



## Full wwPDB EM Validation Report ⓘ

Mar 9, 2026 – 04:01 AM UTC

PDB ID : 7SSL / pdb\_00007ssl  
EMDB ID : EMD-25409  
Title : Pre translocation intermediate with EF-G bound to GDP and Pi (Structure III)  
Authors : Carbone, C.E.; Korostelev, A.A.  
Deposited on : 2021-11-11  
Resolution : 3.80 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

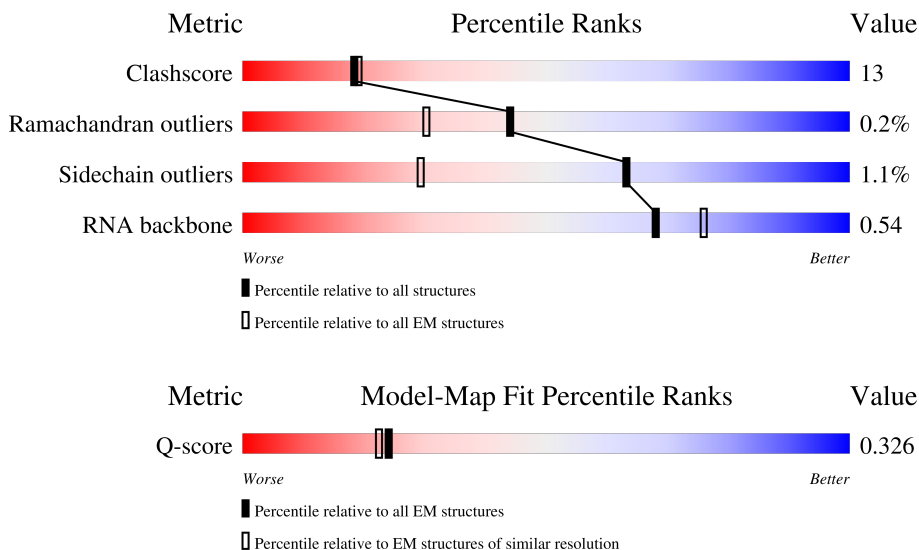
EMDB validation analysis : 0.0.1.dev132  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4-5-2 with Phenix2.0  
Buster-report : wwPDB partial adaption of 1.1.7 (2018)  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (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 i

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

The reported resolution of this entry is 3.80 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.





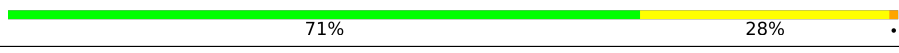
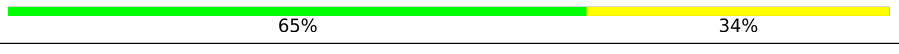



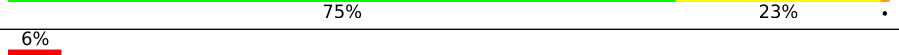
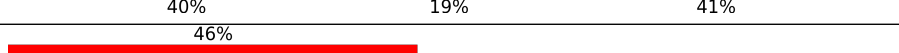
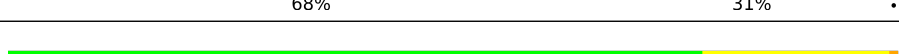
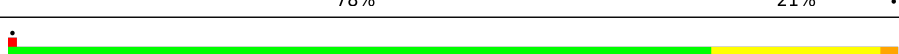

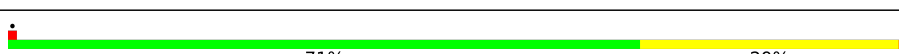
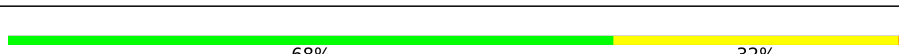
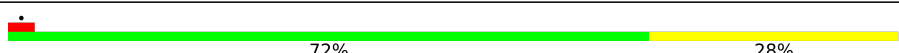




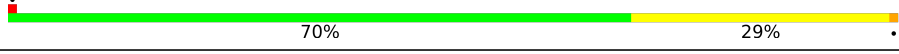





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	10198 ( 3.30 - 4.30 )

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	3	1539	
2	1	2903	
3	2	120	

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Mol	Chain	Length	Quality of chain
4	5	77	
5	8	697	
6	b	271	
7	c	209	
8	d	201	
9	e	177	
10	f	176	
11	g	149	
12	a	223	
13	i	141	
14	j	142	
15	k	122	
16	l	143	
17	m	136	
18	n	120	
19	o	116	
20	p	114	
21	q	117	
22	r	103	
23	s	110	
24	t	93	
25	u	102	
26	v	94	
27	w	75	
28	x	77	

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Mol	Chain	Length	Quality of chain
29	y	63	75% 25%
30	z	58	74% 26%
31	A	66	53% 17% 30%
32	B	56	64% 34%
33	C	50	10% 58% 42%
34	D	46	57% 39%
35	E	64	66% 34%
36	F	38	58% 42%
37	4	35	9% 17% 34% 46%
38	6	77	49% 45% 5%
39	G	225	67% 29%
40	H	206	5% 71% 28%
41	I	205	5% 72% 28%
42	J	157	69% 31%
43	K	100	65% 32%
44	L	151	6% 68% 28%
45	M	129	67% 33%
46	N	127	6% 47% 53%
47	O	98	13% 68% 32%
48	P	116	69% 31%
49	Q	123	7% 72% 28%
50	R	114	72% 28%
51	S	100	64% 36%
52	T	88	80% 20%
53	U	82	72% 28%

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Mol	Chain	Length	Quality of chain
54	V	80	 69% 31%
55	W	65	 75% 25%
56	X	79	 9% 76% 24%
57	Y	85	 5% 67% 33%
58	Z	65	 69% 28%

## 2 Entry composition i

There are 60 unique types of molecules in this entry. The entry contains 153348 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 rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	3	1539	33012	14725	6052	10697	1538	0	0

- Molecule 2 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	1	2903	62317	27801	11468	20146	2902	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	747	C	U	conflict	GB 802133627

- Molecule 3 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	2	120	2568	1145	471	833	119	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	120	A	-	insertion	GB 1266961702

- Molecule 4 is a RNA chain called tRNA Pro.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	5	77	1647	733	295	542	77	0	0

- Molecule 5 is a protein called Elongation factor G.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	8	697	5400	3403	929	1043	25	0	0

- Molecule 6 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	b	271	2083	1288	423	365	7	0	0

- Molecule 7 is a protein called 50S ribosomal protein L3.

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

- Molecule 8 is a protein called 50S ribosomal protein L4.

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

- Molecule 9 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	e	177	1411	899	249	257	6	0	0

- Molecule 10 is a protein called 50S ribosomal protein L6.

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

- Molecule 11 is a protein called 50S ribosomal protein L9.

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

- Molecule 12 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	a	132	Total	C	N	O	S	0	0
			1014	638	183	191	2		

- Molecule 13 is a protein called 50S ribosomal protein L11.

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

- Molecule 14 is a protein called 50S ribosomal protein L13.

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

- Molecule 15 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	k	122	Total	C	N	O	S	0	0
			939	587	180	166	6		

- Molecule 16 is a protein called 50S ribosomal protein L15.

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

- Molecule 17 is a protein called 50S ribosomal protein L16.

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

- Molecule 18 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	n	120	Total	C	N	O	S	0	0
			961	593	196	167	5		

- Molecule 19 is a protein called 50S ribosomal protein L18.

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

- Molecule 20 is a protein called 50S ribosomal protein L19.

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

- Molecule 21 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	q	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 22 is a protein called 50S ribosomal protein L21.

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

- Molecule 23 is a protein called 50S ribosomal protein L22.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
24	t	93	Total	C	N	O	S	0	0
			739	466	139	132	2		

- Molecule 25 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	u	102	Total	C	N	O	0	0
			780	492	146	142		

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

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

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

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

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

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

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

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

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

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

- Molecule 31 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	A	46	Total	C	N	O	S	0	0
			355	221	62	66	6		

- Molecule 32 is a protein called 50S ribosomal protein L32.

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

- Molecule 33 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	C	50	Total	C	N	O	0	0
			410	263	75	72		

- Molecule 34 is a protein called 50S ribosomal protein L34.

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

- Molecule 35 is a protein called 50S ribosomal protein L35.

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

- Molecule 36 is a protein called 50S ribosomal protein L36.

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

- Molecule 37 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	4	19	Total	C	N	O	P	0	0
			413	186	85	124	18		

- Molecule 38 is a RNA chain called tRNA fMet.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	6	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		

- Molecule 39 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	G	218	Total	C	N	O	S	0	0
			1705	1081	305	312	7		

- Molecule 40 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	H	206	Total	C	N	O	S	0	0
			1625	1028	305	289	3		

- Molecule 41 is a protein called 30S ribosomal protein S4.

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

- Molecule 42 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	J	157	Total	C	N	O	S	0	0
			1157	719	218	214	6		

- Molecule 43 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	K	100	Total	C	N	O	S	0	0
			818	515	148	149	6		

- Molecule 44 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	L	151	Total	C	N	O	S	0	0
			1182	735	227	216	4		

- Molecule 45 is a protein called 30S ribosomal protein S8.

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

- Molecule 46 is a protein called 30S ribosomal protein S9.

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

- Molecule 47 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	O	98	Total	C	N	O	S	0	0
			787	493	150	143	1		

- Molecule 48 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	P	116	Total	C	N	O	S	0	0
			870	535	173	159	3		

- Molecule 49 is a protein called 30S ribosomal protein S12.

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

- Molecule 50 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	R	114	Total	C	N	O	S	0	0
			884	546	178	157	3		

- Molecule 51 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	S	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 52 is a protein called 30S ribosomal protein S15.

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

- Molecule 53 is a protein called 30S ribosomal protein S16.

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

- Molecule 54 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	V	80	Total	C	N	O	S	0	0
			649	411	121	114	3		

- Molecule 55 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	W	65	Total	C	N	O	S	0	0
			536	339	100	96	1		

- Molecule 56 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	X	79	Total	C	N	O	S	0	0
			638	408	120	108	2		

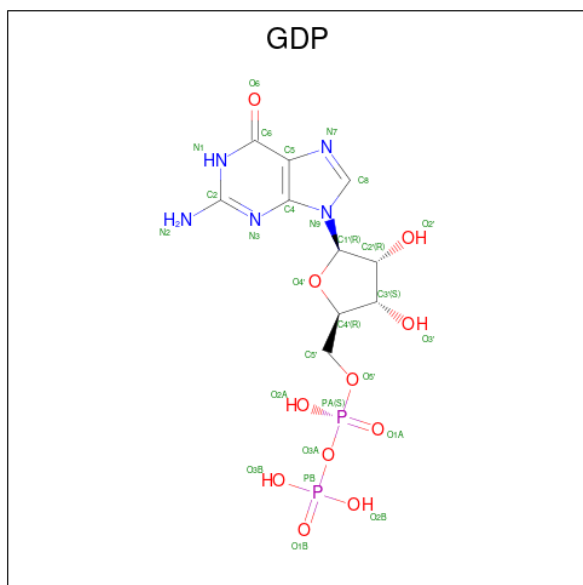
- Molecule 57 is a protein called 30S ribosomal protein S20.

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

- Molecule 58 is a protein called 30S ribosomal protein S21.

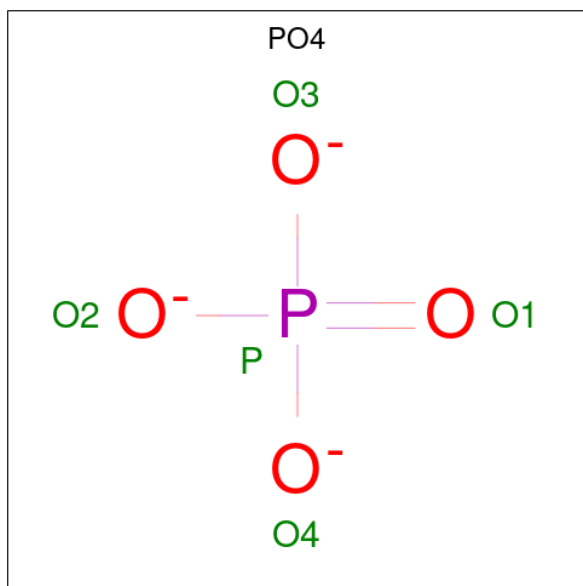
Mol	Chain	Residues	Atoms					AltConf	Trace
58	Z	65	Total	C	N	O	S	0	0
			545	335	117	92	1		

- Molecule 59 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: C<sub>10</sub>H<sub>15</sub>N<sub>5</sub>O<sub>11</sub>P<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
59	8	1	28	10	5	11	2	0

- Molecule 60 is PHOSPHATE ION (CCD ID: PO4) (formula:  $O_4P$ ) (labeled as "Ligand of Interest" by depositor).

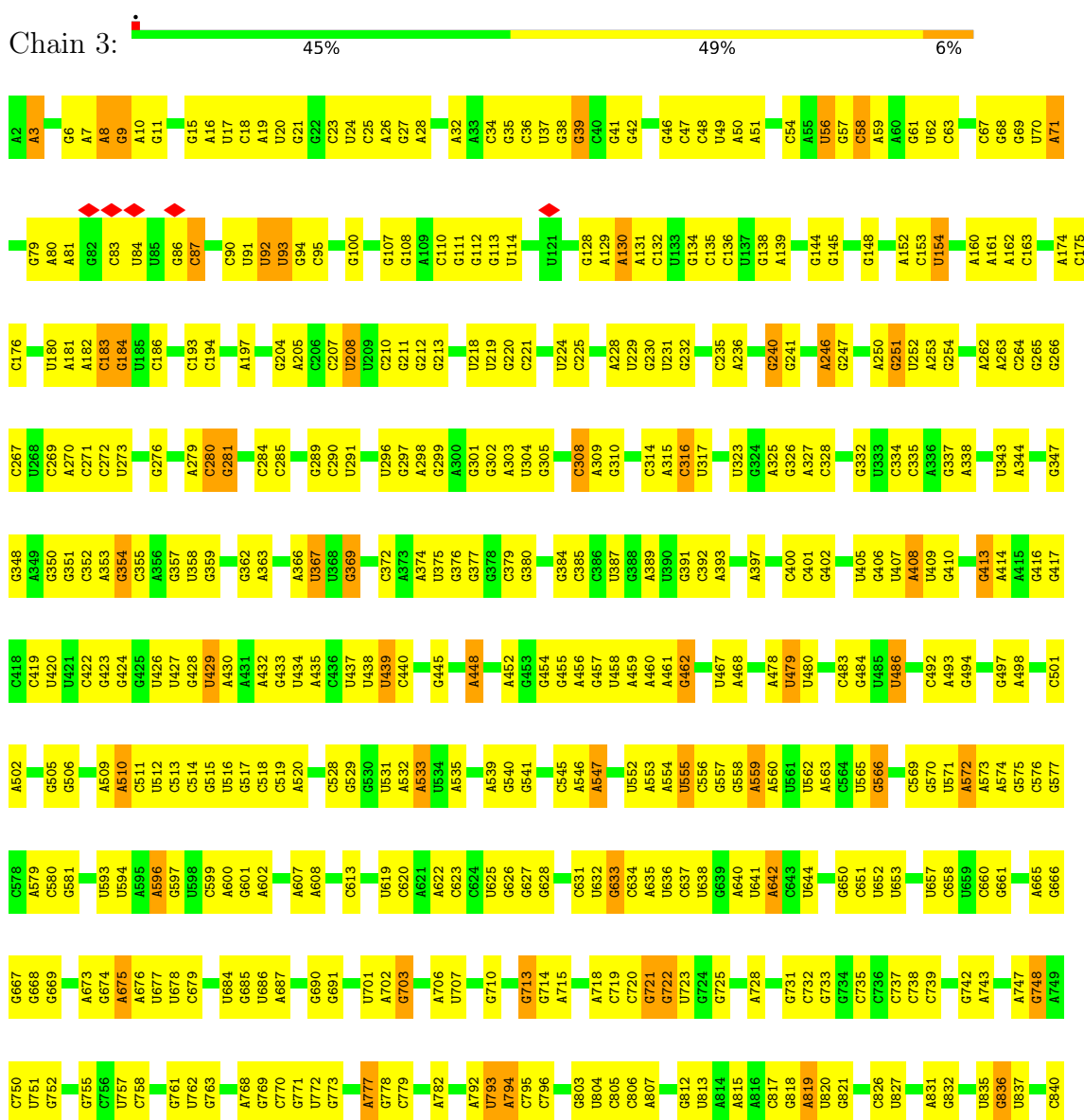


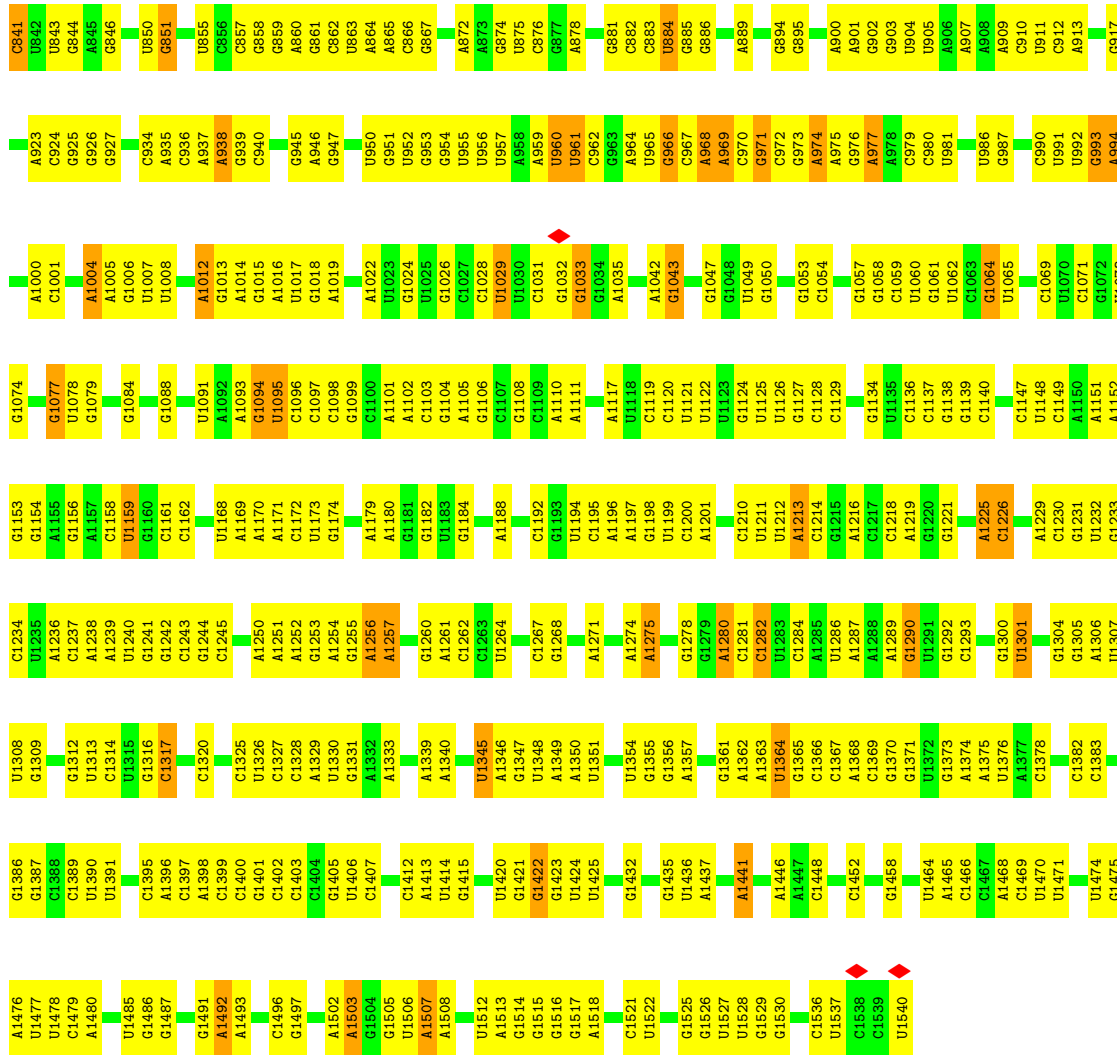
Mol	Chain	Residues	Atoms			AltConf
			Total	O	P	
60	8	1	5	4	1	0

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

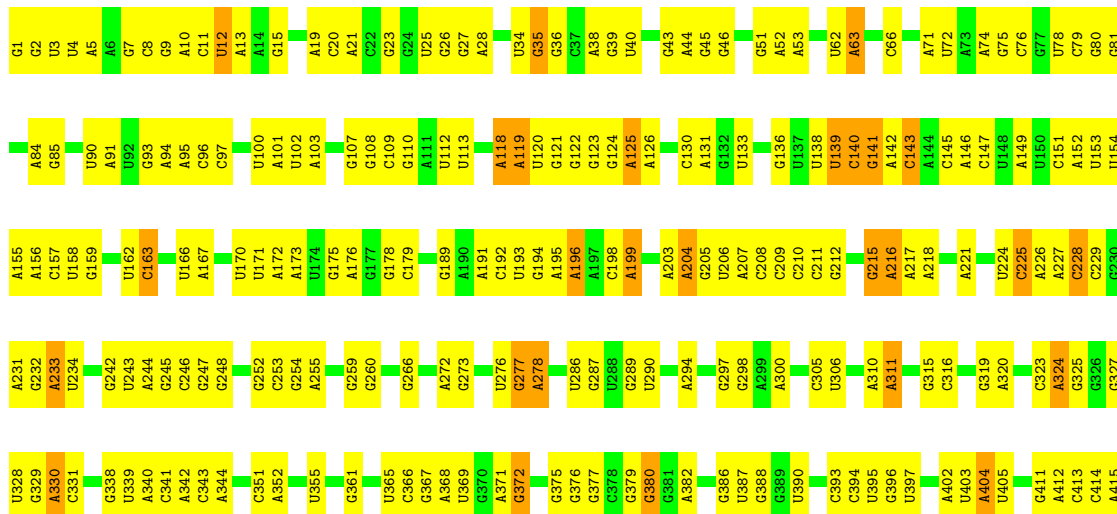
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

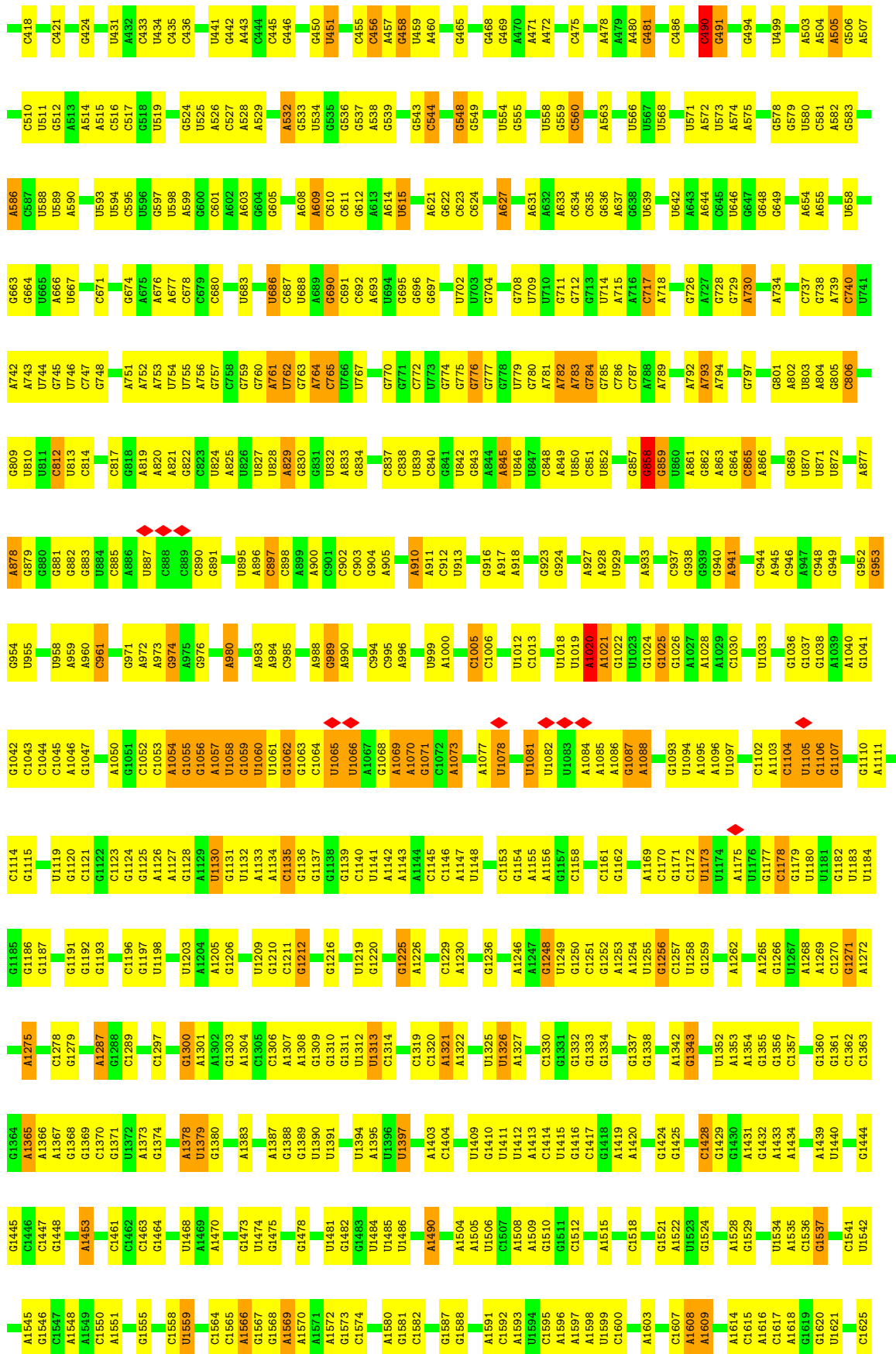
- Molecule 1: 16S rRNA



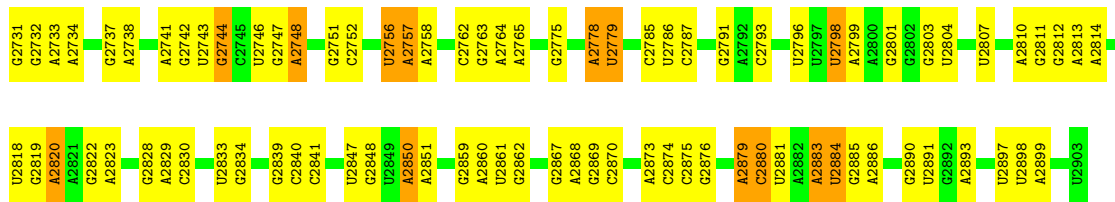


• Molecule 2: 23S rRNA





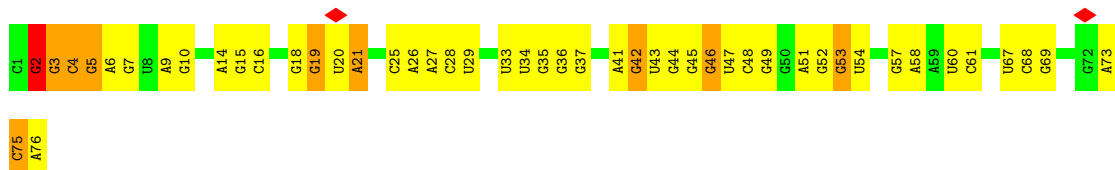
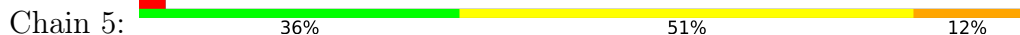
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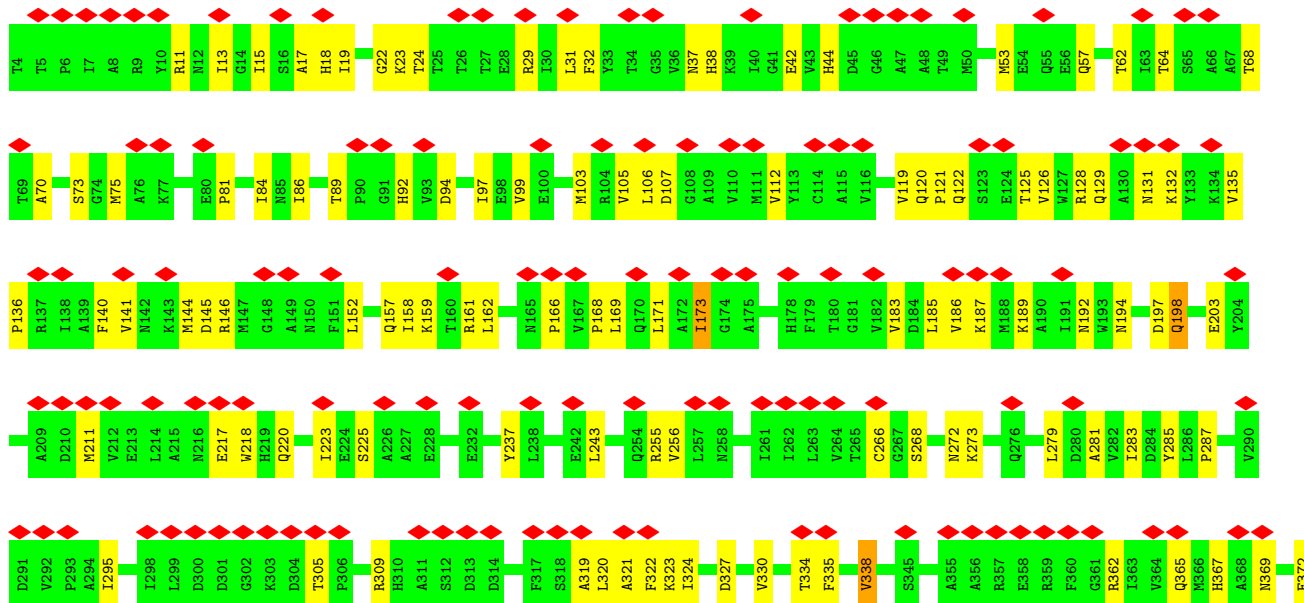
• Molecule 3: 5S rRNA

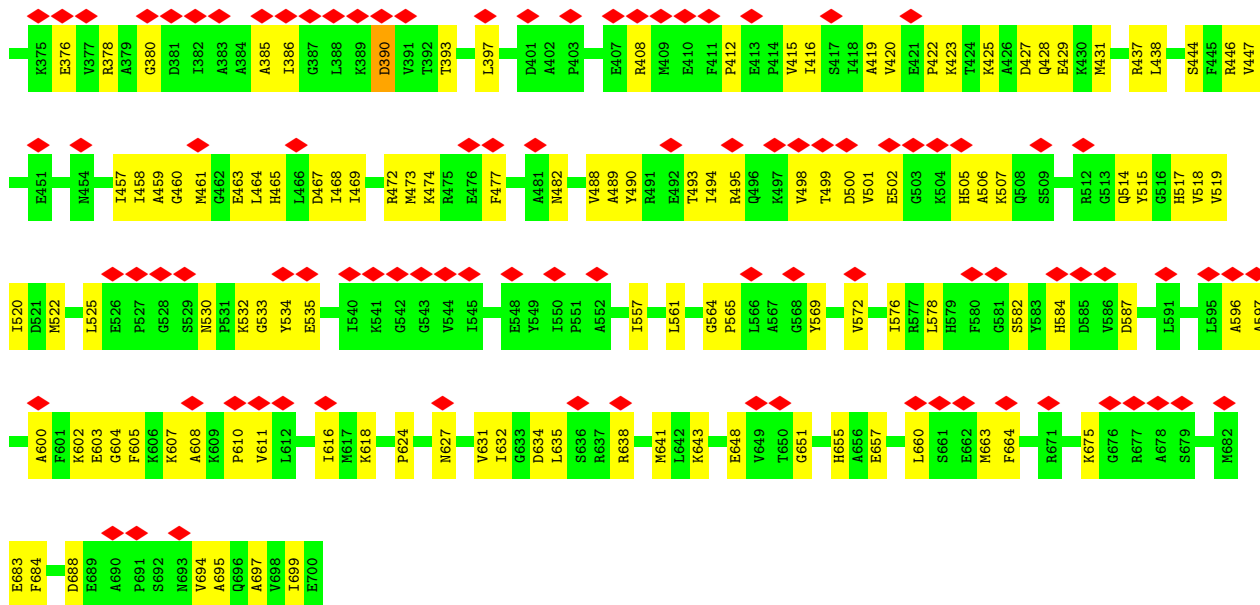


• Molecule 4: tRNA Pro



• Molecule 5: Elongation factor G

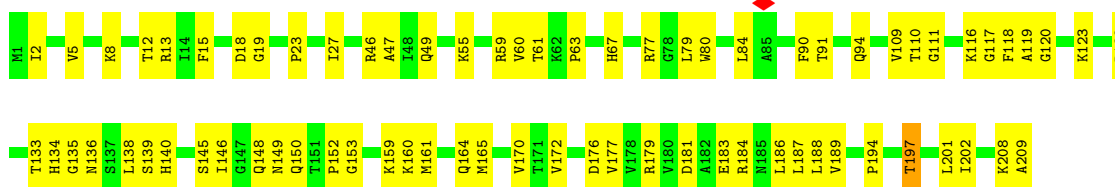




• Molecule 6: 50S ribosomal protein L2



• Molecule 7: 50S ribosomal protein L3

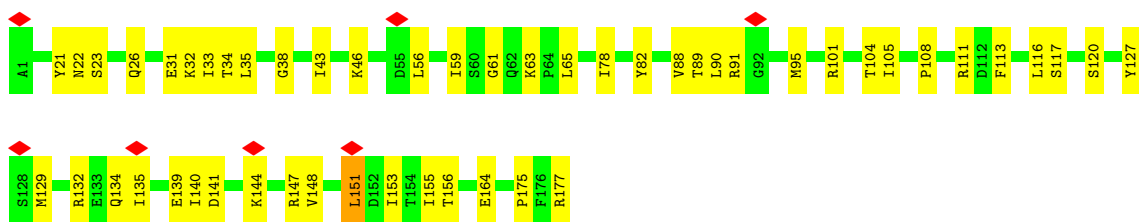


• Molecule 8: 50S ribosomal protein L4

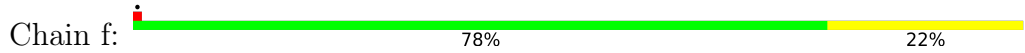




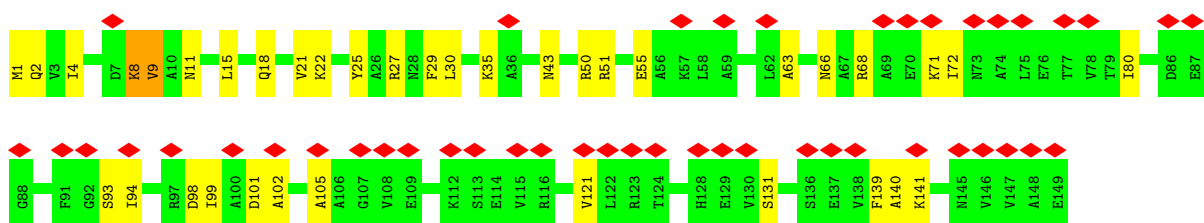
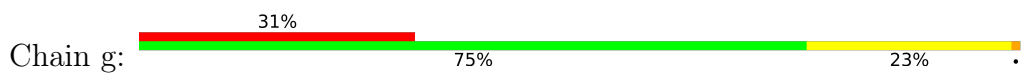
• Molecule 9: 50S ribosomal protein L5



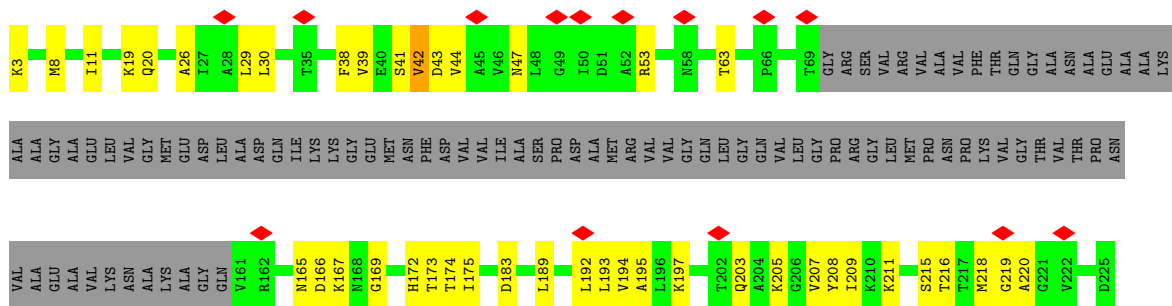
• Molecule 10: 50S ribosomal protein L6



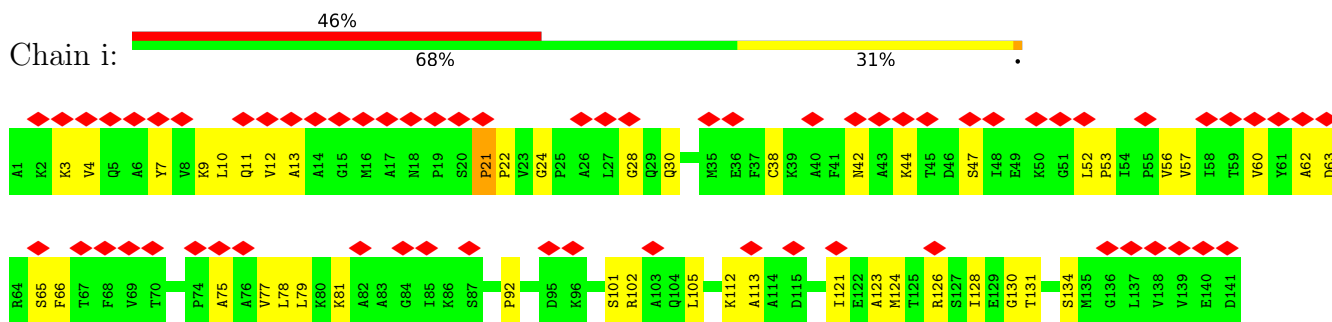
• Molecule 11: 50S ribosomal protein L9



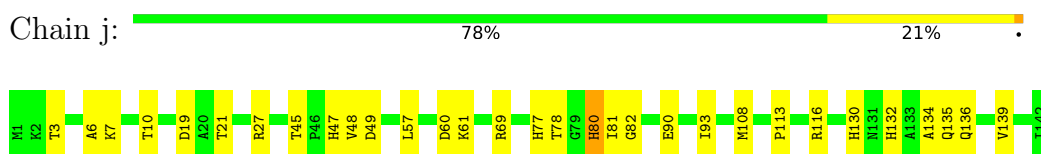
• Molecule 12: 50S ribosomal protein L1



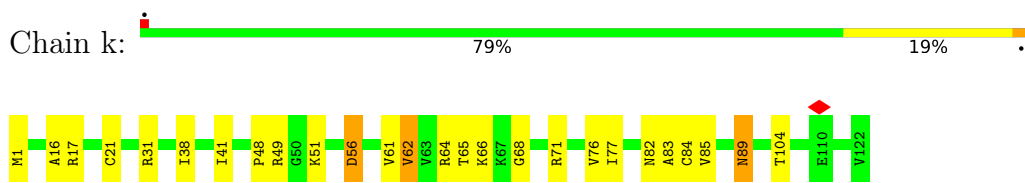
• Molecule 13: 50S ribosomal protein L11



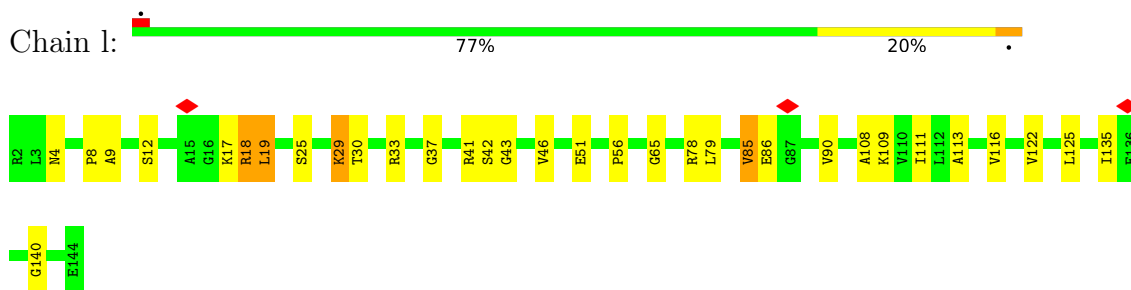
• Molecule 14: 50S ribosomal protein L13



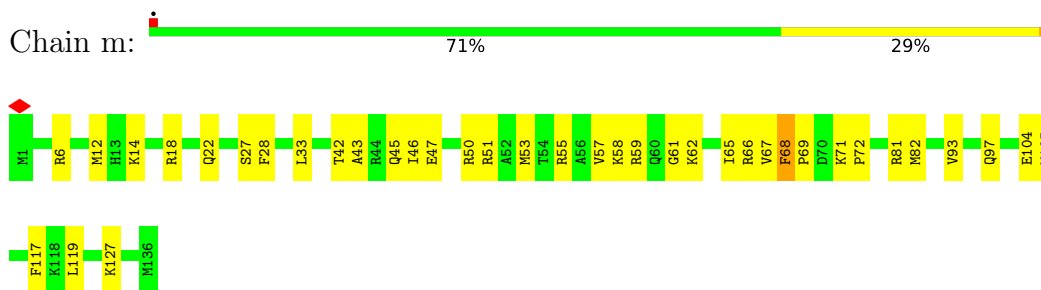
• Molecule 15: 50S ribosomal protein L14



• Molecule 16: 50S ribosomal protein L15

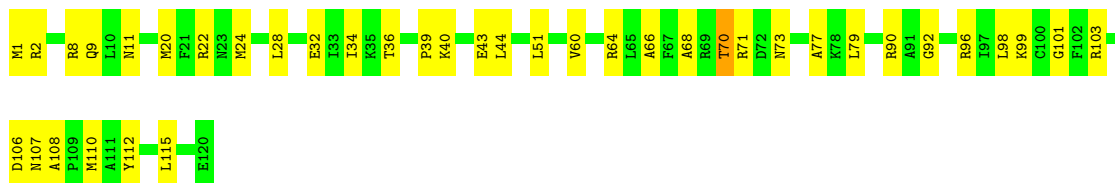


• Molecule 17: 50S ribosomal protein L16

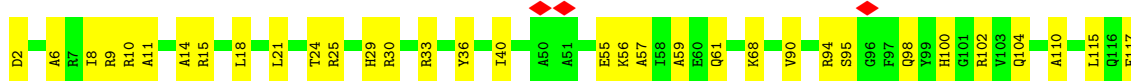


• Molecule 18: 50S ribosomal protein L17





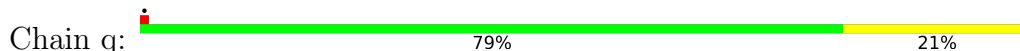
• Molecule 19: 50S ribosomal protein L18



• Molecule 20: 50S ribosomal protein L19



• Molecule 21: 50S ribosomal protein L20



• Molecule 22: 50S ribosomal protein L21



• Molecule 23: 50S ribosomal protein L22

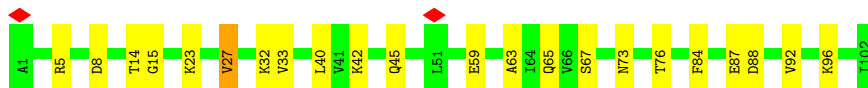
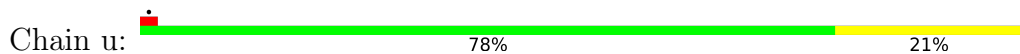


• Molecule 24: 50S ribosomal protein L23

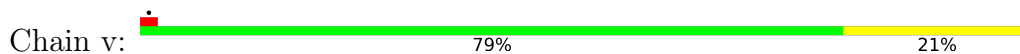




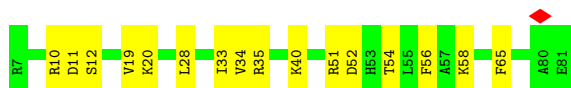
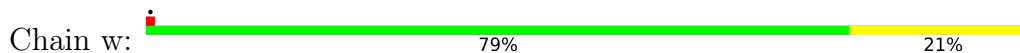
- Molecule 25: 50S ribosomal protein L24



- Molecule 26: 50S ribosomal protein L25



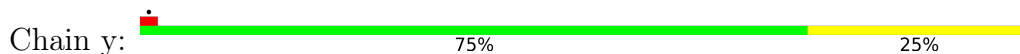
- Molecule 27: 50S ribosomal protein L27



- Molecule 28: 50S ribosomal protein L28



- Molecule 29: 50S ribosomal protein L29



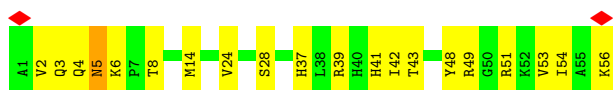
- Molecule 30: 50S ribosomal protein L30



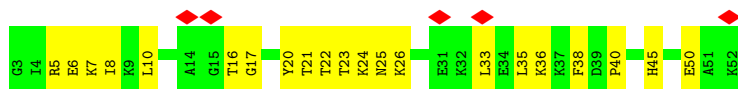
- Molecule 31: 50S ribosomal protein L31



• Molecule 32: 50S ribosomal protein L32



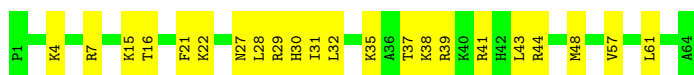
• Molecule 33: 50S ribosomal protein L33



• Molecule 34: 50S ribosomal protein L34



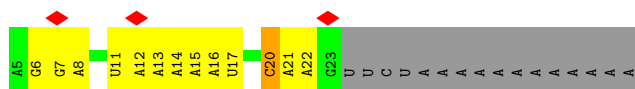
• Molecule 35: 50S ribosomal protein L35



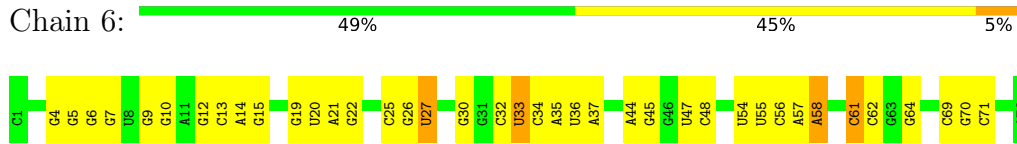
• Molecule 36: 50S ribosomal protein L36



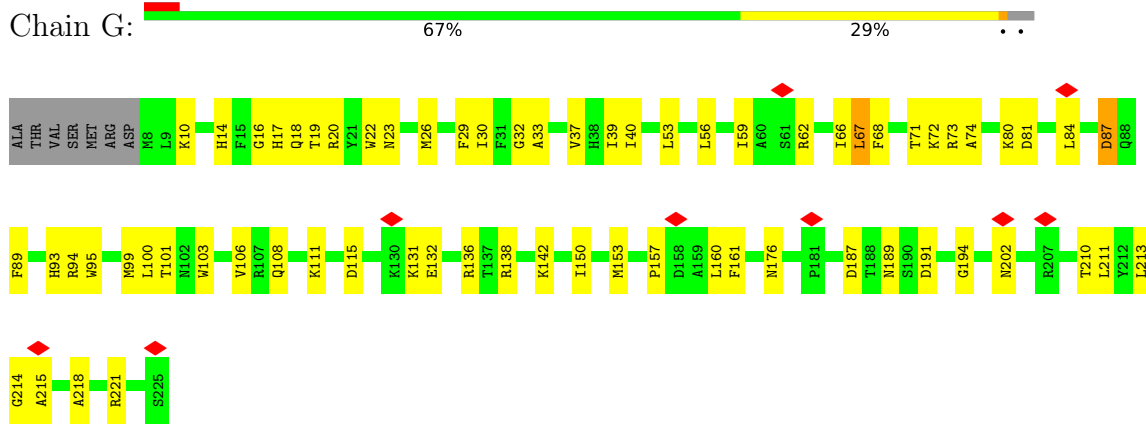
• Molecule 37: mRNA



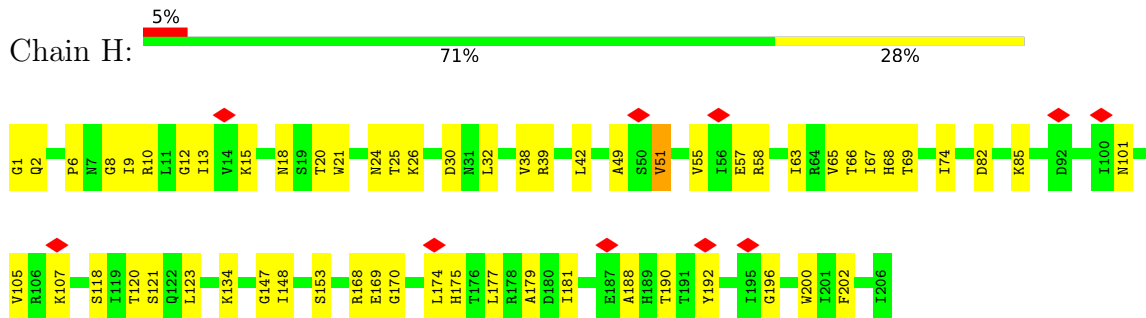
- Molecule 38: tRNA fMet



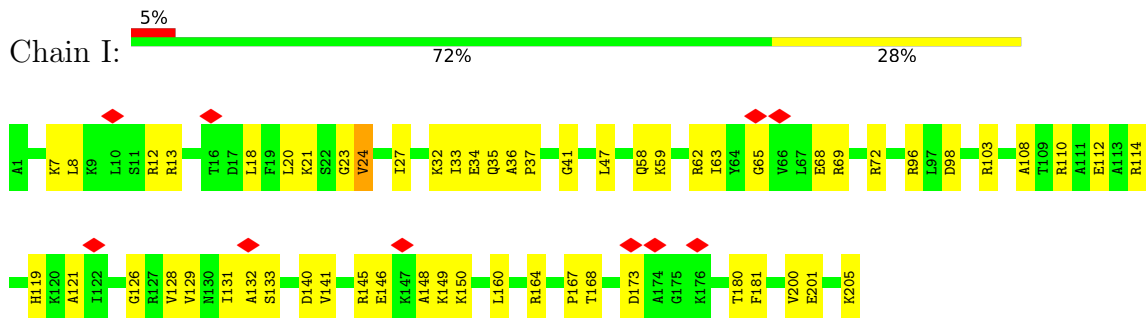
- Molecule 39: 30S ribosomal protein S2



- Molecule 40: 30S ribosomal protein S3



- Molecule 41: 30S ribosomal protein S4

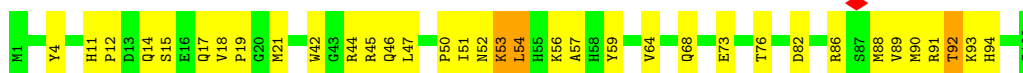


- Molecule 42: 30S ribosomal protein S5

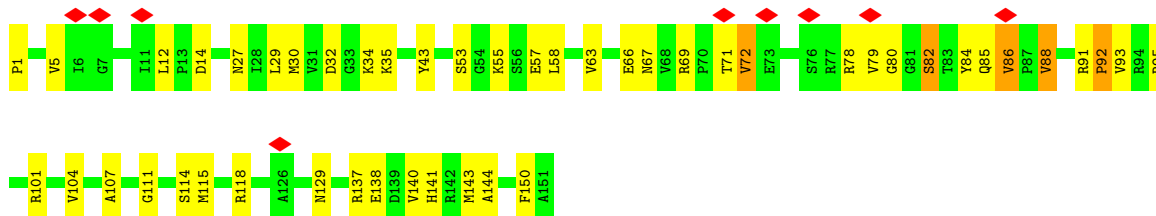




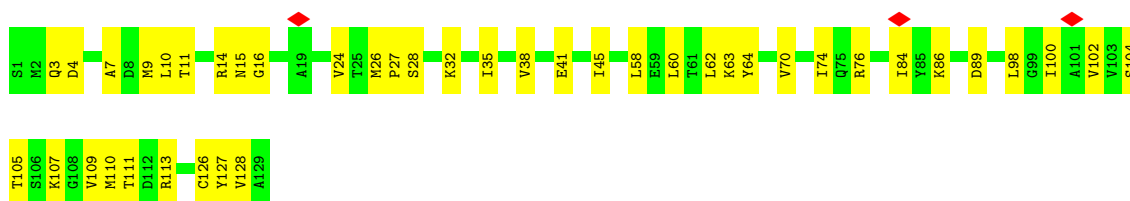
- Molecule 43: 30S ribosomal protein S6



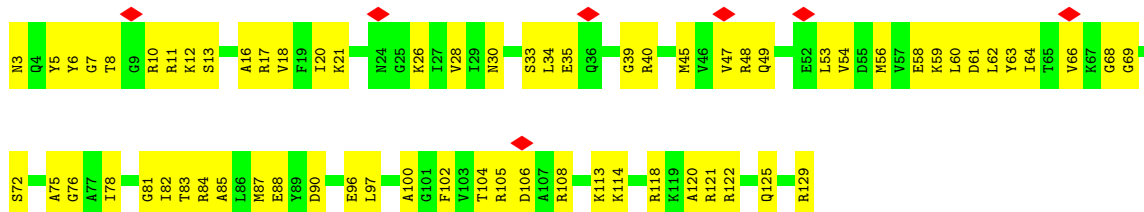
- Molecule 44: 30S ribosomal protein S7



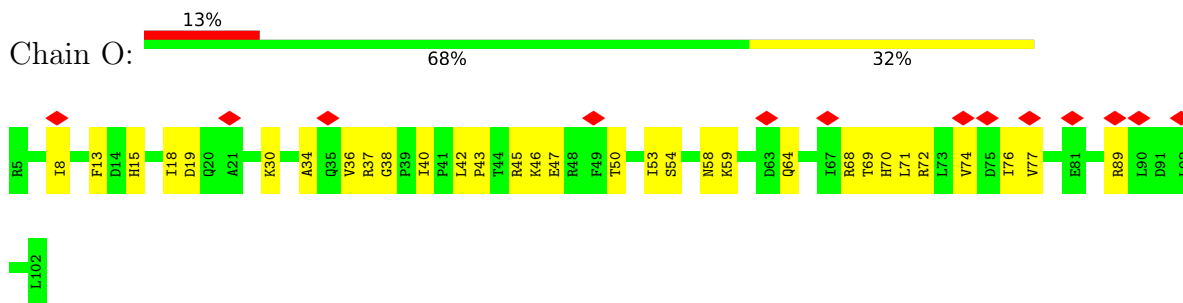
- Molecule 45: 30S ribosomal protein S8



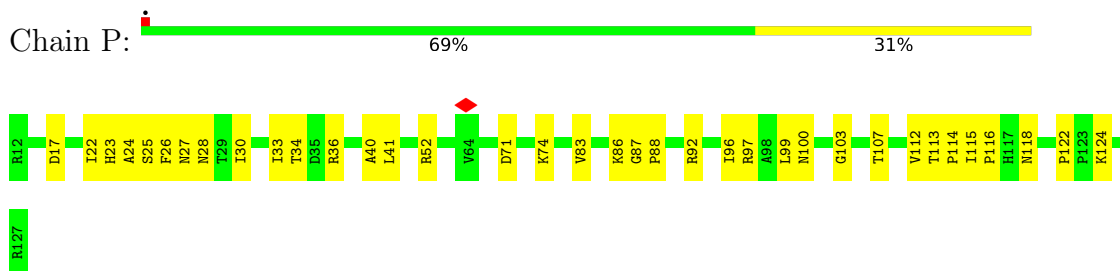
- Molecule 46: 30S ribosomal protein S9



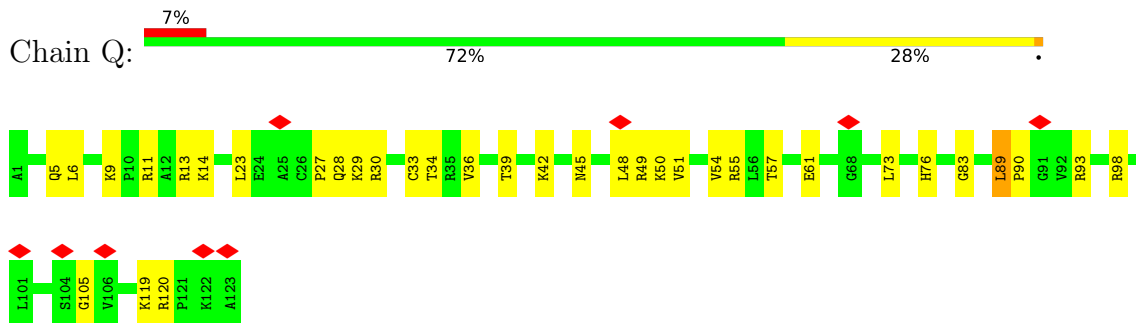
- Molecule 47: 30S ribosomal protein S10



