



Full wwPDB EM Validation Report ⓘ

Mar 27, 2026 – 06:07 PM UTC

PDB ID : 7SYN / pdb_00007syn
EMDB ID : EMD-25534
Title : Structure of the HCV IRES bound to the 40S ribosomal subunit, head opening.
Structure 8(delta dII)
Authors : Brown, Z.P.; Abaeva, I.S.; De, S.; Hellen, C.U.T.; Pestova, T.V.; Frank, J.
Deposited on : 2021-11-25
Resolution : 4.00 Å(reported)
Based on initial models : 5FLX, 6D9J

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMD 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) : 2.49

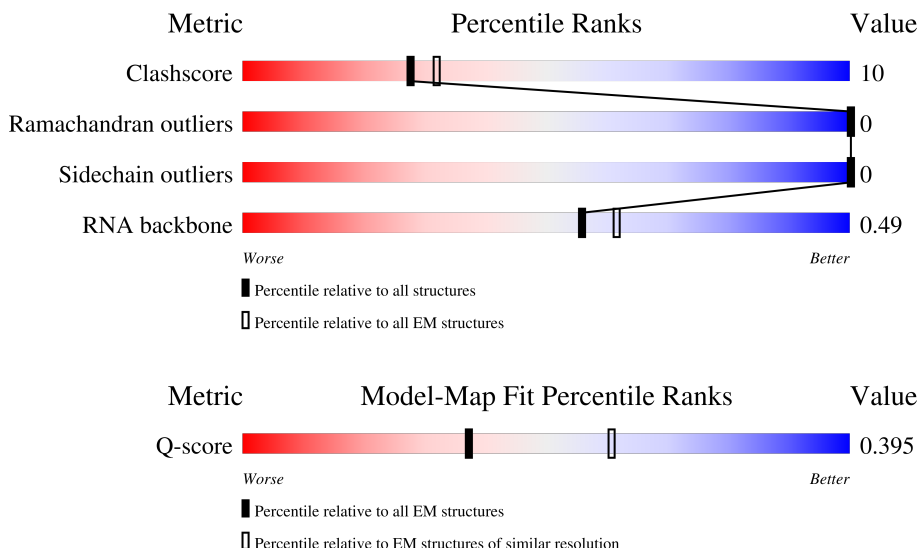
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

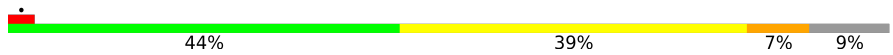
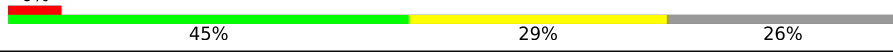
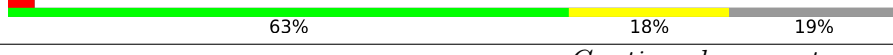
The reported resolution of this entry is 4.00 Å.

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.



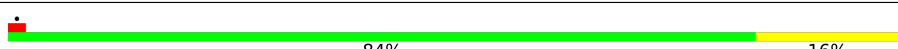
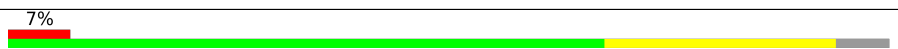
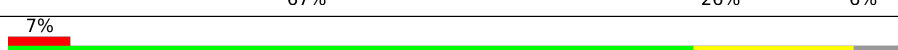
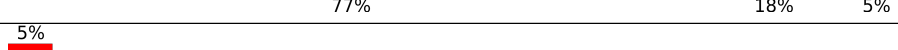
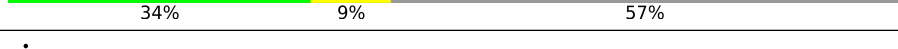
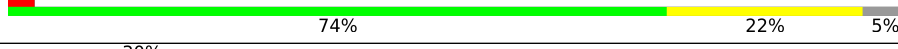
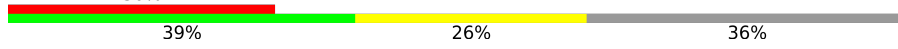
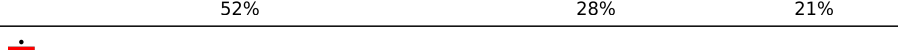
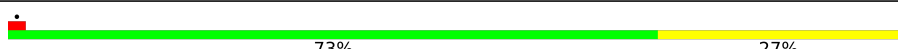
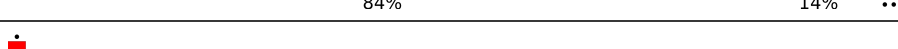
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	7587 (3.50 - 4.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	2	1870	
2	B	295	
3	C	264	

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Mol	Chain	Length	Quality of chain
4	D	221	
5	E	281	
6	F	263	
7	G	204	
8	H	249	
9	I	432	
10	J	208	
11	K	194	
12	L	149	
13	M	158	
14	N	132	
15	O	151	
16	P	168	
17	Q	145	
18	R	172	
19	S	135	
20	T	152	
21	U	145	
22	V	119	
23	W	83	
24	X	130	
25	Y	143	
26	Z	131	
27	a	124	
28	b	101	

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Mol	Chain	Length	Quality of chain
29	c	84	
30	d	69	
31	e	56	
32	f	133	
33	g	188	
34	h	317	
35	n	25	
36	z	400	

2 Entry composition

There are 37 unique types of molecules in this entry. The entry contains 78761 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 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	1697	Total	C	N	O	P	0	0
			36227	16170	6504	11857	1696		

- Molecule 2 is a protein called uS2 (SA).

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	217	Total	C	N	O	S	0	0
			1710	1086	300	316	8		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	114	THR	ALA	conflict	UNP G1TLT8

- Molecule 3 is a protein called eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	213	Total	C	N	O	S	0	0
			1729	1098	309	308	14		

- Molecule 4 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	221	Total	C	N	O	S	0	0
			1716	1111	295	301	9		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	73	MET	VAL	conflict	UNP G1TUT9
D	101	SER	ALA	conflict	UNP G1TUT9
D	119	GLY	ALA	conflict	UNP G1TUT9
D	194	ARG	HIS	conflict	UNP G1TUT9

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Chain	Residue	Modelled	Actual	Comment	Reference
D	215	MET	LEU	conflict	UNP G1TUT9
D	227	ARG	TRP	conflict	UNP G1TUT9
D	228	GLY	SER	conflict	UNP G1TUT9

- Molecule 5 is a protein called uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	228	Total	C	N	O	S	0	0
			1768	1126	318	316	8		

- Molecule 6 is a protein called eS4 (S4 X isoform).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	262	Total	C	N	O	S	0	0
			2076	1324	386	358	8		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	25	GLY	SER	conflict	UNP G1TK17
F	51	ARG	LYS	conflict	UNP G1TK17
F	78	THR	ALA	conflict	UNP G1TK17
F	156	VAL	MET	conflict	UNP G1TK17

- Molecule 7 is a protein called uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	191	Total	C	N	O	S	0	0
			1509	943	286	273	7		

- Molecule 8 is a protein called eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	237	Total	C	N	O	S	0	0
			1923	1200	387	329	7		

- Molecule 9 is a protein called eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	185	Total	C	N	O	S	0	0
			1488	952	271	264	1		

- Molecule 10 is a protein called eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	206	Total	C	N	O	S	0	0
			1686	1058	332	291	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J	47	ARG	GLY	conflict	UNP G1TJW1

- Molecule 11 is a protein called uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	185	Total	C	N	O	S	0	0
			1525	969	306	248	2		

- Molecule 12 is a protein called eS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	96	Total	C	N	O	S	0	0
			810	530	143	131	6		

- Molecule 13 is a protein called uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	151	Total	C	N	O	S	0	0
			1233	785	231	211	6		

- Molecule 14 is a protein called eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	117	Total	C	N	O	S	0	0
			908	570	161	169	8		

- Molecule 15 is a protein called uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 16 is a protein called uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 17 is a protein called uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	115	Total	C	N	O	S	0	0
			956	610	176	163	7		

- Molecule 18 is a protein called uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	142	Total	C	N	O	S	0	0
			1128	717	213	195	3		

- Molecule 19 is a protein called eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	132	Total	C	N	O	S	0	0
			1068	670	199	195	4		

- Molecule 20 is a protein called uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	144	Total	C	N	O	S	0	0
			1190	746	241	202	1		

- Molecule 21 is a protein called eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	141	Total	C	N	O	S	0	0
			1097	688	211	195	3		

- Molecule 22 is a protein called uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	100	Total	C	N	O	S	0	0
			795	498	152	141	4		

- Molecule 23 is a protein called eS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	83	Total	C	N	O	S	0	0
			636	393	117	121	5		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
W	3	ASN	SER	conflict	UNP G1TM82
W	4	ASP	ASN	conflict	UNP G1TM82
W	33	GLN	PRO	conflict	UNP G1TM82
W	50	PHE	SER	conflict	UNP G1TM82
W	75	ALA	SER	conflict	UNP G1TM82
W	76	ASP	HIS	conflict	UNP G1TM82
W	81	LYS	GLN	conflict	UNP G1TM82

- Molecule 24 is a protein called uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 25 is a protein called uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Y	141	Total	C	N	O	S	0	0
			1098	693	219	183	3		

- Molecule 26 is a protein called eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	124	Total	C	N	O	S	0	0
			1011	640	198	168	5		

- Molecule 27 is a protein called eS25.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	a	77	Total	C	N	O	S	0	0
			614	393	114	106	1		

- Molecule 28 is a protein called eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	101	Total	C	N	O	S	0	0
			814	507	170	132	5		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
b	28	ARG	CYS	conflict	UNP G1TFE8
b	56	ALA	VAL	conflict	UNP G1TFE8

- Molecule 29 is a protein called eS27.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	c	83	Total	C	N	O	S	0	0
			651	408	121	115	7		

- Molecule 30 is a protein called eS28.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	67	Total	C	N	O	S	0	0
			530	321	108	99	2		

- Molecule 31 is a protein called uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	e	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 32 is a protein called eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	57	Total	C	N	O	S	0	0
			457	282	101	73	1		

- Molecule 33 is a protein called eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	g	68	Total	C	N	O	S	0	0
			555	351	103	94	7		

- Molecule 34 is a protein called Receptor for Activated C Kinase 1 (RACK1).

Mol	Chain	Residues	Atoms					AltConf	Trace
34	h	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 35 is a protein called eL41.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	n	25	Total	C	N	O	S	0	0
			239	145	64	27	3		

- Molecule 36 is a RNA chain called HCV IRES.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	z	162	Total	C	N	O	P	0	0
			3465	1542	621	1140	162		

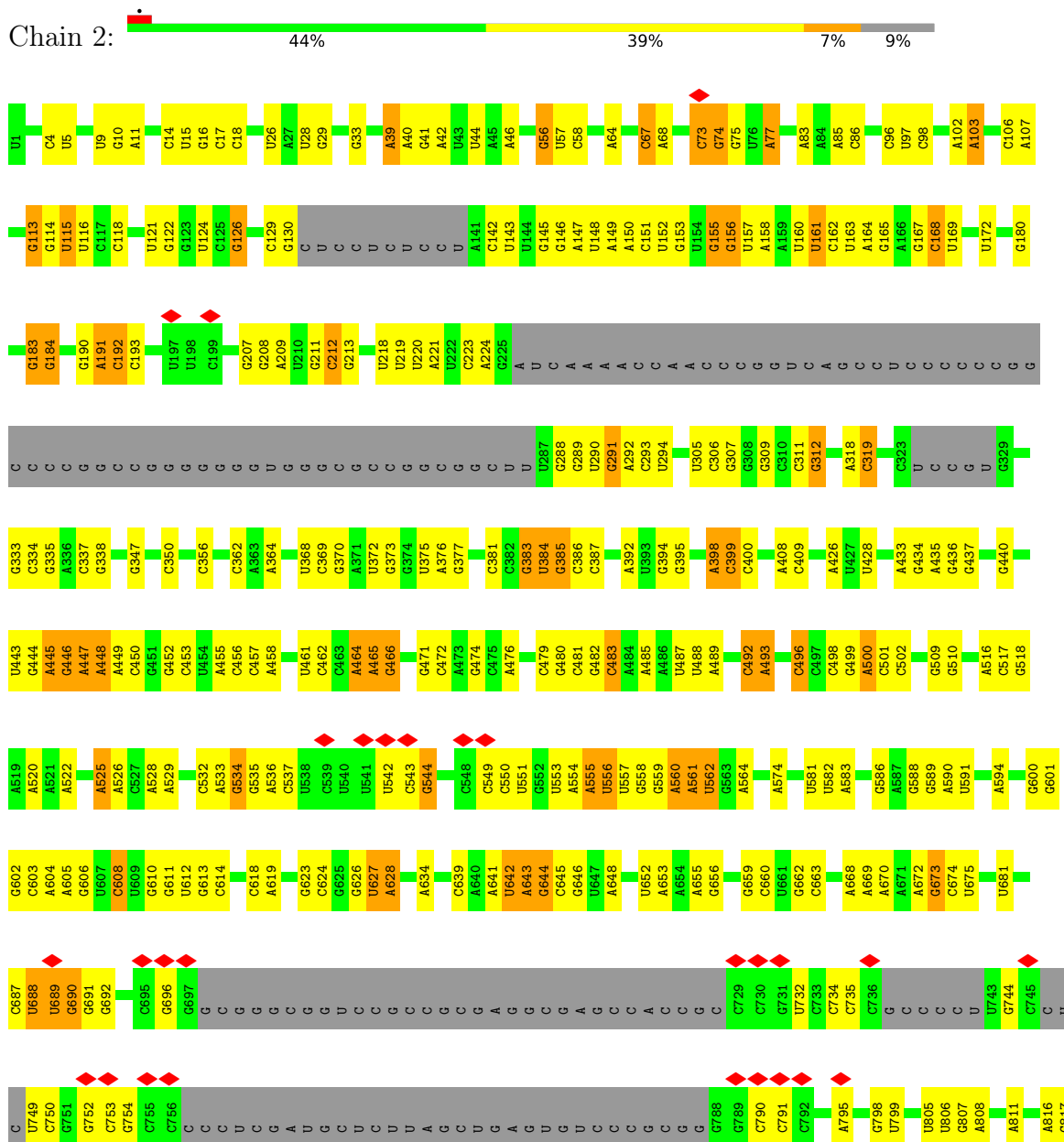
- Molecule 37 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
37	b	1	Total	Zn	0
			1	1	
37	g	1	Total	Zn	0
			1	1	

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry 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: 18S rRNA





Chain B:

Position	Residue	Information Content (bits)
1	MET	0.09
2	S2	0.08
3	L5	0.07
4	D6	0.06
5	M10	0.05
6	K17	0.04
7	F18	0.03
8	L19	0.02
9	L30	0.01
10	D31	0.01
11	F32	0.01
12	Q33	0.01
13	M34	0.01
14	E35	0.01
15	R41	0.01
16	K42	0.01
17	S43	0.01
18	D44	0.01
19	G45	0.01
20	I46	0.01
21	Y47	0.01
22	N50	0.01
23	L51	0.01
24	K52	0.01
25	R53	0.01
26	T54	0.01
27	W55	0.01
28	E56	0.01
29	L59	0.01
30	R63	0.01
31	V66	0.01
32	A67	0.01
33	T68	0.01
34	E69	0.01
35	N70	0.01
36	D73	0.01
37	S78	0.01
38	S79	0.01
39	R80	0.01
40	N81	0.01
41	T82	0.01
42	G83	0.01
43	Q84	0.01
44	R85	0.01
45	A86	0.01
46	V87	0.01

Chain C:

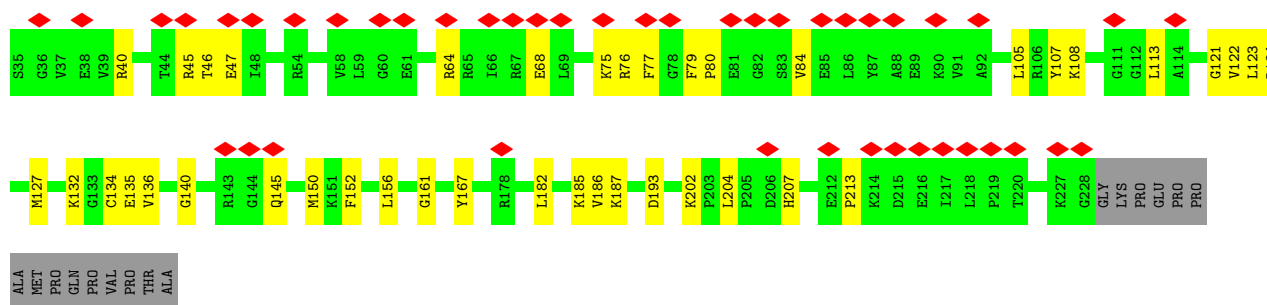
63% 18% 19%

MET ALA VAL GLY LYS ASN ARG ARG LEU THR LYS GLY GLY LYS LYS GLY ALA LYS LYS LYS V21 V22 S26 K27 K28 V33 K34 A35 I44 I48 V49 T50 T55 L62 R65 S68 L71 E78 V79 R82 K83 F84 T88 C96 L97 T98

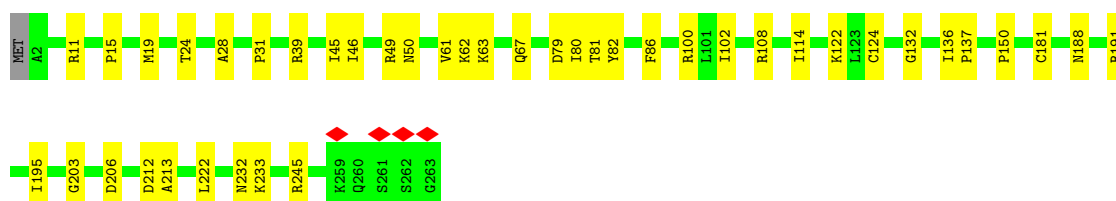
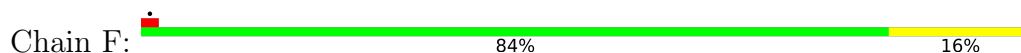
M103 D104 L105 A123 H124 K128 G132 C139 V140 K144 M147 I150 T153 S154 Y155 A156 Q157 I164 R165 M168 H169 E170 I171 M172 T173 L181 V184 L188 I189 P190 D191 Q202 R208 D209 R213 M217 K220 G233 GLY GLY SER

Chain D:

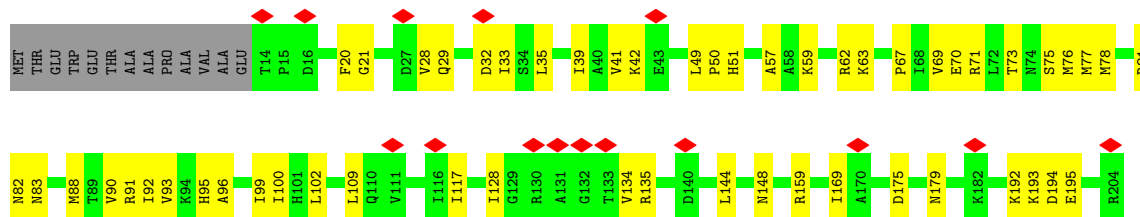
Chain E:



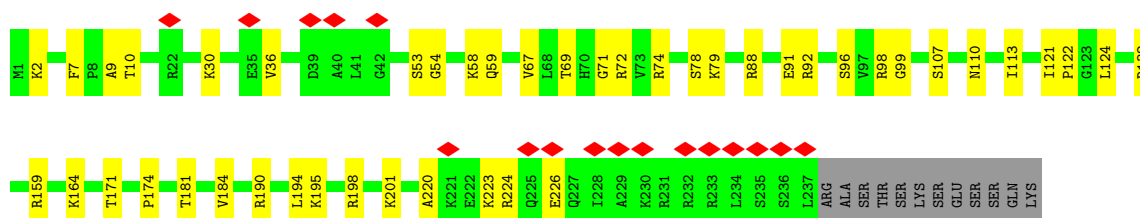
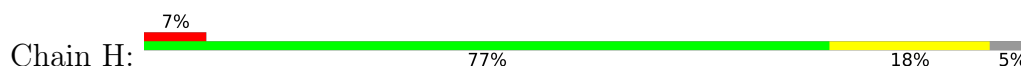
• Molecule 6: eS4 (S4 X isoform)



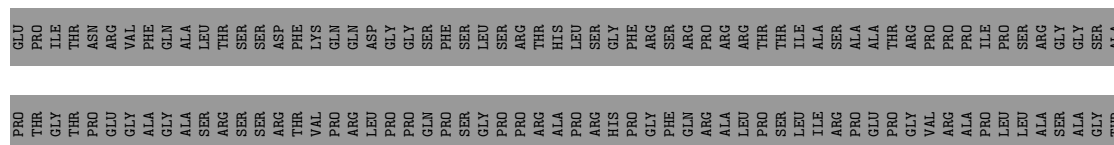
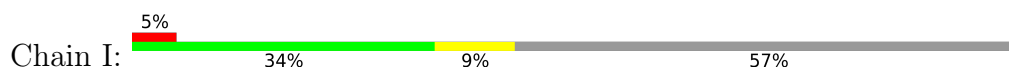
• Molecule 7: uS7

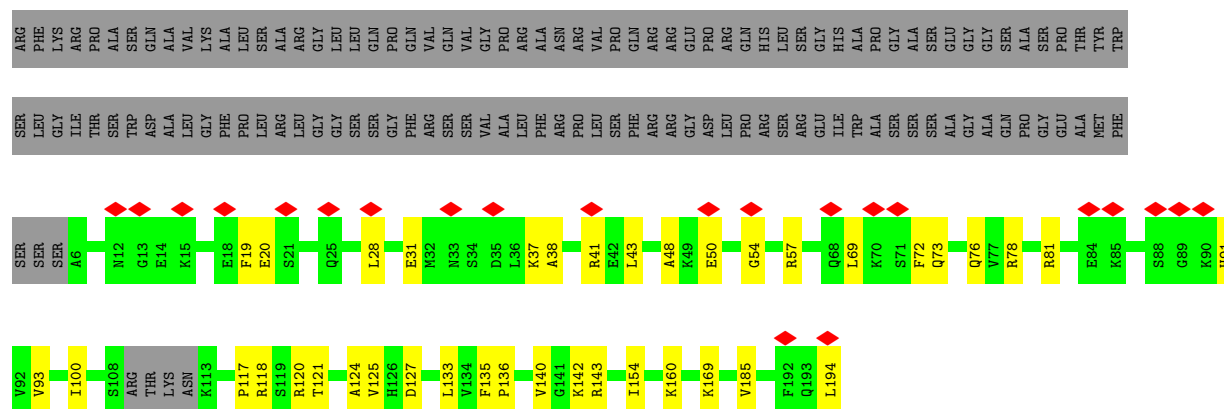


• Molecule 8: eS6

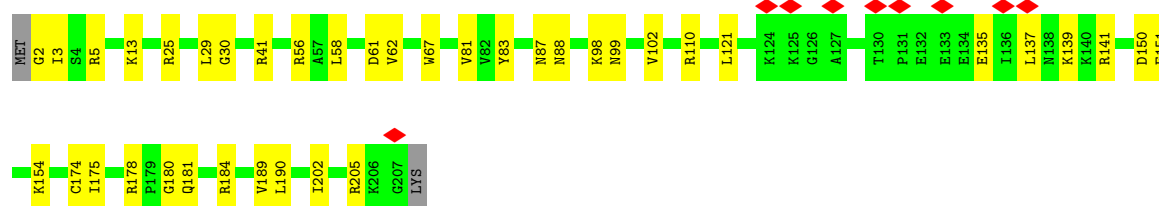
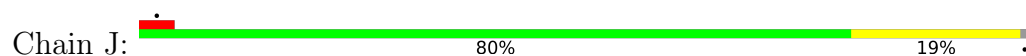


