Full wwPDB EM Validation Report

Aug 4, 2025 – 10:51 PM JST

PDB ID	:	8Y5R / pdb_00008y5r
EMDB ID	:	EMD-38947
Title	:	E.coli Transcription translation coupling complex in TTC-B state 5 (subclass 1) containing mRNA with 27-mer spacer, NusG, NusA, fMet-tRNA(iMet), Phe-tRNA(Phe), and fusidic acid
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 (i) 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 (1)) were used in the production of this report:

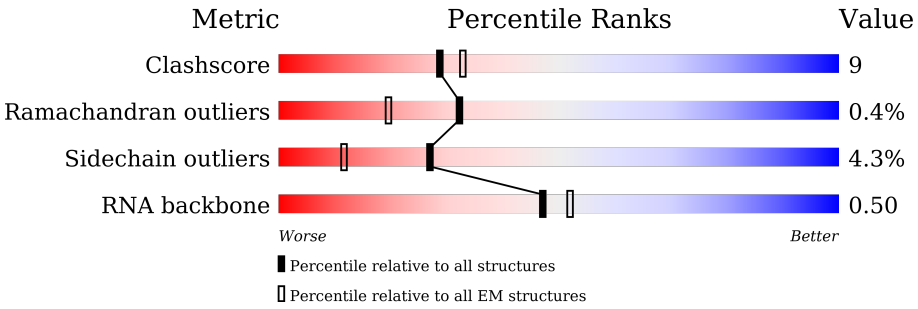
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
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 <=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	80% 14% 6%
2	B	57	77% 21%
3	C	55	84% 7% 9%
4	D	46	76% 22%
5	E	65	92% 5%
6	F	38	74% 24%
7	G	241	66% 23% 10%

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Mol	Chain	Length	Quality of chain
8	H	233	71% 17% 12%
9	I	206	73% 26%
10	J	167	78% 16% 6%
11	K	135	52% 21% 26%
12	L	179	67% 17% 16%
13	M	130	88% 12%
14	N	130	67% 28%
15	O	103	71% 19% 5% 5%
16	P	129	64% 25% 10%
17	Q	124	67% 31%
18	R	118	67% 30%
19	S	101	84% 15%
20	T	89	83% 16%
21	U	82	74% 24%
22	V	84	76% 18% 5%
23	W	75	67% 19% 13%
24	X	92	73% 13% 14%
25	Y	87	76% 22%
26	Z	71	56% 34% 8%
27	b	273	79% 20%
28	c	209	83% 17%
29	d	201	81% 19%
30	e	179	78% 21%
31	f	177	71% 28%
32	g	149	26% 9% 65%

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Mol	Chain	Length	Quality of chain
33	i	142	61% 37%
34	j	142	85% 15%
35	k	123	79% 20%
36	l	144	86% 13%
37	m	136	83% 17%
38	n	127	75% 20% 6%
39	o	117	81% 18%
40	p	115	86% 12%
41	q	118	83% 15%
42	r	103	77% 23%
43	s	110	85% 15%
44	t	100	76% 17% 7%
45	u	104	72% 26%
46	v	94	85% 15%
47	w	85	73% 15% 12%
48	x	78	77% 21%
49	y	63	78% 22%
50	z	59	76% 22%
51	1	2904	43% 51% 7%
52	2	120	76% 20%
53	3	1542	69% 29%
54	4	44	34% 55% 11%
55	8	37	27% 43% 27%
56	9	37	49% 5% 46%
57	A1	329	7% 78% 13% 9%

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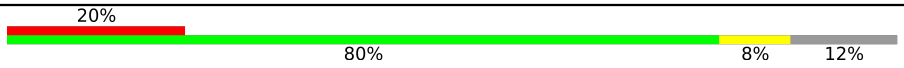
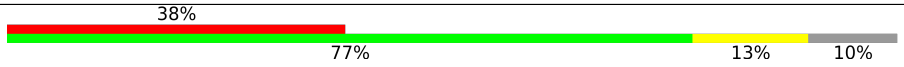
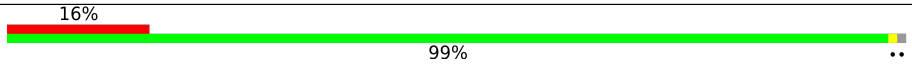
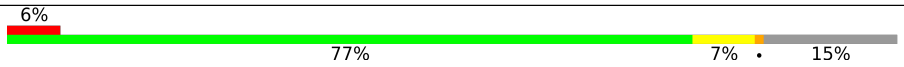
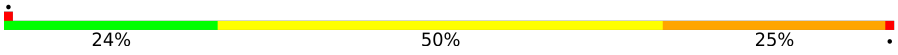
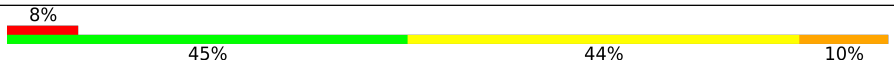
Mol	Chain	Length	Quality of chain
57	A2	329	
58	B1	1407	
59	B2	1342	
60	W0	91	
61	NA	495	
62	NG	181	
63	5	76	
64	6	77	
65	0	716	

2 Entry composition

There are 68 unique types of molecules in this entry. The entry contains 181797 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		

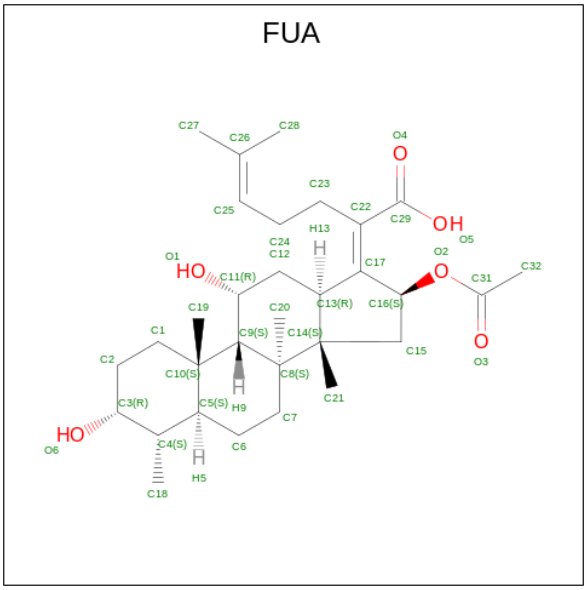
There are 12 discrepancies between the modelled and reference sequences:

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) (labeled as "Ligand of Interest" by depositor).

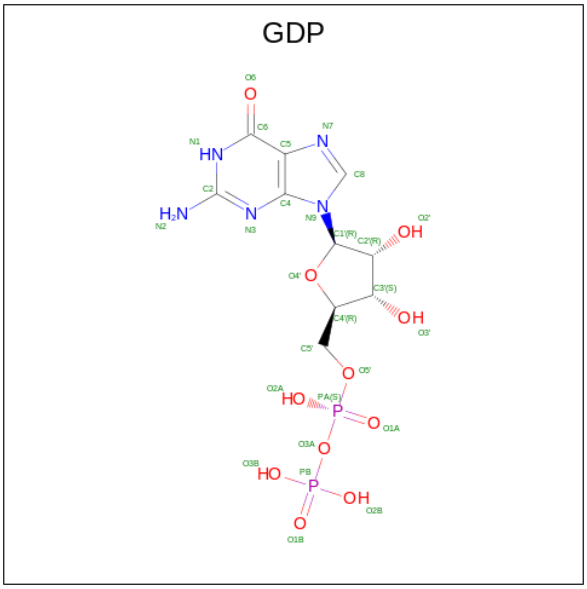
Mol	Chain	Residues	Atoms	AltConf
66	B1	1	Total Mg 1 1	0

- Molecule 67 is FUSIDIC ACID (CCD ID: FUA) (formula: $C_{31}H_{48}O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
67	0	1	Total C O 37 31 6	0

- Molecule 68 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$) (labeled as "Ligand of Interest" by depositor).



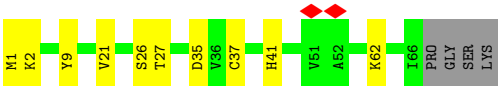
Mol	Chain	Residues	Atoms					AltConf
68	0	1	Total	C	N	O	P	0
			28	10	5	11	2	

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.

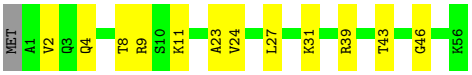
• Molecule 1: 50S ribosomal protein L31

Chain A:



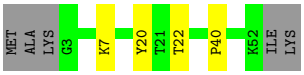
• Molecule 2: 50S ribosomal protein L32

Chain B:



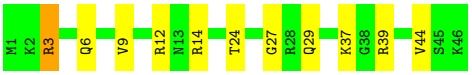
• Molecule 3: 50S ribosomal protein L33

Chain C:



• Molecule 4: 50S ribosomal protein L34

Chain D:

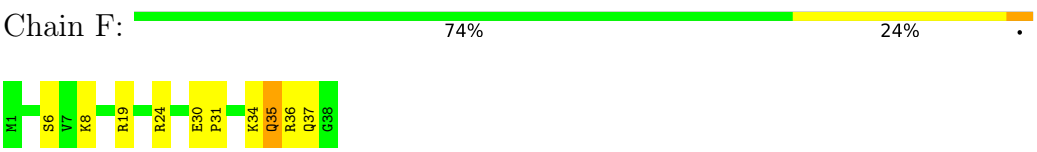


• Molecule 5: 50S ribosomal protein L35

Chain E:

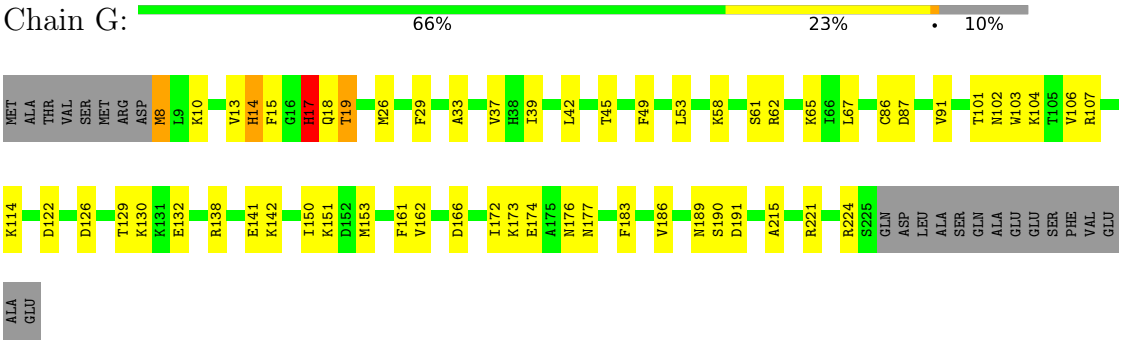
• Molecule 6: 50S ribosomal protein L36

Chain F:



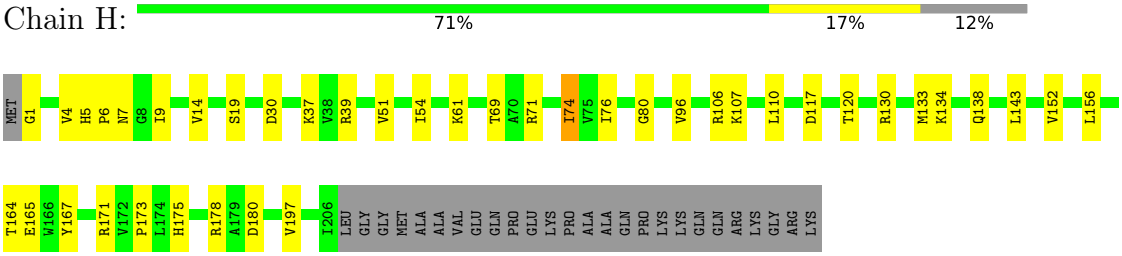
• Molecule 7: 30S ribosomal protein S2

Chain G:



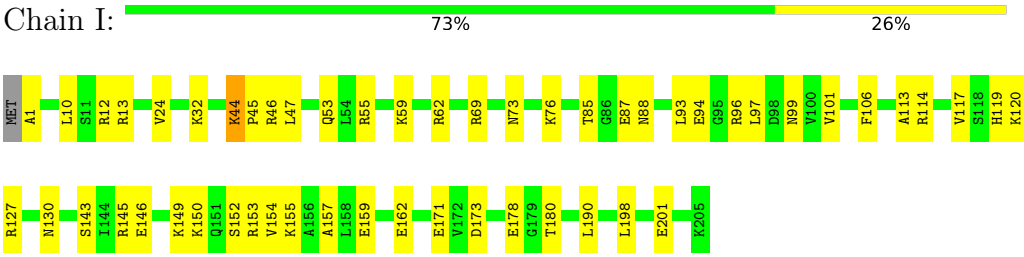
• Molecule 8: 30S ribosomal protein S3

Chain H:



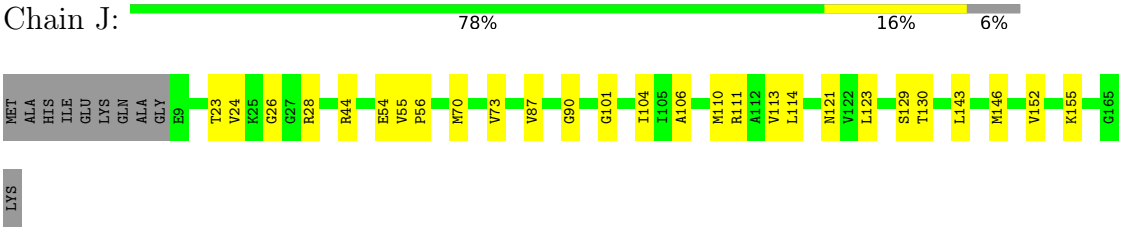
• Molecule 9: 30S ribosomal protein S4

Chain I:



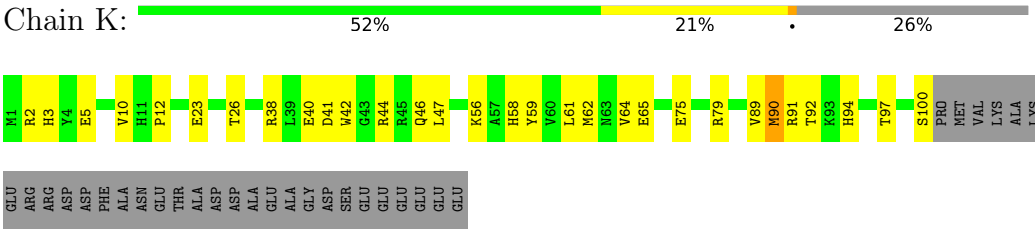
• Molecule 10: 30S ribosomal protein S5

Chain J:



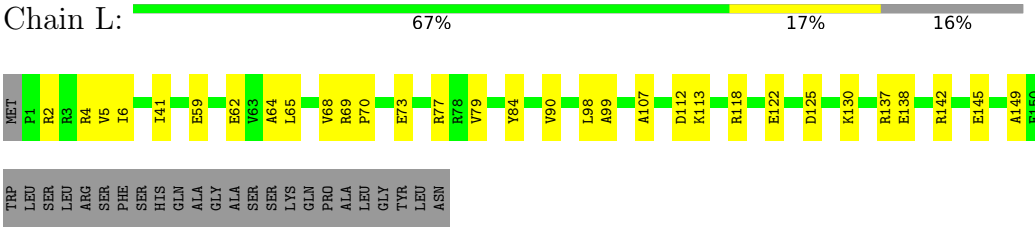
• Molecule 11: 30S ribosomal protein S6, fully modified isoform

Chain K:



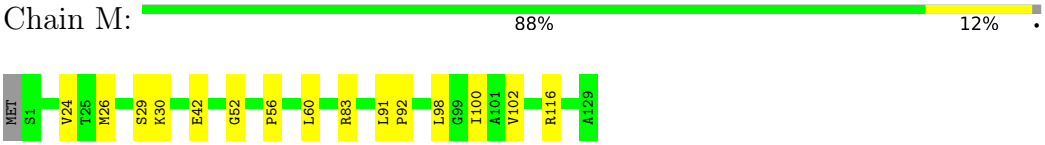
• Molecule 12: 30S ribosomal protein S7

Chain L:



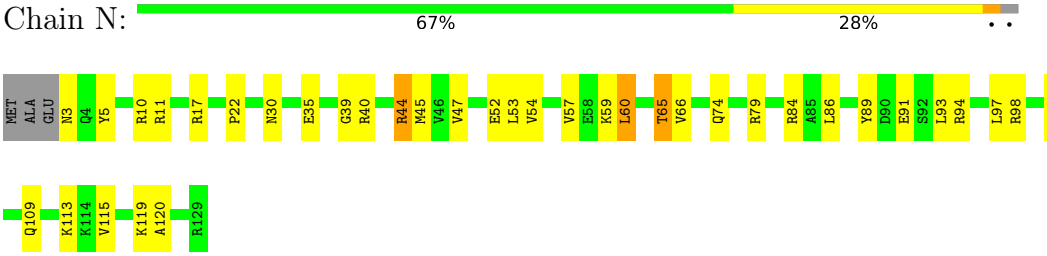
• Molecule 13: 30S ribosomal protein S8

Chain M:



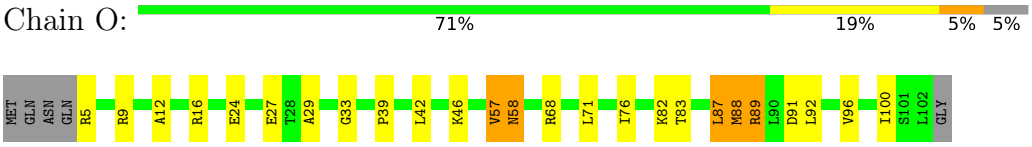
• Molecule 14: 30S ribosomal protein S9

Chain N:



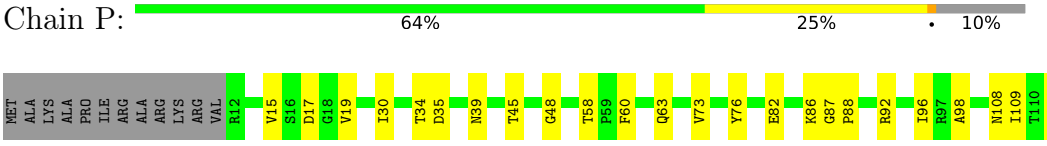
• Molecule 15: 30S ribosomal protein S10

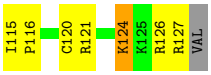
Chain O:



• Molecule 16: 30S ribosomal protein S11

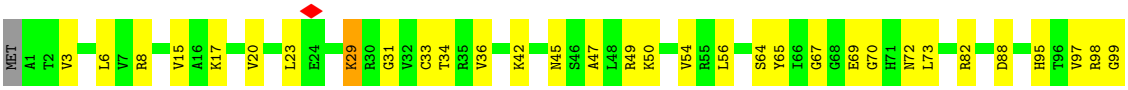
Chain P:





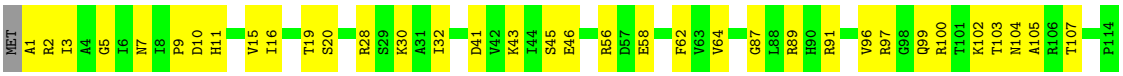
• Molecule 17: 30S ribosomal protein S12

Chain Q:



• Molecule 18: 30S ribosomal protein S13

Chain R:

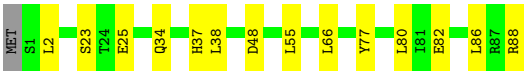


• Molecule 19: 30S ribosomal protein S14

Chain S:

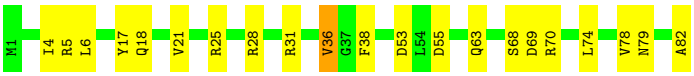
• Molecule 20: 30S ribosomal protein S15

Chain T:



• Molecule 21: 30S ribosomal protein S16

Chain U:

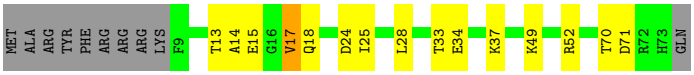


• Molecule 22: 30S ribosomal protein S17

Chain V:

• Molecule 23: 30S ribosomal protein S18

Chain W:

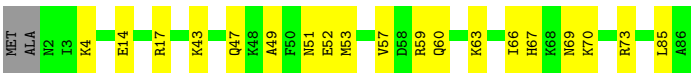


• Molecule 24: 30S ribosomal protein S19

Chain X:

• Molecule 25: 30S ribosomal protein S20

Chain Y:

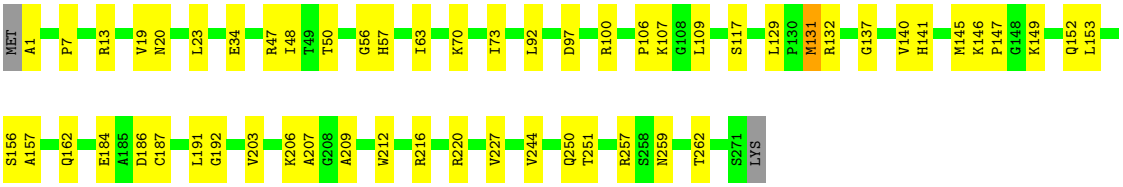


• Molecule 26: 30S ribosomal protein S21

Chain Z:

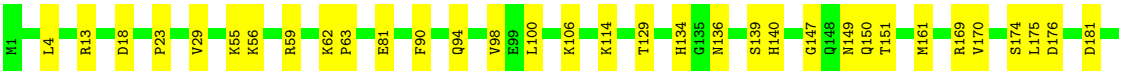
• Molecule 27: 50S ribosomal protein L2

Chain b:



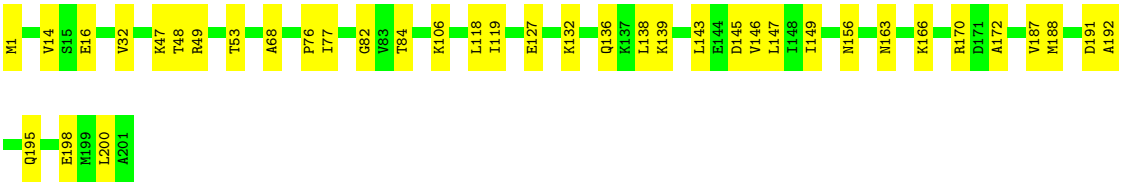
• Molecule 28: 50S ribosomal protein L3

Chain c:



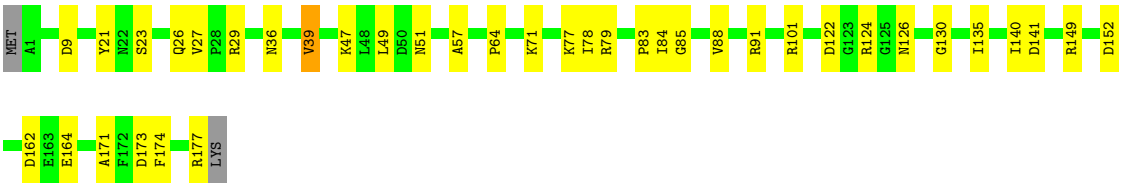
• Molecule 29: 50S ribosomal protein L4

Chain d:



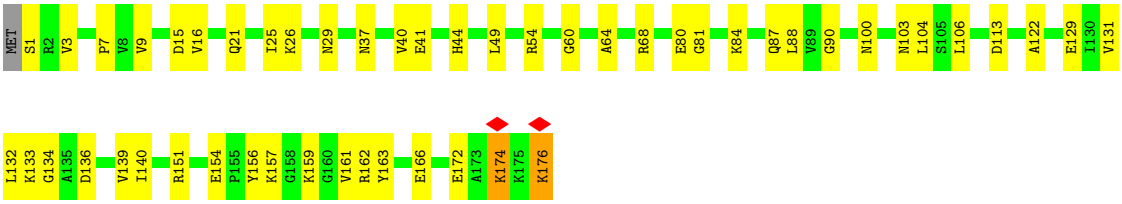
• Molecule 30: 50S ribosomal protein L5

Chain e:



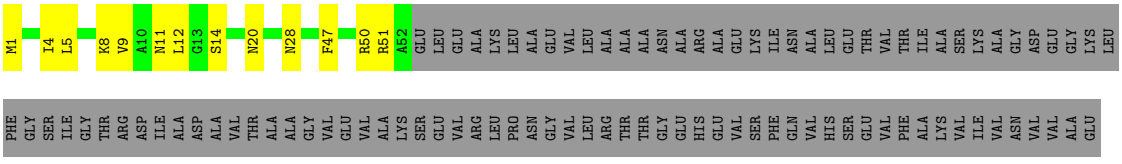
• Molecule 31: 50S ribosomal protein L6

Chain f:



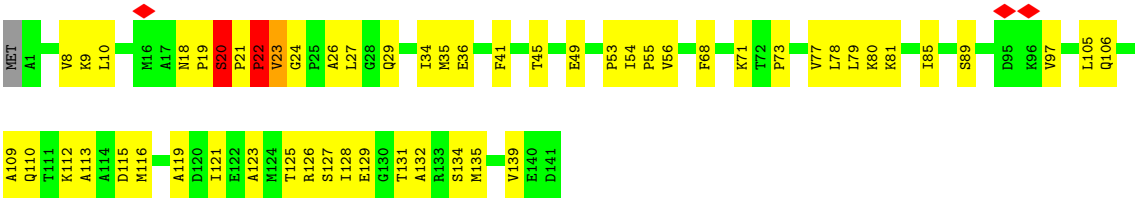
• Molecule 32: 50S ribosomal protein L9

Chain g:

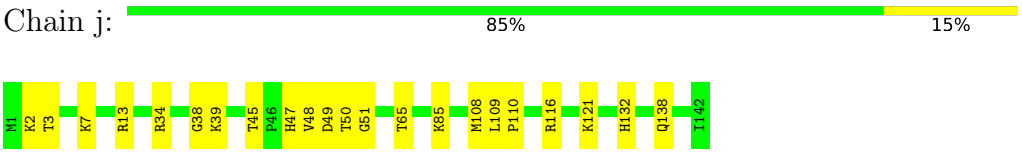


• Molecule 33: 50S ribosomal protein L11

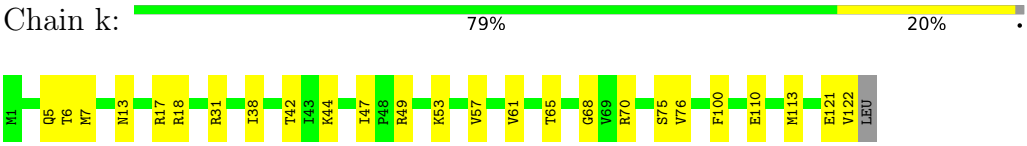
Chain i:



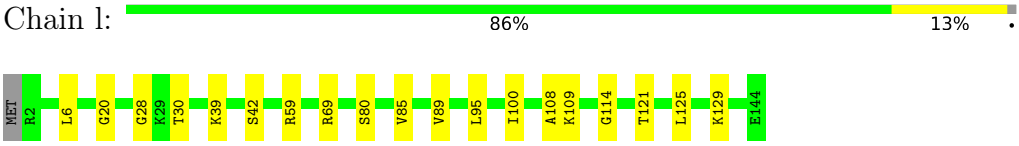
• Molecule 34: 50S ribosomal protein L13



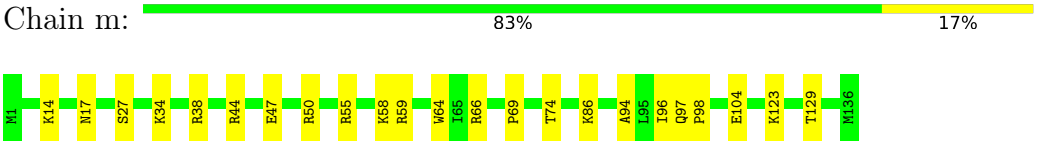
• Molecule 35: 50S ribosomal protein L14



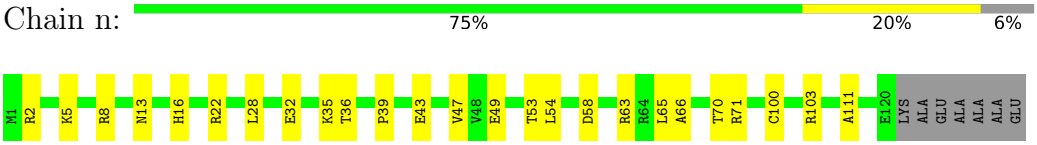
• Molecule 36: 50S ribosomal protein L15



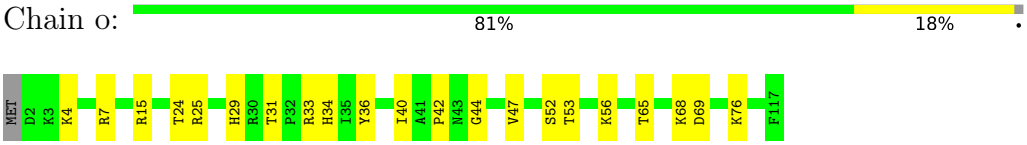
• Molecule 37: 50S ribosomal protein L16



• Molecule 38: 50S ribosomal protein L17

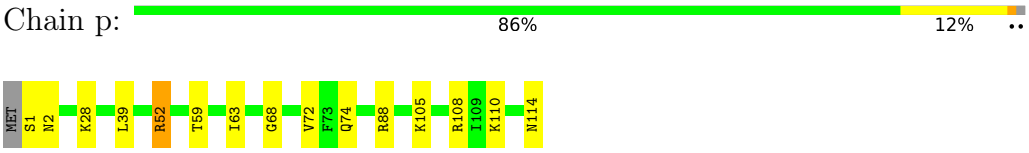


• Molecule 39: 50S ribosomal protein L18



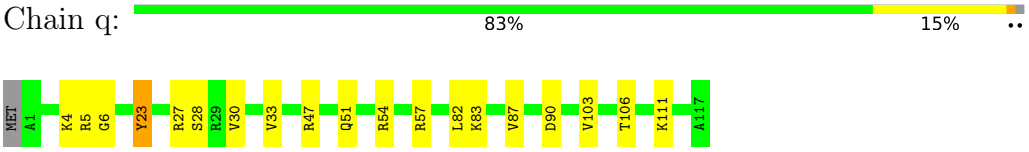
• Molecule 40: 50S ribosomal protein L19

Chain p:



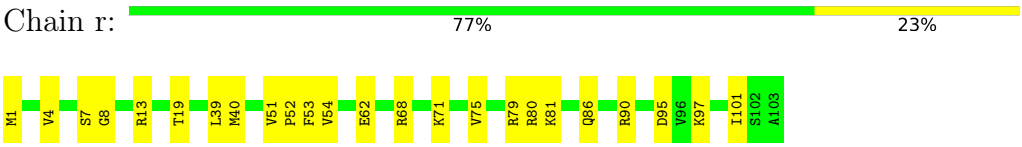
• Molecule 41: 50S ribosomal protein L20

Chain q:



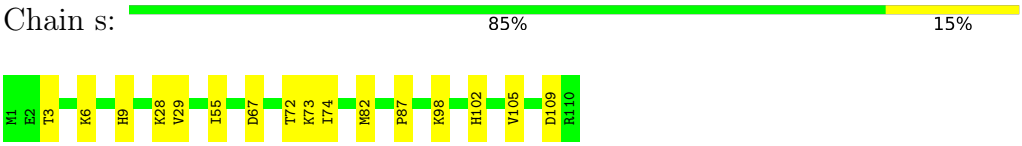
• Molecule 42: 50S ribosomal protein L21

Chain r:



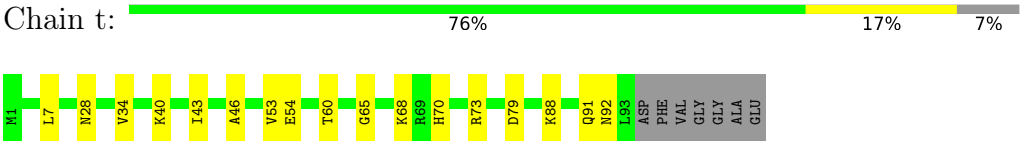
• Molecule 43: 50S ribosomal protein L22

Chain s:



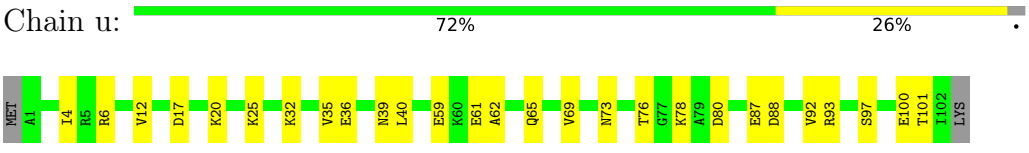
• Molecule 44: 50S ribosomal protein L23

Chain t:



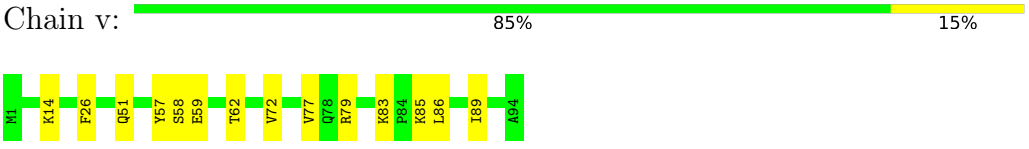
• Molecule 45: 50S ribosomal protein L24

Chain u:



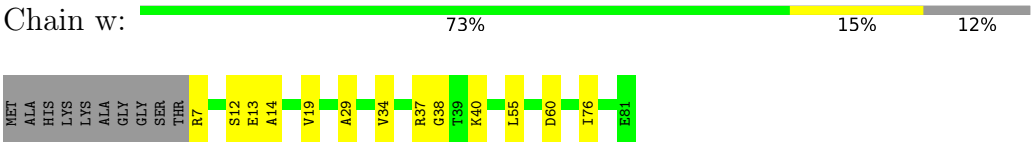
• Molecule 46: 50S ribosomal protein L25

Chain v:



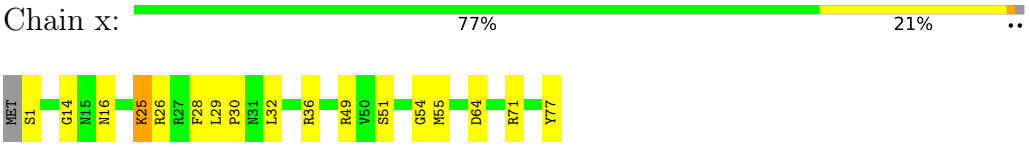
• Molecule 47: 50S ribosomal protein L27

Chain w:



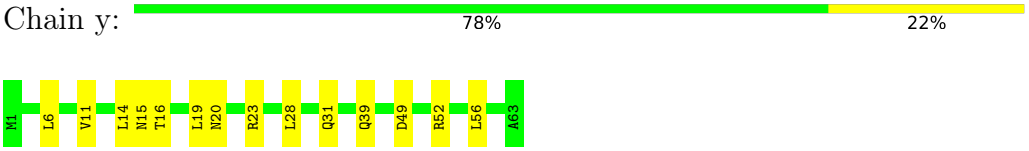
• Molecule 48: 50S ribosomal protein L28

Chain x:



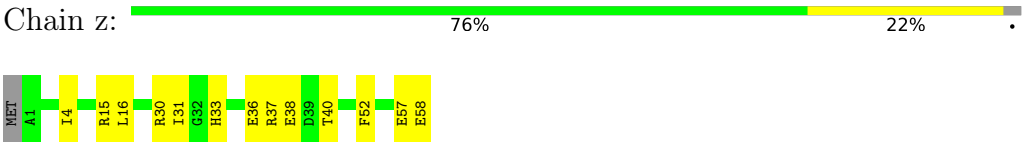
• Molecule 49: 50S ribosomal protein L29

Chain y:



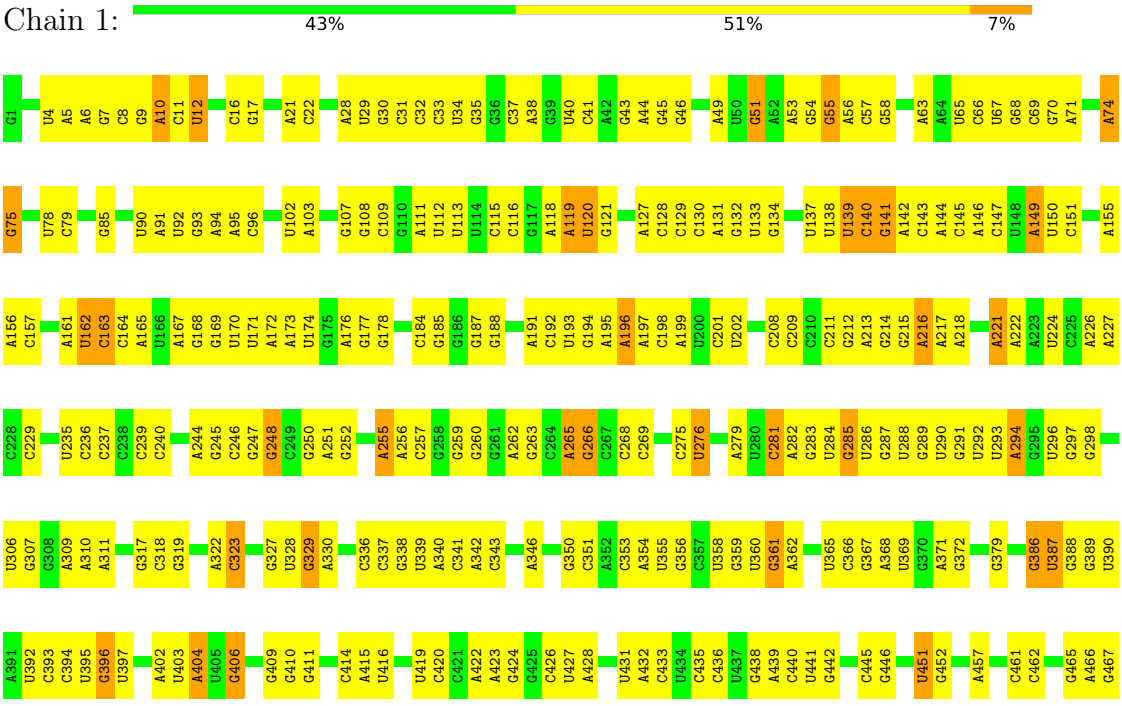
• Molecule 50: 50S ribosomal protein L30

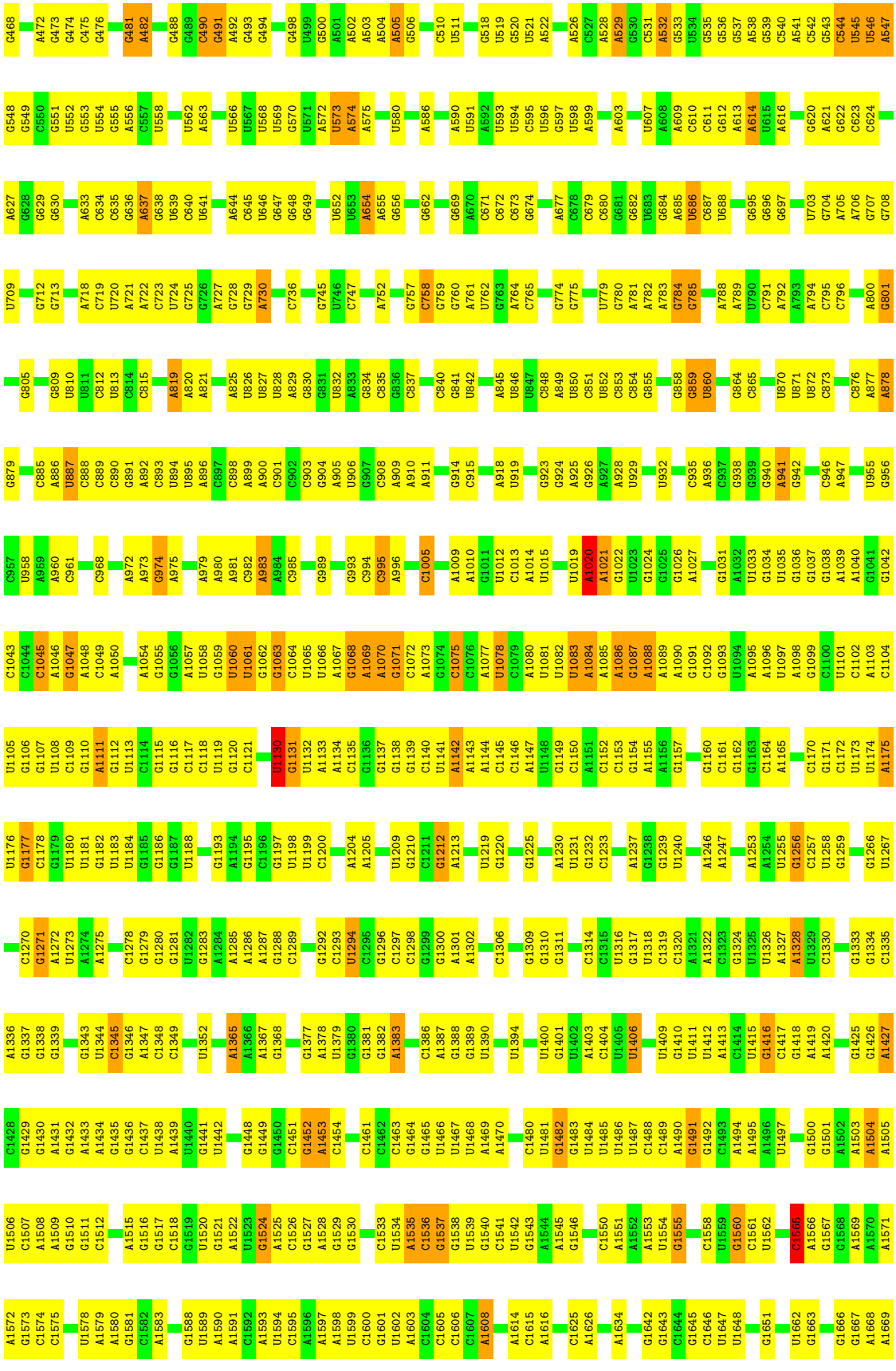
Chain z:

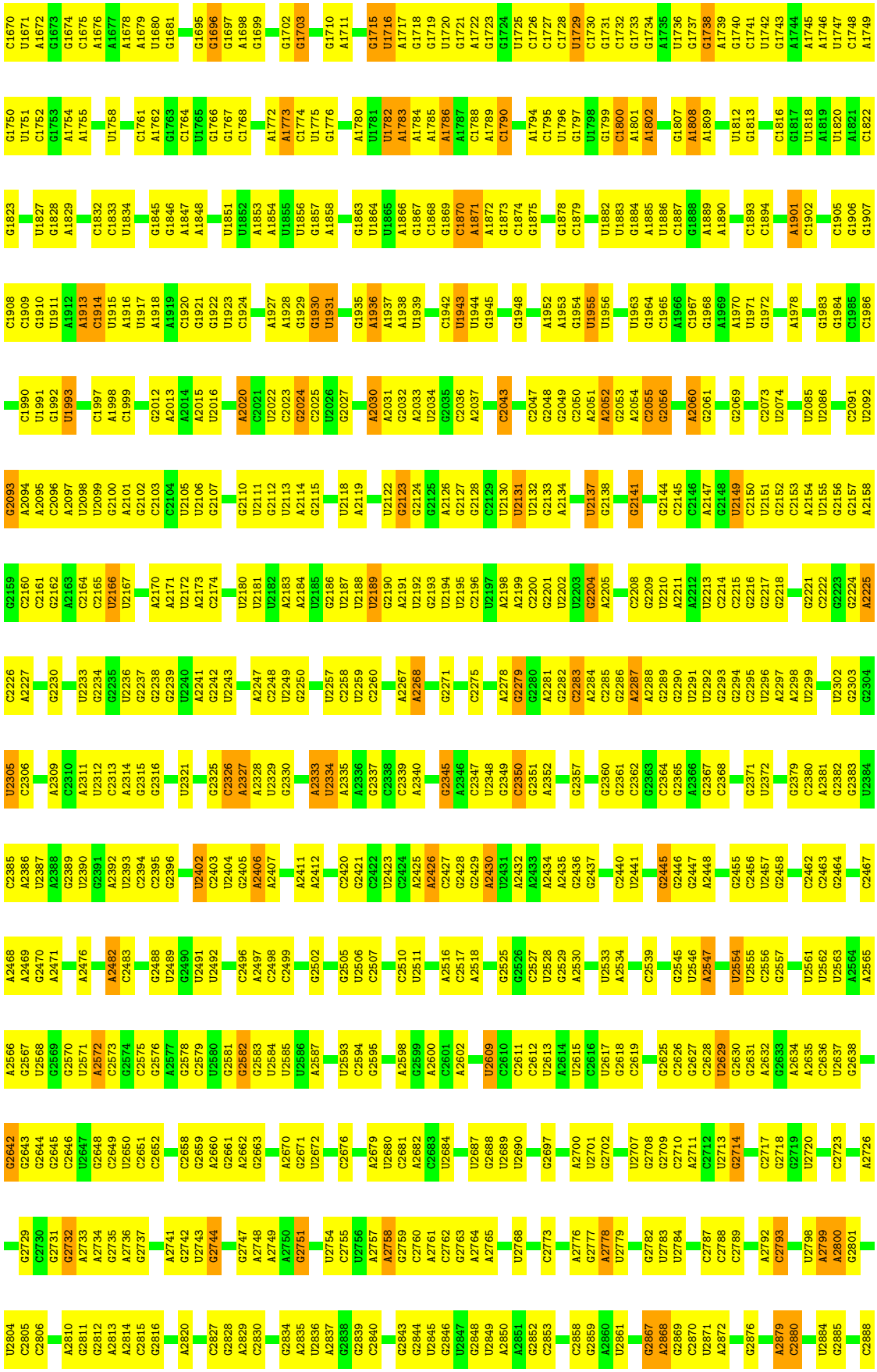


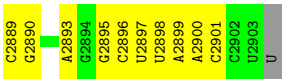
• Molecule 51: 23S rRNA

Chain 1:



