



## Full wwPDB EM Validation Report ⓘ

Mar 17, 2026 – 10:01 PM UTC

PDB ID : 3J9Y / pdb\_00003j9y  
EMDB ID : EMD-6311  
Title : Cryo-EM structure of tetracycline resistance protein TetM bound to a translating E.coli ribosome  
Authors : Arenz, S.; Nguyen, F.; Beckmann, R.; Wilson, D.N.  
Deposited on : 2015-03-23  
Resolution : 3.90 Å(reported)  
Based on initial model : 5AFI

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

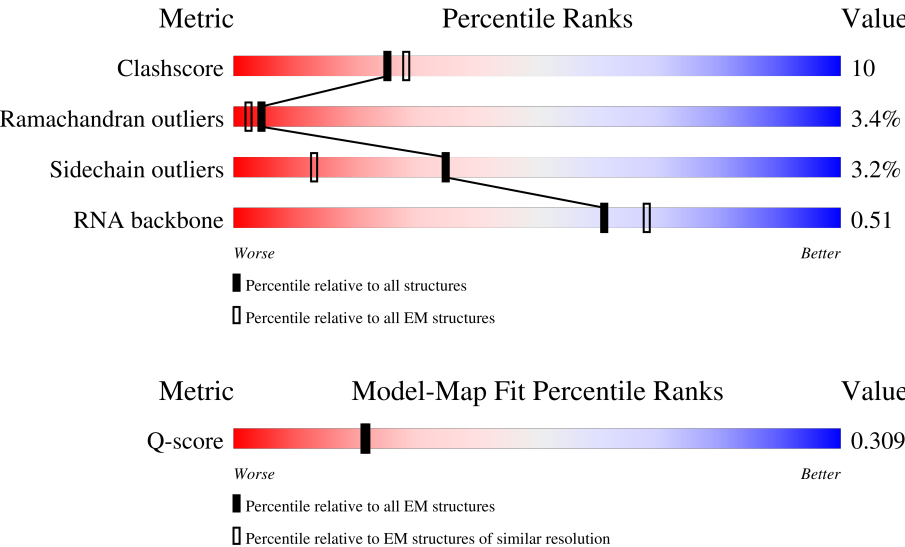
EMDB validation analysis : 0.0.1.dev132  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.90 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	8855 ( 3.40 - 4.40 )

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

Mol	Chain	Length	Quality of chain
1	a	1539	<div> <div>8%</div> <div>58%</div> <div>34%</div> <div>8%</div> </div>
2	b	240	<div> <div>74%</div> <div>57%</div> <div>31%</div> <div>9%</div> </div>
3	d	206	<div> <div>71%</div> <div>66%</div> <div>30%</div> <div>.</div> </div>

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Mol	Chain	Length	Quality of chain
4	e	167	
5	f	135	
6	h	130	
7	k	129	
8	l	124	
9	o	89	
10	p	82	
11	q	84	
12	r	75	
13	t	87	
14	u	71	
15	v	78	
16	x	11	
17	w	639	
18	c	233	
19	g	179	
20	i	130	
21	j	103	
22	m	118	
23	n	102	
24	s	92	
25	A	2903	
26	B	120	
27	C	273	
28	D	209	

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Mol	Chain	Length	Quality of chain
29	E	201	
30	F	179	
31	G	177	
32	H	149	
33	I	142	
34	J	142	
35	K	123	
36	L	144	
37	M	136	
38	N	127	
39	O	117	
40	P	115	
41	Q	118	
42	R	103	
43	S	110	
44	T	100	
45	U	104	
46	V	94	
47	W	85	
48	X	78	
49	Y	63	
50	Z	59	
51	0	57	
52	1	55	
53	2	46	

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Mol	Chain	Length	Quality of chain
54	3	65	
55	4	38	
56	5	165	
57	6	70	
58	7	69	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
1	UR3	a	1498	-	-	X	-
1	MA6	a	1519	-	-	X	-

## 2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 148915 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	a	1539	Total	C	N	O	P	0	0
			33029	14738	6052	10700	1539		

- Molecule 2 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	b	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 3 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	d	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 4 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	e	157	Total	C	N	O	S	0	0
			1141	709	218	208	6		

- Molecule 5 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	f	100	Total	C	N	O	S	0	0
			817	515	148	148	6		

- Molecule 6 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	h	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 7 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	k	116	Total	C	N	O	S	0	0
			869	535	173	158	3		

- Molecule 8 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	l	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 9 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	o	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 10 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	p	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 11 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	q	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 12 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	r	65	Total	C	N	O	0	0
			504	317	96	91		

- Molecule 13 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	t	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 14 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	u	65	Total	C	N	O	S	0	0
			495	307	100	87	1		

- Molecule 15 is a RNA chain called P-site fMet-tRNA<sup>fMet</sup>.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	v	77	Total	C	N	O	P	S	0	0
			1644	733	297	536	77	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
v	77	FME	-	modified residue	GB 147949

- Molecule 16 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	x	9	Total	C	N	O	P		
			189	85	31	64	9	0	0

- Molecule 17 is a protein called Tetracycline resistance protein TetM.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	w	639	Total	C	N	O		
			2590	1308	640	642	0	0

- Molecule 18 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	c	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 19 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	g	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 20 is a protein called 30S ribosomal protein S9.



Mol	Chain	Residues	Atoms					AltConf	Trace
20	i	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 21 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	j	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 22 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	m	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

- Molecule 23 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	n	101	Total	C	N	O	S	0	0
			799	498	165	133	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	35	ALA	-	insertion	UNP P0AG59

- Molecule 24 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	s	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

- Molecule 25 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	A	2900	Total	C	N	O	P	0	0
			62276	27788	11460	20128	2900		

- Molecule 26 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	B	120	Total	C	N	O	P	0	0
			2572	1145	471	836	120		

- Molecule 27 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	C	271	Total	C	N	O	S	0	0
			2082	1288	423	364	7		

- Molecule 28 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	D	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 29 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	E	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 30 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	F	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 31 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	G	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- Molecule 32 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	H	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 33 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	I	141	Total	C	N	O	S	0	0
			1032	651	179	196	6		

- Molecule 34 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	J	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 35 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	K	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 36 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	L	143	Total	C	N	O	S	0	0
			1045	649	206	189	1		

- Molecule 37 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	M	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 38 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	N	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 39 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	O	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 40 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	P	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 41 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Q	117	Total	C	N	O	S	0	0
			947	604	192	151			

- Molecule 42 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	R	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 43 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	S	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 44 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	T	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 45 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	U	102	Total	C	N	O	S	0	0
			779	492	146	141			

- Molecule 46 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	V	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 47 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	W	75	Total	C	N	O	S	0	0
			575	356	116	102	1		

- Molecule 48 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	X	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 49 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	Y	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	Z	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 51 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	0	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 52 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	1	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 53 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	2	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 54 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	3	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 55 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	4	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 56 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	5	131	Total	C	N	O	S	0	0
			988	625	175	183	5		

- Molecule 57 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	6	66	Total	C	N	O	S	0	0
			522	323	99	94	6		

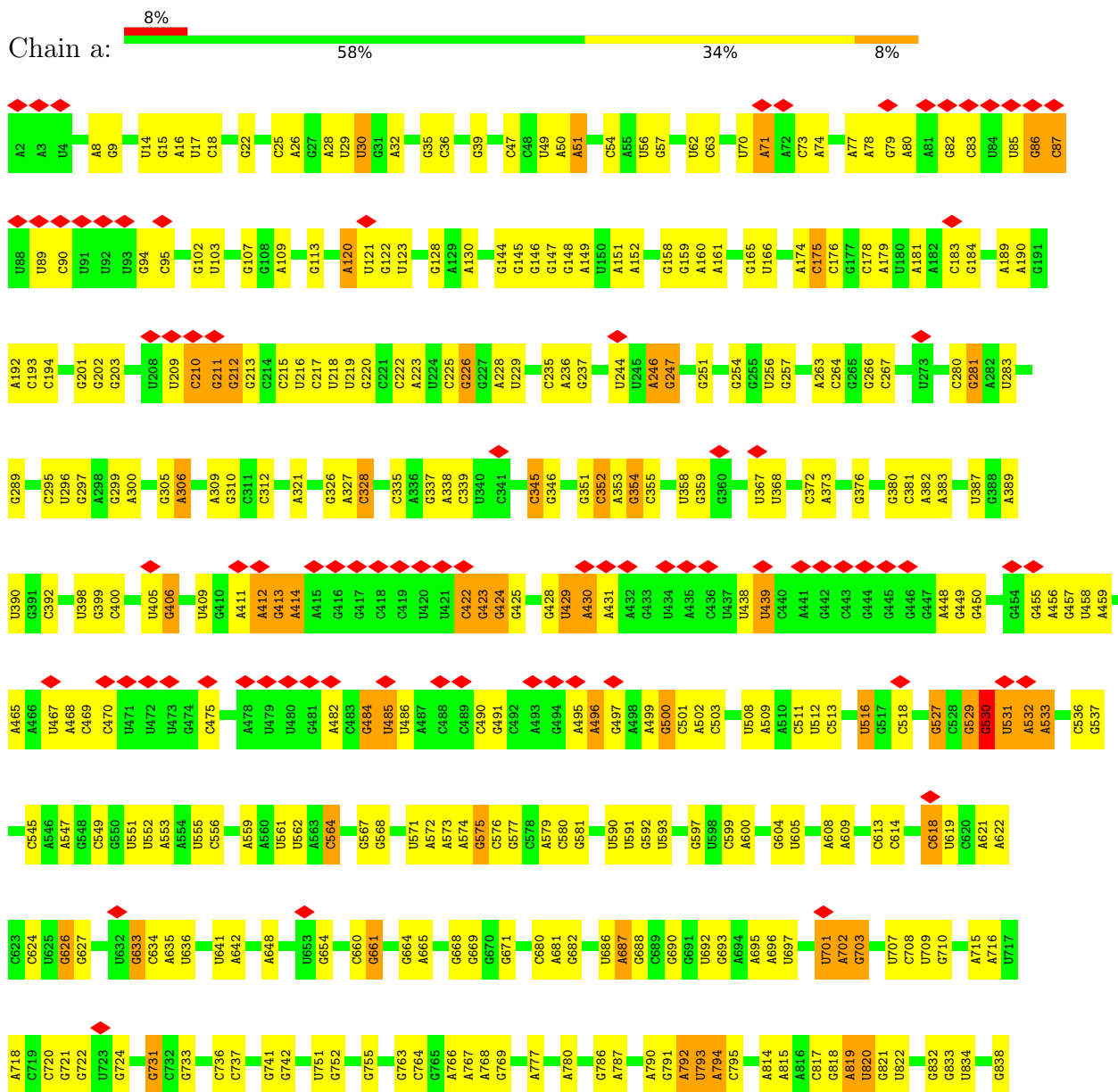
- Molecule 58 is a protein called 50S ribosomal protein L7/L12.

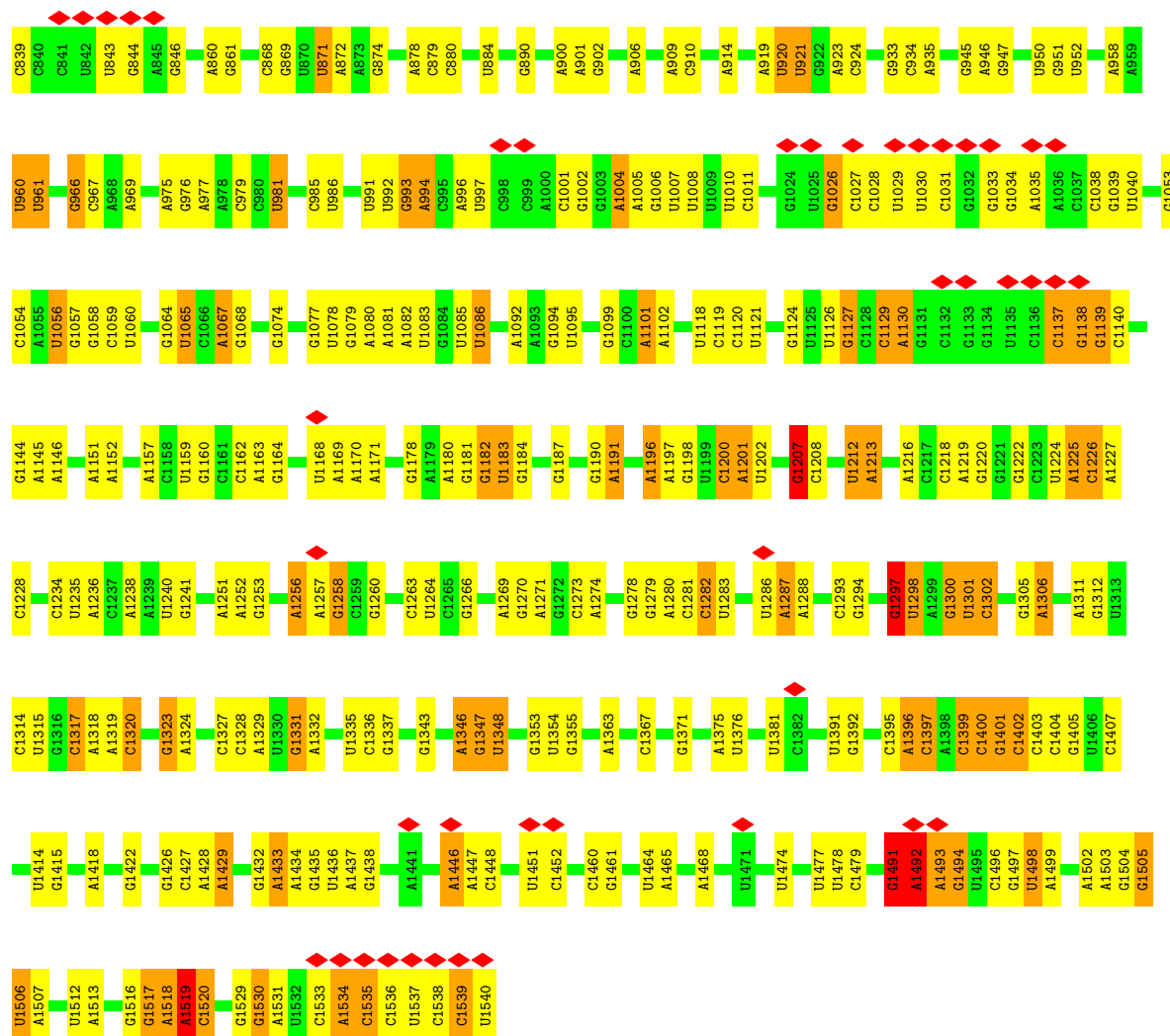
Mol	Chain	Residues	Atoms				AltConf	Trace
58	7	69	Total	C	N	O	0	0
			276	138	69	69		

### 3 Residue-property plots

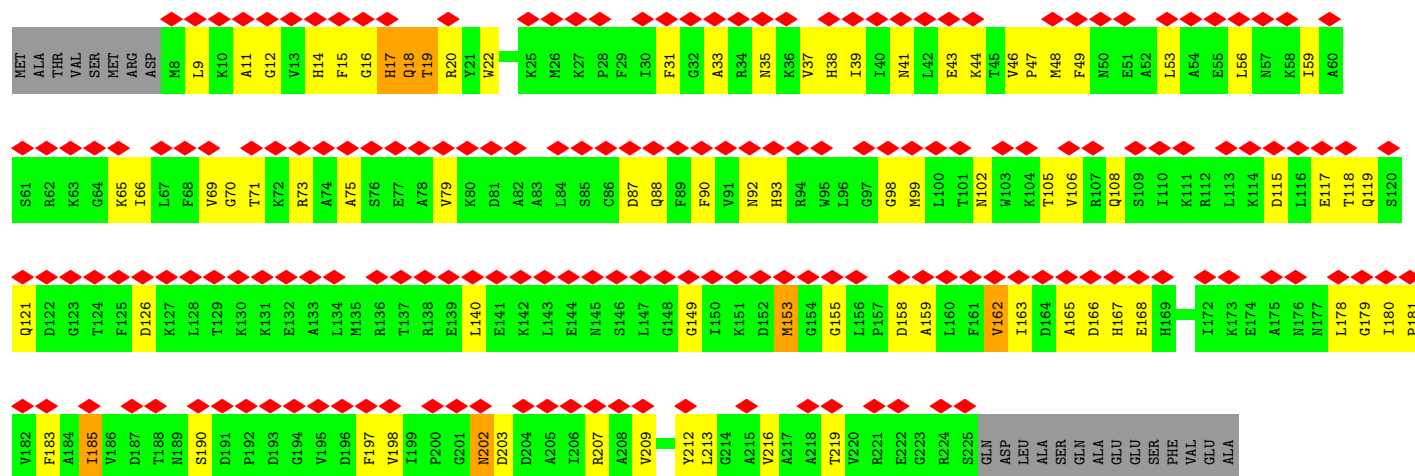
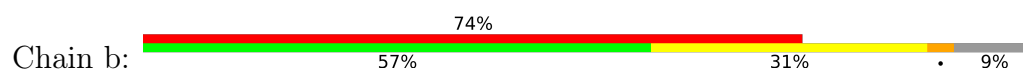
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

#### • Molecule 1: 16S ribosomal RNA



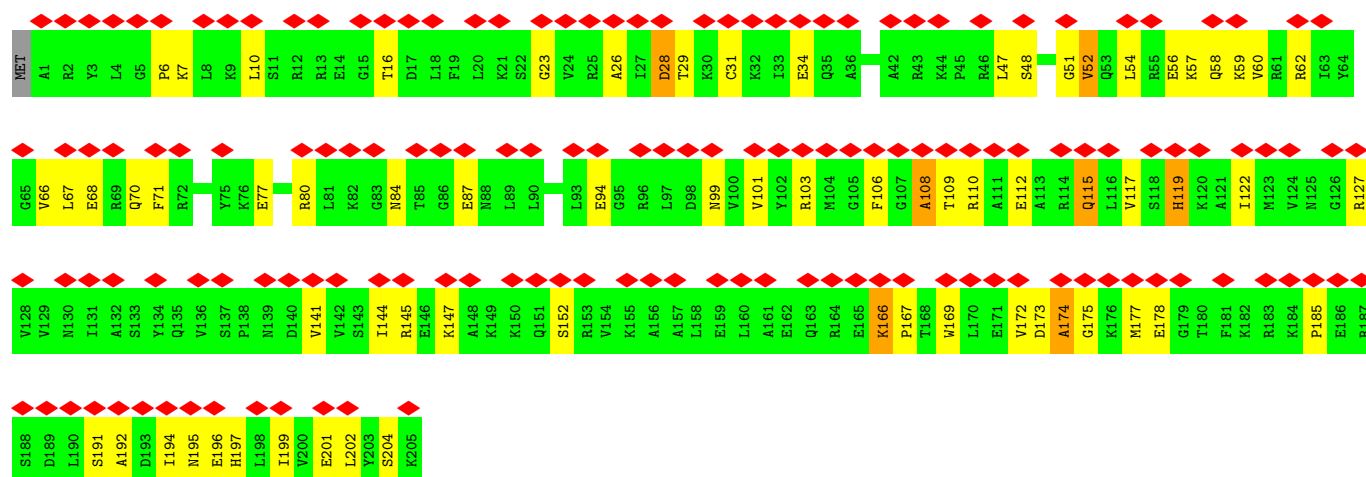
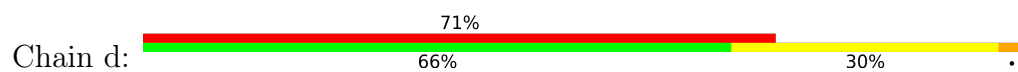


### • Molecule 2: 30S ribosomal protein S2

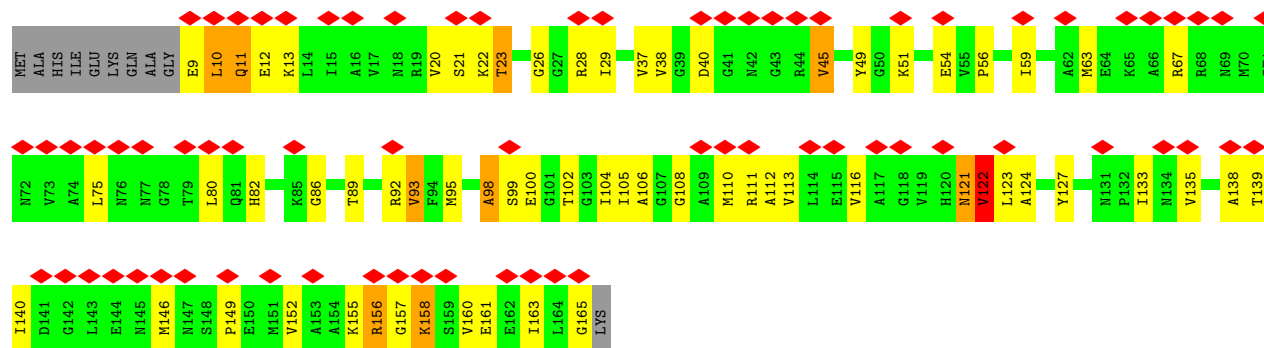
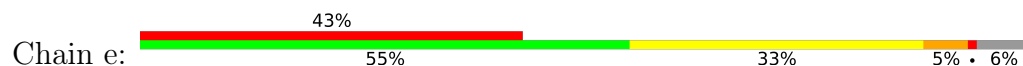


### • Molecule 3: 30S ribosomal protein S4

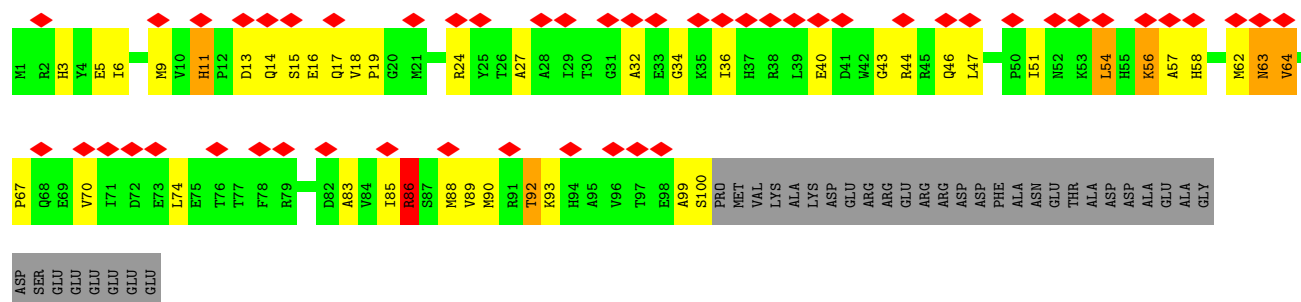
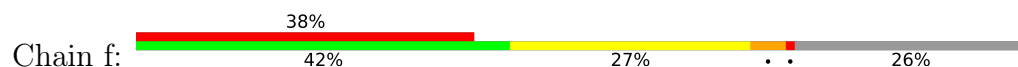




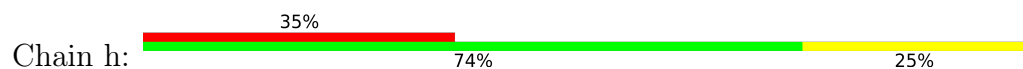
• Molecule 4: 30S ribosomal protein S5

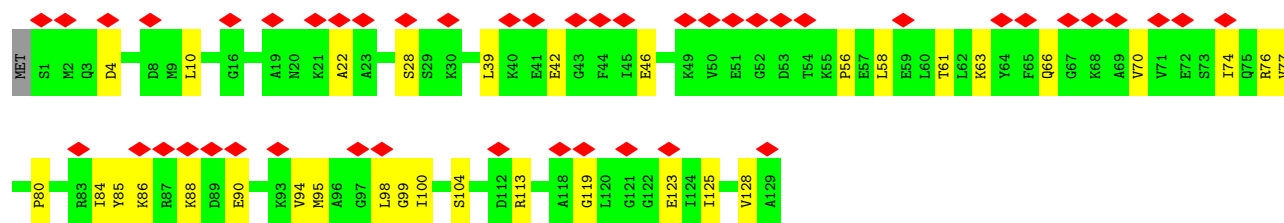


• Molecule 5: 30S ribosomal protein S6

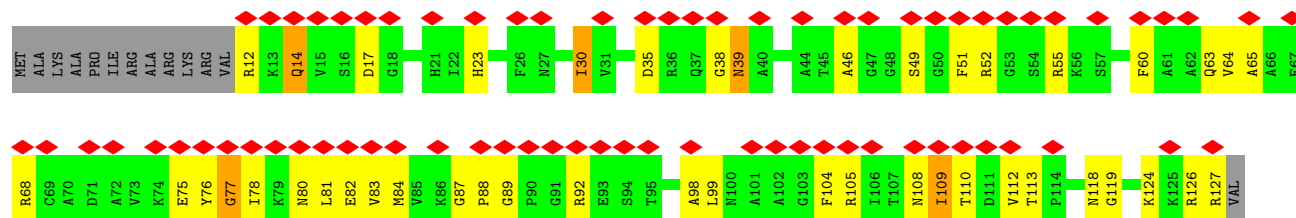


• Molecule 6: 30S ribosomal protein S8

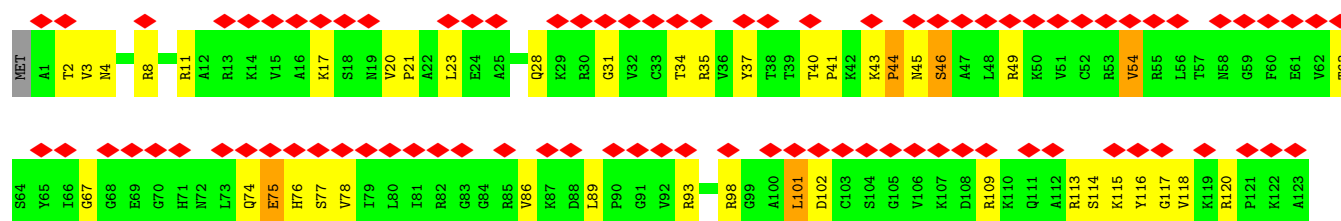




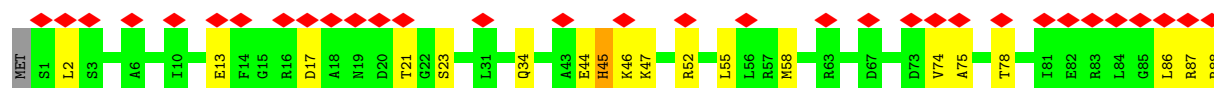
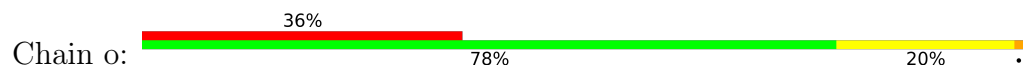
• Molecule 7: 30S ribosomal protein S11



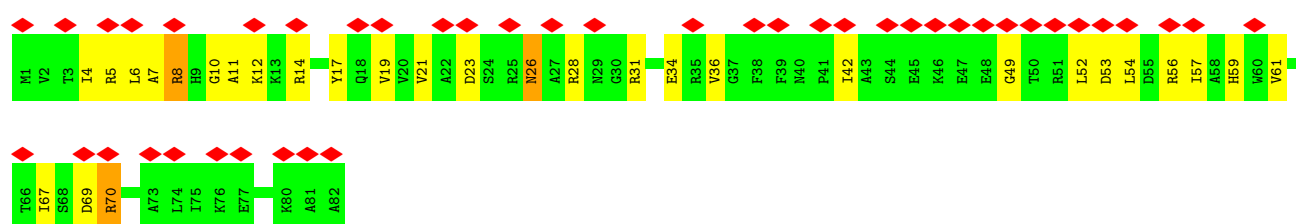
• Molecule 8: 30S ribosomal protein S12



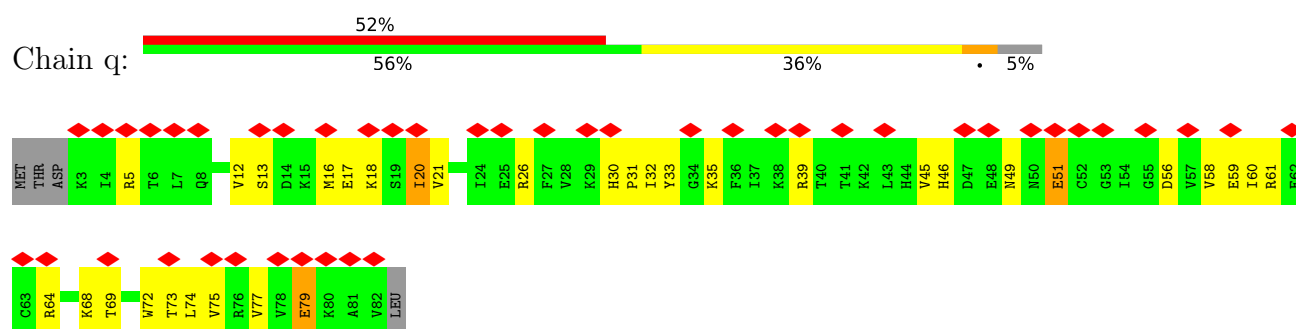
• Molecule 9: 30S ribosomal protein S15



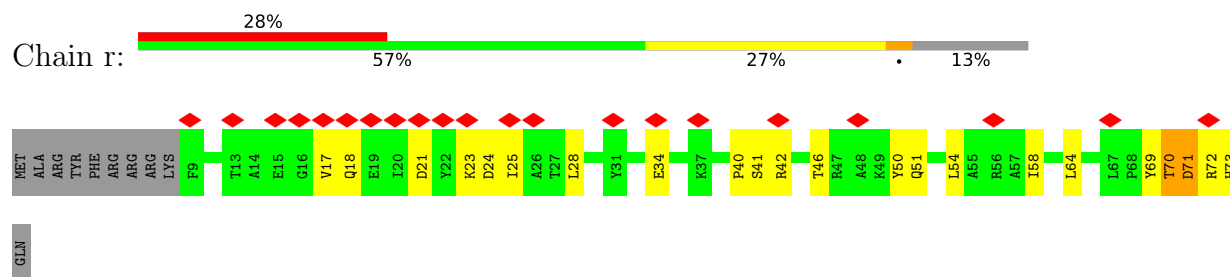
• Molecule 10: 30S ribosomal protein S16



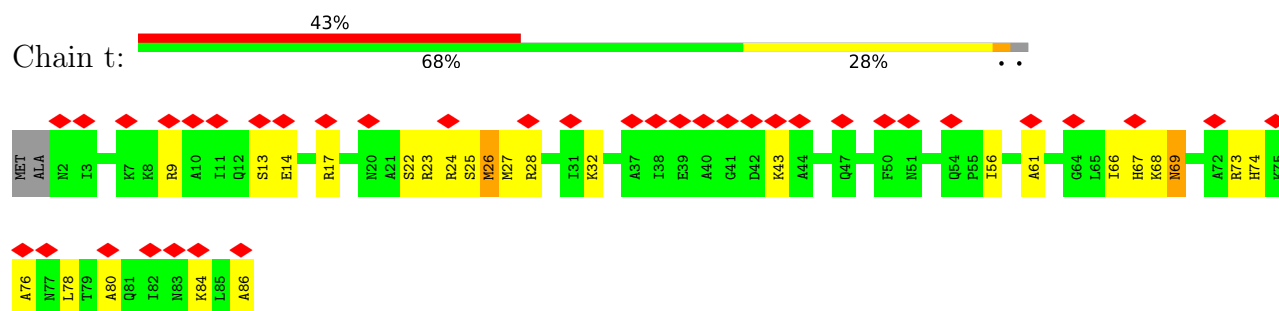
• Molecule 11: 30S ribosomal protein S17



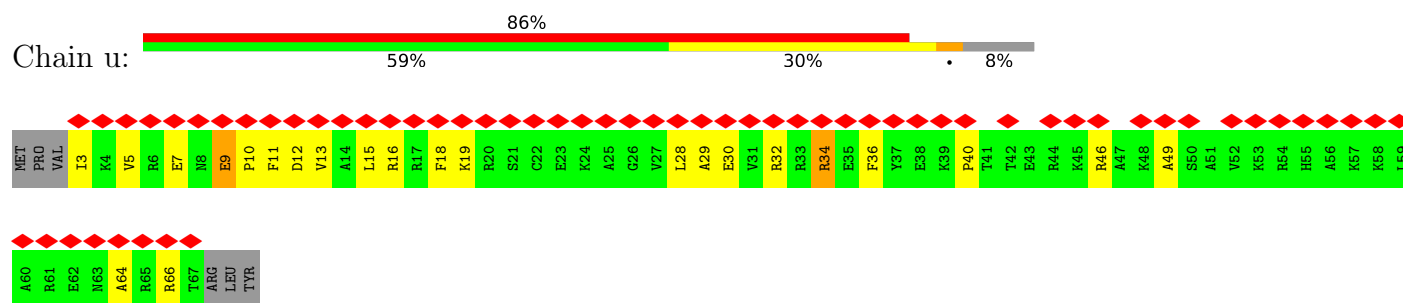
- Molecule 12: 30S ribosomal protein S18



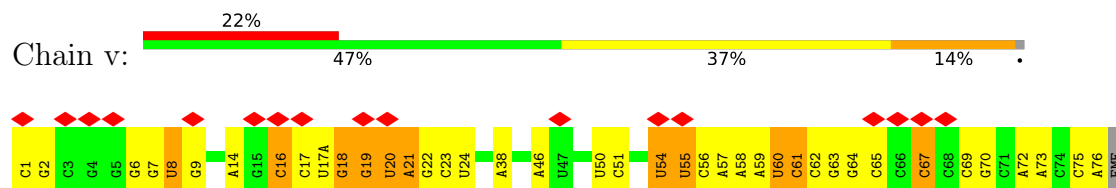
- Molecule 13: 30S ribosomal protein S20



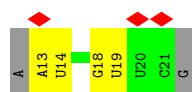
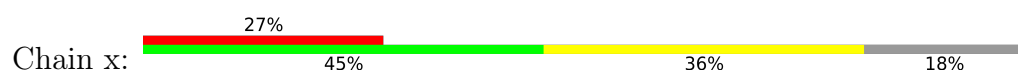
- Molecule 14: 30S ribosomal protein S21



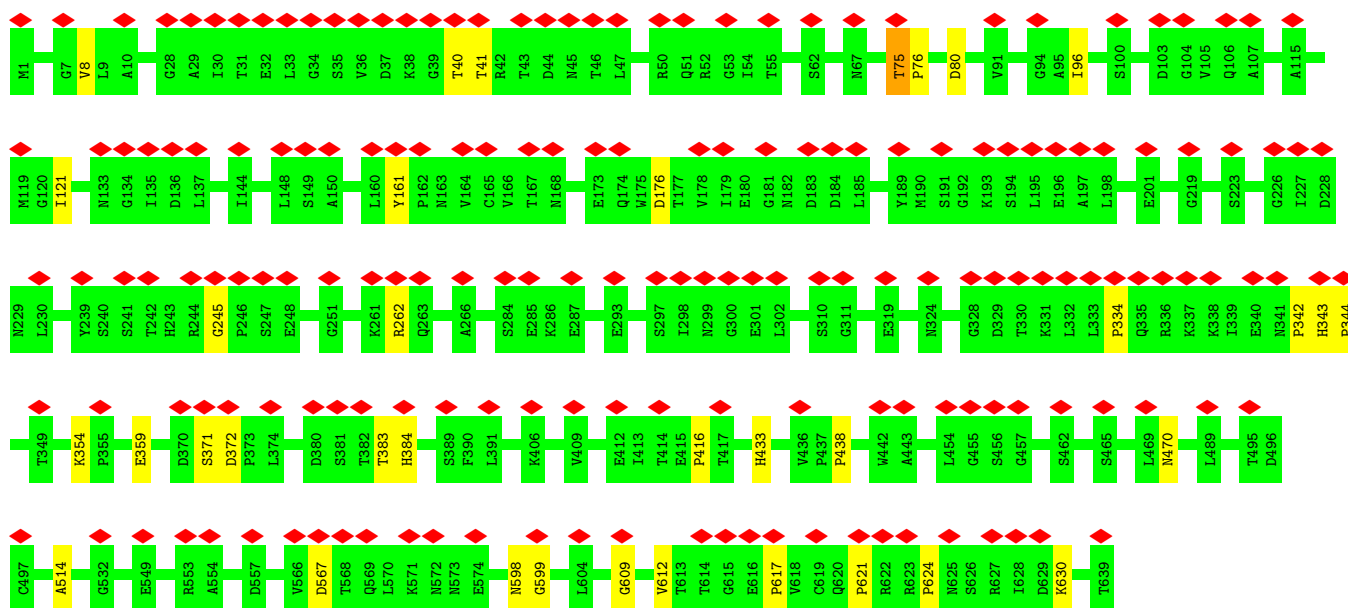
- Molecule 15: P-site fMet-tRNA<sup>fMet</sup>



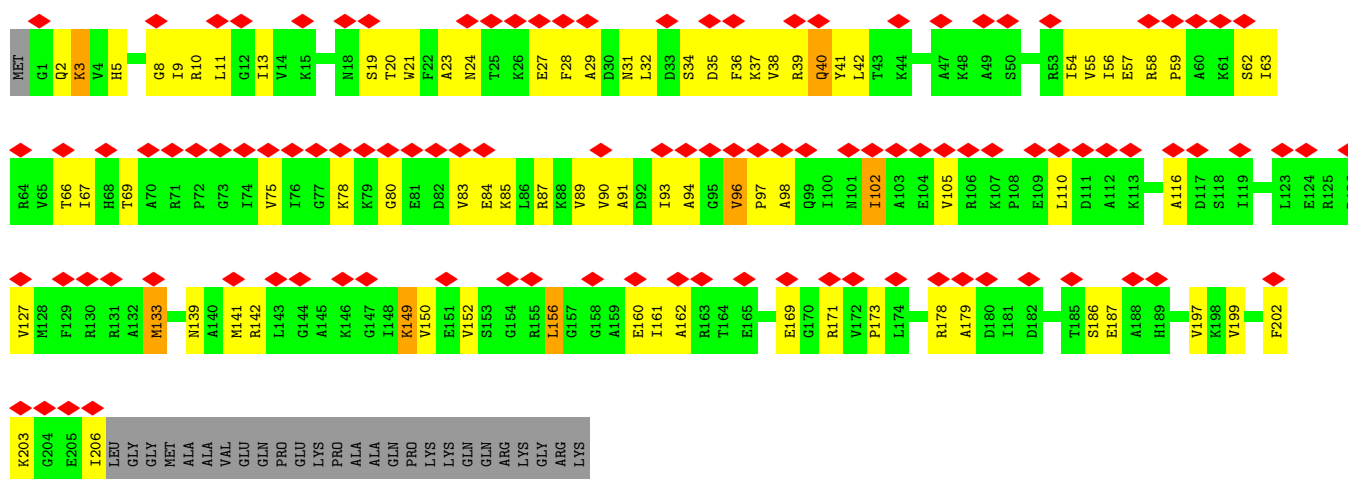
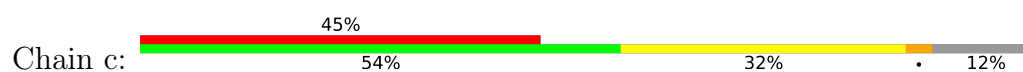
- Molecule 16: mRNA



• Molecule 17: Tetracycline resistance protein TetM

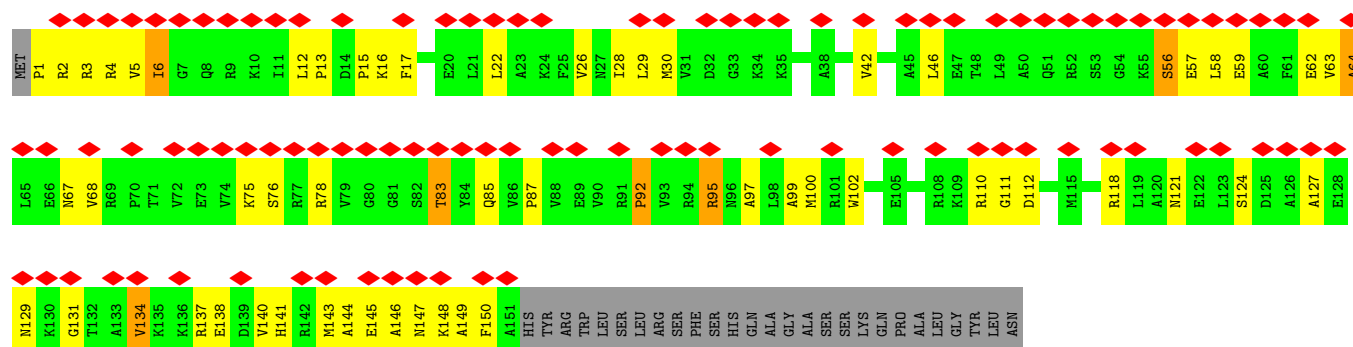


• Molecule 18: 30S ribosomal protein S3

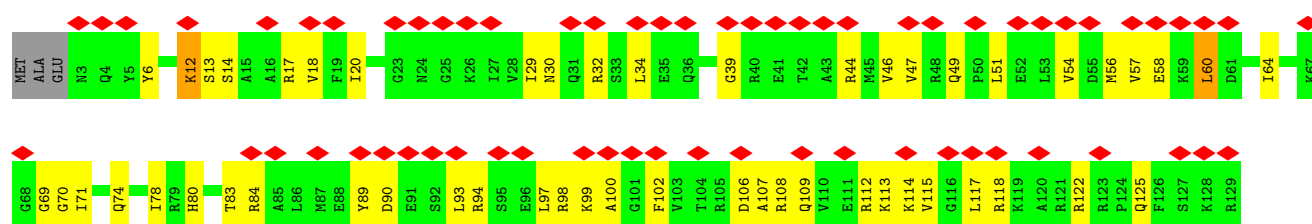


• Molecule 19: 30S ribosomal protein S7

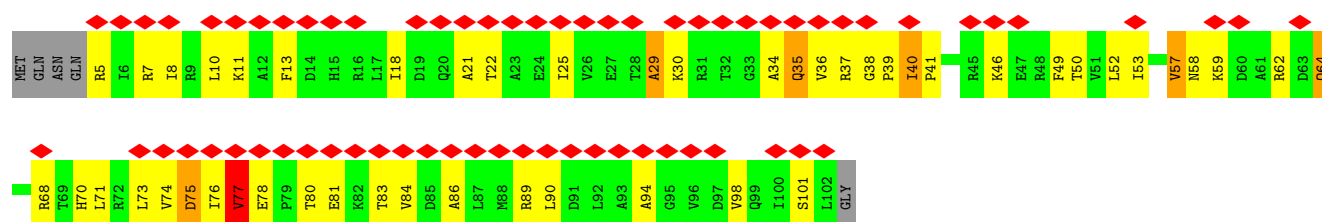




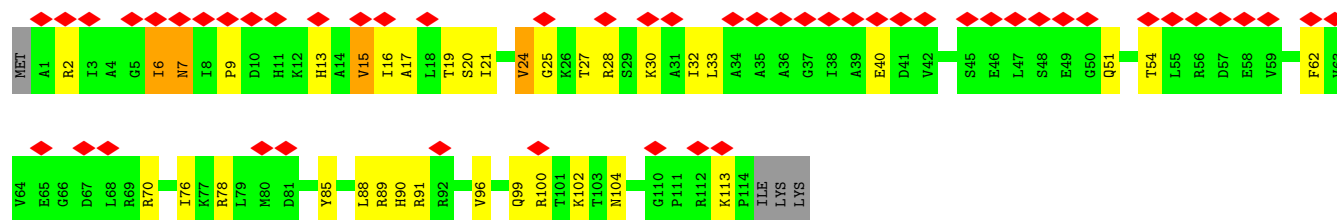
• Molecule 20: 30S ribosomal protein S9



• Molecule 21: 30S ribosomal protein S10

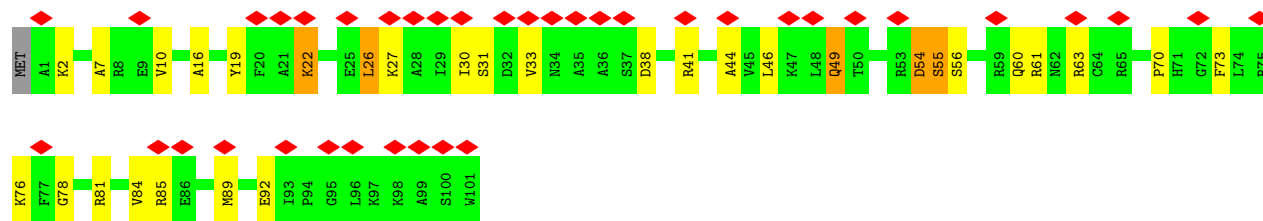


• Molecule 22: 30S ribosomal protein S13

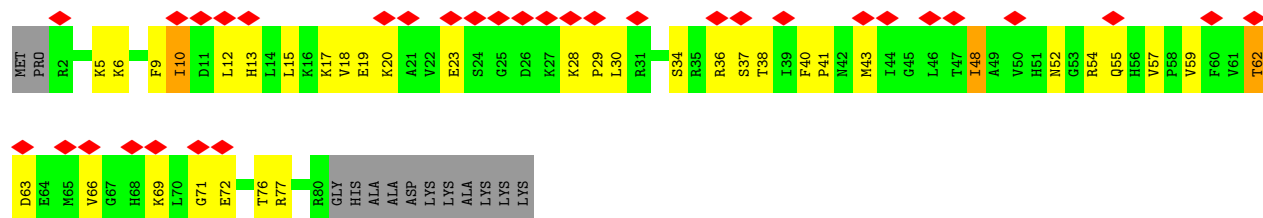


• Molecule 23: 30S ribosomal protein S14

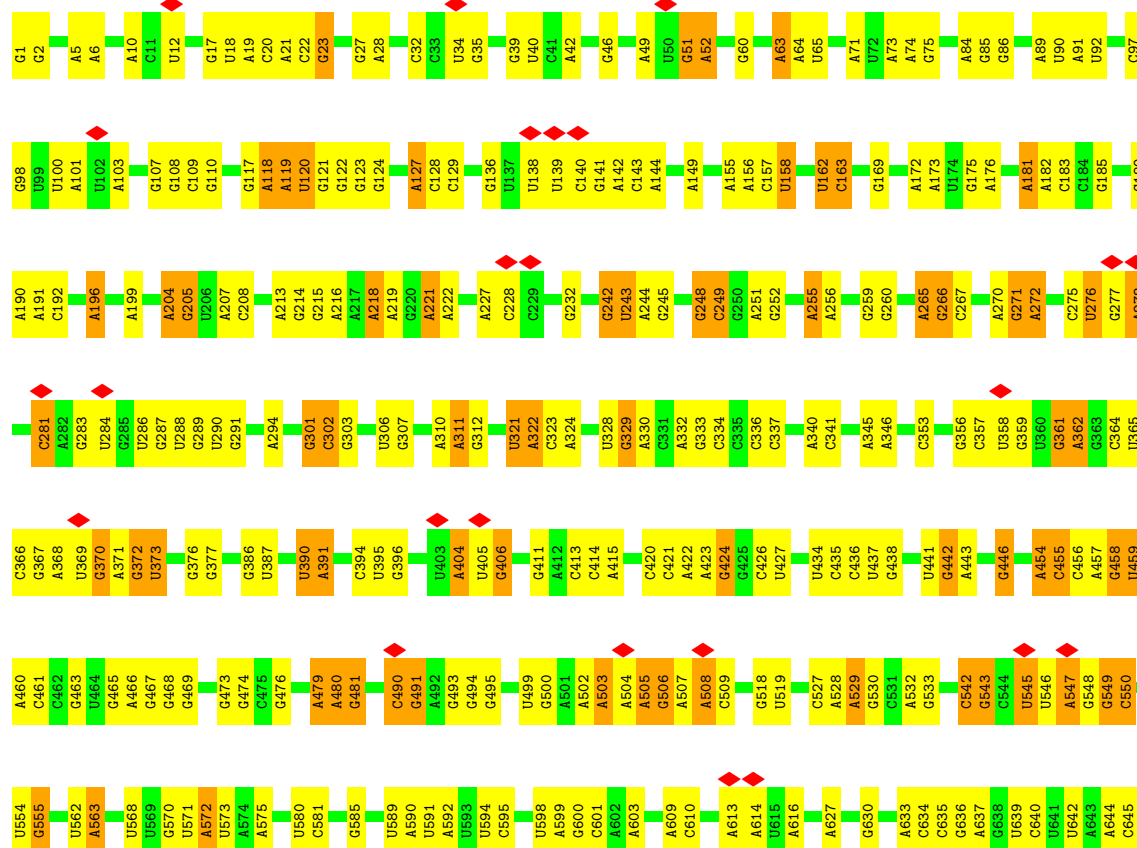




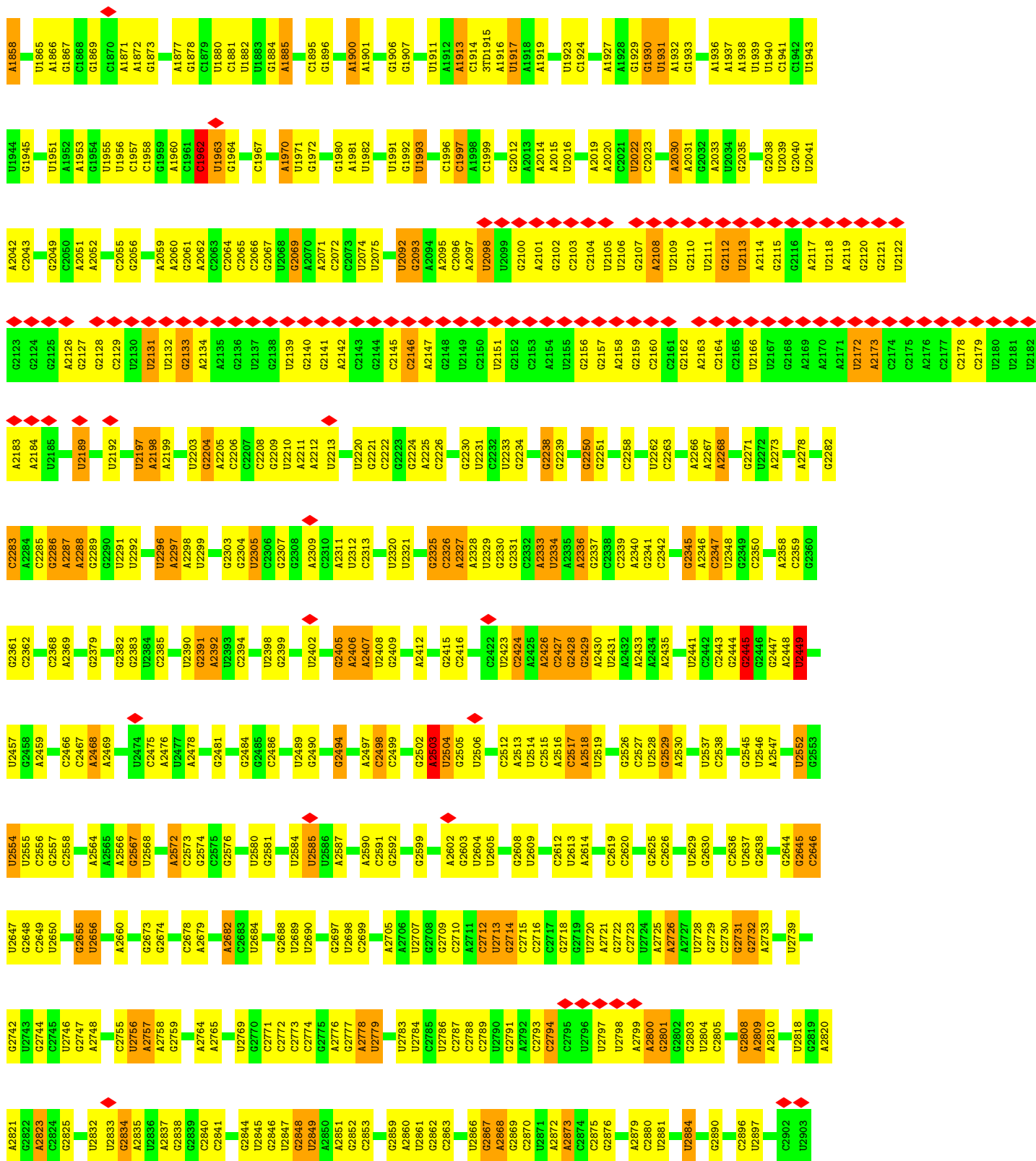
• Molecule 24: 30S ribosomal protein S19