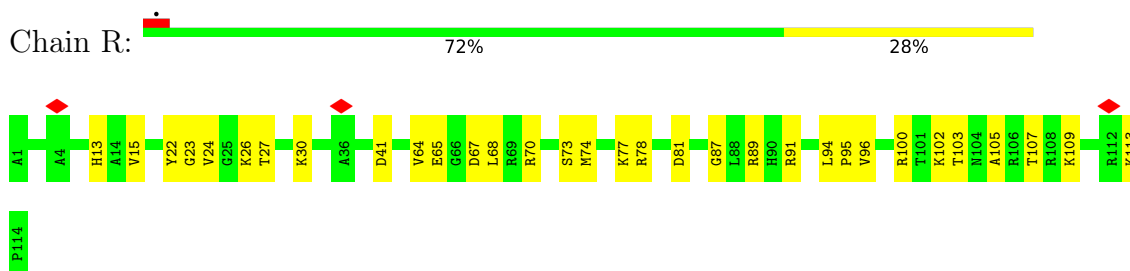
- Molecule 48: 30S ribosomal protein S11



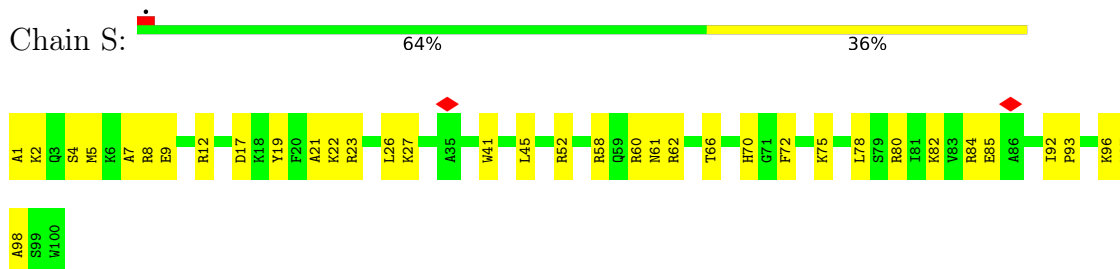
- Molecule 49: 30S ribosomal protein S12



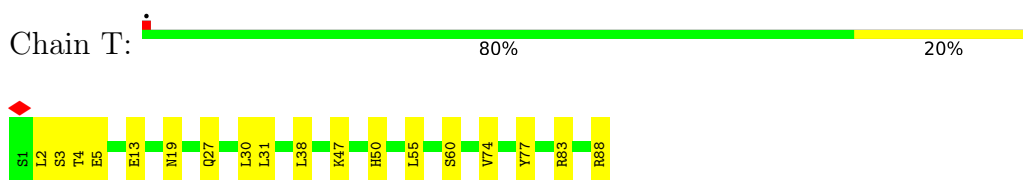
- Molecule 50: 30S ribosomal protein S13



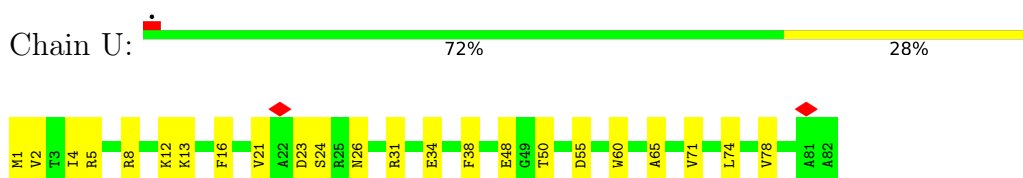
- Molecule 51: 30S ribosomal protein S14



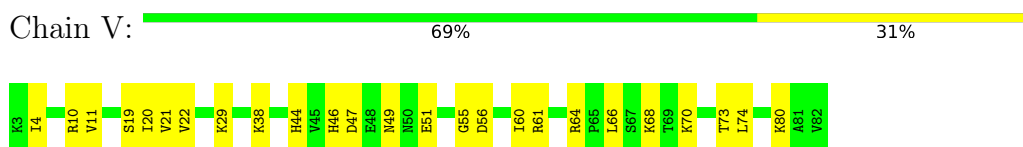
- Molecule 52: 30S ribosomal protein S15



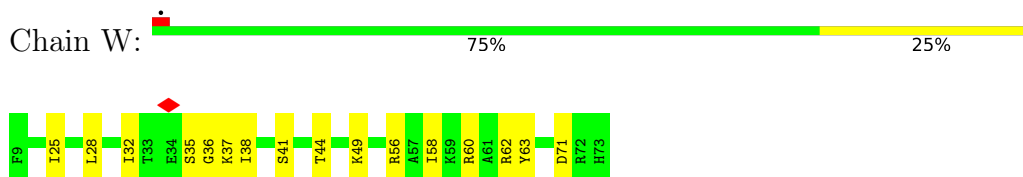
- Molecule 53: 30S ribosomal protein S16



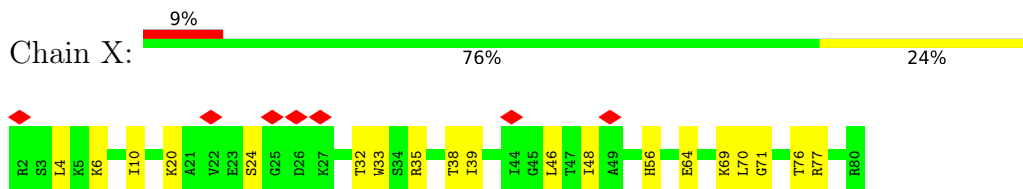
- Molecule 54: 30S ribosomal protein S17



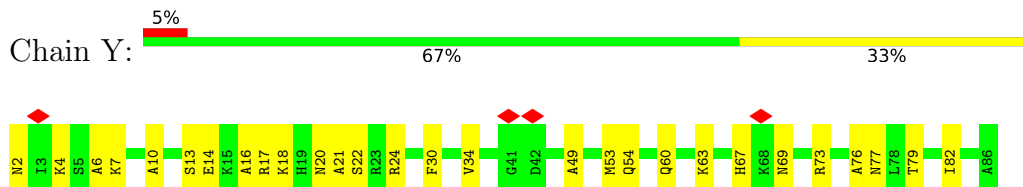
- Molecule 55: 30S ribosomal protein S18



- Molecule 56: 30S ribosomal protein S19

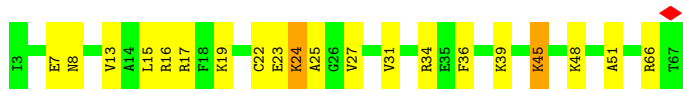


- Molecule 57: 30S ribosomal protein S20



- Molecule 58: 30S ribosomal protein S21





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	1657	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	47.6	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	21.111	Depositor
Minimum map value	-12.565	Depositor
Average map value	0.116	Depositor
Map value standard deviation	0.863	Depositor
Recommended contour level	1.25	Depositor
Map size (Å)	370.5408, 370.5408, 370.5408	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8271, 0.8271, 0.8271	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: GDP, PO4

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	3	0.59	0/36963	0.56	5/57662 (0.0%)
2	1	0.59	3/69796 (0.0%)	0.63	31/108888 (0.0%)
3	2	0.60	0/2872	0.55	1/4479 (0.0%)
4	5	0.69	0/1840	0.69	3/2868 (0.1%)
5	8	0.29	0/5502	0.67	4/7446 (0.1%)
6	b	0.48	0/2122	0.82	0/2852
7	c	0.43	0/1586	0.75	0/2134
8	d	0.37	0/1571	0.81	3/2113 (0.1%)
9	e	0.29	0/1435	0.66	0/1926
10	f	0.28	0/1343	0.61	0/1816
11	g	0.27	0/1122	0.75	3/1515 (0.2%)
12	a	0.26	0/1021	0.70	0/1370
13	i	0.28	0/1046	0.75	1/1410 (0.1%)
14	j	0.42	0/1152	0.72	0/1551
15	k	0.41	0/948	0.91	1/1268 (0.1%)
16	l	0.41	1/1054 (0.1%)	0.80	2/1403 (0.1%)
17	m	0.39	0/1093	0.81	2/1460 (0.1%)
18	n	0.48	1/974 (0.1%)	0.85	0/1301
19	o	0.32	0/902	0.68	0/1209
20	p	0.39	0/929	0.72	0/1242
21	q	0.43	0/960	0.71	0/1278
22	r	0.38	0/829	0.78	1/1107 (0.1%)
23	s	0.40	0/864	0.78	0/1156
24	t	0.33	0/745	0.77	1/994 (0.1%)
25	u	0.33	0/788	0.74	2/1051 (0.2%)
26	v	0.35	0/766	0.66	0/1025
27	w	0.40	0/582	0.78	0/769
28	x	0.50	0/635	1.19	6/848 (0.7%)
29	y	0.28	0/510	0.71	0/677
30	z	0.35	0/453	0.76	1/605 (0.2%)
31	A	0.25	0/362	0.72	0/485
32	B	0.36	0/450	0.80	2/599 (0.3%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
33	C	0.31	0/417	0.61	0/554
34	D	0.47	0/380	0.95	0/498
35	E	0.40	0/513	0.77	0/676
36	F	0.40	0/303	0.79	0/397
37	4	0.64	0/465	0.62	0/725
38	6	0.59	0/1832	0.59	0/2855
39	G	0.28	0/1736	0.75	0/2338
40	H	0.28	0/1652	0.72	0/2225
41	I	0.27	0/1665	0.75	1/2227 (0.0%)
42	J	0.36	0/1170	0.81	0/1573
43	K	0.32	0/836	0.85	2/1128 (0.2%)
44	L	0.38	0/1196	0.88	6/1602 (0.4%)
45	M	0.30	0/989	0.75	0/1326
46	N	0.29	0/1034	0.74	0/1375
47	O	0.30	0/797	0.70	0/1077
48	P	0.36	0/886	0.79	2/1195 (0.2%)
49	Q	0.36	0/969	0.79	0/1300
50	R	0.28	0/893	0.68	0/1193
51	S	0.27	0/817	0.68	1/1088 (0.1%)
52	T	0.36	0/722	0.73	0/964
53	U	0.29	0/659	0.63	0/884
54	V	0.32	0/658	0.72	0/881
55	W	0.28	0/545	0.69	0/731
56	X	0.27	0/653	0.64	0/877
57	Y	0.25	0/671	0.64	2/888 (0.2%)
58	Z	0.35	0/551	1.05	2/728 (0.3%)
All	All	0.53	5/166224 (0.0%)	0.65	85/247812 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	3	0	1
2	1	0	9
5	8	0	1
8	d	0	1
11	g	0	1
13	i	0	1
14	j	0	1
18	n	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
23	s	0	1
35	E	0	1
39	G	0	3
42	J	0	2
43	K	0	1
49	Q	0	1
58	Z	0	3
All	All	0	28

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	1	2064	C	O3'-P	-7.72	1.49	1.61
2	1	2102	G	O3'-P	-6.42	1.51	1.61
18	n	66	ALA	CA-C	-5.96	1.44	1.52
16	l	18	ARG	CA-CB	-5.05	1.44	1.52
2	1	905	A	O3'-P	-5.05	1.53	1.61

All (85) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	1	2102	G	O3'-P-O5'	-51.91	26.14	104.00
2	1	2187	U	P-O3'-C3'	20.85	151.47	120.20
2	1	2102	G	P-O3'-C3'	-20.25	89.82	120.20
2	1	2578	G	P-O3'-C3'	-15.28	97.28	120.20
2	1	905	A	P-O3'-C3'	12.31	138.67	120.20
44	L	92	PRO	N-CA-C	-10.43	98.56	113.47
2	1	2064	C	O3'-P-O5'	-10.17	88.74	104.00
28	x	14	GLY	N-CA-C	-9.59	97.28	111.19
2	1	2603	G	O3'-P-O5'	9.54	118.31	104.00
44	L	86	VAL	CA-C-N	8.14	130.02	119.84
44	L	86	VAL	C-N-CA	8.14	130.02	119.84
44	L	86	VAL	N-CA-C	8.05	117.55	108.05
2	1	2187	U	OP1-P-O3'	7.98	131.94	108.00
2	1	2187	U	O3'-P-O5'	-7.40	92.91	104.00
2	1	1020	A	C2'-C3'-O3'	7.40	120.59	109.50
2	1	2603	G	P-O3'-C3'	7.16	130.94	120.20
48	P	112	VAL	CA-C-N	6.99	141.31	120.69
48	P	112	VAL	C-N-CA	6.99	141.31	120.69
2	1	2425	A	O3'-P-O5'	-6.95	93.57	104.00
44	L	82	SER	N-CA-C	6.95	116.48	108.49
4	5	2	G	C2'-C3'-O3'	6.84	119.76	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	3	1301	U	N1-C1'-C2'	6.68	122.01	112.00
16	l	29	LYS	CA-C-N	6.55	134.04	121.54
16	l	29	LYS	C-N-CA	6.55	134.04	121.54
28	x	30	PRO	N-CA-C	6.54	125.94	112.47
28	x	11	PRO	N-CA-C	-6.45	99.55	111.03
2	1	2428	G	O3'-P-O5'	-6.40	94.41	104.00
2	1	490	C	N1-C1'-C2'	6.38	121.57	112.00
11	g	8	LYS	CA-C-N	6.32	133.34	121.97
11	g	8	LYS	C-N-CA	6.32	133.34	121.97
25	u	45	GLN	CA-C-N	6.31	129.45	120.49
25	u	45	GLN	C-N-CA	6.31	129.45	120.49
41	I	24	VAL	N-CA-C	-6.30	107.72	113.71
44	L	88	VAL	N-CA-C	6.28	118.15	109.80
4	5	75	C	OP1-P-O3'	-6.26	89.21	108.00
28	x	71	ARG	N-CA-C	-6.25	105.66	113.28
2	1	980	A	N9-C1'-C2'	6.24	121.36	112.00
5	8	367	HIS	CA-C-N	6.06	133.12	121.54
5	8	367	HIS	C-N-CA	6.06	133.12	121.54
28	x	67	LEU	N-CA-C	-6.05	104.60	111.14
2	1	2603	G	OP2-P-O3'	-5.95	90.16	108.00
11	g	121	VAL	N-CA-C	-5.93	106.64	111.91
2	1	1816	C	N1-C1'-C2'	5.78	120.67	112.00
28	x	54	GLY	N-CA-C	5.73	120.75	113.24
32	B	5	ASN	CA-C-N	5.72	129.00	120.83
32	B	5	ASN	C-N-CA	5.72	129.00	120.83
58	Z	17	ARG	N-CA-C	-5.70	104.89	113.89
4	5	75	C	O3'-P-O5'	5.63	112.44	104.00
5	8	663	MET	CA-C-N	5.61	132.25	121.54
5	8	663	MET	C-N-CA	5.61	132.25	121.54
2	1	1343	G	N9-C1'-C2'	5.57	120.36	112.00
51	S	21	ALA	N-CA-C	-5.53	107.78	114.75
13	i	62	ALA	N-CA-C	5.50	116.96	110.97
2	1	2502	G	O3'-P-O5'	5.45	112.17	104.00
1	3	130	A	N9-C1'-C2'	5.44	120.16	112.00
17	m	57	VAL	CA-C-N	5.44	131.93	121.54
17	m	57	VAL	C-N-CA	5.44	131.93	121.54
1	3	813	U	N1-C1'-C2'	5.44	120.16	112.00
8	d	74	LYS	CA-C-N	5.43	128.59	120.83
8	d	74	LYS	C-N-CA	5.43	128.59	120.83
22	r	51	VAL	N-CA-C	-5.42	97.16	108.88
58	Z	25	ALA	N-CA-C	-5.41	106.41	114.64
2	1	1106	G	C2'-C3'-O3'	5.36	121.74	113.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
15	k	89	ASN	N-CA-C	5.36	117.56	111.02
8	d	20	GLY	N-CA-C	-5.34	107.42	114.95
2	1	2187	U	OP2-P-O3'	-5.29	92.13	108.00
57	Y	53	MET	CA-C-N	5.27	127.53	120.58
57	Y	53	MET	C-N-CA	5.27	127.53	120.58
2	1	2529	G	N9-C1'-C2'	5.24	119.86	112.00
2	1	1924	C	N1-C1'-C2'	5.21	119.82	112.00
3	2	66	A	N9-C1'-C2'	5.19	119.79	112.00
2	1	1211	C	N1-C1'-C2'	5.18	119.77	112.00
2	1	858	G	C4'-C3'-O3'	5.16	120.74	113.00
24	t	65	GLY	N-CA-C	5.16	117.39	111.36
30	z	40	THR	N-CA-C	-5.10	101.26	109.58
2	1	2016	U	N1-C1'-C2'	5.07	119.61	112.00
43	K	52	ASN	CA-C-N	5.06	131.21	121.54
43	K	52	ASN	C-N-CA	5.06	131.21	121.54
2	1	278	A	N9-C1'-C2'	5.05	119.58	112.00
1	3	722	G	N9-C1'-C2'	5.05	119.58	112.00
1	3	1043	G	N9-C1'-C2'	5.04	119.56	112.00
2	1	1087	G	N9-C1'-C2'	5.01	119.52	112.00
2	1	933	A	N9-C1'-C2'	5.01	119.51	112.00
2	1	2071	A	N9-C1'-C2'	5.01	119.51	112.00
2	1	1508	A	N9-C1'-C2'	5.00	119.51	112.00

There are no chirality outliers.

All (28) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	1	1275	A	Sidechain
2	1	1779	U	Sidechain
2	1	1991	U	Sidechain
2	1	2017	U	Sidechain
2	1	2662	A	Sidechain
2	1	2847	U	Sidechain
2	1	702	U	Sidechain
2	1	761	A	Sidechain
2	1	980	A	Sidechain
1	3	533	A	Sidechain
5	8	197	ASP	Peptide
35	E	30	HIS	Peptide
39	G	14	HIS	Peptide
39	G	17	HIS	Peptide
39	G	87	ASP	Peptide

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Mol	Chain	Res	Type	Group
42	J	121	ASN	Peptide
42	J	74	ALA	Peptide
43	K	53	LYS	Peptide
49	Q	89	LEU	Peptide
58	Z	22	CYS	Peptide
58	Z	45	LYS	Peptide
58	Z	7	GLU	Peptide
8	d	82	GLY	Peptide
11	g	93	SER	Peptide
13	i	21	PRO	Peptide
14	j	80	HIS	Peptide
18	n	70	THR	Peptide
23	s	93	ALA	Peptide

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	3	33012	0	16618	738	0
2	1	62317	0	31346	1452	0
3	2	2568	0	1303	60	0
4	5	1647	0	832	38	0
5	8	5400	0	5363	166	0
6	b	2083	0	2157	65	0
7	c	1565	0	1616	59	0
8	d	1552	0	1619	48	0
9	e	1411	0	1447	42	0
10	f	1323	0	1374	31	0
11	g	1111	0	1148	24	0
12	a	1014	0	1079	79	0
13	i	1032	0	1088	37	0
14	j	1129	0	1162	30	0
15	k	939	0	1012	20	0
16	l	1045	0	1117	32	0
17	m	1074	0	1157	30	0
18	n	961	0	1000	36	0
19	o	892	0	923	20	0
20	p	917	0	965	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
21	q	947	0	1022	21	0
22	r	816	0	839	20	0
23	s	857	0	922	19	0
24	t	739	0	807	17	0
25	u	780	0	834	19	0
26	v	753	0	780	14	0
27	w	575	0	592	18	0
28	x	625	0	655	32	0
29	y	509	0	543	13	0
30	z	449	0	491	10	0
31	A	355	0	353	10	0
32	B	444	0	461	17	0
33	C	410	0	440	17	0
34	D	377	0	418	18	0
35	E	504	0	574	16	0
36	F	302	0	341	15	0
37	4	413	0	209	14	0
38	6	1640	0	837	29	0
39	G	1705	0	1732	48	0
40	H	1625	0	1699	42	0
41	I	1643	0	1710	44	0
42	J	1157	0	1199	38	0
43	K	818	0	808	27	0
44	L	1182	0	1240	49	0
45	M	979	0	1034	31	0
46	N	1022	0	1070	52	0
47	O	787	0	828	29	0
48	P	870	0	878	27	0
49	Q	955	0	1019	38	0
50	R	884	0	944	25	0
51	S	805	0	847	33	0
52	T	714	0	737	16	0
53	U	649	0	666	21	0
54	V	649	0	691	18	0
55	W	536	0	552	16	0
56	X	638	0	665	16	0
57	Y	665	0	714	21	0
58	Z	545	0	579	17	0
59	8	28	0	12	3	0
60	8	5	0	0	0	0
All	All	153348	0	105068	3374	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 13.