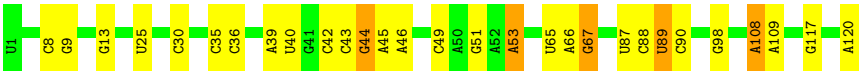






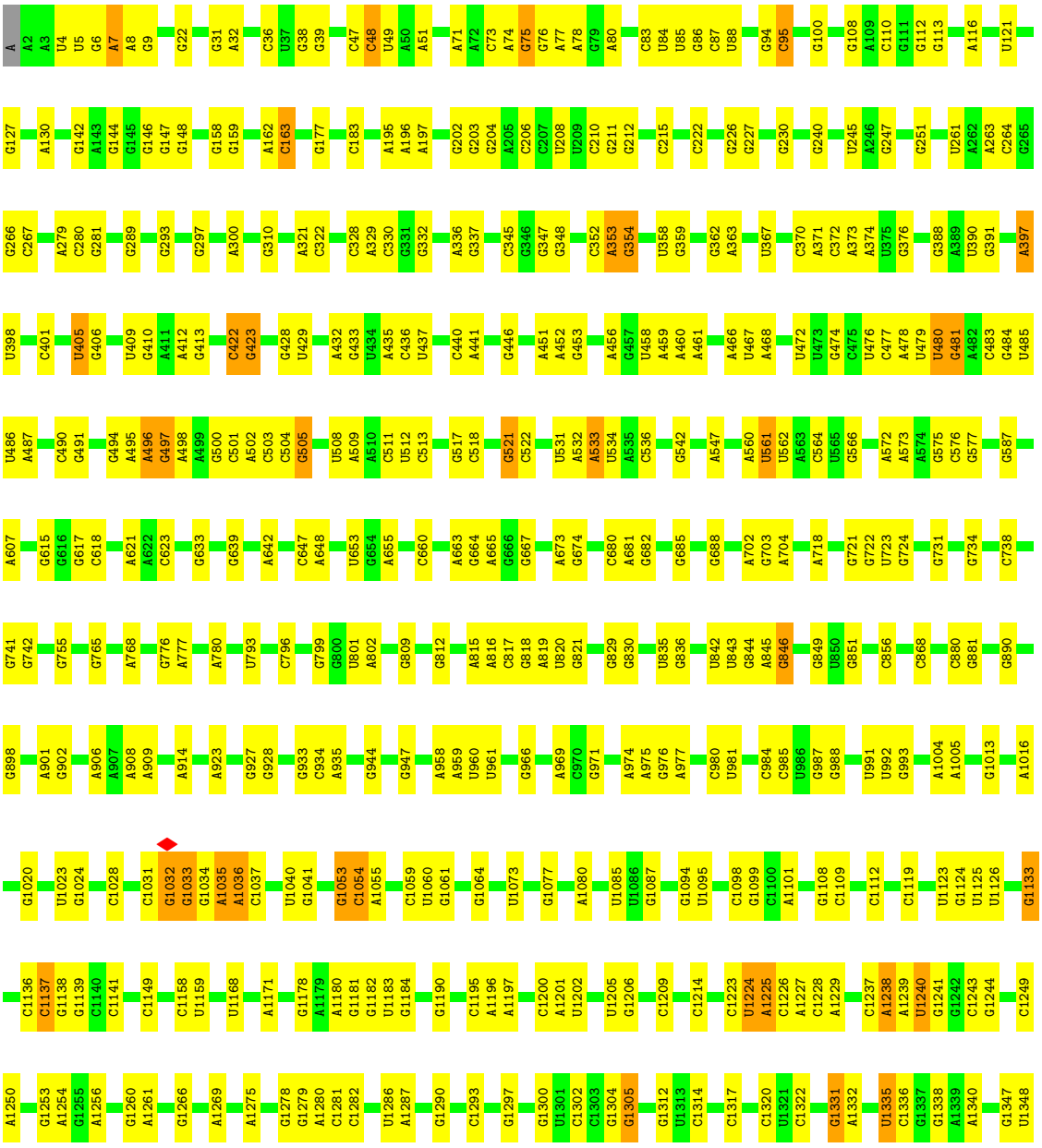
• Molecule 52: 5S rRNA

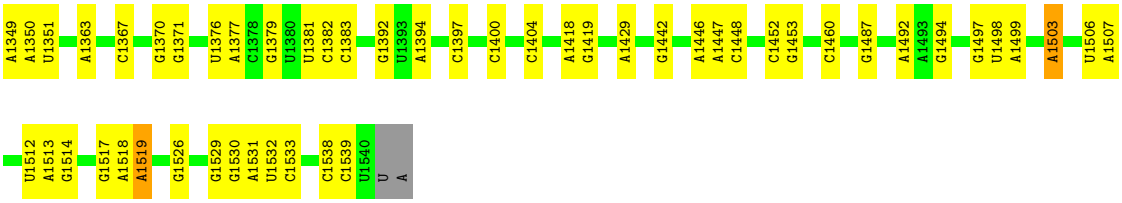
Chain 2:



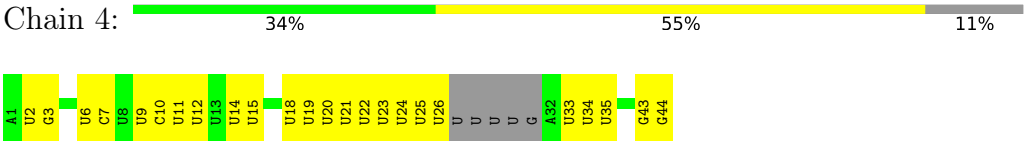
• Molecule 53: 16S rRNA

Chain 3:

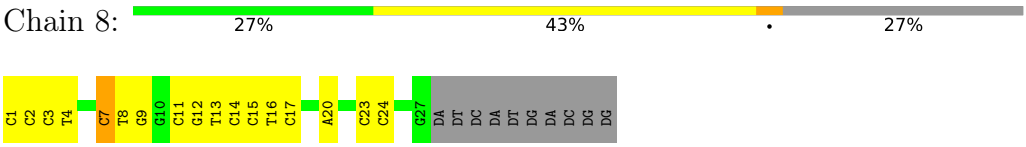




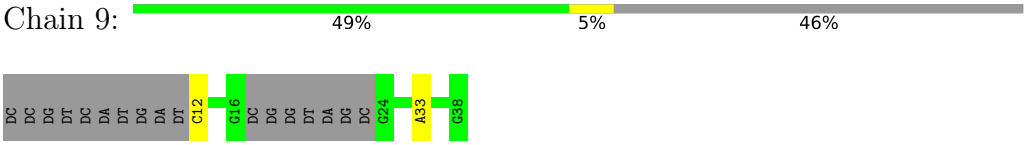
• Molecule 54: mRNA



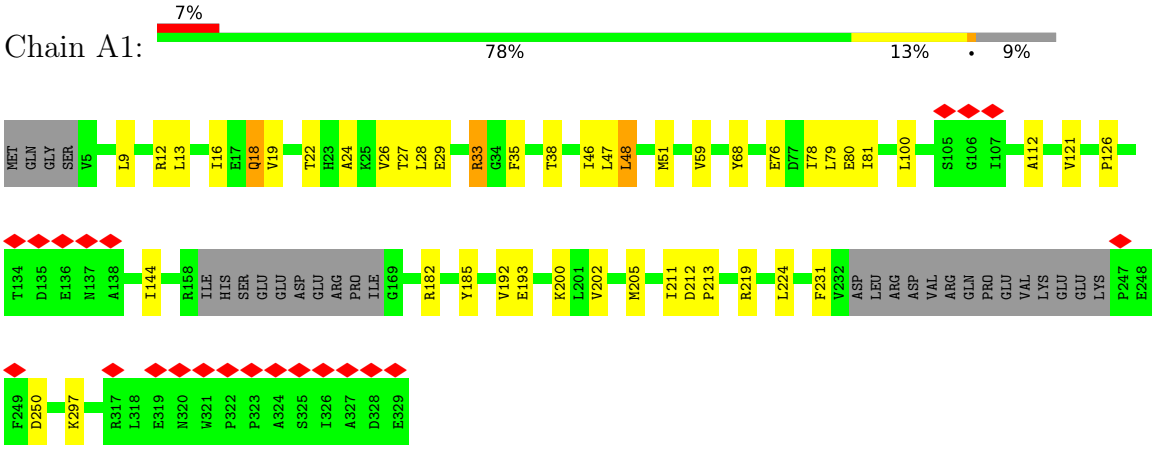
• Molecule 55: templete DNA strand



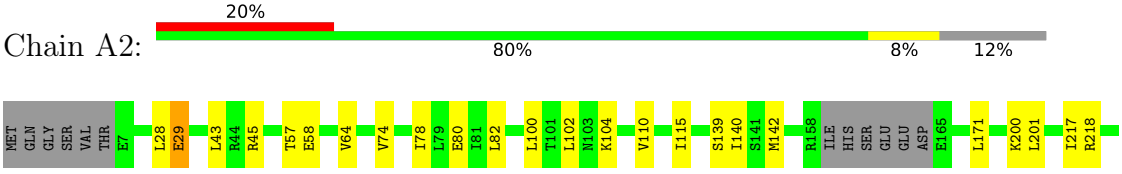
• Molecule 56: non-templete DNA strand

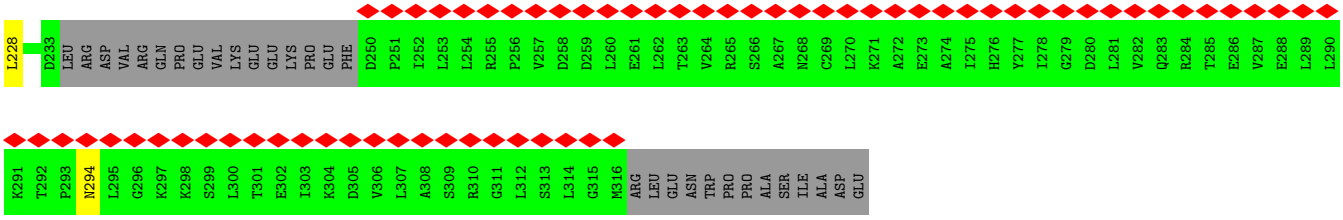


• Molecule 57: DNA-directed RNA polymerase subunit alpha



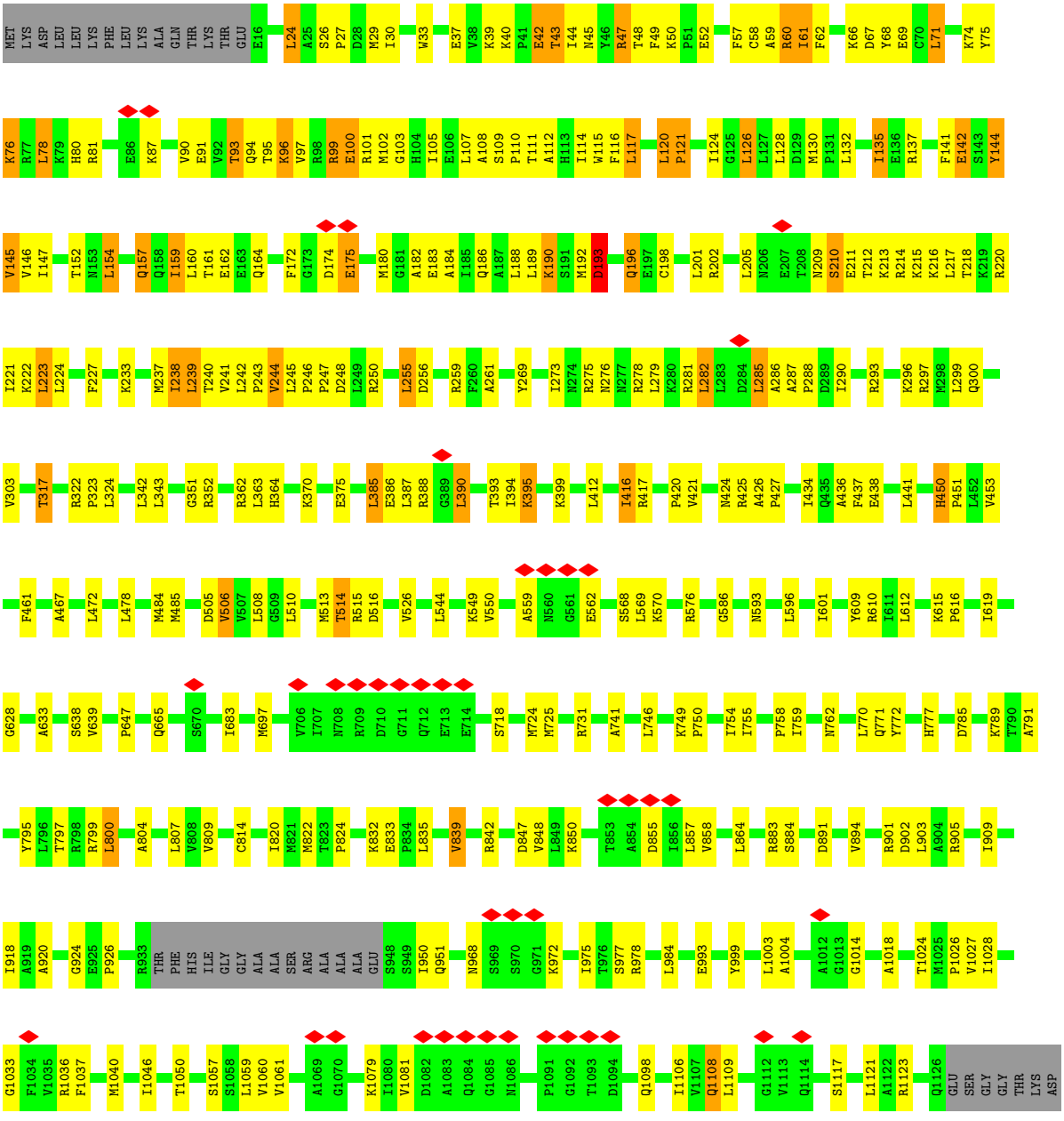
• Molecule 57: DNA-directed RNA polymerase subunit alpha

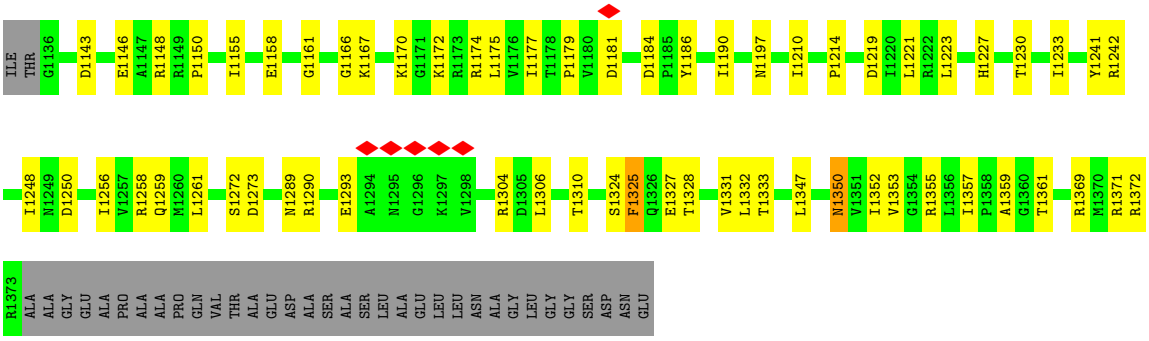




• Molecule 58: DNA-directed RNA polymerase subunit beta'

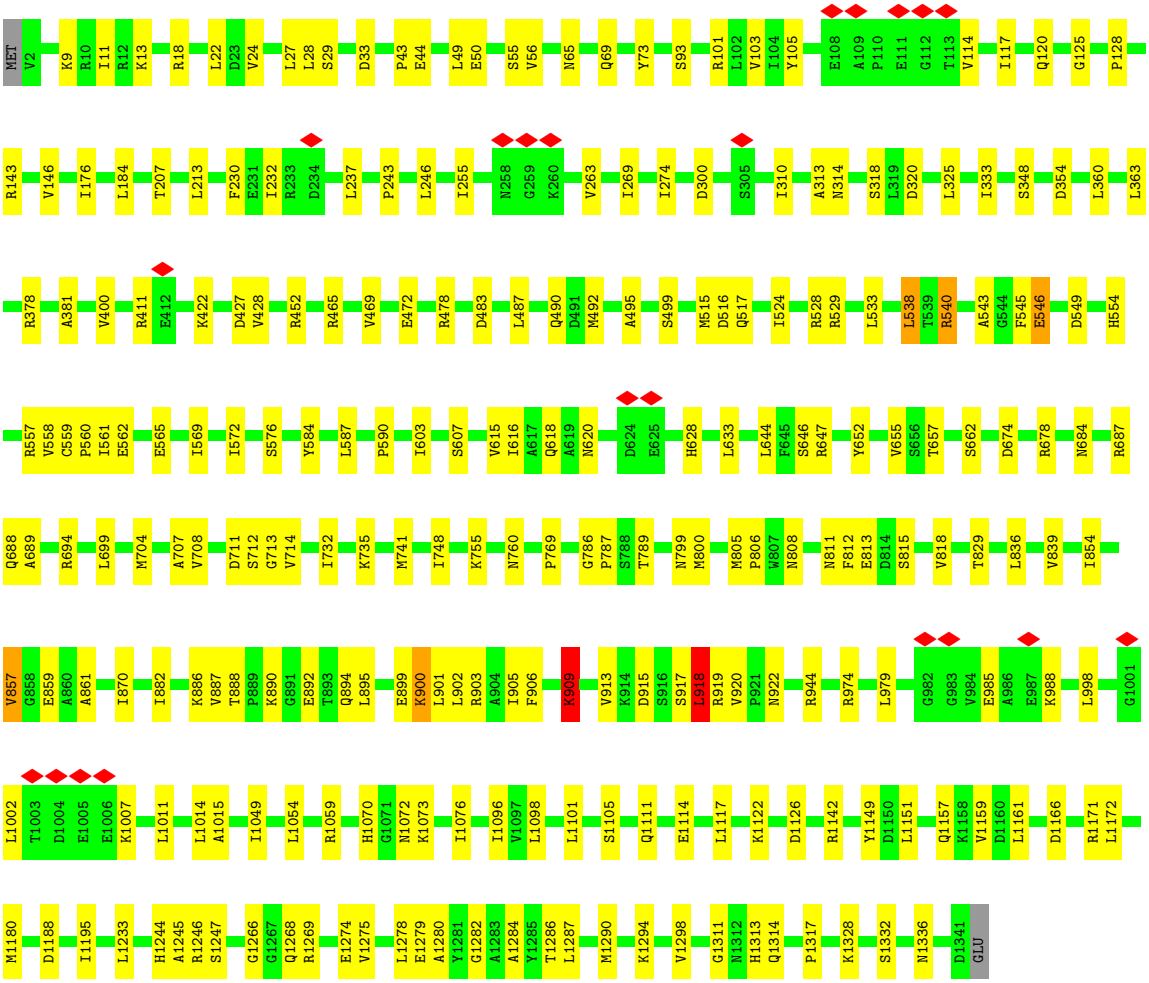
Chain B1:





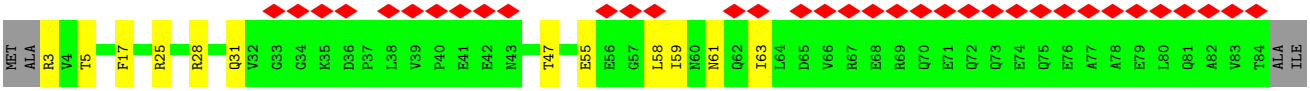
• Molecule 59: DNA-directed RNA polymerase subunit beta

Chain B2:



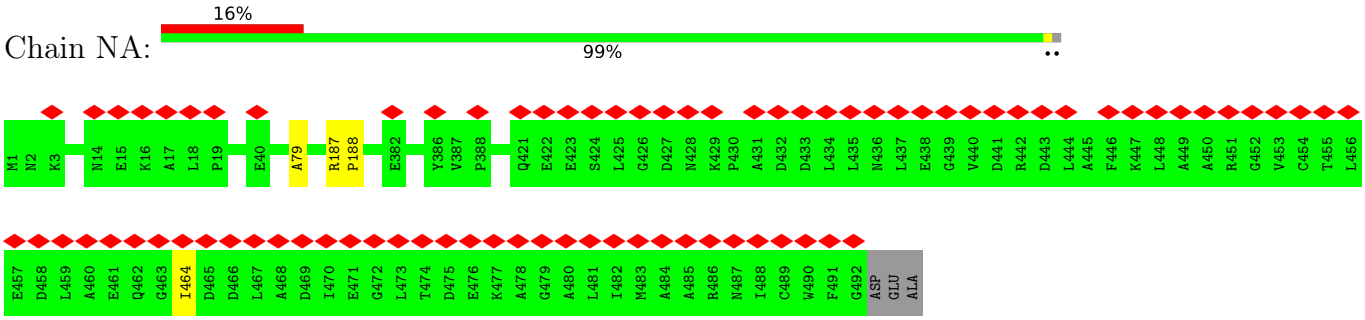
• Molecule 60: DNA-directed RNA polymerase subunit omega

Chain W0:



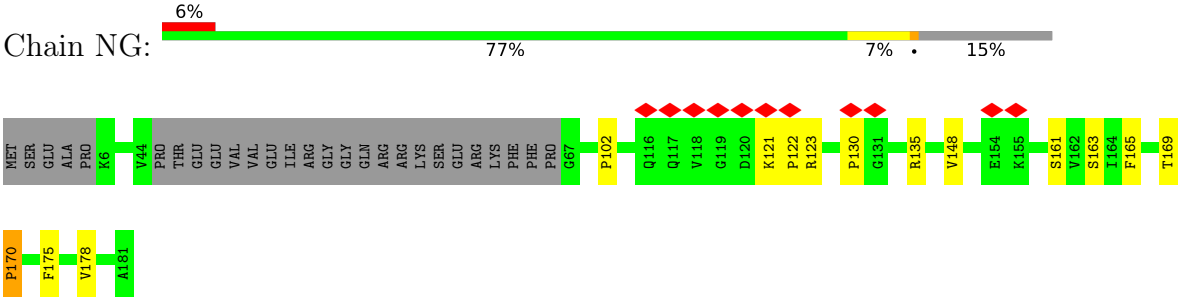
• Molecule 61: Transcription termination/antitermination protein NusA

Chain NA:



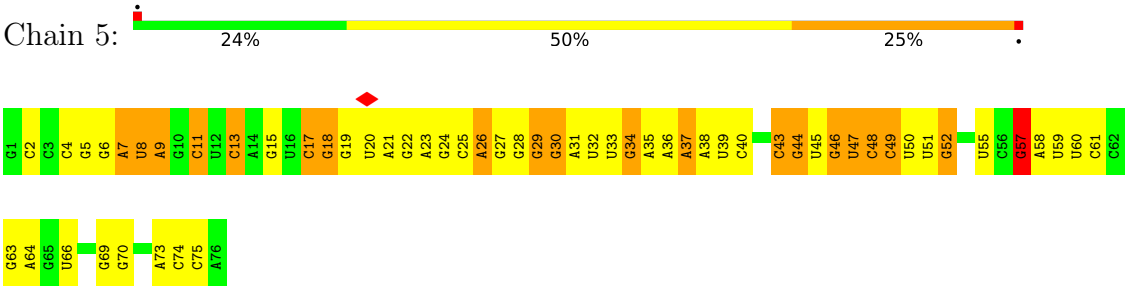
• Molecule 62: Transcription termination/antitermination protein NusG

Chain NG:



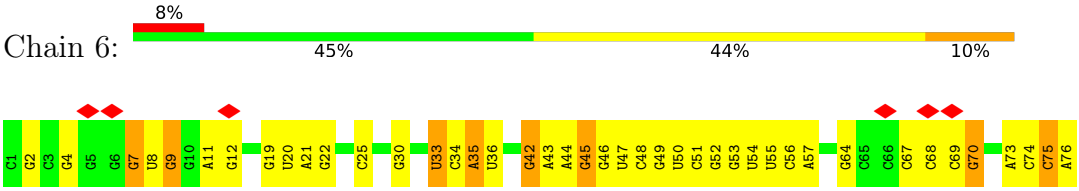
• Molecule 63: tRNA(Phe)

Chain 5:



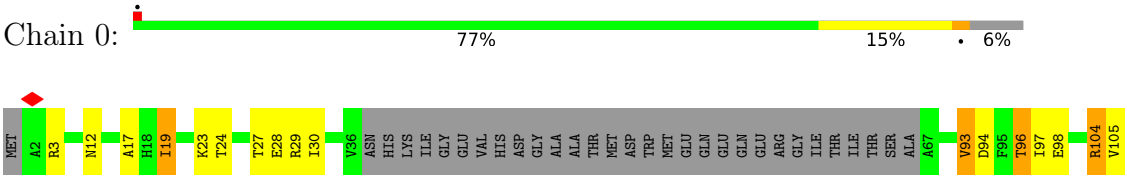
• Molecule 64: tRNA(fMet)

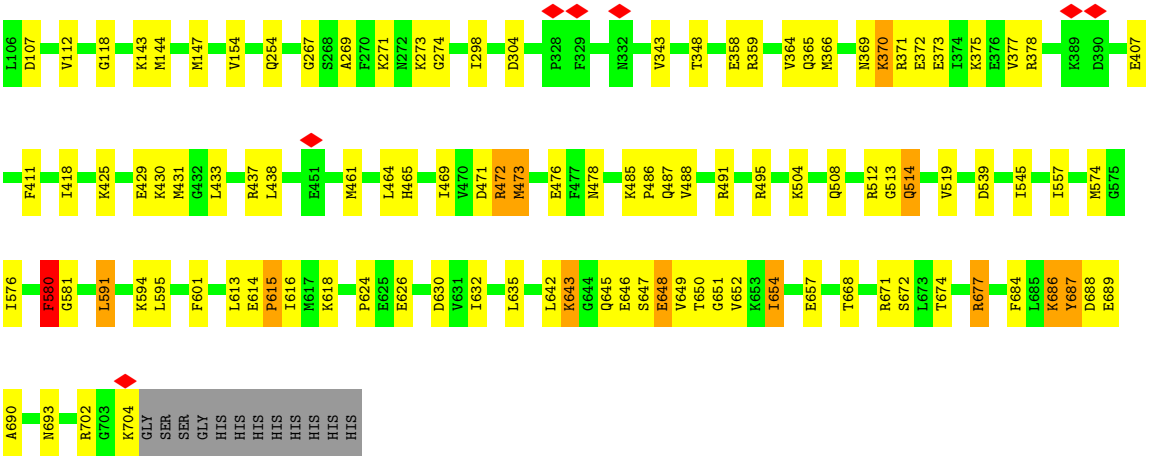
Chain 6:



• Molecule 65: Elongation factor G

Chain 0:




L106 D107 V112 G118 K143 M144 M147 V154 Q254 G267 S268 A269 F270 K271 N272 K273 G274 I298 D304 P328 F329 N332 V343 T348 E358 R359 V364 Q365 M366 N369 K370 R371 E372 E373 I374 K375 E376 V377 R378 K389 D390 E407
F411 I418 K425 E429 K430 M431 G432 L433 R437 L438 E451 M461 L464 H465 I469 V470 D471 R472 M473 E476 F477 N478 K485 P486 Q487 V488 R491 R495 K504 Q508 R512 G513 Q514 V519 D539 I545 I557 M574 G575
I576 F580 G581 L591 K594 L595 F601 L613 E614 P615 I616 M617 K618 P624 E625 E626 D630 V631 I632 L635 L642 K643 G644 Q645 E646 S647 E648 V649 T650 G651 V652 K653 I654 E657 T668 R671 S672 L673 T674 R677 F684 L685 K686 Y687 D688 E689
A690 N693 R702 G703 K704 GLY SER SER GLY HIS HIS HIS HIS HIS HIS HIS HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	609587	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 ($e^-/Å^2$)	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	0.087	Depositor
Minimum map value	-0.033	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.007	Depositor
Map size (Å)	753.60004, 753.60004, 753.60004	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.57, 1.57, 1.57	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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	0.26	0/530	0.54	0/707
2	B	0.40	0/450	0.60	0/599
3	C	0.27	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	0.37	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	0.30	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	0.64	1/1195 (0.1%)
17	Q	0.50	0/969	0.86	2/1300 (0.2%)
18	R	0.33	0/892	0.73	2/1193 (0.2%)
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	0.54	0/544	0.74	1/731 (0.1%)
24	X	0.28	0/652	0.55	0/877
25	Y	0.28	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	0.43	0/1571	0.62	0/2113
30	e	0.43	0/1434	0.65	2/1926 (0.1%)
31	f	0.35	0/1343	0.55	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	0.41	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	0.45	0/829	0.69	0/1107
43	s	0.43	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	0.64	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	0.43	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	0.55	0/2106	0.81	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	0/14459
60	W0	0.30	0/652	0.60	0/879
61	NA	0.78	0/2431	1.22	0/3385
62	NG	1.12	0/756	1.07	0/1048
63	5	0.57	0/1812	0.85	1/2823 (0.0%)
64	6	0.39	0/1832	0.57	1/2855 (0.0%)
65	0	0.84	0/5308	1.17	6/7181 (0.1%)
All	All	0.49	4/195128 (0.0%)	0.64	68/287304 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	B1	1350	ASN	CG-ND2	-5.28	1.22	1.33
58	B1	1108	GLN	CD-OE1	5.18	1.33	1.23
58	B1	424	ASN	CG-ND2	-5.13	1.22	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	B1	665	GLN	CD-OE1	5.04	1.33	1.23