• Molecule 9: eS7

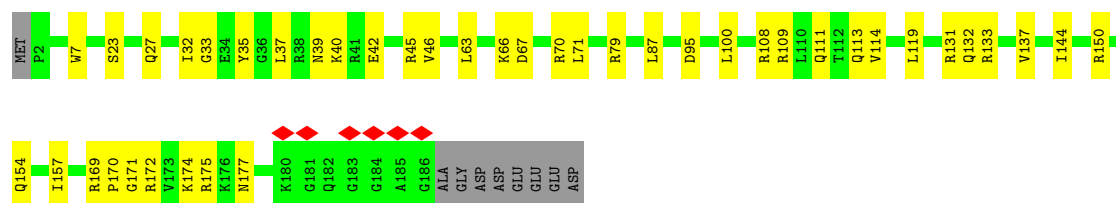




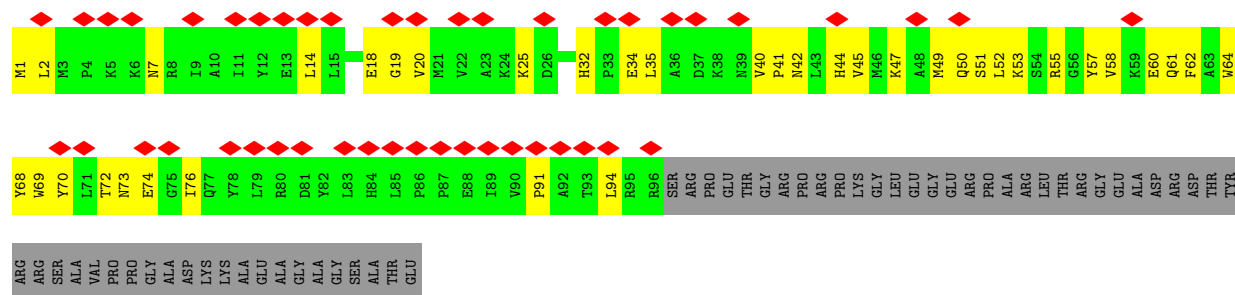
• Molecule 10: eS8



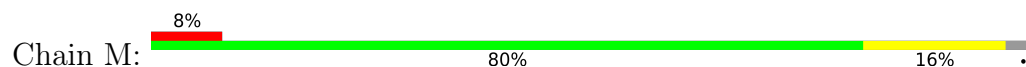
• Molecule 11: uS4

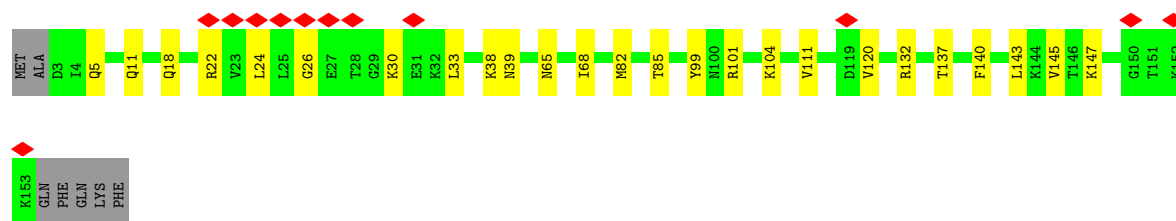


• Molecule 12: eS10

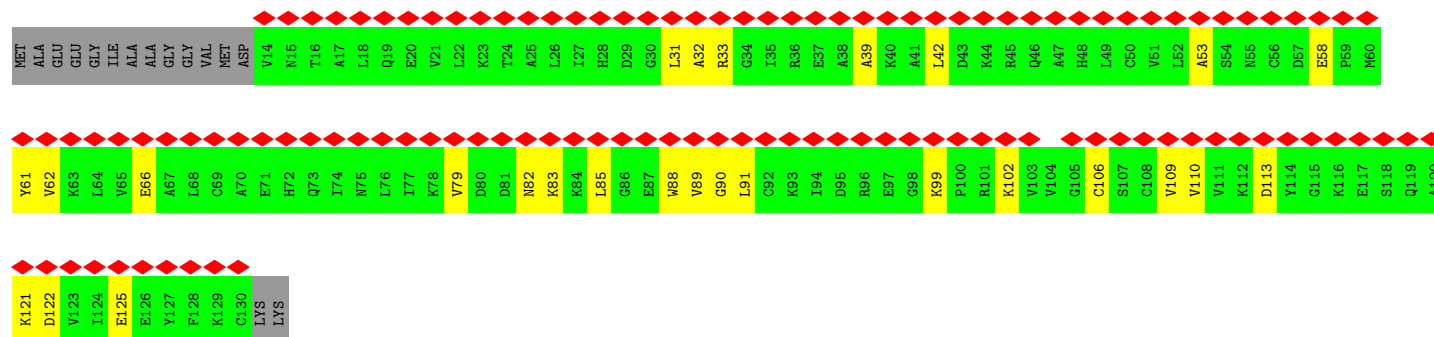


• Molecule 13: uS17

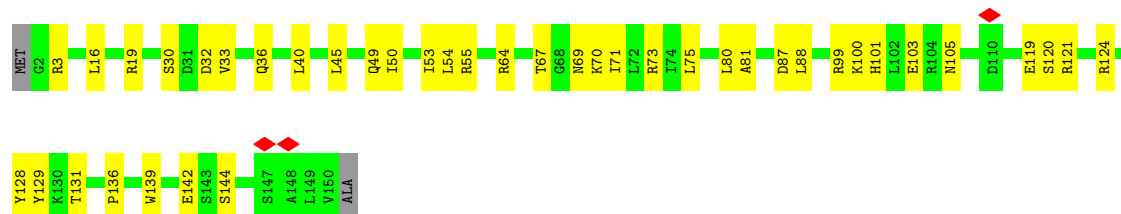




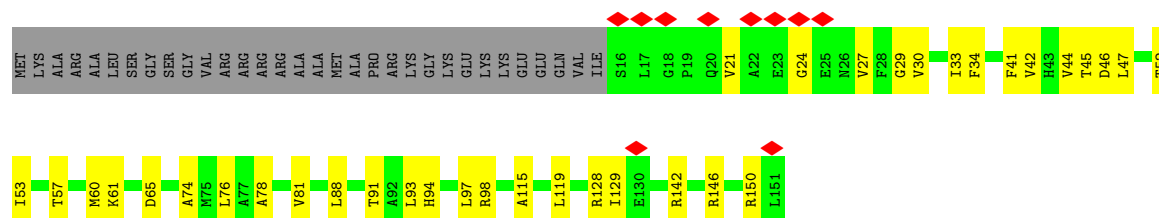
• Molecule 14: eS12



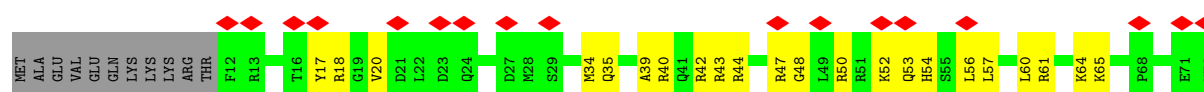
• Molecule 15: uS15

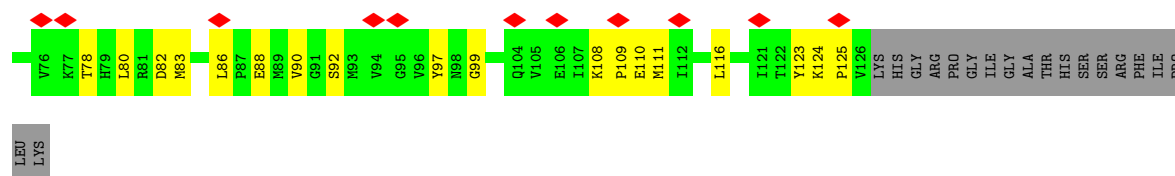


• Molecule 16: uS11



• Molecule 17: uS19





• Molecule 18: uS9



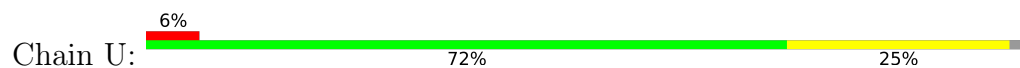
• Molecule 19: eS17



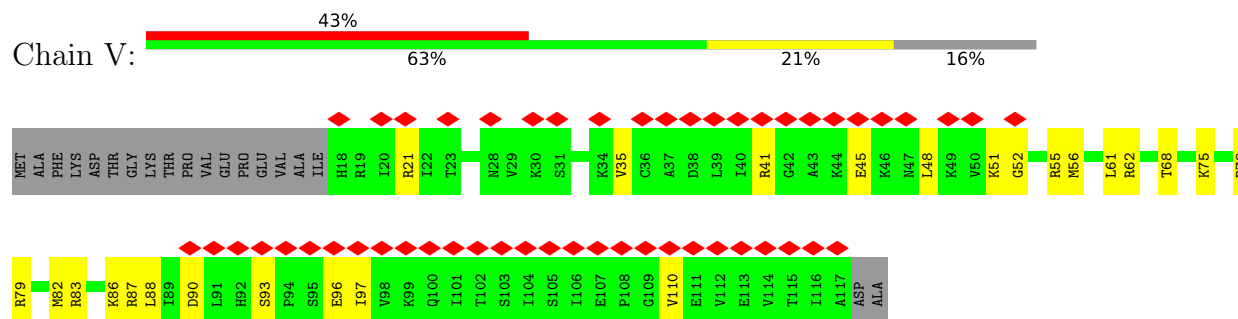
• Molecule 20: uS13



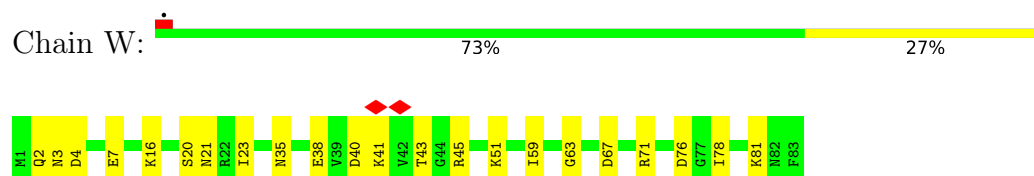
• Molecule 21: eS19



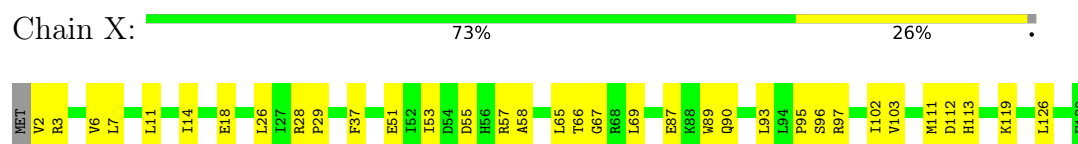
- Molecule 22: uS10



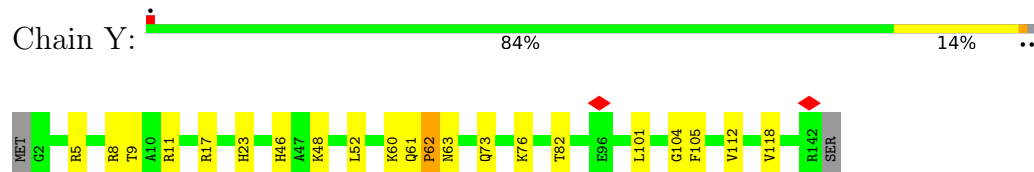
- Molecule 23: eS21



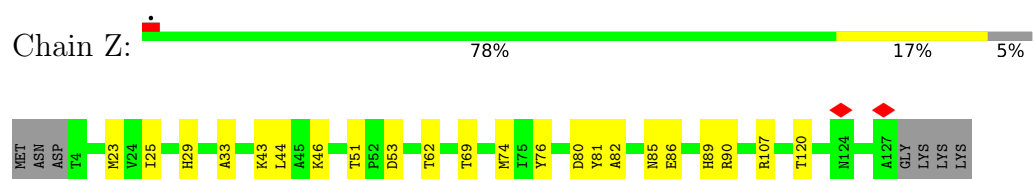
- Molecule 24: uS8



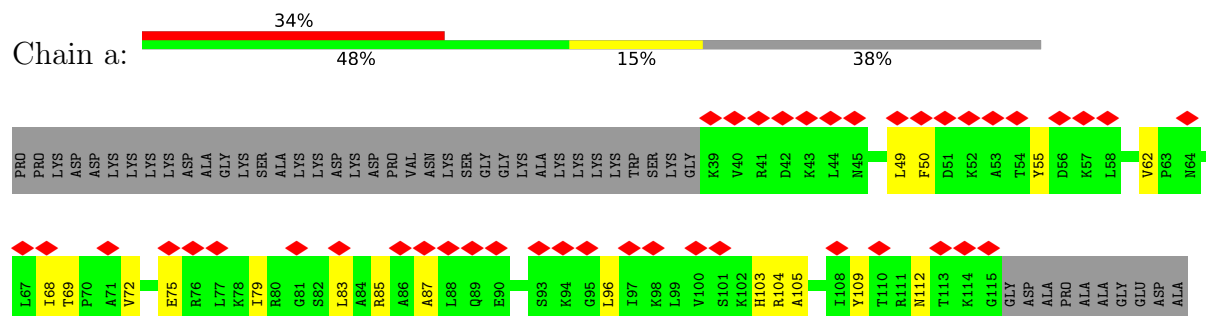
- Molecule 25: uS12



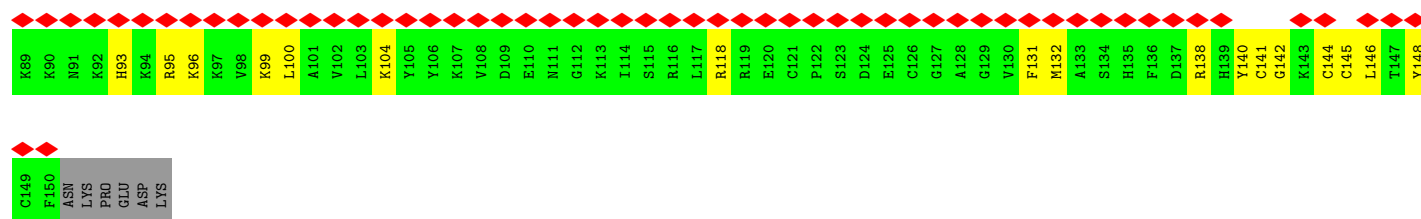
- Molecule 26: eS24



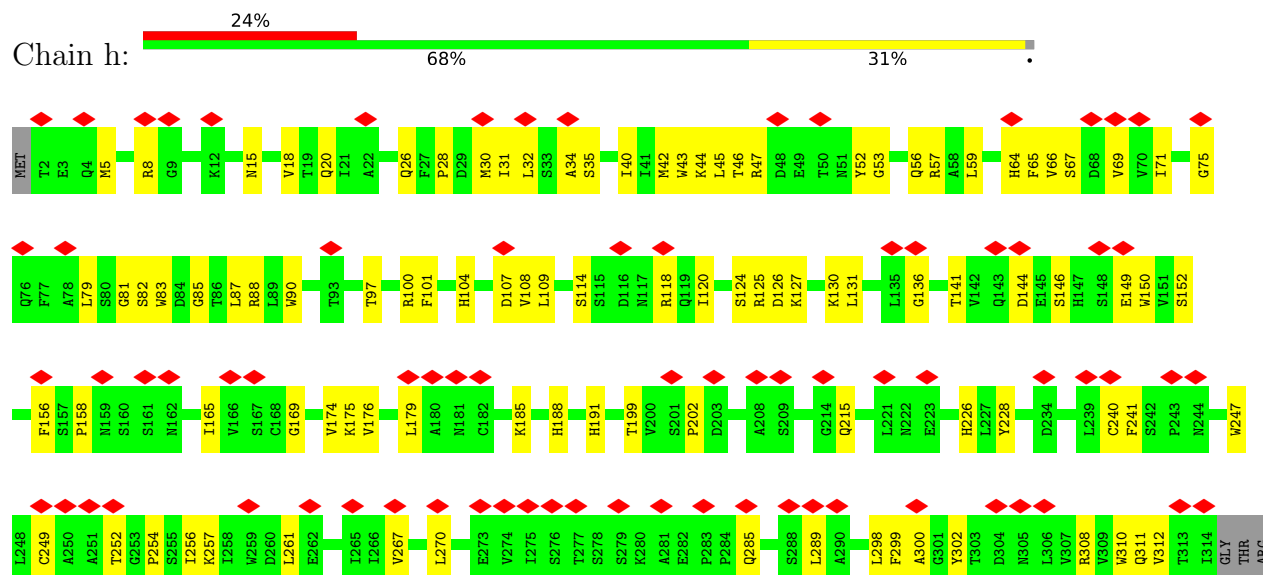
- Molecule 27: eS25



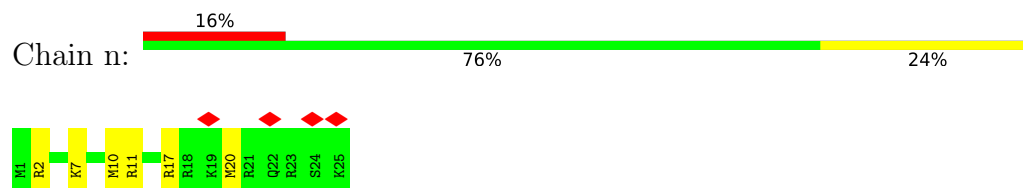
GLU	ASP	HIS	HIS	ALA	ARG	GLY	ILE	PRO	PRO	ASP	ASP	GLN	GLN	ARG	LEU	ILE	PHE	ALA	GLY	LYS	GLN	LEU	GLU	ASP	GLY	ARG	THR	LEU	SER	ASP	TYR	ASN	ILE	GLN	LYS	GLU	SER	THR	LEU	HIS	LEU	VAL	LEU	ARG	ARG	LEU	ARG	GLY	GLY	ALA	LYS	LYS	ARG	LYS	LYS	K83	S84	Y85	T86	T87	P89
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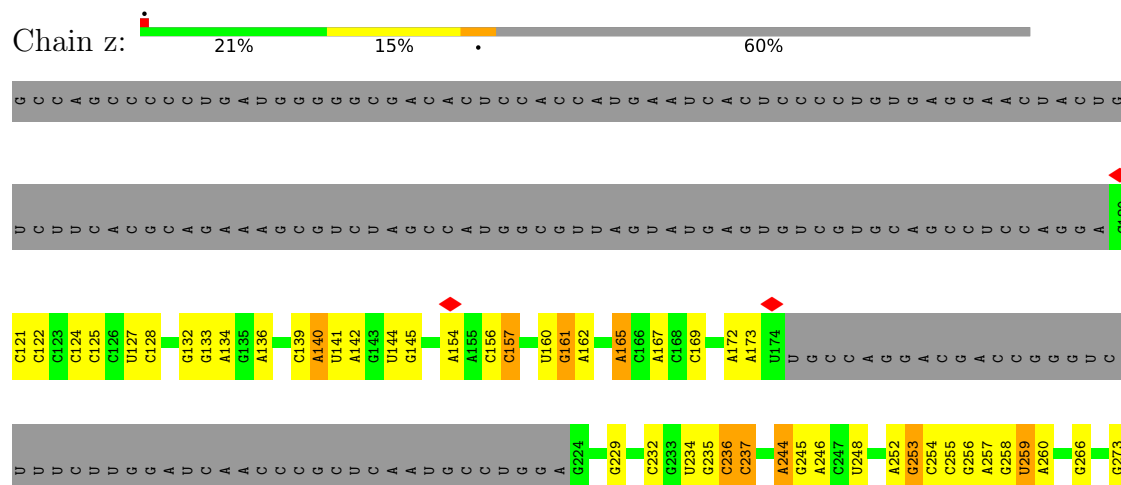
• Molecule 34: Receptor for Activated C Kinase 1 (RACK1)

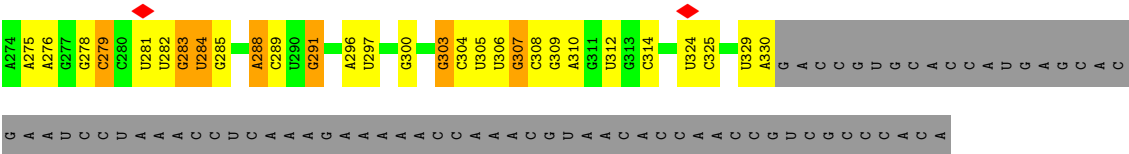


• Molecule 35: eL41



• Molecule 36: HCV IRES





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	144252	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TECNAI F30	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	70.9	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	52000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.085	Depositor
Minimum map value	-0.037	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.0125	Depositor
Map size (Å)	380.0, 380.0, 380.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.95, 0.95, 0.95	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	2	0.08	0/40506	0.22	0/63123
2	B	0.11	0/1747	0.32	0/2374
3	C	0.10	0/1756	0.30	0/2350
4	D	0.10	0/1753	0.28	0/2369
5	E	0.14	0/1796	0.35	0/2417
6	F	0.11	0/2118	0.30	0/2849
7	G	0.11	0/1531	0.33	0/2059
8	H	0.11	0/1946	0.28	0/2590
9	I	0.10	0/1510	0.28	0/2022
10	J	0.13	0/1715	0.32	0/2287
11	K	0.10	0/1550	0.28	0/2069
12	L	0.12	0/834	0.34	0/1125
13	M	0.09	0/1254	0.28	0/1677
14	N	0.09	0/918	0.27	0/1233
15	O	0.10	0/1226	0.27	0/1649
16	P	0.12	0/1029	0.32	0/1380
17	Q	0.13	0/974	0.39	0/1301
18	R	0.11	0/1146	0.28	0/1534
19	S	0.12	0/1082	0.34	0/1452
20	T	0.11	0/1208	0.33	0/1618
21	U	0.10	0/1115	0.26	0/1493
22	V	0.09	0/805	0.25	0/1081
23	W	0.10	0/643	0.30	0/860
24	X	0.12	0/1051	0.34	0/1406
25	Y	0.13	0/1116	0.37	1/1490 (0.1%)
26	Z	0.10	0/1028	0.30	0/1366
27	a	0.12	0/620	0.32	0/831
28	b	0.10	0/828	0.26	0/1109
29	c	0.11	0/665	0.32	0/891
30	d	0.12	0/532	0.32	0/712
31	e	0.10	0/470	0.27	0/623
32	f	0.11	0/462	0.32	0/607

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	g	0.06	0/567	0.19	0/753
34	h	0.10	0/2493	0.29	0/3394
35	n	0.08	0/240	0.24	0/305
36	z	0.08	0/3871	0.20	0/6034
All	All	0.10	0/84105	0.26	1/122433 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
25	Y	62	PRO	CA-N-CD	-6.14	103.40	112.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	2	36227	0	18299	591	0
2	B	1710	0	1708	60	0
3	C	1729	0	1803	34	0
4	D	1716	0	1806	39	0
5	E	1768	0	1866	40	0
6	F	2076	0	2177	25	0
7	G	1509	0	1563	46	0
8	H	1923	0	2089	31	0
9	I	1488	0	1582	25	0
10	J	1686	0	1772	28	0
11	K	1525	0	1640	36	0
12	L	810	0	836	30	0
13	M	1233	0	1310	20	0
14	N	908	0	939	16	0
15	O	1202	0	1289	27	0
16	P	1016	0	1039	26	0
17	Q	956	0	1002	37	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	R	1128	0	1195	26	0
19	S	1068	0	1121	30	0
20	T	1190	0	1249	33	0
21	U	1097	0	1130	30	0
22	V	795	0	862	16	0
23	W	636	0	637	17	0
24	X	1034	0	1080	27	0
25	Y	1098	0	1167	22	0
26	Z	1011	0	1083	16	0
27	a	614	0	678	13	0
28	b	814	0	863	19	0
29	c	651	0	672	9	0
30	d	530	0	561	7	0
31	e	459	0	452	14	0
32	f	457	0	502	13	0
33	g	555	0	563	13	0
34	h	2436	0	2393	67	0
35	n	239	0	289	5	0
36	z	3465	0	1751	42	0
37	b	1	0	0	0	0
37	g	1	0	0	0	0
All	All	78761	0	60968	1305	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 10.

