Full wwPDB EM Validation Report

Nov 11, 2026 – 10:41 AM JST

PDB ID	:	24NN / pdb_000024nn
EMDB ID	:	EMD-69698
Title	:	E/E-tRNA bound M. smegmatis 70S ribosome in complex with RRF (RRI II)
Authors	:	Sengupta, J.; Dhur, A.; Baid, P.; Srinivasan, K.
Deposited on	:	2026-03-12
Resolution	:	5.10 Å(reported)
Based on initial model	:	5O61

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:

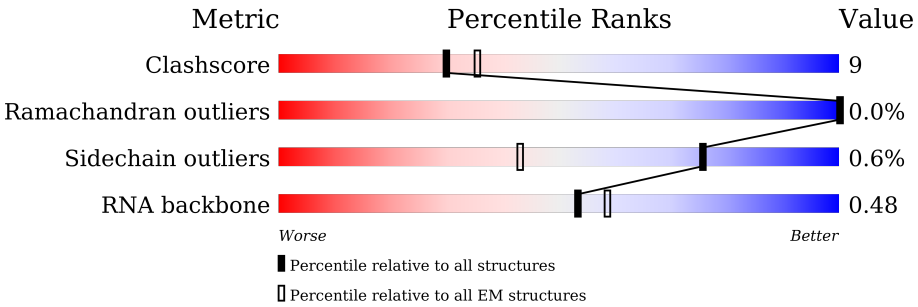
EMDB validation analysis	:	0.0.1.dev133
MolProbity	:	4-5-2 with Phenix2.2
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

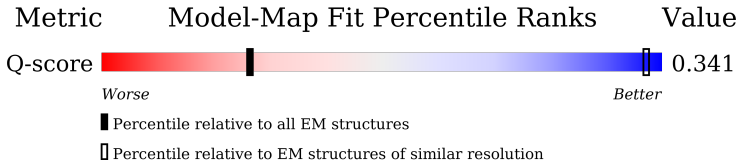
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 5.10 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	844 (4.60 - 5.60)

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

Mol	Chain	Length	Quality of chain
1	2	77	9% 35% 47% 18%
2	3	24	17% 88% 8%
3	4	3	100%

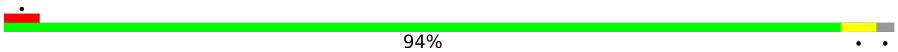
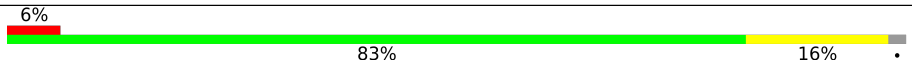
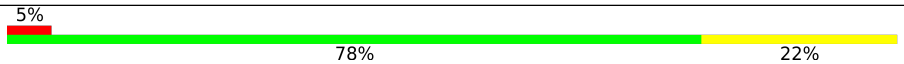
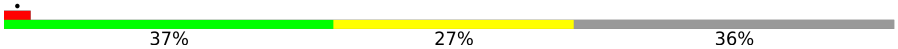
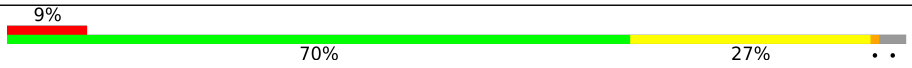
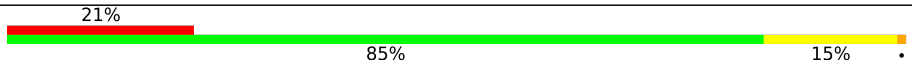
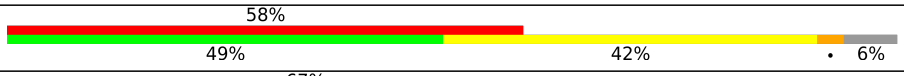
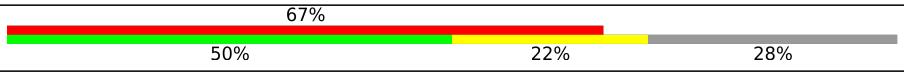
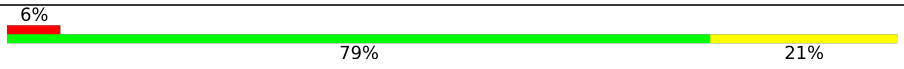
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Mol	Chain	Length	Quality of chain
4	6	235	63% 54% 43%
5	A	1528	40% 45% 13%
6	B	118	60% 33% 7%
7	C	275	17% 54% 22% 24%
8	D	201	44% 45% 50%
9	E	214	7% 58% 26% 16%
10	F	96	77% 23%
11	G	156	37% 72% 28%
12	H	132	74% 25%
13	I	150	22% 56% 28% 16%
14	J	101	31% 50% 49%
15	K	138	64% 20% 17%
16	L	124	19% 60% 37%
17	M	124	37% 56% 38% 6%
18	N	61	8% 74% 25%
19	O	89	79% 20%
20	P	156	21% 45% 28% 28%
21	Q	98	24% 67% 29%
22	R	84	67% 11% 23%
23	S	93	31% 66% 23% 12%
24	T	86	14% 66% 33%
25	U	100	79% 18%
26	W	215	8% 75% 14% 11%
27	X	88	6% 80% 10% 10%
28	Y	64	77% 22%

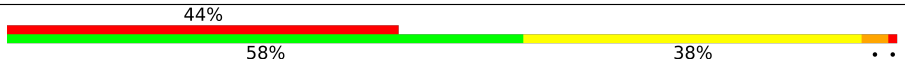
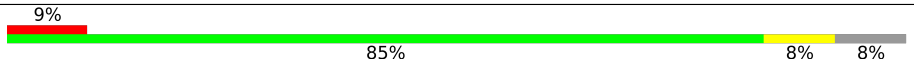
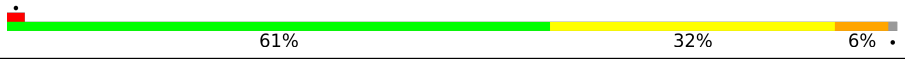
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Mol	Chain	Length	Quality of chain
29	Z	77	
30	a	61	
31	b	57	
32	c	55	
33	d	47	
34	e	64	
35	f	37	
36	g	75	
37	i	278	
38	j	217	
39	k	215	
40	l	187	
41	m	179	
42	n	151	
43	o	142	
44	p	175	
45	q	147	
46	r	122	
47	s	147	
48	t	138	
49	u	199	
50	v	127	
51	w	113	
52	x	129	
53	y	103	

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Mol	Chain	Length	Quality of chain
54	z	153	
55	5	185	
56	1	105	
57	h	3120	

2 Entry composition

There are 59 unique types of molecules in this entry. The entry contains 151085 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 E/E- site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	77	1644	732	297	538	77	0	0

- Molecule 2 is a protein called 50S ribosomal protein bL37.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	3	23	189	111	50	28	0	0

- Molecule 3 is a RNA chain called mRNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	4	3	60	27	7	23	3	0	0

- Molecule 4 is a protein called Large ribosomal subunit protein uL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	6	232	1736	1084	313	336	3	0	0

- Molecule 5 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	A	1511	32439	14448	5930	10550	1511	0	0

- Molecule 6 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	B	118	2522	1126	468	810	118	0	0

- Molecule 7 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	C	208	Total	C	N	O	S	0	0
			1660	1036	322	298	4		

- Molecule 8 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	D	200	Total	C	N	O	S	0	0
			1641	1028	316	295	2		

- Molecule 9 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	E	180	Total	C	N	O	S	0	0
			1296	812	245	235	4		

- Molecule 10 is a protein called Small ribosomal subunit protein bS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	F	96	Total	C	N	O	S	0	0
			771	486	138	145	2		

- Molecule 11 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	G	155	Total	C	N	O	S	0	0
			1232	768	241	221	2		

- Molecule 12 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	H	131	Total	C	N	O	S	0	0
			1010	633	189	187	1		

- Molecule 13 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	I	126	Total	C	N	O	0	0
			994	630	194	170		

- Molecule 14 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	J	99	Total	C	N	O	S	0	0
			788	495	146	144	3		

- Molecule 15 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	K	115	Total	C	N	O	S	0	0
			855	528	170	156	1		

- Molecule 16 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	L	122	Total	C	N	O	S	0	0
			958	594	197	165	2		

- Molecule 17 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	M	116	Total	C	N	O	S	0	0
			935	572	191	169	3		

- Molecule 18 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	N	60	Total	C	N	O	S	0	0
			477	302	97	73	5		

- Molecule 19 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	O	88	Total	C	N	O	0	0
			720	449	147	124		

- Molecule 20 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	P	113	Total	C	N	O	0	0
			891	570	162	159		

- Molecule 21 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	Q	94	Total	C	N	O	S	0	0
			748	469	142	135	2		

- Molecule 22 is a protein called 30S ribosomal protein S18 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	R	65	Total	C	N	O	S	0	0
			513	318	102	90	3		

- Molecule 23 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	S	82	Total	C	N	O	S	0	0
			662	425	124	112	1		

- Molecule 24 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	T	85	Total	C	N	O	0	0
			660	402	139	119		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
25	U	97	Total	C	N	O	0	0
			756	479	138	139		

- Molecule 26 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	W	192	Total	C	N	O	0	0
			1428	881	255	292		

- Molecule 27 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	X	79	Total	C	N	O	0	0
			586	361	123	102		

- Molecule 28 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Y	63	Total	C	N	O	S	0	0
			470	283	103	80	4		

- Molecule 29 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Z	64	Total	C	N	O	S	0	0
			531	324	103	103	1		

- Molecule 30 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	a	59	Total	C	N	O	0	0
			474	292	95	87		

- Molecule 31 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	b	54	Total	C	N	O	S	0	0
			423	260	93	69	1		

- Molecule 32 is a protein called 50S ribosomal protein L33 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	c	49	Total	C	N	O	S	0	0
			405	248	82	71	4		

- Molecule 33 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	d	46	Total	C	N	O	S	0	0
			377	225	97	54	1		

- Molecule 34 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms				AltConf	Trace
34	e	63	Total	C	N	O	0	0
			502	302	115	85		

- Molecule 35 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	f	37	Total	C	N	O	S	0	0
			299	181	66	47	5		

- Molecule 36 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	g	48	Total	C	N	O	S	0	0
			364	225	63	71	5		

- Molecule 37 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	i	275	Total	C	N	O	S	0	0
			2110	1298	438	370	4		

- Molecule 38 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	j	214	Total	C	N	O	S	0	0
			1587	982	310	290	5		

- Molecule 39 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	k	209	Total	C	N	O	S	0	0
			1569	969	295	303	2		

- Molecule 40 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	l	182	Total	C	N	O	S	0	0
			1445	907	271	261	6		

- Molecule 41 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	m	176	Total	C	N	O	S	0	0
			1348	845	249	253	1		

- Molecule 42 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	n	151	Total	C	N	O	S	0	0
			1018	635	188	194	1		

- Molecule 43 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	o	133	Total	C	N	O	S	0	0
			990	625	175	187	3		

- Molecule 44 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	p	126	Total	C	N	O	S	0	0
			918	580	156	180	2		

- Molecule 45 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	q	146	Total	C	N	O	S	0	0
			1130	722	207	200	1		

- Molecule 46 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	r	122	Total	C	N	O	S	0	0
			938	586	179	170	3		

- Molecule 47 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	s	145	Total	C	N	O	S	0	0
			1078	676	205	194	3		

- Molecule 48 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	t	136	Total	C	N	O	S	0	0
			1092	690	213	187	2		

- Molecule 49 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	u	118	Total	C	N	O	S	0	0
			928	583	180	163	2		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
50	v	126	Total	C	N	O	0	0
			956	586	199	171		

- Molecule 51 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	113	Total	C	N	O	S	0	0
			907	570	171	165	1		

- Molecule 52 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	x	124	Total	C	N	O	0	0
			988	613	203	172		

- Molecule 53 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms				AltConf	Trace
53	y	100	Total	C	N	O	0	0
			754	478	137	139		

- Molecule 54 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	z	114	Total	C	N	O	0	0
			873	543	171	159		

- Molecule 55 is a protein called Ribosome-recycling factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	5	185	Total	C	N	O	S	0	0
			1458	894	265	294	5		

- Molecule 56 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	1	97	Total	C	N	O	S	0	0
			732	456	137	137	2		

- Molecule 57 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	h	3084	Total	C	N	O	P	0	0
			66232	29522	12183	21443	3084		

- Molecule 58 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
58	F	1	Total	Mg	0
			1	1	
58	R	1	Total	Mg	0
			1	1	
58	X	1	Total	Mg	0
			1	1	
58	i	4	Total	Mg	0
			4	4	
58	l	1	Total	Mg	0
			1	1	
58	t	1	Total	Mg	0
			1	1	
58	z	1	Total	Mg	0
			1	1	
58	h	2	Total	Mg	0
			2	2	

- Molecule 59 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
59	N	1	Total	Zn	0
			1	1	
59	R	1	Total	Zn	0
			1	1	
59	Y	1	Total	Zn	0
			1	1	
59	c	1	Total	Zn	0
			1	1	

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Mol	Chain	Residues	Atoms	AltConf
59	f	1	Total Zn 1 1	0
59	g	1	Total Zn 1 1	0

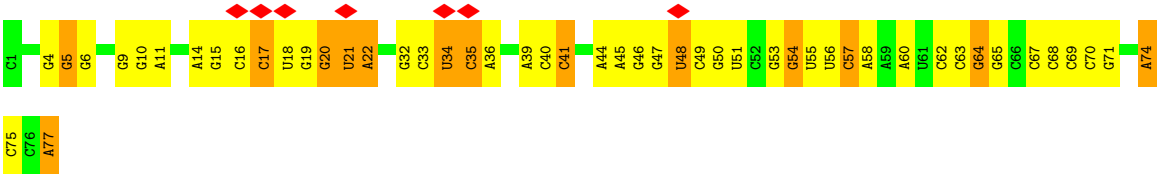
3 Residue-property plots (i)

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

• Molecule 1: E/E- site tRNA

Chain 2:

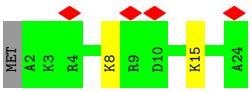




• Molecule 2: 50S ribosomal protein bL37

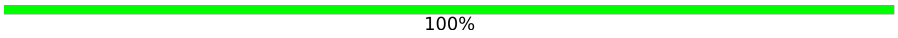
Chain 3:





• Molecule 3: mRNA fragment

Chain 4:

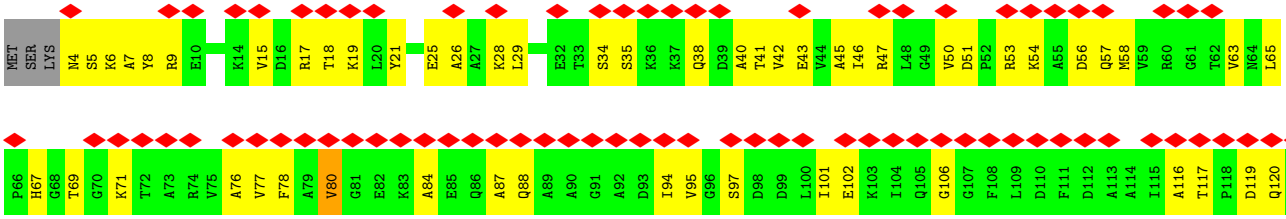


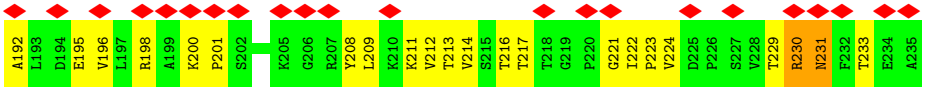
There are no outlier residues recorded for this chain.

• Molecule 4: Large ribosomal subunit protein uL1

Chain 6:



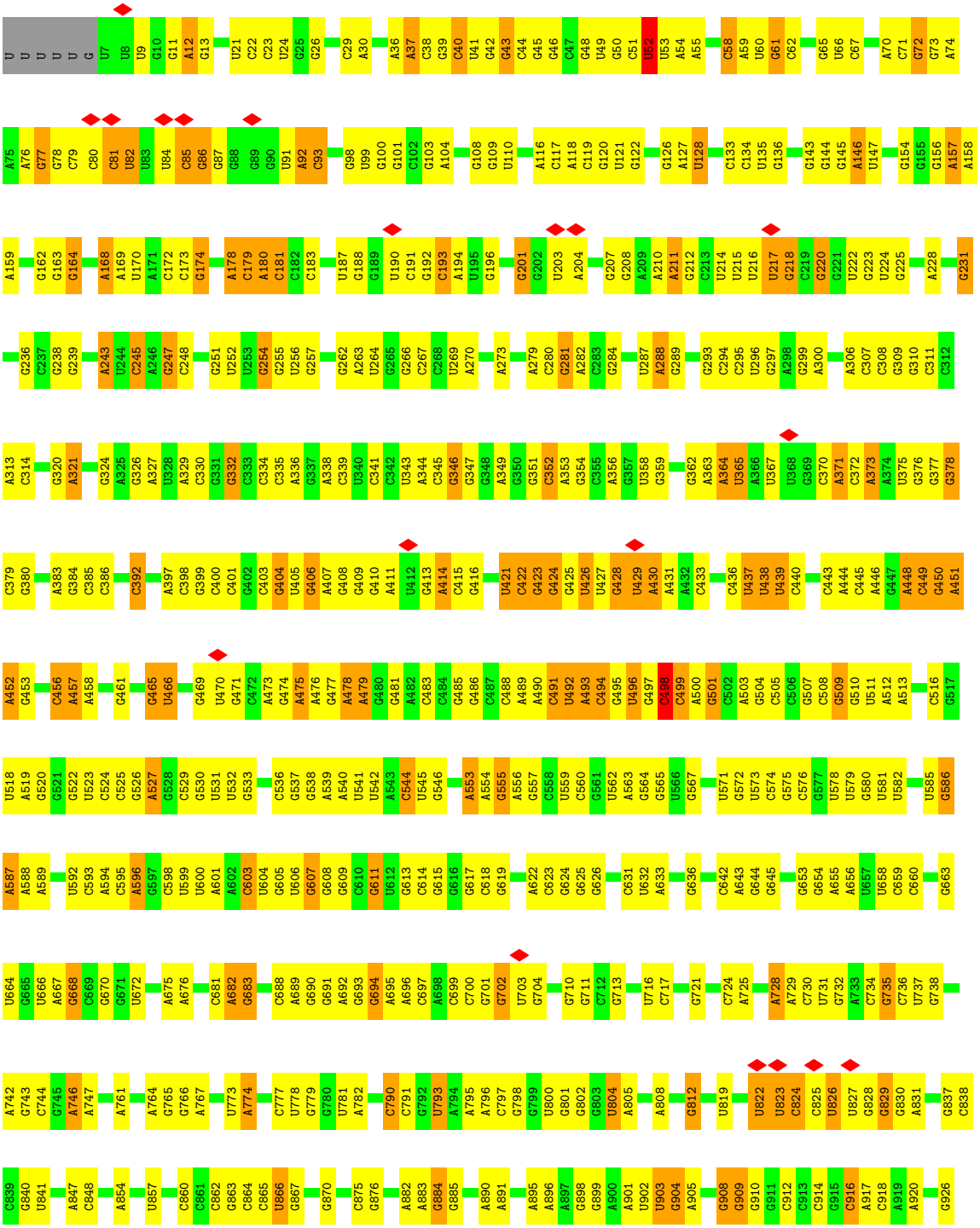


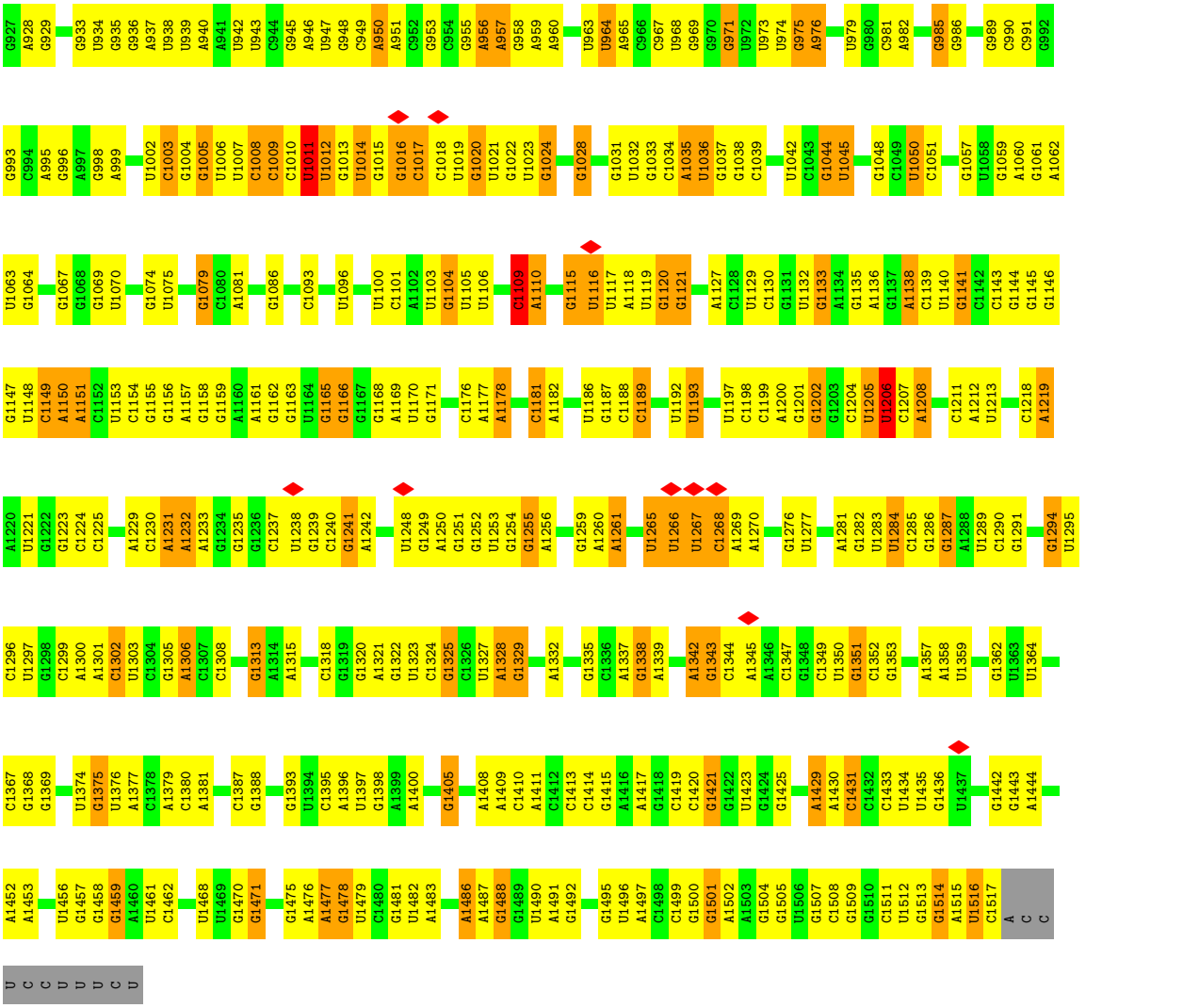


• Molecule 5: 16S ribosomal RNA

Chain A:



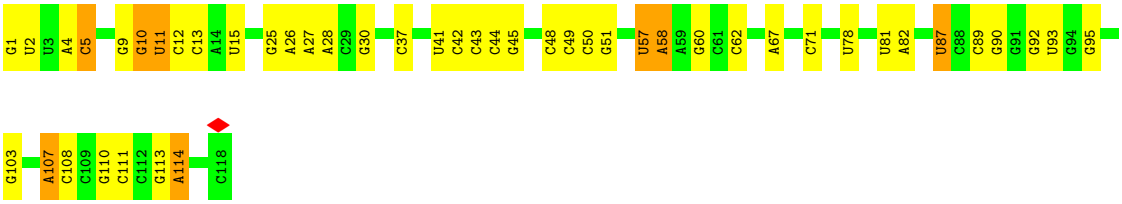




• Molecule 6: 5S ribosomal RNA

Chain B:

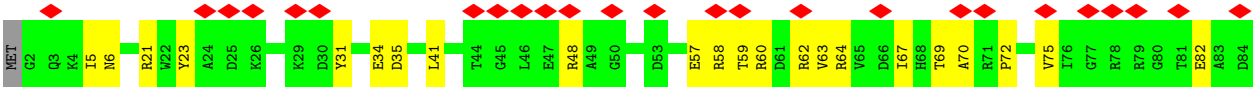


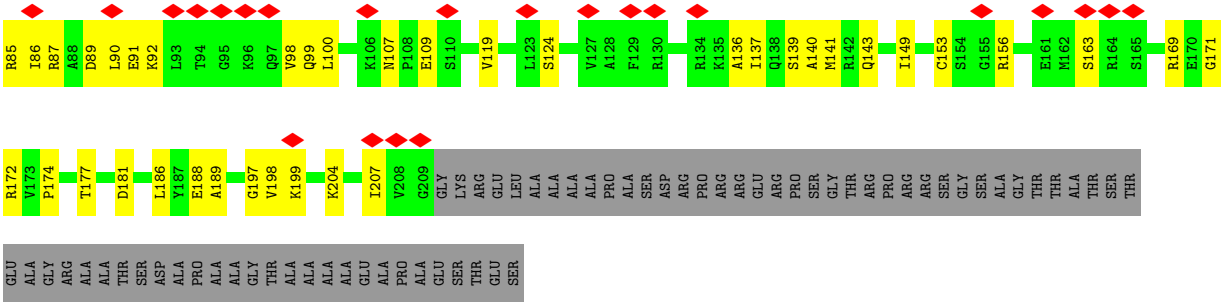


• Molecule 7: 30S ribosomal protein S3

Chain C:







• Molecule 8: 30S ribosomal protein S4

Chain D:

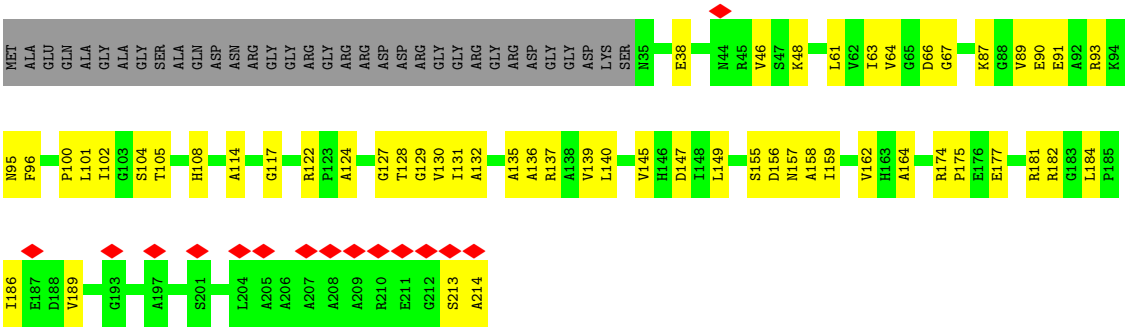




• Molecule 9: 30S ribosomal protein S5

Chain E:

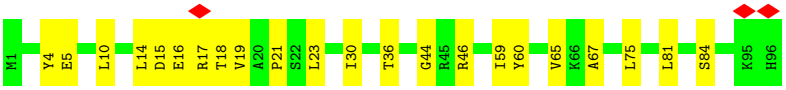




• Molecule 10: Small ribosomal subunit protein bS6

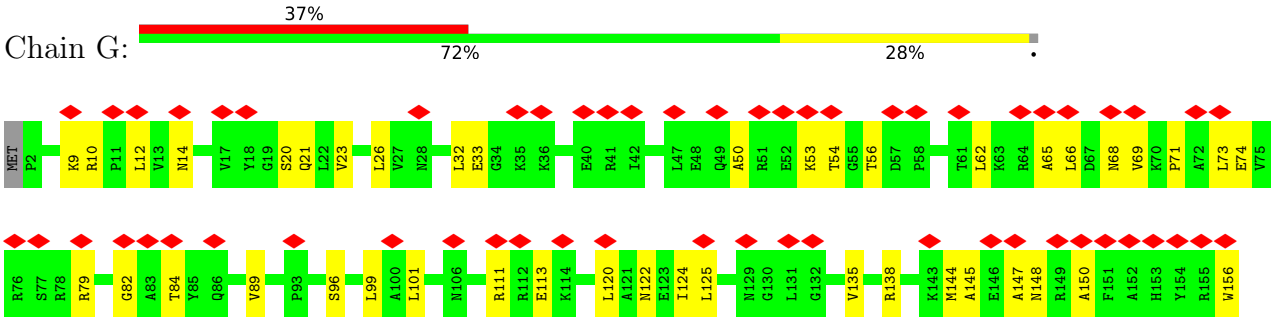
Chain F:





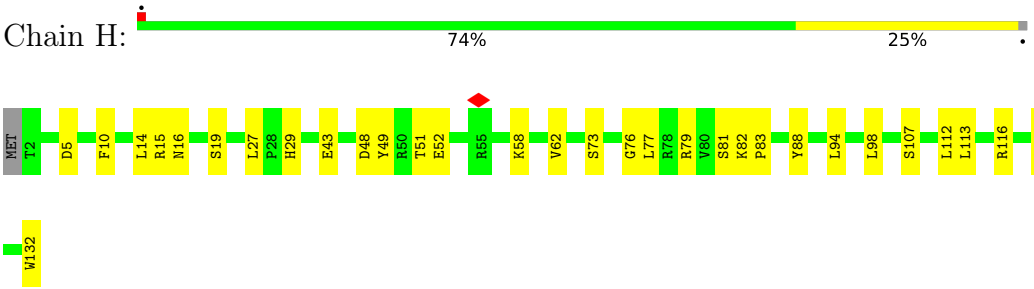
• Molecule 11: 30S ribosomal protein S7

Chain G:



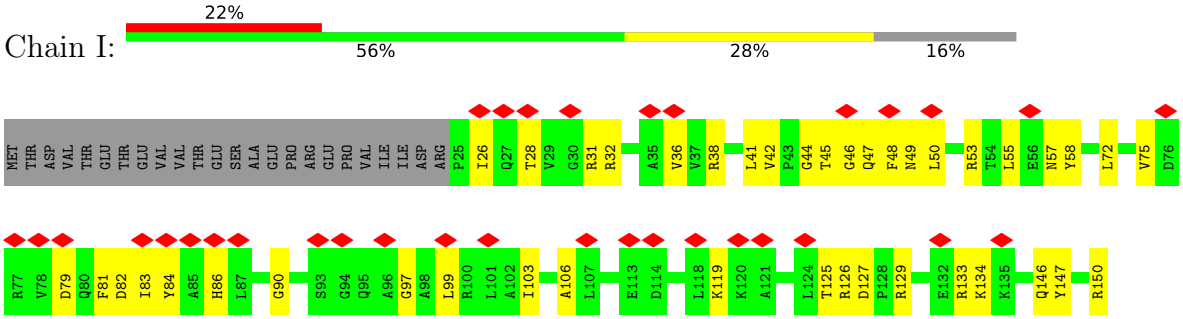
• Molecule 12: 30S ribosomal protein S8

Chain H:



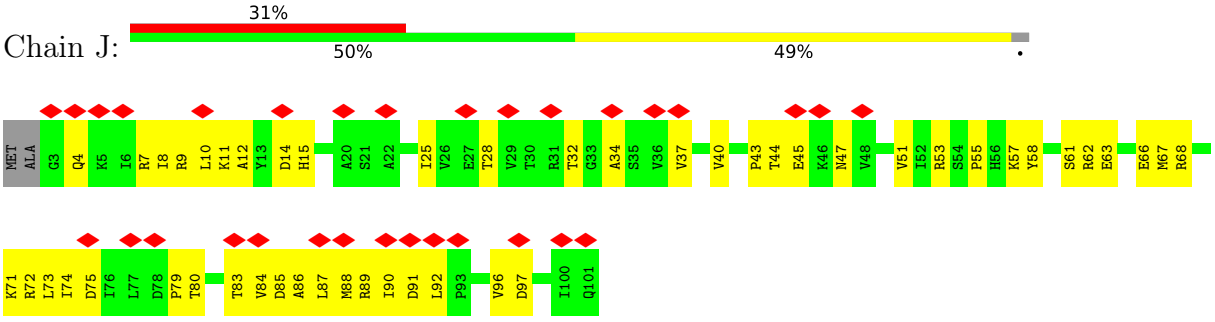
• Molecule 13: 30S ribosomal protein S9

Chain I:



• Molecule 14: 30S ribosomal protein S10

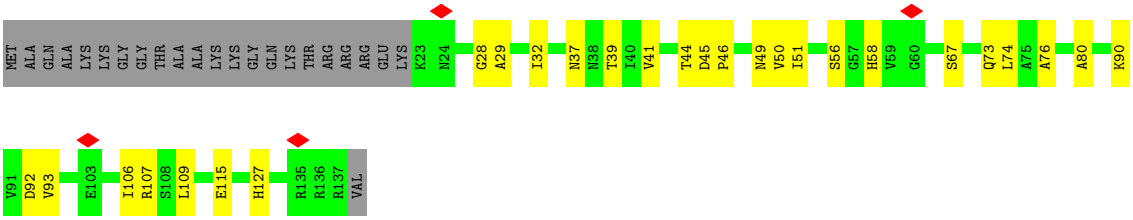
Chain J:



• Molecule 15: 30S ribosomal protein S11

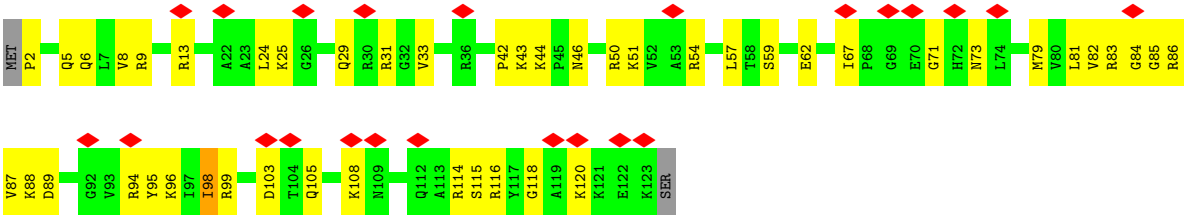
Chain K:





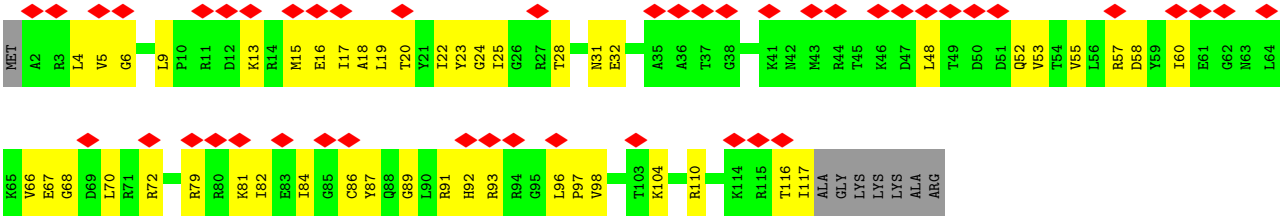
• Molecule 16: 30S ribosomal protein S12





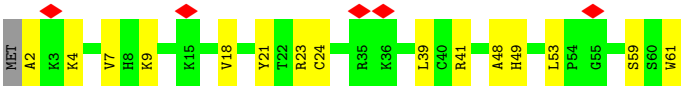
• Molecule 17: 30S ribosomal protein S13



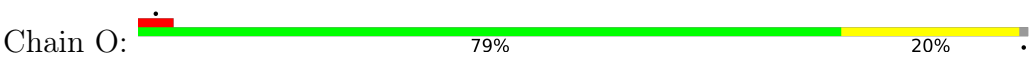


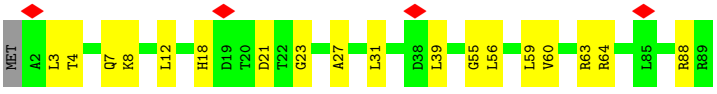
• Molecule 18: 30S ribosomal protein S14 type Z



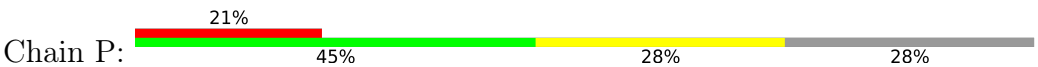


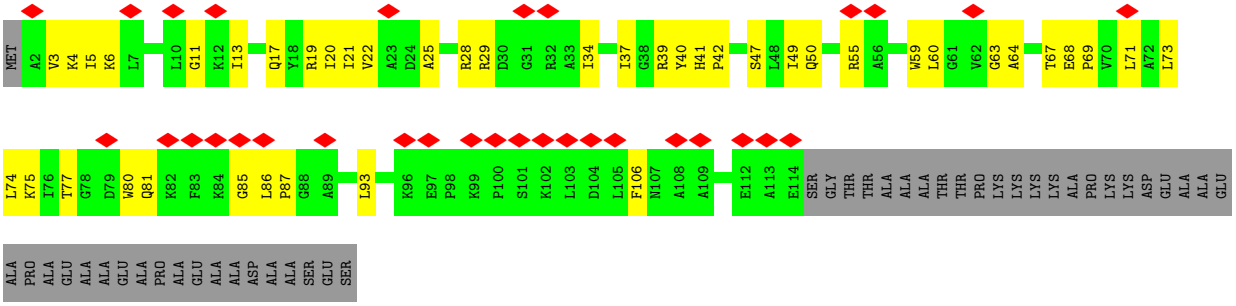
• Molecule 19: 30S ribosomal protein S15





• Molecule 20: 30S ribosomal protein S16

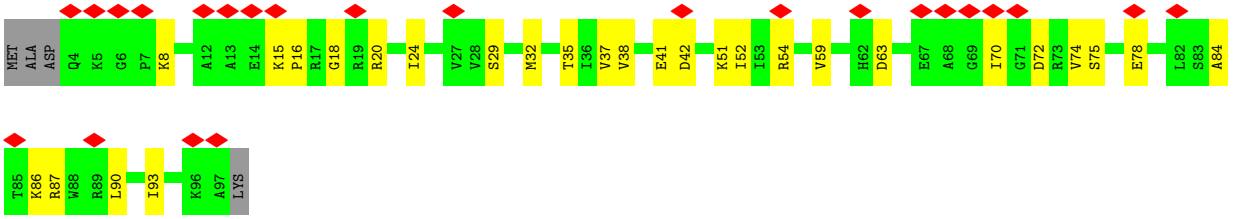




• Molecule 21: 30S ribosomal protein S17

Chain Q:

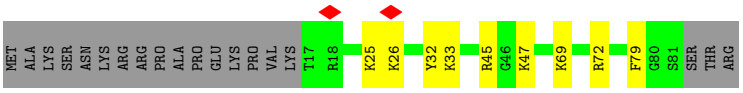




• Molecule 22: 30S ribosomal protein S18 2

Chain R:

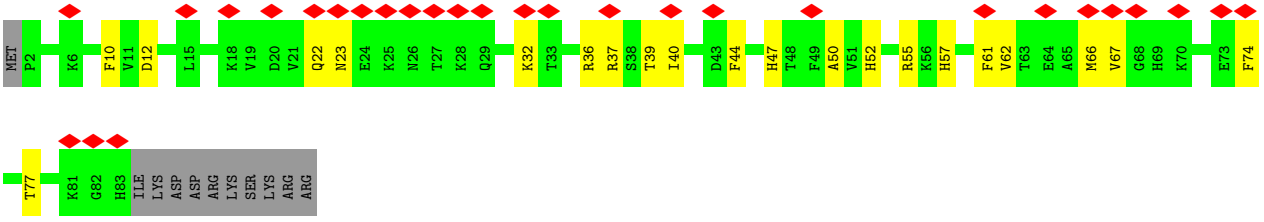




• Molecule 23: 30S ribosomal protein S19

Chain S:

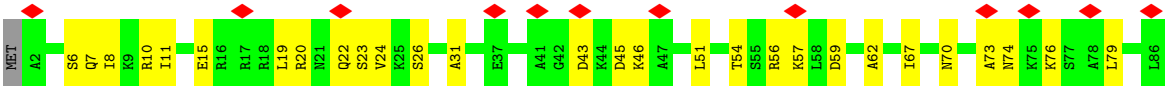




• Molecule 24: 30S ribosomal protein S20

Chain T:

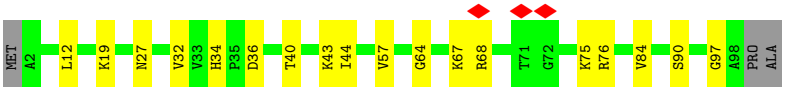




• Molecule 25: 50S ribosomal protein L23

Chain U:

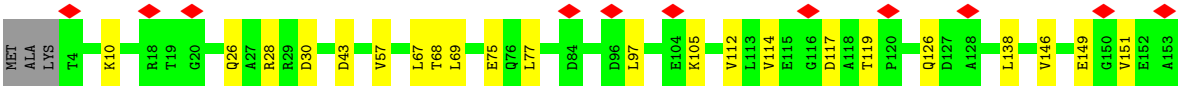


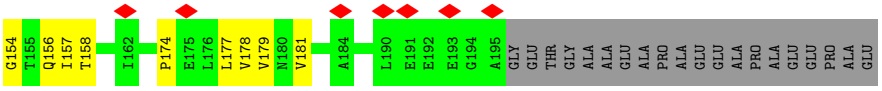


• Molecule 26: 50S ribosomal protein L25

Chain W:



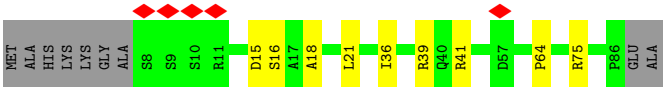




• Molecule 27: 50S ribosomal protein L27

Chain X:

