



## Full wwPDB EM Validation Report ⓘ

Apr 6, 2026 – 11:48 AM EDT

PDB ID : 9OZ9 / pdb\_00009oz9  
EMDB ID : EMD-71052  
Title : Flavobacterium johnsoniae 70S initiation complex with Shine-Dalgarno-less mRNA.  
Authors : Ortega, J.; Arpin, D.  
Deposited on : 2025-06-05  
Resolution : 2.60 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](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:

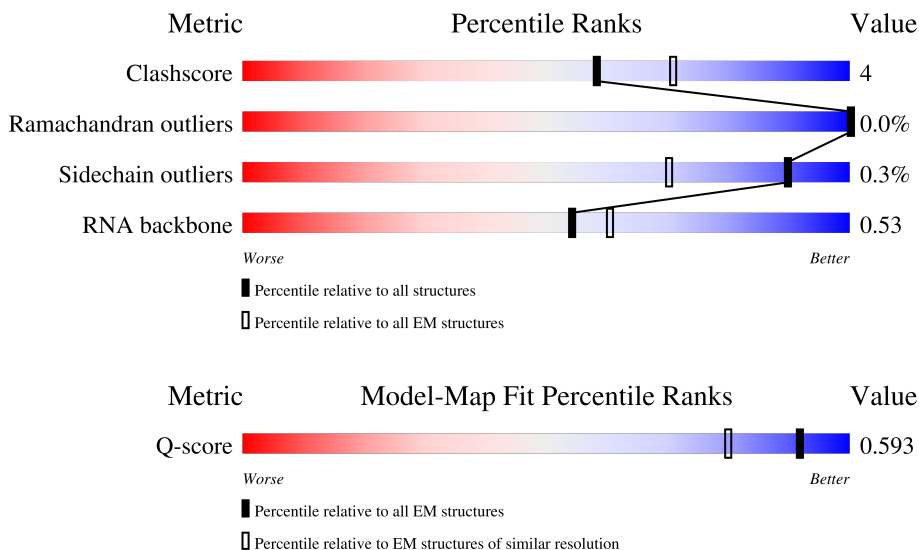
EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : 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 2.60 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	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	8728 ( 2.10 - 3.10 )

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	72% (green), 21% (yellow), 5% (orange), 2% (red), 0% (grey)
2	2	1520	66% (green), 27% (yellow), 5% (orange), 2% (red), 0% (grey)
3	3	111	77% (green), 21% (yellow), 2% (orange), 0% (red), 0% (grey)







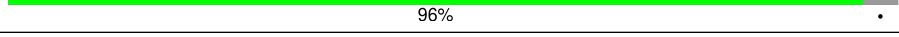
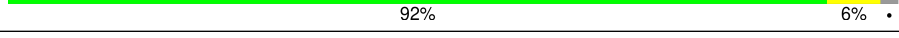
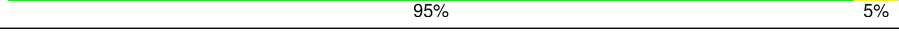

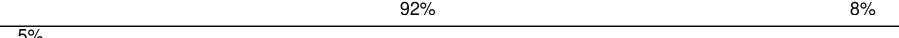
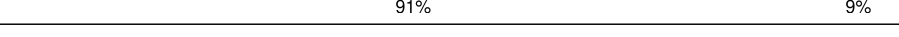

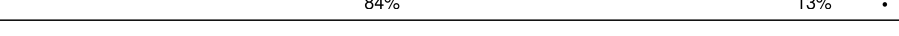


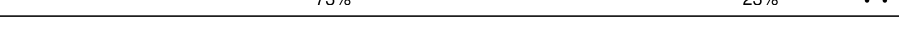

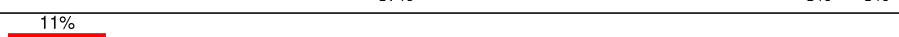






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Mol	Chain	Length	Quality of chain
4	4	50	
5	5	30	
6	6	6	
7	A	77	
8	B	274	
9	C	205	
10	D	209	
11	E	183	
12	F	180	
13	G	146	
14	H	254	
15	J	151	
16	K	122	
17	L	150	
18	M	141	
19	N	163	
20	O	116	
21	P	116	
22	Q	114	
23	R	147	
24	S	137	
25	T	96	
26	U	104	
27	V	203	
28	W	86	




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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	
55	y	83	
56	z	64	

## 2 Entry composition [i](#)

There are 56 unique types of molecules in this entry. The entry contains 137848 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 50S ribosomal protein L38.

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 mFjoh\_4413 mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	6	6	128	57	21	44	6	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	1249	802	227	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	56	405	265	70	69	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	1658	1058	291	301	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
			Total	C	N	O		
21	P	112	848	554	154	140	0	0

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
			Total	C	N	O	S		
22	Q	113	904	571	185	143	5	0	0

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	V	124	867	567	147	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
			Total	C	N	O	S		
39	i	200	1576	998	291	284	3	0	0

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	l	153	1179	744	230	200	5	0	0

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
46	p	117	Total	C	N	O	S	0	0
			819	512	159	143	5		

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

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

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

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

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
49	s	88	Total	C	N	O	S	0	0
			665	416	136	110	3		

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

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

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
			Total	C	N	O		
51	u	109	783	492	151	140	0	0

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
			Total	C	N	O	S		
52	v	80	638	404	124	107	3	0	0

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

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

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

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

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

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

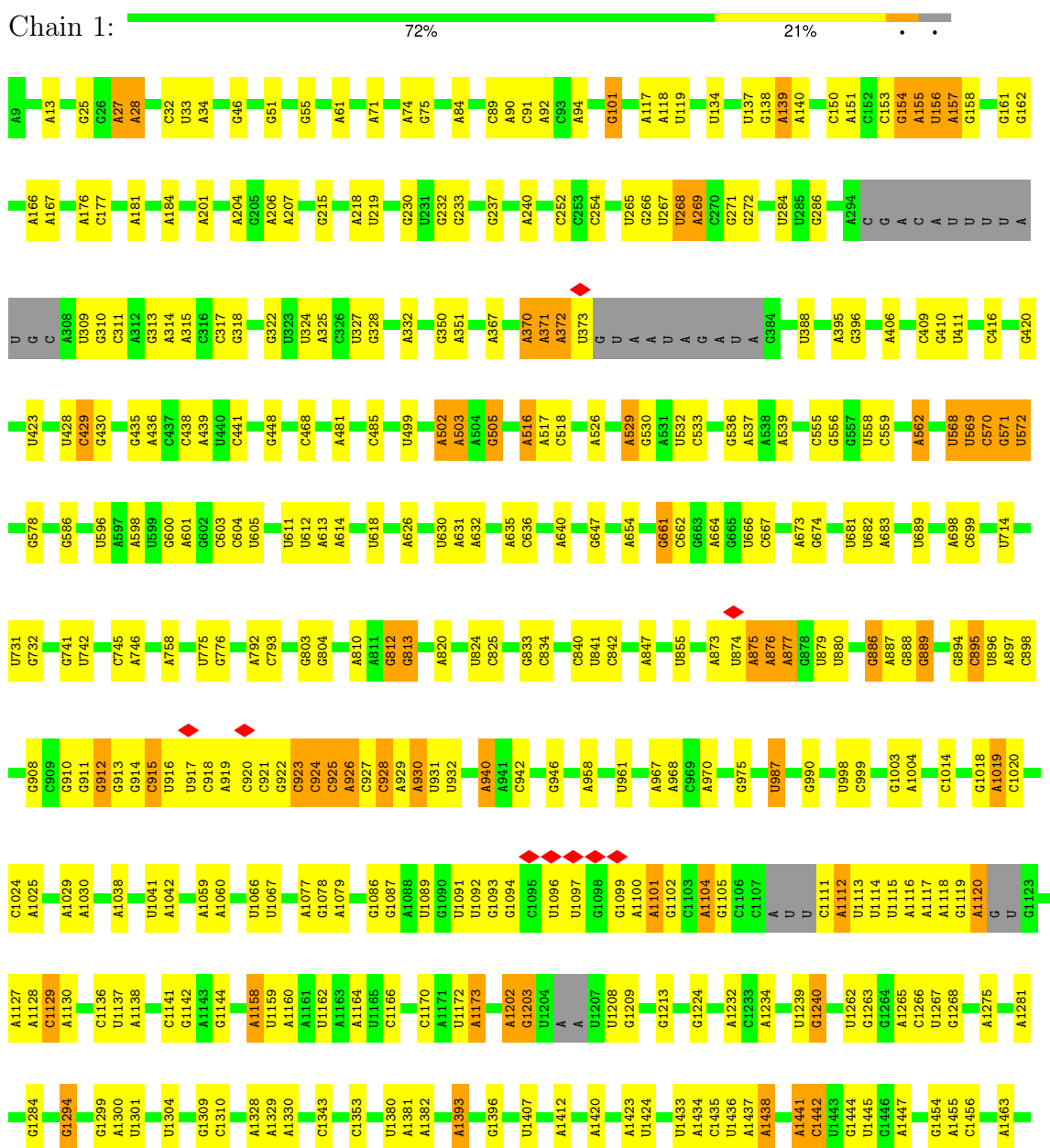
- Molecule 56 is a protein called 30S ribosomal protein S21.

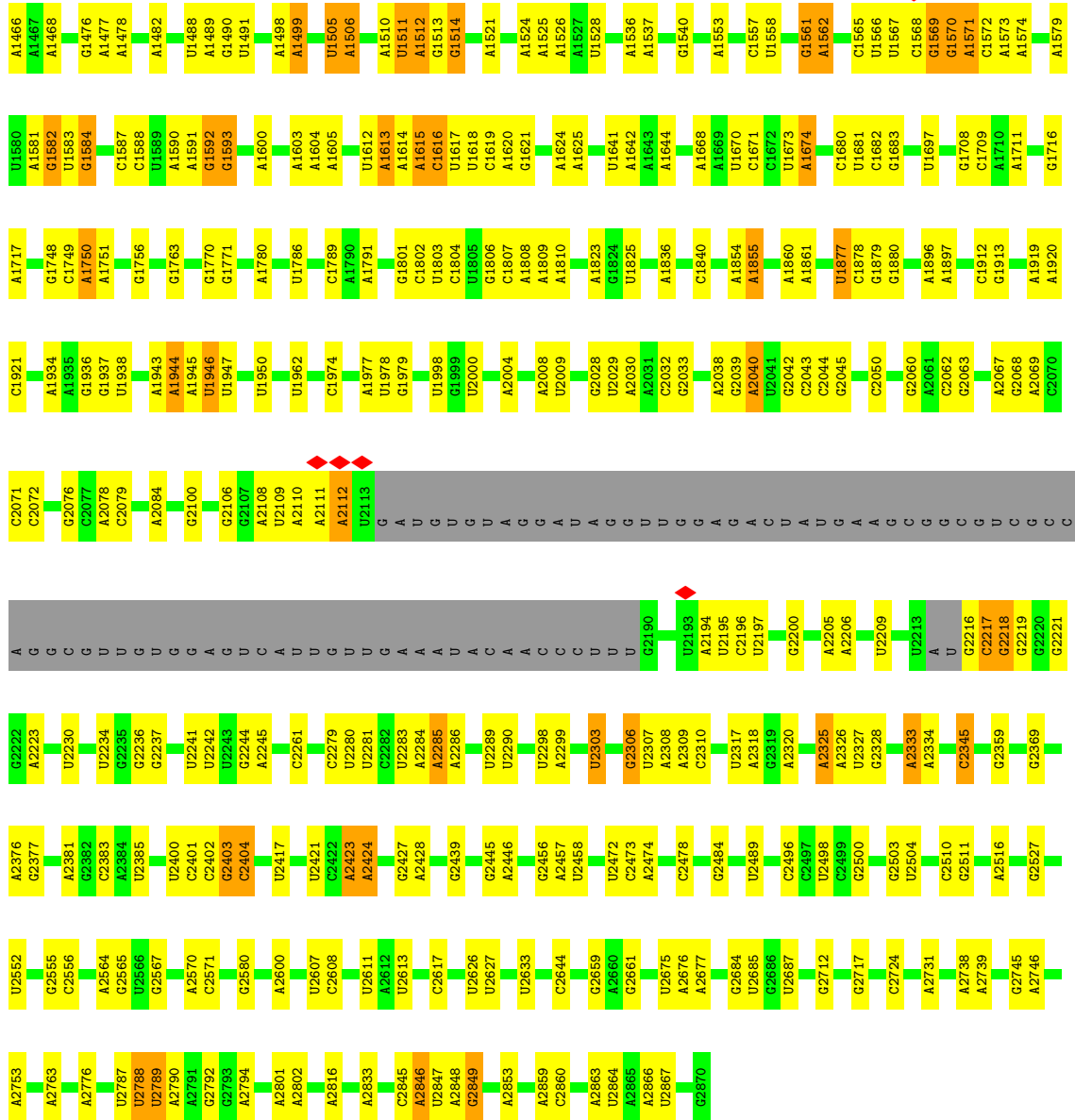
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	z	64	522	331	99	91	1	0	0

### 3 Residue-property plots [i](#)

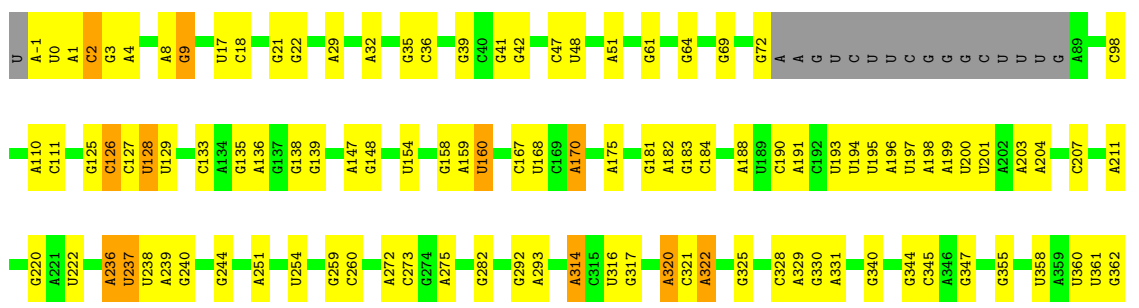
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

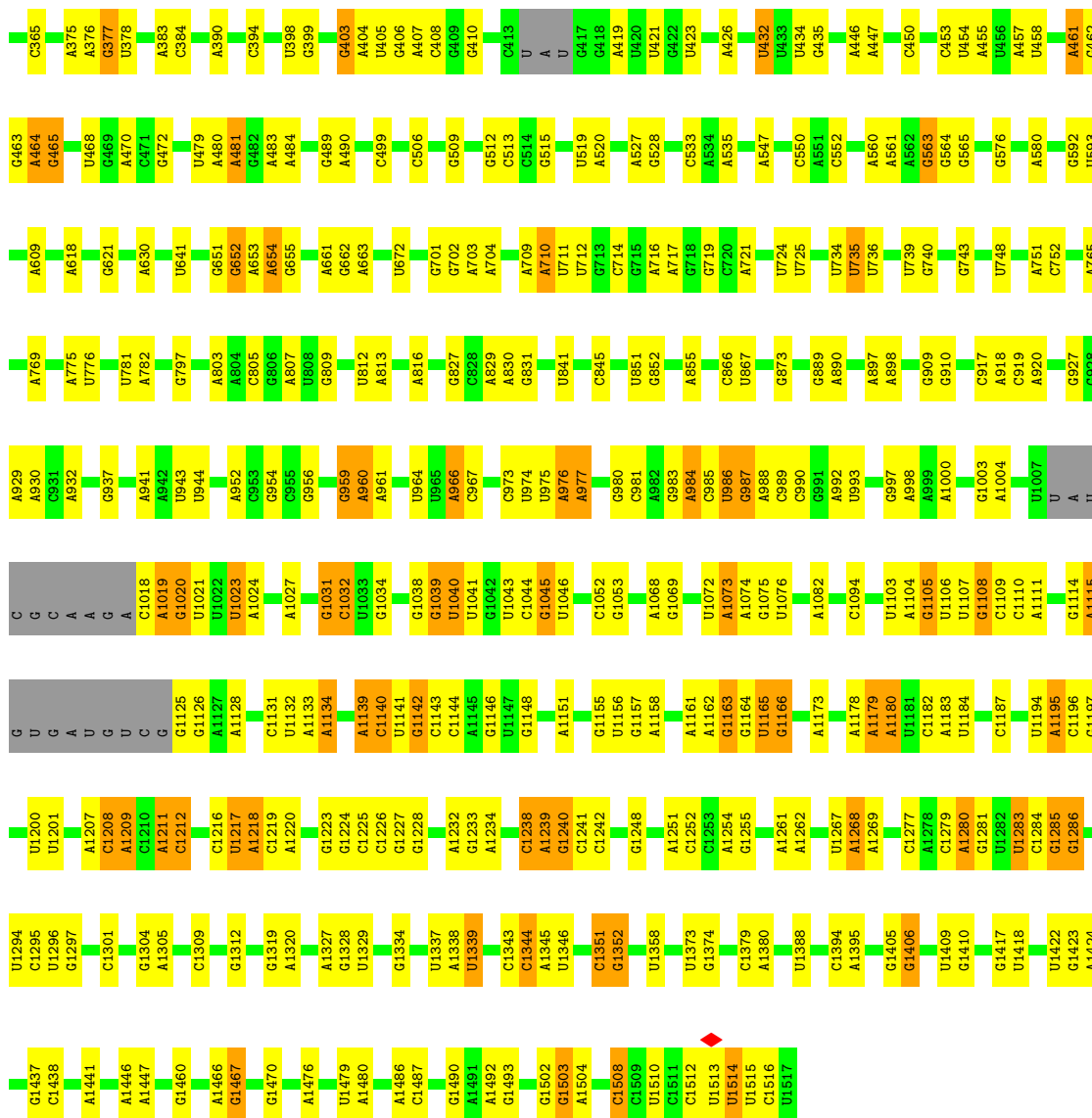
- Molecule 1: 23S rRNA





• Molecule 2: 16S rRNA

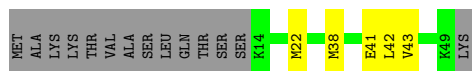




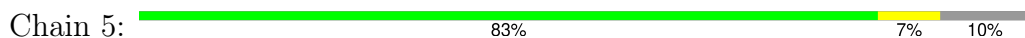
• Molecule 3: 5S rRNA



• Molecule 4: 50S ribosomal protein L38



• Molecule 5: 50S ribosomal protein L38





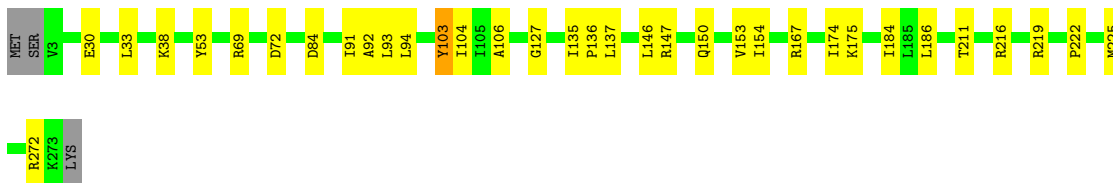
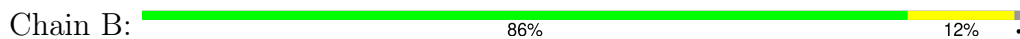
- Molecule 6: mFjoh\_4413 mRNA



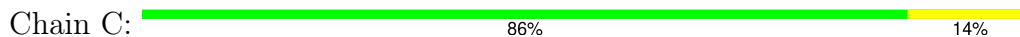
- Molecule 7: fMet-tRNA



- Molecule 8: 50S ribosomal protein L2



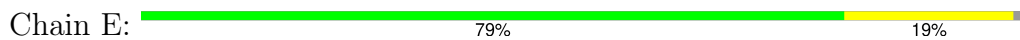
- Molecule 9: 50S ribosomal protein L3



- Molecule 10: 50S ribosomal protein L4



- Molecule 11: 50S ribosomal protein L5







- Molecule 17: 50S ribosomal protein L15

Chain L: 93% 7%



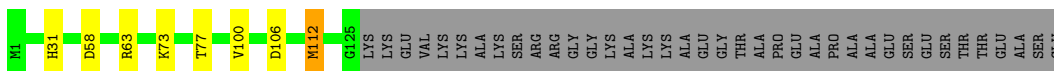
- Molecule 18: 50S ribosomal protein L16

Chain M: 84% 14%



- Molecule 19: 50S ribosomal protein L17

Chain N: 72% 23%



- Molecule 20: 50S ribosomal protein L18

Chain O: 89% 10%



- Molecule 21: 50S ribosomal protein L19

Chain P: 90% 7%



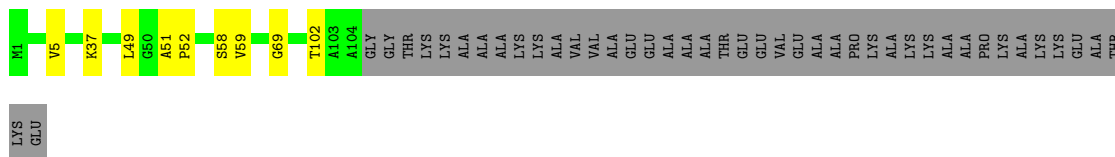
- Molecule 22: 50S ribosomal protein L20

Chain Q: 89% 10%

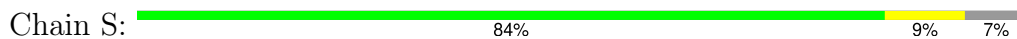


- Molecule 23: 50S ribosomal protein L21

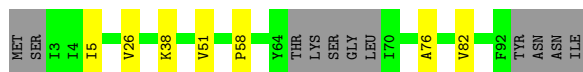
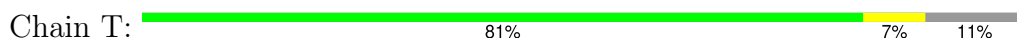
Chain R: 65% 6% 29%