All (1305) 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)
1:2:318:A:C2	1:2:333:G:N1	2.21	1.07
1:2:1743:G:H21	1:2:1791:A:H62	1.08	0.98
1:2:1743:G:N2	1:2:1791:A:H62	1.65	0.93
1:2:1048:G:H21	1:2:1070:A:H62	1.17	0.91
1:2:318:A:H2	1:2:333:G:N1	1.66	0.89
1:2:1743:G:H21	1:2:1791:A:N6	1.73	0.86
36:z:256:G:N2	36:z:276:A:H62	1.72	0.85
1:2:1091:C:HO2'	24:X:2:VAL:N	1.77	0.83
1:2:350:C:HO2'	1:2:383:G:H1	1.27	0.82
36:z:256:G:H21	36:z:276:A:N6	1.79	0.80
1:2:1780:G:H3'	1:2:1781:A:H4'	1.64	0.79
1:2:1822:A:O2'	25:Y:60:LYS:NZ	2.15	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:61:GLN:HB2	12:L:68:TYR:HB2	1.64	0.77
19:S:31:ASN:HD21	19:S:55:THR:HG22	1.50	0.77
1:2:457:C:H2'	1:2:458:A:H8	1.50	0.77
34:h:174:VAL:HB	34:h:188:HIS:HB2	1.66	0.77
7:G:67:PRO:HG2	7:G:70:GLU:HG3	1.67	0.76
6:F:137:PRO:HB2	6:F:150:PRO:HD2	1.68	0.76
1:2:377:G:H5'	10:J:98:LYS:HB3	1.67	0.76
7:G:73:THR:HG22	7:G:93:VAL:HG21	1.68	0.76
1:2:350:C:O2'	1:2:383:G:N1	2.17	0.75
1:2:1290:G:O6	1:2:1309:C:N4	2.19	0.75
7:G:59:LYS:HE3	7:G:62:ARG:HD2	1.68	0.75
36:z:256:G:N2	36:z:276:A:N6	2.34	0.75
1:2:1618:C:H4'	17:Q:52:LYS:HE3	1.67	0.74
1:2:149:A:H62	1:2:169:U:H3	1.34	0.74
12:L:53:LYS:HD2	12:L:60:GLU:HB2	1.70	0.74
1:2:1656:G:H1	1:2:1668:U:H3	1.36	0.74
1:2:1854:U:OP1	16:P:150:ARG:NH2	2.20	0.74
1:2:535:G:H1	1:2:549:C:H42	1.36	0.73
1:2:1033:G:H1	1:2:1080:A:HO2'	1.35	0.72
1:2:1507:G:N2	33:g:87:THR:O	2.21	0.72
34:h:40:ILE:HD11	34:h:66:VAL:HG21	1.70	0.71
1:2:1379:A:H2'	1:2:1380:C:C6	2.25	0.71
32:f:121:THR:HB	32:f:124:LYS:HB2	1.71	0.71
1:2:190:G:O2'	1:2:209:A:N6	2.24	0.71
8:H:58:LYS:HA	8:H:107:SER:HB2	1.73	0.71
19:S:31:ASN:HA	19:S:34:VAL:HG12	1.72	0.70
9:I:43:LEU:HB3	9:I:72:PHE:HE1	1.55	0.70
5:E:135:GLU:HB3	5:E:187:LYS:HB3	1.71	0.70
34:h:18:VAL:HA	34:h:35:SER:HA	1.72	0.70
6:F:212:ASP:OD1	6:F:213:ALA:N	2.24	0.70
34:h:109:LEU:HD21	34:h:125:ARG:HE	1.56	0.70
2:B:17:LYS:HB3	2:B:173:LEU:HD11	1.73	0.70
4:D:212:LYS:HA	4:D:215:MET:HE2	1.73	0.69
25:Y:61:GLN:HB2	25:Y:62:PRO:HD3	1.73	0.69
34:h:5:MET:HE1	34:h:312:VAL:HA	1.73	0.69
1:2:1014:G:N2	29:c:51:GLN:OE1	2.24	0.69
1:2:126:G:OP2	8:H:195:LYS:NZ	2.26	0.69
24:X:11:LEU:HD11	24:X:37:PHE:HE2	1.58	0.69
1:2:74:G:N2	1:2:77:A:OP1	2.24	0.69
7:G:78:MET:HG3	7:G:159:ARG:HH22	1.58	0.69
1:2:1048:G:N2	1:2:1070:A:H62	1.91	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1103:C:OP1	3:C:157:GLN:NE2	2.25	0.68
1:2:1550:G:O2'	1:2:1558:C:O2	2.11	0.68
1:2:1001:A:N7	28:b:19:GLN:NE2	2.40	0.68
1:2:1726:G:O6	1:2:1809:A:N6	2.27	0.68
1:2:1277:C:H2'	1:2:1278:A:H8	1.58	0.68
5:E:46:THR:HB	5:E:84:VAL:HG12	1.75	0.68
17:Q:61:ARG:HH22	17:Q:86:LEU:HB2	1.58	0.68
1:2:1124:C:H5''	3:C:150:ILE:HG12	1.75	0.68
1:2:1608:U:OP1	20:T:130:ARG:NH2	2.27	0.68
16:P:142:ARG:NH1	28:b:23:CYS:O	2.27	0.68
17:Q:39:ALA:HA	17:Q:42:ARG:HE	1.58	0.68
1:2:1388:A:H61	5:E:161:GLY:HA3	1.58	0.67
17:Q:44:ARG:NH2	17:Q:82:ASP:O	2.26	0.67
7:G:77:MET:HB3	7:G:83:ASN:HA	1.76	0.67
1:2:1542:C:OP1	21:U:62:ARG:NH1	2.26	0.67
1:2:191:A:OP2	1:2:208:G:N2	2.27	0.67
1:2:681:U:H4'	25:Y:9:THR:HG22	1.77	0.66
1:2:1183:A:H2'	1:2:1184:G:H8	1.60	0.66
7:G:35:LEU:HD12	7:G:117:ILE:HG12	1.77	0.66
14:N:33:ARG:NH2	14:N:90:GLY:O	2.28	0.66
16:P:57:THR:H	16:P:60:MET:HE3	1.61	0.66
1:2:1204:G:H2'	1:2:1205:G:C4	2.30	0.66
1:2:1675:A:O2'	1:2:1676:U:H5'	1.95	0.66
19:S:71:ILE:HG12	19:S:74:GLN:H	1.59	0.66
1:2:124:U:OP1	8:H:201:LYS:NZ	2.28	0.66
4:D:196:ILE:HB	4:D:223:TYR:HB2	1.76	0.66
18:R:78:VAL:HA	18:R:81:ILE:HD12	1.76	0.66
1:2:1361:G:H5'	1:2:1362:U:H5''	1.78	0.66
16:P:61:LYS:HB3	16:P:76:LEU:HD23	1.77	0.66
1:2:1722:G:N1	1:2:1812:U:N3	2.44	0.66
21:U:39:LEU:HB3	21:U:43:LYS:HG3	1.76	0.66
34:h:176:VAL:HG12	34:h:185:LYS:HB3	1.77	0.66
8:H:69:THR:HG22	8:H:71:GLY:H	1.62	0.65
34:h:31:ILE:HG22	34:h:43:TRP:HB2	1.78	0.65
6:F:79:ASP:HB3	6:F:82:TYR:HB2	1.78	0.65
9:I:143:ARG:HD2	24:X:53:ILE:HG12	1.78	0.65
1:2:167:G:H21	8:H:132:ARG:HG3	1.61	0.65
32:f:103:GLY:O	32:f:107:ARG:NH2	2.30	0.65
11:K:169:ARG:HG2	11:K:175:ARG:HH22	1.62	0.65
36:z:141:U:H2'	36:z:142:A:H8	1.61	0.65
1:2:158:A:N6	1:2:466:G:N7	2.45	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:X:18:GLU:HG2	24:X:69:LEU:HB2	1.78	0.64
1:2:830:A:OP2	1:2:846:G:N2	2.31	0.64
1:2:1564:C:OP1	21:U:105:GLN:NE2	2.31	0.64
2:B:80:ARG:HG3	2:B:82:THR:H	1.62	0.64
33:g:104:LYS:O	33:g:118:ARG:NH1	2.31	0.64
1:2:690:G:H2'	1:2:691:G:C8	2.33	0.64
1:2:975:G:OP1	16:P:98:ARG:NH1	2.31	0.64
10:J:81:VAL:HG22	10:J:102:VAL:HG12	1.79	0.64
4:D:252:THR:HG22	4:D:254:ASP:H	1.62	0.64
10:J:13:LYS:HD3	13:M:137:THR:HG21	1.79	0.64
7:G:75:SER:O	7:G:159:ARG:NH2	2.31	0.64
22:V:61:LEU:HB2	22:V:82:MET:HB3	1.80	0.64
4:D:65:LYS:HB2	4:D:273:LEU:HD22	1.80	0.63
2:B:188:THR:HG22	2:B:189:ILE:HG23	1.80	0.63
1:2:1711:U:H2'	1:2:1712:A:C8	2.33	0.63
1:2:560:A:OP2	11:K:177:ASN:ND2	2.31	0.63
2:B:85:ARG:NH1	2:B:203:PHE:O	2.31	0.63
36:z:160:U:O2'	36:z:161:G:OP1	2.16	0.63
1:2:1495:G:N2	31:e:42:CYS:SG	2.69	0.63
20:T:2:SER:N	27:a:55:TYR:HH	1.96	0.63
24:X:26:LEU:HD23	29:c:7:LEU:HD13	1.80	0.63
1:2:981:A:H2'	1:2:982:G:C8	2.33	0.63
7:G:49:LEU:HB2	18:R:50:LYS:HD3	1.80	0.63
34:h:156:PHE:HA	34:h:165:ILE:HG22	1.78	0.63
1:2:305:U:H4'	10:J:41:ARG:HH22	1.62	0.63
1:2:1004:U:H2'	1:2:1005:G:H8	1.63	0.63
1:2:1617:G:N1	1:2:1620:A:OP2	2.32	0.63
3:C:139:CYS:HB2	3:C:172:MET:HE1	1.81	0.63
12:L:7:ASN:HD22	12:L:40:VAL:HG12	1.64	0.63
5:E:75:LYS:NZ	12:L:20:VAL:O	2.31	0.62
1:2:919:A:H4'	1:2:920:A:H5''	1.81	0.62
18:R:34:VAL:HG12	18:R:70:VAL:HB	1.81	0.62
26:Z:62:THR:HA	26:Z:69:THR:HG22	1.82	0.62
1:2:915:G:OP2	1:2:915:G:N2	2.28	0.62
1:2:1649:U:O4	1:2:1675:A:N7	2.33	0.62
4:D:210:PRO:HD3	4:D:236:PHE:HE2	1.63	0.62
16:P:45:THR:HA	16:P:52:THR:HA	1.81	0.62
23:W:21:ASN:HB3	24:X:67:GLY:HA3	1.81	0.62
7:G:88:MET:O	7:G:92:ILE:HG12	1.99	0.62
1:2:1165:G:OP2	1:2:1165:G:N2	2.30	0.62
1:2:1654:G:OP1	21:U:90:SER:OG	2.17	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:51:HIS:O	18:R:50:LYS:NZ	2.33	0.61
5:E:27:ARG:HH12	12:L:62:PHE:H	1.46	0.61
1:2:1121:G:N2	3:C:202:GLN:O	2.34	0.61
1:2:1406:G:H1'	1:2:1443:C:H42	1.65	0.61
3:C:181:LEU:HA	3:C:184:VAL:HG12	1.81	0.61
1:2:581:U:OP1	11:K:133:ARG:NH2	2.28	0.61
1:2:1548:G:OP1	22:V:62:ARG:NH1	2.32	0.61
3:C:88:THR:HG22	3:C:98:THR:HG22	1.82	0.61
6:F:46:ILE:HG23	6:F:50:ASN:HD22	1.66	0.61
34:h:87:LEU:HB2	34:h:101:PHE:HB2	1.82	0.61
36:z:253:G:OP2	36:z:283:G:O2'	2.18	0.61
1:2:482:G:H5''	25:Y:76:LYS:HG2	1.83	0.61
1:2:1287:A:N3	1:2:1315:U:N3	2.48	0.61
2:B:191:ARG:NH2	23:W:43:THR:O	2.34	0.61
1:2:1658:G:OP2	1:2:1660:C:N4	2.34	0.61
1:2:319:C:H4'	1:2:319:C:OP1	2.00	0.60
1:2:436:G:H2'	1:2:437:G:C8	2.36	0.60
5:E:213:PRO:HB3	19:S:20:TYR:HE1	1.64	0.60
18:R:108:ILE:O	18:R:112:LEU:HG	2.01	0.60
29:c:67:THR:OG1	29:c:70:LYS:O	2.19	0.60
1:2:1472:C:H42	1:2:1476:A:H62	1.48	0.60
1:2:919:A:OP2	15:O:64:ARG:NH2	2.33	0.60
1:2:1274:G:H4'	12:L:47:LYS:HE3	1.84	0.60
1:2:1486:A:H2'	1:2:1487:A:C8	2.37	0.60
6:F:62:LYS:HA	6:F:80:ILE:HD11	1.83	0.60
17:Q:18:ARG:HG2	20:T:90:VAL:HA	1.83	0.60
1:2:151:C:OP1	26:Z:120:THR:OG1	2.16	0.60
1:2:453:C:O2'	8:H:92:ARG:O	2.16	0.60
1:2:1239:U:H4'	17:Q:123:TYR:HB2	1.83	0.60
24:X:87:GLU:OE1	24:X:90:GLN:NE2	2.32	0.60
1:2:98:C:OP2	1:2:426:A:O2'	2.13	0.60
1:2:846:G:C6	6:F:19:MET:HE3	2.37	0.60
1:2:990:A:OP2	28:b:37:LYS:NZ	2.35	0.60
1:2:1337:C:H2'	1:2:1338:G:H8	1.66	0.60
1:2:1475:G:OP2	1:2:1475:G:N2	2.35	0.60
31:e:43:PHE:O	31:e:47:ALA:HB2	2.02	0.60
1:2:1272:C:O2	1:2:1274:G:N2	2.35	0.60
36:z:140:A:N6	36:z:285:G:O6	2.34	0.60
4:D:209:VAL:HG11	4:D:233:LEU:HD11	1.84	0.60
7:G:50:PRO:HG2	7:G:90:VAL:HG22	1.83	0.60
19:S:73:LEU:HD11	19:S:76:GLU:HB2	1.82	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1082:A:O2'	1:2:1842:C:O2'	2.18	0.59
13:M:82:MET:HE3	13:M:85:THR:HG23	1.84	0.59
1:2:1083:A:N7	1:2:1841:C:O2'	2.32	0.59
1:2:1332:A:O2'	5:E:145:GLN:O	2.20	0.59
3:C:164:ILE:O	3:C:168:MET:HG3	2.02	0.59
14:N:33:ARG:HA	14:N:109:VAL:HG23	1.84	0.59
17:Q:83:MET:HB2	17:Q:116:LEU:HD13	1.83	0.59
22:V:48:LEU:HD21	22:V:93:SER:HB3	1.83	0.59
1:2:624:C:N4	25:Y:63:ASN:OD1	2.35	0.59
12:L:60:GLU:OE1	12:L:69:TRP:NE1	2.35	0.59
1:2:148:U:H2'	1:2:149:A:H8	1.67	0.59
1:2:1350:U:H3	1:2:1351:G:H8	1.51	0.59
3:C:82:ARG:NH2	3:C:189:ILE:O	2.35	0.59
24:X:111:MET:HE1	24:X:119:LYS:HE2	1.83	0.59
28:b:74:CYS:SG	28:b:77:CYS:HB2	2.41	0.59
1:2:1277:C:H2'	1:2:1278:A:C8	2.37	0.59
11:K:33:GLY:HA3	32:f:108:ARG:HH21	1.68	0.59
21:U:23:LYS:HE3	21:U:51:ASN:HB3	1.84	0.59
1:2:292:A:O2'	13:M:39:ASN:O	2.21	0.59
1:2:520:A:O2'	1:2:825:A:N3	2.36	0.59
13:M:104:LYS:O	25:Y:11:ARG:NH2	2.34	0.59
34:h:79:LEU:HD22	34:h:120:ILE:HD13	1.84	0.59
1:2:1403:C:OP2	1:2:1405:A:N6	2.34	0.59
1:2:1536:G:H2'	1:2:1537:A:C8	2.38	0.59
9:I:160:LYS:HB3	9:I:194:LEU:HG	1.83	0.59
32:f:100:LYS:HE3	32:f:102:THR:HG22	1.85	0.59
2:B:121:LEU:HD13	2:B:143:PRO:HG2	1.84	0.59
9:I:37:LYS:O	9:I:41:ARG:NH1	2.35	0.59
1:2:1220:A:N3	1:2:1677:U:O2'	2.33	0.58
1:2:1531:A:OP1	21:U:84:ARG:NH2	2.36	0.58
1:2:1536:G:H2'	1:2:1537:A:H8	1.67	0.58
4:D:266:TYR:O	4:D:270:THR:OG1	2.21	0.58
34:h:45:LEU:HD23	34:h:52:TYR:HE1	1.68	0.58
1:2:960:U:O2'	1:2:963:A:N6	2.33	0.58
11:K:170:PRO:O	11:K:175:ARG:NH2	2.36	0.58
22:V:96:GLU:HG3	22:V:97:ILE:HD12	1.85	0.58
1:2:158:A:C2	1:2:464:A:H2'	2.37	0.58
1:2:1213:C:H2'	1:2:1214:A:C8	2.38	0.58
1:2:1351:G:H21	1:2:1352:G:H3'	1.68	0.58
1:2:928:G:H2'	1:2:929:G:C8	2.38	0.58
1:2:1130:G:N2	1:2:1130:G:OP2	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:27:ARG:NH1	12:L:62:PHE:H	2.01	0.58
1:2:1293:A:H1'	33:g:138:ARG:HE	1.68	0.58
4:D:249:SER:HA	23:W:23:ILE:HD11	1.86	0.58
1:2:384:U:O4	10:J:5:ARG:NH2	2.35	0.58
1:2:1012:A:OP1	15:O:3:ARG:NH1	2.33	0.58
1:2:1302:G:N2	1:2:1305:C:OP2	2.37	0.58
19:S:51:ALA:O	19:S:55:THR:HG23	2.03	0.58
1:2:479:C:H2'	1:2:480:G:H8	1.69	0.58
1:2:1612:G:OP1	17:Q:18:ARG:NH2	2.36	0.58
3:C:147:ASN:ND2	36:z:300:G:OP1	2.36	0.58
15:O:142:GLU:OE2	15:O:144:SER:N	2.36	0.58
20:T:45:LEU:HD22	20:T:50:ILE:HD11	1.86	0.58
1:2:73:C:H2'	1:2:74:G:H4'	1.86	0.58
1:2:1808:U:H2'	1:2:1809:A:C8	2.39	0.58
3:C:35:ALA:HB2	3:C:44:ILE:HD11	1.86	0.58
1:2:1535:U:O2'	7:G:81:ARG:NH2	2.30	0.58
1:2:1572:C:H2'	1:2:1573:G:C8	2.39	0.58
2:B:5:LEU:HD21	23:W:41:LYS:HA	1.85	0.58
34:h:114:SER:HG	34:h:118:ARG:H	1.52	0.58
3:C:78:GLU:OE2	3:C:82:ARG:NH2	2.37	0.57
1:2:318:A:C2	1:2:333:G:C6	2.93	0.57
1:2:482:G:N2	1:2:485:A:OP2	2.36	0.57
1:2:851:C:O2'	1:2:852:G:N2	2.37	0.57
1:2:1528:G:O2'	1:2:1666:C:OP1	2.22	0.57
17:Q:44:ARG:O	17:Q:50:ARG:NE	2.36	0.57
1:2:223:C:H2'	1:2:224:A:H8	1.68	0.57
1:2:1379:A:H2'	1:2:1380:C:H6	1.70	0.57
4:D:148:ALA:O	4:D:152:ARG:HG2	2.04	0.57
1:2:1020:A:OP2	15:O:70:LYS:NZ	2.29	0.57
15:O:40:LEU:HD12	15:O:45:LEU:HD12	1.86	0.57
34:h:32:LEU:HB2	34:h:71:ILE:HD11	1.86	0.57
1:2:555:A:N6	1:2:589:G:N3	2.53	0.57
20:T:3:LEU:HG	27:a:49:LEU:HD11	1.85	0.57
28:b:74:CYS:SG	28:b:77:CYS:CB	2.93	0.57
1:2:456:C:H2'	1:2:457:C:C6	2.39	0.57
1:2:1007:C:H2'	1:2:1008:A:C8	2.40	0.57
1:2:1676:U:H3	7:G:78:MET:HE2	1.69	0.57
34:h:241:PHE:HE1	34:h:261:LEU:HD11	1.69	0.57
2:B:73:ASP:HB3	2:B:120:ARG:HB2	1.87	0.57
20:T:46:ARG:HH22	21:U:46:ALA:HB3	1.68	0.57
1:2:372:U:O2	1:2:394:G:O2'	2.16	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1360:U:O2'	1:2:1379:A:OP2	2.22	0.57
36:z:145:G:N1	36:z:248:U:N3	2.53	0.57
1:2:156:G:OP1	8:H:2:LYS:NZ	2.32	0.56
6:F:11:ARG:HA	6:F:28:ALA:HB2	1.85	0.56
11:K:32:ILE:HG12	11:K:37:LEU:HB2	1.87	0.56
12:L:91:PRO:HD2	12:L:94:LEU:HD12	1.87	0.56
19:S:17:ILE:HD11	19:S:54:VAL:HA	1.85	0.56
2:B:50:ASN:HD22	2:B:53:ARG:HE	1.51	0.56
36:z:260:A:H62	36:z:273:G:N2	2.03	0.56
1:2:1048:G:H21	1:2:1070:A:N6	1.96	0.56
1:2:1289:U:H2'	1:2:1290:G:C8	2.40	0.56
1:2:1665:G:C5	21:U:88:MET:HE1	2.40	0.56
2:B:2:SER:OG	2:B:56:GLU:OE1	2.16	0.56
3:C:105:LEU:HG	3:C:213:ARG:HA	1.87	0.56
14:N:113:ASP:OD2	14:N:121:LYS:NZ	2.38	0.56
34:h:28:PRO:O	34:h:47:ARG:NH2	2.35	0.56
1:2:1232:U:H2'	1:2:1233:G:C8	2.40	0.56
8:H:223:LYS:O	8:H:226:GLU:HG2	2.05	0.56
36:z:145:G:N2	36:z:248:U:O2	2.38	0.56
1:2:183:G:O2'	1:2:184:G:O4'	2.22	0.56
1:2:212:C:H2'	1:2:213:G:C8	2.41	0.56
7:G:194:ASP:OD1	7:G:195:GLU:N	2.38	0.56
36:z:291:G:H4'	36:z:314:C:H2'	1.88	0.56
17:Q:61:ARG:HH21	17:Q:88:GLU:HB2	1.71	0.56
1:2:433:A:OP1	10:J:25:ARG:NH2	2.39	0.56
1:2:534:G:H2'	1:2:535:G:C8	2.41	0.56
9:I:54:GLY:O	9:I:57:ARG:NH2	2.39	0.56
1:2:157:U:O2'	1:2:158:A:N7	2.34	0.56
1:2:1719:A:N6	1:2:1814:G:O2'	2.39	0.56
1:2:1841:C:OP2	35:n:2:ARG:NH1	2.39	0.56
2:B:36:GLN:O	2:B:53:ARG:NH1	2.38	0.56
3:C:78:GLU:CD	3:C:79:VAL:H	2.13	0.56
31:e:12:ARG:HA	31:e:12:ARG:NE	2.21	0.56
1:2:1843:G:OP1	35:n:7:LYS:NZ	2.36	0.56
1:2:561:A:H5'	11:K:171:GLY:HA3	1.87	0.55
1:2:1722:G:N2	1:2:1812:U:O2	2.39	0.55
9:I:154:ILE:HB	9:I:185:VAL:HG22	1.88	0.55
1:2:113:G:N1	1:2:292:A:N7	2.55	0.55
4:D:176:LYS:O	4:D:200:ARG:NH2	2.40	0.55
9:I:100:ILE:HG12	9:I:125:VAL:HG21	1.88	0.55
1:2:1226:G:N1	1:2:1639:G:OP2	2.30	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1289:U:H2'	1:2:1290:G:H8	1.71	0.55
15:O:136:PRO:HG2	15:O:139:TRP:HB2	1.88	0.55
1:2:1478:U:H2'	1:2:1479:G:H8	1.71	0.55
2:B:127:PRO:HG2	2:B:148:CYS:HB3	1.88	0.55
5:E:40:ARG:HB2	5:E:47:GLU:HG2	1.88	0.55
23:W:16:LYS:HA	23:W:23:ILE:HA	1.89	0.55
25:Y:23:HIS:O	25:Y:23:HIS:ND1	2.40	0.55
1:2:1606:G:H4'	1:2:1607:A:H5'	1.88	0.55
7:G:134:VAL:HG23	7:G:135:ARG:H	1.72	0.55
11:K:171:GLY:O	11:K:175:ARG:NE	2.38	0.55
1:2:436:G:O6	1:2:458:A:N6	2.40	0.55
1:2:516:A:N1	1:2:643:A:O2'	2.38	0.55
15:O:99:ARG:NH2	15:O:119:GLU:OE2	2.40	0.55
34:h:158:PRO:HG2	34:h:202:PRO:HA	1.88	0.55
1:2:1262:C:O2	31:e:12:ARG:NH1	2.39	0.55
10:J:56:ARG:NH1	10:J:180:GLY:O	2.40	0.55
1:2:918:U:O2'	1:2:919:A:O4'	2.23	0.55
1:2:1392:U:H2'	1:2:1393:G:H8	1.72	0.55
1:2:1442:U:H1'	18:R:11:GLN:HG2	1.87	0.55
2:B:197:VAL:HG23	2:B:198:MET:H	1.72	0.55
15:O:100:LYS:HA	15:O:103:GLU:OE1	2.06	0.55
17:Q:57:LEU:O	17:Q:61:ARG:HG2	2.06	0.55
18:R:37:ARG:HB3	21:U:7:LYS:HG2	1.89	0.55
19:S:23:ARG:NH1	34:h:149:GLU:OE2	2.40	0.55
23:W:20:SER:HB2	23:W:59:ILE:HD11	1.88	0.55
30:d:5:ARG:HB3	30:d:7:GLN:HE22	1.71	0.55
1:2:1082:A:HO2'	1:2:1842:C:HO2'	1.48	0.54
1:2:223:C:H2'	1:2:224:A:C8	2.42	0.54
1:2:498:C:H2'	1:2:499:G:C8	2.42	0.54
1:2:543:C:H3'	1:2:544:G:H8	1.72	0.54
1:2:1010:G:H2'	1:2:1011:A:H8	1.71	0.54
1:2:1126:G:OP1	2:B:41:ARG:NH1	2.36	0.54
1:2:1284:A:O4'	1:2:1313:A:N6	2.40	0.54
1:2:1846:G:H2'	1:2:1847:G:C8	2.41	0.54
5:E:108:LYS:HB2	5:E:113:LEU:HD22	1.89	0.54
1:2:383:G:H2'	1:2:384:U:C6	2.43	0.54
1:2:1630:A:H5''	20:T:37:GLY:N	2.22	0.54
1:2:1660:C:O2	31:e:32:ARG:NH2	2.40	0.54
9:I:72:PHE:HB3	9:I:76:GLN:HE22	1.71	0.54
33:g:99:LYS:HG3	33:g:100:LEU:HG	1.88	0.54
1:2:522:A:H5'	11:K:144:ILE:HG23	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1474:A:H2'	1:2:1475:G:C4	2.43	0.54
7:G:96:ALA:O	7:G:100:ILE:HG12	2.07	0.54
36:z:256:G:N1	36:z:275:A:N7	2.56	0.54
1:2:1463:U:OP1	19:S:67:ARG:NH2	2.41	0.54
16:P:29:GLY:O	16:P:93:LEU:HA	2.08	0.54
19:S:20:TYR:HE2	19:S:38:ILE:HG12	1.72	0.54
27:a:79:ILE:HG23	27:a:83:LEU:HD23	1.90	0.54
1:2:1495:G:O2'	31:e:26:ASN:OD1	2.26	0.54
1:2:1568:C:OP1	21:U:96:SER:OG	2.26	0.54
1:2:1598:G:O6	27:a:85:ARG:NH1	2.41	0.54
1:2:1648:G:O6	18:R:16:LYS:NZ	2.40	0.54
1:2:183:G:O2'	1:2:184:G:O5'	2.25	0.54
1:2:681:U:OP1	25:Y:8:ARG:NH2	2.40	0.54
1:2:1103:C:H2'	1:2:1104:G:C8	2.43	0.54
1:2:1424:G:H2'	1:2:1425:G:H8	1.72	0.54
22:V:56:MET:HG3	22:V:86:LYS:HE3	1.90	0.54
24:X:103:VAL:HG23	24:X:126:LEU:HB2	1.90	0.54
1:2:1259:A:N6	1:2:1519:U:O5'	2.41	0.54
1:2:1286:G:H21	1:2:1313:A:H62	1.54	0.54
1:2:1454:A:OP1	19:S:49:LYS:NZ	2.40	0.54
1:2:1497:G:N7	12:L:25:LYS:NZ	2.49	0.54
19:S:130:THR:O	19:S:132:ARG:NH1	2.40	0.54
21:U:85:ASN:HB2	21:U:88:MET:HB2	1.90	0.54
36:z:260:A:N6	36:z:273:G:H21	2.06	0.54
1:2:981:A:H2'	1:2:982:G:H8	1.73	0.54
6:F:100:ARG:HB2	6:F:114:ILE:HD13	1.89	0.54
1:2:150:A:H62	1:2:168:C:H42	1.56	0.53
1:2:476:A:N3	1:2:488:U:O2'	2.38	0.53
34:h:302:TYR:OH	34:h:308:ARG:NH2	2.41	0.53
1:2:433:A:H2'	1:2:434:G:C8	2.43	0.53
1:2:691:G:H2'	1:2:692:G:H8	1.73	0.53
1:2:1412:C:H2'	1:2:1413:G:H8	1.74	0.53
1:2:1565:C:N4	1:2:1566:G:O6	2.41	0.53
12:L:52:LEU:HA	12:L:55:ARG:NH1	2.23	0.53
1:2:1608:U:O4	1:2:1632:G:N2	2.40	0.53
2:B:19:LEU:HD23	19:S:98:VAL:HG11	1.89	0.53
8:H:7:PHE:HD2	8:H:10:THR:HG22	1.73	0.53
8:H:78:SER:HB2	8:H:92:ARG:HG2	1.88	0.53
20:T:73:ASN:HB3	20:T:76:GLN:HB2	1.90	0.53
1:2:1252:C:N4	18:R:146:ARG:O	2.42	0.53
7:G:21:GLY:HA2	18:R:49:TYR:HE2	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:1:MET:N	12:L:1:MET:HE2	2.24	0.53
19:S:37:GLU:OE1	34:h:150:TRP:NE1	2.42	0.53
1:2:77:A:O2'	8:H:174:PRO:O	2.22	0.53
1:2:1497:G:H4'	1:2:1498:A:H5''	1.91	0.53
8:H:54:GLY:O	8:H:110:ASN:ND2	2.41	0.53
15:O:87:ASP:OD1	15:O:88:LEU:N	2.42	0.53
16:P:78:ALA:HB1	16:P:119:LEU:HB3	1.90	0.53
1:2:1112:U:O2	1:2:1121:G:O6	2.26	0.53
2:B:10:MET:HE1	2:B:51:LEU:HB3	1.90	0.53
2:B:66:VAL:HG21	2:B:185:MET:HB3	1.91	0.53
16:P:34:PHE:HB3	16:P:41:PHE:HB2	1.90	0.53
18:R:40:GLU:HA	18:R:48:GLN:NE2	2.24	0.53
24:X:14:ILE:HD11	24:X:65:LEU:HD21	1.90	0.53
34:h:44:LYS:HB2	34:h:56:GLN:HB2	1.91	0.53
1:2:444:G:N2	1:2:447:A:OP2	2.42	0.53
2:B:30:LEU:HB2	2:B:47:TYR:HE2	1.73	0.53
15:O:16:LEU:O	24:X:57:ARG:NH2	2.43	0.52
7:G:50:PRO:HB3	7:G:69:VAL:HG12	1.92	0.52
34:h:34:ALA:HB2	34:h:69:VAL:HG12	1.91	0.52
15:O:69:ASN:HB3	15:O:73:ARG:HB3	1.91	0.52
16:P:33:ILE:HD11	16:P:119:LEU:HD21	1.90	0.52
17:Q:111:MET:HE1	20:T:117:ILE:HG23	1.91	0.52
34:h:176:VAL:O	34:h:185:LYS:N	2.43	0.52
1:2:1275:G:O4'	1:2:1506:A:N6	2.43	0.52
3:C:103:MET:HE1	3:C:188:LEU:HD22	1.91	0.52
12:L:57:TYR:HA	12:L:74:GLU:OE2	2.09	0.52
14:N:32:ALA:HB3	14:N:110:VAL:HG13	1.92	0.52
17:Q:48:GLY:O	17:Q:50:ARG:NH1	2.43	0.52
20:T:15:VAL:HB	20:T:20:ILE:HD12	1.91	0.52
24:X:51:GLU:HG2	29:c:8:LEU:HD11	1.90	0.52
1:2:1179:G:N2	1:2:1182:A:OP2	2.42	0.52
1:2:1780:G:C3'	1:2:1781:A:H4'	2.38	0.52
33:g:144:CYS:HB3	33:g:146:LEU:HD12	1.92	0.52
1:2:218:U:O2	10:J:184:ARG:NH1	2.42	0.52
14:N:62:VAL:O	14:N:66:GLU:HG2	2.09	0.52
17:Q:47:ARG:HB2	17:Q:50:ARG:HH22	1.73	0.52
21:U:104:LEU:HD11	21:U:121:ARG:HG3	1.92	0.52
25:Y:61:GLN:HB2	25:Y:62:PRO:CD	2.39	0.52
1:2:1478:U:H2'	1:2:1479:G:C8	2.44	0.52
6:F:122:LYS:NZ	6:F:124:CYS:SG	2.82	0.52
20:T:38:ARG:O	20:T:42:HIS:ND1	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:d:40:ARG:NH2	30:d:61:SER:O	2.42	0.52
1:2:1036:A:O2'	1:2:1844:U:O2	2.26	0.52
1:2:1289:U:H4'	12:L:2:LEU:HD22	1.92	0.52
1:2:1360:U:H2'	1:2:1361:G:O4'	2.09	0.52
1:2:1562:C:H5''	21:U:71:GLY:HA3	1.91	0.52
4:D:173:LYS:HD2	23:W:2:GLN:HG3	1.91	0.52
10:J:110:ARG:HA	10:J:121:LEU:HD23	1.92	0.52
18:R:58:LEU:HB2	18:R:63:PHE:HE1	1.75	0.52
1:2:28:U:H2'	1:2:29:G:H8	1.74	0.52
1:2:564:A:H62	1:2:586:G:H21	1.58	0.52
1:2:1252:C:OP1	22:V:75:LYS:NZ	2.36	0.52
1:2:1351:G:H22	1:2:1353:A:H8	1.57	0.52
21:U:113:VAL:HG12	21:U:123:LEU:HD12	1.92	0.52
1:2:1304:U:H5'	33:g:93:HIS:HB2	1.91	0.51
27:a:72:VAL:HA	27:a:75:GLU:HG2	1.92	0.51
34:h:131:LEU:HD21	34:h:179:LEU:HD23	1.92	0.51
1:2:908:A:H2'	1:2:909:G:C8	2.46	0.51
1:2:982:G:H2'	1:2:983:A:H8	1.75	0.51
1:2:1744:G:H1'	1:2:1789:G:H22	1.76	0.51
2:B:176:TRP:HZ2	2:B:196:GLU:HG2	1.73	0.51
6:F:45:ILE:HA	6:F:61:VAL:HG11	1.91	0.51
1:2:16:G:H21	1:2:1195:A:H62	1.56	0.51
1:2:445:A:O2'	1:2:446:G:OP1	2.26	0.51
1:2:634:A:OP1	32:f:86:ARG:NH1	2.43	0.51
1:2:1228:A:O2'	1:2:1634:A:N3	2.41	0.51
1:2:1392:U:H2'	1:2:1393:G:C8	2.45	0.51
3:C:123:ALA:HB2	3:C:165:ARG:HG3	1.92	0.51
34:h:64:HIS:CG	34:h:65:PHE:H	2.27	0.51
36:z:172:A:H2'	36:z:173:A:H8	1.75	0.51
1:2:399:C:N3	13:M:104:LYS:NZ	2.47	0.51
1:2:946:U:H2'	1:2:947:G:C8	2.45	0.51
1:2:1535:U:O2	7:G:82:ASN:ND2	2.43	0.51
2:B:34:MET:HE2	2:B:154:LEU:HD11	1.93	0.51
34:h:5:MET:HE2	34:h:5:MET:HA	1.92	0.51
8:H:121:ILE:HD12	8:H:122:PRO:HD2	1.93	0.51
14:N:85:LEU:HA	14:N:88:TRP:HB2	1.92	0.51
17:Q:125:PRO:HB3	20:T:127:TRP:CZ2	2.45	0.51