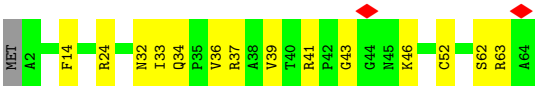




• Molecule 28: 50S ribosomal protein L28

Chain Y:

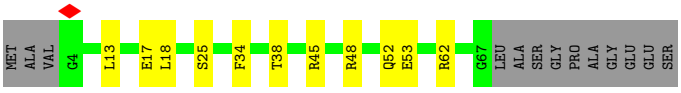




• Molecule 29: 50S ribosomal protein L29

Chain Z:

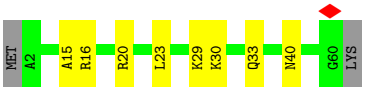




• Molecule 30: 50S ribosomal protein L30

Chain a:

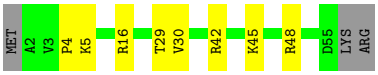




• Molecule 31: 50S ribosomal protein L32

Chain b:

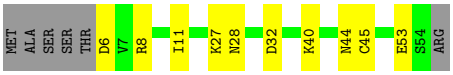




• Molecule 32: 50S ribosomal protein L33 1

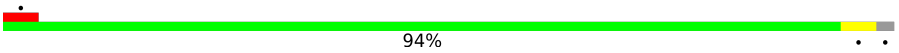
Chain c:

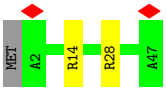




• Molecule 33: 50S ribosomal protein L34

Chain d:

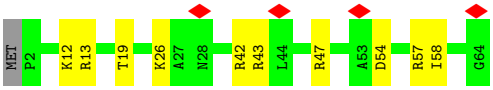




• Molecule 34: 50S ribosomal protein L35

Chain e:

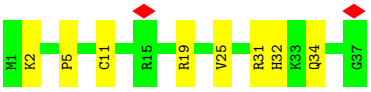




• Molecule 35: 50S ribosomal protein L36

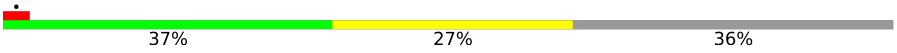
Chain f:

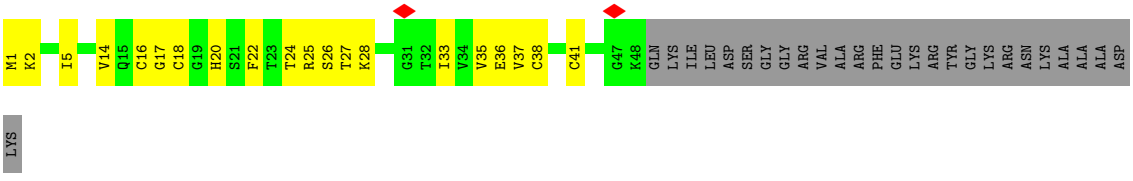




• Molecule 36: 50S ribosomal protein L31

Chain g:

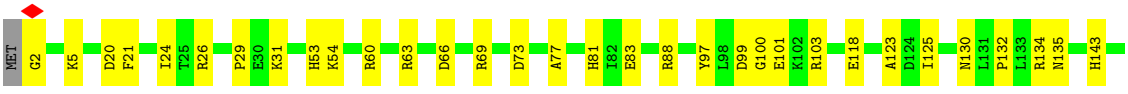


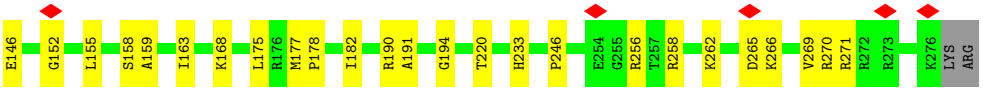


• Molecule 37: 50S ribosomal protein L2

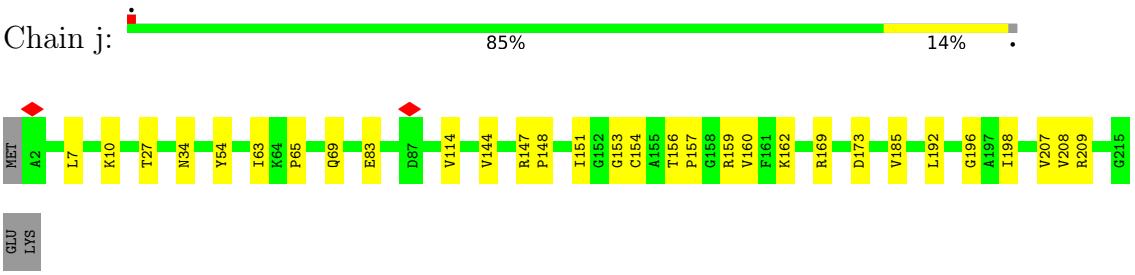
Chain i:



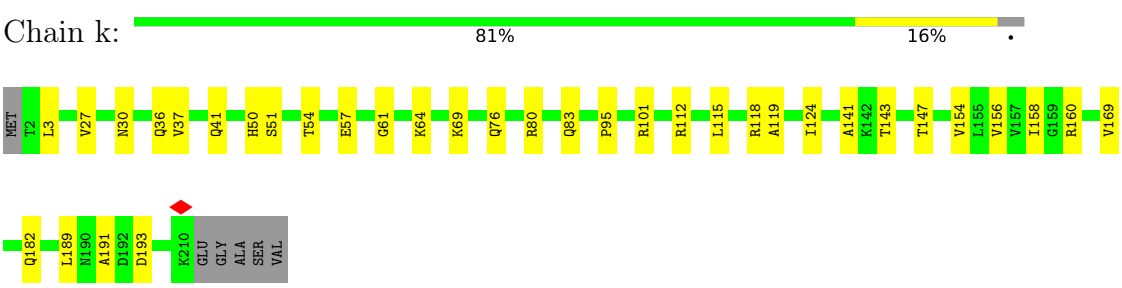




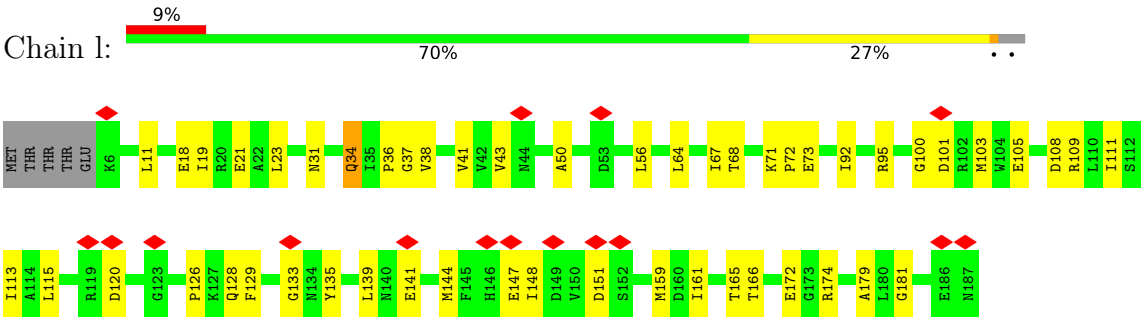
• Molecule 38: 50S ribosomal protein L3



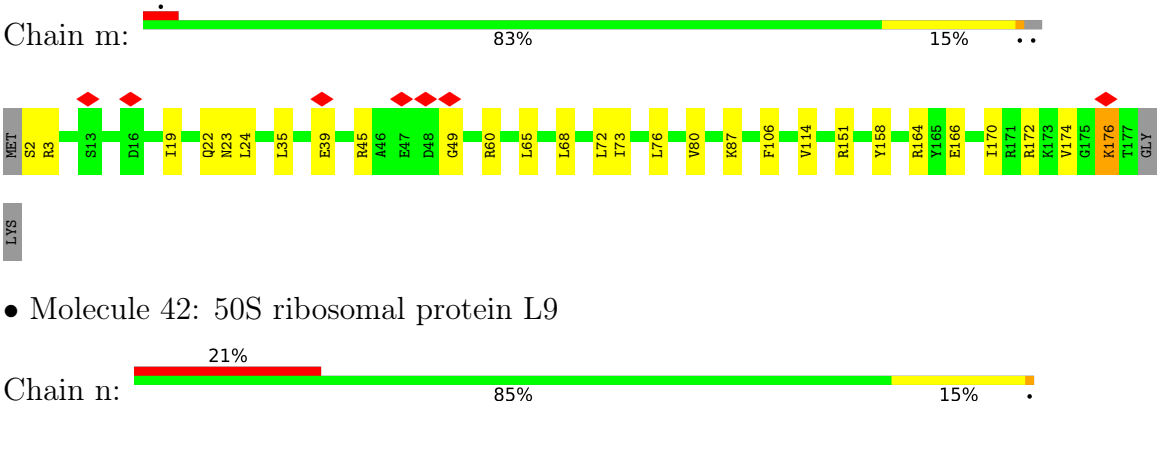
• Molecule 39: 50S ribosomal protein L4



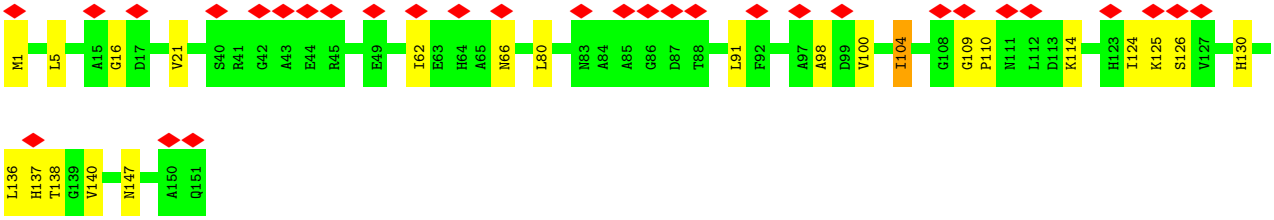
• Molecule 40: 50S ribosomal protein L5



• Molecule 41: 50S ribosomal protein L6



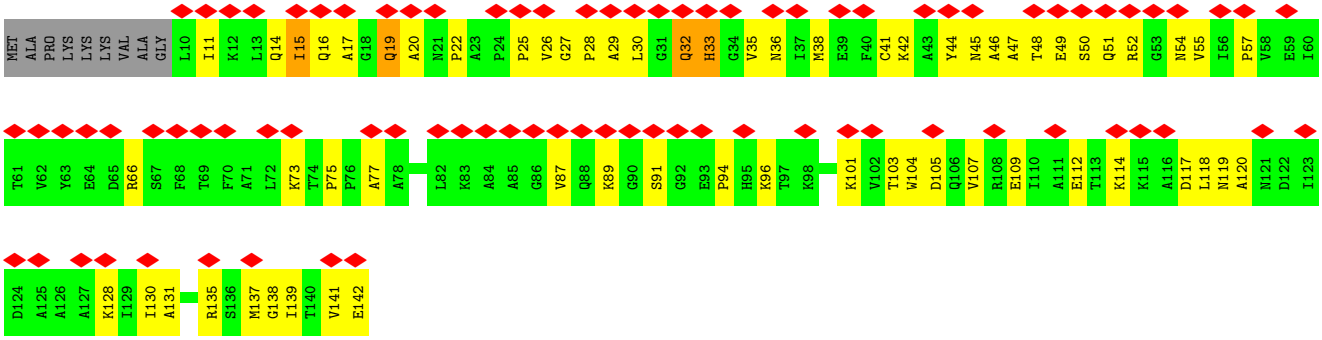
• Molecule 42: 50S ribosomal protein L9



• Molecule 43: 50S ribosomal protein L11

Chain o:

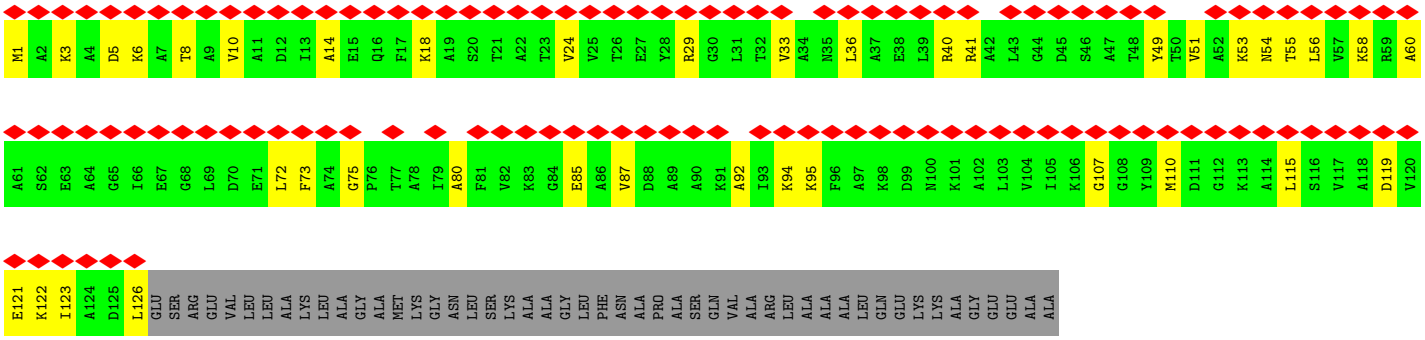




• Molecule 44: 50S ribosomal protein L10

Chain p:

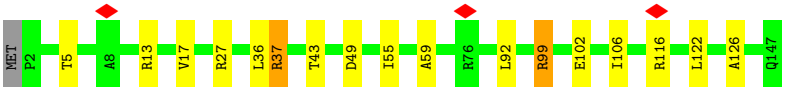




• Molecule 45: 50S ribosomal protein L13

Chain q:

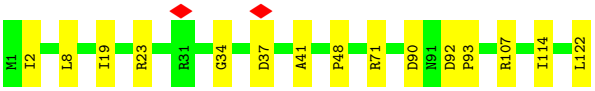




• Molecule 46: 50S ribosomal protein L14

Chain r:

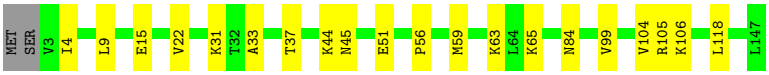




• Molecule 47: 50S ribosomal protein L15

Chain s:

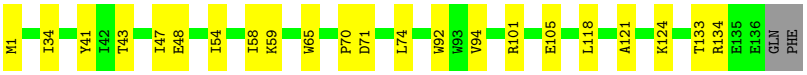




• Molecule 48: 50S ribosomal protein L16

Chain t:

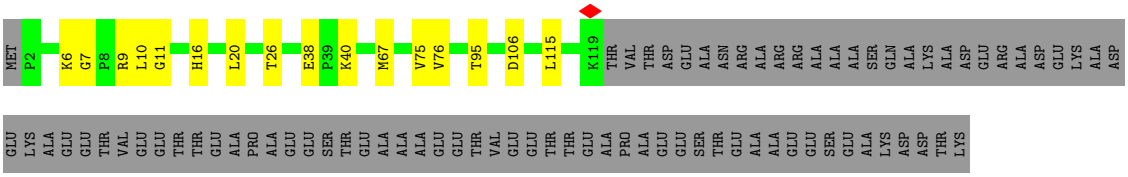




• Molecule 49: 50S ribosomal protein L17

Chain u:





• Molecule 50: 50S ribosomal protein L18

Chain v:

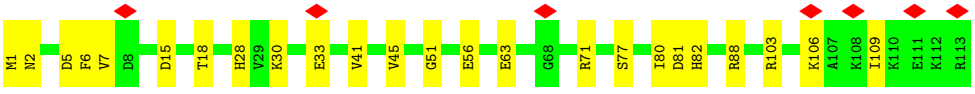




• Molecule 51: 50S ribosomal protein L19

Chain w:

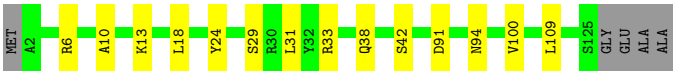




• Molecule 52: 50S ribosomal protein L20

Chain x:

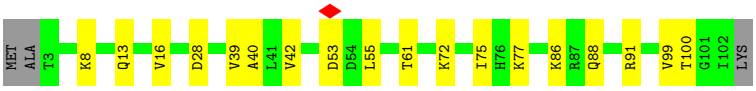




• Molecule 53: 50S ribosomal protein L21

Chain y:

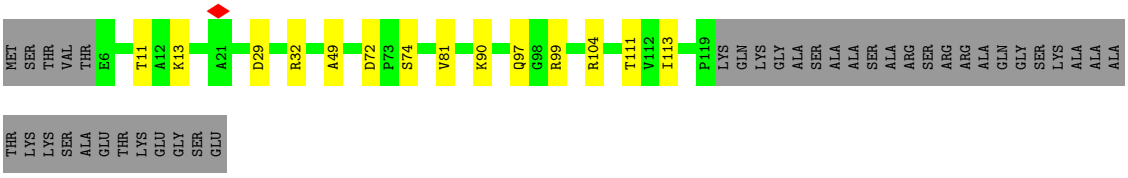




• Molecule 54: 50S ribosomal protein L22

Chain z:





• Molecule 55: Ribosome-recycling factor

Chain 5:

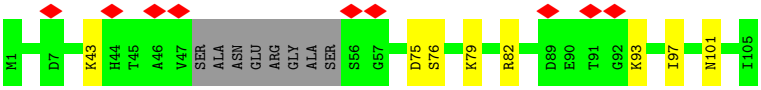




• Molecule 56: Large ribosomal subunit protein uL24

Chain 1:

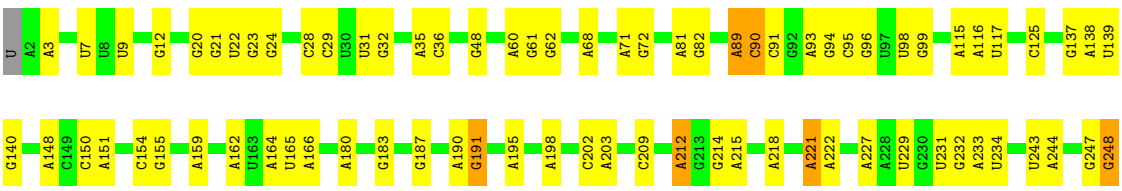


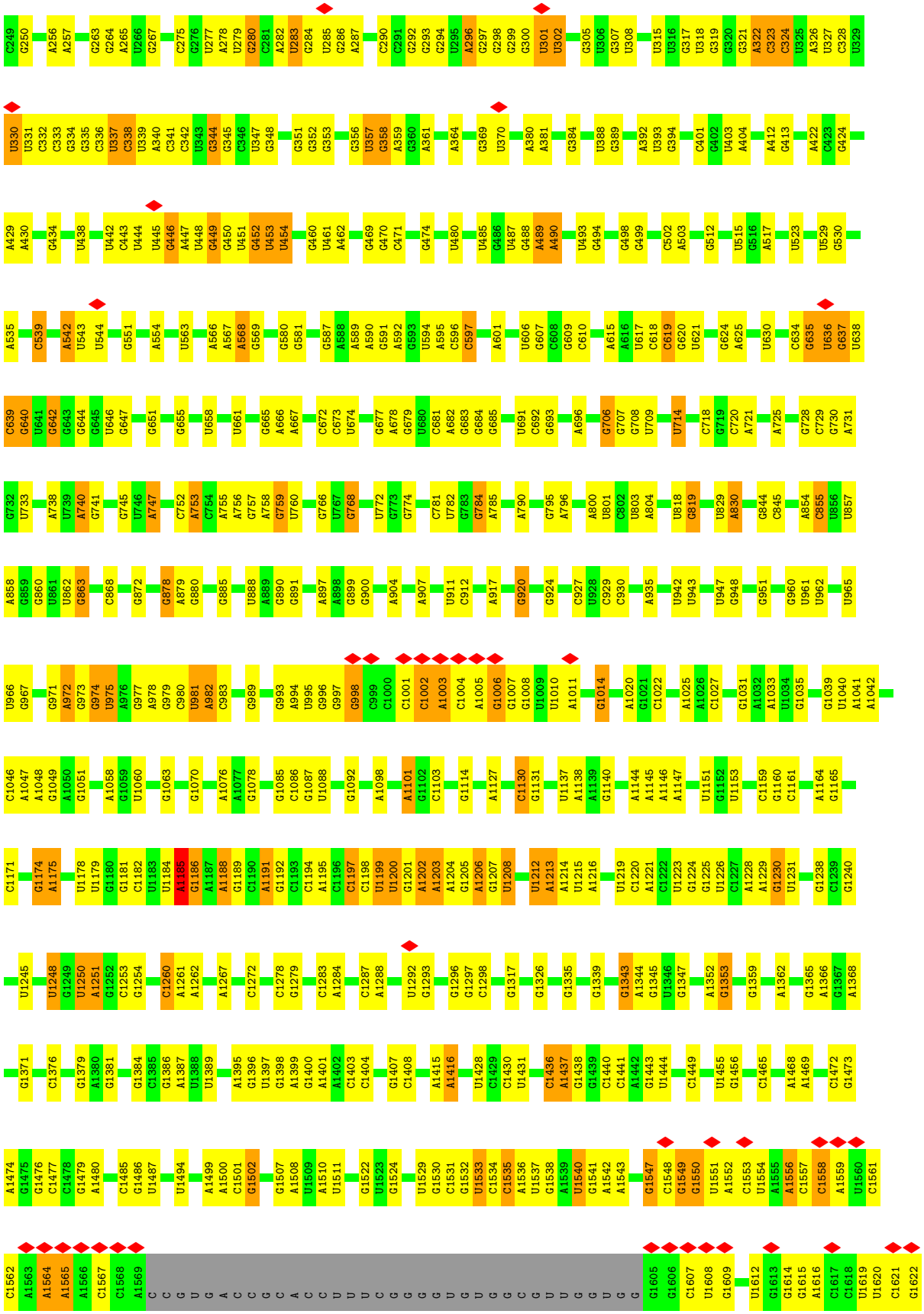


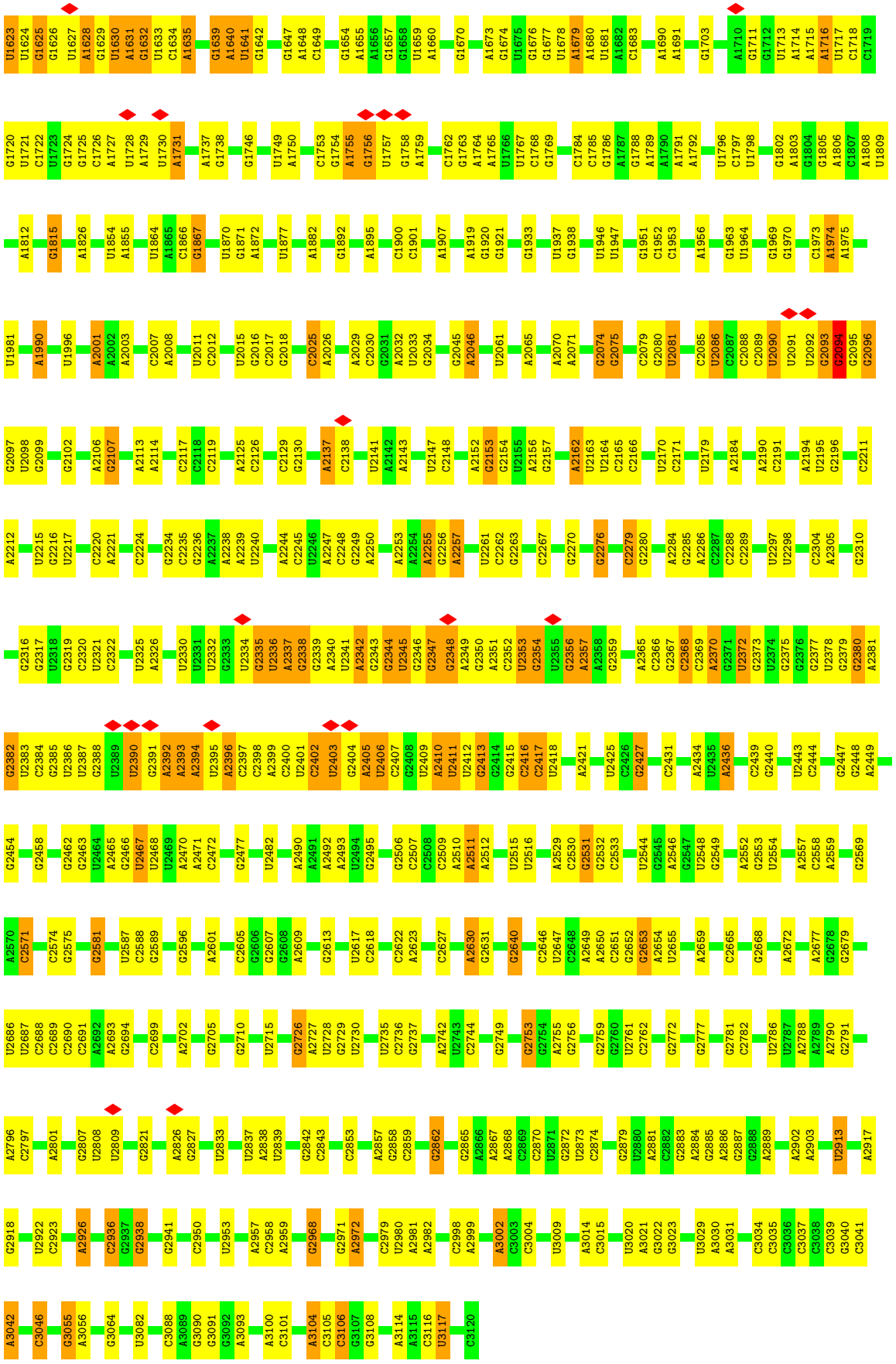
• Molecule 57: 23S ribosomal RNA

Chain h:









4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	18050	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	20.82	Depositor
Minimum defocus (nm)	1800	Depositor
Maximum defocus (nm)	3300	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.178	Depositor
Minimum map value	-0.116	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.024	Depositor
Map size (Å)	449.40002, 449.40002, 449.40002	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	2	0.50	0/1836	0.85	0/2859
2	3	0.16	0/191	0.37	0/247
3	4	1.07	0/65	0.99	0/98
4	6	0.40	2/1760 (0.1%)	0.91	4/2375 (0.2%)
5	A	0.58	0/36309	0.88	25/56657 (0.0%)
6	B	0.34	0/2821	0.76	0/4396
7	C	0.17	0/1684	0.36	0/2261
8	D	3.92	10/1672 (0.6%)	3.35	12/2251 (0.5%)
9	E	0.20	0/1312	0.39	0/1772
10	F	0.17	0/782	0.36	0/1059
11	G	0.16	0/1252	0.37	0/1690
12	H	0.20	0/1025	0.38	0/1385
13	I	0.17	0/1012	0.39	0/1362
14	J	0.19	0/802	0.41	0/1086
15	K	0.21	0/873	0.40	0/1180
16	L	0.33	0/969	0.53	0/1294
17	M	0.16	0/942	0.39	0/1260
18	N	0.21	0/488	0.41	0/650
19	O	0.18	0/729	0.32	0/977
20	P	0.19	0/908	0.42	0/1226
21	Q	0.19	0/759	0.42	0/1016
22	R	0.17	0/518	0.32	0/693
23	S	0.15	0/680	0.36	0/915
24	T	0.20	0/663	0.37	0/882
25	U	0.19	0/766	0.32	0/1030
26	W	0.16	0/1443	0.31	0/1970
27	X	0.21	0/595	0.37	0/798
28	Y	0.20	0/478	0.34	0/641
29	Z	0.17	0/534	0.26	0/713
30	a	0.20	0/477	0.28	0/640
31	b	0.19	0/427	0.29	0/572
32	c	0.17	0/413	0.29	0/553

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	d	0.21	0/380	0.29	0/500
34	e	0.19	0/507	0.34	0/672
35	f	0.20	0/303	0.29	0/401
36	g	0.14	0/372	0.31	0/503
37	i	0.21	0/2153	0.35	0/2895
38	j	0.21	0/1609	0.38	0/2165
39	k	0.18	0/1592	0.32	0/2153
40	l	0.15	0/1467	0.33	0/1973
41	m	0.18	0/1369	0.34	0/1848
42	n	0.14	0/1027	0.37	0/1398
43	o	3.56	6/1006 (0.6%)	3.09	9/1364 (0.7%)
44	p	0.11	0/925	0.29	0/1246
45	q	0.21	0/1157	0.33	0/1567
46	r	0.21	0/946	0.32	0/1268
47	s	0.20	0/1091	0.38	0/1457
48	t	0.20	0/1118	0.38	0/1506
49	u	0.20	0/945	0.36	0/1267
50	v	0.16	0/966	0.29	0/1298
51	w	0.19	0/921	0.35	0/1236
52	x	0.20	0/1000	0.27	0/1341
53	y	0.18	0/764	0.30	0/1030
54	z	0.22	0/887	0.32	0/1204
55	5	0.49	1/1471 (0.1%)	0.68	5/1976 (0.3%)
56	1	0.17	0/738	0.32	0/987
57	h	0.49	0/74164	0.80	30/115718 (0.0%)
All	All	0.66	19/164063 (0.0%)	0.83	85/245481 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
4	6	0	1
45	q	0	1
All	All	0	2

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	D	115	HIS	ND1-CE1	87.28	2.19	1.32
8	D	117	HIS	ND1-CE1	87.19	2.19	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
43	o	33	HIS	ND1-CE1	87.09	2.19	1.32
8	D	115	HIS	CD2-NE2	69.92	2.14	1.37
43	o	33	HIS	CD2-NE2	69.80	2.14	1.37
8	D	117	HIS	CD2-NE2	69.61	2.14	1.37
55	5	108	GLU	C-N	-9.94	1.21	1.33
4	6	147	PRO	CB-CG	-9.04	1.04	1.49
4	6	147	PRO	CG-CD	-9.04	1.20	1.50
43	o	16	GLN	C-N	-7.20	1.24	1.33
43	o	19	GLN	CD-OE1	5.21	1.33	1.23
43	o	32	GLN	CD-OE1	5.15	1.33	1.23
8	D	77	GLN	CD-OE1	5.11	1.33	1.23
8	D	151	GLN	CD-OE1	5.11	1.33	1.23
8	D	146	ASN	CG-OD1	5.08	1.33	1.23
8	D	75	ASN	CG-OD1	5.06	1.33	1.23
8	D	51	GLN	CD-OE1	5.04	1.33	1.23
8	D	111	GLN	CD-OE1	5.03	1.33	1.23
43	o	36	ASN	CG-OD1	5.01	1.33	1.23

All (85) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	D	115	HIS	CE1-NE2-CD2	-73.21	35.79	109.00
43	o	33	HIS	CE1-NE2-CD2	-73.19	35.81	109.00
8	D	117	HIS	CE1-NE2-CD2	-73.17	35.84	109.00
8	D	117	HIS	ND1-CE1-NE2	-72.15	36.25	108.40
8	D	115	HIS	ND1-CE1-NE2	-72.06	36.34	108.40
43	o	33	HIS	ND1-CE1-NE2	-72.06	36.34	108.40
8	D	117	HIS	CG-CD2-NE2	-33.69	73.51	107.20
43	o	33	HIS	CG-CD2-NE2	-33.67	73.53	107.20
8	D	115	HIS	CG-CD2-NE2	-33.64	73.56	107.20
4	6	147	PRO	CB-CG-CD	23.05	179.86	106.10
8	D	117	HIS	CG-ND1-CE1	-21.70	72.40	109.30
8	D	115	HIS	CG-ND1-CE1	-21.68	72.44	109.30
43	o	33	HIS	CG-ND1-CE1	-21.67	72.46	109.30
4	6	147	PRO	N-CD-CG	-17.73	76.60	103.20
4	6	147	PRO	CA-CB-CG	-17.33	71.56	104.50
43	o	16	GLN	CA-C-N	12.03	136.99	120.63
43	o	16	GLN	C-N-CA	12.03	136.99	120.63
57	h	338	C	N3-C2-O2	-9.84	115.01	121.90
43	o	16	GLN	O-C-N	-9.50	111.19	122.87
5	A	179	C	C2-N1-C1'	8.54	128.19	118.80
57	h	2245	C	C2-N1-C1'	8.39	128.03	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
57	h	2245	C	N1-C2-O2	8.15	123.79	118.90
5	A	1206	U	C2-N1-C1'	7.99	127.29	117.70
5	A	179	C	N1-C2-O2	7.91	123.64	118.90
5	A	508	C	N1-C2-O2	7.82	123.59	118.90
5	A	498	C	P-O3'-C3'	7.67	128.91	119.70
57	h	338	C	N1-C2-O2	7.60	123.46	118.90
5	A	1149	C	P-O3'-C3'	7.45	128.64	119.70
57	h	2883	G	O3'-P-O5'	7.30	117.87	104.00
57	h	89	A	P-O3'-C3'	7.21	128.35	119.70
57	h	2245	C	N3-C2-O2	-7.13	116.91	121.90
4	6	147	PRO	CA-N-CD	-7.11	102.05	112.00
57	h	323	C	C2-N1-C1'	7.07	126.57	118.80
57	h	1428	U	C2-N1-C1'	7.03	126.14	117.70
57	h	1535	C	O4'-C1'-N1	6.76	113.23	108.50
43	o	33	HIS	CB-CG-CD2	-6.65	122.55	131.20
8	D	115	HIS	CB-CG-CD2	-6.58	122.64	131.20
57	h	323	C	N1-C2-O2	6.46	122.77	118.90
5	A	1017	C	N3-C2-O2	-6.39	117.43	121.90
5	A	508	C	N3-C2-O2	-6.28	117.50	121.90
8	D	117	HIS	CB-CG-CD2	-6.24	123.09	131.20
5	A	496	U	C2-N1-C1'	6.22	125.16	117.70
5	A	179	C	C6-N1-C1'	-6.17	113.39	120.80
5	A	1011	U	C2-N1-C1'	6.12	125.05	117.70
57	h	2245	C	C6-N1-C2	-6.08	117.87	120.30
57	h	2730	U	C2-N1-C1'	6.03	124.93	117.70
57	h	962	U	C2-N1-C1'	5.98	124.88	117.70
5	A	1109	C	P-O3'-C3'	5.97	126.87	119.70
57	h	1641	U	O5'-C5'-C4'	5.82	114.06	109.40
55	5	30	GLY	CA-C-N	5.82	131.89	122.29
55	5	30	GLY	C-N-CA	5.82	131.89	122.29
5	A	179	C	N3-C2-O2	-5.76	117.87	121.90
57	h	1185	A	C3'-C2'-C1'	-5.76	96.89	101.50
5	A	790	C	N1-C2-O2	5.75	122.35	118.90
57	h	619	C	N1-C2-O2	5.75	122.35	118.90
57	h	3046	C	C2-N1-C1'	5.74	125.11	118.80
43	o	33	HIS	CB-CG-ND1	5.72	131.28	122.70
8	D	115	HIS	CB-CG-ND1	5.68	131.22	122.70
57	h	2245	C	C6-N1-C1'	-5.58	114.10	120.80
5	A	1206	U	C6-N1-C1'	-5.55	113.42	121.20
57	h	619	C	C2-N1-C1'	5.38	124.72	118.80
5	A	365	U	C2-N1-C1'	5.35	124.12	117.70
57	h	2025	C	C2-N1-C1'	5.33	124.67	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	386	C	N3-C2-O2	-5.33	118.17	121.90
8	D	117	HIS	CB-CG-ND1	5.32	130.67	122.70
57	h	981	U	P-O3'-C3'	5.31	126.08	119.70
55	5	108	GLU	CA-C-N	-5.29	113.19	120.28
55	5	108	GLU	C-N-CA	-5.29	113.19	120.28
57	h	2094	G	C5-C6-O6	5.28	131.76	128.60
57	h	2094	G	N1-C6-O6	-5.24	116.75	119.90
5	A	908	G	C3'-C2'-C1'	5.23	104.96	101.30
5	A	790	C	N3-C2-O2	-5.20	118.26	121.90
57	h	191	G	C4-N9-C1'	5.19	133.25	126.50
5	A	496	U	N1-C2-O2	5.17	126.42	122.80
5	A	790	C	C2-N1-C1'	5.15	124.46	118.80
55	5	108	GLU	O-C-N	5.12	127.36	122.03
57	h	784	G	C4-N9-C1'	5.12	133.16	126.50
5	A	52	U	O3'-P-O5'	-5.10	94.32	104.00
57	h	2094	G	P-O3'-C3'	5.09	125.81	119.70
57	h	323	C	C6-N1-C1'	-5.08	114.71	120.80
5	A	179	C	C5-C6-N1	5.07	123.53	121.00
57	h	338	C	C6-N1-C2	-5.07	118.27	120.30
5	A	793	U	C2-N1-C1'	5.05	123.76	117.70
57	h	1416	A	O5'-C5'-C4'	5.01	113.41	109.40
5	A	791	C	C2-N1-C1'	5.01	124.31	118.80

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	6	230	ARG	Sidechain
45	q	37	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	2	1644	0	836	45	0
2	3	189	0	205	2	0
3	4	60	0	32	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	6	1736	0	1788	91	0
5	A	32439	0	16321	651	0
6	B	2522	0	1285	32	0
7	C	1660	0	1707	43	0
8	D	1641	0	1668	135	0
9	E	1296	0	1360	36	0
10	F	771	0	797	16	0
11	G	1232	0	1282	31	0
12	H	1010	0	1046	24	0
13	I	994	0	1050	39	0
14	J	788	0	819	39	0
15	K	855	0	863	23	0
16	L	958	0	1045	58	0
17	M	935	0	986	37	0
18	N	477	0	499	15	0
19	O	720	0	760	16	0
20	P	891	0	935	40	0
21	Q	748	0	795	19	0
22	R	513	0	537	8	0
23	S	662	0	677	18	0
24	T	660	0	712	23	0
25	U	756	0	802	12	0
26	W	1428	0	1443	18	0
27	X	586	0	601	8	0
28	Y	470	0	480	8	0
29	Z	531	0	541	8	0
30	a	474	0	500	6	0
31	b	423	0	463	9	0
32	c	405	0	407	7	0
33	d	377	0	411	2	0
34	e	502	0	541	10	0
35	f	299	0	321	8	0
36	g	364	0	348	18	0
37	i	2110	0	2165	39	0
38	j	1587	0	1630	24	0
39	k	1569	0	1607	25	0
40	l	1445	0	1476	41	0
41	m	1348	0	1399	19	0
42	n	1018	0	988	14	0
43	o	990	0	1021	55	0
44	p	918	0	959	32	0
45	q	1130	0	1167	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
46	r	938	0	1000	11	0
47	s	1078	0	1151	15	0
48	t	1092	0	1128	14	0
49	u	928	0	972	10	0
50	v	956	0	991	21	0
51	w	907	0	938	17	0
52	x	988	0	1038	12	0
53	y	754	0	802	12	0
54	z	873	0	909	9	0
55	5	1458	0	1478	76	0
56	1	732	0	782	7	0
57	h	66232	0	33325	582	0
58	F	1	0	0	0	0
58	R	1	0	0	0	0
58	X	1	0	0	0	0
58	h	2	0	0	0	0
58	i	4	0	0	0	0
58	l	1	0	0	0	0
58	t	1	0	0	0	0
58	z	1	0	0	0	0
59	N	1	0	0	0	0
59	R	1	0	0	0	0
59	Y	1	0	0	0	0
59	c	1	0	0	0	0
59	f	1	0	0	0	0
59	g	1	0	0	0	0
All	All	151085	0	101789	2240	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 9.