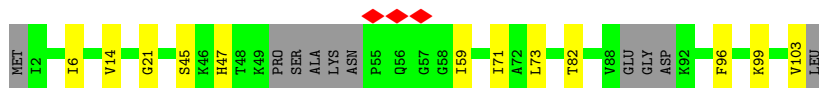
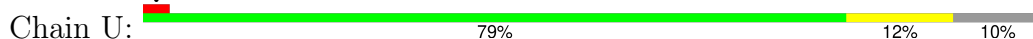
• Molecule 24: 50S ribosomal protein L22



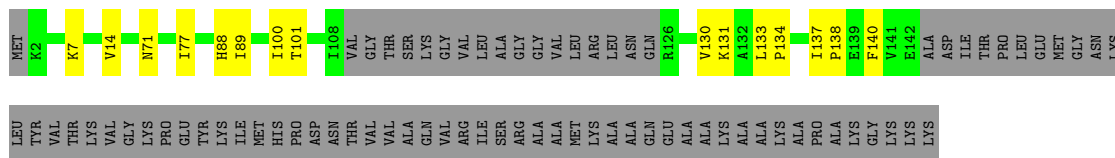
• Molecule 25: 50S ribosomal protein L23



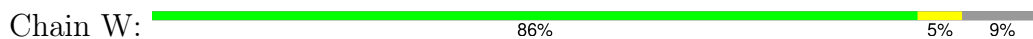
• Molecule 26: 50S ribosomal protein L24



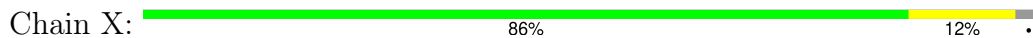
• Molecule 27: 50S ribosomal protein L25




• Molecule 28: 50S ribosomal protein L27



• Molecule 29: 50S ribosomal protein L28




- Molecule 30: 50S ribosomal protein L29

Chain Y:  79% 14% 6%



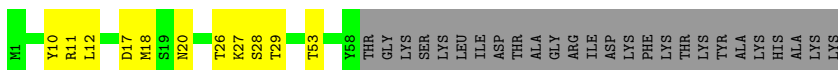
- Molecule 31: 50S ribosomal protein L30

Chain Z:  82% 12% 7%




- Molecule 32: 50S ribosomal protein L31

Chain a:  56% 13% 31%




- Molecule 33: 50S ribosomal protein L32

Chain b:  84% 8% 8%



- Molecule 34: 50S ribosomal protein L33

Chain c:  78% 12% 10%



- Molecule 35: 50S ribosomal protein L34

Chain d:  96%



- Molecule 36: 50S ribosomal protein L35

Chain e:  92% 6%

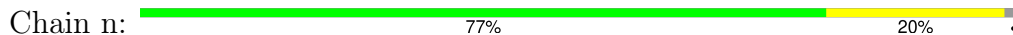


- Molecule 37: 50S ribosomal protein L36





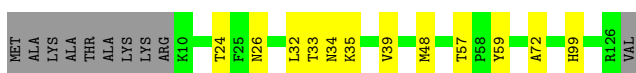
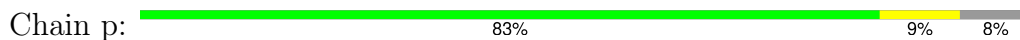
- Molecule 44: 30S ribosomal protein S9



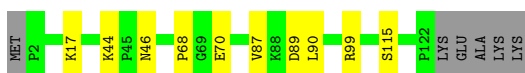
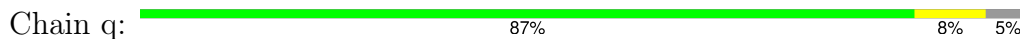
- Molecule 45: 30S ribosomal protein S10



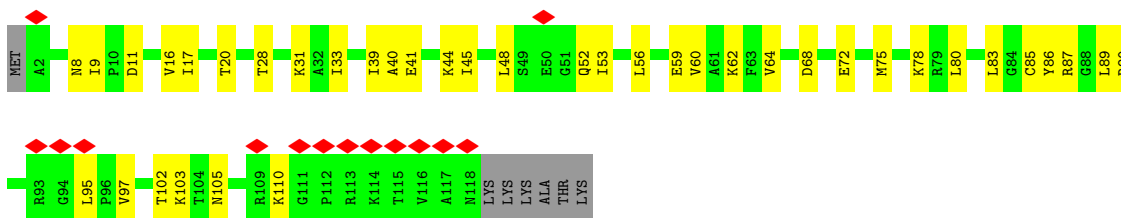
- Molecule 46: 30S ribosomal protein S11



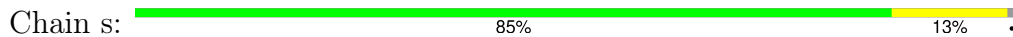
- Molecule 47: 30S ribosomal protein S12



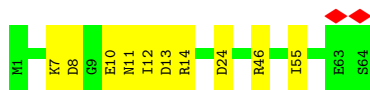
- Molecule 48: 30S ribosomal protein S13



- Molecule 49: 30S ribosomal protein S14







## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	189894	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	0.497	Depositor
Minimum map value	-0.113	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.021	Depositor
Recommended contour level	0.07	Depositor
Map size ( $\text{\AA}$ )	410.40002, 410.40002, 410.40002	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	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	0.25	0/66183	0.32	0/103212
2	2	0.19	0/35523	0.30	0/55388
3	3	0.18	0/2611	0.24	0/4067
4	4	0.19	0/282	0.47	0/377
5	5	0.17	0/234	0.27	0/301
6	6	0.15	0/142	0.32	0/219
7	A	0.13	0/1745	0.25	0/2717
8	B	0.23	0/2090	0.34	0/2815
9	C	0.23	0/1538	0.36	0/2061
10	D	0.20	0/1530	0.32	0/2065
11	E	0.19	0/1321	0.38	0/1789
12	F	0.16	0/1266	0.31	0/1713
13	G	0.30	0/411	0.66	2/556 (0.4%)
14	H	0.18	0/1684	0.44	0/2278
15	J	0.24	0/1130	0.40	0/1529
16	K	0.19	0/896	0.30	0/1204
17	L	0.22	0/1060	0.36	0/1422
18	M	0.21	0/1077	0.34	0/1442
19	N	0.22	0/994	0.36	1/1331 (0.1%)
20	O	0.17	0/854	0.35	0/1144
21	P	0.21	0/863	0.35	0/1163
22	Q	0.23	0/918	0.35	0/1220
23	R	0.20	0/778	0.37	0/1045
24	S	0.21	0/974	0.35	0/1305
25	T	0.19	0/652	0.31	0/877
26	U	0.15	0/682	0.28	0/911
27	V	0.16	0/884	0.34	0/1212
28	W	0.22	0/594	0.36	0/794
29	X	0.19	0/593	0.31	0/794
30	Y	0.15	0/412	0.39	0/561
31	Z	0.20	0/403	0.36	0/545
32	a	0.16	0/431	0.38	0/586
33	b	0.23	0/488	0.30	0/657
34	c	0.19	0/421	0.36	0/569

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
35	d	0.22	0/422	0.30	0/553
36	e	0.23	0/512	0.42	0/672
37	f	0.20	0/307	0.33	0/405
38	h	0.14	0/1623	0.32	0/2190
39	i	0.14	0/1606	0.28	0/2157
40	j	0.16	0/1194	0.31	0/1615
41	k	0.16	0/834	0.26	0/1129
42	l	0.16	0/1200	0.37	0/1615
43	m	0.17	0/976	0.28	0/1324
44	n	0.16	0/986	0.42	0/1322
45	o	0.14	0/712	0.39	1/973 (0.1%)
46	p	0.17	0/833	0.33	0/1130
47	q	0.20	0/935	0.34	0/1258
48	r	0.20	0/891	0.54	0/1192
49	s	0.16	0/676	0.34	0/906
50	t	0.19	0/704	0.31	0/946
51	u	0.16	0/799	0.32	0/1086
52	v	0.17	0/646	0.35	0/866
53	w	0.20	0/531	0.33	0/710
54	x	0.16	0/652	0.37	0/881
55	y	0.17	0/619	0.31	0/825
56	z	0.16	0/527	0.29	0/701
All	All	0.22	0/149849	0.32	4/224325 (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

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	G	41	PRO	CA-N-CD	-6.20	103.32	112.00
45	o	79	SER	CB-CA-C	-5.66	110.06	116.63
19	N	112	MET	CB-CG-SD	5.38	128.86	112.70
13	G	50	ASN	N-CA-C	-5.03	105.80	111.28

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	287	0
2	2	31728	0	15978	207	0
3	3	2339	0	1181	9	0
4	4	278	0	295	6	0
5	5	231	0	268	1	0
6	6	128	0	64	1	0
7	A	1562	0	794	9	0
8	B	2053	0	2127	27	0
9	C	1515	0	1548	21	0
10	D	1509	0	1532	10	0
11	E	1300	0	1267	27	0
12	F	1249	0	1264	15	0
13	G	405	0	417	13	0
14	H	1658	0	1695	43	0
15	J	1112	0	1149	13	0
16	K	889	0	946	0	0
17	L	1048	0	1048	9	0
18	M	1056	0	1109	16	0
19	N	980	0	1017	5	0
20	O	846	0	873	7	0
21	P	848	0	846	5	0
22	Q	904	0	956	10	0
23	R	768	0	810	6	0
24	S	964	0	992	14	0
25	T	647	0	696	4	0
26	U	679	0	733	7	0
27	V	867	0	828	12	0
28	W	586	0	607	4	0
29	X	586	0	618	7	0
30	Y	409	0	405	7	0
31	Z	400	0	416	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	a	421	0	384	7	0
33	b	475	0	468	4	0
34	c	415	0	432	5	0
35	d	416	0	449	0	0
36	e	506	0	574	3	0
37	f	305	0	337	1	0
38	h	1600	0	1604	24	0
39	i	1576	0	1592	11	0
40	j	1179	0	1185	11	0
41	k	815	0	780	4	0
42	l	1179	0	1181	14	0
43	m	961	0	978	10	0
44	n	972	0	1005	25	0
45	o	701	0	694	21	0
46	p	819	0	809	10	0
47	q	922	0	973	8	0
48	r	883	0	921	42	0
49	s	665	0	669	9	0
50	t	694	0	703	13	0
51	u	783	0	739	12	0
52	v	638	0	684	9	0
53	w	521	0	553	1	0
54	x	636	0	628	26	0
55	y	615	0	672	12	0
56	z	522	0	573	12	0
All	All	137848	0	91771	1018	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 4.

All (1018) 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)
18:M:44:LEU:CD1	18:M:99:VAL:HG21	1.63	1.28
50:t:81:ILE:HD11	50:t:86:ILE:O	1.38	1.21
44:n:4:ILE:HD13	44:n:87:GLU:OE2	1.40	1.21
44:n:4:ILE:CD1	44:n:87:GLU:OE2	2.01	1.08
18:M:44:LEU:HD12	18:M:99:VAL:HG21	1.33	1.05
48:r:48:LEU:HB3	48:r:52:GLN:OE1	1.59	1.03
8:B:174:ILE:HD12	8:B:184:ILE:HD12	1.07	1.02
18:M:44:LEU:HD11	18:M:99:VAL:HG21	1.39	1.02

