Full wwPDB EM Validation Report ⓘ

Jul 21, 2025 – 09:22 PM EDT

PDB ID	:	8VV4 / pdb_00008vv4
EMDB ID	:	EMD-43549
Title	:	E. coli 70S ribosome with unmodified Lys-tRNAPro(GGG) in the P/P conformation on a slippery CCC-C codon
Authors	:	Kimbrough, E.M.; Dunham, C.M.; Nguyen, H.A.
Deposited on	:	2024-01-30
Resolution	:	3.40 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

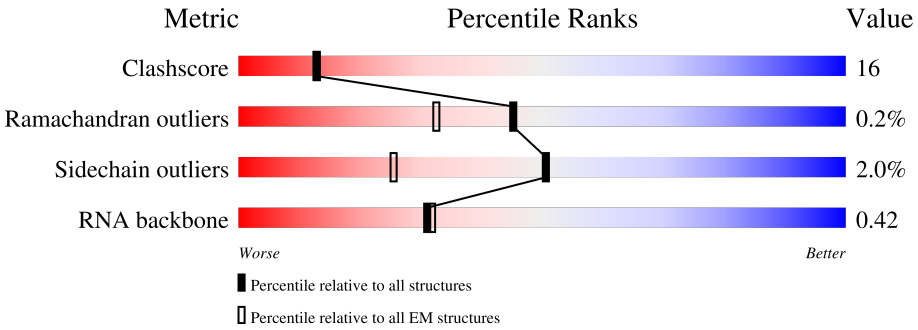
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.40 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	1	2903	65% 27% 5%
2	2	1540	21% 61% 17%
3	3	120	26% 56% 18%
4	4	18	6% 22% 11% 61%
5	5	77	35% 40% 22%
6	B	273	62% 37%
7	C	209	58% 40%

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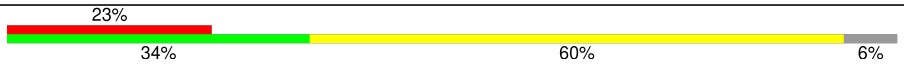
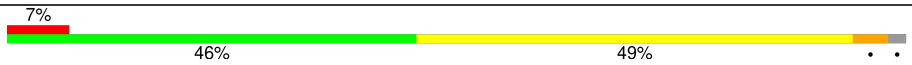
Mol	Chain	Length	Quality of chain
8	D	201	
9	E	179	
10	F	177	
11	G	149	
12	J	142	
13	K	123	
14	L	144	
15	M	136	
16	N	127	
17	O	117	
18	P	115	
19	Q	118	
20	R	103	
21	S	110	
22	T	100	
23	U	104	
24	V	94	
25	W	84	
26	X	78	
27	Y	63	
28	Z	59	
29	a	70	
30	b	57	
31	c	55	
32	d	46	

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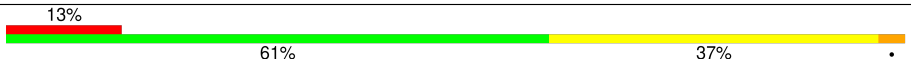
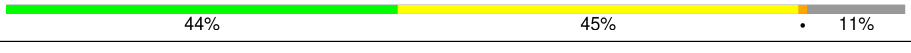
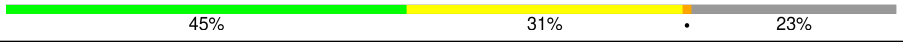
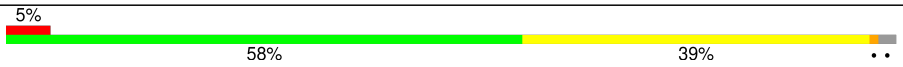
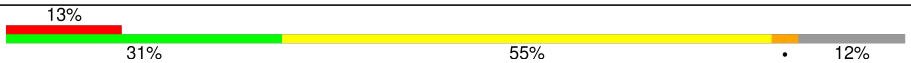
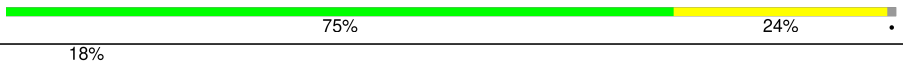
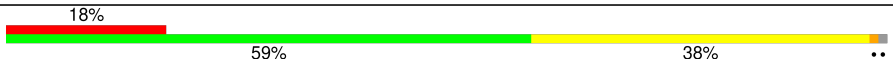
Mol	Chain	Length	Quality of chain
33	e	65	
34	f	38	
35	g	241	
36	h	233	
37	i	206	
38	j	167	
39	k	135	
40	l	179	
41	m	130	
42	n	130	
43	o	103	
44	p	129	
45	q	124	
46	r	118	
47	s	101	
48	t	89	
49	u	82	
50	v	84	
51	w	75	
52	x	92	
53	y	87	
54	z	71	

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 143506 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	2821	60570	27020	11157	19572	2821	0	0

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	747	C	U	conflict	GB 1914786293
1	887	A	U	conflict	GB 1914786293
1	1847	G	A	conflict	GB 1914786293
1	2069	A	G	conflict	GB 1914786293
1	?	-	C	deletion	GB 1914786293

- Molecule 2 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1534	32929	14693	6041	10661	1534	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	3	120	2569	1144	468	837	120	0	0

- Molecule 4 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	4	7	145	65	24	49	7	0	0

- Molecule 5 is a RNA chain called tRNA^ProL (GGG).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	5	77	Total	C	N	O	P	0	0
			1648	733	297	541	77		

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
10	F	175	Total	C	N	O	S	0	0
			1313	826	241	244	2		

- Molecule 11 is a protein called Large ribosomal subunit protein bL9.

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

- Molecule 12 is a protein called 50S ribosomal protein L13.

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

- Molecule 13 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	K	123	Total	C	N	O	S	0	0
			946	593	181	166	6		

- Molecule 14 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	L	144	Total	C	N	O	S	0	0
			1053	654	207	190	2		

- Molecule 15 is a protein called 50S ribosomal protein L16.

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

- Molecule 16 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	N	119	Total	C	N	O	S	0	0
			951	588	195	163	5		

- Molecule 17 is a protein called 50S ribosomal protein L18.

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

- Molecule 18 is a protein called 50S ribosomal protein L19.

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

- Molecule 19 is a protein called 50S ribosomal protein L20.

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

- Molecule 20 is a protein called Ribosomal protein L21.

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

- Molecule 21 is a protein called 50S ribosomal protein L22.

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

- Molecule 22 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	T	94	Total 746	C 470	N 140	O 134	S 2	0	0

- Molecule 23 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	U	103	Total 788	C 498	N 148	O 142	0	0

- Molecule 24 is a protein called 50S ribosomal protein L25.

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

- Molecule 25 is a protein called Large ribosomal subunit protein bL27.

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

- Molecule 26 is a protein called 50S ribosomal protein L28.

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

- Molecule 27 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Y	62	Total	C	N	O	S	0	0
			501	308	98	94	1		

- Molecule 28 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Z	58	Total	C	N	O	S	0	0
			448	281	87	78	2		

- Molecule 29 is a protein called 50S ribosomal protein L31.

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

- Molecule 30 is a protein called 50S ribosomal protein L32.

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

- Molecule 31 is a protein called Large ribosomal subunit protein bL33.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	c	52	Total	C	N	O	0	0
			426	275	78	73		

- Molecule 32 is a protein called 50S ribosomal protein L34.

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

- Molecule 33 is a protein called 50S ribosomal protein L35.

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

- Molecule 34 is a protein called 50S ribosomal protein L36.

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

- Molecule 35 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	g	225	Total	C	N	O	S	0	0
			1760	1113	316	323	8		

- Molecule 36 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	h	208	Total	C	N	O	S	0	0
			1636	1036	307	290	3		

- Molecule 37 is a protein called 30S ribosomal protein S4.

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

- Molecule 38 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	j	156	Total	C	N	O	S	0	0
			1152	717	217	212	6		

- Molecule 39 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	k	104	Total	C	N	O	S	0	0
			848	536	153	152	7		

- Molecule 40 is a protein called 30S ribosomal protein S7.

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

- Molecule 41 is a protein called 30S ribosomal protein S8.

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

- Molecule 42 is a protein called Small ribosomal subunit protein uS9.

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

- Molecule 43 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	o	99	Total	C	N	O	S	0	0
			790	495	151	143	1		

- Molecule 44 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	p	117	Total	C	N	O	S	0	0
			877	540	174	160	3		

- Molecule 45 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	q	123	Total	C	N	O	S	0	0
			957	591	196	165	5		

- Molecule 46 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	r	116	Total	C	N	O	S	0	0
			900	558	181	158	3		

- Molecule 47 is a protein called Small ribosomal subunit protein uS14.

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

- Molecule 48 is a protein called Small ribosomal subunit protein uS15.

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

- Molecule 49 is a protein called 30S ribosomal protein S16.

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

- Molecule 50 is a protein called Small ribosomal subunit protein uS17.

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

- Molecule 51 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	66	Total	C	N	O	S	0	0
			544	344	102	97	1		

- Molecule 52 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	x	83	Total	C	N	O	S	0	0
			663	424	126	111	2		

- Molecule 53 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	y	86	Total	C	N	O	S	0	0
			669	414	138	114	3		

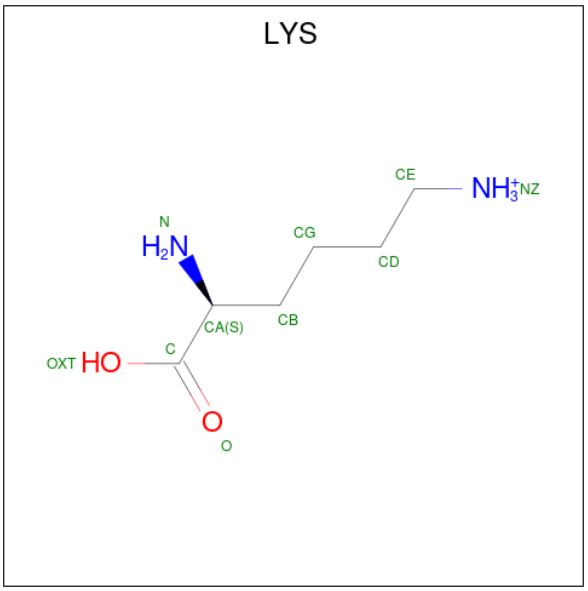
- Molecule 54 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	z	70	Total 589	C 366	N 125	O 97	S 1	0	0

- Molecule 55 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
55	1	295	Total 295	Mg 295	0
55	2	104	Total 104	Mg 104	0
55	3	8	Total 8	Mg 8	0
55	B	1	Total 1	Mg 1	0
55	D	4	Total 4	Mg 4	0
55	M	1	Total 1	Mg 1	0
55	P	1	Total 1	Mg 1	0
55	Q	1	Total 1	Mg 1	0
55	R	1	Total 1	Mg 1	0
55	T	1	Total 1	Mg 1	0
55	X	1	Total 1	Mg 1	0
55	Z	1	Total 1	Mg 1	0
55	b	1	Total 1	Mg 1	0
55	e	3	Total 3	Mg 3	0
55	z	1	Total 1	Mg 1	0

- Molecule 56 is LYSINE (CCD ID: LYS) (formula: $C_6H_{15}N_2O_2$).



Mol	Chain	Residues	Atoms	AltConf
56	5	1	Total C N O 9 6 2 1	0

- Molecule 57 is water.

Mol	Chain	Residues	Atoms	AltConf
57	1	143	Total O 143 143	0
57	2	102	Total O 102 102	0
57	3	5	Total O 5 5	0
57	4	1	Total O 1 1	0
57	5	14	Total O 14 14	0
57	B	2	Total O 2 2	0
57	C	6	Total O 6 6	0
57	D	7	Total O 7 7	0
57	E	8	Total O 8 8	0
57	F	11	Total O 11 11	0
57	G	18	Total O 18 18	0

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Mol	Chain	Residues	Atoms	AltConf
57	J	2	Total O 2 2	0
57	K	4	Total O 4 4	0
57	L	6	Total O 6 6	0
57	M	5	Total O 5 5	0
57	N	4	Total O 4 4	0
57	O	4	Total O 4 4	0
57	P	1	Total O 1 1	0
57	R	7	Total O 7 7	0
57	S	3	Total O 3 3	0
57	T	2	Total O 2 2	0
57	U	1	Total O 1 1	0
57	V	4	Total O 4 4	0
57	W	1	Total O 1 1	0
57	Y	4	Total O 4 4	0
57	a	30	Total O 30 30	0
57	b	1	Total O 1 1	0
57	c	3	Total O 3 3	0
57	g	33	Total O 33 33	0
57	h	13	Total O 13 13	0
57	i	4	Total O 4 4	0
57	j	7	Total O 7 7	0

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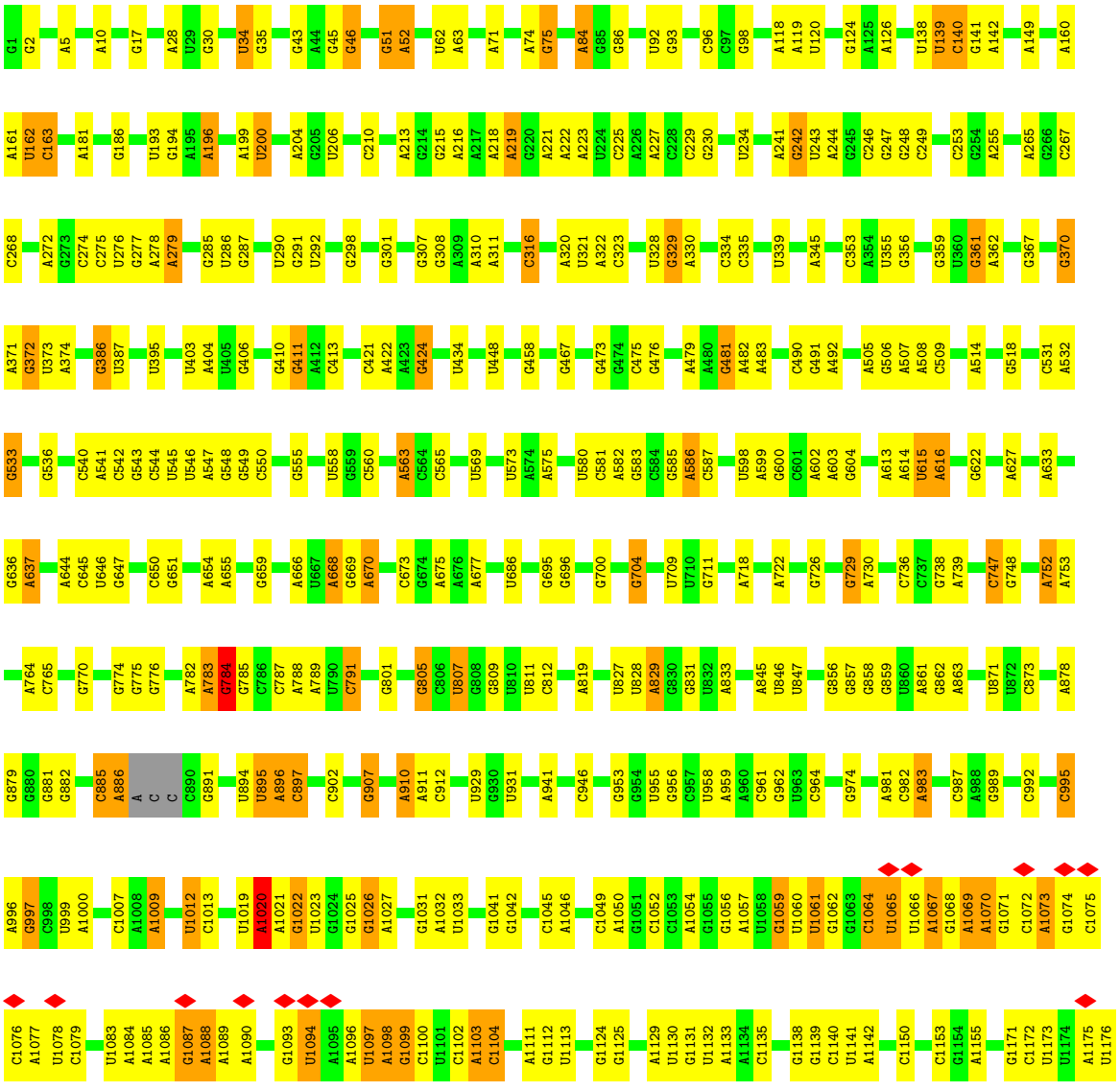
Mol	Chain	Residues	Atoms	AltConf
57	k	8	Total O 8 8	0
57	l	12	Total O 12 12	0
57	m	9	Total O 9 9	0
57	n	5	Total O 5 5	0
57	o	11	Total O 11 11	0
57	p	5	Total O 5 5	0
57	q	5	Total O 5 5	0
57	r	8	Total O 8 8	0
57	s	5	Total O 5 5	0
57	t	4	Total O 4 4	0
57	u	5	Total O 5 5	0
57	v	2	Total O 2 2	0
57	w	9	Total O 9 9	0
57	x	1	Total O 1 1	0
57	y	1	Total O 1 1	0
57	z	14	Total O 14 14	0

