Full wwPDB EM Validation Report ⓘ

Nov 11, 2026 – 10:46 AM JST

PDB ID	:	24NU / pdb_000024nu
EMDB ID	:	EMD-69707
Title	:	M. smegmatis 70S ribosome in complex with RRF.
Authors	:	Sengupta, J.; Dhur, A.; Baid, P.; Srinivasan, K.
Deposited on	:	2026-03-12
Resolution	:	3.70 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:

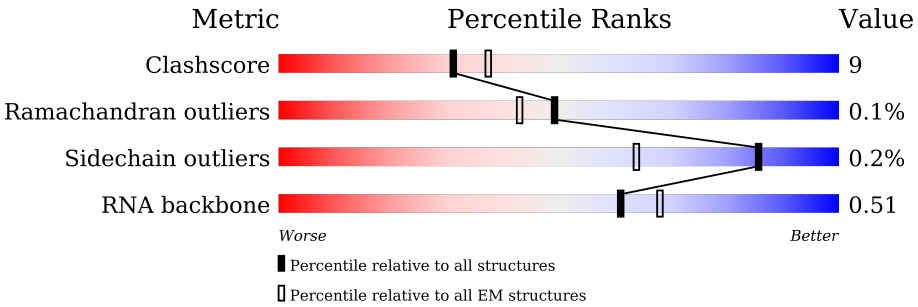
EMDB validation analysis	:	0.0.1.dev133
MolProbity	:	4-5-2 with Phenix2.2
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh &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

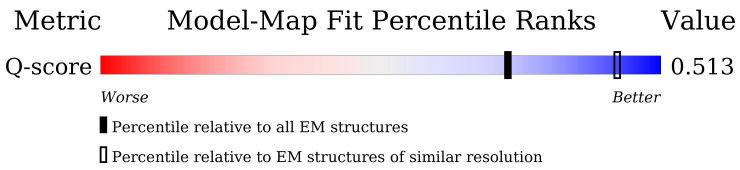
1 Overall quality at a glance

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

The reported resolution of this entry is 3.70 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	11569 (3.20 - 4.20)

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	3	24	83% 12% ·
2	4	8	75% 62% 12% 25%
3	5	185	50% 59% 38% ·

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Mol	Chain	Length	Quality of chain
4	A	1528	50% 40% 9%
5	B	118	68% 27% 5%
6	C	275	52% 23% 24%
7	D	201	63% 36%
8	E	214	64% 21% 16%
9	F	96	63% 38%
10	G	156	77% 22%
11	H	132	81% 18%
12	I	150	55% 29% 16%
13	J	101	5% 69% 27%
14	K	138	63% 20% 17%
15	L	124	71% 27%
16	M	124	60% 31% 6%
17	N	61	79% 20%
18	O	89	72% 27%
19	P	156	47% 26% 28%
20	Q	98	57% 39%
21	R	84	65% 12% 23%
22	S	93	65% 24% 12%
23	T	86	65% 34%
24	U	100	78% 19%
25	V	277	71% 52% 30% 18%
26	W	215	73% 16% 11%
27	X	88	70% 19% 10%
28	Y	64	83% 16%

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Mol	Chain	Length	Quality of chain
29	Z	77	68% 16% 17%
30	a	61	82% 15%
31	b	57	82% 12% 5%
32	c	55	64% 25% 11%
33	d	47	81% 17%
34	e	64	81% 17%
35	f	37	76% 24%
36	g	75	43% 21% 36%
37	i	278	83% 16%
38	j	217	83% 16%
39	k	215	85% 13%
40	l	187	61% 36%
41	m	179	77% 21%
42	n	151	15% 75% 25%
43	o	142	69% 48% 45% 6%
44	p	175	67% 47% 25% 28%
45	q	147	85% 14%
46	r	122	83% 17%
47	s	147	82% 16%
48	t	138	76% 22%
49	u	199	46% 13% 41%
50	v	127	77% 22%
51	w	113	82% 18%
52	x	129	82% 14%
53	y	103	84% 13%

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Mol	Chain	Length	Quality of chain
54	z	153	66% 8% 25%
55	1	105	7% 72% 20% 8%
56	h	3120	60% 32% 7%

2 Entry composition (i)

There are 58 unique types of molecules in this entry. The entry contains 149611 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 protein called 50S ribosomal protein bL37.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
1	3	23	189	111	50	28	0	0

- Molecule 2 is a RNA chain called mRNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	4	8	173	78	35	52	8	0	0

- Molecule 3 is a protein called Ribosome-recycling factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	5	185	1458	894	265	294	5	0	0

- Molecule 4 is a RNA chain called 16S ribosomal RNA.

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

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

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

- Molecule 6 is a protein called 30S ribosomal protein S3.

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

- Molecule 7 is a protein called 30S ribosomal protein S4.

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

- Molecule 8 is a protein called 30S ribosomal protein S5.

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

- Molecule 9 is a protein called Small ribosomal subunit protein bS6.

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

- Molecule 10 is a protein called 30S ribosomal protein S7.

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

- Molecule 11 is a protein called 30S ribosomal protein S8.

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

- Molecule 12 is a protein called 30S ribosomal protein S9.

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

- Molecule 13 is a protein called 30S ribosomal protein S10.

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

- Molecule 14 is a protein called 30S ribosomal protein S11.

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

- Molecule 15 is a protein called 30S ribosomal protein S12.

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

- Molecule 16 is a protein called 30S ribosomal protein S13.

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

- Molecule 17 is a protein called 30S ribosomal protein S14 type Z.

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

- Molecule 18 is a protein called 30S ribosomal protein S15.

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

- Molecule 19 is a protein called 30S ribosomal protein S16.

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

- Molecule 20 is a protein called 30S ribosomal protein S17.

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

- Molecule 21 is a protein called 30S ribosomal protein S18 2.

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

- Molecule 22 is a protein called 30S ribosomal protein S19.

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

- Molecule 23 is a protein called 30S ribosomal protein S20.

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

- Molecule 24 is a protein called 50S ribosomal protein L23.

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

- Molecule 25 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	V	228	Total	C	N	O	S	0	0
			1793	1132	322	330	9		

- 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 928	C 583	N 180	O 163	S 2	0	0

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

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

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

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

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

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

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

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

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

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

- Molecule 55 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	1	97	Total 732	C 456	N 137	O 137	S 2	0	0

- Molecule 56 is a RNA chain called 23S ribosomal RNA.

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

- Molecule 57 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
57	F	1	Total 1	Mg 1	0
57	R	1	Total 1	Mg 1	0
57	X	1	Total 1	Mg 1	0
57	i	3	Total 3	Mg 3	0
57	l	1	Total 1	Mg 1	0
57	t	1	Total 1	Mg 1	0
57	z	1	Total 1	Mg 1	0
57	h	3	Total 3	Mg 3	0

- Molecule 58 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

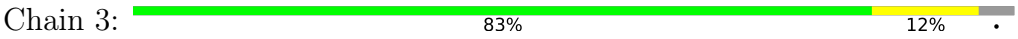
Mol	Chain	Residues	Atoms		AltConf
58	N	1	Total 1	Zn 1	0
58	R	1	Total 1	Zn 1	0
58	Y	1	Total 1	Zn 1	0
58	c	1	Total 1	Zn 1	0
58	f	1	Total 1	Zn 1	0
58	g	1	Total 1	Zn 1	0

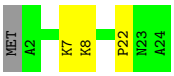
3 Residue-property plots (i)

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: 50S ribosomal protein bL37

Chain 3:

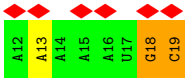




• Molecule 2: mRNA fragment

Chain 4:

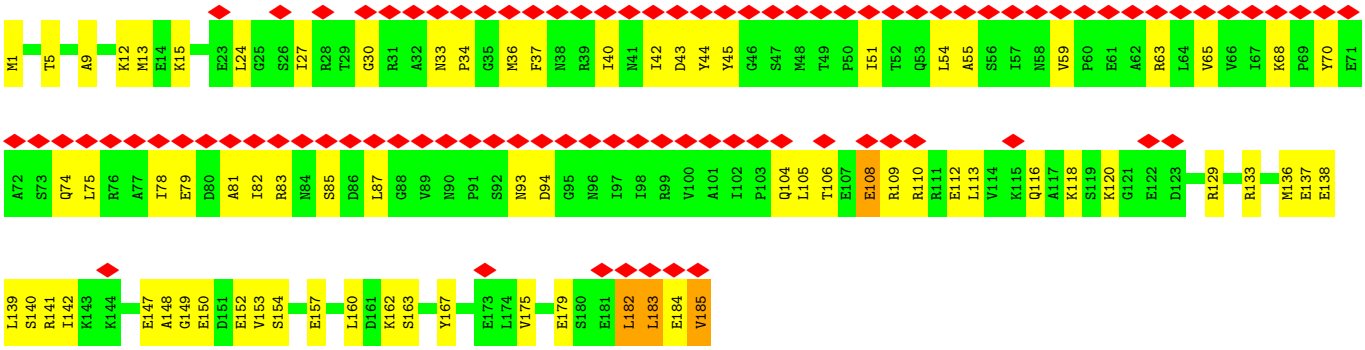




• Molecule 3: Ribosome-recycling factor

Chain 5:

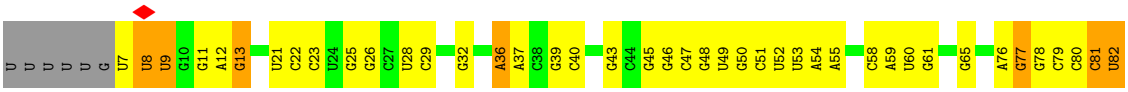


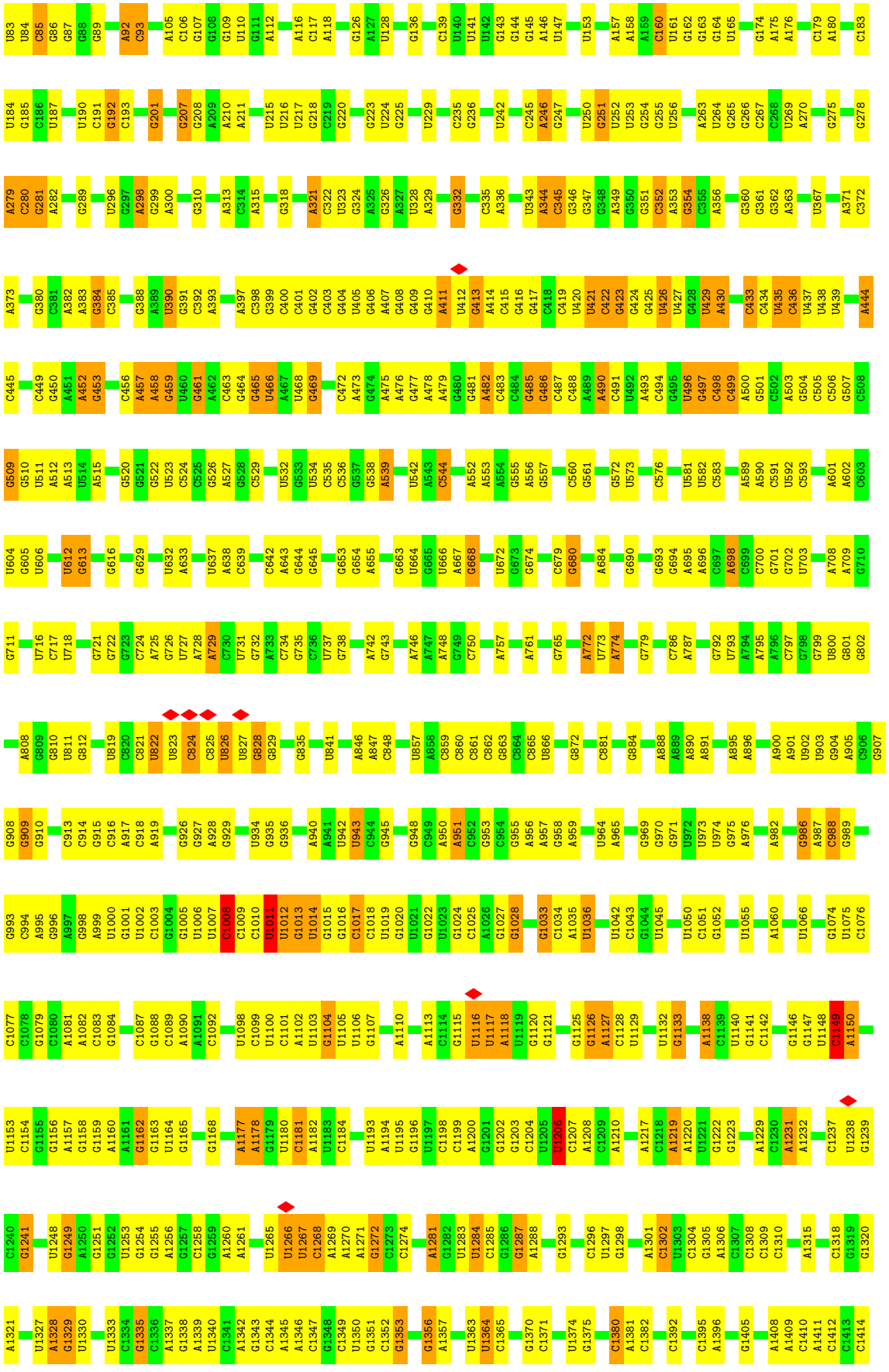


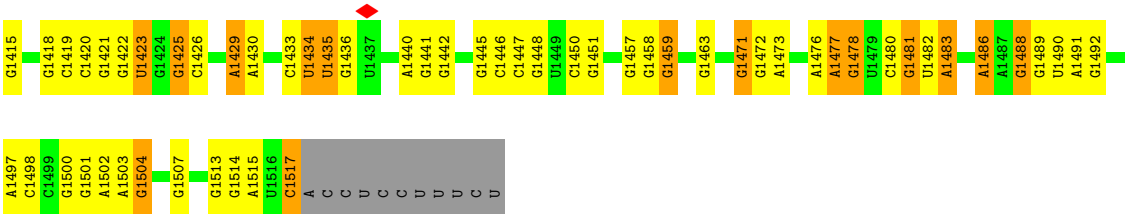
• Molecule 4: 16S ribosomal RNA

Chain A:



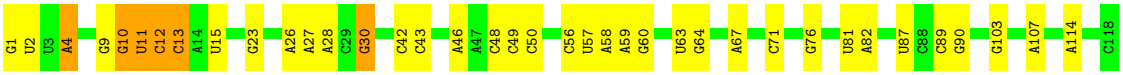






• Molecule 5: 5S ribosomal RNA

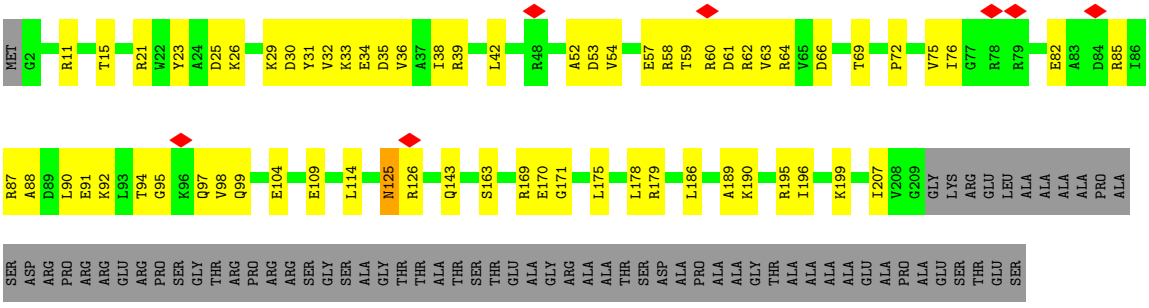
Chain B:



• Molecule 6: 30S ribosomal protein S3

Chain C:

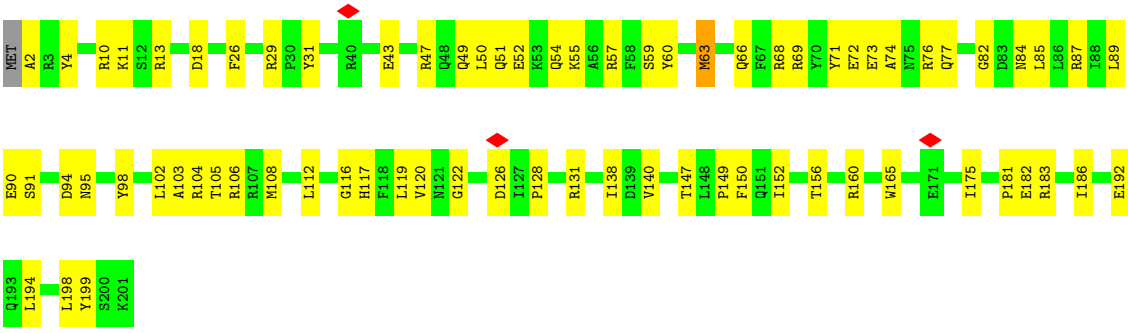




• Molecule 7: 30S ribosomal protein S4

Chain D:



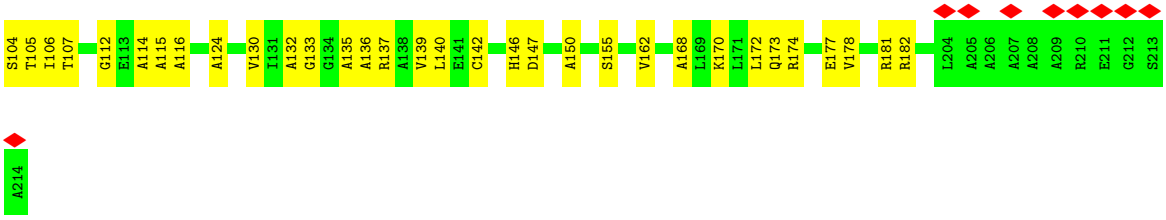


• Molecule 8: 30S ribosomal protein S5

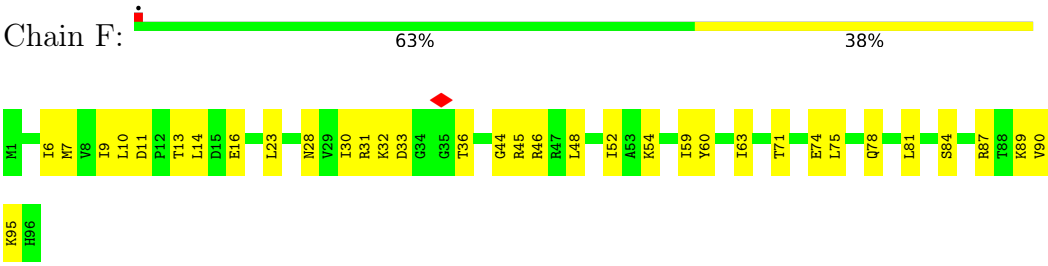
Chain E:



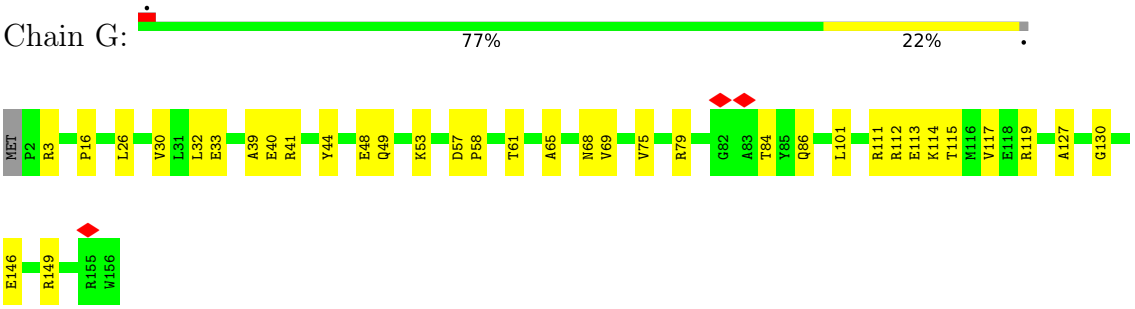




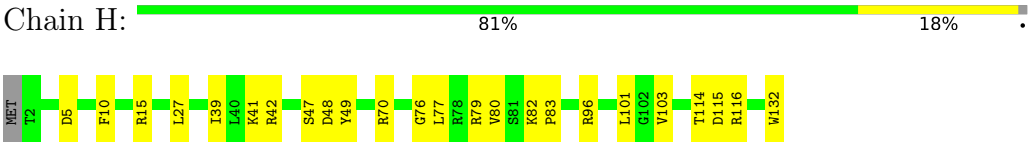
• Molecule 9: Small ribosomal subunit protein bS6



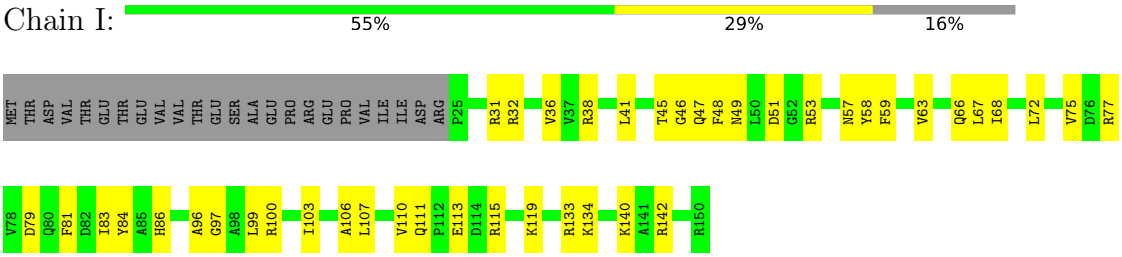
• Molecule 10: 30S ribosomal protein S7



• Molecule 11: 30S ribosomal protein S8



• Molecule 12: 30S ribosomal protein S9



• Molecule 13: 30S ribosomal protein S10

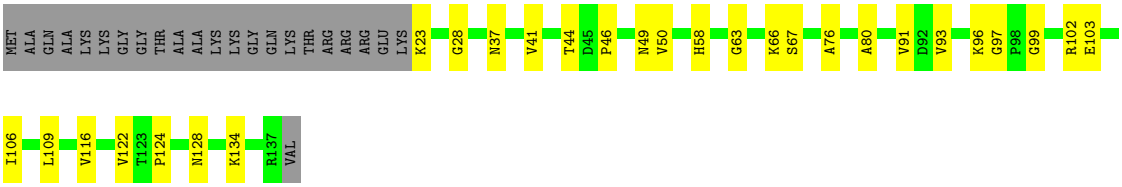




• Molecule 14: 30S ribosomal protein S11

Chain K:





• Molecule 15: 30S ribosomal protein S12

Chain L:

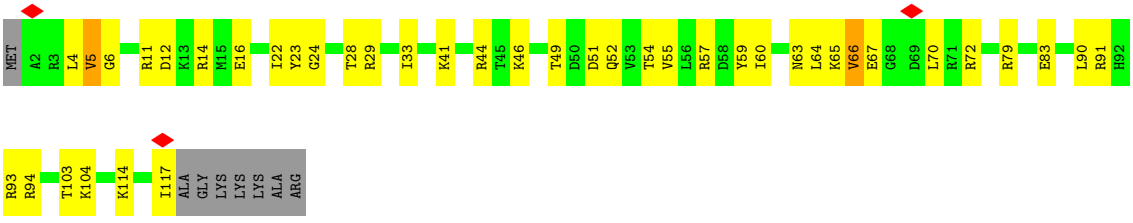




• Molecule 16: 30S ribosomal protein S13

Chain M:

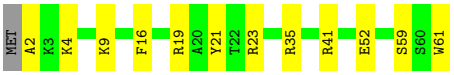




• Molecule 17: 30S ribosomal protein S14 type Z

Chain N:

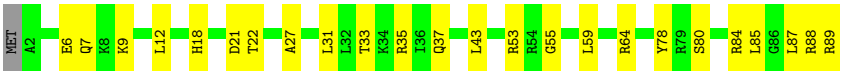




• Molecule 18: 30S ribosomal protein S15

Chain O:

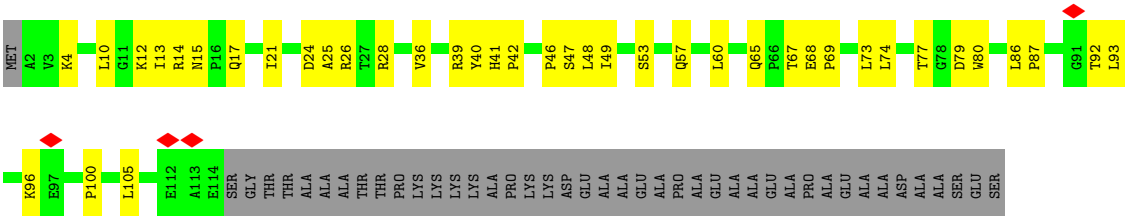




• Molecule 19: 30S ribosomal protein S16

Chain P:

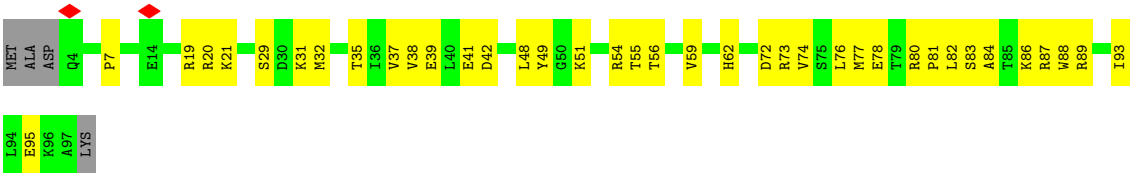




• Molecule 20: 30S ribosomal protein S17

Chain Q:





• Molecule 21: 30S ribosomal protein S18 2

Chain R:

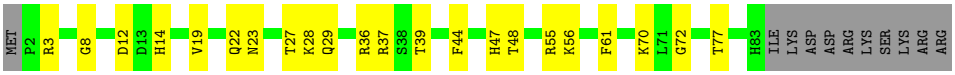




• Molecule 22: 30S ribosomal protein S19

Chain S:

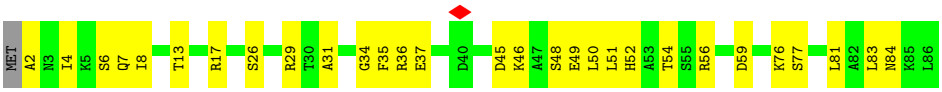




• Molecule 23: 30S ribosomal protein S20

Chain T:





• Molecule 24: 50S ribosomal protein L23

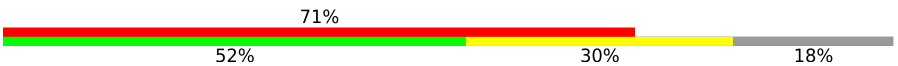
Chain U:

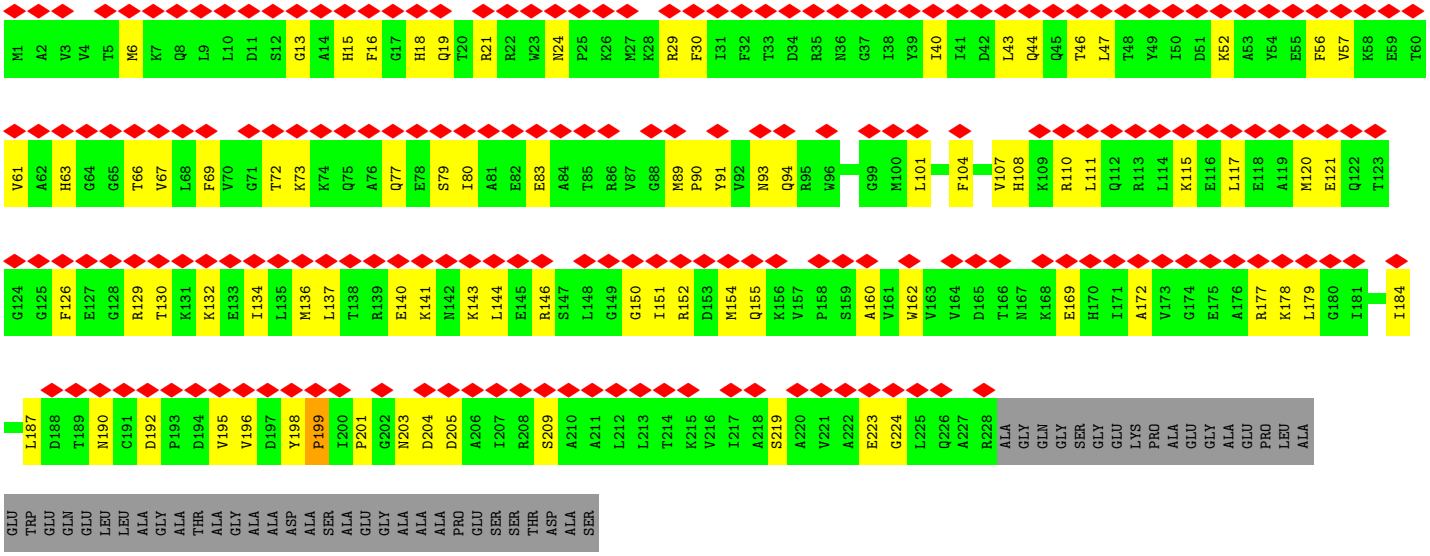




• Molecule 25: 30S ribosomal protein S2

Chain V:

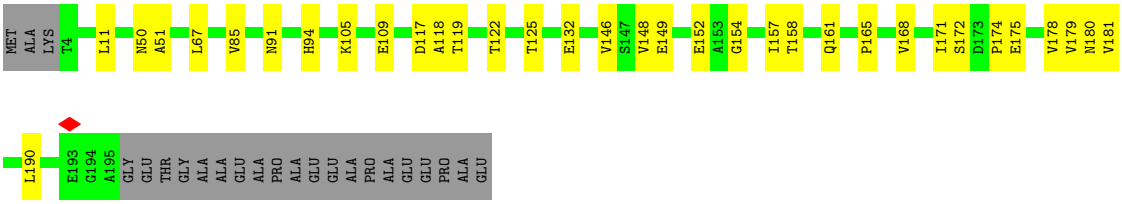




• Molecule 26: 50S ribosomal protein L25

Chain W:

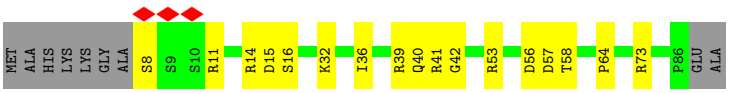




• Molecule 27: 50S ribosomal protein L27

Chain X:

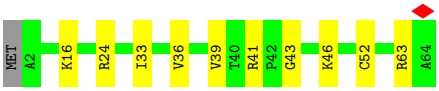




• Molecule 28: 50S ribosomal protein L28

Chain Y:

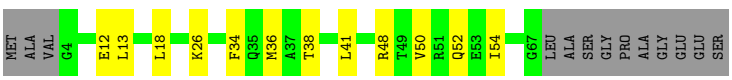




• Molecule 29: 50S ribosomal protein L29

Chain Z:

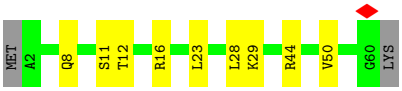




• Molecule 30: 50S ribosomal protein L30

Chain a:

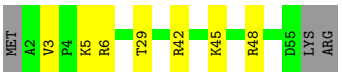




• Molecule 31: 50S ribosomal protein L32

Chain b:





• Molecule 32: 50S ribosomal protein L33 1

Chain c:





• Molecule 33: 50S ribosomal protein L34

Chain d:

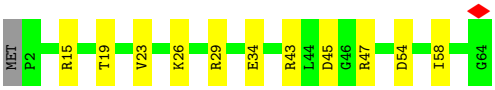




• Molecule 34: 50S ribosomal protein L35

Chain e:





• Molecule 35: 50S ribosomal protein L36

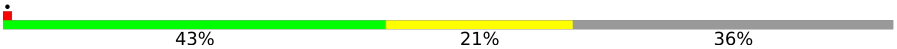
Chain f:

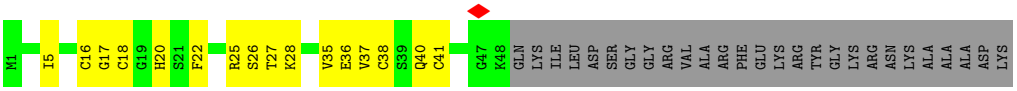




• Molecule 36: 50S ribosomal protein L31

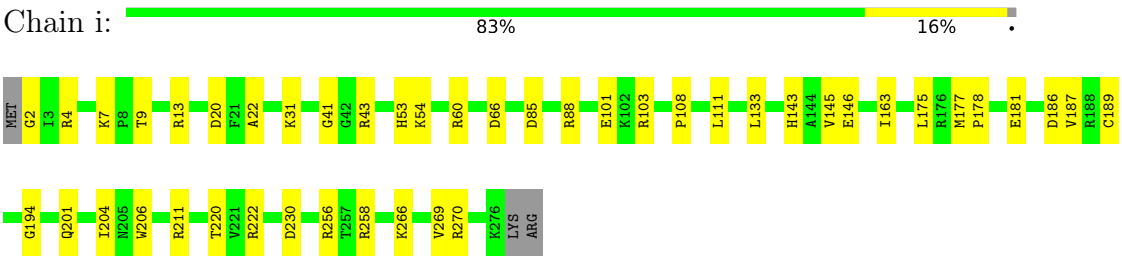
Chain g:





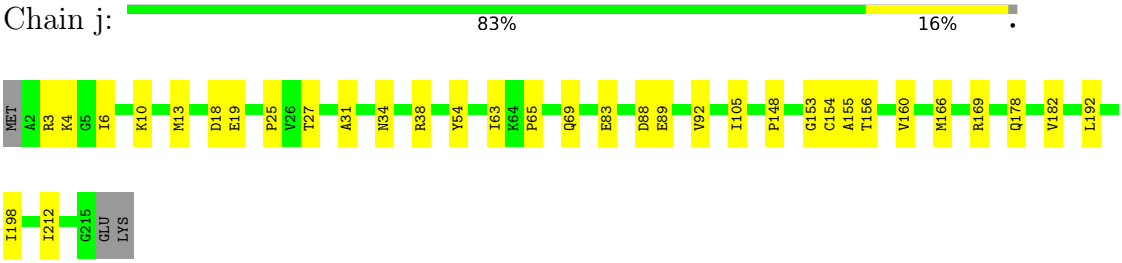
• Molecule 37: 50S ribosomal protein L2

Chain i:



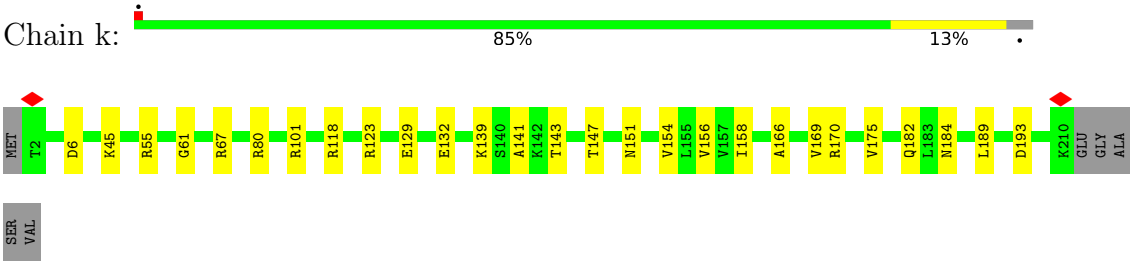
• Molecule 38: 50S ribosomal protein L3

Chain j:



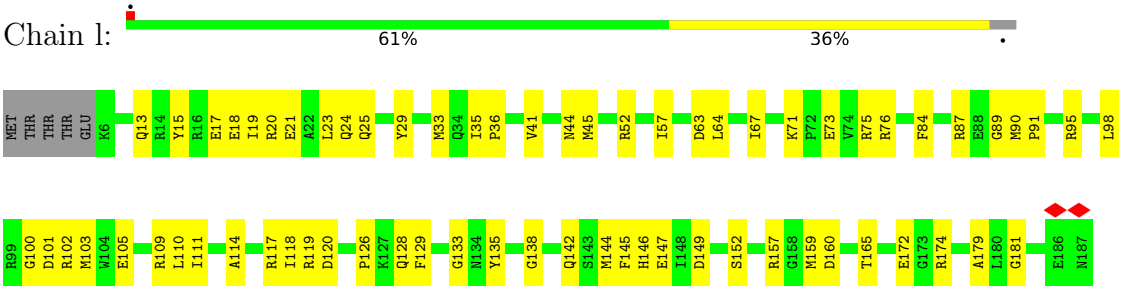
• Molecule 39: 50S ribosomal protein L4

Chain k:



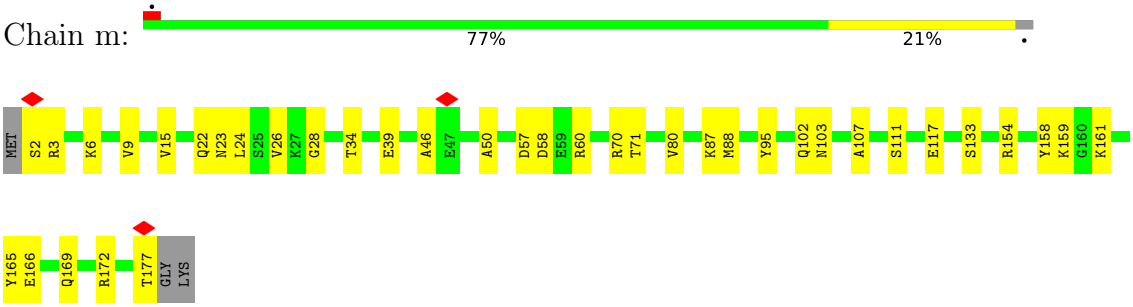
• Molecule 40: 50S ribosomal protein L5

Chain l:



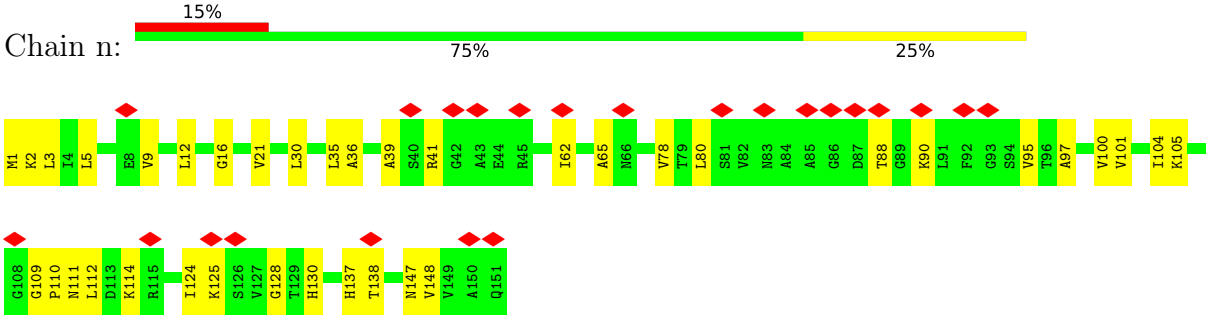
• Molecule 41: 50S ribosomal protein L6

Chain m:



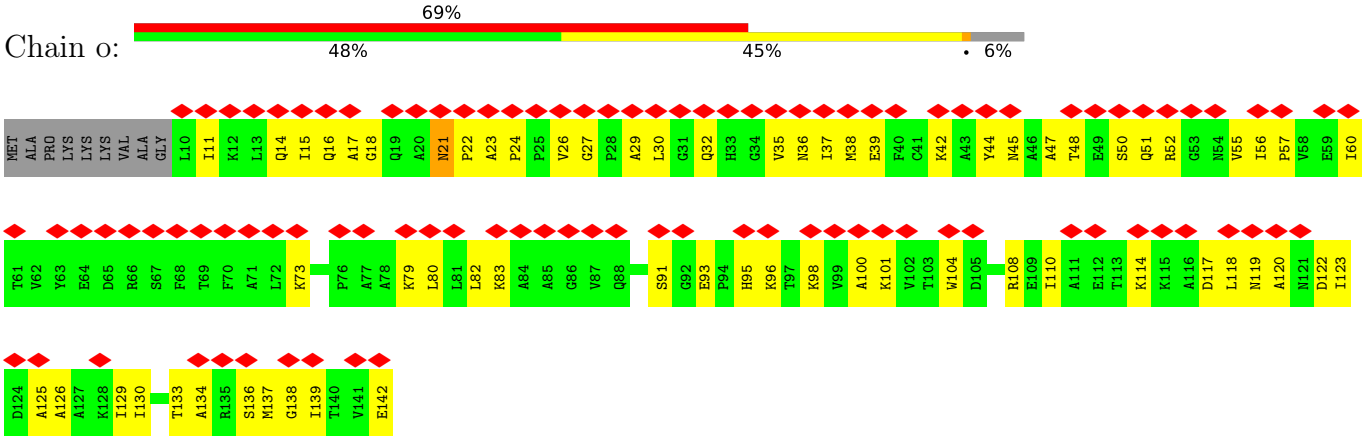
• Molecule 42: 50S ribosomal protein L9

Chain n:



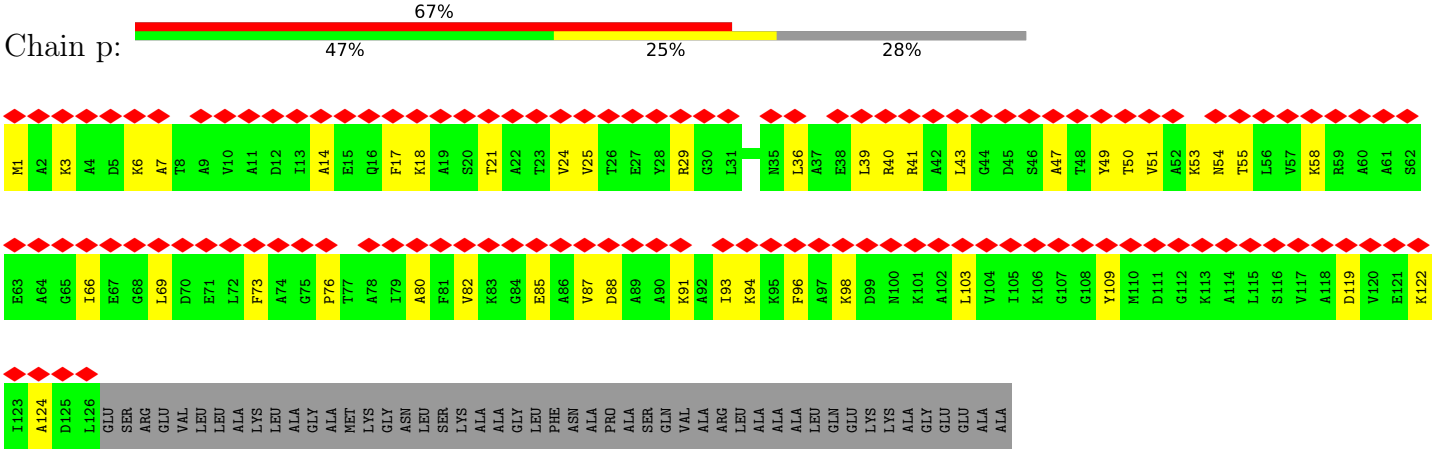
• Molecule 43: 50S ribosomal protein L11

Chain o:



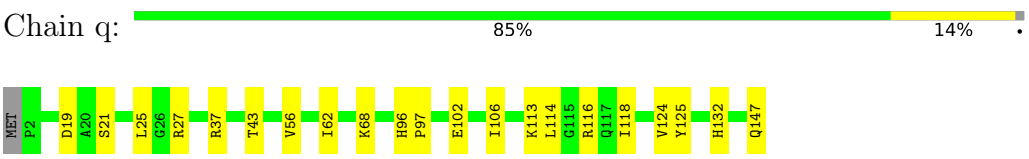
• Molecule 44: 50S ribosomal protein L10

Chain p:



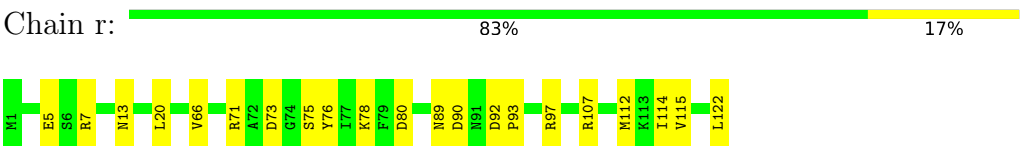
• Molecule 45: 50S ribosomal protein L13

Chain q:



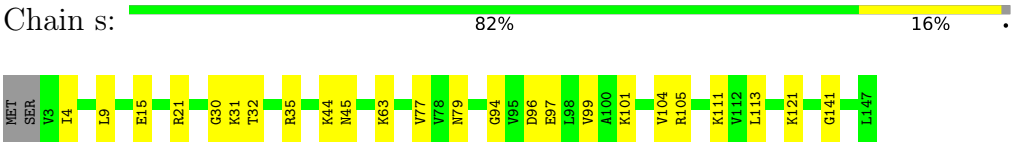
• Molecule 46: 50S ribosomal protein L14

Chain r:



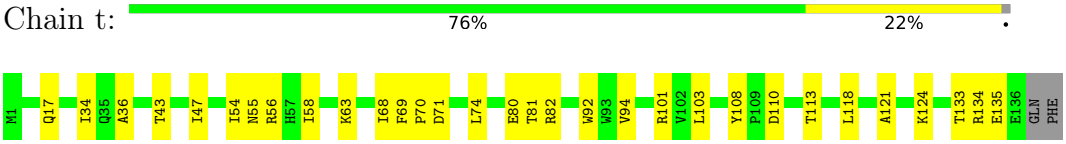
• Molecule 47: 50S ribosomal protein L15

Chain s:



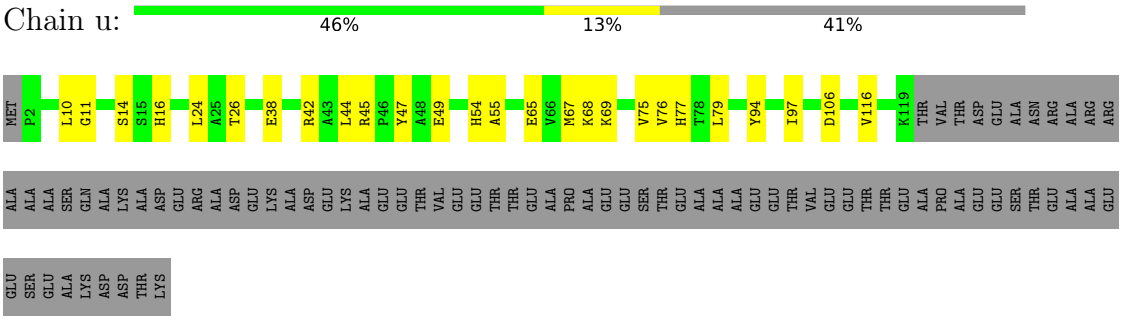
• Molecule 48: 50S ribosomal protein L16

Chain t:



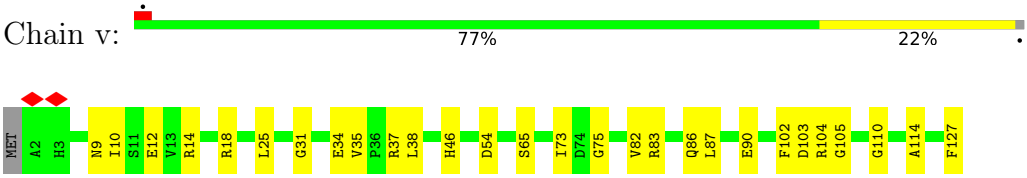
• Molecule 49: 50S ribosomal protein L17

Chain u:



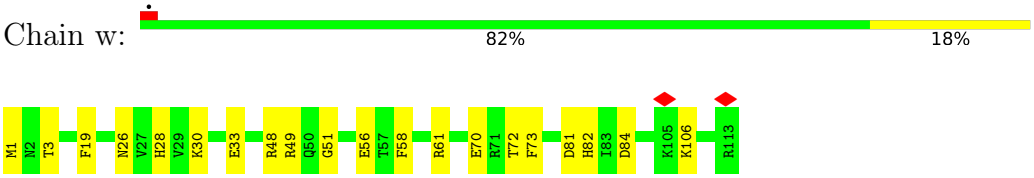
• Molecule 50: 50S ribosomal protein L18

Chain v:



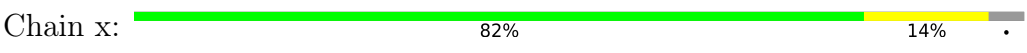
• Molecule 51: 50S ribosomal protein L19

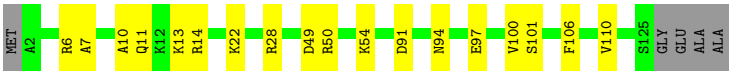
Chain w:



• Molecule 52: 50S ribosomal protein L20

Chain x:





• Molecule 53: 50S ribosomal protein L21

Chain y:

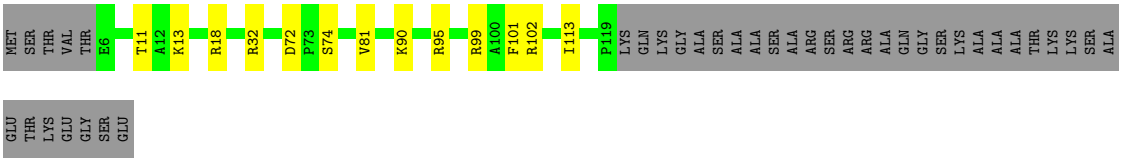




• Molecule 54: 50S ribosomal protein L22

Chain z:

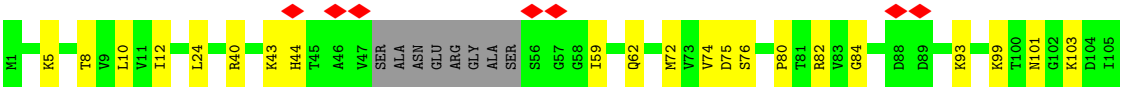




• Molecule 55: Large ribosomal subunit protein uL24

Chain 1:

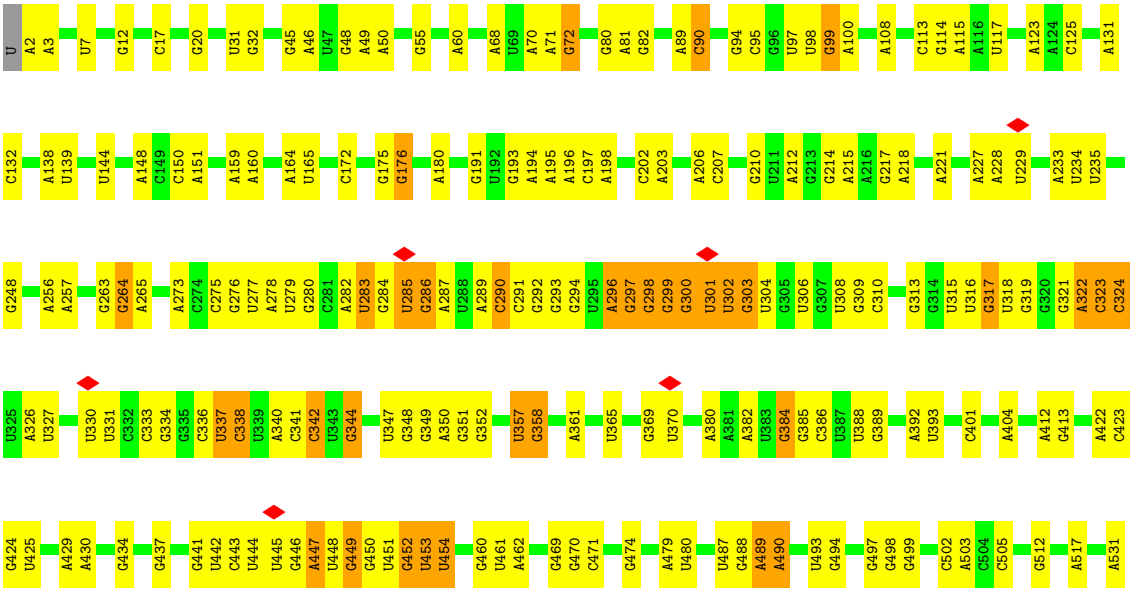


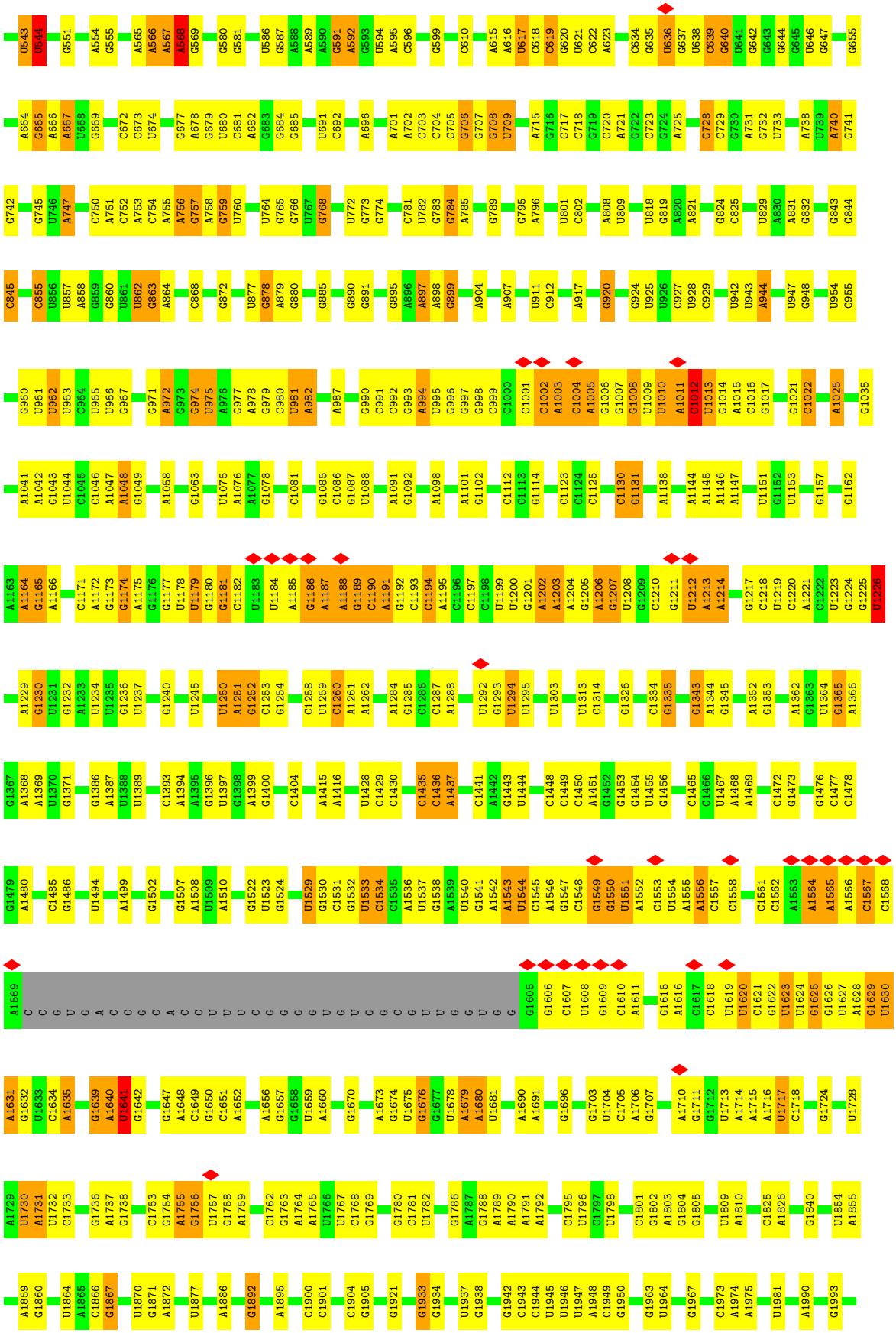


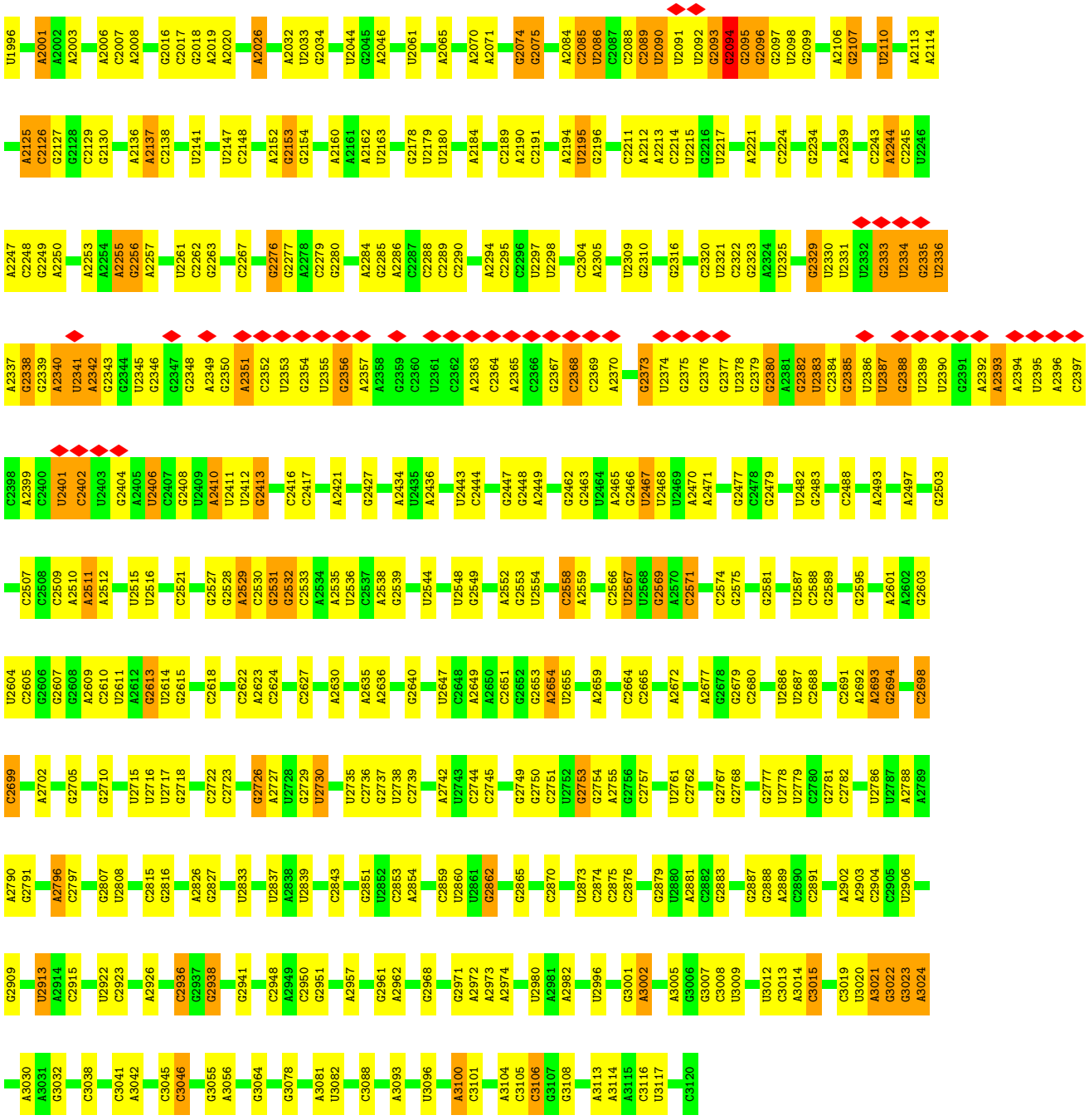
• Molecule 56: 23S ribosomal RNA

Chain h:









4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	61327	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	0.287	Depositor
Minimum map value	-0.171	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.011	Depositor
Recommended contour level	0.0246	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

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	3	0.31	0/191	0.50	0/247
2	4	0.33	0/194	0.74	0/300
3	5	0.47	1/1471 (0.1%)	0.66	5/1976 (0.3%)
4	A	0.57	0/36309	0.78	13/56657 (0.0%)
5	B	0.61	0/2821	0.76	0/4396
6	C	0.24	0/1684	0.51	0/2261
7	D	0.27	0/1672	0.53	0/2251
8	E	0.28	0/1312	0.42	0/1772
9	F	0.27	0/782	0.41	0/1059
10	G	0.22	0/1252	0.43	0/1690
11	H	0.28	0/1025	0.44	0/1385
12	I	0.23	0/1012	0.48	0/1362
13	J	0.24	0/802	0.48	0/1086
14	K	0.27	0/873	0.46	0/1180
15	L	0.28	0/969	0.52	0/1294
16	M	0.26	0/942	0.63	2/1260 (0.2%)
17	N	0.26	0/488	0.46	0/650
18	O	0.28	0/729	0.45	0/977
19	P	0.28	0/908	0.53	0/1226
20	Q	0.26	0/759	0.50	0/1016
21	R	0.27	0/518	0.48	0/693
22	S	0.23	0/680	0.43	0/915
23	T	0.26	0/663	0.45	0/882
24	U	0.32	0/766	0.40	0/1030
25	V	0.29	1/1822 (0.1%)	0.60	3/2457 (0.1%)
26	W	0.24	0/1443	0.38	0/1970
27	X	0.36	0/595	0.49	0/798
28	Y	0.36	0/478	0.46	0/641
29	Z	0.28	0/534	0.42	0/713
30	a	0.33	0/477	0.46	0/640
31	b	0.36	0/427	0.48	0/572
32	c	0.25	0/413	0.42	0/553

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	d	0.37	0/380	0.51	0/500
34	e	0.32	0/507	0.50	0/672
35	f	0.32	0/303	0.40	0/401
36	g	0.24	0/372	0.37	0/503
37	i	0.37	0/2153	0.44	0/2895
38	j	0.35	0/1609	0.47	0/2165
39	k	0.33	0/1592	0.44	0/2153
40	l	0.29	0/1467	0.56	0/1973
41	m	0.25	0/1369	0.44	0/1848
42	n	0.21	0/1027	0.47	0/1398
43	o	0.43	0/1006	0.60	0/1364
44	p	0.15	0/925	0.37	0/1246
45	q	0.32	0/1157	0.42	0/1567
46	r	0.34	0/946	0.45	0/1268
47	s	0.33	0/1091	0.53	0/1457
48	t	0.32	0/1118	0.51	0/1506
49	u	0.34	0/945	0.50	0/1267
50	v	0.28	0/966	0.44	0/1298
51	w	0.31	0/921	0.43	0/1236
52	x	0.36	0/1000	0.44	0/1341
53	y	0.30	0/764	0.34	0/1030
54	z	0.33	0/887	0.41	0/1204
55	1	0.27	0/738	0.40	0/987
56	h	0.73	1/74164 (0.0%)	0.81	41/115718 (0.0%)
All	All	0.59	3/162418 (0.0%)	0.73	64/242906 (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
7	D	0	1
13	J	0	1
All	All	0	2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	5	108	GLU	C-N	-9.97	1.20	1.33
25	V	199	PRO	CG-CD	-7.43	1.25	1.50
56	h	1226	U	O3'-P	6.98	1.69	1.61

All (64) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
56	h	1194	C	C6-N1-C2	12.90	125.46	120.30
25	V	199	PRO	N-CD-CG	-11.45	86.02	103.20
56	h	338	C	N3-C2-O2	-9.64	115.15	121.90
25	V	199	PRO	CA-CB-CG	-8.54	88.28	104.50
56	h	2245	C	C2-N1-C1'	7.90	127.48	118.80
25	V	199	PRO	N-CA-CB	-7.74	96.13	103.33
56	h	2730	U	C2-N1-C1'	7.74	126.99	117.70
56	h	338	C	N1-C2-O2	7.70	123.52	118.90
56	h	2245	C	N1-C2-O2	7.26	123.26	118.90
56	h	617	U	C2-N1-C1'	7.11	126.23	117.70
56	h	1194	C	N3-C4-C5	7.10	124.74	121.90
56	h	1012	C	C2-N1-C1'	6.94	126.44	118.80
4	A	1206	U	C2-N1-C1'	6.89	125.97	117.70
56	h	2730	U	N1-C2-O2	6.89	127.62	122.80
56	h	323	C	C2-N1-C1'	6.88	126.37	118.80
16	M	66	VAL	CA-C-N	6.78	134.49	121.54
16	M	66	VAL	C-N-CA	6.78	134.49	121.54
56	h	342	C	N3-C2-O2	-6.62	117.27	121.90
56	h	1428	U	C2-N1-C1'	6.55	125.56	117.70
4	A	1008	C	N3-C2-O2	-6.51	117.34	121.90
56	h	617	U	N1-C2-O2	6.36	127.25	122.80
56	h	2245	C	N3-C2-O2	-6.25	117.52	121.90
56	h	1429	C	C2-N1-C1'	6.20	125.61	118.80
56	h	2730	U	N3-C2-O2	-6.17	117.88	122.20
4	A	1206	U	N1-C2-O2	6.12	127.09	122.80
56	h	617	U	N3-C2-O2	-6.12	117.92	122.20
4	A	496	U	C2-N1-C1'	6.10	125.03	117.70
4	A	1206	U	N3-C2-O2	-6.03	117.98	122.20
56	h	1012	C	C6-N1-C1'	-6.01	113.59	120.80
56	h	3046	C	N3-C2-O2	-5.97	117.72	121.90
56	h	191	G	C4-N9-C1'	5.94	134.22	126.50
3	5	30	GLY	CA-C-N	5.83	131.91	122.29
3	5	30	GLY	C-N-CA	5.83	131.91	122.29
56	h	3046	C	C2-N1-C1'	5.82	125.21	118.80
56	h	992	C	N3-C2-O2	-5.79	117.85	121.90
56	h	1194	C	N1-C2-N3	-5.77	115.16	119.20
56	h	3046	C	C6-N1-C2	-5.76	117.99	120.30
4	A	1017	C	N3-C2-O2	-5.75	117.88	121.90
56	h	1641	U	O5'-C5'-C4'	5.63	113.90	109.40
56	h	191	G	C8-N9-C1'	-5.59	119.74	127.00
4	A	1149	C	P-O3'-C3'	5.52	126.33	119.70
4	A	835	G	O5'-C5'-C4'	5.51	113.81	109.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
56	h	1123	C	C2-N1-C1'	5.50	124.84	118.80
4	A	734	C	C2-N1-C1'	5.47	124.82	118.80
4	A	415	C	C2-N1-C1'	5.42	124.76	118.80
56	h	2245	C	C6-N1-C2	-5.39	118.15	120.30
56	h	323	C	C6-N1-C1'	-5.37	114.36	120.80
56	h	2245	C	C6-N1-C1'	-5.36	114.36	120.80
56	h	568	A	O5'-C5'-C4'	5.28	113.62	109.40
3	5	108	GLU	CA-C-N	-5.28	113.21	120.28
3	5	108	GLU	C-N-CA	-5.28	113.21	120.28
56	h	298	G	C5-C6-O6	5.26	131.75	128.60
56	h	338	C	C6-N1-C2	-5.22	118.21	120.30
56	h	962	U	C2-N1-C1'	5.19	123.93	117.70
4	A	1017	C	C2-N3-C4	-5.19	117.31	119.90
4	A	1011	U	C2-N1-C1'	5.18	123.91	117.70
56	h	599	G	O4'-C1'-N9	5.17	112.33	108.20
56	h	544	U	O5'-C5'-C4'	5.16	113.53	109.40
3	5	108	GLU	O-C-N	5.14	127.38	122.03
56	h	2730	U	C6-N1-C1'	-5.12	114.03	121.20
4	A	1008	C	C6-N1-C2	-5.09	118.26	120.30
56	h	2094	G	P-O3'-C3'	5.04	125.75	119.70
56	h	1680	A	O5'-C5'-C4'	5.03	113.42	109.40
56	h	1098	A	N9-C1'-C2'	5.00	117.50	112.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	D	63	MET	Peptide
13	J	56	HIS	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	3	189	0	205	3	0
2	4	173	0	88	1	0
3	5	1458	0	1478	86	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	32439	0	16321	489	0
5	B	2522	0	1285	21	0
6	C	1660	0	1707	47	0
7	D	1641	0	1668	67	0
8	E	1296	0	1360	29	0
9	F	771	0	797	25	0
10	G	1232	0	1282	26	0
11	H	1010	0	1046	19	0
12	I	994	0	1050	37	0
13	J	788	0	819	28	0
14	K	855	0	863	20	0
15	L	958	0	1045	30	0
16	M	935	0	986	34	0
17	N	477	0	499	11	0
18	O	720	0	760	17	0
19	P	891	0	935	34	0
20	Q	748	0	795	32	0
21	R	513	0	537	7	0
22	S	662	0	677	18	0
23	T	660	0	712	25	0
24	U	756	0	802	14	0
25	V	1793	0	1839	62	0
26	W	1428	0	1443	23	0
27	X	586	0	601	17	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	11	0
33	d	377	0	411	6	0
34	e	502	0	541	12	0
35	f	299	0	321	8	0
36	g	364	0	348	13	0
37	i	2110	0	2165	37	0
38	j	1587	0	1630	30	0
39	k	1569	0	1607	23	0
40	l	1445	0	1476	51	0
41	m	1348	0	1399	28	0
42	n	1018	0	988	30	0
43	o	990	0	1020	83	0
44	p	918	0	959	36	0
45	q	1130	0	1167	15	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
46	r	938	0	1000	15	0
47	s	1078	0	1151	17	0
48	t	1092	0	1128	22	0
49	u	928	0	972	18	0
50	v	956	0	991	21	0
51	w	907	0	938	14	0
52	x	988	0	1038	13	0
53	y	754	0	802	7	0
54	z	873	0	909	9	0
55	1	732	0	782	15	0
56	h	66232	0	33324	730	0
57	F	1	0	0	0	0
57	R	1	0	0	0	0
57	X	1	0	0	0	0
57	h	3	0	0	0	0
57	i	3	0	0	0	0
57	l	1	0	0	0	0
57	t	1	0	0	0	0
57	z	1	0	0	0	0
58	N	1	0	0	0	0
58	R	1	0	0	0	0
58	Y	1	0	0	0	0
58	c	1	0	0	0	0
58	f	1	0	0	0	0
58	g	1	0	0	0	0
All	All	149611	0	101058	2177	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 (2177) 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)
3:5:44:TYR:CD2	43:o:24:PRO:HG3	1.39	1.54
43:o:32:GLN:NE2	56:h:1214:A:H61	1.21	1.36
3:5:44:TYR:CE2	43:o:24:PRO:HG3	1.72	1.25
43:o:32:GLN:NE2	56:h:1214:A:N6	1.90	1.19
3:5:44:TYR:CD2	43:o:24:PRO:CG	2.31	1.12
43:o:17:ALA:CA	43:o:48:THR:HG21	1.80	1.10
43:o:17:ALA:HB1	43:o:48:THR:CB	1.82	1.10
43:o:17:ALA:HB1	43:o:48:THR:HB	1.08	1.07

