



Full wwPDB EM Validation Report ⓘ

Aug 4, 2025 – 10:51 PM JST

PDB ID : 8Y5S / pdb_00008y5s
EMDB ID : EMD-38948
Title : E.coli Transcription translation coupling complex in TTC-B state 5 (subclass 2) containing mRNA with 27-mer spacer, NusG, NusA, fMet-tRNA(iMet), Phe-tRNA(Phe), and GDPCP
Authors : Zhang, J.; Lu, G.; Wang, C.; Lin, J.
Deposited on : 2024-01-31
Resolution : 4.50 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

A user guide is available at

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

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev126
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.45.1

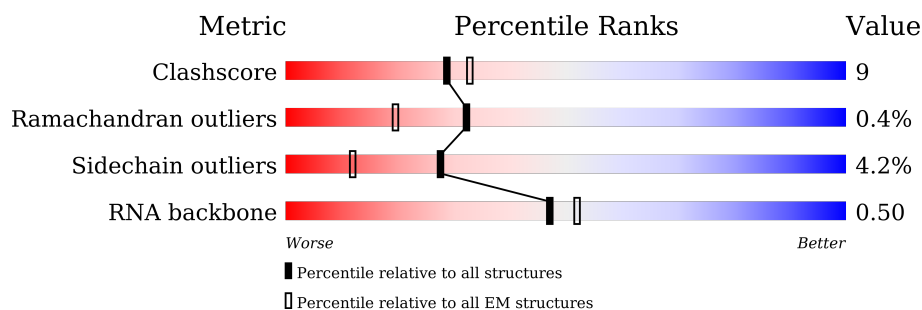
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.50 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	A	70	
2	B	57	
3	C	55	
4	D	46	
5	E	65	
6	F	38	
7	G	241	

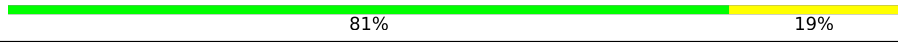
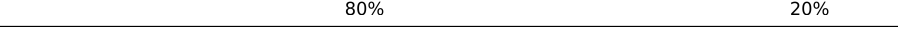
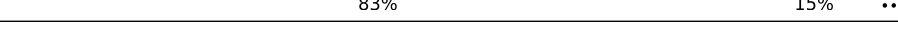
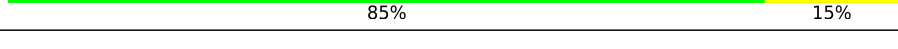
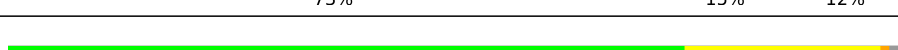
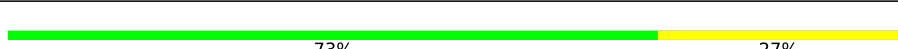
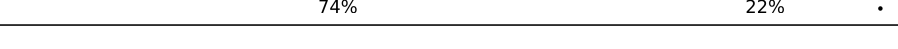
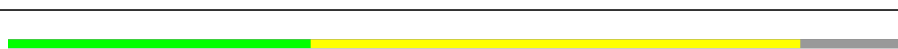
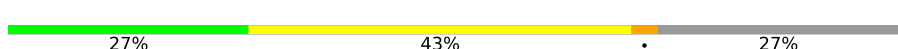
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Mol	Chain	Length	Quality of chain
8	H	233	
9	I	206	
10	J	167	
11	K	135	
12	L	179	
13	M	130	
14	N	130	
15	O	103	
16	P	129	
17	Q	124	
18	R	118	
19	S	101	
20	T	89	
21	U	82	
22	V	84	
23	W	75	
24	X	92	
25	Y	87	
26	Z	71	
27	b	273	
28	c	209	
29	d	201	
30	e	179	
31	f	177	
32	g	149	

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Mol	Chain	Length	Quality of chain
33	i	142	
34	j	142	
35	k	123	
36	l	144	
37	m	136	
38	n	127	
39	o	117	
40	p	115	
41	q	118	
42	r	103	
43	s	110	
44	t	100	
45	u	104	
46	v	94	
47	w	85	
48	x	78	
49	y	63	
50	z	59	
51	1	2904	
52	2	120	
53	3	1542	
54	4	44	
55	8	37	
56	9	37	
57	A1	329	

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Mol	Chain	Length	Quality of chain
57	A2	329	
58	B1	1407	
59	B2	1342	
60	W0	91	
61	NA	495	
62	NG	181	
63	5	76	
64	6	77	
65	0	716	

2 Entry composition

There are 67 unique types of molecules in this entry. The entry contains 181764 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	66	Total	C	N	O	S	0	0
			521	323	98	94	6		

- Molecule 2 is a protein called 50S ribosomal protein L32.

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

- Molecule 3 is a protein called 50S ribosomal protein L33.

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

- Molecule 4 is a protein called 50S ribosomal protein L34.

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

- Molecule 5 is a protein called 50S ribosomal protein L35.

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

- Molecule 6 is a protein called 50S ribosomal protein L36.

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

- Molecule 7 is a protein called 30S ribosomal protein S2.

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

- Molecule 8 is a protein called 30S ribosomal protein S3.

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

- Molecule 9 is a protein called 30S ribosomal protein S4.

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

- Molecule 10 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	157	Total	C	N	O	S	0	0
			1156	719	218	213	6		

- Molecule 11 is a protein called 30S ribosomal protein S6, fully modified isoform.

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

- Molecule 12 is a protein called 30S ribosomal protein S7.

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

- Molecule 13 is a protein called 30S ribosomal protein S8.

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

- Molecule 14 is a protein called 30S ribosomal protein S9.

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

- Molecule 15 is a protein called 30S ribosomal protein S10.

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

- Molecule 16 is a protein called 30S ribosomal protein S11.

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

- Molecule 17 is a protein called 30S ribosomal protein S12.

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

- Molecule 18 is a protein called 30S ribosomal protein S13.

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

- Molecule 19 is a protein called 30S ribosomal protein S14.

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

- Molecule 20 is a protein called 30S ribosomal protein S15.

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

- Molecule 21 is a protein called 30S ribosomal protein S16.

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

- Molecule 22 is a protein called 30S ribosomal protein S17.

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

- Molecule 23 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	65	Total	C	N	O	S	0	0
			535	339	100	95	1		

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

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

- Molecule 25 is a protein called 30S ribosomal protein S20.

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

- Molecule 26 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	65	Total	C	N	O	S	0	0
			544	335	117	91	1		

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

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

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	52	Total	C	N	O	S	0	0
			400	256	73	70	1		

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- Molecule 51 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	1	2903	Total	C	N	O	P	0	0
			62317	27801	11468	20146	2902		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	747	C	U	conflict	GB 1929590828

- Molecule 52 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	2	120	Total	C	N	O	P	0	0
			2568	1145	471	833	119		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	120	A	U	conflict	GB NR_103249

- Molecule 53 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	3	1539	Total	C	N	O	P	0	0
			33012	14725	6052	10697	1538		

- Molecule 54 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	4	39	Total	C	N	O	P	0	0
			809	362	113	295	39		

- Molecule 55 is a DNA chain called templete DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	8	27	Total	C	N	O	P	0	0
			539	257	88	167	27		

- Molecule 56 is a DNA chain called non-templete DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	9	20	Total	C	N	O	P	0	0
			417	195	84	118	20		

- Molecule 57 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	A1	301	Total	C	N	O	S	0	0
			2088	1293	380	409	6		
57	A2	288	Total	C	N	O	S	0	0
			2029	1257	366	400	6		

- Molecule 58 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	B1	1335	Total	C	N	O	S	0	0
			10353	6509	1842	1955	47		

- Molecule 59 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	B2	1340	Total	C	N	O	S	0	0
			10546	6616	1839	2048	43		

- Molecule 60 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	W0	82	Total	C	N	O	S	0	0
			650	396	122	131	1		

- Molecule 61 is a protein called Transcription termination/antitermination protein NusA.

Mol	Chain	Residues	Atoms				AltConf	Trace
61	NA	492	Total	C	N	O	0	0
			2432	1448	492	492		

- Molecule 62 is a protein called Transcription termination/antitermination protein NusG.

Mol	Chain	Residues	Atoms				AltConf	Trace
62	NG	154	Total	C	N	O	0	0
			758	450	154	154		

- Molecule 63 is a RNA chain called tRNA(Phe).

Mol	Chain	Residues	Atoms					AltConf	Trace
63	5	76	Total	C	N	O	P	0	0
			1622	723	290	533	76		

- Molecule 64 is a RNA chain called tRNA(fMet).

Mol	Chain	Residues	Atoms					AltConf	Trace
64	6	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		

- Molecule 65 is a protein called Elongation factor G.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	0	673	Total	C	N	O	S	0	0
			5211	3289	900	999	23		

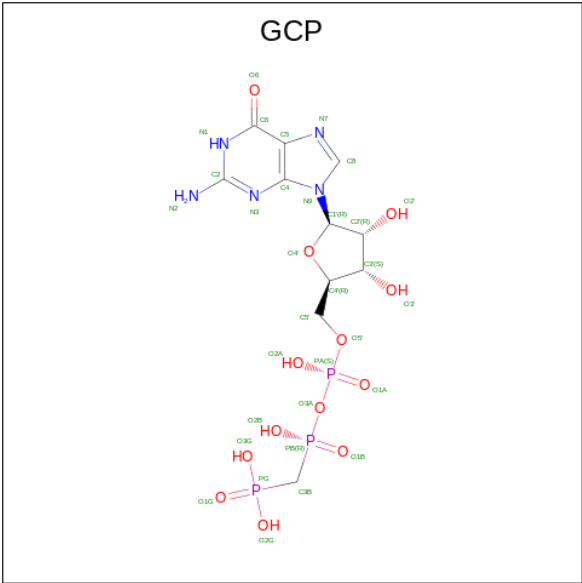
There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
0	705	GLY	-	expression tag	UNP P0A6M8
0	706	SER	-	expression tag	UNP P0A6M8
0	707	SER	-	expression tag	UNP P0A6M8
0	708	GLY	-	expression tag	UNP P0A6M8
0	709	HIS	-	expression tag	UNP P0A6M8
0	710	HIS	-	expression tag	UNP P0A6M8
0	711	HIS	-	expression tag	UNP P0A6M8
0	712	HIS	-	expression tag	UNP P0A6M8
0	713	HIS	-	expression tag	UNP P0A6M8
0	714	HIS	-	expression tag	UNP P0A6M8
0	715	HIS	-	expression tag	UNP P0A6M8
0	716	HIS	-	expression tag	UNP P0A6M8

- Molecule 66 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
66	B1	1	Total	Mg	0
			1	1	

- Molecule 67 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (CCD ID: GCP) (formula: C₁₁H₁₈N₅O₁₃P₃).

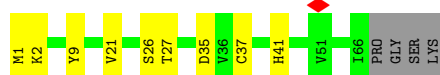


3 Residue-property plots [i](#)

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

• Molecule 1: 50S ribosomal protein L31

Chain A: 



• Molecule 2: 50S ribosomal protein L32

Chain B: 



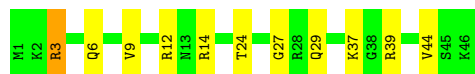
• Molecule 3: 50S ribosomal protein L33

Chain C: 



• Molecule 4: 50S ribosomal protein L34

Chain D: 



• Molecule 5: 50S ribosomal protein L35

Chain E: 



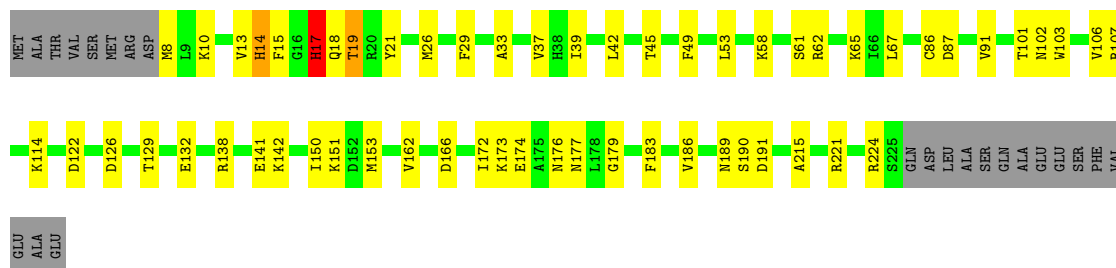
• Molecule 6: 50S ribosomal protein L36

Chain F:  82% 18%



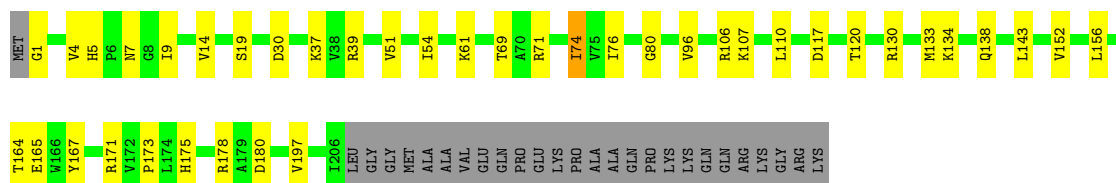
- Molecule 7: 30S ribosomal protein S2

Chain G:  66% 23% 10%



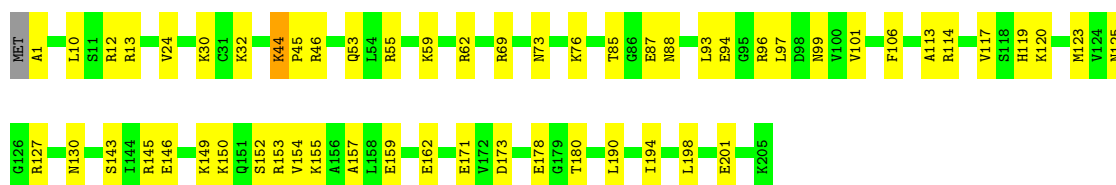
- Molecule 8: 30S ribosomal protein S3

Chain H:  71% 17% 12%



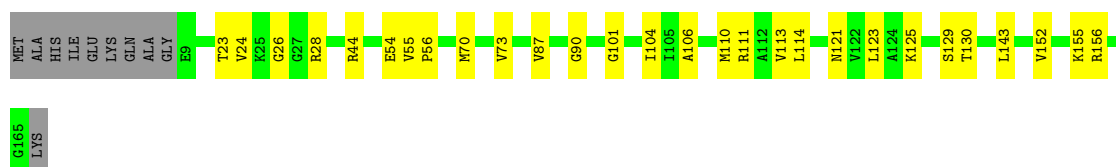
- Molecule 9: 30S ribosomal protein S4

Chain I:  72% 27%



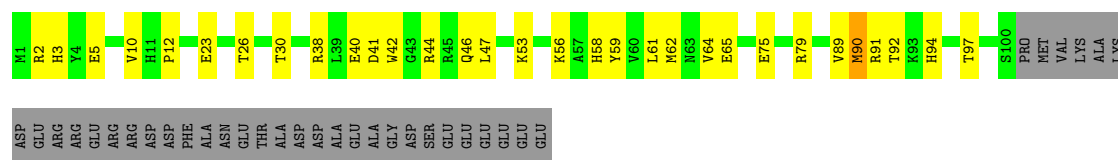
- Molecule 10: 30S ribosomal protein S5

Chain J:  77% 17% 6%



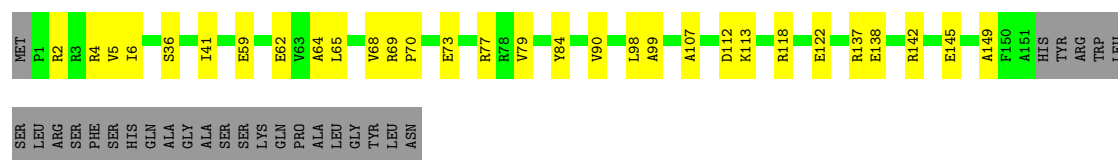
- Molecule 11: 30S ribosomal protein S6, fully modified isoform

Chain K:  51% 22% 26%



- Molecule 12: 30S ribosomal protein S7

Chain L:  68% 17% 16%



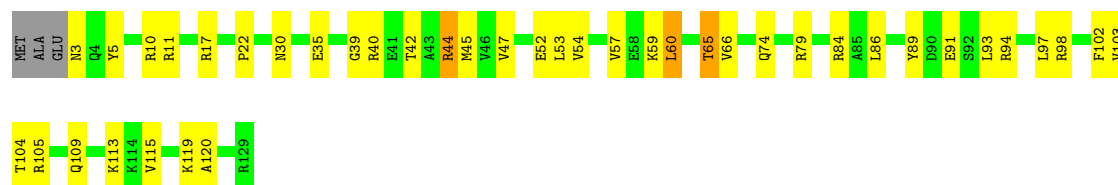
- Molecule 13: 30S ribosomal protein S8

Chain M:  88% 11%



- Molecule 14: 30S ribosomal protein S9

Chain N:  66% 29%



- Molecule 15: 30S ribosomal protein S10

Chain O:  72% 18% 5% 5%



- Molecule 16: 30S ribosomal protein S11

Chain P:  64% 26% 10%





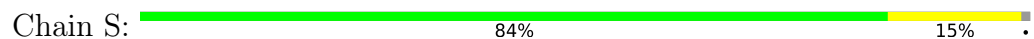
- Molecule 17: 30S ribosomal protein S12



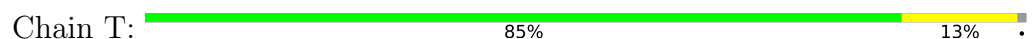
- Molecule 18: 30S ribosomal protein S13



- Molecule 19: 30S ribosomal protein S14



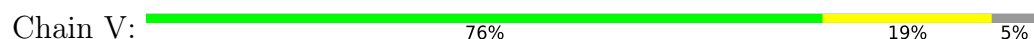
- Molecule 20: 30S ribosomal protein S15



- Molecule 21: 30S ribosomal protein S16



- Molecule 22: 30S ribosomal protein S17





- Molecule 23: 30S ribosomal protein S18

Chain W: 69% 16% 13%



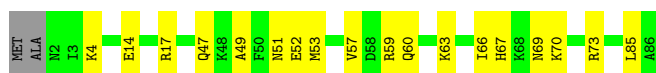
- Molecule 24: 30S ribosomal protein S19

Chain X: 73% 13% 14%



- Molecule 25: 30S ribosomal protein S20

Chain Y: 77% 21% 0%



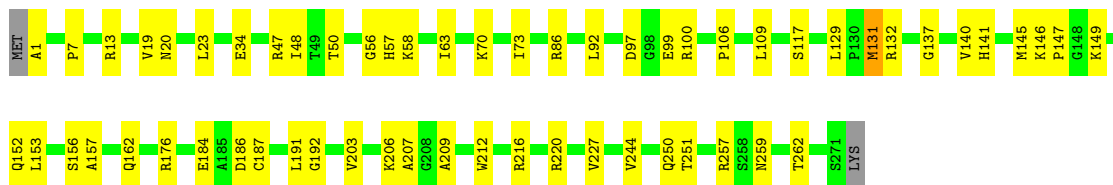
- Molecule 26: 30S ribosomal protein S21

Chain Z: 56% 31% 8%



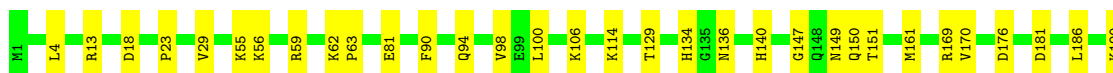
- Molecule 27: 50S ribosomal protein L2

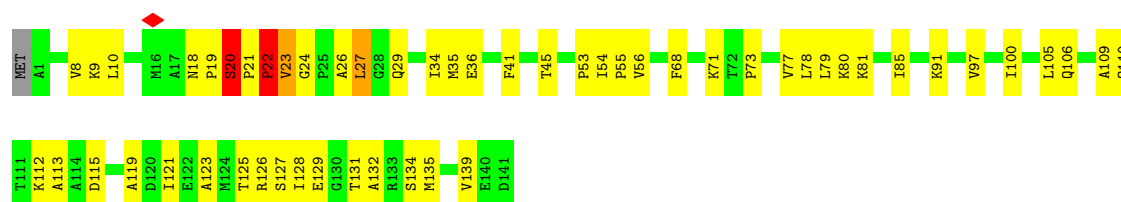
Chain b: 78% 21% 0%



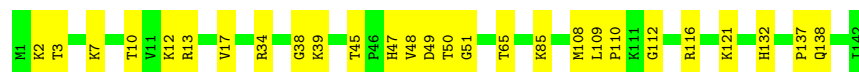
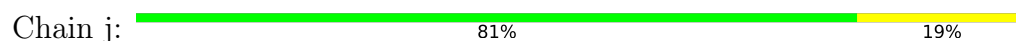
- Molecule 28: 50S ribosomal protein L3

Chain c: 85% 15% 0%

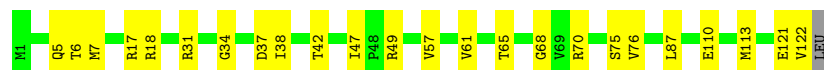
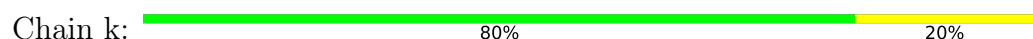




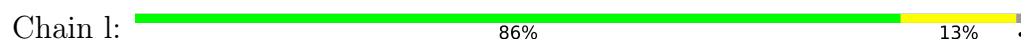
- Molecule 34: 50S ribosomal protein L13



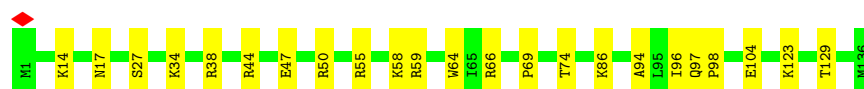
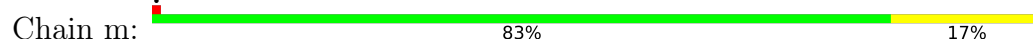
- Molecule 35: 50S ribosomal protein L14



- Molecule 36: 50S ribosomal protein L15



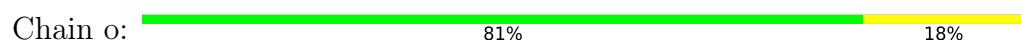
- Molecule 37: 50S ribosomal protein L16



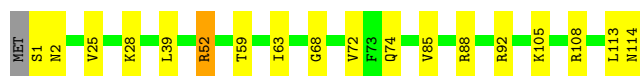
- Molecule 38: 50S ribosomal protein L17



- Molecule 39: 50S ribosomal protein L18



● Molecule 40: 50S ribosomal protein L19

Chain p:  83% 15% ..

● Molecule 41: 50S ribosomal protein L20

Chain q:  83% 15% ..

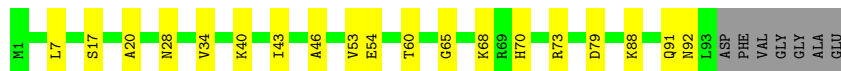
● Molecule 42: 50S ribosomal protein L21

Chain r:  75% 25%

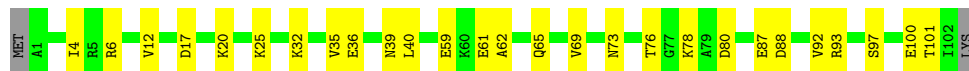
● Molecule 43: 50S ribosomal protein L22

Chain s:  85% 15%

● Molecule 44: 50S ribosomal protein L23

Chain t:  74% 19% 7%

● Molecule 45: 50S ribosomal protein L24

Chain u:  72% 26% .

● Molecule 46: 50S ribosomal protein L25

Chain v:  85% 15%

● Molecule 47: 50S ribosomal protein L27

Chain w:  73% 15% 12%



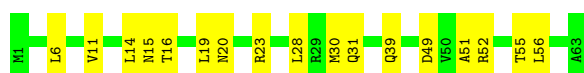
• Molecule 48: 50S ribosomal protein L28

Chain x:  76% 22% ..



• Molecule 49: 50S ribosomal protein L29

Chain y:  73% 27%



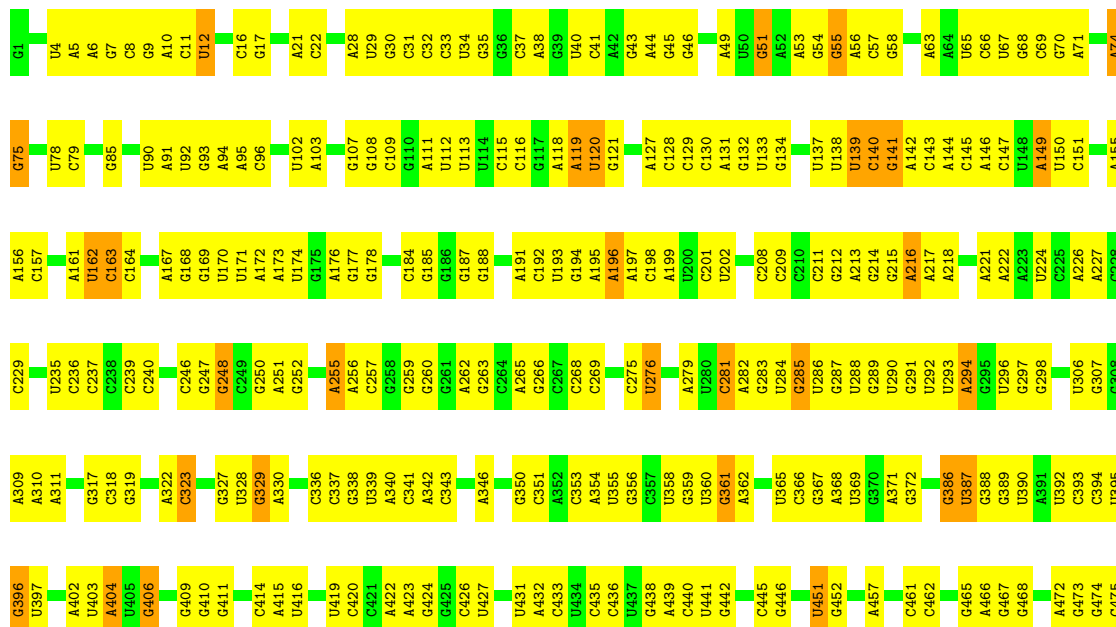
• Molecule 50: 50S ribosomal protein L30

Chain z:  75% 24% .



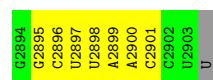
• Molecule 51: 23S rRNA

Chain 1:  43% 51% 6%



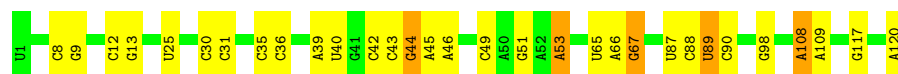
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G1581	G1516	U1273	U1180	G1110	C968	A886	U810	A718	A633	U554	A481
A1582	G1517	A1274	U1181	A1111	C968	U887	U811	C719	C634	G555	A482
A1583	G1518	A1275	U1182	C1112	A972	C888	C812	U720	C635	C557	A488
G1588	G1519	C1278	U1184	C1114	A973	C889	U813	A721	G636	C558	A489
U1589	U1520	G1279	G1185	G1115	G974	C891	C814	A722	A637	C490	A490
G1590	G1521	G1280	G1186	G1116	A975	C892	C815	C723	U638	C491	A492
A1591	U1522	G1281	G1187	C1117	A979	C893	A819	U724	U639	A493	A494
A1592	U1523	G1282	U1188	C1118	A979	C894	A820	G725	C640	U562	
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A1594	A1525	G1284	G1193	G1120	C982	C896	A822	A727	A644	U567	
C1595	C1526	A1285	A1194	C1121	A983	C897	A825	G728	C645	U568	G498
A1596	G1527	A1286	G1195	U1130	A984	C898	U826	G729	U646	U569	U499
A1597	A1528	A1287	C1196	G1131	C985	A899	U827	A730	G647	G570	U499
A1598	G1529	G1288	U1197	G1132	C985	A900	U828	C736	U648	U571	G500
A1599	G1530	C1289	U1198	A1133	G989	C901	A829		U649	A572	A501
C1600			U1199	A1134		C902	A830	G745		U573	A502
G1601	G1533	G1292	C1200	C1135	G993	C903	G831	U746		A574	A503
U1602	U1534	C1293	U1201	G1136	C994	C904	U832	C747		A575	A504
A1603	A1535	U1294	A1204	A1137	C994	A905	U833			U580	A505
C1604	C1462	C1295	A1205	G1138	A996	U906	A834	A752		C581	G506
C1605	G1536	G1296	U1209	A1139	A996	C908	C835			A582	
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C1607	G1538	G1298	G1211	U1141		A910	C837	C758			
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	C1541	G1300	A1213	A1143	A1010		C840	G760			
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C1615	G1543	A1306	C1220	C1145	U1012	G915	U842	U762		A591	U519
A1616	A1544	C1306		A1146	U1013			U763		A592	G520
	A1545	G1309	G1225	U1147	U1014	A918	A845	A764		U593	U521
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		G1311	G1230	G1149	U1016		U847	C766		A526	
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G1674	U1578	G1339	C1270	U1176	C1044	U958	A878	G708		G548	
C1675			G1271	U1177	C1045	A959	C879	U709		A627	
A1676				C1178	A1046	A960		G712		G551	
										U552	

A2810	G2732	C2649	U2571	A2476	U2390	A2309	G2230	G2162	C2096	U1834	C1761	A1677
G2811	A2733	U2650	A2572	A2482	G2591	C2310	U2233	A2163	A2097	A1916	C1761	A1678
A2812	G2734	C2651	C2573	A2483	U2392	U2311	G2234	C2164	U2098	A1917	C1762	A1679
G2813	G2735	C2652	G2574	C2483	U2393	U2312	U2235	C2165	U2099	A1918	G1763	U1690
A2814	A2736	C2653	C2575	G2488	C2394	A2313	U2236	U2166	G2101	C1920	G1764	G1681
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G2834	G2750	G2671	U2584	C2499	A2407	U2328	U2245	U2181	U2017	A1930	G1776	A1710
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U2857	U2779	U2695	U2612	U2527	A2436	U2349	G2282	A2200	U2132	U1965	A1801	C1732
G2858	C2782	C2696	G2613	U2528	G2437	G2350	C2283	U2201	G2133	U1966	A1802	G1733
A2859	U2783	U2697	U2614	U2529	U2440	C2351	A2284	G2202	A2134	C1965	A1807	A1735
U2860	A2784	C2698	U2615	U2530	U2441	G2352	U2285	A2203	U2135	U1967	A1808	U1736
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G2872	C2803	U2710	U2627	U2542	U2456	C2364	U2298	G2219	A2147	U1907	G1823	C1750
U2873	U2804	C2711	U2628	U2543	U2457	U2365	U2299	G2220	G2148	G1908	U1751	G1751
G2874	C2805	U2712	G2629	U2544	U2458	G2366	U2300	G2221	U2149	C1985	U1827	G1752
U2875	U2806	C2713	U2630	U2545	G2459	U2367	U2301	G2222	U2150	G1986	G1828	G1753
G2876	C2807	U2714	G2631	U2546	G2460	G2368	U2302	G2223	G2151	U1911	A1754	C1754
U2877	A2808	C2715	U2632	U2547	U2461	U2369	U2303	G2224	G2152	C1990	A1829	A1755
G2878	U2809	U2716	U2633	U2548	G2462	G2370	U2304	G2225	U2153	U1991	C1832	U1756
U2879	C2810	C2717	G2634	U2549	G2463	C2371	G2305	A2226	A2154	G1992	G1832	U1757
G2880	U2811	U2718	U2635	U2550	G2464	U2372	U2306	G2227	G2155	U1993	A1832	U1758
U2881	A2812	C2719	U2636	U2551	G2465	G2373	U2307	G2228	U2156	U1994	A1832	U1758
G2882	C2813	U2720	U2637	U2552	U2466	U2374	U2308	G2229	G2157	U1995	A1832	U1758
U2883	U2814	C2721	U2638	U2553	G2467	U2375	U2309	G2230	G2158	U1996	A1832	U1758
G2884	A2815	U2722	U2639	U2554	U2468	U2376	U2310	G2231	U2159	U1997	A1832	U1758
U2885	C2816	C2723	U2640	U2555	G2469	U2377	U2311	G2232	U2160	U1998	A1832	U1758
G2886	U2817	U2724	U2641	U2556	U2470	U2378	U2312	G2233	G2161	U1999	A1832	U1758
U2887	A2818	C2725	U2642	U2557	G2471	U2379	U2313	G2234	G2162	U1999	A1832	U1758
G2888	C2819	U2726	U2643	U2558	U2472	U2380	U2314	G2235	G2163	U1999	A1832	U1758
U2889	U2820	C2727	U2644	U2559	U2473	C2381	U2315	G2236	G2164	U1999	A1832	U1758
G2890	A2821	U2728	U2645	U2560	U2474	U2382	U2316	G2237	G2165	U1999	A1832	U1758
U2891	C2822	U2729	U2646	U2561	U2475	U2383	U2317	G2238	G2166	U1999	A1832	U1758
G2892	U2823	C2730	U2647	U2562	U2476	U2384	U2318	G2239	G2167	U1999	A1832	U1758
U2893	A2824	U2731	U2648	U2563	U2477	U2385	U2319	G2240	G2168	U1999	A1832	U1758



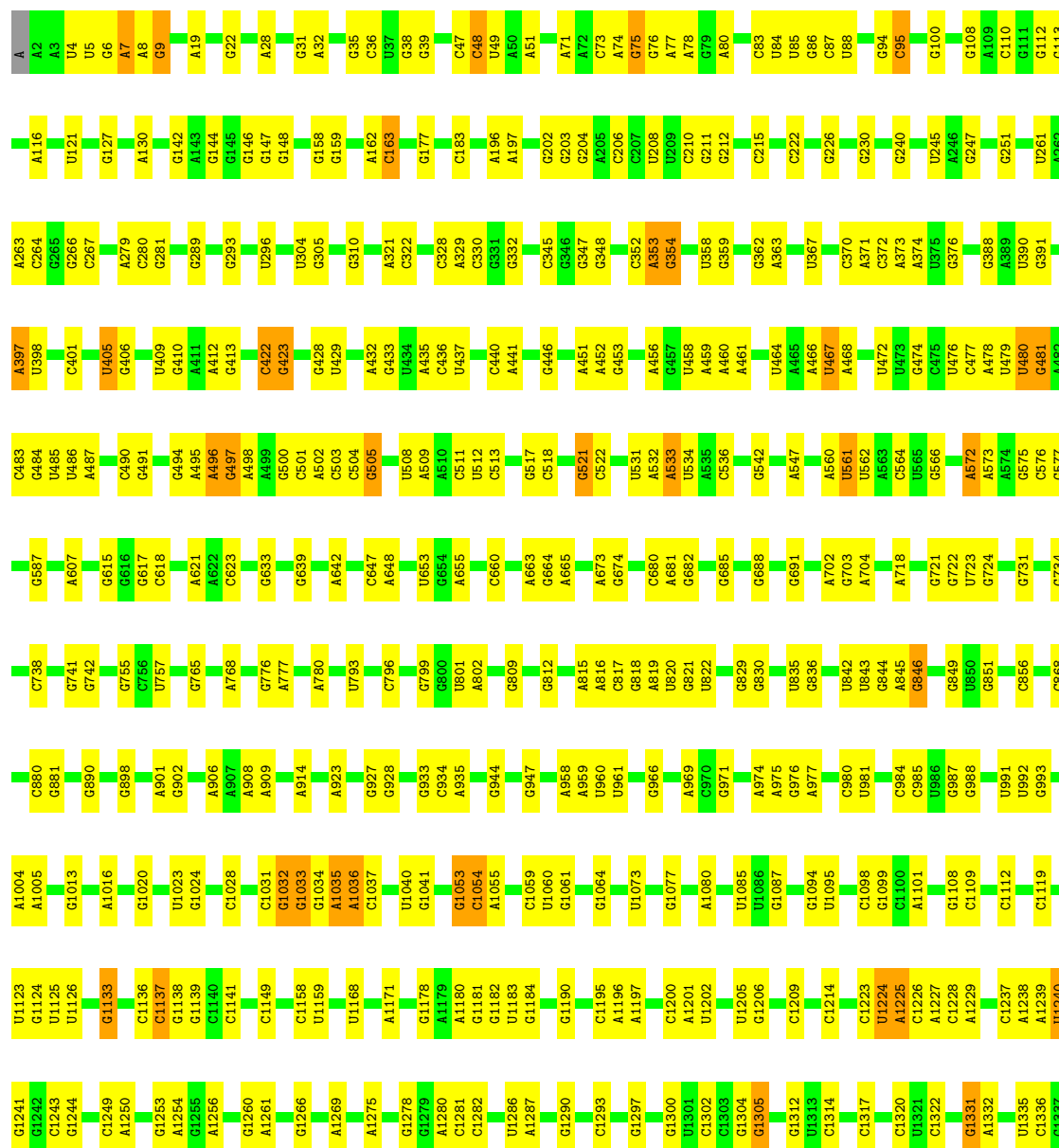
• Molecule 52: 5S rRNA

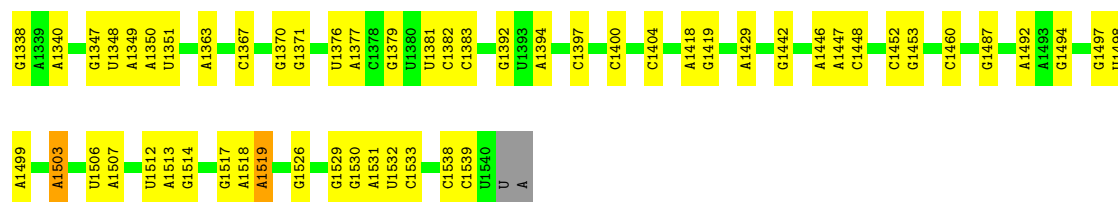
Chain 2: 74% 22% .



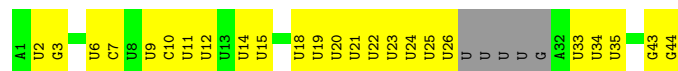
• Molecule 53: 16S rRNA

Chain 3: 69% 29% .

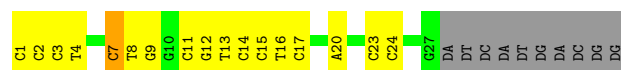




- Molecule 54: mRNA



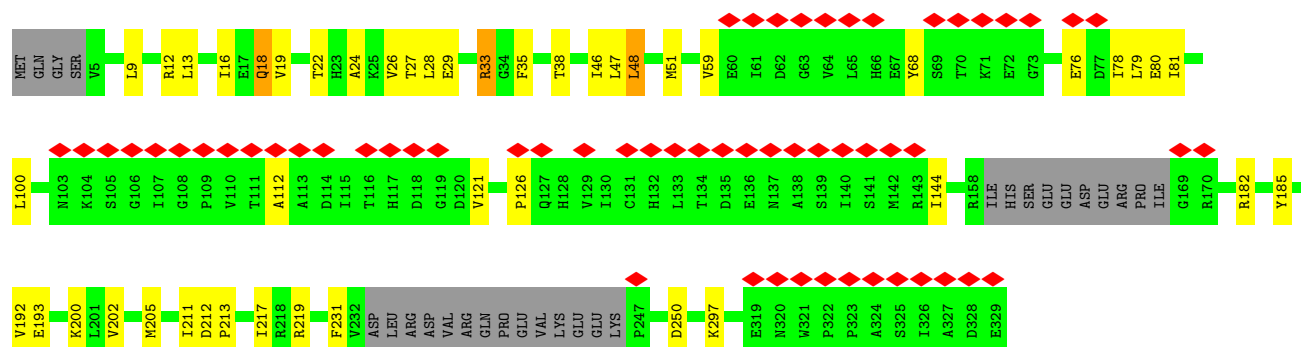
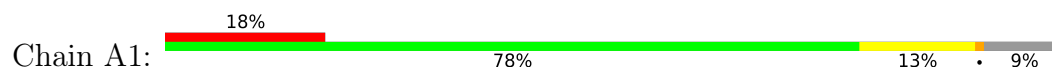
- Molecule 55: template DNA strand



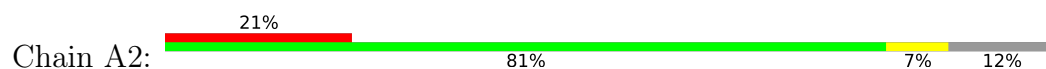
- Molecule 56: non-template DNA strand

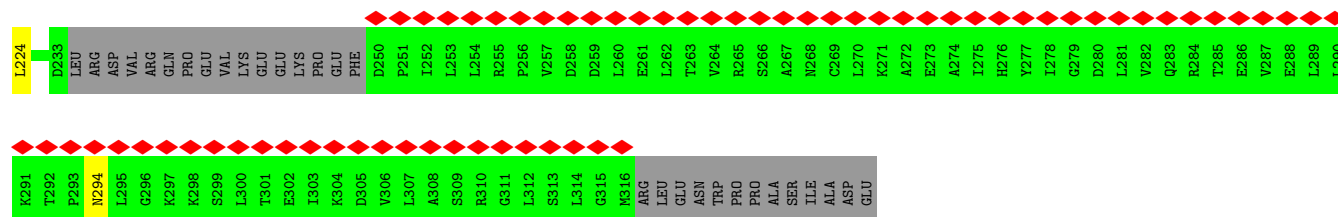


- Molecule 57: DNA-directed RNA polymerase subunit alpha

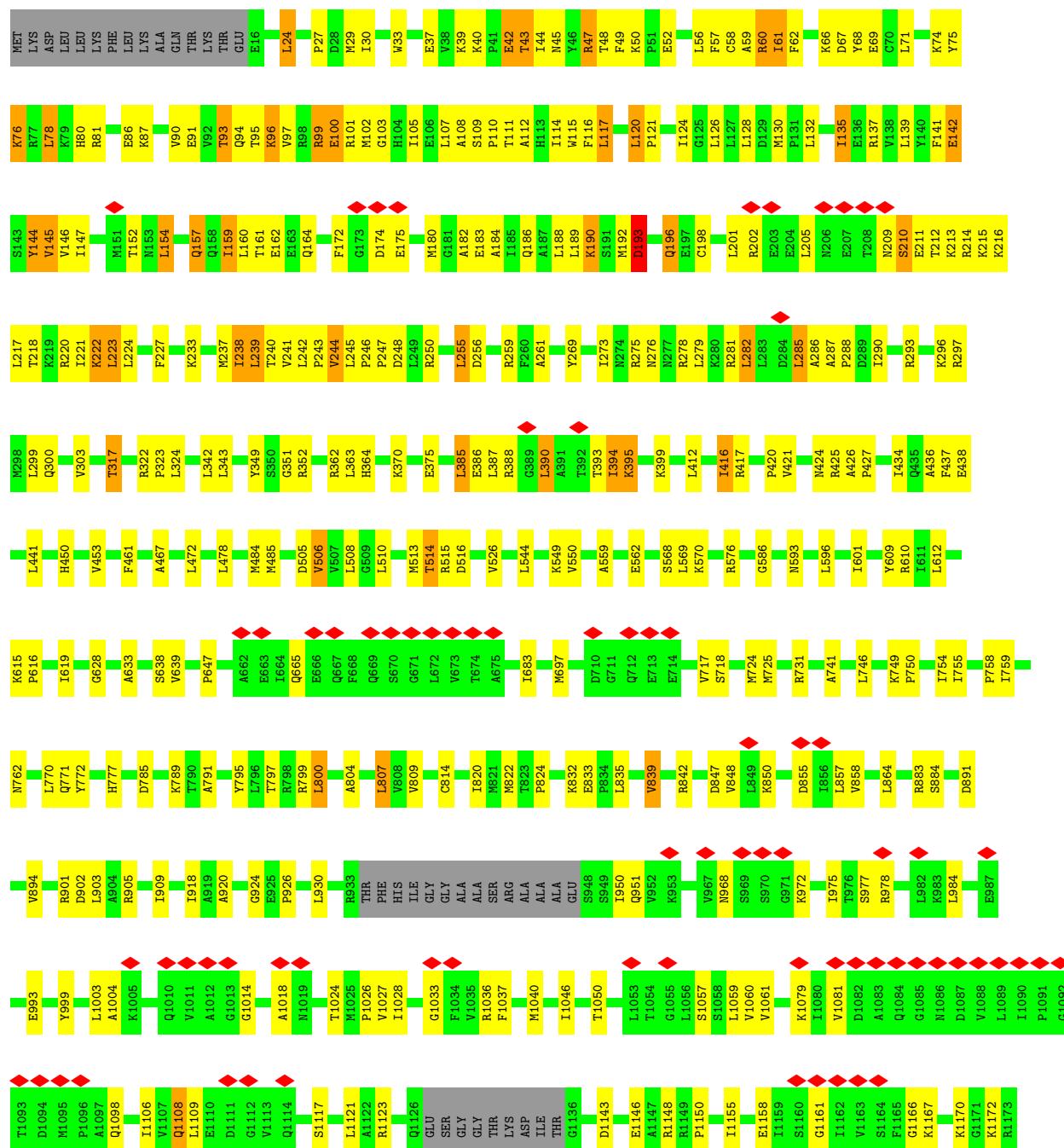


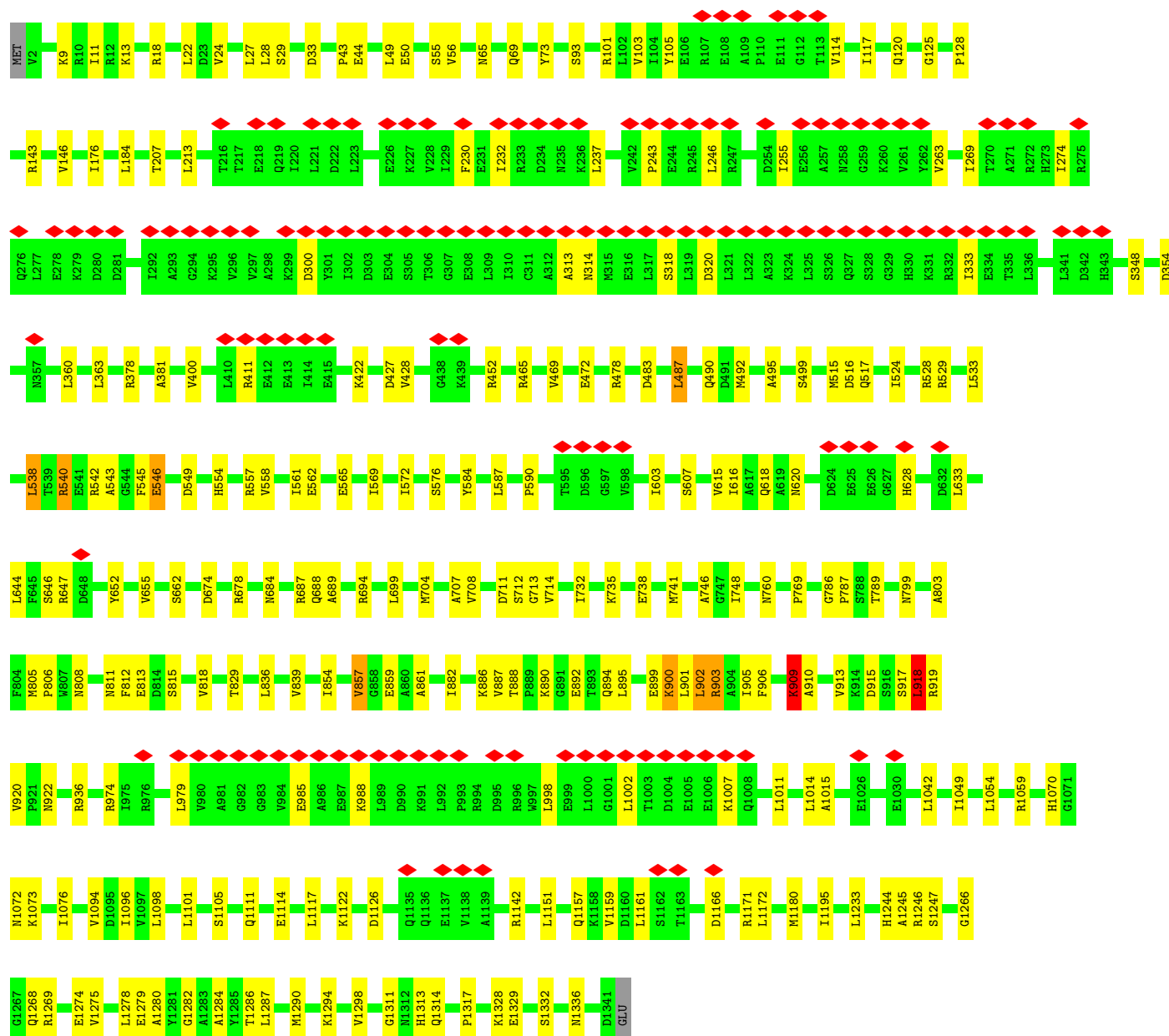
- Molecule 57: DNA-directed RNA polymerase subunit alpha