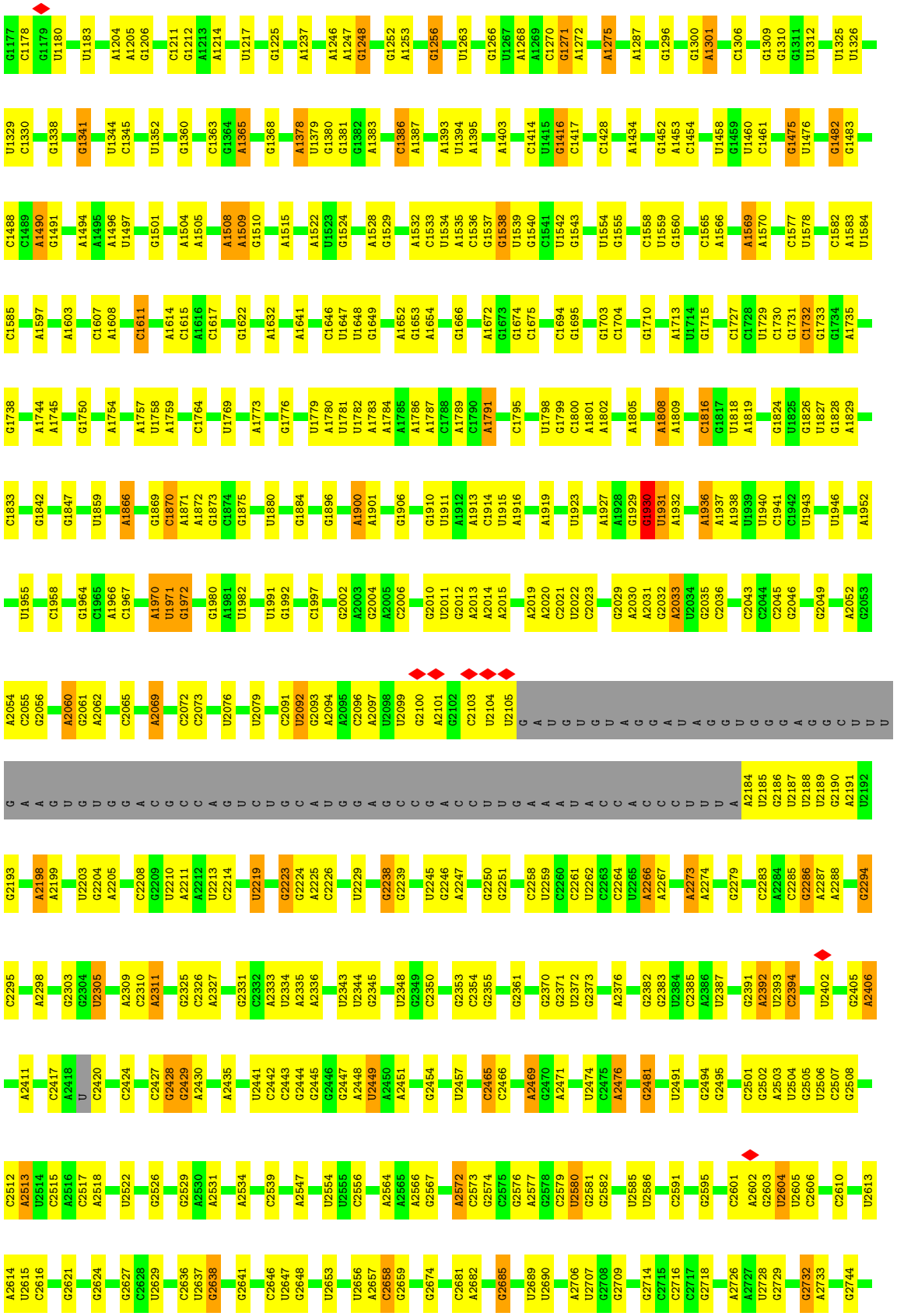
3 Residue-property plots (i)

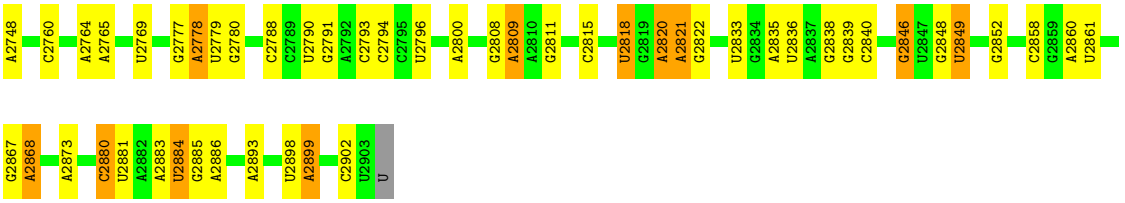
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: 23S ribosomal RNA

Chain 1:

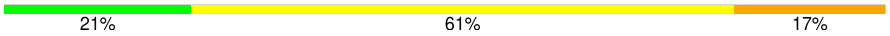


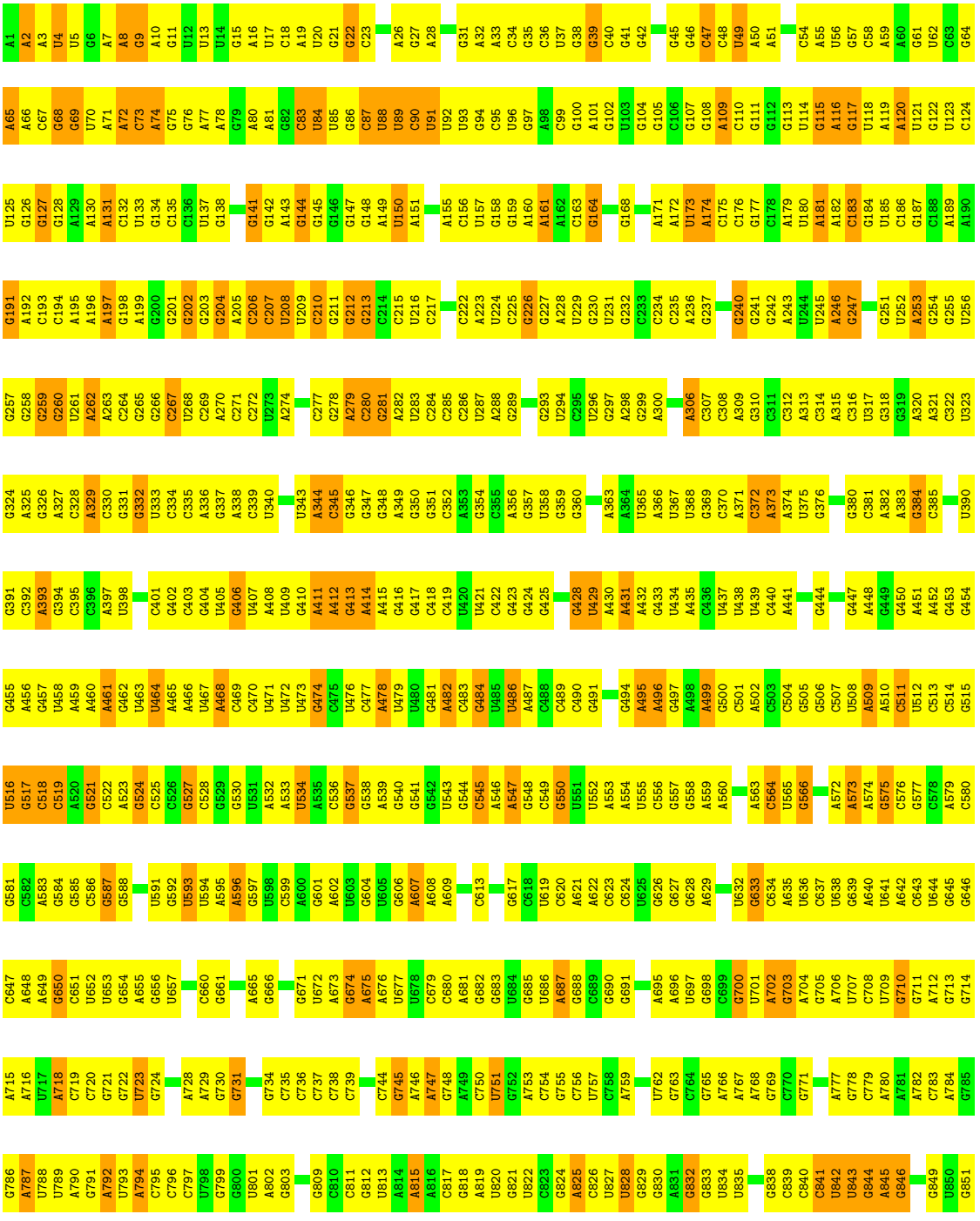


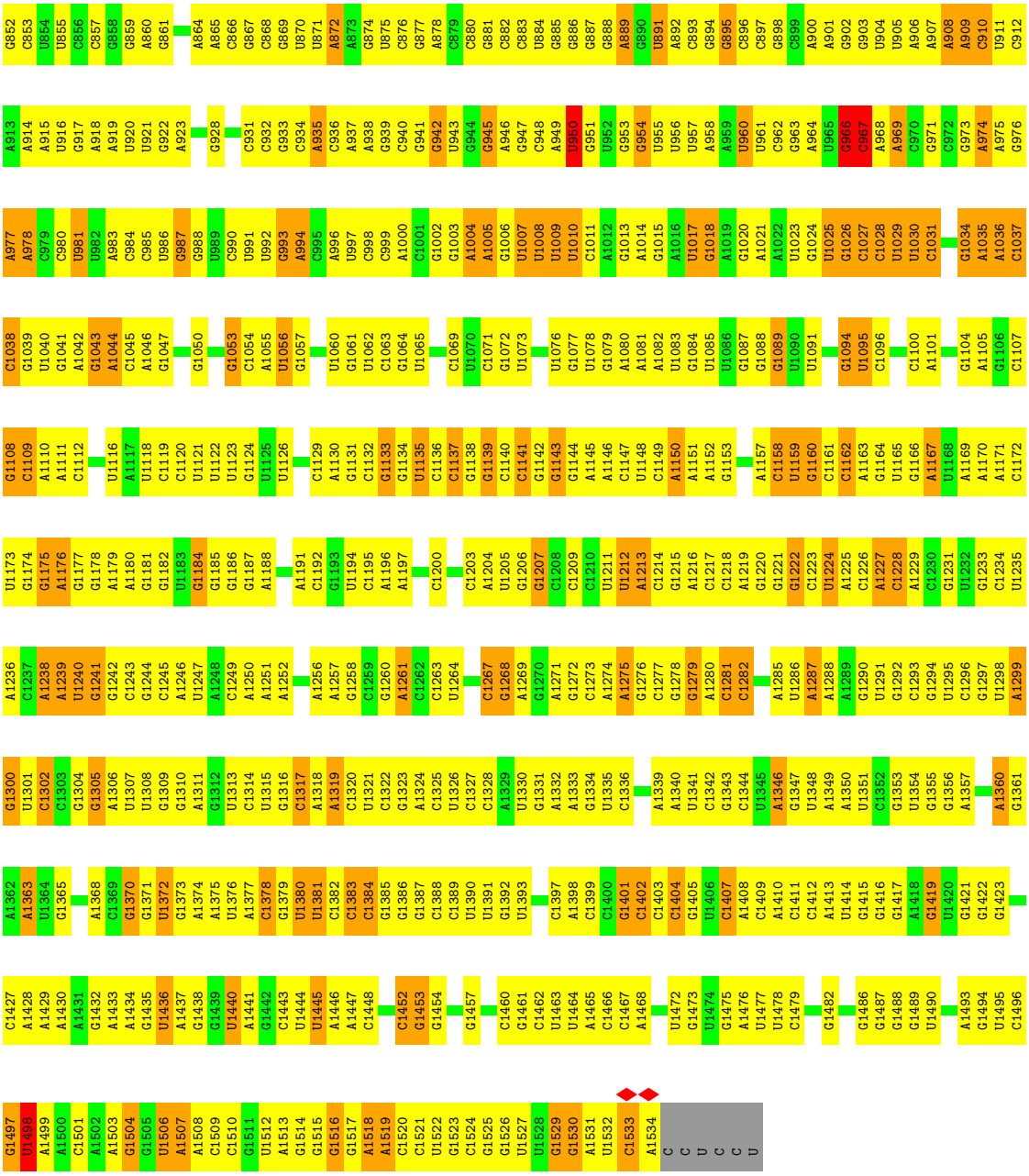


• Molecule 2: 16S ribosomal RNA

Chain 2:

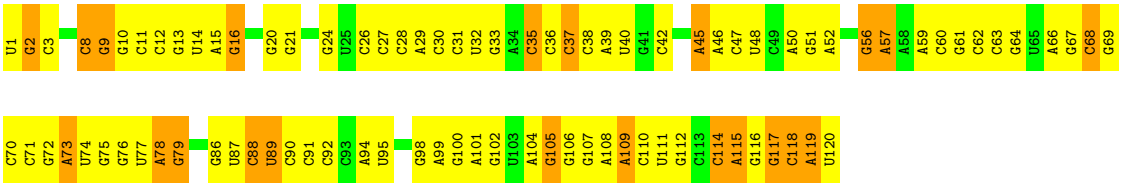






• Molecule 3: 5S ribosomal RNA

Chain 3:

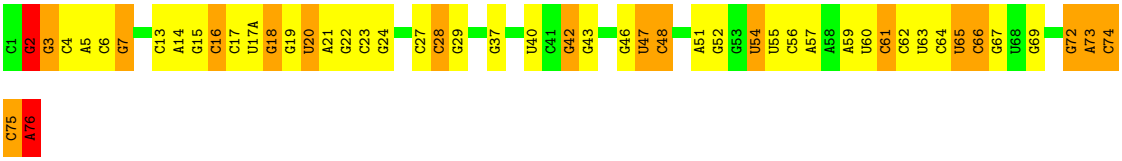


• Molecule 4: mRNA

Chain 4:

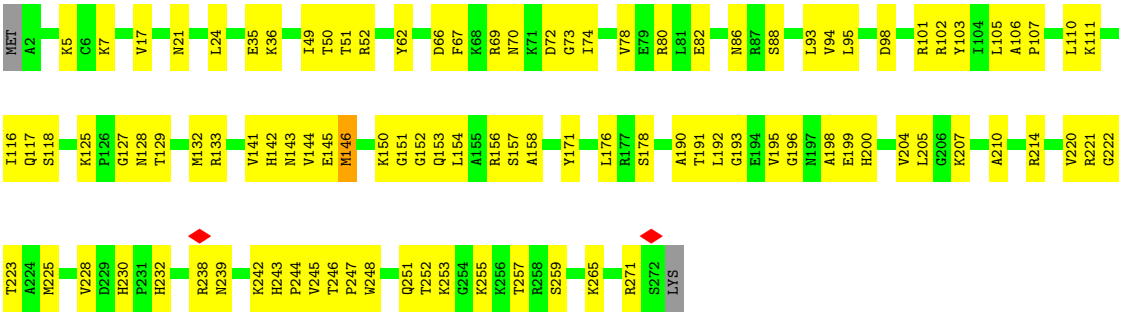
• Molecule 5: tRNA^ProL (GGG)