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:222:U:H5''	51:u:34:LEU:HD21	1.44	1.00
17:L:20:VAL:CG1	17:L:32:ALA:HB1	1.92	0.99
18:M:44:LEU:HD12	18:M:99:VAL:CG2	1.93	0.98
48:r:39:ILE:HD13	48:r:52:GLN:NE2	1.84	0.91
7:A:51:U:H3	7:A:65:G:H1	1.19	0.90
18:M:44:LEU:CD1	18:M:99:VAL:CG2	2.50	0.90
15:J:58:ASN:OD1	15:J:126:ASN:HB3	1.71	0.90
8:B:174:ILE:CD1	8:B:184:ILE:HD12	2.01	0.88
1:1:924:C:H2'	1:1:925:C:C6	2.09	0.88
44:n:9:ARG:HG2	44:n:14:VAL:HG12	1.56	0.87
50:t:81:ILE:CD1	50:t:86:ILE:O	2.23	0.86
8:B:174:ILE:HD12	8:B:184:ILE:CD1	2.01	0.86
48:r:48:LEU:CB	48:r:52:GLN:OE1	2.26	0.83
55:y:8:LEU:HD23	55:y:11:ILE:HD12	1.58	0.83
47:q:17:LYS:HE2	47:q:17:LYS:HA	1.63	0.80
8:B:84:ASP:HB2	8:B:91:ILE:HD11	1.65	0.79
26:U:14:VAL:HG23	26:U:21:GLY:H	1.46	0.79
52:v:72:LYS:HG2	52:v:73:THR:HG23	1.64	0.79
2:2:453:C:H42	2:2:461:A:H61	1.29	0.78
42:l:115:GLU:HB3	42:l:120:GLN:HE21	1.48	0.78
2:2:181:G:H1	2:2:194:U:H3	1.30	0.78
48:r:39:ILE:CD1	48:r:52:GLN:NE2	2.47	0.76
50:t:81:ILE:HD12	50:t:86:ILE:HB	1.67	0.75
17:L:20:VAL:HG11	17:L:32:ALA:HB1	1.68	0.75
12:F:85:GLU:HG3	12:F:135:LYS:HG2	1.69	0.75
2:2:986:U:H3	2:2:1020:G:H1	1.33	0.75
11:E:143:GLU:N	11:E:143:GLU:OE2	2.20	0.75
55:y:48:LEU:HD13	55:y:80:VAL:HG21	1.66	0.74
8:B:84:ASP:HB2	8:B:91:ILE:CD1	2.18	0.74
21:P:38:LYS:HE3	21:P:38:LYS:HA	1.69	0.73
54:x:30:VAL:HG12	54:x:48:THR:CG2	2.18	0.73
40:j:85:GLN:OE1	40:j:127:HIS:ND1	2.21	0.73
44:n:80:ALA:O	44:n:84:VAL:HG23	1.89	0.73
8:B:84:ASP:CB	8:B:91:ILE:HD11	2.18	0.73
18:M:39:GLU:OE2	18:M:39:GLU:N	2.22	0.72
15:J:1:MET:HE1	23:R:69:GLY:HA2	1.70	0.72
45:o:17:VAL:HG23	45:o:18:ASP:OD2	1.89	0.72
29:X:68:LEU:O	29:X:72:GLN:HG2	1.90	0.72
2:2:937:G:H21	2:2:1209:A:H62	1.37	0.71
15:J:8:THR:HG21	22:Q:61:TRP:HE1	1.55	0.71
24:S:86:GLU:N	24:S:86:GLU:OE1	2.21	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:p:99:HIS:HD2	56:z:12:ILE:HB	1.54	0.71
1:1:1137:U:H2'	1:1:1138:A:H8	1.55	0.71
2:2:661:A:H2'	2:2:662:G:C8	2.26	0.71
9:C:101:GLU:OE2	9:C:101:GLU:N	2.24	0.71
2:2:956:G:OP1	45:o:58:LYS:NZ	2.25	0.70
2:2:1209:A:H5'	48:r:110:LYS:HE2	1.73	0.70
9:C:41:GLU:N	9:C:41:GLU:OE1	2.22	0.70
1:1:1562:A:N6	1:1:1573:A:O2'	2.24	0.70
14:H:15:VAL:HG12	14:H:210:SER:HB2	1.73	0.70
48:r:9:ILE:HG21	48:r:45:ILE:HG12	1.73	0.70
1:1:529:A:OP2	24:S:6:ARG:NH2	2.25	0.69
14:H:95:GLU:OE2	14:H:95:GLU:N	2.25	0.69
27:V:77:ILE:HG13	27:V:89:ILE:CD1	2.21	0.69
43:m:66:ASP:HB3	43:m:71:GLU:H	1.57	0.69
1:1:1943:A:H2	1:1:1950:U:H5	1.37	0.69
2:2:1337:U:H2'	2:2:1338:A:H8	1.57	0.69
12:F:5:GLY:HA2	12:F:68:ARG:HD3	1.73	0.69
50:t:32:THR:HG22	50:t:62:ARG:HH11	1.57	0.69
20:O:66:ASN:HB3	20:O:101:ARG:HD3	1.74	0.69
48:r:83:LEU:HD12	54:x:66:MET:HB3	1.75	0.69
1:1:2456:G:O2'	1:1:2458:U:O4	2.11	0.68
18:M:67:TRP:HB2	18:M:107:GLU:HB2	1.75	0.68
8:B:84:ASP:HB2	8:B:91:ILE:CG1	2.23	0.68
44:n:4:ILE:HD12	44:n:87:GLU:OE2	1.92	0.68
2:2:1163:G:O2'	2:2:1164:G:N7	2.26	0.68
2:2:1295:C:OP2	54:x:4:SER:OG	2.10	0.68
4:4:41:GLU:OE2	4:4:41:GLU:N	2.27	0.68
38:h:14:ILE:HG22	38:h:15:ILE:HG23	1.76	0.68
1:1:1234:A:H61	1:1:1268:G:H22	1.43	0.67
14:H:68:ILE:HD12	14:H:161:ALA:HB3	1.76	0.67
1:1:138:G:H4'	1:1:139:A:H5'	1.75	0.67
2:2:1304:G:H2'	2:2:1305:A:C8	2.30	0.67
1:1:1393:A:OP2	29:X:2:SER:OG	2.12	0.67
3:3:72:G:H5''	27:V:14:VAL:HG11	1.76	0.67
44:n:14:VAL:CG2	44:n:66:TYR:HE1	2.07	0.66
2:2:125:G:O2'	2:2:126:C:O5'	2.12	0.66
2:2:1106:U:H2'	2:2:1108:G:H21	1.61	0.66
20:O:7:GLU:OE1	20:O:7:GLU:N	2.20	0.66
29:X:2:SER:OG	29:X:3:ARG:N	2.28	0.66
2:2:446:A:H62	2:2:468:U:H3	1.44	0.66
11:E:70:ILE:CG2	11:E:87:PRO:HB3	2.26	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:Q:48:ARG:NH1	22:Q:49:ASP:OD2	2.28	0.66
46:p:48:MET:HE3	46:p:48:MET:HA	1.76	0.66
1:1:268:U:H5'	13:G:52:LYS:HG2	1.77	0.66
48:r:33:ILE:HG12	48:r:59:GLU:HG3	1.76	0.66
48:r:31:LYS:HA	48:r:31:LYS:HE3	1.78	0.66
8:B:135:ILE:O	8:B:167:ARG:NH2	2.29	0.65
1:1:1263:G:OP1	24:S:6:ARG:NH2	2.29	0.65
2:2:220:G:O2'	51:u:62:GLN:NE2	2.30	0.65
2:2:1337:U:H2'	2:2:1338:A:C8	2.32	0.65
14:H:167:ILE:HD11	14:H:192:SER:HB3	1.79	0.65
54:x:1:MET:N	54:x:8:GLY:O	2.25	0.65
17:L:20:VAL:HG12	17:L:32:ALA:HB1	1.76	0.65
13:G:40:THR:HB	13:G:41:PRO:HD2	1.78	0.64
1:1:1116:A:N3	1:1:1137:U:O2'	2.28	0.64
14:H:216:SER:O	14:H:220:THR:HG23	1.97	0.64
55:y:8:LEU:O	55:y:12:ARG:NH1	2.31	0.64
1:1:1567:U:H1'	1:1:1569:G:C6	2.32	0.64
1:1:2028:G:OP2	33:b:12:ARG:NH1	2.31	0.64
2:2:1126:G:N2	2:2:1128:A:N7	2.44	0.64
18:M:50:GLU:OE1	18:M:53:ARG:NH2	2.31	0.64
45:o:4:LYS:N	45:o:75:ILE:O	2.31	0.64
54:x:30:VAL:HG12	54:x:48:THR:HG22	1.79	0.63
2:2:1514:U:O4	53:w:31:LYS:N	2.31	0.63
8:B:84:ASP:HB2	8:B:91:ILE:HG13	1.80	0.63
2:2:1405:G:H2'	2:2:1406:G:C8	2.33	0.63
14:H:68:ILE:H	14:H:90:MET:HE3	1.63	0.63
43:m:4:ASP:OD2	43:m:79:ARG:NH1	2.31	0.63
1:1:2833:A:H61	1:1:2846:A:H62	1.46	0.63
2:2:1173:A:OP2	38:h:3:GLN:NE2	2.32	0.63
1:1:2032:C:H2'	1:1:2033:G:C8	2.34	0.63
2:2:410:G:H22	2:2:419:A:H2	1.46	0.63
1:1:2325:A:H2'	1:1:2326:A:C8	2.34	0.62
2:2:672:U:O2	46:p:39:VAL:HG22	1.99	0.62
2:2:1139:A:H5''	2:2:1140:C:C5	2.34	0.62
1:1:1099:G:N2	1:1:1127:A:O2'	2.33	0.62
44:n:95:ILE:HD12	44:n:95:ILE:H	1.61	0.62
44:n:104:ARG:NH1	44:n:105:ASP:O	2.33	0.62
2:2:1297:G:H4'	49:s:46:VAL:HG21	1.81	0.62
24:S:4:ARG:HH22	24:S:6:ARG:HG2	1.65	0.62
1:1:84:A:N6	1:1:101:G:O2'	2.31	0.62
2:2:941:A:C6	54:x:55:ARG:HD2	2.35	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:710:A:O2'	2:2:712:U:OP2	2.17	0.62
1:1:2717:G:OP1	21:P:52:ARG:NH2	2.31	0.61
39:i:96:ASP:OD1	39:i:96:ASP:N	2.33	0.61
2:2:702:G:H2'	2:2:703:A:C8	2.35	0.61
43:m:10:LEU:HD22	43:m:77:ILE:HD11	1.83	0.61
49:s:52:CYS:HB3	49:s:56:GLY:H	1.62	0.61
1:1:1059:A:H62	1:1:1158:A:H2	1.49	0.61
2:2:959:G:OP2	2:2:1339:U:O2'	2.19	0.61
11:E:124:SER:O	11:E:124:SER:OG	2.19	0.61
42:l:105:TRP:CE2	42:l:139:LYS:HD3	2.36	0.61
1:1:1809:A:H2'	1:1:1810:A:C8	2.36	0.61
1:1:2283:U:OP2	34:c:7:ARG:NH1	2.34	0.60
15:J:18:LYS:NZ	15:J:54:ASP:O	2.35	0.60
2:2:1417:G:H2'	2:2:1418:U:C6	2.37	0.60
45:o:79:SER:OG	45:o:80:SER:N	2.35	0.60
47:q:87:VAL:HG11	47:q:90:LEU:HD12	1.83	0.60
47:q:70:GLU:N	47:q:70:GLU:OE1	2.34	0.60
1:1:1673:U:H2'	1:1:1674:A:H5''	1.82	0.60
12:F:85:GLU:N	12:F:85:GLU:OE2	2.34	0.60
14:H:188:VAL:CG2	14:H:200:VAL:HG23	2.32	0.60
13:G:39:ALA:O	13:G:43:ALA:N	2.29	0.60
1:1:875:A:H2'	1:1:876:A:C8	2.37	0.59
1:1:1943:A:C2	1:1:1950:U:H5	2.18	0.59
2:2:987:G:C6	2:2:1019:A:H2	2.21	0.59
45:o:41:LEU:HB2	45:o:70:LYS:HB2	1.84	0.59
55:y:43:ASP:OD1	55:y:43:ASP:N	2.35	0.59
1:1:2456:G:H8	1:1:2457:A:H62	1.50	0.59
25:T:58:PRO:HG3	25:T:76:ALA:HB2	1.85	0.59
2:2:198:A:H2'	2:2:199:A:C8	2.38	0.59
24:S:29:THR:O	24:S:121:ASN:ND2	2.35	0.59
32:a:20:ASN:ND2	32:a:53:THR:OG1	2.33	0.59
1:1:428:U:H4'	1:1:429:C:H5''	1.84	0.59
1:1:1624:A:H2'	1:1:1625:A:H8	1.67	0.59
12:F:17:VAL:HG12	12:F:26:VAL:HG22	1.84	0.59
1:1:924:C:H2'	1:1:925:C:H6	1.62	0.59
11:E:70:ILE:HG22	11:E:87:PRO:HB3	1.84	0.59
14:H:187:MET:HE1	14:H:211:ILE:HG22	1.85	0.59
51:u:34:LEU:HD23	51:u:59:TRP:HH2	1.67	0.59
52:v:29:VAL:HG22	52:v:44:THR:HG22	1.84	0.59
27:V:100:ILE:HD12	27:V:101:THR:H	1.66	0.59
50:t:78:ARG:O	50:t:81:ILE:HG22	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1860:A:H2'	1:1:1861:A:C8	2.38	0.58
2:2:125:G:HO2'	2:2:126:C:H6	1.50	0.58
22:Q:104:GLU:OE2	22:Q:104:GLU:N	2.22	0.58
1:1:1099:G:O2'	1:1:1128:A:O2'	2.21	0.58
2:2:1304:G:H2'	2:2:1305:A:H8	1.68	0.58
1:1:562:A:N6	1:1:578:G:O2'	2.34	0.58
2:2:1018:C:H2'	2:2:1019:A:C5	2.39	0.58
32:a:17:ASP:OD1	32:a:18:MET:N	2.33	0.58
39:i:62:TYR:OH	39:i:92:GLU:OE1	2.20	0.58
54:x:31:VAL:HB	54:x:49:ILE:HG23	1.86	0.58
1:1:925:C:H2'	1:1:926:A:C8	2.39	0.58
8:B:147:ARG:HB2	8:B:150:GLN:OE1	2.03	0.58
10:D:8:PHE:O	10:D:9:ASN:ND2	2.37	0.58
2:2:489:G:H2'	2:2:490:A:C8	2.38	0.58
2:2:1165:U:O2'	2:2:1166:G:OP1	2.22	0.58
10:D:155:PHE:HB2	10:D:176:VAL:HG22	1.86	0.58
44:n:46:VAL:HG12	44:n:47:LEU:N	2.19	0.58
2:2:330:G:H2'	2:2:331:A:C8	2.38	0.58
54:x:63:THR:OG1	54:x:66:MET:HE3	2.04	0.58
1:1:154:G:H21	1:1:157:A:H2	1.52	0.57
1:1:2106:G:H1	1:1:2197:U:H3	1.52	0.57
46:p:34:ASN:OD1	46:p:35:LYS:N	2.38	0.57
11:E:54:ASP:OD1	11:E:55:TYR:N	2.37	0.57
48:r:75:MET:HA	48:r:75:MET:HE3	1.86	0.57
48:r:59:GLU:O	48:r:62:LYS:HG2	2.05	0.57
1:1:1441:A:O2'	1:1:1442:C:OP1	2.22	0.57
9:C:40:ASN:HA	9:C:44:GLY:H	1.69	0.57
30:Y:17:LYS:O	30:Y:21:THR:HG23	2.04	0.57
2:2:710:A:H2	2:2:721:A:H61	1.53	0.57
25:T:5:ILE:HB	25:T:26:VAL:HG23	1.85	0.57
48:r:31:LYS:NZ	48:r:41:GLU:HG2	2.19	0.57
7:A:48:U:H5''	7:A:49:C:H5'	1.86	0.57
51:u:34:LEU:HD23	51:u:59:TRP:CH2	2.39	0.57
1:1:2284:A:H4'	1:1:2285:A:O4'	2.03	0.57
48:r:80:LEU:HD11	48:r:87:ARG:HB3	1.86	0.57
2:2:198:A:H2'	2:2:199:A:H8	1.70	0.57
11:E:161:THR:HG23	11:E:163:ALA:H	1.69	0.57
48:r:31:LYS:HZ2	48:r:41:GLU:HG2	1.70	0.57
1:1:1137:U:H2'	1:1:1138:A:C8	2.39	0.56
2:2:489:G:H2'	2:2:490:A:H8	1.69	0.56
2:2:1446:A:H2'	2:2:1447:A:C8	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:k:94:ASP:OD1	41:k:94:ASP:N	2.38	0.56
51:u:45:ASN:HB3	51:u:46:PRO:HD3	1.87	0.56
10:D:6:LEU:O	10:D:6:LEU:HD12	2.05	0.56
12:F:28:GLY:HA3	12:F:78:VAL:HG12	1.88	0.56
1:1:894:G:H2'	1:1:895:C:C6	2.40	0.56
1:1:1570:G:H2'	1:1:1571:A:C8	2.40	0.56
1:1:1854:A:O2'	1:1:1855:A:N7	2.38	0.56
2:2:17:U:H2'	2:2:18:C:C6	2.40	0.56
20:O:23:SER:OG	20:O:25:ALA:O	2.20	0.56
27:V:77:ILE:HG13	27:V:89:ILE:HD13	1.86	0.56
48:r:64:VAL:HG13	48:r:68:ASP:HB2	1.87	0.56
17:L:97:SER:OG	17:L:98:MET:N	2.37	0.56
44:n:19:VAL:HG21	44:n:84:VAL:HG11	1.87	0.56
1:1:155:A:H2'	1:1:156:U:C6	2.41	0.56
2:2:1248:G:N2	2:2:1251:A:OP2	2.33	0.56
2:2:1286:G:N2	2:2:1312:G:O2'	2.24	0.56
10:D:126:LEU:HB2	10:D:196:LEU:HD13	1.87	0.56
2:2:138:G:H2'	2:2:139:G:C8	2.40	0.56
2:2:1238:C:O2'	2:2:1239:A:OP2	2.21	0.56
1:1:1582:G:H2'	1:1:1584:G:H5''	1.86	0.56
14:H:28:MET:HE1	14:H:194:PRO:HD3	1.87	0.56
1:1:1116:A:H2'	1:1:1117:A:C8	2.41	0.56
1:1:915:C:H42	1:1:923:C:H42	1.54	0.56
11:E:97:GLU:O	11:E:101:GLU:HG3	2.06	0.56
1:1:613:A:H2'	1:1:614:A:C8	2.41	0.55
1:1:1437:A:H2'	1:1:1438:A:H8	1.71	0.55
20:O:103:LYS:O	20:O:107:GLU:HG2	2.05	0.55
27:V:133:LEU:HD13	27:V:134:PRO:HD2	1.88	0.55
48:r:17:ILE:O	48:r:20:THR:OG1	2.23	0.55
48:r:53:ILE:H	48:r:53:ILE:HD12	1.70	0.55
9:C:180:VAL:HG12	9:C:180:VAL:O	2.05	0.55
32:a:20:ASN:OD1	32:a:20:ASN:N	2.39	0.55
1:1:998:U:H2'	1:1:999:C:C6	2.41	0.55
45:o:15:MET:N	45:o:15:MET:SD	2.78	0.55
1:1:502:A:O2'	1:1:503:A:OP1	2.23	0.55
2:2:254:U:OP1	55:y:68:LYS:NZ	2.38	0.55
2:2:127:C:HO2'	2:2:128:U:H6	1.52	0.55
14:H:71:VAL:HG12	14:H:93:ILE:HB	1.89	0.55
1:1:1806:G:N2	1:1:1825:U:O2'	2.39	0.55
1:1:2261:C:N4	28:W:15:GLU:OE1	2.39	0.55
39:i:200:ASN:O	39:i:200:ASN:ND2	2.28	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1505:U:H2'	1:1:1506:A:H8	1.71	0.55
9:C:49:GLN:HB3	9:C:81:GLU:HG3	1.88	0.55
21:P:21:PHE:O	21:P:51:ARG:NH1	2.40	0.55
9:C:2:SER:O	9:C:2:SER:OG	2.23	0.55
52:v:13:GLY:HA3	52:v:26:ILE:HD12	1.89	0.55
1:1:324:U:H2'	1:1:325:A:C8	2.42	0.54
1:1:1172:U:H4'	1:1:1173:A:O4'	2.07	0.54
1:1:1309:G:H2'	1:1:1310:C:C6	2.42	0.54
1:1:2109:U:H2'	1:1:2110:A:C8	2.43	0.54
10:D:77:SER:OG	10:D:78:VAL:N	2.41	0.54
11:E:72:LYS:HA	11:E:87:PRO:HA	1.88	0.54
54:x:75:SER:O	54:x:75:SER:OG	2.20	0.54
52:v:71:SER:OG	52:v:72:LYS:N	2.40	0.54
1:1:1683:G:O2'	19:N:106:ASP:OD2	2.19	0.54
1:1:2060:G:H5'	9:C:149:SER:O	2.07	0.54
1:1:2217:C:O2'	1:1:2218:G:OP1	2.25	0.54
1:1:2848:A:H2'	1:1:2849:G:C8	2.42	0.54
1:1:505:G:OP2	26:U:47:HIS:ND1	2.31	0.54
2:2:170:A:H62	2:2:203:A:H62	1.56	0.54
2:2:512:G:H2'	2:2:513:C:C6	2.42	0.54
2:2:998:A:H2	2:2:1201:U:H1'	1.73	0.54
14:H:109:ARG:O	14:H:113:LYS:HG2	2.07	0.54
15:J:28:HIS:O	15:J:68:ASN:ND2	2.40	0.54
44:n:46:VAL:O	44:n:47:LEU:HD12	2.08	0.54
14:H:188:VAL:HG21	14:H:200:VAL:HG23	1.88	0.54
55:y:47:LYS:O	55:y:51:VAL:HG23	2.07	0.54
1:1:915:C:H42	1:1:923:C:N4	2.06	0.54
1:1:28:A:N6	1:1:536:G:H1'	2.23	0.54
1:1:2326:A:H2'	1:1:2327:U:C6	2.43	0.54
2:2:1044:C:OP2	2:2:1045:G:O2'	2.22	0.54
48:r:39:ILE:HD13	48:r:52:GLN:HE21	1.68	0.54
1:1:1029:A:H2'	1:1:1030:A:C8	2.43	0.54
1:1:1433:U:H2'	1:1:1434:A:C8	2.43	0.54
22:Q:109:ILE:HG12	23:R:49:LEU:HD21	1.89	0.54
1:1:2333:A:HO2'	1:1:2334:A:H8	1.56	0.53
2:2:716:A:H2'	2:2:717:A:C8	2.44	0.53
9:C:54:ASP:OD1	9:C:76:LYS:NZ	2.36	0.53
14:H:51:ILE:HD11	14:H:217:LEU:HD22	1.90	0.53
1:1:572:U:O2'	15:J:2:ASP:O	2.26	0.53
2:2:960:A:H2'	2:2:961:A:H5''	1.90	0.53
30:Y:15:GLN:HE22	30:Y:57:LEU:HD22	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:r:39:ILE:HD12	48:r:40:ALA:H	1.73	0.53
40:j:121:LEU:HD13	40:j:129:VAL:HG21	1.89	0.53
1:1:176:A:H2'	1:1:177:C:C6	2.43	0.53
1:1:266:G:N2	13:G:52:LYS:HZ1	2.06	0.53
2:2:222:U:C5'	51:u:34:LEU:HD21	2.31	0.53
2:2:983:G:N1	2:2:1023:U:C2	2.77	0.53
15:J:78:ILE:HG23	15:J:91:THR:HG23	1.90	0.53
48:r:9:ILE:HG22	48:r:11:ASP:H	1.73	0.53
1:1:841:U:H2'	1:1:842:C:C6	2.43	0.53
1:1:2209:U:H3	1:1:2219:G:H1	1.57	0.53
26:U:82:THR:HG22	26:U:99:LYS:HD2	1.91	0.53
1:1:27:A:O2'	1:1:28:A:O5'	2.27	0.53
1:1:310:G:N1	1:1:371:A:N1	2.57	0.53
1:1:571:G:O2'	1:1:572:U:OP2	2.22	0.53
1:1:1943:A:H2	1:1:1950:U:C5	2.24	0.53
1:1:2230:U:OP2	29:X:27:ARG:NH2	2.41	0.53
38:h:130:ARG:O	38:h:134:LYS:HG2	2.09	0.53
44:n:14:VAL:CG2	44:n:66:TYR:CE1	2.91	0.53
2:2:125:G:O2'	2:2:126:C:H6	1.92	0.53
3:3:106:C:H2'	3:3:107:U:H6	1.73	0.53
15:J:141:LYS:HA	15:J:141:LYS:HE2	1.91	0.53
24:S:47:GLU:OE2	24:S:47:GLU:N	2.23	0.53
1:1:908:G:H1'	1:1:930:A:N6	2.24	0.52
1:1:1113:U:H2'	1:1:1114:U:C6	2.44	0.52
1:1:1748:G:N2	1:1:1751:A:OP2	2.34	0.52
2:2:195:U:H2'	2:2:196:A:H8	1.74	0.52
2:2:998:A:H5''	54:x:14:LYS:HD2	1.90	0.52
44:n:25:ASN:OD1	44:n:25:ASN:N	2.41	0.52
1:1:1329:A:O2'	1:1:1330:A:H2'	2.09	0.52
18:M:21:SER:HB3	18:M:100:LYS:HB2	1.90	0.52
1:1:1437:A:H2'	1:1:1438:A:C8	2.45	0.52
2:2:41:G:H2'	2:2:42:G:H8	1.75	0.52
11:E:109:ILE:HG21	11:E:142:PRO:HG3	1.92	0.52
42:l:115:GLU:HB2	42:l:121:ARG:HG2	1.90	0.52
2:2:1133:A:O2'	2:2:1134:A:O5'	2.26	0.52
40:j:10:VAL:HA	40:j:77:LEU:HD12	1.92	0.52
51:u:53:LEU:O	51:u:57:VAL:HG23	2.10	0.52
2:2:403:G:H21	2:2:426:A:H62	1.56	0.52
2:2:1218:A:H2'	2:2:1219:C:C6	2.44	0.52
40:j:59:SER:OG	40:j:60:LYS:N	2.43	0.52
40:j:117:VAL:HG23	40:j:146:THR:CG2	2.40	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:432:U:O2'	2:2:434:U:O4	2.26	0.52
14:H:215:LEU:HA	14:H:218:VAL:HG22	1.92	0.52
50:t:25:GLU:OE2	50:t:25:GLU:N	2.40	0.52
1:1:812:G:H5'	1:1:813:G:OP1	2.10	0.51
2:2:446:A:H2'	2:2:447:A:O4'	2.09	0.51
8:B:153:VAL:HG23	8:B:154:ILE:HG13	1.91	0.51
1:1:2008:A:H2'	1:1:2009:U:C6	2.45	0.51
9:C:12:THR:OG1	9:C:13:SER:N	2.43	0.51
48:r:86:TYR:CZ	48:r:90:ARG:HD2	2.45	0.51
2:2:812:U:H2'	2:2:813:A:C8	2.46	0.51
2:2:1195:A:O2'	2:2:1197:G:N7	2.38	0.51
14:H:16:HIS:HB3	14:H:44:LEU:HD11	1.92	0.51
49:s:51:ARG:NH1	49:s:56:GLY:O	2.43	0.51
1:1:987:U:H5''	18:M:14:LYS:HE2	1.92	0.51
1:1:2403:G:O2'	1:1:2404:C:OP2	2.25	0.51
39:i:171:ASP:OD1	39:i:172:LEU:N	2.44	0.51
44:n:39:THR:CG2	44:n:42:LEU:HG	2.40	0.51
1:1:967:A:H2'	1:1:968:A:C8	2.46	0.51
2:2:701:G:H2'	2:2:702:G:C8	2.46	0.51
1:1:1477:A:H2'	1:1:1478:A:C8	2.45	0.51
1:1:1498:A:H2'	1:1:1499:A:C8	2.46	0.51
1:1:1786:U:H5	1:1:1791:A:N7	2.08	0.51
3:3:26:A:H2'	3:3:27:C:H6	1.75	0.51
1:1:1510:A:H4'	1:1:1511:U:H5''	1.92	0.51
14:H:130:LEU:HD12	14:H:134:GLU:HG3	1.93	0.51
42:l:30:MET:HE1	42:l:35:LYS:HE2	1.93	0.51
2:2:662:G:H2'	2:2:663:A:C8	2.46	0.51
13:G:9:VAL:HG11	13:G:12:LEU:HD23	1.92	0.51
1:1:1749:C:H2'	1:1:1750:A:C8	2.45	0.51
7:A:67:C:H2'	7:A:68:C:C6	2.46	0.51
29:X:27:ARG:HG2	29:X:28:LYS:H	1.76	0.51
1:1:1018:G:OP2	31:Z:11:SER:OG	2.25	0.51
12:F:19:VAL:HG22	12:F:24:ILE:HD12	1.91	0.51
14:H:130:LEU:CD1	14:H:134:GLU:HG3	2.41	0.51
