



## Full wwPDB EM Validation Report ⓘ

Apr 6, 2026 – 11:05 AM EDT

PDB ID : 9OZZ / pdb\_00009ozz  
EMDB ID : EMD-71061  
Title : Flavobacterium johnsoniae 70S initiation complex with rpsU mRNA containing Shine-Dalgarno sequence. State 2.  
Authors : Ortega, J.; Arpin, D.  
Deposited on : 2025-06-06  
Resolution : 2.50 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](mailto: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>.

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

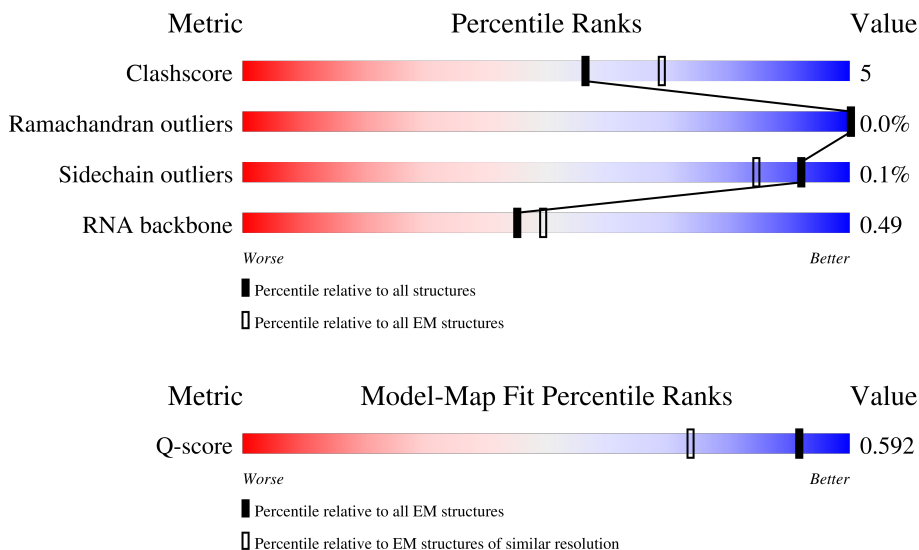
EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.48.1

# 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 2.50 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	7115 ( 2.00 - 3.00 )

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	1	2862	
2	2	1520	
3	3	111	







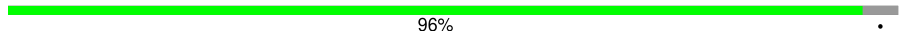

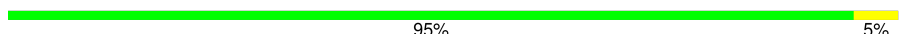









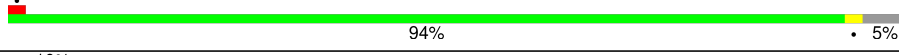





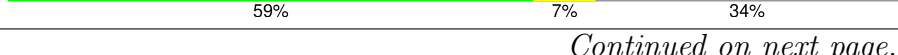
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Mol	Chain	Length	Quality of chain
4	4	50	60% 12% 28%
5	5	30	83% 7% 10%
6	6	23	17% 22% 35% 26% 17%
7	A	77	6% 26% 43% 26% 5%
8	B	274	89% 9% ..
9	C	205	82% 18%
10	D	209	89% 9% .
11	E	183	5% 84% 14% .
12	F	180	6% 84% 14% .
13	G	146	47% 67% 14% . 16%
14	H	254	28% 67% 20% 14%
15	J	151	91% 9% .
16	K	122	93% 6% .
17	L	150	92% 8%
18	M	141	89% 9% .
19	N	163	70% 7% 23%
20	O	116	91% 8% .
21	P	116	84% 12% .
22	Q	114	90% 9% .
23	R	147	63% 8% 29%
24	S	137	85% 9% 7%
25	T	96	81% 7% 11%
26	U	104	79% 11% . 10%
27	V	203	54% 7% 39%
28	W	86	86% 5% 9%



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Mol	Chain	Length	Quality of chain
29	X	78	
30	Y	63	
31	Z	60	
32	a	84	
33	b	64	
34	c	60	
35	d	53	
36	e	65	
37	f	38	
38	h	252	
39	i	201	
40	j	173	
41	k	113	
42	l	158	
43	m	132	
44	n	128	
45	o	101	
46	p	127	
47	q	127	
48	r	124	
49	s	89	
50	t	88	
51	u	188	
52	v	86	
53	w	98	

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Mol	Chain	Length	Quality of chain
54	x	92	 <p>7% 76% 14% 10%</p>
55	y	83	 <p>7% 82% 13% 5%</p>

## 2 Entry composition

There are 55 unique types of molecules in this entry. The entry contains 138113 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	2754	59085	26384	10861	19086	2754	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	342	A	U	conflict	GB 1735479352
1	406	A	G	conflict	GB 1735479352
1	429	C	U	conflict	GB 1735479352
1	645	C	U	conflict	GB 1735479352
1	925	C	U	conflict	GB 1735479352
1	1510	A	U	conflict	GB 1735479352
1	1687	U	G	conflict	GB 1735479352
1	1745	U	C	conflict	GB 1735479352
1	1746	G	C	conflict	GB 1735479352
1	1753	C	G	conflict	GB 1735479352
1	1754	A	G	conflict	GB 1735479352
1	1815	U	C	conflict	GB 1735479352
1	2098	C	U	conflict	GB 1735479352
1	2209	U	C	conflict	GB 1735479352
1	2471	U	C	conflict	GB 1735479352
1	2569	U	C	conflict	GB 1735479352

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1481	31728	14167	5801	10279	1481	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	3	110	2339	1043	406	780	110	0	0

- Molecule 4 is a protein called 50S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	4	36	278	183	44	49	2	0	0

- Molecule 5 is a protein called 30S ribosomal protein S22.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	5	27	231	140	61	30	0	0

- Molecule 6 is a RNA chain called rpsU mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	6	19	415	184	78	134	19	0	0

- Molecule 7 is a RNA chain called fMet-tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
7	A	73	1562	696	286	507	73	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	B	271	2053	1277	403	365	8	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	35	SER	ALA	conflict	UNP A0A1B2U0Q0
B	194	GLU	ALA	conflict	UNP A0A1B2U0Q0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	C	204	1515	956	280	272	7	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	87	ALA	THR	conflict	UNP A0A1M5L9Q4
C	88	ALA	GLU	conflict	UNP A0A1M5L9Q4
C	90	ALA	LYS	conflict	UNP A0A1M5L9Q4
C	138	GLN	ASN	conflict	UNP A0A1M5L9Q4

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
10	D	206	1509	964	281	264	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	E	179	1300	836	229	230	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	F	177	1255	805	230	219	1	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	96	ALA	SER	conflict	UNP A0A1M5L807
F	100	ASN	GLN	conflict	UNP A0A1M5L807
F	128	ALA	LYS	conflict	UNP A0A1M5L807
F	130	ALA	LYS	conflict	UNP A0A1M5L807

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	G	122	869	559	154	155	1	0	0

- Molecule 14 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	H	219	1676	1067	294	307	8	0	0

- Molecule 15 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	J	150	1112	705	207	195	5	0	0

- Molecule 16 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	K	121	889	559	173	153	4	0	0

- Molecule 17 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	L	150	1048	654	209	183	2	0	0

- Molecule 18 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	M	139	1056	683	199	167	7	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	96	TRP	ALA	conflict	UNP A0A1B2U0I0

- Molecule 19 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	N	125	980	615	189	170	6	0	0

- Molecule 20 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
20	O	115	846	532	164	150	0	0

- Molecule 21 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	P	112	Total	C	N	O	0	0
			848	554	154	140		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
P	115	LEU	ARG	conflict	UNP A0A1M5PX52

- Molecule 22 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	Q	113	Total	C	N	O	S	0	0
			904	571	185	143	5		

- Molecule 23 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	R	104	Total	C	N	O	0	0
			768	499	145	124		

- Molecule 24 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	S	128	Total	C	N	O	S	0	0
			964	600	198	163	3		

- Molecule 25 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	T	85	Total	C	N	O	S	0	0
			647	416	116	114	1		

- Molecule 26 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	U	94	Total	C	N	O	0	0
			679	433	134	112		

- Molecule 27 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	V	124	871	570	148	151	2	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
V	66	ALA	LYS	conflict	UNP A0A1M5HDD0
V	137	ILE	LEU	conflict	UNP A0A1M5HDD0
V	139	GLU	ASP	conflict	UNP A0A1M5HDD0
V	175	ALA	CYS	conflict	UNP A0A1M5HDD0

- Molecule 28 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
28	W	78	586	365	119	102	0	0

- Molecule 29 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	X	76	586	370	114	99	3	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	52	GLN	ALA	conflict	UNP A0A1B2U1R1
X	53	ARG	ALA	conflict	UNP A0A1B2U1R1
X	74	ALA	GLU	conflict	UNP A0A1B2U1R1

- Molecule 30 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
30	Y	59	409	257	80	72	0	0

- Molecule 31 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	Z	56	400	254	77	67	2	0	0

- Molecule 32 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	a	58	421	271	71	77	2	0	0

- Molecule 33 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	b	59	475	300	99	75	1	0	0

- Molecule 34 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	c	54	415	263	81	70	1	0	0

- Molecule 35 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	d	51	416	252	101	61	2	0	0

- Molecule 36 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	e	64	506	322	103	80	1	0	0

- Molecule 37 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	f	38	305	190	68	45	2	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	h	215	1600	1015	290	289	6	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
39	i	200	Total	C	N	O	S	0	0
			1576	998	291	284	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	j	172	Total	C	N	O	S	0	0
			1179	744	229	205	1		

- Molecule 41 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	k	107	Total	C	N	O	S	0	0
			815	534	149	130	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
42	l	153	Total	C	N	O	S	0	0
			1183	747	231	200	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
43	m	131	Total	C	N	O	S	0	0
			961	623	167	169	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
44	n	125	Total	C	N	O	S	0	0
			972	612	188	168	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
45	o	98	Total	C	N	O	S	0	0
			701	450	123	126	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	p	117	823	515	160	143	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	q	121	922	567	195	157	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	r	117	883	544	181	155	3	0	0

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
r	115	THR	-	expression tag	UNP P0A7T1
r	116	VAL	-	expression tag	UNP P0A7T1
r	117	ALA	-	expression tag	UNP P0A7T1
r	118	ASN	-	expression tag	UNP P0A7T1
r	119	LYS	-	expression tag	UNP P0A7T1
r	120	LYS	-	expression tag	UNP P0A7T1
r	121	LYS	-	expression tag	UNP P0A7T1
r	122	ALA	-	expression tag	UNP P0A7T1
r	123	THR	-	expression tag	UNP P0A7T1
r	124	LYS	-	expression tag	UNP P0A7T1

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	s	88	665	416	136	110	3	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
50	t	88	694	443	136	115	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
t	71	ARG	LYS	conflict	UNP A0A1M6QTP8

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

Mol	Chain	Residues	Atoms				AltConf	Trace
51	u	109	Total	C	N	O	0	0
			783	492	151	140		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
u	56	ILE	ALA	conflict	UNP A0A1M6QGN9
u	62	GLN	ASN	conflict	UNP A0A1M6QGN9

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

Mol	Chain	Residues	Atoms					AltConf	Trace
52	v	80	Total	C	N	O	S	0	0
			638	404	124	107	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
53	w	65	Total	C	N	O	S	0	0
			521	342	96	81	2		

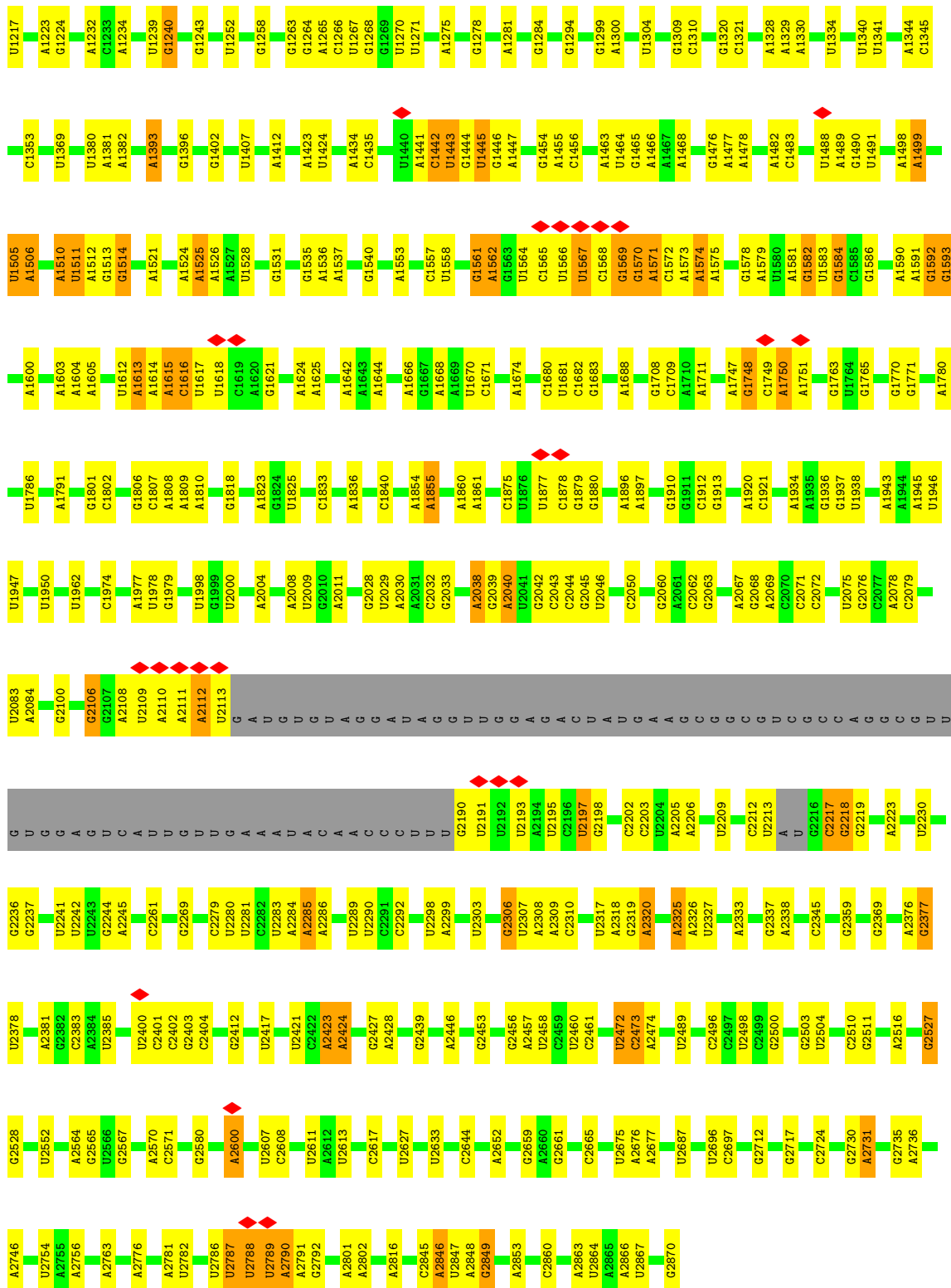
- Molecule 54 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	x	83	Total	C	N	O	S	0	0
			636	406	118	110	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
55	y	79	Total	C	N	O	S	0	0
			615	381	129	104	1		

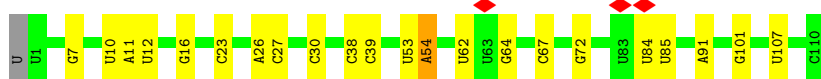




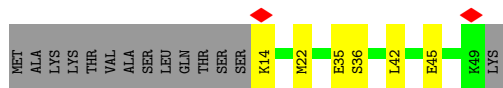
• Molecule 2: 16S rRNA



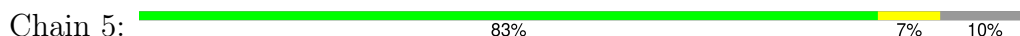




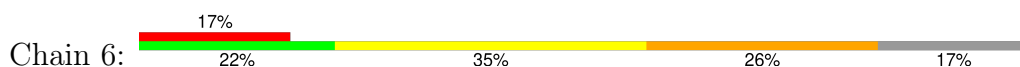
• Molecule 4: 50S ribosomal protein L38



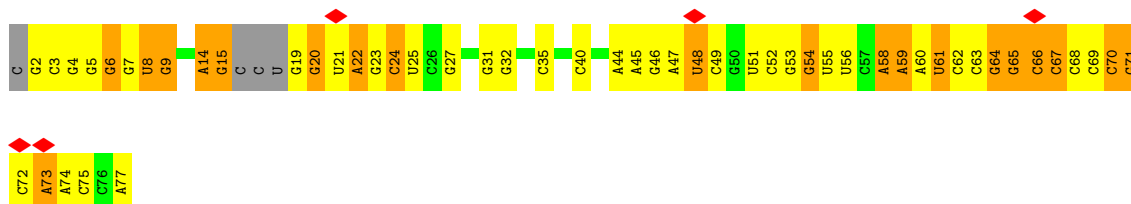
• Molecule 5: 30S ribosomal protein S22



• Molecule 6: rpsU mRNA



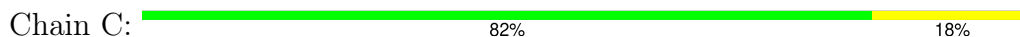
• Molecule 7: fMet-tRNA



• Molecule 8: 50S ribosomal protein L2

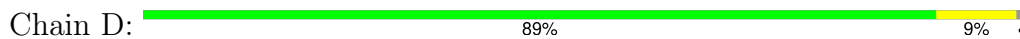


• Molecule 9: 50S ribosomal protein L3

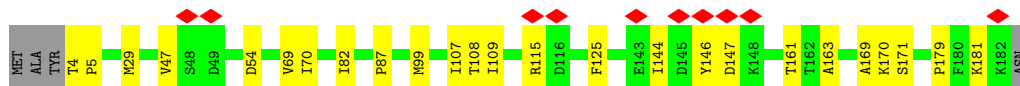
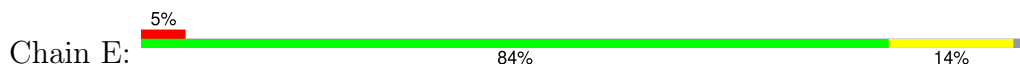


K206

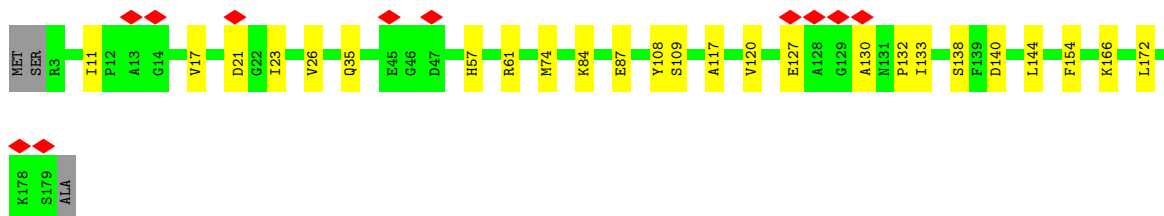
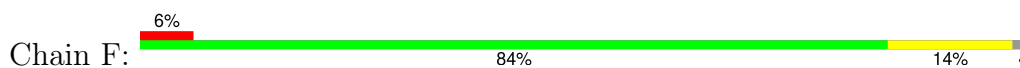
• Molecule 10: 50S ribosomal protein L4



• Molecule 11: 50S ribosomal protein L5



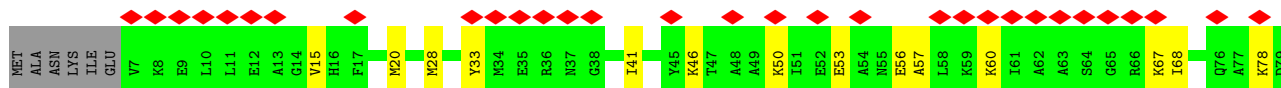
• Molecule 12: 50S ribosomal protein L6

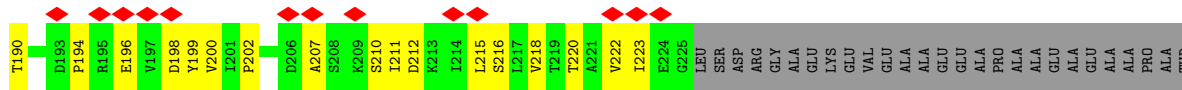
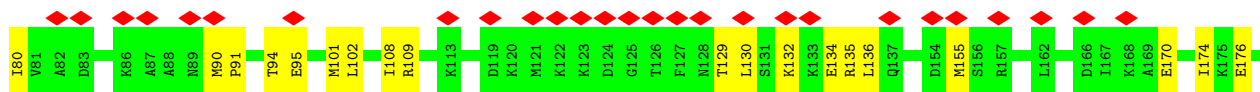


• Molecule 13: 50S ribosomal protein L9



• Molecule 14: 30S ribosomal protein S2





GLU  
GLU

- Molecule 15: 50S ribosomal protein L13

Chain J: 91% 9%



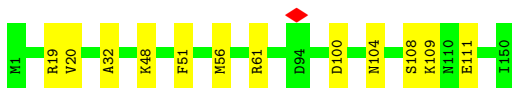
- Molecule 16: 50S ribosomal protein L14

Chain K: 93% 6%



- Molecule 17: 50S ribosomal protein L15

Chain L: 92% 8%



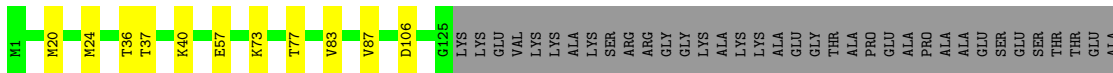
- Molecule 18: 50S ribosomal protein L16

Chain M: 89% 9%



- Molecule 19: 50S ribosomal protein L17

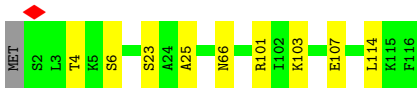
Chain N: 70% 7% 23%




SER  
GLU

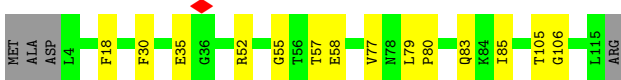
- Molecule 20: 50S ribosomal protein L18

Chain O:  91% 8%




- Molecule 21: 50S ribosomal protein L19

Chain P:  84% 12%



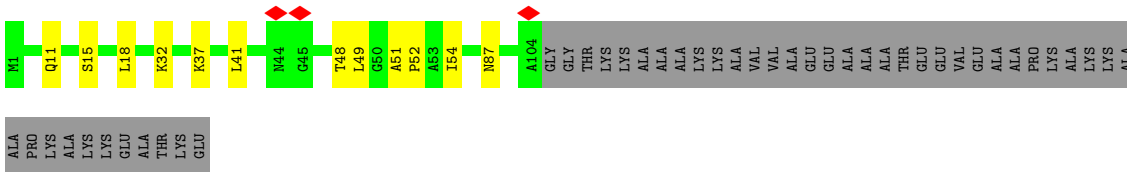
- Molecule 22: 50S ribosomal protein L20

Chain Q:  90% 9%




- Molecule 23: 50S ribosomal protein L21

Chain R:  63% 8% 29%




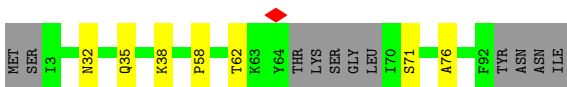
- Molecule 24: 50S ribosomal protein L22

Chain S:  85% 9% 7%




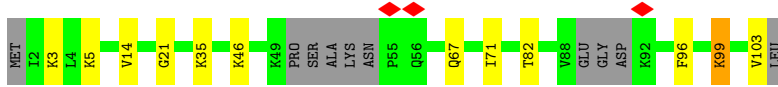
- Molecule 25: 50S ribosomal protein L23

Chain T:  81% 7% 11%

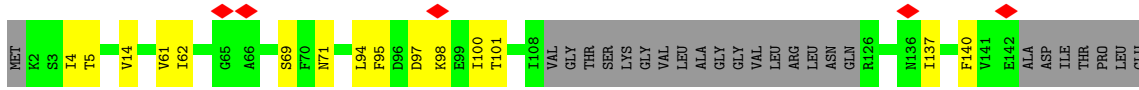


- Molecule 26: 50S ribosomal protein L24

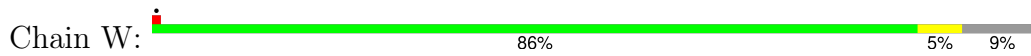
Chain U:  79% 11% 10%



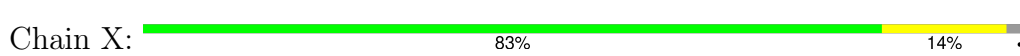
- Molecule 27: 50S ribosomal protein L25



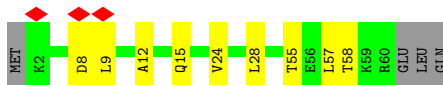
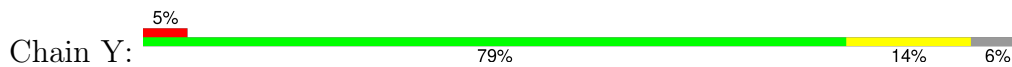
- Molecule 28: 50S ribosomal protein L27



- Molecule 29: 50S ribosomal protein L28



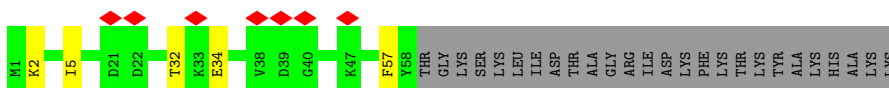
- Molecule 30: 50S ribosomal protein L29