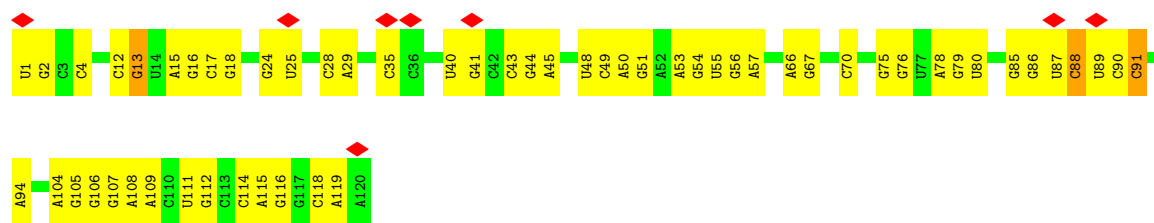
• Molecule 25: 23S ribosomal RNA



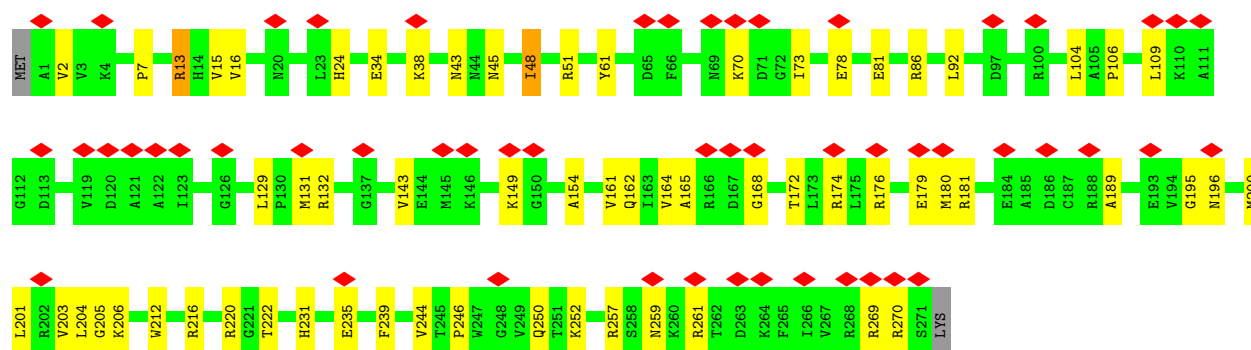
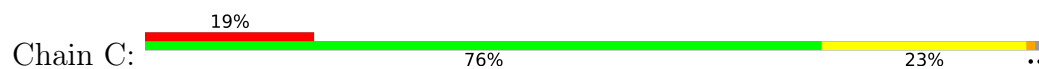




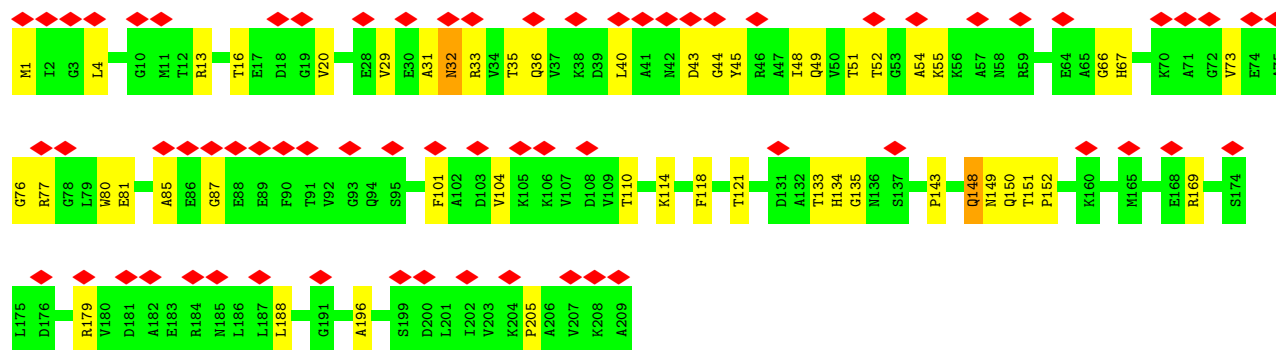
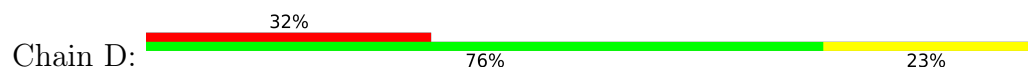




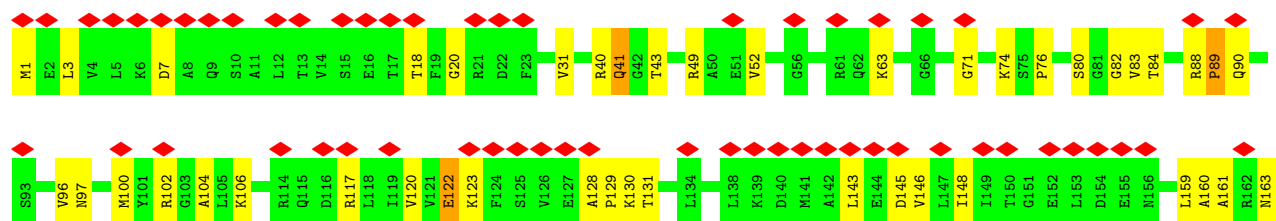
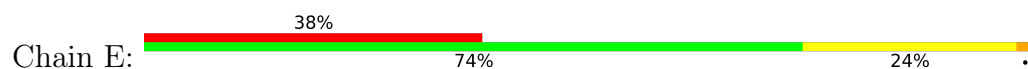
• Molecule 27: 50S ribosomal protein L2

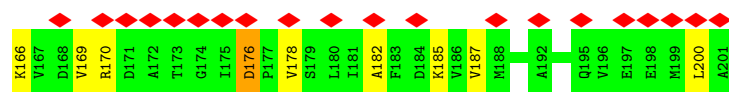


• Molecule 28: 50S ribosomal protein L3

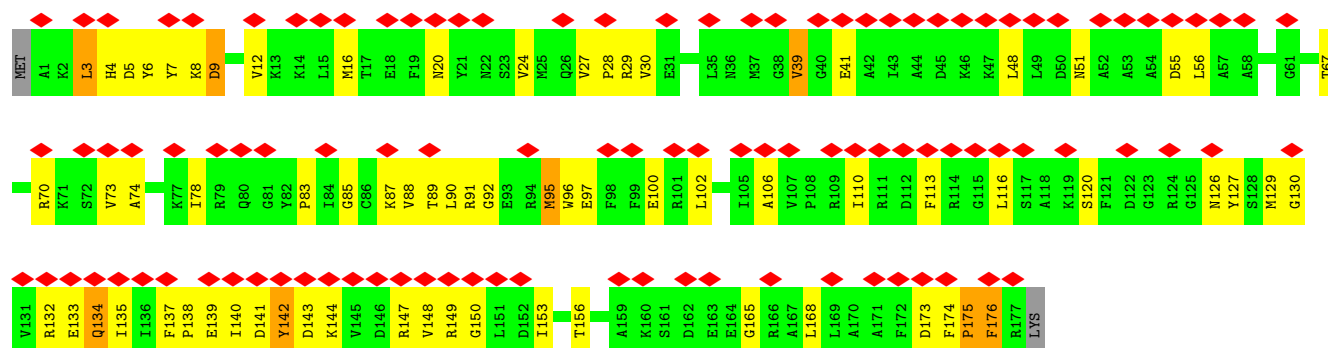


• Molecule 29: 50S ribosomal protein L4

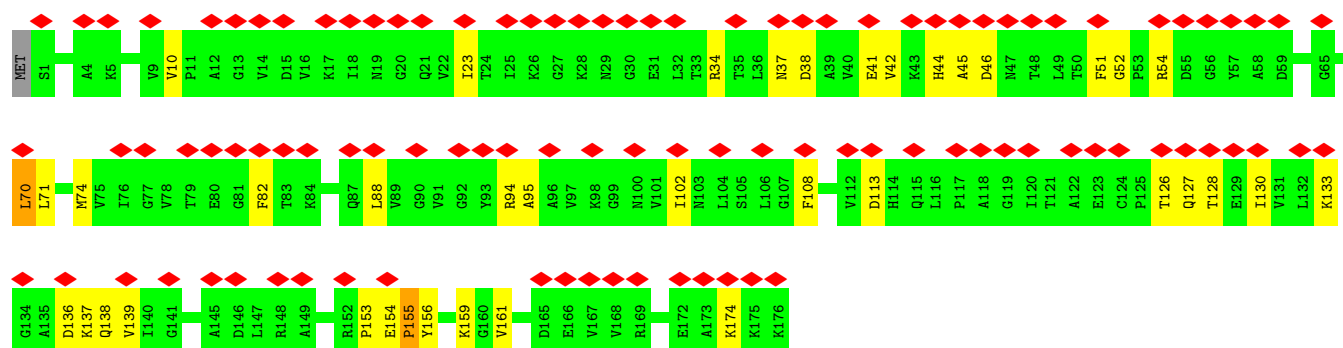
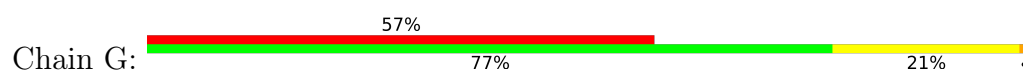




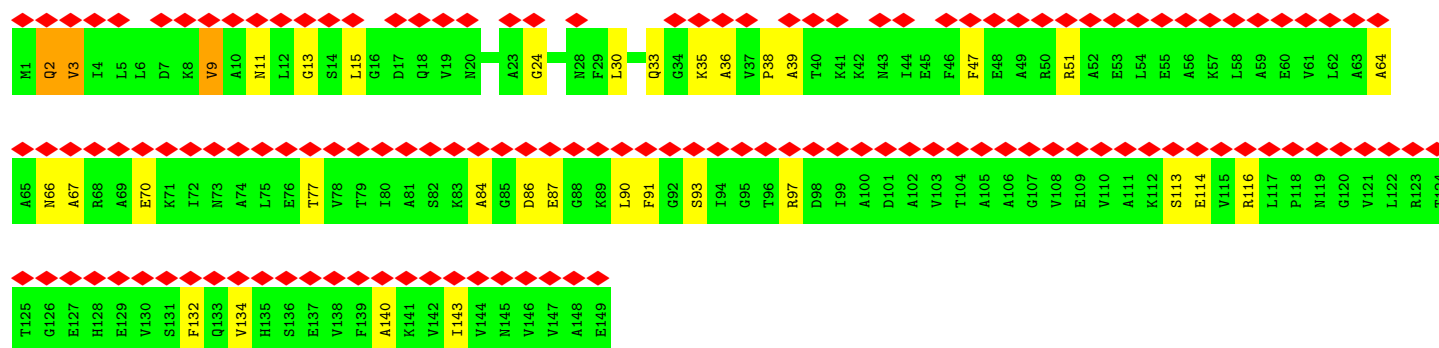
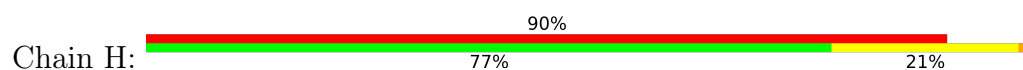
• Molecule 30: 50S ribosomal protein L5



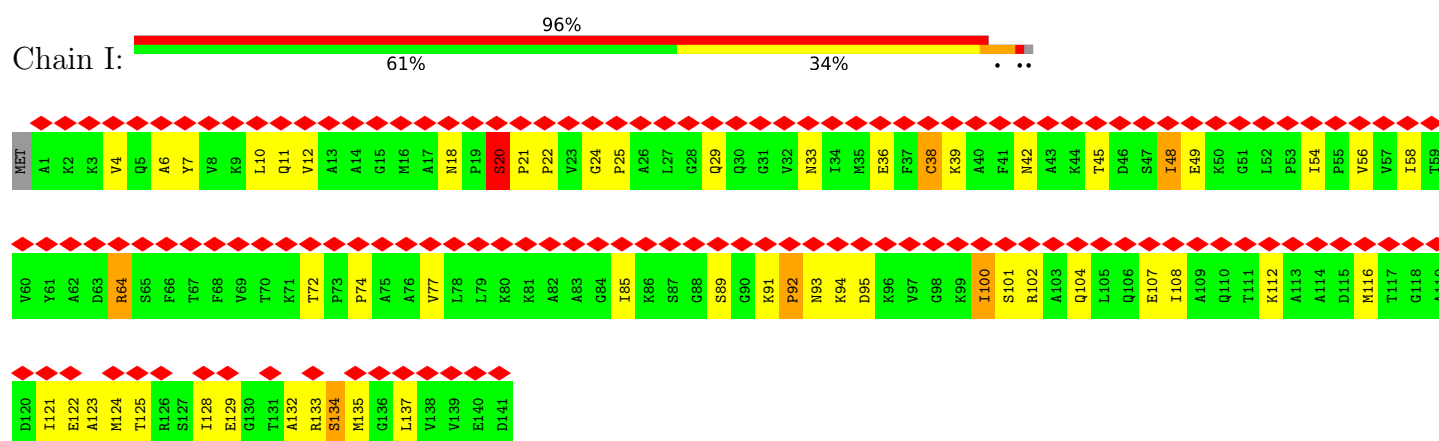
• Molecule 31: 50S ribosomal protein L6



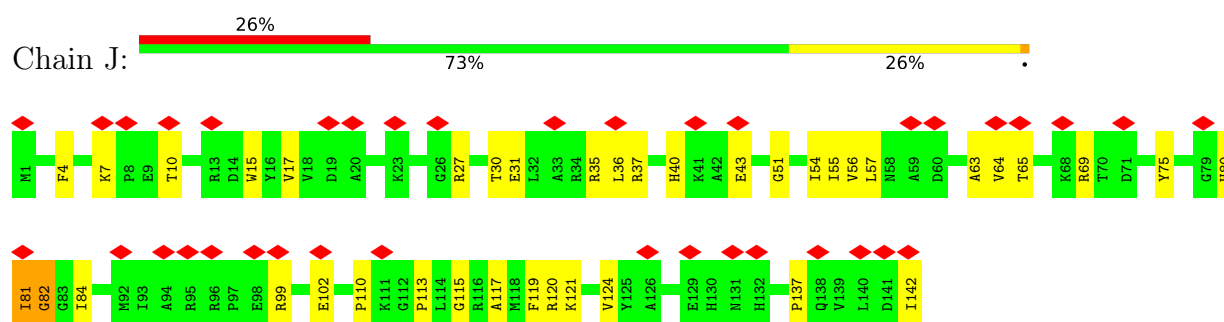
• Molecule 32: 50S ribosomal protein L9



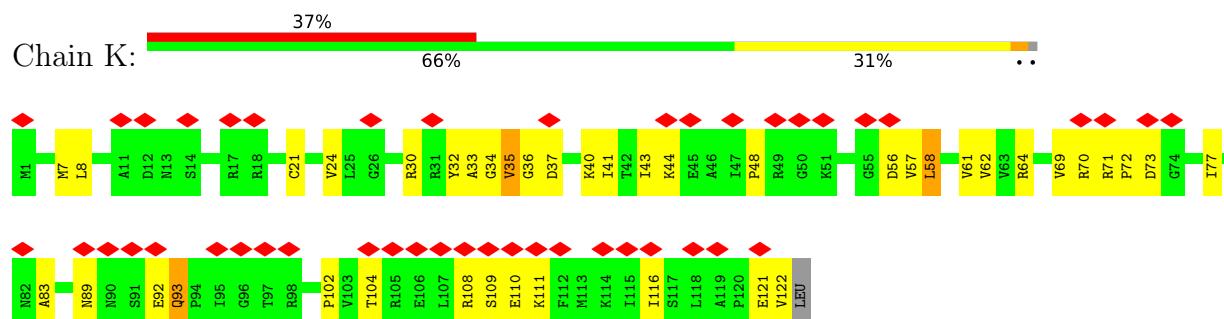
• Molecule 33: 50S ribosomal protein L11



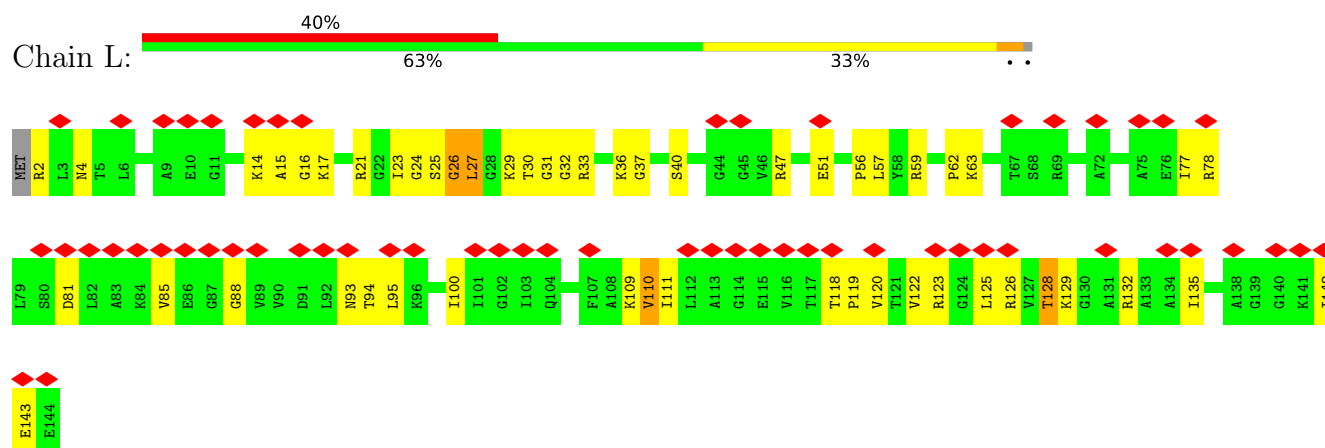
• Molecule 34: 50S ribosomal protein L13



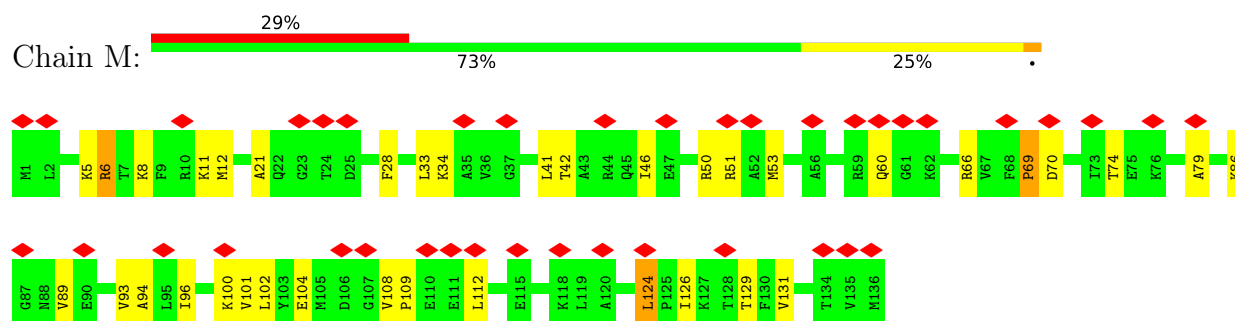
• Molecule 35: 50S ribosomal protein L14



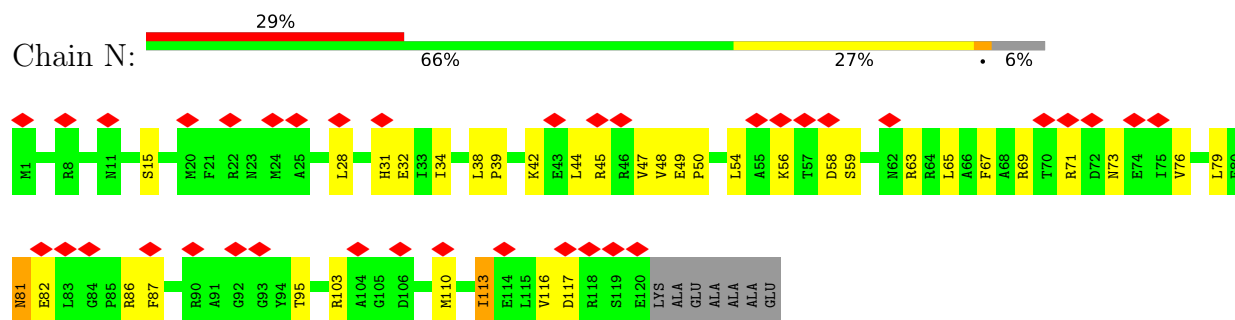
• Molecule 36: 50S ribosomal protein L15



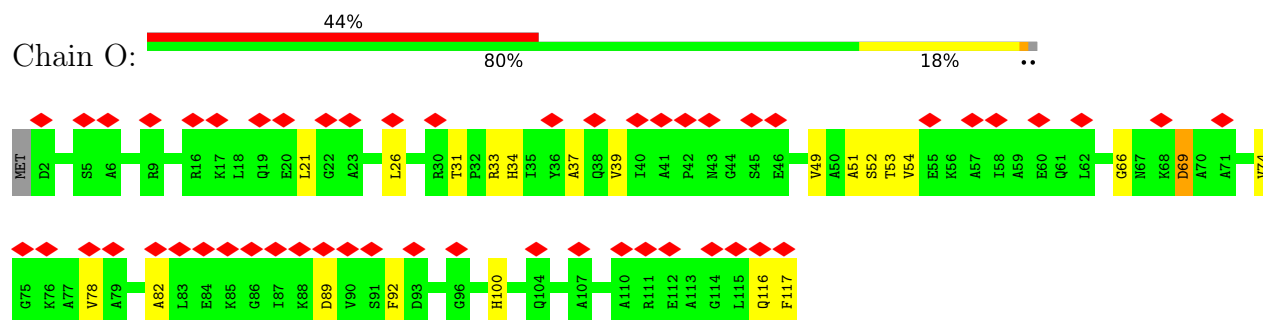
- Molecule 37: 50S ribosomal protein L16



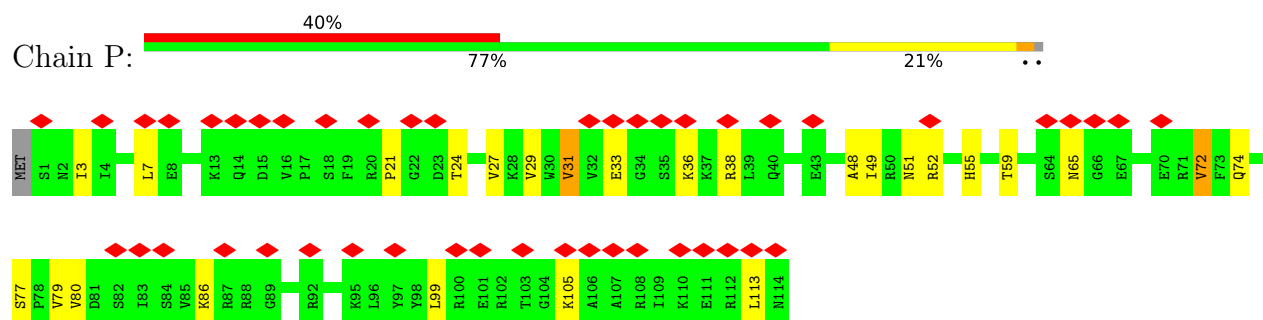
- Molecule 38: 50S ribosomal protein L17



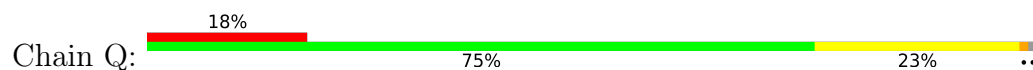
- Molecule 39: 50S ribosomal protein L18

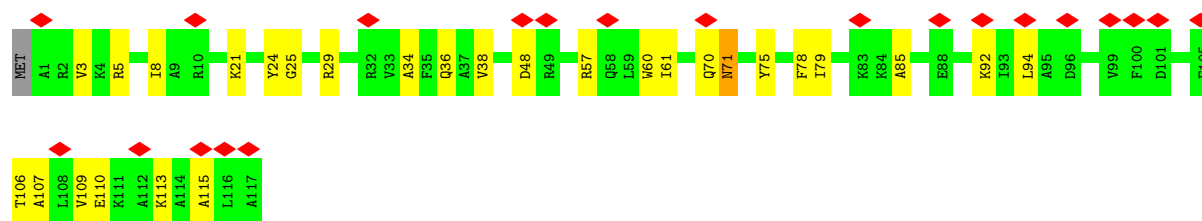


- Molecule 40: 50S ribosomal protein L19

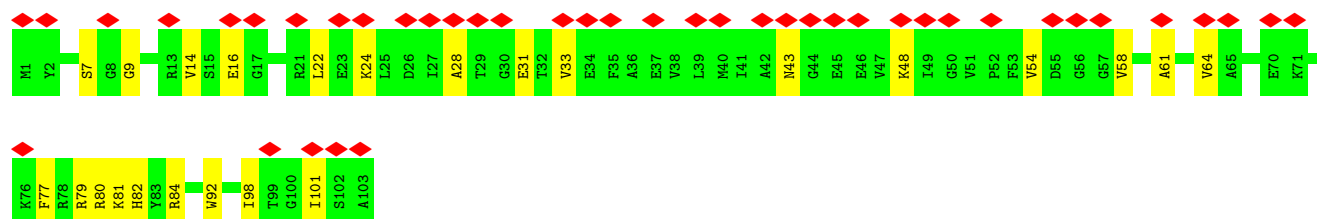
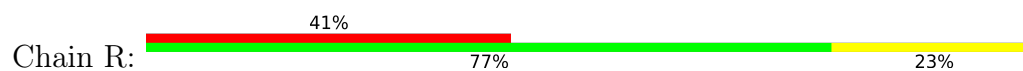


- Molecule 41: 50S ribosomal protein L20

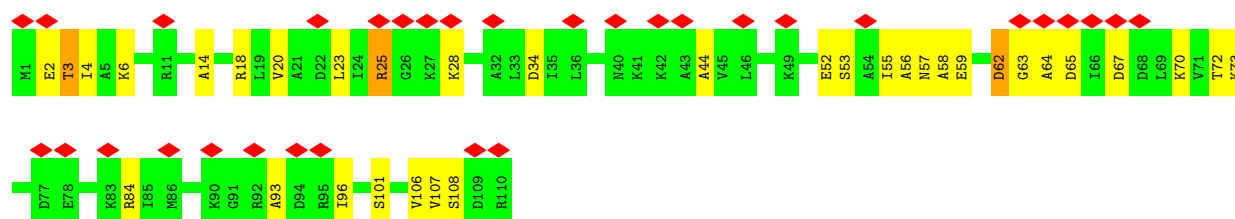




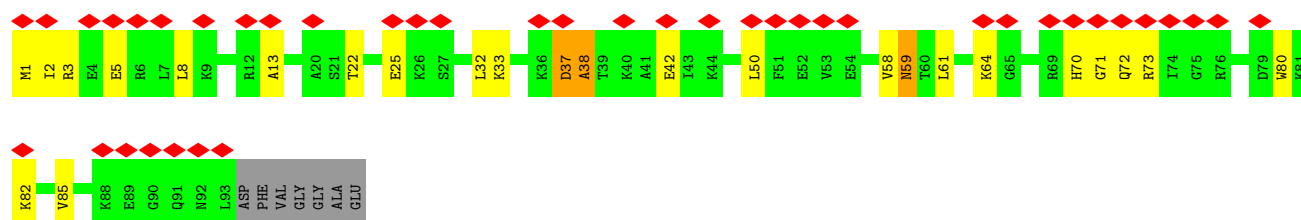
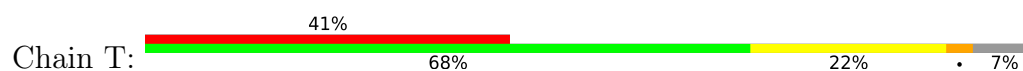
- Molecule 42: 50S ribosomal protein L21



- Molecule 43: 50S ribosomal protein L22

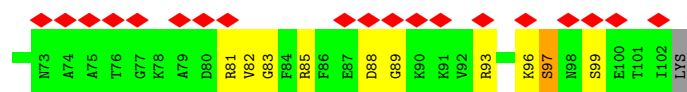


- Molecule 44: 50S ribosomal protein L23

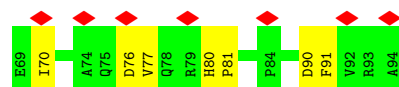
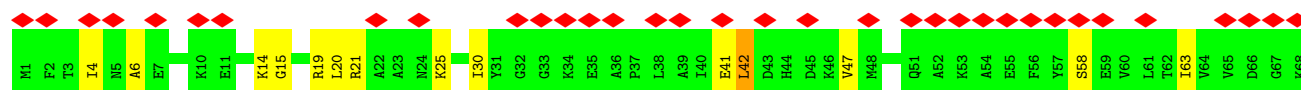
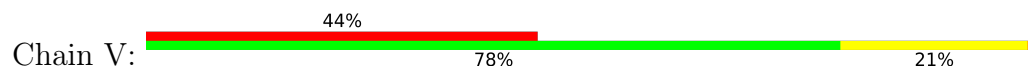


- Molecule 45: 50S ribosomal protein L24

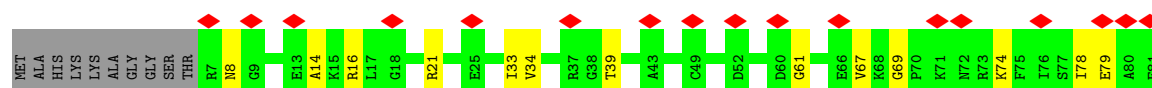
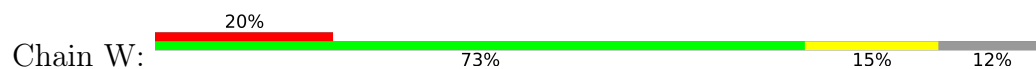




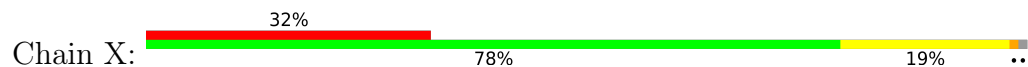
- Molecule 46: 50S ribosomal protein L25



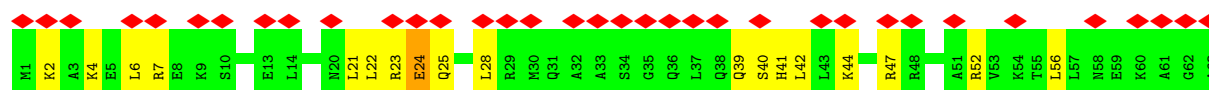
- Molecule 47: 50S ribosomal protein L27



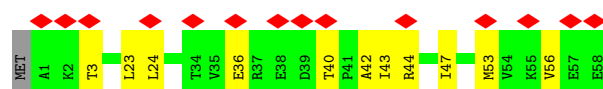
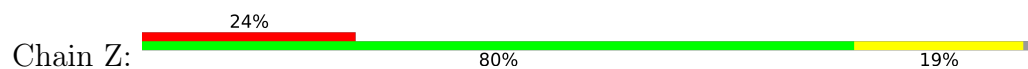
- Molecule 48: 50S ribosomal protein L28



- Molecule 49: 50S ribosomal protein L29

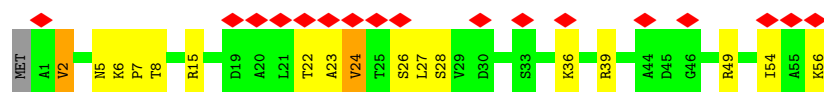


- Molecule 50: 50S ribosomal protein L30

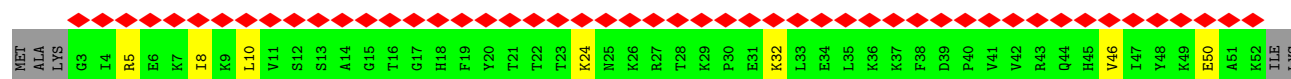
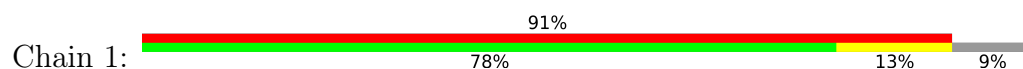


- Molecule 51: 50S ribosomal protein L32

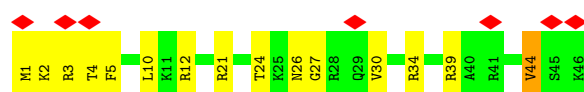




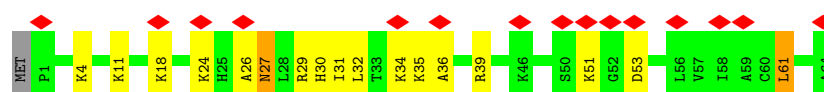
- Molecule 52: 50S ribosomal protein L33



- Molecule 53: 50S ribosomal protein L34



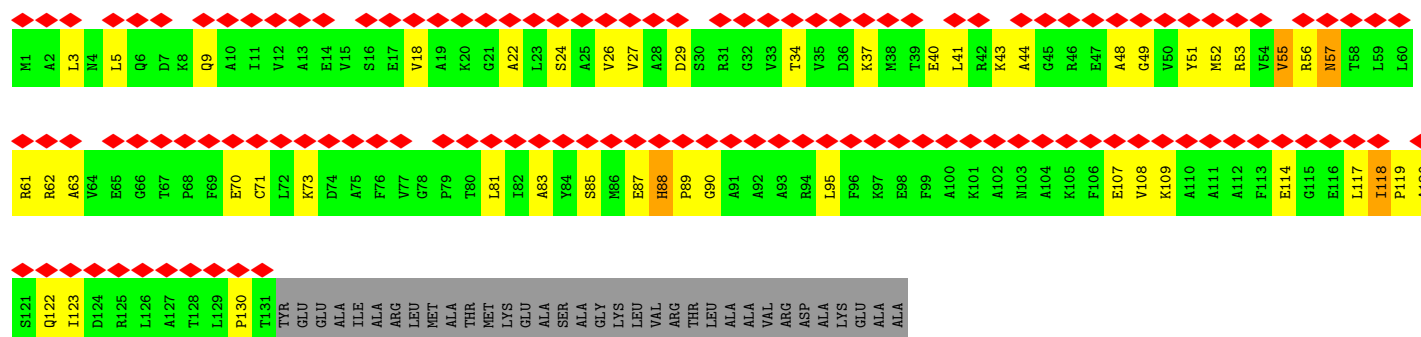
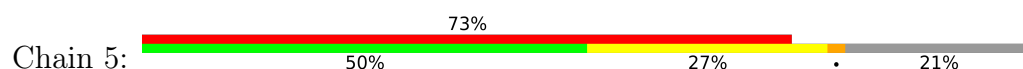
- Molecule 54: 50S ribosomal protein L35



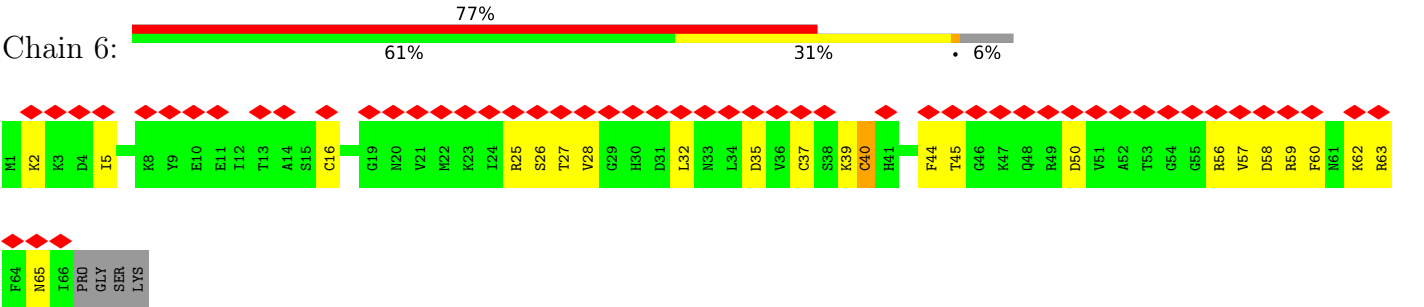
- Molecule 55: 50S ribosomal protein L36



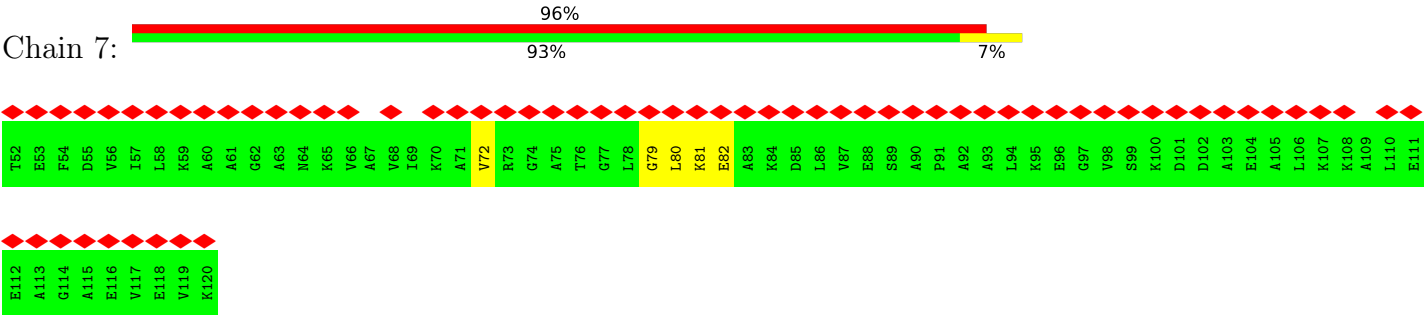
- Molecule 56: 50S ribosomal protein L10



- Molecule 57: 50S ribosomal protein L31



● Molecule 58: 50S ribosomal protein L7/L12





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	78186	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	Defocus groups	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	28	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	125085	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.010	Depositor
Minimum map value	-0.005	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.0025	Depositor
Map size ( $\text{\AA}$ )	407.74402, 407.74402, 407.74402	wwPDB
Map dimensions	368, 368, 368	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.108, 1.108, 1.108	Depositor

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 3TD, 1MG, 4OC, 5MC, PSU, OMG, UR3, OMC, 7MG, OMU, 5MU, MA6, 4SU, 2MA, 2MG, H2U, 6MZ

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	a	0.20	0/36701	0.33	6/57246 (0.0%)
2	b	0.40	0/1735	0.76	1/2338 (0.0%)
3	d	0.34	0/1665	0.79	0/2227
4	e	0.41	0/1154	0.79	1/1554 (0.1%)
5	f	0.45	0/835	0.85	3/1128 (0.3%)
6	h	0.35	0/989	0.77	0/1326
7	k	0.37	0/885	0.84	2/1195 (0.2%)
8	l	0.36	0/969	0.80	1/1300 (0.1%)
9	o	0.44	0/722	0.72	0/964
10	p	0.43	0/659	0.84	0/884
11	q	0.33	0/657	0.79	0/881
12	r	0.35	0/511	0.71	0/689
13	t	0.50	0/671	0.82	1/888 (0.1%)
14	u	0.39	0/500	0.77	0/668
15	v	0.22	1/1747 (0.1%)	0.33	0/2721
16	x	0.45	1/210 (0.5%)	0.25	0/324
17	w	0.31	0/2594	0.96	12/3251 (0.4%)
18	c	0.43	0/1651	0.76	0/2225
19	g	0.50	1/1195 (0.1%)	0.85	0/1602
20	i	0.35	0/1034	0.75	0/1375
21	j	0.51	0/796	0.88	2/1077 (0.2%)
22	m	0.50	0/892	0.85	0/1193
23	n	0.33	0/811	0.75	0/1081
24	s	0.35	0/652	0.73	0/877
25	A	0.23	1/69174 (0.0%)	0.34	0/107910
26	B	0.17	0/2876	0.32	0/4483
27	C	0.42	0/2121	0.82	0/2852
28	D	0.45	0/1586	0.83	1/2134 (0.0%)
29	E	0.33	0/1571	0.70	2/2113 (0.1%)
30	F	0.40	0/1434	0.78	0/1926
31	G	0.47	0/1343	0.84	1/1816 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
32	H	0.34	0/1122	0.73	0/1515
33	I	0.38	0/1046	0.79	2/1410 (0.1%)
34	J	0.36	0/1152	0.73	0/1551
35	K	0.36	0/947	0.72	0/1268
36	L	0.35	0/1054	0.77	1/1403 (0.1%)
37	M	0.40	0/1093	0.77	2/1460 (0.1%)
38	N	0.36	0/973	0.76	0/1301
39	O	0.41	0/902	0.74	0/1209
40	P	0.34	0/929	0.75	0/1242
41	Q	0.40	0/960	0.77	0/1278
42	R	0.43	0/829	0.82	1/1107 (0.1%)
43	S	0.37	0/864	0.83	1/1156 (0.1%)
44	T	0.35	0/744	0.79	0/994
45	U	0.47	1/787 (0.1%)	0.78	1/1051 (0.1%)
46	V	0.37	0/766	0.78	0/1025
47	W	0.39	0/582	0.83	2/769 (0.3%)
48	X	0.34	0/635	0.69	0/848
49	Y	0.43	0/510	0.73	0/677
50	Z	0.31	0/453	0.67	0/605
51	0	0.32	0/450	0.72	0/599
52	1	0.34	0/416	0.74	0/554
53	2	0.35	0/380	0.79	0/498
54	3	0.33	0/513	0.80	2/676 (0.3%)
55	4	0.33	0/303	0.77	0/397
56	5	0.38	0/1001	0.79	0/1350
57	6	0.45	0/531	0.89	0/709
58	7	0.55	0/275	1.17	0/342
All	All	0.29	5/160557 (0.0%)	0.51	45/239242 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	U	41	VAL	C-O	6.54	1.31	1.24
19	g	92	PRO	C-O	5.79	1.31	1.24
16	x	14	U	C1'-N1	5.74	1.57	1.48
25	A	2552	OMU	O3'-P	5.48	1.61	1.56
15	v	8	4SU	O3'-P	5.19	1.61	1.56

All (45) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	1491	G	C4'-C3'-O3'	8.84	126.26	113.00

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	w	121	ILE	CA-C-N	8.79	128.84	119.78
17	w	121	ILE	C-N-CA	8.79	128.84	119.78
1	a	530	G	P-O5'-C5'	-7.37	109.85	120.90
1	a	529	G	O3'-P-O5'	-7.22	93.17	104.00
36	L	36	LYS	CB-CA-C	-6.12	108.50	115.79
17	w	75	THR	CA-C-N	6.07	127.43	119.84
17	w	75	THR	C-N-CA	6.07	127.43	119.84
17	w	354	LYS	CA-C-N	6.03	125.92	119.28
17	w	354	LYS	C-N-CA	6.03	125.92	119.28
1	a	1492	A	C2'-C3'-O3'	-6.03	104.66	113.70
5	f	11	HIS	CA-C-N	5.89	127.21	119.84
5	f	11	HIS	C-N-CA	5.89	127.21	119.84
47	W	69	GLY	CA-C-N	5.76	124.96	118.97
47	W	69	GLY	C-N-CA	5.76	124.96	118.97
54	3	61	LEU	CA-C-N	5.73	125.58	119.28
54	3	61	LEU	C-N-CA	5.73	125.58	119.28
42	R	64	VAL	N-CA-C	-5.71	106.90	111.81
5	f	90	MET	N-CA-C	5.69	115.79	108.34
17	w	245	GLY	CA-C-N	5.67	125.51	119.28
17	w	245	GLY	C-N-CA	5.67	125.51	119.28
45	U	51	LEU	CB-CA-C	-5.65	110.08	116.63
7	k	89	GLY	CA-C-N	5.61	124.97	118.85
7	k	89	GLY	C-N-CA	5.61	124.97	118.85
17	w	372	ASP	CA-C-N	5.59	125.43	119.28
17	w	372	ASP	C-N-CA	5.59	125.43	119.28
17	w	343	HIS	CA-C-N	5.48	126.69	119.84
17	w	343	HIS	C-N-CA	5.48	126.69	119.84
1	a	1297	G	P-O3'-C3'	5.44	128.36	120.20
37	M	124	LEU	CA-C-N	5.37	124.55	118.97
37	M	124	LEU	C-N-CA	5.37	124.55	118.97
13	t	69	ASN	N-CA-C	-5.26	105.68	112.68
43	S	63	GLY	N-CA-C	5.20	120.19	113.27
1	a	1297	G	C2'-C3'-O3'	5.20	117.30	109.50
28	D	66	GLY	N-CA-C	-5.20	106.41	113.37
2	b	18	GLN	CB-CA-C	-5.19	110.61	116.63
31	G	46	ASP	CB-CA-C	-5.18	109.05	115.89
29	E	176	ASP	CA-C-N	5.16	124.61	119.24
29	E	176	ASP	C-N-CA	5.16	124.61	119.24
33	I	20	SER	CA-C-N	-5.14	115.08	120.38
33	I	20	SER	C-N-CA	-5.14	115.08	120.38
8	l	101	LEU	CB-CA-C	-5.05	109.28	116.34
21	j	40	ILE	CA-C-N	5.04	126.15	119.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	j	40	ILE	C-N-CA	5.04	126.15	119.84
4	e	89	THR	CB-CA-C	-5.01	110.42	117.23

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	a	33029	0	16642	620	0
2	b	1704	0	1732	48	0
3	d	1643	0	1710	46	0
4	e	1141	0	1169	91	0
5	f	817	0	808	35	0
6	h	979	0	1034	16	0
7	k	869	0	878	43	0
8	l	955	0	1019	42	0
9	o	714	0	737	21	0
10	p	649	0	666	23	0
11	q	648	0	691	27	0
12	r	504	0	502	13	0
13	t	665	0	714	18	0
14	u	495	0	486	17	0
15	v	1644	0	840	28	0
16	x	189	0	96	8	0
17	w	2590	0	731	18	0
18	c	1624	0	1699	56	0
19	g	1181	0	1240	47	0
20	i	1022	0	1070	30	0
21	j	786	0	828	36	0
22	m	883	0	944	40	0
23	n	799	0	841	20	0
24	s	637	0	665	43	0
25	A	62276	0	31346	829	0
26	B	2572	0	1302	27	0
27	C	2082	0	2157	42	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
28	D	1565	0	1616	35	0
29	E	1552	0	1619	32	0
30	F	1410	0	1447	49	0
31	G	1323	0	1374	23	0
32	H	1111	0	1148	27	0
33	I	1032	0	1088	37	0
34	J	1129	0	1162	31	0
35	K	938	0	1012	25	0
36	L	1045	0	1117	35	0
37	M	1074	0	1157	22	0
38	N	960	0	1000	26	0
39	O	892	0	923	12	0
40	P	917	0	965	28	0
41	Q	947	0	1022	21	0
42	R	816	0	839	15	0
43	S	857	0	922	22	0
44	T	738	0	807	19	0
45	U	779	0	834	16	0
46	V	753	0	780	13	0
47	W	575	0	592	8	0
48	X	625	0	655	12	0
49	Y	509	0	543	10	0
50	Z	449	0	491	7	0
51	0	444	0	461	14	0
52	1	409	0	440	4	0
53	2	377	0	418	20	0
54	3	504	0	574	17	0
55	4	302	0	343	12	0
56	5	988	0	1025	34	0
57	6	522	0	524	48	0
58	7	276	0	79	2	0
All	All	148915	0	99524	2538	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

All (2538) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1081:A:H5'	4:e:22:LYS:CG	1.27	1.58
1:a:1399:C:H4'	1:a:1400:C:C5'	1.31	1.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1081:A:C5'	4:e:22:LYS:HG3	1.44	1.44
1:a:1081:A:H5'	4:e:22:LYS:CD	1.42	1.43
1:a:518:C:C5	1:a:530:G:H5'	1.54	1.41
1:a:529:G:C3'	1:a:530:G:H5''	1.57	1.33
1:a:1081:A:C5'	4:e:22:LYS:CG	2.02	1.31
1:a:16:A:N1	1:a:919:A:H2	1.26	1.31
1:a:1399:C:C4'	1:a:1400:C:C5'	2.12	1.28
1:a:15:G:N1	1:a:920:U:O2	1.66	1.27
17:w:598:ASN:O	25:A:2660:A:O4'	1.53	1.25
1:a:518:C:H5	1:a:530:G:C5'	1.49	1.25
1:a:1399:C:C4'	1:a:1400:C:H5''	1.64	1.25
1:a:1493:A:H5''	25:A:1913:A:C2	1.76	1.20
22:m:78:ARG:NH1	57:6:56:ARG:HH22	1.39	1.18
8:l:75:GLU:OE2	17:w:384:HIS:CA	1.91	1.17
1:a:1081:A:C5'	4:e:22:LYS:CD	2.20	1.17
24:s:63:ASP:OD2	57:6:57:VAL:HG23	1.44	1.15
9:o:88:ARG:NH2	25:A:716:A:P	2.20	1.15
1:a:149:A:H1'	1:a:1446:A:C2	1.82	1.14
1:a:1422:G:OP1	35:K:48:PRO:HG3	1.46	1.14
24:s:63:ASP:CG	57:6:57:VAL:CG2	2.22	1.13
1:a:529:G:H3'	1:a:530:G:H5''	1.23	1.12
1:a:16:A:N1	1:a:919:A:C2	2.17	1.12
24:s:63:ASP:OD1	57:6:57:VAL:HG21	1.49	1.11
1:a:791:G:N2	1:a:1497:G:O3'	1.83	1.10
1:a:1405:G:H1'	1:a:1518:MA6:O2'	1.50	1.10
1:a:16:A:H2	1:a:1080:A:N3	1.49	1.09
1:a:1499:A:H5'	1:a:1519:MA6:H92	1.11	1.07
1:a:921:U:O2'	4:e:23:THR:O	1.70	1.06
1:a:1080:A:H4'	4:e:20:VAL:HB	1.32	1.06
1:a:149:A:C1'	1:a:1446:A:C2	2.40	1.05
7:k:60:PHE:CD2	19:g:149:ALA:HA	1.90	1.05
1:a:149:A:H1'	1:a:1446:A:H2	1.10	1.05
22:m:78:ARG:CZ	57:6:56:ARG:NH2	2.20	1.05
1:a:791:G:N1	1:a:1498:UR3:OP1	1.90	1.04
1:a:1499:A:H8	1:a:1519:MA6:C2	1.71	1.04
1:a:1081:A:OP1	4:e:22:LYS:HB2	1.56	1.04
1:a:1493:A:C5'	25:A:1913:A:C2	2.39	1.04
24:s:63:ASP:CG	57:6:57:VAL:HG21	1.82	1.04
1:a:529:G:H3'	1:a:530:G:C5'	1.85	1.04
17:w:599:GLY:HA3	25:A:2660:A:H1'	1.38	1.04
1:a:529:G:H5''	1:a:530:G:OP2	1.59	1.03