All (3374) 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)
2:1:2121:G:C5	12:a:167:LYS:HE2	1.24	1.66
2:1:2121:G:C4	12:a:167:LYS:CE	1.79	1.64
2:1:2121:G:C2	12:a:167:LYS:HE3	1.44	1.51
2:1:2121:G:N3	12:a:167:LYS:CB	1.71	1.47
2:1:2121:G:N3	12:a:167:LYS:HE3	1.32	1.42
2:1:2121:G:C4	12:a:167:LYS:HE2	1.45	1.33
2:1:2102:G:H2'	2:1:2103:C:O4'	1.18	1.30
2:1:2121:G:C4	12:a:167:LYS:HE3	1.56	1.24
2:1:2121:G:C4	12:a:167:LYS:HB3	1.73	1.23
2:1:2121:G:C5	12:a:167:LYS:CE	2.00	1.20
2:1:2102:G:C2'	2:1:2103:C:O4'	1.90	1.20
2:1:2129:C:OP1	12:a:8:MET:CE	1.90	1.20
2:1:2178:C:OP1	12:a:211:LYS:HE2	1.45	1.17
2:1:929:U:H5''	30:z:37:ARG:HH12	1.12	1.14
2:1:2129:C:OP1	12:a:8:MET:HE1	1.44	1.14
2:1:2121:G:N3	12:a:167:LYS:HB3	0.81	1.13
2:1:2177:C:O2'	12:a:47:ASN:ND2	1.81	1.12
44:L:92:PRO:HA	44:L:95:ARG:HE	1.12	1.10
2:1:45:G:H5''	2:1:46:G:H5'	1.34	1.08
4:5:52:G:H2'	4:5:53:G:H5''	1.21	1.08
2:1:2061:G:H2'	2:1:2501:C:O2'	1.52	1.07
2:1:1060:U:H4'	2:1:1061:U:H5'	1.32	1.06
1:3:112:G:H21	1:3:354:G:H5'	1.16	1.04
1:3:620:C:H1'	41:I:131:ILE:HG21	1.40	1.04
2:1:2121:G:C4	12:a:167:LYS:CB	2.16	1.03
2:1:2121:G:N2	12:a:166:ASP:O	1.89	1.03
2:1:1607:C:H4'	2:1:1608:A:H5'	1.40	1.03
2:1:1796:U:H2'	2:1:1797:G:H8	1.19	1.03
2:1:1104:C:H2'	2:1:1105:U:H4'	1.38	1.02
2:1:2121:G:C6	12:a:167:LYS:CE	2.44	1.01
2:1:2121:G:C2	12:a:167:LYS:CE	2.39	1.00
2:1:2102:G:H2'	2:1:2103:C:C1'	1.92	0.98
2:1:2672:U:H2'	2:1:2673:G:H5''	1.43	0.98
3:2:90:C:H2'	3:2:91:C:H5''	1.44	0.98
2:1:2064:C:O2'	2:1:2065:C:H5'	1.64	0.98
2:1:2324:U:H3'	2:1:2325:G:H5''	1.45	0.97
2:1:1597:A:H5''	2:1:1598:A:H5'	1.45	0.97
1:3:1493:A:H2'	2:1:1913:A:H61	1.29	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2121:G:C2	12:a:167:LYS:HB3	2.00	0.96
2:1:1645:G:H5''	2:1:1646:C:H5'	1.45	0.95
3:2:118:C:H2'	3:2:119:A:H4'	1.46	0.95
2:1:2251:G:H1	4:5:75:C:H42	1.08	0.95
2:1:572:A:H5'	22:r:79:ARG:HH22	1.33	0.94
1:3:1156:G:H1'	1:3:1179:A:H61	1.31	0.94
1:3:409:U:H3	1:3:433:G:H1	1.12	0.94
2:1:828:U:H2'	2:1:829:A:C8	2.02	0.94
4:5:26:A:N6	4:5:44:G:H1	1.65	0.93
2:1:1651:G:H5'	18:n:39:PRO:HG3	1.49	0.93
2:1:2068:U:H3	2:1:2430:A:H62	1.15	0.93
1:3:674:G:H2'	1:3:675:A:H8	1.34	0.93
2:1:572:A:H61	2:1:2029:G:H21	1.04	0.91
3:2:78:A:H62	3:2:98:G:H21	1.17	0.91
2:1:1558:C:H4'	2:1:1559:U:H5''	1.51	0.91
1:3:1218:C:H2'	1:3:1219:A:C8	2.06	0.90
2:1:2653:U:H3'	2:1:2654:A:H5''	1.52	0.90
1:3:91:U:H2'	1:3:92:U:H5''	1.53	0.90
1:3:720:C:H1'	55:W:38:ILE:HD11	1.52	0.90
2:1:2178:C:OP1	12:a:211:LYS:CE	2.19	0.90
1:3:674:G:H2'	1:3:675:A:C8	2.05	0.89
1:3:1250:A:H5'	46:N:68:GLY:HA2	1.55	0.89
2:1:413:C:H42	2:1:2410:G:H1	1.15	0.88
3:2:3:C:H2'	3:2:4:C:H5''	1.55	0.88
2:1:929:U:H5'	30:z:37:ARG:NH1	1.89	0.88
2:1:1255:U:C5	8:d:68:ALA:HA	2.08	0.88
2:1:1796:U:H2'	2:1:1797:G:C8	2.08	0.88
2:1:435:C:H2'	2:1:436:C:H5'	1.56	0.88
4:5:52:G:C2'	4:5:53:G:H5''	2.03	0.88
1:3:1422:G:H22	1:3:1478:U:H3	1.22	0.87
44:L:92:PRO:HA	44:L:95:ARG:NE	1.89	0.87
4:5:26:A:H61	4:5:44:G:H1	0.87	0.86
2:1:2128:G:OP1	12:a:38:PHE:CE1	2.29	0.86
44:L:91:ARG:HB3	44:L:93:VAL:HG12	1.54	0.86
2:1:2822:G:H2'	2:1:2823:A:H5''	1.58	0.86
1:3:1218:C:H2'	1:3:1219:A:H8	1.41	0.86
2:1:572:A:H5'	22:r:79:ARG:NH2	1.91	0.85
2:1:528:A:H5''	14:j:116:ARG:NH2	1.92	0.85
1:3:1158:C:H4'	39:G:131:LYS:HD2	1.57	0.85
2:1:1473:G:H1	2:1:1518:C:H42	1.21	0.85
2:1:2443:C:H2'	2:1:2444:G:H8	1.42	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:1374:A:H4'	44:L:27:ASN:HD22	1.42	0.85
1:3:3:A:H5'	1:3:613:C:H4'	1.58	0.85
1:3:1395:C:HO2'	1:3:1396:A:H8	0.90	0.84
2:1:2576:G:O2'	2:1:2579:C:OP2	1.95	0.84
2:1:2121:G:N1	12:a:167:LYS:HE3	1.91	0.84
2:1:2121:G:N7	12:a:167:LYS:HE2	1.93	0.84
1:3:1424:U:H3	1:3:1476:A:H61	1.26	0.84
2:1:1783:A:C6	2:1:2587:A:C2	2.66	0.83
2:1:1680:U:H2'	2:1:1681:G:H5'	1.60	0.83
2:1:1783:A:N1	2:1:2587:A:C4	2.46	0.83
2:1:910:A:H62	17:m:12:MET:HA	1.41	0.83
2:1:1433:A:H2'	2:1:1434:A:O4'	1.79	0.83
2:1:2063:C:O2'	4:5:76:A:H4'	1.79	0.83
2:1:2262:U:H2'	2:1:2263:C:C6	2.13	0.83
1:3:1512:U:H2'	1:3:1513:A:C8	2.14	0.83
2:1:2578:G:N7	7:c:145:SER:HB3	1.94	0.83
2:1:2579:C:O2'	7:c:136:ASN:ND2	2.12	0.82
2:1:554:U:H2'	2:1:555:G:O4'	1.79	0.82
5:8:44:HIS:NE2	59:8:801:GDP:O3'	2.13	0.82
2:1:1937:A:O2'	2:1:1938:A:H5'	1.78	0.82
1:3:555:U:H2'	1:3:556:C:C6	2.15	0.82
1:3:719:C:H1'	55:W:37:LYS:HB3	1.60	0.82
1:3:835:U:H2'	1:3:836:G:H5''	1.60	0.82
2:1:2050:C:H2'	2:1:2051:A:H5'	1.62	0.82
1:3:974:A:H5'	51:S:70:HIS:HB2	1.59	0.81
1:3:572:A:H5''	1:3:917:G:H4'	1.59	0.81
2:1:695:G:H1	2:1:767:U:H3	1.26	0.81
1:3:1251:A:H5'	46:N:13:SER:OG	1.80	0.81
2:1:692:C:OP1	6:b:55:GLY:HA2	1.81	0.81
2:1:1064:C:H3'	2:1:1065:U:H5''	1.63	0.80
2:1:2128:G:OP1	12:a:38:PHE:CD1	2.35	0.80
4:5:14:A:N6	4:5:21:A:H2	1.79	0.80
1:3:769:G:H4'	1:3:1513:A:H4'	1.63	0.80
2:1:2402:U:C2'	2:1:2403:C:H5''	2.11	0.79
1:3:952:U:H4'	1:3:964:A:H61	1.47	0.79
2:1:2177:C:C2'	12:a:47:ASN:HD21	1.94	0.79
1:3:1422:G:N2	1:3:1478:U:H3	1.80	0.79
2:1:1052:C:H42	2:1:1107:G:H1	1.31	0.79
2:1:1783:A:C6	2:1:2587:A:N3	2.51	0.78
2:1:2524:G:H2'	2:1:2525:G:H5''	1.66	0.78
5:8:498:VAL:HG11	5:8:522:MET:HE3	1.65	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2036:C:H2'	2:1:2037:A:C8	2.18	0.78
2:1:2402:U:H2'	2:1:2403:C:H5''	1.64	0.78
2:1:208:C:H2'	2:1:209:C:H6	1.49	0.78
2:1:1791:A:C2'	2:1:1792:G:H5'	2.13	0.78
2:1:2259:U:C4	2:1:2427:C:N4	2.52	0.77
2:1:1287:A:C2	2:1:1649:G:H4'	2.20	0.77
2:1:20:C:H2'	2:1:21:A:C8	2.19	0.77
2:1:2124:G:O2'	12:a:41:SER:HB3	1.83	0.77
3:2:65:U:H3'	3:2:108:A:H61	1.49	0.77
2:1:784:G:H5'	2:1:785:G:OP1	1.84	0.77
2:1:1661:G:H2'	2:1:1662:U:H6	1.49	0.77
4:5:14:A:N6	4:5:21:A:C2	2.53	0.77
1:3:267:C:OP1	54:V:68:LYS:HB3	1.85	0.77
2:1:52:A:H2'	2:1:53:A:C8	2.20	0.77
2:1:2102:G:C5	2:1:2103:C:C4	2.74	0.77
2:1:687:C:H2'	2:1:688:U:H5'	1.66	0.76
1:3:153:C:H3'	1:3:154:U:H5''	1.66	0.76
2:1:2506:U:OP2	2:1:2576:G:N1	2.17	0.76
2:1:1935:G:H1'	2:1:1964:G:N2	2.00	0.76
44:L:71:THR:HG23	44:L:72:VAL:HG12	1.68	0.76
2:1:2124:G:O2'	12:a:41:SER:CB	2.34	0.76
1:3:193:C:H2'	1:3:194:C:C6	2.21	0.76
1:3:1073:U:H3	1:3:1102:A:H61	1.29	0.76
2:1:1853:A:H2'	2:1:1854:A:C8	2.20	0.76
2:1:2052:A:H4'	7:c:148:GLN:O	1.86	0.76
1:3:768:A:OP1	1:3:804:U:H4'	1.86	0.75
2:1:1126:A:H4'	2:1:1127:A:H5''	1.67	0.75
2:1:2353:G:H4'	27:w:28:LEU:HD22	1.68	0.75
2:1:2375:G:H2'	2:1:2376:A:H5''	1.69	0.75
1:3:1108:G:H5'	40:H:175:HIS:ND1	2.00	0.75
2:1:2443:C:H2'	2:1:2444:G:C8	2.20	0.75
2:1:2672:U:C2'	2:1:2673:G:H5''	2.16	0.75
1:3:850:U:H2'	1:3:851:G:H5''	1.69	0.75
2:1:1020:A:H1'	2:1:1021:A:OP2	1.87	0.75
2:1:2102:G:N1	2:1:2187:U:O2	2.18	0.75
2:1:2743:U:H2'	2:1:2744:G:O4'	1.87	0.75
1:3:57:G:H2'	1:3:58:C:C6	2.21	0.75
2:1:2562:U:H3	2:1:2566:A:H62	1.35	0.75
1:3:354:G:H2'	1:3:355:C:C6	2.23	0.74
2:1:581:C:H2'	2:1:582:A:C8	2.23	0.74
2:1:917:A:H5''	2:1:2268:A:H61	1.53	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2177:C:O2'	12:a:47:ASN:CG	2.31	0.74
1:3:1330:U:H2'	1:3:1331:G:O4'	1.86	0.74
1:3:1412:C:H2'	1:3:1413:A:C8	2.22	0.74
2:1:324:A:H62	2:1:338:G:H21	1.32	0.74
2:1:633:A:H2'	2:1:634:C:O4'	1.87	0.74
2:1:1783:A:C2	2:1:2587:A:C5	2.75	0.74
2:1:2054:A:N6	2:1:2615:U:O4	2.17	0.74
1:3:279:A:H5''	1:3:281:G:H5'	1.69	0.74
1:3:1236:A:H4'	1:3:1304:G:H4'	1.69	0.74
1:3:840:C:H2'	1:3:841:C:H5''	1.70	0.74
2:1:1070:A:H2	13:i:10:LEU:HD11	1.51	0.74
2:1:1718:G:H2'	2:1:1719:G:H8	1.52	0.74
1:3:3:A:C5'	1:3:613:C:H4'	2.17	0.73
2:1:2859:G:H2'	2:1:2860:A:C8	2.23	0.73
2:1:1528:A:H2'	2:1:1529:G:H5'	1.68	0.73
2:1:2178:C:OP1	12:a:211:LYS:HG2	1.88	0.73
3:2:87:U:H5''	3:2:88:C:C5	2.23	0.73
1:3:212:G:H2'	1:3:213:G:H8	1.53	0.73
2:1:208:C:H2'	2:1:209:C:C6	2.23	0.73
2:1:1170:C:H2'	2:1:1171:G:H8	1.54	0.73
2:1:2221:G:H2'	2:1:2222:C:C6	2.23	0.73
1:3:1028:C:H3'	1:3:1029:U:H5''	1.71	0.73
1:3:1493:A:H2'	2:1:1913:A:N6	2.03	0.73
3:2:42:C:C4	9:e:65:LEU:HD22	2.24	0.73
1:3:1356:G:H2'	1:3:1357:A:H8	1.51	0.73
2:1:1019:U:H3	2:1:1142:A:H62	1.36	0.73
2:1:1265:A:H61	2:1:2013:A:H5''	1.53	0.73
5:8:499:THR:HG23	5:8:500:ASP:H	1.53	0.73
2:1:1868:C:H2'	2:1:1869:G:H5'	1.70	0.73
44:L:92:PRO:HA	44:L:95:ARG:HG3	1.71	0.73
1:3:153:C:C3'	1:3:154:U:H5''	2.18	0.73
1:3:408:A:H4'	41:I:23:GLY:HA3	1.71	0.73
2:1:2314:A:H5'	9:e:34:THR:HG21	1.69	0.73
16:l:79:LEU:HD12	16:l:113:ALA:H	1.52	0.73
2:1:952:G:H2'	2:1:953:G:H5''	1.71	0.73
2:1:1161:C:H2'	2:1:1162:G:C8	2.23	0.73
2:1:1940:U:H1'	2:1:1942:C:N4	2.04	0.73
2:1:2064:C:H2'	2:1:2065:C:C6	2.24	0.73
26:v:9:ARG:HB3	26:v:41:GLU:HB2	1.71	0.73
2:1:777:G:N7	2:1:793:A:H2	1.87	0.72
1:3:8:A:H4'	42:J:124:ALA:O	1.89	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:175:C:H2'	1:3:176:C:C6	2.24	0.72
2:1:1310:G:H2'	2:1:1311:G:H5'	1.71	0.72
2:1:2030:A:N3	2:1:2499:C:H5''	2.04	0.72
1:3:923:A:H5''	42:J:25:LYS:NZ	2.03	0.72
1:3:1073:U:H2'	1:3:1074:G:C8	2.24	0.72
2:1:96:C:H2'	2:1:97:C:H6	1.54	0.72
2:1:528:A:H5''	14:j:116:ARG:HH22	1.53	0.72
1:3:1424:U:H2'	1:3:1425:U:C6	2.24	0.72
2:1:2086:U:H2'	2:1:2087:G:C8	2.25	0.72
38:6:69:C:H2'	38:6:70:G:H8	1.55	0.72
1:3:376:G:H5''	53:U:5:ARG:HB2	1.72	0.72
1:3:884:U:H4'	1:3:885:G:H5''	1.70	0.72
2:1:2491:U:H2'	2:1:2492:U:H5'	1.71	0.72
3:2:90:C:C2'	3:2:91:C:H5''	2.20	0.72
1:3:1507:A:H2'	1:3:1508:A:O4'	1.90	0.71
2:1:2036:C:H2'	2:1:2037:A:H8	1.55	0.71
2:1:2733:A:H2'	2:1:2734:A:C8	2.25	0.71
1:3:1395:C:H4'	1:3:1402:C:H4'	1.72	0.71
2:1:2859:G:H2'	2:1:2860:A:H8	1.54	0.71
1:3:419:C:H2'	1:3:420:U:O4'	1.90	0.71
44:L:92:PRO:CA	44:L:95:ARG:HE	1.97	0.71
2:1:1064:C:H3'	2:1:1065:U:C5'	2.21	0.71
2:1:2125:G:H5'	12:a:39:VAL:O	1.89	0.71
47:O:45:ARG:HB3	47:O:69:THR:HB	1.71	0.71
1:3:520:A:H62	1:3:529:G:H21	1.38	0.71
1:3:946:A:H2'	1:3:947:G:H8	1.56	0.71
1:3:1412:C:H2'	1:3:1413:A:H8	1.56	0.71
2:1:372:G:H5''	28:x:60:LYS:HD3	1.73	0.71
2:1:2629:U:O2'	2:1:2630:G:H5''	1.90	0.71
1:3:86:G:H4'	1:3:87:C:C4	2.26	0.71
1:3:1435:G:H2'	1:3:1436:U:C6	2.26	0.71
2:1:100:U:H4'	2:1:101:A:O4'	1.91	0.71
1:3:939:G:H2'	1:3:940:C:C6	2.26	0.71
1:3:1306:A:H61	1:3:1331:G:H1'	1.54	0.71
2:1:1447:C:H2'	2:1:1448:G:H8	1.56	0.71
2:1:1779:U:H5	2:1:1784:A:N7	1.89	0.71
2:1:2466:C:OP1	36:F:4:ARG:HB2	1.89	0.70
2:1:52:A:H2'	2:1:53:A:H8	1.55	0.70
2:1:1270:C:H5''	2:1:1271:G:C5'	2.21	0.70
2:1:1607:C:H4'	2:1:1608:A:C5'	2.19	0.70
2:1:1791:A:H2'	2:1:1792:G:H5'	1.70	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:673:A:H2'	1:3:674:G:C8	2.26	0.70
1:3:1421:G:H2'	1:3:1422:G:H4'	1.73	0.70
2:1:2514:U:H2'	2:1:2515:C:C6	2.27	0.70
28:x:2:ARG:HG2	28:x:32:LEU:HD12	1.73	0.70
1:3:1374:A:H2'	1:3:1375:A:H8	1.56	0.70
1:3:1374:A:H4'	44:L:27:ASN:ND2	2.05	0.70
2:1:2818:U:H2'	2:1:2819:G:H8	1.56	0.70
1:3:1243:C:H2'	1:3:1244:G:C8	2.26	0.70
2:1:2177:C:O3'	12:a:47:ASN:ND2	2.24	0.70
4:5:34:U:H3	37:4:21:A:H61	1.37	0.70
1:3:1395:C:O2'	1:3:1396:A:H8	1.70	0.70
2:1:1739:A:H2'	2:1:1740:G:O4'	1.92	0.70
38:6:26:G:H2'	38:6:27:U:H5''	1.73	0.70
2:1:1161:C:H2'	2:1:1162:G:H8	1.56	0.70
2:1:2080:A:OP1	28:x:19:HIS:HB3	1.91	0.70
44:L:91:ARG:O	44:L:95:ARG:HG2	1.91	0.70
2:1:435:C:C2'	2:1:436:C:H5'	2.21	0.70
2:1:2446:G:H2'	2:1:2501:C:H5	1.57	0.70
1:3:1491:G:H4'	49:Q:42:LYS:NZ	2.07	0.70
2:1:1205:A:C6	8:d:165:HIS:HB2	2.26	0.70
1:3:1346:A:H61	1:3:1374:A:H3'	1.57	0.69
5:8:695:ALA:HA	5:8:699:ILE:HB	1.74	0.69
1:3:979:C:H2'	1:3:980:C:H5'	1.73	0.69
1:3:1129:C:H4'	46:N:17:ARG:CZ	2.22	0.69
2:1:2102:G:C5'	2:1:2103:C:P	2.79	0.69
1:3:501:C:H2'	1:3:502:A:H8	1.57	0.69
2:1:1077:A:H2'	2:1:1078:U:H5'	1.74	0.69
2:1:2121:G:C6	12:a:167:LYS:NZ	2.60	0.69
2:1:2030:A:C2	2:1:2499:C:H5''	2.27	0.69
49:Q:23:LEU:HD12	49:Q:29:LYS:HG2	1.75	0.69
2:1:2121:G:N1	12:a:167:LYS:CE	2.52	0.69
1:3:1225:A:H4'	56:X:77:ARG:NH1	2.07	0.69
2:1:2121:G:C8	12:a:167:LYS:HE2	2.27	0.69
1:3:70:U:H5''	1:3:71:A:OP1	1.92	0.69
2:1:677:A:H2'	2:1:678:C:H6	1.56	0.69
2:1:1979:U:H2'	2:1:1980:G:H5'	1.75	0.69
1:3:960:U:H4'	1:3:961:U:H5''	1.74	0.69
2:1:687:C:C2'	2:1:688:U:H5'	2.23	0.69
2:1:2628:C:H3'	2:1:2629:U:H5'	1.75	0.69
8:d:27:LEU:HD22	8:d:104:ALA:HB2	1.75	0.69
2:1:1131:G:OP2	14:j:82:GLY:HA2	1.92	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1801:A:H5''	2:1:2203:U:H2'	1.75	0.68
2:1:2723:C:H4'	18:n:1:MET:HE3	1.74	0.68
1:3:1148:U:H5''	46:N:10:ARG:HH22	1.59	0.68
2:1:869:G:H2'	2:1:870:U:O4'	1.93	0.68
2:1:958:U:H2'	3:2:89:U:H1'	1.75	0.68
2:1:2080:A:H4'	28:x:18:SER:HB3	1.75	0.68
44:L:72:VAL:HG23	44:L:88:VAL:O	1.93	0.68
44:L:85:GLN:HG2	44:L:143:MET:HE2	1.74	0.68
1:3:1348:U:H4'	46:N:121:ARG:HG3	1.75	0.68
2:1:663:G:H5''	16:l:17:LYS:HB2	1.74	0.68
2:1:1935:G:H1'	2:1:1964:G:C2	2.28	0.68
2:1:2086:U:H2'	2:1:2087:G:H8	1.59	0.68
2:1:2818:U:H2'	2:1:2819:G:C8	2.27	0.68
1:3:955:U:H3	1:3:1225:A:H61	1.42	0.68
2:1:740:C:H6	2:1:740:C:H5'	1.58	0.68
2:1:1695:G:H5'	6:b:6:LYS:NZ	2.08	0.68
2:1:1697:G:H3'	2:1:1698:A:H5''	1.76	0.68
44:L:92:PRO:O	44:L:95:ARG:HG3	1.93	0.68
1:3:501:C:H2'	1:3:502:A:C8	2.29	0.68
2:1:848:C:H2'	2:1:849:A:H8	1.59	0.68
5:8:501:VAL:O	5:8:519:VAL:HG23	1.94	0.68
38:6:56:C:H2'	38:6:57:A:H8	1.58	0.68
1:3:1226:C:C5	50:R:102:LYS:HG2	2.29	0.67
2:1:2657:A:O3'	10:f:91:VAL:HG21	1.93	0.67
5:8:29:ARG:HH21	5:8:272:ASN:HD21	1.40	0.67
1:3:1172:C:H2'	1:3:1173:U:O4'	1.95	0.67
2:1:84:A:H4'	2:1:85:G:O5'	1.94	0.67
2:1:1661:G:H2'	2:1:1662:U:C6	2.29	0.67
1:3:1373:G:H4'	44:L:35:LYS:HB2	1.76	0.67
2:1:2553:G:H3'	2:1:2554:U:H5''	1.76	0.67
2:1:781:A:H2'	2:1:1777:U:O2'	1.93	0.67
2:1:1481:U:H3	2:1:1510:G:H1	1.42	0.67
4:5:34:U:H2'	4:5:35:G:C8	2.29	0.67
2:1:627:A:N7	16:l:111:ILE:HD12	2.09	0.67
2:1:1024:G:H3'	2:1:1025:G:H5''	1.75	0.67
2:1:1219:U:H2'	2:1:1220:G:C8	2.29	0.67
2:1:2177:C:O2	12:a:172:HIS:HE1	1.78	0.67
2:1:2881:U:O2'	18:n:96:ARG:HA	1.95	0.67
3:2:50:A:OP1	19:o:68:LYS:HG2	1.94	0.67
1:3:1026:G:H1	1:3:1035:A:H61	1.43	0.67
2:1:2464:G:H2'	2:1:2465:C:C6	2.29	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2502:G:H5''	2:1:2503:A:H5''	1.74	0.67
1:3:747:A:H3'	1:3:748:G:H5''	1.75	0.67
1:3:900:A:H2'	1:3:901:A:C8	2.29	0.67
2:1:1697:G:H5''	2:1:1698:A:H5''	1.77	0.67
2:1:2415:G:H2'	2:1:2416:C:C6	2.30	0.67
2:1:2633:G:H2'	2:1:2634:A:H5''	1.77	0.67
2:1:1490:A:C2	6:b:73:ILE:HG12	2.29	0.67
2:1:2450:A:O2'	2:1:2451:A:H5'	1.93	0.67
38:6:12:G:H2'	38:6:13:C:O4'	1.95	0.67
2:1:621:A:H2'	2:1:622:G:O4'	1.95	0.67
2:1:2656:U:H5''	5:8:146:ARG:CZ	2.24	0.67
43:K:42:TRP:HB2	43:K:59:TYR:HB2	1.77	0.67
2:1:575:A:OP2	2:1:2055:C:N4	2.28	0.66
37:4:11:U:O2'	44:L:80:GLY:HA2	1.95	0.66
38:6:69:C:H2'	38:6:70:G:C8	2.29	0.66
2:1:1824:G:O2'	2:1:1825:U:H5'	1.96	0.66
2:1:1509:A:H2'	2:1:1510:G:C8	2.31	0.66
2:1:1783:A:C2	2:1:2587:A:C4	2.83	0.66
2:1:2121:G:C4	12:a:167:LYS:HB2	2.20	0.66
5:8:103:MET:HG3	5:8:129:GLN:HB3	1.77	0.66
5:8:517:HIS:HB3	5:8:582:SER:OG	1.94	0.66
1:3:478:A:H2'	1:3:479:U:H4'	1.76	0.66
2:1:1309:G:H5''	34:D:8:SER:HA	1.78	0.66
2:1:1718:G:H2'	2:1:1719:G:C8	2.30	0.66
12:a:207:VAL:HG12	12:a:209:ILE:H	1.61	0.66
1:3:211:G:H2'	1:3:212:G:O4'	1.96	0.66
2:1:581:C:H2'	2:1:582:A:H8	1.60	0.66
2:1:2123:G:H8	2:1:2125:G:H21	1.44	0.66
2:1:2008:C:H2'	2:1:2009:A:H8	1.61	0.66
1:3:153:C:H2'	1:3:154:U:O4'	1.96	0.66
1:3:303:A:H5'	49:Q:13:ARG:HH21	1.59	0.66
1:3:1356:G:H2'	1:3:1357:A:C8	2.30	0.66
4:5:42:G:O2'	4:5:43:U:H5'	1.96	0.66
2:1:2129:C:OP1	12:a:8:MET:HE2	1.93	0.66
2:1:2822:G:O6	18:n:2:ARG:HD2	1.95	0.66
7:c:181:ASP:HB2	7:c:186:LEU:H	1.59	0.66
1:3:113:G:H2'	1:3:114:U:C6	2.31	0.66
1:3:924:C:H2'	1:3:925:G:H8	1.60	0.66
2:1:1268:A:H2'	2:1:1269:A:C8	2.31	0.66
2:1:1528:A:C2'	2:1:1529:G:H5'	2.26	0.66
2:1:1755:A:H2'	2:1:1756:G:H5'	1.76	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2215:C:H2'	2:1:2216:G:C8	2.31	0.65
5:8:501:VAL:HG12	5:8:607:LYS:HZ1	1.60	0.65
49:Q:33:CYS:H	49:Q:54:VAL:HG13	1.60	0.65
1:3:835:U:C2'	1:3:836:G:H5''	2.26	0.65
2:1:195:A:H3'	2:1:196:A:H4'	1.78	0.65
2:1:686:U:O2	34:D:7:PRO:HA	1.96	0.65
4:5:4:C:H1'	4:5:5:G:H5''	1.77	0.65
2:1:849:A:H2'	2:1:850:U:C6	2.30	0.65
2:1:1799:G:H4'	2:1:1800:C:O5'	1.95	0.65
2:1:2102:G:H5''	2:1:2103:C:P	2.36	0.65
4:5:52:G:H2'	4:5:53:G:C5'	2.13	0.65
15:k:76:VAL:H	20:p:72:VAL:HG12	1.61	0.65
1:3:660:C:H2'	1:3:661:G:O4'	1.96	0.65
1:3:1125:U:H2'	1:3:1126:U:H2'	1.78	0.65
5:8:501:VAL:HG11	5:8:604:GLY:HA2	1.78	0.65
10:f:94:ARG:H	10:f:105:SER:HB3	1.61	0.65
54:V:60:ILE:HG22	54:V:74:LEU:HA	1.78	0.65
1:3:1306:A:N6	1:3:1331:G:H1'	2.12	0.65
2:1:2029:G:O6	2:1:2032:G:H5''	1.97	0.65
8:d:176:ASP:HB2	8:d:179:SER:HB3	1.77	0.65
2:1:1170:C:H2'	2:1:1171:G:C8	2.32	0.65
2:1:1447:C:H2'	2:1:1448:G:C8	2.31	0.65
24:t:37:ASP:OD1	24:t:37:ASP:N	2.29	0.65
2:1:20:C:H2'	2:1:21:A:H8	1.60	0.65
2:1:2285:C:C5	33:C:5:ARG:NH1	2.65	0.65
2:1:2330:G:O2'	27:w:40:LYS:NZ	2.30	0.65
42:J:76:ASN:H	42:J:81:GLN:HE22	1.44	0.65
2:1:2102:G:H2'	2:1:2103:C:C6	2.32	0.65
45:M:111:THR:HG22	45:M:113:ARG:H	1.62	0.65
1:3:1007:U:H3	1:3:1022:A:H61	1.43	0.65
1:3:1156:G:H21	1:3:1179:A:H2	1.44	0.65
2:1:2047:C:H2'	2:1:2048:G:C8	2.32	0.65
2:1:395:U:H2'	2:1:396:G:C8	2.31	0.64
2:1:746:U:H1'	2:1:748:G:H21	1.61	0.64
2:1:748:G:O6	2:1:751:A:H4'	1.97	0.64
2:1:1139:G:O2'	2:1:1140:C:H5'	1.95	0.64
1:3:246:A:H62	1:3:281:G:N2	1.95	0.64
1:3:1436:U:H2'	1:3:1437:A:H8	1.62	0.64
2:1:1365:A:OP1	28:x:27:ARG:NH2	2.29	0.64
2:1:2121:G:N3	12:a:167:LYS:CE	2.12	0.64
1:3:923:A:OP1	42:J:25:LYS:HE2	1.96	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:203:A:H3'	2:1:204:A:H5''	1.79	0.64
2:1:2704:C:H2'	2:1:2705:A:O4'	1.97	0.64
12:a:53:ARG:HD2	38:6:61:C:O2'	1.97	0.64
1:3:56:U:O2	5:8:362:ARG:NH1	2.30	0.64
1:3:1071:C:H5'	42:J:53:ARG:NH1	2.12	0.64
1:3:1173:U:H2'	1:3:1174:G:H8	1.62	0.64
2:1:158:U:H2'	2:1:159:G:O4'	1.97	0.64
5:8:17:ALA:HB2	5:8:112:VAL:HG23	1.79	0.64
54:V:47:ASP:HB3	54:V:74:LEU:HB3	1.78	0.64
1:3:91:U:C2'	1:3:92:U:H5''	2.27	0.64
1:3:952:U:H2'	1:3:953:G:C8	2.32	0.64
13:i:112:LYS:NZ	13:i:124:MET:SD	2.69	0.64
38:6:26:G:H3'	38:6:27:U:H5''	1.80	0.64
1:3:1366:C:H2'	1:3:1367:C:C6	2.32	0.64
2:1:315:G:H2'	2:1:316:C:C6	2.33	0.64
2:1:1474:U:H2'	2:1:1475:G:H5'	1.79	0.64
46:N:12:LYS:H	46:N:105:ARG:HH22	1.46	0.64
1:3:552:U:O2	49:Q:27:PRO:HB3	1.98	0.64
1:3:923:A:H5''	42:J:25:LYS:HZ1	1.60	0.64
2:1:125:A:H5'	34:D:14:ARG:HG2	1.80	0.64
2:1:1297:C:OP1	2:1:2710:C:H4'	1.97	0.64
2:1:2020:A:H5'	32:B:8:THR:HB	1.80	0.64
49:Q:98:ARG:HB3	49:Q:105:GLY:HA2	1.79	0.64
2:1:2329:U:H2'	2:1:2330:G:C8	2.32	0.64
3:2:13:G:H2'	3:2:14:U:H5''	1.78	0.64
10:f:82:PHE:HB2	10:f:140:ILE:HG12	1.79	0.64
1:3:1253:G:OP1	47:O:46:LYS:HE3	1.98	0.64
2:1:1127:A:H2'	2:1:1128:G:H5''	1.80	0.64
2:1:2661:G:H4'	5:8:19:ILE:HG21	1.80	0.64
3:2:3:C:C2'	3:2:4:C:H5''	2.25	0.64
1:3:966:G:C2	38:6:34:C:H5'	2.33	0.63
1:3:1117:A:O2'	46:N:105:ARG:HD2	1.99	0.63
1:3:1250:A:C5'	46:N:68:GLY:HA2	2.27	0.63
2:1:948:C:H2'	2:1:949:G:H8	1.64	0.63
2:1:1063:G:H3'	2:1:1064:C:H6	1.63	0.63
44:L:92:PRO:CA	44:L:95:ARG:HG3	2.28	0.63
1:3:738:C:H2'	1:3:739:C:H6	1.62	0.63
1:3:912:C:OP1	49:Q:90:PRO:HB3	1.98	0.63
2:1:1680:U:C2'	2:1:1681:G:H5'	2.26	0.63
11:g:4:ILE:HD11	11:g:43:ASN:HB3	1.80	0.63
36:F:27:CYS:SG	36:F:28:SER:N	2.71	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:1129:C:H4'	46:N:17:ARG:NH2	2.13	0.63
2:1:1366:A:OP2	28:x:1:SER:HB2	1.98	0.63
2:1:2267:A:H3'	2:1:2267:A:N3	2.13	0.63
22:r:41:ILE:HB	22:r:47:VAL:HB	1.80	0.63
2:1:96:C:H2'	2:1:97:C:C6	2.33	0.63
2:1:1278:C:H2'	2:1:1279:G:H8	1.62	0.63
2:1:2048:G:H2'	2:1:2049:G:H5''	1.79	0.63
2:1:2742:G:H5'	36:F:1:MET:HG3	1.79	0.63
1:3:1474:U:H2'	1:3:1475:G:O4'	1.98	0.63
2:1:764:A:O2'	2:1:765:C:H5'	1.98	0.63
5:8:624:PRO:HA	5:8:651:GLY:HA2	1.80	0.63
1:3:34:C:H2'	1:3:35:G:C8	2.33	0.63
1:3:972:C:H5'	47:O:59:LYS:HE3	1.81	0.63
2:1:246:C:H2'	2:1:247:G:H5'	1.80	0.63
2:1:372:G:H5''	28:x:60:LYS:CD	2.28	0.63
2:1:2898:U:H2'	2:1:2899:A:C8	2.33	0.63
11:g:4:ILE:HA	11:g:18:GLN:HE22	1.63	0.63
1:3:367:U:H3	1:3:393:A:H2	1.47	0.63
1:3:1007:U:H2'	1:3:1008:U:C6	2.34	0.63
2:1:1783:A:C5	2:1:2587:A:C2	2.87	0.63
2:1:2066:C:O2'	2:1:2067:G:H5'	1.99	0.63
1:3:358:U:H2'	1:3:359:G:H8	1.64	0.63
1:3:939:G:H2'	1:3:940:C:H6	1.63	0.63
2:1:1063:G:H5''	2:1:1064:C:H5	1.64	0.63
1:3:1243:C:H2'	1:3:1244:G:H8	1.63	0.63
1:3:1357:A:H5''	51:S:75:LYS:NZ	2.14	0.63
3:2:13:G:N7	3:2:70:C:H4'	2.14	0.63
4:5:14:A:H62	4:5:21:A:H2	1.44	0.63
5:8:502:GLU:HG3	5:8:517:HIS:NE2	2.13	0.63
1:3:1148:U:H2'	1:3:1149:C:O4'	1.98	0.62
2:1:2384:U:O2'	2:1:2385:C:H5'	1.98	0.62
17:m:58:LYS:O	17:m:59:ARG:NH2	2.32	0.62
20:p:90:ALA:HB2	20:p:112:ARG:HA	1.81	0.62
1:3:67:C:H2'	1:3:68:G:H8	1.63	0.62
1:3:600:A:H61	1:3:638:U:H3	1.46	0.62
2:1:1173:U:H2'	2:1:1177:G:H1	1.64	0.62
38:6:54:U:H3	38:6:58:A:H8	1.47	0.62
1:3:720:C:H1'	55:W:38:ILE:CD1	2.27	0.62
2:1:572:A:H61	2:1:2029:G:N2	1.88	0.62
2:1:1818:U:H5	6:b:155:ARG:NH1	1.96	0.62
9:e:35:LEU:HB3	9:e:151:LEU:HD11	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:6:26:G:C3'	38:6:27:U:H5''	2.29	0.62
40:H:10:ARG:HH12	40:H:181:ILE:H	1.45	0.62
55:W:41:SER:HA	55:W:44:THR:HG22	1.80	0.62
1:3:1345:U:H4'	1:3:1346:A:H5'	1.80	0.62
2:1:2656:U:H5''	5:8:146:ARG:NH1	2.14	0.62
9:e:104:THR:HG23	9:e:105:ILE:HG13	1.80	0.62
53:U:34:GLU:OE1	53:U:60:TRP:NE1	2.30	0.62
1:3:492:C:H2'	1:3:493:A:C8	2.34	0.62
1:3:924:C:H2'	1:3:925:G:C8	2.34	0.62
2:1:368:A:O2'	2:1:369:U:H5'	2.00	0.62
2:1:948:C:H2'	2:1:949:G:C8	2.34	0.62
2:1:1395:A:H4'	2:1:1397:U:C5	2.35	0.62
2:1:2122:U:C2	12:a:166:ASP:OD2	2.52	0.62
54:V:10:ARG:NH1	54:V:11:VAL:O	2.33	0.62
1:3:193:C:C1'	57:Y:54:GLN:HE22	2.11	0.62
2:1:66:C:H1'	2:1:456:C:O2	1.99	0.62
2:1:2082:A:C2	2:1:2083:G:H1'	2.35	0.62
2:1:2464:G:H2'	2:1:2465:C:H6	1.63	0.62
2:1:2641:G:H5''	14:j:78:THR:HB	1.81	0.62
2:1:1746:A:H2'	2:1:1747:U:C6	2.33	0.62
2:1:465:G:O3'	34:D:21:ARG:NH1	2.32	0.62
2:1:519:U:H5''	23:s:25:ARG:HH22	1.64	0.62
2:1:1270:C:H5''	2:1:1271:G:H5''	1.79	0.62
2:1:2177:C:C3'	12:a:47:ASN:HD21	2.12	0.62
2:1:2286:G:H4'	2:1:2287:A:O4'	2.00	0.62
2:1:2512:C:H2'	2:1:2513:A:O4'	2.00	0.62
44:L:1:PRO:HD2	44:L:5:VAL:HA	1.82	0.62
1:3:438:U:H4'	41:I:119:HIS:CD2	2.35	0.62
1:3:1110:A:H2'	1:3:1111:A:C8	2.35	0.62
2:1:481:G:H1'	2:1:506:G:N2	2.14	0.62
28:x:17:ARG:HE	28:x:23:ALA:HB2	1.65	0.62
2:1:528:A:H5'	14:j:113:PRO:HG3	1.81	0.62
2:1:1251:C:H5''	21:q:12:ARG:NH1	2.15	0.62
2:1:2810:A:H62	2:1:2890:G:H21	1.46	0.62
2:1:2885:G:H2'	2:1:2886:A:O4'	2.00	0.62
1:3:1347:G:N2	1:3:1373:G:H2'	2.15	0.61
2:1:729:G:H2'	2:1:1775:U:O2	2.00	0.61
2:1:1675:C:H2'	2:1:1676:A:O4'	2.00	0.61
4:5:33:U:H2'	4:5:35:G:OP2	2.00	0.61
25:u:87:GLU:HG2	25:u:92:VAL:HG11	1.81	0.61
54:V:19:SER:OG	54:V:20:ILE:N	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:773:G:H5''	6:b:201:LEU:HD22	1.82	0.61
2:1:340:A:H2'	2:1:341:C:H5'	1.81	0.61
2:1:1597:A:H5''	2:1:1598:A:C5'	2.25	0.61
2:1:2327:A:H2'	2:1:2328:A:C8	2.35	0.61
28:x:4:CYS:HB3	28:x:9:LYS:H	1.65	0.61
8:d:155:GLU:HA	8:d:158:PHE:HB3	1.82	0.61
2:1:812:C:H5''	2:1:1250:G:O2'	2.00	0.61
26:v:72:VAL:HG13	26:v:93:ARG:HA	1.82	0.61
1:3:448:A:H62	1:3:486:U:H3	1.48	0.61
1:3:1084:G:H5'	1:3:1102:A:OP2	2.00	0.61
47:O:50:THR:HG22	47:O:64:GLN:HG3	1.83	0.61
1:3:737:C:H2'	1:3:738:C:C6	2.34	0.61
2:1:677:A:H2'	2:1:678:C:C6	2.34	0.61
2:1:1740:G:H2'	2:1:1741:C:H6	1.66	0.61
2:1:2339:C:H2'	2:1:2340:A:H8	1.64	0.61
5:8:94:ASP:HB2	5:8:465:HIS:HB2	1.81	0.61
27:w:19:VAL:HG13	27:w:34:VAL:HG22	1.81	0.61
51:S:23:ARG:HH11	51:S:26:LEU:HB3	1.65	0.61
2:1:1053:C:H2'	2:1:1054:A:H5'	1.83	0.61
2:1:139:U:H2'	2:1:140:C:H5	1.65	0.61
2:1:1901:A:H2'	2:1:1902:C:C6	2.35	0.61
2:1:2743:U:H3'	2:1:2744:G:H5''	1.83	0.61
39:G:32:GLY:HA2	39:G:39:ILE:H	1.64	0.61
41:I:121:ALA:HA	41:I:145:ARG:HB2	1.83	0.61
49:Q:55:ARG:HA	49:Q:61:GLU:HA	1.83	0.61
1:3:419:C:H5''	1:3:513:C:H1'	1.83	0.61
2:1:589:U:H2'	2:1:590:A:C8	2.36	0.61
2:1:848:C:H2'	2:1:849:A:C8	2.35	0.61
2:1:1736:U:H2'	2:1:1737:G:O4'	1.99	0.61
2:1:2356:U:H2'	2:1:2357:G:O4'	2.01	0.61
39:G:67:LEU:HD12	39:G:160:LEU:HD12	1.82	0.61
2:1:971:G:H2'	2:1:972:A:O4'	2.01	0.60
2:1:973:A:H5''	22:r:81:LYS:HD3	1.83	0.60
2:1:1369:G:H21	2:1:1810:A:H2	1.48	0.60
2:1:1484:U:H2'	2:1:1485:U:C6	2.36	0.60
2:1:2048:G:C3'	2:1:2049:G:H5''	2.31	0.60
2:1:2312:U:O2	9:e:38:GLY:HA3	2.00	0.60
22:r:63:VAL:HG12	22:r:96:VAL:HG12	1.83	0.60
39:G:176:ASN:ND2	39:G:194:GLY:O	2.33	0.60
1:3:1374:A:H2'	1:3:1375:A:C8	2.37	0.60
2:1:558:U:OP1	14:j:113:PRO:HD2	2.00	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1078:U:H4'	2:1:1088:A:H2	1.65	0.60
2:1:1361:G:H2'	2:1:1362:C:C6	2.35	0.60
9:e:111:ARG:NH2	50:R:81:ASP:OD1	2.34	0.60
41:I:8:LEU:HD23	41:I:21:LYS:HE2	1.82	0.60
1:3:229:U:H4'	53:U:2:VAL:HB	1.83	0.60
2:1:2080:A:H4'	28:x:18:SER:CB	2.31	0.60
2:1:2365:G:H4'	27:w:56:PHE:CE1	2.37	0.60
3:2:90:C:H2'	3:2:91:C:C5'	2.24	0.60
1:3:668:G:H1	1:3:738:C:H42	1.47	0.60
1:3:715:A:H5''	1:3:805:C:O2'	2.00	0.60
2:1:955:U:OP2	17:m:14:LYS:NZ	2.35	0.60
2:1:2064:C:H2'	2:1:2065:C:H6	1.64	0.60
2:1:2324:U:C3'	2:1:2325:G:H5''	2.26	0.60
2:1:2505:G:H2'	2:1:2576:G:O6	2.02	0.60
6:b:49:THR:OG1	6:b:50:THR:N	2.31	0.60
6:b:116:GLN:O	6:b:127:ASN:ND2	2.35	0.60
1:3:520:A:OP1	49:Q:48:LEU:HB2	2.02	0.60
2:1:611:C:H2'	2:1:612:G:O4'	2.01	0.60
2:1:2699:C:H2'	2:1:2700:A:H8	1.66	0.60
9:e:132:ARG:O	9:e:132:ARG:NH2	2.34	0.60
26:v:17:SER:HB3	26:v:27:PRO:HG3	1.83	0.60
1:3:7:A:C6	42:J:96:GLN:HG2	2.36	0.60
1:3:657:U:H2'	1:3:658:C:C6	2.36	0.60
1:3:923:A:OP1	42:J:25:LYS:HB2	2.02	0.60
1:3:946:A:H2'	1:3:947:G:C8	2.34	0.60
2:1:1867:G:H1	2:1:1874:C:H42	1.48	0.60
45:M:28:SER:HB2	45:M:58:LEU:HB2	1.82	0.60
1:3:314:C:H2'	1:3:315:A:C8	2.37	0.60
1:3:452:A:H61	1:3:480:U:H3	1.49	0.60
2:1:468:G:H2'	2:1:469:G:H5'	1.83	0.60
2:1:881:G:N2	2:1:897:C:N3	2.50	0.60
2:1:1674:G:H21	2:1:1677:A:H61	1.49	0.60
5:8:321:ALA:HB2	5:8:397:LEU:HD21	1.82	0.60
38:6:26:G:C2'	38:6:27:U:H5''	2.31	0.60
43:K:50:PRO:HB2	43:K:53:LYS:HA	1.84	0.60
51:S:12:ARG:NH1	51:S:58:ARG:O	2.35	0.60
2:1:2521:C:O2'	2:1:2522:U:H5'	2.02	0.60
16:l:108:ALA:HB3	16:l:125:LEU:HD11	1.83	0.60
1:3:454:G:H2'	1:3:455:G:C8	2.37	0.60
2:1:1818:U:H4'	2:1:1821:A:H1'	1.83	0.60
25:u:40:LEU:HD12	25:u:59:GLU:HB3	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:Q:13:ARG:NH1	49:Q:14:LYS:O	2.35	0.60
1:3:59:A:H5''	1:3:387:U:H5''	1.84	0.60
1:3:1521:C:H2'	1:3:1522:U:C6	2.37	0.60
2:1:1070:A:C6	13:i:22:PRO:HB2	2.37	0.60
2:1:2059:A:H4'	8:d:64:GLY:O	2.01	0.60
8:d:164:LEU:HB2	8:d:167:VAL:HG22	1.84	0.60
1:3:747:A:C3'	1:3:748:G:H5''	2.32	0.59
2:1:1444:G:H2'	2:1:1445:G:C8	2.37	0.59
2:1:1638:C:H4'	2:1:2710:C:O2	2.02	0.59
2:1:2064:C:O2'	2:1:2065:C:C5'	2.46	0.59
2:1:2208:C:H2'	2:1:2209:G:C8	2.37	0.59
2:1:2303:G:O2'	2:1:2304:G:H5'	2.02	0.59
3:2:30:C:H2'	3:2:31:C:O4'	2.01	0.59
8:d:21:ARG:NH2	8:d:22:ASP:OD1	2.35	0.59
20:p:11:GLN:HB2	20:p:54:LEU:HD11	1.84	0.59
57:Y:73:ARG:O	57:Y:77:ASN:ND2	2.35	0.59
2:1:1063:G:H3'	2:1:1064:C:C6	2.37	0.59
2:1:2537:U:H2'	2:1:2538:C:C6	2.37	0.59
48:P:17:ASP:HB2	48:P:36:ARG:HH22	1.65	0.59
2:1:729:G:H5''	2:1:730:A:C5'	2.33	0.59
2:1:1197:G:H2'	2:1:1198:U:H6	1.67	0.59
2:1:1993:U:H2'	2:1:1994:C:H6	1.67	0.59
28:x:31:ASN:ND2	28:x:52:ALA:CB	2.65	0.59
41:I:12:ARG:HH21	41:I:35:GLN:H	1.50	0.59
1:3:128:G:H2'	1:3:129:A:C8	2.37	0.59
1:3:1421:G:H3'	1:3:1422:G:C5'	2.33	0.59
2:1:12:U:O2	2:1:12:U:H2'	2.02	0.59
12:a:26:ALA:HA	12:a:29:LEU:HB3	1.85	0.59
1:3:337:G:H2'	1:3:338:A:C8	2.38	0.59
1:3:570:G:O2'	1:3:819:A:H2'	2.03	0.59
1:3:579:A:H5'	1:3:728:A:H1'	1.85	0.59
1:3:1005:A:H2'	1:3:1006:G:H5'	1.85	0.59
2:1:1319:C:O2'	2:1:1320:C:H5'	2.02	0.59
2:1:2120:G:H21	12:a:167:LYS:CD	1.91	0.59
4:5:4:C:O2'	4:5:5:G:H5'	2.01	0.59
51:S:17:ASP:O	51:S:22:LYS:NZ	2.35	0.59
1:3:235:C:H2'	1:3:236:A:C8	2.38	0.59
2:1:36:G:H4'	2:1:451:U:C2	2.38	0.59
2:1:779:U:P	6:b:48:ILE:HG22	2.43	0.59
2:1:1308:A:H61	2:1:1608:A:H61	1.49	0.59
6:b:221:GLY:HA2	6:b:224:MET:HE3	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:V:61:ARG:NH1	54:V:73:THR:OG1	2.36	0.59
1:3:207:C:H3'	1:3:208:U:H5''	1.83	0.59
1:3:979:C:C2'	1:3:980:C:H5'	2.32	0.59
2:1:445:C:C2'	2:1:446:G:H5'	2.32	0.59
2:1:704:G:H1'	2:1:726:G:H22	1.68	0.59
2:1:952:G:C2'	2:1:953:G:H5''	2.32	0.59
2:1:1064:C:H2'	2:1:1065:U:C6	2.37	0.59
2:1:1278:C:H2'	2:1:1279:G:C8	2.37	0.59
2:1:2653:U:C3'	2:1:2654:A:H5''	2.30	0.59
2:1:192:C:H2'	2:1:193:U:H5'	1.84	0.59
2:1:1251:C:H5''	21:q:12:ARG:HH12	1.68	0.59
2:1:1802:A:H2'	2:1:1803:A:C8	2.38	0.59
2:1:1982:U:H2'	2:1:1983:G:H8	1.68	0.59
2:1:2010:G:H4'	23:s:42:LYS:HE3	1.84	0.59
2:1:2189:U:H2'	2:1:2190:G:C8	2.37	0.59
39:G:73:ARG:HH22	39:G:93:HIS:HA	1.67	0.59
39:G:99:MET:HA	39:G:106:VAL:HG21	1.84	0.59
2:1:911:A:H5'	2:1:912:C:H5''	1.84	0.59
4:5:27:A:H61	4:5:43:U:H3	1.50	0.59
11:g:51:ARG:HA	11:g:55:GLU:HB2	1.84	0.59
38:6:55:U:H2'	38:6:56:C:H6	1.68	0.59
50:R:26:LYS:O	50:R:30:LYS:NZ	2.36	0.59
50:R:95:PRO:HG2	50:R:105:ALA:HB1	1.83	0.59
1:3:41:G:H2'	1:3:42:G:C8	2.38	0.59
2:1:729:G:H5''	2:1:730:A:H5''	1.83	0.59
2:1:1368:G:H2'	2:1:1369:G:H8	1.68	0.59
2:1:2102:G:C6	2:1:2103:C:N3	2.71	0.59
2:1:2875:C:H4'	20:p:1:SER:OG	2.02	0.59
16:l:79:LEU:HB2	16:l:113:ALA:HB3	1.83	0.59
1:3:836:G:H2'	1:3:837:U:O4'	2.02	0.58
2:1:11:C:H2'	2:1:12:U:H5''	1.83	0.58
2:1:242:G:C8	35:E:4:LYS:HD3	2.38	0.58
2:1:1270:C:H5''	2:1:1271:G:H5'	1.84	0.58
2:1:2756:U:OP2	36:F:19:ARG:NE	2.36	0.58
30:z:12:ALA:O	30:z:20:LYS:NZ	2.36	0.58
38:6:4:G:H2'	38:6:5:G:O4'	2.03	0.58
2:1:2121:G:C2	12:a:166:ASP:O	2.55	0.58
2:1:2680:U:H5'	7:c:194:PRO:HA	1.85	0.58
41:I:58:GLN:HB3	41:I:62:ARG:HH21	1.68	0.58
1:3:34:C:H2'	1:3:35:G:H8	1.68	0.58
1:3:581:G:H5'	52:T:60:SER:HB2	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:499:U:H4'	25:u:42:LYS:HG3	1.85	0.58
2:1:1332:G:N7	2:1:1609:A:H2'	2.18	0.58
2:1:1889:A:H2'	2:1:1890:A:C8	2.37	0.58
2:1:2178:C:OP1	12:a:211:LYS:CG	2.50	0.58
8:d:76:PRO:HA	8:d:82:GLY:HA2	1.85	0.58
33:C:7:LYS:HA	33:C:23:THR:HA	1.85	0.58
39:G:19:THR:OG1	39:G:20:ARG:N	2.36	0.58
45:M:38:VAL:HG11	45:M:110:MET:HA	1.83	0.58
1:3:1280:A:O2'	1:3:1281:C:H5'	2.02	0.58
2:1:1062:G:H5'	2:1:1071:G:H5'	1.85	0.58
3:2:24:G:H4'	3:2:25:U:C5	2.38	0.58
20:p:87:ARG:NH2	20:p:109:ILE:O	2.36	0.58
1:3:16:A:O2'	1:3:17:U:H5'	2.04	0.58
1:3:738:C:H2'	1:3:739:C:C6	2.38	0.58
1:3:742:G:H2'	1:3:743:A:C8	2.38	0.58
2:1:519:U:H5''	23:s:25:ARG:NH2	2.18	0.58
2:1:2443:C:O2'	2:1:2444:G:H5'	2.02	0.58
1:3:546:A:OP2	41:I:68:GLU:HB3	2.04	0.58
1:3:677:U:H3	1:3:713:G:H1	1.51	0.58
1:3:721:G:H4'	1:3:722:G:O4'	2.04	0.58
2:1:635:C:O2'	2:1:639:U:H5''	2.02	0.58
2:1:1000:A:H62	2:1:1154:G:H2'	1.68	0.58
2:1:2306:C:H2'	2:1:2307:G:C8	2.38	0.58
20:p:88:ARG:HD3	20:p:112:ARG:HD3	1.86	0.58
1:3:429:U:O5'	41:I:8:LEU:HD21	2.03	0.58
2:1:1081:U:H3'	2:1:1081:U:O2	2.02	0.58
2:1:1843:C:H2'	2:1:1844:C:C6	2.38	0.58
2:1:1924:C:H3'	2:1:1925:C:C6	2.37	0.58
2:1:2355:G:H4'	27:w:20:LYS:HD2	1.85	0.58
2:1:2839:G:H21	18:n:92:GLY:HA3	1.69	0.58
6:b:140:VAL:O	6:b:161:VAL:N	2.35	0.58
2:1:166:U:H2'	2:1:167:A:C8	2.38	0.58
2:1:1787:A:C2	2:1:1788:C:C6	2.91	0.58
11:g:139:PHE:O	11:g:141:LYS:NZ	2.37	0.58
1:3:41:G:H2'	1:3:42:G:H8	1.69	0.58
1:3:651:C:H2'	1:3:652:U:O4'	2.04	0.58
2:1:62:U:O2'	2:1:63:A:H5'	2.04	0.58
2:1:572:A:OP2	22:r:79:ARG:NH1	2.37	0.58
2:1:1806:C:H2'	2:1:1807:G:O4'	2.04	0.58
2:1:2512:C:OP2	7:c:128:ARG:NH2	2.37	0.58
40:H:82:ASP:HA	40:H:85:LYS:HD2	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:N:5:TYR:HB2	46:N:20:ILE:HD11	1.86	0.58
1:3:180:U:H2'	1:3:181:A:O4'	2.03	0.58
2:1:952:G:C3'	2:1:953:G:H5''	2.33	0.58
2:1:1197:G:H2'	2:1:1198:U:C6	2.39	0.58
2:1:1310:G:C2'	2:1:1311:G:H5'	2.34	0.58
2:1:1370:C:H2'	2:1:1371:G:O4'	2.04	0.58
2:1:2050:C:C2'	2:1:2051:A:H5'	2.32	0.58
15:k:16:ALA:O	15:k:17:ARG:NH1	2.36	0.58
17:m:66:ARG:NH1	17:m:104:GLU:OE2	2.37	0.58
1:3:19:A:H1'	1:3:864:A:N3	2.19	0.57
1:3:885:G:H2'	1:3:886:G:C8	2.39	0.57
2:1:849:A:H2'	2:1:850:U:H6	1.68	0.57
2:1:1565:C:H2'	2:1:1567:G:N7	2.18	0.57
39:G:103:TRP:HA	39:G:106:VAL:HB	1.86	0.57
40:H:18:ASN:HD21	40:H:39:ARG:HH12	1.51	0.57
1:3:253:A:H2'	1:3:254:G:O4'	2.03	0.57
1:3:428:G:H4'	1:3:429:U:H4'	1.86	0.57
2:1:324:A:H62	2:1:338:G:N2	2.00	0.57
2:1:1065:U:O4	2:1:1069:A:H5''	2.03	0.57
2:1:1177:G:H2'	2:1:1178:C:H5''	1.86	0.57
2:1:2032:G:OP2	2:1:2455:G:H5'	2.03	0.57
25:u:32:LYS:HB3	25:u:63:ALA:HB1	1.87	0.57
39:G:138:ARG:HH21	39:G:142:LYS:HG2	1.69	0.57
40:H:105:VAL:HG22	40:H:107:LYS:H	1.69	0.57
44:L:137:ARG:NH1	44:L:138:GLU:OE2	2.36	0.57
1:3:827:U:H4'	45:M:15:ASN:HB3	1.86	0.57
1:3:1069:C:O2'	1:3:1192:C:H1'	2.04	0.57
2:1:414:C:H2'	2:1:415:A:C8	2.39	0.57
2:1:478:A:H4'	25:u:32:LYS:HE3	1.86	0.57
2:1:1836:C:O2'	2:1:1837:C:H5'	2.03	0.57
2:1:1933:G:O2'	2:1:1974:C:H4'	2.04	0.57
2:1:2020:A:N7	32:B:5:ASN:ND2	2.52	0.57
2:1:2898:U:H2'	2:1:2899:A:H8	1.67	0.57
38:6:6:G:O2'	38:6:7:G:H5'	2.04	0.57
42:J:87:VAL:HG13	42:J:92:ARG:HG3	1.86	0.57
1:3:1124:G:H4'	47:O:40:ILE:CD1	2.34	0.57
1:3:1512:U:H2'	1:3:1513:A:H8	1.66	0.57
2:1:2196:C:H2'	2:1:2197:U:C6	2.39	0.57
2:1:2333:A:H5'	2:1:2335:A:H1'	1.85	0.57
5:8:168:PRO:HG2	5:8:218:TRP:HE1	1.70	0.57
47:O:13:PHE:O	47:O:70:HIS:ND1	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:T:13:GLU:OE1	52:T:83:ARG:NH2	2.36	0.57
1:3:279:A:H5''	1:3:281:G:C5'	2.34	0.57
1:3:308:C:H2'	1:3:309:A:H8	1.69	0.57
1:3:539:A:H2'	1:3:540:G:C8	2.40	0.57
1:3:1098:C:OP1	39:G:142:LYS:HE2	2.03	0.57
1:3:1250:A:H4'	46:N:69:GLY:N	2.19	0.57
1:3:1271:A:H5'	1:3:1314:C:C5'	2.35	0.57
2:1:1654:A:H2	7:c:118:PHE:HD2	1.51	0.57
2:1:2355:G:H1'	27:w:35:ARG:HH21	1.69	0.57
2:1:2446:G:H2'	2:1:2501:C:C5	2.38	0.57
7:c:46:ARG:HG2	7:c:84:LEU:HD12	1.85	0.57
18:n:51:LEU:HD21	18:n:70:THR:HG21	1.85	0.57
20:p:33:GLU:OE1	20:p:38:ARG:NH1	2.37	0.57
33:C:5:ARG:HG3	33:C:25:ASN:HA	1.86	0.57
45:M:24:VAL:HG13	45:M:62:LEU:HD11	1.87	0.57
2:1:1770:G:H4'	2:1:1938:A:OP1	2.03	0.57
2:1:1791:A:H2'	2:1:1792:G:C5'	2.34	0.57
2:1:2123:G:O6	2:1:2174:C:N4	2.37	0.57
1:3:36:C:H5''	49:Q:119:LYS:HD3	1.86	0.57
1:3:750:C:O4'	52:T:19:ASN:HB2	2.04	0.57
1:3:923:A:H5'	42:J:25:LYS:HG3	1.87	0.57
1:3:1195:C:H2'	1:3:1197:A:O4'	2.04	0.57
2:1:2637:U:H2'	2:1:2638:G:O4'	2.04	0.57
4:5:26:A:H2'	4:5:27:A:O4'	2.04	0.57
38:6:14:A:H2'	38:6:15:G:H5'	1.86	0.57
48:P:33:ILE:HG22	48:P:41:LEU:HD12	1.86	0.57
1:3:24:U:H2'	1:3:25:C:C6	2.40	0.57
1:3:735:C:OP1	55:W:56:ARG:NH1	2.37	0.57
1:3:850:U:C2'	1:3:851:G:H5''	2.33	0.57
1:3:1513:A:H2'	1:3:1514:G:C8	2.40	0.57
2:1:572:A:N6	2:1:2029:G:H21	1.88	0.57
2:1:1565:C:OP1	6:b:17:LYS:HD3	2.05	0.57
3:2:77:U:H5'	26:v:21:ARG:HH22	1.70	0.57
5:8:694:VAL:HA	5:8:697:ALA:HB3	1.87	0.57
7:c:110:THR:OG1	7:c:111:GLY:N	2.38	0.57
8:d:2:GLU:HB2	8:d:11:ALA:HB1	1.87	0.57
48:P:71:ASP:HA	48:P:74:LYS:HG3	1.87	0.57
57:Y:13:SER:O	57:Y:17:ARG:N	2.38	0.57
1:3:376:G:H4'	53:U:5:ARG:HD3	1.85	0.57
1:3:675:A:H2	48:P:116:PRO:HA	1.70	0.57
1:3:882:C:O2'	1:3:883:C:H5'	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1695:G:H5'	6:b:6:LYS:HZ1	1.69	0.57
2:1:1826:G:OP1	6:b:231:HIS:ND1	2.38	0.57
2:1:1827:U:C2'	2:1:1828:G:H5'	2.35	0.57
21:q:68:ALA:HB1	21:q:73:ILE:HG13	1.87	0.57
37:4:7:G:H2'	37:4:8:A:H8	1.68	0.57
45:M:27:PRO:O	45:M:32:LYS:NZ	2.38	0.57
1:3:1004:A:H5'	1:3:1024:G:H1	1.70	0.57
2:1:1069:A:H2'	2:1:1073:A:N7	2.20	0.57
2:1:2102:G:C8	2:1:2103:C:C5	2.92	0.57
2:1:2364:C:H5'	27:w:52:ASP:OD2	2.04	0.57
35:E:21:PHE:HE1	35:E:61:LEU:HD23	1.68	0.57
38:6:44:A:H4'	50:R:113:LYS:NZ	2.20	0.57
1:3:626:G:H2'	1:3:627:G:C8	2.39	0.56
2:1:379:G:H2'	2:1:380:G:O4'	2.05	0.56
2:1:468:G:OP2	34:D:37:LYS:NZ	2.34	0.56
2:1:2675:A:H2'	2:1:2676:C:C6	2.39	0.56
5:8:564:GLY:HA3	5:8:569:TYR:H	1.70	0.56
24:t:38:ALA:O	24:t:81:LYS:NZ	2.37	0.56
1:3:1399:C:N3	1:3:1502:A:N1	2.53	0.56
2:1:211:C:H2'	2:1:212:G:C8	2.40	0.56
2:1:1120:G:H2'	2:1:1121:C:O4'	2.05	0.56
2:1:1141:U:H4'	2:1:1142:A:O4'	2.05	0.56
2:1:1801:A:H5''	2:1:2203:U:C2'	2.35	0.56
8:d:55:SER:OG	8:d:56:GLY:N	2.36	0.56
43:K:90:MET:SD	55:W:60:ARG:NH1	2.78	0.56
1:3:416:G:H2'	1:3:417:G:C8	2.41	0.56
1:3:416:G:H2'	1:3:417:G:H8	1.69	0.56
2:1:35:G:H1	2:1:445:C:H42	1.50	0.56
2:1:1186:G:N2	2:1:1187:G:H1'	2.20	0.56
2:1:1936:A:H2	2:1:1943:U:H3	1.51	0.56
2:1:1941:C:H2'	2:1:1942:C:O4'	2.04	0.56
2:1:2661:G:H5'	5:8:19:ILE:HD12	1.86	0.56
2:1:2743:U:C3'	2:1:2744:G:H5''	2.35	0.56
3:2:78:A:H62	3:2:98:G:N2	1.97	0.56
5:8:616:ILE:HG13	5:8:688:ASP:HB2	1.87	0.56
12:a:26:ALA:HB1	12:a:30:LEU:HB2	1.87	0.56
12:a:216:THR:H	12:a:220:ALA:HB3	1.70	0.56
13:i:53:PRO:HD2	13:i:77:VAL:HG21	1.87	0.56
24:t:55:VAL:O	24:t:88:LYS:NZ	2.37	0.56
33:C:36:LYS:NZ	33:C:45:HIS:O	2.38	0.56
40:H:120:THR:HG23	40:H:188:ALA:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:936:C:H2'	1:3:937:A:O4'	2.05	0.56
1:3:1073:U:H2'	1:3:1074:G:H8	1.70	0.56
1:3:1525:G:O2'	1:3:1526:G:H5'	2.06	0.56
2:1:28:A:O2'	2:1:583:G:H5'	2.05	0.56
2:1:601:C:O2	2:1:605:G:H4'	2.05	0.56
2:1:2121:G:N9	12:a:167:LYS:HE2	2.11	0.56
2:1:2208:C:H2'	2:1:2209:G:H8	1.70	0.56
2:1:2554:U:H2'	2:1:2555:U:C6	2.40	0.56
5:8:427:ASP:O	5:8:431:MET:N	2.39	0.56
5:8:438:LEU:HD22	5:8:469:ILE:HD11	1.88	0.56
11:g:15:LEU:HG	11:g:51:ARG:HH22	1.69	0.56
45:M:74:ILE:HG22	45:M:128:VAL:HA	1.87	0.56
2:1:27:G:N2	2:1:512:G:H1'	2.20	0.56
2:1:78:U:H2'	2:1:79:C:C6	2.40	0.56
2:1:2475:C:N4	2:1:2529:G:H22	2.03	0.56
5:8:223:ILE:HB	5:8:243:LEU:HD22	1.85	0.56
32:B:49:ARG:O	32:B:51:ARG:NH2	2.37	0.56
51:S:5:MET:O	51:S:62:ARG:NH1	2.38	0.56
1:3:135:C:N3	53:U:1:MET:HB2	2.21	0.56
1:3:302:G:H2'	1:3:303:A:C8	2.40	0.56
1:3:1093:A:C2'	1:3:1094:G:H5'	2.36	0.56
1:3:1348:U:H2'	1:3:1349:A:H5'	1.87	0.56
2:1:683:U:H3	2:1:794:A:H61	1.53	0.56
2:1:1697:G:C5'	2:1:1698:A:H5''	2.35	0.56
2:1:1740:G:H2'	2:1:1741:C:C6	2.41	0.56
2:1:2420:C:O2'	2:1:2421:G:H5'	2.06	0.56
2:1:2430:A:N3	2:1:2430:A:H2'	2.20	0.56
7:c:109:VAL:HG23	7:c:172:VAL:HG13	1.88	0.56
39:G:30:ILE:HG22	39:G:40:ILE:HA	1.88	0.56
2:1:1055:G:O5'	13:i:3:LYS:HD3	2.06	0.56
2:1:2420:C:OP2	35:E:32:LEU:HB2	2.06	0.56
3:2:4:C:H2'	3:2:5:U:C6	2.41	0.56
8:d:112:LEU:HD22	8:d:117:ARG:HB3	1.88	0.56
9:e:31:GLU:OE1	9:e:32:LYS:NZ	2.37	0.56
45:M:9:MET:HB2	45:M:32:LYS:HE2	1.87	0.56
1:3:130:A:H8	54:V:64:ARG:HB2	1.71	0.56
1:3:593:U:H2'	1:3:594:U:C6	2.41	0.56
1:3:1016:A:H4'	1:3:1218:C:H4'	1.86	0.56
1:3:1096:C:H2'	1:3:1097:C:C6	2.41	0.56
1:3:1098:C:O2'	58:Z:66:ARG:NH1	2.38	0.56
2:1:36:G:H4'	2:1:451:U:N3	2.21	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:259:G:O2'	2:1:260:G:H5'	2.06	0.56
2:1:2529:G:H5'	2:1:2530:A:H5''	1.88	0.56
5:8:31:LEU:HD21	5:8:68:THR:HG21	1.87	0.56
5:8:501:VAL:CG1	5:8:607:LYS:HZ1	2.18	0.56
7:c:63:PRO:O	7:c:67:HIS:N	2.39	0.56
14:j:45:THR:OG1	21:q:63:ARG:NH2	2.37	0.56
50:R:87:GLY:O	50:R:91:ARG:NH2	2.39	0.56
2:1:1697:G:C3'	2:1:1698:A:H5''	2.36	0.56
2:1:1783:A:N1	2:1:2587:A:H2'	2.21	0.56
2:1:1923:U:H2'	2:1:1924:C:H6	1.70	0.56
3:2:4:C:H6	3:2:4:C:H5'	1.71	0.56
5:8:446:ARG:HH11	5:8:447:VAL:H	1.54	0.56
9:e:32:LYS:HB3	9:e:91:ARG:HE	1.71	0.56
37:4:20:C:H2'	37:4:21:A:C8	2.40	0.56
40:H:49:ALA:HA	40:H:74:ILE:HD11	1.88	0.56
41:I:65:GLY:O	41:I:96:ARG:NH1	2.39	0.56
45:M:14:ARG:NH1	45:M:74:ILE:O	2.39	0.56
1:3:408:A:H61	1:3:434:U:H3	1.52	0.56
1:3:1420:U:H3	1:3:1480:A:H2	1.54	0.56
1:3:1513:A:H2'	1:3:1514:G:H8	1.71	0.56
2:1:146:A:H2'	2:1:147:C:C6	2.41	0.56
2:1:1081:U:H4'	13:i:123:ALA:HB1	1.87	0.56
5:8:493:THR:O	5:8:610:PRO:HA	2.06	0.56
1:3:357:G:OP1	1:3:367:U:H5''	2.06	0.55
2:1:1654:A:C2	7:c:118:PHE:HD2	2.24	0.55
2:1:1655:A:H4'	7:c:119:ALA:O	2.06	0.55
2:1:2041:U:H2'	2:1:2042:A:C8	2.40	0.55
43:K:82:ASP:OD1	43:K:82:ASP:N	2.38	0.55
1:3:684:U:H2'	1:3:685:G:O4'	2.06	0.55
1:3:1213:A:O2'	1:3:1214:C:H2'	2.06	0.55
1:3:1401:G:H2'	1:3:1402:C:O4'	2.06	0.55
2:1:310:A:C2'	2:1:311:A:H5''	2.36	0.55
2:1:923:G:O2'	2:1:924:G:H5'	2.06	0.55
2:1:1774:C:H4'	2:1:1979:U:O2	2.05	0.55
2:1:1827:U:H2'	2:1:1828:G:H5'	1.88	0.55
2:1:1868:C:H2'	2:1:1869:G:C5'	2.35	0.55
5:8:322:PHE:HB3	5:8:323:LYS:HD2	1.86	0.55
35:E:27:ASN:O	35:E:35:LYS:NZ	2.38	0.55
35:E:28:LEU:HD23	35:E:29:ARG:HH12	1.72	0.55
1:3:1127:G:H2'	1:3:1128:C:C6	2.41	0.55
2:1:959:A:H1'	2:1:2457:U:O2'	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1257:C:O5'	2:1:1257:C:H6	1.90	0.55
2:1:1820:U:C4	6:b:158:GLY:HA3	2.40	0.55
2:1:2496:C:C2'	2:1:2497:A:H5'	2.37	0.55
2:1:2508:G:C6	2:1:2582:G:O6	2.59	0.55
5:8:225:SER:O	5:8:255:ARG:NH1	2.39	0.55
40:H:20:THR:HA	51:S:93:PRO:HB3	1.88	0.55
46:N:47:VAL:HG23	46:N:48:ARG:HG3	1.88	0.55
46:N:83:THR:HG21	46:N:102:PHE:HB3	1.88	0.55
53:U:5:ARG:NH2	53:U:23:ASP:O	2.40	0.55
57:Y:2:ASN:O	57:Y:7:LYS:NZ	2.39	0.55
1:3:737:C:H5'	43:K:89:VAL:HG23	1.89	0.55
1:3:738:C:OP1	43:K:4:TYR:OH	2.18	0.55
1:3:885:G:H2'	1:3:886:G:H8	1.69	0.55
2:1:207:A:H2'	2:1:208:C:O4'	2.07	0.55
2:1:1063:G:OP2	2:1:1070:A:H4'	2.07	0.55
2:1:1191:G:H2'	2:1:1192:G:H8	1.71	0.55
2:1:2207:C:O2'	2:1:2208:C:H5'	2.07	0.55
2:1:2384:U:OP2	27:w:51:ARG:NH2	2.37	0.55
9:e:139:GLU:HA	31:A:28:VAL:HG23	1.88	0.55
1:3:301:G:H2'	1:3:302:G:C8	2.41	0.55
1:3:459:A:H2'	1:3:460:A:C8	2.42	0.55
1:3:1244:G:H2'	1:3:1245:C:C6	2.41	0.55
1:3:1350:A:O2'	44:L:32:ASP:HA	2.06	0.55
2:1:1248:G:P	8:d:44:ARG:HH12	2.30	0.55
2:1:2524:G:C2'	2:1:2525:G:H5''	2.34	0.55
5:8:92:HIS:HD2	5:8:464:LEU:HD21	1.71	0.55
13:i:11:GLN:HB2	13:i:56:VAL:HG22	1.88	0.55
33:C:8:ILE:HB	33:C:24:LYS:HB2	1.88	0.55
42:J:36:THR:OG1	42:J:37:VAL:N	2.38	0.55
45:M:89:ASP:OD1	45:M:89:ASP:N	2.37	0.55
1:3:212:G:H2'	1:3:213:G:C8	2.38	0.55
2:1:490:C:H5'	2:1:491:G:OP2	2.06	0.55
2:1:1343:G:H1'	2:1:1597:A:C4	2.42	0.55
2:1:1653:G:O6	18:n:11:ASN:N	2.37	0.55
3:2:59:A:HO2'	19:o:2:ASP:N	2.05	0.55
9:e:113:PHE:HZ	9:e:175:PRO:HB3	1.71	0.55
34:D:12:ARG:HD2	34:D:44:VAL:HG11	1.88	0.55
42:J:19:ARG:HG2	42:J:30:PHE:HB3	1.89	0.55
2:1:614:A:H5'	2:1:615:U:OP1	2.06	0.55
2:1:881:G:H2'	2:1:882:G:H8	1.71	0.55
2:1:1403:A:H2'	2:1:1404:C:C6	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2396:G:O2'	2:1:2397:G:H5'	2.05	0.55
2:1:2584:U:H2'	2:1:2585:U:H2'	1.87	0.55
3:2:52:A:N7	19:o:33:ARG:HD3	2.22	0.55
5:8:334:THR:OG1	5:8:385:ALA:N	2.40	0.55
5:8:565:PRO:HD3	5:8:602:LYS:HZ2	1.72	0.55
9:e:46:LYS:NZ	9:e:82:TYR:OH	2.40	0.55
9:e:127:TYR:HB3	9:e:155:ILE:HG13	1.89	0.55
46:N:11:ARG:NH1	46:N:106:ASP:O	2.39	0.55
1:3:625:U:H5''	53:U:16:PHE:CE2	2.42	0.55
1:3:1256:A:H3'	40:H:26:LYS:HE3	1.89	0.55
1:3:1257:A:H3'	1:3:1257:A:N3	2.20	0.55
2:1:305:C:H2'	2:1:306:U:C6	2.42	0.55
5:8:11:ARG:NH2	5:8:283:ILE:O	2.39	0.55
5:8:192:ASN:HB3	5:8:203:GLU:HB2	1.87	0.55
5:8:393:THR:OG1	5:8:408:ARG:NH1	2.40	0.55
8:d:147:LEU:HB3	8:d:186:VAL:HG12	1.88	0.55
13:i:92:PRO:HB3	13:i:134:SER:HA	1.89	0.55
44:L:91:ARG:O	44:L:95:ARG:CG	2.55	0.55
1:3:971:G:OP1	1:3:971:G:H3'	2.07	0.55
2:1:566:U:OP1	16:l:29:LYS:HG2	2.07	0.55
2:1:2299:U:H2'	2:1:2300:C:C6	2.42	0.55
2:1:2348:U:H4'	33:C:40:PRO:HG3	1.88	0.55
2:1:2362:C:P	35:E:43:LEU:HD11	2.46	0.55
2:1:2477:U:C5	36:F:10:LEU:HD21	2.42	0.55
2:1:2682:A:H61	2:1:2728:U:H1'	1.72	0.55
10:f:3:VAL:HG11	10:f:65:GLY:HA2	1.89	0.55
11:g:2:GLN:NE2	11:g:18:GLN:O	2.40	0.55
22:r:76:LYS:NZ	22:r:85:LYS:O	2.40	0.55
27:w:33:ILE:HG22	27:w:34:VAL:HG23	1.88	0.55
1:3:1325:C:H2'	1:3:1326:U:C6	2.42	0.55
1:3:1390:U:H2'	1:3:1391:U:C6	2.42	0.55
2:1:328:U:H4'	25:u:65:GLN:OE1	2.07	0.55
2:1:534:U:H3	2:1:559:G:H1	1.55	0.55
2:1:782:A:H4'	2:1:783:A:H5'	1.87	0.55
2:1:1255:U:C6	8:d:68:ALA:HA	2.42	0.55
2:1:2093:G:O3'	11:g:25:TYR:HB2	2.07	0.55
2:1:2796:U:H3	2:1:2799:A:H61	1.53	0.55
5:8:171:LEU:HB2	5:8:183:VAL:HB	1.88	0.55
5:8:416:ILE:N	5:8:460:GLY:O	2.40	0.55
19:o:30:ARG:HG3	19:o:102:ARG:HD2	1.89	0.55
30:z:10:ARG:NH2	30:z:52:PHE:O	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:G:59:ILE:HG12	39:G:62:ARG:HH21	1.71	0.55
42:J:16:ALA:HB3	42:J:35:LEU:H	1.71	0.55
45:M:84:ILE:HD11	45:M:86:LYS:HG2	1.89	0.55
1:3:1074:G:H4'	39:G:101:THR:HG22	1.88	0.54
2:1:310:A:H2'	2:1:311:A:H5''	1.89	0.54
2:1:1059:G:OP2	13:i:9:LYS:HD2	2.07	0.54
2:1:1255:U:OP1	2:1:1256:G:H5''	2.07	0.54
2:1:1652:A:H2'	2:1:1653:G:O4'	2.07	0.54
2:1:1791:A:O2'	2:1:1792:G:H5'	2.07	0.54
2:1:1836:C:C2'	2:1:1837:C:H5'	2.37	0.54
2:1:2317:A:H2'	2:1:2318:G:O4'	2.06	0.54
2:1:2419:U:H5''	33:C:21:THR:HG21	1.89	0.54
2:1:2563:U:H2'	2:1:2564:A:H5''	1.88	0.54
2:1:2813:A:H2'	2:1:2814:A:C8	2.42	0.54
5:8:632:ILE:HA	5:8:635:LEU:HB3	1.89	0.54
6:b:140:VAL:HG12	6:b:191:LEU:HA	1.89	0.54
6:b:204:LEU:HD21	6:b:213:ARG:HH21	1.72	0.54
15:k:65:THR:HA	15:k:82:ASN:HA	1.88	0.54
18:n:22:ARG:HG3	18:n:70:THR:HA	1.89	0.54
26:v:72:VAL:HA	26:v:94:ALA:H	1.71	0.54
1:3:37:U:H5'	49:Q:120:ARG:HG2	1.89	0.54
1:3:162:A:H2'	1:3:163:C:H5'	1.89	0.54
1:3:560:A:H5'	1:3:566:G:N2	2.21	0.54
1:3:1105:A:H2'	1:3:1106:G:C8	2.43	0.54
2:1:687:C:H2'	2:1:688:U:C5'	2.36	0.54
2:1:1614:A:H2'	2:1:1615:C:H5'	1.89	0.54
2:1:1889:A:H2'	2:1:1890:A:H8	1.73	0.54
2:1:2020:A:O3'	21:q:24:TYR:OH	2.25	0.54
2:1:2102:G:O2'	2:1:2103:C:O4'	2.24	0.54
2:1:2188:U:H2'	2:1:2189:U:C4'	2.37	0.54
4:5:34:U:H3	37:4:21:A:N6	2.03	0.54
5:8:103:MET:HB3	5:8:135:VAL:HG21	1.89	0.54
7:c:146:ILE:O	7:c:159:LYS:NZ	2.41	0.54
12:a:189:LEU:HA	12:a:192:LEU:HG	1.88	0.54
12:a:203:GLN:NE2	12:a:208:TYR:OH	2.41	0.54
40:H:32:LEU:HD13	51:S:92:ILE:HD11	1.88	0.54
41:I:96:ARG:NH2	41:I:98:ASP:OD2	2.39	0.54
43:K:46:GLN:NE2	43:K:47:LEU:O	2.39	0.54
58:Z:13:VAL:HG13	58:Z:15:LEU:HG	1.90	0.54
1:3:46:G:H2'	1:3:366:A:H62	1.72	0.54
1:3:1042:A:H2'	1:3:1043:G:O4'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:1091:U:H2'	1:3:1093:A:OP2	2.07	0.54
2:1:155:A:H2'	2:1:156:A:H8	1.71	0.54
2:1:851:C:H2'	2:1:852:U:C6	2.43	0.54
2:1:1059:G:P	13:i:9:LYS:HZ2	2.30	0.54
2:1:1809:A:H2'	2:1:1810:A:C8	2.42	0.54
2:1:2055:C:O2	2:1:2055:C:H3'	2.07	0.54
3:2:105:G:H2'	3:2:106:G:H8	1.71	0.54
13:i:38:CYS:O	13:i:42:ASN:ND2	2.40	0.54
14:j:69:ARG:NH1	14:j:90:GLU:OE2	2.38	0.54
52:T:2:LEU:HD11	52:T:30:LEU:HD11	1.90	0.54
1:3:8:A:C6	41:I:205:LYS:HE2	2.42	0.54
1:3:866:C:C4	1:3:867:G:H1'	2.41	0.54
1:3:1042:A:H2'	1:3:1043:G:C4'	2.38	0.54
2:1:130:C:H2'	2:1:131:A:O4'	2.07	0.54
2:1:471:A:H2'	2:1:472:A:O4'	2.08	0.54
2:1:1030:C:OP2	17:m:127:LYS:HE2	2.08	0.54
2:1:1082:U:H3	2:1:1086:A:H2	1.56	0.54
2:1:1114:C:H2'	2:1:1115:G:C8	2.41	0.54
2:1:1192:G:O2'	2:1:1193:G:H5'	2.08	0.54
2:1:1473:G:H1	2:1:1518:C:N4	2.00	0.54
2:1:2128:G:H5'	12:a:218:MET:HE1	1.89	0.54
2:1:2155:U:OP1	2:1:2157:G:N2	2.41	0.54
9:e:33:ILE:HD12	9:e:155:ILE:HG22	1.90	0.54
9:e:56:LEU:HG	9:e:59:ILE:HD12	1.89	0.54
24:t:8:LEU:O	29:y:29:ARG:NH1	2.41	0.54
26:v:73:LYS:O	26:v:92:VAL:N	2.41	0.54
41:I:141:VAL:HA	41:I:180:THR:HA	1.88	0.54
47:O:42:LEU:HD22	47:O:71:LEU:HB2	1.88	0.54
49:Q:50:LYS:NZ	49:Q:51:VAL:O	2.39	0.54
1:3:596:A:H2'	1:3:597:G:O4'	2.07	0.54
2:1:142:A:H2'	2:1:143:C:C6	2.42	0.54
2:1:1127:A:C2'	2:1:1128:G:H5''	2.37	0.54
5:8:323:LYS:HB2	5:8:335:PHE:HB2	1.89	0.54
18:n:98:LEU:HB2	18:n:112:TYR:HB2	1.88	0.54
28:x:2:ARG:HG2	28:x:32:LEU:CD1	2.37	0.54
44:L:92:PRO:HA	44:L:95:ARG:CG	2.37	0.54
50:R:89:ARG:NH2	50:R:95:PRO:O	2.34	0.54
56:X:4:LEU:HG	56:X:6:LYS:H	1.72	0.54
1:3:539:A:H2'	1:3:540:G:H8	1.72	0.54
1:3:1180:A:OP1	46:N:104:THR:HG22	2.08	0.54
1:3:1399:C:H4'	1:3:1400:C:H3'	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:486:C:H42	2:1:494:G:H1	1.56	0.54
2:1:1040:A:H2'	2:1:1041:G:H8	1.72	0.54
2:1:2516:A:O2'	2:1:2517:C:H5'	2.08	0.54
57:Y:14:GLU:O	57:Y:18:LYS:NZ	2.41	0.54
1:3:1151:A:H5'	47:O:43:PRO:HA	1.88	0.54
2:1:231:A:H2'	2:1:232:G:O4'	2.08	0.54
2:1:605:G:H21	2:1:658:U:H5'	1.73	0.54
2:1:1024:G:H3'	2:1:1025:G:C5'	2.37	0.54
2:1:2466:C:H5'	36:F:5:ALA:HB3	1.88	0.54
2:1:2726:A:O2'	2:1:2727:A:H5'	2.06	0.54
7:c:15:PHE:HB3	20:p:78:PRO:HD3	1.90	0.54
39:G:68:PHE:HA	39:G:161:PHE:HB3	1.90	0.54
42:J:154:ALA:O	42:J:158:LYS:NZ	2.41	0.54
44:L:85:GLN:HG2	44:L:143:MET:CE	2.38	0.54
44:L:91:ARG:NE	44:L:91:ARG:HA	2.22	0.54
1:3:874:G:H2'	1:3:875:U:C6	2.42	0.54
1:3:1402:C:H2'	1:3:1403:C:O4'	2.08	0.54
1:3:1507:A:H61	1:3:1528:U:H3	1.56	0.54
2:1:566:U:H5''	16:l:29:LYS:HE3	1.90	0.54
2:1:737:C:H2'	2:1:738:G:H8	1.72	0.54
2:1:1251:C:OP2	21:q:5:ARG:NH2	2.40	0.54
2:1:2008:C:H2'	2:1:2009:A:C8	2.42	0.54
2:1:2048:G:C2'	2:1:2049:G:H5''	2.37	0.54
29:y:21:LEU:HA	29:y:25:GLN:HB3	1.90	0.54
44:L:91:ARG:CB	44:L:93:VAL:HG12	2.32	0.54
1:3:350:G:O2'	1:3:351:G:H5'	2.08	0.54
1:3:690:G:H2'	1:3:691:G:O4'	2.08	0.54
1:3:1414:U:H2'	1:3:1415:G:C8	2.43	0.54
2:1:351:C:H2'	2:1:352:A:H8	1.73	0.54
2:1:859:G:N2	2:1:916:G:H2'	2.23	0.54
2:1:1352:U:O2'	2:1:1353:A:H5'	2.08	0.54
2:1:1550:C:H2'	2:1:1551:A:H8	1.73	0.54
2:1:1799:G:OP1	6:b:257:ARG:HD3	2.07	0.54
5:8:223:ILE:HG13	5:8:237:TYR:HE2	1.73	0.54
5:8:641:MET:HB3	5:8:657:GLU:HB2	1.90	0.54
8:d:133:LEU:O	8:d:136:GLN:NE2	2.40	0.54
1:3:299:G:N2	1:3:565:U:H3	2.06	0.53
2:1:2661:G:H5''	5:8:19:ILE:HB	1.89	0.53
10:f:59:ASP:OD1	10:f:59:ASP:N	2.37	0.53
43:K:11:HIS:ND1	43:K:14:GLN:OE1	2.41	0.53
44:L:111:GLY:HA2	44:L:118:ARG:HG2	1.88	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:Q:23:LEU:HB2	49:Q:29:LYS:HD3	1.90	0.53
1:3:1169:A:H2'	1:3:1170:A:O4'	2.09	0.53
2:1:286:U:H2'	2:1:287:G:H8	1.72	0.53
2:1:1905:C:H2'	2:1:1930:G:C8	2.42	0.53
2:1:2375:G:C2'	2:1:2376:A:H5''	2.38	0.53
2:1:2682:A:C2	7:c:23:PRO:HB3	2.43	0.53
3:2:102:G:H2'	3:2:103:U:O4'	2.09	0.53
36:F:24:ARG:HE	36:F:36:ARG:HG3	1.73	0.53
37:4:7:G:H2'	37:4:8:A:C8	2.43	0.53
48:P:124:LYS:HA	58:Z:34:ARG:HE	1.73	0.53
1:3:20:U:H2'	1:3:21:G:O4'	2.08	0.53
1:3:1093:A:C6	1:3:1095:U:H1'	2.43	0.53
2:1:171:U:H2'	2:1:172:A:C8	2.43	0.53
2:1:674:G:H5''	8:d:70:SER:C	2.33	0.53
2:1:2124:G:N1	2:1:2175:C:O2	2.42	0.53
2:1:2373:G:H2'	2:1:2374:C:C6	2.43	0.53
12:a:19:LYS:NZ	12:a:20:GLN:O	2.38	0.53
14:j:60:ASP:HA	14:j:93:ILE:HD11	1.88	0.53
34:D:8:SER:OG	34:D:9:VAL:N	2.38	0.53
42:J:153:ALA:HB1	42:J:160:VAL:HA	1.90	0.53
45:M:32:LYS:HA	45:M:35:ILE:HD12	1.90	0.53
1:3:1421:G:H3'	1:3:1422:G:H5''	1.89	0.53
2:1:1065:U:H3'	2:1:1066:U:H5''	1.91	0.53
2:1:1126:A:H4'	2:1:1127:A:C5'	2.38	0.53
2:1:1674:G:N2	2:1:1677:A:H61	2.07	0.53
5:8:515:TYR:HB3	5:8:587:ASP:HB3	1.90	0.53
6:b:208:GLY:HA2	6:b:211:ARG:HB3	1.90	0.53
14:j:6:ALA:HB3	14:j:48:VAL:HG11	1.89	0.53
40:H:190:THR:HG23	40:H:192:TYR:H	1.73	0.53
44:L:63:VAL:HA	44:L:66:GLU:HG2	1.91	0.53
45:M:105:THR:HG22	45:M:107:LYS:H	1.73	0.53
49:Q:6:LEU:HD21	49:Q:11:ARG:HH21	1.73	0.53
51:S:9:GLU:HA	51:S:12:ARG:HB2	1.89	0.53
57:Y:67:HIS:HD2	57:Y:69:ASN:HB2	1.73	0.53
1:3:1077:G:N2	1:3:1079:G:H3'	2.23	0.53
1:3:1366:C:H2'	1:3:1367:C:H6	1.72	0.53
2:1:2048:G:H3'	2:1:2049:G:H5''	1.91	0.53
2:1:2050:C:H1'	7:c:161:MET:HE1	1.91	0.53
2:1:2064:C:H2'	2:1:2065:C:O4'	2.08	0.53
2:1:2303:G:H4'	9:e:120:SER:HA	1.89	0.53
5:8:136:PRO:HG2	5:8:287:PRO:HG3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:8:518:VAL:HG21	5:8:597:ALA:HB2	1.91	0.53
6:b:106:PRO:HG2	6:b:109:LEU:HB2	1.90	0.53
18:n:60:VAL:HG12	18:n:64:ARG:HH22	1.73	0.53
19:o:15:ARG:NH2	19:o:95:SER:OG	2.39	0.53
1:3:36:C:H2'	1:3:37:U:H6	1.73	0.53
1:3:722:G:H1	1:3:733:G:H1	1.56	0.53
1:3:835:U:OP1	55:W:49:LYS:HB2	2.08	0.53
1:3:884:U:OP2	1:3:884:U:H6	1.92	0.53
1:3:1013:G:N2	1:3:1015:G:H3'	2.23	0.53
1:3:1234:C:H1'	1:3:1364:U:O2	2.08	0.53
1:3:1374:A:OP1	44:L:12:LEU:HD13	2.09	0.53
2:1:1760:C:H2'	2:1:1761:C:H5'	1.91	0.53
6:b:206:LYS:HE3	6:b:209:ALA:HB2	1.89	0.53
8:d:141:MET:HB2	8:d:143:LEU:HD11	1.90	0.53
48:P:99:LEU:O	48:P:103:GLY:N	2.38	0.53
51:S:8:ARG:HB2	51:S:62:ARG:HH12	1.74	0.53
1:3:401:C:H2'	1:3:402:G:H8	1.73	0.53
1:3:563:A:H4'	1:3:566:G:O2'	2.09	0.53
2:1:121:G:H4'	2:1:149:A:H5'	1.90	0.53
2:1:770:G:OP2	34:D:11:LYS:HE2	2.09	0.53
2:1:1319:C:H2'	2:1:1320:C:H6	1.74	0.53
2:1:1656:C:H2'	2:1:1657:U:C6	2.44	0.53
2:1:1783:A:C6	2:1:2587:A:C4	2.96	0.53
2:1:2092:U:C5	2:1:2199:A:H2	2.26	0.53
2:1:2198:A:C2	11:g:29:PHE:HB2	2.43	0.53
2:1:2699:C:H2'	2:1:2700:A:C8	2.44	0.53
5:8:107:ASP:OD1	5:8:107:ASP:N	2.40	0.53
22:r:77:PHE:HD1	22:r:84:ARG:HB3	1.73	0.53
29:y:44:LYS:HE2	29:y:48:ARG:HG3	1.91	0.53
1:3:601:G:H2'	1:3:602:A:C8	2.44	0.53
1:3:831:A:C5'	39:G:20:ARG:HD2	2.39	0.53
2:1:2638:G:H1	2:1:2775:G:H2'	1.74	0.53
2:1:2751:G:C4	10:f:2:ARG:HG2	2.43	0.53
3:2:24:G:H4'	3:2:25:U:H5	1.73	0.53
18:n:8:ARG:NH2	18:n:43:GLU:OE1	2.42	0.53
21:q:48:ASP:HA	21:q:51:GLN:HB3	1.89	0.53
39:G:10:LYS:HG2	39:G:211:LEU:HD21	1.89	0.53
39:G:210:THR:HA	39:G:213:LEU:HB2	1.90	0.53
46:N:11:ARG:HH11	46:N:105:ARG:HH12	1.57	0.53
46:N:45:MET:HE3	46:N:49:GLN:HA	1.90	0.53
1:3:218:U:H2'	1:3:219:U:O4'	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:224:U:H2'	1:3:225:C:C6	2.44	0.53
1:3:358:U:H2'	1:3:359:G:C8	2.44	0.53
1:3:1271:A:C5'	1:3:1314:C:H5''	2.39	0.53
1:3:1347:G:H22	1:3:1373:G:H2'	1.72	0.53
2:1:125:A:C4'	34:D:13:ASN:HB3	2.39	0.53
2:1:1659:G:H2'	2:1:1660:G:O4'	2.08	0.53
2:1:2065:C:H2'	2:1:2066:C:C6	2.44	0.53
2:1:2820:A:OP2	18:n:2:ARG:NH1	2.40	0.53
5:8:415:VAL:H	5:8:461:MET:HA	1.73	0.53
11:g:2:GLN:HB3	11:g:18:GLN:HB3	1.91	0.53
23:s:47:VAL:O	23:s:51:LEU:N	2.39	0.53
48:P:122:PRO:HG2	58:Z:34:ARG:HA	1.89	0.53
2:1:810:U:C5	16:l:29:LYS:HA	2.44	0.53
2:1:1710:G:H2'	2:1:1711:A:H8	1.74	0.53
2:1:2402:U:O2'	2:1:2403:C:H5''	2.09	0.53
2:1:2642:G:H5'	14:j:80:HIS:CD2	2.44	0.53
3:2:33:G:H2'	3:2:34:A:O4'	2.09	0.53
5:8:530:ASN:ND2	5:8:535:GLU:OE1	2.42	0.53
7:c:176:ASP:OD1	7:c:176:ASP:N	2.36	0.53
12:a:194:VAL:HA	12:a:197:LYS:HB2	1.89	0.53
40:H:21:TRP:HD1	40:H:57:GLU:HA	1.73	0.53
40:H:179:ALA:HB1	40:H:202:PHE:HE1	1.73	0.53
1:3:410:G:H21	1:3:432:A:H62	1.57	0.52
1:3:737:C:H2'	1:3:738:C:H6	1.74	0.52
1:3:951:G:H2'	1:3:952:U:C6	2.43	0.52
1:3:955:U:H2'	1:3:956:U:H6	1.74	0.52
2:1:1635:A:H2	2:1:1761:C:O2'	1.92	0.52
2:1:2125:G:H5'	12:a:39:VAL:C	2.34	0.52
5:8:520:ILE:HB	5:8:576:ILE:HD11	1.90	0.52
20:p:19:PHE:HE2	20:p:46:VAL:HG21	1.74	0.52
1:3:994:A:O2'	51:S:7:ALA:HB1	2.09	0.52
1:3:1071:C:H5'	42:J:53:ARG:CZ	2.39	0.52
1:3:1357:A:H5''	51:S:75:LYS:HZ1	1.73	0.52
2:1:1841:U:H2'	2:1:1842:G:H8	1.73	0.52
2:1:1867:G:H1	2:1:1874:C:N4	2.07	0.52
2:1:2061:G:H8	2:1:2501:C:H4'	1.73	0.52
6:b:36:ASN:HB3	6:b:38:LYS:HG2	1.91	0.52
13:i:101:SER:OG	13:i:102:ARG:N	2.42	0.52
1:3:302:G:H2'	1:3:303:A:H8	1.74	0.52
1:3:1079:G:H5'	42:J:133:ILE:HD11	1.92	0.52
1:3:1105:A:H2'	1:3:1106:G:H8	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2656:U:H2'	2:1:2657:A:H8	1.75	0.52
3:2:30:C:C2'	3:2:31:C:H5'	2.40	0.52
12:a:63:THR:HG21	12:a:195:ALA:HB1	1.90	0.52
12:a:165:ASN:HB3	12:a:169:GLY:HA2	1.91	0.52
23:s:4:ILE:HG23	23:s:106:VAL:HG22	1.91	0.52
35:E:38:LYS:HG3	35:E:41:ARG:HH22	1.75	0.52
46:N:64:ILE:HG21	46:N:78:ILE:HG13	1.91	0.52
47:O:8:ILE:HB	47:O:74:VAL:HB	1.91	0.52
54:V:49:ASN:ND2	54:V:51:GLU:OE2	2.41	0.52
1:3:1271:A:H5'	1:3:1314:C:H5''	1.91	0.52
2:1:543:G:H3'	2:1:544:C:H5''	1.92	0.52
2:1:1433:A:H2'	2:1:1434:A:C1'	2.38	0.52
2:1:1655:A:H2'	2:1:1656:C:H5'	1.91	0.52
2:1:2602:A:H4'	2:1:2603:G:H5'	1.90	0.52
2:1:2694:G:H2'	2:1:2695:U:O4'	2.09	0.52
5:8:217:GLU:O	5:8:220:GLN:NE2	2.41	0.52
9:e:23:SER:HB3	9:e:26:GLN:HB2	1.92	0.52
18:n:32:GLU:HG2	18:n:115:LEU:HD13	1.92	0.52
1:3:437:U:H2'	1:3:438:U:H5'	1.91	0.52
1:3:1239:A:H5''	1:3:1240:U:C5	2.44	0.52
2:1:133:U:H3	2:1:146:A:H61	1.57	0.52
2:1:203:A:H3'	2:1:204:A:C5'	2.39	0.52
2:1:533:G:H1	2:1:560:C:H42	1.56	0.52
2:1:772:C:H5''	2:1:1356:G:H5'	1.90	0.52
2:1:801:G:H3'	2:1:802:A:H5'	1.92	0.52
2:1:937:C:H2'	2:1:938:G:C8	2.43	0.52
2:1:1505:A:H2'	2:1:1506:U:O4'	2.10	0.52
2:1:2009:A:H4'	18:n:107:ASN:HD22	1.74	0.52
2:1:2507:C:H6	2:1:2507:C:O5'	1.93	0.52
5:8:53:MET:O	5:8:57:GLN:NE2	2.43	0.52
5:8:192:ASN:ND2	5:8:203:GLU:OE1	2.43	0.52
5:8:499:THR:HG23	5:8:500:ASP:N	2.23	0.52
19:o:29:HIS:HB3	19:o:36:TYR:HD2	1.74	0.52
1:3:337:G:H2'	1:3:338:A:H8	1.74	0.52
1:3:1152:A:H5'	47:O:15:HIS:CD2	2.44	0.52
2:1:351:C:H2'	2:1:352:A:C8	2.44	0.52
2:1:1536:C:H4'	2:1:1537:G:C2	2.44	0.52
2:1:2177:C:O2	12:a:172:HIS:CE1	2.61	0.52
17:m:27:SER:OG	17:m:66:ARG:NH1	2.42	0.52
18:n:103:ARG:HB3	18:n:108:ALA:H	1.74	0.52
40:H:181:ILE:HD11	40:H:200:TRP:HB3	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:I:146:GLU:HA	41:I:149:LYS:HE2	1.91	0.52
43:K:44:ARG:HG2	43:K:56:LYS:HG2	1.92	0.52
44:L:53:SER:HB2	44:L:55:LYS:HE3	1.90	0.52
1:3:36:C:H2'	1:3:37:U:C6	2.44	0.52
1:3:49:U:O2'	1:3:50:A:H2'	2.10	0.52
5:8:327:ASP:O	5:8:437:ARG:NH2	2.42	0.52
35:E:57:VAL:O	35:E:61:LEU:N	2.41	0.52
57:Y:14:GLU:OE2	57:Y:18:LYS:NZ	2.41	0.52
2:1:155:A:H2'	2:1:156:A:C8	2.44	0.52
2:1:533:G:H5'	21:q:23:TYR:HD1	1.75	0.52
2:1:2060:A:H3'	8:d:63:LYS:HE3	1.91	0.52
5:8:473:MET:HA	5:8:477:PHE:HB2	1.91	0.52
10:f:151:ARG:HG3	10:f:160:GLY:HA2	1.92	0.52
12:a:11:ILE:HG13	12:a:219:GLY:HA3	1.91	0.52
16:l:9:ALA:HB3	16:l:12:SER:HB3	1.91	0.52
18:n:64:ARG:O	18:n:68:ALA:N	2.40	0.52
41:I:13:ARG:NH2	41:I:37:PRO:O	2.42	0.52
48:P:87:GLY:O	48:P:92:ARG:NH1	2.43	0.52
51:S:82:LYS:HA	51:S:85:GLU:HB2	1.92	0.52
1:3:90:C:H2'	1:3:91:U:C6	2.45	0.52
1:3:207:C:C3'	1:3:208:U:H5''	2.40	0.52
1:3:265:G:H2'	1:3:267:C:H5	1.75	0.52
1:3:369:G:H22	1:3:393:A:H1'	1.75	0.52
2:1:7:G:H1'	14:j:135:GLN:HE22	1.75	0.52
2:1:1332:G:N3	2:1:1332:G:H5'	2.25	0.52
2:1:1357:C:H42	2:1:1374:G:H1	1.57	0.52
4:5:67:U:H2'	4:5:68:C:O4'	2.10	0.52
22:r:29:THR:HA	22:r:63:VAL:HG23	1.91	0.52
22:r:61:ALA:HB1	22:r:96:VAL:HB	1.92	0.52
39:G:67:LEU:HD11	39:G:157:PRO:HG3	1.91	0.52
1:3:19:A:H1'	1:3:864:A:C2	2.45	0.52
1:3:112:G:N2	1:3:354:G:H5'	2.02	0.52
1:3:952:U:H2'	1:3:953:G:H8	1.74	0.52
2:1:838:C:H2'	2:1:839:U:H6	1.75	0.52
2:1:1154:G:OP2	21:q:57:ARG:NH2	2.43	0.52
2:1:1229:C:H2'	2:1:1230:A:H8	1.74	0.52
2:1:1268:A:H2'	2:1:1269:A:H8	1.74	0.52
2:1:1767:G:O5'	2:1:1767:G:H8	1.93	0.52
2:1:1864:U:H5''	2:1:2410:G:O2'	2.10	0.52
2:1:2345:G:N3	2:1:2381:A:H2'	2.25	0.52
20:p:15:ASP:N	20:p:15:ASP:OD1	2.39	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:D:3:ARG:O	34:D:6:GLN:NE2	2.40	0.52
35:E:48:MET:SD	35:E:48:MET:N	2.79	0.52
40:H:18:ASN:HA	40:H:55:VAL:HG22	1.91	0.52
54:V:11:VAL:HG23	54:V:55:GLY:H	1.74	0.52
1:3:363:A:H1'	49:Q:28:GLN:HB2	1.92	0.51
1:3:1064:G:O3'	1:3:1065:U:H4'	2.09	0.51
1:3:1188:A:P	46:N:114:LYS:HE3	2.49	0.51
1:3:1400:C:N4	38:6:34:C:H1'	2.26	0.51
2:1:12:U:H2'	2:1:13:A:H5'	1.91	0.51
2:1:25:U:H2'	2:1:26:G:O4'	2.10	0.51
2:1:1255:U:H5	8:d:67:ARG:O	1.94	0.51
2:1:1889:A:H2'	2:1:1890:A:O4'	2.10	0.51
2:1:2276:G:O2'	2:1:2277:G:H5'	2.09	0.51
24:t:61:LEU:HD21	24:t:82:LYS:HD2	1.92	0.51
57:Y:76:ALA:O	57:Y:79:THR:OG1	2.27	0.51
1:3:67:C:H2'	1:3:68:G:C8	2.44	0.51
1:3:153:C:H2'	1:3:154:U:C4'	2.40	0.51
1:3:1421:G:C2'	1:3:1422:G:H4'	2.40	0.51
1:3:1485:U:O2'	1:3:1486:G:H5'	2.10	0.51
1:3:1496:C:H2'	1:3:1497:G:O4'	2.10	0.51
2:1:526:A:N6	2:1:2626:C:H4'	2.25	0.51
2:1:548:G:H2'	2:1:549:G:O4'	2.10	0.51
2:1:838:C:H2'	2:1:839:U:C6	2.44	0.51
2:1:1187:G:O5'	2:1:1187:G:H8	1.94	0.51
2:1:1592:C:H2'	2:1:1593:A:C8	2.45	0.51
2:1:1755:A:P	20:p:102:ARG:HH22	2.34	0.51
2:1:1951:U:C2	2:1:1953:A:OP2	2.63	0.51
11:g:8:LYS:NZ	11:g:11:ASN:O	2.44	0.51
15:k:64:ARG:O	15:k:83:ALA:N	2.42	0.51
16:l:85:VAL:HG22	16:l:86:GLU:HG2	1.92	0.51
19:o:110:ALA:HB1	19:o:115:LEU:HD12	1.92	0.51
41:I:59:LYS:O	41:I:63:ILE:N	2.44	0.51
46:N:33:SER:OG	46:N:34:LEU:N	2.43	0.51
54:V:46:HIS:HB2	54:V:70:LYS:HD3	1.91	0.51
1:3:148:G:H1	1:3:174:A:H61	1.58	0.51
1:3:193:C:H1'	57:Y:54:GLN:HE22	1.76	0.51
1:3:515:G:O2'	1:3:516:U:H5'	2.10	0.51
1:3:731:G:O2'	1:3:732:C:H5'	2.10	0.51
2:1:38:A:H4'	8:d:45:ALA:HB3	1.91	0.51
2:1:178:G:O2'	2:1:179:C:H5'	2.10	0.51
2:1:631:A:H5''	35:E:22:LYS:HZ1	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1409:U:H2'	2:1:1410:G:C8	2.46	0.51
2:1:1410:G:O2'	2:1:1411:U:H5'	2.10	0.51
2:1:1550:C:H2'	2:1:1551:A:C8	2.46	0.51
40:H:134:LYS:NZ	40:H:169:GLU:OE1	2.42	0.51
1:3:1271:A:H4'	1:3:1314:C:OP1	2.10	0.51
1:3:1479:C:H2'	1:3:1480:A:O4'	2.09	0.51
2:1:44:A:H2'	2:1:45:G:H5'	1.93	0.51
2:1:277:G:H4'	2:1:278:A:C8	2.44	0.51
2:1:2082:A:H2'	2:1:2083:G:O4'	2.10	0.51
2:1:2358:A:H2'	2:1:2359:C:O4'	2.11	0.51
7:c:18:ASP:OD1	7:c:18:ASP:N	2.37	0.51
9:e:117:SER:HB3	9:e:177:ARG:HH21	1.75	0.51
19:o:100:HIS:O	19:o:104:GLN:NE2	2.43	0.51
58:Z:27:VAL:HG22	58:Z:31:VAL:HB	1.93	0.51
1:3:284:C:O2'	1:3:285:C:H5'	2.11	0.51
1:3:574:A:N3	1:3:883:C:H1'	2.25	0.51
1:3:967:C:H2'	1:3:968:A:N7	2.26	0.51
1:3:1017:U:H2'	1:3:1018:G:O4'	2.11	0.51
1:3:1406:U:H2'	1:3:1407:C:O4'	2.10	0.51
2:1:216:A:O2'	2:1:217:A:H5'	2.11	0.51
2:1:376:G:H2'	2:1:377:G:H8	1.74	0.51
2:1:745:G:H2'	2:1:746:U:O4'	2.09	0.51
2:1:1055:G:OP2	13:i:4:VAL:HB	2.10	0.51
2:1:2022:U:O2'	2:1:2617:U:H5'	2.10	0.51
6:b:7:PRO:HB3	6:b:13:ARG:HA	1.92	0.51
6:b:31:PRO:HG2	6:b:32:LEU:HD12	1.92	0.51
7:c:133:THR:OG1	7:c:134:HIS:N	2.38	0.51
8:d:1:MET:N	8:d:14:VAL:O	2.35	0.51
40:H:9:ILE:HG13	40:H:177:LEU:HD21	1.92	0.51
42:J:37:VAL:HG11	42:J:113:VAL:HA	1.92	0.51
45:M:9:MET:HE1	45:M:35:ILE:HD13	1.91	0.51
45:M:16:GLY:O	45:M:64:TYR:OH	2.28	0.51
53:U:55:ASP:OD1	53:U:55:ASP:N	2.41	0.51
1:3:379:C:H2'	1:3:380:G:O4'	2.10	0.51
1:3:1084:G:HO2'	1:3:1103:C:H5	1.57	0.51
2:1:243:U:O2'	2:1:244:A:H5'	2.11	0.51
2:1:1651:G:H5'	18:n:39:PRO:CG	2.33	0.51
2:1:1954:G:H1	2:1:1986:C:H5''	1.75	0.51
2:1:2660:A:OP1	5:8:675:LYS:HD2	2.10	0.51
32:B:54:ILE:HG13	32:B:56:LYS:H	1.76	0.51
44:L:92:PRO:C	44:L:95:ARG:HG3	2.36	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:O:54:SER:O	51:S:80:ARG:NH2	2.44	0.51
1:3:876:C:H1'	45:M:11:THR:OG1	2.10	0.51
1:3:894:G:H2'	1:3:895:G:H8	1.75	0.51
1:3:977:A:H2'	1:3:977:A:N3	2.25	0.51
1:3:1225:A:H2'	1:3:1225:A:N3	2.25	0.51
2:1:233:A:H2'	2:1:234:U:H5'	1.92	0.51
2:1:2706:A:O2'	18:n:64:ARG:HD3	2.10	0.51
5:8:295:ILE:HG13	5:8:309:ARG:HB2	1.92	0.51
48:P:22:ILE:HD13	48:P:83:VAL:HG13	1.93	0.51
1:3:1274:A:C2'	1:3:1275:A:H5''	2.40	0.51
2:1:588:U:H1'	8:d:85:PHE:CD1	2.46	0.51
2:1:755:U:H2'	2:1:756:A:H8	1.75	0.51
2:1:2372:U:H2'	2:1:2373:G:C8	2.46	0.51
2:1:2850:A:H2'	2:1:2851:A:O4'	2.11	0.51
3:2:76:G:OP1	26:v:13:GLY:N	2.39	0.51
9:e:32:LYS:O	9:e:156:THR:OG1	2.27	0.51
39:G:16:GLY:O	39:G:202:ASN:ND2	2.43	0.51
1:3:138:G:H2'	1:3:139:A:C8	2.46	0.51
1:3:1350:A:OP1	46:N:122:ARG:NH1	2.43	0.51
1:3:1492:A:OP1	49:Q:42:LYS:HE3	2.10	0.51
2:1:803:U:O2'	2:1:804:A:H5'	2.10	0.51
2:1:1361:G:H2'	2:1:1362:C:H6	1.74	0.51
2:1:1394:U:H4'	2:1:1603:A:H4'	1.92	0.51
2:1:1794:A:H1'	2:1:1900:A:C2	2.46	0.51
11:g:94:ILE:HD12	11:g:99:ILE:HG21	1.93	0.51
16:l:51:GLU:HG3	16:l:56:PRO:HB3	1.93	0.51
39:G:187:ASP:OD1	39:G:187:ASP:N	2.42	0.51
39:G:210:THR:O	39:G:214:GLY:N	2.40	0.51
1:3:903:G:H2'	1:3:904:U:O4'	2.11	0.51
1:3:1516:G:H2'	1:3:1518:A:OP2	2.10	0.51
2:1:125:A:H4'	34:D:13:ASN:HB3	1.93	0.51
2:1:622:G:O2'	2:1:623:C:H5'	2.10	0.51
2:1:676:A:OP1	8:d:58:LYS:HE2	2.11	0.51
2:1:715:A:H5''	52:T:88:ARG:HH22	1.76	0.51
2:1:1042:G:H2'	2:1:1043:C:C6	2.46	0.51
2:1:1216:G:H5''	21:q:10:ARG:NH1	2.25	0.51
2:1:1597:A:H4'	2:1:1598:A:H8	1.76	0.51
28:x:57:VAL:O	28:x:61:LYS:NZ	2.44	0.51
41:I:18:LEU:HB3	41:I:20:LEU:HD22	1.91	0.51
46:N:35:GLU:HA	46:N:39:GLY:HA3	1.92	0.51
50:R:89:ARG:HB3	50:R:96:VAL:HG22	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:Y:4:LYS:HB3	57:Y:6:ALA:H	1.76	0.51
1:3:793:U:O2	1:3:1516:G:H4'	2.11	0.50
1:3:926:G:C2	37:4:15:A:H2'	2.46	0.50
1:3:993:G:N3	1:3:993:G:H2'	2.25	0.50
1:3:1320:C:N4	56:X:35:ARG:HB2	2.25	0.50
1:3:1366:C:OP1	46:N:118:ARG:NH2	2.44	0.50
1:3:1515:G:H2'	1:3:1516:G:C8	2.46	0.50
2:1:341:C:H2'	2:1:342:A:C8	2.46	0.50
2:1:402:A:H2'	2:1:403:U:O4'	2.11	0.50
2:1:871:U:H2'	2:1:872:U:C6	2.46	0.50
2:1:958:U:H2'	3:2:89:U:C1'	2.39	0.50
2:1:994:C:O2'	22:r:10:LYS:HE2	2.11	0.50
2:1:1303:G:H2'	2:1:1304:A:H8	1.75	0.50
2:1:1599:U:H2'	2:1:1600:C:H6	1.74	0.50
2:1:1963:U:C2'	2:1:1964:G:H5''	2.41	0.50
2:1:2121:G:N3	12:a:167:LYS:HB2	2.05	0.50
7:c:59:ARG:O	7:c:59:ARG:NH2	2.37	0.50
20:p:28:LYS:HD3	20:p:82:SER:HB3	1.93	0.50
21:q:62:ALA:O	21:q:66:ALA:N	2.43	0.50
1:3:174:A:C2'	1:3:175:C:H5'	2.40	0.50
1:3:554:A:H2'	1:3:555:U:H5'	1.94	0.50
1:3:1351:U:H3	1:3:1371:G:H1	1.59	0.50
2:1:598:U:H2'	2:1:599:A:H8	1.76	0.50
2:1:839:U:H2'	2:1:840:C:C6	2.47	0.50
2:1:1333:G:H2'	2:1:1334:G:H8	1.75	0.50
2:1:1470:A:H61	2:1:1521:G:H1'	1.75	0.50
2:1:1810:A:H2'	2:1:1811:G:O4'	2.12	0.50
2:1:1903:G:C2	2:1:1904:G:C8	2.98	0.50
2:1:2549:G:H2'	2:1:2550:G:H8	1.76	0.50
3:2:29:A:H2'	3:2:30:C:O4'	2.11	0.50
7:c:177:VAL:HA	7:c:189:VAL:HA	1.93	0.50
58:Z:16:ARG:HG3	58:Z:19:LYS:HB2	1.94	0.50
1:3:135:C:H2'	1:3:136:C:H5'	1.92	0.50
1:3:1012:A:H5'	1:3:1012:A:H8	1.77	0.50
2:1:108:G:O2'	2:1:109:C:H5'	2.11	0.50
2:1:558:U:H2'	2:1:559:G:C8	2.47	0.50
2:1:1210:G:P	2:1:1212:G:H5'	2.51	0.50
2:1:2010:G:H5''	23:s:42:LYS:HB2	1.94	0.50
2:1:2372:U:H2'	2:1:2373:G:H8	1.76	0.50
2:1:2417:C:H2'	2:1:2418:A:H8	1.75	0.50
5:8:105:VAL:HG23	5:8:106:LEU:HD12	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:840:C:C2'	1:3:841:C:H5''	2.41	0.50
1:3:945:G:H2'	1:3:945:G:N3	2.27	0.50
1:3:1251:A:H2'	1:3:1252:A:C8	2.46	0.50
2:1:45:G:C5'	2:1:46:G:H5'	2.25	0.50
2:1:475:C:H4'	2:1:510:C:H5'	1.93	0.50
2:1:533:G:OP1	21:q:24:TYR:N	2.38	0.50
2:1:990:A:N6	2:1:1186:G:H1'	2.27	0.50
2:1:1700:A:H2'	2:1:1701:A:H5'	1.93	0.50
2:1:1934:C:H2'	2:1:1935:G:O4'	2.12	0.50
2:1:1937:A:C3'	2:1:1938:A:H5'	2.41	0.50
2:1:2616:C:H2'	2:1:2617:U:H6	1.76	0.50
2:1:2656:U:H5''	5:8:146:ARG:NH2	2.25	0.50
6:b:24:HIS:CD2	6:b:79:ARG:HH21	2.30	0.50
9:e:139:GLU:OE2	31:A:26:SER:OG	2.28	0.50
15:k:21:CYS:HA	15:k:41:ILE:HA	1.92	0.50
39:G:71:THR:OG1	39:G:72:LYS:N	2.45	0.50
1:3:409:U:H5''	41:I:24:VAL:HG12	1.93	0.50
1:3:1491:G:H4'	49:Q:42:LYS:HZ3	1.75	0.50
2:1:3:U:H2'	2:1:4:U:C6	2.45	0.50
2:1:198:C:O2'	2:1:199:A:H5'	2.12	0.50
2:1:286:U:H2'	2:1:287:G:C8	2.46	0.50
2:1:1664:A:H2	15:k:1:MET:HE1	1.77	0.50
2:1:1754:A:OP1	20:p:93:LYS:HE2	2.11	0.50
2:1:1937:A:C2'	2:1:1938:A:H5'	2.41	0.50
2:1:2272:U:H5''	2:1:2273:A:OP1	2.10	0.50
2:1:2489:U:H2'	2:1:2490:G:O4'	2.11	0.50
4:5:51:A:H2'	4:5:52:G:O4'	2.11	0.50
5:8:446:ARG:O	5:8:459:ALA:N	2.38	0.50
44:L:114:SER:O	44:L:118:ARG:N	2.38	0.50
1:3:62:U:H2'	1:3:63:C:C6	2.46	0.50
1:3:1049:U:H4'	1:3:1050:G:H5''	1.94	0.50
1:3:1230:C:H5'	38:6:30:G:H5''	1.93	0.50
1:3:1254:A:OP1	47:O:47:GLU:HG3	2.12	0.50
2:1:375:G:C2'	2:1:376:G:H5'	2.42	0.50
2:1:458:G:N2	2:1:469:G:H2'	2.27	0.50
2:1:1036:G:H1	2:1:1119:U:H3	1.59	0.50
2:1:1390:U:O2'	2:1:1391:U:H5'	2.11	0.50
2:1:1439:A:H2'	2:1:1440:U:H5'	1.94	0.50
2:1:1686:C:H2'	2:1:1687:G:O4'	2.12	0.50
2:1:2120:G:N3	12:a:167:LYS:HD3	2.25	0.50
2:1:2549:G:H2'	2:1:2550:G:C8	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:8:141:VAL:HB	5:8:266:CYS:HA	1.93	0.50
13:i:21:PRO:HA	13:i:24:GLY:H	1.76	0.50
13:i:30:GLN:HG3	13:i:60:VAL:HG11	1.93	0.50
31:A:36:VAL:HG13	31:A:40:CYS:HB3	1.94	0.50
51:S:9:GLU:HA	51:S:12:ARG:HE	1.76	0.50
51:S:19:TYR:HB3	51:S:23:ARG:HH21	1.77	0.50
1:3:7:A:O2'	1:3:8:A:H5'	2.12	0.50
1:3:162:A:C2	1:3:348:G:H4'	2.47	0.50
1:3:429:U:OP2	41:I:32:LYS:HB3	2.12	0.50
1:3:650:G:H2'	1:3:651:C:C6	2.47	0.50
1:3:738:C:O3'	43:K:68:GLN:NE2	2.44	0.50
1:3:953:G:H2'	1:3:954:G:O4'	2.12	0.50
1:3:1347:G:C8	46:N:108:ARG:HB3	2.47	0.50
1:3:1436:U:H2'	1:3:1437:A:C8	2.45	0.50
2:1:532:A:H2'	2:1:532:A:N3	2.25	0.50
2:1:1266:G:N7	23:s:16:LYS:HE3	2.27	0.50
2:1:1963:U:H2'	2:1:1964:G:H5''	1.93	0.50
2:1:1977:A:H2'	2:1:1978:A:O4'	2.11	0.50
8:d:195:GLN:HE22	8:d:199:MET:HE2	1.77	0.50
10:f:126:THR:OG1	10:f:127:GLN:N	2.44	0.50
15:k:71:ARG:HG3	15:k:77:ILE:HD11	1.92	0.50
33:C:16:THR:OG1	33:C:17:GLY:N	2.44	0.50
39:G:53:LEU:HD11	39:G:215:ALA:HB1	1.93	0.50
46:N:87:MET:HA	46:N:90:ASP:HB3	1.94	0.50
1:3:559:A:H4'	1:3:560:A:H3'	1.94	0.50
1:3:836:G:OP1	55:W:49:LYS:NZ	2.45	0.50
1:3:1231:G:H2'	1:3:1232:U:C6	2.47	0.50
1:3:1329:A:H5''	50:R:24:VAL:HA	1.94	0.50
2:1:1249:U:C5	16:l:18:ARG:NE	2.79	0.50
2:1:1528:A:H2'	2:1:1529:G:C5'	2.40	0.50
2:1:1755:A:C2'	2:1:1756:G:H5'	2.40	0.50
2:1:1917:U:O2'	2:1:1918:A:H5'	2.11	0.50
2:1:2094:A:OP1	11:g:22:LYS:HB2	2.11	0.50
2:1:2102:G:H2'	2:1:2103:C:N1	2.26	0.50
2:1:2297:A:N1	2:1:2321:U:H5	2.09	0.50
2:1:2339:C:H2'	2:1:2340:A:C8	2.45	0.50
2:1:2415:G:H2'	2:1:2416:C:H6	1.75	0.50
3:2:88:C:H4'	3:2:90:C:N3	2.27	0.50
15:k:65:THR:OG1	15:k:66:LYS:N	2.44	0.50
22:r:76:LYS:HZ1	22:r:85:LYS:HE2	1.76	0.50
41:I:160:LEU:HD21	41:I:164:ARG:HH21	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:K:17:GLN:O	43:K:21:MET:N	2.44	0.50
49:Q:45:ASN:OD1	49:Q:45:ASN:N	2.43	0.50
1:3:678:U:H2'	1:3:679:C:O4'	2.11	0.50
1:3:1327:C:O2'	1:3:1328:C:H5'	2.12	0.50
2:1:403:U:O3'	2:1:404:A:H4'	2.11	0.50
2:1:1006:C:O2'	14:j:108:MET:HB3	2.11	0.50
2:1:1289:C:O2'	2:1:1330:C:H4'	2.12	0.50
2:1:2040:G:H2'	2:1:2041:U:O4'	2.11	0.50
2:1:2121:G:N3	12:a:167:LYS:CD	2.68	0.50
2:1:2194:U:H2'	2:1:2195:U:H6	1.77	0.50
2:1:2248:C:H3'	2:1:2249:U:C6	2.46	0.50
2:1:2258:C:OP1	27:w:10:ARG:HD2	2.12	0.50
2:1:2545:G:H2'	2:1:2546:U:O4'	2.11	0.50
8:d:112:LEU:O	8:d:117:ARG:N	2.43	0.50
12:a:43:ASP:N	12:a:215:SER:O	2.45	0.50
17:m:53:MET:HE3	17:m:119:LEU:HB3	1.94	0.50
24:t:34:VAL:HG11	24:t:43:ILE:HD13	1.93	0.50
41:I:12:ARG:HG3	41:I:37:PRO:HG3	1.94	0.50
41:I:96:ARG:NE	41:I:132:ALA:O	2.44	0.50
52:T:27:GLN:HE21	52:T:31:LEU:HG	1.77	0.50
1:3:803:G:H2'	1:3:804:U:C6	2.47	0.49
1:3:860:A:H2'	1:3:861:G:O4'	2.12	0.49
2:1:566:U:C5	22:r:80:ARG:HD3	2.47	0.49
2:1:866:A:H61	2:1:913:U:H1'	1.76	0.49
2:1:1040:A:H2'	2:1:1041:G:C8	2.47	0.49
2:1:1581:G:H2'	2:1:1582:C:O4'	2.12	0.49
2:1:1755:A:H5'	20:p:102:ARG:NH2	2.26	0.49
2:1:2061:G:H2'	2:1:2501:C:HO2'	1.66	0.49
2:1:2124:G:HO2'	12:a:41:SER:CB	2.22	0.49
2:1:2416:C:H2'	2:1:2417:C:C6	2.47	0.49
5:8:169:LEU:HD11	5:8:186:VAL:HG13	1.94	0.49
9:e:129:MET:HG3	9:e:153:ILE:HB	1.94	0.49
10:f:8:VAL:O	10:f:49:LEU:N	2.44	0.49
28:x:2:ARG:CG	28:x:32:LEU:HD12	2.41	0.49
46:N:26:LYS:HG2	46:N:61:ASP:HB2	1.93	0.49
46:N:62:LEU:HD12	46:N:64:ILE:HD11	1.93	0.49
46:N:72:SER:O	46:N:76:GLY:N	2.45	0.49
51:S:1:ALA:N	51:S:66:THR:O	2.46	0.49
54:V:56:ASP:HB3	54:V:80:LYS:HA	1.94	0.49
1:3:269:C:H2'	1:3:270:A:H8	1.77	0.49
1:3:483:C:H3'	1:3:484:G:H5'	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:770:C:O2'	1:3:771:G:H5'	2.12	0.49
2:1:90:U:H1'	2:1:456:C:H42	1.77	0.49
2:1:227:A:O2'	2:1:228:C:H4'	2.11	0.49
2:1:631:A:O2'	16:l:65:GLY:HA2	2.12	0.49
2:1:2235:G:H2'	2:1:2236:U:O4'	2.12	0.49
3:2:42:C:C5	9:e:65:LEU:HD22	2.47	0.49
23:s:10:ALA:N	23:s:101:SER:O	2.43	0.49
27:w:52:ASP:HB2	27:w:54:THR:HG23	1.94	0.49
1:3:83:C:O2'	1:3:84:U:H3'	2.13	0.49
1:3:636:U:H2'	1:3:637:C:C6	2.47	0.49
2:1:123:G:H2'	2:1:124:G:H8	1.77	0.49
2:1:739:A:H8	2:1:739:A:O5'	1.95	0.49
2:1:1984:G:H2'	2:1:1985:C:C6	2.47	0.49
21:q:84:LYS:HB3	21:q:115:ALA:HB1	1.94	0.49
58:Z:19:LYS:O	58:Z:24:LYS:NZ	2.45	0.49
2:1:306:U:H3	2:1:310:A:H62	1.61	0.49
2:1:445:C:H2'	2:1:446:G:H5'	1.94	0.49
2:1:528:A:H8	14:j:116:ARG:HH22	1.60	0.49
2:1:579:G:H4'	2:1:2018:G:H5''	1.94	0.49
2:1:664:G:O2'	2:1:940:G:H5''	2.12	0.49
2:1:1060:U:OP2	13:i:9:LYS:HD3	2.13	0.49
2:1:1424:G:H2'	2:1:1425:G:O4'	2.12	0.49
2:1:1999:C:O2'	2:1:2000:C:H5'	2.13	0.49
2:1:2638:G:H1'	2:1:2778:A:H61	1.78	0.49
4:5:6:A:O2'	4:5:7:G:H5'	2.12	0.49
8:d:23:PHE:H	8:d:114:ARG:HH22	1.61	0.49
49:Q:33:CYS:HA	49:Q:54:VAL:HG22	1.94	0.49
1:3:23:C:H2'	1:3:24:U:C6	2.48	0.49
1:3:972:C:C5'	47:O:59:LYS:HE3	2.41	0.49
1:3:1267:C:H2'	1:3:1268:G:O4'	2.11	0.49
1:3:1354:U:H2'	1:3:1355:G:H8	1.78	0.49
2:1:1216:G:H5''	21:q:10:ARG:HH11	1.78	0.49
5:8:70:ALA:HB3	5:8:84:ILE:HB	1.94	0.49
5:8:530:ASN:ND2	5:8:532:LYS:O	2.45	0.49
13:i:113:ALA:HB2	13:i:121:ILE:HD11	1.94	0.49
38:6:26:G:H3'	38:6:27:U:C5'	2.42	0.49
51:S:78:LEU:HD13	51:S:82:LYS:HB3	1.92	0.49
1:3:184:G:H4'	1:3:224:U:O3'	2.12	0.49
1:3:439:U:H2'	1:3:440:C:O4'	2.12	0.49
2:1:1279:G:OP1	18:n:34:ILE:HA	2.13	0.49
2:1:1366:A:H2'	2:1:1367:A:O4'	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1912:A:N7	2:1:1917:U:H5	2.11	0.49
2:1:2259:U:C5	2:1:2427:C:N4	2.80	0.49
2:1:2513:A:OP1	7:c:160:LYS:HD2	2.12	0.49
2:1:2803:G:H2'	2:1:2804:U:C6	2.48	0.49
2:1:2813:A:H2'	2:1:2814:A:H8	1.78	0.49
5:8:92:HIS:CD2	5:8:464:LEU:HD21	2.47	0.49
5:8:128:ARG:HA	5:8:131:ASN:HD22	1.77	0.49
11:g:80:ILE:HG13	11:g:102:ALA:HB1	1.94	0.49
31:A:8:LYS:O	31:A:27:THR:OG1	2.28	0.49
40:H:20:THR:OG1	40:H:57:GLU:OE1	2.31	0.49
46:N:3:ASN:N	46:N:88:GLU:OE1	2.45	0.49
46:N:8:THR:H	46:N:84:ARG:HB2	1.78	0.49
1:3:25:C:H2'	1:3:26:A:H8	1.77	0.49
1:3:162:A:C2'	1:3:163:C:H5'	2.42	0.49
1:3:570:G:H2'	1:3:571:U:O4'	2.12	0.49
1:3:1290:G:H4'	44:L:34:LYS:HE2	1.94	0.49
2:1:2080:A:C5'	28:x:18:SER:HB2	2.42	0.49
2:1:2807:U:H3	2:1:2891:U:H3	1.61	0.49
5:8:505:HIS:HB3	5:8:596:ALA:HB2	1.95	0.49
11:g:50:ARG:O	11:g:55:GLU:N	2.37	0.49
22:r:8:GLY:HA3	22:r:23:GLU:HG3	1.93	0.49
1:3:17:U:H2'	1:3:18:C:C6	2.48	0.49
1:3:579:A:H2'	1:3:580:C:C6	2.48	0.49
1:3:812:G:OP1	1:3:903:G:H1'	2.12	0.49
1:3:1221:G:O2'	56:X:76:THR:HG21	2.13	0.49
1:3:1339:A:H2'	1:3:1340:A:O4'	2.12	0.49
2:1:157:C:H2'	2:1:158:U:O4'	2.13	0.49
2:1:216:A:H2'	2:1:217:A:O4'	2.11	0.49
2:1:737:C:H2'	2:1:738:G:C8	2.47	0.49
4:5:15:G:OP2	4:5:16:C:H5	1.96	0.49
5:8:603:GLU:O	5:8:607:LYS:NZ	2.41	0.49
21:q:65:ASN:HD21	21:q:69:ARG:HH11	1.61	0.49
23:s:40:ASN:OD1	23:s:40:ASN:N	2.40	0.49
35:E:35:LYS:HE2	35:E:39:ARG:HE	1.76	0.49
37:4:16:A:H2'	37:4:17:U:H6	1.78	0.49
44:L:107:ALA:HB1	44:L:115:MET:HE1	1.94	0.49
47:O:19:ASP:OD1	47:O:19:ASP:N	2.45	0.49
48:P:17:ASP:N	48:P:17:ASP:OD1	2.42	0.49
1:3:505:G:H2'	1:3:506:G:C8	2.47	0.49
1:3:620:C:C2	41:I:131:ILE:HD12	2.47	0.49
2:1:376:G:H2'	2:1:377:G:C8	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:594:U:H2'	2:1:595:C:H6	1.77	0.49
