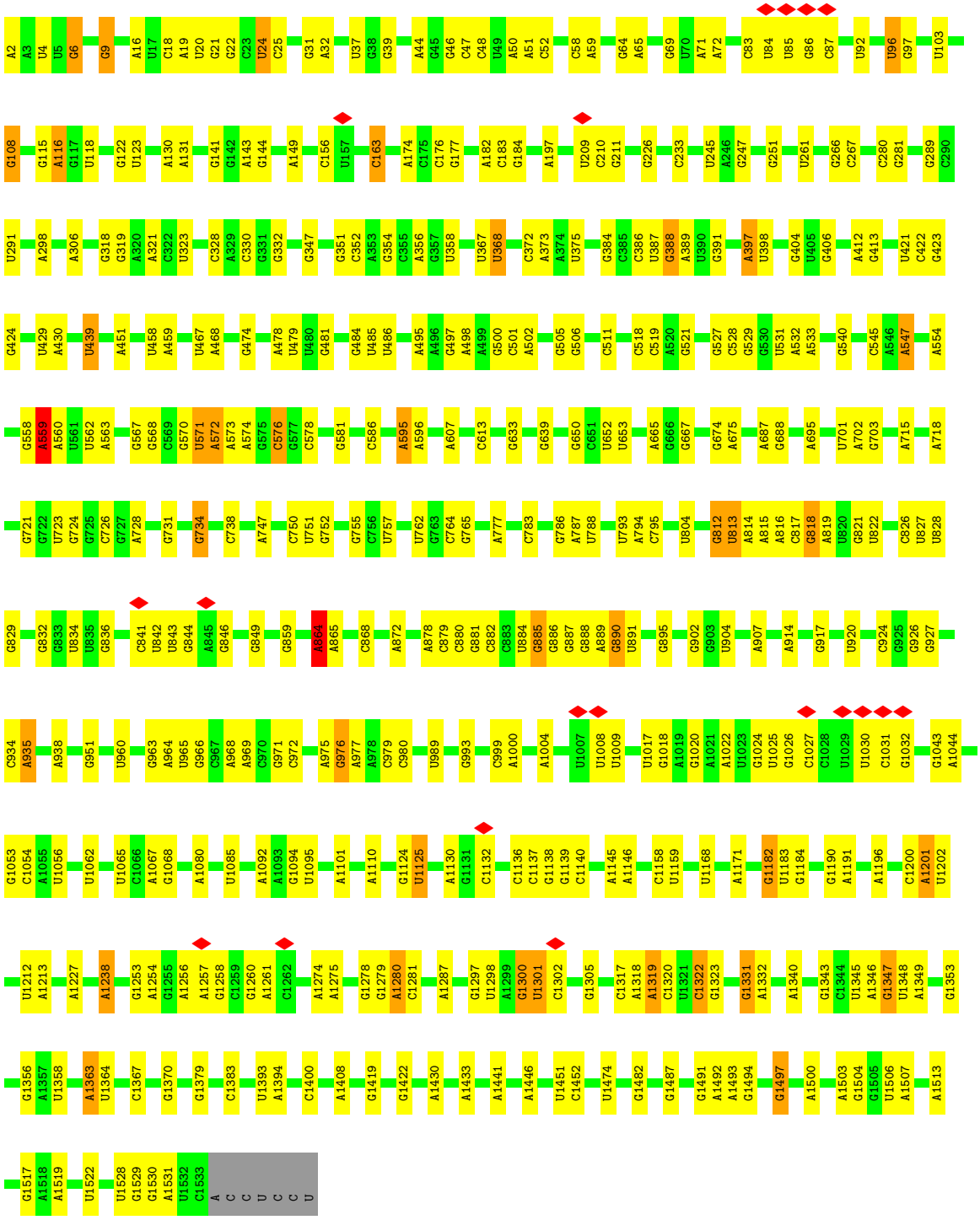
• Molecule 36: 50S ribosomal protein L1

Chain C:



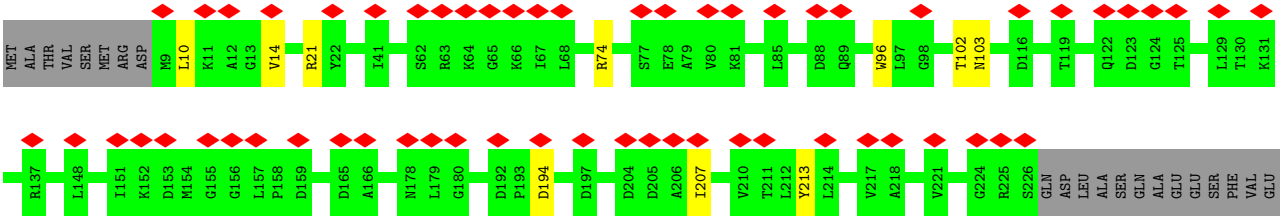
• Molecule 37: 16S rRNA

Chain 0:



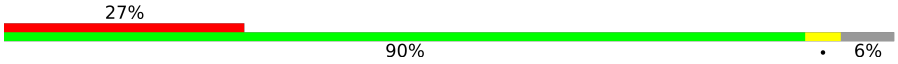
• Molecule 38: 30S ribosomal protein S2

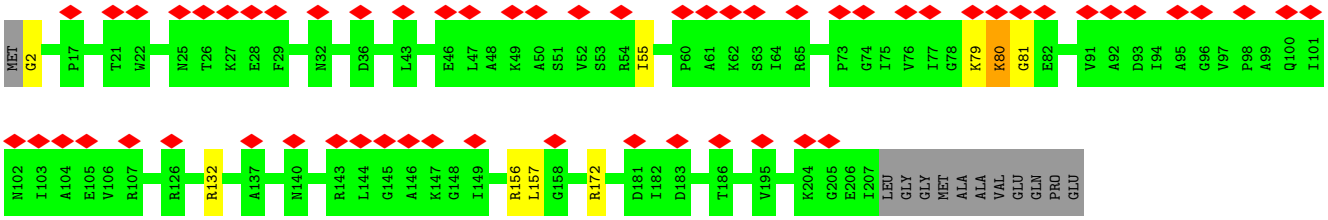
Chain 1:



• Molecule 39: 30S ribosomal protein S3

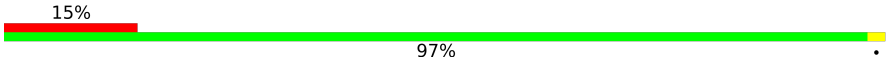
Chain 2:

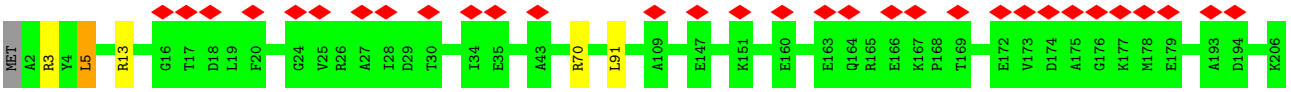




• Molecule 40: 30S ribosomal protein S4

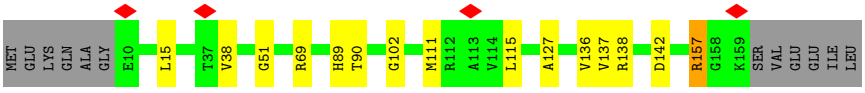
Chain 3:





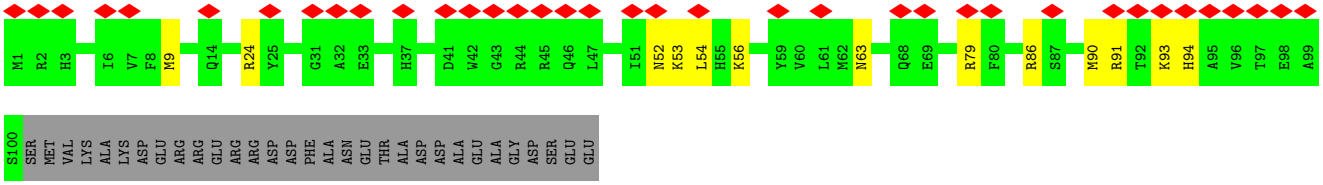
• Molecule 41: 30S ribosomal protein S5

Chain 4:



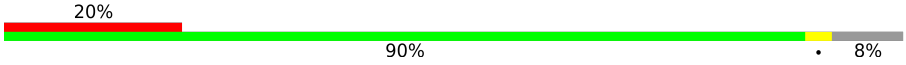
• Molecule 42: 30S ribosomal protein S6, non-modified isoform

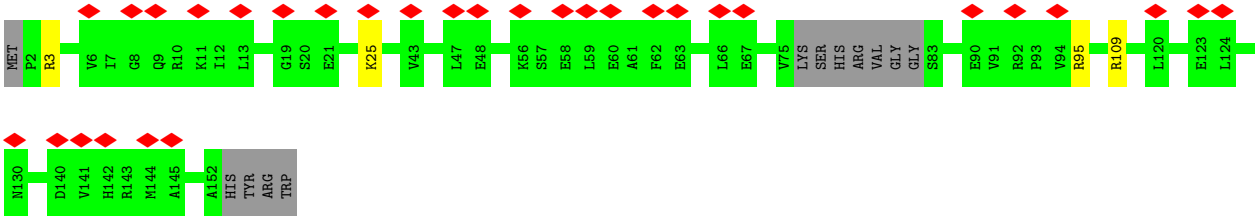
Chain 5:



• Molecule 43: 30S ribosomal protein S7

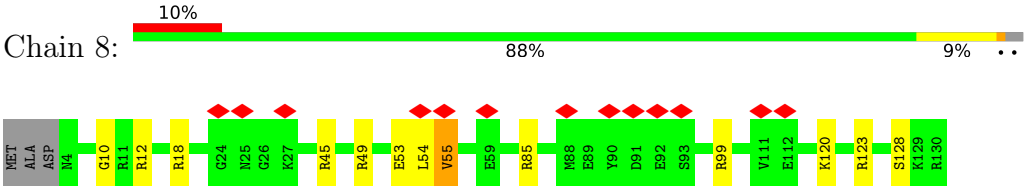
Chain 6:



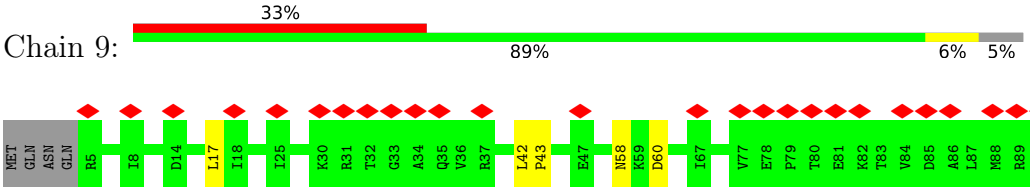


• Molecule 44: 30S ribosomal protein S8

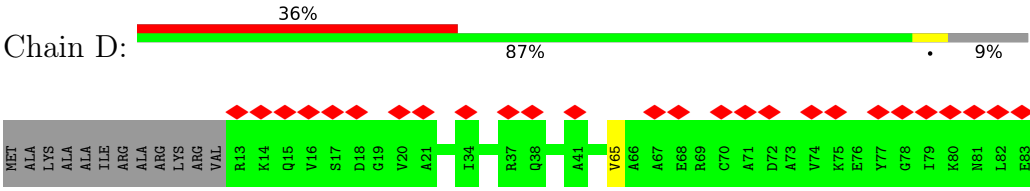
• Molecule 45: 30S ribosomal protein S9



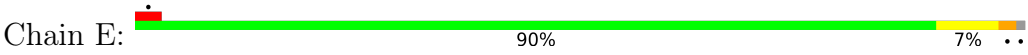
• Molecule 46: 30S ribosomal protein S10

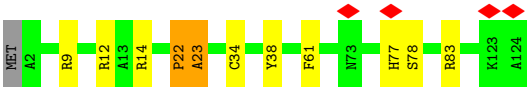


• Molecule 47: 30S ribosomal protein S11

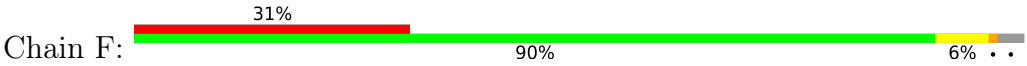


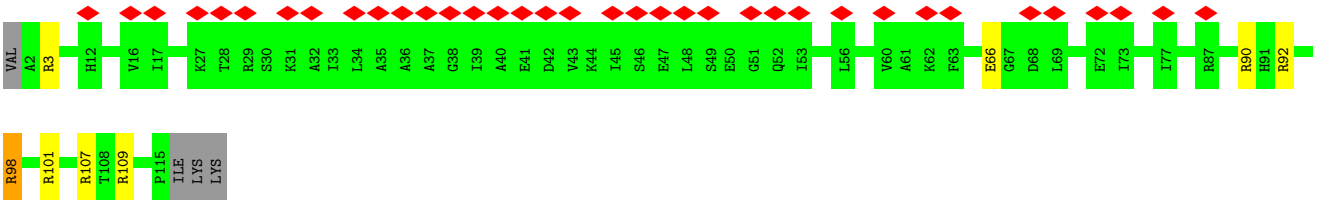
• Molecule 48: 30S ribosomal protein S12



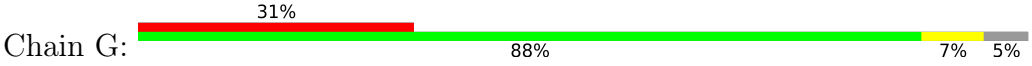


• Molecule 49: 30S ribosomal protein S13

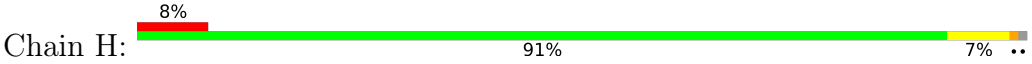


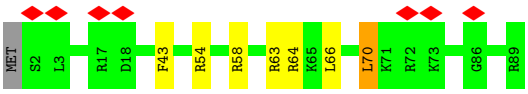


• Molecule 50: 30S ribosomal protein S14

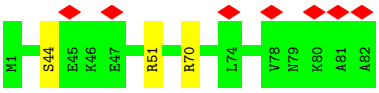


• Molecule 51: 30S ribosomal protein S15

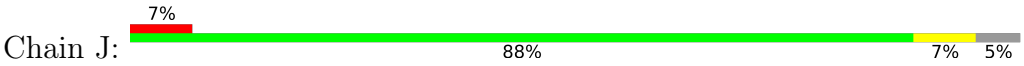


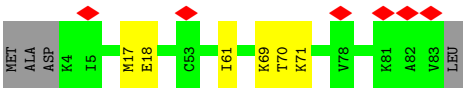


• Molecule 52: 30S ribosomal protein S16



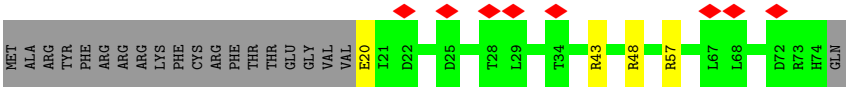
• Molecule 53: 30S ribosomal protein S17





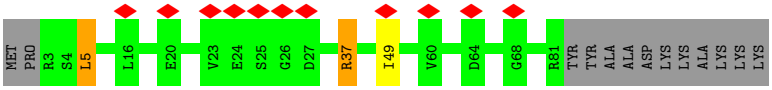
• Molecule 54: 30S ribosomal protein S18

Chain K:



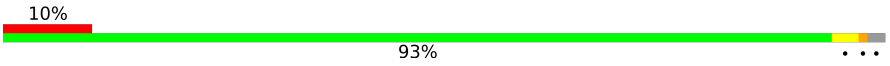
• Molecule 55: 30S ribosomal protein S19

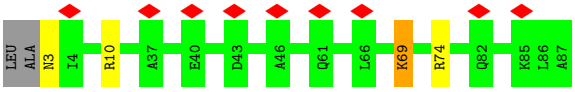
Chain t:



• Molecule 56: 30S ribosomal protein S20

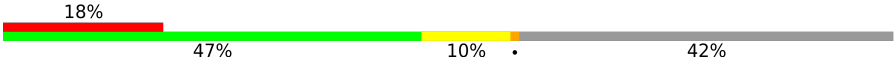
Chain u:

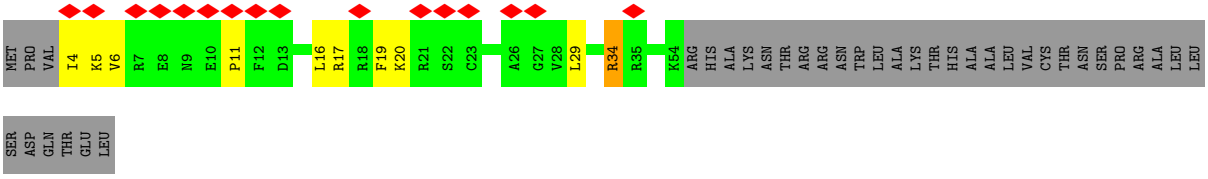




• Molecule 57: 30S ribosomal protein S21

Chain v:





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)	500	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	2.540	Depositor
Minimum map value	-0.736	Depositor
Average map value	-0.008	Depositor
Map value standard deviation	0.148	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 (i)

5.1 Standard geometry (i)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.66	1/1744 (0.1%)	0.86	0/2716
2	s	0.90	1/326 (0.3%)	0.80	1/441 (0.2%)
3	M	0.63	3/1779 (0.2%)	0.83	2/2768 (0.1%)
4	O	0.79	1/2828 (0.0%)	0.88	7/4410 (0.2%)
5	P	1.41	22/2121 (1.0%)	1.32	27/2852 (0.9%)
6	Q	1.18	3/1585 (0.2%)	1.13	8/2134 (0.4%)
7	R	0.97	3/1571 (0.2%)	1.02	9/2113 (0.4%)
8	S	0.67	0/1434	0.85	0/1926
9	T	0.67	0/1342	0.83	4/1816 (0.2%)
10	U	0.51	0/1122	0.78	1/1515 (0.1%)
11	V	0.53	0/1045	0.66	0/1410
12	W	1.10	3/1151 (0.3%)	1.10	7/1551 (0.5%)
13	X	1.15	0/947	1.19	4/1268 (0.3%)
14	Y	1.30	3/1053 (0.3%)	1.38	12/1403 (0.9%)
15	Z	1.13	2/1092 (0.2%)	1.19	6/1460 (0.4%)
16	a	1.28	3/973 (0.3%)	1.29	10/1301 (0.8%)
17	b	0.84	2/901 (0.2%)	1.08	8/1209 (0.7%)
18	c	1.09	3/927 (0.3%)	1.19	8/1240 (0.6%)
19	d	1.32	4/959 (0.4%)	1.37	15/1278 (1.2%)
20	e	1.08	1/828 (0.1%)	1.08	3/1107 (0.3%)
21	f	1.02	1/864 (0.1%)	1.09	1/1156 (0.1%)
22	g	0.91	0/744	1.01	1/994 (0.1%)
23	h	0.82	1/787 (0.1%)	0.89	0/1051
24	i	0.78	0/765	0.87	0/1025
25	j	1.21	2/575 (0.3%)	1.29	5/762 (0.7%)
26	k	1.09	1/634 (0.2%)	1.15	6/848 (0.7%)
27	l	0.71	0/509	1.04	4/677 (0.6%)
28	m	0.86	0/452	1.08	2/605 (0.3%)
29	n	1.16	2/449 (0.4%)	1.42	7/599 (1.2%)
30	o	1.31	7/416 (1.7%)	0.96	1/554 (0.2%)
31	p	1.38	3/379 (0.8%)	1.76	6/498 (1.2%)
32	q	1.15	0/512	1.26	6/676 (0.9%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	r	1.16	1/302 (0.3%)	1.35	5/397 (1.3%)
34	N	1.24	514/69681 (0.7%)	1.04	349/108706 (0.3%)
35	L	0.61	0/426	0.78	0/570
36	C	0.28	0/1034	0.51	0/1387
37	0	0.97	134/36809 (0.4%)	0.93	106/57423 (0.2%)
38	1	0.82	2/1735 (0.1%)	0.94	4/2338 (0.2%)
39	2	0.85	1/1651 (0.1%)	0.95	4/2225 (0.2%)
40	3	0.76	0/1664	0.98	6/2227 (0.3%)
41	4	1.12	1/1118 (0.1%)	1.21	7/1504 (0.5%)
42	5	0.90	1/835 (0.1%)	1.03	4/1128 (0.4%)
43	6	0.66	0/1142	0.95	6/1532 (0.4%)
44	7	0.88	0/988	0.99	2/1326 (0.2%)
45	8	0.86	0/1033	1.13	7/1375 (0.5%)
46	9	0.74	0/796	1.01	2/1077 (0.2%)
47	D	0.86	1/892 (0.1%)	1.03	3/1205 (0.2%)
48	E	1.09	3/968 (0.3%)	1.22	7/1300 (0.5%)
49	F	0.85	1/892 (0.1%)	1.12	9/1193 (0.8%)
50	G	0.86	0/784	1.14	7/1043 (0.7%)
51	H	0.94	0/717	1.13	8/959 (0.8%)
52	I	0.94	0/658	1.16	3/884 (0.3%)
53	J	0.82	0/657	1.02	0/881
54	K	0.98	1/462 (0.2%)	1.10	2/621 (0.3%)
55	t	0.81	0/652	1.05	3/877 (0.3%)
56	u	0.89	0/670	1.06	3/888 (0.3%)
57	v	0.99	1/426 (0.2%)	1.15	2/565 (0.4%)
All	All	1.09	733/159806 (0.5%)	1.02	720/238994 (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
5	P	0	3
6	Q	0	1
8	S	0	2
10	U	0	1
11	V	0	1
14	Y	0	2
15	Z	0	2
23	h	0	1
32	q	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
34	N	0	6
37	0	0	5
38	1	0	3
39	2	0	2
41	4	0	5
42	5	0	2
45	8	0	4
47	D	0	1
48	E	0	2
53	J	0	2
55	t	0	1
56	u	0	1
57	v	0	1
All	All	0	49