29:c:65:GLN:HB2	29:c:72:ARG:HB2	1.93	0.51
36:z:307:G:O6	36:z:329:U:O2	2.29	0.51
1:2:613:G:N2	1:2:626:G:OP1	2.41	0.51
1:2:1257:G:OP2	1:2:1659:U:O2'	2.26	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:99:ASN:ND2	10:J:99:ASN:O	2.41	0.51
1:2:375:U:H2'	1:2:376:A:C8	2.45	0.51
1:2:1550:G:H3'	1:2:1579:A:H61	1.75	0.51
11:K:42:GLU:HA	11:K:45:ARG:HG2	1.93	0.51
1:2:1146:C:O2'	1:2:1150:A:N1	2.40	0.51
1:2:1705:C:H2'	1:2:1706:G:H8	1.76	0.51
25:Y:23:HIS:O	25:Y:23:HIS:CG	2.63	0.51
29:c:40:CYS:SG	29:c:41:TYR:N	2.83	0.51
34:h:254:PRO:HA	34:h:285:GLN:HA	1.93	0.51
1:2:1587:G:OP1	1:2:1587:G:N2	2.41	0.51
6:F:232:ASN:HB3	6:F:233:LYS:HE2	1.93	0.51
14:N:58:GLU:HB3	14:N:61:TYR:HB3	1.92	0.51
23:W:67:ASP:OD2	23:W:71:ARG:NH1	2.43	0.51
1:2:118:C:H1'	1:2:445:A:C5	2.47	0.50
1:2:1415:C:H2'	1:2:1416:C:C6	2.46	0.50
6:F:188:ASN:HB2	6:F:191:ARG:HG3	1.92	0.50
10:J:135:GLU:OE1	10:J:139:LYS:NZ	2.41	0.50
10:J:174:CYS:HB2	10:J:190:LEU:HD21	1.91	0.50
33:g:141:CYS:SG	33:g:142:GLY:N	2.84	0.50
1:2:1458:G:H2'	1:2:1459:G:H8	1.77	0.50
1:2:1544:C:H4'	18:R:80:GLN:HE22	1.76	0.50
1:2:1805:G:H2'	1:2:1806:A:C8	2.45	0.50
16:P:150:ARG:H	16:P:150:ARG:HD3	1.76	0.50
1:2:639:C:H5''	32:f:110:GLN:HG3	1.92	0.50
1:2:961:G:H3'	1:2:962:A:C8	2.46	0.50
1:2:1667:U:H2'	1:2:1668:U:C6	2.46	0.50
17:Q:17:TYR:N	17:Q:20:VAL:O	2.44	0.50
30:d:44:ARG:HH21	30:d:63:ARG:HH21	1.60	0.50
34:h:26:GLN:NE2	34:h:75:GLY:O	2.44	0.50
1:2:121:U:H2'	1:2:122:G:C8	2.46	0.50
4:D:80:GLU:HA	4:D:83:LEU:HB3	1.94	0.50
34:h:90:TRP:CD1	34:h:97:THR:HG22	2.46	0.50
1:2:483:C:H5'	25:Y:48:LYS:HE2	1.92	0.50
1:2:1033:G:N1	1:2:1080:A:O2'	2.24	0.50
1:2:1166:G:H1	1:2:1193:U:H3	1.59	0.50
4:D:267:GLN:OE1	23:W:35:ASN:ND2	2.45	0.50
17:Q:50:ARG:HB3	17:Q:54:HIS:CG	2.47	0.50
20:T:99:LEU:HD23	20:T:99:LEU:H	1.76	0.50
34:h:126:ASP:OD1	34:h:127:LYS:N	2.42	0.50
1:2:64:A:H2	1:2:83:A:H62	1.58	0.50
1:2:907:G:H2'	1:2:908:A:C8	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1198:G:H2'	1:2:1199:A:C8	2.46	0.50
1:2:1786:U:H2'	1:2:1787:G:C8	2.46	0.50
10:J:88:ASN:HB3	10:J:205:ARG:HH21	1.75	0.50
11:K:23:SER:O	11:K:27:GLN:HG3	2.11	0.50
19:S:78:ARG:HA	19:S:81:ARG:HD2	1.94	0.50
1:2:156:G:H2'	1:2:157:U:C6	2.47	0.50
1:2:1279:C:H2'	1:2:1280:G:C8	2.47	0.50
2:B:198:MET:HB3	2:B:201:LEU:HB2	1.93	0.50
5:E:204:LEU:HB2	5:E:207:HIS:HB2	1.94	0.50
19:S:35:CYS:HA	19:S:38:ILE:HG22	1.93	0.50
20:T:71:MET:SD	20:T:72:GLN:HG2	2.52	0.50
1:2:917:U:H2'	1:2:918:U:C6	2.47	0.50
1:2:979:C:H2'	1:2:980:A:H8	1.77	0.50
1:2:1217:A:H2'	1:2:1218:C:C6	2.47	0.50
1:2:1653:U:H2'	1:2:1654:G:C8	2.47	0.50
1:2:864:A:H2'	1:2:865:A:C8	2.47	0.50
3:C:71:LEU:HD22	3:C:84:PHE:HE1	1.77	0.50
7:G:175:ASP:O	7:G:179:ASN:ND2	2.45	0.50
16:P:61:LYS:HD2	16:P:76:LEU:HG	1.94	0.50
20:T:101:ASN:OD1	20:T:102:GLY:N	2.45	0.50
36:z:244:A:H2'	36:z:245:G:C8	2.47	0.50
34:h:45:LEU:HD21	34:h:299:PHE:HZ	1.77	0.49
1:2:656:G:H21	1:2:663:C:H5''	1.76	0.49
1:2:980:A:H2'	1:2:981:A:C8	2.46	0.49
2:B:206:ASP:O	2:B:210:ILE:N	2.40	0.49
9:I:28:LEU:O	9:I:31:GLU:HG3	2.12	0.49
21:U:76:THR:HG22	21:U:94:ARG:HB3	1.94	0.49
22:V:83:ARG:HG3	22:V:83:ARG:HH11	1.76	0.49
34:h:87:LEU:HD21	34:h:108:VAL:HG11	1.93	0.49
36:z:172:A:H2'	36:z:173:A:C8	2.47	0.49
22:V:78:ASP:OD1	22:V:79:ARG:N	2.45	0.49
34:h:298:LEU:O	34:h:310:TRP:N	2.45	0.49
36:z:165:A:N6	36:z:237:C:O2'	2.40	0.49
1:2:493:A:H1'	1:2:574:A:H5'	1.95	0.49
1:2:645:C:H2'	1:2:646:G:H8	1.78	0.49
11:K:114:VAL:HG13	11:K:119:LEU:HD11	1.94	0.49
19:S:40:ILE:O	19:S:40:ILE:HG13	2.12	0.49
24:X:7:LEU:O	24:X:11:LEU:HD23	2.13	0.49
2:B:44:ASP:HA	19:S:128:PHE:HB3	1.93	0.49
18:R:8:GLN:HB2	18:R:27:ARG:HB2	1.93	0.49
34:h:30:MET:HE2	34:h:42:MET:HE3	1.92	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:91:LEU:HD11	14:N:106:CYS:SG	2.52	0.49
24:X:3:ARG:HD3	24:X:6:VAL:HG12	1.93	0.49
1:2:1358:U:H2'	1:2:1359:U:O4'	2.13	0.49
12:L:57:TYR:O	12:L:72:THR:OG1	2.30	0.49
1:2:608:C:O4'	32:f:131:ASN:ND2	2.45	0.49
1:2:1244:U:H2'	1:2:1245:G:H8	1.77	0.49
1:2:1447:G:O5'	22:V:87:ARG:NH2	2.46	0.49
1:2:1457:U:H2'	1:2:1458:G:C8	2.47	0.49
1:2:1562:C:OP1	21:U:73:GLY:N	2.43	0.49
5:E:108:LYS:O	5:E:113:LEU:HB2	2.13	0.49
10:J:150:ASP:OD1	10:J:154:LYS:NZ	2.46	0.49
19:S:57:LEU:O	19:S:61:ILE:HG12	2.13	0.49
28:b:31:PRO:HG2	28:b:34:LYS:HB3	1.94	0.49
28:b:89:ARG:HA	28:b:92:ARG:HH21	1.77	0.49
32:f:108:ARG:O	32:f:112:ASN:ND2	2.46	0.49
1:2:534:G:H2'	1:2:535:G:H8	1.77	0.49
3:C:144:LYS:HE2	3:C:208:HIS:CD2	2.48	0.49
3:C:217:MET:HE1	3:C:220:LYS:HD2	1.95	0.49
9:I:93:VAL:HG21	9:I:133:LEU:HD12	1.95	0.49
1:2:1597:C:OP2	27:a:85:ARG:NH2	2.29	0.49
25:Y:61:GLN:O	25:Y:63:ASN:N	2.46	0.49
27:a:68:ILE:HB	27:a:109:TYR:HB2	1.95	0.49
1:2:924:G:O6	1:2:1019:C:N4	2.45	0.48
1:2:1274:G:H1	31:e:3:HIS:CE1	2.30	0.48
1:2:1279:C:H2'	1:2:1280:G:H8	1.78	0.48
1:2:1513:C:H2'	1:2:1514:G:H8	1.78	0.48
1:2:1562:C:OP1	21:U:72:VAL:N	2.46	0.48
1:2:1676:U:N3	7:G:78:MET:HE2	2.28	0.48
3:C:128:LYS:HD2	3:C:132:GLY:HA2	1.94	0.48
4:D:191:VAL:HG11	4:D:236:PHE:HA	1.94	0.48
13:M:22:ARG:HE	13:M:30:LYS:NZ	2.11	0.48
16:P:21:VAL:HG13	16:P:24:GLY:H	1.78	0.48
34:h:82:SER:OG	34:h:83:TRP:N	2.46	0.48
1:2:39:A:H5'	11:K:7:TRP:CZ3	2.48	0.48
1:2:1401:A:H4'	22:V:52:GLY:HA3	1.95	0.48
1:2:1533:A:N3	1:2:1533:A:H2'	2.28	0.48
2:B:102:ARG:NH1	2:B:103:PHE:O	2.47	0.48
17:Q:17:TYR:CZ	17:Q:18:ARG:HD2	2.48	0.48
20:T:123:LEU:HB2	20:T:127:TRP:HZ3	1.76	0.48
21:U:124:THR:HG23	21:U:127:GLY:H	1.79	0.48
1:2:466:G:H2'	8:H:59:GLN:HE22	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:691:G:H2'	1:2:692:G:C8	2.47	0.48
1:2:1268:C:O2	17:Q:97:TYR:OH	2.27	0.48
1:2:1283:C:N4	14:N:102:LYS:O	2.46	0.48
2:B:184:ARG:HD3	2:B:191:ARG:HG3	1.94	0.48
11:K:42:GLU:OE1	11:K:109:ARG:NH2	2.46	0.48
34:h:42:MET:HB3	34:h:57:ARG:HB2	1.95	0.48
1:2:17:C:O2'	1:2:1194:A:N1	2.46	0.48
1:2:218:U:H2'	1:2:219:U:H6	1.79	0.48
1:2:218:U:H2'	1:2:219:U:C6	2.48	0.48
1:2:600:G:H2'	1:2:601:G:C8	2.48	0.48
1:2:641:A:H2'	1:2:642:U:O4'	2.14	0.48
1:2:867:G:O2'	1:2:868:G:O4'	2.24	0.48
1:2:925:G:OP1	15:O:121:ARG:NH1	2.45	0.48
1:2:980:A:H2'	1:2:981:A:H8	1.78	0.48
1:2:1727:G:H2'	1:2:1728:U:C6	2.48	0.48
2:B:147:LEU:HG	2:B:163:CYS:SG	2.53	0.48
12:L:61:GLN:O	12:L:68:TYR:N	2.40	0.48
20:T:43:VAL:HA	20:T:46:ARG:HD3	1.95	0.48
1:2:293:C:O2'	1:2:294:U:H3'	2.13	0.48
1:2:1620:A:N3	17:Q:40:ARG:NH2	2.62	0.48
1:2:1722:G:O6	1:2:1812:U:O4	2.32	0.48
2:B:55:TRP:O	2:B:59:LEU:HG	2.14	0.48
18:R:40:GLU:HA	18:R:48:GLN:HE22	1.78	0.48
28:b:53:ILE:O	28:b:57:SER:HB3	2.14	0.48
34:h:298:LEU:HB3	34:h:310:TRP:HB2	1.95	0.48
1:2:1097:G:H4'	2:B:32:PHE:CD1	2.49	0.48
5:E:22:ASN:O	5:E:26:THR:HG23	2.14	0.48
20:T:35:GLY:O	20:T:97:GLN:NE2	2.46	0.48
20:T:36:VAL:HG23	20:T:40:TYR:HB3	1.95	0.48
1:2:982:G:H2'	1:2:983:A:C8	2.49	0.48
1:2:1711:U:H2'	1:2:1712:A:H8	1.77	0.48
8:H:59:GLN:OE1	8:H:72:ARG:NH2	2.47	0.48
34:h:199:THR:HG21	34:h:240:CYS:HA	1.95	0.48
1:2:562:U:O4	11:K:172:ARG:NH2	2.46	0.48
1:2:952:G:H2'	1:2:953:C:C6	2.49	0.48
1:2:1096:G:H1	1:2:1136:U:H3	1.61	0.48
5:E:121:GLY:O	5:E:124:ARG:HG2	2.14	0.48
20:T:80:PRO:HB2	20:T:82:TRP:CD1	2.48	0.48
22:V:55:ARG:HB3	22:V:87:ARG:HE	1.79	0.48
34:h:20:GLN:HG3	34:h:34:ALA:HB3	1.94	0.48
34:h:191:HIS:NE2	34:h:215:GLN:O	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1183:A:H5'	35:n:11:ARG:HD3	1.96	0.48
15:O:32:ASP:O	15:O:36:GLN:HG2	2.14	0.48
16:P:97:LEU:HD22	28:b:44:ILE:HD12	1.96	0.48
26:Z:82:ALA:O	26:Z:86:GLU:HG3	2.14	0.48
27:a:62:VAL:HG13	27:a:68:ILE:HG12	1.94	0.48
1:2:1472:C:O2'	34:h:15:ASN:OD1	2.29	0.48
1:2:1653:U:H5''	21:U:82:ARG:NH2	2.29	0.48
20:T:123:LEU:HB2	20:T:127:TRP:CZ3	2.49	0.48
25:Y:52:LEU:HD11	25:Y:73:GLN:HB2	1.94	0.48
1:2:958:G:H3'	1:2:959:G:H8	1.79	0.47
1:2:1136:U:H2'	1:2:1137:U:C6	2.49	0.47
1:2:1562:C:H4'	21:U:120:GLY:H	1.79	0.47
1:2:1676:U:O3'	7:G:63:LYS:NZ	2.43	0.47
16:P:129:ILE:HB	28:b:65:PRO:HG3	1.96	0.47
17:Q:108:LYS:HE2	17:Q:110:GLU:HB2	1.96	0.47
26:Z:29:HIS:O	26:Z:29:HIS:ND1	2.43	0.47
34:h:104:HIS:NE2	34:h:130:LYS:HD2	2.28	0.47
1:2:1796:G:H2'	1:2:1797:U:C6	2.49	0.47
5:E:134:CYS:SG	5:E:135:GLU:N	2.87	0.47
1:2:14:C:H2'	1:2:15:U:C6	2.49	0.47
1:2:145:G:H2'	1:2:146:G:C8	2.48	0.47
1:2:847:A:OP1	6:F:108:ARG:HD3	2.14	0.47
2:B:2:SER:HB3	23:W:78:ILE:HG22	1.96	0.47
2:B:10:MET:HE3	2:B:55:TRP:HB2	1.96	0.47
4:D:180:VAL:HG22	4:D:219:ILE:HD13	1.96	0.47
5:E:75:LYS:HD2	12:L:20:VAL:HG23	1.96	0.47
5:E:150:MET:HE2	5:E:152:PHE:HZ	1.80	0.47
34:h:114:SER:OG	34:h:118:ARG:N	2.39	0.47
36:z:139:C:H2'	36:z:140:A:H8	1.79	0.47
1:2:525:A:H4'	32:f:101:ARG:HH22	1.79	0.47
1:2:627:U:H4'	1:2:628:A:O5'	2.14	0.47
1:2:1406:G:H2'	1:2:1407:U:H6	1.80	0.47
1:2:1807:C:H2'	1:2:1808:U:O4'	2.14	0.47
4:D:183:LYS:HD2	24:X:95:PRO:HA	1.97	0.47
16:P:30:VAL:HG13	16:P:47:LEU:HD23	1.96	0.47
26:Z:23:MET:SD	26:Z:23:MET:N	2.88	0.47
34:h:130:LYS:HB3	34:h:141:THR:HG23	1.96	0.47
1:2:375:U:H2'	1:2:376:A:H8	1.78	0.47
1:2:1144:A:H2'	1:2:1145:A:C8	2.48	0.47
1:2:1198:G:H2'	1:2:1199:A:H8	1.78	0.47
2:B:205:ARG:HH22	19:S:82:ASP:HA	1.78	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:86:PHE:HE1	6:F:102:ILE:HG13	1.80	0.47
7:G:92:ILE:HG21	7:G:169:ILE:HD12	1.97	0.47
13:M:101:ARG:HH21	25:Y:5:ARG:HA	1.79	0.47
1:2:959:G:H2'	1:2:960:U:C6	2.49	0.47
9:I:121:THR:HG23	9:I:124:ALA:H	1.78	0.47
1:2:659:G:O2'	1:2:662:G:O3'	2.33	0.47
1:2:819:G:OP1	11:K:79:ARG:NH2	2.47	0.47
1:2:1218:C:H2'	1:2:1219:C:C6	2.50	0.47
1:2:1474:A:H2'	1:2:1475:G:N3	2.30	0.47
1:2:1544:C:O2'	18:R:75:GLY:O	2.30	0.47
1:2:1623:A:C4	20:T:132:ARG:HD2	2.50	0.47
1:2:1736:G:H2'	1:2:1737:G:C8	2.49	0.47
2:B:38:ILE:HD11	2:B:150:THR:HG21	1.97	0.47
5:E:150:MET:HE2	5:E:152:PHE:CZ	2.50	0.47
7:G:144:LEU:HD23	7:G:148:ASN:HD21	1.78	0.47
20:T:68:ILE:HA	20:T:71:MET:HG3	1.97	0.47
25:Y:82:THR:HG21	25:Y:118:VAL:HG22	1.96	0.47
36:z:132:G:H2'	36:z:133:G:H8	1.79	0.47
36:z:259:U:H2'	36:z:259:U:O2	2.13	0.47
1:2:1286:G:N2	1:2:1313:A:H62	2.11	0.47
1:2:1456:G:H2'	1:2:1457:U:C6	2.50	0.47
1:2:1515:G:H21	17:Q:99:GLY:HA2	1.79	0.47
23:W:3:ASN:HD21	23:W:7:GLU:HG3	1.80	0.47
25:Y:46:HIS:HB3	25:Y:101:LEU:HD11	1.96	0.47
1:2:1212:G:H2'	1:2:1213:C:C6	2.50	0.47
4:D:114:LYS:HG3	4:D:121:ARG:HB3	1.96	0.47
4:D:212:LYS:HD2	4:D:215:MET:HE2	1.96	0.47
6:F:31:PRO:HA	6:F:81:THR:HB	1.96	0.47
13:M:24:LEU:HG	13:M:26:GLY:H	1.79	0.47
27:a:50:PHE:HZ	27:a:87:ALA:HB2	1.78	0.47
32:f:101:ARG:O	32:f:101:ARG:NE	2.45	0.47
36:z:304:C:N4	36:z:305:U:O4	2.48	0.47
1:2:517:C:H2'	1:2:518:G:O4'	2.15	0.47
1:2:600:G:H2'	1:2:601:G:H8	1.79	0.47
1:2:1340:U:OP2	1:2:1341:C:O2'	2.28	0.47
1:2:1628:C:H2'	1:2:1629:C:C6	2.50	0.47
1:2:1858:G:OP2	16:P:146:ARG:NH2	2.35	0.47
11:K:87:LEU:HD21	11:K:100:LEU:HD11	1.96	0.47
1:2:1563:G:H5''	21:U:121:ARG:HH21	1.80	0.46
6:F:206:ASP:HB2	6:F:222:LEU:HB2	1.97	0.46
14:N:82:ASN:OD1	14:N:83:LYS:N	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:206:ASP:OD1	2:B:207:PRO:HD2	2.15	0.46
3:C:62:LEU:HA	3:C:65:ARG:HD2	1.97	0.46
10:J:83:TYR:HB2	10:J:202:ILE:HD13	1.97	0.46
13:M:68:ILE:HG21	13:M:143:LEU:HD21	1.97	0.46
13:M:120:VAL:HG22	13:M:145:VAL:HG21	1.96	0.46
20:T:52:LEU:H	20:T:52:LEU:HD23	1.79	0.46
1:2:909:G:H2'	1:2:910:G:C8	2.50	0.46
1:2:1353:A:H61	1:2:1358:U:H3	1.62	0.46
1:2:1506:A:H4'	1:2:1507:G:H3'	1.98	0.46
5:E:167:TYR:OH	5:E:202:LYS:O	2.27	0.46
15:O:120:SER:O	15:O:124:ARG:HG3	2.15	0.46
1:2:152:U:H2'	1:2:153:G:C8	2.50	0.46
1:2:687:C:N3	9:I:118:ARG:NH2	2.63	0.46
1:2:807:G:H2'	1:2:808:A:C8	2.51	0.46
1:2:1348:G:N2	1:2:1361:G:O6	2.44	0.46
4:D:102:LEU:HD23	4:D:159:LYS:HE2	1.96	0.46
5:E:5:ILE:HG13	5:E:10:LYS:HG2	1.97	0.46
21:U:39:LEU:HD11	21:U:56:ARG:HH21	1.79	0.46
23:W:51:LYS:HE2	23:W:76:ASP:HB3	1.96	0.46
26:Z:74:MET:HE2	26:Z:76:TYR:HE1	1.79	0.46
27:a:96:LEU:O	27:a:112:ASN:ND2	2.35	0.46
34:h:8:ARG:HE	34:h:311:GLN:HB3	1.81	0.46
34:h:85:GLY:HA2	34:h:108:VAL:HG23	1.98	0.46
1:2:1172:U:H4'	35:n:10:MET:HE2	1.98	0.46
1:2:1265:A:O2'	1:2:1327:G:OP2	2.25	0.46
1:2:1705:C:H2'	1:2:1706:G:C8	2.50	0.46
7:G:71:ARG:NH2	7:G:148:ASN:OD1	2.49	0.46
17:Q:34:MET:HB2	17:Q:42:ARG:HG2	1.97	0.46
34:h:226:HIS:NE2	34:h:228:TYR:O	2.47	0.46
1:2:440:G:H5''	10:J:2:GLY:N	2.30	0.46
1:2:498:C:H2'	1:2:499:G:H8	1.80	0.46
1:2:1673:U:H5''	18:R:78:VAL:HG22	1.97	0.46
8:H:7:PHE:HD1	8:H:113:ILE:HB	1.80	0.46
15:O:128:TYR:HA	15:O:131:THR:HG22	1.98	0.46
16:P:30:VAL:HG12	16:P:94:HIS:HB2	1.97	0.46
19:S:17:ILE:HD12	19:S:57:LEU:HD23	1.98	0.46
36:z:308:C:H2'	36:z:309:G:H8	1.80	0.46
1:2:795:A:H2'	1:2:795:A:N3	2.30	0.46
1:2:1213:C:H2'	1:2:1214:A:H8	1.81	0.46
7:G:91:ARG:HH12	27:a:105:ALA:HB2	1.80	0.46
8:H:7:PHE:HB2	8:H:124:LEU:HD23	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:63:LEU:O	11:K:70:ARG:NH1	2.48	0.46
12:L:41:PRO:HG2	12:L:44:HIS:HB2	1.96	0.46
34:h:40:ILE:HB	34:h:59:LEU:HB2	1.97	0.46
1:2:602:G:OP2	1:2:603:C:O2'	2.25	0.46
1:2:656:G:H5'	1:2:662:G:N2	2.31	0.46
5:E:105:LEU:HD12	5:E:122:VAL:HG21	1.98	0.46
6:F:11:ARG:NH2	6:F:24:THR:OG1	2.49	0.46
15:O:30:SER:HB2	15:O:67:THR:HG22	1.97	0.46
19:S:95:ILE:HD12	19:S:118:GLN:HE22	1.80	0.46
24:X:3:ARG:HH22	24:X:28:ARG:NH2	2.13	0.46
32:f:84:LYS:O	32:f:88:GLN:HG2	2.16	0.46
34:h:88:ARG:NH2	34:h:97:THR:OG1	2.38	0.46
1:2:806:U:H2'	1:2:807:G:C8	2.51	0.46
1:2:942:G:H2'	1:2:943:U:C6	2.51	0.46
1:2:1536:G:H5'	7:G:81:ARG:HH21	1.81	0.46
1:2:1537:A:H2'	1:2:1538:C:H6	1.80	0.46
4:D:60:TRP:NE1	4:D:92:GLU:OE2	2.49	0.46
10:J:61:ASP:OD2	10:J:62:VAL:N	2.49	0.46
1:2:907:G:H2'	1:2:908:A:H8	1.81	0.46
1:2:1576:G:H2'	1:2:1577:G:C8	2.50	0.46
1:2:1756:C:H2'	1:2:1757:G:C8	2.51	0.46
2:B:37:TYR:CD1	2:B:162:PRO:HG3	2.51	0.46
2:B:78:SER:HB2	2:B:87:VAL:HG11	1.97	0.46
2:B:90:PHE:HD1	2:B:179:ALA:HB2	1.81	0.46
2:B:102:ARG:HD2	2:B:102:ARG:HA	1.74	0.46
2:B:207:PRO:HA	2:B:210:ILE:HB	1.98	0.46
1:2:481:C:H2'	1:2:482:G:C8	2.50	0.45
1:2:509:G:H2'	1:2:510:G:H8	1.81	0.45
1:2:1365:G:H2'	1:2:1366:G:C8	2.51	0.45
1:2:1643:U:H2'	1:2:1644:C:C6	2.51	0.45
10:J:178:ARG:NH1	10:J:181:GLN:HG3	2.30	0.45
11:K:35:TYR:O	11:K:111:GLN:NE2	2.45	0.45
12:L:47:LYS:HA	12:L:50:GLN:HG2	1.98	0.45
20:T:27:ALA:HB2	20:T:52:LEU:HD12	1.96	0.45
23:W:40:ASP:OD1	23:W:45:ARG:N	2.49	0.45
26:Z:80:ASP:OD1	26:Z:81:TYR:N	2.48	0.45
1:2:846:G:OP2	6:F:108:ARG:NH2	2.49	0.45
1:2:1351:G:N3	1:2:1351:G:H2'	2.31	0.45
1:2:1447:G:H2'	1:2:1448:A:C8	2.52	0.45
1:2:1631:U:H4'	20:T:34:LYS:HG3	1.97	0.45
1:2:1673:U:H2'	1:2:1674:G:O4'	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:81:ASN:HA	2:B:84:GLN:HE21	1.81	0.45
7:G:28:VAL:HG11	7:G:109:LEU:HB2	1.98	0.45
7:G:78:MET:HG3	7:G:159:ARG:NH2	2.27	0.45
1:2:17:C:H2'	1:2:18:C:C6	2.51	0.45
1:2:118:C:H1'	1:2:445:A:C6	2.52	0.45
1:2:522:A:H4'	11:K:131:ARG:HH11	1.81	0.45
1:2:921:G:C6	24:X:28:ARG:HD2	2.51	0.45
1:2:1010:G:H2'	1:2:1011:A:C8	2.50	0.45
1:2:1526:G:H2'	1:2:1527:C:C6	2.51	0.45
1:2:1579:A:O2'	1:2:1581:C:OP2	2.29	0.45
1:2:1617:G:O3'	31:e:13:LYS:HE3	2.15	0.45
1:2:1856:C:H2'	1:2:1857:G:H8	1.80	0.45
3:C:124:HIS:O	3:C:124:HIS:ND1	2.49	0.45
10:J:87:ASN:OD1	10:J:88:ASN:N	2.48	0.45
19:S:45:LYS:O	19:S:49:LYS:HG2	2.17	0.45
1:2:448:A:H5''	10:J:25:ARG:HA	1.98	0.45
1:2:1017:U:H5'	15:O:55:ARG:HD3	1.98	0.45
1:2:1253:A:H4'	1:2:1254:C:H5''	1.98	0.45
1:2:1283:C:H4'	1:2:1287:A:H5'	1.97	0.45
1:2:1864:U:OP2	28:b:4:LYS:NZ	2.49	0.45
33:g:140:TYR:HE1	33:g:145:CYS:HA	1.81	0.45
34:h:107:ASP:HB2	34:h:125:ARG:HB2	1.98	0.45
1:2:318:A:C2	1:2:333:G:C2	3.02	0.45
1:2:864:A:H2'	1:2:865:A:H8	1.82	0.45
1:2:962:A:O2'	1:2:963:A:O5'	2.23	0.45
6:F:181:CYS:HB3	6:F:195:ILE:HD11	1.98	0.45
8:H:74:ARG:HG2	8:H:96:SER:HA	1.99	0.45
15:O:80:LEU:HD23	15:O:80:LEU:H	1.82	0.45
19:S:41:ILE:HG22	19:S:43:SER:H	1.81	0.45
33:g:132:MET:HE1	33:g:148:TYR:CE2	2.52	0.45
34:h:46:THR:HG22	34:h:53:GLY:HA2	1.99	0.45
1:2:15:U:H2'	1:2:16:G:O4'	2.16	0.45
1:2:860:G:H2'	1:2:861:A:C8	2.51	0.45
1:2:876:C:H2'	1:2:877:C:C6	2.52	0.45
1:2:946:U:H2'	1:2:947:G:H8	1.80	0.45
1:2:1198:G:C2	1:2:1199:A:C5	3.05	0.45
4:D:104:ASP:HB3	4:D:130:ILE:HD12	1.99	0.45
11:K:45:ARG:HG3	11:K:46:VAL:N	2.32	0.45
11:K:113:GLN:HG2	11:K:154:GLN:HE22	1.81	0.45
15:O:49:GLN:O	15:O:53:ILE:HG12	2.16	0.45
33:g:96:LYS:H	33:g:96:LYS:HD2	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:h:289:LEU:HB2	34:h:299:PHE:O	2.17	0.45
1:2:604:A:N6	1:2:605:A:N1	2.64	0.45
1:2:889:U:N3	1:2:898:U:O4	2.49	0.45
1:2:1323:U:H2'	1:2:1324:G:C8	2.52	0.45
1:2:1350:U:N3	1:2:1351:G:H8	2.14	0.45
4:D:113:GLN:OE1	4:D:120:GLN:NE2	2.50	0.45
8:H:98:ARG:NH1	8:H:99:GLY:O	2.50	0.45
11:K:108:ARG:NH2	11:K:150:ARG:O	2.49	0.45
18:R:93:VAL:HG11	18:R:109:LYS:HD3	1.99	0.45
21:U:139:ALA:O	21:U:143:LYS:HG2	2.16	0.45
1:2:1522:A:O2'	20:T:145:THR:OG1	2.33	0.45
1:2:1603:G:O4'	20:T:38:ARG:NH1	2.45	0.45
14:N:99:LYS:HD2	14:N:99:LYS:HA	1.83	0.45
20:T:65:GLU:O	20:T:68:ILE:HG22	2.16	0.45
28:b:14:GLY:H	28:b:15:ARG:NH1	2.14	0.45
1:2:582:U:H1'	26:Z:33:ALA:HB2	1.99	0.45
1:2:1228:A:H2'	1:2:1229:G:C8	2.52	0.45
2:B:111:GLN:HG2	2:B:112:ILE:HG23	1.99	0.45
5:E:76:ARG:HD3	5:E:77:PHE:CD1	2.52	0.45
8:H:7:PHE:CE2	8:H:9:ALA:HB3	2.52	0.45
11:K:157:ILE:HG13	11:K:157:ILE:O	2.17	0.45
18:R:58:LEU:HD13	18:R:108:ILE:HD13	1.99	0.45
1:2:121:U:H2'	1:2:122:G:H8	1.81	0.45
1:2:525:A:H2'	1:2:526:A:C8	2.52	0.45
1:2:1228:A:H2'	1:2:1229:G:H8	1.82	0.45
1:2:1309:C:H41	33:g:95:ARG:HH22	1.63	0.45
1:2:1700:C:H5	1:2:1836:G:H1	1.64	0.45
1:2:1748:G:O6	1:2:1786:U:O2	2.34	0.45
2:B:97:THR:OG1	2:B:117:ARG:NH2	2.50	0.45
4:D:227:ARG:HD2	4:D:228:GLY:N	2.32	0.45
12:L:14:LEU:HD22	12:L:35:LEU:HD13	1.97	0.45
1:2:557:U:H2'	1:2:558:G:C8	2.52	0.44
1:2:623:G:O6	25:Y:63:ASN:ND2	2.50	0.44
1:2:964:A:H2'	1:2:965:U:C6	2.51	0.44
1:2:1240:A:N6	1:2:1241:A:N1	2.65	0.44
1:2:1535:U:C6	7:G:169:ILE:HD13	2.51	0.44
3:C:65:ARG:NH2	16:P:46:ASP:OD2	2.50	0.44
4:D:138:GLY:HA3	4:D:162:ILE:HG22	1.98	0.44
9:I:140:VAL:HG22	15:O:19:ARG:HH12	1.82	0.44
10:J:67:TRP:HD1	10:J:189:VAL:HB	1.82	0.44
16:P:65:ASP:OD1	16:P:65:ASP:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:81:ASP:OD1	20:T:81:ASP:N	2.49	0.44
34:h:256:ILE:HB	34:h:270:LEU:HD12	1.99	0.44
1:2:461:U:H2'	1:2:462:C:C6	2.53	0.44
1:2:1272:C:H1'	31:e:3:HIS:HB2	1.99	0.44
1:2:1337:C:H2'	1:2:1338:G:C8	2.51	0.44
8:H:88:ARG:HB2	8:H:91:GLU:HB2	1.99	0.44
9:I:135:PHE:HB3	9:I:136:PRO:HD3	1.98	0.44
26:Z:43:LYS:HA	26:Z:46:LYS:HE3	1.98	0.44
28:b:90:GLU:CD	28:b:90:GLU:H	2.25	0.44
1:2:220:U:H2'	1:2:221:A:C8	2.53	0.44
1:2:434:G:P	10:J:25:ARG:HH12	2.41	0.44
1:2:1824:A:C2	25:Y:62:PRO:HA	2.51	0.44
3:C:33:VAL:HG23	3:C:44:ILE:HB	1.98	0.44
8:H:159:ARG:HH21	8:H:171:THR:HG21	1.82	0.44
21:U:9:VAL:HG12	21:U:139:ALA:HB2	2.00	0.44
24:X:87:GLU:HA	24:X:90:GLN:HG2	1.98	0.44
36:z:235:G:O2'	36:z:236:C:O5'	2.34	0.44
36:z:278:G:H2'	36:z:279:C:C6	2.52	0.44
1:2:1617:G:O6	17:Q:43:ARG:NH1	2.31	0.44
2:B:68:ILE:HD13	2:B:121:LEU:HD23	1.98	0.44
5:E:79:PHE:CD1	5:E:80:PRO:HD2	2.53	0.44
9:I:118:ARG:O	9:I:121:THR:HG22	2.16	0.44
15:O:88:LEU:HB2	15:O:129:TYR:HE2	1.82	0.44
1:2:1382:A:H2'	1:2:1383:A:C8	2.53	0.44
1:2:1588:A:H2	1:2:1654:G:H1'	1.82	0.44
3:C:33:VAL:HG12	3:C:96:CYS:HB3	1.98	0.44
17:Q:60:LEU:HD11	17:Q:78:THR:HG21	1.99	0.44
17:Q:60:LEU:O	17:Q:64:LYS:HG2	2.18	0.44
24:X:66:THR:OG1	24:X:67:GLY:N	2.49	0.44
36:z:307:G:O6	36:z:329:U:C2	2.71	0.44
1:2:641:A:OP1	11:K:40:LYS:HG3	2.17	0.44
1:2:1513:C:H2'	1:2:1514:G:C8	2.52	0.44
1:2:1706:G:H1	1:2:1828:C:H42	1.66	0.44
28:b:20:PRO:HB2	28:b:29:CYS:SG	2.58	0.44
1:2:155:G:C2	1:2:164:A:C2	3.06	0.44
1:2:1323:U:H2'	1:2:1324:G:H8	1.82	0.44
1:2:1630:A:H2'	1:2:1631:U:C6	2.53	0.44
3:C:62:LEU:O	3:C:88:THR:OG1	2.24	0.44
7:G:88:MET:O	7:G:91:ARG:HG3	2.18	0.44
7:G:193:LYS:HE3	7:G:193:LYS:HB3	1.88	0.44
19:S:59:LYS:HA	19:S:62:GLN:HG2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:z:309:G:H2'	36:z:310:A:H8	1.83	0.44
1:2:659:G:H21	25:Y:17:ARG:HH22	1.66	0.44
2:B:42:LYS:HG2	2:B:46:ILE:O	2.18	0.44
2:B:176:TRP:HB2	2:B:202:TYR:CD1	2.53	0.44
9:I:91:HIS:CE1	9:I:169:LYS:HD2	2.52	0.44
15:O:75:LEU:HB3	15:O:81:ALA:HB2	2.00	0.44