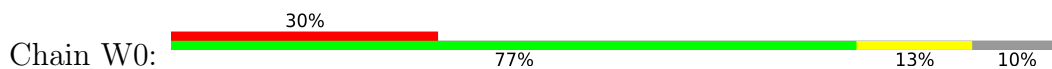


• Molecule 58: DNA-directed RNA polymerase subunit beta'

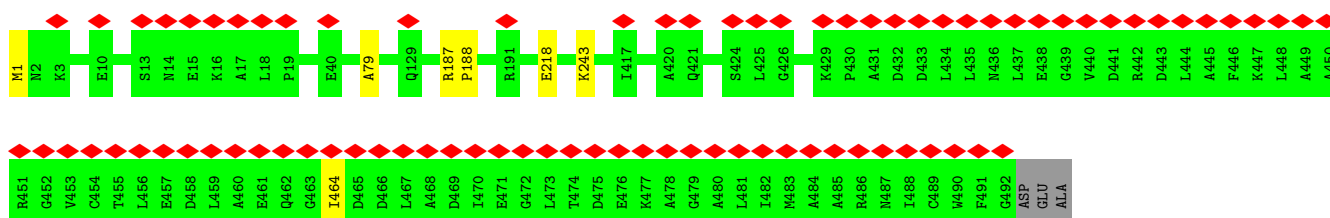




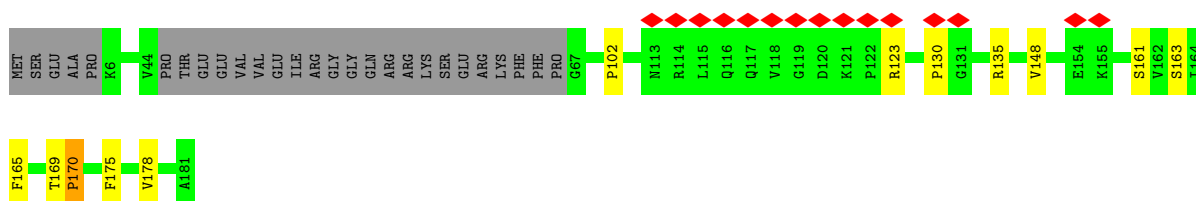
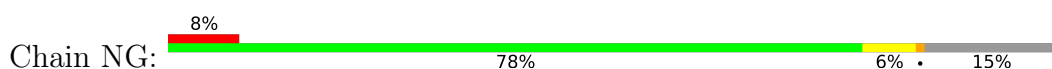
- Molecule 60: DNA-directed RNA polymerase subunit omega



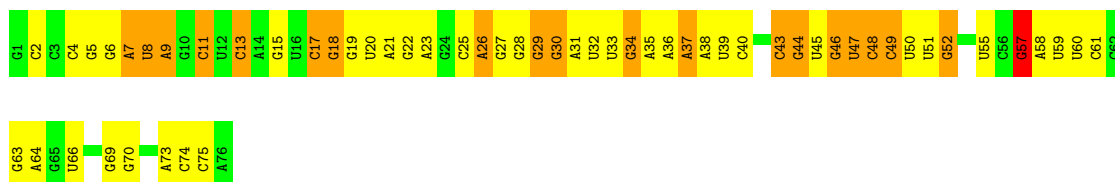
- Molecule 61: Transcription termination/antitermination protein NusA



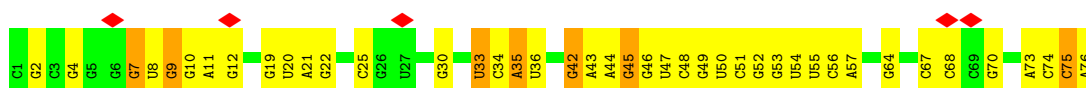
- Molecule 62: Transcription termination/antitermination protein NusG



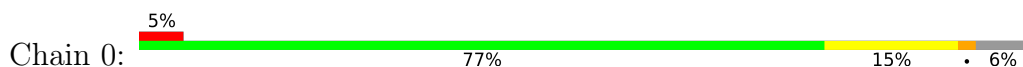
- Molecule 63: tRNA(Phe)

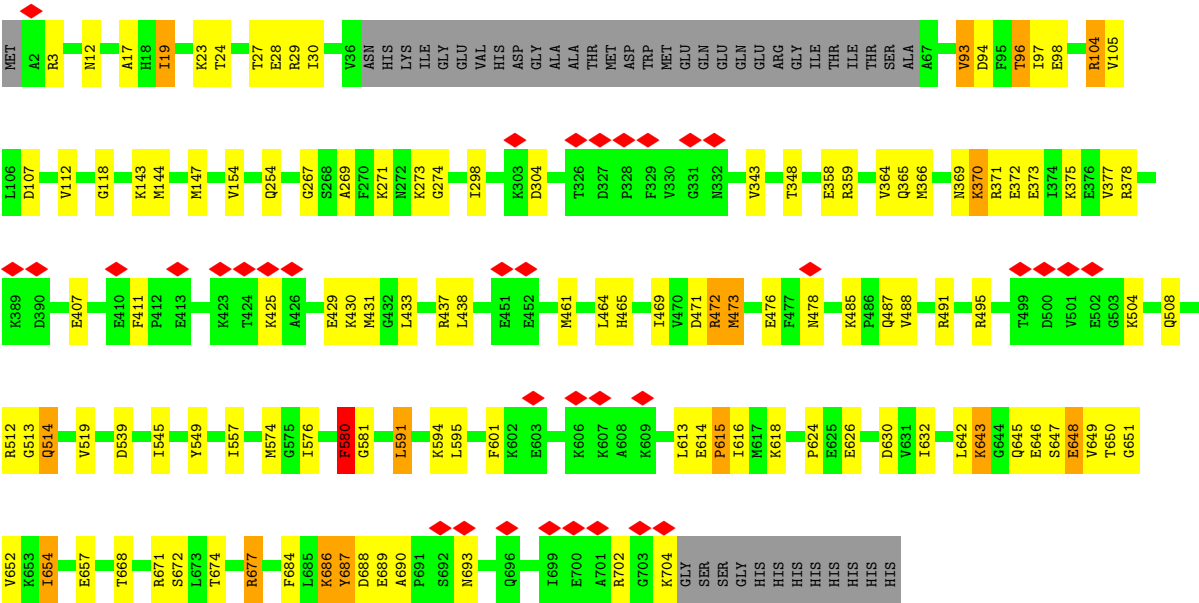


- Molecule 64: tRNA(fMet)



- Molecule 65: Elongation factor G





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	476340	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	47	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.090	Depositor
Minimum map value	-0.032	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.007	Depositor
Map size ($\text{\AA}$)	753.60004, 753.60004, 753.60004	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.57, 1.57, 1.57	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.27	0/530	0.54	0/707
2	B	0.40	0/450	0.60	0/599
3	C	0.28	0/416	0.52	0/554
4	D	0.47	0/380	0.76	2/498 (0.4%)
5	E	0.53	0/513	0.60	0/676
6	F	0.58	0/303	0.66	0/397
7	G	0.38	0/1735	0.64	0/2338
8	H	0.34	0/1651	0.55	0/2225
9	I	0.35	0/1665	0.71	0/2227
10	J	0.38	0/1169	0.68	2/1573 (0.1%)
11	K	0.46	0/835	0.77	0/1128
12	L	0.31	0/1195	0.66	3/1602 (0.2%)
13	M	0.35	0/989	0.52	0/1326
14	N	0.47	0/1034	0.77	0/1375
15	O	0.50	0/796	0.78	2/1077 (0.2%)
16	P	0.45	0/885	0.65	1/1195 (0.1%)
17	Q	0.50	0/969	0.86	2/1300 (0.2%)
18	R	0.33	0/892	0.73	4/1193 (0.3%)
19	S	0.33	0/817	0.61	0/1088
20	T	0.49	0/722	0.64	0/964
21	U	0.30	0/659	0.71	2/884 (0.2%)
22	V	0.44	0/657	0.71	0/881
23	W	0.55	0/544	0.74	1/731 (0.1%)
24	X	0.29	0/652	0.55	0/877
25	Y	0.29	0/671	0.52	0/888
26	Z	0.66	0/550	1.01	2/728 (0.3%)
27	b	0.49	0/2121	0.64	0/2852
28	c	0.42	0/1586	0.59	2/2134 (0.1%)
29	d	0.44	0/1571	0.62	0/2113
30	e	0.43	0/1434	0.65	2/1926 (0.1%)
31	f	0.35	0/1343	0.56	0/1816
32	g	0.32	0/405	0.75	0/544

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	i	0.51	0/1046	0.87	3/1410 (0.2%)
34	j	0.42	0/1152	0.55	1/1551 (0.1%)
35	k	0.45	0/947	0.66	0/1268
36	l	0.40	0/1054	0.63	0/1403
37	m	0.56	0/1093	0.74	0/1460
38	n	0.46	0/973	0.72	1/1301 (0.1%)
39	o	0.32	0/902	0.51	0/1209
40	p	0.42	0/929	0.63	0/1242
41	q	0.52	0/960	0.62	1/1278 (0.1%)
42	r	0.46	0/829	0.70	0/1107
43	s	0.44	0/864	0.58	0/1156
44	t	0.33	0/744	0.52	0/994
45	u	0.46	0/787	0.75	0/1051
46	v	0.34	0/766	0.51	0/1025
47	w	0.40	0/582	0.52	0/769
48	x	0.43	0/635	0.63	1/848 (0.1%)
49	y	0.29	0/510	0.63	0/677
50	z	0.41	0/453	0.53	0/605
51	1	0.51	0/69796	0.62	21/108888 (0.0%)
52	2	0.44	0/2872	0.46	0/4479
53	3	0.42	0/36963	0.43	0/57662
54	4	0.52	0/896	0.68	0/1387
55	8	0.56	0/599	0.71	1/919 (0.1%)
56	9	0.49	0/468	0.53	0/719
57	A1	0.56	0/2106	0.82	0/2868
57	A2	0.49	0/2048	0.76	0/2786
58	B1	0.57	4/10510 (0.0%)	0.75	8/14196 (0.1%)
59	B2	0.46	0/10714	0.67	1/14459 (0.0%)
60	W0	0.31	0/652	0.60	0/879
61	NA	0.79	0/2431	1.22	0/3385
62	NG	1.11	0/756	1.05	0/1048
63	5	0.57	0/1812	0.85	1/2823 (0.0%)
64	6	0.40	0/1832	0.57	1/2855 (0.0%)
65	0	0.84	0/5308	1.17	8/7181 (0.1%)
All	All	0.50	4/195128 (0.0%)	0.64	73/287304 (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
51	1	0	1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	B1	1350	ASN	CG-ND2	-5.29	1.22	1.33
58	B1	1108	GLN	CD-OE1	5.18	1.33	1.23
58	B1	424	ASN	CG-ND2	-5.18	1.22	1.33
58	B1	665	GLN	CD-OE1	5.08	1.33	1.23

All (73) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
65	0	580	PHE	CA-CB-CG	9.59	123.39	113.80
16	P	73	VAL	N-CA-C	-9.02	104.54	113.20
41	q	33	VAL	N-CA-C	-8.75	104.77	112.12
12	L	64	ALA	N-CA-C	-7.68	105.07	114.75
51	1	1130	U	C2'-C3'-O3'	7.60	120.90	109.50
64	6	33	U	C2'-C3'-O3'	7.27	120.41	109.50
51	1	2326	C	C2'-C3'-O3'	7.16	120.23	109.50
58	B1	450	HIS	CB-CG-CD2	-6.59	122.64	131.20
51	1	761	A	C4'-C3'-O3'	-6.49	103.27	113.00
58	B1	777	HIS	CB-CG-CD2	-6.46	122.81	131.20
65	0	615	PRO	CB-CA-C	-6.46	102.52	110.98
58	B1	61	ILE	CA-C-N	-6.39	113.97	121.64
58	B1	61	ILE	C-N-CA	-6.39	113.97	121.64
28	c	147	GLY	CA-C-N	-6.07	115.22	122.44
28	c	147	GLY	C-N-CA	-6.07	115.22	122.44
58	B1	450	HIS	CB-CG-ND1	5.72	131.28	122.70
51	1	2060	A	C2'-C3'-O3'	5.71	118.06	109.50
65	0	657	GLU	CA-C-N	-5.62	118.44	123.33
65	0	657	GLU	C-N-CA	-5.62	118.44	123.33
26	Z	35	GLU	CA-C-N	5.62	132.27	121.54
26	Z	35	GLU	C-N-CA	5.62	132.27	121.54
51	1	1790	C	N1-C1'-C2'	5.62	120.42	112.00
15	O	57	VAL	CA-C-N	5.58	132.19	121.54
15	O	57	VAL	C-N-CA	5.58	132.19	121.54
38	n	47	VAL	N-CA-C	-5.57	107.44	112.12
51	1	960	A	N9-C1'-C2'	5.53	120.30	112.00
51	1	1020	A	C2'-C3'-O3'	5.48	117.72	109.50
10	J	155	LYS	N-CA-C	-5.48	107.84	114.75
51	1	1905	C	C4'-C3'-O3'	-5.48	104.78	113.00
58	B1	777	HIS	CB-CG-ND1	5.47	130.91	122.70
51	1	1696	G	N9-C1'-C2'	5.46	120.20	112.00
51	1	1451	C	N1-C1'-C2'	5.39	120.09	112.00
4	D	3	ARG	CA-C-N	5.38	127.75	120.38
4	D	3	ARG	C-N-CA	5.38	127.75	120.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
55	8	7	DC	C2'-C3'-O3'	-5.37	103.44	111.50
51	1	2428	G	N9-C1'-C2'	5.32	119.97	112.00
65	0	271	LYS	N-CA-C	-5.29	106.34	112.89
51	1	2055	C	N1-C1'-C2'	5.28	119.92	112.00
30	e	141	ASP	CA-C-N	5.28	131.62	121.54
30	e	141	ASP	C-N-CA	5.28	131.62	121.54
51	1	1782	U	N1-C1'-C2'	5.25	119.88	112.00
34	j	110	PRO	N-CA-C	5.25	120.76	113.98
12	L	5	VAL	CA-C-N	5.25	127.73	120.49
12	L	5	VAL	C-N-CA	5.25	127.73	120.49
51	1	980	A	N9-C1'-C2'	5.24	119.86	112.00
51	1	2576	G	N9-C1'-C2'	5.22	119.83	112.00
58	B1	27	PRO	N-CA-C	-5.22	106.25	113.81
51	1	2430	A	N9-C1'-C2'	5.18	119.78	112.00
21	U	78	VAL	CA-C-N	5.17	129.63	121.56
21	U	78	VAL	C-N-CA	5.17	129.63	121.56
51	1	1565	C	N1-C1'-C2'	5.17	119.76	112.00
23	W	14	ALA	N-CA-C	-5.15	106.08	112.93
51	1	1328	A	N9-C1'-C2'	5.14	119.72	112.00
18	R	3	ILE	CA-C-N	5.12	131.31	121.54
18	R	3	ILE	C-N-CA	5.12	131.31	121.54
10	J	87	VAL	N-CA-C	5.10	115.98	109.30
17	Q	42	LYS	CA-C-N	5.09	129.61	121.62
17	Q	42	LYS	C-N-CA	5.09	129.61	121.62
33	i	71	LYS	CA-C-N	5.08	134.18	121.80
33	i	71	LYS	C-N-CA	5.08	134.18	121.80
48	x	25	LYS	N-CA-C	5.07	121.61	110.80
65	0	375	LYS	N-CA-C	-5.07	106.94	112.72
51	1	2777	G	N9-C1'-C2'	5.06	119.60	112.00
33	i	22	PRO	N-CA-CB	-5.05	97.94	103.25
63	5	57	G	C4'-C3'-O3'	5.05	116.98	109.40
65	0	549	TYR	CA-C-N	5.05	123.42	120.24
65	0	549	TYR	C-N-CA	5.05	123.42	120.24
51	1	1087	G	N9-C1'-C2'	5.04	119.56	112.00
58	B1	61	ILE	CA-C-O	-5.03	115.72	120.95
59	B2	902	LEU	N-CA-C	-5.03	105.80	111.28
51	1	972	A	N9-C1'-C2'	5.02	119.53	112.00
18	R	6	ILE	CA-C-N	5.01	129.22	121.26
18	R	6	ILE	C-N-CA	5.01	129.22	121.26