2:1:832:U:H4'	16:l:46:VAL:HG21	1.94	0.49
2:1:1130:U:H5	2:1:2026:U:P	2.35	0.49
2:1:1326:U:H2'	2:1:1327:A:H8	1.78	0.49
2:1:1658:C:O5'	2:1:1658:C:H6	1.95	0.49
2:1:1783:A:N6	2:1:2587:A:N3	2.59	0.49
2:1:2314:A:H2'	2:1:2315:G:C8	2.48	0.49
2:1:2742:G:H5'	36:F:1:MET:CG	2.43	0.49
2:1:2810:A:H62	2:1:2890:G:N2	2.11	0.49
5:8:419:ALA:HA	5:8:457:ILE:HA	1.93	0.49
40:H:38:VAL:O	40:H:42:LEU:N	2.43	0.49
47:O:37:ARG:HG2	47:O:77:VAL:HB	1.93	0.49
1:3:423:G:C2	1:3:424:G:H1'	2.48	0.49
1:3:750:C:C4'	52:T:19:ASN:HB2	2.43	0.49
1:3:1382:C:H3'	1:3:1382:C:O2	2.13	0.49
2:1:93:G:O2'	2:1:94:A:H5'	2.13	0.49
2:1:759:G:O2'	2:1:760:G:H5'	2.13	0.49
2:1:1182:G:H2'	2:1:1183:U:C6	2.48	0.49
2:1:1306:C:O2'	2:1:1307:A:H5'	2.13	0.49
2:1:2716:C:O2'	2:1:2717:C:H5'	2.13	0.49
3:2:53:A:C2	3:2:54:G:H1'	2.47	0.49
15:k:65:THR:HG23	15:k:68:GLY:H	1.78	0.49
44:L:78:ARG:NH1	44:L:82:SER:O	2.46	0.49
51:S:12:ARG:HH22	51:S:60:ARG:H	1.61	0.49
1:3:129:A:O2'	1:3:130:A:H5''	2.13	0.48
1:3:153:C:C2'	1:3:154:U:H5''	2.43	0.48
1:3:599:C:H2'	1:3:600:A:H8	1.77	0.48
1:3:714:G:H2'	1:3:715:A:C8	2.48	0.48
2:1:166:U:H2'	2:1:167:A:H8	1.78	0.48
2:1:404:A:H2	2:1:421:C:N3	2.11	0.48
2:1:511:U:H2'	2:1:512:G:H5'	1.95	0.48
2:1:539:G:H5'	14:j:7:LYS:HE2	1.95	0.48
2:1:779:U:OP2	6:b:48:ILE:HG22	2.13	0.48
2:1:857:G:H5'	27:w:65:PHE:CD1	2.48	0.48
2:1:864:G:O5'	2:1:864:G:H8	1.95	0.48
2:1:1005:C:H2'	2:1:1006:C:H6	1.77	0.48
2:1:1178:C:H2'	2:1:1179:G:C8	2.48	0.48
2:1:1378:A:H1'	2:1:1379:U:C5	2.48	0.48
2:1:1620:G:O2'	2:1:1621:U:H5'	2.13	0.48
2:1:2298:A:H2'	2:1:2299:U:O4'	2.13	0.48
2:1:2751:G:OP2	10:f:2:ARG:HD3	2.12	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2786:U:H2'	2:1:2787:C:C6	2.48	0.48
6:b:15:VAL:HB	6:b:205:GLY:HA3	1.95	0.48
7:c:27:ILE:HD11	7:c:187:LEU:HD23	1.93	0.48
13:i:65:SER:OG	13:i:66:PHE:N	2.46	0.48
17:m:18:ARG:O	17:m:97:GLN:NE2	2.46	0.48
42:J:79:THR:OG1	42:J:121:ASN:ND2	2.46	0.48
1:3:666:G:H5'	1:3:725:G:N2	2.27	0.48
2:1:536:G:H21	14:j:47:HIS:CG	2.31	0.48
2:1:1567:G:OP1	6:b:59:GLN:NE2	2.46	0.48
2:1:2064:C:C2'	2:1:2065:C:C5'	2.91	0.48
5:8:501:VAL:HG11	5:8:604:GLY:CA	2.43	0.48
6:b:146:LYS:HB2	6:b:149:LYS:HB2	1.94	0.48
8:d:2:GLU:HA	8:d:13:THR:HA	1.96	0.48
38:6:36:U:H2'	38:6:37:A:C8	2.48	0.48
39:G:66:ILE:HD11	39:G:161:PHE:HB2	1.96	0.48
40:H:118:SER:O	40:H:121:SER:OG	2.31	0.48
41:I:7:LYS:HB3	41:I:20:LEU:HG	1.94	0.48
42:J:79:THR:OG1	42:J:80:LEU:N	2.44	0.48
48:P:23:HIS:HB3	48:P:30:ILE:HG23	1.96	0.48
1:3:92:U:H2'	1:3:93:U:H5'	1.96	0.48
1:3:174:A:H2'	1:3:175:C:H5'	1.94	0.48
1:3:563:A:H5'	1:3:566:G:C2	2.49	0.48
1:3:1161:C:H2'	1:3:1162:C:H6	1.79	0.48
1:3:1465:A:H2'	1:3:1466:C:C6	2.48	0.48
2:1:1225:G:O2'	2:1:1226:A:H5'	2.13	0.48
2:1:1595:C:H2'	2:1:1596:A:C8	2.48	0.48
2:1:1807:G:H2'	2:1:1808:A:H5'	1.95	0.48
2:1:1952:A:H2'	2:1:1953:A:O4'	2.13	0.48
2:1:2014:A:H5''	23:s:94:ASP:CG	2.38	0.48
3:2:49:C:H2'	3:2:50:A:C8	2.48	0.48
5:8:365:GLN:N	5:8:372:GLU:O	2.38	0.48
14:j:49:ASP:N	14:j:49:ASP:OD1	2.39	0.48
24:t:36:LYS:NZ	24:t:79:ASP:OD2	2.38	0.48
28:x:4:CYS:SG	28:x:5:GLN:N	2.87	0.48
1:3:865:A:H8	1:3:865:A:O5'	1.96	0.48
2:1:441:U:H2'	2:1:442:G:C8	2.49	0.48
2:1:833:A:H2'	2:1:834:G:H8	1.78	0.48
2:1:1333:G:H2'	2:1:1334:G:C8	2.49	0.48
2:1:1444:G:H2'	2:1:1445:G:H8	1.76	0.48
2:1:2521:C:H42	2:1:2544:G:H1	1.61	0.48
2:1:2531:A:H2'	2:1:2532:G:H5'	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:8:73:SER:O	5:8:73:SER:OG	2.29	0.48
41:I:12:ARG:NH1	41:I:36:ALA:O	2.46	0.48
42:J:87:VAL:HA	42:J:92:ARG:HA	1.96	0.48
54:V:4:ILE:HD11	54:V:61:ARG:HD3	1.94	0.48
2:1:189:G:N2	2:1:206:U:C5	2.82	0.48
2:1:704:G:H1'	2:1:726:G:N2	2.27	0.48
2:1:1657:U:H2'	2:1:1658:C:C6	2.48	0.48
2:1:1818:U:H5	6:b:155:ARG:CZ	2.26	0.48
2:1:1924:C:H3'	2:1:1925:C:C5	2.49	0.48
2:1:2450:A:OP1	2:1:2497:A:O2'	2.31	0.48
3:2:3:C:C3'	3:2:4:C:H5''	2.43	0.48
5:8:99:VAL:HG11	5:8:126:VAL:HG12	1.95	0.48
5:8:157:GLN:HE22	5:8:161:ARG:HE	1.61	0.48
5:8:530:ASN:HD22	5:8:532:LYS:HB2	1.78	0.48
23:s:72:THR:OG1	23:s:73:LYS:N	2.45	0.48
24:t:11:LEU:HD21	24:t:50:LEU:HD22	1.95	0.48
24:t:58:VAL:HG22	24:t:85:VAL:HG22	1.95	0.48
38:6:44:A:H4'	50:R:113:LYS:HZ3	1.79	0.48
45:M:4:ASP:OD2	45:M:76:ARG:NH2	2.47	0.48
1:3:153:C:H2'	1:3:154:U:H5''	1.95	0.48
1:3:554:A:C2'	1:3:555:U:H5'	2.43	0.48
1:3:1308:U:H2'	1:3:1309:G:C8	2.49	0.48
2:1:1018:U:H2'	2:1:1019:U:O4'	2.13	0.48
2:1:1103:A:H2'	2:1:1103:A:N3	2.29	0.48
2:1:1463:C:H2'	2:1:1464:G:C8	2.48	0.48
2:1:1675:C:H42	7:c:134:HIS:CD2	2.32	0.48
2:1:2364:C:H2'	2:1:2365:G:O4'	2.13	0.48
14:j:60:ASP:OD1	14:j:60:ASP:N	2.41	0.48
41:I:37:PRO:HD2	41:I:41:GLY:HA3	1.96	0.48
43:K:91:ARG:O	43:K:93:LYS:NZ	2.39	0.48
47:O:64:GLN:HB3	51:S:98:ALA:HB3	1.96	0.48
1:3:193:C:H2'	1:3:194:C:C5	2.48	0.48
1:3:454:G:H2'	1:3:455:G:H8	1.77	0.48
1:3:857:C:H2'	1:3:858:G:O4'	2.14	0.48
1:3:1221:G:H4'	56:X:76:THR:HG21	1.94	0.48
1:3:1274:A:H2'	1:3:1275:A:H5''	1.96	0.48
1:3:1349:A:H2'	1:3:1350:A:O4'	2.13	0.48
2:1:84:A:H5''	25:u:5:ARG:HH11	1.77	0.48
2:1:210:C:H2'	2:1:211:C:C6	2.48	0.48
2:1:459:U:H2'	2:1:460:A:O4'	2.14	0.48
2:1:1343:G:N3	2:1:1343:G:H2'	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1893:C:H2'	2:1:1894:C:O4'	2.13	0.48
2:1:2316:G:O2'	2:1:2317:A:H5'	2.13	0.48
2:1:2514:U:H5''	14:j:81:ILE:HG21	1.94	0.48
2:1:2834:G:H2'	2:1:2879:A:N6	2.29	0.48
24:t:67:VAL:HG12	24:t:76:ARG:HA	1.96	0.48
40:H:67:ILE:N	40:H:101:ASN:O	2.42	0.48
42:J:24:VAL:HG13	42:J:26:GLY:H	1.79	0.48
49:Q:36:VAL:HG13	49:Q:73:LEU:HD11	1.95	0.48
54:V:11:VAL:HA	54:V:22:VAL:HA	1.95	0.48
58:Z:48:LYS:NZ	58:Z:51:ALA:O	2.41	0.48
1:3:1422:G:OP1	15:k:48:PRO:HB3	2.13	0.48
2:1:319:G:H2'	2:1:320:A:O4'	2.13	0.48
2:1:532:A:N1	2:1:2020:A:H1'	2.27	0.48
2:1:806:C:H41	16:l:41:ARG:HG2	1.78	0.48
2:1:999:U:H5''	2:1:1154:G:O6	2.13	0.48
2:1:2121:G:C6	12:a:167:LYS:HE3	2.30	0.48
2:1:2257:U:O2'	2:1:2258:C:H5'	2.14	0.48
2:1:2657:A:H4'	10:f:91:VAL:CG2	2.43	0.48
2:1:2707:U:O2'	18:n:68:ALA:HA	2.13	0.48
5:8:463:GLU:O	5:8:467:ASP:N	2.42	0.48
7:c:49:GLN:HE21	7:c:79:LEU:HB3	1.79	0.48
9:e:132:ARG:NH1	9:e:148:VAL:O	2.46	0.48
25:u:73:ASN:HD22	25:u:76:THR:H	1.60	0.48
28:x:7:THR:HG23	28:x:9:LYS:HG3	1.95	0.48
1:3:211:G:H3'	1:3:211:G:N3	2.29	0.48
1:3:391:G:H5''	53:U:8:ARG:NH1	2.29	0.48
1:3:483:C:C3'	1:3:484:G:H5'	2.44	0.48
2:1:744:U:H5''	2:1:1658:C:H5''	1.96	0.48
2:1:2153:C:H3'	2:1:2154:A:H8	1.79	0.48
2:1:2286:G:H22	33:C:35:LEU:CD2	2.26	0.48
2:1:2491:U:C2'	2:1:2492:U:H5'	2.42	0.48
2:1:2615:U:C4	32:B:2:VAL:O	2.67	0.48
2:1:2828:G:O2'	2:1:2829:A:H5'	2.13	0.48
7:c:12:THR:OG1	7:c:13:ARG:N	2.45	0.48
7:c:61:THR:HB	7:c:63:PRO:HD2	1.96	0.48
7:c:136:ASN:OD1	7:c:139:SER:OG	2.31	0.48
17:m:12:MET:H	17:m:72:PRO:HG2	1.77	0.48
17:m:28:PHE:N	17:m:104:GLU:OE1	2.44	0.48
17:m:61:GLY:HA3	17:m:105:MET:HE1	1.95	0.48
17:m:65:ILE:HG22	17:m:67:VAL:H	1.78	0.48
17:m:111:GLU:HA	17:m:114:ARG:HB3	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:N:97:LEU:O	46:N:102:PHE:N	2.39	0.48
2:1:175:G:H2'	2:1:176:A:C8	2.49	0.48
2:1:413:C:N4	2:1:2410:G:H1	1.96	0.48
2:1:937:C:H2'	2:1:938:G:H8	1.78	0.48
2:1:1265:A:N6	2:1:2013:A:H5''	2.27	0.48
2:1:1993:U:H2'	2:1:1994:C:O4'	2.14	0.48
2:1:2884:U:O2	2:1:2884:U:H3'	2.14	0.48
9:e:134:GLN:NE2	9:e:147:ARG:O	2.41	0.48
30:z:30:ARG:HG2	30:z:33:HIS:HB2	1.94	0.48
1:3:230:G:O2'	1:3:231:U:H5'	2.14	0.47
1:3:316:C:H2'	1:3:317:U:H6	1.79	0.47
1:3:513:C:H2'	1:3:514:C:O4'	2.13	0.47
1:3:1059:C:H2'	1:3:1060:U:C6	2.49	0.47
2:1:671:C:OP1	16:l:43:GLY:N	2.47	0.47
2:1:858:G:H5'	2:1:859:G:OP2	2.14	0.47
2:1:2247:A:H2'	2:1:2248:C:O4'	2.14	0.47
2:1:2556:C:H2'	2:1:2557:G:H5'	1.96	0.47
2:1:2588:G:C6	2:1:2607:G:C2	3.02	0.47
3:2:45:A:H2'	3:2:46:A:O4'	2.13	0.47
4:5:19:G:C2	4:5:57:G:H1'	2.49	0.47
8:d:93:SER:O	8:d:93:SER:OG	2.32	0.47
40:H:30:ASP:N	40:H:30:ASP:OD1	2.46	0.47
43:K:12:PRO:O	43:K:15:SER:OG	2.32	0.47
52:T:74:VAL:HA	52:T:77:TYR:HB3	1.96	0.47
53:U:1:MET:SD	53:U:24:SER:OG	2.64	0.47
55:W:35:SER:OG	55:W:37:LYS:NZ	2.37	0.47
57:Y:34:VAL:HG22	57:Y:49:ALA:HB1	1.95	0.47
1:3:15:G:N3	42:J:23:THR:HG21	2.29	0.47
1:3:325:A:H2'	1:3:326:G:O4'	2.14	0.47
1:3:751:U:C2'	1:3:752:G:H5'	2.44	0.47
1:3:955:U:H2'	1:3:956:U:C6	2.48	0.47
1:3:1414:U:H2'	1:3:1415:G:H8	1.79	0.47
2:1:80:G:H2'	2:1:81:G:C8	2.49	0.47
2:1:153:U:O2'	2:1:154:U:H5'	2.13	0.47
2:1:739:A:H1'	2:1:740:C:H5	1.79	0.47
2:1:1257:C:H5''	8:d:67:ARG:NH2	2.29	0.47
2:1:2600:A:H2'	2:1:2601:C:C6	2.48	0.47
2:1:2654:A:H8	2:1:2654:A:OP1	1.97	0.47
3:2:30:C:H2'	3:2:31:C:H5'	1.95	0.47
5:8:376:GLU:OE1	5:8:378:ARG:NE	2.48	0.47
6:b:250:GLN:HB3	6:b:254:LYS:HD2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:r:4:VAL:HG22	22:r:13:ARG:HA	1.95	0.47
31:A:26:SER:OG	31:A:27:THR:N	2.47	0.47
42:J:83:PRO:HD3	42:J:97:PRO:HG3	1.96	0.47
45:M:102:VAL:HB	45:M:126:CYS:HB3	1.96	0.47
1:3:27:G:H2'	1:3:28:A:C8	2.49	0.47
2:1:387:U:H4'	2:1:388:G:O4'	2.14	0.47
2:1:445:C:O2	2:1:450:G:H1'	2.13	0.47
2:1:864:G:P	17:m:22:GLN:HE21	2.36	0.47
2:1:1070:A:C2	13:i:10:LEU:HD11	2.41	0.47
2:1:2080:A:H5'	28:x:18:SER:HB2	1.96	0.47
2:1:2143:C:H3'	2:1:2144:G:C8	2.50	0.47
12:a:193:LEU:O	12:a:197:LYS:N	2.42	0.47
43:K:4:TYR:N	43:K:64:VAL:O	2.46	0.47
48:P:83:VAL:HG11	48:P:96:ILE:HG12	1.95	0.47
1:3:940:C:P	44:L:101:ARG:HH22	2.37	0.47
1:3:1093:A:H2'	1:3:1094:G:H5'	1.96	0.47
1:3:1268:G:H21	1:3:1327:C:H1'	1.80	0.47
2:1:340:A:C2'	2:1:341:C:H5'	2.43	0.47
2:1:367:G:H2'	2:1:368:A:O4'	2.14	0.47
2:1:524:G:O2'	2:1:525:U:H5'	2.14	0.47
2:1:1595:C:H2'	2:1:1596:A:H8	1.79	0.47
2:1:1810:A:H2'	2:1:1811:G:H5'	1.95	0.47
5:8:22:GLY:N	59:8:801:GDP:O1B	2.47	0.47
5:8:136:PRO:HB3	5:8:256:VAL:HG12	1.97	0.47
7:c:8:LYS:HB2	7:c:201:LEU:HD11	1.96	0.47
9:e:22:ASN:ND2	9:e:26:GLN:OE1	2.48	0.47
13:i:75:ALA:HA	13:i:78:LEU:HB2	1.95	0.47
16:l:30:THR:O	16:l:33:ARG:N	2.46	0.47
39:G:100:LEU:HD11	39:G:160:LEU:HD13	1.95	0.47
44:L:91:ARG:HG2	44:L:91:ARG:HH11	1.78	0.47
55:W:32:ILE:HD12	55:W:36:GLY:HA2	1.95	0.47
1:3:792:A:H4'	1:3:793:U:H5''	1.95	0.47
2:1:145:C:H2'	2:1:146:A:C8	2.49	0.47
2:1:341:C:H2'	2:1:342:A:H8	1.79	0.47
2:1:881:G:H1	2:1:895:U:H3	1.61	0.47
2:1:1710:G:H2'	2:1:1711:A:C8	2.49	0.47
6:b:210:ALA:HA	6:b:213:ARG:HG3	1.96	0.47
45:M:63:LYS:HG2	45:M:70:VAL:HG21	1.95	0.47
1:3:343:U:O2'	1:3:344:A:H2'	2.14	0.47
1:3:673:A:O3'	43:K:86:ARG:NH2	2.48	0.47
1:3:1253:G:H2'	1:3:1254:A:H8	1.78	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:435:C:H2'	2:1:436:C:C5'	2.37	0.47
2:1:566:U:H5	22:r:80:ARG:HD3	1.80	0.47
2:1:745:G:OP2	7:c:138:LEU:HD11	2.14	0.47
2:1:1095:A:C8	5:8:632:ILE:HD11	2.49	0.47
2:1:1414:C:H2'	2:1:1415:U:H5'	1.95	0.47
2:1:1810:A:C2'	2:1:1811:G:H5'	2.44	0.47
2:1:1818:U:C5	6:b:155:ARG:NH1	2.81	0.47
2:1:1820:U:C5	6:b:158:GLY:HA3	2.50	0.47
2:1:1933:G:H2'	2:1:1934:C:H6	1.80	0.47
2:1:2515:C:O2'	2:1:2516:A:H5'	2.15	0.47
2:1:2876:G:OP1	20:p:1:SER:N	2.44	0.47
3:2:77:U:H5''	26:v:21:ARG:HH12	1.80	0.47
5:8:305:THR:O	5:8:305:THR:OG1	2.33	0.47
12:a:43:ASP:OD1	12:a:174:THR:OG1	2.32	0.47
14:j:7:LYS:HG2	14:j:10:THR:HG23	1.97	0.47
33:C:8:ILE:HD11	33:C:50:GLU:HB2	1.96	0.47
47:O:36:VAL:HG22	47:O:38:GLY:H	1.80	0.47
1:3:138:G:H2'	1:3:139:A:H8	1.79	0.47
1:3:1161:C:H2'	1:3:1162:C:C6	2.50	0.47
1:3:1251:A:H2'	1:3:1252:A:H8	1.79	0.47
1:3:1328:C:H5''	50:R:27:THR:HG22	1.96	0.47
1:3:1435:G:H1	1:3:1466:C:H42	1.62	0.47
1:3:1441:A:N3	1:3:1441:A:H2'	2.30	0.47
1:3:1465:A:H2'	1:3:1466:C:H6	1.80	0.47
1:3:1478:U:H2'	1:3:1479:C:C6	2.49	0.47
2:1:864:G:OP1	17:m:22:GLN:NE2	2.47	0.47
2:1:1209:U:H2'	2:1:1210:G:H21	1.80	0.47
2:1:1258:U:H2'	2:1:1259:G:C8	2.48	0.47
2:1:1587:G:H2'	2:1:1588:G:C8	2.50	0.47
2:1:1680:U:H2'	2:1:1681:G:C5'	2.40	0.47
2:1:1779:U:H5	2:1:1784:A:C8	2.32	0.47
2:1:1856:U:H2'	2:1:1857:G:O4'	2.15	0.47
2:1:2248:C:C2'	2:1:2249:U:H5'	2.44	0.47
3:2:51:G:N3	3:2:52:A:H1'	2.30	0.47
5:8:488:VAL:HG12	5:8:660:LEU:HD22	1.97	0.47
5:8:494:ILE:HG21	5:8:605:PHE:CD1	2.50	0.47
5:8:533:GLY:HA3	5:8:572:VAL:HG22	1.97	0.47
9:e:21:TYR:OH	9:e:164:GLU:OE1	2.31	0.47
29:y:43:LEU:HD21	29:y:47:ARG:HH11	1.79	0.47
34:D:24:THR:HG23	34:D:27:GLY:H	1.78	0.47
39:G:115:ASP:OD1	39:G:115:ASP:N	2.42	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:G:132:GLU:OE2	39:G:136:ARG:NE	2.47	0.47
40:H:51:VAL:HA	40:H:69:THR:HA	1.97	0.47
44:L:66:GLU:HA	44:L:69:ARG:HG3	1.96	0.47
44:L:140:VAL:O	44:L:144:ALA:N	2.46	0.47
46:N:30:ASN:N	46:N:64:ILE:O	2.48	0.47
48:P:24:ALA:N	48:P:86:LYS:O	2.39	0.47
51:S:96:LYS:HZ2	51:S:97:LYS:H	1.63	0.47
2:1:215:G:O3'	2:1:216:A:H4'	2.15	0.47
2:1:433:C:O2'	2:1:434:U:H5'	2.15	0.47
2:1:821:A:H5''	2:1:822:G:C8	2.49	0.47
2:1:1321:A:C2	2:1:1322:A:H1'	2.50	0.47
2:1:1900:A:H5'	2:1:1970:A:H5'	1.96	0.47
2:1:2102:G:C6	2:1:2103:C:C4	3.03	0.47
2:1:2475:C:H2'	2:1:2476:A:H5'	1.97	0.47
2:1:2682:A:O2'	2:1:2683:C:H5'	2.14	0.47
2:1:2741:A:H61	2:1:2763:G:H1'	1.80	0.47
4:5:6:A:C2'	4:5:7:G:H5'	2.45	0.47
5:8:24:THR:HG21	5:8:62:THR:HG21	1.97	0.47
5:8:425:LYS:NZ	49:Q:76:HIS:O	2.45	0.47
8:d:178:VAL:HA	8:d:181:ILE:HG22	1.95	0.47
40:H:147:GLY:HA2	40:H:170:GLY:HA3	1.97	0.47
1:3:128:G:H2'	1:3:129:A:H8	1.76	0.47
1:3:344:A:OP1	5:8:38:HIS:NE2	2.48	0.47
1:3:835:U:C3'	1:3:836:G:H5''	2.45	0.47
1:3:951:G:H2'	1:3:952:U:H6	1.79	0.47
2:1:912:C:O2'	2:1:913:U:H5'	2.15	0.47
2:1:2276:G:C2'	2:1:2277:G:H5'	2.44	0.47
2:1:2531:A:C2'	2:1:2532:G:H5'	2.45	0.47
2:1:2597:G:H5''	6:b:240:GLY:HA2	1.97	0.47
5:8:319:ALA:HB3	5:8:397:LEU:HB2	1.96	0.47
5:8:444:SER:O	5:8:444:SER:OG	2.31	0.47
5:8:498:VAL:HG22	5:8:499:THR:H	1.79	0.47
24:t:89:GLU:OE1	24:t:91:GLN:NE2	2.48	0.47
40:H:39:ARG:HA	40:H:42:LEU:HB3	1.97	0.47
56:X:39:ILE:HD11	56:X:70:LEU:HD23	1.96	0.47
1:3:545:C:O2'	1:3:546:A:H5'	2.14	0.47
2:1:443:A:H2	2:1:1246:A:H1'	1.78	0.47
2:1:575:A:OP2	2:1:2055:C:C4	2.67	0.47
2:1:866:A:H61	2:1:913:U:C1'	2.28	0.47
2:1:1136:G:H2'	2:1:1137:G:H8	1.80	0.47
2:1:1580:A:H2'	2:1:1581:G:O4'	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2721:A:H2'	2:1:2722:G:O4'	2.14	0.47
3:2:116:G:O2'	3:2:117:G:H5'	2.15	0.47
13:i:79:LEU:HD22	13:i:131:THR:HG23	1.97	0.47
18:n:40:LYS:O	18:n:44:LEU:N	2.48	0.47
41:I:103:ARG:HD2	41:I:167:PRO:HG3	1.96	0.47
1:3:701:U:O4'	1:3:703:G:H1'	2.14	0.46
1:3:1096:C:H2'	1:3:1097:C:H6	1.80	0.46
2:1:536:G:H21	14:j:47:HIS:CD2	2.32	0.46
2:1:593:U:H2'	2:1:594:U:C6	2.49	0.46
2:1:636:G:O6	16:l:109:LYS:HB3	2.15	0.46
2:1:696:G:O2'	2:1:697:G:H5'	2.15	0.46
2:1:1153:C:H2'	2:1:1154:G:O4'	2.15	0.46
2:1:2262:U:H2'	2:1:2263:C:H6	1.71	0.46
5:8:17:ALA:H	5:8:23:LYS:HZ3	1.64	0.46
39:G:53:LEU:HA	39:G:56:LEU:HB2	1.96	0.46
39:G:72:LYS:HZ2	39:G:74:ALA:HB3	1.79	0.46
43:K:73:GLU:O	43:K:76:THR:OG1	2.31	0.46
47:O:15:HIS:HA	47:O:18:ILE:HG22	1.96	0.46
50:R:74:MET:HB3	50:R:74:MET:HE2	1.84	0.46
1:3:1448:C:O2	1:3:1448:C:H2'	2.15	0.46
2:1:1058:U:H5'	13:i:7:TYR:CE2	2.49	0.46
2:1:1485:U:H2'	2:1:1486:U:C6	2.50	0.46
2:1:2064:C:HO2'	2:1:2065:C:H5'	1.72	0.46
5:8:420:VAL:HB	5:8:458:ILE:HD11	1.97	0.46
15:k:89:ASN:N	15:k:89:ASN:OD1	2.45	0.46
17:m:43:ALA:HB2	17:m:69:PRO:HG3	1.96	0.46
32:B:37:HIS:HB3	32:B:43:THR:HG22	1.97	0.46
1:3:1015:G:H2'	1:3:1016:A:O4'	2.14	0.46
1:3:1084:G:O2'	1:3:1103:C:H5	1.98	0.46
2:1:45:G:H5''	2:1:46:G:C5'	2.25	0.46
2:1:118:A:H5'	2:1:119:A:H8	1.79	0.46
2:1:786:C:O2'	2:1:787:C:H5'	2.16	0.46
2:1:940:G:H2'	2:1:941:A:H5''	1.97	0.46
2:1:1085:A:H2'	2:1:1086:A:N7	2.30	0.46
2:1:1196:C:O2'	2:1:1197:G:H5'	2.16	0.46
2:1:1322:A:H4'	23:s:82:MET:HE1	1.97	0.46
12:a:53:ARG:CZ	38:6:62:C:H5'	2.45	0.46
13:i:44:LYS:HE2	13:i:44:LYS:HB2	1.84	0.46
33:C:5:ARG:NH2	33:C:23:THR:O	2.47	0.46
48:P:25:SER:HG	48:P:28:ASN:H	1.63	0.46
1:3:980:C:H2'	1:3:981:U:O4'	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1858:A:N6	2:1:1884:G:O2'	2.48	0.46
2:1:2055:C:H5'	2:1:2056:G:O5'	2.15	0.46
2:1:2102:G:C5	2:1:2103:C:N3	2.82	0.46
2:1:2135:A:H8	2:1:2156:G:H21	1.63	0.46
2:1:2657:A:H4'	10:f:91:VAL:HG21	1.98	0.46
2:1:2666:C:N4	10:f:107:GLY:O	2.47	0.46
4:5:36:G:H2'	4:5:37:G:O4'	2.16	0.46
5:8:268:SER:N	5:8:273:LYS:O	2.45	0.46
6:b:86:ARG:HB3	6:b:88:ALA:H	1.80	0.46
10:f:88:LEU:HB3	10:f:128:THR:HA	1.97	0.46
40:H:12:GLY:N	40:H:15:LYS:O	2.35	0.46
43:K:18:VAL:HG13	43:K:19:PRO:HD3	1.97	0.46
1:3:556:C:O2'	1:3:557:G:H5'	2.16	0.46
1:3:962:C:H1'	1:3:1201:A:C6	2.51	0.46
1:3:994:A:H3'	1:3:994:A:OP2	2.15	0.46
1:3:1062:U:O4	40:H:2:GLN:NE2	2.48	0.46
2:1:674:G:OP2	8:d:49:ARG:NH1	2.48	0.46
2:1:820:A:O2'	2:1:821:A:H5'	2.15	0.46
2:1:824:U:H2'	2:1:825:A:O4'	2.15	0.46
2:1:845:A:N3	2:1:845:A:H3'	2.31	0.46
2:1:1642:G:O2'	2:1:1643:G:H5'	2.15	0.46
2:1:1842:G:O2'	2:1:1843:C:H5'	2.15	0.46
2:1:1943:U:OP1	2:1:1943:U:H6	1.98	0.46
5:8:42:GLU:HG2	59:8:801:GDP:H3'	1.97	0.46
8:d:131:THR:HA	8:d:134:LEU:HB3	1.97	0.46
30:z:18:LYS:O	30:z:22:THR:OG1	2.31	0.46
45:M:86:LYS:HD2	45:M:86:LYS:HA	1.73	0.46
46:N:56:MET:HB2	46:N:60:LEU:HB2	1.97	0.46
57:Y:79:THR:HA	57:Y:82:ILE:HB	1.97	0.46
1:3:667:G:H4'	52:T:50:HIS:ND1	2.31	0.46
1:3:1486:G:H2'	1:3:1487:G:O4'	2.15	0.46
2:1:141:G:C8	2:1:142:A:H1'	2.51	0.46
2:1:233:A:H5'	2:1:233:A:C8	2.50	0.46
2:1:903:C:H2'	2:1:904:G:H8	1.81	0.46
2:1:1572:A:O2'	2:1:1573:G:H5'	2.15	0.46
2:1:1790:C:H2'	2:1:1791:A:C5	2.51	0.46
2:1:2073:C:O5'	2:1:2073:C:H6	1.99	0.46
2:1:2365:G:H5'	27:w:56:PHE:HE1	1.80	0.46
2:1:2367:G:O2'	2:1:2368:C:H5'	2.15	0.46
2:1:2457:U:O2'	2:1:2458:G:H5'	2.15	0.46
5:8:584:HIS:ND1	5:8:587:ASP:O	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:8:618:LYS:N	5:8:683:GLU:O	2.49	0.46
17:m:27:SER:H	17:m:104:GLU:CD	2.24	0.46
24:t:49:LYS:HA	24:t:49:LYS:HD2	1.75	0.46
39:G:191:ASP:OD1	39:G:191:ASP:N	2.39	0.46
40:H:32:LEU:HD21	51:S:78:LEU:HD11	1.97	0.46
41:I:140:ASP:O	41:I:181:PHE:N	2.46	0.46
1:3:528:C:H4'	1:3:535:A:C6	2.51	0.46
1:3:1000:A:H2'	1:3:1001:C:O4'	2.15	0.46
2:1:393:C:H2'	2:1:394:C:H6	1.81	0.46
2:1:1414:C:H42	2:1:1588:G:H1	1.62	0.46
2:1:1826:G:H2'	2:1:1827:U:C6	2.50	0.46
2:1:1841:U:H2'	2:1:1842:G:C8	2.51	0.46
2:1:2134:A:C5	2:1:2157:G:H4'	2.51	0.46
2:1:2259:U:C6	2:1:2427:C:C5	3.04	0.46
2:1:2676:C:P	15:k:31:ARG:HH12	2.39	0.46
33:C:6:GLU:HG2	33:C:26:LYS:HD3	1.96	0.46
40:H:49:ALA:O	40:H:69:THR:OG1	2.34	0.46
47:O:36:VAL:HA	47:O:76:ILE:HA	1.98	0.46
48:P:115:ILE:HD12	48:P:116:PRO:HD2	1.98	0.46
51:S:2:LYS:HG2	51:S:4:SER:H	1.81	0.46
1:3:563:A:H2	49:Q:11:ARG:NH1	2.13	0.46
1:3:1152:A:H5'	47:O:15:HIS:CG	2.51	0.46
1:3:1382:C:H2'	1:3:1383:C:C6	2.50	0.46
2:1:175:G:H2'	2:1:176:A:H8	1.81	0.46
2:1:388:G:H2'	2:1:390:U:H5	1.81	0.46
2:1:680:C:H42	2:1:797:G:H1	1.63	0.46
2:1:1024:G:O5'	2:1:1025:G:H5''	2.16	0.46
2:1:1388:G:H2'	2:1:1389:G:C8	2.50	0.46
2:1:1868:C:C2'	2:1:1869:G:H5'	2.42	0.46
2:1:2102:G:N7	2:1:2103:C:C4	2.84	0.46
2:1:2646:C:H2'	2:1:2647:U:O4'	2.16	0.46
2:1:2695:U:H2'	2:1:2696:U:C6	2.51	0.46
2:1:2785:C:H2'	2:1:2786:U:C6	2.51	0.46
5:8:330:VAL:HG11	5:8:386:ILE:HD11	1.96	0.46
9:e:31:GLU:HG2	9:e:32:LYS:H	1.80	0.46
11:g:30:LEU:HA	11:g:35:LYS:HE3	1.97	0.46
11:g:98:ASP:O	11:g:102:ALA:N	2.49	0.46
16:l:29:LYS:HA	16:l:29:LYS:HD2	1.71	0.46
17:m:42:THR:N	17:m:45:GLN:OE1	2.40	0.46
20:p:28:LYS:HB2	20:p:82:SER:H	1.81	0.46
23:s:82:MET:HB2	23:s:98:LYS:HB2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:Q:34:THR:HG22	49:Q:76:HIS:CD2	2.51	0.46
1:3:253:A:H4'	1:3:276:G:O2'	2.15	0.46
1:3:433:G:H2'	1:3:434:U:C6	2.51	0.46
1:3:552:U:H4'	49:Q:83:GLY:H	1.80	0.46
1:3:750:C:H1'	52:T:19:ASN:O	2.16	0.46
1:3:859:G:O2'	1:3:860:A:H5'	2.15	0.46
1:3:1170:A:H2'	1:3:1171:A:H5'	1.97	0.46
1:3:1292:G:H5''	46:N:40:ARG:NE	2.31	0.46
2:1:15:G:O2'	32:B:14:MET:HG2	2.16	0.46
2:1:44:A:C2'	2:1:45:G:H5'	2.45	0.46
2:1:451:U:OP2	8:d:47:LYS:HG2	2.15	0.46
2:1:1069:A:H2'	2:1:1073:A:C5	2.51	0.46
2:1:1470:A:N6	2:1:1521:G:H1'	2.31	0.46
2:1:1569:A:H2'	2:1:1570:A:C8	2.51	0.46
2:1:1614:A:C2'	2:1:1615:C:H5'	2.46	0.46
2:1:1663:G:O2'	2:1:1664:A:H8	1.98	0.46
2:1:1979:U:O5'	2:1:1979:U:H6	1.99	0.46
2:1:2041:U:H2'	2:1:2042:A:H8	1.81	0.46
2:1:2751:G:O2'	2:1:2752:C:H5'	2.16	0.46
3:2:16:G:N2	3:2:69:G:H1'	2.31	0.46
5:8:422:PRO:HG3	5:8:428:GLN:HB2	1.97	0.46
5:8:514:GLN:NE2	5:8:514:GLN:HA	2.31	0.46
5:8:600:ALA:HA	5:8:603:GLU:HB2	1.98	0.46
9:e:61:GLY:H	31:A:9:TYR:HE1	1.63	0.46
17:m:46:ILE:O	17:m:50:ARG:N	2.45	0.46
37:4:16:A:H2'	37:4:17:U:C6	2.50	0.46
39:G:89:PHE:HB3	39:G:150:ILE:HD12	1.98	0.46
42:J:88:HIS:HB3	42:J:134:ASN:HD21	1.81	0.46
44:L:79:VAL:O	44:L:79:VAL:HG12	2.16	0.46
46:N:16:ALA:HA	46:N:66:VAL:HA	1.98	0.46
51:S:41:TRP:HZ2	56:X:10:ILE:HG22	1.80	0.46
56:X:32:THR:O	56:X:56:HIS:NE2	2.45	0.46
1:3:10:A:H2'	1:3:11:G:C8	2.51	0.46
1:3:271:C:H2'	1:3:272:C:C6	2.51	0.46
1:3:280:C:H5''	1:3:281:G:OP2	2.16	0.46
1:3:563:A:H2	49:Q:11:ARG:HH11	1.64	0.46
1:3:782:A:O3'	1:3:1515:G:H4'	2.16	0.46
1:3:1173:U:H2'	1:3:1174:G:C8	2.48	0.46
1:3:1458:G:H4'	57:Y:22:SER:HB2	1.98	0.46
2:1:84:A:H5''	25:u:5:ARG:NH1	2.31	0.46
2:1:245:G:N7	35:E:7:ARG:NH2	2.63	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:742:A:O2'	2:1:743:A:H5'	2.16	0.46
2:1:1667:G:N3	2:1:1991:U:C5	2.84	0.46
2:1:2683:C:O2'	20:p:74:GLN:NE2	2.49	0.46
2:1:2861:U:O2'	2:1:2862:G:H5'	2.15	0.46
5:8:211:MET:HE2	5:8:211:MET:HB3	1.63	0.46
8:d:22:ASP:OD1	8:d:22:ASP:N	2.48	0.46
10:f:41:GLU:N	10:f:52:GLY:O	2.49	0.46
10:f:85:LYS:HE2	10:f:129:GLU:HB3	1.97	0.46
22:r:38:VAL:HG21	22:r:57:GLY:HA3	1.97	0.46
28:x:12:VAL:O	28:x:27:ARG:HA	2.16	0.46
44:L:91:ARG:HG2	44:L:91:ARG:NH1	2.30	0.46
50:R:23:GLY:HA2	50:R:68:LEU:HD13	1.97	0.46
1:3:631:C:H5''	1:3:632:U:O4'	2.15	0.45
1:3:642:A:N3	45:M:104:SER:OG	2.48	0.45
1:3:831:A:H5''	39:G:20:ARG:HD2	1.98	0.45
2:1:918:A:H4'	3:2:97:C:O2	2.16	0.45
2:1:1086:A:H1'	2:1:1103:A:H2	1.81	0.45
2:1:1087:G:H1	2:1:1102:C:H42	1.64	0.45
2:1:1177:G:C2'	2:1:1178:C:H5''	2.46	0.45
2:1:1565:C:O2'	2:1:1566:A:H2'	2.16	0.45
2:1:1639:C:H2'	2:1:1640:A:H5'	1.98	0.45
2:1:1695:G:H2'	2:1:1696:G:O4'	2.15	0.45
2:1:2643:G:O2'	2:1:2644:G:H5'	2.16	0.45
22:r:49:ILE:HG22	22:r:54:VAL:HG22	1.98	0.45
40:H:10:ARG:HA	40:H:13:ILE:HD11	1.97	0.45
42:J:161:GLU:HA	42:J:164:LEU:HD12	1.97	0.45
44:L:14:ASP:OD1	44:L:43:TYR:OH	2.24	0.45
1:3:113:G:O2'	1:3:353:A:H4'	2.16	0.45
1:3:962:C:H42	1:3:973:G:H1	1.64	0.45
1:3:1018:G:O2'	1:3:1019:A:H5'	2.16	0.45
1:3:1397:C:N4	37:4:22:A:H2'	2.31	0.45
2:1:107:G:H2'	2:1:108:G:C8	2.51	0.45
2:1:817:C:O2'	2:1:839:U:H5''	2.16	0.45
2:1:928:A:O2'	30:z:37:ARG:NH1	2.50	0.45
2:1:952:G:H3'	2:1:953:G:H5''	1.98	0.45
2:1:1568:G:OP1	6:b:84:PRO:HG3	2.16	0.45
2:1:2080:A:C6	2:1:2081:U:C4	3.04	0.45
2:1:2537:U:H2'	2:1:2538:C:H6	1.78	0.45
2:1:2869:G:H2'	2:1:2870:C:O4'	2.16	0.45
5:8:474:LYS:HD3	5:8:474:LYS:HA	1.72	0.45
5:8:627:ASN:OD1	5:8:627:ASN:N	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:e:35:LEU:HB2	9:e:88:VAL:HG12	1.98	0.45
29:y:10:SER:HA	29:y:13:GLU:HB3	1.98	0.45
36:F:28:SER:OG	36:F:29:ALA:N	2.50	0.45
47:O:68:ARG:HD3	47:O:68:ARG:HA	1.68	0.45
47:O:70:HIS:HD2	47:O:72:ARG:HH22	1.64	0.45
48:P:86:LYS:HG3	48:P:114:PRO:HD3	1.98	0.45
1:3:131:A:H2'	1:3:132:C:C6	2.51	0.45
1:3:556:C:H2'	1:3:557:G:O4'	2.15	0.45
1:3:1104:G:H2'	1:3:1105:A:O4'	2.17	0.45
1:3:1121:U:H2'	1:3:1122:U:C6	2.51	0.45
1:3:1148:U:H5'	46:N:6:TYR:OH	2.16	0.45
1:3:1361:G:H2'	1:3:1362:A:O4'	2.16	0.45
2:1:95:A:H4'	29:y:38:GLN:O	2.16	0.45
2:1:397:U:O5'	2:1:397:U:H6	2.00	0.45
2:1:1655:A:H4'	7:c:119:ALA:C	2.40	0.45
2:1:2102:G:C2	2:1:2103:C:C2	3.04	0.45
2:1:2248:C:H3'	2:1:2249:U:H6	1.82	0.45
3:2:6:G:O2'	3:2:7:G:H5'	2.17	0.45
5:8:194:ASN:ND2	5:8:198:GLN:O	2.49	0.45
10:f:94:ARG:HA	10:f:127:GLN:HB2	1.99	0.45
13:i:52:LEU:HD13	13:i:77:VAL:HG13	1.97	0.45
36:F:8:LYS:HD2	36:F:8:LYS:HA	1.80	0.45
42:J:73:VAL:HG11	42:J:143:LEU:HD13	1.97	0.45
43:K:51:ILE:HD12	43:K:86:ARG:HH21	1.82	0.45
53:U:4:ILE:HD13	53:U:21:VAL:HA	1.98	0.45
53:U:5:ARG:NH1	53:U:26:ASN:O	2.43	0.45
57:Y:60:GLN:HA	57:Y:63:LYS:HD2	1.98	0.45
1:3:37:U:C5'	49:Q:120:ARG:HG2	2.47	0.45
2:1:365:U:H2'	2:1:366:C:O4'	2.16	0.45
2:1:642:U:H2'	2:1:644:A:OP2	2.16	0.45
2:1:2560:A:O2'	2:1:2561:U:H5'	2.17	0.45
2:1:2599:G:H2'	2:1:2600:A:H8	1.80	0.45
2:1:2680:U:C5'	7:c:194:PRO:HA	2.46	0.45
5:8:520:ILE:HD12	5:8:576:ILE:HD11	1.98	0.45
10:f:136:ASP:HB3	10:f:139:VAL:HG12	1.97	0.45
14:j:57:LEU:HD11	14:j:130:HIS:HD2	1.82	0.45
43:K:11:HIS:HB3	43:K:14:GLN:HB2	1.99	0.45
46:N:72:SER:HA	46:N:75:ALA:HB3	1.98	0.45
1:3:250:A:O4'	1:3:252:U:H1'	2.15	0.45
1:3:569:C:H4'	1:3:574:A:N7	2.31	0.45
1:3:771:G:H2'	1:3:772:U:C6	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:1069:C:H4'	1:3:1192:C:O2	2.16	0.45
1:3:1320:C:C2	56:X:71:GLY:HA3	2.51	0.45
2:1:139:U:H2'	2:1:140:C:C5	2.49	0.45
2:1:233:A:H5'	2:1:233:A:H8	1.81	0.45
2:1:441:U:H2'	2:1:442:G:H8	1.81	0.45
2:1:704:G:N3	2:1:726:G:C2	2.84	0.45
2:1:776:G:C8	2:1:793:A:C2	3.05	0.45
2:1:2138:G:N1	2:1:2154:A:O2'	2.47	0.45
2:1:2884:U:H1'	32:B:49:ARG:NH2	2.32	0.45
5:8:369:ASN:OD1	5:8:369:ASN:N	2.48	0.45
15:k:61:VAL:O	15:k:85:VAL:N	2.47	0.45
1:3:347:G:H2'	1:3:348:G:O4'	2.17	0.45
1:3:437:U:C2'	1:3:438:U:H5'	2.46	0.45
1:3:1423:G:H1	1:3:1477:U:H3	1.65	0.45
2:1:368:A:C2'	2:1:369:U:H5'	2.47	0.45
2:1:468:G:C2'	2:1:469:G:H5'	2.46	0.45
2:1:690:G:H2'	2:1:691:C:H5'	1.98	0.45
2:1:1818:U:C5	6:b:155:ARG:CZ	2.99	0.45
2:1:2190:G:H2'	2:1:2191:A:O4'	2.16	0.45
6:b:6:LYS:HD2	6:b:7:PRO:HD2	1.98	0.45
8:d:153:LEU:HD11	8:d:158:PHE:HB2	1.98	0.45
24:t:8:LEU:HD13	29:y:21:LEU:HB3	1.99	0.45
26:v:7:GLU:HG3	26:v:41:GLU:HB3	1.97	0.45
34:D:1:MET:HE3	34:D:3:ARG:HH21	1.80	0.45
40:H:68:HIS:HE2	40:H:105:VAL:HB	1.81	0.45
42:J:156:ARG:NH1	45:M:98:LEU:O	2.49	0.45
44:L:91:ARG:O	44:L:92:PRO:C	2.59	0.45
49:Q:42:LYS:HA	49:Q:42:LYS:HD2	1.79	0.45
2:1:162:U:H6	2:1:163:C:H5	1.65	0.45
2:1:1432:G:H2'	2:1:1433:A:C8	2.52	0.45
2:1:2529:G:OP2	10:f:171:LYS:NZ	2.40	0.45
5:8:13:ILE:HG22	5:8:86:ILE:HA	1.98	0.45
13:i:126:ARG:O	13:i:130:GLY:N	2.50	0.45
19:o:10:ARG:HE	19:o:10:ARG:HB2	1.61	0.45
21:q:25:GLY:O	21:q:29:ARG:NH1	2.50	0.45
23:s:13:SER:OG	23:s:14:ALA:N	2.50	0.45
41:I:145:ARG:HB3	41:I:148:ALA:HB3	1.99	0.45
56:X:46:LEU:HD12	56:X:48:ILE:HD11	1.99	0.45
1:3:1289:A:H2'	1:3:1290:G:H5'	1.98	0.45
1:3:1307:U:H4'	50:R:107:THR:HG21	1.99	0.45
2:1:878:A:H3'	2:1:879:G:H8	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1028:A:C2	2:1:2487:G:H1'	2.52	0.45
2:1:1028:A:N6	2:1:1125:G:H2'	2.31	0.45
2:1:1545:A:H2'	2:1:1546:G:O4'	2.17	0.45
2:1:2125:G:C5'	12:a:39:VAL:HG22	2.47	0.45
5:8:11:ARG:HG3	5:8:283:ILE:HA	1.99	0.45
6:b:71:ASP:HB3	6:b:118:GLY:HA2	1.98	0.45
11:g:131:SER:OG	11:g:140:ALA:O	2.28	0.45
44:L:86:VAL:HG12	44:L:150:PHE:CE2	2.51	0.45
48:P:97:ARG:HA	48:P:100:ASN:HD22	1.81	0.45
57:Y:16:ALA:O	57:Y:20:ASN:N	2.45	0.45
1:3:384:G:H2'	1:3:385:C:C6	2.52	0.45
1:3:478:A:H2'	1:3:479:U:C4'	2.46	0.45
1:3:675:A:C2	1:3:676:A:H1'	2.52	0.45
1:3:1147:C:H2'	1:3:1148:U:C6	2.52	0.45
1:3:1260:G:H4'	1:3:1284:C:H5'	1.98	0.45
2:1:138:U:H3'	2:1:139:U:H5'	1.99	0.45
2:1:1147:A:O2'	2:1:1148:U:H5'	2.17	0.45
2:1:1984:G:H2'	2:1:1985:C:H6	1.82	0.45
2:1:2052:A:C6	2:1:2053:G:N7	2.85	0.45
2:1:2073:C:O2'	2:1:2074:U:H5'	2.17	0.45
2:1:2286:G:C5	33:C:33:LEU:HD21	2.52	0.45
5:8:390:ASP:OD2	5:8:390:ASP:N	2.44	0.45
7:c:55:LYS:HG3	7:c:77:ARG:HB3	1.97	0.45
17:m:47:GLU:O	17:m:51:ARG:N	2.48	0.45
19:o:94:ARG:NH2	19:o:98:GLN:OE1	2.50	0.45
43:K:92:THR:OG1	43:K:94:HIS:O	2.29	0.45
49:Q:23:LEU:HD23	49:Q:23:LEU:HA	1.82	0.45
49:Q:49:ARG:HB2	49:Q:89:LEU:HD21	1.98	0.45
1:3:323:U:H3	1:3:327:A:H62	1.64	0.45
1:3:334:C:H2'	1:3:335:C:O4'	2.16	0.45
1:3:460:A:H2'	1:3:461:A:C8	2.51	0.45
1:3:570:G:H5'	1:3:820:U:O4'	2.17	0.45
1:3:777:A:C2	1:3:778:G:H1'	2.52	0.45
1:3:1312:G:H2'	1:3:1313:U:C6	2.52	0.45
2:1:191:A:H2'	2:1:192:C:H6	1.81	0.45
2:1:1057:A:H5''	2:1:1058:U:O2	2.17	0.45
2:1:1094:U:H2'	2:1:1096:A:OP2	2.17	0.45
2:1:1300:G:N7	2:1:1626:A:H2'	2.32	0.45
2:1:2757:A:H2'	2:1:2757:A:N3	2.31	0.45
5:8:618:LYS:H	5:8:684:PHE:HA	1.82	0.45
5:8:631:VAL:O	5:8:635:LEU:N	2.42	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:i:52:LEU:HD11	13:i:81:LYS:HD3	1.99	0.45
22:r:34:GLU:HB2	22:r:58:VAL:HB	1.99	0.45
24:t:17:SER:OG	24:t:20:ALA:N	2.48	0.45
38:6:32:C:OP2	46:N:129:ARG:NH1	2.50	0.45
53:U:26:ASN:HD21	53:U:31:ARG:N	2.15	0.45
1:3:37:U:H2'	1:3:38:G:H5'	1.97	0.44
1:3:510:A:OP1	41:I:47:LEU:HD22	2.17	0.44
1:3:792:A:H4'	1:3:793:U:C5'	2.47	0.44
2:1:328:U:H4'	25:u:65:GLN:CD	2.42	0.44
2:1:514:A:O2'	2:1:515:A:H5'	2.17	0.44
2:1:864:G:H2'	2:1:865:C:O4'	2.17	0.44
2:1:1020:A:C1'	2:1:1021:A:OP2	2.61	0.44
2:1:1135:C:H2'	2:1:1135:C:O2	2.18	0.44
2:1:1656:C:H2'	2:1:1657:U:H6	1.82	0.44
2:1:2188:U:H2'	2:1:2189:U:O4'	2.17	0.44
2:1:2880:C:O2'	18:n:90:ARG:NH2	2.48	0.44
2:1:2898:U:O2	14:j:134:ALA:HB1	2.17	0.44
5:8:514:GLN:HA	5:8:514:GLN:HE21	1.82	0.44
21:q:51:GLN:O	21:q:55:GLN:N	2.48	0.44
28:x:31:ASN:ND2	28:x:52:ALA:HB3	2.32	0.44
46:N:45:MET:HA	46:N:48:ARG:HH21	1.82	0.44
55:W:37:LYS:HE2	55:W:37:LYS:HB2	1.73	0.44
1:3:1098:C:H2'	1:3:1099:G:O4'	2.17	0.44
1:3:1232:U:H5''	46:N:125:GLN:HG3	1.99	0.44
2:1:91:A:H8	2:1:91:A:OP1	1.99	0.44
2:1:717:C:H2'	2:1:718:A:H5'	1.98	0.44
2:1:903:C:H2'	2:1:904:G:C8	2.52	0.44
2:1:960:A:H5''	2:1:961:C:OP1	2.17	0.44
2:1:1429:G:C2	2:1:1568:G:C2	3.05	0.44
2:1:1566:A:O4'	6:b:212:TRP:NE1	2.50	0.44
2:1:1792:G:H1	2:1:1827:U:H3	1.65	0.44
2:1:2066:C:H2'	2:1:2067:G:H8	1.81	0.44
2:1:2194:U:H2'	2:1:2195:U:C6	2.52	0.44
2:1:2226:C:H2'	2:1:2227:A:O4'	2.17	0.44
2:1:2672:U:C3'	2:1:2673:G:H5''	2.48	0.44
2:1:2703:C:H2'	2:1:2704:C:H6	1.82	0.44
2:1:2723:C:H2'	2:1:2724:U:O4'	2.17	0.44
7:c:2:ILE:HG12	7:c:90:PHE:HZ	1.82	0.44
8:d:37:ALA:HB1	8:d:94:GLN:H	1.82	0.44
8:d:173:THR:OG1	8:d:174:GLY:N	2.48	0.44
9:e:108:PRO:HA	31:A:41:HIS:HD2	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:g:101:ASP:O	11:g:105:ALA:N	2.46	0.44
42:J:72:ASN:OD1	42:J:72:ASN:N	2.50	0.44
54:V:21:VAL:HG22	54:V:44:HIS:HA	1.98	0.44
1:3:144:G:H2'	1:3:145:G:O4'	2.16	0.44
1:3:607:A:H2'	1:3:608:A:O4'	2.17	0.44
1:3:946:A:H4'	1:3:1333:A:O2'	2.17	0.44
1:3:946:A:H4'	1:3:1333:A:HO2'	1.83	0.44
1:3:962:C:H1'	1:3:1201:A:N1	2.32	0.44
2:1:514:A:N3	2:1:581:C:O2'	2.45	0.44
2:1:754:U:O5'	2:1:754:U:H6	2.01	0.44
2:1:762:U:N3	2:1:1431:A:OP1	2.49	0.44
2:1:1044:C:O5'	2:1:1044:C:H6	2.00	0.44
2:1:1130:U:C5	2:1:2025:C:H5''	2.52	0.44
2:1:1337:G:O2'	2:1:1338:G:H5'	2.17	0.44
2:1:2286:G:H22	33:C:35:LEU:HD21	1.81	0.44
3:2:30:C:H2'	3:2:31:C:C5'	2.47	0.44
6:b:107:LYS:N	6:b:193:GLU:O	2.49	0.44
9:e:116:LEU:HD12	9:e:116:LEU:HA	1.90	0.44
11:g:68:ARG:O	11:g:72:ILE:N	2.48	0.44
16:l:135:ILE:HG23	16:l:140:GLY:HA3	1.99	0.44
32:B:28:SER:OG	32:B:39:ARG:NH2	2.43	0.44
41:I:33:ILE:HG23	41:I:34:GLU:HG2	1.99	0.44
46:N:28:VAL:HG13	46:N:63:TYR:HA	1.99	0.44
52:T:38:LEU:HD23	52:T:55:LEU:HD12	1.98	0.44
58:Z:48:LYS:HA	58:Z:48:LYS:HD2	1.76	0.44
1:3:1088:G:O2'	58:Z:66:ARG:O	2.36	0.44
1:3:1464:U:OP1	20:p:105:LYS:HG2	2.17	0.44
2:1:38:A:H1'	8:d:43:THR:O	2.17	0.44
2:1:927:A:H2'	2:1:928:A:O4'	2.17	0.44
2:1:1093:G:H22	2:1:1097:U:H3'	1.82	0.44
2:1:1219:U:H2'	2:1:1220:G:H8	1.78	0.44
2:1:1661:G:O2'	2:1:1662:U:H5'	2.16	0.44
2:1:1744:A:H3'	2:1:1745:A:H8	1.83	0.44
2:1:2338:C:H6	2:1:2338:C:O5'	2.01	0.44
2:1:2372:U:H4'	33:C:45:HIS:ND1	2.33	0.44
2:1:2524:G:C3'	2:1:2525:G:H5''	2.48	0.44
2:1:2737:G:H2'	2:1:2738:A:C8	2.52	0.44
3:2:116:G:H5''	19:o:55:GLU:OE2	2.17	0.44
5:8:144:MET:HG2	5:8:266:CYS:HB2	1.99	0.44
5:8:159:LYS:HG3	5:8:166:PRO:HD2	2.00	0.44
6:b:120:ASP:OD1	6:b:120:ASP:N	2.49	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:E:15:LYS:HA	35:E:21:PHE:HA	1.99	0.44
46:N:96:GLU:O	46:N:100:ALA:N	2.40	0.44
51:S:61:ASN:HB3	51:S:72:PHE:CE2	2.52	0.44
58:Z:8:ASN:OD1	58:Z:8:ASN:N	2.50	0.44
1:3:332:G:P	57:Y:4:LYS:NZ	2.91	0.44
1:3:563:A:H2'	1:3:563:A:N3	2.32	0.44
1:3:622:A:H2'	1:3:623:C:H5'	1.99	0.44
1:3:684:U:H3	1:3:706:A:H61	1.63	0.44
1:3:723:U:O2	1:3:855:U:H4'	2.17	0.44
1:3:1255:G:H1	1:3:1282:C:H42	1.64	0.44
2:1:233:A:C2'	2:1:234:U:H5'	2.48	0.44
2:1:243:U:OP2	35:E:7:ARG:NH1	2.50	0.44
2:1:252:G:H2'	2:1:253:C:H6	1.82	0.44
2:1:537:G:H22	2:1:555:G:H2'	1.83	0.44
2:1:753:A:H2'	2:1:754:U:C6	2.52	0.44
2:1:1954:G:N2	2:1:1956:U:H3	2.15	0.44
2:1:2007:U:O5'	2:1:2007:U:H6	2.01	0.44
2:1:2748:A:O2'	10:f:62:ALA:HA	2.18	0.44
2:1:2820:A:C6	7:c:197:THR:HG23	2.52	0.44
5:8:15:ILE:O	5:8:89:THR:OG1	2.34	0.44
5:8:75:MET:HG3	5:8:279:LEU:HD11	1.99	0.44
5:8:97:ILE:HD13	5:8:412:PRO:HG3	1.99	0.44
9:e:35:LEU:HD22	9:e:151:LEU:HD21	1.99	0.44
9:e:43:ILE:HD12	9:e:43:ILE:HA	1.90	0.44
10:f:98:LYS:HA	10:f:98:LYS:HD2	1.78	0.44
12:a:203:GLN:HG2	12:a:205:LYS:H	1.83	0.44
13:i:24:GLY:O	13:i:28:GLY:N	2.50	0.44
17:m:62:LYS:HD2	17:m:62:LYS:HA	1.90	0.44
19:o:90:VAL:HG23	19:o:117:PHE:HB3	2.00	0.44
20:p:48:ALA:N	20:p:59:THR:OG1	2.50	0.44
30:z:19:HIS:CD2	30:z:50:VAL:HG12	2.52	0.44
45:M:45:ILE:HG12	45:M:60:LEU:HD23	2.00	0.44
51:S:23:ARG:HH12	51:S:27:LYS:HB3	1.82	0.44
1:3:505:G:C6	1:3:535:A:C2	3.05	0.44
1:3:635:A:H2'	1:3:636:U:C6	2.53	0.44
1:3:806:C:H2'	1:3:807:A:C8	2.52	0.44
1:3:911:U:OP2	49:Q:93:ARG:NH2	2.50	0.44
1:3:1057:G:H2'	1:3:1058:G:O4'	2.18	0.44
1:3:1242:G:H4'	1:3:1304:G:OP1	2.18	0.44
1:3:1508:A:H61	1:3:1527:U:H3	1.66	0.44
2:1:581:C:OP1	21:q:32:ARG:HB2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:598:U:H2'	2:1:599:A:C8	2.52	0.44
2:1:608:A:H2'	2:1:609:A:O4'	2.18	0.44
2:1:623:C:H2'	2:1:624:C:C6	2.52	0.44
2:1:812:C:H1'	2:1:1250:G:C2	2.52	0.44
2:1:974:G:C6	2:1:1186:G:C6	3.06	0.44
2:1:1177:G:H2'	2:1:1178:C:C5'	2.48	0.44
2:1:2099:U:H2'	2:1:2100:G:C8	2.51	0.44
2:1:2123:G:N3	2:1:2176:A:N6	2.65	0.44
2:1:2127:G:H2'	2:1:2128:G:C8	2.52	0.44
2:1:2526:G:H1'	36:F:1:MET:N	2.32	0.44
3:2:115:A:H2'	3:2:116:G:C8	2.53	0.44
6:b:106:PRO:HD2	6:b:109:LEU:HD22	1.99	0.44
7:c:120:GLY:H	7:c:123:LYS:HB2	1.82	0.44
9:e:135:ILE:HA	9:e:140:ILE:HD11	1.99	0.44
14:j:77:HIS:NE2	14:j:82:GLY:O	2.49	0.44
14:j:93:ILE:HD12	14:j:93:ILE:HA	1.72	0.44
24:t:9:LYS:HA	29:y:29:ARG:HH12	1.82	0.44
41:I:96:ARG:HG2	41:I:133:SER:HA	1.99	0.44
41:I:168:THR:O	41:I:168:THR:OG1	2.34	0.44
44:L:67:ASN:HB3	44:L:129:ASN:HD21	1.83	0.44
1:3:68:G:H2'	1:3:69:G:O4'	2.17	0.44
1:3:973:G:H2'	1:3:974:A:C8	2.51	0.44
1:3:1198:G:H2'	1:3:1199:U:C6	2.51	0.44
1:3:1210:C:H2'	1:3:1211:U:H5'	2.00	0.44
2:1:597:G:H2'	2:1:598:U:O4'	2.18	0.44
2:1:708:G:O2'	2:1:709:U:H5'	2.17	0.44
2:1:784:G:C2	6:b:227:VAL:HG11	2.52	0.44
2:1:810:U:H5	16:l:29:LYS:HA	1.81	0.44
2:1:862:G:H2'	2:1:863:A:O4'	2.18	0.44
2:1:1056:G:H1'	2:1:1103:A:N6	2.33	0.44
2:1:1368:G:H2'	2:1:1369:G:C8	2.51	0.44
2:1:2069:G:H2'	2:1:2070:A:H8	1.82	0.44
2:1:2183:A:H2'	2:1:2184:A:C8	2.52	0.44
2:1:2251:G:OP1	17:m:81:ARG:NH1	2.51	0.44
5:8:73:SER:HB2	5:8:81:PRO:HG3	2.00	0.44
5:8:112:VAL:HG12	5:8:140:PHE:HB3	2.00	0.44
8:d:129:PRO:HG3	8:d:156:ASN:HA	2.00	0.44
18:n:20:MET:HE2	18:n:20:MET:HB3	1.75	0.44
28:x:9:LYS:HB3	28:x:30:PRO:CB	2.48	0.44
39:G:87:ASP:OD1	39:G:87:ASP:N	2.51	0.44
48:P:52:ARG:HA	48:P:52:ARG:HD3	1.85	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:37:U:C2'	1:3:38:G:H5'	2.48	0.44
1:3:865:A:H2'	1:3:866:C:C6	2.52	0.44
1:3:972:C:O3'	47:O:59:LYS:HD3	2.16	0.44
2:1:793:A:OP2	2:1:793:A:H8	2.01	0.44
2:1:1313:U:O2	2:1:1313:U:C2'	2.64	0.44
2:1:1823:G:C6	2:1:1824:G:C6	3.06	0.44
2:1:2064:C:C2'	2:1:2065:C:H5'	2.43	0.44
2:1:2270:A:H2'	2:1:2271:G:O4'	2.18	0.44
2:1:2402:U:H2'	2:1:2403:C:C5'	2.42	0.44
2:1:2680:U:O2'	2:1:2681:C:H5'	2.17	0.44
5:8:119:VAL:HG21	5:8:162:LEU:HD11	2.00	0.44
5:8:171:LEU:HD11	5:8:218:TRP:HD1	1.82	0.44
27:w:56:PHE:HE2	27:w:58:LYS:HE2	1.83	0.44
38:6:70:G:H2'	38:6:71:C:C6	2.52	0.44
39:G:33:ALA:N	39:G:37:VAL:O	2.46	0.44
40:H:6:PRO:O	40:H:10:ARG:NE	2.41	0.44
40:H:58:ARG:HG2	40:H:63:ILE:HG22	1.98	0.44
40:H:66:THR:HA	40:H:101:ASN:HB2	1.99	0.44
44:L:138:GLU:HA	44:L:141:HIS:HB2	1.99	0.44
1:3:757:U:H2'	1:3:758:C:H5'	1.99	0.44
1:3:925:G:H1'	1:3:1502:A:C4	2.52	0.44
1:3:1233:G:O2'	1:3:1365:G:H5''	2.18	0.44
2:1:170:U:H2'	2:1:171:U:C6	2.53	0.44
2:1:533:G:H5''	2:1:533:G:H8	1.83	0.44
2:1:728:G:H3'	2:1:729:G:H5'	2.00	0.44
2:1:1086:A:H3'	2:1:1086:A:N3	2.33	0.44
2:1:1573:G:H2'	2:1:1574:C:O4'	2.17	0.44
2:1:1954:G:H21	2:1:1956:U:H3	1.65	0.44
2:1:2060:A:O2'	2:1:2061:G:OP2	2.35	0.44
4:5:2:G:H1'	4:5:3:G:OP1	2.17	0.44
7:c:5:VAL:HG22	7:c:202:ILE:HG12	2.00	0.44
8:d:134:LEU:HD11	8:d:161:ALA:HB2	1.99	0.44
12:a:193:LEU:HG	12:a:197:LYS:HG3	2.00	0.44
13:i:12:VAL:HG12	13:i:13:ALA:H	1.83	0.44
15:k:56:ASP:OD1	15:k:56:ASP:N	2.49	0.44
17:m:71:LYS:HD3	17:m:72:PRO:HD2	2.00	0.44
19:o:6:ALA:HA	19:o:9:ARG:HE	1.81	0.44
25:u:14:THR:OG1	25:u:15:GLY:N	2.51	0.44
28:x:57:VAL:HG12	28:x:61:LYS:HZ1	1.83	0.44
42:J:50:GLY:HA3	42:J:62:ALA:HB2	2.00	0.44
46:N:7:GLY:HA3	46:N:85:ALA:HB2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:W:71:ASP:N	55:W:71:ASP:OD1	2.50	0.44
1:3:20:U:O2'	1:3:21:G:H5'	2.17	0.43
1:3:354:G:H2'	1:3:355:C:H6	1.77	0.43
1:3:392:C:H5'	53:U:13:LYS:CD	2.48	0.43
1:3:563:A:H5'	1:3:566:G:N2	2.33	0.43
1:3:768:A:C2	1:3:1512:U:H4'	2.52	0.43
1:3:1134:G:H1	1:3:1140:C:H42	1.66	0.43
2:1:152:A:H2'	2:1:153:U:C6	2.53	0.43
2:1:786:C:H2'	2:1:787:C:H6	1.83	0.43
2:1:1541:C:H2'	2:1:1542:U:O4'	2.18	0.43
2:1:1567:G:H4'	6:b:57:HIS:CE1	2.52	0.43
2:1:1747:U:H2'	2:1:1748:C:C6	2.52	0.43
2:1:1786:A:O2'	2:1:1787:A:H5'	2.17	0.43
2:1:1803:A:C2	2:1:1823:G:H1'	2.53	0.43
2:1:1815:A:O4'	2:1:1817:G:H1'	2.18	0.43
2:1:2366:A:H4'	27:w:58:LYS:HD3	1.99	0.43
4:5:42:G:H2'	4:5:43:U:O4'	2.18	0.43
10:f:85:LYS:HE3	10:f:131:VAL:HG22	2.00	0.43
10:f:88:LEU:O	10:f:128:THR:OG1	2.32	0.43
20:p:25:VAL:HG21	20:p:83:ILE:HG22	1.99	0.43
25:u:27:VAL:HA	25:u:33:VAL:HG13	1.99	0.43
25:u:88:ASP:OD1	25:u:88:ASP:N	2.47	0.43
28:x:13:THR:OG1	28:x:14:GLY:N	2.51	0.43
36:F:15:LYS:N	36:F:26:ILE:O	2.40	0.43
44:L:57:GLU:HG3	44:L:58:LEU:HD12	1.99	0.43
1:3:152:A:H2'	1:3:153:C:H5'	1.99	0.43
1:3:240:G:H2'	1:3:241:G:C8	2.53	0.43
1:3:718:A:H5'	48:P:118:ASN:OD1	2.18	0.43
1:3:964:A:H2'	1:3:965:U:H5'	2.00	0.43
1:3:994:A:H61	1:3:1047:G:C4'	2.30	0.43
2:1:330:A:H8	2:1:1210:G:C5	2.36	0.43
2:1:1943:U:OP1	2:1:1943:U:C6	2.71	0.43
2:1:2598:A:N7	2:1:2599:G:H1'	2.33	0.43
5:8:173:ILE:HD13	5:8:173:ILE:HA	1.90	0.43
5:8:423:LYS:HA	5:8:482:ASN:HD21	1.83	0.43
5:8:520:ILE:HD13	5:8:557:ILE:HD11	2.01	0.43
17:m:33:LEU:HD12	17:m:117:PHE:HB3	2.00	0.43
20:p:59:THR:HG22	20:p:72:VAL:HG23	2.00	0.43
22:r:17:GLY:H	22:r:98:ILE:HB	1.84	0.43
50:R:94:LEU:HD12	50:R:95:PRO:HD2	2.00	0.43
58:Z:48:LYS:HD2	58:Z:51:ALA:HB3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:253:A:O4'	1:3:276:G:H1'	2.18	0.43
1:3:369:G:N2	1:3:393:A:H1'	2.33	0.43
1:3:1289:A:C2	44:L:34:LYS:NZ	2.86	0.43
2:1:39:G:H2'	2:1:40:U:C6	2.53	0.43
2:1:146:A:H2'	2:1:147:C:H6	1.81	0.43
2:1:224:U:H2'	2:1:225:C:O4'	2.17	0.43
2:1:252:G:H2'	2:1:253:C:C6	2.53	0.43
2:1:960:A:O3'	2:1:961:C:H3'	2.18	0.43
2:1:1322:A:O2'	23:s:84:ARG:NH1	2.51	0.43
2:1:1913:A:H3'	2:1:1913:A:OP2	2.18	0.43
2:1:2475:C:H42	2:1:2529:G:H22	1.66	0.43
2:1:2489:U:O2'	2:1:2490:G:H5'	2.18	0.43
2:1:2633:G:C2'	2:1:2634:A:H5''	2.47	0.43
8:d:5:LEU:HG	8:d:120:VAL:HG13	2.00	0.43
18:n:73:ASN:O	18:n:77:ALA:N	2.50	0.43
27:w:58:LYS:HB2	27:w:58:LYS:HE3	1.76	0.43
56:X:38:THR:HG23	56:X:69:LYS:HD3	2.00	0.43
1:3:130:A:H8	54:V:64:ARG:CB	2.31	0.43
1:3:272:C:H2'	1:3:273:U:H6	1.83	0.43
1:3:290:C:H2'	1:3:291:U:O4'	2.18	0.43
1:3:969:A:H2'	1:3:970:C:O4'	2.18	0.43
1:3:1316:G:H2'	1:3:1317:C:H5''	1.99	0.43
2:1:648:G:H2'	2:1:649:G:H8	1.83	0.43
2:1:760:G:H2'	2:1:761:A:O4'	2.19	0.43
2:1:1060:U:OP2	2:1:1060:U:H3'	2.19	0.43
2:1:1191:G:H2'	2:1:1192:G:C8	2.51	0.43
2:1:2102:G:N7	2:1:2103:C:C5	2.87	0.43
2:1:2660:A:H2'	2:1:2661:G:H5'	2.00	0.43
3:2:79:G:H2'	3:2:80:U:O4'	2.19	0.43
6:b:252:LYS:HD3	6:b:252:LYS:HA	1.80	0.43
8:d:136:GLN:HA	8:d:139:LYS:HB2	1.99	0.43
11:g:27:ARG:NH2	28:x:55:MET:HB3	2.32	0.43
23:s:35:ILE:HD11	32:B:24:VAL:H	1.84	0.43
39:G:33:ALA:HB3	39:G:37:VAL:HB	1.99	0.43
46:N:58:GLU:HG2	46:N:59:LYS:HG3	2.00	0.43
1:3:1060:U:C5	40:H:1:GLY:HA2	2.54	0.43
1:3:1195:C:O5'	1:3:1195:C:H6	2.01	0.43
2:1:878:A:H3'	2:1:879:G:C8	2.54	0.43
2:1:1037:G:O2'	2:1:1038:G:H5'	2.19	0.43
2:1:1123:C:O2'	2:1:1124:G:H5'	2.18	0.43
2:1:1177:G:C3'	2:1:1178:C:H5''	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1229:C:H2'	2:1:1230:A:C8	2.53	0.43
2:1:1404:C:O5'	2:1:1404:C:H6	2.01	0.43
2:1:1630:A:H2'	2:1:1631:G:H5'	2.00	0.43
2:1:2102:G:C4	2:1:2103:C:C2	3.07	0.43
2:1:2556:C:H2'	2:1:2557:G:C5'	2.49	0.43
2:1:2599:G:H2'	2:1:2600:A:C8	2.53	0.43
3:2:87:U:H5''	3:2:88:C:H5	1.74	0.43
4:5:29:U:OP1	5:8:506:ALA:HB1	2.18	0.43
5:8:338:VAL:HG13	5:8:380:GLY:H	1.83	0.43
5:8:634:ASP:O	5:8:638:ARG:NH1	2.52	0.43
16:l:25:SER:O	16:l:25:SER:OG	2.36	0.43
16:l:42:SER:O	16:l:42:SER:OG	2.32	0.43
23:s:83:LYS:H	23:s:83:LYS:HG2	1.54	0.43
46:N:47:VAL:HG12	46:N:78:ILE:HG21	2.00	0.43
48:P:25:SER:HG	48:P:28:ASN:N	2.16	0.43
1:3:182:A:N1	1:3:224:U:H5'	2.33	0.43
1:3:668:G:H1	1:3:738:C:N4	2.16	0.43
1:3:927:G:H4'	1:3:1503:A:N7	2.33	0.43
1:3:971:G:H4'	1:3:972:C:H5''	1.99	0.43
1:3:1373:G:H5''	44:L:35:LYS:HD3	2.01	0.43
1:3:1515:G:H2'	1:3:1516:G:H8	1.82	0.43
2:1:458:G:H21	2:1:469:G:H2'	1.84	0.43
2:1:481:G:H2'	2:1:507:A:N1	2.34	0.43
2:1:861:A:H2'	2:1:862:G:O4'	2.18	0.43
2:1:1697:G:H3'	2:1:1698:A:C5'	2.45	0.43
2:1:1716:U:C2'	2:1:1717:A:H5'	2.49	0.43
2:1:1797:G:C4	2:1:1798:U:C6	3.07	0.43
2:1:1797:G:N2	2:1:1798:U:H1'	2.34	0.43
5:8:145:ASP:OD1	5:8:273:LYS:NZ	2.45	0.43
5:8:327:ASP:OD2	5:8:330:VAL:N	2.39	0.43
5:8:643:LYS:HE3	5:8:655:HIS:HB3	1.99	0.43
6:b:144:GLU:HA	6:b:151:GLY:HA2	2.01	0.43
6:b:209:ALA:HA	6:b:212:TRP:CE2	2.54	0.43
13:i:9:LYS:HA	13:i:57:VAL:HA	1.99	0.43
15:k:62:VAL:HA	15:k:84:CYS:HA	2.00	0.43
18:n:90:ARG:HA	18:n:90:ARG:HD2	1.76	0.43
26:v:44:HIS:CE1	26:v:86:LEU:H	2.37	0.43
40:H:153:SER:O	40:H:196:GLY:N	2.50	0.43
41:I:69:ARG:HH11	41:I:72:ARG:HH22	1.67	0.43
55:W:25:ILE:HA	55:W:28:LEU:HD12	2.01	0.43
55:W:58:ILE:O	55:W:62:ARG:N	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:529:G:O4'	1:3:533:A:C2	2.72	0.43
1:3:894:G:H2'	1:3:895:G:C8	2.53	0.43
1:3:1229:A:H2'	1:3:1230:C:C6	2.54	0.43
1:3:1357:A:H5''	51:S:75:LYS:HZ3	1.83	0.43
1:3:1423:G:H5'	15:k:49:ARG:HH22	1.84	0.43
2:1:666:A:H2'	2:1:667:U:C6	2.54	0.43
2:1:740:C:H5'	2:1:740:C:C6	2.46	0.43
2:1:974:G:O2'	2:1:989:G:N2	2.51	0.43
2:1:1388:G:H2'	2:1:1389:G:H8	1.84	0.43
2:1:1428:C:C5	2:1:1569:A:H5''	2.53	0.43
2:1:1653:G:C6	18:n:9:GLN:HB2	2.54	0.43
2:1:1741:C:H2'	2:1:1742:U:H5'	2.00	0.43
2:1:1962:C:H1'	2:1:1963:U:C5	2.53	0.43
2:1:1983:G:C2	2:1:1984:G:C8	3.07	0.43
2:1:2626:C:O2'	2:1:2627:G:H5'	2.19	0.43
2:1:2762:C:H2'	2:1:2763:G:H5'	2.00	0.43
3:2:4:C:H6	3:2:4:C:C5'	2.31	0.43
5:8:334:THR:HG1	5:8:385:ALA:H	1.62	0.43
5:8:468:ILE:O	5:8:472:ARG:N	2.51	0.43
7:c:47:ALA:HA	7:c:84:LEU:HG	2.01	0.43
7:c:170:VAL:HG13	7:c:194:PRO:HG3	2.01	0.43
9:e:91:ARG:HA	9:e:95:MET:HG2	1.99	0.43
39:G:26:MET:HG3	39:G:29:PHE:HB2	2.00	0.43
41:I:108:ALA:N	41:I:112:GLU:OE2	2.43	0.43
41:I:110:ARG:O	41:I:114:ARG:N	2.52	0.43
41:I:200:VAL:HG11	42:J:103:GLY:HA2	2.00	0.43
42:J:98:ALA:O	42:J:121:ASN:ND2	2.52	0.43
45:M:10:LEU:HD13	45:M:74:ILE:HG13	2.00	0.43
50:R:13:HIS:HB3	50:R:15:VAL:HG12	2.00	0.43
52:T:27:GLN:O	52:T:27:GLN:NE2	2.52	0.43
1:3:362:G:H5''	49:Q:57:THR:HG21	1.99	0.43
1:3:737:C:C5'	43:K:89:VAL:HG23	2.48	0.43
1:3:1252:A:H2'	1:3:1253:G:O4'	2.19	0.43
1:3:1475:G:C2	1:3:1476:A:H1'	2.52	0.43
2:1:298:G:C2	2:1:339:U:H5	2.36	0.43
2:1:395:U:H2'	2:1:396:G:H8	1.80	0.43
2:1:571:U:C4	2:1:575:A:C5	3.07	0.43
2:1:809:G:O4'	2:1:1254:A:H1'	2.19	0.43
2:1:832:U:C5	2:1:944:C:N4	2.87	0.43
2:1:1794:A:O2'	2:1:1795:C:H5'	2.18	0.43
2:1:2553:G:C3'	2:1:2554:U:H5''	2.47	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:8:122:GLN:O	5:8:125:THR:OG1	2.36	0.43
14:j:130:HIS:HB2	14:j:132:HIS:HD2	1.83	0.43
16:l:37:GLY:H	16:l:41:ARG:HH22	1.66	0.43
39:G:94:ARG:HD3	39:G:94:ARG:HA	1.86	0.43
40:H:120:THR:HA	40:H:123:LEU:HB2	2.00	0.43
46:N:53:LEU:HD12	46:N:54:VAL:HG13	2.00	0.43
49:Q:48:LEU:HD12	49:Q:48:LEU:HA	1.85	0.43
1:3:971:G:N7	1:3:1233:G:H1'	2.34	0.43
1:3:1007:U:H2'	1:3:1008:U:C5	2.54	0.43
1:3:1405:G:H21	1:3:1518:A:H8	1.67	0.43
2:1:136:G:H21	24:t:1:MET:HG3	1.84	0.43
2:1:885:C:H2'	2:1:891:G:H22	1.82	0.43
2:1:1050:A:O2'	2:1:2752:C:H1'	2.19	0.43
2:1:1158:C:O5'	2:1:1158:C:H6	2.02	0.43
2:1:1308:A:N6	2:1:1608:A:H61	2.16	0.43
2:1:1655:A:H5'	7:c:118:PHE:O	2.18	0.43
2:1:1658:C:OP1	7:c:140:HIS:NE2	2.52	0.43
2:1:1790:C:OP1	6:b:218:THR:HG22	2.19	0.43
2:1:2009:A:C4'	18:n:107:ASN:HD22	2.31	0.43
39:G:153:MET:HE3	39:G:153:MET:HB3	1.95	0.43
1:3:160:A:H2'	1:3:161:A:O4'	2.19	0.43
1:3:426:U:H2'	1:3:427:U:C6	2.54	0.43
1:3:737:C:C4'	43:K:89:VAL:HG23	2.49	0.43
1:3:865:A:H5'	1:3:1078:U:O4	2.19	0.43
1:3:881:G:N7	49:Q:5:GLN:NE2	2.67	0.43
1:3:923:A:C5'	42:J:25:LYS:HG3	2.49	0.43
1:3:1014:A:C2	1:3:1219:A:H1'	2.54	0.43
1:3:1108:G:OP1	40:H:174:LEU:HB3	2.19	0.43
2:1:441:U:O2'	2:1:442:G:H5'	2.19	0.43
2:1:780:G:H21	2:1:783:A:H62	1.67	0.43
2:1:988:A:H5''	30:z:11:SER:OG	2.18	0.43
2:1:1278:C:OP1	18:n:36:THR:HG22	2.18	0.43
2:1:1675:C:O2'	2:1:1676:A:H5'	2.19	0.43
2:1:1843:C:H2'	2:1:1844:C:H6	1.82	0.43
2:1:1931:U:H2'	2:1:1932:A:C8	2.54	0.43
2:1:2659:G:N2	2:1:2662:A:OP2	2.52	0.43
4:5:2:G:O2'	4:5:3:G:H8	2.01	0.43
10:f:116:LEU:HA	10:f:117:PRO:HD3	1.89	0.43
39:G:53:LEU:HD23	39:G:56:LEU:HD12	2.01	0.43
39:G:81:ASP:HA	39:G:84:LEU:HG	2.01	0.43
41:I:12:ARG:NH2	41:I:36:ALA:H	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:599:C:H2'	1:3:600:A:C8	2.53	0.42
1:3:973:G:H2'	1:3:974:A:H8	1.83	0.42
1:3:1199:U:H2'	1:3:1200:C:H5'	2.01	0.42
2:1:320:A:H2'	8:d:131:THR:HG21	1.99	0.42
2:1:560:C:O2'	21:q:47:ARG:NH2	2.52	0.42
2:1:578:G:H21	2:1:1252:G:N2	2.16	0.42
2:1:917:A:H5''	2:1:2268:A:N6	2.29	0.42
2:1:1064:C:H5''	2:1:1065:U:C5	2.54	0.42
2:1:1145:C:H2'	2:1:1146:C:C6	2.54	0.42
2:1:1794:A:H1'	2:1:1900:A:N3	2.34	0.42
2:1:2139:U:H2'	2:1:2140:G:C8	2.54	0.42
2:1:2259:U:C2	2:1:2427:C:C4	3.06	0.42
2:1:2311:A:H3'	2:1:2312:U:C6	2.54	0.42
2:1:2638:G:H22	2:1:2775:G:H2'	1.83	0.42
5:8:498:VAL:HG22	5:8:499:THR:N	2.33	0.42
28:x:31:ASN:ND2	28:x:52:ALA:HB2	2.34	0.42
29:y:1:MET:HA	29:y:4:LYS:HE2	2.01	0.42
1:3:296:U:H2'	1:3:297:G:O4'	2.19	0.42
1:3:439:U:O2'	1:3:440:C:H5'	2.19	0.42
1:3:627:G:H2'	1:3:628:G:C8	2.54	0.42
1:3:827:U:C4'	45:M:15:ASN:HB3	2.48	0.42
1:3:1005:A:C2'	1:3:1006:G:H5'	2.49	0.42
2:1:118:A:H5'	2:1:119:A:C8	2.53	0.42
2:1:728:G:O2'	2:1:730:A:H8	2.01	0.42
2:1:755:U:H2'	2:1:756:A:C8	2.52	0.42
2:1:871:U:H5''	17:m:68:PHE:CE1	2.53	0.42
2:1:974:G:C8	2:1:989:G:C2	3.07	0.42
2:1:984:A:P	2:1:985:C:H5	2.41	0.42
2:1:1313:U:O2	2:1:1313:U:H2'	2.19	0.42
2:1:2267:A:H5''	2:1:2268:A:H5'	2.01	0.42
2:1:2524:G:H2'	2:1:2525:G:C5'	2.44	0.42
2:1:2556:C:C2'	2:1:2557:G:H5'	2.49	0.42
2:1:2596:U:H2'	2:1:2597:G:O4'	2.19	0.42
2:1:2617:U:H2'	2:1:2618:G:H5'	2.01	0.42
4:5:54:U:H5''	17:m:6:ARG:NH1	2.33	0.42
23:s:29:VAL:HG21	23:s:55:ILE:HG21	2.01	0.42
23:s:36:LEU:HD23	23:s:48:LYS:HB2	2.01	0.42
43:K:11:HIS:HD2	43:K:54:LEU:HD11	1.84	0.42
1:3:405:U:O2	1:3:498:A:H2'	2.20	0.42
1:3:520:A:H62	1:3:529:G:N2	2.11	0.42
1:3:778:G:H2'	1:3:779:C:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:1124:G:H4'	47:O:40:ILE:HD11	2.01	0.42
2:1:828:U:H2'	2:1:829:A:N7	2.30	0.42
2:1:1130:U:O2	7:c:152:PRO:HA	2.20	0.42
2:1:1249:U:C4	16:l:18:ARG:NE	2.88	0.42
2:1:1379:U:H2'	2:1:1380:G:H5'	2.01	0.42
2:1:1412:U:H2'	2:1:1413:A:O4'	2.18	0.42
2:1:2305:U:H2'	2:1:2306:C:H5'	2.01	0.42
2:1:2477:U:H5	36:F:10:LEU:HD21	1.82	0.42
3:2:75:G:H21	26:v:88:HIS:CE1	2.37	0.42
4:5:58:A:H1'	4:5:60:U:H5	1.83	0.42
7:c:183:GLU:OE2	7:c:184:ARG:NE	2.53	0.42
19:o:18:LEU:HD23	19:o:21:LEU:HD12	2.00	0.42
29:y:9:LYS:HD3	29:y:10:SER:H	1.84	0.42
39:G:108:GLN:HA	39:G:111:LYS:HZ2	1.83	0.42
41:I:173:ASP:OD2	41:I:173:ASP:N	2.44	0.42
1:3:182:A:H2'	1:3:183:C:H5''	2.01	0.42
1:3:301:G:H2'	1:3:302:G:H8	1.83	0.42
1:3:401:C:H2'	1:3:402:G:C8	2.54	0.42
1:3:1095:U:OP1	1:3:1108:G:N2	2.52	0.42
1:3:1271:A:H5'	1:3:1314:C:H5'	2.01	0.42
1:3:1368:A:O2'	1:3:1369:C:H5'	2.19	0.42
2:1:74:A:H2'	2:1:74:A:N3	2.33	0.42
2:1:194:G:H2'	2:1:195:A:O4'	2.19	0.42
2:1:254:G:H22	35:E:7:ARG:NH1	2.18	0.42
2:1:690:G:C2'	2:1:691:C:H5'	2.49	0.42
2:1:1055:G:O5'	13:i:3:LYS:HB3	2.19	0.42
2:1:2017:U:H4'	32:B:4:GLN:O	2.19	0.42
2:1:2556:C:H2'	2:1:2557:G:O4'	2.19	0.42
2:1:2638:G:H1'	2:1:2778:A:N6	2.34	0.42
5:8:493:THR:OG1	5:8:525:LEU:CD1	2.68	0.42
15:k:38:ILE:HG22	15:k:61:VAL:HG22	2.01	0.42
50:R:22:TYR:HD2	50:R:65:GLU:HA	1.84	0.42
50:R:78:ARG:HD3	56:X:64:GLU:HG2	2.01	0.42
53:U:38:PHE:HZ	53:U:48:GLU:HG3	1.84	0.42
1:3:264:C:H2'	1:3:265:G:O4'	2.19	0.42
1:3:439:U:H5''	41:I:119:HIS:HA	2.01	0.42
1:3:640:A:H2'	1:3:641:U:H5'	2.01	0.42
1:3:1061:G:H2'	1:3:1062:U:O4'	2.19	0.42
1:3:1382:C:H2'	1:3:1383:C:C5	2.54	0.42
2:1:172:A:H2'	2:1:173:A:C8	2.54	0.42
2:1:527:C:OP2	2:1:2779:U:N3	2.51	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:742:A:H2'	2:1:743:A:O4'	2.19	0.42
2:1:743:A:OP1	7:c:135:GLY:HA2	2.19	0.42
2:1:820:A:H5'	2:1:837:C:O2'	2.19	0.42
2:1:1287:A:C5	18:n:106:ASP:OD2	2.72	0.42
2:1:1801:A:C8	2:1:1801:A:H5'	2.55	0.42
2:1:2013:A:H61	2:1:2613:U:H3	1.68	0.42
2:1:2469:A:H2'	2:1:2470:G:O4'	2.19	0.42
2:1:2564:A:C2	2:1:2647:U:H4'	2.54	0.42
2:1:2899:A:H5'	14:j:136:GLN:NE2	2.34	0.42
4:5:26:A:N6	4:5:44:G:N1	2.46	0.42
5:8:129:GLN:HG3	5:8:132:LYS:HE2	1.99	0.42
18:n:99:LYS:HB3	18:n:99:LYS:HE3	1.72	0.42
46:N:18:VAL:HG21	46:N:81:GLY:HA3	2.01	0.42
56:X:32:THR:OG1	56:X:33:TRP:N	2.53	0.42
1:3:377:G:H5''	53:U:5:ARG:NH2	2.35	0.42
1:3:581:G:C5'	52:T:60:SER:HB2	2.47	0.42
1:3:596:A:H61	1:3:644:U:H3	1.65	0.42
1:3:794:A:O2'	1:3:795:C:H5'	2.20	0.42
1:3:1364:U:O2'	1:3:1365:G:H5'	2.19	0.42
2:1:1:G:H2'	2:1:2:G:C8	2.55	0.42
2:1:38:A:H4'	8:d:45:ALA:CB	2.50	0.42
2:1:125:A:C2	34:D:10:LEU:HD13	2.54	0.42
2:1:580:U:H4'	21:q:30:VAL:HG11	2.02	0.42
2:1:784:G:N7	2:1:792:A:C5	2.87	0.42
2:1:1363:C:O2'	2:1:1809:A:H1'	2.20	0.42
2:1:2520:C:H1'	2:1:2565:A:O2'	2.19	0.42
2:1:2656:U:H2'	2:1:2657:A:C8	2.55	0.42
9:e:101:ARG:HH11	31:A:26:SER:HB2	1.84	0.42
16:l:90:VAL:HG22	16:l:122:VAL:HA	2.02	0.42
19:o:57:ALA:O	19:o:61:GLN:NE2	2.52	0.42
24:t:29:THR:HG22	24:t:86:THR:HA	2.01	0.42
31:A:11:GLU:HG2	31:A:25:ARG:HG2	2.02	0.42
39:G:95:TRP:HZ3	39:G:99:MET:HE2	1.85	0.42
41:I:21:LYS:HA	41:I:21:LYS:HD2	1.77	0.42
44:L:29:LEU:HD23	44:L:104:VAL:HG23	2.01	0.42
52:T:3:SER:OG	52:T:4:THR:N	2.53	0.42
57:Y:30:PHE:O	57:Y:34:VAL:N	2.52	0.42
58:Z:36:PHE:CD2	58:Z:39:LYS:HB2	2.55	0.42
1:3:1194:U:H2'	1:3:1195:C:C6	2.54	0.42
2:1:19:A:H2'	2:1:20:C:C6	2.55	0.42
2:1:516:C:H2'	2:1:517:C:H5'	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:586:A:N1	2:1:809:G:O2'	2.45	0.42
2:1:777:G:N7	2:1:793:A:C2	2.78	0.42
2:1:842:U:H2'	2:1:843:G:O4'	2.19	0.42
2:1:1124:G:H1'	36:F:38:GLY:OXT	2.18	0.42
2:1:1183:U:O2'	2:1:1184:U:H5'	2.19	0.42
2:1:1597:A:C5'	2:1:1598:A:H5'	2.32	0.42
2:1:1854:A:H2'	2:1:1855:U:H5'	2.02	0.42
2:1:1932:A:H62	2:1:1968:G:H21	1.68	0.42
2:1:2061:G:C8	2:1:2501:C:H4'	2.53	0.42
2:1:2114:A:N6	2:1:2119:A:H61	2.18	0.42
2:1:2234:G:O2'	2:1:2235:G:H5'	2.19	0.42
2:1:2553:G:H2'	2:1:2554:U:C4'	2.49	0.42
5:8:320:LEU:HD12	5:8:320:LEU:HA	1.85	0.42
5:8:499:THR:CG2	5:8:500:ASP:H	2.22	0.42
6:b:204:LEU:O	6:b:206:LYS:N	2.48	0.42
8:d:123:LYS:HB3	8:d:123:LYS:HE2	1.80	0.42
9:e:144:LYS:HA	9:e:144:LYS:HD3	1.95	0.42
13:i:105:LEU:HD13	13:i:128:ILE:HG23	2.01	0.42
18:n:51:LEU:HD23	18:n:79:LEU:HD11	2.02	0.42
18:n:101:GLY:HA2	32:B:41:HIS:HD2	1.84	0.42
1:3:7:A:H5'	1:3:298:A:O4'	2.19	0.42
1:3:107:G:H2'	1:3:108:G:O4'	2.20	0.42
1:3:540:G:H2'	1:3:541:G:O4'	2.20	0.42
1:3:633:G:H2'	1:3:634:C:C6	2.54	0.42
1:3:1061:G:H4'	47:O:58:ASN:HD21	1.85	0.42
2:1:8:C:H2'	2:1:9:G:O4'	2.20	0.42
2:1:272:A:H2'	2:1:273:G:C8	2.54	0.42
2:1:300:A:P	25:u:96:LYS:HE2	2.60	0.42
2:1:1054:A:H2'	2:1:1055:G:C8	2.55	0.42
2:1:1387:A:H2'	2:1:1388:G:C8	2.55	0.42
2:1:1625:C:H2'	2:1:1626:A:O4'	2.20	0.42
2:1:1771:C:H2'	2:1:1772:A:O4'	2.19	0.42
2:1:2050:C:H1'	7:c:161:MET:CE	2.49	0.42
2:1:2478:A:OP1	36:F:32:LYS:HD2	2.20	0.42
2:1:2830:C:O2	2:1:2883:A:H2	2.03	0.42
4:5:61:C:O2	4:5:61:C:H2'	2.20	0.42
6:b:145:MET:HE3	6:b:153:LEU:HD11	2.02	0.42
10:f:9:VAL:HA	10:f:48:THR:HA	2.01	0.42
10:f:32:LEU:HD23	10:f:32:LEU:HA	1.86	0.42
13:i:128:ILE:HA	13:i:131:THR:HG22	2.00	0.42
19:o:56:LYS:HA	19:o:59:ALA:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:N:113:LYS:HA	46:N:120:ALA:HB2	2.01	0.42
50:R:41:ASP:N	50:R:41:ASP:OD1	2.44	0.42
1:3:250:A:H4'	1:3:251:G:O5'	2.19	0.42
1:3:310:G:H5''	53:U:31:ARG:HB2	2.01	0.42
1:3:316:C:H2'	1:3:317:U:C6	2.55	0.42
1:3:850:U:O5'	1:3:850:U:H6	2.03	0.42
1:3:1236:A:H2'	1:3:1237:C:O4'	2.19	0.42
1:3:1292:G:H2'	1:3:1293:C:C6	2.55	0.42
1:3:1317:C:N3	51:S:52:ARG:HD3	2.35	0.42
2:1:191:A:N3	2:1:192:C:C6	2.88	0.42
2:1:445:C:O2'	2:1:446:G:H5'	2.20	0.42
2:1:1373:A:H2'	2:1:1374:G:O4'	2.19	0.42
2:1:1592:C:H2'	2:1:1593:A:H8	1.83	0.42
2:1:2070:A:C2	2:1:2071:A:C4	3.08	0.42
2:1:2139:U:H2'	2:1:2140:G:H8	1.85	0.42
2:1:2177:C:HO2'	12:a:47:ASN:CG	2.28	0.42
2:1:2205:A:H5'	6:b:148:GLY:O	2.20	0.42
2:1:2472:G:H5''	2:1:2473:U:OP2	2.20	0.42
2:1:2897:U:H2'	2:1:2898:U:C6	2.54	0.42
8:d:29:HIS:CE1	16:l:8:PRO:HB3	2.55	0.42
45:M:4:ASP:HB3	45:M:7:ALA:HB3	2.02	0.42
49:Q:39:THR:HB	49:Q:89:LEU:HD23	2.02	0.42
50:R:105:ALA:HB3	50:R:109:LYS:HE3	2.02	0.42
53:U:71:VAL:HA	53:U:74:LEU:HB2	2.02	0.42
58:Z:23:GLU:HG2	58:Z:24:LYS:H	1.84	0.42
1:3:9:G:P	42:J:126:ALA:H	2.43	0.42
1:3:678:U:H2'	1:3:679:C:C6	2.55	0.42
1:3:723:U:C6	58:Z:45:LYS:HE3	2.54	0.42
1:3:723:U:H5	58:Z:48:LYS:HG3	1.85	0.42
1:3:866:C:N3	1:3:867:G:H1'	2.35	0.42
1:3:1042:A:H2'	1:3:1043:G:H4'	2.00	0.42
1:3:1106:G:O2'	40:H:168:ARG:NH1	2.53	0.42
1:3:1158:C:H2'	1:3:1159:U:H4'	2.01	0.42
1:3:1424:U:H3	1:3:1476:A:N6	2.05	0.42
1:3:1469:C:C2'	1:3:1470:U:H5'	2.50	0.42
2:1:824:U:H1'	2:1:2358:A:N7	2.34	0.42
2:1:1081:U:H4'	13:i:123:ALA:CB	2.50	0.42
2:1:1354:A:H2'	2:1:1355:G:O4'	2.20	0.42
2:1:1453:A:C8	18:n:73:ASN:HB3	2.54	0.42
2:1:1716:U:O2'	2:1:1717:A:H5'	2.19	0.42
2:1:2252:G:H1	4:5:74:C:H42	1.68	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2581:G:N1	2:1:2610:C:O2'	2.52	0.42
2:1:2588:G:C2'	2:1:2589:A:H5'	2.50	0.42
2:1:2643:G:H2'	2:1:2644:G:O4'	2.20	0.42
2:1:2731:G:O3'	7:c:208:LYS:NZ	2.53	0.42
3:2:42:C:O2	9:e:88:VAL:HA	2.19	0.42
5:8:152:LEU:HD12	5:8:152:LEU:HA	1.93	0.42
5:8:324:ILE:HA	5:8:334:THR:HA	2.01	0.42
6:b:44:ASN:OD1	6:b:44:ASN:N	2.53	0.42
7:c:91:THR:H	7:c:94:GLN:HE21	1.66	0.42
10:f:14:VAL:HG12	10:f:27:GLY:HA2	2.01	0.42
13:i:63:ASP:OD1	13:i:63:ASP:N	2.53	0.42
19:o:11:ALA:HB1	19:o:14:ALA:HB3	2.01	0.42
37:4:13:A:O2'	37:4:14:A:H5'	2.20	0.42
39:G:22:TRP:HA	39:G:189:ASN:HA	2.01	0.42
47:O:45:ARG:NH1	47:O:47:GLU:OE1	2.53	0.42
57:Y:21:ALA:HA	57:Y:24:ARG:HD3	2.02	0.42
1:3:262:A:H2'	1:3:263:A:C8	2.55	0.41
1:3:1119:C:O2'	1:3:1120:C:H5'	2.20	0.41
1:3:1346:A:N1	1:3:1374:A:H5''	2.35	0.41
2:1:43:G:O2'	2:1:44:A:H5'	2.20	0.41
2:1:76:C:H42	2:1:110:G:H1	1.68	0.41
2:1:125:A:O4'	34:D:13:ASN:HB3	2.20	0.41
2:1:1024:G:P	2:1:1025:G:H3'	2.60	0.41
2:1:1054:A:H2	2:1:1105:U:H3	1.68	0.41
2:1:1321:A:H3'	2:1:1322:A:H8	1.84	0.41
2:1:1609:A:H5'	2:1:1609:A:C8	2.55	0.41
2:1:1974:C:H2'	2:1:1975:G:C8	2.55	0.41
2:1:2259:U:H1'	2:1:2427:C:H2'	2.02	0.41
2:1:2350:C:H2'	2:1:2351:G:O4'	2.19	0.41
2:1:2611:C:H2'	2:1:2612:C:H6	1.85	0.41
13:i:47:SER:O	13:i:47:SER:OG	2.31	0.41
19:o:24:THR:HB	19:o:90:VAL:HG12	2.02	0.41
30:z:47:ILE:HD13	30:z:47:ILE:HA	1.88	0.41
39:G:218:ALA:HA	39:G:221:ARG:HE	1.85	0.41
52:T:3:SER:OG	52:T:5:GLU:OE1	2.33	0.41
1:3:668:G:H2'	1:3:669:G:C8	2.55	0.41
1:3:1422:G:N2	1:3:1479:C:N4	2.68	0.41
2:1:140:C:C6	2:1:141:G:H4'	2.55	0.41
2:1:1564:C:C4	2:1:1565:C:C4	3.08	0.41
2:1:1900:A:H5'	2:1:1970:A:C5'	2.50	0.41
2:1:2575:C:O5'	2:1:2575:C:H6	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:2676:C:H6	2:1:2676:C:O5'	2.04	0.41
2:1:2840:C:H2'	2:1:2841:C:C6	2.55	0.41
5:8:281:ALA:O	5:8:285:TYR:N	2.53	0.41
7:c:59:ARG:HD2	7:c:59:ARG:HA	1.85	0.41
11:g:71:LYS:HA	11:g:71:LYS:HD3	1.66	0.41
12:a:183:ASP:OD1	12:a:183:ASP:N	2.43	0.41
16:l:19:LEU:H	16:l:19:LEU:HG	1.55	0.41
16:l:37:GLY:O	16:l:41:ARG:NH2	2.44	0.41
28:x:51:SER:OG	28:x:54:GLY:N	2.49	0.41
32:B:53:VAL:HG23	32:B:54:ILE:HG23	2.03	0.41
33:C:38:PHE:HD1	33:C:45:HIS:HD2	1.68	0.41
37:4:6:G:H2'	37:4:7:G:C8	2.55	0.41
38:6:25:C:H2'	38:6:26:G:H8	1.85	0.41
40:H:24:ASN:OD1	40:H:25:THR:N	2.53	0.41
43:K:11:HIS:CD2	43:K:54:LEU:HD11	2.55	0.41
43:K:93:LYS:HE2	43:K:93:LYS:HB2	1.84	0.41
54:V:29:LYS:HE2	54:V:29:LYS:HB3	1.83	0.41
1:3:111:G:O2'	1:3:389:A:H1'	2.20	0.41
1:3:304:U:O2'	1:3:305:G:H5'	2.19	0.41
1:3:332:G:OP1	57:Y:4:LYS:HE2	2.20	0.41
1:3:374:A:H2'	1:3:375:U:C6	2.55	0.41
1:3:392:C:OP2	53:U:12:LYS:HB3	2.20	0.41
1:3:909:A:H2'	1:3:910:C:O4'	2.20	0.41
1:3:1264:U:H3	1:3:1271:A:H61	1.67	0.41
2:1:343:C:C2'	2:1:344:A:H5'	2.50	0.41
2:1:372:G:H5'	28:x:57:VAL:HG13	2.03	0.41
2:1:772:C:H5''	2:1:1356:G:C5'	2.50	0.41
2:1:877:A:O2'	2:1:900:A:N6	2.53	0.41
2:1:1177:G:H3'	2:1:1178:C:H5''	2.02	0.41
2:1:1310:G:C3'	2:1:1311:G:H5'	2.50	0.41
2:1:1444:G:H2'	2:1:1445:G:O4'	2.21	0.41
2:1:1741:C:C2'	2:1:1742:U:H5'	2.50	0.41
2:1:1998:A:H4'	2:1:2724:U:O2'	2.19	0.41
2:1:2670:A:H2'	2:1:2671:G:C8	2.55	0.41
2:1:2873:A:O2'	2:1:2874:C:H5'	2.20	0.41
2:1:2884:U:H3	32:B:39:ARG:CZ	2.34	0.41
3:2:118:C:C2'	3:2:119:A:H4'	2.33	0.41
7:c:80:TRP:CD1	7:c:202:ILE:HD11	2.55	0.41
14:j:19:ASP:OD2	14:j:21:THR:OG1	2.29	0.41
17:m:55:ARG:HA	17:m:58:LYS:HA	2.02	0.41
50:R:70:ARG:O	50:R:73:SER:OG	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:V:38:LYS:HE3	54:V:38:LYS:HB3	1.86	0.41
57:Y:10:ALA:O	57:Y:13:SER:OG	2.28	0.41
1:3:938:A:H1'	1:3:1376:U:O2'	2.20	0.41
2:1:289:G:H2'	2:1:290:U:O4'	2.20	0.41
2:1:327:G:H21	25:u:67:SER:HB2	1.85	0.41
2:1:711:G:H2'	2:1:712:G:O4'	2.21	0.41
2:1:734:A:O2'	2:1:1635:A:H4'	2.21	0.41
2:1:2133:G:H8	2:1:2158:A:C2	2.38	0.41
2:1:2733:A:C2	7:c:209:ALA:OXT	2.74	0.41
5:8:187:LYS:HE2	5:8:189:LYS:HB2	2.03	0.41
5:8:493:THR:OG1	5:8:525:LEU:HD11	2.20	0.41
5:8:494:ILE:HB	5:8:608:ALA:HB1	2.03	0.41
5:8:520:ILE:HG22	5:8:578:LEU:HA	2.02	0.41
17:m:82:MET:HE2	17:m:82:MET:HB2	1.80	0.41
18:n:22:ARG:HH21	18:n:71:ARG:HB2	1.85	0.41
19:o:25:ARG:HG3	19:o:40:ILE:HB	2.03	0.41
26:v:58:SER:OG	26:v:59:GLU:OE1	2.31	0.41
40:H:8:GLY:O	51:S:96:LYS:NZ	2.42	0.41
42:J:83:PRO:HB3	42:J:97:PRO:HD3	2.02	0.41
49:Q:9:LYS:HE2	49:Q:9:LYS:HB2	1.85	0.41
58:Z:27:VAL:O	58:Z:31:VAL:N	2.53	0.41
1:3:224:U:H2'	1:3:225:C:C5	2.55	0.41
1:3:392:C:H2'	1:3:393:A:O4'	2.21	0.41
1:3:562:U:H4'	1:3:563:A:O5'	2.20	0.41
1:3:862:C:O2'	1:3:863:U:H5'	2.20	0.41
1:3:957:U:H2'	1:3:959:A:OP2	2.21	0.41
1:3:1032:G:H21	1:3:1033:G:H4'	1.85	0.41
1:3:1305:G:H22	1:3:1331:G:H2'	1.86	0.41
1:3:1386:G:O2'	1:3:1387:G:H5'	2.20	0.41
2:1:52:A:C5	2:1:118:A:C2	3.08	0.41
2:1:324:A:H2'	2:1:325:G:H5'	2.01	0.41
2:1:375:G:H2'	2:1:376:G:H5'	2.03	0.41
2:1:801:G:C8	8:d:50:ALA:HB2	2.55	0.41
2:1:1639:C:C2'	2:1:1640:A:H5'	2.51	0.41
2:1:2120:G:H21	12:a:167:LYS:HD2	1.79	0.41
2:1:2521:C:C2'	2:1:2522:U:H5'	2.50	0.41
2:1:2578:G:O2'	2:1:2579:C:H5'	2.20	0.41
3:2:78:A:H2'	3:2:79:G:O4'	2.20	0.41
5:8:64:THR:HG23	5:8:472:ARG:HH22	1.86	0.41
5:8:515:TYR:CB	5:8:587:ASP:HB3	2.50	0.41
5:8:648:GLU:N	5:8:651:GLY:O	2.48	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:c:116:LYS:HB2	7:c:165:MET:HB3	2.03	0.41
11:g:63:ALA:HA	11:g:66:ASN:HD22	1.84	0.41
47:O:53:ILE:HD12	51:S:84:ARG:HD2	2.03	0.41
48:P:25:SER:HA	48:P:88:PRO:HD2	2.02	0.41
51:S:92:ILE:HD13	51:S:92:ILE:HA	1.84	0.41
1:3:458:U:H2'	1:3:459:A:C8	2.55	0.41
1:3:1389:C:H2'	1:3:1390:U:O4'	2.21	0.41
2:1:72:U:C4	2:1:112:U:H4'	2.55	0.41
2:1:813:U:H2'	2:1:814:C:C6	2.54	0.41
2:1:838:C:C2	2:1:941:A:C6	3.09	0.41
2:1:1799:G:N2	6:b:153:LEU:HA	2.35	0.41
2:1:2073:C:O2	2:1:2437:G:C2	2.74	0.41
2:1:2733:A:N3	7:c:209:ALA:OXT	2.54	0.41
2:1:2798:U:H4'	2:1:2799:A:C6	2.56	0.41
5:8:495:ARG:HG3	5:8:495:ARG:NH1	2.36	0.41
41:I:201:GLU:OE1	42:J:111:ARG:NH1	2.54	0.41
48:P:92:ARG:NH2	48:P:113:THR:OG1	2.53	0.41
1:3:26:A:H61	1:3:558:G:H1'	1.86	0.41
1:3:58:C:H2'	1:3:59:A:H5'	2.01	0.41
1:3:204:G:H2'	1:3:205:A:C8	2.55	0.41
1:3:220:G:O2'	1:3:221:C:H5'	2.21	0.41
2:1:538:A:H2'	2:1:539:G:O4'	2.20	0.41
2:1:782:A:N7	6:b:219:VAL:HG21	2.35	0.41
2:1:976:G:H5'	2:1:1156:A:N6	2.35	0.41
2:1:1262:A:H2	32:B:6:LYS:HZ3	1.65	0.41
2:1:1303:G:H2'	2:1:1304:A:C8	2.54	0.41
2:1:1512:C:O5'	2:1:1512:C:H6	2.03	0.41
2:1:1863:G:H2'	2:1:1864:U:C6	2.56	0.41
2:1:2302:U:H2'	2:1:2303:G:C8	2.56	0.41
2:1:2544:G:H2'	2:1:2545:G:C8	2.55	0.41
6:b:77:VAL:HB	6:b:112:GLY:H	1.86	0.41
6:b:116:GLN:NE2	6:b:120:ASP:OD2	2.54	0.41
7:c:19:GLY:HA2	20:p:78:PRO:HD2	2.02	0.41
9:e:78:ILE:HD11	9:e:82:TYR:HB3	2.03	0.41
25:u:8:ASP:O	25:u:23:LYS:NZ	2.45	0.41
26:v:73:LYS:HA	26:v:73:LYS:HD2	1.94	0.41
39:G:18:GLN:HG2	39:G:19:THR:HG22	2.03	0.41
41:I:149:LYS:HG2	41:I:150:LYS:HG2	2.02	0.41
1:3:68:G:C2	1:3:69:G:H1'	2.55	0.41
1:3:228:A:H2'	1:3:229:U:O4'	2.20	0.41
1:3:353:A:H8	1:3:353:A:O5'	2.04	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:3:492:C:H2'	1:3:493:A:H8	1.83	0.41
1:3:1093:A:O2'	1:3:1094:G:H5'	2.20	0.41
1:3:1253:G:OP1	47:O:46:LYS:HB3	2.21	0.41
1:3:1290:G:H4'	44:L:34:LYS:CE	2.51	0.41
2:1:940:G:C3'	2:1:941:A:H5''	2.51	0.41
2:1:1096:A:C2	13:i:21:PRO:O	2.73	0.41
2:1:1591:A:H2'	2:1:1592:C:C6	2.55	0.41
2:1:2654:A:H1'	2:1:2656:U:C6	2.54	0.41
2:1:2656:U:OP1	5:8:146:ARG:NH2	2.52	0.41
2:1:2811:G:O2'	2:1:2812:G:H5'	2.21	0.41
4:5:28:C:OP1	5:8:507:LYS:HG2	2.21	0.41
5:8:161:ARG:HD2	5:8:162:LEU:HD23	2.02	0.41
5:8:169:LEU:HD12	5:8:185:LEU:HB3	2.01	0.41
5:8:429:GLU:OE2	49:Q:30:ARG:NH1	2.54	0.41
6:b:159:THR:OG1	6:b:160:TYR:N	2.54	0.41
6:b:170:TYR:HB3	6:b:182:LYS:HB3	2.02	0.41
14:j:61:LYS:HE2	14:j:61:LYS:HB2	1.88	0.41
19:o:8:ILE:HD13	19:o:8:ILE:HA	1.91	0.41
37:4:20:C:H2'	37:4:21:A:H8	1.84	0.41
45:M:126:CYS:SG	45:M:127:TYR:N	2.94	0.41
52:T:47:LYS:HA	52:T:47:LYS:HD3	1.94	0.41
1:3:79:G:C2'	1:3:80:A:H5'	2.51	0.41
1:3:186:C:H4'	57:Y:76:ALA:HB2	2.03	0.41
1:3:456:A:H2'	1:3:457:G:C8	2.56	0.41
1:3:795:C:C5	1:3:796:C:C5	3.09	0.41
1:3:866:C:C2	1:3:867:G:H1'	2.56	0.41
1:3:878:A:H1'	45:M:3:GLN:HE21	1.86	0.41
1:3:883:C:H2'	1:3:884:U:C6	2.56	0.41
1:3:904:U:H2'	1:3:905:U:C6	2.56	0.41
1:3:950:U:C5	50:R:100:ARG:HG2	2.55	0.41
1:3:990:C:H2'	1:3:991:U:O4'	2.21	0.41
1:3:994:A:H61	1:3:1047:G:H4'	1.86	0.41
1:3:1049:U:C4	51:S:1:ALA:HB1	2.56	0.41
1:3:1147:C:H4'	46:N:6:TYR:CZ	2.56	0.41
1:3:1225:A:H4'	56:X:77:ARG:HH11	1.83	0.41
1:3:1327:C:H2'	1:3:1328:C:H6	1.85	0.41
1:3:1468:A:H2'	1:3:1469:C:O4'	2.21	0.41
2:1:4:U:H2'	2:1:5:A:O4'	2.20	0.41
2:1:96:C:H4'	29:y:41:HIS:CG	2.56	0.41
2:1:272:A:H2'	2:1:273:G:H8	1.86	0.41
2:1:382:A:C2	2:1:393:C:N3	2.88	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:503:A:H4'	2:1:505:A:H5''	2.02	0.41
2:1:1047:G:N2	2:1:1110:G:H2'	2.36	0.41
2:1:1142:A:H4'	14:j:27:ARG:NH2	2.35	0.41
2:1:1203:U:O2	16:l:4:ASN:OD1	2.39	0.41
2:1:1521:G:H2'	2:1:1522:A:C8	2.56	0.41
2:1:1752:C:O2'	2:1:1753:G:H5'	2.21	0.41
2:1:1955:U:H6	2:1:1955:U:H5'	1.86	0.41
2:1:1972:G:H2'	2:1:1973:G:H8	1.85	0.41
2:1:2114:A:C5	2:1:2115:G:H1'	2.55	0.41
2:1:2356:U:H3'	2:1:2357:G:H5''	2.03	0.41
2:1:2365:G:C5'	27:w:56:PHE:HE1	2.33	0.41
2:1:2472:G:H2'	2:1:2475:C:H42	1.86	0.41
2:1:2498:C:O2'	2:1:2499:C:H5'	2.20	0.41
2:1:2578:G:N2	2:1:2579:C:C2	2.88	0.41
2:1:2746:U:H2'	2:1:2747:G:O4'	2.21	0.41
3:2:53:A:H2'	3:2:54:G:O4'	2.20	0.41
3:2:102:G:H2'	3:2:103:U:C1'	2.51	0.41
5:8:490:TYR:HB2	5:8:569:TYR:CD1	2.56	0.41
6:b:110:LYS:HD2	6:b:110:LYS:HA	1.90	0.41
7:c:55:LYS:HE3	7:c:60:VAL:HG22	2.03	0.41
9:e:141:ASP:O	50:R:70:ARG:NE	2.53	0.41
15:k:71:ARG:HH22	20:p:79:VAL:HG11	1.86	0.41
16:l:79:LEU:HD22	16:l:116:VAL:HG11	2.03	0.41
17:m:42:THR:HA	17:m:93:VAL:HA	2.02	0.41
18:n:103:ARG:HB2	18:n:110:MET:HE3	2.03	0.41
28:x:13:THR:OG1	28:x:25:LYS:HD2	2.20	0.41
31:A:8:LYS:NZ	31:A:10:GLU:OE1	2.45	0.41
37:4:20:C:H6	37:4:20:C:H5'	1.85	0.41
38:6:33:U:H2'	38:6:35:A:OP2	2.21	0.41
39:G:23:ASN:H	39:G:189:ASN:HA	1.85	0.41
42:J:37:VAL:HG21	42:J:113:VAL:HG13	2.02	0.41
44:L:30:MET:HE3	44:L:30:MET:HB3	1.90	0.41
46:N:82:ILE:HA	46:N:85:ALA:HB3	2.03	0.41
47:O:30:LYS:HA	47:O:34:ALA:HA	2.02	0.41
49:Q:42:LYS:HD3	49:Q:90:PRO:HD3	2.03	0.41
53:U:60:TRP:HB3	53:U:65:ALA:HB2	2.03	0.41
54:V:46:HIS:CG	54:V:66:LEU:HD22	2.56	0.41
1:3:407:U:H3	1:3:435:A:H61	1.69	0.41
1:3:413:G:H2'	1:3:413:G:N3	2.36	0.41
1:3:619:U:O2'	41:I:129:VAL:HG22	2.21	0.41
2:1:324:A:C2'	2:1:325:G:H5'	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:413:C:H2'	2:1:414:C:C6	2.56	0.41
2:1:729:G:O2'	2:1:763:G:H4'	2.21	0.41
2:1:1365:A:H5'	28:x:1:SER:OG	2.20	0.41
2:1:1665:A:H1'	15:k:1:MET:HE3	2.02	0.41
2:1:1666:G:N7	2:1:1667:G:C6	2.89	0.41
2:1:2049:G:N2	2:1:2620:C:C2	2.89	0.41
2:1:2661:G:H4'	5:8:19:ILE:CD1	2.51	0.41
2:1:2748:A:O3'	10:f:3:VAL:HG21	2.21	0.41
3:2:38:C:O2	3:2:48:U:H1'	2.21	0.41
3:2:62:C:H2'	3:2:63:C:C6	2.56	0.41
5:8:158:ILE:HG23	5:8:162:LEU:HB2	2.03	0.41
6:b:7:PRO:HB3	6:b:13:ARG:HG3	2.03	0.41
15:k:51:LYS:HA	15:k:51:LYS:HD3	1.75	0.41
16:l:78:ARG:HE	16:l:111:ILE:HD11	1.86	0.41
17:m:27:SER:HG	17:m:104:GLU:CD	2.29	0.41
27:w:11:ASP:OD2	27:w:12:SER:N	2.54	0.41
29:y:31:GLN:HB3	29:y:37:LEU:HD12	2.02	0.41
45:M:7:ALA:HA	45:M:10:LEU:HB2	2.02	0.41
46:N:21:LYS:HE2	46:N:21:LYS:HB2	1.85	0.41
50:R:77:LYS:HB2	50:R:77:LYS:HE3	1.88	0.41
1:3:39:G:O6	1:3:547:A:H2'	2.22	0.40
1:3:130:A:H2'	1:3:130:A:N3	2.36	0.40
1:3:706:A:H2'	1:3:707:U:H5'	2.04	0.40
1:3:718:A:N6	55:W:62:ARG:NH1	2.69	0.40
1:3:762:U:H2'	1:3:763:G:C8	2.55	0.40
1:3:1153:G:H2'	1:3:1154:G:O4'	2.20	0.40
2:1:226:A:H2'	2:1:227:A:O4'	2.21	0.40
2:1:469:G:O6	34:D:39:ARG:CZ	2.69	0.40
2:1:481:G:H1'	2:1:506:G:H22	1.82	0.40
2:1:692:C:H2'	2:1:693:A:H8	1.86	0.40
2:1:1314:C:H6	2:1:1314:C:O5'	2.04	0.40
2:1:1468:U:H2'	2:1:1522:A:H61	1.87	0.40
2:1:1787:A:N3	2:1:1787:A:H2'	2.36	0.40
2:1:1810:A:H2'	2:1:1811:G:C5'	2.51	0.40
2:1:1818:U:C4	6:b:152:GLN:HG2	2.55	0.40
2:1:1844:C:H5''	6:b:255:LYS:HD3	2.03	0.40
2:1:2313:C:H2'	2:1:2314:A:C8	2.56	0.40
3:2:42:C:H1'	9:e:63:LYS:O	2.21	0.40
4:5:46:G:H2'	4:5:48:C:OP2	2.21	0.40
7:c:117:GLY:H	7:c:164:GLN:HE22	1.68	0.40
10:f:97:VAL:HG11	10:f:123:GLU:HA	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:a:41:SER:OG	12:a:43:ASP:OD2	2.33	0.40
20:p:17:PRO:HD2	20:p:83:ILE:HB	2.04	0.40
29:y:1:MET:HA	29:y:4:LYS:HB2	2.02	0.40
48:P:34:THR:HA	48:P:40:ALA:HA	2.02	0.40
48:P:71:ASP:N	48:P:71:ASP:OD1	2.43	0.40
56:X:20:LYS:O	56:X:24:SER:OG	2.38	0.40
56:X:46:LEU:HB3	56:X:48:ILE:HG12	2.03	0.40
1:3:270:A:H2'	1:3:271:C:O4'	2.20	0.40
1:3:986:U:H2'	1:3:987:G:O4'	2.21	0.40
2:1:121:G:H2'	2:1:122:G:H8	1.87	0.40
2:1:151:C:H5''	2:1:1360:G:OP1	2.21	0.40
2:1:227:A:C2	2:1:418:C:H1'	2.56	0.40
2:1:297:G:O3'	25:u:84:PHE:HB2	2.21	0.40
2:1:1365:A:H5'	28:x:1:SER:HG	1.85	0.40
2:1:2063:C:O2	2:1:2450:A:N1	2.54	0.40
2:1:2081:U:H2'	2:1:2082:A:H8	1.86	0.40
2:1:2108:A:OP1	12:a:3:LYS:HB3	2.22	0.40
2:1:2201:G:H2'	2:1:2202:U:O4'	2.21	0.40
2:1:2448:A:H3'	2:1:2449:U:H2'	2.02	0.40
2:1:2572:A:C8	7:c:149:ASN:ND2	2.90	0.40
5:8:18:HIS:ND1	5:8:120:GLN:HB3	2.36	0.40
5:8:446:ARG:HB3	5:8:459:ALA:HB3	2.02	0.40
9:e:90:LEU:HG	9:e:95:MET:HB3	2.03	0.40
10:f:84:LYS:HA	10:f:84:LYS:HD2	1.78	0.40
11:g:1:MET:N	11:g:21:VAL:O	2.54	0.40
12:a:42:VAL:HG13	12:a:175:ILE:HG13	2.02	0.40
20:p:8:GLU:HA	20:p:54:LEU:HD22	2.03	0.40
21:q:94:LEU:HA	21:q:97:ILE:HG22	2.03	0.40
26:v:76:ASP:H	26:v:90:ASP:HB3	1.85	0.40
33:C:10:LEU:HB2	33:C:20:TYR:HB2	2.03	0.40
34:D:1:MET:SD	34:D:2:LYS:N	2.94	0.40
34:D:24:THR:OG1	34:D:25:LYS:N	2.53	0.40
38:6:27:U:C5'	38:6:27:U:H6	2.34	0.40
45:M:26:MET:HB3	45:M:58:LEU:HB3	2.04	0.40
48:P:25:SER:OG	48:P:28:ASN:N	2.48	0.40
1:3:231:U:O2'	1:3:232:G:H5'	2.22	0.40
1:3:962:C:H1'	1:3:1201:A:N6	2.36	0.40
1:3:1216:A:H5''	51:S:4:SER:OG	2.21	0.40
1:3:1251:A:H5'	46:N:13:SER:HG	1.81	0.40
1:3:1370:G:O2'	1:3:1371:G:H5'	2.21	0.40
2:1:43:G:H2'	2:1:44:A:O4'	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:529:A:C5	2:1:2042:A:C2	3.10	0.40
2:1:751:A:H62	2:1:789:A:H62	1.67	0.40
2:1:1642:G:H2'	2:1:1643:G:O4'	2.21	0.40
2:1:1698:A:N7	2:1:1700:A:C8	2.89	0.40
2:1:2140:G:H2'	2:1:2141:G:C8	2.56	0.40
2:1:2534:A:C2	2:1:2535:G:H1'	2.56	0.40
5:8:534:TYR:HB2	5:8:561:LEU:HD11	2.03	0.40
7:c:150:GLN:O	7:c:153:GLY:N	2.54	0.40
7:c:179:ARG:HB3	7:c:188:LEU:HB2	2.03	0.40
12:a:53:ARG:NE	38:6:62:C:H5'	2.36	0.40
42:J:13:LYS:NZ	42:J:14:LEU:O	2.53	0.40
43:K:88:MET:HB2	55:W:63:TYR:HE2	1.86	0.40
48:P:26:PHE:O	48:P:27:ASN:ND2	2.54	0.40
50:R:64:VAL:H	50:R:67:ASP:HB3	1.85	0.40
53:U:50:THR:HB	53:U:78:VAL:HB	2.02	0.40
1:3:42:G:H1	1:3:400:C:H42	1.70	0.40
1:3:517:G:H4'	1:3:519:C:C2	2.56	0.40
2:1:954:G:C6	2:1:955:U:C2	3.10	0.40
2:1:2436:G:O2'	2:1:2437:G:H5'	2.22	0.40
3:2:112:G:H2'	3:2:113:C:C6	2.56	0.40
4:5:3:G:H4'	4:5:4:C:OP1	2.21	0.40
10:f:123:GLU:HB2	10:f:131:VAL:HB	2.03	0.40
11:g:9:VAL:HG12	11:g:11:ASN:H	1.85	0.40
18:n:24:MET:O	18:n:28:LEU:N	2.54	0.40
28:x:57:VAL:HG12	28:x:61:LYS:NZ	2.37	0.40
38:6:36:U:H2'	38:6:37:A:O4'	2.22	0.40
39:G:26:MET:HE2	39:G:26:MET:HB2	1.90	0.40
39:G:80:LYS:HB3	39:G:80:LYS:HE2	1.93	0.40
43:K:45:ARG:N	43:K:57:ALA:O	2.45	0.40
48:P:124:LYS:HE3	48:P:124:LYS:HB3	1.92	0.40
1:3:409:U:H2'	1:3:410:G:O4'	2.22	0.40
1:3:461:A:H2'	1:3:462:G:C8	2.56	0.40
1:3:553:A:H2'	1:3:554:A:O4'	2.21	0.40
1:3:581:G:N2	1:3:761:G:C6	2.89	0.40
1:3:686:U:H2'	1:3:687:A:H8	1.87	0.40
1:3:1536:C:H2'	1:3:1537:U:C6	2.56	0.40
2:1:1086:A:C1'	2:1:1103:A:H2	2.33	0.40
2:1:1146:C:O2'	2:1:1147:A:H5'	2.21	0.40
2:1:1169:A:H2'	2:1:1170:C:O4'	2.22	0.40
2:1:1795:C:H2'	2:1:1796:U:O4'	2.22	0.40
2:1:1805:A:H5''	6:b:247:TRP:CE2	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:1823:G:C6	2:1:1824:G:C5	3.09	0.40
2:1:2016:U:O2	32:B:3:GLN:NE2	2.49	0.40
2:1:2349:G:OP1	35:E:44:ARG:NH2	2.48	0.40
2:1:2559:C:H2'	2:1:2560:A:H8	1.86	0.40
3:2:48:U:O2'	3:2:49:C:H5'	2.22	0.40
5:8:32:PHE:HA	5:8:37:ASN:HB2	2.03	0.40
6:b:121:ALA:HA	6:b:129:LEU:HD13	2.02	0.40
12:a:44:VAL:HB	12:a:173:THR:HG23	2.03	0.40
13:i:52:LEU:HD21	13:i:81:LYS:HB2	2.03	0.40
25:u:42:LYS:HE2	25:u:42:LYS:HB3	1.90	0.40
25:u:73:ASN:ND2	25:u:76:THR:H	2.19	0.40
28:x:17:ARG:HA	28:x:17:ARG:HD3	1.79	0.40
32:B:42:ILE:HG22	32:B:48:TYR:HB2	2.03	0.40
40:H:148:ILE:HG23	40:H:169:GLU:HB3	2.03	0.40
45:M:38:VAL:HA	45:M:41:GLU:HB3	2.04	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	8	695/697 (100%)	617 (89%)	74 (11%)	4 (1%)	21	54
6	b	269/271 (99%)	227 (84%)	42 (16%)	0	100	100
7	c	207/209 (99%)	178 (86%)	29 (14%)	0	100	100
8	d	199/201 (99%)	181 (91%)	18 (9%)	0	100	100
9	e	175/177 (99%)	164 (94%)	11 (6%)	0	100	100
10	f	174/176 (99%)	157 (90%)	17 (10%)	0	100	100
11	g	147/149 (99%)	125 (85%)	22 (15%)	0	100	100
12	a	128/223 (57%)	105 (82%)	23 (18%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	i	139/141 (99%)	124 (89%)	15 (11%)	0	100	100
14	j	140/142 (99%)	120 (86%)	20 (14%)	0	100	100
15	k	120/122 (98%)	98 (82%)	22 (18%)	0	100	100
16	l	141/143 (99%)	117 (83%)	24 (17%)	0	100	100
17	m	134/136 (98%)	116 (87%)	18 (13%)	0	100	100
18	n	118/120 (98%)	102 (86%)	16 (14%)	0	100	100
19	o	114/116 (98%)	103 (90%)	11 (10%)	0	100	100
20	p	112/114 (98%)	105 (94%)	7 (6%)	0	100	100
21	q	115/117 (98%)	108 (94%)	7 (6%)	0	100	100
22	r	101/103 (98%)	88 (87%)	13 (13%)	0	100	100
23	s	108/110 (98%)	93 (86%)	15 (14%)	0	100	100
24	t	91/93 (98%)	77 (85%)	14 (15%)	0	100	100
25	u	100/102 (98%)	83 (83%)	17 (17%)	0	100	100
26	v	92/94 (98%)	79 (86%)	13 (14%)	0	100	100
27	w	73/75 (97%)	63 (86%)	10 (14%)	0	100	100
28	x	75/77 (97%)	68 (91%)	7 (9%)	0	100	100
29	y	61/63 (97%)	61 (100%)	0	0	100	100
30	z	56/58 (97%)	50 (89%)	6 (11%)	0	100	100
31	A	44/66 (67%)	38 (86%)	6 (14%)	0	100	100
32	B	54/56 (96%)	48 (89%)	6 (11%)	0	100	100
33	C	48/50 (96%)	37 (77%)	11 (23%)	0	100	100
34	D	44/46 (96%)	35 (80%)	9 (20%)	0	100	100
35	E	62/64 (97%)	50 (81%)	10 (16%)	2 (3%)	3	24
36	F	36/38 (95%)	29 (81%)	7 (19%)	0	100	100
39	G	216/225 (96%)	186 (86%)	30 (14%)	0	100	100
40	H	204/206 (99%)	184 (90%)	20 (10%)	0	100	100
41	I	203/205 (99%)	172 (85%)	30 (15%)	1 (0%)	24	57
42	J	155/157 (99%)	129 (83%)	24 (16%)	2 (1%)	9	38
43	K	98/100 (98%)	79 (81%)	18 (18%)	1 (1%)	12	43
44	L	149/151 (99%)	130 (87%)	19 (13%)	0	100	100
45	M	127/129 (98%)	110 (87%)	17 (13%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
46	N	125/127 (98%)	110 (88%)	15 (12%)	0	100	100
47	O	96/98 (98%)	83 (86%)	12 (12%)	1 (1%)	12	43
48	P	114/116 (98%)	104 (91%)	10 (9%)	0	100	100
49	Q	121/123 (98%)	98 (81%)	23 (19%)	0	100	100
50	R	112/114 (98%)	99 (88%)	13 (12%)	0	100	100
51	S	98/100 (98%)	86 (88%)	12 (12%)	0	100	100
52	T	86/88 (98%)	80 (93%)	6 (7%)	0	100	100
53	U	80/82 (98%)	69 (86%)	11 (14%)	0	100	100
54	V	78/80 (98%)	69 (88%)	9 (12%)	0	100	100
55	W	63/65 (97%)	59 (94%)	4 (6%)	0	100	100
56	X	77/79 (98%)	70 (91%)	7 (9%)	0	100	100
57	Y	83/85 (98%)	77 (93%)	6 (7%)	0	100	100
58	Z	63/65 (97%)	46 (73%)	16 (25%)	1 (2%)	7	35
All	All	6520/6744 (97%)	5686 (87%)	822 (13%)	12 (0%)	44	73