All (2240) 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)
55:5:42:ILE:HD13	55:5:51:ILE:HG22	1.38	1.04
55:5:36:MET:HB3	55:5:87:LEU:HD22	1.42	1.02
55:5:43:ASP:O	55:5:74:GLN:NE2	1.91	1.02
5:A:532:U:H4'	16:L:84:GLY:O	1.64	0.96
55:5:105:LEU:H	55:5:110:ARG:HE	1.13	0.95
55:5:31:ARG:NE	55:5:182:LEU:HD13	1.83	0.94
43:o:35:VAL:HA	43:o:66:ARG:NH1	1.85	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:5:40:ILE:HG23	55:5:81:ALA:HB1	1.53	0.91
43:o:35:VAL:HA	43:o:66:ARG:HH12	1.37	0.89
8:D:93:LEU:HG	8:D:113:VAL:CG2	2.02	0.88
55:5:36:MET:HB3	55:5:87:LEU:CD2	2.04	0.87
8:D:93:LEU:HD23	8:D:113:VAL:HG13	1.55	0.87
8:D:93:LEU:CD2	8:D:113:VAL:HG13	2.06	0.85
57:h:1627:U:H2'	57:h:1628:A:H2'	1.59	0.84
4:6:7:ALA:H	57:h:2352:C:H5'	1.43	0.83
4:6:46:ILE:HD11	4:6:209:LEU:HB2	1.60	0.83
10:F:81:LEU:HD22	37:i:125:ILE:HD12	1.61	0.83
8:D:52:GLU:OE2	8:D:191:THR:N	2.10	0.83
55:5:31:ARG:CZ	55:5:182:LEU:HD13	2.10	0.82
57:h:287:A:N6	57:h:299:G:O2'	2.13	0.82
57:h:1540:U:H3	57:h:1632:G:H1	1.28	0.82
5:A:207:G:H4'	24:T:56:ARG:HG2	1.62	0.81
55:5:137:GLU:O	55:5:140:SER:HB3	1.80	0.81
57:h:137:G:H21	57:h:1524:G:H1'	1.42	0.81
18:N:7:VAL:HA	18:N:23:ARG:HE	1.47	0.80
55:5:27:ILE:HD11	55:5:113:LEU:HD22	1.62	0.80
4:6:163:PHE:HB2	4:6:171:LEU:HD11	1.62	0.79
8:D:112:LEU:HD12	8:D:117:HIS:HD2	1.48	0.78
55:5:104:GLN:HA	55:5:110:ARG:HH21	1.47	0.78
19:O:88:ARG:NH2	57:h:829:U:C5	2.52	0.78
57:h:747:A:N6	57:h:768:G:O2'	2.16	0.78
11:G:26:LEU:HD13	11:G:101:LEU:HD22	1.65	0.78
8:D:52:GLU:OE1	8:D:194:LEU:HB2	1.83	0.77
55:5:42:ILE:HD13	55:5:51:ILE:CG2	2.14	0.77
5:A:37:A:O2'	16:L:29:GLN:OE1	1.99	0.77
55:5:108:GLU:O	55:5:112:GLU:OE1	2.01	0.77
5:A:979:U:H3	5:A:1024:G:H1	1.31	0.77
8:D:101:GLY:HA2	8:D:160:ARG:HH12	1.50	0.77
15:K:32:ILE:HG12	15:K:41:VAL:HG23	1.67	0.77
55:5:42:ILE:HB	55:5:74:GLN:OE1	1.84	0.76
5:A:940:A:N6	23:S:77:THR:O	2.19	0.76
57:h:860:G:HO2'	57:h:863:G:HO2'	1.31	0.75
5:A:1266:U:H5"	5:A:1268:C:H1'	1.65	0.75
43:o:11:ILE:HD13	43:o:33:HIS:CE1	2.22	0.75
43:o:19:GLN:NE2	43:o:20:ALA:H	1.83	0.75
8:D:49:GLN:HG3	8:D:194:LEU:HD22	1.68	0.75
5:A:1218:C:H4'	5:A:1282:G:H22	1.51	0.75
57:h:2357:A:H61	57:h:2381:A:H5'	1.52	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:o:19:GLN:HE21	43:o:20:ALA:N	1.84	0.74
19:O:88:ARG:CZ	57:h:829:U:C5	2.71	0.74
8:D:94:ASP:O	8:D:109:ALA:HB1	1.86	0.74
55:5:42:ILE:CD1	55:5:51:ILE:HG22	2.15	0.74
57:h:998:G:H1	57:h:1010:U:H1'	1.51	0.74
55:5:40:ILE:HD13	55:5:82:ILE:HA	1.70	0.74
4:6:15:VAL:HG11	4:6:222:ILE:HG12	1.70	0.74
5:A:436:C:H4'	8:D:149:PRO:HD3	1.70	0.73
5:A:1145:G:H1	5:A:1153:U:H3	1.36	0.73
43:o:15:ILE:HG13	43:o:22:PRO:HG3	1.69	0.73
8:D:93:LEU:HD23	8:D:113:VAL:CG1	2.17	0.73
50:v:36:PRO:HB2	50:v:51:LEU:HD22	1.71	0.73
8:D:93:LEU:HG	8:D:113:VAL:HG21	1.69	0.73
23:S:50:ALA:HB1	23:S:57:HIS:HB3	1.70	0.73
57:h:334:G:H1	57:h:347:U:H3	1.34	0.73
57:h:1996:U:OP2	57:h:2001:A:N6	2.20	0.72
5:A:428:G:H5'	8:D:7:PRO:HG3	1.71	0.72
31:b:48:ARG:HD3	57:h:3106:C:H41	1.53	0.72
35:f:31:ARG:NH2	57:h:2753:G:N7	2.36	0.72
8:D:57:ARG:HH21	8:D:63:MET:HA	1.54	0.72
5:A:503:A:N6	16:L:89:ASP:OD2	2.20	0.72
37:i:155:LEU:HD22	37:i:177:MET:HE2	1.71	0.72
5:A:1170:U:H5"	7:C:5:ILE:HD13	1.70	0.72
7:C:58:ARG:HG3	7:C:63:VAL:HG22	1.70	0.71
4:6:214:VAL:O	4:6:222:ILE:HB	1.90	0.71
5:A:269:U:H2'	5:A:270:A:C8	2.25	0.71
55:5:44:TYR:CD1	55:5:54:LEU:HD13	2.24	0.71
1:2:70:C:H2'	1:2:71:G:H8	1.54	0.71
43:o:11:ILE:HD13	43:o:33:HIS:CD2	2.24	0.71
8:D:12:SER:HB3	8:D:19:LEU:H	1.56	0.71
57:h:2317:G:H1	57:h:2418:U:H3	1.36	0.71
5:A:426:U:OP1	8:D:29:ARG:NE	2.23	0.71
7:C:62:ARG:HH21	7:C:99:GLN:HB3	1.55	0.71
5:A:532:U:O4'	16:L:83:ARG:HD2	1.91	0.71
5:A:936:G:O6	17:M:104:LYS:NZ	2.23	0.71
39:k:118:ARG:NH1	39:k:191:ALA:O	2.24	0.70
43:o:19:GLN:HE21	43:o:20:ALA:H	1.38	0.70
8:D:105:THR:HG22	8:D:108:MET:HG3	1.71	0.70
5:A:1235:G:OP1	14:J:47:ASN:ND2	2.24	0.70
38:j:63:ILE:HG22	38:j:65:PRO:HD2	1.72	0.70
25:U:27:ASN:HD21	25:U:90:SER:HB2	1.56	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:6:102:GLU:O	4:6:106:GLY:N	2.23	0.70
46:r:93:PRO:HG3	46:r:114:ILE:HD13	1.74	0.70
57:h:1547:G:H1	57:h:1623:U:H3	1.36	0.70
32:c:8:ARG:NH1	57:h:2509:C:OP2	2.25	0.70
51:w:28:HIS:HD2	51:w:82:HIS:HB2	1.58	0.69
5:A:1405:G:H5'	46:r:48:PRO:HB3	1.74	0.69
5:A:504:G:H2'	5:A:505:C:C6	2.27	0.69
7:C:107:ASN:HB3	7:C:143:GLN:HE22	1.57	0.69
13:I:32:ARG:HD3	13:I:97:GLY:HA3	1.75	0.69
14:J:80:THR:HB	14:J:83:THR:HG23	1.75	0.69
42:n:62:ILE:O	42:n:66:ASN:N	2.25	0.69
5:A:37:A:N3	16:L:29:GLN:NE2	2.37	0.69
55:5:5:THR:HG21	55:5:138:GLU:HG2	1.74	0.69
8:D:53:LYS:HB2	8:D:195:ILE:HD12	1.74	0.68
9:E:182:ARG:NH2	12:H:43:GLU:OE1	2.26	0.68
11:G:68:ASN:OD1	11:G:138:ARG:NH2	2.26	0.68
17:M:16:GLU:OE2	17:M:31:ASN:ND2	2.25	0.68
5:A:672:U:OP2	15:K:37:ASN:ND2	2.26	0.68
5:A:950:A:C8	5:A:1042:U:H4'	2.28	0.68
19:O:3:LEU:HB2	19:O:8:LYS:HD2	1.76	0.68
57:h:929:C:H1'	57:h:1339:G:H21	1.57	0.68
4:6:26:ALA:HB1	4:6:214:VAL:HG11	1.75	0.68
7:C:35:ASP:OD1	7:C:58:ARG:NH2	2.27	0.68
20:P:5:ILE:HG12	20:P:22:VAL:HG22	1.74	0.68
47:s:63:LYS:HD2	57:h:2618:C:H5"	1.75	0.68
37:i:66:ASP:OD2	37:i:103:ARG:NH1	2.26	0.68
57:h:1549:G:H2'	57:h:1550:G:C8	2.29	0.68
29:Z:48:ARG:O	29:Z:52:GLN:HG2	1.93	0.68
57:h:2342:A:N6	57:h:2390:U:O2'	2.27	0.68
57:h:2405:A:H2'	57:h:2406:U:O4'	1.94	0.68
5:A:24:U:O2'	5:A:553:A:N6	2.27	0.68
5:A:39:G:H1'	16:L:115:SER:O	1.94	0.68
16:L:25:LYS:HE2	16:L:59:SER:HB3	1.75	0.67
1:2:64:G:P	4:6:54:LYS:HE2	2.34	0.67
11:G:111:ARG:NH2	11:G:113:GLU:OE2	2.27	0.67
14:J:66:GLU:HB3	18:N:59:SER:HB2	1.77	0.67
5:A:694:G:H2'	5:A:695:A:C8	2.30	0.67
25:U:67:LYS:HE2	25:U:76:ARG:HH21	1.60	0.67
57:h:2336:U:O4	57:h:2390:U:O2'	2.09	0.67
57:h:1201:G:H21	57:h:1203:A:H8	1.41	0.67
4:6:17:ARG:HH12	4:6:221:GLY:N	1.93	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:6:34:SER:HA	4:6:216:THR:HG21	1.76	0.67
5:A:375:U:O2	20:P:29:ARG:NH1	2.28	0.67
55:5:40:ILE:CG2	55:5:81:ALA:HB1	2.24	0.67
5:A:1410:C:H2'	5:A:1411:A:C8	2.30	0.67
34:e:19:THR:OG1	57:h:745:G:OP1	2.13	0.67
44:p:33:VAL:HG11	57:h:1175:A:H1'	1.77	0.67
49:u:7:GLY:O	49:u:9:ARG:NH1	2.28	0.67
52:x:6:ARG:NH2	57:h:677:G:N7	2.42	0.67
5:A:39:G:H4'	16:L:99:ARG:O	1.95	0.67
5:A:522:G:OP1	8:D:10:ARG:NE	2.28	0.67
5:A:603:C:H2'	5:A:604:U:C6	2.30	0.67
57:h:499:G:OP2	57:h:2630:A:O2'	2.13	0.67
57:h:1002:C:H2'	57:h:1003:A:H5"	1.75	0.67
5:A:522:G:OP1	8:D:10:ARG:HD2	1.94	0.66
20:P:77:THR:HG22	20:P:93:LEU:HD11	1.77	0.66
57:h:2862:G:O2'	57:h:3002:A:N6	2.27	0.66
19:O:88:ARG:NH2	57:h:829:U:C6	2.64	0.66
45:q:13:ARG:NH2	45:q:49:ASP:O	2.28	0.66
55:5:40:ILE:HG23	55:5:81:ALA:CB	2.24	0.66
5:A:1010:C:H42	5:A:1014:U:H3	1.42	0.66
12:H:15:ARG:NE	12:H:77:LEU:O	2.25	0.66
5:A:29:C:H5'	5:A:504:G:O2'	1.95	0.66
9:E:38:GLU:OE1	9:E:38:GLU:N	2.29	0.66
9:E:132:ALA:O	9:E:137:ARG:NH1	2.29	0.66
5:A:1213:U:OP1	13:I:146:GLN:NE2	2.29	0.66
43:o:32:GLN:HE21	43:o:33:HIS:CE1	2.13	0.66
49:u:11:GLY:O	49:u:16:HIS:ND1	2.28	0.66
5:A:1374:U:H2'	5:A:1375:G:C8	2.30	0.66
8:D:60:TYR:CE2	8:D:89:LEU:HB3	2.31	0.66
43:o:89:LYS:HD2	57:h:1182:C:H5"	1.76	0.66
57:h:681:C:H2'	57:h:682:A:H8	1.61	0.66
57:h:1540:U:O4	57:h:1632:G:O6	2.14	0.66
57:h:2350:G:H21	57:h:2396:A:H1'	1.62	0.65
57:h:2552:A:H2'	57:h:2553:G:C8	2.31	0.65
57:h:485:U:O2'	57:h:2454:G:N2	2.29	0.65
8:D:86:LEU:HD13	8:D:186:ILE:HG21	1.78	0.65
25:U:34:HIS:ND1	25:U:36:ASP:OD1	2.28	0.65
40:l:41:VAL:HG23	40:l:103:MET:HE2	1.78	0.65
45:q:43:THR:HG22	52:x:100:VAL:HG13	1.78	0.65
57:h:2304:C:H2'	57:h:2305:A:C8	2.32	0.65
5:A:702:G:H1	5:A:713:G:H1	1.44	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:r:2:ILE:HG13	46:r:8:LEU:HD21	1.78	0.65
5:A:52:U:O2	5:A:365:U:O4	2.14	0.65
5:A:450:G:H5"	5:A:451:A:H3'	1.77	0.65
4:6:67:HIS:NE2	4:6:187:GLU:OE1	2.29	0.65
5:A:445:C:H2'	5:A:446:A:C8	2.32	0.65
44:p:10:VAL:HG13	44:p:60:ALA:HB2	1.79	0.65
5:A:1338:G:H2'	5:A:1339:A:C8	2.32	0.65
57:h:1625:G:H2'	57:h:1626:G:C8	2.32	0.65
14:J:84:VAL:HG12	14:J:88:MET:HE2	1.78	0.64
5:A:993:G:H1	5:A:1002:U:H3	1.45	0.64
5:A:1374:U:H2'	5:A:1375:G:H8	1.61	0.64
2:3:8:LYS:NZ	57:h:2253:A:OP2	2.22	0.64
4:6:21:TYR:HB3	4:6:25:GLU:HB3	1.79	0.64
11:G:32:LEU:HG	11:G:33:GLU:HG2	1.77	0.64
57:h:1621:C:H2'	57:h:1622:G:C8	2.33	0.64
4:6:67:HIS:HB3	4:6:184:LYS:HD3	1.80	0.64
57:h:966:U:H2'	57:h:967:G:H8	1.63	0.64
5:A:693:G:H2'	5:A:694:G:C8	2.32	0.64
8:D:103:ALA:HB1	8:D:108:MET:HB2	1.78	0.64
17:M:82:ILE:HD11	17:M:93:ARG:HG3	1.80	0.64
18:N:21:TYR:HE1	18:N:23:ARG:HD2	1.61	0.64
36:g:38:CYS:H	36:g:41:CYS:HB2	1.63	0.64
5:A:653:G:H2'	5:A:654:G:C8	2.33	0.64
5:A:1156:G:H2'	5:A:1157:A:H8	1.62	0.64
7:C:186:LEU:HD13	7:C:199:LYS:HG2	1.80	0.64
55:5:104:GLN:HA	55:5:110:ARG:NH2	2.12	0.64
5:A:825:C:O3'	22:R:26:LYS:NZ	2.31	0.64
37:i:163:ILE:HG22	37:i:178:PRO:HD3	1.79	0.64
4:6:77:VAL:HB	4:6:95:VAL:HG22	1.80	0.63
44:p:14:ALA:HB2	44:p:60:ALA:HB1	1.80	0.63
5:A:737:U:OP1	5:A:802:G:O2'	2.16	0.63
8:D:93:LEU:HG	8:D:113:VAL:HG22	1.77	0.63
9:E:100:PRO:HB3	9:E:174:ARG:HG3	1.79	0.63
43:o:128:LYS:HD3	57:h:1198:C:H4'	1.79	0.63
52:x:33:ARG:NH2	57:h:672:C:OP1	2.30	0.63
32:c:28:ASN:ND2	57:h:2509:C:OP2	2.32	0.63
55:5:75:LEU:HD21	55:5:93:ASN:HD21	1.62	0.63
7:C:82:GLU:OE2	7:C:85:ARG:NH1	2.30	0.63
13:I:45:THR:OG1	13:I:47:GLN:OE1	2.16	0.63
21:Q:38:VAL:O	21:Q:59:VAL:N	2.22	0.63
50:v:62:ALA:O	50:v:91:ARG:NH1	2.30	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:119:C:O2	5:A:239:G:N2	2.30	0.63
28:Y:32:ASN:OD1	28:Y:34:GLN:NE2	2.29	0.63
37:i:134:ARG:O	37:i:168:LYS:NZ	2.30	0.63
1:2:77:A:C6	57:h:2646:C:C6	2.87	0.63
28:Y:24:ARG:NH1	57:h:469:G:OP1	2.31	0.63
57:h:1541:G:H22	57:h:1631:A:H61	1.47	0.63
7:C:62:ARG:HH22	7:C:64:ARG:HB2	1.64	0.63
57:h:2394:A:H3'	57:h:2397:C:H41	1.64	0.63
42:n:126:SER:O	42:n:130:HIS:NE2	2.32	0.63
57:h:1608:U:H2'	57:h:1609:G:C8	2.34	0.63
57:h:2372:U:H2'	57:h:2373:G:C4	2.33	0.63
5:A:443:C:H2'	5:A:444:A:C8	2.34	0.62
11:G:79:ARG:HH11	11:G:82:GLY:H	1.46	0.62
39:k:36:GLN:OE1	57:h:774:G:N2	2.28	0.62
43:o:17:ALA:HA	43:o:48:THR:HG21	1.78	0.62
55:5:79:GLU:HG2	55:5:83:ARG:HH12	1.64	0.62
55:5:136:MET:HE2	55:5:160:LEU:HD23	1.80	0.62
5:A:407:A:H5"	8:D:107:ARG:HB3	1.80	0.62
17:M:92:HIS:HA	17:M:110:ARG:HH22	1.64	0.62
36:g:18:CYS:HB3	36:g:41:CYS:SG	2.37	0.62
57:h:324:C:O2	57:h:452:G:N2	2.32	0.62
4:6:212:VAL:HG13	4:6:224:VAL:HB	1.81	0.62
5:A:39:G:N3	16:L:115:SER:OG	2.29	0.62
5:A:256:U:H2'	5:A:257:G:H8	1.65	0.62
5:A:413:G:O6	8:D:29:ARG:NH1	2.31	0.62
5:A:870:G:H2'	5:A:890:A:H61	1.63	0.62
23:S:36:ARG:NH1	23:S:52:HIS:O	2.30	0.62
40:l:100:GLY:O	40:l:103:MET:HG3	1.99	0.62
43:o:118:LEU:HD13	43:o:120:ALA:H	1.64	0.62
52:x:91:ASP:OD1	52:x:94:ASN:ND2	2.31	0.62
40:l:67:ILE:HG13	40:l:68:THR:HG23	1.80	0.62
42:n:1:MET:N	42:n:21:VAL:O	2.31	0.62
1:2:35:C:H5'	5:A:1367:C:H4'	1.80	0.62
5:A:157:A:H2'	5:A:158:A:C8	2.34	0.62
39:k:189:LEU:HD13	47:s:9:LEU:HD11	1.82	0.62
40:l:19:ILE:HD12	40:l:179:ALA:HB1	1.82	0.62
57:h:265:A:N1	57:h:515:U:O2'	2.31	0.62
5:A:448:A:OP2	5:A:465:G:N2	2.28	0.62
43:o:87:VAL:HG22	43:o:89:LYS:H	1.64	0.62
57:h:380:A:N1	57:h:404:A:O2'	2.32	0.62
5:A:247:G:O2'	5:A:282:A:N1	2.28	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:392:C:P	20:P:13:ILE:HG23	2.40	0.62
11:G:144:MET:O	11:G:148:ASN:ND2	2.33	0.62
20:P:40:TYR:CE2	20:P:42:PRO:HG3	2.35	0.62
43:o:11:ILE:HG22	57:h:1216:A:H4'	1.81	0.62
51:w:51:GLY:HA2	51:w:56:GLU:HG3	1.81	0.62
4:6:161:ILE:HD13	4:6:174:ILE:HG13	1.82	0.61
5:A:1306:A:H5'	5:A:1345:A:H5"	1.81	0.61
54:z:72:ASP:OD2	54:z:74:SER:OG	2.18	0.61
5:A:604:U:H2'	5:A:605:G:H8	1.64	0.61
10:F:44:GLY:HA2	10:F:60:TYR:H	1.65	0.61
49:u:106:ASP:OD2	57:h:1867:G:O2'	2.17	0.61
55:5:34:PRO:HA	55:5:37:PHE:HD2	1.66	0.61
4:6:117:THR:OG1	4:6:119:ASP:OD1	2.11	0.61
5:A:523:U:OP2	8:D:11:LYS:NZ	2.32	0.61
5:A:1008:C:H2'	5:A:1009:C:C6	2.35	0.61
8:D:183:ARG:NH1	8:D:183:ARG:O	2.33	0.61
14:J:45:GLU:OE1	14:J:71:LYS:NZ	2.30	0.61
14:J:57:LYS:HE3	14:J:58:TYR:CZ	2.34	0.61
57:h:2482:U:O2'	57:h:2651:C:OP2	2.18	0.61
5:A:136:G:N2	21:Q:8:LYS:O	2.33	0.61
5:A:781:U:H2'	5:A:782:A:C8	2.34	0.61
5:A:1296:C:H2'	5:A:1297:U:H6	1.66	0.61
8:D:52:GLU:HA	8:D:55:LYS:HE3	1.82	0.61
5:A:592:U:H5"	8:D:76:ARG:HH21	1.65	0.61
5:A:604:U:H2'	5:A:605:G:C8	2.35	0.61
25:U:57:VAL:HG12	25:U:84:VAL:HG13	1.83	0.61
53:y:61:THR:OG1	53:y:100:THR:OG1	2.17	0.61
5:A:663:G:N2	15:K:49:ASN:OD1	2.29	0.61
6:B:58:A:H8	40:l:31:ASN:HD21	1.49	0.61
57:h:1756:G:H1'	57:h:1758:G:C6	2.36	0.61
14:J:53:ARG:HD2	14:J:61:SER:HB2	1.83	0.61
14:J:66:GLU:OE2	14:J:68:ARG:NH1	2.33	0.61
44:p:94:LYS:HZ1	44:p:121:GLU:HA	1.66	0.61
51:w:30:LYS:NZ	51:w:81:ASP:OD1	2.27	0.61
5:A:1199:C:H2'	5:A:1200:A:H8	1.64	0.61
1:2:33:C:H5'	5:A:1323:U:H5'	1.82	0.61
27:X:75:ARG:NH2	57:h:2557:A:OP1	2.34	0.61
57:h:293:G:H2'	57:h:294:G:C8	2.36	0.61
57:h:1630:U:H2'	57:h:1631:A:C8	2.36	0.60
57:h:2106:A:H3'	57:h:2107:G:H5"	1.81	0.60
5:A:1350:U:OP2	13:I:134:LYS:NZ	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:i:100:GLY:HA3	57:h:1720:G:H21	1.67	0.60
36:g:16:CYS:SG	36:g:17:GLY:N	2.75	0.60
57:h:2343:G:H2'	57:h:2344:G:C8	2.37	0.60
5:A:1020:G:H2'	5:A:1021:U:C6	2.37	0.60
28:Y:37:ARG:HH21	28:Y:46:LYS:HE3	1.66	0.60
40:l:126:PRO:O	40:l:174:ARG:NH1	2.34	0.60
57:h:2086:U:H3	57:h:2096:G:H1	1.50	0.60
5:A:407:A:H2'	5:A:408:G:C8	2.36	0.60
5:A:1476:A:H2'	5:A:1477:A:H2'	1.83	0.60
6:B:48:C:OP2	50:v:14:ARG:NH1	2.33	0.60
57:h:2304:C:H2'	57:h:2305:A:H8	1.67	0.60
5:A:415:C:H3'	5:A:416:G:H8	1.66	0.60
5:A:604:U:H4'	20:P:11:GLY:HA2	1.83	0.60
31:b:16:ARG:NH1	57:h:1379:G:OP1	2.31	0.60
32:c:40:LYS:NZ	57:h:2571:C:OP1	2.34	0.60
5:A:567:G:N2	5:A:734:C:OP2	2.26	0.60
8:D:98:TYR:O	8:D:160:ARG:NH2	2.34	0.60
25:U:19:LYS:NZ	57:h:1455:U:OP1	2.33	0.60
31:b:45:LYS:NZ	57:h:3104:A:OP2	2.29	0.60
57:h:1758:G:H2'	57:h:1759:A:C8	2.36	0.60
5:A:522:G:OP1	8:D:10:ARG:CD	2.50	0.60
8:D:141:LYS:HD3	8:D:143:LYS:HB2	1.83	0.60
9:E:91:GLU:OE2	9:E:95:ASN:ND2	2.28	0.60
43:o:19:GLN:NE2	43:o:20:ALA:N	2.48	0.60
57:h:277:U:H2'	57:h:278:A:C8	2.36	0.60
11:G:69:VAL:HG22	11:G:135:VAL:HG22	1.83	0.60
20:P:22:VAL:HG12	20:P:34:ILE:HD12	1.84	0.60
57:h:2465:A:H2'	57:h:2466:G:C8	2.37	0.60
5:A:373:A:O2'	5:A:451:A:N7	2.34	0.60
5:A:522:G:H5"	8:D:33:PRO:HG2	1.83	0.60
10:F:44:GLY:O	10:F:46:ARG:NH1	2.27	0.60
39:k:51:SER:HB2	39:k:95:PRO:HD3	1.82	0.60
55:5:9:ALA:O	55:5:13:MET:HG3	2.01	0.60
55:5:55:ALA:HA	55:5:70:TYR:CE1	2.37	0.60
57:h:551:G:N2	57:h:554:A:OP2	2.32	0.60
5:A:1143:C:H2'	5:A:1144:G:C8	2.36	0.59
36:g:36:GLU:HG2	36:g:37:VAL:HG23	1.82	0.59
57:h:1659:U:H2'	57:h:1660:A:C8	2.37	0.59
5:A:222:U:H2'	5:A:223:G:H8	1.67	0.59
5:A:1342:A:H2'	5:A:1343:G:C8	2.36	0.59
11:G:73:LEU:HD23	11:G:145:ALA:HB1	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:e:43:ARG:NH2	57:h:2587:U:OP2	2.26	0.59
8:D:112:LEU:HD12	8:D:117:HIS:CD2	2.34	0.59
26:W:112:VAL:O	26:W:126:GLN:NE2	2.30	0.59
5:A:22:C:H1'	5:A:1059:G:H21	1.66	0.59
5:A:1015:G:H2'	5:A:1016:G:C8	2.37	0.59
33:d:14:ARG:NH2	57:h:885:G:OP2	2.36	0.59
55:5:154:SER:HA	55:5:157:GLU:OE2	2.02	0.59
1:2:10:G:H2'	1:2:11:A:H8	1.67	0.59
5:A:716:U:H2'	5:A:717:C:C6	2.38	0.59
5:A:1120:G:H4'	5:A:1121:G:H5'	1.85	0.59
11:G:79:ARG:HA	11:G:84:THR:HA	1.85	0.59
21:Q:29:SER:HB3	21:Q:37:VAL:HB	1.84	0.59
4:6:6:LYS:HE2	4:6:9:ARG:HE	1.67	0.59
39:k:118:ARG:NH2	47:s:4:ILE:O	2.36	0.59
57:h:2357:A:H62	57:h:2380:G:H1'	1.66	0.59
4:6:35:SER:OG	4:6:38:GLN:O	2.20	0.59
5:A:321:A:H4'	5:A:1419:C:H5'	1.83	0.59
5:A:489:A:O5'	8:D:46:TYR:HD2	1.85	0.59
5:A:957:A:N1	14:J:62:ARG:NH2	2.50	0.59
57:h:1229:A:H8	57:h:1230:G:H1'	1.68	0.59
41:m:174:VAL:HG23	41:m:176:LYS:HE3	1.85	0.59
48:t:43:THR:HG22	48:t:94:VAL:HG12	1.84	0.59
57:h:1159:C:H2'	57:h:1160:G:H8	1.66	0.59
5:A:491:C:H1'	8:D:36:HIS:HD2	1.67	0.59
17:M:9:LEU:HD22	17:M:18:ALA:HB1	1.85	0.59
52:x:6:ARG:HD3	57:h:1365:G:H5"	1.84	0.59
4:6:174:ILE:HG21	57:h:2347:G:H5'	1.84	0.58
5:A:370:C:H2'	5:A:371:A:C8	2.38	0.58
5:A:1154:C:H2'	5:A:1155:G:C8	2.39	0.58
6:B:15:U:OP2	6:B:71:C:O2'	2.21	0.58
7:C:153:CYS:HB3	7:C:198:VAL:HG22	1.83	0.58
8:D:94:ASP:O	8:D:109:ALA:CB	2.51	0.58
10:F:16:GLU:OE1	10:F:16:GLU:N	2.36	0.58
16:L:5:GLN:OE1	21:Q:51:LYS:NZ	2.35	0.58
4:6:77:VAL:HG21	4:6:87:ALA:HB1	1.84	0.58
5:A:49:U:H2'	5:A:50:G:C8	2.38	0.58
5:A:998:G:H2'	5:A:999:A:C8	2.37	0.58
6:B:5:C:OP1	6:B:62:C:O2'	2.20	0.58
25:U:27:ASN:ND2	25:U:90:SER:HB2	2.18	0.58
43:o:101:LYS:HE2	43:o:142:GLU:HB3	1.85	0.58
55:5:104:GLN:CA	55:5:110:ARG:HH21	2.14	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:531:U:O2'	16:L:83:ARG:NH1	2.36	0.58
10:F:10:LEU:HB2	10:F:59:ILE:HB	1.85	0.58
20:P:67:THR:OG1	20:P:68:GLU:N	2.36	0.58
34:e:47:ARG:NH2	57:h:725:A:OP2	2.35	0.58
41:m:158:TYR:O	41:m:172:ARG:NH2	2.37	0.58
43:o:29:ALA:O	43:o:33:HIS:CD2	2.57	0.58
5:A:1115:G:H1'	5:A:1121:G:N2	2.19	0.58
26:W:146:VAL:HG11	26:W:157:ILE:HG21	1.85	0.58
5:A:1057:G:N2	5:A:1060:A:OP2	2.35	0.58
8:D:165:TRP:CE2	8:D:181:PRO:HB3	2.39	0.58
42:n:124:ILE:HG22	42:n:125:LYS:H	1.69	0.58
49:u:6:LYS:NZ	57:h:3041:C:OP2	2.36	0.58
54:z:32:ARG:NH1	54:z:81:VAL:O	2.37	0.58
55:5:105:LEU:H	55:5:110:ARG:NE	1.92	0.58
5:A:404:G:O2'	5:A:478:A:N1	2.35	0.58
5:A:738:G:H4'	5:A:862:C:H4'	1.85	0.58
5:A:1395:C:H2'	5:A:1396:A:C8	2.38	0.58
7:C:119:VAL:HG21	7:C:136:ALA:HB2	1.84	0.58
15:K:39:THR:HB	15:K:56:SER:HB2	1.85	0.58
43:o:96:LYS:HE2	57:h:1195:A:H5'	1.85	0.58
5:A:1284:U:OP1	17:M:13:LYS:NZ	2.33	0.58
6:B:10:G:O2'	6:B:11:U:OP1	2.17	0.58
37:i:266:LYS:NZ	57:h:2448:G:OP1	2.33	0.58
1:2:17:C:H5"	1:2:18:U:C4	2.39	0.58
4:6:134:ARG:NH2	57:h:2393:A:OP1	2.32	0.58
5:A:1159:G:N7	13:I:119:LYS:NZ	2.45	0.58
5:A:1176:C:H2'	5:A:1178:A:H5"	1.86	0.58
36:g:14:VAL:HG22	36:g:33:ILE:HB	1.85	0.58
4:6:133:PRO:HG2	57:h:2392:A:H5'	1.85	0.58
5:A:934:U:H2'	5:A:935:G:H8	1.67	0.58
17:M:5:VAL:HG11	17:M:60:ILE:HD11	1.85	0.58
32:c:6:ASP:OD1	32:c:6:ASP:N	2.36	0.58
57:h:389:G:N1	57:h:392:A:OP2	2.32	0.58
57:h:2255:A:N3	57:h:2679:G:O2'	2.30	0.58
8:D:127:ILE:HG23	8:D:130:TYR:HB2	1.86	0.57
20:P:86:LEU:HB2	20:P:87:PRO:HD3	1.85	0.57
43:o:117:ASP:OD1	43:o:118:LEU:N	2.37	0.57
43:o:131:ALA:HA	43:o:141:VAL:HG21	1.86	0.57
55:5:70:TYR:OH	57:h:1185:A:N6	2.37	0.57
57:h:301:U:N3	57:h:338:C:OP2	2.37	0.57
57:h:461:U:H2'	57:h:462:A:H8	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:2224:C:O2'	57:h:2913:U:OP2	2.22	0.57
4:6:34:SER:OG	4:6:40:ALA:HB3	2.04	0.57
42:n:100:VAL:O	42:n:104:ILE:HD12	2.04	0.57
57:h:357:U:H4'	57:h:358:G:O5'	2.04	0.57
57:h:1283:C:H2'	57:h:1284:A:H8	1.69	0.57
57:h:2079:C:H2'	57:h:2080:G:H8	1.69	0.57
5:A:108:G:N2	5:A:330:C:N3	2.53	0.57
5:A:120:G:H2'	5:A:121:U:C6	2.39	0.57
5:A:595:C:H2'	5:A:596:A:C8	2.38	0.57
41:m:60:ARG:NH2	57:h:1153:U:O3'	2.37	0.57
5:A:320:G:H2'	5:A:321:A:C8	2.39	0.57
5:A:335:C:H1'	5:A:1417:A:H1'	1.86	0.57
14:J:14:ASP:OD1	14:J:15:HIS:N	2.37	0.57
14:J:28:THR:HG21	14:J:90:ILE:HD11	1.86	0.57
37:i:271:ARG:NH1	57:h:2015:U:OP2	2.37	0.57
4:6:42:VAL:HG11	4:6:175:ILE:HB	1.85	0.57
5:A:12:A:H5'	9:E:131:ILE:HG22	1.87	0.57
39:k:160:ARG:NH2	57:h:706:G:O2'	2.37	0.57
43:o:15:ILE:HG12	43:o:44:TYR:CE2	2.40	0.57
50:v:34:GLU:HG2	50:v:35:VAL:HG23	1.87	0.57
57:h:1683:C:HO2'	57:h:2926:A:HO2'	1.51	0.57
57:h:2113:A:H2'	57:h:2114:A:C8	2.40	0.57
57:h:2409:U:H3'	57:h:2410:A:H8	1.69	0.57
5:A:212:G:N1	5:A:220:G:H1'	2.19	0.57
5:A:424:G:H2'	5:A:425:G:H8	1.69	0.57
5:A:554:A:N3	5:A:865:C:H1'	2.20	0.57
7:C:67:ILE:HD13	7:C:100:LEU:HD11	1.86	0.57
9:E:101:LEU:HD21	9:E:145:VAL:HG22	1.87	0.57
21:Q:63:ASP:HB3	21:Q:90:LEU:HD13	1.86	0.57
34:e:12:LYS:NZ	57:h:247:G:O6	2.35	0.57
47:s:99:VAL:HG12	47:s:104:VAL:HG23	1.85	0.57
50:v:9:ASN:N	50:v:12:GLU:OE1	2.37	0.57
57:h:2337:A:H62	57:h:2390:U:H1'	1.68	0.57
5:A:103:G:N7	24:T:10:ARG:NH2	2.50	0.57
5:A:1150:A:H2'	5:A:1151:A:C8	2.40	0.57
8:D:8:ALA:O	8:D:12:SER:OG	2.19	0.57
26:W:114:VAL:HG11	26:W:179:VAL:HG21	1.87	0.57
43:o:114:LYS:O	43:o:118:LEU:N	2.28	0.57
57:h:2412:U:H2'	57:h:2413:G:C8	2.38	0.57
8:D:93:LEU:CD2	8:D:113:VAL:CG1	2.79	0.57
24:T:45:ASP:N	24:T:45:ASP:OD1	2.36	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:W:178:VAL:HG12	26:W:179:VAL:HG23	1.85	0.57
29:Z:13:LEU:HB3	29:Z:17:GLU:HG3	1.87	0.57
37:i:101:GLU:OE1	37:i:103:ARG:NE	2.38	0.57
43:o:11:ILE:HG21	43:o:33:HIS:CE1	2.40	0.57
43:o:38:MET:HA	43:o:41:CYS:SG	2.44	0.57
5:A:92:A:HO2'	5:A:93:C:H6	1.52	0.57
5:A:695:A:H2'	5:A:696:A:C8	2.40	0.57
26:W:158:THR:OG1	26:W:174:PRO:O	2.22	0.57
45:q:27:ARG:NH1	57:h:1130:C:O2	2.38	0.57
48:t:74:LEU:HB2	48:t:92:TRP:HB2	1.86	0.57
57:h:1035:G:H21	57:h:2493:A:H8	1.53	0.57
57:h:2808:U:H2'	57:h:2809:U:H2'	1.87	0.57
5:A:1476:A:OP1	16:L:44:LYS:HE2	2.05	0.56
16:L:71:GLY:O	16:L:99:ARG:NH2	2.33	0.56
57:h:2344:G:OP1	57:h:2392:A:O2'	2.22	0.56
5:A:1276:G:H2'	5:A:1277:U:C6	2.41	0.56
46:r:107:ARG:NH1	51:w:33:GLU:OE2	2.38	0.56
5:A:37:A:H2'	5:A:38:C:C6	2.41	0.56
5:A:825:C:OP2	22:R:25:LYS:NZ	2.33	0.56
5:A:1199:C:H2'	5:A:1200:A:C8	2.40	0.56
7:C:34:GLU:OE1	7:C:58:ARG:NH1	2.39	0.56
9:E:64:VAL:HG21	9:E:89:VAL:HG23	1.88	0.56
9:E:175:PRO:HB2	9:E:186:ILE:HD11	1.87	0.56
11:G:20:SER:HB3	11:G:23:VAL:HG23	1.87	0.56
13:I:31:ARG:HB3	13:I:126:ARG:HH21	1.69	0.56
18:N:2:ALA:HA	18:N:23:ARG:HH22	1.69	0.56
49:u:26:THR:HG23	49:u:75:VAL:HG21	1.87	0.56
55:5:129:ARG:O	55:5:133:ARG:HG2	2.06	0.56
55:5:136:MET:HE1	55:5:157:GLU:HB2	1.87	0.56
57:h:681:C:H2'	57:h:682:A:C8	2.39	0.56
57:h:2726:G:H5"	57:h:2727:A:H5"	1.86	0.56
13:I:42:VAL:N	13:I:82:ASP:O	2.35	0.56
20:P:3:VAL:HG23	20:P:64:ALA:HA	1.85	0.56
36:g:5:ILE:HD12	40:l:71:LYS:HD3	1.88	0.56
57:h:2400:C:H2'	57:h:2401:U:O4'	2.05	0.56
9:E:156:ASP:N	9:E:156:ASP:OD1	2.36	0.56
42:n:80:LEU:N	42:n:147:ASN:O	2.38	0.56
43:o:47:ALA:O	43:o:50:SER:OG	2.17	0.56
57:h:279:U:H2'	57:h:280:G:C8	2.41	0.56
5:A:1329:G:O6	13:I:32:ARG:NH2	2.39	0.56
15:K:41:VAL:HG11	15:K:76:ALA:HA	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:i:258:ARG:NH1	57:h:2016:G:OP1	2.39	0.56
44:p:55:THR:HA	44:p:58:LYS:HE3	1.87	0.56
57:h:2359:G:O6	57:h:2378:U:O2	2.24	0.56
7:C:169:ARG:NH1	7:C:171:GLY:O	2.29	0.56
11:G:71:PRO:HG3	11:G:99:LEU:HD23	1.86	0.56
26:W:43:ASP:OD1	26:W:43:ASP:N	2.38	0.56
27:X:15:ASP:OD1	27:X:16:SER:N	2.38	0.56
57:h:2365:A:H2'	57:h:2366:C:C6	2.41	0.56
1:2:77:A:N1	57:h:2646:C:C5	2.74	0.56
4:6:4:ASN:OD1	4:6:5:SER:N	2.38	0.56
4:6:58:MET:HA	4:6:58:MET:HE2	1.86	0.56
5:A:1104:G:H1	5:A:1130:C:H42	1.54	0.56
40:l:23:LEU:HD13	40:l:36:PRO:HG2	1.88	0.56
52:x:31:LEU:HD13	57:h:672:C:H4'	1.88	0.56
56:1:75:ASP:N	56:1:79:LYS:O	2.32	0.56
57:h:277:U:H2'	57:h:278:A:H8	1.71	0.56
57:h:1199:U:H2'	57:h:1200:U:C6	2.40	0.56
4:6:56:ASP:N	4:6:56:ASP:OD1	2.37	0.56
5:A:567:G:N2	5:A:735:G:N7	2.54	0.56
5:A:1410:C:H2'	5:A:1411:A:H8	1.69	0.56
8:D:90:GLU:HA	8:D:95:ASN:HD22	1.69	0.56
19:O:8:LYS:HG2	19:O:31:LEU:HD11	1.88	0.56
30:a:29:LYS:NZ	57:h:1048:A:OP1	2.33	0.56
42:n:114:LYS:NZ	57:h:282:A:OP1	2.33	0.56
44:p:110:MET:HE2	44:p:115:LEU:HD23	1.87	0.56
41:m:2:SER:OG	41:m:3:ARG:N	2.31	0.56
57:h:1398:G:N2	57:h:1401:A:OP2	2.39	0.56
5:A:470:U:H2'	5:A:471:G:C8	2.41	0.55
5:A:864:C:N4	16:L:2:PRO:HB3	2.21	0.55
44:p:115:LEU:HB3	44:p:119:ASP:HB3	1.88	0.55
57:h:661:U:O2'	57:h:1101:A:N1	2.38	0.55
5:A:29:C:H5"	5:A:504:G:H1'	1.87	0.55
5:A:76:A:H2'	5:A:77:G:C8	2.42	0.55
8:D:90:GLU:HA	8:D:95:ASN:ND2	2.21	0.55
9:E:181:ARG:HD3	12:H:73:SER:HA	1.88	0.55
44:p:54:ASN:ND2	44:p:73:PHE:O	2.39	0.55
57:h:138:A:H2'	57:h:139:U:O2	2.07	0.55
57:h:1882:A:H61	57:h:2220:C:H42	1.54	0.55
4:6:80:VAL:HA	4:6:84:ALA:HB2	1.88	0.55
5:A:190:U:H2'	5:A:191:C:C6	2.41	0.55
9:E:189:VAL:O	12:H:116:ARG:NH2	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:j:114:VAL:HG22	38:j:208:VAL:HG12	1.89	0.55
57:h:159:A:N3	57:h:2431:C:O2'	2.38	0.55
57:h:296:A:N1	57:h:340:A:N6	2.54	0.55
5:A:222:U:H2'	5:A:223:G:C8	2.41	0.55
5:A:1231:A:H2'	5:A:1232:A:C8	2.42	0.55
6:B:41:U:N3	6:B:45:G:OP2	2.35	0.55
56:1:43:LYS:NZ	57:h:568:A:OP2	2.27	0.55
4:6:101:ILE:HG13	4:6:102:GLU:N	2.21	0.55
5:A:668:G:OP1	15:K:58:HIS:ND1	2.36	0.55
57:h:1690:A:H2'	57:h:1691:A:H8	1.72	0.55
5:A:65:G:N7	24:T:6:SER:OG	2.39	0.55
23:S:44:PHE:HA	23:S:47:HIS:HD2	1.71	0.55
26:W:69:LEU:HD11	26:W:97:LEU:HD13	1.89	0.55
5:A:128:U:H3	5:A:231:G:H1	1.54	0.55
5:A:1224:C:H2'	5:A:1225:C:C6	2.41	0.55
23:S:22:GLN:OE1	23:S:47:HIS:ND1	2.39	0.55
35:f:2:LYS:HB2	35:f:34:GLN:HB3	1.89	0.55
5:A:489:A:O5'	8:D:46:TYR:CD2	2.60	0.55
5:A:392:C:OP1	20:P:13:ILE:HG23	2.07	0.55
5:A:443:C:H2'	5:A:444:A:H8	1.69	0.55
5:A:957:A:N1	5:A:1349:C:O2'	2.39	0.55
6:B:113:G:H2'	6:B:114:A:H8	1.72	0.55
8:D:14:ARG:HB2	8:D:33:PRO:HD2	1.88	0.55
53:y:8:LYS:HD3	53:y:40:ALA:HB2	1.88	0.55
55:5:141:ARG:NH1	55:5:147:GLU:OE2	2.33	0.55
57:h:636:U:H5"	57:h:637:G:C4	2.42	0.55
5:A:414:A:N7	5:A:430:A:N1	2.55	0.54
11:G:65:ALA:O	11:G:69:VAL:HG23	2.07	0.54
16:L:43:LYS:HZ2	16:L:88:LYS:C	2.14	0.54
23:S:12:ASP:OD1	23:S:12:ASP:N	2.40	0.54
32:c:27:LYS:NZ	32:c:32:ASP:O	2.35	0.54
5:A:29:C:H4'	5:A:504:G:N3	2.23	0.54
8:D:138:ILE:HB	8:D:175:ILE:HB	1.89	0.54
17:M:68:GLY:O	17:M:72:ARG:NE	2.26	0.54
37:i:99:ASP:O	57:h:1720:G:N2	2.39	0.54
37:i:143:HIS:ND1	37:i:194:GLY:O	2.35	0.54
43:o:54:ASN:HB3	43:o:75:PRO:HB3	1.89	0.54
47:s:15:GLU:OE1	57:h:691:U:O2'	2.24	0.54
57:h:263:G:O2'	57:h:517:A:N3	2.36	0.54
57:h:2467:U:H2'	57:h:2468:U:C6	2.42	0.54
5:A:532:U:C1'	16:L:83:ARG:HG3	2.38	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:1414:C:H5”	51:w:106:LYS:NZ	2.23	0.54
13:I:48:PHE:HD2	13:I:50:LEU:HD21	1.73	0.54
20:P:81:GLN:O	20:P:85:GLY:N	2.29	0.54
36:g:36:GLU:OE1	36:g:36:GLU:N	2.40	0.54
38:j:7:LEU:HD22	38:j:207:VAL:HG22	1.89	0.54
41:m:106:PHE:HB2	41:m:114:VAL:HG13	1.89	0.54
5:A:525:C:H2’	5:A:526:G:C8	2.42	0.54
25:U:64:GLY:O	25:U:75:LYS:NZ	2.40	0.54
57:h:1146:A:H2’	57:h:1147:A:C8	2.43	0.54
57:h:1640:A:H2’	57:h:1642:G:N7	2.21	0.54
1:2:32:G:O4’	5:A:1321:A:H2	1.90	0.54
5:A:193:C:N4	21:Q:18:GLY:O	2.41	0.54
5:A:498:C:H41	5:A:509:G:H5”	1.73	0.54
5:A:563:A:H61	5:A:738:G:H1’	1.72	0.54
10:F:81:LEU:CD2	37:i:125:ILE:HD12	2.34	0.54
44:p:3:LYS:HD3	44:p:6:LYS:HZ1	1.72	0.54
55:5:12:LYS:O	55:5:15:LYS:HG3	2.06	0.54
57:h:139:U:H2’	57:h:140:G:O4’	2.07	0.54
57:h:1678:U:H5’	57:h:1679:A:OP2	2.08	0.54
5:A:1491:A:H2’	5:A:1492:G:C8	2.42	0.54
6:B:28:A:H5’	50:v:46:HIS:HD2	1.72	0.54
8:D:63:MET:O	8:D:67:PHE:N	2.40	0.54
8:D:120:VAL:HG22	8:D:138:ILE:HG13	1.89	0.54
14:J:40:VAL:HB	14:J:73:LEU:HB3	1.90	0.54
4:6:50:VAL:HG11	4:6:201:PRO:HG2	1.89	0.54
5:A:654:G:H2’	5:A:655:A:C8	2.43	0.54
11:G:71:PRO:HD2	11:G:96:SER:HB2	1.89	0.54
13:I:46:GLY:HA3	13:I:79:ASP:HA	1.90	0.54
16:L:42:PRO:HB3	16:L:89:ASP:HB3	1.89	0.54
37:i:60:ARG:HA	57:h:1788:G:H5’	1.88	0.54
43:o:57:PRO:HG2	43:o:73:LYS:HB2	1.89	0.54
57:h:630:U:H3	57:h:642:G:H1	1.56	0.54
4:6:8:TYR:N	57:h:2352:C:OP1	2.34	0.54
5:A:882:A:H2’	5:A:883:A:C8	2.43	0.54
5:A:1168:G:H4’	13:I:133:ARG:HH21	1.71	0.54
8:D:12:SER:OG	8:D:19:LEU:HB2	2.08	0.54
43:o:51:GLN:HG3	43:o:52:ARG:N	2.22	0.54
4:6:217:THR:HG23	57:h:2397:C:O2	2.08	0.54
5:A:699:C:H41	22:R:69:LYS:HE2	1.73	0.54
7:C:59:THR:HG22	7:C:60:ARG:H	1.72	0.54
43:o:28:PRO:HG2	57:h:1213:A:H61	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:t:65:TRP:HB2	48:t:105:GLU:HB2	1.88	0.54
57:h:502:C:H1'	57:h:2081:U:H1'	1.90	0.54
5:A:866:U:H4'	5:A:867:G:H5"	1.89	0.53
25:U:12:LEU:HD12	25:U:32:VAL:HG12	1.90	0.53
55:5:179:GLU:O	55:5:180:SER:C	2.51	0.53
57:h:2090:U:N3	57:h:2093:G:N1	2.54	0.53
5:A:22:C:H1'	5:A:1059:G:N2	2.22	0.53
5:A:1032:U:O4	5:A:1181:C:O2'	2.20	0.53
21:Q:41:GLU:OE2	21:Q:54:ARG:NH2	2.35	0.53
23:S:61:PHE:CE2	40:l:120:ASP:OD1	2.62	0.53
26:W:77:LEU:HD21	26:W:138:LEU:HD21	1.90	0.53
5:A:1204:C:H5"	5:A:1205:U:H5"	1.89	0.53
11:G:14:ASN:OD1	11:G:21:GLN:N	2.41	0.53
14:J:34:ALA:HB2	14:J:83:THR:HG21	1.91	0.53
27:X:64:PRO:HB3	57:h:759:G:H1	1.73	0.53
28:Y:41:ARG:HG3	28:Y:43:GLY:H	1.72	0.53
43:o:48:THR:HA	43:o:51:GLN:HG2	1.89	0.53
55:5:40:ILE:CG2	55:5:81:ALA:CB	2.85	0.53
57:h:1087:G:H2'	57:h:1088:U:C6	2.43	0.53
5:A:1296:C:H2'	5:A:1297:U:C6	2.42	0.53
7:C:69:THR:OG1	7:C:70:ALA:N	2.35	0.53
57:h:752:C:H2'	57:h:753:A:C8	2.42	0.53
57:h:2515:U:H2'	57:h:2516:U:C6	2.44	0.53
5:A:426:U:H5"	8:D:29:ARG:HH21	1.74	0.53
5:A:860:C:H5'	12:H:83:PRO:HG2	1.89	0.53
57:h:353:G:H1	57:h:442:U:H3	1.57	0.53
57:h:1468:A:H2'	57:h:1469:A:C8	2.44	0.53
57:h:1630:U:H2'	57:h:1631:A:H8	1.70	0.53
1:2:77:A:N6	57:h:2646:C:O4'	2.41	0.53
5:A:263:A:H2'	5:A:264:U:C5	2.43	0.53
5:A:313:A:H2'	5:A:314:C:C6	2.43	0.53
5:A:490:A:N3	5:A:523:U:H1'	2.24	0.53
10:F:5:GLU:CD	22:R:33:LYS:HZ1	2.17	0.53
12:H:5:ASP:OD2	12:H:79:ARG:NH1	2.42	0.53
20:P:17:GLN:HG2	20:P:41:HIS:ND1	2.23	0.53
45:q:102:GLU:OE1	57:h:3004:C:N4	2.41	0.53
57:h:190:A:H2'	57:h:191:G:N3	2.24	0.53
57:h:340:A:H2'	57:h:341:C:C6	2.43	0.53
57:h:974:G:N2	57:h:1031:G:H2'	2.24	0.53
4:6:6:LYS:C	4:6:6:LYS:HD3	2.33	0.53
4:6:38:GLN:OE1	57:h:2350:G:H5'	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:26:G:H4'	5:A:867:G:C8	2.44	0.53
5:A:81:C:H3'	5:A:82:U:H5"	1.90	0.53
5:A:934:U:H2'	5:A:935:G:C8	2.43	0.53
5:A:1067:G:C6	5:A:1079:G:N1	2.77	0.53
8:D:53:LYS:CB	8:D:195:ILE:HD12	2.39	0.53
17:M:57:ARG:NE	17:M:58:ASP:OD1	2.41	0.53
17:M:116:THR:HG22	17:M:117:ILE:H	1.73	0.53
20:P:5:ILE:O	20:P:67:THR:HG22	2.09	0.53
20:P:60:LEU:HD11	20:P:74:LEU:HD21	1.90	0.53
36:g:27:THR:HG22	40:l:147:GLU:HB3	1.91	0.53
55:5:105:LEU:N	55:5:110:ARG:HE	1.94	0.53
57:h:339:U:H2'	57:h:340:A:C8	2.43	0.53
1:2:35:C:C5	5:A:1367:C:OP1	2.61	0.53
5:A:300:A:H2'	5:A:544:C:H42	1.74	0.53
5:A:414:A:H62	5:A:430:A:H2	1.57	0.53
5:A:975:G:O2'	5:A:976:A:N7	2.40	0.53
11:G:74:GLU:O	11:G:89:VAL:N	2.38	0.53
19:O:88:ARG:CZ	57:h:829:U:H5	2.19	0.53
57:h:1250:U:H3'	57:h:1251:A:H5"	1.90	0.53
5:A:407:A:H2'	5:A:408:G:H8	1.74	0.53
5:A:1146:G:H3'	5:A:1147:G:H8	1.73	0.53
11:G:62:LEU:HD12	11:G:66:LEU:HD23	1.91	0.53
52:x:24:TYR:HB2	52:x:29:SER:HB3	1.91	0.53
57:h:1690:A:H2'	57:h:1691:A:C8	2.43	0.53
45:q:5:THR:HG21	57:h:624:G:H5"	1.91	0.53
55:5:59:VAL:HG22	55:5:65:VAL:HG13	1.90	0.53
57:h:137:G:H22	57:h:1812:A:H2	1.56	0.53
5:A:573:U:H2'	5:A:574:C:C6	2.44	0.52
5:A:1028:G:OP1	18:N:4:LYS:N	2.40	0.52
13:I:42:VAL:HG12	13:I:44:GLY:H	1.73	0.52
13:I:126:ARG:NH1	13:I:127:ASP:O	2.42	0.52
36:g:16:CYS:SG	36:g:38:CYS:HB3	2.48	0.52
39:k:76:GLN:OE1	39:k:83:GLN:NE2	2.42	0.52
57:h:1185:A:H1'	57:h:1186:G:H5'	1.91	0.52
57:h:1220:C:H2'	57:h:1221:A:C8	2.44	0.52
1:2:21:U:H2'	1:2:22:A:H4'	1.91	0.52
5:A:1106:U:O4	14:J:9:ARG:NH1	2.31	0.52
5:A:1162:G:H1'	5:A:1163:G:C5	2.43	0.52
11:G:147:ALA:O	15:K:107:ARG:NH1	2.34	0.52
28:Y:39:VAL:O	28:Y:62:SER:OG	2.26	0.52
38:j:153:GLY:O	57:h:2276:G:H4'	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:k:69:LYS:NZ	57:h:2668:G:OP2	2.37	0.52
57:h:279:U:H2'	57:h:280:G:H8	1.74	0.52
57:h:2394:A:H3'	57:h:2397:C:N4	2.25	0.52
5:A:452:A:H62	20:P:93:LEU:HA	1.74	0.52
5:A:491:C:H1'	8:D:36:HIS:CD2	2.43	0.52
43:o:114:LYS:HB3	43:o:118:LEU:HG	1.91	0.52
57:h:539:C:N4	57:h:542:A:OP2	2.22	0.52
57:h:844:G:O2'	57:h:878:G:H4'	2.09	0.52
57:h:1548:C:H2'	57:h:1549:G:C8	2.44	0.52
57:h:1677:G:H2'	57:h:1678:U:O4'	2.08	0.52
57:h:2344:G:H3'	57:h:2345:U:H5"	1.89	0.52
57:h:2351:A:N3	57:h:2396:A:O2'	2.42	0.52
1:2:44:A:H2'	1:2:45:A:C8	2.44	0.52
5:A:173:C:OP1	24:T:20:ARG:NH1	2.42	0.52
5:A:332:G:H4'	24:T:7:GLN:HG2	1.91	0.52
5:A:499:C:H2'	5:A:500:A:C8	2.44	0.52
8:D:135:TYR:CE1	20:P:106:PHE:CE1	2.98	0.52
9:E:135:ALA:HB1	9:E:162:VAL:HG23	1.92	0.52
20:P:39:ARG:CZ	20:P:39:ARG:HB2	2.40	0.52
8:D:97:VAL:HG22	8:D:118:PHE:CE2	2.45	0.52
10:F:15:ASP:OD1	10:F:18:THR:OG1	2.24	0.52
57:h:403:U:O2'	57:h:422:A:N3	2.42	0.52
57:h:635:G:H1'	57:h:636:U:H5'	1.91	0.52
4:6:78:PHE:O	4:6:116:ALA:HA	2.09	0.52
5:A:903:U:H4'	9:E:48:LYS:HG3	1.91	0.52
5:A:1186:U:H2'	5:A:1187:G:C8	2.45	0.52
5:A:1442:G:H5"	24:T:26:SER:OG	2.09	0.52
6:B:60:G:H4'	50:v:12:GLU:HG3	1.92	0.52
8:D:98:TYR:HA	8:D:103:ALA:HB3	1.91	0.52
43:o:22:PRO:O	43:o:25:PRO:HD2	2.10	0.52
43:o:104:TRP:HA	43:o:107:VAL:HB	1.91	0.52
44:p:33:VAL:HG22	57:h:1203:A:N6	2.23	0.52
57:h:1191:A:H3'	57:h:1192:G:H8	1.74	0.52
57:h:1537:U:H2'	57:h:1538:G:C8	2.44	0.52
5:A:39:G:N2	16:L:115:SER:OG	2.42	0.52
5:A:1197:U:H2'	5:A:1198:C:H6	1.74	0.52
13:I:38:ARG:HH21	13:I:86:HIS:HB3	1.75	0.52
19:O:64:ARG:NH1	57:h:830:A:OP1	2.41	0.52
48:t:124:LYS:NZ	57:h:2691:C:O2	2.42	0.52
57:h:2902:A:H2'	57:h:2903:A:C8	2.45	0.52
5:A:256:U:H2'	5:A:257:G:C8	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:625:G:H2'	5:A:626:G:H8	1.74	0.52
9:E:122:ARG:HD3	9:E:149:LEU:HD12	1.92	0.52
10:F:15:ASP:HB2	10:F:17:ARG:HH21	1.74	0.52
24:T:70:ASN:O	24:T:74:ASN:ND2	2.43	0.52
1:2:35:C:C5'	5:A:1367:C:H4'	2.39	0.52
1:2:77:A:N6	57:h:2646:C:C6	2.78	0.52
4:6:230:ARG:O	4:6:231:ASN:C	2.53	0.52
5:A:180:A:N6	5:A:223:G:O2'	2.42	0.52
5:A:407:A:O2'	8:D:108:MET:HG2	2.10	0.52
5:A:1143:C:H2'	5:A:1144:G:H8	1.74	0.52
13:I:53:ARG:NH2	13:I:57:ASN:O	2.36	0.52
24:T:59:ASP:OD1	24:T:76:LYS:NZ	2.42	0.52
25:U:97:GLY:HA3	29:Z:38:THR:HG21	1.91	0.52
50:v:18:ARG:NH1	50:v:105:GLY:O	2.43	0.52
55:5:163:SER:O	55:5:167:TYR:HD1	1.93	0.52