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
51	1	2446	G	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	521	0	520	7	0
2	B	444	0	461	9	0
3	C	409	0	440	3	0
4	D	377	0	418	9	0
5	E	504	0	574	4	0
6	F	302	0	343	2	0
7	G	1704	0	1732	36	0
8	H	1624	0	1699	25	0
9	I	1643	0	1710	36	0
10	J	1156	0	1199	18	0
11	K	817	0	808	17	0
12	L	1181	0	1240	19	0
13	M	979	0	1034	9	0
14	N	1022	0	1070	22	0
15	O	786	0	828	18	0
16	P	869	0	878	23	0
17	Q	955	0	1019	26	0
18	R	883	0	944	19	0
19	S	805	0	847	10	0
20	T	714	0	737	5	0
21	U	649	0	666	15	0
22	V	648	0	691	8	0
23	W	535	0	552	7	0
24	X	637	0	665	8	0
25	Y	665	0	714	11	0
26	Z	544	0	579	14	0
27	b	2082	0	2157	47	0
28	c	1565	0	1616	28	0
29	d	1552	0	1619	28	0
30	e	1410	0	1447	19	0
31	f	1323	0	1374	28	0
32	g	400	0	423	7	0
33	i	1032	0	1088	36	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
34	j	1129	0	1162	23	0
35	k	938	0	1012	18	0
36	l	1045	0	1117	17	0
37	m	1074	0	1157	13	0
38	n	960	0	1000	18	0
39	o	892	0	923	15	0
40	p	917	0	965	14	0
41	q	947	0	1022	10	0
42	r	816	0	839	16	0
43	s	857	0	922	11	0
44	t	738	0	807	10	0
45	u	779	0	834	13	0
46	v	753	0	780	9	0
47	w	575	0	592	9	0
48	x	625	0	655	11	0
49	y	509	0	543	13	0
50	z	449	0	491	10	0
51	1	62317	0	31346	1455	0
52	2	2568	0	1303	15	0
53	3	33012	0	16618	185	0
54	4	809	0	404	4	0
55	8	539	0	305	29	0
56	9	417	0	224	1	0
57	A1	2088	0	1895	26	0
57	A2	2029	0	1864	16	0
58	B1	10353	0	10548	330	0
59	B2	10546	0	10550	166	0
60	W0	650	0	658	10	0
61	NA	2432	0	1171	8	0
62	NG	758	0	334	10	0
63	5	1622	0	821	27	0
64	6	1640	0	837	20	0
65	0	5211	0	5200	45	0
66	B1	1	0	0	0	0
67	0	32	0	13	0	0
All	All	181764	0	131004	2830	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (2830) 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)
51:1:275:C:H2'	51:1:276:U:H4'	1.37	1.06
51:1:2713:U:H3'	51:1:2714:G:H5'	1.41	1.03
51:1:1666:G:H2'	51:1:1667:G:H5'	1.41	1.03
51:1:1672:A:C2	51:1:2582:G:H5'	1.95	1.02
58:B1:750:PRO:HB3	59:B2:549:ASP:OD2	1.60	1.01
58:B1:111:THR:HG23	58:B1:300:GLN:CD	1.86	1.01
51:1:1082:U:H3'	51:1:1083:U:H5''	1.41	0.99
51:1:1807:G:H2'	51:1:1808:A:H5'	1.44	0.99
58:B1:352:ARG:HD2	59:B2:1268:GLN:NE2	1.79	0.98
51:1:1847:A:HO2'	51:1:1848:A:H8	1.06	0.97
58:B1:68:TYR:O	58:B1:75:TYR:CE2	2.20	0.95
51:1:2713:U:H3'	51:1:2714:G:C5'	1.98	0.94
51:1:644:A:H2'	51:1:645:C:H5''	1.50	0.94
30:e:84:ILE:HD13	51:1:2312:U:H5'	1.51	0.92
51:1:655:A:H4'	51:1:656:G:H5'	1.50	0.92
51:1:2156:G:H2'	51:1:2157:G:H5'	1.47	0.92
30:e:130:GLY:HA3	51:1:2305:U:H5''	1.51	0.92
51:1:1102:C:H2'	51:1:1103:A:H8	1.34	0.91
54:4:44:G:H21	58:B1:427:PRO:HD3	1.34	0.91
51:1:1702:G:H2'	51:1:1703:G:H5''	1.51	0.91
51:1:890:C:H2'	51:1:891:G:H5'	1.53	0.90
51:1:1019:U:H3	51:1:1142:A:H62	1.17	0.90
58:B1:68:TYR:C	58:B1:75:TYR:HE2	1.80	0.90
51:1:1668:A:H4'	51:1:1669:A:H5'	1.54	0.90
58:B1:202:ARG:HG2	58:B1:202:ARG:HH11	1.34	0.89
63:5:9:A:H2'	63:5:11:C:H41	1.38	0.89
51:1:2097:A:H2'	51:1:2098:U:C6	2.08	0.89
14:N:3:ASN:N	14:N:5:TYR:HH	1.70	0.88
51:1:1060:U:H4'	51:1:1061:U:H5''	1.55	0.88
51:1:11:C:H2'	51:1:12:U:H5''	1.55	0.87
59:B2:854:ILE:HG21	59:B2:917:SER:HB3	1.54	0.87
58:B1:317:THR:HA	58:B1:323:PRO:HA	1.55	0.87
58:B1:68:TYR:O	58:B1:75:TYR:HE2	1.58	0.87
65:0:348:THR:HA	65:0:359:ARG:HA	1.55	0.86
51:1:1869:G:H3'	51:1:1870:C:H5'	1.58	0.86
51:1:2333:A:H5'	51:1:2334:U:H2'	1.57	0.86
51:1:1387:A:H5'	51:1:1469:A:H1'	1.58	0.85
2:B:8:THR:HB	51:1:2020:A:H5'	1.56	0.85
58:B1:633:ALA:HB2	59:B2:808:ASN:H	1.41	0.85
51:1:2792:A:H2'	51:1:2793:C:H5''	1.59	0.85
51:1:1175:A:H3'	51:1:1176:U:H5'	1.59	0.85
17:Q:69:GLU:HG3	53:3:521:G:H4'	1.59	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:475:C:H4'	51:1:510:C:H5'	1.59	0.84
58:B1:68:TYR:HB3	58:B1:75:TYR:OH	1.76	0.83
51:1:1666:G:C2'	51:1:1667:G:H5'	2.07	0.83
51:1:2584:U:H2'	51:1:2585:U:H5'	1.58	0.83
58:B1:770:LEU:HD13	59:B2:618:GLN:HG3	1.61	0.82
33:i:119:ALA:HB2	51:1:1082:U:H5'	1.60	0.82
51:1:849:A:H2'	51:1:850:U:C6	2.14	0.82
51:1:1141:U:H4'	51:1:1142:A:O4'	1.80	0.82
55:8:1:DC:H5''	58:B1:210:SER:OG	1.80	0.82
51:1:279:A:H61	51:1:361:G:H1'	1.46	0.81
51:1:2224:G:H4'	51:1:2226:C:C2	2.16	0.81
51:1:2799:A:H2'	51:1:2800:A:H5'	1.62	0.81
58:B1:111:THR:HG23	58:B1:300:GLN:OE1	1.81	0.81
51:1:757:G:H2'	51:1:758:C:H5'	1.61	0.81
51:1:2360:G:H2'	51:1:2361:G:H5'	1.62	0.81
3:C:40:PRO:HG3	51:1:2348:U:H4'	1.63	0.81
51:1:545:U:C2	51:1:546:U:H1'	2.16	0.81
51:1:2112:G:H2'	51:1:2113:U:H5'	1.63	0.81
58:B1:141:PHE:HE2	58:B1:296:LYS:HB2	1.44	0.80
38:n:36:THR:HG22	51:1:1278:C:OP1	1.80	0.80
51:1:1087:G:N2	51:1:1103:A:H1'	1.97	0.80
51:1:1071:G:O2'	51:1:1089:A:H2'	1.82	0.80
58:B1:37:GLU:O	58:B1:61:ILE:HD11	1.81	0.80
58:B1:141:PHE:CE2	58:B1:296:LYS:HB2	2.15	0.80
58:B1:144:TYR:HE1	58:B1:162:GLU:OE2	1.64	0.80
64:6:46:G:H2'	64:6:47:U:H5'	1.64	0.80
51:1:784:G:H5'	51:1:785:G:OP1	1.81	0.79
51:1:1197:G:O2'	51:1:1198:U:H5'	1.81	0.79
51:1:1775:U:H2'	51:1:1776:G:H5'	1.64	0.79
7:G:18:GLN:HG3	7:G:189:ASN:HB3	1.65	0.79
51:1:1064:C:H41	51:1:1069:A:H5''	1.47	0.79
65:0:508:GLN:HA	65:0:513:GLY:CA	2.12	0.79
51:1:1536:C:H4'	51:1:1537:G:C2	2.18	0.78
58:B1:186:GLN:HG3	58:B1:238:ILE:HG13	1.65	0.78
51:1:2130:U:H2'	51:1:2131:U:H5''	1.65	0.78
33:i:55:PRO:HG3	51:1:1060:U:OP2	1.83	0.78
51:1:275:C:H2'	51:1:276:U:C4'	2.14	0.78
28:c:114:LYS:HB2	51:1:2680:U:OP1	1.84	0.77
51:1:1275:A:N6	51:1:1296:G:H4'	1.99	0.77
65:0:624:PRO:HG2	65:0:677:ARG:HD2	1.66	0.77
51:1:1702:G:C2'	51:1:1703:G:H5''	2.13	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2286:G:H4'	51:1:2287:A:O4'	1.82	0.77
51:1:2156:G:C2'	51:1:2157:G:H5'	2.14	0.77
51:1:2792:A:C3'	51:1:2793:C:H5''	2.14	0.77
51:1:368:A:H2'	51:1:369:U:H5'	1.66	0.77
51:1:2215:C:H2'	51:1:2216:G:C8	2.19	0.77
51:1:1297:C:OP1	51:1:2710:C:H4'	1.83	0.77
51:1:1736:U:H2'	51:1:1737:G:O4'	1.85	0.77
58:B1:202:ARG:HG2	58:B1:202:ARG:NH1	1.99	0.77
51:1:1310:G:C2'	51:1:1311:G:H5'	2.14	0.76
35:k:6:THR:HG22	51:1:1666:G:O2'	1.83	0.76
51:1:275:C:H3'	51:1:276:U:H5''	1.66	0.76
51:1:1063:G:H1	51:1:1075:C:N4	1.84	0.76
55:8:13:DT:H72	58:B1:791:ALA:HB2	1.66	0.76
51:1:310:A:O2'	51:1:311:A:H2'	1.84	0.76
51:1:1394:U:H4'	51:1:1603:A:H4'	1.66	0.76
51:1:548:G:H2'	51:1:549:G:O4'	1.84	0.76
51:1:2792:A:C2'	51:1:2793:C:H5''	2.16	0.75
58:B1:68:TYR:C	58:B1:75:TYR:CE2	2.65	0.75
51:1:2611:C:O2	51:1:2611:C:H2'	1.86	0.75
58:B1:395:LYS:HZ2	58:B1:399:LYS:CD	2.00	0.74
51:1:958:U:H2'	52:2:89:U:O2	1.87	0.74
51:1:1020:A:H5'	51:1:1021:A:C8	2.22	0.74
51:1:1083:U:H2'	51:1:1085:A:OP2	1.86	0.74
55:8:15:DC:H1'	58:B1:426:ALA:HB1	1.67	0.74
51:1:1425:G:H2'	51:1:1426:G:C8	2.23	0.74
51:1:543:G:H2'	51:1:544:C:H5''	1.68	0.74
51:1:1773:A:H2'	51:1:1774:C:H5'	1.68	0.74
51:1:1670:C:H2'	51:1:1671:U:H5'	1.70	0.74
51:1:2432:A:H1'	64:6:75:C:O4'	1.87	0.74
65:0:508:GLN:HA	65:0:513:GLY:HA2	1.69	0.74
51:1:545:U:H2'	51:1:546:U:O4'	1.88	0.74
51:1:1555:G:H5'	51:1:1555:G:H8	1.51	0.74
55:8:3:DC:H2'	55:8:4:DT:H72	1.69	0.74
58:B1:110:PRO:HG2	58:B1:183:GLU:HG3	1.69	0.74
58:B1:282:LEU:HA	58:B1:286:ALA:HA	1.70	0.74
51:1:1061:U:H3'	51:1:1062:G:C5'	2.18	0.74
51:1:1310:G:H2'	51:1:1311:G:H5'	1.69	0.74
51:1:2097:A:H2'	51:1:2098:U:H6	1.50	0.73
53:3:456:A:H61	53:3:476:U:H3	1.36	0.73
51:1:322:A:H5'	51:1:340:A:C1'	2.19	0.73
51:1:481:G:H1'	51:1:506:G:N2	2.04	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:8:3:DC:C2'	55:8:4:DT:H72	2.19	0.73
58:B1:107:LEU:HD11	58:B1:242:LEU:HB2	1.70	0.73
63:5:30:G:H2'	63:5:31:A:C8	2.24	0.73
58:B1:1143:ASP:OD1	58:B1:1148:ARG:NH1	2.21	0.73
51:1:2036:C:H2'	51:1:2037:A:C8	2.23	0.73
51:1:404:A:H1'	51:1:406:G:C4	2.23	0.73
31:f:15:ASP:HB3	31:f:26:LYS:H	1.54	0.72
51:1:1433:A:H2'	51:1:1434:A:O4'	1.89	0.72
51:1:2834:G:H2'	51:1:2879:A:H61	1.54	0.72
64:6:50:U:H2'	64:6:51:C:C4	2.24	0.72
51:1:2713:U:C3'	51:1:2714:G:C5'	2.67	0.72
51:1:1942:C:H3'	51:1:1943:U:H2'	1.70	0.72
51:1:2671:G:H2'	51:1:2672:U:C6	2.25	0.72
17:Q:33:CYS:HA	17:Q:54:VAL:HG12	1.70	0.72
51:1:864:G:O2'	51:1:865:C:H5'	1.89	0.72
51:1:1858:A:H1'	51:1:1885:A:C2	2.25	0.72
53:3:452:A:H61	53:3:480:U:H3	1.38	0.72
58:B1:157:GLN:OE1	58:B1:157:GLN:HA	1.89	0.72
58:B1:211:GLU:HG2	58:B1:215:LYS:HE3	1.70	0.71
51:1:1441:G:H2'	51:1:1442:U:C6	2.25	0.71
51:1:394:C:H2'	51:1:395:U:O4'	1.90	0.71
51:1:890:C:C2'	51:1:891:G:H5'	2.21	0.71
58:B1:210:SER:HB3	58:B1:213:LYS:HB2	1.71	0.71
51:1:633:A:H2'	51:1:634:C:H5'	1.71	0.71
51:1:1386:C:H2'	51:1:1387:A:H8	1.56	0.71
51:1:1795:C:H2'	51:1:1796:U:O4'	1.90	0.71
51:1:1872:A:H2'	51:1:1873:G:O4'	1.89	0.71
58:B1:220:ARG:HG2	58:B1:220:ARG:HH11	1.54	0.71
51:1:2151:U:H2'	51:1:2152:G:H8	1.56	0.71
53:3:663:A:H61	53:3:742:G:H1	1.39	0.71
58:B1:105:ILE:HD12	58:B1:242:LEU:HD22	1.71	0.71
51:1:368:A:C2'	51:1:369:U:H5'	2.20	0.71
58:B1:128:LEU:HD11	58:B1:189:LEU:HG	1.73	0.71
51:1:1019:U:H3	51:1:1142:A:N6	1.89	0.70
51:1:2297:A:N1	51:1:2321:U:H5	1.89	0.70
36:l:59:ARG:HD2	51:1:250:G:H4'	1.71	0.70
51:1:1983:G:O2'	51:1:1984:G:H5'	1.91	0.70
33:i:22:PRO:HB3	51:1:1067:A:H4'	1.72	0.70
51:1:723:C:H2'	51:1:724:U:C6	2.27	0.70
57:A2:294:ASN:HA	61:NA:464:ILE:H	1.57	0.70
34:j:7:LYS:HG2	51:1:538:A:H4'	1.73	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:A1:297:LYS:CB	61:NA:79:ALA:HB1	2.22	0.70
58:B1:142:GLU:HG3	58:B1:142:GLU:O	1.89	0.70
42:r:79:ARG:NH1	51:1:572:A:OP2	2.25	0.70
51:1:1670:C:C2'	51:1:1671:U:H5'	2.21	0.70
51:1:612:G:H2'	51:1:614:A:C8	2.26	0.70
51:1:1555:G:H5'	51:1:1555:G:C8	2.27	0.70
51:1:2267:A:H5''	51:1:2268:A:H5''	1.74	0.70
58:B1:352:ARG:HD2	59:B2:1268:GLN:HE22	1.55	0.70
51:1:1292:G:H2'	51:1:1293:C:C6	2.27	0.69
27:b:47:ARG:NH2	51:1:774:G:H5''	2.07	0.69
51:1:2151:U:H2'	51:1:2152:G:C8	2.27	0.69
51:1:1102:C:H2'	51:1:1103:A:C8	2.22	0.69
51:1:2092:U:H4'	51:1:2093:G:H5''	1.74	0.69
51:1:419:U:H2'	51:1:420:C:C6	2.27	0.69
51:1:849:A:H2'	51:1:850:U:H6	1.58	0.69
51:1:1889:A:H2'	51:1:1890:A:H8	1.58	0.69
15:O:89:ARG:CD	58:B1:86:GLU:OE1	2.40	0.69
36:l:30:THR:HG22	51:1:810:U:O4	1.93	0.69
51:1:282:A:H2'	51:1:283:G:H8	1.57	0.69
51:1:905:A:C2'	51:1:906:U:H5'	2.23	0.69
51:1:940:G:H2'	51:1:941:A:H5''	1.73	0.69
51:1:1137:G:O2'	51:1:1138:G:H5'	1.92	0.69
59:B2:65:ASN:HB3	59:B2:105:TYR:HB2	1.74	0.69
63:5:47:U:H4'	63:5:48:C:H5'	1.75	0.69
51:1:319:G:H1	51:1:323:C:H5	1.40	0.69
51:1:1337:G:H2'	51:1:1338:G:H8	1.57	0.69
51:1:2114:A:H2	51:1:2167:U:H1'	1.57	0.69
58:B1:93:THR:HB	58:B1:97:VAL:HG21	1.73	0.69
51:1:528:A:C8	51:1:528:A:H3'	2.28	0.69
51:1:2403:C:O2'	51:1:2404:U:H5'	1.92	0.69
51:1:2626:C:O2'	51:1:2627:G:H5'	1.91	0.69
51:1:392:U:H2'	51:1:393:C:H6	1.58	0.68
59:B2:903:ARG:NH1	61:NA:1:MET:CB	2.56	0.68
8:H:117:ASP:HA	8:H:120:THR:HG22	1.75	0.68
51:1:322:A:H5'	51:1:340:A:H1'	1.73	0.68
51:1:644:A:H2'	51:1:645:C:C5'	2.22	0.68
51:1:2510:C:N4	51:1:2511:U:O4	2.27	0.68
51:1:2869:G:H2'	51:1:2870:C:C6	2.28	0.68
51:1:1999:C:H5''	51:1:2723:C:O2'	1.94	0.68
65:0:104:ARG:HH22	65:0:407:GLU:HB3	1.57	0.68
51:1:1082:U:H3'	51:1:1083:U:C5'	2.22	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2747:G:O6	51:1:2755:C:H5''	1.93	0.68
55:8:3:DC:C6	55:8:4:DT:H72	2.29	0.68
58:B1:111:THR:CG2	58:B1:300:GLN:CD	2.67	0.68
58:B1:141:PHE:CD2	58:B1:293:ARG:O	2.47	0.68
50:z:38:GLU:OE2	51:1:928:A:H5'	1.94	0.68
51:1:226:A:H2'	51:1:227:A:O4'	1.93	0.68
51:1:1063:G:H1	51:1:1075:C:H41	1.42	0.68
58:B1:243:PRO:HG2	59:B2:1332:SER:O	1.93	0.68
58:B1:832:LYS:C	58:B1:1242:ARG:HH12	2.01	0.68
48:x:16:ASN:ND2	48:x:26:ARG:HB3	2.09	0.68
51:1:419:U:H2'	51:1:420:C:H6	1.58	0.68
52:2:65:U:H3'	52:2:108:A:H61	1.58	0.68
51:1:402:A:H2'	51:1:403:U:H5'	1.74	0.68
51:1:894:U:H2'	51:1:895:U:O4'	1.93	0.68
58:B1:161:THR:HG22	58:B1:164:GLN:HB2	1.75	0.68
51:1:1078:U:H2'	51:1:1088:A:OP1	1.94	0.68
51:1:2758:A:H2'	51:1:2759:G:H5'	1.76	0.68
51:1:1702:G:C3'	51:1:1703:G:H5''	2.24	0.67
58:B1:39:LYS:O	58:B1:273:ILE:CG2	2.41	0.67
9:I:73:ASN:HA	9:I:76:LYS:HB2	1.77	0.67
51:1:246:C:H2'	51:1:247:G:H5'	1.76	0.67
51:1:1484:U:H2'	51:1:1485:U:C6	2.30	0.67
55:8:23:DC:H2''	55:8:24:DC:C5	2.30	0.67
51:1:1061:U:H3'	51:1:1062:G:H5'	1.76	0.67
53:3:1338:G:H22	63:5:29:G:H22	1.42	0.67
58:B1:117:LEU:HD12	58:B1:117:LEU:O	1.94	0.67
58:B1:395:LYS:HZ2	58:B1:399:LYS:HD3	1.59	0.67
58:B1:1355:ARG:NH1	58:B1:1369:ARG:HH12	1.93	0.67
51:1:466:A:H2'	51:1:467:G:H5'	1.76	0.67
51:1:1717:A:H2'	51:1:1718:G:H5'	1.77	0.67
51:1:2013:A:H5''	51:1:2013:A:H8	1.59	0.67
51:1:707:G:O2'	51:1:708:G:H5'	1.94	0.67
51:1:2157:G:H2'	51:1:2158:A:H2	1.59	0.67
51:1:2516:A:O2'	51:1:2517:C:H5'	1.95	0.67
53:3:437:U:H3	53:3:495:A:H62	1.42	0.67
51:1:1889:A:H2'	51:1:1890:A:C8	2.29	0.67
51:1:2595:G:N2	51:1:2598:A:OP2	2.23	0.67
65:0:364:VAL:HA	65:0:373:GLU:HA	1.77	0.67
4:D:37:LYS:HD3	4:D:39:ARG:HD3	1.77	0.67
51:1:1176:U:H2'	51:1:1177:G:C8	2.29	0.67
51:1:2898:U:H2'	51:1:2899:A:C8	2.29	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:108:ALA:HB3	58:B1:279:LEU:HD22	1.77	0.67
51:1:1432:G:O2'	51:1:1433:A:H5'	1.94	0.67
51:1:1438:U:O2'	51:1:1439:A:H5'	1.94	0.67
51:1:2555:U:H2'	51:1:2556:C:H5'	1.78	0.67
36:l:39:LYS:NZ	51:1:942:G:OP2	2.28	0.66
51:1:703:U:C2'	51:1:704:G:H5'	2.25	0.66
51:1:1270:C:H5''	51:1:1271:G:H5'	1.77	0.66
51:1:2278:A:C3'	51:1:2279:G:H5''	2.25	0.66
51:1:2233:U:H2'	51:1:2234:G:C8	2.30	0.66
51:1:2625:G:H2'	51:1:2626:C:C6	2.30	0.66
51:1:1733:G:O2'	51:1:1734:G:H5'	1.95	0.66
51:1:2733:A:O2'	51:1:2734:A:H5'	1.96	0.66
37:m:14:LYS:NZ	51:1:956:G:N7	2.35	0.66
51:1:905:A:H2'	51:1:906:U:H5'	1.78	0.66
17:Q:47:ALA:HB3	17:Q:49:ARG:HE	1.60	0.66
28:c:4:LEU:HD23	28:c:29:VAL:HG11	1.77	0.66
51:1:521:U:H2'	51:1:522:A:C8	2.31	0.66
51:1:644:A:C2'	51:1:645:C:H5''	2.22	0.66
51:1:1064:C:N4	51:1:1069:A:H5''	2.09	0.66
51:1:1098:A:H2'	51:1:1099:G:H5'	1.77	0.66
51:1:2844:G:H2'	51:1:2845:U:C6	2.31	0.66
51:1:1020:A:H1'	51:1:1021:A:OP2	1.95	0.66
51:1:2278:A:H3'	51:1:2279:G:H5''	1.78	0.66
65:0:508:GLN:HA	65:0:513:GLY:HA3	1.77	0.66
45:u:25:LYS:HD3	45:u:36:GLU:HB3	1.75	0.66
51:1:2233:U:H2'	51:1:2234:G:H8	1.59	0.66
51:1:1746:A:H2'	51:1:1747:U:C6	2.31	0.66
51:1:2221:G:O2'	51:1:2222:C:H5'	1.95	0.66
51:1:2760:C:O2'	51:1:2761:A:H5'	1.96	0.66
55:8:13:DT:OP2	58:B1:791:ALA:HB1	1.95	0.66
51:1:635:C:H2'	51:1:636:G:C8	2.31	0.66
51:1:673:C:H2'	51:1:674:G:H5'	1.77	0.66
58:B1:108:ALA:CB	58:B1:279:LEU:HD22	2.25	0.66
17:Q:109:ARG:HH21	17:Q:112:ALA:HB3	1.60	0.65
51:1:414:C:H2'	51:1:415:A:C8	2.30	0.65
51:1:2193:G:H2'	51:1:2194:U:C6	2.31	0.65
58:B1:984:LEU:HB3	58:B1:993:GLU:HB2	1.77	0.65
27:b:227:VAL:HG11	51:1:784:G:C2	2.31	0.65
38:n:63:ARG:NE	51:1:1454:C:H5'	2.10	0.65
51:1:1098:A:C2'	51:1:1099:G:H5'	2.27	0.65
51:1:1788:C:O2'	51:1:1789:A:H5'	1.96	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2290:G:H2'	51:1:2291:U:C6	2.32	0.65
51:1:528:A:H3'	51:1:528:A:H8	1.60	0.65
51:1:870:U:C2'	51:1:871:U:H5'	2.26	0.65
65:0:618:LYS:HG3	65:0:643:LYS:HZ3	1.61	0.65
51:1:65:U:H2'	51:1:66:C:H6	1.59	0.65
51:1:112:U:H2'	51:1:113:U:H5'	1.76	0.65
51:1:488:G:N2	51:1:491:G:H5''	2.11	0.65
51:1:536:G:H2'	51:1:537:G:H5'	1.79	0.65
51:1:2052:A:O2'	51:1:2053:G:H5'	1.96	0.65
19:S:38:GLU:HA	19:S:41:TRP:HB3	1.79	0.65
59:B2:314:ASN:HD21	59:B2:348:SER:HA	1.62	0.65
7:G:67:LEU:HD12	7:G:153:MET:HE1	1.77	0.65
51:1:1270:C:H5''	51:1:1271:G:C5'	2.25	0.65
51:1:359:G:O2'	51:1:360:U:H5'	1.97	0.65
51:1:1572:A:O2'	51:1:1573:G:H5'	1.97	0.65
58:B1:141:PHE:HD2	58:B1:293:ARG:O	1.79	0.65
51:1:543:G:H2'	51:1:544:C:C5'	2.26	0.65
58:B1:461:PHE:HD2	59:B2:813:GLU:HB2	1.61	0.65
51:1:201:C:O2'	51:1:202:U:H5'	1.97	0.65
58:B1:918:ILE:HG22	59:B2:1280:ALA:HB1	1.79	0.65
58:B1:978:ARG:HG2	58:B1:1197:ASN:HD21	1.61	0.65
51:1:613:A:H5''	51:1:614:A:C8	2.32	0.64
51:1:1853:A:H2'	51:1:1854:A:C8	2.32	0.64
51:1:2170:A:H2'	51:1:2171:A:O4'	1.97	0.64
43:s:6:LYS:HB2	51:1:494:G:H4'	1.78	0.64
51:1:1666:G:H2'	51:1:1667:G:C5'	2.24	0.64
51:1:1796:U:H2'	51:1:1797:G:H8	1.61	0.64
53:3:85:U:H5''	53:3:86:G:H5'	1.78	0.64
53:3:959:A:HO2'	53:3:984:C:HO2'	1.45	0.64
58:B1:68:TYR:HB3	58:B1:75:TYR:CE2	2.32	0.64
58:B1:975:ILE:HG22	58:B1:977:SER:H	1.62	0.64
51:1:905:A:O2'	51:1:906:U:H5'	1.97	0.64
51:1:2112:G:C2'	51:1:2113:U:H5'	2.27	0.64
51:1:2114:A:N7	51:1:2115:G:H1'	2.12	0.64
51:1:622:G:O2'	51:1:623:C:H5'	1.98	0.64
51:1:703:U:H2'	51:1:704:G:H5'	1.77	0.64
58:B1:1037:PHE:HB3	58:B1:1040:MET:HB2	1.78	0.64
28:c:149:ASN:HB3	51:1:2572:A:OP2	1.97	0.64
51:1:414:C:H2'	51:1:415:A:H8	1.63	0.64
4:D:24:THR:HG23	4:D:27:GLY:H	1.61	0.64
16:P:19:VAL:HG22	16:P:82:GLU:HB2	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1766:G:O2'	51:1:1767:G:H5'	1.98	0.64
51:1:2792:A:H3'	51:1:2793:C:H5''	1.80	0.64
51:1:2811:G:O2'	51:1:2812:G:H5'	1.97	0.64
12:L:59:GLU:HA	12:L:62:GLU:HB3	1.80	0.64
51:1:306:U:H2'	51:1:307:G:O4'	1.98	0.64
51:1:870:U:H2'	51:1:871:U:H5'	1.79	0.64
55:8:3:DC:C2'	55:8:4:DT:C7	2.75	0.64
58:B1:193:ASP:HB3	58:B1:196:GLN:HB2	1.78	0.64
51:1:2834:G:O2'	51:1:2835:A:H5'	1.97	0.64
51:1:256:A:O2'	51:1:257:C:H5'	1.98	0.64
65:0:614:GLU:HB3	65:0:690:ALA:HB2	1.79	0.64
9:I:152:SER:H	9:I:155:LYS:HD3	1.63	0.63
16:P:87:GLY:H	16:P:113:THR:HG22	1.62	0.63
27:b:106:PRO:HD2	27:b:109:LEU:HD22	1.79	0.63
31:f:154:GLU:HG3	31:f:156:TYR:H	1.61	0.63
51:1:940:G:C3'	51:1:941:A:H5''	2.28	0.63
51:1:2799:A:C2'	51:1:2800:A:H5'	2.27	0.63
59:B2:1282:GLY:HA3	60:W0:17:PHE:HE1	1.63	0.63
26:Z:32:ARG:HG2	26:Z:33:ARG:HG3	1.79	0.63
51:1:65:U:H2'	51:1:66:C:C6	2.33	0.63
11:K:38:ARG:HE	11:K:97:THR:HA	1.62	0.63
51:1:212:G:O2'	51:1:213:A:H5'	1.99	0.63
51:1:1038:G:H2'	51:1:1039:A:C8	2.32	0.63
51:1:1161:C:H2'	51:1:1162:G:H8	1.61	0.63
58:B1:285:LEU:HD13	58:B1:285:LEU:H	1.62	0.63
59:B2:120:GLN:NE2	59:B2:490:GLN:OE1	2.32	0.63
51:1:161:A:N7	51:1:162:U:H5	1.96	0.63
51:1:815:C:C2	51:1:1193:G:N2	2.66	0.63
51:1:1857:G:H22	51:1:1884:G:H2'	1.62	0.63
51:1:2636:C:H2'	51:1:2637:U:H6	1.64	0.63
26:Z:65:ARG:NH2	53:3:1087:G:N3	2.47	0.63
51:1:37:C:O2'	51:1:38:A:H5'	1.99	0.63
51:1:1181:U:H2'	51:1:1182:G:C8	2.33	0.63
51:1:2404:U:O2'	51:1:2405:G:H5'	1.97	0.63
58:B1:128:LEU:HA	58:B1:192:MET:HE1	1.81	0.63
51:1:1149:G:H2'	51:1:1150:C:C6	2.34	0.63
51:1:2073:C:O2'	51:1:2074:U:H5'	1.98	0.63
51:1:2469:A:H2'	51:1:2470:G:O4'	1.98	0.63
51:1:317:G:H2'	51:1:318:C:H6	1.64	0.63
51:1:1280:G:O2'	51:1:1281:G:H5'	1.99	0.63
51:1:1909:C:H2'	51:1:1910:G:H8	1.64	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2298:A:H2'	51:1:2299:U:O4'	1.99	0.63
51:1:1164:C:O2'	51:1:1165:A:H5'	1.99	0.62
51:1:1524:G:H2'	51:1:1525:A:H8	1.63	0.62
53:3:373:A:H61	53:3:391:G:H1'	1.64	0.62
7:G:173:LYS:O	7:G:177:ASN:ND2	2.32	0.62
51:1:2314:A:H2'	51:1:2315:G:C8	2.33	0.62
58:B1:162:GLU:HA	58:B1:162:GLU:OE1	1.97	0.62
51:1:872:U:O2'	51:1:873:C:H5'	1.99	0.62
51:1:1921:G:O2'	51:1:1922:G:H5'	1.98	0.62
58:B1:1355:ARG:NH1	58:B1:1369:ARG:NH1	2.47	0.62
34:j:45:THR:HB	34:j:48:VAL:HG22	1.81	0.62
51:1:1448:G:H2'	51:1:1449:G:H8	1.64	0.62
51:1:1935:G:H1'	51:1:1964:G:N2	2.15	0.62
58:B1:100:GLU:HA	59:B2:1328:LYS:HE2	1.82	0.62
58:B1:245:LEU:HG	58:B1:246:PRO:HD2	1.80	0.62
16:P:58:THR:HG22	16:P:60:PHE:H	1.65	0.62
1:A:1:MET:HG2	52:2:43:C:H5''	1.82	0.62
51:1:554:U:H2'	51:1:555:G:O4'	1.99	0.62
51:1:590:A:O2'	51:1:591:U:H5'	2.00	0.62
51:1:2898:U:H2'	51:1:2899:A:H8	1.64	0.62
55:8:13:DT:C7	58:B1:791:ALA:HB2	2.29	0.62
16:P:45:THR:HG23	16:P:48:GLY:H	1.65	0.62
51:1:445:C:H2'	51:1:446:G:O4'	1.98	0.62
51:1:2092:U:H5	51:1:2199:A:H2	1.48	0.62
58:B1:111:THR:CG2	58:B1:300:GLN:NE2	2.63	0.62
58:B1:1357:ILE:HD11	59:B2:1287:LEU:HD13	1.80	0.62
51:1:161:A:H3'	51:1:162:U:H5''	1.81	0.62
51:1:1040:A:H2	51:1:1115:G:H22	1.48	0.62
51:1:1086:A:H5'	51:1:1103:A:H2	1.65	0.62
51:1:1680:U:H2'	51:1:1681:G:O4'	2.00	0.62
51:1:1775:U:H2'	51:1:1776:G:C5'	2.29	0.62
28:c:181:ASP:HB3	28:c:186:LEU:HB2	1.82	0.62
44:t:53:VAL:HG12	44:t:92:ASN:HD22	1.65	0.62
51:1:2734:A:H2'	51:1:2735:G:H5'	1.82	0.62
22:V:30:HIS:HD2	22:V:33:TYR:H	1.48	0.62
51:1:2345:G:N3	51:1:2381:A:H2'	2.15	0.62
51:1:2637:U:H2'	51:1:2638:G:H5'	1.81	0.62
7:G:15:PHE:HB2	7:G:39:ILE:HG23	1.82	0.61
34:j:3:THR:N	51:1:995:C:N3	2.48	0.61
51:1:941:A:H2'	51:1:942:G:O4'	2.00	0.61
30:e:9:ASP:OD1	30:e:9:ASP:N	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:j:132:HIS:CD2	51:1:7:G:H5'	2.35	0.61
51:1:940:G:C2'	51:1:941:A:H5''	2.30	0.61
51:1:2097:A:H2'	51:1:2098:U:O4'	2.00	0.61
51:1:2404:U:H2'	51:1:2405:G:O4'	2.00	0.61
58:B1:1161:GLY:HA3	58:B1:1179:PRO:HA	1.82	0.61
45:u:87:GLU:HG2	45:u:92:VAL:HG21	1.82	0.61
51:1:11:C:C2'	51:1:12:U:H5''	2.29	0.61
51:1:889:C:H2'	51:1:890:C:O4'	1.99	0.61
59:B2:55:SER:OG	59:B2:465:ARG:NH1	2.33	0.61
32:g:50:ARG:HH22	32:g:51:ARG:HH21	1.48	0.61
58:B1:395:LYS:NZ	58:B1:399:LYS:HD3	2.15	0.61
51:1:1503:A:H3'	51:1:1504:A:H5''	1.82	0.61
51:1:1954:G:H1'	51:1:1956:U:O4	2.01	0.61
58:B1:201:LEU:HB2	58:B1:221:ILE:HD13	1.81	0.61
64:6:46:G:C2'	64:6:47:U:H5'	2.29	0.61
4:D:3:ARG:O	4:D:6:GLN:NE2	2.34	0.61
51:1:172:A:H2'	51:1:173:A:H8	1.66	0.61
51:1:236:C:H2'	51:1:237:C:H6	1.65	0.61
53:3:1032:G:H21	53:3:1033:G:H4'	1.65	0.61
57:A1:211:ILE:HG12	57:A1:219:ARG:HH12	1.65	0.61
51:1:2188:U:H2'	51:1:2189:U:O4'	2.01	0.61
53:3:1133:G:H1	53:3:1141:C:H42	1.48	0.61
39:o:4:LYS:HD3	39:o:7:ARG:HH21	1.65	0.61
51:1:322:A:H5'	51:1:340:A:O4'	2.00	0.61
51:1:723:C:H2'	51:1:724:U:H6	1.64	0.61
51:1:2852:G:O2'	51:1:2853:C:H5'	2.01	0.61
57:A1:112:ALA:HB3	57:A1:126:PRO:HA	1.83	0.61
34:j:39:LYS:HE3	51:1:1009:A:OP1	2.01	0.61
51:1:435:C:H2'	51:1:436:C:H5'	1.82	0.61
51:1:1508:A:H2'	51:1:1509:A:O4'	2.01	0.61
29:d:149:ILE:HG23	29:d:188:MET:HB3	1.83	0.60
47:w:38:GLY:HA2	51:1:2330:G:H21	1.66	0.60
51:1:198:C:H42	51:1:248:G:H1	1.49	0.60
51:1:1553:A:HO2'	51:1:1554:U:H5	1.48	0.60
51:1:2804:U:H2'	51:1:2805:C:C6	2.36	0.60
55:8:1:DC:H2''	55:8:2:DC:C5	2.35	0.60
51:1:547:A:H3'	51:1:547:A:N3	2.16	0.60
51:1:2812:G:H2'	51:1:2813:A:C8	2.36	0.60
53:3:1351:U:H3	53:3:1371:G:H1	1.49	0.60
58:B1:68:TYR:HB3	58:B1:75:TYR:CZ	2.35	0.60
58:B1:633:ALA:HA	59:B2:806:PRO:O	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:m:17:ASN:O	37:m:38:ARG:NH1	2.34	0.60
51:1:2327:A:H2'	51:1:2328:A:C8	2.35	0.60
51:1:2386:A:O2'	51:1:2387:U:H5'	2.01	0.60
58:B1:951:GLN:NE2	58:B1:1014:GLY:O	2.35	0.60
27:b:153:LEU:HD23	51:1:1799:G:C2	2.37	0.60
51:1:558:U:H6	51:1:558:U:O5'	1.84	0.60
55:8:3:DC:H2'	55:8:4:DT:C7	2.30	0.60
59:B2:1072:ASN:ND2	59:B2:1111:GLN:OE1	2.35	0.60
33:i:135:MET:HE2	51:1:1062:G:H21	1.65	0.60
51:1:1287:A:C5	51:1:1288:G:C6	2.89	0.60
51:1:1717:A:C2'	51:1:1718:G:H5'	2.30	0.60
51:1:1857:G:N2	51:1:1884:G:H2'	2.17	0.60
57:A1:38:THR:HB	57:A2:45:ARG:HD3	1.82	0.60
58:B1:223:LEU:HG	58:B1:223:LEU:O	2.00	0.60
51:1:851:C:H2'	51:1:852:U:C6	2.36	0.60
58:B1:412:LEU:HD22	58:B1:441:LEU:HD21	1.84	0.60
58:B1:154:LEU:HD21	58:B1:160:LEU:HD21	1.83	0.60
58:B1:926:PRO:HG2	58:B1:1248:ILE:HD11	1.84	0.60
2:B:43:THR:HG1	2:B:46:GLY:H	1.50	0.60
7:G:86:CYS:SG	7:G:87:ASP:N	2.74	0.60
18:R:102:LYS:HG2	18:R:103:THR:HG23	1.83	0.60
51:1:1773:A:C2'	51:1:1774:C:H5'	2.31	0.60
51:1:2093:G:O2'	51:1:2094:A:H5'	2.01	0.60
53:3:1040:U:H2'	53:3:1041:G:H8	1.67	0.60
55:8:7:DC:H2''	55:8:8:DT:H71	1.84	0.60
59:B2:528:ARG:NH2	59:B2:576:SER:O	2.30	0.60
29:d:68:ALA:HA	51:1:1255:U:C5	2.37	0.60
51:1:893:C:H2'	51:1:894:U:C6	2.37	0.60
51:1:1437:C:H2'	51:1:1438:U:C6	2.36	0.60
51:1:1775:U:C2'	51:1:1776:G:H5'	2.30	0.60
51:1:2187:U:O2'	51:1:2188:U:H5'	2.02	0.60
29:d:77:ILE:CG2	51:1:1256:G:H21	2.15	0.60
51:1:283:G:H2'	51:1:284:U:H5'	1.83	0.60
51:1:1183:U:H2'	51:1:1184:U:C6	2.37	0.60
51:1:1198:U:H2'	51:1:1199:U:C6	2.37	0.60
51:1:1538:G:H2'	51:1:1539:U:C6	2.37	0.59
51:1:2717:C:C4	51:1:2718:G:N7	2.70	0.59
51:1:49:A:H5''	51:1:51:G:O4'	2.02	0.59
51:1:1071:G:H1'	51:1:1089:A:C8	2.37	0.59
51:1:2749:A:OP2	51:1:2751:G:H5''	2.02	0.59
55:8:9:DG:H4'	58:B1:120:LEU:HG	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:8:11:DC:H2'	55:8:12:DG:C8	2.37	0.59
33:i:19:PRO:HA	33:i:24:GLY:HA3	1.85	0.59
45:u:40:LEU:HD12	45:u:59:GLU:HG2	1.84	0.59
51:1:2137:U:H2'	51:1:2138:G:H8	1.67	0.59
58:B1:438:GLU:HG3	58:B1:485:MET:HE1	1.85	0.59
58:B1:770:LEU:HD13	59:B2:618:GLN:CG	2.30	0.59
29:d:77:ILE:HG23	51:1:1256:G:H21	1.68	0.59
42:r:4:VAL:HG22	42:r:40:MET:HG2	1.84	0.59
51:1:1026:G:H2'	51:1:1027:A:H8	1.67	0.59
51:1:1077:A:C8	51:1:1078:U:H1'	2.37	0.59
58:B1:514:THR:HG21	58:B1:596:LEU:HD12	1.84	0.59
51:1:1171:G:H2'	51:1:1172:C:O4'	2.02	0.59
9:I:69:ARG:NH1	53:3:401:C:OP2	2.36	0.59
22:V:11:VAL:HA	22:V:22:VAL:HA	1.84	0.59
51:1:215:G:H4'	51:1:216:A:H4'	1.84	0.59
51:1:841:G:O2'	51:1:842:U:H5'	2.02	0.59
51:1:854:C:O2'	51:1:855:G:H5'	2.02	0.59
51:1:1670:C:H2'	51:1:1671:U:C5'	2.31	0.59
51:1:2165:C:H2'	51:1:2166:U:C6	2.38	0.59
51:1:2643:G:H2'	51:1:2644:G:H5'	1.84	0.59
58:B1:342:LEU:HD23	58:B1:1352:ILE:HG23	1.83	0.59
14:N:17:ARG:HB2	14:N:65:THR:HG23	1.83	0.59
51:1:2215:C:H2'	51:1:2216:G:H8	1.65	0.59
58:B1:275:ARG:NH1	58:B1:278:ARG:NH1	2.51	0.59
51:1:794:A:H2'	51:1:795:C:O4'	2.02	0.59
51:1:2091:C:H5	51:1:2092:U:HO2'	1.50	0.59
51:1:2789:C:H2'	51:1:2893:A:N7	2.18	0.59
53:3:148:G:H1'	53:3:1447:A:H1'	1.84	0.59
58:B1:370:LYS:HG2	58:B1:441:LEU:HD23	1.84	0.59
59:B2:69:GLN:HE21	59:B2:101:ARG:HD2	1.67	0.59
47:w:40:LYS:HE3	51:1:2330:G:O2'	2.03	0.59
51:1:246:C:C2'	51:1:247:G:H5'	2.33	0.59
51:1:528:A:C8	51:1:528:A:C3'	2.86	0.59
51:1:1725:U:H2'	51:1:1726:C:C6	2.38	0.59
51:1:2661:G:H5'	65:0:19:ILE:HD13	1.85	0.59
51:1:2743:U:H3'	51:1:2744:G:H5''	1.84	0.59
58:B1:144:TYR:CE1	58:B1:162:GLU:OE2	2.51	0.59
58:B1:725:MET:SD	59:B2:1101:LEU:HD23	2.42	0.59
23:W:49:LYS:HA	23:W:52:ARG:HH21	1.68	0.58
27:b:34:GLU:HG3	27:b:63:ILE:HD11	1.84	0.58
37:m:66:ARG:NH1	37:m:104:GLU:OE2	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1098:A:H2'	51:1:1099:G:C5'	2.33	0.58
51:1:1469:A:H2'	51:1:1470:A:C8	2.38	0.58
51:1:1845:G:O2'	51:1:1846:G:H5'	2.02	0.58
51:1:2183:A:H2'	51:1:2184:A:C4	2.37	0.58
51:1:2533:U:H2'	51:1:2534:A:H5'	1.85	0.58
24:X:30:LEU:HB2	24:X:48:ILE:HG22	1.85	0.58
27:b:157:ALA:O	51:1:1820:U:C2	2.56	0.58
51:1:1511:G:H2'	51:1:1512:C:C6	2.38	0.58
51:1:1524:G:H2'	51:1:1525:A:C8	2.38	0.58
51:1:2360:G:C2'	51:1:2361:G:H5'	2.31	0.58
65:0:557:ILE:HG21	65:0:576:ILE:HD12	1.85	0.58
21:U:70:ARG:HH22	53:3:451:A:H5'	1.66	0.58
28:c:55:LYS:NZ	28:c:59:ARG:O	2.36	0.58
30:e:51:ASN:OD1	30:e:149:ARG:NH1	2.34	0.58
51:1:1333:G:O2'	51:1:1334:G:H5'	2.03	0.58
51:1:1579:A:H2'	51:1:1580:A:C8	2.38	0.58
51:1:1893:C:H2'	51:1:1894:C:H5'	1.86	0.58
53:3:422:C:O2'	53:3:423:G:N2	2.36	0.58
58:B1:161:THR:HG23	58:B1:164:GLN:H	1.68	0.58
15:O:46:LYS:HG2	15:O:68:ARG:HG2	1.84	0.58
51:1:2153:C:H2'	51:1:2154:A:H5'	1.84	0.58
27:b:141:HIS:ND1	27:b:192:GLY:O	2.36	0.58
51:1:1042:G:H2'	51:1:1043:C:C6	2.37	0.58
51:1:1463:C:H2'	51:1:1464:G:H8	1.68	0.58
51:1:1565:C:O2'	51:1:1566:A:H8	1.87	0.58
58:B1:201:LEU:HD11	58:B1:220:ARG:HH11	1.67	0.58
58:B1:241:VAL:O	58:B1:241:VAL:HG12	2.04	0.58
51:1:834:G:H2'	51:1:835:C:O4'	2.04	0.58
9:I:201:GLU:O	53:3:8:A:N6	2.36	0.58
30:e:162:ASP:OD1	30:e:162:ASP:N	2.37	0.58
51:1:2636:C:H2'	51:1:2637:U:C6	2.39	0.58
58:B1:37:GLU:O	58:B1:61:ILE:CD1	2.52	0.58
51:1:655:A:H4'	51:1:656:G:C5'	2.30	0.58
51:1:1337:G:H2'	51:1:1338:G:C8	2.38	0.58
51:1:2570:G:H2'	51:1:2571:U:H5'	1.85	0.58
53:3:1125:U:H2'	53:3:1126:U:H2'	1.86	0.58
57:A2:28:LEU:HB2	57:A2:201:LEU:HB3	1.85	0.58
58:B1:615:LYS:HG2	60:W0:5:THR:HG21	1.85	0.58
59:B2:918:LEU:O	59:B2:918:LEU:HD23	2.02	0.58
59:B2:1142:ARG:NH1	59:B2:1161:LEU:O	2.36	0.58
14:N:79:ARG:HH21	14:N:102:PHE:HA	1.67	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:c:129:THR:OG1	28:c:140:HIS:O	2.22	0.58
29:d:1:MET:HG2	29:d:16:GLU:HG2	1.86	0.58
51:1:2812:G:H2'	51:1:2813:A:H8	1.68	0.58
51:1:2897:U:H2'	51:1:2898:U:C6	2.39	0.58
58:B1:99:ARG:NH1	58:B1:99:ARG:HG3	2.17	0.58
65:0:618:LYS:HG3	65:0:643:LYS:NZ	2.19	0.58
7:G:114:LYS:HE3	7:G:151:LYS:HB2	1.85	0.58
30:e:47:LYS:O	30:e:51:ASN:ND2	2.37	0.58
38:n:63:ARG:CZ	51:1:1454:C:H5'	2.34	0.58
51:1:32:C:H2'	51:1:33:C:C6	2.39	0.58
51:1:1561:C:H2'	51:1:1562:U:C6	2.39	0.58
51:1:2092:U:H4'	51:1:2093:G:C5'	2.34	0.58
51:1:2834:G:H2'	51:1:2879:A:N6	2.17	0.58
58:B1:97:VAL:HG11	58:B1:101:ARG:NH2	2.18	0.58
59:B2:13:LYS:HB2	59:B2:1180:MET:HE2	1.86	0.58
38:n:22:ARG:HG3	38:n:70:THR:HA	1.86	0.57
50:z:4:ILE:HD11	50:z:58:GLU:HG2	1.85	0.57
58:B1:42:GLU:HB3	58:B1:52:GLU:HG3	1.86	0.57
59:B2:707:ALA:O	59:B2:711:ASP:HB2	2.03	0.57
39:o:25:ARG:NH1	52:2:8:C:O3'	2.37	0.57
39:o:56:LYS:NZ	52:2:117:G:OP1	2.37	0.57
41:q:30:VAL:HG13	51:1:580:U:O3'	2.04	0.57
51:1:621:A:H2'	51:1:622:G:H5'	1.86	0.57
51:1:2762:C:H2'	51:1:2763:G:H5'	1.86	0.57
58:B1:352:ARG:HD2	59:B2:1268:GLN:HE21	1.68	0.57
27:b:220:ARG:NH1	51:1:1789:A:OP2	2.38	0.57
51:1:235:U:H2'	51:1:236:C:C6	2.39	0.57
51:1:323:C:H3'	51:1:323:C:OP2	2.05	0.57
51:1:327:G:O2'	51:1:328:U:H5'	2.04	0.57
51:1:640:C:O2'	51:1:641:U:H5'	2.04	0.57
51:1:673:C:C2'	51:1:674:G:H5'	2.34	0.57
51:1:1400:U:O2'	51:1:1401:G:H5'	2.04	0.57
51:1:2899:A:O2'	51:1:2900:A:H5'	2.04	0.57
53:3:409:U:H3	53:3:433:G:H1	1.51	0.57
58:B1:741:ALA:O	58:B1:762:ASN:ND2	2.38	0.57
58:B1:1361:THR:HB	59:B2:1284:ALA:HB3	1.86	0.57
65:0:94:ASP:HB3	65:0:465:HIS:HB2	1.85	0.57
9:I:10:LEU:HD23	9:I:62:ARG:HB3	1.86	0.57
16:P:111:ASP:HB2	26:Z:16:ARG:HH22	1.68	0.57
28:c:63:PRO:HG3	51:1:2787:C:H1'	1.85	0.57
51:1:146:A:H2'	51:1:147:C:C6	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1275:A:C6	51:1:1296:G:H4'	2.40	0.57
58:B1:99:ARG:CG	58:B1:99:ARG:HH11	2.17	0.57
10:J:44:ARG:NH2	10:J:70:MET:SD	2.78	0.57
19:S:5:MET:HE1	53:3:981:U:H5''	1.86	0.57
58:B1:1046:ILE:HD12	58:B1:1059:LEU:HB3	1.86	0.57
51:1:1173:U:C5	51:1:1174:U:H1'	2.40	0.57
58:B1:247:PRO:HA	58:B1:250:ARG:HG3	1.87	0.57
25:Y:59:ARG:NH1	53:3:177:G:OP1	2.37	0.57
51:1:163:C:H2'	51:1:164:C:O4'	2.05	0.57
57:A2:82:LEU:HD11	57:A2:171:LEU:HD23	1.86	0.57
10:J:54:GLU:HG2	10:J:56:PRO:HD2	1.86	0.57
27:b:259:ASN:ND2	27:b:262:THR:OG1	2.38	0.57
51:1:503:A:H4'	51:1:505:A:H5''	1.87	0.57
58:B1:638:SER:OG	58:B1:639:VAL:N	2.36	0.57
59:B2:1122:LYS:NZ	59:B2:1126:ASP:OD1	2.38	0.57
51:1:593:U:H2'	51:1:594:U:C6	2.40	0.57
51:1:877:A:N1	51:1:899:A:H2'	2.20	0.57
51:1:2584:U:C2'	51:1:2585:U:H5'	2.34	0.57
8:H:76:ILE:HD11	54:4:23:U:H4'	1.87	0.57
31:f:44:HIS:HA	31:f:49:LEU:HG	1.87	0.57
31:f:151:ARG:HB3	31:f:161:VAL:HG23	1.86	0.57
38:n:54:LEU:HD23	38:n:66:ALA:HB2	1.86	0.57
40:p:1:SER:OG	40:p:2:ASN:N	2.37	0.57
51:1:287:G:H2'	51:1:288:U:C6	2.40	0.57
51:1:2457:U:O2'	51:1:2458:G:H5'	2.05	0.57
53:3:159:G:N2	53:3:162:A:OP2	2.34	0.57
7:G:58:LYS:O	7:G:62:ARG:NH1	2.38	0.56
16:P:92:ARG:NH2	16:P:111:ASP:OD1	2.38	0.56
51:1:1108:U:H2'	51:1:1109:C:C2	2.40	0.56
51:1:1130:U:O2'	51:1:1131:G:OP1	2.19	0.56
51:1:1520:U:O2'	51:1:1521:G:H5'	2.05	0.56
51:1:1526:C:H2'	51:1:1527:G:O4'	2.03	0.56
51:1:1528:A:H2'	51:1:1529:G:H5'	1.87	0.56
51:1:2845:U:H2'	51:1:2846:G:H8	1.69	0.56
58:B1:198:CYS:HA	58:B1:221:ILE:HD11	1.86	0.56
49:y:39:GLN:HG2	51:1:96:C:OP1	2.05	0.56
51:1:1590:A:O2'	51:1:1591:A:H5'	2.06	0.56
4:D:9:VAL:HG22	51:1:1309:G:OP1	2.06	0.56
31:f:40:VAL:O	31:f:54:ARG:NH2	2.38	0.56
51:1:288:U:H2'	51:1:289:G:H8	1.71	0.56
51:1:358:U:H2'	51:1:359:G:C8	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:727:A:H2'	51:1:728:G:C8	2.40	0.56
51:1:885:C:N4	51:1:886:A:H62	2.03	0.56
51:1:1917:U:O2'	51:1:1918:A:H5'	2.05	0.56
51:1:2186:G:O2'	51:1:2187:U:H5'	2.04	0.56
58:B1:750:PRO:CB	59:B2:549:ASP:OD2	2.45	0.56
14:N:35:GLU:HA	14:N:39:GLY:HA3	1.86	0.56
51:1:543:G:H2'	51:1:544:C:O4'	2.05	0.56
51:1:635:C:H2'	51:1:636:G:H8	1.70	0.56
51:1:780:G:H21	51:1:783:A:H62	1.53	0.56
51:1:1120:G:O2'	51:1:1121:C:H5'	2.05	0.56
51:1:1485:U:H2'	51:1:1486:U:C6	2.41	0.56
63:5:37:A:H3'	63:5:38:A:H8	1.71	0.56
18:R:100:ARG:NH1	18:R:103:THR:OG1	2.38	0.56
27:b:250:GLN:NE2	27:b:251:THR:O	2.38	0.56
51:1:359:G:C2'	51:1:360:U:H5'	2.36	0.56
51:1:1097:U:H2'	51:1:1098:A:O4'	2.06	0.56
51:1:1485:U:H2'	51:1:1486:U:H6	1.70	0.56
51:1:1597:A:H5''	51:1:1598:A:H5'	1.86	0.56
51:1:2662:A:H2'	51:1:2663:G:O4'	2.05	0.56
53:3:202:G:H21	53:3:466:A:H61	1.53	0.56
58:B1:510:LEU:HD22	58:B1:601:ILE:HD12	1.86	0.56
64:6:52:G:H2'	64:6:53:G:H8	1.69	0.56
34:j:116:ARG:NH2	51:1:529:A:OP2	2.32	0.56
45:u:36:GLU:HA	45:u:61:GLU:HG2	1.86	0.56
46:v:57:TYR:OH	46:v:79:ARG:NH2	2.38	0.56
51:1:1319:C:O2'	51:1:1320:C:H5'	2.05	0.56
59:B2:839:VAL:HG12	59:B2:1049:ILE:HG12	1.87	0.56
11:K:2:ARG:NH1	53:3:738:C:OP1	2.39	0.56
17:Q:8:ARG:NH2	53:3:880:C:OP1	2.36	0.56
19:S:52:ARG:O	19:S:58:ARG:NH1	2.39	0.56
26:Z:44:ARG:NH1	53:3:722:G:OP2	2.39	0.56
38:n:2:ARG:HA	38:n:5:LYS:HD3	1.88	0.56
51:1:78:U:H2'	51:1:79:C:C6	2.40	0.56
51:1:155:A:H2'	51:1:156:A:C8	2.41	0.56
51:1:296:U:H2'	51:1:297:G:C8	2.41	0.56
51:1:633:A:C2'	51:1:634:C:H5'	2.35	0.56
53:3:830:G:H1	53:3:856:C:H42	1.53	0.56
19:S:26:LEU:HA	19:S:30:ILE:HD12	1.88	0.56
21:U:55:ASP:OD1	21:U:55:ASP:N	2.38	0.56
37:m:86:LYS:NZ	51:1:955:U:OP1	2.32	0.56
46:v:83:LYS:HD3	46:v:85:LYS:HZ1	1.71	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:y:49:ASP:OD1	49:y:52:ARG:NH2	2.39	0.56
51:1:74:A:H4'	51:1:75:G:O5'	2.05	0.56
51:1:1410:G:H2'	51:1:1411:U:C6	2.41	0.56
51:1:2236:U:H2'	51:1:2237:G:H5'	1.88	0.56
51:1:2395:C:H42	51:1:2421:G:H1	1.54	0.56
51:1:2626:C:H2'	51:1:2627:G:O4'	2.06	0.56
50:z:15:ARG:HE	50:z:52:PHE:HE2	1.53	0.56
51:1:69:C:H2'	51:1:70:G:H8	1.70	0.56
51:1:366:C:O2'	51:1:367:G:H5'	2.04	0.56
51:1:1182:G:H2'	51:1:1183:U:O4'	2.06	0.56
58:B1:39:LYS:O	58:B1:273:ILE:HG21	2.06	0.56
59:B2:818:VAL:HG22	59:B2:1096:ILE:HG12	1.87	0.56
16:P:63:GLN:HG3	16:P:98:ALA:HB2	1.88	0.56
28:c:134:HIS:CE1	51:1:1675:C:C4	2.94	0.56
51:1:184:C:H2'	51:1:185:G:H8	1.70	0.56
51:1:720:U:H2'	51:1:721:A:C8	2.41	0.56
53:3:503:C:H2'	53:3:504:C:C6	2.41	0.56
58:B1:102:MET:HG2	58:B1:246:PRO:HG3	1.87	0.56
58:B1:804:ALA:HA	58:B1:1259:GLN:HG3	1.88	0.56
8:H:39:ARG:NH1	8:H:54:ILE:O	2.39	0.55
27:b:216:ARG:NH2	51:1:781:A:OP1	2.38	0.55
49:y:28:LEU:HA	49:y:31:GLN:HB2	1.88	0.55
51:1:1697:G:H4'	51:1:1978:A:H5''	1.88	0.55
51:1:2533:U:C2'	51:1:2534:A:H5'	2.36	0.55
58:B1:144:TYR:HE1	58:B1:162:GLU:CD	2.14	0.55
58:B1:833:GLU:HB2	58:B1:1242:ARG:NH1	2.22	0.55
11:K:12:PRO:HB2	11:K:44:ARG:HH21	1.70	0.55
29:d:84:THR:HG21	51:1:586:A:H5'	1.87	0.55
30:e:23:SER:HB3	30:e:26:GLN:HB2	1.88	0.55
33:i:10:LEU:HA	51:1:1061:U:C2	2.42	0.55
39:o:52:SER:OG	39:o:53:THR:N	2.39	0.55
51:1:133:U:O2'	51:1:134:G:H5'	2.06	0.55
58:B1:1166:GLY:HA3	58:B1:1174:ARG:HB2	1.88	0.55
7:G:91:VAL:HG22	7:G:150:ILE:HD11	1.88	0.55
51:1:184:C:H2'	51:1:185:G:C8	2.41	0.55
51:1:461:C:H2'	51:1:462:C:C6	2.42	0.55
51:1:613:A:H2'	51:1:613:A:N3	2.21	0.55
51:1:877:A:C2'	51:1:878:A:H5''	2.36	0.55
51:1:2510:C:C4	51:1:2511:U:C4	2.93	0.55
51:1:2637:U:C2'	51:1:2638:G:H5'	2.36	0.55
59:B2:985:GLU:HB3	59:B2:988:LYS:HB2	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:4:ARG:HB3	12:L:6:ILE:HG23	1.88	0.55
43:s:98:LYS:HD3	51:1:2012:G:OP1	2.06	0.55
51:1:112:U:C2'	51:1:113:U:H5'	2.37	0.55
51:1:439:A:H2'	51:1:440:C:C6	2.42	0.55
51:1:759:G:H2'	51:1:760:G:C8	2.41	0.55
51:1:1506:U:H2'	51:1:1507:C:C6	2.41	0.55
51:1:1565:C:HO2'	51:1:1566:A:H8	1.52	0.55
51:1:1670:C:O5'	51:1:1670:C:H6	1.90	0.55
51:1:1909:C:H2'	51:1:1910:G:C8	2.40	0.55
51:1:2845:U:H2'	51:1:2846:G:C8	2.42	0.55
53:3:1036:A:H2'	53:3:1037:C:H5'	1.88	0.55
58:B1:160:LEU:HD22	58:B1:164:GLN:HB3	1.87	0.55
65:0:29:ARG:HE	65:0:269:ALA:HB1	1.70	0.55
15:O:89:ARG:HD2	58:B1:86:GLU:OE1	2.06	0.55
36:l:89:VAL:HG23	36:l:121:THR:HG23	1.88	0.55
51:1:172:A:H2'	51:1:173:A:C8	2.40	0.55
51:1:317:G:H2'	51:1:318:C:C6	2.42	0.55
51:1:1048:A:H2'	51:1:1049:C:H5'	1.88	0.55
51:1:1545:A:H2'	51:1:1546:G:O4'	2.06	0.55
51:1:1678:A:H2'	51:1:1679:A:H5'	1.86	0.55
51:1:1772:A:H5'	51:1:1773:A:OP2	2.06	0.55
51:1:2488:G:O2'	51:1:2489:U:H5'	2.07	0.55
7:G:45:THR:O	7:G:49:PHE:N	2.35	0.55
25:Y:73:ARG:NH2	53:3:261:U:OP2	2.36	0.55
35:k:65:THR:HG23	35:k:68:GLY:H	1.70	0.55
51:1:359:G:H2'	51:1:360:U:O4'	2.07	0.55
51:1:543:G:H2'	51:1:544:C:C4'	2.37	0.55
51:1:825:A:O2'	51:1:826:U:H5'	2.07	0.55
51:1:1541:C:O2'	51:1:1542:U:H5'	2.06	0.55
51:1:2827:C:O2'	51:1:2828:G:H5'	2.07	0.55
53:3:49:U:H3	53:3:362:G:H1'	1.71	0.55
53:3:1040:U:H2'	53:3:1041:G:C8	2.42	0.55
57:A1:29:GLU:HB3	57:A1:200:LYS:HG3	1.87	0.55
7:G:138:ARG:NH1	7:G:141:GLU:OE2	2.40	0.55
35:k:76:VAL:H	40:p:72:VAL:HG22	1.71	0.55
39:o:69:ASP:N	39:o:69:ASP:OD1	2.36	0.55
51:1:1448:G:H2'	51:1:1449:G:C8	2.42	0.55
51:1:1745:A:O2'	51:1:1746:A:H5'	2.07	0.55
51:1:2195:U:O2'	51:1:2196:C:H5'	2.06	0.55
51:1:2743:U:C3'	51:1:2744:G:H5''	2.37	0.55
58:B1:1155:ILE:HG13	58:B1:1210:ILE:HB	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:B2:917:SER:O	59:B2:919:ARG:HG3	2.07	0.55
25:Y:60:GLN:HA	25:Y:63:LYS:HB3	1.89	0.55
51:1:118:A:OP2	51:1:119:A:H5''	2.06	0.55
51:1:923:G:O2'	51:1:924:G:H5'	2.07	0.55
57:A2:29:GLU:HG3	57:A2:200:LYS:HG3	1.88	0.55
58:B1:1175:LEU:HD22	58:B1:1190:ILE:HD11	1.88	0.55
64:6:9:G:C2	64:6:45:G:O6	2.60	0.55
1:A:26:SER:OG	1:A:27:THR:N	2.37	0.55
51:1:2114:A:C2	51:1:2167:U:H1'	2.41	0.55
51:1:2545:G:O2'	51:1:2546:U:H5'	2.07	0.55
58:B1:130:MET:HE2	58:B1:135:ILE:HG12	1.87	0.55
59:B2:103:VAL:HB	59:B2:114:VAL:HG11	1.89	0.55
37:m:27:SER:H	37:m:66:ARG:HH12	1.54	0.55
51:1:296:U:H2'	51:1:297:G:H8	1.71	0.55
51:1:472:A:H2'	51:1:473:G:H5'	1.89	0.55
51:1:1091:G:H2'	51:1:1092:C:C6	2.42	0.55
35:k:70:ARG:HG2	35:k:76:VAL:HG12	1.88	0.54
51:1:392:U:H2'	51:1:393:C:C6	2.42	0.54
51:1:757:G:H2'	51:1:758:C:C5'	2.35	0.54
51:1:1601:G:C2'	51:1:1602:U:H5'	2.37	0.54
51:1:2217:G:O2'	51:1:2218:G:H5'	2.07	0.54
52:2:40:U:N3	52:2:44:G:OP2	2.40	0.54
59:B2:29:SER:O	59:B2:33:ASP:HB2	2.07	0.54
59:B2:360:LEU:HD13	59:B2:378:ARG:HH11	1.72	0.54
49:y:15:ASN:O	49:y:19:LEU:N	2.41	0.54
51:1:613:A:H5''	51:1:614:A:N7	2.22	0.54
51:1:1530:G:H22	51:1:1542:U:H1'	1.73	0.54
51:1:2345:G:H5'	51:1:2347:C:H5'	1.89	0.54
53:3:505:G:H5''	53:3:534:U:H2'	1.89	0.54
58:B1:759:ILE:HG23	58:B1:771:GLN:HB3	1.89	0.54
7:G:19:THR:HA	7:G:37:VAL:HA	1.88	0.54
8:H:71:ARG:HB3	8:H:74:ILE:HD13	1.89	0.54
10:J:23:THR:HA	10:J:28:ARG:HA	1.88	0.54
12:L:113:LYS:O	53:3:1239:A:O2'	2.23	0.54
51:1:1068:G:N2	51:1:1096:A:H1'	2.22	0.54
51:1:2114:A:C8	51:1:2115:G:H1'	2.42	0.54
51:1:2850:A:N1	51:1:2869:G:H4'	2.21	0.54
58:B1:508:LEU:HD22	59:B2:1101:LEU:HD21	1.88	0.54
58:B1:799:ARG:HG2	58:B1:1325:PHE:HZ	1.72	0.54
65:0:514:GLN:HE22	65:0:591:LEU:HD23	1.72	0.54
19:S:84:ARG:NH2	53:3:1059:C:O3'	2.40	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:128:C:H2'	51:1:129:C:H6	1.70	0.54
51:1:1511:G:H2'	51:1:1512:C:H6	1.73	0.54
51:1:1856:U:H2'	51:1:1857:G:O4'	2.08	0.54
53:3:923:A:N6	53:3:1392:G:O6	2.40	0.54
59:B2:1117:LEU:HD12	59:B2:1195:ILE:HG12	1.90	0.54
12:L:73:GLU:HG2	12:L:90:VAL:HG22	1.89	0.54
28:c:18:ASP:N	28:c:18:ASP:OD1	2.36	0.54
29:d:76:PRO:HA	29:d:82:GLY:HA3	1.90	0.54
51:1:784:G:C5'	51:1:785:G:OP1	2.54	0.54
51:1:1086:A:H5'	51:1:1103:A:C2	2.41	0.54
51:1:2092:U:C5	51:1:2199:A:H2	2.25	0.54
57:A1:47:LEU:HD23	57:A1:51:MET:HG3	1.90	0.54
58:B1:58:CYS:SG	58:B1:59:ALA:N	2.80	0.54
58:B1:145:VAL:HG23	58:B1:159:ILE:HG22	1.89	0.54
58:B1:746:LEU:HG	58:B1:758:PRO:HG3	1.90	0.54
58:B1:814:CYS:SG	58:B1:883:ARG:NH2	2.81	0.54
59:B2:684:ASN:OD1	59:B2:687:ARG:NH2	2.41	0.54
29:d:76:PRO:HD2	51:1:673:C:H5''	1.89	0.54
51:1:53:A:H2'	51:1:54:G:H5'	1.89	0.54
51:1:682:G:N2	51:1:796:C:O2	2.41	0.54
51:1:2092:U:C4'	51:1:2093:G:H5''	2.37	0.54
51:1:2190:G:O2'	51:1:2191:A:H5'	2.08	0.54
51:1:2734:A:C2'	51:1:2735:G:H5'	2.38	0.54
59:B2:1142:ARG:NH2	59:B2:1166:ASP:OD1	2.38	0.54
17:Q:64:SER:OG	17:Q:65:TYR:N	2.40	0.54
21:U:69:ASP:OD1	21:U:69:ASP:N	2.38	0.54
51:1:21:A:O2'	51:1:22:C:H5'	2.08	0.54
51:1:1014:A:H2'	51:1:1015:U:C6	2.43	0.54
51:1:1297:C:H2'	51:1:1298:C:C6	2.43	0.54
51:1:1389:G:O2'	51:1:1390:U:H5'	2.07	0.54
51:1:2297:A:N1	51:1:2321:U:C5	2.75	0.54
7:G:107:ARG:NH2	61:NA:218:GLU:CB	2.71	0.54
36:l:20:GLY:HA2	36:l:28:GLY:HA2	1.90	0.54
51:1:1601:G:O2'	51:1:1602:U:H5'	2.08	0.54
53:3:158:G:N2	53:3:163:C:O2	2.36	0.54
53:3:1023:U:H2'	53:3:1024:G:C8	2.43	0.54
64:6:11:A:H2'	64:6:12:G:H8	1.72	0.54
7:G:53:LEU:HD21	7:G:215:ALA:HB1	1.88	0.54
16:P:86:LYS:HG3	16:P:114:PRO:HD3	1.89	0.54
27:b:227:VAL:HG11	51:1:784:G:N1	2.23	0.54
30:e:21:TYR:OH	30:e:164:GLU:OE1	2.26	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:268:C:H2'	51:1:269:C:H6	1.73	0.54
51:1:340:A:H2'	51:1:341:C:O4'	2.06	0.54
51:1:358:U:H2'	51:1:359:G:H8	1.72	0.54
51:1:1083:U:H2'	51:1:1084:A:H3'	1.89	0.54
51:1:1310:G:O2'	51:1:1311:G:H5'	2.06	0.54
51:1:1528:A:C2'	51:1:1529:G:H5'	2.38	0.54
59:B2:811:ASN:HA	59:B2:815:SER:HB2	1.90	0.54
65:0:17:ALA:HB2	65:0:112:VAL:HB	1.89	0.54
37:m:64:TRP:HB2	37:m:104:GLU:HB2	1.89	0.54
38:n:35:LYS:NZ	38:n:100:CYS:SG	2.81	0.54
51:1:44:A:O2'	51:1:45:G:H5'	2.08	0.54
51:1:1288:G:C6	51:1:1327:A:C2	2.96	0.54
57:A1:100:LEU:HD21	57:A1:121:VAL:HG11	1.90	0.54
58:B1:785:ASP:O	58:B1:789:LYS:HB2	2.08	0.54
51:1:402:A:C2'	51:1:403:U:H5'	2.38	0.53
51:1:1005:C:H6	51:1:1005:C:O5'	1.90	0.53
51:1:1171:G:H2'	51:1:1172:C:C4'	2.38	0.53
51:1:1748:C:H2'	51:1:1749:A:H8	1.73	0.53
58:B1:111:THR:HG22	58:B1:300:GLN:NE2	2.23	0.53
7:G:102:ASN:ND2	53:3:1073:U:O2	2.39	0.53
9:I:55:ARG:O	9:I:59:LYS:N	2.41	0.53
16:P:15:VAL:HG12	16:P:76:TYR:HB3	1.90	0.53
25:Y:66:ILE:HG21	25:Y:70:LYS:HB3	1.91	0.53
31:f:103:ASN:ND2	31:f:113:ASP:OD1	2.41	0.53
39:o:40:ILE:HD12	39:o:44:GLY:HA2	1.91	0.53
41:q:90:ASP:OD1	41:q:90:ASP:N	2.37	0.53
48:x:29:LEU:HD12	51:1:2230:G:H5''	1.91	0.53
51:1:8:C:H2'	51:1:9:G:H8	1.73	0.53
51:1:1913:A:N7	53:3:1494:G:H4'	2.22	0.53
58:B1:633:ALA:HB2	59:B2:808:ASN:N	2.19	0.53
59:B2:1070:HIS:NE2	59:B2:1114:GLU:OE1	2.36	0.53
1:A:35:ASP:OD1	18:R:2:ARG:NH1	2.42	0.53
15:O:89:ARG:NE	58:B1:86:GLU:OE1	2.41	0.53
34:j:2:LYS:HA	51:1:995:C:N3	2.23	0.53
44:t:54:GLU:HB3	44:t:88:LYS:HE3	1.90	0.53
49:y:19:LEU:O	49:y:23:ARG:N	2.35	0.53
51:1:141:G:H3'	51:1:142:A:O4'	2.07	0.53
51:1:143:C:H2'	51:1:144:A:H8	1.72	0.53
51:1:752:A:H62	51:1:2609:U:H3	1.56	0.53
51:1:820:A:O2'	51:1:821:A:H5'	2.08	0.53
51:1:1175:A:H3'	51:1:1176:U:C5'	2.36	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2631:G:O2'	51:1:2632:A:H5'	2.08	0.53
51:1:2644:G:O2'	51:1:2645:G:H5'	2.09	0.53
51:1:2850:A:C2	51:1:2869:G:H4'	2.44	0.53
57:A2:43:LEU:HD13	57:A2:217:ILE:HD11	1.90	0.53
59:B2:633:LEU:HD13	59:B2:644:LEU:HD23	1.89	0.53
9:I:154:VAL:HA	9:I:157:ALA:HB3	1.91	0.53
51:1:876:C:H2'	51:1:877:A:O4'	2.08	0.53
51:1:2092:U:C5	51:1:2199:A:C2	2.97	0.53
58:B1:30:ILE:HG21	58:B1:241:VAL:O	2.08	0.53
58:B1:800:LEU:HB3	58:B1:920:ALA:HB1	1.90	0.53
64:6:25:C:H42	64:6:45:G:H22	1.56	0.53
10:J:104:ILE:O	10:J:111:ARG:NH1	2.41	0.53
23:W:52:ARG:NH2	53:3:835:U:OP1	2.42	0.53
34:j:38:GLY:HA3	34:j:50:THR:HG23	1.90	0.53
47:w:55:LEU:HD12	47:w:76:ILE:HD12	1.90	0.53
51:1:268:C:H2'	51:1:269:C:C6	2.44	0.53
51:1:1386:C:H2'	51:1:1387:A:C8	2.41	0.53
51:1:1530:G:N2	51:1:1542:U:H1'	2.23	0.53
51:1:1599:U:H2'	51:1:1600:C:C6	2.43	0.53
51:1:2123:G:H2'	51:1:2124:G:H8	1.73	0.53
51:1:2742:G:O2'	51:1:2743:U:H5'	2.08	0.53
57:A1:16:ILE:HG23	57:A1:26:VAL:HG22	1.91	0.53
57:A2:100:LEU:HD23	57:A2:115:ILE:HG21	1.90	0.53
58:B1:39:LYS:O	58:B1:273:ILE:HG23	2.08	0.53
59:B2:903:ARG:HH12	61:NA:1:MET:CB	2.21	0.53
12:L:77:ARG:NH2	53:3:1381:U:O2	2.41	0.53
13:M:92:PRO:O	13:M:116:ARG:NH2	2.42	0.53
36:l:80:SER:HB3	36:l:114:GLY:HA3	1.90	0.53
40:p:105:LYS:O	40:p:108:ARG:NH2	2.42	0.53
51:1:53:A:C2'	51:1:54:G:H5'	2.39	0.53
51:1:140:C:H2'	51:1:141:G:H5'	1.90	0.53
51:1:279:A:N6	51:1:361:G:H1'	2.21	0.53
51:1:441:U:O2'	51:1:442:G:H5'	2.07	0.53
51:1:925:A:O2'	51:1:926:G:H5'	2.08	0.53
51:1:973:A:H5'	51:1:1188:U:H1'	1.90	0.53
51:1:1782:U:H2'	51:1:1783:A:H5''	1.90	0.53
51:1:1948:G:H21	53:3:1418:A:H2	1.49	0.53
51:1:2328:A:H8	51:1:2328:A:O5'	1.90	0.53
58:B1:99:ARG:HG3	58:B1:99:ARG:HH11	1.73	0.53
3:C:20:TYR:OH	51:1:2348:U:H5'	2.08	0.53
25:Y:47:GLN:NE2	25:Y:51:ASN:OD1	2.40	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Z:28:LEU:HA	26:Z:31:VAL:HG12	1.89	0.53
51:1:521:U:H2'	51:1:522:A:H8	1.73	0.53
51:1:1111:A:H2'	51:1:1112:G:H4'	1.91	0.53
51:1:1278:C:O2'	51:1:1279:G:H5'	2.09	0.53
53:3:458:U:H3	53:3:474:G:H1	1.56	0.53
58:B1:68:TYR:CA	58:B1:75:TYR:HE2	2.22	0.53
59:B2:628:HIS:HB3	59:B2:647:ARG:HH21	1.74	0.53
42:r:75:VAL:HG23	42:r:86:GLN:HG2	1.90	0.53
51:1:176:A:O2'	51:1:177:G:H5'	2.08	0.53
51:1:368:A:H2'	51:1:369:U:C5'	2.39	0.53
51:1:894:U:O2'	51:1:895:U:H5'	2.09	0.53
51:1:1558:C:O4'	51:1:1560:G:C8	2.62	0.53
58:B1:78:LEU:O	58:B1:78:LEU:HD13	2.08	0.53
35:k:42:THR:HG22	35:k:57:VAL:HG12	1.91	0.53
50:z:36:GLU:O	50:z:37:ARG:NH1	2.42	0.53
51:1:2625:G:O2'	51:1:2626:C:H5'	2.09	0.53
51:1:2707:U:H2'	51:1:2708:G:C8	2.44	0.53
51:1:2762:C:C2'	51:1:2763:G:H5'	2.39	0.53
57:A2:28:LEU:HD22	57:A2:201:LEU:HD23	1.90	0.53
7:G:61:SER:OG	7:G:62:ARG:NH1	2.42	0.53
17:Q:49:ARG:NH1	17:Q:88:ASP:OD2	2.42	0.53
51:1:40:U:H2'	51:1:41:C:C6	2.43	0.53
51:1:341:C:O2'	51:1:342:A:H5'	2.08	0.53
51:1:729:G:H5''	51:1:730:A:H5''	1.91	0.53
51:1:1063:G:N1	51:1:1075:C:N4	2.52	0.53
51:1:1409:U:H2'	51:1:1410:G:C8	2.44	0.53
53:3:1244:G:H1	53:3:1293:C:H42	1.57	0.53
14:N:115:VAL:HG23	53:3:1367:C:H5''	1.92	0.52
39:o:31:THR:HG23	39:o:34:HIS:H	1.73	0.52
51:1:481:G:H1'	51:1:506:G:H21	1.71	0.52
51:1:878:A:H2'	51:1:879:G:O4'	2.09	0.52
51:1:1678:A:H2'	51:1:1679:A:C5'	2.38	0.52
51:1:1794:A:O2'	51:1:1795:C:H5'	2.10	0.52
51:1:2102:G:H2'	51:1:2103:C:O4'	2.09	0.52
53:3:1023:U:H2'	53:3:1024:G:H8	1.74	0.52
58:B1:215:LYS:HA	58:B1:218:THR:HG22	1.91	0.52
58:B1:975:ILE:HD11	58:B1:1003:LEU:HD11	1.91	0.52
59:B2:243:PRO:HB2	59:B2:274:ILE:HG23	1.90	0.52
65:0:267:GLY:HA3	65:0:274:GLY:HA3	1.91	0.52
10:J:152:VAL:HG21	13:M:98:LEU:HD13	1.91	0.52
42:r:4:VAL:HG12	42:r:13:ARG:HA	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:57:C:H2'	51:1:58:G:O4'	2.08	0.52
51:1:519:U:H2'	51:1:520:G:H8	1.75	0.52
51:1:723:C:O2'	51:1:724:U:H5'	2.09	0.52
51:1:1161:C:H2'	51:1:1162:G:C8	2.44	0.52
51:1:1827:U:H2'	51:1:1828:G:H5'	1.90	0.52
51:1:1917:U:C2'	51:1:1918:A:H5'	2.39	0.52
51:1:2013:A:H5''	51:1:2013:A:C8	2.43	0.52
58:B1:832:LYS:HB3	58:B1:1242:ARG:NH1	2.24	0.52
64:6:43:A:H2'	64:6:44:A:C8	2.44	0.52
33:i:53:PRO:HD2	33:i:77:VAL:HG11	1.91	0.52
51:1:2194:U:H2'	51:1:2195:U:C6	2.44	0.52
51:1:2204:G:H2'	51:1:2205:A:C8	2.44	0.52
51:1:2425:A:H4'	51:1:2426:A:H5''	1.91	0.52
53:3:203:G:N2	53:3:204:G:O6	2.43	0.52
58:B1:1167:LYS:HZ2	58:B1:1170:LYS:HB2	1.74	0.52
11:K:23:GLU:HA	11:K:26:THR:HG22	1.90	0.52
27:b:257:ARG:NH2	27:b:262:THR:OG1	2.42	0.52
43:s:109:ASP:OD1	43:s:109:ASP:N	2.42	0.52
51:1:49:A:O5'	51:1:51:G:H5'	2.09	0.52
51:1:611:C:H2'	51:1:612:G:O4'	2.09	0.52
51:1:2747:G:O6	51:1:2754:U:H2'	2.09	0.52
58:B1:201:LEU:HD12	58:B1:224:LEU:HD12	1.92	0.52
58:B1:205:LEU:HG	58:B1:217:LEU:HB3	1.90	0.52
51:1:1789:A:H2'	51:1:1790:C:O4'	2.09	0.52
51:1:2290:G:H2'	51:1:2291:U:H6	1.74	0.52
51:1:2470:G:O2'	51:1:2471:A:H5'	2.10	0.52
51:1:2776:A:C6	51:1:2782:G:H1'	2.45	0.52
59:B2:125:GLY:HA2	59:B2:499:SER:HB2	1.92	0.52
59:B2:714:VAL:HB	59:B2:787:PRO:HD2	1.92	0.52
51:1:1560:G:H2'	51:1:1560:G:N3	2.24	0.52
51:1:1662:U:H2'	51:1:1663:G:O4'	2.09	0.52
51:1:2236:U:C2'	51:1:2237:G:H5'	2.39	0.52
51:1:2617:U:H2'	51:1:2618:G:H5'	1.91	0.52
58:B1:850:LYS:HB2	58:B1:857:LEU:HB2	1.91	0.52
9:I:150:LYS:O	9:I:155:LYS:NZ	2.43	0.52
28:c:23:PRO:HB3	51:1:2682:A:N3	2.25	0.52
51:1:138:U:C5	51:1:139:U:H5	2.28	0.52
51:1:543:G:C2'	51:1:544:C:H5''	2.37	0.52
51:1:870:U:O2'	51:1:871:U:H5'	2.10	0.52
51:1:1507:C:H2'	51:1:1508:A:C4'	2.40	0.52
51:1:2105:U:N3	51:1:2184:A:C2	2.78	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:107:LYS:HB3	8:H:110:LEU:HD23	1.92	0.52
10:J:106:ALA:O	10:J:111:ARG:NH2	2.43	0.52
33:i:56:VAL:HB	33:i:68:PHE:HB2	1.92	0.52
51:1:213:A:O2'	51:1:214:G:H5'	2.09	0.52
51:1:215:G:C4'	51:1:216:A:H4'	2.39	0.52
51:1:995:C:H6	51:1:995:C:H5'	1.74	0.52
51:1:1338:G:H2'	51:1:1339:G:H8	1.74	0.52
51:1:2670:A:H2'	51:1:2671:G:H8	1.75	0.52
53:3:816:A:OP1	53:3:1526:G:O2'	2.28	0.52
57:A1:205:MET:HE3	57:A1:213:PRO:HB3	1.91	0.52
59:B2:524:ILE:HG21	59:B2:708:VAL:HG13	1.92	0.52
51:1:8:C:H2'	51:1:9:G:C8	2.45	0.52
51:1:282:A:H2'	51:1:283:G:C8	2.42	0.52
51:1:1047:G:N2	51:1:1110:G:H2'	2.25	0.52
51:1:1534:U:H2'	51:1:1536:C:O4'	2.10	0.52
51:1:2651:C:O2'	51:1:2652:C:H5'	2.10	0.52
51:1:2731:G:H2'	51:1:2732:G:C8	2.45	0.52
53:3:1077:G:N2	53:3:1080:A:OP2	2.40	0.52
58:B1:112:ALA:HA	58:B1:238:ILE:HA	1.91	0.52
58:B1:375:GLU:HG2	59:B2:1245:ALA:O	2.10	0.52
59:B2:974:ARG:HD2	59:B2:1014:LEU:HD21	1.92	0.52
40:p:28:LYS:HB3	40:p:39:LEU:HD21	1.91	0.52
42:r:51:VAL:HG22	42:r:52:PRO:HD2	1.92	0.52
51:1:386:G:H3'	51:1:387:U:H5''	1.92	0.52
51:1:597:G:H2'	51:1:598:U:C6	2.45	0.52
51:1:1503:A:C3'	51:1:1504:A:H5''	2.40	0.52
51:1:1668:A:C4'	51:1:1669:A:H5'	2.36	0.52
51:1:2463:C:O2'	51:1:2464:G:H5'	2.10	0.52
51:1:2529:G:H5''	51:1:2530:A:H5''	1.91	0.52
57:A2:140:ILE:HD12	57:A2:142:MET:HE3	1.91	0.52
58:B1:390:LEU:N	58:B1:390:LEU:CD1	2.73	0.52
59:B2:255:ILE:HB	59:B2:263:VAL:HB	1.92	0.52
8:H:133:MET:HE3	8:H:167:TYR:HB2	1.91	0.51
35:k:31:ARG:NH2	51:1:2676:C:OP2	2.43	0.51
46:v:77:VAL:HG23	46:v:89:ILE:HG12	1.92	0.51
51:1:1930:G:C2'	51:1:1931:U:OP2	2.58	0.51
51:1:2216:G:H2'	51:1:2217:G:H8	1.74	0.51
53:3:113:G:N3	53:3:353:A:O2'	2.42	0.51
59:B2:786:GLY:N	59:B2:789:THR:OG1	2.41	0.51
65:0:632:ILE:HD11	65:0:654:ILE:HD12	1.91	0.51
30:e:27:VAL:O	30:e:29:ARG:NH1	2.41	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:69:C:H2'	51:1:70:G:C8	2.46	0.51
51:1:291:G:O2'	51:1:292:U:H5'	2.11	0.51
51:1:439:A:H2'	51:1:440:C:H6	1.75	0.51
51:1:736:C:H42	51:1:760:G:H1	1.58	0.51
51:1:1574:C:H2'	51:1:1575:C:H6	1.74	0.51
51:1:1878:G:O2'	51:1:1879:C:H5'	2.09	0.51
15:O:24:GLU:HA	15:O:27:GLU:HB2	1.93	0.51
21:U:6:LEU:HD22	21:U:17:TYR:HB3	1.91	0.51
27:b:92:LEU:HD11	27:b:100:ARG:HB3	1.91	0.51
51:1:246:C:H2'	51:1:247:G:C5'	2.40	0.51
51:1:757:G:C2'	51:1:758:C:H5'	2.38	0.51
51:1:1403:A:H2'	51:1:1404:C:C6	2.45	0.51
51:1:1722:A:O2'	51:1:1723:G:H5'	2.10	0.51
51:1:1910:G:H1	51:1:1920:C:H42	1.58	0.51
58:B1:144:TYR:CE1	58:B1:162:GLU:CD	2.88	0.51
58:B1:395:LYS:HZ2	58:B1:399:LYS:CE	2.23	0.51
7:G:14:HIS:HB3	7:G:42:LEU:HD21	1.91	0.51
8:H:130:ARG:NH2	8:H:165:GLU:OE1	2.43	0.51
15:O:29:ALA:O	15:O:33:GLY:N	2.42	0.51
22:V:60:ILE:HA	22:V:74:LEU:HA	1.93	0.51
23:W:71:ASP:N	23:W:71:ASP:OD1	2.44	0.51
51:1:891:G:H2'	51:1:892:A:C8	2.46	0.51
51:1:1542:U:O2'	51:1:1543:G:H5'	2.09	0.51
51:1:2555:U:O2	51:1:2555:U:O4'	2.29	0.51
58:B1:505:ASP:OD2	59:B2:812:PHE:HA	2.11	0.51
59:B2:246:LEU:HB3	59:B2:269:ILE:HD13	1.91	0.51
4:D:3:ARG:NH1	51:1:752:A:OP1	2.43	0.51
15:O:5:ARG:N	15:O:76:ILE:O	2.43	0.51
31:f:7:PRO:O	31:f:68:ARG:NH2	2.38	0.51
35:k:75:SER:OG	40:p:72:VAL:O	2.26	0.51
45:u:73:ASN:ND2	45:u:80:ASP:OD2	2.43	0.51
51:1:492:A:H2'	51:1:493:G:O4'	2.09	0.51
51:1:1112:G:H2'	51:1:1113:U:O4'	2.10	0.51
51:1:1923:U:H2'	51:1:1924:C:C6	2.46	0.51
51:1:2687:U:H2'	51:1:2688:G:O4'	2.11	0.51
65:0:647:SER:HA	65:0:652:VAL:HA	1.92	0.51
10:J:23:THR:HG22	10:J:28:ARG:HB3	1.91	0.51
51:1:707:G:H2'	51:1:708:G:O4'	2.11	0.51
51:1:724:U:O2'	51:1:725:G:H5'	2.11	0.51
51:1:1717:A:H2'	51:1:1718:G:C5'	2.40	0.51
51:1:1722:A:H62	51:1:1738:G:H1'	1.74	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:209:ASN:HA	58:B1:214:ARG:HH21	1.74	0.51
58:B1:902:ASP:HB3	58:B1:905:ARG:HB2	1.93	0.51
59:B2:93:SER:HA	59:B2:128:PRO:HA	1.92	0.51
64:6:9:G:O4'	64:6:46:G:N3	2.42	0.51
2:B:2:VAL:HG23	51:1:2015:A:C6	2.46	0.51
48:x:64:ASP:N	48:x:64:ASP:OD1	2.43	0.51
51:1:928:A:O2'	51:1:929:U:H5'	2.10	0.51
51:1:2670:A:H2'	51:1:2671:G:C8	2.45	0.51
58:B1:202:ARG:HH11	58:B1:202:ARG:CG	2.14	0.51
65:0:674:THR:O	65:0:677:ARG:HG3	2.11	0.51
6:F:19:ARG:HB2	6:F:24:ARG:HD2	1.93	0.51
21:U:25:ARG:O	53:3:110:C:O2'	2.28	0.51
28:c:13:ARG:NH2	40:p:74:GLN:OE1	2.43	0.51
51:1:251:A:H2'	51:1:252:G:O4'	2.10	0.51
51:1:286:U:H2'	51:1:287:G:H8	1.76	0.51
58:B1:111:THR:HG23	58:B1:300:GLN:NE2	2.24	0.51
58:B1:437:PHE:HZ	58:B1:453:VAL:HG11	1.76	0.51
8:H:175:HIS:ND1	53:3:1109:C:OP2	2.43	0.51
9:I:12:ARG:NH1	9:I:32:LYS:O	2.42	0.51
17:Q:36:VAL:HG21	17:Q:73:LEU:HB3	1.91	0.51
30:e:91:ARG:NH2	52:2:43:C:O2	2.36	0.51
51:1:355:U:H2'	51:1:356:G:C8	2.46	0.51
51:1:580:U:O5'	51:1:580:U:H6	1.94	0.51
51:1:800:A:H4'	51:1:801:G:H3'	1.91	0.51
51:1:1415:U:H1'	51:1:1588:G:N2	2.26	0.51
53:3:202:G:H1	53:3:215:C:H42	1.57	0.51
53:3:1266:G:N2	53:3:1269:A:OP2	2.29	0.51
10:J:123:LEU:HD12	53:3:7:A:H2'	1.92	0.51
15:O:39:PRO:HD2	53:3:1123:U:H4'	1.92	0.51
27:b:50:THR:HG23	51:1:1813:G:H21	1.76	0.51
36:l:42:SER:HB2	51:1:672:C:H5	1.76	0.51
37:m:38:ARG:HB3	37:m:98:PRO:HD3	1.92	0.51
39:o:40:ILE:HG22	39:o:47:VAL:HG12	1.91	0.51
51:1:145:C:H2'	51:1:146:A:C8	2.46	0.51
51:1:1468:U:H2'	51:1:1522:A:N6	2.26	0.51
53:3:1013:G:N2	53:3:1016:A:OP2	2.35	0.51
1:A:9:TYR:OH	30:e:101:ARG:NH2	2.41	0.50
14:N:89:TYR:HB3	14:N:93:LEU:HD21	1.92	0.50
51:1:2570:G:C2'	51:1:2571:U:H5'	2.40	0.50
51:1:2618:G:H2'	51:1:2619:C:O4'	2.11	0.50
4:D:14:ARG:NH1	51:1:1377:G:O3'	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:65:LEU:O	12:L:69:ARG:N	2.43	0.50
20:T:23:SER:OG	20:T:25:GLU:OE1	2.29	0.50
44:t:65:GLY:N	44:t:79:ASP:OD1	2.43	0.50
51:1:438:G:H2'	51:1:439:A:H8	1.76	0.50
51:1:673:C:H2'	51:1:674:G:C5'	2.41	0.50
51:1:1754:A:C6	51:1:1755:A:C6	2.98	0.50
51:1:2758:A:H2'	51:1:2759:G:C5'	2.39	0.50
65:0:615:PRO:HG3	65:0:687:TYR:HE1	1.77	0.50
7:G:126:ASP:OD1	7:G:126:ASP:N	2.41	0.50
8:H:30:ASP:N	8:H:30:ASP:OD1	2.41	0.50
31:f:136:ASP:HB3	31:f:139:VAL:HG12	1.92	0.50
33:i:126:ARG:HD2	51:1:1080:A:H4'	1.93	0.50
46:v:51:GLN:OE1	46:v:79:ARG:NH2	2.40	0.50
51:1:1310:G:H2'	51:1:1311:G:C5'	2.38	0.50
51:1:1678:A:C2'	51:1:1679:A:H5'	2.41	0.50
58:B1:1179:PRO:HD2	58:B1:1184:ASP:HA	1.93	0.50
59:B2:400:VAL:HG11	59:B2:452:ARG:HD2	1.93	0.50
59:B2:400:VAL:HG21	59:B2:452:ARG:HE	1.76	0.50
27:b:207:ALA:HB2	51:1:1790:C:O2'	2.12	0.50
27:b:257:ARG:HH22	27:b:262:THR:HG1	1.57	0.50
51:1:288:U:H2'	51:1:289:G:C8	2.47	0.50
51:1:386:G:H3'	51:1:387:U:C5'	2.41	0.50
51:1:2285:C:O2'	51:1:2286:G:H5'	2.11	0.50
58:B1:275:ARG:HH12	58:B1:278:ARG:NH1	2.09	0.50
59:B2:411:ARG:NH2	59:B2:427:ASP:OD2	2.44	0.50
3:C:7:LYS:HD3	51:1:2420:C:H5''	1.93	0.50
8:H:4:VAL:HG21	8:H:9:ILE:HD13	1.92	0.50
33:i:134:SER:OG	51:1:1062:G:N2	2.45	0.50
51:1:630:G:H4'	51:1:640:C:H4'	1.93	0.50
51:1:1087:G:H2'	51:1:1089:A:H5'	1.94	0.50
51:1:1539:U:H2'	51:1:1540:G:H8	1.76	0.50
51:1:2593:U:O2'	51:1:2594:C:H5'	2.11	0.50
51:1:2815:C:O2'	51:1:2816:G:H5'	2.12	0.50
51:1:2888:C:H2'	51:1:2889:C:H6	1.77	0.50
58:B1:412:LEU:HD23	58:B1:416:ILE:HG13	1.92	0.50
58:B1:749:LYS:HB3	58:B1:755:ILE:HD11	1.94	0.50
59:B2:9:LYS:HG2	59:B2:1171:ARG:HH12	1.77	0.50
62:NG:161:SER:HA	62:NG:170:PRO:HA	1.92	0.50
28:c:161:MET:HE1	51:1:2050:C:O2	2.11	0.50
34:j:2:LYS:HG2	51:1:995:C:N4	2.27	0.50
51:1:131:A:H2'	51:1:132:G:H8	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:197:A:H2	51:1:2434:A:N6	2.10	0.50
51:1:1270:C:H5''	51:1:1271:G:H5''	1.93	0.50
51:1:1416:G:H2'	51:1:1417:C:C6	2.45	0.50
51:1:1676:A:H8	51:1:1676:A:O5'	1.95	0.50
51:1:2348:U:O2'	51:1:2349:G:H5'	2.12	0.50
53:3:460:A:H2'	53:3:461:A:H8	1.75	0.50
53:3:494:G:H2'	53:3:496:A:H8	1.76	0.50
53:3:664:G:H22	53:3:741:G:H1	1.60	0.50
55:8:13:DT:OP2	58:B1:791:ALA:CB	2.59	0.50
64:6:9:G:C2	64:6:45:G:C6	3.00	0.50
7:G:103:TRP:HA	7:G:106:VAL:HG12	1.93	0.50
15:O:42:LEU:HB3	15:O:71:LEU:HB2	1.94	0.50
19:S:68:ARG:NH2	53:3:974:A:OP1	2.45	0.50
20:T:2:LEU:HD22	20:T:34:GLN:HB2	1.93	0.50
27:b:206:LYS:HD2	51:1:729:G:C8	2.46	0.50
29:d:191:ASP:O	29:d:195:GLN:NE2	2.44	0.50
51:1:1348:C:C5	51:1:1349:C:C5	3.00	0.50
51:1:2052:A:C2'	51:1:2053:G:H5'	2.41	0.50
51:1:2248:C:H2'	51:1:2249:U:H5'	1.93	0.50
51:1:2611:C:O2	51:1:2611:C:C2'	2.58	0.50
58:B1:99:ARG:HA	58:B1:248:ASP:HB2	1.92	0.50
59:B2:232:ILE:HG12	59:B2:237:LEU:HG	1.94	0.50
27:b:147:PRO:HG3	27:b:184:GLU:HG2	1.92	0.50
51:1:208:C:O5'	51:1:208:C:H6	1.93	0.50
51:1:1061:U:H4'	51:1:1070:A:H1'	1.93	0.50
51:1:1593:A:H2'	51:1:1594:U:C6	2.47	0.50
51:1:2250:G:H8	51:1:2250:G:O5'	1.95	0.50
51:1:2302:U:O2'	51:1:2303:G:H5'	2.12	0.50
51:1:2634:A:O2'	51:1:2635:A:H5'	2.12	0.50
51:1:2758:A:C2'	51:1:2759:G:H5'	2.40	0.50
51:1:2836:U:H2'	51:1:2837:A:C8	2.47	0.50
53:3:1178:G:N2	53:3:1181:G:OP2	2.43	0.50
58:B1:421:VAL:O	58:B1:436:ALA:HA	2.12	0.50
7:G:221:ARG:HG2	7:G:224:ARG:HH11	1.77	0.50
21:U:5:ARG:HB3	53:3:376:G:H5''	1.93	0.50
21:U:36:VAL:HG12	21:U:53:ASP:HB3	1.94	0.50
27:b:137:GLY:O	27:b:162:GLN:NE2	2.45	0.50
51:1:355:U:H2'	51:1:356:G:H8	1.77	0.50
51:1:1345:C:H6	51:1:1345:C:H5'	1.77	0.50
51:1:1528:A:H2'	51:1:1529:G:O4'	2.11	0.50
51:1:1748:C:H2'	51:1:1749:A:C8	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2525:G:N2	51:1:2539:C:C2	2.79	0.50
51:1:2670:A:O2'	51:1:2671:G:H5'	2.12	0.50
57:A1:100:LEU:HB2	57:A1:144:ILE:HG23	1.94	0.50
58:B1:145:VAL:HG12	58:B1:184:ALA:HB1	1.94	0.50
63:5:34:G:H3'	63:5:35:A:H8	1.76	0.50
64:6:9:G:O4'	64:6:46:G:C2	2.65	0.50
17:Q:120:ARG:HH12	53:3:500:G:H5'	1.77	0.49
31:f:87:GLN:NE2	31:f:129:GLU:OE2	2.45	0.49
51:1:30:G:H2'	51:1:31:C:C6	2.47	0.49
51:1:155:A:H2'	51:1:156:A:H8	1.76	0.49
51:1:262:A:H2'	51:1:263:G:O4'	2.12	0.49
51:1:539:G:O2'	51:1:540:C:H5'	2.12	0.49
51:1:2257:U:O2'	51:1:2258:C:H5'	2.12	0.49
51:1:2283:C:H2'	51:1:2284:A:O4'	2.11	0.49
58:B1:683:ILE:HD12	58:B1:754:ILE:HG21	1.93	0.49
1:A:35:ASP:OD1	1:A:35:ASP:N	2.42	0.49
27:b:50:THR:HG23	51:1:1813:G:N2	2.28	0.49
27:b:92:LEU:HD21	27:b:100:ARG:HD3	1.93	0.49
27:b:146:LYS:HB2	27:b:149:LYS:HB2	1.93	0.49
28:c:81:GLU:HG3	51:1:2636:C:O5'	2.13	0.49
51:1:898:C:H2'	51:1:899:A:O4'	2.13	0.49
51:1:1144:A:H2'	51:1:1145:C:C6	2.47	0.49
51:1:1441:G:H2'	51:1:1442:U:H6	1.71	0.49
51:1:1702:G:H2'	51:1:1703:G:C5'	2.35	0.49
51:1:1916:A:H2'	51:1:1917:U:O4'	2.12	0.49
51:1:2286:G:H21	51:1:2287:A:N6	2.09	0.49
51:1:2734:A:H2'	51:1:2735:G:C5'	2.42	0.49
53:3:401:C:O2'	53:3:621:A:N3	2.45	0.49
57:A1:18:GLN:HA	57:A1:24:ALA:HA	1.94	0.49
58:B1:124:ILE:HG23	58:B1:128:LEU:HD12	1.94	0.49
58:B1:972:LYS:HD2	58:B1:1004:ALA:HA	1.93	0.49
17:Q:70:GLY:O	17:Q:107:LYS:NZ	2.44	0.49
30:e:135:ILE:HG23	30:e:140:ILE:HD11	1.93	0.49
31:f:41:GLU:HG2	31:f:54:ARG:HH21	1.78	0.49
44:t:7:LEU:HD13	44:t:46:ALA:HA	1.94	0.49
51:1:187:G:C6	51:1:188:G:N7	2.80	0.49
51:1:644:A:H2'	51:1:645:C:C4'	2.42	0.49
51:1:1388:G:O2'	51:1:1389:G:H5'	2.12	0.49
51:1:2241:A:O2'	51:1:2242:G:H5'	2.12	0.49
53:3:1538:C:O2'	53:3:1539:C:H5'	2.11	0.49
11:K:42:TRP:HB2	11:K:59:TYR:HB2	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:482:A:H1'	51:1:498:G:N2	2.27	0.49
51:1:609:A:H2'	51:1:610:C:O4'	2.11	0.49
51:1:1796:U:H2'	51:1:1797:G:C8	2.45	0.49
53:3:780:A:N6	53:3:801:U:OP2	2.42	0.49
53:3:1064:G:O2'	53:3:1190:G:N2	2.46	0.49
53:3:1137:C:H4'	53:3:1138:G:H5'	1.95	0.49
58:B1:102:MET:HG2	58:B1:246:PRO:HD3	1.94	0.49
59:B2:18:ARG:HE	59:B2:620:ASN:HA	1.77	0.49
27:b:56:GLY:HA2	27:b:212:TRP:HA	1.94	0.49
27:b:70:LYS:O	27:b:117:SER:OG	2.30	0.49
28:c:56:LYS:NZ	51:1:2830:C:H5''	2.28	0.49
51:1:173:A:H2'	51:1:174:U:C6	2.47	0.49
51:1:367:G:H2'	51:1:368:A:O4'	2.13	0.49
51:1:900:A:H2'	51:1:901:C:H5'	1.94	0.49
51:1:1614:A:H2'	51:1:1615:C:H5'	1.94	0.49
51:1:2298:A:O2'	51:1:2299:U:H5'	2.13	0.49
60:W0:3:ARG:NH1	60:W0:55:GLU:OE2	2.40	0.49
63:5:29:G:H3'	63:5:30:G:H8	1.77	0.49
33:i:110:GLN:HG2	33:i:121:ILE:HD13	1.93	0.49
51:1:69:C:O2'	51:1:70:G:H5'	2.13	0.49
51:1:236:C:H2'	51:1:237:C:C6	2.46	0.49
51:1:519:U:H2'	51:1:520:G:C8	2.48	0.49
51:1:1111:A:H2'	51:1:1111:A:N3	2.28	0.49
51:1:1387:A:C5'	51:1:1469:A:H1'	2.38	0.49
51:1:1785:A:O2'	51:1:1786:A:H8	1.96	0.49
15:O:89:ARG:HH22	62:NG:165:PHE:H	1.60	0.49
25:Y:59:ARG:O	25:Y:63:LYS:N	2.46	0.49
30:e:84:ILE:HD11	51:1:2311:A:H1'	1.94	0.49
35:k:5:GLN:HE21	51:1:1668:A:H5''	1.78	0.49
51:1:286:U:H2'	51:1:287:G:C8	2.47	0.49
51:1:840:C:O2'	51:1:841:G:H5'	2.12	0.49
51:1:1084:A:O2'	51:1:1105:U:H4'	2.12	0.49
51:1:1293:C:H2'	51:1:1294:U:C6	2.47	0.49
51:1:2533:U:H2'	51:1:2534:A:C5'	2.43	0.49
53:3:890:G:O2'	53:3:906:A:N6	2.46	0.49
11:K:46:GLN:HA	11:K:56:LYS:HB3	1.94	0.49
12:L:2:ARG:NH2	53:3:933:G:O6	2.45	0.49
25:Y:53:MET:HE2	25:Y:57:VAL:HG21	1.94	0.49
29:d:77:ILE:HG23	51:1:1256:G:N2	2.26	0.49
30:e:57:ALA:HB2	30:e:64:PRO:HD3	1.95	0.49
38:n:49:GLU:O	38:n:53:THR:OG1	2.29	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:16:C:H2'	51:1:17:G:H8	1.78	0.49
51:1:67:U:H2'	51:1:68:G:H8	1.77	0.49
51:1:898:C:C2'	51:1:899:A:H5'	2.43	0.49
51:1:1409:U:H2'	51:1:1410:G:H8	1.76	0.49
53:3:928:G:O2'	53:3:1533:C:OP1	2.22	0.49
59:B2:554:HIS:HD2	59:B2:558:VAL:HB	1.77	0.49
1:A:37:CYS:O	1:A:41:HIS:N	2.45	0.49
7:G:101:THR:HG23	7:G:174:GLU:HG3	1.95	0.49
17:Q:97:VAL:HG12	17:Q:99:GLY:H	1.78	0.49
48:x:1:SER:O	48:x:49:ARG:NH1	2.46	0.49
51:1:886:A:C5	51:1:887:U:H1'	2.47	0.49
51:1:1465:G:H2'	51:1:1466:U:O4'	2.13	0.49
29:d:143:LEU:HD13	29:d:146:VAL:HG11	1.94	0.49
33:i:20:SER:H	33:i:21:PRO:HD2	1.78	0.49
42:r:71:LYS:HA	42:r:90:ARG:HG2	1.95	0.49
45:u:88:ASP:OD1	45:u:88:ASP:N	2.43	0.49
51:1:554:U:O2'	51:1:555:G:H5'	2.13	0.49
51:1:898:C:O2'	51:1:899:A:H5'	2.13	0.49
51:1:1668:A:N3	51:1:1670:C:N4	2.60	0.49
51:1:2281:A:O2'	51:1:2282:G:H5'	2.12	0.49
51:1:2329:U:H2'	51:1:2330:G:H8	1.78	0.49
58:B1:1371:ARG:HE	58:B1:1372:ARG:NH1	2.10	0.49
59:B2:318:SER:OG	59:B2:320:ASP:OD1	2.31	0.49
13:M:29:SER:OG	13:M:30:LYS:N	2.43	0.48
51:1:78:U:H2'	51:1:79:C:H6	1.77	0.48
51:1:121:G:H4'	51:1:149:A:H5'	1.95	0.48
51:1:488:G:H22	51:1:491:G:H5''	1.77	0.48
51:1:718:A:H2'	51:1:719:C:O4'	2.13	0.48
51:1:905:A:H2'	51:1:906:U:C5'	2.41	0.48
51:1:1119:U:O2'	51:1:1120:G:H5'	2.13	0.48
51:1:1645:G:H5''	51:1:1646:C:H5'	1.94	0.48
21:U:18:GLN:HA	21:U:38:PHE:HA	1.95	0.48
38:n:8:ARG:HH21	38:n:43:GLU:HG3	1.77	0.48
40:p:2:ASN:HD21	51:1:2876:G:H4'	1.78	0.48
44:t:70:HIS:N	44:t:73:ARG:O	2.44	0.48
51:1:92:U:H2'	51:1:93:G:H5'	1.95	0.48
51:1:1077:A:H8	51:1:1078:U:H1'	1.77	0.48
51:1:1534:U:H4'	51:1:1535:A:N1	2.27	0.48
51:1:1536:C:H5''	51:1:1537:G:C4	2.48	0.48
51:1:1729:U:H5	51:1:1731:G:N2	2.12	0.48
51:1:2510:C:N4	51:1:2511:U:C4	2.81	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:3:481:G:O2'	53:3:483:C:N4	2.46	0.48
58:B1:115:TRP:O	58:B1:1333:THR:HG21	2.13	0.48
63:5:51:U:H2'	63:5:52:G:C8	2.48	0.48
9:I:93:LEU:O	9:I:99:ASN:ND2	2.39	0.48
16:P:96:ILE:HD13	16:P:109:ILE:HD13	1.94	0.48
17:Q:110:LYS:HG3	17:Q:121:PRO:HG3	1.94	0.48
49:y:16:THR:O	49:y:20:ASN:ND2	2.46	0.48
51:1:481:G:C2'	51:1:482:A:OP2	2.61	0.48
51:1:1680:U:O2'	51:1:1681:G:H5'	2.13	0.48
51:1:2367:G:O2'	51:1:2368:C:H5'	2.13	0.48
51:1:2527:C:O2'	51:1:2528:U:H5'	2.13	0.48
58:B1:1261:LEU:HD12	58:B1:1304:ARG:HH21	1.78	0.48
65:0:616:ILE:HB	65:0:686:LYS:HE3	1.95	0.48
26:Z:55:HIS:HA	26:Z:58:LYS:HD2	1.95	0.48
33:i:85:ILE:HD12	33:i:97:VAL:HG12	1.95	0.48
37:m:74:THR:HG21	37:m:86:LYS:HG2	1.94	0.48
41:q:103:VAL:HA	41:q:106:THR:HG22	1.94	0.48
51:1:214:G:H2'	51:1:215:G:C8	2.48	0.48
51:1:360:U:H2'	51:1:361:G:C1'	2.44	0.48
51:1:553:G:H2'	51:1:554:U:O4'	2.13	0.48
51:1:1871:A:H2'	51:1:1872:A:O4'	2.13	0.48
51:1:2214:C:H2'	51:1:2215:C:O4'	2.14	0.48
53:3:358:U:H2'	53:3:359:G:H8	1.78	0.48
53:3:673:A:H2'	53:3:674:G:C8	2.49	0.48
55:8:14:DC:H2'	55:8:15:DC:H6	1.79	0.48
58:B1:108:ALA:HB1	58:B1:279:LEU:HD22	1.96	0.48
58:B1:550:VAL:O	58:B1:569:LEU:HA	2.13	0.48
58:B1:809:VAL:HG21	58:B1:909:ILE:HG12	1.95	0.48
14:N:91:GLU:HA	14:N:94:ARG:HB2	1.94	0.48
31:f:163:TYR:HB2	31:f:166:GLU:HB2	1.95	0.48
42:r:68:ARG:O	42:r:90:ARG:NH2	2.46	0.48
51:1:706:A:H2'	51:1:707:G:H5'	1.95	0.48
51:1:841:G:C2	51:1:938:G:C2	3.01	0.48
51:1:1117:C:H2'	51:1:1118:C:H6	1.78	0.48
51:1:2393:U:H2'	51:1:2394:C:H5'	1.94	0.48
51:1:2547:A:H61	51:1:2561:U:H3	1.62	0.48
51:1:2843:G:O2'	51:1:2844:G:H5'	2.13	0.48
53:3:1223:C:H5'	53:3:1224:U:H5''	1.96	0.48
59:B2:529:ARG:HH11	59:B2:572:ILE:HG22	1.77	0.48
59:B2:533:LEU:HD13	59:B2:540:ARG:HH21	1.77	0.48
59:B2:1314:GLN:HB2	60:W0:28:ARG:HH12	1.79	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:153:ARG:NH2	53:3:435:A:N3	2.61	0.48
12:L:41:ILE:HD11	53:3:1240:U:H5'	1.94	0.48
14:N:10:ARG:NH2	53:3:1119:C:OP2	2.46	0.48
24:X:32:THR:OG1	24:X:49:ALA:O	2.31	0.48
31:f:122:ALA:HB2	31:f:132:LEU:HD23	1.94	0.48
39:o:15:ARG:NH2	52:2:8:C:OP1	2.47	0.48
45:u:39:ASN:HB3	45:u:62:ALA:HB3	1.95	0.48
51:1:54:G:H2'	51:1:55:G:O4'	2.12	0.48
51:1:107:G:O2'	51:1:108:G:H5'	2.14	0.48
51:1:217:A:H2'	51:1:218:A:O4'	2.13	0.48
51:1:275:C:C3'	51:1:276:U:H5''	2.40	0.48