- Molecule 31: 50S ribosomal protein L30



- Molecule 32: 50S ribosomal protein L31



- Molecule 33: 50S ribosomal protein L32

Chain b:  80% 11% 8%



- Molecule 34: 50S ribosomal protein L33

Chain c:  77% 13% 10%




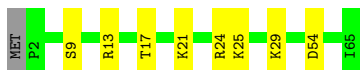
- Molecule 35: 50S ribosomal protein L34

Chain d:  96%



- Molecule 36: 50S ribosomal protein L35

Chain e:  86% 12%



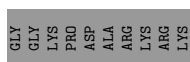
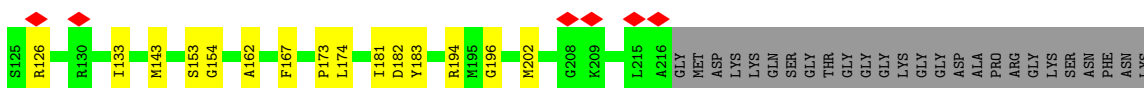
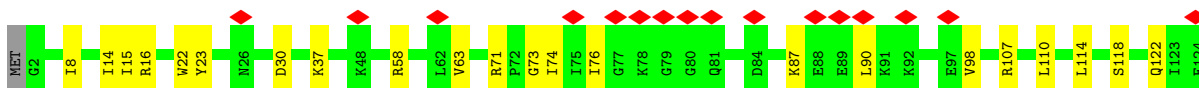
- Molecule 37: 50S ribosomal protein L36

Chain f:  95% 5%

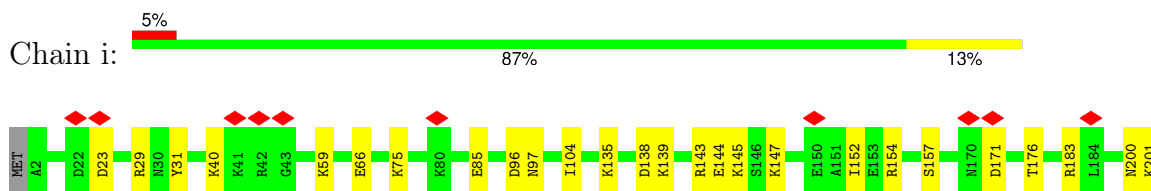


- Molecule 38: 30S ribosomal protein S3

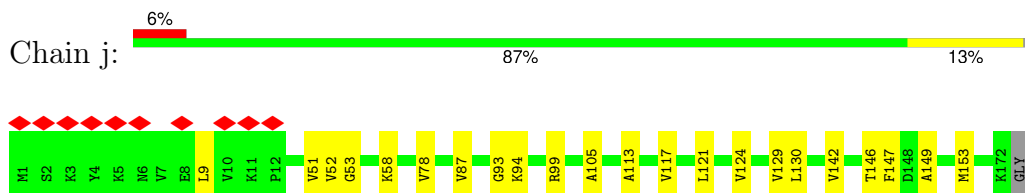
Chain h:  9% 71% 15% 5%



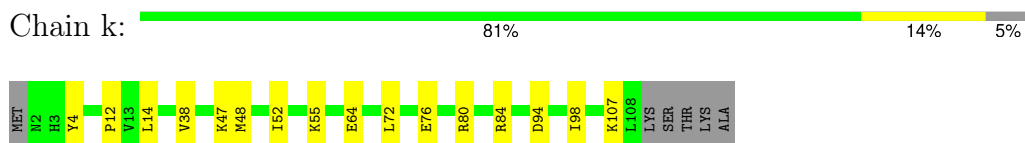
- Molecule 39: 30S ribosomal protein S4



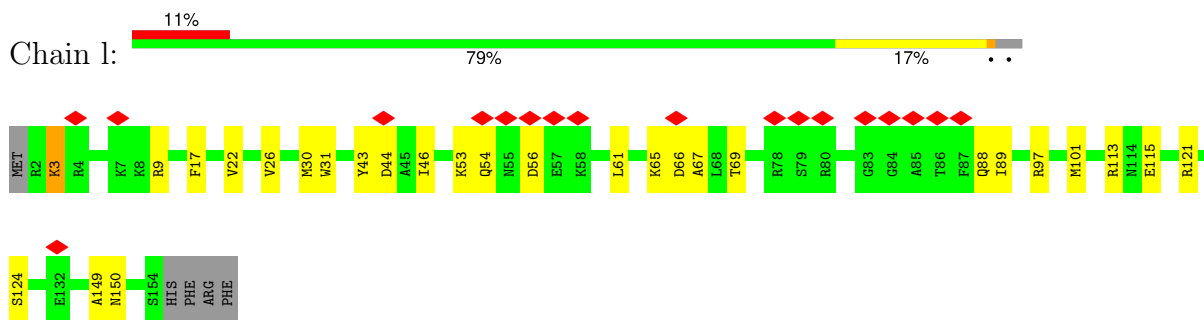
- Molecule 40: 30S ribosomal protein S5



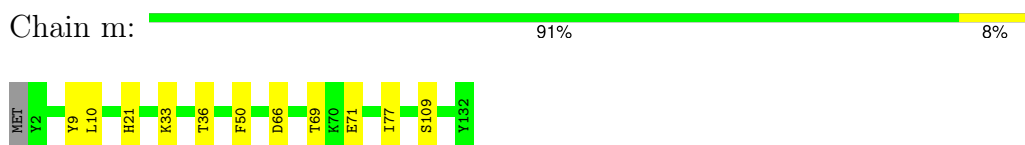
- Molecule 41: 30S ribosomal protein S6



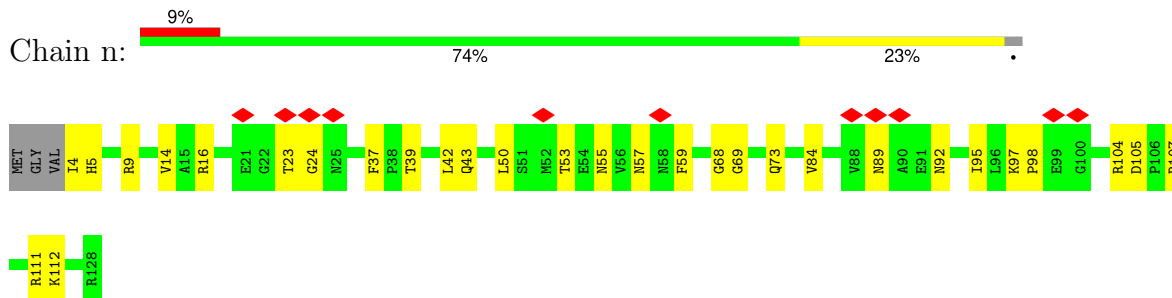
- Molecule 42: 30S ribosomal protein S7



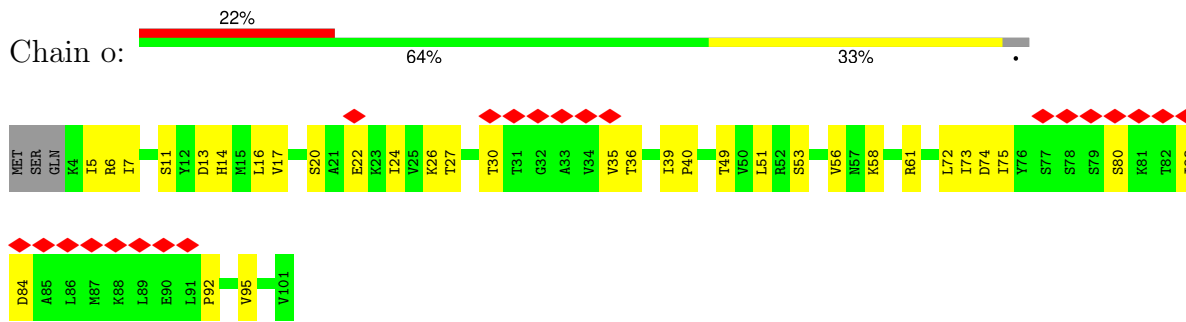
- Molecule 43: 30S ribosomal protein S8



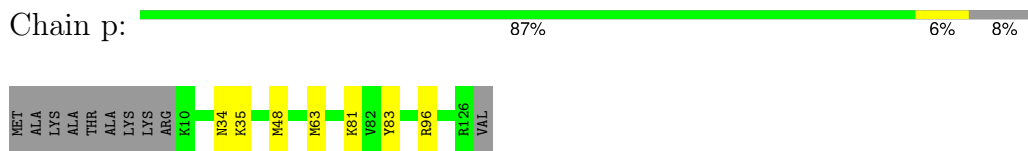
- Molecule 44: 30S ribosomal protein S9



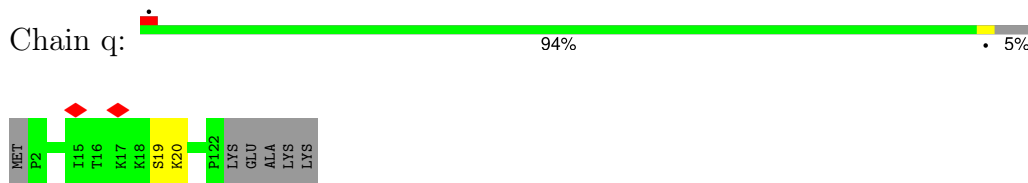
- Molecule 45: 30S ribosomal protein S10



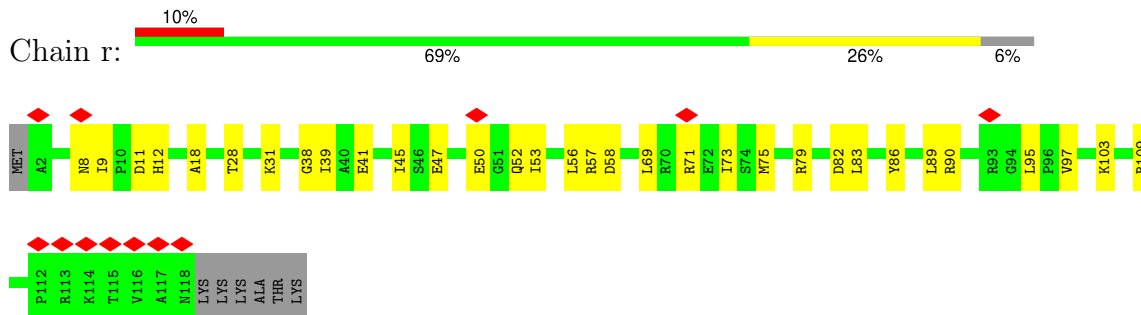
- Molecule 46: 30S ribosomal protein S11



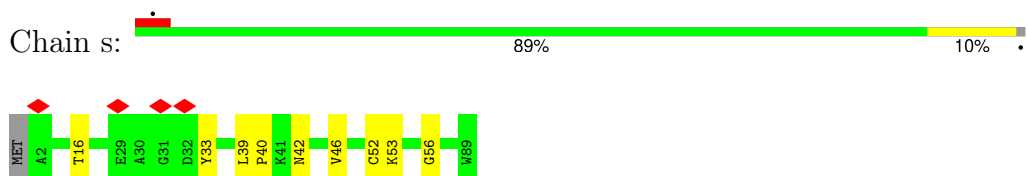
- Molecule 47: 30S ribosomal protein S12



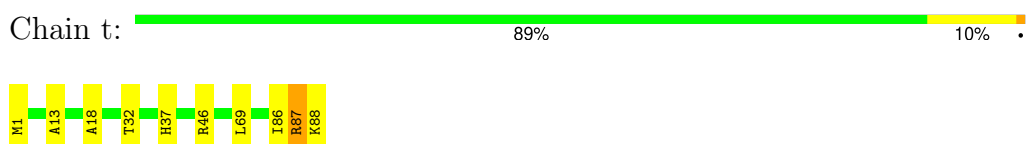
- Molecule 48: 30S ribosomal protein S13



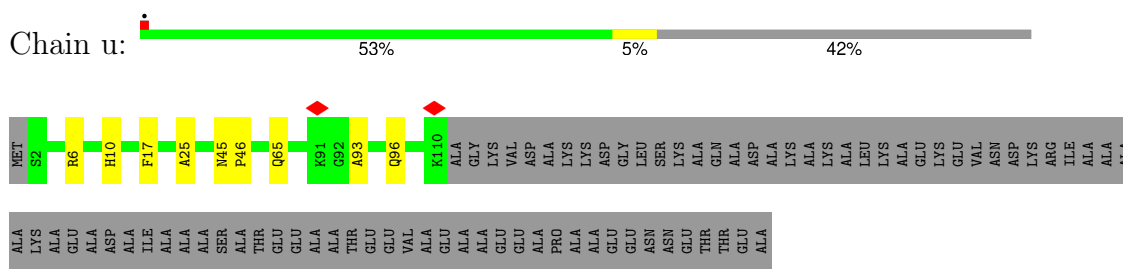
- Molecule 49: 30S ribosomal protein S14



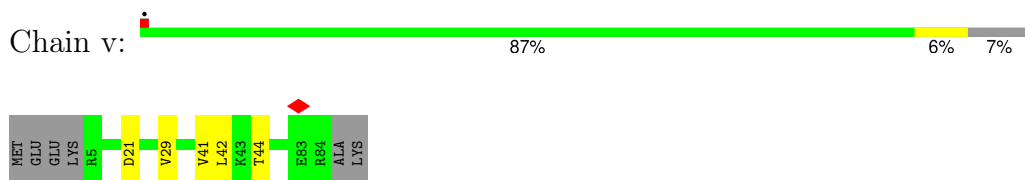
- Molecule 50: 30S ribosomal protein S15



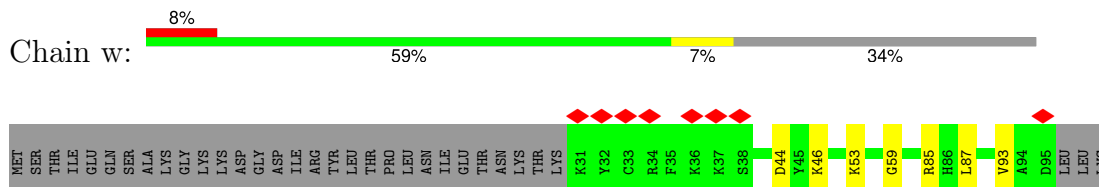
- Molecule 51: 30S ribosomal protein S16



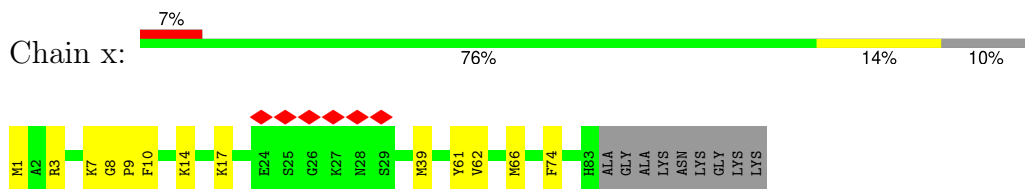
- Molecule 52: 30S ribosomal protein S17



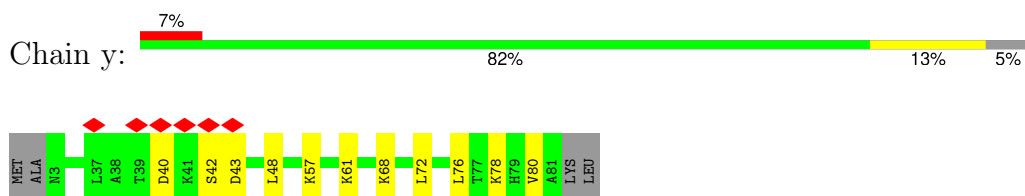
- Molecule 53: 30S ribosomal protein S18



- Molecule 54: 30S ribosomal protein S19



- Molecule 55: 30S ribosomal protein S20



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	129125	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.467	Depositor
Minimum map value	-0.105	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.019	Depositor
Recommended contour level	0.08	Depositor
Map size (Å)	410.40002, 410.40002, 410.40002	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8550001, 0.8550001, 0.8550001	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	1	0.27	0/66183	0.33	0/103212
2	2	0.24	1/35523 (0.0%)	0.34	2/55388 (0.0%)
3	3	0.20	0/2611	0.25	0/4067
4	4	0.24	0/282	0.56	0/377
5	5	0.20	0/234	0.37	0/301
6	6	0.34	0/464	0.58	0/719
7	A	0.37	0/1745	0.61	0/2717
8	B	0.26	0/2090	0.38	0/2815
9	C	0.27	0/1538	0.41	0/2061
10	D	0.23	0/1530	0.36	0/2065
11	E	0.21	0/1321	0.42	0/1789
12	F	0.17	0/1272	0.32	0/1720
13	G	0.23	0/878	0.51	0/1192
14	H	0.18	0/1702	0.45	1/2300 (0.0%)
15	J	0.26	0/1130	0.43	0/1529
16	K	0.24	0/896	0.35	0/1204
17	L	0.24	0/1060	0.35	0/1422
18	M	0.23	0/1077	0.37	0/1442
19	N	0.27	0/994	0.40	0/1331
20	O	0.18	0/854	0.32	0/1144
21	P	0.24	0/863	0.36	0/1163
22	Q	0.26	0/918	0.37	0/1220
23	R	0.23	0/778	0.41	0/1045
24	S	0.24	0/974	0.36	0/1305
25	T	0.21	0/652	0.35	0/877
26	U	0.19	0/682	0.40	1/911 (0.1%)
27	V	0.19	0/888	0.35	0/1216
28	W	0.24	0/594	0.36	0/794
29	X	0.24	0/593	0.39	0/794
30	Y	0.17	0/412	0.45	0/561
31	Z	0.25	0/403	0.45	0/545
32	a	0.16	0/431	0.31	0/586
33	b	0.25	0/488	0.43	1/657 (0.2%)
34	c	0.21	0/421	0.34	0/569

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
35	d	0.25	0/422	0.33	0/553
36	e	0.25	0/512	0.43	0/672
37	f	0.22	0/307	0.35	0/405
38	h	0.19	0/1623	0.40	0/2190
39	i	0.18	0/1606	0.30	0/2157
40	j	0.22	0/1194	0.35	0/1615
41	k	0.22	0/834	0.40	0/1129
42	l	0.19	0/1204	0.42	1/1619 (0.1%)
43	m	0.21	0/976	0.33	0/1324
44	n	0.19	0/986	0.39	0/1322
45	o	0.23	0/712	0.56	1/973 (0.1%)
46	p	0.18	0/837	0.33	0/1134
47	q	0.21	0/935	0.33	0/1258
48	r	0.22	0/891	0.53	0/1192
49	s	0.20	0/676	0.38	0/906
50	t	0.22	0/704	0.37	0/946
51	u	0.19	0/799	0.38	0/1086
52	v	0.18	0/646	0.34	0/866
53	w	0.21	0/531	0.31	0/710
54	x	0.19	0/652	0.37	0/881
55	y	0.19	0/619	0.32	0/825
All	All	0.25	1/150147 (0.0%)	0.35	7/224801 (0.0%)

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
13	G	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1504	A	O3'-P	-7.16	1.50	1.61

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1504	A	O3'-P-O5'	12.07	122.10	104.00
2	2	1504	A	OP1-P-O3'	-8.05	83.84	108.00
33	b	32	ILE	N-CA-C	-6.19	106.73	111.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
42	l	3	LYS	CB-CA-C	-6.13	109.52	116.63
26	U	99	LYS	N-CA-C	-5.36	108.51	114.62
14	H	15	VAL	N-CA-C	-5.12	107.72	112.43
45	o	92	PRO	CA-N-CD	-5.03	104.95	112.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
13	G	39	ALA	Peptide