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:o:17:ALA:CB	43:o:48:THR:HB	1.84	1.07
3:5:42:ILE:HD13	3:5:51:ILE:HG22	1.38	1.04
3:5:36:MET:HB3	3:5:87:LEU:HD22	1.41	1.02
3:5:43:ASP:O	3:5:74:GLN:NE2	1.91	1.01
43:o:17:ALA:HA	43:o:48:THR:CG2	1.91	0.99
43:o:17:ALA:HA	43:o:48:THR:HG21	1.00	0.99
43:o:16:GLN:C	43:o:44:TYR:OH	2.05	0.97
3:5:105:LEU:H	3:5:110:ARG:HE	1.13	0.96
43:o:32:GLN:HE22	56:h:1214:A:N6	1.56	0.96
3:5:44:TYR:HD2	43:o:24:PRO:CG	1.73	0.95
56:h:2528:G:H22	56:h:2536:U:H3	1.11	0.94
56:h:1177:G:C6	56:h:1206:A:C6	2.56	0.94
3:5:44:TYR:CE2	43:o:24:PRO:CG	2.50	0.94
3:5:40:ILE:HG23	3:5:81:ALA:HB1	1.53	0.91
3:5:36:MET:HB3	3:5:87:LEU:CD2	2.04	0.87
43:o:17:ALA:CA	43:o:48:THR:CG2	2.50	0.87
13:J:14:ASP:OD1	13:J:15:HIS:N	2.07	0.86
56:h:2329:G:H1	56:h:2406:U:H3	1.21	0.86
56:h:3013:C:H5'	56:h:3014:A:H5'	1.57	0.86
56:h:365:U:H3	56:h:437:G:H1	1.23	0.85
3:5:70:TYR:CD2	56:h:1185:A:N1	2.43	0.85
56:h:2345:U:H3	56:h:2399:A:H61	1.23	0.85
3:5:44:TYR:HD2	43:o:24:PRO:HG3	1.06	0.84
36:g:18:CYS:HB3	36:g:41:CYS:SG	2.17	0.84
43:o:17:ALA:HA	43:o:44:TYR:CZ	2.13	0.83
3:5:44:TYR:HE2	43:o:24:PRO:CB	1.92	0.83
4:A:505:C:OP2	15:L:88:LYS:NZ	2.13	0.82
4:A:1084:G:O5'	25:V:110:ARG:NH2	2.11	0.82
4:A:483:C:OP1	15:L:116:ARG:NH1	2.12	0.82
56:h:1177:G:C6	56:h:1206:A:N6	2.48	0.82
56:h:1194:C:H2'	56:h:1195:A:C8	2.14	0.82
7:D:98:TYR:O	7:D:160:ARG:NH2	2.13	0.82
4:A:772:A:O2'	4:A:774:A:N7	2.11	0.82
3:5:137:GLU:O	3:5:140:SER:HB3	1.80	0.81
3:5:44:TYR:HE2	43:o:24:PRO:HB3	1.44	0.81
43:o:15:ILE:O	43:o:44:TYR:OH	1.98	0.81
56:h:327:U:O2	56:h:449:G:N2	2.13	0.81
56:h:998:G:H1	56:h:1009:U:H3	1.26	0.81
56:h:2343:G:H1	56:h:2401:U:H3	1.29	0.81
56:h:993:G:O2'	56:h:1015:A:N6	2.15	0.80
3:5:27:ILE:HD11	3:5:113:LEU:HD22	1.62	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:105:THR:HG22	7:D:108:MET:HG2	1.63	0.80
51:w:51:GLY:HA2	51:w:56:GLU:HG3	1.61	0.80
4:A:1232:A:H62	4:A:1268:C:H42	1.27	0.80
4:A:811:U:P	25:V:21:ARG:HH12	2.05	0.80
43:o:17:ALA:N	43:o:44:TYR:OH	2.14	0.80
56:h:1177:G:C6	56:h:1206:A:N1	2.50	0.80
7:D:138:ILE:HB	7:D:175:ILE:HB	1.64	0.80
43:o:23:ALA:HB1	43:o:27:GLY:HA3	1.64	0.80
7:D:43:GLU:HA	7:D:47:ARG:HH21	1.48	0.79
7:D:50:LEU:O	7:D:54:GLN:NE2	2.15	0.79
4:A:500:A:H62	4:A:509:G:H8	1.30	0.79
4:A:728:A:O2'	4:A:729:A:N7	2.15	0.79
43:o:17:ALA:CB	43:o:48:THR:CG2	2.61	0.79
3:5:104:GLN:HA	3:5:110:ARG:HH21	1.47	0.79
56:h:997:G:H1	56:h:1010:U:H3	0.80	0.79
4:A:606:U:OP1	19:P:39:ARG:NH1	2.15	0.78
37:i:66:ASP:OD2	37:i:103:ARG:NH1	2.16	0.78
4:A:1330:U:H4'	12:I:142:ARG:HD3	1.66	0.78
42:n:1:MET:N	42:n:21:VAL:O	2.17	0.78
41:m:57:ASP:OD1	41:m:58:ASP:N	2.17	0.77
22:S:22:GLN:NE2	22:S:27:THR:O	2.17	0.77
3:5:42:ILE:HD13	3:5:51:ILE:CG2	2.14	0.77
15:L:42:PRO:HB3	15:L:89:ASP:HB3	1.66	0.77
4:A:413:G:O6	7:D:29:ARG:NH1	2.18	0.77
9:F:94:ASP:OD1	9:F:95:LYS:N	2.18	0.77
41:m:60:ARG:NH2	56:h:1153:U:O3'	2.17	0.77
3:5:42:ILE:HB	3:5:74:GLN:OE1	1.84	0.77
3:5:108:GLU:O	3:5:112:GLU:OE1	2.01	0.77
4:A:1110:A:H61	4:A:1125:G:H1'	1.49	0.77
43:o:17:ALA:CB	43:o:48:THR:CB	2.55	0.77
4:A:1168:G:H4'	12:I:133:ARG:HH21	1.49	0.76
16:M:33:ILE:HD13	16:M:60:ILE:HG22	1.67	0.76
56:h:293:G:H2'	56:h:294:G:C8	2.20	0.76
15:L:76:GLU:OE1	15:L:77:HIS:ND1	2.16	0.76
25:V:69:PHE:HB3	25:V:80:ILE:HG23	1.68	0.76
6:C:35:ASP:OD1	6:C:58:ARG:NH2	2.19	0.76
56:h:996:G:H2'	56:h:997:G:H8	1.50	0.75
4:A:1106:U:O4	13:J:9:ARG:NH1	2.17	0.75
56:h:2343:G:N2	56:h:2402:C:N3	2.35	0.75
4:A:1327:U:OP1	12:I:142:ARG:NH2	2.19	0.75
4:A:811:U:H5'	25:V:21:ARG:NH1	2.02	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1014:U:H2'	4:A:1015:G:H8	1.51	0.75
56:h:1825:C:N4	56:h:1840:G:OP2	2.19	0.75
13:J:8:ILE:HB	13:J:74:ILE:HB	1.68	0.75
43:o:17:ALA:CA	43:o:48:THR:CB	2.65	0.74
4:A:1027:G:HO2'	4:A:1196:G:HO2'	1.34	0.74
35:f:31:ARG:NH2	56:h:2753:G:N7	2.33	0.74
56:h:1177:G:N1	56:h:1206:A:N6	2.34	0.74
3:5:42:ILE:CD1	3:5:51:ILE:HG22	2.15	0.74
43:o:17:ALA:HB1	43:o:48:THR:CG2	2.18	0.74
4:A:1055:U:OP1	25:V:178:LYS:NZ	2.19	0.74
37:i:266:LYS:NZ	56:h:2448:G:OP1	2.21	0.74
3:5:40:ILE:HD13	3:5:82:ILE:HA	1.70	0.74
56:h:543:U:H3'	56:h:544:U:H5"	1.69	0.74
2:4:18:G:O2'	2:4:19:C:OP2	2.05	0.74
56:h:324:C:O2	56:h:452:G:N2	2.21	0.73
56:h:860:G:HO2'	56:h:863:G:HO2'	1.34	0.73
56:h:1187:A:H4'	56:h:1188:A:H5"	1.70	0.73
4:A:310:G:OP2	19:P:28:ARG:NH2	2.22	0.73
11:H:48:ASP:OD1	11:H:49:TYR:N	2.22	0.73
56:h:997:G:O6	56:h:1010:U:O4	2.04	0.73
45:q:37:ARG:NH1	56:h:1125:C:OP1	2.21	0.73
56:h:1541:G:H22	56:h:1631:A:H61	1.35	0.73
4:A:616:G:O3'	20:Q:19:ARG:NH1	2.22	0.73
32:c:8:ARG:NH1	56:h:2509:C:OP2	2.22	0.73
25:V:143:LYS:HA	25:V:146:ARG:HE	1.54	0.73
56:h:1002:C:H2'	56:h:1003:A:H2'	1.69	0.73
4:A:1066:U:H3	4:A:1079:G:H22	1.35	0.73
6:C:58:ARG:HG3	6:C:63:VAL:HG22	1.71	0.73
37:i:258:ARG:NH1	56:h:2016:G:OP1	2.21	0.73
4:A:644:G:H22	4:A:721:G:H1	1.36	0.72
16:M:72:ARG:NH2	40:l:120:ASP:OD2	2.22	0.72
40:l:52:ARG:NH1	40:l:84:PHE:O	2.21	0.72
56:h:995:U:H2'	56:h:996:G:C8	2.25	0.72
24:U:97:GLY:HA3	29:Z:38:THR:HG21	1.70	0.72
51:w:3:THR:HG23	56:h:3096:U:H4'	1.71	0.72
56:h:981:U:O2'	56:h:982:A:OP2	2.07	0.72
4:A:1392:C:O2	56:h:2137:A:N6	2.22	0.72
6:C:59:THR:HG22	6:C:60:ARG:H	1.54	0.72
49:u:106:ASP:OD2	56:h:1867:G:O2'	2.06	0.72
38:j:83:GLU:OE2	56:h:2859:C:O2'	2.08	0.72
3:5:44:TYR:CD1	3:5:54:LEU:HD13	2.24	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:747:A:N6	56:h:768:G:O2'	2.23	0.72
4:A:606:U:P	19:P:39:ARG:HH12	2.12	0.71
4:A:28:U:HO2'	4:A:504:G:HO2'	1.33	0.71
4:A:23:C:OP1	8:E:155:SER:OG	2.08	0.71
10:G:16:PRO:HB3	12:I:66:GLN:HG2	1.72	0.71
47:s:44:LYS:HG3	47:s:45:ASN:H	1.56	0.71
13:J:45:GLU:OE1	13:J:71:LYS:NZ	2.24	0.71
4:A:654:G:H2'	4:A:655:A:H8	1.55	0.71
22:S:23:ASN:HB3	22:S:47:HIS:HE1	1.56	0.71
25:V:63:HIS:ND1	25:V:63:HIS:O	2.24	0.70
56:h:1547:G:H1	56:h:1623:U:H3	1.35	0.70
4:A:1486:A:H2	4:A:1489:G:H1	1.38	0.70
56:h:1177:G:O6	56:h:1206:A:C6	2.43	0.70
56:h:2338:G:OP1	56:h:2388:G:N2	2.24	0.70
4:A:1476:A:H2'	4:A:1477:A:H2'	1.71	0.70
28:Y:24:ARG:NH1	56:h:469:G:OP1	2.24	0.70
3:5:44:TYR:CE2	43:o:24:PRO:CB	2.73	0.70
4:A:1159:G:N2	4:A:1162:G:OP2	2.22	0.70
56:h:1624:U:HO2'	56:h:1625:G:H8	1.39	0.70
56:h:993:G:N2	56:h:1015:A:OP2	2.23	0.70
4:A:452:A:H2	19:P:47:SER:HB2	1.55	0.70
11:H:5:ASP:OD2	11:H:79:ARG:NH1	2.25	0.70
24:U:68:ARG:HH22	56:h:1449:C:H5"	1.56	0.70
7:D:68:ARG:NH1	7:D:72:GLU:OE2	2.19	0.69
44:p:3:LYS:HA	44:p:6:LYS:HE3	1.74	0.69
4:A:503:A:N6	15:L:89:ASP:OD1	2.24	0.69
56:h:2356:G:H2'	56:h:2380:G:H1	1.58	0.69
37:i:222:ARG:NH1	56:h:2044:U:OP2	2.21	0.69
56:h:1556:A:N6	56:h:1615:G:N1	2.40	0.69
8:E:133:GLY:O	8:E:137:ARG:HB3	1.93	0.69
26:W:178:VAL:HG12	26:W:179:VAL:HG23	1.75	0.69
33:d:28:ARG:NH2	56:h:210:G:OP1	2.22	0.69
38:j:63:ILE:HG12	38:j:65:PRO:HD2	1.73	0.69
3:5:5:THR:HG21	3:5:138:GLU:HG2	1.74	0.69
7:D:183:ARG:NE	7:D:192:GLU:OE2	2.22	0.69
4:A:362:G:H5"	15:L:58:THR:HG21	1.75	0.68
4:A:408:G:O2'	7:D:104:ARG:NH2	2.25	0.68
4:A:1274:C:OP2	10:G:41:ARG:NH1	2.26	0.68
6:C:62:ARG:HH22	6:C:64:ARG:HB2	1.59	0.68
25:V:72:THR:O	25:V:77:GLN:NE2	2.25	0.68
32:c:40:LYS:NZ	56:h:2571:C:OP1	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:N:16:PHE:HD2	17:N:19:ARG:HE	1.41	0.68
6:C:109:GLU:HB2	6:C:143:GLN:HE21	1.59	0.68
22:S:22:GLN:HE22	22:S:28:LYS:HA	1.58	0.68
37:i:163:ILE:HG22	37:i:178:PRO:HD3	1.73	0.68
56:h:2249:G:H2'	56:h:2250:A:C8	2.29	0.68
5:B:60:G:H4'	50:v:12:GLU:HG3	1.76	0.68
46:r:93:PRO:HG3	46:r:114:ILE:HD13	1.75	0.68
4:A:1210:A:OP2	16:M:114:LYS:NZ	2.17	0.67
43:o:114:LYS:O	43:o:118:LEU:N	2.20	0.67
4:A:1375:G:N2	4:A:1486:A:H8	1.92	0.67
37:i:145:VAL:HG21	37:i:163:ILE:HD11	1.76	0.67
40:l:87:ARG:H	40:l:90:MET:HE3	1.58	0.67
27:X:11:ARG:O	27:X:14:ARG:NH1	2.27	0.67
12:I:110:VAL:HG12	12:I:111:GLN:HG3	1.75	0.67
56:h:669:G:O2'	56:h:1369:A:OP1	2.11	0.67
3:5:45:TYR:CG	43:o:23:ALA:HB3	2.30	0.67
4:A:1203:G:OP2	4:A:1304:C:N4	2.28	0.67
33:d:36:ASN:ND2	56:h:555:G:OP1	2.28	0.67
45:q:116:ARG:NH2	56:h:615:A:OP2	2.27	0.67
56:h:1561:C:H42	56:h:1610:C:H42	1.41	0.67
3:5:40:ILE:CG2	3:5:81:ALA:HB1	2.24	0.67
5:B:56:C:H1'	40:l:33:MET:HE1	1.76	0.67
8:E:174:ARG:HB2	8:E:177:GLU:HG3	1.75	0.67
34:e:47:ARG:HH22	56:h:725:A:P	2.17	0.67
56:h:993:G:H22	56:h:1014:G:H2'	1.59	0.67
41:m:154:ARG:NH2	56:h:2750:G:OP2	2.27	0.67
56:h:1201:G:H21	56:h:1203:A:H8	1.43	0.67
34:e:47:ARG:NH2	56:h:725:A:OP2	2.28	0.67
38:j:38:ARG:NH2	56:h:3008:C:O2'	2.28	0.66
56:h:681:C:H2'	56:h:682:A:H8	1.59	0.66
3:5:40:ILE:HG23	3:5:81:ALA:CB	2.24	0.66
40:l:98:LEU:HB3	40:l:103:MET:HB3	1.77	0.66
50:v:34:GLU:HG2	50:v:35:VAL:HG23	1.77	0.66
43:o:15:ILE:HG23	43:o:44:TYR:CE1	2.31	0.66
4:A:722:G:OP2	18:O:35:ARG:NH2	2.28	0.66
12:I:38:ARG:HG2	12:I:86:HIS:HB2	1.77	0.66
56:h:1177:G:O6	56:h:1206:A:N1	2.28	0.66
26:W:109:GLU:HG3	26:W:132:GLU:HB3	1.78	0.66
40:l:95:ARG:NH2	56:h:2538:A:OP1	2.28	0.66
56:h:1552:A:N6	56:h:1616:A:OP2	2.28	0.66
4:A:998:G:OP1	22:S:14:HIS:NE2	2.29	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:q:114:LEU:O	45:q:118:ILE:HG13	1.95	0.66
20:Q:77:MET:SD	20:Q:89:ARG:NH2	2.69	0.66
56:h:2862:G:O2'	56:h:3002:A:N6	2.29	0.66
4:A:184:U:H2'	4:A:185:G:H8	1.59	0.66
25:V:154:MET:SD	25:V:155:GLN:N	2.69	0.66
4:A:693:G:H2'	4:A:694:G:C8	2.31	0.65
4:A:810:G:O3'	25:V:21:ARG:NH1	2.29	0.65
13:J:51:VAL:HG13	17:N:41:ARG:HB2	1.78	0.65
27:X:73:ARG:HD2	27:X:73:ARG:O	1.96	0.65
56:h:2552:A:H2'	56:h:2553:G:C8	2.31	0.65
4:A:92:A:O2'	4:A:93:C:O5'	2.15	0.65
4:A:653:G:H2'	4:A:654:G:C8	2.31	0.65
39:k:55:ARG:NH2	56:h:789:G:OP1	2.27	0.65
56:h:217:G:H22	56:h:235:U:H4'	1.60	0.65
4:A:1338:G:H2'	4:A:1339:A:C8	2.31	0.65
4:A:1298:G:N1	4:A:1301:A:OP2	2.28	0.65
14:K:93:VAL:HG11	14:K:106:ILE:HD11	1.79	0.65
37:i:143:HIS:ND1	37:i:194:GLY:O	2.18	0.65
4:A:694:G:H2'	4:A:695:A:C8	2.32	0.65
4:A:926:G:N1	4:A:1320:G:OP2	2.27	0.65
10:G:79:ARG:HA	10:G:84:THR:HA	1.79	0.65
4:A:663:G:N2	14:K:49:ASN:OD1	2.27	0.64
43:o:114:LYS:HG3	43:o:130:ILE:HD11	1.78	0.64
19:P:67:THR:HG22	19:P:68:GLU:H	1.62	0.64
34:e:43:ARG:NH2	56:h:2587:U:OP2	2.29	0.64
40:l:126:PRO:O	40:l:174:ARG:NH1	2.30	0.64
52:x:6:ARG:HD3	56:h:1365:G:H5"	1.79	0.64
56:h:1690:A:H2'	56:h:1691:A:C8	2.33	0.64
56:h:3014:A:O2'	56:h:3015:C:H5"	1.97	0.64
56:h:218:A:N3	56:h:234:U:O2'	2.30	0.64
56:h:2333:G:OP2	56:h:2341:U:N3	2.29	0.64
3:5:104:GLN:HA	3:5:110:ARG:NH2	2.12	0.64
4:A:690:G:OP1	9:F:54:LYS:NZ	2.29	0.64
25:V:151:ILE:HA	25:V:154:MET:HG3	1.79	0.64
46:r:107:ARG:NH1	51:w:33:GLU:OE2	2.30	0.64
5:B:13:C:H2'	27:X:73:ARG:HA	1.79	0.64
6:C:90:LEU:HB3	6:C:98:VAL:HG21	1.79	0.64
41:m:159:LYS:NZ	56:h:2883:G:OP1	2.30	0.64
48:t:54:ILE:HG13	48:t:121:ALA:HB2	1.80	0.64
56:h:293:G:H2'	56:h:294:G:H8	1.61	0.64
4:A:380:G:N2	4:A:383:A:OP2	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:479:A:N1	4:A:526:G:O2'	2.31	0.64
4:A:1232:A:N3	4:A:1352:C:O2'	2.30	0.64
24:U:19:LYS:NZ	56:h:1455:U:OP1	2.31	0.64
56:h:451:U:H2'	56:h:452:G:C8	2.32	0.64
4:A:1028:G:OP1	17:N:4:LYS:N	2.24	0.64
25:V:117:LEU:O	25:V:141:LYS:NZ	2.31	0.64
41:m:111:SER:OG	56:h:2891:C:N3	2.29	0.64
56:h:681:C:H2'	56:h:682:A:C8	2.33	0.64
4:A:1350:U:OP2	12:I:134:LYS:NZ	2.29	0.63
9:F:6:ILE:HD12	9:F:90:VAL:HG22	1.80	0.63
56:h:2378:U:H3'	56:h:2379:G:C8	2.33	0.63
38:j:3:ARG:NH1	38:j:212:ILE:HD11	2.13	0.63
4:A:1265:U:H5"	4:A:1266:U:H4'	1.81	0.63
4:A:1287:G:HO2'	4:A:1288:A:H8	1.47	0.63
14:K:41:VAL:HG11	14:K:76:ALA:HA	1.78	0.63
3:5:75:LEU:HD21	3:5:93:ASN:HD21	1.63	0.63
43:o:101:LYS:HE2	43:o:142:GLU:HB3	1.81	0.63
43:o:125:ALA:HB1	56:h:1199:U:H4'	1.80	0.63
4:A:408:G:O3'	7:D:104:ARG:NH2	2.31	0.63
35:f:2:LYS:NZ	35:f:31:ARG:O	2.32	0.63
38:j:3:ARG:HH12	38:j:212:ILE:HD11	1.63	0.63
56:h:1996:U:OP2	56:h:2001:A:N6	2.26	0.63
4:A:1266:U:H2'	4:A:1267:U:H5"	1.80	0.63
21:R:18:ARG:NH2	21:R:54:THR:O	2.27	0.63
4:A:60:U:H2'	4:A:61:G:H8	1.64	0.63
3:5:79:GLU:HG2	3:5:83:ARG:HH12	1.64	0.63
27:X:64:PRO:HB3	56:h:759:G:H1	1.63	0.63
56:h:1013:U:H2'	56:h:1014:G:O4'	1.99	0.63
56:h:2351:A:H2'	56:h:2352:C:C6	2.34	0.63
22:S:23:ASN:HB3	22:S:47:HIS:CE1	2.32	0.63
28:Y:36:VAL:HG12	28:Y:63:ARG:HH21	1.64	0.63
37:i:13:ARG:HD2	56:h:843:G:H4'	1.81	0.63
37:i:230:ASP:OD1	56:h:895:G:N1	2.27	0.63
38:j:27:THR:HG21	38:j:198:ILE:HG12	1.80	0.63
4:A:7:U:O4	11:H:96:ARG:NH2	2.32	0.62
4:A:136:G:O2'	20:Q:7:PRO:O	2.15	0.62
23:T:2:ALA:HB1	23:T:8:ILE:HG12	1.79	0.62
56:h:1550:G:H22	56:h:1620:U:H3	1.47	0.62
4:A:21:U:H2'	4:A:22:C:C6	2.34	0.62
4:A:1478:G:HO2'	56:h:2136:A:HO2'	1.46	0.62
43:o:17:ALA:HA	43:o:44:TYR:CE2	2.34	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:U:67:LYS:HE2	24:U:76:ARG:HH21	1.64	0.62
27:X:73:ARG:NH2	56:h:2558:C:N3	2.43	0.62
4:A:408:G:H5'	7:D:108:MET:HE3	1.82	0.62
4:A:1092:C:O2'	6:C:179:ARG:NE	2.30	0.62
1:3:8:LYS:NZ	56:h:2253:A:OP2	2.26	0.62
3:5:136:MET:HE2	3:5:160:LEU:HD23	1.80	0.62
4:A:1375:G:H21	4:A:1486:A:H8	1.47	0.62
3:5:44:TYR:CE2	43:o:24:PRO:HB3	2.32	0.62
4:A:872:G:O2'	4:A:888:A:N6	2.33	0.62
36:g:38:CYS:H	36:g:41:CYS:HB2	1.65	0.62
4:A:146:A:H2'	4:A:147:U:C6	2.35	0.62
22:S:55:ARG:HG2	22:S:56:LYS:HE3	1.81	0.62
24:U:57:VAL:HG12	24:U:84:VAL:HG13	1.82	0.62
37:i:88:ARG:NH2	56:h:2034:G:OP1	2.33	0.62
4:A:1220:A:H62	4:A:1281:A:H62	1.48	0.62
21:R:39:ARG:HA	21:R:42:ILE:HG12	1.81	0.62
7:D:91:SER:HB3	7:D:131:ARG:HG3	1.81	0.62
42:n:101:VAL:HG23	42:n:112:LEU:HB2	1.82	0.62
4:A:1374:U:H2'	4:A:1375:G:C8	2.35	0.62
6:C:34:GLU:OE1	6:C:58:ARG:NH1	2.33	0.62
41:m:23:ASN:OD1	41:m:24:LEU:N	2.32	0.62
56:h:1220:C:H2'	56:h:1221:A:H8	1.65	0.62
56:h:1556:A:N1	56:h:1615:G:N2	2.48	0.62
56:h:2096:G:H2'	56:h:2097:G:C8	2.35	0.62
56:h:2410:A:H2'	56:h:2411:U:C6	2.35	0.61
3:5:34:PRO:HA	3:5:37:PHE:HD2	1.66	0.61
56:h:448:U:H2'	56:h:449:G:C4	2.34	0.61
4:A:1220:A:H62	4:A:1281:A:N6	1.98	0.61
56:h:286:G:O2'	56:h:300:G:O6	2.13	0.61
56:h:1541:G:N2	56:h:1631:A:H61	1.98	0.61
7:D:60:TYR:OH	7:D:90:GLU:OE2	2.19	0.61
24:U:34:HIS:ND1	24:U:36:ASP:OD1	2.33	0.61
42:n:95:VAL:HG12	42:n:124:ILE:HG21	1.82	0.61
4:A:1349:C:O2'	13:J:62:ARG:NH1	2.33	0.61
44:p:29:ARG:NH2	56:h:1171:C:O2	2.34	0.61
56:h:987:A:H2	56:h:1021:G:H1	1.46	0.61
56:h:994:A:H5"	56:h:995:U:H5	1.66	0.61
56:h:997:G:N2	56:h:1010:U:O2	2.30	0.61
56:h:1706:A:H2'	56:h:1707:G:H8	1.65	0.61
3:5:110:ARG:NH1	3:5:183:LEU:HA	2.15	0.61
4:A:39:G:N3	15:L:115:SER:OG	2.34	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:592:U:H2'	4:A:593:C:C6	2.35	0.61
25:V:121:GLU:HG3	25:V:126:PHE:HZ	1.65	0.61
56:h:994:A:H62	56:h:1014:G:H1'	1.66	0.61
42:n:2:LYS:HG2	42:n:39:ALA:HB3	1.82	0.61
56:h:1710:A:N6	56:h:1716:A:OP2	2.33	0.61
16:M:16:GLU:HB2	16:M:41:LYS:HB2	1.82	0.61
42:n:9:VAL:HG23	42:n:12:LEU:HB2	1.82	0.61
45:q:68:LYS:NZ	56:h:1258:C:OP2	2.26	0.61
56:h:1544:U:O2	56:h:1626:G:N2	2.34	0.61
56:h:2482:U:O2'	56:h:2651:C:OP2	2.19	0.61
36:g:16:CYS:SG	36:g:17:GLY:N	2.74	0.61
56:h:995:U:H3	56:h:1013:U:H3	1.48	0.61
56:h:2363:A:H61	56:h:2374:U:H3	1.48	0.61
56:h:72:G:H22	56:h:108:A:H2	1.48	0.60
56:h:1566:A:H2'	56:h:1567:C:H5	1.65	0.60
56:h:1756:G:H1'	56:h:1758:G:C5	2.36	0.60
11:H:41:LYS:HZ3	11:H:48:ASP:HA	1.65	0.60
56:h:993:G:N2	56:h:1014:G:H2'	2.17	0.60
11:H:41:LYS:NZ	11:H:47:SER:O	2.33	0.60
22:S:19:VAL:HG11	22:S:44:PHE:HE1	1.67	0.60
56:h:2085:C:O2'	56:h:2086:U:O5'	2.18	0.60
56:h:3012:U:O2'	56:h:3030:A:N3	2.33	0.60
4:A:153:U:H3	4:A:162:G:H1	1.49	0.60
4:A:936:G:H21	4:A:1208:A:H62	1.49	0.60
56:h:302:U:O2'	56:h:303:G:N7	2.33	0.60
56:h:470:G:H22	56:h:480:U:H3	1.48	0.60
7:D:52:GLU:HG3	7:D:194:LEU:HD12	1.84	0.60
9:F:14:LEU:HD11	9:F:84:SER:HB2	1.82	0.60
24:U:27:ASN:HD21	24:U:90:SER:HB2	1.66	0.60
25:V:56:PHE:HE2	25:V:184:ILE:HD11	1.66	0.60
56:h:380:A:N3	56:h:401:C:O2'	2.34	0.60
56:h:447:A:H2'	56:h:448:U:C6	2.35	0.60
56:h:1673:A:H5"	56:h:1674:G:H5"	1.84	0.60
56:h:1675:U:O2'	56:h:1676:G:N7	2.35	0.60
15:L:43:LYS:NZ	15:L:88:LYS:O	2.35	0.60
41:m:71:THR:HG21	56:h:2971:G:H5'	1.84	0.60
54:z:11:THR:HG22	54:z:113:ILE:HG12	1.82	0.60
56:h:928:U:H2'	56:h:929:C:C6	2.37	0.60
12:I:48:PHE:CE1	12:I:83:ILE:HD11	2.37	0.60
56:h:277:U:H2'	56:h:278:A:C8	2.36	0.60
32:c:44:ASN:OD1	32:c:45:CYS:N	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:t:36:ALA:HB2	48:t:103:LEU:HD11	1.84	0.60
4:A:928:A:H2'	4:A:929:G:C8	2.37	0.60
6:C:82:GLU:OE2	6:C:85:ARG:NH1	2.34	0.60
25:V:16:PHE:O	25:V:203:ASN:ND2	2.34	0.60
28:Y:41:ARG:HH12	56:h:165:U:H4'	1.66	0.60
3:5:9:ALA:O	3:5:13:MET:HG3	2.01	0.60
4:A:275:G:P	20:Q:31:LYS:HE2	2.42	0.60
4:A:438:U:O2'	4:A:439:U:O2	2.14	0.60
18:O:18:HIS:CE1	18:O:21:ASP:HB3	2.36	0.60
56:h:2367:G:N2	56:h:2369:C:O2'	2.34	0.60
31:b:45:LYS:O	31:b:48:ARG:N	2.35	0.59
56:h:994:A:H8	56:h:1014:G:H21	1.48	0.59
56:h:2412:U:H2'	56:h:2413:G:C8	2.36	0.59
4:A:461:G:O2'	4:A:463:C:N4	2.34	0.59
40:l:73:GLU:OE1	40:l:75:ARG:NH1	2.34	0.59
47:s:15:GLU:OE2	56:h:691:U:O2'	2.13	0.59
3:5:154:SER:HA	3:5:157:GLU:OE2	2.02	0.59
10:G:30:VAL:HG13	10:G:39:ALA:HB1	1.83	0.59
3:5:55:ALA:HA	3:5:70:TYR:CE1	2.37	0.59
56:h:3023:G:H2'	56:h:3024:A:O4'	2.03	0.59
4:A:144:G:H2'	4:A:145:G:C8	2.36	0.59
27:X:41:ARG:NH1	56:h:2610:C:O2'	2.35	0.59
43:o:133:THR:O	43:o:136:SER:OG	2.15	0.59
44:p:43:LEU:O	44:p:47:ALA:N	2.32	0.59
56:h:1710:A:H61	56:h:1716:A:H5"	1.66	0.59
8:E:173:GLN:OE1	8:E:181:ARG:NH2	2.31	0.59
37:i:269:VAL:HG12	37:i:270:ARG:HG3	1.84	0.59
38:j:34:ASN:ND2	38:j:54:TYR:HB2	2.18	0.59
43:o:118:LEU:HG	43:o:120:ALA:H	1.67	0.59
3:5:105:LEU:H	3:5:110:ARG:NE	1.92	0.59
4:A:672:U:O2'	4:A:674:G:N7	2.29	0.59
4:A:708:A:H2'	4:A:709:A:C8	2.38	0.59
56:h:2922:U:H2'	56:h:2923:C:C6	2.37	0.59
1:3:7:LYS:NZ	56:h:1252:G:O4'	2.36	0.59
4:A:1013:G:H2'	4:A:1014:U:O4'	2.02	0.59
19:P:86:LEU:HB2	19:P:87:PRO:HD3	1.84	0.59
3:5:104:GLN:CA	3:5:110:ARG:HH21	2.14	0.59
4:A:935:G:O6	16:M:104:LYS:NZ	2.36	0.59
4:A:1418:G:H2'	4:A:1419:C:C6	2.37	0.59
6:C:15:THR:HG23	6:C:207:ILE:HD12	1.85	0.59
56:h:287:A:N6	56:h:299:G:O2'	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:308:U:H2'	56:h:309:G:H8	1.67	0.59
56:h:365:U:O2	56:h:437:G:N2	2.30	0.59
56:h:998:G:N2	56:h:1009:U:O2	2.32	0.59
4:A:500:A:O2'	15:L:70:GLU:OE2	2.15	0.59
4:A:1410:C:H2'	4:A:1411:A:H8	1.66	0.59
34:e:23:VAL:HG11	34:e:47:ARG:HD3	1.85	0.59
4:A:184:U:H5"	23:T:81:LEU:HD22	1.84	0.58
43:o:93:GLU:OE1	43:o:93:GLU:HA	2.03	0.58
44:p:1:MET:HE3	44:p:6:LYS:HD3	1.83	0.58
4:A:407:A:O2'	7:D:108:MET:HE1	2.03	0.58
4:A:654:G:H2'	4:A:655:A:C8	2.37	0.58
4:A:716:U:H2'	4:A:717:C:C6	2.38	0.58
20:Q:32:MET:SD	20:Q:35:THR:OG1	2.59	0.58
52:x:49:ASP:OD2	56:h:621:U:O2'	2.11	0.58
56:h:2726:G:H5"	56:h:2727:A:H5"	1.84	0.58
56:h:2902:A:H2'	56:h:2903:A:C8	2.37	0.58
39:k:184:ASN:HD21	56:h:708:G:N2	2.00	0.58
56:h:996:G:H2'	56:h:997:G:C8	2.36	0.58
56:h:1180:G:H3'	56:h:1181:G:H8	1.68	0.58
56:h:1468:A:H2'	56:h:1469:A:C8	2.38	0.58
56:h:1678:U:H5'	56:h:1679:A:OP2	2.03	0.58
55:1:75:ASP:OD1	55:1:76:SER:N	2.30	0.58
4:A:457:A:O2'	4:A:458:A:O5'	2.19	0.58
8:E:132:ALA:O	8:E:137:ARG:NH1	2.36	0.58
20:Q:73:ARG:HB3	20:Q:95:GLU:HG2	1.84	0.58
7:D:60:TYR:CE2	7:D:89:LEU:HB3	2.38	0.58
43:o:117:ASP:OD1	43:o:118:LEU:N	2.37	0.58
4:A:32:G:O2'	4:A:296:U:OP1	2.21	0.58
4:A:1248:U:O2'	4:A:1249:G:O5'	2.22	0.58
23:T:51:LEU:HD22	23:T:83:LEU:HD13	1.85	0.58
27:X:36:ILE:HG21	27:X:39:ARG:HD3	1.85	0.58
25:V:29:ARG:HH12	25:V:30:PHE:HE1	1.50	0.58
48:t:110:ASP:OD1	48:t:113:THR:OG1	2.21	0.58
56:h:138:A:H2'	56:h:139:U:O2	2.04	0.58
56:h:1005:A:H3'	56:h:1006:G:C8	2.38	0.58
4:A:481:G:OP1	15:L:114:ARG:NH2	2.36	0.58
4:A:695:A:H2'	4:A:696:A:C8	2.38	0.58
23:T:45:ASP:O	23:T:49:GLU:HG3	2.03	0.58
25:V:46:THR:HA	25:V:201:PRO:HG2	1.85	0.58
56:h:2515:U:H2'	56:h:2516:U:C6	2.39	0.58
4:A:986:G:N1	4:A:1016:G:O6	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1199:C:H2'	4:A:1200:A:C8	2.39	0.58
19:P:40:TYR:CE1	19:P:42:PRO:HG3	2.38	0.58
31:b:42:ARG:NH2	49:u:38:GLU:OE1	2.35	0.58
56:h:1162:G:O2'	56:h:1229:A:N6	2.30	0.58
56:h:2351:A:N3	56:h:2396:A:O2'	2.37	0.58
49:u:26:THR:HG23	49:u:75:VAL:HG21	1.86	0.57
56:h:2096:G:H2'	56:h:2097:G:H8	1.69	0.57
4:A:481:G:H2'	4:A:482:A:C8	2.39	0.57
44:p:7:ALA:HA	56:h:1164:A:C2	2.39	0.57
56:h:279:U:H2'	56:h:280:G:H8	1.69	0.57
56:h:2961:G:H2'	56:h:2962:A:C8	2.39	0.57
4:A:987:A:C6	4:A:1008:C:H1'	2.39	0.57
25:V:162:TRP:HE3	25:V:184:ILE:HG22	1.69	0.57
40:l:24:GLN:HE21	40:l:35:ILE:HD11	1.68	0.57
4:A:943:U:OP2	4:A:1204:C:O2'	2.13	0.57
4:A:1149:C:O2'	4:A:1150:A:OP2	2.20	0.57
44:p:53:LYS:NZ	56:h:1224:G:OP1	2.38	0.57
56:h:2470:A:H2'	56:h:2471:A:C8	2.39	0.57
12:I:75:VAL:HG13	12:I:77:ARG:H	1.69	0.57
38:j:6:ILE:HD11	38:j:31:ALA:HB1	1.85	0.57
56:h:2106:A:H3'	56:h:2107:G:H5"	1.86	0.57
4:A:1421:G:OP2	23:T:29:ARG:NH1	2.37	0.57
7:D:94:ASP:OD1	7:D:95:ASN:N	2.37	0.57
10:G:68:ASN:HD21	10:G:130:GLY:HA2	1.69	0.57
25:V:111:LEU:O	25:V:115:LYS:HD3	2.05	0.57
26:W:118:ALA:HB2	26:W:148:VAL:HG22	1.87	0.57
4:A:1231:A:N3	4:A:1353:G:O2'	2.34	0.57
10:G:32:LEU:HG	10:G:33:GLU:HG2	1.86	0.57
22:S:22:GLN:HE21	22:S:29:GLN:H	1.52	0.57
24:U:68:ARG:NH2	56:h:1449:C:H5"	2.19	0.57
56:h:1530:G:H21	56:h:1805:G:H1	1.52	0.57
4:A:819:U:H3	4:A:829:G:H1	1.53	0.57
6:C:109:GLU:OE1	6:C:143:GLN:NE2	2.38	0.57
10:G:112:ARG:HG3	10:G:112:ARG:HH11	1.70	0.57
7:D:182:GLU:O	7:D:186:ILE:HD12	2.05	0.57
26:W:11:LEU:HD12	26:W:67:LEU:HD22	1.87	0.57
56:h:591:G:O2'	56:h:592:A:OP2	2.22	0.57
56:h:1201:G:N2	56:h:1204:A:OP2	2.35	0.57
4:A:498:C:H2'	4:A:510:G:C8	2.40	0.57
4:A:1296:C:H2'	4:A:1297:U:C6	2.40	0.56
19:P:60:LEU:HD11	19:P:74:LEU:HD21	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:V:52:LYS:HE2	25:V:198:TYR:HE1	1.70	0.56
46:r:76:TYR:HB2	51:w:72:THR:HG22	1.86	0.56
56:h:994:A:N6	56:h:1014:G:O2'	2.38	0.56
56:h:1229:A:H8	56:h:1230:G:H1'	1.69	0.56
3:5:136:MET:HE1	3:5:157:GLU:HB2	1.87	0.56
4:A:65:G:N7	23:T:6:SER:OG	2.27	0.56
15:L:73:ASN:ND2	15:L:105:GLN:HG3	2.20	0.56
23:T:13:THR:O	23:T:17:ARG:HG3	2.04	0.56
41:m:22:GLN:NE2	41:m:39:GLU:HA	2.20	0.56
42:n:62:ILE:H	42:n:65:ALA:HB3	1.70	0.56
45:q:125:TYR:HH	45:q:132:HIS:HE2	1.51	0.56
49:u:49:GLU:HG3	49:u:94:TYR:CD2	2.40	0.56
3:5:129:ARG:O	3:5:133:ARG:HG2	2.06	0.56
4:A:25:G:H2'	4:A:26:G:C8	2.40	0.56
4:A:403:C:H5"	7:D:128:PRO:HD2	1.87	0.56
4:A:407:A:H2'	4:A:408:G:C8	2.41	0.56
4:A:490:A:HO2'	4:A:522:G:HO2'	1.53	0.56
4:A:900:A:H2'	4:A:901:A:C8	2.40	0.56
4:A:1410:C:H2'	4:A:1411:A:C8	2.40	0.56
4:A:1477:A:H4'	4:A:1478:G:OP1	2.04	0.56
7:D:49:GLN:HB3	7:D:198:LEU:HB2	1.86	0.56
14:K:99:GLY:HA3	14:K:102:ARG:HD2	1.86	0.56
23:T:46:LYS:O	23:T:50:LEU:HG	2.05	0.56
28:Y:41:ARG:HG3	28:Y:43:GLY:H	1.71	0.56
41:m:87:LYS:HA	41:m:133:SER:HA	1.86	0.56
42:n:124:ILE:HG22	42:n:125:LYS:H	1.70	0.56
43:o:17:ALA:CA	43:o:44:TYR:CE2	2.88	0.56
4:A:638:A:O4'	18:O:22:THR:HG21	2.05	0.56
4:A:642:C:H2'	4:A:643:A:C8	2.40	0.56
7:D:73:GLU:O	7:D:77:GLN:HG2	2.06	0.56
16:M:4:LEU:HG	16:M:5:VAL:H	1.71	0.56
32:c:28:ASN:ND2	56:h:2509:C:OP2	2.37	0.56
41:m:103:ASN:ND2	41:m:117:GLU:OE1	2.38	0.56
41:m:161:LYS:NZ	56:h:2881:A:O2'	2.39	0.56
44:p:69:LEU:HD11	44:p:109:TYR:HB2	1.88	0.56
56:h:290:C:H2'	56:h:301:U:C5	2.41	0.56
46:r:7:ARG:HE	46:r:20:LEU:HD13	1.70	0.56
56:h:2386:U:OP1	56:h:2393:A:O2'	2.21	0.56
12:I:32:ARG:HD3	12:I:97:GLY:HA3	1.86	0.56
25:V:15:HIS:HB2	25:V:40:ILE:HG23	1.87	0.56
56:h:740:A:O2'	56:h:741:G:OP2	2.22	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:747:A:H2	56:h:768:G:H21	1.52	0.56
56:h:1937:U:H2'	56:h:1938:G:O4'	2.06	0.56
4:A:187:U:O2	4:A:201:G:O6	2.24	0.56
4:A:1148:U:OP1	4:A:1150:A:N6	2.39	0.56
22:S:36:ARG:NH2	22:S:72:GLY:O	2.39	0.56
37:i:31:LYS:NZ	56:h:1647:G:N7	2.47	0.56
45:q:56:VAL:HB	45:q:124:VAL:HG23	1.88	0.56
56:h:1468:A:H2'	56:h:1469:A:H8	1.70	0.56
4:A:146:A:H2'	4:A:147:U:H6	1.70	0.56
4:A:390:U:H2'	4:A:391:G:C8	2.41	0.56
15:L:5:GLN:HA	15:L:8:VAL:HG22	1.86	0.56
28:Y:16:LYS:HD2	28:Y:24:ARG:HB3	1.87	0.56
34:e:19:THR:HG23	56:h:745:G:H5"	1.88	0.56
51:w:30:LYS:NZ	51:w:81:ASP:OD1	2.27	0.56
52:x:91:ASP:OD1	52:x:94:ASN:ND2	2.39	0.56
56:h:340:A:H2'	56:h:341:C:C6	2.41	0.56
56:h:357:U:H4'	56:h:358:G:O5'	2.05	0.56
56:h:2044:U:H5'	56:h:2195:U:H5'	1.88	0.56
4:A:481:G:H2'	4:A:482:A:H8	1.70	0.56
4:A:1011:U:H1'	4:A:1013:G:H1	1.71	0.56
20:Q:29:SER:HB3	20:Q:37:VAL:HB	1.86	0.56
20:Q:20:ARG:HG3	20:Q:78:GLU:HB2	1.88	0.56