57:h:995:U:H2'	57:h:996:G:C8	2.45	0.52
57:h:1529:U:H3'	57:h:1530:G:H8	1.74	0.52
57:h:2353:U:O2'	57:h:2357:A:OP2	2.22	0.52
5:A:1367:C:H2'	5:A:1368:G:H8	1.73	0.52
5:A:1457:G:H4'	57:h:1920:G:H4'	1.92	0.52
14:J:51:VAL:HG13	18:N:41:ARG:HB2	1.91	0.52
57:h:1201:G:N2	57:h:1203:A:H3'	2.24	0.52
57:h:1900:C:C2	57:h:1974:A:H1'	2.45	0.52
5:A:79:C:H2'	5:A:80:C:C6	2.45	0.51
21:Q:70:ILE:H	21:Q:70:ILE:HD12	1.74	0.51
51:w:77:SER:HB3	51:w:80:ILE:HG12	1.92	0.51
57:h:2253:A:N6	57:h:2257:A:OP2	2.32	0.51
4:6:124:VAL:O	4:6:128:ALA:N	2.43	0.51
13:I:28:THR:HG21	13:I:106:ALA:HB2	1.93	0.51
57:h:1561:C:H2'	57:h:1562:C:C6	2.45	0.51
57:h:1762:C:H2'	57:h:1763:G:O4'	2.10	0.51
5:A:415:C:H3'	5:A:416:G:C8	2.45	0.51
5:A:436:C:H4'	8:D:149:PRO:CD	2.39	0.51
12:H:49:TYR:HB2	12:H:62:VAL:HG12	1.92	0.51
20:P:19:ARG:O	20:P:21:ILE:HG12	2.10	0.51
35:f:2:LYS:NZ	35:f:31:ARG:O	2.38	0.51
43:o:26:VAL:HG22	43:o:30:LEU:HD23	1.93	0.51
57:h:283:U:H3'	57:h:284:G:H21	1.76	0.51
1:2:20:G:C6	1:2:58:A:H2	2.29	0.51
4:6:6:LYS:HB3	57:h:2352:C:O3'	2.10	0.51
5:A:1286:G:H21	5:A:1315:A:H62	1.59	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:L:57:LEU:HD21	16:L:82:VAL:HG21	1.92	0.51
20:P:81:GLN:OE1	20:P:81:GLN:N	2.38	0.51
48:t:133:THR:HG22	48:t:134:ARG:H	1.75	0.51
57:h:1188:A:N7	57:h:1214:A:O2'	2.37	0.51
57:h:2356:G:H2'	57:h:2380:G:H1	1.76	0.51
57:h:2443:U:H2'	57:h:2444:C:C6	2.45	0.51
5:A:532:U:H5'	16:L:83:ARG:HH11	1.75	0.51
5:A:1002:U:H2'	5:A:1003:C:C6	2.46	0.51
10:F:30:ILE:HD11	10:F:75:LEU:HD22	1.92	0.51
17:M:4:LEU:HD12	17:M:53:VAL:HG13	1.91	0.51
38:j:148:PRO:O	57:h:2735:U:O2'	2.25	0.51
57:h:983:C:N3	57:h:1027:C:O2'	2.42	0.51
5:A:532:U:O2'	16:L:83:ARG:HG3	2.11	0.51
5:A:644:G:H22	5:A:721:G:H1	1.58	0.51
16:L:83:ARG:HB3	16:L:98:ILE:HG12	1.91	0.51
57:h:678:A:N1	57:h:924:G:O2'	2.43	0.51
57:h:1159:C:H2'	57:h:1160:G:C8	2.46	0.51
57:h:2211:C:H2'	57:h:2212:A:C8	2.45	0.51
1:2:44:A:H2'	1:2:45:A:H8	1.75	0.51
4:6:211:LYS:NZ	4:6:223:PRO:HB3	2.25	0.51
5:A:44:C:H2'	5:A:45:G:C8	2.46	0.51
5:A:60:U:H2'	5:A:61:G:C8	2.46	0.51
5:A:532:U:C4'	16:L:84:GLY:O	2.49	0.51
5:A:1109:C:HO2'	5:A:1110:A:H8	1.57	0.51
7:C:6:ASN:ND2	18:N:49:HIS:O	2.44	0.51
7:C:31:TYR:CE2	7:C:58:ARG:HD2	2.46	0.51
7:C:140:ALA:HB3	7:C:149:ILE:HD12	1.91	0.51
8:D:94:ASP:N	8:D:94:ASP:OD1	2.44	0.51
43:o:137:MET:HB2	43:o:139:ILE:HG12	1.93	0.51
5:A:416:G:H1	5:A:427:U:H3	1.59	0.51
5:A:1223:G:H1	5:A:1277:U:H3	1.57	0.51
5:A:1241:G:N1	5:A:1255:G:N7	2.58	0.51
5:A:1477:A:H4'	5:A:1478:G:OP1	2.11	0.51
6:B:1:G:H2'	6:B:2:U:C6	2.46	0.51
7:C:6:ASN:HD22	18:N:49:HIS:HB3	1.76	0.51
46:r:92:ASP:N	46:r:92:ASP:OD1	2.44	0.51
57:h:1283:C:H2'	57:h:1284:A:C8	2.45	0.51
57:h:1557:C:H2'	57:h:1558:C:C6	2.44	0.51
4:6:162:ASN:OD1	4:6:163:PHE:N	2.43	0.51
5:A:262:G:H2'	5:A:263:A:C8	2.46	0.51
5:A:404:G:OP1	8:D:128:PRO:HG3	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:492:U:H2'	5:A:493:A:H8	1.75	0.51
5:A:1050:U:H2'	5:A:1051:C:C6	2.46	0.51
5:A:1230:C:H42	5:A:1270:A:H62	1.58	0.51
12:H:76:GLY:N	12:H:132:TRP:O	2.44	0.51
12:H:79:ARG:HG2	12:H:128:LEU:O	2.11	0.51
16:L:83:ARG:HE	16:L:98:ILE:HG23	1.75	0.51
37:i:130:ASN:ND2	37:i:191:ALA:O	2.44	0.51
37:i:269:VAL:HG12	37:i:270:ARG:HG3	1.93	0.51
41:m:23:ASN:OD1	41:m:24:LEU:N	2.44	0.51
44:p:85:GLU:OE1	44:p:87:VAL:N	2.43	0.51
57:h:2365:A:H2	57:h:2373:G:H22	1.58	0.51
57:h:2777:G:C2	57:h:2807:G:H1'	2.46	0.51
4:6:65:LEU:N	4:6:159:GLY:O	2.35	0.51
5:A:1367:C:H2'	5:A:1368:G:C8	2.45	0.51
37:i:262:LYS:N	37:i:265:ASP:OD2	2.41	0.51
48:t:54:ILE:HG13	48:t:121:ALA:HB2	1.92	0.51
55:5:51:ILE:CG2	55:5:78:ILE:HG12	2.41	0.51
57:h:2070:A:H2'	57:h:2071:A:C8	2.45	0.51
5:A:29:C:C5'	5:A:504:G:H1'	2.41	0.50
5:A:40:C:H1'	16:L:115:SER:HB2	1.93	0.50
5:A:422:C:H4'	5:A:423:G:O5'	2.11	0.50
5:A:632:U:O4	5:A:732:G:O2'	2.26	0.50
53:y:28:ASP:OD1	53:y:28:ASP:N	2.45	0.50
55:5:29:THR:HG21	55:5:183:LEU:HG	1.92	0.50
5:A:563:A:N6	5:A:738:G:H1'	2.25	0.50
32:c:44:ASN:OD1	32:c:45:CYS:N	2.45	0.50
57:h:470:G:H22	57:h:480:U:H3	1.60	0.50
57:h:2971:G:O6	57:h:2979:C:H5"	2.11	0.50
5:A:1138:A:H61	5:A:1159:G:H1'	1.75	0.50
15:K:44:THR:HG22	15:K:50:VAL:HG23	1.92	0.50
16:L:85:GLY:O	16:L:94:ARG:O	2.29	0.50
16:L:85:GLY:O	16:L:94:ARG:C	2.55	0.50
37:i:182:ILE:HB	37:i:269:VAL:HB	1.92	0.50
51:w:1:MET:N	57:h:3064:G:H21	2.09	0.50
53:y:72:LYS:HD2	53:y:91:ARG:HG3	1.91	0.50
5:A:475:A:H61	8:D:115:HIS:CE1	2.29	0.50
5:A:766:G:H2'	5:A:767:A:H8	1.76	0.50
5:A:964:U:H5'	5:A:965:A:C8	2.46	0.50
8:D:49:GLN:CG	8:D:194:LEU:HD22	2.40	0.50
14:J:80:THR:O	14:J:83:THR:OG1	2.14	0.50
20:P:4:LYS:HE2	20:P:25:ALA:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:S:32:LYS:HA	23:S:50:ALA:HB3	1.94	0.50
36:g:35:VAL:HG11	40:l:113:ILE:HD12	1.92	0.50
38:j:34:ASN:ND2	38:j:54:TYR:HB2	2.27	0.50
43:o:20:ALA:HB2	43:o:45:ASN:HD22	1.77	0.50
47:s:105:ARG:HH11	57:h:720:C:N4	2.09	0.50
5:A:168:A:H2'	5:A:169:A:C8	2.47	0.50
5:A:928:A:H2'	5:A:929:G:C8	2.47	0.50
5:A:1208:A:N3	17:M:117:ILE:HG13	2.27	0.50
8:D:52:GLU:OE1	8:D:191:THR:O	2.30	0.50
57:h:502:C:H2'	57:h:503:A:C8	2.46	0.50
57:h:2249:G:H2'	57:h:2250:A:C8	2.47	0.50
5:A:40:C:H5"	16:L:120:LYS:HD3	1.94	0.50
5:A:1044:G:H1'	5:A:1171:G:H21	1.77	0.50
6:B:28:A:H5'	50:v:46:HIS:CD2	2.46	0.50
57:h:218:A:N3	57:h:234:U:O2'	2.35	0.50
57:h:947:U:H2'	57:h:948:G:H8	1.76	0.50
57:h:2152:A:H2'	57:h:2153:G:O4'	2.12	0.50
1:2:18:U:OP2	57:h:2403:U:O2'	2.29	0.50
1:2:34:U:O4	13:I:150:ARG:NH2	2.44	0.50
4:6:131:LEU:HA	4:6:136:LEU:HB2	1.92	0.50
5:A:255:G:H2'	5:A:256:U:C6	2.47	0.50
5:A:682:A:H61	57:h:2119:C:H1'	1.75	0.50
5:A:863:G:C8	16:L:6:GLN:NE2	2.79	0.50
5:A:890:A:H2'	5:A:891:A:C8	2.47	0.50
6:B:81:U:H2'	6:B:82:A:C8	2.47	0.50
7:C:124:SER:HB3	7:C:189:ALA:HB1	1.93	0.50
8:D:2:ALA:HB3	8:D:63:MET:HE2	1.93	0.50
9:E:128:THR:H	9:E:147:ASP:CG	2.19	0.50
11:G:50:ALA:HB1	11:G:125:LEU:HD21	1.92	0.50
15:K:44:THR:HA	15:K:51:ILE:HD12	1.94	0.50
43:o:77:ALA:HB1	43:o:130:ILE:HD13	1.92	0.50
55:5:149:GLY:N	55:5:152:GLU:OE2	2.44	0.50
57:h:1472:C:H2'	57:h:1473:G:O4'	2.12	0.50
57:h:2070:A:N1	57:h:2310:G:H1'	2.27	0.50
4:6:119:ASP:OD2	4:6:120:GLN:NE2	2.38	0.50
8:D:42:LYS:O	8:D:47:ARG:NH2	2.45	0.50
8:D:171:GLU:OE1	8:D:172:ARG:NH2	2.45	0.50
23:S:32:LYS:HG2	23:S:57:HIS:CE1	2.47	0.50
57:h:947:U:H2'	57:h:948:G:C8	2.47	0.50
5:A:310:G:OP2	20:P:28:ARG:NH2	2.44	0.50
5:A:380:G:N2	5:A:383:A:OP2	2.32	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:1324:C:H2'	5:A:1325:G:C8	2.47	0.50
7:C:90:LEU:HD12	7:C:98:VAL:HG11	1.94	0.50
17:M:24:GLY:HA3	17:M:66:VAL:HG12	1.92	0.50
57:h:301:U:H5'	57:h:302:U:O5'	2.12	0.50
57:h:1900:C:H2'	57:h:1901:C:C6	2.47	0.50
5:A:406:G:N3	8:D:111:GLN:OE1	2.44	0.49
5:A:1408:A:H2'	5:A:1409:A:O4'	2.12	0.49
6:B:81:U:O2'	57:h:1033:A:N3	2.45	0.49
57:h:330:U:H3'	57:h:446:G:H22	1.76	0.49
57:h:1208:U:C2	57:h:1220:C:H1'	2.47	0.49
57:h:1229:A:C8	57:h:1230:G:H1'	2.46	0.49
5:A:254:G:O6	5:A:273:A:N6	2.45	0.49
10:F:5:GLU:OE1	22:R:32:TYR:OH	2.18	0.49
57:h:2353:U:O2'	57:h:2380:G:N2	2.44	0.49
57:h:2465:A:H2'	57:h:2466:G:H8	1.76	0.49
1:2:57:C:H2'	1:2:58:A:O4'	2.12	0.49
5:A:606:U:H2'	5:A:607:G:C8	2.46	0.49
5:A:819:U:H3	5:A:829:G:H22	1.60	0.49
5:A:1249:G:H1'	5:A:1308:C:O2'	2.12	0.49
8:D:53:LYS:HB2	8:D:195:ILE:CD1	2.41	0.49
57:h:90:C:H2'	57:h:91:C:C6	2.47	0.49
57:h:502:C:H2'	57:h:503:A:H8	1.76	0.49
57:h:2379:G:H2'	57:h:2380:G:C8	2.46	0.49
5:A:579:U:H3	5:A:619:G:H1	1.60	0.49
13:I:48:PHE:CE2	13:I:83:ILE:HD11	2.48	0.49
31:b:5:LYS:NZ	57:h:2279:C:OP1	2.43	0.49
37:i:54:LYS:NZ	57:h:2032:A:OP2	2.46	0.49
57:h:1729:A:H2'	57:h:1731:A:C8	2.47	0.49
57:h:2761:U:H2'	57:h:2762:C:C6	2.48	0.49
6:B:10:G:O2'	6:B:11:U:H5'	2.12	0.49
9:E:61:LEU:HD22	9:E:159:ILE:HG13	1.94	0.49
17:M:5:VAL:HG12	17:M:57:ARG:HG2	1.95	0.49
17:M:22:ILE:HG13	17:M:25:ILE:HD12	1.94	0.49
26:W:154:GLY:HA2	26:W:181:VAL:O	2.12	0.49
52:x:10:ALA:HA	52:x:13:LYS:HZ3	1.77	0.49
55:5:75:LEU:HA	55:5:78:ILE:HD12	1.93	0.49
1:2:17:C:H5"	1:2:18:U:C5	2.48	0.49
4:6:35:SER:OG	4:6:38:GLN:HG2	2.13	0.49
5:A:949:C:H4'	13:I:147:TYR:HE1	1.77	0.49
13:I:99:LEU:O	13:I:103:ILE:HG12	2.13	0.49
20:P:71:LEU:HG	20:P:75:LYS:HE3	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:p:94:LYS:HZ3	44:p:121:GLU:HG3	1.78	0.49
53:y:39:VAL:HG11	53:y:42:VAL:HG23	1.95	0.49
57:h:2397:C:H2'	57:h:2398:C:C6	2.48	0.49
57:h:2857:A:H2'	57:h:2858:G:H8	1.78	0.49
1:2:20:G:C5	1:2:58:A:H2	2.31	0.49
1:2:64:G:OP1	4:6:54:LYS:HE2	2.12	0.49
4:6:200:LYS:HG3	4:6:208:TYR:CE1	2.48	0.49
5:A:21:U:H2'	5:A:22:C:C6	2.48	0.49
5:A:309:G:H1'	5:A:588:A:C2	2.48	0.49
10:F:14:LEU:HD11	10:F:84:SER:HB2	1.93	0.49
25:U:43:LYS:NZ	57:h:1815:G:OP2	2.41	0.49
38:j:169:ARG:NH2	57:h:3046:C:H41	2.10	0.49
55:5:36:MET:CB	55:5:87:LEU:HD22	2.28	0.49
5:A:571:U:H2'	5:A:572:G:H8	1.77	0.49
5:A:675:A:H2'	5:A:676:A:C8	2.47	0.49
5:A:747:A:O2'	5:A:1508:C:O2	2.28	0.49
5:A:847:A:H2'	5:A:848:C:C6	2.48	0.49
30:a:15:ALA:O	30:a:20:ARG:NH1	2.46	0.49
34:e:13:ARG:NH2	57:h:2617:U:O2'	2.45	0.49
39:k:119:ALA:HB2	39:k:124:ILE:HD12	1.95	0.49
56:1:75:ASP:OD2	56:1:101:ASN:HB2	2.13	0.49
57:h:2238:A:H2'	57:h:2239:A:C8	2.48	0.49
1:2:32:G:N2	1:2:41:C:C2	2.81	0.49
4:6:127:ILE:O	4:6:131:LEU:HG	2.13	0.49
5:A:456:C:H1'	5:A:457:A:C5	2.48	0.49
5:A:571:U:H2'	5:A:572:G:C8	2.48	0.49
5:A:580:G:C6	5:A:619:G:C6	3.00	0.49
5:A:1106:U:H6	5:A:1261:A:H2'	1.78	0.49
13:I:53:ARG:HB2	13:I:58:TYR:HB2	1.94	0.49
14:J:4:GLN:HB2	14:J:79:PRO:HG3	1.95	0.49
57:h:2261:U:H2'	57:h:2262:C:C6	2.48	0.49
1:2:54:G:C2	1:2:55:U:C4	3.01	0.49
5:A:180:A:H5'	5:A:181:C:H5	1.77	0.49
5:A:904:G:C2	5:A:1379:A:C2	3.01	0.49
5:A:1352:C:H2'	5:A:1353:G:C8	2.48	0.49
5:A:1501:G:H2'	5:A:1502:A:C8	2.48	0.49
6:B:107:A:H2'	6:B:108:C:C6	2.48	0.49
45:q:92:LEU:HD11	45:q:99:ARG:HD2	1.94	0.49
50:v:9:ASN:OD1	50:v:10:ILE:N	2.46	0.49
53:y:86:LYS:NZ	53:y:88:GLN:OE1	2.46	0.49
57:h:256:A:H2'	57:h:257:A:C8	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:1381:G:O2'	57:h:2236:G:O6	2.28	0.49
4:6:6:LYS:HE2	4:6:9:ARG:NE	2.27	0.48
5:A:408:G:H3'	5:A:409:G:C8	2.47	0.48
5:A:1198:C:OP1	18:N:9:LYS:NZ	2.37	0.48
19:O:55:GLY:O	19:O:59:LEU:HG	2.13	0.48
37:i:24:ILE:HG23	37:i:83:GLU:HA	1.95	0.48
40:l:139:LEU:HD13	40:l:144:MET:HE3	1.93	0.48
43:o:28:PRO:HG2	57:h:1213:A:N6	2.28	0.48
46:r:34:GLY:N	46:r:37:ASP:OD2	2.40	0.48
57:h:2211:C:H2'	57:h:2212:A:H8	1.78	0.48
57:h:2781:G:H2'	57:h:2782:C:C6	2.49	0.48
5:A:863:G:OP2	16:L:6:GLN:HG2	2.13	0.48
5:A:1004:G:H2'	5:A:1005:G:C8	2.48	0.48
5:A:1045:U:H5"	5:A:1171:G:N2	2.28	0.48
5:A:1162:G:H1'	5:A:1163:G:C4	2.47	0.48
5:A:1511:C:H2'	5:A:1512:U:C6	2.48	0.48
57:h:358:G:O5'	57:h:358:G:H8	1.96	0.48
57:h:993:G:H22	57:h:1014:G:H2'	1.78	0.48
57:h:1951:G:H2'	57:h:1952:C:C6	2.48	0.48
57:h:2297:U:H2'	57:h:2298:U:C6	2.48	0.48
5:A:404:G:H2'	5:A:405:U:C6	2.48	0.48
35:f:5:PRO:HG2	57:h:2689:C:H4'	1.95	0.48
44:p:29:ARG:NH2	57:h:1225:G:N3	2.60	0.48
48:t:101:ARG:NH2	57:h:1022:C:O2'	2.42	0.48
57:h:32:G:H1'	57:h:542:A:C4	2.47	0.48
57:h:1401:A:H1'	57:h:1403:C:OP2	2.12	0.48
57:h:2416:C:H2'	57:h:2417:C:C6	2.48	0.48
57:h:3116:C:H2'	57:h:3117:U:C6	2.48	0.48
5:A:101:G:N2	5:A:379:C:O3'	2.47	0.48
5:A:421:U:H5"	5:A:422:C:H5	1.79	0.48
5:A:489:A:H5'	8:D:46:TYR:CD2	2.48	0.48
5:A:654:G:H21	15:K:127:HIS:HB2	1.79	0.48
5:A:1241:G:O2'	5:A:1256:A:N6	2.47	0.48
5:A:1287:G:N2	5:A:1313:G:N3	2.62	0.48
5:A:1470:G:H2'	5:A:1471:G:O4'	2.14	0.48
45:q:17:VAL:HG23	45:q:55:ILE:HB	1.96	0.48
57:h:81:A:N1	57:h:96:G:O2'	2.41	0.48
57:h:453:U:H2'	57:h:454:U:C6	2.48	0.48
57:h:563:U:H4'	57:h:597:C:H5'	1.94	0.48
57:h:2569:G:N3	57:h:2605:C:H2'	2.28	0.48
5:A:358:U:H2'	5:A:359:G:H8	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:489:A:P	8:D:46:TYR:HD2	2.37	0.48
10:F:36:THR:HG21	10:F:67:ALA:HB2	1.94	0.48
17:M:28:THR:O	17:M:32:GLU:HG3	2.13	0.48
21:Q:15:LYS:HG2	21:Q:16:PRO:HD2	1.94	0.48
57:h:1952:C:H2'	57:h:1953:C:C6	2.49	0.48
57:h:2777:G:N3	57:h:2807:G:H1'	2.29	0.48
57:h:2884:A:H8	57:h:2884:A:OP1	1.96	0.48
1:2:77:A:C2	57:h:2646:C:C4	3.02	0.48
4:6:77:VAL:N	4:6:94:ILE:O	2.24	0.48
5:A:654:G:H2'	5:A:655:A:H8	1.79	0.48
5:A:1188:C:H2'	5:A:1189:C:C6	2.49	0.48
51:w:2:ASN:O	51:w:5:ASP:N	2.46	0.48
57:h:327:U:O2	57:h:449:G:N2	2.47	0.48
5:A:45:G:H2'	5:A:46:G:C8	2.48	0.48
5:A:408:G:H3'	5:A:409:G:H8	1.79	0.48
5:A:1044:G:H1'	5:A:1171:G:N2	2.29	0.48
17:M:79:ARG:HA	17:M:82:ILE:HG22	1.94	0.48
37:i:163:ILE:HD12	37:i:175:LEU:HB3	1.95	0.48
41:m:87:LYS:HG3	41:m:166:GLU:HG3	1.95	0.48
53:y:16:VAL:HB	53:y:99:VAL:HG21	1.95	0.48
54:z:49:ALA:HB2	57:h:2234:G:H5"	1.96	0.48
55:5:24:LEU:O	55:5:27:ILE:HG22	2.14	0.48
57:h:248:G:H5'	57:h:250:G:N7	2.29	0.48
57:h:1533:U:H1'	57:h:1803:A:C6	2.49	0.48
57:h:2003:A:H1'	57:h:2162:A:N6	2.29	0.48
57:h:2588:C:H2'	57:h:2589:G:O4'	2.14	0.48
57:h:3030:A:H2'	57:h:3031:A:C8	2.49	0.48
1:2:51:U:N3	1:2:65:G:N1	2.61	0.48
4:6:200:LYS:HG3	4:6:208:TYR:CD1	2.49	0.48
4:6:211:LYS:HZ3	4:6:223:PRO:HB3	1.78	0.48
5:A:429:U:H4'	8:D:9:THR:HG21	1.94	0.48
5:A:793:U:H5"	5:A:796:A:H61	1.79	0.48
5:A:1063:U:H3'	5:A:1064:G:C8	2.48	0.48
5:A:1115:G:H21	5:A:1119:U:H3	1.61	0.48
5:A:1329:G:C8	13:I:129:ARG:HB3	2.49	0.48
5:A:1488:G:OP1	5:A:1491:A:H4'	2.14	0.48
9:E:157:ASN:OD1	9:E:158:ALA:N	2.47	0.48
40:l:133:GLY:O	40:l:165:THR:OG1	2.32	0.48
43:o:54:ASN:OD1	43:o:55:VAL:N	2.46	0.48
45:q:27:ARG:HD3	57:h:1130:C:N3	2.29	0.48
55:5:51:ILE:HG22	55:5:78:ILE:HG12	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:6:21:TYR:CE2	4:6:29:LEU:HD12	2.49	0.48
4:6:53:ARG:NH2	4:6:167:LYS:HB3	2.28	0.48
43:o:38:MET:O	43:o:42:LYS:HD3	2.13	0.48
57:h:920:G:H22	57:h:943:U:H5"	1.79	0.48
57:h:2412:U:H2'	57:h:2413:G:H8	1.79	0.48
5:A:636:G:N2	19:O:23:GLY:HA3	2.29	0.48
5:A:724:C:H2'	5:A:725:A:C8	2.49	0.48
5:A:1267:U:C6	5:A:1268:C:H4'	2.49	0.48
7:C:41:LEU:HD21	7:C:89:ASP:HB3	1.96	0.48
8:D:102:LEU:HD22	8:D:118:PHE:HZ	1.78	0.48
8:D:165:TRP:HA	8:D:178:HIS:HB2	1.95	0.48
9:E:93:ARG:HA	9:E:96:PHE:CE2	2.49	0.48
12:H:29:HIS:CE1	12:H:58:LYS:HE2	2.49	0.48
17:M:67:GLU:H	17:M:70:LEU:HB2	1.79	0.48
20:P:22:VAL:HG21	20:P:59:TRP:CD1	2.48	0.48
33:d:28:ARG:NH1	57:h:209:C:OP1	2.41	0.48
52:x:38:GLN:O	52:x:42:SER:OG	2.26	0.48
54:z:13:LYS:HG2	54:z:111:THR:HG23	1.95	0.48
57:h:1343:G:H2'	57:h:1345:G:C8	2.49	0.48
57:h:2367:G:H4'	57:h:2368:C:C5	2.48	0.48
57:h:2367:G:N3	57:h:2369:C:H1'	2.29	0.48
1:2:16:C:OP1	1:2:18:U:N3	2.47	0.47
5:A:427:U:OP2	8:D:29:ARG:NH2	2.34	0.47
5:A:595:C:H2'	5:A:596:A:H8	1.79	0.47
5:A:926:G:C2	5:A:1322:G:C6	3.01	0.47
5:A:1060:A:H5"	9:E:46:VAL:HG11	1.95	0.47
5:A:1135:G:H2'	5:A:1136:A:H8	1.79	0.47
5:A:1393:G:C4	5:A:1475:G:N2	2.82	0.47
26:W:68:THR:OG1	26:W:75:GLU:OE2	2.31	0.47
47:s:44:LYS:HG3	47:s:45:ASN:H	1.79	0.47
50:v:82:VAL:O	50:v:86:GLN:HG3	2.14	0.47
57:h:857:U:H2'	57:h:858:A:C8	2.49	0.47
57:h:1160:G:H1	57:h:1231:U:H3	1.61	0.47
57:h:1529:U:H3'	57:h:1530:G:C8	2.49	0.47
5:A:777:C:H2'	5:A:778:U:C6	2.50	0.47
5:A:884:G:H2'	5:A:885:G:H8	1.79	0.47
5:A:1035:A:O2'	7:C:156:ARG:NH2	2.47	0.47
5:A:1300:A:N6	18:N:18:VAL:HG21	2.29	0.47
5:A:1320:G:H2'	5:A:1321:A:C8	2.49	0.47
27:X:36:ILE:HD13	27:X:39:ARG:HH11	1.79	0.47
57:h:625:A:N6	57:h:647:G:O2'	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:974:G:H1'	57:h:975:U:H5	1.78	0.47
5:A:299:G:H2'	5:A:300:A:C8	2.49	0.47
5:A:399:G:H2'	5:A:400:C:C6	2.50	0.47
5:A:452:A:H2	20:P:47:SER:HB2	1.77	0.47
5:A:622:A:N3	12:H:107:SER:OG	2.36	0.47
8:D:14:ARG:HA	8:D:32:PRO:HA	1.95	0.47
8:D:43:GLU:HA	8:D:47:ARG:HH21	1.80	0.47
8:D:77:GLN:NE2	8:D:78:PRO:HD2	2.29	0.47
9:E:129:GLY:N	9:E:147:ASP:OD1	2.24	0.47
40:l:43:VAL:HG22	40:l:161:ILE:HG13	1.96	0.47
47:s:31:LYS:HE3	57:h:658:U:H5"	1.96	0.47
57:h:380:A:N3	57:h:401:C:O2'	2.40	0.47
5:A:603:C:H2'	5:A:604:U:H6	1.78	0.47
5:A:882:A:H8	5:A:882:A:O5'	1.97	0.47
5:A:909:G:H4'	5:A:1487:A:N7	2.30	0.47
5:A:1420:C:H2'	5:A:1421:G:C8	2.48	0.47
5:A:1443:G:H2'	5:A:1444:A:H8	1.80	0.47
5:A:1461:U:H2'	5:A:1462:C:C6	2.49	0.47
11:G:9:LYS:NZ	11:G:12:LEU:HD23	2.29	0.47
21:Q:42:ASP:OD1	21:Q:42:ASP:N	2.46	0.47
35:f:19:ARG:NE	57:h:2980:U:OP2	2.31	0.47
43:o:32:GLN:HE22	57:h:1215:U:H3	1.62	0.47
49:u:67:MET:HG2	49:u:76:VAL:HG21	1.96	0.47
57:h:855:C:H5'	57:h:2001:A:H3'	1.97	0.47
57:h:1223:U:H2'	57:h:1224:G:C8	2.49	0.47
4:6:42:VAL:CG1	4:6:175:ILE:HB	2.44	0.47
5:A:376:G:H2'	5:A:377:G:O4'	2.15	0.47
34:e:26:LYS:HE3	34:e:43:ARG:O	2.14	0.47
49:u:95:THR:HG22	49:u:115:LEU:HD23	1.97	0.47
55:5:31:ARG:HE	55:5:182:LEU:HD13	1.72	0.47
57:h:2686:U:H2'	57:h:2687:U:C6	2.49	0.47
5:A:109:G:H2'	5:A:110:U:C6	2.50	0.47
5:A:863:G:H2'	5:A:864:C:O4'	2.14	0.47
5:A:1211:C:H2'	5:A:1212:A:H8	1.78	0.47
6:B:95:G:O2'	57:h:1033:A:H5"	2.14	0.47
8:D:94:ASP:N	8:D:113:VAL:HG21	2.29	0.47
16:L:46:ASN:ND2	16:L:89:ASP:OD1	2.47	0.47
18:N:48:ALA:HB2	18:N:53:LEU:HD12	1.97	0.47
22:R:45:ARG:HG2	22:R:47:LYS:HD2	1.97	0.47
27:X:64:PRO:HB3	57:h:759:G:N1	2.29	0.47
35:f:25:VAL:HB	35:f:34:GLN:HG3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:j:173:ASP:OD1	38:j:173:ASP:N	2.46	0.47
39:k:156:VAL:HG12	39:k:158:ILE:HG12	1.95	0.47
40:l:101:ASP:OD1	40:l:101:ASP:N	2.47	0.47
50:v:83:ARG:HD2	50:v:83:ARG:HA	1.65	0.47
55:5:177:HIS:O	55:5:181:GLU:HB3	2.14	0.47
57:h:2470:A:H2'	57:h:2471:A:C8	2.49	0.47
5:A:309:G:O2'	5:A:587:A:N1	2.47	0.47
5:A:473:A:H2'	5:A:474:G:C8	2.49	0.47
5:A:494:C:H2'	5:A:495:G:H8	1.80	0.47
5:A:865:C:H2'	5:A:866:U:C6	2.49	0.47
5:A:1011:U:O2'	5:A:1012:U:O5'	2.33	0.47
13:I:31:ARG:HD2	13:I:36:VAL:HG12	1.96	0.47
17:M:4:LEU:C	17:M:6:GLY:H	2.22	0.47
32:c:11:ILE:HB	32:c:53:GLU:HG3	1.97	0.47
38:j:209:ARG:HE	38:j:209:ARG:HB2	1.56	0.47
42:n:109:GLY:N	42:n:110:PRO:HD2	2.29	0.47
44:p:75:GLY:C	57:h:1225:G:H4'	2.39	0.47
48:t:34:ILE:HG13	48:t:118:LEU:HD22	1.96	0.47
53:y:77:LYS:HD2	53:y:86:LYS:HE3	1.95	0.47
57:h:1436:C:HO2'	57:h:1437:A:P	2.36	0.47
57:h:1501:C:H2'	57:h:1502:G:C8	2.50	0.47
57:h:1564:A:O2'	57:h:1565:A:O5'	2.32	0.47
57:h:2288:C:H2'	57:h:2289:C:C6	2.49	0.47
1:2:10:G:H2'	1:2:11:A:C8	2.49	0.47
4:6:17:ARG:HH12	4:6:221:GLY:H	1.61	0.47
5:A:1499:C:H2'	5:A:1500:G:C8	2.50	0.47
16:L:51:LYS:HB3	16:L:67:ILE:HD12	1.95	0.47
16:L:86:ARG:NH1	16:L:87:VAL:O	2.48	0.47
42:n:98:ALA:HB2	42:n:114:LYS:HD3	1.96	0.47
57:h:929:C:H1'	57:h:1339:G:N2	2.27	0.47
5:A:384:G:H2'	5:A:385:C:C6	2.50	0.47
5:A:522:G:H2'	5:A:523:U:H6	1.79	0.47
5:A:985:G:N2	5:A:1018:C:N3	2.63	0.47
6:B:1:G:H2'	6:B:2:U:H6	1.80	0.47
8:D:52:GLU:OE1	8:D:194:LEU:CB	2.59	0.47
46:r:19:ILE:HB	46:r:41:ALA:HB1	1.97	0.47
57:h:429:A:H2'	57:h:430:A:C8	2.50	0.47
57:h:2998:C:H2'	57:h:2999:A:O4'	2.15	0.47
5:A:162:G:H2'	5:A:163:G:C8	2.50	0.47
7:C:31:TYR:CZ	7:C:58:ARG:HD2	2.50	0.47
15:K:93:VAL:HG11	15:K:106:ILE:HD11	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:O:60:VAL:HG11	57:h:830:A:C8	2.50	0.47
44:p:53:LYS:HB2	44:p:56:LEU:HG	1.96	0.47
57:h:461:U:H2'	57:h:462:A:C8	2.50	0.47
57:h:1796:U:H2'	57:h:1797:C:C6	2.50	0.47
5:A:41:U:H2'	5:A:42:G:H8	1.80	0.46
5:A:1290:C:OP1	17:M:98:VAL:N	2.44	0.46
14:J:85:ASP:OD1	14:J:86:ALA:N	2.48	0.46
19:O:12:LEU:HD23	19:O:27:ALA:HB1	1.96	0.46
36:g:24:THR:OG1	36:g:25:ARG:N	2.48	0.46
43:o:29:ALA:O	43:o:33:HIS:HD2	1.97	0.46
57:h:487:U:H2'	57:h:488:G:O4'	2.15	0.46
57:h:1535:C:H2'	57:h:1536:A:O4'	2.15	0.46
4:6:35:SER:CB	4:6:38:GLN:HG2	2.45	0.46
4:6:69:THR:OG1	4:6:71:LYS:O	2.32	0.46
5:A:438:U:O2'	5:A:439:U:O2	2.33	0.46
5:A:526:G:H8	5:A:526:G:O5'	1.98	0.46
9:E:114:ALA:HB2	9:E:164:ALA:N	2.30	0.46
13:I:53:ARG:HH21	13:I:57:ASN:C	2.21	0.46
43:o:46:ALA:O	43:o:49:GLU:HG3	2.15	0.46
50:v:73:ILE:HG22	50:v:75:GLY:H	1.80	0.46
51:w:45:VAL:HG11	51:w:109:ILE:HD13	1.96	0.46
57:h:2098:U:H2'	57:h:2099:G:O4'	2.14	0.46
1:2:34:U:H2'	1:2:36:A:OP2	2.15	0.46
4:6:7:ALA:HB3	57:h:2352:C:P	2.56	0.46
4:6:25:GLU:HA	4:6:28:LYS:HG2	1.97	0.46
5:A:309:G:H1'	5:A:588:A:N1	2.31	0.46
5:A:522:G:H2'	5:A:523:U:C6	2.49	0.46
5:A:823:U:O4	5:A:826:U:N3	2.41	0.46
5:A:971:G:O6	5:A:1198:C:N4	2.49	0.46
5:A:1289:U:O4	5:A:1313:G:N2	2.49	0.46
8:D:140:VAL:HG11	8:D:150:PHE:CZ	2.50	0.46
9:E:131:ILE:HB	9:E:149:LEU:HA	1.98	0.46
12:H:79:ARG:NH1	12:H:81:SER:O	2.48	0.46
18:N:24:CYS:SG	18:N:39:LEU:HA	2.56	0.46
19:O:39:LEU:HB3	19:O:56:LEU:HD12	1.96	0.46
19:O:63:ARG:NH2	57:h:830:A:H4'	2.30	0.46
41:m:174:VAL:CG2	41:m:176:LYS:HE3	2.46	0.46
50:v:69:ASP:OD1	50:v:69:ASP:N	2.47	0.46
57:h:1194:C:H2'	57:h:1195:A:C8	2.51	0.46
57:h:1476:G:H2'	57:h:1477:C:C6	2.51	0.46
57:h:1532:G:O2'	57:h:1803:A:N1	2.43	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:1619:U:H2'	57:h:1620:U:C6	2.50	0.46
57:h:2321:U:H2'	57:h:2322:C:C6	2.50	0.46
4:6:51:ASP:N	4:6:57:GLN:OE1	2.25	0.46
5:A:128:U:H1'	5:A:262:G:H21	1.81	0.46
5:A:598:C:N4	5:A:601:A:OP2	2.47	0.46
8:D:13:ARG:NE	8:D:31:TYR:O	2.44	0.46
20:P:40:TYR:CZ	20:P:42:PRO:HG3	2.50	0.46
26:W:57:VAL:HG11	26:W:67:LEU:HD21	1.97	0.46
27:X:21:LEU:HD21	27:X:41:ARG:HH21	1.81	0.46
31:b:16:ARG:HG3	57:h:2270:G:H5'	1.97	0.46
44:p:123:ILE:HA	44:p:126:LEU:HD12	1.97	0.46
57:h:2922:U:H2'	57:h:2923:C:C6	2.50	0.46
57:h:3034:C:H2'	57:h:3035:C:C6	2.50	0.46
4:6:211:LYS:HE3	4:6:213:THR:HG23	1.98	0.46
5:A:380:G:N1	5:A:384:G:O6	2.48	0.46
5:A:532:U:O4'	16:L:83:ARG:CD	2.63	0.46
5:A:857:U:O2'	12:H:15:ARG:HD2	2.15	0.46
19:O:4:THR:OG1	19:O:7:GLN:HG3	2.16	0.46
24:T:20:ARG:O	24:T:23:SER:OG	2.26	0.46
39:k:141:ALA:HB1	39:k:169:VAL:HG12	1.98	0.46
40:l:38:VAL:HG12	40:l:103:MET:HE1	1.97	0.46
53:y:75:ILE:HB	53:y:88:GLN:HB3	1.98	0.46
55:5:59:VAL:HG13	55:5:65:VAL:HG22	1.97	0.46
57:h:2879:G:N2	57:h:2889:A:OP2	2.43	0.46
4:6:42:VAL:HG12	4:6:176:GLY:O	2.16	0.46
5:A:501:G:O2'	5:A:516:C:O2'	2.20	0.46
5:A:1253:U:H2'	5:A:1254:G:C4	2.51	0.46
5:A:1302:C:H42	23:S:36:ARG:HB2	1.79	0.46
10:F:18:THR:C	10:F:21:PRO:HD2	2.40	0.46
20:P:20:ILE:HG22	20:P:37:ILE:HB	1.98	0.46
5:A:410:G:H2'	5:A:429:U:O4	2.15	0.46
5:A:1397:U:H2'	5:A:1398:G:H8	1.81	0.46
8:D:52:GLU:HG2	8:D:195:ILE:HD11	1.97	0.46
8:D:167:GLN:N	8:D:176:LEU:O	2.48	0.46
9:E:130:VAL:O	9:E:137:ARG:NH2	2.49	0.46
13:I:49:ASN:HB3	13:I:84:TYR:CD1	2.50	0.46
14:J:87:LEU:HD23	14:J:90:ILE:HD12	1.98	0.46
16:L:73:ASN:CG	16:L:105:GLN:HB2	2.40	0.46
57:h:1407:G:H2'	57:h:1408:C:C6	2.51	0.46
5:A:338:A:H2'	5:A:339:C:C6	2.51	0.46
5:A:675:A:H2	5:A:767:A:H1'	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:66:ASP:OD1	9:E:67:GLY:N	2.48	0.46
23:S:23:ASN:HB3	23:S:47:HIS:HE1	1.80	0.46
39:k:101:ARG:NH1	57:h:774:G:OP1	2.49	0.46
49:u:20:LEU:HD21	49:u:40:LYS:HE2	1.98	0.46
57:h:1487:U:O2'	57:h:2436:A:N3	2.48	0.46
57:h:1938:G:H21	57:h:1956:A:H62	1.64	0.46
57:h:2347:G:H3'	57:h:2348:G:C8	2.51	0.46
57:h:2357:A:H2	57:h:2382:G:O4'	1.98	0.46
57:h:2393:A:H1'	57:h:2394:A:C8	2.51	0.46
5:A:163:G:H2'	5:A:164:G:C8	2.51	0.46
5:A:518:U:C2	5:A:519:A:C8	3.03	0.46
5:A:1259:G:H4'	5:A:1260:A:C8	2.51	0.46
12:H:112:LEU:O	12:H:113:LEU:HD23	2.16	0.46
26:W:10:LYS:HE2	26:W:68:THR:HG21	1.97	0.46
28:Y:36:VAL:HG12	28:Y:63:ARG:NH2	2.31	0.46
36:g:28:LYS:HE2	36:g:33:ILE:HG12	1.98	0.46
40:l:111:ILE:HD11	40:l:181:GLY:C	2.40	0.46
41:m:151:ARG:NH2	57:h:2968:G:O5'	2.49	0.46
43:o:135:ARG:HH21	57:h:1197:C:H4'	1.81	0.46
57:h:1127:A:N3	57:h:1272:C:O2'	2.42	0.46
57:h:1174:G:H4'	57:h:1204:A:C8	2.51	0.46
5:A:46:G:H1	5:A:400:C:H42	1.63	0.46
5:A:92:A:O2'	5:A:93:C:H6	1.99	0.46
5:A:481:G:OP1	16:L:114:ARG:NH2	2.42	0.46
5:A:523:U:P	8:D:11:LYS:NZ	2.89	0.46
5:A:538:G:H2'	5:A:539:A:C2	2.51	0.46
5:A:555:G:O2'	5:A:801:G:OP2	2.27	0.46
5:A:742:A:H2'	5:A:743:G:C8	2.51	0.46
8:D:25:SER:O	8:D:29:ARG:N	2.48	0.46
14:J:32:THR:HG23	14:J:83:THR:HG22	1.97	0.46
17:M:91:ARG:HD3	17:M:97:PRO:O	2.15	0.46
38:j:154:CYS:C	38:j:156:THR:H	2.24	0.46
57:h:1500:A:O2'	57:h:1511:U:O2	2.34	0.46
57:h:2248:C:H2'	57:h:2249:G:C8	2.50	0.46
57:h:2390:U:O2'	57:h:2392:A:N7	2.49	0.46
5:A:216:U:O2'	5:A:217:U:H5'	2.16	0.45
5:A:1265:U:H5"	5:A:1266:U:H4'	1.98	0.45
8:D:152:ILE:O	8:D:155:GLU:HG3	2.16	0.45
16:L:13:ARG:HA	16:L:13:ARG:HD3	1.83	0.45
24:T:31:ALA:HB1	24:T:54:THR:HG22	1.98	0.45
57:h:2379:G:H2'	57:h:2380:G:H8	1.80	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:71:C:H2'	5:A:72:G:C8	2.51	0.45
5:A:211:A:N3	5:A:212:G:H1'	2.31	0.45
5:A:562:U:OP2	5:A:738:G:N1	2.46	0.45
5:A:1400:A:H2	5:A:1468:U:N3	2.14	0.45
5:A:1459:G:OP1	57:h:1907:A:H1'	2.16	0.45
9:E:117:GLY:HA2	9:E:155:SER:HB3	1.98	0.45
16:L:50:ARG:HD3	16:L:50:ARG:HA	1.74	0.45
17:M:17:ILE:O	17:M:20:THR:OG1	2.27	0.45
55:5:162:LYS:HE2	55:5:162:LYS:HA	1.98	0.45
57:h:392:A:C4	57:h:394:G:C8	3.05	0.45
1:2:74:A:H5'	1:2:75:C:OP2	2.17	0.45
5:A:73:G:H2'	5:A:74:A:C8	2.52	0.45
5:A:358:U:H2'	5:A:359:G:C8	2.51	0.45
5:A:870:G:H2'	5:A:890:A:N6	2.31	0.45
5:A:936:G:H21	5:A:1208:A:H62	1.64	0.45
8:D:71:TYR:CE2	8:D:199:TYR:HB3	2.52	0.45
12:H:48:ASP:OD1	12:H:49:TYR:N	2.49	0.45
41:m:24:LEU:HD22	41:m:73:ILE:HD12	1.98	0.45
57:h:337:U:H1'	57:h:344:G:H1	1.81	0.45
57:h:1937:U:H2'	57:h:1938:G:O4'	2.16	0.45
57:h:2506:G:H4'	57:h:2613:G:O2'	2.17	0.45
1:2:47:G:O2'	1:2:48:U:H5'	2.16	0.45
4:6:184:LYS:HA	4:6:187:GLU:OE1	2.16	0.45
5:A:133:C:O2'	20:P:63:GLY:O	2.35	0.45
5:A:343:U:O2'	5:A:346:G:O6	2.34	0.45
5:A:448:A:N7	5:A:466:U:O4	2.50	0.45
5:A:588:A:H3'	5:A:589:A:H8	1.82	0.45
5:A:774:A:H4'	5:A:1505:G:O2'	2.16	0.45
5:A:937:A:H2'	5:A:938:U:C6	2.51	0.45
5:A:1086:G:H5"	7:C:172:ARG:HH11	1.80	0.45
5:A:1115:G:H3'	5:A:1116:U:C2	2.51	0.45
5:A:1443:G:H5"	24:T:22:GLN:OE1	2.16	0.45
11:G:111:ARG:HB3	11:G:113:GLU:OE1	2.16	0.45
15:K:28:GLY:HA2	15:K:46:PRO:HD3	1.99	0.45
19:O:18:HIS:NE2	19:O:21:ASP:HB3	2.32	0.45
25:U:68:ARG:NH2	57:h:1449:C:OP1	2.50	0.45
26:W:156:GLN:HB3	26:W:177:LEU:HD13	1.97	0.45
40:l:50:ALA:HA	40:l:56:LEU:HD12	1.98	0.45
57:h:243:U:H2'	57:h:244:A:C8	2.51	0.45
57:h:1006:G:OP2	57:h:1006:G:H8	1.99	0.45
57:h:2011:U:H2'	57:h:2012:C:C6	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:35:C:O5'	5:A:1367:C:H5"	2.16	0.45
5:A:172:C:H2'	5:A:173:C:C6	2.52	0.45
5:A:203:U:H2'	5:A:204:A:C8	2.52	0.45
5:A:491:C:O2'	5:A:492:U:O5'	2.35	0.45
5:A:920:A:N3	5:A:1359:U:O2'	2.37	0.45
5:A:1132:U:H5"	14:J:44:THR:HG23	1.98	0.45
5:A:1269:A:N3	5:A:1335:G:O2'	2.46	0.45
5:A:1413:C:H2'	5:A:1414:C:C6	2.51	0.45
8:D:180:LEU:HD23	8:D:180:LEU:H	1.82	0.45
15:K:92:ASP:OD1	15:K:92:ASP:N	2.49	0.45
29:Z:25:SER:OG	29:Z:53:GLU:OE2	2.34	0.45
34:e:57:ARG:NH2	47:s:51:GLU:OE2	2.43	0.45
40:l:151:ASP:N	40:l:151:ASP:OD1	2.50	0.45
57:h:489:A:H2'	57:h:490:A:C8	2.52	0.45
57:h:1764:A:H2'	57:h:1765:A:C8	2.51	0.45
57:h:2510:A:H4'	57:h:2511:A:O4'	2.17	0.45
57:h:2788:A:OP1	57:h:2872:G:H4'	2.17	0.45
5:A:525:C:H5"	8:D:64:GLU:OE1	2.16	0.45
5:A:800:U:H4'	5:A:801:G:OP2	2.17	0.45
5:A:963:U:H3'	5:A:964:U:H2'	1.97	0.45
5:A:1039:C:OP2	7:C:199:LYS:NZ	2.33	0.45
8:D:181:PRO:HB2	8:D:186:ILE:HD11	1.98	0.45
12:H:79:ARG:HH11	12:H:82:LYS:HA	1.82	0.45
13:I:72:LEU:O	13:I:75:VAL:HG12	2.16	0.45
41:m:35:LEU:HD11	41:m:72:LEU:HD13	1.99	0.45
57:h:321:G:H2'	57:h:322:A:H8	1.80	0.45
57:h:442:U:H2'	57:h:443:C:C6	2.52	0.45
57:h:989:G:O6	57:h:1020:A:N6	2.50	0.45
57:h:1441:C:H5'	57:h:2235:C:H1'	1.99	0.45
57:h:1679:A:H4'	57:h:1679:A:OP1	2.16	0.45
57:h:2439:C:H2'	57:h:2440:G:C8	2.52	0.45
4:6:148:ASP:HB3	4:6:151:LYS:HB2	1.99	0.45
5:A:120:G:C4	5:A:238:G:N2	2.85	0.45
5:A:334:C:H2'	5:A:335:C:C6	2.52	0.45
5:A:406:G:H2'	5:A:407:A:H8	1.81	0.45
5:A:581:U:H2'	5:A:582:U:C6	2.51	0.45
5:A:956:A:H4'	5:A:958:G:H5"	1.98	0.45
6:B:49:C:H2'	6:B:50:C:C6	2.52	0.45
9:E:108:HIS:CD2	12:H:98:LEU:HG	2.52	0.45
27:X:18:ALA:HB1	57:h:2495:G:OP1	2.16	0.45
37:i:29:PRO:HG3	37:i:63:ARG:NH2	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:l:172:GLU:OE1	40:l:172:GLU:N	2.50	0.45
43:o:94:PRO:HB3	43:o:138:GLY:HA2	1.98	0.45
50:v:20:ARG:NH1	57:h:2558:C:OP2	2.43	0.45
57:h:1714:A:H2'	57:h:1715:A:C8	2.51	0.45
57:h:1784:C:H2'	57:h:1785:C:C6	2.52	0.45
57:h:2074:G:H5'	57:h:2075:G:OP2	2.17	0.45
5:A:248:C:O4'	5:A:282:A:H2	2.00	0.45
5:A:254:G:C6	5:A:273:A:N6	2.85	0.45
5:A:263:A:OP1	24:T:74:ASN:ND2	2.46	0.45
5:A:525:C:O2'	5:A:529:C:OP1	2.34	0.45
5:A:530:G:O2'	16:L:116:ARG:HD3	2.17	0.45
5:A:819:U:H3	5:A:829:G:H1	1.64	0.45
5:A:1178:A:H5'	5:A:1178:A:H8	1.82	0.45
5:A:1414:C:H2'	5:A:1415:G:O4'	2.17	0.45
10:F:19:VAL:O	10:F:23:LEU:HG	2.16	0.45
14:J:12:ALA:HB2	14:J:96:VAL:HA	1.98	0.45
23:S:62:VAL:HA	23:S:66:MET:SD	2.56	0.45
35:f:11:CYS:HB3	35:f:32:HIS:CE1	2.52	0.45
47:s:22:VAL:HG22	47:s:33:ALA:HA	1.98	0.45
57:h:231:U:H2'	57:h:232:G:O4'	2.17	0.45
57:h:1990:A:N7	57:h:2046:A:H1'	2.32	0.45
5:A:100:G:H2'	5:A:101:G:H8	1.82	0.45
5:A:655:A:H2'	5:A:656:A:O4'	2.17	0.45
5:A:964:U:H6	5:A:965:A:C6	2.35	0.45
45:q:116:ARG:HH22	57:h:615:A:H5"	1.81	0.45
46:r:71:ARG:HD2	51:w:71:ARG:HH21	1.82	0.45
55:5:42:ILE:CD1	55:5:51:ILE:CG2	2.87	0.45
55:5:104:GLN:HB3	55:5:110:ARG:NH2	2.32	0.45
55:5:141:ARG:HD2	55:5:141:ARG:O	2.16	0.45
57:h:818:U:H2'	57:h:819:G:O4'	2.17	0.45
57:h:1963:G:H2'	57:h:1964:U:C6	2.52	0.45
57:h:2396:A:H3'	57:h:2397:C:C6	2.52	0.45
5:A:883:A:H8	5:A:883:A:O5'	2.00	0.45
5:A:1197:U:H2'	5:A:1198:C:C6	2.52	0.45
5:A:1375:G:N2	5:A:1486:A:H8	2.15	0.45
11:G:79:ARG:NH1	11:G:82:GLY:H	2.11	0.45
11:G:150:ALA:HB2	15:K:107:ARG:HE	1.81	0.45
16:L:87:VAL:CG1	16:L:96:LYS:HE2	2.47	0.45
21:Q:20:ARG:HG2	21:Q:78:GLU:HB2	1.99	0.45
39:k:143:THR:O	39:k:147:THR:HG23	2.17	0.45
43:o:114:LYS:O	43:o:117:ASP:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:p:119:ASP:HA	44:p:122:LYS:HG2	1.99	0.45
57:h:21:G:H2'	57:h:22:U:C6	2.52	0.45
1:2:5:G:H2'	1:2:6:G:C8	2.52	0.44
5:A:45:G:H1	5:A:401:C:H42	1.65	0.44
5:A:287:U:H2'	5:A:288:A:C8	2.52	0.44
5:A:690:G:H2'	5:A:691:G:H8	1.82	0.44
5:A:1479:U:O2'	57:h:2143:A:N1	2.48	0.44
8:D:102:LEU:HD11	8:D:173:GLN:HB3	1.99	0.44
38:j:162:LYS:HB2	57:h:2843:C:H5"	1.98	0.44
40:l:37:GLY:N	40:l:166:THR:OG1	2.38	0.44
48:t:58:ILE:HG13	48:t:59:LYS:H	1.82	0.44
55:5:148:ALA:HB1	55:5:152:GLU:OE2	2.17	0.44
55:5:180:SER:O	55:5:181:GLU:C	2.59	0.44
57:h:935:A:H4'	57:h:951:G:N2	2.32	0.44
57:h:1537:U:H2'	57:h:1538:G:H8	1.80	0.44
57:h:1673:A:H5"	57:h:1674:G:H5"	1.99	0.44
4:6:167:LYS:C	4:6:168:GLN:HE21	2.25	0.44
5:A:479:A:O4'	5:A:527:A:N6	2.51	0.44
5:A:526:G:OP1	8:D:65:LYS:N	2.28	0.44
5:A:659:C:H2'	5:A:660:C:H6	1.81	0.44
5:A:1161:A:H5'	13:I:125:THR:HG23	1.99	0.44
8:D:167:GLN:O	8:D:176:LEU:N	2.50	0.44
16:L:81:LEU:O	16:L:98:ILE:HG13	2.17	0.44
30:a:16:ARG:HD3	57:h:1086:C:OP2	2.16	0.44
37:i:31:LYS:NZ	57:h:1647:G:N7	2.59	0.44
38:j:27:THR:OG1	38:j:196:GLY:O	2.35	0.44
39:k:182:GLN:HE22	57:h:706:G:H8	1.65	0.44
41:m:164:ARG:HD3	41:m:170:ILE:HD13	2.00	0.44
46:r:90:ASP:OD1	46:r:90:ASP:N	2.43	0.44
53:y:8:LYS:HG2	53:y:13:GLN:HG2	1.98	0.44
57:h:2326:A:H61	57:h:2410:A:N6	2.16	0.44
5:A:203:U:H2'	5:A:204:A:H8	1.81	0.44
5:A:1219:A:N3	5:A:1219:A:H2'	2.32	0.44
5:A:1397:U:H2'	5:A:1398:G:C8	2.53	0.44
7:C:69:THR:HG21	7:C:75:VAL:HG21	1.98	0.44
17:M:52:GLN:HA	17:M:55:VAL:HG22	1.99	0.44
24:T:8:ILE:HA	24:T:11:ILE:HD12	1.99	0.44
41:m:76:LEU:O	41:m:80:VAL:HG22	2.18	0.44
52:x:18:LEU:HD23	52:x:18:LEU:HA	1.84	0.44
57:h:287:A:N6	57:h:299:G:HO2'	2.13	0.44
57:h:673:C:H2'	57:h:674:U:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:1479:G:H4'	57:h:2025:C:H5	1.81	0.44
57:h:2425:U:O2'	57:h:2427:G:OP1	2.29	0.44
4:6:187:GLU:HG3	4:6:233:THR:CG2	2.48	0.44
5:A:38:C:H2'	5:A:39:G:H8	1.82	0.44
5:A:1037:G:H2'	5:A:1038:G:O4'	2.17	0.44
5:A:1050:U:H2'	5:A:1051:C:H6	1.82	0.44
7:C:181:ASP:HB3	7:C:204:LYS:O	2.17	0.44
8:D:93:LEU:HG	8:D:113:VAL:CG1	2.48	0.44
13:I:133:ARG:HD2	18:N:61:TRP:CE2	2.52	0.44
34:e:54:ASP:O	34:e:58:ILE:HG12	2.18	0.44
39:k:154:VAL:HG23	39:k:193:ASP:HB2	1.99	0.44
55:5:106:THR:HG22	55:5:109:ARG:H	1.82	0.44
57:h:451:U:H2'	57:h:452:G:C8	2.52	0.44
57:h:781:C:H2'	57:h:782:U:C6	2.52	0.44
1:2:50:G:N1	1:2:67:C:N3	2.65	0.44
4:6:169:ALA:C	4:6:170:ASN:HD22	2.25	0.44
5:A:58:C:H2'	5:A:352:C:H41	1.81	0.44
5:A:146:A:H4'	5:A:1429:A:C2	2.52	0.44
5:A:578:U:H2'	5:A:579:U:C6	2.53	0.44
5:A:822:U:O2	5:A:824:C:O2'	2.29	0.44
5:A:909:G:N2	5:A:1516:U:OP1	2.49	0.44
5:A:1145:G:O6	5:A:1153:U:O4	2.34	0.44
8:D:87:ARG:HD3	8:D:180:LEU:HB2	1.98	0.44
14:J:37:VAL:HG11	14:J:75:ASP:HB3	1.99	0.44
29:Z:18:LEU:HD23	29:Z:18:LEU:HA	1.86	0.44
44:p:92:ALA:O	44:p:95:LYS:HG2	2.18	0.44
46:r:71:ARG:HH22	46:r:122:LEU:C	2.26	0.44
54:z:104:ARG:HH12	57:h:2238:A:P	2.40	0.44
55:5:118:LYS:NZ	55:5:175:VAL:HG11	2.33	0.44
57:h:307:G:H2'	57:h:308:U:C6	2.52	0.44
5:A:263:A:H2'	5:A:264:U:C6	2.52	0.44
5:A:830:G:C2	5:A:831:A:C8	3.06	0.44
8:D:167:GLN:OE1	8:D:176:LEU:HD22	2.18	0.44
9:E:213:SER:OG	9:E:214:ALA:N	2.50	0.44
15:K:45:ASP:HB2	15:K:46:PRO:HD2	1.99	0.44
34:e:42:ARG:NH1	57:h:2575:G:O6	2.50	0.44
38:j:185:VAL:HG23	38:j:192:LEU:HD23	1.98	0.44
39:k:54:THR:N	39:k:57:GLU:OE1	2.43	0.44
41:m:22:GLN:NE2	41:m:39:GLU:HA	2.33	0.44
48:t:1:MET:N	48:t:48:GLU:HB2	2.32	0.44
55:5:137:GLU:CD	55:5:137:GLU:C	2.86	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:5:141:ARG:HH12	55:5:147:GLU:CD	2.22	0.44
4:6:53:ARG:HA	4:6:53:ARG:HD3	1.72	0.44
5:A:281:G:H8	5:A:281:G:H5"	1.83	0.44
5:A:592:U:H5"	8:D:76:ARG:NH2	2.31	0.44
5:A:600:U:H2'	5:A:601:A:C8	2.52	0.44
5:A:631:C:H2'	5:A:632:U:C6	2.53	0.44