All (733) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	2873	A	C6-N1	-20.40	1.21	1.35
34	N	2765	A	C6-N1	-18.58	1.22	1.35
34	N	2502	G	P-OP2	16.61	1.77	1.49
34	N	503	A	C6-N1	-15.24	1.24	1.35
34	N	1156	A	P-OP2	15.21	1.74	1.49
37	0	1238	A	C6-N1	-13.82	1.25	1.35
5	P	213	TRP	CD2-CE2	13.68	1.57	1.41
37	0	24	U	N3-C4	-13.61	1.26	1.38
34	N	1333	G	P-OP2	12.80	1.70	1.49
34	N	783	A	P-OP2	12.72	1.70	1.49
34	N	945	A	P-OP2	12.25	1.69	1.49
34	N	1639	C	P-OP1	12.09	1.69	1.49
34	N	1664	A	P-OP2	11.93	1.69	1.49
34	N	945	A	P-OP1	11.82	1.69	1.49
34	N	310	A	C6-N1	-11.74	1.27	1.35
34	N	1670	C	P-OP1	11.55	1.68	1.49
5	P	213	TRP	CZ3-CH2	11.48	1.58	1.40
34	N	1141	U	N3-C4	-11.46	1.28	1.38
37	0	559	A	N1-C2	11.42	1.44	1.34
34	N	2074	U	P-OP1	11.36	1.68	1.49
34	N	234	U	N3-C4	-11.32	1.28	1.38
37	0	368	U	N3-C4	-11.30	1.28	1.38
5	P	213	TRP	CB-CG	-11.08	1.30	1.50
37	0	37	U	N3-C4	-11.07	1.28	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	2588	G	P-OP1	11.04	1.67	1.49
34	N	828	U	O3'-P	-10.86	1.48	1.61
34	N	2005	A	P-OP1	10.77	1.67	1.49
34	N	2349	G	O3'-P	-10.74	1.48	1.61
34	N	2445	G	O3'-P	-10.73	1.48	1.61
34	N	827	U	P-OP1	10.61	1.67	1.49
34	N	450	G	P-OP2	10.60	1.67	1.49
1	A	1	G	OP3-P	-10.57	1.48	1.61
34	N	2272	U	N3-C4	-10.56	1.28	1.38
34	N	963	U	O3'-P	-10.44	1.48	1.61
34	N	932	U	N3-C4	-10.41	1.29	1.38
34	N	943	A	P-OP2	10.32	1.66	1.49
34	N	2589	A	O3'-P	-10.25	1.48	1.61
34	N	2060	A	O3'-P	-10.19	1.49	1.61
23	h	68	SER	CB-OG	10.17	1.55	1.42
34	N	1777	U	O3'-P	-10.17	1.49	1.61
3	M	1	U	OP3-P	-10.14	1.49	1.61
34	N	2025	C	P-OP2	10.07	1.66	1.49
37	0	757	U	O3'-P	-10.06	1.49	1.61
37	0	1358	U	N3-C4	-10.02	1.29	1.38
34	N	567	U	P-OP1	10.02	1.66	1.49
37	0	578	C	P-OP1	10.01	1.66	1.49
37	0	1301	U	N3-C4	9.97	1.47	1.38
34	N	800	A	P-OP1	9.96	1.65	1.49
34	N	782	A	O3'-P	-9.89	1.49	1.61
37	0	20	U	O3'-P	-9.86	1.49	1.61
34	N	1968	G	O3'-P	-9.84	1.49	1.61
30	o	21	TYR	CE2-CZ	-9.82	1.25	1.38
37	0	24	U	C2-N3	9.81	1.44	1.37
34	N	787	C	O3'-P	-9.81	1.49	1.61
34	N	692	C	O3'-P	-9.78	1.49	1.61
34	N	2687	U	O3'-P	-9.75	1.49	1.61
34	N	825	A	O3'-P	-9.71	1.49	1.61
34	N	1604	C	P-OP1	9.71	1.65	1.49
34	N	1009	A	O3'-P	-9.69	1.49	1.61
34	N	2720	U	C2-N3	9.69	1.44	1.37
34	N	2615	U	P-OP1	9.68	1.65	1.49
34	N	1774	C	P-OP1	9.67	1.65	1.49
37	0	21	G	P-OP1	9.66	1.65	1.49
34	N	2522	U	C2-N3	9.66	1.44	1.37
34	N	585	G	O3'-P	-9.60	1.49	1.61
34	N	1257	C	O3'-P	-9.49	1.49	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	2344	U	N3-C4	-9.41	1.29	1.38
34	N	963	U	P-OP1	9.30	1.64	1.49
34	N	554	U	O3'-P	-9.30	1.50	1.61
34	N	2019	A	O3'-P	-9.29	1.50	1.61
34	N	809	G	O3'-P	-9.27	1.50	1.61
34	N	1828	G	P-OP2	9.25	1.64	1.49
34	N	2025	C	O3'-P	-9.24	1.50	1.61
34	N	2550	G	O3'-P	-9.23	1.50	1.61
34	N	576	U	P-OP1	9.21	1.64	1.49
34	N	2593	U	O3'-P	-9.19	1.50	1.61
37	0	667	G	O3'-P	-9.14	1.50	1.61
34	N	116	C	O3'-P	-9.13	1.50	1.61
34	N	2050	C	O3'-P	-9.09	1.50	1.61
34	N	1269	A	P-OP2	9.07	1.64	1.49
34	N	445	C	O3'-P	-9.06	1.50	1.61
34	N	984	A	O3'-P	-9.06	1.50	1.61
34	N	306	U	N3-C4	9.03	1.46	1.38
34	N	948	C	P-OP1	9.03	1.64	1.49
37	0	882	C	O3'-P	-9.03	1.50	1.61
34	N	1375	U	O3'-P	-8.94	1.50	1.61
34	N	1152	C	O3'-P	-8.93	1.50	1.61
34	N	673	C	O3'-P	-8.85	1.50	1.61
34	N	2588	G	O3'-P	-8.84	1.50	1.61
34	N	2588	G	P-OP2	8.75	1.63	1.49
34	N	397	U	O3'-P	-8.73	1.50	1.61
34	N	859	G	O3'-P	8.73	1.71	1.61
37	0	827	U	N3-C4	-8.71	1.30	1.38
34	N	2543	G	P-OP1	8.66	1.63	1.49
34	N	1019	U	O3'-P	-8.65	1.50	1.61
34	N	2052	A	O3'-P	-8.64	1.50	1.61
34	N	1774	C	O3'-P	-8.60	1.50	1.61
34	N	2576	G	P-OP1	8.59	1.63	1.49
34	N	120	U	P-OP1	8.58	1.63	1.49
34	N	1612	C	O3'-P	-8.58	1.50	1.61
34	N	1664	A	P-OP1	8.49	1.63	1.49
34	N	2714	G	P-OP2	8.49	1.63	1.49
34	N	2698	U	O3'-P	-8.47	1.50	1.61
33	r	38	GLY	N-CA	8.46	1.58	1.46
34	N	2635	A	O3'-P	-8.46	1.50	1.61
34	N	200	U	O3'-P	-8.44	1.51	1.61
5	P	195	VAL	CB-CG1	-8.42	1.35	1.52
34	N	503	A	N1-C2	8.38	1.41	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	1994	C	O3'-P	-8.35	1.51	1.61
34	N	1658	C	O3'-P	-8.34	1.51	1.61
37	0	812	G	O3'-P	8.32	1.71	1.61
34	N	1751	U	O3'-P	-8.29	1.51	1.61
37	0	1500	A	O3'-P	-8.29	1.51	1.61
34	N	499	U	N3-C4	8.28	1.46	1.38
34	N	2466	C	O3'-P	-8.28	1.51	1.61
34	N	1831	G	O3'-P	-8.27	1.51	1.61
34	N	641	U	O3'-P	-8.26	1.51	1.61
34	N	955	U	O3'-P	-8.26	1.51	1.61
34	N	1900	A	O3'-P	8.23	1.71	1.61
34	N	2503	A	P-OP2	8.23	1.62	1.49
34	N	2740	A	O3'-P	-8.21	1.51	1.61
34	N	2498	C	P-OP2	8.20	1.62	1.49
34	N	826	U	P-OP1	8.20	1.62	1.49
34	N	2613	U	N3-C4	-8.17	1.31	1.38
34	N	1780	A	P-OP1	8.16	1.62	1.49
34	N	453	A	P-OP1	8.15	1.62	1.49
34	N	2022	U	P-OP1	8.13	1.62	1.49
14	Y	18	ARG	CZ-NH1	8.12	1.43	1.33
34	N	1353	A	O3'-P	-8.10	1.51	1.61
34	N	2489	U	O3'-P	-8.06	1.51	1.61
34	N	2605	U	O3'-P	-8.00	1.51	1.61
34	N	1658	C	P-OP1	8.00	1.62	1.49
34	N	2437	G	O3'-P	-7.98	1.51	1.61
34	N	1254	A	O3'-P	-7.97	1.51	1.61
34	N	2264	C	O3'-P	-7.88	1.51	1.61
34	N	2006	C	P-OP1	7.87	1.62	1.49
34	N	1813	G	O3'-P	-7.86	1.51	1.61
34	N	839	U	O3'-P	-7.83	1.51	1.61
34	N	2590	A	O3'-P	-7.83	1.51	1.61
34	N	2502	G	O5'-C5'	-7.80	1.30	1.42
34	N	733	G	O3'-P	-7.78	1.51	1.61
34	N	2265	U	O3'-P	-7.77	1.51	1.61
34	N	192	C	P-OP1	7.76	1.62	1.49
34	N	192	C	O3'-P	-7.75	1.51	1.61
34	N	2062	A	P-OP2	7.75	1.62	1.49
37	0	726	C	O3'-P	-7.75	1.51	1.61
34	N	1782	U	P-OP1	7.73	1.62	1.49
34	N	1794	A	O3'-P	-7.71	1.51	1.61
34	N	1189	A	O3'-P	-7.71	1.51	1.61
34	N	2447	G	O3'-P	-7.69	1.51	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	372	G	O3'-P	7.67	1.70	1.61
5	P	204	VAL	CB-CG2	-7.65	1.36	1.52
34	N	515	A	O3'-P	-7.64	1.51	1.61
34	N	1778	U	O3'-P	-7.64	1.51	1.61
34	N	1268	A	P-OP1	7.64	1.61	1.49
34	N	569	U	O3'-P	-7.63	1.51	1.61
34	N	832	U	O3'-P	-7.60	1.52	1.61
34	N	2518	A	P-OP2	7.60	1.61	1.49
34	N	254	G	O3'-P	-7.60	1.52	1.61
34	N	2572	A	O3'-P	-7.58	1.52	1.61
34	N	1790	C	O3'-P	-7.58	1.52	1.61
34	N	810	U	P-OP1	7.58	1.61	1.49
34	N	464	U	O3'-P	-7.56	1.52	1.61
34	N	997	G	O3'-P	-7.56	1.52	1.61
34	N	2272	U	C4-O4	-7.52	1.17	1.23
34	N	2822	G	O3'-P	-7.52	1.52	1.61
14	Y	22	GLY	C-O	-7.51	1.11	1.23
34	N	821	A	O3'-P	-7.50	1.52	1.61
37	0	1367	C	O3'-P	-7.50	1.52	1.61
14	Y	51	GLU	C-O	7.50	1.37	1.23
17	b	30	ARG	CZ-NH1	7.50	1.42	1.33
34	N	2620	C	O3'-P	-7.50	1.52	1.61
34	N	1771	C	O3'-P	-7.48	1.52	1.61
34	N	2867	G	O3'-P	7.48	1.70	1.61
34	N	1970	A	P-OP2	7.47	1.61	1.49
37	0	1238	A	N1-C2	7.46	1.41	1.34
34	N	2031	A	P-OP1	-7.45	1.36	1.49
37	0	884	U	C4-O4	-7.43	1.17	1.23
34	N	1678	A	P-OP2	7.42	1.61	1.49
34	N	2061	G	C2'-O2'	7.42	1.51	1.41
34	N	2081	U	O3'-P	-7.42	1.52	1.61
34	N	2625	G	O3'-P	-7.41	1.52	1.61
37	0	1393	U	O3'-P	-7.41	1.52	1.61
34	N	1828	G	P-OP1	7.40	1.61	1.49
42	5	63	ASN	C-O	-7.39	1.09	1.23
34	N	676	A	O3'-P	-7.38	1.52	1.61
34	N	975	A	P-OP2	7.38	1.61	1.49
34	N	538	A	O3'-P	-7.38	1.52	1.61
34	N	566	U	O3'-P	-7.37	1.52	1.61
34	N	2837	A	O3'-P	-7.36	1.52	1.61
34	N	2637	U	O3'-P	-7.35	1.52	1.61
34	N	2444	G	O3'-P	-7.32	1.52	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	2359	C	O3'-P	-7.31	1.52	1.61
34	N	1822	C	O3'-P	-7.28	1.52	1.61
34	N	2232	C	O3'-P	-7.28	1.52	1.61
34	N	2072	C	O3'-P	-7.27	1.52	1.61
5	P	221	ARG	CB-CG	-7.24	1.32	1.52
34	N	2247	A	O3'-P	-7.24	1.52	1.61
34	N	2344	U	C2-N3	-7.24	1.32	1.37
34	N	2598	A	O3'-P	-7.24	1.52	1.61
37	0	22	G	O3'-P	-7.22	1.52	1.61
34	N	198	C	O3'-P	-7.22	1.52	1.61
34	N	1261	C	O3'-P	-7.21	1.52	1.61
34	N	2457	U	O3'-P	-7.19	1.52	1.61
34	N	2542	A	O3'-P	-7.19	1.52	1.61
34	N	2684	U	O3'-P	-7.19	1.52	1.61
34	N	1298	C	O3'-P	-7.17	1.52	1.61
37	0	387	U	O3'-P	-7.17	1.52	1.61
34	N	940	G	O3'-P	-7.16	1.52	1.61
34	N	2602	A	O3'-P	7.16	1.69	1.61
34	N	572	A	P-OP1	7.15	1.61	1.49
30	o	21	TYR	CG-CD1	-7.13	1.29	1.39
34	N	2016	U	O3'-P	-7.13	1.52	1.61
37	0	563	A	C6-N6	-7.11	1.28	1.33
34	N	1805	A	O3'-P	-7.11	1.52	1.61
34	N	796	C	O3'-P	-7.11	1.52	1.61
34	N	1681	G	O3'-P	-7.10	1.52	1.61
34	N	2013	A	O3'-P	-7.10	1.52	1.61
37	0	505	G	O3'-P	-7.09	1.52	1.61
34	N	25	U	O3'-P	-7.08	1.52	1.61
34	N	126	A	O3'-P	-7.07	1.52	1.61
48	E	34	CYS	CB-SG	-7.07	1.70	1.82
34	N	2013	A	C6-N6	-7.07	1.28	1.33
34	N	29	U	O3'-P	-7.06	1.52	1.61
34	N	818	G	P-OP2	7.06	1.60	1.49
34	N	571	U	O3'-P	-7.05	1.52	1.61
34	N	966	G	O3'-P	-7.05	1.52	1.61
34	N	671	C	P-OP2	7.03	1.60	1.49
34	N	1795	C	O3'-P	-7.01	1.52	1.61
34	N	2419	U	C4-O4	7.01	1.29	1.23
4	O	83	G	O3'-P	-7.01	1.52	1.61
34	N	2406	A	P-OP1	7.00	1.60	1.49
34	N	1141	U	C2-N3	-7.00	1.32	1.37
34	N	2049	G	O3'-P	-7.00	1.52	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	o	21	TYR	CG-CD2	-6.99	1.30	1.39
34	N	2385	C	P-OP1	6.98	1.60	1.49
34	N	773	U	O3'-P	-6.96	1.52	1.61
34	N	2499	C	P-OP2	6.96	1.60	1.49
37	0	1358	U	C4-O4	-6.96	1.18	1.23
34	N	927	A	N1-C2	6.92	1.40	1.34
34	N	680	C	O3'-P	-6.91	1.52	1.61
34	N	2332	C	O3'-P	-6.91	1.52	1.61
34	N	2051	A	O3'-P	6.91	1.69	1.61
34	N	2829	A	O3'-P	-6.91	1.52	1.61
37	0	765	G	O3'-P	-6.91	1.52	1.61
16	a	1	MET	C-O	6.90	1.36	1.23
34	N	730	A	P-OP2	6.89	1.60	1.49
34	N	2436	G	O3'-P	-6.88	1.52	1.61
34	N	784	G	O3'-P	6.86	1.69	1.61
34	N	1949	G	O3'-P	-6.86	1.52	1.61
37	0	764	C	O3'-P	-6.84	1.52	1.61
37	0	980	C	P-OP1	6.83	1.60	1.49
34	N	1824	G	P-OP2	6.80	1.60	1.49
37	0	37	U	C2-N3	-6.78	1.33	1.37
34	N	2443	C	C4'-C3'	-6.78	1.45	1.53
34	N	2572	A	P-OP1	-6.75	1.37	1.49
34	N	1394	U	O3'-P	-6.73	1.53	1.61
34	N	688	U	O3'-P	-6.73	1.53	1.61
34	N	2516	A	O3'-P	-6.72	1.53	1.61
34	N	2268	A	P-OP1	6.71	1.60	1.49
34	N	2048	G	O3'-P	-6.71	1.53	1.61
34	N	578	G	P-OP2	6.71	1.60	1.49
34	N	923	G	O3'-P	-6.71	1.53	1.61
34	N	419	U	O3'-P	-6.70	1.53	1.61
34	N	1662	U	P-OP2	6.69	1.60	1.49
5	P	10	SER	CA-CB	6.69	1.62	1.52
34	N	1782	U	O3'-P	-6.67	1.53	1.61
34	N	2694	G	O3'-P	-6.65	1.53	1.61
34	N	239	C	O3'-P	-6.65	1.53	1.61
37	0	1182	G	O3'-P	6.65	1.69	1.61
37	0	814	A	P-OP2	6.64	1.60	1.49
34	N	761	A	P-OP1	6.62	1.60	1.49
34	N	932	U	C4-O4	-6.61	1.18	1.23
34	N	1977	A	O3'-P	-6.60	1.53	1.61
34	N	2045	C	O3'-P	-6.60	1.53	1.61
34	N	2499	C	P-OP1	6.60	1.60	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	2260	C	O3'-P	-6.59	1.53	1.61
34	N	2289	G	O3'-P	-6.59	1.53	1.61
31	p	34	ARG	CG-CD	-6.58	1.35	1.51
34	N	117	G	O3'-P	-6.58	1.53	1.61
34	N	1649	G	O3'-P	-6.58	1.53	1.61
34	N	1191	G	O3'-P	-6.57	1.53	1.61
34	N	783	A	C4'-O4'	6.57	1.54	1.45
34	N	1960	A	O3'-P	-6.57	1.53	1.61
34	N	698	C	O3'-P	-6.56	1.53	1.61
34	N	2285	C	O3'-P	-6.56	1.53	1.61
18	c	98	TYR	CE1-CZ	6.55	1.47	1.38
5	P	271	ARG	CZ-NH1	6.55	1.41	1.33
34	N	2074	U	O3'-P	-6.55	1.53	1.61
41	4	127	ALA	C-O	-6.54	1.10	1.23
34	N	1234	U	O3'-P	-6.54	1.53	1.61
34	N	2028	U	O3'-P	-6.54	1.53	1.61
34	N	2723	C	O3'-P	-6.54	1.53	1.61
34	N	2452	C	O3'-P	-6.54	1.53	1.61
34	N	2072	C	P-OP1	6.54	1.60	1.49
34	N	1009	A	P-OP2	6.52	1.60	1.49
19	d	24	TYR	CG-CD1	6.52	1.47	1.39
34	N	393	C	P-OP1	6.51	1.60	1.49
37	0	864	A	N1-C2	6.51	1.40	1.34
5	P	139	SER	CB-OG	-6.50	1.33	1.42
34	N	2426	A	O3'-P	-6.50	1.53	1.61
34	N	193	U	O3'-P	-6.49	1.53	1.61
37	0	715	A	O3'-P	-6.49	1.53	1.61
25	j	42	GLY	N-CA	6.49	1.55	1.46
34	N	1010	A	P-OP2	6.48	1.59	1.49
34	N	1432	G	O3'-P	-6.48	1.53	1.61
34	N	2248	C	P-OP2	6.46	1.59	1.49
34	N	694	U	O3'-P	-6.46	1.53	1.61
34	N	1680	U	O3'-P	-6.46	1.53	1.61
34	N	1677	A	O3'-P	-6.45	1.53	1.61
31	p	38	GLY	CA-C	-6.45	1.41	1.51
34	N	960	A	O3'-P	-6.45	1.53	1.61
34	N	1993	U	O5'-C5'	-6.45	1.32	1.42
34	N	1334	G	O3'-P	-6.45	1.53	1.61
34	N	28	A	P-O5'	-6.44	1.53	1.59
34	N	2727	A	O3'-P	-6.44	1.53	1.61
34	N	499	U	C4-O4	-6.44	1.18	1.23
34	N	2699	C	O3'-P	-6.43	1.53	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	2262	U	O3'-P	-6.41	1.53	1.61
34	N	2502	G	O3'-P	-6.41	1.53	1.61
5	P	219	THR	C-O	6.40	1.35	1.23
37	0	37	U	C4-O4	-6.40	1.18	1.23
34	N	1186	G	P-OP2	6.40	1.59	1.49
19	d	49	ASP	CB-CG	6.40	1.65	1.51
37	0	1062	U	O3'-P	-6.39	1.53	1.61
34	N	632	A	O3'-P	-6.39	1.53	1.61
37	0	812	G	C3'-C2'	-6.39	1.45	1.52
34	N	1296	G	O3'-P	-6.38	1.53	1.61
6	Q	125	TRP	CE3-CZ3	-6.37	1.27	1.38
34	N	1652	A	O3'-P	-6.37	1.53	1.61
34	N	208	C	O3'-P	-6.37	1.53	1.61
30	o	49	TYR	CE1-CZ	-6.36	1.30	1.38
37	0	368	U	C2-N3	-6.36	1.33	1.37
34	N	1142	A	O3'-P	6.35	1.68	1.61
37	0	884	U	N3-C4	-6.35	1.32	1.38
34	N	745	G	O3'-P	-6.35	1.53	1.61
34	N	2243	U	P-OP1	6.34	1.59	1.49
34	N	1650	A	O3'-P	-6.34	1.53	1.61
34	N	783	A	C5-C6	-6.33	1.35	1.41
37	0	19	A	O3'-P	-6.33	1.53	1.61
57	v	34	ARG	CZ-NH1	6.32	1.41	1.33
34	N	1367	A	O3'-P	-6.32	1.53	1.61
37	0	1301	U	N1-C2	6.32	1.44	1.38
34	N	2554	U	P-OP2	-6.32	1.38	1.49
34	N	2444	G	C2'-C1'	-6.31	1.46	1.53
34	N	1671	U	P-OP2	6.30	1.59	1.49
5	P	213	TRP	CD1-NE1	6.30	1.48	1.38
34	N	1186	G	O3'-P	-6.29	1.53	1.61
34	N	408	G	O3'-P	-6.29	1.53	1.61
34	N	1327	A	P-OP2	6.28	1.59	1.49
34	N	1026	G	P-OP2	-6.27	1.38	1.49
34	N	2543	G	O5'-C5'	-6.26	1.32	1.42
37	0	920	U	O3'-P	-6.26	1.53	1.61
34	N	1004	U	O3'-P	-6.26	1.53	1.61
34	N	1141	U	C4-O4	-6.25	1.18	1.23
34	N	1142	A	C5-C6	-6.25	1.35	1.41
37	0	368	U	C4-O4	-6.24	1.18	1.23
12	W	16	TYR	CG-CD1	-6.24	1.31	1.39
37	0	613	C	O3'-P	-6.24	1.53	1.61
34	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)
34	N	7	G	O3'-P	-6.23	1.53	1.61
34	N	120	U	P-OP2	6.22	1.59	1.49
37	0	572	A	P-OP1	6.22	1.59	1.49
34	N	576	U	O3'-P	-6.22	1.53	1.61
37	0	1474	U	O3'-P	-6.21	1.53	1.61
34	N	247	G	O3'-P	-6.21	1.53	1.61
34	N	26	G	O3'-P	-6.20	1.53	1.61
34	N	1342	A	P-OP2	6.20	1.59	1.49
34	N	2000	C	O3'-P	-6.20	1.53	1.61
34	N	1370	C	O3'-P	-6.19	1.53	1.61
48	E	23	ALA	N-CA	6.19	1.58	1.46
34	N	567	U	O3'-P	-6.18	1.53	1.61
37	0	439	U	C2-N3	6.18	1.42	1.37
34	N	2263	C	O3'-P	-6.18	1.53	1.61
37	0	787	A	O3'-P	-6.17	1.53	1.61
34	N	2035	G	O5'-C5'	-6.17	1.32	1.42
5	P	214	ARG	CZ-NH1	6.17	1.41	1.33
34	N	253	C	O3'-P	-6.17	1.53	1.61
34	N	411	G	P-OP1	6.17	1.59	1.49
34	N	946	C	P-OP2	6.17	1.59	1.49
37	0	1358	U	C2-N3	-6.17	1.33	1.37
37	0	498	A	N1-C2	6.17	1.39	1.34
34	N	2682	A	P-OP2	6.16	1.59	1.49
34	N	1816	C	O3'-P	-6.16	1.53	1.61
34	N	398	C	O3'-P	-6.15	1.53	1.61
34	N	1793	C	O3'-P	-6.15	1.53	1.61
34	N	1968	G	P-OP1	6.15	1.59	1.49
18	c	93	ARG	CD-NE	-6.14	1.36	1.46
34	N	244	A	O3'-P	-6.14	1.53	1.61
34	N	725	G	O3'-P	-6.12	1.53	1.61
34	N	1636	U	O3'-P	-6.12	1.53	1.61
37	0	568	G	O3'-P	-6.11	1.53	1.61
37	0	46	G	O3'-P	-6.11	1.53	1.61
34	N	1196	C	O3'-P	-6.11	1.53	1.61
37	0	581	G	O3'-P	-6.11	1.53	1.61
34	N	123	G	O3'-P	-6.10	1.53	1.61
34	N	593	U	O3'-P	-6.10	1.53	1.61
34	N	1827	U	O3'-P	-6.10	1.53	1.61
34	N	1153	C	P-OP2	6.09	1.59	1.49
34	N	1905	C	O3'-P	-6.09	1.53	1.61
34	N	2277	G	O3'-P	-6.08	1.53	1.61
37	0	356	A	O3'-P	-6.07	1.53	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	430	A	C6-N6	-6.07	1.29	1.33
34	N	2642	G	O3'-P	-6.06	1.53	1.61
34	N	1134	A	O3'-P	6.05	1.68	1.61
34	N	777	G	O3'-P	-6.05	1.53	1.61
16	a	2	ARG	C-O	-6.04	1.11	1.23
37	0	1522	U	O3'-P	-6.04	1.53	1.61
34	N	1368	G	O3'-P	-6.02	1.53	1.61
34	N	2776	A	C5-C6	-6.02	1.35	1.41
34	N	2503	A	P-OP1	6.02	1.59	1.49
37	0	816	A	O3'-P	-6.01	1.53	1.61
37	0	1110	A	P-OP2	6.01	1.59	1.49
34	N	1648	U	P-OP2	6.01	1.59	1.49
34	N	1205	A	O3'-P	6.01	1.68	1.61
34	N	190	A	O3'-P	-6.00	1.53	1.61
37	0	888	G	O3'-P	-6.00	1.53	1.61
34	N	1756	G	O3'-P	-5.99	1.53	1.61
34	N	727	A	P-OP1	5.99	1.59	1.49
37	0	500	G	O3'-P	-5.98	1.53	1.61
34	N	963	U	P-OP2	5.98	1.59	1.49
34	N	1324	G	O3'-P	-5.97	1.53	1.61
34	N	2003	A	O3'-P	-5.97	1.53	1.61
7	R	80	SER	C-O	-5.97	1.12	1.23
34	N	234	U	C2-N3	-5.97	1.33	1.37
34	N	699	A	O3'-P	-5.96	1.53	1.61
34	N	2442	C	O3'-P	-5.96	1.53	1.61
37	0	118	U	O3'-P	-5.96	1.54	1.61
34	N	2626	C	O3'-P	-5.96	1.54	1.61
34	N	1369	G	O3'-P	-5.95	1.54	1.61
34	N	2639	A	O3'-P	-5.95	1.54	1.61
34	N	1957	C	O3'-P	-5.95	1.54	1.61
34	N	1610	A	O3'-P	-5.95	1.54	1.61
34	N	932	U	C2-N3	-5.95	1.33	1.37
37	0	917	G	O3'-P	-5.95	1.54	1.61
37	0	1080	A	O3'-P	-5.95	1.54	1.61
34	N	524	G	O3'-P	-5.95	1.54	1.61
34	N	577	G	O3'-P	-5.94	1.54	1.61
34	N	1676	A	O3'-P	-5.93	1.54	1.61
34	N	580	U	O3'-P	-5.93	1.54	1.61
37	0	559	A	C2-N3	5.93	1.38	1.33
37	0	834	U	O3'-P	-5.92	1.54	1.61
37	0	498	A	C2-N3	5.92	1.38	1.33
34	N	2014	A	O3'-P	-5.91	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	1323	C	O3'-P	-5.91	1.54	1.61
34	N	2250	G	C5-C6	-5.90	1.36	1.42
34	N	1007	C	O3'-P	-5.89	1.54	1.61
34	N	2847	U	O3'-P	-5.89	1.54	1.61
34	N	1187	G	P-OP2	5.89	1.58	1.49
37	0	813	U	P-O5'	-5.88	1.53	1.59
37	0	1513	A	O3'-P	-5.88	1.54	1.61
34	N	2238	G	O3'-P	5.86	1.68	1.61
3	M	72	G	O3'-P	-5.86	1.54	1.61
34	N	1676	A	P-OP2	5.85	1.58	1.49
34	N	2571	U	O3'-P	-5.83	1.54	1.61
34	N	310	A	C5-C6	-5.83	1.35	1.41
34	N	2545	G	O3'-P	-5.83	1.54	1.61
37	0	116	A	P-OP2	5.83	1.58	1.49
34	N	1647	U	P-OP2	5.82	1.58	1.49
34	N	2272	U	O3'-P	-5.82	1.54	1.61
34	N	1264	A	O3'-P	-5.82	1.54	1.61
34	N	2779	U	O3'-P	-5.82	1.54	1.61
34	N	774	G	C2'-O2'	5.82	1.49	1.41
37	0	1054	C	P-OP2	5.82	1.58	1.49
34	N	1605	C	O3'-P	-5.81	1.54	1.61
37	0	879	C	O3'-P	-5.81	1.54	1.61
37	0	804	U	O3'-P	-5.80	1.54	1.61
37	0	323	U	O3'-P	-5.79	1.54	1.61
34	N	1665	A	P-OP2	5.79	1.58	1.49
34	N	2025	C	O5'-C5'	-5.79	1.33	1.42
37	0	788	U	O3'-P	-5.79	1.54	1.61
39	2	2	GLY	N-CA	5.78	1.54	1.46
37	0	1068	G	O3'-P	-5.77	1.54	1.61
34	N	2541	A	O3'-P	-5.77	1.54	1.61
34	N	2688	G	O3'-P	-5.77	1.54	1.61
34	N	2072	C	O5'-C5'	-5.77	1.33	1.42
37	0	545	C	O3'-P	-5.76	1.54	1.61
34	N	1602	U	C4-O4	5.76	1.28	1.23
37	0	786	G	O3'-P	-5.75	1.54	1.61
34	N	499	U	O3'-P	-5.75	1.54	1.61
37	0	233	C	O3'-P	-5.75	1.54	1.61
34	N	2612	C	O3'-P	-5.75	1.54	1.61
34	N	605	G	O3'-P	-5.74	1.54	1.61
34	N	2272	U	C2-N3	-5.74	1.33	1.37
34	N	570	G	O3'-P	-5.74	1.54	1.61
34	N	562	U	O3'-P	-5.72	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
37	0	439	U	C4-O4	-5.72	1.19	1.23
37	0	24	U	C4-O4	-5.72	1.19	1.23
34	N	382	A	O3'-P	-5.72	1.54	1.61
34	N	2429	G	P-OP2	5.71	1.58	1.49
5	P	213	TRP	CE3-CZ3	5.71	1.48	1.38
34	N	565	C	O3'-P	-5.70	1.54	1.61
34	N	28	A	O3'-P	-5.70	1.54	1.61
29	n	29	SER	CB-OG	-5.70	1.34	1.42
34	N	234	U	C4-O4	-5.70	1.19	1.23
34	N	628	G	O3'-P	-5.70	1.54	1.61
34	N	691	C	O3'-P	-5.69	1.54	1.61
34	N	2054	A	O3'-P	-5.69	1.54	1.61
34	N	2560	A	O3'-P	-5.69	1.54	1.61
5	P	221	ARG	CA-C	-5.68	1.38	1.52
26	k	29	PHE	CG-CD2	-5.68	1.30	1.38
34	N	2011	U	O3'-P	-5.68	1.54	1.61
37	0	1430	A	O3'-P	-5.67	1.54	1.61
12	W	30	THR	CB-CG2	-5.67	1.33	1.52
34	N	536	G	O3'-P	-5.66	1.54	1.61
34	N	2503	A	O3'-P	-5.66	1.54	1.61
37	0	1238	A	C5-C6	-5.66	1.35	1.41
12	W	16	TYR	CE1-CZ	-5.66	1.31	1.38
34	N	1796	U	O3'-P	-5.66	1.54	1.61
34	N	464	U	C4'-O4'	-5.65	1.38	1.45
34	N	2509	G	O3'-P	-5.65	1.54	1.61
5	P	238	ARG	C-O	5.65	1.34	1.23
37	0	868	C	O3'-P	-5.64	1.54	1.61
37	0	1363	A	C6-N6	-5.64	1.29	1.33
34	N	1742	U	O3'-P	-5.64	1.54	1.61
37	0	404	G	O3'-P	-5.63	1.54	1.61
34	N	1568	G	O3'-P	-5.62	1.54	1.61
34	N	810	U	O3'-P	-5.62	1.54	1.61
34	N	1790	C	N1-C2	-5.62	1.34	1.40
34	N	2685	G	O3'-P	-5.62	1.54	1.61
37	0	319	G	O3'-P	-5.61	1.54	1.61
37	0	570	G	O3'-P	-5.61	1.54	1.61
34	N	1783	A	O3'-P	-5.61	1.54	1.61
37	0	878	A	O3'-P	-5.61	1.54	1.61
37	0	826	C	O3'-P	-5.60	1.54	1.61
34	N	1338	G	O3'-P	-5.60	1.54	1.61
34	N	310	A	N1-C2	5.58	1.39	1.34
21	f	101	SER	CB-OG	-5.57	1.35	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	1351	C	O3'-P	-5.57	1.54	1.61
34	N	2448	A	P-OP1	5.57	1.58	1.49
34	N	2645	G	O3'-P	-5.56	1.54	1.61
5	P	222	GLY	C-O	-5.56	1.14	1.23
34	N	2732	G	C3'-O3'	5.56	1.50	1.42
37	0	750	C	O3'-P	-5.56	1.54	1.61
34	N	2591	C	O3'-P	-5.55	1.54	1.61
34	N	1446	C	O3'-P	-5.55	1.54	1.61
34	N	824	U	O3'-P	-5.55	1.54	1.61
34	N	2732	G	C2'-O2'	5.55	1.48	1.41