39:k:101:ARG:NH1	56:h:774:G:OP1	2.38	0.56
50:v:127:PHE:O	56:h:2601:A:O2'	2.16	0.56
56:h:1551:U:H3'	56:h:1552:A:H8	1.70	0.56
4:A:1229:A:H4'	12:I:53:ARG:HH12	1.70	0.55
22:S:22:GLN:NE2	22:S:29:GLN:H	2.04	0.55
4:A:208:G:H4'	23:T:59:ASP:HB3	1.88	0.55
7:D:90:GLU:HA	7:D:95:ASN:ND2	2.21	0.55
16:M:11:ARG:HH21	16:M:46:LYS:NZ	2.04	0.55
39:k:156:VAL:HG12	39:k:158:ILE:HG12	1.88	0.55
49:u:14:SER:OG	56:h:2913:U:O2'	2.22	0.55
4:A:60:U:H2'	4:A:61:G:C8	2.41	0.55
4:A:1420:C:OP1	23:T:29:ARG:NH2	2.34	0.55
4:A:485:G:H2'	4:A:486:G:H8	1.71	0.55
4:A:1207:C:OP1	16:M:91:ARG:NH2	2.36	0.55
11:H:103:VAL:HG23	11:H:114:THR:HG23	1.88	0.55
18:O:6:GLU:O	18:O:9:LYS:HG2	2.07	0.55
40:l:118:ILE:HD13	40:l:144:MET:HG2	1.89	0.55
48:t:56:ARG:NH1	56:h:2693:A:O2'	2.39	0.55
48:t:124:LYS:NZ	56:h:2691:C:O2	2.38	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:x:50:ARG:O	52:x:54:LYS:NZ	2.39	0.55
56:h:2304:C:H2'	56:h:2305:A:H8	1.71	0.55
4:A:1177:A:O2'	4:A:1178:A:OP1	2.24	0.55
4:A:1231:A:H2'	4:A:1232:A:C8	2.41	0.55
40:l:100:GLY:O	40:l:103:MET:HG3	2.07	0.55
56:h:551:G:N2	56:h:554:A:OP2	2.36	0.55
56:h:1630:U:H2'	56:h:1631:A:C8	2.42	0.55
56:h:1704:U:H2'	56:h:1705:C:C6	2.41	0.55
7:D:90:GLU:HA	7:D:95:ASN:HD22	1.72	0.55
13:J:11:LYS:HG2	13:J:71:LYS:HG2	1.88	0.55
26:W:158:THR:OG1	26:W:174:PRO:O	2.13	0.55
26:W:190:LEU:O	48:t:55:ASN:ND2	2.40	0.55
43:o:32:GLN:HE22	56:h:1214:A:H62	1.47	0.55
56:h:857:U:H2'	56:h:858:A:C8	2.41	0.55
56:h:1537:U:H2'	56:h:1538:G:C8	2.42	0.55
4:A:452:A:H62	19:P:93:LEU:HA	1.72	0.55
4:A:1338:G:H2'	4:A:1339:A:H8	1.71	0.55
6:C:186:LEU:HD13	6:C:199:LYS:HG2	1.88	0.55
11:H:114:THR:HG22	11:H:116:ARG:H	1.72	0.55
4:A:632:U:O4	4:A:732:G:O2'	2.24	0.55
4:A:1305:G:H2'	4:A:1306:A:C8	2.41	0.55
56:h:301:U:H5'	56:h:302:U:O5'	2.07	0.55
56:h:389:G:N1	56:h:392:A:OP2	2.37	0.55
13:J:56:HIS:CG	13:J:56:HIS:O	2.60	0.55
36:g:28:LYS:NZ	40:l:146:HIS:O	2.32	0.55
40:l:20:ARG:HE	40:l:35:ILE:HG21	1.72	0.55
44:p:93:ILE:HD11	44:p:103:LEU:HD11	1.88	0.55
14:K:37:ASN:HA	14:K:67:SER:HB3	1.88	0.54
16:M:29:ARG:O	16:M:33:ILE:HG13	2.07	0.54
43:o:57:PRO:HG2	43:o:73:LYS:HB2	1.89	0.54
55:1:10:LEU:HD23	55:1:80:PRO:HG3	1.89	0.54
56:h:1206:A:H4'	56:h:1207:G:H5"	1.89	0.54
7:D:84:ASN:OD1	7:D:87:ARG:NH1	2.40	0.54
13:J:40:VAL:HB	13:J:73:LEU:HB3	1.90	0.54
37:i:108:PRO:HD2	37:i:111:LEU:HD22	1.89	0.54
49:u:54:HIS:CE1	49:u:65:GLU:HG2	2.41	0.54
5:B:10:G:O2'	5:B:11:U:OP1	2.20	0.54
56:h:334:G:H1	56:h:347:U:H3	1.56	0.54
3:5:12:LYS:O	3:5:15:LYS:HG3	2.06	0.54
3:5:141:ARG:NH1	3:5:147:GLU:OE2	2.33	0.54
4:A:47:C:H4'	19:P:12:LYS:HZ2	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:48:C:OP2	50:v:14:ARG:NH1	2.41	0.54
7:D:13:ARG:NE	7:D:31:TYR:O	2.41	0.54
54:z:90:LYS:HB3	54:z:102:ARG:NH1	2.23	0.54
56:h:705:C:H2'	56:h:706:G:H5"	1.90	0.54
56:h:1556:A:N6	56:h:1615:G:H1	2.05	0.54
4:A:79:C:H2'	4:A:80:C:C6	2.43	0.54
4:A:427:U:OP1	7:D:13:ARG:NH1	2.40	0.54
19:P:49:ILE:HD12	19:P:73:LEU:HD22	1.88	0.54
56:h:1555:A:H61	56:h:1616:A:H2	1.56	0.54
56:h:2255:A:N3	56:h:2679:G:O2'	2.32	0.54
4:A:561:G:H4'	18:O:64:ARG:HH21	1.73	0.54
7:D:51:GLN:O	7:D:55:LYS:HG3	2.08	0.54
10:G:111:ARG:HB2	10:G:119:ARG:HD2	1.89	0.54
29:Z:34:PHE:O	29:Z:38:THR:HG23	2.08	0.54
3:5:105:LEU:N	3:5:110:ARG:HE	1.94	0.54
4:A:29:C:H5'	4:A:504:G:O2'	2.08	0.54
7:D:105:THR:HG23	7:D:108:MET:H	1.73	0.54
44:p:55:THR:HG21	56:h:1165:G:P	2.48	0.54
50:v:37:ARG:NH1	50:v:103:ASP:OD2	2.41	0.54
56:h:2094:G:O2'	56:h:2095:G:H8	1.90	0.54
4:A:1011:U:O2'	4:A:1012:U:O5'	2.26	0.54
4:A:1033:G:N7	4:A:1181:C:H5"	2.23	0.54
4:A:1132:U:O2'	4:A:1133:G:H5"	2.06	0.54
5:B:11:U:O2'	5:B:12:C:H5'	2.08	0.54
6:C:25:ASP:OD1	6:C:26:LYS:N	2.37	0.54
43:o:26:VAL:HG22	43:o:30:LEU:HD23	1.90	0.54
46:r:13:ASN:OD1	46:r:97:ARG:HG2	2.08	0.54
56:h:2745:C:O2'	56:h:2788:A:N3	2.35	0.54
37:i:177:MET:HE3	37:i:178:PRO:HD2	1.89	0.54
44:p:21:THR:OG1	44:p:82:VAL:O	2.26	0.54
56:h:1714:A:H2'	56:h:1715:A:C8	2.41	0.54
4:A:45:G:H2'	4:A:46:G:H8	1.73	0.54
8:E:102:ILE:HD11	8:E:107:THR:HG23	1.90	0.54
11:H:15:ARG:NH2	11:H:77:LEU:O	2.37	0.54
11:H:76:GLY:N	11:H:132:TRP:O	2.36	0.54
16:M:90:LEU:O	16:M:94:ARG:HG2	2.08	0.54
18:O:43:LEU:HD13	18:O:53:ARG:HG2	1.89	0.54
25:V:108:HIS:NE2	25:V:155:GLN:OE1	2.41	0.54
40:l:45:MET:SD	40:l:64:LEU:HG	2.48	0.54
44:p:7:ALA:HA	56:h:1164:A:N1	2.23	0.54
44:p:36:LEU:HD21	56:h:1203:A:H61	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:w:26:ASN:OD1	51:w:84:ASP:HB2	2.07	0.54
56:h:1343:G:H2'	56:h:1345:G:C8	2.43	0.54
3:5:40:ILE:CG2	3:5:81:ALA:CB	2.85	0.53
4:A:485:G:H2'	4:A:486:G:C8	2.43	0.53
7:D:103:ALA:HB1	7:D:108:MET:HB2	1.88	0.53
10:G:79:ARG:HB2	10:G:84:THR:HG22	1.89	0.53
35:f:17:ILE:HD12	35:f:19:ARG:HG3	1.89	0.53
40:l:128:GLN:HB2	40:l:135:TYR:CE1	2.43	0.53
42:n:5:LEU:O	42:n:16:GLY:N	2.25	0.53
56:h:1546:A:H2'	56:h:1547:G:C8	2.43	0.53
56:h:2538:A:H2'	56:h:2539:G:H8	1.73	0.53
4:A:1497:A:H2'	4:A:1498:C:C6	2.43	0.53
24:U:27:ASN:ND2	24:U:90:SER:HB2	2.24	0.53
25:V:130:THR:HG22	25:V:132:LYS:H	1.72	0.53
37:i:85:ASP:OD2	37:i:88:ARG:NH1	2.36	0.53
45:q:102:GLU:O	45:q:106:ILE:HG12	2.08	0.53
56:h:1396:G:H2'	56:h:1397:U:C6	2.42	0.53
56:h:1640:A:H2'	56:h:1642:G:N7	2.23	0.53
4:A:1158:G:OP2	12:I:119:LYS:NZ	2.41	0.53
27:X:8:SER:O	56:h:2479:G:N2	2.39	0.53
27:X:53:ARG:NE	27:X:57:ASP:OD1	2.41	0.53
38:j:148:PRO:O	56:h:2735:U:O2'	2.22	0.53
43:o:17:ALA:CA	43:o:44:TYR:CZ	2.88	0.53
44:p:54:ASN:HD22	56:h:1225:G:H5"	1.73	0.53
56:h:2378:U:H3'	56:h:2379:G:H8	1.74	0.53
8:E:178:VAL:O	8:E:182:ARG:HG2	2.09	0.53
12:I:41:LEU:HD21	12:I:81:PHE:CD1	2.43	0.53
13:J:80:THR:O	13:J:83:THR:OG1	2.21	0.53
8:E:135:ALA:HB1	8:E:162:VAL:HG23	1.90	0.53
16:M:22:ILE:HG22	16:M:24:GLY:H	1.74	0.53
18:O:88:ARG:NH2	56:h:831:A:OP2	2.34	0.53
43:o:14:GLN:N	56:h:1179:U:O4	2.41	0.53
56:h:1624:U:O2'	56:h:1625:G:H8	1.91	0.53
56:h:2224:C:O2'	56:h:2913:U:OP2	2.26	0.53
56:h:2294:A:H2'	56:h:2295:C:C6	2.43	0.53
56:h:2297:U:H2'	56:h:2298:U:C6	2.43	0.53
4:A:426:U:OP1	7:D:31:TYR:OH	2.24	0.53
14:K:44:THR:HG22	14:K:50:VAL:HG12	1.90	0.53
43:o:44:TYR:CZ	43:o:48:THR:HG21	2.44	0.53
56:h:635:G:O2'	56:h:636:U:O4'	2.23	0.53
4:A:955:G:H1'	13:J:56:HIS:ND1	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1333:U:O4	12:I:140:LYS:NZ	2.31	0.53
4:A:1457:G:H2'	4:A:1458:G:C8	2.44	0.53
4:A:1478:G:O2'	56:h:2136:A:O2'	2.18	0.53
27:X:15:ASP:OD1	27:X:16:SER:N	2.41	0.53
43:o:119:ASN:HA	44:p:41:ARG:HH21	1.72	0.53
4:A:1011:U:O2'	4:A:1013:G:N1	2.42	0.53
4:A:39:G:H2'	4:A:40:C:C6	2.44	0.53
4:A:523:U:H2'	4:A:524:C:C6	2.44	0.53
25:V:79:SER:O	25:V:83:GLU:HG3	2.09	0.53
25:V:136:MET:HE2	25:V:136:MET:HA	1.90	0.53
30:a:11:SER:OG	30:a:12:THR:N	2.42	0.53
36:g:16:CYS:SG	36:g:38:CYS:HB3	2.49	0.53
37:i:177:MET:HE3	37:i:178:PRO:CD	2.38	0.53
40:l:138:GLY:HA3	56:h:2529:A:H5"	1.91	0.53
42:n:124:ILE:HG22	42:n:125:LYS:N	2.24	0.53
44:p:85:GLU:OE2	44:p:87:VAL:HG12	2.09	0.53
56:h:502:C:H2'	56:h:503:A:H8	1.74	0.53
56:h:2333:G:H4'	56:h:2334:U:O5'	2.09	0.53
4:A:664:U:O2	14:K:50:VAL:HG22	2.08	0.53
44:p:40:ARG:HE	44:p:49:TYR:HB3	1.72	0.53
3:5:59:VAL:HG22	3:5:65:VAL:HG13	1.90	0.52
4:A:21:U:H2'	4:A:22:C:H6	1.73	0.52
4:A:422:C:H4'	4:A:423:G:O5'	2.09	0.52
4:A:612:U:H5'	4:A:613:G:C8	2.44	0.52
12:I:72:LEU:HD23	12:I:107:LEU:HD11	1.91	0.52
43:o:93:GLU:OE2	43:o:96:LYS:NZ	2.38	0.52
4:A:437:U:H2'	4:A:438:U:O4'	2.09	0.52
6:C:11:ARG:NH2	6:C:175:LEU:O	2.38	0.52
9:F:11:ASP:OD2	9:F:13:THR:OG1	2.23	0.52
20:Q:62:HIS:HB2	20:Q:86:LYS:HZ1	1.73	0.52
26:W:125:THR:OG1	26:W:180:ASN:O	2.24	0.52
40:l:76:ARG:HB3	40:l:89:GLY:HA2	1.91	0.52
43:o:126:ALA:HA	43:o:129:ILE:HD12	1.92	0.52
56:h:2378:U:H2'	56:h:2379:G:O4'	2.09	0.52
4:A:485:G:O2'	4:A:486:G:OP1	2.27	0.52
6:C:189:ALA:N	6:C:196:ILE:O	2.40	0.52
9:F:48:LEU:HD13	9:F:52:ILE:HG22	1.91	0.52
25:V:104:PHE:HA	25:V:107:VAL:HG22	1.90	0.52
26:W:146:VAL:HG11	26:W:157:ILE:HG21	1.89	0.52
46:r:112:MET:HA	46:r:115:VAL:HG22	1.91	0.52
53:y:75:ILE:HB	53:y:88:GLN:HB3	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:1:44:HIS:ND1	55:1:59:ILE:HD12	2.24	0.52
56:h:680:U:H2'	56:h:681:C:C6	2.44	0.52
56:h:1564:A:O2'	56:h:1565:A:O4'	2.21	0.52
56:h:1717:U:H5"	56:h:1718:C:H5	1.74	0.52
4:A:593:C:H5'	7:D:76:ARG:NH2	2.24	0.52
4:A:996:G:N2	4:A:999:A:OP2	2.38	0.52
9:F:30:ILE:HG22	9:F:36:THR:OG1	2.09	0.52
12:I:46:GLY:HA3	12:I:79:ASP:HA	1.92	0.52
20:Q:72:ASP:HB3	20:Q:93:ILE:HD11	1.90	0.52
56:h:1174:G:H5"	56:h:1175:A:H5'	1.91	0.52
56:h:1435:C:C5	56:h:1444:U:H5"	2.44	0.52
56:h:1679:A:H4'	56:h:1679:A:OP1	2.09	0.52
4:A:190:U:H2'	4:A:191:C:C6	2.45	0.52
4:A:1117:U:H1'	4:A:1118:A:H5"	1.92	0.52
4:A:1395:C:H2'	4:A:1396:A:C8	2.45	0.52
10:G:49:GLN:OE1	10:G:53:LYS:NZ	2.41	0.52
15:L:110:ARG:HG3	15:L:114:ARG:HG2	1.92	0.52
21:R:45:ARG:HH21	21:R:81:SER:C	2.18	0.52
45:q:27:ARG:NH1	56:h:1130:C:O2	2.43	0.52
4:A:79:C:H2'	4:A:80:C:H6	1.75	0.52
4:A:523:U:H2'	4:A:524:C:H6	1.74	0.52
17:N:21:TYR:HE2	17:N:23:ARG:HE	1.58	0.52
25:V:101:LEU:HB3	25:V:179:LEU:HD12	1.92	0.52
47:s:32:THR:HG22	47:s:35:ARG:H	1.75	0.52
3:5:163:SER:O	3:5:167:TYR:HD1	1.93	0.52
9:F:16:GLU:OE2	9:F:45:ARG:NE	2.27	0.52
22:S:12:ASP:OD1	22:S:12:ASP:N	2.42	0.52
30:a:29:LYS:NZ	56:h:1048:A:OP1	2.36	0.52
40:l:18:GLU:HA	40:l:21:GLU:OE2	2.09	0.52
56:h:1436:C:O2'	56:h:1437:A:OP1	2.25	0.52
56:h:2348:G:O2'	56:h:2396:A:N6	2.41	0.52
4:A:363:A:N7	15:L:27:SER:OG	2.39	0.52
4:A:1337:A:H2'	4:A:1338:G:H8	1.74	0.52
52:x:22:LYS:NZ	56:h:17:C:OP1	2.36	0.52
4:A:969:G:H2'	4:A:970:G:C8	2.45	0.52
4:A:1434:U:O2'	4:A:1435:U:H5"	2.10	0.52
6:C:62:ARG:NH2	6:C:99:GLN:OE1	2.43	0.52
7:D:74:ALA:HB3	7:D:85:LEU:HD22	1.91	0.52
9:F:28:ASN:HA	9:F:31:ARG:HG2	1.91	0.52
15:L:86:ARG:NH1	15:L:87:VAL:O	2.43	0.52
20:Q:83:SER:O	20:Q:87:ARG:NH1	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:W:117:ASP:N	26:W:149:GLU:OE2	2.34	0.52
37:i:256:ARG:HH11	37:i:256:ARG:HG3	1.75	0.52
54:z:99:ARG:HH21	56:h:862:U:H4'	1.75	0.52
56:h:453:U:H2'	56:h:454:U:C6	2.45	0.52
56:h:995:U:H2'	56:h:996:G:H8	1.72	0.52
4:A:1414:C:H2'	4:A:1415:G:O4'	2.10	0.52
5:B:10:G:O2'	5:B:11:U:H5'	2.10	0.52
8:E:130:VAL:O	8:E:137:ARG:NH2	2.42	0.52
12:I:45:THR:HG23	12:I:47:GLN:OE1	2.10	0.52
40:l:111:ILE:HD11	40:l:181:GLY:C	2.35	0.52
54:z:72:ASP:OD2	54:z:74:SER:OG	2.26	0.52
56:h:621:U:H2'	56:h:622:C:C6	2.44	0.52
56:h:2375:G:H2'	56:h:2376:G:C8	2.45	0.52
4:A:1104:G:O2'	4:A:1126:G:N1	2.42	0.51
56:h:290:C:H41	56:h:299:G:H21	1.58	0.51
4:A:927:G:C2	4:A:928:A:C8	2.98	0.51
9:F:74:GLU:O	9:F:78:GLN:HG2	2.10	0.51
31:b:5:LYS:C	31:b:6:ARG:HD2	2.35	0.51
41:m:2:SER:OG	41:m:3:ARG:N	2.44	0.51
41:m:169:GLN:O	41:m:169:GLN:HG2	2.10	0.51
43:o:29:ALA:HA	56:h:1213:A:H61	1.74	0.51
56:h:2851:G:N2	56:h:3001:G:OP2	2.42	0.51
6:C:125:ASN:O	6:C:126:ARG:HD2	2.10	0.51
56:h:196:A:H62	56:h:2654:A:H2'	1.75	0.51
4:A:737:U:H2'	4:A:738:G:O4'	2.10	0.51
7:D:57:ARG:HH21	7:D:63:MET:HA	1.74	0.51
33:d:14:ARG:NH2	56:h:885:G:OP2	2.44	0.51
43:o:51:GLN:HG3	43:o:52:ARG:N	2.25	0.51
56:h:1476:G:H2'	56:h:1477:C:C6	2.46	0.51
56:h:2569:G:N3	56:h:2605:C:H2'	2.26	0.51
56:h:2936:C:OP1	56:h:2938:G:H4'	2.10	0.51
4:A:1207:C:H2'	16:M:103:THR:HG22	1.91	0.51
4:A:1442:G:H5"	23:T:26:SER:OG	2.11	0.51
25:V:29:ARG:HG2	25:V:29:ARG:HH11	1.74	0.51
41:m:158:TYR:O	41:m:172:ARG:NH2	2.37	0.51
43:o:17:ALA:CA	43:o:44:TYR:OH	2.58	0.51
56:h:1541:G:H1	56:h:1631:A:N6	2.08	0.51
4:A:1076:C:H2'	4:A:1077:C:H6	1.76	0.51
9:F:9:ILE:HD12	9:F:87:ARG:HB3	1.92	0.51
10:G:111:ARG:NH2	10:G:113:GLU:OE2	2.39	0.51
56:h:742:G:O2'	56:h:2575:G:OP1	2.27	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:855:C:H5'	56:h:2001:A:H3'	1.93	0.51
56:h:2090:U:N3	56:h:2093:G:N1	2.59	0.51
4:A:229:U:O2'	19:P:24:ASP:OD1	2.28	0.51
4:A:1199:C:H2'	4:A:1200:A:H8	1.74	0.51
25:V:57:VAL:O	25:V:61:VAL:HG12	2.11	0.51
41:m:177:THR:HG22	56:h:2755:A:H62	1.75	0.51
48:t:34:ILE:HG13	48:t:118:LEU:HD22	1.92	0.51
48:t:74:LEU:HB2	48:t:92:TRP:HB2	1.93	0.51
52:x:7:ALA:O	52:x:11:GLN:HG2	2.09	0.51
56:h:672:C:H2'	56:h:673:C:C6	2.46	0.51
56:h:2386:U:H3'	56:h:2387:U:H4'	1.93	0.51
3:5:51:ILE:CG2	3:5:78:ILE:HG12	2.41	0.51
4:A:522:G:P	7:D:10:ARG:HH21	2.34	0.51
4:A:716:U:H2'	4:A:717:C:H6	1.74	0.51
4:A:1036:U:H5'	6:C:163:SER:OG	2.10	0.51
30:a:8:GLN:HB2	30:a:28:LEU:HD13	1.93	0.51
35:f:19:ARG:NE	56:h:2980:U:OP2	2.41	0.51
42:n:114:LYS:NZ	56:h:282:A:OP1	2.39	0.51
44:p:25:VAL:HG11	44:p:73:PHE:HE1	1.75	0.51
47:s:79:ASN:HA	47:s:113:LEU:O	2.11	0.51
56:h:1544:U:H2'	56:h:1545:C:C6	2.46	0.51
4:A:1202:G:O3'	22:S:77:THR:HG21	2.10	0.51
27:X:73:ARG:HH12	56:h:2558:C:N4	2.07	0.51
33:d:21:PHE:HB2	33:d:46:THR:HG21	1.92	0.51
42:n:3:LEU:HD13	42:n:36:ALA:HB1	1.93	0.51
43:o:79:LYS:HA	43:o:82:LEU:HD23	1.92	0.51
47:s:97:GLU:O	47:s:101:LYS:HG2	2.11	0.51
54:z:18:ARG:NE	56:h:1436:C:O2'	2.44	0.51
56:h:2093:G:O2'	56:h:2094:G:OP2	2.26	0.51
4:A:263:A:H2'	4:A:264:U:C6	2.45	0.51
15:L:67:ILE:HG12	15:L:97:ILE:HD12	1.93	0.51
37:i:181:GLU:HB2	37:i:270:ARG:O	2.11	0.51
39:k:143:THR:O	39:k:147:THR:HG23	2.11	0.51
44:p:54:ASN:O	44:p:58:LYS:HG2	2.11	0.51
54:z:99:ARG:NH2	56:h:862:U:H4'	2.26	0.51
56:h:978:A:H2'	56:h:979:G:C8	2.45	0.51
56:h:1541:G:O6	56:h:1629:G:O2'	2.29	0.51
56:h:1606:G:H2'	56:h:1607:C:C6	2.45	0.51
56:h:1634:C:H2'	56:h:1635:A:H5'	1.93	0.51
4:A:299:G:H2'	4:A:300:A:C8	2.46	0.50
4:A:915:G:N7	10:G:3:ARG:NH1	2.60	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:951:A:OP1	13:J:57:LYS:NZ	2.44	0.50
8:E:106:ILE:HB	8:E:172:LEU:HD21	1.93	0.50
25:V:126:PHE:HD1	25:V:134:ILE:HD12	1.76	0.50
31:b:45:LYS:NZ	56:h:3104:A:P	2.84	0.50
38:j:63:ILE:HD11	56:h:3032:G:H5"	1.93	0.50
40:l:44:ASN:OD1	40:l:160:ASP:HB2	2.11	0.50
46:r:71:ARG:HH22	46:r:122:LEU:C	2.19	0.50
53:y:77:LYS:HD2	53:y:86:LYS:HE3	1.92	0.50
56:h:1790:A:H2'	56:h:1791:A:C8	2.45	0.50
4:A:555:G:O2'	4:A:801:G:OP2	2.26	0.50
19:P:100:PRO:HB2	19:P:105:LEU:HD11	1.93	0.50
25:V:140:GLU:O	25:V:144:LEU:HG	2.12	0.50
43:o:80:LEU:O	43:o:83:LYS:HG3	2.10	0.50
53:y:12:LYS:NZ	56:h:1112:C:O2	2.39	0.50
56:h:499:G:OP2	56:h:2630:A:O2'	2.29	0.50
56:h:502:C:H2'	56:h:503:A:C8	2.46	0.50
56:h:1640:A:O2'	56:h:1641:U:OP1	2.25	0.50
56:h:2515:U:OP1	56:h:2604:U:O2'	2.27	0.50
11:H:39:ILE:HD12	11:H:42:ARG:HH22	1.76	0.50
41:m:46:ALA:HB3	41:m:50:ALA:HB3	1.93	0.50
46:r:93:PRO:HG3	46:r:114:ILE:CD1	2.41	0.50
4:A:407:A:H2'	4:A:408:G:H8	1.74	0.50
4:A:800:U:H4'	4:A:801:G:OP2	2.10	0.50
22:S:19:VAL:HG11	22:S:44:PHE:CE1	2.45	0.50
38:j:169:ARG:NH2	56:h:3046:C:H41	2.10	0.50
49:u:11:GLY:O	49:u:16:HIS:ND1	2.45	0.50
56:h:1543:A:H2	56:h:1628:A:C8	2.29	0.50
56:h:1656:A:H2'	56:h:1657:G:C8	2.46	0.50
4:A:45:G:H2'	4:A:46:G:C8	2.47	0.50
16:M:23:TYR:HB3	16:M:67:GLU:HB3	1.93	0.50
56:h:2467:U:H2'	56:h:2468:U:C6	2.46	0.50
3:5:184:GLU:O	3:5:185:VAL:C	2.54	0.50
9:F:7:MET:HB3	9:F:89:LYS:HB3	1.93	0.50
16:M:5:VAL:HG11	16:M:60:ILE:HD11	1.94	0.50
19:P:17:GLN:HG2	19:P:41:HIS:CD2	2.47	0.50
20:Q:20:ARG:CG	20:Q:78:GLU:HB2	2.41	0.50
25:V:66:THR:HA	25:V:89:MET:HE1	1.92	0.50
31:b:48:ARG:HD3	56:h:3106:C:H41	1.77	0.50
40:l:172:GLU:OE1	40:l:172:GLU:N	2.43	0.50
47:s:105:ARG:HH11	56:h:720:C:N4	2.10	0.50
50:v:73:ILE:HG22	50:v:75:GLY:H	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:z:32:ARG:NH1	54:z:81:VAL:O	2.45	0.50
56:h:1087:G:H2'	56:h:1088:U:C6	2.46	0.50
56:h:1557:C:H2'	56:h:1558:C:C6	2.47	0.50
56:h:2412:U:H2'	56:h:2413:G:H8	1.77	0.50
3:5:149:GLY:N	3:5:152:GLU:OE2	2.44	0.50
4:A:1206:U:O2	4:A:1206:U:H2'	2.10	0.50
43:o:21:ASN:H	43:o:22:PRO:HD2	1.75	0.50
48:t:63:LYS:NZ	56:h:990:G:OP1	2.36	0.50
56:h:1565:A:C5	56:h:1566:A:H1'	2.46	0.50
56:h:2321:U:H2'	56:h:2322:C:C6	2.46	0.50
4:A:332:G:O4'	23:T:7:GLN:NE2	2.42	0.50
4:A:458:A:H4'	4:A:459:G:O4'	2.11	0.50
4:A:725:A:H2'	4:A:726:G:C8	2.47	0.50
37:i:41:GLY:O	37:i:43:ARG:NH1	2.45	0.50
42:n:30:LEU:HB3	42:n:36:ALA:HB3	1.94	0.50
56:h:1146:A:H2'	56:h:1147:A:C8	2.47	0.50
56:h:1544:U:N3	56:h:1626:G:N1	2.60	0.50
56:h:2019:A:H2'	56:h:2020:A:C8	2.46	0.50
4:A:163:G:H2'	4:A:164:G:H8	1.77	0.50
4:A:246:A:C2	4:A:282:A:C5	2.99	0.50
4:A:1237:C:H5'	4:A:1239:G:H1'	1.93	0.50
6:C:64:ARG:NH1	6:C:66:ASP:OD2	2.45	0.50
18:O:78:TYR:OH	18:O:89:ARG:O	2.21	0.50
25:V:196:VAL:HG12	25:V:199:PRO:HG3	1.93	0.50
40:l:57:ILE:HG13	40:l:91:PRO:HB2	1.92	0.50
40:l:129:PHE:CE1	40:l:135:TYR:HB2	2.47	0.50
42:n:100:VAL:O	42:n:104:ILE:HD12	2.12	0.50
52:x:97:GLU:O	52:x:101:SER:HB3	2.12	0.50
56:h:286:G:H21	56:h:287:A:H62	1.59	0.50
56:h:1284:A:H2'	56:h:1285:G:H8	1.77	0.50
56:h:1606:G:H2'	56:h:1607:C:H6	1.77	0.50
56:h:1627:U:H2'	56:h:1628:A:H8	1.76	0.50
56:h:2074:G:N2	56:h:2110:U:O4	2.45	0.50
4:A:157:A:H2'	4:A:158:A:O4'	2.12	0.49
4:A:1076:C:H2'	4:A:1077:C:C6	2.47	0.49
56:h:1561:C:H2'	56:h:1562:C:H6	1.77	0.49
56:h:2538:A:H2'	56:h:2539:G:C8	2.47	0.49
3:5:150:GLU:HG2	56:h:2477:G:H22	1.76	0.49
4:A:1084:G:P	25:V:110:ARG:HH22	2.34	0.49
4:A:1098:U:H2'	4:A:1099:C:H6	1.77	0.49
37:i:101:GLU:OE1	37:i:103:ARG:NE	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:r:89:ASN:OD1	46:r:90:ASP:N	2.46	0.49
48:t:69:PHE:CD2	56:h:987:A:H4'	2.47	0.49
56:h:287:A:P	56:h:287:A:H8	2.35	0.49
56:h:928:U:H2'	56:h:929:C:H6	1.76	0.49
56:h:2730:U:O2	56:h:2730:U:H2'	2.12	0.49
4:A:402:G:OP1	7:D:66:GLN:NE2	2.45	0.49
4:A:437:U:OP1	7:D:147:THR:OG1	2.31	0.49
4:A:544:C:C6	20:Q:48:LEU:HD21	2.48	0.49
26:W:109:GLU:HA	26:W:132:GLU:HA	1.94	0.49
37:i:54:LYS:NZ	56:h:2032:A:OP2	2.44	0.49
39:k:141:ALA:HB1	39:k:169:VAL:HG12	1.95	0.49
44:p:94:LYS:HZ1	44:p:124:ALA:HB3	1.78	0.49
55:1:43:LYS:NZ	56:h:568:A:OP2	2.38	0.49
56:h:1541:G:H1	56:h:1631:A:H61	1.59	0.49
56:h:2738:U:H2'	56:h:2739:C:C6	2.48	0.49
4:A:191:C:H2'	4:A:192:G:O4'	2.12	0.49
4:A:1125:G:H2'	4:A:1126:G:H5"	1.93	0.49
5:B:28:A:H5'	50:v:46:HIS:HD2	1.77	0.49
7:D:71:TYR:CG	7:D:199:TYR:HD2	2.31	0.49
7:D:120:VAL:HG22	7:D:138:ILE:HG13	1.94	0.49
19:P:41:HIS:HB2	19:P:48:LEU:HB3	1.93	0.49
19:P:74:LEU:HD12	19:P:79:ASP:HB2	1.94	0.49
20:Q:38:VAL:O	20:Q:59:VAL:N	2.37	0.49
41:m:88:MET:HE2	41:m:165:TYR:CE1	2.47	0.49
56:h:747:A:N6	56:h:768:G:HO2'	2.10	0.49
56:h:1436:C:HO2'	56:h:1437:A:P	2.35	0.49
56:h:2367:G:H2'	56:h:2369:C:H5'	1.93	0.49
3:5:75:LEU:HA	3:5:78:ILE:HD12	1.93	0.49
4:A:1486:A:H2	4:A:1489:G:N1	2.07	0.49
7:D:4:TYR:CZ	7:D:11:LYS:HE2	2.47	0.49
56:h:256:A:H2'	56:h:257:A:H8	1.75	0.49
56:h:302:U:H4'	56:h:303:G:OP1	2.12	0.49
56:h:1194:C:H2'	56:h:1195:A:H8	1.71	0.49
56:h:1523:U:H2'	56:h:1524:G:C8	2.46	0.49
3:5:36:MET:CB	3:5:87:LEU:HD22	2.28	0.49
4:A:175:A:H2'	4:A:176:A:H8	1.77	0.49
4:A:928:A:H2'	4:A:929:G:H8	1.77	0.49
4:A:1219:A:H5'	4:A:1318:C:H41	1.77	0.49
8:E:132:ALA:HB2	8:E:150:ALA:HB3	1.94	0.49
12:I:99:LEU:O	12:I:103:ILE:HG12	2.12	0.49
16:M:51:ASP:O	16:M:54:THR:OG1	2.29	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:P:12:LYS:HB2	19:P:15:ASN:OD1	2.13	0.49
36:g:36:GLU:OE1	36:g:36:GLU:N	2.43	0.49
48:t:58:ILE:HD11	48:t:108:TYR:CG	2.47	0.49
56:h:256:A:H2'	56:h:257:A:C8	2.48	0.49
56:h:1564:A:H2'	56:h:1565:A:C8	2.47	0.49
4:A:420:U:H2'	4:A:422:C:H5	1.78	0.49
4:A:452:A:O2'	4:A:453:G:OP1	2.30	0.49
4:A:846:A:H2'	4:A:847:A:C8	2.48	0.49
4:A:1160:A:OP2	12:I:115:ARG:NH2	2.41	0.49
5:B:1:G:H2'	5:B:2:U:C6	2.47	0.49
9:F:92:ARG:HE	9:F:94:ASP:HB3	1.77	0.49
15:L:42:PRO:CB	15:L:89:ASP:HB3	2.39	0.49
20:Q:62:HIS:HB2	20:Q:86:LYS:NZ	2.28	0.49
39:k:189:LEU:HD13	47:s:9:LEU:HD11	1.94	0.49
43:o:17:ALA:HA	43:o:44:TYR:OH	2.12	0.49
50:v:9:ASN:OD1	50:v:10:ILE:N	2.46	0.49
55:1:8:THR:O	55:1:74:VAL:HG12	2.13	0.49
56:h:2778:U:H2'	56:h:2779:U:C6	2.48	0.49
4:A:1414:C:H5"	51:w:106:LYS:NZ	2.28	0.49
4:A:1458:G:H2'	4:A:1459:G:O4'	2.13	0.49
7:D:152:ILE:O	7:D:156:THR:HG22	2.12	0.49
9:F:44:GLY:HA2	9:F:60:TYR:H	1.77	0.49
23:T:36:ARG:HH11	23:T:36:ARG:HG3	1.76	0.49
31:b:29:THR:HG22	56:h:3108:G:OP1	2.13	0.49
45:q:147:GLN:HE21	56:h:1131:G:H1'	1.78	0.49
47:s:21:ARG:HD2	56:h:1364:U:O4	2.12	0.49
56:h:1758:G:H2'	56:h:1759:A:C8	2.47	0.49
56:h:2288:C:H2'	56:h:2289:C:C6	2.47	0.49
4:A:321:A:H2'	4:A:322:C:H6	1.78	0.49
4:A:863:G:P	15:L:9:ARG:HH22	2.36	0.49
4:A:993:G:H1	4:A:1002:U:H3	1.60	0.49
5:B:15:U:OP2	5:B:71:C:O2'	2.29	0.49
12:I:133:ARG:HD2	17:N:61:TRP:CZ2	2.48	0.49
19:P:10:LEU:HB2	19:P:17:GLN:O	2.12	0.49
40:l:128:GLN:O	56:h:2527:G:O2'	2.31	0.49
56:h:2211:C:H2'	56:h:2212:A:H8	1.77	0.49
56:h:2261:U:H2'	56:h:2262:C:C6	2.48	0.49
56:h:2510:A:H4'	56:h:2511:A:O4'	2.13	0.49
4:A:109:G:H2'	4:A:110:U:C6	2.47	0.49
4:A:505:C:H2'	4:A:506:C:C6	2.47	0.49
4:A:1296:C:H2'	4:A:1297:U:H6	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:57:GLU:OE1	6:C:64:ARG:NH2	2.46	0.49
10:G:146:GLU:OE1	10:G:149:ARG:HD2	2.13	0.49
13:J:87:LEU:HD23	13:J:90:ILE:HD12	1.95	0.49
23:T:31:ALA:HB1	23:T:54:THR:HG22	1.95	0.49
39:k:139:LYS:NZ	56:h:401:C:OP2	2.26	0.49
45:q:25:LEU:HD13	45:q:62:ILE:HG12	1.95	0.49
46:r:73:ASP:OD1	46:r:75:SER:OG	2.19	0.49
56:h:1212:U:H3'	56:h:1213:A:H5"	1.94	0.49
56:h:1545:C:H2'	56:h:1546:A:C8	2.47	0.49
36:g:20:HIS:CE1	36:g:22:PHE:HE1	2.31	0.48
38:j:4:LYS:HB3	38:j:105:ILE:HD12	1.94	0.48
43:o:32:GLN:HE21	56:h:1214:A:H61	1.43	0.48
50:v:82:VAL:O	50:v:86:GLN:HG3	2.13	0.48
55:1:12:ILE:HG13	55:1:72:MET:HG3	1.94	0.48
56:h:2781:G:H2'	56:h:2782:C:C6	2.48	0.48
4:A:315:A:N7	4:A:328:U:H5	2.11	0.48
4:A:1281:A:H2'	4:A:1281:A:N3	2.27	0.48
4:A:1350:U:H5'	13:J:62:ARG:NH1	2.28	0.48
5:B:4:A:H4'	5:B:63:U:H4'	1.95	0.48
7:D:50:LEU:HG	7:D:54:GLN:HE22	1.77	0.48
12:I:48:PHE:CD1	12:I:83:ILE:HD11	2.48	0.48
36:g:35:VAL:HG12	40:l:146:HIS:CE1	2.48	0.48
56:h:1171:C:H2'	56:h:1172:A:H8	1.77	0.48
56:h:1200:U:H2'	56:h:1201:G:O4'	2.13	0.48
56:h:1552:A:O2'	56:h:1618:C:N4	2.43	0.48
56:h:1900:C:H2'	56:h:1901:C:C6	2.48	0.48
4:A:416:G:H2'	4:A:417:G:H8	1.79	0.48
4:A:1083:C:O3'	25:V:110:ARG:NH2	2.46	0.48
10:G:44:TYR:O	10:G:48:GLU:HG2	2.14	0.48
20:Q:21:LYS:HB2	20:Q:78:GLU:HG2	1.94	0.48
25:V:73:LYS:O	25:V:77:GLN:HG3	2.13	0.48
26:W:154:GLY:HA2	26:W:181:VAL:O	2.13	0.48
36:g:5:ILE:HD12	40:l:71:LYS:HD3	1.95	0.48
36:g:20:HIS:CG	36:g:40:GLN:HE22	2.31	0.48
41:m:95:TYR:HA	41:m:107:ALA:O	2.13	0.48
50:v:18:ARG:NH1	50:v:105:GLY:O	2.46	0.48
56:h:487:U:H2'	56:h:488:G:O4'	2.13	0.48
56:h:489:A:H2'	56:h:490:A:C8	2.48	0.48
56:h:844:G:O2'	56:h:878:G:H4'	2.12	0.48
56:h:2465:A:H2'	56:h:2466:G:C8	2.48	0.48
3:5:175:VAL:O	3:5:179:GLU:HG2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:X:64:PRO:HB3	56:h:759:G:N1	2.27	0.48
35:f:2:LYS:HB2	35:f:34:GLN:HB3	1.95	0.48
42:n:80:LEU:HB2	42:n:148:VAL:HG12	1.94	0.48
56:h:2304:C:H2'	56:h:2305:A:C8	2.48	0.48
56:h:3007:G:H2'	56:h:3008:C:C6	2.48	0.48
4:A:184:U:H2'	4:A:185:G:C8	2.44	0.48
4:A:859:C:OP1	11:H:82:LYS:NZ	2.42	0.48
8:E:39:ARG:HG3	8:E:142:CYS:SG	2.54	0.48
12:I:31:ARG:HG3	12:I:36:VAL:HG12	1.95	0.48
13:J:86:ALA:O	13:J:90:ILE:HG13	2.14	0.48
26:W:119:THR:O	26:W:122:THR:OG1	2.32	0.48
34:e:15:ARG:NH2	34:e:47:ARG:HH21	2.10	0.48
56:h:639:C:O2'	56:h:640:G:H8	1.96	0.48
56:h:1533:U:H3'	56:h:1534:C:H5"	1.94	0.48
56:h:1706:A:H2'	56:h:1707:G:C8	2.45	0.48
3:5:24:LEU:O	3:5:27:ILE:HG22	2.14	0.48
3:5:51:ILE:HG22	3:5:78:ILE:HG12	1.96	0.48
4:A:321:A:H2'	4:A:322:C:C6	2.48	0.48
4:A:969:G:H2'	4:A:970:G:H8	1.78	0.48
4:A:1329:G:O6	12:I:32:ARG:NH2	2.47	0.48
4:A:1500:G:N2	4:A:1503:A:OP2	2.47	0.48
5:B:30:G:H21	5:B:59:A:N6	2.11	0.48
41:m:102:GLN:H	41:m:102:GLN:CD	2.20	0.48
42:n:124:ILE:CG2	42:n:125:LYS:H	2.25	0.48
44:p:29:ARG:HB2	44:p:76:PRO:HG3	1.95	0.48
56:h:316:U:O2'	56:h:317:G:OP1	2.26	0.48
4:A:825:C:OP2	21:R:25:LYS:NZ	2.33	0.48
4:A:1153:U:H2'	4:A:1154:C:C6	2.49	0.48
19:P:92:THR:HG22	19:P:92:THR:O	2.13	0.48
25:V:6:MET:SD	25:V:43:LEU:HB3	2.53	0.48
25:V:44:GLN:O	25:V:47:LEU:HG	2.13	0.48
43:o:47:ALA:O	43:o:50:SER:OG	2.22	0.48
44:p:88:ASP:HA	44:p:91:LYS:HD3	1.94	0.48
56:h:1561:C:H2'	56:h:1562:C:C6	2.49	0.48
56:h:3014:A:N6	56:h:3113:A:OP2	2.47	0.48
4:A:401:C:O2'	4:A:601:A:N3	2.45	0.48
4:A:862:C:OP1	15:L:9:ARG:NH1	2.46	0.48
4:A:1133:G:O5'	13:J:15:HIS:NE2	2.47	0.48
12:I:58:TYR:HD1	12:I:59:PHE:CD1	2.31	0.48
25:V:137:LEU:O	25:V:141:LYS:HG3	2.14	0.48
38:j:166:MET:HE1	56:h:2843:C:O2	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:m:26:VAL:HG12	41:m:80:VAL:HG21	1.95	0.48
56:h:2622:C:H2'	56:h:2623:A:C8	2.48	0.48