5:A:642:C:H2'	5:A:643:A:C8	2.53	0.44
5:A:804:U:H2'	5:A:805:A:C8	2.53	0.44
5:A:1106:U:OP1	14:J:7:ARG:NH1	2.51	0.44
5:A:1141:G:H1	5:A:1157:A:N6	2.15	0.44
5:A:1159:G:N2	5:A:1161:A:H3'	2.33	0.44
5:A:1200:A:H2'	5:A:1201:G:C8	2.53	0.44
7:C:137:ILE:O	7:C:141:MET:HB2	2.17	0.44
19:O:63:ARG:HH21	57:h:830:A:H4'	1.83	0.44
47:s:56:PRO:HG2	47:s:59:MET:HB2	2.00	0.44
48:t:58:ILE:HG13	48:t:59:LYS:N	2.33	0.44
57:h:388:U:H2'	57:h:389:G:O4'	2.18	0.44
57:h:973:G:HO2'	57:h:2492:A:HO2'	1.63	0.44
57:h:1633:U:H2'	57:h:1634:C:C6	2.52	0.44
57:h:2552:A:H2'	57:h:2553:G:H8	1.81	0.44
4:6:46:ILE:HG23	4:6:171:LEU:HB3	1.99	0.44
5:A:78:G:H1	5:A:91:U:H3	1.64	0.44
5:A:489:A:C5'	8:D:46:TYR:CD2	3.00	0.44
5:A:489:A:C5'	8:D:46:TYR:HD2	2.31	0.44
5:A:1294:G:H2'	5:A:1295:U:C6	2.53	0.44
26:W:26:GLN:NE2	26:W:30:ASP:OD1	2.47	0.44
37:i:77:ALA:HB2	37:i:97:TYR:CD1	2.51	0.44
38:j:83:GLU:OE2	57:h:2859:C:O2'	2.36	0.44
38:j:151:ILE:HD13	38:j:151:ILE:HA	1.89	0.44
39:k:115:LEU:HD23	39:k:115:LEU:HA	1.84	0.44
40:l:109:ARG:NE	40:l:147:GLU:OE2	2.50	0.44
44:p:14:ALA:O	44:p:18:LYS:HG2	2.18	0.44
44:p:29:ARG:NH2	57:h:1171:C:O2	2.51	0.44
47:s:37:THR:HG22	57:h:1060:U:OP1	2.18	0.44
57:h:858:A:O2'	57:h:1877:U:OP1	2.35	0.44
57:h:1146:A:N3	57:h:2710:G:O2'	2.47	0.44
57:h:1755:A:H2'	57:h:1758:G:H1	1.82	0.44
57:h:2390:U:O2	57:h:2392:A:H3'	2.17	0.44
1:2:20:G:C6	1:2:58:A:C2	3.06	0.44
5:A:79:C:H2'	5:A:80:C:H6	1.83	0.44
14:J:43:PRO:O	14:J:71:LYS:NZ	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:Q:84:ALA:HA	21:Q:87:ARG:HH12	1.83	0.44
30:a:30:LYS:HD2	30:a:33:GLN:NE2	2.33	0.44
42:n:91:LEU:HD13	42:n:125:LYS:HA	1.99	0.44
44:p:51:VAL:O	57:h:1202:A:H5'	2.17	0.44
55:5:40:ILE:HG12	55:5:85:SER:HB3	2.00	0.44
56:1:82:ARG:NH1	57:h:381:A:OP2	2.50	0.44
57:h:154:C:H2'	57:h:155:G:H8	1.83	0.44
57:h:1430:C:H2'	57:h:1431:U:C6	2.53	0.44
57:h:2369:C:H4'	57:h:2370:A:N7	2.33	0.44
57:h:2801:A:H2'	57:h:2838:A:N6	2.33	0.44
5:A:41:U:H2'	5:A:42:G:C8	2.52	0.43
5:A:522:G:C5'	8:D:33:PRO:HG2	2.47	0.43
5:A:1218:C:H4'	5:A:1282:G:N2	2.27	0.43
6:B:25:G:N7	6:B:57:U:H2'	2.33	0.43
10:F:4:TYR:N	10:F:65:VAL:O	2.51	0.43
13:I:46:GLY:HA2	13:I:81:PHE:O	2.18	0.43
13:I:48:PHE:CD2	13:I:55:LEU:HD13	2.53	0.43
15:K:74:LEU:HD12	15:K:74:LEU:HA	1.85	0.43
17:M:16:GLU:O	17:M:20:THR:HG23	2.18	0.43
20:P:22:VAL:HG21	20:P:59:TRP:NE1	2.33	0.43
26:W:119:THR:OG1	26:W:151:VAL:O	2.32	0.43
27:X:36:ILE:HG21	27:X:39:ARG:HD3	2.00	0.43
28:Y:33:ILE:HA	28:Y:52:CYS:HA	1.99	0.43
29:Z:34:PHE:O	29:Z:38:THR:HG23	2.17	0.43
40:l:34:GLN:HE22	50:v:3:HIS:CE1	2.36	0.43
43:o:27:GLY:O	43:o:30:LEU:HG	2.18	0.43
4:6:211:LYS:HD2	4:6:212:VAL:H	1.82	0.43
5:A:134:C:H2'	5:A:135:U:C6	2.53	0.43
5:A:483:C:O2'	5:A:490:A:N6	2.50	0.43
5:A:945:G:H2'	5:A:946:A:O4'	2.18	0.43
6:B:92:G:H2'	6:B:93:U:C6	2.53	0.43
8:D:77:GLN:HE21	8:D:78:PRO:HD2	1.83	0.43
8:D:116:GLY:CA	8:D:126:ASP:HB3	2.48	0.43
8:D:163:PRO:HB2	8:D:165:TRP:CD1	2.53	0.43
15:K:29:ALA:N	15:K:44:THR:O	2.39	0.43
21:Q:24:ILE:HA	21:Q:75:SER:HA	2.00	0.43
38:j:10:LYS:HG3	38:j:198:ILE:HD11	1.99	0.43
39:k:37:VAL:O	39:k:41:GLN:HG3	2.18	0.43
55:5:42:ILE:HG21	55:5:78:ILE:HA	1.99	0.43
57:h:470:G:N2	57:h:480:U:H3	2.15	0.43
57:h:1186:G:N2	57:h:1213:A:O2'	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:1614:G:H2'	57:h:1615:G:C8	2.53	0.43
57:h:1639:G:H5'	57:h:1640:A:OP1	2.17	0.43
57:h:1854:U:H2'	57:h:1855:A:H8	1.83	0.43
57:h:2354:G:OP1	57:h:2356:G:H4'	2.18	0.43
1:2:55:U:H2'	1:2:56:U:O4'	2.18	0.43
4:6:63:VAL:HB	4:6:195:GLU:HG2	1.99	0.43
4:6:97:SER:HB2	4:6:123:LYS:NZ	2.33	0.43
5:A:38:C:H2'	5:A:39:G:C8	2.54	0.43
5:A:335:C:H2'	5:A:336:A:C8	2.52	0.43
5:A:492:U:H2'	5:A:493:A:C8	2.53	0.43
5:A:532:U:H4'	16:L:83:ARG:HG2	1.98	0.43
5:A:746:A:H61	5:A:1495:G:H1'	1.84	0.43
5:A:875:C:C2	5:A:876:G:C8	3.07	0.43
5:A:933:G:C6	5:A:1212:A:C6	3.07	0.43
5:A:1036:U:OP1	7:C:163:SER:OG	2.26	0.43
5:A:1157:A:H3'	5:A:1158:G:H8	1.83	0.43
7:C:87:ARG:O	7:C:91:GLU:HG2	2.18	0.43
8:D:30:PRO:HD2	8:D:31:TYR:CD2	2.53	0.43
8:D:94:ASP:OD2	8:D:110:ARG:HG2	2.18	0.43
8:D:119:LEU:HD11	8:D:139:ASP:HB2	2.00	0.43
15:K:106:ILE:HD13	15:K:106:ILE:HA	1.83	0.43
17:M:15:MET:O	17:M:19:LEU:HD23	2.18	0.43
21:Q:63:ASP:OD1	21:Q:63:ASP:N	2.52	0.43
24:T:73:ALA:HA	24:T:76:LYS:HE3	2.01	0.43
57:h:854:A:H1'	57:h:855:C:H5	1.84	0.43
57:h:2008:A:N6	57:h:2045:G:O2'	2.47	0.43
9:E:184:LEU:HD23	9:E:184:LEU:HA	1.85	0.43
21:Q:86:LYS:HB3	21:Q:86:LYS:HE2	1.56	0.43
23:S:37:ARG:H	23:S:37:ARG:HG2	1.58	0.43
50:v:56:ASN:OD1	50:v:56:ASN:N	2.52	0.43
50:v:74:ASP:OD1	50:v:74:ASP:N	2.40	0.43
55:5:42:ILE:HD13	55:5:78:ILE:HG12	2.00	0.43
55:5:150:GLU:HB3	57:h:2477:G:H22	1.83	0.43
57:h:1220:C:H2'	57:h:1221:A:H8	1.83	0.43
57:h:1541:G:H1	57:h:1631:A:N6	2.16	0.43
57:h:1607:C:H3'	57:h:1608:U:C6	2.53	0.43
1:2:63:C:O2'	4:6:54:LYS:HG2	2.19	0.43
5:A:84:U:H3'	5:A:85:C:H6	1.84	0.43
5:A:1229:A:H4'	13:I:53:ARG:HH12	1.82	0.43
5:A:1328:A:H2'	11:G:10:ARG:HH21	1.84	0.43
5:A:1376:U:O2'	5:A:1377:A:H2'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:J:10:LEU:O	14:J:71:LYS:HA	2.18	0.43
16:L:5:GLN:HA	16:L:8:VAL:HG22	2.00	0.43
16:L:98:ILE:HG13	16:L:98:ILE:H	1.50	0.43
21:Q:74:VAL:HG22	21:Q:93:ILE:HA	2.01	0.43
37:i:233:HIS:NE2	37:i:246:PRO:HA	2.34	0.43
38:j:157:PRO:HB3	57:h:1248:U:C2	2.54	0.43
43:o:109:GLU:O	43:o:112:GLU:HG3	2.18	0.43
45:q:36:LEU:HD11	45:q:122:LEU:HD13	2.00	0.43
55:5:55:ALA:HB1	55:5:68:LYS:O	2.19	0.43
57:h:290:C:H2'	57:h:301:U:C5	2.54	0.43
57:h:740:A:O2'	57:h:741:G:OP2	2.28	0.43
57:h:1223:U:H2'	57:h:1224:G:H8	1.84	0.43
57:h:1749:U:H2'	57:h:1750:A:H8	1.84	0.43
57:h:2857:A:H2'	57:h:2858:G:C8	2.52	0.43
57:h:2936:C:OP1	57:h:2938:G:H4'	2.18	0.43
4:6:41:THR:O	4:6:216:THR:HG23	2.18	0.43
4:6:166:ASP:OD2	57:h:2344:G:N2	2.51	0.43
5:A:188:G:C6	5:A:201:G:C6	3.07	0.43
5:A:438:U:N3	5:A:475:A:N7	2.66	0.43
5:A:644:G:N2	5:A:721:G:H1	2.17	0.43
5:A:1168:G:H1'	18:N:61:TRP:O	2.18	0.43
5:A:1192:U:H5"	5:A:1193:U:H5'	2.00	0.43
5:A:1249:G:H2'	5:A:1250:A:C8	2.53	0.43
5:A:1260:A:H5"	14:J:9:ARG:NH2	2.33	0.43
6:B:43:C:C6	40:l:73:GLU:HB3	2.53	0.43
6:B:49:C:H2'	6:B:50:C:H6	1.83	0.43
12:H:98:LEU:HD22	12:H:132:TRP:HB2	2.00	0.43
40:l:128:GLN:HB2	40:l:135:TYR:CE1	2.54	0.43
43:o:22:PRO:O	43:o:26:VAL:HG12	2.18	0.43
57:h:691:U:H2'	57:h:692:C:C6	2.53	0.43
57:h:1791:A:H2'	57:h:1792:A:C8	2.54	0.43
4:6:47:ARG:NH2	57:h:2402:C:OP1	2.52	0.43
5:A:296:U:H2'	5:A:297:G:C8	2.54	0.43
5:A:308:C:C2	5:A:309:G:C8	3.06	0.43
5:A:764:A:C6	5:A:779:G:C6	3.06	0.43
5:A:910:G:H4'	5:A:1516:U:O3'	2.18	0.43
5:A:1414:C:H5"	51:w:106:LYS:HZ2	1.83	0.43
8:D:14:ARG:HD3	8:D:32:PRO:HB3	1.99	0.43
8:D:97:VAL:HB	8:D:109:ALA:HB1	2.01	0.43
11:G:54:THR:OG1	11:G:56:THR:OG1	2.30	0.43
17:M:92:HIS:HA	17:M:110:ARG:NH2	2.30	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:Q:51:LYS:HG2	21:Q:52:ILE:N	2.33	0.43
38:j:157:PRO:HB2	38:j:159:ARG:HG2	1.99	0.43
43:o:103:THR:HG23	43:o:105:ASP:H	1.82	0.43
53:y:39:VAL:HG12	53:y:55:LEU:HD22	2.01	0.43
57:h:61:G:H2'	57:h:62:G:H8	1.82	0.43
57:h:1805:G:H2'	57:h:1806:A:H8	1.84	0.43
1:2:14:A:H61	1:2:22:A:H2	1.65	0.43
4:6:6:LYS:O	4:6:9:ARG:N	2.51	0.43
5:A:376:G:OP1	20:P:6:LYS:HB3	2.19	0.43
5:A:1057:G:N1	5:A:1061:G:C6	2.87	0.43
5:A:1430:A:P	5:A:1431:C:H41	2.41	0.43
8:D:52:GLU:OE1	8:D:195:ILE:HG12	2.18	0.43
13:I:31:ARG:O	13:I:126:ARG:NE	2.51	0.43
16:L:79:MET:O	16:L:103:ASP:HB2	2.19	0.43
24:T:8:ILE:H	24:T:8:ILE:HG13	1.67	0.43
37:i:53:HIS:CG	37:i:220:THR:HG22	2.54	0.43
42:n:136:LEU:HB2	42:n:140:VAL:HG12	2.01	0.43
45:q:59:ALA:HB3	45:q:126:ALA:HA	2.00	0.43
57:h:1541:G:N2	57:h:1631:A:H61	2.14	0.43
57:h:1756:G:H1'	57:h:1758:G:C5	2.54	0.43
1:2:64:G:OP1	4:6:54:LYS:CE	2.66	0.43
5:A:338:A:H2'	5:A:339:C:H6	1.83	0.43
5:A:377:G:OP1	20:P:4:LYS:NZ	2.41	0.43
5:A:588:A:H3'	5:A:589:A:C8	2.54	0.43
5:A:664:U:O2'	15:K:50:VAL:O	2.28	0.43
5:A:695:A:H2'	5:A:696:A:H8	1.83	0.43
5:A:904:G:C2	5:A:905:A:C4	3.07	0.43
5:A:916:C:N4	5:A:1327:U:C4	2.87	0.43
5:A:957:A:N3	5:A:957:A:H5'	2.34	0.43
5:A:1206:U:O2	5:A:1206:U:H2'	2.17	0.43
5:A:1231:A:H4'	13:I:90:GLY:H	1.84	0.43
5:A:1457:G:H2'	5:A:1458:G:C8	2.53	0.43
8:D:119:LEU:HD13	8:D:122:GLY:HA2	2.00	0.43
15:K:80:ALA:HB2	15:K:109:LEU:HD22	2.00	0.43
31:b:29:THR:HG22	57:h:3108:G:OP1	2.19	0.43
36:g:2:LYS:HD2	36:g:5:ILE:HD13	2.01	0.43
37:i:146:GLU:HG2	37:i:152:GLY:C	2.43	0.43
39:k:27:VAL:HG21	39:k:112:ARG:HB3	1.99	0.43
40:l:115:LEU:HD23	40:l:115:LEU:HA	1.81	0.43
41:m:87:LYS:HG3	41:m:166:GLU:CG	2.49	0.43
43:o:48:THR:O	43:o:52:ARG:N	2.35	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:o:91:SER:HB2	43:o:138:GLY:HA3	2.00	0.43
57:h:1326:G:H1'	57:h:1352:A:N6	2.34	0.43
5:A:421:U:H5"	5:A:422:C:C5	2.54	0.43
5:A:448:A:H3'	5:A:449:C:H6	1.84	0.43
5:A:574:C:H2'	5:A:575:G:O4'	2.19	0.43
5:A:901:A:H2'	5:A:902:U:H6	1.84	0.43
5:A:1294:G:H2'	5:A:1295:U:H6	1.82	0.43
14:J:11:LYS:HG2	14:J:71:LYS:HG2	2.00	0.43
17:M:48:LEU:HD11	17:M:52:GLN:HB2	2.00	0.43
17:M:66:VAL:C	17:M:68:GLY:H	2.27	0.43
23:S:10:PHE:O	23:S:39:THR:HG22	2.19	0.43
29:Z:62:ARG:HD2	29:Z:62:ARG:HA	1.79	0.43
42:n:5:LEU:O	42:n:16:GLY:N	2.41	0.43
55:5:153:VAL:O	55:5:157:GLU:OE1	2.36	0.43
57:h:29:C:N4	57:h:535:A:OP2	2.52	0.43
57:h:729:C:O2'	57:h:733:U:OP1	2.30	0.43
57:h:795:G:H2'	57:h:796:A:C8	2.54	0.43
57:h:994:A:N6	57:h:1014:G:O2'	2.52	0.43
57:h:2147:U:H2'	57:h:2148:C:C6	2.54	0.43
57:h:2411:U:H2'	57:h:2412:U:C6	2.54	0.43
57:h:2689:C:H2'	57:h:2690:C:H6	1.84	0.43
4:6:18:THR:OG1	4:6:19:LYS:N	2.52	0.42
4:6:50:VAL:HB	4:6:57:GLN:HB3	2.00	0.42
5:A:370:C:H2'	5:A:371:A:H8	1.82	0.42
5:A:427:U:P	8:D:29:ARG:HH22	2.41	0.42
5:A:623:C:H2'	5:A:624:G:H8	1.84	0.42
5:A:940:A:C2	23:S:55:ARG:HB2	2.54	0.42
5:A:1135:G:H2'	5:A:1136:A:C8	2.54	0.42
11:G:53:LYS:NZ	11:G:122:ASN:HD21	2.16	0.42
11:G:66:LEU:HD13	11:G:66:LEU:HA	1.79	0.42
37:i:132:PRO:HA	37:i:190:ARG:HA	2.01	0.42
44:p:36:LEU:HD21	57:h:1203:A:H61	1.84	0.42
50:v:51:LEU:HD23	50:v:51:LEU:HA	1.87	0.42
55:5:116:GLN:HG2	55:5:120:LYS:HE3	2.01	0.42
57:h:290:C:N4	57:h:299:G:H21	2.17	0.42
57:h:2007:C:H2'	57:h:2008:A:C5	2.53	0.42
5:A:214:U:H1'	5:A:218:G:N2	2.34	0.42
8:D:67:PHE:HE1	8:D:89:LEU:HD21	1.84	0.42
24:T:62:ALA:HA	24:T:67:ILE:HG13	2.01	0.42
38:j:63:ILE:HD13	38:j:63:ILE:HA	1.84	0.42
39:k:64:LYS:NZ	57:h:790:A:OP1	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:l:159:MET:HE3	40:l:159:MET:HB2	1.85	0.42
57:h:685:G:H2'	57:h:685:G:N3	2.34	0.42
57:h:729:C:H2'	57:h:730:G:O4'	2.19	0.42
57:h:2736:C:H2'	57:h:2737:G:O4'	2.19	0.42
1:2:35:C:H5	5:A:1367:C:OP1	2.00	0.42
5:A:863:G:OP1	16:L:9:ARG:NH2	2.46	0.42
5:A:1096:U:H3	5:A:1165:G:H1	1.67	0.42
5:A:1491:A:H2'	5:A:1492:G:H8	1.83	0.42
7:C:21:ARG:HB2	7:C:57:GLU:HG2	2.01	0.42
7:C:48:ARG:CZ	7:C:48:ARG:HB3	2.49	0.42
8:D:79:GLY:C	8:D:84:ASN:HD21	2.28	0.42
9:E:102:ILE:O	9:E:104:SER:N	2.50	0.42
12:H:10:PHE:HD1	12:H:27:LEU:HD21	1.84	0.42
15:K:90:LYS:HB2	15:K:115:GLU:HG2	2.01	0.42
20:P:39:ARG:HH21	20:P:50:GLN:NE2	2.18	0.42
21:Q:32:MET:SD	21:Q:35:THR:OG1	2.77	0.42
25:U:40:THR:O	25:U:44:ILE:HG13	2.19	0.42
37:i:158:SER:OG	37:i:159:ALA:N	2.52	0.42
38:j:65:PRO:O	38:j:69:GLN:HG3	2.18	0.42
42:n:137:HIS:CG	42:n:138:THR:H	2.36	0.42
57:h:265:A:N6	57:h:359:A:N7	2.68	0.42
57:h:2113:A:N1	57:h:2458:G:H1'	2.35	0.42
57:h:2958:C:H2'	57:h:2959:A:O4'	2.19	0.42
4:6:152:ALA:O	4:6:156:ILE:HG22	2.19	0.42
5:A:104:A:OP2	5:A:326:G:N2	2.38	0.42
5:A:452:A:C2	20:P:47:SER:HB2	2.53	0.42
5:A:928:A:H2'	5:A:929:G:H8	1.83	0.42
5:A:1294:G:C2	5:A:1308:C:C2	3.06	0.42
5:A:1387:C:H2'	5:A:1388:G:C8	2.54	0.42
7:C:188:GLU:HA	7:C:197:GLY:HA2	2.01	0.42
12:H:14:LEU:HD23	12:H:14:LEU:HA	1.84	0.42
24:T:43:ASP:HB3	24:T:46:LYS:HB2	2.01	0.42
41:m:45:ARG:HH12	41:m:49:GLY:HA2	1.83	0.42
41:m:65:LEU:HD23	41:m:68:LEU:HD23	2.01	0.42
49:u:10:LEU:HD12	49:u:10:LEU:HA	1.83	0.42
54:z:97:GLN:OE1	54:z:99:ARG:NH2	2.52	0.42
57:h:23:G:H2'	57:h:24:G:O4'	2.19	0.42
57:h:587:G:N1	57:h:590:A:OP2	2.51	0.42
57:h:1002:C:C2'	57:h:1003:A:H5"	2.46	0.42
57:h:1654:G:H2'	57:h:1655:A:C8	2.55	0.42
57:h:2113:A:H2'	57:h:2114:A:H8	1.80	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:20:G:O6	57:h:2335:G:H8	2.02	0.42
4:6:5:SER:HB2	57:h:2352:C:OP1	2.19	0.42
5:A:187:U:H2'	5:A:188:G:H8	1.83	0.42
5:A:1199:C:C2	5:A:1200:A:N7	2.88	0.42
5:A:1368:G:H2'	5:A:1369:G:H8	1.84	0.42
8:D:112:LEU:HD23	8:D:118:PHE:HE2	1.84	0.42
40:l:64:LEU:HB3	40:l:72:PRO:HG3	2.01	0.42
51:w:6:PHE:CE2	51:w:7:VAL:HG23	2.55	0.42
55:5:139:LEU:HA	55:5:142:ILE:HG22	2.02	0.42
57:h:1721:U:H2'	57:h:1722:C:C6	2.55	0.42
57:h:1969:G:H2'	57:h:1970:G:C8	2.54	0.42
5:A:65:G:H2'	5:A:66:U:C6	2.54	0.42
5:A:98:G:H2'	5:A:99:U:C6	2.55	0.42
5:A:363:A:OP2	16:L:31:ARG:HB3	2.19	0.42
5:A:409:G:H2'	5:A:410:G:O4'	2.19	0.42
5:A:491:C:O2'	5:A:492:U:O4'	2.36	0.42
5:A:688:C:H2'	5:A:689:A:C8	2.55	0.42
5:A:1302:C:H2'	5:A:1303:U:C2	2.55	0.42
6:B:81:U:H2'	6:B:82:A:H8	1.84	0.42
17:M:4:LEU:HD12	17:M:4:LEU:HA	1.78	0.42
40:l:141:GLU:O	40:l:144:MET:HE1	2.19	0.42
54:z:11:THR:HG22	54:z:113:ILE:HG23	2.01	0.42
55:5:1:MET:O	55:5:5:THR:HG23	2.20	0.42
57:h:1278:C:C2	57:h:1279:G:C8	3.07	0.42
57:h:2164:U:H1'	57:h:2166:C:N4	2.34	0.42
57:h:2347:G:H5"	57:h:2348:G:OP2	2.20	0.42
57:h:3040:G:H2'	57:h:3042:A:N7	2.35	0.42
4:6:195:GLU:O	4:6:198:ARG:HB3	2.19	0.42
5:A:39:G:C2	16:L:115:SER:OG	2.72	0.42
5:A:122:G:C6	5:A:236:G:O6	2.72	0.42
5:A:423:G:C6	5:A:424:G:H1'	2.54	0.42
5:A:456:C:H1'	5:A:457:A:C4	2.55	0.42
5:A:812:G:C6	5:A:837:G:C6	3.07	0.42
5:A:837:G:C6	5:A:838:C:C4	3.07	0.42
5:A:949:C:H2'	5:A:950:A:N7	2.35	0.42
5:A:1284:U:C5	17:M:17:ILE:HG13	2.55	0.42
5:A:1299:C:H2'	5:A:1300:A:O4'	2.19	0.42
5:A:1351:G:H5"	13:I:134:LYS:HB3	2.00	0.42
7:C:72:PRO:HA	7:C:75:VAL:HB	2.00	0.42
8:D:98:TYR:CE1	8:D:105:THR:HA	2.55	0.42
52:x:13:LYS:NZ	57:h:1366:A:OP1	2.43	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:282:A:C6	57:h:305:G:C6	3.07	0.42
57:h:290:C:H2'	57:h:301:U:C4	2.55	0.42
57:h:1212:U:H3'	57:h:1213:A:H5"	2.02	0.42
57:h:1437:A:C2	57:h:1438:G:C8	3.07	0.42
57:h:2297:U:O2'	57:h:2821:G:H1'	2.20	0.42
57:h:2377:G:C5	57:h:2378:U:C5	3.07	0.42
57:h:2867:A:H2'	57:h:2868:A:H8	1.84	0.42
5:A:23:C:H2'	5:A:24:U:C6	2.54	0.42
5:A:324:G:N1	5:A:327:A:OP2	2.53	0.42
5:A:363:A:H2'	5:A:364:A:C8	2.55	0.42
5:A:406:G:H2'	5:A:407:A:C8	2.55	0.42
5:A:436:C:H2'	5:A:437:U:C6	2.55	0.42
5:A:492:U:OP1	8:D:36:HIS:ND1	2.53	0.42
5:A:608:G:C2	5:A:609:G:H1'	2.55	0.42
5:A:681:C:H4'	5:A:683:G:N3	2.34	0.42
5:A:1291:G:H5"	17:M:81:LYS:NZ	2.34	0.42
5:A:1368:G:H2'	5:A:1369:G:C8	2.55	0.42
9:E:174:ARG:HB2	9:E:177:GLU:CD	2.45	0.42
17:M:23:TYR:CD2	17:M:70:LEU:HD13	2.55	0.42
38:j:144:VAL:HA	38:j:147:ARG:HD3	2.02	0.42
54:z:29:ASP:OD1	54:z:32:ARG:NH2	2.53	0.42
57:h:529:U:H2'	57:h:530:G:C8	2.55	0.42
57:h:752:C:H2'	57:h:753:A:H8	1.83	0.42
57:h:977:G:H2'	57:h:978:A:O4'	2.19	0.42
4:6:43:GLU:O	4:6:214:VAL:HA	2.20	0.42
5:A:12:A:N6	8:D:197:GLU:O	2.51	0.42
5:A:100:G:C2	5:A:101:G:N7	2.87	0.42
5:A:564:G:H2'	5:A:565:G:C8	2.54	0.42
5:A:614:C:H2'	5:A:615:G:C8	2.53	0.42
5:A:655:A:H1'	15:K:127:HIS:CG	2.54	0.42
5:A:1200:A:H2'	5:A:1201:G:H8	1.85	0.42
5:A:1230:C:N4	5:A:1270:A:H62	2.18	0.42
5:A:1239:G:H2'	5:A:1240:C:C6	2.55	0.42
8:D:183:ARG:HA	8:D:183:ARG:HD2	1.87	0.42
13:I:47:GLN:HG2	13:I:82:ASP:OD1	2.19	0.42
14:J:25:ILE:HD13	14:J:90:ILE:HD13	2.01	0.42
17:M:96:LEU:C	17:M:110:ARG:HE	2.27	0.42
43:o:14:GLN:N	57:h:1179:U:O4	2.41	0.42
45:q:116:ARG:NH2	57:h:615:A:OP2	2.53	0.42
57:h:1041:A:H2'	57:h:1042:A:O4'	2.20	0.42
57:h:1297:G:H2'	57:h:1298:C:C6	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:1317:G:C5	57:h:1359:G:C2	3.08	0.42
57:h:1552:A:N6	57:h:1616:A:OP2	2.49	0.42
57:h:2530:C:H3'	57:h:2531:G:H2'	2.01	0.42
1:2:71:G:H4'	57:h:2117:C:O2'	2.19	0.42
2:3:15:LYS:HA	6:B:87:U:O2	2.20	0.42
5:A:228:A:O2'	20:P:3:VAL:HG11	2.20	0.42
5:A:728:A:O2'	5:A:729:A:N7	2.50	0.42
5:A:847:A:H2'	5:A:848:C:H6	1.85	0.42
5:A:1062:A:C5	5:A:1063:U:C5	3.07	0.42
5:A:1508:C:C2	5:A:1509:G:C8	3.08	0.42
16:L:108:LYS:HE2	16:L:108:LYS:HB3	1.82	0.42
17:M:86:CYS:SG	17:M:87:TYR:N	2.93	0.42
20:P:74:LEU:HD23	20:P:80:TRP:HE3	1.85	0.42
31:b:42:ARG:NH2	49:u:38:GLU:OE1	2.45	0.42
41:m:174:VAL:HG23	41:m:176:LYS:CE	2.50	0.42
46:r:23:ARG:NH2	57:h:2772:G:N3	2.68	0.42
57:h:150:C:H2'	57:h:151:A:C8	2.54	0.42
57:h:609:G:H2'	57:h:610:C:C6	2.55	0.42
57:h:2248:C:H2'	57:h:2249:G:H8	1.84	0.42
57:h:2569:G:H21	57:h:2605:C:H3'	1.85	0.42
57:h:3055:G:H2'	57:h:3100:A:H61	1.85	0.42
57:h:3090:G:H2'	57:h:3091:G:C8	2.55	0.42
5:A:375:U:H5"	20:P:69:PRO:HG3	2.02	0.41
5:A:938:U:H2'	5:A:939:U:C6	2.55	0.41
5:A:1023:U:H2'	5:A:1024:G:O4'	2.20	0.41
5:A:1232:A:H2'	5:A:1233:A:C8	2.54	0.41
5:A:1458:G:H4'	57:h:1919:A:N3	2.35	0.41
7:C:86:ILE:O	7:C:90:LEU:HG	2.20	0.41
8:D:165:TRP:CZ2	8:D:181:PRO:HB3	2.54	0.41
9:E:127:GLY:N	9:E:147:ASP:OD2	2.53	0.41
14:J:47:ASN:O	14:J:67:MET:N	2.53	0.41
14:J:85:ASP:O	14:J:89:ARG:HB2	2.20	0.41
42:n:124:ILE:O	42:n:125:LYS:HB2	2.20	0.41
47:s:84:ASN:HB2	47:s:118:LEU:HD12	2.02	0.41
50:v:127:PHE:O	57:h:2601:A:O2'	2.26	0.41
57:h:1137:U:H2'	57:h:1138:A:C8	2.55	0.41
57:h:2347:G:H3'	57:h:2348:G:H8	1.84	0.41
57:h:3037:C:O2	57:h:3104:A:O2'	2.37	0.41
5:A:85:C:H4'	5:A:86:G:O4'	2.20	0.41
5:A:136:G:C6	5:A:225:G:C5	3.08	0.41
5:A:863:G:OP2	16:L:6:GLN:NE2	2.47	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:132:ALA:HB1	9:E:136:ALA:HB3	2.03	0.41
14:J:53:ARG:NH1	14:J:63:GLU:OE1	2.54	0.41
16:L:54:ARG:HG3	16:L:62:GLU:OE2	2.20	0.41
17:M:84:ILE:HG13	23:S:74:PHE:HE1	1.85	0.41
22:R:26:LYS:HE2	22:R:26:LYS:HB2	1.86	0.41
31:b:30:VAL:HG23	31:b:48:ARG:HH21	1.85	0.41
37:i:2:GLY:O	37:i:20:ASP:N	2.51	0.41
44:p:72:LEU:HD13	44:p:107:GLY:HA3	2.01	0.41
44:p:92:ALA:HA	44:p:95:LYS:HE3	2.01	0.41
45:q:27:ARG:NH2	57:h:1260:C:O2'	2.53	0.41
45:q:102:GLU:O	45:q:106:ILE:HG12	2.20	0.41
55:5:93:ASN:OD1	55:5:94:ASP:N	2.52	0.41
57:h:202:C:OP2	57:h:203:A:O2'	2.32	0.41
57:h:221:A:N6	57:h:232:G:H1'	2.34	0.41
57:h:639:C:O2'	57:h:640:G:H8	2.03	0.41
57:h:1145:A:H61	57:h:1245:U:H5	1.68	0.41
57:h:1558:C:H2'	57:h:1559:A:C8	2.55	0.41
57:h:2755:A:C4	57:h:2756:G:C8	3.08	0.41
57:h:2885:G:H2'	57:h:2886:A:C8	2.55	0.41
57:h:2917:A:H2'	57:h:2918:G:H8	1.85	0.41
57:h:2972:A:C2	57:h:2981:A:C4	3.08	0.41
4:6:45:ALA:HB3	4:6:213:THR:OG1	2.20	0.41
5:A:48:G:C5	5:A:399:G:C6	3.09	0.41
5:A:523:U:OP1	8:D:11:LYS:NZ	2.54	0.41
5:A:592:U:H2'	5:A:593:C:C6	2.55	0.41
5:A:716:U:H2'	5:A:717:C:H6	1.84	0.41
5:A:955:G:H2'	5:A:956:A:C2	2.55	0.41
5:A:1491:A:C5	5:A:1514:G:C2	3.08	0.41
6:B:44:C:H5"	36:g:1:MET:HE2	2.02	0.41
7:C:21:ARG:O	7:C:57:GLU:HA	2.20	0.41
14:J:55:PRO:HA	18:N:41:ARG:HH22	1.86	0.41
16:L:29:GLN:HG2	16:L:98:ILE:HD11	2.03	0.41
23:S:44:PHE:HA	23:S:47:HIS:CD2	2.53	0.41
35:f:11:CYS:HB3	35:f:32:HIS:HE1	1.84	0.41
37:i:88:ARG:NH2	57:h:2034:G:OP1	2.51	0.41
37:i:256:ARG:HG2	57:h:2061:U:H5"	2.01	0.41
48:t:41:TYR:HB3	48:t:94:VAL:HB	2.02	0.41
55:5:44:TYR:HB2	55:5:54:LEU:HD11	2.02	0.41
57:h:332:C:H2'	57:h:333:C:C6	2.55	0.41
57:h:334:G:H2'	57:h:335:G:C8	2.55	0.41
57:h:718:C:O2'	57:h:772:U:OP1	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:911:U:H2'	57:h:912:C:C6	2.56	0.41
57:h:1039:G:H2'	57:h:1040:U:O4'	2.21	0.41
57:h:1228:A:H2'	57:h:1229:A:H5"	2.02	0.41
5:A:44:C:H2'	5:A:45:G:H8	1.85	0.41
5:A:45:G:H2'	5:A:46:G:H8	1.85	0.41
5:A:211:A:H1'	5:A:212:G:C1'	2.51	0.41
5:A:294:C:C2	5:A:295:C:C5	3.09	0.41
5:A:307:C:C4	5:A:308:C:C5	3.08	0.41
5:A:335:C:H2'	5:A:336:A:H8	1.84	0.41
5:A:489:A:OP1	8:D:46:TYR:HD2	2.04	0.41
5:A:496:U:O2	5:A:496:U:H2'	2.20	0.41
5:A:594:A:H2'	5:A:595:C:O4'	2.20	0.41
5:A:901:A:H8	5:A:901:A:O5'	2.04	0.41
5:A:1031:G:N1	5:A:1189:C:N3	2.69	0.41
5:A:1332:A:O2'	11:G:33:GLU:OE1	2.38	0.41
5:A:1452:A:C6	5:A:1453:A:C5	3.08	0.41
6:B:27:A:C2	6:B:28:A:H1'	2.56	0.41
11:G:69:VAL:O	11:G:138:ARG:HG3	2.20	0.41
12:H:16:ASN:O	12:H:19:SER:OG	2.32	0.41
37:i:5:LYS:HB3	37:i:5:LYS:HE2	1.79	0.41
44:p:5:ASP:O	44:p:8:THR:HG22	2.21	0.41
51:w:15:ASP:C	51:w:15:ASP:OD1	2.63	0.41
51:w:88:ARG:HE	51:w:88:ARG:HB3	1.76	0.41
57:h:610:C:O2	57:h:646:U:O2'	2.39	0.41
57:h:621:U:H3	57:h:651:G:H1	1.69	0.41
57:h:965:U:H2'	57:h:966:U:C6	2.55	0.41
57:h:1186:G:O2'	57:h:1214:A:H4'	2.20	0.41
57:h:1716:A:H2'	57:h:1718:C:C5	2.56	0.41
57:h:1796:U:H2'	57:h:1797:C:H6	1.84	0.41
57:h:2156:A:H2'	57:h:2157:G:O4'	2.20	0.41
57:h:2439:C:H2'	57:h:2440:G:H8	1.86	0.41
4:6:88:GLN:HG3	4:6:95:VAL:HG21	2.02	0.41
5:A:377:G:H2'	5:A:378:G:C8	2.55	0.41
5:A:403:C:H3'	5:A:404:G:H8	1.85	0.41
5:A:509:G:H5'	5:A:510:G:OP2	2.21	0.41
5:A:1165:G:C2	5:A:1166:G:C8	3.09	0.41
8:D:53:LYS:N	8:D:195:ILE:HD11	2.35	0.41
8:D:147:THR:HG23	8:D:149:PRO:HD2	2.03	0.41
12:H:94:LEU:HD12	12:H:119:ALA:HB2	2.02	0.41
24:T:20:ARG:O	24:T:24:VAL:HG23	2.20	0.41
24:T:51:LEU:HD13	24:T:79:LEU:CD1	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:Y:14:PHE:CG	57:h:187:G:H5"	2.55	0.41
38:j:63:ILE:CG2	38:j:65:PRO:HD2	2.47	0.41
44:p:119:ASP:O	44:p:122:LYS:HG2	2.21	0.41
55:5:139:LEU:HD22	55:5:153:VAL:HG13	2.02	0.41
57:h:28:C:O2'	57:h:1353:G:OP1	2.32	0.41
57:h:183:G:C5	57:h:212:A:C6	3.09	0.41
57:h:489:A:H2'	57:h:490:A:H8	1.84	0.41
57:h:2029:A:H2'	57:h:2030:C:C6	2.56	0.41
57:h:2170:U:H2'	57:h:2171:C:C6	2.55	0.41
57:h:2873:U:H2'	57:h:2874:C:C6	2.56	0.41
1:2:15:G:H2'	1:2:60:A:N1	2.36	0.41
4:6:43:GLU:OE1	4:6:43:GLU:N	2.53	0.41
5:A:243:A:N1	5:A:245:C:N4	2.68	0.41
5:A:540:A:H4'	5:A:541:U:H5"	2.02	0.41
5:A:968:U:H2'	5:A:969:G:C8	2.54	0.41
5:A:1133:G:OP1	14:J:72:ARG:NH2	2.53	0.41
8:D:152:ILE:O	8:D:156:THR:HG22	2.20	0.41
13:I:32:ARG:NH1	13:I:127:ASP:OD2	2.53	0.41
14:J:37:VAL:HG12	14:J:75:ASP:H	1.86	0.41
16:L:57:LEU:HD23	16:L:57:LEU:HA	1.84	0.41
37:i:26:ARG:HD2	37:i:81:HIS:CG	2.55	0.41
40:l:129:PHE:CE1	40:l:135:TYR:HB2	2.55	0.41
44:p:24:VAL:HG23	44:p:80:ALA:HB3	2.03	0.41
57:h:974:G:H1'	57:h:975:U:C5	2.54	0.41
57:h:1296:G:H2'	57:h:1297:G:C8	2.54	0.41
57:h:1556:A:H2	57:h:1615:G:H22	1.68	0.41
57:h:2093:G:O2'	57:h:2094:G:OP2	2.26	0.41
57:h:2235:C:H2'	57:h:2236:G:O4'	2.20	0.41
57:h:2336:U:H5'	57:h:2338:G:C6	2.55	0.41
57:h:2622:C:H2'	57:h:2623:A:C8	2.56	0.41
5:A:532:U:H4'	16:L:83:ARG:CG	2.51	0.41
5:A:559:U:H2'	5:A:560:C:C6	2.56	0.41
5:A:764:A:N6	5:A:779:G:C6	2.89	0.41
5:A:1154:C:H2'	5:A:1155:G:H8	1.85	0.41
5:A:1456:U:H2'	5:A:1457:G:C8	2.56	0.41
7:C:23:TYR:CD2	14:J:97:ASP:HB2	2.56	0.41
12:H:88:TYR:CE1	12:H:126:GLU:HB2	2.56	0.41
15:K:37:ASN:HA	15:K:67:SER:HB3	2.03	0.41
39:k:30:ASN:ND2	57:h:693:G:OP1	2.48	0.41
40:l:11:LEU:HD23	40:l:11:LEU:HA	1.86	0.41
44:p:10:VAL:HG23	44:p:56:LEU:HD22	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:h:356:G:H4'	57:h:358:G:C6	2.56	0.41
57:h:580:G:H2'	57:h:581:G:O4'	2.20	0.41
57:h:800:A:C8	57:h:888:U:C4	3.08	0.41
4:6:47:ARG:HH21	57:h:2401:U:H5"	1.86	0.41
5:A:224:U:H2'	5:A:225:G:C8	2.55	0.41
5:A:617:G:C6	5:A:618:C:C4	3.09	0.41
5:A:736:C:H2'	5:A:737:U:C6	2.54	0.41
5:A:1231:A:H4'	13:I:90:GLY:N	2.35	0.41
8:D:92:ARG:NH2	8:D:128:PRO:HB2	2.35	0.41
9:E:87:LYS:O	9:E:90:GLU:HG3	2.21	0.41
17:M:82:ILE:HA	17:M:89:GLY:HA3	2.02	0.41
20:P:67:THR:OG1	20:P:69:PRO:HD2	2.21	0.41
37:i:135:ASN:N	37:i:135:ASN:OD1	2.52	0.41
39:k:50:HIS:O	39:k:50:HIS:ND1	2.43	0.41
39:k:61:GLY:HA3	39:k:80:ARG:HG2	2.02	0.41
40:l:144:MET:N	40:l:144:MET:SD	2.94	0.41
41:m:19:ILE:HG13	41:m:24:LEU:HD12	2.03	0.41
43:o:119:ASN:HA	44:p:41:ARG:HH21	1.85	0.41
51:w:63:GLU:OE2	51:w:103:ARG:NH1	2.54	0.41
56:1:97:ILE:HD13	56:1:97:ILE:HA	1.92	0.41
57:h:35:A:H2'	57:h:36:C:O4'	2.20	0.41
57:h:1485:C:H2'	57:h:1486:G:O4'	2.21	0.41
57:h:2096:G:H2'	57:h:2097:G:C8	2.55	0.41
1:2:9:G:C2	1:2:46:G:C6	3.09	0.41
5:A:30:A:H61	5:A:538:G:H1'	1.86	0.41
5:A:42:G:H2'	5:A:43:G:H5"	2.03	0.41
5:A:532:U:H1'	16:L:83:ARG:HG3	2.02	0.41
5:A:533:G:H4'	16:L:24:LEU:HD12	2.01	0.41
5:A:545:U:OP2	5:A:546:G:O2'	2.27	0.41
5:A:658:U:H2'	5:A:659:C:H6	1.86	0.41
5:A:812:G:C6	5:A:837:G:C5	3.08	0.41
5:A:926:G:N1	5:A:1320:G:OP2	2.54	0.41
5:A:1017:C:H2'	5:A:1018:C:C6	2.56	0.41
5:A:1018:C:H2'	5:A:1019:U:O4'	2.21	0.41
5:A:1158:G:H2'	5:A:1159:G:C8	2.56	0.41
6:B:110:G:H2'	6:B:111:C:C6	2.56	0.41
7:C:89:ASP:O	7:C:92:LYS:HB2	2.21	0.41
7:C:109:GLU:HG2	7:C:139:SER:OG	2.21	0.41
8:D:64:GLU:HA	8:D:67:PHE:HB2	2.01	0.41
8:D:67:PHE:O	8:D:70:TYR:HB2	2.21	0.41
9:E:105:THR:HG21	9:E:124:ALA:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:L:85:GLY:N	16:L:95:TYR:HA	2.36	0.41
29:Z:45:ARG:HG2	57:h:93:A:O2'	2.21	0.41
30:a:40:ASN:OD1	30:a:40:ASN:N	2.52	0.41
31:b:4:PRO:HG2	57:h:2240:U:O2	2.21	0.41
37:i:2:GLY:C	37:i:20:ASP:HB3	2.46	0.41
37:i:118:GLU:HG3	37:i:123:ALA:HB1	2.02	0.41
38:j:27:THR:HG21	38:j:198:ILE:HG12	2.03	0.41
39:k:3:LEU:HD12	39:k:3:LEU:HA	1.88	0.41
40:l:92:ILE:HD13	40:l:92:ILE:HA	1.81	0.41
40:l:139:LEU:HD23	40:l:139:LEU:HA	1.86	0.41
44:p:36:LEU:HB2	44:p:40:ARG:NH1	2.36	0.41
44:p:40:ARG:NE	44:p:49:TYR:HB3	2.35	0.41
55:5:31:ARG:NH2	55:5:182:LEU:HD13	2.36	0.41
56:1:93:LYS:HB3	56:1:93:LYS:HE3	1.89	0.41
57:h:165:U:H2'	57:h:166:A:C8	2.55	0.41
57:h:803:U:H2'	57:h:804:A:H8	1.86	0.41
57:h:971:G:H2'	57:h:972:A:C8	2.56	0.41
57:h:2096:G:H2'	57:h:2097:G:H8	1.86	0.41
57:h:2471:A:H2'	57:h:2472:C:H6	1.86	0.41
5:A:424:G:H2'	5:A:425:G:C8	2.51	0.41
5:A:439:U:C2	8:D:115:HIS:HD2	2.38	0.41
5:A:498:C:H5	5:A:509:G:H3'	1.86	0.41
5:A:522:G:P	8:D:10:ARG:HE	2.44	0.41
5:A:691:G:H2'	5:A:692:A:H8	1.86	0.41
5:A:1036:U:H5'	7:C:163:SER:OG	2.21	0.41
5:A:1069:G:H2'	5:A:1070:U:C6	2.56	0.41
5:A:1242:A:C6	5:A:1256:A:C8	3.09	0.41
5:A:1443:G:OP1	24:T:22:GLN:HG2	2.20	0.41
6:B:49:C:P	50:v:42:ARG:HH12	2.44	0.41
8:D:92:ARG:HH21	8:D:128:PRO:HB2	1.86	0.41
8:D:120:VAL:HG22	8:D:138:ILE:CG1	2.50	0.41
13:I:26:ILE:HG21	13:I:41:LEU:HB3	2.03	0.41
20:P:37:ILE:HD12	20:P:55:ARG:HB3	2.02	0.41
44:p:1:MET:HE1	44:p:6:LYS:HB3	2.03	0.41
47:s:65:LYS:HD2	57:h:2640:G:H5"	2.03	0.41
51:w:28:HIS:ND1	51:w:41:VAL:HG22	2.36	0.41
57:h:672:C:H2'	57:h:673:C:C6	2.55	0.41
57:h:929:C:H2'	57:h:930:C:C6	2.55	0.41
57:h:2553:G:H2'	57:h:2554:U:C6	2.56	0.41
4:6:76:ALA:HA	4:6:94:ILE:HB	2.03	0.40
5:A:43:G:N2	5:A:44:C:H1'	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:76:A:H2'	5:A:77:G:H8	1.84	0.40
5:A:120:G:H2'	5:A:121:U:H6	1.85	0.40
5:A:178:A:H61	5:A:208:G:H3'	1.86	0.40
5:A:245:C:N3	5:A:284:G:C6	2.90	0.40
5:A:659:C:H2'	5:A:660:C:C6	2.56	0.40
6:B:26:A:H2'	6:B:27:A:C8	2.56	0.40
6:B:50:C:H2'	6:B:51:G:H8	1.85	0.40
7:C:174:PRO:HB2	7:C:177:THR:HB	2.03	0.40
11:G:9:LYS:HD3	11:G:10:ARG:O	2.21	0.40
11:G:120:LEU:O	11:G:124:ILE:HG22	2.21	0.40
12:H:51:THR:OG1	12:H:52:GLU:N	2.54	0.40
21:Q:72:ASP:C	21:Q:72:ASP:OD1	2.64	0.40
23:S:40:ILE:HG22	23:S:67:VAL:HA	2.04	0.40
24:T:15:GLU:O	24:T:19:LEU:HG	2.20	0.40
36:g:20:HIS:CE1	36:g:22:PHE:HE1	2.38	0.40
36:g:26:SER:OG	36:g:27:THR:N	2.54	0.40
37:i:69:ARG:H	37:i:69:ARG:HG2	1.57	0.40
38:j:160:VAL:HG21	57:h:2842:G:N3	2.35	0.40
53:y:53:ASP:OD1	53:y:53:ASP:N	2.53	0.40
55:5:104:GLN:HG3	55:5:185:VAL:HG11	2.03	0.40
57:h:443:C:H2'	57:h:444:U:O4'	2.21	0.40
57:h:601:A:N3	57:h:673:C:O2'	2.47	0.40
57:h:978:A:H2'	57:h:979:G:C8	2.56	0.40
57:h:1287:C:H2'	57:h:1288:A:H8	1.86	0.40
57:h:1543:A:N1	57:h:1628:A:O2'	2.44	0.40
4:6:192:ALA:O	4:6:196:VAL:HG12	2.22	0.40
5:A:377:G:H2'	5:A:378:G:H8	1.86	0.40
5:A:536:C:H2'	5:A:537:G:H8	1.86	0.40
5:A:586:G:H3'	5:A:611:G:H21	1.86	0.40
5:A:681:C:H4'	5:A:683:G:C2	2.56	0.40
5:A:985:G:H2'	5:A:986:G:C8	2.57	0.40
5:A:1061:G:C4	5:A:1062:A:C8	3.08	0.40
5:A:1115:G:H1'	5:A:1121:G:C2	2.56	0.40
8:D:71:TYR:CZ	8:D:199:TYR:HB3	2.56	0.40
8:D:86:LEU:HD21	8:D:190:LEU:HD21	2.03	0.40
14:J:87:LEU:HD23	14:J:87:LEU:HA	1.91	0.40
17:M:17:ILE:HD13	17:M:17:ILE:HA	1.88	0.40
22:R:72:ARG:HB3	22:R:79:PHE:CE1	2.56	0.40
26:W:117:ASP:N	26:W:149:GLU:OE2	2.32	0.40
36:g:25:ARG:HD3	40:l:105:GLU:OE1	2.21	0.40
40:l:73:GLU:HG2	40:l:95:ARG:HG2	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:s:106:LYS:NZ	57:h:714:U:O2'	2.54	0.40
51:w:18:THR:O	51:w:18:THR:OG1	2.38	0.40
55:5:36:MET:O	55:5:87:LEU:HD21	2.20	0.40
57:h:980:C:H1'	57:h:982:A:C6	2.56	0.40
57:h:998:G:H22	57:h:1010:U:H1'	1.87	0.40
57:h:1195:A:N1	57:h:1206:A:O2'	2.48	0.40
57:h:1403:C:H5	57:h:1441:C:N3	2.20	0.40
57:h:1634:C:H2'	57:h:1635:A:H5'	2.02	0.40
57:h:2343:G:O2'	57:h:2344:G:H5'	2.22	0.40
57:h:2652:G:H5"	57:h:2653:G:O5'	2.21	0.40
5:A:39:G:O2'	16:L:118:GLY:HA2	2.22	0.40
5:A:730:C:H2'	5:A:731:U:C6	2.56	0.40
5:A:890:A:H2'	5:A:891:A:H8	1.85	0.40
5:A:1395:C:H2'	5:A:1396:A:H8	1.86	0.40
7:C:207:ILE:HD13	7:C:207:ILE:HA	1.90	0.40
11:G:62:LEU:HD12	11:G:66:LEU:CD2	2.50	0.40
20:P:49:ILE:HD13	20:P:73:LEU:HD22	2.03	0.40
20:P:74:LEU:HG	20:P:80:TRP:N	2.36	0.40
24:T:31:ALA:HB2	24:T:57:LYS:HE2	2.04	0.40
36:g:22:PHE:HE2	40:l:113:ILE:HD11	1.87	0.40
39:k:101:ARG:O	57:h:774:G:H4'	2.22	0.40
40:l:67:ILE:HG23	40:l:148:ILE:HD11	2.04	0.40
52:x:109:LEU:HD23	52:x:109:LEU:HA	1.93	0.40
54:z:90:LYS:NZ	57:h:1376:C:OP2	2.45	0.40
57:h:639:C:HO2'	57:h:640:G:H8	1.69	0.40
57:h:1659:U:H2'	57:h:1660:A:H8	1.85	0.40
5:A:156:G:H1'	5:A:159:A:N6	2.36	0.40
5:A:414:A:N6	5:A:431:A:H1'	2.35	0.40
5:A:743:G:H2'	5:A:744:C:C6	2.57	0.40
5:A:967:C:C2	5:A:1202:G:N2	2.89	0.40
5:A:995:A:H2'	5:A:996:G:C8	2.55	0.40
5:A:1229:A:H4'	13:I:53:ARG:NH1	2.37	0.40
5:A:1289:U:H2'	5:A:1290:C:C6	2.56	0.40
5:A:1478:G:C8	57:h:2137:A:H2	2.39	0.40
6:B:37:C:N3	6:B:50:C:O2'	2.48	0.40
8:D:98:TYR:CD1	8:D:105:THR:C	2.99	0.40
9:E:63:ILE:HG21	9:E:139:VAL:HG22	2.03	0.40
14:J:8:ILE:HB	14:J:74:ILE:HB	2.04	0.40
14:J:91:ASP:OD1	14:J:92:LEU:N	2.54	0.40
26:W:105:LYS:HD3	26:W:105:LYS:HA	1.93	0.40
40:l:11:LEU:HD12	40:l:108:ASP:HB2	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:l:71:LYS:HA	40:l:72:PRO:HD3	1.93	0.40
48:t:47:ILE:HD12	48:t:70:PRO:HG3	2.02	0.40
56:1:75:ASP:OD1	56:1:76:SER:N	2.48	0.40
57:h:1400:G:N2	57:h:1443:G:H5"	2.36	0.40
57:h:2399:A:H2'	57:h:2400:C:H6	1.86	0.40
57:h:2581:G:H8	57:h:2581:G:OP2	2.04	0.40
5:A:37:A:H5"	5:A:364:A:O4'	2.22	0.40
5:A:143:G:C2	5:A:174:G:C6	3.09	0.40
5:A:438:U:O4	5:A:474:G:C4	2.74	0.40
5:A:492:U:H4'	8:D:36:HIS:CE1	2.56	0.40
5:A:1100:U:H2'	5:A:1101:C:C6	2.57	0.40
6:B:78:U:P	26:W:28:ARG:HH22	2.44	0.40
30:a:23:LEU:HD23	30:a:23:LEU:HA	1.97	0.40
34:e:47:ARG:HH22	57:h:725:A:P	2.45	0.40
37:i:21:PHE:HB3	37:i:24:ILE:HG13	2.03	0.40
40:l:18:GLU:HA	40:l:21:GLU:OE2	2.22	0.40
48:t:71:ASP:OD1	48:t:71:ASP:N	2.50	0.40
55:5:104:GLN:CB	55:5:110:ARG:NH2	2.85	0.40
57:h:606:U:H2'	57:h:607:G:C8	2.56	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	3	21/24 (88%)	20 (95%)	1 (5%)	0	100	100
4	6	230/235 (98%)	216 (94%)	13 (6%)	1 (0%)	30	67
7	C	206/275 (75%)	195 (95%)	11 (5%)	0	100	100
8	D	198/201 (98%)	182 (92%)	16 (8%)	0	100	100
9	E	178/214 (83%)	167 (94%)	11 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	F	94/96 (98%)	90 (96%)	4 (4%)	0	100	100
11	G	153/156 (98%)	151 (99%)	2 (1%)	0	100	100
12	H	129/132 (98%)	127 (98%)	2 (2%)	0	100	100
13	I	124/150 (83%)	114 (92%)	10 (8%)	0	100	100
14	J	97/101 (96%)	92 (95%)	5 (5%)	0	100	100
15	K	113/138 (82%)	108 (96%)	5 (4%)	0	100	100
16	L	120/124 (97%)	112 (93%)	8 (7%)	0	100	100
17	M	114/124 (92%)	108 (95%)	6 (5%)	0	100	100
18	N	58/61 (95%)	53 (91%)	5 (9%)	0	100	100
19	O	86/89 (97%)	84 (98%)	2 (2%)	0	100	100
20	P	111/156 (71%)	103 (93%)	8 (7%)	0	100	100
21	Q	92/98 (94%)	90 (98%)	2 (2%)	0	100	100
22	R	63/84 (75%)	60 (95%)	3 (5%)	0	100	100
23	S	80/93 (86%)	79 (99%)	1 (1%)	0	100	100
24	T	83/86 (96%)	83 (100%)	0	0	100	100
25	U	95/100 (95%)	92 (97%)	3 (3%)	0	100	100
26	W	190/215 (88%)	184 (97%)	6 (3%)	0	100	100
27	X	77/88 (88%)	72 (94%)	5 (6%)	0	100	100
28	Y	61/64 (95%)	60 (98%)	1 (2%)	0	100	100
29	Z	62/77 (80%)	61 (98%)	1 (2%)	0	100	100
30	a	57/61 (93%)	54 (95%)	3 (5%)	0	100	100
31	b	52/57 (91%)	52 (100%)	0	0	100	100
32	c	47/55 (86%)	45 (96%)	2 (4%)	0	100	100
33	d	44/47 (94%)	44 (100%)	0	0	100	100
34	e	61/64 (95%)	61 (100%)	0	0	100	100
35	f	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
36	g	46/75 (61%)	42 (91%)	4 (9%)	0	100	100
37	i	273/278 (98%)	262 (96%)	11 (4%)	0	100	100
38	j	212/217 (98%)	201 (95%)	11 (5%)	0	100	100
39	k	207/215 (96%)	201 (97%)	6 (3%)	0	100	100
40	l	180/187 (96%)	176 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
41	m	174/179 (97%)	172 (99%)	2 (1%)	0	100	100
42	n	149/151 (99%)	142 (95%)	7 (5%)	0	100	100
43	o	131/142 (92%)	123 (94%)	8 (6%)	0	100	100
44	p	124/175 (71%)	120 (97%)	4 (3%)	0	100	100
45	q	144/147 (98%)	142 (99%)	2 (1%)	0	100	100
46	r	120/122 (98%)	115 (96%)	5 (4%)	0	100	100
47	s	143/147 (97%)	132 (92%)	11 (8%)	0	100	100
48	t	134/138 (97%)	128 (96%)	6 (4%)	0	100	100
49	u	116/199 (58%)	111 (96%)	5 (4%)	0	100	100
50	v	124/127 (98%)	124 (100%)	0	0	100	100
51	w	111/113 (98%)	102 (92%)	9 (8%)	0	100	100
52	x	122/129 (95%)	122 (100%)	0	0	100	100
53	y	98/103 (95%)	95 (97%)	3 (3%)	0	100	100
54	z	112/153 (73%)	108 (96%)	4 (4%)	0	100	100
55	5	183/185 (99%)	172 (94%)	9 (5%)	2 (1%)	11	45
56	1	93/105 (89%)	89 (96%)	4 (4%)	0	100	100
All	All	6127/6789 (90%)	5872 (96%)	252 (4%)	3 (0%)	100	100