37	0	907	A	O3'-P	-5.54	1.54	1.61
7	R	81	GLY	N-CA	-5.54	1.37	1.46
34	N	1189	A	P-OP2	5.51	1.58	1.49
34	N	840	C	O3'-P	-5.51	1.54	1.61
34	N	783	A	N9-C4	-5.50	1.34	1.37
37	0	895	G	O3'-P	-5.49	1.54	1.61
34	N	693	A	O3'-P	-5.49	1.54	1.61
34	N	1802	A	C5-C6	-5.49	1.36	1.41
34	N	1328	A	O3'-P	-5.49	1.54	1.61
19	d	45	TYR	CG-CD1	-5.48	1.32	1.39
34	N	246	C	O3'-P	-5.48	1.54	1.61
37	0	963	G	O3'-P	-5.48	1.54	1.61
34	N	375	G	P-OP1	5.48	1.58	1.49
37	0	547	A	P-OP1	5.48	1.58	1.49
34	N	1670	C	O3'-P	-5.47	1.54	1.61
34	N	1021	A	C6-N6	-5.46	1.29	1.33
34	N	1708	C	O3'-P	-5.46	1.54	1.61
34	N	2445	G	P-OP2	5.46	1.58	1.49
34	N	2062	A	O5'-C5'	-5.46	1.34	1.42
34	N	973	A	O3'-P	-5.45	1.54	1.61
34	N	2266	A	P-OP1	5.45	1.58	1.49
37	0	885	G	O3'-P	-5.45	1.54	1.61
34	N	1973	G	O3'-P	-5.45	1.54	1.61
34	N	1770	G	O3'-P	-5.44	1.54	1.61
37	0	927	G	O3'-P	-5.44	1.54	1.61
34	N	468	G	O3'-P	-5.44	1.54	1.61
34	N	2643	G	O3'-P	-5.44	1.54	1.61
34	N	973	A	P-O5'	-5.43	1.54	1.59
34	N	188	G	O3'-P	-5.43	1.54	1.61
37	0	1497	G	O3'-P	-5.43	1.54	1.61
16	a	43	GLU	CG-CD	5.43	1.60	1.51
37	0	827	U	C4-O4	-5.43	1.19	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	742	A	O3'-P	-5.43	1.54	1.61
34	N	787	C	P-OP1	5.42	1.58	1.49
34	N	2715	C	O3'-P	-5.42	1.54	1.61
34	N	1648	U	O3'-P	-5.42	1.54	1.61
34	N	2821	A	P-O5'	-5.41	1.54	1.59
37	0	872	A	C6-N6	-5.41	1.29	1.33
34	N	2274	A	O3'-P	-5.41	1.54	1.61
34	N	990	A	P-OP2	5.40	1.58	1.49
34	N	1995	U	P-OP1	5.40	1.58	1.49
34	N	1990	C	C2'-C1'	-5.40	1.47	1.53
34	N	1265	A	P-O5'	-5.39	1.54	1.59
34	N	1786	A	O3'-P	-5.39	1.54	1.61
34	N	2243	U	N3-C4	-5.39	1.33	1.38
3	M	73	C	O3'-P	-5.39	1.54	1.61
34	N	2005	A	O3'-P	-5.39	1.54	1.61
34	N	528	A	C5-C6	-5.38	1.36	1.41
34	N	1934	C	O3'-P	-5.37	1.54	1.61
34	N	2720	U	C4-O4	-5.37	1.19	1.23
29	n	20	ASP	CB-CG	5.37	1.63	1.51
54	K	20	GLU	CD-OE1	5.37	1.31	1.25
34	N	66	C	O3'-P	-5.35	1.54	1.61
34	N	1255	U	O5'-C5'	-5.35	1.34	1.42
37	0	1322	C	O3'-P	5.35	1.67	1.61
37	0	391	G	O3'-P	-5.35	1.54	1.61
34	N	784	G	C4'-C3'	-5.34	1.47	1.52
34	N	2024	G	O3'-P	-5.34	1.54	1.61
17	b	102	ARG	CZ-NH2	5.34	1.40	1.33
34	N	1833	C	O3'-P	-5.34	1.54	1.61
34	N	2549	G	O3'-P	-5.34	1.54	1.61
37	0	318	G	O3'-P	-5.34	1.54	1.61
37	0	528	C	O3'-P	-5.34	1.54	1.61
34	N	771	G	O3'-P	-5.34	1.54	1.61
34	N	1272	A	O3'-P	-5.34	1.54	1.61
34	N	1136	G	P-OP1	5.33	1.58	1.49
37	0	887	G	O3'-P	-5.33	1.54	1.61
34	N	2724	U	O3'-P	-5.33	1.54	1.61
37	0	373	A	O3'-P	-5.31	1.54	1.61
34	N	1141	U	C2-O2	-5.31	1.17	1.22
34	N	2023	C	O3'-P	-5.31	1.54	1.61
37	0	938	A	O3'-P	-5.31	1.54	1.61
34	N	927	A	C2-N3	5.30	1.38	1.33
34	N	561	G	O3'-P	-5.30	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
37	0	554	A	O3'-P	-5.30	1.54	1.61
37	0	386	C	O3'-P	-5.29	1.54	1.61
34	N	2500	U	O3'-P	-5.29	1.54	1.61
34	N	1632	A	O3'-P	-5.28	1.54	1.61
34	N	2036	C	O3'-P	-5.28	1.54	1.61
34	N	2845	U	O3'-P	-5.28	1.54	1.61
5	P	11	PRO	N-CA	5.27	1.56	1.47
31	p	39	ARG	NE-CZ	5.27	1.39	1.33
37	0	964	A	P-OP1	5.26	1.57	1.49
37	0	1507	A	O3'-P	-5.26	1.54	1.61
30	o	21	TYR	CE1-CZ	-5.26	1.31	1.38
34	N	1993	U	P-O5'	-5.26	1.54	1.59
37	0	24	U	O3'-P	-5.26	1.54	1.61
34	N	261	G	O3'-P	-5.26	1.54	1.61
5	P	48	ARG	C-O	-5.25	1.13	1.23
37	0	586	C	O3'-P	-5.25	1.54	1.61
6	Q	127	PHE	CE1-CZ	-5.25	1.27	1.37
18	c	53	ARG	CG-CD	-5.24	1.38	1.51
25	j	41	ARG	CG-CD	5.24	1.65	1.51
34	N	2241	A	O3'-P	-5.24	1.54	1.61
34	N	2766	A	O3'-P	-5.24	1.54	1.61
34	N	1832	C	O3'-P	-5.24	1.54	1.61
37	0	886	G	O3'-P	-5.24	1.54	1.61
15	Z	39	GLY	C-O	-5.24	1.15	1.23
37	0	123	U	O3'-P	-5.23	1.54	1.61
34	N	430	A	C6-N1	-5.23	1.31	1.35
34	N	1837	C	O3'-P	-5.22	1.54	1.61
34	N	1991	U	O3'-P	-5.22	1.54	1.61
34	N	385	C	O3'-P	-5.21	1.54	1.61
34	N	800	A	N9-C4	-5.21	1.34	1.37
34	N	1327	A	O3'-P	-5.21	1.54	1.61
34	N	978	G	O3'-P	-5.21	1.54	1.61
34	N	2267	A	C6-N1	-5.21	1.31	1.35
34	N	2445	G	C2-N2	5.21	1.39	1.34
34	N	2430	A	P-OP2	5.21	1.57	1.49
15	Z	91	TYR	CE1-CZ	-5.20	1.31	1.38
34	N	469	G	O3'-P	-5.20	1.54	1.61
34	N	2592	G	O3'-P	-5.20	1.54	1.61
34	N	2490	G	O3'-P	-5.20	1.54	1.61
34	N	2838	G	O3'-P	-5.19	1.54	1.61
37	0	25	C	O3'-P	-5.19	1.54	1.61
37	0	291	U	O3'-P	-5.19	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	R	77	ILE	CB-CG1	-5.19	1.39	1.54
34	N	69	C	O3'-P	-5.19	1.54	1.61
34	N	976	G	O3'-P	-5.18	1.54	1.61
34	N	981	A	P-OP1	5.18	1.57	1.49
34	N	1637	A	O3'-P	-5.18	1.54	1.61
37	0	924	C	O3'-P	-5.17	1.54	1.61
37	0	751	U	O3'-P	-5.17	1.54	1.61
49	F	101	ARG	CZ-NH1	5.17	1.39	1.33
34	N	223	A	O3'-P	-5.17	1.54	1.61
37	0	18	C	O3'-P	-5.17	1.54	1.61
34	N	784	G	P-OP1	5.17	1.57	1.49
34	N	787	C	P-O5'	-5.17	1.54	1.59
34	N	604	G	O3'-P	-5.16	1.54	1.61
34	N	1202	G	O3'-P	-5.16	1.54	1.61
34	N	2875	C	O3'-P	-5.16	1.54	1.61
5	P	234	GLY	C-O	-5.16	1.15	1.23
34	N	664	G	O3'-P	-5.16	1.54	1.61
47	D	65	VAL	CB-CG1	-5.16	1.42	1.52
34	N	419	U	P-OP1	5.15	1.57	1.49
34	N	989	G	C3'-O3'	5.15	1.49	1.42
48	E	38	TYR	CB-CG	-5.15	1.44	1.51
19	d	24	TYR	CE2-CZ	5.15	1.45	1.38
34	N	2448	A	P-OP2	5.14	1.57	1.49
37	0	783	C	O3'-P	-5.14	1.54	1.61
37	0	816	A	P-OP1	5.14	1.57	1.49
34	N	467	G	O3'-P	-5.14	1.54	1.61
34	N	2078	C	O3'-P	-5.14	1.54	1.61
5	P	213	TRP	CA-C	-5.13	1.39	1.52
34	N	503	A	O3'-P	5.13	1.67	1.61
34	N	1666	G	O3'-P	-5.13	1.54	1.61
34	N	2267	A	P-OP1	5.13	1.57	1.49
34	N	2361	G	O3'-P	-5.13	1.54	1.61
30	o	49	TYR	CE2-CZ	-5.12	1.31	1.38
20	e	80	ARG	CB-CG	-5.12	1.38	1.52
37	0	1363	A	C6-N1	-5.12	1.31	1.35
5	P	235	GLY	CA-C	-5.12	1.43	1.51
34	N	1254	A	C2'-O2'	5.12	1.48	1.41
34	N	513	A	P-O5'	-5.12	1.54	1.59
34	N	2839	G	O3'-P	-5.12	1.55	1.61
34	N	1864	U	O3'-P	-5.11	1.55	1.61
34	N	2387	U	O3'-P	-5.11	1.55	1.61
34	N	2017	U	N1-C2	-5.11	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	N	1826	G	O3'-P	-5.11	1.55	1.61
38	1	96	TRP	CG-CD1	5.11	1.43	1.36
34	N	1638	C	P-O5'	-5.10	1.54	1.59
37	0	397	A	C6-N6	-5.10	1.29	1.33
34	N	587	C	O3'-P	-5.10	1.55	1.61
37	0	951	G	O3'-P	-5.09	1.55	1.61
34	N	2706	A	O3'-P	-5.09	1.55	1.61
37	0	1301	U	C2-N3	5.09	1.41	1.37
38	1	213	TYR	CB-CG	-5.09	1.44	1.51
37	0	506	G	O3'-P	-5.08	1.55	1.61
34	N	1308	A	O3'-P	-5.08	1.55	1.61
34	N	1679	A	O3'-P	-5.08	1.55	1.61
6	Q	113	SER	CB-OG	-5.08	1.35	1.42
37	0	1500	A	P-OP2	5.08	1.57	1.49
37	0	979	C	O3'-P	-5.07	1.55	1.61
34	N	918	A	O3'-P	-5.07	1.55	1.61
34	N	954	G	O3'-P	-5.07	1.55	1.61
37	0	881	G	O3'-P	-5.06	1.55	1.61
34	N	2580	U	O3'-P	-5.06	1.55	1.61
34	N	1985	C	O3'-P	-5.06	1.55	1.61
34	N	2611	C	P-OP2	5.06	1.57	1.49
5	P	236	GLU	CD-OE2	5.06	1.31	1.25
34	N	396	G	O3'-P	-5.06	1.55	1.61
34	N	2551	C	P-OP2	5.05	1.57	1.49
30	o	49	TYR	CG-CD1	-5.04	1.32	1.39
34	N	948	C	N1-C2	-5.04	1.35	1.40
34	N	1237	A	P-OP2	5.04	1.57	1.49
34	N	1253	A	C4'-C3'	-5.04	1.47	1.52
34	N	752	A	P-O5'	-5.04	1.54	1.59
2	s	132	TYR	CG-CD1	5.03	1.45	1.39
34	N	1817	G	O3'-P	-5.03	1.55	1.61
37	0	108	G	P-OP2	-5.03	1.40	1.49
37	0	827	U	C2-N3	-5.01	1.34	1.37
34	N	1313	U	P-OP1	5.01	1.57	1.49
37	0	1482	G	O3'-P	-5.00	1.55	1.61
37	0	935	A	O3'-P	-5.00	1.55	1.61
37	0	1408	A	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})
34	N	2506[A]	U	OP1-P-O3'	17.17	142.97	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	2506[B]	U	OP1-P-O3'	17.17	142.97	105.20
31	p	39	ARG	NE-CZ-NH1	16.09	128.35	120.30
31	p	39	ARG	NE-CZ-NH2	-14.86	112.87	120.30
3	M	73	C	O3'-P-O5'	14.33	131.23	104.00
34	N	2720	U	C2-N3-C4	-13.77	118.74	127.00
34	N	2522	U	C2-N3-C4	-13.74	118.75	127.00
34	N	2062	A	O5'-P-OP1	-13.32	93.71	105.70
34	N	467	G	O5'-P-OP1	-13.17	93.84	105.70
34	N	2836	U	O5'-P-OP1	-12.85	94.14	105.70
55	t	5	LEU	CB-CG-CD2	12.65	132.50	111.00
19	d	53	ARG	NE-CZ-NH1	12.38	126.49	120.30
25	j	41	ARG	NE-CZ-NH1	12.36	126.48	120.30
34	N	2506[A]	U	O3'-P-O5'	-12.24	80.74	104.00
34	N	2506[B]	U	O3'-P-O5'	-12.24	80.74	104.00
34	N	1996	C	O5'-P-OP2	-12.24	94.69	105.70
34	N	2873	A	N1-C6-N6	-12.12	111.33	118.60
34	N	499	U	C2-N3-C4	-12.03	119.78	127.00
34	N	2821	A	O5'-P-OP1	-11.86	95.03	105.70
14	Y	18	ARG	NE-CZ-NH2	-11.60	114.50	120.30
26	k	28	ARG	NE-CZ-NH2	-11.54	114.53	120.30
29	n	20	ASP	CB-CG-OD1	11.50	128.65	118.30
37	0	559	A	C6-N1-C2	-11.34	111.80	118.60
37	0	1301	U	C2-N3-C4	-11.27	120.24	127.00
34	N	1665	A	O5'-P-OP1	-11.21	95.61	105.70
34	N	2505	G	P-O3'-C3'	-11.05	106.43	119.70
34	N	228	C	O5'-P-OP1	-11.00	95.80	105.70
37	0	752	G	O5'-P-OP1	-10.99	95.81	105.70
15	Z	16	ARG	NE-CZ-NH2	-10.95	114.83	120.30
31	p	34	ARG	NE-CZ-NH1	-10.95	114.83	120.30
34	N	2447	G	O5'-P-OP1	-10.85	95.93	105.70
12	W	116	ARG	NE-CZ-NH2	-10.82	114.89	120.30
34	N	2765	A	N1-C6-N6	-10.75	112.15	118.60
47	D	122	ARG	NE-CZ-NH1	10.73	125.67	120.30
5	P	214	ARG	NE-CZ-NH2	-10.65	114.97	120.30
34	N	1941	C	O5'-P-OP1	-10.64	96.13	105.70
49	F	109	ARG	NE-CZ-NH1	10.56	125.58	120.30
34	N	2067	G	O5'-P-OP1	-10.55	96.20	105.70
34	N	27	G	O5'-P-OP1	-10.47	96.28	105.70
37	0	16	A	O5'-P-OP1	-10.41	96.33	105.70
37	0	1497	G	O5'-P-OP2	-10.40	96.34	105.70
19	d	53	ARG	NE-CZ-NH2	-10.34	115.13	120.30
6	Q	13	ARG	NE-CZ-NH2	10.25	125.42	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
57	v	34	ARG	NE-CZ-NH2	-10.22	115.19	120.30
34	N	1965	C	O5'-P-OP2	-10.10	96.61	105.70
38	1	21	ARG	NE-CZ-NH1	10.07	125.33	120.30
19	d	6	ARG	NE-CZ-NH2	10.05	125.32	120.30
34	N	474	G	O5'-P-OP1	-9.94	96.76	105.70
34	N	953	G	O5'-P-OP1	-9.90	96.79	105.70
34	N	2059	A	O5'-P-OP2	-9.87	96.81	105.70
37	0	21	G	O5'-P-OP1	9.86	122.53	110.70
34	N	2072	C	O5'-P-OP1	-9.84	96.84	105.70
34	N	306	U	C2-N3-C4	-9.81	121.12	127.00
34	N	2060	A	O5'-P-OP1	-9.80	96.88	105.70
34	N	801	G	O5'-P-OP2	-9.67	97.00	105.70
10	U	27	ARG	NE-CZ-NH1	-9.65	115.47	120.30
34	N	2726	A	O5'-P-OP1	-9.55	97.11	105.70
34	N	537	G	O5'-P-OP1	-9.53	97.12	105.70
17	b	102	ARG	NE-CZ-NH2	9.51	125.06	120.30
34	N	2873	A	C5-C6-N6	9.49	131.29	123.70
34	N	1809	A	O5'-P-OP1	-9.44	97.20	105.70
33	r	36	ARG	NE-CZ-NH1	-9.42	115.59	120.30
37	0	795	C	O5'-P-OP1	-9.40	97.24	105.70
34	N	2776	A	C4-N9-C1'	9.38	143.18	126.30
34	N	2776	A	C8-N9-C1'	-9.37	110.83	127.70
43	6	109	ARG	NE-CZ-NH1	9.37	124.98	120.30
14	Y	47	ARG	NE-CZ-NH2	9.34	124.97	120.30
34	N	805	G	O5'-P-OP1	-9.28	97.34	105.70
34	N	2044	C	O5'-P-OP1	-9.26	97.36	105.70
34	N	1190	G	O5'-P-OP2	9.26	121.81	110.70
5	P	258	ARG	NE-CZ-NH1	-9.25	115.67	120.30
34	N	2543	G	O5'-P-OP1	-9.22	97.40	105.70
41	4	111	MET	CG-SD-CE	-9.16	85.55	100.20
34	N	2711	A	O5'-P-OP2	9.15	121.68	110.70
26	k	57	ARG	NE-CZ-NH2	9.14	124.87	120.30
34	N	1253	A	O5'-P-OP1	-9.10	97.51	105.70
34	N	1639	C	O5'-P-OP1	-9.10	97.51	105.70
34	N	2513	A	O5'-P-OP2	-9.09	97.52	105.70
34	N	2022	U	O5'-P-OP1	-9.06	97.55	105.70
18	c	72	ARG	NE-CZ-NH2	-9.05	115.77	120.30
34	N	2456	C	O5'-P-OP1	-8.98	97.62	105.70
38	1	21	ARG	NE-CZ-NH2	-8.95	115.83	120.30
17	b	102	ARG	NE-CZ-NH1	-8.85	115.88	120.30
37	0	968	A	O5'-P-OP2	-8.84	97.75	105.70
14	Y	78	ARG	NE-CZ-NH2	8.83	124.71	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
49	F	92	ARG	NE-CZ-NH1	8.82	124.71	120.30
34	N	684	G	O5'-P-OP1	-8.69	97.88	105.70
17	b	30	ARG	NE-CZ-NH2	-8.64	115.98	120.30
34	N	2725	A	O5'-P-OP1	-8.64	97.92	105.70
34	N	1798	U	O5'-P-OP2	-8.64	97.92	105.70
5	P	270	ARG	NE-CZ-NH2	-8.62	115.99	120.30
51	H	54	ARG	NE-CZ-NH2	-8.61	115.99	120.30
34	N	1994	C	O5'-P-OP1	-8.59	97.97	105.70
18	c	21	ARG	NE-CZ-NH1	-8.58	116.01	120.30
34	N	2497	A	O5'-P-OP2	8.58	121.00	110.70
52	I	70	ARG	NE-CZ-NH1	8.53	124.56	120.30
4	O	90	C	O5'-P-OP1	-8.52	98.03	105.70
37	0	816	A	O5'-P-OP1	-8.51	98.05	105.70
16	a	69	ARG	NE-CZ-NH2	8.50	124.55	120.30
41	4	157	ARG	NE-CZ-NH1	-8.49	116.06	120.30
56	u	10	ARG	CB-CG-CD	-8.44	89.65	111.60
32	q	8	ARG	NE-CZ-NH1	8.42	124.51	120.30
37	0	726	C	O5'-P-OP1	-8.29	98.23	105.70
5	P	271	ARG	NE-CZ-NH2	-8.29	116.16	120.30
5	P	221	ARG	CG-CD-NE	-8.23	94.52	111.80
34	N	2248	C	O5'-P-OP1	-8.19	98.33	105.70
37	0	1358	U	N3-C4-O4	-8.19	113.67	119.40
34	N	234	U	N3-C4-O4	-8.15	113.70	119.40
50	G	9	ARG	NE-CZ-NH1	8.15	124.37	120.30
34	N	2267	A	O5'-P-OP2	-8.14	98.38	105.70
37	0	674	G	O5'-P-OP1	-8.12	98.39	105.70
34	N	812	C	O5'-P-OP2	-8.11	98.40	105.70
19	d	51	ARG	NE-CZ-NH1	8.10	124.35	120.30
19	d	51	ARG	NE-CZ-NH2	-8.08	116.26	120.30
34	N	671	C	O5'-P-OP1	-8.08	98.43	105.70
3	M	73	C	OP1-P-O3'	-8.07	87.44	105.20
13	X	78	ARG	NE-CZ-NH2	-8.07	116.27	120.30
7	R	49	ARG	NE-CZ-NH1	-8.04	116.28	120.30
34	N	1141	U	N3-C4-O4	-8.04	113.77	119.40
34	N	234	U	C5-C4-O4	8.02	130.71	125.90
12	W	116	ARG	NE-CZ-NH1	8.02	124.31	120.30
17	b	30	ARG	NE-CZ-NH1	8.02	124.31	120.30
49	F	92	ARG	NE-CZ-NH2	-8.02	116.29	120.30
39	2	156	ARG	NE-CZ-NH1	8.01	124.31	120.30
41	4	38	VAL	CG1-CB-CG2	-8.01	98.08	110.90
48	E	12	ARG	NE-CZ-NH1	-8.00	116.30	120.30
29	n	7	LYS	CD-CE-NZ	7.99	130.08	111.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
19	d	3	ARG	NE-CZ-NH1	-7.98	116.31	120.30
7	R	69	ARG	NE-CZ-NH2	-7.97	116.31	120.30
7	R	61	ARG	NE-CZ-NH1	7.95	124.27	120.30
19	d	13	ARG	NE-CZ-NH2	7.93	124.26	120.30
34	N	2222	C	O5'-P-OP1	-7.93	98.57	105.70
34	N	2847	U	O5'-P-OP1	-7.90	98.59	105.70
34	N	1141	U	C5-C4-O4	7.87	130.62	125.90
34	N	704	G	O5'-P-OP1	-7.86	98.63	105.70
37	0	1191	A	O5'-P-OP1	-7.86	98.63	105.70
37	0	439	U	C2-N3-C4	-7.85	122.29	127.00
37	0	1054	C	O5'-P-OP2	7.85	120.12	110.70
34	N	2061	G	O4'-C1'-N9	7.81	114.45	108.20
34	N	927	A	C6-N1-C2	-7.79	113.92	118.60
19	d	58	ARG	NE-CZ-NH2	-7.77	116.42	120.30
34	N	581	C	O5'-P-OP1	-7.76	98.72	105.70
34	N	2277	G	O5'-P-OP1	-7.75	98.73	105.70
34	N	2765	A	C5-C6-N6	7.74	129.89	123.70
34	N	974	G	N9-C1'-C2'	7.73	124.05	114.00
34	N	1136	G	P-O5'-C5'	-7.71	108.56	120.90
34	N	1255	U	O5'-P-OP2	7.71	119.95	110.70
40	3	5	LEU	CA-CB-CG	7.67	132.95	115.30
34	N	1611	C	O5'-P-OP2	-7.66	98.81	105.70
34	N	430	A	N1-C6-N6	-7.65	114.01	118.60
42	5	79	ARG	NE-CZ-NH1	7.65	124.12	120.30
34	N	2544	G	O5'-P-OP2	-7.64	98.83	105.70
34	N	813	U	O5'-P-OP2	-7.63	98.83	105.70
34	N	2344	U	N3-C4-O4	-7.62	114.07	119.40
34	N	2447	G	P-O3'-C3'	7.62	128.84	119.70
45	8	49	ARG	NE-CZ-NH1	7.62	124.11	120.30
34	N	2022	U	OP1-P-OP2	7.60	131.01	119.60
34	N	698	C	O5'-P-OP2	-7.60	98.86	105.70
27	l	52	ARG	NE-CZ-NH1	-7.60	116.50	120.30
34	N	2729	G	O5'-P-OP1	-7.59	98.86	105.70
34	N	787	C	O5'-P-OP1	7.59	119.81	110.70
5	P	177	ARG	NE-CZ-NH1	-7.58	116.51	120.30
34	N	2060	A	O5'-P-OP2	7.58	119.79	110.70
37	0	567	G	O5'-P-OP1	-7.58	98.88	105.70
34	N	1255	U	O5'-P-OP1	-7.57	98.89	105.70
43	6	3	ARG	NE-CZ-NH1	7.56	124.08	120.30
37	0	37	U	N3-C4-O4	-7.55	114.11	119.40
34	N	512	G	P-O3'-C3'	7.55	128.76	119.70
34	N	784	G	C2'-C3'-O3'	7.51	126.03	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
37	0	571	U	C2-N3-C4	-7.49	122.51	127.00
27	l	29	ARG	NE-CZ-NH1	-7.46	116.57	120.30
37	0	368	U	N3-C4-O4	-7.46	114.18	119.40
34	N	1900	A	P-O3'-C3'	7.44	128.63	119.70
34	N	2693	G	O5'-P-OP1	-7.41	99.03	105.70
34	N	1639	C	O5'-P-OP2	7.40	119.58	110.70
34	N	1930	G	O5'-P-OP1	-7.38	99.06	105.70
34	N	1932	A	O5'-P-OP1	-7.38	99.06	105.70
34	N	850	U	C2-N3-C4	-7.37	122.58	127.00
34	N	2542	A	O5'-P-OP2	-7.36	99.08	105.70
34	N	784	G	P-O3'-C3'	7.35	128.52	119.70
37	0	498	A	C6-N1-C2	-7.34	114.20	118.60
50	G	85	ARG	NE-CZ-NH1	7.34	123.97	120.30
34	N	2692	G	O5'-P-OP2	-7.33	99.10	105.70
34	N	932	U	N3-C4-O4	-7.33	114.27	119.40
37	0	1363	A	N1-C6-N6	-7.33	114.20	118.60
37	0	1331	G	O5'-P-OP1	-7.32	99.11	105.70
34	N	2072	C	O5'-P-OP2	7.31	119.47	110.70
14	Y	29	LYS	CD-CE-NZ	-7.31	94.89	111.70
34	N	2256	G	O5'-P-OP1	-7.30	99.13	105.70
37	0	1507	A	O5'-P-OP1	-7.30	99.13	105.70
37	0	501	C	O5'-P-OP1	-7.25	99.18	105.70
34	N	2714	G	O5'-P-OP2	7.24	119.39	110.70
34	N	2497	A	C5'-C4'-C3'	-7.24	104.42	116.00
34	N	795	C	O5'-P-OP1	-7.24	99.19	105.70
25	j	14	ARG	CG-CD-NE	-7.20	96.69	111.80
34	N	760	G	OP1-P-O3'	7.16	120.96	105.20
56	u	74	ARG	NE-CZ-NH1	7.16	123.88	120.30
7	R	81	GLY	C-N-CA	-7.15	107.28	122.30
34	N	510	C	O5'-P-OP2	-7.14	99.27	105.70
44	7	80	ARG	NE-CZ-NH2	-7.13	116.73	120.30
34	N	1145	C	O5'-P-OP1	-7.13	99.28	105.70
34	N	2506[A]	U	OP2-P-O3'	-7.13	89.52	105.20
34	N	2506[B]	U	OP2-P-O3'	-7.13	89.52	105.20
14	Y	82	LEU	CA-CB-CG	7.12	131.69	115.30
55	t	5	LEU	CB-CG-CD1	-7.11	98.92	111.00
34	N	1026	G	O5'-P-OP2	-7.10	99.31	105.70
34	N	2637	U	O5'-P-OP1	-7.10	99.31	105.70
34	N	2344	U	O5'-P-OP1	-7.08	99.33	105.70
14	Y	59	ARG	NE-CZ-NH1	7.08	123.84	120.30
34	N	2344	U	C5-C4-O4	7.06	130.14	125.90
37	0	368	U	C5-C4-O4	7.06	130.14	125.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	1236	G	P-O3'-C3'	7.06	128.17	119.70
34	N	1962	C	O5'-P-OP1	-7.05	99.36	105.70
37	0	6	G	O5'-P-OP2	-7.04	99.36	105.70
54	K	43	ARG	NE-CZ-NH1	7.01	123.81	120.30
37	0	24	U	N1-C2-O2	-6.99	117.91	122.80
34	N	1790	C	O5'-P-OP1	-6.98	99.42	105.70
37	0	827	U	N3-C4-O4	-6.98	114.51	119.40
34	N	578	G	O5'-P-OP1	6.97	119.07	110.70
34	N	740	C	O5'-P-OP1	-6.97	99.43	105.70
43	6	109	ARG	CG-CD-NE	-6.96	97.19	111.80
34	N	2304	G	O5'-P-OP1	-6.95	99.44	105.70
34	N	967	U	O5'-P-OP1	-6.95	99.45	105.70
32	q	13	ARG	NE-CZ-NH1	-6.92	116.84	120.30
40	3	3	ARG	NE-CZ-NH1	6.91	123.76	120.30
34	N	1944	U	O5'-P-OP2	-6.91	99.48	105.70
34	N	2311	A	P-O3'-C3'	6.91	127.99	119.70
37	0	37	U	C5-C4-O4	6.89	130.04	125.90
34	N	196	A	O5'-P-OP1	-6.88	99.50	105.70
34	N	2059	A	O5'-P-OP1	6.87	118.94	110.70
31	p	14	ARG	NE-CZ-NH1	-6.86	116.87	120.30
7	R	77	ILE	CG1-CB-CG2	-6.86	96.31	111.40
18	c	93	ARG	CG-CD-NE	-6.85	97.41	111.80
34	N	2021	C	O5'-P-OP2	-6.85	99.54	105.70
34	N	2711	A	O5'-P-OP1	-6.84	99.54	105.70
37	0	865	A	O5'-P-OP1	-6.83	99.56	105.70
32	q	8	ARG	CD-NE-CZ	-6.82	114.05	123.60
25	j	41	ARG	CD-NE-CZ	6.82	133.14	123.60
6	Q	156	PHE	CB-CG-CD2	-6.81	116.03	120.80
37	0	904	U	O5'-P-OP1	-6.81	99.57	105.70
34	N	1607	C	O5'-P-OP1	-6.80	99.58	105.70
34	N	512	G	O4'-C1'-N9	6.80	113.64	108.20
34	N	630	G	O5'-P-OP1	-6.79	99.59	105.70
22	g	12	ARG	NE-CZ-NH1	6.77	123.69	120.30
34	N	1021	A	N1-C6-N6	-6.77	114.54	118.60
5	P	101	ARG	NE-CZ-NH2	-6.76	116.92	120.30
34	N	1836	C	O5'-P-OP1	-6.76	99.61	105.70
37	0	812	G	P-O3'-C3'	6.76	127.81	119.70
37	0	1358	U	C5-C4-O4	6.76	129.96	125.90
34	N	2543	G	P-O5'-C5'	-6.76	110.09	120.90
39	2	172	ARG	NE-CZ-NH2	-6.76	116.92	120.30
37	0	1349	A	O5'-P-OP2	6.74	118.79	110.70
37	0	1343	G	O5'-P-OP1	-6.74	99.64	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	2272	U	N3-C4-O4	-6.73	114.69	119.40
34	N	2576	G	O5'-P-OP2	-6.73	99.64	105.70
34	N	679	C	O5'-P-OP1	-6.72	99.65	105.70
37	0	1280	A	O5'-P-OP2	-6.69	99.68	105.70
42	5	24	ARG	NE-CZ-NH1	6.69	123.64	120.30
14	Y	59	ARG	NE-CZ-NH2	-6.67	116.97	120.30
16	a	4	ARG	NE-CZ-NH2	-6.67	116.97	120.30
34	N	932	U	C5-C4-O4	6.66	129.89	125.90
34	N	961	C	O5'-P-OP2	-6.65	99.72	105.70
37	0	261	U	O5'-P-OP1	-6.61	99.75	105.70
37	0	738	C	O5'-P-OP1	-6.61	99.76	105.70
49	F	90	ARG	NE-CZ-NH2	-6.60	117.00	120.30
43	6	95	ARG	NE-CZ-NH1	6.58	123.59	120.30
34	N	1666	G	O4'-C4'-C3'	-6.57	97.43	104.00
34	N	2060	A	O3'-P-O5'	6.56	116.46	104.00
34	N	2656	U	C2-N1-C1'	6.56	125.57	117.70
34	N	51	G	O4'-C1'-N9	6.54	113.43	108.20
34	N	2516	A	O5'-P-OP1	-6.54	99.81	105.70
9	T	3	ARG	NE-CZ-NH2	6.54	123.57	120.30
34	N	1648	U	P-O5'-C5'	-6.53	110.44	120.90
34	N	963	U	O5'-P-OP2	6.51	118.52	110.70
48	E	9	ARG	NE-CZ-NH1	6.51	123.56	120.30
50	G	53	ARG	NE-CZ-NH1	-6.50	117.05	120.30
33	r	24	ARG	NE-CZ-NH2	6.50	123.55	120.30
34	N	729	G	O5'-P-OP2	-6.49	99.86	105.70
17	b	25	ARG	NE-CZ-NH1	-6.47	117.06	120.30
34	N	204	A	O5'-P-OP2	-6.47	99.88	105.70
34	N	1439	A	O5'-P-OP1	-6.47	99.88	105.70