## 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	59085	0	29705	309	0
2	2	31728	0	15978	221	0
3	3	2339	0	1181	6	0
4	4	278	0	295	6	0
5	5	231	0	268	1	0
6	6	415	0	206	18	0
7	A	1562	0	794	35	0
8	B	2053	0	2127	20	0
9	C	1515	0	1548	27	0
10	D	1509	0	1532	15	0
11	E	1300	0	1267	18	0
12	F	1255	0	1275	17	0
13	G	869	0	863	32	0
14	H	1676	0	1718	37	0
15	J	1112	0	1149	11	0
16	K	889	0	946	9	0
17	L	1048	0	1048	8	0
18	M	1056	0	1109	10	0
19	N	980	0	1017	11	0
20	O	846	0	873	5	0
21	P	848	0	846	8	0
22	Q	904	0	956	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
23	R	768	0	810	9	0
24	S	964	0	992	14	0
25	T	647	0	696	4	0
26	U	679	0	733	8	0
27	V	871	0	839	11	0
28	W	586	0	607	4	0
29	X	586	0	618	9	0
30	Y	409	0	405	5	0
31	Z	400	0	416	8	0
32	a	421	0	384	3	0
33	b	475	0	468	6	0
34	c	415	0	432	11	0
35	d	416	0	449	0	0
36	e	506	0	574	9	0
37	f	305	0	337	2	0
38	h	1600	0	1604	26	0
39	i	1576	0	1592	18	0
40	j	1179	0	1185	15	0
41	k	815	0	780	14	0
42	l	1183	0	1192	21	0
43	m	961	0	978	7	0
44	n	972	0	1005	22	0
45	o	701	0	694	25	0
46	p	823	0	820	5	0
47	q	922	0	973	1	0
48	r	883	0	921	28	0
49	s	665	0	669	7	0
50	t	694	0	703	8	0
51	u	783	0	739	6	0
52	v	638	0	684	3	0
53	w	521	0	553	5	0
54	x	636	0	628	11	0
55	y	615	0	672	9	0
All	All	138113	0	91853	1080	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (1080) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:k:14:LEU:HD21	41:k:84:ARG:HD3	1.11	1.05
1:1:272:G:H22	13:G:52:LYS:NZ	1.54	1.04
41:k:14:LEU:HD21	41:k:84:ARG:CD	1.90	1.02
41:k:14:LEU:CD2	41:k:84:ARG:HD3	1.88	1.01
1:1:272:G:N2	13:G:52:LYS:NZ	2.09	1.00
1:1:2106:G:H1	1:1:2197:U:H3	1.10	0.96
1:1:1833:C:OP1	8:B:223:VAL:HG23	1.67	0.95
13:G:14:PHE:CE2	13:G:129:ARG:HD2	2.02	0.94
1:1:272:G:H22	13:G:52:LYS:HZ1	0.96	0.92
13:G:14:PHE:CE2	13:G:129:ARG:CD	2.53	0.91
1:1:912:G:H1	1:1:926:A:H2	0.94	0.90
34:c:6:ASN:OD1	34:c:35:LYS:NZ	2.03	0.90
45:o:11:SER:OG	45:o:17:VAL:HG13	1.76	0.86
2:2:1517:U:H3	6:6:-20:C:H42	1.23	0.86
16:K:117:LEU:HD12	16:K:117:LEU:O	1.76	0.85
13:G:94:ASN:HB2	13:G:110:ARG:HH22	1.41	0.85
1:1:912:G:N1	1:1:926:A:H2	1.74	0.85
19:N:36:THR:HG22	19:N:37:THR:H	1.41	0.85
1:1:912:G:N1	1:1:926:A:C2	2.45	0.84
19:N:36:THR:HG22	19:N:37:THR:N	1.91	0.83
41:k:107:LYS:O	41:k:107:LYS:NZ	2.11	0.82
16:K:98:VAL:HG23	16:K:117:LEU:HD11	1.62	0.81
54:x:1:MET:N	54:x:8:GLY:O	2.16	0.79
2:2:1508:C:H2'	2:2:1509:C:C6	2.18	0.78
8:B:82:GLU:HG2	8:B:91:ILE:CG2	2.13	0.78
2:2:1293:G:N7	54:x:3:ARG:NH2	2.33	0.77
19:N:83:VAL:O	19:N:87:VAL:HG23	1.83	0.77
1:1:272:G:N2	13:G:52:LYS:HZ1	1.74	0.77
1:1:912:G:O6	1:1:926:A:N1	2.17	0.76
36:e:17:THR:HG22	36:e:21:LYS:O	1.85	0.76
2:2:986:U:O2	2:2:1020:G:N2	2.18	0.75
7:A:19:G:H21	7:A:59:A:H5'	1.51	0.75
8:B:181:THR:HG23	8:B:269:VAL:HB	1.67	0.75
14:H:90:MET:HE3	14:H:91:PRO:HD2	1.67	0.74
16:K:98:VAL:HG23	16:K:117:LEU:CD1	2.18	0.74
55:y:48:LEU:HD22	55:y:80:VAL:HG21	1.68	0.74
2:2:1140:C:C6	2:2:1142:G:H1'	2.23	0.73
6:6:-20:C:H2'	6:6:-19:G:C8	2.25	0.72
9:C:49:GLN:HB3	9:C:81:GLU:HG3	1.72	0.72
2:2:1156:U:H4'	2:2:1157:G:H5'	1.72	0.72
24:S:86:GLU:OE2	24:S:86:GLU:N	2.22	0.71
1:1:2863:A:OP2	33:b:52:ARG:NH2	2.23	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:m:10:LEU:HD22	43:m:77:ILE:HD11	1.73	0.70
1:1:138:G:H4'	1:1:139:A:H5'	1.72	0.70
1:1:272:G:N2	13:G:52:LYS:CE	2.55	0.69
2:2:1517:U:H3	6:6:-20:C:N4	1.90	0.69
12:F:17:VAL:HG12	12:F:26:VAL:HG22	1.74	0.69
48:r:71:ARG:HH12	48:r:75:MET:HB2	1.57	0.69
13:G:14:PHE:HE2	13:G:129:ARG:HD2	1.53	0.68
1:1:2269:G:OP1	28:W:18:SER:OG	2.10	0.68
2:2:125:G:O2'	2:2:126:C:O5'	2.12	0.68
27:V:61:VAL:HG22	27:V:71:ASN:OD1	1.94	0.68
39:i:143:ARG:HH21	39:i:145:LYS:HE3	1.59	0.68
44:n:37:PHE:O	44:n:43:GLN:NE2	2.25	0.68
1:1:918:C:H1'	48:r:89:LEU:HD11	1.76	0.67
1:1:2456:G:H8	1:1:2457:A:H62	1.43	0.67
33:b:32:ILE:HG22	33:b:33:THR:HG23	1.76	0.67
2:2:702:G:H2'	2:2:703:A:C8	2.30	0.67
46:p:34:ASN:OD1	46:p:35:LYS:N	2.28	0.67
38:h:14:ILE:HG22	38:h:15:ILE:HG23	1.76	0.67
2:2:464:A:H3'	2:2:465:G:H8	1.60	0.67
14:H:57:ALA:HA	14:H:60:LYS:HD2	1.76	0.66
22:Q:109:ILE:HG12	23:R:49:LEU:HD21	1.77	0.66
17:L:56:MET:O	17:L:61:ARG:NH1	2.28	0.66
1:1:1393:A:OP2	29:X:2:SER:OG	2.13	0.66
2:2:1304:G:H2'	2:2:1305:A:C8	2.29	0.66
4:4:45:GLU:OE1	4:4:45:GLU:N	2.21	0.66
17:L:108:SER:HB3	17:L:111:GLU:HG3	1.78	0.66
1:1:2106:G:O6	1:1:2197:U:O4	2.13	0.66
44:n:105:ASP:OD2	44:n:107:ARG:NH1	2.29	0.66
48:r:50:GLU:OE2	48:r:50:GLU:N	2.26	0.65
15:J:78:ILE:HG23	15:J:91:THR:HG23	1.79	0.65
19:N:57:GLU:OE2	19:N:57:GLU:N	2.29	0.65
2:2:1286:G:N2	2:2:1312:G:O2'	2.21	0.65
38:h:107:ARG:HB3	38:h:110:LEU:HD13	1.79	0.65
1:1:25:G:H21	1:1:539:A:H62	1.44	0.65
7:A:24:C:H2'	7:A:25:U:C6	2.32	0.65
45:o:39:ILE:HD12	45:o:40:PRO:HD2	1.78	0.65
31:Z:43:ILE:HG22	31:Z:46:MET:HE3	1.79	0.65
22:Q:104:GLU:OE2	22:Q:104:GLU:N	2.21	0.64
1:1:1567:U:H1'	1:1:1569:G:C6	2.33	0.64
1:1:267:U:H4'	13:G:49:GLU:CD	2.22	0.64
23:R:51:ALA:HB3	23:R:52:PRO:HD3	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:r:41:GLU:N	48:r:41:GLU:OE2	2.30	0.64
2:2:661:A:H2'	2:2:662:G:C8	2.33	0.64
49:s:52:CYS:HB3	49:s:56:GLY:H	1.63	0.64
19:N:36:THR:CG2	19:N:37:THR:N	2.61	0.64
1:1:2665:C:N3	12:F:109:SER:OG	2.30	0.63
2:2:1507:A:H2'	2:2:1508:C:C6	2.33	0.63
1:1:1442:C:H2'	1:1:1443:U:C6	2.34	0.63
1:1:2570:A:N7	9:C:150:SER:OG	2.29	0.63
14:H:28:MET:HE2	14:H:190:THR:HA	1.80	0.63
27:V:97:ASP:N	27:V:97:ASP:OD1	2.31	0.63
38:h:153:SER:OG	38:h:196:GLY:N	2.24	0.63
6:6:-13:A:H2'	6:6:-12:G:C8	2.33	0.63
42:l:22:VAL:O	42:l:26:VAL:HG23	1.97	0.63
7:A:45:A:H2'	7:A:46:G:C8	2.33	0.63
1:1:272:G:N2	13:G:52:LYS:HZ2	1.95	0.63
19:N:36:THR:CG2	19:N:37:THR:H	2.09	0.63
1:1:1943:A:H2	1:1:1950:U:H5	1.47	0.63
2:2:411:U:H3	2:2:418:G:H1	1.46	0.63
7:A:67:C:H2'	7:A:68:C:C6	2.33	0.63
34:c:31:THR:HG22	34:c:32:LYS:N	2.12	0.63
44:n:9:ARG:HG2	44:n:14:VAL:HG12	1.80	0.63
38:h:30:ASP:OD1	38:h:30:ASP:N	2.31	0.63
1:1:1263:G:OP2	24:S:4:ARG:NH2	2.31	0.63
6:6:-13:A:H2'	6:6:-12:G:H8	1.63	0.63
2:2:930:A:H61	2:2:1216:C:H42	1.46	0.62
2:2:959:G:OP2	2:2:1339:U:O2'	2.15	0.62
22:Q:64:ARG:NH1	22:Q:100:MET:SD	2.71	0.62
44:n:39:THR:HB	44:n:42:LEU:HD12	1.81	0.62
2:2:254:U:OP1	55:y:68:LYS:NZ	2.31	0.62
1:1:1562:A:N6	1:1:1573:A:O2'	2.33	0.62
1:1:2283:U:OP2	34:c:7:ARG:NH1	2.31	0.62
2:2:410:G:H22	2:2:419:A:H2	1.47	0.62
34:c:6:ASN:HA	34:c:35:LYS:HZ2	1.64	0.62
42:l:17:PHE:CE2	42:l:61:LEU:HD21	2.35	0.62
2:2:1512:C:H2'	2:2:1513:U:C6	2.35	0.62
27:V:95:PHE:HB2	27:V:98:LYS:HD3	1.81	0.62
1:1:571:G:O2'	1:1:572:U:OP2	2.17	0.62
1:1:1445:U:O2'	1:1:1621:G:O2'	2.16	0.62
2:2:1509:C:H2'	2:2:1510:U:C6	2.34	0.62
24:S:29:THR:O	24:S:121:ASN:ND2	2.31	0.62
45:o:35:VAL:HG22	45:o:75:ILE:HD11	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1234:A:H61	1:1:1268:G:H22	1.48	0.62
1:1:1582:G:H2'	1:1:1584:G:H5''	1.81	0.62
36:e:17:THR:HG21	36:e:21:LYS:HB2	1.81	0.62
42:l:113:ARG:NH2	42:l:124:SER:OG	2.33	0.62
2:2:463:G:H2'	2:2:464:A:H4'	1.81	0.61
1:1:387:G:N2	1:1:388:U:O4	2.33	0.61
2:2:1358:U:O4	42:l:9:ARG:NH2	2.31	0.61
20:O:103:LYS:O	20:O:107:GLU:HG2	2.00	0.61
29:X:3:ARG:HG2	29:X:33:LEU:HD12	1.83	0.61
31:Z:5:LEU:N	31:Z:58:GLU:O	2.29	0.61
46:p:63:MET:HE2	46:p:63:MET:HA	1.83	0.61
2:2:1337:U:H2'	2:2:1338:A:H8	1.66	0.61
7:A:62:C:H2'	7:A:63:C:H6	1.64	0.61
1:1:1117:A:H2'	1:1:1118:A:C4	2.35	0.61
2:2:701:G:H2'	2:2:702:G:C8	2.36	0.61
4:4:22:MET:HE2	12:F:117:ALA:H	1.66	0.61
1:1:268:U:H2'	1:1:269:A:C8	2.35	0.61
36:e:17:THR:CG2	36:e:21:LYS:H	2.14	0.61
2:2:330:G:H2'	2:2:331:A:C8	2.35	0.60
9:C:46:GLU:O	9:C:83:GLN:NE2	2.33	0.60
30:Y:24:VAL:O	30:Y:28:LEU:HD12	2.01	0.60
1:1:1137:U:H2'	1:1:1138:A:H8	1.66	0.60
1:1:1100:A:H4'	1:1:1101:A:H5''	1.82	0.60
1:1:1137:U:H2'	1:1:1138:A:C8	2.36	0.60
2:2:1508:C:H2'	2:2:1509:C:H6	1.65	0.60
2:2:1405:G:H2'	2:2:1406:G:C8	2.36	0.60
13:G:39:ALA:O	13:G:43:ALA:N	2.34	0.60
34:c:6:ASN:CG	34:c:35:LYS:NZ	2.58	0.60
39:i:139:LYS:HG2	39:i:176:THR:HG22	1.83	0.60
1:1:1570:G:H2'	1:1:1571:A:C8	2.36	0.60
1:1:2284:A:H4'	1:1:2285:A:O4'	2.02	0.60
2:2:173:G:OP2	2:2:173:G:N2	2.29	0.59
41:k:48:MET:HE1	41:k:52:ILE:HG12	1.83	0.59
45:o:83:ILE:HD12	45:o:84:ASP:N	2.17	0.59
1:1:1116:A:H2'	1:1:1117:A:C8	2.36	0.59
14:H:130:LEU:HD23	14:H:134:GLU:HB3	1.85	0.59
40:j:52:VAL:HG12	40:j:147:PHE:HZ	1.66	0.59
1:1:1278:G:N7	17:L:19:ARG:NH2	2.50	0.59
2:2:1114:G:C2	2:2:1125:G:H5''	2.38	0.59
7:A:62:C:H2'	7:A:63:C:C6	2.37	0.59
29:X:27:ARG:HG2	29:X:28:LYS:H	1.66	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2456:G:O2'	1:1:2458:U:O4	2.21	0.59
15:J:8:THR:HG21	22:Q:61:TRP:HE1	1.68	0.59
15:J:146:ASN:ND2	15:J:148:ASN:OD1	2.36	0.58
2:2:716:A:H2'	2:2:717:A:C8	2.38	0.58
2:2:1515:U:H3	6:6:-18:A:H61	1.51	0.58
38:h:22:TRP:HB3	38:h:58:ARG:H	1.69	0.58
19:N:24:MET:HE1	19:N:40:LYS:HB3	1.84	0.58
1:1:1505:U:H2'	1:1:1506:A:H8	1.67	0.58
1:1:1624:A:H2'	1:1:1625:A:H8	1.69	0.58
14:H:53:GLU:OE2	14:H:53:GLU:N	2.34	0.58
16:K:117:LEU:O	16:K:117:LEU:CD1	2.49	0.58
2:2:1072:U:O2'	2:2:1073:A:O5'	2.21	0.58
38:h:118:SER:O	38:h:122:GLN:HG3	2.02	0.58
1:1:1510:A:H4'	1:1:1511:U:H5''	1.85	0.58
2:2:1106:U:H2'	2:2:1108:G:H21	1.69	0.58
1:1:154:G:H21	1:1:157:A:H2	1.49	0.58
11:E:161:THR:HG23	11:E:163:ALA:H	1.69	0.58
29:X:2:SER:OG	29:X:3:ARG:N	2.36	0.58
46:p:96:ARG:HG2	46:p:96:ARG:HH11	1.69	0.58
1:1:741:G:H21	1:1:746:A:H2	1.51	0.58
2:2:1337:U:H2'	2:2:1338:A:C8	2.39	0.58
7:A:68:C:H2'	7:A:69:C:C6	2.38	0.58
2:2:489:G:H2'	2:2:490:A:H8	1.68	0.57
6:6:-12:G:H2'	6:6:-11:G:C8	2.38	0.57
9:C:39:THR:OG1	9:C:41:GLU:OE1	2.22	0.57
2:2:432:U:O2'	2:2:434:U:O4	2.22	0.57
2:2:489:G:H2'	2:2:490:A:C8	2.39	0.57
8:B:153:VAL:HG23	8:B:154:ILE:HG13	1.85	0.57
27:V:100:ILE:HD12	27:V:101:THR:H	1.70	0.57
1:1:2217:C:O2'	1:1:2218:G:OP1	2.22	0.57
7:A:51:U:H2'	7:A:52:C:C6	2.39	0.57
13:G:94:ASN:OD1	13:G:116:GLY:N	2.33	0.57
15:J:78:ILE:CG2	15:J:91:THR:HG23	2.34	0.57
33:b:15:LYS:O	33:b:18:THR:OG1	2.20	0.57
48:r:53:ILE:HG22	48:r:57:ARG:HE	1.70	0.57
1:1:2230:U:OP2	29:X:27:ARG:NH2	2.37	0.57
1:1:153:C:O2'	1:1:154:G:O5'	2.22	0.57
7:A:22:A:H61	7:A:47:A:H2'	1.70	0.57
2:2:987:G:C6	2:2:1019:A:H2	2.23	0.57
2:2:1126:G:H8	2:2:1126:G:P	2.27	0.57
10:D:2:GLU:N	10:D:17:VAL:O	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:536:G:OP1	1:1:1243:G:N2	2.37	0.57
3:3:16:G:H1	3:3:62:U:H3	1.53	0.57
2:2:1509:C:H2'	2:2:1510:U:H6	1.69	0.57
18:M:21:SER:HB3	18:M:100:LYS:HB2	1.86	0.57
22:Q:48:ARG:C	22:Q:50:ARG:H	2.12	0.57
31:Z:39:SER:HA	31:Z:43:ILE:HD11	1.86	0.56
1:1:27:A:O2'	1:1:28:A:O5'	2.23	0.56
2:2:330:G:H2'	2:2:331:A:H8	1.70	0.56
43:m:66:ASP:OD2	43:m:69:THR:OG1	2.22	0.56
1:1:153:C:O2'	1:1:154:G:H8	1.87	0.56
6:6:-17:G:C2	6:6:-16:A:C8	2.93	0.56
7:A:9:G:N3	7:A:46:G:H2'	2.20	0.56
25:T:58:PRO:HG3	25:T:76:ALA:HB2	1.87	0.56
42:l:115:GLU:HG3	42:l:121:ARG:HG2	1.87	0.56
1:1:1102:G:H22	1:1:1134:C:H42	1.51	0.56
2:2:1512:C:H2'	2:2:1513:U:H6	1.68	0.56
1:1:2633:U:O2'	9:C:81:GLU:OE2	2.21	0.56
1:1:2788:U:O3'	1:1:2789:U:H4'	2.06	0.56
2:2:1157:G:H5''	2:2:1157:G:H8	1.70	0.56
14:H:200:VAL:HG12	14:H:202:PRO:HD3	1.86	0.56
1:1:84:A:N6	1:1:101:G:O2'	2.35	0.56
2:2:1417:G:H2'	2:2:1418:U:C6	2.40	0.56
1:1:529:A:OP2	24:S:6:ARG:NH2	2.37	0.56
2:2:1267:U:O2'	2:2:1268:A:O5'	2.22	0.56
8:B:272:ARG:HA	8:B:272:ARG:NE	2.20	0.56
1:1:1252:U:O2'	23:R:87:ASN:OD1	2.21	0.56
1:1:1536:A:H2'	1:1:1537:A:C8	2.41	0.56
2:2:1018:C:H2'	2:2:1019:A:C5	2.41	0.56
14:H:56:GLU:O	14:H:60:LYS:HG3	2.06	0.56
40:j:52:VAL:HG12	40:j:53:GLY:N	2.21	0.56
1:1:916:U:O2	1:1:922:G:O6	2.24	0.55
1:1:1615:A:O2'	1:1:1616:C:OP1	2.21	0.55
8:B:165:MET:SD	8:B:175:LYS:HG3	2.46	0.55
14:H:68:ILE:H	14:H:90:MET:CE	2.19	0.55
45:o:26:LYS:O	45:o:30:THR:HG23	2.07	0.55
2:2:1446:A:H2'	2:2:1447:A:C8	2.41	0.55
1:1:1860:A:H2'	1:1:1861:A:C8	2.42	0.55
1:1:2325:A:H2'	1:1:2326:A:C8	2.41	0.55
7:A:8:U:O2	7:A:22:A:H2	1.89	0.55
2:2:956:G:OP1	45:o:58:LYS:NZ	2.40	0.55
7:A:73:A:H3'	7:A:74:A:C8	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:974:U:H2'	2:2:1194:U:H3	1.71	0.55
2:2:1139:A:H4'	2:2:1140:C:O5'	2.07	0.55
25:T:62:THR:HG23	25:T:71:SER:HB3	1.88	0.55
1:1:1749:C:H2'	1:1:1750:A:C8	2.41	0.55
1:1:28:A:N6	1:1:536:G:H1'	2.22	0.55
1:1:901:A:OP1	18:M:6:ARG:NH1	2.41	0.55
9:C:133:THR:O	9:C:133:THR:OG1	2.23	0.55
15:J:141:LYS:HA	15:J:141:LYS:HE2	1.88	0.55
7:A:51:U:H3	7:A:65:G:H1	1.53	0.54
7:A:66:C:O2	7:A:66:C:H2'	2.07	0.54
40:j:93:GLY:HA3	40:j:149:ALA:HB2	1.87	0.54
45:o:13:ASP:OD2	45:o:16:LEU:N	2.32	0.54
8:B:82:GLU:HG2	8:B:91:ILE:HG21	1.88	0.54
23:R:41:LEU:HD12	23:R:54:ILE:HD12	1.89	0.54
31:Z:40:ASN:OD1	31:Z:43:ILE:HG13	2.08	0.54
10:D:155:PHE:HB2	10:D:176:VAL:HG22	1.88	0.54
1:1:613:A:H2'	1:1:614:A:C8	2.42	0.54
1:1:874:U:O2'	1:1:875:A:H5'	2.08	0.54
1:1:1309:G:H2'	1:1:1310:C:C6	2.43	0.54
2:2:1163:G:O2'	2:2:1164:G:N7	2.39	0.54
2:2:1309:C:H5''	48:r:28:THR:HG21	1.89	0.54
51:u:45:ASN:HB3	51:u:46:PRO:HD3	1.89	0.54
1:1:1172:U:H4'	1:1:1173:A:O4'	2.07	0.54
41:k:47:LYS:NZ	41:k:47:LYS:HB3	2.23	0.54
2:2:198:A:H2'	2:2:199:A:H8	1.72	0.54
2:2:1231:C:O2'	44:n:68:GLY:O	2.24	0.54
10:D:126:LEU:HB3	10:D:196:LEU:HD13	1.90	0.54
51:u:10:HIS:O	51:u:17:PHE:HB3	2.08	0.54
1:1:989:A:H61	18:M:85:MET:CE	2.21	0.54
2:2:1149:C:H2'	2:2:1150:A:O4'	2.07	0.54
24:S:47:GLU:OE2	24:S:47:GLU:N	2.28	0.54
45:o:7:ILE:HD11	45:o:73:ILE:HB	1.90	0.54
3:3:12:U:OP2	3:3:67:C:O2'	2.26	0.54
1:1:875:A:H2'	1:1:876:A:C8	2.43	0.53
1:1:2600:A:OP2	7:A:75:C:H4'	2.09	0.53
14:H:198:ASP:C	14:H:199:TYR:HD2	2.16	0.53
29:X:36:LYS:HG3	29:X:37:ARG:H	1.73	0.53
2:2:960:A:H2'	2:2:961:A:H5''	1.90	0.53
11:E:144:ILE:HG22	11:E:146:TYR:H	1.73	0.53
1:1:1095:C:N4	1:1:1096:U:O4	2.41	0.53
1:1:1159:U:O2'	1:1:1160:A:H5'	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1561:G:H1'	1:1:1574:A:H62	1.73	0.53
1:1:2209:U:H3	1:1:2219:G:H1	1.55	0.53
9:C:61:THR:HG22	9:C:63:ALA:H	1.72	0.53
1:1:2032:C:H2'	1:1:2033:G:C8	2.44	0.53
2:2:464:A:C5	2:2:465:G:C5	2.96	0.53
6:6:-11:G:H2'	6:6:-10:U:C6	2.43	0.53
14:H:216:SER:O	14:H:220:THR:HG23	2.09	0.53
1:1:998:U:H2'	1:1:999:C:C6	2.43	0.53
2:2:1142:G:N3	2:2:1142:G:H2'	2.24	0.53
13:G:14:PHE:CD2	13:G:129:ARG:NE	2.77	0.53
32:a:32:THR:HG22	32:a:34:GLU:H	1.72	0.53
36:e:17:THR:HG22	36:e:21:LYS:C	2.33	0.53
1:1:1809:A:H2'	1:1:1810:A:C8	2.43	0.53
2:2:1058:G:N2	2:2:1061:A:OP2	2.33	0.53
5:5:12:VAL:O	5:5:16:LYS:HG2	2.08	0.53
12:F:127:GLU:OE1	12:F:130:ALA:HB3	2.09	0.53
40:j:121:LEU:HD13	40:j:129:VAL:HG21	1.90	0.53
7:A:67:C:H2'	7:A:68:C:H6	1.72	0.53
48:r:90:ARG:HB2	48:r:97:VAL:HG12	1.90	0.53
1:1:1557:C:H2'	1:1:1558:U:C6	2.43	0.53
1:1:1854:A:O2'	1:1:1855:A:N7	2.37	0.53
2:2:186:G:N1	2:2:189:U:OP2	2.25	0.53
2:2:463:G:C4	2:2:464:A:H1'	2.44	0.53
54:x:17:LYS:HB2	54:x:17:LYS:NZ	2.24	0.53
1:1:876:A:H2'	1:1:877:A:O4'	2.09	0.52
1:1:912:G:C6	1:1:926:A:N1	2.77	0.52
8:B:92:ALA:HB2	8:B:106:ALA:HB2	1.91	0.52
1:1:957:A:H2'	1:1:958:A:H8	1.74	0.52
6:6:-10:U:H2'	6:6:-9:G:C8	2.44	0.52
1:1:2112:A:H2'	1:1:2113:U:C6	2.44	0.52
2:2:243:A:H4'	2:2:244:G:O5'	2.09	0.52
2:2:262:U:H2'	2:2:263:A:H8	1.74	0.52
8:B:91:ILE:HG12	8:B:103:TYR:CD1	2.45	0.52
2:2:662:G:H2'	2:2:663:A:C8	2.44	0.52
53:w:93:VAL:O	53:w:93:VAL:HG13	2.09	0.52
2:2:463:G:C2	2:2:464:A:H1'	2.45	0.52
2:2:662:G:H2'	2:2:663:A:H8	1.74	0.52
13:G:14:PHE:CE2	13:G:129:ARG:HD3	2.40	0.52
44:n:53:THR:HG22	44:n:92:ASN:OD1	2.10	0.52
7:A:9:G:H21	7:A:46:G:H3'	1.73	0.52
11:E:70:ILE:HG22	11:E:87:PRO:HB3	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1165:U:O2'	2:2:1166:G:OP1	2.25	0.52
3:3:26:A:H2'	3:3:27:C:H6	1.75	0.52
1:1:1094:G:H1	1:1:1106:C:H42	1.57	0.52
1:1:1561:G:H2'	1:1:1573:A:C2	2.44	0.52
1:1:1943:A:H2	1:1:1950:U:C5	2.27	0.52
2:2:1139:A:H1'	2:2:1140:C:OP2	2.10	0.52
2:2:1158:A:H2'	2:2:1159:G:C8	2.44	0.52
11:E:70:ILE:CG2	11:E:87:PRO:HB3	2.39	0.52
34:c:31:THR:CG2	34:c:32:LYS:N	2.73	0.52
48:r:79:ARG:O	48:r:83:LEU:HD22	2.10	0.52
1:1:269:A:H2'	1:1:270:C:O4'	2.10	0.52
1:1:272:G:H22	13:G:52:LYS:CE	2.17	0.52
2:2:138:G:H2'	2:2:139:G:C8	2.44	0.52
2:2:1195:A:O2'	2:2:1197:G:N7	2.31	0.52
2:2:1238:C:O2'	2:2:1239:A:OP2	2.23	0.52
2:2:1304:G:H2'	2:2:1305:A:H8	1.75	0.52
1:1:1088:A:H2'	1:1:1089:U:O4'	2.10	0.51
2:2:466:C:H2'	2:2:467:U:C6	2.45	0.51
36:e:17:THR:HG22	36:e:21:LYS:H	1.75	0.51
1:1:989:A:H61	18:M:85:MET:HE2	1.74	0.51
1:1:1093:G:H1'	1:1:1120:A:C5	2.45	0.51
1:1:1683:G:O2'	19:N:106:ASP:OD2	2.17	0.51
40:j:113:ALA:HB1	40:j:117:VAL:HG13	1.92	0.51
1:1:1565:C:H2'	1:1:1566:U:O4'	2.10	0.51
2:2:383:A:H2'	2:2:384:C:C6	2.45	0.51
11:E:47:VAL:HG21	11:E:82:ILE:HG22	1.92	0.51
45:o:80:SER:HB2	45:o:83:ILE:HD11	1.92	0.51
50:t:13:ALA:HB2	50:t:18:ALA:HB2	1.91	0.51
9:C:55:LYS:HG3	9:C:77:LYS:HG2	1.91	0.51
10:D:78:VAL:HG22	10:D:78:VAL:O	2.10	0.51
48:r:71:ARG:HH22	48:r:75:MET:HB2	1.75	0.51
1:1:728:G:O2'	1:1:1666:A:N3	2.39	0.51
1:1:176:A:H2'	1:1:177:C:C6	2.46	0.51
2:2:236:A:H4'	2:2:237:U:O5'	2.10	0.51
2:2:1297:G:N1	2:2:1300:A:OP2	2.40	0.51
42:l:97:ARG:O	42:l:101:MET:HG3	2.10	0.51
1:1:894:G:H2'	1:1:895:C:C6	2.46	0.51
2:2:198:A:H2'	2:2:199:A:C8	2.46	0.51
2:2:1208:C:N4	48:r:103:LYS:HD2	2.26	0.51
6:6:-16:A:H2'	6:6:-15:G:O4'	2.11	0.51
12:F:57:HIS:O	12:F:61:ARG:HG3	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:132:PRO:C	12:F:133:ILE:HD13	2.36	0.51
2:2:450:C:N3	2:2:464:A:N6	2.59	0.51
2:2:929:A:H2'	2:2:930:A:C8	2.46	0.51
18:M:27:LEU:HD23	18:M:104:ILE:HD13	1.93	0.51
51:u:93:ALA:HB3	51:u:96:GLN:HG3	1.92	0.51
1:1:1329:A:O2'	1:1:1330:A:H2'	2.11	0.51
6:6:-11:G:H2'	6:6:-10:U:H6	1.76	0.51
11:E:169:ALA:C	11:E:171:SER:H	2.19	0.51
1:1:2190:G:H2'	1:1:2191:U:C6	2.46	0.50
1:1:272:G:N2	13:G:52:LYS:HE3	2.26	0.50
1:1:2060:G:H5'	9:C:149:SER:O	2.11	0.50
1:1:2456:G:H1'	1:1:2457:A:N7	2.26	0.50
7:A:47:A:H8	7:A:48:U:O2	1.93	0.50
10:D:23:VAL:HG23	10:D:24:PHE:CD1	2.46	0.50
11:E:181:LYS:HA	32:a:57:PHE:HZ	1.75	0.50
17:L:20:VAL:CG1	17:L:32:ALA:HB1	2.41	0.50
24:S:4:ARG:NH2	24:S:6:ARG:HG2	2.26	0.50
24:S:47:GLU:H	24:S:47:GLU:CD	2.15	0.50
27:V:71:ASN:O	27:V:94:LEU:HB2	2.11	0.50
42:l:149:ALA:C	42:l:150:ASN:HD22	2.19	0.50
44:n:92:ASN:HA	44:n:95:ILE:HG12	1.92	0.50
1:1:1445:U:HO2'	1:1:1621:G:HO2'	1.47	0.50
1:1:572:U:O2'	15:J:2:ASP:O	2.29	0.50
1:1:2717:G:OP1	21:P:52:ARG:NH2	2.44	0.50
2:2:998:A:H5''	54:x:14:LYS:HD3	1.94	0.50
8:B:262:ASN:OD1	8:B:263:PRO:HD2	2.11	0.50
13:G:95:ILE:HG13	13:G:110:ARG:CZ	2.42	0.50
36:e:17:THR:HG22	36:e:21:LYS:N	2.25	0.50
14:H:20:MET:SD	14:H:20:MET:N	2.77	0.50
1:1:406:A:H61	1:1:416:C:H42	1.60	0.50
2:2:8:A:N6	39:i:201:LYS:HB2	2.27	0.50
2:2:1110:C:OP1	44:n:16:ARG:NH2	2.41	0.50
1:1:272:G:H21	13:G:52:LYS:HE3	1.76	0.50
2:2:1:A:H2'	2:2:2:C:C6	2.47	0.50
2:2:1129:C:O2	44:n:16:ARG:NH1	2.45	0.50
6:6:-9:G:H2'	6:6:-8:U:C6	2.47	0.50
14:H:68:ILE:H	14:H:90:MET:HE2	1.77	0.50
38:h:173:PRO:HD2	38:h:202:MET:SD	2.52	0.50
41:k:94:ASP:O	41:k:98:ILE:HG13	2.12	0.50
1:1:1801:G:H2'	1:1:1802:C:C6	2.47	0.50
2:2:915:C:H5''	42:l:3:LYS:HE2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:19:ASN:OD1	8:B:20:GLY:N	2.45	0.50
20:O:23:SER:OG	20:O:25:ALA:O	2.23	0.50
26:U:35:LYS:HG2	26:U:67:GLN:HA	1.94	0.50
1:1:983:G:OP2	18:M:16:ARG:NH2	2.44	0.49
10:D:123:ILE:HD13	10:D:193:LEU:HD11	1.92	0.49
40:j:142:VAL:O	40:j:146:THR:HG22	2.11	0.49
45:o:20:SER:O	45:o:24:ILE:HD13	2.11	0.49
46:p:81:LYS:NZ	46:p:83:TYR:OH	2.43	0.49
1:1:2044:C:H2'	1:1:2045:G:C8	2.47	0.49
7:A:20:G:N2	7:A:58:A:H1'	2.27	0.49
14:H:130:LEU:HB3	14:H:134:GLU:HB2	1.94	0.49
44:n:24:GLY:HA2	44:n:59:PHE:O	2.11	0.49
1:1:1747:A:H3'	1:1:1748:G:H8	1.77	0.49
1:1:2008:A:H2'	1:1:2009:U:C6	2.47	0.49
1:1:2754:U:OP2	37:f:19:ARG:NE	2.36	0.49
2:2:435:G:H1	2:2:481:A:H62	1.59	0.49
27:V:140:PHE:CD1	27:V:140:PHE:C	2.90	0.49
45:o:22:GLU:N	45:o:22:GLU:OE1	2.43	0.49
1:1:889:G:O2'	1:1:946:G:O6	2.22	0.49
2:2:167:C:H2'	2:2:168:U:O2	2.12	0.49
42:l:113:ARG:HB2	42:l:121:ARG:HD2	1.94	0.49
50:t:46:ARG:HB2	50:t:46:ARG:NH1	2.27	0.49
2:2:170:A:H62	2:2:203:A:H62	1.60	0.49
7:A:72:C:H2'	7:A:73:A:C8	2.48	0.49
31:Z:56:VAL:HG13	31:Z:56:VAL:O	2.12	0.49
47:q:19:SER:OG	47:q:20:LYS:N	2.44	0.49
2:2:127:C:O2'	2:2:128:U:H6	1.96	0.49
2:2:262:U:H2'	2:2:263:A:C8	2.47	0.49
6:6:-10:U:H2'	6:6:-9:G:H8	1.76	0.49
41:k:76:GLU:O	41:k:80:ARG:HG2	2.12	0.49
45:o:49:THR:HG22	45:o:61:ARG:HG2	1.94	0.49
2:2:905:G:H2'	2:2:906:A:C8	2.48	0.49
25:T:32:ASN:OD1	25:T:35:GLN:NE2	2.33	0.49
39:i:85:GLU:HG3	39:i:183:ARG:HB2	1.95	0.49
41:k:12:PRO:HD2	41:k:55:LYS:HD3	1.94	0.49
45:o:36:THR:HG21	45:o:74:ASP:HB3	1.93	0.49
1:1:2848:A:H2'	1:1:2849:G:C8	2.48	0.49
2:2:710:A:H2	2:2:721:A:H61	1.60	0.49
7:A:22:A:N6	7:A:47:A:H2'	2.26	0.49
1:1:150:C:H2'	1:1:151:A:H8	1.78	0.49
1:1:1116:A:H1'	1:1:1137:U:O2'	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1624:A:H2'	1:1:1625:A:C8	2.47	0.49
8:B:135:ILE:O	8:B:167:ARG:NH2	2.44	0.49
13:G:6:LYS:NZ	13:G:6:LYS:HB2	2.28	0.49
24:S:85:GLU:N	24:S:85:GLU:OE1	2.46	0.49
48:r:8:ASN:C	48:r:9:ILE:HD13	2.38	0.49
48:r:71:ARG:NH1	48:r:75:MET:HB2	2.25	0.49
1:1:2078:A:H2'	1:1:2079:C:C6	2.47	0.49
1:1:2527:G:H5''	1:1:2528:G:H5''	1.95	0.49
21:P:79:LEU:HD12	21:P:80:PRO:HD2	1.94	0.49
38:h:154:GLY:HA3	38:h:162:ALA:HB1	1.95	0.49
48:r:71:ARG:NH2	48:r:71:ARG:O	2.46	0.49
49:s:33:TYR:CE1	54:x:7:LYS:HE2	2.48	0.49
1:1:372:A:H2'	1:1:373:U:C6	2.48	0.48
1:1:2786:U:H2'	1:1:2787:U:O4'	2.13	0.48
2:2:1514:U:H2'	2:2:1515:U:C6	2.47	0.48
44:n:104:ARG:NH1	44:n:105:ASP:O	2.45	0.48
48:r:12:HIS:O	48:r:12:HIS:ND1	2.46	0.48
1:1:2337:G:H2'	1:1:2338:A:H8	1.77	0.48
1:1:262:U:O2	1:1:277:G:O6	2.31	0.48
1:1:419:U:H1'	29:X:13:MET:HE1	1.93	0.48
7:A:4:G:H1	7:A:70:C:H42	1.61	0.48
1:1:204:A:N3	1:1:219:U:O2'	2.41	0.48
1:1:1096:U:H2'	1:1:1097:U:O4'	2.14	0.48
2:2:125:G:O2'	2:2:126:C:H6	1.95	0.48
2:2:1038:G:H5''	38:h:153:SER:HB2	1.94	0.48
2:2:1109:C:O2'	2:2:1110:C:OP1	2.29	0.48
2:2:1133:A:O2'	2:2:1134:A:H8	1.97	0.48
41:k:4:TYR:CZ	41:k:72:LEU:HD11	2.48	0.48
1:1:1806:G:N2	1:1:1825:U:O2'	2.46	0.48
2:2:1157:G:H5''	2:2:1157:G:C8	2.47	0.48
31:Z:4:LEU:HA	31:Z:58:GLU:C	2.39	0.48
37:f:37:GLN:O	37:f:37:GLN:HG3	2.13	0.48
42:l:65:LYS:O	42:l:69:THR:HG23	2.12	0.48
44:n:69:GLY:O	44:n:73:GLN:HG3	2.13	0.48
1:1:909:C:N4	1:1:929:A:O2'	2.46	0.48
1:1:1099:G:H21	1:1:1128:A:H5'	1.78	0.48
1:1:2289:U:H2'	1:1:2290:U:C6	2.49	0.48
3:3:72:G:H5''	27:V:14:VAL:HG11	1.95	0.48
45:o:27:THR:O	45:o:30:THR:OG1	2.25	0.48
1:1:742:U:H3'	50:t:88:LYS:HE3	1.96	0.48
13:G:125:ASN:HA	13:G:139:PRO:HA	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:Q:48:ARG:NH1	22:Q:49:ASP:OD2	2.46	0.48
48:r:50:GLU:H	48:r:50:GLU:CD	2.18	0.48
1:1:1101:A:H3'	1:1:1103:C:OP2	2.13	0.48
2:2:127:C:O3'	51:u:65:GLN:NE2	2.47	0.48
2:2:1232:A:H2'	2:2:1233:G:C8	2.49	0.48
14:H:109:ARG:NH1	14:H:155:MET:O	2.47	0.48
48:r:86:TYR:CZ	48:r:90:ARG:HD2	2.48	0.48
1:1:921:C:H3'	1:1:922:G:H8	1.78	0.48
2:2:169:C:H2'	2:2:170:A:H5''	1.96	0.48
2:2:512:G:H2'	2:2:513:C:C6	2.49	0.48
11:E:125:PHE:CZ	11:E:170:LYS:HB2	2.49	0.48
42:l:53:LYS:O	42:l:54:GLN:HG3	2.14	0.48
48:r:38:GLY:C	48:r:39:ILE:HD13	2.39	0.48
1:1:558:U:H2'	1:1:559:C:C6	2.49	0.48
1:1:1513:G:H2'	1:1:1514:G:C8	2.49	0.48
2:2:463:G:C6	2:2:464:A:C8	3.02	0.48
2:2:1437:G:H2'	2:2:1438:C:H6	1.79	0.48
13:G:130:LEU:HD22	13:G:130:LEU:H	1.78	0.48
1:1:155:A:H2'	1:1:156:U:C6	2.49	0.47
1:1:1090:G:H2'	1:1:1091:U:C6	2.49	0.47
1:1:1943:A:C2	1:1:1950:U:H5	2.29	0.47
1:1:2319:G:H5''	1:1:2320:A:OP2	2.13	0.47
1:1:2326:A:H2'	1:1:2327:U:C6	2.49	0.47
4:4:14:LYS:HA	4:4:14:LYS:HE2	1.95	0.47
1:1:568:U:O2'	1:1:569:U:OP1	2.26	0.47
2:2:404:A:H2'	2:2:405:U:C4'	2.44	0.47
9:C:48:LEU:CD1	9:C:50:LEU:HD21	2.44	0.47
1:1:1498:A:H2'	1:1:1499:A:C8	2.49	0.47
1:1:1505:U:H2'	1:1:1506:A:C8	2.48	0.47
9:C:40:ASN:HA	9:C:44:GLY:H	1.79	0.47
24:S:4:ARG:HH22	24:S:6:ARG:HG2	1.79	0.47
39:i:40:LYS:HB3	39:i:40:LYS:HE3	1.64	0.47
1:1:1093:G:N7	1:1:1120:A:H1'	2.29	0.47
1:1:1381:A:H2'	1:1:1382:A:C8	2.49	0.47
2:2:349:A:N3	2:2:361:U:O2'	2.43	0.47
2:2:377:G:H2'	2:2:378:U:H6	1.79	0.47
14:H:196:GLU:OE1	14:H:196:GLU:N	2.47	0.47
39:i:138:ASP:OD1	39:i:138:ASP:N	2.47	0.47
1:1:310:G:N1	1:1:371:A:N1	2.62	0.47
1:1:1086:G:H3'	1:1:1087:G:H8	1.79	0.47
23:R:15:SER:HB3	23:R:18:LEU:HD13	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:h:8:ILE:HG23	38:h:16:ARG:HD3	1.97	0.47
1:1:915:C:H42	1:1:923:C:H42	1.63	0.47
2:2:985:C:H2'	2:2:986:U:C4	2.50	0.47
14:H:28:MET:HG2	14:H:194:PRO:HD3	1.96	0.47
18:M:56:ALA:HB2	18:M:123:ALA:HB2	1.97	0.47
18:M:67:TRP:CD1	18:M:107:GLU:HB3	2.49	0.47
20:O:66:ASN:HB3	20:O:101:ARG:HD3	1.97	0.47
29:X:55:THR:HA	29:X:58:THR:HG22	1.96	0.47
2:2:1240:G:H2'	2:2:1241:C:C6	2.49	0.47
9:C:112:SER:HB2	9:C:167:GLY:HA2	1.96	0.47
12:F:11:ILE:O	12:F:11:ILE:HG23	2.15	0.47
14:H:80:ILE:HD12	14:H:80:ILE:H	1.80	0.47
49:s:33:TYR:HE1	54:x:7:LYS:HE2	1.79	0.47
1:1:1786:U:H5	1:1:1791:A:N7	2.13	0.47
2:2:1031:G:O2'	2:2:1032:C:OP1	2.31	0.47
2:2:1141:U:H4'	2:2:1142:G:O5'	2.14	0.47
2:2:1430:A:H2'	2:2:1431:G:O4'	2.14	0.47
7:A:68:C:H2'	7:A:69:C:H6	1.78	0.47
7:A:71:G:H5'	7:A:72:C:OP2	2.15	0.47
38:h:114:LEU:O	38:h:118:SER:OG	2.28	0.47
40:j:52:VAL:HG12	40:j:147:PHE:CZ	2.49	0.47