All (68) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
65	0	580	PHE	CA-CB-CG	9.59	123.39	113.80
16	P	73	VAL	N-CA-C	-9.05	104.52	113.20
41	q	33	VAL	N-CA-C	-8.73	104.78	112.12
12	L	64	ALA	N-CA-C	-7.68	105.07	114.75
51	1	1130	U	C2'-C3'-O3'	7.63	120.94	109.50
64	6	33	U	C2'-C3'-O3'	7.28	120.41	109.50
51	1	2326	C	C2'-C3'-O3'	7.18	120.27	109.50
58	B1	450	HIS	CB-CG-CD2	-6.58	122.65	131.20
51	1	761	A	C4'-C3'-O3'	-6.49	103.26	113.00
65	0	615	PRO	CB-CA-C	-6.47	102.50	110.98
58	B1	777	HIS	CB-CG-CD2	-6.41	122.87	131.20
58	B1	61	ILE	CA-C-N	-6.36	114.01	121.64
58	B1	61	ILE	C-N-CA	-6.36	114.01	121.64
28	c	147	GLY	CA-C-N	-6.02	115.28	122.44
28	c	147	GLY	C-N-CA	-6.02	115.28	122.44
58	B1	450	HIS	CB-CG-ND1	5.69	131.23	122.70
51	1	2060	A	C2'-C3'-O3'	5.68	118.03	109.50
65	0	657	GLU	CA-C-N	-5.63	118.43	123.33
65	0	657	GLU	C-N-CA	-5.63	118.43	123.33
26	Z	35	GLU	CA-C-N	5.60	132.23	121.54
26	Z	35	GLU	C-N-CA	5.60	132.23	121.54
51	1	1790	C	N1-C1'-C2'	5.60	120.39	112.00
15	O	57	VAL	CA-C-N	5.59	132.22	121.54
15	O	57	VAL	C-N-CA	5.59	132.22	121.54
38	n	47	VAL	N-CA-C	-5.56	107.45	112.12
10	J	155	LYS	N-CA-C	-5.53	107.79	114.75
51	1	960	A	N9-C1'-C2'	5.47	120.21	112.00
51	1	1451	C	N1-C1'-C2'	5.47	120.21	112.00
51	1	1905	C	C4'-C3'-O3'	-5.47	104.79	113.00
58	B1	777	HIS	CB-CG-ND1	5.47	130.90	122.70
51	1	1020	A	C2'-C3'-O3'	5.43	117.64	109.50
51	1	1696	G	N9-C1'-C2'	5.42	120.14	112.00
4	D	3	ARG	CA-C-N	5.40	127.78	120.38
4	D	3	ARG	C-N-CA	5.40	127.78	120.38
55	8	7	DC	C2'-C3'-O3'	-5.40	103.40	111.50
65	0	271	LYS	N-CA-C	-5.32	106.30	112.89
51	1	1782	U	N1-C1'-C2'	5.31	119.97	112.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
51	1	2428	G	N9-C1'-C2'	5.29	119.93	112.00
30	e	141	ASP	CA-C-N	5.24	131.56	121.54
30	e	141	ASP	C-N-CA	5.24	131.56	121.54
51	1	2055	C	N1-C1'-C2'	5.23	119.85	112.00
51	1	980	A	N9-C1'-C2'	5.23	119.84	112.00
12	L	5	VAL	CA-C-N	5.22	127.70	120.49
12	L	5	VAL	C-N-CA	5.22	127.70	120.49
34	j	110	PRO	N-CA-C	5.22	120.72	113.98
51	1	2576	G	N9-C1'-C2'	5.21	119.82	112.00
58	B1	27	PRO	N-CA-C	-5.21	106.26	113.81
21	U	78	VAL	CA-C-N	5.19	129.65	121.56
21	U	78	VAL	C-N-CA	5.19	129.65	121.56
51	1	2430	A	N9-C1'-C2'	5.16	119.74	112.00
51	1	1565	C	N1-C1'-C2'	5.15	119.72	112.00
23	W	14	ALA	N-CA-C	-5.14	106.09	112.93
51	1	1328	A	N9-C1'-C2'	5.14	119.71	112.00
18	R	3	ILE	CA-C-N	5.11	131.30	121.54
18	R	3	ILE	C-N-CA	5.11	131.30	121.54
63	5	57	G	C4'-C3'-O3'	5.11	117.06	109.40
33	i	71	LYS	CA-C-N	5.10	134.24	121.80
33	i	71	LYS	C-N-CA	5.10	134.24	121.80
58	B1	61	ILE	CA-C-O	-5.10	115.65	120.95
10	J	87	VAL	N-CA-C	5.09	115.97	109.30
65	0	375	LYS	N-CA-C	-5.09	106.92	112.72
33	i	22	PRO	N-CA-CB	-5.08	97.91	103.25
51	1	2777	G	N9-C1'-C2'	5.08	119.62	112.00
17	Q	42	LYS	CA-C-N	5.08	129.59	121.62
17	Q	42	LYS	C-N-CA	5.08	129.59	121.62
51	1	1087	G	N9-C1'-C2'	5.05	119.57	112.00
48	x	25	LYS	N-CA-C	5.04	121.54	110.80
51	1	972	A	N9-C1'-C2'	5.03	119.55	112.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	521	0	520	8	0
2	B	444	0	461	10	0
3	C	409	0	440	3	0
4	D	377	0	418	9	0
5	E	504	0	574	2	0
6	F	302	0	343	5	0
7	G	1704	0	1732	39	0
8	H	1624	0	1699	27	0
9	I	1643	0	1710	34	0
10	J	1156	0	1199	17	0
11	K	817	0	808	16	0
12	L	1181	0	1240	19	0
13	M	979	0	1034	9	0
14	N	1022	0	1070	21	0
15	O	786	0	828	15	0
16	P	869	0	878	20	0
17	Q	955	0	1019	24	0
18	R	883	0	944	20	0
19	S	805	0	847	10	0
20	T	714	0	737	7	0
21	U	649	0	666	16	0
22	V	648	0	691	9	0
23	W	535	0	552	7	0
24	X	637	0	665	8	0
25	Y	665	0	714	12	0
26	Z	544	0	579	12	0
27	b	2082	0	2157	45	0
28	c	1565	0	1616	32	0
29	d	1552	0	1619	27	0
30	e	1410	0	1447	22	0
31	f	1323	0	1374	30	0
32	g	400	0	423	7	0
33	i	1032	0	1088	36	0
34	j	1129	0	1162	20	0
35	k	938	0	1012	19	0
36	l	1045	0	1117	15	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	12	0
41	q	947	0	1022	10	0
42	r	816	0	839	14	0
43	s	857	0	922	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	t	738	0	807	9	0
45	u	779	0	834	14	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	11	0
50	z	449	0	491	9	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	27	0
56	9	417	0	224	2	0
57	A1	2088	0	1895	24	0
57	A2	2029	0	1864	18	0
58	B1	10353	0	10548	322	0
59	B2	10546	0	10550	164	0
60	W0	650	0	658	10	0
61	NA	2432	0	1171	3	0
62	NG	758	0	334	10	0
63	5	1622	0	821	28	0
64	6	1640	0	837	20	0
65	0	5211	0	5200	46	0
66	B1	1	0	0	0	0
67	0	37	0	47	0	0
68	0	28	0	12	0	0
All	All	181797	0	131050	2821	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 (2821) 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	1.07
51:1:1672:A:C2	51:1:2582:G:H5'	1.95	1.02
51:1:1666:G:H2'	51:1:1667:G:H5'	1.41	1.01
58:B1:750:PRO:HB3	59:B2:549:ASP:OD2	1.60	1.01
51:1:1082:U:H3'	51:1:1083:U:H5"	1.41	1.00
51:1:2713:U:H3'	51:1:2714:G:H5'	1.41	1.00
51:1:1807:G:H2'	51:1:1808:A:H5'	1.44	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:111:THR:HG23	58:B1:300:GLN:CD	1.86	0.99
58:B1:352:ARG:HD2	59:B2:1268:GLN:NE2	1.79	0.98
51:1:2156:G:H2'	51:1:2157:G:H5'	1.47	0.95
58:B1:68:TYR:O	58:B1:75:TYR:CE2	2.20	0.95
51:1:1847:A:HO2'	51:1:1848:A:H8	1.06	0.94
51:1:644:A:H2'	51:1:645:C:H5"	1.50	0.93
51:1:2713:U:H3'	51:1:2714:G:C5'	1.98	0.93
51:1:655:A:H4'	51:1:656:G:H5'	1.50	0.92
51:1:1102:C:H2'	51:1:1103:A:H8	1.35	0.92
51:1:1702:G:H2'	51:1:1703:G:H5"	1.51	0.92
54:4:44:G:H21	58:B1:427:PRO:HD3	1.34	0.91
30:e:84:ILE:HD13	51:1:2312:U:H5'	1.51	0.91
30:e:130:GLY:HA3	51:1:2305:U:H5"	1.51	0.91
51:1:1019:U:H3	51:1:1142:A:H62	1.17	0.91
51:1:1668:A:H4'	51:1:1669:A:H5'	1.54	0.90
51:1:890:C:H2'	51:1:891:G:H5'	1.53	0.90
58:B1:68:TYR:C	58:B1:75:TYR:HE2	1.80	0.89
58:B1:202:ARG:HG2	58:B1:202:ARG:HH11	1.34	0.89
14:N:3:ASN:N	14:N:5:TYR:HH	1.70	0.89
63:5:9:A:H2'	63:5:11:C:H41	1.38	0.89
51:1:1060:U:H4'	51:1:1061:U:H5"	1.55	0.88
51:1:2097:A:H2'	51:1:2098:U:C6	2.08	0.88
58:B1:317:THR:HA	58:B1:323:PRO:HA	1.55	0.88
59:B2:854:ILE:HG21	59:B2:917:SER:HB3	1.54	0.88
65:0:348:THR:HA	65:0:359:ARG:HA	1.55	0.88
51:1:11:C:H2'	51:1:12:U:H5"	1.55	0.87
51:1:1869:G:H3'	51:1:1870:C:H5'	1.57	0.86
2:B:8:THR:HB	51:1:2020:A:H5'	1.56	0.86
58:B1:68:TYR:HB3	58:B1:75:TYR:OH	1.76	0.85
51:1:2792:A:H2'	51:1:2793:C:H5"	1.59	0.85
17:Q:69:GLU:HG3	53:3:521:G:H4'	1.59	0.85
51:1:1387:A:H5'	51:1:1469:A:H1'	1.58	0.84
51:1:2333:A:H5'	51:1:2334:U:H2'	1.57	0.84
51:1:1175:A:H3'	51:1:1176:U:H5'	1.59	0.83
51:1:2584:U:H2'	51:1:2585:U:H5'	1.58	0.83
58:B1:633:ALA:HB2	59:B2:808:ASN:H	1.41	0.83
58:B1:68:TYR:O	58:B1:75:TYR:HE2	1.58	0.83
33:i:119:ALA:HB2	51:1:1082:U:H5'	1.60	0.82
51:1:475:C:H4'	51:1:510:C:H5'	1.59	0.82
51:1:1666:G:C2'	51:1:1667:G:H5'	2.07	0.82
55:8:1:DC:H5"	58:B1:210:SER:OG	1.80	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:757:G:H2'	51:1:758:C:H5'	1.61	0.82
58:B1:770:LEU:HD13	59:B2:618:GLN:HG3	1.61	0.82
51:1:1141:U:H4'	51:1:1142:A:O4'	1.80	0.82
51:1:279:A:H61	51:1:361:G:H1'	1.46	0.81
51:1:849:A:H2'	51:1:850:U:C6	2.14	0.81
51:1:2799:A:H2'	51:1:2800:A:H5'	1.63	0.81
51:1:545:U:C2	51:1:546:U:H1'	2.16	0.81
51:1:2360:G:H2'	51:1:2361:G:H5'	1.62	0.81
58:B1:141:PHE:CE2	58:B1:296:LYS:HB2	2.16	0.81
38:n:36:THR:HG22	51:1:1278:C:OP1	1.80	0.81
58:B1:37:GLU:O	58:B1:61:ILE:HD11	1.81	0.81
51:1:1197:G:O2'	51:1:1198:U:H5'	1.81	0.80
51:1:2112:G:H2'	51:1:2113:U:H5'	1.63	0.80
51:1:1087:G:N2	51:1:1103:A:H1'	1.97	0.80
51:1:2224:G:H4'	51:1:2226:C:C2	2.16	0.80
58:B1:144:TYR:HE1	58:B1:162:GLU:OE2	1.64	0.80
51:1:1775:U:H2'	51:1:1776:G:H5'	1.64	0.80
51:1:784:G:H5'	51:1:785:G:OP1	1.81	0.80
58:B1:111:THR:HG23	58:B1:300:GLN:OE1	1.81	0.80
58:B1:141:PHE:HE2	58:B1:296:LYS:HB2	1.45	0.79
64:6:46:G:H2'	64:6:47:U:H5'	1.64	0.79
51:1:1064:C:H41	51:1:1069:A:H5"	1.47	0.79
7:G:18:GLN:HG3	7:G:189:ASN:HB3	1.65	0.79
51:1:1071:G:O2'	51:1:1089:A:H2'	1.82	0.79
3:C:40:PRO:HG3	51:1:2348:U:H4'	1.63	0.79
51:1:1297:C:OP1	51:1:2710:C:H4'	1.82	0.78
51:1:2286:G:H4'	51:1:2287:A:O4'	1.83	0.78
35:k:6:THR:HG22	51:1:1666:G:O2'	1.83	0.78
51:1:2130:U:H2'	51:1:2131:U:H5"	1.65	0.78
58:B1:186:GLN:HG3	58:B1:238:ILE:HG13	1.65	0.78
51:1:275:C:H2'	51:1:276:U:C4'	2.14	0.78
51:1:2215:C:H2'	51:1:2216:G:C8	2.18	0.78
51:1:2792:A:C3'	51:1:2793:C:H5"	2.14	0.78
65:0:508:GLN:HA	65:0:513:GLY:CA	2.12	0.78
51:1:1275:A:N6	51:1:1296:G:H4'	1.99	0.77
51:1:1310:G:C2'	51:1:1311:G:H5'	2.14	0.77
51:1:1536:C:H4'	51:1:1537:G:C2	2.18	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
33:i:55:PRO:HG3	51:1:1060:U:OP2	1.83	0.77
55:8:15:DC:H1'	58:B1:426:ALA:HB1	1.67	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:202:ARG:HG2	58:B1:202:ARG:NH1	1.99	0.77
51:1:2156:G:C2'	51:1:2157:G:H5'	2.14	0.77
51:1:310:A:O2'	51:1:311:A:H2'	1.85	0.76
51:1:1736:U:H2'	51:1:1737:G:O4'	1.85	0.76
28:c:114:LYS:HB2	51:1:2680:U:OP1	1.84	0.76
55:8:13:DT:H72	58:B1:791:ALA:HB2	1.66	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
51:1:368:A:H2'	51:1:369:U:H5'	1.66	0.76
51:1:1773:A:H2'	51:1:1774:C:H5'	1.68	0.76
51:1:2792:A:C2'	51:1:2793:C:H5"	2.16	0.75
51:1:275:C:H3'	51:1:276:U:H5"	1.66	0.75
51:1:958:U:H2'	52:2:89:U:O2	1.87	0.75
51:1:1063:G:H1	51:1:1075:C:N4	1.84	0.75
51:1:1083:U:H2'	51:1:1085:A:OP2	1.86	0.75
51:1:1310:G:H2'	51:1:1311:G:H5'	1.69	0.75
51:1:2611:C:O2	51:1:2611:C:H2'	1.86	0.75
51:1:2432:A:H1'	64:6:75:C:O4'	1.86	0.75
58:B1:110:PRO:HG2	58:B1:183:GLU:HG3	1.69	0.75
51:1:1020:A:H5'	51:1:1021:A:C8	2.22	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
51:1:1061:U:H3'	51:1:1062:G:C5'	2.18	0.74
51:1:1425:G:H2'	51:1:1426:G:C8	2.23	0.74
51:1:2097:A:H2'	51:1:2098:U:H6	1.50	0.74
58:B1:211:GLU:HG2	58:B1:215:LYS:HE3	1.70	0.73
51:1:404:A:H1'	51:1:406:G:C4	2.23	0.73
58:B1:1143:ASP:OD1	58:B1:1148:ARG:NH1	2.21	0.73
51:1:543:G:H2'	51:1:544:C:H5"	1.68	0.73
55:8:3:DC:C2'	55:8:4:DT:H72	2.19	0.73
31:f:15:ASP:HB3	31:f:26:LYS:H	1.54	0.73
51:1:322:A:H5'	51:1:340:A:C1'	2.19	0.73
51:1:1433:A:H2'	51:1:1434:A:O4'	1.89	0.73
51:1:1670:C:H2'	51:1:1671:U:H5'	1.70	0.73
63:5:30:G:H2'	63:5:31:A:C8	2.24	0.73
17:Q:33:CYS:HA	17:Q:54:VAL:HG12	1.70	0.73
58:B1:105:ILE:HD12	58:B1:242:LEU:HD22	1.71	0.73
64:6:50:U:H2'	64:6:51:C:C4	2.24	0.73
53:3:456:A:H61	53:3:476:U:H3	1.36	0.73
51:1:545:U:H2'	51:1:546:U:O4'	1.88	0.72
51:1:481:G:H1'	51:1:506:G:N2	2.04	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:157:GLN:OE1	58:B1:157:GLN:HA	1.89	0.72
65:0:508:GLN:HA	65:0:513:GLY:HA2	1.69	0.72
51:1:2713:U:C3'	51:1:2714:G:C5'	2.67	0.72
58:B1:210:SER:HB3	58:B1:213:LYS:HB2	1.71	0.72
58:B1:220:ARG:HG2	58:B1:220:ARG:HH11	1.55	0.72
51:1:633:A:H2'	51:1:634:C:H5'	1.72	0.72
51:1:1942:C:H3'	51:1:1943:U:H2'	1.70	0.72
51:1:1795:C:H2'	51:1:1796:U:O4'	1.90	0.72
51:1:2834:G:H2'	51:1:2879:A:H61	1.54	0.72
51:1:394:C:H2'	51:1:395:U:O4'	1.90	0.72
51:1:2036:C:H2'	51:1:2037:A:C8	2.23	0.72
51:1:2671:G:H2'	51:1:2672:U:C6	2.25	0.71
58:B1:107:LEU:HD11	58:B1:242:LEU:HB2	1.70	0.71
58:B1:282:LEU:HA	58:B1:286:ALA:HA	1.70	0.71
36:l:59:ARG:HD2	51:1:250:G:H4'	1.71	0.71
51:1:1858:A:H1'	51:1:1885:A:C2	2.26	0.71
58:B1:395:LYS:HZ2	58:B1:399:LYS:CD	2.03	0.71
51:1:1441:G:H2'	51:1:1442:U:C6	2.25	0.71
53:3:452:A:H61	53:3:480:U:H3	1.37	0.71
58:B1:68:TYR:C	58:B1:75:TYR:CE2	2.65	0.71
58:B1:93:THR:HB	58:B1:97:VAL:HG21	1.73	0.71
51:1:1670:C:C2'	51:1:1671:U:H5'	2.21	0.71
51:1:2151:U:H2'	51:1:2152:G:H8	1.56	0.71
51:1:368:A:C2'	51:1:369:U:H5'	2.20	0.71
51:1:612:G:H2'	51:1:614:A:C8	2.26	0.71
51:1:890:C:C2'	51:1:891:G:H5'	2.21	0.71
51:1:940:G:H2'	51:1:941:A:H5"	1.73	0.71
51:1:1019:U:H3	51:1:1142:A:N6	1.89	0.71
53:3:663:A:H61	53:3:742:G:H1	1.39	0.70
58:B1:142:GLU:HG3	58:B1:142:GLU:O	1.89	0.70
51:1:864:G:O2'	51:1:865:C:H5'	1.89	0.70
27:b:47:ARG:NH2	51:1:774:G:H5"	2.07	0.70
51:1:723:C:H2'	51:1:724:U:C6	2.27	0.70
42:r:79:ARG:NH1	51:1:572:A:OP2	2.25	0.70
33:i:22:PRO:HB3	51:1:1067:A:H4'	1.72	0.70
51:1:1983:G:O2'	51:1:1984:G:H5'	1.92	0.70
51:1:2626:C:O2'	51:1:2627:G:H5'	1.91	0.70
51:1:1386:C:H2'	51:1:1387:A:H8	1.56	0.70
51:1:1872:A:H2'	51:1:1873:G:O4'	1.89	0.70
51:1:2297:A:N1	51:1:2321:U:H5	1.89	0.70
57:A2:294:ASN:HA	61:NA:464:ILE:H	1.57	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2267:A:H5”	51:1:2268:A:H5”	1.74	0.70
57:A1:297:LYS:CB	61:NA:79:ALA:HB1	2.22	0.70
51:1:644:A:C2’	51:1:645:C:H5”	2.22	0.70
58:B1:352:ARG:HD2	59:B2:1268:GLN:HE22	1.55	0.70
65:0:618:LYS:HG3	65:0:643:LYS:HZ3	1.55	0.70
51:1:322:A:H5’	51:1:340:A:H1’	1.73	0.69
34:j:7:LYS:HG2	51:1:538:A:H4’	1.73	0.69
51:1:1337:G:H2’	51:1:1338:G:H8	1.57	0.69
51:1:2092:U:H4’	51:1:2093:G:H5”	1.75	0.69
59:B2:65:ASN:HB3	59:B2:105:TYR:HB2	1.74	0.69
51:1:402:A:H2’	51:1:403:U:H5’	1.74	0.69
51:1:1102:C:H2’	51:1:1103:A:C8	2.22	0.69
51:1:1555:G:H5’	51:1:1555:G:C8	2.27	0.69
51:1:1565:C:HO2’	51:1:1566:A:H8	1.41	0.69
58:B1:128:LEU:HD11	58:B1:189:LEU:HG	1.73	0.69
51:1:1292:G:H2’	51:1:1293:C:C6	2.27	0.69
51:1:1889:A:H2’	51:1:1890:A:H8	1.58	0.69
51:1:2151:U:H2’	51:1:2152:G:C8	2.27	0.69
51:1:849:A:H2’	51:1:850:U:H6	1.58	0.69
51:1:1137:G:O2’	51:1:1138:G:H5’	1.92	0.69
51:1:2403:C:O2’	51:1:2404:U:H5’	1.92	0.69
58:B1:243:PRO:HG2	59:B2:1332:SER:O	1.93	0.69
36:l:30:THR:HG22	51:1:810:U:O4	1.93	0.69
51:1:644:A:H2’	51:1:645:C:C5’	2.21	0.69
51:1:2758:A:H2’	51:1:2759:G:H5’	1.75	0.69
51:1:2869:G:H2’	51:1:2870:C:C6	2.28	0.69
51:1:392:U:H2’	51:1:393:C:H6	1.58	0.69
51:1:528:A:C8	51:1:528:A:H3’	2.27	0.69
63:5:47:U:H4’	63:5:48:C:H5’	1.75	0.69
51:1:2114:A:H2	51:1:2167:U:H1’	1.58	0.68
51:1:2747:G:O6	51:1:2755:C:H5”	1.93	0.68
58:B1:832:LYS:C	58:B1:1242:ARG:HH12	2.01	0.68
51:1:319:G:H1	51:1:323:C:H5	1.41	0.68
51:1:1078:U:H2’	51:1:1088:A:OP1	1.94	0.68
53:3:437:U:H3	53:3:495:A:H62	1.41	0.68
58:B1:39:LYS:O	58:B1:273:ILE:CG2	2.41	0.68
58:B1:161:THR:HG22	58:B1:164:GLN:HB2	1.75	0.68
50:z:38:GLU:OE2	51:1:928:A:H5’	1.94	0.68
51:1:1999:C:H5”	51:1:2723:C:O2’	1.94	0.68
51:1:419:U:H2’	51:1:420:C:C6	2.27	0.68
51:1:905:A:C2’	51:1:906:U:H5’	2.23	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2510:C:N4	51:1:2511:U:O4	2.27	0.68
58:B1:111:THR:CG2	58:B1:300:GLN:CD	2.67	0.68
51:1:282:A:H2'	51:1:283:G:H8	1.57	0.68
51:1:419:U:H2'	51:1:420:C:H6	1.58	0.68
53:3:1338:G:H22	63:5:29:G:H22	1.42	0.68
51:1:1438:U:O2'	51:1:1439:A:H5'	1.94	0.68
51:1:1889:A:H2'	51:1:1890:A:C8	2.29	0.68
51:1:1702:G:C3'	51:1:1703:G:H5"	2.24	0.68
51:1:246:C:H2'	51:1:247:G:H5'	1.76	0.67
51:1:1432:G:O2'	51:1:1433:A:H5'	1.94	0.67
8:H:117:ASP:HA	8:H:120:THR:HG22	1.75	0.67
52:2:65:U:H3'	52:2:108:A:H61	1.58	0.67
58:B1:141:PHE:CD2	58:B1:293:ARG:O	2.47	0.67
51:1:466:A:H2'	51:1:467:G:H5'	1.76	0.67
51:1:1061:U:H3'	51:1:1062:G:H5'	1.76	0.67
58:B1:984:LEU:HB3	58:B1:993:GLU:HB2	1.76	0.67
51:1:112:U:H2'	51:1:113:U:H5'	1.76	0.67
51:1:226:A:H2'	51:1:227:A:O4'	1.94	0.67
51:1:703:U:C2'	51:1:704:G:H5'	2.25	0.67
51:1:2898:U:H2'	51:1:2899:A:C8	2.29	0.67
55:8:3:DC:C6	55:8:4:DT:H72	2.29	0.67
51:1:65:U:H2'	51:1:66:C:H6	1.59	0.67
51:1:1717:A:H2'	51:1:1718:G:H5'	1.77	0.67
51:1:2233:U:H2'	51:1:2234:G:C8	2.30	0.67
9:I:73:ASN:HA	9:I:76:LYS:HB2	1.77	0.67
48:x:16:ASN:ND2	48:x:26:ARG:HB3	2.09	0.67
58:B1:108:ALA:CB	58:B1:279:LEU:HD22	2.25	0.67
58:B1:1355:ARG:NH1	58:B1:1369:ARG:HH12	1.93	0.67
37:m:14:LYS:NZ	51:1:956:G:N7	2.35	0.67
51:1:2516:A:O2'	51:1:2517:C:H5'	1.95	0.67
65:0:104:ARG:HH22	65:0:407:GLU:HB3	1.57	0.67
58:B1:108:ALA:HB3	58:B1:279:LEU:HD22	1.77	0.67
4:D:37:LYS:HD3	4:D:39:ARG:HD3	1.77	0.67
51:1:2157:G:H2'	51:1:2158:A:H2	1.59	0.67
55:8:23:DC:H2"	55:8:24:DC:C5	2.30	0.67
51:1:521:U:H2'	51:1:522:A:C8	2.30	0.66
51:1:905:A:H2'	51:1:906:U:H5'	1.77	0.66
51:1:1270:C:H5"	51:1:1271:G:H5'	1.77	0.66
51:1:1484:U:H2'	51:1:1485:U:C6	2.30	0.66
58:B1:117:LEU:HD12	58:B1:117:LEU:O	1.94	0.66
65:0:364:VAL:HA	65:0:373:GLU:HA	1.77	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1063:G:H1	51:1:1075:C:H41	1.42	0.66
51:1:1176:U:H2'	51:1:1177:G:C8	2.29	0.66
55:8:13:DT:OP2	58:B1:791:ALA:HB1	1.95	0.66
51:1:707:G:O2'	51:1:708:G:H5'	1.94	0.66
51:1:894:U:H2'	51:1:895:U:O4'	1.93	0.66
51:1:2278:A:C3'	51:1:2279:G:H5"	2.25	0.66
51:1:528:A:H3'	51:1:528:A:H8	1.59	0.66
51:1:2278:A:H3'	51:1:2279:G:H5"	1.78	0.66
58:B1:1037:PHE:HB3	58:B1:1040:MET:HB2	1.78	0.66
51:1:2555:U:H2'	51:1:2556:C:H5'	1.77	0.66
51:1:2733:A:O2'	51:1:2734:A:H5'	1.96	0.66
45:u:25:LYS:HD3	45:u:36:GLU:HB3	1.75	0.66
51:1:673:C:H2'	51:1:674:G:H5'	1.77	0.66
17:Q:47:ALA:HB3	17:Q:49:ARG:HE	1.60	0.66
51:1:870:U:C2'	51:1:871:U:H5'	2.26	0.66
51:1:1082:U:H3'	51:1:1083:U:C5'	2.22	0.66
51:1:1733:G:O2'	51:1:1734:G:H5'	1.95	0.66
51:1:1020:A:H1'	51:1:1021:A:OP2	1.95	0.66
51:1:2233:U:H2'	51:1:2234:G:H8	1.59	0.66
51:1:2625:G:H2'	51:1:2626:C:C6	2.30	0.66
51:1:2760:C:O2'	51:1:2761:A:H5'	1.96	0.66
51:1:1064:C:N4	51:1:1069:A:H5"	2.10	0.66
51:1:2595:G:N2	51:1:2598:A:OP2	2.23	0.66
28:c:4:LEU:HD23	28:c:29:VAL:HG11	1.77	0.65
36:l:39:LYS:NZ	51:1:942:G:OP2	2.28	0.65
51:1:703:U:H2'	51:1:704:G:H5'	1.77	0.65
51:1:1746:A:H2'	51:1:1747:U:C6	2.31	0.65
51:1:2844:G:H2'	51:1:2845:U:C6	2.31	0.65
53:3:85:U:H5"	53:3:86:G:H5'	1.78	0.65
51:1:635:C:H2'	51:1:636:G:C8	2.31	0.65
51:1:1098:A:H2'	51:1:1099:G:H5'	1.77	0.65
51:1:2052:A:O2'	51:1:2053:G:H5'	1.96	0.65
58:B1:141:PHE:HD2	58:B1:293:ARG:O	1.80	0.65
58:B1:193:ASP:HB3	58:B1:196:GLN:HB2	1.78	0.65
7:G:67:LEU:HD12	7:G:153:MET:HE1	1.77	0.65
38:n:63:ARG:NE	51:1:1454:C:H5'	2.10	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
51:1:414:C:H2'	51:1:415:A:C8	2.31	0.65
65:0:508:GLN:HA	65:0:513:GLY:HA3	1.77	0.65
17:Q:109:ARG:HH21	17:Q:112:ALA:HB3	1.60	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:b:227:VAL:HG11	51:1:784:G:C2	2.31	0.65
51:1:543:G:H2'	51:1:544:C:C5'	2.26	0.65
51:1:2221:G:O2'	51:1:2222:C:H5'	1.95	0.65
51:1:2834:G:O2'	51:1:2835:A:H5'	1.97	0.65
19:S:38:GLU:HA	19:S:41:TRP:HB3	1.79	0.65
51:1:2013:A:H5"	51:1:2013:A:H8	1.59	0.65
51:1:536:G:H2'	51:1:537:G:H5'	1.79	0.65
51:1:1098:A:C2'	51:1:1099:G:H5'	2.27	0.65
51:1:1572:A:O2'	51:1:1573:G:H5'	1.97	0.65
51:1:1796:U:H2'	51:1:1797:G:H8	1.61	0.65
51:1:2193:G:H2'	51:1:2194:U:C6	2.32	0.65
58:B1:975:ILE:HG22	58:B1:977:SER:H	1.62	0.65
58:B1:978:ARG:HG2	58:B1:1197:ASN:HD21	1.61	0.65
51:1:905:A:O2'	51:1:906:U:H5'	1.97	0.65
31:f:154:GLU:HG3	31:f:156:TYR:H	1.61	0.65
51:1:613:A:H5"	51:1:614:A:C8	2.32	0.65
58:B1:68:TYR:HB3	58:B1:75:TYR:CE2	2.32	0.65
51:1:1161:C:H2'	51:1:1162:G:H8	1.61	0.64
51:1:1853:A:H2'	51:1:1854:A:C8	2.32	0.64
51:1:2290:G:H2'	51:1:2291:U:C6	2.32	0.64
51:1:2799:A:C2'	51:1:2800:A:H5'	2.27	0.64
4:D:24:THR:HG23	4:D:27:GLY:H	1.61	0.64
16:P:87:GLY:H	16:P:113:THR:HG22	1.62	0.64
28:c:149:ASN:HB3	51:1:2572:A:OP2	1.97	0.64
51:1:488:G:N2	51:1:491:G:H5"	2.11	0.64
51:1:1788:C:O2'	51:1:1789:A:H5'	1.96	0.64
51:1:256:A:O2'	51:1:257:C:H5'	1.98	0.64
51:1:306:U:H2'	51:1:307:G:O4'	1.98	0.64
51:1:2792:A:H3'	51:1:2793:C:H5"	1.80	0.64
26:Z:32:ARG:HG2	26:Z:33:ARG:HG3	1.80	0.64
51:1:2404:U:O2'	51:1:2405:G:H5'	1.97	0.64
58:B1:395:LYS:HZ2	58:B1:399:LYS:HD3	1.61	0.64
58:B1:918:ILE:HG22	59:B2:1280:ALA:HB1	1.79	0.64
51:1:414:C:H2'	51:1:415:A:H8	1.63	0.64
51:1:2112:G:C2'	51:1:2113:U:H5'	2.27	0.64
43:s:6:LYS:HB2	51:1:494:G:H4'	1.78	0.64
51:1:815:C:C2	51:1:1193:G:N2	2.66	0.64
51:1:2170:A:H2'	51:1:2171:A:O4'	1.97	0.64
55:8:3:DC:C2'	55:8:4:DT:C7	2.75	0.64
12:L:59:GLU:HA	12:L:62:GLU:HB3	1.80	0.64
51:1:1857:G:H22	51:1:1884:G:H2'	1.62	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1921:G:O2'	51:1:1922:G:H5'	1.98	0.64
51:1:2469:A:H2'	51:1:2470:G:O4'	1.98	0.64
59:B2:314:ASN:HD21	59:B2:348:SER:HA	1.62	0.64
59:B2:1282:GLY:HA3	60:W0:17:PHE:HE1	1.63	0.64
51:1:622:G:O2'	51:1:623:C:H5'	1.98	0.64
51:1:1038:G:H2'	51:1:1039:A:C8	2.32	0.64
51:1:1181:U:H2'	51:1:1182:G:C8	2.33	0.64
51:1:2073:C:O2'	51:1:2074:U:H5'	1.98	0.64
51:1:2114:A:N7	51:1:2115:G:H1'	2.12	0.64
16:P:19:VAL:HG22	16:P:82:GLU:HB2	1.79	0.64
27:b:106:PRO:HD2	27:b:109:LEU:HD22	1.79	0.64
51:1:1666:G:H2'	51:1:1667:G:C5'	2.24	0.64
58:B1:162:GLU:HA	58:B1:162:GLU:OE1	1.97	0.64
58:B1:461:PHE:HD2	59:B2:813:GLU:HB2	1.62	0.64
51:1:1164:C:O2'	51:1:1165:A:H5'	1.99	0.63
51:1:1766:G:O2'	51:1:1767:G:H5'	1.98	0.63
51:1:870:U:H2'	51:1:871:U:H5'	1.80	0.63
51:1:940:G:C3'	51:1:941:A:H5"	2.28	0.63
51:1:2811:G:O2'	51:1:2812:G:H5'	1.97	0.63
65:0:614:GLU:HB3	65:0:690:ALA:HB2	1.79	0.63
11:K:38:ARG:HE	11:K:97:THR:HA	1.62	0.63
51:1:65:U:H2'	51:1:66:C:C6	2.33	0.63
51:1:2314:A:H2'	51:1:2315:G:C8	2.33	0.63
51:1:1149:G:H2'	51:1:1150:C:C6	2.33	0.63
51:1:201:C:O2'	51:1:202:U:H5'	1.97	0.63
51:1:445:C:H2'	51:1:446:G:O4'	1.98	0.63
51:1:1280:G:O2'	51:1:1281:G:H5'	1.99	0.63
58:B1:245:LEU:HG	58:B1:246:PRO:HD2	1.80	0.63
7:G:173:LYS:O	7:G:177:ASN:ND2	2.32	0.63
26:Z:65:ARG:NH2	53:3:1087:G:N3	2.47	0.63
34:j:45:THR:HB	34:j:48:VAL:HG22	1.81	0.63
51:1:2636:C:H2'	51:1:2637:U:H6	1.64	0.63
51:1:2898:U:H2'	51:1:2899:A:H8	1.64	0.63
9:I:152:SER:H	9:I:155:LYS:HD3	1.63	0.63
51:1:212:G:O2'	51:1:213:A:H5'	1.99	0.63
51:1:1909:C:H2'	51:1:1910:G:H8	1.64	0.63
51:1:554:U:H2'	51:1:555:G:O4'	1.99	0.62
53:3:373:A:H61	53:3:391:G:H1'	1.64	0.62
58:B1:128:LEU:HA	58:B1:192:MET:HE1	1.81	0.62
1:A:1:MET:HG2	52:2:43:C:H5"	1.82	0.62
51:1:317:G:H2'	51:1:318:C:H6	1.64	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:u:87:GLU:HG2	45:u:92:VAL:HG21	1.82	0.62
51:1:1448:G:H2'	51:1:1449:G:H8	1.64	0.62
51:1:161:A:N7	51:1:162:U:H5	1.96	0.62
51:1:1524:G:H2'	51:1:1525:A:H8	1.63	0.62
51:1:2298:A:H2'	51:1:2299:U:O4'	1.99	0.62
55:8:13:DT:C7	58:B1:791:ALA:HB2	2.29	0.62
51:1:37:C:O2'	51:1:38:A:H5'	1.99	0.62
51:1:1680:U:H2'	51:1:1681:G:O4'	2.00	0.62
58:B1:285:LEU:HD13	58:B1:285:LEU:H	1.62	0.62
58:B1:1355:ARG:NH1	58:B1:1369:ARG:NH1	2.47	0.62
64:6:46:G:C2'	64:6:47:U:H5'	2.29	0.62
22:V:30:HIS:HD2	22:V:33:TYR:H	1.48	0.62
44:t:53:VAL:HG12	44:t:92:ASN:HD22	1.65	0.62
51:1:2092:U:H5	51:1:2199:A:H2	1.48	0.62
58:B1:100:GLU:HA	59:B2:1328:LYS:HE2	1.82	0.62
51:1:872:U:O2'	51:1:873:C:H5'	1.99	0.62
51:1:889:C:H2'	51:1:890:C:O4'	1.99	0.62
51:1:941:A:H2'	51:1:942:G:O4'	2.00	0.62
16:P:45:THR:HG23	16:P:48:GLY:H	1.65	0.62
51:1:1935:G:H1'	51:1:1964:G:N2	2.15	0.62
58:B1:111:THR:CG2	58:B1:300:GLN:NE2	2.63	0.62
51:1:161:A:H3'	51:1:162:U:H5"	1.81	0.61
51:1:2345:G:N3	51:1:2381:A:H2'	2.15	0.61
51:1:2734:A:H2'	51:1:2735:G:H5'	1.82	0.61
55:8:3:DC:H2'	55:8:4:DT:C7	2.30	0.61
59:B2:55:SER:OG	59:B2:465:ARG:NH1	2.33	0.61
4:D:3:ARG:O	4:D:6:GLN:NE2	2.34	0.61
16:P:58:THR:HG22	16:P:60:PHE:H	1.65	0.61
32:g:50:ARG:HH22	32:g:51:ARG:HH21	1.48	0.61
37:m:86:LYS:NZ	51:1:955:U:OP1	2.32	0.61
7:G:15:PHE:HB2	7:G:39:ILE:HG23	1.82	0.61
51:1:172:A:H2'	51:1:173:A:H8	1.66	0.61
55:8:1:DC:H2"	55:8:2:DC:C5	2.35	0.61
58:B1:633:ALA:HA	59:B2:806:PRO:O	2.01	0.61
58:B1:1357:ILE:HD11	59:B2:1287:LEU:HD13	1.80	0.61
2:B:43:THR:HG1	2:B:46:GLY:H	1.48	0.61
51:1:322:A:H5'	51:1:340:A:O4'	2.00	0.61
51:1:940:G:C2'	51:1:941:A:H5"	2.30	0.61
51:1:2404:U:H2'	51:1:2405:G:O4'	2.01	0.61
51:1:590:A:O2'	51:1:591:U:H5'	2.00	0.61
51:1:1040:A:H2	51:1:1115:G:H22	1.48	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1086:A:H5'	51:1:1103:A:H2	1.65	0.61
51:1:1503:A:H3'	51:1:1504:A:H5"	1.81	0.61
57:A1:211:ILE:HG12	57:A1:219:ARG:HH12	1.65	0.61
58:B1:68:TYR:HB3	58:B1:75:TYR:CZ	2.35	0.61
51:1:236:C:H2'	51:1:237:C:H6	1.64	0.61
51:1:547:A:H3'	51:1:547:A:N3	2.16	0.61
51:1:558:U:H6	51:1:558:U:O5'	1.84	0.61
51:1:723:C:H2'	51:1:724:U:H6	1.64	0.61
51:1:1717:A:C2'	51:1:1718:G:H5'	2.30	0.61
51:1:2188:U:H2'	51:1:2189:U:O4'	2.01	0.61
58:B1:395:LYS:NZ	58:B1:399:LYS:HD3	2.15	0.61
51:1:435:C:H2'	51:1:436:C:H5'	1.82	0.61
51:1:2097:A:H2'	51:1:2098:U:O4'	2.00	0.61
28:c:181:ASP:HB3	28:c:186:LEU:HB2	1.82	0.61
51:1:1775:U:C2'	51:1:1776:G:H5'	2.30	0.61
51:1:2804:U:H2'	51:1:2805:C:C6	2.36	0.61
58:B1:201:LEU:HB2	58:B1:221:ILE:HD13	1.80	0.61
18:R:102:LYS:HG2	18:R:103:THR:HG23	1.83	0.60
34:j:132:HIS:CD2	51:1:7:G:H5'	2.35	0.60
51:1:198:C:H42	51:1:248:G:H1	1.49	0.60
51:1:2637:U:H2'	51:1:2638:G:H5'	1.82	0.60
51:1:2852:G:O2'	51:1:2853:C:H5'	2.01	0.60
51:1:854:C:O2'	51:1:855:G:H5'	2.01	0.60
51:1:1954:G:H1'	51:1:1956:U:O4	2.01	0.60
51:1:2327:A:H2'	51:1:2328:A:C8	2.35	0.60
34:j:39:LYS:HE3	51:1:1009:A:OP1	2.01	0.60
37:m:17:ASN:O	37:m:38:ARG:NH1	2.34	0.60
51:1:1198:U:H2'	51:1:1199:U:C6	2.37	0.60
51:1:2812:G:H2'	51:1:2813:A:C8	2.36	0.60
58:B1:154:LEU:HD21	58:B1:160:LEU:HD21	1.83	0.60
58:B1:223:LEU:HG	58:B1:223:LEU:O	2.00	0.60
58:B1:770:LEU:HD13	59:B2:618:GLN:CG	2.30	0.60
57:A1:38:THR:HB	57:A2:45:ARG:HD3	1.82	0.60
58:B1:951:GLN:NE2	58:B1:1014:GLY:O	2.35	0.60
51:1:1437:C:H2'	51:1:1438:U:C6	2.36	0.60
53:3:1032:G:H21	53:3:1033:G:H4'	1.65	0.60
29:d:149:ILE:HG23	29:d:188:MET:HB3	1.83	0.60
33:i:135:MET:HE2	51:1:1062:G:H21	1.65	0.60
51:1:2093:G:O2'	51:1:2094:A:H5'	2.01	0.60
53:3:1133:G:H1	53:3:1141:C:H42	1.48	0.60
58:B1:1161:GLY:HA3	58:B1:1179:PRO:HA	1.82	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1026:G:H2'	51:1:1027:A:H8	1.67	0.60
51:1:1508:A:H2'	51:1:1509:A:O4'	2.01	0.60
51:1:1553:A:HO2'	51:1:1554:U:H5	1.48	0.60
51:1:1775:U:H2'	51:1:1776:G:C5'	2.29	0.60
55:8:7:DC:H2"	55:8:8:DT:H71	1.84	0.60
22:V:11:VAL:HA	22:V:22:VAL:HA	1.83	0.60
47:w:38:GLY:HA2	51:1:2330:G:H21	1.66	0.60
51:1:2137:U:H2'	51:1:2138:G:H8	1.67	0.60
53:3:1040:U:H2'	53:3:1041:G:H8	1.67	0.60
57:A1:112:ALA:HB3	57:A1:126:PRO:HA	1.83	0.60
58:B1:370:LYS:HG2	58:B1:441:LEU:HD23	1.84	0.60
58:B1:926:PRO:HG2	58:B1:1248:ILE:HD11	1.84	0.60
51:1:794:A:H2'	51:1:795:C:O4'	2.02	0.60
51:1:893:C:H2'	51:1:894:U:C6	2.36	0.60
51:1:1183:U:H2'	51:1:1184:U:C6	2.37	0.60
51:1:1287:A:C5	51:1:1288:G:C6	2.89	0.60
51:1:2187:U:O2'	51:1:2188:U:H5'	2.02	0.60
53:3:148:G:H1'	53:3:1447:A:H1'	1.84	0.60
53:3:1351:U:H3	53:3:1371:G:H1	1.49	0.60
55:8:11:DC:H2'	55:8:12:DG:C8	2.37	0.60
58:B1:342:LEU:HD23	58:B1:1352:ILE:HG23	1.83	0.60
59:B2:120:GLN:NE2	59:B2:490:GLN:OE1	2.32	0.60
51:1:2360:G:C2'	51:1:2361:G:H5'	2.31	0.60
58:B1:412:LEU:HD22	58:B1:441:LEU:HD21	1.84	0.60
59:B2:528:ARG:NH2	59:B2:576:SER:O	2.30	0.60
59:B2:1072:ASN:ND2	59:B2:1111:GLN:OE1	2.35	0.60
51:1:1670:C:H2'	51:1:1671:U:C5'	2.31	0.59
51:1:1773:A:C2'	51:1:1774:C:H5'	2.31	0.59
58:B1:99:ARG:NH1	58:B1:99:ARG:HG3	2.17	0.59
51:1:283:G:H2'	51:1:284:U:H5'	1.83	0.59
14:N:79:ARG:HH21	14:N:102:PHE:HA	1.67	0.59
33:i:19:PRO:HA	33:i:24:GLY:HA3	1.85	0.59
51:1:1071:G:H1'	51:1:1089:A:C8	2.37	0.59
51:1:1538:G:H2'	51:1:1539:U:C6	2.37	0.59
51:1:1857:G:N2	51:1:1884:G:H2'	2.17	0.59
51:1:2661:G:H5'	65:0:19:ILE:HD13	1.85	0.59
55:8:9:DG:H4'	58:B1:120:LEU:HG	1.84	0.59
51:1:11:C:C2'	51:1:12:U:H5"	2.29	0.59
51:1:851:C:H2'	51:1:852:U:C6	2.36	0.59
51:1:2386:A:O2'	51:1:2387:U:H5'	2.01	0.59
24:X:30:LEU:HB2	24:X:48:ILE:HG22	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:b:153:LEU:HD23	51:1:1799:G:C2	2.37	0.59
51:1:2643:G:H2'	51:1:2644:G:H5'	1.84	0.59
51:1:2743:U:H3'	51:1:2744:G:H5"	1.84	0.59
51:1:2789:C:H2'	51:1:2893:A:N7	2.18	0.59
59:B2:918:LEU:O	59:B2:918:LEU:HD23	2.02	0.59
30:e:51:ASN:OD1	30:e:149:ARG:NH1	2.34	0.59
39:o:4:LYS:HD3	39:o:7:ARG:HH21	1.65	0.59
51:1:841:G:O2'	51:1:842:U:H5'	2.02	0.59
51:1:1130:U:O2'	51:1:1131:G:OP1	2.20	0.59
51:1:2717:C:C4	51:1:2718:G:N7	2.70	0.59
29:d:77:ILE:HG23	51:1:1256:G:H21	1.68	0.59
51:1:2165:C:H2'	51:1:2166:U:C6	2.38	0.59
29:d:68:ALA:HA	51:1:1255:U:C5	2.37	0.59
45:u:40:LEU:HD12	45:u:59:GLU:HG2	1.84	0.59
51:1:2153:C:H2'	51:1:2154:A:H5'	1.85	0.59
51:1:2749:A:OP2	51:1:2751:G:H5"	2.02	0.59
58:B1:201:LEU:HD11	58:B1:220:ARG:HH11	1.67	0.59
58:B1:725:MET:SD	59:B2:1101:LEU:HD23	2.42	0.59
58:B1:750:PRO:CB	59:B2:549:ASP:OD2	2.45	0.59
65:0:557:ILE:HG21	65:0:576:ILE:HD12	1.85	0.59
9:I:69:ARG:NH1	53:3:401:C:OP2	2.36	0.59
9:I:201:GLU:O	53:3:8:A:N6	2.36	0.59
30:e:9:ASP:N	30:e:9:ASP:OD1	2.33	0.59
51:1:1042:G:H2'	51:1:1043:C:C6	2.37	0.59
59:B2:1142:ARG:NH1	59:B2:1161:LEU:O	2.36	0.59
14:N:17:ARG:HB2	14:N:65:THR:HG23	1.83	0.59
27:b:34:GLU:HG3	27:b:63:ILE:HD11	1.84	0.59
34:j:116:ARG:NH2	51:1:529:A:OP2	2.32	0.59
51:1:528:A:C8	51:1:528:A:C3'	2.86	0.59
51:1:1171:G:H2'	51:1:1172:C:O4'	2.02	0.59
58:B1:161:THR:HG23	58:B1:164:GLN:H	1.68	0.59
58:B1:438:GLU:HG3	58:B1:485:MET:HE1	1.85	0.59
28:c:55:LYS:NZ	28:c:59:ARG:O	2.36	0.58
29:d:77:ILE:CG2	51:1:1256:G:H21	2.15	0.58
34:j:3:THR:N	51:1:995:C:N3	2.48	0.58
51:1:246:C:C2'	51:1:247:G:H5'	2.33	0.58
51:1:1077:A:C8	51:1:1078:U:H1'	2.38	0.58
51:1:1337:G:H2'	51:1:1338:G:C8	2.38	0.58
51:1:1524:G:H2'	51:1:1525:A:C8	2.38	0.58
51:1:2533:U:H2'	51:1:2534:A:H5'	1.85	0.58
47:w:40:LYS:HE3	51:1:2330:G:O2'	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1333:G:O2'	51:1:1334:G:H5'	2.03	0.58
51:1:1725:U:H2'	51:1:1726:C:C6	2.38	0.58
51:1:2183:A:H2'	51:1:2184:A:C4	2.37	0.58
51:1:49:A:H5"	51:1:51:G:O4'	2.02	0.58
51:1:1469:A:H2'	51:1:1470:A:C8	2.38	0.58
51:1:2834:G:H2'	51:1:2879:A:N6	2.17	0.58
53:3:422:C:O2'	53:3:423:G:N2	2.36	0.58
15:O:46:LYS:HG2	15:O:68:ARG:HG2	1.84	0.58
42:r:4:VAL:HG22	42:r:40:MET:HG2	1.84	0.58
51:1:834:G:H2'	51:1:835:C:O4'	2.04	0.58
51:1:1098:A:H2'	51:1:1099:G:C5'	2.33	0.58
51:1:2215:C:H2'	51:1:2216:G:H8	1.65	0.58
59:B2:707:ALA:O	59:B2:711:ASP:HB2	2.04	0.58
65:0:618:LYS:HG3	65:0:643:LYS:NZ	2.19	0.58
21:U:70:ARG:HH22	53:3:451:A:H5'	1.66	0.58
51:1:1511:G:H2'	51:1:1512:C:C6	2.38	0.58
51:1:1561:C:H2'	51:1:1562:U:C6	2.39	0.58
51:1:2812:G:H2'	51:1:2813:A:H8	1.68	0.58
58:B1:514:THR:HG21	58:B1:596:LEU:HD12	1.84	0.58
51:1:146:A:H2'	51:1:147:C:C6	2.39	0.58
51:1:215:G:H4'	51:1:216:A:H4'	1.84	0.58
51:1:1400:U:O2'	51:1:1401:G:H5'	2.04	0.58
58:B1:275:ARG:NH1	58:B1:278:ARG:NH1	2.51	0.58
51:1:1845:G:O2'	51:1:1846:G:H5'	2.02	0.58
58:B1:144:TYR:CE1	58:B1:162:GLU:OE2	2.51	0.58
23:W:49:LYS:HA	23:W:52:ARG:HH21	1.69	0.58
30:e:47:LYS:O	30:e:51:ASN:ND2	2.37	0.58
51:1:640:C:O2'	51:1:641:U:H5'	2.04	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
51:1:2636:C:H2'	51:1:2637:U:C6	2.39	0.58
53:3:409:U:H3	53:3:433:G:H1	1.51	0.58
58:B1:97:VAL:HG11	58:B1:101:ARG:NH2	2.18	0.58
58:B1:198:CYS:HA	58:B1:221:ILE:HD11	1.86	0.58
58:B1:1361:THR:HB	59:B2:1284:ALA:HB3	1.86	0.58
9:I:10:LEU:HD23	9:I:62:ARG:HB3	1.86	0.58
19:S:5:MET:HE1	53:3:981:U:H5"	1.86	0.58
29:d:1:MET:HG2	29:d:16:GLU:HG2	1.86	0.58
51:1:673:C:C2'	51:1:674:G:H5'	2.34	0.58
51:1:1565:C:O2'	51:1:1566:A:H8	1.87	0.58
51:1:2762:C:H2'	51:1:2763:G:H5'	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:45:THR:O	7:G:49:PHE:N	2.35	0.57
27:b:141:HIS:ND1	27:b:192:GLY:O	2.35	0.57
39:o:56:LYS:NZ	52:2:117:G:OP1	2.36	0.57
51:1:1275:A:C6	51:1:1296:G:H4'	2.39	0.57
51:1:1526:C:H2'	51:1:1527:G:O4'	2.04	0.57
51:1:2899:A:O2'	51:1:2900:A:H5'	2.04	0.57
58:B1:99:ARG:CG	58:B1:99:ARG:HH11	2.17	0.57
65:0:94:ASP:HB3	65:0:465:HIS:HB2	1.85	0.57
27:b:157:ALA:O	51:1:1820:U:C2	2.56	0.57
27:b:220:ARG:NH1	51:1:1789:A:OP2	2.38	0.57
28:c:63:PRO:HG3	51:1:2787:C:H1'	1.85	0.57
37:m:66:ARG:NH1	37:m:104:GLU:OE2	2.36	0.57
38:n:63:ARG:CZ	51:1:1454:C:H5'	2.34	0.57
49:y:39:GLN:HG2	51:1:96:C:OP1	2.05	0.57
51:1:32:C:H2'	51:1:33:C:C6	2.39	0.57
51:1:163:C:H2'	51:1:164:C:O4'	2.05	0.57
51:1:1463:C:H2'	51:1:1464:G:H8	1.68	0.57
58:B1:42:GLU:HB3	58:B1:52:GLU:HG3	1.86	0.57
45:u:36:GLU:HA	45:u:61:GLU:HG2	1.86	0.57
51:1:1108:U:H2'	51:1:1109:C:C2	2.40	0.57
58:B1:615:LYS:HG2	60:W0:5:THR:HG21	1.85	0.57
1:A:26:SER:OG	1:A:27:THR:N	2.37	0.57
16:P:111:ASP:HB2	26:Z:16:ARG:HH22	1.68	0.57
25:Y:59:ARG:NH1	53:3:177:G:OP1	2.37	0.57
38:n:22:ARG:HG3	38:n:70:THR:HA	1.86	0.57
57:A2:28:LEU:HB2	57:A2:201:LEU:HB3	1.85	0.57
59:B2:69:GLN:HE21	59:B2:101:ARG:HD2	1.67	0.57
51:1:621:A:H2'	51:1:622:G:H5'	1.86	0.57
51:1:1173:U:C5	51:1:1174:U:H1'	2.40	0.57
51:1:1528:A:H2'	51:1:1529:G:H5'	1.87	0.57
39:o:25:ARG:NH1	52:2:8:C:O3'	2.37	0.57
51:1:593:U:H2'	51:1:594:U:C6	2.40	0.57
51:1:1319:C:O2'	51:1:1320:C:H5'	2.05	0.57
51:1:2186:G:O2'	51:1:2187:U:H5'	2.04	0.57
58:B1:37:GLU:O	58:B1:61:ILE:CD1	2.52	0.57
58:B1:638:SER:OG	58:B1:639:VAL:N	2.36	0.57
25:Y:73:ARG:NH2	53:3:261:U:OP2	2.36	0.57
28:c:129:THR:OG1	28:c:140:HIS:O	2.22	0.57
51:1:74:A:H4'	51:1:75:G:O5'	2.05	0.57
51:1:235:U:H2'	51:1:236:C:C6	2.39	0.57
51:1:635:C:H2'	51:1:636:G:H8	1.70	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1520:U:O2'	51:1:1521:G:H5'	2.05	0.57
51:1:2897:U:H2'	51:1:2898:U:C6	2.39	0.57
58:B1:241:VAL:O	58:B1:241:VAL:HG12	2.04	0.57