2:2:1161:A:H2'	2:2:1162:A:O4'	2.11	0.50
2:2:1208:C:N4	48:r:103:LYS:HD2	2.26	0.50
14:H:68:ILE:H	14:H:90:MET:CE	2.23	0.50
33:b:60:SER:O	33:b:60:SER:OG	2.21	0.50
36:e:36:LYS:HG3	36:e:41:LYS:HD2	1.93	0.50
45:o:22:GLU:HA	45:o:25:VAL:HG22	1.92	0.50
2:2:1343:C:O2'	2:2:1344:C:H5'	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:H:121:MET:HE3	14:H:121:MET:O	2.10	0.50
47:q:46:ASN:ND2	47:q:89:ASP:OD2	2.35	0.50
50:t:81:ILE:CD1	50:t:86:ILE:HB	2.39	0.50
3:3:12:U:OP2	3:3:67:C:O2'	2.27	0.50
38:h:110:LEU:HD11	38:h:143:MET:HG2	1.93	0.50
40:j:168:GLU:N	40:j:168:GLU:OE1	2.45	0.50
1:1:2078:A:H2'	1:1:2079:C:C6	2.47	0.50
2:2:776:U:O2'	6:6:-3:G:N2	2.45	0.50
2:2:1294:U:O4	54:x:3:ARG:NH1	2.44	0.50
1:1:926:A:N3	1:1:926:A:H2'	2.27	0.50
1:1:1592:G:O2'	1:1:1593:G:O5'	2.29	0.50
1:1:2423:A:H4'	1:1:2424:A:O5'	2.12	0.50
1:1:2845:C:H2'	1:1:2846:A:C2	2.47	0.50
9:C:39:THR:OG1	9:C:41:GLU:OE1	2.24	0.50
26:U:96:PHE:HA	26:U:103:VAL:HA	1.92	0.50
1:1:324:U:H2'	1:1:325:A:H8	1.75	0.50
1:1:1477:A:H2'	1:1:1478:A:H8	1.77	0.50
1:1:1059:A:N3	1:1:2484:G:O2'	2.38	0.50
2:2:662:G:H2'	2:2:663:A:H8	1.75	0.50
2:2:812:U:H2'	2:2:813:A:H8	1.77	0.50
2:2:983:G:N1	2:2:1023:U:N3	2.59	0.50
7:A:24:C:H2'	7:A:25:U:C6	2.47	0.50
45:o:11:SER:HB3	45:o:17:VAL:CG1	2.42	0.50
1:1:2570:A:N7	9:C:150:SER:OG	2.38	0.50
2:2:377:G:H2'	2:2:378:U:C6	2.47	0.50
2:2:1187:C:H4'	38:h:194:ARG:HH11	1.77	0.50
54:x:41:THR:HG23	54:x:43:ASP:H	1.77	0.50
2:2:997:G:N2	2:2:1000:A:OP2	2.41	0.49
2:2:1139:A:H4'	2:2:1140:C:O5'	2.11	0.49
1:1:1624:A:H2'	1:1:1625:A:C8	2.48	0.49
1:1:1801:G:H2'	1:1:1802:C:C6	2.47	0.49
1:1:2345:C:OP1	34:c:45:LYS:NZ	2.38	0.49
11:E:108:THR:HG22	11:E:109:ILE:HG13	1.93	0.49
14:H:28:MET:O	14:H:32:ILE:HG12	2.12	0.49
1:1:268:U:O2'	1:1:269:A:O4'	2.27	0.49
1:1:911:G:H2'	1:1:912:G:C8	2.47	0.49
2:2:41:G:H2'	2:2:42:G:C8	2.47	0.49
2:2:128:U:H2'	2:2:129:U:C6	2.47	0.49
2:2:983:G:O6	2:2:984:A:N6	2.46	0.49
9:C:61:THR:HG22	9:C:63:ALA:H	1.77	0.49
10:D:6:LEU:HD12	10:D:6:LEU:C	2.37	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:84:LYS:HG3	12:F:144:LEU:HD21	1.92	0.49
12:F:102:LEU:HD13	12:F:122:LEU:HD21	1.95	0.49
17:L:108:SER:OG	17:L:109:LYS:N	2.45	0.49
19:N:58:ASP:OD2	19:N:63:ARG:NH1	2.45	0.49
47:q:44:LYS:NZ	47:q:44:LYS:HB2	2.27	0.49
1:1:1234:A:N6	1:1:1268:G:H22	2.08	0.49
11:E:169:ALA:C	11:E:171:SER:H	2.19	0.49
1:1:406:A:H61	1:1:416:C:H42	1.61	0.49
1:1:1748:G:N2	1:1:1750:A:H3'	2.28	0.49
2:2:1148:G:N2	2:2:1151:A:OP2	2.42	0.49
3:3:106:C:H2'	3:3:107:U:C6	2.47	0.49
38:h:133:ILE:HG21	38:h:167:PHE:CD1	2.47	0.49
1:1:1128:A:H2'	1:1:1129:C:O4'	2.13	0.49
1:1:1561:G:H2'	1:1:1573:A:C2	2.47	0.49
1:1:2195:U:H2'	1:1:2196:C:C6	2.47	0.49
2:2:183:G:H2'	2:2:184:C:C6	2.48	0.49
42:l:30:MET:HE2	42:l:35:LYS:HG3	1.94	0.49
42:l:149:ALA:C	42:l:150:ASN:HD22	2.21	0.49
39:i:121:THR:HG22	39:i:126:VAL:HG22	1.95	0.49
1:1:268:U:H5'	13:G:52:LYS:O	2.13	0.49
1:1:327:U:H2'	1:1:328:G:O4'	2.13	0.49
1:1:889:G:O2'	1:1:946:G:O6	2.29	0.49
2:2:9:G:OP2	40:j:132:LYS:NZ	2.31	0.49
2:2:196:A:H2'	2:2:197:U:H6	1.77	0.49
2:2:1409:U:H2'	2:2:1410:G:H8	1.78	0.49
3:3:63:U:H4'	3:3:64:G:H5'	1.95	0.49
26:U:45:SER:HB2	26:U:59:ILE:HG23	1.95	0.49
43:m:66:ASP:OD2	43:m:69:THR:N	2.45	0.49
1:1:1202:A:C2	1:1:1203:G:H1'	2.48	0.49
22:Q:104:GLU:H	22:Q:104:GLU:CD	2.17	0.49
1:1:2195:U:H2'	1:1:2196:C:H6	1.77	0.49
2:2:314:A:N6	2:2:322:A:OP2	2.44	0.49
1:1:27:A:HO2'	1:1:28:A:P	2.36	0.48
1:1:1670:U:H2'	1:1:1671:C:C6	2.48	0.48
2:2:128:U:H2'	2:2:129:U:H6	1.77	0.48
55:y:76:LEU:O	55:y:80:VAL:HG23	2.13	0.48
1:1:1570:G:O2'	1:1:1571:A:OP1	2.29	0.48
39:i:47:GLU:O	39:i:51:GLN:HG3	2.13	0.48
1:1:176:A:H2'	1:1:177:C:H6	1.76	0.48
38:h:143:MET:O	38:h:143:MET:HG3	2.14	0.48
54:x:35:SER:O	54:x:35:SER:OG	2.30	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:153:C:O2'	1:1:154:G:O5'	2.31	0.48
1:1:631:A:H2'	1:1:632:A:C8	2.48	0.48
1:1:1434:A:H2'	1:1:1435:C:H6	1.78	0.48
2:2:1486:A:H2'	2:2:1487:C:C6	2.47	0.48
14:H:178:GLN:HG2	14:H:196:GLU:OE1	2.13	0.48
39:i:185:GLN:OE1	39:i:185:GLN:N	2.42	0.48
42:l:117:SER:H	42:l:120:GLN:NE2	2.12	0.48
44:n:69:GLY:O	44:n:73:GLN:HG3	2.13	0.48
48:r:48:LEU:HD12	48:r:48:LEU:H	1.77	0.48
1:1:630:U:C5	1:1:647:G:C5	3.02	0.48
1:1:1877:U:O2'	1:1:1878:C:O4'	2.29	0.48
2:2:236:A:H4'	2:2:237:U:O5'	2.12	0.48
2:2:1114:G:C5	2:2:1125:G:H5''	2.48	0.48
9:C:25:THR:HG21	9:C:193:ILE:HG12	1.95	0.48
1:1:824:U:H2'	1:1:825:C:C6	2.49	0.48
1:1:2298:U:H2'	1:1:2299:A:H8	1.78	0.48
2:2:1038:G:H5''	38:h:153:SER:HB2	1.94	0.48
3:3:83:U:H2'	3:3:84:U:O4'	2.13	0.48
9:C:5:ILE:HD11	9:C:80:VAL:HG12	1.96	0.48
13:G:10:GLN:HA	13:G:10:GLN:OE1	2.14	0.48
1:1:1294:G:H5''	24:S:32:ARG:HH22	1.78	0.48
1:1:2112:A:OP2	1:1:2112:A:H8	1.96	0.48
19:N:112:MET:SD	19:N:112:MET:O	2.71	0.48
41:k:45:LEU:HD11	41:k:57:SER:HB3	1.95	0.48
1:1:940:A:N7	18:M:13:GLN:HG2	2.29	0.48
12:F:28:GLY:HA3	12:F:78:VAL:CG1	2.44	0.48
1:1:570:C:O2'	1:1:571:G:O5'	2.30	0.48
1:1:2456:G:H1'	1:1:2457:A:N7	2.28	0.48
2:2:292:G:H2'	2:2:293:A:C8	2.48	0.48
2:2:1072:U:O2'	2:2:1073:A:O5'	2.32	0.48
2:2:1268:A:H2'	2:2:1269:A:C8	2.48	0.48
2:2:1503:G:N7	56:z:46:ARG:NH2	2.61	0.48
14:H:134:GLU:OE1	14:H:138:VAL:HG23	2.14	0.48
14:H:196:GLU:OE2	14:H:196:GLU:HA	2.14	0.48
1:1:841:U:H2'	1:1:842:C:H6	1.79	0.48
1:1:886:G:H2'	1:1:887:A:C8	2.48	0.48
1:1:2303:U:O2'	11:E:136:ARG:NH2	2.42	0.48
2:2:480:A:H2'	2:2:481:A:N3	2.29	0.48
2:2:1295:C:H2'	2:2:1296:U:C6	2.49	0.48
20:O:69:ILE:O	20:O:73:VAL:HG12	2.13	0.48
24:S:85:GLU:CD	24:S:85:GLU:H	2.22	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:n:14:VAL:HG22	44:n:66:TYR:CE1	2.48	0.48
47:q:68:PRO:O	47:q:99:ARG:NH1	2.47	0.48
2:2:1277:C:H4'	2:2:1283:U:O4	2.14	0.47
24:S:108:ALA:HB3	24:S:112:ARG:HG3	1.96	0.47
38:h:118:SER:O	38:h:122:GLN:HG3	2.14	0.47
2:2:170:A:N6	2:2:203:A:H62	2.11	0.47
2:2:998:A:C2	2:2:1201:U:H1'	2.50	0.47
2:2:1106:U:H2'	2:2:1108:G:N2	2.28	0.47
22:Q:48:ARG:C	22:Q:50:ARG:H	2.22	0.47
1:1:2241:U:H2'	1:1:2242:U:C6	2.49	0.47
2:2:127:C:O2'	2:2:128:U:H6	1.97	0.47
2:2:167:C:H2'	2:2:168:U:O2	2.14	0.47
9:C:102:GLU:N	9:C:102:GLU:OE2	2.47	0.47
1:1:204:A:N3	1:1:219:U:O2'	2.41	0.47
1:1:612:U:H2'	1:1:613:A:H8	1.79	0.47
47:q:46:ASN:HD22	47:q:89:ASP:CG	2.19	0.47
1:1:1093:G:H2'	1:1:1094:G:H8	1.80	0.47
1:1:1240:G:OP2	1:1:1240:G:H8	1.98	0.47
1:1:1570:G:H2'	1:1:1571:A:H8	1.79	0.47
1:1:2289:U:H2'	1:1:2290:U:C6	2.49	0.47
2:2:383:A:H2'	2:2:384:C:C6	2.49	0.47
2:2:1031:G:O2'	2:2:1032:C:OP1	2.28	0.47
2:2:1052:C:H2'	2:2:1053:G:H8	1.79	0.47
1:1:1445:U:O2'	1:1:1621:G:O2'	2.18	0.47
1:1:1896:A:H2'	1:1:1897:A:C8	2.49	0.47
1:1:2306:G:N3	1:1:2306:G:H2'	2.30	0.47
2:2:1134:A:H5'	45:o:14:HIS:NE2	2.30	0.47
11:E:60:LEU:HD12	11:E:90:CYS:SG	2.55	0.47
28:W:74:ASP:OD2	28:W:74:ASP:N	2.47	0.47
45:o:18:ASP:OD2	45:o:18:ASP:N	2.48	0.47
54:x:2:ALA:HB3	54:x:7:LYS:HD2	1.95	0.47
54:x:18:LYS:HD2	54:x:31:VAL:HG13	1.95	0.47
1:1:27:A:O2'	1:1:28:A:H8	1.97	0.47
1:1:2298:U:H2'	1:1:2299:A:C8	2.50	0.47
2:2:197:U:H2'	2:2:198:A:H8	1.80	0.47
27:V:130:VAL:HG22	27:V:131:LYS:N	2.30	0.47
31:Z:53:LEU:C	31:Z:53:LEU:HD12	2.39	0.47
32:a:10:TYR:HD1	32:a:29:THR:HG22	1.80	0.47
1:1:25:G:H21	1:1:539:A:H62	1.63	0.47
1:1:1433:U:H2'	1:1:1434:A:H8	1.79	0.47
2:2:1072:U:O2'	2:2:1074:A:OP2	2.28	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:E:133:MET:HE2	11:E:133:MET:HB3	1.80	0.47
43:m:4:ASP:HB3	43:m:7:ALA:HB3	1.96	0.47
46:p:33:THR:HG22	46:p:34:ASN:O	2.15	0.47
52:v:55:ASP:OD1	52:v:55:ASP:N	2.40	0.47
2:2:375:A:H2'	2:2:376:A:C8	2.50	0.47
2:2:703:A:H2'	2:2:704:A:C8	2.50	0.47
14:H:37:ASN:O	14:H:37:ASN:ND2	2.48	0.47
1:1:150:C:H2'	1:1:151:A:H8	1.80	0.46
1:1:1267:U:H2'	1:1:1268:G:C8	2.49	0.46
1:1:1748:G:H22	1:1:1750:A:H3'	1.80	0.46
2:2:-1:A:H1'	2:2:0:U:C5	2.50	0.46
2:2:196:A:H2'	2:2:197:U:C6	2.51	0.46
52:v:55:ASP:O	52:v:84:ARG:NH2	2.47	0.46
1:1:604:C:H2'	1:1:605:U:C6	2.49	0.46
2:2:21:G:H2'	2:2:22:G:C8	2.50	0.46
2:2:317:G:N1	2:2:320:A:OP2	2.45	0.46
2:2:377:G:H2'	2:2:378:U:H6	1.80	0.46
2:2:1039:G:HO2'	2:2:1040:U:P	2.38	0.46
4:4:38:MET:HG3	4:4:43:VAL:HG22	1.98	0.46
54:x:50:ALA:HB1	54:x:57:PHE:HB3	1.97	0.46
56:z:11:ASN:ND2	56:z:13:ASP:HB2	2.31	0.46
1:1:537:A:N3	22:Q:11:ARG:NH2	2.62	0.46
2:2:317:G:N2	2:2:320:A:OP2	2.48	0.46
17:L:49:ILE:HG22	36:e:61:GLN:HG2	1.98	0.46
48:r:68:ASP:O	48:r:72:GLU:HG3	2.16	0.46
7:A:32:G:H2'	7:A:33:C:H6	1.79	0.46
13:G:38:LEU:HD23	13:G:38:LEU:HA	1.75	0.46
37:f:16:ILE:HG12	37:f:25:VAL:HG22	1.98	0.46
56:z:8:ASP:OD1	56:z:8:ASP:N	2.47	0.46
1:1:268:U:C2	1:1:269:A:C6	3.04	0.46
2:2:630:A:N7	43:m:109:SER:HA	2.30	0.46
2:2:930:A:H61	2:2:1216:C:H42	1.64	0.46
4:4:38:MET:HE2	4:4:38:MET:HB3	1.88	0.46
17:L:48:LYS:HB2	17:L:51:PHE:HB2	1.98	0.46
45:o:21:ALA:O	45:o:25:VAL:HG13	2.16	0.46
54:x:41:THR:HG22	54:x:44:PHE:CD1	2.50	0.46
55:y:61:LYS:HD2	55:y:61:LYS:HA	1.72	0.46
49:s:71:THR:O	49:s:75:MET:HG3	2.15	0.46
1:1:27:A:H1'	1:1:537:A:N6	2.31	0.46
1:1:558:U:H2'	1:1:559:C:C6	2.51	0.46
1:1:666:U:H2'	1:1:667:C:C6	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1498:A:H2'	1:1:1499:A:H8	1.79	0.46
2:2:35:G:H2'	2:2:36:C:C6	2.51	0.46
2:2:330:G:H2'	2:2:331:A:H8	1.80	0.46
9:C:56:ASN:O	9:C:60:SER:OG	2.34	0.46
10:D:154:LEU:HB2	10:D:190:THR:HG21	1.98	0.46
14:H:162:LEU:HD12	14:H:163:PHE:H	1.81	0.46
18:M:56:ALA:HB2	18:M:123:ALA:HB2	1.98	0.46
40:j:85:GLN:HG2	40:j:127:HIS:HB2	1.96	0.46
42:l:37:THR:O	42:l:41:VAL:HG23	2.15	0.46
44:n:46:VAL:CG1	44:n:47:LEU:N	2.79	0.46
44:n:50:LEU:HD21	44:n:81:LEU:HD13	1.98	0.46
45:o:18:ASP:O	45:o:22:GLU:HG3	2.16	0.46
45:o:58:LYS:HE3	45:o:61:ARG:HH22	1.80	0.46
2:2:929:A:H2'	2:2:930:A:C8	2.51	0.46
2:2:1373:U:H2'	2:2:1374:G:C8	2.51	0.46
7:A:63:C:H2'	7:A:64:G:H8	1.80	0.46
25:T:51:VAL:HG22	25:T:82:VAL:HG23	1.96	0.46
39:i:53:MET:HE2	39:i:53:MET:HB3	1.74	0.46
40:j:117:VAL:HG23	40:j:146:THR:HG21	1.96	0.46
1:1:876:A:H2'	1:1:877:A:O4'	2.16	0.46
2:2:435:G:H1	2:2:481:A:N6	2.14	0.46
8:B:222:PRO:HA	8:B:225:MET:HE3	1.98	0.46
38:h:74:ILE:HG13	38:h:75:ILE:N	2.31	0.46
1:1:1436:U:H2'	1:1:1437:A:H8	1.81	0.46
2:2:8:A:N6	39:i:201:LYS:HB2	2.30	0.46
2:2:398:U:OP2	39:i:3:ARG:NH1	2.47	0.46
2:2:1142:G:C5	2:2:1143:C:C5	3.04	0.46
2:2:1405:G:H2'	2:2:1406:G:H8	1.79	0.46
15:J:149:ASP:OD2	15:J:149:ASP:C	2.59	0.46
1:1:166:A:H2'	1:1:167:A:C8	2.51	0.45
1:1:372:A:H2'	1:1:373:U:C6	2.50	0.45
1:1:921:C:H3'	1:1:922:G:H8	1.80	0.45
1:1:1716:G:H2'	1:1:1717:A:C8	2.51	0.45
2:2:35:G:O2'	47:q:115:SER:O	2.30	0.45
4:4:38:MET:CG	4:4:43:VAL:HG22	2.46	0.45
30:Y:28:LEU:HD12	30:Y:28:LEU:HA	1.83	0.45
34:c:10:VAL:HB	34:c:58:GLU:OE1	2.16	0.45
42:l:53:LYS:O	42:l:54:GLN:HG3	2.16	0.45
54:x:3:ARG:NH1	54:x:3:ARG:HB2	2.31	0.45
1:1:1096:U:H2'	1:1:1097:U:O4'	2.17	0.45
1:1:1572:C:H2'	1:1:1573:A:O4'	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2216:G:H2'	1:1:2217:C:H6	1.81	0.45
2:2:1417:G:H2'	2:2:1418:U:H6	1.81	0.45
14:H:92:TYR:HD2	14:H:94:THR:HG23	1.81	0.45
27:V:140:PHE:CD1	27:V:140:PHE:C	2.94	0.45
50:t:32:THR:HG22	50:t:62:ARG:NH1	2.28	0.45
1:1:611:U:H2'	1:1:612:U:C6	2.51	0.45
1:1:1536:A:H2'	1:1:1537:A:C8	2.51	0.45
2:2:463:G:C5	2:2:464:A:C8	3.04	0.45
12:F:39:ASP:C	12:F:39:ASP:OD2	2.59	0.45
1:1:502:A:HO2'	1:1:503:A:P	2.40	0.45
1:1:741:G:H21	1:1:746:A:H2	1.61	0.45
1:1:1089:U:H3	1:1:1112:A:H61	1.65	0.45
1:1:1803:U:H2'	1:1:1804:C:H6	1.82	0.45
2:2:1232:A:H2'	2:2:1233:G:C8	2.51	0.45
44:n:97:LYS:HB3	44:n:98:PRO:HD3	1.97	0.45
46:p:57:THR:HG22	46:p:59:TYR:H	1.82	0.45
50:t:78:ARG:HA	50:t:81:ILE:HG22	1.97	0.45
1:1:2303:U:H4'	11:E:136:ARG:HH12	1.81	0.45
2:2:1105:G:O2'	2:2:1108:G:N1	2.48	0.45
8:B:69:ARG:NH2	8:B:127:GLY:O	2.42	0.45
9:C:16:ASP:OD1	9:C:16:ASP:C	2.59	0.45
12:F:9:ILE:HG12	12:F:68:ARG:NH1	2.30	0.45
19:N:73:LYS:O	19:N:77:THR:HG22	2.16	0.45
41:k:38:VAL:HB	41:k:64:GLU:O	2.16	0.45
54:x:35:SER:OG	54:x:38:SER:OG	2.16	0.45
10:D:8:PHE:HB2	10:D:142:VAL:HG21	1.98	0.45
13:G:24:GLY:O	13:G:28:ASN:HB2	2.16	0.45
32:a:26:THR:OG1	32:a:27:LYS:N	2.43	0.45
49:s:54:LEU:HD12	49:s:54:LEU:HA	1.84	0.45
51:u:75:SER:HB2	51:u:80:LEU:HD12	1.97	0.45
1:1:2402:C:H2'	1:1:2403:G:O4'	2.17	0.45
2:2:1068:A:H2'	2:2:1069:G:C8	2.52	0.45
2:2:1143:C:C2	2:2:1144:C:C5	3.04	0.45
11:E:131:TYR:CE2	11:E:133:MET:HB2	2.52	0.45
14:H:168:LYS:O	14:H:171:HIS:ND1	2.49	0.45
20:O:103:LYS:HE2	20:O:103:LYS:HB3	1.65	0.45
38:h:78:LYS:H	38:h:78:LYS:HD2	1.81	0.45
1:1:1565:C:H2'	1:1:1566:U:O4'	2.17	0.45
23:R:5:VAL:HG21	23:R:59:VAL:HG21	1.98	0.45
50:t:1:MET:HA	50:t:37:HIS:CG	2.52	0.45
1:1:613:A:H2'	1:1:614:A:H8	1.80	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1004:A:H1'	1:1:1019:A:C2	2.52	0.45
1:1:1239:U:H3'	1:1:1240:G:H5'	1.98	0.45
2:2:724:U:H2'	2:2:725:U:C6	2.52	0.45
2:2:941:A:C5	54:x:55:ARG:HD2	2.52	0.45
2:2:1200:U:H2'	2:2:1201:U:C6	2.52	0.45
10:D:148:LEU:HD12	10:D:153:SER:HB3	1.98	0.45
43:m:66:ASP:OD2	43:m:68:ASP:N	2.49	0.45
1:1:267:U:C2	1:1:268:U:C5	3.05	0.45
1:1:1615:A:H2'	1:1:1616:C:C6	2.52	0.45
1:1:1615:A:O2'	1:1:1616:C:OP1	2.32	0.45
1:1:2216:G:H2'	1:1:2217:C:C6	2.52	0.45
2:2:1208:C:OP2	48:r:102:THR:OG1	2.24	0.45
26:U:71:ILE:HD13	26:U:71:ILE:HA	1.86	0.45
42:l:22:VAL:O	42:l:26:VAL:HG23	2.17	0.45
1:1:438:C:H2'	1:1:439:A:C8	2.52	0.44
24:S:24:LEU:HB2	24:S:67:LEU:HD13	1.99	0.44
39:i:85:GLU:HG3	39:i:183:ARG:HB2	1.98	0.44
42:l:47:ASP:O	42:l:51:THR:HG23	2.17	0.44
52:v:78:LEU:HD12	52:v:79:VAL:H	1.83	0.44
1:1:156:U:H2'	1:1:157:A:O4'	2.16	0.44
1:1:266:G:N2	13:G:52:LYS:NZ	2.65	0.44
1:1:1059:A:H2'	1:1:1060:A:C8	2.52	0.44
2:2:630:A:C8	43:m:109:SER:HA	2.52	0.44
2:2:1309:C:OP1	48:r:28:THR:HG21	2.17	0.44
17:L:56:MET:O	17:L:61:ARG:NH1	2.48	0.44
27:V:137:ILE:HG13	27:V:138:PRO:HD2	1.99	0.44
28:W:73:ARG:HD3	28:W:73:ARG:HA	1.77	0.44
38:h:22:TRP:HB3	38:h:58:ARG:HB2	1.97	0.44
48:r:48:LEU:CA	48:r:52:GLN:OE1	2.64	0.44
1:1:879:U:H2'	1:1:880:U:C6	2.52	0.44
1:1:1592:G:H2'	1:1:1593:G:C8	2.52	0.44
2:2:239:A:C2	2:2:275:A:C5	3.05	0.44
2:2:1211:A:H2'	2:2:1212:C:C6	2.53	0.44
3:3:26:A:H2'	3:3:27:C:C6	2.52	0.44
12:F:48:GLN:O	12:F:48:GLN:NE2	2.50	0.44
1:1:438:C:H2'	1:1:439:A:H8	1.83	0.44
1:1:731:U:H2'	1:1:732:G:O4'	2.18	0.44
1:1:2217:C:HO2'	1:1:2218:G:P	2.39	0.44
1:1:2676:A:H2'	1:1:2677:A:C8	2.52	0.44
1:1:2788:U:O3'	1:1:2789:U:H4'	2.17	0.44
2:2:464:A:C6	2:2:465:G:C6	3.05	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1140:C:C5	2:2:1142:G:H1'	2.52	0.44
11:E:155:MET:HE2	11:E:155:MET:HB3	1.89	0.44
55:y:40:ASP:OD1	55:y:42:SER:N	2.48	0.44
1:1:2745:G:O6	1:1:2753:A:H5''	2.18	0.44
2:2:734:U:HO2'	2:2:735:U:H6	1.64	0.44
21:P:35:GLU:O	21:P:37:GLU:N	2.49	0.44
40:j:59:SER:HB2	40:j:68:LYS:NZ	2.33	0.44
48:r:56:LEU:O	48:r:60:VAL:HG23	2.17	0.44
54:x:22:ASN:OD1	54:x:27:LYS:HA	2.17	0.44
1:1:2555:G:H2'	1:1:2556:C:C6	2.52	0.44
2:2:527:A:H2'	2:2:528:G:C8	2.52	0.44
2:2:851:U:H2'	2:2:852:G:O4'	2.17	0.44
2:2:932:A:N7	48:r:105:ASN:ND2	2.65	0.44
11:E:146:TYR:OH	48:r:8:ASN:ND2	2.50	0.44
38:h:87:LYS:NZ	38:h:98:VAL:O	2.47	0.44
46:p:24:THR:HG22	46:p:26:ASN:H	1.83	0.44
1:1:894:G:H2'	1:1:895:C:H6	1.82	0.44
1:1:958:A:H1'	31:Z:46:MET:HE1	1.98	0.44
2:2:1437:G:H2'	2:2:1438:C:H6	1.82	0.44
15:J:133:SER:O	15:J:133:SER:OG	2.35	0.44
38:h:92:LYS:HB3	38:h:92:LYS:HE2	1.66	0.44
42:l:117:SER:O	42:l:121:ARG:HG3	2.17	0.44
1:1:2617:C:H5'	9:C:157:LYS:HG2	2.00	0.44
2:2:927:G:N1	2:2:1319:G:OP2	2.49	0.44
2:2:966:A:H5''	2:2:967:C:OP2	2.18	0.44
7:A:20:G:H4'	7:A:21:U:OP2	2.18	0.44
38:h:76:ILE:HA	38:h:83:VAL:HG13	2.00	0.44
56:z:14:ARG:H	56:z:14:ARG:HG2	1.62	0.44
1:1:967:A:H2'	1:1:968:A:H8	1.83	0.44
2:2:980:G:H2'	2:2:981:C:C6	2.53	0.44
2:2:1043:U:H2'	2:2:1044:C:C6	2.52	0.44
10:D:41:LEU:HD23	10:D:41:LEU:HA	1.88	0.44
38:h:85:LYS:NZ	38:h:89:GLU:HB2	2.33	0.44