18:R:131:LYS:HB2	18:R:140:ARG:HH22	1.83	0.44
24:X:55:ASP:OD1	24:X:58:ALA:N	2.47	0.44
1:2:1215:C:O2'	1:2:1645:C:OP2	2.35	0.44
1:2:1253:A:OP2	1:2:1526:G:N2	2.47	0.44
1:2:1415:C:H2'	1:2:1416:C:H6	1.83	0.44
1:2:1775:U:N3	1:2:1776:G:O6	2.51	0.44
12:L:18:GLU:HG3	12:L:19:GLY:H	1.82	0.44
26:Z:51:THR:HG22	26:Z:53:ASP:H	1.83	0.44
1:2:318:A:H3'	1:2:319:C:H5''	1.98	0.43
1:2:1103:C:H2'	1:2:1104:G:H8	1.82	0.43
1:2:1407:U:H2'	1:2:1408:U:H6	1.83	0.43
1:2:1850:A:H2'	1:2:1851:A:C8	2.53	0.43
1:2:1859:A:H2'	1:2:1860:A:C8	2.53	0.43
5:E:140:GLY:HA3	5:E:182:LEU:HG	1.99	0.43
14:N:39:ALA:HA	14:N:42:LEU:HD12	1.99	0.43
21:U:40:ALA:HB3	21:U:43:LYS:HG2	2.00	0.43
28:b:51:ARG:NH1	30:d:62:GLU:HB2	2.33	0.43
34:h:240:CYS:HB2	34:h:249:CYS:SG	2.58	0.43
36:z:284:U:H2'	36:z:285:G:H8	1.83	0.43
1:2:962:A:H2'	1:2:963:A:C8	2.53	0.43
5:E:127:MET:HE3	5:E:127:MET:HB3	1.88	0.43
6:F:191:ARG:HD3	6:F:245:ARG:HH11	1.83	0.43
20:T:86:ARG:HD2	20:T:98:VAL:HG21	2.01	0.43
21:U:143:LYS:HA	21:U:143:LYS:HD3	1.82	0.43
27:a:103:HIS:CD2	27:a:104:ARG:H	2.36	0.43
1:2:67:C:H41	8:H:164:LYS:N	2.16	0.43
1:2:212:C:H2'	1:2:213:G:H8	1.81	0.43
1:2:1754:G:H8	1:2:1754:G:P	2.41	0.43
5:E:185:LYS:HB2	5:E:185:LYS:NZ	2.33	0.43
7:G:128:ILE:HD12	30:d:68:LEU:HG	1.99	0.43
17:Q:90:VAL:HG21	17:Q:109:PRO:HA	2.00	0.43
18:R:31:LEU:H	18:R:67:ASP:HB3	1.83	0.43
22:V:51:LYS:HG3	22:V:90:ASP:HB2	2.00	0.43
23:W:81:LYS:HA	23:W:81:LYS:HD3	1.68	0.43
34:h:152:SER:H	34:h:169:GLY:HA2	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1174:U:H2'	1:2:1175:G:C8	2.53	0.43
1:2:1354:G:N2	1:2:1357:A:OP2	2.45	0.43
1:2:1395:C:O2'	1:2:1396:A:H5''	2.18	0.43
7:G:39:ILE:HG22	7:G:41:VAL:HG13	2.00	0.43
9:I:69:LEU:O	9:I:73:GLN:HG2	2.18	0.43
24:X:102:ILE:O	24:X:113:HIS:N	2.52	0.43
34:h:300:ALA:HB2	34:h:310:TRP:HE1	1.83	0.43
1:2:674:C:H2'	1:2:675:U:C6	2.53	0.43
1:2:1284:A:N6	1:2:1313:A:O2'	2.52	0.43
1:2:1547:C:H1'	1:2:1670:C:H4'	1.99	0.43
1:2:1601:A:N6	1:2:1636:G:N3	2.67	0.43
1:2:1717:C:H2'	1:2:1718:G:O4'	2.18	0.43
5:E:123:LEU:O	5:E:127:MET:HG2	2.18	0.43
7:G:29:GLN:HG3	7:G:42:LYS:HZ1	1.83	0.43
12:L:73:ASN:O	12:L:76:ILE:HG22	2.18	0.43
14:N:89:VAL:HG21	14:N:109:VAL:HG11	2.00	0.43
31:e:21:CYS:HB2	31:e:30:LEU:HD11	2.00	0.43
1:2:384:U:OP1	13:M:132:ARG:NH1	2.51	0.43
1:2:1730:U:O4	1:2:1731:A:N6	2.51	0.43
4:D:172:ASN:HD22	11:K:95:ASP:HB3	1.83	0.43
7:G:76:MET:HA	7:G:159:ARG:HH21	1.83	0.43
12:L:32:HIS:CE1	12:L:34:GLU:HB3	2.53	0.43
17:Q:53:GLN:HE22	17:Q:80:LEU:HD11	1.83	0.43
24:X:96:SER:OG	24:X:97:ARG:N	2.52	0.43
36:z:141:U:H2'	36:z:142:A:C8	2.49	0.43
1:2:293:C:H4'	13:M:38:LYS:HD2	2.00	0.43
1:2:670:A:HO2'	1:2:1163:C:HO2'	1.64	0.43
1:2:1408:U:C2	1:2:1409:A:C8	3.07	0.43
1:2:1710:C:H42	1:2:1823:A:N6	2.17	0.43
8:H:181:THR:O	8:H:184:VAL:HG12	2.18	0.43
12:L:49:MET:HE2	12:L:58:VAL:HG21	2.01	0.43
16:P:44:VAL:O	16:P:52:THR:OG1	2.28	0.43
1:2:220:U:H2'	1:2:221:A:H8	1.84	0.43
1:2:1737:G:H1	1:2:1797:U:H3	1.65	0.43
1:2:1754:G:H2'	1:2:1755:C:C6	2.54	0.43
1:2:1824:A:H2	25:Y:62:PRO:HA	1.84	0.43
3:C:49:VAL:HG21	3:C:62:LEU:HD11	2.01	0.43
9:I:19:PHE:CE2	9:I:50:GLU:HB3	2.53	0.43
16:P:74:ALA:HB1	16:P:115:ALA:HB2	1.99	0.43
17:Q:54:HIS:ND1	17:Q:57:LEU:HD22	2.32	0.43
26:Z:89:HIS:CE1	26:Z:90:ARG:HG3	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:219:U:H2'	1:2:220:U:C6	2.54	0.43
1:2:867:G:H2'	1:2:868:G:C8	2.54	0.43
1:2:1287:A:N6	1:2:1312:G:H21	2.17	0.43
1:2:1672:U:H2'	1:2:1673:U:C6	2.54	0.43
2:B:33:GLN:NE2	23:W:63:GLY:O	2.52	0.43
2:B:38:ILE:HD13	2:B:38:ILE:HA	1.84	0.43
5:E:28:GLU:CD	12:L:61:GLN:HE22	2.26	0.43
14:N:53:ALA:HA	14:N:79:VAL:HG12	2.00	0.43
1:2:1352:G:N3	1:2:1352:G:H2'	2.34	0.43
1:2:1380:C:H2'	1:2:1381:G:O4'	2.19	0.43
3:C:144:LYS:HE2	3:C:208:HIS:CG	2.53	0.43
5:E:121:GLY:HA2	5:E:124:ARG:HD2	2.00	0.43
9:I:38:ALA:O	9:I:41:ARG:NH2	2.30	0.43
9:I:72:PHE:HB3	9:I:76:GLN:NE2	2.32	0.43
21:U:14:PHE:HE1	21:U:135:ALA:HB2	1.84	0.43
24:X:11:LEU:HD11	24:X:37:PHE:CE2	2.47	0.43
27:a:69:THR:H	27:a:72:VAL:HG22	1.84	0.43
1:2:56:G:H2'	1:2:57:U:O4'	2.19	0.42
1:2:373:G:O6	1:2:392:A:N6	2.52	0.42
1:2:1162:C:H2'	1:2:1163:C:O4'	2.19	0.42
1:2:1337:C:O2'	22:V:68:THR:HG22	2.19	0.42
1:2:1365:G:H2'	1:2:1366:G:H8	1.83	0.42
1:2:1616:U:N3	1:2:1624:U:O4	2.52	0.42
1:2:1796:G:H2'	1:2:1797:U:H6	1.83	0.42
3:C:140:VAL:HG23	3:C:213:ARG:HG2	2.00	0.42
1:2:219:U:H2'	1:2:220:U:H6	1.84	0.42
1:2:311:C:H5''	1:2:312:G:H5'	2.01	0.42
1:2:574:A:H4'	26:Z:89:HIS:HB3	2.01	0.42
1:2:611:G:H2'	1:2:612:U:H6	1.84	0.42
1:2:1400:U:P	34:h:100:ARG:HH12	2.42	0.42
2:B:30:LEU:HB2	2:B:47:TYR:CE2	2.53	0.42
2:B:118:GLU:OE1	4:D:65:LYS:NZ	2.34	0.42
2:B:126:ASP:HB3	2:B:129:ALA:HB3	2.02	0.42
3:C:28:LYS:HD3	3:C:50:THR:HA	2.01	0.42
4:D:258:GLU:OE1	4:D:259:THR:N	2.50	0.42
17:Q:64:LYS:HD2	17:Q:92:SER:HB3	2.00	0.42
24:X:28:ARG:HB2	24:X:29:PRO:HD3	2.00	0.42
29:c:50:ALA:O	29:c:51:GLN:HG2	2.19	0.42
31:e:27:ARG:O	31:e:28:HIS:ND1	2.52	0.42
36:z:307:G:C6	36:z:329:U:O2	2.72	0.42
1:2:164:A:H2'	1:2:165:G:N3	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:500:A:H3'	1:2:501:C:H6	1.84	0.42
1:2:560:A:H5'	11:K:174:LYS:HB2	2.01	0.42
1:2:930:C:O2'	1:2:1104:G:OP1	2.32	0.42
1:2:1287:A:H62	1:2:1312:G:H21	1.67	0.42
1:2:1450:G:H2'	1:2:1451:G:C8	2.54	0.42
1:2:1562:C:P	21:U:73:GLY:H	2.41	0.42
1:2:1669:G:H5''	18:R:130:LYS:HB3	2.00	0.42
2:B:52:LYS:O	2:B:56:GLU:HG2	2.19	0.42
2:B:132:GLN:HB3	2:B:133:PRO:HD3	2.01	0.42
3:C:208:HIS:CG	3:C:209:ASP:N	2.87	0.42
8:H:30:LYS:HE2	8:H:36:VAL:HG21	2.01	0.42
9:I:127:ASP:OD2	9:I:142:LYS:NZ	2.52	0.42
10:J:29:LEU:HD12	10:J:29:LEU:HA	1.89	0.42
11:K:33:GLY:HA3	32:f:108:ARG:HE	1.84	0.42
13:M:18:GLN:HB2	13:M:33:LEU:HD22	2.00	0.42
13:M:99:TYR:O	13:M:101:ARG:N	2.49	0.42
19:S:44:LYS:NZ	19:S:47:ARG:HH21	2.17	0.42
28:b:51:ARG:HH11	30:d:62:GLU:HB2	1.83	0.42
1:2:749:U:H2'	1:2:750:C:C6	2.55	0.42
1:2:1217:A:H2'	1:2:1218:C:H6	1.83	0.42
2:B:128:ARG:NH2	2:B:153:PRO:HD3	2.34	0.42
22:V:41:ARG:O	22:V:45:GLU:HG2	2.18	0.42
24:X:14:ILE:HG13	24:X:65:LEU:HD11	2.01	0.42
30:d:13:ARG:O	30:d:33:GLU:N	2.53	0.42
36:z:288:A:H2'	36:z:289:C:C6	2.54	0.42
36:z:291:G:H1'	36:z:303:G:N2	2.35	0.42
1:2:28:U:H2'	1:2:29:G:C8	2.53	0.42
1:2:464:A:H3'	1:2:465:A:H5'	2.01	0.42
1:2:652:U:H2'	1:2:653:A:C8	2.54	0.42
1:2:790:C:H2'	1:2:791:C:C6	2.54	0.42
1:2:1234:C:H4'	1:2:1246:A:H61	1.85	0.42
1:2:1239:U:H5''	17:Q:124:LYS:NZ	2.34	0.42
1:2:1442:U:H2'	1:2:1442:U:O2	2.18	0.42
1:2:1491:G:H2'	1:2:1492:U:C6	2.54	0.42
1:2:1620:A:H2'	17:Q:40:ARG:NH2	2.34	0.42
5:E:9:ARG:HA	5:E:12:VAL:HG12	2.01	0.42
34:h:252:THR:HG21	34:h:257:LYS:NZ	2.35	0.42
36:z:133:G:H2'	36:z:134:A:C8	2.55	0.42
1:2:373:G:H4'	13:M:85:THR:HG21	2.00	0.42
1:2:443:U:H2'	1:2:444:G:O4'	2.20	0.42
1:2:877:C:N3	1:2:910:G:N2	2.68	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1386:A:H2'	1:2:1387:G:O4'	2.19	0.42
1:2:1612:G:H2'	1:2:1613:G:H8	1.84	0.42
2:B:63:ARG:NH1	23:W:38:GLU:HA	2.34	0.42
3:C:48:LEU:H	3:C:48:LEU:HD23	1.84	0.42
4:D:73:MET:HE2	4:D:73:MET:HB3	1.83	0.42
5:E:136:VAL:HG22	5:E:186:VAL:HG22	2.01	0.42
6:F:15:PRO:HB3	6:F:39:ARG:HE	1.84	0.42
6:F:132:GLY:N	6:F:136:ILE:O	2.45	0.42
7:G:20:PHE:HE1	7:G:50:PRO:HD3	1.84	0.42
22:V:35:VAL:HG21	22:V:110:VAL:HG21	2.02	0.42
24:X:112:ASP:OD1	24:X:112:ASP:N	2.44	0.42
1:2:211:G:H2'	1:2:211:G:N3	2.34	0.42
1:2:443:U:H3	1:2:447:A:H62	1.65	0.42
1:2:734:C:H2'	1:2:735:C:C6	2.54	0.42
1:2:816:A:H2'	1:2:817:G:O4'	2.19	0.42
1:2:1786:U:H2'	1:2:1787:G:H8	1.84	0.42
2:B:197:VAL:HG23	2:B:198:MET:N	2.34	0.42
17:Q:61:ARG:O	17:Q:65:LYS:HG2	2.19	0.42
18:R:84:ILE:O	18:R:88:ILE:HG12	2.19	0.42
1:2:1693:G:N2	1:2:1834:A:H8	2.17	0.42
4:D:94:ILE:HD12	4:D:162:ILE:HD11	2.01	0.42
4:D:174:ILE:HD12	11:K:95:ASP:OD2	2.20	0.42
5:E:105:LEU:HA	5:E:108:LYS:HG2	2.02	0.42
14:N:31:LEU:HD11	14:N:33:ARG:HH11	1.83	0.42
15:O:50:ILE:O	15:O:54:LEU:HD23	2.19	0.42
34:h:247:TRP:CH2	34:h:267:VAL:HG11	2.55	0.42
1:2:398:A:H5'	1:2:399:C:H2'	2.02	0.42
1:2:556:U:H2'	1:2:557:U:C6	2.55	0.42
1:2:1204:G:H2'	1:2:1205:G:N3	2.35	0.42
1:2:1380:C:H2'	1:2:1381:G:C8	2.55	0.42
1:2:1676:U:OP1	7:G:57:ALA:HB2	2.20	0.42
2:B:130:ASP:C	2:B:133:PRO:HD2	2.45	0.42
16:P:53:ILE:HG23	16:P:88:LEU:HD22	2.02	0.42
36:z:160:U:H2'	36:z:161:G:C8	2.55	0.42
1:2:103:A:O5'	1:2:356:C:N4	2.53	0.42
1:2:996:A:H2'	1:2:997:A:C8	2.55	0.42
1:2:1674:G:H21	1:2:1675:A:H61	1.68	0.42
4:D:147:VAL:O	4:D:151:ILE:HG12	2.18	0.42
5:E:31:GLU:HA	5:E:107:TYR:OH	2.20	0.42
8:H:78:SER:OG	8:H:79:LYS:N	2.53	0.42
12:L:49:MET:HE1	12:L:52:LEU:HD22	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:O:32:ASP:OD1	15:O:33:VAL:N	2.52	0.42
17:Q:56:LEU:O	17:Q:60:LEU:HG	2.20	0.42
29:c:61:THR:HG22	29:c:62:VAL:N	2.35	0.42
34:h:270:LEU:HD13	34:h:310:TRP:CE2	2.55	0.42
36:z:139:C:H2'	36:z:140:A:C8	2.55	0.42
36:z:244:A:H2'	36:z:245:G:H8	1.83	0.42
1:2:39:A:H3'	1:2:40:A:H8	1.85	0.41
1:2:561:A:O2'	1:2:562:U:OP1	2.31	0.41
1:2:1199:A:H2'	1:2:1200:A:C8	2.55	0.41
1:2:1406:G:H2'	1:2:1407:U:C6	2.54	0.41
1:2:1589:A:H2'	1:2:1590:C:O4'	2.20	0.41
1:2:1620:A:O2'	1:2:1624:U:OP1	2.29	0.41
2:B:70:ASN:HB2	4:D:270:THR:HG21	2.02	0.41
9:I:20:GLU:OE1	9:I:20:GLU:N	2.48	0.41
15:O:101:HIS:CE1	15:O:105:ASN:HD22	2.38	0.41
1:2:165:G:H4'	8:H:53:SER:HB2	2.02	0.41
1:2:291:G:N1	6:F:203:GLY:HA2	2.35	0.41
1:2:445:A:HO2'	1:2:446:G:P	2.43	0.41
1:2:961:G:N3	1:2:961:G:H2'	2.35	0.41
1:2:1030:A:H2'	1:2:1031:A:H8	1.85	0.41
1:2:1294:G:C2	1:2:1295:A:N7	2.89	0.41
1:2:1309:C:O2'	33:g:131:PHE:O	2.28	0.41
1:2:1408:U:H2'	1:2:1409:A:H8	1.85	0.41
1:2:1651:A:H2'	1:2:1652:G:H8	1.85	0.41
2:B:180:ARG:HG3	2:B:195:TRP:CZ2	2.55	0.41
4:D:107:LEU:HD22	4:D:209:VAL:HG13	2.02	0.41
5:E:132:LYS:O	5:E:156:LEU:N	2.53	0.41
6:F:63:LYS:O	6:F:67:GLN:HG3	2.21	0.41
10:J:3:ILE:HG13	10:J:30:GLY:HA3	2.01	0.41
1:2:39:A:H5'	11:K:7:TRP:CH2	2.55	0.41
1:2:561:A:HO2'	11:K:132:GLN:HE22	1.62	0.41
1:2:1660:C:H5''	31:e:32:ARG:HH12	1.86	0.41
1:2:1678:A:OP2	7:G:63:LYS:NZ	2.53	0.41
3:C:84:PHE:CD2	3:C:103:MET:HB2	2.55	0.41
9:I:20:GLU:HG3	9:I:48:ALA:HB3	2.02	0.41
10:J:151:GLU:HA	10:J:154:LYS:HZ1	1.84	0.41
13:M:65:ASN:OD1	13:M:65:ASN:N	2.53	0.41
32:f:84:LYS:HE2	32:f:84:LYS:HB3	1.84	0.41
1:2:160:U:H3'	1:2:161:U:H5''	2.02	0.41
1:2:528:A:H2'	1:2:529:A:C8	2.55	0.41
1:2:610:G:C6	1:2:634:A:C6	3.08	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1526:G:O2'	1:2:1527:C:O4'	2.32	0.41
1:2:1572:C:H2'	1:2:1573:G:N7	2.36	0.41
5:E:193:ASP:N	5:E:193:ASP:OD1	2.54	0.41
1:2:564:A:H62	1:2:586:G:N2	2.18	0.41
1:2:941:C:H2'	1:2:942:G:C8	2.54	0.41
1:2:1473:G:N2	1:2:1476:A:N7	2.68	0.41
1:2:1628:C:H4'	20:T:82:TRP:HZ3	1.85	0.41
1:2:1674:G:OP1	7:G:51:HIS:NE2	2.46	0.41
5:E:45:ARG:HD2	5:E:45:ARG:HA	1.87	0.41
5:E:135:GLU:N	5:E:187:LYS:O	2.53	0.41
7:G:95:HIS:O	7:G:99:ILE:HG12	2.20	0.41
10:J:137:LEU:O	10:J:141:ARG:NE	2.43	0.41
17:Q:61:ARG:NH2	17:Q:88:GLU:HB2	2.35	0.41
26:Z:43:LYS:HA	26:Z:46:LYS:HG2	2.02	0.41
34:h:65:PHE:C	34:h:82:SER:HG	2.23	0.41
1:2:289:G:H2'	1:2:290:U:C6	2.56	0.41
1:2:337:C:H2'	1:2:338:G:H8	1.85	0.41
1:2:385:G:H1'	1:2:387:C:OP2	2.20	0.41
1:2:688:U:H1'	1:2:689:U:OP2	2.20	0.41
1:2:1135:C:OP2	28:b:6:ARG:NH1	2.53	0.41
1:2:1173:A:H2'	1:2:1174:U:O4'	2.20	0.41
5:E:64:ARG:O	5:E:68:GLU:HG2	2.21	0.41
9:I:117:PRO:HG2	9:I:120:ARG:HG2	2.02	0.41
13:M:147:LYS:HD3	13:M:147:LYS:HA	1.69	0.41
18:R:44:PRO:HG2	18:R:47:LEU:HD12	2.02	0.41
1:2:805:U:N3	1:2:859:G:O6	2.54	0.41
1:2:1064:C:H2'	1:2:1065:G:H8	1.86	0.41
1:2:1797:U:H2'	1:2:1798:C:C6	2.56	0.41
2:B:149:ASN:ND2	2:B:165:ASN:OD1	2.53	0.41
4:D:106:VAL:HG11	4:D:151:ILE:HD12	2.03	0.41
4:D:111:PRO:HB3	4:D:124:PHE:CE2	2.55	0.41
4:D:174:ILE:HG12	23:W:4:ASP:OD1	2.20	0.41
7:G:78:MET:O	7:G:82:ASN:HB2	2.21	0.41
10:J:99:ASN:N	10:J:175:ILE:O	2.45	0.41
11:K:39:ASN:N	11:K:39:ASN:OD1	2.54	0.41
12:L:42:ASN:HA	12:L:45:VAL:HG22	2.02	0.41
21:U:57:ALA:HB1	21:U:107:LEU:HD21	2.02	0.41
34:h:67:SER:OG	34:h:81:GLY:O	2.38	0.41
34:h:101:PHE:CE1	34:h:136:GLY:HA2	2.56	0.41
34:h:199:THR:HG22	34:h:241:PHE:HD2	1.85	0.41
1:2:115:U:H2'	1:2:116:U:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:318:A:H2	1:2:333:G:C2	2.32	0.41
1:2:525:A:H2'	1:2:526:A:H8	1.85	0.41
1:2:1135:C:H2'	1:2:1136:U:C6	2.56	0.41
1:2:1351:G:H2'	1:2:1352:G:C8	2.56	0.41
1:2:1415:C:H5''	21:U:129:ARG:CZ	2.51	0.41
1:2:1620:A:N3	1:2:1620:A:H2'	2.36	0.41
1:2:1710:C:H42	1:2:1823:A:H61	1.69	0.41
4:D:78:LEU:HD23	4:D:78:LEU:H	1.85	0.41
4:D:210:PRO:O	4:D:214:LEU:HD23	2.20	0.41
7:G:102:LEU:HD23	7:G:102:LEU:HA	1.94	0.41
19:S:106:LEU:HB3	19:S:111:PHE:CZ	2.55	0.41
24:X:89:TRP:O	24:X:93:LEU:HB2	2.21	0.41
28:b:12:LYS:HG3	28:b:15:ARG:HB2	2.00	0.41
34:h:85:GLY:O	34:h:104:HIS:HB2	2.20	0.41
34:h:124:SER:OG	34:h:125:ARG:N	2.53	0.41
36:z:278:G:O2'	36:z:279:C:H5'	2.20	0.41
1:2:96:C:H2'	1:2:97:U:C6	2.55	0.41
1:2:318:A:N1	1:2:333:G:O6	2.54	0.41
1:2:492:C:OP2	26:Z:107:ARG:NH2	2.54	0.41
1:2:863:U:O4	1:2:864:A:N6	2.51	0.41
1:2:940:U:H3	1:2:1002:U:H3	1.67	0.41
1:2:1139:C:H2'	1:2:1140:G:O4'	2.21	0.41
1:2:1535:U:C5	7:G:169:ILE:HG21	2.56	0.41
1:2:1702:G:H2'	1:2:1703:C:O4'	2.21	0.41
3:C:153:THR:HB	3:C:155:TYR:CD1	2.56	0.41
3:C:170:GLU:HA	3:C:173:THR:HG22	2.03	0.41
7:G:32:ASP:OD1	7:G:33:ILE:N	2.53	0.41
8:H:194:LEU:HB3	8:H:198:ARG:NH1	2.36	0.41
11:K:67:ASP:O	11:K:71:LEU:HG	2.21	0.41
15:O:71:ILE:O	15:O:75:LEU:HD23	2.21	0.41
26:Z:85:ASN:O	26:Z:86:GLU:HG2	2.21	0.41
28:b:52:ASP:O	28:b:56:ALA:HB3	2.21	0.41
34:h:146:SER:HA	34:h:175:LYS:NZ	2.35	0.41
35:n:17:ARG:O	35:n:20:MET:HG3	2.21	0.41
36:z:127:U:H2'	36:z:128:C:C6	2.55	0.41
1:2:85:A:H2'	1:2:86:C:H6	1.86	0.41
1:2:618:C:H2'	1:2:619:A:O4'	2.21	0.41
1:2:643:A:H4'	1:2:644:G:H5'	2.03	0.41
1:2:916:A:N1	15:O:73:ARG:HD2	2.36	0.41
1:2:1693:G:H2'	1:2:1694:U:C6	2.56	0.41
8:H:67:VAL:HG11	8:H:99:GLY:HA2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:83:MET:SD	17:Q:83:MET:N	2.94	0.41
18:R:103:ALA:O	18:R:107:GLU:HG2	2.21	0.41
20:T:53:THR:HG23	20:T:54:LYS:HG3	2.02	0.41
25:Y:105:PHE:CE2	25:Y:112:VAL:HG21	2.56	0.41
1:2:394:G:C2	1:2:395:G:C8	3.09	0.40
1:2:558:G:H2'	1:2:559:G:C8	2.56	0.40
1:2:562:U:OP1	11:K:132:GLN:NE2	2.55	0.40
1:2:610:G:O6	1:2:634:A:N6	2.54	0.40
1:2:1094:C:H2'	1:2:1095:C:C6	2.56	0.40
1:2:1375:G:H2'	1:2:1376:A:C8	2.56	0.40
4:D:102:LEU:HG	4:D:130:ILE:HG12	2.02	0.40
11:K:66:LYS:HA	11:K:71:LEU:HD21	2.03	0.40
13:M:5:GLN:HG2	13:M:11:GLN:HB2	2.02	0.40
16:P:27:VAL:N	16:P:91:THR:OG1	2.55	0.40
16:P:42:VAL:HG11	16:P:81:VAL:HG11	2.03	0.40
19:S:10:LYS:HG3	19:S:53:TYR:CE2	2.56	0.40
22:V:21:ARG:HE	22:V:88:LEU:HD13	1.86	0.40
31:e:48:LYS:HE3	31:e:48:LYS:HB2	1.82	0.40
36:z:156:C:HO2'	36:z:157:C:P	2.43	0.40
1:2:106:C:H2'	1:2:107:A:C8	2.57	0.40
1:2:192:C:H42	1:2:207:G:H1	1.70	0.40
1:2:648:A:H4'	25:Y:104:GLY:O	2.21	0.40
1:2:945:U:H2'	1:2:946:U:C6	2.56	0.40
1:2:1276:A:O2'	12:L:51:SER:HA	2.21	0.40
1:2:1458:G:H2'	1:2:1459:G:C8	2.54	0.40
1:2:1650:A:H2'	1:2:1651:A:O4'	2.22	0.40
1:2:1666:C:H2'	1:2:1667:U:C6	2.56	0.40
1:2:1856:C:H2'	1:2:1857:G:C8	2.56	0.40
5:E:68:GLU:OE2	12:L:70:TYR:HD2	2.04	0.40
11:K:137:VAL:HA	11:K:157:ILE:HG22	2.03	0.40
12:L:64:TRP:CZ3	31:e:23:VAL:HG22	2.55	0.40
17:Q:34:MET:HG3	17:Q:35:GLN:N	2.36	0.40
19:S:71:ILE:O	19:S:74:GLN:NE2	2.54	0.40
36:z:254:C:H2'	36:z:255:C:C6	2.56	0.40
1:2:334:C:OP2	8:H:190:ARG:NH2	2.55	0.40
1:2:496:C:OP1	6:F:49:ARG:NH2	2.49	0.40
1:2:674:C:H2'	1:2:675:U:H6	1.85	0.40
1:2:1218:C:H2'	1:2:1219:C:H6	1.85	0.40
1:2:1221:G:H2'	1:2:1222:G:C8	2.57	0.40
1:2:1399:C:H2'	1:2:1400:U:C6	2.57	0.40
1:2:1507:G:H22	33:g:88:PRO:HA	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1601:A:H61	1:2:1636:G:H5'	1.86	0.40
1:2:1662:U:H3	1:2:1663:A:H62	1.68	0.40
1:2:1740:C:H5''	10:J:58:LEU:HD21	2.04	0.40
2:B:52:LYS:HB2	2:B:52:LYS:HE3	1.76	0.40
13:M:111:VAL:HG12	13:M:140:PHE:HB2	2.02	0.40
14:N:122:ASP:O	14:N:125:GLU:HG3	2.22	0.40
18:R:62:ARG:O	18:R:96:TYR:OH	2.39	0.40
1:2:673:G:H2'	1:2:674:C:C6	2.56	0.40
5:E:47:GLU:N	5:E:47:GLU:OE1	2.54	0.40
7:G:192:LYS:HA	7:G:192:LYS:HD2	1.73	0.40
9:I:78:ARG:HD3	9:I:81:ARG:HB2	2.02	0.40
16:P:128:ARG:HA	16:P:128:ARG:HD3	1.89	0.40
19:S:110:ASP:OD1	19:S:111:PHE:HD1	2.04	0.40
26:Z:25:ILE:HD11	26:Z:44:LEU:HD11	2.03	0.40
29:c:42:LYS:HD2	29:c:57:VAL:HG23	2.03	0.40
34:h:144:ASP:OD1	34:h:144:ASP:N	2.50	0.40
36:z:257:A:C8	36:z:259:U:H5	2.40	0.40
1:2:294:U:C4	13:M:65:ASN:HB3	2.56	0.40
1:2:1350:U:N3	1:2:1351:G:C8	2.88	0.40
1:2:1826:G:OP2	1:2:1826:G:H8	2.05	0.40
2:B:140:VAL:HG13	2:B:142:LEU:HG	2.03	0.40
8:H:220:ALA:O	8:H:224:ARG:HG3	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	215/295 (73%)	198 (92%)	17 (8%)	0	100	100
3	C	211/264 (80%)	201 (95%)	10 (5%)	0	100	100
4	D	219/221 (99%)	212 (97%)	7 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	E	226/281 (80%)	219 (97%)	7 (3%)	0	100	100
6	F	260/263 (99%)	243 (94%)	17 (6%)	0	100	100
7	G	189/204 (93%)	176 (93%)	13 (7%)	0	100	100
8	H	235/249 (94%)	233 (99%)	2 (1%)	0	100	100
9	I	181/432 (42%)	172 (95%)	9 (5%)	0	100	100
10	J	204/208 (98%)	192 (94%)	12 (6%)	0	100	100
11	K	183/194 (94%)	179 (98%)	4 (2%)	0	100	100
12	L	94/149 (63%)	89 (95%)	5 (5%)	0	100	100
13	M	149/158 (94%)	136 (91%)	13 (9%)	0	100	100
14	N	115/132 (87%)	107 (93%)	8 (7%)	0	100	100
15	O	147/151 (97%)	142 (97%)	5 (3%)	0	100	100
16	P	134/168 (80%)	130 (97%)	4 (3%)	0	100	100
17	Q	113/145 (78%)	103 (91%)	10 (9%)	0	100	100
18	R	140/172 (81%)	133 (95%)	7 (5%)	0	100	100
19	S	130/135 (96%)	119 (92%)	11 (8%)	0	100	100
20	T	142/152 (93%)	135 (95%)	7 (5%)	0	100	100
21	U	139/145 (96%)	134 (96%)	5 (4%)	0	100	100
22	V	98/119 (82%)	95 (97%)	3 (3%)	0	100	100
23	W	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
24	X	127/130 (98%)	122 (96%)	5 (4%)	0	100	100
25	Y	139/143 (97%)	134 (96%)	5 (4%)	0	100	100
26	Z	122/131 (93%)	120 (98%)	2 (2%)	0	100	100
27	a	75/124 (60%)	72 (96%)	3 (4%)	0	100	100
28	b	99/101 (98%)	96 (97%)	3 (3%)	0	100	100
29	c	81/84 (96%)	75 (93%)	6 (7%)	0	100	100
30	d	65/69 (94%)	61 (94%)	4 (6%)	0	100	100
31	e	53/56 (95%)	49 (92%)	4 (8%)	0	100	100
32	f	55/133 (41%)	51 (93%)	4 (7%)	0	100	100
33	g	66/188 (35%)	66 (100%)	0	0	100	100
34	h	311/317 (98%)	297 (96%)	14 (4%)	0	100	100
35	n	23/25 (92%)	23 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	4821/5821 (83%)	4592 (95%)	229 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	B	180/245 (74%)	180 (100%)	0	100	100
3	C	194/231 (84%)	194 (100%)	0	100	100
4	D	187/187 (100%)	187 (100%)	0	100	100
5	E	190/232 (82%)	190 (100%)	0	100	100
6	F	224/225 (100%)	224 (100%)	0	100	100
7	G	161/170 (95%)	161 (100%)	0	100	100
8	H	207/218 (95%)	207 (100%)	0	100	100
9	I	165/360 (46%)	165 (100%)	0	100	100
10	J	178/180 (99%)	178 (100%)	0	100	100
11	K	161/168 (96%)	161 (100%)	0	100	100
12	L	87/125 (70%)	87 (100%)	0	100	100
13	M	136/142 (96%)	136 (100%)	0	100	100
14	N	99/108 (92%)	99 (100%)	0	100	100
15	O	130/131 (99%)	130 (100%)	0	100	100
16	P	106/130 (82%)	106 (100%)	0	100	100
17	Q	105/130 (81%)	105 (100%)	0	100	100
18	R	117/140 (84%)	117 (100%)	0	100	100
19	S	119/121 (98%)	119 (100%)	0	100	100
20	T	125/132 (95%)	125 (100%)	0	100	100
21	U	111/116 (96%)	111 (100%)	0	100	100
22	V	92/107 (86%)	92 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
23	W	67/67 (100%)	67 (100%)	0	100	100
24	X	112/113 (99%)	112 (100%)	0	100	100
25	Y	113/115 (98%)	113 (100%)	0	100	100
26	Z	107/113 (95%)	107 (100%)	0	100	100
27	a	68/102 (67%)	68 (100%)	0	100	100
28	b	88/88 (100%)	88 (100%)	0	100	100
29	c	75/76 (99%)	75 (100%)	0	100	100
30	d	60/62 (97%)	60 (100%)	0	100	100
31	e	48/49 (98%)	48 (100%)	0	100	100
32	f	47/106 (44%)	47 (100%)	0	100	100
33	g	61/154 (40%)	61 (100%)	0	100	100
34	h	272/275 (99%)	272 (100%)	0	100	100
35	n	24/24 (100%)	24 (100%)	0	100	100
All	All	4216/4942 (85%)	4216 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (35) such sidechains are listed below:

Mol	Chain	Res	Type
3	C	75	GLN
3	C	92	GLN
3	C	118	GLN
3	C	208	HIS
5	E	57	ASN
5	E	207	HIS
7	G	95	HIS
8	H	155	GLN
9	I	126	HIS
10	J	138	ASN
11	K	182	GLN
12	L	7	ASN
12	L	42	ASN
12	L	61	GLN
13	M	19	ASN
13	M	121	GLN
14	N	75	ASN

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Mol	Chain	Res	Type
15	O	105	ASN
17	Q	104	GLN
18	R	48	GLN
18	R	80	GLN
18	R	114	GLN
20	T	85	ASN
21	U	85	ASN
24	X	24	GLN
26	Z	89	HIS
27	a	106	GLN
29	c	65	GLN
30	d	7	GLN
31	e	10	HIS
32	f	112	ASN
33	g	91	ASN
34	h	14	HIS
34	h	20	GLN
34	h	187	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1685/1870 (90%)	354 (21%)	10 (0%)
36	z	160/400 (40%)	42 (26%)	0
All	All	1845/2270 (81%)	396 (21%)	10 (0%)

All (396) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	4	C
1	2	5	U
1	2	9	U
1	2	10	G
1	2	11	A
1	2	26	U
1	2	33	G
1	2	39	A
1	2	41	G
1	2	42	A
1	2	44	U
1	2	46	A