48:r:82:ASP:OD1	48:r:82:ASP:N	2.44	0.47
1:1:1592:G:H2'	1:1:1593:G:C8	2.50	0.47
16:K:12:ASP:OD2	16:K:12:ASP:C	2.58	0.47
39:i:171:ASP:OD2	39:i:171:ASP:N	2.45	0.47
44:n:4:ILE:HD11	44:n:84:VAL:HG22	1.97	0.47
52:v:29:VAL:HG22	52:v:44:THR:HG22	1.97	0.47
1:1:2028:G:OP2	33:b:12:ARG:NH1	2.48	0.46
1:1:2735:G:H2'	1:1:2736:A:C8	2.49	0.46
2:2:17:U:H2'	2:2:18:C:C6	2.50	0.46
2:2:170:A:N6	2:2:203:A:H62	2.12	0.46
9:C:5:ILE:HD11	9:C:80:VAL:HG12	1.96	0.46
34:c:31:THR:CG2	34:c:32:LYS:H	2.29	0.46
39:i:23:ASP:OD1	39:i:23:ASP:C	2.58	0.46
42:l:88:GLN:C	42:l:89:ILE:HD13	2.41	0.46
50:t:1:MET:HA	50:t:37:HIS:ND1	2.31	0.46
1:1:669:G:N1	1:1:672:U:OP2	2.36	0.46
1:1:1240:G:OP2	1:1:1240:G:H8	1.98	0.46
2:2:321:C:H1'	2:2:322:A:OP2	2.15	0.46
2:2:456:U:O2'	2:2:457:A:O5'	2.33	0.46
2:2:1150:A:H2'	2:2:1151:A:C8	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:101:GLU:OE2	9:C:101:GLU:N	2.48	0.46
11:E:147:ASP:C	11:E:147:ASP:OD1	2.58	0.46
28:W:43:SER:O	28:W:43:SER:OG	2.33	0.46
40:j:9:LEU:HD23	40:j:9:LEU:O	2.16	0.46
1:1:151:A:H2'	1:1:152:C:H6	1.80	0.46
1:1:155:A:O2'	1:1:156:U:OP1	2.31	0.46
1:1:957:A:H2'	1:1:958:A:C8	2.49	0.46
1:1:1525:A:H2'	1:1:1526:A:C8	2.49	0.46
2:2:159:A:H2'	2:2:160:U:O4'	2.15	0.46
2:2:463:G:C2'	2:2:464:A:H4'	2.45	0.46
2:2:848:A:H2'	2:2:849:A:C8	2.51	0.46
31:Z:11:SER:OG	31:Z:13:ILE:HG12	2.16	0.46
44:n:97:LYS:HB3	44:n:98:PRO:HD3	1.96	0.46
1:1:570:C:O2'	1:1:571:G:O5'	2.32	0.46
1:1:1094:G:H2'	1:1:1095:C:C6	2.50	0.46
1:1:2111:A:H3'	1:1:2112:A:H8	1.81	0.46
14:H:220:THR:HA	14:H:223:ILE:HD12	1.96	0.46
1:1:1124:C:H3'	1:1:1125:G:H8	1.80	0.46
1:1:1561:G:O2'	1:1:1562:A:O5'	2.30	0.46
2:2:181:G:H1	2:2:194:U:H3	1.62	0.46
2:2:993:U:N3	2:2:1005:U:O2	2.48	0.46
2:2:1106:U:H2'	2:2:1108:G:N2	2.30	0.46
2:2:1297:G:H4'	49:s:46:VAL:HG11	1.98	0.46
1:1:855:U:O2'	1:1:2075:U:C2	2.69	0.46
2:2:377:G:H2'	2:2:378:U:C6	2.50	0.46
7:A:51:U:H2'	7:A:52:C:H6	1.78	0.46
28:W:73:ARG:HA	28:W:73:ARG:HD3	1.73	0.46
1:1:915:C:H42	1:1:923:C:N4	2.14	0.46
1:1:2202:C:H2'	1:1:2203:C:H6	1.80	0.46
1:1:2675:U:H2'	1:1:2676:A:C8	2.51	0.46
11:E:29:MET:HE3	11:E:29:MET:HB3	1.86	0.46
23:R:37:LYS:HD2	23:R:37:LYS:HA	1.75	0.46
38:h:73:GLY:HA2	38:h:76:ILE:HB	1.98	0.46
39:i:154:ARG:O	39:i:157:SER:OG	2.28	0.46
40:j:52:VAL:CG1	40:j:53:GLY:N	2.79	0.46
44:n:89:ASN:OD1	44:n:89:ASN:C	2.58	0.46
50:t:87:ARG:HA	50:t:87:ARG:HD2	1.63	0.46
1:1:1531:G:N2	8:B:98:ASP:O	2.48	0.46
1:1:2261:C:N4	28:W:15:GLU:OE2	2.46	0.46
2:2:703:A:H2'	2:2:704:A:C8	2.51	0.46
9:C:4:LEU:HA	9:C:4:LEU:HD12	1.85	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:12:THR:OG1	9:C:13:SER:N	2.48	0.46
9:C:42:VAL:HG13	9:C:43:ASP:OD2	2.15	0.46
12:F:108:TYR:OH	12:F:154:PHE:O	2.31	0.46
42:l:30:MET:HG2	42:l:31:TRP:N	2.31	0.46
1:1:502:A:O2'	1:1:503:A:OP1	2.23	0.46
2:2:178:A:OP1	55:y:78:LYS:NZ	2.49	0.46
2:2:292:G:H2'	2:2:293:A:C8	2.51	0.46
8:B:136:PRO:O	8:B:137:LEU:HG	2.16	0.46
13:G:109:ASP:OD2	13:G:111:LYS:NZ	2.49	0.46
42:l:43:TYR:O	42:l:46:ILE:HG13	2.16	0.46
44:n:53:THR:CG2	44:n:92:ASN:OD1	2.63	0.46
1:1:1158:A:H4'	1:1:1159:U:O5'	2.16	0.46
1:1:1476:G:H2'	1:1:1477:A:H8	1.81	0.46
1:1:2337:G:H2'	1:1:2338:A:C8	2.50	0.46
2:2:375:A:H2'	2:2:376:A:C8	2.51	0.46
2:2:1138:G:O5'	2:2:1138:G:H8	1.99	0.46
14:H:33:TYR:N	14:H:41:ILE:O	2.48	0.46
38:h:87:LYS:NZ	38:h:87:LYS:HB3	2.31	0.46
1:1:1124:C:H2'	1:1:1125:G:O4'	2.15	0.45
1:1:2845:C:H2'	1:1:2846:A:C2	2.51	0.45
2:2:239:A:C2	2:2:275:A:C5	3.04	0.45
2:2:1179:A:O2'	2:2:1180:A:OP1	2.32	0.45
44:n:5:HIS:HE1	44:n:16:ARG:HB3	1.81	0.45
1:1:612:U:H2'	1:1:613:A:H8	1.80	0.45
1:1:2306:G:N3	1:1:2306:G:H2'	2.30	0.45
2:2:812:U:H2'	2:2:813:A:C8	2.51	0.45
12:F:35:GLN:HB2	12:F:74:MET:HE1	1.97	0.45
45:o:11:SER:OG	45:o:17:VAL:CG1	2.56	0.45
1:1:2788:U:H4'	1:1:2790:A:C8	2.51	0.45
2:2:215:U:H2'	2:2:216:G:H8	1.82	0.45
2:2:451:U:C2	2:2:464:A:C6	3.04	0.45
2:2:1200:U:H2'	2:2:1201:U:C6	2.51	0.45
8:B:232:MET:HE3	8:B:244:PRO:HA	1.98	0.45
41:k:94:ASP:OD2	41:k:94:ASP:C	2.60	0.45
2:2:1062:G:N7	40:j:58:LYS:NZ	2.65	0.45
2:2:1343:C:O2'	2:2:1344:C:H5'	2.17	0.45
15:J:133:SER:O	15:J:133:SER:OG	2.34	0.45
17:L:100:ASP:O	17:L:104:ASN:ND2	2.48	0.45
43:m:33:LYS:HG2	43:m:50:PHE:CZ	2.51	0.45
1:1:543:U:H2'	1:1:544:A:H8	1.81	0.45
1:1:2789:U:H2'	1:1:2870:G:C5	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:463:G:N3	2:2:464:A:H1'	2.32	0.45
9:C:48:LEU:C	9:C:48:LEU:HD12	2.42	0.45
1:1:25:G:N2	1:1:539:A:H62	2.13	0.45
1:1:52:A:H2'	1:1:53:A:C8	2.51	0.45
6:6:-18:A:C2	6:6:-17:G:C8	3.05	0.45
24:S:108:ALA:HB3	24:S:112:ARG:HG3	1.99	0.45
46:p:48:MET:HE3	46:p:48:MET:HA	1.99	0.45
1:1:311:C:N4	1:1:371:A:N3	2.65	0.45
1:1:841:U:H2'	1:1:842:C:C6	2.52	0.45
1:1:1264:G:OP2	24:S:6:ARG:NH1	2.49	0.45
2:2:1099:U:H1'	2:2:1161:A:C4	2.52	0.45
2:2:1110:C:O2'	2:2:1125:G:N2	2.49	0.45
2:2:1218:A:H2'	2:2:1219:C:C6	2.52	0.45
12:F:132:PRO:O	12:F:133:ILE:HD13	2.16	0.45
14:H:129:THR:HG23	14:H:130:LEU:HD12	1.98	0.45
48:r:31:LYS:NZ	48:r:41:GLU:HG2	2.32	0.45
1:1:940:A:N7	18:M:13:GLN:HG2	2.32	0.45
2:2:1240:G:H2'	2:2:1241:C:H6	1.82	0.45
53:w:44:ASP:OD1	53:w:46:LYS:NZ	2.50	0.45
1:1:1172:U:P	15:J:70:THR:HG21	2.57	0.45
2:2:998:A:H2	2:2:1201:U:H1'	1.81	0.45
11:E:107:ILE:HD11	11:E:179:PRO:HD3	1.99	0.45
25:T:38:LYS:HB2	25:T:38:LYS:HE3	1.66	0.45
32:a:2:LYS:HD3	32:a:5:ILE:HD11	1.99	0.45
34:c:7:ARG:HG2	34:c:33:ASN:HB3	1.98	0.45
1:1:928:C:H2'	1:1:929:A:O4'	2.17	0.45
1:1:2289:U:OP1	1:1:2378:U:O2'	2.32	0.45
2:2:982:A:C6	2:2:983:G:C6	3.04	0.45
2:2:1515:U:H3	6:6:-18:A:N6	2.15	0.45
7:A:46:G:O5'	7:A:46:G:H8	2.00	0.45
7:A:47:A:P	7:A:48:U:H3	2.40	0.45
7:A:63:C:C2	7:A:64:G:C8	3.05	0.45
11:E:54:ASP:OD1	11:E:54:ASP:N	2.48	0.45
14:H:67:LYS:HE3	14:H:67:LYS:HB3	1.86	0.45
16:K:107:ARG:NH2	21:P:35:GLU:OE2	2.39	0.45
22:Q:48:ARG:O	22:Q:49:ASP:HB2	2.17	0.45
48:r:58:ASP:C	48:r:58:ASP:OD2	2.59	0.45
1:1:27:A:HO2'	1:1:28:A:P	2.40	0.44
1:1:265:U:H2'	1:1:266:G:H8	1.82	0.44
1:1:630:U:C5	1:1:647:G:C5	3.05	0.44
2:2:710:A:O2'	2:2:712:U:OP2	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1486:A:H2'	2:2:1487:C:C6	2.53	0.44
17:L:108:SER:OG	17:L:109:LYS:N	2.50	0.44
43:m:9:TYR:HH	43:m:36:THR:HG1	1.65	0.44
45:o:5:ILE:HD12	45:o:6:ARG:H	1.81	0.44
49:s:53:LYS:HB2	49:s:53:LYS:HE2	1.82	0.44
54:x:66:MET:HE3	54:x:74:PHE:CZ	2.52	0.44
1:1:1094:G:N2	1:1:1106:C:N3	2.40	0.44
8:B:181:THR:CG2	8:B:269:VAL:HB	2.42	0.44
13:G:110:ARG:HA	13:G:110:ARG:HD2	1.70	0.44
38:h:37:LYS:HB2	38:h:37:LYS:HE2	1.76	0.44
45:o:39:ILE:HG22	45:o:72:LEU:HB3	1.99	0.44
1:1:1572:C:H2'	1:1:1573:A:O4'	2.17	0.44
1:1:2781:A:H2'	1:1:2782:U:H6	1.83	0.44
2:2:650:G:C2'	2:2:651:G:H5'	2.47	0.44
2:2:1140:C:C5	2:2:1142:G:H1'	2.52	0.44
13:G:24:GLY:O	13:G:28:ASN:HB2	2.17	0.44
21:P:30:PHE:HB2	21:P:83:GLN:O	2.18	0.44
21:P:105:THR:OG1	21:P:106:GLY:N	2.49	0.44
24:S:33:LYS:HA	24:S:36:LEU:HD12	1.99	0.44
40:j:94:LYS:HE2	40:j:99:ARG:HH12	1.81	0.44
53:w:59:GLY:O	53:w:85:ARG:NH2	2.50	0.44
1:1:176:A:H2'	1:1:177:C:H6	1.80	0.44
1:1:1234:A:H61	1:1:1268:G:N2	2.14	0.44
2:2:1187:C:H4'	38:h:194:ARG:HH11	1.83	0.44
2:2:1404:G:H5'	16:K:48:PRO:HB3	1.98	0.44
7:A:2:G:H2'	7:A:3:C:C6	2.52	0.44
10:D:82:LEU:O	10:D:82:LEU:HD12	2.18	0.44
10:D:148:LEU:HD12	10:D:153:SER:HB3	1.99	0.44
12:F:120:VAL:HG13	12:F:138:SER:HB3	2.00	0.44
26:U:82:THR:HB	26:U:99:LYS:HD2	1.98	0.44
27:V:137:ILE:HD12	27:V:137:ILE:O	2.16	0.44
42:l:101:MET:HE2	42:l:101:MET:HB3	1.89	0.44
1:1:151:A:H2'	1:1:152:C:C6	2.53	0.44
2:2:409:G:H3'	2:2:410:G:H8	1.81	0.44
14:H:207:ALA:HB3	14:H:210:SER:OG	2.17	0.44
38:h:133:ILE:HG21	38:h:167:PHE:CD1	2.53	0.44
1:1:2781:A:H2'	1:1:2782:U:C6	2.52	0.44
2:2:1145:A:H5'	2:2:1146:G:OP2	2.18	0.44
13:G:51:LEU:O	13:G:52:LYS:C	2.61	0.44
41:k:38:VAL:HB	41:k:64:GLU:O	2.17	0.44
1:1:631:A:H2'	1:1:632:A:C8	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1434:A:H2'	1:1:1435:C:C6	2.53	0.44
2:2:1516:C:H5''	2:2:1517:U:OP2	2.18	0.44
8:B:211:THR:HG22	8:B:216:ARG:HB2	2.00	0.44
11:E:115:ARG:HG3	11:E:115:ARG:HH11	1.82	0.44
19:N:20:MET:HE2	19:N:20:MET:HB3	1.90	0.44
36:e:24:ARG:NH1	36:e:25:LYS:O	2.49	0.44
1:1:1093:G:C5	1:1:1120:A:H1'	2.53	0.44
2:2:812:U:H2'	2:2:813:A:H8	1.83	0.44
2:2:1224:G:HO2'	2:2:1225:C:P	2.41	0.44
19:N:73:LYS:O	19:N:77:THR:HG22	2.18	0.44
45:o:14:HIS:CD2	45:o:14:HIS:C	2.95	0.44
1:1:1477:A:H2'	1:1:1478:A:H8	1.83	0.44
2:2:1100:U:H2'	2:2:1101:G:H8	1.83	0.44
24:S:39:ASP:OD2	24:S:39:ASP:N	2.51	0.44
42:l:66:ASP:OD1	42:l:67:ALA:N	2.51	0.44
48:r:11:ASP:O	48:r:11:ASP:OD2	2.35	0.44
55:y:40:ASP:OD1	55:y:42:SER:N	2.48	0.44
1:1:1087:G:H4'	1:1:1118:A:C8	2.53	0.43
1:1:1320:G:H2'	1:1:1321:C:C6	2.53	0.43
1:1:1476:G:H2'	1:1:1477:A:C8	2.53	0.43
1:1:2113:U:O2'	1:1:2190:G:N2	2.46	0.43
4:4:42:LEU:HA	4:4:45:GLU:OE2	2.18	0.43
11:E:108:THR:HG22	11:E:109:ILE:HG13	2.00	0.43
13:G:125:ASN:N	13:G:125:ASN:OD1	2.51	0.43
21:P:55:GLY:C	21:P:57:THR:H	2.24	0.43
34:c:31:THR:HG22	34:c:32:LYS:H	1.79	0.43
38:h:58:ARG:HG2	38:h:63:VAL:HG12	2.00	0.43
44:n:50:LEU:H	44:n:50:LEU:HD12	1.81	0.43
50:t:32:THR:HG21	50:t:86:ILE:HD11	2.00	0.43
1:1:611:U:H2'	1:1:612:U:C6	2.54	0.43
1:1:1604:A:H2'	1:1:1605:A:C8	2.53	0.43
1:1:2108:A:H2'	1:1:2109:U:C6	2.53	0.43
2:2:1103:U:H2'	2:2:1104:A:C8	2.53	0.43
9:C:43:ASP:OD2	9:C:43:ASP:N	2.50	0.43
14:H:132:LYS:HA	14:H:135:ARG:CZ	2.47	0.43
1:1:327:U:H2'	1:1:328:G:O4'	2.18	0.43
1:1:1098:G:H2'	1:1:1099:G:O4'	2.18	0.43
1:1:2279:C:O2'	1:1:2280:U:H5'	2.18	0.43
2:2:651:G:H2'	2:2:652:G:C8	2.53	0.43
7:A:60:A:H3'	7:A:61:U:C6	2.53	0.43
9:C:196:HIS:O	9:C:199:SER:OG	2.30	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:E:69:VAL:HG22	11:E:70:ILE:H	1.83	0.43
12:F:84:LYS:HG3	12:F:144:LEU:HD21	1.99	0.43
18:M:14:LYS:HB3	18:M:14:LYS:HE2	1.80	0.43
38:h:110:LEU:HD11	38:h:143:MET:HB3	2.00	0.43
39:i:200:ASN:O	39:i:200:ASN:ND2	2.34	0.43
48:r:69:LEU:O	48:r:73:ILE:HG13	2.18	0.43
55:y:76:LEU:HD23	55:y:76:LEU:HA	1.87	0.43
1:1:1125:G:N2	1:1:1131:G:O6	2.51	0.43
1:1:1464:U:H2'	1:1:1465:G:O4'	2.18	0.43
1:1:2040:A:O2'	1:1:2042:G:OP2	2.32	0.43
1:1:2423:A:H4'	1:1:2424:A:O5'	2.17	0.43
2:2:-1:A:H1'	2:2:0:U:H5	1.83	0.43
10:D:144:LYS:HE2	10:D:144:LYS:HB3	1.85	0.43
24:S:85:GLU:N	24:S:85:GLU:CD	2.76	0.43
31:Z:43:ILE:HD12	31:Z:44:LEU:N	2.33	0.43
36:e:29:LYS:HB3	36:e:29:LYS:HE2	1.70	0.43
38:h:126:ARG:HA	38:h:126:ARG:HD3	1.88	0.43
1:1:274:A:H2'	1:1:275:G:H8	1.83	0.43
1:1:886:G:H2'	1:1:887:A:C8	2.53	0.43
1:1:2298:U:H2'	1:1:2299:A:H8	1.83	0.43
2:2:1510:U:H2'	2:2:1511:C:C6	2.53	0.43
34:c:32:LYS:HE2	34:c:32:LYS:HB3	1.87	0.43
38:h:174:LEU:HD23	38:h:181:ILE:HD13	1.99	0.43
45:o:11:SER:HB2	45:o:95:VAL:HG12	2.00	0.43
1:1:613:A:H2'	1:1:614:A:H8	1.84	0.43
1:1:967:A:H2'	1:1:968:A:C8	2.53	0.43
1:1:2244:G:H2'	1:1:2245:A:C8	2.54	0.43
39:i:96:ASP:OD1	39:i:97:ASN:N	2.51	0.43
1:1:1498:A:H2'	1:1:1499:A:H8	1.82	0.43
1:1:1570:G:O2'	1:1:1571:A:OP1	2.33	0.43
2:2:647:A:H2'	2:2:648:C:C6	2.53	0.43
2:2:1041:U:O2'	45:o:53:SER:HB2	2.18	0.43
2:2:1295:C:H2'	2:2:1296:U:C6	2.53	0.43
14:H:218:VAL:O	14:H:222:VAL:HG23	2.19	0.43
1:1:27:A:O2'	1:1:28:A:H8	2.00	0.43
1:1:603:C:H2'	1:1:604:C:C6	2.54	0.43
1:1:1613:A:H3'	1:1:1614:A:H8	1.84	0.43
1:1:2460:U:H2'	1:1:2461:C:C6	2.54	0.43
2:2:148:G:H2'	2:2:149:A:H5'	2.01	0.43
2:2:1111:A:H61	2:2:1126:G:C2'	2.32	0.43
2:2:1145:A:H61	2:2:1154:U:H3	1.67	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:96:ASP:C	9:C:96:ASP:OD2	2.61	0.43
14:H:170:GLU:O	14:H:174:ILE:HG12	2.18	0.43
29:X:22:MET:HE3	29:X:22:MET:HB3	1.76	0.43
38:h:107:ARG:NH1	38:h:143:MET:SD	2.91	0.43
42:l:44:ASP:OD1	42:l:44:ASP:N	2.52	0.43
48:r:83:LEU:HD12	54:x:66:MET:HB3	2.01	0.43
1:1:1002:A:H5'	1:1:1217:U:H1'	2.01	0.43
1:1:1561:G:H8	1:1:1561:G:OP2	2.02	0.43
1:1:2028:G:H2'	1:1:2028:G:N3	2.34	0.43
2:2:1161:A:H2'	2:2:1162:A:O4'	2.19	0.43
7:A:65:G:N3	7:A:65:G:H2'	2.32	0.43
44:n:23:THR:O	44:n:57:ASN:ND2	2.48	0.43
48:r:45:ILE:C	48:r:47:GLU:H	2.27	0.43
1:1:2730:G:H5''	1:1:2731:A:C8	2.54	0.43
2:2:982:A:C6	2:2:1024:A:C6	3.07	0.43
2:2:1179:A:HO2'	2:2:1180:A:P	2.42	0.43
2:2:1285:G:O2'	2:2:1286:G:OP1	2.31	0.43
9:C:16:ASP:OD1	9:C:16:ASP:C	2.61	0.43
13:G:40:THR:HB	13:G:41:PRO:HD2	2.00	0.43
27:V:95:PHE:HB2	27:V:98:LYS:CD	2.49	0.43
33:b:31:PRO:O	33:b:32:ILE:HD12	2.19	0.43
42:l:17:PHE:N	42:l:17:PHE:HD1	2.16	0.43
52:v:21:ASP:OD1	52:v:21:ASP:O	2.37	0.43
1:1:1095:C:C4	1:1:1096:U:C4	3.07	0.42
2:2:446:A:H2'	2:2:447:A:O4'	2.19	0.42
14:H:132:LYS:O	14:H:136:LEU:HG	2.19	0.42
27:V:62:ILE:O	27:V:69:SER:HA	2.19	0.42
40:j:87:VAL:HG13	40:j:153:MET:SD	2.59	0.42
1:1:1113:U:H2'	1:1:1114:U:C6	2.54	0.42
1:1:1136:C:H2'	1:1:1137:U:H6	1.84	0.42
1:1:1801:G:H2'	1:1:1802:C:H6	1.82	0.42
2:2:41:G:H2'	2:2:42:G:H8	1.84	0.42
2:2:410:G:N2	2:2:419:A:H2	2.13	0.42
2:2:443:A:H2'	2:2:444:G:O4'	2.19	0.42
2:2:1217:U:H2'	2:2:1218:A:O4'	2.20	0.42
9:C:62:LYS:HE2	9:C:62:LYS:HB3	1.87	0.42
10:D:101:LEU:HD12	10:D:101:LEU:HA	1.84	0.42
13:G:15:LYS:HB3	13:G:15:LYS:HE3	1.77	0.42
17:L:48:LYS:HB2	17:L:51:PHE:HB2	2.00	0.42
26:U:71:ILE:HD12	26:U:71:ILE:HA	1.82	0.42
38:h:71:ARG:HD2	38:h:74:ILE:HG21	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1004:A:H1'	1:1:1019:A:C2	2.54	0.42
1:1:1133:U:H2'	1:1:1134:C:O4'	2.19	0.42
1:1:1570:G:H2'	1:1:1571:A:H8	1.79	0.42
1:1:2241:U:H2'	1:1:2242:U:C6	2.54	0.42
2:2:-1:A:H1'	2:2:0:U:C5	2.54	0.42
2:2:453:C:H42	2:2:461:A:N6	2.17	0.42
12:F:21:ASP:O	12:F:23:ILE:HD12	2.20	0.42
12:F:166:LYS:HD2	12:F:172:LEU:HD11	2.00	0.42
14:H:211:ILE:HG22	14:H:215:LEU:HD23	2.01	0.42
26:U:96:PHE:HA	26:U:103:VAL:HA	2.01	0.42
39:i:29:ARG:HA	39:i:31:TYR:CE1	2.54	0.42
55:y:72:LEU:HD23	55:y:72:LEU:HA	1.90	0.42
1:1:526:A:H8	1:1:526:A:OP2	2.03	0.42
1:1:666:U:H2'	1:1:667:C:C6	2.54	0.42
2:2:216:G:H2'	2:2:217:A:H8	1.84	0.42
4:4:35:GLU:OE1	4:4:36:SER:N	2.52	0.42
7:A:73:A:H3'	7:A:74:A:H8	1.83	0.42
8:B:51:MET:HE3	8:B:51:MET:HB3	1.88	0.42
12:F:74:MET:HE2	12:F:74:MET:HB2	1.85	0.42
14:H:102:LEU:HD12	14:H:176:GLU:HB3	1.99	0.42
42:l:17:PHE:N	42:l:17:PHE:CD1	2.86	0.42
1:1:1127:A:H2'	1:1:1128:A:C8	2.55	0.42
1:1:1234:A:N6	1:1:1268:G:H22	2.16	0.42
1:1:1490:G:H2'	1:1:1491:U:C6	2.55	0.42
2:2:316:U:H2'	2:2:317:G:O4'	2.20	0.42
2:2:451:U:H2'	2:2:452:C:C6	2.54	0.42
2:2:745:U:H2'	2:2:746:G:O4'	2.19	0.42
2:2:988:A:H2'	2:2:989:C:C6	2.55	0.42
2:2:1466:A:HO2'	2:2:1467:G:P	2.41	0.42
3:3:26:A:H2'	3:3:27:C:C6	2.52	0.42
9:C:196:HIS:ND1	9:C:197:LYS:O	2.49	0.42
21:P:18:PHE:HB3	21:P:85:ILE:HD11	2.01	0.42
22:Q:48:ARG:C	22:Q:50:ARG:N	2.78	0.42
41:k:55:LYS:NZ	41:k:55:LYS:HB2	2.35	0.42
53:w:53:LYS:HE2	53:w:53:LYS:HB3	1.90	0.42
55:y:40:ASP:HB3	55:y:43:ASP:OD1	2.20	0.42
1:1:143:U:H2'	1:1:144:A:H8	1.84	0.42
1:1:1094:G:H2'	1:1:1095:C:H6	1.83	0.42
1:1:1102:G:H2'	1:1:1103:C:C2	2.54	0.42
1:1:2617:C:H5'	9:C:157:LYS:HG2	2.02	0.42
2:2:1417:G:H2'	2:2:1418:U:H6	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:H:132:LYS:HA	14:H:135:ARG:NH1	2.35	0.42
1:1:1208:U:H2'	1:1:1209:G:H8	1.84	0.42
2:2:1261:A:H2'	2:2:1261:A:N3	2.33	0.42
8:B:175:LYS:HE3	8:B:175:LYS:HB3	1.82	0.42
12:F:87:GLU:HB2	12:F:133:ILE:HD12	2.01	0.42
12:F:140:ASP:OD2	12:F:140:ASP:C	2.62	0.42
49:s:39:LEU:HD12	49:s:40:PRO:HD2	2.00	0.42
54:x:9:PRO:HB3	54:x:39:MET:SD	2.59	0.42
1:1:425:A:H2'	1:1:426:A:C8	2.54	0.42
1:1:812:G:H5'	1:1:813:G:OP1	2.19	0.42
1:1:1029:A:H2'	1:1:1030:A:C8	2.55	0.42
1:1:1750:A:H2'	1:1:1751:A:O4'	2.20	0.42
2:2:41:G:H2'	2:2:42:G:C8	2.55	0.42
14:H:78:LYS:HB2	14:H:94:THR:HB	2.02	0.42
48:r:95:LEU:O	48:r:109:ARG:NH1	2.53	0.42
1:1:155:A:O2'	1:1:156:U:P	2.77	0.42
1:1:1027:C:OP1	22:Q:84:LYS:NZ	2.42	0.42
2:2:816:A:OP1	43:m:21:HIS:NE2	2.50	0.42
7:A:54:G:N3	7:A:54:G:H2'	2.35	0.42
11:E:4:THR:HB	11:E:5:PRO:HD3	2.01	0.42
26:U:14:VAL:CG2	26:U:21:GLY:H	2.32	0.42
33:b:10:LYS:HB2	33:b:10:LYS:HE2	1.73	0.42
40:j:52:VAL:HG21	40:j:124:VAL:HB	2.01	0.42
1:1:604:C:H2'	1:1:605:U:C6	2.55	0.42
39:i:143:ARG:NH2	39:i:145:LYS:HE3	2.29	0.42
1:1:317:C:OP1	26:U:3:LYS:NZ	2.43	0.41
1:1:1102:G:H22	1:1:1134:C:N4	2.17	0.41
1:1:2071:C:H2'	1:1:2072:C:C6	2.55	0.41
1:1:2109:U:H2'	1:1:2110:A:C8	2.54	0.41
1:1:2789:U:H2'	1:1:2870:G:C6	2.55	0.41
2:2:465:G:C5	2:2:466:C:C4	3.08	0.41
10:D:126:LEU:HD12	10:D:126:LEU:HA	1.83	0.41
14:H:46:LYS:O	14:H:50:LYS:HG2	2.19	0.41
30:Y:57:LEU:HD23	30:Y:57:LEU:HA	1.80	0.41
38:h:143:MET:HE2	38:h:143:MET:HA	2.02	0.41
1:1:1239:U:H3'	1:1:1240:G:H5'	2.02	0.41
1:1:2402:C:H2'	1:1:2403:G:O4'	2.19	0.41
13:G:94:ASN:OD1	13:G:115:SER:HB2	2.20	0.41
16:K:117:LEU:HD12	16:K:117:LEU:C	2.43	0.41
19:N:106:ASP:OD1	19:N:106:ASP:N	2.51	0.41
51:u:6:ARG:NH2	51:u:25:ALA:HA	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:x:1:MET:HA	54:x:10:PHE:HB2	2.02	0.41
1:1:274:A:H2'	1:1:275:G:C8	2.56	0.41
1:1:358:C:OP1	26:U:5:LYS:HE3	2.21	0.41
1:1:1093:G:C8	1:1:1120:A:H1'	2.55	0.41
1:1:1267:U:H2'	1:1:1268:G:C8	2.54	0.41
2:2:1211:A:O2'	2:2:1212:C:O5'	2.37	0.41
2:2:1373:U:H2'	2:2:1374:G:C8	2.55	0.41
13:G:38:LEU:HD23	13:G:38:LEU:HA	1.91	0.41
38:h:23:TYR:HB2	45:o:95:VAL:O	2.21	0.41
43:m:66:ASP:HB3	43:m:71:GLU:H	1.84	0.41
44:n:55:ASN:OD1	44:n:55:ASN:N	2.53	0.41
45:o:51:LEU:HA	45:o:61:ARG:HD3	2.02	0.41
48:r:9:ILE:CG2	48:r:18:ALA:HB1	2.50	0.41
1:1:370:A:H2'	1:1:371:A:C2	2.56	0.41
1:1:1477:A:H2'	1:1:1478:A:C8	2.55	0.41
1:1:1670:U:H2'	1:1:1671:C:C6	2.55	0.41
1:1:2377:G:H2'	1:1:2378:U:C6	2.55	0.41
1:1:2676:A:H2'	1:1:2677:A:C8	2.55	0.41
2:2:420:U:H2'	2:2:421:U:C6	2.55	0.41
10:D:188:LEU:HD23	10:D:188:LEU:HA	1.86	0.41
20:O:4:THR:C	20:O:6:SER:H	2.28	0.41
30:Y:12:ALA:HA	30:Y:15:GLN:HG2	2.02	0.41
39:i:75:LYS:HE2	39:i:75:LYS:HB2	1.83	0.41
42:l:56:ASP:OD2	42:l:56:ASP:C	2.63	0.41
51:u:6:ARG:HH21	51:u:25:ALA:HA	1.86	0.41
52:v:41:VAL:HG12	52:v:42:LEU:H	1.86	0.41
1:1:504:A:OP2	26:U:46:LYS:HE2	2.20	0.41
1:1:2110:A:H2'	1:1:2111:A:C8	2.56	0.41
10:D:182:LEU:HD23	10:D:182:LEU:HA	1.81	0.41
14:H:109:ARG:HD2	14:H:109:ARG:HA	1.91	0.41
39:i:104:ILE:HG23	39:i:152:ILE:HG23	2.01	0.41
41:k:14:LEU:HD21	41:k:84:ARG:NE	2.33	0.41
50:t:1:MET:HA	50:t:37:HIS:CG	2.56	0.41
54:x:61:TYR:HD1	54:x:62:VAL:N	2.18	0.41
55:y:61:LYS:HA	55:y:61:LYS:HD2	1.78	0.41
1:1:1136:C:H2'	1:1:1137:U:C6	2.55	0.41
2:2:724:U:H2'	2:2:725:U:C6	2.56	0.41
6:6:-19:G:C2	6:6:-18:A:C8	3.08	0.41
7:A:14:A:C2	7:A:15:G:H1'	2.56	0.41
34:c:17:HIS:C	34:c:19:THR:H	2.29	0.41
38:h:90:LEU:HD11	38:h:98:VAL:HG11	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2111:A:C5	1:1:2112:A:C5	3.08	0.41
2:2:1515:U:H3'	2:2:1516:C:C6	2.56	0.41
6:6:-17:G:N1	6:6:-16:A:C5	2.89	0.41
9:C:65:LEU:HD12	9:C:65:LEU:HA	1.91	0.41
10:D:144:LYS:H	10:D:144:LYS:HG2	1.68	0.41
17:L:20:VAL:HG12	17:L:32:ALA:HB1	2.01	0.41
1:1:1270:U:H2'	1:1:1271:U:C6	2.55	0.41
2:2:568:C:H2'	2:2:569:G:O4'	2.20	0.41
2:2:1134:A:H4'	45:o:14:HIS:NE2	2.36	0.41
13:G:94:ASN:HB2	13:G:110:ARG:NH2	2.22	0.41
14:H:95:GLU:HA	14:H:95:GLU:OE1	2.21	0.41
14:H:170:GLU:OE2	14:H:170:GLU:HA	2.20	0.41
22:Q:91:ASN:OD1	23:R:11:GLN:NE2	2.54	0.41
23:R:32:LYS:HE2	23:R:32:LYS:HB2	1.90	0.41
30:Y:55:THR:HA	30:Y:58:THR:HG22	2.01	0.41
40:j:105:ALA:HB2	40:j:130:LEU:HD22	2.02	0.41
42:l:66:ASP:OD1	42:l:66:ASP:C	2.63	0.41
48:r:52:GLN:O	48:r:56:LEU:HD13	2.21	0.41
1:1:25:G:H2'	1:1:26:G:C8	2.56	0.41
1:1:180:A:H5''	1:1:181:A:OP2	2.20	0.41
1:1:262:U:H2'	1:1:263:G:C8	2.56	0.41
1:1:266:G:O2'	1:1:267:U:H5'	2.21	0.41
1:1:269:A:H2'	1:1:270:C:C6	2.56	0.41
1:1:635:A:H2'	1:1:636:C:C6	2.56	0.41
1:1:881:A:H2'	1:1:882:U:C6	2.56	0.41
1:1:1344:A:H2'	1:1:1345:C:C6	2.56	0.41
1:1:1434:A:H2'	1:1:1435:C:H6	1.85	0.41
1:1:1896:A:H2'	1:1:1897:A:C8	2.56	0.41
1:1:2472:U:O2'	1:1:2473:C:OP1	2.35	0.41
1:1:2696:U:H2'	1:1:2697:C:C6	2.56	0.41
2:2:126:C:H2'	2:2:127:C:H5'	2.02	0.41
2:2:560:A:H5'	2:2:561:A:OP2	2.21	0.41
2:2:630:A:N7	43:m:109:SER:HA	2.35	0.41
2:2:1039:G:HO2'	2:2:1040:U:P	2.41	0.41
2:2:1295:C:H2'	2:2:1296:U:H6	1.85	0.41
2:2:1389:C:H2'	2:2:1390:A:H8	1.86	0.41
14:H:212:ASP:O	14:H:216:SER:OG	2.33	0.41
15:J:80:MET:HE1	15:J:89:GLN:OE1	2.20	0.41
16:K:63:VAL:HG13	16:K:64:ARG:HG3	2.02	0.41
27:V:4:ILE:HG22	27:V:5:THR:N	2.35	0.41
30:Y:8:ASP:HB3	30:Y:9:LEU:HD22	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:731:U:H2'	1:1:732:G:O4'	2.21	0.41
1:1:1094:G:C2	1:1:1095:C:C4	3.09	0.41
1:1:2109:U:H2'	1:1:2110:A:H8	1.86	0.41
1:1:2244:G:H2'	1:1:2245:A:H8	1.85	0.41
1:1:2510:C:H2'	1:1:2511:G:O4'	2.20	0.41
2:2:488:G:H2'	2:2:489:G:H8	1.85	0.41
2:2:980:G:H2'	2:2:981:C:O4'	2.21	0.41
36:e:9:SER:O	36:e:13:ARG:NH1	2.50	0.41
39:i:59:LYS:NZ	39:i:66:GLU:OE1	2.38	0.41
53:w:87:LEU:HD23	53:w:87:LEU:HA	1.91	0.41
1:1:2038:A:N3	1:1:2453:G:O2'	2.46	0.40
1:1:2108:A:H2'	1:1:2109:U:H6	1.86	0.40
2:2:1023:U:O2'	2:2:1024:A:OP1	2.37	0.40
7:A:6:G:N3	7:A:6:G:H2'	2.36	0.40
40:j:51:VAL:HA	40:j:78:VAL:O	2.21	0.40
48:r:71:ARG:HH22	48:r:75:MET:N	2.18	0.40
2:2:946:G:N2	45:o:56:VAL:HG11	2.37	0.40
2:2:1505:A:H2'	2:2:1506:C:C6	2.57	0.40
9:C:16:ASP:HB3	9:C:22:ILE:HD11	2.03	0.40
11:E:99:MET:HE2	11:E:99:MET:HB3	1.87	0.40
14:H:101:MET:HA	14:H:108:ILE:HG13	2.03	0.40
20:O:114:LEU:HD23	20:O:114:LEU:HA	1.77	0.40
21:P:58:GLU:O	21:P:77:VAL:HG12	2.21	0.40
38:h:182:ASP:OD2	38:h:183:TYR:N	2.54	0.40
44:n:4:ILE:C	44:n:4:ILE:HD12	2.46	0.40
1:1:27:A:H1'	1:1:537:A:N6	2.35	0.40
1:1:1169:G:H21	15:J:113:MET:HE2	1.85	0.40
1:1:2790:A:H2'	1:1:2791:A:C8	2.56	0.40
2:2:966:A:H5''	2:2:967:C:OP2	2.20	0.40
2:2:995:U:H2'	2:2:996:G:H8	1.86	0.40
2:2:1515:U:H3'	2:2:1516:C:C5	2.56	0.40
4:4:35:GLU:OE1	4:4:35:GLU:C	2.64	0.40
8:B:111:LYS:HB3	8:B:111:LYS:HE3	1.80	0.40
14:H:46:LYS:H	14:H:46:LYS:HG3	1.66	0.40
23:R:48:THR:O	23:R:48:THR:HG23	2.21	0.40
44:n:111:ARG:HG2	44:n:112:LYS:N	2.36	0.40
50:t:69:LEU:HD23	50:t:69:LEU:HA	1.82	0.40
1:1:310:G:C2	1:1:371:A:C2	3.10	0.40
2:2:404:A:H2	2:2:424:A:H62	1.69	0.40
3:3:54:A:C6	11:E:29:MET:HE2	2.56	0.40
10:D:64:ILE:HD13	10:D:64:ILE:HA	1.79	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:s:16:THR:HG21	49:s:42:ASN:HB3	2.04	0.40
55:y:57:LYS:HD3	55:y:57:LYS:HA	1.93	0.40
1:1:68:G:H2'	1:1:69:C:O4'	2.21	0.40
2:2:172:A:C6	2:2:202:A:N7	2.90	0.40
2:2:488:G:H2'	2:2:489:G:C8	2.57	0.40
2:2:521:A:O2'	2:2:523:A:OP2	2.34	0.40
2:2:1048:A:N1	2:2:1089:G:O2'	2.43	0.40
2:2:1131:C:H2'	2:2:1132:U:C6	2.57	0.40
2:2:1394:C:H2'	2:2:1395:A:C8	2.57	0.40
15:J:147:LEU:HA	15:J:147:LEU:HD23	1.81	0.40
39:i:135:LYS:H	39:i:135:LYS:HG2	1.67	0.40
39:i:144:GLU:HA	39:i:147:LYS:HE2	2.03	0.40
45:o:36:THR:HG23	45:o:74:ASP:O	2.21	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	4	34/50 (68%)	33 (97%)	1 (3%)	0	100	100
5	5	25/30 (83%)	25 (100%)	0	0	100	100
8	B	269/274 (98%)	250 (93%)	18 (7%)	1 (0%)	30	49
9	C	202/205 (98%)	188 (93%)	14 (7%)	0	100	100
10	D	204/209 (98%)	193 (95%)	11 (5%)	0	100	100
11	E	177/183 (97%)	163 (92%)	14 (8%)	0	100	100
12	F	175/180 (97%)	169 (97%)	6 (3%)	0	100	100
13	G	116/146 (80%)	107 (92%)	9 (8%)	0	100	100
14	H	217/254 (85%)	209 (96%)	8 (4%)	0	100	100
15	J	148/151 (98%)	130 (88%)	18 (12%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	K	119/122 (98%)	113 (95%)	6 (5%)	0	100	100
17	L	148/150 (99%)	131 (88%)	17 (12%)	0	100	100
18	M	137/141 (97%)	128 (93%)	9 (7%)	0	100	100
19	N	123/163 (76%)	115 (94%)	8 (6%)	0	100	100
20	O	113/116 (97%)	105 (93%)	8 (7%)	0	100	100
21	P	110/116 (95%)	100 (91%)	10 (9%)	0	100	100
22	Q	111/114 (97%)	104 (94%)	7 (6%)	0	100	100
23	R	102/147 (69%)	89 (87%)	13 (13%)	0	100	100
24	S	126/137 (92%)	124 (98%)	2 (2%)	0	100	100
25	T	81/96 (84%)	75 (93%)	6 (7%)	0	100	100
26	U	88/104 (85%)	81 (92%)	7 (8%)	0	100	100
27	V	120/203 (59%)	116 (97%)	4 (3%)	0	100	100
28	W	76/86 (88%)	75 (99%)	1 (1%)	0	100	100
29	X	74/78 (95%)	69 (93%)	5 (7%)	0	100	100
30	Y	57/63 (90%)	53 (93%)	4 (7%)	0	100	100
31	Z	54/60 (90%)	48 (89%)	6 (11%)	0	100	100
32	a	56/84 (67%)	52 (93%)	4 (7%)	0	100	100
33	b	57/64 (89%)	51 (90%)	6 (10%)	0	100	100
34	c	52/60 (87%)	51 (98%)	1 (2%)	0	100	100
35	d	49/53 (92%)	49 (100%)	0	0	100	100
36	e	62/65 (95%)	54 (87%)	8 (13%)	0	100	100
37	f	36/38 (95%)	34 (94%)	2 (6%)	0	100	100
38	h	213/252 (84%)	199 (93%)	14 (7%)	0	100	100
39	i	198/201 (98%)	192 (97%)	6 (3%)	0	100	100
40	j	170/173 (98%)	157 (92%)	13 (8%)	0	100	100
41	k	105/113 (93%)	100 (95%)	5 (5%)	0	100	100
42	l	151/158 (96%)	142 (94%)	9 (6%)	0	100	100
43	m	129/132 (98%)	123 (95%)	6 (5%)	0	100	100
44	n	123/128 (96%)	115 (94%)	8 (6%)	0	100	100
45	o	96/101 (95%)	90 (94%)	6 (6%)	0	100	100
46	p	115/127 (91%)	109 (95%)	6 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	q	119/127 (94%)	111 (93%)	8 (7%)	0	100	100
48	r	115/124 (93%)	109 (95%)	6 (5%)	0	100	100
49	s	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
50	t	86/88 (98%)	84 (98%)	2 (2%)	0	100	100
51	u	107/188 (57%)	106 (99%)	1 (1%)	0	100	100
52	v	78/86 (91%)	74 (95%)	4 (5%)	0	100	100
53	w	63/98 (64%)	62 (98%)	1 (2%)	0	100	100
54	x	81/92 (88%)	79 (98%)	2 (2%)	0	100	100
55	y	77/83 (93%)	75 (97%)	2 (3%)	0	100	100
All	All	5630/6302 (89%)	5292 (94%)	337 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
8	B	136	PRO