44:n:46:VAL:C	44:n:48:GLN:H	2.26	0.44
46:p:99:HIS:CD2	56:z:12:ILE:HB	2.44	0.44
49:s:74:GLU:HA	49:s:74:GLU:OE2	2.16	0.44
51:u:93:ALA:H	51:u:96:GLN:NE2	2.16	0.44
52:v:22:LYS:HA	52:v:51:ASP:O	2.17	0.44
1:1:89:C:OP2	1:1:90:A:O2'	2.32	0.43
1:1:153:C:O2'	1:1:154:G:H8	2.00	0.43
1:1:1619:C:H2'	1:1:1620:A:O4'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:654:A:H5'	2:2:714:C:H1'	1.99	0.43
2:2:976:A:O2'	2:2:977:A:N7	2.51	0.43
14:H:35:GLU:OE1	14:H:36:ARG:N	2.52	0.43
1:1:571:G:HO2'	1:1:572:U:P	2.41	0.43
1:1:603:C:H2'	1:1:604:C:C6	2.52	0.43
1:1:742:U:C5	50:t:88:LYS:HD2	2.53	0.43
1:1:1557:C:H2'	1:1:1558:U:C6	2.53	0.43
12:F:16:THR:HG22	12:F:27:LYS:HB3	2.01	0.43
12:F:74:MET:O	12:F:78:VAL:HG23	2.18	0.43
56:z:7:LYS:NZ	56:z:8:ASP:O	2.51	0.43
1:1:1263:G:OP2	24:S:4:ARG:NH2	2.52	0.43
1:1:2675:U:H2'	1:1:2676:A:C8	2.53	0.43
2:2:1358:U:O4	42:l:9:ARG:NH2	2.50	0.43
2:2:1422:U:H2'	2:2:1423:G:O4'	2.18	0.43
8:B:211:THR:HG22	8:B:216:ARG:HB2	2.00	0.43
27:V:7:LYS:HE3	27:V:7:LYS:HB3	1.51	0.43
30:Y:18:LEU:HG	30:Y:53:LEU:HD21	2.00	0.43
1:1:503:A:N3	1:1:505:G:H5''	2.33	0.43
1:1:1434:A:H2'	1:1:1435:C:C6	2.53	0.43
1:1:1436:U:H2'	1:1:1437:A:C8	2.53	0.43
1:1:1919:A:HO2'	2:2:1467:G:HO2'	1.50	0.43
1:1:2510:C:H2'	1:1:2511:G:O4'	2.19	0.43
2:2:563:G:O2'	2:2:809:G:OP2	2.30	0.43
11:E:145:ASP:OD2	11:E:145:ASP:C	2.60	0.43
31:Z:23:LEU:HD21	31:Z:53:LEU:HD11	2.01	0.43
44:n:22:GLY:O	44:n:58:ASN:HA	2.17	0.43
56:z:10:GLU:OE2	56:z:14:ARG:HG3	2.18	0.43
1:1:1262:U:OP2	24:S:4:ARG:HD2	2.19	0.43
2:2:355:G:N2	2:2:358:U:OP2	2.47	0.43
8:B:30:GLU:HG2	8:B:33:LEU:HD12	2.00	0.43
8:B:72:ASP:N	8:B:72:ASP:OD1	2.51	0.43
11:E:111:VAL:O	11:E:114:ILE:HG22	2.18	0.43
31:Z:53:LEU:HD12	31:Z:53:LEU:O	2.18	0.43
43:m:71:GLU:HG3	43:m:72:PRO:HD2	1.99	0.43
49:s:37:GLN:NE2	54:x:12:HIS:HA	2.34	0.43
54:x:63:THR:OG1	54:x:66:MET:CE	2.66	0.43
1:1:1476:G:H2'	1:1:1477:A:C8	2.53	0.43
2:2:1:A:H2'	2:2:2:C:C6	2.54	0.43
2:2:1285:G:O2'	2:2:1286:G:OP1	2.33	0.43
23:R:37:LYS:HD2	23:R:37:LYS:HA	1.69	0.43
38:h:195:MET:HE2	38:h:195:MET:HB3	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:x:5:LEU:HD23	54:x:5:LEU:HA	1.86	0.43
2:2:159:A:H2'	2:2:160:U:O4'	2.19	0.43
2:2:1351:C:H2'	2:2:1352:G:C8	2.53	0.43
5:5:12:VAL:O	5:5:16:LYS:HG2	2.18	0.43
14:H:71:VAL:HG22	14:H:162:LEU:HD11	2.00	0.43
14:H:80:ILE:HD12	14:H:215:LEU:HD21	2.00	0.43
14:H:98:PRO:O	14:H:101:MET:HE2	2.19	0.43
48:r:95:LEU:HD23	48:r:95:LEU:HA	1.86	0.43
51:u:30:ASP:OD1	51:u:30:ASP:O	2.36	0.43
2:2:1508:C:H4'	56:z:55:ILE:HD11	2.01	0.43
4:4:22:MET:HE2	4:4:22:MET:HB3	1.87	0.43
11:E:4:THR:HB	11:E:5:PRO:HD3	2.01	0.43
18:M:40:ASP:OD1	18:M:40:ASP:N	2.52	0.43
1:1:1093:G:H1'	1:1:1120:A:C5	2.54	0.43
1:1:1343:C:O2'	1:1:1420:A:N3	2.48	0.43
1:1:1514:G:H22	1:1:1537:A:H2	1.66	0.43
2:2:983:G:C6	2:2:1023:U:N3	2.87	0.43
2:2:1131:C:H2'	2:2:1132:U:C6	2.54	0.43
3:3:16:G:H1	3:3:62:U:H3	1.66	0.43
8:B:38:LYS:HE3	8:B:38:LYS:HB2	1.88	0.43
55:y:58:LEU:HD23	55:y:58:LEU:HA	1.88	0.43
1:1:1111:C:C2	1:1:1120:A:C6	3.07	0.43
1:1:1604:A:H2'	1:1:1605:A:C8	2.54	0.43
1:1:2111:A:N6	1:1:2112:A:N1	2.67	0.43
20:O:78:ALA:HA	20:O:114:LEU:HD22	2.00	0.43
31:Z:4:LEU:HA	31:Z:58:GLU:C	2.43	0.43
31:Z:53:LEU:HD12	31:Z:54:VAL:HG13	2.00	0.43
1:1:915:C:N4	1:1:923:C:H42	2.15	0.42
1:1:928:C:H2'	1:1:929:A:O4'	2.19	0.42
1:1:1087:G:H4'	1:1:1118:A:C8	2.54	0.42
1:1:1208:U:H2'	1:1:1209:G:H8	1.84	0.42
11:E:67:LYS:HG3	11:E:68:ALA:N	2.35	0.42
56:z:24:ASP:OD2	56:z:24:ASP:C	2.62	0.42
1:1:1561:G:H8	1:1:1561:G:OP2	2.01	0.42
1:1:2044:C:H2'	1:1:2045:G:C8	2.54	0.42
1:1:2110:A:H2'	1:1:2111:A:H8	1.84	0.42
1:1:2633:U:O2'	9:C:81:GLU:OE2	2.33	0.42
1:1:2848:A:H2'	1:1:2849:G:H8	1.84	0.42
2:2:394:C:O2'	2:2:609:A:N3	2.47	0.42
2:2:463:G:C6	2:2:464:A:C8	3.07	0.42
29:X:55:THR:HA	29:X:58:THR:HG22	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:h:12:LEU:HD23	38:h:12:LEU:HA	1.89	0.42
1:1:27:A:H1'	1:1:537:A:H62	1.84	0.42
7:A:63:C:H2'	7:A:64:G:C8	2.54	0.42
8:B:94:LEU:HD13	8:B:104:ILE:HG12	2.01	0.42
8:B:137:LEU:HD23	8:B:137:LEU:HA	1.81	0.42
21:P:79:LEU:HD12	21:P:80:PRO:HD2	2.02	0.42
42:l:21:LEU:HD23	42:l:21:LEU:HA	1.84	0.42
50:t:13:ALA:HB2	50:t:18:ALA:HB2	2.01	0.42
1:1:266:G:H21	13:G:52:LYS:HZ1	1.67	0.42
1:1:268:U:OP1	13:G:53:GLN:HA	2.19	0.42
1:1:1476:G:H2'	1:1:1477:A:H8	1.84	0.42
2:2:98:C:H42	55:y:10:ARG:HD2	1.84	0.42
14:H:79:ASP:OD1	14:H:79:ASP:N	2.52	0.42
27:V:88:HIS:O	27:V:89:ILE:HD13	2.19	0.42
48:r:48:LEU:HA	48:r:52:GLN:OE1	2.19	0.42
50:t:69:LEU:HD23	50:t:69:LEU:HA	1.77	0.42
1:1:311:C:N4	1:1:370:A:O2'	2.45	0.42
1:1:317:C:H2'	1:1:318:G:C8	2.54	0.42
2:2:866:C:O2'	2:2:867:U:H5'	2.20	0.42
2:2:1295:C:H2'	2:2:1296:U:H6	1.83	0.42
8:B:92:ALA:HB2	8:B:106:ALA:HB2	2.01	0.42
14:H:163:PHE:HD1	14:H:185:PHE:HB2	1.84	0.42
45:o:7:ILE:HG22	45:o:73:ILE:O	2.20	0.42
46:p:32:LEU:HD13	46:p:72:ALA:HB2	2.00	0.42
48:r:48:LEU:HB3	48:r:52:GLN:HB2	2.02	0.42
49:s:35:GLY:HA2	49:s:38:ARG:HH11	1.84	0.42
54:x:63:THR:H	54:x:66:MET:HE3	1.84	0.42
11:E:54:ASP:OD1	11:E:54:ASP:C	2.63	0.42
14:H:67:LYS:HE2	14:H:67:LYS:HB3	1.83	0.42
14:H:74:LYS:NZ	14:H:166:ASP:HB2	2.34	0.42
24:S:47:GLU:H	24:S:47:GLU:CD	2.13	0.42
44:n:21:GLU:OE1	44:n:21:GLU:N	2.24	0.42
1:1:2071:C:H2'	1:1:2072:C:C6	2.55	0.42
2:2:1233:G:H2'	2:2:1234:A:C8	2.55	0.42
4:4:41:GLU:HG2	4:4:42:LEU:HD13	2.01	0.42
8:B:146:LEU:HD13	8:B:154:ILE:HD11	2.02	0.42
9:C:28:GLU:O	9:C:28:GLU:HG3	2.19	0.42
11:E:129:GLY:O	11:E:161:THR:HG22	2.20	0.42
34:c:32:LYS:HE2	34:c:32:LYS:HB3	1.81	0.42
1:1:915:C:H2'	1:1:916:U:C6	2.54	0.42
1:1:1490:G:H2'	1:1:1491:U:C6	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1919:A:O2'	2:2:1467:G:O2'	2.24	0.42
2:2:651:G:H2'	2:2:652:G:C8	2.54	0.42
2:2:959:G:H5''	2:2:1339:U:O2'	2.20	0.42
8:B:186:LEU:HD23	8:B:186:LEU:HA	1.91	0.42
14:H:162:LEU:HD12	14:H:163:PHE:N	2.34	0.42
28:W:11:LYS:HE2	28:W:11:LYS:HB2	1.71	0.42
1:1:568:U:O2'	1:1:569:U:OP1	2.29	0.42
1:1:931:U:H2'	1:1:932:U:C6	2.55	0.42
2:2:200:U:H2'	2:2:201:U:C6	2.55	0.42
7:A:67:C:H2'	7:A:68:C:H6	1.82	0.42
14:H:11:LEU:HD12	14:H:11:LEU:HA	1.86	0.42
1:1:1525:A:H2'	1:1:1526:A:C8	2.55	0.42
1:1:2738:A:H2'	1:1:2739:A:C8	2.55	0.42
2:2:316:U:H2'	2:2:317:G:O4'	2.20	0.42
2:2:1297:G:H4'	49:s:46:VAL:CG2	2.49	0.42
8:B:175:LYS:HE3	8:B:175:LYS:HB3	1.74	0.42
15:J:22:VAL:HG12	15:J:60:ILE:HD12	2.02	0.42
43:m:39:LEU:HD23	43:m:39:LEU:HA	1.93	0.42
44:n:39:THR:HG22	44:n:42:LEU:HG	2.01	0.42
45:o:58:LYS:HE3	45:o:61:ARG:NH2	2.35	0.42
48:r:78:LYS:O	48:r:78:LYS:HD3	2.19	0.42
1:1:2863:A:OP2	33:b:52:ARG:NH1	2.52	0.41
2:2:873:G:O2'	2:2:889:G:O6	2.33	0.41
25:T:38:LYS:HE3	25:T:38:LYS:HB2	1.86	0.41
34:c:40:ARG:HG2	34:c:58:GLU:HG2	2.01	0.41
38:h:155:ARG:HA	38:h:155:ARG:HD2	1.79	0.41
48:r:39:ILE:HD11	48:r:52:GLN:NE2	2.31	0.41
51:u:93:ALA:HB3	51:u:96:GLN:OE1	2.20	0.41
51:u:100:ASP:OD1	51:u:100:ASP:N	2.46	0.41
52:v:24:ILE:HG21	52:v:56:CYS:SG	2.60	0.41
2:2:919:C:C2	2:2:920:A:C8	3.08	0.41
22:Q:58:ARG:HA	22:Q:61:TRP:CE3	2.54	0.41
30:Y:59:LYS:O	30:Y:59:LYS:HG2	2.18	0.41
1:1:1381:A:H2'	1:1:1382:A:C8	2.56	0.41
1:1:1505:U:H2'	1:1:1506:A:C8	2.53	0.41
11:E:90:CYS:SG	11:E:91:LYS:N	2.93	0.41
12:F:87:GLU:OE2	12:F:88:LEU:N	2.53	0.41
14:H:134:GLU:OE1	14:H:134:GLU:O	2.38	0.41
23:R:58:SER:OG	23:R:102:THR:CG2	2.68	0.41
40:j:42:ILE:HD11	40:j:140:HIS:CD2	2.55	0.41
54:x:41:THR:OG1	54:x:42:PRO:HD2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:y:52:ILE:HD12	55:y:73:LYS:HG3	2.02	0.41
2:2:739:U:H2'	2:2:740:G:O4'	2.20	0.41
18:M:27:LEU:HD21	18:M:134:VAL:HG13	2.03	0.41
30:Y:6:ILE:H	30:Y:6:ILE:HG13	1.71	0.41
38:h:154:GLY:HA2	38:h:163:ARG:H	1.85	0.41
46:p:99:HIS:CD2	56:z:12:ILE:HD13	2.55	0.41
48:r:8:ASN:OD1	48:r:8:ASN:N	2.53	0.41
2:2:1103:U:H2'	2:2:1104:A:C8	2.56	0.41
2:2:1217:U:H2'	2:2:1218:A:O4'	2.21	0.41
8:B:53:TYR:CZ	8:B:219:ARG:HG3	2.55	0.41
11:E:105:ARG:HD2	32:a:28:SER:HB2	2.02	0.41
32:a:12:LEU:HD22	32:a:27:LYS:HD3	2.02	0.41
44:n:95:ILE:O	44:n:98:PRO:HD2	2.20	0.41
48:r:16:VAL:HG21	48:r:31:LYS:HD2	2.03	0.41
1:1:600:G:H2'	1:1:601:A:C8	2.55	0.41
1:1:2040:A:O2'	1:1:2042:G:OP2	2.26	0.41
2:2:328:C:H2'	2:2:329:A:H8	1.85	0.41
2:2:1179:A:O2'	2:2:1180:A:OP1	2.37	0.41
9:C:133:THR:O	9:C:133:THR:OG1	2.31	0.41
14:H:61:ILE:HD12	14:H:61:ILE:HA	1.86	0.41
29:X:22:MET:HE3	29:X:22:MET:HB3	1.88	0.41
48:r:90:ARG:HB2	48:r:97:VAL:HG12	2.01	0.41
1:1:635:A:H2'	1:1:636:C:C6	2.55	0.41
2:2:1114:G:H3'	2:2:1115:A:C8	2.55	0.41
2:2:1280:A:H2'	2:2:1280:A:N3	2.36	0.41
14:H:95:GLU:HG2	14:H:147:LYS:O	2.20	0.41
24:S:36:LEU:HD23	24:S:36:LEU:HA	1.88	0.41
27:V:133:LEU:HD13	27:V:134:PRO:CD	2.50	0.41
33:b:31:PRO:C	33:b:32:ILE:HD12	2.46	0.41
45:o:89:LEU:O	45:o:92:PRO:HD2	2.21	0.41
48:r:44:LYS:HB2	48:r:44:LYS:HE3	1.74	0.41
48:r:85:CYS:O	48:r:89:LEU:HD23	2.20	0.41
1:1:370:A:H8	1:1:370:A:OP2	2.03	0.41
1:1:2327:U:H2'	1:1:2328:G:C8	2.56	0.41
1:1:2684:G:H2'	1:1:2685:U:C6	2.56	0.41
2:2:1041:U:O2'	45:o:53:SER:HB2	2.21	0.41
2:2:1261:A:N3	2:2:1261:A:H2'	2.36	0.41
8:B:93:LEU:HB2	8:B:103:TYR:CE1	2.56	0.41
15:J:58:ASN:OD1	15:J:126:ASN:CB	2.55	0.41
17:L:109:LYS:HB3	17:L:109:LYS:HE2	1.93	0.41
38:h:81:GLN:HA	38:h:84:ASP:OD2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:309:U:H3'	1:1:310:G:C8	2.56	0.41
1:1:516:A:H2'	1:1:517:A:O4'	2.20	0.41
1:1:612:U:H2'	1:1:613:A:C8	2.56	0.41
1:1:1093:G:H2'	1:1:1094:G:C8	2.55	0.41
1:1:1100:A:H4'	1:1:1101:A:H5''	2.03	0.41
1:1:1136:C:H2'	1:1:1137:U:C6	2.56	0.41
1:1:1512:A:H2'	1:1:1513:G:C8	2.56	0.41
1:1:1697:U:O2'	1:1:2684:G:H4'	2.21	0.41
2:2:1131:C:P	44:n:9:ARG:HH21	2.44	0.41
2:2:1394:C:H2'	2:2:1395:A:C8	2.56	0.41
14:H:109:ARG:HA	14:H:112:VAL:HG22	2.03	0.41
18:M:71:PHE:HA	18:M:72:PRO:HD3	1.91	0.41
38:h:34:GLU:O	38:h:38:ILE:HG23	2.21	0.41
45:o:17:VAL:HG23	45:o:18:ASP:N	2.36	0.41
45:o:28:VAL:O	45:o:31:THR:HG22	2.20	0.41
45:o:41:LEU:HD23	45:o:41:LEU:HA	1.92	0.41
48:r:41:GLU:OE1	48:r:41:GLU:N	2.53	0.41
56:z:7:LYS:HE2	56:z:7:LYS:HB2	1.83	0.41
1:1:925:C:H3'	1:1:926:A:H8	1.86	0.41
1:1:1587:C:H2'	1:1:1588:C:O4'	2.21	0.41
1:1:1944:A:O2'	1:1:1946:U:OP2	2.31	0.41
41:k:10:LEU:HB2	41:k:59:PHE:HB2	2.02	0.41
1:1:161:G:O2'	1:1:162:G:H5'	2.21	0.40
1:1:232:G:O6	36:e:12:LYS:NZ	2.51	0.40
1:1:313:G:N1	1:1:367:A:OP2	2.38	0.40
1:1:2279:C:O2'	1:1:2280:U:H5'	2.21	0.40
2:2:408:C:N4	2:2:421:U:H3	2.19	0.40
8:B:93:LEU:HB2	8:B:103:TYR:HE1	1.86	0.40
13:G:38:LEU:O	13:G:42:SER:OG	2.36	0.40
26:U:6:ILE:HG12	26:U:73:LEU:HD21	2.02	0.40
1:1:603:C:H2'	1:1:604:C:H6	1.87	0.40
1:1:1104:A:C5	1:1:1105:G:N7	2.90	0.40
1:1:2244:G:H2'	1:1:2245:A:C8	2.56	0.40
2:2:1039:G:O2'	2:2:1040:U:OP1	2.33	0.40
14:H:80:ILE:HG13	14:H:81:VAL:N	2.36	0.40
14:H:131:SER:O	14:H:135:ARG:HG3	2.21	0.40
15:J:1:MET:HE3	15:J:1:MET:HB3	1.84	0.40
48:r:9:ILE:HG21	48:r:45:ILE:CG1	2.47	0.40
1:1:91:C:H2'	1:1:92:A:C8	2.57	0.40
1:1:265:U:H2'	1:1:266:G:H8	1.86	0.40
1:1:661:G:H2'	1:1:662:C:C6	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1066:U:H2'	1:1:1067:U:C6	2.55	0.40
2:2:183:G:H2'	2:2:184:C:H6	1.86	0.40
2:2:592:G:H2'	2:2:593:U:O4'	2.21	0.40
2:2:1240:G:H2'	2:2:1241:C:C6	2.57	0.40
23:R:51:ALA:HB3	23:R:52:PRO:CD	2.52	0.40
1:1:32:C:O2'	1:1:33:U:H5'	2.21	0.40
1:1:517:A:H2'	1:1:518:C:O4'	2.21	0.40
1:1:1086:G:H2'	1:1:1087:G:O4'	2.21	0.40
1:1:1441:A:HO2'	1:1:1442:C:P	2.42	0.40
1:1:1613:A:H3'	1:1:1614:A:H8	1.86	0.40
2:2:710:A:H2'	2:2:710:A:N3	2.36	0.40
2:2:751:A:H2'	2:2:752:C:C6	2.56	0.40
2:2:1106:U:O2'	2:2:1107:U:O5'	2.33	0.40
8:B:272:ARG:NE	8:B:272:ARG:HA	2.37	0.40
19:N:100:VAL:O	19:N:100:VAL:HG12	2.21	0.40
27:V:71:ASN:OD1	27:V:71:ASN:N	2.55	0.40
45:o:46:LYS:HE3	45:o:46:LYS:HB3	1.82	0.40
1:1:666:U:H2'	1:1:667:C:H6	1.87	0.40
1:1:1079:A:OP2	1:1:1142:G:N2	2.43	0.40
11:E:171:SER:O	11:E:175:GLU:HG2	2.21	0.40
18:M:120:LEU:HD12	18:M:133:PHE:HE1	1.86	0.40
22:Q:71:LEU:HD12	22:Q:71:LEU:HA	1.86	0.40
22:Q:74:MET:HE3	22:Q:110:LEU:HD21	2.03	0.40
30:Y:15:GLN:HE22	30:Y:57:LEU:CD2	2.35	0.40
38:h:107:ARG:NE	38:h:143:MET:SD	2.91	0.40
38:h:154:GLY:HA3	38:h:162:ALA:HB1	2.02	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%)	256 (95%)	12 (4%)	1 (0%)	30	52
9	C	202/205 (98%)	189 (94%)	13 (6%)	0	100	100
10	D	204/209 (98%)	192 (94%)	12 (6%)	0	100	100
11	E	177/183 (97%)	166 (94%)	11 (6%)	0	100	100
12	F	175/180 (97%)	170 (97%)	5 (3%)	0	100	100
13	G	54/146 (37%)	49 (91%)	5 (9%)	0	100	100
14	H	217/254 (85%)	207 (95%)	10 (5%)	0	100	100
15	J	148/151 (98%)	129 (87%)	19 (13%)	0	100	100
16	K	119/122 (98%)	112 (94%)	7 (6%)	0	100	100
17	L	148/150 (99%)	134 (90%)	14 (10%)	0	100	100
18	M	137/141 (97%)	130 (95%)	7 (5%)	0	100	100
19	N	123/163 (76%)	117 (95%)	6 (5%)	0	100	100
20	O	113/116 (97%)	106 (94%)	7 (6%)	0	100	100
21	P	110/116 (95%)	104 (94%)	6 (6%)	0	100	100
22	Q	111/114 (97%)	105 (95%)	6 (5%)	0	100	100
23	R	102/147 (69%)	93 (91%)	9 (9%)	0	100	100
24	S	126/137 (92%)	125 (99%)	1 (1%)	0	100	100
25	T	81/96 (84%)	76 (94%)	5 (6%)	0	100	100
26	U	88/104 (85%)	80 (91%)	8 (9%)	0	100	100
27	V	120/203 (59%)	115 (96%)	5 (4%)	0	100	100
28	W	76/86 (88%)	74 (97%)	2 (3%)	0	100	100
29	X	74/78 (95%)	72 (97%)	2 (3%)	0	100	100
30	Y	57/63 (90%)	53 (93%)	4 (7%)	0	100	100
31	Z	54/60 (90%)	49 (91%)	5 (9%)	0	100	100
32	a	56/84 (67%)	52 (93%)	4 (7%)	0	100	100
33	b	57/64 (89%)	50 (88%)	7 (12%)	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%)	35 (97%)	1 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	h	213/252 (84%)	195 (92%)	18 (8%)	0	100	100
39	i	198/201 (98%)	190 (96%)	8 (4%)	0	100	100
40	j	170/173 (98%)	162 (95%)	8 (5%)	0	100	100
41	k	105/113 (93%)	102 (97%)	3 (3%)	0	100	100
42	l	151/158 (96%)	145 (96%)	6 (4%)	0	100	100
43	m	129/132 (98%)	123 (95%)	6 (5%)	0	100	100
44	n	123/128 (96%)	118 (96%)	5 (4%)	0	100	100
45	o	96/101 (95%)	89 (93%)	7 (7%)	0	100	100
46	p	115/127 (91%)	112 (97%)	3 (3%)	0	100	100
47	q	119/127 (94%)	112 (94%)	7 (6%)	0	100	100
48	r	115/124 (93%)	107 (93%)	8 (7%)	0	100	100
49	s	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
50	t	86/88 (98%)	85 (99%)	1 (1%)	0	100	100
51	u	107/188 (57%)	102 (95%)	5 (5%)	0	100	100
52	v	78/86 (91%)	75 (96%)	3 (4%)	0	100	100
53	w	63/98 (64%)	61 (97%)	2 (3%)	0	100	100
54	x	81/92 (88%)	74 (91%)	7 (9%)	0	100	100
55	y	77/83 (93%)	75 (97%)	2 (3%)	0	100	100
56	z	62/64 (97%)	62 (100%)	0	0	100	100
All	All	5630/6366 (88%)	5322 (94%)	307 (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	120/148 (81%)	120 (100%)	0	100	100
13	G	39/118 (33%)	38 (97%)	1 (3%)	41	67
14	H	170/207 (82%)	170 (100%)	0	100	100
15	J	115/128 (90%)	115 (100%)	0	100	100
16	K	89/100 (89%)	88 (99%)	1 (1%)	70	86
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%)	100 (99%)	1 (1%)	73	88
20	O	79/90 (88%)	78 (99%)	1 (1%)	65	84
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	80/163 (49%)	80 (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%)	39 (98%)	1 (2%)	42	68
33	b	44/53 (83%)	44 (100%)	0	100	100
34	c	45/56 (80%)	44 (98%)	1 (2%)	47	72
35	d	42/46 (91%)	42 (100%)	0	100	100
36	e	55/59 (93%)	55 (100%)	0	100	100
37	f	31/34 (91%)	31 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
38	h	153/201 (76%)	152 (99%)	1 (1%)	81	93
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%)	73 (99%)	1 (1%)	62	82
42	l	113/136 (83%)	112 (99%)	1 (1%)	75	90
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
46	p	79/102 (78%)	79 (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%)	60 (98%)	1 (2%)	58	79
50	t	66/79 (84%)	66 (100%)	0	100	100
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
56	z	56/56 (100%)	56 (100%)	0	100	100
All	All	4256/5304 (80%)	4245 (100%)	11 (0%)	90	97