58:B1:510:LEU:HD22	58:B1:601:ILE:HD12	1.86	0.57
21:U:55:ASP:OD1	21:U:55:ASP:N	2.38	0.57
38:n:54:LEU:HD23	38:n:66:ALA:HB2	1.86	0.57
41:q:30:VAL:HG13	51:1:580:U:O3'	2.04	0.57
51:1:287:G:H2'	51:1:288:U:C6	2.40	0.57
51:1:366:C:O2'	51:1:367:G:H5'	2.04	0.57
51:1:2092:U:H4'	51:1:2093:G:C5'	2.34	0.57
8:H:76:ILE:HD11	54:4:23:U:H4'	1.87	0.57
27:b:259:ASN:ND2	27:b:262:THR:OG1	2.38	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
53:3:1125:U:H2'	53:3:1126:U:H2'	1.85	0.57
57:A2:82:LEU:HD11	57:A2:171:LEU:HD23	1.86	0.57
58:B1:741:ALA:O	58:B1:762:ASN:ND2	2.38	0.57
59:B2:1122:LYS:NZ	59:B2:1126:ASP:OD1	2.38	0.57
51:1:69:C:H2'	51:1:70:G:H8	1.70	0.56
51:1:503:A:H4'	51:1:505:A:H5"	1.87	0.56
59:B2:1142:ARG:NH2	59:B2:1166:ASP:OD1	2.38	0.56
40:p:1:SER:OG	40:p:2:ASN:N	2.37	0.56
51:1:2570:G:H2'	51:1:2571:U:H5'	1.85	0.56
51:1:2662:A:H2'	51:1:2663:G:O4'	2.05	0.56
59:B2:818:VAL:HG22	59:B2:1096:ILE:HG12	1.87	0.56
7:G:114:LYS:HE3	7:G:151:LYS:HB2	1.86	0.56
10:J:54:GLU:HG2	10:J:56:PRO:HD2	1.86	0.56
18:R:100:ARG:NH1	18:R:103:THR:OG1	2.38	0.56
35:k:65:THR:HG23	35:k:68:GLY:H	1.69	0.56
46:v:57:TYR:OH	46:v:79:ARG:NH2	2.38	0.56
50:z:4:ILE:HD11	50:z:58:GLU:HG2	1.86	0.56
51:1:184:C:H2'	51:1:185:G:H8	1.70	0.56
51:1:358:U:H2'	51:1:359:G:C8	2.41	0.56
51:1:543:G:H2'	51:1:544:C:O4'	2.05	0.56
51:1:727:A:H2'	51:1:728:G:C8	2.40	0.56
51:1:2845:U:H2'	51:1:2846:G:H8	1.69	0.56
58:B1:247:PRO:HA	58:B1:250:ARG:HG3	1.87	0.56
31:f:44:HIS:HA	31:f:49:LEU:HG	1.87	0.56
39:o:52:SER:OG	39:o:53:THR:N	2.39	0.56
51:1:359:G:C2'	51:1:360:U:H5'	2.36	0.56
51:1:877:A:N1	51:1:899:A:H2'	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1485:U:H2'	51:1:1486:U:C6	2.41	0.56
51:1:1678:A:H2'	51:1:1679:A:H5'	1.86	0.56
58:B1:160:LEU:HD22	58:B1:164:GLN:HB3	1.86	0.56
58:B1:1167:LYS:HZ2	58:B1:1170:LYS:HB2	1.71	0.56
64:6:52:G:H2'	64:6:53:G:H8	1.69	0.56
27:b:250:GLN:NE2	27:b:251:THR:O	2.38	0.56
51:1:780:G:H21	51:1:783:A:H62	1.54	0.56
51:1:1590:A:O2'	51:1:1591:A:H5'	2.05	0.56
59:B2:13:LYS:HB2	59:B2:1180:MET:HE2	1.86	0.56
7:G:91:VAL:HG22	7:G:150:ILE:HD11	1.88	0.56
11:K:2:ARG:NH1	53:3:738:C:OP1	2.39	0.56
11:K:12:PRO:HB2	11:K:44:ARG:HH21	1.70	0.56
14:N:35:GLU:HA	14:N:39:GLY:HA3	1.86	0.56
16:P:92:ARG:NH2	16:P:111:ASP:OD1	2.38	0.56
38:n:2:ARG:HA	38:n:5:LYS:HD3	1.88	0.56
50:z:15:ARG:HE	50:z:52:PHE:HE2	1.53	0.56
51:1:296:U:H2'	51:1:297:G:C8	2.41	0.56
51:1:1120:G:O2'	51:1:1121:C:H5'	2.05	0.56
51:1:1410:G:H2'	51:1:1411:U:C6	2.41	0.56
51:1:2395:C:H42	51:1:2421:G:H1	1.54	0.56
53:3:159:G:N2	53:3:162:A:OP2	2.34	0.56
58:B1:1046:ILE:HD12	58:B1:1059:LEU:HB3	1.86	0.56
59:B2:1070:HIS:NE2	59:B2:1114:GLU:OE1	2.36	0.56
31:f:40:VAL:O	31:f:54:ARG:NH2	2.38	0.56
31:f:151:ARG:HB3	31:f:161:VAL:HG23	1.86	0.56
49:y:49:ASP:OD1	49:y:52:ARG:NH2	2.39	0.56
51:1:118:A:OP2	51:1:119:A:H5"	2.06	0.56
51:1:720:U:H2'	51:1:721:A:C8	2.41	0.56
51:1:1541:C:O2'	51:1:1542:U:H5'	2.06	0.56
51:1:2457:U:O2'	51:1:2458:G:H5'	2.05	0.56
51:1:2510:C:C4	51:1:2511:U:C4	2.93	0.56
58:B1:39:LYS:O	58:B1:273:ILE:HG21	2.06	0.56
58:B1:1166:GLY:HA3	58:B1:1174:ARG:HB2	1.88	0.56
63:5:37:A:H3'	63:5:38:A:H8	1.71	0.56
7:G:58:LYS:O	7:G:62:ARG:NH1	2.38	0.56
51:1:1182:G:H2'	51:1:1183:U: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'	1.87	0.56
51:1:2637:U:C2'	51:1:2638:G:H5'	2.36	0.56
58:B1:130:MET:HE2	58:B1:135:ILE:HG12	1.87	0.56
58:B1:804:ALA:HA	58:B1:1259:GLN:HG3	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:78:U:H2'	51:1:79:C:C6	2.40	0.56
51:1:133:U:O2'	51:1:134:G:H5'	2.06	0.56
51:1:288:U:H2'	51:1:289:G:H8	1.71	0.56
51:1:1097:U:H2'	51:1:1098:A:O4'	2.06	0.56
51:1:1772:A:H5'	51:1:1773:A:OP2	2.06	0.56
51:1:1917:U:O2'	51:1:1918:A:H5'	2.05	0.56
51:1:2626:C:H2'	51:1:2627:G:O4'	2.06	0.56
65:0:29:ARG:HE	65:0:269:ALA:HB1	1.70	0.56
10:J:44:ARG:NH2	10:J:70:MET:SD	2.78	0.56
51:1:2114:A:C2	51:1:2167:U:H1'	2.41	0.56
57:A1:29:GLU:HB3	57:A1:200:LYS:HG3	1.88	0.56
49:y:28:LEU:HA	49:y:31:GLN:HB2	1.88	0.55
51:1:340:A:H2'	51:1:341:C:O4'	2.06	0.55
51:1:759:G:H2'	51:1:760:G:C8	2.41	0.55
51:1:2584:U:C2'	51:1:2585:U:H5'	2.34	0.55
53:3:158:G:N2	53:3:163:C:O2	2.36	0.55
53:3:830:G:H1	53:3:856:C:H42	1.53	0.55
4:D:9:VAL:HG22	51:1:1309:G:OP1	2.06	0.55
19:S:26:LEU:HA	19:S:30:ILE:HD12	1.87	0.55
51:1:155:A:H2'	51:1:156:A:C8	2.41	0.55
51:1:172:A:H2'	51:1:173:A:C8	2.40	0.55
51:1:825:A:O2'	51:1:826:U:H5'	2.06	0.55
51:1:1086:A:H5'	51:1:1103:A:C2	2.41	0.55
51:1:1697:G:H4'	51:1:1978:A:H5"	1.88	0.55
53:3:503:C:H2'	53:3:504:C:C6	2.41	0.55
41:q:90:ASP:N	41:q:90:ASP:OD1	2.37	0.55
51:1:439:A:H2'	51:1:440:C:C6	2.42	0.55
51:1:633:A:C2'	51:1:634:C:H5'	2.35	0.55
51:1:655:A:H4'	51:1:656:G:C5'	2.30	0.55
51:1:885:C:N4	51:1:886:A:H62	2.03	0.55
51:1:1506:U:H2'	51:1:1507:C:C6	2.41	0.55
53:3:49:U:H3	53:3:362:G:H1'	1.71	0.55
58:B1:102:MET:HG2	58:B1:246:PRO:HG3	1.87	0.55
65:0:514:GLN:HE22	65:0:591:LEU:HD23	1.72	0.55
12:L:4:ARG:HB3	12:L:6:ILE:HG23	1.88	0.55
19:S:52:ARG:O	19:S:58:ARG:NH1	2.39	0.55
28:c:134:HIS:CE1	51:1:1675:C:C4	2.94	0.55
37:m:27:SER:H	37:m:66:ARG:HH12	1.54	0.55
51:1:613:A:H2'	51:1:613:A:N3	2.21	0.55
59:B2:985:GLU:HB3	59:B2:988:LYS:HB2	1.89	0.55
51:1:184:C:H2'	51:1:185:G:C8	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:543:G:H2'	51:1:544:C:C4'	2.37	0.55
51:1:877:A:C2'	51:1:878:A:H5"	2.37	0.55
51:1:1448:G:H2'	51:1:1449:G:C8	2.42	0.55
51:1:2236:U:H2'	51:1:2237:G:H5'	1.88	0.55
58:B1:799:ARG:HG2	58:B1:1325:PHE:HZ	1.72	0.55
59:B2:103:VAL:HB	59:B2:114:VAL:HG11	1.89	0.55
59:B2:839:VAL:HG12	59:B2:1049:ILE:HG12	1.87	0.55
26:Z:44:ARG:NH1	53:3:722:G:OP2	2.39	0.55
27:b:216:ARG:NH2	51:1:781:A:OP1	2.38	0.55
28:c:18:ASP:OD1	28:c:18:ASP:N	2.36	0.55
51:1:296:U:H2'	51:1:297:G:H8	1.71	0.55
51:1:1389:G:O2'	51:1:1390:U:H5'	2.07	0.55
51:1:2488:G:O2'	51:1:2489:U:H5'	2.07	0.55
51:1:2743:U:C3'	51:1:2744:G:H5"	2.37	0.55
51:1:2845:U:H2'	51:1:2846:G:C8	2.42	0.55
58:B1:833:GLU:HB2	58:B1:1242:ARG:NH1	2.22	0.55
51:1:112:U:C2'	51:1:113:U:H5'	2.37	0.55
51:1:359:G:H2'	51:1:360:U:O4'	2.07	0.55
51:1:392:U:H2'	51:1:393:C:C6	2.42	0.55
51:1:461:C:H2'	51:1:462:C:C6	2.41	0.55
35:k:76:VAL:H	40:p:72:VAL:HG22	1.71	0.55
43:s:98:LYS:HD3	51:1:2012:G:OP1	2.06	0.55
49:y:19:LEU:O	49:y:23:ARG:N	2.35	0.55
51:1:1048:A:H2'	51:1:1049:C:H5'	1.88	0.55
51:1:1601:G:C2'	51:1:1602:U:H5'	2.37	0.55
51:1:1909:C:H2'	51:1:1910:G:C8	2.41	0.55
51:1:1948:G:H21	53:3:1418:A:H2	1.49	0.55
51:1:2114:A:C8	51:1:2115:G:H1'	2.42	0.55
53:3:202:G:H21	53:3:466:A:H61	1.53	0.55
53:3:1040:U:H2'	53:3:1041:G:C8	2.42	0.55
7:G:19:THR:HA	7:G:37:VAL:HA	1.88	0.55
16:P:63:GLN:HG3	16:P:98:ALA:HB2	1.88	0.55
51:1:279:A:N6	51:1:361:G:H1'	2.21	0.55
51:1:1386:C:H2'	51:1:1387:A:C8	2.41	0.55
51:1:2195:U:O2'	51:1:2196:C:H5'	2.06	0.55
51:1:2217:G:O2'	51:1:2218:G:H5'	2.06	0.55
51:1:2533:U:C2'	51:1:2534:A:H5'	2.36	0.55
59:B2:917:SER:O	59:B2:919:ARG:HG3	2.07	0.55
57:A1:47:LEU:HD23	57:A1:51:MET:HG3	1.89	0.55
58:B1:58:CYS:SG	58:B1:59:ALA:N	2.80	0.55
36:l:89:VAL:HG23	36:l:121:THR:HG23	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1745:A:O2'	51:1:1746:A:H5'	2.07	0.54
51:1:2345:G:H5'	51:1:2347:C:H5'	1.89	0.54
51:1:2827:C:O2'	51:1:2828:G:H5'	2.07	0.54
53:3:923:A:N6	53:3:1392:G:O6	2.40	0.54
64:6:11:A:H2'	64:6:12:G:H8	1.72	0.54
8:H:39:ARG:NH1	8:H:54:ILE:O	2.39	0.54
12:L:73:GLU:HG2	12:L:90:VAL:HG22	1.89	0.54
30:e:23:SER:HB3	30:e:26:GLN:HB2	1.88	0.54
33:i:10:LEU:HA	51:1:1061:U:C2	2.42	0.54
51:1:317:G:H2'	51:1:318:C:C6	2.42	0.54
51:1:1005:C:H6	51:1:1005:C:O5'	1.90	0.54
51:1:1545:A:H2'	51:1:1546:G:O4'	2.06	0.54
53:3:927:G:O2'	53:3:1503:A:N7	2.38	0.54
58:B1:144:TYR:HE1	58:B1:162:GLU:CD	2.14	0.54
58:B1:145:VAL:HG23	58:B1:159:ILE:HG22	1.89	0.54
58:B1:508:LEU:HD22	59:B2:1101:LEU:HD21	1.88	0.54
58:B1:759:ILE:HG23	58:B1:771:GLN:HB3	1.89	0.54
7:G:138:ARG:NH1	7:G:141:GLU:OE2	2.40	0.54
51:1:622:G:HO2'	51:1:623:C:H5'	1.72	0.54
51:1:1288:G:C6	51:1:1327:A:C2	2.96	0.54
51:1:1310:G:O2'	51:1:1311:G:H5'	2.06	0.54
53:3:1036:A:H2'	53:3:1037:C:H5'	1.88	0.54
59:B2:29:SER:O	59:B2:33:ASP:HB2	2.07	0.54
59:B2:684:ASN:OD1	59:B2:687:ARG:NH2	2.41	0.54
64:6:9:G:C2	64:6:45:G:O6	2.60	0.54
7:G:53:LEU:HD21	7:G:215:ALA:HB1	1.88	0.54
12:L:113:LYS:O	53:3:1239:A:O2'	2.23	0.54
16:P:86:LYS:HG3	16:P:114:PRO:HD3	1.89	0.54
25:Y:47:GLN:NE2	25:Y:51:ASN:OD1	2.40	0.54
29:d:84:THR:HG21	51:1:586:A:H5'	1.87	0.54
37:m:64:TRP:HB2	37:m:104:GLU:HB2	1.89	0.54
51:1:1297:C:H2'	51:1:1298:C:C6	2.43	0.54
51:1:1670:C:O5'	51:1:1670:C:H6	1.90	0.54
51:1:1748:C:H2'	51:1:1749:A:H8	1.73	0.54
51:1:2091:C:H5	51:1:2092:U:HO2'	1.53	0.54
51:1:2734:A:C2'	51:1:2735:G:H5'	2.38	0.54
51:1:2850:A:N1	51:1:2869:G:H4'	2.21	0.54
59:B2:360:LEU:HD13	59:B2:378:ARG:HH11	1.72	0.54
51:1:128:C:H2'	51:1:129:C:H6	1.70	0.54
51:1:268:C:H2'	51:1:269:C:H6	1.73	0.54
51:1:1014:A:H2'	51:1:1015:U:C6	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:2:40:U:N3	52:2:44:G:OP2	2.40	0.54
57:A2:29:GLU:HG3	57:A2:200:LYS:HG3	1.88	0.54
58:B1:1155:ILE:HG13	58:B1:1210:ILE:HB	1.89	0.54
35:k:70:ARG:HG2	35:k:76:VAL:HG12	1.88	0.54
38:n:35:LYS:NZ	38:n:100:CYS:SG	2.81	0.54
51:1:472:A:H2'	51:1:473:G:H5'	1.90	0.54
51:1:1091:G:H2'	51:1:1092:C:C6	2.43	0.54
51:1:2545:G:O2'	51:1:2546:U:H5'	2.07	0.54
59:B2:633:LEU:HD13	59:B2:644:LEU:HD23	1.89	0.54
10:J:23:THR:HA	10:J:28:ARG:HA	1.88	0.54
21:U:69:ASP:OD1	21:U:69:ASP:N	2.38	0.54
29:d:76:PRO:HD2	51:1:673:C:H5"	1.89	0.54
44:t:54:GLU:HB3	44:t:88:LYS:HE3	1.90	0.54
51:1:682:G:N2	51:1:796:C:O2	2.41	0.54
51:1:876:C:H2'	51:1:877:A:O4'	2.08	0.54
51:1:1530:G:H22	51:1:1542:U:H1'	1.73	0.54
58:B1:800:LEU:HB3	58:B1:920:ALA:HB1	1.89	0.54
58:B1:1175:LEU:HD22	58:B1:1190:ILE:HD11	1.88	0.54
59:B2:243:PRO:HB2	59:B2:274:ILE:HG23	1.90	0.54
9:I:55:ARG:O	9:I:59:LYS:N	2.41	0.54
34:j:38:GLY:HA3	34:j:50:THR:HG23	1.90	0.54
51:1:143:C:H2'	51:1:144:A:H8	1.72	0.54
51:1:923:G:O2'	51:1:924:G:H5'	2.07	0.54
51:1:1856:U:H2'	51:1:1857:G:O4'	2.08	0.54
51:1:2092:U:C5	51:1:2199:A:H2	2.25	0.54
51:1:2328:A:H8	51:1:2328:A:O5'	1.90	0.54
51:1:2742:G:O2'	51:1:2743:U:H5'	2.08	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:B2:811:ASN:HA	59:B2:815:SER:HB2	1.90	0.54
7:G:86:CYS:SG	7:G:87:ASP:N	2.74	0.54
19:S:84:ARG:NH2	53:3:1059:C:O3'	2.40	0.54
20:T:48:ASP:OD1	53:3:667:G:O2'	2.25	0.54
25:Y:60:GLN:HA	25:Y:63:LYS:HB3	1.89	0.54
29:d:76:PRO:HA	29:d:82:GLY:HA3	1.90	0.54
49:y:15:ASN:O	49:y:19:LEU:N	2.41	0.54
51:1:141:G:H3'	51:1:142:A:O4'	2.07	0.54
51:1:1511:G:H2'	51:1:1512:C:H6	1.73	0.54
51:1:2123:G:H2'	51:1:2124:G:H8	1.73	0.54
51:1:2190:G:O2'	51:1:2191:A:H5'	2.08	0.54
58:B1:30:ILE:HG21	58:B1:241:VAL:O	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:P:15:VAL:HG12	16:P:76:TYR:HB3	1.90	0.54
27:b:227:VAL:HG11	51:1:784:G:N1	2.23	0.54
31:f:103:ASN:ND2	31:f:113:ASP:OD1	2.41	0.54
47:w:55:LEU:HD12	47:w:76:ILE:HD12	1.90	0.54
51:1:2631:G:O2'	51:1:2632:A:H5'	2.08	0.54
53:3:505:G:H5"	53:3:534:U:H2'	1.89	0.54
58:B1:39:LYS:O	58:B1:273:ILE:HG23	2.08	0.54
65:0:17:ALA:HB2	65:0:112:VAL:HB	1.89	0.54
7:G:126:ASP:OD1	7:G:126:ASP:N	2.41	0.53
51:1:8:C:H2'	51:1:9:G:H8	1.73	0.53
51:1:341:C:O2'	51:1:342:A:H5'	2.08	0.53
51:1:358:U:H2'	51:1:359:G:H8	1.72	0.53
51:1:757:G:H2'	51:1:758:C:C5'	2.35	0.53
51:1:1599:U:H2'	51:1:1600:C:C6	2.43	0.53
53:3:458:U:H3	53:3:474:G:H1	1.56	0.53
57:A2:28:LEU:HD22	57:A2:201:LEU:HD23	1.90	0.53
58:B1:785:ASP:O	58:B1:789:LYS:HB2	2.08	0.53
17:Q:8:ARG:NH2	53:3:880:C:OP1	2.36	0.53
51:1:176:A:O2'	51:1:177:G:H5'	2.08	0.53
51:1:441:U:O2'	51:1:442:G:H5'	2.08	0.53
51:1:543:G:C2'	51:1:544:C:H5"	2.37	0.53
51:1:1601:G:O2'	51:1:1602:U:H5'	2.08	0.53
51:1:2850:A:C2	51:1:2869:G:H4'	2.44	0.53
53:3:1023:U:H2'	53:3:1024:G:C8	2.43	0.53
58:B1:111:THR:HG22	58:B1:300:GLN:NE2	2.23	0.53
64:6:25:C:H42	64:6:45:G:H22	1.56	0.53
1:A:35:ASP:OD1	18:R:2:ARG:NH1	2.42	0.53
3:C:20:TYR:OH	51:1:2348:U:H5'	2.08	0.53
12:L:77:ARG:NH2	53:3:1381:U:O2	2.41	0.53
51:1:613:A:H5"	51:1:614:A:N7	2.22	0.53
58:B1:78:LEU:O	58:B1:78:LEU:HD13	2.08	0.53
8:H:71:ARG:HB3	8:H:74:ILE:HD13	1.89	0.53
10:J:104:ILE:O	10:J:111:ARG:NH1	2.41	0.53
11:K:23:GLU:HA	11:K:26:THR:HG22	1.90	0.53
30:e:21:TYR:OH	30:e:164:GLU:OE1	2.26	0.53
51:1:53:A:H2'	51:1:54:G:H5'	1.89	0.53
51:1:1083:U:H2'	51:1:1084:A:H3'	1.89	0.53
51:1:1913:A:N7	53:3:1494:G:H4'	2.22	0.53
51:1:2092:U:C5	51:1:2199:A:C2	2.97	0.53
51:1:2644:G:O2'	51:1:2645:G:H5'	2.09	0.53
57:A1:16:ILE:HG23	57:A1:26:VAL:HG22	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:B2:1117:LEU:HD12	59:B2:1195:ILE:HG12	1.90	0.53
36:l:80:SER:HB3	36:l:114:GLY:HA3	1.90	0.53
51:1:40:U:H2'	51:1:41:C:C6	2.43	0.53
51:1:44:A:O2'	51:1:45:G:H5'	2.08	0.53
51:1:402:A:C2'	51:1:403:U:H5'	2.38	0.53
51:1:1560:G:H2'	51:1:1560:G:N3	2.24	0.53
51:1:2617:U:H2'	51:1:2618:G:H5'	1.91	0.53
53:3:1077:G:N2	53:3:1080:A:OP2	2.40	0.53
13:M:92:PRO:O	13:M:116:ARG:NH2	2.42	0.53
33:i:53:PRO:HD2	33:i:77:VAL:HG11	1.91	0.53
36:l:20:GLY:HA2	36:l:28:GLY:HA2	1.90	0.53
39:o:31:THR:HG23	39:o:34:HIS:H	1.73	0.53
39:o:69:ASP:N	39:o:69:ASP:OD1	2.36	0.53
51:1:481:G:H1'	51:1:506:G:H21	1.71	0.53
51:1:925:A:O2'	51:1:926:G:H5'	2.08	0.53
51:1:995:C:H6	51:1:995:C:H5'	1.74	0.53
51:1:1662:U:H2'	51:1:1663:G:O4'	2.09	0.53
17:Q:64:SER:OG	17:Q:65:TYR:N	2.41	0.53
48:x:29:LEU:HD12	51:1:2230:G:H5"	1.90	0.53
51:1:53:A:C2'	51:1:54:G:H5'	2.39	0.53
51:1:611:C:H2'	51:1:612:G:O4'	2.09	0.53
51:1:820:A:O2'	51:1:821:A:H5'	2.08	0.53
51:1:878:A:H2'	51:1:879:G:O4'	2.09	0.53
51:1:973:A:H5'	51:1:1188:U:H1'	1.90	0.53
51:1:1068:G:N2	51:1:1096:A:H1'	2.23	0.53
51:1:1528:A:C2'	51:1:1529:G:H5'	2.38	0.53
57:A1:100:LEU:HD21	57:A1:121:VAL:HG11	1.90	0.53
8:H:30:ASP:N	8:H:30:ASP:OD1	2.41	0.53
40:p:105:LYS:O	40:p:108:ARG:NH2	2.42	0.53
51:1:282:A:H2'	51:1:283:G:C8	2.42	0.53
51:1:1171:G:H2'	51:1:1172:C:C4'	2.38	0.53
51:1:1409:U:H2'	51:1:1410:G:C8	2.44	0.53
51:1:1678:A:H2'	51:1:1679:A:C5'	2.38	0.53
51:1:1917:U:C2'	51:1:1918:A:H5'	2.39	0.53
53:3:1023:U:H2'	53:3:1024:G:H8	1.74	0.53
9:I:154:VAL:HA	9:I:157:ALA:HB3	1.91	0.53
14:N:115:VAL:HG23	53:3:1367:C:H5"	1.91	0.53
40:p:28:LYS:HB3	40:p:39:LEU:HD21	1.91	0.53
51:1:21:A:O2'	51:1:22:C:H5'	2.08	0.53
51:1:140:C:H2'	51:1:141:G:H5'	1.90	0.53
51:1:268:C:H2'	51:1:269:C:C6	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:894:U:O2'	51:1:895:U:H5'	2.09	0.53
51:1:1063:G:N1	51:1:1075:C:N4	2.53	0.53
51:1:2425:A:H4'	51:1:2426:A:H5"	1.91	0.53
51:1:2758:A:H2'	51:1:2759:G:C5'	2.39	0.53
57:A2:100:LEU:HD23	57:A2:115:ILE:HG21	1.89	0.53
58:B1:770:LEU:CD1	59:B2:618:GLN:HG3	2.37	0.53
58:B1:975:ILE:HD11	58:B1:1003:LEU:HD11	1.91	0.53
59:B2:628:HIS:HB3	59:B2:647:ARG:HH21	1.74	0.53
7:G:61:SER:OG	7:G:62:ARG:NH1	2.42	0.53
31:f:7:PRO:O	31:f:68:ARG:NH2	2.38	0.53
34:j:2:LYS:HA	51:1:995:C:N3	2.23	0.53
51:1:1530:G:N2	51:1:1542:U:H1'	2.23	0.53
51:1:1782:U:H2'	51:1:1783:A:H5"	1.90	0.53
51:1:2092:U:C4'	51:1:2093:G:H5"	2.37	0.53
51:1:2297:A:N1	51:1:2321:U:C5	2.75	0.53
51:1:2747:G:O6	51:1:2754:U:H2'	2.09	0.53
53:3:1244:G:H1	53:3:1293:C:H42	1.57	0.53
8:H:133:MET:HE3	8:H:167:TYR:HB2	1.91	0.52
25:Y:66:ILE:HG21	25:Y:70:LYS:HB3	1.91	0.52
39:o:40:ILE:HD12	39:o:44:GLY:HA2	1.91	0.52
42:r:4:VAL:HG12	42:r:13:ARG:HA	1.91	0.52
50:z:36:GLU:O	50:z:37:ARG:NH1	2.42	0.52
51:1:57:C:H2'	51:1:58:G:O4'	2.08	0.52
51:1:1574:C:H2'	51:1:1575:C:H6	1.74	0.52
51:1:1827:U:H2'	51:1:1828:G:H5'	1.90	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
58:B1:68:TYR:CA	58:B1:75:TYR:HE2	2.22	0.52
27:b:92:LEU:HD11	27:b:100:ARG:HB3	1.91	0.52
51:1:1278:C:O2'	51:1:1279:G:H5'	2.09	0.52
53:3:1266:G:N2	53:3:1269:A:OP2	2.29	0.52
57:A2:43:LEU:HD13	57:A2:217:ILE:HD11	1.90	0.52
64:6:43:A:H2'	64:6:44:A:C8	2.44	0.52
30:e:91:ARG:NH2	52:2:43:C:O2	2.36	0.52
51:1:519:U:H2'	51:1:520:G:H8	1.75	0.52
51:1:752:A:H62	51:1:2609:U:H3	1.56	0.52
51:1:1111:A:H2'	51:1:1112:G:H4'	1.90	0.52
53:3:203:G:N2	53:3:204:G:O6	2.43	0.52
58:B1:633:ALA:HB2	59:B2:808:ASN:N	2.19	0.52
51:1:1794:A:O2'	51:1:1795:C:H5'	2.10	0.52
51:1:2463:C:O2'	51:1:2464:G:H5'	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2758:A:C2'	51:1:2759:G:H5'	2.40	0.52
51:1:2762:C:C2'	51:1:2763:G:H5'	2.39	0.52
58:B1:390:LEU:N	58:B1:390:LEU:CD1	2.73	0.52
1:A:9:TYR:OH	30:e:101:ARG:NH2	2.41	0.52
17:Q:36:VAL:HG21	17:Q:73:LEU:HB3	1.91	0.52
51:1:870:U:O2'	51:1:871:U:H5'	2.10	0.52
51:1:1310:G:H2'	51:1:1311:G:C5'	2.38	0.52
51:1:2670:A:H2'	51:1:2671:G:H8	1.75	0.52
57:A1:205:MET:HE3	57:A1:213:PRO:HB3	1.90	0.52
58:B1:112:ALA:HA	58:B1:238:ILE:HA	1.91	0.52
17:Q:49:ARG:NH1	17:Q:88:ASP:OD2	2.42	0.52
51:1:251:A:H2'	51:1:252:G:O4'	2.10	0.52
51:1:597:G:H2'	51:1:598:U:C6	2.45	0.52
51:1:2102:G:H2'	51:1:2103:C:O4'	2.09	0.52
51:1:2707:U:H2'	51:1:2708:G:C8	2.44	0.52
59:B2:125:GLY:HA2	59:B2:499:SER:HB2	1.92	0.52
26:Z:28:LEU:HA	26:Z:31:VAL:HG12	1.90	0.52
27:b:257:ARG:NH2	27:b:262:THR:OG1	2.42	0.52
42:r:51:VAL:HG22	42:r:52:PRO:HD2	1.92	0.52
42:r:75:VAL:HG23	42:r:86:GLN:HG2	1.90	0.52
46:v:77:VAL:HG23	46:v:89:ILE:HG12	1.92	0.52
51:1:213:A:O2'	51:1:214:G:H5'	2.09	0.52
51:1:2236:U:C2'	51:1:2237:G:H5'	2.39	0.52
51:1:2611:C:O2	51:1:2611:C:C2'	2.58	0.52
51:1:2670:A:H2'	51:1:2671:G:C8	2.45	0.52
58:B1:832:LYS:HB3	58:B1:1242:ARG:NH1	2.24	0.52
7:G:14:HIS:HB3	7:G:42:LEU:HD21	1.91	0.52
7:G:102:ASN:ND2	53:3:1073:U:O2	2.39	0.52
8:H:107:LYS:HB3	8:H:110:LEU:HD23	1.92	0.52
23:W:52:ARG:NH2	53:3:835:U:OP1	2.42	0.52
28:c:23:PRO:HB3	51:1:2682:A:N3	2.24	0.52
51:1:215:G:C4'	51:1:216:A:H4'	2.39	0.52
51:1:729:G:H5"	51:1:730:A:H5"	1.92	0.52
51:1:784:G:C5'	51:1:785:G:OP1	2.54	0.52
51:1:1503:A:C3'	51:1:1504:A:H5"	2.40	0.52
51:1:1507:C:H2'	51:1:1508:A:C4'	2.40	0.52
51:1:1534:U:H2'	51:1:1536:C:O4'	2.10	0.52
51:1:1542:U:O2'	51:1:1543:G:H5'	2.09	0.52
51:1:1558:C:O4'	51:1:1560:G:C8	2.62	0.52
51:1:2216:G:H2'	51:1:2217:G:H8	1.74	0.52
51:1:2625:G:O2'	51:1:2626:C:H5'	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
64:6:9:G:O4'	64:6:46:G:N3	2.42	0.52
9:I:150:LYS:O	9:I:155:LYS:NZ	2.43	0.52
10:J:152:VAL:HG21	13:M:98:LEU:HD13	1.91	0.52
33:i:56:VAL:HB	33:i:68:PHE:HB2	1.92	0.52
51:1:8:C:H2'	51:1:9:G:C8	2.45	0.52
51:1:1403:A:H2'	51:1:1404:C:C6	2.45	0.52
51:1:2570:G:C2'	51:1:2571:U:H5'	2.40	0.52
51:1:2731:G:H2'	51:1:2732:G:C8	2.45	0.52
58:B1:144:TYR:CE1	58:B1:162:GLU:CD	2.88	0.52
35:k:42:THR:HG22	35:k:57:VAL:HG12	1.91	0.52
51:1:1789:A:H2'	51:1:1790:C:O4'	2.09	0.52
51:1:1878:G:O2'	51:1:1879:C:H5'	2.09	0.52
51:1:2013:A:H5"	51:1:2013:A:C8	2.43	0.52
58:B1:209:ASN:HA	58:B1:214:ARG:HH21	1.73	0.52
59:B2:524:ILE:HG21	59:B2:708:VAL:HG13	1.92	0.52
39:o:40:ILE:HG22	39:o:47:VAL:HG12	1.91	0.51
51:1:208:C:O5'	51:1:208:C:H6	1.93	0.51
51:1:1047:G:N2	51:1:1110:G:H2'	2.25	0.51
51:1:1722:A:O2'	51:1:1723:G:H5'	2.10	0.51
57:A2:140:ILE:HD12	57:A2:142:MET:HE3	1.91	0.51
59:B2:786:GLY:N	59:B2:789:THR:OG1	2.41	0.51
62:NG:161:SER:HA	62:NG:170:PRO:HA	1.92	0.51
65:0:267:GLY:HA3	65:0:274:GLY:HA3	1.91	0.51
45:u:73:ASN:ND2	45:u:80:ASP:OD2	2.43	0.51
51:1:386:G:H3'	51:1:387:U:H5"	1.92	0.51
51:1:723:C:O2'	51:1:724:U:H5'	2.09	0.51
51:1:724:U:O2'	51:1:725:G:H5'	2.11	0.51
51:1:1722:A:H62	51:1:1738:G:H1'	1.75	0.51
51:1:2470:G:O2'	51:1:2471:A:H5'	2.10	0.51
51:1:2529:G:H5"	51:1:2530:A:H5"	1.91	0.51
58:B1:99:ARG:HA	58:B1:248:ASP:HB2	1.92	0.51
58:B1:205:LEU:HG	58:B1:217:LEU:HB3	1.90	0.51
65:0:674:THR:O	65:0:677:ARG:HG3	2.11	0.51
14:N:89:TYR:HB3	14:N:93:LEU:HD21	1.92	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
23:W:71:ASP:N	23:W:71:ASP:OD1	2.44	0.51
36:l:42:SER:HB2	51:1:672:C:H5	1.76	0.51
43:s:67:ASP:OD1	43:s:67:ASP:N	2.39	0.51
44:t:65:GLY:N	44:t:79:ASP:OD1	2.43	0.51
51:1:1112:G:H2'	51:1:1113:U:O4'	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1338:G:H2'	51:1:1339:G:H8	1.74	0.51
51:1:1923:U:H2'	51:1:1924:C:C6	2.45	0.51
51:1:2651:C:O2'	51:1:2652:C:H5'	2.10	0.51
53:3:202:G:H1	53:3:215:C:H42	1.57	0.51
58:B1:215:LYS:HA	58:B1:218:THR:HG22	1.91	0.51
3:C:7:LYS:HD3	51:1:2420:C:H5"	1.93	0.51
35:k:31:ARG:NH2	51:1:2676:C:OP2	2.44	0.51
51:1:49:A:O5'	51:1:51:G:H5'	2.09	0.51
51:1:138:U:C5	51:1:139:U:H5	2.27	0.51
51:1:355:U:H2'	51:1:356:G:C8	2.45	0.51
51:1:2776:A:C6	51:1:2782:G:H1'	2.45	0.51
65:0:632:ILE:HD11	65:0:654:ILE:HD12	1.91	0.51
51:1:69:C:H2'	51:1:70:G:C8	2.46	0.51
51:1:492:A:H2'	51:1:493:G:O4'	2.09	0.51
51:1:736:C:H42	51:1:760:G:H1	1.59	0.51
51:1:800:A:H4'	51:1:801:G:H3'	1.92	0.51
58:B1:99:ARG:HG3	58:B1:99:ARG:HH11	1.73	0.51
58:B1:972:LYS:HD2	58:B1:1004:ALA:HA	1.93	0.51
59:B2:246:LEU:HB3	59:B2:269:ILE:HD13	1.91	0.51
8:H:130:ARG:NH2	8:H:165:GLU:OE1	2.43	0.51
8:H:175:HIS:ND1	53:3:1109:C:OP2	2.44	0.51
10:J:23:THR:HG22	10:J:28:ARG:HB3	1.91	0.51
10:J:106:ALA:O	10:J:111:ARG:NH2	2.43	0.51
21:U:25:ARG:O	53:3:110:C:O2'	2.28	0.51
51:1:286:U:H2'	51:1:287:G:H8	1.76	0.51
51:1:1270:C:H5"	51:1:1271:G:H5"	1.93	0.51
51:1:1678:A:C2'	51:1:1679:A:H5'	2.41	0.51
51:1:1754:A:C6	51:1:1755:A:C6	2.98	0.51
58:B1:111:THR:HG23	58:B1:300:GLN:NE2	2.24	0.51
58:B1:201:LEU:HD12	58:B1:224:LEU:HD12	1.92	0.51
51:1:2105:U:N3	51:1:2184:A:C2	2.78	0.51
51:1:2618:G:H2'	51:1:2619:C:O4'	2.11	0.51
53:3:494:G:H2'	53:3:496:A:H8	1.76	0.51
65:0:647:SER:HA	65:0:652:VAL:HA	1.92	0.51
2:B:2:VAL:HG23	51:1:2015:A:C6	2.46	0.51
15:O:5:ARG:N	15:O:76:ILE:O	2.43	0.51
17:Q:70:GLY:O	17:Q:107:LYS:NZ	2.44	0.51
22:V:60:ILE:HA	22:V:74:LEU:HA	1.93	0.51
27:b:50:THR:HG23	51:1:1813:G:H21	1.76	0.51
51:1:291:G:O2'	51:1:292:U:H5'	2.11	0.51
51:1:707:G:H2'	51:1:708:G:O4'	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1175:A:H3'	51:1:1176:U:C5'	2.37	0.51
51:1:1266:G:O2'	51:1:2012:G:O6	2.25	0.51
51:1:2285:C:O2'	51:1:2286:G:H5'	2.11	0.51
58:B1:275:ARG:HH12	58:B1:278:ARG:NH1	2.09	0.51
58:B1:375:GLU:HG2	59:B2:1245:ALA:O	2.10	0.51
58:B1:437:PHE:HZ	58:B1:453:VAL:HG11	1.76	0.51
60:W0:3:ARG:NH1	60:W0:55:GLU:OE2	2.40	0.51
10:J:123:LEU:HD12	53:3:7:A:H2'	1.92	0.51
35:k:75:SER:OG	40:p:72:VAL:O	2.26	0.51
51:1:1415:U:H1'	51:1:1588:G:N2	2.26	0.51
51:1:1441:G:H2'	51:1:1442:U:H6	1.71	0.51
51:1:2525:G:N2	51:1:2539:C:C2	2.79	0.51
53:3:780:A:N6	53:3:801:U:OP2	2.42	0.51
59:B2:93:SER:HA	59:B2:128:PRO:HA	1.92	0.51
27:b:92:LEU:HD21	27:b:100:ARG:HD3	1.93	0.51
37:m:38:ARG:HB3	37:m:98:PRO:HD3	1.92	0.51
51:1:630:G:H4'	51:1:640:C:H4'	1.93	0.51
51:1:891:G:H2'	51:1:892:A:C8	2.46	0.51
51:1:1930:G:C2'	51:1:1931:U:OP2	2.58	0.51
58:B1:683:ILE:HD12	58:B1:754:ILE:HG21	1.92	0.51
59:B2:400:VAL:HG11	59:B2:452:ARG:HD2	1.93	0.51
28:c:176:ASP:OD1	28:c:176:ASP:N	2.44	0.50
51:1:539:G:O2'	51:1:540:C:H5'	2.12	0.50
51:1:1293:C:H2'	51:1:1294:U:C6	2.46	0.50
51:1:2687:U:H2'	51:1:2688:G:O4'	2.11	0.50
53:3:1538:C:O2'	53:3:1539:C:H5'	2.11	0.50
58:B1:749:LYS:HB3	58:B1:755:ILE:HD11	1.94	0.50
59:B2:714:VAL:HB	59:B2:787:PRO:HD2	1.92	0.50
9:I:12:ARG:NH1	9:I:32:LYS:O	2.42	0.50
15:O:29:ALA:O	15:O:33:GLY:N	2.42	0.50
27:b:147:PRO:HG3	27:b:184:GLU:HG2	1.92	0.50
27:b:207:ALA:HB2	51:1:1790:C:O2'	2.12	0.50
38:n:49:GLU:O	38:n:53:THR:OG1	2.29	0.50
48:x:64:ASP:N	48:x:64:ASP:OD1	2.43	0.50
51:1:757:G:C2'	51:1:758:C:H5'	2.38	0.50
51:1:2052:A:C2'	51:1:2053:G:H5'	2.41	0.50
51:1:2555:U:O2	51:1:2555:U:O4'	2.29	0.50
55:8:13:DT:OP2	58:B1:791:ALA:CB	2.59	0.50
4:D:3:ARG:NH1	51:1:752:A:OP1	2.43	0.50
11:K:42:TRP:HB2	11:K:59:TYR:HB2	1.93	0.50
30:e:162:ASP:OD1	30:e:162:ASP:N	2.37	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:145:C:H2'	51:1:146:A:C8	2.46	0.50
51:1:386:G:H3'	51:1:387:U:C5'	2.41	0.50
51:1:1388:G:O2'	51:1:1389:G:H5'	2.12	0.50
51:1:1910:G:H1	51:1:1920:C:H42	1.58	0.50
51:1:2248:C:H2'	51:1:2249:U:H5'	1.93	0.50
53:3:113:G:N3	53:3:353:A:O2'	2.42	0.50
58:B1:505:ASP:OD2	59:B2:812:PHE:HA	2.11	0.50
58:B1:850:LYS:HB2	58:B1:857:LEU:HB2	1.91	0.50
59:B2:255:ILE:HB	59:B2:263:VAL:HB	1.92	0.50
11:K:46:GLN:HA	11:K:56:LYS:HB3	1.94	0.50
30:e:135:ILE:HG23	30:e:140:ILE:HD11	1.93	0.50
51:1:288:U:H2'	51:1:289:G:C8	2.47	0.50
51:1:438:G:H2'	51:1:439:A:H8	1.76	0.50
51:1:439:A:H2'	51:1:440:C:H6	1.75	0.50
51:1:521:U:H2'	51:1:522:A:H8	1.73	0.50
51:1:905:A:H2'	51:1:906:U:C5'	2.40	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
59:B2:400:VAL:HG21	59:B2:452:ARG:HE	1.76	0.50
31:f:136:ASP:HB3	31:f:139:VAL:HG12	1.92	0.50
51:1:187:G:C6	51:1:188:G:N7	2.80	0.50
51:1:1676:A:H8	51:1:1676:A:O5'	1.95	0.50
51:1:2286:G:H21	51:1:2287:A:N6	2.09	0.50
51:1:2593:U:O2'	51:1:2594:C:H5'	2.11	0.50
59:B2:974:ARG:HD2	59:B2:1014:LEU:HD21	1.92	0.50
64:6:9:G:C2	64:6:45:G:C6	3.00	0.50
64:6:9:G:O4'	64:6:46:G:C2	2.65	0.50
4:D:14:ARG:NH1	51:1:1377:G:O3'	2.44	0.50
20:T:2:LEU:HD22	20:T:34:GLN:HB2	1.92	0.50
20:T:23:SER:OG	20:T:25:GLU:OE1	2.30	0.50
27:b:56:GLY:HA2	27:b:212:TRP:HA	1.94	0.50
28:c:161:MET:HE1	51:1:2050:C:O2	2.11	0.50
51:1:197:A:H2	51:1:2434:A:N6	2.10	0.50
51:1:673:C:H2'	51:1:674:G:C5'	2.41	0.50
51:1:1161:C:H2'	51:1:1162:G:C8	2.44	0.50
51:1:2888:C:H2'	51:1:2889:C:H6	1.77	0.50
53:3:460:A:H2'	53:3:461:A:H8	1.75	0.50
53:3:664:G:H22	53:3:741:G:H1	1.60	0.50
63:5:34:G:H3'	63:5:35:A:H8	1.76	0.50
1:A:35:ASP:OD1	1:A:35:ASP:N	2.42	0.50
27:b:146:LYS:HB2	27:b:149:LYS:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:i:134:SER:OG	51:1:1062:G:N2	2.45	0.50
34:j:2:LYS:HG2	51:1:995:C:N4	2.27	0.50
51:1:355:U:H2'	51:1:356:G:H8	1.77	0.50
51:1:580:U:O5'	51:1:580:U:H6	1.94	0.50
51:1:928:A:O2'	51:1:929:U:H5'	2.10	0.50
51:1:1345:C:H6	51:1:1345:C:H5'	1.77	0.50
51:1:1409:U:H2'	51:1:1410:G:H8	1.76	0.50
51:1:1416:G:H2'	51:1:1417:C:C6	2.46	0.50
51:1:1593:A:H2'	51:1:1594:U:C6	2.47	0.50
51:1:2734:A:H2'	51:1:2735:G:C5'	2.42	0.50
53:3:517:G:N2	53:3:533:A:OP2	2.33	0.50
58:B1:412:LEU:HD23	58:B1:416:ILE:HG13	1.92	0.50
6:F:19:ARG:HB2	6:F:24:ARG:HD2	1.92	0.50
8:H:4:VAL:HG21	8:H:9:ILE:HD13	1.92	0.50
15:O:39:PRO:HD2	53:3:1123:U:H4'	1.92	0.50
15:O:89:ARG:HH22	62:NG:165:PHE:H	1.60	0.50
51:1:1348:C:C5	51:1:1349:C:C5	3.00	0.50
51:1:1614:A:H2'	51:1:1615:C:H5'	1.94	0.50
51:1:2836:U:H2'	51:1:2837:A:C8	2.47	0.50
58:B1:124:ILE:HG23	58:B1:128:LEU:HD12	1.94	0.50
58:B1:1371:ARG:HE	58:B1:1372:ARG:NH1	2.10	0.50
1:A:37:CYS:O	1:A:41:HIS:N	2.45	0.50
12:L:65:LEU:O	12:L:69:ARG:N	2.43	0.50
21:U:5:ARG:HB3	53:3:376:G:H5"	1.93	0.50
29:d:191:ASP:O	29:d:195:GLN:NE2	2.44	0.50
30:e:84:ILE:HD11	51:1:2311:A:H1'	1.94	0.50
46:v:51:GLN:OE1	46:v:79:ARG:NH2	2.40	0.50
51:1:246:C:H2'	51:1:247:G:C5'	2.40	0.50
51:1:900:A:H2'	51:1:901:C:H5'	1.94	0.50
51:1:1061:U:H4'	51:1:1070:A:H1'	1.93	0.50
51:1:1916:A:H2'	51:1:1917:U:O4'	2.12	0.50
51:1:2815:C:O2'	51:1:2816:G:H5'	2.11	0.50
59:B2:411:ARG:NH2	59:B2:427:ASP:OD2	2.44	0.50
63:5:29:G:H3'	63:5:30:G:H8	1.76	0.50
19:S:68:ARG:NH2	53:3:974:A:OP1	2.45	0.49
27:b:206:LYS:HD2	51:1:729:G:C8	2.46	0.49
43:s:109:ASP:OD1	43:s:109:ASP:N	2.42	0.49
51:1:155:A:H2'	51:1:156:A:H8	1.76	0.49
51:1:1077:A:H8	51:1:1078:U:H1'	1.77	0.49
51:1:1468:U:H2'	51:1:1522:A:N6	2.26	0.49
51:1:1528:A:H2'	51:1:1529:G:O4'	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1717:A:H2'	51:1:1718:G:C5'	2.40	0.49
53:3:928:G:O2'	53:3:1533:C:OP1	2.22	0.49
58:B1:421:VAL:O	58:B1:436:ALA:HA	2.12	0.49
59:B2:9:LYS:HG2	59:B2:1171:ARG:HH12	1.77	0.49
65:0:615:PRO:HG3	65:0:687:TYR:HE1	1.76	0.49
7:G:103:TRP:HA	7:G:106:VAL:HG12	1.93	0.49
13:M:29:SER:OG	13:M:30:LYS:N	2.44	0.49
15:O:42:LEU:HB3	15:O:71:LEU:HB2	1.94	0.49
33:i:110:GLN:HG2	33:i:121:ILE:HD13	1.93	0.49
33:i:126:ARG:HD2	51:1:1080:A:H4'	1.93	0.49
51:1:173:A:H2'	51:1:174:U:C6	2.47	0.49
51:1:898:C:H2'	51:1:899:A:O4'	2.12	0.49
51:1:1144:A:H2'	51:1:1145:C:C6	2.47	0.49
51:1:1645:G:H5"	51:1:1646:C:H5'	1.94	0.49
51:1:2298:A:O2'	51:1:2299:U:H5'	2.12	0.49
59:B2:232:ILE:HG12	59:B2:237:LEU:HG	1.94	0.49
27:b:137:GLY:O	27:b:162:GLN:NE2	2.45	0.49
30:e:27:VAL:O	30:e:29:ARG:NH1	2.41	0.49
51:1:30:G:H2'	51:1:31:C:C6	2.47	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
51:1:1087:G:H2'	51:1:1089:A:H5'	1.94	0.49
51:1:2348:U:O2'	51:1:2349:G:H5'	2.12	0.49
51:1:2393:U:H2'	51:1:2394:C:H5'	1.94	0.49
51:1:2634:A:O2'	51:1:2635:A:H5'	2.12	0.49
53:3:481:G:O2'	53:3:483:C:N4	2.46	0.49
53:3:1178:G:N2	53:3:1181:G:OP2	2.43	0.49
58:B1:1179:PRO:HD2	58:B1:1184:ASP:HA	1.93	0.49
7:G:101:THR:HG23	7:G:174:GLU:HG3	1.95	0.49
7:G:221:ARG:HG2	7:G:224:ARG:HH11	1.77	0.49
16:P:96:ILE:HD13	16:P:109:ILE:HD13	1.94	0.49
31:f:41:GLU:HG2	31:f:54:ARG:HH21	1.78	0.49
31:f:163:TYR:HB2	31:f:166:GLU:HB2	1.95	0.49
44:t:7:LEU:HD13	44:t:46:ALA:HA	1.94	0.49
51:1:1119:U:O2'	51:1:1120:G:H5'	2.13	0.49
51:1:1785:A:O2'	51:1:1786:A:H8	1.96	0.49
31:f:87:GLN:NE2	31:f:129:GLU:OE2	2.45	0.49
51:1:16:C:H2'	51:1:17:G:H8	1.78	0.49
51:1:519:U:H2'	51:1:520:G:C8	2.48	0.49
51:1:644:A:H2'	51:1:645:C:C4'	2.42	0.49
51:1:940:G:H2'	51:1:941:A:C5'	2.41	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1437:C:H2'	51:1:1438:U:H6	1.78	0.49
51:1:1539:U:H2'	51:1:1540:G:H8	1.76	0.49
51:1:2241:A:O2'	51:1:2242:G:H5'	2.12	0.49
51:1:2257:U:O2'	51:1:2258:C:H5'	2.13	0.49
51:1:2283:C:H2'	51:1:2284:A:O4'	2.11	0.49
51:1:2533:U:H2'	51:1:2534:A:C5'	2.42	0.49
27:b:50:THR:HG23	51:1:1813:G:N2	2.27	0.49
30:e:57:ALA:HB2	30:e:64:PRO:HD3	1.95	0.49
31:f:122:ALA:HB2	31:f:132:LEU:HD23	1.94	0.49
51:1:482:A:H1'	51:1:498:G:N2	2.27	0.49
51:1:898:C:C2'	51:1:899:A:H5'	2.43	0.49
51:1:2281:A:O2'	51:1:2282:G:H5'	2.12	0.49
51:1:2290:G:H2'	51:1:2291:U:H6	1.74	0.49
51:1:2670:A:O2'	51:1:2671:G:H5'	2.12	0.49
17:Q:120:ARG:HH12	53:3:500:G:H5'	1.77	0.49
42:r:68:ARG:O	42:r:90:ARG:NH2	2.46	0.49
51:1:262:A:H2'	51:1:263:G:O4'	2.12	0.49
51:1:367:G:H2'	51:1:368:A:O4'	2.13	0.49
51:1:886:A:C5	51:1:887:U:H1'	2.47	0.49
51:1:1400:U:H2'	51:1:1401:G:H8	1.78	0.49
57:A1:18:GLN:HA	57:A1:24:ALA:HA	1.94	0.49
58:B1:220:ARG:HG2	58:B1:220:ARG:NH1	2.25	0.49
7:G:18:GLN:HG3	7:G:189:ASN:CB	2.41	0.49
12:L:2:ARG:NH2	53:3:933:G:O6	2.45	0.49
14:N:94:ARG:HG2	14:N:97:LEU:HD12	1.95	0.49
29:d:77:ILE:HG23	51:1:1256:G:N2	2.26	0.49
48:x:1:SER:O	48:x:49:ARG:NH1	2.46	0.49
51:1:131:A:H2'	51:1:132:G:H8	1.77	0.49
51:1:840:C:O2'	51:1:841:G:H5'	2.12	0.49
58:B1:115:TRP:O	58:B1:1333:THR:HG21	2.13	0.49
59:B2:529:ARG:HH11	59:B2:572:ILE:HG22	1.77	0.49
9:I:153:ARG:NH2	53:3:435:A:N3	2.61	0.49
21:U:36:VAL:HG12	21:U:53:ASP:HB3	1.94	0.49
28:c:81:GLU:HG3	51:1:2636:C:O5'	2.13	0.49
33:i:20:SER:H	33:i:21:PRO:HD2	1.78	0.49
33:i:79:LEU:HD13	33:i:132:ALA:HB2	1.94	0.49
41:q:103:VAL:HA	41:q:106:THR:HG22	1.94	0.49
44:t:70:HIS:N	44:t:73:ARG:O	2.44	0.49
51:1:609:A:H2'	51:1:610:C:O4'	2.11	0.49
51:1:841:G:C2	51:1:938:G:C2	3.01	0.49
51:1:1117:C:H2'	51:1:1118:C:H6	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1668:A:N3	51:1:1670:C:N4	2.60	0.49
51:1:1910:G:N2	51:1:1911:U:C2	2.81	0.49
53:3:1137:C:H4'	53:3:1138:G:H5'	1.94	0.49
58:B1:145:VAL:HG12	58:B1:184:ALA:HB1	1.94	0.49
58:B1:902:ASP:HB3	58:B1:905:ARG:HB2	1.93	0.49
59:B2:554:HIS:HD2	59:B2:558:VAL:HB	1.77	0.49
65:0:616:ILE:HB	65:0:686:LYS:HE3	1.95	0.49
14:N:91:GLU:HA	14:N:94:ARG:HB2	1.94	0.49
28:c:56:LYS:NZ	51:1:2830:C:H5"	2.28	0.49
33:i:85:ILE:HD12	33:i:97:VAL:HG12	1.95	0.49
37:m:74:THR:HG21	37:m:86:LYS:HG2	1.94	0.49
51:1:67:U:H2'	51:1:68:G:H8	1.77	0.49
51:1:1534:U:H4'	51:1:1535:A:N1	2.27	0.49
51:1:1796:U:H2'	51:1:1797:G:C8	2.45	0.49
51:1:2843:G:O2'	51:1:2844:G:H5'	2.13	0.49
38:n:8:ARG:HH21	38:n:43:GLU:HG3	1.77	0.48
51:1:118:A:H2'	51:1:120:U:O4	2.13	0.48
51:1:898:C:O2'	51:1:899:A:H5'	2.13	0.48
51:1:1111:A:H2'	51:1:1111:A:N3	2.28	0.48
51:1:1537:G:H3'	51:1:1537:G:N3	2.28	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
51:1:2510:C:N4	51:1:2511:U:C4	2.81	0.48
53:3:890:G:O2'	53:3:906:A:N6	2.46	0.48
53:3:1064:G:O2'	53:3:1190:G:N2	2.46	0.48
59:B2:836:LEU:HD13	59:B2:1054:LEU:HD13	1.95	0.48
9:I:93:LEU:O	9:I:99:ASN:ND2	2.39	0.48
25:Y:59:ARG:O	25:Y:63:LYS:N	2.46	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
51:1:129:C:H2'	51:1:130:C:H6	1.79	0.48
51:1:1084:A:O2'	51:1:1105:U:H4'	2.12	0.48
51:1:1536:C:H5"	51:1:1537:G:C4	2.48	0.48
51:1:2208:C:H2'	51:1:2209:G:C8	2.48	0.48
55:8:3:DC:H2"	55:8:4:DT:C7	2.42	0.48
17:Q:97:VAL:HG12	17:Q:99:GLY:H	1.78	0.48
27:b:70:LYS:O	27:b:117:SER:OG	2.30	0.48
51:1:54:G:H2'	51:1:55:G:O4'	2.12	0.48
51:1:360:U:H2'	51:1:361:G:C1'	2.43	0.48
51:1:473:G:O2'	51:1:474:G:H5'	2.14	0.48
51:1:572:A:H8	51:1:572:A:O5'	1.97	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:706:A:H2'	51:1:707:G:H5'	1.95	0.48