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	4	30/44 (68%)	30 (100%)	0	100	100
5	5	23/26 (88%)	23 (100%)	0	100	100
8	B	215/225 (96%)	214 (100%)	1 (0%)	86	95
9	C	156/162 (96%)	156 (100%)	0	100	100
10	D	150/181 (83%)	150 (100%)	0	100	100
11	E	121/156 (78%)	121 (100%)	0	100	100
12	F	121/148 (82%)	121 (100%)	0	100	100
13	G	80/118 (68%)	78 (98%)	2 (2%)	42	69
14	H	174/207 (84%)	174 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	J	115/128 (90%)	115 (100%)	0	100	100
16	K	89/100 (89%)	89 (100%)	0	100	100
17	L	93/115 (81%)	93 (100%)	0	100	100
18	M	102/116 (88%)	102 (100%)	0	100	100
19	N	101/131 (77%)	101 (100%)	0	100	100
20	O	79/90 (88%)	79 (100%)	0	100	100
21	P	78/98 (80%)	78 (100%)	0	100	100
22	Q	89/94 (95%)	89 (100%)	0	100	100
23	R	72/112 (64%)	72 (100%)	0	100	100
24	S	93/116 (80%)	93 (100%)	0	100	100
25	T	70/85 (82%)	70 (100%)	0	100	100
26	U	68/89 (76%)	68 (100%)	0	100	100
27	V	81/163 (50%)	81 (100%)	0	100	100
28	W	60/69 (87%)	60 (100%)	0	100	100
29	X	62/69 (90%)	62 (100%)	0	100	100
30	Y	36/55 (66%)	36 (100%)	0	100	100
31	Z	41/52 (79%)	41 (100%)	0	100	100
32	a	40/75 (53%)	40 (100%)	0	100	100
33	b	44/53 (83%)	44 (100%)	0	100	100
34	c	45/56 (80%)	45 (100%)	0	100	100
35	d	42/46 (91%)	42 (100%)	0	100	100
36	e	55/59 (93%)	54 (98%)	1 (2%)	54	78
37	f	31/34 (91%)	31 (100%)	0	100	100
38	h	153/201 (76%)	153 (100%)	0	100	100
39	i	163/173 (94%)	163 (100%)	0	100	100
40	j	111/138 (80%)	111 (100%)	0	100	100
41	k	74/101 (73%)	74 (100%)	0	100	100
42	l	114/136 (84%)	114 (100%)	0	100	100
43	m	93/111 (84%)	93 (100%)	0	100	100
44	n	99/107 (92%)	99 (100%)	0	100	100
45	o	72/94 (77%)	72 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
46	p	80/102 (78%)	80 (100%)	0	100	100
47	q	97/107 (91%)	97 (100%)	0	100	100
48	r	87/100 (87%)	87 (100%)	0	100	100
49	s	61/73 (84%)	61 (100%)	0	100	100
50	t	66/79 (84%)	65 (98%)	1 (2%)	60	82
51	u	68/136 (50%)	68 (100%)	0	100	100
52	v	71/81 (88%)	71 (100%)	0	100	100
53	w	52/87 (60%)	52 (100%)	0	100	100
54	x	67/78 (86%)	67 (100%)	0	100	100
55	y	65/72 (90%)	65 (100%)	0	100	100
All	All	4249/5248 (81%)	4244 (100%)	5 (0%)	92	97