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
55	5	183	LEU
55	5	180	SER
4	6	231	ASN

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	3	18/19 (95%)	18 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	6	181/184 (98%)	178 (98%)	3 (2%)	53 68
7	C	170/212 (80%)	170 (100%)	0	100 100
8	D	175/176 (99%)	167 (95%)	8 (5%)	24 45
9	E	127/147 (86%)	126 (99%)	1 (1%)	73 78
10	F	85/85 (100%)	85 (100%)	0	100 100
11	G	131/132 (99%)	130 (99%)	1 (1%)	73 78
12	H	107/108 (99%)	107 (100%)	0	100 100
13	I	102/125 (82%)	102 (100%)	0	100 100
14	J	89/90 (99%)	89 (100%)	0	100 100
15	K	89/105 (85%)	88 (99%)	1 (1%)	65 74
16	L	103/105 (98%)	101 (98%)	2 (2%)	50 66
17	M	99/104 (95%)	99 (100%)	0	100 100
18	N	49/50 (98%)	49 (100%)	0	100 100
19	O	76/77 (99%)	76 (100%)	0	100 100
20	P	92/118 (78%)	92 (100%)	0	100 100
21	Q	80/83 (96%)	80 (100%)	0	100 100
22	R	55/72 (76%)	55 (100%)	0	100 100
23	S	73/84 (87%)	73 (100%)	0	100 100
24	T	69/70 (99%)	69 (100%)	0	100 100
25	U	83/85 (98%)	83 (100%)	0	100 100
26	W	155/168 (92%)	155 (100%)	0	100 100
27	X	58/63 (92%)	58 (100%)	0	100 100
28	Y	50/51 (98%)	50 (100%)	0	100 100
29	Z	58/66 (88%)	58 (100%)	0	100 100
30	a	52/54 (96%)	52 (100%)	0	100 100
31	b	43/46 (94%)	43 (100%)	0	100 100
32	c	47/52 (90%)	47 (100%)	0	100 100
33	d	35/36 (97%)	35 (100%)	0	100 100
34	e	53/54 (98%)	53 (100%)	0	100 100
35	f	35/35 (100%)	35 (100%)	0	100 100
36	g	43/63 (68%)	43 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
37	i	215/218 (99%)	214 (100%)	1 (0%)	81 82
38	j	160/163 (98%)	160 (100%)	0	100 100
39	k	169/173 (98%)	169 (100%)	0	100 100
40	l	151/156 (97%)	150 (99%)	1 (1%)	76 80
41	m	148/150 (99%)	147 (99%)	1 (1%)	76 80
42	n	90/116 (78%)	89 (99%)	1 (1%)	65 74
43	o	102/108 (94%)	101 (99%)	1 (1%)	68 77
44	p	89/120 (74%)	89 (100%)	0	100 100
45	q	119/120 (99%)	117 (98%)	2 (2%)	53 68
46	r	100/100 (100%)	100 (100%)	0	100 100
47	s	112/114 (98%)	112 (100%)	0	100 100
48	t	114/116 (98%)	114 (100%)	0	100 100
49	u	97/158 (61%)	97 (100%)	0	100 100
50	v	93/94 (99%)	93 (100%)	0	100 100
51	w	100/100 (100%)	100 (100%)	0	100 100
52	x	97/99 (98%)	97 (100%)	0	100 100
53	y	81/83 (98%)	81 (100%)	0	100 100
54	z	90/117 (77%)	90 (100%)	0	100 100
55	5	160/160 (100%)	153 (96%)	7 (4%)	25 46
56	1	81/86 (94%)	81 (100%)	0	100 100
All	All	5050/5470 (92%)	5020 (99%)	30 (1%)	76 82