51:1:415:A:H2'	51:1:416:U:C6	2.49	0.48
51:1:572:A:H8	51:1:572:A:O5'	1.96	0.48
51:1:1400:U:H2'	51:1:1401:G:H8	1.78	0.48
51:1:1742:U:O2'	51:1:1743:G:H5'	2.14	0.48
55:8:3:DC:H2''	55:8:4:DT:C7	2.42	0.48
58:B1:1027:VAL:HB	58:B1:1121:LEU:HB2	1.95	0.48
9:I:94:GLU:HG3	9:I:190:LEU:HD21	1.95	0.48
38:n:100:CYS:H	38:n:111:ALA:HA	1.79	0.48
51:1:118:A:H2'	51:1:120:U:O4	2.13	0.48
51:1:129:C:H2'	51:1:130:C:H6	1.79	0.48
51:1:596:U:C2	51:1:662:G:N2	2.82	0.48
51:1:820:A:H2'	51:1:821:A:O4'	2.14	0.48
51:1:940:G:H2'	51:1:941:A:C5'	2.41	0.48
51:1:1087:G:O6	51:1:1089:A:C2	2.67	0.48
51:1:1910:G:N2	51:1:1911:U:C2	2.81	0.48
51:1:2180:U:O2'	51:1:2181:U:H5'	2.13	0.48
53:3:776:G:N2	53:3:802:A:OP2	2.39	0.48
53:3:898:G:N2	53:3:901:A:OP2	2.46	0.48
53:3:927:G:O2'	53:3:1503:A:N7	2.38	0.48
58:B1:141:PHE:CE2	58:B1:296:LYS:CB	2.94	0.48
62:NG:161:SER:CA	62:NG:170:PRO:HA	2.43	0.48
17:Q:45:ASN:ND2	17:Q:88:ASP:OD2	2.39	0.48
29:d:149:ILE:HD11	29:d:172:ALA:HA	1.96	0.48
51:1:1266:G:O2'	51:1:2012:G:O6	2.25	0.48
51:1:1437:C:H2'	51:1:1438:U:H6	1.78	0.48
51:1:1537:G:H3'	51:1:1537:G:N3	2.28	0.48
55:8:14:DC:H2'	55:8:15:DC:C6	2.48	0.48
58:B1:201:LEU:HD11	58:B1:220:ARG:HG2	1.95	0.48
58:B1:1361:THR:OG1	59:B2:1282:GLY:O	2.28	0.48
59:B2:207:THR:OG1	59:B2:354:ASP:OD2	2.32	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:B2:400:VAL:HG22	59:B2:584:TYR:HB3	1.96	0.48
63:5:50:U:H2'	63:5:51:U:C6	2.49	0.48
29:d:48:THR:OG1	29:d:49:ARG:N	2.47	0.48
46:v:79:ARG:HA	46:v:86:LEU:HA	1.95	0.48
51:1:2016:U:O5'	51:1:2016:U:H6	1.97	0.48
51:1:2050:C:N4	51:1:2051:A:C6	2.81	0.48
51:1:2126:A:H5'	51:1:2127:G:O5'	2.13	0.48
53:3:880:C:H2'	53:3:881:G:H8	1.78	0.48
58:B1:103:GLY:H	58:B1:244:VAL:HG22	1.79	0.48
58:B1:395:LYS:NZ	58:B1:399:LYS:CE	2.77	0.48
58:B1:770:LEU:CD1	59:B2:618:GLN:HG3	2.36	0.48
14:N:44:ARG:O	14:N:47:VAL:HG22	2.13	0.48
17:Q:82:ARG:O	17:Q:95:HIS:N	2.47	0.48
28:c:136:ASN:OD1	51:1:2579:C:O2'	2.32	0.48
36:l:129:LYS:HG2	51:1:636:G:OP1	2.14	0.48
51:1:2208:C:H2'	51:1:2209:G:C8	2.48	0.48
53:3:517:G:N2	53:3:533:A:OP2	2.33	0.48
58:B1:833:GLU:N	58:B1:1242:ARG:HH12	2.12	0.48
1:A:2:LYS:NZ	52:2:42:C:OP2	2.39	0.47
4:D:29:GLN:O	4:D:29:GLN:NE2	2.47	0.47
42:r:7:SER:OG	42:r:8:GLY:N	2.47	0.47
47:w:19:VAL:HA	47:w:34:VAL:HG22	1.96	0.47
51:1:5:A:H2'	51:1:6:A:C8	2.49	0.47
51:1:476:G:H4'	51:1:502:A:N1	2.28	0.47
51:1:1267:U:H2'	51:1:1267:U:O2	2.14	0.47
51:1:2098:U:H2'	51:1:2099:U:O4'	2.14	0.47
51:1:2156:G:C3'	51:1:2157:G:H5'	2.44	0.47
51:1:2660:A:N6	65:0:672:SER:HB2	2.29	0.47
58:B1:1146:GLU:OE2	58:B1:1310:THR:HG22	2.14	0.47
59:B2:732:ILE:HD11	59:B2:769:PRO:HB3	1.95	0.47
65:0:491:ARG:HD3	65:0:491:ARG:HA	1.71	0.47
65:0:648:GLU:H	65:0:648:GLU:HG3	1.57	0.47
11:K:41:ASP:OD1	11:K:58:HIS:NE2	2.39	0.47
13:M:83:ARG:NH2	53:3:587:G:OP1	2.44	0.47
14:N:94:ARG:HG2	14:N:97:LEU:HD12	1.95	0.47
27:b:131:MET:HE2	27:b:187:CYS:HB2	1.96	0.47
31:f:174:LYS:HD2	31:f:176:LYS:HB2	1.96	0.47
33:i:79:LEU:HD13	33:i:132:ALA:HB2	1.94	0.47
40:p:59:THR:HG22	40:p:72:VAL:HG12	1.95	0.47
51:1:1257:C:O5'	51:1:1257:C:H6	1.97	0.47
51:1:2362:C:O5'	51:1:2362:C:H6	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:2:51:G:H22	52:2:53:A:H62	1.61	0.47
58:B1:968:ASN:HA	58:B1:1117:SER:HB2	1.96	0.47
58:B1:1036:ARG:HE	58:B1:1081:VAL:HG11	1.79	0.47
59:B2:487:LEU:HD22	59:B2:487:LEU:HA	1.77	0.47
59:B2:857:VAL:HG13	59:B2:919:ARG:HH21	1.78	0.47
17:Q:70:GLY:O	17:Q:98:ARG:NH2	2.47	0.47
31:f:87:GLN:HB3	31:f:162:ARG:HG3	1.96	0.47
32:g:47:PHE:HA	32:g:51:ARG:HB2	1.96	0.47
51:1:40:U:H2'	51:1:41:C:H6	1.78	0.47
51:1:214:G:O2'	51:1:215:G:H5'	2.14	0.47
51:1:466:A:H2'	51:1:467:G:C5'	2.44	0.47
51:1:473:G:O2'	51:1:474:G:H5'	2.14	0.47
51:1:555:G:HO2'	51:1:556:A:H8	1.61	0.47
51:1:555:G:O2'	51:1:556:A:H8	1.96	0.47
51:1:813:U:C2	51:1:1195:G:N2	2.83	0.47
51:1:1464:G:H2'	51:1:1465:G:H8	1.78	0.47
51:1:2047:C:O5'	51:1:2047:C:H6	1.98	0.47
51:1:2194:U:O2'	51:1:2195:U:H5'	2.14	0.47
51:1:2649:C:O2'	51:1:2650:U:H5'	2.13	0.47
51:1:2895:G:H2'	51:1:2896:C:C6	2.49	0.47
58:B1:1060:VAL:HG13	58:B1:1106:ILE:HG12	1.96	0.47
65:0:12:ASN:HB2	65:0:107:ASP:OD2	2.14	0.47
14:N:86:LEU:HD12	14:N:97:LEU:HD11	1.95	0.47
15:O:58:ASN:ND2	53:3:1061:G:O2'	2.45	0.47
27:b:152:GLN:HB3	51:1:1818:U:N3	2.29	0.47
34:j:65:THR:HG22	51:1:1141:U:OP2	2.15	0.47
51:1:852:U:H2'	51:1:853:C:C6	2.49	0.47
51:1:1020:A:C1'	51:1:1021:A:OP2	2.61	0.47
51:1:1807:G:C2'	51:1:1808:A:H5'	2.29	0.47
51:1:2286:G:H21	51:1:2287:A:H61	1.62	0.47
51:1:2298:A:C2'	51:1:2299:U:H5'	2.45	0.47
53:3:1531:A:O2'	53:3:1532:U:H5'	2.14	0.47
58:B1:29:MET:HG2	59:B2:1336:ASN:ND2	2.29	0.47
58:B1:99:ARG:NH1	58:B1:99:ARG:CG	2.76	0.47
58:B1:255:LEU:HD23	58:B1:261:ALA:HB2	1.95	0.47
9:I:171:GLU:HB3	9:I:180:THR:HG22	1.97	0.47
11:K:10:VAL:HG23	11:K:58:HIS:HB3	1.97	0.47
17:Q:114:SER:O	53:3:35:G:O2'	2.30	0.47
26:Z:19:LYS:H	26:Z:19:LYS:HG3	1.53	0.47
32:g:8:LYS:HD3	32:g:14:SER:HA	1.96	0.47
33:i:79:LEU:HD21	33:i:105:LEU:HD21	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1098:A:O2'	51:1:1099:G:H5'	2.15	0.47
51:1:1105:U:H2'	51:1:1106:G:H8	1.80	0.47
51:1:1463:C:H2'	51:1:1464:G:C8	2.49	0.47
51:1:2155:U:H2'	51:1:2156:G:O4'	2.15	0.47
51:1:2455:G:C6	51:1:2456:C:N4	2.83	0.47
51:1:2554:U:H2'	51:1:2555:U:O2	2.15	0.47
57:A1:182:ARG:O	57:A1:205:MET:HA	2.14	0.47
58:B1:891:ASP:OD2	58:B1:1290:ARG:NH2	2.47	0.47
59:B2:27:LEU:O	59:B2:528:ARG:NH1	2.43	0.47
59:B2:517:GLN:HB3	59:B2:760:ASN:H	1.79	0.47
64:6:50:U:H2'	64:6:51:C:C5	2.49	0.47
12:L:107:ALA:HA	12:L:122:GLU:HG3	1.95	0.47
12:L:149:ALA:HB1	16:P:58:THR:HG21	1.97	0.47
16:P:34:THR:OG1	16:P:35:ASP:N	2.47	0.47
18:R:15:VAL:HG11	18:R:30:LYS:HG2	1.97	0.47
51:1:297:G:H2'	51:1:298:G:O4'	2.14	0.47
51:1:859:G:C2'	51:1:860:U:OP2	2.62	0.47
51:1:1285:A:H2'	51:1:1286:A:H5'	1.96	0.47
51:1:1491:G:H2'	51:1:1492:G:H8	1.80	0.47
51:1:1517:G:O2'	51:1:1518:C:H5'	2.15	0.47
51:1:2445:G:C6	51:1:2446:G:C6	3.02	0.47
51:1:2828:G:O2'	51:1:2829:A:H5'	2.13	0.47
59:B2:895:LEU:HD12	59:B2:899:GLU:HB3	1.95	0.47
5:E:5:THR:HG22	5:E:62:PRO:HD2	1.97	0.47
7:G:129:THR:HB	7:G:132:GLU:HB2	1.96	0.47
12:L:79:VAL:HB	12:L:84:TYR:HD2	1.80	0.47
12:L:112:ASP:HB2	12:L:118:ARG:HG2	1.96	0.47
19:S:32:ASP:O	19:S:34:ASN:ND2	2.48	0.47
28:c:190:LYS:HE2	51:1:2729:G:H4'	1.96	0.47
29:d:119:ILE:HB	29:d:187:VAL:HG12	1.95	0.47
31:f:88:LEU:HD21	31:f:104:LEU:HD23	1.97	0.47
36:l:39:LYS:HG2	51:1:832:U:OP1	2.15	0.47
39:o:68:LYS:HE3	52:2:49:C:H5''	1.97	0.47
47:w:29:ALA:N	47:w:60:ASP:OD1	2.48	0.47
49:y:15:ASN:OD1	49:y:16:THR:N	2.48	0.47
51:1:156:A:H2'	51:1:157:C:C6	2.50	0.47
51:1:551:G:O2'	51:1:552:U:H5'	2.15	0.47
51:1:708:G:H2'	51:1:709:U:C6	2.49	0.47
51:1:762:U:N3	51:1:1431:A:OP1	2.47	0.47
51:1:854:C:H2'	51:1:855:G:H8	1.79	0.47
51:1:1026:G:OP2	51:1:1134:A:H1'	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1036:G:O2'	51:1:1037:G:H5'	2.15	0.47
51:1:1141:U:H4'	51:1:1142:A:C1'	2.45	0.47
51:1:1219:U:O2'	51:1:1220:G:H5'	2.15	0.47
51:1:1324:G:O2'	51:1:1326:U:OP2	2.29	0.47
51:1:1389:G:C2	51:1:1390:U:C2	3.02	0.47
51:1:1464:G:H2'	51:1:1465:G:C8	2.49	0.47
51:1:1509:A:H2'	51:1:1510:G:C8	2.49	0.47
51:1:2149:U:H2'	51:1:2150:C:C6	2.49	0.47
51:1:2241:A:H2'	51:1:2242:G:C8	2.50	0.47
51:1:2563:U:H2'	51:1:2565:A:OP2	2.15	0.47
53:3:38:G:H22	53:3:397:A:H5'	1.78	0.47
53:3:410:G:H21	53:3:432:A:H62	1.62	0.47
53:3:617:G:H1	53:3:623:C:H42	1.63	0.47
53:3:1305:G:N2	53:3:1331:G:H2'	2.30	0.47
57:A1:59:VAL:HG22	57:A1:144:ILE:HA	1.97	0.47
57:A2:64:VAL:HG11	57:A2:78:ILE:HG21	1.97	0.47
58:B1:128:LEU:HD21	58:B1:188:LEU:HB3	1.97	0.47
58:B1:352:ARG:HB2	59:B2:1268:GLN:NE2	2.30	0.47
58:B1:526:VAL:HG12	58:B1:549:LYS:HB2	1.96	0.47
58:B1:1347:LEU:HG	58:B1:1357:ILE:HG23	1.96	0.47
59:B2:103:VAL:HG12	59:B2:117:ILE:HG22	1.97	0.47
59:B2:565:GLU:HA	59:B2:569:ILE:HG12	1.95	0.47
65:0:27:THR:HA	65:0:30:ILE:HD12	1.96	0.47
18:R:7:ASN:HD22	18:R:20:SER:HB2	1.80	0.47
21:U:25:ARG:NH1	53:3:230:G:O2'	2.48	0.47
29:d:55:SER:OG	51:1:797:G:OP1	2.28	0.47
33:i:115:ASP:OD2	51:1:1059:G:H4'	2.14	0.47
35:k:47:ILE:HG22	35:k:49:ARG:H	1.80	0.47
51:1:1090:A:C2	51:1:1102:C:H1'	2.50	0.47
51:1:1400:U:H2'	51:1:1401:G:C8	2.50	0.47
51:1:1435:G:O2'	51:1:1436:G:H5'	2.15	0.47
51:1:1851:U:OP1	64:6:4:G:H4'	2.15	0.47
51:1:2858:C:H2'	51:1:2859:G:O4'	2.15	0.47
58:B1:375:GLU:HB3	59:B2:1245:ALA:HB3	1.97	0.47
59:B2:363:LEU:HB3	59:B2:381:ALA:HB1	1.95	0.47
59:B2:1286:THR:O	59:B2:1290:MET:HB2	2.14	0.47
64:6:48:C:H5''	64:6:50:U:OP1	2.15	0.47
9:I:159:GLU:HA	9:I:162:GLU:HB2	1.97	0.47
20:T:38:LEU:HD22	20:T:55:LEU:HD13	1.96	0.47
31:f:16:VAL:HA	31:f:25:ILE:HG12	1.96	0.47
34:j:2:LYS:HA	51:1:995:C:C4	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:570:G:H5'	51:1:983:A:C2	2.50	0.47
51:1:979:A:H2'	51:1:982:C:H42	1.80	0.47
51:1:1019:U:N3	51:1:1142:A:N6	2.57	0.47
51:1:1067:A:H2'	51:1:1068:G:C8	2.49	0.47
51:1:2395:C:H2'	51:1:2396:G:O4'	2.15	0.47
53:3:1225:A:H2'	53:3:1225:A:N3	2.29	0.47
59:B2:836:LEU:HD13	59:B2:1054:LEU:HD13	1.95	0.47
51:1:30:G:C5	51:1:31:C:C4	3.03	0.47
51:1:149:A:H2'	51:1:150:U:C6	2.49	0.47
51:1:338:G:O2'	51:1:339:U:H5'	2.14	0.47
51:1:712:G:H2'	51:1:713:G:H5'	1.96	0.47
51:1:1209:U:O3'	51:1:1212:G:H5'	2.15	0.47
51:1:1807:G:H2'	51:1:1808:A:C5'	2.30	0.47
51:1:2295:C:O2'	51:1:2296:U:H5'	2.15	0.47
51:1:2899:A:H2'	51:1:2900:A:O4'	2.15	0.47
52:2:39:A:O2'	52:2:46:A:N1	2.47	0.47
58:B1:1167:LYS:NZ	58:B1:1170:LYS:HB2	2.30	0.47
63:5:8:U:H2'	63:5:13:C:N4	2.30	0.47
11:K:3:HIS:HA	11:K:65:GLU:HA	1.97	0.46
26:Z:29:ALA:O	26:Z:32:ARG:NH1	2.49	0.46
33:i:54:ILE:HD12	33:i:73:PRO:HD3	1.95	0.46
51:1:1117:C:H2'	51:1:1118:C:C6	2.50	0.46
51:1:1297:C:H2'	51:1:1298:C:H6	1.79	0.46
51:1:1516:G:O2'	51:1:1517:G:H5'	2.15	0.46
51:1:1536:C:H5''	51:1:1537:G:C5	2.50	0.46
51:1:1922:G:H2'	51:1:1923:U:C6	2.50	0.46
53:3:512:U:H2'	53:3:513:C:C6	2.50	0.46
58:B1:43:THR:HG22	58:B1:57:PHE:HE1	1.80	0.46
58:B1:1219:ASP:O	58:B1:1223:LEU:HB2	2.15	0.46
58:B1:1221:LEU:HD22	58:B1:1306:LEU:HB2	1.96	0.46
10:J:28:ARG:NH2	53:3:1397:C:OP2	2.38	0.46
12:L:137:ARG:NH1	12:L:138:GLU:OE2	2.48	0.46
27:b:145:MET:HE1	51:1:1800:C:H2'	1.98	0.46
51:1:44:A:H2'	51:1:45:G:O4'	2.15	0.46
51:1:143:C:H2'	51:1:144:A:C8	2.49	0.46
51:1:438:G:O2'	51:1:439:A:H5'	2.16	0.46
51:1:1068:G:H2'	51:1:1069:A:H4'	1.96	0.46
51:1:1183:U:H2'	51:1:1184:U:H6	1.80	0.46
51:1:1873:G:O2'	51:1:1874:C:H5'	2.15	0.46
51:1:1874:C:H2'	51:1:1875:G:O4'	2.15	0.46
51:1:1922:G:O2'	51:1:1923:U:H5'	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1927:A:H2'	51:1:1928:A:C8	2.50	0.46
51:1:2259:U:H2'	51:1:2260:C:O4'	2.15	0.46
51:1:2294:G:O2'	51:1:2295:C:H5'	2.15	0.46
59:B2:1002:LEU:HD21	59:B2:1007:LYS:HB2	1.98	0.46
65:0:93:VAL:HA	65:0:96:THR:HG23	1.97	0.46
8:H:171:ARG:HG2	8:H:173:PRO:HD3	1.96	0.46
9:I:44:LYS:HA	9:I:44:LYS:HD2	1.55	0.46
20:T:37:HIS:HD2	20:T:38:LEU:HD12	1.80	0.46
31:f:90:GLY:HA2	31:f:159:LYS:HG2	1.98	0.46
45:u:6:ARG:HB2	51:1:85:G:P	2.55	0.46
51:1:389:G:O2'	51:1:390:U:H5'	2.15	0.46
51:1:538:A:O2'	51:1:539:G:H5'	2.14	0.46
51:1:554:U:C2'	51:1:555:G:H5'	2.46	0.46
51:1:686:U:H6	51:1:788:A:H61	1.61	0.46
51:1:877:A:O2'	51:1:878:A:H5''	2.14	0.46
51:1:1090:A:H61	51:1:1101:U:H3	1.63	0.46
51:1:1913:A:C8	53:3:1494:G:H4'	2.50	0.46
51:1:2496:C:H2'	51:1:2497:A:O4'	2.16	0.46
10:J:110:MET:HE3	10:J:110:MET:HB2	1.79	0.46
14:N:11:ARG:NH2	53:3:1347:G:O6	2.49	0.46
22:V:10:ARG:NE	22:V:55:GLY:O	2.48	0.46
27:b:1:ALA:N	27:b:19:VAL:O	2.41	0.46
27:b:184:GLU:HG3	27:b:186:ASP:H	1.80	0.46
29:d:132:LYS:HG2	29:d:136:GLN:HE22	1.81	0.46
31:f:29:ASN:ND2	31:f:80:GLU:O	2.49	0.46
46:v:26:PHE:HE2	46:v:89:ILE:HG13	1.80	0.46
51:1:93:G:O2'	51:1:94:A:H5'	2.16	0.46
51:1:283:G:C2'	51:1:284:U:H5'	2.45	0.46
51:1:435:C:C2'	51:1:436:C:H5'	2.44	0.46
51:1:848:C:H2'	51:1:849:A:H8	1.81	0.46
51:1:853:C:O2'	51:1:854:C:H5'	2.16	0.46
51:1:900:A:C2'	51:1:901:C:H5'	2.45	0.46
51:1:1367:A:H3'	51:1:1368:G:O4'	2.15	0.46
51:1:2180:U:H2'	51:1:2181:U:O4'	2.14	0.46
51:1:2247:A:H2'	51:1:2248:C:H6	1.81	0.46
51:1:2528:U:O2'	51:1:2529:G:H3'	2.16	0.46
51:1:2679:A:O2'	51:1:2680:U:H5'	2.15	0.46
53:3:1035:A:H1'	53:3:1036:A:O5'	2.16	0.46
58:B1:1357:ILE:HD13	59:B2:1279:GLU:HG2	1.97	0.46
65:0:97:ILE:HD11	65:0:411:PHE:HD1	1.80	0.46
9:I:1:ALA:N	53:3:405:U:O4	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:125:LYS:NZ	53:3:9:G:OP2	2.38	0.46
28:c:4:LEU:HD11	28:c:100:LEU:HD21	1.97	0.46
33:i:109:ALA:HA	33:i:112:LYS:HB2	1.98	0.46
51:1:848:C:H2'	51:1:849:A:C8	2.51	0.46
51:1:1110:G:HO2'	51:1:1111:A:H8	1.63	0.46
51:1:1486:U:O2'	51:1:1487:U:H5'	2.14	0.46
51:1:1572:A:H2'	51:1:1573:G:O4'	2.16	0.46
51:1:1768:C:H42	51:1:1984:G:H1	1.62	0.46
57:A1:212:ASP:OD1	57:A1:212:ASP:N	2.48	0.46
59:B2:689:ALA:HB2	59:B2:1233:LEU:HD23	1.97	0.46
65:O:574:MET:HE1	65:O:601:PHE:CE2	2.50	0.46
12:L:142:ARG:HA	12:L:145:GLU:HG3	1.97	0.46
51:1:409:G:H2'	51:1:410:G:C8	2.51	0.46
51:1:595:C:C2	51:1:596:U:C5	3.04	0.46
51:1:1480:C:H2'	51:1:1481:U:C6	2.49	0.46
51:1:1574:C:H2'	51:1:1575:C:C6	2.50	0.46
51:1:1766:G:C2'	51:1:1767:G:H5'	2.45	0.46
51:1:2290:G:O2'	51:1:2291:U:H5'	2.16	0.46
51:1:2625:G:H2'	51:1:2626:C:H6	1.76	0.46
51:1:2813:A:O2'	51:1:2814:A:H5'	2.15	0.46
51:1:2836:U:H2'	51:1:2837:A:H8	1.81	0.46
58:B1:209:ASN:HA	58:B1:214:ARG:NH2	2.31	0.46
59:B2:28:LEU:HD21	59:B2:524:ILE:HG13	1.98	0.46
59:B2:515:MET:HE2	59:B2:515:MET:HB3	1.82	0.46
59:B2:562:GLU:OE1	59:B2:662:SER:OG	2.28	0.46
63:5:34:G:H3'	63:5:35:A:C8	2.51	0.46
2:B:31:LYS:HG2	51:1:2885:G:N2	2.31	0.46
43:s:72:THR:OG1	43:s:73:LYS:N	2.48	0.46
51:1:688:U:H5'	51:1:1780:A:C2	2.51	0.46
51:1:1146:C:O2'	51:1:1147:A:H5'	2.16	0.46
51:1:1344:U:H3'	51:1:1345:C:H5'	1.97	0.46
51:1:1528:A:H2'	51:1:1529:G:C5'	2.44	0.46
51:1:2626:C:H2'	51:1:2627:G:H8	1.80	0.46
51:1:2743:U:H2'	51:1:2744:G:O4'	2.16	0.46
51:1:2783:U:H2'	51:1:2784:U:C6	2.51	0.46
53:3:618:C:N4	53:3:621:A:OP2	2.49	0.46
58:B1:385:LEU:HD23	58:B1:390:LEU:HB2	1.98	0.46
58:B1:420:PRO:HA	58:B1:437:PHE:O	2.15	0.46
59:B2:1311:GLY:O	60:W0:31:GLN:NE2	2.48	0.46
11:K:5:GLU:HB2	11:K:90:MET:HB2	1.98	0.46
16:P:127:ARG:HB2	26:Z:34:ARG:HH22	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:72:ASN:HD21	17:Q:103:CYS:HA	1.81	0.46
33:i:91:LYS:HB2	33:i:91:LYS:HE3	1.72	0.46
48:x:14:GLY:HA3	48:x:28:PHE:HE1	1.81	0.46
51:1:1287:A:O2'	51:1:1288:G:H5'	2.15	0.46
51:1:2849:U:H4'	51:1:2868:A:C2	2.51	0.46
55:8:13:DT:C6	58:B1:791:ALA:HA	2.51	0.46
57:A2:294:ASN:HA	61:NA:464:ILE:N	2.28	0.46
59:B2:712:SER:OG	59:B2:713:GLY:N	2.49	0.46
59:B2:1314:GLN:HA	60:W0:28:ARG:HH22	1.80	0.46
63:5:8:U:H2'	63:5:13:C:H41	1.81	0.46
4:D:12:ARG:NH1	51:1:465:G:OP1	2.49	0.46
10:J:73:VAL:HG11	10:J:143:LEU:HB3	1.98	0.46
16:P:124:LYS:HB3	26:Z:34:ARG:HB3	1.98	0.46
18:R:97:ARG:HB2	18:R:99:GLN:HE22	1.81	0.46
23:W:33:THR:OG1	23:W:34:GLU:N	2.49	0.46
27:b:156:SER:OG	27:b:157:ALA:N	2.44	0.46
35:k:5:GLN:NE2	51:1:1668:A:H5''	2.31	0.46
43:s:82:MET:HE1	51:1:1322:A:H5''	1.98	0.46
51:1:290:U:O2'	51:1:291:G:H5'	2.16	0.46
51:1:1034:G:C5	51:1:1035:U:C4	3.04	0.46
51:1:1381:G:H2'	51:1:1382:G:H5'	1.98	0.46
51:1:1520:U:H2'	51:1:1521:G:O4'	2.16	0.46
51:1:1672:A:N3	51:1:2582:G:H5'	2.27	0.46
51:1:2047:C:O2'	51:1:2048:G:H5'	2.16	0.46
51:1:2085:U:O2'	51:1:2086:U:H5'	2.16	0.46
53:3:459:A:H2'	53:3:460:A:C8	2.50	0.46
53:3:768:A:N3	53:3:1512:U:O2'	2.46	0.46
53:3:1383:C:H4'	64:6:35:A:H2	1.81	0.46
8:H:152:VAL:HG12	8:H:197:VAL:HG22	1.98	0.46
15:O:100:ILE:O	62:NG:170:PRO:O	2.34	0.46
35:k:70:ARG:NH1	51:1:2684:U:O4'	2.49	0.46
51:1:569:U:H1'	51:1:947:A:O4'	2.16	0.46
51:1:637:A:C6	51:1:652:U:H4'	2.50	0.46
51:1:1726:C:H2'	51:1:1727:C:C6	2.50	0.46
51:1:2581:G:H2'	51:1:2581:G:N3	2.30	0.46
53:3:647:C:H2'	53:3:648:A:H8	1.81	0.46
57:A2:102:LEU:HD12	57:A2:115:ILE:HG12	1.96	0.46
59:B2:735:LYS:HA	59:B2:748:ILE:HG22	1.97	0.46
62:NG:135:ARG:O	62:NG:178:VAL:HA	2.16	0.46
63:5:22:G:H2'	63:5:23:A:C8	2.52	0.46
16:P:19:VAL:O	16:P:34:THR:N	2.45	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:c:59:ARG:HA	28:c:59:ARG:HD3	1.83	0.45
37:m:34:LYS:N	37:m:129:THR:O	2.47	0.45
48:x:38:TRP:NE1	48:x:40:GLU:OE1	2.41	0.45
51:1:6:A:H2'	51:1:7:G:C8	2.52	0.45
51:1:342:A:H2'	51:1:343:C:O4'	2.16	0.45
51:1:1210:G:P	51:1:1212:G:H5'	2.56	0.45
51:1:1550:C:O2'	51:1:1551:A:H5'	2.17	0.45
51:1:1923:U:O2'	51:1:1924:C:H5'	2.16	0.45
51:1:1930:G:HO2'	51:1:1931:U:P	2.38	0.45
51:1:2642:G:O5'	51:1:2642:G:H8	1.97	0.45
53:3:1200:C:H5''	53:3:1201:A:H3'	1.97	0.45
55:8:20:DA:H4'	59:B2:143:ARG:NH1	2.31	0.45
58:B1:198:CYS:HA	58:B1:221:ILE:CD1	2.45	0.45
7:G:65:LYS:HG2	7:G:153:MET:HG3	1.98	0.45
22:V:11:VAL:HG13	22:V:58:VAL:HG21	1.98	0.45
40:p:52:ARG:HH21	51:1:2720:U:H5''	1.80	0.45
51:1:289:G:H2'	51:1:290:U:C6	2.50	0.45
51:1:367:G:O2'	51:1:368:A:H5'	2.17	0.45
51:1:519:U:C2	51:1:520:G:C8	3.03	0.45
51:1:1500:G:O2'	51:1:1501:G:H5'	2.17	0.45
51:1:2315:G:H2'	51:1:2316:G:H8	1.80	0.45
51:1:2329:U:H2'	51:1:2330:G:C8	2.51	0.45
51:1:2350:C:H2'	51:1:2351:G:O4'	2.16	0.45
51:1:2844:G:H2'	51:1:2845:U:O4'	2.16	0.45
57:A1:33:ARG:HE	57:A1:33:ARG:HB3	1.56	0.45
58:B1:120:LEU:HD22	58:B1:120:LEU:HA	1.77	0.45
58:B1:352:ARG:CD	59:B2:1268:GLN:NE2	2.67	0.45
7:G:18:GLN:HG3	7:G:189:ASN:CB	2.41	0.45
7:G:166:ASP:HB3	7:G:190:SER:HB2	1.99	0.45
9:I:114:ARG:HA	9:I:117:VAL:HG22	1.98	0.45
9:I:173:ASP:HB3	9:I:178:GLU:HB3	1.98	0.45
28:c:170:VAL:HG21	51:1:2679:A:H5'	1.97	0.45
48:x:30:PRO:HG2	48:x:32:LEU:HD11	1.98	0.45
51:1:28:A:O2'	51:1:29:U:H5'	2.16	0.45
51:1:239:C:H2'	51:1:240:C:O4'	2.16	0.45
51:1:438:G:H2'	51:1:439:A:C8	2.51	0.45
51:1:1049:C:C2'	51:1:1050:A:H5'	2.47	0.45
51:1:1140:C:C2'	51:1:1141:U:H5'	2.47	0.45
51:1:1239:G:O2'	51:1:1240:U:H5'	2.17	0.45
51:1:2339:C:H2'	51:1:2340:A:H8	1.81	0.45
51:1:2651:C:H2'	51:1:2652:C:H6	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:A1:35:PHE:HA	57:A1:38:THR:HG22	1.98	0.45
58:B1:926:PRO:HB2	58:B1:1241:TYR:HE1	1.82	0.45
58:B1:1227:HIS:HA	58:B1:1230:THR:HG22	1.98	0.45
7:G:142:LYS:NZ	53:3:1098:C:OP1	2.49	0.45
8:H:5:HIS:CE1	8:H:7:ASN:HB3	2.51	0.45
10:J:101:GLY:H	10:J:121:ASN:HB3	1.82	0.45
17:Q:23:LEU:HD12	17:Q:29:LYS:HD2	1.97	0.45
28:c:151:THR:O	51:1:1130:U:C4	2.70	0.45
31:f:1:SER:HA	51:1:2749:A:OP1	2.15	0.45
31:f:100:ASN:OD1	31:f:100:ASN:N	2.47	0.45
39:o:29:HIS:HB3	39:o:36:TYR:HB2	1.98	0.45
51:1:607:U:O4	51:1:620:G:H5'	2.17	0.45
51:1:1952:A:H2'	51:1:1953:A:C8	2.51	0.45
51:1:2101:A:H2'	51:1:2102:G:H8	1.81	0.45
51:1:2122:U:H2'	51:1:2123:G:O4'	2.17	0.45
55:8:1:DC:H2''	55:8:2:DC:C6	2.51	0.45
58:B1:375:GLU:O	59:B2:1247:SER:HB3	2.16	0.45
58:B1:395:LYS:NZ	58:B1:399:LYS:HE2	2.32	0.45
59:B2:176:ILE:HD11	59:B2:428:VAL:HG21	1.98	0.45
63:5:6:G:H2'	63:5:7:A:C8	2.51	0.45
63:5:26:A:H61	63:5:44:G:H22	1.64	0.45
16:P:56:LYS:NZ	53:3:691:G:O6	2.38	0.45
19:S:58:ARG:HH21	53:3:980:C:H4'	1.81	0.45
31:f:133:LYS:NZ	31:f:134:GLY:O	2.44	0.45
44:t:34:VAL:HG21	44:t:43:ILE:HD11	1.99	0.45
51:1:654:A:N3	51:1:654:A:H5''	2.31	0.45
51:1:2030:A:N3	51:1:2499:C:H5''	2.31	0.45
57:A1:231:PHE:O	57:A2:218:ARG:NH1	2.49	0.45
58:B1:201:LEU:HD11	58:B1:220:ARG:NH1	2.32	0.45
58:B1:220:ARG:HG2	58:B1:220:ARG:NH1	2.25	0.45
63:5:55:U:O2	63:5:57:G:H1'	2.16	0.45
65:0:654:ILE:H	65:0:654:ILE:HG12	1.47	0.45
9:I:13:ARG:NH1	53:3:542:G:O3'	2.50	0.45
12:L:70:PRO:HG3	12:L:98:LEU:HD23	1.97	0.45
29:d:32:VAL:HG21	36:l:6:LEU:HD13	1.99	0.45
30:e:122:ASP:OD2	30:e:126:ASN:ND2	2.42	0.45
33:i:106:GLN:OE1	33:i:125:THR:OG1	2.31	0.45
34:j:85:LYS:NZ	51:1:2768:U:OP1	2.49	0.45
35:k:121:GLU:HG2	35:k:122:VAL:HG23	1.97	0.45
36:l:69:ARG:NH1	51:1:2406:A:C2	2.84	0.45
51:1:355:U:H6	51:1:355:U:O5'	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:540:C:O2'	51:1:541:A:H5'	2.16	0.45
51:1:854:C:H2'	51:1:855:G:C8	2.52	0.45
51:1:940:G:H3'	51:1:941:A:H5''	1.97	0.45
51:1:1338:G:H2'	51:1:1339:G:C8	2.50	0.45
51:1:1866:A:H2'	51:1:1867:G:O4'	2.16	0.45
51:1:2364:C:O2'	51:1:2365:G:H5'	2.17	0.45
51:1:2648:G:C2	51:1:2649:C:C2	3.04	0.45
51:1:2661:G:O2'	51:1:2662:A:H5'	2.16	0.45
53:3:1498:U:H4'	53:3:1519:A:H2	1.82	0.45
58:B1:109:SER:HB2	58:B1:296:LYS:HG2	1.98	0.45
58:B1:220:ARG:HH11	58:B1:220:ARG:CG	2.26	0.45
58:B1:842:ARG:HH22	58:B1:1250:ASP:HB2	1.80	0.45
7:G:172:ILE:O	7:G:176:ASN:ND2	2.50	0.45
11:K:62:MET:HB3	11:K:64:VAL:HG13	1.98	0.45
25:Y:4:LYS:HA	25:Y:4:LYS:HD3	1.86	0.45
33:i:8:VAL:HG11	33:i:26:ALA:HB2	1.97	0.45
40:p:92:ARG:H	40:p:92:ARG:HG2	1.60	0.45
47:w:7:ARG:HA	47:w:7:ARG:HD3	1.77	0.45
51:1:111:A:O2'	51:1:112:U:H5'	2.17	0.45
51:1:167:A:H2'	51:1:168:G:O4'	2.16	0.45
51:1:360:U:H2'	51:1:361:G:H1'	1.99	0.45
51:1:639:U:H2'	51:1:640:C:C6	2.52	0.45
51:1:707:G:C2'	51:1:708:G:H5'	2.47	0.45
51:1:1749:A:H2'	51:1:1750:G:H8	1.82	0.45
51:1:1832:C:O5'	51:1:1832:C:H6	2.00	0.45
51:1:1863:G:H2'	51:1:1864:U:C6	2.51	0.45
51:1:2658:C:H2'	51:1:2659:G:O4'	2.17	0.45
51:1:2717:C:N3	51:1:2718:G:N7	2.65	0.45
51:1:2869:G:H2'	51:1:2870:C:O4'	2.17	0.45
51:1:2889:C:O2'	51:1:2890:G:H5'	2.17	0.45
53:3:1376:U:H2'	53:3:1377:A:C8	2.52	0.45
57:A1:185:TYR:HA	57:A1:202:VAL:O	2.17	0.45
58:B1:115:TRP:HB3	58:B1:1333:THR:CG2	2.46	0.45
58:B1:484:MET:CE	59:B2:1278:LEU:HD21	2.46	0.45
58:B1:772:TYR:HE2	59:B2:561:ILE:HG21	1.80	0.45
58:B1:1150:PRO:HG3	58:B1:1214:PRO:HB2	1.97	0.45
59:B2:230:PHE:HB2	59:B2:333:ILE:HB	1.97	0.45
2:B:8:THR:OG1	2:B:9:ARG:N	2.49	0.45
7:G:26:MET:HE1	7:G:186:VAL:HB	1.99	0.45
12:L:142:ARG:HH21	64:6:42:G:H4'	1.81	0.45
16:P:35:ASP:OD1	16:P:39:ASN:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:70:ARG:O	21:U:74:LEU:N	2.47	0.45
29:d:136:GLN:HA	29:d:139:LYS:HE2	1.99	0.45
31:f:132:LEU:HB3	31:f:140:ILE:HD11	1.99	0.45
45:u:32:LYS:HG2	45:u:65:GLN:HA	1.99	0.45
51:1:30:G:H2'	51:1:31:C:O4'	2.16	0.45
51:1:500:G:N2	51:1:502:A:H3'	2.32	0.45
51:1:1020:A:C2	51:1:1141:U:C2	3.05	0.45
51:1:1170:C:H2'	51:1:1171:G:C8	2.51	0.45
51:1:1280:G:C2'	51:1:1281:G:H5'	2.46	0.45
51:1:1488:C:H2'	51:1:1489:C:C6	2.51	0.45
51:1:1710:G:H2'	51:1:1711:A:C8	2.51	0.45
51:1:2204:G:H2'	51:1:2205:A:H8	1.81	0.45
51:1:2626:C:H2'	51:1:2627:G:C8	2.51	0.45
53:3:112:G:N2	53:3:354:G:O5'	2.49	0.45
58:B1:45:ASN:HD22	58:B1:48:THR:H	1.65	0.45
58:B1:506:VAL:HG23	58:B1:628:GLY:HA3	1.98	0.45
59:B2:24:VAL:HG11	59:B2:704:MET:HE1	1.99	0.45
63:5:69:G:H2'	63:5:70:G:C8	2.52	0.45
8:H:5:HIS:HE1	8:H:7:ASN:HB3	1.82	0.45
32:g:28:ASN:ND2	51:1:2092:U:OP2	2.36	0.45
34:j:108:MET:CE	51:1:1138:G:H21	2.29	0.45
51:1:1140:C:H2'	51:1:1141:U:H5'	1.97	0.45
51:1:2360:G:H2'	51:1:2361:G:C5'	2.40	0.45
58:B1:128:LEU:CD2	58:B1:188:LEU:HB3	2.47	0.45
58:B1:201:LEU:CD1	58:B1:224:LEU:HD12	2.47	0.45
59:B2:557:ARG:NH2	59:B2:607:SER:O	2.50	0.45
59:B2:998:LEU:HG	59:B2:1011:LEU:HB3	1.99	0.45
12:L:113:LYS:HB3	53:3:1297:G:H21	1.82	0.45
17:Q:72:ASN:OD1	17:Q:72:ASN:N	2.50	0.45
33:i:112:LYS:HD2	33:i:128:ILE:HD12	1.97	0.45
40:p:88:ARG:HH11	40:p:114:ASN:HD21	1.65	0.45
51:1:2241:A:H2'	51:1:2242:G:H8	1.82	0.45
51:1:2636:C:O2'	51:1:2637:U:H5'	2.16	0.45
51:1:2700:A:O2'	51:1:2701:U:H5'	2.16	0.45
56:9:12:DC:H3'	58:B1:47:ARG:HH12	1.82	0.45
58:B1:67:ASP:OD1	58:B1:67:ASP:O	2.35	0.45
58:B1:75:TYR:CD2	58:B1:75:TYR:O	2.70	0.45
58:B1:343:LEU:HD11	58:B1:1324:SER:HB3	1.98	0.45
14:N:84:ARG:NH2	53:3:1119:C:OP1	2.48	0.44
15:O:29:ALA:HB2	15:O:87:LEU:HD11	1.99	0.44
45:u:12:VAL:HA	45:u:69:VAL:HG12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:163:C:O2'	51:1:164:C:H5'	2.17	0.44
51:1:195:A:H3'	51:1:196:A:H4'	1.99	0.44
51:1:327:G:H2'	51:1:328:U:O4'	2.17	0.44
51:1:354:A:H2'	51:1:355:U:O4'	2.17	0.44
51:1:536:G:H2'	51:1:537:G:C5'	2.43	0.44
51:1:1173:U:C6	51:1:1174:U:H1'	2.51	0.44
51:1:1173:U:H5	51:1:1174:U:H1'	1.81	0.44
51:1:1539:U:H2'	51:1:1540:G:C8	2.52	0.44
51:1:1868:C:H2'	51:1:1869:G:C8	2.52	0.44
51:1:2880:C:O2	51:1:2880:C:H2'	2.17	0.44
53:3:765:G:H1	53:3:812:G:HO2'	1.63	0.44
53:3:1253:G:H2'	53:3:1254:A:C8	2.52	0.44
58:B1:76:LYS:NZ	58:B1:76:LYS:HB3	2.32	0.44
58:B1:472:LEU:CD1	59:B2:1294:LYS:HG2	2.47	0.44
58:B1:770:LEU:HD13	59:B2:618:GLN:CD	2.42	0.44
59:B2:674:ASP:OD2	59:B2:1070:HIS:ND1	2.50	0.44
64:6:7:G:H3'	64:6:49:G:OP2	2.16	0.44
34:j:10:THR:O	34:j:12:LYS:NZ	2.36	0.44
34:j:109:LEU:HD23	34:j:109:LEU:HA	1.85	0.44
42:r:48:LYS:HA	42:r:48:LYS:HD2	1.78	0.44
51:1:545:U:O2	51:1:546:U:H1'	2.17	0.44
51:1:1680:U:C2'	51:1:1681:G:H5'	2.47	0.44
51:1:1710:G:O2'	51:1:1711:A:H5'	2.17	0.44
51:1:1800:C:O2	51:1:1802:A:C8	2.69	0.44
51:1:2141:G:H1	51:1:2151:U:H3	1.63	0.44
51:1:2201:G:H2'	51:1:2202:U:O4'	2.17	0.44
51:1:2741:A:H2'	51:1:2742:G:H5'	1.98	0.44
57:A2:80:GLU:HG3	59:B2:694:ARG:HH22	1.82	0.44
58:B1:478:LEU:HD21	60:W0:47:THR:HG23	1.99	0.44
58:B1:1079:LYS:HD3	58:B1:1098:GLN:HB3	2.00	0.44
58:B1:1158:GLU:HA	58:B1:1223:LEU:HD21	1.99	0.44
21:U:28:ARG:NH1	53:3:390:U:O2'	2.46	0.44
27:b:97:ASP:N	27:b:97:ASP:OD1	2.45	0.44
33:i:135:MET:CE	51:1:1062:G:H21	2.30	0.44
34:j:34:ARG:NH2	34:j:39:LYS:O	2.51	0.44
38:n:58:ASP:OD1	38:n:63:ARG:NH2	2.44	0.44
38:n:103:ARG:HH11	51:1:1287:A:H5'	1.83	0.44
49:y:6:LEU:HD13	49:y:56:LEU:HD22	1.98	0.44
51:1:208:C:O2'	51:1:209:C:H5'	2.18	0.44
51:1:336:C:O2'	51:1:337:C:H5'	2.18	0.44
51:1:704:G:H1'	51:1:727:A:H62	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1893:C:C2'	51:1:1894:C:H5'	2.47	0.44
51:1:2411:A:H2'	51:1:2412:A:C8	2.53	0.44
53:3:1200:C:O2'	53:3:1205:U:O4	2.35	0.44
58:B1:287:ALA:HB1	58:B1:288:PRO:HD2	2.00	0.44
65:0:580:PHE:HD1	65:0:581:GLY:N	2.16	0.44
18:R:43:LYS:HB2	18:R:46:GLU:HG2	1.99	0.44
24:X:27:LYS:HE2	24:X:27:LYS:HB3	1.77	0.44
29:d:68:ALA:HA	51:1:1255:U:C6	2.52	0.44
36:l:95:LEU:HD22	36:l:100:ILE:HD11	1.99	0.44
41:q:82:LEU:HD22	41:q:87:VAL:HB	1.98	0.44
42:r:24:LYS:HE2	42:r:24:LYS:HB3	1.89	0.44
45:u:17:ASP:HA	45:u:20:LYS:HE2	2.00	0.44
48:x:51:SER:OG	48:x:54:GLY:N	2.48	0.44
51:1:150:U:H2'	51:1:151:C:C6	2.52	0.44
51:1:432:A:O2'	51:1:433:C:H5'	2.17	0.44
51:1:1465:G:O2'	51:1:1466:U:H5'	2.17	0.44
51:1:1507:C:H2'	51:1:1508:A:H4'	1.99	0.44
51:1:1717:A:C2	51:1:1718:G:H1'	2.53	0.44
51:1:2402:U:O2'	51:1:2403:C:H3'	2.17	0.44
57:A1:78:ILE:HA	57:A1:81:ILE:HG22	2.00	0.44
58:B1:1026:PRO:HB2	58:B1:1028:ILE:HG23	2.00	0.44
58:B1:1033:GLY:HA3	58:B1:1081:VAL:O	2.18	0.44
60:W0:25:ARG:NH1	60:W0:61:ASN:OD1	2.49	0.44
63:5:49:C:H2'	63:5:50:U:C6	2.52	0.44
2:B:4:GLN:HG3	51:1:2054:A:C2	2.52	0.44
7:G:33:ALA:HB3	7:G:37:VAL:HG12	1.99	0.44
9:I:120:LYS:HG2	9:I:130:ASN:HB3	1.99	0.44
22:V:44:HIS:HB3	22:V:70:LYS:HG2	1.99	0.44
33:i:9:LYS:HD2	51:1:1061:U:OP1	2.17	0.44
42:r:19:THR:OG1	42:r:95:ASP:OD1	2.35	0.44
51:1:29:U:O5'	51:1:29:U:H6	2.00	0.44
51:1:169:G:O2'	51:1:170:U:H5'	2.18	0.44
51:1:293:U:H2'	51:1:294:A:H5''	1.99	0.44
51:1:1199:U:H2'	51:1:1200:C:C6	2.52	0.44
51:1:1232:G:H2'	51:1:1233:C:C6	2.53	0.44
51:1:1288:G:C5	51:1:1327:A:C2	3.04	0.44
51:1:1412:U:H2'	51:1:1413:A:H8	1.81	0.44
51:1:1452:G:H2'	51:1:1453:A:OP2	2.17	0.44
51:1:1882:U:O2'	51:1:1883:U:H5'	2.17	0.44
51:1:1922:G:H2'	51:1:1923:U:O4'	2.18	0.44
51:1:2805:C:O2'	51:1:2806:C:H5'	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:3:75:G:H2'	53:3:76:G:C8	2.53	0.44
53:3:146:G:N2	53:3:177:G:N7	2.66	0.44
58:B1:86:GLU:H	58:B1:86:GLU:HG3	1.64	0.44
58:B1:978:ARG:HD3	58:B1:999:TYR:H	1.83	0.44
58:B1:1024:THR:HG23	58:B1:1123:ARG:HA	2.00	0.44
33:i:131:THR:HB	51:1:1060:U:O4	2.18	0.44
42:r:80:ARG:HD3	51:1:566:U:O4	2.17	0.44
51:1:107:G:H2'	51:1:108:G:H8	1.82	0.44
51:1:388:G:N7	51:1:390:U:H2'	2.33	0.44
51:1:395:U:H2'	51:1:396:G:C8	2.52	0.44
51:1:819:A:H5'	51:1:973:A:N1	2.33	0.44
51:1:974:G:H1'	51:1:975:A:C8	2.53	0.44
51:1:1998:A:O2'	51:1:1999:C:H5'	2.18	0.44
53:3:142:G:O2'	53:3:196:A:N1	2.45	0.44
53:3:477:C:H2'	53:3:478:A:C8	2.52	0.44
57:A1:68:TYR:HE1	57:A1:79:LEU:HD13	1.83	0.44
58:B1:68:TYR:HB3	58:B1:75:TYR:HE2	1.81	0.44
58:B1:282:LEU:HA	58:B1:282:LEU:HD12	1.79	0.44
58:B1:731:ARG:HB3	59:B2:1105:SER:HB2	2.00	0.44
58:B1:1108:GLN:HG3	58:B1:1109:LEU:HD12	1.99	0.44
4:D:12:ARG:HH12	51:1:465:G:P	2.41	0.44
14:N:104:THR:HG23	53:3:1180:A:H5'	1.99	0.44
14:N:119:LYS:NZ	53:3:1350:A:N7	2.64	0.44
28:c:150:GLN:HE22	51:1:2032:G:H1'	1.82	0.44
38:n:65:LEU:HD11	51:1:2870:C:H5''	1.99	0.44
49:y:20:ASN:HA	49:y:23:ARG:HB2	1.99	0.44
51:1:131:A:H2'	51:1:132:G:C8	2.53	0.44
51:1:255:A:H2'	51:1:256:A:O4'	2.18	0.44
51:1:696:G:H2'	51:1:697:G:O4'	2.18	0.44
51:1:1095:A:H3'	51:1:1096:A:H8	1.83	0.44
51:1:1507:C:H2'	51:1:1508:A:O4'	2.18	0.44
51:1:1536:C:H4'	51:1:1537:G:N1	2.32	0.44
51:1:1605:C:H2'	51:1:1606:C:H5'	1.98	0.44
51:1:1625:C:H2'	51:1:1626:A:O4'	2.18	0.44
51:1:1670:C:O2'	51:1:1671:U:H5'	2.16	0.44
51:1:2312:U:O2'	51:1:2313:C:H5'	2.17	0.44
53:3:19:A:O2'	53:3:572:A:N1	2.46	0.44
53:3:162:A:C5	53:3:163:C:H1'	2.53	0.44
58:B1:33:TRP:HZ2	59:B2:1336:ASN:OD1	2.00	0.44
58:B1:213:LYS:HA	58:B1:213:LYS:HE3	1.99	0.44
58:B1:824:PRO:HD3	58:B1:835:LEU:HD12	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:122:ASP:N	7:G:122:ASP:OD1	2.51	0.44
10:J:24:VAL:HG23	10:J:26:GLY:H	1.82	0.44
28:c:106:LYS:HA	28:c:176:ASP:HA	1.99	0.44
29:d:147:LEU:HD11	29:d:170:ARG:HG2	1.98	0.44
47:w:12:SER:OG	47:w:13:GLU:N	2.51	0.44
51:1:473:G:C2'	51:1:474:G:H5'	2.48	0.44
51:1:893:C:H2'	51:1:894:U:O4'	2.17	0.44
58:B1:388:ARG:HG2	58:B1:388:ARG:NH1	2.32	0.44
59:B2:811:ASN:ND2	59:B2:1098:LEU:O	2.51	0.44
59:B2:909:LYS:HB3	59:B2:910:ALA:H	1.59	0.44
62:NG:161:SER:CB	62:NG:170:PRO:HA	2.47	0.44
9:I:85:THR:HA	9:I:88:ASN:HB2	2.00	0.44
21:U:79:ASN:HB2	21:U:82:ALA:HB3	1.99	0.44
24:X:76:THR:OG1	24:X:77:ARG:N	2.51	0.44
51:1:68:G:H2'	51:1:69:C:O4'	2.18	0.44
51:1:402:A:H2'	51:1:403:U:C5'	2.44	0.44
51:1:1087:G:H5''	51:1:1088:A:OP2	2.18	0.44
51:1:1383:A:H2	51:1:1406:U:H1'	1.83	0.44
51:1:1565:C:C5	51:1:1567:G:C6	3.06	0.44
51:1:2226:C:C5	51:1:2227:A:N7	2.86	0.44
51:1:2236:U:H2'	51:1:2237:G:C5'	2.46	0.44
51:1:2671:G:C2	51:1:2672:U:C2	3.06	0.44
53:3:490:C:H2'	53:3:491:G:C8	2.53	0.44
57:A1:192:VAL:HG12	57:A1:193:GLU:H	1.83	0.44
58:B1:62:PHE:N	58:B1:62:PHE:CD1	2.86	0.44
59:B2:538:LEU:HD13	59:B2:543:ALA:HB2	2.00	0.44
59:B2:646:SER:OG	59:B2:647:ARG:N	2.51	0.44
59:B2:909:LYS:HD3	59:B2:909:LYS:HA	1.43	0.44
59:B2:1275:VAL:HG13	59:B2:1287:LEU:HD11	2.00	0.44
9:I:125:ASN:HB2	9:I:127:ARG:HD3	2.00	0.43
11:K:75:GLU:O	11:K:79:ARG:N	2.47	0.43
17:Q:3:VAL:HA	17:Q:6:LEU:HD12	2.00	0.43
17:Q:113:ARG:NH1	53:3:36:C:O2'	2.51	0.43
18:R:1:ALA:HB3	18:R:56:ARG:HH22	1.82	0.43
25:Y:14:GLU:OE1	25:Y:17:ARG:NH2	2.51	0.43
27:b:7:PRO:HB3	27:b:13:ARG:HG3	2.00	0.43
27:b:20:ASN:HB3	27:b:23:LEU:HD13	2.00	0.43
32:g:1:MET:N	32:g:20:ASN:OD1	2.40	0.43
33:i:27:LEU:HD13	33:i:27:LEU:HA	1.83	0.43
42:r:1:MET:HE3	42:r:101:ILE:HB	1.99	0.43
45:u:76:THR:HB	45:u:78:LYS:HE3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:z:30:ARG:HG2	50:z:33:HIS:HB2	1.99	0.43
51:1:150:U:O2'	51:1:151:C:H5'	2.18	0.43
51:1:684:G:C2	51:1:794:A:C2	3.06	0.43
51:1:1010:A:H1'	51:1:1153:C:H1'	2.00	0.43
51:1:1306:C:N4	51:1:1606:C:H2'	2.33	0.43
53:3:1005:A:OP2	53:3:1024:G:N2	2.48	0.43
55:8:16:DT:H2'	55:8:17:DC:C6	2.52	0.43
58:B1:111:THR:HG21	58:B1:303:VAL:HB	2.00	0.43
58:B1:388:ARG:HG2	58:B1:388:ARG:HH11	1.84	0.43
59:B2:11:ILE:HG22	59:B2:1172:LEU:HD11	2.00	0.43
59:B2:1246:ARG:HH11	59:B2:1266:GLY:HA2	1.82	0.43
2:B:4:GLN:NE2	51:1:2056:G:O2'	2.52	0.43
7:G:67:LEU:HD21	7:G:91:VAL:HG23	2.00	0.43
8:H:134:LYS:HG2	8:H:138:GLN:HE21	1.82	0.43
13:M:24:VAL:HG23	13:M:60:LEU:HB2	2.00	0.43
14:N:74:GLN:OE1	53:3:1249:C:O2'	2.35	0.43
18:R:107:THR:OG1	53:3:947:G:O3'	2.35	0.43
27:b:153:LEU:HD23	51:1:1799:G:N2	2.33	0.43
35:k:38:ILE:HG22	35:k:61:VAL:HB	2.01	0.43
36:l:69:ARG:CZ	51:1:2406:A:N3	2.81	0.43
47:w:37:ARG:HA	47:w:37:ARG:HD3	1.70	0.43
51:1:30:G:O2'	51:1:31:C:H5'	2.17	0.43
51:1:161:A:C5	51:1:162:U:H5	2.35	0.43
51:1:518:G:O2'	51:1:519:U:H5'	2.18	0.43
51:1:648:G:H2'	51:1:649:G:H8	1.83	0.43
51:1:1092:C:H2'	51:1:1093:G:O4'	2.18	0.43
51:1:1869:G:H3'	51:1:1870:C:C5'	2.38	0.43
52:2:66:A:H4'	52:2:67:G:C8	2.53	0.43
58:B1:201:LEU:CB	58:B1:221:ILE:HD13	2.47	0.43
58:B1:1357:ILE:HG22	58:B1:1359:ALA:H	1.82	0.43
65:0:545:ILE:HD11	65:0:581:GLY:HA3	2.00	0.43
10:J:104:ILE:HD11	10:J:114:LEU:HD13	1.99	0.43
10:J:110:MET:HA	10:J:113:VAL:HG12	2.01	0.43
24:X:6:LYS:NZ	53:3:1314:C:OP1	2.52	0.43
51:1:43:G:H2'	51:1:44:A:C8	2.53	0.43
51:1:720:U:H2'	51:1:721:A:H8	1.82	0.43
51:1:870:U:H2'	51:1:871:U:C5'	2.48	0.43
51:1:2643:G:C2'	51:1:2644:G:H5'	2.48	0.43
58:B1:395:LYS:NZ	58:B1:399:LYS:CD	2.74	0.43
58:B1:804:ALA:HB2	58:B1:1256:ILE:CD1	2.47	0.43
7:G:179:GLY:HA3	61:NA:243:LYS:CB	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:76:ILE:HB	8:H:80:GLY:HA2	2.00	0.43
11:K:38:ARG:HH11	11:K:61:LEU:HD21	1.83	0.43
14:N:98:ARG:HG2	14:N:103:VAL:HG21	2.01	0.43
25:Y:67:HIS:O	25:Y:69:ASN:ND2	2.51	0.43
27:b:140:VAL:HG12	27:b:191:LEU:HD23	2.01	0.43
48:x:36:ARG:NH2	51:1:2200:C:OP2	2.52	0.43
49:y:30:MET:HE3	49:y:30:MET:HB3	1.83	0.43
51:1:28:A:H2'	51:1:29:U:C6	2.53	0.43
51:1:350:G:H2'	51:1:351:C:O4'	2.18	0.43
51:1:648:G:H5''	51:1:2352:A:H5''	2.00	0.43
51:1:1741:C:O2'	51:1:1742:U:H5'	2.19	0.43
51:1:1747:U:H2'	51:1:1748:C:C6	2.53	0.43
51:1:2285:C:C2'	51:1:2286:G:H5'	2.48	0.43
53:3:560:A:H5''	53:3:561:U:H5'	2.00	0.43
53:3:1053:G:H4'	53:3:1054:C:H3'	2.00	0.43
53:3:1513:A:H2'	53:3:1514:G:H8	1.83	0.43
58:B1:96:LYS:NZ	59:B2:1298:VAL:HG11	2.34	0.43
58:B1:107:LEU:HA	58:B1:276:ASN:ND2	2.33	0.43
63:5:63:G:H2'	63:5:64:A:C8	2.53	0.43
8:H:51:VAL:HA	8:H:69:THR:HG22	2.00	0.43
17:Q:50:LYS:HE2	17:Q:70:GLY:HA2	2.01	0.43
17:Q:67:GLY:O	17:Q:98:ARG:NH1	2.52	0.43
33:i:123:ALA:HB1	51:1:1081:U:H4'	2.00	0.43
51:1:993:G:O2'	51:1:994:C:H5'	2.19	0.43
51:1:1761:C:H2'	51:1:1762:A:O4'	2.18	0.43
51:1:2305:U:O2'	51:1:2306:C:H5'	2.19	0.43
51:1:2371:G:O2'	51:1:2372:U:H5'	2.19	0.43
51:1:2584:U:O5'	51:1:2584:U:H6	2.02	0.43
53:3:680:C:H2'	53:3:681:A:H8	1.84	0.43
53:3:944:G:N1	53:3:1338:G:OP2	2.34	0.43
55:8:12:DG:OP1	58:B1:795:TYR:CE1	2.71	0.43
58:B1:111:THR:CG2	58:B1:300:GLN:HA	2.48	0.43
58:B1:213:LYS:HE3	58:B1:213:LYS:CA	2.47	0.43
58:B1:245:LEU:CG	58:B1:246:PRO:HD2	2.47	0.43
59:B2:829:THR:HG23	59:B2:1059:ARG:HG2	2.00	0.43
60:W0:58:LEU:HD12	60:W0:59:ILE:HG12	2.00	0.43
27:b:131:MET:H	27:b:131:MET:HG2	1.57	0.43
31:f:151:ARG:HD3	31:f:151:ARG:HA	1.88	0.43
41:q:47:ARG:NH2	41:q:51:GLN:OE1	2.51	0.43
51:1:541:A:H2'	51:1:542:C:O4'	2.19	0.43
51:1:721:A:H2'	51:1:722:A:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:841:G:C2'	51:1:842:U:H5'	2.49	0.43
51:1:1571:A:H2'	51:1:1572:A:C8	2.54	0.43
51:1:1739:A:H2'	51:1:1740:G:O4'	2.18	0.43
51:1:2102:G:H1	51:1:2187:U:H3	1.66	0.43
51:1:2137:U:H2'	51:1:2138:G:C8	2.50	0.43
51:1:2562:U:C2'	51:1:2563:U:H5'	2.49	0.43
51:1:2736:A:O2'	51:1:2737:G:H5'	2.19	0.43
53:3:908:A:H2'	53:3:909:A:H8	1.83	0.43
58:B1:362:ARG:HB2	58:B1:364:HIS:HD2	1.83	0.43
58:B1:515:ARG:NH2	58:B1:718:SER:O	2.48	0.43
58:B1:568:SER:HB3	58:B1:570:LYS:NZ	2.34	0.43
58:B1:847:ASP:OD1	58:B1:847:ASP:N	2.49	0.43
59:B2:557:ARG:HB3	59:B2:587:LEU:HD13	2.00	0.43
59:B2:805:MET:HE3	59:B2:805:MET:HB2	1.86	0.43
63:5:13:C:H42	63:5:46:G:N2	2.16	0.43
5:E:48:MET:HE3	5:E:48:MET:HB3	1.86	0.43
11:K:47:LEU:HG	11:K:56:LYS:HA	2.01	0.43
13:M:52:GLY:HA3	13:M:56:PRO:HA	2.01	0.43
18:R:28:ARG:HH21	18:R:62:PHE:HB2	1.84	0.43
18:R:91:ARG:HD2	51:1:888:C:OP1	2.18	0.43
21:U:31:ARG:HB2	53:3:310:G:H5''	2.01	0.43
28:c:62:LYS:NZ	51:1:2810:A:H5''	2.34	0.43
30:e:171:ALA:C	30:e:173:ASP:H	2.27	0.43
36:l:109:LYS:HE2	51:1:636:G:N7	2.34	0.43
37:m:17:ASN:OD1	37:m:97:GLN:NE2	2.51	0.43
43:s:67:ASP:OD1	43:s:67:ASP:N	2.39	0.43
43:s:74:ILE:HB	43:s:105:VAL:HG23	1.99	0.43
51:1:467:G:O2'	51:1:468:G:H5'	2.19	0.43
51:1:1049:C:H2'	51:1:1050:A:H5'	2.00	0.43
51:1:1054:A:H2'	51:1:1055:G:C8	2.53	0.43
51:1:1601:G:H2'	51:1:1602:U:H5'	2.01	0.43
51:1:2144:G:H1'	51:1:2147:A:N6	2.34	0.43
51:1:2870:C:H2'	51:1:2871:U:H5'	2.01	0.43
58:B1:161:THR:H	58:B1:164:GLN:HB2	1.83	0.43
58:B1:395:LYS:HZ2	58:B1:399:LYS:HE2	1.84	0.43
58:B1:559:ALA:HB3	58:B1:562:GLU:HB3	2.01	0.43
59:B2:1244:HIS:NE2	59:B2:1266:GLY:O	2.44	0.43
2:B:8:THR:HG23	2:B:11:LYS:H	1.81	0.43
16:P:17:ASP:OD1	16:P:17:ASP:N	2.44	0.43
16:P:115:ILE:HD12	16:P:116:PRO:HD2	1.99	0.43
17:Q:29:LYS:HA	17:Q:29:LYS:HD3	1.65	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Y:49:ALA:HA	25:Y:52:GLU:HG3	2.00	0.43
27:b:244:VAL:HG12	27:b:250:GLN:HA	2.01	0.43
29:d:127:GLU:O	29:d:156:ASN:ND2	2.51	0.43
33:i:127:SER:OG	51:1:1059:G:N2	2.51	0.43
34:j:47:HIS:CG	51:1:536:G:H21	2.37	0.43
34:j:51:GLY:HA3	34:j:121:LYS:HE2	2.00	0.43
48:x:71:ARG:NH2	48:x:77:TYR:OH	2.42	0.43
49:y:11:VAL:HA	49:y:14:LEU:HB2	2.00	0.43
49:y:19:LEU:HD23	49:y:19:LEU:HA	1.87	0.43
51:1:108:G:O2'	51:1:109:C:H5'	2.18	0.43
51:1:156:A:O2'	51:1:157:C:H5'	2.18	0.43
51:1:1287:A:H3'	51:1:1288:G:N2	2.33	0.43
51:1:2024:G:H2'	51:1:2025:C:C6	2.54	0.43
51:1:2152:G:N3	51:1:2152:G:H2'	2.33	0.43
51:1:2713:U:C3'	51:1:2714:G:H5'	2.27	0.43
51:1:2834:G:C2'	51:1:2835:A:H5'	2.49	0.43
53:3:422:C:H4'	53:3:423:G:C2	2.54	0.43
53:3:1442:G:H1	53:3:1460:C:H42	1.66	0.43
58:B1:58:CYS:SG	58:B1:60:ARG:HG2	2.59	0.43
58:B1:68:TYR:O	58:B1:75:TYR:CD2	2.70	0.43
58:B1:141:PHE:HE2	58:B1:296:LYS:CB	2.22	0.43
58:B1:220:ARG:NH1	58:B1:220:ARG:CG	2.82	0.43
58:B1:513:MET:HG3	58:B1:544:LEU:HD11	2.01	0.43
59:B2:590:PRO:HB2	59:B2:655:VAL:HG21	2.01	0.43
64:6:11:A:H2'	64:6:12:G:C8	2.52	0.43
65:0:615:PRO:HB3	65:0:684:PHE:HE1	1.83	0.43
9:I:119:HIS:O	9:I:145:ARG:NH2	2.52	0.43
23:W:33:THR:HG22	23:W:37:LYS:H	1.83	0.43
27:b:48:ILE:HG12	51:1:779:U:OP2	2.18	0.43
27:b:206:LYS:HB2	51:1:729:G:C5	2.54	0.43
29:d:188:MET:HB2	29:d:192:ALA:HB3	1.99	0.43
33:i:129:GLU:HG3	33:i:139:VAL:HG21	2.00	0.43
34:j:47:HIS:CG	51:1:536:G:N2	2.87	0.43
38:n:39:PRO:HG2	51:1:1651:G:H4'	2.00	0.43
51:1:192:C:H2'	51:1:193:U:H5'	1.99	0.43
51:1:572:A:O5'	51:1:572:A:C8	2.72	0.43
51:1:864:G:C2'	51:1:865:C:H5'	2.48	0.43
51:1:918:A:H2'	51:1:919:U:O4'	2.19	0.43
51:1:1258:U:H2'	51:1:1259:G:C8	2.54	0.43
51:1:1335:C:H2'	51:1:1336:A:H8	1.84	0.43
51:1:1915:U:O2	51:1:1915:U:O4'	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:3:501:C:H2'	53:3:502:A:C8	2.53	0.43
53:3:1209:C:O2'	53:3:1214:C:N4	2.52	0.43
58:B1:375:GLU:HB3	59:B2:1245:ALA:CB	2.48	0.43
58:B1:434:ILE:HD11	59:B2:1274:GLU:HG3	2.00	0.43
14:N:105:ARG:NH1	14:N:109:GLN:OE1	2.49	0.43
18:R:89:ARG:HB2	18:R:96:VAL:HG22	2.01	0.43
24:X:36:ARG:HB3	53:3:1320:C:N4	2.34	0.43
51:1:871:U:H2'	51:1:872:U:C6	2.54	0.43
51:1:955:U:H2'	51:1:956:G:H5'	2.01	0.43
51:1:1087:G:H22	51:1:1103:A:H1'	1.76	0.43
51:1:1172:C:H2'	51:1:1173:U:O4'	2.19	0.43
51:1:1230:A:H2'	51:1:1231:U:O4'	2.19	0.43
51:1:1306:C:H41	51:1:1606:C:H2'	1.84	0.43
51:1:1907:G:C5	51:1:1908:C:C4	3.07	0.43
51:1:2073:C:C2'	51:1:2074:U:H5'	2.49	0.43
51:1:2106:U:H2'	51:1:2107:G:O4'	2.18	0.43
51:1:2660:A:H2'	51:1:2661:G:O4'	2.18	0.43
58:B1:395:LYS:HE3	58:B1:395:LYS:HB3	1.45	0.43
58:B1:850:LYS:HB3	58:B1:855:ASP:HB2	2.00	0.43
59:B2:546:GLU:H	59:B2:546:GLU:HG3	1.53	0.43
16:P:126:ARG:O	53:3:796:C:H5''	2.19	0.42
17:Q:31:GLY:HA2	17:Q:56:LEU:HA	2.01	0.42
31:f:106:LEU:O	31:f:151:ARG:NH2	2.37	0.42
33:i:8:VAL:HG11	33:i:26:ALA:CB	2.49	0.42
42:r:62:GLU:HG3	42:r:97:LYS:HB3	2.01	0.42
51:1:128:C:H2'	51:1:129:C:C6	2.53	0.42
51:1:365:U:H2'	51:1:366:C:C6	2.53	0.42
51:1:623:C:O2'	51:1:624:C:H5'	2.18	0.42
51:1:1246:A:H2'	51:1:1247:A:O4'	2.19	0.42
51:1:1426:G:C6	51:1:1427:A:C6	3.06	0.42
51:1:1864:U:O5'	51:1:1864:U:H6	2.02	0.42
51:1:2462:C:H2'	51:1:2463:C:C6	2.54	0.42
53:3:490:C:H2'	53:3:491:G:H8	1.84	0.42
58:B1:242:LEU:C	58:B1:242:LEU:HD23	2.44	0.42
58:B1:515:ARG:HH12	58:B1:724:MET:HG2	1.83	0.42
59:B2:1313:HIS:CD2	60:W0:31:GLN:HE22	2.37	0.42
65:0:438:LEU:HD13	65:0:469:ILE:HG23	2.01	0.42
9:I:53:GLN:HA	9:I:198:LEU:HD12	2.01	0.42
40:p:63:ILE:HA	40:p:68:GLY:HA2	2.01	0.42
48:x:1:SER:OG	51:1:1365:A:OP2	2.35	0.42
51:1:629:G:H2'	51:1:630:G:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1433:A:H2'	51:1:1434:A:C1'	2.49	0.42
51:1:1751:U:H2'	51:1:1752:C:C6	2.54	0.42
51:1:2292:U:H2'	51:1:2293:G:C8	2.55	0.42
51:1:2812:G:O2'	51:1:2813:A:H5'	2.19	0.42
51:1:2839:G:O2'	51:1:2840:C:H5'	2.18	0.42
53:3:1531:A:C2'	53:3:1532:U:H5'	2.50	0.42
58:B1:24:LEU:HD21	58:B1:116:PHE:CE2	2.54	0.42
58:B1:144:TYR:CE1	58:B1:162:GLU:OE1	2.73	0.42
58:B1:244:VAL:HA	58:B1:269:TYR:OH	2.19	0.42
65:0:557:ILE:CG2	65:0:576:ILE:HD12	2.48	0.42
8:H:37:LYS:HD3	8:H:37:LYS:HA	1.81	0.42
27:b:99:GLU:OE2	51:1:1491:G:O2'	2.33	0.42
29:d:53:THR:HB	51:1:452:G:H8	1.85	0.42
36:l:108:ALA:HB3	36:l:125:LEU:HG	2.01	0.42
51:1:94:A:H2'	51:1:95:A:C8	2.54	0.42
51:1:595:C:H2'	51:1:596:U:C6	2.54	0.42
51:1:644:A:C3'	51:1:645:C:H5''	2.49	0.42
51:1:705:A:C2	51:1:727:A:H1'	2.54	0.42
51:1:783:A:C8	51:1:783:A:H3'	2.54	0.42
51:1:1914:C:O2	51:1:1914:C:O4'	2.37	0.42
51:1:2216:G:H2'	51:1:2217:G:C8	2.54	0.42
51:1:2482:A:H2'	51:1:2483:C:C6	2.54	0.42
57:A1:48:LEU:HD12	57:A1:48:LEU:HA	1.79	0.42
58:B1:59:ALA:HB1	58:B1:90:VAL:HG23	2.01	0.42
58:B1:282:LEU:CA	58:B1:286:ALA:HA	2.45	0.42
58:B1:894:VAL:HG22	58:B1:1258:ARG:HH11	1.83	0.42
59:B2:300:ASP:OD1	59:B2:313:ALA:N	2.52	0.42
63:5:9:A:H1'	63:5:45:U:H2'	2.01	0.42
8:H:1:GLY:HA2	53:3:1060:U:C5	2.54	0.42
8:H:106:ARG:HG2	8:H:107:LYS:HG3	2.01	0.42
15:O:88:MET:HE3	15:O:88:MET:HB3	1.70	0.42
20:T:66:LEU:HB3	20:T:77:TYR:HE1	1.84	0.42
26:Z:39:LYS:HA	26:Z:42:THR:HB	2.02	0.42
29:d:47:LYS:HE2	51:1:451:U:H4'	2.00	0.42
33:i:26:ALA:H	51:1:1070:A:H61	1.66	0.42
35:k:17:ARG:HD3	35:k:47:ILE:HD11	2.01	0.42
37:m:69:PRO:HA	37:m:94:ALA:HB2	2.01	0.42
39:o:40:ILE:HA	39:o:47:VAL:HA	2.00	0.42
41:q:111:LYS:HD2	41:q:111:LYS:HA	1.81	0.42
43:s:87:PRO:HG3	51:1:1615:C:C6	2.54	0.42
47:w:14:ALA:HB1	51:1:2271:G:OP1	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:z:38:GLU:CD	51:1:928:A:H5'	2.43	0.42
51:1:8:C:C2	51:1:9:G:C8	3.07	0.42
51:1:12:U:O2	51:1:12:U:H2'	2.18	0.42
51:1:481:G:H2'	51:1:482:A:OP2	2.18	0.42
51:1:1197:G:C2'	51:1:1198:U:H5'	2.50	0.42
51:1:1487:U:H2'	51:1:1488:C:C6	2.54	0.42
51:1:2741:A:N6	51:1:2742:G:C2	2.88	0.42
58:B1:190:LYS:HB2	58:B1:190:LYS:HE3	1.41	0.42
58:B1:224:LEU:HD23	58:B1:224:LEU:HA	1.89	0.42
65:0:473:MET:HE3	65:0:473:MET:HB3	1.87	0.42
8:H:61:LYS:HE2	8:H:96:VAL:HG12	2.01	0.42
19:S:44:VAL:O	19:S:48:GLN:NE2	2.50	0.42
21:U:4:ILE:HG12	21:U:21:VAL:HG22	2.00	0.42
24:X:51:HIS:HB2	24:X:56:HIS:CE1	2.55	0.42
31:f:84:LYS:HA	31:f:84:LYS:HD2	1.87	0.42
50:z:37:ARG:HD3	50:z:37:ARG:HA	1.83	0.42
51:1:115:C:O2'	51:1:116:C:H5'	2.20	0.42
51:1:528:A:C2	51:1:2043:C:H4'	2.53	0.42
51:1:623:C:H2'	51:1:624:C:H6	1.85	0.42
51:1:712:G:C2'	51:1:713:G:H5'	2.50	0.42
51:1:892:A:O2'	51:1:893:C:H5'	2.19	0.42
51:1:1520:U:C2'	51:1:1521:G:H5'	2.49	0.42
51:1:2314:A:H2'	51:1:2315:G:H8	1.78	0.42
58:B1:56:LEU:HD12	58:B1:56:LEU:HA	1.84	0.42
58:B1:222:LYS:HA	58:B1:222:LYS:HD2	1.32	0.42
58:B1:385:LEU:CD2	58:B1:390:LEU:HB2	2.50	0.42
58:B1:647:PRO:HG3	58:B1:697:MET:HB3	2.01	0.42
58:B1:797:THR:HG22	58:B1:924:GLY:HA3	2.01	0.42
58:B1:1350:ASN:HA	58:B1:1353:VAL:HG12	2.02	0.42
14:N:113:LYS:HA	14:N:120:ALA:HB2	2.01	0.42
41:q:54:ARG:HD3	51:1:1155:A:H5''	2.01	0.42
51:1:90:U:H2'	51:1:91:A:C8	2.55	0.42
51:1:1327:A:H2'	51:1:1328:A:H5'	2.01	0.42
51:1:1917:U:H2'	51:1:1918:A:H5'	2.01	0.42
51:1:1931:U:C5	51:1:1968:G:N2	2.88	0.42
51:1:2091:C:H5	51:1:2092:U:O2'	2.02	0.42
51:1:2098:U:C2'	51:1:2099:U:H5'	2.49	0.42
53:3:460:A:H2'	53:3:461:A:C8	2.54	0.42
53:3:1348:U:H2'	53:3:1349:A:H8	1.84	0.42
57:A1:76:GLU:HB3	57:A1:80:GLU:HB3	2.01	0.42
58:B1:434:ILE:HD11	59:B2:1274:GLU:CG	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:B2:22:LEU:HB3	59:B2:655:VAL:HG11	2.01	0.42
59:B2:524:ILE:HD12	59:B2:712:SER:HB2	2.02	0.42
65:0:370:LYS:HB3	65:0:370:LYS:HE3	1.83	0.42
27:b:86:ARG:HD3	27:b:86:ARG:HA	1.84	0.42
28:c:134:HIS:HE1	51:1:1675:C:C4	2.38	0.42
46:v:14:LYS:HB2	52:2:98:G:H1	1.84	0.42
51:1:908:C:O2'	51:1:909:A:H5'	2.19	0.42
51:1:1336:A:H2'	51:1:1337:G:H8	1.84	0.42
51:1:1500:G:H2'	51:1:1501:G:H8	1.84	0.42
51:1:1710:G:H2'	51:1:1711:A:H8	1.85	0.42
51:1:1901:A:C2	51:1:1902:C:C5	3.08	0.42
51:1:2583:G:H8	51:1:2583:G:O5'	2.03	0.42
51:1:2741:A:H2'	51:1:2742:G:C5'	2.50	0.42
51:1:2852:G:H2'	51:1:2853:C:O4'	2.20	0.42
53:3:1243:C:H2'	53:3:1244:G:H8	1.84	0.42
55:8:15:DC:H5'	59:B2:1269:ARG:HD3	2.00	0.42
58:B1:137:ARG:HA	58:B1:142:GLU:HG2	2.02	0.42
58:B1:848:VAL:HB	58:B1:858:VAL:HG22	2.02	0.42
59:B2:616:ILE:HG13	59:B2:652:TYR:HB2	2.01	0.42
62:NG:130:PRO:HA	62:NG:148:VAL:O	2.20	0.42
62:NG:135:ARG:O	62:NG:178:VAL:CA	2.68	0.42
63:5:4:C:H2'	63:5:5:G:C8	2.55	0.42
8:H:19:SER:HB2	8:H:39:ARG:HH21	1.85	0.42
9:I:152:SER:HB3	53:3:436:C:H4'	2.01	0.42
11:K:26:THR:O	11:K:30:THR:OG1	2.29	0.42
11:K:40:GLU:HB3	11:K:61:LEU:HB3	2.02	0.42
14:N:30:ASN:HD21	14:N:66:VAL:H	1.66	0.42
29:d:106:LYS:HG3	29:d:200:LEU:HD13	2.01	0.42
37:m:123:LYS:HE2	51:1:2467:C:O2	2.20	0.42
44:t:40:LYS:HE3	44:t:60:THR:HG22	2.01	0.42
51:1:4:U:O2'	51:1:5:A:H5'	2.20	0.42
51:1:397:U:O5'	51:1:397:U:H6	2.03	0.42
51:1:758:C:H2'	51:1:759:G:H8	1.84	0.42
51:1:1034:G:C6	51:1:1035:U:N3	2.88	0.42
51:1:1204:A:H4'	51:1:1205:A:H5''	2.02	0.42
51:1:1316:U:O2'	51:1:1317:G:H5'	2.20	0.42
53:3:28:A:O2'	53:3:296:U:OP1	2.33	0.42
53:3:73:C:H2'	53:3:74:A:C8	2.55	0.42
58:B1:586:GLY:HA3	58:B1:612:LEU:HD11	2.01	0.42
58:B1:1046:ILE:HG22	58:B1:1061:VAL:HA	2.00	0.42
58:B1:1289:ASN:O	58:B1:1293:GLU:HB2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:B2:125:GLY:H	59:B2:495:ALA:HB1	1.84	0.42
9:I:55:ARG:HA	9:I:55:ARG:HD3	1.88	0.42
18:R:11:HIS:HA	18:R:43:LYS:HD2	2.01	0.42
21:U:68:SER:OG	21:U:69:ASP:N	2.53	0.42
35:k:7:MET:HE2	35:k:18:ARG:HD3	2.01	0.42
36:l:39:LYS:HZ3	51:1:942:G:P	2.41	0.42
38:n:16:HIS:CD2	51:1:1275:A:C2	3.07	0.42
46:v:62:THR:O	46:v:62:THR:OG1	2.35	0.42
50:z:57:GLU:OE1	50:z:57:GLU:N	2.53	0.42
51:1:191:A:C2	51:1:192:C:C4	3.08	0.42
51:1:256:A:C2'	51:1:257:C:H5'	2.50	0.42
51:1:673:C:O2'	51:1:674:G:H5'	2.19	0.42
51:1:1936:A:N6	51:1:1963:U:H3	2.17	0.42
51:1:1964:G:H4'	51:1:1965:C:OP2	2.19	0.42
51:1:1993:U:O2	51:1:1993:U:H2'	2.18	0.42
51:1:2287:A:C4	51:1:2289:G:N7	2.87	0.42
51:1:2701:U:H3'	51:1:2702:G:H5''	2.01	0.42
51:1:2848:G:C2	51:1:2867:G:C4	3.08	0.42
53:3:987:G:H2'	53:3:988:G:H8	1.84	0.42
53:3:1382:C:H2'	53:3:1383:C:H6	1.84	0.42
55:8:2:DC:H6	55:8:2:DC:H2'	1.73	0.42
55:8:3:DC:N1	55:8:4:DT:H72	2.34	0.42
58:B1:243:PRO:HG2	59:B2:1332:SER:C	2.44	0.42
58:B1:255:LEU:H	58:B1:255:LEU:HG	1.75	0.42
59:B2:22:LEU:HD22	59:B2:603:ILE:HG21	2.02	0.42
8:H:110:LEU:HD21	8:H:143:LEU:HB3	2.02	0.42
9:I:101:VAL:HG22	9:I:106:PHE:HB2	2.01	0.42
13:M:107:LYS:HD2	13:M:107:LYS:HA	1.85	0.42
16:P:124:LYS:H	16:P:124:LYS:HG3	1.58	0.42
18:R:32:ILE:HG23	18:R:58:GLU:HB3	2.02	0.42
23:W:52:ARG:HE	23:W:52:ARG:HB2	1.66	0.42
28:c:90:PHE:HD1	28:c:94:GLN:HG2	1.83	0.42
32:g:11:ASN:ND2	51:1:2095:A:OP1	2.53	0.42
39:o:8:ILE:O	39:o:12:THR:OG1	2.33	0.42
43:s:9:HIS:H	43:s:102:HIS:CE1	2.38	0.42
51:1:510:C:OP1	51:1:510:C:H3'	2.20	0.42
51:1:809:G:C6	51:1:810:U:C4	3.08	0.42
51:1:837:C:O5'	51:1:837:C:H6	2.02	0.42
51:1:849:A:H2'	51:1:850:U:C5	2.54	0.42
51:1:1024:G:H21	51:1:1144:A:C4'	2.33	0.42
51:1:1642:G:H2'	51:1:1643:G:O4'	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1721:G:H1'	51:1:1739:A:N6	2.35	0.42
51:1:1812:U:H5''	51:1:1812:U:H6	1.85	0.42
51:1:1922:G:H4'	63:5:25:C:H4'	2.01	0.42
53:3:31:G:N2	53:3:48:C:OP1	2.41	0.42
53:3:958:A:N3	53:3:985:C:O2'	2.48	0.42
53:3:1513:A:H2'	53:3:1514:G:C8	2.55	0.42
54:4:44:G:OP1	59:B2:1073:LYS:NZ	2.35	0.42
58:B1:141:PHE:CD2	58:B1:297:ARG:HB2	2.54	0.42
58:B1:1177:ILE:HD12	58:B1:1186:TYR:HE2	1.85	0.42
58:B1:1272:SER:OG	58:B1:1273:ASP:N	2.53	0.42
13:M:42:GLU:HG2	13:M:100:ILE:HG21	2.02	0.41
18:R:87:GLY:O	18:R:91:ARG:N	2.52	0.41
22:V:11:VAL:HG23	22:V:55:GLY:H	1.85	0.41
27:b:176:ARG:HA	27:b:176:ARG:HD2	1.94	0.41
33:i:78:LEU:HA	33:i:81:LYS:HB3	2.02	0.41
33:i:109:ALA:O	33:i:113:ALA:N	2.52	0.41
51:1:196:A:N3	51:1:196:A:H2'	2.35	0.41
51:1:281:C:H2'	51:1:282:A:C8	2.54	0.41
51:1:422:A:H2'	51:1:423:A:O4'	2.20	0.41
51:1:439:A:H2'	51:1:440:C:O4'	2.20	0.41
51:1:552:U:O2'	51:1:553:G:H5'	2.20	0.41
51:1:598:U:H2'	51:1:599:A:C8	2.54	0.41
51:1:759:G:H2'	51:1:760:G:H8	1.83	0.41
51:1:1020:A:O5'	51:1:1020:A:H8	2.02	0.41
51:1:1176:U:H2'	51:1:1177:G:N9	2.35	0.41
51:1:1314:C:H42	51:1:1338:G:H1	1.68	0.41
51:1:1381:G:C2'	51:1:1382:G:H5'	2.49	0.41
51:1:1505:A:O2'	51:1:1506:U:H5'	2.19	0.41
51:1:1589:U:H2'	51:1:1590:A:C8	2.55	0.41
51:1:1594:U:O2'	51:1:1595:C:H5'	2.20	0.41
51:1:2389:G:H5''	51:1:2390:U:H5'	2.01	0.41
51:1:2628:C:H3'	51:1:2629:U:H5'	2.01	0.41
51:1:2895:G:H2'	51:1:2896:C:H6	1.85	0.41
58:B1:279:LEU:HD13	58:B1:299:LEU:HD13	2.02	0.41
59:B2:678:ARG:HA	59:B2:678:ARG:HD3	1.84	0.41
7:G:162:VAL:N	7:G:183:PHE:O	2.38	0.41
7:G:173:LYS:HE3	7:G:173:LYS:HB2	1.76	0.41
12:L:68:VAL:HG23	12:L:99:ALA:HB1	2.02	0.41
15:O:57:VAL:HG22	15:O:58:ASN:H	1.85	0.41
17:Q:98:ARG:HA	17:Q:103:CYS:HB2	2.02	0.41
51:1:638:G:H2'	51:1:639:U:C6	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1239:G:H2'	51:1:1240:U:O4'	2.21	0.41
51:1:1886:U:O2'	51:1:1887:C:H5'	2.20	0.41
51:1:2160:C:H2'	51:1:2161:C:O4'	2.20	0.41
53:3:1253:G:H2'	53:3:1254:A:H8	1.83	0.41
58:B1:609:TYR:HD2	58:B1:610:ARG:NH1	2.18	0.41
58:B1:820:ILE:HD11	58:B1:822:MET:HE2	2.02	0.41
58:B1:930:LEU:HA	58:B1:1244:GLN:HG3	2.02	0.41
59:B2:542:ARG:H	59:B2:542:ARG:HG2	1.70	0.41
59:B2:741:MET:SD	59:B2:974:ARG:NH2	2.93	0.41
63:5:29:G:H2'	63:5:29:G:N3	2.34	0.41
22:V:7:LEU:N	22:V:59:GLU:OE2	2.53	0.41
29:d:145:ASP:HA	29:d:166:LYS:HB3	2.02	0.41
41:q:13:HIS:ND1	51:1:582:A:OP1	2.45	0.41
41:q:57:ARG:NH1	51:1:1154:G:OP2	2.52	0.41
43:s:70:LYS:N	43:s:108:SER:O	2.45	0.41
44:t:68:LYS:HA	44:t:68:LYS:HD3	1.83	0.41
46:v:58:SER:OG	46:v:59:GLU:OE1	2.36	0.41
51:1:137:U:H3	51:1:142:A:H61	1.69	0.41
51:1:191:A:H2'	51:1:192:C:C6	2.56	0.41
51:1:535:G:O2'	51:1:536:G:H5'	2.20	0.41
51:1:573:U:O2'	51:1:574:A:H3'	2.21	0.41
51:1:1070:A:H5'	51:1:1072:C:OP1	2.20	0.41
51:1:1553:A:O2'	51:1:1554:U:H5	2.02	0.41
51:1:1767:G:N2	51:1:1986:C:C2	2.89	0.41
53:3:75:G:H1	53:3:95:C:H42	1.67	0.41
53:3:370:C:H2'	53:3:371:A:H8	1.86	0.41
53:3:440:C:H2'	53:3:441:A:H8	1.85	0.41
53:3:497:G:H2'	53:3:498:A:C8	2.55	0.41
53:3:842:U:H5''	53:3:846:G:C6	2.55	0.41
59:B2:998:LEU:HD21	59:B2:1015:ALA:HB2	2.02	0.41
15:O:12:ALA:HB2	15:O:96:VAL:HG13	2.02	0.41
15:O:46:LYS:HE3	15:O:46:LYS:HB2	1.88	0.41
18:R:7:ASN:CG	18:R:9:PRO:HD2	2.45	0.41
26:Z:9:GLU:HB3	26:Z:10:PRO:HD3	2.03	0.41
41:q:23:TYR:HB3	41:q:27:ARG:HB2	2.02	0.41
51:1:127:A:H5''	51:1:128:C:O4'	2.21	0.41
51:1:431:U:O5'	51:1:431:U:H6	2.03	0.41
51:1:1045:C:H1'	51:1:1047:G:C2	2.56	0.41
51:1:1048:A:C2'	51:1:1049:C:H5'	2.49	0.41
51:1:1063:G:N2	51:1:1075:C:H41	2.18	0.41
51:1:1343:G:N3	51:1:1343:G:H2'	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1719:G:O2'	51:1:1720:U:H5'	2.20	0.41
51:1:2335:A:N7	51:1:2337:G:C5	2.88	0.41
51:1:2612:C:O5'	51:1:2612:C:H6	2.04	0.41
51:1:2697:G:C2	51:1:2711:A:C2	3.08	0.41
53:3:1124:G:H1	53:3:1149:C:H42	1.68	0.41
58:B1:839:VAL:HG12	58:B1:864:LEU:HD12	2.02	0.41
59:B2:1157:GLN:HG3	59:B2:1159:VAL:HG13	2.00	0.41
62:NG:175:PHE:O	62:NG:178:VAL:O	2.38	0.41
65:0:519:VAL:HB	65:0:580:PHE:HB3	2.02	0.41
2:B:39:ARG:HA	2:B:39:ARG:HD2	1.91	0.41
7:G:190:SER:OG	7:G:191:ASP:N	2.54	0.41
27:b:58:LYS:HB2	27:b:58:LYS:HE3	1.88	0.41
32:g:1:MET:HE3	32:g:1:MET:HB3	1.77	0.41
34:j:13:ARG:NH1	34:j:49:ASP:O	2.41	0.41
51:1:79:C:O2	51:1:346:A:H2	2.03	0.41
51:1:197:A:H2	51:1:2434:A:H62	1.69	0.41
51:1:284:U:H2'	51:1:285:G:C8	2.56	0.41
51:1:543:G:C3'	51:1:544:C:H5''	2.51	0.41
51:1:597:G:H2'	51:1:598:U:H6	1.85	0.41
51:1:630:G:N2	51:1:634:C:C4	2.88	0.41
51:1:903:C:H2'	51:1:904:G:H8	1.86	0.41
51:1:1416:G:H2'	51:1:1417:C:H6	1.82	0.41
51:1:1488:C:H2'	51:1:1489:C:H6	1.84	0.41
51:1:1614:A:O5'	51:1:1614:A:C8	2.73	0.41
51:1:1727:C:O2'	51:1:1728:C:H5'	2.20	0.41
51:1:1750:G:H2'	51:1:1751:U:C6	2.56	0.41
51:1:2248:C:C2'	51:1:2249:U:H5'	2.49	0.41
51:1:2379:G:H2'	51:1:2380:C:C6	2.56	0.41
51:1:2467:C:N4	51:1:2468:A:C6	2.89	0.41
53:3:322:C:O2	53:3:332:G:N2	2.52	0.41
58:B1:109:SER:HA	58:B1:110:PRO:HD3	1.96	0.41
58:B1:950:ILE:HB	58:B1:1018:ALA:HB3	2.01	0.41
59:B2:50:GLU:HG2	59:B2:73:TYR:HE1	1.85	0.41
59:B2:746:ALA:O	59:B2:974:ARG:NH2	2.45	0.41
59:B2:861:ALA:HB1	59:B2:882:ILE:HD13	2.02	0.41
8:H:178:ARG:NH1	53:3:1112:C:O2'	2.54	0.41
10:J:90:GLY:O	10:J:129:SER:OG	2.36	0.41
43:s:29:VAL:HG21	43:s:55:ILE:HG21	2.03	0.41
45:u:4:ILE:HD13	45:u:69:VAL:HG23	2.03	0.41
50:z:31:ILE:HD11	51:1:989:G:P	2.61	0.41
51:1:481:G:H1'	51:1:506:G:H22	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:518:G:C2	51:1:519:U:C2	3.08	0.41
51:1:724:U:H2'	51:1:725:G:C8	2.56	0.41
51:1:877:A:H2'	51:1:878:A:H5''	2.02	0.41
51:1:1077:A:H3'	51:1:1078:U:H4'	2.02	0.41
51:1:1213:A:C1'	51:1:1237:A:C2	3.03	0.41
51:1:1283:G:N2	51:1:1285:A:H3'	2.35	0.41
51:1:1452:G:C2'	51:1:1453:A:OP2	2.68	0.41
51:1:1600:C:H2'	51:1:1601:G:C8	2.55	0.41
51:1:1822:C:H2'	51:1:1823:G:H8	1.85	0.41
51:1:2092:U:H5	51:1:2199:A:C2	2.30	0.41
51:1:2411:A:O2'	51:1:2412:A:H5'	2.20	0.41
58:B1:139:LEU:HD23	58:B1:139:LEU:HA	1.89	0.41
58:B1:390:LEU:N	58:B1:390:LEU:HD13	2.35	0.41
59:B2:741:MET:HE3	59:B2:974:ARG:HH12	1.85	0.41
59:B2:936:ARG:HB2	59:B2:1042:LEU:HD12	2.03	0.41
9:I:24:VAL:HG22	53:3:409:U:H4'	2.02	0.41
9:I:30:LYS:HA	9:I:30:LYS:HD3	1.80	0.41
9:I:101:VAL:HG13	9:I:113:ALA:HB1	2.03	0.41
30:e:124:ARG:NH2	51:1:2315:G:N3	2.69	0.41
33:i:100:ILE:HB	33:i:139:VAL:HG12	2.03	0.41
51:1:235:U:H2'	51:1:236:C:H6	1.86	0.41
51:1:532:A:H2'	51:1:532:A:N3	2.35	0.41
51:1:859:G:HO2'	51:1:860:U:P	2.43	0.41
51:1:940:G:H2'	51:1:941:A:C4'	2.51	0.41
51:1:1150:C:C2	51:1:1151:A:C8	3.09	0.41
51:1:1165:A:O2'	51:1:1166:G:H5'	2.21	0.41
51:1:1418:G:H1'	51:1:1581:G:N2	2.36	0.41
51:1:1722:A:N6	51:1:1738:G:H1'	2.36	0.41
51:1:1868:C:H2'	51:1:1869:G:H8	1.86	0.41
51:1:1930:G:O2'	51:1:1931:U:P	2.79	0.41
51:1:2098:U:H2'	51:1:2099:U:H5'	2.03	0.41
51:1:2660:A:H2'	51:1:2661:G:C8	2.56	0.41
51:1:2743:U:H2'	51:1:2744:G:C4'	2.50	0.41
53:3:1228:C:H2'	53:3:1229:A:C8	2.56	0.41
58:B1:576:ARG:HD3	58:B1:593:ASN:HA	2.02	0.41
59:B2:478:ARG:HD2	59:B2:492:MET:HA	2.02	0.41
65:0:298:ILE:CG2	65:0:304:ASP:HA	2.50	0.41
24:X:49:ALA:HA	24:X:58:PRO:HA	2.03	0.41
38:n:71:ARG:HE	38:n:71:ARG:HB3	1.68	0.41
39:o:24:THR:HB	39:o:42:PRO:HG3	2.02	0.41
40:p:113:LEU:HD13	40:p:113:LEU:HA	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:170:U:H2'	51:1:171:U:C6	2.55	0.41
51:1:191:A:C6	51:1:192:C:N4	2.88	0.41
51:1:722:A:H2'	51:1:723:C:C6	2.56	0.41
51:1:924:G:O2'	51:1:925:A:H5'	2.21	0.41
51:1:1020:A:H5'	51:1:1021:A:N7	2.34	0.41
51:1:1092:C:O2'	51:1:1093:G:H5'	2.21	0.41
51:1:1412:U:H2'	51:1:1413:A:C8	2.56	0.41
51:1:2437:G:O4'	51:1:2598:A:C2	2.73	0.41
51:1:2615:U:O2	51:1:2615:U:H2'	2.20	0.41
53:3:146:G:H2'	53:3:147:G:C8	2.56	0.41
58:B1:1050:THR:HG23	58:B1:1057:SER:HB3	2.02	0.41
59:B2:886:LYS:HE2	59:B2:918:LEU:HD13	2.03	0.41
63:5:17:C:H6	63:5:17:C:H2'	1.69	0.41
5:E:29:ARG:HD3	5:E:29:ARG:HA	1.91	0.41
9:I:146:GLU:HA	9:I:149:LYS:HZ3	1.85	0.41
12:L:36:SER:HB3	14:N:42:THR:HG23	2.03	0.41
15:O:89:ARG:NH2	62:NG:165:PHE:H	2.18	0.41
16:P:30:ILE:HG23	16:P:45:THR:HB	2.02	0.41
18:R:10:ASP:HB3	18:R:45:SER:HB3	2.03	0.41
18:R:16:ILE:O	18:R:19:THR:OG1	2.26	0.41
27:b:57:HIS:ND1	51:1:1567:G:H5'	2.35	0.41
27:b:209:ALA:HA	27:b:212:TRP:CE2	2.55	0.41
28:c:4:LEU:HD21	28:c:98:VAL:HA	2.02	0.41
30:e:39:VAL:HG12	30:e:85:GLY:HA2	2.03	0.41
33:i:41:PHE:O	33:i:45:THR:N	2.54	0.41
39:o:16:ARG:HD3	39:o:16:ARG:HA	1.85	0.41
42:r:4:VAL:HG23	42:r:39:LEU:HB2	2.03	0.41
42:r:81:LYS:NZ	51:1:568:U:O4	2.54	0.41
44:t:17:SER:OG	44:t:20:ALA:N	2.48	0.41
44:t:28:ASN:HD21	44:t:91:GLN:HB3	1.85	0.41
51:1:198:C:N4	51:1:248:G:H1	2.14	0.41
51:1:259:G:O2'	51:1:260:G:H5'	2.20	0.41
51:1:490:C:O2'	51:1:491:G:P	2.79	0.41
51:1:688:U:H6	51:1:688:U:O5'	2.03	0.41
51:1:724:U:H2'	51:1:725:G:O4'	2.21	0.41
51:1:1048:A:N6	51:1:1111:A:C8	2.89	0.41
51:1:1095:A:H1'	65:0:632:ILE:HD13	2.02	0.41
51:1:1328:A:H2'	51:1:1330:C:C4	2.56	0.41
51:1:1334:G:C6	51:1:1335:C:C4	3.09	0.41
51:1:1467:U:C4	51:1:1468:U:C4	3.08	0.41
51:1:1482:G:H2'	51:1:1483:G:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1955:U:H5	51:1:2557:G:N2	2.19	0.41
51:1:2105:U:C2	51:1:2184:A:H2	2.39	0.41
51:1:2106:U:H3'	51:1:2107:G:H8	1.86	0.41
51:1:2194:U:H2'	51:1:2195:U:H6	1.84	0.41
51:1:2575:C:H2'	51:1:2578:G:O6	2.21	0.41
51:1:2600:A:H8	51:1:2600:A:O5'	2.03	0.41
51:1:2646:C:H2'	51:1:2647:U:O4'	2.21	0.41
51:1:2667:C:O5'	51:1:2667:C:H6	2.03	0.41
51:1:2680:U:O2'	51:1:2681:C:H5'	2.21	0.41
51:1:2757:A:H2'	51:1:2758:A:H5''	2.02	0.41
53:3:685:G:N1	53:3:704:A:OP2	2.52	0.41
57:A1:205:MET:HE1	57:A1:217:ILE:HG13	2.02	0.41
58:B1:105:ILE:HD12	58:B1:242:LEU:CD2	2.44	0.41
58:B1:394:ILE:O	58:B1:394:ILE:HG13	2.19	0.41
58:B1:616:PRO:HA	58:B1:619:ILE:HG22	2.02	0.41
58:B1:820:ILE:HG12	58:B1:884:SER:HB2	2.01	0.41
59:B2:213:LEU:HD13	59:B2:422:LYS:HG2	2.03	0.41
59:B2:979:LEU:HD11	59:B2:1011:LEU:HD11	2.03	0.41
63:5:17:C:H2'	63:5:18:G:C8	2.56	0.41
63:5:27:G:H1	63:5:43:C:H42	1.69	0.41
9:I:87:GLU:N	9:I:87:GLU:OE2	2.53	0.41
23:W:24:ASP:OD1	23:W:24:ASP:N	2.53	0.41
30:e:36:ASN:HB3	30:e:152:ASP:HB3	2.03	0.41
33:i:77:VAL:HA	33:i:80:LYS:HE2	2.02	0.41
35:k:87:LEU:HD23	35:k:87:LEU:HA	1.97	0.41
37:m:96:ILE:HD13	37:m:96:ILE:HA	1.82	0.41
38:n:82:GLU:O	38:n:86:ARG:N	2.47	0.41
50:z:18:LYS:HE3	50:z:18:LYS:HB3	1.92	0.41
51:1:679:C:H2'	51:1:680:C:C6	2.56	0.41
51:1:706:A:H2'	51:1:707:G:C5'	2.51	0.41
51:1:914:G:H5'	51:1:915:C:OP2	2.22	0.41
51:1:1430:G:O2'	51:1:1431:A:H5'	2.21	0.41
51:1:1991:U:H2'	51:1:1992:G:H5'	2.02	0.41
51:1:2221:G:H2'	51:1:2222:C:C6	2.56	0.41
51:1:2293:G:O2'	51:1:2294:G:H5'	2.21	0.41
53:3:146:G:H2'	53:3:147:G:H8	1.86	0.41
53:3:202:G:H2'	53:3:203:G:C8	2.55	0.41
53:3:757:U:OP1	53:3:822:U:O2'	2.37	0.41
53:3:987:G:H2'	53:3:988:G:C8	2.56	0.41
55:8:2:DC:C6	55:8:2:DC:H5'	2.56	0.41
58:B1:111:THR:HG23	58:B1:300:GLN:HA	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:239:LEU:N	58:B1:239:LEU:HD23	2.36	0.41
58:B1:351:GLY:O	58:B1:467:ALA:HA	2.21	0.41
59:B2:699:LEU:HG	59:B2:799:ASN:HD22	1.85	0.41
59:B2:738:GLU:HA	59:B2:741:MET:HE2	2.03	0.41
59:B2:803:ALA:HB2	59:B2:1094:VAL:HG21	2.03	0.41
59:B2:903:ARG:HH11	61:NA:1:MET:CB	2.33	0.41
5:E:28:LEU:HD23	5:E:28:LEU:HA	1.83	0.40
7:G:18:GLN:HB3	7:G:21:TYR:HB2	2.03	0.40
10:J:156:ARG:HE	13:M:42:GLU:HG3	1.87	0.40
27:b:70:LYS:HD2	27:b:73:ILE:HD12	2.02	0.40
51:1:49:A:P	51:1:51:G:H5'	2.60	0.40
51:1:426:C:O2'	51:1:427:U:H5'	2.21	0.40
51:1:724:U:C4	51:1:725:G:C6	3.08	0.40
51:1:1038:G:H2'	51:1:1039:A:H8	1.83	0.40
51:1:1107:G:H2'	51:1:1108:U:O4'	2.20	0.40
51:1:1283:G:H22	51:1:1286:A:P	2.44	0.40
51:1:2038:G:H2'	51:1:2039:U:O4'	2.21	0.40
53:3:202:G:H2'	53:3:203:G:H8	1.85	0.40
53:3:1304:G:N1	53:3:1332:A:OP2	2.54	0.40
58:B1:390:LEU:HD13	58:B1:390:LEU:H	1.85	0.40
59:B2:469:VAL:HA	59:B2:472:GLU:HG2	2.02	0.40
65:0:118:GLY:HA2	65:0:154:VAL:HG22	2.03	0.40
6:F:8:LYS:NZ	51:1:2467:C:OP1	2.37	0.40
9:I:10:LEU:HG	9:I:62:ARG:HD2	2.03	0.40
19:S:15:LEU:HB3	19:S:54:SER:HB3	2.03	0.40
28:c:176:ASP:N	28:c:176:ASP:OD1	2.44	0.40
31:f:21:GLN:NE2	31:f:37:ASN:O	2.54	0.40
51:1:56:A:H1'	51:1:127:A:C2	2.55	0.40
51:1:224:U:O4	51:1:420:C:H5'	2.21	0.40
51:1:309:A:N3	51:1:329:G:O2'	2.53	0.40
51:1:1152:C:H2'	51:1:1153:C:C6	2.55	0.40
51:1:1279:G:H2'	51:1:1280:G:C8	2.56	0.40
51:1:1591:A:H2'	51:1:1592:C:C6	2.56	0.40
51:1:1599:U:H2'	51:1:1600:C:H6	1.84	0.40
51:1:1783:A:C8	51:1:1783:A:H5'	2.57	0.40
51:1:2049:G:O2'	51:1:2050:C:H5'	2.21	0.40
51:1:2098:U:H2'	51:1:2099:U:C5'	2.51	0.40
51:1:2568:U:O5'	51:1:2568:U:H6	2.04	0.40
51:1:2828:G:N1	51:1:2829:A:C5	2.90	0.40
53:3:464:U:N3	53:3:467:U:OP2	2.42	0.40
55:8:14:DC:C2	55:8:15:DC:C5	3.09	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:A2:42:ALA:HB1	57:A2:224:LEU:HD11	2.03	0.40
58:B1:144:TYR:N	58:B1:144:TYR:CD1	2.88	0.40
58:B1:515:ARG:HG2	58:B1:516:ASP:H	1.85	0.40
58:B1:515:ARG:HH21	58:B1:717:VAL:HG23	1.87	0.40
58:B1:807:LEU:HD21	58:B1:894:VAL:HG21	2.04	0.40
59:B2:176:ILE:HD12	59:B2:184:LEU:HD23	2.03	0.40
65:0:438:LEU:HD21	65:0:472:ARG:HD2	2.02	0.40
9:I:150:LYS:HD2	9:I:155:LYS:HD2	2.04	0.40
14:N:22:PRO:HA	14:N:60:LEU:HA	2.03	0.40
29:d:138:LEU:HG	29:d:143:LEU:HD12	2.03	0.40
31:f:157:LYS:HD3	51:1:2658:C:H5''	2.02	0.40
34:j:17:VAL:HG13	34:j:137:PRO:HB2	2.04	0.40
36:l:39:LYS:HB2	36:l:39:LYS:HE3	1.84	0.40
51:1:55:G:N2	51:1:116:C:C2	2.90	0.40
51:1:120:U:C2	51:1:149:A:C6	3.10	0.40
51:1:359:G:H2'	51:1:360:U:C5'	2.51	0.40
51:1:511:U:H2'	51:1:512:G:H5'	2.03	0.40
51:1:1107:G:H2'	51:1:1108:U:C6	2.56	0.40
51:1:1116:G:O2'	51:1:1117:C:H5'	2.22	0.40
51:1:1160:G:C2	51:1:1161:C:C2	3.10	0.40
51:1:1160:G:C6	51:1:1161:C:C4	3.09	0.40
51:1:1346:G:O2'	51:1:1347:A:H5'	2.22	0.40
51:1:1605:C:H2'	51:1:1606:C:C5'	2.51	0.40
51:1:1975:G:H2'	51:1:1976:U:H5'	2.04	0.40
51:1:2093:G:N7	51:1:2225:A:H2'	2.37	0.40
51:1:2210:U:H6	51:1:2210:U:OP1	2.04	0.40
51:1:2516:A:C2'	51:1:2517:C:H5'	2.51	0.40
51:1:2647:U:O2'	51:1:2648:G:H5'	2.22	0.40
51:1:2649:C:N3	51:1:2650:U:C4	2.89	0.40
51:1:2776:A:C6	51:1:2778:A:C6	3.09	0.40
52:2:31:C:H2'	52:2:53:A:H61	1.87	0.40
57:A1:79:LEU:HD11	58:B1:526:VAL:HG21	2.04	0.40
57:A2:104:LYS:HG2	57:A2:110:VAL:HG22	2.03	0.40
58:B1:109:SER:CB	58:B1:296:LYS:HG2	2.51	0.40
58:B1:144:TYR:OH	58:B1:162:GLU:OE1	2.34	0.40
58:B1:349:TYR:HA	59:B2:1246:ARG:O	2.22	0.40
64:6:10:G:OP1	64:6:46:G:H4'	2.21	0.40
7:G:17:HIS:C	7:G:19:THR:H	2.28	0.40
8:H:14:VAL:HG11	8:H:180:ASP:HB3	2.03	0.40
9:I:59:LYS:HE2	9:I:194:ILE:HG22	2.04	0.40
9:I:123:MET:HB2	9:I:143:SER:HB3	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:P:108:ASN:HA	26:Z:7:GLU:HG2	2.03	0.40
18:R:53:ASP:OD1	18:R:53:ASP:N	2.55	0.40
28:c:169:ARG:O	51:1:2773:C:H4'	2.21	0.40
29:d:163:ASN:HD21	51:1:322:A:P	2.45	0.40
34:j:112:GLY:O	34:j:116:ARG:N	2.47	0.40
35:k:34:GLY:N	35:k:37:ASP:OD2	2.41	0.40
35:k:110:GLU:H	35:k:113:MET:HE3	1.86	0.40
51:1:194:G:O6	51:1:195:A:C6	2.75	0.40
51:1:211:C:O2'	51:1:212:G:H5'	2.21	0.40
51:1:674:G:C8	51:1:674:G:H3'	2.56	0.40
51:1:1095:A:C1'	65:0:632:ILE:HD13	2.51	0.40
51:1:2208:C:O2'	51:1:2209:G:H5'	2.21	0.40
51:1:2393:U:C2'	51:1:2394:C:H5'	2.51	0.40
51:1:2648:G:O2'	51:1:2649:C:H5'	2.21	0.40
51:1:2699:C:O2'	51:1:2700:A:H5'	2.21	0.40
53:3:304:U:H2'	53:3:305:G:C8	2.56	0.40
57:A1:211:ILE:HD12	57:A1:211:ILE:HA	1.92	0.40
58:B1:182:ALA:HB1	58:B1:238:ILE:CG2	2.52	0.40
59:B2:900:LYS:HE3	59:B2:900:LYS:HB3	1.62	0.40
11:K:53:LYS:HE2	11:K:53:LYS:HB2	1.95	0.40
26:Z:15:LEU:HD23	26:Z:15:LEU:HA	1.80	0.40
31:f:3:VAL:HG13	51:1:2751:G:H4'	2.02	0.40
34:j:138:GLN:H	34:j:138:GLN:HG2	1.63	0.40
38:n:22:ARG:HH22	51:1:2709:G:H5'	1.86	0.40
40:p:25:VAL:HG23	40:p:85:VAL:HA	2.04	0.40
49:y:51:ALA:O	49:y:55:THR:OG1	2.37	0.40
51:1:467:G:H8	51:1:467:G:O5'	2.04	0.40
51:1:518:G:H2'	51:1:519:U:C6	2.55	0.40
51:1:570:G:O2'	51:1:571:U:H5'	2.22	0.40
51:1:937:C:H2'	51:1:938:G:C8	2.57	0.40
51:1:1410:G:H2'	51:1:1411:U:H6	1.85	0.40
51:1:1722:A:H2'	51:1:1723:G:O4'	2.21	0.40
51:1:1749:A:C4	51:1:1750:G:C8	3.10	0.40
51:1:1854:A:N6	51:1:1888:G:H1'	2.37	0.40
51:1:1944:U:H3'	51:1:1945:G:H5'	2.03	0.40
51:1:2312:U:C5	51:1:2313:C:C5	3.10	0.40
54:4:43:G:H5'	59:B2:688:GLN:HE22	1.85	0.40
58:B1:102:MET:HG2	58:B1:246:PRO:CG	2.49	0.40
58:B1:211:GLU:CG	58:B1:215:LYS:HE3	2.44	0.40
58:B1:245:LEU:HD13	59:B2:1329:GLU:HA	2.03	0.40
65:0:574:MET:HE1	65:0:601:PHE:CZ	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	64/70 (91%)	59 (92%)	5 (8%)	0	100	100
2	B	54/57 (95%)	48 (89%)	4 (7%)	2 (4%)	2	20
3	C	48/55 (87%)	41 (85%)	7 (15%)	0	100	100
4	D	44/46 (96%)	42 (96%)	2 (4%)	0	100	100
5	E	62/65 (95%)	57 (92%)	5 (8%)	0	100	100
6	F	36/38 (95%)	33 (92%)	3 (8%)	0	100	100
7	G	216/241 (90%)	187 (87%)	27 (12%)	2 (1%)	14	51
8	H	204/233 (88%)	195 (96%)	9 (4%)	0	100	100
9	I	203/206 (98%)	172 (85%)	30 (15%)	1 (0%)	25	64
10	J	155/167 (93%)	138 (89%)	17 (11%)	0	100	100
11	K	98/135 (73%)	84 (86%)	14 (14%)	0	100	100
12	L	149/179 (83%)	130 (87%)	19 (13%)	0	100	100
13	M	127/130 (98%)	118 (93%)	9 (7%)	0	100	100
14	N	125/130 (96%)	104 (83%)	21 (17%)	0	100	100
15	O	96/103 (93%)	87 (91%)	8 (8%)	1 (1%)	13	49
16	P	114/129 (88%)	100 (88%)	13 (11%)	1 (1%)	14	51
17	Q	121/124 (98%)	94 (78%)	27 (22%)	0	100	100
18	R	112/118 (95%)	98 (88%)	13 (12%)	1 (1%)	14	51
19	S	98/101 (97%)	83 (85%)	15 (15%)	0	100	100
20	T	86/89 (97%)	75 (87%)	11 (13%)	0	100	100
21	U	80/82 (98%)	69 (86%)	11 (14%)	0	100	100
22	V	78/84 (93%)	69 (88%)	8 (10%)	1 (1%)	10	42