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1492:A:H62	8:l:40:THR:CG2	1.72	1.03
1:a:529:G:C3'	1:a:530:G:C5'	2.37	1.02
1:a:1499:A:C8	1:a:1519:MA6:C2	2.43	1.01
1:a:16:A:N6	1:a:919:A:N1	2.08	1.00
1:a:1080:A:O3'	4:e:21:SER:O	1.80	1.00
22:m:78:ARG:NH1	57:6:56:ARG:NH2	2.10	0.99
1:a:1081:A:P	4:e:22:LYS:HB2	2.02	0.99
1:a:1082:A:OP2	4:e:22:LYS:CE	2.10	0.99
9:o:88:ARG:NH2	25:A:716:A:OP2	1.96	0.99
1:a:17:U:O2'	1:a:1079:G:N3	1.96	0.98
1:a:1082:A:OP2	4:e:22:LYS:HE3	1.63	0.98
1:a:16:A:C2	1:a:1080:A:N3	2.32	0.98
7:k:60:PHE:CE1	19:g:148:LYS:NZ	2.32	0.97
22:m:78:ARG:CZ	57:6:56:ARG:HH22	1.77	0.97
1:a:1080:A:H5''	4:e:20:VAL:HG21	1.45	0.97
1:a:1081:A:C5'	4:e:22:LYS:HD2	1.93	0.97
1:a:518:C:H5	1:a:530:G:H5'	0.82	0.97
1:a:345:C:OP1	40:P:38:ARG:NH2	1.97	0.97
25:A:1055:G:H1	25:A:1104:C:H42	1.11	0.96
3:d:115:GLN:HE21	3:d:119:HIS:CE1	1.84	0.96
1:a:919:A:C2'	1:a:920:U:H5'	1.95	0.95
1:a:15:G:O6	1:a:920:U:N3	2.00	0.95
1:a:1079:G:H5''	4:e:49:TYR:CE2	2.01	0.95
9:o:44:GLU:HG2	9:o:45:HIS:HD2	1.30	0.94
48:X:17:ARG:HE	48:X:23:ALA:HB2	1.29	0.94
1:a:1082:A:P	4:e:22:LYS:CE	2.55	0.94
1:a:1081:A:H5'	4:e:22:LYS:CE	1.97	0.93
1:a:1402:4OC:N4	16:x:18:G:OP2	2.01	0.93
1:a:1493:A:H5''	25:A:1913:A:H2	1.33	0.93
1:a:148:G:O2'	1:a:1447:A:O4'	1.86	0.93
1:a:149:A:O2'	1:a:1446:A:C2	2.22	0.93
25:A:704:G:H2'	25:A:726:G:H22	1.30	0.93
1:a:1082:A:P	4:e:22:LYS:HE2	2.10	0.92
24:s:63:ASP:CG	57:6:57:VAL:HG23	1.87	0.92
7:k:55:ARG:HG2	19:g:150:PHE:CZ	2.06	0.91
3:d:115:GLN:HE21	3:d:119:HIS:HE1	1.16	0.91
1:a:17:U:O2'	1:a:1079:G:HI'	1.68	0.91
1:a:1080:A:C5'	4:e:20:VAL:HG21	2.00	0.90
1:a:1492:A:H62	8:l:40:THR:HG21	1.33	0.90
1:a:335:C:H4'	1:a:1434:A:O4'	1.71	0.90
1:a:1081:A:O5'	4:e:22:LYS:CB	2.19	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1399:C:C4'	1:a:1400:C:H5'	1.99	0.90
1:a:1081:A:H5'	4:e:22:LYS:HG3	0.98	0.90
1:a:335:C:O2'	1:a:1433:A:N3	2.05	0.89
1:a:919:A:H2'	1:a:920:U:H5'	1.53	0.89
1:a:1493:A:H2'	16:x:19:U:O2'	1.73	0.89
30:F:134:GLN:NE2	30:F:149:ARG:O	2.06	0.89
1:a:1130:A:H61	1:a:1144:G:H1'	1.36	0.89
1:a:16:A:C6	1:a:919:A:H2	1.90	0.88
1:a:1080:A:H5''	4:e:20:VAL:CG2	2.03	0.88
1:a:531:U:O4	18:c:160:GLU:HB3	1.73	0.88
22:m:70:ARG:HD3	57:6:50:ASP:OD1	1.74	0.87
1:a:16:A:N6	1:a:919:A:C2	2.43	0.87
1:a:921:U:H1'	4:e:22:LYS:O	1.75	0.87
1:a:16:A:H1'	1:a:1080:A:O2'	1.75	0.87
1:a:16:A:H2	1:a:1080:A:C2	1.93	0.86
1:a:18:C:H4'	1:a:1078:U:C2	2.09	0.86
1:a:18:C:H4'	1:a:1078:U:N3	1.90	0.86
1:a:149:A:H4'	1:a:1446:A:N3	1.91	0.86
1:a:149:A:C1'	1:a:1446:A:H2	1.83	0.86
2:b:19:THR:HG23	2:b:20:ARG:H	1.41	0.86
1:a:790:A:OP1	15:v:38:A:O2'	1.94	0.85
1:a:702:A:H61	25:A:1895:C:H5'	1.41	0.85
1:a:1305:G:HO2'	1:a:1306:A:H8	0.88	0.84
15:v:58:A:O2'	15:v:60:U:OP2	1.96	0.84
1:a:1081:A:O3'	4:e:22:LYS:HE2	1.78	0.84
1:a:921:U:O2	4:e:23:THR:HB	1.77	0.84
1:a:1404:C:O2'	1:a:1519:MA6:O2'	1.93	0.84
2:b:92:ASN:OD1	2:b:93:HIS:ND1	2.10	0.84
24:s:66:VAL:HG12	57:6:60:PHE:CD1	2.13	0.84
1:a:1081:A:C3'	4:e:22:LYS:HE2	2.07	0.83
1:a:1081:A:O5'	4:e:22:LYS:HG3	1.78	0.83
17:w:598:ASN:C	25:A:2660:A:O4'	2.21	0.83
25:A:585:G:N7	41:Q:5:ARG:NH1	2.26	0.83
1:a:529:G:C2'	1:a:530:G:H5''	2.08	0.83
1:a:1432:G:H5''	40:P:105:LYS:HG2	1.57	0.83
1:a:16:A:C6	1:a:919:A:C2	2.66	0.83
1:a:1081:A:O5'	4:e:22:LYS:CG	2.26	0.83
1:a:664:G:H22	1:a:741:G:H1	1.23	0.82
1:a:17:U:H4'	1:a:1079:G:O2'	1.79	0.82
1:a:518:C:N4	1:a:530:G:C2	2.47	0.82
42:R:14:VAL:HG21	42:R:98:ILE:HG13	1.61	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:o:88:ARG:HH22	25:A:716:A:P	1.99	0.82
1:a:18:C:C4'	1:a:1078:U:H3	1.91	0.82
1:a:1305:G:O2'	1:a:1306:A:H8	1.62	0.82
1:a:518:C:C5	1:a:530:G:C5'	2.38	0.82
1:a:18:C:C5'	1:a:1078:U:O2	2.28	0.81
5:f:24:ARG:CG	32:H:87:GLU:OE2	2.22	0.81
45:U:65:GLN:HB2	45:U:68:ASN:OD1	1.80	0.81
1:a:1492:A:N6	8:l:40:THR:CG2	2.41	0.81
1:a:518:C:N4	1:a:530:G:N1	2.29	0.81
25:A:2848:G:H2'	25:A:2867:G:N2	1.95	0.81
25:A:2333:A:H4'	25:A:2334:U:O5'	1.81	0.81
25:A:1103:A:H3'	25:A:1104:C:H5''	1.62	0.81
1:a:18:C:H4'	1:a:1078:U:H3	1.45	0.81
1:a:1493:A:C2'	16:x:19:U:O2'	2.29	0.81
25:A:1060:U:H5'	25:A:1062:G:H5'	1.63	0.81
17:w:567:ASP:CA	33:I:25:PRO:HG3	2.12	0.80
24:s:41:PRO:HD3	57:6:60:PHE:CE2	2.16	0.80
1:a:1081:A:H5''	4:e:22:LYS:HD2	1.64	0.80
1:a:1082:A:P	4:e:22:LYS:HZ1	2.04	0.80
1:a:1399:C:H4'	1:a:1400:C:H5''	0.81	0.80
1:a:1081:A:O5'	4:e:22:LYS:HB2	1.78	0.80
1:a:1493:A:O2'	16:x:19:U:O2'	1.99	0.79
28:D:13:ARG:HH11	40:P:55:HIS:HA	1.44	0.79
1:a:149:A:C4'	1:a:1446:A:N3	2.45	0.79
1:a:692:U:H5''	7:k:126:ARG:HH22	1.48	0.79
25:A:1845:G:N2	25:A:1895:C:O2	2.14	0.79
1:a:1399:C:N3	1:a:1401:G:C6	2.50	0.79
1:a:529:G:C5'	1:a:530:G:OP2	2.30	0.79
1:a:176:C:H5''	13:t:23:ARG:HH12	1.46	0.79
19:g:110:ARG:HH22	19:g:121:ASN:HB3	1.48	0.79
1:a:1405:G:C1'	1:a:1518:MA6:O2'	2.30	0.78
1:a:18:C:H5''	1:a:1078:U:O2	1.84	0.78
25:A:1936:A:H2	25:A:1943:U:H3	1.31	0.78
3:d:119:HIS:N	3:d:119:HIS:CD2	2.51	0.78
25:A:2220:U:H4'	32:H:97:ARG:HH21	1.48	0.78
7:k:55:ARG:HG2	19:g:150:PHE:CE2	2.19	0.78
43:S:53:SER:O	43:S:57:ASN:HB2	1.83	0.78
5:f:24:ARG:NH2	32:H:86:ASP:OD2	2.17	0.78
34:J:80:HIS:O	34:J:82:GLY:N	2.15	0.78
1:a:1297:G:O2'	1:a:1298:U:OP2	2.00	0.78
1:a:335:C:H4'	1:a:1434:A:C4'	2.15	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:212:G:H2'	1:a:213:G:H8	1.49	0.77
1:a:791:G:H22	1:a:1498:UR3:P	2.07	0.77
4:e:156:ARG:NH1	4:e:163:ILE:HA	1.99	0.77
29:E:146:VAL:HG12	29:E:185:LYS:HB2	1.65	0.77
56:5:87:GLU:HG2	56:5:95:LEU:HD12	1.66	0.77
1:a:1399:C:O4'	1:a:1400:C:H5'	1.85	0.77
25:A:1041:G:H1	25:A:1114:C:H42	1.31	0.77
1:a:919:A:O2'	1:a:920:U:H5'	1.85	0.77
1:a:1078:U:O2'	4:e:133:ILE:HG21	1.85	0.76
24:s:63:ASP:O	57:6:57:VAL:HG22	1.85	0.76
1:a:790:A:H5'	15:v:38:A:O3'	1.86	0.76
34:J:117:ALA:HA	34:J:120:ARG:HH21	1.49	0.76
27:C:106:PRO:HD2	27:C:109:LEU:HD22	1.66	0.76
1:a:1492:A:N6	8:l:40:THR:HG21	2.00	0.76
17:w:599:GLY:CA	25:A:2660:A:H1'	2.15	0.76
21:j:59:LYS:HE2	21:j:62:ARG:HH21	1.49	0.75
25:A:2345:G:H4'	25:A:2346:A:H5''	1.67	0.75
24:s:63:ASP:OD2	57:6:57:VAL:CG2	2.24	0.74
28:D:35:THR:OG1	28:D:49:GLN:HG2	1.86	0.74
1:a:345:C:OP1	40:P:38:ARG:CZ	2.34	0.74
9:o:44:GLU:HG2	9:o:45:HIS:CD2	2.18	0.74
5:f:24:ARG:HG2	32:H:87:GLU:OE2	1.88	0.74
25:A:1532:A:H2	25:A:1539:U:H3	1.34	0.74
7:k:49:SER:HA	7:k:68:ARG:HH11	1.51	0.74
7:k:60:PHE:HD2	19:g:149:ALA:HA	1.53	0.74
8:l:4:ASN:OD1	11:q:35:LYS:NZ	2.20	0.73
25:A:1022:G:H4'	25:A:1023:U:O5'	1.88	0.73
1:a:1493:A:H5''	25:A:1913:A:N1	2.04	0.73
1:a:1493:A:H5'	25:A:1913:A:C2	2.22	0.73
22:m:70:ARG:CD	57:6:50:ASP:OD1	2.36	0.73
1:a:693:G:C4	16:x:13:A:H1'	2.23	0.73
4:e:155:LYS:O	4:e:158:LYS:HE3	1.88	0.73
1:a:1399:C:C5'	1:a:1400:C:H5''	2.19	0.73
1:a:1499:A:C8	1:a:1519:MA6:H2	2.23	0.73
7:k:84:MET:SD	7:k:110:THR:OG1	2.47	0.72
19:g:26:VAL:HG22	19:g:42:VAL:HG21	1.70	0.72
1:a:531:U:O4	18:c:160:GLU:CB	2.37	0.72
25:A:2848:G:H2'	25:A:2867:G:H22	1.50	0.72
7:k:124:LYS:O	14:u:34:ARG:NH1	2.22	0.72
25:A:458:G:O2'	25:A:459:U:OP2	2.06	0.72
25:A:1090:A:H61	25:A:1101:U:H3	1.35	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1191:A:H5''	18:c:3:LYS:HE3	1.72	0.72
1:a:1397:C:P	1:a:1397:C:H6	2.12	0.72
10:p:23:ASP:HB3	10:p:26:ASN:ND2	2.05	0.72
25:A:2808:G:H4'	25:A:2809:A:O5'	1.88	0.72
49:Y:6:LEU:HD13	49:Y:56:LEU:HD22	1.72	0.72
1:a:1082:A:P	4:e:22:LYS:NZ	2.62	0.72
43:S:73:LYS:HB2	43:S:106:VAL:HB	1.71	0.72
36:L:62:PRO:HB2	54:3:29:ARG:HH11	1.55	0.72
25:A:572:A:OP2	42:R:80:ARG:NH2	2.22	0.71
25:A:1059:G:H22	33:I:128:ILE:HG12	1.53	0.71
1:a:530:G:O3'	1:a:530:G:OP1	2.09	0.71
25:A:704:G:H1'	25:A:727:A:N6	2.05	0.71
33:I:91:LYS:HG3	33:I:94:LYS:HE2	1.70	0.71
1:a:1499:A:C8	1:a:1519:MA6:N3	2.58	0.71
30:F:3:LEU:HA	30:F:6:TYR:HB3	1.73	0.71
52:1:8:ILE:HD13	52:1:24:LYS:HE3	1.71	0.71
40:P:33:GLU:HB2	40:P:36:LYS:HB2	1.71	0.71
35:K:69:VAL:HG21	35:K:104:THR:HG21	1.72	0.71
43:S:4:ILE:HG22	43:S:106:VAL:HG22	1.71	0.71
46:V:20:LEU:HD11	46:V:41:GLU:HG3	1.72	0.71
7:k:55:ARG:CG	19:g:150:PHE:CZ	2.74	0.71
1:a:15:G:C6	1:a:920:U:O2	2.43	0.70
45:U:32:LYS:HB3	45:U:63:ALA:HB1	1.73	0.70
2:b:183:PHE:HB3	2:b:197:PHE:HB2	1.74	0.70
25:A:2682:A:H61	25:A:2728:U:H1'	1.56	0.70
1:a:1402:4OC:CM4	16:x:18:G:OP2	2.39	0.70
1:a:1499:A:H5'	1:a:1519:MA6:C9	2.06	0.70
3:d:10:LEU:HD13	3:d:62:ARG:HD2	1.71	0.70
25:A:328:U:H4'	45:U:65:GLN:HE21	1.55	0.70
25:A:1188:U:C2'	25:A:1189:A:H5'	2.21	0.70
15:v:21:A:N6	15:v:46:A:H2'	2.07	0.70
25:A:2644:G:C2'	25:A:2645:G:H5'	2.22	0.70
2:b:53:LEU:HB3	2:b:219:THR:HG21	1.74	0.69
19:g:134:VAL:O	19:g:138:GLU:HG2	1.92	0.69
25:A:284:U:H3	25:A:356:G:H1	1.40	0.69
1:a:18:C:H4'	1:a:1078:U:O2	1.91	0.69
1:a:345:C:OP1	40:P:38:ARG:NH1	2.24	0.69
1:a:1405:G:O2'	1:a:1518:MA6:O2'	2.10	0.69
23:n:46:LEU:HG	24:s:12:LEU:HD21	1.74	0.69
1:a:107:G:O6	13:t:9:ARG:HD3	1.93	0.69
13:t:24:ARG:HG2	13:t:28:ARG:HH21	1.57	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:568:U:H1'	25:A:2030:6MZ:H9C1	1.72	0.69
4:e:93:VAL:HG11	4:e:139:THR:HG22	1.74	0.69
25:A:1341:G:N3	44:T:59:ASN:OD1	2.25	0.69
1:a:1396:A:H4'	1:a:1397:C:C5'	2.22	0.69
1:a:264:C:H4'	11:q:64:ARG:HD2	1.74	0.69
1:a:1081:A:C4'	4:e:22:LYS:HG3	2.22	0.69
1:a:1432:G:C5'	40:P:105:LYS:HG2	2.22	0.69
8:l:109:ARG:HB2	8:l:118:VAL:HG21	1.74	0.69
15:v:63:G:H2'	15:v:64:G:C8	2.28	0.69
23:n:49:GLN:N	23:n:49:GLN:HE21	1.91	0.69
25:A:1213:A:N6	25:A:1236:G:H1'	2.07	0.69
1:a:1399:C:H4'	1:a:1400:C:O5'	1.91	0.69
23:n:27:LYS:O	23:n:31:SER:HB2	1.93	0.69
24:s:5:LYS:HG3	24:s:6:LYS:HG2	1.75	0.69
25:A:910:A:H62	37:M:12:MET:HA	1.58	0.69
25:A:2133:G:H21	25:A:2158:A:H61	1.41	0.68
1:a:1080:A:C5'	4:e:20:VAL:CG2	2.66	0.68
53:2:12:ARG:HE	53:2:44:VAL:HG21	1.58	0.68
25:A:1046:A:H4'	56:5:61:ARG:HB3	1.75	0.68
1:a:1399:C:C4	1:a:1401:G:C6	2.81	0.68
4:e:98:ALA:HB2	4:e:123:LEU:HG	1.73	0.68
1:a:532:A:H3'	1:a:532:A:N3	2.07	0.68
1:a:1492:A:H2'	1:a:1492:A:N3	2.08	0.68
27:C:196:ASN:OD1	27:C:196:ASN:O	2.11	0.68
1:a:1422:G:OP1	35:K:48:PRO:CG	2.34	0.68
25:A:2331:G:H4'	47:W:39:THR:H	1.57	0.68
25:A:545:U:H3	25:A:548:G:H1	1.41	0.68
25:A:1565:C:O2'	25:A:1566:A:H8	1.77	0.68
25:A:776:G:H4'	25:A:777:G:O5'	1.94	0.68
24:s:63:ASP:O	57:6:57:VAL:CG2	2.42	0.68
25:A:107:G:H2'	25:A:108:G:H8	1.58	0.68
25:A:2339:C:H2'	25:A:2340:A:H8	1.59	0.68
25:A:1011:G:O2'	25:A:1013:C:H5''	1.93	0.67
25:A:1613:G:H4'	53:2:3:ARG:HE	1.58	0.67
7:k:60:PHE:CG	19:g:149:ALA:HA	2.28	0.67
21:j:40:ILE:HB	21:j:73:LEU:HB2	1.76	0.67
22:m:2:ARG:HD2	57:6:35:ASP:OD2	1.94	0.67
25:A:703:U:H2'	25:A:704:G:O4'	1.94	0.67
25:A:1055:G:H1	25:A:1104:C:N4	1.90	0.67
25:A:1478:G:H1	25:A:1513:U:H3	1.42	0.67
25:A:2291:U:H2'	25:A:2292:U:C6	2.29	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2759:G:H21	31:G:138:GLN:NE2	1.93	0.67
15:v:54:5MU:HN3	15:v:58:A:H62	1.42	0.67
21:j:52:LEU:HD21	21:j:59:LYS:HD2	1.77	0.67
27:C:165:ALA:HB3	27:C:172:THR:HB	1.76	0.67
7:k:60:PHE:CD2	19:g:149:ALA:CA	2.73	0.67
18:c:19:SER:HB3	18:c:21:TRP:HE1	1.60	0.67
25:A:1999:C:H5''	25:A:2723:C:O2'	1.95	0.67
25:A:2564:A:OP1	25:A:2648:G:H4'	1.95	0.67
11:q:13:SER:HB3	11:q:21:VAL:HG12	1.77	0.66
1:a:1518:MA6:H102	1:a:1519:MA6:N6	2.10	0.66
2:b:69:VAL:HB	2:b:162:VAL:HG13	1.78	0.66
25:A:2786:U:H2'	25:A:2787:C:H6	1.60	0.66
1:a:951:G:OP2	22:m:100:ARG:NH2	2.28	0.66
8:l:78:VAL:O	8:l:102:ASP:HB2	1.95	0.66
8:l:113:ARG:HB2	8:l:118:VAL:HB	1.77	0.66
20:i:34:LEU:HD11	20:i:47:VAL:HG21	1.76	0.66
1:a:530:G:H3'	1:a:530:G:N3	2.11	0.66
5:f:88:MET:HG2	12:r:64:LEU:HD21	1.77	0.66
22:m:88:LEU:HD12	22:m:91:ARG:HH21	1.60	0.66
35:K:40:LYS:HE3	35:K:57:VAL:HG12	1.76	0.66
1:a:203:G:H1'	1:a:465:A:H61	1.61	0.66
25:A:51:G:H4'	25:A:52:A:H5'	1.78	0.66
1:a:335:C:C5'	1:a:1434:A:H4'	2.26	0.66
4:e:135:VAL:O	4:e:139:THR:HG23	1.95	0.66
25:A:841:G:H2'	25:A:842:U:C6	2.31	0.66
27:C:48:ILE:HD11	27:C:51:ARG:HA	1.78	0.66
1:a:1144:G:N2	1:a:1146:A:H62	1.94	0.66
2:b:99:MET:HA	2:b:106:VAL:HG21	1.78	0.66
25:A:1530:G:N2	25:A:1542:U:H1'	2.11	0.66
23:n:54:ASP:O	23:n:56:SER:N	2.23	0.65
23:n:54:ASP:C	23:n:56:SER:H	2.04	0.65
30:F:28:PRO:HB2	30:F:168:LEU:HD22	1.77	0.65
8:l:75:GLU:CD	17:w:384:HIS:CA	2.67	0.65
25:A:5:A:H2'	25:A:6:A:H8	1.62	0.65
25:A:218:A:H8	25:A:218:A:OP2	1.79	0.65
25:A:1701:A:H2'	25:A:1702:G:H5'	1.78	0.65
30:F:140:ILE:HG22	30:F:142:TYR:H	1.60	0.65
1:a:246:A:H4'	1:a:247:G:OP1	1.96	0.65
1:a:1080:A:C4'	4:e:20:VAL:HB	2.17	0.65
1:a:1082:A:OP1	4:e:22:LYS:NZ	2.23	0.65
25:A:499:U:H5''	45:U:42:LYS:HE2	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:b:15:PHE:HB2	2:b:39:ILE:HG23	1.76	0.65
7:k:87:GLY:H	7:k:113:THR:HG22	1.62	0.65
25:A:503:A:H1'	25:A:506:G:OP2	1.96	0.65
25:A:948:C:O2	25:A:984:A:O2'	2.14	0.65
34:J:17:VAL:HG23	34:J:137:PRO:HB2	1.78	0.65
46:V:21:ARG:HA	46:V:25:LYS:O	1.95	0.65
8:l:45:ASN:O	8:l:46:SER:HB3	1.96	0.65
25:A:248:G:O5'	25:A:249:C:H5'	1.96	0.65
25:A:454:A:H4'	25:A:455:C:OP2	1.97	0.65
25:A:655:A:H4'	25:A:656:G:H5'	1.77	0.65
53:2:3:ARG:HG3	53:2:5:PHE:H	1.61	0.65
25:A:2788:C:H2'	25:A:2789:C:C6	2.32	0.65
33:I:101:SER:HB3	33:I:104:GLN:OE1	1.97	0.65
57:6:62:LYS:C	57:6:65:ASN:HD21	2.04	0.65
14:u:36:PHE:HB3	14:u:40:PRO:HD3	1.77	0.65
21:j:35:GLN:HG2	21:j:78:GLU:HG2	1.79	0.65
1:a:531:U:H1'	1:a:532:A:O5'	1.96	0.65
1:a:1081:A:H5'	4:e:22:LYS:HE2	1.78	0.65
23:n:19:TYR:O	23:n:22:LYS:HB3	1.97	0.65
25:A:5:A:H2'	25:A:6:A:C8	2.31	0.65
25:A:2428:G:H5''	25:A:2429:G:O5'	1.96	0.65
1:a:1493:A:H4'	1:a:1494:G:OP2	1.97	0.65
5:f:24:ARG:NE	32:H:86:ASP:HB3	2.11	0.65
25:A:1212:G:O2'	25:A:1236:G:N2	2.29	0.65
25:A:1930:G:O2'	25:A:1931:U:P	2.55	0.65
38:N:69:ARG:O	38:N:71:ARG:N	2.28	0.65
1:a:1474:U:H4'	25:A:1701:A:N3	2.12	0.65
25:A:2131:U:O5'	25:A:2133:G:H4'	1.97	0.65
1:a:1178:G:N2	1:a:1181:G:OP2	2.31	0.64
25:A:2800:A:H3'	25:A:2801:G:H5'	1.77	0.64
25:A:753:A:H8	25:A:753:A:OP2	1.79	0.64
1:a:1397:C:H6	1:a:1397:C:O5'	1.79	0.64
25:A:704:G:H2'	25:A:726:G:N2	2.10	0.64
1:a:618:C:H1'	10:p:14:ARG:HH12	1.62	0.64
32:H:9:VAL:HB	32:H:13:GLY:HA3	1.78	0.64
3:d:117:VAL:HG22	3:d:122:ILE:HG13	1.78	0.64
10:p:14:ARG:HE	10:p:42:ILE:HD12	1.62	0.64
2:b:98:GLY:O	2:b:102:ASN:HB3	1.97	0.64
6:h:94:VAL:HB	6:h:99:GLY:O	1.97	0.64
21:j:13:PHE:O	21:j:70:HIS:CE1	2.50	0.64
34:J:117:ALA:HA	34:J:120:ARG:NH2	2.12	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2537:U:H2'	25:A:2538:C:C6	2.33	0.64
1:a:1080:A:H5'	4:e:20:VAL:HG21	1.79	0.64
1:a:533:A:H3'	1:a:533:A:OP2	1.98	0.64
2:b:41:ASN:HD21	2:b:43:GLU:HB2	1.63	0.64
22:m:24:VAL:HG23	22:m:28:ARG:HB3	1.80	0.64
33:I:122:GLU:O	33:I:125:THR:HB	1.97	0.64
51:0:54:ILE:HG13	51:0:56:LYS:HB3	1.80	0.64
1:a:15:G:O6	1:a:920:U:C2	2.51	0.64
25:A:2584:U:H3'	25:A:2585:U:H5''	1.80	0.64
25:A:189:G:H1	25:A:205:G:HO2'	1.45	0.63
1:a:54:C:H2'	1:a:352:C:H41	1.63	0.63
1:a:1086:U:H3	1:a:1099:G:H22	1.45	0.63
3:d:115:GLN:NE2	3:d:119:HIS:HE1	1.93	0.63
20:i:94:ARG:HA	20:i:97:LEU:HB3	1.80	0.63
25:A:1028:A:N6	25:A:1125:G:H2'	2.13	0.63
1:a:148:G:H4'	1:a:1447:A:H4'	1.79	0.63
7:k:99:LEU:O	7:k:104:PHE:HB2	1.98	0.63
11:q:30:HIS:HD2	11:q:33:TYR:H	1.47	0.63
25:A:923:G:H2'	25:A:924:G:H8	1.63	0.63
3:d:119:HIS:CD2	3:d:119:HIS:H	2.14	0.63
7:k:23:HIS:HB3	7:k:30:ILE:HG23	1.80	0.63
20:i:20:ILE:HD11	20:i:60:LEU:HD13	1.81	0.63
25:A:1186:G:H2'	25:A:1187:G:O4'	1.99	0.63
24:s:9:PHE:HE2	24:s:36:ARG:HG3	1.63	0.63
25:A:120:U:H5''	25:A:122:G:OP2	1.98	0.63
25:A:859:G:O2'	25:A:860:U:P	2.56	0.63
1:a:1064:G:H1'	1:a:1190:G:N2	2.14	0.63
25:A:2097:A:H2'	25:A:2098:U:O4'	1.98	0.63
4:e:10:LEU:HD22	4:e:67:ARG:HH22	1.64	0.62
25:A:2712:C:O2'	25:A:2713:U:H5'	1.99	0.62
7:k:80:ASN:HB3	7:k:105:ARG:HB2	1.81	0.62
11:q:58:VAL:HG23	11:q:77:VAL:HA	1.80	0.62
11:q:61:ARG:NH1	11:q:73:THR:HB	2.13	0.62
21:j:36:VAL:HG22	21:j:38:GLY:H	1.64	0.62
26:B:94:A:OP1	46:V:19:ARG:HD3	1.99	0.62
44:T:58:VAL:HG22	44:T:85:VAL:HG13	1.80	0.62
1:a:1492:A:N6	8:l:40:THR:HG22	2.14	0.62
7:k:55:ARG:CG	19:g:150:PHE:CE2	2.82	0.62
25:A:370:G:O2'	25:A:424:G:OP1	2.17	0.62
25:A:2394:C:H5''	36:L:63:LYS:HE3	1.81	0.62
25:A:2867:G:O2'	25:A:2868:A:H8	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:148:G:O2'	1:a:1447:A:C1'	2.47	0.62
25:A:404:A:H1'	25:A:406:G:C4	2.33	0.62
25:A:947:A:HO2'	25:A:984:A:H2	1.47	0.62
25:A:1188:U:H2'	25:A:1189:A:H5'	1.82	0.62
7:k:75:GLU:C	7:k:77:GLY:H	2.08	0.62
36:L:93:ASN:O	36:L:95:LEU:N	2.30	0.62
15:v:56:C:O2'	30:F:74:ALA:N	2.32	0.62
1:a:791:G:N2	1:a:1498:UR3:P	2.71	0.62
1:a:1505:G:H4'	1:a:1506:U:O5'	1.98	0.62
56:5:73:LYS:HB3	56:5:117:LEU:HD11	1.81	0.62
1:a:1081:A:C5'	4:e:22:LYS:HE2	2.29	0.62
18:c:110:LEU:HD13	18:c:203:LYS:HE3	1.81	0.62
19:g:67:ASN:HB3	19:g:129:ASN:HB3	1.81	0.62
26:B:118:C:H2'	26:B:119:A:C8	2.35	0.62
33:I:33:ASN:HB2	33:I:64:ARG:HH22	1.64	0.62
15:v:19:G:N2	15:v:56:C:N3	2.44	0.62
13:t:27:MET:HE1	13:t:66:ILE:HD11	1.82	0.62
25:A:839:U:H2'	25:A:840:C:C6	2.34	0.62
25:A:1062:G:H22	33:I:134:SER:HB2	1.65	0.62
29:E:145:ASP:HA	29:E:166:LYS:HB3	1.81	0.62
38:N:58:ASP:OD1	38:N:63:ARG:NH2	2.33	0.62
1:a:1405:G:C2'	1:a:1518:MA6:HO2'	2.12	0.61
25:A:1385:A:H4'	25:A:1385:A:OP1	1.99	0.61
25:A:2786:U:H2'	25:A:2787:C:C6	2.35	0.61
1:a:149:A:C2'	1:a:1446:A:C2	2.82	0.61
25:A:1019:U:H3	25:A:1142:A:N6	1.98	0.61
25:A:2346:A:H3'	25:A:2347:C:C5'	2.31	0.61
1:a:933:G:N7	19:g:2:ARG:NH2	2.42	0.61
6:h:28:SER:HB3	6:h:56:PRO:HB2	1.81	0.61
29:E:1:MET:HE3	29:E:20:GLY:HA3	1.83	0.61
1:a:113:G:H1'	1:a:354:G:H5'	1.82	0.61
1:a:1081:A:C5'	4:e:22:LYS:CE	2.71	0.61
1:a:1305:G:O2'	1:a:1306:A:O5'	2.18	0.61
41:Q:70:GLN:C	41:Q:71:ASN:HD22	2.08	0.61
17:w:598:ASN:O	25:A:2660:A:C1'	2.48	0.61
40:P:59:THR:HG22	40:P:72:VAL:HG12	1.82	0.61
1:a:1318:A:H1'	24:s:36:ARG:HH21	1.65	0.61
23:n:16:ALA:HA	23:n:55:SER:HA	1.83	0.61
25:A:1542:U:H2'	25:A:1543:G:O4'	1.99	0.61
47:W:33:ILE:HD11	47:W:78:ILE:HD11	1.82	0.61
24:s:30:LEU:HB2	24:s:48:ILE:HG22	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:15:G:N1	1:a:920:U:C2	2.63	0.61
1:a:518:C:C4	1:a:530:G:C6	2.89	0.61
4:e:54:GLU:HG2	4:e:56:PRO:HD2	1.82	0.61
25:A:704:G:H1'	25:A:727:A:H61	1.64	0.61
25:A:1081:U:H4'	33:I:123:ALA:HB1	1.81	0.61
42:R:82:HIS:O	42:R:82:HIS:ND1	2.31	0.61
25:A:242:G:HO2'	25:A:243:U:P	2.23	0.61
25:A:1816:C:N4	27:C:34:GLU:OE2	2.33	0.61
3:d:144:ILE:HD13	3:d:177:MET:HB3	1.83	0.61
25:A:2074:U:H2'	25:A:2075:U:C6	2.36	0.61
38:N:73:ASN:HA	38:N:76:VAL:HG12	1.80	0.61
55:4:36:ARG:HG2	55:4:37:GLN:H	1.66	0.61
1:a:1329:A:H5''	22:m:25:GLY:H	1.66	0.60
1:a:1499:A:C5'	1:a:1519:MA6:H92	2.07	0.60
6:h:86:LYS:HD2	6:h:90:GLU:HG2	1.83	0.60
28:D:54:ALA:HA	28:D:76:GLY:HA2	1.83	0.60
56:5:53:ARG:HB3	56:5:55:VAL:HG13	1.82	0.60
1:a:1397:C:P	1:a:1397:C:C6	2.94	0.60
1:a:1404:C:C2'	1:a:1519:MA6:O2'	2.48	0.60
25:A:2517:C:O3'	25:A:2518:A:H3'	2.00	0.60
43:S:59:GLU:HA	43:S:64:ALA:HA	1.83	0.60
22:m:2:ARG:CD	57:6:35:ASP:OD2	2.48	0.60
25:A:2104:C:H2'	25:A:2105:U:C6	2.36	0.60
25:A:2267:A:H5''	25:A:2268:A:H5'	1.83	0.60
25:A:2391:G:H2'	25:A:2424:C:H41	1.65	0.60
28:D:4:LEU:HD23	28:D:29:VAL:HG11	1.82	0.60
1:a:1432:G:H1'	1:a:1468:A:N6	2.16	0.60
25:A:878:A:H3'	25:A:879:G:H8	1.64	0.60
25:A:2655:G:O2'	25:A:2656:U:P	2.59	0.60
37:M:21:ALA:HB1	37:M:100:LYS:HD3	1.83	0.60
5:f:15:SER:HA	5:f:18:VAL:HG23	1.82	0.60
25:A:372:G:O2'	25:A:373:U:P	2.60	0.60
27:C:164:VAL:HG21	27:C:180:MET:HE1	1.83	0.60
1:a:399:G:H2'	1:a:400:C:C6	2.36	0.60
1:a:1256:A:H1'	1:a:1258:G:C4	2.36	0.60
25:A:242:G:O2'	25:A:243:U:P	2.59	0.60
1:a:1064:G:H4'	1:a:1065:U:OP1	2.01	0.60
25:A:144:A:H4'	44:T:2:ILE:HD11	1.83	0.60
1:a:148:G:O2'	1:a:1447:A:C4'	2.50	0.60
1:a:1225:A:H1'	24:s:77:ARG:HD2	1.83	0.60
3:d:173:ASP:C	3:d:175:GLY:H	2.10	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:221:A:N1	25:A:265:A:O2'	2.33	0.60
46:V:76:ASP:HB3	46:V:90:ASP:HB2	1.83	0.60
25:A:546:U:H2'	25:A:547:A:H4'	1.84	0.60
1:a:78:A:H2'	1:a:79:G:O4'	2.01	0.59
1:a:151:A:H2'	1:a:152:A:O4'	2.01	0.59
1:a:790:A:O4'	15:v:38:A:H4'	2.03	0.59
25:A:1086:A:N3	25:A:1086:A:H2'	2.17	0.59
38:N:28:LEU:HD23	38:N:48:VAL:HG21	1.82	0.59
1:a:1082:A:OP2	4:e:22:LYS:HE2	1.92	0.59
1:a:1402:4OC:HM41	16:x:18:G:OP2	2.03	0.59
2:b:115:ASP:O	2:b:119:GLN:HG2	2.02	0.59
20:i:98:ARG:C	20:i:100:ALA:H	2.10	0.59
25:A:1490:A:H62	27:C:73:ILE:HG23	1.67	0.59
2:b:70:GLY:HA3	2:b:79:VAL:HG21	1.84	0.59
19:g:87:PRO:HG3	19:g:148:LYS:HA	1.84	0.59
25:A:1026:G:H2'	25:A:1027:A:H8	1.65	0.59
25:A:1386:C:H2'	25:A:1387:A:C8	2.37	0.59
49:Y:24:GLU:O	49:Y:28:LEU:HB2	2.01	0.59
5:f:14:GLN:OE1	5:f:83:ALA:HA	2.02	0.59
9:o:88:ARG:HD2	25:A:714:U:H5	1.68	0.59
25:A:100:U:H4'	25:A:101:A:O4'	2.01	0.59
25:A:437:U:H2'	25:A:438:G:H8	1.67	0.59
25:A:639:U:H2'	25:A:640:C:C6	2.38	0.59
3:d:119:HIS:N	3:d:119:HIS:HD2	2.00	0.59
13:t:80:ALA:O	13:t:84:LYS:HB2	2.01	0.59
18:c:179:ALA:HB1	18:c:202:PHE:HE1	1.68	0.59
21:j:13:PHE:O	21:j:70:HIS:HE1	1.85	0.59
25:A:476:G:N1	25:A:479:A:OP2	2.36	0.59
25:A:1019:U:H2'	25:A:1020:A:H8	1.66	0.59
25:A:2427:C:H5'	25:A:2429:G:H5'	1.84	0.59
28:D:121:THR:HG21	28:D:143:PRO:HB3	1.85	0.59
1:a:222:C:H2'	1:a:223:A:H8	1.67	0.59
1:a:518:C:C4	1:a:530:G:C5	2.90	0.59
8:l:98:ARG:HB2	8:l:116:TYR:HA	1.85	0.59
21:j:7:ARG:HB3	21:j:101:SER:HB2	1.84	0.59
25:A:2238:G:H2'	25:A:2238:G:N3	2.17	0.59
33:I:135:MET:HB2	33:I:137:LEU:HG	1.85	0.59
46:V:4:ILE:HD13	46:V:47:VAL:HG22	1.84	0.59
18:c:19:SER:HB3	18:c:21:TRP:NE1	2.18	0.59
25:A:2233:U:H2'	25:A:2234:G:C8	2.38	0.59
25:A:283:G:H1	25:A:357:C:H42	1.51	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:479:A:H4'	25:A:480:A:OP1	2.03	0.59
25:A:633:A:H2'	25:A:634:C:H5'	1.85	0.59
25:A:1779:U:H5	25:A:1784:A:N7	2.01	0.59
1:a:1130:A:N6	1:a:1144:G:H1'	2.14	0.59
3:d:103:ARG:HH12	3:d:110:ARG:HH12	1.51	0.59
4:e:86:GLY:O	4:e:138:ALA:HB1	2.03	0.59
24:s:66:VAL:HG12	57:6:60:PHE:CG	2.37	0.59
25:A:84:A:H4'	25:A:85:G:O5'	2.03	0.59
25:A:2267:A:H5''	25:A:2268:A:C5'	2.33	0.59
25:A:2557:G:H2'	25:A:2558:C:C6	2.38	0.59
1:a:530:G:C5'	1:a:530:G:N3	2.66	0.59
4:e:23:THR:HA	4:e:28:ARG:HA	1.85	0.59
9:o:87:ARG:HD3	9:o:88:ARG:H	1.67	0.59
25:A:847:U:O2	25:A:934:U:H1'	2.03	0.59
25:A:2115:G:H4'	25:A:2166:U:O2	2.03	0.59
25:A:2305:U:H5''	30:F:130:GLY:HA3	1.85	0.59
33:I:102:ARG:HA	33:I:129:GLU:OE2	2.03	0.59
1:a:531:U:H1'	1:a:532:A:P	2.43	0.58
27:C:203:VAL:O	27:C:205:GLY:N	2.36	0.58
6:h:88:LYS:HE2	6:h:119:GLY:HA2	1.84	0.58
54:3:30:HIS:ND1	54:3:31:ILE:HG13	2.18	0.58
1:a:518:C:H5	1:a:530:G:H5''	1.60	0.58
1:a:1306:A:N6	1:a:1331:G:H1'	2.18	0.58
1:a:1432:G:O5'	40:P:105:LYS:HG3	2.03	0.58
6:h:42:GLU:HG2	6:h:100:ILE:HG12	1.86	0.58
14:u:16:ARG:HH21	14:u:19:LYS:HE2	1.66	0.58
25:A:265:A:H4'	25:A:266:G:OP1	2.03	0.58
27:C:244:VAL:HG12	27:C:250:GLN:HA	1.86	0.58
29:E:117:ARG:HH12	36:L:2:ARG:HG2	1.68	0.58
36:L:78:ARG:HB2	36:L:81:ASP:OD1	2.04	0.58
1:a:518:C:OP1	17:w:514:ALA:CA	2.51	0.58
5:f:32:ALA:HB2	5:f:70:VAL:HG11	1.86	0.58
11:q:18:LYS:HG2	11:q:46:HIS:HE1	1.68	0.58
15:v:57:A:O4'	30:F:74:ALA:HB2	2.03	0.58
19:g:144:ALA:O	19:g:146:ALA:N	2.36	0.58
25:A:2326:C:O2'	25:A:2327:A:OP1	2.20	0.58
30:F:134:GLN:CD	30:F:134:GLN:H	2.12	0.58
35:K:109:SER:O	35:K:111:LYS:N	2.35	0.58
22:m:7:ASN:ND2	22:m:17:ALA:O	2.32	0.58
25:A:2271:G:H5'	47:W:16:ARG:HD3	1.84	0.58
1:a:599:C:H2'	1:a:600:A:H8	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:271:G:H4'	25:A:272:A:OP1	2.03	0.58
25:A:495:G:H1'	43:S:57:ASN:OD1	2.04	0.58
38:N:45:ARG:HG2	38:N:95:THR:HG21	1.86	0.58
1:a:310:G:H5''	10:p:31:ARG:HB2	1.86	0.58
1:a:409:U:OP1	3:d:23:GLY:HA3	2.04	0.58
7:k:60:PHE:HB3	19:g:149:ALA:HA	1.86	0.58
19:g:1:PRO:HG2	19:g:4:ARG:HB2	1.85	0.58
25:A:302:C:H2'	25:A:303:G:H8	1.69	0.58
25:A:466:A:OP1	53:2:34:ARG:NH1	2.37	0.58
25:A:2285:C:OP2	52:1:5:ARG:NH1	2.37	0.58
3:d:60:VAL:HG21	3:d:199:ILE:HD11	1.85	0.58
3:d:101:VAL:HG13	3:d:106:PHE:HB2	1.86	0.58
24:s:30:LEU:H	24:s:48:ILE:HA	1.69	0.58
25:A:434:U:O2'	25:A:436:C:N4	2.36	0.58
25:A:1956:U:H2'	25:A:1957:C:H5'	1.86	0.58
25:A:2427:C:H5''	25:A:2428:G:OP1	2.03	0.58
25:A:2554:U:H2'	25:A:2555:U:C6	2.39	0.58
1:a:1129:C:H2'	1:a:1139:G:N7	2.18	0.58
19:g:137:ARG:NH1	19:g:141:HIS:HE1	2.02	0.58
25:A:289:G:H2'	25:A:290:U:O4'	2.04	0.58
13:t:26:MET:HE1	13:t:56:ILE:HG12	1.86	0.57
20:i:80:HIS:HE1	20:i:84:ARG:HH11	1.51	0.57
40:P:29:VAL:HG22	40:P:80:VAL:HA	1.85	0.57
40:P:31:VAL:HG13	40:P:38:ARG:HB3	1.86	0.57
24:s:63:ASP:OD1	57:6:57:VAL:CG2	2.29	0.57
25:A:770:G:H5''	53:2:10:LEU:HD23	1.86	0.57
31:G:41:GLU:HA	31:G:54:ARG:HH21	1.69	0.57
25:A:2391:G:H2'	25:A:2424:C:N4	2.20	0.57
29:E:88:ARG:O	29:E:90:GLN:N	2.37	0.57
29:E:148:ILE:O	29:E:169:VAL:HA	2.04	0.57
1:a:690:G:O6	7:k:52:ARG:NH2	2.38	0.57
25:A:686:U:O2'	53:2:5:PHE:HA	2.05	0.57
25:A:2328:A:H2'	25:A:2329:U:C6	2.39	0.57
25:A:2591:C:H2'	25:A:2592:G:C8	2.39	0.57
1:a:1404:C:HO2'	1:a:1519:MA6:HO2'	1.32	0.57
25:A:1019:U:H2'	25:A:1020:A:C8	2.40	0.57
25:A:1614:A:N1	43:S:93:ALA:HB2	2.20	0.57
44:T:13:ALA:HB3	44:T:33:LYS:HD3	1.86	0.57
2:b:16:GLY:O	2:b:17:HIS:HB2	2.05	0.57
24:s:15:LEU:O	24:s:19:GLU:HG2	2.05	0.57
25:A:301:G:H4'	25:A:302:C:OP1	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2776:A:H4'	25:A:2777:G:O5'	2.04	0.57
56:5:27:VAL:HG13	56:5:83:ALA:HB3	1.87	0.57
1:a:1207:2MG:H8	1:a:1207:2MG:H5''	1.69	0.57
14:u:28:LEU:C	14:u:30:GLU:H	2.12	0.57
19:g:68:VAL:HG23	19:g:99:ALA:HB1	1.87	0.57
25:A:2867:G:O2'	25:A:2868:A:C8	2.57	0.57
29:E:3:LEU:HD13	29:E:120:VAL:HG21	1.85	0.57
38:N:44:LEU:HD23	38:N:113:ILE:HD13	1.87	0.57
49:Y:2:LYS:HB3	49:Y:52:ARG:HD3	1.87	0.57
1:a:693:G:N9	16:x:13:A:H1'	2.19	0.57
1:a:1464:U:H2'	1:a:1465:A:H8	1.69	0.57
25:A:2644:G:H2'	25:A:2645:G:H5'	1.86	0.57
33:I:74:PRO:HG2	33:I:77:VAL:HG22	1.87	0.57
1:a:149:A:H4'	1:a:1446:A:H1'	1.86	0.57
1:a:327:A:O2'	1:a:328:C:H4'	2.04	0.57
25:A:281:C:N3	25:A:359:G:N2	2.53	0.57
25:A:1283:G:H1'	25:A:1329:U:O2	2.05	0.57
25:A:2518:A:H2'	25:A:2518:A:N3	2.20	0.57
34:J:36:LEU:O	34:J:51:GLY:HA3	2.05	0.57
34:J:102:GLU:HG3	34:J:119:PHE:HZ	1.69	0.57
43:S:3:THR:HG21	43:S:58:ALA:HB2	1.87	0.57
1:a:15:G:C6	1:a:920:U:C2	2.93	0.57
18:c:84:GLU:HG3	18:c:87:ARG:HH22	1.68	0.57
30:F:141:ASP:HB2	30:F:144:LYS:HD3	1.85	0.57
1:a:518:C:C5	1:a:530:G:C4	2.92	0.56
20:i:83:THR:HG21	20:i:102:PHE:HB3	1.87	0.56
25:A:302:C:H2'	25:A:303:G:C8	2.39	0.56
25:A:2297:A:N1	25:A:2321:U:H5	2.03	0.56
20:i:18:VAL:HG22	20:i:64:ILE:HG23	1.86	0.56
1:a:1178:G:O2'	1:a:1180:A:N7	2.38	0.56
1:a:1200:C:H5''	1:a:1201:A:H3'	1.87	0.56
1:a:1493:A:C5'	25:A:1913:A:H2	1.99	0.56
2:b:65:LYS:HD2	2:b:153:MET:HG3	1.87	0.56
5:f:32:ALA:HB1	5:f:67:PRO:HD2	1.87	0.56
5:f:36:ILE:HD12	5:f:64:VAL:HB	1.87	0.56
9:o:44:GLU:O	9:o:46:LYS:N	2.37	0.56
17:w:598:ASN:O	25:A:2660:A:C4'	2.52	0.56
21:j:57:VAL:HG22	21:j:58:ASN:H	1.69	0.56
22:m:78:ARG:CD	57:6:56:ARG:HH21	2.18	0.56
25:A:204:A:H4'	25:A:205:G:OP1	2.06	0.56
25:A:1689:A:H2'	25:A:1690:A:C8	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2283:C:OP2	25:A:2390:U:H5	1.89	0.56
36:L:132:ARG:HG3	36:L:142:ILE:HD12	1.86	0.56
56:5:34:THR:O	56:5:37:LYS:HB3	2.05	0.56
1:a:390:U:H4'	10:p:28:ARG:HH22	1.69	0.56
1:a:1432:G:O3'	40:P:105:LYS:HD3	2.05	0.56
2:b:153:MET:HG2	2:b:155:GLY:H	1.69	0.56
21:j:22:THR:HG21	21:j:39:PRO:HB3	1.86	0.56
22:m:7:ASN:HB2	22:m:21:ILE:HG12	1.86	0.56
25:A:1858:A:N6	25:A:1884:G:O2'	2.38	0.56
35:K:21:CYS:HA	35:K:41:ILE:HG22	1.87	0.56
53:2:12:ARG:NE	53:2:44:VAL:HG21	2.19	0.56
5:f:13:ASP:OD1	5:f:14:GLN:N	2.38	0.56
24:s:10:ILE:HG12	24:s:40:PHE:HE2	1.70	0.56
25:A:290:U:H2'	25:A:291:G:C8	2.41	0.56
25:A:368:A:H2'	25:A:369:U:O4'	2.06	0.56
25:A:394:C:H2'	25:A:395:U:O4'	2.05	0.56
25:A:630:G:N2	25:A:633:A:OP2	2.34	0.56
37:M:11:LYS:HD2	37:M:86:LYS:HG2	1.88	0.56
1:a:1428:A:H2'	1:a:1429:A:O4'	2.06	0.56
1:a:1496:C:O2	1:a:1517:G:N2	2.36	0.56
4:e:80:LEU:HD13	4:e:122:VAL:HG11	1.87	0.56
18:c:63:ILE:O	18:c:98:ALA:HA	2.06	0.56
25:A:1199:U:H1'	41:Q:3:VAL:HG22	1.88	0.56
29:E:88:ARG:HD3	29:E:89:PRO:HD2	1.86	0.56
1:a:1059:C:O3'	23:n:85:ARG:NH2	2.39	0.56
1:a:1169:A:H2'	1:a:1170:A:C8	2.41	0.56
25:A:172:A:H2'	25:A:173:A:C8	2.40	0.56
25:A:859:G:O2'	25:A:860:U:OP2	2.23	0.56
25:A:969:G:H2'	25:A:970:U:C6	2.41	0.56
56:5:56:ARG:HD3	56:5:81:LEU:HD21	1.87	0.56
1:a:244:U:O4	1:a:906:A:H1'	2.05	0.56
1:a:792:A:H4'	1:a:793:U:O5'	2.05	0.56
1:a:1464:U:H2'	1:a:1465:A:C8	2.41	0.56
25:A:861:A:H2'	25:A:862:G:O4'	2.05	0.56
25:A:1396:U:H5''	25:A:1397:U:OP2	2.06	0.56
25:A:1869:G:H1'	25:A:1872:A:N6	2.20	0.56
25:A:2345:G:H4'	25:A:2346:A:C5'	2.36	0.56
35:K:40:LYS:NZ	35:K:89:ASN:OD1	2.38	0.56
1:a:1512:U:H2'	1:a:1513:A:C8	2.41	0.56
4:e:149:PRO:HA	4:e:152:VAL:HG22	1.87	0.56
12:r:40:PRO:HB2	12:r:42:ARG:HG2	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1038:C:H2'	1:a:1039:G:C8	2.40	0.56
25:A:1847:G:H21	25:A:1848:A:H62	1.54	0.56
1:a:1005:A:H2'	1:a:1006:G:O4'	2.06	0.55
2:b:202:ASN:ND2	2:b:203:ASP:H	2.04	0.55
13:t:14:GLU:HA	13:t:17:ARG:HG2	1.87	0.55
25:A:162:U:O2'	25:A:163:C:H5'	2.06	0.55
28:D:1:MET:HG2	28:D:205:PRO:HG2	1.88	0.55
45:U:14:THR:OG1	45:U:68:ASN:ND2	2.38	0.55
1:a:1118:U:H2'	1:a:1119:C:H6	1.71	0.55
2:b:117:GLU:HA	2:b:140:LEU:HD11	1.88	0.55
25:A:712:G:H2'	25:A:713:G:H5'	1.89	0.55
25:A:1222:U:H2'	25:A:1223:G:C8	2.41	0.55
1:a:1346:A:H1'	1:a:1348:U:C2	2.40	0.55
1:a:144:G:H2'	1:a:145:G:O4'	2.07	0.55
1:a:790:A:H61	1:a:1498:UR3:P	2.29	0.55
1:a:791:G:C2	1:a:1498:UR3:OP1	2.59	0.55
1:a:1432:G:H1'	1:a:1468:A:H62	1.72	0.55
4:e:92:ARG:HB2	4:e:127:TYR:HB2	1.87	0.55
22:m:78:ARG:NE	57:6:56:ARG:HH21	2.04	0.55
22:m:78:ARG:HD2	57:6:56:ARG:HH21	1.70	0.55
25:A:1040:A:H2	25:A:1115:G:H22	1.54	0.55
27:C:162:GLN:OE1	27:C:174:ARG:NH2	2.40	0.55
35:K:121:GLU:HG2	35:K:122:VAL:HG23	1.86	0.55
43:S:56:ALA:HA	43:S:59:GLU:HG2	1.87	0.55
46:V:42:LEU:HD13	46:V:47:VAL:HG21	1.86	0.55
1:a:1144:G:H21	1:a:1146:A:H62	1.53	0.55
2:b:46:VAL:HA	2:b:49:PHE:CE2	2.41	0.55
7:k:17:ASP:HA	7:k:78:ILE:HG23	1.87	0.55
25:A:1251:C:OP2	41:Q:5:ARG:HD2	2.06	0.55
25:A:1315:C:H2'	25:A:1316:U:H6	1.71	0.55
25:A:2341:G:H2'	25:A:2342:C:O4'	2.07	0.55
36:L:14:LYS:O	36:L:16:GLY:N	2.39	0.55
53:2:24:THR:HG23	53:2:27:GLY:H	1.70	0.55
1:a:86:G:H5''	1:a:87:C:OP1	2.06	0.55
19:g:12:LEU:HD12	19:g:13:PRO:HD2	1.89	0.55
25:A:277:G:H1'	25:A:361:G:H1	1.71	0.55
25:A:1857:G:H2'	25:A:1884:G:N2	2.21	0.55
26:B:118:C:H2'	26:B:119:A:H8	1.70	0.55
3:d:28:ASP:CG	3:d:29:THR:H	2.15	0.55
25:A:373:U:O2'	25:A:423:A:H1'	2.07	0.55
25:A:2339:C:H2'	25:A:2340:A:C8	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2469:A:N6	25:A:2481:G:O2'	2.40	0.55
33:I:33:ASN:HB2	33:I:64:ARG:HH12	1.72	0.55
38:N:34:ILE:HG13	38:N:113:ILE:HG23	1.88	0.55
56:5:88:HIS:HB2	56:5:89:PRO:HD3	1.88	0.55
1:a:767:A:H2'	1:a:768:A:O4'	2.07	0.55
1:a:1079:G:H5''	4:e:49:TYR:CZ	2.42	0.55
5:f:24:ARG:NH2	32:H:86:ASP:CG	2.64	0.55
15:v:21:A:H61	15:v:46:A:H2'	1.68	0.55
24:s:20:LYS:HA	24:s:23:GLU:HG2	1.89	0.55
25:A:1028:A:H61	25:A:1125:G:H2'	1.71	0.55
25:A:1434:A:H2'	25:A:1435:G:C8	2.42	0.55
27:C:154:ALA:HB2	27:C:161:VAL:HG23	1.88	0.55
30:F:116:LEU:HB2	30:F:175:PRO:HB2	1.87	0.55
56:5:37:LYS:HG3	56:5:41:LEU:HD12	1.88	0.55
1:a:1256:A:H1'	1:a:1258:G:C5	2.41	0.55
3:d:195:ASN:OD1	3:d:197:HIS:HB3	2.07	0.55
25:A:468:G:H2'	25:A:469:G:H5'	1.88	0.55
25:A:2648:G:H2'	25:A:2649:C:O4'	2.06	0.55
5:f:40:GLU:OE2	5:f:100:SER:HB2	2.06	0.55
25:A:1179:G:C4	25:A:1180:U:H1'	2.42	0.55
25:A:1434:A:H2'	25:A:1435:G:H8	1.71	0.55
56:5:29:ASP:HB2	56:5:56:ARG:HH12	1.72	0.55
1:a:414:A:OP2	1:a:428:G:N2	2.29	0.54
25:A:1405:U:H2'	25:A:1406:U:C6	2.42	0.54
25:A:1794:A:H2'	25:A:1795:C:C6	2.42	0.54
28:D:49:GLN:HA	28:D:80:TRP:O	2.07	0.54
5:f:92:THR:OG1	5:f:93:LYS:N	2.39	0.54
33:I:11:GLN:NE2	33:I:54:ILE:O	2.41	0.54
1:a:16:A:C2	1:a:1080:A:C2	2.84	0.54
1:a:109:A:C6	1:a:326:G:C6	2.94	0.54
1:a:575:G:O2'	1:a:821:G:H5'	2.07	0.54
1:a:702:A:N1	25:A:1895:C:O4'	2.40	0.54
1:a:1137:C:O2'	1:a:1138:G:N2	2.40	0.54
10:p:6:LEU:HB3	10:p:17:TYR:HB3	1.88	0.54
13:t:23:ARG:O	13:t:26:MET:HG3	2.07	0.54
18:c:20:THR:HB	18:c:57:GLU:HG2	1.88	0.54
25:A:841:G:H2'	25:A:842:U:H6	1.72	0.54
37:M:74:THR:HA	37:M:89:VAL:HA	1.89	0.54
5:f:24:ARG:HH21	32:H:86:ASP:CG	2.15	0.54
25:A:1330:C:O2'	25:A:1331:G:H5'	2.07	0.54
25:A:2114:A:N6	25:A:2117:A:H62	2.06	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:X:17:ARG:NE	48:X:23:ALA:HB2	2.11	0.54
57:6:56:ARG:O	57:6:59:ARG:HB3	2.08	0.54
1:a:210:C:H4'	1:a:211:G:C2	2.43	0.54
1:a:458:U:H2'	1:a:459:A:C8	2.43	0.54
1:a:1477:U:H2'	1:a:1478:U:C6	2.43	0.54
4:e:157:GLY:O	4:e:158:LYS:HB2	2.07	0.54
13:t:24:ARG:HG2	13:t:28:ARG:NH2	2.22	0.54
22:m:78:ARG:CZ	57:6:56:ARG:HH21	2.18	0.54
20:i:49:GLN:C	20:i:51:LEU:H	2.16	0.54
1:a:1432:G:O5'	40:P:105:LYS:CG	2.56	0.54
3:d:57:LYS:HD3	3:d:202:LEU:HD22	1.90	0.54
25:A:493:G:H2'	25:A:494:G:O4'	2.07	0.54
25:A:2391:G:O2'	25:A:2392:A:O5'	2.23	0.54
30:F:39:VAL:HG12	30:F:85:GLY:HA2	1.90	0.54
32:H:84:ALA:HA	32:H:91:PHE:H	1.73	0.54
1:a:981:U:H4'	23:n:61:ARG:HG2	1.89	0.54
1:a:1318:A:H2'	1:a:1319:A:H5'	1.89	0.54
18:c:38:VAL:HG11	18:c:94:ALA:HB2	1.89	0.54
24:s:52:ASN:HD21	24:s:55:GLN:HB2	1.73	0.54
25:A:1297:C:O2'	25:A:1302:A:N1	2.36	0.54
25:A:1565:C:O2'	25:A:1566:A:H2'	2.07	0.54
25:A:2756:U:H5''	55:4:19:ARG:HA	1.90	0.54
53:2:1:MET:HE1	53:2:3:ARG:CZ	2.38	0.54
4:e:37:VAL:HG11	4:e:113:VAL:HG23	1.88	0.54
22:m:33:LEU:HD23	22:m:40:GLU:HA	1.88	0.54
25:A:390:U:H4'	25:A:391:A:O5'	2.08	0.54
25:A:542:C:H3'	25:A:543:G:H5''	1.89	0.54
25:A:851:C:H2'	25:A:852:U:C6	2.42	0.54
25:A:1203:U:H1'	36:L:4:ASN:HB3	1.90	0.54
1:a:413:G:HO2'	1:a:414:A:P	2.31	0.54
1:a:950:U:H2'	1:a:951:G:C8	2.43	0.54
12:r:70:THR:HG23	12:r:71:ASP:H	1.73	0.54
25:A:468:G:N7	53:2:39:ARG:NH2	2.56	0.54
25:A:2852:G:H2'	25:A:2853:C:O4'	2.07	0.54
3:d:54:LEU:O	3:d:58:GLN:HG2	2.08	0.53
25:A:505:A:HO2'	25:A:509:C:HO2'	1.56	0.53
25:A:1111:A:O2'	25:A:1112:G:OP1	2.22	0.53
25:A:1410:G:H2'	25:A:1411:U:C6	2.43	0.53
25:A:2576:G:H8	25:A:2581:G:O6	1.90	0.53
35:K:33:ALA:HB1	35:K:37:ASP:HB2	1.90	0.53
37:M:28:PHE:HB2	37:M:104:GLU:OE1	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:Y:23:ARG:O	49:Y:25:GLN:N	2.41	0.53
55:4:37:GLN:HG3	55:4:38:GLY:H	1.72	0.53
13:t:67:HIS:O	13:t:67:HIS:ND1	2.39	0.53
25:A:549:G:O2'	25:A:550:C:OP1	2.26	0.53
25:A:1548:A:H2'	25:A:1549:A:C8	2.42	0.53
25:A:2746:U:H1'	31:G:138:GLN:HE22	1.72	0.53
1:a:495:A:H4'	1:a:496:A:OP1	2.07	0.53
13:t:9:ARG:O	13:t:13:SER:HB3	2.08	0.53
15:v:56:C:O2'	30:F:73:VAL:HA	2.08	0.53
24:s:18:VAL:HG11	24:s:43:MET:HG2	1.90	0.53
25:A:1332:G:H5''	25:A:1332:G:N3	2.24	0.53
25:A:2832:U:H1'	25:A:2834:G:C4	2.43	0.53
2:b:166:ASP:HB2	2:b:190:SER:HA	1.89	0.53
7:k:87:GLY:N	7:k:113:THR:HG22	2.22	0.53
11:q:51:GLU:H	11:q:51:GLU:CD	2.15	0.53
22:m:78:ARG:NE	57:6:56:ARG:NH2	2.55	0.53
38:N:79:LEU:C	38:N:81:ASN:H	2.16	0.53
2:b:165:ALA:HB3	2:b:190:SER:HB3	1.90	0.53
7:k:55:ARG:HD3	19:g:147:ASN:OD1	2.08	0.53
17:w:598:ASN:C	25:A:2660:A:C1'	2.81	0.53
25:A:107:G:H2'	25:A:108:G:C8	2.41	0.53
25:A:760:G:H2'	25:A:761:A:O4'	2.09	0.53
25:A:784:G:O2'	25:A:785:G:H5''	2.09	0.53
43:S:14:ALA:O	43:S:18:ARG:HB2	2.08	0.53
1:a:1207:2MG:H2'	1:a:1208:C:O4'	2.09	0.53
1:a:1399:C:N3	1:a:1401:G:O6	2.42	0.53
25:A:1021:A:N3	25:A:1022:G:H5''	2.22	0.53
32:H:113:SER:O	32:H:116:ARG:NH1	2.39	0.53
36:L:122:VAL:HB	36:L:142:ILE:HG23	1.89	0.53
2:b:12:GLY:HA3	2:b:207:ARG:HD3	1.91	0.53
11:q:61:ARG:HH12	11:q:73:THR:HB	1.72	0.53
15:v:57:A:O4'	30:F:74:ALA:CB	2.57	0.53
22:m:15:VAL:HG13	22:m:33:LEU:HD22	1.91	0.53
28:D:114:LYS:HE3	28:D:196:ALA:HB2	1.90	0.53
56:5:37:LYS:O	56:5:41:LEU:HB2	2.08	0.53
1:a:715:A:H2'	1:a:716:A:C8	2.44	0.53
4:e:133:ILE:H	4:e:133:ILE:HD12	1.72	0.53
25:A:743:A:OP1	28:D:135:GLY:HA2	2.08	0.53
25:A:747:5MC:CM5	25:A:2612:C:H4'	2.38	0.53
25:A:1130:U:O2'	25:A:1131:G:OP1	2.26	0.53
25:A:1177:G:H2'	25:A:1178:C:O4'	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:158:G:H2'	1:a:159:G:H8	1.74	0.53
1:a:389:A:H3'	1:a:390:U:H6	1.73	0.53
1:a:1320:C:H4'	24:s:72:GLU:OE2	2.09	0.53
2:b:33:ALA:HB3	2:b:37:VAL:O	2.08	0.53
25:A:947:A:O2'	25:A:984:A:H2	1.91	0.53
1:a:702:A:H61	25:A:1895:C:C5'	2.16	0.53
25:A:265:A:H1'	25:A:266:G:O4'	2.08	0.53
25:A:2296:U:H4'	25:A:2297:A:OP1	2.08	0.53
1:a:82:G:N2	1:a:87:C:N3	2.56	0.52
1:a:1064:G:H1'	1:a:1190:G:H21	1.73	0.52
1:a:1318:A:C1'	24:s:36:ARG:HH21	2.21	0.52
6:h:46:GLU:O	6:h:61:THR:HB	2.08	0.52
10:p:36:VAL:HG23	10:p:53:ASP:HB3	1.91	0.52
13:t:61:ALA:HA	13:t:66:ILE:HB	1.90	0.52
25:A:1565:C:O2'	25:A:1566:A:C8	2.60	0.52
29:E:31:VAL:HG21	29:E:104:ALA:HB2	1.91	0.52
1:a:518:C:OP1	17:w:514:ALA:N	2.42	0.52
5:f:11:HIS:O	5:f:15:SER:N	2.42	0.52
7:k:12:ARG:O	7:k:14:GLN:N	2.36	0.52
25:A:413:C:H2'	25:A:414:C:C6	2.44	0.52
25:A:468:G:C2'	25:A:469:G:H5'	2.39	0.52
25:A:844:A:H61	25:A:934:U:H3	1.56	0.52
25:A:910:A:H2'	25:A:911:A:C8	2.45	0.52
25:A:1645:G:H5''	25:A:1646:C:H5'	1.91	0.52
25:A:2258:C:O2'	25:A:2426:A:H4'	2.09	0.52
25:A:2884:U:H3	51:0:39:ARG:CZ	2.22	0.52
47:W:74:LYS:H	47:W:74:LYS:HD2	1.74	0.52
51:0:54:ILE:HG23	51:0:56:LYS:H	1.74	0.52
53:2:34:ARG:HH21	53:2:39:ARG:HD3	1.74	0.52
1:a:376:G:H5''	10:p:5:ARG:HB2	1.91	0.52
6:h:10:LEU:HD12	6:h:76:ARG:HB2	1.91	0.52
7:k:82:GLU:HG3	7:k:108:ASN:OD1	2.09	0.52
22:m:90:HIS:CE1	22:m:96:VAL:HG21	2.44	0.52
24:s:13:HIS:O	24:s:17:LYS:HB2	2.09	0.52
24:s:41:PRO:CD	57:6:60:PHE:CE2	2.91	0.52
25:A:774:G:N2	25:A:787:C:O2'	2.41	0.52
25:A:2230:G:H5''	48:X:29:LEU:HD12	1.92	0.52
26:B:41:G:H2'	26:B:41:G:N3	2.24	0.52
37:M:41:LEU:HD22	37:M:124:LEU:HD22	1.92	0.52
1:a:530:G:N3	1:a:530:G:C3'	2.73	0.52
1:a:660:C:H2'	1:a:661:G:O4'	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:b:33:ALA:HB2	2:b:39:ILE:HG13	1.92	0.52
20:i:89:TYR:HB2	20:i:93:LEU:HD11	1.91	0.52
26:B:104:A:H2'	26:B:105:G:O4'	2.09	0.52
28:D:49:GLN:NE2	28:D:67:HIS:NE2	2.52	0.52
29:E:97:ASN:HB2	29:E:100:MET:HG3	1.92	0.52
25:A:301:G:OP2	45:U:81:ARG:NH1	2.41	0.52
25:A:2126:A:N1	25:A:2163:A:H1'	2.24	0.52
25:A:2406:A:H5'	25:A:2407:A:OP1	2.10	0.52
25:A:2678:C:H2'	25:A:2679:A:O4'	2.09	0.52
29:E:143:LEU:HB3	29:E:146:VAL:HG11	1.91	0.52
43:S:4:ILE:HD12	43:S:6:LYS:HE3	1.92	0.52
46:V:30:ILE:HD11	46:V:63:ILE:HD12	1.92	0.52
1:a:8:A:H62	3:d:204:SER:HB2	1.74	0.52
1:a:695:A:H2'	1:a:696:A:C8	2.43	0.52
1:a:1077:G:N2	1:a:1080:A:OP2	2.38	0.52
8:l:75:GLU:OE2	17:w:384:HIS:N	2.39	0.52
25:A:1796:U:H2'	25:A:1797:G:C8	2.44	0.52
37:M:34:LYS:HE3	37:M:131:VAL:HG11	1.91	0.52
39:O:51:ALA:HB3	39:O:78:VAL:HG22	1.91	0.52
56:5:57:ASN:HB2	56:5:62:ARG:HD2	1.91	0.52
19:g:62:GLU:O	19:g:64:ALA:N	2.38	0.52
23:n:26:LEU:HD23	23:n:30:ILE:HD12	1.92	0.52
25:A:677:A:O2'	25:A:2071:A:H5'	2.10	0.52
25:A:1011:G:HO2'	25:A:1013:C:H5''	1.74	0.52
25:A:1475:G:O2'	25:A:1476:U:OP2	2.27	0.52
40:P:48:ALA:HB3	40:P:59:THR:OG1	2.09	0.52
1:a:18:C:C4'	1:a:1078:U:O2	2.55	0.52
1:a:149:A:O4'	1:a:1446:A:N3	2.41	0.52
1:a:599:C:H2'	1:a:600:A:C8	2.45	0.52
2:b:178:LEU:O	2:b:180:ILE:N	2.40	0.52
5:f:5:GLU:HA	5:f:63:ASN:HA	1.90	0.52
19:g:78:ARG:HB3	19:g:83:THR:HG23	1.92	0.52
25:A:2346:A:H3'	25:A:2347:C:H5'	1.91	0.52
34:J:63:ALA:HA	34:J:69:ARG:HH22	1.75	0.52
39:O:69:ASP:N	39:O:69:ASP:OD1	2.42	0.52
1:a:28:A:O2'	1:a:296:U:OP1	2.23	0.52
1:a:335:C:H4'	1:a:1434:A:H4'	1.92	0.52
1:a:532:A:N3	1:a:532:A:C2'	2.73	0.52
1:a:1347:G:O2'	1:a:1348:U:P	2.68	0.52
25:A:2303:G:H2'	25:A:2304:G:O4'	2.10	0.52
25:A:2625:G:H2'	25:A:2626:C:O4'	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:O:53:THR:HG23	39:O:74:VAL:HG21	1.92	0.52
56:5:48:ALA:HB3	56:5:51:TYR:CE2	2.45	0.52
56:5:48:ALA:HB3	56:5:51:TYR:HE2	1.75	0.52
1:a:438:U:O2'	1:a:439:U:O5'	2.28	0.52
25:A:519:U:H5''	43:S:25:ARG:HH21	1.74	0.52
25:A:1239:G:H2'	25:A:1240:U:O4'	2.10	0.52
25:A:2809:A:H2'	25:A:2810:A:C8	2.45	0.52
38:N:103:ARG:HB2	38:N:110:MET:HE3	1.92	0.52
55:4:27:CYS:SG	55:4:30:GLU:N	2.79	0.52
1:a:149:A:O4'	1:a:1446:A:C2	2.63	0.51
1:a:532:A:N3	1:a:532:A:C3'	2.73	0.51
1:a:958:A:C4	24:s:54:ARG:HD3	2.44	0.51
1:a:1534:A:H4'	1:a:1535:C:OP1	2.11	0.51
2:b:56:LEU:HD13	2:b:216:VAL:HG13	1.92	0.51
3:d:48:SER:O	3:d:51:GLY:N	2.43	0.51
8:l:43:LYS:HB3	8:l:44:PRO:HD3	1.91	0.51
14:u:13:VAL:HG13	14:u:15:LEU:HG	1.92	0.51
25:A:32:C:N4	25:A:446:G:O2'	2.43	0.51
25:A:722:A:H2'	25:A:723:C:O4'	2.10	0.51
25:A:1682:G:C4	25:A:1757:A:H1'	2.45	0.51
32:H:70:GLU:HB2	32:H:134:VAL:HG21	1.91	0.51
44:T:70:HIS:O	44:T:72:GLN:N	2.43	0.51
47:W:33:ILE:HG22	47:W:34:VAL:HG23	1.92	0.51
1:a:82:G:H2'	1:a:83:C:O4'	2.11	0.51
1:a:604:G:H2'	1:a:605:U:O4'	2.10	0.51
1:a:1422:G:H5'	35:K:48:PRO:HG3	1.91	0.51
7:k:60:PHE:HD2	19:g:149:ALA:CA	2.20	0.51
24:s:38:THR:HG23	24:s:69:LYS:HZ3	1.76	0.51
25:A:2725:A:O2'	25:A:2726:A:O5'	2.16	0.51
30:F:110:ILE:O	30:F:113:PHE:HB2	2.10	0.51
31:G:23:ILE:HD11	31:G:42:VAL:HG11	1.93	0.51
39:O:49:VAL:HG21	39:O:82:ALA:HA	1.91	0.51
1:a:381:C:H2'	1:a:382:A:O4'	2.09	0.51
1:a:720:C:H5''	12:r:40:PRO:HB3	1.91	0.51
2:b:105:THR:O	2:b:108:GLN:HG2	2.10	0.51
18:c:42:LEU:HD21	18:c:67:ILE:HD11	1.92	0.51
20:i:29:ILE:HA	20:i:64:ILE:O	2.10	0.51
30:F:39:VAL:O	30:F:41:GLU:HG2	2.11	0.51
36:L:24:GLY:C	36:L:26:GLY:H	2.17	0.51
46:V:76:ASP:OD1	46:V:77:VAL:N	2.41	0.51
56:5:114:GLU:HA	56:5:123:ILE:HB	1.90	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:6:58:ASP:O	57:6:62:LYS:HG3	2.11	0.51
11:q:45:VAL:HG21	11:q:60:ILE:HD13	1.92	0.51
18:c:152:VAL:HG12	18:c:197:VAL:HG13	1.92	0.51
25:A:259:G:O2'	25:A:260:G:H5'	2.10	0.51
25:A:642:U:H2'	25:A:644:A:OP2	2.10	0.51
25:A:1055:G:O2'	25:A:1084:A:N6	2.36	0.51
25:A:1509:A:H2'	25:A:1510:G:C8	2.45	0.51
26:B:28:C:H2'	26:B:29:A:C8	2.45	0.51
30:F:126:ASN:OD1	30:F:156:THR:HG23	2.10	0.51
37:M:102:LEU:HD11	37:M:126:ILE:HD11	1.91	0.51
39:O:89:ASP:HA	39:O:116:GLN:O	2.10	0.51
1:a:358:U:H2'	1:a:359:G:C8	2.44	0.51
10:p:26:ASN:HD22	10:p:26:ASN:N	2.09	0.51
13:t:43:LYS:HD2	13:t:86:ALA:HA	1.92	0.51
18:c:9:ILE:HG23	18:c:10:ARG:HG3	1.92	0.51
18:c:69:THR:HG21	18:c:75:VAL:HG21	1.92	0.51
21:j:30:LYS:O	21:j:34:ALA:HA	2.10	0.51
25:A:372:G:HO2'	25:A:373:U:H6	1.58	0.51
25:A:479:A:O2'	25:A:481:G:H5''	2.11	0.51
25:A:542:C:C3'	25:A:543:G:H5''	2.40	0.51
25:A:2514:U:H2'	25:A:2515:C:C6	2.45	0.51
28:D:55:LYS:HE2	28:D:77:ARG:HA	1.92	0.51
56:5:57:ASN:HD22	56:5:63:ALA:HB2	1.74	0.51
9:o:74:VAL:O	9:o:78:THR:HG23	2.11	0.51
25:A:1088:A:H61	33:I:134:SER:HB3	1.75	0.51
25:A:2879:A:H8	25:A:2881:U:O4	1.92	0.51
34:J:36:LEU:HD22	34:J:121:LYS:HB2	1.93	0.51
35:K:92:GLU:O	35:K:93:GLN:O	2.29	0.51
1:a:1517:G:H1'	25:A:1919:A:O2'	2.11	0.51
15:v:18:G:H1	15:v:55:PSU:H6	1.59	0.51
25:A:884:U:H2'	25:A:885:C:O4'	2.10	0.51
1:a:1157:A:N6	1:a:1178:G:H1'	2.25	0.51
3:d:56:GLU:OE2	3:d:59:LYS:HE2	2.11	0.51
18:c:5:HIS:HB3	23:n:89:MET:HE3	1.92	0.51
25:A:270:A:N1	25:A:369:U:O2'	2.40	0.51
25:A:321:U:H5''	29:E:131:THR:HG23	1.91	0.51
25:A:948:C:H2'	25:A:949:G:C8	2.46	0.51
25:A:1962:5MC:O2'	25:A:1964:G:OP2	2.28	0.51
29:E:148:ILE:HB	29:E:169:VAL:HG22	1.92	0.51
29:E:170:ARG:NH2	29:E:176:ASP:OD1	2.44	0.51
47:W:61:GLY:HA3	47:W:79:GLU:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:518:C:N4	1:a:530:G:C6	2.79	0.51
1:a:1399:C:H5''	1:a:1400:C:H5''	1.93	0.51
5:f:43:GLY:HA2	5:f:58:HIS:CE1	2.46	0.51
25:A:833:A:H2'	25:A:834:G:C8	2.45	0.51
25:A:962:G:H21	25:A:2250:G:H1	1.59	0.51
25:A:2515:C:H2'	25:A:2516:A:C8	2.46	0.51
25:A:2649:C:H2'	25:A:2650:U:C6	2.46	0.51
27:C:131:MET:HE1	27:C:143:VAL:HG13	1.93	0.51
35:K:24:VAL:HG13	35:K:33:ALA:HB2	1.93	0.51
38:N:56:LYS:NZ	38:N:87:PHE:O	2.44	0.51
1:a:1399:C:N4	1:a:1401:G:C2	2.79	0.51
18:c:19:SER:HB2	23:n:92:GLU:O	2.10	0.51
18:c:42:LEU:HD13	18:c:90:VAL:HG21	1.92	0.51
18:c:171:ARG:HG2	18:c:173:PRO:HD3	1.92	0.51
25:A:52:A:H8	25:A:52:A:OP2	1.94	0.51
25:A:1005:C:O2'	34:J:30:THR:HG21	2.11	0.51
25:A:2262:U:O2'	25:A:2263:C:H5'	2.10	0.51
25:A:2298:A:H2'	25:A:2299:U:O4'	2.11	0.51
28:D:133:THR:HG23	28:D:134:HIS:N	2.26	0.51
32:H:33:GLN:HB2	32:H:35:LYS:HG2	1.93	0.51
55:4:11:CYS:HB3	55:4:33:HIS:CE1	2.46	0.51
1:a:405:U:H3'	1:a:406:G:H5'	1.93	0.50
1:a:1404:C:C2'	1:a:1519:MA6:HO2'	2.24	0.50
11:q:18:LYS:HG2	11:q:46:HIS:CE1	2.46	0.50
25:A:1815:A:H4'	25:A:1816:C:OP1	2.11	0.50
25:A:2101:A:H2'	25:A:2102:G:H8	1.76	0.50
25:A:2591:C:H2'	25:A:2592:G:H8	1.75	0.50
25:A:2845:U:H5''	40:P:51:ASN:O	2.11	0.50
33:I:25:PRO:O	33:I:29:GLN:HB2	2.11	0.50
57:6:44:PHE:HD1	57:6:45:THR:HG23	1.76	0.50
1:a:575:G:N2	1:a:880:C:O2	2.41	0.50
1:a:909:A:H2'	1:a:910:C:O4'	2.12	0.50
1:a:1039:G:H2'	1:a:1040:U:C6	2.45	0.50
1:a:1354:U:H2'	1:a:1355:G:C8	2.46	0.50
22:m:2:ARG:CG	57:6:35:ASP:OD2	2.58	0.50
25:A:1112:G:H2'	25:A:1113:U:C6	2.45	0.50
25:A:1243:C:H1'	36:L:4:ASN:O	2.11	0.50
1:a:429:U:H3	1:a:431:A:H62	1.57	0.50
1:a:448:A:H3'	1:a:449:G:H8	1.77	0.50
1:a:1314:C:H2'	1:a:1315:U:C6	2.46	0.50
3:d:47:LEU:HG	3:d:52:VAL:HG12	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:E:76:PRO:HA	29:E:82:GLY:HA3	1.93	0.50
36:L:118:THR:O	36:L:120:VAL:N	2.44	0.50
41:Q:25:GLY:O	41:Q:29:ARG:NH1	2.44	0.50
45:U:36:GLU:HA	45:U:61:GLU:HG2	1.94	0.50
1:a:263:A:OP1	13:t:73:ARG:NH1	2.45	0.50
1:a:692:U:H5''	7:k:126:ARG:NH2	2.22	0.50
1:a:792:A:H1'	1:a:794:A:N7	2.26	0.50
21:j:52:LEU:HD23	21:j:62:ARG:HG2	1.94	0.50
25:A:123:G:O2'	25:A:124:G:H5'	2.11	0.50
25:A:1046:A:O2'	56:5:61:ARG:O	2.23	0.50
30:F:141:ASP:O	30:F:143:ASP:N	2.44	0.50
50:Z:40:THR:HG22	50:Z:43:ILE:HG12	1.92	0.50
1:a:1126:U:C5	21:j:73:LEU:HD11	2.46	0.50
1:a:1297:G:HO2'	1:a:1298:U:P	2.34	0.50
25:A:589:U:H2'	25:A:590:A:C8	2.46	0.50
25:A:716:A:H2'	25:A:717:C:O4'	2.11	0.50
26:B:111:U:O2'	26:B:112:G:H5'	2.12	0.50
30:F:133:GLU:HB3	30:F:135:ILE:HG13	1.94	0.50
42:R:61:ALA:HB2	42:R:98:ILE:HD13	1.94	0.50
44:T:1:MET:HE2	44:T:3:ARG:HB2	1.93	0.50
1:a:28:A:H2'	1:a:29:U:O4'	2.11	0.50
1:a:1080:A:O2'	4:e:21:SER:O	2.25	0.50
2:b:65:LYS:O	2:b:158:ASP:N	2.40	0.50
7:k:60:PHE:CB	19:g:149:ALA:HA	2.41	0.50
22:m:85:TYR:O	22:m:89:ARG:HG2	2.12	0.50
25:A:1182:G:H2'	25:A:1183:U:O4'	2.12	0.50
1:a:1266:G:N2	1:a:1269:A:OP2	2.44	0.50
1:a:1405:G:C2'	1:a:1518:MA6:O2'	2.57	0.50
3:d:59:LYS:HE3	3:d:194:ILE:HG22	1.94	0.50
4:e:106:ALA:HB1	4:e:110:MET:HE3	1.94	0.50
22:m:76:ILE:HG23	22:m:90:HIS:CD2	2.46	0.50
25:A:1019:U:O2'	25:A:1020:A:H5'	2.11	0.50
25:A:1329:U:O5'	25:A:1330:C:H5	1.95	0.50
25:A:2101:A:H2'	25:A:2102:G:C8	2.47	0.50
25:A:2327:A:H2'	25:A:2328:A:C8	2.46	0.50
30:F:3:LEU:HD11	30:F:100:GLU:HB2	1.93	0.50
1:a:531:U:O2'	1:a:532:A:O5'	2.19	0.50
1:a:1118:U:H2'	1:a:1119:C:C6	2.47	0.50
1:a:1375:A:H2'	1:a:1376:U:O4'	2.11	0.50
31:G:153:PRO:HA	31:G:159:LYS:O	2.12	0.50
50:Z:3:THR:HB	50:Z:36:GLU:HG2	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:q:45:VAL:HG11	11:q:60:ILE:HG12	1.94	0.50
25:A:39:G:H1'	29:E:43:THR:HG21	1.93	0.50
25:A:196:A:H5''	36:L:47:ARG:HH22	1.76	0.50
25:A:1210:G:O6	25:A:1237:A:H2'	2.11	0.50
25:A:1877:A:H2'	25:A:1878:G:O4'	2.12	0.50
25:A:2224:G:H4'	25:A:2226:C:C2	2.46	0.50
38:N:79:LEU:O	38:N:81:ASN:N	2.42	0.50
51:0:24:VAL:HG22	51:0:26:SER:H	1.77	0.50
1:a:530:G:H5'	1:a:530:G:C4	2.46	0.49
1:a:795:C:H4'	1:a:1506:U:C2	2.46	0.49
1:a:1301:U:O2'	1:a:1302:C:OP1	2.28	0.49
3:d:115:GLN:O	3:d:119:HIS:CD2	2.65	0.49
9:o:88:ARG:NH2	25:A:716:A:OP1	2.43	0.49
18:c:40:GLN:NE2	18:c:41:TYR:N	2.60	0.49
25:A:2788:C:O2'	25:A:2809:A:N3	2.43	0.49
29:E:41:GLN:OE1	29:E:43:THR:OG1	2.29	0.49
1:a:530:G:H5'	1:a:530:G:N3	2.27	0.49
1:a:1120:C:H2'	1:a:1121:U:C6	2.48	0.49
1:a:1170:A:H2'	1:a:1171:A:O4'	2.13	0.49
1:a:1399:C:N4	1:a:1401:G:N1	2.60	0.49
12:r:34:GLU:HB3	14:u:18:PHE:CZ	2.48	0.49
21:j:46:LYS:HE2	21:j:68:ARG:HE	1.78	0.49
21:j:86:ALA:HA	21:j:90:LEU:HD12	1.95	0.49
25:A:175:G:H2'	25:A:176:A:O4'	2.11	0.49
25:A:1142:A:H4'	25:A:1143:A:OP1	2.10	0.49
25:A:1701:A:C2'	25:A:1702:G:H5'	2.40	0.49
25:A:2516:A:O2'	25:A:2517:C:H5'	2.12	0.49
25:A:2698:U:H2'	25:A:2699:C:C6	2.48	0.49
25:A:2758:A:H2	31:G:34:ARG:HH21	1.59	0.49
31:G:94:ARG:HD2	31:G:127:GLN:HB3	1.94	0.49
1:a:1256:A:O2'	1:a:1257:A:H5''	2.13	0.49
3:d:67:LEU:O	3:d:71:PHE:HB2	2.12	0.49
25:A:543:G:O6	25:A:550:C:N3	2.46	0.49
25:A:721:A:H2'	25:A:722:A:C8	2.47	0.49
25:A:1201:U:H2'	25:A:1202:G:H8	1.77	0.49
35:K:43:ILE:HD12	35:K:56:ASP:HB2	1.93	0.49
1:a:958:A:N7	24:s:54:ARG:NH1	2.60	0.49
1:a:1402:4OC:HM22	1:a:1402:4OC:O2	2.12	0.49
18:c:178:ARG:O	18:c:206:ILE:HA	2.12	0.49
25:A:473:G:O2'	25:A:474:G:H5'	2.12	0.49
25:A:2759:G:N2	31:G:138:GLN:NE2	2.59	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:D:149:ASN:CG	28:D:150:GLN:H	2.20	0.49
30:F:67:THR:O	30:F:83:PRO:HA	2.12	0.49
36:L:33:ARG:HD3	36:L:40:SER:HA	1.95	0.49
36:L:110:VAL:HG11	36:L:135:ILE:HD11	1.93	0.49
40:P:74:GLN:HB2	40:P:77:SER:HB2	1.93	0.49
2:b:19:THR:HG23	2:b:20:ARG:N	2.20	0.49
7:k:83:VAL:HB	7:k:109:ILE:HG23	1.94	0.49
24:s:28:LYS:HE3	24:s:29:PRO:HD2	1.95	0.49
25:A:367:G:N2	25:A:368:A:H1'	2.28	0.49
25:A:974:G:N3	25:A:974:G:H2'	2.28	0.49
25:A:1586:A:C2	25:A:1587:G:H1'	2.48	0.49
25:A:1881:C:H2'	25:A:1882:U:O4'	2.13	0.49
26:B:1:U:H2'	26:B:2:G:C8	2.47	0.49
44:T:22:THR:HA	44:T:25:GLU:HG2	1.93	0.49
46:V:80:HIS:CG	46:V:81:PRO:HD2	2.48	0.49
1:a:219:U:H2'	1:a:220:G:C8	2.48	0.49
1:a:501:C:OP1	8:l:113:ARG:NH2	2.45	0.49
1:a:1137:C:H5'	1:a:1138:G:H5'	1.94	0.49
2:b:44:LYS:O	2:b:48:MET:HG2	2.12	0.49
3:d:84:ASN:HB3	3:d:87:GLU:OE1	2.12	0.49
25:A:580:U:H2'	25:A:581:C:C6	2.48	0.49
25:A:948:C:H2'	25:A:949:G:H8	1.76	0.49
25:A:2134:A:N6	25:A:2156:G:H2'	2.27	0.49
25:A:2529:G:H4'	31:G:174:LYS:HE3	1.94	0.49
31:G:102:ILE:O	31:G:113:ASP:HA	2.12	0.49
32:H:47:PHE:HA	32:H:51:ARG:HB2	1.95	0.49
43:S:52:GLU:HA	43:S:55:ILE:HD12	1.95	0.49
1:a:73:C:H2'	1:a:74:A:C8	2.48	0.49
2:b:31:PHE:HE2	2:b:41:ASN:HB2	1.78	0.49
9:o:34:GLN:HB3	9:o:58:MET:HE1	1.93	0.49
12:r:69:TYR:HB2	12:r:73:HIS:NE2	2.28	0.49
22:m:15:VAL:HG23	22:m:16:ILE:HD12	1.94	0.49
25:A:528:A:C2	25:A:2042:A:H2'	2.48	0.49
25:A:1266:G:O2'	25:A:1267:U:OP2	2.30	0.49
25:A:1900:A:O4'	25:A:1970:A:H5''	2.12	0.49
25:A:2405:G:HO2'	25:A:2406:A:P	2.36	0.49
25:A:2572:A:H2'	28:D:149:ASN:HD22	1.76	0.49
25:A:2725:A:O2'	25:A:2726:A:C8	2.66	0.49
43:S:28:LYS:HE3	43:S:70:LYS:NZ	2.28	0.49
1:a:345:C:C5'	40:P:38:ARG:NH1	2.76	0.49
1:a:1081:A:C5'	4:e:22:LYS:CB	2.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1414:U:H2'	1:a:1415:G:H8	1.77	0.49
1:a:1530:G:H2'	1:a:1531:A:C8	2.48	0.49
8:l:31:GLY:HA3	8:l:54:VAL:HG12	1.95	0.49
21:j:81:GLU:HA	21:j:84:VAL:HG12	1.95	0.49
23:n:54:ASP:C	23:n:56:SER:N	2.69	0.49
25:A:704:G:C2'	25:A:726:G:H22	2.13	0.49
25:A:1139:G:O2'	25:A:1140:C:H5'	2.13	0.49
25:A:1715:G:HO2'	25:A:1716:U:H6	1.57	0.49
30:F:134:GLN:HE22	30:F:149:ARG:N	2.11	0.49
1:a:148:G:H1'	1:a:1447:A:O2'	2.13	0.49
1:a:531:U:C1'	1:a:532:A:P	3.00	0.49
6:h:77:VAL:HG12	6:h:84:ILE:HD12	1.94	0.49
18:c:38:VAL:HG12	18:c:93:ILE:HG13	1.94	0.49
25:A:356:G:H2'	25:A:357:C:C6	2.48	0.49
25:A:395:U:H2'	25:A:396:G:C8	2.47	0.49
25:A:562:U:H2'	25:A:572:A:O4'	2.13	0.49
25:A:636:G:N7	36:L:109:LYS:HD3	2.28	0.49
25:A:974:G:C8	25:A:990:A:N6	2.76	0.49
25:A:1689:A:H2'	25:A:1690:A:H8	1.76	0.49
25:A:2020:A:H5'	51:O:8:THR:HG22	1.94	0.49
26:B:106:G:H2'	26:B:107:G:O4'	2.13	0.49
1:a:950:U:H2'	1:a:951:G:H8	1.77	0.48
1:a:1270:G:H2'	1:a:1271:A:H8	1.78	0.48
1:a:1427:C:H2'	1:a:1428:A:C8	2.48	0.48
1:a:1538:C:H2'	1:a:1539:C:O4'	2.13	0.48
13:t:25:SER:O	13:t:28:ARG:HG2	2.13	0.48
25:A:437:U:H2'	25:A:438:G:C8	2.48	0.48
25:A:1558:C:H4'	25:A:1559:U:O5'	2.13	0.48
25:A:2103:C:H2'	25:A:2104:C:C6	2.48	0.48
25:A:2305:U:C2	30:F:150:GLY:O	2.67	0.48
25:A:2529:G:OP2	25:A:2530:A:H5''	2.12	0.48
25:A:2861:U:H2'	25:A:2862:G:H8	1.77	0.48
26:B:13:G:C8	26:B:70:C:H4'	2.48	0.48
30:F:73:VAL:HG22	30:F:78:ILE:HG12	1.95	0.48
30:F:102:LEU:HD12	30:F:106:ALA:HB3	1.95	0.48
1:a:254:G:OP1	11:q:68:LYS:O	2.32	0.48
1:a:457:G:N2	1:a:475:C:O2	2.32	0.48
7:k:51:PHE:HE2	7:k:64:VAL:HG11	1.78	0.48
8:l:21:PRO:HD2	8:l:93:ARG:HH21	1.76	0.48
19:g:92:PRO:HA	19:g:95:ARG:HB2	1.95	0.48
25:A:420:C:H2'	25:A:421:C:O4'	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:687:C:H1'	53:2:4:THR:HG22	1.95	0.48
25:A:2205:A:H2'	25:A:2206:C:C6	2.48	0.48
1:a:575:G:HO2'	1:a:821:G:H5'	1.79	0.48
1:a:838:G:H2'	1:a:839:C:O4'	2.12	0.48
1:a:1004:A:H1'	1:a:1026:G:O6	2.13	0.48
1:a:1054:C:O2	1:a:1196:A:N6	2.46	0.48
1:a:1219:A:H2'	1:a:1220:G:C8	2.47	0.48
25:A:322:A:OP2	29:E:163:ASN:HB2	2.13	0.48
25:A:2120:G:H2'	25:A:2121:G:C8	2.48	0.48
25:A:2159:G:H2'	25:A:2160:C:O4'	2.13	0.48
34:J:15:TRP:HB3	34:J:137:PRO:HB3	1.95	0.48
48:X:39:VAL:HG12	48:X:42:GLU:H	1.78	0.48
1:a:411:A:N9	1:a:413:G:H1'	2.28	0.48
1:a:591:U:H3	1:a:648:A:H61	1.60	0.48
1:a:1305:G:H22	1:a:1331:G:H2'	1.78	0.48
10:p:11:ALA:HB3	10:p:14:ARG:HB2	1.94	0.48
21:j:49:PHE:O	21:j:64:GLN:HA	2.14	0.48
22:m:28:ARG:NH2	22:m:62:PHE:HB2	2.29	0.48
25:A:635:C:O2'	25:A:639:U:H5''	2.13	0.48
25:A:670:A:H8	25:A:670:A:OP2	1.95	0.48
25:A:873:C:H2'	25:A:874:G:H8	1.77	0.48
25:A:981:A:OP2	25:A:982:C:N4	2.43	0.48
25:A:2331:G:O2'	25:A:2336:A:N1	2.46	0.48
25:A:2720:U:H5''	40:P:52:ARG:NH2	2.28	0.48
27:C:7:PRO:HB3	27:C:13:ARG:HB2	1.95	0.48
35:K:102:PRO:HB3	35:K:121:GLU:HB3	1.94	0.48
38:N:49:GLU:HB2	38:N:50:PRO:HD3	1.96	0.48
1:a:79:G:H2'	1:a:80:A:O4'	2.12	0.48
1:a:335:C:C1'	1:a:1434:A:H1'	2.44	0.48
1:a:411:A:C4	1:a:413:G:H1'	2.48	0.48
1:a:766:A:H2'	1:a:767:A:O4'	2.14	0.48
1:a:900:A:H2'	1:a:901:A:C8	2.49	0.48
2:b:202:ASN:ND2	2:b:203:ASP:N	2.62	0.48
12:r:25:ILE:HA	12:r:28:LEU:HB3	1.96	0.48
25:A:454:A:H3'	25:A:455:C:C6	2.48	0.48
25:A:1106:G:H3'	25:A:1107:G:H8	1.76	0.48
25:A:2552:OMU:H5	25:A:2556:C:H41	1.79	0.48
25:A:2875:C:O2'	25:A:2876:G:H5'	2.14	0.48
27:C:15:VAL:HG22	27:C:205:GLY:HA3	1.96	0.48
28:D:85:ALA:C	28:D:87:GLY:H	2.22	0.48
31:G:136:ASP:OD2	31:G:139:VAL:HG23	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:618:C:O2'	10:p:14:ARG:NH1	2.46	0.48
3:d:103:ARG:NH1	3:d:110:ARG:HH12	2.11	0.48
22:m:16:ILE:O	22:m:19:THR:OG1	2.27	0.48
25:A:127:A:H5''	25:A:128:C:C6	2.48	0.48
25:A:213:A:H2'	25:A:214:G:C8	2.48	0.48
25:A:969:G:H2'	25:A:970:U:H6	1.76	0.48
25:A:1900:A:H1'	25:A:1970:A:H2'	1.95	0.48
25:A:2655:G:O2'	25:A:2656:U:OP2	2.31	0.48
26:B:90:C:H2'	26:B:91:C:O4'	2.13	0.48
45:U:88:ASP:CG	45:U:89:GLY:H	2.21	0.48
48:X:48:LEU:HB3	48:X:50:VAL:HG13	1.96	0.48
1:a:235:C:H2'	1:a:236:A:C8	2.48	0.48
1:a:335:C:O4'	1:a:1434:A:H1'	2.14	0.48
1:a:1060:U:H4'	21:j:53:ILE:HG23	1.95	0.48
5:f:13:ASP:O	5:f:16:GLU:HB2	2.13	0.48
5:f:47:LEU:HD13	5:f:51:ILE:HD12	1.95	0.48
18:c:179:ALA:HB1	18:c:202:PHE:CE1	2.48	0.48
19:g:68:VAL:HG12	19:g:134:VAL:HG12	1.96	0.48
19:g:78:ARG:HD2	19:g:83:THR:HG23	1.95	0.48
25:A:1183:U:H2'	25:A:1184:U:C6	2.49	0.48
25:A:2405:G:O2'	25:A:2406:A:OP2	2.32	0.48
26:B:79:G:H2'	26:B:80:U:O4'	2.13	0.48
33:I:38:CYS:SG	33:I:39:LYS:N	2.87	0.48
1:a:299:G:H2'	1:a:300:A:C8	2.49	0.48
1:a:946:A:H2'	1:a:947:G:C8	2.49	0.48
1:a:1354:U:H2'	1:a:1355:G:H8	1.78	0.48
3:d:66:VAL:HG13	3:d:70:GLN:HE21	1.79	0.48
18:c:59:PRO:HB3	21:j:94:ALA:HB2	1.94	0.48
23:n:41:ARG:O	23:n:44:ALA:HB3	2.14	0.48
25:A:495:G:H5''	43:S:4:ILE:HG13	1.95	0.48