4:A:1042:U:H2'	4:A:1043:C:C6	2.48	0.48
12:I:68:ILE:HD13	12:I:99:LEU:HD23	1.95	0.48
48:t:47:ILE:HD12	48:t:70:PRO:HG3	1.96	0.48
4:A:1163:G:H4'	4:A:1164:U:H5"	1.95	0.48
6:C:53:ASP:OD1	6:C:54:VAL:N	2.47	0.48
10:G:65:ALA:O	10:G:69:VAL:HG23	2.14	0.48
14:K:28:GLY:HA2	14:K:46:PRO:HD3	1.95	0.48
25:V:90:PRO:HB3	25:V:154:MET:HB3	1.96	0.48
32:c:6:ASP:OD1	32:c:6:ASP:N	2.47	0.48
56:h:2074:G:H5'	56:h:2075:G:OP2	2.13	0.48
56:h:3055:G:H2'	56:h:3100:A:H61	1.78	0.48
4:A:1018:C:H2'	4:A:1019:U:C6	2.49	0.47
8:E:97:PHE:CE1	8:E:170:LYS:HG2	2.49	0.47
27:X:41:ARG:NH1	56:h:2611:U:O4'	2.47	0.47
33:d:13:ARG:NH2	33:d:17:ARG:HH22	2.12	0.47
34:e:54:ASP:O	34:e:58:ILE:HG12	2.13	0.47
38:j:18:ASP:OD1	38:j:19:GLU:N	2.42	0.47
42:n:105:LYS:NZ	42:n:111:ASN:OD1	2.44	0.47
42:n:109:GLY:N	42:n:110:PRO:HD2	2.29	0.47
43:o:118:LEU:HD21	43:o:129:ILE:HD13	1.96	0.47
45:q:43:THR:HG22	52:x:100:VAL:HG13	1.96	0.47
56:h:718:C:O2'	56:h:772:U:OP1	2.31	0.47
56:h:1690:A:H2'	56:h:1691:A:H8	1.76	0.47
7:D:102:LEU:HD11	7:D:175:ILE:HD11	1.95	0.47
16:M:59:TYR:O	16:M:63:ASN:ND2	2.43	0.47
25:V:151:ILE:H	25:V:151:ILE:HD12	1.79	0.47
44:p:40:ARG:NH1	56:h:1201:G:H4'	2.29	0.47
56:h:1441:C:O2'	56:h:2234:G:O2'	2.30	0.47
56:h:1627:U:H2'	56:h:1628:A:C8	2.49	0.47
56:h:2777:G:C2	56:h:2807:G:H1'	2.49	0.47
4:A:242:U:OP1	15:L:13:ARG:NH1	2.45	0.47
7:D:105:THR:O	7:D:108:MET:HB2	2.14	0.47
9:F:32:LYS:HG3	9:F:33:ASP:OD1	2.14	0.47
26:W:171:ILE:HG13	26:W:172:SER:N	2.29	0.47
36:g:26:SER:OG	36:g:27:THR:N	2.48	0.47
47:s:63:LYS:HD2	56:h:2618:C:H5"	1.96	0.47
50:v:38:LEU:HD23	50:v:102:PHE:CD1	2.49	0.47
53:y:72:LYS:HD2	53:y:91:ARG:HG3	1.97	0.47
55:1:82:ARG:NH2	56:h:382:A:OP2	2.43	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:701:A:H2'	56:h:702:A:C8	2.50	0.47
56:h:971:G:H2'	56:h:972:A:C8	2.49	0.47
56:h:2248:C:H2'	56:h:2249:G:H8	1.79	0.47
56:h:2376:G:H2'	56:h:2377:G:H8	1.79	0.47
4:A:1180:U:H4'	13:J:56:HIS:HD2	1.79	0.47
6:C:32:VAL:O	6:C:36:VAL:HG23	2.15	0.47
20:Q:39:GLU:OE1	20:Q:39:GLU:N	2.48	0.47
37:i:133:LEU:HB2	37:i:189:CYS:O	2.14	0.47
56:h:1016:C:H2'	56:h:1017:G:O4'	2.14	0.47
56:h:1185:A:O2'	56:h:1186:G:O4'	2.32	0.47
56:h:1859:A:H2'	56:h:1860:G:O4'	2.14	0.47
56:h:2902:A:H2'	56:h:2903:A:H8	1.77	0.47
56:h:3078:G:N2	56:h:3081:A:OP2	2.29	0.47
10:G:58:PRO:HA	10:G:61:THR:HG22	1.95	0.47
11:H:115:ASP:N	11:H:115:ASP:OD1	2.46	0.47
13:J:25:ILE:O	13:J:29:VAL:HG22	2.14	0.47
36:g:25:ARG:O	40:l:109:ARG:NH1	2.47	0.47
43:o:36:ASN:HD22	43:o:39:GLU:HB2	1.79	0.47
56:h:947:U:H2'	56:h:948:G:C8	2.50	0.47
56:h:979:G:H2'	56:h:980:C:C6	2.50	0.47
56:h:1542:A:H2'	56:h:1543:A:C8	2.49	0.47
56:h:1696:G:O2'	56:h:1736:G:O6	2.30	0.47
56:h:1755:A:H2'	56:h:1758:G:H1	1.79	0.47
56:h:2698:C:O2'	56:h:2699:C:OP1	2.31	0.47
4:A:1098:U:OP1	12:I:31:ARG:NH2	2.48	0.47
6:C:38:ILE:O	6:C:42:LEU:HG	2.15	0.47
7:D:74:ALA:CB	7:D:85:LEU:HD22	2.44	0.47
9:F:44:GLY:O	9:F:46:ARG:NH1	2.43	0.47
19:P:67:THR:HG22	19:P:68:GLU:N	2.29	0.47
38:j:83:GLU:OE1	56:h:2860:U:H4'	2.14	0.47
40:l:63:ASP:OD2	40:l:157:ARG:HD2	2.14	0.47
55:1:43:LYS:HZ3	56:h:568:A:C5'	2.28	0.47
56:h:1548:C:H2'	56:h:1549:G:C8	2.50	0.47
4:A:36:A:H2'	4:A:37:A:C8	2.50	0.47
4:A:81:C:H3'	4:A:82:U:H5"	1.97	0.47
4:A:910:G:O2'	4:A:1517:C:OP1	2.31	0.47
4:A:986:G:H8	4:A:986:G:OP2	1.98	0.47
4:A:1084:G:P	25:V:110:ARG:NH2	2.88	0.47
4:A:1098:U:H2'	4:A:1099:C:C6	2.50	0.47
4:A:1337:A:H2'	4:A:1338:G:C8	2.49	0.47
8:E:81:VAL:O	8:E:85:ILE:HG12	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:F:10:LEU:HB2	9:F:59:ILE:HB	1.97	0.47
9:F:30:ILE:HD11	9:F:75:LEU:HD13	1.97	0.47
16:M:65:LYS:O	16:M:70:LEU:HB2	2.15	0.47
24:U:4:ILE:O	29:Z:26:LYS:NZ	2.48	0.47
25:V:18:HIS:CG	25:V:19:GLN:H	2.32	0.47
25:V:151:ILE:HA	25:V:154:MET:CG	2.45	0.47
27:X:56:ASP:OD1	27:X:58:THR:HG23	2.14	0.47
28:Y:33:ILE:HA	28:Y:52:CYS:HA	1.95	0.47
30:a:23:LEU:HD12	30:a:50:VAL:HG11	1.95	0.47
32:c:10:LYS:HD2	34:e:34:GLU:HG2	1.96	0.47
40:l:19:ILE:HD12	40:l:179:ALA:HB1	1.97	0.47
42:n:88:THR:HG22	42:n:90:LYS:HD3	1.96	0.47
43:o:15:ILE:HG23	43:o:44:TYR:CZ	2.50	0.47
43:o:126:ALA:O	43:o:130:ILE:HG12	2.14	0.47
49:u:42:ARG:NH2	56:h:3038:C:OP1	2.43	0.47
54:z:95:ARG:HG3	54:z:101:PHE:CD2	2.50	0.47
56:h:55:G:O2'	56:h:70:A:N1	2.42	0.47
56:h:279:U:H2'	56:h:280:G:C8	2.49	0.47
56:h:635:G:OP2	56:h:635:G:N2	2.46	0.47
56:h:672:C:H2'	56:h:673:C:H6	1.79	0.47
56:h:673:C:H2'	56:h:674:U:C6	2.49	0.47
56:h:756:A:H3'	56:h:757:G:H21	1.79	0.47
56:h:974:G:O2'	56:h:975:U:P	2.72	0.47
56:h:2088:C:H2'	56:h:2089:C:C6	2.50	0.47
4:A:252:U:H2'	4:A:253:U:C6	2.49	0.47
4:A:581:U:H2'	4:A:582:U:C6	2.50	0.47
4:A:987:A:C5	4:A:1008:C:H1'	2.49	0.47
4:A:1083:C:H2'	4:A:1084:G:O4'	2.14	0.47
4:A:1241:G:O2'	4:A:1256:A:N6	2.48	0.47
13:J:21:SER:O	13:J:25:ILE:HG12	2.15	0.47
16:M:23:TYR:CE2	16:M:70:LEU:HD22	2.49	0.47
32:c:16:GLU:OE2	32:c:52:LYS:HB2	2.15	0.47
44:p:51:VAL:HG11	56:h:1202:A:C2	2.50	0.47
56:h:795:G:H2'	56:h:796:A:C8	2.49	0.47
56:h:2390:U:C2	56:h:2392:A:H5"	2.49	0.47
56:h:2515:U:H2'	56:h:2516:U:H6	1.79	0.47
4:A:28:U:O2'	4:A:504:G:O2'	2.13	0.47
4:A:235:C:H2'	4:A:236:G:H8	1.79	0.47
4:A:280:C:O2'	4:A:281:G:OP1	2.29	0.47
4:A:582:U:H2'	4:A:583:C:C6	2.49	0.47
15:L:5:GLN:OE1	20:Q:51:LYS:NZ	2.41	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:V:177:ARG:NH2	25:V:195:VAL:HA	2.30	0.47
32:c:30:ARG:HB3	32:c:30:ARG:NH1	2.30	0.47
39:k:123:ARG:HD2	39:k:193:ASP:OD1	2.15	0.47
41:m:9:VAL:HG12	41:m:70:ARG:NH1	2.29	0.47
56:h:1003:A:H1'	56:h:1004:C:H2'	1.96	0.47
56:h:2815:C:H2'	56:h:2816:G:H8	1.79	0.47
4:A:822:U:H2'	4:A:824:C:H1'	1.97	0.47
4:A:826:U:H2'	4:A:828:G:H5'	1.96	0.47
16:M:52:GLN:HA	16:M:55:VAL:HG22	1.96	0.47
24:U:43:LYS:O	24:U:47:GLU:HG3	2.15	0.47
24:U:64:GLY:O	24:U:75:LYS:NZ	2.48	0.47
31:b:3:VAL:HG12	56:h:2239:A:C2	2.50	0.47
37:i:20:ASP:O	37:i:22:ALA:N	2.48	0.47
40:l:64:LEU:HD23	40:l:67:ILE:HD11	1.97	0.47
56:h:89:A:O2'	56:h:90:C:OP1	2.29	0.47
56:h:303:G:H2'	56:h:304:U:O4'	2.15	0.47
56:h:1627:U:H2'	56:h:1628:A:H2'	1.97	0.47
56:h:2531:G:H4'	56:h:2532:G:O4'	2.15	0.47
56:h:3007:G:H2'	56:h:3008:C:H6	1.79	0.47
4:A:184:U:O2'	23:T:84:ASN:ND2	2.40	0.46
4:A:534:U:H2'	4:A:535:C:C6	2.50	0.46
4:A:746:A:OP2	4:A:792:G:N2	2.48	0.46
6:C:125:ASN:C	6:C:126:ARG:HD2	2.40	0.46
20:Q:76:LEU:HB3	20:Q:88:TRP:CE3	2.49	0.46
47:s:99:VAL:HG12	47:s:104:VAL:HG23	1.97	0.46
56:h:2339:G:O6	56:h:2387:U:C2	2.68	0.46
4:A:323:U:H2'	4:A:324:G:O4'	2.15	0.46
4:A:825:C:O3'	21:R:26:LYS:NZ	2.48	0.46
4:A:940:A:C6	22:S:55:ARG:HB2	2.50	0.46
4:A:1014:U:H2'	4:A:1015:G:C8	2.41	0.46
4:A:1184:C:OP1	17:N:2:ALA:N	2.48	0.46
4:A:1329:G:O2'	4:A:1356:G:O6	2.27	0.46
7:D:74:ALA:HB1	7:D:84:ASN:HB2	1.96	0.46
18:O:55:GLY:O	18:O:59:LEU:HG	2.15	0.46
46:r:80:ASP:OD2	51:w:61:ARG:NH2	2.40	0.46
56:h:489:A:H2'	56:h:490:A:H8	1.80	0.46
56:h:858:A:O2'	56:h:1877:U:OP1	2.27	0.46
56:h:1250:U:H3'	56:h:1251:A:H5"	1.96	0.46
3:5:45:TYR:CD2	43:o:23:ALA:HB3	2.48	0.46
4:A:84:U:H3'	4:A:85:C:C6	2.50	0.46
4:A:264:U:O2'	20:Q:81:PRO:O	2.33	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:725:A:H2'	4:A:726:G:H8	1.79	0.46
4:A:1342:A:OP2	17:N:35:ARG:NH2	2.49	0.46
6:C:69:THR:HG21	6:C:75:VAL:HG21	1.96	0.46
8:E:100:PRO:HB3	8:E:174:ARG:HG3	1.97	0.46
9:F:45:ARG:HD3	9:F:59:ILE:HG12	1.97	0.46
16:M:66:VAL:C	16:M:67:GLU:OE1	2.58	0.46
17:N:52:GLU:HG3	17:N:52:GLU:O	2.14	0.46
41:m:2:SER:O	41:m:6:LYS:N	2.45	0.46
56:h:1551:U:H3'	56:h:1552:A:C8	2.48	0.46
3:5:59:VAL:HG13	3:5:65:VAL:HG22	1.98	0.46
4:A:409:G:H2'	4:A:410:G:O4'	2.15	0.46
4:A:481:G:H1'	4:A:529:C:H1'	1.97	0.46
4:A:493:A:H2'	4:A:494:C:C6	2.50	0.46
4:A:821:C:N4	4:A:822:U:O2	2.48	0.46
56:h:965:U:H2'	56:h:966:U:H6	1.80	0.46
4:A:399:G:H2'	4:A:400:C:C6	2.51	0.46
4:A:1104:G:HO2'	4:A:1126:G:H1	1.61	0.46
4:A:1302:C:H41	22:S:37:ARG:HB3	1.81	0.46
27:X:40:GLN:HG3	27:X:42:GLY:O	2.16	0.46
37:i:4:ARG:NH2	56:h:821:A:O2'	2.49	0.46
43:o:100:ALA:HB3	43:o:139:ILE:HD12	1.96	0.46
47:s:30:GLY:O	47:s:32:THR:N	2.48	0.46
48:t:17:GLN:HG3	56:h:1075:U:O4	2.16	0.46
56:h:429:A:H2'	56:h:430:A:C8	2.51	0.46
56:h:980:C:O2'	56:h:981:U:O5'	2.33	0.46
56:h:994:A:H2'	56:h:994:A:N3	2.31	0.46
56:h:1567:C:H2'	56:h:1568:C:C6	2.50	0.46
56:h:2622:C:H2'	56:h:2623:A:H8	1.81	0.46
4:A:112:A:H61	4:A:313:A:H1'	1.80	0.46
4:A:390:U:H2'	4:A:391:G:H8	1.78	0.46
4:A:737:U:O2'	4:A:861:C:O2	2.30	0.46
4:A:1472:G:H2'	4:A:1473:A:H8	1.81	0.46
48:t:68:ILE:HD11	48:t:101:ARG:HE	1.81	0.46
56:h:283:U:H3'	56:h:284:G:H21	1.81	0.46
56:h:1008:G:C2	56:h:1009:U:H1'	2.51	0.46
56:h:1556:A:N6	56:h:1615:G:C6	2.83	0.46
56:h:2289:C:H2'	56:h:2290:C:C6	2.50	0.46
56:h:2323:G:N2	56:h:2412:U:O2	2.42	0.46
56:h:2364:C:H2'	56:h:2365:A:C8	2.50	0.46
4:A:13:G:H5'	8:E:133:GLY:HA3	1.98	0.46
4:A:411:A:N3	4:A:413:G:O2'	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:59:SER:OG	7:D:60:TYR:HD1	1.99	0.46
12:I:72:LEU:HA	12:I:75:VAL:HG12	1.98	0.46
23:T:77:SER:O	23:T:81:LEU:HD23	2.16	0.46
38:j:13:MET:HE1	56:h:2904:C:O2'	2.15	0.46
42:n:9:VAL:HG12	42:n:35:LEU:HD23	1.98	0.46
43:o:11:ILE:HD11	43:o:60:ILE:HD12	1.96	0.46
56:h:818:U:H2'	56:h:819:G:O4'	2.16	0.46
56:h:965:U:H2'	56:h:966:U:C6	2.51	0.46
56:h:1177:G:C5	56:h:1206:A:N1	2.84	0.46
56:h:1523:U:H2'	56:h:1524:G:H8	1.81	0.46
56:h:3022:G:H2'	56:h:3023:G:O4'	2.15	0.46
4:A:269:U:H2'	4:A:270:A:C8	2.51	0.46
4:A:457:A:N1	4:A:458:A:N6	2.64	0.46
4:A:698:A:H5'	14:K:128:ASN:HB2	1.97	0.46
4:A:742:A:H2'	4:A:743:G:H8	1.81	0.46
4:A:928:A:O2'	4:A:1315:A:N3	2.41	0.46
4:A:958:G:OP2	4:A:1340:U:O2'	2.33	0.46
26:W:119:THR:OG1	26:W:152:GLU:OE2	2.34	0.46
49:u:24:LEU:HB3	49:u:44:LEU:HD22	1.97	0.46
56:h:752:C:H2'	56:h:753:A:H8	1.80	0.46
56:h:1171:C:H2'	56:h:1172:A:C8	2.50	0.46
56:h:1904:C:H2'	56:h:1905:G:O4'	2.16	0.46
4:A:434:C:H2'	4:A:435:U:C6	2.51	0.46
4:A:572:G:H2'	4:A:573:U:C6	2.50	0.46
4:A:1374:U:H2'	4:A:1375:G:H8	1.81	0.46
4:A:1429:A:O2'	4:A:1430:A:H5'	2.16	0.46
4:A:1440:A:H3'	4:A:1441:G:H8	1.81	0.46
20:Q:41:GLU:CD	20:Q:54:ARG:HH21	2.24	0.46
21:R:31:ASP:OD2	21:R:33:LYS:HG2	2.15	0.46
25:V:61:VAL:HG13	25:V:224:GLY:HA3	1.98	0.46
41:m:15:VAL:HG12	41:m:28:GLY:HA3	1.97	0.46
46:r:92:ASP:N	46:r:92:ASP:OD1	2.49	0.46
55:1:5:LYS:HG3	55:1:24:LEU:O	2.16	0.46
56:h:276:G:H2'	56:h:277:U:O4'	2.16	0.46
56:h:1485:C:H2'	56:h:1486:G:O4'	2.16	0.46
3:5:162:LYS:HE2	3:5:162:LYS:HA	1.98	0.46
4:A:1515:A:H8	4:A:1515:A:O5'	1.98	0.46
8:E:37:ILE:N	8:E:65:GLY:O	2.47	0.46
27:X:14:ARG:HD3	27:X:14:ARG:H	1.81	0.46
40:l:145:PHE:CZ	40:l:159:MET:HE1	2.51	0.46
56:h:667:A:OP2	56:h:2723:C:O2'	2.33	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:723:C:O2	56:h:733:U:O2'	2.33	0.46
56:h:1008:G:H2'	56:h:1009:U:O4'	2.15	0.46
56:h:1202:A:N3	56:h:1223:U:O2'	2.47	0.46
56:h:2815:C:H2'	56:h:2816:G:C8	2.50	0.46
4:A:429:U:H1'	4:A:430:A:H5"	1.98	0.45
4:A:731:U:H2'	4:A:732:G:O4'	2.16	0.45
5:B:1:G:H2'	5:B:2:U:H6	1.81	0.45
28:Y:39:VAL:HG22	28:Y:46:LYS:HG2	1.98	0.45
44:p:14:ALA:O	44:p:18:LYS:HG2	2.16	0.45
47:s:121:LYS:NZ	47:s:141:GLY:O	2.38	0.45
56:h:1472:C:H2'	56:h:1473:G:O4'	2.15	0.45
56:h:2623:A:H2'	56:h:2624:C:C6	2.51	0.45
4:A:254:G:H2'	4:A:255:G:H8	1.80	0.45
48:t:58:ILE:HD11	48:t:108:TYR:CD2	2.51	0.45
56:h:150:C:H2'	56:h:151:A:H8	1.80	0.45
56:h:1546:A:H2'	56:h:1547:G:H8	1.79	0.45
4:A:582:U:H2'	4:A:583:C:H6	1.80	0.45
4:A:589:A:C5	4:A:590:A:C8	3.05	0.45
4:A:918:C:C2	4:A:919:A:C8	3.04	0.45
4:A:998:G:H2'	4:A:999:A:C8	2.51	0.45
5:B:49:C:H2'	5:B:50:C:H6	1.82	0.45
7:D:103:ALA:HB1	7:D:108:MET:CB	2.47	0.45
9:F:30:ILE:HG12	9:F:71:THR:HG22	1.98	0.45
10:G:115:THR:HG22	10:G:117:VAL:HG12	1.97	0.45
23:T:45:ASP:OD1	23:T:46:LYS:N	2.48	0.45
23:T:52:HIS:O	23:T:56:ARG:HG3	2.15	0.45
29:Z:48:ARG:O	29:Z:52:GLN:HG2	2.16	0.45
37:i:7:LYS:O	37:i:9:THR:N	2.45	0.45
38:j:160:VAL:O	38:j:160:VAL:HG12	2.15	0.45
56:h:263:G:O2'	56:h:517:A:N3	2.42	0.45
56:h:443:C:H2'	56:h:444:U:O4'	2.16	0.45
56:h:974:G:HO2'	56:h:975:U:P	2.39	0.45
56:h:1189:G:H2'	56:h:1190:C:C6	2.52	0.45
56:h:1656:A:H2'	56:h:1657:G:H8	1.81	0.45
4:A:280:C:O2	20:Q:55:THR:OG1	2.34	0.45
4:A:465:G:O2'	4:A:466:U:H5"	2.16	0.45
4:A:1157:A:H2'	4:A:1158:G:C8	2.52	0.45
4:A:1411:A:H2'	4:A:1412:C:C6	2.51	0.45
5:B:63:U:H2'	5:B:64:G:H8	1.80	0.45
43:o:23:ALA:O	43:o:24:PRO:C	2.56	0.45
52:x:28:ARG:HE	56:h:619:C:H2'	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:1732:U:H2'	56:h:1733:C:C6	2.52	0.45
56:h:2385:G:H5'	56:h:2396:A:C8	2.50	0.45
56:h:2390:U:O2	56:h:2392:A:H3'	2.17	0.45
56:h:2873:U:H2'	56:h:2874:C:C6	2.51	0.45
4:A:750:C:O2'	4:A:881:C:N3	2.44	0.45
4:A:811:U:H5'	25:V:21:ARG:HH11	1.78	0.45
16:M:4:LEU:C	16:M:6:GLY:H	2.25	0.45
50:v:34:GLU:OE1	50:v:34:GLU:N	2.40	0.45
56:h:72:G:H2'	56:h:72:G:N3	2.31	0.45
56:h:461:U:H2'	56:h:462:A:H8	1.82	0.45
56:h:1146:A:N3	56:h:2710:G:O2'	2.44	0.45
56:h:1224:G:H2'	56:h:1225:G:H8	1.82	0.45
56:h:2351:A:H2'	56:h:2352:C:C5	2.52	0.45
4:A:343:U:O2'	4:A:346:G:O6	2.28	0.45
4:A:468:U:H2'	4:A:469:G:H8	1.82	0.45
4:A:1017:C:H2'	4:A:1018:C:C6	2.52	0.45
4:A:1138:A:C8	4:A:1162:G:C2	3.05	0.45
4:A:1146:G:H3'	4:A:1147:G:H8	1.81	0.45
4:A:1253:U:H2'	4:A:1254:G:O4'	2.17	0.45
39:k:101:ARG:O	56:h:774:G:H4'	2.16	0.45
40:l:142:GLN:OE1	40:l:142:GLN:N	2.50	0.45
56:h:954:U:H2'	56:h:955:C:C6	2.52	0.45
56:h:1145:A:H61	56:h:1245:U:H5	1.64	0.45
3:5:42:ILE:CD1	3:5:51:ILE:CG2	2.87	0.45
4:A:1116:U:O2	4:A:1117:U:N3	2.50	0.45
4:A:1396:A:H2	4:A:1471:G:H22	1.65	0.45
6:C:61:ASP:OD1	6:C:62:ARG:N	2.50	0.45
6:C:76:ILE:HA	6:C:82:GLU:HB3	1.99	0.45
18:O:80:SER:O	18:O:84:ARG:HG3	2.17	0.45
56:h:113:C:O2'	56:h:123:A:N3	2.46	0.45
56:h:175:G:O2'	56:h:176:G:H5'	2.16	0.45
56:h:781:C:H2'	56:h:782:U:C6	2.51	0.45
56:h:1294:U:H2'	56:h:1295:U:C6	2.51	0.45
56:h:1556:A:N1	56:h:1615:G:C2	2.85	0.45
56:h:1762:C:H2'	56:h:1763:G:O4'	2.16	0.45
56:h:2686:U:H2'	56:h:2687:U:C6	2.51	0.45
4:A:532:U:H5'	15:L:83:ARG:HH11	1.81	0.45
4:A:679:C:H2'	4:A:680:G:H5"	1.99	0.45
4:A:727:U:H2'	4:A:728:A:O4'	2.16	0.45
6:C:23:TYR:OH	13:J:11:LYS:HE2	2.16	0.45
16:M:63:ASN:C	16:M:64:LEU:HD12	2.41	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:f:11:CYS:HB3	35:f:32:HIS:CE1	2.52	0.45
38:j:88:ASP:OD1	38:j:88:ASP:N	2.47	0.45
38:j:155:ALA:H	56:h:2277:G:H5'	1.82	0.45
56:h:994:A:H3'	56:h:995:U:H6	1.81	0.45
56:h:1400:G:N2	56:h:1443:G:H5"	2.32	0.45
56:h:1716:A:H2'	56:h:1718:C:C5	2.52	0.45
56:h:2152:A:H2'	56:h:2153:G:O4'	2.16	0.45
4:A:252:U:C2	4:A:253:U:C5	3.05	0.45
4:A:572:G:H2'	4:A:573:U:H6	1.81	0.45
4:A:1125:G:N2	4:A:1127:A:H62	2.14	0.45
4:A:1447:C:H2'	4:A:1448:G:H8	1.82	0.45
12:I:67:LEU:HG	12:I:100:ARG:HD3	1.99	0.45
14:K:63:GLY:O	14:K:66:LYS:HG2	2.17	0.45
14:K:122:VAL:HG23	14:K:122:VAL:O	2.17	0.45
18:O:6:GLU:O	18:O:9:LYS:N	2.50	0.45
25:V:13:GLY:O	25:V:209:SER:OG	2.34	0.45
36:g:36:GLU:HG2	36:g:37:VAL:N	2.31	0.45
44:p:6:LYS:NZ	56:h:1164:A:O2'	2.50	0.45
56:h:2:A:H2'	56:h:3:A:C8	2.52	0.45
56:h:113:C:H2'	56:h:114:G:O4'	2.17	0.45
56:h:1180:G:N7	56:h:1206:A:O2'	2.49	0.45
56:h:1659:U:H2'	56:h:1660:A:H8	1.82	0.45
56:h:2309:U:H2'	56:h:2310:G:C8	2.52	0.45
3:5:104:GLN:HB3	3:5:110:ARG:NH2	2.32	0.45
4:A:160:C:H2'	4:A:161:U:O4'	2.17	0.45
4:A:278:G:H5'	4:A:279:A:OP1	2.17	0.45
4:A:964:U:H4'	4:A:965:A:O4'	2.17	0.45
4:A:1050:U:H2'	4:A:1051:C:C6	2.52	0.45
4:A:1333:U:H4'	10:G:33:GLU:OE1	2.17	0.45
35:f:25:VAL:HB	35:f:34:GLN:HG3	1.99	0.45
40:l:13:GLN:O	40:l:17:GLU:HG2	2.17	0.45
56:h:193:G:H2'	56:h:194:A:O4'	2.17	0.45
56:h:385:G:H2'	56:h:386:C:C6	2.52	0.45
56:h:610:C:O2	56:h:646:U:O2'	2.35	0.45
56:h:2113:A:H2'	56:h:2114:A:C8	2.52	0.45
56:h:2342:A:N6	56:h:2390:U:O2'	2.51	0.45
4:A:246:A:N1	4:A:278:G:O2'	2.44	0.44
4:A:264:U:H2'	4:A:265:G:O4'	2.17	0.44
4:A:902:U:H2'	4:A:903:U:C6	2.51	0.44
4:A:987:A:H2'	4:A:988:C:C6	2.52	0.44
4:A:1222:G:H2'	4:A:1223:G:H8	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:F:74:GLU:OE1	9:F:74:GLU:HA	2.17	0.44
37:i:2:GLY:C	37:i:20:ASP:HB3	2.41	0.44
37:i:53:HIS:CD2	37:i:220:THR:HA	2.52	0.44
38:j:6:ILE:CD1	38:j:31:ALA:HB1	2.46	0.44
49:u:49:GLU:HG3	49:u:94:TYR:HD2	1.80	0.44
56:h:80:G:N2	56:h:100:A:OP2	2.50	0.44
56:h:586:U:H2'	56:h:587:G:O4'	2.17	0.44
3:5:106:THR:HG22	3:5:109:ARG:H	1.82	0.44
3:5:141:ARG:HD2	3:5:141:ARG:O	2.16	0.44
4:A:737:U:OP1	4:A:802:G:O2'	2.36	0.44
4:A:857:U:O2'	11:H:15:ARG:HD2	2.17	0.44
4:A:1180:U:H4'	13:J:56:HIS:CD2	2.51	0.44
6:C:31:TYR:CE2	6:C:58:ARG:HD2	2.53	0.44
6:C:59:THR:HG22	6:C:60:ARG:N	2.26	0.44
46:r:66:VAL:O	46:r:78:LYS:HG3	2.17	0.44
56:h:159:A:H2'	56:h:160:A:C8	2.51	0.44
56:h:691:U:H2'	56:h:692:C:C6	2.52	0.44
56:h:943:U:H2'	56:h:944:A:C8	2.53	0.44
56:h:1313:U:H2'	56:h:1314:C:C6	2.53	0.44
56:h:1326:G:H1'	56:h:1352:A:N6	2.32	0.44
56:h:1710:A:N6	56:h:1716:A:H5"	2.32	0.44
56:h:1795:C:H2'	56:h:1796:U:C6	2.52	0.44
56:h:2075:G:O2'	56:h:2107:G:N2	2.38	0.44
3:5:148:ALA:HB1	3:5:152:GLU:OE2	2.17	0.44
4:A:1480:C:H2'	4:A:1481:G:O4'	2.16	0.44
6:C:39:ARG:NE	17:N:52:GLU:OE2	2.51	0.44
15:L:68:PRO:O	15:L:99:ARG:NH1	2.50	0.44
39:k:45:LYS:HD2	56:h:709:U:O4	2.17	0.44
40:l:133:GLY:O	40:l:165:THR:OG1	2.34	0.44
41:m:24:LEU:O	41:m:34:THR:OG1	2.35	0.44
43:o:18:GLY:O	43:o:45:ASN:CG	2.61	0.44
43:o:95:HIS:HA	43:o:98:LYS:HE2	2.00	0.44
43:o:134:ALA:HA	43:o:137:MET:HG3	1.98	0.44
45:q:96:HIS:HA	45:q:97:PRO:HD3	1.68	0.44
56:h:202:C:OP2	56:h:203:A:O2'	2.30	0.44
56:h:1201:G:N2	56:h:1203:A:H3'	2.30	0.44
56:h:1933:G:C2	56:h:1934:G:C8	3.06	0.44
56:h:2603:G:H2'	56:h:2604:U:C6	2.53	0.44
3:5:118:LYS:NZ	3:5:175:VAL:HG11	2.33	0.44
4:A:890:A:H2'	4:A:891:A:H8	1.82	0.44
5:B:49:C:H2'	5:B:50:C:C6	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:30:ASP:HA	6:C:33:LYS:HE2	2.00	0.44
7:D:119:LEU:HD13	7:D:122:GLY:HA2	2.00	0.44
16:M:5:VAL:HG12	16:M:57:ARG:HG2	2.00	0.44
16:M:79:ARG:NH2	16:M:83:GLU:OE2	2.51	0.44
29:Z:50:VAL:O	29:Z:54:ILE:HG13	2.18	0.44
40:l:149:ASP:HB2	40:l:152:SER:OG	2.17	0.44
43:o:91:SER:HB2	43:o:137:MET:O	2.17	0.44
56:h:289:A:N6	56:h:290:C:H5	2.15	0.44
56:h:349:G:C2	56:h:350:A:C8	3.04	0.44
56:h:844:G:H4'	56:h:878:G:H5'	2.00	0.44
56:h:911:U:H2'	56:h:912:C:C6	2.52	0.44
56:h:1035:G:H21	56:h:2493:A:H8	1.65	0.44
56:h:1651:C:H2'	56:h:1652:A:H8	1.82	0.44
56:h:2376:G:H2'	56:h:2377:G:C8	2.52	0.44
4:A:48:G:P	19:P:13:ILE:HD11	2.58	0.44
4:A:1308:C:H2'	4:A:1309:C:H6	1.82	0.44
6:C:30:ASP:HA	6:C:33:LYS:HG2	2.00	0.44
19:P:4:LYS:HE2	19:P:25:ALA:HB2	1.99	0.44
25:V:24:ASN:H	25:V:190:ASN:HA	1.82	0.44
37:i:60:ARG:HA	56:h:1788:G:H5'	1.99	0.44
37:i:163:ILE:HD12	37:i:175:LEU:HD22	1.99	0.44
47:s:96:ASP:O	47:s:99:VAL:HG22	2.17	0.44
51:w:1:MET:N	56:h:3064:G:H21	2.15	0.44
56:h:703:C:H2'	56:h:704:C:H6	1.83	0.44
56:h:824:G:H2'	56:h:825:C:C6	2.52	0.44
56:h:1529:U:H3'	56:h:1530:G:C8	2.52	0.44
56:h:2566:C:H2'	56:h:2567:U:O4'	2.17	0.44
4:A:106:C:O2'	19:P:26:ARG:O	2.36	0.44
12:I:59:PHE:CE2	12:I:96:ALA:HB2	2.52	0.44
16:M:12:ASP:OD1	16:M:44:ARG:HD2	2.17	0.44
19:P:15:ASN:OD1	19:P:15:ASN:N	2.50	0.44
25:V:18:HIS:CG	25:V:19:GLN:N	2.85	0.44
37:i:256:ARG:HG2	56:h:2061:U:H5"	1.99	0.44
40:l:21:GLU:O	40:l:25:GLN:OE1	2.36	0.44
40:l:145:PHE:HZ	40:l:159:MET:HE1	1.82	0.44
56:h:206:A:H2'	56:h:207:C:O4'	2.18	0.44
56:h:422:A:H2'	56:h:423:C:O4'	2.17	0.44
56:h:808:A:H2'	56:h:809:U:C6	2.53	0.44
3:5:40:ILE:HG12	3:5:85:SER:HB3	2.00	0.44
3:5:137:GLU:CD	3:5:137:GLU:C	2.86	0.44
4:A:136:G:C6	4:A:225:G:C6	3.06	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1249:G:H22	4:A:1293:G:N2	2.16	0.44
13:J:50:CYS:SG	13:J:62:ARG:HD3	2.58	0.44
39:k:151:ASN:ND2	39:k:193:ASP:OD2	2.42	0.44
40:l:24:GLN:HE22	40:l:29:TYR:HB2	1.81	0.44
44:p:39:LEU:HD13	44:p:96:PHE:CE2	2.52	0.44
44:p:51:VAL:O	56:h:1202:A:H5'	2.18	0.44
48:t:80:GLU:OE2	56:h:2717:U:O2'	2.29	0.44
56:h:567:A:H4'	56:h:568:A:OP1	2.17	0.44
56:h:728:G:H2'	56:h:729:C:C6	2.53	0.44
56:h:1650:G:H2'	56:h:1651:C:C6	2.52	0.44
4:A:382:A:H2'	4:A:383:A:C8	2.53	0.44
4:A:534:U:H2'	4:A:535:C:H6	1.83	0.44
4:A:988:C:H2'	4:A:989:G:O4'	2.18	0.44
4:A:1271:A:H2'	4:A:1272:G:H5'	2.00	0.44
15:L:7:LEU:HD23	20:Q:49:TYR:CE1	2.52	0.44
16:M:49:THR:OG1	16:M:52:GLN:HG3	2.17	0.44
40:l:117:ARG:HH11	40:l:146:HIS:CD2	2.36	0.44
43:o:118:LEU:HD12	43:o:119:ASN:H	1.82	0.44
44:p:94:LYS:HG2	44:p:98:LYS:NZ	2.32	0.44
56:h:194:A:H61	56:h:197:C:H3'	1.82	0.44
56:h:2335:G:H2'	56:h:2336:U:C2	2.53	0.44
56:h:2691:C:H2'	56:h:2692:A:O4'	2.18	0.44
3:5:42:ILE:HG21	3:5:78:ILE:HA	1.99	0.44
3:5:113:LEU:HB3	3:5:182:LEU:HD21	1.98	0.44
4:A:452:A:HO2'	4:A:453:G:P	2.40	0.44
4:A:510:G:H2'	4:A:510:G:N3	2.32	0.44
4:A:668:G:H5'	14:K:58:HIS:HA	1.99	0.44
5:B:81:U:H2'	5:B:82:A:C8	2.53	0.44
15:L:54:ARG:HG3	15:L:62:GLU:OE2	2.18	0.44
38:j:178:GLN:HE21	56:h:2996:U:H5'	1.82	0.44
44:p:6:LYS:HZ3	56:h:1164:A:C2'	2.30	0.44
56:h:263:G:H2'	56:h:264:G:O4'	2.18	0.44
56:h:296:A:N6	56:h:297:G:O6	2.50	0.44
56:h:297:G:H2'	56:h:298:G:C8	2.53	0.44
56:h:479:A:H1'	56:h:499:G:O4'	2.18	0.44
56:h:977:G:H2'	56:h:978:A:O4'	2.18	0.44
3:5:141:ARG:HH12	3:5:147:GLU:CD	2.22	0.43
4:A:92:A:O2'	4:A:93:C:H6	2.01	0.43
4:A:275:G:OP1	20:Q:31:LYS:HE2	2.17	0.43
4:A:444:A:H2'	4:A:445:C:C6	2.53	0.43
4:A:907:G:C2	4:A:909:G:C8	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1232:A:N6	4:A:1268:C:H42	2.03	0.43
8:E:112:GLY:HA3	8:E:168:ALA:HB2	1.99	0.43
11:H:70:ARG:HA	11:H:70:ARG:HE	1.82	0.43
38:j:154:CYS:C	38:j:156:THR:H	2.26	0.43
47:s:31:LYS:O	56:h:925:U:C4	2.70	0.43
54:z:13:LYS:HB2	56:h:581:G:H4'	2.00	0.43
55:1:99:LYS:HA	55:1:99:LYS:HD2	1.89	0.43
56:h:752:C:H2'	56:h:753:A:C8	2.53	0.43
56:h:1393:C:H2'	56:h:1394:A:C8	2.53	0.43
56:h:2736:C:H2'	56:h:2737:G:O4'	2.18	0.43
56:h:3020:U:O2'	56:h:3021:A:O5'	2.35	0.43
4:A:433:C:H2'	4:A:434:C:C6	2.53	0.43
4:A:452:A:C2	19:P:47:SER:HB2	2.45	0.43
4:A:637:U:C2	4:A:638:A:C8	3.07	0.43
4:A:786:C:H2'	4:A:787:A:H8	1.82	0.43
12:I:51:ASP:OD1	12:I:86:HIS:HA	2.18	0.43
26:W:175:GLU:OE1	26:W:175:GLU:N	2.51	0.43
44:p:17:PHE:CE1	44:p:66:ILE:HD13	2.53	0.43
44:p:40:ARG:NE	44:p:49:TYR:HB3	2.32	0.43
49:u:65:GLU:O	49:u:68:LYS:HG2	2.18	0.43
56:h:217:G:N2	56:h:235:U:H4'	2.31	0.43
56:h:333:C:H2'	56:h:334:G:C8	2.53	0.43
56:h:996:G:N3	56:h:997:G:C8	2.87	0.43
56:h:1188:A:N7	56:h:1214:A:O2'	2.51	0.43
56:h:2635:A:H2'	56:h:2636:A:C8	2.53	0.43
3:5:42:ILE:HD13	3:5:78:ILE:HG12	2.00	0.43
4:A:360:G:C6	4:A:361:G:C6	3.06	0.43
4:A:436:C:H2'	4:A:437:U:C6	2.54	0.43
4:A:486:G:H2'	4:A:487:C:C6	2.53	0.43
4:A:560:C:H2'	4:A:561:G:O4'	2.18	0.43
5:B:26:A:H2'	5:B:27:A:C8	2.53	0.43
7:D:82:GLY:HA3	7:D:192:GLU:HB3	1.99	0.43
8:E:63:ILE:HG12	8:E:139:VAL:HG22	2.00	0.43
18:O:6:GLU:O	18:O:7:GLN:C	2.61	0.43
18:O:12:LEU:HG	18:O:31:LEU:HD21	2.00	0.43
20:Q:86:LYS:C	20:Q:87:ARG:HD2	2.44	0.43
25:V:111:LEU:CD1	25:V:152:ARG:HA	2.48	0.43
28:Y:36:VAL:HG12	28:Y:63:ARG:NH2	2.32	0.43
37:i:186:ASP:OD1	37:i:187:VAL:N	2.51	0.43
53:y:53:ASP:O	53:y:57:LYS:HG2	2.18	0.43
56:h:297:G:H3'	56:h:298:G:H8	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:1393:C:H2'	56:h:1394:A:H8	1.83	0.43
3:5:55:ALA:HB1	3:5:68:LYS:O	2.19	0.43
4:A:449:C:H2'	4:A:450:G:O4'	2.19	0.43
4:A:1445:G:H2'	4:A:1446:C:H6	1.83	0.43
8:E:105:THR:HG22	8:E:147:ASP:HB2	2.00	0.43
25:V:187:LEU:HD21	25:V:196:VAL:HG21	1.99	0.43
26:W:165:PRO:HD2	26:W:168:VAL:HG21	2.00	0.43
34:e:29:ARG:CZ	34:e:45:ASP:HB3	2.48	0.43
38:j:10:LYS:HG3	38:j:198:ILE:HD11	2.00	0.43
48:t:43:THR:HG22	48:t:94:VAL:HG12	2.00	0.43
51:w:28:HIS:HD2	51:w:82:HIS:HB2	1.83	0.43
56:h:273:A:H62	56:h:313:G:H21	1.66	0.43
56:h:301:U:N3	56:h:338:C:OP2	2.52	0.43
56:h:1217:G:H2'	56:h:1218:C:C6	2.54	0.43
56:h:2374:U:H2'	56:h:2375:G:C8	2.53	0.43
56:h:2753:G:H5"	56:h:2754:G:H5"	2.01	0.43
4:A:47:C:P	19:P:14:ARG:HH21	2.42	0.43
8:E:104:SER:OG	8:E:146:HIS:HB2	2.18	0.43
20:Q:84:ALA:O	20:Q:86:LYS:N	2.51	0.43
20:Q:86:LYS:HE2	20:Q:86:LYS:HB3	1.59	0.43
23:T:59:ASP:OD1	23:T:76:LYS:NZ	2.49	0.43
39:k:6:ASP:OD1	39:k:6:ASP:N	2.49	0.43
43:o:93:GLU:OE2	56:h:1194:C:H4'	2.18	0.43
49:u:45:ARG:HD2	49:u:97:ILE:HG13	2.00	0.43
50:v:83:ARG:NH1	50:v:87:LEU:HB2	2.34	0.43
56:h:388:U:H2'	56:h:389:G:O4'	2.18	0.43
56:h:920:G:H22	56:h:943:U:H5"	1.84	0.43
56:h:1550:G:C4	56:h:1551:U:C5	3.05	0.43
56:h:2416:C:H2'	56:h:2417:C:C6	2.54	0.43
3:5:70:TYR:HD2	56:h:1185:A:N1	2.06	0.43