25	j	41	ARG	NH1-CZ-NH2	-6.46	112.29	119.40
34	N	555	G	O5'-P-OP1	-6.46	99.89	105.70
34	N	1902	C	O5'-P-OP1	-6.46	99.89	105.70
34	N	2048	G	O5'-P-OP1	-6.46	99.89	105.70
34	N	188	G	O5'-P-OP1	-6.45	99.89	105.70
16	a	69	ARG	NE-CZ-NH1	-6.45	117.08	120.30
5	P	87	ARG	NE-CZ-NH2	6.44	123.52	120.30
37	0	829	G	O5'-P-OP1	-6.43	99.91	105.70
34	N	2074	U	O5'-P-OP2	-6.42	99.92	105.70
13	X	71	ARG	NE-CZ-NH1	6.42	123.51	120.30
49	F	3	ARG	NE-CZ-NH1	6.41	123.50	120.30
48	E	83	ARG	NE-CZ-NH1	6.41	123.50	120.30
21	f	88	ARG	NE-CZ-NH1	-6.40	117.10	120.30
34	N	2443	C	O4'-C4'-C3'	-6.40	97.60	104.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	747	U	O5'-P-OP1	-6.39	99.95	105.70
34	N	310	A	O5'-P-OP1	-6.39	99.95	105.70
34	N	752	A	N9-C1'-C2'	6.39	122.31	114.00
34	N	1299	G	O5'-P-OP1	-6.39	99.95	105.70
29	n	17	ARG	NE-CZ-NH2	-6.39	117.11	120.30
12	W	99	ARG	NE-CZ-NH1	6.38	123.49	120.30
17	b	13	ARG	NE-CZ-NH1	6.38	123.49	120.30
34	N	1664	A	O5'-P-OP2	6.38	118.36	110.70
37	0	1279	G	N9-C1'-C2'	6.38	122.29	114.00
37	0	864	A	C6-N1-C2	-6.37	114.78	118.60
37	0	827	U	C5-C4-O4	6.37	129.72	125.90
34	N	2725	A	C3'-C2'-O2'	-6.36	94.86	113.30
15	Z	40	ARG	NE-CZ-NH2	6.36	123.48	120.30
37	0	397	A	N1-C6-N6	-6.36	114.79	118.60
34	N	792	A	O5'-P-OP1	-6.34	99.99	105.70
40	3	3	ARG	NE-CZ-NH2	-6.34	117.13	120.30
34	N	2055	C	O5'-P-OP1	-6.32	100.01	105.70
34	N	650	C	O5'-P-OP1	-6.32	100.01	105.70
28	m	11	ARG	NE-CZ-NH2	6.32	123.46	120.30
34	N	1313	U	C2-N1-C1'	6.31	125.28	117.70
34	N	2423	U	O5'-P-OP2	-6.31	100.02	105.70
34	N	2522	U	N1-C2-O2	-6.31	118.38	122.80
29	n	20	ASP	CB-CG-OD2	-6.31	112.62	118.30
34	N	2061	G	O5'-P-OP1	-6.31	100.02	105.70
37	0	890	G	O4'-C1'-N9	6.31	113.25	108.20
34	N	1933	G	O5'-P-OP1	-6.31	100.02	105.70
34	N	140	C	C2-N1-C1'	6.30	125.73	118.80
34	N	1967	C	O5'-P-OP1	-6.30	100.03	105.70
55	t	37	ARG	NE-CZ-NH1	6.30	123.45	120.30
34	N	995	C	C4'-C3'-O3'	-6.28	96.21	109.40
37	0	563	A	N1-C6-N6	-6.28	114.83	118.60
37	0	880	C	O5'-P-OP2	-6.27	100.06	105.70
5	P	229	ASP	CB-CG-OD1	-6.26	112.67	118.30
57	v	34	ARG	NE-CZ-NH1	6.25	123.42	120.30
34	N	1205	A	P-O3'-C3'	6.24	127.19	119.70
34	N	2364	C	O4'-C4'-C3'	-6.21	97.79	104.00
34	N	1313	U	N1-C1'-C2'	6.20	122.06	114.00
37	0	131	A	O5'-P-OP1	-6.19	100.13	105.70
47	D	122	ARG	NE-CZ-NH2	-6.19	117.20	120.30
34	N	1936	A	C4'-C3'-O3'	-6.18	96.42	109.40
37	0	1054	C	O5'-P-OP1	-6.18	100.14	105.70
19	d	48	ARG	NE-CZ-NH2	6.18	123.39	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	2258	C	O5'-P-OP1	-6.18	100.14	105.70
34	N	1141	U	N3-C2-O2	-6.17	117.88	122.20
34	N	310	A	C6-C5-N7	-6.14	128.00	132.30
34	N	1865	U	O5'-P-OP1	-6.14	100.17	105.70
37	0	1356	G	O5'-P-OP1	-6.14	100.18	105.70
32	q	25	LYS	CD-CE-NZ	-6.14	97.59	111.70
34	N	983	A	C5'-C4'-O4'	-6.14	101.73	109.10
34	N	2243	U	O5'-P-OP2	6.13	118.05	110.70
34	N	1844	C	O5'-P-OP1	-6.12	100.19	105.70
37	0	540	G	O5'-P-OP1	-6.12	100.19	105.70
37	0	576	C	O5'-P-OP2	-6.12	100.19	105.70
34	N	91	A	O5'-P-OP2	-6.12	100.19	105.70
34	N	2725	A	O5'-P-OP2	6.10	118.02	110.70
5	P	228	VAL	CG1-CB-CG2	-6.09	101.16	110.90
27	l	6	LEU	CB-CG-CD1	6.09	121.35	111.00
4	O	94	A	O5'-P-OP1	-6.08	100.23	105.70
5	P	229	ASP	CB-CG-OD2	6.08	123.77	118.30
37	0	1238	A	C6-C5-N7	-6.08	128.04	132.30
34	N	1501	G	O5'-P-OP1	-6.08	100.23	105.70
34	N	670	A	P-O3'-C3'	6.06	126.97	119.70
34	N	1264	A	O5'-P-OP1	-6.06	100.25	105.70
37	0	31	G	O5'-P-OP2	-6.05	100.25	105.70
54	K	57	ARG	CA-CB-CG	6.04	126.68	113.40
34	N	503	A	C4-C5-C6	6.03	120.02	117.00
15	Z	81	ARG	NE-CZ-NH2	-6.03	117.28	120.30
16	a	54	LEU	CB-CG-CD1	-6.03	100.75	111.00
19	d	28	ARG	NE-CZ-NH1	6.02	123.31	120.30
51	H	63	ARG	NE-CZ-NH1	6.01	123.31	120.30
37	0	762	U	O5'-P-OP1	-6.01	100.29	105.70
34	N	1328	A	O5'-P-OP1	6.01	117.91	110.70
34	N	2603	G	O5'-P-OP1	-6.01	100.30	105.70
34	N	948	C	O5'-P-OP1	6.00	117.90	110.70
49	F	107	ARG	NE-CZ-NH2	-6.00	117.30	120.30
6	Q	109	VAL	CG1-CB-CG2	-5.99	101.31	110.90
34	N	2576	G	O5'-P-OP1	5.99	117.89	110.70
37	0	529	G	O5'-P-OP2	-5.99	100.31	105.70
37	0	884	U	N3-C4-O4	-5.99	115.21	119.40
16	a	69	ARG	CG-CD-NE	5.98	124.36	111.80
9	T	153	ARG	NE-CZ-NH2	5.97	123.29	120.30
34	N	2512	C	O5'-P-OP1	-5.97	100.33	105.70
37	0	2	A	O5'-P-OP1	-5.97	100.33	105.70
37	0	687	A	O5'-P-OP1	-5.97	100.33	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	1795	C	O5'-P-OP1	-5.96	100.33	105.70
37	0	1238	A	C4-C5-C6	5.96	119.98	117.00
12	W	37	ARG	NE-CZ-NH2	5.96	123.28	120.30
34	N	536	G	O5'-P-OP2	-5.95	100.34	105.70
50	G	59	ARG	NE-CZ-NH1	5.95	123.28	120.30
5	P	177	ARG	CG-CD-NE	-5.95	99.31	111.80
37	0	59	A	O5'-P-OP1	5.94	117.83	110.70
34	N	2246	G	O4'-C4'-C3'	-5.94	98.06	104.00
34	N	404	A	P-O3'-C3'	5.93	126.82	119.70
46	9	60	ASP	CB-CG-OD2	5.93	123.64	118.30
31	p	12	ARG	NE-CZ-NH1	-5.92	117.34	120.30
29	n	52	ARG	NE-CZ-NH2	5.92	123.26	120.30
32	q	8	ARG	CG-CD-NE	5.91	124.22	111.80
30	o	10	LYS	CD-CE-NZ	5.91	125.30	111.70
34	N	310	A	C4-C5-C6	5.91	119.96	117.00
37	0	1301	U	N1-C1'-C2'	5.91	121.68	114.00
45	8	18	ARG	CB-CG-CD	-5.91	96.24	111.60
34	N	2699	C	O5'-P-OP1	-5.90	100.39	105.70
34	N	2267	A	N1-C6-N6	-5.90	115.06	118.60
13	X	23	LYS	CD-CE-NZ	-5.90	98.14	111.70
37	0	388	G	P-O3'-C3'	5.90	126.78	119.70
15	Z	136	MET	CG-SD-CE	5.89	109.63	100.20
34	N	27	G	C5'-C4'-O4'	-5.89	102.03	109.10
7	R	81	GLY	O-C-N	-5.89	113.19	123.20
34	N	466	A	O5'-P-OP1	5.88	117.76	110.70
34	N	2503	A	OP1-P-OP2	-5.88	110.78	119.60
34	N	2273	A	O5'-P-OP1	-5.88	100.41	105.70
40	3	91	LEU	CB-CG-CD1	-5.87	101.02	111.00
34	N	673	C	O5'-P-OP1	5.87	117.74	110.70
34	N	2028	U	O5'-P-OP1	-5.87	100.42	105.70
37	0	1347	G	P-O3'-C3'	5.86	126.73	119.70
7	R	65	THR	C-N-CA	-5.85	110.02	122.30
34	N	1134	A	P-O3'-C3'	5.84	126.71	119.70
34	N	578	G	O5'-P-OP2	-5.84	100.44	105.70
41	4	69	ARG	NE-CZ-NH1	5.84	123.22	120.30
14	Y	30	THR	N-CA-CB	5.83	121.38	110.30
37	0	1182	G	P-O3'-C3'	5.83	126.70	119.70
34	N	820	A	O4'-C4'-C3'	-5.83	98.17	104.00
34	N	2272	U	C5-C4-O4	5.83	129.40	125.90
31	p	12	ARG	CA-CB-CG	5.83	126.22	113.40
34	N	503	A	C6-C5-N7	-5.83	128.22	132.30
41	4	138	ARG	NE-CZ-NH1	-5.83	117.39	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	1427	A	O5'-P-OP1	-5.82	100.46	105.70
37	0	1201	A	P-O3'-C3'	5.82	126.68	119.70
34	N	1673	G	O5'-P-OP2	5.81	117.68	110.70
45	8	12	ARG	NE-CZ-NH2	-5.81	117.39	120.30
34	N	2383	G	O5'-P-OP2	-5.80	100.48	105.70
34	N	477	A	O5'-P-OP2	-5.80	100.48	105.70
32	q	45	ARG	NE-CZ-NH1	5.80	123.20	120.30
48	E	14	ARG	NE-CZ-NH1	5.80	123.20	120.30
40	3	70	ARG	NE-CZ-NH1	5.79	123.20	120.30
34	N	783	A	O5'-P-OP2	-5.79	100.49	105.70
34	N	2689	U	OP1-P-OP2	5.79	128.28	119.60
37	0	9	G	O5'-P-OP1	5.79	117.65	110.70
34	N	675	A	O5'-P-OP2	5.78	117.63	110.70
34	N	1617	C	O5'-P-OP2	-5.78	100.50	105.70
34	N	775	G	O5'-P-OP1	-5.77	100.50	105.70
34	N	679	C	OP1-P-OP2	5.77	128.26	119.60
34	N	2682	A	O5'-P-OP2	5.77	117.62	110.70
34	N	301	G	C4-N9-C1'	-5.76	119.01	126.50
34	N	859	G	P-O3'-C3'	5.76	126.61	119.70
37	0	1254	A	O5'-P-OP1	-5.76	100.52	105.70
34	N	1348	C	O5'-P-OP1	-5.75	100.52	105.70
42	5	90	MET	C-N-CA	5.75	136.09	121.70
26	k	37	ARG	NE-CZ-NH2	5.75	123.17	120.30
34	N	2688	G	O5'-P-OP1	-5.74	100.53	105.70
34	N	780	G	O5'-P-OP2	-5.74	100.54	105.70
16	a	49	GLU	OE1-CD-OE2	-5.72	116.44	123.30
34	N	1570	A	O5'-P-OP1	-5.71	100.56	105.70
34	N	504	A	O5'-P-OP2	-5.70	100.57	105.70
45	8	45	ARG	NE-CZ-NH1	5.70	123.15	120.30
4	O	44	G	N9-C1'-C2'	5.70	121.41	114.00
34	N	1843	C	O5'-P-OP1	-5.70	100.57	105.70
34	N	242	G	C4'-C3'-O3'	5.70	124.39	113.00
34	N	1130	U	O5'-P-OP1	-5.69	100.58	105.70
34	N	2645	G	C5'-C4'-C3'	-5.69	106.90	116.00
34	N	860	U	OP1-P-OP2	-5.69	111.07	119.60
34	N	1676	A	O5'-P-OP2	5.69	117.53	110.70
37	0	176	C	O5'-P-OP1	-5.68	100.59	105.70
34	N	1565	C	C5'-C4'-C3'	-5.68	106.92	116.00
51	H	54	ARG	NE-CZ-NH1	5.68	123.14	120.30
34	N	2873	A	C3'-C2'-C1'	5.67	106.04	101.50
51	H	70	LEU	CB-CG-CD2	-5.67	101.37	111.00
34	N	2499	C	O5'-P-OP1	5.66	117.50	110.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	Q	124	ARG	NE-CZ-NH1	5.65	123.13	120.30
5	P	130	LEU	CA-CB-CG	5.65	128.29	115.30
45	8	123	ARG	NE-CZ-NH1	5.64	123.12	120.30
20	e	80	ARG	NE-CZ-NH2	-5.63	117.48	120.30
34	N	1788	C	OP1-P-O3'	5.63	117.58	105.20
5	P	133	ARG	NE-CZ-NH2	5.62	123.11	120.30
34	N	2720	U	N1-C2-O2	-5.62	118.86	122.80
5	P	187	ASP	CB-CG-OD1	5.62	123.36	118.30
34	N	2260	C	O5'-P-OP1	-5.61	100.65	105.70
34	N	2580	U	O5'-P-OP2	-5.61	100.65	105.70
18	c	89	ARG	NE-CZ-NH2	5.61	123.10	120.30
37	0	1067	A	O5'-P-OP1	-5.61	100.65	105.70
37	0	1331	G	O4'-C1'-N9	5.61	112.69	108.20
34	N	2498	C	OP1-P-OP2	5.60	128.00	119.60
41	4	138	ARG	N-CA-CB	5.59	120.66	110.60
37	0	567	G	OP1-P-OP2	5.59	127.98	119.60
34	N	2725	A	C5'-C4'-O4'	-5.58	102.40	109.10
34	N	1261	C	O4'-C4'-C3'	-5.58	98.42	104.00
18	c	21	ARG	NH1-CZ-NH2	5.58	125.53	119.40
34	N	205	G	O4'-C1'-N9	5.58	112.66	108.20
34	N	573	U	P-O3'-C3'	5.58	126.39	119.70
19	d	6	ARG	NE-CZ-NH1	-5.57	117.51	120.30
34	N	1143	A	O5'-P-OP2	-5.57	100.69	105.70
34	N	1029	A	O5'-P-OP1	-5.57	100.69	105.70
39	2	132	ARG	NE-CZ-NH1	5.57	123.08	120.30
37	0	1474	U	O5'-P-OP1	-5.56	100.69	105.70
9	T	149	ARG	NE-CZ-NH2	-5.56	117.52	120.30
15	Z	40	ARG	NE-CZ-NH1	-5.56	117.52	120.30
34	N	2776	A	C2'-C3'-O3'	5.55	122.59	113.70
29	n	16	ARG	NE-CZ-NH1	-5.55	117.53	120.30
34	N	803	U	O5'-P-OP1	-5.55	100.71	105.70
34	N	1612	C	O5'-P-OP1	-5.55	100.71	105.70
5	P	156	ARG	NE-CZ-NH1	5.55	123.07	120.30
50	G	61	ARG	NE-CZ-NH2	-5.55	117.53	120.30
37	0	37	U	N3-C2-O2	-5.54	118.32	122.20
34	N	1952	A	O5'-P-OP1	-5.54	100.71	105.70
37	0	818	G	N9-C1'-C2'	5.54	121.20	114.00
19	d	28	ARG	NE-CZ-NH2	-5.54	117.53	120.30
34	N	372	G	P-O3'-C3'	5.54	126.35	119.70
51	H	43	PHE	CB-CG-CD1	-5.54	116.92	120.80
34	N	528	A	C8-N9-C1'	5.54	137.66	127.70
34	N	1688	U	O5'-P-OP1	-5.53	100.72	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	2543	G	C5'-C4'-C3'	-5.52	107.16	116.00
34	N	1990	C	O5'-P-OP1	-5.52	100.73	105.70
34	N	2452	C	O5'-P-OP2	-5.52	100.73	105.70
5	P	156	ARG	CG-CD-NE	5.52	123.38	111.80
12	W	39	LYS	CD-CE-NZ	-5.51	99.02	111.70
34	N	2514	U	O5'-P-OP2	-5.51	100.74	105.70
34	N	670	A	C2'-C3'-O3'	5.51	122.51	113.70
5	P	217	ARG	NE-CZ-NH1	-5.51	117.55	120.30
34	N	871	U	P-O5'-C5'	-5.50	112.09	120.90
5	P	232	HIS	O-C-N	-5.50	113.85	123.20
5	P	239	ASN	N-CA-C	5.50	125.85	111.00
16	a	46	ARG	NE-CZ-NH1	-5.50	117.55	120.30
14	Y	78	ARG	NE-CZ-NH1	-5.50	117.55	120.30
34	N	2720	U	N3-C4-C5	5.49	117.89	114.60
49	F	109	ARG	NE-CZ-NH2	-5.48	117.56	120.30
34	N	2872	A	O5'-P-OP1	-5.48	100.77	105.70
37	0	653	U	O5'-P-OP1	-5.48	100.77	105.70
34	N	2037	A	C5'-C4'-O4'	-5.47	102.53	109.10
37	0	330	C	P-O5'-C5'	-5.47	112.14	120.90
37	0	734	G	O5'-P-OP1	-5.47	100.78	105.70
34	N	2359	C	O5'-P-OP1	-5.47	100.78	105.70
4	O	48	U	O5'-P-OP1	-5.46	100.79	105.70
34	N	825	A	O5'-P-OP2	-5.46	100.79	105.70
34	N	463	G	O5'-P-OP2	-5.46	100.79	105.70
34	N	1695	G	O5'-P-OP2	-5.45	100.79	105.70
37	0	886	G	O5'-P-OP1	-5.45	100.79	105.70
45	8	99	ARG	NE-CZ-NH2	-5.45	117.58	120.30
37	0	880	C	O5'-P-OP1	5.45	117.24	110.70
34	N	301	G	C8-N9-C1'	5.45	134.08	127.00
34	N	790	U	O5'-P-OP2	-5.44	100.80	105.70
17	b	33	ARG	NE-CZ-NH2	-5.44	117.58	120.30
34	N	774	G	C1'-C2'-O2'	-5.44	94.29	110.60
34	N	1325	U	O5'-P-OP2	-5.44	100.81	105.70
34	N	2266	A	C4'-C3'-O3'	-5.43	97.99	109.40
7	R	88	ARG	NE-CZ-NH1	-5.43	117.59	120.30
46	9	92	LEU	CA-CB-CG	5.43	127.78	115.30
51	H	64	ARG	CG-CD-NE	-5.42	100.41	111.80
27	l	48	ARG	NE-CZ-NH2	-5.42	117.59	120.30
34	N	514	A	O5'-P-OP1	-5.42	100.82	105.70
12	W	124	VAL	CG1-CB-CG2	-5.42	102.23	110.90
43	6	3	ARG	NE-CZ-NH2	-5.42	117.59	120.30
37	0	816	A	O5'-P-OP2	5.42	117.20	110.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	234	U	N3-C2-O2	-5.41	118.42	122.20
34	N	1669	A	C8-N9-C1'	-5.41	117.97	127.70
19	d	3	ARG	NE-CZ-NH2	5.40	123.00	120.30
19	d	92	ARG	NE-CZ-NH2	5.40	123.00	120.30
34	N	748	G	O5'-P-OP2	-5.39	100.84	105.70
34	N	2873	A	P-O5'-C5'	-5.39	112.27	120.90
28	m	54	MET	CG-SD-CE	-5.39	91.57	100.20
17	b	94	ARG	NE-CZ-NH1	-5.39	117.61	120.30
34	N	2405	G	P-O3'-C3'	5.39	126.17	119.70
34	N	2765	A	C2-N3-C4	-5.39	107.91	110.60
37	0	976	G	O5'-P-OP2	5.39	117.17	110.70
34	N	2613	U	N3-C4-O4	-5.38	115.63	119.40
39	2	157	LEU	CA-CB-CG	5.38	127.69	115.30
34	N	430	A	C5-C6-N6	5.38	128.01	123.70
9	T	149	ARG	NE-CZ-NH1	5.38	122.99	120.30
14	Y	52	GLY	C-N-CA	-5.38	111.00	122.30
34	N	1031	G	O5'-P-OP2	-5.38	100.86	105.70
34	N	2848	G	O5'-P-OP1	-5.37	100.87	105.70
34	N	1322	A	O5'-P-OP1	-5.37	100.87	105.70
34	N	2848	G	O4'-C1'-N9	5.37	112.49	108.20
37	0	574	A	O5'-P-OP1	-5.37	100.87	105.70
34	N	1142	A	P-O3'-C3'	5.36	126.14	119.70
5	P	195	VAL	CG1-CB-CG2	-5.36	102.33	110.90
37	0	368	U	N3-C2-O2	-5.35	118.45	122.20
37	0	1500	A	O5'-P-OP2	-5.35	100.89	105.70
12	W	99	ARG	NE-CZ-NH2	-5.34	117.63	120.30
37	0	1301	U	C6-N1-C1'	-5.34	113.72	121.20
6	Q	146	ILE	CG1-CB-CG2	-5.34	99.65	111.40
34	N	2832	U	P-O3'-C3'	5.34	126.11	119.70
37	0	96	U	C2'-C3'-O3'	5.34	122.24	113.70
34	N	1783	A	O5'-P-OP1	5.33	117.10	110.70
37	0	1504	G	O5'-P-OP2	-5.33	100.90	105.70
34	N	932	U	N3-C2-O2	-5.33	118.47	122.20
34	N	2884	U	O4'-C1'-N1	5.33	112.46	108.20
34	N	2286	G	P-O3'-C3'	5.32	126.09	119.70
6	Q	154	LYS	CD-CE-NZ	-5.32	99.46	111.70
37	0	804	U	O5'-P-OP1	-5.32	100.92	105.70
33	r	1	MET	CB-CG-SD	-5.31	96.47	112.40
34	N	1021	A	C5-C6-N6	5.31	127.95	123.70
34	N	1142	A	C3'-C2'-C1'	5.31	105.75	101.50
34	N	1669	A	C4-N9-C1'	5.31	135.86	126.30
48	E	38	TYR	CB-CG-CD1	-5.31	117.81	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	N	771	G	O5'-P-OP1	-5.30	100.93	105.70
37	0	558	G	O5'-P-OP1	5.30	117.06	110.70
37	0	560	A	O5'-P-OP1	-5.30	100.93	105.70
34	N	140	C	C6-N1-C1'	-5.30	114.44	120.80
25	j	41	ARG	CB-CG-CD	5.30	125.38	111.60
34	N	1256	G	O4'-C1'-N9	-5.30	103.96	108.20
5	P	221	ARG	N-CA-CB	5.28	120.11	110.60
29	n	10	ARG	NE-CZ-NH2	5.28	122.94	120.30
34	N	1271	G	O5'-P-OP1	5.28	117.04	110.70
37	0	728	A	O5'-P-OP2	-5.28	100.95	105.70
44	7	99	LEU	CB-CG-CD1	-5.28	102.02	111.00
34	N	532	A	O5'-P-OP2	-5.28	100.95	105.70
34	N	2394	C	O4'-C4'-C3'	-5.28	98.72	104.00
18	c	109	ARG	NE-CZ-NH2	5.27	122.94	120.30
52	I	51	ARG	NE-CZ-NH1	5.26	122.93	120.30
5	P	14	ARG	NE-CZ-NH1	5.26	122.93	120.30
45	8	85	ARG	NE-CZ-NH2	-5.26	117.67	120.30
37	0	108	G	O4'-C1'-N9	5.25	112.40	108.20
34	N	2867	G	P-O3'-C3'	5.25	126.00	119.70
13	X	23	LYS	N-CA-CB	5.24	120.04	110.60
37	0	1319	A	O5'-P-OP1	-5.24	100.98	105.70
34	N	499	U	N3-C4-C5	5.24	117.75	114.60
49	F	98	ARG	CG-CD-NE	5.24	122.81	111.80
37	0	1363	A	C5-C6-N6	5.24	127.89	123.70
26	k	28	ARG	NH1-CZ-NH2	5.23	125.16	119.40
34	N	1800	C	O5'-P-OP2	-5.23	100.99	105.70
34	N	2007	U	O5'-P-OP2	-5.23	100.99	105.70
33	r	3	VAL	CG1-CB-CG2	-5.23	102.53	110.90
5	P	84	ASP	CB-CG-OD1	5.23	123.00	118.30
48	E	22	PRO	O-C-N	-5.23	114.34	122.70
34	N	1829	A	O5'-P-OP2	-5.22	101.00	105.70
34	N	528	A	C4-N9-C1'	-5.22	116.90	126.30
15	Z	18	ARG	NE-CZ-NH2	5.22	122.91	120.30
33	r	36	ARG	CG-CD-NE	-5.22	100.84	111.80
34	N	2831	G	O5'-P-OP1	-5.22	101.01	105.70
34	N	915	C	O5'-P-OP2	-5.21	101.01	105.70
16	a	17	ARG	NE-CZ-NH2	5.21	122.91	120.30
34	N	611	C	O5'-P-OP1	-5.21	101.01	105.70
37	0	822	U	O5'-P-OP1	-5.21	101.01	105.70
34	N	1815	A	C5'-C4'-O4'	-5.21	102.85	109.10
34	N	2874	C	O5'-P-OP2	-5.20	101.02	105.70
34	N	825	A	OP1-P-O3'	5.20	116.63	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
19	d	33	ARG	CB-CG-CD	-5.19	98.10	111.60
37	0	1358	U	N3-C2-O2	-5.19	118.56	122.20
6	Q	124	ARG	NE-CZ-NH2	-5.19	117.71	120.30
34	N	2243	U	O5'-P-OP1	-5.19	101.03	105.70
37	0	595	A	P-O3'-C3'	5.19	125.92	119.70
37	0	890	G	P-O3'-C3'	5.18	125.92	119.70
34	N	752	A	O4'-C1'-N9	5.18	112.34	108.20
48	E	61	PHE	CB-CG-CD1	5.17	124.42	120.80
26	k	57	ARG	NE-CZ-NH1	-5.17	117.72	120.30
34	N	2645	G	P-O5'-C5'	-5.17	112.63	120.90
38	1	103	ASN	N-CA-CB	5.16	119.89	110.60
5	P	156	ARG	CB-CG-CD	-5.16	98.20	111.60
41	4	138	ARG	NE-CZ-NH2	-5.16	117.72	120.30
50	G	13	ARG	NE-CZ-NH2	-5.16	117.72	120.30
20	e	79	ARG	CD-NE-CZ	-5.15	116.39	123.60
34	N	1313	U	C6-N1-C1'	-5.15	113.99	121.20
52	I	70	ARG	CG-CD-NE	5.15	122.61	111.80
18	c	51	ARG	NE-CZ-NH2	-5.15	117.73	120.30
34	N	1606	C	O5'-P-OP2	-5.15	101.07	105.70
49	F	3	ARG	CD-NE-CZ	5.14	130.80	123.60
37	0	887	G	O5'-P-OP2	-5.14	101.08	105.70
34	N	1270	C	O5'-P-OP1	-5.14	101.08	105.70
34	N	578	G	OP1-P-OP2	-5.13	111.90	119.60
50	G	85	ARG	NE-CZ-NH2	-5.13	117.73	120.30
34	N	2049	G	O4'-C4'-C3'	-5.13	98.87	104.00
34	N	2720	U	N1-C2-N3	5.13	117.98	114.90
14	Y	132	ARG	NE-CZ-NH2	-5.12	117.74	120.30
34	N	1998	A	O4'-C4'-C3'	-5.12	98.88	104.00
34	N	953	G	OP1-P-OP2	5.12	127.27	119.60
37	0	163	C	O5'-P-OP1	-5.11	101.10	105.70
34	N	1236	G	C5'-C4'-O4'	-5.11	102.97	109.10
37	0	1125	U	C2-N1-C1'	5.11	123.83	117.70
34	N	651	G	O5'-P-OP2	-5.10	101.11	105.70
34	N	1950	G	O5'-P-OP1	-5.10	101.11	105.70
34	N	1288	G	C4-N9-C1'	5.10	133.13	126.50
5	P	217	ARG	CG-CD-NE	-5.09	101.10	111.80
7	R	65	THR	O-C-N	-5.09	114.55	123.20
26	k	72	ARG	NE-CZ-NH1	5.09	122.84	120.30
34	N	830	G	O4'-C1'-N9	-5.08	104.13	108.20
34	N	704	G	O4'-C1'-N9	5.08	112.26	108.20
16	a	86	ARG	NE-CZ-NH2	-5.08	117.76	120.30
34	N	1020	A	P-O3'-C3'	5.08	125.79	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	P	24	LEU	CB-CG-CD1	-5.08	102.37	111.00
34	N	556	A	O5'-P-OP1	-5.08	101.13	105.70
18	c	53	ARG	CB-CG-CD	-5.08	98.40	111.60
34	N	555	G	P-O3'-C3'	5.08	125.79	119.70
47	D	126	LYS	CB-CA-C	5.08	120.55	110.40
6	Q	114	LYS	CA-CB-CG	5.07	124.56	113.40
34	N	1667	G	O5'-P-OP2	5.07	116.78	110.70
34	N	2267	A	N9-C1'-C2'	5.07	120.59	114.00
34	N	2656	U	C6-N1-C1'	-5.07	114.10	121.20
34	N	140	C	N1-C1'-C2'	5.07	120.59	114.00
34	N	1764	C	O5'-P-OP1	-5.07	101.14	105.70
34	N	658	U	O5'-P-OP2	-5.06	101.14	105.70
34	N	2049	G	OP1-P-OP2	-5.06	112.01	119.60
37	0	502	A	O5'-P-OP2	-5.06	101.14	105.70
38	1	74	ARG	NE-CZ-NH1	5.06	122.83	120.30
34	N	1997	C	O4'-C4'-C3'	-5.06	98.94	104.00
37	0	578	C	O5'-P-OP1	5.06	116.77	110.70
51	H	66	LEU	CB-CG-CD2	-5.06	102.40	111.00
34	N	1784	A	O5'-P-OP1	-5.05	101.15	105.70
37	0	578	C	O5'-P-OP2	-5.05	101.15	105.70
34	N	278	A	C4-N9-C1'	5.05	135.39	126.30
4	O	15	A	O4'-C1'-N9	5.05	112.24	108.20
20	e	81	LYS	CD-CE-NZ	5.05	123.31	111.70
34	N	997	G	O5'-P-OP1	-5.05	101.16	105.70
40	3	13	ARG	NE-CZ-NH1	5.05	122.82	120.30
34	N	918	A	O5'-P-OP1	-5.04	101.16	105.70
42	5	24	ARG	NE-CZ-NH2	-5.04	117.78	120.30
34	N	2765	A	C4-N9-C1'	5.04	135.37	126.30
51	H	58	ARG	NE-CZ-NH1	5.04	122.82	120.30
2	s	153	LEU	CA-CB-CG	5.04	126.89	115.30
37	0	1300	G	P-O3'-C3'	5.04	125.74	119.70
34	N	818	G	O5'-P-OP1	-5.04	101.17	105.70
37	0	103	U	O5'-P-OP1	-5.03	101.17	105.70
43	6	95	ARG	NE-CZ-NH2	-5.03	117.78	120.30
4	O	52	A	P-O3'-C3'	5.03	125.73	119.70
34	N	1026	G	O5'-P-OP1	5.03	116.73	110.70
34	N	2215	C	O5'-P-OP1	-5.03	101.18	105.70
34	N	569	U	O5'-P-OP2	-5.03	101.18	105.70
14	Y	2	ARG	NE-CZ-NH1	5.02	122.81	120.30
34	N	2496	C	O5'-P-OP2	-5.02	101.18	105.70
34	N	2354	C	C5'-C4'-C3'	-5.01	107.98	116.00
34	N	2033	A	O5'-P-OP2	-5.01	101.19	105.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	O	71	C	O5'-P-OP1	-5.01	101.19	105.70
16	a	2	ARG	NE-CZ-NH1	5.00	122.80	120.30
34	N	828	U	O5'-P-OP1	-5.00	101.20	105.70
56	u	69	LYS	N-CA-C	5.00	124.51	111.00
34	N	1968	G	O4'-C4'-C3'	-5.00	99.00	104.00