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Mol	Chain	Res	Type
1	2	56	G
1	2	58	C
1	2	67	C
1	2	68	A
1	2	73	C
1	2	74	G
1	2	75	G
1	2	77	A
1	2	102	A
1	2	103	A
1	2	113	G
1	2	114	G
1	2	115	U
1	2	126	G
1	2	129	C
1	2	130	G
1	2	142	C
1	2	143	U
1	2	147	A
1	2	155	G
1	2	156	G
1	2	161	U
1	2	162	C
1	2	163	U
1	2	168	C
1	2	172	U
1	2	180	G
1	2	183	G
1	2	184	G
1	2	191	A
1	2	192	C
1	2	193	C
1	2	212	C
1	2	288	G
1	2	291	G
1	2	306	C
1	2	307	G
1	2	309	G
1	2	312	G
1	2	319	C
1	2	335	G
1	2	347	G

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Mol	Chain	Res	Type
1	2	362	C
1	2	364	A
1	2	368	U
1	2	369	C
1	2	370	G
1	2	381	C
1	2	383	G
1	2	384	U
1	2	385	G
1	2	386	C
1	2	398	A
1	2	399	C
1	2	400	C
1	2	408	A
1	2	409	C
1	2	428	U
1	2	435	A
1	2	446	G
1	2	447	A
1	2	448	A
1	2	449	A
1	2	450	C
1	2	452	G
1	2	455	A
1	2	464	A
1	2	465	A
1	2	466	G
1	2	471	G
1	2	472	C
1	2	474	G
1	2	483	C
1	2	487	U
1	2	489	A
1	2	492	C
1	2	493	A
1	2	496	C
1	2	500	A
1	2	502	C
1	2	525	A
1	2	532	C
1	2	533	A
1	2	534	G

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Mol	Chain	Res	Type
1	2	536	A
1	2	537	C
1	2	542	U
1	2	544	G
1	2	550	C
1	2	551	U
1	2	553	U
1	2	554	A
1	2	555	A
1	2	556	U
1	2	560	A
1	2	562	U
1	2	583	A
1	2	588	G
1	2	590	A
1	2	591	U
1	2	594	A
1	2	606	G
1	2	608	C
1	2	614	C
1	2	627	U
1	2	628	A
1	2	642	U
1	2	643	A
1	2	644	G
1	2	655	A
1	2	660	C
1	2	668	A
1	2	669	A
1	2	672	A
1	2	673	G
1	2	688	U
1	2	689	U
1	2	690	G
1	2	696	G
1	2	732	U
1	2	744	G
1	2	752	G
1	2	753	C
1	2	754	G
1	2	798	G
1	2	799	U

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Mol	Chain	Res	Type
1	2	811	A
1	2	821	G
1	2	822	U
1	2	830	A
1	2	834	C
1	2	844	U
1	2	847	A
1	2	870	A
1	2	872	A
1	2	873	G
1	2	874	G
1	2	875	A
1	2	879	C
1	2	885	U
1	2	886	A
1	2	890	U
1	2	891	G
1	2	893	U
1	2	895	G
1	2	898	U
1	2	901	G
1	2	904	A
1	2	906	U
1	2	907	G
1	2	913	A
1	2	914	U
1	2	917	U
1	2	920	A
1	2	922	A
1	2	930	C
1	2	933	G
1	2	943	U
1	2	961	G
1	2	962	A
1	2	963	A
1	2	964	A
1	2	971	G
1	2	990	A
1	2	992	A
1	2	999	G
1	2	1002	U
1	2	1017	U

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Mol	Chain	Res	Type
1	2	1023	A
1	2	1045	U
1	2	1047	C
1	2	1055	A
1	2	1061	U
1	2	1071	G
1	2	1076	G
1	2	1083	A
1	2	1085	C
1	2	1088	U
1	2	1089	G
1	2	1099	G
1	2	1109	C
1	2	1111	U
1	2	1114	U
1	2	1118	C
1	2	1121	G
1	2	1138	C
1	2	1148	A
1	2	1149	A
1	2	1150	A
1	2	1151	G
1	2	1153	C
1	2	1154	U
1	2	1155	U
1	2	1157	G
1	2	1191	C
1	2	1201	U
1	2	1203	U
1	2	1204	G
1	2	1205	G
1	2	1208	A
1	2	1215	C
1	2	1217	A
1	2	1224	G
1	2	1237	C
1	2	1242	U
1	2	1251	A
1	2	1256	G
1	2	1257	G
1	2	1258	A
1	2	1264	C

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Mol	Chain	Res	Type
1	2	1269	G
1	2	1272	C
1	2	1273	C
1	2	1275	G
1	2	1282	A
1	2	1285	G
1	2	1286	G
1	2	1288	U
1	2	1294	G
1	2	1298	G
1	2	1299	A
1	2	1301	A
1	2	1302	G
1	2	1303	C
1	2	1307	U
1	2	1308	U
1	2	1310	U
1	2	1311	C
1	2	1313	A
1	2	1318	G
1	2	1330	G
1	2	1332	A
1	2	1342	U
1	2	1352	G
1	2	1353	A
1	2	1355	C
1	2	1356	G
1	2	1358	U
1	2	1363	C
1	2	1371	U
1	2	1377	U
1	2	1378	A
1	2	1396	A
1	2	1397	U
1	2	1402	A
1	2	1404	U
1	2	1409	A
1	2	1426	U
1	2	1428	G
1	2	1429	G
1	2	1431	G
1	2	1439	A

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Mol	Chain	Res	Type
1	2	1442	U
1	2	1454	A
1	2	1462	U
1	2	1463	U
1	2	1466	G
1	2	1473	G
1	2	1476	A
1	2	1477	U
1	2	1480	A
1	2	1489	A
1	2	1490	G
1	2	1494	U
1	2	1498	A
1	2	1507	G
1	2	1521	C
1	2	1522	A
1	2	1534	C
1	2	1548	G
1	2	1551	U
1	2	1552	G
1	2	1554	C
1	2	1556	A
1	2	1567	G
1	2	1573	G
1	2	1575	G
1	2	1578	U
1	2	1580	A
1	2	1585	U
1	2	1586	U
1	2	1587	G
1	2	1588	A
1	2	1601	A
1	2	1603	G
1	2	1604	G
1	2	1606	G
1	2	1607	A
1	2	1621	U
1	2	1623	A
1	2	1638	G
1	2	1646	C
1	2	1648	G
1	2	1660	C

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Mol	Chain	Res	Type
1	2	1662	U
1	2	1665	G
1	2	1671	G
1	2	1675	A
1	2	1676	U
1	2	1677	U
1	2	1680	G
1	2	1695	A
1	2	1699	A
1	2	1715	A
1	2	1721	U
1	2	1722	G
1	2	1743	G
1	2	1744	G
1	2	1751	C
1	2	1754	G
1	2	1756	C
1	2	1757	G
1	2	1759	G
1	2	1776	G
1	2	1777	G
1	2	1779	G
1	2	1781	A
1	2	1782	G
1	2	1783	C
1	2	1784	G
1	2	1799	G
1	2	1811	C
1	2	1823	A
1	2	1824	A
1	2	1826	G
1	2	1829	G
1	2	1831	A
1	2	1834	A
1	2	1835	A
1	2	1836	G
1	2	1838	U
1	2	1839	U
1	2	1840	U
1	2	1849	G
1	2	1851	A
1	2	1852	C

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Mol	Chain	Res	Type
1	2	1861	G
1	2	1862	G
1	2	1863	A
1	2	1865	C
1	2	1868	U
1	2	1869	A
36	z	121	C
36	z	122	C
36	z	124	C
36	z	125	C
36	z	136	A
36	z	140	A
36	z	144	U
36	z	154	A
36	z	157	C
36	z	161	G
36	z	162	A
36	z	165	A
36	z	167	A
36	z	169	C
36	z	229	G
36	z	232	C
36	z	234	U
36	z	236	C
36	z	237	C
36	z	244	A
36	z	246	A
36	z	252	A
36	z	253	G
36	z	258	G
36	z	259	U
36	z	266	G
36	z	279	C
36	z	281	U
36	z	282	U
36	z	283	G
36	z	284	U
36	z	288	A
36	z	291	G
36	z	296	A
36	z	297	U
36	z	303	G

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Mol	Chain	Res	Type
36	z	306	U
36	z	307	G
36	z	312	U
36	z	324	U
36	z	325	C
36	z	330	A

All (10) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	383	G
1	2	445	A
1	2	553	U
1	2	561	A
1	2	627	U
1	2	688	U
1	2	752	G
1	2	1137	U
1	2	1664	A
1	2	1676	U

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

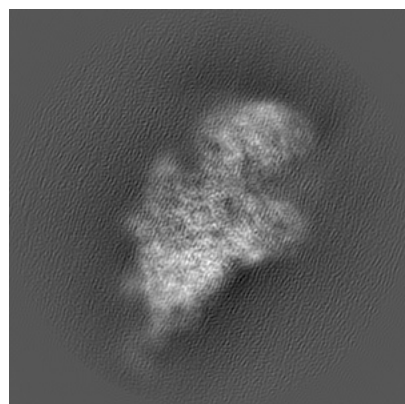
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-25534. These allow visual inspection of the internal detail of the map and identification of artifacts.

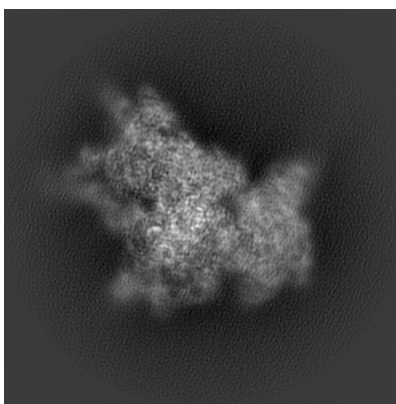
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

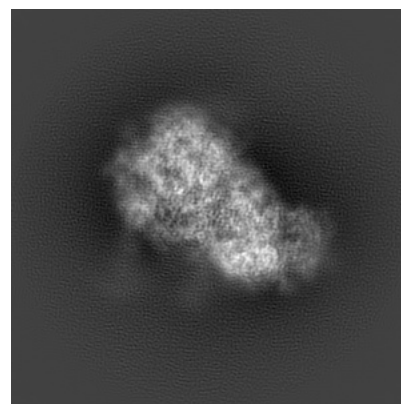
6.1.1 Primary map



X

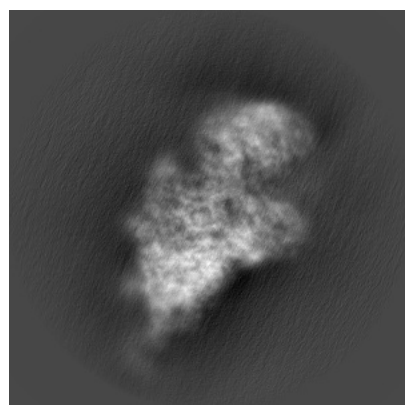


Y

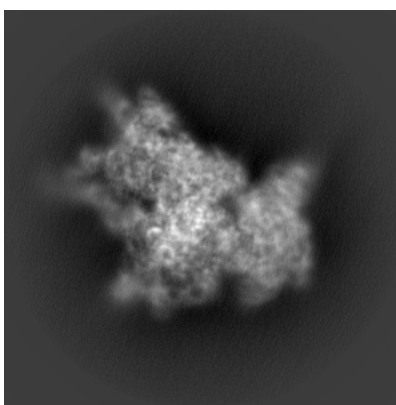


Z

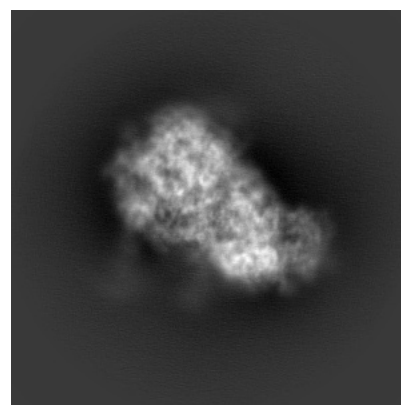
6.1.2 Raw map



X



Y

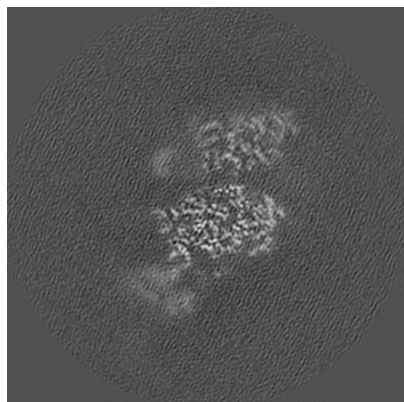


Z

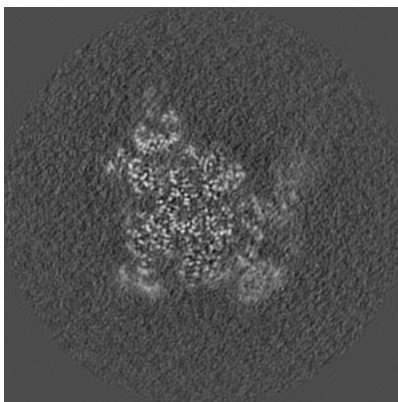
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

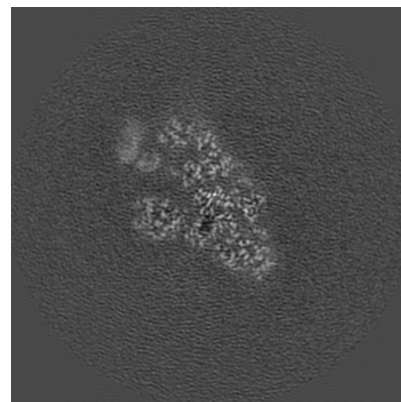
6.2.1 Primary map



X Index: 200

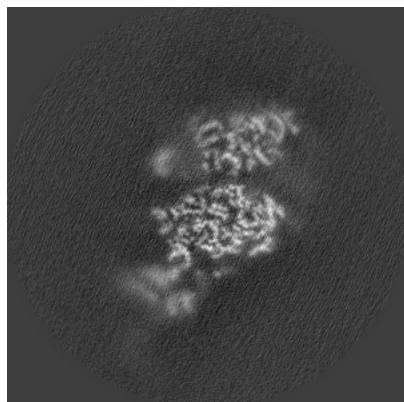


Y Index: 200

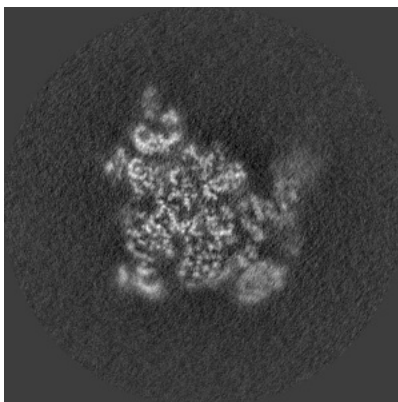


Z Index: 200

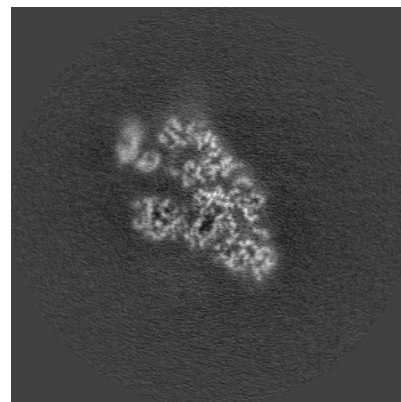
6.2.2 Raw map



X Index: 200



Y Index: 200

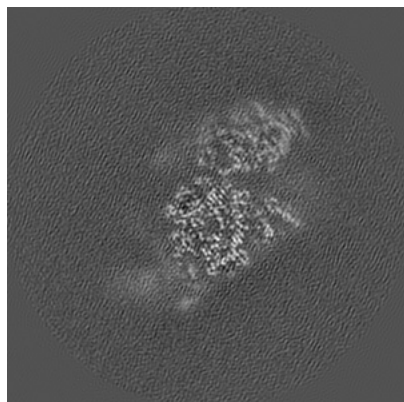


Z Index: 200

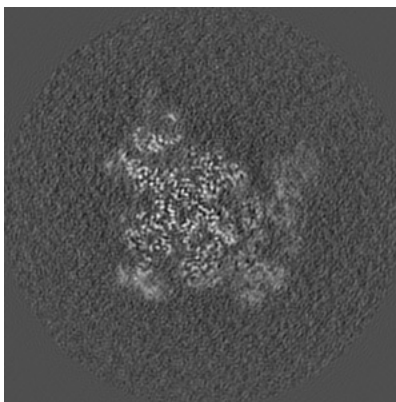
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

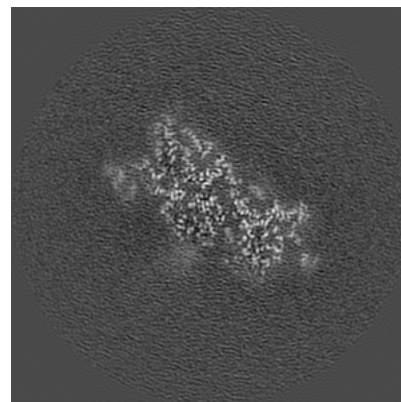
6.3.1 Primary map



X Index: 190

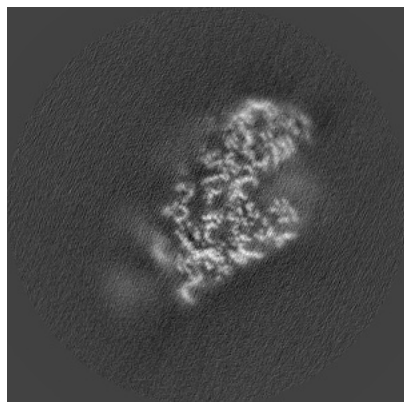


Y Index: 202

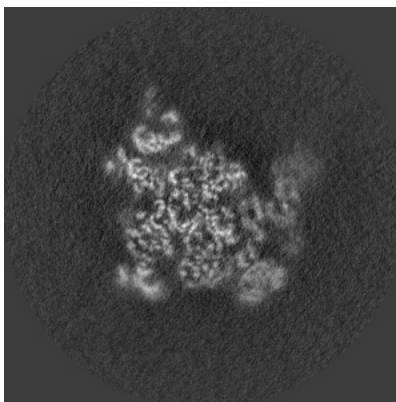


Z Index: 166

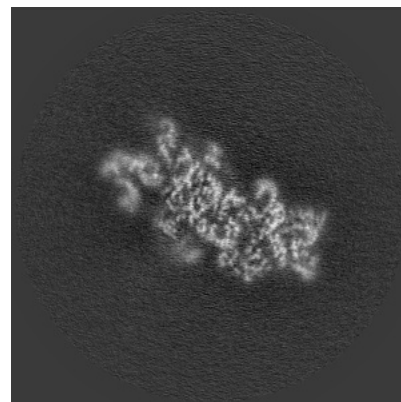
6.3.2 Raw map



X Index: 180



Y Index: 201

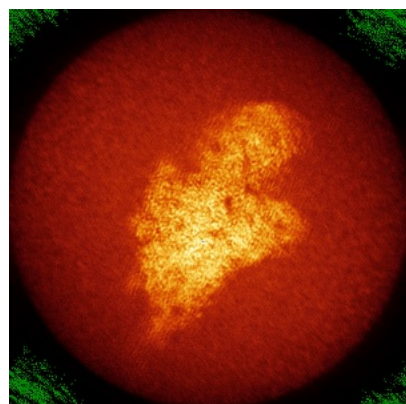


Z Index: 155

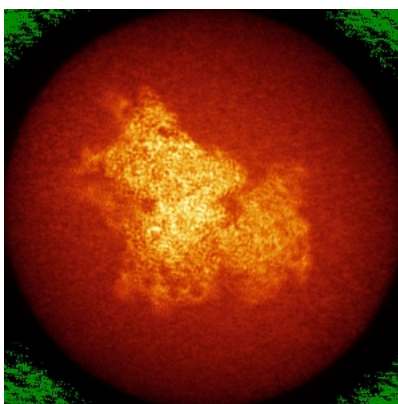
The images above show the largest variance slices of the map in three orthogonal directions.

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

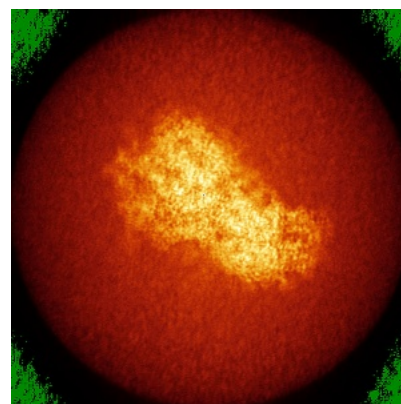
6.4.1 Primary map



X

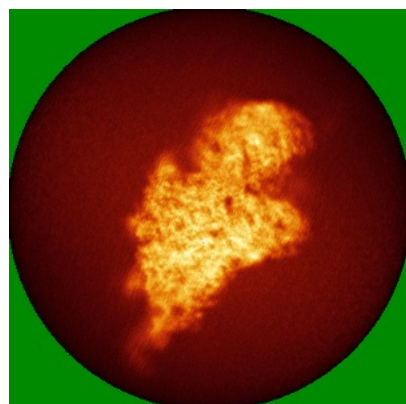


Y

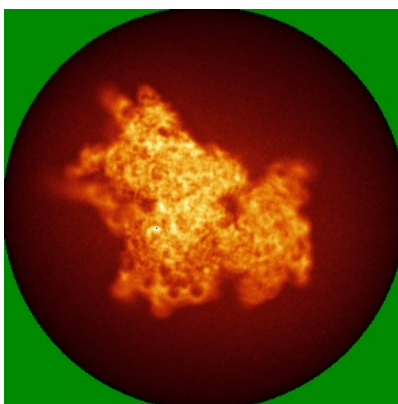


Z

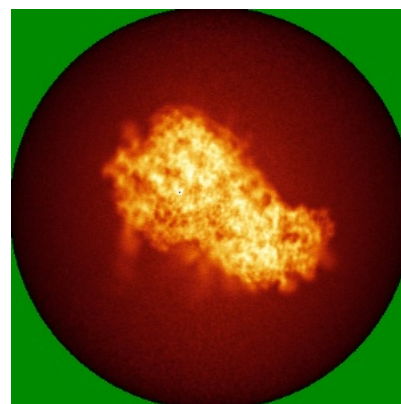
6.4.2 Raw map



X



Y

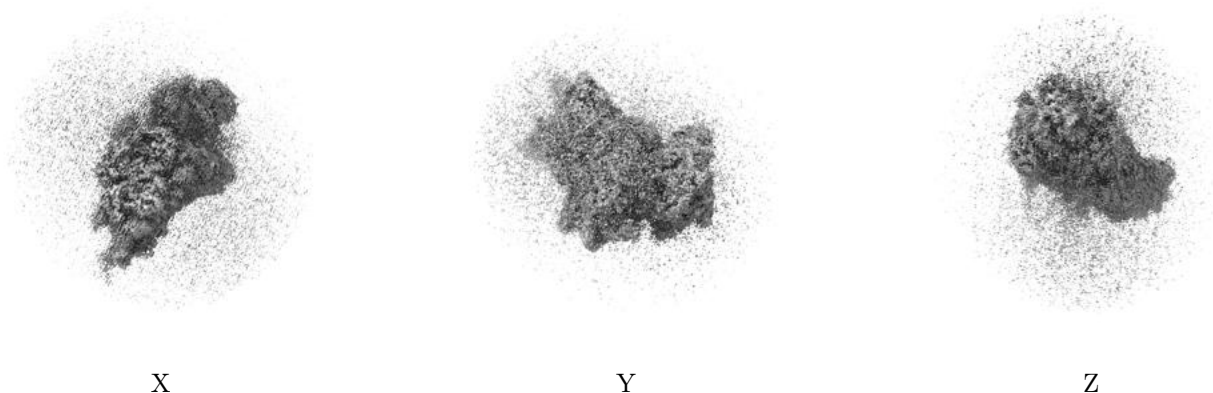


Z

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.

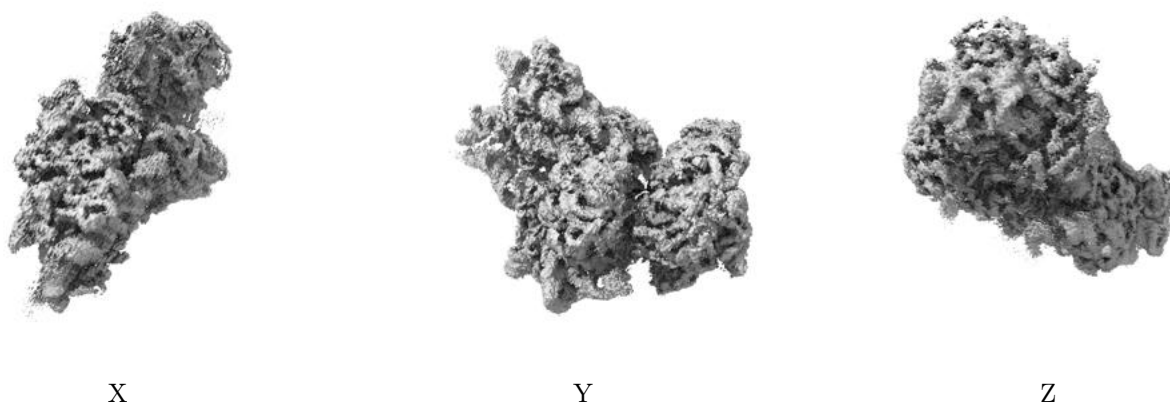
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0125. 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.