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	B	103	TYR
13	G	49	GLU
13	G	51	LEU
36	e	54	ASP
50	t	87	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (28) such sidechains are listed below:

Mol	Chain	Res	Type
9	C	21	ASN
9	C	49	GLN
9	C	169	ASN
10	D	44	GLN
10	D	49	HIS
10	D	161	ASN
12	F	32	GLN
13	G	33	GLN
14	H	89	ASN
15	J	117	ASN
15	J	146	ASN
16	K	82	ASN
19	N	46	GLN

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Mol	Chain	Res	Type
20	O	35	ASN
23	R	11	GLN
24	S	73	ASN
24	S	122	HIS
26	U	101	ASN
27	V	56	ASN
27	V	58	HIS
33	b	54	GLN
36	e	26	HIS
37	f	35	GLN
38	h	81	GLN
39	i	36	HIS
44	n	73	GLN
47	q	61	ASN
48	r	100	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2746/2862 (95%)	458 (16%)	25 (0%)
2	2	1477/1520 (97%)	289 (19%)	30 (2%)
3	3	109/111 (98%)	15 (13%)	0
6	6	17/23 (73%)	8 (47%)	0
7	A	71/77 (92%)	35 (49%)	0
All	All	4420/4593 (96%)	805 (18%)	55 (1%)

All (805) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	13	A
1	1	28	A
1	1	34	A
1	1	46	G
1	1	55	G
1	1	61	A
1	1	64	A
1	1	71	A
1	1	74	A
1	1	75	G
1	1	91	C
1	1	92	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	94	A
1	1	101	G
1	1	117	A
1	1	118	A
1	1	119	U
1	1	134	U
1	1	137	U
1	1	138	G
1	1	139	A
1	1	140	A
1	1	154	G
1	1	155	A
1	1	156	U
1	1	157	A
1	1	158	G
1	1	181	A
1	1	184	A
1	1	201	A
1	1	206	A
1	1	207	A
1	1	208	A
1	1	215	G
1	1	218	A
1	1	230	G
1	1	233	G
1	1	237	G
1	1	240	A
1	1	252	C
1	1	262	U
1	1	267	U
1	1	268	U
1	1	271	G
1	1	272	G
1	1	277	G
1	1	284	U
1	1	285	U
1	1	286	G
1	1	288	A
1	1	314	A
1	1	315	A
1	1	322	G
1	1	332	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	350	G
1	1	351	A
1	1	352	U
1	1	371	A
1	1	372	A
1	1	385	U
1	1	388	U
1	1	395	A
1	1	396	G
1	1	410	G
1	1	411	U
1	1	412	G
1	1	420	G
1	1	429	C
1	1	430	G
1	1	435	G
1	1	436	A
1	1	448	G
1	1	449	G
1	1	468	C
1	1	481	A
1	1	491	G
1	1	499	U
1	1	503	A
1	1	504	A
1	1	505	G
1	1	516	A
1	1	522	G
1	1	526	A
1	1	529	A
1	1	530	G
1	1	532	U
1	1	533	C
1	1	534	C
1	1	536	G
1	1	556	G
1	1	562	A
1	1	566	C
1	1	569	U
1	1	570	C
1	1	571	G
1	1	572	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	586	G
1	1	596	U
1	1	598	A
1	1	618	U
1	1	626	A
1	1	640	A
1	1	654	A
1	1	661	G
1	1	664	A
1	1	672	U
1	1	673	A
1	1	681	U
1	1	682	U
1	1	689	U
1	1	699	C
1	1	714	U
1	1	745	C
1	1	758	A
1	1	773	G
1	1	775	U
1	1	776	G
1	1	786	C
1	1	792	A
1	1	793	C
1	1	803	G
1	1	804	G
1	1	807	U
1	1	810	A
1	1	812	G
1	1	813	G
1	1	820	A
1	1	833	G
1	1	840	C
1	1	847	A
1	1	855	U
1	1	866	G
1	1	873	A
1	1	874	U
1	1	875	A
1	1	877	A
1	1	888	G
1	1	889	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	896	U
1	1	898	C
1	1	910	G
1	1	914	G
1	1	915	C
1	1	917	U
1	1	918	C
1	1	919	A
1	1	920	C
1	1	926	A
1	1	927	C
1	1	930	A
1	1	940	A
1	1	942	C
1	1	949	U
1	1	958	A
1	1	961	U
1	1	970	A
1	1	975	G
1	1	987	U
1	1	990	G
1	1	1003	G
1	1	1014	C
1	1	1019	A
1	1	1020	C
1	1	1021	C
1	1	1024	C
1	1	1025	A
1	1	1038	A
1	1	1041	U
1	1	1042	A
1	1	1046	G
1	1	1077	A
1	1	1078	G
1	1	1086	G
1	1	1088	A
1	1	1090	G
1	1	1092	U
1	1	1093	G
1	1	1098	G
1	1	1100	A
1	1	1101	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1102	G
1	1	1103	C
1	1	1112	A
1	1	1113	U
1	1	1115	U
1	1	1119	G
1	1	1120	A
1	1	1126	U
1	1	1129	C
1	1	1130	A
1	1	1133	U
1	1	1134	C
1	1	1141	C
1	1	1143	A
1	1	1144	G
1	1	1150	G
1	1	1159	U
1	1	1162	U
1	1	1164	A
1	1	1166	C
1	1	1170	C
1	1	1173	A
1	1	1202	A
1	1	1203	G
1	1	1213	G
1	1	1223	A
1	1	1224	G
1	1	1232	A
1	1	1240	G
1	1	1258	G
1	1	1265	A
1	1	1266	C
1	1	1275	A
1	1	1281	A
1	1	1284	G
1	1	1294	G
1	1	1299	G
1	1	1300	A
1	1	1304	U
1	1	1328	A
1	1	1334	U
1	1	1340	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1341	U
1	1	1353	C
1	1	1369	U
1	1	1380	U
1	1	1393	A
1	1	1396	G
1	1	1402	G
1	1	1407	U
1	1	1412	A
1	1	1423	A
1	1	1424	U
1	1	1441	A
1	1	1442	C
1	1	1443	U
1	1	1444	G
1	1	1445	U
1	1	1446	G
1	1	1447	A
1	1	1454	G
1	1	1455	A
1	1	1456	C
1	1	1463	A
1	1	1466	A
1	1	1468	A
1	1	1482	A
1	1	1483	C
1	1	1489	A
1	1	1499	A
1	1	1505	U
1	1	1506	A
1	1	1510	A
1	1	1511	U
1	1	1512	A
1	1	1514	G
1	1	1521	A
1	1	1524	A
1	1	1525	A
1	1	1528	U
1	1	1535	G
1	1	1540	G
1	1	1553	A
1	1	1561	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1562	A
1	1	1564	U
1	1	1568	C
1	1	1569	G
1	1	1570	G
1	1	1571	A
1	1	1574	A
1	1	1575	A
1	1	1578	G
1	1	1579	A
1	1	1581	A
1	1	1582	G
1	1	1583	U
1	1	1584	G
1	1	1586	G
1	1	1590	A
1	1	1591	A
1	1	1592	G
1	1	1593	G
1	1	1600	A
1	1	1603	A
1	1	1612	U
1	1	1613	A
1	1	1615	A
1	1	1616	C
1	1	1617	U
1	1	1618	U
1	1	1642	A
1	1	1644	A
1	1	1668	A
1	1	1674	A
1	1	1680	C
1	1	1681	U
1	1	1682	C
1	1	1688	A
1	1	1708	G
1	1	1709	C
1	1	1711	A
1	1	1748	G
1	1	1750	A
1	1	1763	G
1	1	1765	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1770	G
1	1	1771	G
1	1	1780	A
1	1	1807	C
1	1	1808	A
1	1	1818	G
1	1	1823	A
1	1	1836	A
1	1	1840	C
1	1	1855	A
1	1	1875	C
1	1	1877	U
1	1	1878	C
1	1	1879	G
1	1	1880	G
1	1	1910	G
1	1	1912	C
1	1	1913	G
1	1	1920	A
1	1	1921	C
1	1	1934	A
1	1	1936	G
1	1	1937	G
1	1	1938	U
1	1	1945	A
1	1	1946	U
1	1	1947	U
1	1	1962	U
1	1	1974	C
1	1	1977	A
1	1	1978	U
1	1	1979	G
1	1	1998	U
1	1	2000	U
1	1	2004	A
1	1	2011	A
1	1	2029	U
1	1	2030	A
1	1	2038	A
1	1	2039	G
1	1	2040	A
1	1	2043	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	2046	U
1	1	2050	C
1	1	2062	C
1	1	2063	G
1	1	2067	A
1	1	2068	G
1	1	2069	A
1	1	2076	G
1	1	2083	U
1	1	2084	A
1	1	2100	G
1	1	2106	G
1	1	2112	A
1	1	2193	U
1	1	2195	U
1	1	2197	U
1	1	2198	G
1	1	2205	A
1	1	2206	A
1	1	2212	C
1	1	2213	U
1	1	2218	G
1	1	2223	A
1	1	2236	G
1	1	2237	G
1	1	2281	U
1	1	2285	A
1	1	2286	A
1	1	2292	C
1	1	2303	U
1	1	2306	G
1	1	2307	U
1	1	2308	A
1	1	2309	A
1	1	2310	C
1	1	2317	U
1	1	2318	A
1	1	2320	A
1	1	2325	A
1	1	2333	A
1	1	2345	C
1	1	2359	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	2369	G
1	1	2376	A
1	1	2377	G
1	1	2381	A
1	1	2383	C
1	1	2385	U
1	1	2400	U
1	1	2401	C
1	1	2404	C
1	1	2412	G
1	1	2417	U
1	1	2421	U
1	1	2423	A
1	1	2424	A
1	1	2427	G
1	1	2428	A
1	1	2439	G
1	1	2446	A
1	1	2473	C
1	1	2474	A
1	1	2489	U
1	1	2496	C
1	1	2498	U
1	1	2500	G
1	1	2503	G
1	1	2504	U
1	1	2516	A
1	1	2527	G
1	1	2552	U
1	1	2564	A
1	1	2565	G
1	1	2567	G
1	1	2571	C
1	1	2580	G
1	1	2600	A
1	1	2607	U
1	1	2608	C
1	1	2611	U
1	1	2613	U
1	1	2627	U
1	1	2644	C
1	1	2652	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	2659	G
1	1	2661	G
1	1	2687	U
1	1	2712	G
1	1	2724	C
1	1	2731	A
1	1	2746	A
1	1	2756	A
1	1	2763	A
1	1	2776	A
1	1	2787	U
1	1	2788	U
1	1	2789	U
1	1	2790	A
1	1	2792	G
1	1	2801	A
1	1	2802	A
1	1	2816	A
1	1	2846	A
1	1	2847	U
1	1	2849	G
1	1	2853	A
1	1	2860	C
1	1	2864	U
1	1	2866	A
1	1	2867	U
2	2	0	U
2	2	3	G
2	2	4	A
2	2	9	G
2	2	22	G
2	2	29	A
2	2	32	A
2	2	39	G
2	2	47	C
2	2	48	U
2	2	51	A
2	2	61	G
2	2	64	G
2	2	69	G
2	2	72	G
2	2	103	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	110	A
2	2	111	C
2	2	126	C
2	2	128	U
2	2	135	G
2	2	136	A
2	2	148	G
2	2	149	A
2	2	154	U
2	2	170	A
2	2	175	A
2	2	182	A
2	2	185	G
2	2	186	G
2	2	187	C
2	2	188	A
2	2	190	C
2	2	191	A
2	2	193	U
2	2	194	U
2	2	197	U
2	2	198	A
2	2	204	A
2	2	207	C
2	2	211	A
2	2	218	A
2	2	236	A
2	2	237	U
2	2	238	U
2	2	240	G
2	2	243	A
2	2	244	G
2	2	251	A
2	2	259	G
2	2	260	C
2	2	272	A
2	2	282	G
2	2	314	A
2	2	320	A
2	2	321	C
2	2	322	A
2	2	325	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	340	G
2	2	344	G
2	2	345	C
2	2	347	G
2	2	360	U
2	2	361	U
2	2	362	G
2	2	365	C
2	2	377	G
2	2	381	G
2	2	390	A
2	2	399	G
2	2	403	G
2	2	404	A
2	2	405	U
2	2	406	G
2	2	407	A
2	2	408	C
2	2	409	G
2	2	423	U
2	2	432	U
2	2	455	A
2	2	457	A
2	2	458	U
2	2	461	A
2	2	462	G
2	2	464	A
2	2	465	G
2	2	467	U
2	2	470	A
2	2	472	G
2	2	481	A
2	2	483	A
2	2	484	A
2	2	485	U
2	2	497	A
2	2	499	C
2	2	506	C
2	2	515	G
2	2	519	U
2	2	520	A
2	2	533	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	535	A
2	2	547	A
2	2	550	C
2	2	552	C
2	2	560	A
2	2	561	A
2	2	564	G
2	2	565	G
2	2	576	G
2	2	584	A
2	2	604	C
2	2	618	A
2	2	621	G
2	2	630	A
2	2	638	A
2	2	641	U
2	2	650	G
2	2	651	G
2	2	653	A
2	2	655	G
2	2	675	A
2	2	682	A
2	2	691	G
2	2	709	A
2	2	710	A
2	2	711	U
2	2	719	G
2	2	735	U
2	2	736	U
2	2	743	G
2	2	748	U
2	2	765	A
2	2	769	A
2	2	775	A
2	2	781	U
2	2	782	A
2	2	797	G
2	2	803	A
2	2	805	C
2	2	807	A
2	2	816	A
2	2	827	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	829	A
2	2	830	A
2	2	831	G
2	2	841	U
2	2	855	A
2	2	890	A
2	2	897	A
2	2	898	A
2	2	909	G
2	2	910	G
2	2	917	C
2	2	918	A
2	2	925	G
2	2	943	U
2	2	944	U
2	2	952	A
2	2	954	G
2	2	958	G
2	2	959	G
2	2	960	A
2	2	964	U
2	2	966	A
2	2	974	U
2	2	975	U
2	2	976	A
2	2	977	A
2	2	985	C
2	2	986	U
2	2	987	G
2	2	988	A
2	2	989	C
2	2	990	C
2	2	992	A
2	2	993	U
2	2	1007	U
2	2	1019	A
2	2	1020	G
2	2	1021	U
2	2	1023	U
2	2	1024	A
2	2	1027	A
2	2	1032	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	1034	G
2	2	1040	U
2	2	1047	C
2	2	1073	A
2	2	1075	G
2	2	1076	U
2	2	1082	A
2	2	1094	C
2	2	1099	U
2	2	1105	G
2	2	1106	U
2	2	1108	G
2	2	1109	C
2	2	1110	C
2	2	1114	G
2	2	1126	G
2	2	1127	A
2	2	1128	A
2	2	1134	A
2	2	1136	A
2	2	1137	A
2	2	1139	A
2	2	1140	C
2	2	1141	U
2	2	1142	G
2	2	1143	C
2	2	1146	G
2	2	1147	U
2	2	1157	G
2	2	1158	A
2	2	1159	G
2	2	1163	G
2	2	1166	G
2	2	1178	A
2	2	1179	A
2	2	1180	A
2	2	1183	A
2	2	1184	U
2	2	1194	U
2	2	1195	A
2	2	1197	G
2	2	1207	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	1208	C
2	2	1210	C
2	2	1212	C
2	2	1215	G
2	2	1218	A
2	2	1220	A
2	2	1225	C
2	2	1226	C
2	2	1227	G
2	2	1228	G
2	2	1239	A
2	2	1240	G
2	2	1242	C
2	2	1248	G
2	2	1252	C
2	2	1255	G
2	2	1262	A
2	2	1263	U
2	2	1267	U
2	2	1268	A
2	2	1279	C
2	2	1280	A
2	2	1281	G
2	2	1283	U
2	2	1284	C
2	2	1286	G
2	2	1301	C
2	2	1312	G
2	2	1319	G
2	2	1320	A
2	2	1321	A
2	2	1327	A
2	2	1328	G
2	2	1329	U
2	2	1334	G
2	2	1339	U
2	2	1344	C
2	2	1345	A
2	2	1346	U
2	2	1352	G
2	2	1380	A
2	2	1388	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	1424	A
2	2	1429	A
2	2	1441	A
2	2	1460	G
2	2	1466	A
2	2	1467	G
2	2	1470	G
2	2	1476	A
2	2	1479	U
2	2	1490	G
2	2	1492	A
2	2	1493	G
2	2	1502	G
2	2	1503	G
2	2	1504	A
2	2	1505	A
2	2	1506	C
2	2	1512	C
2	2	1514	U
2	2	1516	C
2	2	1517	U
3	3	7	G
3	3	10	U
3	3	11	A
3	3	23	C
3	3	30	C
3	3	38	C
3	3	39	C
3	3	53	U
3	3	54	A
3	3	64	G
3	3	84	U
3	3	85	U
3	3	91	A
3	3	101	G
3	3	107	U
6	6	-17	G
6	6	-16	A
6	6	-15	G
6	6	-14	G
6	6	-13	A
6	6	-12	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
6	6	-11	G
6	6	1	A
7	A	5	G
7	A	6	G
7	A	7	G
7	A	8	U
7	A	9	G
7	A	14	A
7	A	15	G
7	A	20	G
7	A	21	U
7	A	22	A
7	A	23	G
7	A	24	C
7	A	27	G
7	A	31	G
7	A	32	G
7	A	35	C
7	A	40	C
7	A	44	A
7	A	48	U
7	A	49	C
7	A	53	G
7	A	54	G
7	A	55	U
7	A	56	U
7	A	58	A
7	A	59	A
7	A	61	U
7	A	64	G
7	A	65	G
7	A	66	C
7	A	67	C
7	A	70	C
7	A	71	G
7	A	73	A
7	A	77	A