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
23	W	63/75 (84%)	56 (89%)	5 (8%)	2 (3%)	3	21
24	X	77/92 (84%)	71 (92%)	6 (8%)	0	100	100
25	Y	83/87 (95%)	78 (94%)	5 (6%)	0	100	100
26	Z	63/71 (89%)	44 (70%)	18 (29%)	1 (2%)	8	37
27	b	269/273 (98%)	244 (91%)	25 (9%)	0	100	100
28	c	207/209 (99%)	190 (92%)	17 (8%)	0	100	100
29	d	199/201 (99%)	186 (94%)	13 (6%)	0	100	100
30	e	175/179 (98%)	157 (90%)	18 (10%)	0	100	100
31	f	174/177 (98%)	160 (92%)	14 (8%)	0	100	100
32	g	50/149 (34%)	44 (88%)	5 (10%)	1 (2%)	6	32
33	i	139/142 (98%)	110 (79%)	26 (19%)	3 (2%)	5	29
34	j	140/142 (99%)	128 (91%)	12 (9%)	0	100	100
35	k	120/123 (98%)	106 (88%)	14 (12%)	0	100	100
36	l	141/144 (98%)	129 (92%)	12 (8%)	0	100	100
37	m	134/136 (98%)	128 (96%)	6 (4%)	0	100	100
38	n	118/127 (93%)	103 (87%)	15 (13%)	0	100	100
39	o	114/117 (97%)	109 (96%)	5 (4%)	0	100	100
40	p	112/115 (97%)	102 (91%)	10 (9%)	0	100	100
41	q	115/118 (98%)	110 (96%)	3 (3%)	2 (2%)	7	36
42	r	101/103 (98%)	88 (87%)	13 (13%)	0	100	100
43	s	108/110 (98%)	101 (94%)	7 (6%)	0	100	100
44	t	91/100 (91%)	82 (90%)	9 (10%)	0	100	100
45	u	100/104 (96%)	84 (84%)	15 (15%)	1 (1%)	13	49
46	v	92/94 (98%)	87 (95%)	5 (5%)	0	100	100
47	w	73/85 (86%)	67 (92%)	6 (8%)	0	100	100
48	x	75/78 (96%)	72 (96%)	2 (3%)	1 (1%)	10	42
49	y	61/63 (97%)	55 (90%)	6 (10%)	0	100	100
50	z	56/59 (95%)	52 (93%)	4 (7%)	0	100	100
57	A1	295/329 (90%)	273 (92%)	21 (7%)	1 (0%)	37	72
57	A2	282/329 (86%)	271 (96%)	11 (4%)	0	100	100
58	B1	1329/1407 (94%)	1202 (90%)	123 (9%)	4 (0%)	37	72