4:A:667:A:C2	4:A:684:A:C5	3.07	0.43
4:A:1082:A:H2'	4:A:1083:C:C6	2.53	0.43
16:M:4:LEU:O	16:M:6:GLY:N	2.52	0.43
20:Q:21:LYS:HB2	20:Q:78:GLU:CG	2.49	0.43
25:V:192:ASP:HB3	25:V:195:VAL:HG22	2.00	0.43
56:h:1191:A:C4	56:h:1192:G:C8	3.07	0.43
56:h:1530:G:N2	56:h:1805:G:H1	2.15	0.43
56:h:1621:C:H2'	56:h:1622:G:C8	2.54	0.43
56:h:1764:A:H2'	56:h:1765:A:C8	2.54	0.43
4:A:76:A:H2'	4:A:77:G:C8	2.53	0.43
4:A:105:A:H5'	4:A:106:C:H5	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:425:G:H2'	4:A:426:U:C6	2.54	0.43
4:A:509:G:H5'	4:A:510:G:OP2	2.18	0.43
4:A:1488:G:OP1	4:A:1491:A:H4'	2.19	0.43
7:D:116:GLY:HA2	7:D:126:ASP:HB3	1.99	0.43
10:G:26:LEU:HD13	10:G:101:LEU:HD22	2.01	0.43
13:J:25:ILE:HD11	13:J:92:LEU:HD11	2.01	0.43
16:M:23:TYR:HB3	16:M:67:GLU:CB	2.48	0.43
19:P:46:PRO:HG3	19:P:96:LYS:HA	2.01	0.43
25:V:169:GLU:HB3	25:V:172:ALA:HB3	2.01	0.43
38:j:169:ARG:HH22	56:h:3046:C:H41	1.66	0.43
39:k:61:GLY:HA3	39:k:80:ARG:HG2	2.00	0.43
43:o:38:MET:O	43:o:42:LYS:HG2	2.18	0.43
50:v:83:ARG:HD2	50:v:83:ARG:HA	1.72	0.43
56:h:309:G:H2'	56:h:310:C:H6	1.84	0.43
56:h:997:G:C4	56:h:998:G:C8	3.07	0.43
56:h:1043:G:H2'	56:h:1044:U:H6	1.83	0.43
56:h:1180:G:C6	56:h:1195:A:N1	2.87	0.43
56:h:1942:G:H2'	56:h:1943:C:H6	1.83	0.43
3:5:44:TYR:HD2	43:o:24:PRO:HG2	1.74	0.43
4:A:78:G:H2'	4:A:79:C:C6	2.54	0.43
4:A:490:A:N3	4:A:523:U:H1'	2.34	0.43
4:A:748:A:H4'	4:A:1507:G:N2	2.33	0.43
4:A:907:G:O2'	4:A:909:G:OP1	2.32	0.43
4:A:994:C:H2'	4:A:995:A:H8	1.83	0.43
4:A:1005:G:H2'	4:A:1006:U:C6	2.54	0.43
4:A:1320:G:H2'	4:A:1321:A:C8	2.54	0.43
6:C:190:LYS:HG2	6:C:195:ARG:CZ	2.49	0.43
14:K:106:ILE:HD13	14:K:106:ILE:HA	1.84	0.43
19:P:21:ILE:HD12	19:P:36:VAL:HA	2.01	0.43
27:X:32:LYS:HB3	56:h:759:G:C6	2.54	0.43
48:t:133:THR:HG22	48:t:134:ARG:N	2.33	0.43
55:1:93:LYS:HB3	55:1:93:LYS:HE3	1.84	0.43
56:h:898:A:N3	56:h:899:G:H5"	2.34	0.43
56:h:2380:G:P	56:h:2380:G:H8	2.41	0.43
3:5:153:VAL:O	3:5:157:GLU:OE1	2.36	0.43
4:A:280:C:N3	20:Q:56:THR:HG22	2.33	0.43
4:A:905:A:O2'	4:A:1382:C:OP2	2.34	0.43
4:A:1370:G:H2'	4:A:1371:C:C6	2.54	0.43
7:D:50:LEU:HG	7:D:54:GLN:NE2	2.34	0.43
25:V:219:SER:O	25:V:223:GLU:OE1	2.37	0.43
26:W:148:VAL:HG13	26:W:148:VAL:O	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:j:153:GLY:O	56:h:2276:G:H4'	2.19	0.43
39:k:154:VAL:HG23	39:k:193:ASP:HB2	2.00	0.43
44:p:85:GLU:OE1	44:p:88:ASP:N	2.49	0.43
47:s:94:GLY:H	47:s:97:GLU:CD	2.27	0.43
56:h:97:U:H5"	56:h:99:G:O4'	2.19	0.43
56:h:2106:A:OP2	56:h:2106:A:H8	2.02	0.43
56:h:2107:G:H4'	56:h:2107:G:OP1	2.19	0.43
56:h:2125:A:O2'	56:h:2126:C:OP2	2.29	0.43
56:h:2396:A:H2'	56:h:2397:C:H6	1.84	0.43
56:h:2761:U:H2'	56:h:2762:C:C6	2.54	0.43
3:5:110:ARG:HH11	3:5:183:LEU:HA	1.81	0.43
3:5:116:GLN:HG2	3:5:120:LYS:HE3	2.01	0.43
4:A:8:U:O2	4:A:9:U:N3	2.52	0.43
4:A:863:G:OP2	15:L:6:GLN:NE2	2.49	0.43
4:A:904:G:H2'	4:A:905:A:C8	2.54	0.43
4:A:1102:A:H2'	4:A:1103:U:O4'	2.19	0.43
6:C:88:ALA:O	6:C:92:LYS:HG2	2.19	0.43
13:J:66:GLU:HB3	17:N:59:SER:HB2	2.00	0.43
19:P:67:THR:HG22	19:P:69:PRO:HD2	2.00	0.43
24:U:62:ARG:NH1	56:h:1454:G:N7	2.67	0.43
48:t:135:GLU:N	48:t:135:GLU:OE1	2.52	0.43
49:u:47:TYR:OH	49:u:69:LYS:HD2	2.19	0.43
50:v:31:GLY:N	50:v:54:ASP:OD2	2.45	0.43
55:1:84:GLY:HA3	55:1:99:LYS:HD3	2.01	0.43
56:h:974:G:O2'	56:h:975:U:O5'	2.32	0.43
56:h:2373:G:H2'	56:h:2374:U:C6	2.53	0.43
4:A:865:C:O2'	4:A:866:U:H5'	2.19	0.42
4:A:1364:U:H2'	4:A:1365:C:O4'	2.18	0.42
4:A:1380:C:OP2	8:E:54:ARG:NH2	2.51	0.42
8:E:136:ALA:O	8:E:140:LEU:HD23	2.19	0.42
13:J:12:ALA:HB3	13:J:18:ILE:HB	2.01	0.42
46:r:5:GLU:HG3	46:r:5:GLU:O	2.19	0.42
56:h:772:U:H2'	56:h:773:G:H8	1.84	0.42
56:h:1157:G:H1	56:h:1234:U:H3	1.67	0.42
56:h:1651:C:H2'	56:h:1652:A:C8	2.54	0.42
56:h:1730:U:H4'	56:h:1731:A:OP2	2.18	0.42
56:h:1809:U:H2'	56:h:1810:A:C8	2.55	0.42
4:A:335:C:H2'	4:A:336:A:C8	2.55	0.42
4:A:404:G:N7	7:D:2:ALA:HA	2.34	0.42
15:L:59:SER:HB2	15:L:61:VAL:HG22	2.01	0.42
19:P:53:SER:O	19:P:57:GLN:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:T:48:SER:O	23:T:52:HIS:ND1	2.52	0.42
30:a:16:ARG:HD3	56:h:1086:C:OP2	2.18	0.42
31:b:45:LYS:NZ	56:h:3104:A:OP2	2.48	0.42
45:q:113:LYS:HD3	56:h:615:A:H5'	2.00	0.42
50:v:87:LEU:O	50:v:90:GLU:HG3	2.19	0.42
56:h:994:A:C5	56:h:1015:A:C8	3.07	0.42
56:h:1012:C:O2	56:h:1012:C:H2'	2.17	0.42
56:h:1025:A:N3	56:h:2488:C:O2'	2.49	0.42
4:A:522:G:O5'	7:D:10:ARG:NH2	2.51	0.42
4:A:1060:A:H4'	8:E:46:VAL:HG21	2.00	0.42
20:Q:74:VAL:HG12	20:Q:76:LEU:HD22	2.00	0.42
21:R:45:ARG:NH2	21:R:81:SER:O	2.50	0.42
31:b:3:VAL:HG12	56:h:2239:A:N3	2.34	0.42
34:e:45:ASP:OD1	34:e:45:ASP:N	2.51	0.42
50:v:46:HIS:HB3	50:v:65:SER:HB3	2.01	0.42
51:w:19:PHE:O	51:w:49:ARG:NH1	2.52	0.42
56:h:580:G:H2'	56:h:581:G:O4'	2.19	0.42
56:h:2553:G:H2'	56:h:2554:U:C6	2.54	0.42
56:h:2581:G:H8	56:h:2581:G:OP2	2.01	0.42
4:A:207:G:H4'	23:T:56:ARG:HG2	2.01	0.42
4:A:1100:U:H2'	4:A:1101:C:C6	2.55	0.42
4:A:1198:C:OP1	17:N:9:LYS:NZ	2.31	0.42
4:A:1382:C:C2	4:A:1486:A:N6	2.87	0.42
8:E:133:GLY:O	8:E:137:ARG:CB	2.66	0.42
10:G:68:ASN:ND2	10:G:127:ALA:O	2.53	0.42
14:K:91:VAL:O	14:K:116:VAL:HA	2.20	0.42
23:T:4:ILE:O	23:T:8:ILE:HG13	2.19	0.42
50:v:25:LEU:HD11	50:v:104:ARG:HG2	2.01	0.42
56:h:49:A:H2'	56:h:50:A:C8	2.54	0.42
56:h:337:U:C2	56:h:344:G:N1	2.87	0.42
56:h:1543:A:N1	56:h:1628:A:O2'	2.47	0.42
56:h:2070:A:H2'	56:h:2071:A:C8	2.54	0.42
56:h:2588:C:H2'	56:h:2589:G:O4'	2.19	0.42
56:h:2757:C:OP1	56:h:2889:A:O2'	2.31	0.42
3:5:139:LEU:HA	3:5:142:ILE:HG22	2.02	0.42
4:A:344:A:H5"	4:A:345:C:H5	1.84	0.42
4:A:405:U:O4	7:D:2:ALA:HB1	2.19	0.42
4:A:1208:A:N3	16:M:117:ILE:HG13	2.35	0.42
4:A:1411:A:H2'	4:A:1412:C:H6	1.85	0.42
6:C:87:ARG:O	6:C:91:GLU:OE1	2.37	0.42
7:D:102:LEU:CD1	7:D:175:ILE:HD11	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:M:93:ARG:HB3	56:h:1004:C:H42	1.85	0.42
25:V:91:TYR:H	25:V:150:GLY:HA3	1.84	0.42
38:j:182:VAL:HG21	38:j:192:LEU:HD22	2.01	0.42
40:l:67:ILE:HA	40:l:147:GLU:OE1	2.19	0.42
43:o:104:TRP:O	43:o:108:ARG:HG2	2.19	0.42
56:h:286:G:H21	56:h:287:A:N6	2.17	0.42
56:h:998:G:H2'	56:h:999:C:C6	2.55	0.42
56:h:2243:C:N4	56:h:2244:A:H62	2.17	0.42
56:h:2874:C:H2'	56:h:2875:C:H6	1.85	0.42
1:3:22:PRO:HB3	56:h:1102:G:H2'	2.01	0.42
4:A:250:U:H4'	4:A:251:G:O5'	2.19	0.42
4:A:1269:A:H2'	4:A:1270:A:C8	2.55	0.42
4:A:1297:U:H2'	4:A:1298:G:O4'	2.19	0.42
5:B:43:C:C5	40:l:73:GLU:OE2	2.72	0.42
6:C:169:ARG:HG2	6:C:170:GLU:N	2.35	0.42
7:D:104:ARG:H	7:D:108:MET:HG3	1.84	0.42
7:D:165:TRP:NE1	7:D:181:PRO:HB3	2.35	0.42
8:E:73:VAL:HG21	8:E:162:VAL:HG11	2.00	0.42
25:V:67:VAL:HA	25:V:160:ALA:O	2.20	0.42
26:W:50:ASN:OD1	26:W:51:ALA:N	2.53	0.42
29:Z:12:GLU:C	29:Z:13:LEU:HD12	2.45	0.42
32:c:28:ASN:HB3	32:c:31:ASN:HB2	2.02	0.42
34:e:29:ARG:NE	34:e:45:ASP:HB3	2.34	0.42
38:j:65:PRO:O	38:j:69:GLN:HG3	2.19	0.42
39:k:182:GLN:HE22	56:h:706:G:H8	1.67	0.42
43:o:122:ASP:OD1	43:o:123:ILE:N	2.53	0.42
49:u:77:HIS:CE1	56:h:1674:G:C5	3.07	0.42
56:h:664:A:H5"	56:h:665:G:OP2	2.18	0.42
56:h:2178:G:O2'	56:h:2180:U:O4	2.19	0.42
56:h:2483:G:C8	56:h:2651:C:C4	3.08	0.42
56:h:2613:G:H5"	56:h:2614:U:O4'	2.20	0.42
3:5:1:MET:O	3:5:5:THR:HG23	2.20	0.42
4:A:105:A:C6	4:A:326:G:C6	3.08	0.42
4:A:360:G:H2'	4:A:361:G:C8	2.54	0.42
4:A:503:A:C2	15:L:88:LYS:HD3	2.55	0.42
4:A:638:A:H2'	4:A:639:C:H6	1.84	0.42
4:A:846:A:H5'	8:E:116:ALA:HB2	2.00	0.42
4:A:847:A:H2'	4:A:848:C:C6	2.55	0.42
4:A:1105:U:C2	4:A:1107:G:C8	3.08	0.42
4:A:1258:C:O2'	4:A:1260:A:H8	2.03	0.42
5:B:76:G:HO2'	26:W:94:HIS:CE1	2.30	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:39:ARG:NH1	6:C:54:VAL:O	2.35	0.42
7:D:90:GLU:HG3	7:D:186:ILE:HG13	2.00	0.42
9:F:11:ASP:N	9:F:84:SER:O	2.52	0.42
12:I:111:GLN:HB3	12:I:113:GLU:CD	2.45	0.42
18:O:33:THR:HG21	18:O:85:LEU:HD22	2.00	0.42
41:m:58:ASP:OD1	41:m:58:ASP:O	2.37	0.42
52:x:13:LYS:NZ	56:h:1366:A:OP1	2.36	0.42
56:h:278:A:H2'	56:h:279:U:C6	2.55	0.42
56:h:321:G:H2'	56:h:322:A:H8	1.84	0.42
56:h:782:U:H2'	56:h:783:G:O4'	2.20	0.42
56:h:2147:U:H2'	56:h:2148:C:C6	2.54	0.42
56:h:2416:C:H2'	56:h:2417:C:H6	1.84	0.42
56:h:2443:U:H2'	56:h:2444:C:C6	2.54	0.42
4:A:498:C:H4'	4:A:499:C:O5'	2.20	0.42
4:A:535:C:H2'	4:A:536:C:C6	2.55	0.42
4:A:602:A:H5"	7:D:69:ARG:HH22	1.84	0.42
4:A:994:C:H2'	4:A:995:A:C8	2.54	0.42
4:A:1220:A:O2'	10:G:114:LYS:O	2.37	0.42
4:A:1229:A:H4'	12:I:53:ARG:NH1	2.35	0.42
6:C:178:LEU:HD23	6:C:178:LEU:HA	1.78	0.42
37:i:146:GLU:HB2	37:i:189:CYS:HB3	2.01	0.42
40:l:101:ASP:OD1	40:l:102:ARG:N	2.52	0.42
41:m:46:ALA:N	41:m:50:ALA:O	2.49	0.42
42:n:124:ILE:HD13	42:n:130:HIS:HD2	1.85	0.42
49:u:10:LEU:HD12	49:u:10:LEU:HA	1.85	0.42
56:h:978:A:H2'	56:h:979:G:H8	1.81	0.42
56:h:1313:U:H2'	56:h:1314:C:H6	1.84	0.42
56:h:1944:C:H2'	56:h:1945:U:H6	1.85	0.42
56:h:2529:A:H2'	56:h:2530:C:C6	2.55	0.42
4:A:78:G:H2'	4:A:79:C:H6	1.85	0.42
4:A:106:C:H2'	4:A:107:G:O4'	2.20	0.42
4:A:421:U:H3'	4:A:422:C:H5'	2.01	0.42
4:A:1254:G:H2'	4:A:1255:G:O4'	2.20	0.42
4:A:1328:A:OP1	12:I:142:ARG:NH2	2.31	0.42
4:A:1491:A:H2'	4:A:1492:G:C8	2.55	0.42
6:C:94:THR:O	6:C:94:THR:HG22	2.20	0.42
7:D:140:VAL:HG11	7:D:150:PHE:CZ	2.55	0.42
10:G:57:ASP:OD1	10:G:58:PRO:HD2	2.19	0.42
11:H:10:PHE:HD1	11:H:27:LEU:HD21	1.84	0.42
14:K:103:GLU:OE1	14:K:103:GLU:N	2.52	0.42
34:e:26:LYS:HE3	34:e:43:ARG:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:k:166:ALA:O	39:k:170:ARG:HB2	2.18	0.42
40:l:15:TYR:CE2	40:l:20:ARG:HD3	2.55	0.42
40:l:23:LEU:HD13	40:l:36:PRO:HG2	2.02	0.42
42:n:80:LEU:HD13	42:n:95:VAL:HG21	2.02	0.42
42:n:95:VAL:CG1	42:n:124:ILE:HG21	2.47	0.42
51:w:48:ARG:NH2	56:h:2909:G:OP1	2.47	0.42
56:h:784:G:H2'	56:h:784:G:N3	2.35	0.42
56:h:2382:G:H2'	56:h:2383:U:C6	2.55	0.42
4:A:223:G:H2'	4:A:224:U:O4'	2.20	0.42
4:A:1116:U:H1'	4:A:1117:U:C4	2.54	0.42
4:A:1269:A:H2	4:A:1335:G:H1'	1.85	0.42
5:B:76:G:O2'	26:W:94:HIS:NE2	2.33	0.42
10:G:16:PRO:HG3	12:I:63:VAL:HG22	2.02	0.42
19:P:74:LEU:HG	19:P:80:TRP:HB2	2.01	0.42
24:U:7:PRO:O	24:U:10:ILE:HG22	2.20	0.42
37:i:220:THR:O	56:h:2006:A:H5"	2.20	0.42
40:l:20:ARG:HA	40:l:20:ARG:HD2	1.76	0.42
40:l:101:ASP:O	40:l:105:GLU:HG2	2.20	0.42
40:l:110:LEU:HA	40:l:114:ALA:HB3	2.02	0.42
56:h:81:A:C2	56:h:100:A:C5	3.07	0.42
56:h:673:C:H2'	56:h:674:U:H6	1.85	0.42
56:h:750:C:H2'	56:h:751:A:C8	2.54	0.42
56:h:994:A:H5'	56:h:995:U:OP2	2.20	0.42
56:h:1532:G:N2	56:h:1804:G:C4	2.88	0.42
56:h:1639:G:H5'	56:h:1640:A:OP1	2.20	0.42
56:h:2340:A:N6	56:h:2389:U:O2	2.52	0.42
56:h:2368:C:H2'	56:h:2370:A:C5	2.55	0.42
4:A:49:U:H2'	4:A:50:G:C8	2.55	0.41
4:A:255:G:H2'	4:A:256:U:C6	2.54	0.41
4:A:708:A:H2'	4:A:709:A:H8	1.82	0.41
4:A:1133:G:P	13:J:72:ARG:HH22	2.43	0.41
4:A:1408:A:H2'	4:A:1409:A:O4'	2.19	0.41
4:A:1422:G:H2'	4:A:1423:U:C6	2.55	0.41
8:E:105:THR:HG21	8:E:124:ALA:O	2.20	0.41
12:I:106:ALA:O	12:I:110:VAL:HG23	2.20	0.41
14:K:96:LYS:HD2	14:K:124:PRO:HD3	2.02	0.41
15:L:94:ARG:HB2	15:L:95:TYR:CE1	2.55	0.41
22:S:39:THR:HA	22:S:70:LYS:HD3	2.01	0.41
37:i:163:ILE:CG2	37:i:178:PRO:HD3	2.47	0.41
39:k:118:ARG:NH2	47:s:4:ILE:O	2.53	0.41
44:p:88:ASP:O	44:p:91:LYS:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:829:U:N3	56:h:832:G:OP2	2.42	0.41
56:h:1430:C:C2	56:h:1453:G:N2	2.88	0.41
56:h:3116:C:H2'	56:h:3117:U:C6	2.55	0.41
4:A:604:U:H2'	4:A:605:G:C8	2.55	0.41
4:A:1477:A:C8	56:h:2137:A:C2	3.08	0.41
6:C:52:ALA:HB2	6:C:114:LEU:HD21	2.02	0.41
7:D:165:TRP:CD1	7:D:165:TRP:H	2.36	0.41
19:P:73:LEU:O	19:P:77:THR:HG23	2.20	0.41
20:Q:42:ASP:OD1	20:Q:55:THR:HG22	2.21	0.41
35:f:30:PRO:HB3	56:h:2751:C:H5"	2.01	0.41
56:h:384:G:H2'	56:h:385:G:H8	1.85	0.41
56:h:1551:U:H2'	56:h:1552:A:O4'	2.21	0.41
56:h:1557:C:H2'	56:h:1558:C:H6	1.83	0.41
56:h:1619:U:H2'	56:h:1620:U:C6	2.55	0.41
56:h:2084:A:H2'	56:h:2085:C:O4'	2.20	0.41
56:h:2693:A:H2'	56:h:2694:G:O4'	2.19	0.41
4:A:143:G:C2	4:A:174:G:C5	3.08	0.41
4:A:436:C:O2'	7:D:149:PRO:HG3	2.20	0.41
4:A:504:G:H2'	4:A:505:C:C6	2.55	0.41
4:A:1001:G:H2'	4:A:1002:U:C6	2.54	0.41
11:H:79:ARG:HG2	11:H:80:VAL:N	2.35	0.41
18:O:85:LEU:HB3	18:O:87:LEU:HD13	2.02	0.41
25:V:93:ASN:OD1	25:V:94:GLN:N	2.53	0.41
40:l:87:ARG:N	40:l:90:MET:HE3	2.32	0.41
43:o:79:LYS:HA	43:o:82:LEU:CD2	2.51	0.41
44:p:24:VAL:HG23	44:p:80:ALA:HB3	2.02	0.41
56:h:678:A:N1	56:h:924:G:O2'	2.40	0.41
3:5:139:LEU:HD22	3:5:153:VAL:HG13	2.02	0.41
4:A:522:G:H2'	4:A:523:U:H6	1.85	0.41
4:A:819:U:H3	4:A:829:G:H22	1.67	0.41
4:A:945:G:N3	13:J:56:HIS:HE1	2.19	0.41
4:A:1051:C:H2'	4:A:1052:G:H8	1.86	0.41
6:C:29:LYS:HE2	6:C:29:LYS:HB3	1.85	0.41
16:M:14:ARG:NH2	16:M:16:GLU:OE1	2.54	0.41
23:T:35:PHE:HA	23:T:50:LEU:HD11	2.02	0.41
38:j:89:GLU:HA	38:j:92:VAL:HB	2.02	0.41
42:n:124:ILE:CG2	42:n:125:LYS:N	2.84	0.41
47:s:77:VAL:HA	47:s:111:LYS:O	2.20	0.41
49:u:55:ALA:HB2	49:u:79:LEU:HG	2.02	0.41
56:h:1081:C:O2'	56:h:2497:A:N3	2.49	0.41
56:h:1900:C:H2'	56:h:1901:C:H6	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:2086:U:H3	56:h:2096:G:H1	1.68	0.41
56:h:2807:G:H2'	56:h:2808:U:O4'	2.21	0.41
3:5:44:TYR:HB2	3:5:54:LEU:HD11	2.02	0.41
4:A:92:A:O2'	4:A:93:C:C6	2.73	0.41
4:A:934:U:H2'	4:A:935:G:H8	1.85	0.41
4:A:993:G:H2'	4:A:994:C:C6	2.55	0.41
4:A:1472:G:H2'	4:A:1473:A:C8	2.56	0.41
7:D:18:ASP:HB2	7:D:26:PHE:CD2	2.56	0.41
14:K:80:ALA:HB2	14:K:109:LEU:HD23	2.02	0.41
25:V:204:ASP:OD1	25:V:205:ASP:N	2.54	0.41
30:a:44:ARG:HD3	30:a:44:ARG:HA	1.82	0.41
49:u:94:TYR:O	49:u:116:VAL:HG22	2.21	0.41
56:h:844:G:H5'	56:h:845:C:H5"	2.02	0.41
56:h:962:U:H5'	56:h:963:U:OP2	2.21	0.41
56:h:1197:C:N4	56:h:1206:A:C5	2.88	0.41
56:h:1478:C:O2'	56:h:2026:A:N3	2.51	0.41
56:h:1942:G:H2'	56:h:1943:C:C6	2.55	0.41
3:5:93:ASN:OD1	3:5:94:ASP:N	2.52	0.41
4:A:860:C:H5'	11:H:83:PRO:HG2	2.01	0.41
4:A:1005:G:H2'	4:A:1006:U:H6	1.83	0.41
4:A:1087:C:C4	4:A:1088:G:C8	3.09	0.41
4:A:1425:G:H5'	4:A:1426:C:H5	1.86	0.41
12:I:53:ARG:HB3	12:I:57:ASN:HB3	2.02	0.41
20:Q:80:ARG:O	20:Q:82:LEU:HD12	2.21	0.41
26:W:158:THR:HG22	26:W:161:GLN:OE1	2.21	0.41
29:Z:36:MET:HB2	29:Z:41:LEU:HD23	2.02	0.41
38:j:13:MET:HE3	38:j:13:MET:HB2	1.82	0.41
40:l:41:VAL:HG12	40:l:103:MET:HB2	2.03	0.41
40:l:144:MET:N	40:l:144:MET:SD	2.93	0.41
42:n:3:LEU:HA	42:n:39:ALA:H	1.85	0.41
43:o:79:LYS:O	43:o:82:LEU:HG	2.20	0.41
45:q:27:ARG:NH2	56:h:1260:C:O2'	2.54	0.41
49:u:67:MET:HG2	49:u:76:VAL:HG21	2.02	0.41
56:h:131:A:H2'	56:h:132:C:C6	2.56	0.41
56:h:1334:C:H2'	56:h:1335:G:O4'	2.20	0.41
56:h:1608:U:H2'	56:h:1609:G:H8	1.86	0.41
56:h:1791:A:H2'	56:h:1792:A:C8	2.56	0.41
56:h:1963:G:H2'	56:h:1964:U:C6	2.55	0.41
56:h:2369:C:H5"	56:h:2370:A:C8	2.55	0.41
56:h:2552:A:H2'	56:h:2553:G:H8	1.81	0.41
56:h:2973:A:OP2	56:h:2974:A:O2'	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:522:G:H2'	4:A:523:U:C6	2.56	0.41
4:A:717:C:H2'	4:A:718:U:H6	1.85	0.41
6:C:109:GLU:HB2	6:C:143:GLN:NE2	2.32	0.41
7:D:112:LEU:HD12	7:D:117:HIS:ND1	2.36	0.41
9:F:23:LEU:HD22	9:F:63:ILE:HD11	2.02	0.41
22:S:3:ARG:HD3	22:S:8:GLY:O	2.21	0.41
22:S:48:THR:HG22	22:S:61:PHE:HD1	1.86	0.41
26:W:85:VAL:HG13	26:W:91:ASN:O	2.21	0.41
37:i:201:GLN:O	37:i:204:ILE:HG12	2.21	0.41
56:h:1343:G:H2'	56:h:1345:G:N7	2.35	0.41
3:5:36:MET:O	3:5:87:LEU:HD21	2.20	0.41
6:C:72:PRO:HD3	6:C:104:GLU:HG2	2.03	0.41
25:V:52:LYS:HE2	25:V:198:TYR:CE1	2.54	0.41
39:k:129:GLU:OE2	39:k:132:GLU:HA	2.21	0.41
39:k:151:ASN:HD22	39:k:193:ASP:CG	2.25	0.41
43:o:51:GLN:HG3	43:o:52:ARG:H	1.84	0.41
43:o:91:SER:HB2	43:o:138:GLY:HA3	2.02	0.41
56:h:772:U:H2'	56:h:773:G:C8	2.56	0.41
56:h:1236:G:H2'	56:h:1237:U:O4'	2.21	0.41
56:h:2098:U:H2'	56:h:2099:G:O4'	2.20	0.41
4:A:384:G:H2'	4:A:385:C:C6	2.56	0.41
4:A:505:C:P	15:L:88:LYS:NZ	2.94	0.41
4:A:590:A:C5	4:A:591:C:C5	3.09	0.41
4:A:592:U:H2'	4:A:593:C:H6	1.83	0.41
4:A:1156:G:H2'	4:A:1157:A:H8	1.86	0.41
4:A:1284:U:O4	16:M:14:ARG:NH1	2.49	0.41
4:A:1310:C:H5"	16:M:28:THR:HG21	2.03	0.41
9:F:30:ILE:CD1	9:F:75:LEU:HD13	2.50	0.41
11:H:79:ARG:HG2	11:H:80:VAL:H	1.86	0.41
13:J:24:LYS:NZ	13:J:90:ILE:HG23	2.36	0.41
14:K:97:GLY:O	14:K:102:ARG:NH1	2.53	0.41
25:V:120:MET:HE1	25:V:129:ARG:NH2	2.36	0.41
32:c:48:HIS:ND1	56:h:2595:G:O2'	2.46	0.41
39:k:154:VAL:HG12	39:k:175:VAL:HG22	2.02	0.41
45:q:19:ASP:OD1	45:q:21:SER:OG	2.23	0.41
46:r:78:LYS:HD3	51:w:70:GLU:OE1	2.21	0.41
53:y:39:VAL:HG11	53:y:42:VAL:HG23	2.01	0.41
55:1:43:LYS:HZ1	56:h:568:A:P	2.41	0.41
56:h:285:U:H3'	56:h:286:G:H5"	2.03	0.41
56:h:453:U:H2'	56:h:454:U:C5	2.56	0.41
56:h:565:A:H2'	56:h:566:A:C8	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:750:C:H2'	56:h:751:A:H8	1.86	0.41
56:h:754:C:H2'	56:h:755:A:O4'	2.21	0.41
56:h:877:U:H4'	56:h:878:G:O5'	2.21	0.41
56:h:990:G:C6	56:h:991:C:C4	3.09	0.41
56:h:996:G:C2	56:h:1013:U:C2	3.09	0.41
56:h:1091:A:H5'	56:h:1303:U:H1'	2.02	0.41
56:h:1284:A:H2'	56:h:1285:G:C8	2.56	0.41
56:h:1608:U:H2'	56:h:1609:G:C8	2.55	0.41
56:h:1781:C:H2'	56:h:1782:U:C6	2.56	0.41
56:h:1886:A:O2'	56:h:1892:G:N7	2.47	0.41
56:h:2737:G:H2'	56:h:2738:U:C6	2.55	0.41
56:h:2767:G:H2'	56:h:2768:G:C8	2.56	0.41
4:A:352:C:O2'	4:A:354:G:OP1	2.29	0.41
4:A:1089:C:C2	4:A:1090:A:C8	3.09	0.41
18:O:12:LEU:HD23	18:O:27:ALA:HB1	2.03	0.41
23:T:34:GLY:O	23:T:37:GLU:HG3	2.21	0.41
42:n:97:ALA:HB3	42:n:114:LYS:HD2	2.02	0.41
56:h:441:G:H2'	56:h:442:U:C6	2.56	0.41
56:h:732:G:H2'	56:h:733:U:O4'	2.21	0.41
56:h:1556:A:C6	56:h:1615:G:N1	2.88	0.41
4:A:164:G:H2'	4:A:165:U:C6	2.55	0.40
6:C:95:GLY:C	6:C:97:GLN:H	2.28	0.40
7:D:13:ARG:HG3	7:D:29:ARG:O	2.20	0.40
7:D:59:SER:O	7:D:106:ARG:HD2	2.21	0.40
23:T:36:ARG:HG3	23:T:36:ARG:NH1	2.37	0.40
33:d:5:LYS:HE2	56:h:802:C:H5"	2.04	0.40
38:j:25:PRO:HB3	56:h:2906:U:O2	2.21	0.40
42:n:41:ARG:HH11	56:h:306:U:H5"	1.86	0.40
42:n:78:VAL:O	42:n:147:ASN:N	2.36	0.40
42:n:124:ILE:HD13	42:n:124:ILE:HA	1.95	0.40
48:t:101:ARG:HH22	56:h:1022:C:HO2'	1.66	0.40
55:1:40:ARG:HA	55:1:62:GLN:O	2.21	0.40
55:1:101:ASN:OD1	55:1:103:LYS:HG3	2.21	0.40
56:h:150:C:H2'	56:h:151:A:C8	2.57	0.40
56:h:289:A:H62	56:h:299:G:H22	1.68	0.40
56:h:717:C:H2'	56:h:718:C:H6	1.86	0.40
56:h:1010:U:O2'	56:h:1011:A:OP1	2.35	0.40
56:h:1210:C:H2'	56:h:1211:G:O4'	2.21	0.40
56:h:1450:C:H2'	56:h:1451:A:C8	2.56	0.40
56:h:1854:U:H2'	56:h:1855:A:C8	2.56	0.40
56:h:2003:A:H1'	56:h:2162:A:N6	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:h:2007:C:H2'	56:h:2008:A:C8	2.57	0.40
56:h:2213:A:H2'	56:h:2214:C:O4'	2.21	0.40
4:A:298:A:H2'	4:A:299:G:C8	2.56	0.40
4:A:392:C:C2	4:A:393:A:C8	3.10	0.40
4:A:890:A:H2'	4:A:891:A:C8	2.56	0.40
9:F:81:LEU:HD23	9:F:81:LEU:HA	1.93	0.40
10:G:40:GLU:OE2	10:G:44:TYR:CZ	2.74	0.40
10:G:111:ARG:HB3	10:G:113:GLU:OE1	2.21	0.40
18:O:33:THR:O	18:O:37:GLN:HG3	2.20	0.40
26:W:105:LYS:HD3	26:W:105:LYS:HA	1.83	0.40
39:k:55:ARG:HH22	56:h:789:G:P	2.42	0.40
41:m:87:LYS:HG3	41:m:166:GLU:OE2	2.22	0.40
43:o:56:ILE:HB	43:o:57:PRO:HD2	2.03	0.40
43:o:110:ILE:O	43:o:114:LYS:HG2	2.21	0.40
44:p:50:THR:HA	56:h:1202:A:OP1	2.21	0.40
48:t:71:ASP:OD1	48:t:71:ASP:N	2.54	0.40
50:v:83:ARG:HH12	50:v:87:LEU:HB2	1.86	0.40
56:h:298:G:H3'	56:h:299:G:C8	2.56	0.40
56:h:1041:A:H2'	56:h:1042:A:O4'	2.22	0.40
56:h:1162:G:H1'	56:h:1166:A:H1'	2.04	0.40
56:h:2879:G:O2'	56:h:2888:G:O6	2.34	0.40
3:5:63:ARG:HG3	3:5:185:VAL:HG23	2.04	0.40
4:A:496:U:H3'	4:A:497:G:H5"	2.02	0.40
4:A:724:C:H2'	4:A:725:A:H8	1.86	0.40
4:A:742:A:H2'	4:A:743:G:C8	2.56	0.40
4:A:1507:G:OP1	14:K:134:LYS:NZ	2.45	0.40
7:D:90:GLU:CD	7:D:95:ASN:HD21	2.29	0.40
8:E:114:ALA:O	8:E:115:ALA:C	2.63	0.40
11:H:101:LEU:HD23	11:H:101:LEU:HA	1.79	0.40
14:K:23:LYS:HE2	14:K:23:LYS:HA	2.03	0.40
25:V:160:ALA:HB1	25:V:184:ILE:HD13	2.04	0.40
37:i:206:TRP:O	37:i:211:ARG:HD3	2.21	0.40
37:i:256:ARG:HG3	37:i:256:ARG:NH1	2.36	0.40
52:x:10:ALA:HB1	52:x:14:ARG:NH2	2.36	0.40
53:y:61:THR:HG23	53:y:100:THR:OG1	2.21	0.40
56:h:1138:A:N1	56:h:1259:U:H2'	2.36	0.40
56:h:1225:G:H2'	56:h:1226:U:C6	2.56	0.40
56:h:1287:C:H2'	56:h:1288:A:H8	1.86	0.40
56:h:1556:A:C2	56:h:1615:G:N2	2.89	0.40
56:h:1621:C:H2'	56:h:1622:G:H8	1.86	0.40
4:A:472:C:H2'	4:A:473:A:C8	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:538:G:OP2	4:A:539:A:O2'	2.30	0.40
4:A:1035:A:H8	4:A:1035:A:O5'	2.05	0.40
4:A:1141:G:C2	4:A:1142:C:C6	3.10	0.40
4:A:1483:A:H1'	4:A:1504:G:H5'	2.03	0.40
6:C:21:ARG:NH2	6:C:57:GLU:OE2	2.54	0.40
10:G:75:VAL:HG13	10:G:86:GLN:HB3	2.03	0.40
12:I:49:ASN:HB3	12:I:84:TYR:CD1	2.57	0.40
19:P:69:PRO:O	19:P:73:LEU:HG	2.22	0.40
29:Z:18:LEU:HD23	29:Z:18:LEU:HA	1.90	0.40
39:k:67:ARG:HG3	39:k:67:ARG:HH11	1.87	0.40
42:n:128:GLY:O	42:n:148:VAL:HG22	2.22	0.40
42:n:137:HIS:CG	42:n:138:THR:N	2.90	0.40
48:t:81:THR:HG22	48:t:82:ARG:O	2.21	0.40
52:x:106:PHE:O	52:x:110:VAL:HG23	2.22	0.40
56:h:895:G:H2'	56:h:897:A:N7	2.36	0.40
56:h:997:G:H2'	56:h:998:G:O4'	2.21	0.40
56:h:1529:U:H3'	56:h:1530:G:H8	1.86	0.40
56:h:2256:G:N2	56:h:2796:A:OP2	2.54	0.40
56:h:2350:G:O2'	56:h:2351:A:OP1	2.38	0.40
56:h:2679:G:H2'	56:h:2680:C:C6	2.56	0.40
4:A:1450:C:H2'	4:A:1451:G:O4'	2.21	0.40
6:C:169:ARG:NH1	6:C:171:GLY:O	2.55	0.40
16:M:6:GLY:O	40:l:119:ARG:NH1	2.55	0.40
19:P:13:ILE:H	19:P:13:ILE:HD12	1.87	0.40
32:c:9:PRO:HD2	32:c:27:LYS:O	2.22	0.40
41:m:87:LYS:O	41:m:166:GLU:HG2	2.22	0.40
44:p:119:ASP:O	44:p:122:LYS:HG2	2.22	0.40
50:v:38:LEU:HD23	50:v:102:PHE:HD1	1.86	0.40
50:v:110:GLY:HA2	50:v:114:ALA:HB2	2.03	0.40
51:w:58:PHE:CE1	51:w:73:PHE:HB2	2.57	0.40
52:x:6:ARG:NH2	56:h:677:G:N7	2.69	0.40
56:h:966:U:H2'	56:h:967:G:H8	1.86	0.40
56:h:1181:G:C6	56:h:1182:C:C4	3.10	0.40
56:h:1732:U:H2'	56:h:1733:C:H6	1.85	0.40
56:h:2288:C:H2'	56:h:2289:C:H6	1.84	0.40
56:h:2396:A:H2'	56:h:2397:C:C6	2.57	0.40
56:h:3045:C:H2'	56:h:3046:C:O4'	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	3	21/24 (88%)	19 (90%)	2 (10%)	0	100	100
3	5	183/185 (99%)	176 (96%)	7 (4%)	0	100	100
6	C	206/275 (75%)	192 (93%)	13 (6%)	1 (0%)	24	56
7	D	198/201 (98%)	185 (93%)	13 (7%)	0	100	100
8	E	178/214 (83%)	166 (93%)	12 (7%)	0	100	100
9	F	94/96 (98%)	91 (97%)	3 (3%)	0	100	100
10	G	153/156 (98%)	149 (97%)	4 (3%)	0	100	100
11	H	129/132 (98%)	126 (98%)	3 (2%)	0	100	100
12	I	124/150 (83%)	113 (91%)	11 (9%)	0	100	100
13	J	97/101 (96%)	90 (93%)	6 (6%)	1 (1%)	12	43
14	K	113/138 (82%)	107 (95%)	6 (5%)	0	100	100
15	L	120/124 (97%)	111 (92%)	9 (8%)	0	100	100
16	M	114/124 (92%)	106 (93%)	7 (6%)	1 (1%)	14	45
17	N	58/61 (95%)	50 (86%)	8 (14%)	0	100	100
18	O	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
19	P	111/156 (71%)	101 (91%)	10 (9%)	0	100	100
20	Q	92/98 (94%)	89 (97%)	3 (3%)	0	100	100
21	R	63/84 (75%)	61 (97%)	2 (3%)	0	100	100
22	S	80/93 (86%)	77 (96%)	3 (4%)	0	100	100
23	T	83/86 (96%)	83 (100%)	0	0	100	100
24	U	95/100 (95%)	90 (95%)	5 (5%)	0	100	100
25	V	226/277 (82%)	213 (94%)	13 (6%)	0	100	100
26	W	190/215 (88%)	181 (95%)	9 (5%)	0	100	100
27	X	77/88 (88%)	73 (95%)	4 (5%)	0	100	100
28	Y	61/64 (95%)	60 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
29	Z	62/77 (80%)	61 (98%)	1 (2%)	0	100	100
30	a	57/61 (93%)	53 (93%)	4 (7%)	0	100	100
31	b	52/57 (91%)	50 (96%)	2 (4%)	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%)	60 (98%)	1 (2%)	0	100	100
35	f	35/37 (95%)	33 (94%)	2 (6%)	0	100	100
36	g	46/75 (61%)	42 (91%)	4 (9%)	0	100	100
37	i	273/278 (98%)	257 (94%)	16 (6%)	0	100	100
38	j	212/217 (98%)	199 (94%)	13 (6%)	0	100	100
39	k	207/215 (96%)	203 (98%)	4 (2%)	0	100	100
40	l	180/187 (96%)	172 (96%)	8 (4%)	0	100	100
41	m	174/179 (97%)	166 (95%)	8 (5%)	0	100	100
42	n	149/151 (99%)	136 (91%)	13 (9%)	0	100	100
43	o	131/142 (92%)	119 (91%)	11 (8%)	1 (1%)	16	48
44	p	124/175 (71%)	120 (97%)	4 (3%)	0	100	100
45	q	144/147 (98%)	138 (96%)	6 (4%)	0	100	100
46	r	120/122 (98%)	113 (94%)	7 (6%)	0	100	100
47	s	143/147 (97%)	129 (90%)	14 (10%)	0	100	100
48	t	134/138 (97%)	125 (93%)	9 (7%)	0	100	100
49	u	116/199 (58%)	109 (94%)	7 (6%)	0	100	100
50	v	124/127 (98%)	122 (98%)	2 (2%)	0	100	100
51	w	111/113 (98%)	105 (95%)	6 (5%)	0	100	100
52	x	122/129 (95%)	120 (98%)	2 (2%)	0	100	100
53	y	98/103 (95%)	95 (97%)	3 (3%)	0	100	100
54	z	112/153 (73%)	109 (97%)	3 (3%)	0	100	100
55	1	93/105 (89%)	90 (97%)	3 (3%)	0	100	100
All	All	6123/6831 (90%)	5805 (95%)	314 (5%)	4 (0%)	49	78