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

Mol	Chain	Res	Type
8	B	103	TYR
13	G	5	LEU
16	K	93	MET
19	N	31	HIS
20	O	41	GLN
32	a	11	ARG
34	c	43	ILE
38	h	43	HIS
41	k	79	PHE
42	l	31	TRP
49	s	42	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

Mol	Chain	Res	Type
8	B	107	GLN
9	C	169	ASN
10	D	29	ASN
10	D	161	ASN
14	H	55	ASN
14	H	137	GLN
15	J	146	ASN
16	K	3	GLN
17	L	5	ASN
17	L	55	GLN
18	M	48	GLN
19	N	102	ASN
20	O	35	ASN
20	O	99	HIS
22	Q	91	ASN
23	R	89	HIS
24	S	26	ASN
24	S	73	ASN
24	S	77	GLN
31	Z	14	ASN
33	b	54	GLN
36	e	61	GLN
40	j	54	HIS
40	j	152	GLN
41	k	11	ASN
41	k	53	GLN
42	l	74	HIS
42	l	120	GLN
42	l	150	ASN
44	n	58	ASN
44	n	73	GLN
45	o	63	GLN
46	p	89	ASN
46	p	99	HIS
48	r	8	ASN
51	u	62	GLN
56	z	31	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2746/2862 (95%)	414 (15%)	25 (0%)
2	2	1476/1520 (97%)	268 (18%)	27 (1%)
3	3	109/111 (98%)	12 (11%)	0
6	6	5/6 (83%)	1 (20%)	0
7	A	71/77 (92%)	8 (11%)	0
All	All	4407/4576 (96%)	703 (15%)	52 (1%)

All (703) 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	51	G
1	1	55	G
1	1	61	A
1	1	71	A
1	1	74	A
1	1	75	G
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	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	215	G
1	1	218	A
1	1	230	G
1	1	233	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	237	G
1	1	240	A
1	1	252	C
1	1	254	C
1	1	268	U
1	1	269	A
1	1	271	G
1	1	272	G
1	1	284	U
1	1	286	G
1	1	314	A
1	1	315	A
1	1	322	G
1	1	332	A
1	1	350	G
1	1	351	A
1	1	370	A
1	1	371	A
1	1	372	A
1	1	388	U
1	1	395	A
1	1	396	G
1	1	409	C
1	1	410	G
1	1	411	U
1	1	420	G
1	1	423	U
1	1	429	C
1	1	430	G
1	1	435	G
1	1	436	A
1	1	441	C
1	1	448	G
1	1	468	C
1	1	481	A
1	1	485	C
1	1	499	U
1	1	503	A
1	1	505	G
1	1	516	A
1	1	526	A
1	1	529	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	530	G
1	1	532	U
1	1	533	C
1	1	555	C
1	1	556	G
1	1	562	A
1	1	569	U
1	1	570	C
1	1	571	G
1	1	572	U
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	673	A
1	1	674	G
1	1	681	U
1	1	682	U
1	1	683	A
1	1	689	U
1	1	699	C
1	1	714	U
1	1	745	C
1	1	758	A
1	1	775	U
1	1	776	G
1	1	792	A
1	1	793	C
1	1	803	G
1	1	804	G
1	1	810	A
1	1	812	G
1	1	813	G
1	1	820	A
1	1	833	G
1	1	834	C
1	1	840	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	847	A
1	1	855	U
1	1	873	A
1	1	874	U
1	1	875	A
1	1	877	A
1	1	886	G
1	1	888	G
1	1	889	G
1	1	896	U
1	1	898	C
1	1	910	G
1	1	912	G
1	1	913	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	923	C
1	1	924	C
1	1	925	C
1	1	926	A
1	1	927	C
1	1	928	C
1	1	930	A
1	1	940	A
1	1	942	C
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	1024	C
1	1	1025	A
1	1	1038	A
1	1	1041	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1042	A
1	1	1077	A
1	1	1078	G
1	1	1091	U
1	1	1092	U
1	1	1101	A
1	1	1102	G
1	1	1104	A
1	1	1112	A
1	1	1115	U
1	1	1119	G
1	1	1120	A
1	1	1129	C
1	1	1130	A
1	1	1141	C
1	1	1144	G
1	1	1158	A
1	1	1159	U
1	1	1160	A
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	1224	G
1	1	1232	A
1	1	1240	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	1301	U
1	1	1304	U
1	1	1328	A
1	1	1353	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1380	U
1	1	1393	A
1	1	1396	G
1	1	1407	U
1	1	1412	A
1	1	1423	A
1	1	1424	U
1	1	1438	A
1	1	1441	A
1	1	1442	C
1	1	1444	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	1489	A
1	1	1499	A
1	1	1506	A
1	1	1511	U
1	1	1512	A
1	1	1514	G
1	1	1521	A
1	1	1524	A
1	1	1528	U
1	1	1540	G
1	1	1553	A
1	1	1561	G
1	1	1562	A
1	1	1568	C
1	1	1569	G
1	1	1570	G
1	1	1571	A
1	1	1574	A
1	1	1579	A
1	1	1581	A
1	1	1582	G
1	1	1583	U
1	1	1584	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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	1616	C
1	1	1617	U
1	1	1618	U
1	1	1641	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	1708	G
1	1	1709	C
1	1	1711	A
1	1	1750	A
1	1	1756	G
1	1	1763	G
1	1	1770	G
1	1	1771	G
1	1	1780	A
1	1	1789	C
1	1	1807	C
1	1	1808	A
1	1	1823	A
1	1	1836	A
1	1	1840	C
1	1	1855	A
1	1	1877	U
1	1	1879	G
1	1	1880	G
1	1	1912	C
1	1	1913	G
1	1	1920	A
1	1	1921	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	1934	A
1	1	1936	G
1	1	1937	G
1	1	1938	U
1	1	1944	A
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	2029	U
1	1	2030	A
1	1	2038	A
1	1	2039	G
1	1	2040	A
1	1	2043	C
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	2084	A
1	1	2100	G
1	1	2108	A
1	1	2112	A
1	1	2194	A
1	1	2200	G
1	1	2205	A
1	1	2206	A
1	1	2218	G
1	1	2221	G
1	1	2223	A
1	1	2234	U
1	1	2236	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	2237	G
1	1	2281	U
1	1	2285	A
1	1	2286	A
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
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	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	2445	G
1	1	2446	A
1	1	2473	C
1	1	2474	A
1	1	2478	C
1	1	2489	U
1	1	2496	C
1	1	2498	U
1	1	2500	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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	2626	U
1	1	2627	U
1	1	2644	C
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	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	2794	A
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	2859	A
1	1	2860	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	1	2864	U
1	1	2866	A
1	1	2867	U
2	2	3	G
2	2	4	A
2	2	9	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	110	A
2	2	111	C
2	2	126	C
2	2	128	U
2	2	133	C
2	2	135	G
2	2	136	A
2	2	147	A
2	2	148	G
2	2	154	U
2	2	158	G
2	2	160	U
2	2	170	A
2	2	175	A
2	2	182	A
2	2	188	A
2	2	190	C
2	2	191	A
2	2	193	U
2	2	204	A
2	2	207	C
2	2	211	A
2	2	236	A
2	2	237	U
2	2	238	U
2	2	240	G

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	244	G
2	2	251	A
2	2	259	G
2	2	260	C
2	2	272	A
2	2	273	C
2	2	282	G
2	2	314	A
2	2	320	A
2	2	321	C
2	2	322	A
2	2	325	G
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	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	423	U
2	2	432	U
2	2	450	C
2	2	454	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	470	A
2	2	472	G
2	2	479	U

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	481	A
2	2	483	A
2	2	484	A
2	2	499	C
2	2	506	C
2	2	509	G
2	2	515	G
2	2	519	U
2	2	520	A
2	2	533	C
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	563	G
2	2	564	G
2	2	565	G
2	2	576	G
2	2	580	A
2	2	618	A
2	2	621	G
2	2	641	U
2	2	652	G
2	2	653	A
2	2	654	A
2	2	655	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

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	803	A
2	2	805	C
2	2	807	A
2	2	816	A
2	2	827	G
2	2	829	A
2	2	830	A
2	2	831	G
2	2	841	U
2	2	845	C
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	943	U
2	2	944	U
2	2	952	A
2	2	954	G
2	2	959	G
2	2	960	A
2	2	964	U
2	2	966	A
2	2	973	C
2	2	974	U
2	2	975	U
2	2	976	A
2	2	977	A
2	2	984	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	1003	G
2	2	1004	A

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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
2	2	1034	G
2	2	1040	U
2	2	1046	U
2	2	1073	A
2	2	1075	G
2	2	1076	U
2	2	1082	A
2	2	1094	C
2	2	1105	G
2	2	1108	G
2	2	1109	C
2	2	1110	C
2	2	1111	A
2	2	1115	A
2	2	1134	A
2	2	1139	A
2	2	1140	C
2	2	1141	U
2	2	1142	G
2	2	1146	G
2	2	1156	U
2	2	1157	G
2	2	1158	A
2	2	1163	G
2	2	1166	G
2	2	1178	A
2	2	1179	A
2	2	1180	A
2	2	1182	C
2	2	1183	A
2	2	1184	U
2	2	1194	U
2	2	1195	A
2	2	1196	C
2	2	1207	A

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	1208	C
2	2	1209	A
2	2	1212	C
2	2	1218	A
2	2	1220	A
2	2	1223	G
2	2	1225	C
2	2	1226	C
2	2	1228	G
2	2	1239	A
2	2	1240	G
2	2	1242	C
2	2	1252	C
2	2	1254	A
2	2	1255	G
2	2	1262	A
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	1320	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	1379	C
2	2	1380	A
2	2	1388	U
2	2	1406	G
2	2	1424	A
2	2	1441	A
2	2	1460	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	1466	A
2	2	1467	G
2	2	1470	G
2	2	1476	A
2	2	1479	U
2	2	1480	A
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	1508	C
2	2	1510	U
2	2	1512	C
2	2	1513	U
2	2	1514	U
2	2	1515	U
2	2	1516	C
3	3	7	G
3	3	10	U
3	3	11	A
3	3	30	C
3	3	38	C
3	3	39	C
3	3	53	U
3	3	54	A
3	3	84	U
3	3	85	U
3	3	91	A
3	3	101	G
6	6	1	A
7	A	9	G
7	A	20	G
7	A	21	U
7	A	22	A
7	A	48	U
7	A	59	A
7	A	67	C
7	A	77	A

All (52) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	27	A
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	1441	A
1	1	1488	U
1	1	1505	U
1	1	1561	G
1	1	1570	G
1	1	1582	G
1	1	1592	G
1	1	1612	U
1	1	1615	A
1	1	1937	G
1	1	2217	C
1	1	2400	U
1	1	2403	G
1	1	2423	A
1	1	2472	U
2	2	2	C
2	2	3	G
2	2	110	A
2	2	236	A
2	2	321	C
2	2	989	C
2	2	1023	U
2	2	1031	G
2	2	1039	G
2	2	1045	G
2	2	1109	C
2	2	1139	A
2	2	1155	G
2	2	1165	U
2	2	1179	A
2	2	1211	A
2	2	1217	U
2	2	1224	G

*Continued on next page...*

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Mol	Chain	Res	Type
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.