All (55) RNA pucker outliers are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	27	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	155	A
1	1	502	A
1	1	568	U
1	1	570	C
1	1	698	A
1	1	812	G
1	1	876	A
1	1	895	C
1	1	897	A
1	1	1158	A
1	1	1441	A
1	1	1488	U
1	1	1505	U
1	1	1561	G
1	1	1567	U
1	1	1570	G
1	1	1582	G
1	1	1592	G
1	1	1615	A
1	1	1937	G
1	1	2217	C
1	1	2400	U
1	1	2423	A
1	1	2472	U
2	2	-1	A
2	2	2	C
2	2	3	G
2	2	110	A
2	2	236	A
2	2	243	A
2	2	321	C
2	2	404	A
2	2	989	C
2	2	992	A
2	2	1023	U
2	2	1031	G
2	2	1039	G
2	2	1109	C
2	2	1139	A
2	2	1141	U
2	2	1165	U
2	2	1179	A

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Mol	Chain	Res	Type
2	2	1211	A
2	2	1217	U
2	2	1224	G
2	2	1225	C
2	2	1227	G
2	2	1238	C
2	2	1280	A
2	2	1285	G
2	2	1328	G
2	2	1351	C
2	2	1379	C
2	2	1466	A

#### 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](#)

There are no ligands in this entry.

#### 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.

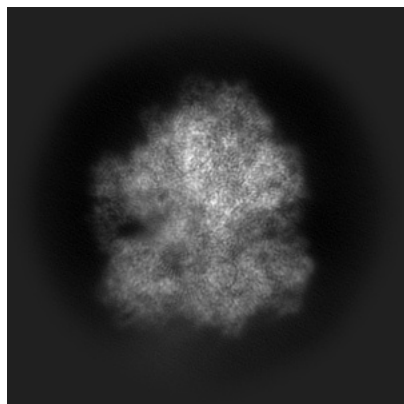
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-71061. These allow visual inspection of the internal detail of the map and identification of artifacts.

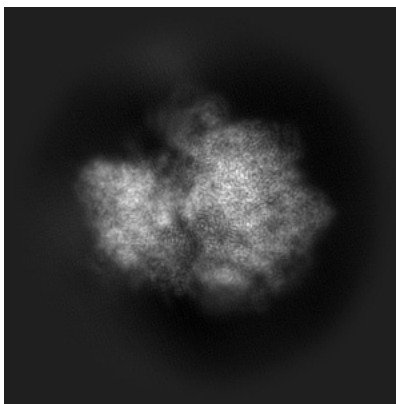
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

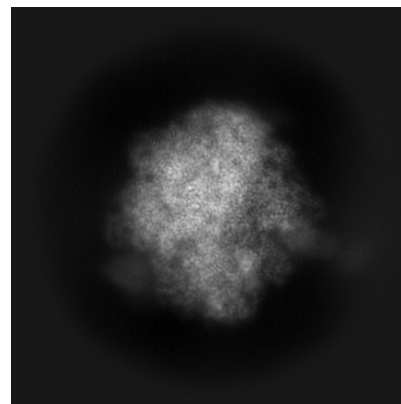
#### 6.1.1 Primary map



X

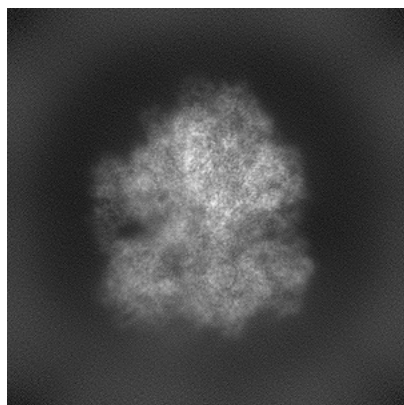


Y

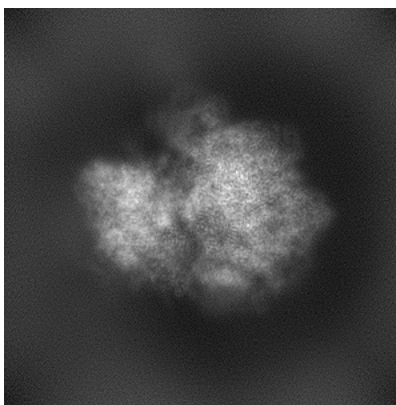


Z

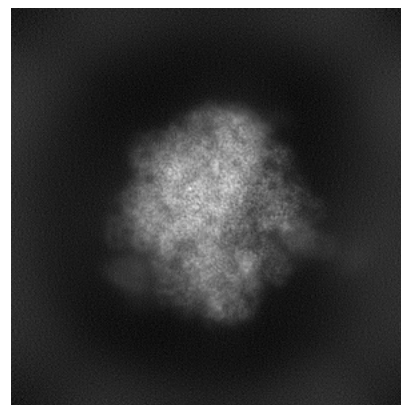
#### 6.1.2 Raw map



X



Y

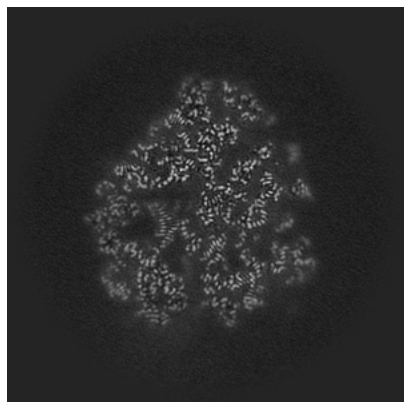


Z

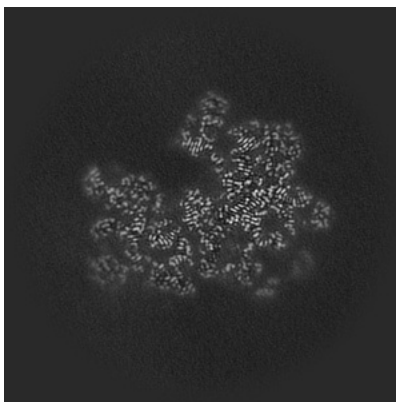
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

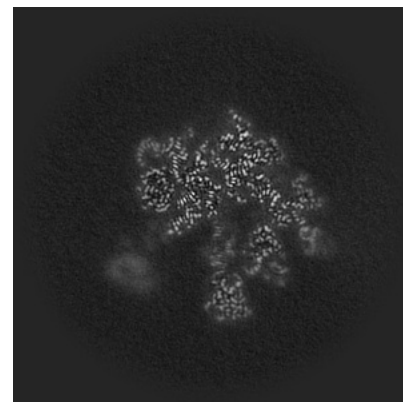
### 6.2.1 Primary map



X Index: 240

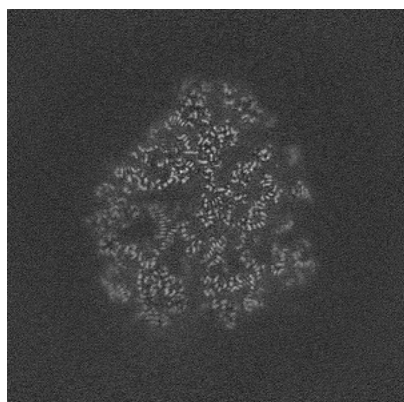


Y Index: 240

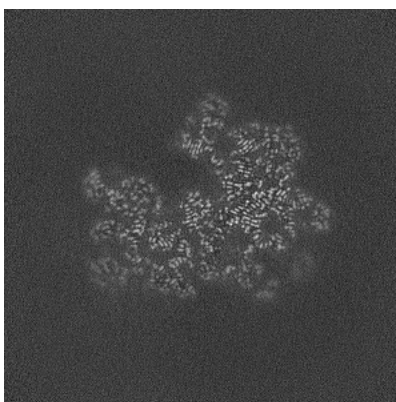


Z Index: 240

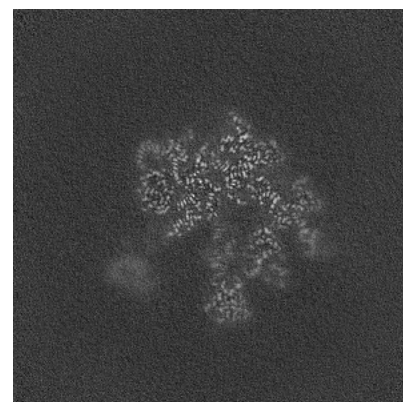
### 6.2.2 Raw map



X Index: 240



Y Index: 240

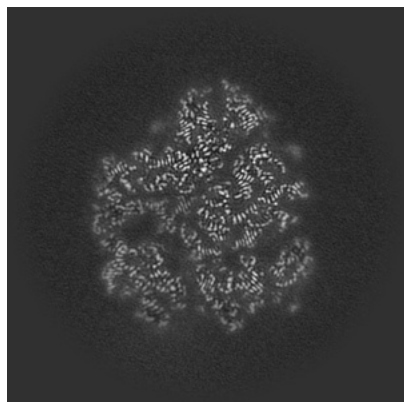


Z Index: 240

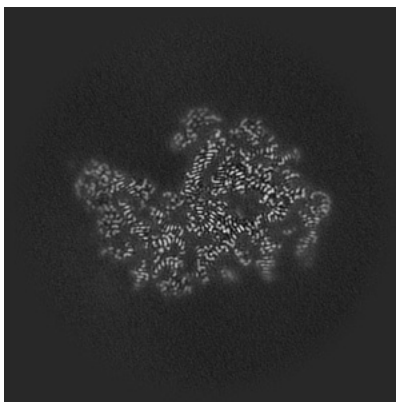
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

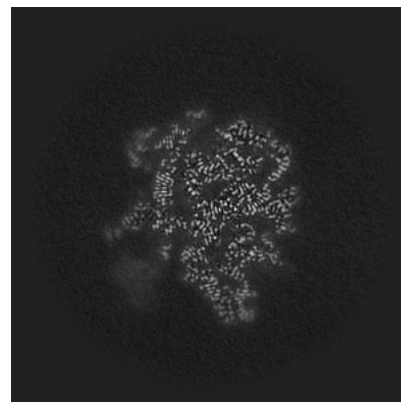
### 6.3.1 Primary map



X Index: 246

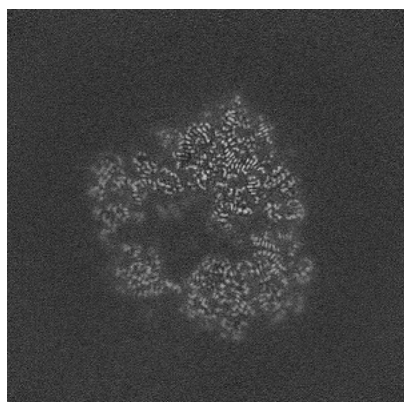


Y Index: 261

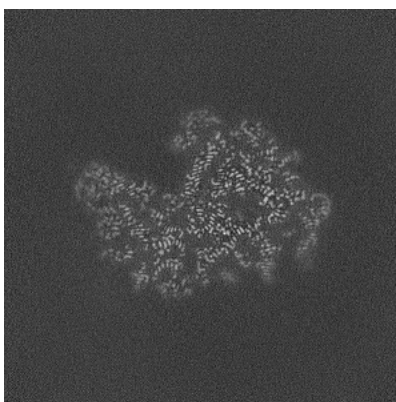


Z Index: 285

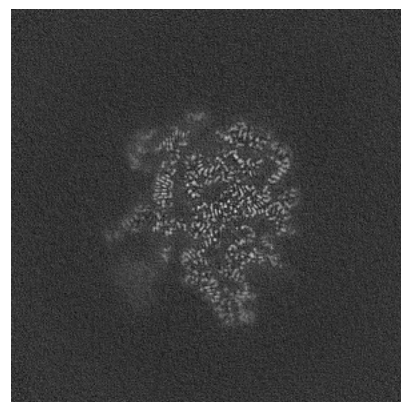
### 6.3.2 Raw map



X Index: 263



Y Index: 261

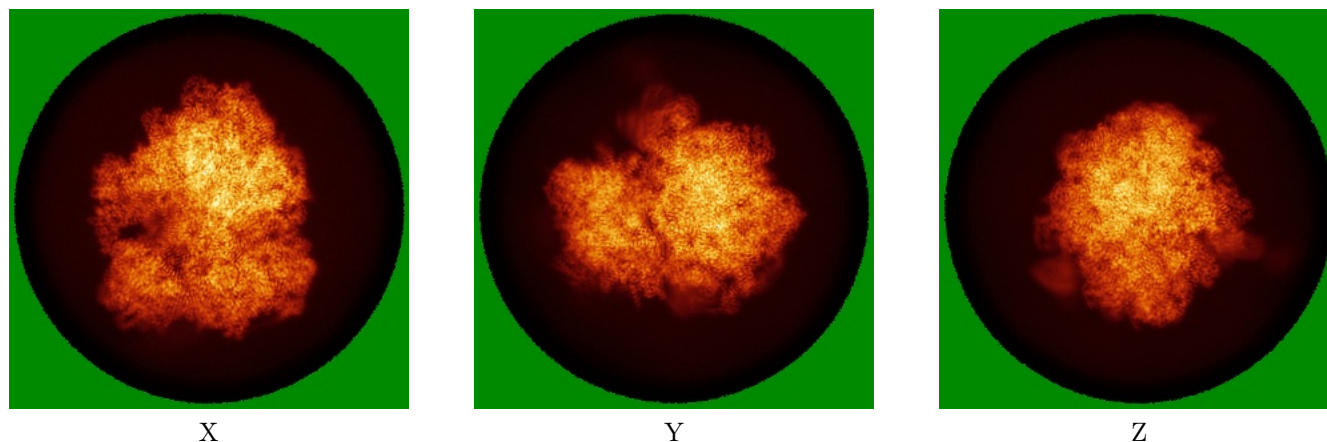


Z Index: 285

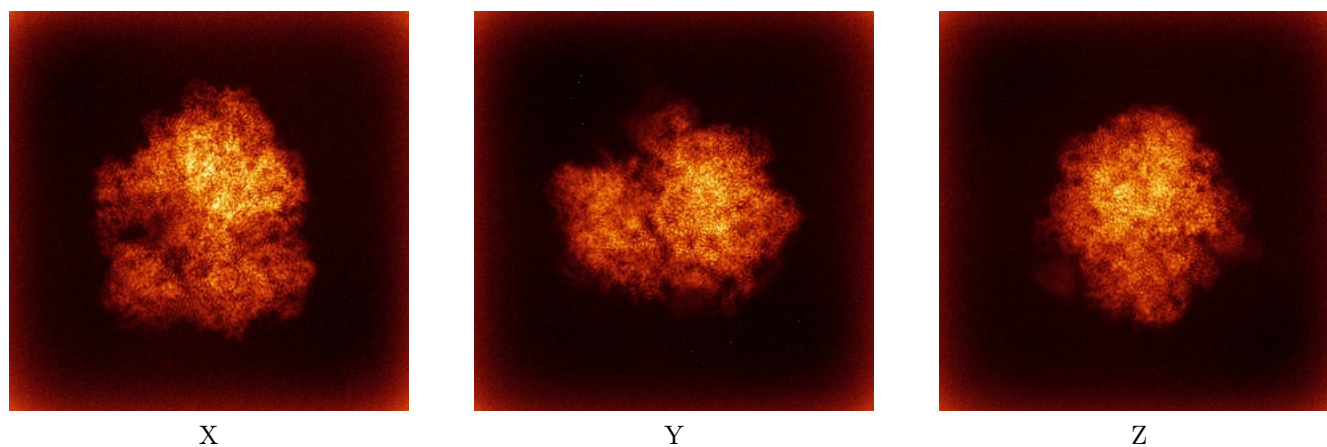
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

### 6.4.1 Primary map



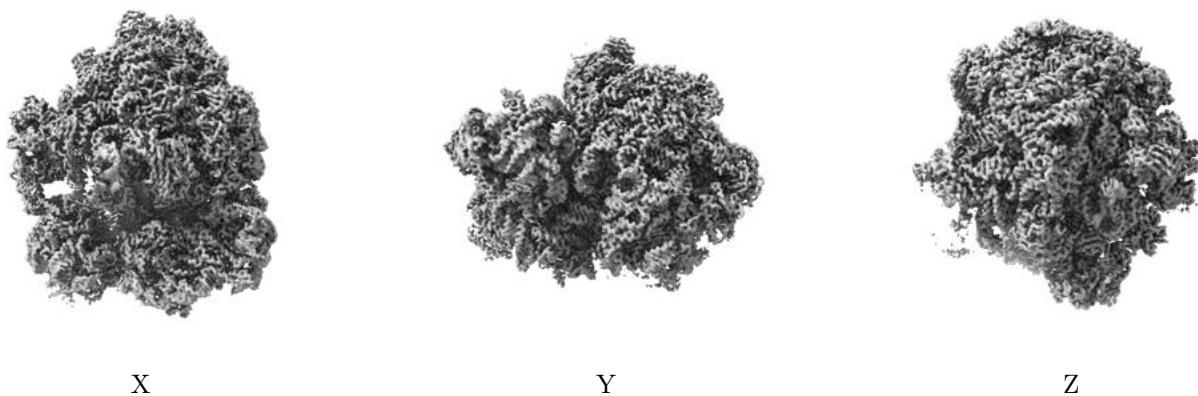
### 6.4.2 Raw map



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.