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
13	J	57	LYS

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Mol	Chain	Res	Type
6	C	125	ASN
43	o	21	ASN
16	M	5	VAL

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
1	3	18/19 (95%)	18 (100%)	0	100 100
3	5	160/160 (100%)	156 (98%)	4 (2%)	42 61
6	C	170/212 (80%)	170 (100%)	0	100 100
7	D	175/176 (99%)	175 (100%)	0	100 100
8	E	127/147 (86%)	127 (100%)	0	100 100
9	F	85/85 (100%)	85 (100%)	0	100 100
10	G	131/132 (99%)	131 (100%)	0	100 100
11	H	107/108 (99%)	107 (100%)	0	100 100
12	I	102/125 (82%)	102 (100%)	0	100 100
13	J	89/90 (99%)	89 (100%)	0	100 100
14	K	89/105 (85%)	89 (100%)	0	100 100
15	L	103/105 (98%)	103 (100%)	0	100 100
16	M	99/104 (95%)	99 (100%)	0	100 100
17	N	49/50 (98%)	49 (100%)	0	100 100
18	O	76/77 (99%)	76 (100%)	0	100 100
19	P	92/118 (78%)	91 (99%)	1 (1%)	65 73
20	Q	80/83 (96%)	80 (100%)	0	100 100
21	R	55/72 (76%)	55 (100%)	0	100 100
22	S	73/84 (87%)	73 (100%)	0	100 100
23	T	69/70 (99%)	69 (100%)	0	100 100
24	U	83/85 (98%)	83 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
25	V	191/218 (88%)	191 (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
37	i	215/218 (99%)	215 (100%)	0	100	100
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%)	151 (100%)	0	100	100
41	m	148/150 (99%)	148 (100%)	0	100	100
42	n	90/116 (78%)	90 (100%)	0	100	100
43	o	102/108 (94%)	99 (97%)	3 (3%)	37	57
44	p	89/120 (74%)	89 (100%)	0	100	100
45	q	119/120 (99%)	119 (100%)	0	100	100
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	1	81/86 (94%)	81 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	5060/5504 (92%)	5052 (100%)	8 (0%)	85 86

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	5	33	ASN
3	5	182	LEU
3	5	183	LEU
3	5	185	VAL
19	P	65	GLN
43	o	35	VAL
43	o	37	ILE
43	o	55	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (50) such sidechains are listed below:

Mol	Chain	Res	Type
1	3	23	ASN
3	5	41	ASN
3	5	84	ASN
3	5	90	ASN
3	5	116	GLN
3	5	130	ASN
3	5	177	HIS
6	C	125	ASN
6	C	143	GLN
6	C	176	HIS
7	D	75	ASN
7	D	95	ASN
7	D	193	GLN
9	F	80	ASN
10	G	68	ASN
12	I	27	GLN
14	K	38	ASN
14	K	58	HIS
16	M	42	ASN
16	M	106	ASN
18	O	18	HIS
18	O	72	GLN
19	P	41	HIS
20	Q	62	HIS

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Mol	Chain	Res	Type
22	S	22	GLN
23	T	74	ASN
24	U	27	ASN
25	V	15	HIS
25	V	155	GLN
26	W	40	HIS
27	X	44	HIS
29	Z	44	ASN
30	a	33	GLN
34	e	59	ASN
37	i	87	ASN
37	i	109	GLN
38	j	69	GLN
38	j	178	GLN
39	k	91	HIS
40	l	24	GLN
40	l	146	HIS
40	l	187	ASN
42	n	11	HIS
43	o	32	GLN
43	o	51	GLN
45	q	136	GLN
45	q	144	GLN
47	s	69	ASN
48	t	9	HIS
52	x	39	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	4	7/8 (87%)	2 (28%)	1 (14%)
4	A	1510/1528 (98%)	300 (19%)	14 (0%)
5	B	117/118 (99%)	18 (15%)	1 (0%)
56	h	3082/3120 (98%)	584 (18%)	0
All	All	4716/4774 (98%)	904 (19%)	16 (0%)

All (904) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	4	13	A
2	4	19	C

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Mol	Chain	Res	Type
4	A	8	U
4	A	9	U
4	A	11	G
4	A	12	A
4	A	13	G
4	A	36	A
4	A	43	G
4	A	51	C
4	A	52	U
4	A	53	U
4	A	54	A
4	A	55	A
4	A	58	C
4	A	59	A
4	A	77	G
4	A	81	C
4	A	82	U
4	A	83	U
4	A	85	C
4	A	86	G
4	A	87	G
4	A	89	G
4	A	93	C
4	A	116	A
4	A	117	C
4	A	118	A
4	A	126	G
4	A	128	U
4	A	139	C
4	A	141	U
4	A	160	C
4	A	179	C
4	A	180	A
4	A	183	C
4	A	192	G
4	A	193	C
4	A	201	G
4	A	207	G
4	A	210	A
4	A	211	A
4	A	215	U
4	A	216	U

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Mol	Chain	Res	Type
4	A	217	U
4	A	218	G
4	A	220	G
4	A	245	C
4	A	246	A
4	A	247	G
4	A	251	G
4	A	266	G
4	A	267	C
4	A	279	A
4	A	280	C
4	A	281	G
4	A	289	G
4	A	298	A
4	A	318	G
4	A	321	A
4	A	329	A
4	A	332	G
4	A	344	A
4	A	345	C
4	A	347	G
4	A	349	A
4	A	351	G
4	A	352	C
4	A	353	A
4	A	354	G
4	A	356	A
4	A	367	U
4	A	371	A
4	A	372	C
4	A	373	A
4	A	384	G
4	A	388	G
4	A	390	U
4	A	397	A
4	A	398	C
4	A	406	G
4	A	411	A
4	A	412	U
4	A	413	G
4	A	414	A
4	A	419	C

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Mol	Chain	Res	Type
4	A	421	U
4	A	422	C
4	A	423	G
4	A	424	G
4	A	426	U
4	A	429	U
4	A	430	A
4	A	433	C
4	A	435	U
4	A	436	C
4	A	444	A
4	A	452	A
4	A	453	G
4	A	456	C
4	A	457	A
4	A	458	A
4	A	459	G
4	A	461	G
4	A	464	G
4	A	465	G
4	A	466	U
4	A	469	G
4	A	475	A
4	A	476	A
4	A	477	G
4	A	478	A
4	A	482	A
4	A	486	G
4	A	488	C
4	A	490	A
4	A	491	C
4	A	497	G
4	A	498	C
4	A	499	C
4	A	501	G
4	A	507	G
4	A	509	G
4	A	511	U
4	A	512	A
4	A	513	A
4	A	515	A
4	A	520	G

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Mol	Chain	Res	Type
4	A	527	A
4	A	539	A
4	A	542	U
4	A	544	C
4	A	552	A
4	A	553	A
4	A	556	A
4	A	557	G
4	A	576	C
4	A	612	U
4	A	613	G
4	A	629	G
4	A	633	A
4	A	645	G
4	A	666	U
4	A	668	G
4	A	680	G
4	A	698	A
4	A	700	C
4	A	701	G
4	A	702	G
4	A	703	U
4	A	711	G
4	A	729	A
4	A	735	G
4	A	757	A
4	A	761	A
4	A	765	G
4	A	772	A
4	A	773	U
4	A	774	A
4	A	779	G
4	A	793	U
4	A	795	A
4	A	797	C
4	A	799	G
4	A	808	A
4	A	812	G
4	A	822	U
4	A	823	U
4	A	824	C
4	A	826	U

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Mol	Chain	Res	Type
4	A	827	U
4	A	828	G
4	A	841	U
4	A	884	G
4	A	896	A
4	A	908	G
4	A	909	G
4	A	913	C
4	A	914	C
4	A	916	C
4	A	917	A
4	A	942	U
4	A	943	U
4	A	948	G
4	A	950	A
4	A	951	A
4	A	953	G
4	A	956	A
4	A	957	A
4	A	959	A
4	A	971	G
4	A	973	U
4	A	974	U
4	A	975	G
4	A	976	A
4	A	982	A
4	A	986	G
4	A	988	C
4	A	1000	U
4	A	1003	C
4	A	1007	U
4	A	1008	C
4	A	1009	C
4	A	1010	C
4	A	1012	U
4	A	1013	G
4	A	1014	U
4	A	1020	G
4	A	1022	G
4	A	1024	G
4	A	1025	C
4	A	1028	G

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Mol	Chain	Res	Type
4	A	1033	G
4	A	1034	C
4	A	1036	U
4	A	1045	U
4	A	1074	G
4	A	1075	U
4	A	1081	A
4	A	1104	G
4	A	1113	A
4	A	1115	G
4	A	1116	U
4	A	1117	U
4	A	1118	A
4	A	1120	G
4	A	1121	G
4	A	1127	A
4	A	1128	C
4	A	1129	U
4	A	1133	G
4	A	1138	A
4	A	1140	U
4	A	1149	C
4	A	1150	A
4	A	1162	G
4	A	1165	G
4	A	1177	A
4	A	1178	A
4	A	1181	C
4	A	1182	A
4	A	1193	U
4	A	1194	A
4	A	1195	U
4	A	1206	U
4	A	1217	A
4	A	1219	A
4	A	1231	A
4	A	1238	U
4	A	1241	G
4	A	1249	G
4	A	1251	G
4	A	1261	A
4	A	1266	U

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Mol	Chain	Res	Type
4	A	1267	U
4	A	1268	C
4	A	1272	G
4	A	1281	A
4	A	1283	U
4	A	1284	U
4	A	1285	C
4	A	1287	G
4	A	1302	C
4	A	1328	A
4	A	1329	G
4	A	1335	G
4	A	1343	G
4	A	1344	C
4	A	1345	A
4	A	1346	A
4	A	1347	C
4	A	1351	G
4	A	1353	G
4	A	1356	G
4	A	1357	A
4	A	1363	U
4	A	1364	U
4	A	1380	C
4	A	1381	A
4	A	1405	G
4	A	1423	U
4	A	1425	G
4	A	1429	A
4	A	1433	C
4	A	1434	U
4	A	1435	U
4	A	1436	G
4	A	1459	G
4	A	1463	G
4	A	1471	G
4	A	1478	G
4	A	1481	G
4	A	1483	A
4	A	1486	A
4	A	1488	G
4	A	1490	U

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Mol	Chain	Res	Type
4	A	1501	G
4	A	1502	A
4	A	1504	G
4	A	1513	G
4	A	1514	G
4	A	1517	C
5	B	4	A
5	B	9	G
5	B	11	U
5	B	12	C
5	B	13	C
5	B	23	G
5	B	30	G
5	B	42	C
5	B	46	A
5	B	57	U
5	B	58	A
5	B	67	A
5	B	87	U
5	B	89	C
5	B	90	G
5	B	103	G
5	B	107	A
5	B	114	A
56	h	7	U
56	h	12	G
56	h	20	G
56	h	31	U
56	h	32	G
56	h	45	G
56	h	46	A
56	h	48	G
56	h	60	A
56	h	68	A
56	h	71	A
56	h	72	G
56	h	82	G
56	h	90	C
56	h	94	G
56	h	95	C
56	h	98	U
56	h	99	G

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Mol	Chain	Res	Type
56	h	115	A
56	h	117	U
56	h	125	C
56	h	144	U
56	h	148	A
56	h	164	A
56	h	172	C
56	h	176	G
56	h	180	A
56	h	195	A
56	h	198	A
56	h	212	A
56	h	214	G
56	h	215	A
56	h	221	A
56	h	227	A
56	h	228	A
56	h	229	U
56	h	233	A
56	h	248	G
56	h	264	G
56	h	265	A
56	h	275	C
56	h	283	U
56	h	285	U
56	h	286	G
56	h	290	C
56	h	291	C
56	h	292	G
56	h	296	A
56	h	297	G
56	h	299	G
56	h	300	G
56	h	301	U
56	h	302	U
56	h	303	G
56	h	315	U
56	h	317	G
56	h	318	U
56	h	319	G
56	h	322	A
56	h	323	C

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Mol	Chain	Res	Type
56	h	324	C
56	h	326	A
56	h	330	U
56	h	331	U
56	h	336	C
56	h	337	U
56	h	342	C
56	h	344	G
56	h	348	G
56	h	351	G
56	h	352	G
56	h	357	U
56	h	358	G
56	h	361	A
56	h	369	G
56	h	370	U
56	h	384	G
56	h	393	U
56	h	404	A
56	h	412	A
56	h	413	G
56	h	424	G
56	h	425	U
56	h	434	G
56	h	445	U
56	h	446	G
56	h	447	A
56	h	449	G
56	h	450	G
56	h	452	G
56	h	453	U
56	h	454	U
56	h	460	G
56	h	471	C
56	h	474	G
56	h	489	A
56	h	490	A
56	h	493	U
56	h	494	G
56	h	497	G
56	h	498	G
56	h	505	C

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Mol	Chain	Res	Type
56	h	512	G
56	h	531	A
56	h	543	U
56	h	544	U
56	h	566	A
56	h	567	A
56	h	568	A
56	h	569	G
56	h	589	A
56	h	591	G
56	h	592	A
56	h	594	U
56	h	595	A
56	h	596	C
56	h	616	A
56	h	617	U
56	h	618	C
56	h	619	C
56	h	620	G
56	h	623	A
56	h	634	C
56	h	636	U
56	h	637	G
56	h	638	U
56	h	639	C
56	h	640	G
56	h	642	G
56	h	644	G
56	h	647	G
56	h	655	G
56	h	665	G
56	h	666	A
56	h	667	A
56	h	679	G
56	h	684	G
56	h	685	G
56	h	696	A
56	h	706	G
56	h	707	G
56	h	708	G
56	h	709	U
56	h	715	A

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Mol	Chain	Res	Type
56	h	721	A
56	h	728	G
56	h	731	A
56	h	738	A
56	h	740	A
56	h	747	A
56	h	756	A
56	h	757	G
56	h	758	A
56	h	759	G
56	h	760	U
56	h	764	U
56	h	765	G
56	h	766	G
56	h	768	G
56	h	784	G
56	h	785	A
56	h	801	U
56	h	845	C
56	h	855	C
56	h	862	U
56	h	863	G
56	h	864	A
56	h	868	C
56	h	872	G
56	h	878	G
56	h	879	A
56	h	880	G
56	h	890	G
56	h	891	G
56	h	897	A
56	h	899	G
56	h	904	A
56	h	907	A
56	h	917	A
56	h	920	G
56	h	927	C
56	h	942	U
56	h	944	A
56	h	960	G
56	h	961	U
56	h	972	A

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Mol	Chain	Res	Type
56	h	974	G
56	h	975	U
56	h	981	U
56	h	982	A
56	h	994	A
56	h	1001	C
56	h	1002	C
56	h	1003	A
56	h	1004	C
56	h	1005	A
56	h	1007	G
56	h	1008	G
56	h	1010	U
56	h	1011	A
56	h	1012	C
56	h	1013	U
56	h	1022	C
56	h	1025	A
56	h	1046	C
56	h	1047	A
56	h	1048	A
56	h	1049	G
56	h	1058	A
56	h	1063	G
56	h	1076	A
56	h	1078	G
56	h	1085	G
56	h	1092	G
56	h	1101	A
56	h	1114	G
56	h	1130	C
56	h	1131	G
56	h	1144	A
56	h	1151	U
56	h	1164	A
56	h	1165	G
56	h	1173	G
56	h	1174	G
56	h	1178	U
56	h	1179	U
56	h	1181	G
56	h	1184	U

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Mol	Chain	Res	Type
56	h	1186	G
56	h	1187	A
56	h	1188	A
56	h	1189	G
56	h	1190	C
56	h	1191	A
56	h	1193	C
56	h	1202	A
56	h	1203	A
56	h	1205	G
56	h	1206	A
56	h	1207	G
56	h	1208	U
56	h	1212	U
56	h	1213	A
56	h	1214	A
56	h	1219	U
56	h	1226	U
56	h	1230	G
56	h	1232	G
56	h	1240	G
56	h	1250	U
56	h	1251	A
56	h	1252	G
56	h	1253	C
56	h	1254	G
56	h	1260	C
56	h	1261	A
56	h	1262	A
56	h	1292	U
56	h	1293	G
56	h	1294	U
56	h	1335	G
56	h	1343	G
56	h	1344	A
56	h	1353	G
56	h	1362	A
56	h	1365	G
56	h	1368	A
56	h	1371	G
56	h	1386	G
56	h	1387	A

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Mol	Chain	Res	Type
56	h	1389	U
56	h	1399	A
56	h	1404	C
56	h	1415	A
56	h	1416	A
56	h	1435	C
56	h	1436	C
56	h	1437	A
56	h	1448	C
56	h	1456	G
56	h	1465	C
56	h	1467	U
56	h	1480	A
56	h	1494	U
56	h	1499	A
56	h	1502	G
56	h	1507	G
56	h	1508	A
56	h	1510	A
56	h	1522	G
56	h	1529	U
56	h	1531	C
56	h	1533	U
56	h	1534	C
56	h	1536	A
56	h	1540	U
56	h	1543	A
56	h	1544	U
56	h	1549	G
56	h	1550	G
56	h	1551	U
56	h	1553	C
56	h	1554	U
56	h	1556	A
56	h	1564	A
56	h	1565	A
56	h	1567	C
56	h	1611	A
56	h	1620	U
56	h	1623	U
56	h	1625	G
56	h	1629	G

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Mol	Chain	Res	Type
56	h	1630	U
56	h	1631	A
56	h	1632	G
56	h	1635	A
56	h	1639	G
56	h	1640	A
56	h	1641	U
56	h	1648	A
56	h	1649	C
56	h	1670	G
56	h	1676	G
56	h	1679	A
56	h	1680	A
56	h	1681	U
56	h	1703	G
56	h	1711	G
56	h	1713	U
56	h	1717	U
56	h	1724	G
56	h	1728	U
56	h	1730	U
56	h	1731	A
56	h	1737	A
56	h	1738	G
56	h	1753	C
56	h	1754	G
56	h	1755	A
56	h	1756	G
56	h	1757	U
56	h	1767	U
56	h	1768	C
56	h	1769	G
56	h	1780	G
56	h	1786	G
56	h	1789	A
56	h	1798	U
56	h	1801	C
56	h	1802	G
56	h	1803	A
56	h	1826	A
56	h	1864	U
56	h	1866	C

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Mol	Chain	Res	Type
56	h	1867	G
56	h	1870	U
56	h	1871	G
56	h	1872	A
56	h	1892	G
56	h	1895	A
56	h	1921	G
56	h	1933	G
56	h	1946	U
56	h	1947	U
56	h	1948	A
56	h	1949	C
56	h	1950	G
56	h	1967	G
56	h	1973	C
56	h	1974	A
56	h	1975	A
56	h	1981	U
56	h	1990	A
56	h	1993	G
56	h	2001	A
56	h	2017	C
56	h	2018	G
56	h	2026	A
56	h	2033	U
56	h	2046	A
56	h	2065	A
56	h	2074	G
56	h	2075	G
56	h	2085	C
56	h	2086	U
56	h	2089	C
56	h	2090	U
56	h	2091	U
56	h	2092	U
56	h	2093	G
56	h	2094	G
56	h	2095	G
56	h	2096	G
56	h	2107	G
56	h	2110	U
56	h	2125	A

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Mol	Chain	Res	Type
56	h	2126	C
56	h	2127	G
56	h	2129	C
56	h	2130	G
56	h	2137	A
56	h	2138	C
56	h	2141	U
56	h	2153	G
56	h	2154	G
56	h	2160	A
56	h	2163	U
56	h	2179	U
56	h	2184	A
56	h	2189	C
56	h	2190	A
56	h	2191	C
56	h	2194	A
56	h	2195	U
56	h	2196	G
56	h	2215	U
56	h	2217	U
56	h	2221	A
56	h	2244	A
56	h	2247	A
56	h	2255	A
56	h	2256	G
56	h	2257	A
56	h	2263	G
56	h	2267	C
56	h	2276	G
56	h	2279	C
56	h	2280	G
56	h	2284	A
56	h	2285	G
56	h	2286	A
56	h	2316	G
56	h	2320	C
56	h	2325	U
56	h	2329	G
56	h	2330	U
56	h	2331	U
56	h	2333	G

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Mol	Chain	Res	Type
56	h	2334	U
56	h	2335	G
56	h	2336	U
56	h	2337	A
56	h	2338	G
56	h	2340	A
56	h	2341	U
56	h	2342	A
56	h	2346	G
56	h	2349	A
56	h	2351	A
56	h	2353	U
56	h	2354	G
56	h	2355	U
56	h	2356	G
56	h	2357	A
56	h	2368	C
56	h	2373	G
56	h	2380	G
56	h	2382	G
56	h	2383	U
56	h	2384	C
56	h	2385	G
56	h	2387	U
56	h	2388	G
56	h	2393	A
56	h	2394	A
56	h	2395	U
56	h	2401	U
56	h	2402	C
56	h	2404	G
56	h	2406	U
56	h	2408	G
56	h	2410	A
56	h	2413	G
56	h	2421	A
56	h	2427	G
56	h	2434	A
56	h	2436	A
56	h	2447	G
56	h	2449	A
56	h	2462	G

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Mol	Chain	Res	Type
56	h	2463	G
56	h	2467	U
56	h	2503	G
56	h	2507	C
56	h	2511	A
56	h	2512	A
56	h	2521	C
56	h	2529	A
56	h	2531	G
56	h	2532	G
56	h	2533	C
56	h	2535	A
56	h	2544	U
56	h	2548	U
56	h	2549	G
56	h	2558	C
56	h	2559	A
56	h	2567	U
56	h	2569	G
56	h	2571	C
56	h	2574	C
56	h	2607	G
56	h	2609	A
56	h	2613	G
56	h	2615	G
56	h	2627	C
56	h	2640	G
56	h	2647	U
56	h	2649	A
56	h	2653	G
56	h	2654	A
56	h	2655	U
56	h	2659	A
56	h	2664	C
56	h	2665	C
56	h	2672	A
56	h	2677	A
56	h	2688	C
56	h	2693	A
56	h	2694	G
56	h	2698	C
56	h	2699	C

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Mol	Chain	Res	Type
56	h	2702	A
56	h	2705	G
56	h	2715	U
56	h	2716	U
56	h	2718	G
56	h	2722	C
56	h	2726	G
56	h	2729	G
56	h	2742	A
56	h	2744	C
56	h	2749	G
56	h	2753	G
56	h	2786	U
56	h	2790	A
56	h	2791	G
56	h	2796	A
56	h	2797	C
56	h	2826	A
56	h	2827	G
56	h	2833	U
56	h	2837	U
56	h	2839	U
56	h	2853	C
56	h	2854	A
56	h	2862	G
56	h	2865	G
56	h	2870	C
56	h	2876	C
56	h	2887	G
56	h	2913	U
56	h	2915	C
56	h	2926	A
56	h	2936	C
56	h	2938	G
56	h	2941	G
56	h	2948	C
56	h	2950	C
56	h	2951	G
56	h	2957	A
56	h	2968	G
56	h	2972	A
56	h	2982	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
56	h	3002	A
56	h	3005	A
56	h	3009	U
56	h	3015	C
56	h	3019	C
56	h	3021	A
56	h	3022	G
56	h	3023	G
56	h	3024	A
56	h	3041	C
56	h	3042	A
56	h	3056	A
56	h	3082	U
56	h	3088	C
56	h	3093	A
56	h	3100	A
56	h	3101	C
56	h	3105	C
56	h	3106	C
56	h	3114	A

All (16) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	4	18	G
4	A	92	A
4	A	422	C
4	A	429	U
4	A	485	G
4	A	498	C
4	A	895	A
4	A	1007	U
4	A	1011	U
4	A	1117	U
4	A	1126	G
4	A	1149	C
4	A	1435	U
4	A	1477	A
4	A	1482	U
5	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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

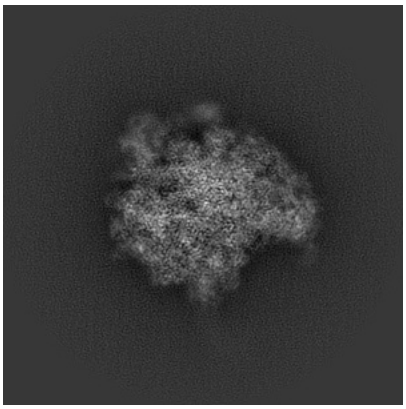
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-69707. These allow visual inspection of the internal detail of the map and identification of artifacts.