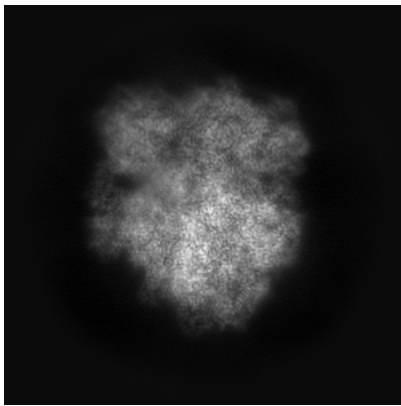
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-71052. These allow visual inspection of the internal detail of the map and identification of artifacts.

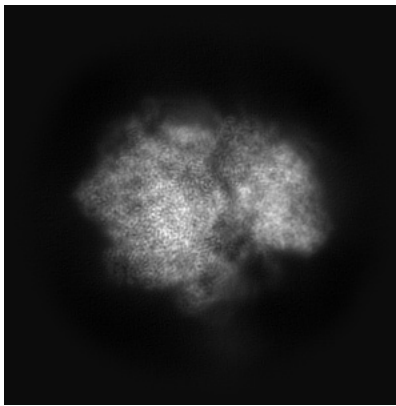
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

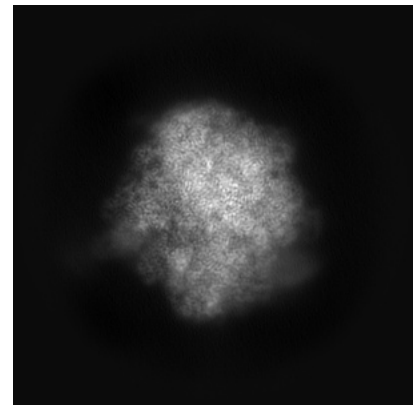
#### 6.1.1 Primary map



X

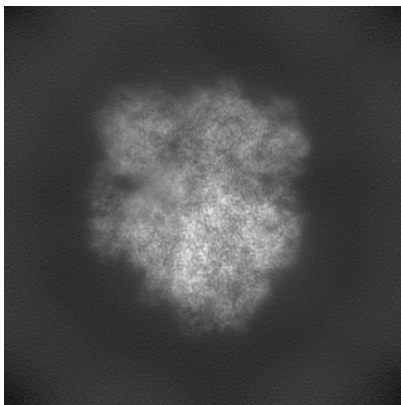


Y

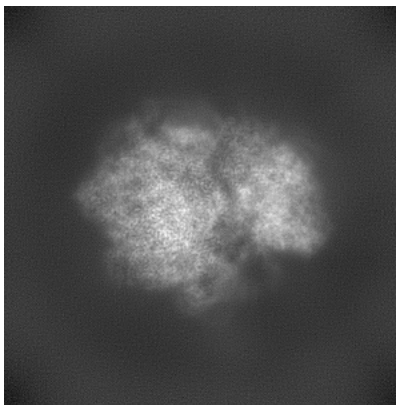


Z

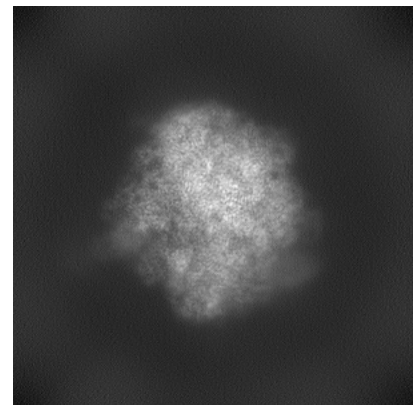
#### 6.1.2 Raw map



X



Y

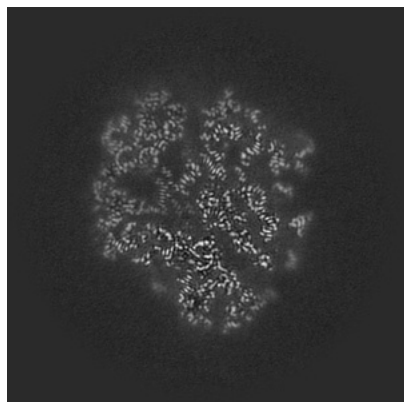


Z

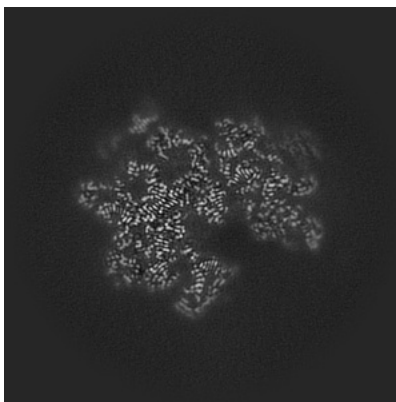
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

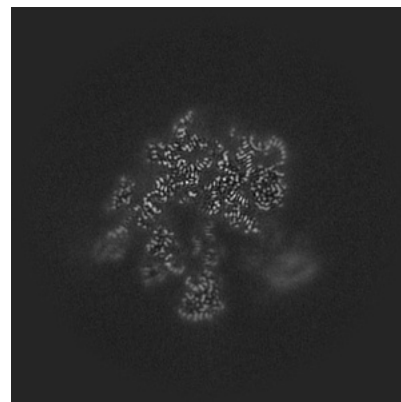
### 6.2.1 Primary map



X Index: 240

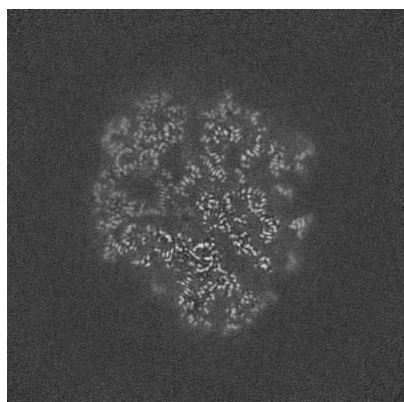


Y Index: 240

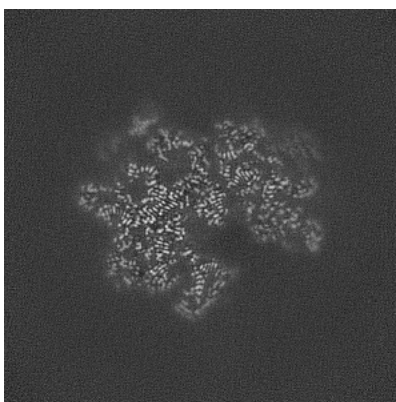


Z Index: 240

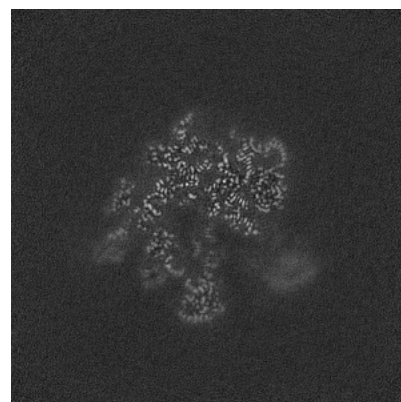
### 6.2.2 Raw map



X Index: 240



Y Index: 240

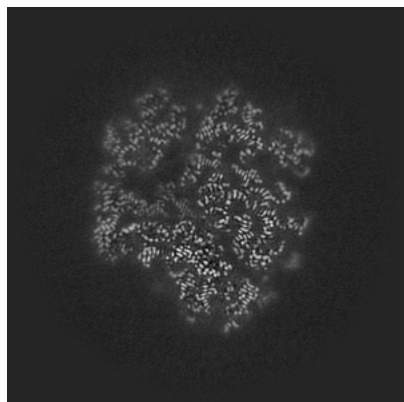


Z Index: 240

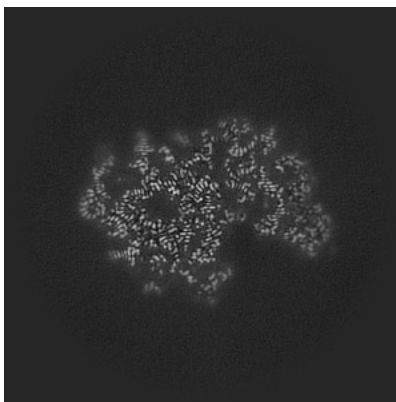
The images above show central slices of the map in three orthogonal directions.

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

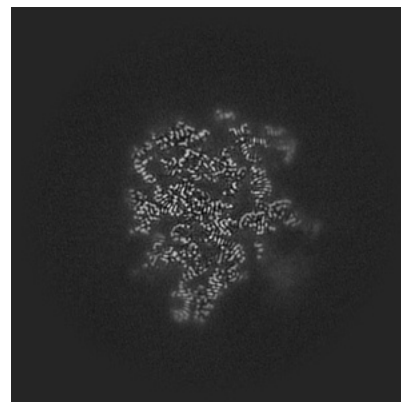
### 6.3.1 Primary map



X Index: 235

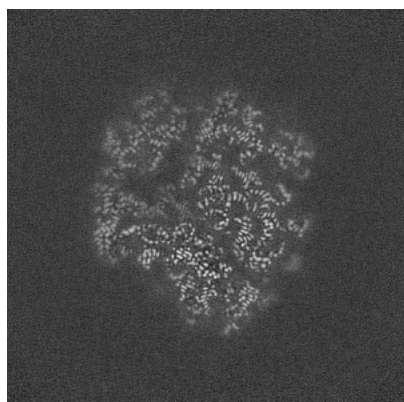


Y Index: 264

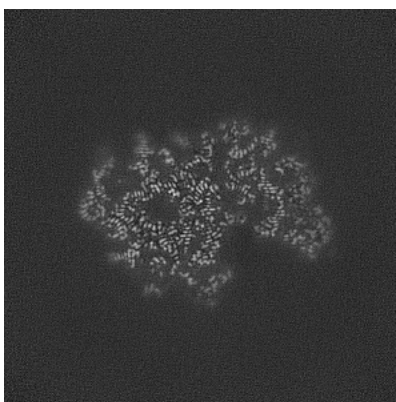


Z Index: 193

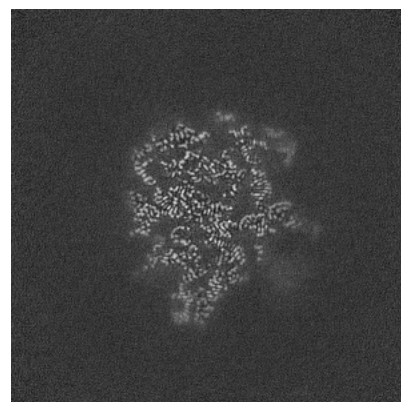
### 6.3.2 Raw map



X Index: 235



Y Index: 264



Z Index: 193

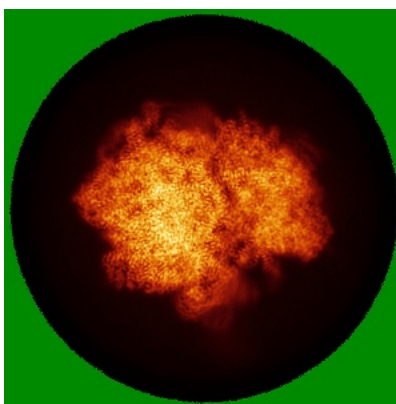
The images above show the largest variance slices of the map in three orthogonal directions.

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

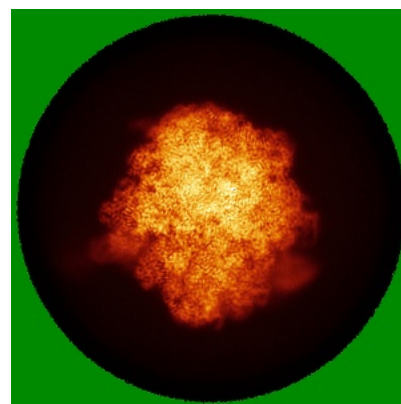
### 6.4.1 Primary map



X

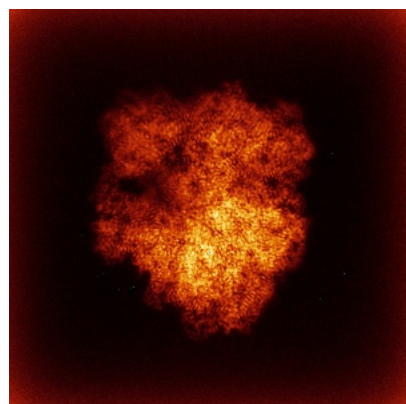


Y

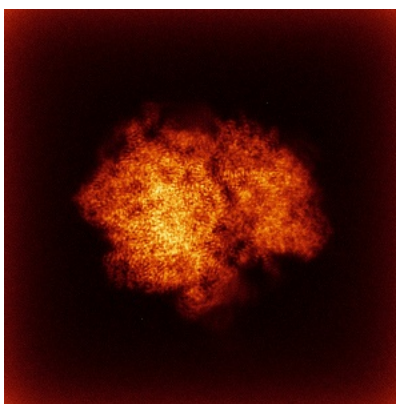


Z

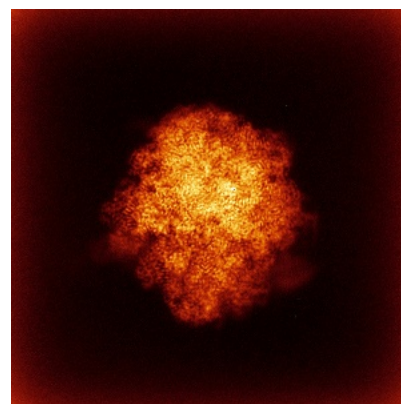
### 6.4.2 Raw map



X



Y

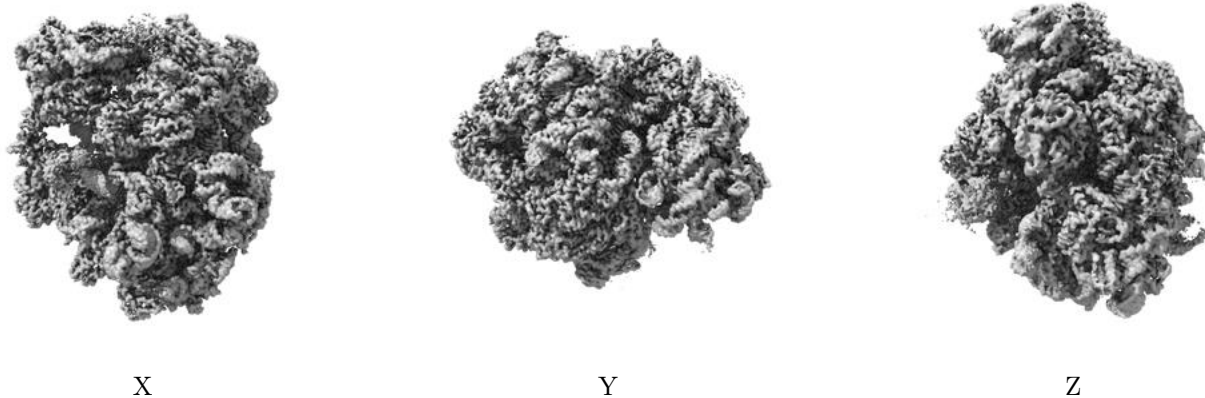


Z

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

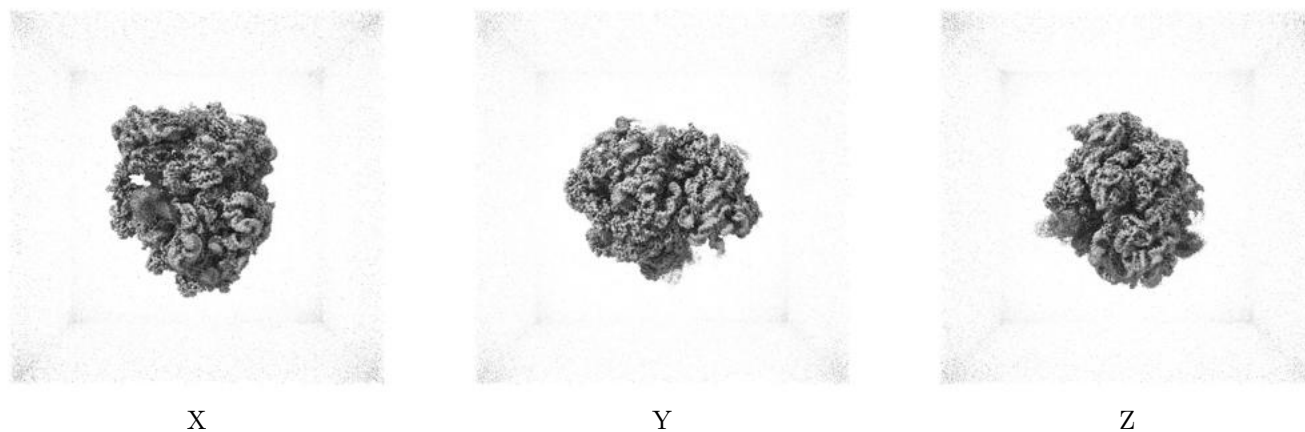
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.07. 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.

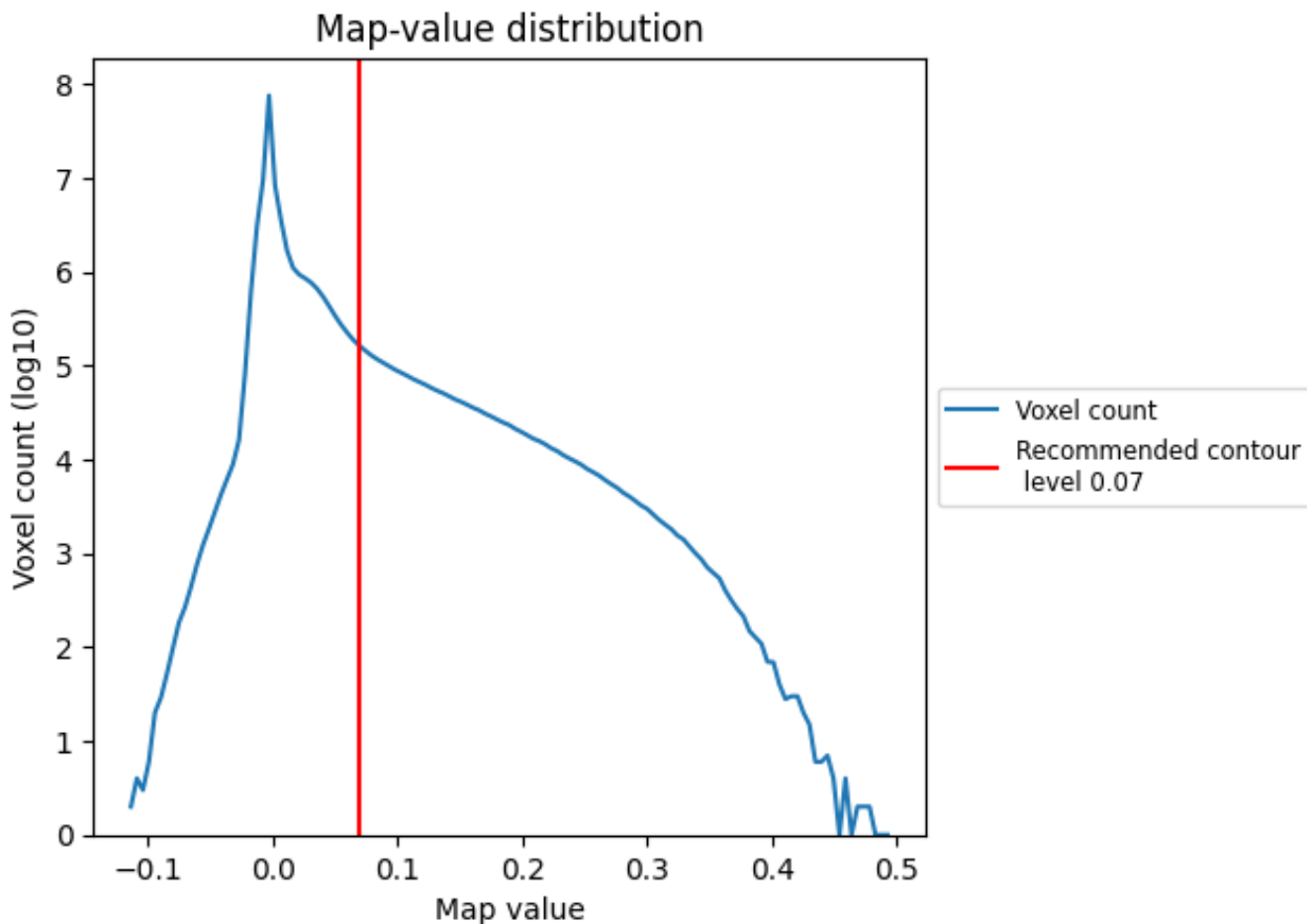
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

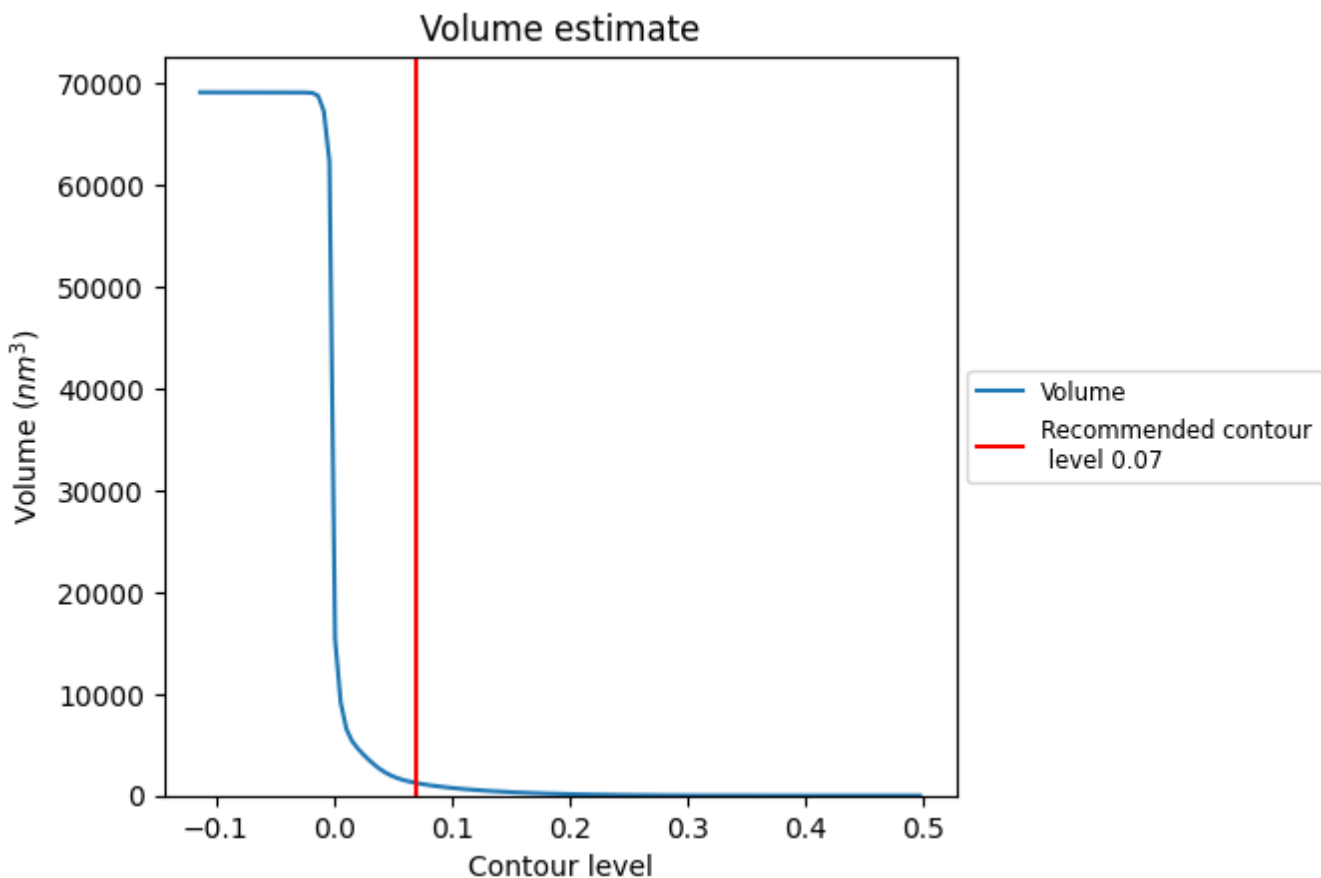
This section contains the results of statistical analysis of the map.