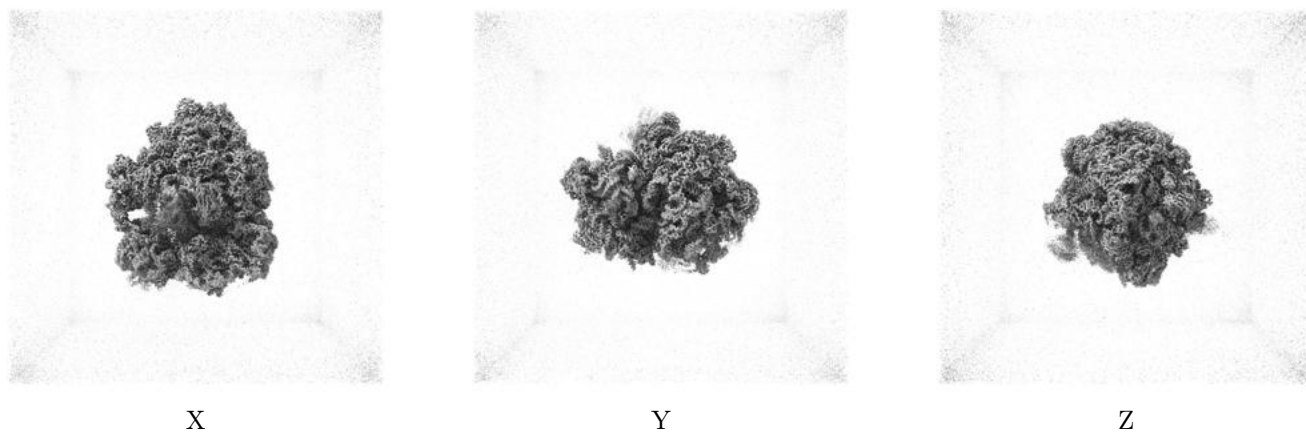
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.08. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

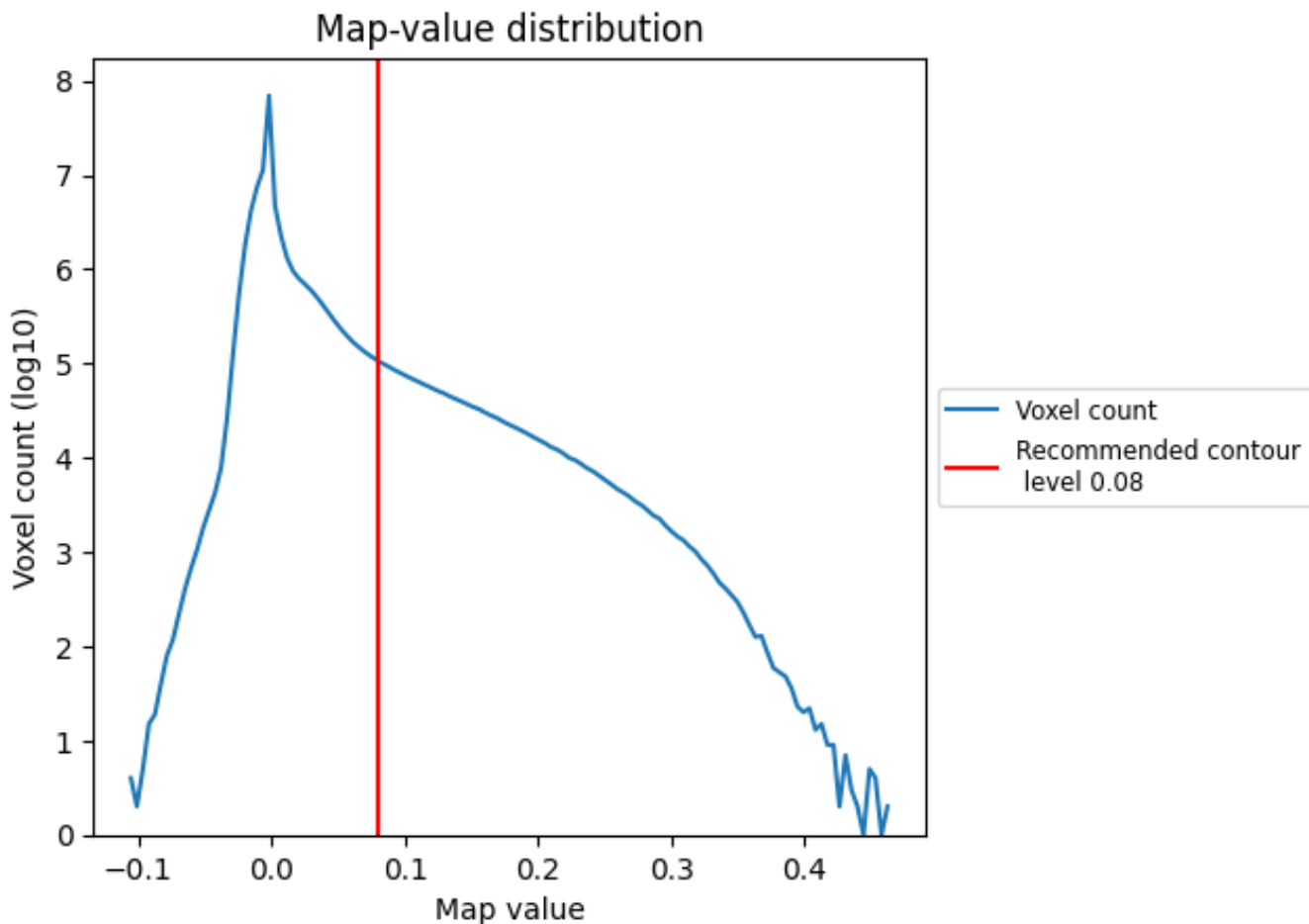
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

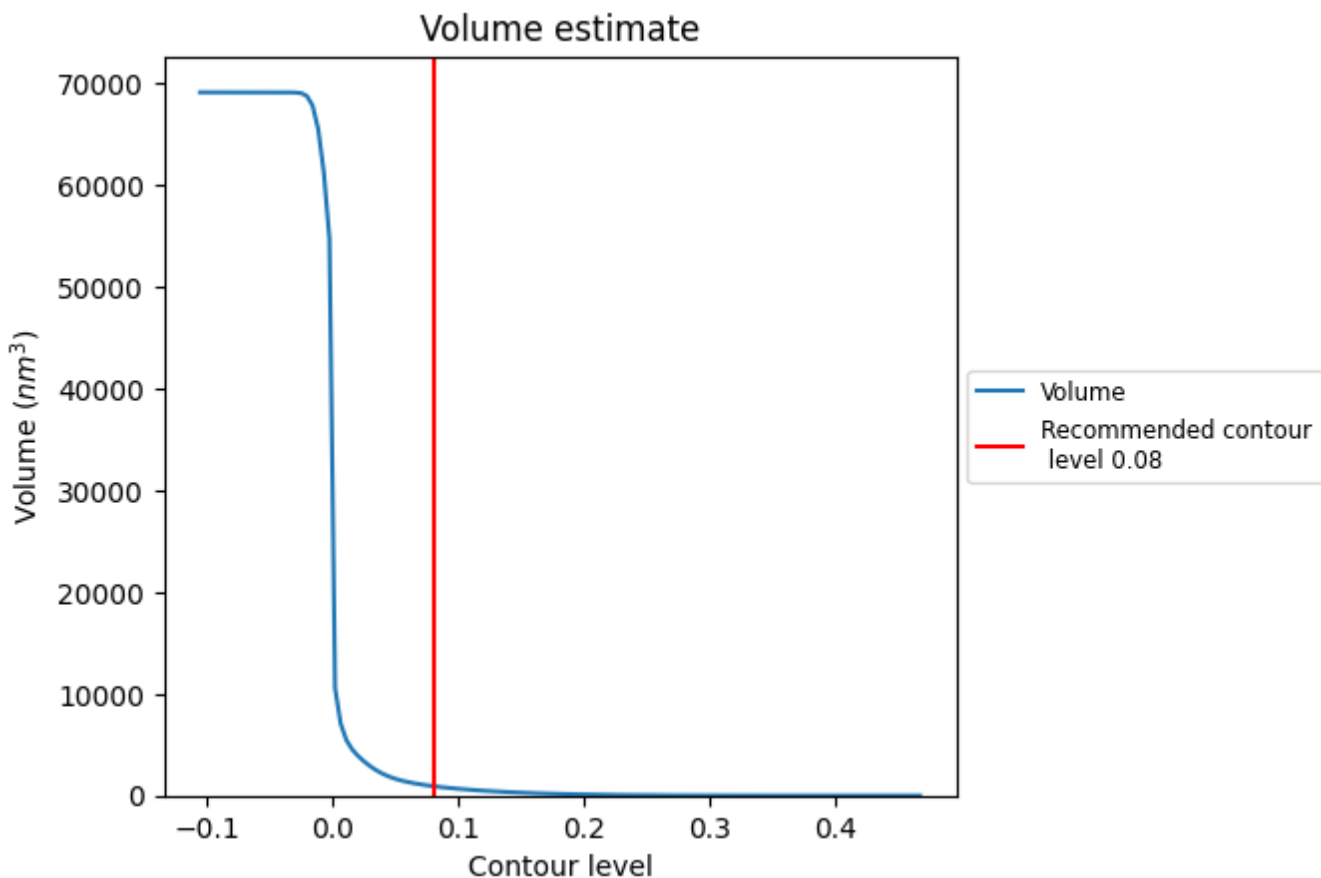
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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.

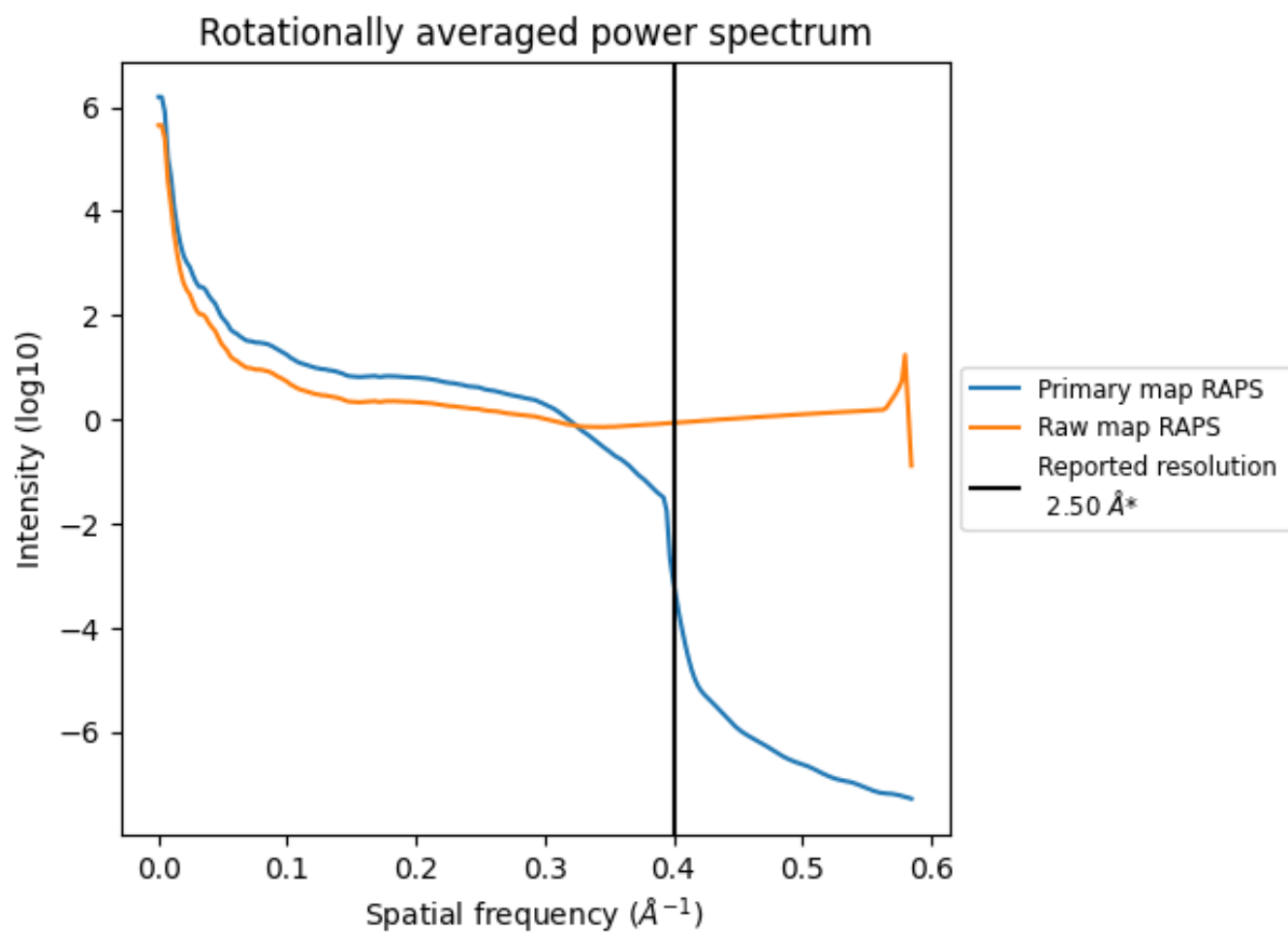
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 919 nm<sup>3</sup>; this corresponds to an approximate mass of 831 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

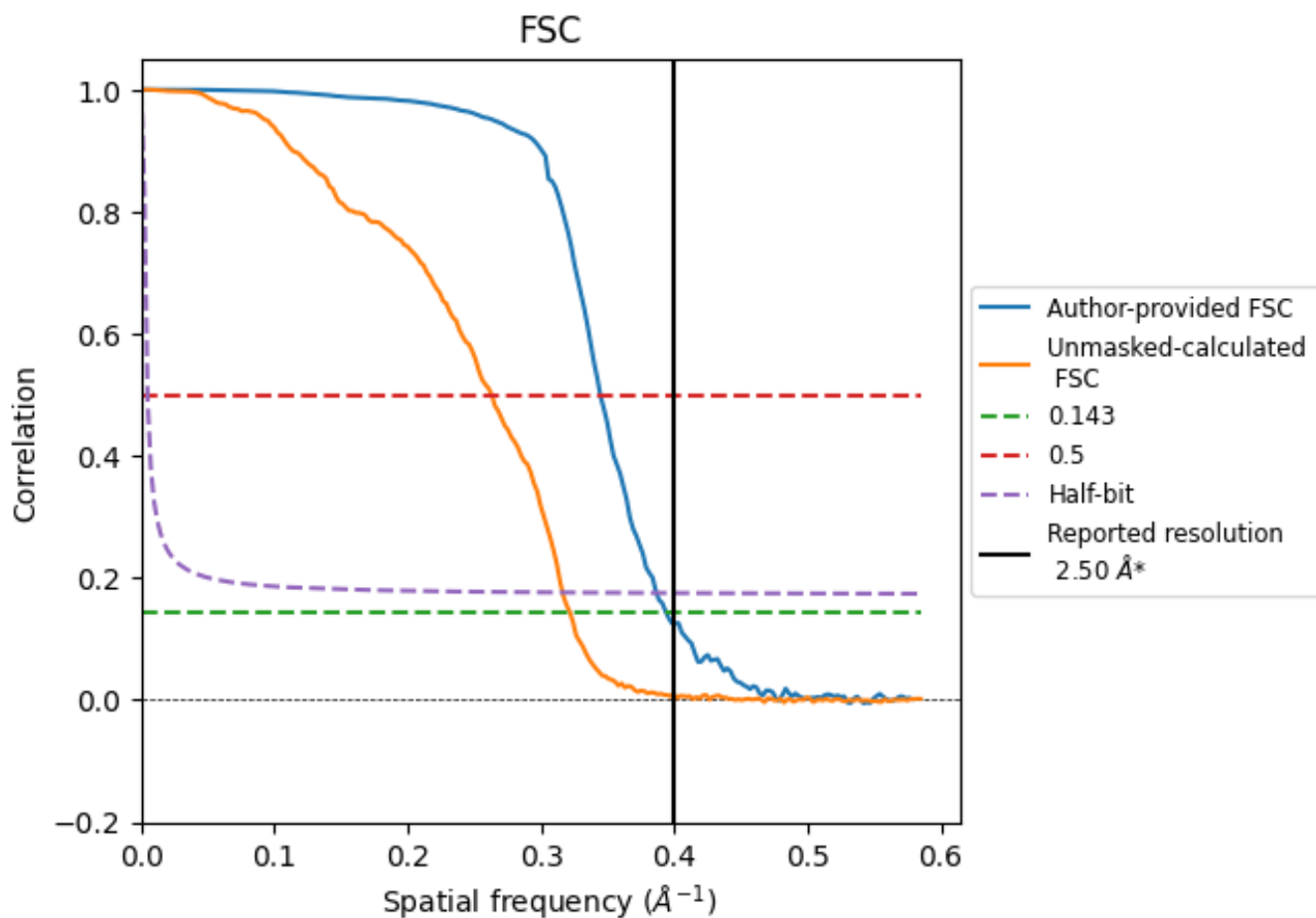


\*Reported resolution corresponds to spatial frequency of 0.400 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.400 Å<sup>-1</sup>

## 8.2 Resolution estimates

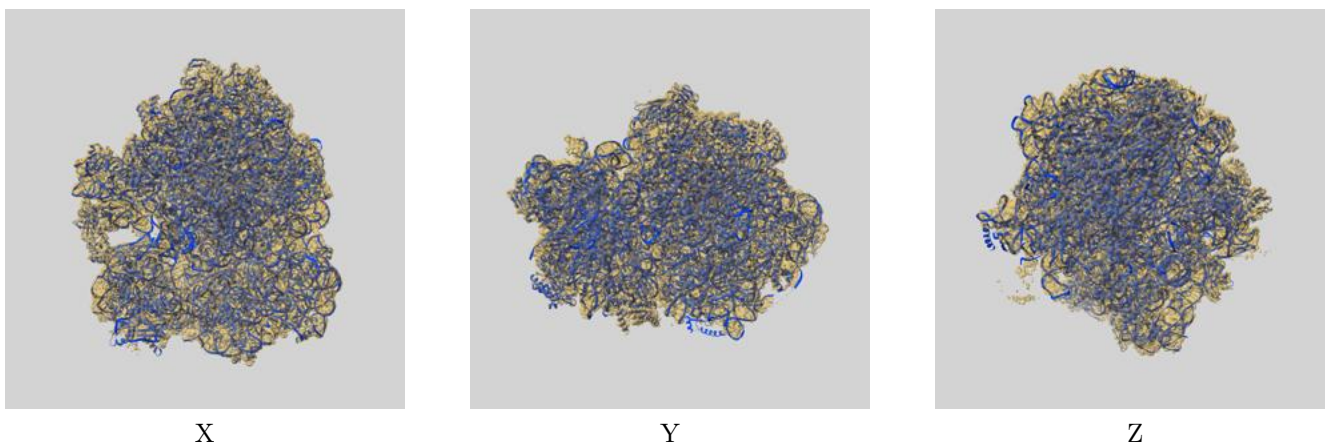
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.50	-	-
Author-provided FSC curve	2.54	2.90	2.59
Unmasked-calculated*	3.11	3.80	3.16

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.11 differs from the reported value 2.5 by more than 10 %

## 9 Map-model fit [i](#)

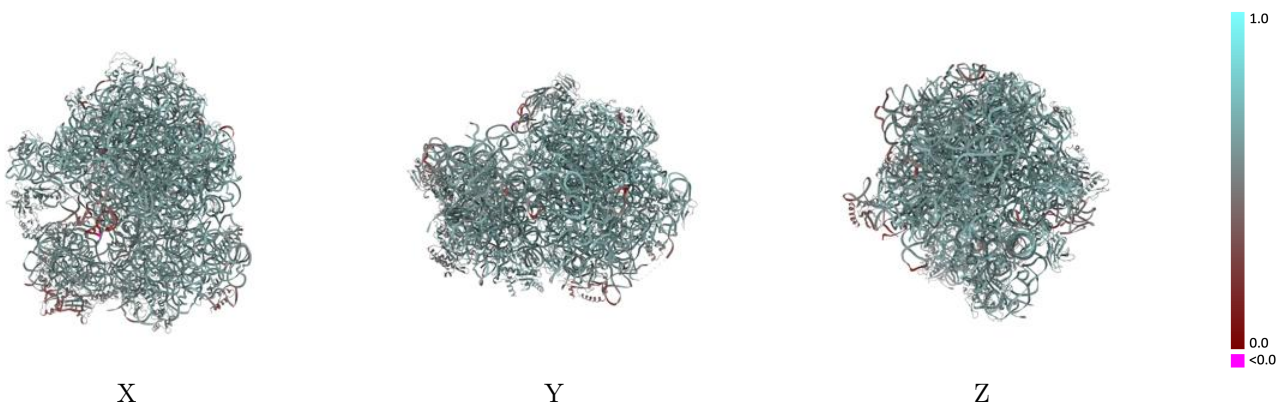
This section contains information regarding the fit between EMDB map EMD-71061 and PDB model 9OZZ. Per-residue inclusion information can be found in section 3 on page 16.

### 9.1 Map-model overlay [i](#)



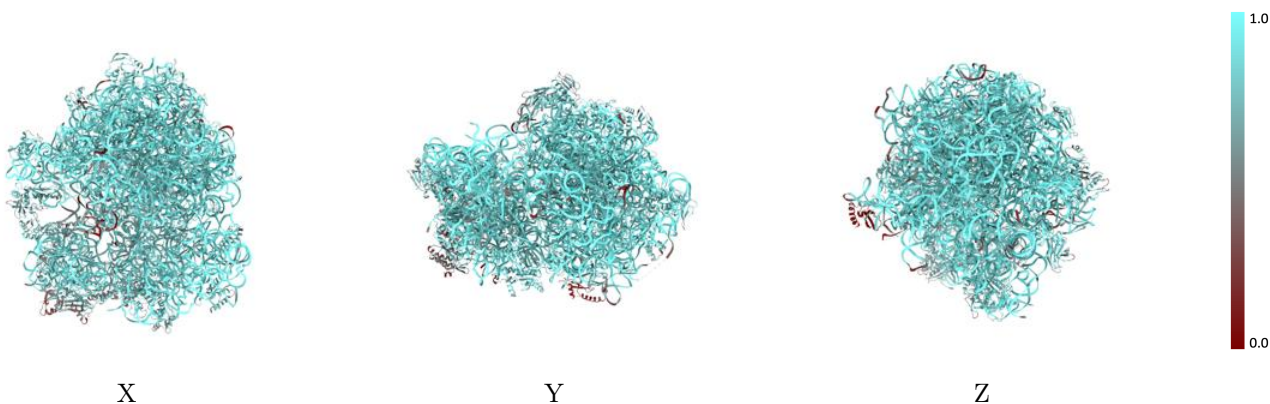
The images above show the 3D surface view of the map at the recommended contour level 0.08 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



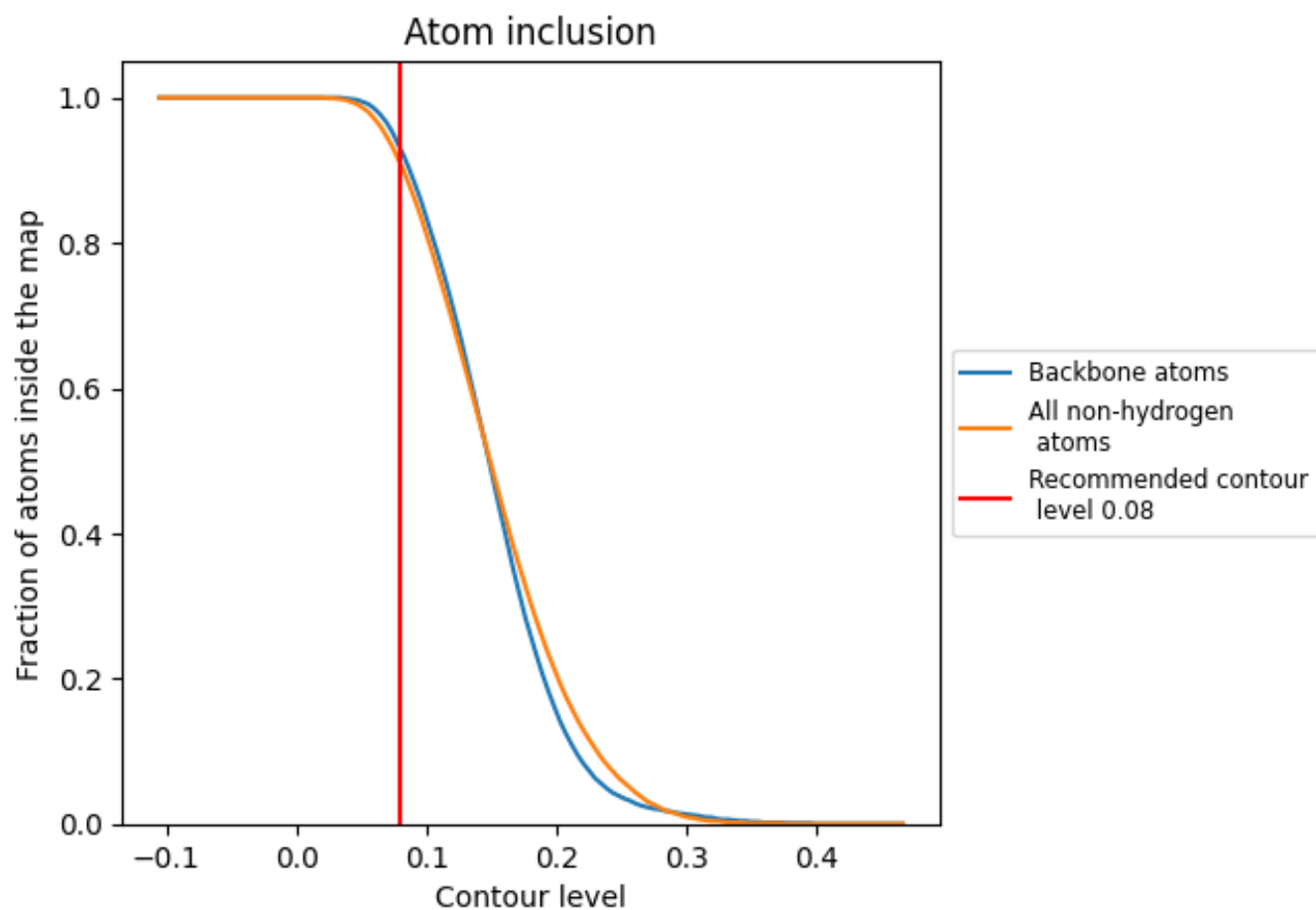
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)



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 (0.08).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 91% 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 (0.08) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9090	 0.5920
1	 0.9540	 0.6060
2	 0.9530	 0.5880
3	 0.9510	 0.5890
4	 0.7020	 0.5300
5	 0.8900	 0.6150
6	 0.6650	 0.4630
A	 0.7510	 0.5650
B	 0.9430	 0.6270
C	 0.9040	 0.6140
D	 0.9070	 0.5970
E	 0.7620	 0.5530
F	 0.7400	 0.5500
G	 0.3770	 0.4340
H	 0.4940	 0.4990
J	 0.9060	 0.6000
K	 0.9040	 0.6170
L	 0.8970	 0.6070
M	 0.9120	 0.6120
N	 0.9360	 0.6160
O	 0.8100	 0.5760
P	 0.8900	 0.6120
Q	 0.9290	 0.6120
R	 0.8750	 0.6020
S	 0.9180	 0.6060
T	 0.8560	 0.5720
U	 0.7850	 0.5600
V	 0.7940	 0.5670
W	 0.9210	 0.6160
X	 0.9070	 0.6030
Y	 0.7760	 0.5290
Z	 0.9360	 0.5970
a	 0.6710	 0.5490
b	 0.9560	 0.6270
c	 0.8720	 0.5980



*Continued on next page...*

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Chain	Atom inclusion	Q-score
d	 0.9820	 0.6470
e	 0.9600	 0.6230
f	 0.9170	 0.6150
h	 0.7040	 0.5340
i	 0.7520	 0.5580
j	 0.8540	 0.5830
k	 0.8580	 0.5850
l	 0.6850	 0.5420
m	 0.9120	 0.6010
n	 0.7380	 0.5450
o	 0.6480	 0.4990
p	 0.8230	 0.5850
q	 0.8750	 0.6080
r	 0.7120	 0.5390
s	 0.8260	 0.5650
t	 0.8880	 0.5940
u	 0.8570	 0.5500
v	 0.8420	 0.5930
w	 0.7660	 0.5770
x	 0.7460	 0.5420
y	 0.8170	 0.5560