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
59	B2	1338/1342 (100%)	1205 (90%)	128 (10%)	5 (0%)	30	68
60	W0	80/91 (88%)	77 (96%)	3 (4%)	0	100	100
61	NA	490/495 (99%)	471 (96%)	17 (4%)	2 (0%)	30	68
62	NG	150/181 (83%)	130 (87%)	15 (10%)	5 (3%)	3	21
65	0	669/716 (93%)	625 (93%)	43 (6%)	1 (0%)	48	83
All	All	10253/10945 (94%)	9280 (90%)	935 (9%)	38 (0%)	32	68

All (38) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
48	x	25	LYS
58	B1	121	PRO
61	NA	187	ARG
61	NA	188	PRO
62	NG	102	PRO
62	NG	123	ARG
59	B2	43	PRO
59	B2	918	LEU
62	NG	163	SER
57	A1	250	ASP
59	B2	888	THR
59	B2	909	LYS
2	B	23	ALA
7	G	19	THR
18	R	5	GLY
32	g	12	LEU
33	i	22	PRO
41	q	23	TYR
58	B1	43	THR
58	B1	193	ASP
7	G	17	HIS
15	O	58	ASN
22	V	50	ASN
23	W	13	THR
45	u	97	SER
58	B1	1325	PHE
9	I	45	PRO
23	W	17	VAL
33	i	20	SER
62	NG	169	THR