There are no chirality outliers.

All (49) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
37	0	24	U	Sidechain
37	0	368	U	Sidechain
37	0	559	A	Sidechain
37	0	571	U	Sidechain
37	0	864	A	Sidechain
38	1	10	LEU	Peptide
38	1	102	THR	Peptide
38	1	14	VAL	Peptide
39	2	79	LYS	Peptide
39	2	80	LYS	Peptide
41	4	102	GLY	Peptide
41	4	136	VAL	Peptide
41	4	137	VAL	Peptide
41	4	142	ASP	Peptide
41	4	89	HIS	Peptide
42	5	52	ASN	Peptide
42	5	93	LYS	Peptide
45	8	128	SER	Peptide
45	8	53	GLU	Peptide
45	8	54	LEU	Peptide
45	8	55	VAL	Peptide
47	D	125	LYS	Peptide
48	E	22	PRO	Peptide
48	E	77	HIS	Peptide
53	J	17	MET	Peptide
53	J	69	LYS	Peptide
34	N	1802	A	Sidechain
34	N	2522	U	Sidechain
34	N	2765	A	Sidechain
34	N	586	A	Sidechain
34	N	850	U	Sidechain
34	N	927	A	Sidechain

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Mol	Chain	Res	Type	Group
5	P	195	VAL	Peptide
5	P	234	GLY	Peptide
5	P	238	ARG	Peptide
6	Q	151	THR	Peptide
8	S	174	ASP	Peptide
8	S	175	PHE	Peptide
10	U	34	GLY	Peptide
11	V	11	LEU	Peptide
14	Y	114	GLY	Peptide
14	Y	82	LEU	Peptide
15	Z	57	VAL	Peptide,Mainchain
23	h	52	LEU	Peptide
32	q	31	HIS	Peptide
55	t	37	ARG	Peptide
56	u	3	ASN	Peptide
57	v	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	s	35/179 (20%)	32 (91%)	3 (9%)	0	100 100
5	P	269/273 (98%)	247 (92%)	18 (7%)	4 (2%)	8 39
6	Q	207/209 (99%)	195 (94%)	11 (5%)	1 (0%)	25 61
7	R	199/201 (99%)	191 (96%)	8 (4%)	0	100 100
8	S	175/179 (98%)	163 (93%)	11 (6%)	1 (1%)	22 58
9	T	174/177 (98%)	165 (95%)	9 (5%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
10	U	147/149 (99%)	125 (85%)	19 (13%)	3 (2%)	6 33
11	V	139/142 (98%)	112 (81%)	27 (19%)	0	100 100
12	W	140/142 (99%)	136 (97%)	4 (3%)	0	100 100
13	X	120/123 (98%)	109 (91%)	9 (8%)	2 (2%)	7 36
14	Y	141/144 (98%)	121 (86%)	16 (11%)	4 (3%)	4 27
15	Z	134/136 (98%)	119 (89%)	10 (8%)	5 (4%)	2 23
16	a	118/127 (93%)	102 (86%)	14 (12%)	2 (2%)	7 36
17	b	114/117 (97%)	108 (95%)	6 (5%)	0	100 100
18	c	112/115 (97%)	104 (93%)	8 (7%)	0	100 100
19	d	115/118 (98%)	115 (100%)	0	0	100 100
20	e	101/103 (98%)	92 (91%)	8 (8%)	1 (1%)	13 46
21	f	108/110 (98%)	100 (93%)	7 (6%)	1 (1%)	14 49
22	g	91/100 (91%)	80 (88%)	9 (10%)	2 (2%)	5 31
23	h	100/104 (96%)	84 (84%)	14 (14%)	2 (2%)	6 33
24	i	92/94 (98%)	89 (97%)	3 (3%)	0	100 100
25	j	73/85 (86%)	71 (97%)	2 (3%)	0	100 100
26	k	75/78 (96%)	71 (95%)	3 (4%)	1 (1%)	10 41
27	l	61/63 (97%)	56 (92%)	5 (8%)	0	100 100
28	m	56/59 (95%)	52 (93%)	4 (7%)	0	100 100
29	n	54/57 (95%)	48 (89%)	5 (9%)	1 (2%)	6 34
30	o	48/55 (87%)	45 (94%)	3 (6%)	0	100 100
31	p	44/46 (96%)	40 (91%)	4 (9%)	0	100 100
32	q	62/65 (95%)	56 (90%)	5 (8%)	1 (2%)	8 37
33	r	36/55 (66%)	35 (97%)	1 (3%)	0	100 100
35	L	53/70 (76%)	45 (85%)	7 (13%)	1 (2%)	6 34
36	C	130/223 (58%)	123 (95%)	7 (5%)	0	100 100
38	1	216/239 (90%)	187 (87%)	28 (13%)	1 (0%)	25 61
39	2	204/218 (94%)	186 (91%)	16 (8%)	2 (1%)	13 46
40	3	203/206 (98%)	182 (90%)	21 (10%)	0	100 100
41	4	148/162 (91%)	116 (78%)	30 (20%)	2 (1%)	9 39
42	5	98/131 (75%)	81 (83%)	11 (11%)	6 (6%)	1 15