51:1:1680:U:O2'	51:1:1681:G:H5'	2.13	0.48
51:1:2180:U:O2'	51:1:2181:U:H5'	2.13	0.48
51:1:2367:G:O2'	51:1:2368:C:H5'	2.13	0.48
52:2:51:G:H22	52:2:53:A:H62	1.61	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
17:Q:110:LYS:HG3	17:Q:121:PRO:HG3	1.94	0.48
25:Y:53:MET:HE2	25:Y:57:VAL:HG21	1.94	0.48
35:k:5:GLN:HE21	51:1:1668:A:H5"	1.78	0.48
51:1:214:G:H2'	51:1:215:G:C8	2.48	0.48
51:1:286:U:H2'	51:1:287:G:C8	2.47	0.48
51:1:1742:U:O2'	51:1:1743:G:H5'	2.14	0.48
51:1:1748:C:H2'	51:1:1749:A:C8	2.47	0.48
51:1:2214:C:H2'	51:1:2215:C:O4'	2.14	0.48
51:1:2329:U:H2'	51:1:2330:G:H8	1.78	0.48
53:3:673:A:H2'	53:3:674:G:C8	2.49	0.48
58:B1:809:VAL:HG21	58:B1:909:ILE:HG12	1.95	0.48
58:B1:968:ASN:HA	58:B1:1117:SER:HB2	1.96	0.48
59:B2:18:ARG:HE	59:B2:620:ASN:HA	1.77	0.48
59:B2:533:LEU:HD13	59:B2:540:ARG:HH21	1.77	0.48
12:L:41:ILE:HD11	53:3:1240:U:H5'	1.94	0.48
29:d:143:LEU:HD13	29:d:146:VAL:HG11	1.94	0.48
45:u:88:ASP:OD1	45:u:88:ASP:N	2.43	0.48
51:1:217:A:H2'	51:1:218:A:O4'	2.13	0.48
51:1:488:G:H22	51:1:491:G:H5"	1.77	0.48
51:1:553:G:H2'	51:1:554:U:O4'	2.13	0.48
51:1:1087:G:O6	51:1:1089:A:C2	2.67	0.48
51:1:2649:C:O2'	51:1:2650:U:H5'	2.13	0.48
53:3:1531:A:O2'	53:3:1532:U:H5'	2.14	0.48
57:A1:100:LEU:HB2	57:A1:144:ILE:HG23	1.94	0.48
59:B2:857:VAL:HG13	59:B2:919:ARG:HH21	1.78	0.48
63:5:51:U:H2'	63:5:52:G:C8	2.48	0.48
6:F:6:SER:O	6:F:6:SER:OG	2.31	0.48
42:r:71:LYS:HA	42:r:90:ARG:HG2	1.95	0.48
51:1:92:U:H2'	51:1:93:G:H5'	1.96	0.48
51:1:481:G:C2'	51:1:482:A:OP2	2.61	0.48
51:1:1871:A:H2'	51:1:1872:A:O4'	2.13	0.48
53:3:880:C:H2'	53:3:881:G:H8	1.78	0.48
14:N:10:ARG:NH2	53:3:1119:C:OP2	2.46	0.48
17:Q:82:ARG:O	17:Q:95:HIS:N	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Z:55:HIS:HA	26:Z:58:LYS:HD2	1.95	0.48
51:1:718:A:H2'	51:1:719:C:O4'	2.12	0.48
51:1:2016:U:O5'	51:1:2016:U:H6	1.97	0.48
51:1:2828:G:O2'	51:1:2829:A:H5'	2.13	0.48
58:B1:102:MET:HG2	58:B1:246:PRO:HD3	1.94	0.48
58:B1:201:LEU:HD11	58:B1:220:ARG:HG2	1.95	0.48
58:B1:352:ARG:HD2	59:B2:1268:GLN:HE21	1.68	0.48
64:6:50:U:H2'	64:6:51:C:C5	2.49	0.48
32:g:8:LYS:HD3	32:g:14:SER:HA	1.96	0.48
38:n:100:CYS:H	38:n:111:ALA:HA	1.79	0.48
49:y:16:THR:O	49:y:20:ASN:ND2	2.46	0.48
51:1:415:A:H2'	51:1:416:U:C6	2.49	0.48
51:1:596:U:C2	51:1:662:G:N2	2.82	0.48
51:1:852:U:H2'	51:1:853:C:C6	2.49	0.48
51:1:1807:G:C2'	51:1:1808:A:H5'	2.29	0.48
51:1:2547:A:H61	51:1:2561:U:H3	1.62	0.48
53:3:38:G:H22	53:3:397:A:H5'	1.78	0.48
55:8:14:DC:H2'	55:8:15:DC:C6	2.48	0.48
58:B1:190:LYS:HB2	58:B1:190:LYS:HE3	1.41	0.48
58:B1:1036:ARG:HE	58:B1:1081:VAL:HG11	1.79	0.48
59:B2:400:VAL:HG22	59:B2:584:TYR:HB3	1.96	0.48
62:NG:161:SER:CA	62:NG:170:PRO:HA	2.43	0.48
14:N:44:ARG:O	14:N:47:VAL:HG22	2.13	0.48
14:N:86:LEU:HD12	14:N:97:LEU:HD11	1.95	0.48
36:l:129:LYS:HG2	51:1:636:G:OP1	2.14	0.48
39:o:15:ARG:NH2	52:2:8:C:OP1	2.47	0.48
51:1:555:G:O2'	51:1:556:A:H8	1.96	0.48
51:1:1464:G:H2'	51:1:1465:G:C8	2.49	0.48
51:1:1465:G:H2'	51:1:1466:U:O4'	2.13	0.48
51:1:2527:C:O2'	51:1:2528:U:H5'	2.13	0.48
53:3:401:C:O2'	53:3:621:A:N3	2.45	0.48
53:3:776:G:N2	53:3:802:A:OP2	2.39	0.48
58:B1:255:LEU:HD23	58:B1:261:ALA:HB2	1.95	0.48
58:B1:891:ASP:OD2	58:B1:1290:ARG:NH2	2.47	0.48
59:B2:732:ILE:HD11	59:B2:769:PRO:HB3	1.95	0.48
59:B2:895:LEU:HD12	59:B2:899:GLU:HB3	1.95	0.48
29:d:149:ILE:HD11	29:d:172:ALA:HA	1.96	0.48
31:f:16:VAL:HA	31:f:25:ILE:HG12	1.96	0.48
51:1:275:C:C3'	51:1:276:U:H5"	2.40	0.48
51:1:476:G:H4'	51:1:502:A:N1	2.28	0.48
51:1:820:A:H2'	51:1:821:A:O4'	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:854:C:H2'	51:1:855:G:H8	1.79	0.48
51:1:1387:A:C5'	51:1:1469:A:H1'	2.38	0.48
51:1:2660:A:N6	65:0:672:SER:HB2	2.29	0.48
53:3:898:G:N2	53:3:901:A:OP2	2.46	0.48
58:B1:108:ALA:HB1	58:B1:279:LEU:HD22	1.96	0.48
63:5:50:U:H2'	63:5:51:U:C6	2.49	0.48
27:b:152:GLN:HB3	51:1:1818:U:N3	2.29	0.47
29:d:48:THR:OG1	29:d:49:ARG:N	2.47	0.47
29:d:119:ILE:HB	29:d:187:VAL:HG12	1.96	0.47
40:p:2:ASN:HD21	51:1:2876:G:H4'	1.79	0.47
51:1:2098:U:H2'	51:1:2099:U:O4'	2.14	0.47
51:1:2149:U:H2'	51:1:2150:C:C6	2.49	0.47
51:1:2286:G:H21	51:1:2287:A:H61	1.62	0.47
53:3:1305:G:N2	53:3:1331:G:H2'	2.29	0.47
58:B1:103:GLY:H	58:B1:244:VAL:HG22	1.79	0.47
58:B1:550:VAL:O	58:B1:569:LEU:HA	2.13	0.47
58:B1:1146:GLU:OE2	58:B1:1310:THR:HG22	2.14	0.47
12:L:112:ASP:HB2	12:L:118:ARG:HG2	1.97	0.47
17:Q:70:GLY:O	17:Q:98:ARG:NH2	2.47	0.47
28:c:190:LYS:HE2	51:1:2729:G:H4'	1.95	0.47
32:g:47:PHE:HA	32:g:51:ARG:HB2	1.96	0.47
33:i:54:ILE:HD12	33:i:73:PRO:HD3	1.95	0.47
40:p:59:THR:HG22	40:p:72:VAL:HG12	1.95	0.47
42:r:7:SER:OG	42:r:8:GLY:N	2.47	0.47
47:w:29:ALA:N	47:w:60:ASP:OD1	2.48	0.47
51:1:5:A:H2'	51:1:6:A:C8	2.49	0.47
51:1:40:U:H2'	51:1:41:C:H6	1.78	0.47
51:1:813:U:C2	51:1:1195:G:N2	2.83	0.47
51:1:1026:G:OP2	51:1:1134:A:H1'	2.13	0.47
51:1:2362:C:O5'	51:1:2362:C:H6	1.96	0.47
53:3:1223:C:H5'	53:3:1224:U:H5"	1.96	0.47
58:B1:1060:VAL:HG13	58:B1:1106:ILE:HG12	1.96	0.47
20:T:38:LEU:HD22	20:T:55:LEU:HD13	1.96	0.47
21:U:18:GLN:HA	21:U:38:PHE:HA	1.95	0.47
27:b:131:MET:HE2	27:b:187:CYS:HB2	1.96	0.47
51:1:107:G:O2'	51:1:108:G:H5'	2.14	0.47
51:1:554:U:O2'	51:1:555:G:H5'	2.13	0.47
51:1:762:U:N3	51:1:1431:A:OP1	2.47	0.47
51:1:1463:C:H2'	51:1:1464:G:C8	2.49	0.47
51:1:2156:G:C3'	51:1:2157:G:H5'	2.44	0.47
51:1:2899:A:H2'	51:1:2900:A:O4'	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:3:816:A:OP1	53:3:1526:G:O2'	2.28	0.47
58:B1:375:GLU:HB3	59:B2:1245:ALA:HB3	1.97	0.47
58:B1:1347:LEU:HG	58:B1:1357:ILE:HG23	1.96	0.47
59:B2:1311:GLY:O	60:W0:31:GLN:NE2	2.47	0.47
59:B2:1314:GLN:HB2	60:W0:28:ARG:HH12	1.79	0.47
65:0:12:ASN:HB2	65:0:107:ASP:OD2	2.14	0.47
27:b:156:SER:OG	27:b:157:ALA:N	2.44	0.47
31:f:133:LYS:NZ	31:f:134:GLY:O	2.44	0.47
31:f:174:LYS:HD2	31:f:176:LYS:HB2	1.96	0.47
45:u:39:ASN:HB3	45:u:62:ALA:HB3	1.95	0.47
51:1:143:C:H2'	51:1:144:A:C8	2.49	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
51:1:2298:A:C2'	51:1:2299:U:H5'	2.45	0.47
51:1:2626:C:H2'	51:1:2627:G:H8	1.80	0.47
51:1:2895:G:H2'	51:1:2896:C:C6	2.49	0.47
53:3:768:A:N3	53:3:1512:U:O2'	2.46	0.47
58:B1:395:LYS:NZ	58:B1:399:LYS:CE	2.77	0.47
58:B1:1221:LEU:HD22	58:B1:1306:LEU:HB2	1.96	0.47
59:B2:565:GLU:HA	59:B2:569:ILE:HG12	1.95	0.47
18:R:15:VAL:HG11	18:R:30:LYS:HG2	1.97	0.47
28:c:13:ARG:NH2	40:p:74:GLN:OE1	2.43	0.47
47:w:19:VAL:HA	47:w:34:VAL:HG22	1.97	0.47
51:1:712:G:H2'	51:1:713:G:H5'	1.96	0.47
51:1:1257:C:O5'	51:1:1257:C:H6	1.97	0.47
51:1:1464:G:H2'	51:1:1465:G:H8	1.78	0.47
51:1:1922:G:H2'	51:1:1923:U:C6	2.50	0.47
51:1:2455:G:C6	51:1:2456:C:N4	2.83	0.47
53:3:358:U:H2'	53:3:359:G:H8	1.78	0.47
57:A1:182:ARG:O	57:A1:205:MET:HA	2.14	0.47
58:B1:1357:ILE:HD13	59:B2:1279:GLU:HG2	1.97	0.47
59:B2:207:THR:OG1	59:B2:354:ASP:OD2	2.32	0.47
5:E:5:THR:HG22	5:E:62:PRO:HD2	1.97	0.47
15:O:58:ASN:ND2	53:3:1061:G:O2'	2.45	0.47
31:f:88:LEU:HD21	31:f:104:LEU:HD23	1.97	0.47
51:1:551:G:O2'	51:1:552:U:H5'	2.15	0.47
51:1:1098:A:O2'	51:1:1099:G:H5'	2.15	0.47
57:A1:59:VAL:HG22	57:A1:144:ILE:HA	1.97	0.47
58:B1:1261:LEU:HD12	58:B1:1304:ARG:HH21	1.78	0.47
59:B2:103:VAL:HG12	59:B2:117:ILE:HG22	1.97	0.47
4:D:29:GLN:O	4:D:29:GLN:NE2	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:159:GLU:HA	9:I:162:GLU:HB2	1.97	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
21:U:25:ARG:NH1	53:3:230:G:O2'	2.48	0.47
28:c:136:ASN:OD1	51:1:2579:C:O2'	2.32	0.47
46:v:79:ARG:HA	46:v:86:LEU:HA	1.95	0.47
51:1:283:G:C2'	51:1:284:U:H5'	2.45	0.47
51:1:368:A:H2'	51:1:369:U:C5'	2.39	0.47
51:1:1020:A:C1'	51:1:1021:A:OP2	2.61	0.47
51:1:1367:A:H3'	51:1:1368:G:O4'	2.15	0.47
51:1:1435:G:O2'	51:1:1436:G:H5'	2.15	0.47
51:1:1702:G:H2'	51:1:1703:G:C5'	2.35	0.47
51:1:1726:C:H2'	51:1:1727:C:C6	2.50	0.47
51:1:1729:U:H5	51:1:1731:G:N2	2.12	0.47
51:1:2155:U:H2'	51:1:2156:G:O4'	2.15	0.47
51:1:2194:U:O2'	51:1:2195:U:H5'	2.14	0.47
51:1:2395:C:H2'	51:1:2396:G:O4'	2.15	0.47
51:1:2445:G:C6	51:1:2446:G:C6	3.02	0.47
51:1:2554:U:H2'	51:1:2555:U:O2	2.15	0.47
51:1:2625:G:H2'	51:1:2626:C:H6	1.76	0.47
53:3:944:G:N1	53:3:1338:G:OP2	2.34	0.47
58:B1:43:THR:HG22	58:B1:57:PHE:HE1	1.80	0.47
58:B1:526:VAL:HG12	58:B1:549:LYS:HB2	1.96	0.47
16:P:34:THR:OG1	16:P:35:ASP:N	2.47	0.47
19:S:32:ASP:O	19:S:34:ASN:ND2	2.48	0.47
43:s:72:THR:OG1	43:s:73:LYS:N	2.48	0.47
45:u:6:ARG:HB2	51:1:85:G:P	2.55	0.47
51:1:297:G:H2'	51:1:298:G:O4'	2.14	0.47
51:1:877:A:O2'	51:1:878:A:H5"	2.14	0.47
51:1:1219:U:O2'	51:1:1220:G:H5'	2.15	0.47
51:1:1517:G:O2'	51:1:1518:C:H5'	2.15	0.47
51:1:2563:U:H2'	51:1:2565:A:OP2	2.15	0.47
58:B1:141:PHE:HE2	58:B1:296:LYS:CB	2.22	0.47
58:B1:1361:THR:OG1	59:B2:1282:GLY:O	2.28	0.47
63:5:8:U:H2'	63:5:13:C:N4	2.30	0.47
51:1:149:A:H2'	51:1:150:U:C6	2.49	0.47
51:1:466:A:H2'	51:1:467:G:C5'	2.44	0.47
51:1:900:A:C2'	51:1:901:C:H5'	2.45	0.47
51:1:979:A:H2'	51:1:982:C:H42	1.80	0.47
51:1:1068:G:H2'	51:1:1069:A:H4'	1.96	0.47
51:1:1297:C:H2'	51:1:1298:C:H6	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1400:U:H2'	51:1:1401:G:C8	2.50	0.47
51:1:1491:G:H2'	51:1:1492:G:H8	1.80	0.47
51:1:1873:G:O2'	51:1:1874:C:H5'	2.15	0.47
51:1:1922:G:O2'	51:1:1923:U:H5'	2.15	0.47
51:1:2180:U:H2'	51:1:2181:U:O4'	2.14	0.47
51:1:2259:U:H2'	51:1:2260:C:O4'	2.15	0.47
51:1:2581:G:H2'	51:1:2581:G:N3	2.30	0.47
53:3:617:G:H1	53:3:623:C:H42	1.63	0.47
57:A2:64:VAL:HG11	57:A2:78:ILE:HG21	1.97	0.47
58:B1:352:ARG:HB2	59:B2:1268:GLN:NE2	2.30	0.47
58:B1:420:PRO:HA	58:B1:437:PHE:O	2.15	0.47
59:B2:689:ALA:HB2	59:B2:1233:LEU:HD23	1.97	0.47
64:6:48:C:H5"	64:6:50:U:OP1	2.15	0.47
9:I:171:GLU:HB3	9:I:180:THR:HG22	1.97	0.47
12:L:79:VAL:HB	12:L:84:TYR:HD2	1.80	0.47
31:f:100:ASN:OD1	31:f:100:ASN:N	2.47	0.47
33:i:115:ASP:OD2	51:1:1059:G:H4'	2.14	0.47
46:v:83:LYS:HB3	46:v:85:LYS:HZ3	1.79	0.47
51:1:435:C:C2'	51:1:436:C:H5'	2.44	0.47
51:1:686:U:H6	51:1:788:A:H61	1.61	0.47
51:1:708:G:H2'	51:1:709:U:C6	2.50	0.47
51:1:859:G:C2'	51:1:860:U:OP2	2.62	0.47
51:1:1209:U:O3'	51:1:1212:G:H5'	2.15	0.47
51:1:1267:U:H2'	51:1:1267:U:O2	2.14	0.47
51:1:1913:A:C8	53:3:1494:G:H4'	2.50	0.47
51:1:2295:C:O2'	51:1:2296:U:H5'	2.15	0.47
51:1:2858:C:H2'	51:1:2859:G:O4'	2.15	0.47
7:G:129:THR:HB	7:G:132:GLU:HB2	1.96	0.46
18:R:7:ASN:HD22	18:R:20:SER:HB2	1.80	0.46
20:T:37:HIS:HD2	20:T:38:LEU:HD12	1.80	0.46
27:b:184:GLU:HG3	27:b:186:ASP:H	1.80	0.46
39:o:68:LYS:HE3	52:2:49:C:H5"	1.97	0.46
51:1:214:G:O2'	51:1:215:G:H5'	2.14	0.46
51:1:570:G:H5'	51:1:983:A:C2	2.51	0.46
51:1:1036:G:O2'	51:1:1037:G:H5'	2.15	0.46
51:1:1465:G:HO2'	51:1:1466:U:H5'	1.80	0.46
51:1:1480:C:H2'	51:1:1481:U:C6	2.49	0.46
51:1:1536:C:H5"	51:1:1537:G:C5	2.50	0.46
51:1:2047:C:O5'	51:1:2047:C:H6	1.98	0.46
51:1:2241:A:H2'	51:1:2242:G:C8	2.50	0.46
51:1:2360:G:H2'	51:1:2361:G:C5'	2.40	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:3:410:G:H21	53:3:432:A:H62	1.62	0.46
53:3:1225:A:H2'	53:3:1225:A:N3	2.29	0.46
58:B1:833:GLU:N	58:B1:1242:ARG:HH12	2.12	0.46
58:B1:1150:PRO:HG3	58:B1:1214:PRO:HB2	1.97	0.46
48:x:14:GLY:HA3	48:x:28:PHE:HE1	1.81	0.46
51:1:156:A:H2'	51:1:157:C:C6	2.50	0.46
51:1:389:G:O2'	51:1:390:U:H5'	2.15	0.46
51:1:1141:U:H4'	51:1:1142:A:C1'	2.45	0.46
51:1:1146:C:O2'	51:1:1147:A:H5'	2.16	0.46
51:1:1389:G:C2	51:1:1390:U:C2	3.02	0.46
51:1:1516:G:O2'	51:1:1517:G:H5'	2.15	0.46
51:1:1528:A:H2'	51:1:1529:G:C5'	2.44	0.46
51:1:1851:U:OP1	64:6:4:G:H4'	2.15	0.46
51:1:2496:C:H2'	51:1:2497:A:O4'	2.16	0.46
53:3:459:A:H2'	53:3:460:A:C8	2.50	0.46
59:B2:28:LEU:HD21	59:B2:524:ILE:HG13	1.98	0.46
65:0:93:VAL:HA	65:0:96:THR:HG23	1.97	0.46
65:0:97:ILE:HD11	65:0:411:PHE:HD1	1.80	0.46
35:k:47:ILE:HG22	35:k:49:ARG:H	1.80	0.46
36:l:39:LYS:HG2	51:1:832:U:OP1	2.15	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
51:1:536:G:H2'	51:1:537:G:C5'	2.43	0.46
51:1:1874:C:H2'	51:1:1875:G:O4'	2.15	0.46
51:1:2290:G:O2'	51:1:2291:U:H5'	2.16	0.46
51:1:2350:C:H2'	51:1:2351:G:O4'	2.16	0.46
53:3:512:U:H2'	53:3:513:C:C6	2.50	0.46
53:3:959:A:O2'	53:3:984:C:O2'	2.24	0.46
53:3:1035:A:H1'	53:3:1036:A:O5'	2.16	0.46
58:B1:29:MET:HG2	59:B2:1336:ASN:ND2	2.29	0.46
59:B2:363:LEU:HB3	59:B2:381:ALA:HB1	1.96	0.46
59:B2:562:GLU:OE1	59:B2:662:SER:OG	2.28	0.46
10:J:73:VAL:HG11	10:J:143:LEU:HB3	1.98	0.46
27:b:145:MET:HE1	51:1:1800:C:H2'	1.98	0.46
31:f:29:ASN:ND2	31:f:80:GLU:O	2.48	0.46
34:j:65:THR:HG22	51:1:1141:U:OP2	2.15	0.46
49:y:15:ASN:OD1	49:y:16:THR:N	2.48	0.46
51:1:30:G:C5	51:1:31:C:C4	3.03	0.46
51:1:289:G:H2'	51:1:290:U:C6	2.50	0.46
51:1:554:U:C2'	51:1:555:G:H5'	2.46	0.46
51:1:595:C:C2	51:1:596:U:C5	3.04	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:848:C:H2'	51:1:849:A:C8	2.51	0.46
51:1:1509:A:H2'	51:1:1510:G:C8	2.49	0.46
51:1:1768:C:H42	51:1:1984:G:H1	1.62	0.46
51:1:1923:U:O2'	51:1:1924:C:H5'	2.16	0.46
57:A1:35:PHE:HA	57:A1:38:THR:HG22	1.97	0.46
58:B1:105:ILE:HD12	58:B1:242:LEU:CD2	2.44	0.46
58:B1:128:LEU:HD21	58:B1:188:LEU:HB3	1.97	0.46
62:NG:135:ARG:O	62:NG:178:VAL:HA	2.16	0.46
63:5:34:G:H3'	63:5:35:A:C8	2.50	0.46
2:B:31:LYS:HG2	51:1:2885:G:N2	2.31	0.46
11:K:3:HIS:HA	11:K:65:GLU:HA	1.97	0.46
11:K:10:VAL:HG23	11:K:58:HIS:HB3	1.97	0.46
11:K:41:ASP:OD1	11:K:58:HIS:NE2	2.39	0.46
16:P:124:LYS:HB3	26:Z:34:ARG:HB3	1.98	0.46
23:W:33:THR:OG1	23:W:34:GLU:N	2.49	0.46
29:d:132:LYS:HG2	29:d:136:GLN:HE22	1.81	0.46
33:i:112:LYS:HD2	33:i:128:ILE:HD12	1.97	0.46
51:1:28:A:O2'	51:1:29:U:H5'	2.16	0.46
51:1:44:A:H2'	51:1:45:G:O4'	2.15	0.46
51:1:637:A:C6	51:1:652:U:H4'	2.50	0.46
51:1:688:U:H5'	51:1:1780:A:C2	2.51	0.46
51:1:853:C:O2'	51:1:854:C:H5'	2.16	0.46
51:1:1090:A:C2	51:1:1102:C:H1'	2.50	0.46
51:1:1117:C:H2'	51:1:1118:C:C6	2.50	0.46
51:1:1173:U:C6	51:1:1174:U:H1'	2.51	0.46
51:1:1183:U:H2'	51:1:1184:U:H6	1.80	0.46
51:1:1210:G:P	51:1:1212:G:H5'	2.56	0.46
51:1:1572:A:H2'	51:1:1573:G:O4'	2.16	0.46
51:1:2294:G:O2'	51:1:2295:C:H5'	2.15	0.46
55:8:14:DC:H2'	55:8:15:DC:H6	1.79	0.46
58:B1:209:ASN:HA	58:B1:214:ARG:NH2	2.30	0.46
58:B1:352:ARG:CD	59:B2:1268:GLN:NE2	2.67	0.46
22:V:10:ARG:NE	22:V:55:GLY:O	2.48	0.46
27:b:131:MET:H	27:b:131:MET:HG2	1.57	0.46
31:f:87:GLN:HB3	31:f:162:ARG:HG3	1.96	0.46
34:j:2:LYS:HA	51:1:995:C:C4	2.50	0.46
51:1:538:A:O2'	51:1:539:G:H5'	2.14	0.46
51:1:1285:A:H2'	51:1:1286:A:H5'	1.96	0.46
51:1:1574:C:H2'	51:1:1575:C:C6	2.50	0.46
51:1:1927:A:H2'	51:1:1928:A:C8	2.50	0.46
51:1:2247:A:H2'	51:1:2248:C:H6	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2329:U:H2'	51:1:2330:G:C8	2.51	0.46
51:1:2642:G:O5'	51:1:2642:G:H8	1.98	0.46
59:B2:517:GLN:HB3	59:B2:760:ASN:H	1.79	0.46
59:B2:1286:THR:O	59:B2:1290:MET:HB2	2.14	0.46
63:5:8:U:H2'	63:5:13:C:H41	1.81	0.46
63:5:26:A:H61	63:5:44:G:H22	1.64	0.46
4:D:12:ARG:NH1	51:1:465:G:OP1	2.49	0.46
8:H:171:ARG:HG2	8:H:173:PRO:HD3	1.96	0.46
27:b:1:ALA:N	27:b:19:VAL:O	2.41	0.46
36:l:69:ARG:NH1	51:1:2406:A:C2	2.84	0.46
51:1:1090:A:H61	51:1:1101:U:H3	1.62	0.46
51:1:1105:U:H2'	51:1:1106:G:H8	1.80	0.46
51:1:1863:G:H2'	51:1:1864:U:C6	2.51	0.46
51:1:2836:U:H2'	51:1:2837:A:H8	1.81	0.46
55:8:20:DA:H4'	59:B2:143:ARG:NH1	2.31	0.46
57:A1:212:ASP:OD1	57:A1:212:ASP:N	2.48	0.46
59:B2:230:PHE:HB2	59:B2:333:ILE:HB	1.97	0.46
59:B2:318:SER:OG	59:B2:320:ASP:OD1	2.31	0.46
59:B2:1002:LEU:HD21	59:B2:1007:LYS:HB2	1.98	0.46
65:0:27:THR:HA	65:0:30:ILE:HD12	1.96	0.46
65:0:648:GLU:H	65:0:648:GLU:HG3	1.57	0.46
26:Z:29:ALA:O	26:Z:32:ARG:NH1	2.49	0.46
33:i:79:LEU:HD21	33:i:105:LEU:HD21	1.96	0.46
33:i:109:ALA:HA	33:i:112:LYS:HB2	1.98	0.46
39:o:29:HIS:HB3	39:o:36:TYR:HB2	1.98	0.46
40:p:52:ARG:HH21	51:1:2720:U:H5"	1.80	0.46
51:1:290:U:O2'	51:1:291:G:H5'	2.16	0.46
51:1:519:U:C2	51:1:520:G:C8	3.03	0.46
51:1:1034:G:C5	51:1:1035:U:C4	3.04	0.46
51:1:1520:U:H2'	51:1:1521:G:O4'	2.16	0.46
51:1:1869:G:H3'	51:1:1870:C:C5'	2.38	0.46
51:1:2679:A:O2'	51:1:2680:U:H5'	2.15	0.46
51:1:2783:U:H2'	51:1:2784:U:C6	2.51	0.46
51:1:2813:A:O2'	51:1:2814:A:H5'	2.15	0.46
57:A2:294:ASN:HA	61:NA:464:ILE:N	2.28	0.46
59:B2:735:LYS:HA	59:B2:748:ILE:HG22	1.97	0.46
7:G:65:LYS:HE2	7:G:65:LYS:HB2	1.78	0.46
9:I:114:ARG:HA	9:I:117:VAL:HG22	1.98	0.46
15:O:100:ILE:O	62:NG:170:PRO:O	2.34	0.46
31:f:106:LEU:O	31:f:151:ARG:NH2	2.37	0.46
51:1:338:G:O2'	51:1:339:U:H5'	2.14	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:409:G:H2'	51:1:410:G:C8	2.51	0.46
51:1:438:G:O2'	51:1:439:A:H5'	2.16	0.46
51:1:1710:G:H2'	51:1:1711:A:C8	2.51	0.46
51:1:1930:G:O2'	51:1:1931:U:OP2	2.33	0.46
51:1:2315:G:H2'	51:1:2316:G:H8	1.80	0.46
51:1:2339:C:H2'	51:1:2340:A:H8	1.81	0.46
57:A2:102:LEU:HD12	57:A2:115:ILE:HG12	1.96	0.46
58:B1:198:CYS:HA	58:B1:221:ILE:CD1	2.45	0.46
58:B1:772:TYR:HE2	59:B2:561:ILE:HG21	1.80	0.46
58:B1:1167:LYS:NZ	58:B1:1170:LYS:HB2	2.30	0.46
16:P:127:ARG:HB2	26:Z:34:ARG:HH22	1.81	0.46
21:U:70:ARG:O	21:U:74:LEU:N	2.47	0.46
22:V:11:VAL:HG13	22:V:58:VAL:HG21	1.98	0.46
31:f:90:GLY:HA2	31:f:159:LYS:HG2	1.98	0.46
51:1:342:A:H2'	51:1:343:C:O4'	2.16	0.46
51:1:848:C:H2'	51:1:849:A:H8	1.80	0.46
51:1:1486:U:O2'	51:1:1487:U:H5'	2.14	0.46
55:8:13:DT:C6	58:B1:791:ALA:HA	2.51	0.46
57:A1:231:PHE:O	57:A2:218:ARG:NH1	2.49	0.46
58:B1:1219:ASP:O	58:B1:1223:LEU:HB2	2.15	0.46
63:5:6:G:H2'	63:5:7:A:C8	2.51	0.46
8:H:152:VAL:HG12	8:H:197:VAL:HG22	1.98	0.45
12:L:142:ARG:HH21	64:6:42:G:H4'	1.81	0.45
17:Q:45:ASN:ND2	17:Q:88:ASP:OD2	2.39	0.45
28:c:170:VAL:HG21	51:1:2679:A:H5'	1.97	0.45
29:d:32:VAL:HG21	36:l:6:LEU:HD13	1.99	0.45
35:k:70:ARG:NH1	51:1:2684:U:O4'	2.49	0.45
43:s:82:MET:HE1	51:1:1322:A:H5"	1.98	0.45
51:1:360:U:H2'	51:1:361:G:H1'	1.98	0.45
51:1:607:U:O4	51:1:620:G:H5'	2.17	0.45
51:1:1170:C:H2'	51:1:1171:G:C8	2.51	0.45
51:1:1381:G:H2'	51:1:1382:G:H5'	1.98	0.45
51:1:2141:G:H1	51:1:2151:U:H3	1.63	0.45
51:1:2648:G:C2	51:1:2649:C:C2	3.04	0.45
59:B2:712:SER:OG	59:B2:713:GLY:N	2.49	0.45
65:0:574:MET:HE1	65:0:601:PHE:CE2	2.50	0.45
12:L:142:ARG:HA	12:L:145:GLU:HG3	1.97	0.45
14:N:11:ARG:NH2	53:3:1347:G:O6	2.49	0.45
17:Q:72:ASN:HD21	17:Q:103:CYS:HA	1.81	0.45
31:f:1:SER:HA	51:1:2749:A:OP1	2.15	0.45
35:k:5:GLN:NE2	51:1:1668:A:H5"	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:34:VAL:HG21	44:t:43:ILE:HD11	1.99	0.45
47:w:37:ARG:HA	47:w:37:ARG:HD3	1.70	0.45
51:1:6:A:H2'	51:1:7:G:C8	2.52	0.45
51:1:466:A:C2'	51:1:467:G:H5'	2.46	0.45
51:1:569:U:H1'	51:1:947:A:O4'	2.16	0.45
51:1:1288:G:C5	51:1:1327:A:C2	3.04	0.45
51:1:1550:C:O2'	51:1:1551:A:H5'	2.16	0.45
51:1:2743:U:H2'	51:1:2744:G:O4'	2.16	0.45
58:B1:375:GLU:O	59:B2:1247:SER:HB3	2.16	0.45
60:W0:25:ARG:NH1	60:W0:61:ASN:OD1	2.49	0.45
63:5:55:U:O2	63:5:57:G:H1'	2.17	0.45
13:M:83:ARG:NH2	53:3:587:G:OP1	2.44	0.45
18:R:16:ILE:O	18:R:19:THR:OG1	2.26	0.45
33:i:106:GLN:OE1	33:i:125:THR:OG1	2.31	0.45
34:j:108:MET:CE	51:1:1138:G:H21	2.29	0.45
37:m:34:LYS:N	37:m:129:THR:O	2.47	0.45
41:q:82:LEU:HD22	41:q:87:VAL:HB	1.98	0.45
49:y:6:LEU:HD13	49:y:56:LEU:HD22	1.98	0.45
51:1:1087:G:H22	51:1:1103:A:H1'	1.76	0.45
51:1:1287:A:O2'	51:1:1288:G:H5'	2.15	0.45
51:1:1488:C:H2'	51:1:1489:C:C6	2.51	0.45
51:1:2661:G:O2'	51:1:2662:A:H5'	2.16	0.45
57:A2:80:GLU:HG3	59:B2:694:ARG:HH22	1.81	0.45
58:B1:201:LEU:HD11	58:B1:220:ARG:NH1	2.32	0.45
58:B1:515:ARG:NH2	58:B1:718:SER:O	2.48	0.45
64:6:7:G:H3'	64:6:49:G:OP2	2.16	0.45
7:G:166:ASP:HB3	7:G:190:SER:HB2	1.98	0.45
18:R:97:ARG:HB2	18:R:99:GLN:HE22	1.81	0.45
28:c:4:LEU:HD11	28:c:100:LEU:HD21	1.98	0.45
48:x:30:PRO:HG2	48:x:32:LEU:HD11	1.98	0.45
51:1:30:G:H2'	51:1:31:C:O4'	2.17	0.45
51:1:438:G:H2'	51:1:439:A:C8	2.51	0.45
51:1:1605:C:H2'	51:1:1606:C:H5'	1.98	0.45
53:3:1200:C:H5"	53:3:1201:A:H3'	1.97	0.45
53:3:1383:C:H4'	64:6:35:A:H2	1.81	0.45
55:8:1:DC:H2"	55:8:2:DC:C6	2.51	0.45
58:B1:67:ASP:OD1	58:B1:67:ASP:O	2.35	0.45
58:B1:115:TRP:HB3	58:B1:1333:THR:CG2	2.46	0.45
59:B2:24:VAL:HG11	59:B2:704:MET:HE1	1.99	0.45
7:G:8:MET:HE3	7:G:8:MET:HB3	1.84	0.45
7:G:142:LYS:NZ	53:3:1098:C:OP1	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:172:ILE:O	7:G:176:ASN:ND2	2.50	0.45
10:J:101:GLY:H	10:J:121:ASN:HB3	1.82	0.45
12:L:70:PRO:HG3	12:L:98:LEU:HD23	1.97	0.45
19:S:58:ARG:HH21	53:3:980:C:H4'	1.81	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
51:1:1140:C:H2'	51:1:1141:U:H5'	1.97	0.45
51:1:1239:G:O2'	51:1:1240:U:H5'	2.17	0.45
51:1:1866:A:H2'	51:1:1867:G:O4'	2.16	0.45
51:1:1952:A:H2'	51:1:1953:A:C8	2.51	0.45
51:1:2314:A:H2'	51:1:2315:G:H8	1.78	0.45
51:1:2364:C:O2'	51:1:2365:G:H5'	2.17	0.45
51:1:2528:U:O2'	51:1:2529:G:H3'	2.16	0.45
51:1:2741:A:H2'	51:1:2742:G:H5'	1.98	0.45
53:3:618:C:N4	53:3:621:A:OP2	2.49	0.45
58:B1:842:ARG:HH22	58:B1:1250:ASP:HB2	1.80	0.45
58:B1:1158:GLU:HA	58:B1:1223:LEU:HD21	1.99	0.45
11:K:75:GLU:O	11:K:79:ARG:N	2.47	0.45
29:d:136:GLN:HA	29:d:139:LYS:HE2	1.99	0.45
35:k:121:GLU:HG2	35:k:122:VAL:HG23	1.97	0.45
45:u:32:LYS:HG2	45:u:65:GLN:HA	1.99	0.45
51:1:540:C:O2'	51:1:541:A:H5'	2.16	0.45
51:1:707:G:C2'	51:1:708:G:H5'	2.47	0.45
51:1:1324:G:O2'	51:1:1326:U:OP2	2.29	0.45
51:1:1412:U:H2'	51:1:1413:A:H8	1.81	0.45
51:1:1868:C:H2'	51:1:1869:G:C8	2.52	0.45
51:1:2030:A:N3	51:1:2499:C:H5"	2.31	0.45
51:1:2849:U:H4'	51:1:2868:A:C2	2.51	0.45
53:3:765:G:H1	53:3:812:G:HO2'	1.63	0.45
53:3:1376:U:H2'	53:3:1377:A:C8	2.52	0.45
58:B1:395:LYS:HZ2	58:B1:399:LYS:CE	2.28	0.45
2:B:4:GLN:HG3	51:1:2054:A:C2	2.52	0.45
8:H:5:HIS:CE1	8:H:7:ASN:HB3	2.51	0.45
9:I:13:ARG:NH1	53:3:542:G:O3'	2.50	0.45
12:L:137:ARG:NH1	12:L:138:GLU:OE2	2.48	0.45
27:b:257:ARG:HH22	27:b:262:THR:HG1	1.62	0.45
41:q:111:LYS:HA	41:q:111:LYS:HD2	1.81	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
51:1:893:C:H2'	51:1:894:U:O4'	2.17	0.45
51:1:1766:G:C2'	51:1:1767:G:H5'	2.45	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2636:C:O2'	51:1:2637:U:H5'	2.16	0.45
51:1:2651:C:H2'	51:1:2652:C:H6	1.81	0.45
54:4:44:G:OP1	59:B2:1073:LYS:NZ	2.35	0.45
58:B1:128:LEU:CD2	58:B1:188:LEU:HB3	2.47	0.45
58:B1:213:LYS:CA	58:B1:213:LYS:HE3	2.47	0.45
58:B1:343:LEU:HD11	58:B1:1324:SER:HB3	1.98	0.45
58:B1:478:LEU:HD21	60:W0:47:THR:HG23	1.99	0.45
59:B2:674:ASP:OD2	59:B2:1070:HIS:ND1	2.50	0.45
59:B2:900:LYS:HE3	59:B2:900:LYS:HB3	1.62	0.45
63:5:22:G:H2'	63:5:23:A:C8	2.52	0.45
65:0:473:MET:HE3	65:0:473:MET:HB3	1.87	0.45
2:B:8:THR:OG1	2:B:9:ARG:N	2.49	0.45
9:I:173:ASP:HB3	9:I:178:GLU:HB3	1.98	0.45
17:Q:23:LEU:HD12	17:Q:29:LYS:HD2	1.97	0.45
45:u:12:VAL:HA	45:u:69:VAL:HG12	1.99	0.45
51:1:395:U:H2'	51:1:396:G:C8	2.52	0.45
51:1:1071:G:HO2'	51:1:1089:A:H2'	1.81	0.45
51:1:1710:G:O2'	51:1:1711:A:H5'	2.17	0.45
51:1:2047:C:O2'	51:1:2048:G:H5'	2.16	0.45
51:1:2717:C:N3	51:1:2718:G:N7	2.65	0.45
58:B1:484:MET:CE	59:B2:1278:LEU:HD21	2.46	0.45
59:B2:557:ARG:NH2	59:B2:607:SER:O	2.49	0.45
9:I:120:LYS:HG2	9:I:130:ASN:HB3	1.99	0.45
15:O:29:ALA:HB2	15:O:87:LEU:HD11	1.99	0.45
28:c:106:LYS:HA	28:c:176:ASP:HA	1.99	0.45
33:i:49:GLU:OE1	33:i:81:LYS:NZ	2.41	0.45
51:1:195:A:H3'	51:1:196:A:H4'	1.99	0.45
51:1:367:G:O2'	51:1:368:A:H5'	2.17	0.45
51:1:432:A:O2'	51:1:433:C:H5'	2.17	0.45
51:1:500:G:N2	51:1:502:A:H3'	2.32	0.45
51:1:854:C:H2'	51:1:855:G:C8	2.52	0.45
51:1:1344:U:H3'	51:1:1345:C:H5'	1.97	0.45
51:1:1832:C:O5'	51:1:1832:C:H6	2.00	0.45
51:1:1882:U:O2'	51:1:1883:U:H5'	2.17	0.45
51:1:2085:U:O2'	51:1:2086:U:H5'	2.16	0.45
51:1:2626:C:H2'	51:1:2627:G:C8	2.51	0.45
53:3:477:C:H2'	53:3:478:A:C8	2.52	0.45
55:8:16:DT:H2'	55:8:17:DC:C6	2.52	0.45
58:B1:76:LYS:NZ	58:B1:76:LYS:HB3	2.32	0.45
58:B1:211:GLU:CG	58:B1:215:LYS:HE3	2.44	0.45
58:B1:472:LEU:CD1	59:B2:1294:LYS:HG2	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:926:PRO:HB2	58:B1:1241:TYR:HE1	1.82	0.45
59:B2:1314:GLN:HA	60:W0:28:ARG:HH22	1.80	0.45
9:I:1:ALA:N	53:3:405:U:O4	2.45	0.45
11:K:5:GLU:HB2	11:K:90:MET:HB2	1.98	0.45
33:i:8:VAL:HG11	33:i:26:ALA:HB2	1.98	0.45
51:1:974:G:H1'	51:1:975:A:C8	2.52	0.45
51:1:1020:A:C2	51:1:1141:U:C2	3.05	0.45
51:1:1338:G:H2'	51:1:1339:G:C8	2.51	0.45
51:1:1915:U:O2	51:1:1915:U:O4'	2.34	0.45
51:1:2137:U:H2'	51:1:2138:G:C8	2.50	0.45
51:1:2700:A:O2'	51:1:2701:U:H5'	2.17	0.45
51:1:2844:G:H2'	51:1:2845:U:O4'	2.16	0.45
53:3:647:C:H2'	53:3:648:A:H8	1.81	0.45
58:B1:33:TRP:HZ2	59:B2:1336:ASN:OD1	2.00	0.45
58:B1:68:TYR:O	58:B1:75:TYR:CD2	2.70	0.45
58:B1:109:SER:HB2	58:B1:296:LYS:HG2	1.98	0.45
58:B1:395:LYS:NZ	58:B1:399:LYS:CD	2.74	0.45
59:B2:176:ILE:HD11	59:B2:428:VAL:HG21	1.98	0.45
7:G:26:MET:HE1	7:G:186:VAL:HB	1.99	0.44
7:G:33:ALA:HB3	7:G:37:VAL:HG12	1.99	0.44
7:G:65:LYS:HG2	7:G:153:MET:HG3	1.98	0.44
10:J:110:MET:HE3	10:J:110:MET:HB2	1.79	0.44
18:R:107:THR:OG1	53:3:947:G:O3'	2.35	0.44
21:U:79:ASN:HB2	21:U:82:ALA:HB3	1.99	0.44
28:c:151:THR:O	51:1:1130:U:C4	2.70	0.44
33:i:135:MET:CE	51:1:1062:G:H21	2.30	0.44
40:p:88:ARG:HH11	40:p:114:ASN:HD21	1.65	0.44
51:1:545:U:O2	51:1:546:U:H1'	2.17	0.44
51:1:1749:A:H2'	51:1:1750:G:H8	1.82	0.44
51:1:1800:C:O2	51:1:1802:A:C8	2.70	0.44
51:1:2122:U:H2'	51:1:2123:G:O4'	2.17	0.44
51:1:2402:U:O2'	51:1:2403:C:H3'	2.17	0.44
51:1:2889:C:O2'	51:1:2890:G:H5'	2.17	0.44
53:3:112:G:N2	53:3:354:G:O5'	2.49	0.44
53:3:1253:G:H2'	53:3:1254:A:C8	2.52	0.44
58:B1:201:LEU:CB	58:B1:221:ILE:HD13	2.47	0.44
58:B1:395:LYS:NZ	58:B1:399:LYS:HE2	2.32	0.44
58:B1:770:LEU:HD13	59:B2:618:GLN:CD	2.42	0.44
58:B1:804:ALA:HB2	58:B1:1256:ILE:CD1	2.48	0.44
58:B1:1357:ILE:HG22	58:B1:1359:ALA:H	1.82	0.44
7:G:173:LYS:HE3	7:G:173:LYS:HB2	1.76	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:134:LYS:HG2	8:H:138:GLN:HE21	1.82	0.44
51:1:208:C:O2'	51:1:209:C:H5'	2.18	0.44
51:1:354:A:H2'	51:1:355:U:O4'	2.17	0.44
51:1:696:G:H2'	51:1:697:G:O4'	2.18	0.44
51:1:1747:U:H2'	51:1:1748:C:C6	2.53	0.44
51:1:1807:G:H2'	51:1:1808:A:C5'	2.30	0.44
51:1:2658:C:H2'	51:1:2659:G:O4'	2.16	0.44
51:1:2869:G:H2'	51:1:2870:C:O4'	2.17	0.44
53:3:146:G:N2	53:3:177:G:N7	2.66	0.44
53:3:1498:U:H4'	53:3:1519:A:H2	1.82	0.44
58:B1:201:LEU:CD1	58:B1:224:LEU:HD12	2.47	0.44
58:B1:1227:HIS:HA	58:B1:1230:THR:HG22	1.99	0.44
59:B2:998:LEU:HG	59:B2:1011:LEU:HB3	1.99	0.44
14:N:104:THR:HG23	53:3:1180:A:H5'	1.99	0.44
18:R:1:ALA:HB3	18:R:56:ARG:HH22	1.82	0.44
29:d:68:ALA:HA	51:1:1255:U:C6	2.52	0.44
34:j:34:ARG:NH2	34:j:39:LYS:O	2.51	0.44
38:n:65:LEU:HD11	51:1:2870:C:H5"	1.99	0.44
45:u:17:ASP:HA	45:u:20:LYS:HE2	2.00	0.44
51:1:239:C:H2'	51:1:240:C:O4'	2.16	0.44
51:1:355:U:H6	51:1:355:U:O5'	1.99	0.44
51:1:639:U:H2'	51:1:640:C:C6	2.52	0.44
51:1:654:A:N3	51:1:654:A:H5"	2.31	0.44
51:1:1680:U:C2'	51:1:1681:G:H5'	2.47	0.44
51:1:1922:G:H2'	51:1:1923:U:O4'	2.18	0.44
51:1:2101:A:H2'	51:1:2102:G:H8	1.81	0.44
51:1:2201:G:H2'	51:1:2202:U:O4'	2.17	0.44
51:1:2805:C:O2'	51:1:2806:C:H5'	2.18	0.44
52:2:66:A:H4'	52:2:67:G:C8	2.53	0.44
57:A1:185:TYR:HA	57:A1:202:VAL:O	2.16	0.44
59:B2:1246:ARG:HH11	59:B2:1266:GLY:HA2	1.82	0.44
64:6:11:A:H2'	64:6:12:G:C8	2.52	0.44
6:F:8:LYS:NZ	51:1:2467:C:OP1	2.37	0.44
9:I:47:LEU:HD23	9:I:47:LEU:HA	1.85	0.44
11:K:62:MET:HB3	11:K:64:VAL:HG13	1.98	0.44
31:f:132:LEU:HB3	31:f:140:ILE:HD11	1.99	0.44
51:1:150:U:H2'	51:1:151:C:C6	2.52	0.44
51:1:720:U:H2'	51:1:721:A:H8	1.82	0.44
51:1:1500:G:O2'	51:1:1501:G:H5'	2.16	0.44
51:1:2236:U:H2'	51:1:2237:G:C5'	2.46	0.44
58:B1:141:PHE:CE2	58:B1:296:LYS:CB	2.94	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:245:LEU:CG	58:B1:246:PRO:HD2	2.47	0.44
58:B1:385:LEU:HD23	58:B1:390:LEU:HB2	1.98	0.44
58:B1:388:ARG:HG2	58:B1:388:ARG:NH1	2.32	0.44
65:0:370:LYS:HE3	65:0:370:LYS:HB3	1.82	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
33:i:9:LYS:HD2	51:1:1061:U:OP1	2.18	0.44
48:x:51:SER:OG	48:x:54:GLY:N	2.48	0.44
51:1:293:U:H2'	51:1:294:A:H5"	1.99	0.44
51:1:704:G:H1'	51:1:727:A:H62	1.83	0.44
51:1:1280:G:C2'	51:1:1281:G:H5'	2.46	0.44
51:1:1465:G:O2'	51:1:1466:U:H5'	2.17	0.44
51:1:1670:C:O2'	51:1:1671:U:H5'	2.16	0.44
51:1:1672:A:N3	51:1:2582:G:H5'	2.27	0.44
51:1:2204:G:H2'	51:1:2205:A:H8	1.81	0.44
58:B1:75:TYR:CD2	58:B1:75:TYR:O	2.70	0.44
58:B1:375:GLU:HB3	59:B2:1245:ALA:CB	2.48	0.44
58:B1:506:VAL:HG23	58:B1:628:GLY:HA3	1.99	0.44
8:H:37:LYS:HD3	8:H:37:LYS:HA	1.81	0.44
14:N:74:GLN:OE1	53:3:1249:C:O2'	2.35	0.44
29:d:188:MET:HB2	29:d:192:ALA:HB3	1.99	0.44
30:e:71:LYS:HA	30:e:71:LYS:HD2	1.79	0.44
47:w:12:SER:OG	47:w:13:GLU:N	2.51	0.44
49:y:20:ASN:HA	49:y:23:ARG:HB2	1.99	0.44
51:1:29:U:O5'	51:1:29:U:H6	2.00	0.44
51:1:336:C:O2'	51:1:337:C:H5'	2.18	0.44
63:5:49:C:H2'	63:5:50:U:C6	2.52	0.44
19:S:44:VAL:O	19:S:48:GLN:NE2	2.50	0.44
33:i:131:THR:HB	51:1:1060:U:O4	2.18	0.44
41:q:47:ARG:NH2	41:q:51:GLN:OE1	2.51	0.44
51:1:163:C:O2'	51:1:164:C:H5'	2.17	0.44
51:1:350:G:H2'	51:1:351:C:O4'	2.18	0.44
51:1:518:G:O2'	51:1:519:U:H5'	2.18	0.44
51:1:648:G:H2'	51:1:649:G:H8	1.83	0.44
51:1:721:A:H2'	51:1:722:A:C8	2.53	0.44
51:1:940:G:H3'	51:1:941:A:H5"	1.97	0.44
51:1:1010:A:H1'	51:1:1153:C:H1'	2.00	0.44
51:1:1199:U:H2'	51:1:1200:C:C6	2.52	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
51:1:2880:C:H2'	51:1:2880:C:O2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:3:490:C:H2'	53:3:491:G:C8	2.53	0.44
58:B1:894:VAL:HG22	58:B1:1258:ARG:HH11	1.83	0.44
4:D:12:ARG:HH12	51:1:465:G:P	2.41	0.44
10:J:24:VAL:HG23	10:J:26:GLY:H	1.82	0.44
25:Y:49:ALA:HA	25:Y:52:GLU:HG3	2.00	0.44
32:g:28:ASN:ND2	51:1:2092:U:OP2	2.36	0.44
34:j:85:LYS:NZ	51:1:2768:U:OP1	2.49	0.44
51:1:12:U:O2	51:1:12:U:H2'	2.18	0.44
51:1:28:A:H2'	51:1:29:U:C6	2.53	0.44
51:1:169:G:O2'	51:1:170:U:H5'	2.18	0.44
51:1:859:G:HO2'	51:1:860:U:P	2.41	0.44
51:1:1539:U:H2'	51:1:1540:G:C8	2.53	0.44
52:2:39:A:O2'	52:2:46:A:N1	2.46	0.44
53:3:75:G:H2'	53:3:76:G:C8	2.53	0.44
53:3:1013:G:N2	53:3:1016:A:OP2	2.35	0.44
57:A1:78:ILE:HA	57:A1:81:ILE:HG22	2.00	0.44
58:B1:282:LEU:HA	58:B1:282:LEU:HD12	1.79	0.44
65:0:580:PHE:HD2	65:0:581:GLY:N	2.16	0.44
9:I:85:THR:HA	9:I:88:ASN:HB2	2.00	0.44
17:Q:3:VAL:HA	17:Q:6:LEU:HD12	2.00	0.44
24:X:76:THR:OG1	24:X:77:ARG:N	2.51	0.44
25:Y:67:HIS:O	25:Y:69:ASN:ND2	2.51	0.44
29:d:147:LEU:HD11	29:d:170:ARG:HG2	1.98	0.44
30:e:122:ASP:OD2	30:e:126:ASN:ND2	2.42	0.44
36:l:95:LEU:HD22	36:l:100:ILE:HD11	2.00	0.44
49:y:19:LEU:HA	49:y:19:LEU:HD23	1.86	0.44
51:1:161:A:C5	51:1:162:U:H5	2.36	0.44
51:1:684:G:C2	51:1:794:A:C2	3.06	0.44
51:1:1383:A:H2	51:1:1406:U:H1'	1.83	0.44
51:1:1507:C:H2'	51:1:1508:A:O4'	2.18	0.44
51:1:1625:C:H2'	51:1:1626:A:O4'	2.18	0.44
51:1:2312:U:O2'	51:1:2313:C:H5'	2.17	0.44
51:1:2411:A:H2'	51:1:2412:A:C8	2.53	0.44
53:3:162:A:C5	53:3:163:C:H1'	2.53	0.44
53:3:958:A:N3	53:3:985:C:O2'	2.48	0.44
58:B1:1033:GLY:HA3	58:B1:1081:VAL:O	2.18	0.44
59:B2:805:MET:HE3	59:B2:805:MET:HB2	1.86	0.44
59:B2:811:ASN:ND2	59:B2:1098:LEU:O	2.51	0.44
60:W0:58:LEU:HD12	60:W0:59:ILE:HG12	2.00	0.44
63:5:69:G:H2'	63:5:70:G:C8	2.52	0.44
7:G:67:LEU:HD21	7:G:91:VAL:HG23	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:O:88:MET:HE3	15:O:88:MET:HB3	1.70	0.43
18:R:43:LYS:HB2	18:R:46:GLU:HG2	1.99	0.43
42:r:19:THR:OG1	42:r:95:ASP:OD1	2.35	0.43
46:v:62:THR:O	46:v:62:THR:OG1	2.35	0.43
50:z:30:ARG:HG2	50:z:33:HIS:HB2	1.99	0.43
50:z:37:ARG:HA	50:z:37:ARG:HD3	1.83	0.43
50:z:38:GLU:CD	51:1:928:A:H5'	2.43	0.43
51:1:192:C:H2'	51:1:193:U:H5'	1.99	0.43
51:1:1452:G:H2'	51:1:1453:A:OP2	2.17	0.43
51:1:1565:C:C5	51:1:1567:G:C6	3.06	0.43
53:3:908:A:H2'	53:3:909:A:H8	1.83	0.43
58:B1:1026:PRO:HB2	58:B1:1028:ILE:HG23	2.00	0.43
59:B2:538:LEU:HD13	59:B2:543:ALA:HB2	2.00	0.43
62:NG:161:SER:CB	62:NG:170:PRO:HA	2.47	0.43
8:H:134:LYS:HB3	8:H:134:LYS:HE2	1.84	0.43
11:K:38:ARG:HH11	11:K:61:LEU:HD21	1.83	0.43
12:L:113:LYS:HB3	53:3:1297:G:H21	1.82	0.43
14:N:105:ARG:NH1	14:N:109:GLN:OE1	2.49	0.43
30:e:171:ALA:C	30:e:173:ASP:H	2.26	0.43
33:i:123:ALA:HB1	51:1:1081:U:H4'	2.00	0.43
35:k:38:ILE:HG22	35:k:61:VAL:HB	2.01	0.43
42:r:80:ARG:HD3	51:1:566:U:O4	2.17	0.43
51:1:43:G:H2'	51:1:44:A:C8	2.53	0.43
51:1:107:G:H2'	51:1:108:G:H8	1.82	0.43
51:1:198:C:N4	51:1:248:G:H1	2.14	0.43
51:1:819:A:H5'	51:1:973:A:N1	2.33	0.43
51:1:1571:A:H2'	51:1:1572:A:C8	2.54	0.43
51:1:2241:A:H2'	51:1:2242:G:H8	1.82	0.43
53:3:1053:G:H4'	53:3:1054:C:H3'	2.00	0.43
58:B1:161:THR:H	58:B1:164:GLN:HB2	1.82	0.43
63:5:63:G:H2'	63:5:64:A:C8	2.53	0.43
2:B:8:THR:HG23	2:B:11:LYS:H	1.81	0.43
8:H:51:VAL:HA	8:H:69:THR:HG22	2.01	0.43
10:J:104:ILE:HD11	10:J:114:LEU:HD13	1.99	0.43