Chain 5:



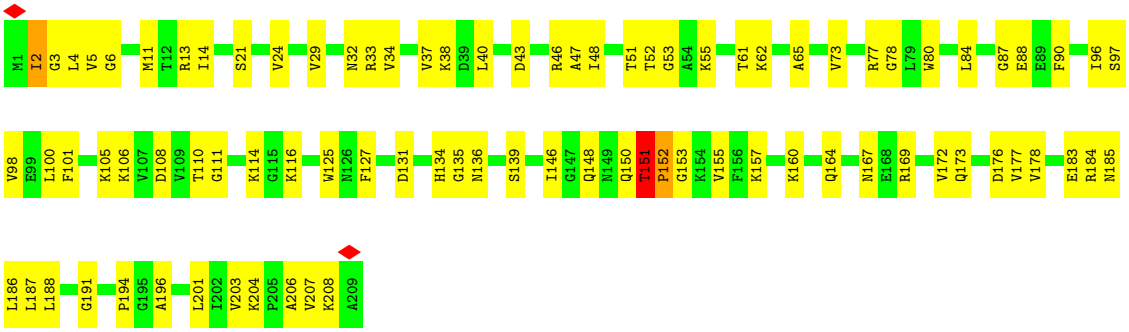
• Molecule 6: 50S ribosomal protein L2

Chain B:



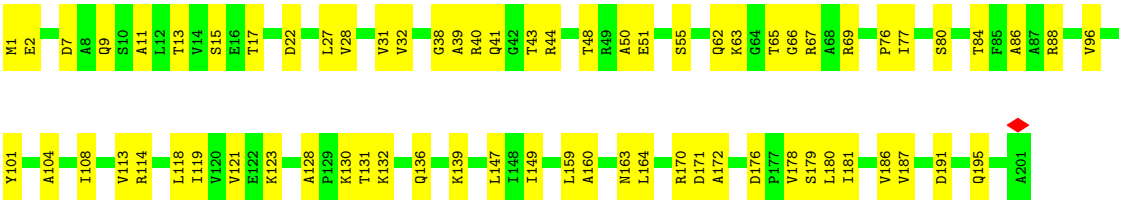
• Molecule 7: 50S ribosomal protein L3

Chain C:



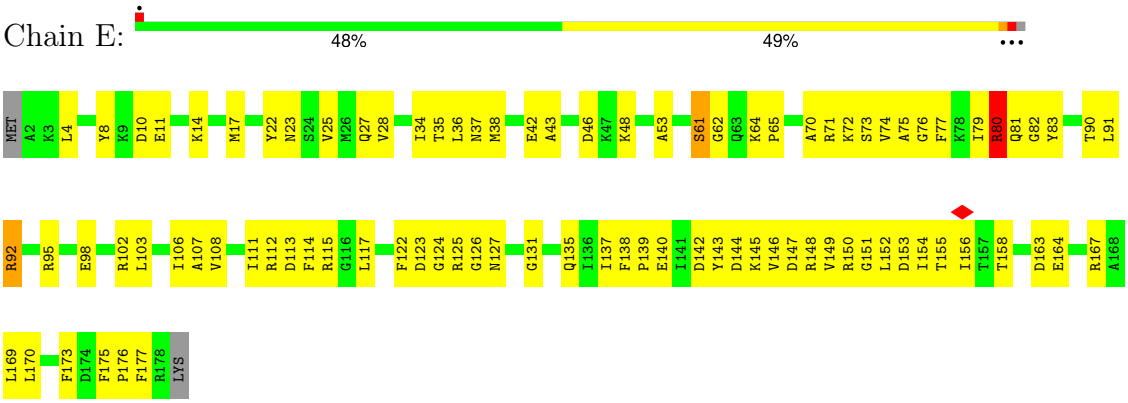
• Molecule 8: 50S ribosomal protein L4

Chain D:



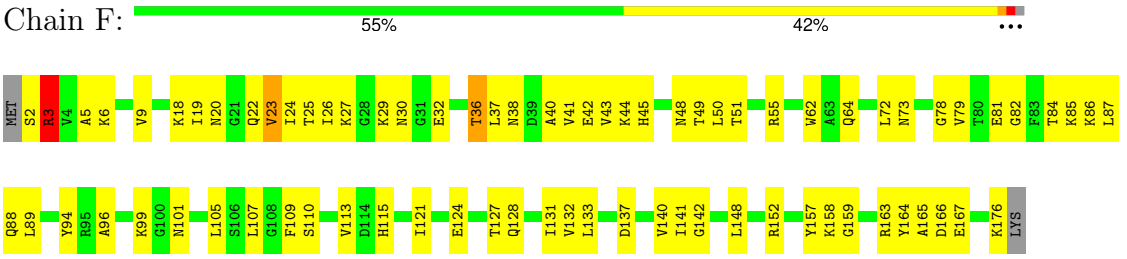
• Molecule 9: 50S ribosomal protein L5

Chain E:



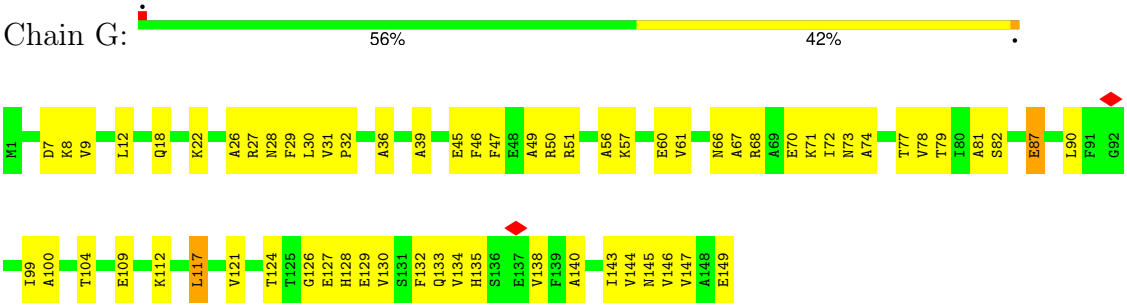
• Molecule 10: 50S ribosomal protein L6

Chain F:



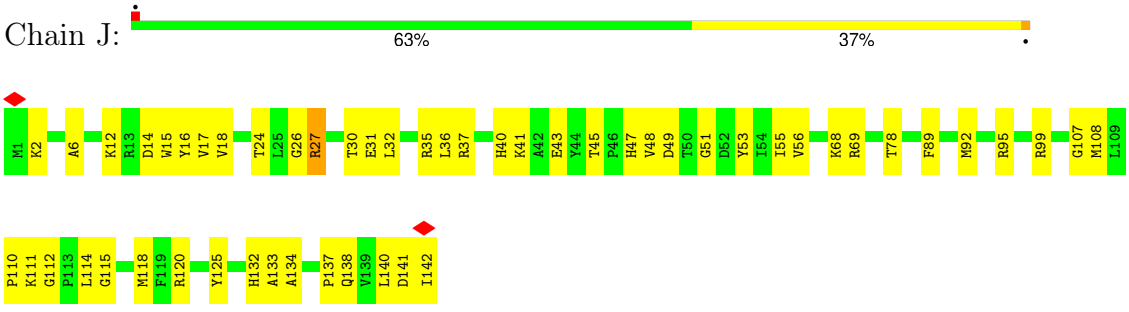
• Molecule 11: Large ribosomal subunit protein bL9

Chain G:



• Molecule 12: 50S ribosomal protein L13

Chain J:

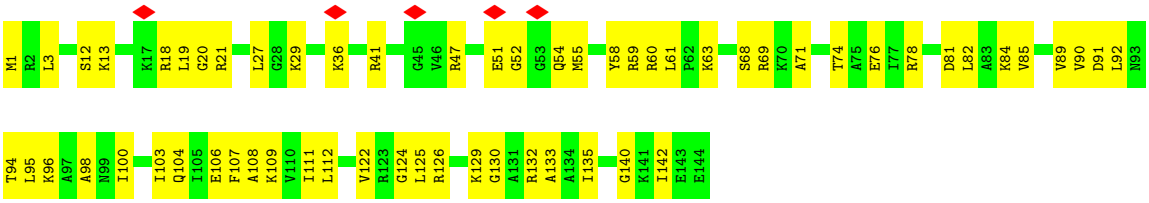


• Molecule 13: 50S ribosomal protein L14

Chain K:

• Molecule 14: 50S ribosomal protein L15

Chain L:

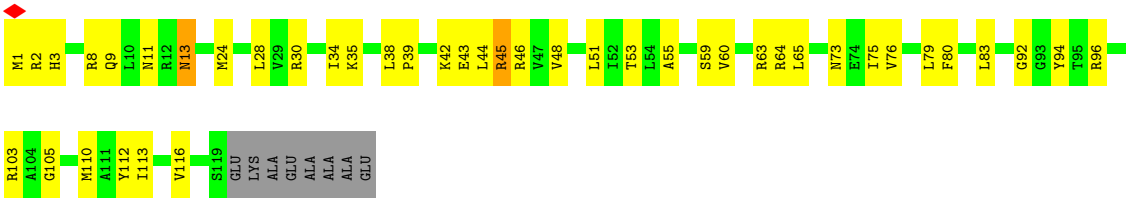


• Molecule 15: 50S ribosomal protein L16

Chain M:

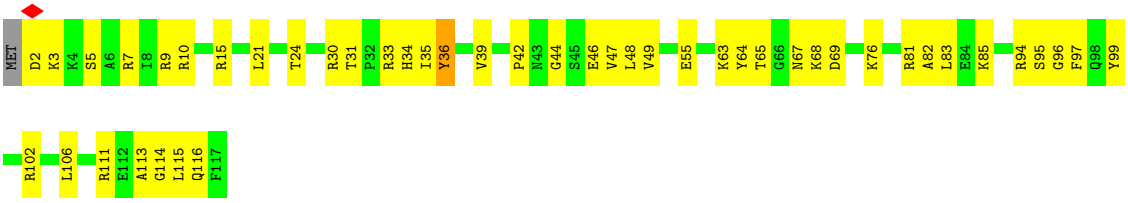
• Molecule 16: Large ribosomal subunit protein bL17

Chain N:



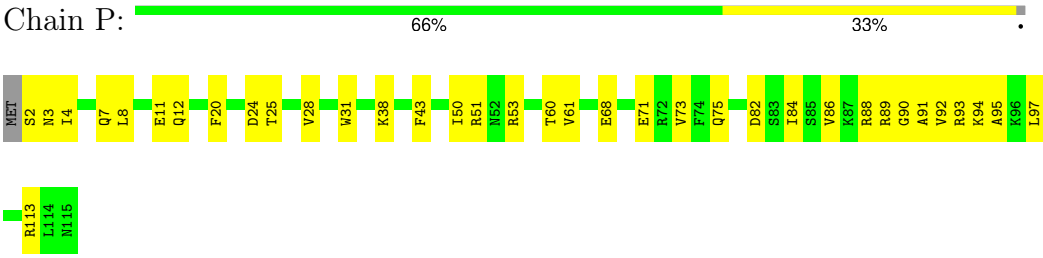
• Molecule 17: 50S ribosomal protein L18

Chain O:



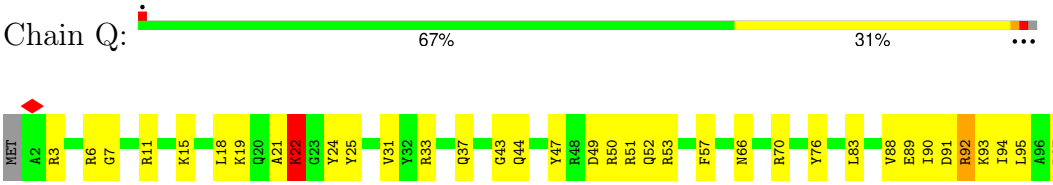
• Molecule 18: 50S ribosomal protein L19

Chain P:



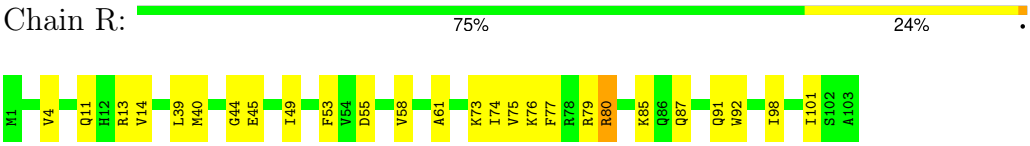
• Molecule 19: 50S ribosomal protein L20

Chain Q:



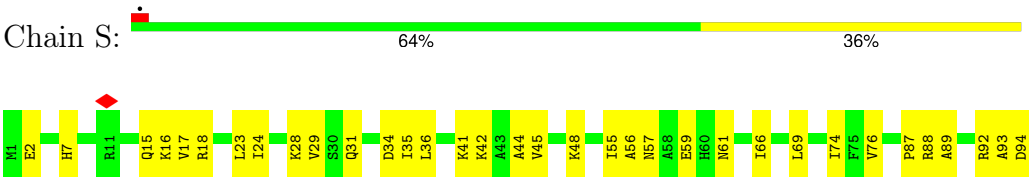
• Molecule 20: Ribosomal protein L21

Chain R:



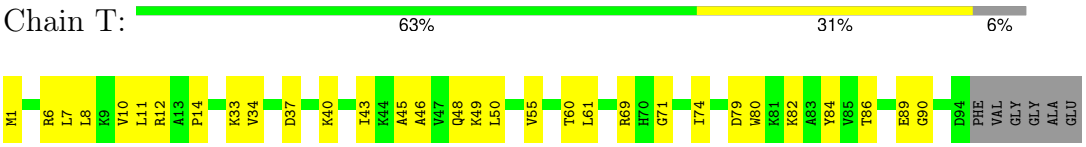
• Molecule 21: 50S ribosomal protein L22

Chain S:



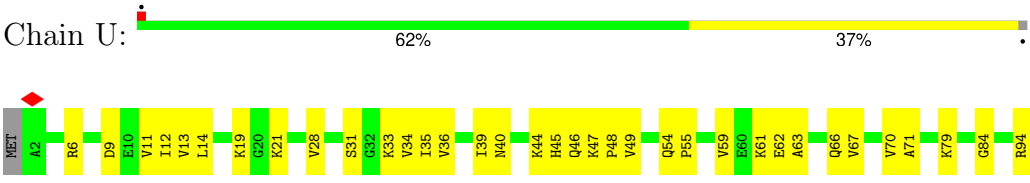
• Molecule 22: 50S ribosomal protein L23

Chain T:



• Molecule 23: 50S ribosomal protein L24

Chain U:



• Molecule 24: 50S ribosomal protein L25

Chain V:

• Molecule 25: Large ribosomal subunit protein bL27

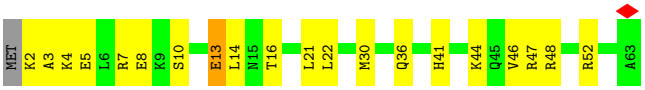
Chain W:

• Molecule 26: 50S ribosomal protein L28

Chain X:

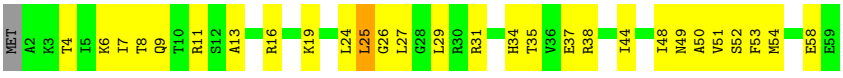
• Molecule 27: 50S ribosomal protein L29

Chain Y:



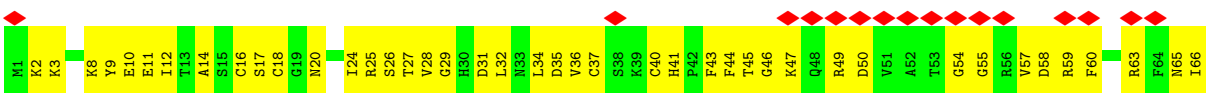
• Molecule 28: Large ribosomal subunit protein uL30

Chain Z:



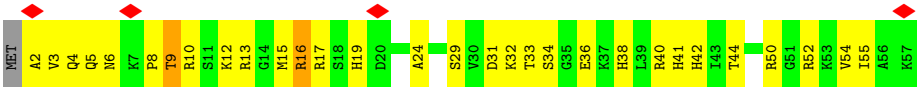
• Molecule 29: 50S ribosomal protein L31