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
43	6	140/156 (90%)	130 (93%)	10 (7%)	0	100 100
44	7	127/130 (98%)	121 (95%)	6 (5%)	0	100 100
45	8	125/130 (96%)	103 (82%)	20 (16%)	2 (2%)	8 37
46	9	96/103 (93%)	84 (88%)	9 (9%)	3 (3%)	3 26
47	D	115/129 (89%)	102 (89%)	13 (11%)	0	100 100
48	E	121/124 (98%)	104 (86%)	15 (12%)	2 (2%)	7 36
49	F	112/118 (95%)	103 (92%)	8 (7%)	1 (1%)	14 49
50	G	92/101 (91%)	77 (84%)	14 (15%)	1 (1%)	12 44
51	H	86/89 (97%)	81 (94%)	5 (6%)	0	100 100
52	I	80/82 (98%)	69 (86%)	10 (12%)	1 (1%)	10 41
53	J	78/84 (93%)	66 (85%)	9 (12%)	3 (4%)	2 22
54	K	53/75 (71%)	49 (92%)	3 (6%)	1 (2%)	6 34
55	t	77/92 (84%)	73 (95%)	4 (5%)	0	100 100
56	u	83/87 (95%)	78 (94%)	4 (5%)	1 (1%)	11 42
57	v	49/88 (56%)	41 (84%)	7 (14%)	1 (2%)	6 33
All	All	5826/6442 (90%)	5264 (90%)	503 (9%)	59 (1%)	16 46

All (59) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	P	239	ASN
10	U	72	ILE
14	Y	36	LYS
15	Z	58	LYS
20	e	53	PHE
29	n	55	ILE
32	q	32	ILE
42	5	53	LYS
46	9	58	ASN
52	I	44	SER
53	J	70	THR
57	v	11	PRO
10	U	41	LYS
15	Z	59	ARG
16	a	3	HIS
39	2	81	GLY
42	5	56	LYS

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Mol	Chain	Res	Type
42	5	91	ARG
45	8	55	VAL
48	E	23	ALA
53	J	18	GLU
56	u	69	LYS
5	P	235	GLY
15	Z	39	GLY
22	g	78	SER
23	h	99	ASN
26	k	3	ARG
39	2	80	LYS
42	5	54	LEU
42	5	94	HIS
46	9	43	PRO
48	E	78	SER
53	J	71	LYS
54	K	48	ARG
5	P	10	SER
5	P	238	ARG
6	Q	149	ASN
8	S	175	PHE
10	U	35	LYS
13	X	93	GLN
14	Y	29	LYS
14	Y	30	THR
14	Y	31	GLY
15	Z	69	PRO
22	g	77	ARG
35	L	3	LYS
41	4	51	GLY
42	5	86	ARG
49	F	66	GLU
16	a	88	ALA
21	f	64	ALA
23	h	53	ASN
38	1	194	ASP
41	4	90	THR
50	G	4	GLN
15	Z	87	GLY
46	9	42	LEU
45	8	10	GLY
13	X	119	ALA

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	s	34/158 (22%)	34 (100%)	0	100	100
5	P	216/218 (99%)	215 (100%)	1 (0%)	86	90
6	Q	164/164 (100%)	161 (98%)	3 (2%)	54	71
7	R	165/165 (100%)	161 (98%)	4 (2%)	44	63
8	S	148/150 (99%)	148 (100%)	0	100	100
9	T	137/138 (99%)	137 (100%)	0	100	100
10	U	114/114 (100%)	107 (94%)	7 (6%)	15	39
11	V	109/110 (99%)	108 (99%)	1 (1%)	75	83
12	W	116/116 (100%)	116 (100%)	0	100	100
13	X	103/104 (99%)	103 (100%)	0	100	100
14	Y	102/103 (99%)	102 (100%)	0	100	100
15	Z	109/109 (100%)	108 (99%)	1 (1%)	75	83
16	a	100/102 (98%)	97 (97%)	3 (3%)	36	57
17	b	86/87 (99%)	86 (100%)	0	100	100
18	c	98/100 (98%)	95 (97%)	3 (3%)	35	56
19	d	89/90 (99%)	88 (99%)	1 (1%)	70	80
20	e	84/84 (100%)	82 (98%)	2 (2%)	44	63
21	f	93/93 (100%)	93 (100%)	0	100	100
22	g	80/85 (94%)	80 (100%)	0	100	100
23	h	83/85 (98%)	82 (99%)	1 (1%)	67	79
24	i	78/78 (100%)	78 (100%)	0	100	100
25	j	56/62 (90%)	55 (98%)	1 (2%)	54	71
26	k	67/68 (98%)	67 (100%)	0	100	100
27	l	55/55 (100%)	55 (100%)	0	100	100
28	m	48/49 (98%)	48 (100%)	0	100	100
29	n	47/48 (98%)	46 (98%)	1 (2%)	48	66

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
30	o	45/49 (92%)	45 (100%)	0	100 100
31	p	38/38 (100%)	38 (100%)	0	100 100
32	q	51/52 (98%)	49 (96%)	2 (4%)	27 50
33	r	34/50 (68%)	34 (100%)	0	100 100
35	L	48/63 (76%)	48 (100%)	0	100 100
36	C	110/174 (63%)	110 (100%)	0	100 100
38	1	180/198 (91%)	179 (99%)	1 (1%)	84 88
39	2	170/178 (96%)	169 (99%)	1 (1%)	84 88
40	3	172/173 (99%)	171 (99%)	1 (1%)	84 88
41	4	113/123 (92%)	110 (97%)	3 (3%)	40 60
42	5	87/112 (78%)	86 (99%)	1 (1%)	70 80
43	6	119/129 (92%)	118 (99%)	1 (1%)	79 84
44	7	104/105 (99%)	104 (100%)	0	100 100
45	8	105/107 (98%)	104 (99%)	1 (1%)	73 81
46	9	86/90 (96%)	85 (99%)	1 (1%)	67 79
47	D	90/98 (92%)	89 (99%)	1 (1%)	70 80
48	E	103/104 (99%)	103 (100%)	0	100 100
49	F	92/96 (96%)	91 (99%)	1 (1%)	70 80
50	G	79/83 (95%)	79 (100%)	0	100 100
51	H	75/77 (97%)	74 (99%)	1 (1%)	65 77
52	I	65/65 (100%)	65 (100%)	0	100 100
53	J	74/77 (96%)	73 (99%)	1 (1%)	62 76
54	K	48/66 (73%)	48 (100%)	0	100 100
55	t	70/80 (88%)	68 (97%)	2 (3%)	37 58
56	u	65/66 (98%)	65 (100%)	0	100 100
57	v	43/76 (57%)	35 (81%)	8 (19%)	1 9
All	All	4847/5264 (92%)	4792 (99%)	55 (1%)	69 80

All (55) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
5	P	218	PRO
6	Q	73	VAL

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Mol	Chain	Res	Type
6	Q	105	LYS
6	Q	205	PRO
7	R	61	ARG
7	R	69	ARG
7	R	149	ILE
7	R	163	ASN
10	U	27	ARG
10	U	44	ILE
10	U	50	ARG
10	U	55	GLU
10	U	60	GLU
10	U	70	GLU
10	U	101	ASP
11	V	65	ARG
15	Z	128	THR
16	a	2	ARG
16	a	50	PRO
16	a	70	THR
18	c	53	ARG
18	c	73	VAL
18	c	93	ARG
19	d	33	ARG
20	e	49	ILE
20	e	53	PHE
23	h	68	SER
25	j	41	ARG
29	n	28	LEU
32	q	2	PRO
32	q	32	ILE
38	1	207	ILE
39	2	55	ILE
40	3	5	LEU
41	4	15	LEU
41	4	115	LEU
41	4	157	ARG
42	5	9	MET
43	6	25	LYS
45	8	120	LYS
46	9	17	LEU
47	D	93	ARG
49	F	98	ARG
51	H	70	LEU

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Mol	Chain	Res	Type
53	J	61	ILE
55	t	5	LEU
55	t	49	ILE
57	v	4	ILE
57	v	5	LYS
57	v	6	VAL
57	v	16	LEU
57	v	17	ARG
57	v	19	PHE
57	v	20	LYS
57	v	29	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

Mol	Chain	Res	Type
2	s	126	HIS
5	P	53	HIS
5	P	86	ASN
5	P	134	ASN
5	P	260	ASN
6	Q	49	GLN
6	Q	149	ASN
6	Q	150	GLN
7	R	163	ASN
7	R	165	HIS
9	T	22	GLN
9	T	143	GLN
10	U	11	ASN
10	U	135	HIS
11	V	12	GLN
12	W	40	HIS
17	b	38	GLN
18	c	12	GLN
19	d	37	GLN
19	d	44	GLN
21	f	15	GLN
27	l	27	ASN
27	l	58	ASN
29	n	6	ASN
30	o	19	HIS
35	L	20	ASN
36	C	57	GLN

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Mol	Chain	Res	Type
36	C	58	ASN
36	C	172	HIS
38	1	177	ASN
41	4	89	HIS
42	5	3	HIS
42	5	11	HIS
42	5	55	HIS
43	6	28	ASN
45	8	32	GLN
47	D	118	HIS
49	F	8	ASN
50	G	49	GLN
52	I	63	GLN
53	J	31	HIS
54	K	52	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	72/73 (98%)	19 (26%)	8 (11%)
3	M	74/75 (98%)	11 (14%)	0
34	N	2894/2903 (99%)	519 (17%)	34 (1%)
37	0	1531/1539 (99%)	275 (17%)	22 (1%)
4	O	117/120 (97%)	21 (17%)	1 (0%)
All	All	4688/4710 (99%)	845 (18%)	65 (1%)

All (845) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	13	C
1	A	14	A
1	A	16	U
1	A	17	C
1	A	18	G
1	A	19	G
1	A	20	U
1	A	21	A
1	A	22	G
1	A	36	A
1	A	45	U
1	A	46	G

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Mol	Chain	Res	Type
1	A	47	U
1	A	48	C
1	A	52	G
1	A	61	C
1	A	62	C
1	A	63	G
1	A	73	A
3	M	9	C
3	M	10	G
3	M	15	G
3	M	16	C
3	M	17	G
3	M	19	U
3	M	20	A
3	M	42	G
3	M	47	C
3	M	74	C
3	M	75	A
4	O	13	G
4	O	25	U
4	O	31	C
4	O	35	C
4	O	41	G
4	O	44	G
4	O	45	A
4	O	51	G
4	O	53	A
4	O	56	G
4	O	57	A
4	O	64	G
4	O	66	A
4	O	67	G
4	O	88	C
4	O	89	U
4	O	90	C
4	O	91	C
4	O	99	A
4	O	108	A
4	O	109	A
34	N	10	A
34	N	23	G
34	N	28	A