22:V:44:HIS:HB3	22:V:70:LYS:HG2	1.99	0.43
25:Y:14:GLU:OE1	25:Y:17:ARG:NH2	2.51	0.43
34:j:51:GLY:HA3	34:j:121:LYS:HE2	2.00	0.43
51:1:30:G:O2'	51:1:31:C:H5'	2.17	0.43
51:1:108:G:O2'	51:1:109:C:H5'	2.18	0.43
51:1:150:U:O2'	51:1:151:C:H5'	2.18	0.43
51:1:388:G:N7	51:1:390:U:H2'	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1049:C:H2'	51:1:1050:A:H5'	2.00	0.43
51:1:2152:G:N3	51:1:2152:G:H2'	2.33	0.43
51:1:2285:C:C2'	51:1:2286:G:H5'	2.48	0.43
51:1:2834:G:C2'	51:1:2835:A:H5'	2.49	0.43
58:B1:287:ALA:HB1	58:B1:288:PRO:HD2	1.99	0.43
58:B1:731:ARG:HB3	59:B2:1105:SER:HB2	2.00	0.43
58:B1:847:ASP:N	58:B1:847:ASP:OD1	2.49	0.43
58:B1:978:ARG:HD3	58:B1:999:TYR:H	1.83	0.43
59:B2:800:MET:HE3	59:B2:800:MET:HB2	1.69	0.43
21:U:31:ARG:HB2	53:3:310:G:H5"	2.01	0.43
27:b:140:VAL:HG12	27:b:191:LEU:HD23	2.01	0.43
51:1:1232:G:H2'	51:1:1233:C:C6	2.53	0.43
51:1:1739:A:H2'	51:1:1740:G:O4'	2.19	0.43
51:1:2671:G:C2	51:1:2672:U:C2	3.06	0.43
58:B1:213:LYS:HE3	58:B1:213:LYS:HA	1.99	0.43
63:5:13:C:H42	63:5:46:G:N2	2.16	0.43
2:B:4:GLN:NE2	51:1:2056:G:O2'	2.52	0.43
9:I:152:SER:HB3	53:3:436:C:H4'	2.00	0.43
17:Q:72:ASN:OD1	17:Q:72:ASN:N	2.50	0.43
18:R:104:ASN:HB3	18:R:105:ALA:H	1.69	0.43
21:U:28:ARG:NH1	53:3:390:U:O2'	2.46	0.43
27:b:153:LEU:HD23	51:1:1799:G:N2	2.33	0.43
28:c:62:LYS:NZ	51:1:2810:A:H5"	2.34	0.43
33:i:127:SER:OG	51:1:1059:G:N2	2.51	0.43
37:m:96:ILE:HA	37:m:96:ILE:HD13	1.83	0.43
38:n:39:PRO:HG2	51:1:1651:G:H4'	2.01	0.43
51:1:68:G:H2'	51:1:69:C:O4'	2.18	0.43
51:1:528:A:C2	51:1:2043:C:H4'	2.53	0.43
51:1:1520:U:C2'	51:1:1521:G:H5'	2.49	0.43
51:1:2106:U:H2'	51:1:2107:G:O4'	2.18	0.43
51:1:2226:C:C5	51:1:2227:A:N7	2.86	0.43
53:3:1513:A:H2'	53:3:1514:G:H8	1.83	0.43
56:9:12:DC:H3'	58:B1:47:ARG:HH12	1.83	0.43
1:A:62:LYS:HE3	1:A:62:LYS:HB3	1.89	0.43
8:H:5:HIS:HE1	8:H:7:ASN:HB3	1.82	0.43
8:H:76:ILE:HB	8:H:80:GLY:HA2	2.00	0.43
10:J:28:ARG:NH2	53:3:1397:C:OP2	2.38	0.43
10:J:146:MET:HE2	10:J:146:MET:HB3	1.75	0.43
18:R:28:ARG:HH21	18:R:62:PHE:HB2	1.84	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:s:28:LYS:HE2	43:s:28:LYS:HB2	1.90	0.43
43:s:74:ILE:HB	43:s:105:VAL:HG23	1.99	0.43
45:u:76:THR:HB	45:u:78:LYS:HE3	1.99	0.43
48:x:36:ARG:NH2	51:1:2200:C:OP2	2.52	0.43
51:1:327:G:H2'	51:1:328:U:O4'	2.18	0.43
51:1:473:G:C2'	51:1:474:G:H5'	2.48	0.43
51:1:1433:A:H2'	51:1:1434:A:C1'	2.49	0.43
51:1:1893:C:C2'	51:1:1894:C:H5'	2.47	0.43
51:1:1998:A:O2'	51:1:1999:C:H5'	2.18	0.43
51:1:2736:A:O2'	51:1:2737:G:H5'	2.19	0.43
51:1:2870:C:H2'	51:1:2871:U:H5'	2.01	0.43
53:3:422:C:H4'	53:3:423:G:C2	2.54	0.43
53:3:490:C:H2'	53:3:491:G:H8	1.84	0.43
53:3:560:A:H5"	53:3:561:U:H5'	2.00	0.43
53:3:1200:C:O2'	53:3:1205:U:O4	2.35	0.43
55:8:12:DG:OP1	58:B1:795:TYR:CE1	2.71	0.43
57:A1:192:VAL:HG12	57:A1:193:GLU:H	1.83	0.43
58:B1:62:PHE:CD1	58:B1:62:PHE:N	2.86	0.43
58:B1:513:MET:HG3	58:B1:544:LEU:HD11	2.01	0.43
65:0:545:ILE:HD11	65:0:581:GLY:HA3	2.00	0.43
11:K:47:LEU:HG	11:K:56:LYS:HA	2.01	0.43
24:X:27:LYS:HE2	24:X:27:LYS:HB3	1.77	0.43
27:b:20:ASN:HB3	27:b:23:LEU:HD13	2.00	0.43
29:d:127:GLU:O	29:d:156:ASN:ND2	2.51	0.43
34:j:47:HIS:CG	51:1:536:G:N2	2.87	0.43
34:j:47:HIS:CG	51:1:536:G:H21	2.37	0.43
36:l:69:ARG:CZ	51:1:2406:A:N3	2.82	0.43
37:m:69:PRO:HA	37:m:94:ALA:HB2	2.01	0.43
38:n:103:ARG:HH11	51:1:1287:A:H5'	1.83	0.43
51:1:255:A:H2'	51:1:256:A:O4'	2.18	0.43
51:1:841:G:C2'	51:1:842:U:H5'	2.49	0.43
51:1:1095:A:H3'	51:1:1096:A:H8	1.83	0.43
51:1:1258:U:H2'	51:1:1259:G:C8	2.54	0.43
51:1:1426:G:C6	51:1:1427:A:C6	3.06	0.43
51:1:2305:U:O2'	51:1:2306:C:H5'	2.19	0.43
51:1:2462:C:H2'	51:1:2463:C:C6	2.53	0.43
57:A1:68:TYR:HE1	57:A1:79:LEU:HD13	1.83	0.43
58:B1:59:ALA:HB1	58:B1:90:VAL:HG23	2.01	0.43
58:B1:111:THR:CG2	58:B1:300:GLN:HA	2.48	0.43
58:B1:434:ILE:HD11	59:B2:1274:GLU:HG3	2.00	0.43
58:B1:515:ARG:HH12	58:B1:724:MET:HG2	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:1024:THR:HG23	58:B1:1123:ARG:HA	2.00	0.43
58:B1:1079:LYS:HD3	58:B1:1098:GLN:HB3	1.99	0.43
58:B1:1108:GLN:HG3	58:B1:1109:LEU:HD12	1.99	0.43
59:B2:590:PRO:HB2	59:B2:655:VAL:HG21	2.01	0.43
31:f:84:LYS:HD2	31:f:84:LYS:HA	1.87	0.43
37:m:17:ASN:OD1	37:m:97:GLN:NE2	2.51	0.43
51:1:402:A:H2'	51:1:403:U:C5'	2.44	0.43
51:1:623:C:O2'	51:1:624:C:H5'	2.18	0.43
51:1:644:A:C3'	51:1:645:C:H5"	2.49	0.43
51:1:993:G:O2'	51:1:994:C:H5'	2.19	0.43
51:1:1092:C:H2'	51:1:1093:G:O4'	2.18	0.43
51:1:1306:C:N4	51:1:1606:C:H2'	2.34	0.43
51:1:1761:C:H2'	51:1:1762:A:O4'	2.18	0.43
58:B1:107:LEU:HA	58:B1:276:ASN:ND2	2.33	0.43
58:B1:220:ARG:NH1	58:B1:220:ARG:CG	2.82	0.43
59:B2:11:ILE:HG22	59:B2:1172:LEU:HD11	1.99	0.43
59:B2:22:LEU:HB3	59:B2:655:VAL:HG11	2.01	0.43
59:B2:27:LEU:O	59:B2:528:ARG:NH1	2.43	0.43
59:B2:300:ASP:OD1	59:B2:313:ALA:N	2.51	0.43
59:B2:1157:GLN:HG3	59:B2:1159:VAL:HG13	2.00	0.43
59:B2:1275:VAL:HG13	59:B2:1287:LEU:HD11	2.01	0.43
7:G:107:ARG:HE	7:G:107:ARG:HB3	1.63	0.43
8:H:106:ARG:HG2	8:H:107:LYS:HG3	2.01	0.43
9:I:125:ASN:HB2	9:I:127:ARG:HD3	2.01	0.43
13:M:24:VAL:HG23	13:M:60:LEU:HB2	2.00	0.43
16:P:35:ASP:OD1	16:P:39:ASN:N	2.50	0.43
17:Q:67:GLY:O	17:Q:98:ARG:NH1	2.52	0.43
17:Q:113:ARG:NH1	53:3:36:C:O2'	2.51	0.43
18:R:91:ARG:HD2	51:1:888:C:OP1	2.18	0.43
27:b:206:LYS:HB2	51:1:729:G:C5	2.54	0.43
41:q:83:LYS:HE2	41:q:83:LYS:HB3	1.72	0.43
42:r:1:MET:HE3	42:r:101:ILE:HB	1.99	0.43
44:t:40:LYS:HE3	44:t:60:THR:HG22	2.01	0.43
49:y:11:VAL:HA	49:y:14:LEU:HB2	2.00	0.43
51:1:131:A:H2'	51:1:132:G:C8	2.53	0.43
51:1:705:A:C2	51:1:727:A:H1'	2.54	0.43
51:1:783:A:C8	51:1:783:A:H3'	2.54	0.43
51:1:871:U:H2'	51:1:872:U:C6	2.54	0.43
51:1:1020:A:O5'	51:1:1020:A:H8	2.02	0.43
51:1:1287:A:H3'	51:1:1288:G:N2	2.33	0.43
51:1:1741:C:O2'	51:1:1742:U:H5'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1751:U:H2'	51:1:1752:C:C6	2.54	0.43
53:3:680:C:H2'	53:3:681:A:H8	1.84	0.43
53:3:1209:C:O2'	53:3:1214:C:N4	2.52	0.43
58:B1:45:ASN:HD22	58:B1:48:THR:H	1.65	0.43
58:B1:102:MET:HG2	58:B1:246:PRO:CG	2.49	0.43
59:B2:1313:HIS:CD2	60:W0:31:GLN:HE22	2.37	0.43
65:0:438:LEU:HD13	65:0:469:ILE:HG23	2.01	0.43
16:P:115:ILE:HD12	16:P:116:PRO:HD2	1.99	0.43
24:X:6:LYS:NZ	53:3:1314:C:OP1	2.52	0.43
27:b:7:PRO:HB3	27:b:13:ARG:HG3	1.99	0.43
33:i:8:VAL:HG11	33:i:26:ALA:CB	2.49	0.43
48:x:1:SER:OG	51:1:1365:A:OP2	2.35	0.43
51:1:156:A:O2'	51:1:157:C:H5'	2.18	0.43
51:1:467:G:O2'	51:1:468:G:H5'	2.19	0.43
51:1:541:A:H2'	51:1:542:C:O4'	2.19	0.43
51:1:758:C:H2'	51:1:759:G:H8	1.84	0.43
51:1:864:G:C2'	51:1:865:C:H5'	2.48	0.43
51:1:1172:C:H2'	51:1:1173:U:O4'	2.19	0.43
51:1:1601:G:H2'	51:1:1602:U:H5'	2.01	0.43
51:1:1917:U:H2'	51:1:1918:A:H5'	2.01	0.43
51:1:1964:G:H4'	51:1:1965:C:OP2	2.19	0.43
53:3:501:C:H2'	53:3:502:A:C8	2.53	0.43
53:3:1348:U:H2'	53:3:1349:A:H8	1.84	0.43
58:B1:388:ARG:HG2	58:B1:388:ARG:HH11	1.84	0.43
58:B1:850:LYS:HB3	58:B1:855:ASP:HB2	2.00	0.43
58:B1:1046:ILE:HG22	58:B1:1061:VAL:HA	2.00	0.43
59:B2:546:GLU:H	59:B2:546:GLU:HG3	1.53	0.43
63:5:9:A:H1'	63:5:45:U:H2'	2.01	0.43
65:0:615:PRO:HB3	65:0:684:PHE:HE1	1.82	0.43
7:G:122:ASP:N	7:G:122:ASP:OD1	2.51	0.42
9:I:101:VAL:HG22	9:I:106:PHE:HB2	2.01	0.42
31:f:151:ARG:HA	31:f:151:ARG:HD3	1.88	0.42
36:l:108:ALA:HB3	36:l:125:LEU:HG	2.01	0.42
51:1:918:A:H2'	51:1:919:U:O4'	2.19	0.42
51:1:1536:C:H4'	51:1:1537:G:N1	2.32	0.42
51:1:1668:A:C4'	51:1:1669:A:H5'	2.36	0.42
51:1:2073:C:C2'	51:1:2074:U:H5'	2.49	0.42
51:1:2371:G:O2'	51:1:2372:U:H5'	2.19	0.42
51:1:2660:A:H2'	51:1:2661:G:O4'	2.18	0.42
53:3:1005:A:OP2	53:3:1024:G:N2	2.48	0.42
53:3:1442:G:H1	53:3:1460:C:H42	1.66	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:824:PRO:HD3	58:B1:835:LEU:HD12	2.00	0.42
59:B2:909:LYS:HD3	59:B2:909:LYS:HA	1.43	0.42
65:0:557:ILE:CG2	65:0:576:ILE:HD12	2.48	0.42
8:H:1:GLY:HA2	53:3:1060:U:C5	2.54	0.42
10:J:110:MET:HA	10:J:113:VAL:HG12	2.01	0.42
11:K:100:SER:O	11:K:100:SER:OG	2.34	0.42
27:b:244:VAL:HG12	27:b:250:GLN:HA	2.01	0.42
34:j:138:GLN:H	34:j:138:GLN:HG2	1.62	0.42
40:p:63:ILE:HA	40:p:68:GLY:HA2	2.01	0.42
47:w:14:ALA:HB1	51:1:2271:G:OP1	2.19	0.42
51:1:8:C:C2	51:1:9:G:C8	3.07	0.42
51:1:481:G:H2'	51:1:482:A:OP2	2.18	0.42
51:1:712:G:C2'	51:1:713:G:H5'	2.49	0.42
51:1:1487:U:H2'	51:1:1488:C:C6	2.54	0.42
51:1:2844:G:H2'	51:1:2845:U:H6	1.80	0.42
51:1:2895:G:H2'	51:1:2896:C:H6	1.84	0.42
53:3:75:G:H1	53:3:95:C:H42	1.67	0.42
58:B1:434:ILE:HD11	59:B2:1274:GLU:CG	2.49	0.42
2:B:27:LEU:HD23	2:B:27:LEU:HA	1.84	0.42
33:i:26:ALA:H	51:1:1070:A:H61	1.67	0.42
33:i:129:GLU:HG3	33:i:139:VAL:HG21	2.00	0.42
51:1:90:U:H2'	51:1:91:A:C8	2.55	0.42
51:1:595:C:H2'	51:1:596:U:C6	2.54	0.42
51:1:629:G:H2'	51:1:630:G:O4'	2.19	0.42
51:1:673:C:O2'	51:1:674:G:H5'	2.19	0.42
51:1:1020:A:H5'	51:1:1021:A:N7	2.34	0.42
51:1:1087:G:H5"	51:1:1088:A:OP2	2.18	0.42
51:1:1335:C:H2'	51:1:1336:A:H8	1.84	0.42
51:1:1336:A:H2'	51:1:1337:G:H8	1.85	0.42
51:1:1993:U:O2	51:1:1993:U:H2'	2.18	0.42
51:1:2024:G:H2'	51:1:2025:C:C6	2.54	0.42
51:1:2741:A:N6	51:1:2742:G:C2	2.88	0.42
53:3:1253:G:H2'	53:3:1254:A:H8	1.83	0.42
55:8:3:DC:N1	55:8:4:DT:H72	2.34	0.42
58:B1:126:LEU:H	58:B1:126:LEU:HG	1.67	0.42
58:B1:144:TYR:CE1	58:B1:162:GLU:OE1	2.73	0.42
59:B2:125:GLY:H	59:B2:495:ALA:HB1	1.84	0.42
12:L:68:VAL:HG23	12:L:99:ALA:HB1	2.02	0.42
14:N:30:ASN:HD21	14:N:66:VAL:H	1.66	0.42
14:N:98:ARG:HG2	14:N:103:VAL:HG21	2.00	0.42
36:l:109:LYS:HE2	51:1:636:G:N7	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:q:54:ARG:HD3	51:1:1155:A:H5”	2.01	0.42
43:s:87:PRO:HG3	51:1:1615:C:C6	2.54	0.42
48:x:71:ARG:NH2	48:x:77:TYR:OH	2.42	0.42
51:1:365:U:H2’	51:1:366:C:C6	2.53	0.42
51:1:510:C:OP1	51:1:510:C:H3’	2.20	0.42
51:1:535:G:O2’	51:1:536:G:H5’	2.20	0.42
51:1:572:A:O5’	51:1:572:A:C8	2.72	0.42
51:1:1306:C:H41	51:1:1606:C:H2’	1.84	0.42
51:1:1500:G:H2’	51:1:1501:G:H8	1.83	0.42
51:1:1907:G:C5	51:1:1908:C:C4	3.07	0.42
51:1:1922:G:H4’	63:5:25:C:H4’	2.01	0.42
51:1:2102:G:H1	51:1:2187:U:H3	1.66	0.42
51:1:2287:A:C4	51:1:2289:G:N7	2.88	0.42
51:1:2584:U:O5’	51:1:2584:U:H6	2.02	0.42
53:3:460:A:H2’	53:3:461:A:C8	2.54	0.42
55:8:15:DC:H5’	59:B2:1269:ARG:HD3	2.00	0.42
57:A1:76:GLU:HB3	57:A1:80:GLU:HB3	2.01	0.42
58:B1:58:CYS:SG	58:B1:60:ARG:HG2	2.59	0.42
58:B1:96:LYS:NZ	59:B2:1298:VAL:HG11	2.34	0.42
58:B1:111:THR:HG21	58:B1:303:VAL:HB	2.00	0.42
58:B1:242:LEU:HA	58:B1:243:PRO:HD3	1.94	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
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
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
24:X:36:ARG:HB3	53:3:1320:C:N4	2.34	0.42
29:d:47:LYS:HE2	51:1:451:U:H4’	2.00	0.42
39:o:33:ARG:O	39:o:65:THR:OG1	2.28	0.42
48:x:55:MET:HE2	48:x:55:MET:HB3	1.91	0.42
51:1:259:G:O2’	51:1:260:G:H5’	2.20	0.42
51:1:1197:G:C2’	51:1:1198:U:H5’	2.50	0.42
51:1:1230:A:H2’	51:1:1231:U:O4’	2.19	0.42
51:1:2562:U:C2’	51:1:2563:U:H5’	2.49	0.42
51:1:2839:G:O2’	51:1:2840:C:H5’	2.18	0.42
51:1:2852:G:H2’	51:1:2853:C:O4’	2.20	0.42
58:B1:244:VAL:HA	58:B1:269:TYR:OH	2.19	0.42
58:B1:390:LEU:N	58:B1:390:LEU:HD13	2.35	0.42
59:B2:11:ILE:O	59:B2:1149:TYR:OH	2.27	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
63:5:17:C:H6	63:5:17:C:H2'	1.69	0.42
17:Q:50:LYS:HE2	17:Q:70:GLY:HA2	2.01	0.42
20:T:66:LEU:HB3	20:T:77:TYR:HE1	1.84	0.42
27:b:97:ASP:N	27:b:97:ASP:OD1	2.45	0.42
29:d:53:THR:HB	51:1:452:G:H8	1.85	0.42
32:g:11:ASN:ND2	51:1:2095:A:OP1	2.53	0.42
39:o:40:ILE:HA	39:o:47:VAL:HA	2.00	0.42
46:v:58:SER:OG	46:v:59:GLU:OE1	2.36	0.42
51:1:623:C:H2'	51:1:624:C:H6	1.85	0.42
51:1:648:G:H5"	51:1:2352:A:H5"	2.00	0.42
51:1:870:U:H2'	51:1:871:U:C5'	2.48	0.42
51:1:1054:A:H2'	51:1:1055:G:C8	2.54	0.42
51:1:1316:U:O2'	51:1:1317:G:H5'	2.20	0.42
51:1:1727:C:O2'	51:1:1728:C:H5'	2.20	0.42
51:1:1886:U:O2'	51:1:1887:C:H5'	2.20	0.42
51:1:2248:C:C2'	51:1:2249:U:H5'	2.49	0.42
51:1:2292:U:H2'	51:1:2293:G:C8	2.55	0.42
53:3:987:G:H2'	53:3:988:G:H8	1.84	0.42
53:3:1531:A:C2'	53:3:1532:U:H5'	2.50	0.42
58:B1:279:LEU:HD13	58:B1:299:LEU:HD13	2.02	0.42
59:B2:557:ARG:HB3	59:B2:587:LEU:HD13	2.00	0.42
2:B:39:ARG:HA	2:B:39:ARG:HD2	1.91	0.42
9:I:55:ARG:HA	9:I:55:ARG:HD3	1.88	0.42
13:M:52:GLY:HA3	13:M:56:PRO:HA	2.01	0.42
17:Q:98:ARG:HA	17:Q:103:CYS:HB2	2.02	0.42
18:R:11:HIS:HA	18:R:43:LYS:HD2	2.01	0.42
18:R:87:GLY:O	18:R:91:ARG:N	2.52	0.42
21:U:4:ILE:HG12	21:U:21:VAL:HG22	2.00	0.42
42:r:62:GLU:HG3	42:r:97:LYS:HB3	2.01	0.42
44:t:68:LYS:HD3	44:t:68:LYS:HA	1.83	0.42
51:1:191:A:C2	51:1:192:C:C4	3.08	0.42
51:1:532:A:H2'	51:1:532:A:N3	2.34	0.42
51:1:849:A:H2'	51:1:850:U:C5	2.54	0.42
51:1:955:U:H2'	51:1:956:G:H5'	2.02	0.42
51:1:1204:A:H4'	51:1:1205:A:H5"	2.02	0.42
51:1:1381:G:C2'	51:1:1382:G:H5'	2.49	0.42
51:1:1642:G:H2'	51:1:1643:G:O4'	2.19	0.42
51:1:1864:U:O5'	51:1:1864:U:H6	2.02	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
51:1:2144:G:H1'	51:1:2147:A:N6	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:B1:242:LEU:C	58:B1:242:LEU:HD23	2.44	0.42
58:B1:243:PRO:HG2	59:B2:1332:SER:C	2.44	0.42
58:B1:385:LEU:CD2	58:B1:390:LEU:HB2	2.50	0.42
58:B1:568:SER:HB3	58:B1:570:LYS:NZ	2.34	0.42
58:B1:616:PRO:HA	58:B1:619:ILE:HG22	2.02	0.42
18:R:32:ILE:HG23	18:R:58:GLU:HB3	2.02	0.42
18:R:89:ARG:HB2	18:R:96:VAL:HG22	2.01	0.42
24:X:51:HIS:HB2	24:X:56:HIS:CE1	2.55	0.42
28:c:175:LEU:HD12	28:c:175:LEU:HA	1.92	0.42
33:i:78:LEU:HA	33:i:81:LYS:HB3	2.02	0.42
38:n:16:HIS:CD2	51:1:1275:A:C2	3.07	0.42
38:n:58:ASP:OD1	38:n:63:ARG:NH2	2.44	0.42
51:1:128:C:H2'	51:1:129:C:C6	2.53	0.42
51:1:439:A:H2'	51:1:440:C:O4'	2.19	0.42
51:1:598:U:H2'	51:1:599:A:C8	2.54	0.42
51:1:630:G:N2	51:1:634:C:C4	2.88	0.42
51:1:809:G:C6	51:1:810:U:C4	3.08	0.42
51:1:1936:A:N6	51:1:1963:U:H3	2.17	0.42
51:1:2411:A:O2'	51:1:2412:A:H5'	2.20	0.42
51:1:2697:G:C2	51:1:2711:A:C2	3.08	0.42
53:3:322:C:O2	53:3:332:G:N2	2.52	0.42
53:3:1513:A:H2'	53:3:1514:G:C8	2.55	0.42
58:B1:362:ARG:HB2	58:B1:364:HIS:HD2	1.83	0.42
58:B1:609:TYR:HD2	58:B1:610:ARG:NH1	2.17	0.42
58:B1:839:VAL:HG12	58:B1:864:LEU:HD12	2.02	0.42
58:B1:1350:ASN:HA	58:B1:1353:VAL:HG12	2.02	0.42
59:B2:559:CYS:HA	59:B2:560:PRO:HD3	1.91	0.42
59:B2:699:LEU:HG	59:B2:799:ASN:HD22	1.85	0.42
59:B2:861:ALA:HB1	59:B2:882:ILE:HD13	2.01	0.42
63:5:4:C:H2'	63:5:5:G:C8	2.55	0.42
8:H:110:LEU:HD21	8:H:143:LEU:HB3	2.02	0.42
9:I:24:VAL:HG22	53:3:409:U:H4'	2.02	0.42
9:I:119:HIS:O	9:I:145:ARG:NH2	2.52	0.42
14:N:84:ARG:NH2	53:3:1119:C:OP1	2.48	0.42
14:N:113:LYS:HA	14:N:120:ALA:HB2	2.01	0.42
27:b:57:HIS:ND1	51:1:1567:G:H5'	2.35	0.42
28:c:134:HIS:HE1	51:1:1675:C:C4	2.38	0.42
51:1:397:U:O5'	51:1:397:U:H6	2.02	0.42
51:1:552:U:O2'	51:1:553:G:H5'	2.20	0.42
51:1:1070:A:H5'	51:1:1072:C:OP1	2.20	0.42
51:1:1467:U:C4	51:1:1468:U:C4	3.08	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:1589:U:H2'	51:1:1590:A:C8	2.55	0.42
51:1:1600:C:H2'	51:1:1601:G:C8	2.55	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
51:1:2389:G:H5"	51:1:2390:U:H5'	2.01	0.42
52:2:65:U:H3'	52:2:108:A:N6	2.30	0.42
58:B1:141:PHE:CD2	58:B1:297:ARG:HB2	2.54	0.42
58:B1:390:LEU:HD13	58:B1:390:LEU:H	1.85	0.42
59:B2:741:MET:HE3	59:B2:974:ARG:HH12	1.85	0.42
59:B2:829:THR:HG23	59:B2:1059:ARG:HG2	2.00	0.42
8:H:61:LYS:HE2	8:H:96:VAL:HG12	2.01	0.42
9:I:87:GLU:N	9:I:87:GLU:OE2	2.53	0.42
10:J:90:GLY:O	10:J:129:SER:OG	2.36	0.42
15:O:57:VAL:HG22	15:O:58:ASN:H	1.85	0.42
38:n:28:LEU:O	38:n:32:GLU:N	2.38	0.42
43:s:9:HIS:H	43:s:102:HIS:CE1	2.38	0.42
51:1:4:U:O2'	51:1:5:A:H5'	2.20	0.42
51:1:1181:U:H2'	51:1:1182:G:H8	1.81	0.42
51:1:1213:A:C1'	51:1:1237:A:C2	3.03	0.42
51:1:1314:C:H42	51:1:1338:G:H1	1.68	0.42
51:1:1469:A:H2'	51:1:1470:A:H8	1.83	0.42
51:1:1614:A:C8	51:1:1614:A:O5'	2.73	0.42
53:3:73:C:H2'	53:3:74:A:C8	2.55	0.42
53:3:842:U:H5"	53:3:846:G:C6	2.55	0.42
58:B1:472:LEU:HD11	59:B2:1294:LYS:HG2	2.02	0.42
58:B1:820:ILE:HD11	58:B1:822:MET:HE2	2.02	0.42
58:B1:1289:ASN:O	58:B1:1293:GLU:HB2	2.20	0.42
29:d:106:LYS:HG3	29:d:200:LEU:HD13	2.01	0.41
29:d:145:ASP:HA	29:d:166:LYS:HB3	2.02	0.41
50:z:57:GLU:OE1	50:z:57:GLU:N	2.53	0.41
51:1:281:C:H2'	51:1:282:A:C8	2.54	0.41
51:1:284:U:H2'	51:1:285:G:C8	2.55	0.41
51:1:422:A:H2'	51:1:423:A:O4'	2.20	0.41
51:1:837:C:O5'	51:1:837:C:H6	2.02	0.41
51:1:1283:G:N2	51:1:1285:A:H3'	2.35	0.41
51:1:1343:G:N3	51:1:1343:G:H2'	2.35	0.41
51:1:1452:G:C2'	51:1:1453:A:OP2	2.68	0.41
51:1:1719:G:O2'	51:1:1720:U:H5'	2.20	0.41
51:1:1901:A:C2	51:1:1902:C:C5	3.08	0.41
51:1:1983:G:HO2'	51:1:1984:G:H5'	1.82	0.41
51:1:2583:G:H8	51:1:2583:G:O5'	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2812:G:O2'	51:1:2813:A:H5'	2.19	0.41
53:3:497:G:H2'	53:3:498:A:C8	2.55	0.41
53:3:1243:C:H2'	53:3:1244:G:H8	1.84	0.41
58:B1:175:GLU:H	58:B1:175:GLU:HG3	1.66	0.41
58:B1:515:ARG:HG2	58:B1:516:ASP:H	1.85	0.41
58:B1:950:ILE:HB	58:B1:1018:ALA:HB3	2.01	0.41
63:5:27:G:H1	63:5:43:C:H42	1.68	0.41
9:I:53:GLN:HA	9:I:198:LEU:HD12	2.01	0.41
9:I:146:GLU:HA	9:I:149:LYS:HZ3	1.85	0.41
23:W:24:ASP:OD1	23:W:24:ASP:N	2.53	0.41
26:Z:39:LYS:HA	26:Z:42:THR:HB	2.02	0.41
27:b:109:LEU:HD12	27:b:109:LEU:HA	1.93	0.41
44:t:28:ASN:HD21	44:t:91:GLN:HB3	1.85	0.41
45:u:6:ARG:N	51:1:85:G:OP1	2.52	0.41
51:1:638:G:H2'	51:1:639:U:C6	2.55	0.41
51:1:724:U:C4	51:1:725:G:C6	3.08	0.41
51:1:1034:G:C6	51:1:1035:U:N3	2.88	0.41
51:1:1048:A:C2'	51:1:1049:C:H5'	2.49	0.41
51:1:1077:A:H3'	51:1:1078:U:H4'	2.02	0.41
51:1:1482:G:H2'	51:1:1483:G:H8	1.85	0.41
51:1:1594:U:O2'	51:1:1595:C:H5'	2.20	0.41
51:1:1812:U:H5"	51:1:1812:U:H6	1.85	0.41
51:1:2160:C:H2'	51:1:2161:C:O4'	2.20	0.41
51:1:2437:G:O4'	51:1:2598:A:C2	2.73	0.41
51:1:2467:C:N4	51:1:2468:A:C6	2.89	0.41
51:1:2612:C:O5'	51:1:2612:C:H6	2.03	0.41
58:B1:137:ARG:HA	58:B1:142:GLU:HG2	2.02	0.41
58:B1:144:TYR:CD1	58:B1:144:TYR:N	2.88	0.41
59:B2:22:LEU:HD22	59:B2:603:ILE:HG21	2.02	0.41
7:G:17:HIS:C	7:G:19:THR:H	2.28	0.41
28:c:136:ASN:ND2	28:c:139:SER:O	2.52	0.41
33:i:116:MET:HE2	33:i:116:MET:HB3	1.79	0.41
34:j:109:LEU:HD23	34:j:109:LEU:HA	1.85	0.41
51:1:49:A:P	51:1:51:G:H5'	2.61	0.41
51:1:196:A:N3	51:1:196:A:H2'	2.35	0.41
51:1:256:A:C2'	51:1:257:C:H5'	2.50	0.41
51:1:759:G:H2'	51:1:760:G:H8	1.83	0.41
51:1:1152:C:H2'	51:1:1153:C:C6	2.55	0.41
51:1:1246:A:H2'	51:1:1247:A:O4'	2.19	0.41
51:1:1822:C:H2'	51:1:1823:G:H8	1.85	0.41
51:1:1991:U:H2'	51:1:1992:G:H5'	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2628:C:H3'	51:1:2629:U:H5'	2.01	0.41
53:3:1238:A:OP1	53:3:1335:U:O2'	2.35	0.41
53:3:1382:C:H2'	53:3:1383:C:H6	1.84	0.41
58:B1:576:ARG:HD3	58:B1:593:ASN:HA	2.02	0.41
59:B2:50:GLU:HG2	59:B2:73:TYR:HE1	1.85	0.41
59:B2:478:ARG:HD2	59:B2:492:MET:HA	2.02	0.41
59:B2:1244:HIS:NE2	59:B2:1266:GLY:O	2.44	0.41
63:5:29:G:H2'	63:5:29:G:N3	2.35	0.41
7:G:162:VAL:N	7:G:183:PHE:O	2.38	0.41
11:K:40:GLU:HB3	11:K:61:LEU:HB3	2.02	0.41
13:M:26:MET:HE2	13:M:26:MET:HB3	1.96	0.41
28:c:4:LEU:HD21	28:c:98:VAL:HA	2.02	0.41
35:k:7:MET:HE2	35:k:18:ARG:HD3	2.01	0.41
40:p:110:LYS:HE3	40:p:110:LYS:HB3	1.91	0.41
41:q:23:TYR:HB3	41:q:27:ARG:HB2	2.02	0.41
46:v:14:LYS:HB2	52:2:98:G:H1	1.84	0.41
47:w:7:ARG:HA	47:w:7:ARG:HD3	1.77	0.41
51:1:573:U:O2'	51:1:574:A:H3'	2.20	0.41
51:1:1038:G:H2'	51:1:1039:A:H8	1.83	0.41
51:1:1173:U:H5	51:1:1174:U:H1'	1.81	0.41
51:1:1239:G:H2'	51:1:1240:U:O4'	2.21	0.41
51:1:1418:G:H1'	51:1:1581:G:N2	2.36	0.41
51:1:1750:G:H2'	51:1:1751:U:C6	2.56	0.41
51:1:2156:G:H2'	51:1:2157:G:C5'	2.35	0.41
51:1:2741:A:H2'	51:1:2742:G:C5'	2.50	0.41
53:3:142:G:O2'	53:3:196:A:N1	2.45	0.41
55:8:14:DC:C2	55:8:15:DC:C5	3.09	0.41
57:A2:104:LYS:O	57:A2:139:SER:OG	2.36	0.41
58:B1:239:LEU:HD23	58:B1:239:LEU:N	2.36	0.41
58:B1:395:LYS:HB3	58:B1:395:LYS:HE3	1.45	0.41
59:B2:515:MET:HE2	59:B2:515:MET:HB3	1.82	0.41
65:0:491:ARG:HD3	65:0:491:ARG:HA	1.71	0.41
1:A:2:LYS:NZ	52:2:42:C:OP2	2.39	0.41
31:f:21:GLN:NE2	31:f:37:ASN:O	2.54	0.41
31:f:81:GLY:HA3	31:f:133:LYS:HZ1	1.85	0.41
51:1:191:A:H2'	51:1:192:C:C6	2.56	0.41
51:1:903:C:H2'	51:1:904:G:H8	1.86	0.41
51:1:1063:G:N2	51:1:1075:C:H41	2.18	0.41
51:1:1553:A:O2'	51:1:1554:U:H5	2.02	0.41
51:1:1599:U:H2'	51:1:1600:C:H6	1.85	0.41
51:1:1868:C:H2'	51:1:1869:G:H8	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2482:A:H2'	51:1:2483:C:C6	2.54	0.41
53:3:370:C:H2'	53:3:371:A:H8	1.86	0.41
53:3:373:A:N1	53:3:391:G:O2'	2.49	0.41
53:3:1228:C:H2'	53:3:1229:A:C8	2.55	0.41
57:A1:48:LEU:HD12	57:A1:48:LEU:HA	1.79	0.41
58:B1:1050:THR:HG23	58:B1:1057:SER:HB3	2.03	0.41
58:B1:1177:ILE:HD12	58:B1:1186:TYR:HE2	1.85	0.41
58:B1:1223:LEU:HA	58:B1:1223:LEU:HD23	1.89	0.41
59:B2:979:LEU:HD11	59:B2:1011:LEU:HD11	2.03	0.41
59:B2:1278:LEU:HA	59:B2:1278:LEU:HD23	1.86	0.41
27:b:107:LYS:HE2	27:b:107:LYS:HB2	1.87	0.41
35:k:17:ARG:HD3	35:k:47:ILE:HD11	2.02	0.41
50:z:31:ILE:HD11	51:1:989:G:P	2.61	0.41
51:1:115:C:O2'	51:1:116:C:H5'	2.20	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
51:1:688:U:O5'	51:1:688:U:H6	2.03	0.41
51:1:877:A:H2'	51:1:878:A:H5"	2.02	0.41
51:1:892:A:O2'	51:1:893:C:H5'	2.19	0.41
51:1:940:G:H2'	51:1:941:A:C4'	2.51	0.41
51:1:1045:C:H1'	51:1:1047:G:C2	2.56	0.41
51:1:1488:C:H2'	51:1:1489:C:H6	1.84	0.41
53:3:202:G:H2'	53:3:203:G:C8	2.55	0.41
53:3:685:G:N1	53:3:704:A:OP2	2.52	0.41
58:B1:24:LEU:HD21	58:B1:116:PHE:CE2	2.54	0.41
58:B1:71:LEU:HD23	58:B1:71:LEU:HA	1.75	0.41
58:B1:224:LEU:HD23	58:B1:224:LEU:HA	1.89	0.41
58:B1:559:ALA:HB3	58:B1:562:GLU:HB3	2.01	0.41
58:B1:820:ILE:HG12	58:B1:884:SER:HB2	2.01	0.41
59:B2:469:VAL:HA	59:B2:472:GLU:HG2	2.02	0.41
59:B2:755:LYS:HD2	59:B2:755:LYS:HA	1.86	0.41
65:0:298:ILE:CG2	65:0:304:ASP:HA	2.50	0.41
8:H:178:ARG:NH1	53:3:1112:C:O2'	2.54	0.41
9:I:44:LYS:HA	9:I:44:LYS:HD2	1.55	0.41
16:P:30:ILE:HG23	16:P:45:THR:HB	2.02	0.41
28:c:59:ARG:HD3	28:c:59:ARG:HA	1.83	0.41
28:c:90:PHE:HD1	28:c:94:GLN:HG2	1.83	0.41
37:m:123:LYS:HE2	51:1:2467:C:O2	2.20	0.41
51:1:94:A:H2'	51:1:95:A:C8	2.54	0.41
51:1:244:A:H2'	51:1:245:G:O4'	2.20	0.41
51:1:426:C:O2'	51:1:427:U:H5'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:543:G:C3'	51:1:544:C:H5"	2.51	0.41
51:1:1024:G:H21	51:1:1144:A:C4'	2.33	0.41
51:1:1416:G:H2'	51:1:1417:C:H6	1.82	0.41
51:1:2335:A:N7	51:1:2337:G:C5	2.88	0.41
51:1:2568:U:O5'	51:1:2568:U:H6	2.04	0.41
51:1:2743:U:H2'	51:1:2744:G:C4'	2.50	0.41
53:3:146:G:H2'	53:3:147:G:C8	2.56	0.41
57:A1:33:ARG:HE	57:A1:33:ARG:HB3	1.56	0.41
58:B1:848:VAL:HB	58:B1:858:VAL:HG22	2.02	0.41
59:B2:524:ILE:HD12	59:B2:712:SER:HB2	2.02	0.41
59:B2:646:SER:OG	59:B2:647:ARG:N	2.51	0.41
59:B2:870:ILE:HB	59:B2:944:ARG:HD3	2.02	0.41
59:B2:998:LEU:HD21	59:B2:1015:ALA:HB2	2.02	0.41
65:0:519:VAL:HB	65:0:580:PHE:HB3	2.02	0.41
6:F:35:GLN:HE21	6:F:35:GLN:HB3	1.57	0.41
12:L:125:ASP:HB2	12:L:130:LYS:HG3	2.03	0.41
25:Y:4:LYS:HA	25:Y:4:LYS:HD3	1.86	0.41
51:1:170:U:H2'	51:1:171:U:C6	2.55	0.41
51:1:197:A:H2	51:1:2434:A:H62	1.69	0.41
51:1:265:A:C8	51:1:428:A:C2	3.09	0.41
51:1:490:C:O2'	51:1:491:G:P	2.79	0.41
51:1:908:C:O2'	51:1:909:A:H5'	2.19	0.41
51:1:1317:G:H2'	51:1:1318:U:C6	2.56	0.41
51:1:1327:A:H2'	51:1:1328:A:H5'	2.01	0.41
51:1:1782:U:C2'	51:1:1783:A:H5"	2.51	0.41
51:1:1931:U:C5	51:1:1968:G:N2	2.88	0.41
51:1:1955:U:H5	51:1:2557:G:N2	2.19	0.41
51:1:2098:U:H2'	51:1:2099:U:H5'	2.03	0.41
51:1:2615:U:O2	51:1:2615:U:H2'	2.20	0.41
51:1:2848:G:C2	51:1:2867:G:C4	3.08	0.41
58:B1:109:SER:HA	58:B1:110:PRO:HD3	1.96	0.41
58:B1:450:HIS:HA	58:B1:451:PRO:HD3	1.91	0.41
58:B1:586:GLY:HA3	58:B1:612:LEU:HD11	2.01	0.41
59:B2:310:ILE:HG21	59:B2:325:LEU:HB3	2.03	0.41
59:B2:678:ARG:HD3	59:B2:678:ARG:HA	1.84	0.41
59:B2:741:MET:SD	59:B2:974:ARG:NH2	2.93	0.41
5:E:28:LEU:HD23	5:E:28:LEU:HA	1.83	0.41
8:H:19:SER:HB2	8:H:39:ARG:HH21	1.85	0.41
15:O:12:ALA:HB2	15:O:96:VAL:HG13	2.03	0.41
16:P:17:ASP:OD1	16:P:17:ASP:N	2.44	0.41
18:R:10:ASP:HB3	18:R:45:SER:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:63:GLN:OE1	53:3:227:G:O2'	2.36	0.41
21:U:68:SER:OG	21:U:69:ASP:N	2.53	0.41
30:e:39:VAL:HG12	30:e:85:GLY:HA2	2.03	0.41
31:f:60:GLY:O	31:f:64:ALA:N	2.53	0.41
33:i:41:PHE:O	33:i:45:THR:N	2.54	0.41
33:i:77:VAL:HA	33:i:80:LYS:HE2	2.02	0.41
33:i:89:SER:HB3	51:1:1063:G:O2'	2.20	0.41
33:i:109:ALA:O	33:i:113:ALA:N	2.53	0.41
42:r:81:LYS:NZ	51:1:568:U:O4	2.54	0.41
43:s:29:VAL:HG21	43:s:55:ILE:HG21	2.03	0.41
51:1:56:A:H1'	51:1:127:A:C2	2.55	0.41
51:1:79:C:O2	51:1:346:A:H2	2.03	0.41
51:1:191:A:C6	51:1:192:C:N4	2.88	0.41
51:1:235:U:H2'	51:1:236:C:H6	1.86	0.41
51:1:309:A:N3	51:1:329:G:O2'	2.53	0.41
51:1:518:G:H2'	51:1:519:U:C6	2.55	0.41
51:1:679:C:H2'	51:1:680:C:C6	2.56	0.41
51:1:924:G:O2'	51:1:925:A:H5'	2.21	0.41
51:1:1095:A:C1'	65:0:632:ILE:HD13	2.51	0.41
51:1:1107:G:H2'	51:1:1108:U:C6	2.56	0.41
51:1:1107:G:H2'	51:1:1108:U:O4'	2.20	0.41
51:1:1328:A:H2'	51:1:1330:C:C4	2.56	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
51:1:2660:A:H2'	51:1:2661:G:C8	2.56	0.41
53:3:146:G:H2'	53:3:147:G:H8	1.86	0.41
53:3:1304:G:N1	53:3:1332:A:OP2	2.54	0.41
58:B1:108:ALA:HB2	58:B1:276:ASN:OD1	2.21	0.41
58:B1:109:SER:CB	58:B1:296:LYS:HG2	2.51	0.41
58:B1:111:THR:HG23	58:B1:300:GLN:HA	2.03	0.41
58:B1:1272:SER:OG	58:B1:1273:ASP:N	2.53	0.41
59:B2:176:ILE:HD12	59:B2:184:LEU:HD23	2.03	0.41
59:B2:213:LEU:HD13	59:B2:422:LYS:HG2	2.03	0.41
62:NG:175:PHE:O	62:NG:178:VAL:O	2.38	0.41
8:H:14:VAL:HG11	8:H:180:ASP:HB3	2.03	0.41
32:g:1:MET:N	32:g:20:ASN:OD1	2.40	0.41
38:n:22:ARG:HH22	51:1:2709:G:H5'	1.86	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
51:1:10:A:C6	51:1:2800:A:C2	3.09	0.41
51:1:224:U:O4	51:1:420:C:H5'	2.21	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
51:1:722:A:H2'	51:1:723:C:C6	2.56	0.41
51:1:1116:G:O2'	51:1:1117:C:H5'	2.22	0.41
51:1:1412:U:H2'	51:1:1413:A:C8	2.56	0.41
51:1:1605:C:H2'	51:1:1606:C:C5'	2.51	0.41
51:1:2649:C:N3	51:1:2650:U:C4	2.89	0.41
51:1:2701:U:H3'	51:1:2702:G:H5"	2.01	0.41
51:1:2776:A:C6	51:1:2778:A:C6	3.09	0.41
53:3:336:A:H2'	53:3:337:G:H8	1.86	0.41
58:B1:68:TYR:CB	58:B1:75:TYR:HE2	2.34	0.41
58:B1:245:LEU:HG	58:B1:246:PRO:CD	2.50	0.41
7:G:190:SER:OG	7:G:191:ASP:N	2.53	0.40
9:I:101:VAL:HG13	9:I:113:ALA:HB1	2.03	0.40
13:M:42:GLU:HG2	13:M:100:ILE:HG21	2.02	0.40
16:P:108:ASN:HA	26:Z:7:GLU:HG2	2.03	0.40
24:X:49:ALA:HA	24:X:58:PRO:HA	2.03	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
30:e:124:ARG:NH2	51:1:2315:G:N3	2.68	0.40
35:k:44:LYS:HB3	35:k:44:LYS:HE3	1.92	0.40
42:r:4:VAL:HG23	42:r:39:LEU:HB2	2.03	0.40
51:1:724:U:H2'	51:1:725:G:O4'	2.21	0.40
51:1:1092:C:O2'	51:1:1093:G:H5'	2.21	0.40
51:1:1302:A:H5'	51:1:1608:A:OP1	2.21	0.40
51:1:1722:A:H2'	51:1:1723:G:O4'	2.21	0.40
51:1:2221:G:H2'	51:1:2222:C:C6	2.56	0.40
51:1:2293:G:O2'	51:1:2294:G:H5'	2.21	0.40
51:1:2379:G:H2'	51:1:2380:C:C6	2.56	0.40
51:1:2828:G:N1	51:1:2829:A:C5	2.90	0.40
58:B1:144:TYR:OH	58:B1:162:GLU:OE1	2.34	0.40
63:5:17:C:H2'	63:5:18:G:C8	2.56	0.40
65:0:118:GLY:HA2	65:0:154:VAL:HG22	2.03	0.40
7:G:104:LYS:HE2	7:G:104:LYS:HB2	1.92	0.40
9:I:10:LEU:HG	9:I:62:ARG:HD2	2.03	0.40
13:M:91:LEU:HD23	13:M:91:LEU:HA	1.90	0.40
14:N:22:PRO:HA	14:N:60:LEU:HA	2.03	0.40
15:O:89:ARG:NH2	62:NG:165:PHE:H	2.18	0.40
20:T:80:LEU:HD12	20:T:80:LEU:HA	1.91	0.40
22:V:7:LEU:N	22:V:59:GLU:OE2	2.53	0.40
22:V:52:CYS:HB3	22:V:58:VAL:HG11	2.03	0.40
25:Y:43:LYS:HE2	25:Y:43:LYS:HB2	1.88	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:211:C:O2'	51:1:212:G:H5'	2.21	0.40
51:1:379:G:N1	51:1:396:G:C6	2.89	0.40
51:1:555:G:HO2'	51:1:556:A:H8	1.69	0.40
51:1:1048:A:N6	51:1:1111:A:C8	2.89	0.40
51:1:1430:G:O2'	51:1:1431:A:H5'	2.21	0.40
51:1:1715:G:O2'	51:1:1716:U:C6	2.75	0.40
51:1:1721:G:H1'	51:1:1739:A:N6	2.35	0.40
51:1:2648:G:O2'	51:1:2649:C:H5'	2.21	0.40
51:1:2680:U:O2'	51:1:2681:C:H5'	2.21	0.40
53:3:31:G:N2	53:3:48:C:OP1	2.41	0.40
58:B1:26:SER:HB3	58:B1:29:MET:H	1.86	0.40
58:B1:282:LEU:CA	58:B1:286:ALA:HA	2.45	0.40
59:B2:657:THR:HG21	59:B2:1188:ASP:HB2	2.03	0.40
59:B2:886:LYS:HE2	59:B2:918:LEU:HD13	2.03	0.40
63:5:23:A:H2'	63:5:24:G:C8	2.56	0.40
6:F:30:GLU:HA	6:F:31:PRO:HD3	1.91	0.40
7:G:130:LYS:HE3	7:G:130:LYS:HB3	1.96	0.40
8:H:5:HIS:HA	8:H:6:PRO:HD3	1.95	0.40
18:R:7:ASN:CG	18:R:9:PRO:HD2	2.45	0.40
18:R:41:ASP:OD1	18:R:41:ASP:N	2.54	0.40
27:b:70:LYS:HD2	27:b:73:ILE:HD12	2.02	0.40
30:e:64:PRO:HA	30:e:88:VAL:HG22	2.03	0.40
31:f:3:VAL:HG13	51:1:2751:G:H4'	2.02	0.40
35:k:13:ASN:HB3	35:k:100:PHE:CZ	2.57	0.40
35:k:110:GLU:H	35:k:113:MET:HE3	1.86	0.40
45:u:4:ILE:HD13	45:u:69:VAL:HG23	2.03	0.40
51:1:137:U:H3	51:1:142:A:H61	1.69	0.40
51:1:467:G:O5'	51:1:467:G:H8	2.04	0.40
51:1:886:A:N7	51:1:887:U:H1'	2.36	0.40
51:1:1095:A:H1'	65:0:632:ILE:HD13	2.02	0.40
51:1:1333:G:C2'	51:1:1334:G:H5'	2.51	0.40
51:1:1346:G:O2'	51:1:1347:A:H5'	2.22	0.40
51:1:1505:A:O2'	51:1:1506:U:H5'	2.19	0.40
51:1:1767:G:N2	51:1:1986:C:C2	2.89	0.40
51:1:2049:G:O2'	51:1:2050:C:H5'	2.21	0.40
51:1:2105:U:C2	51:1:2184:A:H2	2.39	0.40
51:1:2106:U:H3'	51:1:2107:G:H8	1.86	0.40
51:1:2193:G:H2'	51:1:2194:U:H6	1.83	0.40
51:1:2210:U:H6	51:1:2210:U:OP1	2.04	0.40
51:1:2357:G:C2	51:1:2361:G:C6	3.09	0.40
51:1:2393:U:C2'	51:1:2394:C:H5'	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:1:2888:C:H2'	51:1:2889:C:C6	2.56	0.40
57:A1:224:LEU:HD23	57:A2:228:LEU:HD21	2.03	0.40
57:A2:57:THR:HG22	57:A2:58:GLU:HG3	2.04	0.40
65:0:574:MET:HE1	65:0:601:PHE:CZ	2.57	0.40
65:0:635:LEU:HD23	65:0:635:LEU:HA	1.98	0.40
9:I:123:MET:HB2	9:I:143:SER:HB3	2.04	0.40
19:S:15:LEU:HB3	19:S:54:SER:HB3	2.02	0.40
22:V:11:VAL:HG23	22:V:55:GLY:H	1.85	0.40
23:W:25:ILE:HA	23:W:28:LEU:HB2	2.02	0.40
26:Z:9:GLU:HB3	26:Z:10:PRO:HD3	2.03	0.40
27:b:209:ALA:HA	27:b:212:TRP:CE2	2.55	0.40
28:c:56:LYS:HG3	28:c:59:ARG:HB3	2.04	0.40
28:c:174:SER:O	28:c:174:SER:OG	2.37	0.40
30:e:36:ASN:HB3	30:e:152:ASP:HB3	2.03	0.40
32:g:1:MET:HE3	32:g:1:MET:HB3	1.77	0.40
35:k:53:LYS:HA	35:k:53:LYS:HD3	1.96	0.40
39:o:76:LYS:HE2	39:o:76:LYS:HB3	1.93	0.40
51:1:120:U:C2	51:1:149:A:C6	3.10	0.40
51:1:164:C:H2'	51:1:165:A:O4'	2.21	0.40
51:1:194:G:O6	51:1:195:A:C6	2.75	0.40
51:1:221:A:C4	51:1:266:G:N7	2.90	0.40
51:1:359:G:H2'	51:1:360:U:C5'	2.51	0.40
51:1:706:A:H2'	51:1:707:G:C5'	2.51	0.40
51:1:724:U:H2'	51:1:725:G:C8	2.56	0.40
51:1:935:C:H2'	51:1:936:A:C8	2.56	0.40
51:1:1160:G:C6	51:1:1161:C:C4	3.09	0.40
51:1:1279:G:H2'	51:1:1280:G:C8	2.56	0.40
51:1:1430:G:H2'	51:1:1431:A:O4'	2.21	0.40
51:1:1494:A:C6	51:1:1495:A:C6	3.09	0.40
51:1:1749:A:H2'	51:1:1750:G:C8	2.57	0.40
51:1:1783:A:N1	51:1:2587:A:H2'	2.37	0.40
51:1:1944:U:H3'	51:1:1945:G:H5'	2.03	0.40
51:1:2092:U:H5	51:1:2199:A:C2	2.30	0.40
51:1:2788:C:H2'	51:1:2789:C:C6	2.56	0.40
53:3:195:A:H2'	53:3:196:A:C8	2.57	0.40
53:3:1124:G:H1	53:3:1149:C:H42	1.68	0.40
56:9:33:DA:H5"	58:B1:121:PRO:HG3	2.04	0.40
58:B1:182:ALA:HB1	58:B1:238:ILE:CG2	2.52	0.40
58:B1:351:GLY:O	58:B1:467:ALA:HA	2.21	0.40
58:B1:1361:THR:N	59:B2:1282:GLY:O	2.53	0.40
64:6:69:C:H2'	64:6:70:G:C8	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
65:0:418:ILE:HA	65:0:486:PRO:HD3	2.04	0.40
65:0:438:LEU:HD21	65:0:472:ARG:HD2	2.02	0.40
7:G:161:PHE:HA	7:G:183:PHE:HB2	2.02	0.40
15:O:9:ARG:NH2	53:3:1279:G:OP1	2.53	0.40
24:X:32:THR:OG1	24:X:49:ALA:O	2.31	0.40
29:d:138:LEU:HG	29:d:143:LEU:HD12	2.03	0.40
30:e:49:LEU:HD22	30:e:83:PRO:HB2	2.04	0.40
31:f:157:LYS:HD3	51:1:2658:C:H5"	2.02	0.40
34:j:13:ARG:NH1	34:j:49:ASP:O	2.41	0.40
41:q:57:ARG:NH1	51:1:1154:G:OP2	2.52	0.40
51:1:55:G:N2	51:1:116:C:C2	2.90	0.40
51:1:279:A:N6	51:1:361:G:HO2'	2.20	0.40
51:1:367:G:H2'	51:1:368:A:C8	2.57	0.40
51:1:510:C:H2'	51:1:511:U:H6	1.85	0.40
51:1:914:G:H5'	51:1:915:C:OP2	2.21	0.40
51:1:1334:G:C6	51:1:1335:C:C4	3.09	0.40
51:1:1695:G:H2'	51:1:1696:G:O5'	2.22	0.40
51:1:2093:G:N7	51:1:2225:A:H2'	2.37	0.40
51:1:2278:A:C2'	51:1:2279:G:H5"	2.51	0.40
51:1:2757:A:H2'	51:1:2758:A:H5"	2.02	0.40
53:3:202:G:H2'	53:3:203:G:H8	1.85	0.40
53:3:297:G:N2	53:3:300:A:OP2	2.39	0.40
53:3:440:C:H2'	53:3:441:A:H8	1.85	0.40
53:3:987:G:H2'	53:3:988:G:C8	2.56	0.40
54:4:43:G:H5'	59:B2:688:GLN:HE22	1.85	0.40
57:A2:104:LYS:HG2	57:A2:110:VAL:HG22	2.03	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%)	194 (95%)	10 (5%)	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
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%)	189 (91%)	18 (9%)	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