Chain a:



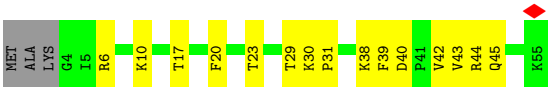
• Molecule 30: 50S ribosomal protein L32

Chain b:



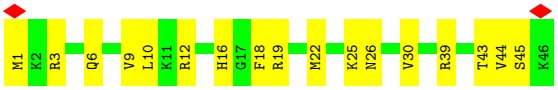
• Molecule 31: Large ribosomal subunit protein bL33

Chain c:



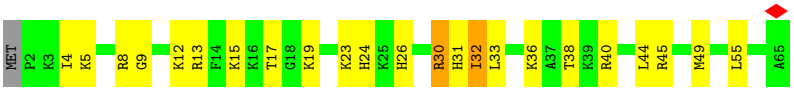
• Molecule 32: 50S ribosomal protein L34

Chain d:



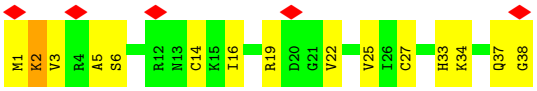
• Molecule 33: 50S ribosomal protein L35

Chain e:



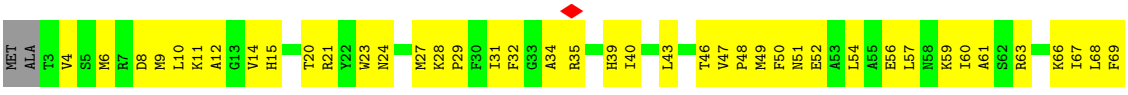
• Molecule 34: 50S ribosomal protein L36

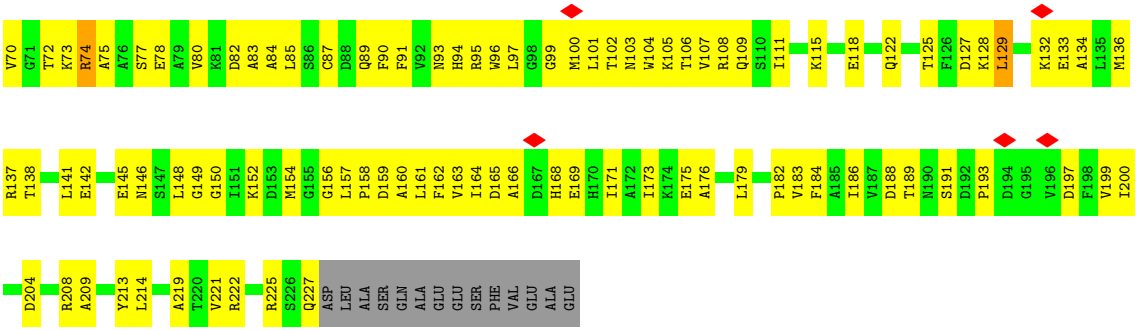
Chain f:



• Molecule 35: 30S ribosomal protein S2

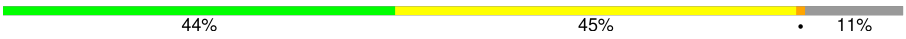
Chain g:

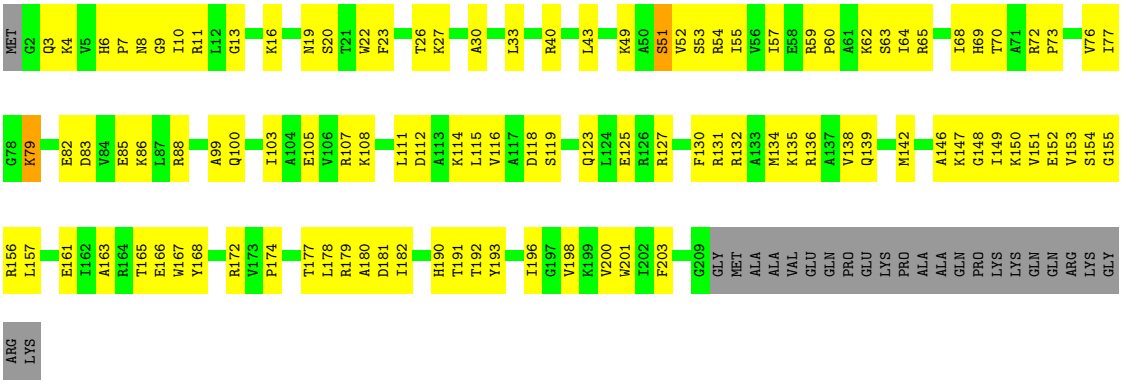




• Molecule 36: 30S ribosomal protein S3

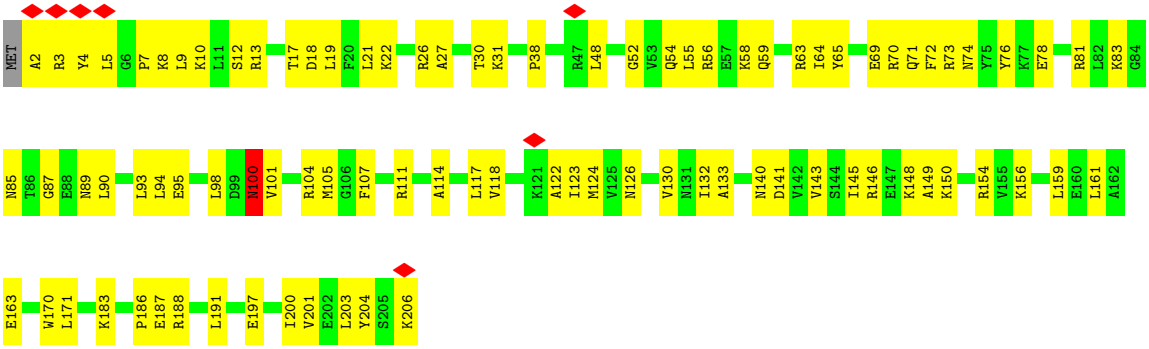
Chain h:





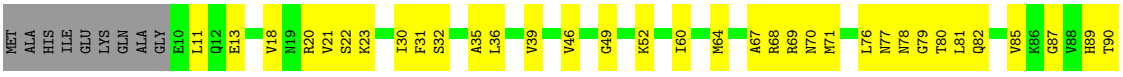
• Molecule 37: 30S ribosomal protein S4

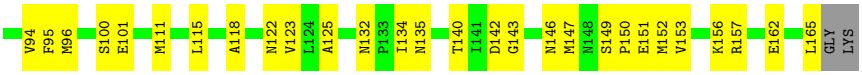
Chain i:



• Molecule 38: 30S ribosomal protein S5

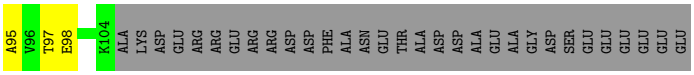
Chain j:





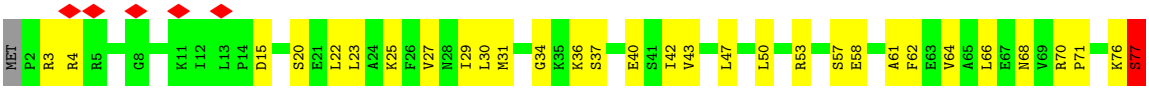
• Molecule 39: 30S ribosomal protein S6

Chain k:



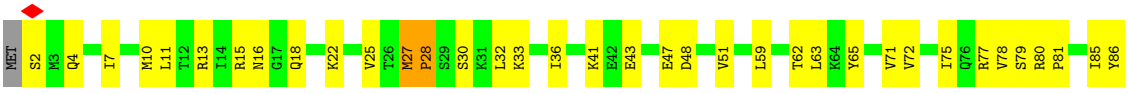
• Molecule 40: 30S ribosomal protein S7

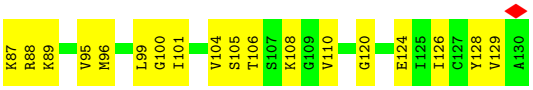
Chain l:



• Molecule 41: 30S ribosomal protein S8

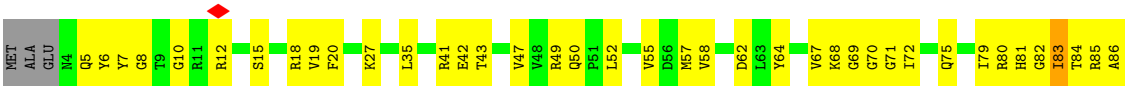
Chain m:





• Molecule 42: Small ribosomal subunit protein uS9

Chain n:

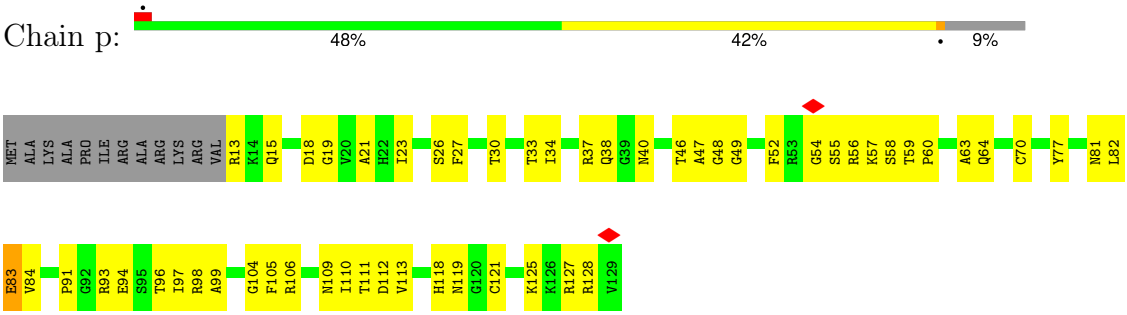


• Molecule 43: 30S ribosomal protein S10

Chain o:

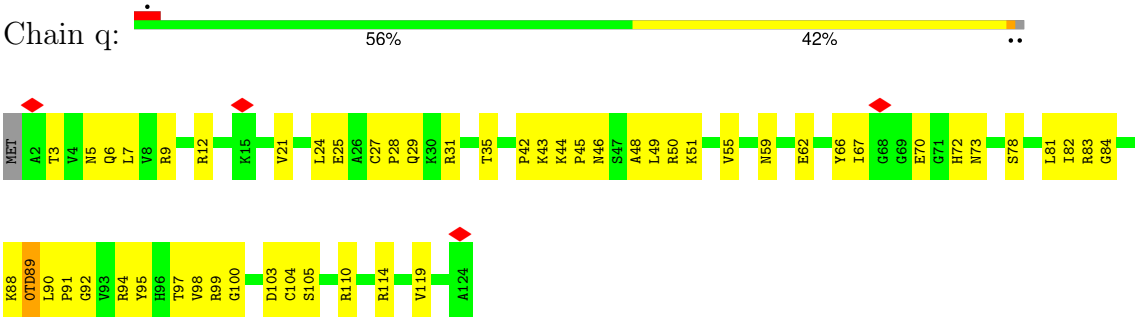
• Molecule 44: 30S ribosomal protein S11

Chain p:



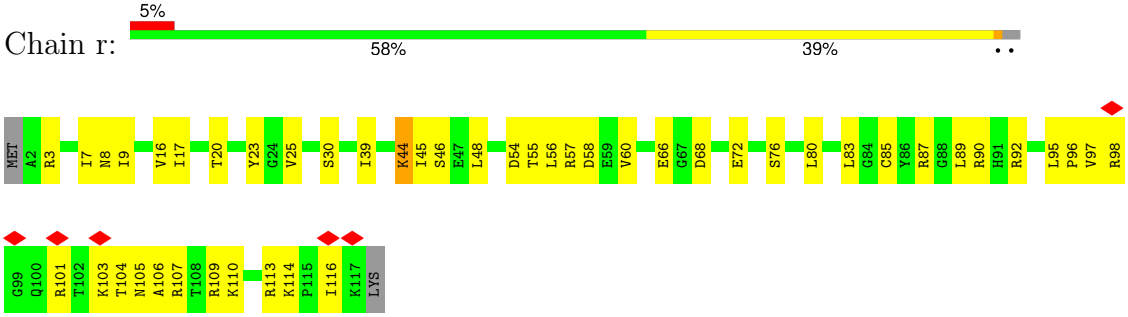
• Molecule 45: Small ribosomal subunit protein uS12

Chain q:



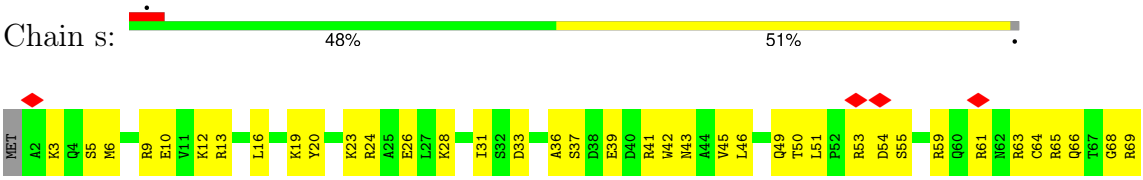
• Molecule 46: 30S ribosomal protein S13

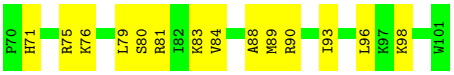
Chain r:



• Molecule 47: Small ribosomal subunit protein uS14

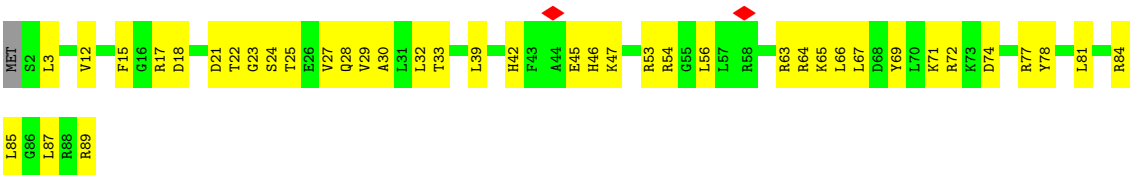
Chain s:





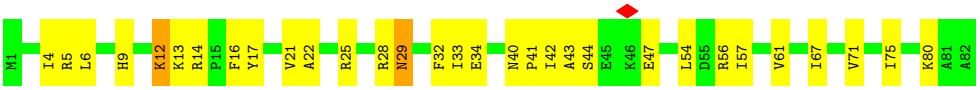
• Molecule 48: Small ribosomal subunit protein uS15

Chain t:



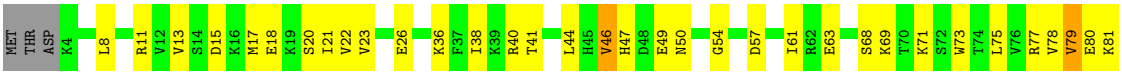
• Molecule 49: 30S ribosomal protein S16

Chain u:



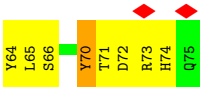
• Molecule 50: Small ribosomal subunit protein uS17

Chain v:



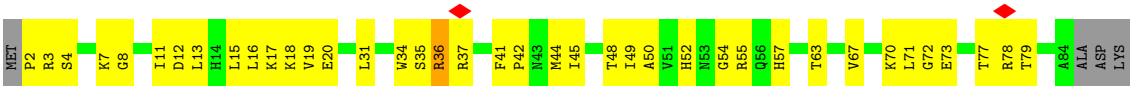
• Molecule 51: 30S ribosomal protein S18

Chain w:



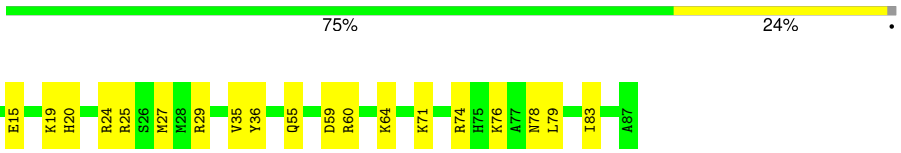
• Molecule 52: 30S ribosomal protein S19

Chain x:



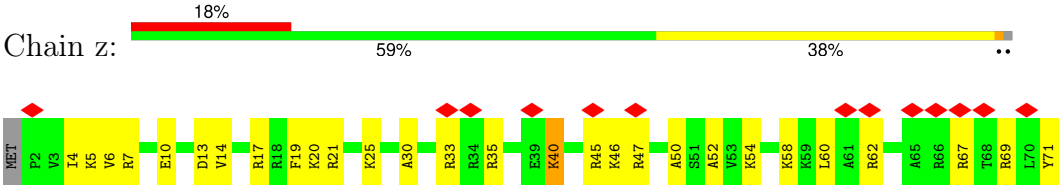
• Molecule 53: 30S ribosomal protein S20

Chain y:



• Molecule 54: 30S ribosomal protein S21

Chain z:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	29634	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	56.07	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.026	Depositor
Minimum map value	-0.015	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.00281	Depositor
Map size (Å)	547.3792, 547.3792, 547.3792	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0691, 1.0691, 1.0691	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PSU, 4OC, 2MG, 0TD, 5MC, G7M, MG, MA6, UR3

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	1	0.40	0/67839	0.45	13/105827 (0.0%)
2	2	0.42	0/36590	0.46	3/57074 (0.0%)
3	3	0.45	0/2872	0.49	0/4478
4	4	0.39	0/160	0.81	0/246
5	5	0.40	1/1841 (0.1%)	0.72	3/2870 (0.1%)
6	B	0.45	1/2121 (0.0%)	0.56	0/2852
7	C	0.74	0/1586	0.83	3/2134 (0.1%)
8	D	0.49	0/1571	0.64	1/2113 (0.0%)
9	E	0.46	0/1434	0.69	1/1926 (0.1%)
10	F	0.63	0/1333	0.71	0/1805
11	G	0.36	0/1122	0.66	0/1515
12	J	0.52	0/1152	0.62	0/1551
13	K	0.44	0/955	0.55	0/1279
14	L	0.67	0/1062	0.79	1/1413 (0.1%)
15	M	0.45	0/1093	0.53	0/1460
16	N	0.54	0/964	0.68	0/1289
17	O	0.45	0/902	0.65	0/1209
18	P	0.44	0/929	0.61	0/1242
19	Q	0.47	0/960	0.63	1/1278 (0.1%)
20	R	0.62	0/829	0.75	0/1107
21	S	0.67	0/864	0.74	0/1156
22	T	0.41	0/752	0.55	0/1005
23	U	0.57	0/796	0.64	0/1062
24	V	0.50	0/766	0.61	0/1025
25	W	0.69	0/582	0.72	0/769
26	X	0.47	0/635	0.58	0/848
27	Y	0.62	0/502	0.83	2/667 (0.3%)
28	Z	0.97	0/452	0.98	0/605
29	a	0.34	0/531	0.64	0/709
30	b	0.57	0/450	0.62	0/599
31	c	0.45	0/433	0.68	1/576 (0.2%)
32	d	0.35	0/380	0.54	0/498

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	e	0.42	0/513	0.63	0/676
34	f	0.44	0/303	0.67	0/397
35	g	0.42	0/1791	0.68	1/2413 (0.0%)
36	h	0.46	0/1663	0.69	0/2241
37	i	0.49	0/1665	0.67	1/2227 (0.0%)
38	j	0.44	0/1165	0.63	0/1568
39	k	0.54	0/867	0.78	1/1171 (0.1%)
40	l	0.48	0/1195	0.81	4/1602 (0.2%)
41	m	0.57	0/989	0.78	1/1326 (0.1%)
42	n	0.45	0/1034	0.67	0/1375
43	o	0.43	0/800	0.73	2/1082 (0.2%)
44	p	0.46	0/893	0.68	1/1205 (0.1%)
45	q	0.55	0/960	0.72	0/1286
46	r	0.43	0/909	0.61	0/1215
47	s	0.36	0/817	0.54	0/1088
48	t	0.43	0/722	0.65	0/964
49	u	0.41	0/659	0.61	0/884
50	v	0.44	0/657	0.65	0/881
51	w	0.58	0/553	0.67	0/743
52	x	0.44	0/680	0.61	0/915
53	y	0.41	0/675	0.56	0/895
54	z	0.42	0/597	0.78	0/792
All	All	0.44	2/154565 (0.0%)	0.52	40/231133 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
7	C	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	146	MET	C-N	-6.26	1.23	1.33
5	5	76	A	C3'-O3'	5.09	1.49	1.42

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	784	G	C2'-C3'-O3'	-11.94	95.79	113.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
40	l	79	ARG	N-CA-C	10.56	124.02	108.60
1	1	1378	A	C2'-C3'-O3'	-10.23	94.16	109.50
14	L	36	LYS	N-CA-C	9.50	124.25	112.47
1	1	1930	G	C4'-C3'-O3'	8.66	122.40	109.40
27	Y	3	ALA	N-CA-C	8.57	120.71	111.36
7	C	151	THR	CA-C-N	8.03	129.88	119.84
7	C	151	THR	C-N-CA	8.03	129.88	119.84
40	l	85	TYR	N-CA-C	-7.83	100.84	111.87
27	Y	4	LYS	N-CA-C	-7.22	103.41	111.28
5	5	2	G	C4'-C3'-O3'	7.16	120.14	109.40
39	k	40	GLU	N-CA-C	6.77	119.13	107.28
41	m	28	PRO	N-CA-C	-6.73	98.60	112.47
2	2	950	U	C4'-C3'-O3'	-6.72	102.92	113.00
1	1	1923	U	C2'-C3'-O3'	-6.61	103.78	113.70
1	1	1923	U	C3'-C2'-O2'	-6.44	101.04	110.70
1	1	1020	A	C4'-C3'-O3'	6.12	118.59	109.40
37	i	100	ASN	N-CA-C	-6.11	104.54	111.14
9	E	80	ARG	N-CA-C	-6.10	99.71	109.96
8	D	132	LYS	N-CA-C	-5.97	104.69	111.14
31	c	43	VAL	CB-CA-C	-5.88	103.49	110.84
43	o	55	PRO	CA-C-N	-5.79	115.55	122.44
43	o	55	PRO	C-N-CA	-5.79	115.55	122.44
1	1	1378	A	C3'-C2'-O2'	-5.75	105.98	114.60
1	1	2604	U	C2'-C3'-O3'	-5.71	105.13	113.70
1	1	138	U	C2'-C3'-O3'	-5.68	105.17	113.70
44	p	15	GLN	N-CA-C	5.58	117.56	108.63
35	g	74	ARG	N-CA-C	-5.56	106.88	113.38
2	2	909	A	C2'-C3'-O3'	-5.54	105.38	113.70
5	5	72	G	C4'-C3'-O3'	5.41	117.51	109.40
1	1	1022	G	C2'-C3'-O3'	5.19	117.29	109.50
40	l	80	VAL	N-CA-C	-5.17	98.60	109.34
2	2	575	G	C3'-C2'-O2'	-5.16	106.87	114.60
1	1	2353	G	C1'-C2'-O2'	5.12	116.09	108.40
5	5	72	G	C2'-C3'-O3'	5.10	117.15	109.50
1	1	242	G	P-O3'-C3'	5.07	127.81	120.20
7	C	153	GLY	N-CA-C	-5.04	108.69	114.69
40	l	77	SER	N-CA-C	5.04	117.35	107.57
19	Q	22	LYS	N-CA-C	5.02	116.97	109.59
1	1	1022	G	C4'-C3'-O3'	5.01	116.92	109.40

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	C	151	THR	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	60570	0	30467	575	0
2	2	32929	0	16587	1373	0
3	3	2569	0	1301	117	0
4	4	145	0	77	5	0
5	5	1648	0	833	22	0
6	B	2082	0	2154	92	0
7	C	1565	0	1616	80	0
8	D	1552	0	1619	73	0
9	E	1410	0	1444	85	0
10	F	1313	0	1358	71	0
11	G	1111	0	1148	63	0
12	J	1129	0	1162	47	0
13	K	946	0	1023	33	0
14	L	1053	0	1129	74	0
15	M	1074	0	1157	42	0
16	N	951	0	994	42	0
17	O	892	0	923	42	0
18	P	917	0	962	36	0
19	Q	947	0	1019	47	0
20	R	816	0	839	21	0
21	S	857	0	922	44	0
22	T	746	0	811	23	0
23	U	788	0	844	29	0
24	V	753	0	780	29	0
25	W	575	0	592	34	0
26	X	625	0	652	23	0
27	Y	501	0	531	16	0
28	Z	448	0	488	30	0
29	a	522	0	524	42	0
30	b	444	0	458	33	0
31	c	426	0	464	16	0
32	d	377	0	418	27	0
33	e	504	0	572	30	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
34	f	302	0	343	17	0
35	g	1760	0	1787	131	0
36	h	1636	0	1710	105	0
37	i	1643	0	1707	87	0
38	j	1152	0	1196	55	0
39	k	848	0	846	42	0
40	l	1181	0	1238	60	0
41	m	979	0	1031	47	0
42	n	1022	0	1070	60	0
43	o	790	0	831	62	0
44	p	877	0	887	54	0
45	q	957	0	1017	50	0
46	r	900	0	965	53	0
47	s	805	0	844	57	0
48	t	714	0	734	37	0
49	u	649	0	666	27	0
50	v	648	0	691	28	0
51	w	544	0	560	44	0
52	x	663	0	688	41	0
53	y	669	0	719	23	0
54	z	589	0	629	33	0
55	1	295	0	0	0	0
55	2	104	0	0	0	0
55	3	8	0	0	0	0
55	B	1	0	0	0	0
55	D	4	0	0	0	0
55	M	1	0	0	0	0
55	P	1	0	0	0	0
55	Q	1	0	0	0	0
55	R	1	0	0	0	0
55	T	1	0	0	0	0
55	X	1	0	0	0	0
55	Z	1	0	0	0	0
55	b	1	0	0	0	0
55	e	3	0	0	0	0
55	z	1	0	0	0	0
56	5	9	0	12	0	0
57	1	143	0	0	38	0
57	2	102	0	0	24	0
57	3	5	0	0	2	0
57	4	1	0	0	1	0
57	5	14	0	0	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
57	B	2	0	0	2	0
57	C	6	0	0	1	0
57	D	7	0	0	6	0
57	E	8	0	0	1	0
57	F	11	0	0	4	0
57	G	18	0	0	8	0
57	J	2	0	0	0	0
57	K	4	0	0	5	0
57	L	6	0	0	2	0
57	M	5	0	0	2	0
57	N	4	0	0	0	0
57	O	4	0	0	0	0
57	P	1	0	0	0	0
57	R	7	0	0	0	0
57	S	3	0	0	1	0
57	T	2	0	0	0	0
57	U	1	0	0	0	0
57	V	4	0	0	1	0
57	W	1	0	0	0	0
57	Y	4	0	0	1	0
57	a	30	0	0	13	0
57	b	1	0	0	0	0
57	c	3	0	0	3	0
57	g	33	0	0	20	0
57	h	13	0	0	8	0
57	i	4	0	0	0	0
57	j	7	0	0	4	0
57	k	8	0	0	2	0
57	l	12	0	0	5	0
57	m	9	0	0	2	0
57	n	5	0	0	0	0
57	o	11	0	0	9	0
57	p	5	0	0	2	0
57	q	5	0	0	1	0
57	r	8	0	0	1	0
57	s	5	0	0	0	0
57	t	4	0	0	1	0
57	u	5	0	0	3	0
57	v	2	0	0	1	0
57	w	9	0	0	6	0
57	x	1	0	0	0	0
57	y	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
57	z	14	0	0	4	0
All	All	143506	0	96039	3784	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 16.