### 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.

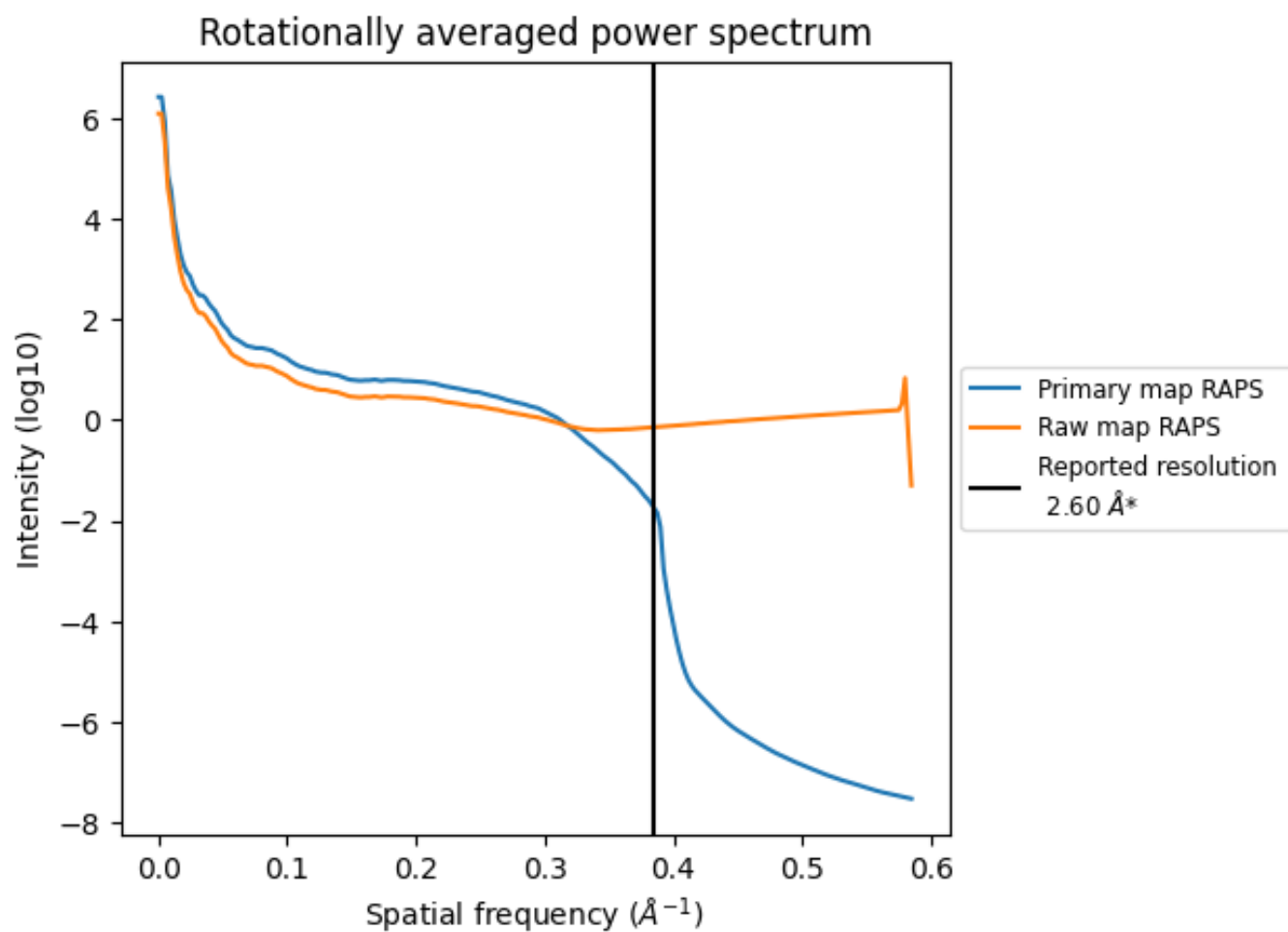
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1239 nm<sup>3</sup>; this corresponds to an approximate mass of 1119 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](#)

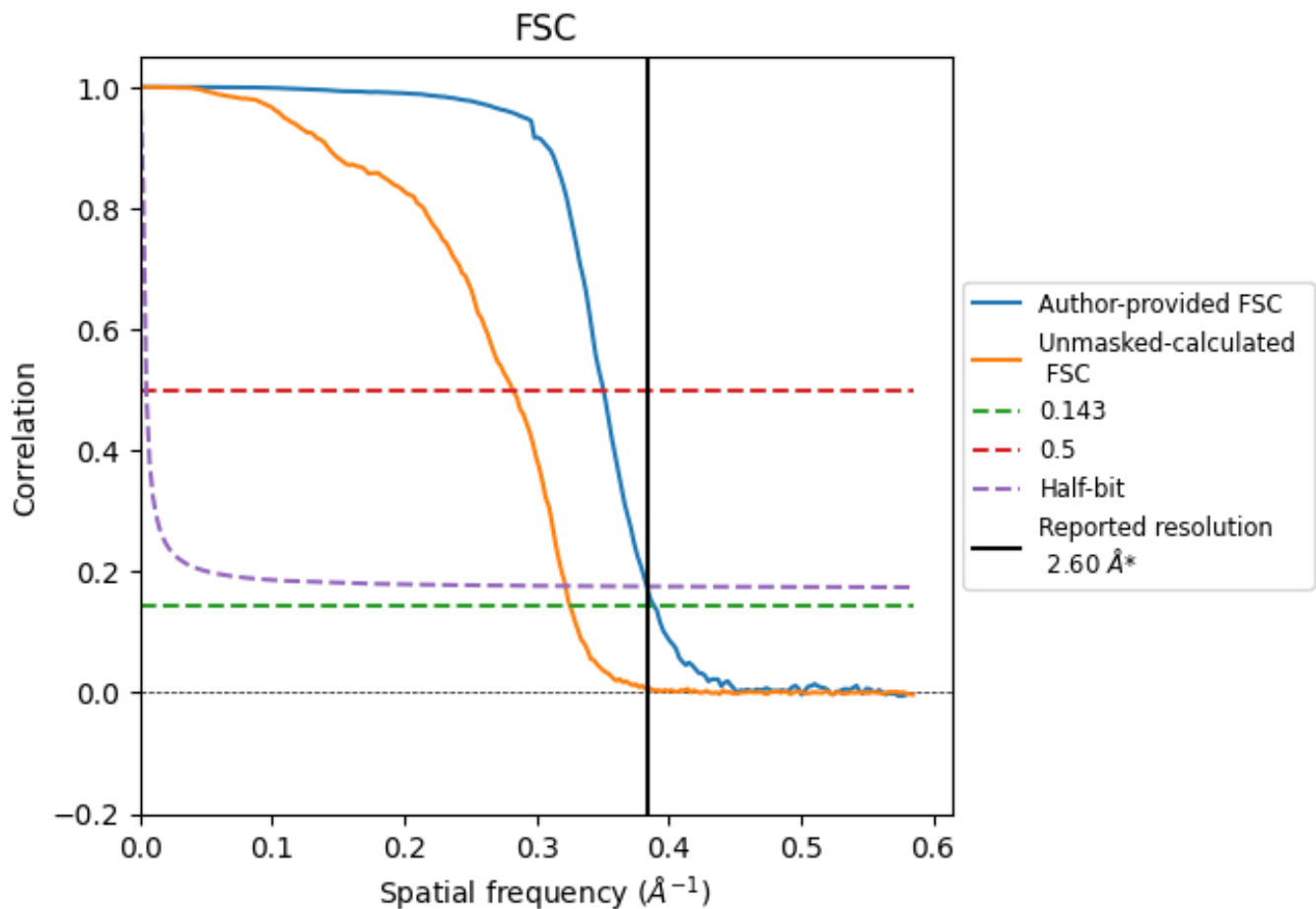


\*Reported resolution corresponds to spatial frequency of  $0.385 \text{ \AA}^{-1}$

## 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 0.385 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

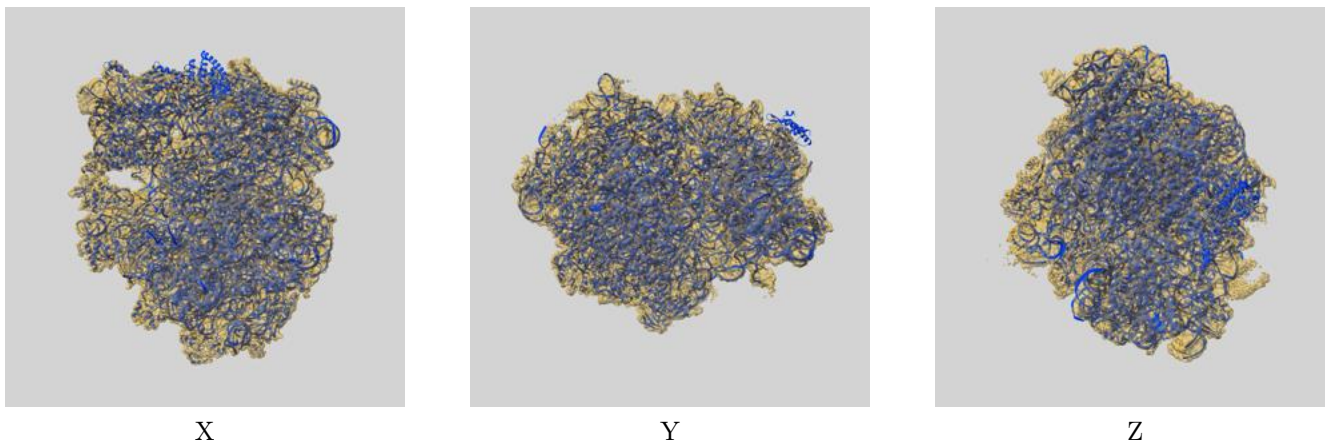
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.60	-	-
Author-provided FSC curve	2.57	2.85	2.61
Unmasked-calculated*	3.07	3.55	3.11

\*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 3.07 differs from the reported value 2.6 by more than 10 %

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

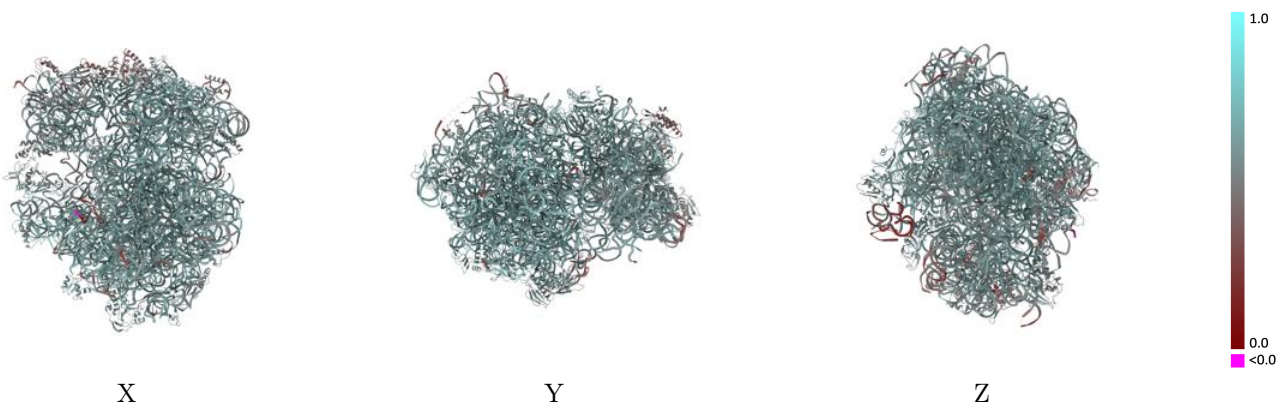
This section contains information regarding the fit between EMDB map EMD-71052 and PDB model 9OZ9. Per-residue inclusion information can be found in section 3 on page 17.

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



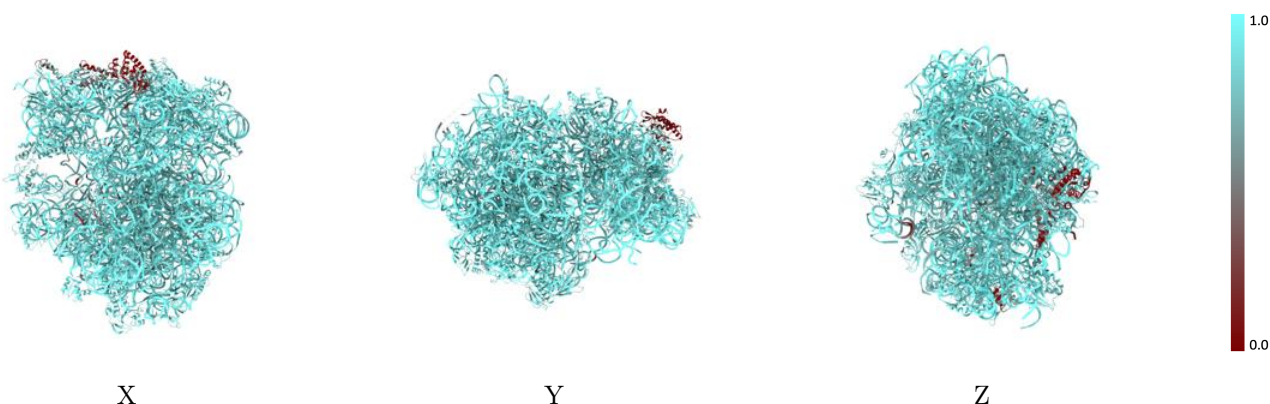
The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



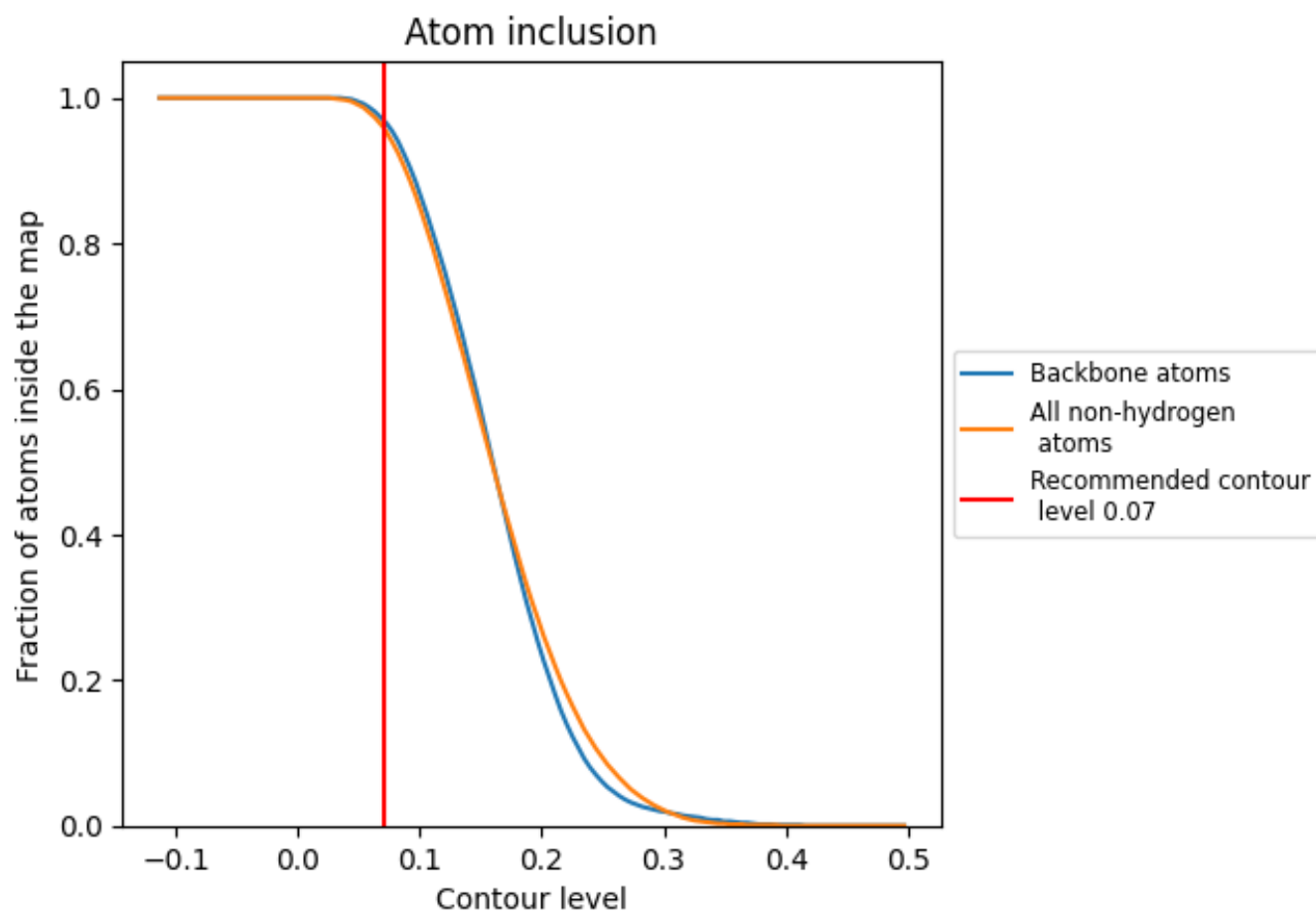
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.07).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 97% of all backbone atoms, 96% 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 (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9600	 0.5930
1	 0.9850	 0.6070
2	 0.9860	 0.5870
3	 0.9870	 0.5870
4	 0.9090	 0.5570
5	 0.9590	 0.6200
6	 0.7660	 0.5830
A	 0.8160	 0.5730
B	 0.9760	 0.6280
C	 0.9710	 0.6220
D	 0.9780	 0.5990
E	 0.8990	 0.5520
F	 0.9220	 0.5550
G	 0.8830	 0.5280
H	 0.2400	 0.4400
J	 0.9710	 0.6050
K	 0.9660	 0.6270
L	 0.9730	 0.6110
M	 0.9710	 0.6180
N	 0.9810	 0.6250
O	 0.9560	 0.5820
P	 0.9750	 0.6240
Q	 0.9840	 0.6190
R	 0.9840	 0.6130
S	 0.9800	 0.6080
T	 0.9500	 0.5840
U	 0.9040	 0.5640
V	 0.9410	 0.5650
W	 0.9790	 0.6280
X	 0.9770	 0.6090
Y	 0.9150	 0.5330
Z	 0.9800	 0.6060
a	 0.9010	 0.5520
b	 0.9960	 0.6370
c	 0.9630	 0.6090



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Chain	Atom inclusion	Q-score
d	 0.9980	 0.6470
e	 0.9840	 0.6250
f	 0.9760	 0.6250
h	 0.8360	 0.5260
i	 0.8920	 0.5490
j	 0.9360	 0.5800
k	 0.9820	 0.5970
l	 0.8440	 0.5350
m	 0.9710	 0.5990
n	 0.9110	 0.5400
o	 0.7450	 0.4920
p	 0.9660	 0.5960
q	 0.9450	 0.6040
r	 0.7360	 0.5160
s	 0.9420	 0.5610
t	 0.9630	 0.5860
u	 0.9520	 0.5530
v	 0.9470	 0.5910
w	 0.9840	 0.6050
x	 0.8180	 0.5280
y	 0.9400	 0.5690
z	 0.8400	 0.5770