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Mol	Chain	Res	Type
62	NG	170	PRO
26	Z	10	PRO
33	i	23	VAL
41	q	6	GLY
65	0	651	GLY
59	B2	1317	PRO
2	B	24	VAL
16	P	88	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	58/62 (94%)	57 (98%)	1 (2%)	56	72
2	B	47/48 (98%)	47 (100%)	0	100	100
3	C	45/49 (92%)	44 (98%)	1 (2%)	47	65
4	D	38/38 (100%)	37 (97%)	1 (3%)	41	61
5	E	51/52 (98%)	49 (96%)	2 (4%)	27	49
6	F	34/34 (100%)	30 (88%)	4 (12%)	4	17
7	G	180/199 (90%)	174 (97%)	6 (3%)	33	54
8	H	170/190 (90%)	167 (98%)	3 (2%)	54	71
9	I	172/173 (99%)	168 (98%)	4 (2%)	45	64
10	J	119/126 (94%)	117 (98%)	2 (2%)	56	72
11	K	87/116 (75%)	82 (94%)	5 (6%)	17	39
12	L	124/147 (84%)	124 (100%)	0	100	100
13	M	104/105 (99%)	103 (99%)	1 (1%)	73	81
14	N	105/107 (98%)	95 (90%)	10 (10%)	7	23
15	O	86/90 (96%)	78 (91%)	8 (9%)	7	24
16	P	89/99 (90%)	86 (97%)	3 (3%)	32	53
17	Q	103/104 (99%)	98 (95%)	5 (5%)	21	43

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
18	R	92/96 (96%)	91 (99%)	1 (1%)	70	80
19	S	83/84 (99%)	83 (100%)	0	100	100
20	T	76/77 (99%)	73 (96%)	3 (4%)	27	49
21	U	65/65 (100%)	64 (98%)	1 (2%)	60	75
22	V	74/78 (95%)	72 (97%)	2 (3%)	40	60
23	W	56/65 (86%)	52 (93%)	4 (7%)	12	32
24	X	70/79 (89%)	70 (100%)	0	100	100
25	Y	65/66 (98%)	64 (98%)	1 (2%)	60	75
26	Z	55/61 (90%)	47 (86%)	8 (14%)	2	13
27	b	216/218 (99%)	212 (98%)	4 (2%)	52	69
28	c	164/164 (100%)	164 (100%)	0	100	100
29	d	165/165 (100%)	162 (98%)	3 (2%)	54	71
30	e	148/150 (99%)	142 (96%)	6 (4%)	26	48
31	f	137/138 (99%)	132 (96%)	5 (4%)	30	52
32	g	41/114 (36%)	38 (93%)	3 (7%)	11	31
33	i	109/110 (99%)	100 (92%)	9 (8%)	9	28
34	j	116/116 (100%)	116 (100%)	0	100	100
35	k	103/104 (99%)	103 (100%)	0	100	100
36	l	102/103 (99%)	101 (99%)	1 (1%)	73	81
37	m	109/109 (100%)	103 (94%)	6 (6%)	18	40
38	n	100/103 (97%)	99 (99%)	1 (1%)	73	81
39	o	86/87 (99%)	86 (100%)	0	100	100
40	p	99/100 (99%)	98 (99%)	1 (1%)	73	81
41	q	89/90 (99%)	86 (97%)	3 (3%)	32	53
42	r	84/84 (100%)	82 (98%)	2 (2%)	44	63
43	s	93/93 (100%)	92 (99%)	1 (1%)	70	80
44	t	80/84 (95%)	80 (100%)	0	100	100
45	u	83/85 (98%)	79 (95%)	4 (5%)	21	43
46	v	78/78 (100%)	77 (99%)	1 (1%)	65	77
47	w	57/63 (90%)	57 (100%)	0	100	100
48	x	67/68 (98%)	67 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
49	y	55/55 (100%)	55 (100%)	0	100	100
50	z	48/49 (98%)	46 (96%)	2 (4%)	25	47
57	A1	185/286 (65%)	174 (94%)	11 (6%)	16	38
57	A2	186/286 (65%)	185 (100%)	1 (0%)	86	89
58	B1	1110/1168 (95%)	1017 (92%)	93 (8%)	9	28
59	B2	1150/1157 (99%)	1118 (97%)	32 (3%)	38	59
60	W0	70/75 (93%)	69 (99%)	1 (1%)	62	75
65	0	553/588 (94%)	482 (87%)	71 (13%)	3	15
All	All	7931/8500 (93%)	7594 (96%)	337 (4%)	27	47

All (337) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	21	VAL
3	C	22	THR
4	D	44	VAL
5	E	28	LEU
5	E	31	ILE
6	F	34	LYS
6	F	35	GLN
6	F	36	ARG
6	F	37	GLN
7	G	8	MET
7	G	10	LYS
7	G	13	VAL
7	G	14	HIS
7	G	17	HIS
7	G	29	PHE
8	H	74	ILE
8	H	156	LEU
8	H	164	THR
9	I	44	LYS
9	I	46	ARG
9	I	96	ARG
9	I	97	LEU
10	J	55	VAL
10	J	130	THR
11	K	89	VAL
11	K	90	MET

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Mol	Chain	Res	Type
11	K	91	ARG
11	K	92	THR
11	K	94	HIS
13	M	102	VAL
14	N	40	ARG
14	N	44	ARG
14	N	45	MET
14	N	52	GLU
14	N	53	LEU
14	N	54	VAL
14	N	57	VAL
14	N	59	LYS
14	N	60	LEU
14	N	65	THR
15	O	16	ARG
15	O	82	LYS
15	O	83	THR
15	O	87	LEU
15	O	88	MET
15	O	89	ARG
15	O	91	ASP
15	O	92	LEU
16	P	120	CYS
16	P	121	ARG
16	P	124	LYS
17	Q	15	VAL
17	Q	17	LYS
17	Q	20	VAL
17	Q	29	LYS
17	Q	34	THR
18	R	64	VAL
20	T	82	GLU
20	T	86	LEU
20	T	88	ARG
21	U	36	VAL
22	V	47	ASP
22	V	52	CYS
23	W	15	GLU
23	W	17	VAL
23	W	18	GLN
23	W	70	THR
25	Y	85	LEU

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Mol	Chain	Res	Type
26	Z	3	ILE
26	Z	4	LYS
26	Z	5	VAL
26	Z	12	ASP
26	Z	15	LEU
26	Z	19	LYS
26	Z	20	ARG
26	Z	27	VAL
27	b	129	LEU
27	b	131	MET
27	b	132	ARG
27	b	203	VAL
29	d	14	VAL
29	d	118	LEU
29	d	198	GLU
30	e	39	VAL
30	e	77	LYS
30	e	78	ILE
30	e	79	ARG
30	e	174	PHE
30	e	177	ARG
31	f	9	VAL
31	f	131	VAL
31	f	172	GLU
31	f	174	LYS
31	f	176	LYS
32	g	4	ILE
32	g	5	LEU
32	g	9	VAL
33	i	18	ASN
33	i	20	SER
33	i	22	PRO
33	i	23	VAL
33	i	27	LEU
33	i	29	GLN
33	i	34	ILE
33	i	35	MET
33	i	36	GLU
36	l	85	VAL
37	m	44	ARG
37	m	47	GLU
37	m	50	ARG

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Mol	Chain	Res	Type
37	m	55	ARG
37	m	58	LYS
37	m	59	ARG
38	n	13	ASN
40	p	52	ARG
41	q	4	LYS
41	q	5	ARG
41	q	28	SER
42	r	53	PHE
42	r	54	VAL
43	s	3	THR
45	u	35	VAL
45	u	93	ARG
45	u	100	GLU
45	u	101	THR
46	v	72	VAL
50	z	16	LEU
50	z	40	THR
57	A1	9	LEU
57	A1	12	ARG
57	A1	13	LEU
57	A1	18	GLN
57	A1	19	VAL
57	A1	22	THR
57	A1	27	THR
57	A1	28	LEU
57	A1	33	ARG
57	A1	46	ILE
57	A1	48	LEU
57	A2	29	GLU
58	B1	24	LEU
58	B1	40	LYS
58	B1	42	GLU
58	B1	44	ILE
58	B1	47	ARG
58	B1	49	PHE
58	B1	50	LYS
58	B1	60	ARG
58	B1	66	LYS
58	B1	69	GLU
58	B1	71	LEU
58	B1	74	LYS

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Mol	Chain	Res	Type
58	B1	76	LYS
58	B1	78	LEU
58	B1	80	HIS
58	B1	81	ARG
58	B1	87	LYS
58	B1	91	GLU
58	B1	93	THR
58	B1	94	GLN
58	B1	95	THR
58	B1	96	LYS
58	B1	99	ARG
58	B1	100	GLU
58	B1	114	ILE
58	B1	117	LEU
58	B1	120	LEU
58	B1	126	LEU
58	B1	132	LEU
58	B1	135	ILE
58	B1	142	GLU
58	B1	144	TYR
58	B1	145	VAL
58	B1	146	VAL
58	B1	147	ILE
58	B1	152	THR
58	B1	154	LEU
58	B1	157	GLN
58	B1	159	ILE
58	B1	172	PHE
58	B1	174	ASP
58	B1	175	GLU
58	B1	180	MET
58	B1	190	LYS
58	B1	193	ASP
58	B1	196	GLN
58	B1	210	SER
58	B1	212	THR
58	B1	216	LYS
58	B1	222	LYS
58	B1	223	LEU
58	B1	227	PHE
58	B1	233	LYS
58	B1	237	MET

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Mol	Chain	Res	Type
58	B1	238	ILE
58	B1	239	LEU
58	B1	240	THR
58	B1	244	VAL
58	B1	255	LEU
58	B1	256	ASP
58	B1	259	ARG
58	B1	281	ARG
58	B1	282	LEU
58	B1	285	LEU
58	B1	290	ILE
58	B1	317	THR
58	B1	322	ARG
58	B1	324	LEU
58	B1	363	LEU
58	B1	385	LEU
58	B1	386	GLU
58	B1	387	LEU
58	B1	390	LEU
58	B1	393	THR
58	B1	394	ILE
58	B1	395	LYS
58	B1	416	ILE
58	B1	417	ARG
58	B1	425	ARG
58	B1	506	VAL
58	B1	514	THR
58	B1	800	LEU
58	B1	807	LEU
58	B1	839	VAL
58	B1	901	ARG
58	B1	903	LEU
58	B1	1172	LYS
58	B1	1181	ASP
58	B1	1233	ILE
58	B1	1327	GLU
58	B1	1328	THR
58	B1	1331	VAL
58	B1	1332	LEU
59	B2	44	GLU
59	B2	49	LEU
59	B2	56	VAL

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Mol	Chain	Res	Type
59	B2	146	VAL
59	B2	483	ASP
59	B2	487	LEU
59	B2	516	ASP
59	B2	538	LEU
59	B2	540	ARG
59	B2	545	PHE
59	B2	546	GLU
59	B2	615	VAL
59	B2	857	VAL
59	B2	859	GLU
59	B2	887	VAL
59	B2	890	LYS
59	B2	892	GLU
59	B2	894	GLN
59	B2	900	LYS
59	B2	901	LEU
59	B2	902	LEU
59	B2	903	ARG
59	B2	905	ILE
59	B2	906	PHE
59	B2	909	LYS
59	B2	913	VAL
59	B2	915	ASP
59	B2	918	LEU
59	B2	920	VAL
59	B2	922	ASN
59	B2	1076	ILE
59	B2	1151	LEU
60	W0	63	ILE
65	0	3	ARG
65	0	19	ILE
65	0	23	LYS
65	0	24	THR
65	0	28	GLU
65	0	93	VAL
65	0	96	THR
65	0	98	GLU
65	0	104	ARG
65	0	105	VAL
65	0	143	LYS
65	0	144	MET

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Mol	Chain	Res	Type
65	0	147	MET
65	0	254	GLN
65	0	273	LYS
65	0	343	VAL
65	0	358	GLU
65	0	365	GLN
65	0	366	MET
65	0	369	ASN
65	0	370	LYS
65	0	371	ARG
65	0	372	GLU
65	0	377	VAL
65	0	378	ARG
65	0	425	LYS
65	0	429	GLU
65	0	430	LYS
65	0	431	MET
65	0	433	LEU
65	0	437	ARG
65	0	461	MET
65	0	464	LEU
65	0	471	ASP
65	0	472	ARG
65	0	473	MET
65	0	476	GLU
65	0	478	ASN
65	0	485	LYS
65	0	487	GLN
65	0	488	VAL
65	0	495	ARG
65	0	504	LYS
65	0	512	ARG
65	0	514	GLN
65	0	539	ASP
65	0	580	PHE
65	0	591	LEU
65	0	594	LYS
65	0	595	LEU
65	0	613	LEU
65	0	626	GLU
65	0	630	ASP
65	0	642	LEU

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Mol	Chain	Res	Type
65	0	643	LYS
65	0	645	GLN
65	0	646	GLU
65	0	648	GLU
65	0	649	VAL
65	0	650	THR
65	0	654	ILE
65	0	668	THR
65	0	671	ARG
65	0	677	ARG
65	0	686	LYS
65	0	687	TYR
65	0	688	ASP
65	0	689	GLU
65	0	693	ASN
65	0	702	ARG
65	0	704	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (133) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	ASN
1	A	61	ASN
2	B	4	GLN
3	C	44	GLN
4	D	16	HIS
6	F	35	GLN
6	F	37	GLN
7	G	14	HIS
7	G	108	GLN
7	G	119	GLN
7	G	121	GLN
7	G	167	HIS
8	H	7	ASN
8	H	68	HIS
8	H	99	GLN
8	H	122	GLN
8	H	138	GLN
8	H	139	ASN
9	I	151	GLN
9	I	197	HIS
10	J	76	ASN

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Mol	Chain	Res	Type
10	J	121	ASN
12	L	85	GLN
12	L	96	ASN
12	L	121	ASN
12	L	147	ASN
13	M	3	GLN
13	M	37	ASN
13	M	66	GLN
14	N	4	GLN
14	N	30	ASN
15	O	20	GLN
15	O	58	ASN
16	P	80	ASN
17	Q	4	ASN
17	Q	71	HIS
18	R	7	ASN
18	R	99	GLN
19	S	59	GLN
20	T	19	ASN
20	T	39	GLN
22	V	30	HIS
24	X	68	HIS
25	Y	2	ASN
25	Y	77	ASN
26	Z	8	ASN
27	b	24	HIS
27	b	69	ASN
27	b	89	ASN
27	b	142	ASN
27	b	259	ASN
28	c	49	GLN
28	c	134	HIS
28	c	150	GLN
28	c	164	GLN
28	c	173	GLN
29	d	41	GLN
29	d	90	GLN
29	d	94	GLN
29	d	165	HIS
30	e	4	HIS
31	f	47	ASN
32	g	2	GLN

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Mol	Chain	Res	Type
34	j	58	ASN
34	j	135	GLN
35	k	3	GLN
35	k	5	GLN
35	k	93	GLN
36	l	4	ASN
36	l	104	GLN
37	m	13	HIS
38	n	13	ASN
40	p	2	ASN
40	p	114	ASN
41	q	55	GLN
41	q	58	GLN
42	r	18	GLN
42	r	82	HIS
43	s	7	HIS
44	t	28	ASN
44	t	59	ASN
44	t	92	ASN
45	u	52	ASN
45	u	68	ASN
46	v	75	GLN
46	v	87	GLN
47	w	53	HIS
48	x	16	ASN
48	x	33	HIS
49	y	31	GLN
49	y	38	GLN
49	y	41	HIS
49	y	45	GLN
50	z	8	GLN
57	A1	37	HIS
57	A1	66	HIS
57	A1	84	ASN
57	A1	117	HIS
57	A1	128	HIS
57	A1	227	GLN
57	A2	23	HIS
57	A2	227	GLN
58	B1	45	ASN
58	B1	364	HIS
58	B1	424	ASN

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Mol	Chain	Res	Type
58	B1	450	HIS
58	B1	469	HIS
58	B1	805	GLN
58	B1	817	HIS
58	B1	865	HIS
58	B1	1195	GLN
58	B1	1238	GLN
58	B1	1259	GLN
59	B2	69	GLN
59	B2	314	ASN
59	B2	330	HIS
59	B2	343	HIS
59	B2	518	ASN
59	B2	554	HIS
59	B2	688	GLN
59	B2	808	ASN
59	B2	1237	HIS
59	B2	1268	GLN
59	B2	1313	HIS
60	W0	7	GLN
60	W0	31	GLN
65	0	198	GLN
65	0	344	ASN
65	0	367	HIS
65	0	465	HIS
65	0	496	GLN
65	0	514	GLN
65	0	579	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
51	1	2902/2904 (99%)	398 (13%)	15 (0%)
52	2	119/120 (99%)	17 (14%)	2 (1%)
53	3	1538/1542 (99%)	253 (16%)	4 (0%)
54	4	37/44 (84%)	21 (56%)	2 (5%)
63	5	75/76 (98%)	39 (52%)	6 (8%)
64	6	76/77 (98%)	27 (35%)	2 (2%)
All	All	4747/4763 (99%)	755 (15%)	31 (0%)

All (755) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
51	1	10	A
51	1	12	U
51	1	34	U
51	1	35	G
51	1	46	G
51	1	51	G
51	1	55	G
51	1	63	A
51	1	71	A
51	1	74	A
51	1	75	G
51	1	102	U
51	1	103	A
51	1	119	A
51	1	120	U
51	1	139	U
51	1	140	C
51	1	141	G
51	1	149	A
51	1	162	U
51	1	163	C
51	1	178	G
51	1	196	A
51	1	199	A
51	1	216	A
51	1	221	A
51	1	222	A
51	1	229	C
51	1	248	G
51	1	255	A
51	1	265	A
51	1	266	G
51	1	276	U
51	1	281	C
51	1	285	G
51	1	294	A
51	1	323	C
51	1	329	G
51	1	330	A
51	1	353	C
51	1	361	G
51	1	362	A
51	1	371	A

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Mol	Chain	Res	Type
51	1	372	G
51	1	386	G
51	1	387	U
51	1	396	G
51	1	404	A
51	1	406	G
51	1	411	G
51	1	424	G
51	1	451	U
51	1	457	A
51	1	481	G
51	1	482	A
51	1	491	G
51	1	504	A
51	1	505	A
51	1	526	A
51	1	529	A
51	1	531	C
51	1	532	A
51	1	533	G
51	1	544	C
51	1	545	U
51	1	546	U
51	1	547	A
51	1	562	U
51	1	563	A
51	1	573	U
51	1	574	A
51	1	575	A
51	1	603	A
51	1	614	A
51	1	616	A
51	1	627	A
51	1	637	A
51	1	646	U
51	1	647	G
51	1	654	A
51	1	669	G
51	1	671	C
51	1	677	A
51	1	686	U
51	1	687	C

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Mol	Chain	Res	Type
51	1	695	G
51	1	730	A
51	1	745	G
51	1	747	C
51	1	758	C
51	1	764	A
51	1	765	C
51	1	775	G
51	1	782	A
51	1	784	G
51	1	785	G
51	1	789	A
51	1	791	C
51	1	792	A
51	1	801	G
51	1	805	G
51	1	812	C
51	1	819	A
51	1	827	U
51	1	828	U
51	1	829	A
51	1	830	G
51	1	845	A
51	1	846	U
51	1	858	G
51	1	860	U
51	1	878	A
51	1	887	U
51	1	896	A
51	1	910	A
51	1	911	A
51	1	932	U
51	1	941	A
51	1	946	C
51	1	961	C
51	1	968	C
51	1	974	G
51	1	981	A
51	1	983	A
51	1	985	C
51	1	995	C
51	1	996	A

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Mol	Chain	Res	Type
51	1	1005	C
51	1	1012	U
51	1	1013	C
51	1	1021	A
51	1	1022	G
51	1	1031	G
51	1	1033	U
51	1	1045	C
51	1	1046	A
51	1	1047	G
51	1	1057	A
51	1	1058	U
51	1	1060	U
51	1	1061	U
51	1	1063	G
51	1	1065	U
51	1	1066	U
51	1	1068	G
51	1	1069	A
51	1	1070	A
51	1	1071	G
51	1	1073	A
51	1	1075	C
51	1	1078	U
51	1	1083	U
51	1	1084	A
51	1	1086	A
51	1	1088	A
51	1	1104	C
51	1	1111	A
51	1	1131	G
51	1	1132	U
51	1	1133	A
51	1	1135	C
51	1	1139	G
51	1	1142	A
51	1	1143	A
51	1	1157	G
51	1	1175	A
51	1	1177	G
51	1	1178	C
51	1	1180	U

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Mol	Chain	Res	Type
51	1	1186	G
51	1	1212	G
51	1	1225	G
51	1	1253	A
51	1	1256	G
51	1	1271	G
51	1	1272	A
51	1	1273	U
51	1	1289	C
51	1	1294	U
51	1	1300	G
51	1	1301	A
51	1	1345	C
51	1	1352	U
51	1	1365	A
51	1	1378	A
51	1	1379	U
51	1	1383	A
51	1	1406	U
51	1	1416	G
51	1	1419	A
51	1	1420	A
51	1	1427	A
51	1	1429	G
51	1	1452	G
51	1	1453	A
51	1	1461	C
51	1	1482	G
51	1	1490	A
51	1	1491	G
51	1	1497	U
51	1	1504	A
51	1	1515	A
51	1	1524	G
51	1	1533	C
51	1	1535	A
51	1	1536	C
51	1	1537	G
51	1	1555	G
51	1	1560	G
51	1	1565	C
51	1	1569	A

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Mol	Chain	Res	Type
51	1	1578	U
51	1	1583	A
51	1	1608	A
51	1	1616	A
51	1	1634	A
51	1	1647	U
51	1	1648	U
51	1	1674	G
51	1	1698	A
51	1	1699	G
51	1	1703	G
51	1	1715	G
51	1	1716	U
51	1	1729	U
51	1	1730	C
51	1	1732	C
51	1	1738	G
51	1	1758	U
51	1	1764	C
51	1	1773	A
51	1	1783	A
51	1	1784	A
51	1	1786	A
51	1	1800	C
51	1	1801	A
51	1	1802	A
51	1	1808	A
51	1	1809	A
51	1	1816	C
51	1	1829	A
51	1	1833	C
51	1	1834	U
51	1	1870	C
51	1	1871	A
51	1	1901	A
51	1	1906	G
51	1	1913	A
51	1	1914	C
51	1	1929	G
51	1	1931	U
51	1	1936	A
51	1	1937	A

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Mol	Chain	Res	Type
51	1	1938	A
51	1	1939	U
51	1	1943	U
51	1	1955	U
51	1	1967	C
51	1	1970	A
51	1	1971	U
51	1	1972	G
51	1	1990	C
51	1	1993	U
51	1	1997	C
51	1	2020	A
51	1	2022	U
51	1	2023	C
51	1	2024	G
51	1	2027	G
51	1	2030	A
51	1	2031	A
51	1	2033	A
51	1	2034	U
51	1	2043	C
51	1	2052	A
51	1	2055	C
51	1	2056	G
51	1	2060	A
51	1	2061	G
51	1	2069	G
51	1	2093	G
51	1	2096	C
51	1	2100	G
51	1	2110	G
51	1	2111	U
51	1	2118	U
51	1	2119	A
51	1	2123	G
51	1	2128	G
51	1	2131	U
51	1	2132	U
51	1	2133	G
51	1	2134	A
51	1	2137	U
51	1	2141	G

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Mol	Chain	Res	Type
51	1	2145	C
51	1	2149	U
51	1	2162	G
51	1	2164	C
51	1	2166	U
51	1	2172	U
51	1	2173	A
51	1	2174	C
51	1	2189	U
51	1	2192	U
51	1	2198	A
51	1	2204	G
51	1	2211	A
51	1	2213	U
51	1	2225	A
51	1	2238	G
51	1	2239	G
51	1	2243	U
51	1	2268	A
51	1	2275	C
51	1	2279	G
51	1	2283	C
51	1	2287	A
51	1	2288	A
51	1	2305	U
51	1	2309	A
51	1	2325	G
51	1	2326	C
51	1	2327	A
51	1	2333	A
51	1	2334	U
51	1	2345	G
51	1	2350	C
51	1	2382	G
51	1	2383	G
51	1	2385	C
51	1	2392	A
51	1	2402	U
51	1	2406	A
51	1	2407	A
51	1	2423	U
51	1	2426	A

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Mol	Chain	Res	Type
51	1	2427	C
51	1	2429	G
51	1	2430	A
51	1	2435	A
51	1	2436	G
51	1	2440	C
51	1	2441	U
51	1	2445	G
51	1	2447	G
51	1	2448	A
51	1	2476	A
51	1	2482	A
51	1	2491	U
51	1	2492	U
51	1	2498	C
51	1	2502	G
51	1	2505	G
51	1	2506	U
51	1	2507	C
51	1	2518	A
51	1	2547	A
51	1	2554	U
51	1	2566	A
51	1	2567	G
51	1	2572	A
51	1	2573	C
51	1	2582	G
51	1	2602	A
51	1	2609	U
51	1	2613	U
51	1	2629	U
51	1	2630	G
51	1	2642	G
51	1	2646	C
51	1	2689	U
51	1	2690	U
51	1	2714	G
51	1	2726	A
51	1	2732	G
51	1	2744	G
51	1	2748	A
51	1	2751	G

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Mol	Chain	Res	Type
51	1	2758	A
51	1	2764	A
51	1	2765	A
51	1	2778	A
51	1	2779	U
51	1	2793	C
51	1	2798	U
51	1	2799	A
51	1	2800	A
51	1	2801	G
51	1	2820	A
51	1	2861	U
51	1	2867	G
51	1	2868	A
51	1	2872	A
51	1	2879	A
51	1	2880	C
51	1	2884	U
51	1	2901	C
52	2	9	G
52	2	13	G
52	2	25	U
52	2	30	C
52	2	35	C
52	2	36	C
52	2	44	G
52	2	45	A
52	2	53	A
52	2	67	G
52	2	87	U
52	2	88	C
52	2	89	U
52	2	90	C
52	2	108	A
52	2	109	A
52	2	120	A
53	3	4	U
53	3	5	U
53	3	6	G
53	3	7	A
53	3	9	G
53	3	22	G

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Mol	Chain	Res	Type
53	3	32	A
53	3	39	G
53	3	47	C
53	3	48	C
53	3	51	A
53	3	71	A
53	3	75	G
53	3	77	A
53	3	78	A
53	3	80	A
53	3	83	C
53	3	84	U
53	3	87	C
53	3	88	U
53	3	94	G
53	3	95	C
53	3	100	G
53	3	108	G
53	3	116	A
53	3	121	U
53	3	127	G
53	3	130	A
53	3	144	G
53	3	163	C
53	3	183	C
53	3	197	A
53	3	206	C
53	3	208	U
53	3	210	C
53	3	211	G
53	3	212	G
53	3	222	C
53	3	226	G
53	3	240	G
53	3	245	U
53	3	247	G
53	3	251	G
53	3	263	A
53	3	264	C
53	3	266	G
53	3	267	C
53	3	279	A

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Mol	Chain	Res	Type
53	3	280	C
53	3	281	G
53	3	289	G
53	3	293	G
53	3	321	A
53	3	328	C
53	3	329	A
53	3	330	C
53	3	345	C
53	3	347	G
53	3	348	G
53	3	352	C
53	3	353	A
53	3	354	G
53	3	363	A
53	3	367	U
53	3	372	C
53	3	374	A
53	3	388	G
53	3	397	A
53	3	398	U
53	3	405	U
53	3	406	G
53	3	412	A
53	3	413	G
53	3	422	C
53	3	423	G
53	3	428	G
53	3	429	U
53	3	446	G
53	3	453	G
53	3	467	U
53	3	468	A
53	3	472	U
53	3	479	U
53	3	480	U
53	3	481	G
53	3	484	G
53	3	485	U
53	3	486	U
53	3	487	A
53	3	496	A

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Mol	Chain	Res	Type
53	3	497	G
53	3	505	G
53	3	508	U
53	3	509	A
53	3	511	C
53	3	518	C
53	3	521	G
53	3	522	C
53	3	531	U
53	3	532	A
53	3	533	A
53	3	536	C
53	3	547	A
53	3	561	U
53	3	562	U
53	3	564	C
53	3	566	G
53	3	572	A
53	3	573	A
53	3	575	G
53	3	576	C
53	3	577	G
53	3	607	A
53	3	615	G
53	3	633	G
53	3	639	G
53	3	642	A
53	3	653	U
53	3	655	A
53	3	660	C
53	3	665	A
53	3	682	G
53	3	688	G
53	3	702	A
53	3	703	G
53	3	718	A
53	3	721	G
53	3	723	U
53	3	724	G
53	3	731	G
53	3	734	G
53	3	755	G

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Mol	Chain	Res	Type
53	3	777	A
53	3	793	U
53	3	799	G
53	3	809	G
53	3	815	A
53	3	817	C
53	3	818	G
53	3	819	A
53	3	820	U
53	3	821	G
53	3	829	G
53	3	836	G
53	3	843	U
53	3	844	G
53	3	845	A
53	3	846	G
53	3	849	G
53	3	851	G
53	3	868	C
53	3	902	G
53	3	914	A
53	3	934	C
53	3	935	A
53	3	960	U
53	3	961	U
53	3	966	G
53	3	969	A
53	3	971	G
53	3	975	A
53	3	976	G
53	3	977	A
53	3	991	U
53	3	992	U
53	3	993	G
53	3	1004	A
53	3	1020	G
53	3	1028	C
53	3	1031	C
53	3	1032	G
53	3	1033	G
53	3	1034	G
53	3	1036	A

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Mol	Chain	Res	Type
53	3	1053	G
53	3	1054	C
53	3	1055	A
53	3	1085	U
53	3	1094	G
53	3	1095	U
53	3	1099	G
53	3	1101	A
53	3	1108	G
53	3	1133	G
53	3	1136	C
53	3	1137	C
53	3	1139	G
53	3	1158	C
53	3	1159	U
53	3	1168	U
53	3	1171	A
53	3	1182	G
53	3	1183	U
53	3	1184	G
53	3	1195	C
53	3	1196	A
53	3	1197	A
53	3	1202	U
53	3	1206	G
53	3	1224	U
53	3	1225	A
53	3	1226	C
53	3	1227	A
53	3	1237	C
53	3	1238	A
53	3	1240	U
53	3	1241	G
53	3	1250	A
53	3	1256	A
53	3	1260	G
53	3	1261	A
53	3	1275	A
53	3	1278	G
53	3	1280	A
53	3	1281	C
53	3	1282	C

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Mol	Chain	Res	Type
53	3	1286	U
53	3	1287	A
53	3	1290	G
53	3	1300	G
53	3	1302	C
53	3	1305	G
53	3	1312	G
53	3	1317	C
53	3	1322	C
53	3	1331	G
53	3	1335	U
53	3	1336	C
53	3	1340	A
53	3	1363	A
53	3	1370	G
53	3	1379	G
53	3	1394	A
53	3	1400	C
53	3	1404	C
53	3	1419	G
53	3	1429	A
53	3	1446	A
53	3	1448	C
53	3	1452	C
53	3	1453	G
53	3	1487	G
53	3	1492	A
53	3	1497	G
53	3	1499	A
53	3	1503	A
53	3	1506	U
53	3	1507	A
53	3	1517	G
53	3	1518	A
53	3	1519	A
53	3	1529	G
53	3	1530	G
54	4	2	U
54	4	3	G
54	4	6	U
54	4	7	C
54	4	9	U

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Mol	Chain	Res	Type
54	4	10	C
54	4	11	U
54	4	12	U
54	4	14	U
54	4	15	U
54	4	18	U
54	4	19	U
54	4	20	U
54	4	21	U
54	4	22	U
54	4	24	U
54	4	25	U
54	4	26	U
54	4	33	U
54	4	34	U
54	4	35	U
63	5	2	C
63	5	7	A
63	5	8	U
63	5	9	A
63	5	11	C
63	5	13	C
63	5	15	G
63	5	17	C
63	5	18	G
63	5	19	G
63	5	20	U
63	5	21	A
63	5	26	A
63	5	28	G
63	5	29	G
63	5	30	G
63	5	32	U
63	5	33	U
63	5	34	G
63	5	36	A
63	5	37	A
63	5	39	U
63	5	40	C
63	5	43	C
63	5	44	G
63	5	46	G

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Mol	Chain	Res	Type
63	5	47	U
63	5	48	C
63	5	49	C
63	5	52	G
63	5	57	G
63	5	58	A
63	5	59	U
63	5	60	U
63	5	61	C
63	5	66	U
63	5	73	A
63	5	74	C
63	5	75	C
64	6	2	G
64	6	7	G
64	6	8	U
64	6	9	G
64	6	19	G
64	6	20	U
64	6	21	A
64	6	22	G
64	6	30	G
64	6	33	U
64	6	34	C
64	6	35	A
64	6	36	U
64	6	42	G
64	6	45	G
64	6	54	U
64	6	55	U
64	6	56	C
64	6	57	A
64	6	64	G
64	6	67	C
64	6	68	C
64	6	70	G
64	6	73	A
64	6	74	C
64	6	75	C
64	6	76	A

All (31) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
51	1	481	G
51	1	490	C
51	1	685	A
51	1	764	A
51	1	784	G
51	1	827	U
51	1	859	G
51	1	1020	A
51	1	1130	U
51	1	1715	G
51	1	1783	A
51	1	1801	A
51	1	1930	G
51	1	2275	C
51	1	2326	C
52	2	12	C
52	2	88	C
53	3	4	U
53	3	1035	A
53	3	1139	G
53	3	1224	U
54	4	14	U
54	4	19	U
63	5	7	A
63	5	32	U
63	5	39	U
63	5	48	C
63	5	57	G
63	5	60	U
64	6	33	U
64	6	56	C

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 for Mogul analysis.

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
67	GCP	0	800	-	27,34,34	4.79	10 (37%)	34,54,54	1.63	6 (17%)

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
67	GCP	0	800	-	-	6/15/38/38	0/3/3/3

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
67	0	800	GCP	O4'-C1'	15.45	1.62	1.41
67	0	800	GCP	C2'-C1'	-14.92	1.31	1.53
67	0	800	GCP	PB-O3A	6.43	1.65	1.58
67	0	800	GCP	O4'-C4'	-6.18	1.31	1.45
67	0	800	GCP	C2-N2	5.52	1.44	1.33
67	0	800	GCP	O2'-C2'	2.88	1.49	1.43
67	0	800	GCP	O3'-C3'	-2.75	1.36	1.43
67	0	800	GCP	C5-C4	-2.73	1.33	1.40
67	0	800	GCP	O6-C6	-2.46	1.18	1.24
67	0	800	GCP	PB-O2B	-2.14	1.51	1.56

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
67	0	800	GCP	N3-C2-N1	-5.20	120.29	127.22
67	0	800	GCP	C2-N3-C4	4.29	120.26	115.36
67	0	800	GCP	N2-C2-N3	2.85	122.44	117.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
67	0	800	GCP	C3'-C2'-C1'	2.32	104.47	100.98
67	0	800	GCP	C5-C6-N1	-2.30	120.29	123.43
67	0	800	GCP	C2-N1-C6	2.26	119.52	115.93

There are no chirality outliers.