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	8	489	ALA
5	8	664	PHE
35	E	31	ILE
43	K	54	LEU
47	O	89	ARG
58	Z	24	LYS
42	J	122	VAL
5	8	198	GLN
42	J	121	ASN
35	E	16	THR
41	I	126	GLY
5	8	121	PRO

### 5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	8	574/574 (100%)	570 (99%)	4 (1%)	76	77
6	b	216/216 (100%)	212 (98%)	4 (2%)	50	66
7	c	164/164 (100%)	163 (99%)	1 (1%)	78	79
8	d	165/165 (100%)	160 (97%)	5 (3%)	36	57
9	e	148/148 (100%)	146 (99%)	2 (1%)	59	70
10	f	137/137 (100%)	136 (99%)	1 (1%)	76	77
11	g	114/114 (100%)	113 (99%)	1 (1%)	70	74
12	a	109/174 (63%)	108 (99%)	1 (1%)	70	74
13	i	109/109 (100%)	109 (100%)	0	100	100
14	j	116/116 (100%)	114 (98%)	2 (2%)	53	67
15	k	103/103 (100%)	100 (97%)	3 (3%)	37	58
16	l	102/102 (100%)	100 (98%)	2 (2%)	48	65
17	m	109/109 (100%)	108 (99%)	1 (1%)	70	74
18	n	100/100 (100%)	100 (100%)	0	100	100
19	o	86/86 (100%)	86 (100%)	0	100	100
20	p	99/99 (100%)	99 (100%)	0	100	100
21	q	89/89 (100%)	89 (100%)	0	100	100
22	r	84/84 (100%)	84 (100%)	0	100	100
23	s	93/93 (100%)	89 (96%)	4 (4%)	26	50
24	t	80/80 (100%)	79 (99%)	1 (1%)	61	71
25	u	83/83 (100%)	82 (99%)	1 (1%)	63	72
26	v	78/78 (100%)	77 (99%)	1 (1%)	61	71
27	w	57/57 (100%)	57 (100%)	0	100	100
28	x	67/67 (100%)	65 (97%)	2 (3%)	36	57
29	y	55/55 (100%)	55 (100%)	0	100	100
30	z	48/48 (100%)	47 (98%)	1 (2%)	47	64
31	A	42/59 (71%)	42 (100%)	0	100	100
32	B	47/47 (100%)	47 (100%)	0	100	100
33	C	45/45 (100%)	44 (98%)	1 (2%)	45	63
34	D	38/38 (100%)	35 (92%)	3 (8%)	11	36
35	E	51/51 (100%)	50 (98%)	1 (2%)	48	65