12:r:21:ASP:OD2	12:r:23:LYS:HB2	2.14	0.48
25:A:2178:C:H2'	25:A:2179:C:C6	2.49	0.48
30:F:89:THR:HG21	30:F:91:ARG:HH11	1.79	0.48
42:R:77:PHE:HD1	42:R:84:ARG:HB3	1.79	0.48
56:5:5:LEU:O	56:5:9:GLN:HB2	2.13	0.48
1:a:449:G:H2'	1:a:450:G:C8	2.48	0.48
1:a:484:G:H4'	1:a:485:U:H5''	1.95	0.48
1:a:590:U:H2'	1:a:591:U:H6	1.79	0.48
1:a:635:A:H2'	1:a:636:U:C6	2.48	0.48
1:a:1396:A:H2	4:e:23:THR:HG21	1.78	0.48
4:e:9:GLU:O	4:e:40:ASP:HA	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:k:63:GLN:HG3	7:k:98:ALA:HB2	1.96	0.48
19:g:129:ASN:HA	19:g:134:VAL:HG11	1.96	0.48
25:A:39:G:H2'	25:A:40:U:C6	2.49	0.48
25:A:831:G:H5''	36:L:37:GLY:HA2	1.95	0.48
25:A:2071:A:H2'	25:A:2072:C:C6	2.49	0.48
25:A:2431:U:O2'	25:A:2433:A:N7	2.41	0.48
25:A:2808:G:H2'	25:A:2890:G:O6	2.14	0.48
28:D:32:ASN:HA	28:D:51:THR:O	2.13	0.48
36:L:77:ILE:O	36:L:110:VAL:O	2.32	0.48
37:M:42:THR:HG22	37:M:93:VAL:HG12	1.96	0.48
1:a:175:C:H2'	1:a:176:C:H6	1.79	0.47
1:a:718:A:H5'	7:k:118:ASN:OD1	2.14	0.47
1:a:871:U:H5''	1:a:872:A:OP2	2.13	0.47
4:e:22:LYS:HB3	4:e:29:ILE:HG23	1.95	0.47
10:p:4:ILE:HG12	10:p:21:VAL:HG22	1.95	0.47
18:c:54:ILE:HD12	18:c:56:ILE:HD11	1.96	0.47
25:A:20:C:H2'	25:A:21:A:C8	2.49	0.47
25:A:1378:A:O2'	25:A:1380:G:OP2	2.31	0.47
25:A:1590:A:H2'	25:A:1591:A:H8	1.79	0.47
25:A:2065:C:H1'	25:A:2449:H2U:HN3	1.79	0.47
25:A:2172:U:OP2	25:A:2173:A:H5'	2.14	0.47
49:Y:44:LYS:HA	49:Y:47:ARG:HH22	1.79	0.47
1:a:996:A:H2'	1:a:997:U:C6	2.49	0.47
1:a:1187:G:H5'	20:i:114:LYS:HE3	1.96	0.47
1:a:1297:G:O2'	1:a:1298:U:P	2.72	0.47
4:e:156:ARG:HH11	4:e:163:ILE:HA	1.78	0.47
8:l:35:ARG:NH1	8:l:37:TYR:HB3	2.27	0.47
25:A:441:U:H2'	25:A:442:G:O4'	2.13	0.47
25:A:458:G:O2'	25:A:469:G:N1	2.47	0.47
25:A:934:U:H2'	25:A:935:C:C6	2.49	0.47
25:A:2051:A:H8	25:A:2051:A:OP2	1.97	0.47
25:A:2467:C:H2'	25:A:2468:A:O4'	2.14	0.47
28:D:179:ARG:HB3	28:D:188:LEU:HD12	1.95	0.47
30:F:39:VAL:C	30:F:41:GLU:H	2.22	0.47
30:F:165:GLY:O	30:F:168:LEU:HB3	2.14	0.47
56:5:44:ALA:HB2	56:5:52:MET:HE2	1.95	0.47
1:a:145:G:C2	1:a:146:G:C8	3.02	0.47
1:a:592:G:H2'	1:a:593:U:H6	1.78	0.47
1:a:780:A:H5''	7:k:124:LYS:HE3	1.97	0.47
25:A:181:A:H2'	25:A:182:A:C8	2.49	0.47
25:A:682:G:H5'	53:2:26:ASN:CG	2.39	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:1310:G:H1'	25:A:1611:C:H5''	1.96	0.47
25:A:1320:C:O2'	25:A:1321:A:H5''	2.14	0.47
25:A:2443:C:OP1	29:E:63:LYS:HD3	2.14	0.47
54:3:26:ALA:O	54:3:27:ASN:CG	2.57	0.47
5:f:6:ILE:HB	5:f:62:MET:HB2	1.95	0.47
20:i:56:MET:O	20:i:58:GLU:N	2.48	0.47
25:A:435:C:H2'	25:A:436:C:H5'	1.96	0.47
25:A:1052:C:H2'	25:A:1053:C:C5	2.50	0.47
35:K:34:GLY:O	35:K:36:GLY:N	2.47	0.47
36:L:122:VAL:HG21	36:L:135:ILE:HD13	1.97	0.47
36:L:128:THR:OG1	36:L:129:LYS:N	2.44	0.47
1:a:189:A:H2'	1:a:190:A:O4'	2.13	0.47
1:a:499:A:H4'	1:a:500:G:O5'	2.15	0.47
1:a:1437:A:H2'	1:a:1438:G:H8	1.79	0.47
15:v:63:G:H2'	15:v:64:G:H8	1.74	0.47
19:g:46:LEU:HD23	19:g:57:GLU:HB3	1.97	0.47
20:i:12:LYS:HA	20:i:109:GLN:OE1	2.15	0.47
25:A:1477:A:H2'	25:A:1478:G:O4'	2.15	0.47
25:A:2714:G:O2'	25:A:2715:C:H5'	2.14	0.47
45:U:85:ARG:NH1	45:U:99:SER:OG	2.47	0.47
3:d:94:GLU:HG2	3:d:185:PRO:HG2	1.97	0.47
3:d:173:ASP:O	3:d:175:GLY:N	2.47	0.47
8:l:49:ARG:HG3	8:l:89:LEU:HD11	1.95	0.47
18:c:91:ALA:HB2	18:c:98:ALA:HB3	1.96	0.47
25:A:121:G:H4'	25:A:149:A:H5'	1.95	0.47
25:A:244:A:H2'	25:A:245:G:O4'	2.15	0.47
25:A:1538:G:H2'	25:A:1539:U:C6	2.50	0.47
25:A:1980:G:O2'	25:A:1982:U:OP2	2.26	0.47
25:A:2266:A:H8	25:A:2266:A:OP1	1.98	0.47
25:A:2408:U:H2'	25:A:2409:G:H8	1.80	0.47
25:A:2526:G:H2'	25:A:2527:C:C6	2.49	0.47
28:D:48:ILE:O	28:D:81:GLU:HA	2.15	0.47
29:E:52:VAL:O	29:E:74:LYS:HE3	2.14	0.47
1:a:619:U:H4'	3:d:127:ARG:HH21	1.79	0.47
2:b:92:ASN:OD1	2:b:93:HIS:N	2.48	0.47
8:l:74:GLN:O	8:l:76:HIS:N	2.48	0.47
21:j:37:ARG:HE	21:j:77:VAL:HG21	1.79	0.47
24:s:76:THR:OG1	24:s:77:ARG:N	2.48	0.47
25:A:108:G:H2'	25:A:109:C:O4'	2.15	0.47
25:A:120:U:H4'	25:A:121:G:H5''	1.96	0.47
25:A:322:A:H5'	25:A:340:A:H1'	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:554:U:H2'	25:A:555:G:O4'	2.15	0.47
25:A:1019:U:H3	25:A:1142:A:H62	1.62	0.47
25:A:1340:U:H3'	44:T:61:LEU:HD22	1.97	0.47
25:A:1715:G:O2'	25:A:1716:U:H6	1.98	0.47
25:A:1857:G:H1'	25:A:1885:A:N6	2.29	0.47
25:A:1930:G:O2'	25:A:1931:U:OP2	2.26	0.47
25:A:2014:A:H2'	25:A:2015:A:C8	2.50	0.47
25:A:2771:C:H2'	25:A:2772:C:C6	2.50	0.47
26:B:50:A:H2'	26:B:51:G:O4'	2.15	0.47
26:B:75:G:H2'	26:B:76:G:O4'	2.14	0.47
34:J:35:ARG:HA	34:J:40:HIS:HD2	1.79	0.47
36:L:30:THR:O	36:L:32:GLY:N	2.48	0.47
56:5:41:LEU:O	56:5:44:ALA:HB3	2.15	0.47
57:6:28:VAL:HG11	57:6:32:LEU:HD13	1.95	0.47
1:a:70:U:H5''	1:a:71:A:OP1	2.14	0.47
1:a:160:A:H2'	1:a:161:A:O4'	2.14	0.47
1:a:531:U:C4	18:c:160:GLU:HB3	2.45	0.47
9:o:45:HIS:O	9:o:47:LYS:N	2.45	0.47
15:v:16:C:H4'	15:v:60:U:H1'	1.97	0.47
21:j:37:ARG:HB2	21:j:75:ASP:HB2	1.97	0.47
24:s:10:ILE:HG12	24:s:40:PHE:CE2	2.49	0.47
25:A:685:A:H5''	25:A:788:A:H62	1.80	0.47
25:A:692:C:H5''	27:C:38:LYS:HB3	1.96	0.47
25:A:807:U:H1'	25:A:2445:2MG:OP1	2.15	0.47
25:A:1430:G:H2'	25:A:1431:A:O4'	2.15	0.47
25:A:1636:U:H2'	25:A:1637:A:C8	2.50	0.47
25:A:2297:A:N1	25:A:2321:U:C5	2.83	0.47
1:a:960:U:H4'	1:a:961:U:O5'	2.14	0.47
1:a:1151:A:H1'	21:j:41:PRO:HB3	1.96	0.47
20:i:49:GLN:O	20:i:51:LEU:N	2.44	0.47
25:A:1:G:H2'	25:A:2:G:H8	1.80	0.47
25:A:871:U:H2'	25:A:872:U:C6	2.50	0.47
25:A:1038:G:H2'	25:A:1039:A:C8	2.50	0.47
25:A:1109:C:N3	25:A:1110:G:N2	2.63	0.47
25:A:1418:G:H2'	25:A:1579:A:H62	1.80	0.47
25:A:2405:G:H1'	25:A:2412:A:N6	2.29	0.47
33:I:20:SER:HB3	33:I:21:PRO:HD3	1.97	0.47
1:a:246:A:N3	1:a:247:G:H1'	2.30	0.47
1:a:1226:C:N4	22:m:102:LYS:HD2	2.29	0.47
1:a:1537:U:H2'	1:a:1538:C:O4'	2.14	0.47
12:r:50:TYR:O	12:r:54:LEU:HB2	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:c:78:LYS:C	18:c:80:GLY:H	2.22	0.47
21:j:11:LYS:HE2	21:j:71:LEU:HG	1.97	0.47
25:A:251:A:H2'	25:A:252:G:O4'	2.15	0.47
25:A:404:A:H1'	25:A:406:G:N9	2.30	0.47
25:A:923:G:H2'	25:A:924:G:C8	2.48	0.47
25:A:2287:A:C2'	25:A:2288:A:O5'	2.63	0.47
25:A:2823:A:OP1	28:D:118:PHE:HB2	2.15	0.47
40:P:24:THR:O	40:P:86:LYS:HB2	2.15	0.47
1:a:1311:A:OP1	57:6:63:ARG:NH2	2.48	0.46
4:e:13:LYS:NZ	4:e:112:ALA:HB1	2.31	0.46
7:k:46:ALA:HA	7:k:65:ALA:HB2	1.97	0.46
14:u:11:PHE:O	14:u:13:VAL:N	2.48	0.46
18:c:96:VAL:HG22	18:c:97:PRO:HA	1.96	0.46
20:i:14:SER:HB2	20:i:69:GLY:HA3	1.97	0.46
25:A:635:C:H2'	25:A:636:G:O4'	2.15	0.46
25:A:1343:G:H1'	25:A:1597:A:C4	2.51	0.46
25:A:1533:C:O2	25:A:1538:G:N2	2.46	0.46
25:A:2391:G:OP2	54:3:34:LYS:HD2	2.14	0.46
25:A:2629:U:O2'	25:A:2630:G:H5''	2.15	0.46
25:A:2645:G:H4'	25:A:2732:G:H1'	1.97	0.46
25:A:2808:G:O2'	25:A:2809:A:H8	1.97	0.46
33:I:42:ASN:HA	33:I:45:THR:HB	1.97	0.46
33:I:133:ARG:HA	33:I:137:LEU:O	2.15	0.46
41:Q:85:ALA:HB2	41:Q:115:ALA:HB2	1.97	0.46
1:a:102:G:H2'	1:a:103:U:C6	2.51	0.46
1:a:1056:U:OP1	18:c:162:ALA:N	2.47	0.46
1:a:1432:G:P	40:P:105:LYS:CG	3.03	0.46
8:l:67:GLY:O	8:l:98:ARG:NH1	2.48	0.46
19:g:76:SER:OG	19:g:83:THR:HG22	2.15	0.46
20:i:39:GLY:HA2	20:i:44:ARG:HB2	1.97	0.46
21:j:7:ARG:HD3	21:j:75:ASP:OD1	2.16	0.46
22:m:2:ARG:HD2	57:6:35:ASP:CG	2.39	0.46
22:m:2:ARG:HG2	57:6:35:ASP:OD2	2.14	0.46
25:A:136:G:H1	25:A:143:C:H42	1.63	0.46
25:A:172:A:H2'	25:A:173:A:H8	1.79	0.46
25:A:1454:C:H5'	38:N:63:ARG:CZ	2.45	0.46
33:I:33:ASN:HB2	33:I:64:ARG:NH2	2.29	0.46
34:J:80:HIS:C	34:J:82:GLY:H	2.13	0.46
38:N:38:LEU:HB3	38:N:39:PRO:HD3	1.97	0.46
1:a:29:U:C2'	1:a:30:U:H5'	2.45	0.46
1:a:551:U:H2'	1:a:552:U:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1222:G:H5''	24:s:77:ARG:HH11	1.81	0.46
1:a:1498:UR3:H4'	1:a:1519:MA6:H103	1.98	0.46
5:f:24:ARG:HE	32:H:86:ASP:HB3	1.80	0.46
11:q:30:HIS:CD2	11:q:33:TYR:H	2.31	0.46
25:A:242:G:O2'	25:A:243:U:OP2	2.27	0.46
25:A:336:C:O2'	25:A:337:C:H5'	2.15	0.46
25:A:789:A:N1	53:2:3:ARG:NH1	2.55	0.46
25:A:1111:A:HO2'	25:A:1112:G:P	2.37	0.46
25:A:1177:G:H2'	25:A:1178:C:C4'	2.45	0.46
25:A:1212:G:H1'	25:A:1237:A:N6	2.30	0.46
25:A:2012:G:H8	25:A:2012:G:O5'	1.98	0.46
25:A:2286:G:H4'	25:A:2287:A:O5'	2.14	0.46
25:A:2584:U:C3'	25:A:2585:U:H5''	2.44	0.46
25:A:2808:G:H2'	25:A:2890:G:C6	2.51	0.46
31:G:41:GLU:HB3	31:G:52:GLY:O	2.15	0.46
34:J:75:TYR:HB3	34:J:84:ILE:HD11	1.95	0.46
42:R:28:ALA:HB3	42:R:31:GLU:HB2	1.97	0.46
1:a:1163:A:H2'	1:a:1164:G:C8	2.51	0.46
1:a:1474:U:H4'	25:A:1701:A:C2	2.49	0.46
3:d:201:GLU:OE2	4:e:111:ARG:NH2	2.48	0.46
13:t:74:HIS:O	13:t:78:LEU:HB2	2.15	0.46
21:j:8:ILE:HB	21:j:74:VAL:HB	1.95	0.46
25:A:973:A:H5'	25:A:1188:U:H1'	1.98	0.46
25:A:1728:C:O2'	25:A:1729:U:C6	2.69	0.46
25:A:1751:U:H2'	25:A:1752:C:C6	2.51	0.46
25:A:2721:A:H1'	25:A:2873:A:O2'	2.16	0.46
35:K:41:ILE:HG13	35:K:58:LEU:O	2.15	0.46
41:Q:71:ASN:HD22	41:Q:71:ASN:N	2.12	0.46
50:Z:47:ILE:HD13	50:Z:56:VAL:HG21	1.97	0.46
1:a:337:G:H2'	1:a:338:A:C8	2.51	0.46
1:a:529:G:H2'	1:a:530:G:H5''	1.90	0.46
1:a:833:G:C6	1:a:834:U:C4	3.02	0.46
1:a:1081:A:H3'	4:e:22:LYS:HE2	1.92	0.46
1:a:1101:A:H4'	1:a:1102:A:O5'	2.15	0.46
2:b:90:PHE:O	2:b:149:GLY:HA3	2.14	0.46
4:e:82:HIS:CE1	4:e:146:MET:HG3	2.51	0.46
10:p:54:LEU:HA	10:p:57:ILE:HD12	1.98	0.46
20:i:12:LYS:O	20:i:14:SER:N	2.47	0.46
25:A:185:G:H4'	25:A:218:A:H4'	1.98	0.46
25:A:500:G:N1	25:A:503:A:OP2	2.49	0.46
25:A:549:G:HO2'	25:A:550:C:P	2.39	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:1951:U:H2'	25:A:1953:A:OP2	2.15	0.46
25:A:2742:G:OP1	55:4:36:ARG:HD3	2.16	0.46
40:P:29:VAL:HG13	40:P:79:VAL:HG22	1.96	0.46
44:T:80:TRP:CZ3	44:T:82:LYS:HB3	2.50	0.46
48:X:17:ARG:HE	48:X:23:ALA:CB	2.15	0.46
48:X:30:PRO:O	48:X:32:LEU:N	2.49	0.46
50:Z:40:THR:HG23	50:Z:42:ALA:H	1.80	0.46
1:a:77:A:H2'	1:a:78:A:C8	2.50	0.46
1:a:193:C:H2'	1:a:194:C:H6	1.81	0.46
1:a:1402:4OC:H2'	1:a:1403:C:C6	2.50	0.46
25:A:930:G:H1'	50:Z:24:LEU:HD21	1.97	0.46
25:A:2515:C:H2'	25:A:2516:A:H8	1.81	0.46
30:F:4:HIS:CD2	30:F:8:LYS:HE3	2.51	0.46
30:F:9:ASP:OD1	30:F:9:ASP:N	2.47	0.46
31:G:126:THR:HG22	31:G:128:THR:H	1.81	0.46
38:N:69:ARG:C	38:N:71:ARG:H	2.17	0.46
1:a:35:G:H2'	1:a:36:C:C6	2.51	0.46
1:a:345:C:H5''	40:P:38:ARG:NH1	2.30	0.46
1:a:429:U:H4'	1:a:430:A:OP1	2.16	0.46
1:a:592:G:H2'	1:a:593:U:C6	2.51	0.46
1:a:696:A:H1'	1:a:786:G:O2'	2.16	0.46
1:a:985:C:H2'	1:a:986:U:C6	2.51	0.46
2:b:66:ILE:HD12	2:b:159:ALA:HB3	1.98	0.46
6:h:104:SER:HB2	6:h:125:ILE:HD11	1.97	0.46
25:A:259:G:C2'	25:A:260:G:H5'	2.46	0.46
25:A:2528:U:H2'	25:A:2530:A:O5'	2.16	0.46
26:B:114:C:H2'	26:B:115:A:C8	2.51	0.46
32:H:64:ALA:O	32:H:67:ALA:HB3	2.15	0.46
33:I:48:ILE:HG13	33:I:49:GLU:H	1.81	0.46
43:S:72:THR:HG21	43:S:108:SER:HB3	1.98	0.46
1:a:237:G:H5''	11:q:26:ARG:NH2	2.31	0.46
1:a:1007:U:H2'	1:a:1008:U:H6	1.80	0.46
1:a:1367:C:H5''	20:i:115:VAL:HG23	1.96	0.46
11:q:13:SER:O	11:q:20:ILE:HA	2.16	0.46
14:u:19:LYS:H	14:u:19:LYS:HD2	1.81	0.46
25:A:128:C:H2'	25:A:129:C:H6	1.81	0.46
25:A:1684:G:H2'	25:A:1685:C:C6	2.51	0.46
25:A:2688:G:H1'	25:A:2721:A:N6	2.31	0.46
25:A:2777:G:H1'	25:A:2779:U:H5	1.80	0.46
28:D:36:GLN:HB3	28:D:49:GLN:HB3	1.97	0.46
39:O:26:LEU:HD13	39:O:39:VAL:HG22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:O:37:ALA:HB3	39:O:78:VAL:HG21	1.98	0.46
1:a:555:U:H2'	1:a:556:C:C6	2.51	0.46
1:a:1367:C:H4'	21:j:50:THR:HG21	1.97	0.46
3:d:23:GLY:H	3:d:109:THR:HG22	1.80	0.46
3:d:172:VAL:HG22	3:d:174:ALA:H	1.81	0.46
15:v:16:C:O2'	15:v:60:U:H4'	2.16	0.46
25:A:287:G:H2'	25:A:288:U:C6	2.51	0.46
25:A:772:C:O2'	25:A:773:U:H5'	2.16	0.46
25:A:1069:A:N6	25:A:1073:A:C4	2.84	0.46
25:A:2862:G:H2'	25:A:2863:C:C6	2.51	0.46
27:C:131:MET:HE2	27:C:189:ALA:HB2	1.98	0.46
45:U:17:ASP:HB3	45:U:20:LYS:HD2	1.98	0.46
45:U:42:LYS:HG2	45:U:59:GLU:OE1	2.16	0.46
48:X:32:LEU:HD22	48:X:49:ARG:HG2	1.98	0.46
56:5:26:VAL:HG21	56:5:114:GLU:HG2	1.98	0.46
1:a:8:A:N6	3:d:201:GLU:O	2.49	0.46
1:a:567:G:H2'	1:a:568:G:O4'	2.15	0.46
1:a:1512:U:H2'	1:a:1513:A:H8	1.81	0.46
3:d:169:TRP:CD1	3:d:185:PRO:HG3	2.51	0.46
7:k:75:GLU:C	7:k:77:GLY:N	2.70	0.46
8:l:75:GLU:OE2	17:w:383:THR:C	2.58	0.46
9:o:55:LEU:O	9:o:58:MET:HG2	2.16	0.46
15:v:69:C:H2'	15:v:70:G:C8	2.50	0.46
19:g:143:MET:O	19:g:147:ASN:HB3	2.16	0.46
20:i:112:ARG:HH22	21:j:64:GLN:HE22	1.62	0.46
24:s:34:SER:OG	24:s:37:SER:HB3	2.16	0.46
25:A:974:G:H1'	25:A:975:A:H8	1.80	0.46
25:A:1085:A:H61	56:5:34:THR:HG22	1.81	0.46
25:A:1107:G:H1'	56:5:81:LEU:HD12	1.97	0.46
25:A:1287:A:H5'	38:N:103:ARG:HH11	1.80	0.46
25:A:2183:A:H2'	25:A:2184:A:C8	2.51	0.46
25:A:2313:C:H5''	30:F:87:LYS:HD2	1.98	0.46
25:A:2705:A:O2'	25:A:2852:G:OP1	2.26	0.46
26:B:87:U:H5''	26:B:88:C:OP2	2.16	0.46
30:F:12:VAL:O	30:F:16:MET:HG2	2.16	0.46
30:F:129:MET:HG3	30:F:153:ILE:HB	1.98	0.46
34:J:99:ARG:NH1	34:J:102:GLU:OE2	2.49	0.46
45:U:96:LYS:O	45:U:97:SER:O	2.34	0.46
1:a:225:C:H2'	1:a:226:G:O4'	2.16	0.45
1:a:389:A:H3'	1:a:390:U:C6	2.51	0.45
1:a:1539:C:H2'	1:a:1540:U:C6	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:p:56:ARG:O	10:p:59:HIS:HB3	2.16	0.45
25:A:1297:C:OP1	25:A:2710:C:H4'	2.16	0.45
25:A:1318:U:H2'	25:A:1319:C:C6	2.51	0.45
25:A:1932:A:H2'	25:A:1933:G:O4'	2.17	0.45
44:T:5:GLU:HA	44:T:8:LEU:HD12	1.98	0.45
1:a:590:U:H2'	1:a:591:U:C6	2.51	0.45
1:a:1335:U:H5''	1:a:1336:C:H5'	1.98	0.45
6:h:63:LYS:HZ2	6:h:70:VAL:HG21	1.81	0.45
8:l:34:THR:HA	8:l:75:GLU:O	2.15	0.45
11:q:56:ASP:HB2	11:q:79:GLU:O	2.15	0.45
25:A:1819:A:H3'	27:C:176:ARG:HG2	1.98	0.45
25:A:2329:U:H2'	25:A:2330:G:C8	2.51	0.45
25:A:2379:G:H4'	39:O:21:LEU:HD11	1.98	0.45
25:A:2756:U:H4'	25:A:2757:A:OP1	2.15	0.45
1:a:102:G:H2'	1:a:103:U:H6	1.81	0.45
1:a:529:G:O3'	1:a:530:G:H4'	2.17	0.45
1:a:1080:A:C5'	4:e:20:VAL:CB	2.94	0.45
1:a:1282:C:H2'	1:a:1283:U:C6	2.51	0.45
1:a:1432:G:C5'	40:P:105:LYS:CG	2.93	0.45
10:p:52:LEU:HG	10:p:57:ILE:HD11	1.97	0.45
19:g:15:PRO:HB2	20:i:44:ARG:HH12	1.81	0.45
19:g:17:PHE:CE1	19:g:22:LEU:HD21	2.51	0.45
21:j:7:ARG:O	21:j:101:SER:HB2	2.16	0.45
22:m:7:ASN:ND2	22:m:20:SER:HB2	2.31	0.45
25:A:811:U:N3	36:L:21:ARG:NH2	2.64	0.45
25:A:1045:C:H1'	25:A:1047:G:C2	2.51	0.45
25:A:1103:A:H3'	25:A:1104:C:C5'	2.42	0.45
25:A:1798:U:OP2	27:C:270:ARG:NH2	2.49	0.45
25:A:1930:G:HO2'	25:A:1931:U:P	2.32	0.45
25:A:2019:A:H2	25:A:2035:G:H22	1.64	0.45
25:A:2444:G:OP2	29:E:63:LYS:HD2	2.16	0.45
25:A:2869:G:H2'	25:A:2870:C:O4'	2.17	0.45
1:a:128:G:H5'	11:q:5:ARG:HH22	1.81	0.45
1:a:335:C:H4'	1:a:1434:A:C1'	2.46	0.45
9:o:88:ARG:NH2	25:A:715:A:O3'	2.50	0.45
21:j:5:ARG:N	21:j:77:VAL:HA	2.31	0.45
25:A:1604:C:H2'	25:A:1605:C:C6	2.51	0.45
27:C:252:LYS:HE3	27:C:252:LYS:HB2	1.83	0.45
33:I:4:VAL:HA	33:I:7:TYR:CE2	2.52	0.45
49:Y:39:GLN:HB2	49:Y:41:HIS:CE1	2.52	0.45
53:2:30:VAL:O	53:2:34:ARG:HG2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:424:G:H2'	1:a:425:G:O4'	2.16	0.45
1:a:920:U:H2'	1:a:921:U:C6	2.51	0.45
1:a:1182:G:H4'	1:a:1183:U:O5'	2.16	0.45
8:l:101:LEU:HB3	8:l:102:ASP:H	1.60	0.45
15:v:1:C:H2'	15:v:2:G:H8	1.82	0.45
22:m:28:ARG:O	22:m:32:ILE:HG12	2.17	0.45
25:A:89:A:H2'	25:A:90:U:C6	2.51	0.45
25:A:1306:C:N4	25:A:1606:C:H2'	2.30	0.45
25:A:1858:A:C2	25:A:1885:A:H1'	2.51	0.45
35:K:35:VAL:HG22	35:K:69:VAL:HG12	1.98	0.45
1:a:335:C:O2'	1:a:1433:A:C2	2.65	0.45
1:a:819:A:H5'	1:a:820:U:C5	2.52	0.45
1:a:1082:A:H2'	1:a:1083:U:O4'	2.16	0.45
1:a:1300:G:HO2'	1:a:1301:U:H6	1.61	0.45
4:e:45:VAL:HG12	4:e:116:VAL:HG23	1.98	0.45
21:j:29:ALA:HB1	21:j:83:THR:HG23	1.99	0.45
21:j:80:THR:HB	21:j:83:THR:HB	1.98	0.45
25:A:286:U:H2'	25:A:287:G:C8	2.52	0.45
25:A:357:C:H2'	25:A:358:U:C6	2.51	0.45
25:A:1530:G:H22	25:A:1542:U:H1'	1.79	0.45
25:A:1692:U:O2'	25:A:1693:U:H2'	2.15	0.45
25:A:2139:U:H2'	25:A:2140:G:C8	2.51	0.45
28:D:31:ALA:O	28:D:33:ARG:HG2	2.17	0.45
56:5:118:ILE:H	56:5:119:PRO:CD	2.29	0.45
1:a:222:C:H2'	1:a:223:A:C8	2.48	0.45
1:a:545:C:O2'	1:a:549:C:H5''	2.17	0.45
1:a:1080:A:C5'	4:e:20:VAL:HB	2.47	0.45
5:f:46:GLN:HA	5:f:56:LYS:HG2	1.98	0.45
15:v:50:U:H2'	15:v:51:C:H6	1.80	0.45
18:c:87:ARG:O	18:c:91:ALA:CB	2.65	0.45
18:c:141:MET:HG3	18:c:169:GLU:HB3	1.99	0.45
25:A:18:U:O2'	25:A:554:U:OP1	2.35	0.45
25:A:321:U:H4'	25:A:322:A:OP2	2.14	0.45
25:A:529:A:OP2	34:J:113:PRO:HD3	2.17	0.45
25:A:568:U:H2'	25:A:570:G:OP2	2.17	0.45
25:A:1857:G:H2'	25:A:1884:G:H22	1.82	0.45
25:A:2141:G:N2	25:A:2151:U:H1'	2.31	0.45
25:A:2851:A:H2'	25:A:2852:G:O4'	2.17	0.45
26:B:13:G:N7	26:B:70:C:H4'	2.31	0.45
29:E:159:LEU:C	29:E:161:ALA:H	2.25	0.45
30:F:138:PRO:HB3	57:6:32:LEU:HD11	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:H:2:GLN:HB3	32:H:39:ALA:HB3	1.99	0.45
32:H:77:THR:OG1	32:H:143:ILE:O	2.32	0.45
3:d:99:ASN:OD1	3:d:110:ARG:NH1	2.49	0.45
14:u:19:LYS:HD2	14:u:19:LYS:N	2.32	0.45
25:A:674:G:H5'	29:E:71:GLY:H	1.81	0.45
25:A:974:G:H1'	25:A:975:A:C8	2.52	0.45
25:A:1682:G:H2'	25:A:1683:U:C6	2.52	0.45
25:A:1916:A:H2'	25:A:1917:PSU:O4'	2.16	0.45
25:A:2846:G:H2'	25:A:2847:U:O4'	2.17	0.45
31:G:37:ASN:OD1	31:G:38:ASP:N	2.50	0.45
31:G:70:LEU:O	31:G:74:MET:HG3	2.15	0.45
31:G:95:ALA:HB1	31:G:130:ILE:HD11	1.97	0.45
4:e:121:ASN:O	4:e:122:VAL:HG22	2.16	0.45
5:f:9:MET:HE1	5:f:51:ILE:HD13	1.98	0.45
9:o:45:HIS:C	9:o:47:LYS:H	2.23	0.45
15:v:23:C:H2'	15:v:24:U:C6	2.52	0.45
25:A:1088:A:H61	33:I:134:SER:CB	2.29	0.45
25:A:1152:C:H2'	25:A:1153:C:C6	2.51	0.45
25:A:1198:U:H2'	25:A:1199:U:C6	2.52	0.45
25:A:1315:C:H2'	25:A:1316:U:C6	2.50	0.45
25:A:2638:G:H1'	25:A:2778:A:N6	2.32	0.45
25:A:2793:C:H2'	25:A:2794:C:C6	2.52	0.45
25:A:2840:C:H2'	25:A:2841:C:C6	2.52	0.45
25:A:2861:U:H2'	25:A:2862:G:C8	2.52	0.45
28:D:35:THR:HG22	28:D:73:VAL:HG21	1.98	0.45
28:D:40:LEU:HA	28:D:44:GLY:H	1.82	0.45
33:I:121:ILE:HA	33:I:124:MET:HE3	1.98	0.45
1:a:56:U:H2'	1:a:57:G:C8	2.52	0.45
1:a:89:U:H2'	1:a:90:C:O4'	2.17	0.45
1:a:624:C:O3'	10:p:10:GLY:HA2	2.17	0.45
1:a:1225:A:H5'	1:a:1226:C:OP2	2.16	0.45
1:a:1323:G:H2'	1:a:1324:A:C8	2.52	0.45
1:a:1492:A:C8	1:a:1492:A:OP2	2.70	0.45
5:f:32:ALA:C	5:f:34:GLY:H	2.25	0.45
6:h:39:LEU:HD21	6:h:128:VAL:HG21	1.99	0.45
9:o:52:ARG:O	9:o:55:LEU:HB3	2.17	0.45
9:o:88:ARG:CZ	25:A:716:A:P	3.01	0.45
13:t:67:HIS:C	13:t:69:ASN:H	2.25	0.45
25:A:465:G:H2'	25:A:466:A:C8	2.51	0.45
25:A:1188:U:O2'	25:A:1189:A:H5'	2.16	0.45
25:A:2065:C:H2'	25:A:2066:C:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2100:G:H1	25:A:2189:U:H3	1.64	0.45
25:A:2512:C:H2'	25:A:2513:A:O4'	2.17	0.45
25:A:2514:U:H5''	34:J:81:ILE:HD11	1.99	0.45
25:A:2712:C:OP1	25:A:2714:G:H4'	2.17	0.45
30:F:56:LEU:HD13	30:F:88:VAL:HG23	1.99	0.45
1:a:668:G:H2'	1:a:669:G:H8	1.82	0.44
1:a:1026:G:H2'	1:a:1027:C:C6	2.52	0.44
3:d:166:LYS:HA	3:d:167:PRO:HD3	1.83	0.44
10:p:12:LYS:C	10:p:14:ARG:H	2.25	0.44
10:p:61:VAL:HG22	10:p:67:ILE:HD11	1.99	0.44
18:c:23:ALA:HB3	18:c:28:PHE:HD1	1.81	0.44
25:A:155:A:H2'	25:A:156:A:C8	2.52	0.44
25:A:414:C:H2'	25:A:415:A:C8	2.52	0.44
25:A:955:PSU:H5'	37:M:86:LYS:HD3	1.99	0.44
25:A:973:A:H5''	42:R:81:LYS:HD2	1.98	0.44
25:A:1328:A:H2'	25:A:1330:C:C4	2.52	0.44
25:A:1328:A:H2'	25:A:1330:C:C5	2.52	0.44
25:A:1590:A:H2'	25:A:1591:A:C8	2.53	0.44
25:A:1610:A:OP1	25:A:1611:C:H5	2.00	0.44
25:A:1744:A:H3'	25:A:1745:A:H8	1.81	0.44
25:A:2233:U:H2'	25:A:2234:G:H8	1.80	0.44
25:A:2271:G:OP1	47:W:14:ALA:HB1	2.17	0.44
1:a:921:U:O2	4:e:23:THR:CB	2.58	0.44
1:a:1306:A:H62	1:a:1331:G:H1'	1.82	0.44
1:a:1391:U:H2'	1:a:1392:G:C8	2.52	0.44
8:l:76:HIS:O	8:l:77:SER:OG	2.30	0.44
8:l:115:LYS:C	8:l:117:GLY:H	2.25	0.44
18:c:32:LEU:O	18:c:35:ASP:HB3	2.16	0.44
25:A:780:G:OP1	27:C:216:ARG:NH2	2.49	0.44
25:A:1014:A:H2'	25:A:1015:U:C6	2.52	0.44
25:A:1528:A:H2'	25:A:1529:G:O4'	2.17	0.44
25:A:2146:C:H4'	25:A:2147:A:C4	2.52	0.44
25:A:2291:U:H2'	25:A:2292:U:H6	1.77	0.44
29:E:49:ARG:O	29:E:74:LYS:HE2	2.17	0.44
55:4:22:VAL:HG11	55:4:36:ARG:HH11	1.82	0.44
1:a:358:U:H2'	1:a:359:G:H8	1.82	0.44
2:b:118:THR:O	2:b:121:GLN:HG2	2.17	0.44
25:A:117:G:C6	25:A:119:A:C6	3.05	0.44
25:A:307:G:N1	25:A:310:A:OP2	2.50	0.44
25:A:651:G:H5'	54:3:18:LYS:HG3	1.99	0.44
25:A:1807:G:H2'	25:A:1808:A:H5'	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2022:U:O4	51:O:5:ASN:ND2	2.50	0.44
25:A:2093:G:OP1	32:H:24:GLY:HA3	2.18	0.44
25:A:2208:C:H2'	25:A:2209:G:C8	2.52	0.44
25:A:2221:G:H2'	25:A:2222:C:C6	2.52	0.44
25:A:2427:C:C5'	25:A:2429:G:H5'	2.46	0.44
29:E:18:THR:HA	29:E:106:LYS:HE3	1.99	0.44
33:I:18:ASN:HB2	33:I:38:CYS:HB3	1.99	0.44
34:J:63:ALA:HA	34:J:69:ARG:NH2	2.32	0.44
37:M:5:LYS:O	37:M:6:ARG:HG2	2.17	0.44
41:Q:57:ARG:HA	41:Q:60:TRP:CE3	2.53	0.44
42:R:24:LYS:HD3	42:R:92:TRP:HB3	1.99	0.44
42:R:79:ARG:C	42:R:81:LYS:H	2.25	0.44
1:a:769:G:H4'	1:a:1513:A:H4'	1.98	0.44
5:f:24:ARG:NH1	5:f:24:ARG:HB3	2.32	0.44
12:r:54:LEU:O	12:r:58:ILE:HG12	2.17	0.44
14:u:64:ALA:O	14:u:66:ARG:N	2.42	0.44
15:v:6:G:H1	15:v:67:C:H42	1.63	0.44
23:n:63:ARG:NH1	23:n:70:PRO:HD3	2.32	0.44
25:A:753:A:OP2	25:A:753:A:C8	2.67	0.44
25:A:2307:G:H8	25:A:2307:G:OP1	2.00	0.44
32:H:30:LEU:HB3	32:H:36:ALA:HB3	2.00	0.44
34:J:35:ARG:HB2	34:J:54:ILE:HD11	1.98	0.44
36:L:51:GLU:OE1	36:L:56:PRO:HA	2.17	0.44
38:N:28:LEU:HD13	38:N:34:ILE:HG12	2.00	0.44
40:P:77:SER:O	40:P:80:VAL:HG22	2.18	0.44
56:5:87:GLU:OE2	56:5:95:LEU:HB2	2.17	0.44
1:a:613:C:H2'	1:a:614:C:C6	2.51	0.44
1:a:923:A:H2'	1:a:924:C:O4'	2.18	0.44
1:a:1162:C:H2'	1:a:1163:A:C8	2.52	0.44
1:a:1287:A:H2'	1:a:1288:A:C8	2.53	0.44
24:s:66:VAL:CG1	57:6:60:PHE:CG	3.01	0.44
25:A:458:G:O2'	25:A:459:U:P	2.76	0.44
25:A:1266:G:O2'	25:A:2012:G:N1	2.38	0.44
25:A:1363:C:O2'	25:A:1809:A:N3	2.47	0.44
25:A:1525:A:H2'	25:A:1526:C:O4'	2.17	0.44
25:A:1614:A:C2	43:S:93:ALA:HB2	2.53	0.44
25:A:2121:G:H2'	25:A:2122:U:O4'	2.18	0.44
25:A:2197:U:O2'	25:A:2198:A:H2'	2.17	0.44
33:I:56:VAL:HG13	33:I:58:ILE:HD11	1.99	0.44
34:J:110:PRO:O	34:J:115:GLY:HA3	2.17	0.44
50:Z:23:LEU:HD11	50:Z:53:MET:SD	2.58	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:469:C:H2'	1:a:470:C:O4'	2.18	0.44
2:b:31:PHE:CE2	2:b:41:ASN:HB2	2.53	0.44
18:c:187:GLU:CD	18:c:187:GLU:H	2.26	0.44
25:A:598:U:H2'	25:A:599:A:C8	2.52	0.44
25:A:1432:G:O2'	25:A:1433:A:H5'	2.18	0.44
25:A:2325:G:C6	25:A:2326:C:N4	2.86	0.44
25:A:2572:A:C8	28:D:149:ASN:ND2	2.86	0.44
31:G:154:GLU:C	31:G:156:TYR:H	2.24	0.44
43:S:20:VAL:HG11	43:S:44:ALA:HA	2.00	0.44
1:a:1039:G:H2'	1:a:1040:U:H6	1.82	0.44
1:a:1343:G:O2'	20:i:122:ARG:HD2	2.18	0.44
5:f:24:ARG:HB3	5:f:24:ARG:HH11	1.83	0.44
7:k:51:PHE:CE2	7:k:64:VAL:HG11	2.52	0.44
25:A:756:A:H2'	25:A:757:G:O4'	2.17	0.44
25:A:1204:A:H4'	25:A:1205:A:H5''	1.99	0.44
25:A:1278:C:H2'	25:A:1279:G:C8	2.53	0.44
25:A:1563:U:H2'	25:A:1564:C:C6	2.53	0.44
25:A:1806:C:H1'	27:C:43:ASN:HD21	1.83	0.44
25:A:2489:U:C4	25:A:2490:G:C6	3.05	0.44
25:A:2773:C:H2'	25:A:2774:C:C6	2.53	0.44
35:K:64:ARG:HB2	35:K:83:ALA:HB3	2.00	0.44
35:K:71:ARG:HH11	35:K:77:ILE:HD11	1.83	0.44
1:a:518:C:P	17:w:514:ALA:H	2.40	0.44
1:a:763:G:H2'	1:a:764:C:C6	2.53	0.44
1:a:1001:C:H2'	1:a:1002:G:C8	2.52	0.44
1:a:1127:G:H22	1:a:1145:A:H2	1.65	0.44
20:i:117:LEU:HB3	20:i:118:ARG:H	1.63	0.44
25:A:19:A:H5''	41:Q:21:LYS:HG2	2.00	0.44
25:A:232:G:OP2	25:A:232:G:H8	2.01	0.44
25:A:600:G:H2'	25:A:601:C:O4'	2.17	0.44
25:A:1820:U:C2	27:C:200:MET:HB2	2.53	0.44
30:F:97:GLU:HG2	57:6:25:ARG:HB2	1.99	0.44
30:F:120:SER:HB2	30:F:127:TYR:CE1	2.53	0.44
36:L:57:LEU:HD22	54:3:53:ASP:HB3	1.98	0.44
1:a:490:C:H2'	1:a:491:G:C8	2.52	0.44
1:a:680:C:H2'	1:a:681:A:C8	2.53	0.44
1:a:860:A:H2'	1:a:861:G:O4'	2.18	0.44
1:a:909:A:OP1	8:l:17:LYS:HD3	2.18	0.44
1:a:1432:G:P	40:P:105:LYS:HG3	2.58	0.44
4:e:80:LEU:HD21	4:e:95:MET:HE2	1.99	0.44
18:c:39:ARG:HG3	18:c:54:ILE:HD11	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:n:81:ARG:HA	23:n:84:VAL:HG12	1.99	0.44
25:A:278:A:C2	25:A:362:A:H1'	2.53	0.44
25:A:310:A:C2'	25:A:311:A:H5''	2.48	0.44
25:A:463:G:N2	25:A:466:A:OP2	2.36	0.44
25:A:971:G:H2'	25:A:972:A:O4'	2.18	0.44
25:A:1094:U:H2'	25:A:1096:A:N7	2.33	0.44
25:A:1361:G:H2'	25:A:1362:C:C6	2.52	0.44
25:A:1746:A:H2'	25:A:1747:U:C6	2.53	0.44
25:A:2204:G:H4'	27:C:149:LYS:HD3	1.99	0.44
25:A:2859:G:H2'	25:A:2860:A:C8	2.53	0.44
34:J:7:LYS:HB2	34:J:10:THR:OG1	2.18	0.44
36:L:95:LEU:HD22	36:L:100:ILE:HD11	1.98	0.44
1:a:50:A:H4'	1:a:51:A:H5'	2.00	0.43
1:a:1157:A:H61	1:a:1178:G:H1'	1.83	0.43
1:a:1219:A:H2'	1:a:1220:G:H8	1.83	0.43
1:a:1426:G:H2'	1:a:1427:C:O4'	2.17	0.43
8:l:35:ARG:HH12	8:l:37:TYR:HB3	1.83	0.43
11:q:45:VAL:HG22	11:q:72:TRP:HB2	1.99	0.43
25:A:278:A:H2'	25:A:278:A:N3	2.32	0.43
25:A:563:A:OP2	42:R:79:ARG:NH2	2.50	0.43
25:A:1866:A:H2'	25:A:1867:G:O4'	2.18	0.43
25:A:1956:U:C2'	25:A:1957:C:H5'	2.48	0.43
34:J:43:GLU:CD	34:J:43:GLU:H	2.26	0.43
57:6:37:CYS:SG	57:6:39:LYS:O	2.73	0.43
1:a:532:A:N3	1:a:532:A:H2'	2.33	0.43
1:a:580:C:H2'	1:a:581:G:O4'	2.19	0.43
1:a:681:A:H2'	1:a:682:G:C8	2.53	0.43
1:a:709:U:H2'	1:a:710:G:C8	2.53	0.43
1:a:751:U:H2'	1:a:752:G:O4'	2.18	0.43
11:q:59:GLU:HB2	11:q:75:VAL:HB	2.00	0.43
18:c:80:GLY:O	18:c:83:VAL:HB	2.18	0.43
18:c:149:LYS:HG3	18:c:149:LYS:O	2.17	0.43
19:g:111:GLY:HA2	19:g:118:ARG:HD3	1.98	0.43
25:A:546:U:H1'	25:A:548:G:C2	2.53	0.43
25:A:678:C:H2'	25:A:679:C:C6	2.53	0.43
25:A:1127:A:H2'	25:A:1128:G:H5''	2.00	0.43
25:A:1235:G:C6	25:A:1236:G:N2	2.86	0.43
25:A:2712:C:H3'	25:A:2714:G:H5''	1.99	0.43
30:F:3:LEU:HD13	30:F:96:TRP:HE3	1.83	0.43
33:I:104:GLN:O	33:I:107:GLU:HB3	2.18	0.43
33:I:104:GLN:O	33:I:108:ILE:HG13	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:M:60:GLN:NE2	37:M:108:VAL:HG12	2.33	0.43
41:Q:5:ARG:HB2	41:Q:8:ILE:HD11	2.00	0.43
50:Z:44:ARG:HD2	50:Z:47:ILE:HD12	1.99	0.43
1:a:175:C:H2'	1:a:176:C:C6	2.53	0.43
1:a:192:A:H2'	1:a:193:C:O4'	2.19	0.43
1:a:1432:G:O2'	1:a:1433:A:H8	2.02	0.43
14:u:28:LEU:C	14:u:30:GLU:N	2.76	0.43
18:c:55:VAL:HB	18:c:66:THR:HB	2.00	0.43
24:s:10:ILE:HD13	24:s:15:LEU:HD22	1.99	0.43
25:A:17:G:H4'	41:Q:24:TYR:HE1	1.83	0.43
25:A:494:G:H4'	43:S:6:LYS:O	2.18	0.43
25:A:1679:A:H2'	25:A:1680:U:C6	2.54	0.43
25:A:2112:G:H5'	25:A:2113:U:C5	2.53	0.43
25:A:2730:C:O2'	25:A:2731:G:H5'	2.18	0.43
25:A:2783:U:H2'	25:A:2784:U:C6	2.52	0.43
27:C:86:ARG:HD3	27:C:104:LEU:HD21	2.01	0.43
29:E:102:ARG:NH1	29:E:200:LEU:O	2.51	0.43
30:F:153:ILE:H	30:F:153:ILE:HD12	1.82	0.43
45:U:83:GLY:O	45:U:93:ARG:HA	2.19	0.43
57:6:58:ASP:OD1	57:6:58:ASP:N	2.49	0.43
1:a:79:G:N2	1:a:80:A:H1'	2.33	0.43
1:a:202:G:H1	1:a:215:C:H42	1.66	0.43
1:a:1252:A:H2'	1:a:1253:G:O4'	2.18	0.43
1:a:1347:G:O2'	1:a:1348:U:OP2	2.37	0.43
4:e:106:ALA:HB2	4:e:124:ALA:HB3	2.00	0.43
7:k:60:PHE:O	7:k:63:GLN:HB3	2.18	0.43
20:i:6:TYR:HE1	20:i:17:ARG:HB3	1.83	0.43
25:A:207:A:H2'	25:A:208:C:O4'	2.19	0.43
25:A:249:C:O2	54:3:11:LYS:NZ	2.51	0.43
25:A:1637:A:H5'	25:A:1760:C:O2'	2.18	0.43
25:A:1872:A:H2'	25:A:1873:G:O4'	2.18	0.43
25:A:2884:U:C6	51:0:49:ARG:HG2	2.53	0.43
30:F:24:VAL:O	30:F:27:VAL:HG12	2.17	0.43
39:O:31:THR:HG22	39:O:33:ARG:H	1.84	0.43
40:P:27:VAL:HG12	40:P:29:VAL:HG23	2.01	0.43
46:V:30:ILE:HG12	46:V:91:PHE:HB2	2.00	0.43
54:3:27:ASN:O	54:3:35:LYS:HE2	2.18	0.43
54:3:32:LEU:HD23	54:3:35:LYS:HD2	2.00	0.43
1:a:571:U:OP1	1:a:819:A:O2'	2.35	0.43
1:a:1190:G:O2'	18:c:2:GLN:HG3	2.19	0.43
1:a:1251:A:H2'	1:a:1252:A:O4'	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1320:C:C2	24:s:71:GLY:HA3	2.52	0.43
5:f:18:VAL:O	5:f:19:PRO:C	2.61	0.43
5:f:24:ARG:CZ	32:H:86:ASP:HB3	2.48	0.43
18:c:36:PHE:O	18:c:40:GLN:HG3	2.19	0.43
25:A:2066:C:O2'	25:A:2067:G:H5'	2.18	0.43
33:I:11:GLN:NE2	33:I:56:VAL:HG12	2.34	0.43
34:J:37:ARG:NH2	34:J:110:PRO:HG3	2.33	0.43
34:J:102:GLU:HG3	34:J:119:PHE:CZ	2.52	0.43
58:7:79:GLY:O	58:7:80:LEU:C	2.62	0.43
1:a:531:U:H1'	1:a:532:A:OP1	2.19	0.43
1:a:552:U:H2'	1:a:553:A:C8	2.53	0.43
1:a:709:U:H2'	1:a:710:G:H8	1.83	0.43
1:a:721:G:C2	1:a:733:G:C6	3.07	0.43
1:a:1327:C:H2'	1:a:1328:C:C6	2.54	0.43
1:a:1435:G:H2'	1:a:1436:U:C6	2.53	0.43
5:f:9:MET:HB2	5:f:85:ILE:O	2.19	0.43
14:u:9:GLU:HB2	14:u:10:PRO:HD3	2.00	0.43
25:A:900:A:H2'	25:A:901:C:O4'	2.19	0.43
25:A:938:G:H2'	25:A:939:G:H8	1.83	0.43
25:A:1509:A:H2'	25:A:1510:G:H8	1.82	0.43
25:A:1996:C:H4'	25:A:1997:C:OP1	2.19	0.43
25:A:2358:A:H2'	25:A:2359:C:O4'	2.19	0.43
25:A:2646:C:H2'	25:A:2647:U:O4'	2.19	0.43
25:A:2837:A:H2'	25:A:2838:G:C8	2.54	0.43
36:L:135:ILE:HB	36:L:142:ILE:HD11	2.01	0.43
1:a:508:U:H1'	1:a:509:A:N7	2.34	0.43
1:a:1234:C:H2'	1:a:1235:U:C6	2.54	0.43
1:a:1492:A:N3	1:a:1492:A:C2'	2.80	0.43
3:d:191:SER:OG	3:d:192:ALA:N	2.52	0.43
21:j:18:ILE:HA	21:j:21:ALA:HB3	2.00	0.43
22:m:70:ARG:HD2	57:6:50:ASP:OD1	2.18	0.43
25:A:63:A:H2'	25:A:64:A:C8	2.53	0.43
25:A:2526:G:H2'	25:A:2527:C:H6	1.83	0.43
25:A:2567:G:H2'	25:A:2568:U:C6	2.54	0.43
25:A:2590:A:H2'	25:A:2591:C:C6	2.54	0.43
37:M:50:ARG:HA	37:M:53:MET:HE2	2.01	0.43
55:4:30:GLU:HA	55:4:31:PRO:HD3	1.89	0.43
56:5:57:ASN:ND2	56:5:63:ALA:HB2	2.33	0.43
1:a:123:U:OP1	1:a:312:C:H5'	2.18	0.43
1:a:305:G:H5''	1:a:306:A:OP1	2.18	0.43
1:a:502:A:OP1	8:l:114:SER:HB2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:537:G:H5''	8:l:109:ARG:NH1	2.34	0.43
6:h:63:LYS:HB3	6:h:70:VAL:HG21	2.00	0.43
9:o:58:MET:HE3	9:o:58:MET:HB2	1.86	0.43
10:p:12:LYS:C	10:p:14:ARG:N	2.76	0.43
15:v:61:C:H2'	15:v:62:C:H6	1.84	0.43
18:c:116:ALA:HB1	18:c:186:SER:OG	2.19	0.43
19:g:137:ARG:NH1	19:g:141:HIS:CE1	2.86	0.43
25:A:723:C:H2'	25:A:724:U:O4'	2.19	0.43
25:A:1378:A:C4	25:A:1380:G:N7	2.87	0.43
25:A:2286:G:H5''	25:A:2287:A:OP1	2.18	0.43
25:A:2347:C:H2'	25:A:2348:U:C6	2.54	0.43
25:A:2619:C:O2'	25:A:2620:C:H5'	2.19	0.43
25:A:2884:U:C5	51:0:49:ARG:HG2	2.54	0.43
28:D:16:THR:OG1	28:D:20:VAL:O	2.24	0.43
29:E:178:VAL:O	29:E:182:ALA:HB2	2.19	0.43
34:J:31:GLU:HG2	34:J:142:ILE:HG12	2.01	0.43
36:L:62:PRO:HG2	54:3:24:LYS:HB3	1.99	0.43
37:M:69:PRO:HA	37:M:94:ALA:HB2	2.00	0.43
41:Q:107:ALA:O	42:R:48:LYS:HE3	2.19	0.43
43:S:23:LEU:HD22	51:0:23:ALA:HB2	2.00	0.43
56:5:40:GLU:O	56:5:43:LYS:HB3	2.18	0.43
1:a:18:C:C4'	1:a:1078:U:C2	2.92	0.43
1:a:147:G:H2'	1:a:148:G:C8	2.54	0.43
1:a:309:A:H2'	1:a:310:G:H8	1.83	0.43
1:a:1396:A:H4'	1:a:1397:C:H5''	1.97	0.43
3:d:173:ASP:C	3:d:175:GLY:N	2.77	0.43
18:c:58:ARG:CZ	18:c:63:ILE:HD13	2.48	0.43
25:A:242:G:N7	54:3:4:LYS:HG2	2.34	0.43
25:A:249:C:O2'	36:L:63:LYS:NZ	2.30	0.43
25:A:364:C:H2'	25:A:365:U:C6	2.54	0.43
25:A:476:G:H4'	25:A:502:A:N1	2.34	0.43
25:A:1070:A:H4'	25:A:1071:G:OP2	2.19	0.43
25:A:1386:C:H2'	25:A:1387:A:H8	1.81	0.43
25:A:2141:G:H2'	25:A:2142:A:H8	1.84	0.43
25:A:2848:G:O2'	25:A:2849:U:H5'	2.18	0.43
34:J:56:VAL:HB	34:J:124:VAL:HG12	1.99	0.43
36:L:57:LEU:C	36:L:59:ARG:H	2.27	0.43
51:0:28:SER:O	51:0:36:LYS:HA	2.18	0.43
1:a:256:U:H2'	1:a:257:G:C8	2.54	0.43
1:a:696:A:H2'	1:a:697:U:C6	2.54	0.43
1:a:1273:C:H2'	1:a:1274:A:O4'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:b:46:VAL:HB	2:b:47:PRO:HD3	1.99	0.43
2:b:185:ILE:HD12	2:b:212:TYR:CD2	2.54	0.43
3:d:77:GLU:HA	3:d:80:ARG:HG2	2.01	0.43
18:c:40:GLN:NE2	18:c:40:GLN:C	2.77	0.43
18:c:59:PRO:HD2	18:c:62:SER:O	2.19	0.43
19:g:137:ARG:NH2	19:g:138:GLU:OE2	2.52	0.43
24:s:41:PRO:HG3	57:6:60:PHE:CD2	2.54	0.43
25:A:1421:G:C2	25:A:1422:G:C8	3.07	0.43
25:A:1469:A:H2'	25:A:1470:A:C8	2.54	0.43
25:A:1788:C:O2'	25:A:1789:A:H5'	2.19	0.43
25:A:2038:G:H2'	25:A:2039:U:O4'	2.19	0.43
25:A:2466:C:OP1	55:4:4:ARG:HB3	2.18	0.43
25:A:2728:U:H2'	25:A:2729:G:H8	1.84	0.43
34:J:99:ARG:HA	34:J:102:GLU:HB3	2.01	0.43
37:M:34:LYS:HA	37:M:101:VAL:HA	2.01	0.43
44:T:64:LYS:N	44:T:64:LYS:HD2	2.34	0.43
46:V:6:ALA:HB2	46:V:42:LEU:HB3	2.01	0.43
51:0:6:LYS:HA	51:0:7:PRO:HD3	1.87	0.43
57:6:39:LYS:O	57:6:40:CYS:CB	2.67	0.43
1:a:216:U:H2'	1:a:217:C:C6	2.54	0.42
1:a:1346:A:H2'	1:a:1346:A:N3	2.34	0.42
3:d:145:ARG:HH21	3:d:147:LYS:HE2	1.84	0.42
4:e:12:GLU:HB3	4:e:38:VAL:HG12	2.01	0.42
7:k:81:LEU:HD11	7:k:99:LEU:HD23	2.01	0.42
12:r:70:THR:HG23	12:r:71:ASP:N	2.33	0.42
13:t:28:ARG:O	13:t:32:LYS:HG2	2.19	0.42
15:v:72:A:H2'	15:v:73:A:O4'	2.19	0.42
18:c:27:GLU:O	18:c:31:ASN:HB2	2.19	0.42
25:A:191:A:H2'	25:A:192:C:C6	2.54	0.42
25:A:1204:A:H4'	25:A:1205:A:C5'	2.49	0.42
25:A:1726:C:H2'	25:A:1727:C:C6	2.54	0.42
25:A:1936:A:H2	25:A:1943:U:N3	2.09	0.42
25:A:2494:G:O2'	37:M:79:ALA:HA	2.18	0.42
25:A:2684:U:O4'	35:K:70:ARG:NH1	2.52	0.42
26:B:53:A:H2'	26:B:53:A:N3	2.33	0.42
26:B:79:G:N7	46:V:14:LYS:NZ	2.66	0.42
33:I:112:LYS:O	33:I:116:MET:HG2	2.18	0.42
48:X:4:CYS:HA	48:X:32:LEU:HD21	2.01	0.42
48:X:31:ASN:O	48:X:51:SER:HA	2.19	0.42
1:a:219:U:H2'	1:a:220:G:H8	1.83	0.42
1:a:501:C:H2'	1:a:502:A:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:l:45:ASN:O	8:l:46:SER:CB	2.67	0.42
20:i:113:LYS:HE2	20:i:118:ARG:O	2.18	0.42
25:A:255:A:H2'	25:A:256:A:O4'	2.19	0.42
25:A:278:A:H2	25:A:362:A:H1'	1.83	0.42
25:A:1022:G:N2	25:A:1142:A:C2	2.87	0.42
25:A:1783:A:N1	25:A:2587:A:H2'	2.33	0.42
25:A:2361:G:O3'	54:3:27:ASN:ND2	2.49	0.42
31:G:82:PHE:O	31:G:133:LYS:HA	2.19	0.42
33:I:92:PRO:HB2	33:I:93:ASN:H	1.73	0.42
45:U:40:LEU:HD23	45:U:61:GLU:HG3	2.01	0.42
56:5:18:VAL:HG11	56:5:70:GLU:HB3	2.01	0.42
56:5:71:CYS:HB3	56:5:117:LEU:HD12	2.02	0.42
1:a:297:G:N2	1:a:300:A:OP2	2.42	0.42
1:a:707:U:H2'	1:a:708:C:C6	2.55	0.42
1:a:707:U:O2'	7:k:38:GLY:O	2.33	0.42
1:a:791:G:N2	1:a:1498:UR3:OP1	2.52	0.42
2:b:209:VAL:O	2:b:213:LEU:HB2	2.19	0.42
4:e:13:LYS:HZ1	4:e:112:ALA:HB1	1.85	0.42
8:l:75:GLU:OE2	17:w:383:THR:O	2.36	0.42
25:A:182:A:H2'	25:A:183:C:O4'	2.18	0.42
25:A:189:G:H2'	25:A:205:G:N2	2.34	0.42
25:A:1028:A:N3	25:A:2486:C:O2'	2.42	0.42
25:A:1201:U:H2'	25:A:1202:G:C8	2.55	0.42
25:A:1816:C:H3'	27:C:61:TYR:CE1	2.54	0.42
25:A:2415:G:H2'	25:A:2416:C:C6	2.55	0.42
25:A:2530:A:N6	31:G:155:PRO:HG3	2.34	0.42
25:A:2572:A:H2'	28:D:149:ASN:ND2	2.34	0.42
25:A:2682:A:H61	25:A:2728:U:C1'	2.27	0.42
26:B:85:G:H2'	26:B:86:G:H8	1.84	0.42
27:C:179:GLU:HG3	27:C:269:ARG:HA	2.00	0.42
29:E:128:ALA:C	29:E:130:LYS:H	2.26	0.42
1:a:16:A:N3	1:a:1080:A:H1'	2.34	0.42
1:a:35:G:O2'	8:l:114:SER:O	2.34	0.42
1:a:390:U:H4'	10:p:28:ARG:NH2	2.33	0.42
1:a:502:A:H2'	1:a:503:C:O4'	2.19	0.42
1:a:860:A:N6	1:a:861:G:C2	2.87	0.42
1:a:1081:A:H4'	4:e:22:LYS:HG3	2.01	0.42
2:b:56:LEU:HD23	2:b:59:ILE:HD11	2.00	0.42
5:f:86:ARG:HH11	5:f:86:ARG:HB2	1.83	0.42
8:l:3:VAL:HG23	11:q:33:TYR:HB3	2.00	0.42
20:i:106:ASP:OD2	20:i:108:ARG:HD3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:158:U:O2	25:A:169:G:N2	2.52	0.42
25:A:413:C:H2'	25:A:414:C:H6	1.85	0.42
25:A:789:A:C6	53:2:3:ARG:NH1	2.88	0.42
25:A:816:C:H2'	25:A:817:C:C6	2.54	0.42
25:A:1923:U:H2'	25:A:1924:C:C6	2.55	0.42
25:A:2128:G:H2'	25:A:2129:C:O4'	2.18	0.42
28:D:101:PHE:HA	28:D:104:VAL:HG22	2.02	0.42
31:G:51:PHE:CE1	31:G:71:LEU:HD22	2.54	0.42
34:J:35:ARG:HD3	34:J:40:HIS:CD2	2.54	0.42
35:K:108:ARG:NH1	35:K:116:ILE:HD13	2.34	0.42
41:Q:57:ARG:NH1	41:Q:61:ILE:HD11	2.34	0.42
42:R:33:VAL:HG23	42:R:61:ALA:HB3	2.01	0.42
44:T:38:ALA:HA	44:T:42:GLU:OE1	2.19	0.42
52:1:32:LYS:HB3	52:1:50:GLU:HB3	2.01	0.42
1:a:25:C:H2'	1:a:26:A:C8	2.55	0.42
1:a:621:A:H2'	1:a:622:A:C8	2.55	0.42
1:a:686:U:H2'	1:a:687:A:C8	2.54	0.42
1:a:985:C:H2'	1:a:986:U:H6	1.85	0.42
1:a:1079:G:H5''	4:e:49:TYR:HE2	1.73	0.42
1:a:1302:C:H42	22:m:13:HIS:CD2	2.38	0.42
1:a:1371:G:O3'	20:i:70:GLY:HA3	2.18	0.42
4:e:11:GLN:HE22	4:e:116:VAL:HA	1.83	0.42
7:k:35:ASP:OD1	7:k:39:ASN:N	2.48	0.42
18:c:31:ASN:HD21	18:c:58:ARG:HD2	1.84	0.42
18:c:34:SER:O	18:c:37:LYS:HB2	2.19	0.42
19:g:30:MET:HE2	19:g:30:MET:HB3	1.94	0.42
25:A:118:A:H2'	25:A:120:U:O4	2.19	0.42
25:A:1816:C:H41	27:C:34:GLU:CD	2.27	0.42
25:A:2362:C:P	54:3:27:ASN:ND2	2.92	0.42
25:A:2896:C:H2'	25:A:2897:U:C6	2.54	0.42
30:F:48:LEU:HA	30:F:51:ASN:ND2	2.34	0.42
41:Q:78:PHE:HE1	41:Q:109:VAL:HA	1.85	0.42
1:a:218:U:H2'	1:a:219:U:O4'	2.20	0.42
1:a:1124:G:O2'	1:a:1145:A:N1	2.52	0.42
1:a:1263:C:H2'	1:a:1264:U:C6	2.54	0.42
24:s:62:THR:HG22	24:s:63:ASP:H	1.85	0.42
25:A:783:A:H2'	25:A:784:G:H4'	2.02	0.42
25:A:811:U:C4	36:L:21:ARG:NH2	2.87	0.42
25:A:1366:A:H2'	25:A:1367:A:O4'	2.20	0.42
25:A:1486:U:O2'	25:A:1487:U:H5'	2.19	0.42
25:A:1529:G:H2'	25:A:1530:G:O4'	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:2059:A:H2'	25:A:2503:2MA:HM23	2.01	0.42
25:A:2398:U:H2'	25:A:2399:G:C8	2.54	0.42
30:F:92:GLY:N	30:F:95:MET:HG2	2.34	0.42
34:J:4:PHE:HE2	34:J:43:GLU:HB2	1.84	0.42
43:S:84:ARG:HB2	43:S:96:ILE:HG13	2.00	0.42
44:T:33:LYS:HG2	44:T:80:TRP:CZ3	2.55	0.42
55:4:1:MET:HE2	55:4:36:ARG:HB2	2.02	0.42
58:7:81:LYS:O	58:7:82:GLU:C	2.62	0.42
1:a:878:A:H2'	1:a:879:C:C6	2.55	0.42
1:a:1126:U:H5	21:j:73:LEU:HD11	1.85	0.42
2:b:167:HIS:ND1	2:b:168:GLU:HG3	2.34	0.42
22:m:27:THR:HA	22:m:30:LYS:HE2	2.02	0.42
25:A:17:G:H4'	41:Q:24:TYR:CE1	2.54	0.42
25:A:156:A:H2'	25:A:157:C:O4'	2.20	0.42
25:A:848:C:H2'	25:A:849:A:C8	2.55	0.42
25:A:1141:U:OP2	34:J:65:THR:OG1	2.34	0.42
25:A:1413:A:H2'	25:A:1414:C:O4'	2.20	0.42
25:A:1796:U:H2'	25:A:1797:G:H8	1.84	0.42
25:A:2016:U:H1'	51:0:2:VAL:HG13	2.01	0.42
25:A:2040:G:H2'	25:A:2041:U:O4'	2.20	0.42
25:A:2637:U:H2'	25:A:2638:G:O4'	2.19	0.42
25:A:2682:A:N6	25:A:2728:U:H1'	2.30	0.42
30:F:134:GLN:OE1	30:F:147:ARG:O	2.36	0.42
32:H:114:GLU:OE1	32:H:114:GLU:N	2.51	0.42
32:H:132:PHE:HB2	32:H:140:ALA:HB3	2.02	0.42
36:L:17:LYS:HE3	36:L:27:LEU:CD2	2.50	0.42
37:M:66:ARG:HG3	37:M:101:VAL:HG12	2.02	0.42
38:N:67:PHE:O	38:N:71:ARG:HD2	2.19	0.42
42:R:16:GLU:HB2	42:R:101:ILE:HG12	2.01	0.42
44:T:80:TRP:CD1	44:T:80:TRP:H	2.38	0.42
1:a:70:U:H4'	1:a:71:A:O5'	2.20	0.42
1:a:280:C:H4'	1:a:281:G:OP2	2.19	0.42
1:a:295:C:H2'	1:a:296:U:O4'	2.20	0.42
1:a:786:G:H2'	1:a:787:A:O4'	2.20	0.42
1:a:1081:A:C4'	4:e:22:LYS:HE2	2.48	0.42
1:a:1305:G:O2'	1:a:1306:A:P	2.77	0.42
2:b:17:HIS:HB3	2:b:18:GLN:H	1.62	0.42
3:d:108:ALA:H	3:d:112:GLU:CD	2.28	0.42
8:l:86:VAL:HG21	8:l:89:LEU:HB2	2.00	0.42
18:c:85:LYS:O	18:c:89:VAL:HG22	2.19	0.42
25:A:190:A:OP2	48:X:25:LYS:NZ	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:706:A:H2'	25:A:707:G:O4'	2.20	0.42
25:A:779:U:P	27:C:48:ILE:HG22	2.60	0.42
25:A:935:C:O2'	25:A:936:A:H5'	2.19	0.42
25:A:995:C:O2'	41:Q:92:LYS:HE2	2.20	0.42
25:A:1747:U:H2'	25:A:1748:C:C6	2.55	0.42
25:A:2648:G:N2	25:A:2673:G:H1'	2.35	0.42
25:A:2747:G:O6	25:A:2755:C:H5''	2.19	0.42
31:G:41:GLU:HB2	31:G:54:ARG:HE	1.85	0.42
1:a:335:C:C4'	1:a:1434:A:H4'	2.50	0.42
1:a:438:U:O2'	1:a:439:U:P	2.78	0.42
4:e:59:ILE:O	4:e:63:MET:HG2	2.20	0.42
19:g:85:GLN:HB2	19:g:147:ASN:ND2	2.35	0.42
21:j:73:LEU:HD23	21:j:73:LEU:HA	1.93	0.42
25:A:813:U:H2'	25:A:814:C:C6	2.55	0.42
25:A:1143:A:N7	34:J:27:ARG:NH1	2.67	0.42
25:A:1235:G:N1	25:A:1236:G:N2	2.68	0.42
25:A:1511:G:H2'	25:A:1512:C:C6	2.55	0.42
25:A:2545:G:H2'	25:A:2546:U:O4'	2.20	0.42
25:A:2556:C:H2'	25:A:2557:G:O4'	2.20	0.42
26:B:78:A:H2'	26:B:79:G:O4'	2.20	0.42
56:5:49:GLY:H	56:5:51:TYR:HE2	1.68	0.42
56:5:117:LEU:HD22	56:5:120:ALA:HA	2.02	0.42
1:a:380:G:N2	1:a:383:A:OP2	2.51	0.42
1:a:751:U:H4'	9:o:23:SER:HA	2.01	0.42
1:a:1074:G:O2'	2:b:102:ASN:HB2	2.20	0.42
4:e:165:GLY:O	6:h:113:ARG:HD2	2.19	0.42
7:k:112:VAL:HG12	12:r:72:ARG:CZ	2.49	0.42
8:l:4:ASN:CG	8:l:8:ARG:HH22	2.28	0.42
20:i:74:GLN:O	20:i:78:ILE:HG13	2.19	0.42
25:A:822:G:OP2	25:A:946:C:H5''	2.20	0.42
25:A:832:U:H2'	25:A:833:A:C8	2.55	0.42
25:A:1993:U:H4'	28:D:133:THR:HG22	2.02	0.42
25:A:2287:A:O2'	25:A:2288:A:H2'	2.20	0.42
27:C:259:ASN:O	27:C:261:ARG:N	2.47	0.42
30:F:132:ARG:O	30:F:150:GLY:HA3	2.19	0.42
35:K:7:MET:HE1	35:K:44:LYS:HG3	2.01	0.42
38:N:31:HIS:O	38:N:32:GLU:HB2	2.20	0.42
1:a:113:G:N3	1:a:353:A:O2'	2.53	0.41
1:a:338:A:H2'	1:a:339:C:O4'	2.20	0.41
1:a:868:C:H2'	1:a:869:G:O4'	2.20	0.41
1:a:1010:U:H2'	1:a:1011:C:C6	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1212:U:H4'	1:a:1213:A:C8	2.55	0.41
1:a:1402:4OC:H1'	1:a:1402:4OC:HM23	1.79	0.41
1:a:1491:G:H2'	1:a:1492:A:OP1	2.20	0.41
4:e:160:VAL:HG13	4:e:161:GLU:N	2.34	0.41
9:o:88:ARG:CD	25:A:714:U:H5	2.31	0.41
14:u:5:VAL:HG22	14:u:7:GLU:HG2	2.02	0.41
23:n:7:ALA:O	23:n:10:VAL:HG12	2.20	0.41
25:A:594:U:H2'	25:A:595:C:C6	2.54	0.41
25:A:1078:U:H4'	25:A:1079:C:H5''	2.02	0.41
25:A:1265:A:H3'	51:0:15:ARG:HH11	1.85	0.41
25:A:1880:U:H2'	25:A:1881:C:C6	2.55	0.41
25:A:2391:G:H5''	54:3:31:ILE:HD12	2.02	0.41
25:A:2572:A:OP1	25:A:2574:G:H4'	2.20	0.41
25:A:2709:G:H2'	25:A:2710:C:C6	2.55	0.41
27:C:2:VAL:HG21	27:C:201:LEU:HD12	2.02	0.41
29:E:97:ASN:O	29:E:100:MET:N	2.51	0.41
32:H:84:ALA:HB2	32:H:90:LEU:HD12	2.02	0.41
33:I:72:THR:HG21	33:I:112:LYS:HB3	2.02	0.41
39:O:33:ARG:HG2	39:O:34:HIS:CD2	2.55	0.41
52:1:10:LEU:HD23	52:1:50:GLU:HA	2.02	0.41
1:a:423:G:H3'	1:a:423:G:N3	2.36	0.41
1:a:994:A:N7	1:a:1216:A:H4'	2.35	0.41
1:a:1478:U:H2'	1:a:1479:C:C6	2.55	0.41
4:e:156:ARG:HG2	4:e:157:GLY:N	2.35	0.41
7:k:127:ARG:HB2	14:u:34:ARG:HH22	1.86	0.41
14:u:28:LEU:O	14:u:30:GLU:N	2.46	0.41
14:u:46:ARG:O	14:u:49:ALA:HB3	2.21	0.41
18:c:8:GLY:HA2	18:c:11:LEU:HG	2.02	0.41
20:i:30:ASN:C	20:i:32:ARG:H	2.26	0.41
25:A:84:A:N7	25:A:101:A:H2	2.18	0.41
25:A:366:C:H2'	25:A:367:G:O4'	2.19	0.41
25:A:1023:U:H4'	25:A:1123:C:OP1	2.21	0.41
25:A:1447:C:H2'	25:A:1448:G:C8	2.55	0.41
25:A:1847:G:O2'	25:A:1848:A:H8	2.03	0.41
25:A:2064:C:H2'	25:A:2065:C:C6	2.55	0.41
26:B:16:G:C6	26:B:17:C:C4	3.08	0.41
28:D:110:THR:HG21	28:D:169:ARG:HH11	1.85	0.41
29:E:122:GLU:HB2	29:E:123:LYS:H	1.68	0.41
30:F:139:GLU:HA	57:6:28:VAL:HG22	2.01	0.41
32:H:3:VAL:HA	32:H:38:PRO:HA	2.02	0.41
35:K:36:GLY:HA2	35:K:62:VAL:O	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:M:33:LEU:HD12	37:M:129:THR:O	2.20	0.41
54:3:29:ARG:HA	54:3:29:ARG:HD3	1.76	0.41
57:6:62:LYS:C	57:6:65:ASN:ND2	2.77	0.41
1:a:1225:A:H2'	1:a:1225:A:N3	2.35	0.41
2:b:180:ILE:HA	2:b:181:PRO:HD2	1.95	0.41
8:l:40:THR:HA	8:l:41:PRO:HD3	1.87	0.41
9:o:17:ASP:OD1	9:o:17:ASP:N	2.54	0.41
21:j:22:THR:HA	21:j:25:ILE:HG22	2.01	0.41
25:A:97:C:H2'	25:A:98:G:O4'	2.19	0.41
25:A:426:C:H2'	25:A:427:U:H6	1.85	0.41
25:A:1717:A:H2'	25:A:1718:G:O4'	2.19	0.41
25:A:2039:U:H2'	25:A:2040:G:C8	2.55	0.41
25:A:2287:A:C6	25:A:2289:G:C5	3.07	0.41
25:A:2746:U:H5''	31:G:137:LYS:HG2	2.01	0.41
25:A:2844:G:H2'	25:A:2845:U:O4'	2.20	0.41
37:M:51:ARG:C	37:M:53:MET:H	2.28	0.41
41:Q:109:VAL:HG12	41:Q:113:LYS:HE2	2.01	0.41
45:U:52:ASN:OD1	45:U:54:PRO:HD3	2.19	0.41
56:5:43:LYS:HB3	56:5:43:LYS:HE2	1.84	0.41
1:a:545:C:H5''	3:d:68:GLU:HG2	2.02	0.41
2:b:16:GLY:O	2:b:202:ASN:HB2	2.20	0.41
5:f:3:HIS:H	5:f:92:THR:HG22	1.85	0.41
6:h:4:ASP:HB2	6:h:80:PRO:HG3	2.01	0.41
14:u:3:ILE:N	14:u:19:LYS:HE3	2.36	0.41
15:v:6:G:H1	15:v:67:C:N4	2.18	0.41
18:c:29:ALA:HB2	23:n:76:LYS:O	2.20	0.41
18:c:56:ILE:CG2	18:c:63:ILE:HD11	2.50	0.41
19:g:56:SER:HB3	19:g:59:GLU:HG2	2.02	0.41
25:A:507:A:H5''	25:A:508:A:H3'	2.02	0.41
25:A:686:U:O2'	53:2:4:THR:O	2.22	0.41
25:A:1752:C:H2'	25:A:1753:G:C8	2.56	0.41
26:B:13:G:O2'	26:B:15:A:H2'	2.19	0.41
28:D:151:THR:HB	28:D:152:PRO:HD3	2.01	0.41
30:F:7:TYR:OH	30:F:29:ARG:HB3	2.20	0.41
33:I:33:ASN:HB2	33:I:64:ARG:NH1	2.34	0.41
33:I:33:ASN:HB3	33:I:36:GLU:HG2	2.01	0.41
44:T:8:LEU:HA	44:T:50:LEU:HD21	2.01	0.41
56:5:24:SER:HA	56:5:85:SER:O	2.19	0.41
1:a:516:PSU:O5'	1:a:516:PSU:H6	2.03	0.41
1:a:633:G:H2'	1:a:634:C:C6	2.55	0.41
1:a:924:C:H4'	1:a:1399:C:OP2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1492:A:H62	8:l:40:THR:CB	2.30	0.41
3:d:173:ASP:HB3	3:d:178:GLU:H	1.85	0.41
11:q:39:ARG:HD3	11:q:39:ARG:HA	1.92	0.41
11:q:58:VAL:HG22	11:q:74:LEU:HD11	2.02	0.41
25:A:758:C:O2	25:A:758:C:H2'	2.20	0.41
25:A:1287:A:H5'	38:N:103:ARG:NH1	2.36	0.41
25:A:1736:U:H2'	25:A:1737:G:O4'	2.20	0.41
25:A:1801:A:H5'	25:A:2203:U:O2'	2.20	0.41
25:A:2572:A:H5''	25:A:2574:G:H4'	2.02	0.41
25:A:2756:U:H1'	25:A:2757:A:H5''	2.02	0.41
27:C:212:TRP:CD1	27:C:212:TRP:C	2.99	0.41
36:L:23:ILE:H	36:L:23:ILE:HD12	1.84	0.41
41:Q:75:TYR:CZ	41:Q:79:ILE:HG13	2.55	0.41
1:a:158:G:H2'	1:a:159:G:C8	2.54	0.41
1:a:731:G:H5'	1:a:766:A:H4'	2.03	0.41
1:a:741:G:H2'	1:a:742:G:O4'	2.20	0.41
1:a:1504:G:H4'	1:a:1505:G:C4	2.55	0.41
2:b:53:LEU:HD23	2:b:56:LEU:HD12	2.02	0.41
2:b:75:ALA:HB1	2:b:163:ILE:HD13	2.03	0.41
4:e:104:ILE:HG13	4:e:111:ARG:HG3	2.02	0.41
10:p:69:ASP:OD1	10:p:70:ARG:N	2.53	0.41
11:q:30:HIS:CD2	11:q:32:ILE:H	2.39	0.41
25:A:329:G:OP2	45:U:68:ASN:ND2	2.54	0.41
25:A:340:A:H2'	25:A:341:C:O4'	2.21	0.41
25:A:1045:C:H5'	25:A:1046:A:C5'	2.50	0.41
25:A:1112:G:H2'	25:A:1113:U:H6	1.86	0.41
25:A:1180:U:H2'	25:A:1181:U:H5'	2.02	0.41
25:A:1789:A:OP2	27:C:220:ARG:NH2	2.46	0.41
25:A:2230:G:H2'	25:A:2231:U:C6	2.56	0.41
25:A:2283:C:OP2	25:A:2390:U:C5	2.72	0.41
26:B:54:G:H2'	26:B:55:U:C6	2.56	0.41
28:D:149:ASN:CG	28:D:150:GLN:N	2.78	0.41
32:H:66:ASN:HB3	32:H:134:VAL:O	2.20	0.41
36:L:125:LEU:HB3	36:L:126:ARG:H	1.55	0.41
37:M:109:PRO:HD2	37:M:112:LEU:HD23	2.03	0.41
38:N:38:LEU:HG	38:N:42:LYS:HE2	2.03	0.41
40:P:3:ILE:H	40:P:3:ILE:HD12	1.86	0.41
43:S:34:ASP:HB3	51:O:27:LEU:HD22	2.03	0.41
54:3:36:ALA:O	54:3:39:ARG:HB2	2.20	0.41
1:a:165:G:H2'	1:a:166:U:C6	2.55	0.41
1:a:1067:A:H4'	1:a:1068:G:O5'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:d:58:GLN:O	3:d:59:LYS:C	2.63	0.41
4:e:108:GLY:O	4:e:110:MET:N	2.44	0.41
10:p:7:ALA:O	10:p:8:ARG:O	2.39	0.41
11:q:30:HIS:HA	11:q:31:PRO:HD3	1.93	0.41
15:v:64:G:H2'	15:v:65:C:O4'	2.20	0.41
17:w:567:ASP:CA	33:l:25:PRO:CG	2.91	0.41
19:g:131:GLY:O	19:g:134:VAL:HG22	2.19	0.41
25:A:753:A:H2'	25:A:754:U:C6	2.56	0.41
25:A:859:G:H1'	25:A:860:U:H5	1.85	0.41
25:A:2599:G:C8	27:C:235:GLU:HG2	2.56	0.41
27:C:24:HIS:HB3	27:C:81:GLU:OE1	2.20	0.41
36:L:123:ARG:HA	36:L:143:GLU:O	2.20	0.41
44:T:8:LEU:HD11	49:Y:22:LEU:HD12	2.03	0.41
44:T:37:ASP:OD1	44:T:38:ALA:N	2.54	0.41
57:6:26:SER:OG	57:6:27:THR:N	2.53	0.41
1:a:109:A:H2'	1:a:326:G:N2	2.36	0.41
1:a:512:U:H2'	1:a:513:C:C6	2.56	0.41
1:a:564:C:P	8:l:11:ARG:HH21	2.42	0.41
1:a:919:A:H2'	1:a:920:U:C5'	2.38	0.41
1:a:993:G:H2'	1:a:993:G:N3	2.34	0.41
1:a:1327:C:H2'	1:a:1328:C:H6	1.85	0.41
4:e:10:LEU:H	4:e:10:LEU:HG	1.58	0.41
6:h:85:TYR:CD1	6:h:123:GLU:HB2	2.56	0.41
18:c:24:ASN:O	18:c:28:PHE:HB2	2.21	0.41
18:c:133:MET:HG3	18:c:150:VAL:CG2	2.51	0.41
20:i:49:GLN:C	20:i:51:LEU:N	2.78	0.41
24:s:40:PHE:HB2	24:s:43:MET:HG3	2.03	0.41
25:A:1826:G:OP1	27:C:222:THR:HG23	2.19	0.41
25:A:2092:U:H4'	25:A:2093:G:O5'	2.20	0.41
25:A:2298:A:OP1	30:F:70:ARG:NH2	2.52	0.41
25:A:2368:C:H2'	25:A:2369:A:H8	1.86	0.41
32:H:9:VAL:HG12	32:H:11:ASN:H	1.85	0.41
34:J:17:VAL:HG22	34:J:55:ILE:HB	2.02	0.41
39:O:92:PHE:HB2	39:O:117:PHE:CE1	2.56	0.41
1:a:178:C:H2'	1:a:179:A:H8	1.86	0.41
1:a:411:A:H4'	1:a:412:A:OP1	2.21	0.41
1:a:701:U:H1'	1:a:703:G:C2	2.56	0.41
1:a:721:G:H4'	1:a:722:G:O4'	2.21	0.41
1:a:945:G:N1	1:a:1337:G:C2	2.89	0.41
1:a:1057:G:H2'	1:a:1058:G:O4'	2.20	0.41
1:a:1162:C:H2'	1:a:1163:A:H8	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1293:C:H2'	1:a:1294:G:C8	2.56	0.41
1:a:1460:C:H2'	1:a:1461:G:C8	2.55	0.41
2:b:202:ASN:HD22	2:b:203:ASP:H	1.68	0.41
7:k:14:GLN:NE2	7:k:75:GLU:O	2.54	0.41
10:p:26:ASN:HD22	10:p:26:ASN:H	1.67	0.41
11:q:12:VAL:HB	11:q:21:VAL:HG13	2.03	0.41
12:r:41:SER:HB3	12:r:51:GLN:HE21	1.85	0.41
19:g:97:ALA:HA	19:g:100:MET:HE2	2.02	0.41
22:m:15:VAL:O	22:m:19:THR:HG23	2.21	0.41
25:A:21:A:H2'	25:A:22:C:O4'	2.21	0.41
25:A:456:C:C2	44:T:73:ARG:NH2	2.87	0.41
25:A:609:A:H2'	25:A:610:C:O4'	2.21	0.41
25:A:687:C:H5''	53:2:2:LYS:NZ	2.35	0.41
25:A:739:A:H1'	25:A:740:C:H5	1.86	0.41
25:A:857:G:H2'	25:A:858:G:O4'	2.21	0.41
25:A:919:U:H2'	25:A:920:A:O4'	2.19	0.41
25:A:1071:G:N2	25:A:1089:A:O2'	2.54	0.41
25:A:1292:G:H2'	25:A:1293:C:C6	2.56	0.41
25:A:1319:C:H2'	25:A:1320:C:O4'	2.20	0.41
25:A:1562:U:H2'	25:A:1563:U:O4'	2.20	0.41
25:A:1591:A:H2'	25:A:1592:C:O4'	2.21	0.41
25:A:1741:C:H2'	25:A:1742:U:C6	2.56	0.41
25:A:1957:C:H2'	25:A:1958:C:C6	2.56	0.41
25:A:2285:C:O2'	25:A:2287:A:H1'	2.20	0.41
26:B:48:U:H2'	26:B:49:C:C6	2.56	0.41
27:C:78:GLU:HB3	27:C:92:LEU:O	2.21	0.41
28:D:20:VAL:HG22	35:K:72:PRO:HB2	2.03	0.41
33:I:20:SER:HA	33:I:24:GLY:HA3	2.02	0.41
38:N:54:LEU:HD21	38:N:65:LEU:HB3	2.02	0.41
38:N:81:ASN:N	38:N:81:ASN:OD1	2.52	0.41
38:N:82:GLU:O	38:N:86:ARG:HB2	2.21	0.41
43:S:14:ALA:HB1	43:S:18:ARG:HH21	1.85	0.41
44:T:8:LEU:HD13	49:Y:21:LEU:HB3	2.02	0.41
53:2:21:ARG:O	53:2:27:GLY:HA3	2.21	0.41
1:a:62:U:H2'	1:a:63:C:C6	2.56	0.41
1:a:618:C:H5''	1:a:619:U:H5''	2.02	0.41
1:a:952:U:O4	22:m:102:LYS:HE2	2.21	0.41
1:a:1092:A:OP2	19:g:3:ARG:NH1	2.55	0.41
1:a:1218:C:H2'	1:a:1219:A:C8	2.56	0.41
5:f:44:ARG:HA	5:f:57:ALA:O	2.21	0.41
18:c:102:ILE:H	18:c:102:ILE:HG13	1.67	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:A:275:C:H3'	25:A:276:U:H5''	2.03	0.41
25:A:460:A:H2'	25:A:461:C:O4'	2.20	0.41
25:A:490:C:H4'	25:A:491:G:OP2	2.21	0.41
25:A:737:C:H2'	25:A:738:G:O4'	2.21	0.41
25:A:1754:A:N1	25:A:2716:C:O2'	2.36	0.41
25:A:1943:U:H1'	25:A:1945:G:OP2	2.20	0.41
25:A:2106:U:H2'	25:A:2107:G:C8	2.56	0.41
25:A:2697:G:H2'	25:A:2698:U:O4'	2.21	0.41
25:A:2803:G:H2'	25:A:2804:U:C6	2.56	0.41
26:B:43:C:O2'	30:F:91:ARG:HG2	2.20	0.41
28:D:148:GLN:HB2	28:D:152:PRO:HG2	2.03	0.41
29:E:128:ALA:O	29:E:130:LYS:N	2.51	0.41
39:O:52:SER:OG	39:O:54:VAL:HG12	2.21	0.41
48:X:12:VAL:HG23	48:X:28:PHE:HB2	2.03	0.41
54:3:51:LYS:HE3	54:3:51:LYS:HB2	1.87	0.41
55:4:7:VAL:HG22	55:4:38:GLY:HA3	2.03	0.41
1:a:149:A:Cl'	1:a:1446:A:N3	2.81	0.40
1:a:201:G:O2'	1:a:469:C:O2'	2.32	0.40
1:a:455:G:H2'	1:a:456:A:H8	1.87	0.40
1:a:608:A:H2'	1:a:609:A:O4'	2.21	0.40
1:a:821:G:H2'	1:a:822:U:C6	2.56	0.40
1:a:1081:A:O5'	4:e:22:LYS:CA	2.69	0.40
4:e:63:MET:O	4:e:67:ARG:HG3	2.21	0.40
19:g:124:SER:O	19:g:127:ALA:HB3	2.21	0.40
23:n:73:PHE:CZ	23:n:78:GLY:HA2	2.56	0.40
24:s:12:LEU:HD23	24:s:12:LEU:HA	1.89	0.40
25:A:306:U:H2'	25:A:307:G:O4'	2.21	0.40
25:A:2030:6MZ:C2	25:A:2499:C:H5''	2.51	0.40
25:A:2475:C:H6	25:A:2475:C:O5'	2.04	0.40
27:C:70:LYS:HD2	27:C:73:ILE:HD12	2.02	0.40
27:C:104:LEU:HD23	27:C:104:LEU:HA	1.89	0.40
28:D:35:THR:HG1	28:D:49:GLN:HG2	1.82	0.40
28:D:43:ASP:HB3	28:D:45:TYR:CE2	2.55	0.40
30:F:175:PRO:HB2	30:F:176:PHE:H	1.71	0.40
36:L:21:ARG:HA	36:L:21:ARG:HD3	1.85	0.40
47:W:21:ARG:HB2	47:W:33:ILE:HG23	2.03	0.40
49:Y:28:LEU:HD13	49:Y:42:LEU:HB3	2.03	0.40
53:2:34:ARG:HE	53:2:39:ARG:HD2	1.86	0.40
57:6:2:LYS:O	57:6:5:ILE:HG12	2.21	0.40
1:a:120:A:H1'	1:a:122:G:N7	2.36	0.40
1:a:1007:U:H2'	1:a:1008:U:C6	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:a:1144:G:C6	1:a:1145:A:N6	2.89	0.40
1:a:1329:A:H5''	22:m:24:VAL:HA	2.02	0.40
5:f:14:GLN:HA	5:f:17:GLN:HB2	2.03	0.40
8:l:76:HIS:CE1	17:w:359:GLU:CA	3.05	0.40
20:i:46:VAL:HA	20:i:49:GLN:HG3	2.02	0.40
25:A:218:A:OP2	25:A:218:A:C8	2.67	0.40
25:A:310:A:O2'	25:A:311:A:H5''	2.20	0.40
25:A:844:A:N6	25:A:934:U:H3	2.19	0.40
25:A:869:G:H1'	37:M:8:LYS:HD2	2.02	0.40
25:A:1132:U:OP2	25:A:1132:U:H3'	2.21	0.40
25:A:1454:C:H5'	38:N:63:ARG:NH2	2.36	0.40
25:A:1730:C:O2	25:A:1731:G:N1	2.54	0.40
25:A:1884:G:H5'	25:A:1885:A:OP1	2.19	0.40
25:A:2804:U:H2'	25:A:2805:C:C6	2.56	0.40
25:A:2825:G:N3	25:A:2825:G:H5''	2.36	0.40
33:I:129:GLU:O	33:I:132:ALA:HB3	2.21	0.40
42:R:7:SER:C	42:R:9:GLY:H	2.29	0.40
46:V:30:ILE:HG21	46:V:70:ILE:HG21	2.02	0.40
1:a:228:A:H2'	1:a:229:U:O4'	2.21	0.40
1:a:736:C:H2'	1:a:737:C:C6	2.55	0.40
1:a:1317:C:OP2	23:n:27:LYS:HE2	2.21	0.40
11:q:18:LYS:O	11:q:46:HIS:ND1	2.54	0.40
25:A:376:G:H2'	25:A:377:G:H8	1.86	0.40
25:A:443:A:OP1	29:E:40:ARG:HG2	2.21	0.40
25:A:633:A:C2'	25:A:634:C:H5'	2.50	0.40
25:A:1418:G:N1	25:A:1579:A:OP2	2.44	0.40
25:A:1495:A:H8	25:A:1495:A:O5'	2.04	0.40
25:A:1824:G:O3'	27:C:246:PRO:HD3	2.21	0.40
25:A:2408:U:H2'	25:A:2409:G:C8	2.56	0.40
30:F:137:PHE:HA	30:F:138:PRO:HD3	1.77	0.40
31:G:88:LEU:HG	31:G:161:VAL:HG22	2.03	0.40
41:Q:71:ASN:N	41:Q:71:ASN:ND2	2.69	0.40
42:R:14:VAL:CG2	42:R:98:ILE:HG13	2.43	0.40
49:Y:4:LYS:HG2	49:Y:7:ARG:HH22	1.87	0.40
55:4:5:ALA:O	55:4:38:GLY:HA2	2.21	0.40
1:a:158:G:C5	1:a:159:G:N7	2.90	0.40
1:a:626:G:H2'	1:a:627:G:C8	2.57	0.40
2:b:22:TRP:HB3	2:b:38:HIS:CD2	2.55	0.40
6:h:95:MET:O	6:h:98:LEU:HG	2.21	0.40
15:v:50:U:H2'	15:v:51:C:C6	2.57	0.40
15:v:61:C:H2'	15:v:62:C:C6	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:c:139:ASN:OD1	18:c:142:ARG:NH2	2.54	0.40
19:g:102:TRP:CZ2	19:g:140:VAL:HG21	2.56	0.40
25:A:22:C:H2'	25:A:23:G:O4'	2.21	0.40
25:A:613:A:H2'	25:A:613:A:N3	2.36	0.40
25:A:1045:C:H1'	25:A:1047:G:N3	2.36	0.40
25:A:1078:U:O2'	25:A:1088:A:H5''	2.22	0.40
25:A:1096:A:H2'	25:A:1097:U:O5'	2.22	0.40
25:A:1560:G:OP2	25:A:1560:G:H8	2.05	0.40
25:A:1665:A:H2'	25:A:1666:G:O4'	2.21	0.40
25:A:2108:A:H2'	25:A:2109:U:O4'	2.21	0.40
25:A:2674:G:H5'	35:K:30:ARG:HH21	1.85	0.40
37:M:41:LEU:HG	37:M:96:ILE:HG13	2.03	0.40
41:Q:34:ALA:O	41:Q:38:VAL:HG23	2.21	0.40
41:Q:106:THR:O	41:Q:110:GLU:HG2	2.21	0.40
1:a:149:A:H4'	1:a:1446:A:C4	2.55	0.40
1:a:335:C:C4'	1:a:1434:A:C4'	2.94	0.40
1:a:422:C:O2'	1:a:423:G:N2	2.54	0.40
1:a:1499:A:O2'	1:a:1520:C:H5'	2.21	0.40
5:f:24:ARG:O	5:f:27:ALA:HB3	2.21	0.40
8:l:113:ARG:HH22	8:l:120:ARG:HH11	1.69	0.40
19:g:6:ILE:H	19:g:6:ILE:HG13	1.69	0.40
21:j:76:ILE:C	21:j:78:GLU:H	2.30	0.40
22:m:51:GLN:O	22:m:54:THR:OG1	2.32	0.40
25:A:64:A:H2'	25:A:65:U:C6	2.56	0.40
25:A:591:U:H2'	25:A:592:A:C8	2.56	0.40
25:A:1857:G:O2'	25:A:1858:A:H8	2.04	0.40
25:A:1936:A:N6	25:A:1963:U:N3	2.69	0.40
26:B:17:C:H2'	26:B:18:G:O4'	2.22	0.40
27:C:16:VAL:H	27:C:203:VAL:HG22	1.84	0.40
27:C:132:ARG:NH1	32:H:93:SER:OG	2.54	0.40
27:C:257:ARG:NH1	27:C:259:ASN:HB2	2.37	0.40
38:N:47:VAL:C	38:N:50:PRO:HD2	2.47	0.40
40:P:21:PRO:HD3	40:P:49:ILE:HD12	2.04	0.40
56:5:107:GLU:O	56:5:109:LYS:N	2.55	0.40
57:6:39:LYS:O	57:6:40:CYS:SG	2.80	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	b	216/240 (90%)	183 (85%)	23 (11%)	10 (5%)	2	19
3	d	203/206 (98%)	172 (85%)	21 (10%)	10 (5%)	1	18
4	e	155/167 (93%)	130 (84%)	16 (10%)	9 (6%)	1	16
5	f	98/135 (73%)	81 (83%)	11 (11%)	6 (6%)	1	15
6	h	127/130 (98%)	110 (87%)	14 (11%)	3 (2%)	4	29
7	k	114/129 (88%)	92 (81%)	16 (14%)	6 (5%)	1	17
8	l	121/124 (98%)	96 (79%)	20 (16%)	5 (4%)	2	20
9	o	86/89 (97%)	71 (83%)	10 (12%)	5 (6%)	1	16
10	p	80/82 (98%)	67 (84%)	11 (14%)	2 (2%)	4	29
11	q	78/84 (93%)	65 (83%)	8 (10%)	5 (6%)	1	15
12	r	63/75 (84%)	53 (84%)	5 (8%)	5 (8%)	1	11
13	t	83/87 (95%)	77 (93%)	4 (5%)	2 (2%)	4	29
14	u	63/71 (89%)	44 (70%)	14 (22%)	5 (8%)	1	11
17	w	637/639 (100%)	562 (88%)	51 (8%)	24 (4%)	2	21
18	c	204/233 (88%)	184 (90%)	18 (9%)	2 (1%)	12	45
19	g	149/179 (83%)	124 (83%)	15 (10%)	10 (7%)	1	14
20	i	125/130 (96%)	98 (78%)	19 (15%)	8 (6%)	1	15
21	j	96/103 (93%)	74 (77%)	16 (17%)	6 (6%)	1	15
22	m	112/118 (95%)	99 (88%)	8 (7%)	5 (4%)	2	19
23	n	99/102 (97%)	82 (83%)	12 (12%)	5 (5%)	1	17
24	s	77/92 (84%)	66 (86%)	11 (14%)	0	100	100
27	C	269/273 (98%)	242 (90%)	22 (8%)	5 (2%)	6	33
28	D	207/209 (99%)	185 (89%)	20 (10%)	2 (1%)	12	45
29	E	199/201 (99%)	172 (86%)	20 (10%)	7 (4%)	3	23
30	F	175/179 (98%)	149 (85%)	20 (11%)	6 (3%)	3	24