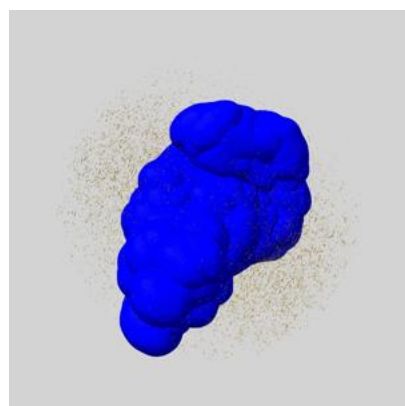
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

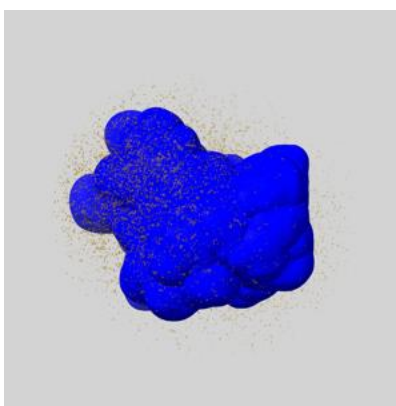
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

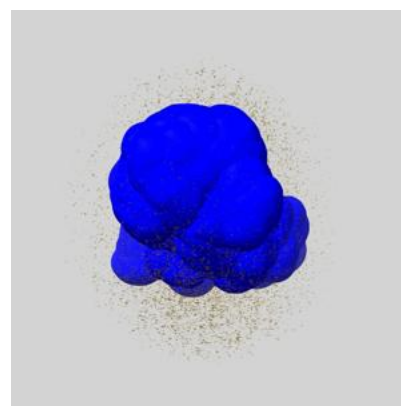
6.6.1 emd_25534_msk_1.map [i](#)



X



Y

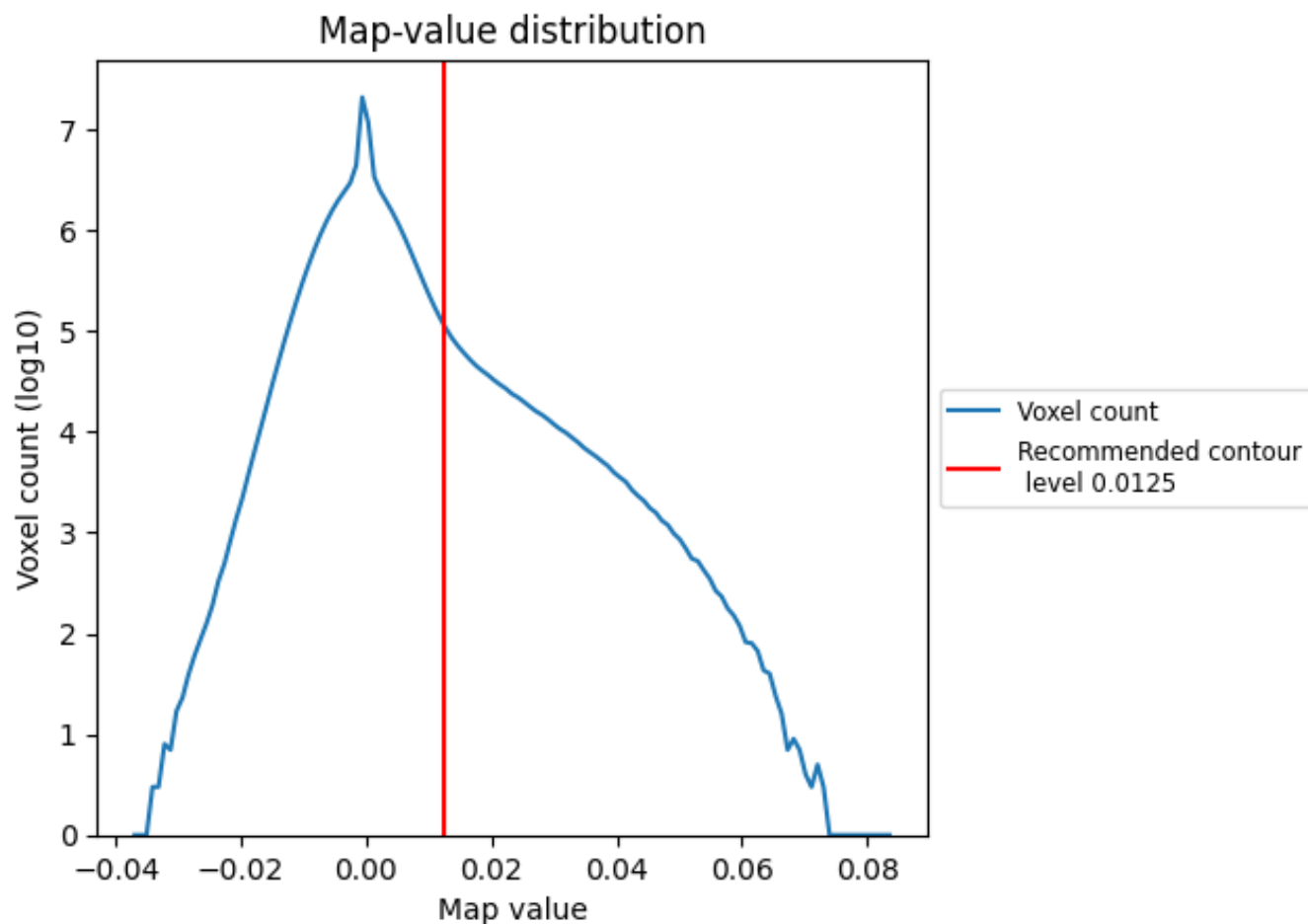


Z

7 Map analysis [i](#)

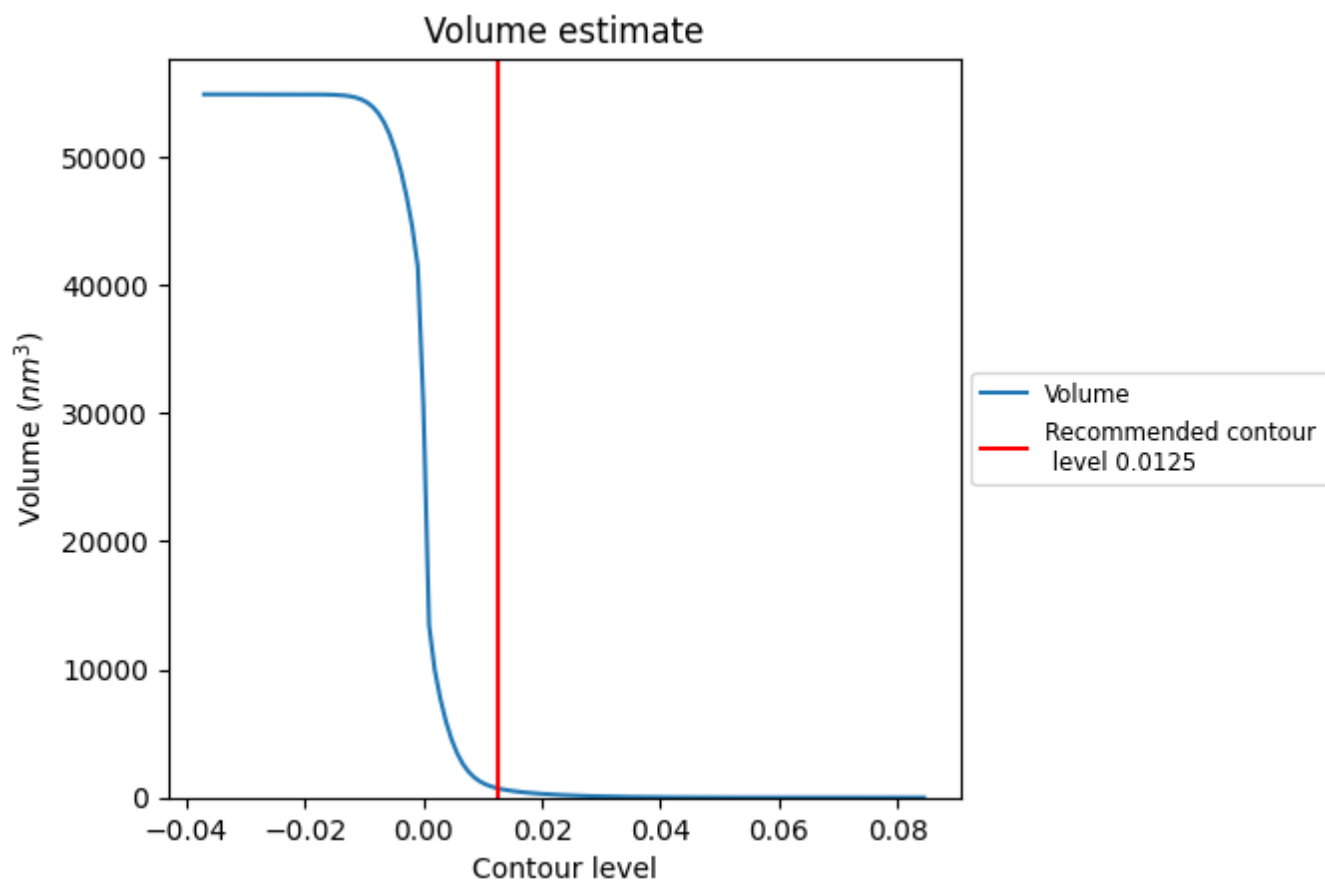
This section contains the results of statistical analysis of the map.

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.

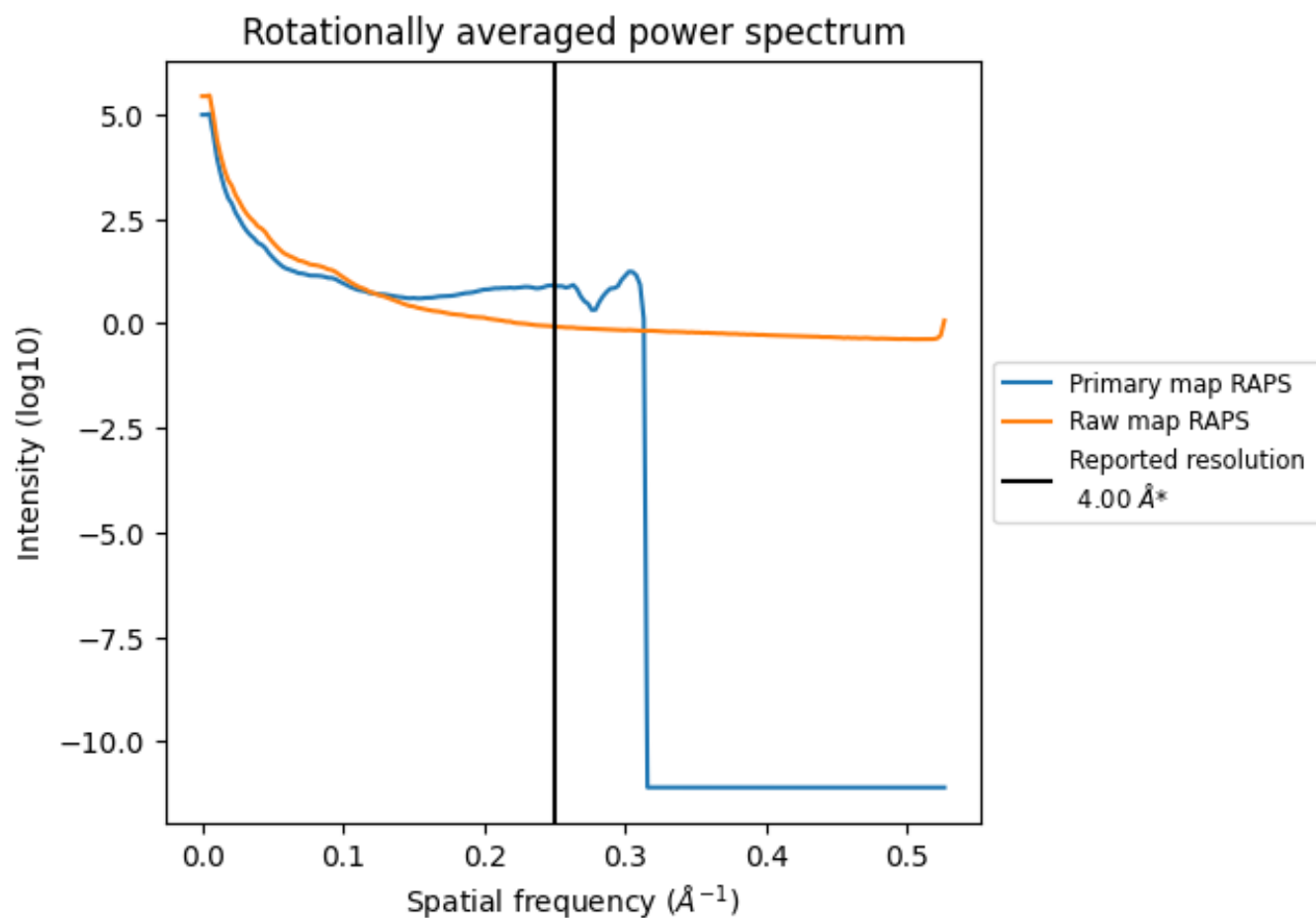
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 732 nm³; this corresponds to an approximate mass of 662 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 ⓘ

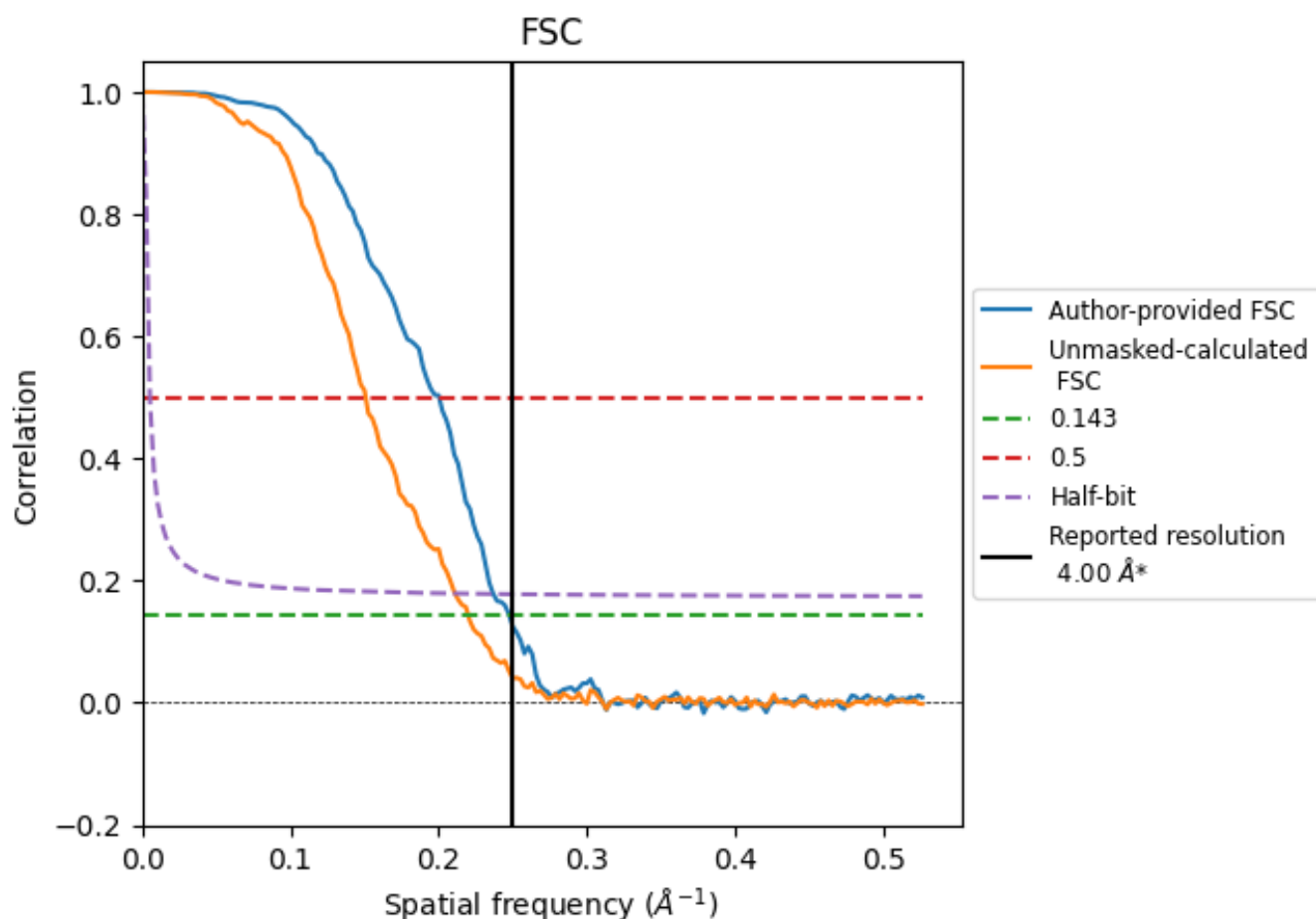


*Reported resolution corresponds to spatial frequency of 0.250 Å⁻¹

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 0.250 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

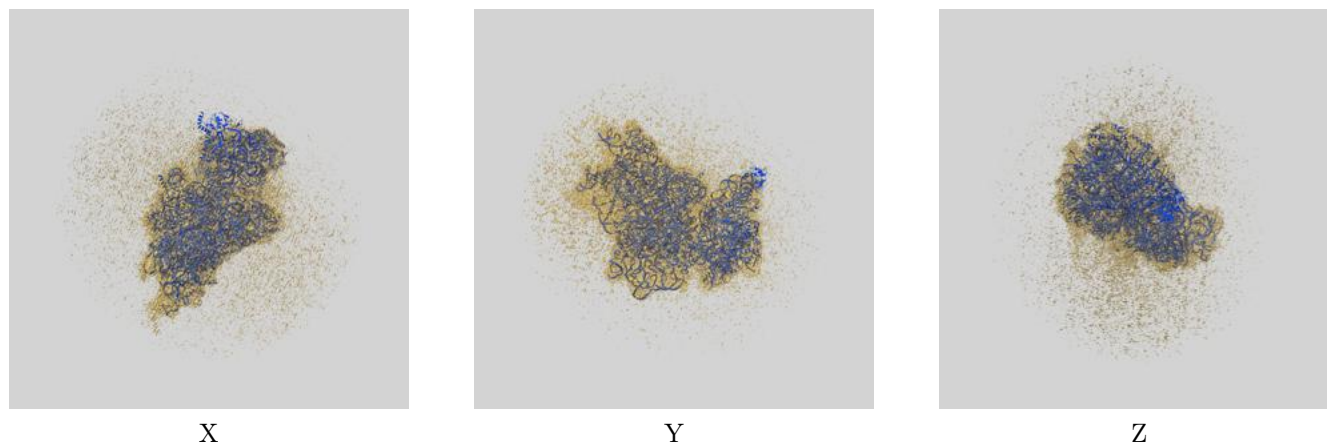
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.00	-	-
Author-provided FSC curve	4.04	4.99	4.22
Unmasked-calculated*	4.55	6.63	4.74

*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 4.55 differs from the reported value 4.0 by more than 10 %

9 Map-model fit [i](#)

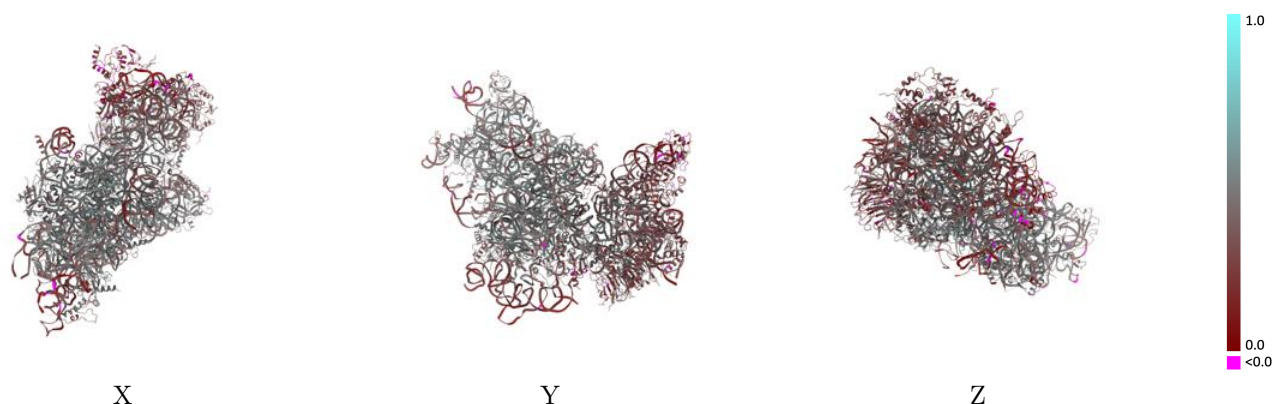
This section contains information regarding the fit between EMDB map EMD-25534 and PDB model 7SYN. Per-residue inclusion information can be found in section 3 on page 12.

9.1 Map-model overlay [i](#)



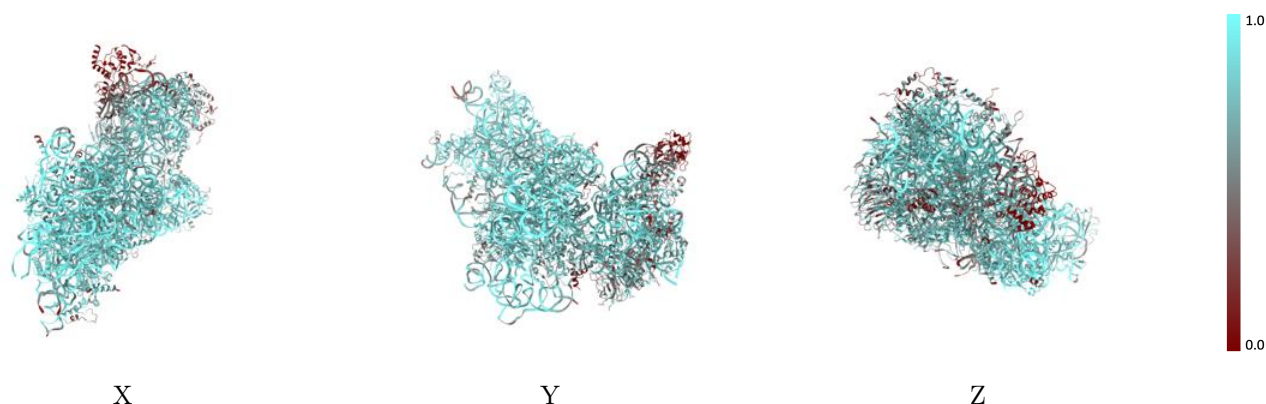
The images above show the 3D surface view of the map at the recommended contour level 0.0125 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



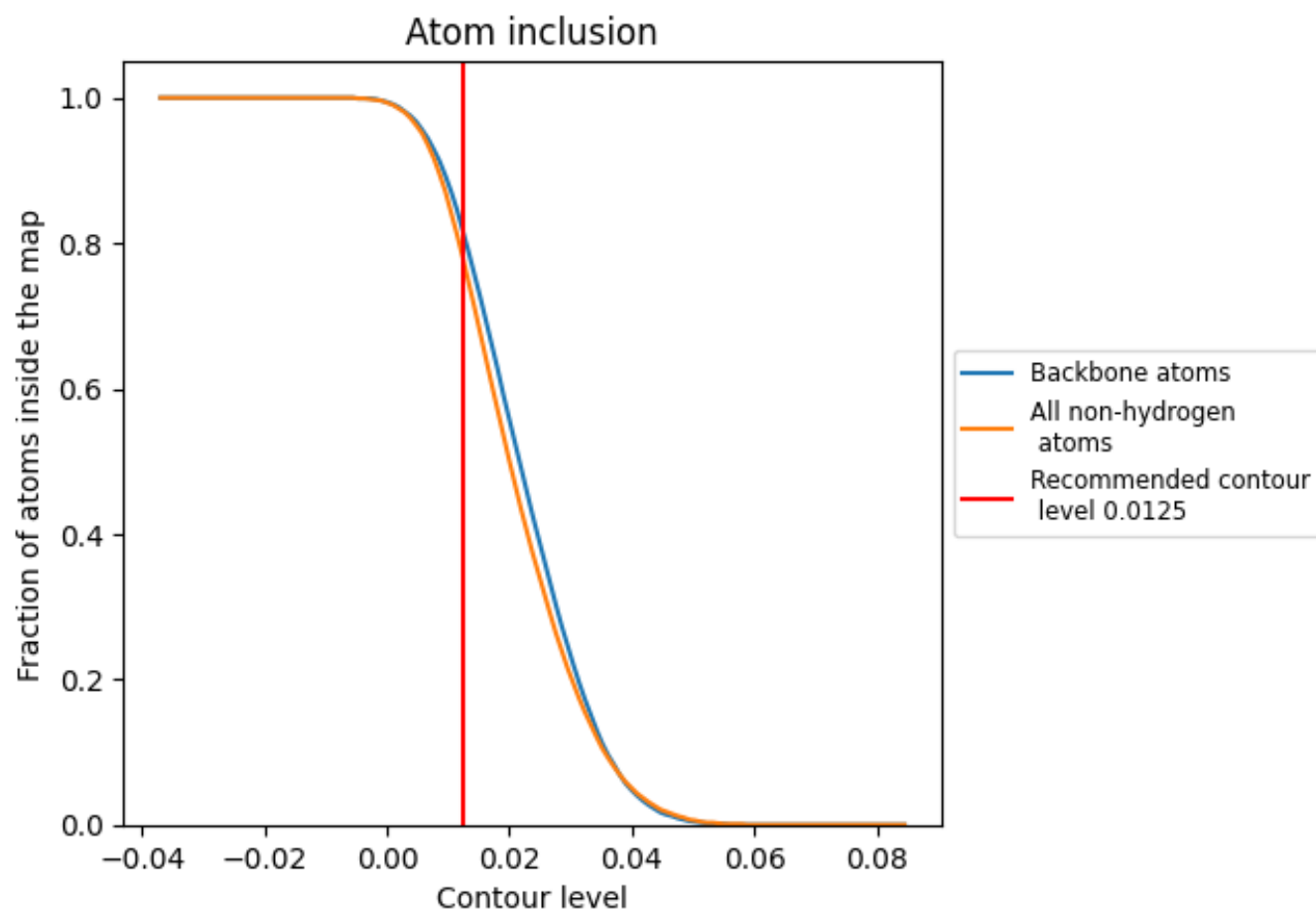
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0125).

9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 78% 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 (0.0125) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7760	 0.3950
2	 0.8700	 0.4010
B	 0.7340	 0.4260
C	 0.8050	 0.4390
D	 0.7830	 0.4650
E	 0.5650	 0.3600
F	 0.8560	 0.4930
G	 0.7030	 0.3870
H	 0.7730	 0.4030
I	 0.6840	 0.4110
J	 0.8080	 0.4580
K	 0.8380	 0.4720
L	 0.4440	 0.2890
M	 0.7950	 0.4900
N	 0.0270	 0.1870
O	 0.8290	 0.4730
P	 0.7960	 0.4330
Q	 0.5450	 0.2730
R	 0.7410	 0.4060
S	 0.5810	 0.3540
T	 0.5260	 0.3040
U	 0.7230	 0.3440
V	 0.4110	 0.3350
W	 0.7990	 0.4640
X	 0.8280	 0.4970
Y	 0.8170	 0.4780
Z	 0.8720	 0.4630
a	 0.4170	 0.3000
b	 0.8060	 0.4780
c	 0.7590	 0.4490
d	 0.5980	 0.4020
e	 0.6870	 0.4010
f	 0.5230	 0.3160
g	 0.0650	 0.1960
h	 0.5770	 0.3160



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Chain	Atom inclusion	Q-score
n	 0.7800	 0.4770
z	 0.7640	 0.2520