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
36	F	34/34 (100%)	33 (97%)	1 (3%)	37	58
39	G	180/186 (97%)	179 (99%)	1 (1%)	78	79
40	H	170/170 (100%)	168 (99%)	2 (1%)	63	72
41	I	172/172 (100%)	170 (99%)	2 (1%)	63	72
42	J	119/119 (100%)	116 (98%)	3 (2%)	42	61
43	K	87/87 (100%)	86 (99%)	1 (1%)	65	73
44	L	124/124 (100%)	122 (98%)	2 (2%)	55	68
45	M	104/104 (100%)	102 (98%)	2 (2%)	50	66
46	N	105/105 (100%)	105 (100%)	0	100	100
47	O	86/86 (100%)	86 (100%)	0	100	100
48	P	89/89 (100%)	88 (99%)	1 (1%)	65	73
49	Q	103/103 (100%)	103 (100%)	0	100	100
50	R	92/92 (100%)	91 (99%)	1 (1%)	65	73
51	S	83/83 (100%)	82 (99%)	1 (1%)	63	72
52	T	76/76 (100%)	76 (100%)	0	100	100
53	U	65/65 (100%)	65 (100%)	0	100	100
54	V	74/74 (100%)	74 (100%)	0	100	100
55	W	56/56 (100%)	56 (100%)	0	100	100
56	X	70/70 (100%)	70 (100%)	0	100	100
57	Y	65/65 (100%)	65 (100%)	0	100	100
58	Z	55/55 (100%)	55 (100%)	0	100	100
All	All	5417/5505 (98%)	5358 (99%)	59 (1%)	63	73