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Mol	Chain	Res	Type
34	N	35	G
34	N	36	G
34	N	42	A
34	N	46	G
34	N	51	G
34	N	55	G
34	N	60	G
34	N	63	A
34	N	71	A
34	N	74	A
34	N	75	G
34	N	84	A
34	N	96	C
34	N	101	A
34	N	102	U
34	N	103	A
34	N	118	A
34	N	119	A
34	N	120	U
34	N	125	A
34	N	138	U
34	N	139	U
34	N	140	C
34	N	141	G
34	N	142	A
34	N	162	U
34	N	163	C
34	N	165	A
34	N	166	U
34	N	188	G
34	N	196	A
34	N	199	A
34	N	201	C
34	N	215	G
34	N	216	A
34	N	221	A
34	N	222	A
34	N	223	A
34	N	224	U
34	N	228	C
34	N	241	A
34	N	242	G

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Mol	Chain	Res	Type
34	N	243	U
34	N	248	G
34	N	255	A
34	N	265	A
34	N	266	G
34	N	267	C
34	N	271	G
34	N	272	A
34	N	276	U
34	N	278	A
34	N	281	C
34	N	284	U
34	N	294	A
34	N	301	G
34	N	311	A
34	N	323	C
34	N	329	G
34	N	330	A
34	N	332	A
34	N	346	A
34	N	361	G
34	N	362	A
34	N	371	A
34	N	372	G
34	N	373	U
34	N	386	G
34	N	396	G
34	N	399	U
34	N	403	U
34	N	404	A
34	N	405	U
34	N	406	G
34	N	411	G
34	N	412	A
34	N	421	C
34	N	422	A
34	N	424	G
34	N	435	C
34	N	447	A
34	N	455	C
34	N	456	C
34	N	457	A

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Mol	Chain	Res	Type
34	N	467	G
34	N	471	A
34	N	473	G
34	N	481	G
34	N	491	G
34	N	501	A
34	N	504	A
34	N	505	A
34	N	509	C
34	N	513	A
34	N	529	A
34	N	531	C
34	N	532	A
34	N	543	G
34	N	544	C
34	N	546	U
34	N	548	G
34	N	549	G
34	N	550	C
34	N	556	A
34	N	563	A
34	N	573	U
34	N	575	A
34	N	578	G
34	N	586	A
34	N	603	A
34	N	613	A
34	N	614	A
34	N	616	A
34	N	622	G
34	N	627	A
34	N	637	A
34	N	645	C
34	N	646	U
34	N	647	G
34	N	648	G
34	N	654	A
34	N	655	A
34	N	669	G
34	N	670	A
34	N	671	C
34	N	677	A

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Mol	Chain	Res	Type
34	N	686	U
34	N	695	G
34	N	696	G
34	N	717	C
34	N	729	G
34	N	730	A
34	N	738	G
34	N	747	U
34	N	764	A
34	N	765	C
34	N	775	G
34	N	776	G
34	N	782	A
34	N	783	A
34	N	784	G
34	N	785	G
34	N	792	A
34	N	800	A
34	N	805	G
34	N	806	C
34	N	812	C
34	N	819	A
34	N	827	U
34	N	828	U
34	N	829	A
34	N	845	A
34	N	846	U
34	N	858	G
34	N	860	U
34	N	866	A
34	N	869	G
34	N	878	A
34	N	885	C
34	N	896	A
34	N	897	C
34	N	907	G
34	N	910	A
34	N	914	G
34	N	919	U
34	N	932	U
34	N	941	A
34	N	945	A

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Mol	Chain	Res	Type
34	N	946	C
34	N	953	G
34	N	961	C
34	N	973	A
34	N	974	G
34	N	983	A
34	N	985	C
34	N	989	G
34	N	995	C
34	N	996	A
34	N	997	G
34	N	1004	U
34	N	1012	U
34	N	1013	C
34	N	1020	A
34	N	1021	A
34	N	1022	G
34	N	1023	U
34	N	1025	G
34	N	1026	G
34	N	1033	U
34	N	1046	A
34	N	1047	G
34	N	1057	A
34	N	1060	U
34	N	1062	G
34	N	1064	C
34	N	1066	U
34	N	1067	A
34	N	1068	G
34	N	1070	A
34	N	1077	A
34	N	1082	U
34	N	1083	U
34	N	1088	A
34	N	1089	A
34	N	1090	A
34	N	1094	U
34	N	1096	A
34	N	1097	U
34	N	1100	C
34	N	1104	C

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Mol	Chain	Res	Type
34	N	1110	G
34	N	1111	A
34	N	1112	G
34	N	1119	U
34	N	1122	G
34	N	1130	U
34	N	1132	U
34	N	1133	A
34	N	1135	C
34	N	1136	G
34	N	1141	U
34	N	1142	A
34	N	1143	A
34	N	1155	A
34	N	1168	G
34	N	1171	G
34	N	1173	U
34	N	1174	U
34	N	1175	A
34	N	1180	U
34	N	1186	G
34	N	1195	G
34	N	1204	A
34	N	1205	A
34	N	1206	G
34	N	1210	G
34	N	1212	G
34	N	1237	A
34	N	1238	G
34	N	1250	G
34	N	1251	C
34	N	1253	A
34	N	1256	G
34	N	1257	C
34	N	1265	A
34	N	1266	G
34	N	1268	A
34	N	1271	G
34	N	1272	A
34	N	1275	A
34	N	1300	G
34	N	1301	A

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Mol	Chain	Res	Type
34	N	1321	A
34	N	1329	U
34	N	1332	G
34	N	1345	C
34	N	1352	U
34	N	1365	A
34	N	1368	G
34	N	1376	C
34	N	1379	U
34	N	1383	A
34	N	1386	C
34	N	1395	A
34	N	1403	A
34	N	1416	G
34	N	1419	A
34	N	1420	A
34	N	1421	G
34	N	1427	A
34	N	1428	C
34	N	1434	A
34	N	1437	C
34	N	1453	A
34	N	1458	U
34	N	1461	C
34	N	1478	G
34	N	1482	G
34	N	1504	A
34	N	1508	A
34	N	1509	A
34	N	1515	A
34	N	1524	G
34	N	1529	G
34	N	1535	A
34	N	1536	C
34	N	1537	G
34	N	1538	G
34	N	1554	U
34	N	1565	C
34	N	1566	A
34	N	1569	A
34	N	1578	U
34	N	1583	A

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Mol	Chain	Res	Type
34	N	1584	U
34	N	1585	C
34	N	1587	G
34	N	1607	C
34	N	1608	A
34	N	1610	A
34	N	1613	G
34	N	1622	G
34	N	1647	U
34	N	1648	U
34	N	1651	G
34	N	1674	G
34	N	1675	C
34	N	1676	A
34	N	1698	A
34	N	1699	G
34	N	1713	A
34	N	1715	G
34	N	1728	C
34	N	1729	U
34	N	1730	C
34	N	1733	G
34	N	1738	G
34	N	1757	A
34	N	1758	U
34	N	1760	C
34	N	1764	C
34	N	1773	A
34	N	1784	A
34	N	1787	A
34	N	1800	C
34	N	1801	A
34	N	1802	A
34	N	1808	A
34	N	1811	G
34	N	1816	C
34	N	1829	A
34	N	1833	C
34	N	1835	G
34	N	1857	G
34	N	1869	G
34	N	1870	C

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Mol	Chain	Res	Type
34	N	1900	A
34	N	1901	A
34	N	1906	G
34	N	1913	A
34	N	1919	A
34	N	1927	A
34	N	1929	G
34	N	1930	G
34	N	1931	U
34	N	1938	A
34	N	1955	U
34	N	1964	G
34	N	1967	C
34	N	1970	A
34	N	1971	U
34	N	1972	G
34	N	1991	U
34	N	1993	U
34	N	1997	C
34	N	2004	G
34	N	2006	C
34	N	2020	A
34	N	2022	U
34	N	2023	C
34	N	2031	A
34	N	2033	A
34	N	2043	C
34	N	2046	G
34	N	2055	C
34	N	2056	G
34	N	2060	A
34	N	2061	G
34	N	2062	A
34	N	2069	G
34	N	2072	C
34	N	2077	A
34	N	2092	U
34	N	2094	A
34	N	2097	A
34	N	2099	U
34	N	2110	G
34	N	2111	U

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Mol	Chain	Res	Type
34	N	2112	G
34	N	2113	U
34	N	2118	U
34	N	2119	A
34	N	2132	U
34	N	2133	G
34	N	2145	C
34	N	2147	A
34	N	2162	G
34	N	2171	A
34	N	2172	U
34	N	2173	A
34	N	2190	G
34	N	2191	A
34	N	2194	U
34	N	2198	A
34	N	2200	C
34	N	2203	U
34	N	2204	G
34	N	2211	A
34	N	2212	A
34	N	2214	C
34	N	2225	A
34	N	2226	C
34	N	2238	G
34	N	2239	G
34	N	2266	A
34	N	2278	A
34	N	2279	G
34	N	2283	C
34	N	2286	G
34	N	2287	A
34	N	2288	A
34	N	2297	A
34	N	2305	U
34	N	2307	G
34	N	2309	A
34	N	2312	U
34	N	2325	G
34	N	2333	A
34	N	2334	U
34	N	2345	G

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Mol	Chain	Res	Type
34	N	2347	C
34	N	2350	C
34	N	2354	C
34	N	2357	G
34	N	2361	G
34	N	2383	G
34	N	2385	C
34	N	2391	G
34	N	2402	U
34	N	2403	C
34	N	2406	A
34	N	2407	A
34	N	2422	C
34	N	2423	U
34	N	2425	A
34	N	2426	A
34	N	2427	C
34	N	2429	G
34	N	2430	A
34	N	2431	U
34	N	2435	A
34	N	2441	U
34	N	2448	A
34	N	2470	G
34	N	2476	A
34	N	2498	C
34	N	2502	G
34	N	2503	A
34	N	2504	U
34	N	2505	G
34	N	2507	C
34	N	2518	A
34	N	2520	C
34	N	2529	G
34	N	2535	G
34	N	2547	A
34	N	2554	U
34	N	2566	A
34	N	2567	G
34	N	2572	A
34	N	2573	C
34	N	2574	G

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Mol	Chain	Res	Type
34	N	2578	G
34	N	2585	U
34	N	2602	A
34	N	2603	G
34	N	2609	U
34	N	2613	U
34	N	2615	U
34	N	2629	U
34	N	2630	G
34	N	2636	C
34	N	2645	G
34	N	2646	C
34	N	2655	G
34	N	2656	U
34	N	2661	G
34	N	2663	G
34	N	2682	A
34	N	2689	U
34	N	2690	U
34	N	2714	G
34	N	2716	C
34	N	2718	G
34	N	2724	U
34	N	2727	A
34	N	2733	A
34	N	2748	A
34	N	2751	G
34	N	2752	C
34	N	2765	A
34	N	2776	A
34	N	2777	G
34	N	2778	A
34	N	2779	U
34	N	2791	G
34	N	2792	A
34	N	2798	U
34	N	2801	G
34	N	2818	U
34	N	2820	A
34	N	2833	U
34	N	2834	G
34	N	2836	U

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Mol	Chain	Res	Type
34	N	2849	U
34	N	2850	A
34	N	2859	G
34	N	2867	G
34	N	2868	A
34	N	2872	A
34	N	2873	A
34	N	2880	C
34	N	2884	U
34	N	2887	A
34	N	2891	U
34	N	2903	U
37	0	4	U
37	0	6	G
37	0	9	G
37	0	32	A
37	0	39	G
37	0	44	A
37	0	47	C
37	0	48	C
37	0	50	A
37	0	51	A
37	0	52	C
37	0	58	C
37	0	65	A
37	0	69	G
37	0	71	A
37	0	72	A
37	0	83	C
37	0	84	U
37	0	85	U
37	0	86	G
37	0	87	C
37	0	92	U
37	0	97	G
37	0	108	G
37	0	115	G
37	0	116	A
37	0	122	G
37	0	130	A
37	0	141	G
37	0	143	A

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Mol	Chain	Res	Type
37	0	144	G
37	0	149	A
37	0	156	C
37	0	163	C
37	0	174	A
37	0	177	G
37	0	182	A
37	0	183	C
37	0	184	G
37	0	197	A
37	0	209	U
37	0	210	C
37	0	211	G
37	0	226	G
37	0	245	U
37	0	247	G
37	0	251	G
37	0	266	G
37	0	267	C
37	0	280	C
37	0	281	G
37	0	289	G
37	0	298	A
37	0	306	A
37	0	321	A
37	0	328	C
37	0	332	G
37	0	347	G
37	0	351	G
37	0	352	C
37	0	354	G
37	0	358	U
37	0	367	U
37	0	372	C
37	0	375	U
37	0	384	G
37	0	389	A
37	0	397	A
37	0	398	U
37	0	406	G
37	0	412	A
37	0	413	G

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Mol	Chain	Res	Type
37	0	421	U
37	0	422	C
37	0	423	G
37	0	424	G
37	0	429	U
37	0	430	A
37	0	439	U
37	0	451	A
37	0	458	U
37	0	459	A
37	0	467	U
37	0	468	A
37	0	474	G
37	0	478	A
37	0	479	U
37	0	481	G
37	0	484	G
37	0	485	U
37	0	486	U
37	0	495	A
37	0	497	G
37	0	511	C
37	0	518	C
37	0	519	C
37	0	521	G
37	0	527	G
37	0	531	U
37	0	532	A
37	0	533	A
37	0	547	A
37	0	559	A
37	0	562	U
37	0	572	A
37	0	573	A
37	0	576	C
37	0	596	A
37	0	607	A
37	0	633	G
37	0	639	G
37	0	650	G
37	0	652	U
37	0	665	A

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Mol	Chain	Res	Type
37	0	675	A
37	0	688	G
37	0	695	A
37	0	701	U
37	0	702	A
37	0	703	G
37	0	718	A
37	0	721	G
37	0	723	U
37	0	724	G
37	0	731	G
37	0	734	G
37	0	747	A
37	0	755	G
37	0	777	A
37	0	793	U
37	0	794	A
37	0	813	U
37	0	815	A
37	0	817	C
37	0	818	G
37	0	819	A
37	0	821	G
37	0	828	U
37	0	832	G
37	0	836	G
37	0	841	C
37	0	842	U
37	0	843	U
37	0	844	G
37	0	846	G
37	0	849	G
37	0	859	G
37	0	864	A
37	0	885	G
37	0	889	A
37	0	890	G
37	0	891	U
37	0	902	G
37	0	914	A
37	0	926	G
37	0	934	C

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Mol	Chain	Res	Type
37	0	935	A
37	0	960	U
37	0	965	U
37	0	966	G
37	0	969	A
37	0	971	G
37	0	972	C
37	0	975	A
37	0	976	G
37	0	977	A
37	0	989	U
37	0	993	G
37	0	999	C
37	0	1000	A
37	0	1004	A
37	0	1008	U
37	0	1009	U
37	0	1017	U
37	0	1018	G
37	0	1020	G
37	0	1022	A
37	0	1024	G
37	0	1025	U
37	0	1026	G
37	0	1027	C
37	0	1030	U
37	0	1031	C
37	0	1032	G
37	0	1043	G
37	0	1044	A
37	0	1053	G
37	0	1056	U
37	0	1065	U
37	0	1085	U
37	0	1092	A
37	0	1094	G
37	0	1095	U
37	0	1101	A
37	0	1125	U
37	0	1130	A
37	0	1132	C
37	0	1136	C

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Mol	Chain	Res	Type
37	0	1137	C
37	0	1138	G
37	0	1139	G
37	0	1140	C
37	0	1146	A
37	0	1158	C
37	0	1159	U
37	0	1168	U
37	0	1171	A
37	0	1182	G
37	0	1183	U
37	0	1184	G
37	0	1190	G
37	0	1196	A
37	0	1200	C
37	0	1201	A
37	0	1202	U
37	0	1212	U
37	0	1213	A
37	0	1227	A
37	0	1238	A
37	0	1253	G
37	0	1256	A
37	0	1257	A
37	0	1258	G
37	0	1260	G
37	0	1261	A
37	0	1274	A
37	0	1275	A
37	0	1278	G
37	0	1280	A
37	0	1281	C
37	0	1287	A
37	0	1297	G
37	0	1298	U
37	0	1300	G
37	0	1301	U
37	0	1302	C
37	0	1305	G
37	0	1317	C
37	0	1318	A
37	0	1319	A

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Mol	Chain	Res	Type
37	0	1320	C
37	0	1322	C
37	0	1323	G
37	0	1331	G
37	0	1332	A
37	0	1340	A
37	0	1346	A
37	0	1347	G
37	0	1348	U
37	0	1353	G
37	0	1363	A
37	0	1364	U
37	0	1370	G
37	0	1379	G
37	0	1383	C
37	0	1394	A
37	0	1400	C
37	0	1419	G
37	0	1422	G
37	0	1433	A
37	0	1441	A
37	0	1446	A
37	0	1451	U
37	0	1452	C
37	0	1487	G
37	0	1492	A
37	0	1494	G
37	0	1497	G
37	0	1503	A
37	0	1506	U
37	0	1517	G
37	0	1519	A
37	0	1529	G
37	0	1530	G
37	0	1531	A

All (65) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	16	U
1	A	19	G
1	A	20	U

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Mol	Chain	Res	Type
1	A	21	A
1	A	44	G
1	A	45	U
1	A	46	G
1	A	60	U
4	O	52	A
34	N	60	G
34	N	227	A
34	N	242	G
34	N	249	C
34	N	372	G
34	N	404	A
34	N	421	C
34	N	446	G
34	N	456	C
34	N	474	G
34	N	503	A
34	N	512	G
34	N	555	G
34	N	670	A
34	N	774	G
34	N	784	G
34	N	859	G
34	N	995	C
34	N	1020	A
34	N	1134	A
34	N	1141	U
34	N	1142	A
34	N	1236	G
34	N	1900	A
34	N	2062	A
34	N	2225	A
34	N	2282	G
34	N	2286	G
34	N	2311	A
34	N	2405	G
34	N	2655	G
34	N	2776	A
34	N	2867	G
34	N	2873	A
37	0	64	G
37	0	85	U

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Mol	Chain	Res	Type
37	0	96	U
37	0	115	G
37	0	388	G
37	0	429	U
37	0	518	C
37	0	595	A
37	0	812	G
37	0	890	G
37	0	965	U
37	0	1124	G
37	0	1145	A
37	0	1182	G
37	0	1190	G
37	0	1201	A
37	0	1300	G
37	0	1345	U
37	0	1347	G
37	0	1491	G
37	0	1493	A
37	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.

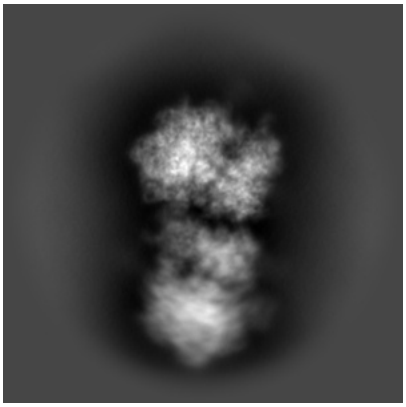
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-13952. These allow visual inspection of the internal detail of the map and identification of artifacts.

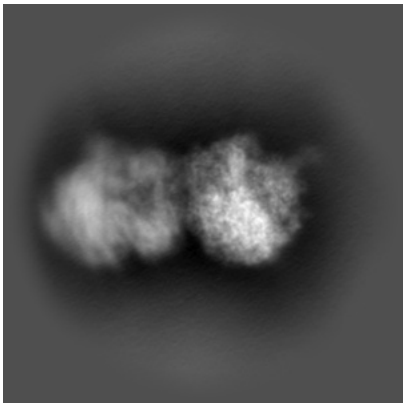
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

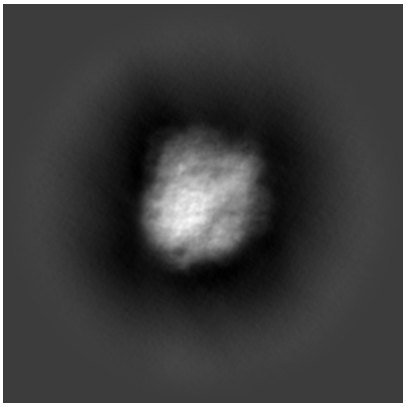
6.1.1 Primary map



X



Y

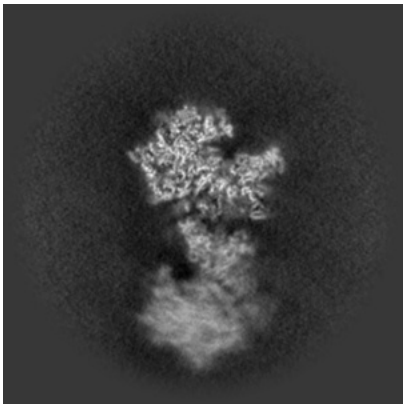


Z

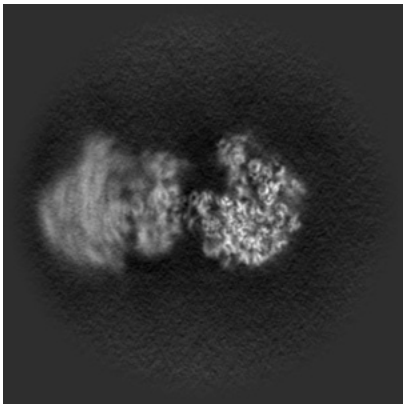
The images above show the map projected in three orthogonal directions.

6.2 Central slices

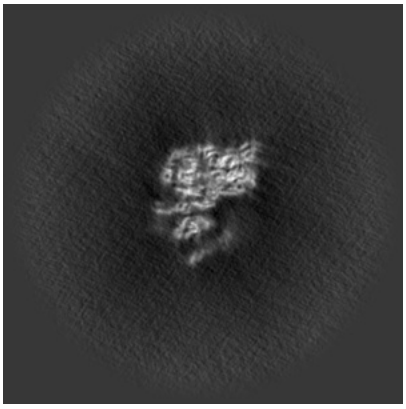
6.2.1 Primary map



X Index: 300



Y Index: 300

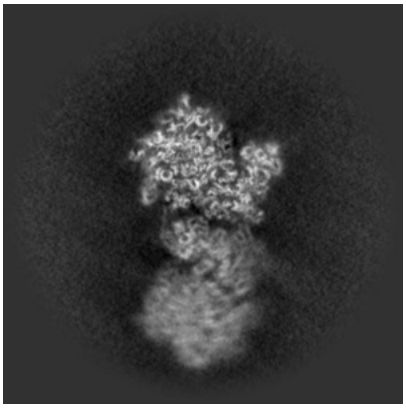


Z Index: 300

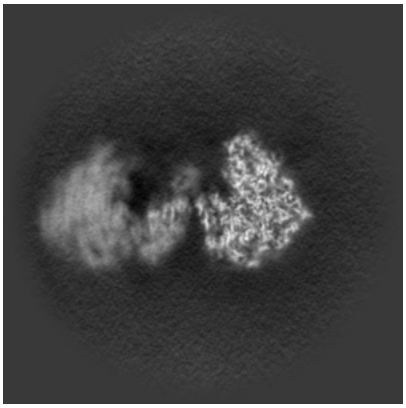
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

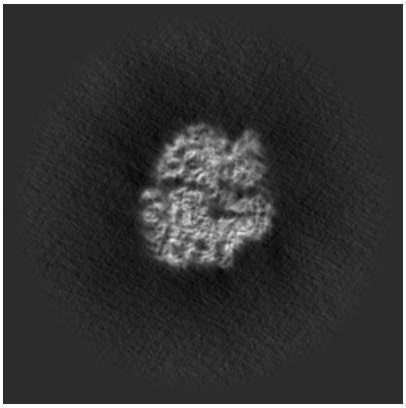
6.3.1 Primary map



X Index: 282



Y Index: 275

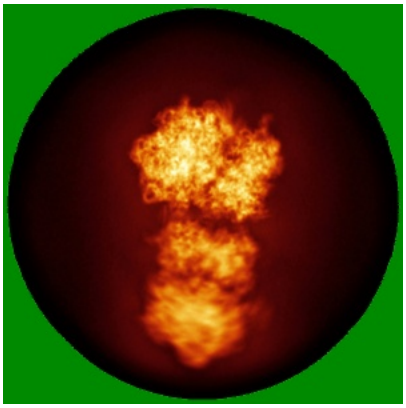


Z Index: 348

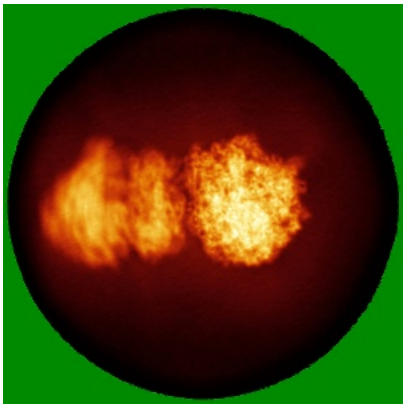
The images above show the largest variance slices of the map in three orthogonal directions.