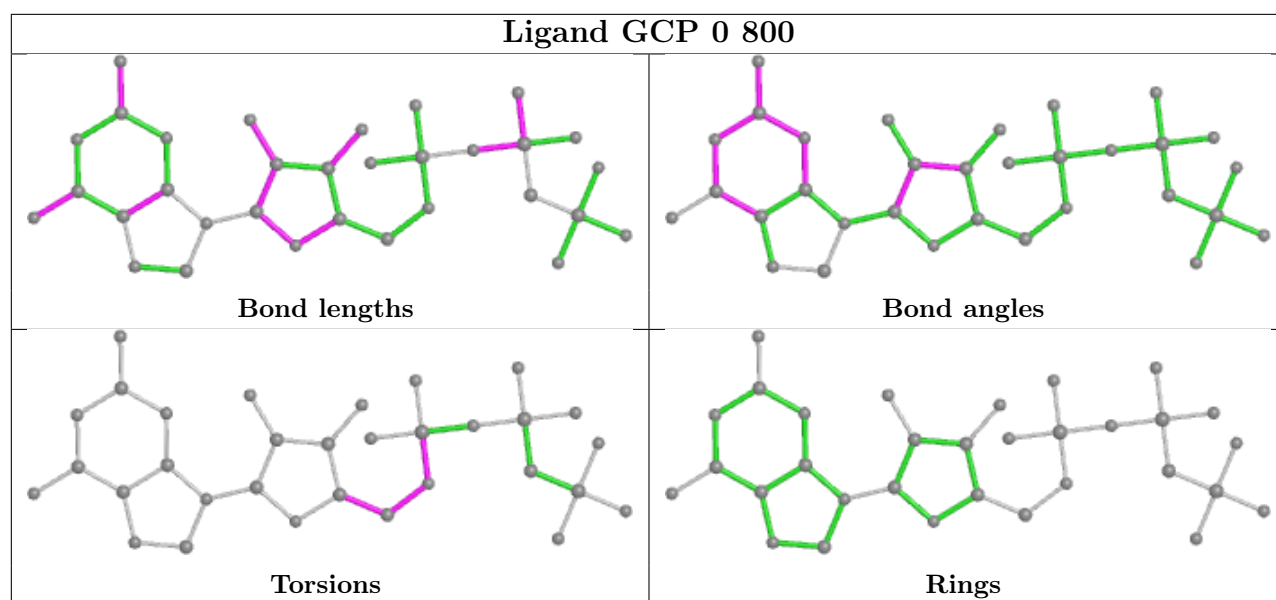
All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
67	0	800	GCP	C5'-O5'-PA-O1A
67	0	800	GCP	C5'-O5'-PA-O2A
67	0	800	GCP	O4'-C4'-C5'-O5'
67	0	800	GCP	C3'-C4'-C5'-O5'
67	0	800	GCP	C4'-C5'-O5'-PA
67	0	800	GCP	C5'-O5'-PA-O3A

There are no ring outliers.

No monomer is involved in short contacts.

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.

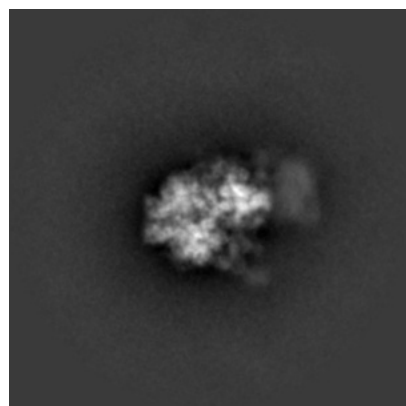
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-38948. These allow visual inspection of the internal detail of the map and identification of artifacts.

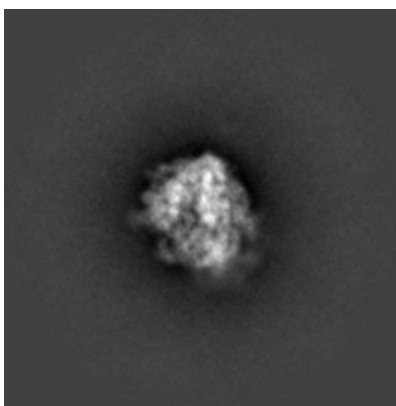
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

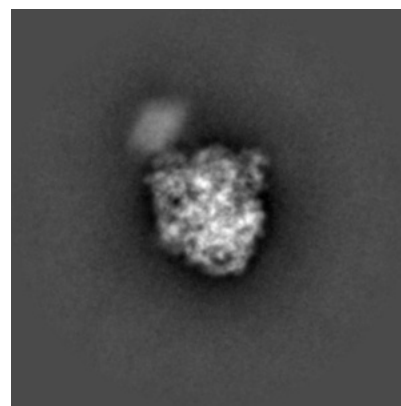
6.1.1 Primary map



X

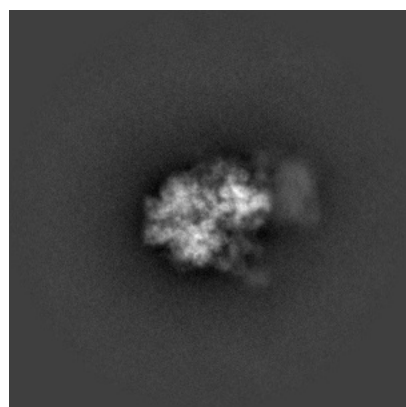


Y

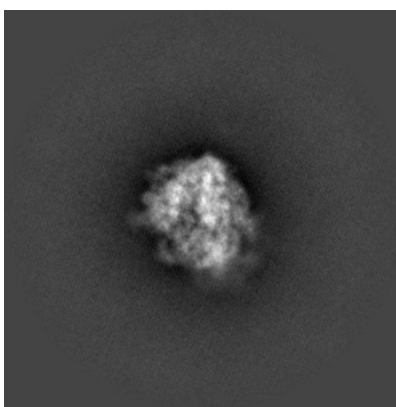


Z

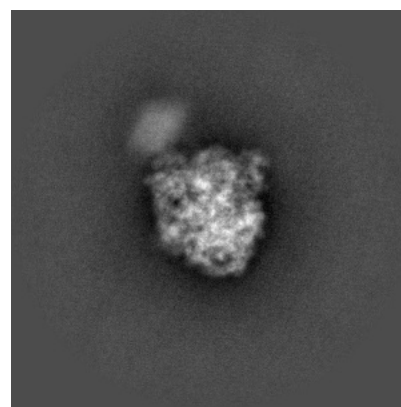
6.1.2 Raw map



X



Y

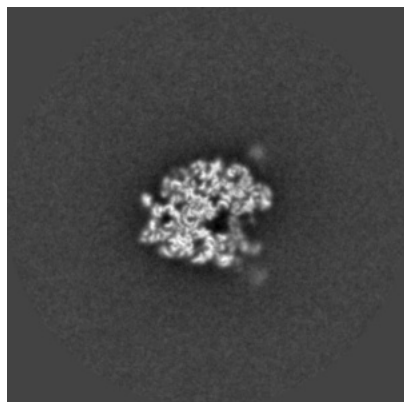


Z

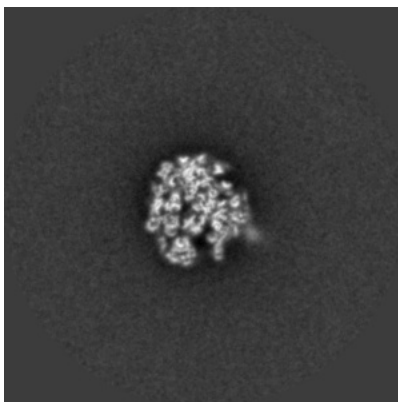
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

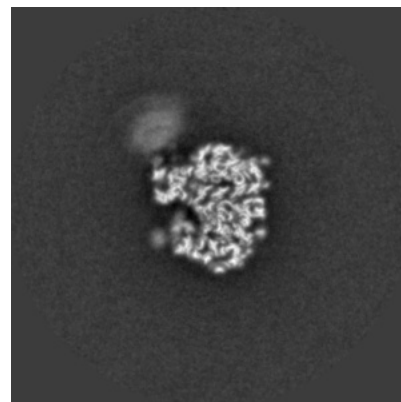
6.2.1 Primary map



X Index: 240

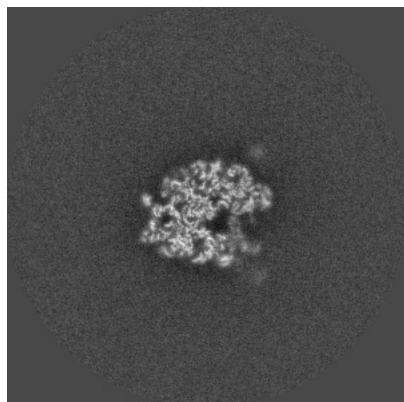


Y Index: 240

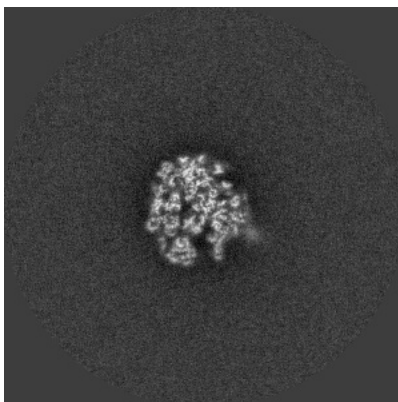


Z Index: 240

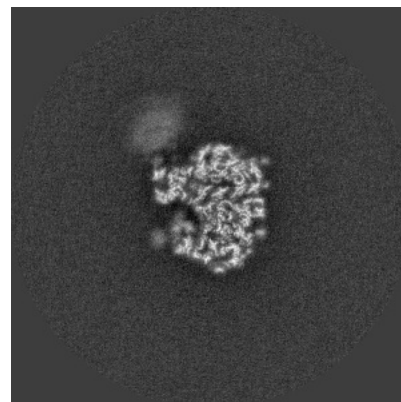
6.2.2 Raw map



X Index: 240



Y Index: 240

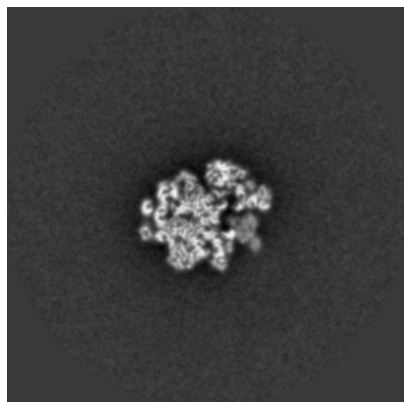


Z Index: 240

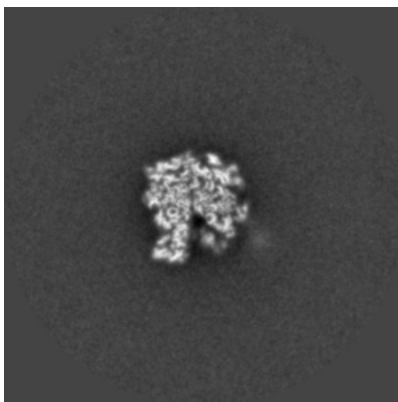
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

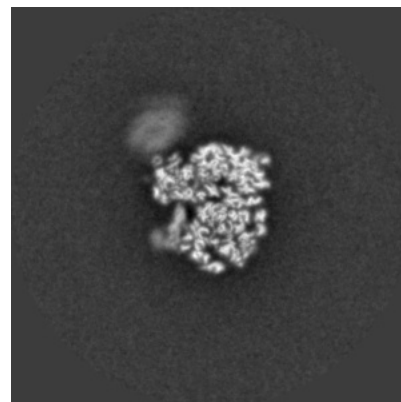
6.3.1 Primary map



X Index: 252

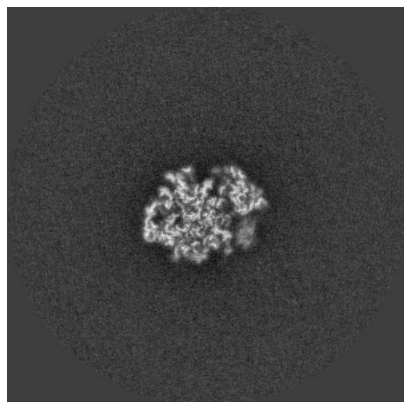


Y Index: 223

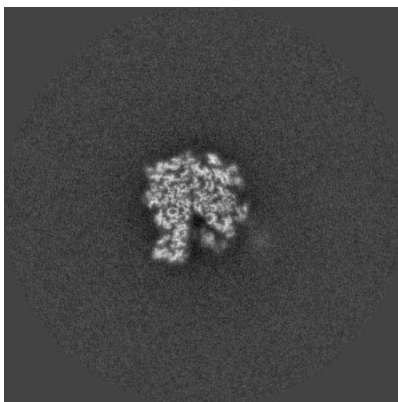


Z Index: 245

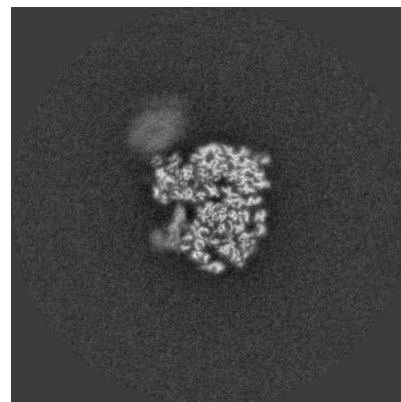
6.3.2 Raw map



X Index: 265



Y Index: 223

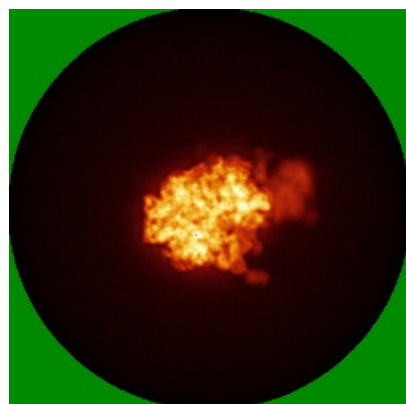


Z Index: 245

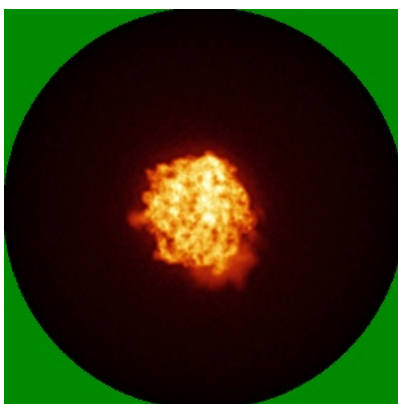
The images above show the largest variance slices of the map in three orthogonal directions.

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

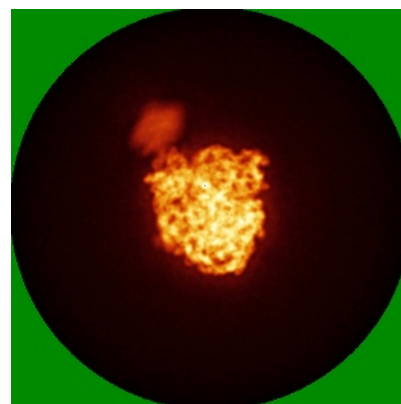
6.4.1 Primary map



X

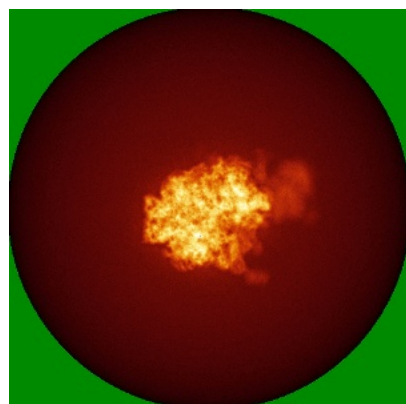


Y

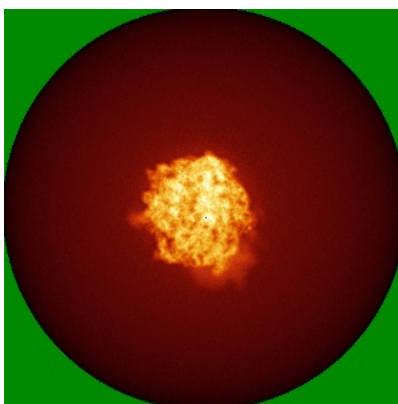


Z

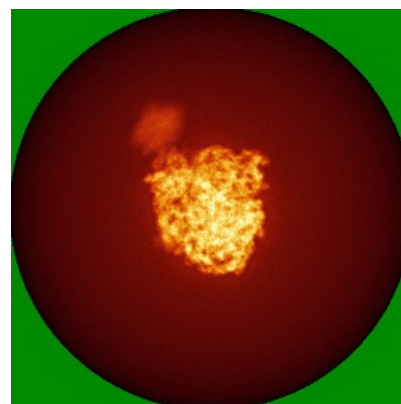
6.4.2 Raw map



X



Y

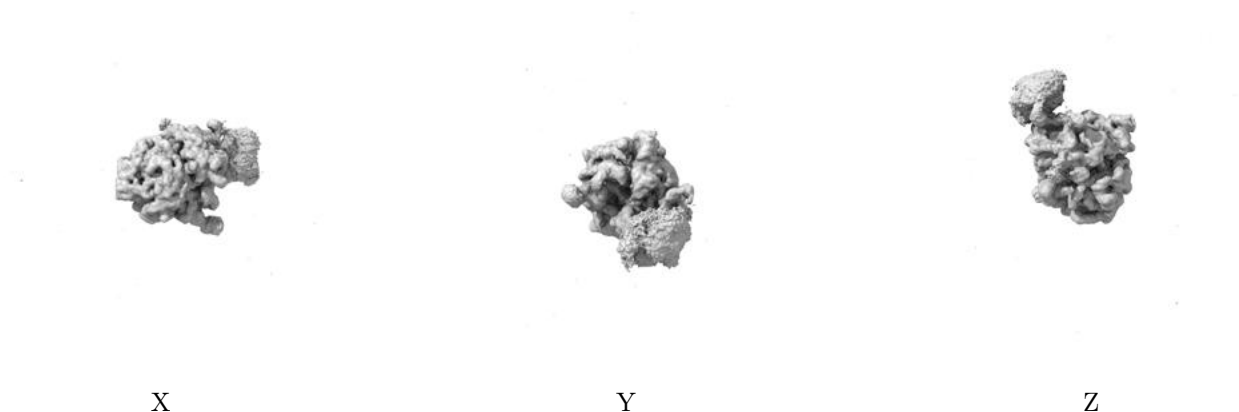


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

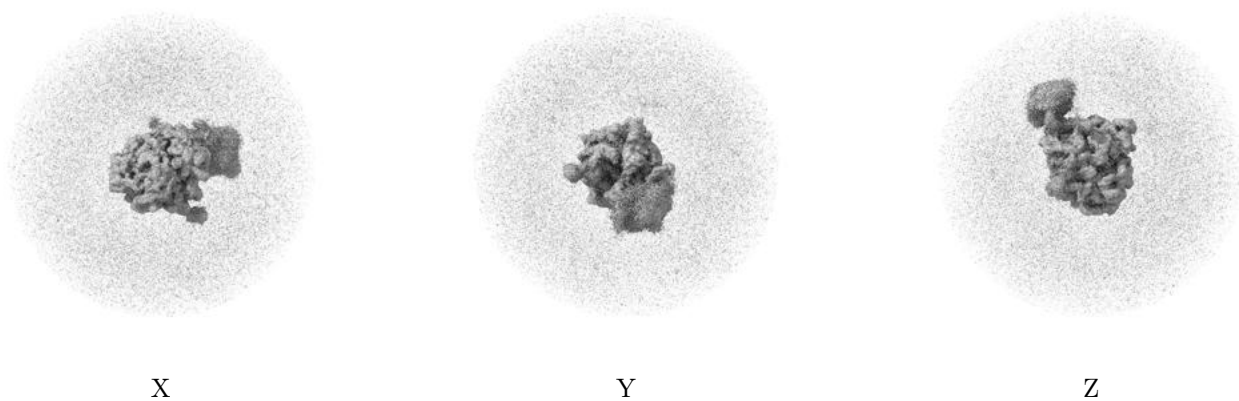
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.007. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

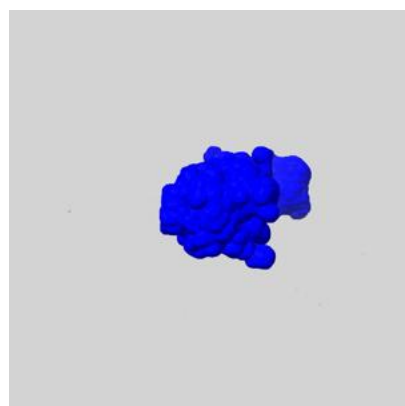
6.6 Mask visualisation [i](#)

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

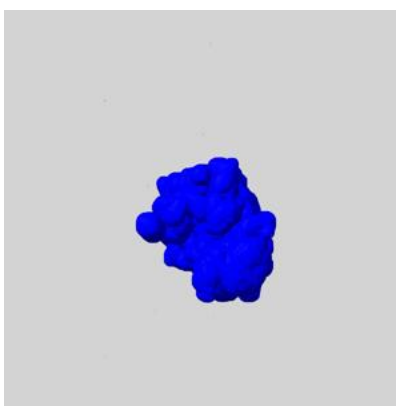
A mask typically either:

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

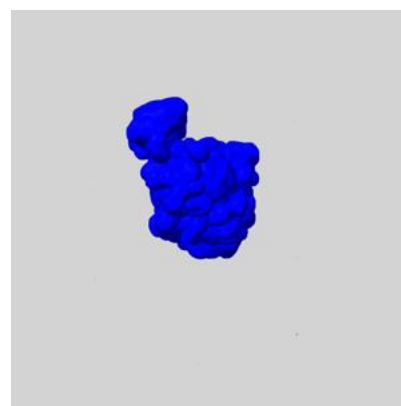
6.6.1 emd_38948_msk_1.map [i](#)



X



Y

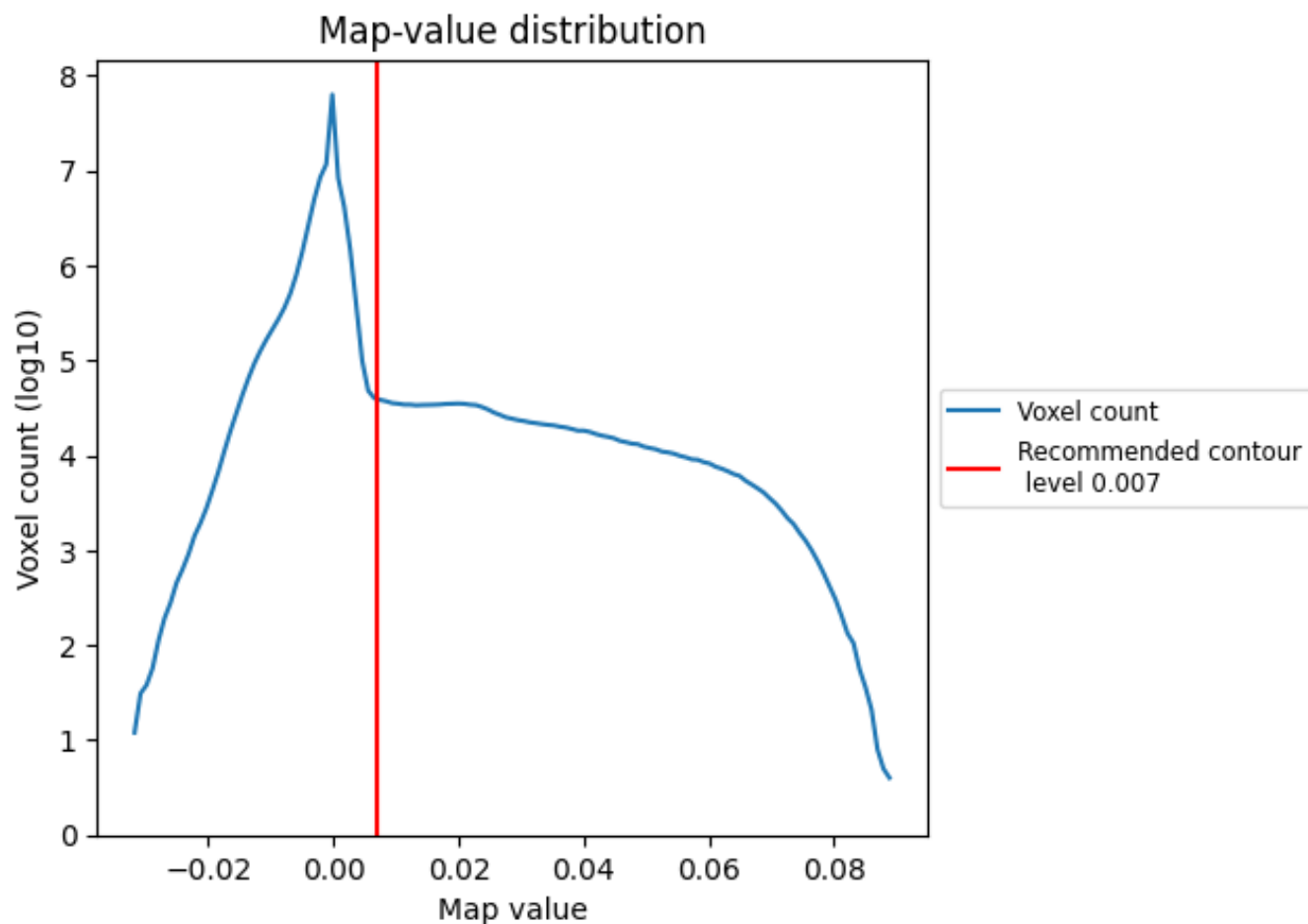


Z

7 Map analysis [i](#)

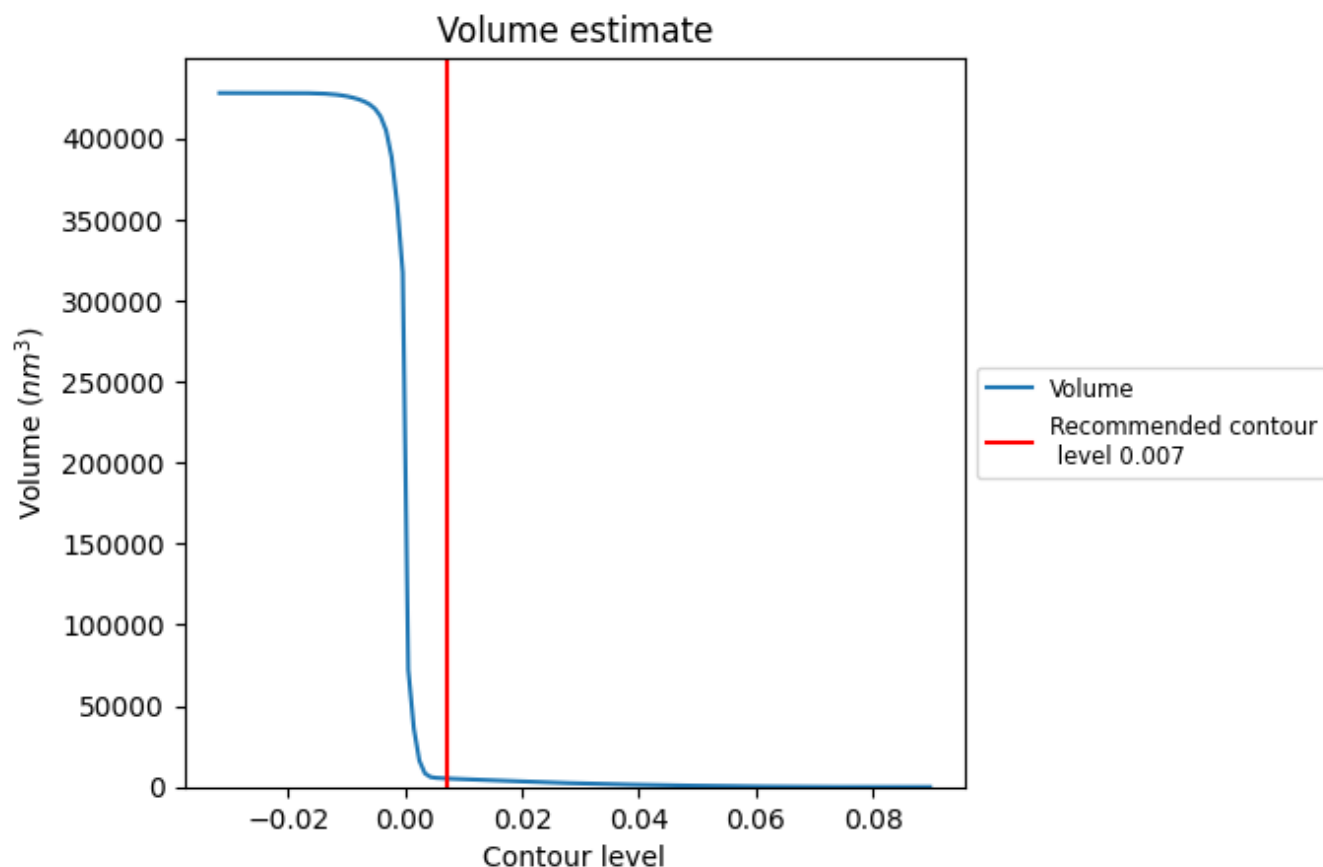
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

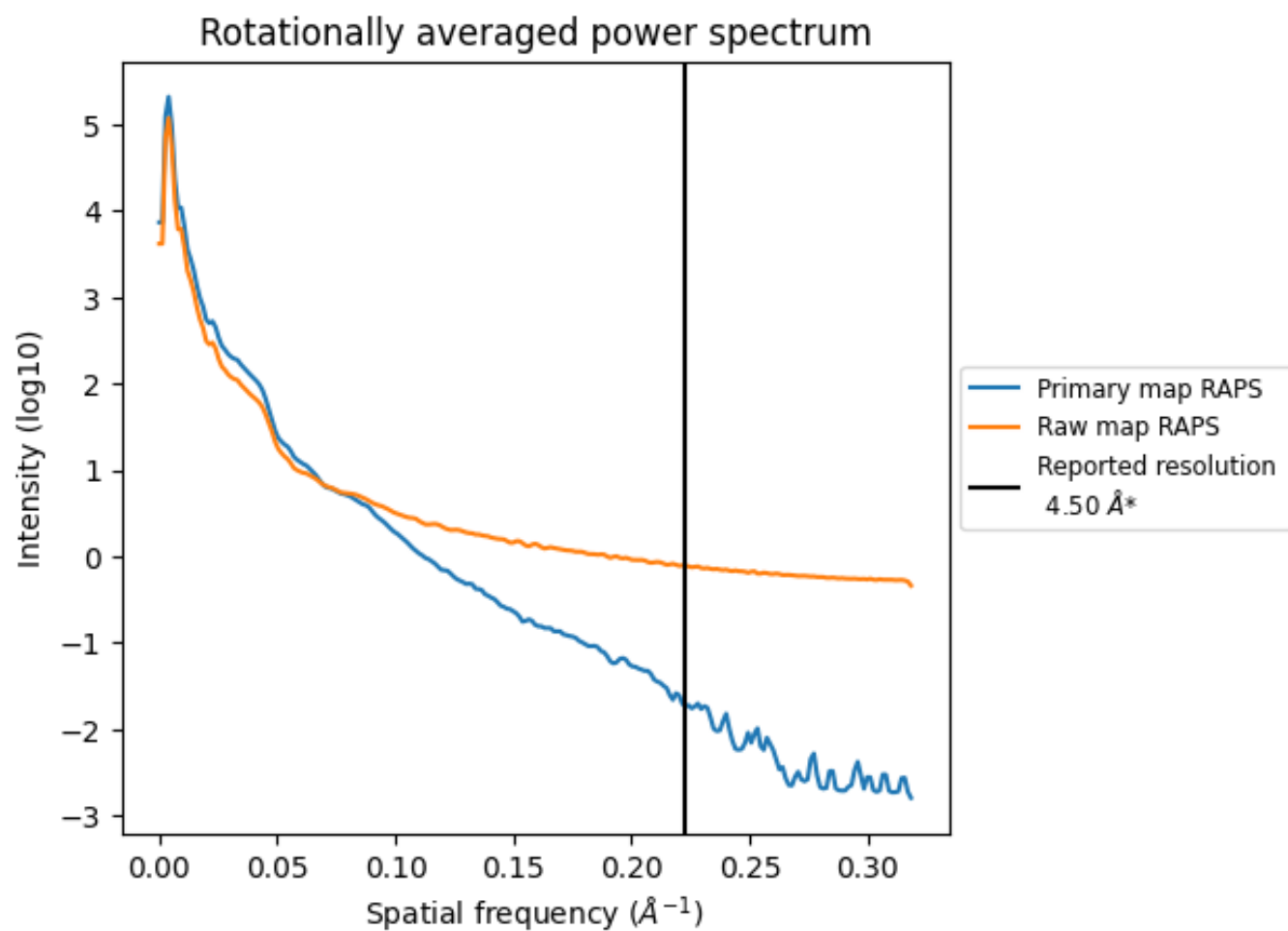
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 5249 nm^3 ; this corresponds to an approximate mass of 4741 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

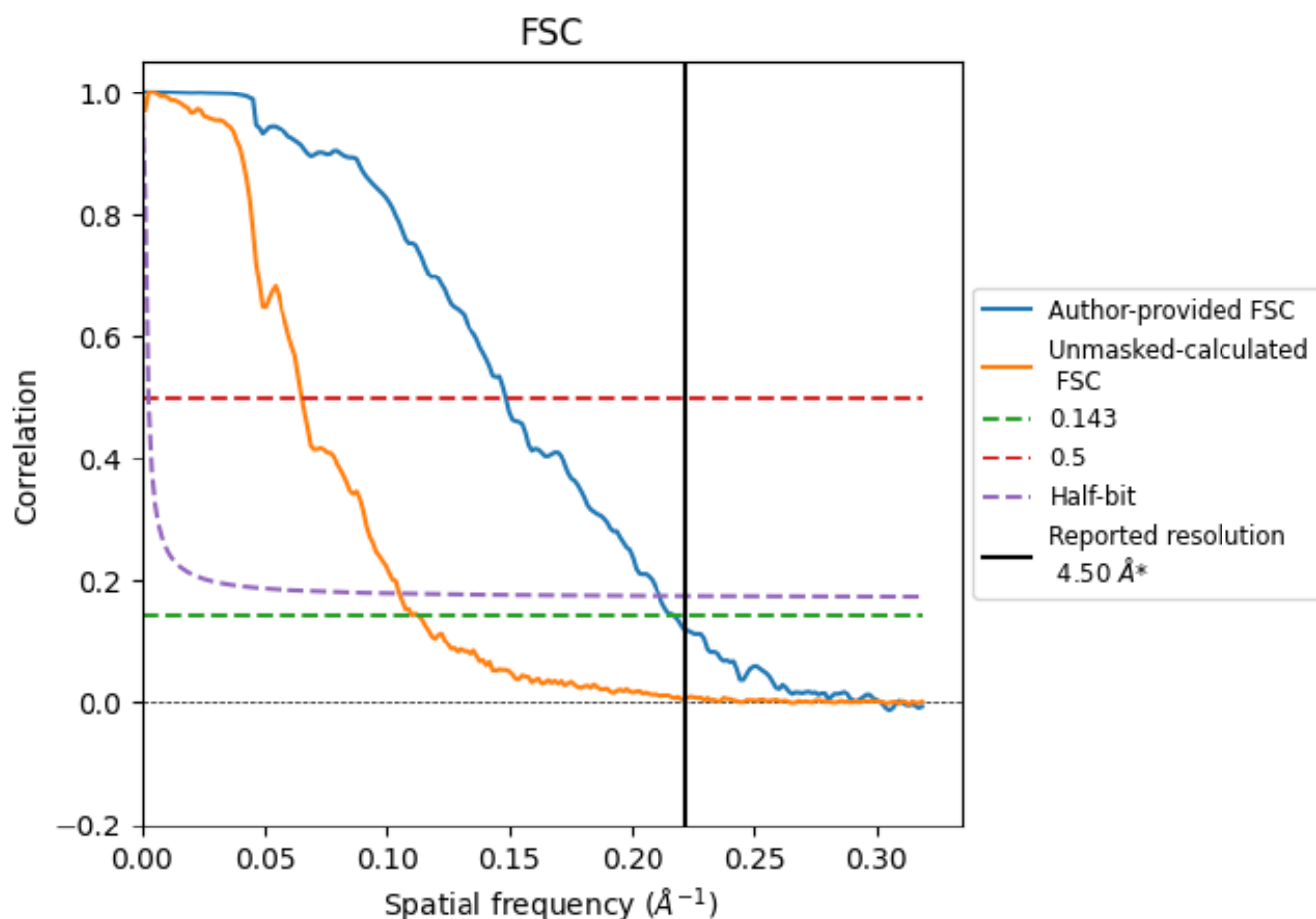


*Reported resolution corresponds to spatial frequency of 0.222 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.222 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

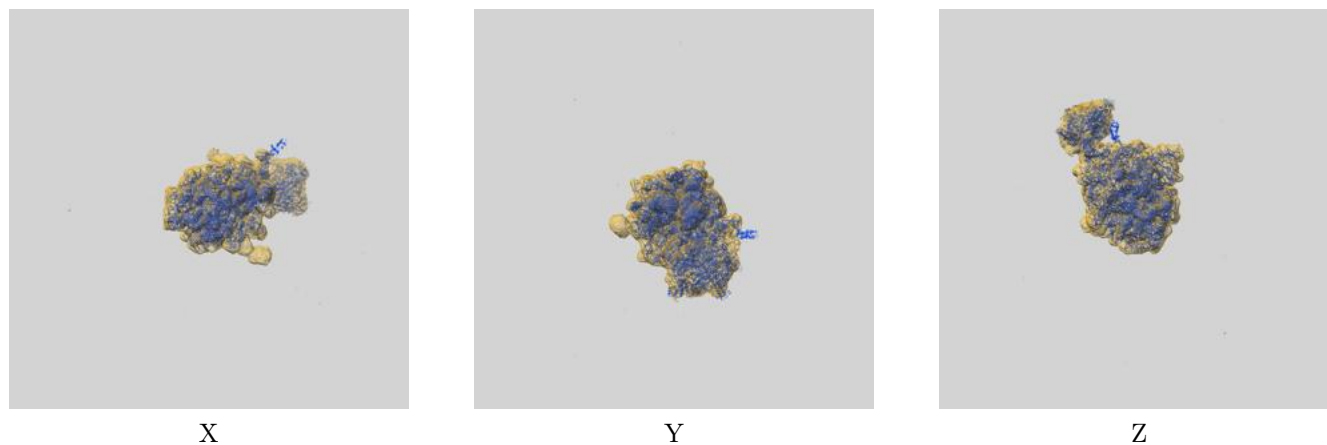
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.50	-	-
Author-provided FSC curve	4.60	6.73	4.73
Unmasked-calculated*	8.87	15.31	9.52

*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 8.87 differs from the reported value 4.5 by more than 10 %

9 Map-model fit [i](#)

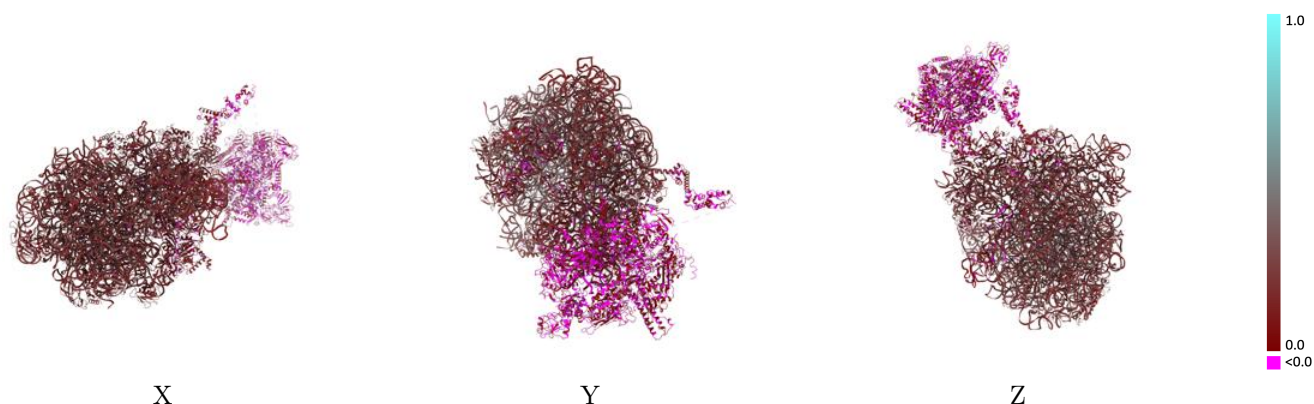
This section contains information regarding the fit between EMDB map EMD-38948 and PDB model 8Y5S. Per-residue inclusion information can be found in section [3](#) on page [17](#).

9.1 Map-model overlay [i](#)



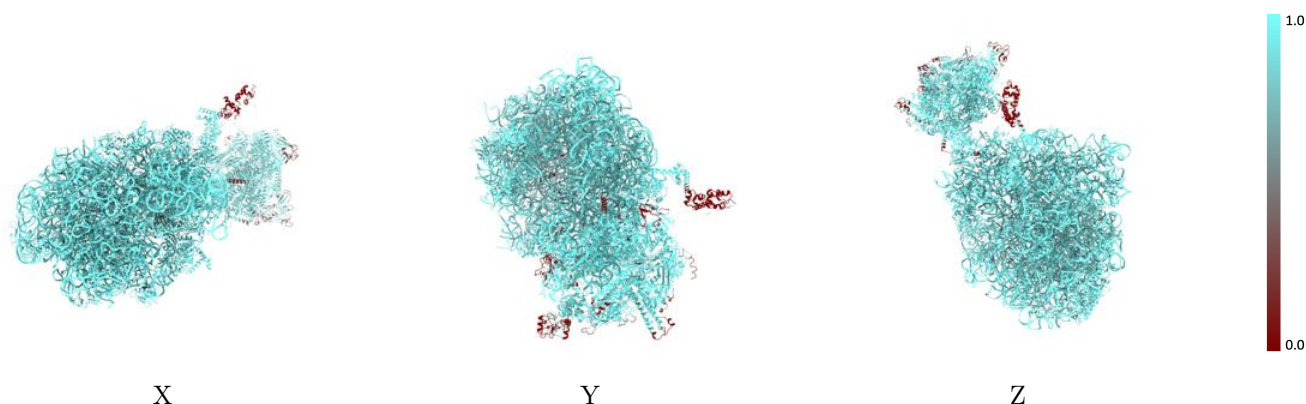
The images above show the 3D surface view of the map at the recommended contour level 0.007 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



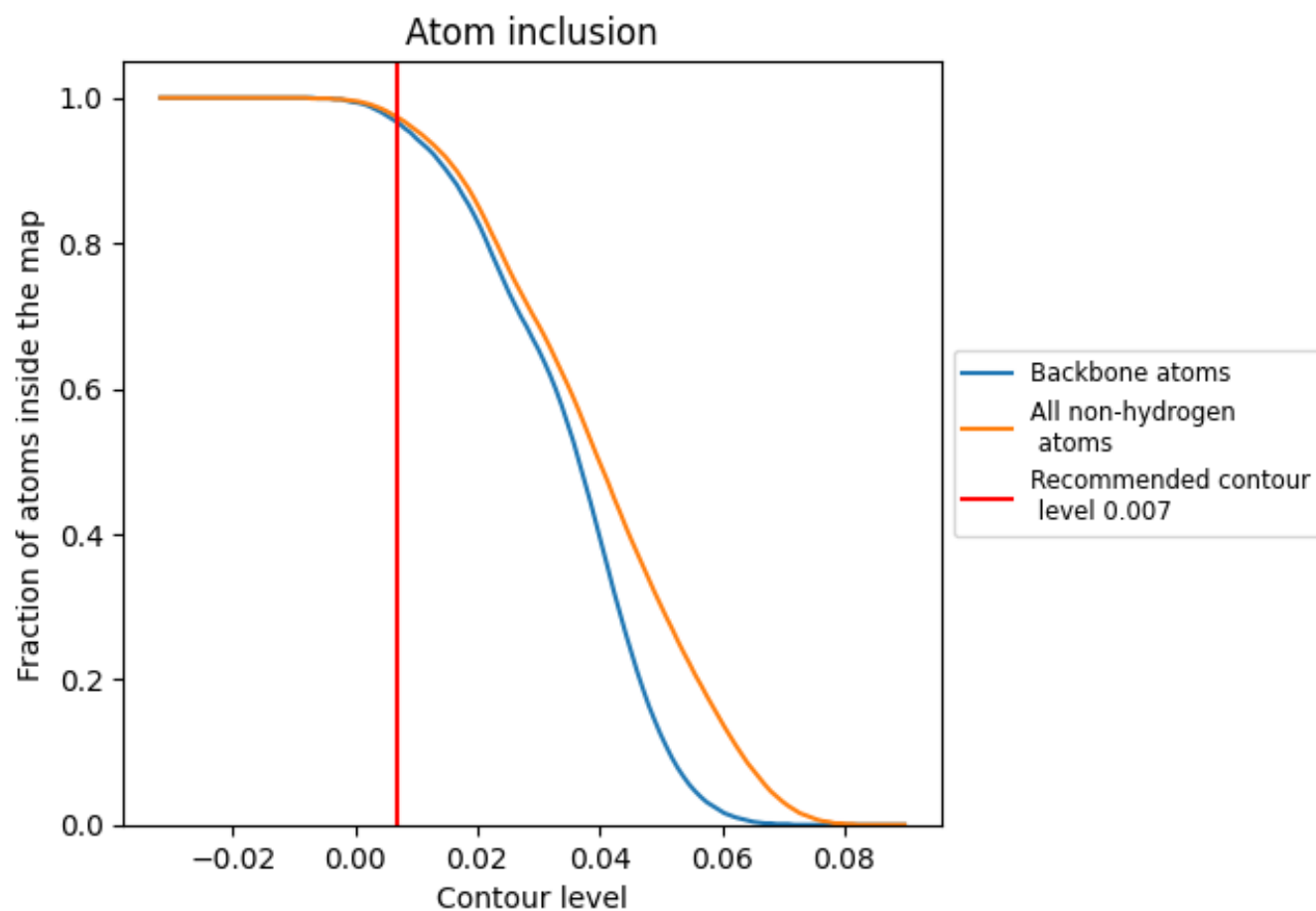
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.007).

9.4 Atom inclusion ⓘ



At the recommended contour level, 97% of all backbone atoms, 97% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.007) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9730	 0.1770
0	 0.9140	 0.1160
1	 1.0000	 0.2320
2	 1.0000	 0.2050
3	 1.0000	 0.2190
4	 0.9520	 0.0440
5	 0.9830	 0.1360
6	 0.8450	 0.0790
8	 1.0000	 0.0170
9	 1.0000	 0.0250
A	 0.9780	 0.1310
A1	 0.7870	 0.0260
A2	 0.8240	 0.0550
B	 0.9950	 0.1850
B1	 0.9140	 0.0240
B2	 0.8720	 0.0340
C	 0.9850	 0.1700
D	 0.9800	 0.1680
E	 1.0000	 0.1560
F	 1.0000	 0.1470
G	 0.9920	 0.1820
H	 0.9860	 0.1730
I	 0.9980	 0.1540
J	 0.9970	 0.1910
K	 0.9950	 0.1910
L	 0.9950	 0.1830
M	 0.9900	 0.1790
N	 0.9990	 0.1590
NA	 0.8340	 0.1390
NG	 0.8920	 0.0610
O	 1.0000	 0.1500
P	 0.9990	 0.2050
Q	 0.9480	 0.1520
R	 0.9990	 0.1660
S	 0.9990	 0.1460



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Chain	Atom inclusion	Q-score
T	 0.9930	 0.1680
U	 1.0000	 0.1620
V	 0.9910	 0.1830
W	 1.0000	 0.1670
W0	 0.6360	 0.0210
X	 0.9920	 0.1310
Y	 0.9970	 0.1690
Z	 0.9770	 0.1510
b	 0.9950	 0.2210
c	 0.9940	 0.1900
d	 0.9950	 0.1860
e	 0.9910	 0.1620
f	 0.9800	 0.1760
g	 1.0000	 0.1800
i	 0.9630	 0.0880
j	 0.9960	 0.1900
k	 0.9920	 0.2150
l	 1.0000	 0.1770
m	 0.9890	 0.1940
n	 1.0000	 0.1890
o	 1.0000	 0.1550
p	 0.9870	 0.2160
q	 0.9990	 0.1640
r	 1.0000	 0.1860
s	 0.9960	 0.1950
t	 0.9920	 0.1920
u	 0.9970	 0.1700
v	 0.9970	 0.1760
w	 1.0000	 0.1630
x	 1.0000	 0.1960
y	 1.0000	 0.1730
z	 0.9930	 0.1880