All (3784) 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:w:18:VAL:HB	57:w:102:HOH:O	1.27	1.31
1:1:1460:U:H5”	57:1:3417:HOH:O	1.32	1.28
35:g:115:LYS:HD2	57:g:329:HOH:O	1.42	1.17
35:g:74:ARG:HD2	57:g:313:HOH:O	1.44	1.16
54:z:67:ARG:HB3	57:z:202:HOH:O	1.44	1.16
1:1:2840:C:H5”	16:N:53:THR:HG21	1.20	1.15
24:V:68:LYS:HE3	57:V:104:HOH:O	1.43	1.14
29:a:3:LYS:HA	57:a:111:HOH:O	1.49	1.13
2:2:1036:A:H3’	57:2:1803:HOH:O	1.46	1.12
8:D:2:GLU:HB3	57:D:405:HOH:O	1.49	1.10
51:w:18:VAL:HA	57:w:101:HOH:O	1.52	1.10
1:1:2262:U:H5	25:W:16:SER:HB3	1.16	1.09
1:1:747:C:H1’	21:S:92:ARG:HH22	1.19	1.07
40:l:131:LYS:HD2	57:l:210:HOH:O	1.53	1.07
41:m:89:LYS:HE3	57:m:209:HOH:O	1.55	1.06
1:1:1173:U:H5”	57:1:3345:HOH:O	1.56	1.06
35:g:225:ARG:HD2	57:g:312:HOH:O	1.56	1.04
1:1:2294:G:C5’	17:O:10:ARG:HD3	1.88	1.04
29:a:8:LYS:HB2	57:a:106:HOH:O	1.54	1.04
11:G:46:PHE:O	11:G:50:ARG:HB3	1.57	1.04
11:G:72:ILE:HG13	57:G:210:HOH:O	1.58	1.03
1:1:2294:G:H5”	17:O:10:ARG:CD	1.89	1.02
11:G:129:GLU:HG2	57:G:214:HOH:O	1.56	1.02
9:E:62:GLY:HA3	9:E:95:ARG:NH2	1.75	1.02
1:1:2444:G:P	8:D:62:GLN:HE21	1.83	1.01
49:u:80:LYS:HG2	57:u:103:HOH:O	1.62	1.00
8:D:11:ALA:HB1	57:D:402:HOH:O	1.62	0.99
43:o:86:ALA:HB1	57:o:208:HOH:O	1.63	0.98
1:1:1094:U:H4’	57:1:3332:HOH:O	1.62	0.98
1:1:615:U:O4	8:D:39:ALA:HB2	1.63	0.98
1:1:1069:A:H5”	57:1:3302:HOH:O	1.64	0.98
2:2:89:U:H2’	57:2:1809:HOH:O	1.64	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:886:A:C6	46:r:92:ARG:NH2	2.32	0.97
1:1:1099:G:P	57:1:3303:HOH:O	2.21	0.97
1:1:752:A:O5'	32:d:1:MET:HE1	1.65	0.97
36:h:62:LYS:HE2	57:h:306:HOH:O	1.63	0.97
1:1:533:G:H5'	19:Q:24:TYR:CE1	2.00	0.95
29:a:43:PHE:HB3	57:a:122:HOH:O	1.65	0.95
1:1:2262:U:C5	25:W:16:SER:HB3	2.03	0.94
44:p:13:ARG:HG2	57:p:202:HOH:O	1.68	0.93
35:g:52:GLU:HG3	57:g:318:HOH:O	1.69	0.93
39:k:56:LYS:HE2	57:k:201:HOH:O	1.66	0.93
1:1:873:C:H4'	15:M:64:TRP:NE1	1.83	0.93
9:E:62:GLY:HA3	9:E:95:ARG:HH21	1.30	0.93
11:G:49:ALA:HB1	57:G:205:HOH:O	1.69	0.93
2:2:202:G:HO2'	2:2:468:A:H8	1.02	0.93
43:o:5:ARG:HG2	57:o:205:HOH:O	1.68	0.93
1:1:636:G:N1	14:L:111:ILE:HD11	1.83	0.92
2:2:93:U:H5"	57:2:1833:HOH:O	1.69	0.92
49:u:80:LYS:HD3	57:u:105:HOH:O	1.67	0.92
1:1:873:C:H4'	15:M:64:TRP:HE1	1.33	0.92
2:2:950:U:H3	2:2:1231:G:H1	1.16	0.92
2:2:1036:A:P	57:2:1803:HOH:O	2.27	0.92
1:1:2577:A:H2	30:b:2:ALA:N	1.67	0.91
1:1:2577:A:C2	30:b:2:ALA:N	2.39	0.91
2:2:1005:A:H3'	2:2:1006:G:H8	1.34	0.91
42:n:84:THR:HG21	42:n:103:PHE:HB3	1.52	0.91
1:1:1077:A:C6	57:1:3323:HOH:O	2.23	0.90
6:B:17:VAL:HG22	6:B:204:VAL:HG22	1.53	0.90
10:F:45:HIS:CE1	57:F:203:HOH:O	2.23	0.90
57:2:1820:HOH:O	51:w:10:PHE:HD1	1.53	0.90
2:2:842:U:H2'	2:2:844:G:H5'	1.54	0.90
35:g:8:ASP:HB2	57:g:301:HOH:O	1.71	0.90
1:1:747:C:H1'	21:S:92:ARG:NH2	1.87	0.89
1:1:2659:G:OP1	10:F:158:LYS:HD2	1.71	0.89
2:2:1081:A:N7	38:j:52:LYS:NZ	2.20	0.89
7:C:2:ILE:HD13	7:C:90:PHE:HE1	1.37	0.88
1:1:2574:G:O2'	7:C:148:GLN:HB3	1.73	0.88
36:h:11:ARG:HH12	36:h:182:ILE:HG12	1.38	0.88
2:2:448:A:H62	2:2:486:U:H3	0.90	0.88
2:2:448:A:N6	2:2:486:U:H3	1.72	0.87
20:R:14:VAL:HG21	20:R:98:ILE:HG13	1.55	0.86
2:2:888:G:H2'	2:2:909:A:H61	1.40	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:C:5:VAL:H	7:C:32:ASN:HD21	1.18	0.86
1:1:2305:U:O2	9:E:151:GLY:HA3	1.74	0.86
11:G:77:THR:HA	11:G:143:ILE:O	1.76	0.86
2:2:552:U:H2'	2:2:553:A:H8	1.41	0.86
2:2:458:U:H3	2:2:474:G:H1	1.20	0.85
6:B:69:ARG:HG2	6:B:129:THR:HG21	1.56	0.85
1:1:1074:G:C8	57:1:3361:HOH:O	2.30	0.85
1:1:2840:C:C5'	16:N:53:THR:HG21	2.03	0.85
8:D:147:LEU:HB3	8:D:186:VAL:HG12	1.58	0.85
2:2:841:C:H2'	2:2:843:U:H5'	1.59	0.85
2:2:409:U:H3	2:2:433:G:H1	1.22	0.84
1:1:1073:A:C6	57:1:3302:HOH:O	2.31	0.84
7:C:55:LYS:HB2	7:C:77:ARG:HA	1.59	0.84
42:n:118:LEU:HD22	42:n:124:ARG:HG2	1.59	0.84
45:q:92:GLY:HA2	57:q:202:HOH:O	1.77	0.84
29:a:54:GLY:HA3	57:a:121:HOH:O	1.77	0.83
2:2:222:C:H2'	2:2:223:A:H8	1.43	0.83
57:B:401:HOH:O	11:G:121:VAL:HG21	1.78	0.83
1:1:124:G:C5	32:d:19:ARG:NH2	2.47	0.83
9:E:140:GLU:HA	29:a:28:VAL:HG22	1.61	0.83
2:2:1005:A:H3'	2:2:1006:G:C8	2.14	0.82
2:2:1218:C:H2'	2:2:1219:A:H8	1.43	0.82
48:t:33:THR:HG22	48:t:63:ARG:HH11	1.45	0.82
48:t:17:ARG:HD2	57:t:103:HOH:O	1.78	0.82
1:1:96:C:H4'	27:Y:41:HIS:CE1	2.14	0.82
2:2:231:U:H2'	2:2:232:G:H8	1.44	0.82
39:k:56:LYS:CE	57:k:201:HOH:O	2.24	0.82
1:1:636:G:C2	14:L:111:ILE:HD11	2.14	0.82
35:g:21:ARG:HD3	57:g:302:HOH:O	1.79	0.82
1:1:650:C:H5"	33:e:49:MET:HE2	1.62	0.82
1:1:995:C:N3	19:Q:57:PHE:HE1	1.77	0.82
31:c:17:THR:HG21	31:c:42:VAL:HG11	1.61	0.81
35:g:129:LEU:HD23	57:g:311:HOH:O	1.79	0.81
1:1:96:C:O5'	27:Y:41:HIS:HE1	1.61	0.81
2:2:1151:A:HO2'	2:2:1152:A:H8	1.26	0.81
23:U:34:VAL:HG13	23:U:67:VAL:HG22	1.62	0.81
1:1:2394:C:H5"	14:L:63:LYS:HE2	1.62	0.81
35:g:118:GLU:O	35:g:122:GLN:HB3	1.79	0.81
1:1:910:A:C4	15:M:13:HIS:CD2	2.69	0.81
38:j:111:MET:HG3	38:j:140:THR:HG21	1.62	0.81
2:2:1218:C:H2'	2:2:1219:A:C8	2.17	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:i:124:MET:HE3	37:i:146:ARG:HE	1.45	0.80
1:1:124:G:C8	32:d:19:ARG:NH2	2.49	0.80
9:E:147:ASP:OD1	9:E:148:ARG:N	2.14	0.80
1:1:1088:A:C2	57:1:3323:HOH:O	2.35	0.80
2:2:946:A:H2'	2:2:947:G:C8	2.16	0.80
35:g:183:VAL:HG13	35:g:197:ASP:H	1.47	0.80
25:W:37:ILE:HG22	25:W:38:VAL:HG13	1.64	0.80
2:2:958:A:N7	52:x:55:ARG:NE	2.30	0.80
1:1:96:C:O5'	27:Y:41:HIS:CE1	2.34	0.80
1:1:613:A:C2	57:1:3348:HOH:O	2.33	0.79
2:2:501:C:H2'	2:2:502:A:H8	1.47	0.79
22:T:34:VAL:HG21	22:T:43:ILE:HD11	1.64	0.79
1:1:1537:G:C5	57:1:3320:HOH:O	2.33	0.79
1:1:1798:U:H5'	6:B:257:THR:OG1	1.80	0.79
1:1:2294:G:H5"	17:O:10:ARG:HD3	0.93	0.79
1:1:886:A:N1	46:r:92:ARG:NH2	2.31	0.79
10:F:124:GLU:HB2	10:F:132:VAL:HB	1.64	0.79
2:2:429:U:H5'	37:i:9:LEU:HD11	1.65	0.78
1:1:958:U:H2'	3:3:89:U:O2	1.83	0.78
1:1:1614:A:C2	21:S:93:ALA:HB2	2.19	0.78
11:G:104:THR:HG23	11:G:109:GLU:HA	1.66	0.78
21:S:59:GLU:HG3	21:S:66:ILE:HD11	1.65	0.78
1:1:1795:C:O2	6:B:253:LYS:HE2	1.84	0.78
39:k:29:ILE:HD13	39:k:64:VAL:HG21	1.65	0.78
49:u:4:ILE:HG12	49:u:21:VAL:HG22	1.66	0.78
1:1:533:G:H5'	19:Q:24:TYR:CD1	2.18	0.77
2:2:1038:C:H2'	2:2:1039:G:H8	1.49	0.77
31:c:44:ARG:O	31:c:45:GLN:NE2	2.18	0.77
2:2:878:A:H5"	41:m:81:PRO:HB2	1.65	0.77
2:2:946:A:H2'	2:2:947:G:H8	1.49	0.77
6:B:246:THR:HG23	6:B:248:TRP:H	1.49	0.77
1:1:2021:C:OP1	30:b:9:THR:HG21	1.85	0.77
1:1:518:G:H4'	21:S:18:ARG:NH2	2.00	0.77
2:2:918:A:H2'	2:2:919:A:C8	2.20	0.77
29:a:66:ILE:HG22	57:a:128:HOH:O	1.83	0.77
2:2:1149:C:H2'	2:2:1150:A:H8	1.48	0.76
44:p:64:GLN:HB2	44:p:99:ALA:HB2	1.67	0.76
1:1:359:G:H5'	57:1:3367:HOH:O	1.84	0.76
2:2:620:C:C2	37:i:132:ILE:HG12	2.20	0.76
31:c:45:GLN:CG	57:c:102:HOH:O	2.32	0.76
40:l:79:ARG:HB2	40:l:83:SER:HA	1.66	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1036:A:C5'	57:2:1803:HOH:O	2.32	0.76
37:i:54:GLN:HB3	37:i:203:LEU:HB2	1.66	0.76
1:1:910:A:C5	15:M:13:HIS:CD2	2.74	0.76
42:n:88:MET:SD	42:n:95:ARG:NH2	2.58	0.76
51:w:28:THR:HA	51:w:31:ASN:HD22	1.49	0.76
1:1:2355:G:H4'	25:W:24:LYS:HD2	1.68	0.76
1:1:2376:A:N3	17:O:111:ARG:NH1	2.34	0.76
23:U:35:ILE:HD11	23:U:62:GLU:HB3	1.68	0.76
48:t:29:VAL:HG23	48:t:63:ARG:HG3	1.68	0.75
43:o:27:GLU:HG2	57:o:202:HOH:O	1.87	0.75
2:2:1029:U:C6	57:2:1851:HOH:O	2.38	0.75
2:2:1040:U:H2'	2:2:1041:G:C8	2.21	0.75
16:N:2:ARG:O	16:N:2:ARG:HD3	1.86	0.75
7:C:14:ILE:HD12	18:P:12:GLN:HE22	1.52	0.74
2:2:1149:C:H2'	2:2:1150:A:C8	2.22	0.74
35:g:188:ASP:OD1	35:g:189:THR:N	2.20	0.74
41:m:10:MET:HB2	41:m:33:LYS:HE2	1.70	0.74
1:1:666:A:H1'	33:e:4:ILE:CD1	2.17	0.74
17:O:76:LYS:HD2	17:O:113:ALA:HB2	1.69	0.74
24:V:70:ILE:HD12	24:V:93:ARG:HE	1.53	0.74
1:1:1173:U:H6	57:1:3345:HOH:O	1.69	0.74
1:1:2512:C:H4'	7:C:127:PHE:CE2	2.23	0.74
1:1:616:A:H4'	8:D:101:TYR:HE2	1.53	0.74
2:2:269:C:H2'	2:2:270:A:H8	1.52	0.74
2:2:501:C:H2'	2:2:502:A:C8	2.22	0.74
15:M:57:VAL:HG12	15:M:60:GLN:HB3	1.67	0.74
2:2:606:G:N2	2:2:633:G:N7	2.35	0.74
1:1:2054:A:H2'	30:b:5:GLN:HE22	1.53	0.73
1:1:2444:G:OP1	8:D:62:GLN:NE2	2.20	0.73
10:F:105:LEU:HD12	10:F:107:LEU:HD21	1.68	0.73
2:2:434:U:H2'	2:2:435:A:H8	1.53	0.73
37:i:83:LYS:O	37:i:89:ASN:ND2	2.22	0.73
2:2:1229:A:OP2	46:r:113:ARG:NH1	2.21	0.73
13:K:64:ARG:NE	18:P:68:GLU:OE1	2.21	0.73
29:a:16:CYS:SG	29:a:17:SER:N	2.61	0.73
1:1:2444:G:P	8:D:62:GLN:NE2	2.60	0.73
2:2:459:A:H2'	2:2:460:A:C8	2.23	0.73
1:1:616:A:H4'	8:D:101:TYR:CE2	2.23	0.73
2:2:372:C:N4	2:2:390:U:O2	2.21	0.73
2:2:448:A:N7	2:2:486:U:O4	2.22	0.73
2:2:1055:A:O2'	36:h:156:ARG:NH1	2.21	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:g:111:ILE:HD12	35:g:152:LYS:HA	1.68	0.73
50:v:83:VAL:C	57:v:102:HOH:O	2.32	0.73
1:1:2838:G:O3'	16:N:46:ARG:HG2	1.89	0.73
2:2:337:G:H2'	2:2:338:A:C8	2.23	0.73
1:1:2443:C:O3'	8:D:62:GLN:NE2	2.22	0.73
14:L:58:TYR:O	33:e:13:ARG:NH2	2.22	0.73
35:g:133:GLU:OE2	35:g:137:ARG:NH1	2.21	0.73
1:1:2512:C:O3'	7:C:127:PHE:CZ	2.41	0.73
1:1:1065:U:N3	57:1:3301:HOH:O	2.20	0.72
2:2:1100:C:OP1	54:z:69:ARG:NH1	2.22	0.72
12:J:132:HIS:O	12:J:134:ALA:N	2.22	0.72
13:K:105:ARG:NH2	13:K:122:VAL:O	2.23	0.72
1:1:833:A:O2'	14:L:51:GLU:HG2	1.89	0.72
2:2:279:A:H4'	2:2:280:C:H5"	1.70	0.72
2:2:501:C:OP1	45:q:114:ARG:NH2	2.23	0.72
9:E:108:VAL:HG11	9:E:176:PRO:HG2	1.70	0.72
2:2:345:C:O2	2:2:346:G:N2	2.22	0.72
2:2:382:A:H2'	2:2:383:A:C8	2.25	0.72