All (59) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
5	8	173	ILE
5	8	338	VAL
5	8	390	ASP
5	8	611	VAL
6	b	15	VAL
6	b	64	VAL
6	b	161	VAL
6	b	194	VAL
7	c	197	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
8	d	48	THR
8	d	84	THR
8	d	116	ASP
8	d	134	LEU
8	d	143	LEU
9	e	89	THR
9	e	151	LEU
10	f	36	LEU
11	g	9	VAL
12	a	42	VAL
14	j	3	THR
14	j	139	VAL
15	k	56	ASP
15	k	62	VAL
15	k	104	THR
16	l	19	LEU
16	l	85	VAL
17	m	68	PHE
23	s	22	ASP
23	s	74	ILE
23	s	76	VAL
23	s	97	LEU
24	t	37	ASP
25	u	27	VAL
26	v	65	VAL
28	x	6	VAL
28	x	57	VAL
30	z	26	LEU
33	C	22	THR
34	D	24	THR
34	D	43	THR
34	D	44	VAL
35	E	37	THR
36	F	25	VAL
39	G	67	LEU
40	H	51	VAL
40	H	65	VAL
41	I	27	ILE
41	I	128	VAL
42	J	89	THR
42	J	116	VAL
42	J	130	THR

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Mol	Chain	Res	Type
43	K	92	THR
44	L	72	VAL
44	L	84	TYR
45	M	100	ILE
45	M	109	VAL
48	P	107	THR
50	R	103	THR
51	S	45	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (122) such sidechains are listed below:

Mol	Chain	Res	Type
5	8	85	ASN
5	8	92	HIS
5	8	157	GLN
5	8	198	GLN
5	8	259	ASN
5	8	272	ASN
5	8	276	GLN
5	8	351	ASN
5	8	455	GLN
5	8	487	GLN
5	8	505	HIS
5	8	508	GLN
5	8	514	GLN
5	8	530	ASN
6	b	24	HIS
6	b	85	ASN
6	b	142	ASN
6	b	250	GLN
7	c	32	ASN
7	c	49	GLN
7	c	67	HIS
7	c	130	GLN
7	c	136	ASN
7	c	148	GLN
7	c	164	GLN
7	c	185	ASN
8	d	62	GLN
8	d	195	GLN
9	e	22	ASN
10	f	21	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
10	f	63	GLN
11	g	18	GLN
11	g	66	ASN
11	g	135	HIS
12	a	24	ASN
12	a	47	ASN
12	a	172	HIS
13	i	18	ASN
13	i	42	ASN
14	j	128	ASN
14	j	130	HIS
14	j	135	GLN
15	k	9	ASN
16	l	93	ASN
17	m	22	GLN
18	n	9	GLN
18	n	23	ASN
18	n	107	ASN
19	o	38	GLN
19	o	104	GLN
19	o	116	GLN
20	p	74	GLN
21	q	65	ASN
21	q	70	GLN
23	s	31	GLN
24	t	15	HIS
24	t	59	ASN
24	t	92	ASN
25	u	45	GLN
25	u	68	ASN
25	u	73	ASN
26	v	24	ASN
26	v	78	GLN
26	v	88	HIS
28	x	31	ASN
29	y	41	HIS
31	A	20	ASN
33	C	45	HIS
39	G	14	HIS
39	G	57	ASN
39	G	102	ASN
39	G	119	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
39	G	169	HIS
40	H	7	ASN
40	H	18	ASN
40	H	122	GLN
40	H	139	ASN
40	H	184	ASN
41	I	35	GLN
41	I	58	GLN
41	I	73	ASN
41	I	125	ASN
41	I	130	ASN
41	I	135	GLN
41	I	195	ASN
41	I	197	HIS
42	J	69	ASN
42	J	121	ASN
42	J	147	ASN
43	K	94	HIS
44	L	8	GLN
44	L	27	ASN
44	L	96	ASN
45	M	3	GLN
45	M	15	ASN
45	M	20	ASN
46	N	3	ASN
46	N	49	GLN
47	O	56	HIS
48	P	21	HIS
48	P	27	ASN
48	P	80	ASN
49	Q	28	GLN
49	Q	72	ASN
49	Q	76	HIS
49	Q	111	GLN
50	R	13	HIS
50	R	90	HIS
51	S	48	GLN
51	S	59	GLN
52	T	45	HIS
53	U	26	ASN
53	U	29	ASN
53	U	40	ASN

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Mol	Chain	Res	Type
53	U	79	ASN
54	V	46	HIS
55	W	53	GLN
56	X	55	GLN
57	Y	67	HIS
57	Y	74	HIS
57	Y	81	GLN
57	Y	83	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	3	1538/1539 (99%)	191 (12%)	1 (0%)
2	1	2902/2903 (99%)	435 (14%)	6 (0%)
3	2	119/120 (99%)	18 (15%)	0
37	4	18/35 (51%)	2 (11%)	0
38	6	76/77 (98%)	14 (18%)	0
4	5	76/77 (98%)	18 (23%)	3 (3%)
All	All	4729/4751 (99%)	678 (14%)	10 (0%)

All (678) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	3	3	A
1	3	6	G
1	3	8	A
1	3	9	G
1	3	32	A
1	3	39	G
1	3	47	C
1	3	48	C
1	3	51	A
1	3	54	C
1	3	56	U
1	3	58	C
1	3	61	G
1	3	71	A
1	3	81	A
1	3	87	C
1	3	92	U
1	3	93	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	3	94	G
1	3	95	C
1	3	100	G
1	3	110	C
1	3	134	G
1	3	154	U
1	3	183	C
1	3	184	G
1	3	197	A
1	3	208	U
1	3	210	C
1	3	240	G
1	3	246	A
1	3	247	G
1	3	251	G
1	3	266	G
1	3	280	C
1	3	281	G
1	3	289	G
1	3	308	C
1	3	316	C
1	3	328	C
1	3	352	C
1	3	354	G
1	3	367	U
1	3	369	G
1	3	372	C
1	3	397	A
1	3	406	G
1	3	408	A
1	3	413	G
1	3	414	A
1	3	422	C
1	3	429	U
1	3	430	A
1	3	439	U
1	3	445	G
1	3	448	A
1	3	462	G
1	3	467	U
1	3	468	A
1	3	479	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	3	486	U
1	3	494	G
1	3	497	G
1	3	509	A
1	3	510	A
1	3	511	C
1	3	512	U
1	3	518	C
1	3	531	U
1	3	532	A
1	3	547	A
1	3	555	U
1	3	559	A
1	3	566	G
1	3	572	A
1	3	573	A
1	3	575	G
1	3	576	C
1	3	577	G
1	3	596	A
1	3	633	G
1	3	642	A
1	3	653	U
1	3	665	A
1	3	675	A
1	3	702	A
1	3	703	G
1	3	710	G
1	3	713	G
1	3	721	G
1	3	748	G
1	3	755	G
1	3	777	A
1	3	793	U
1	3	794	A
1	3	815	A
1	3	817	C
1	3	818	G
1	3	819	A
1	3	821	G
1	3	826	C
1	3	832	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	3	836	G
1	3	841	C
1	3	843	U
1	3	844	G
1	3	846	G
1	3	851	G
1	3	872	A
1	3	884	U
1	3	889	A
1	3	902	G
1	3	907	A
1	3	913	A
1	3	934	C
1	3	935	A
1	3	938	A
1	3	960	U
1	3	961	U
1	3	966	G
1	3	968	A
1	3	969	A
1	3	971	G
1	3	974	A
1	3	975	A
1	3	976	G
1	3	977	A
1	3	992	U
1	3	993	G
1	3	994	A
1	3	1004	A
1	3	1012	A
1	3	1029	U
1	3	1031	C
1	3	1033	G
1	3	1053	G
1	3	1054	C
1	3	1064	G
1	3	1077	G
1	3	1094	G
1	3	1095	U
1	3	1101	A
1	3	1136	C
1	3	1137	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	3	1138	G
1	3	1139	G
1	3	1159	U
1	3	1168	U
1	3	1182	G
1	3	1184	G
1	3	1196	A
1	3	1212	U
1	3	1213	A
1	3	1225	A
1	3	1226	C
1	3	1238	A
1	3	1241	G
1	3	1256	A
1	3	1257	A
1	3	1261	A
1	3	1262	C
1	3	1275	A
1	3	1278	G
1	3	1280	A
1	3	1282	C
1	3	1286	U
1	3	1287	A
1	3	1290	G
1	3	1300	G
1	3	1301	U
1	3	1317	C
1	3	1345	U
1	3	1363	A
1	3	1364	U
1	3	1378	C
1	3	1398	A
1	3	1422	G
1	3	1432	G
1	3	1441	A
1	3	1446	A
1	3	1452	C
1	3	1471	U
1	3	1492	A
1	3	1503	A
1	3	1505	G
1	3	1506	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	3	1507	A
1	3	1517	G
1	3	1529	G
1	3	1530	G
1	3	1540	U
2	1	10	A
2	1	12	U
2	1	23	G
2	1	34	U
2	1	35	G
2	1	51	G
2	1	63	A
2	1	71	A
2	1	75	G
2	1	102	U
2	1	103	A
2	1	113	U
2	1	118	A
2	1	119	A
2	1	120	U
2	1	125	A
2	1	126	A
2	1	139	U
2	1	140	C
2	1	141	G
2	1	143	C
2	1	163	C
2	1	196	A
2	1	199	A
2	1	204	A
2	1	205	G
2	1	215	G
2	1	216	A
2	1	218	A
2	1	221	A
2	1	225	C
2	1	228	C
2	1	229	C
2	1	233	A
2	1	248	G
2	1	255	A
2	1	266	G

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	276	U
2	1	277	G
2	1	294	A
2	1	311	A
2	1	323	C
2	1	324	A
2	1	329	G
2	1	330	A
2	1	331	C
2	1	355	U
2	1	361	G
2	1	371	A
2	1	372	G
2	1	380	G
2	1	386	G
2	1	404	A
2	1	405	U
2	1	411	G
2	1	412	A
2	1	424	G
2	1	431	U
2	1	451	U
2	1	455	C
2	1	456	C
2	1	457	A
2	1	458	G
2	1	480	A
2	1	481	G
2	1	490	C
2	1	491	G
2	1	504	A
2	1	505	A
2	1	532	A
2	1	544	C
2	1	548	G
2	1	560	C
2	1	563	A
2	1	568	U
2	1	573	U
2	1	574	A
2	1	586	A
2	1	603	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	609	A
2	1	610	C
2	1	615	U
2	1	627	A
2	1	637	A
2	1	646	U
2	1	654	A
2	1	655	A
2	1	686	U
2	1	690	G
2	1	714	U
2	1	717	C
2	1	730	A
2	1	740	C
2	1	747	C
2	1	752	A
2	1	757	G
2	1	762	U
2	1	764	A
2	1	765	C
2	1	774	G
2	1	775	G
2	1	776	G
2	1	782	A
2	1	783	A
2	1	784	G
2	1	793	A
2	1	805	G
2	1	806	C
2	1	812	C
2	1	819	A
2	1	827	U
2	1	829	A
2	1	830	G
2	1	845	A
2	1	846	U
2	1	858	G
2	1	859	G
2	1	865	C
2	1	878	A
2	1	883	G
2	1	887	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	890	C
2	1	896	A
2	1	897	C
2	1	898	C
2	1	902	C
2	1	910	A
2	1	941	A
2	1	945	A
2	1	946	C
2	1	953	G
2	1	961	C
2	1	974	G
2	1	983	A
2	1	989	G
2	1	995	C
2	1	996	A
2	1	1005	C
2	1	1012	U
2	1	1013	C
2	1	1021	A
2	1	1022	G
2	1	1025	G
2	1	1026	G
2	1	1033	U
2	1	1045	C
2	1	1046	A
2	1	1054	A
2	1	1055	G
2	1	1056	G
2	1	1057	A
2	1	1058	U
2	1	1059	G
2	1	1060	U
2	1	1062	G
2	1	1065	U
2	1	1066	U
2	1	1068	G
2	1	1069	A
2	1	1070	A
2	1	1071	G
2	1	1073	A
2	1	1078	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	1081	U
2	1	1084	A
2	1	1088	A
2	1	1104	C
2	1	1105	U
2	1	1106	G
2	1	1107	G
2	1	1111	A
2	1	1130	U
2	1	1132	U
2	1	1133	A
2	1	1134	A
2	1	1135	C
2	1	1143	A
2	1	1155	A
2	1	1172	C
2	1	1173	U
2	1	1175	A
2	1	1178	C
2	1	1180	U
2	1	1206	G
2	1	1212	G
2	1	1225	G
2	1	1236	G
2	1	1248	G
2	1	1253	A
2	1	1256	G
2	1	1271	G
2	1	1272	A
2	1	1275	A
2	1	1287	A
2	1	1300	G
2	1	1301	A
2	1	1312	U
2	1	1313	U
2	1	1321	A
2	1	1325	U
2	1	1326	U
2	1	1342	A
2	1	1365	A
2	1	1378	A
2	1	1379	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	1383	A
2	1	1397	U
2	1	1416	G
2	1	1417	C
2	1	1419	A
2	1	1420	A
2	1	1428	C
2	1	1453	A
2	1	1461	C
2	1	1478	G
2	1	1482	G
2	1	1490	A
2	1	1504	A
2	1	1515	A
2	1	1524	G
2	1	1534	U
2	1	1535	A
2	1	1537	G
2	1	1548	A
2	1	1555	G
2	1	1559	U
2	1	1566	A
2	1	1569	A
2	1	1608	A
2	1	1609	A
2	1	1616	A
2	1	1617	C
2	1	1618	A
2	1	1647	U
2	1	1648	U
2	1	1654	A
2	1	1674	G
2	1	1694	C
2	1	1698	A
2	1	1707	G
2	1	1715	G
2	1	1730	C
2	1	1738	G
2	1	1758	U
2	1	1764	C
2	1	1773	A
2	1	1781	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	1784	A
2	1	1800	C
2	1	1801	A
2	1	1802	A
2	1	1808	A
2	1	1816	C
2	1	1827	U
2	1	1829	A
2	1	1833	C
2	1	1869	G
2	1	1870	C
2	1	1901	A
2	1	1902	C
2	1	1912	A
2	1	1913	A
2	1	1930	G
2	1	1936	A
2	1	1937	A
2	1	1938	A
2	1	1939	U
2	1	1955	U
2	1	1963	U
2	1	1964	G
2	1	1966	A
2	1	1967	C
2	1	1970	A
2	1	1971	U
2	1	1972	G
2	1	1991	U
2	1	1993	U
2	1	1996	C
2	1	1997	C
2	1	2022	U
2	1	2023	C
2	1	2031	A
2	1	2034	U
2	1	2043	C
2	1	2049	G
2	1	2055	C
2	1	2056	G
2	1	2060	A
2	1	2061	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	2069	G
2	1	2072	C
2	1	2092	U
2	1	2093	G
2	1	2094	A
2	1	2103	C
2	1	2106	U
2	1	2107	G
2	1	2108	A
2	1	2111	U
2	1	2112	G
2	1	2118	U
2	1	2123	G
2	1	2124	G
2	1	2126	A
2	1	2132	U
2	1	2133	G
2	1	2134	A
2	1	2135	A
2	1	2138	G
2	1	2143	C
2	1	2146	C
2	1	2153	C
2	1	2156	G
2	1	2158	A
2	1	2162	G
2	1	2165	C
2	1	2166	U
2	1	2168	G
2	1	2172	U
2	1	2173	A
2	1	2178	C
2	1	2179	C
2	1	2180	U
2	1	2182	U
2	1	2189	U
2	1	2198	A
2	1	2199	A
2	1	2203	U
2	1	2211	A
2	1	2213	U
2	1	2214	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	2225	A
2	1	2238	G
2	1	2239	G
2	1	2249	U
2	1	2250	G
2	1	2268	A
2	1	2283	C
2	1	2287	A
2	1	2289	G
2	1	2300	C
2	1	2305	U
2	1	2307	G
2	1	2309	A
2	1	2325	G
2	1	2327	A
2	1	2344	U
2	1	2350	C
2	1	2357	G
2	1	2361	G
2	1	2371	G
2	1	2376	A
2	1	2383	G
2	1	2385	C
2	1	2388	A
2	1	2402	U
2	1	2403	C
2	1	2406	A
2	1	2423	U
2	1	2425	A
2	1	2426	A
2	1	2427	C
2	1	2429	G
2	1	2430	A
2	1	2435	A
2	1	2441	U
2	1	2447	G
2	1	2448	A
2	1	2460	U
2	1	2469	A
2	1	2473	U
2	1	2476	A
2	1	2497	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	2502	G
2	1	2505	G
2	1	2518	A
2	1	2520	C
2	1	2525	G
2	1	2529	G
2	1	2531	A
2	1	2535	G
2	1	2547	A
2	1	2554	U
2	1	2564	A
2	1	2565	A
2	1	2567	G
2	1	2572	A
2	1	2573	C
2	1	2574	G
2	1	2578	G
2	1	2585	U
2	1	2602	A
2	1	2603	G
2	1	2605	U
2	1	2609	U
2	1	2613	U
2	1	2634	A
2	1	2654	A
2	1	2655	G
2	1	2662	A
2	1	2673	G
2	1	2677	G
2	1	2682	A
2	1	2685	G
2	1	2689	U
2	1	2690	U
2	1	2713	U
2	1	2714	G
2	1	2715	C
2	1	2718	G
2	1	2726	A
2	1	2732	G
2	1	2744	G
2	1	2748	A
2	1	2757	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	1	2758	A
2	1	2764	A
2	1	2765	A
2	1	2778	A
2	1	2779	U
2	1	2791	G
2	1	2793	C
2	1	2798	U
2	1	2801	G
2	1	2820	A
2	1	2833	U
2	1	2848	G
2	1	2850	A
2	1	2867	G
2	1	2868	A
2	1	2879	A
2	1	2880	C
2	1	2883	A
2	1	2884	U
2	1	2893	A
3	2	4	C
3	2	9	G
3	2	13	G
3	2	35	C
3	2	36	C
3	2	42	C
3	2	44	G
3	2	53	A
3	2	66	A
3	2	67	G
3	2	88	C
3	2	89	U
3	2	90	C
3	2	91	C
3	2	98	G
3	2	108	A
3	2	109	A
3	2	119	A
4	5	3	G
4	5	4	C
4	5	5	G
4	5	9	A

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Mol	Chain	Res	Type
4	5	10	G
4	5	18	G
4	5	19	G
4	5	20	U
4	5	21	A
4	5	25	C
4	5	42	G
4	5	45	G
4	5	46	G
4	5	47	U
4	5	49	G
4	5	53	G
4	5	69	G
4	5	73	A
37	4	12	A
37	4	20	C
38	6	9	G
38	6	10	G
38	6	19	G
38	6	20	U
38	6	21	A
38	6	22	G
38	6	27	U
38	6	33	U
38	6	45	G
38	6	47	U
38	6	48	C
38	6	58	A
38	6	61	C
38	6	64	G

All (10) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	3	413	G
2	1	858	G
2	1	1020	A
2	1	1106	G
2	1	1801	A
2	1	2326	C
2	1	2756	U
4	5	2	G

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Mol	Chain	Res	Type
4	5	3	G
4	5	41	A

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

2 ligands 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
60	PO4	8	802	-	4,4,4	1.00	0	6,6,6	0.51	0
59	GDP	8	801	-	29,30,30	1.16	3 (10%)	45,47,47	1.89	9 (20%)

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
59	GDP	8	801	-	-	2/16/32/32	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
59	8	801	GDP	C5-C4	2.84	1.46	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
59	8	801	GDP	C6-N1	-2.60	1.34	1.38
59	8	801	GDP	C4-N9	-2.03	1.32	1.38

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
59	8	801	GDP	C5-C4-N3	-5.99	118.85	128.39
59	8	801	GDP	C2-N3-C4	5.12	121.11	112.30
59	8	801	GDP	N9-C4-N3	4.52	135.00	125.95
59	8	801	GDP	C6-C5-N7	3.67	136.96	130.29
59	8	801	GDP	C4-C5-N7	-2.77	106.28	110.67
59	8	801	GDP	C2'-C1'-N9	-2.15	107.28	113.25
59	8	801	GDP	O6-C6-C5	-2.12	120.94	126.53
59	8	801	GDP	C5-C6-N1	2.07	118.52	113.25
59	8	801	GDP	C8-N7-C5	2.02	107.86	104.26

There are no chirality outliers.