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
31	G	174/177 (98%)	148 (85%)	21 (12%)	5 (3%)	3	26
32	H	147/149 (99%)	128 (87%)	15 (10%)	4 (3%)	4	28
33	I	139/142 (98%)	110 (79%)	20 (14%)	9 (6%)	1	15
34	J	140/142 (99%)	129 (92%)	9 (6%)	2 (1%)	9	38
35	K	120/123 (98%)	103 (86%)	14 (12%)	3 (2%)	4	29
36	L	141/144 (98%)	110 (78%)	20 (14%)	11 (8%)	1	12
37	M	134/136 (98%)	117 (87%)	14 (10%)	3 (2%)	5	31
38	N	118/127 (93%)	103 (87%)	12 (10%)	3 (2%)	4	29
39	O	114/117 (97%)	102 (90%)	11 (10%)	1 (1%)	14	47
40	P	112/115 (97%)	93 (83%)	18 (16%)	1 (1%)	14	47
41	Q	115/118 (98%)	110 (96%)	5 (4%)	0	100	100
42	R	101/103 (98%)	81 (80%)	18 (18%)	2 (2%)	6	32
43	S	108/110 (98%)	90 (83%)	12 (11%)	6 (6%)	1	16
44	T	91/100 (91%)	77 (85%)	11 (12%)	3 (3%)	3	24
45	U	100/104 (96%)	81 (81%)	16 (16%)	3 (3%)	3	26
46	V	92/94 (98%)	78 (85%)	12 (13%)	2 (2%)	5	31
47	W	73/85 (86%)	66 (90%)	6 (8%)	1 (1%)	9	38
48	X	75/78 (96%)	69 (92%)	5 (7%)	1 (1%)	9	40
49	Y	61/63 (97%)	55 (90%)	5 (8%)	1 (2%)	7	36
50	Z	56/59 (95%)	54 (96%)	2 (4%)	0	100	100
51	0	54/57 (95%)	49 (91%)	4 (7%)	1 (2%)	6	33
52	1	48/55 (87%)	43 (90%)	5 (10%)	0	100	100
53	2	44/46 (96%)	43 (98%)	1 (2%)	0	100	100
54	3	62/65 (95%)	54 (87%)	7 (11%)	1 (2%)	7	36
55	4	36/38 (95%)	28 (78%)	8 (22%)	0	100	100
56	5	129/165 (78%)	100 (78%)	22 (17%)	7 (5%)	1	17
57	6	64/70 (91%)	53 (83%)	10 (16%)	1 (2%)	7	36
58	7	67/69 (97%)	58 (87%)	8 (12%)	1 (2%)	8	37
All	All	6551/6928 (95%)	5610 (86%)	716 (11%)	225 (3%)	4	24