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
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%)	272 (96%)	10 (4%)	0	100 100
58	B1	1329/1407 (94%)	1202 (90%)	123 (9%)	4 (0%)	37 72
59	B2	1338/1342 (100%)	1203 (90%)	130 (10%)	5 (0%)	30 68
60	W0	80/91 (88%)	77 (96%)	3 (4%)	0	100 100
61	NA	490/495 (99%)	474 (97%)	14 (3%)	2 (0%)	30 68
62	NG	150/181 (83%)	133 (89%)	10 (7%)	7 (5%)	2 17
65	0	669/716 (93%)	625 (93%)	43 (6%)	1 (0%)	48 83
All	All	10253/10945 (94%)	9283 (90%)	930 (9%)	40 (0%)	32 68

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
48	x	25	LYS
58	B1	121	PRO

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Mol	Chain	Res	Type
61	NA	187	ARG
61	NA	188	PRO
62	NG	102	PRO
62	NG	122	PRO
59	B2	43	PRO
59	B2	918	LEU
62	NG	121	LYS
62	NG	163	SER
57	A1	250	ASP
59	B2	888	THR
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
59	B2	909	LYS
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	123	ARG
62	NG	169	THR
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 (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	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
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

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
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
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%)	184 (99%)	2 (1%)	70 80
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%)	7593 (96%)	338 (4%)	27 47

All (338) 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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
57	A2	74	VAL
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
65	0	702	ARG
65	0	704	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (135) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	ASN
1	A	33	ASN
1	A	61	ASN
2	B	4	GLN
3	C	25	ASN
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	197	HIS
10	J	76	ASN
10	J	88	HIS
10	J	121	ASN
12	L	85	GLN
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

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Mol	Chain	Res	Type
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
29	d	41	GLN
29	d	62	GLN
29	d	90	GLN
29	d	94	GLN
29	d	165	HIS
30	e	4	HIS
31	f	47	ASN
31	f	87	GLN
32	g	2	GLN
33	i	30	GLN
34	j	58	ASN
34	j	135	GLN
35	k	3	GLN
35	k	5	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

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Mol	Chain	Res	Type
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
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	227	GLN
57	A2	23	HIS
57	A2	227	GLN
58	B1	45	ASN
58	B1	196	GLN
58	B1	364	HIS
58	B1	424	ASN
58	B1	469	HIS
58	B1	805	GLN
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

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Mol	Chain	Res	Type
59	B2	965	GLN
59	B2	1008	GLN
59	B2	1080	ASN
59	B2	1237	HIS
59	B2	1268	GLN
59	B2	1313	HIS
60	W0	7	GLN
60	W0	31	GLN
60	W0	62	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%)	16 (0%)
52	2	119/120 (99%)	17 (14%)	1 (0%)
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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

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Mol	Chain	Res	Type
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
51	1	2732	G
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 (i)

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 3 ligands modelled in this entry, 1 is monoatomic - leaving 2 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	$\#\|Z\| > 2$
68	GDP	0	801	-	24,30,30	0.90	1 (4%)	30,47,47	1.39	5 (16%)
67	FUA	0	800	-	39,40,40	1.67	3 (7%)	49,64,64	1.13	3 (6%)

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
68	GDP	0	801	-	-	2/12/32/32	0/3/3/3
67	FUA	0	800	-	-	9/15/92/92	0/4/4/4

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
67	0	800	FUA	C29-C22	-9.59	1.34	1.47
67	0	800	FUA	O5-C29	-2.46	1.23	1.30
68	0	801	GDP	C6-N1	-2.31	1.34	1.37
67	0	800	FUA	C9-C11	2.24	1.57	1.54

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
68	0	801	GDP	C3'-C2'-C1'	2.89	105.33	100.98
68	0	801	GDP	PA-O3A-PB	-2.62	123.84	132.83
68	0	801	GDP	C5-C6-N1	2.59	118.52	113.95
67	0	800	FUA	C14-C8-C9	-2.54	104.42	109.40
67	0	800	FUA	C8-C9-C10	2.51	118.92	116.34
68	0	801	GDP	C8-N7-C5	2.19	107.17	102.99
68	0	801	GDP	O6-C6-C5	-2.13	120.20	124.37
67	0	800	FUA	C1-C10-C9	2.05	113.96	109.13

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
67	0	800	FUA	C13-C17-C22-C29

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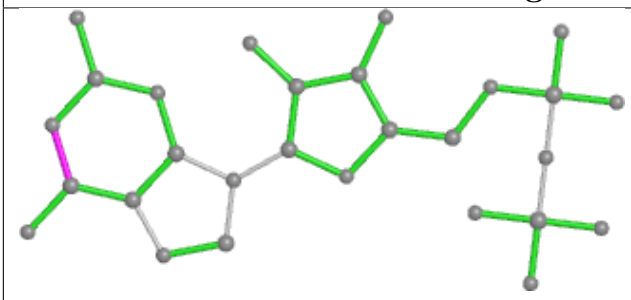
Mol	Chain	Res	Type	Atoms
67	0	800	FUA	C23-C22-C29-O4
67	0	800	FUA	C23-C22-C29-O5
67	0	800	FUA	C22-C23-C24-C25
67	0	800	FUA	C24-C25-C26-C27
67	0	800	FUA	C24-C25-C26-C28
67	0	800	FUA	C32-C31-O2-C16
68	0	801	GDP	PA-O3A-PB-O2B
67	0	800	FUA	O3-C31-O2-C16
68	0	801	GDP	PA-O3A-PB-O1B
67	0	800	FUA	C17-C22-C29-O4

There are no ring outliers.

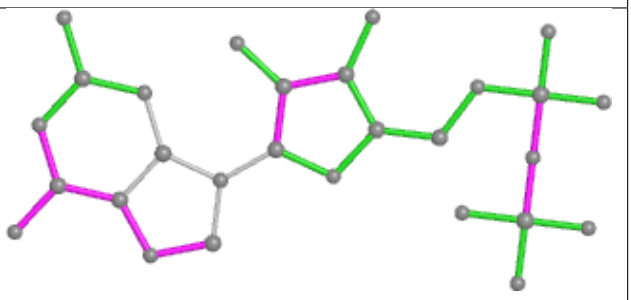
No monomer is involved in short contacts.

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 then 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.

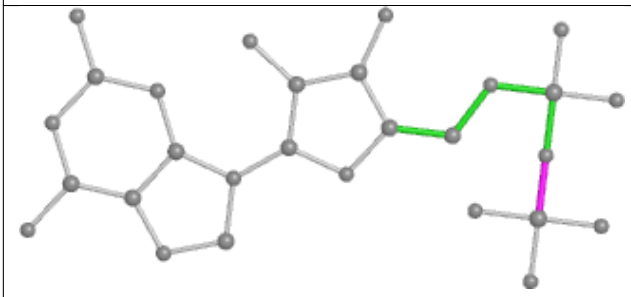
Ligand GDP 0 801



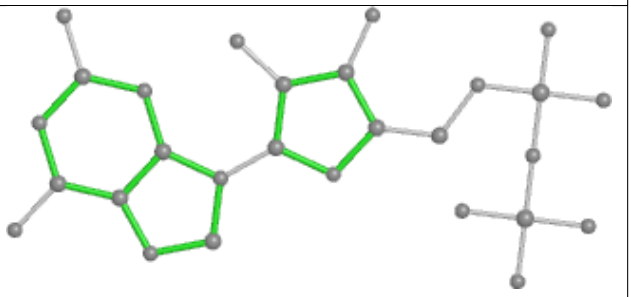
Bond lengths



Bond angles

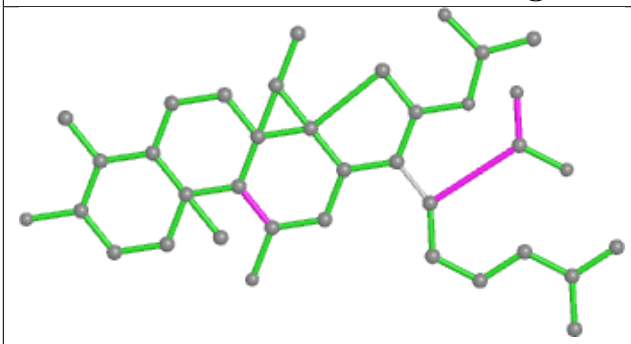


Torsions

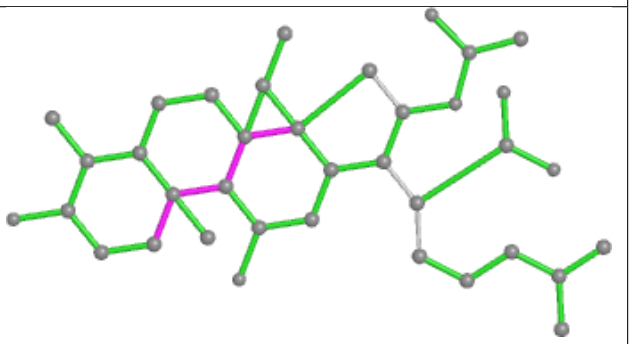


Rings

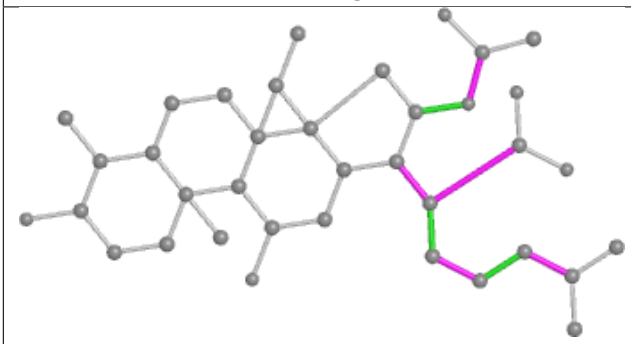
Ligand FUA 0 800



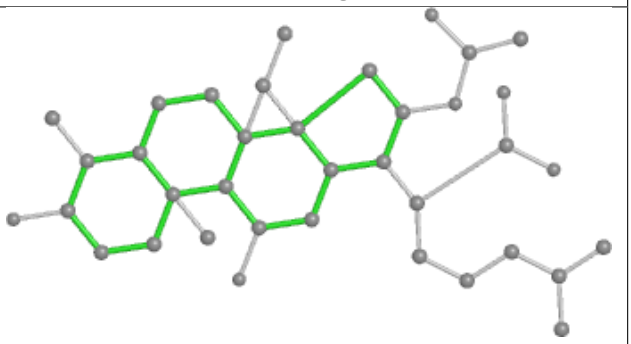
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

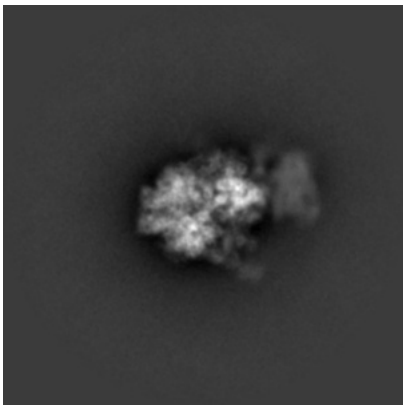
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-38947. These allow visual inspection of the internal detail of the map and identification of artifacts.