1:1:320:A:C2	8:D:164:LEU:HD23	2.24	0.72
2:2:183:C:H4'	57:2:1900:HOH:O	1.90	0.72
2:2:1228:C:H2'	2:2:1229:A:H8	1.54	0.72
1:1:1073:A:N1	57:1:3302:HOH:O	2.23	0.72
2:2:1228:C:OP2	46:r:110:LYS:NZ	2.20	0.72
1:1:2526:G:O2'	34:f:1:MET:HB2	1.89	0.72
17:O:33:ARG:O	17:O:34:HIS:ND1	2.22	0.72
2:2:564:C:OP1	45:q:12:ARG:NH1	2.22	0.72
2:2:966:2MG:HM21	42:n:129:LYS:HD2	1.71	0.72
9:E:70:ALA:HB3	9:E:82:GLY:H	1.53	0.72
2:2:966:2MG:O2'	2:2:967:5MC:O5'	2.08	0.72
5:5:3:G:H4'	57:5:202:HOH:O	1.89	0.72
12:J:92:MET:SD	12:J:95:ARG:NH1	2.63	0.72
29:a:25:ARG:HD2	57:a:108:HOH:O	1.90	0.72
38:j:157:ARG:NH2	41:m:43:GLU:OE2	2.22	0.71
2:2:450:G:H4'	49:u:41:PRO:HB2	1.72	0.71
35:g:43:LEU:HA	35:g:46:THR:HG22	1.72	0.71
41:m:13:ARG:HH12	41:m:28:PRO:HD3	1.54	0.71
2:2:1533:C:O2	54:z:47:ARG:NH2	2.22	0.71
11:G:7:ASP:CG	57:G:201:HOH:O	2.34	0.71
41:m:89:LYS:HB3	57:m:209:HOH:O	1.91	0.71
27:Y:10:SER:O	27:Y:13:GLU:N	2.24	0.71
37:i:85:ASN:OD1	37:i:87:GLY:N	2.22	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:752:A:P	32:d:1:MET:HE1	2.31	0.71
6:B:244:PRO:O	6:B:251:GLN:NE2	2.23	0.71
38:j:162:GLU:HG3	57:j:205:HOH:O	1.89	0.71
2:2:269:C:H2'	2:2:270:A:C8	2.24	0.71
29:a:18:CYS:HB2	29:a:40:CYS:HB3	1.70	0.71
54:z:4:ILE:HD13	54:z:19:PHE:HB2	1.72	0.71
1:1:320:A:N1	8:D:164:LEU:CD2	2.54	0.71
2:2:434:U:H2'	2:2:435:A:C8	2.25	0.71
1:1:563:A:OP2	20:R:79:ARG:NH2	2.24	0.71
2:2:796:C:O3'	44:p:127:ARG:NH2	2.24	0.71
36:h:125:GLU:O	36:h:127:ARG:NH2	2.24	0.71
48:t:12:VAL:HG21	48:t:22:THR:HG22	1.73	0.71
1:1:886:A:N6	46:r:92:ARG:NH2	2.39	0.70
2:2:119:A:OP2	2:2:288:A:N6	2.24	0.70
3:3:104:A:C2	3:3:105:G:H1'	2.26	0.70
36:h:73:PRO:HA	36:h:76:VAL:HG12	1.72	0.70
10:F:27:LYS:HG2	10:F:32:GLU:HG3	1.74	0.70
4:4:12:A:N6	57:4:101:HOH:O	2.22	0.70
28:Z:7:ILE:HD12	28:Z:27:LEU:HD21	1.72	0.70
36:h:111:LEU:HD11	36:h:146:ALA:HB2	1.74	0.70
1:1:84:A:O5'	23:U:6:ARG:NH2	2.24	0.70
1:1:600:G:H5'	8:D:27:LEU:HD23	1.73	0.70
2:2:1522:U:H2'	2:2:1523:G:H8	1.56	0.70
1:1:992:C:OP1	20:R:76:LYS:NZ	2.23	0.70
2:2:728:A:H2'	2:2:729:A:C8	2.27	0.70
2:2:1256:A:N6	2:2:1277:C:O2	2.25	0.70
29:a:10:GLU:O	29:a:26:SER:N	2.25	0.70
1:1:2681:C:OP2	7:C:114:LYS:NZ	2.22	0.70
2:2:1174:G:H2'	2:2:1175:G:H5'	1.73	0.70
2:2:1314:C:N4	52:x:2:PRO:O	2.25	0.70
47:s:13:ARG:NH1	47:s:59:ARG:O	2.23	0.70
1:1:84:A:P	23:U:6:ARG:NH2	2.65	0.70
1:1:2186:G:N2	57:1:3305:HOH:O	2.25	0.70
2:2:67:C:H2'	2:2:68:G:C8	2.27	0.70
7:C:13:ARG:NH1	18:P:75:GLN:OE1	2.25	0.70
53:y:24:ARG:HH11	53:y:27:MET:HE1	1.56	0.70
1:1:536:G:H21	12:J:47:HIS:CD2	2.10	0.69
2:2:973:G:OP1	43:o:59:LYS:NZ	2.21	0.69
52:x:52:HIS:CD2	52:x:54:GLY:H	2.09	0.69
1:1:1019:U:H2'	1:1:1020:A:H8	1.57	0.69
8:D:2:GLU:CG	57:D:405:HOH:O	2.38	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:L:129:LYS:HG3	14:L:130:GLY:H	1.56	0.69
25:W:46:HIS:HB2	25:W:79:PHE:CD1	2.26	0.69
1:1:84:A:P	23:U:6:ARG:HH22	2.14	0.69
2:2:459:A:H2'	2:2:460:A:H8	1.56	0.69
2:2:1279:G:H4'	2:2:1281:C:H5	1.57	0.69
2:2:1523:G:OP1	44:p:125:LYS:NZ	2.20	0.69
1:1:1614:A:N1	21:S:93:ALA:HB2	2.07	0.69
2:2:64:G:H4'	2:2:65:A:H3'	1.75	0.69
6:B:142:HIS:ND1	6:B:193:GLY:O	2.24	0.69
49:u:40:ASN:ND2	49:u:42:ILE:O	2.25	0.69
1:1:1754:A:C8	18:P:94:LYS:HE2	2.27	0.69
1:1:1972:G:OP1	6:B:238:ARG:HD2	1.91	0.69
24:V:17:SER:HB2	24:V:21:ARG:HH12	1.56	0.69
40:l:62:PHE:HD1	40:l:124:LEU:HD21	1.57	0.69
51:w:21:ILE:HG21	51:w:54:GLN:HB3	1.74	0.69
37:i:58:LYS:NZ	37:i:69:GLU:OE1	2.25	0.69
2:2:1256:A:H61	2:2:1277:C:H2'	1.57	0.69
36:h:16:LYS:NZ	36:h:181:ASP:OD1	2.25	0.69
47:s:13:ARG:HG2	47:s:54:ASP:HB3	1.75	0.69
1:1:34:U:C2	57:1:3325:HOH:O	2.45	0.69
1:1:873:C:H4'	15:M:64:TRP:CD1	2.26	0.69
2:2:554:A:H2'	2:2:555:U:H6	1.58	0.69
25:W:68:LYS:NZ	25:W:70:GLU:OE2	2.25	0.69
43:o:27:GLU:CD	57:o:202:HOH:O	2.35	0.69
2:2:119:A:H5'	2:2:288:A:H61	1.57	0.69
2:2:546:A:OP1	37:i:70:ARG:N	2.25	0.69
2:2:1121:U:H2'	2:2:1122:U:C6	2.27	0.69
10:F:2:SER:OG	10:F:3:ARG:N	2.16	0.69
1:1:2392:A:H2	14:L:55:MET:HG2	1.58	0.68
29:a:12:ILE:HG23	29:a:31:ASP:HA	1.73	0.68
39:k:38:ARG:HB3	39:k:63:ASN:HB2	1.75	0.68
46:r:90:ARG:HG3	46:r:97:VAL:HA	1.75	0.68
2:2:1292:G:H2'	2:2:1293:C:C6	2.29	0.68
3:3:74:U:H3	24:V:37:PRO:HG2	1.57	0.68
2:2:297:G:N2	2:2:300:A:OP2	2.24	0.68
25:W:63:ALA:HB1	25:W:84:ALA:HB2	1.74	0.68
37:i:85:ASN:O	37:i:89:ASN:ND2	2.27	0.68
37:i:124:MET:HG3	37:i:146:ARG:HB2	1.76	0.68
1:1:2224:G:OP1	6:B:265:LYS:NZ	2.25	0.68
5:5:56:C:H2'	5:5:57:A:C8	2.29	0.68
8:D:191:ASP:O	8:D:195:GLN:HG2	1.94	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:F:127:THR:HG22	10:F:128:GLN:H	1.58	0.68
1:1:673:C:H5"	8:D:76:PRO:HD2	1.76	0.68
19:Q:47:TYR:HA	19:Q:50:ARG:HH21	1.58	0.68
37:i:71:GLN:O	37:i:74:ASN:N	2.27	0.68
1:1:2591:C:OP1	6:B:238:ARG:HG3	1.92	0.68
13:K:53:LYS:HD3	57:K:202:HOH:O	1.94	0.68
18:P:90:GLY:O	18:P:113:ARG:NH1	2.26	0.68
52:x:18:LYS:HB3	52:x:31:LEU:HD21	1.76	0.68
1:1:492:A:H2	21:S:7:HIS:CE1	2.11	0.68
2:2:337:G:H2'	2:2:338:A:H8	1.58	0.68
2:2:891:U:H2'	2:2:892:A:H8	1.58	0.68
37:i:98:LEU:O	37:i:101:VAL:N	2.27	0.68
37:i:150:LYS:O	37:i:156:LYS:NZ	2.27	0.68
9:E:115:ARG:HD3	57:a:116:HOH:O	1.93	0.67
25:W:26:PHE:N	25:W:29:GLU:OE1	2.27	0.67
51:w:37:GLY:O	51:w:63:ARG:NH2	2.26	0.67
1:1:2010:G:OP1	21:S:41:LYS:HD3	1.95	0.67
2:2:1038:C:H2'	2:2:1039:G:C8	2.28	0.67
7:C:184:ARG:HB3	7:C:186:LEU:HG	1.75	0.67
39:k:22:ILE:HD11	39:k:60:VAL:HG11	1.76	0.67
2:2:1320:C:H41	52:x:37:ARG:HA	1.59	0.67
8:D:51:GLU:OE1	8:D:88:ARG:NH2	2.27	0.67
2:2:9:G:N7	2:2:558:G:O2'	2.27	0.67
13:K:64:ARG:NH2	18:P:68:GLU:OE2	2.27	0.67
37:i:8:LYS:HB3	37:i:21:LEU:HG	1.76	0.67
1:1:586:A:H5'	8:D:84:THR:HG21	1.76	0.67
1:1:752:A:OP1	32:d:3:ARG:NH1	2.28	0.67
1:1:753:A:H5'	32:d:1:MET:SD	2.34	0.67
1:1:2531:A:H5'	10:F:157:TYR:CE1	2.29	0.67
2:2:601:G:H2'	2:2:602:A:H8	1.59	0.67
2:2:768:A:N3	2:2:1512:U:O2'	2.28	0.67
1:1:124:G:C4	32:d:19:ARG:NH2	2.62	0.67
2:2:514:C:H2'	2:2:515:G:H8	1.59	0.67
2:2:1219:A:H2'	2:2:1220:G:H8	1.60	0.67
35:g:61:ALA:O	35:g:225:ARG:NH2	2.28	0.67
54:z:30:ALA:HA	54:z:33:ARG:HG2	1.76	0.67
4:4:14:G:H2'	4:4:14:G:N3	2.09	0.67
5:5:73:A:N6	57:5:201:HOH:O	2.27	0.67
14:L:18:ARG:HH12	14:L:21:ARG:HG2	1.59	0.67
26:X:40:VAL:HA	26:X:64:ILE:HD11	1.76	0.67
2:2:505:G:H5'	2:2:534:U:H2'	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1211:U:H4'	2:2:1212:U:H5"	1.76	0.67
12:J:17:VAL:HG12	12:J:55:ILE:HB	1.76	0.67
17:O:34:HIS:HB3	17:O:36:TYR:HE1	1.60	0.67
2:2:114:U:H2'	2:2:115:G:C8	2.30	0.66
2:2:977:A:OP1	47:s:61:ARG:NH2	2.27	0.66
2:2:1130:A:OP1	42:n:18:ARG:NH2	2.28	0.66
1:1:2387:U:H4'	25:W:41:ARG:HH12	1.60	0.66
2:2:844:G:N2	2:2:846:G:N3	2.43	0.66
7:C:110:THR:HG21	7:C:169:ARG:HE	1.60	0.66
36:h:136:ARG:NH1	57:h:301:HOH:O	2.28	0.66
20:R:85:LYS:NZ	20:R:87:GLN:OE1	2.28	0.66
1:1:2574:G:HO2'	7:C:148:GLN:HB3	1.61	0.66
2:2:320:A:H2'	2:2:321:A:C8	2.30	0.66
9:E:8:TYR:HB2	9:E:173:PHE:HZ	1.59	0.66
9:E:142:ASP:OD1	9:E:143:TYR:N	2.28	0.66
41:m:41:LYS:HD2	41:m:48:ASP:HA	1.76	0.66
41:m:89:LYS:HG3	41:m:120:GLY:C	2.20	0.66
1:1:2846:G:OP1	18:P:53:ARG:NH1	2.29	0.66
2:2:67:C:H2'	2:2:68:G:H8	1.61	0.66
2:2:554:A:H2'	2:2:555:U:C6	2.30	0.66
2:2:1467:C:H2'	2:2:1468:A:H8	1.60	0.66
7:C:97:SER:OG	7:C:98:VAL:N	2.17	0.66
10:F:2:SER:O	10:F:5:ALA:N	2.29	0.66
25:W:47:ALA:HB1	25:W:51:VAL:HG23	1.78	0.66
41:m:13:ARG:NH1	41:m:27:MET:HA	2.10	0.66
2:2:335:C:H2'	2:2:336:A:H8	1.61	0.66
2:2:1314:C:H2'	2:2:1315:U:H6	1.59	0.66
10:F:99:LYS:HD3	57:F:211:HOH:O	1.94	0.66
49:u:9:HIS:O	49:u:16:PHE:HB3	1.95	0.66
9:E:115:ARG:CD	57:a:116:HOH:O	2.43	0.66
33:e:17:THR:HG21	33:e:49:MET:HE1	1.77	0.66
36:h:132:ARG:HG2	57:h:307:HOH:O	1.95	0.66
1:1:752:A:H3'	32:d:1:MET:CE	2.26	0.66
2:2:1297:G:O2'	40:l:114:LYS:NZ	2.29	0.66
20:R:44:GLY:O	20:R:45:GLU:HG3	1.96	0.66
1:1:124:G:N7	32:d:19:ARG:NH2	2.43	0.66
1:1:2331:G:O4'	25:W:42:GLY:HA3	1.96	0.66
2:2:254:G:O3'	50:v:71:LYS:NZ	2.27	0.66
2:2:714:G:H2'	2:2:715:A:C8	2.31	0.66
9:E:126:GLY:HA2	9:E:163:ASP:HA	1.78	0.66
13:K:76:VAL:HG22	18:P:73:VAL:HG12	1.75	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:w:71:THR:O	51:w:74:HIS:ND1	2.28	0.66
1:1:587:C:P	14:L:21:ARG:HH22	2.19	0.65
2:2:373:A:H61	2:2:391:G:H1'	1.61	0.65
2:2:671:G:O3'	39:k:79:ARG:NH1	2.29	0.65
29:a:11:GLU:HA	29:a:25:ARG:HA	1.78	0.65
13:K:24:VAL:HG13	13:K:33:ALA:HB2	1.77	0.65
36:h:142:MET:HE1	36:h:148:GLY:HA2	1.78	0.65
1:1:651:G:OP1	33:e:19:LYS:HB3	1.97	0.65
1:1:2392:A:C2	14:L:55:MET:HG2	2.31	0.65
2:2:93:U:C5'	57:2:1833:HOH:O	2.35	0.65
2:2:298:A:H2'	2:2:299:G:C8	2.31	0.65
2:2:382:A:H2'	2:2:383:A:H8	1.61	0.65
1:1:1012:U:O4	12:J:30:THR:HG21	1.97	0.65
7:C:136:ASN:ND2	7:C:139:SER:O	2.28	0.65
19:Q:47:TYR:HE2	19:Q:51:ARG:CZ	2.09	0.65
1:1:2822:G:OP1	7:C:164:GLN:NE2	2.29	0.65
2:2:412:A:H62	2:2:431:A:H61	1.41	0.65
2:2:993:G:O2'	2:2:994:A:N7	2.30	0.65
2:2:1206:G:H2'	2:2:1207:2MG:H8	1.61	0.65
12:J:141:ASP:OD1	12:J:142:ILE:N	2.30	0.65
26:X:5:CYS:SG	26:X:52:SER:OG	2.50	0.65
35:g:73:LYS:C	35:g:75:ALA:H	2.04	0.65
1:1:1310:G:H1'	1:1:1611:C:H5"	1.79	0.65
2:2:350:G:H2'	2:2:351:G:C8	2.32	0.65
36:h:168:TYR:CD1	57:h:310:HOH:O	2.49	0.65
43:o:27:GLU:CG	57:o:202:HOH:O	2.45	0.65
1:1:636:G:C2	14:L:111:ILE:CD1	2.80	0.65
1:1:1032:A:O3'	34:f:16:ILE:HD11	1.95	0.65
2:2:150:U:H3	2:2:171:A:H62	1.45	0.65
2:2:889:A:H61	2:2:907:A:H5"	1.61	0.65
19:Q:83:LEU:HD22	19:Q:88:VAL:HB	1.79	0.65
26:X:59:ILE:HG23	26:X:64:ILE:HG22	1.78	0.65