All (225) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	e	122	VAL
5	f	63	ASN
10	p	8	ARG
11	q	79	GLU
12	r	17	VAL
17	w	76	PRO
17	w	80	ASP
17	w	176	ASP
17	w	334	PRO
17	w	342	PRO
17	w	344	PRO
17	w	416	PRO
17	w	433	HIS
17	w	438	PRO
17	w	612	VAL
17	w	617	PRO
17	w	624	PRO
18	c	156	LEU
20	i	12	LYS
20	i	71	ILE
21	j	57	VAL
21	j	75	ASP
21	j	89	ARG
27	C	204	LEU
30	F	175	PRO
31	G	108	PHE
34	J	81	ILE
35	K	93	GLN
36	L	15	ALA
36	L	85	VAL
36	L	128	THR
43	S	67	ASP
45	U	6	ARG
45	U	97	SER
48	X	31	ASN
54	3	27	ASN
2	b	17	HIS
2	b	19	THR
2	b	179	GLY
3	d	26	ALA
3	d	108	ALA
4	e	23	THR
4	e	93	VAL

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Mol	Chain	Res	Type
6	h	66	GLN
7	k	76	TYR
7	k	77	GLY
7	k	88	PRO
8	l	75	GLU
9	o	21	THR
9	o	45	HIS
11	q	17	GLU
11	q	49	ASN
12	r	46	THR
13	t	68	LYS
14	u	12	ASP
17	w	41	THR
17	w	96	ILE
18	c	13	ILE
19	g	16	LYS
19	g	56	SER
19	g	63	VAL
19	g	112	ASP
19	g	145	GLU
20	i	57	VAL
21	j	29	ALA
21	j	77	VAL
22	m	104	ASN
23	n	54	ASP
27	C	195	GLY
27	C	231	HIS
32	H	9	VAL
33	I	89	SER
33	I	92	PRO
35	K	35	VAL
35	K	110	GLU
36	L	29	LYS
36	L	31	GLY
36	L	111	ILE
37	M	70	ASP
39	O	66	GLY
40	P	65	ASN
42	R	43	ASN
42	R	54	VAL
43	S	2	GLU
43	S	3	THR