All (2) torsion outliers are listed below:

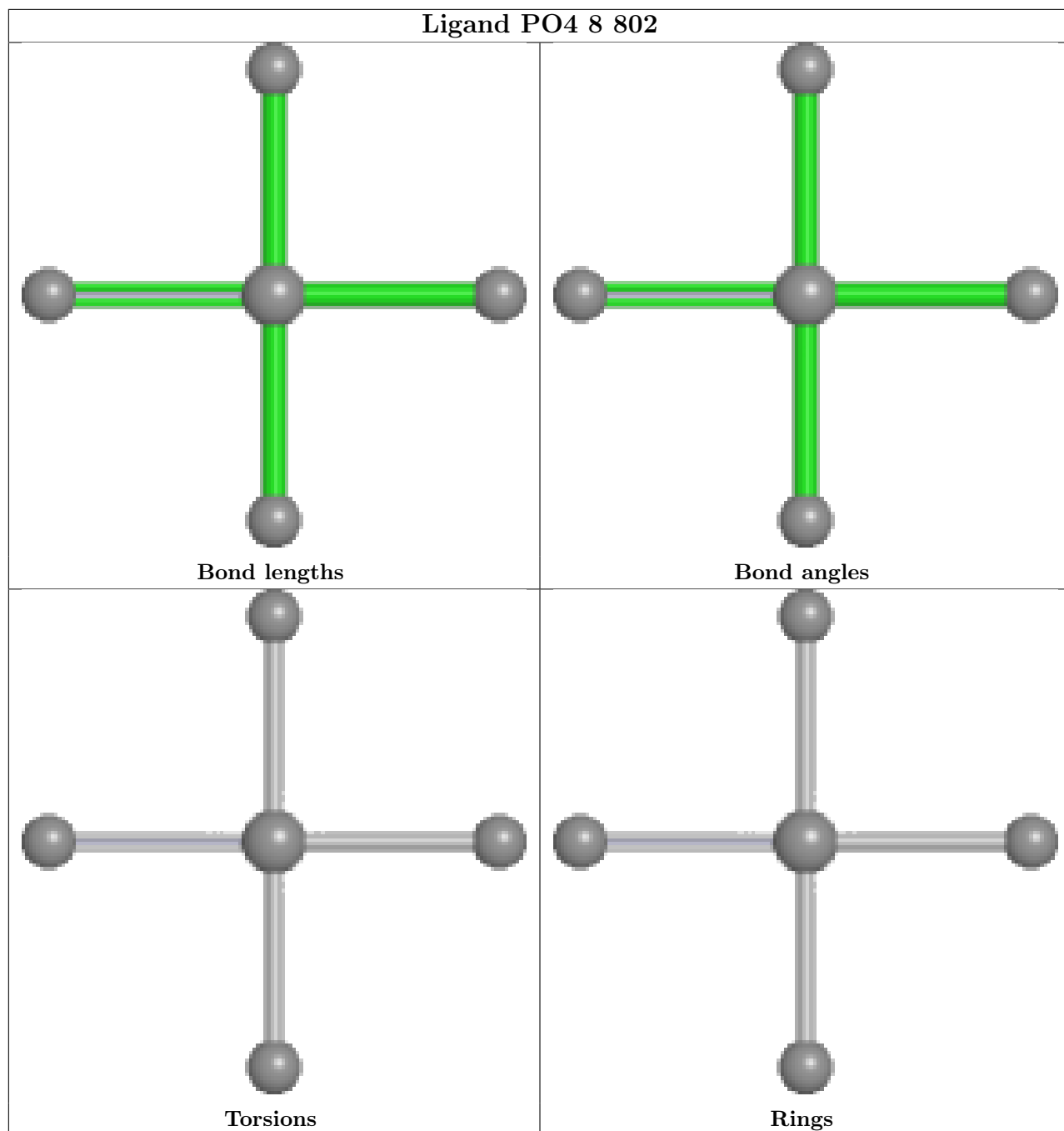
Mol	Chain	Res	Type	Atoms
59	8	801	GDP	C5'-O5'-PA-O3A
59	8	801	GDP	C5'-O5'-PA-O1A

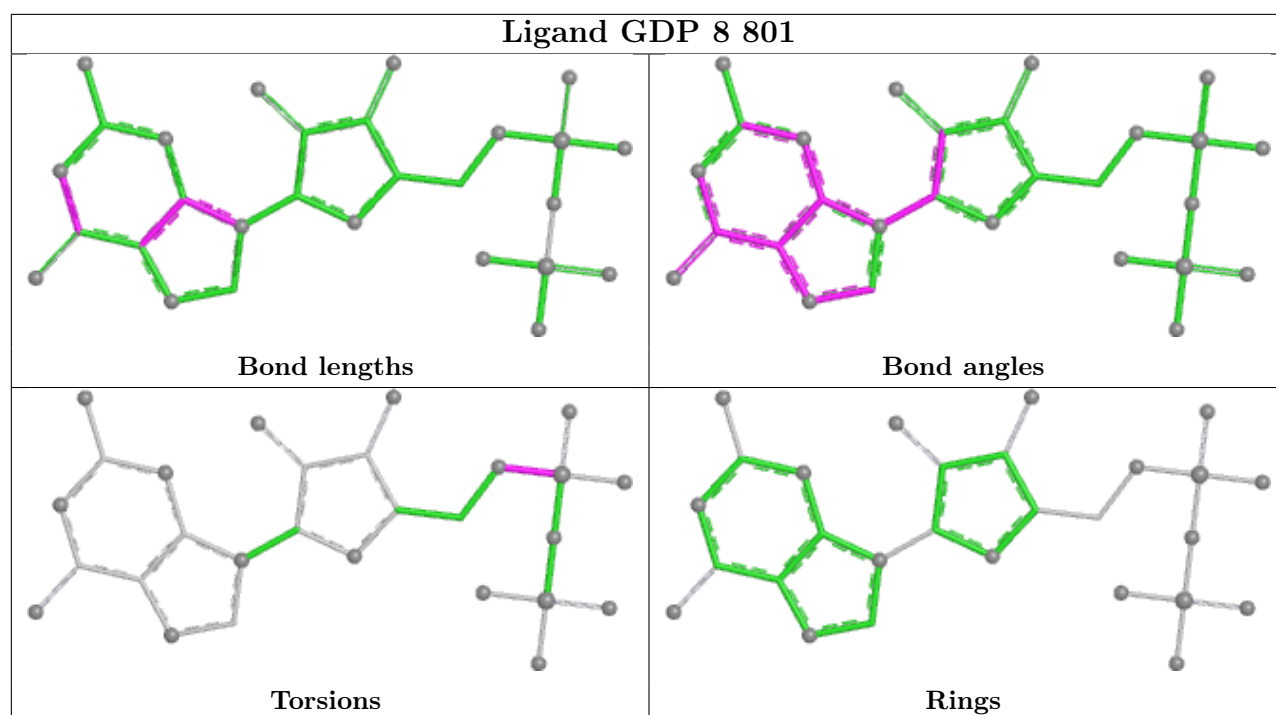
There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
59	8	801	GDP	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





## 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.

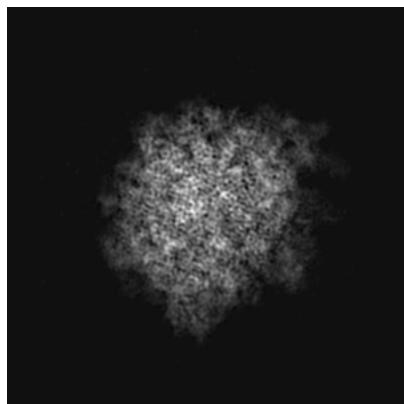
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-25409. These allow visual inspection of the internal detail of the map and identification of artifacts.

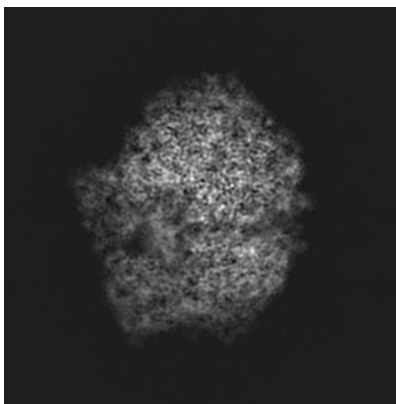
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

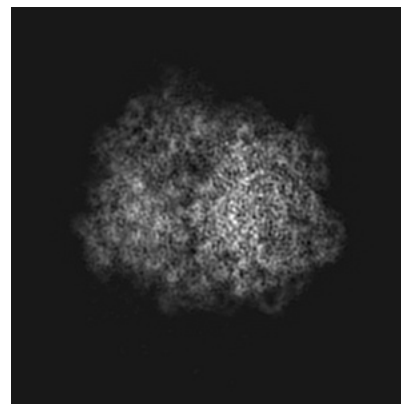
#### 6.1.1 Primary map



X

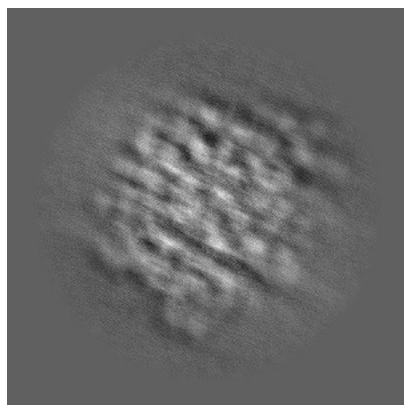


Y

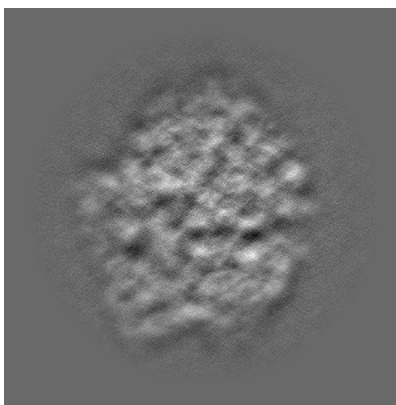


Z

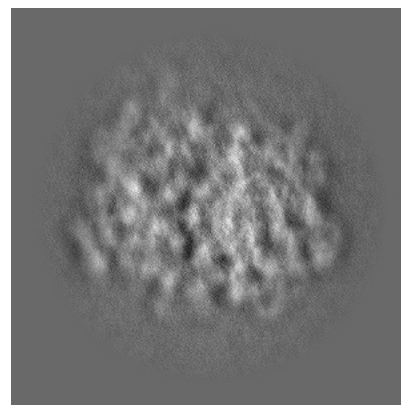
#### 6.1.2 Raw map



X



Y

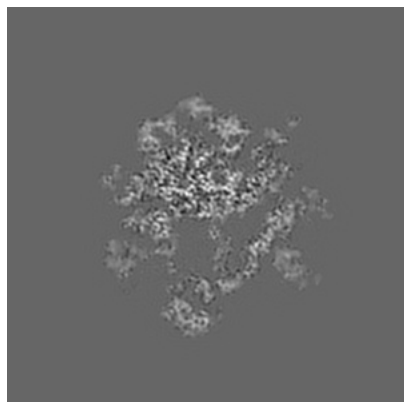


Z

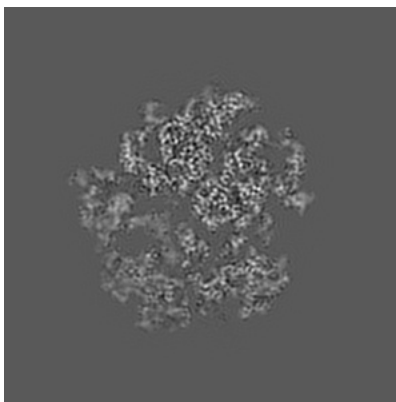
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

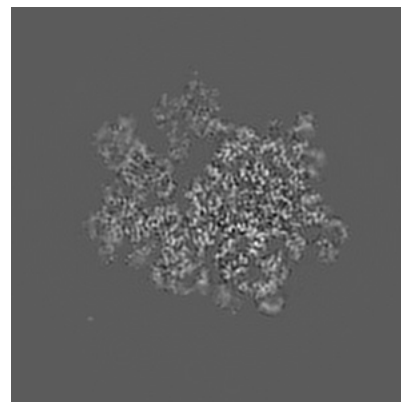
### 6.2.1 Primary map



X Index: 224

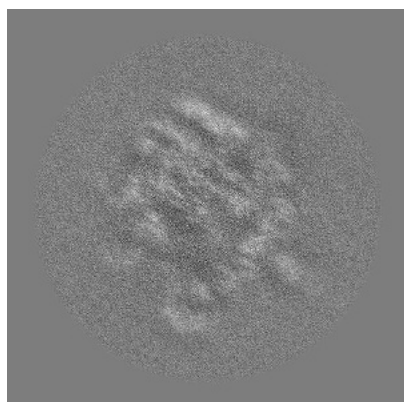


Y Index: 224

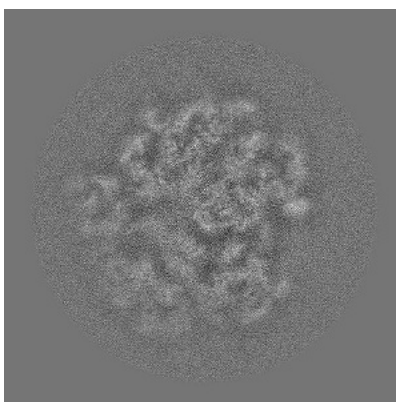


Z Index: 224

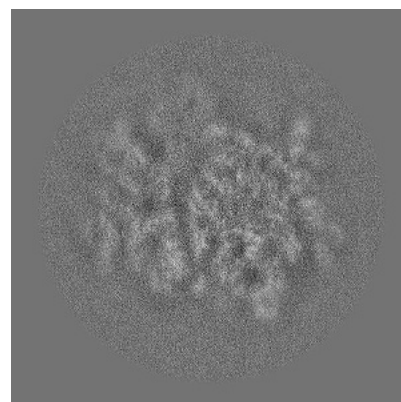
### 6.2.2 Raw map



X Index: 224



Y Index: 224

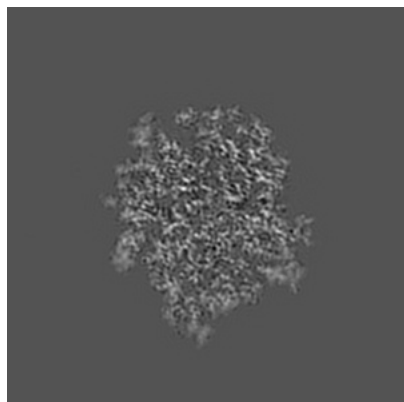


Z Index: 224

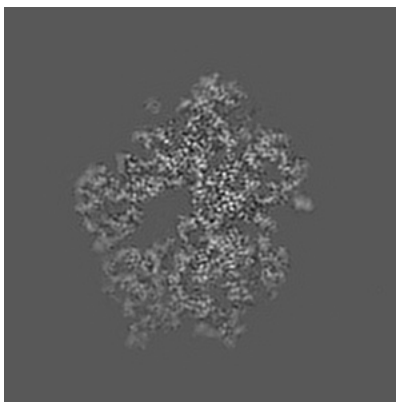
The images above show central slices of the map in three orthogonal directions.

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

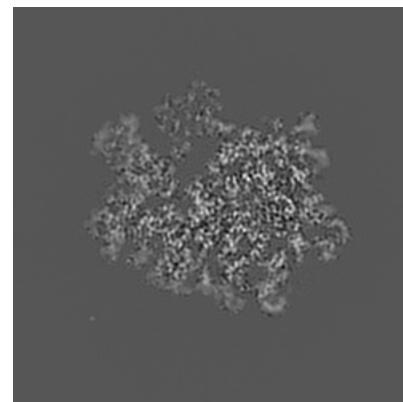
### 6.3.1 Primary map



X Index: 254

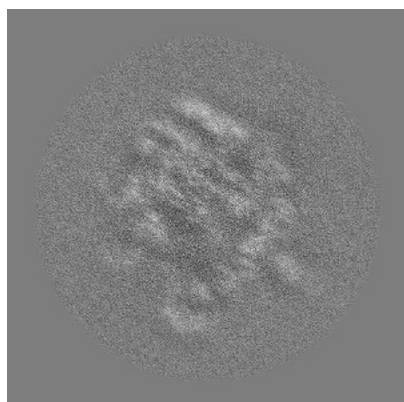


Y Index: 207

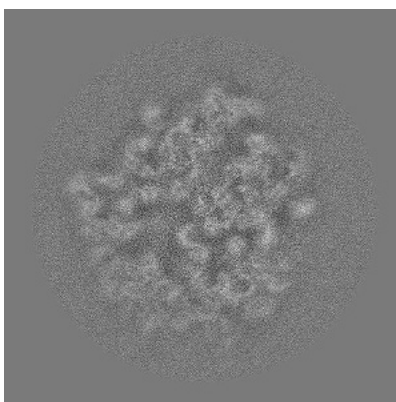


Z Index: 226

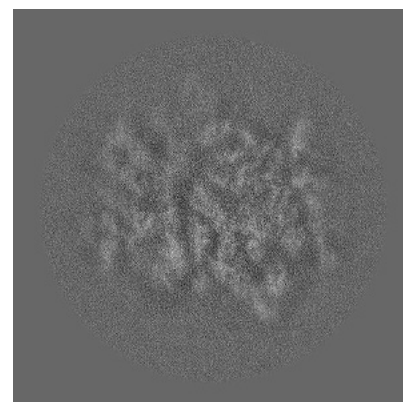
### 6.3.2 Raw map



X Index: 224



Y Index: 215

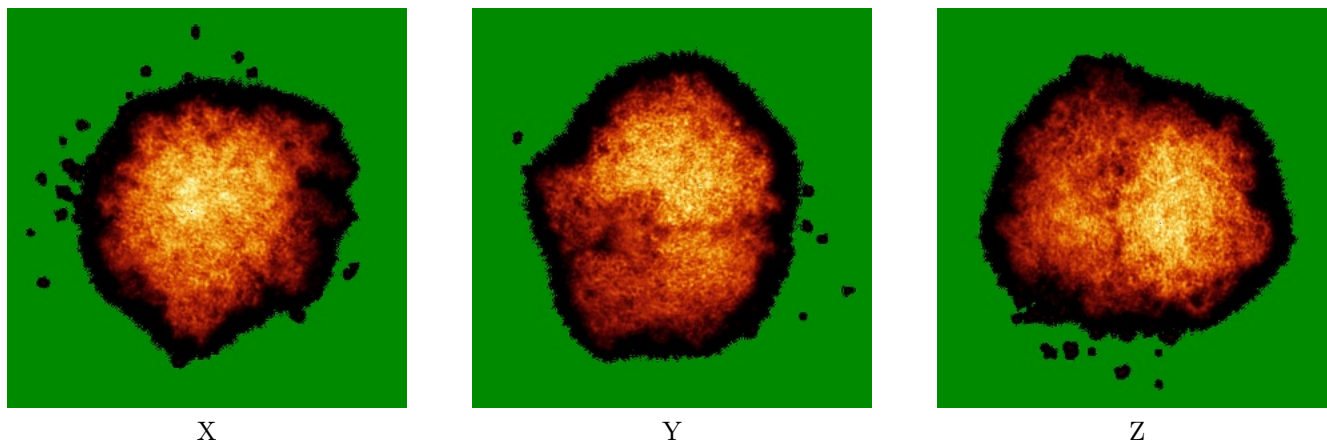


Z Index: 220

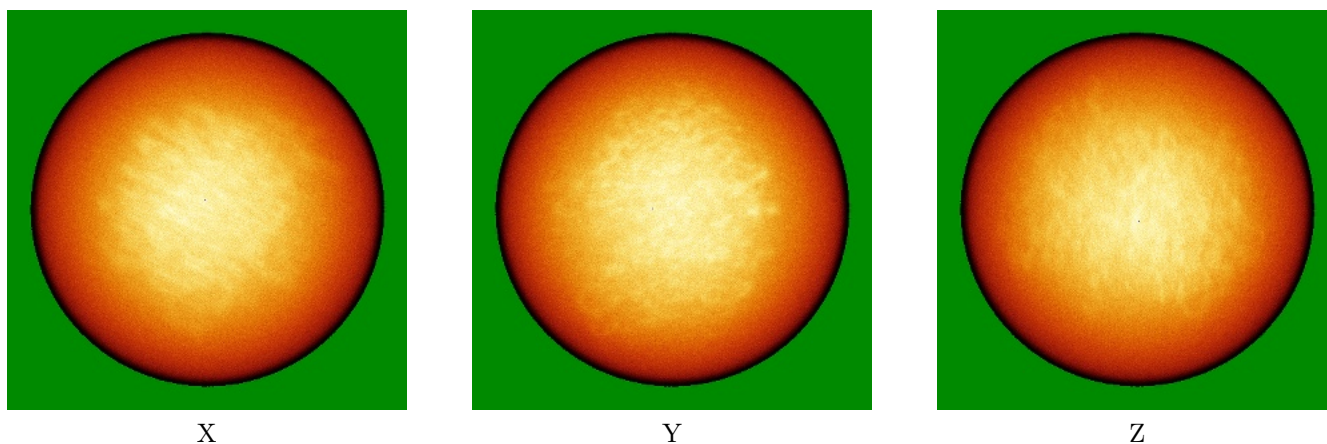
The images above show the largest variance slices of the map in three orthogonal directions.

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

### 6.4.1 Primary map



### 6.4.2 Raw map



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](#)

This section was not generated.

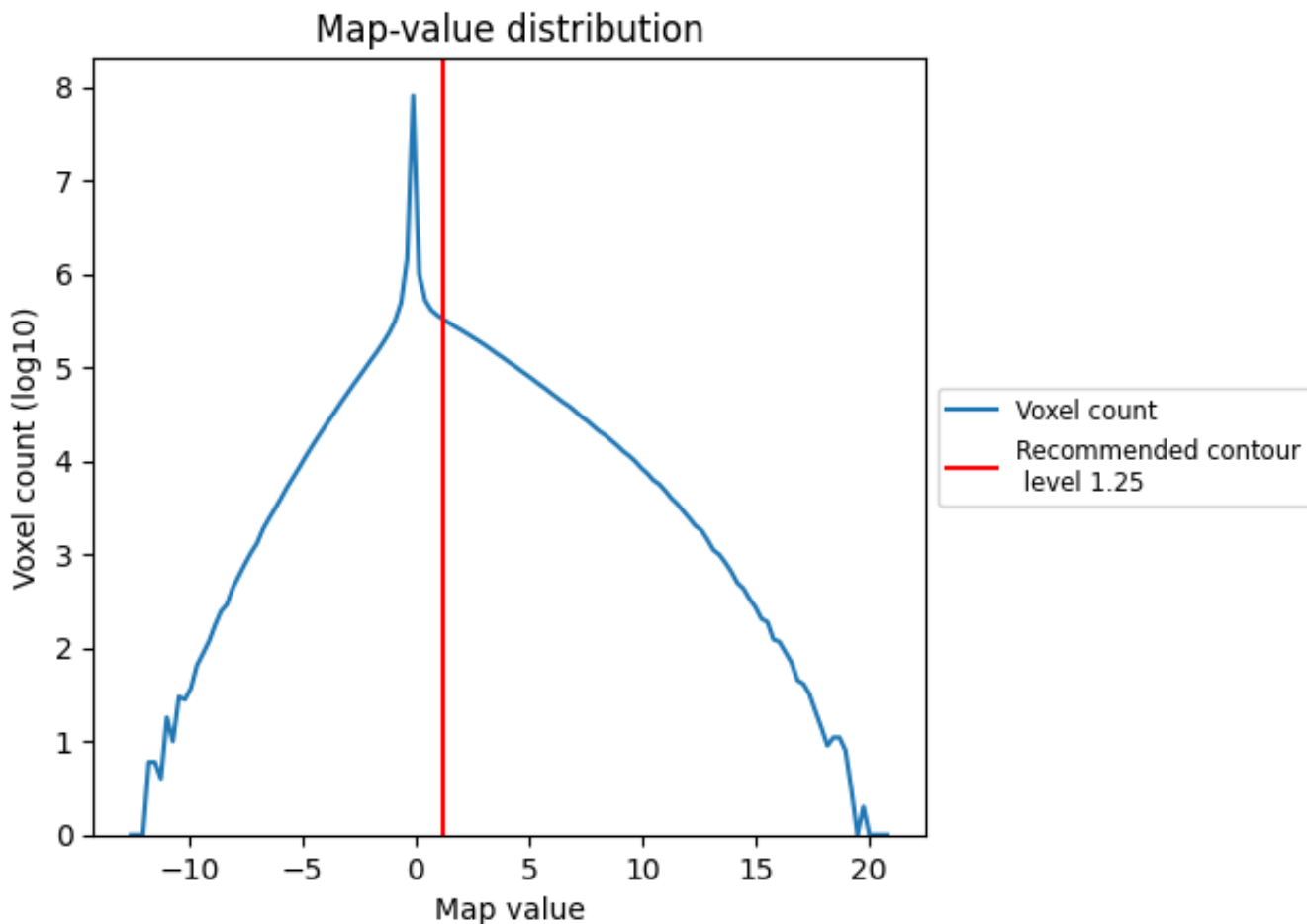
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

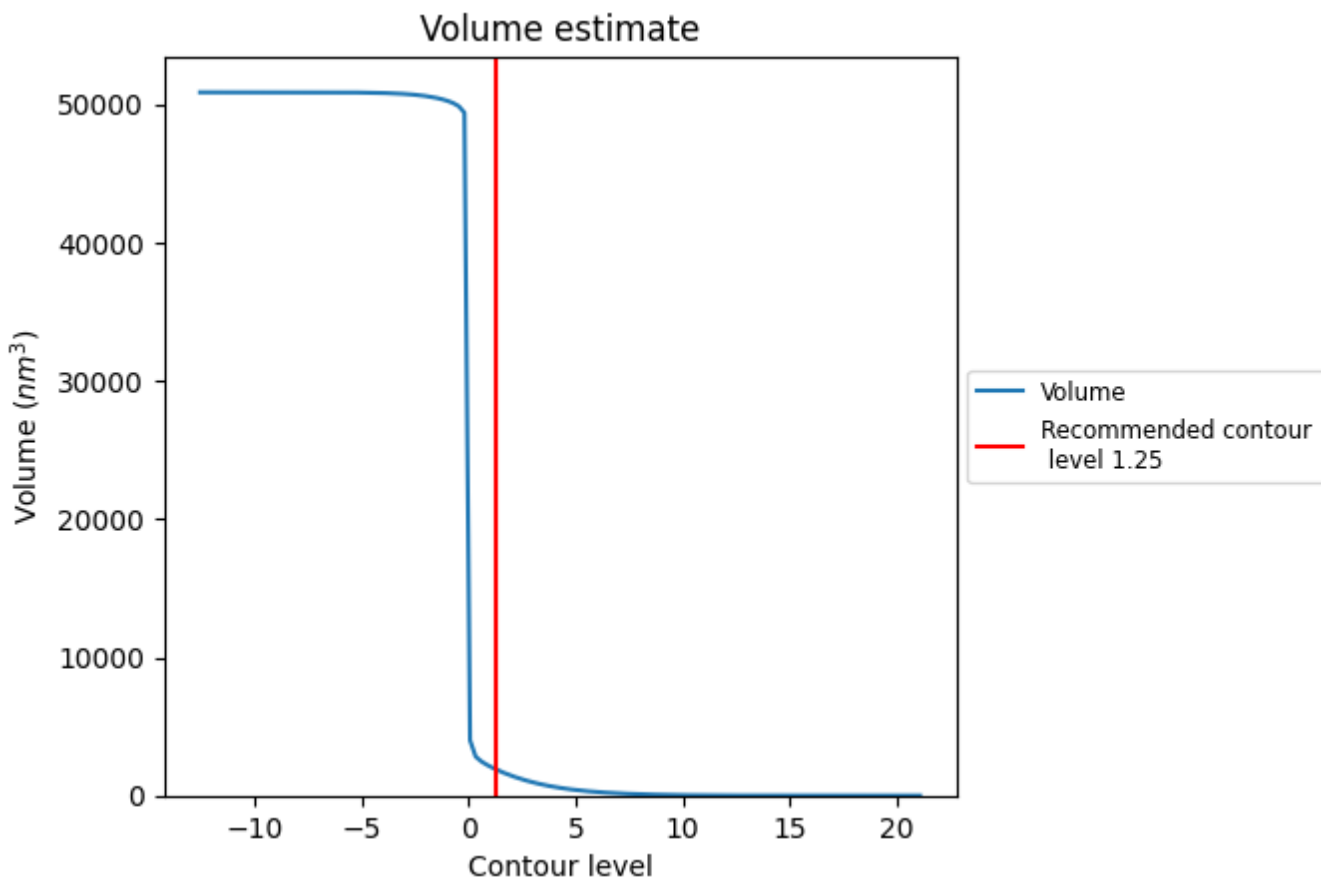
This section contains the results of statistical analysis of the map.

### 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.

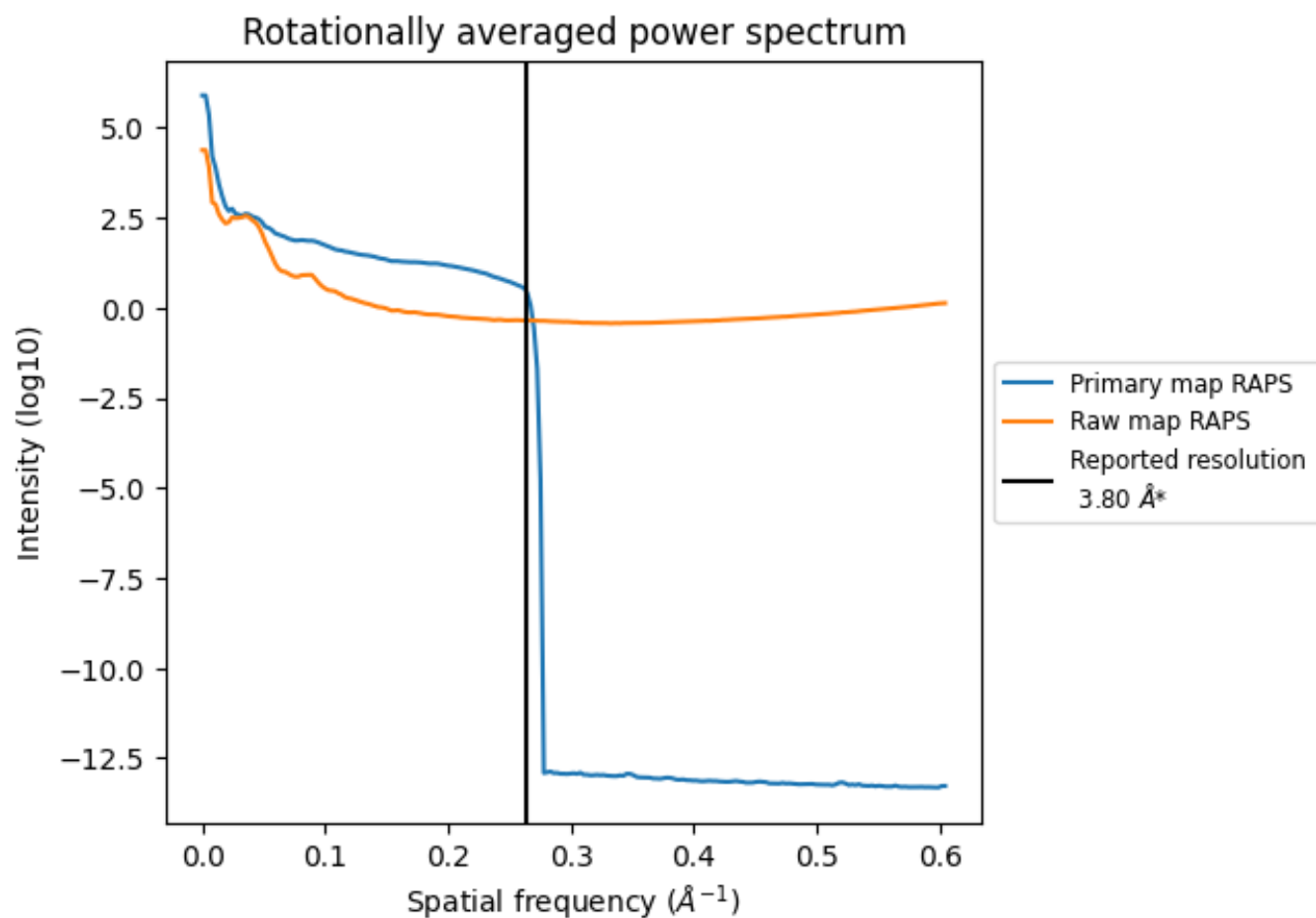
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1914 nm<sup>3</sup>; this corresponds to an approximate mass of 1729 kDa.

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

### 7.3 Rotationally averaged power spectrum [i](#)

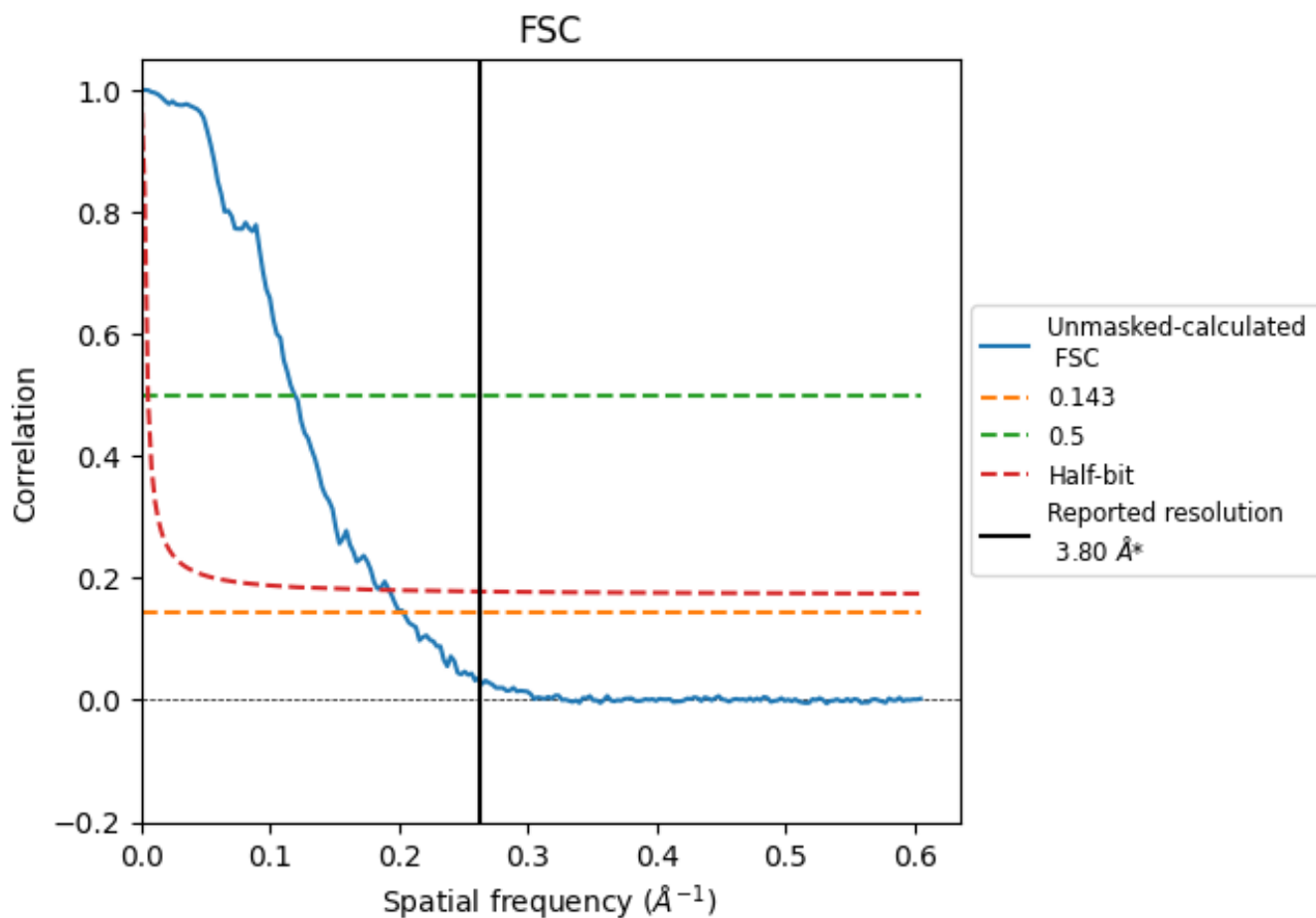


\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.92	8.40	5.20

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.92 differs from the reported value 3.8 by more than 10 %

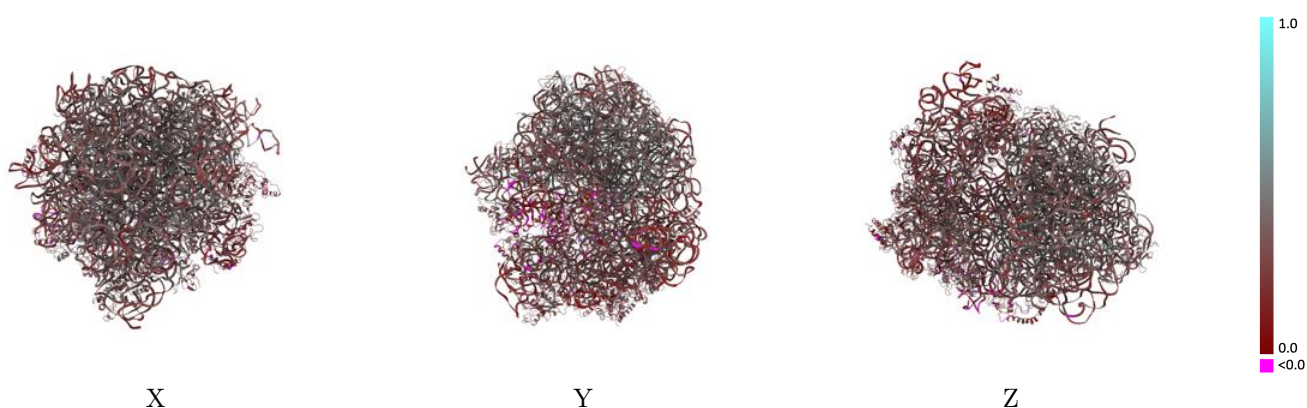
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-25409 and PDB model 7SSL. Per-residue inclusion information can be found in section 3 on page 16.

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

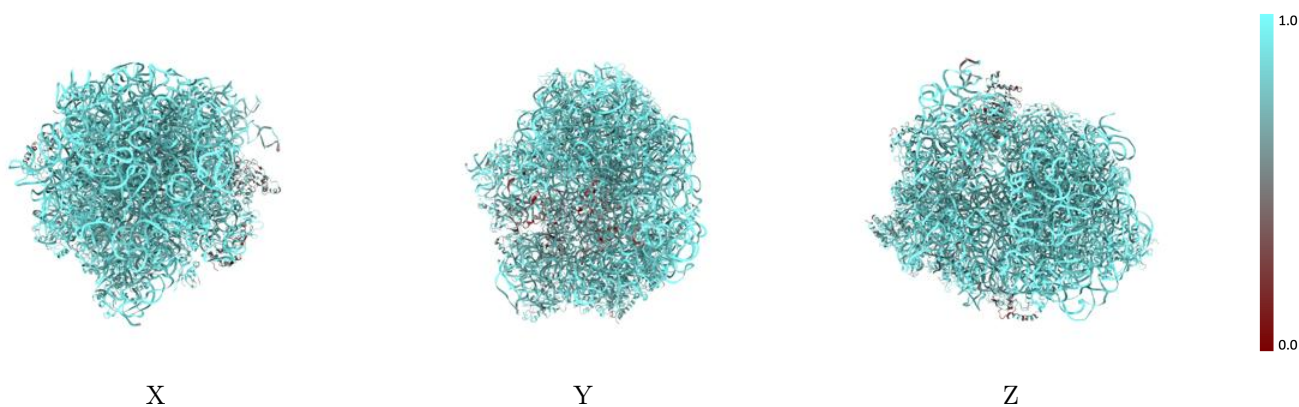
This section was not generated.

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



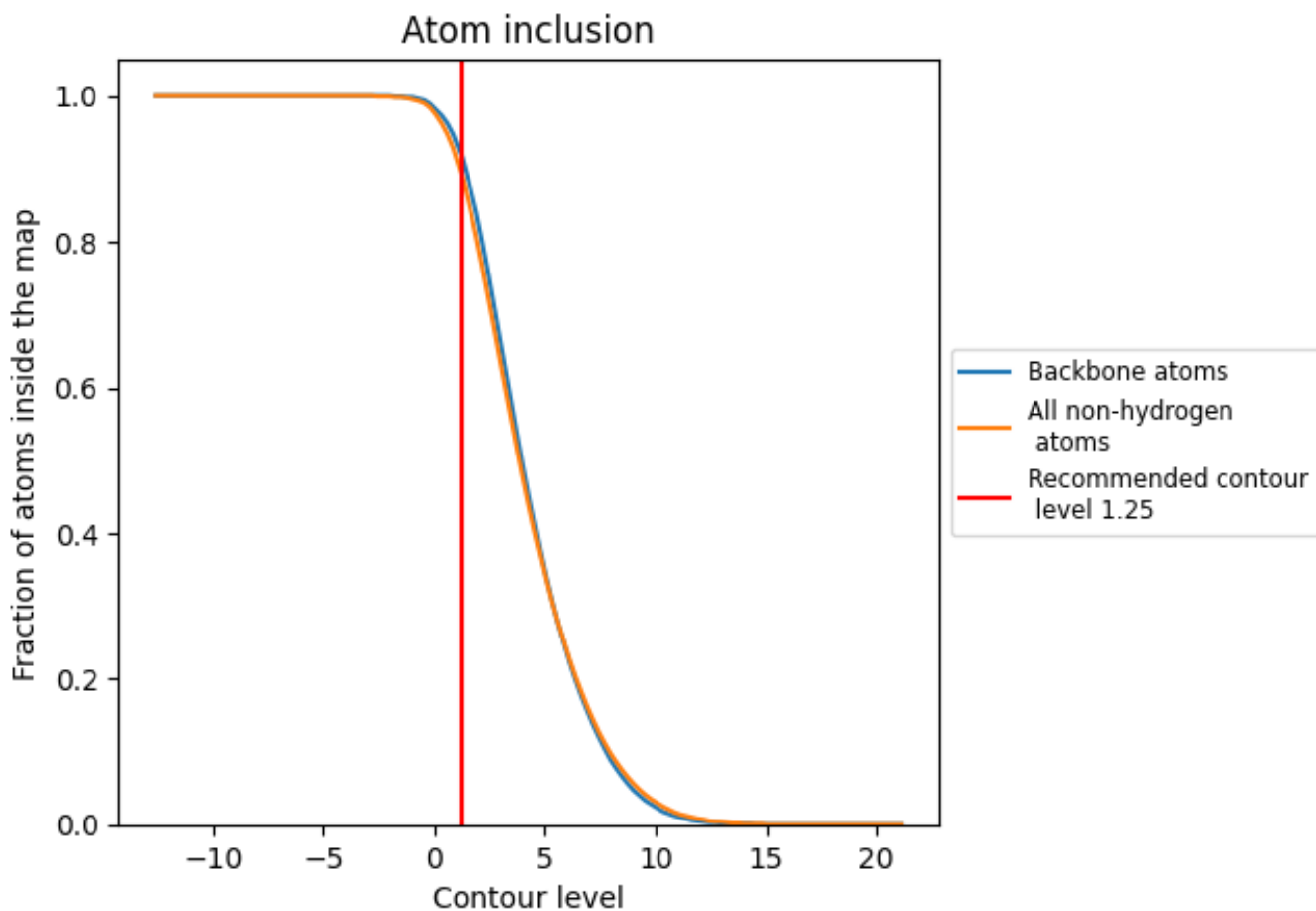
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (1.25).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 89% 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 (1.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8900	 0.3260
1	 0.9380	 0.3480
2	 0.9350	 0.3010
3	 0.9090	 0.2770
4	 0.7050	 0.1450
5	 0.7650	 0.1320
6	 0.9060	 0.2390
8	 0.5500	 0.2430
A	 0.8690	 0.2950
B	 0.9060	 0.4310
C	 0.7710	 0.3500
D	 0.9010	 0.4600
E	 0.9210	 0.4420
F	 0.8800	 0.4160
G	 0.7880	 0.2940
H	 0.8010	 0.2980
I	 0.8130	 0.2910
J	 0.8600	 0.3420
K	 0.9030	 0.3070
L	 0.8010	 0.2670
M	 0.8690	 0.3390
N	 0.8180	 0.2860
O	 0.7150	 0.2680
P	 0.9230	 0.3810
Q	 0.8330	 0.3490
R	 0.8550	 0.2890
S	 0.8400	 0.2830
T	 0.9170	 0.3710
U	 0.8600	 0.3550
V	 0.8770	 0.3380
W	 0.8850	 0.3490
X	 0.7990	 0.2630
Y	 0.8480	 0.3170
Z	 0.8650	 0.3630
a	 0.7590	 0.2680



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Chain	Atom inclusion	Q-score
b	 0.9250	 0.4470
c	 0.9250	 0.4330
d	 0.9000	 0.4040
e	 0.8510	 0.3130
f	 0.8710	 0.3300
g	 0.5800	 0.2430
i	 0.4560	 0.1880
j	 0.9240	 0.4230
k	 0.9050	 0.4230
l	 0.9110	 0.4320
m	 0.9060	 0.4250
n	 0.9330	 0.4380
o	 0.8810	 0.3640
p	 0.9130	 0.4100
q	 0.9120	 0.4300
r	 0.9130	 0.4110
s	 0.9130	 0.4190
t	 0.9160	 0.4170
u	 0.8740	 0.3760
v	 0.8870	 0.3460
w	 0.9190	 0.4350
x	 0.9200	 0.3980
y	 0.9090	 0.3770
z	 0.9430	 0.4420