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	6	80	VAL
4	6	187	GLU
4	6	229	THR
8	D	24	GLN
8	D	51	GLN
8	D	66	GLN
8	D	67	PHE
8	D	134	GLN
8	D	141	LYS
8	D	151	GLN

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Mol	Chain	Res	Type
8	D	186	ILE
9	E	140	LEU
11	G	156	TRP
15	K	73	GLN
16	L	33	VAL
16	L	98	ILE
37	i	73	ASP
40	l	34	GLN
41	m	176	LYS
42	n	104	ILE
43	o	15	ILE
45	q	37	ARG
45	q	99	ARG
55	5	178	LYS
55	5	179	GLU
55	5	181	GLU
55	5	182	LEU
55	5	183	LEU
55	5	184	GLU
55	5	185	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (61) such sidechains are listed below:

Mol	Chain	Res	Type
4	6	154	GLN
4	6	170	ASN
7	C	101	ASN
7	C	113	GLN
7	C	125	ASN
8	D	35	GLN
8	D	48	GLN
8	D	51	GLN
8	D	66	GLN
8	D	75	ASN
8	D	77	GLN
8	D	111	GLN
8	D	134	GLN
8	D	151	GLN
8	D	178	HIS
10	F	80	ASN
11	G	122	ASN
13	I	146	GLN

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Mol	Chain	Res	Type
14	J	56	HIS
25	U	41	GLN
26	W	169	ASN
29	Z	31	ASN
29	Z	52	GLN
30	a	33	GLN
34	e	55	ASN
37	i	91	ASN
37	i	198	ASN
37	i	245	HIS
39	k	91	HIS
39	k	134	GLN
39	k	182	GLN
40	l	34	GLN
41	m	86	GLN
42	n	11	HIS
43	o	19	GLN
43	o	21	ASN
43	o	32	GLN
43	o	33	HIS
43	o	36	ASN
43	o	45	ASN
44	p	16	GLN
44	p	35	ASN
45	q	58	ASN
45	q	136	GLN
45	q	144	GLN
47	s	69	ASN
48	t	14	HIS
49	u	61	HIS
49	u	62	ASN
49	u	77	HIS
50	v	53	ASN
51	w	28	HIS
51	w	79	ASN
52	x	39	GLN
55	5	41	ASN
55	5	84	ASN
55	5	90	ASN
55	5	116	GLN
55	5	130	ASN
55	5	177	HIS

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Mol	Chain	Res	Type
56	1	62	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	76/77 (98%)	23 (30%)	0
3	4	2/3 (66%)	0	0
5	A	1510/1528 (98%)	383 (25%)	20 (1%)
57	h	3082/3120 (98%)	603 (19%)	0
6	B	117/118 (99%)	17 (14%)	1 (0%)
All	All	4787/4846 (98%)	1026 (21%)	21 (0%)

All (1026) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	4	G
1	2	5	G
1	2	17	C
1	2	19	G
1	2	20	G
1	2	21	U
1	2	22	A
1	2	34	U
1	2	35	C
1	2	39	A
1	2	40	C
1	2	41	C
1	2	48	U
1	2	49	C
1	2	53	G
1	2	54	G
1	2	57	C
1	2	62	C
1	2	64	G
1	2	68	C
1	2	69	C
1	2	74	A
1	2	77	A
5	A	9	U
5	A	11	G
5	A	12	A

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Mol	Chain	Res	Type
5	A	13	G
5	A	36	A
5	A	37	A
5	A	40	C
5	A	43	G
5	A	51	C
5	A	52	U
5	A	53	U
5	A	54	A
5	A	55	A
5	A	58	C
5	A	59	A
5	A	61	G
5	A	62	C
5	A	67	C
5	A	70	A
5	A	72	G
5	A	77	G
5	A	81	C
5	A	82	U
5	A	85	C
5	A	86	G
5	A	87	G
5	A	93	C
5	A	116	A
5	A	117	C
5	A	118	A
5	A	126	G
5	A	127	A
5	A	128	U
5	A	144	G
5	A	145	G
5	A	146	A
5	A	147	U
5	A	154	G
5	A	157	A
5	A	164	G
5	A	168	A
5	A	170	U
5	A	174	G
5	A	178	A
5	A	179	C

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Mol	Chain	Res	Type
5	A	180	A
5	A	181	C
5	A	183	C
5	A	192	G
5	A	193	C
5	A	194	A
5	A	196	G
5	A	201	G
5	A	210	A
5	A	211	A
5	A	215	U
5	A	217	U
5	A	218	G
5	A	220	G
5	A	231	G
5	A	243	A
5	A	245	C
5	A	247	G
5	A	251	G
5	A	252	U
5	A	254	G
5	A	266	G
5	A	267	C
5	A	279	A
5	A	280	C
5	A	281	G
5	A	288	A
5	A	289	G
5	A	293	G
5	A	306	A
5	A	311	C
5	A	321	A
5	A	329	A
5	A	332	G
5	A	341	C
5	A	344	A
5	A	345	C
5	A	346	G
5	A	347	G
5	A	349	A
5	A	351	G
5	A	352	C

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Mol	Chain	Res	Type
5	A	353	A
5	A	354	G
5	A	356	A
5	A	362	G
5	A	364	A
5	A	367	U
5	A	371	A
5	A	372	C
5	A	373	A
5	A	378	G
5	A	392	C
5	A	397	A
5	A	398	C
5	A	404	G
5	A	406	G
5	A	411	A
5	A	414	A
5	A	421	U
5	A	422	C
5	A	423	G
5	A	424	G
5	A	426	U
5	A	428	G
5	A	429	U
5	A	430	A
5	A	433	C
5	A	437	U
5	A	438	U
5	A	439	U
5	A	440	C
5	A	448	A
5	A	449	C
5	A	450	G
5	A	451	A
5	A	452	A
5	A	453	G
5	A	456	C
5	A	457	A
5	A	458	A
5	A	461	G
5	A	465	G
5	A	466	U

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Mol	Chain	Res	Type
5	A	469	G
5	A	475	A
5	A	476	A
5	A	477	G
5	A	478	A
5	A	479	A
5	A	486	G
5	A	488	C
5	A	491	C
5	A	492	U
5	A	493	A
5	A	494	C
5	A	497	G
5	A	498	C
5	A	499	C
5	A	501	G
5	A	507	G
5	A	509	G
5	A	511	U
5	A	512	A
5	A	513	A
5	A	520	G
5	A	524	C
5	A	527	A
5	A	542	U
5	A	544	C
5	A	553	A
5	A	555	G
5	A	556	A
5	A	557	G
5	A	576	C
5	A	585	U
5	A	586	G
5	A	587	A
5	A	596	A
5	A	599	U
5	A	603	C
5	A	607	G
5	A	611	G
5	A	613	G
5	A	633	A
5	A	645	G

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Mol	Chain	Res	Type
5	A	666	U
5	A	667	A
5	A	668	G
5	A	670	G
5	A	682	A
5	A	683	G
5	A	694	G
5	A	697	C
5	A	700	C
5	A	701	G
5	A	702	G
5	A	703	U
5	A	704	G
5	A	710	G
5	A	711	G
5	A	728	A
5	A	735	G
5	A	746	A
5	A	761	A
5	A	765	G
5	A	773	U
5	A	774	A
5	A	790	C
5	A	795	A
5	A	797	C
5	A	798	G
5	A	804	U
5	A	808	A
5	A	812	G
5	A	822	U
5	A	823	U
5	A	824	C
5	A	826	U
5	A	827	U
5	A	828	G
5	A	829	G
5	A	840	G
5	A	841	U
5	A	854	A
5	A	866	U
5	A	884	G
5	A	896	A

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Mol	Chain	Res	Type
5	A	898	G
5	A	899	G
5	A	903	U
5	A	904	G
5	A	908	G
5	A	909	G
5	A	912	C
5	A	914	C
5	A	916	C
5	A	917	A
5	A	918	C
5	A	942	U
5	A	943	U
5	A	947	U
5	A	948	G
5	A	950	A
5	A	951	A
5	A	953	G
5	A	956	A
5	A	957	A
5	A	959	A
5	A	960	A
5	A	964	U
5	A	971	G
5	A	973	U
5	A	974	U
5	A	975	G
5	A	976	A
5	A	981	C
5	A	982	A
5	A	985	G
5	A	989	G
5	A	990	C
5	A	991	C
5	A	1003	C
5	A	1005	G
5	A	1006	U
5	A	1007	U
5	A	1008	C
5	A	1009	C
5	A	1011	U
5	A	1012	U

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Mol	Chain	Res	Type
5	A	1013	G
5	A	1014	U
5	A	1016	G
5	A	1020	G
5	A	1022	G
5	A	1024	G
5	A	1028	G
5	A	1033	G
5	A	1034	C
5	A	1035	A
5	A	1036	U
5	A	1044	G
5	A	1045	U
5	A	1048	G
5	A	1050	U
5	A	1074	G
5	A	1075	U
5	A	1079	G
5	A	1081	A
5	A	1093	C
5	A	1103	U
5	A	1104	G
5	A	1105	U
5	A	1110	A
5	A	1115	G
5	A	1116	U
5	A	1117	U
5	A	1118	A
5	A	1120	G
5	A	1121	G
5	A	1127	A
5	A	1129	U
5	A	1133	G
5	A	1139	C
5	A	1140	U
5	A	1141	G
5	A	1148	U
5	A	1149	C
5	A	1150	A
5	A	1151	A
5	A	1165	G
5	A	1166	G

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Mol	Chain	Res	Type
5	A	1169	A
5	A	1177	A
5	A	1178	A
5	A	1181	C
5	A	1182	A
5	A	1189	C
5	A	1193	U
5	A	1202	G
5	A	1205	U
5	A	1206	U
5	A	1207	C
5	A	1208	A
5	A	1219	A
5	A	1221	U
5	A	1231	A
5	A	1232	A
5	A	1237	C
5	A	1238	U
5	A	1241	G
5	A	1248	U
5	A	1251	G
5	A	1252	G
5	A	1255	G
5	A	1261	A
5	A	1265	U
5	A	1266	U
5	A	1267	U
5	A	1268	C
5	A	1281	A
5	A	1283	U
5	A	1284	U
5	A	1285	C
5	A	1287	G
5	A	1294	G
5	A	1301	A
5	A	1302	C
5	A	1305	G
5	A	1306	A
5	A	1313	G
5	A	1318	C
5	A	1325	G
5	A	1328	A

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Mol	Chain	Res	Type
5	A	1329	G
5	A	1337	A
5	A	1338	G
5	A	1342	A
5	A	1343	G
5	A	1344	C
5	A	1347	C
5	A	1351	G
5	A	1357	A
5	A	1358	A
5	A	1362	G
5	A	1364	U
5	A	1375	G
5	A	1380	C
5	A	1381	A
5	A	1405	G
5	A	1421	G
5	A	1423	U
5	A	1425	G
5	A	1429	A
5	A	1431	C
5	A	1433	C
5	A	1434	U
5	A	1435	U
5	A	1436	G
5	A	1459	G
5	A	1471	G
5	A	1477	A
5	A	1478	G
5	A	1481	G
5	A	1483	A
5	A	1486	A
5	A	1488	G
5	A	1490	U
5	A	1496	U
5	A	1497	A
5	A	1501	G
5	A	1504	G
5	A	1507	G
5	A	1513	G
5	A	1514	G
5	A	1515	A

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Mol	Chain	Res	Type
5	A	1516	U
5	A	1517	C
6	B	4	A
6	B	5	C
6	B	9	G
6	B	11	U
6	B	12	C
6	B	13	C
6	B	30	G
6	B	42	C
6	B	57	U
6	B	58	A
6	B	67	A
6	B	87	U
6	B	89	C
6	B	90	G
6	B	103	G
6	B	107	A
6	B	114	A
57	h	3	A
57	h	7	U
57	h	9	U
57	h	12	G
57	h	20	G
57	h	31	U
57	h	48	G
57	h	60	A
57	h	68	A
57	h	71	A
57	h	72	G
57	h	82	G
57	h	89	A
57	h	90	C
57	h	94	G
57	h	95	C
57	h	98	U
57	h	99	G
57	h	115	A
57	h	116	A
57	h	117	U
57	h	125	C
57	h	148	A

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Mol	Chain	Res	Type
57	h	162	A
57	h	164	A
57	h	180	A
57	h	195	A
57	h	198	A
57	h	212	A
57	h	214	G
57	h	215	A
57	h	221	A
57	h	222	A
57	h	227	A
57	h	229	U
57	h	233	A
57	h	248	G
57	h	264	G
57	h	267	G
57	h	275	C
57	h	280	G
57	h	283	U
57	h	285	U
57	h	286	G
57	h	292	G
57	h	296	A
57	h	297	G
57	h	298	G
57	h	300	G
57	h	301	U
57	h	302	U
57	h	315	U
57	h	317	G
57	h	318	U
57	h	319	G
57	h	322	A
57	h	323	C
57	h	324	C
57	h	326	A
57	h	328	C
57	h	330	U
57	h	331	U
57	h	336	C
57	h	337	U
57	h	342	C

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Mol	Chain	Res	Type
57	h	344	G
57	h	345	G
57	h	348	G
57	h	351	G
57	h	352	G
57	h	357	U
57	h	358	G
57	h	361	A
57	h	364	A
57	h	369	G
57	h	370	U
57	h	384	G
57	h	393	U
57	h	412	A
57	h	413	G
57	h	424	G
57	h	434	G
57	h	438	U
57	h	445	U
57	h	446	G
57	h	447	A
57	h	448	U
57	h	449	G
57	h	450	G
57	h	452	G
57	h	453	U
57	h	454	U
57	h	460	G
57	h	471	C
57	h	474	G
57	h	489	A
57	h	490	A
57	h	493	U
57	h	494	G
57	h	498	G
57	h	512	G
57	h	523	U
57	h	539	C
57	h	542	A
57	h	543	U
57	h	544	U
57	h	566	A

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Mol	Chain	Res	Type
57	h	567	A
57	h	568	A
57	h	569	G
57	h	589	A
57	h	591	G
57	h	592	A
57	h	594	U
57	h	595	A
57	h	596	C
57	h	597	C
57	h	617	U
57	h	618	C
57	h	619	C
57	h	620	G
57	h	634	C
57	h	635	G
57	h	636	U
57	h	637	G
57	h	638	U
57	h	639	C
57	h	640	G
57	h	642	G
57	h	644	G
57	h	655	G
57	h	665	G
57	h	666	A
57	h	667	A
57	h	679	G
57	h	683	G
57	h	684	G
57	h	696	A
57	h	706	G
57	h	707	G
57	h	708	G
57	h	709	U
57	h	714	U
57	h	721	A
57	h	728	G
57	h	731	A
57	h	738	A
57	h	740	A
57	h	747	A

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Mol	Chain	Res	Type
57	h	753	A
57	h	755	A
57	h	756	A
57	h	757	G
57	h	758	A
57	h	759	G
57	h	760	U
57	h	766	G
57	h	768	G
57	h	784	G
57	h	785	A
57	h	801	U
57	h	819	G
57	h	830	A
57	h	845	C
57	h	855	C
57	h	862	U
57	h	863	G
57	h	868	C
57	h	872	G
57	h	878	G
57	h	879	A
57	h	880	G
57	h	890	G
57	h	891	G
57	h	897	A
57	h	899	G
57	h	900	G
57	h	904	A
57	h	907	A
57	h	917	A
57	h	920	G
57	h	927	C
57	h	942	U
57	h	960	G
57	h	961	U
57	h	972	A
57	h	974	G
57	h	975	U
57	h	981	U
57	h	982	A
57	h	997	G

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Mol	Chain	Res	Type
57	h	998	G
57	h	1001	C
57	h	1002	C
57	h	1003	A
57	h	1004	C
57	h	1005	A
57	h	1006	G
57	h	1007	G
57	h	1008	G
57	h	1011	A
57	h	1014	G
57	h	1025	A
57	h	1046	C
57	h	1047	A
57	h	1049	G
57	h	1051	G
57	h	1058	A
57	h	1063	G
57	h	1070	G
57	h	1076	A
57	h	1078	G
57	h	1085	G
57	h	1092	G
57	h	1098	A
57	h	1101	A
57	h	1103	C
57	h	1114	G
57	h	1130	C
57	h	1131	G
57	h	1140	G
57	h	1144	A
57	h	1151	U
57	h	1161	C
57	h	1164	A
57	h	1165	G
57	h	1174	G
57	h	1175	A
57	h	1178	U
57	h	1181	G
57	h	1184	U
57	h	1185	A
57	h	1186	G

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Mol	Chain	Res	Type
57	h	1188	A
57	h	1189	G
57	h	1191	A
57	h	1197	C
57	h	1199	U
57	h	1200	U
57	h	1202	A
57	h	1203	A
57	h	1205	G
57	h	1206	A
57	h	1207	G
57	h	1208	U
57	h	1212	U
57	h	1213	A
57	h	1219	U
57	h	1226	U
57	h	1230	G
57	h	1238	G
57	h	1240	G
57	h	1248	U
57	h	1250	U
57	h	1251	A
57	h	1253	C
57	h	1254	G
57	h	1260	C
57	h	1261	A
57	h	1262	A
57	h	1267	A
57	h	1292	U
57	h	1293	G
57	h	1335	G
57	h	1343	G
57	h	1344	A
57	h	1347	G
57	h	1353	G
57	h	1362	A
57	h	1368	A
57	h	1371	G
57	h	1384	G
57	h	1386	G
57	h	1387	A
57	h	1389	U

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Mol	Chain	Res	Type
57	h	1395	A
57	h	1396	G
57	h	1397	U
57	h	1399	A
57	h	1404	C
57	h	1415	A
57	h	1416	A
57	h	1436	C
57	h	1437	A
57	h	1440	C
57	h	1444	U
57	h	1456	G
57	h	1465	C
57	h	1474	A
57	h	1480	A
57	h	1494	U
57	h	1499	A
57	h	1502	G
57	h	1507	G
57	h	1508	A
57	h	1510	A
57	h	1522	G
57	h	1531	C
57	h	1533	U
57	h	1534	C
57	h	1540	U
57	h	1542	A
57	h	1547	G
57	h	1549	G
57	h	1550	G
57	h	1551	U
57	h	1553	C
57	h	1554	U
57	h	1556	A
57	h	1558	C
57	h	1564	A
57	h	1565	A
57	h	1567	C
57	h	1612	U
57	h	1623	U
57	h	1624	U
57	h	1625	G

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Mol	Chain	Res	Type
57	h	1628	A
57	h	1629	G
57	h	1630	U
57	h	1631	A
57	h	1632	G
57	h	1635	A
57	h	1639	G
57	h	1640	A
57	h	1641	U
57	h	1648	A
57	h	1649	C
57	h	1657	G
57	h	1670	G
57	h	1676	G
57	h	1679	A
57	h	1680	A
57	h	1681	U
57	h	1703	G
57	h	1711	G
57	h	1713	U
57	h	1716	A
57	h	1717	U
57	h	1724	G
57	h	1725	G
57	h	1726	C
57	h	1727	A
57	h	1728	U
57	h	1730	U
57	h	1731	A
57	h	1737	A
57	h	1738	G
57	h	1746	G
57	h	1753	C
57	h	1754	G
57	h	1755	A
57	h	1756	G
57	h	1757	U
57	h	1767	U
57	h	1768	C
57	h	1769	G
57	h	1786	G
57	h	1789	A

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Mol	Chain	Res	Type
57	h	1798	U
57	h	1802	G
57	h	1808	A
57	h	1809	U
57	h	1815	G
57	h	1826	A
57	h	1864	U
57	h	1866	C
57	h	1867	G
57	h	1870	U
57	h	1871	G
57	h	1872	A
57	h	1892	G
57	h	1895	A
57	h	1921	G
57	h	1933	G
57	h	1946	U
57	h	1947	U
57	h	1973	C
57	h	1974	A
57	h	1975	A
57	h	1981	U
57	h	1990	A
57	h	2001	A
57	h	2017	C
57	h	2018	G
57	h	2026	A
57	h	2033	U
57	h	2046	A
57	h	2065	A
57	h	2074	G
57	h	2075	G
57	h	2081	U
57	h	2085	C
57	h	2086	U
57	h	2088	C
57	h	2089	C
57	h	2090	U
57	h	2091	U
57	h	2092	U
57	h	2093	G
57	h	2094	G

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Mol	Chain	Res	Type
57	h	2095	G
57	h	2096	G
57	h	2102	G
57	h	2107	G
57	h	2125	A
57	h	2126	C
57	h	2129	C
57	h	2130	G
57	h	2137	A
57	h	2138	C
57	h	2141	U
57	h	2153	G
57	h	2154	G
57	h	2162	A
57	h	2163	U
57	h	2165	C
57	h	2179	U
57	h	2184	A
57	h	2190	A
57	h	2191	C
57	h	2194	A
57	h	2195	U
57	h	2196	G
57	h	2215	U
57	h	2216	G
57	h	2217	U
57	h	2221	A
57	h	2244	A
57	h	2247	A
57	h	2255	A
57	h	2256	G
57	h	2257	A
57	h	2263	G
57	h	2267	C
57	h	2276	G
57	h	2279	C
57	h	2280	G
57	h	2284	A
57	h	2285	G
57	h	2286	A
57	h	2316	G
57	h	2319	G

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Mol	Chain	Res	Type
57	h	2320	C
57	h	2325	U
57	h	2330	U
57	h	2332	U
57	h	2334	U
57	h	2335	G
57	h	2336	U
57	h	2337	A
57	h	2338	G
57	h	2339	G
57	h	2340	A
57	h	2341	U
57	h	2342	A
57	h	2344	G
57	h	2345	U
57	h	2346	G
57	h	2347	G
57	h	2348	G
57	h	2349	A
57	h	2353	U
57	h	2354	G
57	h	2356	G
57	h	2357	A
57	h	2368	C
57	h	2370	A
57	h	2372	U
57	h	2375	G
57	h	2380	G
57	h	2382	G
57	h	2383	U
57	h	2384	C
57	h	2385	G
57	h	2386	U
57	h	2387	U
57	h	2388	G
57	h	2390	U
57	h	2391	G
57	h	2392	A
57	h	2393	A
57	h	2394	A
57	h	2395	U
57	h	2396	A

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Mol	Chain	Res	Type
57	h	2402	C
57	h	2403	U
57	h	2404	G
57	h	2405	A
57	h	2406	U
57	h	2407	C
57	h	2410	A
57	h	2411	U
57	h	2413	G
57	h	2415	G
57	h	2416	C
57	h	2417	C
57	h	2421	A
57	h	2427	G
57	h	2434	A
57	h	2436	A
57	h	2447	G
57	h	2449	A
57	h	2462	G
57	h	2463	G
57	h	2467	U
57	h	2490	A
57	h	2507	C
57	h	2511	A
57	h	2512	A
57	h	2529	A
57	h	2531	G
57	h	2532	G
57	h	2533	C
57	h	2544	U
57	h	2546	A
57	h	2548	U
57	h	2549	G
57	h	2559	A
57	h	2571	C
57	h	2574	C
57	h	2581	G
57	h	2596	G
57	h	2607	G
57	h	2609	A
57	h	2627	C
57	h	2630	A

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Mol	Chain	Res	Type
57	h	2631	G
57	h	2640	G
57	h	2647	U
57	h	2649	A
57	h	2650	A
57	h	2653	G
57	h	2654	A
57	h	2655	U
57	h	2659	A
57	h	2665	C
57	h	2672	A
57	h	2677	A
57	h	2688	C
57	h	2693	A
57	h	2694	G
57	h	2699	C
57	h	2702	A
57	h	2705	G
57	h	2715	U
57	h	2726	G
57	h	2728	U
57	h	2729	G
57	h	2742	A
57	h	2744	C
57	h	2749	G
57	h	2753	G
57	h	2759	G
57	h	2786	U
57	h	2790	A
57	h	2791	G
57	h	2796	A
57	h	2797	C
57	h	2826	A
57	h	2827	G
57	h	2833	U
57	h	2837	U
57	h	2839	U
57	h	2853	C
57	h	2862	G
57	h	2865	G
57	h	2870	C
57	h	2881	A

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Mol	Chain	Res	Type
57	h	2887	G
57	h	2913	U
57	h	2926	A
57	h	2936	C
57	h	2938	G
57	h	2941	G
57	h	2950	C
57	h	2953	U
57	h	2957	A
57	h	2968	G
57	h	2972	A
57	h	2982	A
57	h	3002	A
57	h	3009	U
57	h	3014	A
57	h	3015	C
57	h	3020	U
57	h	3021	A
57	h	3022	G
57	h	3023	G
57	h	3029	U
57	h	3039	C
57	h	3042	A
57	h	3055	G
57	h	3056	A
57	h	3082	U
57	h	3088	C
57	h	3093	A
57	h	3101	C
57	h	3104	A
57	h	3105	C
57	h	3106	C
57	h	3114	A
57	h	3117	U

All (21) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
5	A	92	A
5	A	251	G
5	A	280	C
5	A	422	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
5	A	429	U
5	A	475	A
5	A	478	A
5	A	485	G
5	A	498	C
5	A	866	U
5	A	895	A
5	A	908	G
5	A	1011	U
5	A	1103	U
5	A	1109	C
5	A	1138	A
5	A	1149	C
5	A	1435	U
5	A	1477	A
5	A	1482	U
6	B	10	G

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 18 ligands modelled in this entry, 18 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

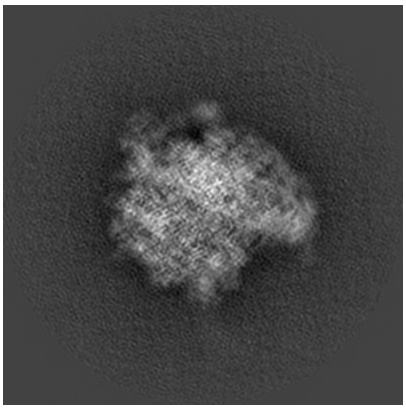
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-69698. These allow visual inspection of the internal detail of the map and identification of artifacts.