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Mol	Chain	Res	Type
44	T	37	ASP
44	T	38	ALA
44	T	71	GLY
49	Y	24	GLU
56	5	55	VAL
2	b	73	ARG
2	b	87	ASP
2	b	153	MET
3	d	7	LYS
3	d	31	CYS
3	d	152	SER
3	d	166	LYS
3	d	174	ALA
4	e	98	ALA
4	e	99	SER
4	e	121	ASN
5	f	54	LEU
5	f	92	THR
6	h	74	ILE
7	k	14	GLN
8	l	2	THR
8	l	46	SER
9	o	2	LEU
9	o	13	GLU
10	p	49	GLY
11	q	16	MET
13	t	76	ALA
14	u	29	ALA
14	u	32	ARG
14	u	34	ARG
17	w	8	VAL
17	w	371	SER
19	g	64	ALA
19	g	95	ARG
20	i	90	ASP
20	i	107	ALA
20	i	125	GLN
21	j	35	GLN
22	m	6	ILE
22	m	7	ASN
22	m	113	LYS
23	n	22	LYS

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Mol	Chain	Res	Type
23	n	38	ASP
23	n	55	SER
27	C	239	PHE
29	E	89	PRO
29	E	122	GLU
31	G	44	HIS
31	G	45	ALA
32	H	15	LEU
33	I	12	VAL
33	I	64	ARG
36	L	88	GLY
37	M	6	ARG
38	N	59	SER
43	S	62	ASP
56	5	88	HIS
56	5	118	ILE
57	6	40	CYS
2	b	11	ALA
2	b	88	GLN
2	b	126	ASP
4	e	100	GLU
4	e	102	THR
5	f	56	LYS
5	f	86	ARG
5	f	99	ALA
6	h	22	ALA
7	k	92	ARG
8	l	23	LEU
9	o	75	ALA
12	r	18	GLN
12	r	71	ASP
17	w	40	THR
17	w	262	ARG
17	w	470	ASN
19	g	29	LEU
20	i	99	LYS
28	D	32	ASN
29	E	80	SER
29	E	160	ALA
30	F	20	ASN
30	F	142	TYR
30	F	173	ASP

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Mol	Chain	Res	Type
30	F	176	PHE
32	H	2	GLN
33	I	6	ALA
33	I	20	SER
36	L	25	SER
38	N	117	ASP
43	S	65	ASP
46	V	58	SER
47	W	8	ASN
51	0	2	VAL
56	5	22	ALA
56	5	90	GLY
56	5	130	PRO
58	7	72	VAL
2	b	14	HIS
3	d	34	GLU
12	r	70	THR
17	w	161	TYR
17	w	609	GLY
17	w	630	LYS
23	n	2	LYS
29	E	84	THR
30	F	174	PHE
31	G	70	LEU
32	H	3	VAL
33	I	22	PRO
33	I	100	ILE
34	J	82	GLY
36	L	94	THR
3	d	6	PRO
3	d	28	ASP
20	i	13	SER
28	D	148	GLN
29	E	83	VAL
33	I	38	CYS
36	L	119	PRO
43	S	101	SER
7	k	119	GLY
8	l	44	PRO
17	w	75	THR
27	C	168	GLY
36	L	26	GLY

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Mol	Chain	Res	Type
37	M	69	PRO
38	N	116	VAL
11	q	20	ILE
14	u	9	GLU
45	U	38	ILE
19	g	5	VAL
29	E	129	PRO
46	V	15	GLY
56	5	108	VAL
17	w	621	PRO
19	g	28	ILE
4	e	26	GLY
22	m	9	PRO
31	G	155	PRO

### 5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	b	180/198 (91%)	173 (96%)	7 (4%)	28	52
3	d	172/173 (99%)	166 (96%)	6 (4%)	32	54
4	e	114/126 (90%)	104 (91%)	10 (9%)	9	32
5	f	87/116 (75%)	82 (94%)	5 (6%)	18	44
6	h	104/105 (99%)	103 (99%)	1 (1%)	68	75
7	k	89/99 (90%)	86 (97%)	3 (3%)	32	55
8	l	103/104 (99%)	99 (96%)	4 (4%)	28	52
9	o	76/77 (99%)	75 (99%)	1 (1%)	61	71
10	p	65/65 (100%)	61 (94%)	4 (6%)	16	43
11	q	74/78 (95%)	72 (97%)	2 (3%)	39	60
12	r	48/65 (74%)	47 (98%)	1 (2%)	47	65
13	t	65/66 (98%)	63 (97%)	2 (3%)	35	57
14	u	44/61 (72%)	44 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
17	w	6/576 (1%)	6 (100%)	0	100	100
18	c	170/190 (90%)	159 (94%)	11 (6%)	15	42
19	g	124/147 (84%)	119 (96%)	5 (4%)	28	51
20	i	105/107 (98%)	103 (98%)	2 (2%)	50	66
21	j	86/90 (96%)	82 (95%)	4 (5%)	23	48
22	m	92/96 (96%)	88 (96%)	4 (4%)	26	49
23	n	79/84 (94%)	75 (95%)	4 (5%)	21	46
24	s	70/79 (89%)	65 (93%)	5 (7%)	13	40
27	C	216/218 (99%)	210 (97%)	6 (3%)	38	59
28	D	164/164 (100%)	163 (99%)	1 (1%)	78	80
29	E	165/165 (100%)	161 (98%)	4 (2%)	43	63
30	F	148/150 (99%)	138 (93%)	10 (7%)	14	41
31	G	137/138 (99%)	136 (99%)	1 (1%)	76	78
32	H	114/114 (100%)	114 (100%)	0	100	100
33	I	109/110 (99%)	103 (94%)	6 (6%)	19	45
34	J	116/116 (100%)	114 (98%)	2 (2%)	53	68
35	K	103/104 (99%)	98 (95%)	5 (5%)	22	47
36	L	102/103 (99%)	100 (98%)	2 (2%)	48	65
37	M	109/109 (100%)	108 (99%)	1 (1%)	70	75
38	N	100/103 (97%)	97 (97%)	3 (3%)	36	57
39	O	86/87 (99%)	84 (98%)	2 (2%)	44	63
40	P	99/100 (99%)	94 (95%)	5 (5%)	21	46
41	Q	89/90 (99%)	85 (96%)	4 (4%)	24	49
42	R	84/84 (100%)	82 (98%)	2 (2%)	43	63
43	S	93/93 (100%)	90 (97%)	3 (3%)	34	56
44	T	80/84 (95%)	78 (98%)	2 (2%)	42	62
45	U	83/85 (98%)	81 (98%)	2 (2%)	43	63
46	V	78/78 (100%)	77 (99%)	1 (1%)	61	71
47	W	57/63 (90%)	56 (98%)	1 (2%)	51	67
48	X	67/68 (98%)	67 (100%)	0	100	100
49	Y	55/55 (100%)	54 (98%)	1 (2%)	51	67

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
50	Z	48/49 (98%)	48 (100%)	0	100	100
51	0	47/48 (98%)	45 (96%)	2 (4%)	26	49
52	1	45/49 (92%)	44 (98%)	1 (2%)	45	64
53	2	38/38 (100%)	37 (97%)	1 (3%)	40	60
54	3	51/52 (98%)	50 (98%)	1 (2%)	48	65
55	4	34/34 (100%)	33 (97%)	1 (3%)	37	58
56	5	100/123 (81%)	97 (97%)	3 (3%)	36	57
57	6	59/62 (95%)	58 (98%)	1 (2%)	53	68
All	All	4829/5638 (86%)	4674 (97%)	155 (3%)	35	56

All (155) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	b	9	LEU
2	b	35	ASN
2	b	71	THR
2	b	162	VAL
2	b	185	ILE
2	b	198	VAL
2	b	202	ASN
3	d	16	THR
3	d	52	VAL
3	d	115	GLN
3	d	119	HIS
3	d	141	VAL
3	d	196	GLU
4	e	10	LEU
4	e	11	GLN
4	e	45	VAL
4	e	51	LYS
4	e	75	LEU
4	e	105	ILE
4	e	122	VAL
4	e	140	ILE
4	e	156	ARG
4	e	158	LYS
5	f	54	LEU
5	f	64	VAL
5	f	74	LEU

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Mol	Chain	Res	Type
5	f	86	ARG
5	f	89	VAL
6	h	58	LEU
7	k	30	ILE
7	k	39	ASN
7	k	109	ILE
8	l	20	VAL
8	l	28	GLN
8	l	54	VAL
8	l	63	THR
9	o	86	LEU
10	p	19	VAL
10	p	26	ASN
10	p	34	GLU
10	p	70	ARG
11	q	51	GLU
11	q	69	THR
12	r	24	ASP
13	t	22	SER
13	t	26	MET
18	c	3	LYS
18	c	40	GLN
18	c	96	VAL
18	c	102	ILE
18	c	105	VAL
18	c	127	VAL
18	c	133	MET
18	c	149	LYS
18	c	156	LEU
18	c	161	ILE
18	c	199	VAL
19	g	6	ILE
19	g	58	LEU
19	g	75	LYS
19	g	83	THR
19	g	134	VAL
20	i	54	VAL
20	i	60	LEU
21	j	10	LEU
21	j	64	GLN
21	j	77	VAL
21	j	98	VAL

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Mol	Chain	Res	Type
22	m	6	ILE
22	m	15	VAL
22	m	24	VAL
22	m	99	GLN
23	n	26	LEU
23	n	33	VAL
23	n	49	GLN
23	n	60	GLN
24	s	10	ILE
24	s	48	ILE
24	s	57	VAL
24	s	59	VAL
24	s	62	THR
27	C	13	ARG
27	C	45	ASN
27	C	48	ILE
27	C	129	LEU
27	C	181	ARG
27	C	206	LYS
28	D	52	THR
29	E	7	ASP
29	E	41	GLN
29	E	96	VAL
29	E	187	VAL
30	F	3	LEU
30	F	5	ASP
30	F	9	ASP
30	F	30	VAL
30	F	39	VAL
30	F	55	ASP
30	F	90	LEU
30	F	95	MET
30	F	134	GLN
30	F	148	VAL
31	G	10	VAL
33	I	10	LEU
33	I	48	ILE
33	I	85	ILE
33	I	95	ASP
33	I	100	ILE
33	I	134	SER
34	J	57	LEU

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Mol	Chain	Res	Type
34	J	64	VAL
35	K	8	LEU
35	K	32	TYR
35	K	58	LEU
35	K	61	VAL
35	K	73	ASP
36	L	27	LEU
36	L	110	VAL
37	M	46	ILE
38	N	15	SER
38	N	81	ASN
38	N	113	ILE
39	O	69	ASP
39	O	100	HIS
40	P	7	LEU
40	P	31	VAL
40	P	72	VAL
40	P	99	LEU
40	P	113	LEU
41	Q	36	GLN
41	Q	48	ASP
41	Q	71	ASN
41	Q	94	LEU
42	R	22	LEU
42	R	58	VAL
43	S	25	ARG
43	S	62	ASP
43	S	107	VAL
44	T	32	LEU
44	T	59	ASN
45	U	48	VAL
45	U	82	VAL
46	V	42	LEU
47	W	67	VAL
49	Y	40	SER
51	0	22	THR
51	0	24	VAL
52	1	46	VAL
53	2	44	VAL
54	3	61	LEU
55	4	17	VAL
56	5	3	LEU

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Mol	Chain	Res	Type
56	5	57	ASN
56	5	122	GLN
57	6	16	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (68) such sidechains are listed below:

Mol	Chain	Res	Type
2	b	23	ASN
2	b	57	ASN
3	d	70	GLN
3	d	119	HIS
3	d	151	GLN
4	e	131	ASN
4	e	145	ASN
5	f	11	HIS
5	f	58	HIS
6	h	20	ASN
8	l	76	HIS
8	l	111	GLN
9	o	45	HIS
10	p	26	ASN
11	q	30	HIS
11	q	49	ASN
12	r	51	GLN
13	t	19	HIS
13	t	69	ASN
18	c	40	GLN
19	g	141	HIS
20	i	80	HIS
21	j	58	ASN
22	m	7	ASN
22	m	90	HIS
23	n	49	GLN
23	n	60	GLN
24	s	13	HIS
24	s	42	ASN
24	s	51	HIS
24	s	56	HIS
27	C	196	ASN
28	D	49	GLN
28	D	58	ASN
28	D	149	ASN

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Mol	Chain	Res	Type
28	D	173	GLN
29	E	136	GLN
29	E	195	GLN
30	F	134	GLN
31	G	103	ASN
31	G	138	GLN
32	H	33	GLN
32	H	133	GLN
34	J	40	HIS
34	J	58	ASN
35	K	3	GLN
35	K	5	GLN
38	N	9	GLN
38	N	73	ASN
39	O	19	GLN
39	O	38	GLN
41	Q	71	ASN
43	S	7	HIS
43	S	9	HIS
43	S	40	ASN
44	T	70	HIS
45	U	53	GLN
45	U	65	GLN
46	V	12	GLN
46	V	75	GLN
49	Y	20	ASN
49	Y	39	GLN
49	Y	41	HIS
51	0	4	GLN
51	0	5	ASN
53	2	26	ASN
53	2	29	GLN
57	6	65	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	a	1538/1539 (99%)	256 (16%)	0
15	v	76/78 (97%)	18 (23%)	0
16	x	8/11 (72%)	0	0
25	A	2898/2903 (99%)	549 (18%)	91 (3%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
26	B	119/120 (99%)	18 (15%)	4 (3%)
All	All	4639/4651 (99%)	841 (18%)	95 (2%)

All (841) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	a	9	G
1	a	14	U
1	a	22	G
1	a	30	U
1	a	32	A
1	a	39	G
1	a	47	C
1	a	49	U
1	a	51	A
1	a	71	A
1	a	85	U
1	a	86	G
1	a	87	C
1	a	94	G
1	a	95	C
1	a	120	A
1	a	121	U
1	a	130	A
1	a	174	A
1	a	175	C
1	a	181	A
1	a	183	C
1	a	184	G
1	a	209	U
1	a	210	C
1	a	211	G
1	a	212	G
1	a	226	G
1	a	246	A
1	a	247	G
1	a	251	G
1	a	266	G
1	a	267	C
1	a	281	G
1	a	283	U
1	a	289	G

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Mol	Chain	Res	Type
1	a	306	A
1	a	321	A
1	a	328	C
1	a	345	C
1	a	346	G
1	a	351	G
1	a	352	C
1	a	354	G
1	a	355	C
1	a	367	U
1	a	368	U
1	a	372	C
1	a	373	A
1	a	387	U
1	a	392	C
1	a	398	U
1	a	406	G
1	a	412	A
1	a	413	G
1	a	414	A
1	a	422	C
1	a	423	G
1	a	424	G
1	a	429	U
1	a	430	A
1	a	439	U
1	a	467	U
1	a	468	A
1	a	482	A
1	a	484	G
1	a	485	U
1	a	486	U
1	a	496	A
1	a	497	G
1	a	500	G
1	a	511	C
1	a	527	7MG
1	a	530	G
1	a	531	U
1	a	532	A
1	a	533	A
1	a	536	C

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Mol	Chain	Res	Type
1	a	547	A
1	a	559	A
1	a	561	U
1	a	562	U
1	a	564	C
1	a	572	A
1	a	573	A
1	a	574	A
1	a	575	G
1	a	576	C
1	a	577	G
1	a	579	A
1	a	597	G
1	a	618	C
1	a	626	G
1	a	633	G
1	a	641	U
1	a	642	A
1	a	654	G
1	a	661	G
1	a	665	A
1	a	671	G
1	a	687	A
1	a	688	G
1	a	701	U
1	a	702	A
1	a	703	G
1	a	724	G
1	a	731	G
1	a	755	G
1	a	777	A
1	a	792	A
1	a	793	U
1	a	794	A
1	a	814	A
1	a	815	A
1	a	817	C
1	a	818	G
1	a	819	A
1	a	820	U
1	a	832	G
1	a	843	U

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Mol	Chain	Res	Type
1	a	844	G
1	a	846	G
1	a	871	U
1	a	874	G
1	a	884	U
1	a	890	G
1	a	902	G
1	a	914	A
1	a	920	U
1	a	921	U
1	a	934	C
1	a	935	A
1	a	960	U
1	a	961	U
1	a	966	2MG
1	a	969	A
1	a	975	A
1	a	976	G
1	a	977	A
1	a	979	C
1	a	981	U
1	a	991	U
1	a	992	U
1	a	993	G
1	a	994	A
1	a	1004	A
1	a	1026	G
1	a	1028	C
1	a	1029	U
1	a	1030	U
1	a	1031	C
1	a	1033	G
1	a	1034	G
1	a	1035	A
1	a	1053	G
1	a	1056	U
1	a	1065	U
1	a	1067	A
1	a	1085	U
1	a	1086	U
1	a	1094	G
1	a	1095	U

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Mol	Chain	Res	Type
1	a	1101	A
1	a	1127	G
1	a	1129	C
1	a	1130	A
1	a	1137	C
1	a	1138	G
1	a	1139	G
1	a	1140	C
1	a	1152	A
1	a	1159	U
1	a	1160	G
1	a	1168	U
1	a	1182	G
1	a	1183	U
1	a	1184	G
1	a	1191	A
1	a	1196	A
1	a	1197	A
1	a	1198	G
1	a	1200	C
1	a	1201	A
1	a	1202	U
1	a	1207	2MG
1	a	1212	U
1	a	1213	A
1	a	1224	U
1	a	1225	A
1	a	1226	C
1	a	1227	A
1	a	1228	C
1	a	1236	A
1	a	1238	A
1	a	1240	U
1	a	1241	G
1	a	1256	A
1	a	1258	G
1	a	1260	G
1	a	1278	G
1	a	1279	G
1	a	1280	A
1	a	1281	C
1	a	1282	C

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Mol	Chain	Res	Type
1	a	1286	U
1	a	1287	A
1	a	1297	G
1	a	1298	U
1	a	1300	G
1	a	1301	U
1	a	1302	C
1	a	1306	A
1	a	1312	G
1	a	1317	C
1	a	1320	C
1	a	1323	G
1	a	1331	G
1	a	1332	A
1	a	1346	A
1	a	1347	G
1	a	1348	U
1	a	1353	G
1	a	1363	A
1	a	1381	U
1	a	1395	C
1	a	1396	A
1	a	1397	C
1	a	1399	C
1	a	1400	C
1	a	1401	G
1	a	1418	A
1	a	1429	A
1	a	1433	A
1	a	1446	A
1	a	1448	C
1	a	1451	U
1	a	1452	C
1	a	1491	G
1	a	1492	A
1	a	1493	A
1	a	1494	G
1	a	1502	A
1	a	1503	A
1	a	1505	G
1	a	1506	U
1	a	1507	A

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Mol	Chain	Res	Type
1	a	1517	G
1	a	1519	MA6
1	a	1520	C
1	a	1529	G
1	a	1530	G
1	a	1533	C
1	a	1534	A
1	a	1535	C
1	a	1536	C
1	a	1539	C
15	v	7	G
15	v	8	4SU
15	v	9	G
15	v	14	A
15	v	16	C
15	v	17	C
15	v	17(A)	U
15	v	18	G
15	v	19	G
15	v	20	H2U
15	v	21	A
15	v	22	G
15	v	59	A
15	v	60	U
15	v	61	C
15	v	67	C
15	v	75	C
15	v	76	A
25	A	10	A
25	A	12	U
25	A	23	G
25	A	27	G
25	A	28	A
25	A	34	U
25	A	35	G
25	A	42	A
25	A	46	G
25	A	49	A
25	A	51	G
25	A	52	A
25	A	60	G
25	A	63	A

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Mol	Chain	Res	Type
25	A	71	A
25	A	73	A
25	A	74	A
25	A	75	G
25	A	91	A
25	A	92	U
25	A	103	A
25	A	110	G
25	A	118	A
25	A	119	A
25	A	120	U
25	A	127	A
25	A	138	U
25	A	139	U
25	A	140	C
25	A	141	G
25	A	142	A
25	A	158	U
25	A	162	U
25	A	163	C
25	A	181	A
25	A	196	A
25	A	199	A
25	A	204	A
25	A	205	G
25	A	215	G
25	A	216	A
25	A	218	A
25	A	219	A
25	A	221	A
25	A	222	A
25	A	227	A
25	A	228	C
25	A	242	G
25	A	243	U
25	A	248	G
25	A	249	C
25	A	255	A
25	A	265	A
25	A	266	G
25	A	267	C
25	A	272	A

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Mol	Chain	Res	Type
25	A	276	U
25	A	278	A
25	A	281	C
25	A	294	A
25	A	301	G
25	A	302	C
25	A	311	A
25	A	312	G
25	A	321	U
25	A	322	A
25	A	323	C
25	A	324	A
25	A	329	G
25	A	330	A
25	A	333	G
25	A	334	C
25	A	345	A
25	A	346	A
25	A	353	C
25	A	361	G
25	A	362	A
25	A	370	G
25	A	371	A
25	A	372	G
25	A	373	U
25	A	386	G
25	A	387	U
25	A	390	U
25	A	391	A
25	A	404	A
25	A	405	U
25	A	406	G
25	A	411	G
25	A	422	A
25	A	424	G
25	A	442	G
25	A	446	G
25	A	454	A
25	A	455	C
25	A	457	A
25	A	458	G
25	A	459	U

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Mol	Chain	Res	Type
25	A	467	G
25	A	479	A
25	A	480	A
25	A	481	G
25	A	490	C
25	A	491	G
25	A	504	A
25	A	505	A
25	A	506	G
25	A	508	A
25	A	518	G
25	A	527	C
25	A	529	A
25	A	530	G
25	A	532	A
25	A	533	G
25	A	542	C
25	A	543	G
25	A	545	U
25	A	547	A
25	A	550	C
25	A	555	G
25	A	563	A
25	A	572	A
25	A	573	U
25	A	575	A
25	A	603	A
25	A	614	A
25	A	616	A
25	A	627	A
25	A	637	A
25	A	645	C
25	A	646	U
25	A	654	A
25	A	655	A
25	A	659	G
25	A	668	A
25	A	669	G
25	A	670	A
25	A	677	A
25	A	685	A
25	A	686	U

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Mol	Chain	Res	Type
25	A	687	C
25	A	694	U
25	A	695	G
25	A	717	C
25	A	726	G
25	A	730	A
25	A	740	C
25	A	747	5MC
25	A	748	G
25	A	752	A
25	A	753	A
25	A	765	C
25	A	772	C
25	A	775	G
25	A	776	G
25	A	777	G
25	A	782	A
25	A	784	G
25	A	785	G
25	A	789	A
25	A	791	C
25	A	801	G
25	A	802	A
25	A	805	G
25	A	806	C
25	A	812	C
25	A	819	A
25	A	822	G
25	A	827	U
25	A	828	U
25	A	830	G
25	A	831	G
25	A	845	A
25	A	846	U
25	A	847	U
25	A	858	G
25	A	859	G
25	A	860	U
25	A	878	A
25	A	896	A
25	A	897	C
25	A	907	G

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Mol	Chain	Res	Type
25	A	910	A
25	A	932	U
25	A	941	A
25	A	946	C
25	A	953	G
25	A	958	U
25	A	961	C
25	A	974	G
25	A	975	A
25	A	982	C
25	A	983	A
25	A	985	C
25	A	989	G
25	A	990	A
25	A	995	C
25	A	996	A
25	A	999	U
25	A	1011	G
25	A	1012	U
25	A	1013	C
25	A	1021	A
25	A	1022	G
25	A	1023	U
25	A	1026	G
25	A	1033	U
25	A	1046	A
25	A	1053	C
25	A	1054	A
25	A	1057	A
25	A	1060	U
25	A	1061	U
25	A	1062	G
25	A	1064	C
25	A	1065	U
25	A	1066	U
25	A	1068	G
25	A	1069	A
25	A	1070	A
25	A	1071	G
25	A	1072	C
25	A	1075	C
25	A	1076	C

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Mol	Chain	Res	Type
25	A	1079	C
25	A	1084	A
25	A	1088	A
25	A	1089	A
25	A	1090	A
25	A	1104	C
25	A	1111	A
25	A	1112	G
25	A	1119	U
25	A	1130	U
25	A	1131	G
25	A	1132	U
25	A	1134	A
25	A	1135	C
25	A	1142	A
25	A	1143	A
25	A	1151	A
25	A	1174	U
25	A	1175	A
25	A	1176	U
25	A	1179	G
25	A	1180	U
25	A	1206	G
25	A	1212	G
25	A	1213	A
25	A	1218	G
25	A	1237	A
25	A	1238	G
25	A	1247	A
25	A	1248	G
25	A	1250	G
25	A	1251	C
25	A	1253	A
25	A	1256	G
25	A	1271	G
25	A	1272	A
25	A	1273	U
25	A	1276	A
25	A	1289	C
25	A	1298	C
25	A	1300	G
25	A	1301	A

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Mol	Chain	Res	Type
25	A	1302	A
25	A	1311	G
25	A	1315	C
25	A	1321	A
25	A	1329	U
25	A	1330	C
25	A	1332	G
25	A	1341	G
25	A	1345	C
25	A	1352	U
25	A	1365	A
25	A	1368	G
25	A	1378	A
25	A	1379	U
25	A	1380	G
25	A	1383	A
25	A	1385	A
25	A	1395	A
25	A	1397	U
25	A	1416	G
25	A	1419	A
25	A	1420	A
25	A	1428	C
25	A	1454	C
25	A	1458	U
25	A	1461	C
25	A	1482	G
25	A	1483	G
25	A	1490	A
25	A	1491	G
25	A	1493	C
25	A	1504	A
25	A	1515	A
25	A	1524	G
25	A	1533	C
25	A	1535	A
25	A	1536	C
25	A	1537	G
25	A	1555	G
25	A	1559	U
25	A	1560	G
25	A	1567	G

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Mol	Chain	Res	Type
25	A	1569	A
25	A	1578	U
25	A	1581	G
25	A	1585	C
25	A	1607	C
25	A	1611	C
25	A	1616	A
25	A	1627	G
25	A	1647	U
25	A	1648	U
25	A	1651	G
25	A	1654	A
25	A	1664	A
25	A	1665	A
25	A	1667	G
25	A	1674	G
25	A	1694	C
25	A	1695	G
25	A	1715	G
25	A	1729	U
25	A	1730	C
25	A	1738	G
25	A	1756	G
25	A	1758	U
25	A	1764	C
25	A	1773	A
25	A	1780	A
25	A	1781	U
25	A	1782	U
25	A	1784	A
25	A	1787	A
25	A	1800	C
25	A	1801	A
25	A	1808	A
25	A	1816	C
25	A	1818	U
25	A	1829	A
25	A	1833	C
25	A	1847	G
25	A	1858	A
25	A	1865	U
25	A	1871	A

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Mol	Chain	Res	Type
25	A	1885	A
25	A	1896	G
25	A	1900	A
25	A	1901	A
25	A	1906	G
25	A	1907	G
25	A	1913	A
25	A	1914	C
25	A	1927	A
25	A	1929	G
25	A	1930	G
25	A	1931	U
25	A	1937	A
25	A	1938	A
25	A	1940	U
25	A	1941	C
25	A	1955	U
25	A	1960	A
25	A	1962	5MC
25	A	1963	U
25	A	1967	C
25	A	1970	A
25	A	1971	U
25	A	1972	G
25	A	1981	A
25	A	1991	U
25	A	1992	G
25	A	1993	U
25	A	1997	C
25	A	2022	U
25	A	2023	C
25	A	2031	A
25	A	2033	A
25	A	2043	C
25	A	2049	G
25	A	2052	A
25	A	2055	C
25	A	2056	G
25	A	2060	A
25	A	2061	G
25	A	2062	A
25	A	2069	7MG

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Mol	Chain	Res	Type
25	A	2093	G
25	A	2095	A
25	A	2096	C
25	A	2098	U
25	A	2108	A
25	A	2110	G
25	A	2111	U
25	A	2112	G
25	A	2113	U
25	A	2118	U
25	A	2119	A
25	A	2127	G
25	A	2131	U
25	A	2132	U
25	A	2133	G
25	A	2145	C
25	A	2146	C
25	A	2157	G
25	A	2162	G
25	A	2164	C
25	A	2172	U
25	A	2173	A
25	A	2189	U
25	A	2192	U
25	A	2198	A
25	A	2199	A
25	A	2204	G
25	A	2211	A
25	A	2212	A
25	A	2213	U
25	A	2225	A
25	A	2238	G
25	A	2239	G
25	A	2250	G
25	A	2268	A
25	A	2273	A
25	A	2278	A
25	A	2282	G
25	A	2283	C
25	A	2287	A
25	A	2288	A
25	A	2296	U

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Mol	Chain	Res	Type
25	A	2297	A
25	A	2305	U
25	A	2309	A
25	A	2311	A
25	A	2312	U
25	A	2320	U
25	A	2325	G
25	A	2327	A
25	A	2334	U
25	A	2336	A
25	A	2337	G
25	A	2345	G
25	A	2347	C
25	A	2350	C
25	A	2382	G
25	A	2383	G
25	A	2385	C
25	A	2391	G
25	A	2392	A
25	A	2402	U
25	A	2406	A
25	A	2407	A
25	A	2423	U
25	A	2424	C
25	A	2426	A
25	A	2427	C
25	A	2428	G
25	A	2429	G
25	A	2430	A
25	A	2435	A
25	A	2441	U
25	A	2445	2MG
25	A	2447	G
25	A	2448	A
25	A	2449	H2U
25	A	2459	A
25	A	2468	A
25	A	2476	A
25	A	2478	A
25	A	2484	G
25	A	2494	G
25	A	2497	A

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Mol	Chain	Res	Type
25	A	2498	OMC
25	A	2502	G
25	A	2503	2MA
25	A	2504	PSU
25	A	2505	G
25	A	2506	U
25	A	2517	C
25	A	2518	A
25	A	2519	U
25	A	2529	G
25	A	2547	A
25	A	2554	U
25	A	2567	G
25	A	2572	A
25	A	2573	C
25	A	2585	U
25	A	2602	A
25	A	2603	G
25	A	2608	G
25	A	2609	U
25	A	2613	U
25	A	2614	A
25	A	2636	C
25	A	2645	G
25	A	2646	C
25	A	2655	G
25	A	2656	U
25	A	2682	A
25	A	2689	U
25	A	2690	U
25	A	2707	U
25	A	2712	C
25	A	2713	U
25	A	2714	G
25	A	2718	G
25	A	2722	G
25	A	2726	A
25	A	2731	G
25	A	2732	G
25	A	2733	A
25	A	2739	U
25	A	2744	G

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Mol	Chain	Res	Type
25	A	2748	A
25	A	2757	A
25	A	2764	A
25	A	2765	A
25	A	2769	U
25	A	2778	A
25	A	2779	U
25	A	2791	G
25	A	2794	C
25	A	2797	U
25	A	2799	A
25	A	2800	A
25	A	2801	G
25	A	2808	G
25	A	2809	A
25	A	2818	U
25	A	2820	A
25	A	2821	A
25	A	2823	A
25	A	2833	U
25	A	2834	G
25	A	2835	A
25	A	2848	G
25	A	2849	U
25	A	2866	U
25	A	2867	G
25	A	2868	A
25	A	2872	A
25	A	2873	A
25	A	2880	C
25	A	2884	U
26	B	4	C
26	B	12	C
26	B	13	G
26	B	24	G
26	B	25	U
26	B	35	C
26	B	40	U
26	B	44	G
26	B	45	A
26	B	56	G
26	B	57	A

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Mol	Chain	Res	Type
26	B	67	G
26	B	88	C
26	B	89	U
26	B	91	C
26	B	108	A
26	B	109	A
26	B	116	G

All (95) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
25	A	51	G
25	A	86	G
25	A	204	A
25	A	227	A
25	A	242	G
25	A	265	A
25	A	271	G
25	A	301	G
25	A	311	A
25	A	321	U
25	A	332	A
25	A	345	A
25	A	372	G
25	A	386	G
25	A	390	U
25	A	446	G
25	A	454	A
25	A	458	G
25	A	479	A
25	A	480	A
25	A	490	C
25	A	503	A
25	A	530	G
25	A	549	G
25	A	571	U
25	A	637	A
25	A	685	A
25	A	686	U
25	A	747	5MC
25	A	752	A
25	A	774	G

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Mol	Chain	Res	Type
25	A	776	G
25	A	800	A
25	A	830	G
25	A	858	G
25	A	859	G
25	A	974	G
25	A	1012	U
25	A	1020	A
25	A	1022	G
25	A	1070	A
25	A	1089	A
25	A	1111	A
25	A	1124	G
25	A	1130	U
25	A	1133	A
25	A	1134	A
25	A	1141	U
25	A	1142	A
25	A	1182	G
25	A	1190	G
25	A	1210	G
25	A	1212	G
25	A	1275	A
25	A	1288	G
25	A	1300	G
25	A	1331	G
25	A	1378	A
25	A	1399	C
25	A	1432	G
25	A	1626	A
25	A	1693	U
25	A	1713	A
25	A	1783	A
25	A	1799	G
25	A	1857	G
25	A	1930	G
25	A	1940	U
25	A	2060	A
25	A	2092	U
25	A	2197	U
25	A	2210	U
25	A	2282	G

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Mol	Chain	Res	Type
25	A	2286	G
25	A	2296	U
25	A	2326	C
25	A	2333	A
25	A	2391	G
25	A	2405	G
25	A	2406	A
25	A	2517	C
25	A	2518	A
25	A	2566	A
25	A	2614	A
25	A	2655	G
25	A	2712	C
25	A	2756	U
25	A	2798	U
25	A	2808	G
25	A	2820	A
25	A	2866	U
26	B	24	G
26	B	56	G
26	B	66	A
26	B	88	C

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

39 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
25	6MZ	A	2030	25	22,25,26	1.61	5 (22%)	29,36,39	2.26	10 (34%)
15	PSU	v	55	15	18,21,22	1.36	2 (11%)	21,30,33	1.98	3 (14%)
25	5MC	A	1962	25	19,22,23	1.59	3 (15%)	26,32,35	1.10	2 (7%)
15	H2U	v	20	15	18,21,22	0.92	2 (11%)	19,30,33	1.04	2 (10%)
25	2MG	A	2445	25	23,26,27	1.33	4 (17%)	33,38,41	1.96	6 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	5MC	a	1407	1	19,22,23	1.54	3 (15%)	26,32,35	1.16	3 (11%)
1	2MG	a	1207	1	23,26,27	1.26	4 (17%)	33,38,41	2.25	8 (24%)
25	OMU	A	2552	25	19,22,23	1.23	3 (15%)	25,31,34	2.28	7 (28%)
1	4OC	a	1402	1	20,23,24	1.66	4 (20%)	25,32,35	2.45	10 (40%)
15	4SU	v	8	15	18,21,22	1.79	4 (22%)	25,30,33	2.37	6 (24%)
1	5MC	a	967	1	19,22,23	1.52	2 (10%)	26,32,35	1.08	2 (7%)
25	PSU	A	2605	25	18,21,22	1.43	3 (16%)	21,30,33	1.97	5 (23%)
1	UR3	a	1498	1	19,22,23	0.93	0	26,32,35	1.94	4 (15%)
25	H2U	A	2449	25	18,21,22	0.91	2 (11%)	19,30,33	1.10	2 (10%)
25	1MG	A	745	25	23,26,27	1.20	1 (4%)	33,39,42	1.86	7 (21%)
25	PSU	A	2457	25	18,21,22	1.36	3 (16%)	21,30,33	2.22	4 (19%)
25	PSU	A	2604	25	18,21,22	1.38	3 (16%)	21,30,33	2.06	5 (23%)
25	PSU	A	746	25	18,21,22	1.34	2 (11%)	21,30,33	1.97	4 (19%)
25	OMG	A	2251	15,25	23,26,27	1.26	3 (13%)	32,38,41	1.81	5 (15%)
1	7MG	a	527	1	23,26,27	1.33	4 (17%)	27,39,42	2.57	7 (25%)
25	2MA	A	2503	25	22,25,26	1.46	5 (22%)	32,37,40	2.31	9 (28%)
25	7MG	A	2069	25	23,26,27	1.37	4 (17%)	27,39,42	2.63	7 (25%)
25	PSU	A	2504	25	18,21,22	1.36	2 (11%)	21,30,33	1.96	3 (14%)
1	PSU	a	516	1	18,21,22	1.47	4 (22%)	21,30,33	2.29	5 (23%)
25	3TD	A	1915	25	19,22,23	1.35	3 (15%)	23,32,35	2.08	4 (17%)
1	MA6	a	1518	1	23,26,27	1.66	5 (21%)	33,38,41	2.26	9 (27%)
25	2MG	A	1835	25	23,26,27	1.30	4 (17%)	33,38,41	2.24	8 (24%)
25	OMC	A	2498	25	19,22,23	0.81	1 (5%)	25,31,34	0.88	0
15	5MU	v	54	15	19,22,23	1.39	5 (26%)	27,32,35	2.25	5 (18%)
25	PSU	A	955	25	18,21,22	1.43	4 (22%)	21,30,33	2.17	4 (19%)
25	PSU	A	1911	25	18,21,22	1.34	2 (11%)	21,30,33	2.12	4 (19%)
25	5MC	A	747	25	19,22,23	1.54	3 (15%)	26,32,35	1.38	3 (11%)
1	2MG	a	1516	1	23,26,27	1.27	4 (17%)	33,38,41	2.14	7 (21%)
25	6MZ	A	1618	25	22,25,26	1.68	5 (22%)	29,36,39	2.31	9 (31%)
1	2MG	a	966	1	23,26,27	1.25	4 (17%)	33,38,41	2.31	8 (24%)
25	PSU	A	1917	25	18,21,22	1.37	2 (11%)	21,30,33	2.00	3 (14%)
25	PSU	A	2580	25	18,21,22	1.43	3 (16%)	21,30,33	2.20	4 (19%)
1	MA6	a	1519	1	23,26,27	1.51	5 (21%)	33,38,41	2.35	13 (39%)
25	5MU	A	1939	25	19,22,23	1.36	4 (21%)	27,32,35	2.28	6 (22%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
25	6MZ	A	2030	25	-	2/9/27/28	0/3/3/3
15	PSU	v	55	15	-	2/7/25/26	0/2/2/2
25	5MC	A	1962	25	-	1/7/25/26	0/2/2/2
15	H2U	v	20	15	-	1/7/38/39	0/2/2/2
25	2MG	A	2445	25	-	2/9/27/28	0/3/3/3
1	5MC	a	1407	1	-	0/7/25/26	0/2/2/2
1	2MG	a	1207	1	-	2/9/27/28	0/3/3/3
25	OMU	A	2552	25	-	2/9/27/28	0/2/2/2
1	4OC	a	1402	1	-	3/9/29/30	0/2/2/2
15	4SU	v	8	15	-	0/7/25/26	0/2/2/2
1	5MC	a	967	1	-	0/7/25/26	0/2/2/2
25	PSU	A	2605	25	-	0/7/25/26	0/2/2/2
1	UR3	a	1498	1	-	2/7/25/26	0/2/2/2
25	H2U	A	2449	25	-	0/7/38/39	0/2/2/2
25	1MG	A	745	25	-	0/7/25/26	0/3/3/3
25	PSU	A	2457	25	-	0/7/25/26	0/2/2/2
25	PSU	A	2604	25	-	0/7/25/26	0/2/2/2
25	PSU	A	746	25	-	1/7/25/26	0/2/2/2
25	OMG	A	2251	15,25	-	0/9/27/28	0/3/3/3
1	7MG	a	527	1	-	3/7/37/38	0/3/3/3
25	2MA	A	2503	25	-	2/7/25/26	0/3/3/3
25	7MG	A	2069	25	-	0/7/37/38	0/3/3/3
25	PSU	A	2504	25	-	2/7/25/26	0/2/2/2
1	PSU	a	516	1	-	2/7/25/26	0/2/2/2
25	3TD	A	1915	25	-	3/7/25/26	0/2/2/2
1	MA6	a	1518	1	-	6/11/29/30	0/3/3/3
25	2MG	A	1835	25	-	0/9/27/28	0/3/3/3
25	OMC	A	2498	25	-	1/9/27/28	0/2/2/2
15	5MU	v	54	15	-	0/7/25/26	0/2/2/2
25	PSU	A	955	25	-	0/7/25/26	0/2/2/2
25	PSU	A	1911	25	-	0/7/25/26	0/2/2/2
25	5MC	A	747	25	-	0/7/25/26	0/2/2/2
1	2MG	a	1516	1	-	0/9/27/28	0/3/3/3
25	6MZ	A	1618	25	-	0/9/27/28	0/3/3/3
1	2MG	a	966	1	-	2/9/27/28	0/3/3/3
25	PSU	A	1917	25	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
25	PSU	A	2580	25	-	0/7/25/26	0/2/2/2
1	MA6	a	1519	1	-	2/11/29/30	0/3/3/3
25	5MU	A	1939	25	-	0/7/25/26	0/2/2/2

All (126) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	A	1618	6MZ	C5-C4	5.74	1.49	1.39
25	A	1962	5MC	C5-C4	5.60	1.48	1.44
1	a	1407	5MC	C5-C4	5.44	1.48	1.44
25	A	747	5MC	C5-C4	5.36	1.48	1.44
25	A	2030	6MZ	C5-C4	5.33	1.48	1.39
1	a	967	5MC	C5-C4	5.17	1.48	1.44
1	a	1518	MA6	C5-C4	5.09	1.48	1.39
15	v	8	4SU	C4-S4	-4.93	1.60	1.68
1	a	1519	MA6	C5-C4	4.30	1.46	1.39
25	A	2503	2MA	C5-C4	4.29	1.46	1.39
1	a	1402	4OC	O3'-C3'	4.13	1.53	1.43
1	a	1402	4OC	C6-C5	3.83	1.44	1.35
25	A	2069	7MG	C4-N9	-3.75	1.33	1.37
1	a	527	7MG	C4-N9	-3.56	1.33	1.37
25	A	1915	3TD	C10-N3	3.49	1.53	1.47
25	A	1911	PSU	C6-C5	3.38	1.39	1.35
15	v	55	PSU	C6-C5	3.37	1.39	1.35
1	a	1516	2MG	C5-C4	3.31	1.47	1.38
1	a	1207	2MG	C5-C4	3.26	1.47	1.38
25	A	745	1MG	C5-C4	3.22	1.47	1.38
25	A	1917	PSU	C6-C5	3.22	1.38	1.35
25	A	2605	PSU	C6-C5	3.18	1.38	1.35
15	v	8	4SU	C4-N3	-3.18	1.34	1.37
1	a	966	2MG	C5-C4	3.13	1.47	1.38
25	A	1835	2MG	C6-N1	-3.11	1.33	1.38
1	a	516	PSU	C4-N3	-3.11	1.33	1.38
25	A	955	PSU	C4-N3	-3.09	1.33	1.38
25	A	2251	OMG	C6-N1	-3.06	1.33	1.38
25	A	2580	PSU	C4-N3	-3.05	1.33	1.38
1	a	527	7MG	C5-C4	3.03	1.47	1.37
25	A	2030	6MZ	C5-C6	3.01	1.49	1.41
1	a	967	5MC	C6-C5	3.00	1.39	1.34
25	A	1618	6MZ	C5-C6	2.96	1.49	1.41
25	A	2605	PSU	C4-N3	-2.94	1.33	1.38
25	A	2604	PSU	C4-N3	-2.90	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	A	1939	5MU	C4-N3	-2.90	1.33	1.38
25	A	746	PSU	C6-C5	2.89	1.38	1.35
25	A	1939	5MU	C6-N1	-2.87	1.33	1.38
1	a	1518	MA6	C4-N9	-2.84	1.31	1.37
25	A	2504	PSU	C6-C5	2.84	1.38	1.35
25	A	2445	2MG	C5-N7	-2.83	1.33	1.39
25	A	2251	OMG	C5-C4	2.82	1.46	1.38
25	A	746	PSU	C4-N3	-2.79	1.33	1.38
25	A	2069	7MG	C5-C4	2.78	1.46	1.37
15	v	54	5MU	C6-C5	2.76	1.39	1.34
1	a	1518	MA6	C5-C6	2.75	1.48	1.41
25	A	2504	PSU	C4-N3	-2.74	1.33	1.38
1	a	1518	MA6	C5-N7	-2.74	1.34	1.39
1	a	516	PSU	C6-C5	2.72	1.38	1.35
25	A	1962	5MC	C6-N1	-2.72	1.33	1.38
25	A	2457	PSU	C4-N3	-2.72	1.33	1.38
25	A	1835	2MG	C5-C4	2.70	1.46	1.38
15	v	55	PSU	C4-N3	-2.70	1.33	1.38
25	A	2604	PSU	C6-C5	2.70	1.38	1.35
1	a	1402	4OC	C1'-N1	2.68	1.55	1.47
25	A	2445	2MG	C6-N1	-2.66	1.33	1.38
25	A	2552	OMU	C4-N3	-2.65	1.34	1.38
25	A	2605	PSU	C2-N3	-2.65	1.33	1.37
25	A	2457	PSU	C6-C5	2.62	1.38	1.35
25	A	2069	7MG	C5-N7	-2.62	1.32	1.35
1	a	1407	5MC	C6-N1	-2.61	1.33	1.38
1	a	1519	MA6	C4-N9	-2.61	1.32	1.37
25	A	2604	PSU	C2-N3	-2.61	1.33	1.37
25	A	2503	2MA	C5-C6	2.61	1.48	1.41
25	A	1917	PSU	C4-N3	-2.58	1.34	1.38
25	A	2580	PSU	C6-C5	2.58	1.38	1.35
15	v	54	5MU	C4-N3	-2.58	1.34	1.38
25	A	747	5MC	C6-C5	2.57	1.38	1.34
1	a	1519	MA6	C5-C6	2.55	1.48	1.41
25	A	1915	3TD	C4-N3	-2.53	1.35	1.40
15	v	20	H2U	C2-N3	-2.53	1.33	1.38
25	A	2251	OMG	C5-N7	-2.51	1.34	1.39
25	A	1939	5MU	C2-N3	-2.50	1.33	1.38
25	A	747	5MC	C6-N1	-2.48	1.33	1.38
1	a	1519	MA6	C5-N7	-2.48	1.34	1.39
25	A	2445	2MG	C5-C4	2.48	1.45	1.38
25	A	2449	H2U	C2-N3	-2.48	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	a	966	2MG	C6-N1	-2.47	1.34	1.38
15	v	54	5MU	C2-N1	2.47	1.42	1.38
25	A	1939	5MU	C6-C5	2.47	1.38	1.34
25	A	1915	3TD	C4-C5	-2.46	1.41	1.47
1	a	1519	MA6	C8-N7	2.46	1.36	1.31
1	a	1207	2MG	C6-N1	-2.42	1.34	1.38
15	v	8	4SU	C5-C4	-2.42	1.39	1.42
1	a	1516	2MG	C2-N3	2.41	1.36	1.32
1	a	516	PSU	C2-N3	-2.39	1.33	1.37
25	A	1835	2MG	C5-N7	-2.38	1.34	1.39
25	A	2445	2MG	C4-N9	-2.38	1.32	1.38
25	A	1911	PSU	C4-N3	-2.38	1.34	1.38
25	A	955	PSU	C2-N3	-2.37	1.33	1.37
1	a	1518	MA6	C8-N7	2.37	1.36	1.31
1	a	1407	5MC	C6-C5	2.37	1.38	1.34
15	v	8	4SU	C2-N1	2.36	1.42	1.38
1	a	527	7MG	C6-N1	-2.36	1.34	1.38
1	a	966	2MG	C2-N3	2.34	1.36	1.32
25	A	2449	H2U	C4-N3	-2.31	1.33	1.37
25	A	1962	5MC	C6-C5	2.28	1.38	1.34
25	A	955	PSU	C2-N1	-2.28	1.33	1.36
1	a	1207	2MG	C2-N3	2.27	1.36	1.32
15	v	54	5MU	C6-N1	-2.27	1.34	1.38
15	v	20	H2U	C4-N3	-2.26	1.33	1.37
25	A	2069	7MG	C6-N1	-2.24	1.34	1.38
25	A	1618	6MZ	C5-N7	-2.24	1.35	1.39
25	A	955	PSU	C6-C5	2.22	1.37	1.35
1	a	516	PSU	O4'-C1'	-2.21	1.40	1.43
1	a	1402	4OC	C2'-C1'	2.20	1.58	1.53
25	A	2503	2MA	C5-N7	-2.18	1.35	1.39
1	a	1516	2MG	C6-N1	-2.18	1.34	1.38
1	a	1516	2MG	C5-N7	-2.17	1.34	1.39
25	A	2503	2MA	C8-N7	2.16	1.35	1.31
1	a	1207	2MG	C5-N7	-2.16	1.34	1.39
25	A	2552	OMU	C2-N1	2.15	1.41	1.38
25	A	1835	2MG	C2-N3	2.14	1.36	1.32
25	A	2498	OMC	C6-N1	-2.14	1.33	1.38
25	A	2552	OMU	C2-N3	-2.14	1.34	1.38
25	A	1618	6MZ	C8-N7	2.12	1.35	1.31
25	A	2030	6MZ	C5-N7	-2.11	1.35	1.39
25	A	2503	2MA	C4-N9	-2.10	1.33	1.37
15	v	54	5MU	C2-N3	-2.10	1.34	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	a	966	2MG	C5-N7	-2.09	1.34	1.39
25	A	2030	6MZ	C8-N7	2.06	1.35	1.31
25	A	2457	PSU	C2-N1	-2.03	1.34	1.36
25	A	2580	PSU	C2-N3	-2.02	1.34	1.37
1	a	527	7MG	C5-N7	-2.02	1.33	1.35
25	A	1618	6MZ	C8-N9	-2.02	1.34	1.37
25	A	2030	6MZ	C8-N9	-2.01	1.34	1.37