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

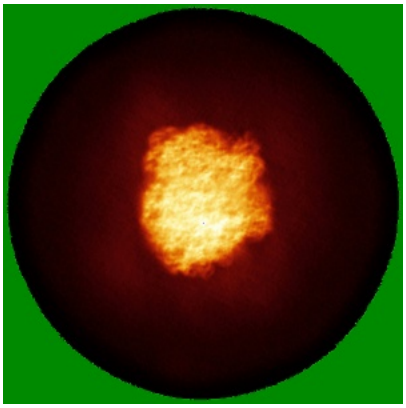
6.4.1 Primary map



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.

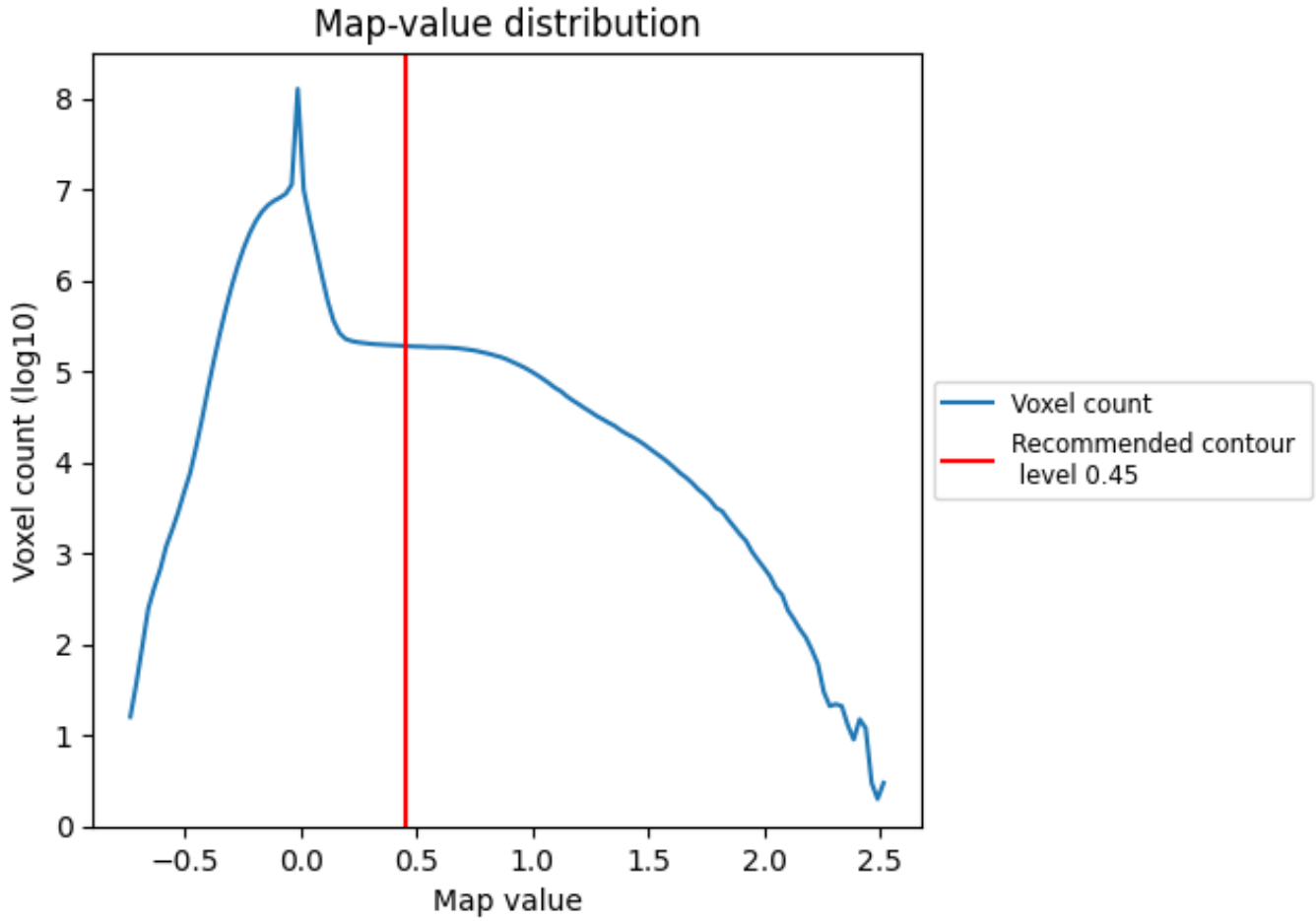
6.6 Mask visualisation (i)

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

7 Map analysis

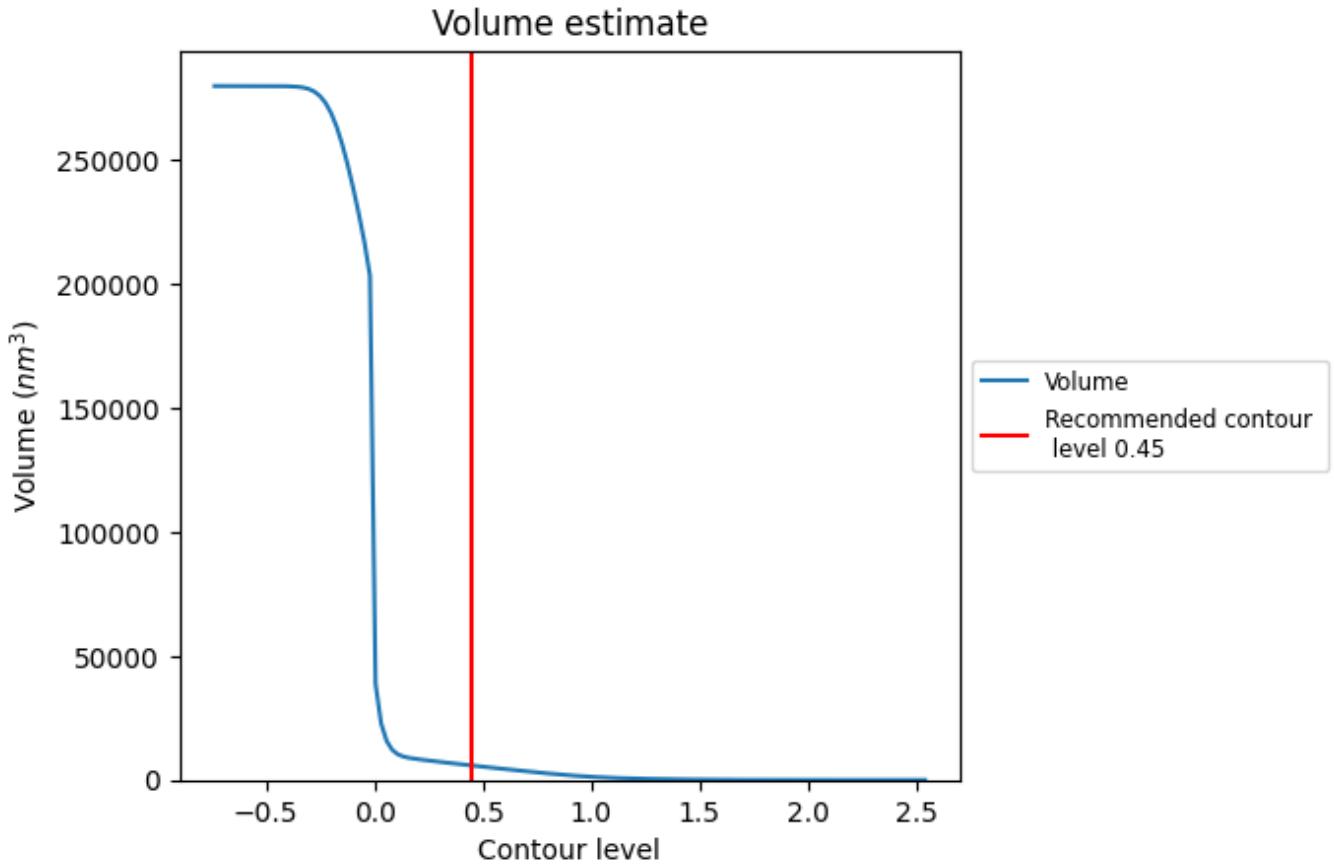
This section contains the results of statistical analysis of the map.

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.

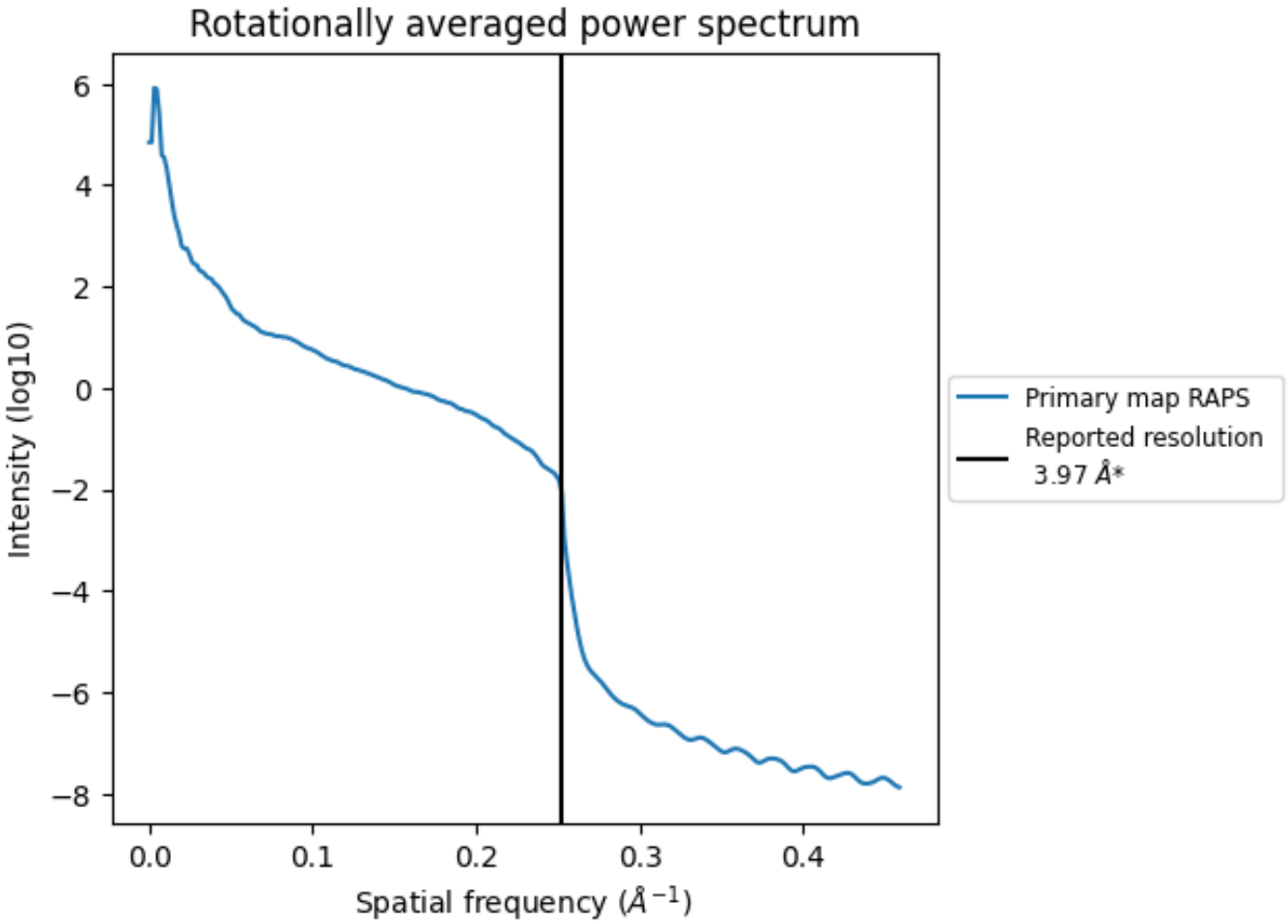
7.2 Volume estimate



The volume at the recommended contour level is 5826 nm^3; this corresponds to an approximate mass of 5263 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 0.252 Å^{-1}

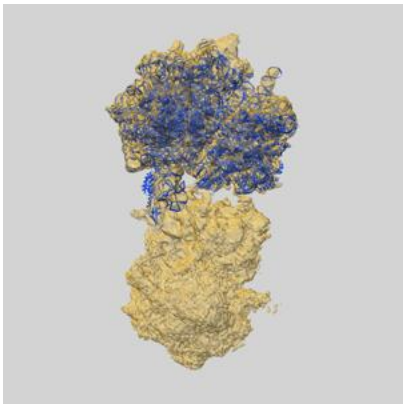
8 Fourier-Shell correlation (i)

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

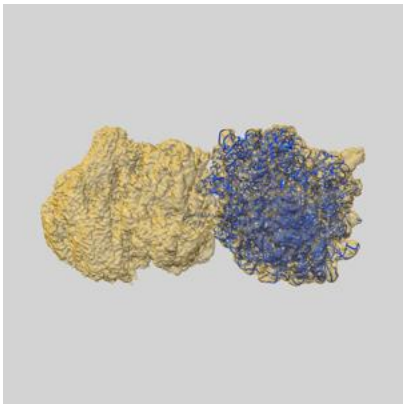
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-13952 and PDB model 7QG8. Per-residue inclusion information can be found in section 3 on page 16.

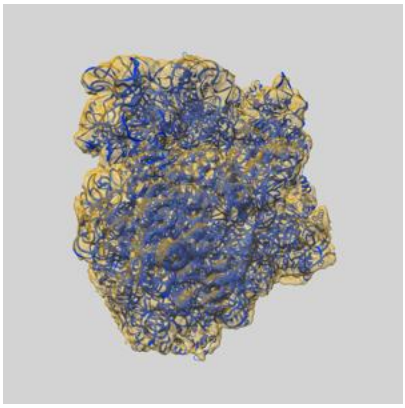
9.1 Map-model overlay



X



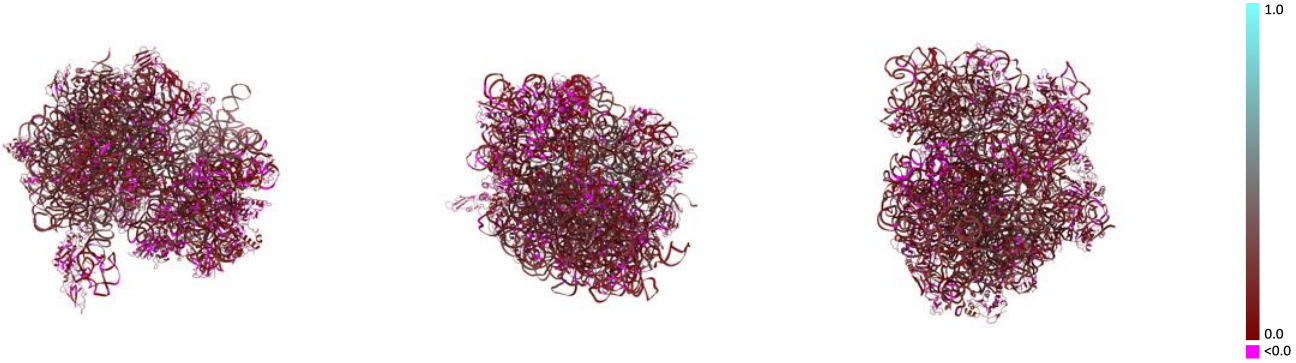
Y



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.

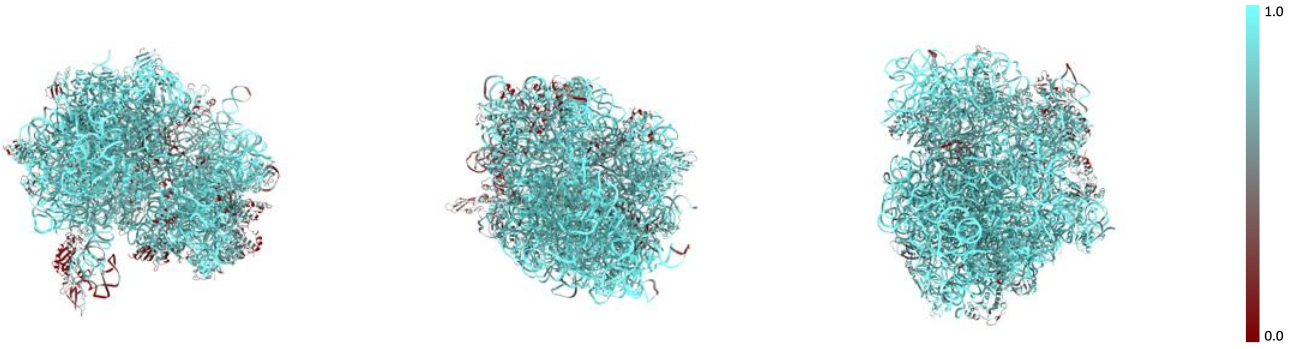
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

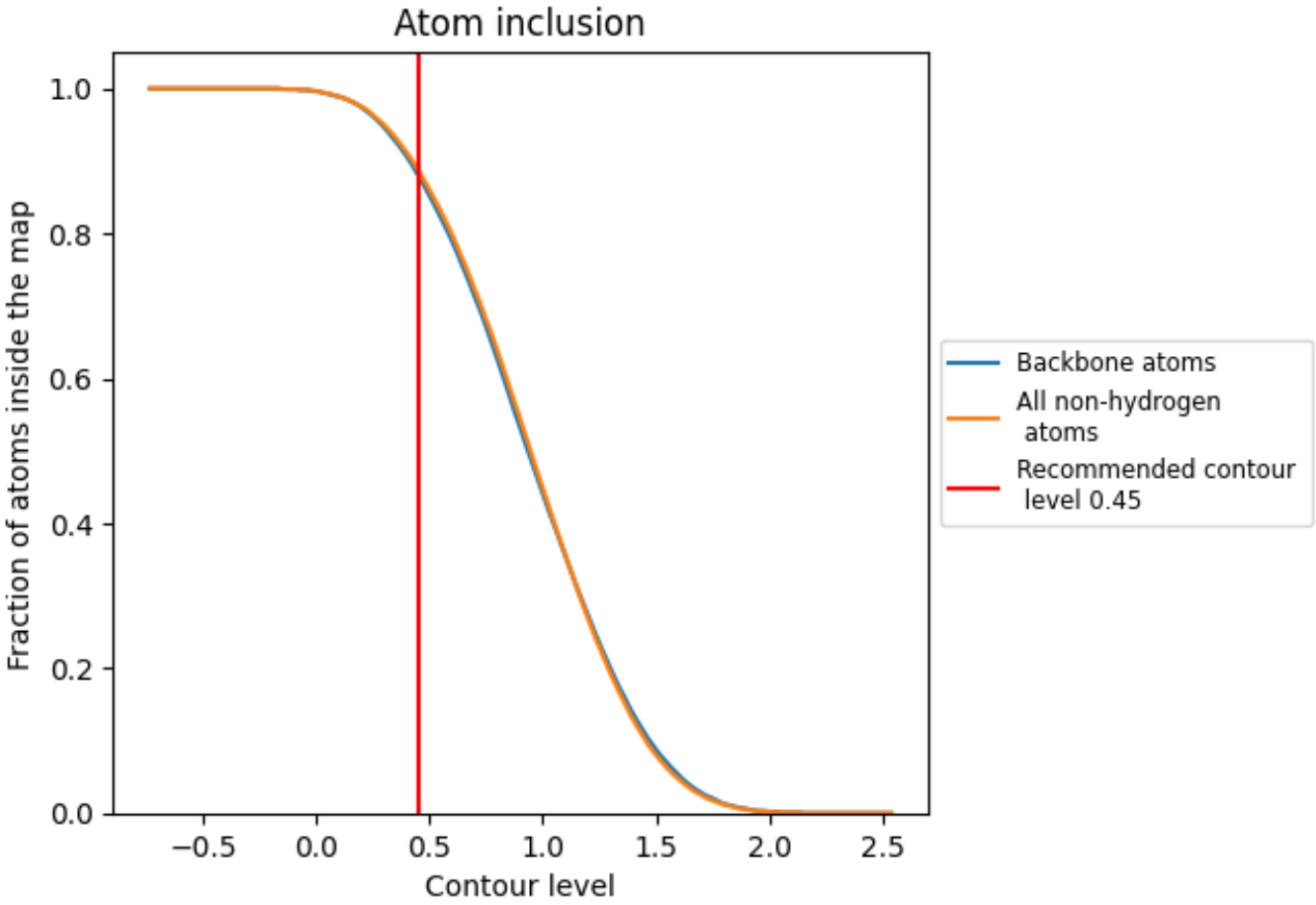
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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

9.4 Atom inclusion (i)



At the recommended contour level, 88% of all backbone atoms, 89% 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	0.8870	0.1450
0	0.9490	0.1580
1	0.5930	0.1110
2	0.6140	0.0610
3	0.7810	0.1020
4	0.9050	0.1390
5	0.5230	0.1150
6	0.6800	0.0780
7	0.8020	0.1190
8	0.8100	0.0840
9	0.5700	0.0820
A	0.7540	0.1560
C	0.0970	0.0690
D	0.5490	0.0490
E	0.8960	0.0910
F	0.6170	0.0710
G	0.6480	0.0470
H	0.8100	0.1300
I	0.8750	0.1250
J	0.8260	0.0380
K	0.6810	0.1310
L	0.5070	0.1250
M	0.9150	0.1840
N	0.9560	0.1680
O	0.9550	0.1550
P	0.8630	0.0740
Q	0.8170	0.0790
R	0.7890	0.1310
S	0.7900	0.0960
T	0.8470	0.1070
U	0.3990	0.1080
V	0.5640	0.0520
W	0.9230	0.1590
X	0.5170	0.0200
Y	0.8110	0.1500

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Chain	Atom inclusion	Q-score
Z	0.8730	0.1730
a	0.9130	0.0930
b	0.8500	0.1160
c	0.7270	0.0160
d	0.9130	0.1470
e	0.7430	0.1710
f	0.8900	0.1250
g	0.7700	0.0810
h	0.8570	0.1110
i	0.8560	0.1420
j	0.9820	0.1180
k	0.7880	0.1460
l	0.6030	0.1020
m	0.8900	0.1580
n	0.8500	0.0900
o	0.8700	0.1480
p	0.9660	0.1100
q	0.9740	0.1670
r	0.9490	0.1150
s	0.9480	0.1080
t	0.7970	0.0600
u	0.7810	0.1080
v	0.5870	0.1390