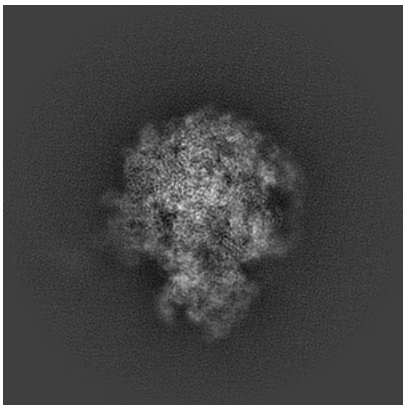
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

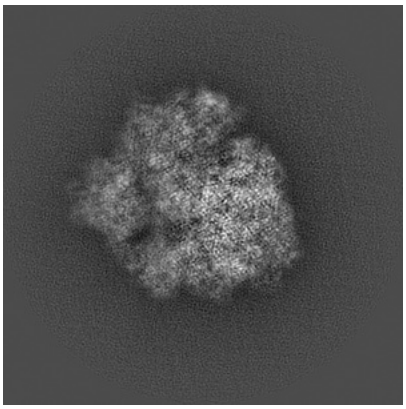
6.1.1 Primary map



X

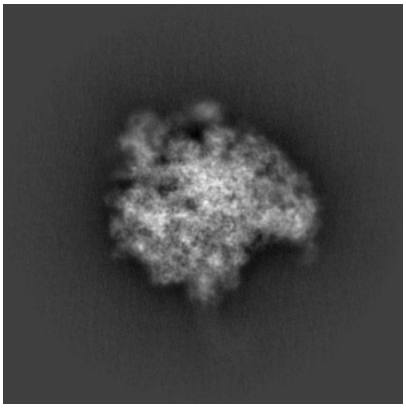


Y

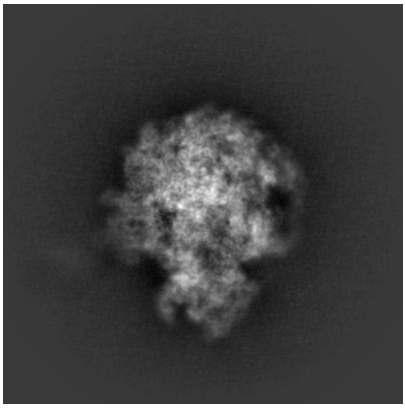


Z

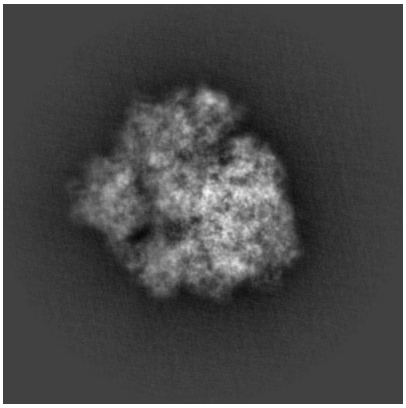
6.1.2 Raw map



X



Y

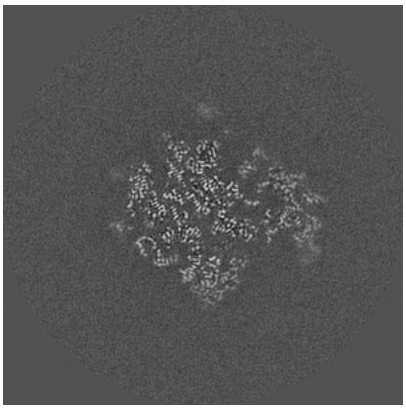


Z

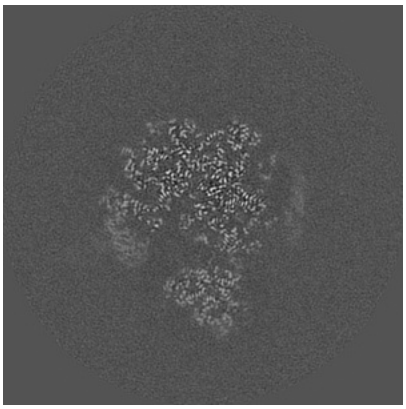
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

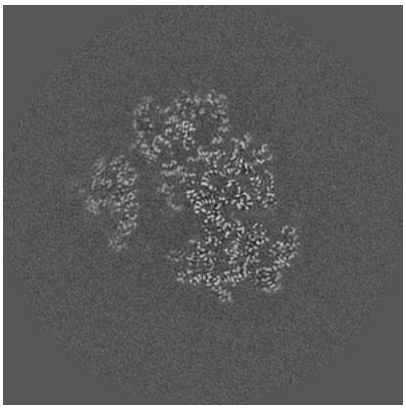
6.2.1 Primary map



X Index: 210

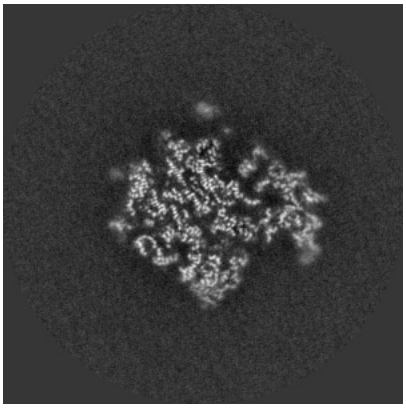


Y Index: 210

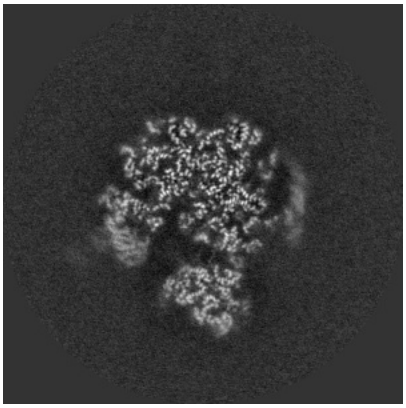


Z Index: 210

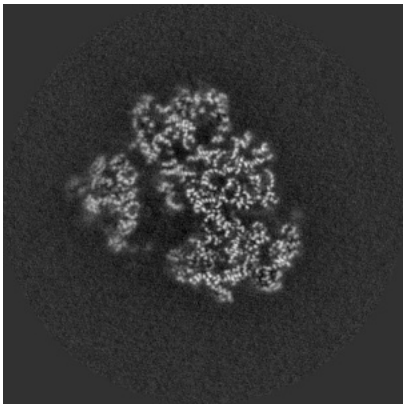
6.2.2 Raw map



X Index: 210



Y Index: 210

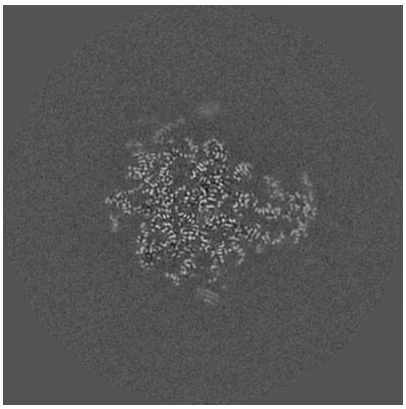


Z Index: 210

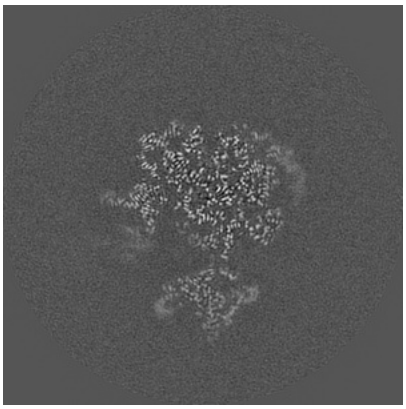
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

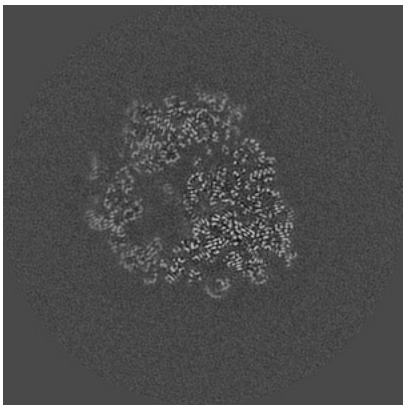
6.3.1 Primary map



X Index: 223

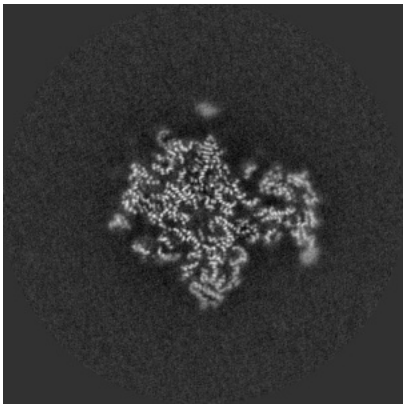


Y Index: 224

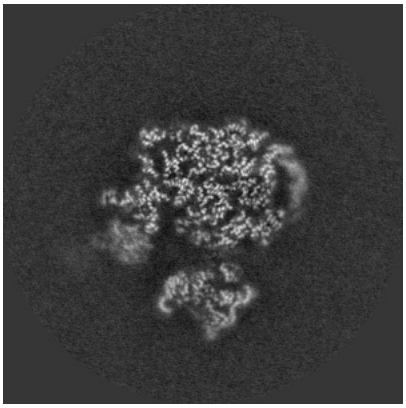


Z Index: 197

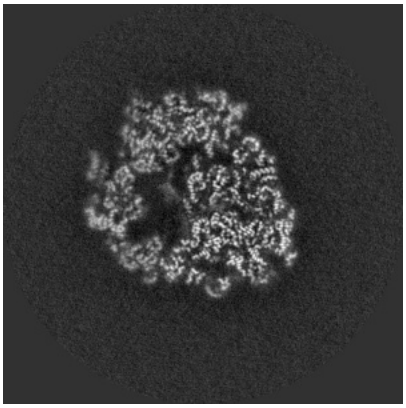
6.3.2 Raw map



X Index: 214



Y Index: 220

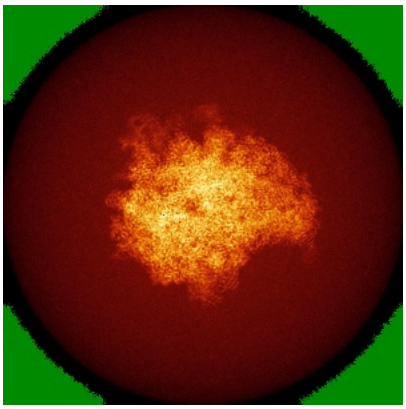


Z Index: 198

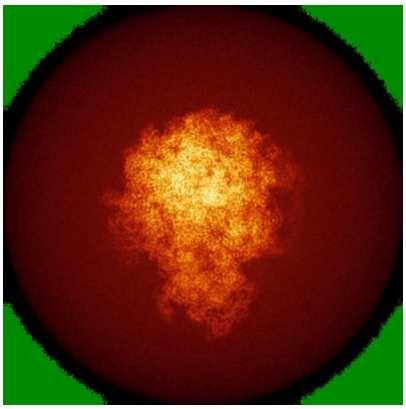
The images above show the largest variance slices of the map in three orthogonal directions.

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

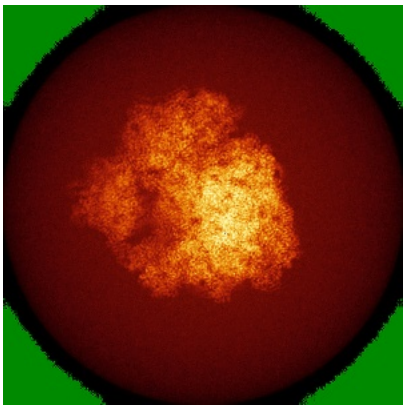
6.4.1 Primary map



X

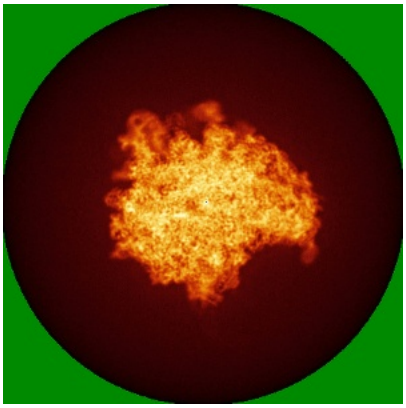


Y

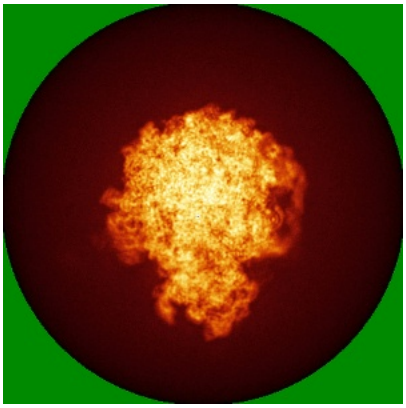


Z

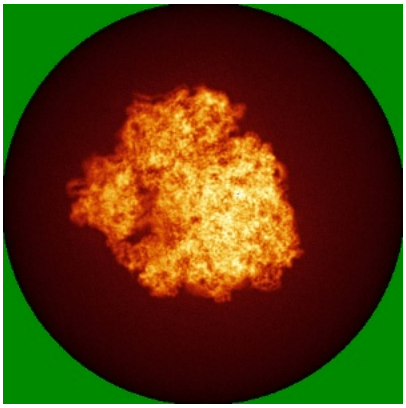
6.4.2 Raw map



X



Y

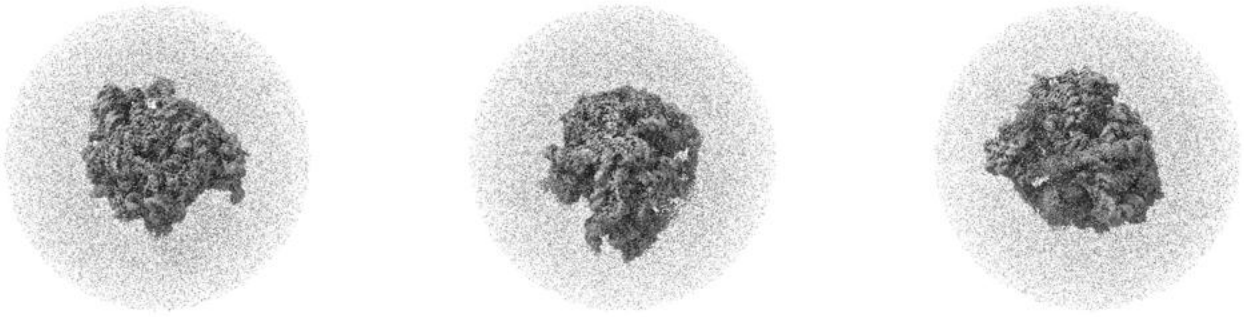


Z

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)

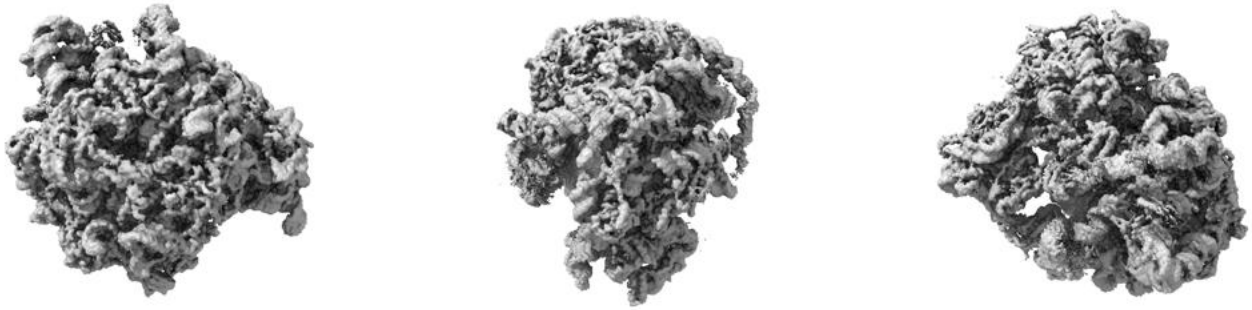
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0246. 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.

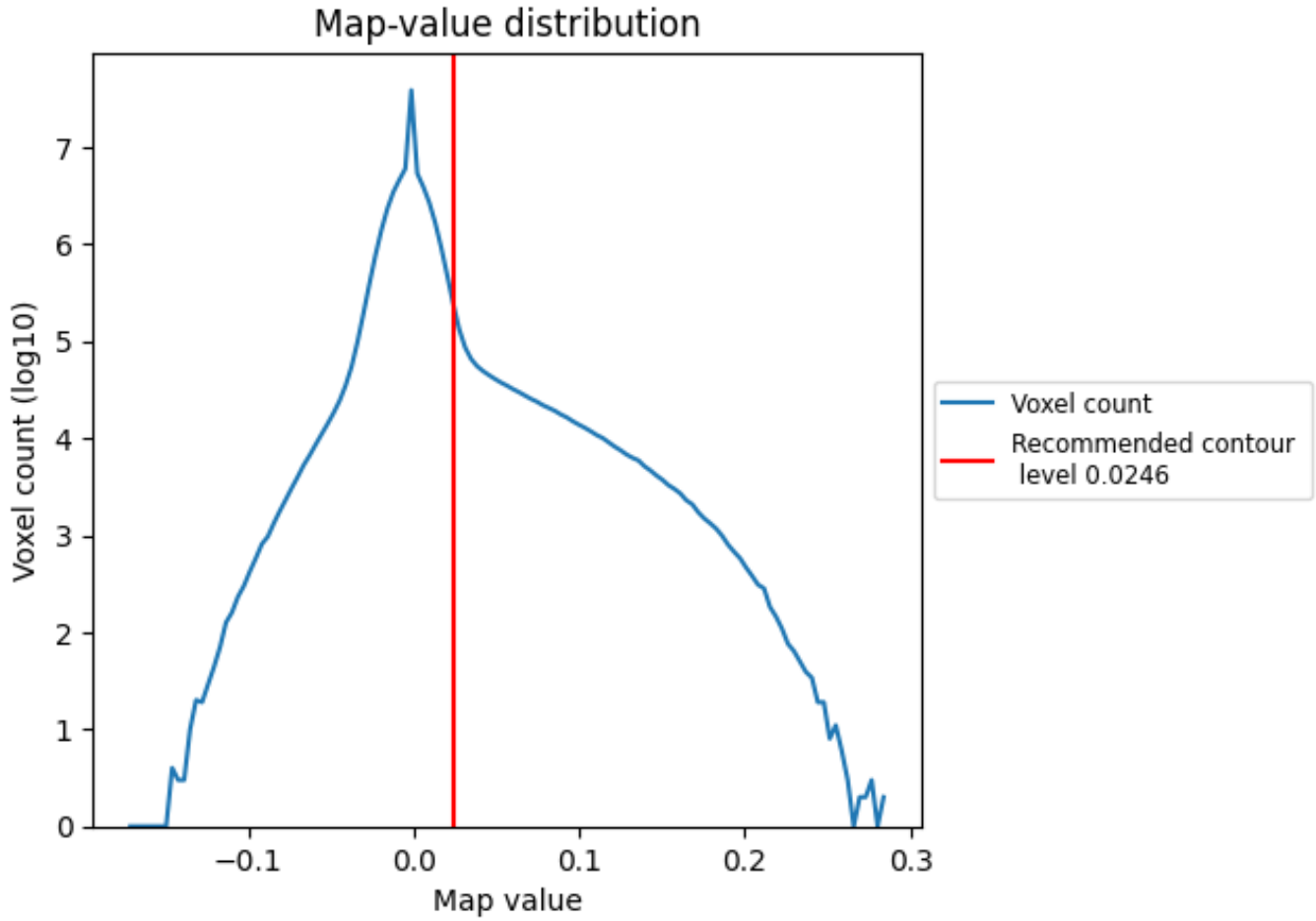
6.6 Mask visualisation (i)

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

7 Map analysis

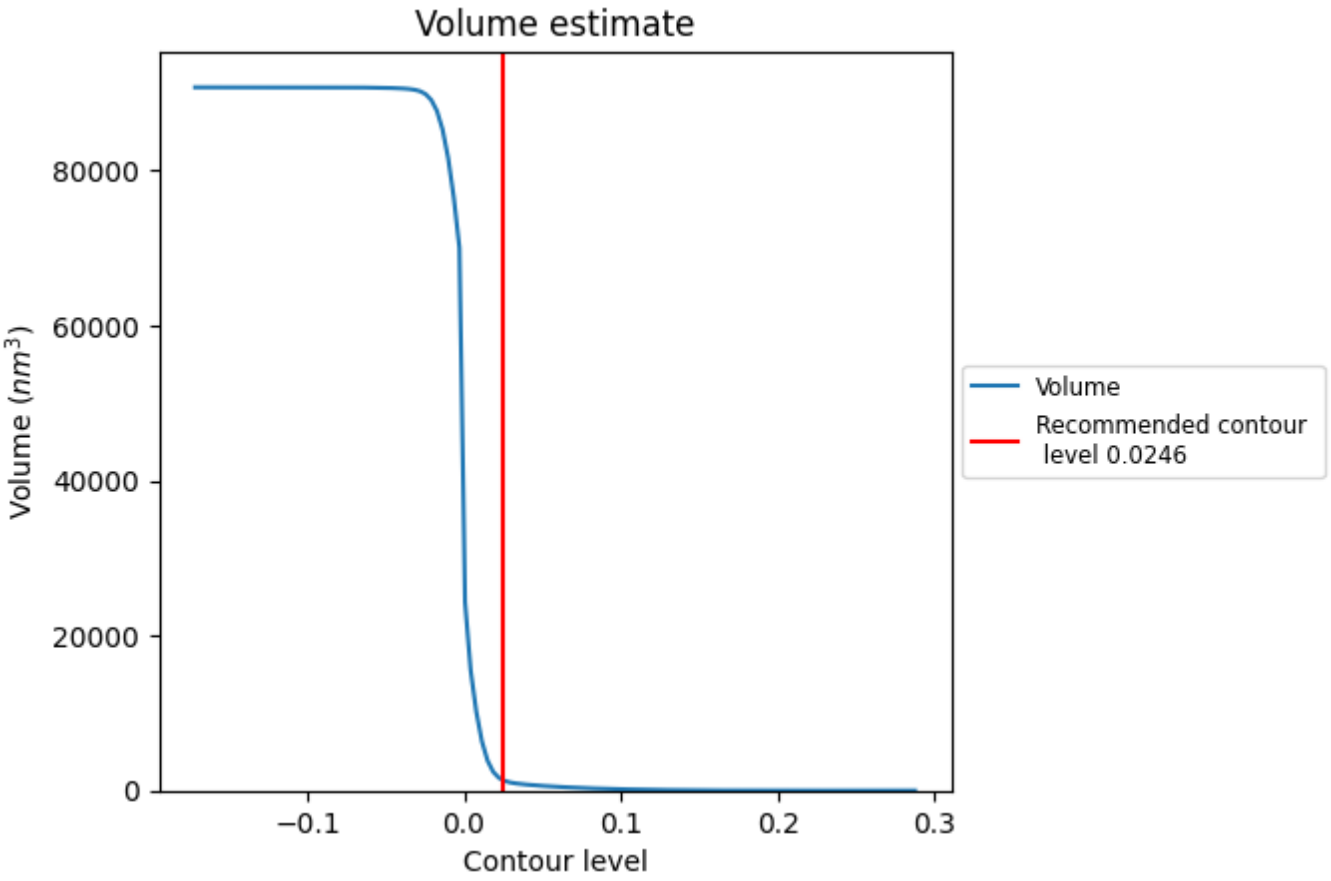
This section contains the results of statistical analysis of the map.

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.

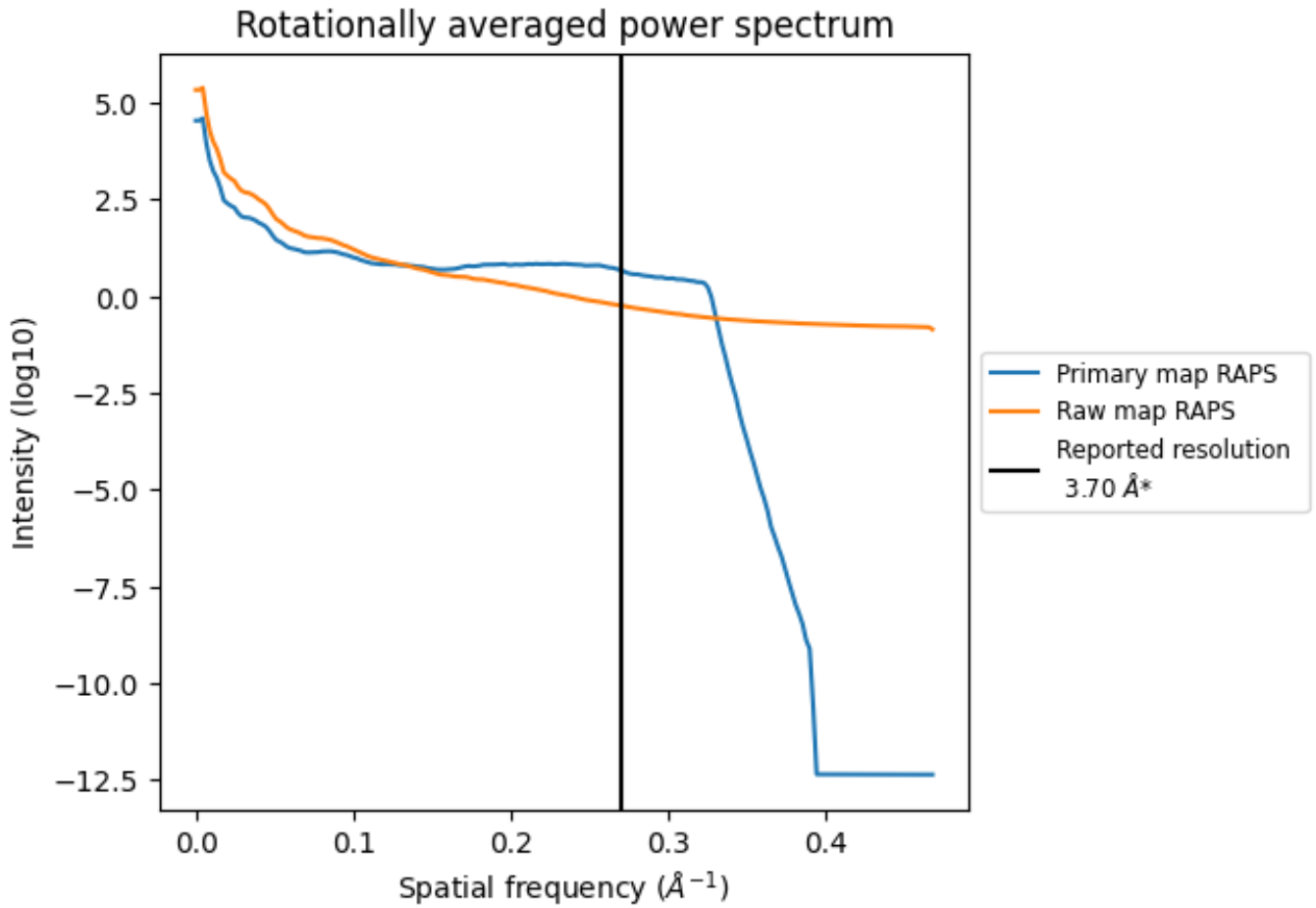
7.2 Volume estimate



The volume at the recommended contour level is 1389 nm^3; this corresponds to an approximate mass of 1255 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)

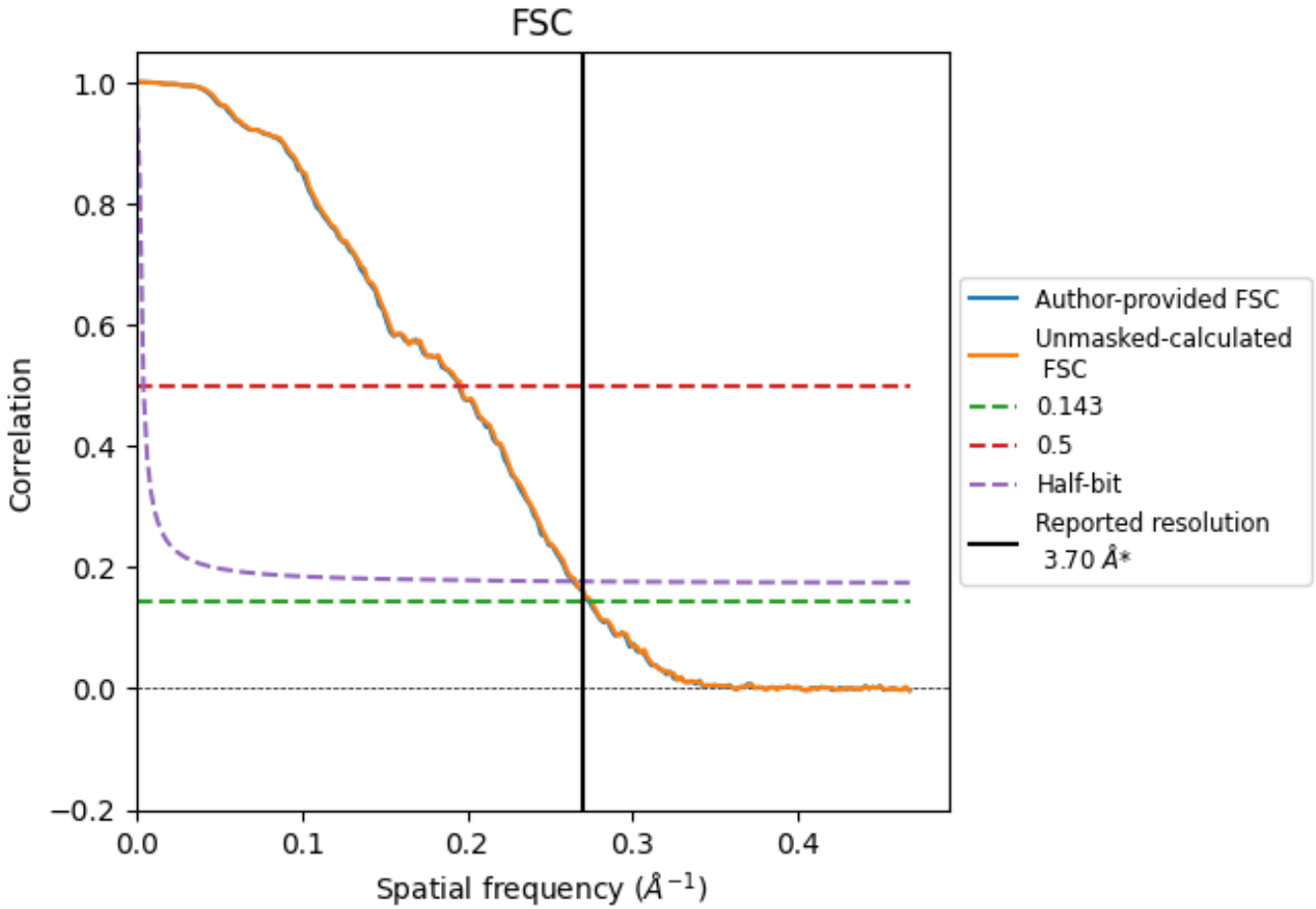


*Reported resolution corresponds to spatial frequency of 0.270 Å^{-1}

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 0.270 Å^{-1}

8.2 Resolution estimates (i)

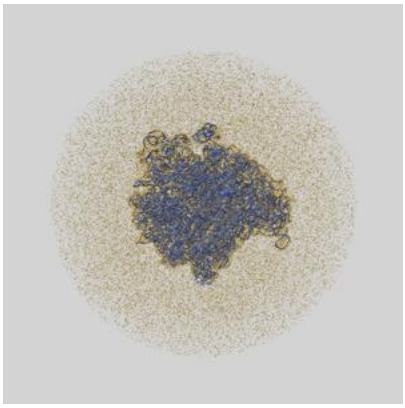
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.65	5.14	3.79
Unmasked-calculated*	3.64	5.09	3.77

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

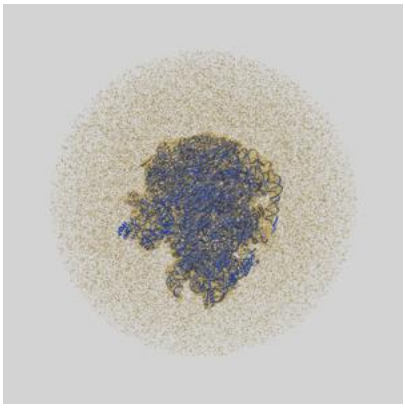
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-69707 and PDB model 24NU. Per-residue inclusion information can be found in section 3 on page 15.

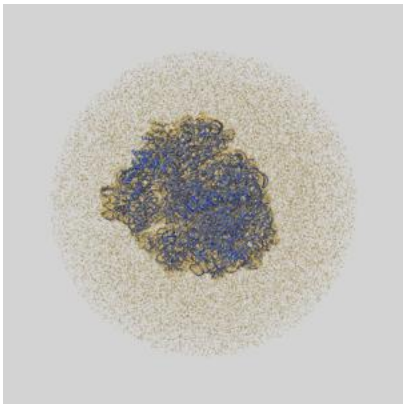
9.1 Map-model overlay



X



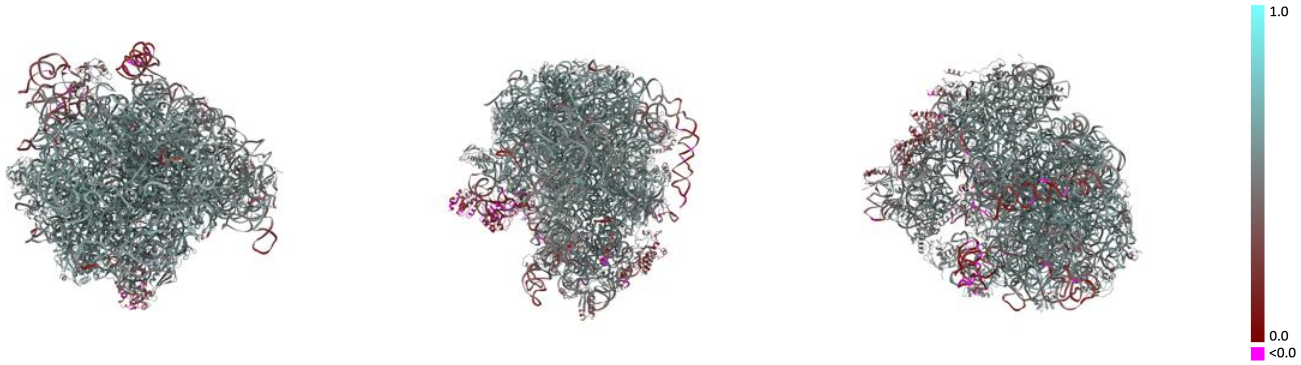
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0246 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.

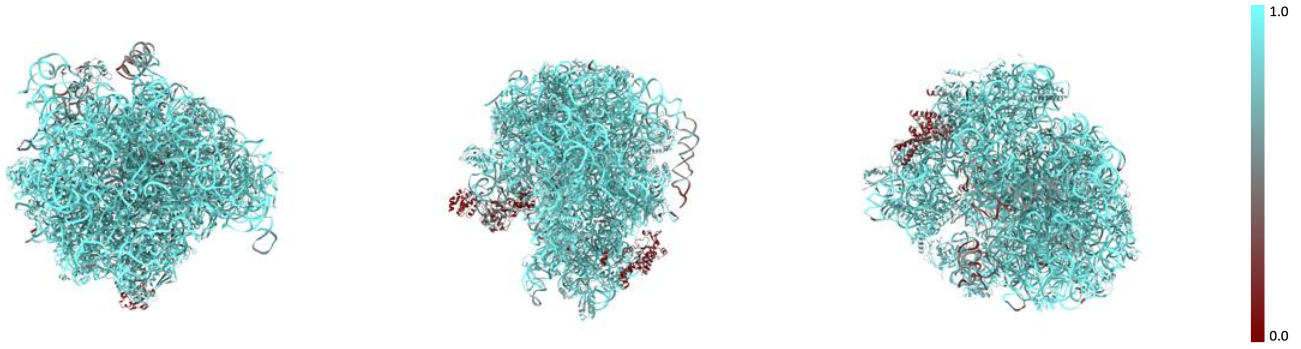
9.2 Q-score mapped to coordinate model



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.

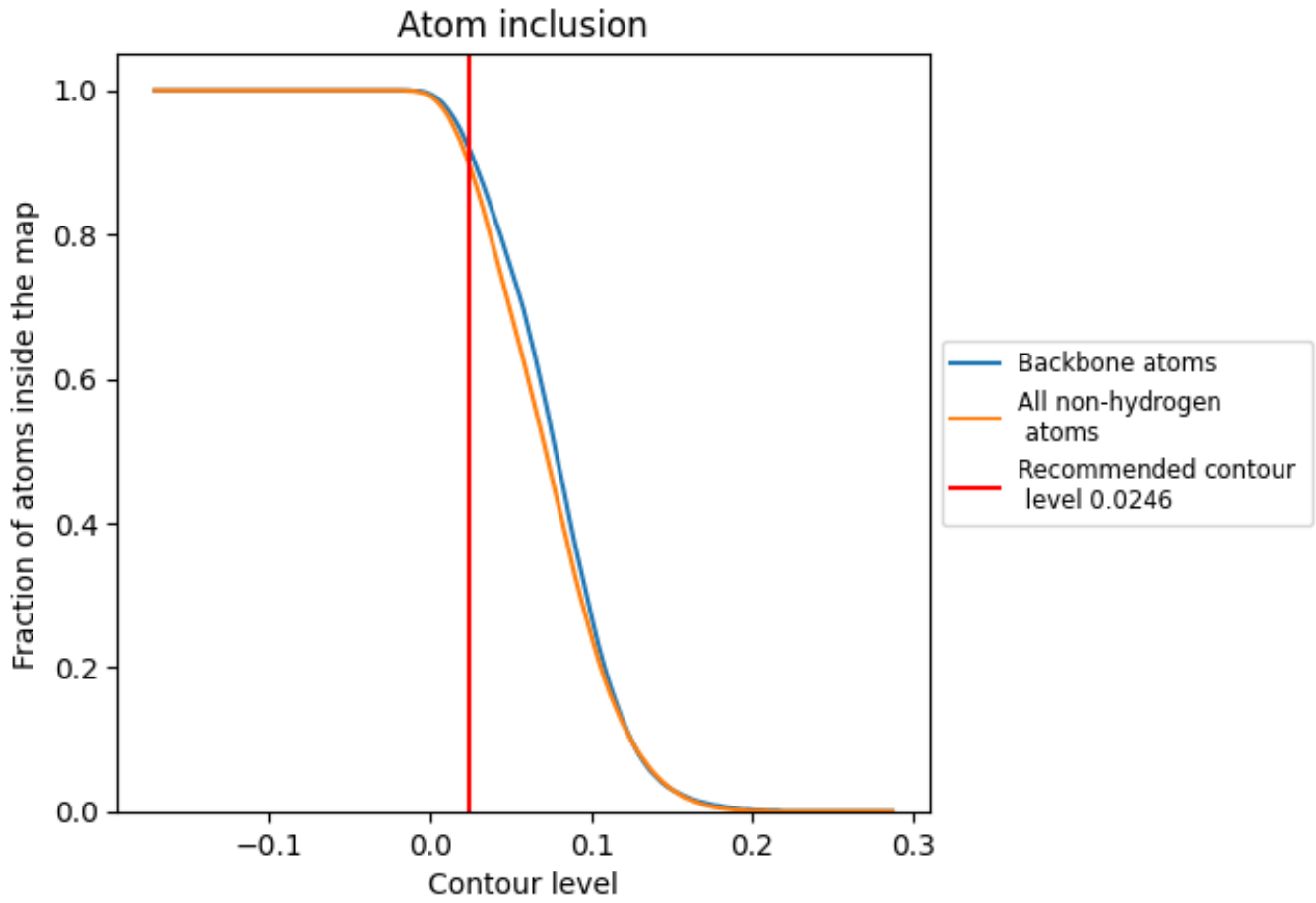
9.3 Atom inclusion mapped to coordinate model



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 (0.0246).

9.4 Atom inclusion (i)



At the recommended contour level, 92% of all backbone atoms, 90% 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 (0.0246) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8950	0.5130
1	0.8350	0.5120
3	0.8660	0.5690
4	0.2430	0.3390
5	0.3950	0.3100
A	0.9480	0.5190
B	0.9710	0.5370
C	0.7720	0.4610
D	0.7970	0.4610
E	0.8190	0.4970
F	0.8400	0.4960
G	0.8200	0.4840
H	0.9010	0.5380
I	0.8480	0.4930
J	0.7610	0.4420
K	0.8740	0.5160
L	0.8530	0.5310
M	0.8290	0.4850
N	0.8810	0.5270
O	0.8890	0.5310
P	0.8350	0.4740
Q	0.8390	0.4880
R	0.8410	0.5060
S	0.8450	0.4840
T	0.8500	0.4930
U	0.8810	0.5320
V	0.2070	0.3070
W	0.8190	0.5010
X	0.9140	0.5620
Y	0.9270	0.5710
Z	0.8900	0.5210
a	0.9220	0.5680
b	0.9200	0.5500
c	0.8560	0.5500
d	0.9510	0.5860



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
e	0.8630	0.5670
f	0.9030	0.5680
g	0.8810	0.4800
h	0.9350	0.5270
i	0.9190	0.5700
j	0.9240	0.5620
k	0.9100	0.5520
l	0.8550	0.4990
m	0.8490	0.4760
n	0.6680	0.4200
o	0.2950	0.1190
p	0.1040	0.0940
q	0.9180	0.5650
r	0.8960	0.5600
s	0.9150	0.5550
t	0.8820	0.5550
u	0.9190	0.5640
v	0.9010	0.5360
w	0.8580	0.5270
x	0.9230	0.5690
y	0.9410	0.5730
z	0.9170	0.5580