All (213) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
25	A	2069	7MG	N9-C4-N3	8.76	138.30	125.46
1	a	527	7MG	N9-C4-N3	8.73	138.26	125.46
1	a	966	2MG	C2-N3-C4	7.57	121.47	112.00
1	a	1207	2MG	C2-N3-C4	7.51	121.39	112.00
25	A	2503	2MA	C5-C4-N3	-7.38	119.40	127.18
1	a	516	PSU	N1-C2-N3	7.20	122.76	115.17
25	A	1835	2MG	C2-N3-C4	7.15	120.95	112.00
1	a	1516	2MG	C2-N3-C4	7.09	120.87	112.00
25	A	1915	3TD	N1-C2-N3	7.07	121.27	116.13
1	a	1498	UR3	C4-N3-C2	-7.01	118.94	124.58
25	A	2580	PSU	N1-C2-N3	6.94	122.49	115.17
15	v	8	4SU	C4-N3-C2	-6.93	120.67	127.31
25	A	2457	PSU	N1-C2-N3	6.77	122.31	115.17
25	A	955	PSU	N1-C2-N3	6.65	122.18	115.17
1	a	1207	2MG	C5-C4-N3	-6.62	117.85	128.39
1	a	966	2MG	C5-C4-N3	-6.56	117.94	128.39
25	A	1835	2MG	C5-C4-N3	-6.51	118.04	128.39
25	A	1911	PSU	N1-C2-N3	6.49	122.02	115.17
25	A	1917	PSU	N1-C2-N3	6.39	121.91	115.17
25	A	2445	2MG	C2-N3-C4	6.28	119.86	112.00
25	A	2604	PSU	N1-C2-N3	6.24	121.75	115.17
25	A	2503	2MA	N3-C4-N9	6.21	134.87	126.99
25	A	2605	PSU	N1-C2-N3	6.19	121.70	115.17
25	A	2504	PSU	N1-C2-N3	6.18	121.69	115.17
15	v	55	PSU	N1-C2-N3	6.09	121.60	115.17
25	A	746	PSU	N1-C2-N3	6.03	121.53	115.17
25	A	1618	6MZ	C5-C4-N3	-5.98	118.48	126.72
1	a	1516	2MG	C5-C4-N3	-5.97	118.88	128.39
25	A	2069	7MG	N9-C8-N7	-5.89	95.03	103.37
1	a	1518	MA6	C10-N6-C6	-5.69	106.05	120.52
15	v	8	4SU	C5-C4-N3	5.67	120.03	114.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
25	A	2251	OMG	C5-C4-N3	-5.65	119.40	128.39
25	A	745	1MG	C5-C4-N3	-5.63	119.42	128.39
25	A	1939	5MU	C4-N3-C2	-5.63	119.96	127.34
15	v	54	5MU	O4-C4-C5	-5.50	118.63	124.92
25	A	2552	OMU	C4-N3-C2	-5.48	119.81	126.61
1	a	527	7MG	N9-C8-N7	-5.41	95.72	103.37
1	a	1402	4OC	O3'-C3'-C2'	5.38	126.26	111.19
15	v	54	5MU	C4-N3-C2	-5.31	120.38	127.34
25	A	1618	6MZ	N3-C4-N9	5.25	136.10	127.17
25	A	1939	5MU	N3-C2-N1	5.06	121.48	114.89
25	A	2445	2MG	C5-C4-N3	-5.06	120.34	128.39
1	a	966	2MG	N9-C4-N3	5.04	136.02	125.95
1	a	527	7MG	C5-C4-N3	-5.01	118.72	128.13
1	a	1519	MA6	C5-C4-N3	-4.98	119.85	126.72
25	A	1835	2MG	N9-C4-N3	4.96	135.87	125.95
15	v	54	5MU	C5-C4-N3	4.95	119.63	115.32
25	A	2069	7MG	C5-C4-N3	-4.94	118.86	128.13
15	v	54	5MU	N3-C2-N1	4.89	121.26	114.89
25	A	1939	5MU	C5-C4-N3	4.85	119.54	115.32
25	A	2552	OMU	N3-C2-N1	4.84	121.19	114.89
1	a	1207	2MG	N9-C4-N3	4.81	135.57	125.95
25	A	2030	6MZ	C5-C4-N3	-4.76	120.16	126.72
25	A	2030	6MZ	C6-C5-N7	4.73	137.58	132.43
25	A	745	1MG	N9-C4-N3	4.72	135.40	125.95
15	v	8	4SU	C5-C4-S4	-4.69	118.95	124.31
1	a	1518	MA6	C5-C4-N3	-4.69	120.26	126.72
1	a	516	PSU	C4-N3-C2	-4.69	119.92	126.37
25	A	1618	6MZ	C9-N6-C6	-4.65	118.53	122.85
25	A	2552	OMU	C1'-N1-C2	4.64	125.93	117.59
25	A	955	PSU	C4-N3-C2	-4.61	120.02	126.37
1	a	1518	MA6	C2-N1-C6	4.59	123.03	111.83
25	A	2604	PSU	C4-N3-C2	-4.58	120.06	126.37
1	a	1402	4OC	C6-N1-C2	-4.54	112.80	120.46
25	A	2030	6MZ	C9-N6-C6	-4.53	118.65	122.85
25	A	1939	5MU	O4-C4-C5	-4.52	119.75	124.92
1	a	1519	MA6	C10-N6-C6	-4.49	109.11	120.52
1	a	1519	MA6	C2-N1-C6	4.46	122.73	111.83
25	A	2457	PSU	C4-N3-C2	-4.45	120.24	126.37
25	A	1911	PSU	C4-N3-C2	-4.45	120.25	126.37
1	a	1516	2MG	N9-C4-N3	4.44	134.83	125.95
25	A	2457	PSU	O2-C2-N1	-4.43	118.22	122.79
25	A	2251	OMG	N9-C4-N3	4.42	134.79	125.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
15	v	8	4SU	N3-C2-N1	4.41	120.64	114.89
1	a	1519	MA6	C9-N6-C6	-4.41	109.30	120.52
25	A	1939	5MU	C5-C6-N1	-4.39	118.55	123.31
25	A	745	1MG	C2-N3-C4	4.34	121.75	111.98
25	A	746	PSU	C4-N3-C2	-4.29	120.46	126.37
25	A	2445	2MG	N9-C4-N3	4.28	134.51	125.95
1	a	1498	UR3	C5-C4-N3	4.28	120.67	115.04
25	A	2552	OMU	C5-C4-N3	4.28	120.79	114.80
25	A	1915	3TD	C4-N3-C2	-4.26	120.10	124.61
25	A	2251	OMG	C2-N3-C4	4.18	119.50	112.30
25	A	2030	6MZ	N3-C4-N9	4.16	134.24	127.17
25	A	2069	7MG	C2-N3-C4	4.13	119.42	112.30
25	A	955	PSU	O2-C2-N1	-4.10	118.56	122.79
1	a	1518	MA6	C9-N6-C6	-4.07	110.16	120.52
1	a	1519	MA6	N1-C2-N3	-4.07	122.42	128.58
25	A	2580	PSU	C4-N3-C2	-4.02	120.83	126.37
1	a	527	7MG	C2-N3-C4	4.01	119.20	112.30
15	v	55	PSU	C4-N3-C2	-3.98	120.89	126.37
1	a	516	PSU	O2-C2-N1	-3.96	118.70	122.79
25	A	1917	PSU	C4-N3-C2	-3.88	121.03	126.37
25	A	2605	PSU	C4-N3-C2	-3.85	121.07	126.37
25	A	2504	PSU	O2-C2-N1	-3.84	118.83	122.79
25	A	1618	6MZ	C2-N3-C4	3.81	121.14	111.83
1	a	1519	MA6	C2-N3-C4	3.81	121.13	111.83
25	A	2504	PSU	C4-N3-C2	-3.78	121.17	126.37
25	A	2580	PSU	O2-C2-N1	-3.75	118.92	122.79
25	A	1618	6MZ	C6-C5-N7	3.75	136.52	132.43
25	A	2030	6MZ	C4-C5-N7	-3.72	106.33	110.58
25	A	1939	5MU	O2-C2-N1	-3.71	117.97	122.80
25	A	2503	2MA	C4-N9-C8	3.70	109.63	105.74
1	a	1402	4OC	C3'-C2'-C1'	3.69	109.88	102.81
25	A	1911	PSU	O2-C2-N1	-3.67	119.00	122.79
1	a	1518	MA6	N1-C2-N3	-3.63	123.09	128.58
1	a	1519	MA6	N3-C4-N9	3.59	133.28	127.17
15	v	54	5MU	C5-C6-N1	-3.56	119.44	123.31
25	A	1917	PSU	O2-C2-N1	-3.52	119.15	122.79
1	a	1518	MA6	C2-N3-C4	3.52	120.42	111.83
1	a	1402	4OC	O2-C2-N3	-3.47	116.86	122.33
25	A	746	PSU	O2-C2-N1	-3.42	119.26	122.79
25	A	2030	6MZ	C4-N9-C8	3.40	109.31	105.74
25	A	2503	2MA	C4-C5-N7	-3.36	106.74	110.58
25	A	2552	OMU	O4-C4-C5	-3.35	119.38	125.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	1407	5MC	C5-C6-N1	-3.34	119.68	123.31
1	a	1519	MA6	C4-C5-N7	-3.33	106.78	110.58
25	A	1618	6MZ	C4-C5-N7	-3.31	106.80	110.58
1	a	1402	4OC	O4'-C1'-C2'	-3.28	100.94	106.59
1	a	1518	MA6	N1-C6-N6	3.28	120.85	116.86
1	a	1402	4OC	C2'-C1'-N1	3.26	120.43	114.24
25	A	2503	2MA	N6-C6-N1	3.25	121.41	117.03
25	A	747	5MC	C5-C6-N1	-3.24	119.79	123.31
1	a	1402	4OC	O3'-C3'-C4'	3.22	120.33	111.08
25	A	2030	6MZ	C2-N3-C4	3.20	119.65	111.83
25	A	1962	5MC	C5-C4-N3	-3.19	118.49	121.75
1	a	1402	4OC	O4'-C1'-N1	3.18	115.56	108.36
1	a	1518	MA6	N3-C4-N9	3.15	132.53	127.17
1	a	1498	UR3	C1'-N1-C2	3.14	122.18	117.04
15	v	55	PSU	O2-C2-N1	-3.14	119.55	122.79
25	A	1618	6MZ	N1-C2-N3	-3.08	123.92	128.58
1	a	966	2MG	C6-C5-N7	3.03	135.80	130.29
25	A	2503	2MA	C2-N1-C6	2.98	122.68	118.10
1	a	1402	4OC	N1-C2-N3	2.94	123.91	118.80
25	A	2030	6MZ	N1-C2-N3	-2.92	124.17	128.58
1	a	1519	MA6	C10-N6-C9	-2.90	106.86	116.18
1	a	1516	2MG	C6-C5-N7	2.89	135.56	130.29
25	A	1915	3TD	C10-N3-C4	2.85	122.05	117.64
1	a	1207	2MG	C6-C5-N7	2.83	135.44	130.29
25	A	2604	PSU	C5-C6-N1	-2.80	118.25	122.14
1	a	1518	MA6	C4-C5-N7	-2.80	107.38	110.58
1	a	1519	MA6	N1-C6-N6	2.79	120.25	116.86
1	a	1407	5MC	C5-C4-N3	-2.77	118.91	121.75
25	A	1835	2MG	C6-C5-N7	2.76	135.31	130.29
25	A	747	5MC	C5-C4-N3	-2.75	118.94	121.75
25	A	2069	7MG	C5-C4-N9	-2.75	102.82	106.33
25	A	2580	PSU	C5-C6-N1	-2.72	118.36	122.14
25	A	2503	2MA	C5-N7-C8	2.71	107.72	103.45
25	A	2552	OMU	C1'-N1-C6	-2.69	115.03	120.78
25	A	1915	3TD	C1'-C5-C4	2.69	121.69	117.61
25	A	745	1MG	C4-C5-N7	-2.67	106.44	110.67
25	A	2251	OMG	C6-C5-N7	2.67	135.15	130.29
25	A	2503	2MA	N9-C8-N7	-2.64	110.19	113.94
1	a	967	5MC	C5-C6-N1	-2.64	120.45	123.31
25	A	2030	6MZ	C5-N7-C8	2.61	107.56	103.45
25	A	2445	2MG	C6-C5-N7	2.60	135.03	130.29
1	a	527	7MG	C5-C4-N9	-2.59	103.01	106.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
25	A	2457	PSU	C5-C6-N1	-2.58	118.56	122.14
25	A	1962	5MC	C5-C6-N1	-2.58	120.51	123.31
1	a	967	5MC	C5-C4-N3	-2.56	119.13	121.75
25	A	2604	PSU	O2-C2-N1	-2.56	120.15	122.79
1	a	527	7MG	C5-C6-N1	2.56	115.44	110.94
25	A	1618	6MZ	C4-N9-C8	2.55	108.42	105.74
25	A	745	1MG	C6-C5-N7	2.55	135.02	129.36
25	A	2445	2MG	O6-C6-C5	-2.53	119.86	126.53
25	A	1835	2MG	C2-N1-C6	-2.52	121.50	124.55
25	A	1835	2MG	O6-C6-C5	-2.49	119.96	126.53
25	A	2605	PSU	O2-C2-N1	-2.46	120.25	122.79
1	a	1516	2MG	N1-C2-N2	2.46	119.08	116.56
1	a	966	2MG	C4-C5-N7	-2.44	106.80	110.67
1	a	1516	2MG	O6-C6-C5	-2.41	120.18	126.53
1	a	516	PSU	C5-C6-N1	-2.40	118.80	122.14
25	A	2449	H2U	C5-C6-N1	-2.40	104.25	111.52
25	A	2069	7MG	O6-C6-C5	-2.40	121.73	127.62
25	A	746	PSU	C5-C6-N1	-2.36	118.86	122.14
1	a	1207	2MG	C4-C5-N7	-2.36	106.94	110.67
1	a	516	PSU	O4'-C1'-C2'	2.35	108.41	105.15
25	A	2449	H2U	O4-C4-N3	2.35	123.93	120.30
25	A	2445	2MG	N1-C2-N2	2.34	118.95	116.56
1	a	1519	MA6	C4-N9-C8	2.34	108.19	105.74
15	v	8	4SU	C1'-N1-C2	2.31	121.75	117.59
25	A	2605	PSU	C6-C5-C4	-2.31	116.61	118.17
25	A	2069	7MG	C5-C6-N1	2.30	115.00	110.94
1	a	527	7MG	O6-C6-C5	-2.30	121.97	127.62
25	A	955	PSU	C5-C6-N1	-2.30	118.95	122.14
25	A	1911	PSU	C5-C6-N1	-2.28	118.97	122.14
1	a	1519	MA6	C6-C5-N7	2.28	137.07	133.43
25	A	2030	6MZ	C2-N1-C6	2.27	122.75	115.24
25	A	1618	6MZ	C5-N7-C8	2.24	106.97	103.45
25	A	1835	2MG	C4-C5-N7	-2.24	107.12	110.67
25	A	745	1MG	C8-N9-C4	2.24	110.22	106.03
15	v	20	H2U	N3-C2-N1	2.24	118.90	116.65
25	A	2251	OMG	C4-C5-N7	-2.23	107.13	110.67
25	A	2503	2MA	C6-C5-N7	2.22	136.38	132.09
25	A	1835	2MG	C5-C6-N1	2.20	118.84	113.25
1	a	1402	4OC	C1'-N1-C6	2.18	125.45	120.78
1	a	966	2MG	O6-C6-C5	-2.18	120.77	126.53
1	a	1207	2MG	O6-C6-C5	-2.18	120.78	126.53
1	a	966	2MG	C2-N1-C6	-2.17	121.92	124.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	1516	2MG	C4-C5-N7	-2.17	107.24	110.67
25	A	2605	PSU	O2-C2-N3	-2.14	118.06	121.86
25	A	2604	PSU	O2-C2-N3	-2.12	118.10	121.86
25	A	745	1MG	C8-N7-C5	2.10	108.01	104.26
15	v	20	H2U	C5-C6-N1	-2.10	105.15	111.52
1	a	1519	MA6	C5-C6-N6	-2.09	122.03	125.33
1	a	1407	5MC	O2-C2-N3	-2.07	119.06	122.33
1	a	1207	2MG	C2-N1-C6	-2.05	122.08	124.55
1	a	1207	2MG	N1-C2-N2	2.04	118.65	116.56
15	v	8	4SU	O2-C2-N1	-2.04	120.14	122.80
1	a	966	2MG	C5-C6-N1	2.03	118.42	113.25
25	A	747	5MC	C3'-C2'-C1'	2.03	105.30	101.46
25	A	2552	OMU	O2-C2-N3	-2.02	117.75	121.49
1	a	1498	UR3	C3U-N3-C2	2.01	120.83	117.33

There are no chirality outliers.

All (41) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	a	1207	2MG	O4'-C4'-C5'-O5'
1	a	1207	2MG	C3'-C4'-C5'-O5'
1	a	1402	4OC	C1'-C2'-O2'-CM2
1	a	1518	MA6	C5-C6-N6-C9
1	a	1518	MA6	C5-C6-N6-C10
1	a	1518	MA6	N1-C6-N6-C9
1	a	1518	MA6	N1-C6-N6-C10
1	a	1519	MA6	C5-C6-N6-C9
15	v	55	PSU	O4'-C1'-C5-C4
15	v	55	PSU	O4'-C1'-C5-C6
25	A	1915	3TD	C2'-C1'-C5-C4
25	A	1915	3TD	O4'-C1'-C5-C4
25	A	1915	3TD	O4'-C1'-C5-C6
25	A	2445	2MG	O4'-C4'-C5'-O5'
25	A	2552	OMU	O4'-C1'-N1-C2
25	A	2552	OMU	O4'-C1'-N1-C6
1	a	1498	UR3	O4'-C1'-N1-C2
1	a	527	7MG	C3'-C4'-C5'-O5'
1	a	1402	4OC	O4'-C4'-C5'-O5'
25	A	2445	2MG	C3'-C4'-C5'-O5'
25	A	2504	PSU	O4'-C4'-C5'-O5'
1	a	1518	MA6	O4'-C1'-N9-C8
1	a	966	2MG	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
1	a	1518	MA6	O4'-C1'-N9-C4
1	a	1498	UR3	O4'-C1'-N1-C6
1	a	966	2MG	C3'-C4'-C5'-O5'
25	A	2030	6MZ	O4'-C4'-C5'-O5'
1	a	527	7MG	O4'-C4'-C5'-O5'
1	a	1402	4OC	C3'-C4'-C5'-O5'
25	A	2030	6MZ	C3'-C4'-C5'-O5'
25	A	2504	PSU	C3'-C4'-C5'-O5'
1	a	1519	MA6	N1-C6-N6-C9
25	A	1962	5MC	C4'-C5'-O5'-P
1	a	516	PSU	O4'-C1'-C5-C4
25	A	2503	2MA	O4'-C4'-C5'-O5'
15	v	20	H2U	C4'-C5'-O5'-P
1	a	527	7MG	C4'-C5'-O5'-P
1	a	516	PSU	O4'-C1'-C5-C6
25	A	746	PSU	O4'-C1'-C5-C6
25	A	2503	2MA	O4'-C1'-N9-C8
25	A	2498	OMC	C4'-C5'-O5'-P

There are no ring outliers.

17 monomers are involved in 45 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
25	A	2030	6MZ	2	0
15	v	55	PSU	1	0
25	A	1962	5MC	1	0
25	A	2445	2MG	1	0
1	a	1207	2MG	2	0
25	A	2552	OMU	1	0
1	a	1402	4OC	6	0
1	a	1498	UR3	7	0
25	A	2449	H2U	1	0
25	A	2503	2MA	1	0
1	a	516	PSU	1	0
1	a	1518	MA6	6	0
15	v	54	5MU	1	0
25	A	955	PSU	1	0
25	A	747	5MC	1	0
25	A	1917	PSU	1	0
1	a	1519	MA6	13	0

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.



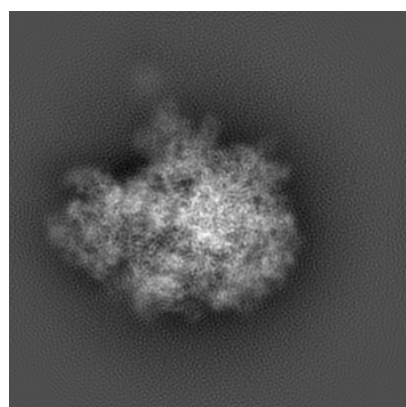
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-6311. These allow visual inspection of the internal detail of the map and identification of artifacts.

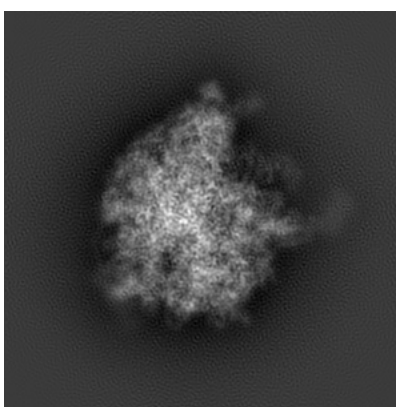
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

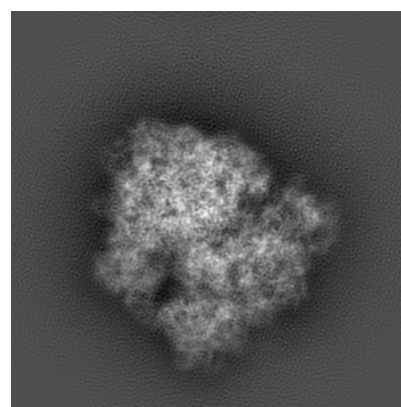
#### 6.1.1 Primary map



X



Y

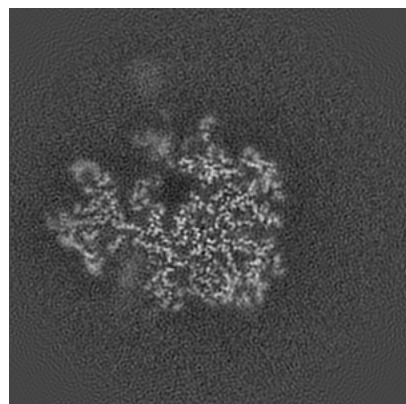


Z

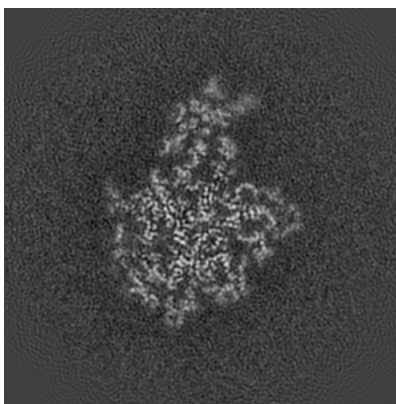
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

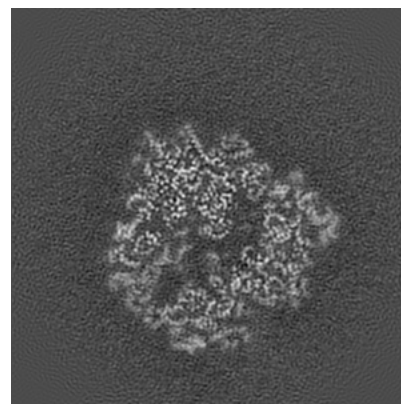
#### 6.2.1 Primary map



X Index: 184



Y Index: 184



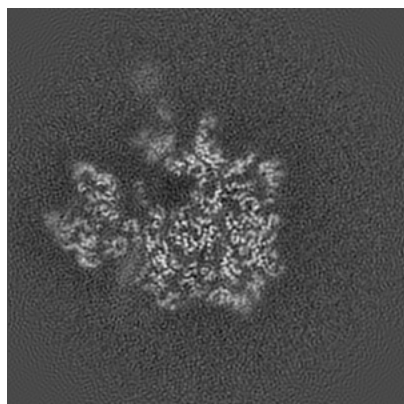
Z Index: 184



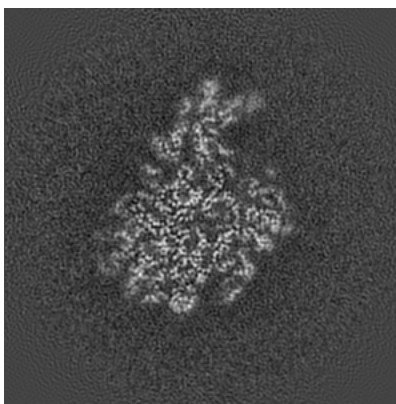
The images above show central slices of the map in three orthogonal directions.

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

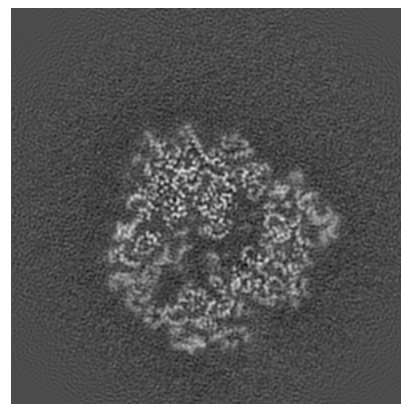
### 6.3.1 Primary map



X Index: 180



Y Index: 176

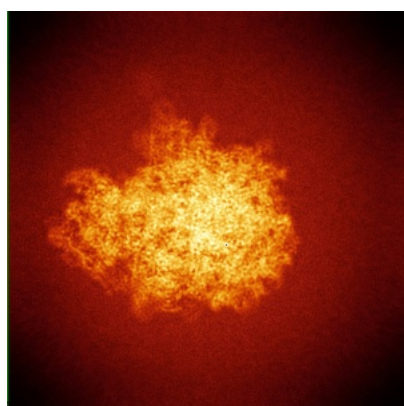


Z Index: 184

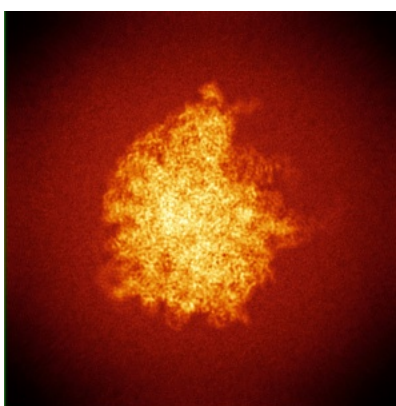
The images above show the largest variance slices of the map in three orthogonal directions.

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

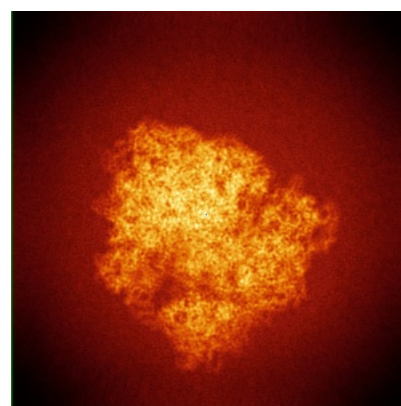
### 6.4.1 Primary map



X



Y

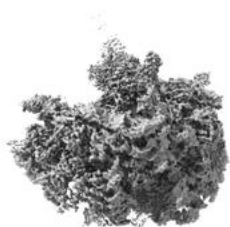


Z

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](#)

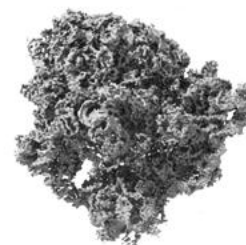
### 6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0025. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

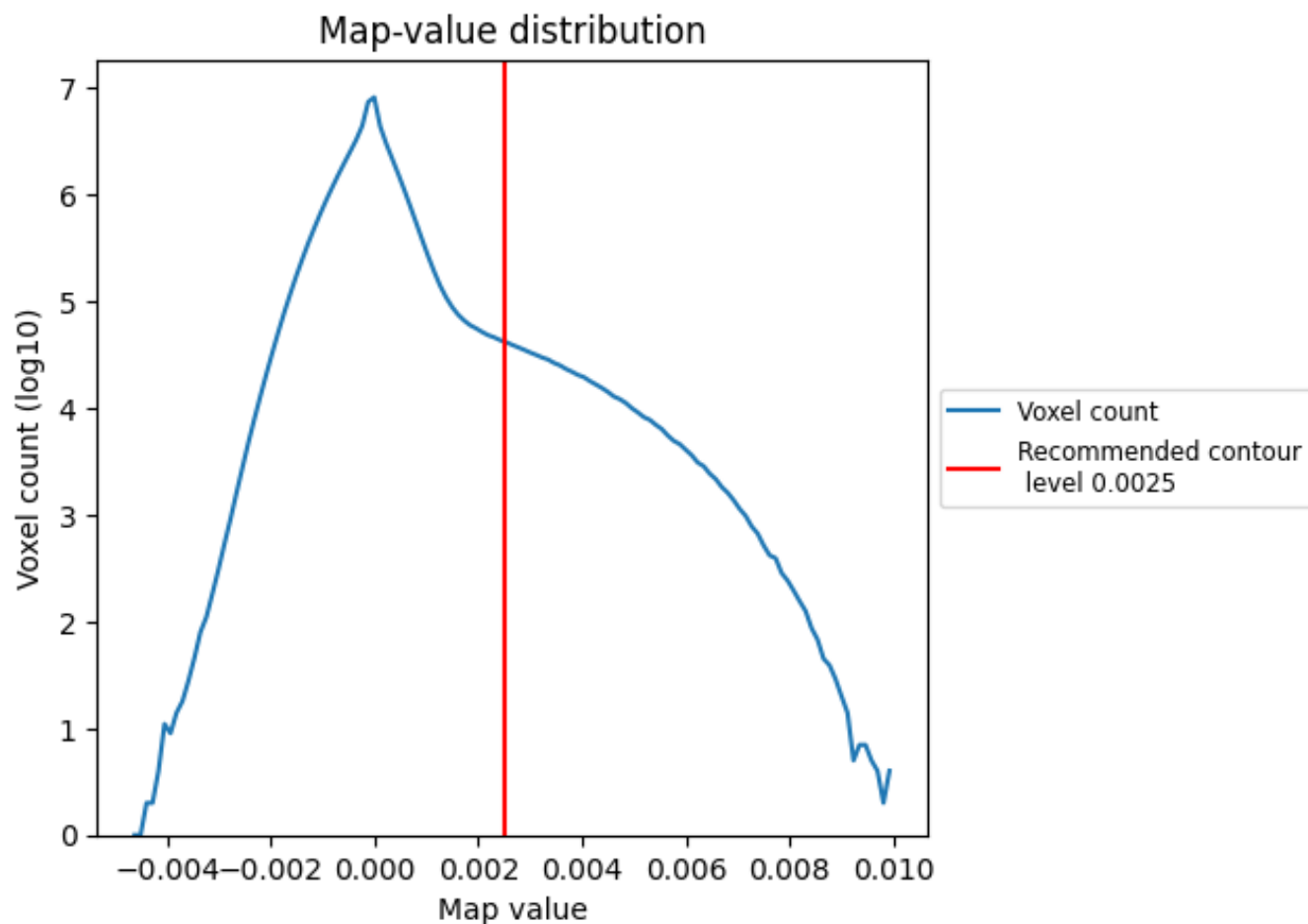
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

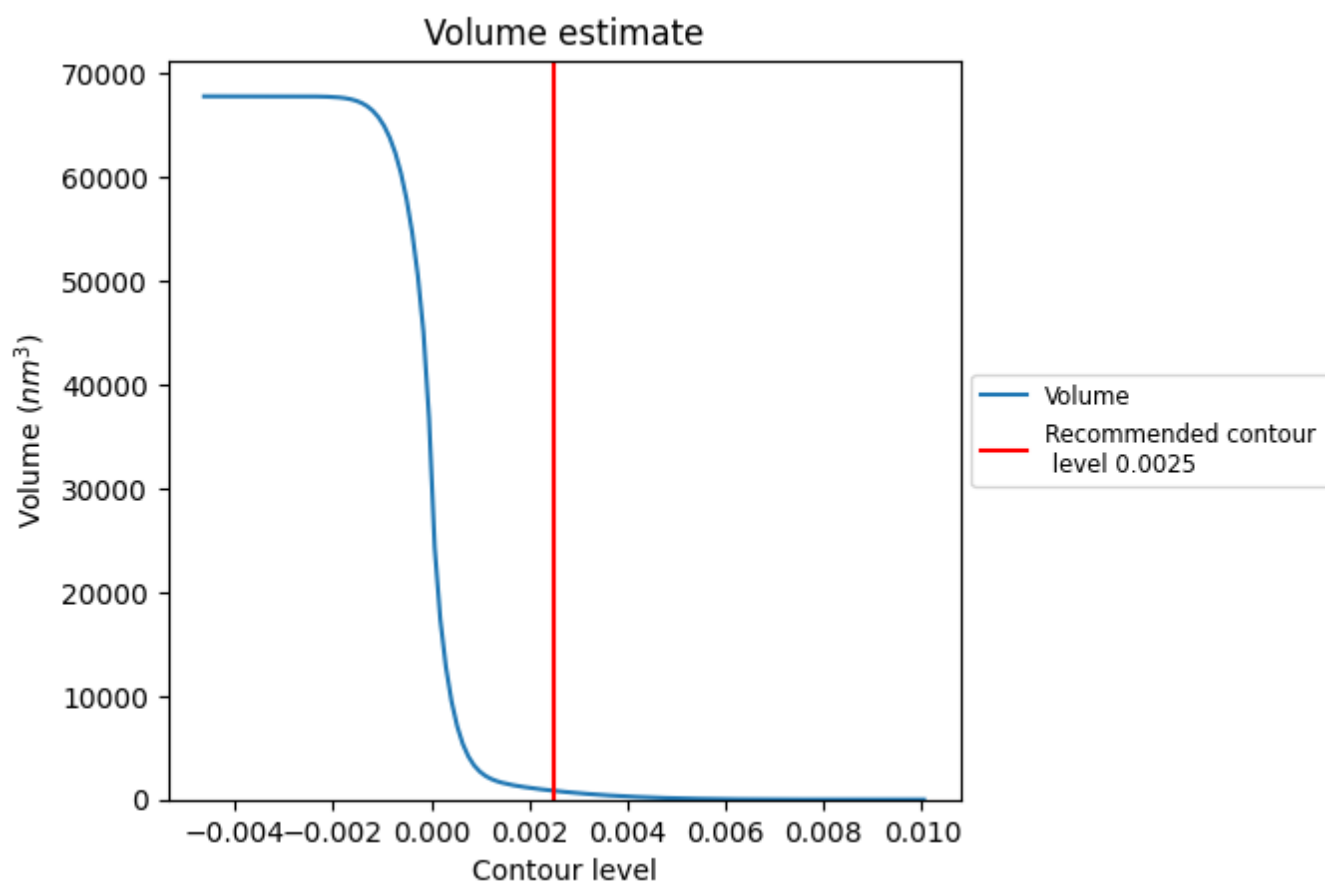
This section contains the results of statistical analysis of the map.

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



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

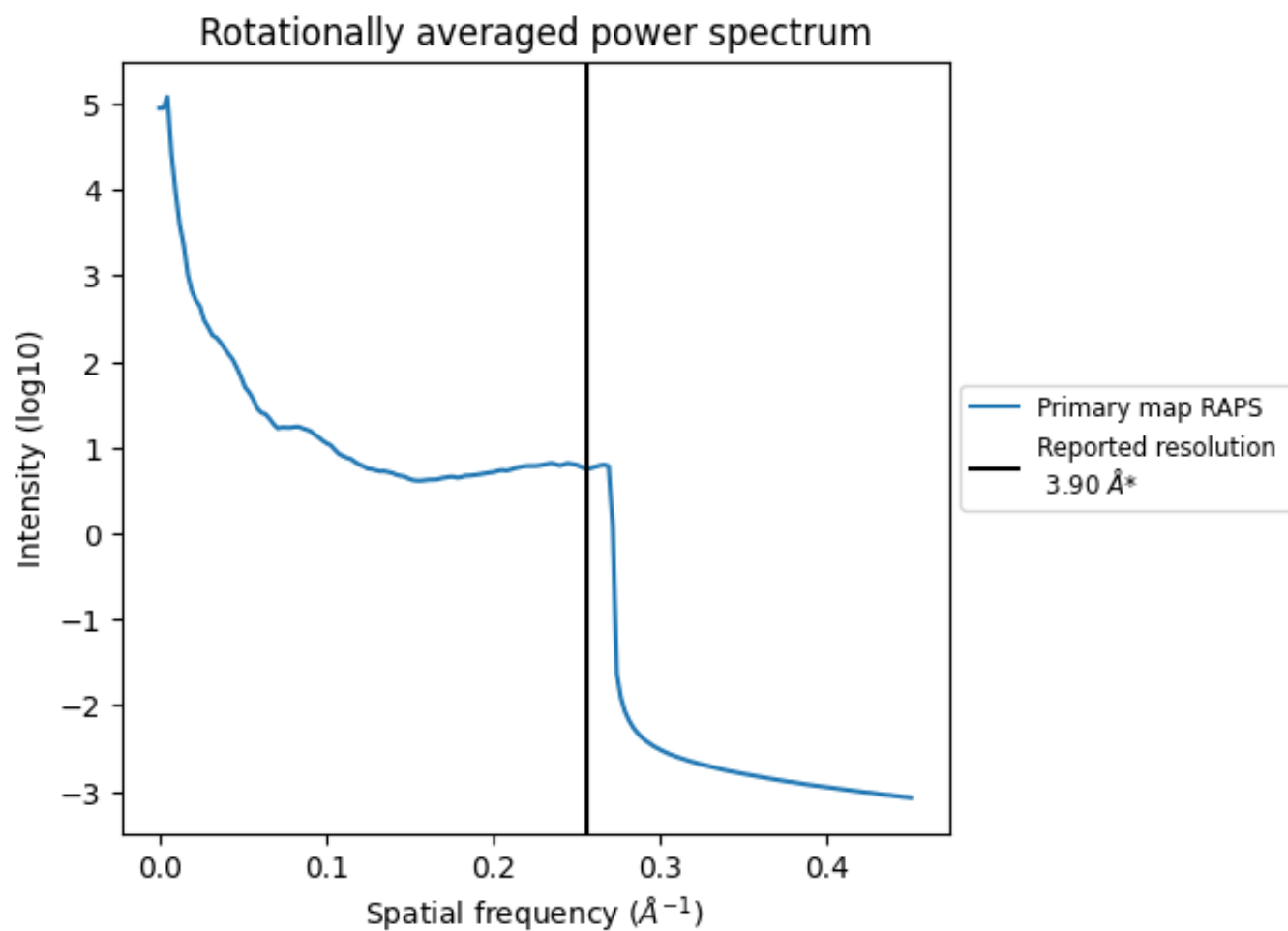
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 847 nm<sup>3</sup>; this corresponds to an approximate mass of 765 kDa.

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

### 7.3 Rotationally averaged power spectrum ⓘ



\*Reported resolution corresponds to spatial frequency of 0.256 Å<sup>-1</sup>

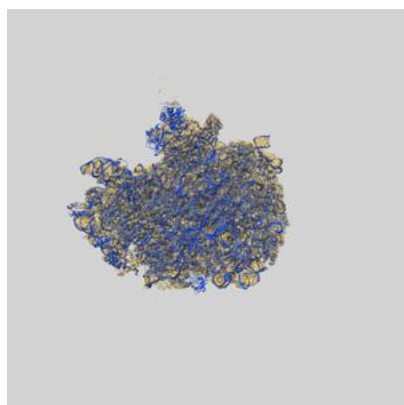
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

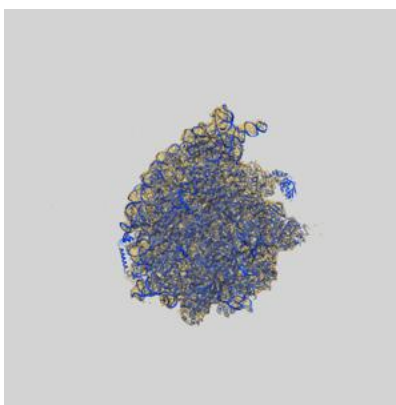
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-6311 and PDB model 3J9Y. Per-residue inclusion information can be found in [section 3](#) on [page 15](#).

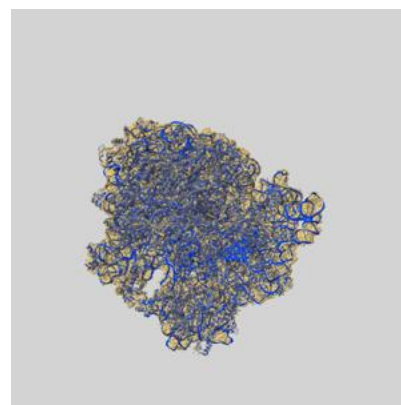
### 9.1 Map-model overlay [i](#)



X



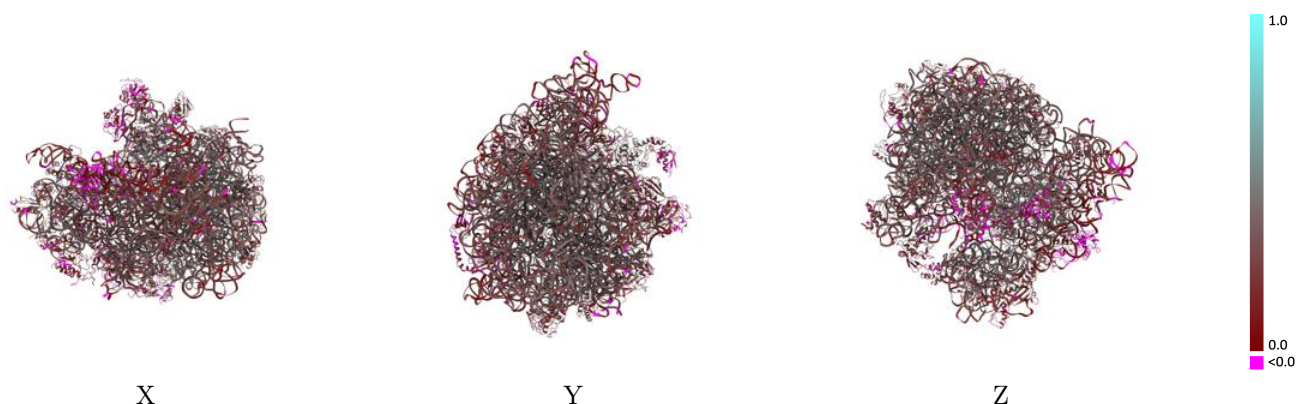
Y



Z

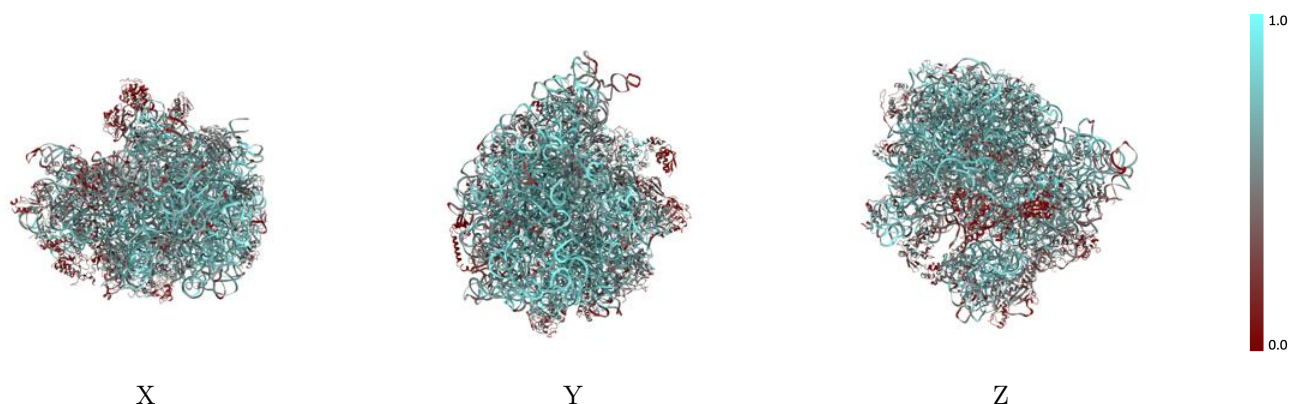
The images above show the 3D surface view of the map at the recommended contour level 0.0025 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



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

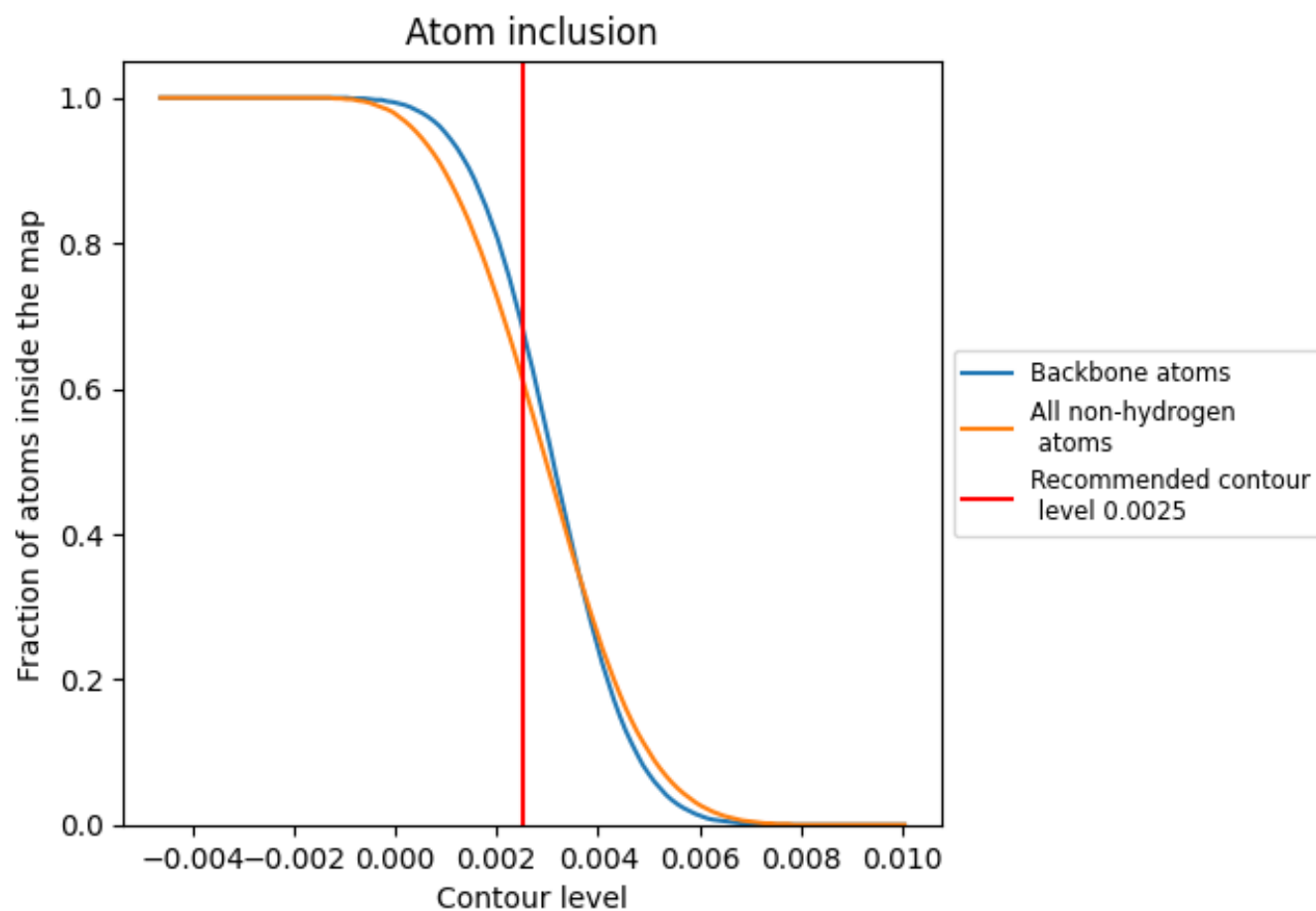
## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0025).









































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 69% of all backbone atoms, 62% 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 (0.0025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6150	 0.3090
0	 0.5280	 0.3330
1	 0.0200	 0.2110
2	 0.5780	 0.3730
3	 0.5460	 0.3920
4	 0.5720	 0.3390
5	 0.0880	 0.0610
6	 0.2270	 0.1460
7	 0.0470	 0.0810
A	 0.7370	 0.3470
B	 0.7080	 0.3020
C	 0.5580	 0.3710
D	 0.4880	 0.3260
E	 0.4470	 0.2970
F	 0.3660	 0.2340
G	 0.3460	 0.2370
H	 0.0880	 0.1440
I	 0.0690	 0.0950
J	 0.5090	 0.3230
K	 0.4640	 0.3460
L	 0.4600	 0.3160
M	 0.4870	 0.3640
N	 0.5350	 0.3520
O	 0.4440	 0.2670
P	 0.4530	 0.3140
Q	 0.5680	 0.3550
R	 0.4450	 0.3010
S	 0.4930	 0.3260
T	 0.4270	 0.3070
U	 0.3650	 0.2580
V	 0.4340	 0.2890
W	 0.5210	 0.3530
X	 0.4920	 0.3440
Y	 0.3960	 0.2170
Z	 0.4830	 0.3330



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Chain	Atom inclusion	Q-score
a	 0.6890	 0.3000
b	 0.2410	 0.1730
c	 0.4090	 0.2980
d	 0.2640	 0.0730
e	 0.4230	 0.2640
f	 0.4080	 0.2110
g	 0.3330	 0.2490
h	 0.4580	 0.2970
i	 0.3890	 0.2650
j	 0.3020	 0.2490
k	 0.3500	 0.1950
l	 0.2940	 0.1340
m	 0.4230	 0.2770
n	 0.4530	 0.3180
o	 0.4840	 0.2870
p	 0.3960	 0.1970
q	 0.3830	 0.2310
r	 0.4760	 0.3050
s	 0.4330	 0.2790
t	 0.4430	 0.2380
u	 0.1390	 0.1780
v	 0.5560	 0.2840
w	 0.5710	 0.3570
x	 0.5180	 0.2760