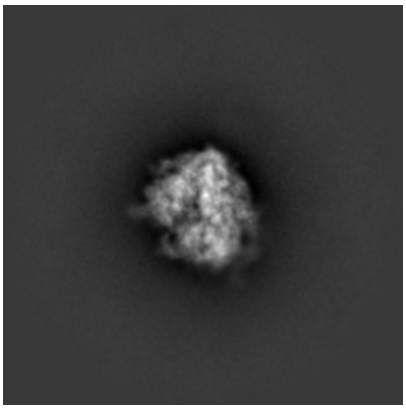
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

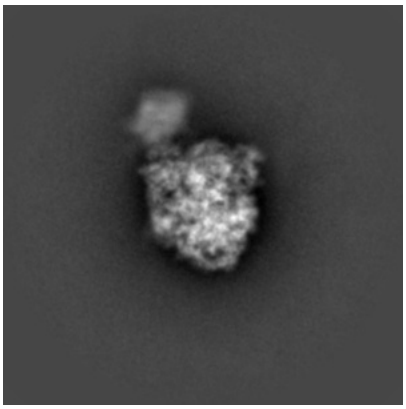
6.1.1 Primary map



X

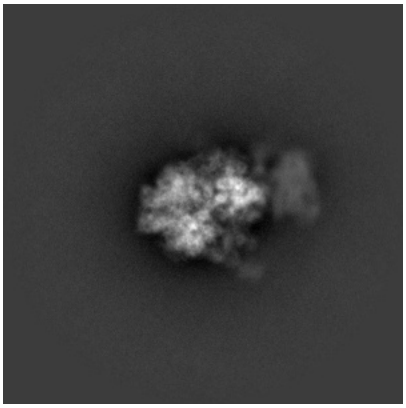


Y

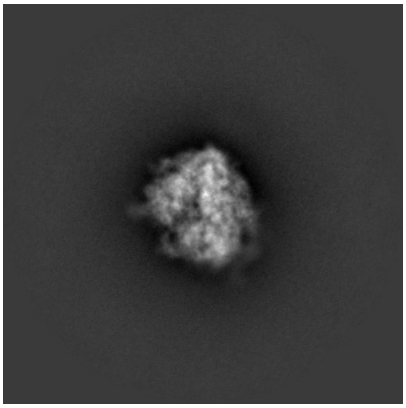


Z

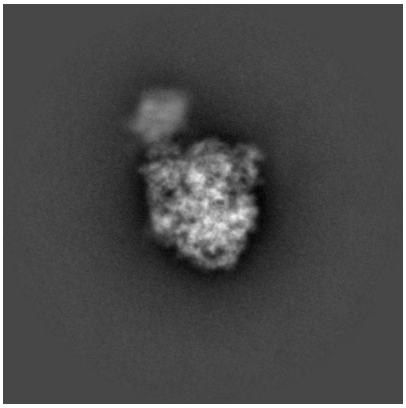
6.1.2 Raw map



X



Y

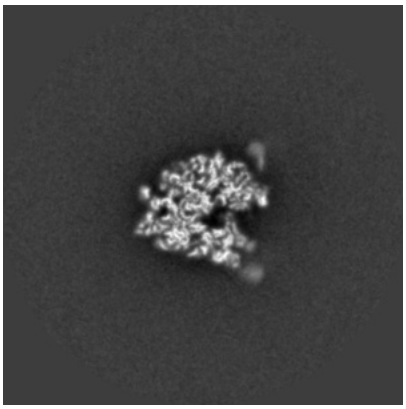


Z

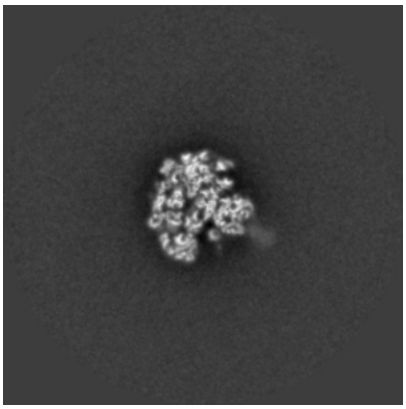
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

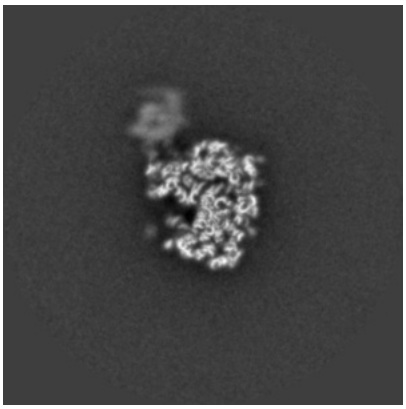
6.2.1 Primary map



X Index: 240

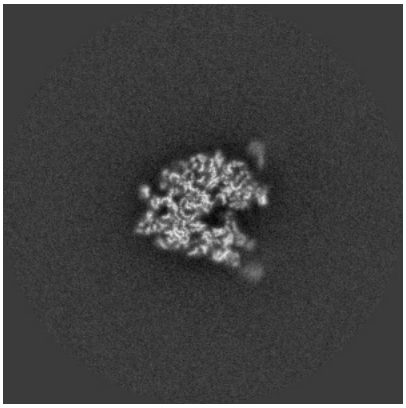


Y Index: 240

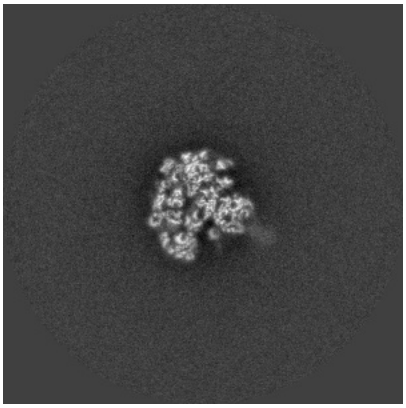


Z Index: 240

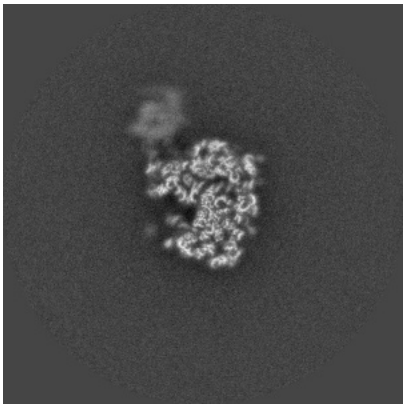
6.2.2 Raw map



X Index: 240



Y Index: 240

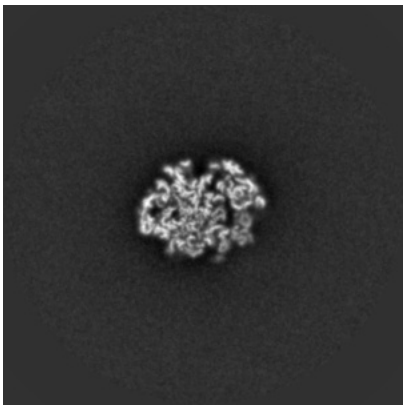


Z Index: 240

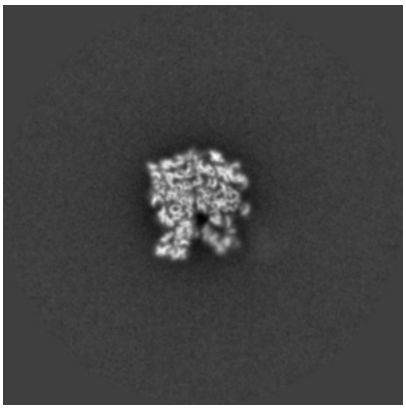
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

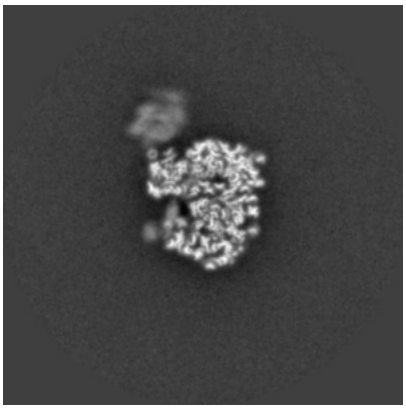
6.3.1 Primary map



X Index: 265

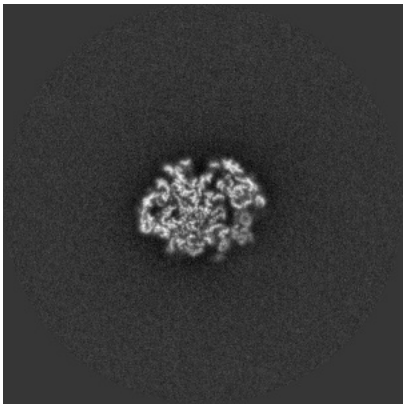


Y Index: 224

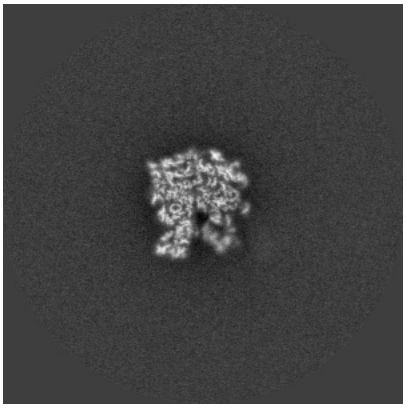


Z Index: 246

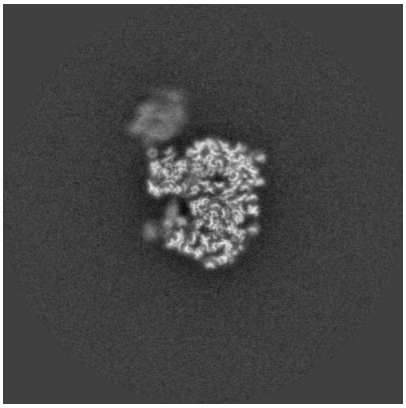
6.3.2 Raw map



X Index: 265



Y Index: 224

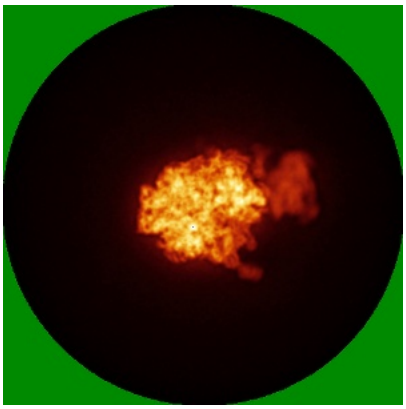


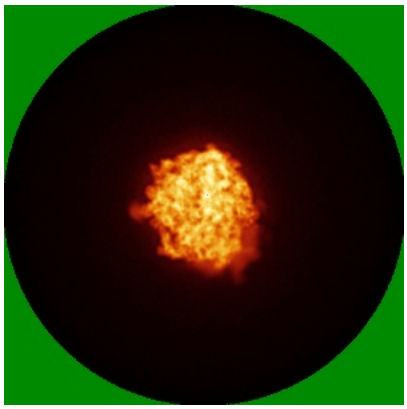
Z Index: 246

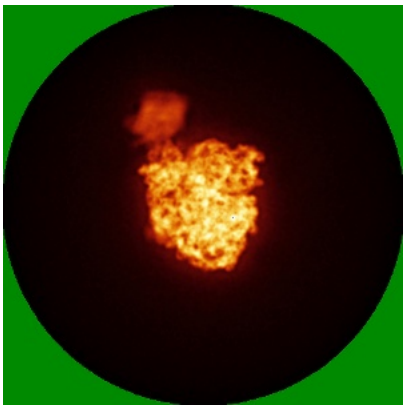
The images above show the largest variance slices of the map in three orthogonal directions.

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

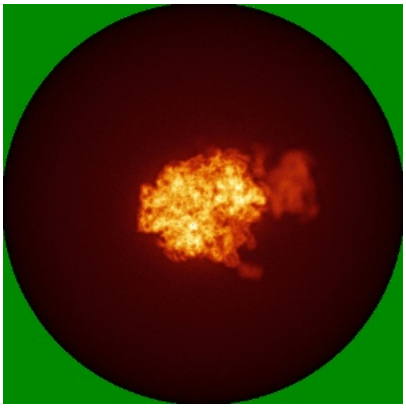
6.4.1 Primary map

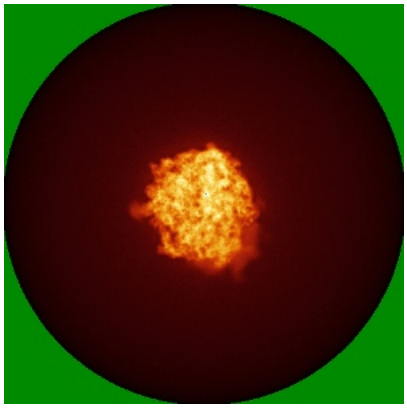

X

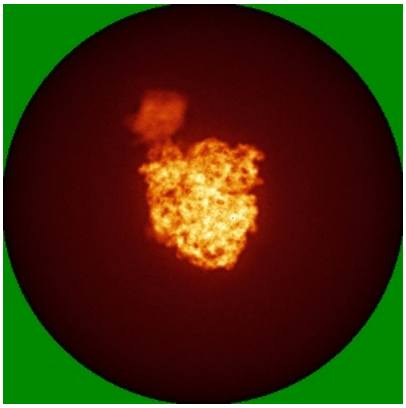

Y


Z

6.4.2 Raw map


X

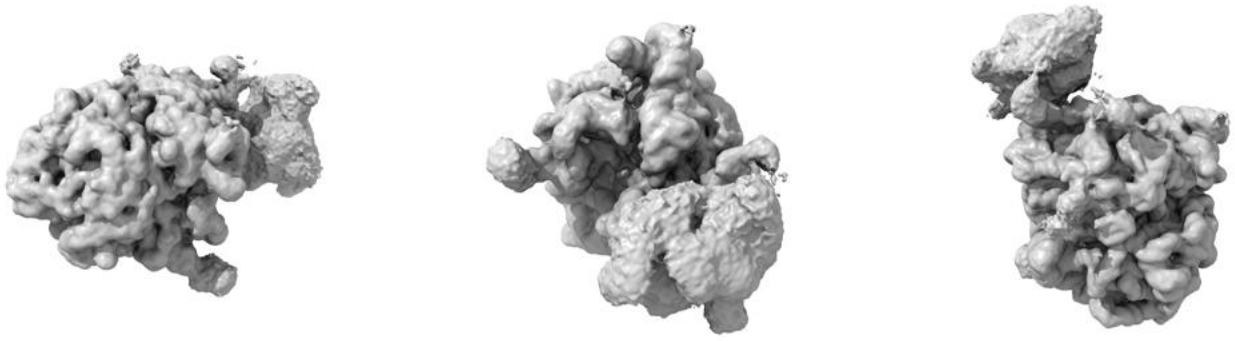

Y


Z

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

6.5 Orthogonal surface views (i)

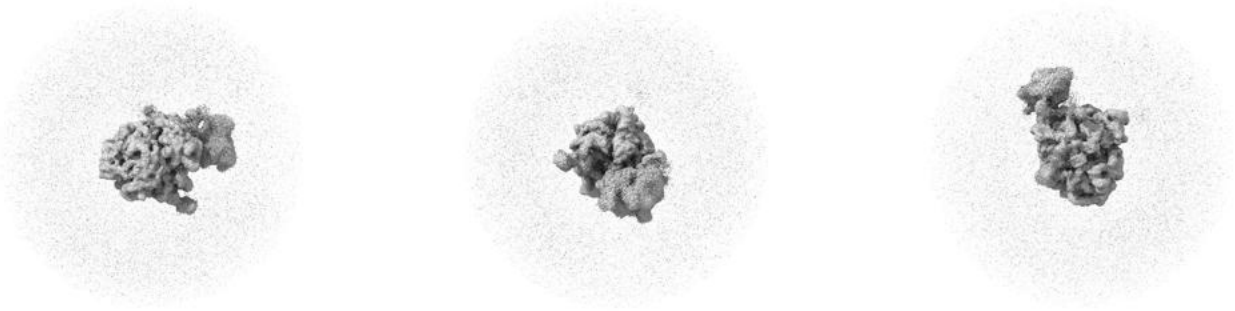
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.007. 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



X Y Z

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

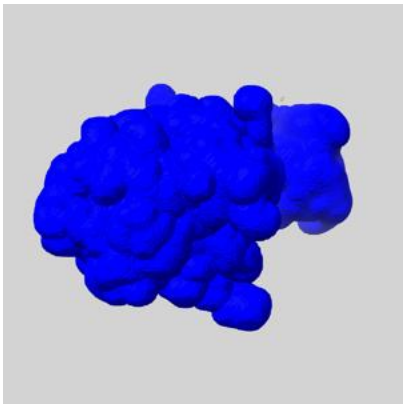
6.6 Mask visualisation

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

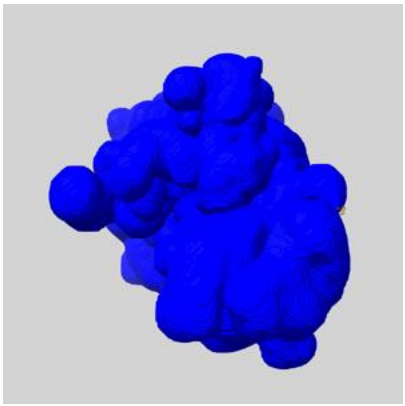
A mask typically either:

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

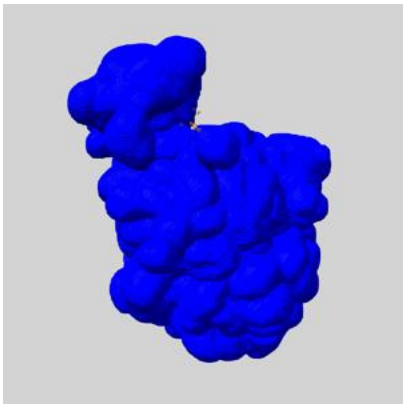
6.6.1 emd_38947_msk_1.map



X



Y

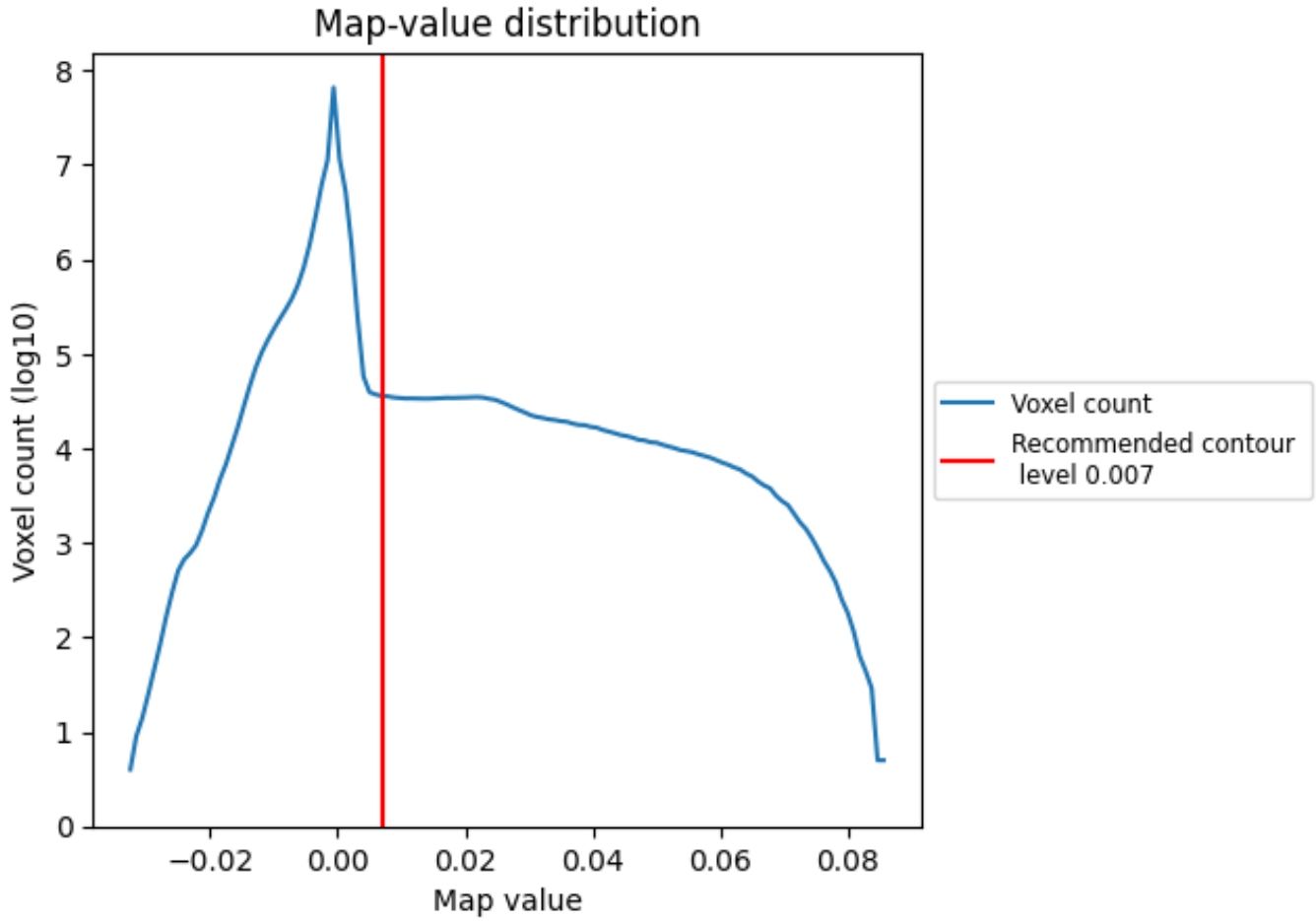


Z

7 Map analysis

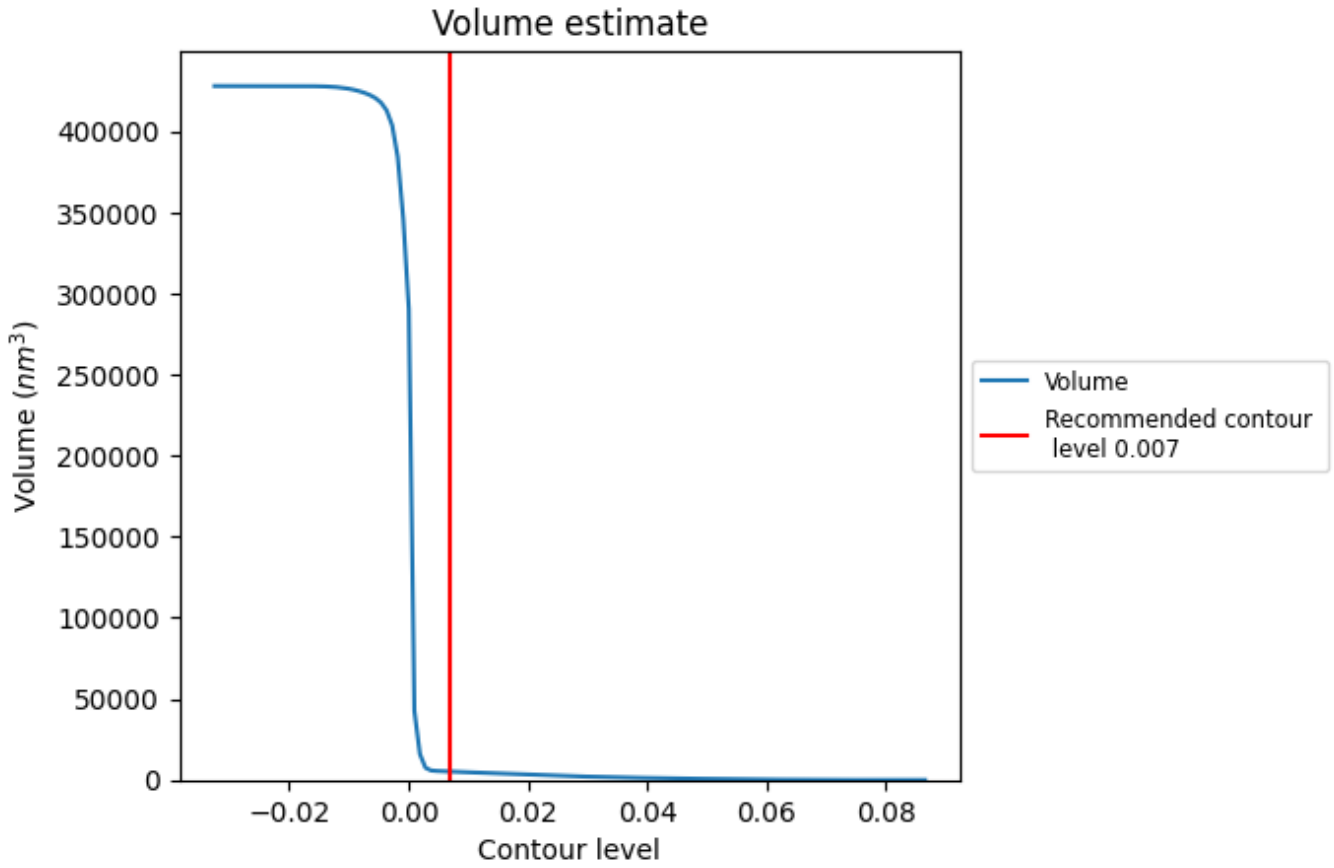
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

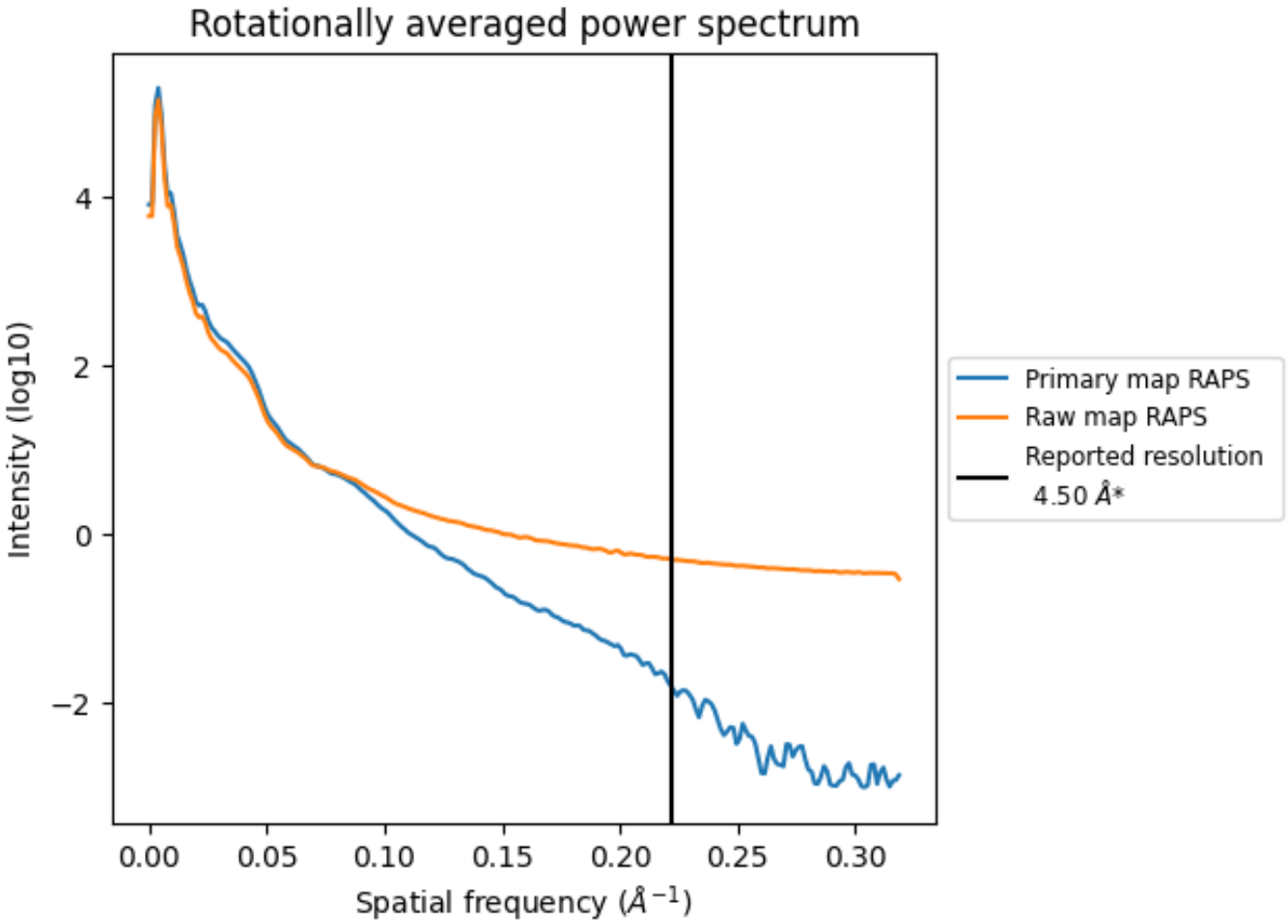
7.2 Volume estimate



The volume at the recommended contour level is 5179 nm^3; this corresponds to an approximate mass of 4678 kDa.

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

7.3 Rotationally averaged power spectrum (i)

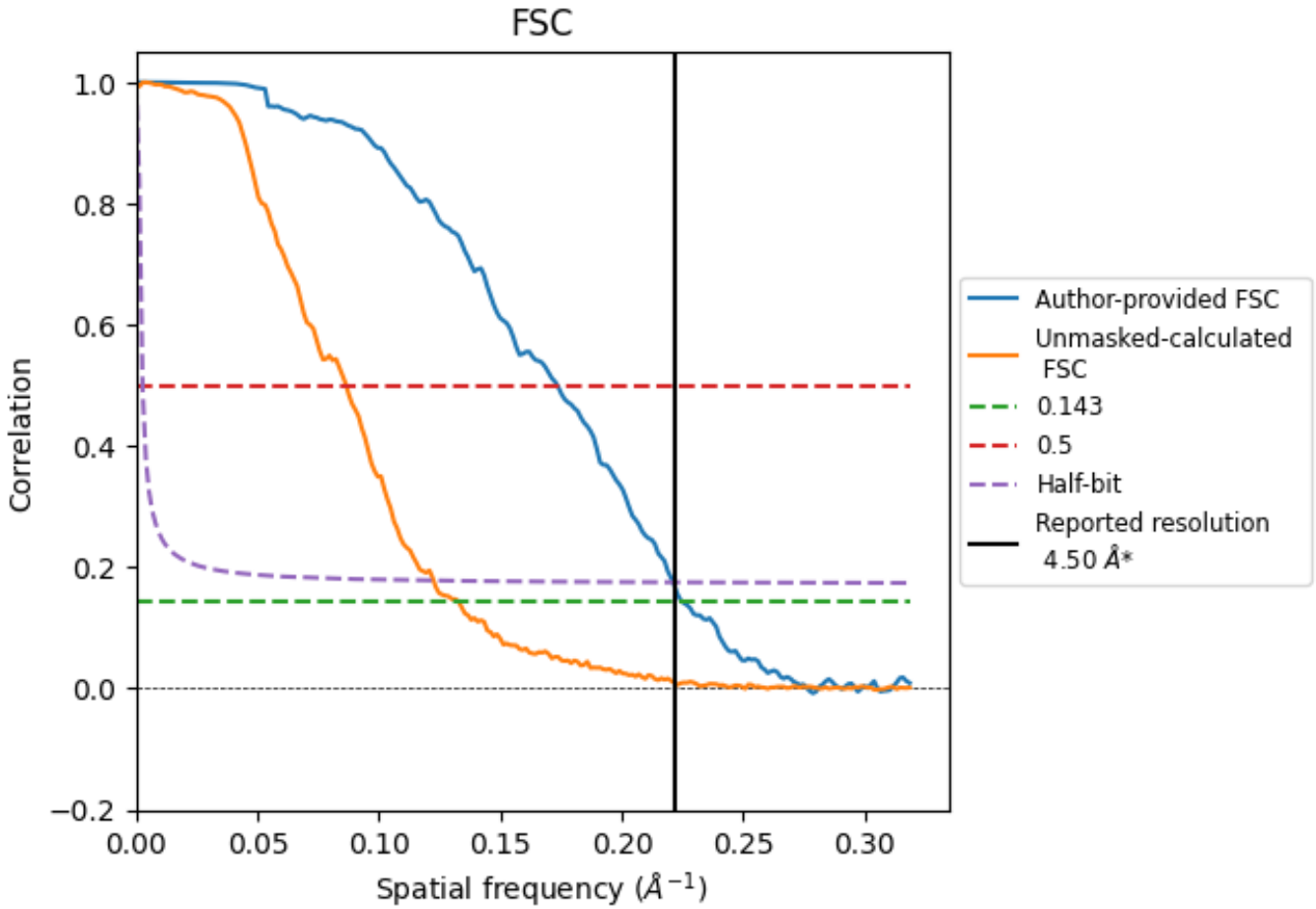


*Reported resolution corresponds to spatial frequency of 0.222 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.222 Å^{-1}

8.2 Resolution estimates (i)

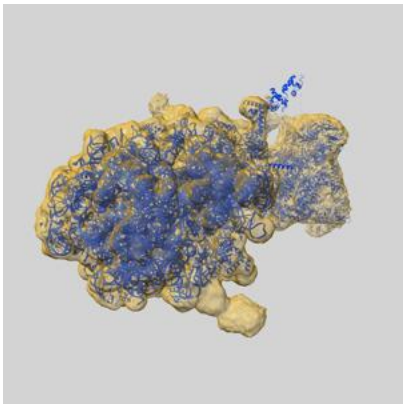
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.50	-	-
Author-provided FSC curve	4.45	5.77	4.52
Unmasked-calculated*	7.53	11.57	8.16

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

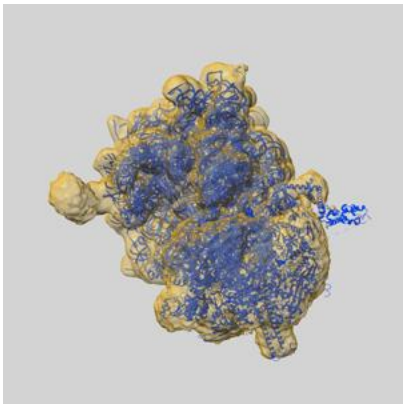
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-38947 and PDB model 8Y5R. Per-residue inclusion information can be found in section 3 on page 18.

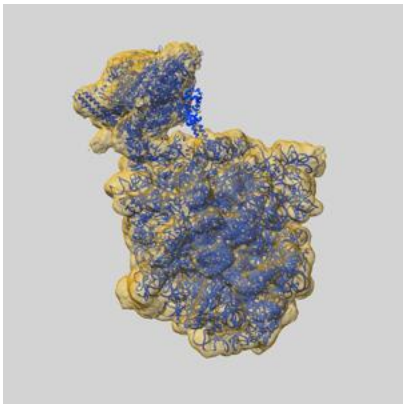
9.1 Map-model overlay



X



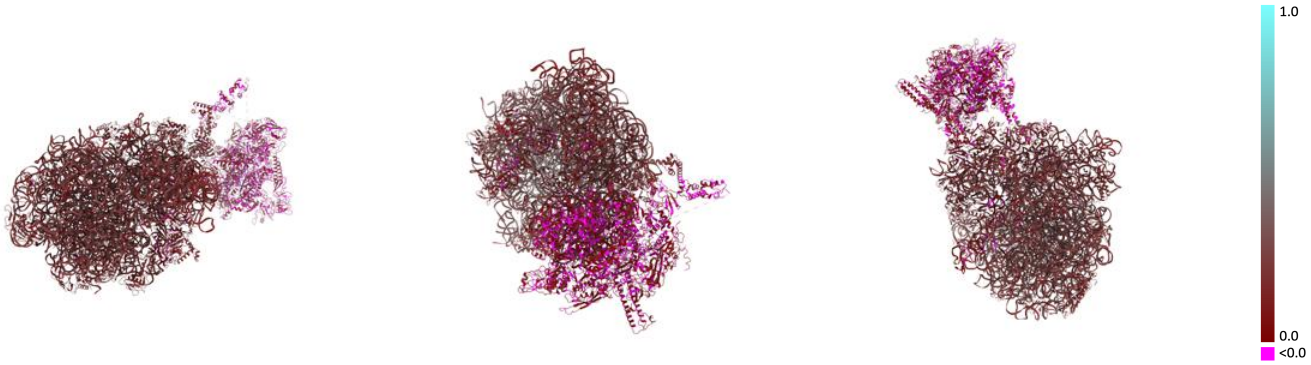
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.007 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.

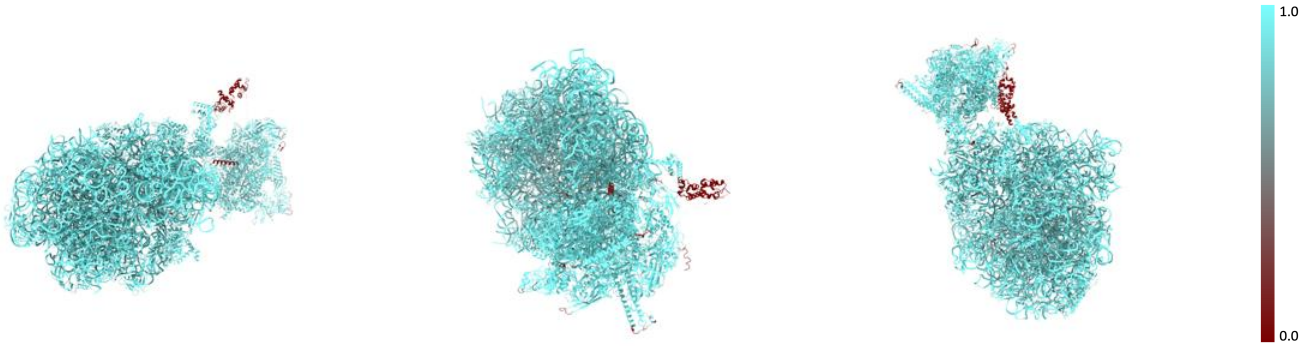
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

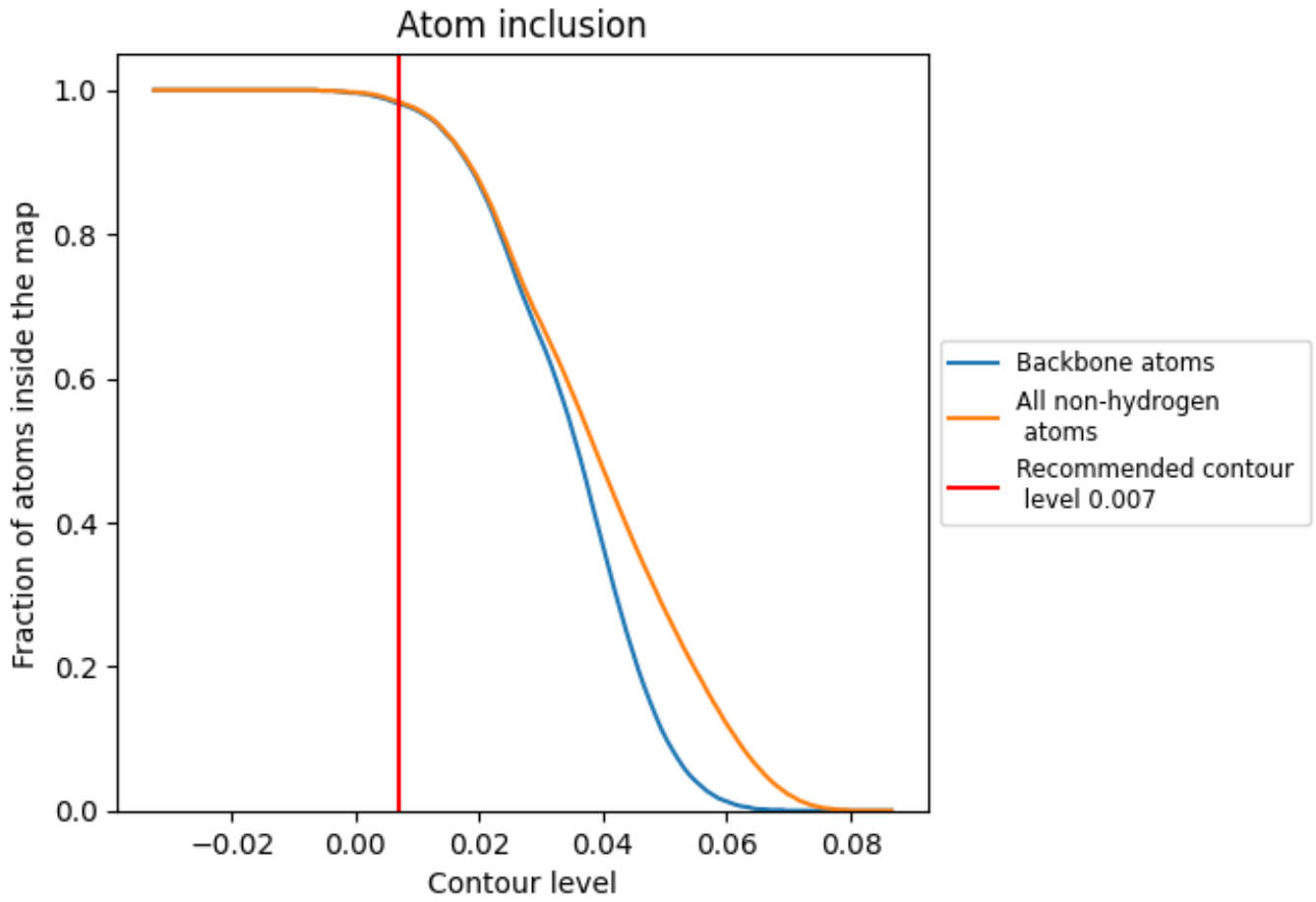
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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

9.4 Atom inclusion (i)



At the recommended contour level, 98% of all backbone atoms, 98% 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	0.9840	0.1860
0	0.9620	0.1590
1	0.9990	0.2370
2	1.0000	0.2190
3	0.9990	0.2220
4	0.9600	0.0710
5	0.9770	0.1390
6	0.8350	0.0860
8	1.0000	0.0480
9	1.0000	0.0880
A	0.9780	0.1340
A1	0.9270	0.0570
A2	0.8330	0.0560
B	0.9950	0.1950
B1	0.9580	0.0460
B2	0.9760	0.0550
C	0.9850	0.1850
D	0.9860	0.1780
E	1.0000	0.1740
F	1.0000	0.1580
G	0.9900	0.1840
H	0.9780	0.1770
I	0.9980	0.1480
J	0.9930	0.1970
K	0.9940	0.1890
L	0.9940	0.1930
M	0.9850	0.1870
N	0.9990	0.1660
NA	0.8350	0.1560
NG	0.9140	0.0750
O	1.0000	0.1410
P	0.9980	0.2010
Q	0.9460	0.1560
R	0.9990	0.1670
S	0.9970	0.1300

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Chain	Atom inclusion	Q-score
T	0.9940	0.1650
U	0.9980	0.1540
V	0.9870	0.1840
W	0.9980	0.1550
W0	0.5610	0.0450
X	0.9870	0.1100
Y	0.9950	0.1780
Z	0.9770	0.1500
b	0.9950	0.2210
c	0.9950	0.1920
d	0.9960	0.1930
e	0.9910	0.1700
f	0.9780	0.1860
g	0.9980	0.1820
i	0.9560	0.0900
j	0.9960	0.1930
k	0.9880	0.2310
l	1.0000	0.1900
m	0.9880	0.2080
n	1.0000	0.1840
o	1.0000	0.1720
p	0.9870	0.2130
q	0.9990	0.1670
r	0.9960	0.1940
s	0.9920	0.1970
t	0.9890	0.1840
u	0.9950	0.1700
v	0.9970	0.1800
w	1.0000	0.1690
x	1.0000	0.1940
y	1.0000	0.1660
z	0.9950	0.1960