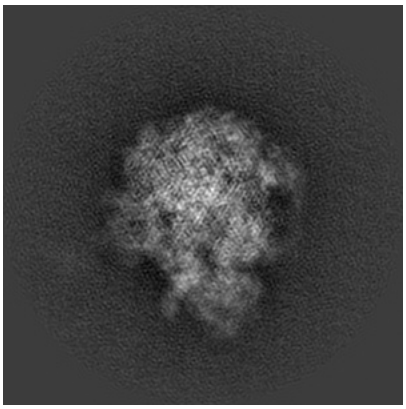
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

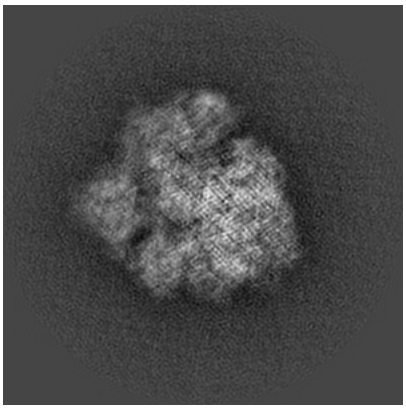
6.1.1 Primary map



X

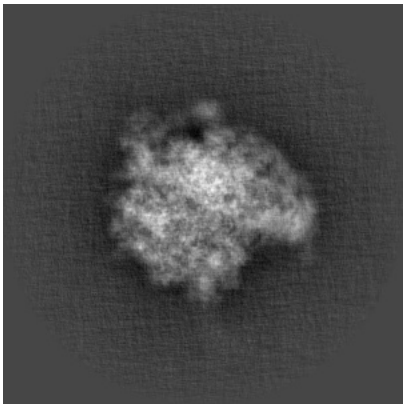


Y

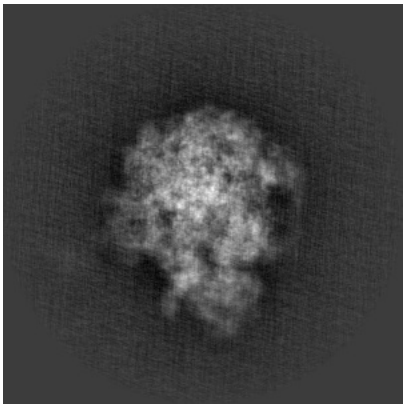


Z

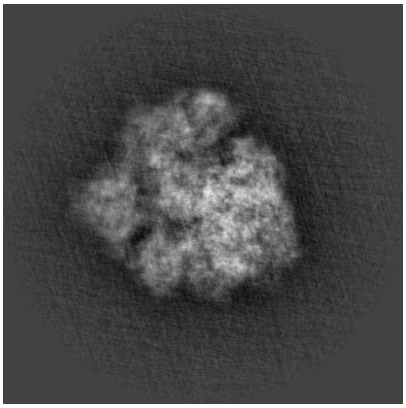
6.1.2 Raw map



X



Y

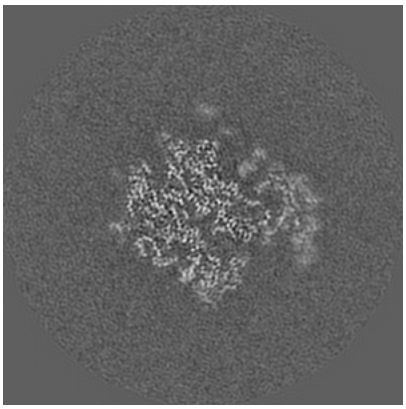


Z

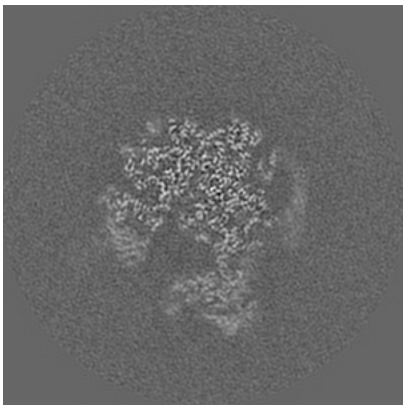
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

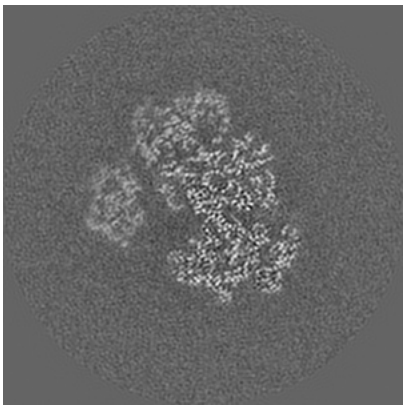
6.2.1 Primary map



X Index: 210

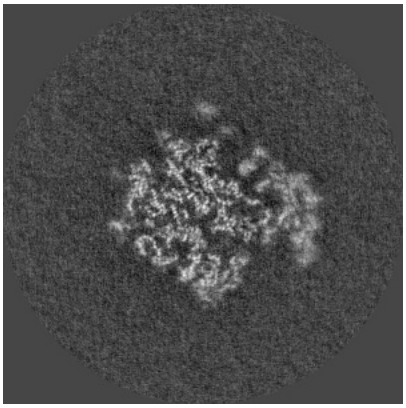


Y Index: 210

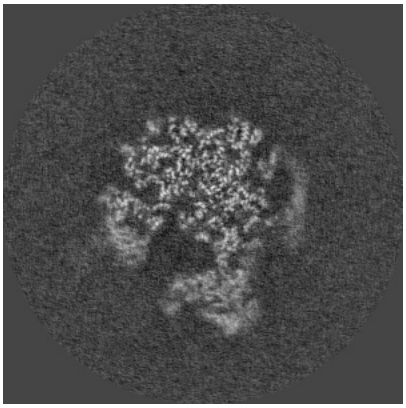


Z Index: 210

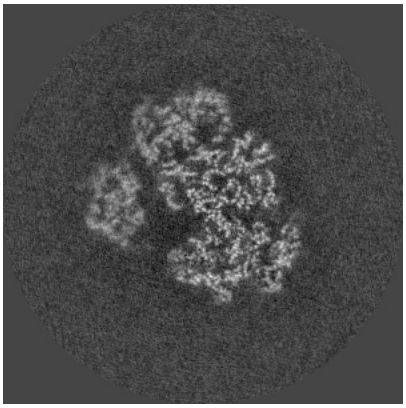
6.2.2 Raw map



X Index: 210



Y Index: 210

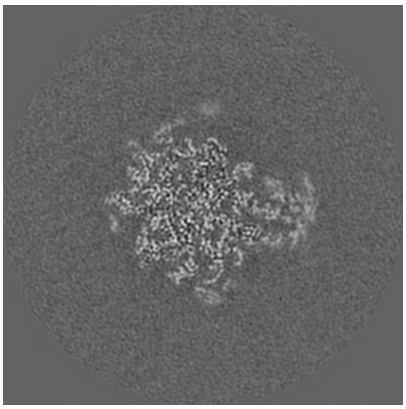


Z Index: 210

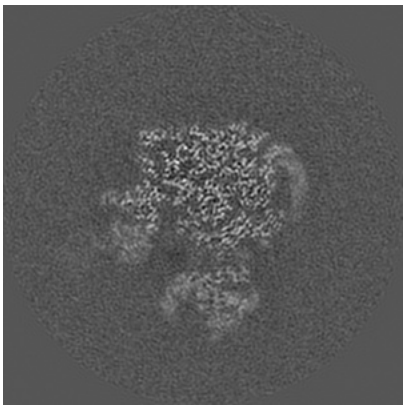
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

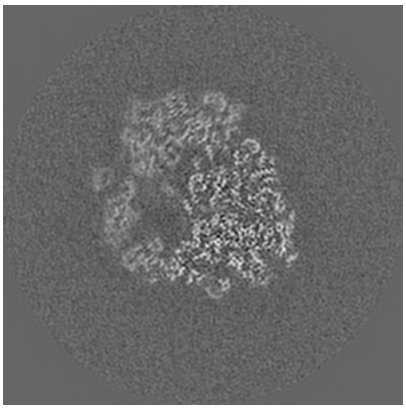
6.3.1 Primary map



X Index: 222

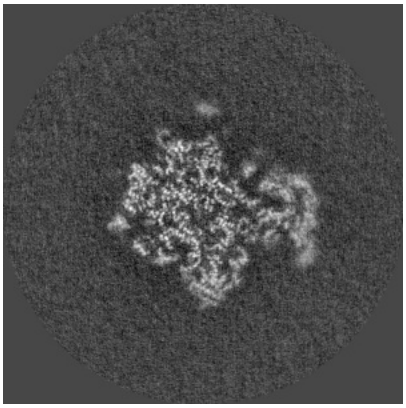


Y Index: 220

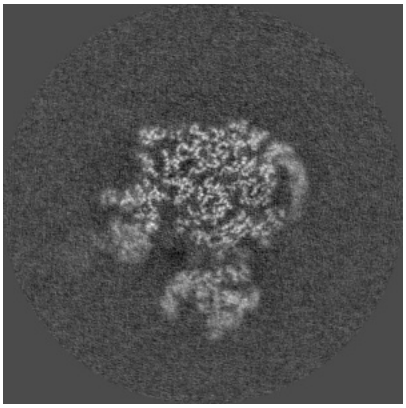


Z Index: 198

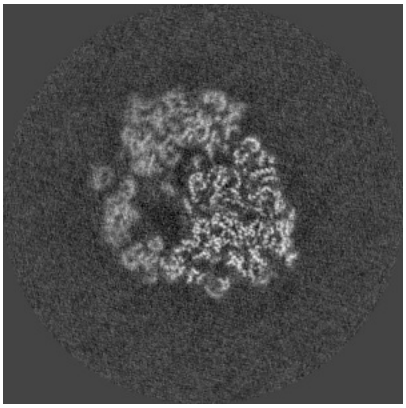
6.3.2 Raw map



X Index: 213



Y Index: 220

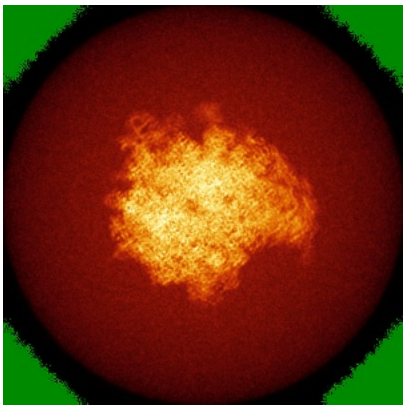


Z Index: 198

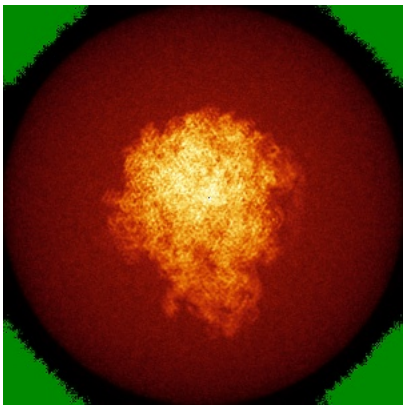
The images above show the largest variance slices of the map in three orthogonal directions.

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

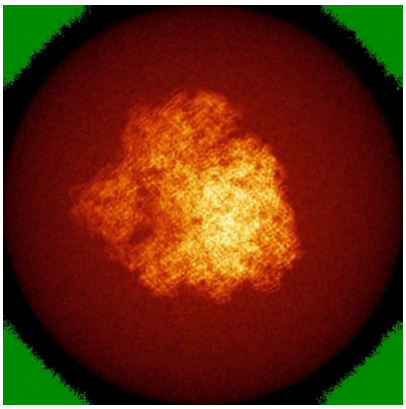
6.4.1 Primary map



X

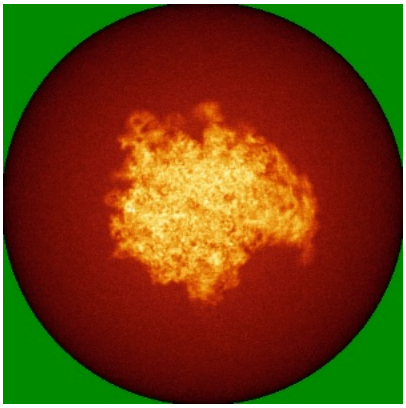


Y

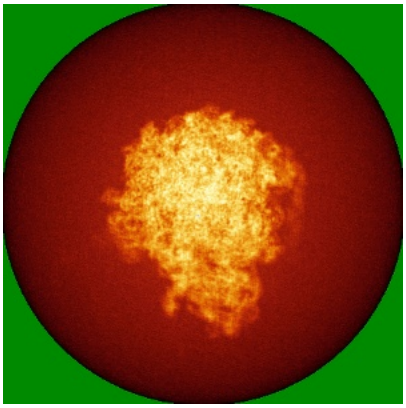


Z

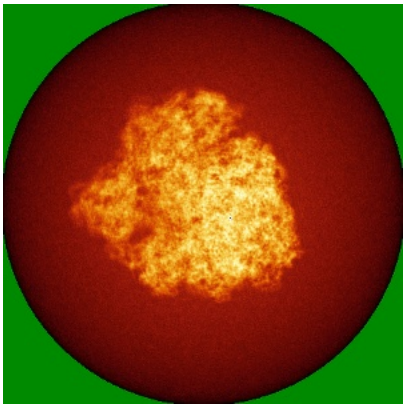
6.4.2 Raw map



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



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.024. 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



X Y Z

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

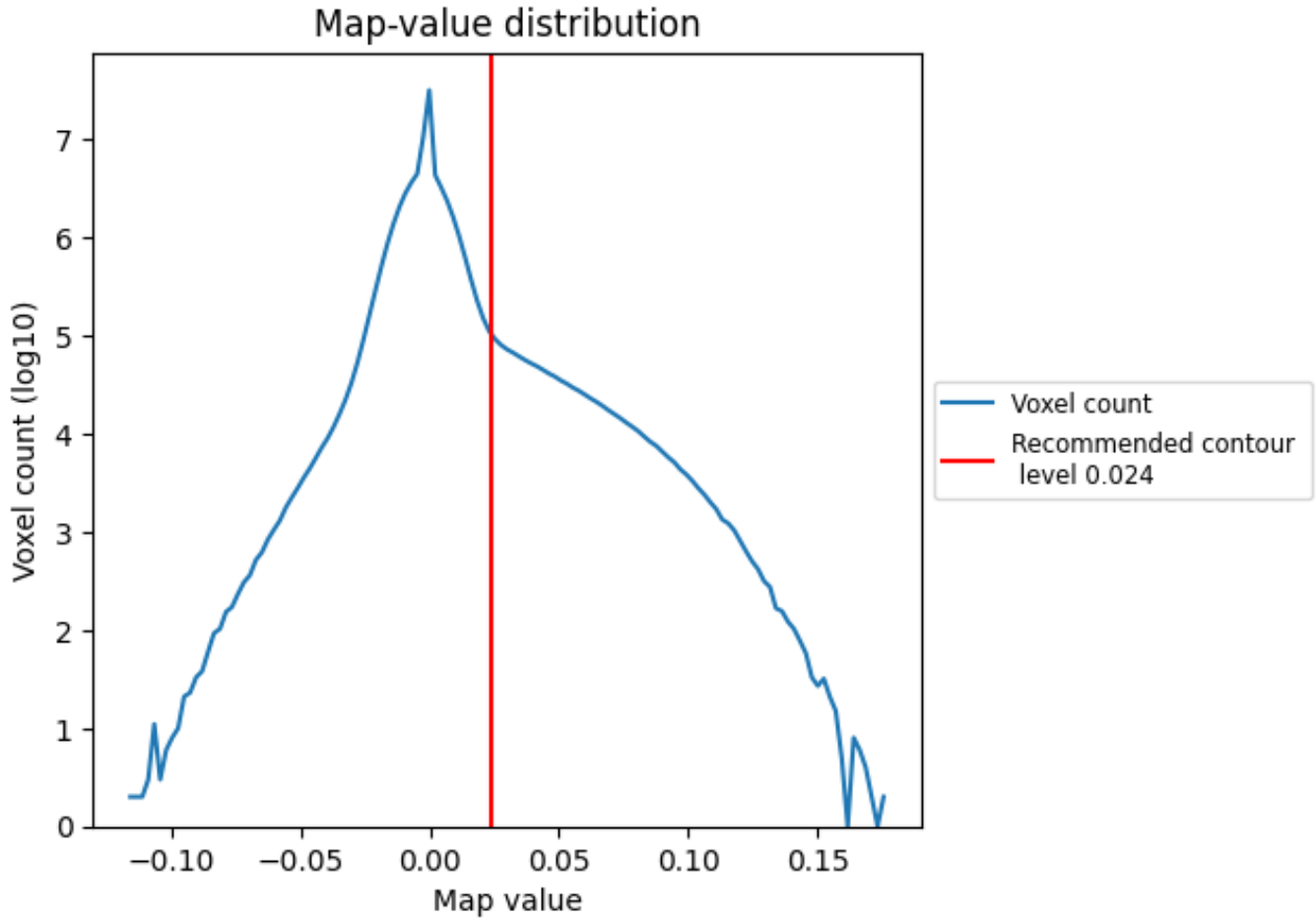
6.6 Mask visualisation (i)

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

7 Map analysis

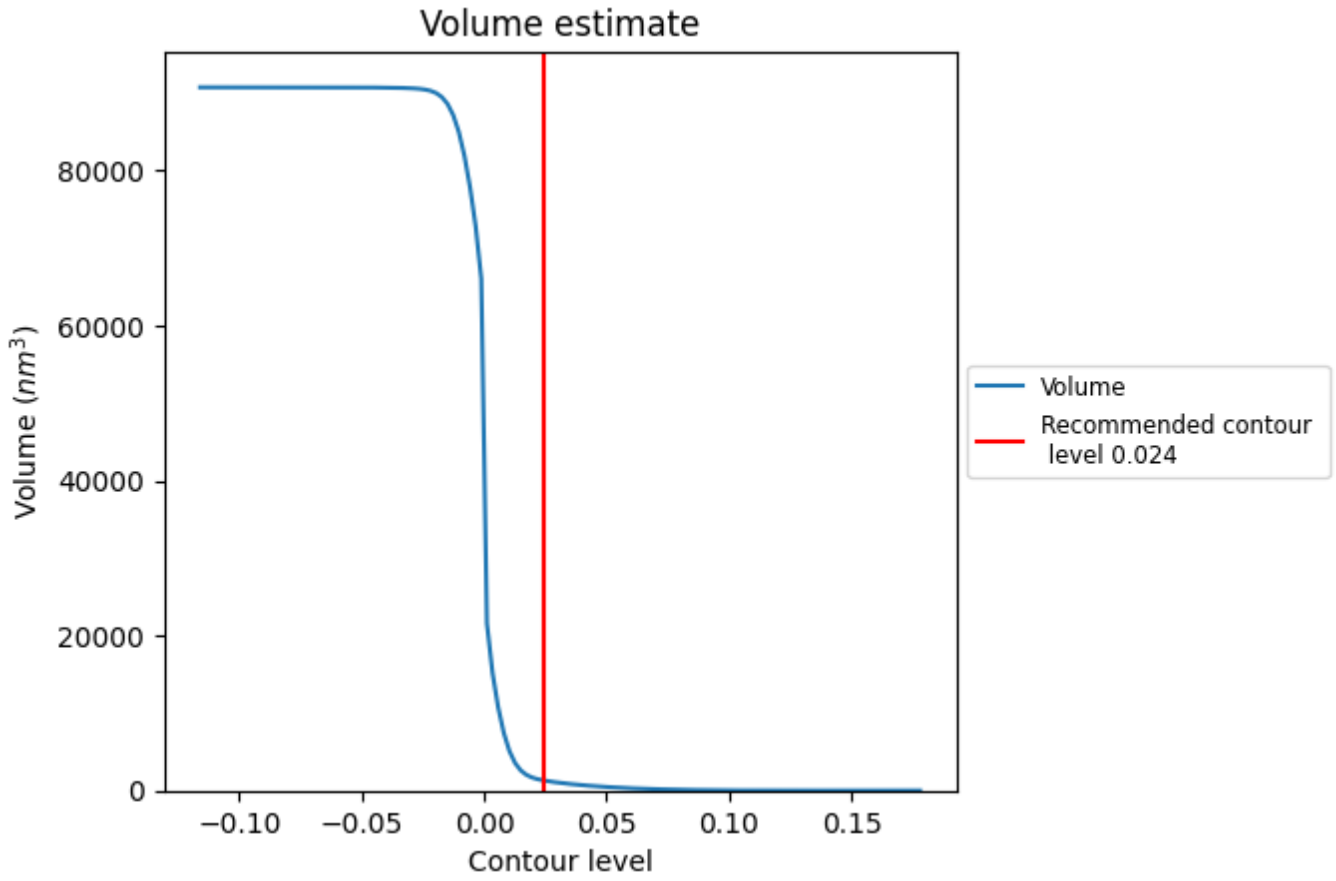
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

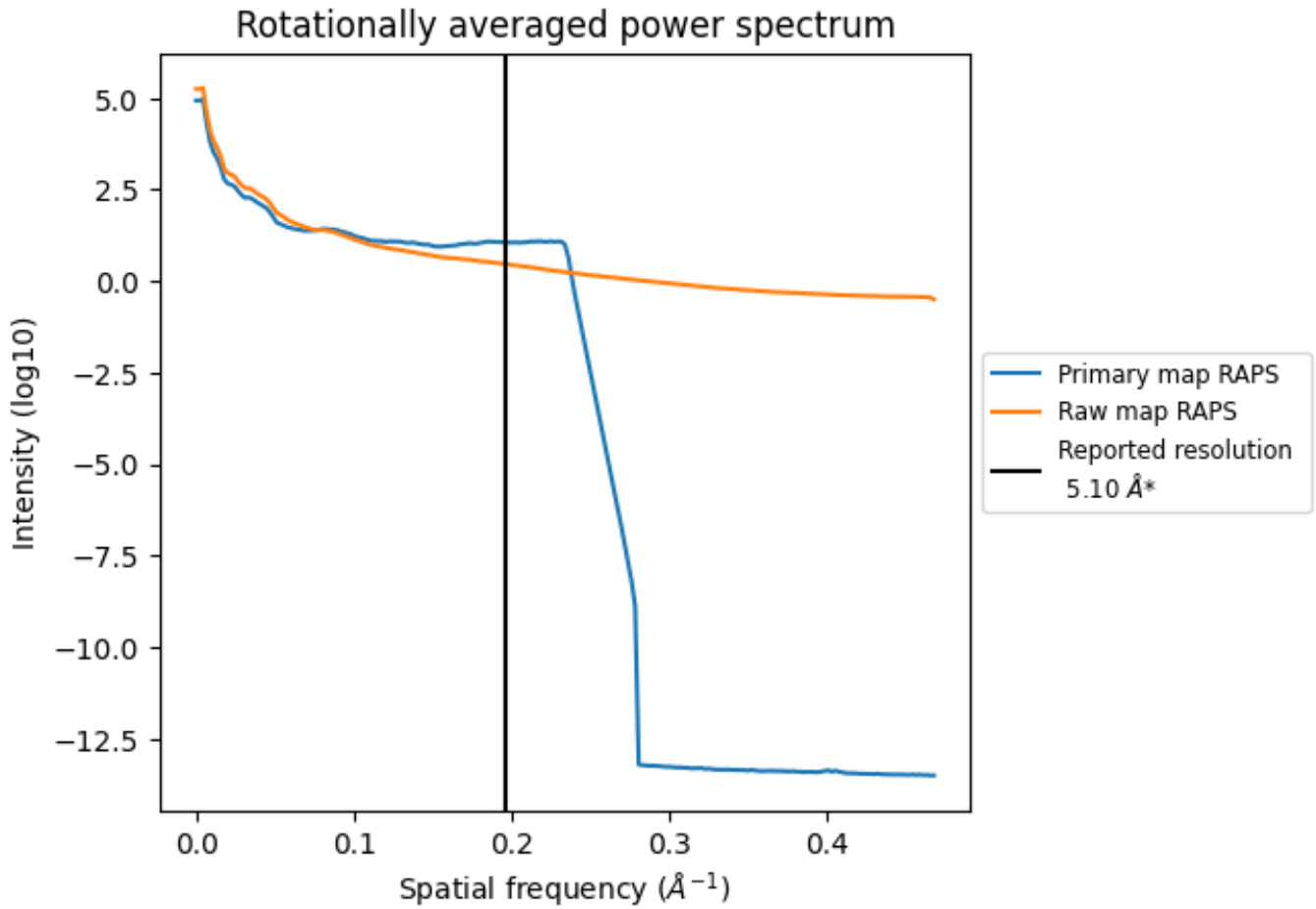
7.2 Volume estimate



The volume at the recommended contour level is 1325 nm^3; this corresponds to an approximate mass of 1197 kDa.

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

7.3 Rotationally averaged power spectrum (i)

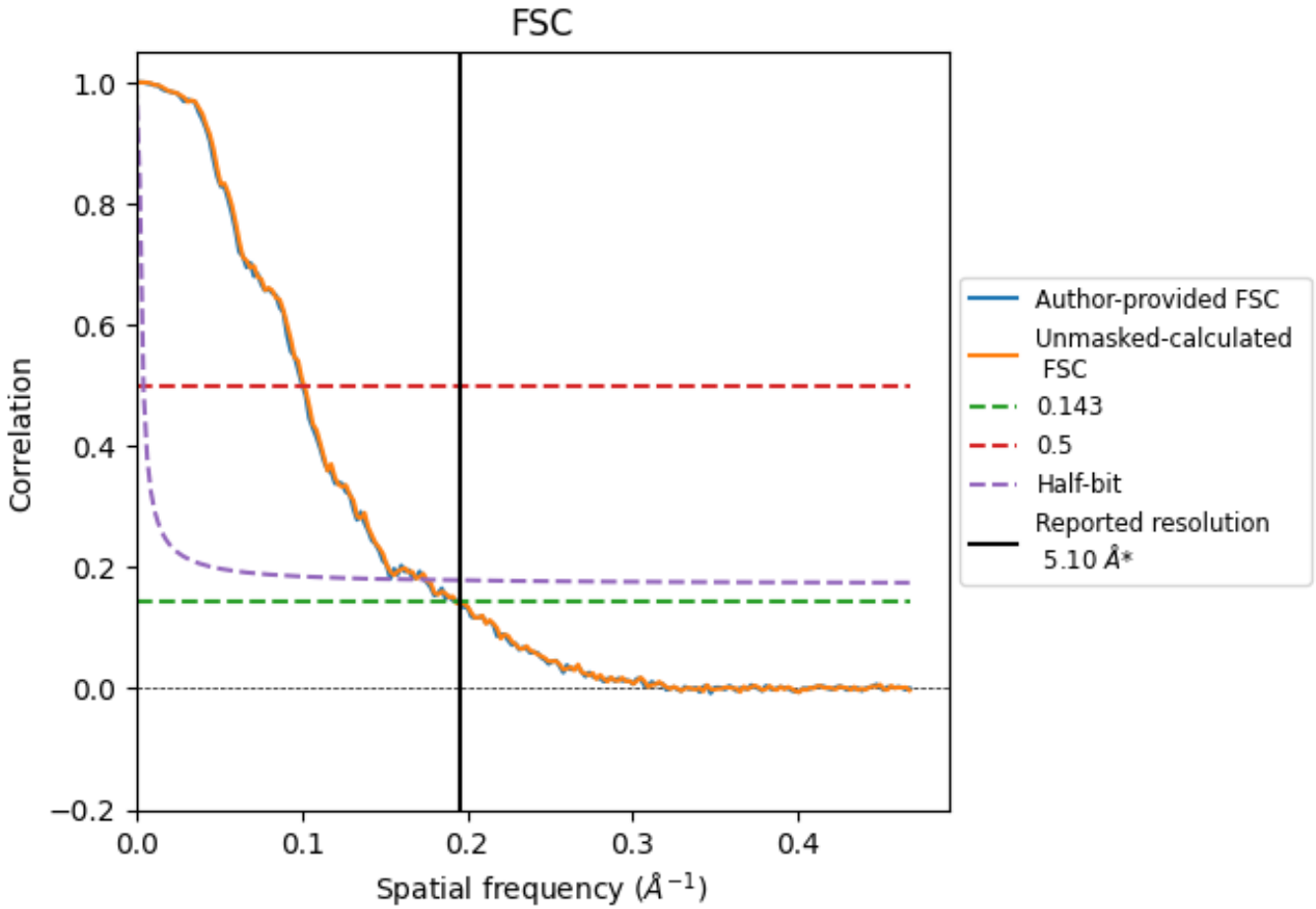


*Reported resolution corresponds to spatial frequency of 0.196 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.196 Å^{-1}

8.2 Resolution estimates (i)

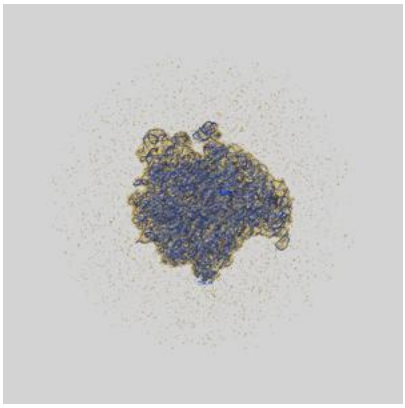
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	5.10	-	-
Author-provided FSC curve	5.15	9.95	5.73
Unmasked-calculated*	5.18	9.86	5.70

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

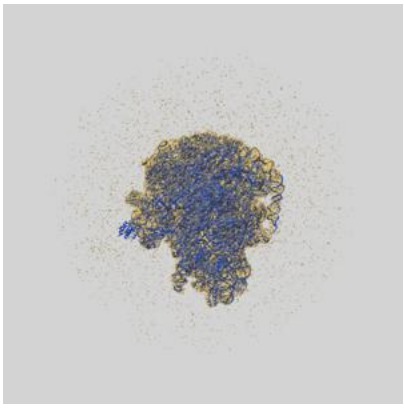
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-69698 and PDB model 24NN. Per-residue inclusion information can be found in section 3 on page 16.

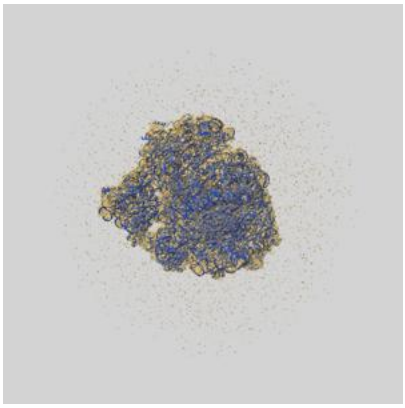
9.1 Map-model overlay



X



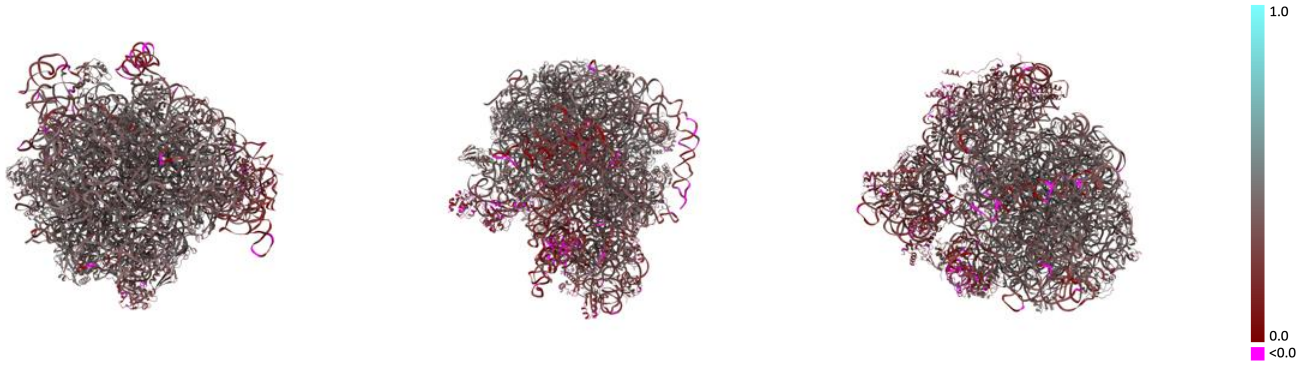
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.024 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

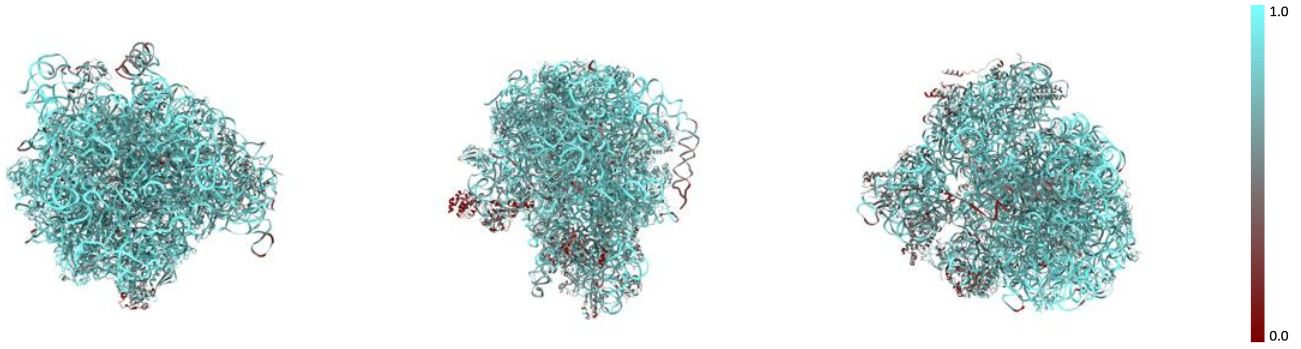
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

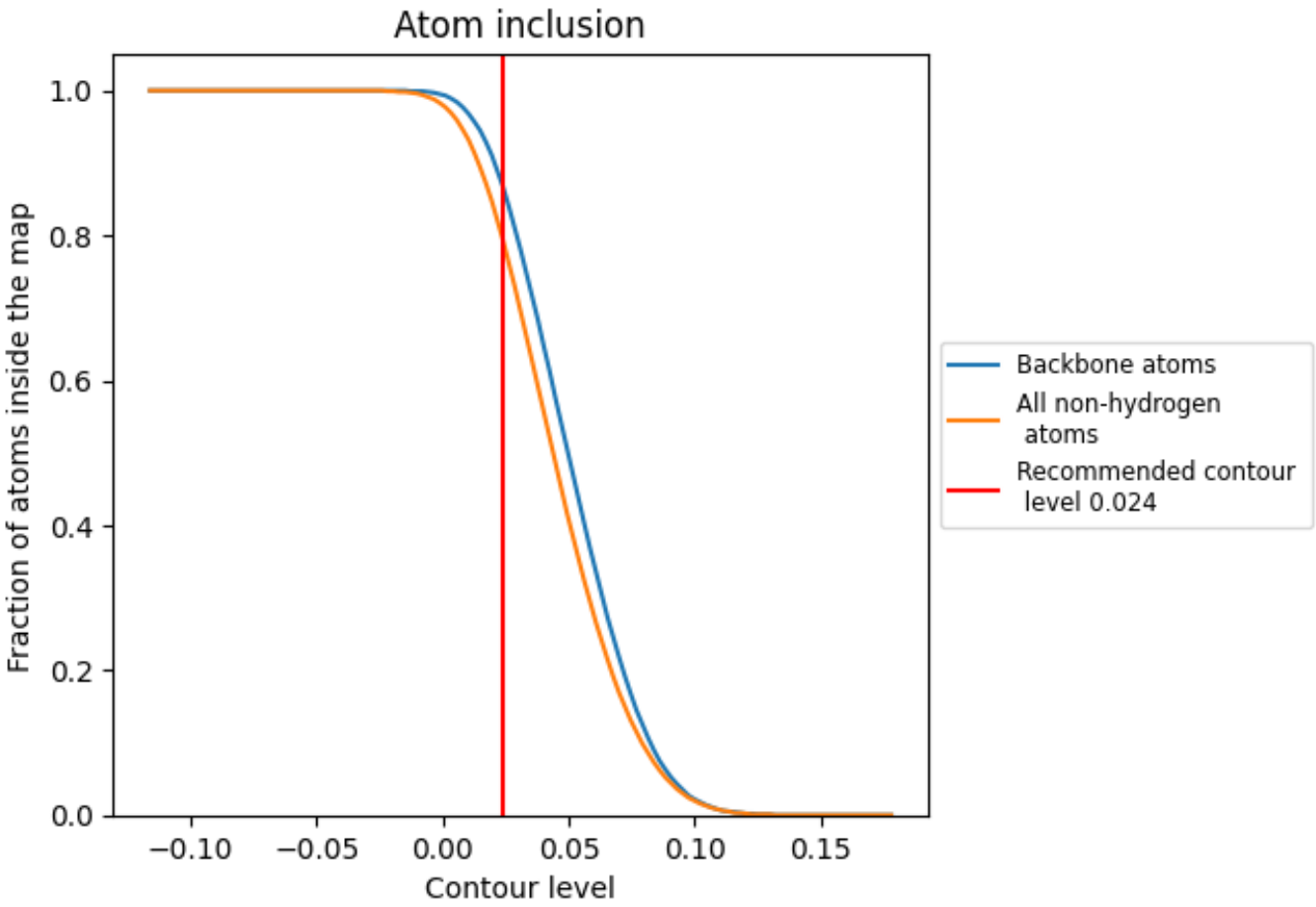
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.024).

9.4 Atom inclusion (i)



At the recommended contour level, 87% of all backbone atoms, 79% 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 (0.024) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7940	0.3410
1	0.7150	0.3830
2	0.7120	0.3000
3	0.6650	0.3870
4	0.8500	0.4050
5	0.4120	0.2170
6	0.3080	0.1330
A	0.8340	0.3040
B	0.9150	0.3790
C	0.5790	0.2710
D	0.4540	0.1360
E	0.6850	0.3370
F	0.7160	0.3720
G	0.4700	0.1930
H	0.7620	0.3780
I	0.5690	0.2710
J	0.5110	0.2500
K	0.7160	0.3850
L	0.5710	0.2740
M	0.4760	0.1930
N	0.6460	0.3070
O	0.7400	0.3610
P	0.5450	0.2350
Q	0.5790	0.2610
R	0.7520	0.3700
S	0.4790	0.2020
T	0.6060	0.1940
U	0.7390	0.3920
W	0.6870	0.3660
X	0.7430	0.4010
Y	0.7880	0.4210
Z	0.7690	0.3650
a	0.7820	0.4160
b	0.7660	0.3870
c	0.8050	0.3950



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Chain	Atom inclusion	Q-score
d	0.8110	0.4100
e	0.7540	0.4210
f	0.7400	0.3970
g	0.6980	0.3110
h	0.8730	0.3690
i	0.7830	0.4230
j	0.7920	0.4160
k	0.8000	0.4130
l	0.6980	0.3360
m	0.7350	0.3600
n	0.5920	0.3280
o	0.3250	0.1520
p	0.0880	0.1300
q	0.7790	0.4080
r	0.7460	0.4150
s	0.8020	0.4160
t	0.7460	0.4170
u	0.8010	0.4100
v	0.7850	0.3670
w	0.7210	0.3950
x	0.8080	0.3970
y	0.8070	0.4240
z	0.7980	0.4180