48:t:33:THR:HG21	48:t:85:LEU:HD13	1.77	0.65
50:v:20:SER:HB3	50:v:71:LYS:HZ3	1.61	0.65
2:2:312:C:H2'	2:2:313:A:C8	2.32	0.65
2:2:521:G:HO2'	2:2:536:C:HO2'	1.40	0.65
2:2:827:U:H2'	2:2:870:U:O4	1.97	0.65
3:3:75:G:H5'	57:3:301:HOH:O	1.96	0.65
1:1:2286:G:O6	31:c:23:THR:CB	2.45	0.65
1:1:2286:G:O6	31:c:23:THR:HB	1.96	0.65
2:2:89:U:C2'	57:2:1809:HOH:O	2.30	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:985:C:N3	2:2:1221:G:N1	2.45	0.65
2:2:1407:5MC:H2'	2:2:1408:A:H8	1.61	0.65
36:h:6:HIS:HE1	47:s:90:ARG:HH11	1.44	0.65
43:o:51:VAL:HG23	47:s:81:ARG:HB2	1.79	0.65
1:1:483:A:O4'	23:U:45:HIS:HB3	1.97	0.64
1:1:2840:C:H5"	16:N:53:THR:CG2	2.12	0.64
6:B:145:GLU:OE1	6:B:151:GLY:N	2.29	0.64
18:P:31:TRP:NE1	18:P:82:ASP:OD1	2.30	0.64
1:1:995:C:C4	19:Q:57:PHE:HE1	2.15	0.64
2:2:263:A:H2'	2:2:264:C:C5	2.31	0.64
2:2:1036:A:C3'	57:2:1803:HOH:O	2.21	0.64
2:2:1302:C:C2	46:r:17:ILE:HD11	2.31	0.64
21:S:29:VAL:HB	21:S:55:ILE:HD11	1.80	0.64
28:Z:9:GLN:HE22	28:Z:13:ALA:HB2	1.61	0.64
1:1:1252:G:N2	19:Q:37:GLN:OE1	2.22	0.64
2:2:335:C:O2'	2:2:1433:A:N3	2.28	0.64
2:2:601:G:H2'	2:2:602:A:C8	2.32	0.64
2:2:1095:U:OP1	2:2:1108:G:N2	2.29	0.64
2:2:1144:G:H21	2:2:1146:A:H62	1.45	0.64
14:L:135:ILE:HG22	14:L:140:GLY:HA3	1.80	0.64
15:M:50:ARG:NH1	57:M:301:HOH:O	2.21	0.64
28:Z:11:ARG:NH1	28:Z:53:PHE:O	2.30	0.64
36:h:49:LYS:O	36:h:72:ARG:NH1	2.29	0.64
10:F:105:LEU:HB2	10:F:113:VAL:HB	1.80	0.64
16:N:79:LEU:HA	16:N:83:LEU:HB2	1.80	0.64
42:n:119:ARG:N	42:n:123:ARG:O	2.22	0.64
6:B:152:GLY:O	6:B:156:ARG:NH1	2.29	0.64
9:E:38:MET:HG2	9:E:152:LEU:HB3	1.78	0.64
10:F:101:ASN:ND2	57:F:201:HOH:O	2.29	0.64
11:G:66:ASN:ND2	11:G:134:VAL:O	2.25	0.64
44:p:81:ASN:OD1	44:p:106:ARG:NH1	2.31	0.64
46:r:101:ARG:HH21	46:r:104:THR:HB	1.62	0.64
51:w:32:TYR:CE2	51:w:55:LEU:HG	2.33	0.64
1:1:1266:G:P	30:b:17:ARG:HH21	2.21	0.64
1:1:1309:G:OP1	32:d:9:VAL:HG22	1.97	0.64
3:3:2:G:H2'	3:3:3:C:O4'	1.97	0.64
29:a:10:GLU:OE2	29:a:29:GLY:HA2	1.98	0.64
2:2:1025:U:H4'	2:2:1026:G:C8	2.32	0.64
7:C:96:ILE:HG21	7:C:100:LEU:HD12	1.78	0.64
41:m:75:ILE:HG22	41:m:129:VAL:HG13	1.80	0.64
2:2:365:U:O2	2:2:365:U:H2'	1.96	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:l:105:VAL:O	40:l:109:ARG:HG2	1.97	0.64
1:1:1007:C:H5”	12:J:37:ARG:NH2	2.13	0.64
1:1:2371:G:H1’	31:c:39:PHE:HE1	1.63	0.64
36:h:20:SER:OG	36:h:22:TRP:NE1	2.31	0.64
1:1:633:A:OP1	14:L:71:ALA:HB2	1.97	0.64
1:1:1248:G:OP2	8:D:44:ARG:NH1	2.31	0.64
2:2:1402:4OC:H2’	2:2:1403:C:O4’	1.98	0.64
9:E:117:LEU:HB2	9:E:177:PHE:HA	1.79	0.64
35:g:157:LEU:HD12	35:g:158:PRO:HD2	1.78	0.64
36:h:62:LYS:CE	57:h:306:HOH:O	2.32	0.64
44:p:83:GLU:HB2	44:p:109:ASN:HB2	1.79	0.64
51:w:63:ARG:HD3	51:w:70:TYR:CE1	2.32	0.64
2:2:438:U:OP1	37:i:148:LYS:NZ	2.31	0.63
26:X:33:LEU:HD12	26:X:50:ARG:HG2	1.80	0.63
2:2:900:A:H2’	2:2:901:A:C8	2.33	0.63
29:a:54:GLY:CA	57:a:121:HOH:O	2.38	0.63
35:g:129:LEU:CD2	57:g:311:HOH:O	2.42	0.63
37:i:117:LEU:HB3	37:i:123:ILE:HD11	1.79	0.63
51:w:34:THR:HG23	51:w:36:SER:H	1.63	0.63
2:2:736:C:OP1	51:w:61:ARG:NH2	2.32	0.63
2:2:745:G:H2’	2:2:746:A:H8	1.64	0.63
26:X:2:SER:O	26:X:50:ARG:NH2	2.30	0.63
1:1:784:G:N1	6:B:228:VAL:HG21	2.13	0.63
1:1:1570:A:H5’	6:B:36:LYS:HB3	1.80	0.63
1:1:2002:G:OP2	16:N:9:GLN:NE2	2.32	0.63
1:1:2094:A:OP1	11:G:22:LYS:HG3	1.98	0.63
36:h:7:PRO:HG2	36:h:201:TRP:HZ3	1.64	0.63
2:2:1274:A:H2’	2:2:1275:A:H8	1.62	0.63
7:C:38:LYS:HB2	7:C:47:ALA:O	1.98	0.63
8:D:65:THR:HG23	8:D:67:ARG:H	1.64	0.63
29:a:49:ARG:NH1	46:r:68:ASP:OD2	2.31	0.63
2:2:222:C:H2’	2:2:223:A:C8	2.32	0.63
2:2:1004:A:N6	2:2:1024:G:O2’	2.21	0.63
6:B:107:PRO:HG2	6:B:127:GLY:HA2	1.80	0.63
14:L:76:GLU:HB3	14:L:111:ILE:HD12	1.79	0.63
35:g:160:ALA:HA	35:g:182:PRO:HG2	1.80	0.63
41:m:41:LYS:NZ	41:m:48:ASP:OD1	2.32	0.63
52:x:41:PHE:H	52:x:44:MET:HE2	1.64	0.63
1:1:2311:A:C6	9:E:77:PHE:HB3	2.34	0.63
2:2:380:G:N2	2:2:383:A:OP2	2.24	0.63
2:2:1219:A:H2’	2:2:1220:G:C8	2.34	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:M:47:GLU:OE2	15:M:51:ARG:NE	2.28	0.63
17:O:63:LYS:HG3	17:O:64:TYR:N	2.14	0.63
42:n:15:SER:HB2	42:n:70:GLY:HA3	1.80	0.63
42:n:52:LEU:HD12	42:n:58:VAL:HA	1.80	0.63
48:t:21:ASP:OD1	48:t:22:THR:N	2.32	0.63
1:1:321:U:O4'	8:D:159:LEU:HB3	1.98	0.63
1:1:413:C:HO2'	1:1:1880:U:HO2'	1.46	0.63
1:1:2885:G:O6	30:b:29:SER:HB2	1.99	0.63
16:N:13:ASN:N	16:N:13:ASN:OD1	2.31	0.63
33:e:9:GLY:O	33:e:13:ARG:HD2	1.99	0.63
1:1:995:C:C4	19:Q:57:PHE:CE1	2.86	0.62
1:1:1789:A:H5'	6:B:220:VAL:HG12	1.81	0.62
30:b:38:HIS:HB3	30:b:44:THR:HG22	1.80	0.62
50:v:44:LEU:HD21	50:v:73:TRP:CD1	2.34	0.62
1:1:811:U:O4	14:L:21:ARG:NH1	2.33	0.62
1:1:885:C:H3'	57:1:3378:HOH:O	1.98	0.62
1:1:1093:G:O2'	1:1:1098:A:N6	2.32	0.62
1:1:1754:A:C8	18:P:94:LYS:CE	2.83	0.62
32:d:18:PHE:HB2	32:d:43:THR:HG21	1.81	0.62
2:2:410:G:OP2	37:i:31:LYS:NZ	2.31	0.62
2:2:1077:G:N2	2:2:1080:A:OP2	2.27	0.62
1:1:807:U:OP2	14:L:41:ARG:NH1	2.32	0.62
1:1:995:C:C2	19:Q:57:PHE:CE1	2.87	0.62
1:1:1326:U:HO2'	1:1:2010:G:HO2'	1.46	0.62
2:2:1188:A:O3'	47:s:98:LYS:NZ	2.30	0.62
2:2:1304:G:N2	2:2:1334:G:O6	2.33	0.62
2:2:1319:A:C8	2:2:1323:G:C5	2.86	0.62
23:U:14:LEU:O	23:U:19:LYS:NZ	2.31	0.62
37:i:65:TYR:CE1	37:i:94:LEU:HB3	2.34	0.62
41:m:30:SER:HG	41:m:33:LYS:H	1.46	0.62
44:p:109:ASN:HD21	54:z:5:LYS:NZ	1.97	0.62
1:1:748:G:C8	21:S:89:ALA:HB1	2.34	0.62
1:1:1816:C:N4	6:B:35:GLU:OE1	2.32	0.62
2:2:1047:G:H1	2:2:1211:U:H3	1.44	0.62
2:2:1192:C:OP2	36:h:4:LYS:NZ	2.32	0.62
7:C:33:ARG:HD2	7:C:73:VAL:HG13	1.82	0.62
11:G:66:ASN:CG	11:G:135:HIS:HB2	2.23	0.62
35:g:27:MET:HE2	35:g:193:PRO:HD3	1.80	0.62
2:2:1130:A:O2'	42:n:5:GLN:NE2	2.32	0.62
2:2:1532:U:H2'	57:2:1845:HOH:O	1.99	0.62
3:3:60:C:H2'	3:3:61:G:H8	1.64	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:V:67:GLY:O	24:V:68:LYS:HD3	2.00	0.62
36:h:54:ARG:O	36:h:69:HIS:ND1	2.33	0.62
40:l:135:VAL:O	40:l:139:GLU:HG2	2.00	0.62
51:w:16:GLU:HG3	57:w:102:HOH:O	1.99	0.62
1:1:1059:G:N2	57:1:3308:HOH:O	2.32	0.62
1:1:2469:A:N6	1:1:2481:G:O2'	2.33	0.62
2:2:744:C:H2'	2:2:745:G:H8	1.65	0.62
51:w:41:PRO:O	51:w:45:THR:HG23	1.99	0.62
1:1:2261:C:OP2	25:W:17:GLU:HB2	2.00	0.62
2:2:18:C:OP1	38:j:132:ASN:ND2	2.23	0.62
16:N:55:ALA:HA	16:N:80:PHE:CE1	2.35	0.62
21:S:17:VAL:HG12	21:S:76:VAL:HG21	1.80	0.62
45:q:55:VAL:HG11	45:q:82:ILE:HD11	1.81	0.62
1:1:770:G:H5"	32:d:10:LEU:HD22	1.82	0.62
1:1:958:U:H2'	3:3:89:U:C2	2.34	0.62
1:1:1256:G:H21	8:D:77:ILE:HG23	1.65	0.62
2:2:536:C:N4	2:2:537:G:O6	2.33	0.62
2:2:1422:G:O2'	13:K:49:ARG:NH2	2.32	0.62
57:2:1820:HOH:O	51:w:10:PHE:CD1	2.36	0.62
3:3:1:U:H2'	3:3:2:G:H8	1.64	0.62
40:l:71:PRO:HG3	40:l:99:LEU:HD11	1.80	0.62
1:1:2019:A:N7	30:b:6:ASN:ND2	2.47	0.62
2:2:18:C:H1'	2:2:1079:G:H21	1.64	0.62
2:2:509:A:H5'	37:i:52:GLY:HA2	1.81	0.62
2:2:637:C:H2'	2:2:638:U:H6	1.65	0.62
6:B:66:ASP:OD2	6:B:102:ARG:NH1	2.28	0.62
9:E:98:GLU:HB3	9:E:102:ARG:HH11	1.64	0.62
10:F:121:ILE:HD11	10:F:140:VAL:HG12	1.82	0.62
20:R:55:ASP:OD1	20:R:55:ASP:N	2.31	0.62
39:k:3:HIS:NE2	39:k:65:GLU:OE2	2.33	0.62
1:1:995:C:N3	19:Q:57:PHE:CE1	2.65	0.61
1:1:1217:U:OP2	19:Q:15:LYS:NZ	2.30	0.61
2:2:263:A:OP2	53:y:74:ARG:NH1	2.32	0.61
2:2:544:G:OP2	37:i:63:ARG:NH2	2.32	0.61
3:3:1:U:H2'	3:3:2:G:C8	2.34	0.61
23:U:48:PRO:HB3	23:U:55:PRO:C	2.25	0.61
35:g:68:LEU:HA	35:g:90:PHE:O	1.98	0.61
42:n:106:ARG:NH1	42:n:107:ASP:O	2.32	0.61
1:1:666:A:H1'	33:e:4:ILE:HD12	1.81	0.61
1:1:1266:G:OP2	30:b:17:ARG:NH2	2.24	0.61
2:2:620:C:H1'	37:i:132:ILE:HG21	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:g:31:ILE:HG12	35:g:39:HIS:HD2	1.65	0.61
36:h:153:VAL:HG22	36:h:198:VAL:HG12	1.81	0.61
52:x:50:ALA:HB1	52:x:57:HIS:HB3	1.83	0.61
2:2:945:G:C2	2:2:946:A:C8	2.87	0.61
12:J:17:VAL:HA	12:J:55:ILE:O	2.00	0.61
12:J:107:GLY:O	12:J:111:LYS:NZ	2.33	0.61
22:T:80:TRP:HZ3	22:T:82:LYS:HB2	1.64	0.61
28:Z:53:PHE:HE1	28:Z:54:MET:HE3	1.65	0.61
54:z:10:GLU:OE2	54:z:14:VAL:HG13	2.00	0.61
2:2:496:A:H2'	2:2:496:A:N3	2.15	0.61
2:2:1323:G:H2'	2:2:1324:A:C8	2.35	0.61
2:2:1530:G:H21	2:2:1531:A:H62	1.46	0.61
3:3:114:C:H2'	3:3:115:A:H8	1.66	0.61
29:a:44:PHE:CD1	29:a:45:THR:HG23	2.35	0.61
38:j:13:GLU:HB3	38:j:39:VAL:HG12	1.82	0.61
2:2:312:C:H2'	2:2:313:A:H8	1.65	0.61
2:2:1310:G:OP2	46:r:87:ARG:NH1	2.34	0.61
9:E:73:SER:HB2	9:E:81:GLN:HB2	1.81	0.61
37:i:48:LEU:HD21	37:i:56:ARG:HG3	1.82	0.61
48:t:33:THR:HG22	48:t:63:ARG:NH1	2.14	0.61
52:x:34:TRP:O	52:x:36:ARG:N	2.33	0.61
2:2:1036:A:H5"	57:2:1803:HOH:O	1.98	0.61
2:2:1177:G:H3'	2:2:1178:G:H8	1.66	0.61
9:E:107:ALA:HB1	9:E:137:ILE:HD12	1.83	0.61
19:Q:90:ILE:HD12	19:Q:109:LEU:HD21	1.82	0.61
24:V:58:SER:O	24:V:73:LYS:NZ	2.27	0.61
25:W:43:THR:HB	25:W:46:HIS:CD2	2.36	0.61
40:l:111:ARG:HH21	40:l:123:GLU:HA	1.65	0.61
51:w:16:GLU:CG	57:w:102:HOH:O	2.49	0.61
1:1:910:A:C8	15:M:13:HIS:CD2	2.89	0.61
2:2:963:G:H2'	2:2:964:A:H8	1.65	0.61
39:k:38:ARG:HH21	39:k:63:ASN:HD21	1.46	0.61
40:l:37:SER:OG	42:n:41:ARG:NE	2.34	0.61
2:2:1002:G:H2'	2:2:1003:G:C8	2.36	0.61
2:2:1423:G:H1	2:2:1477:U:H3	1.49	0.61
41:m:13:ARG:HH11	41:m:27:MET:HG3	1.64	0.61
2:2:1138:G:H5'	57:2:1812:HOH:O	2.01	0.61
25:W:46:HIS:HB2	25:W:79:PHE:HD1	1.65	0.61
49:u:22:ALA:HB2	49:u:32:PHE:HB3	1.82	0.61
9:E:62:GLY:CA	9:E:95:ARG:NH2	2.60	0.61
13:K:114:LYS:HE2	57:K:201:HOH:O	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:k:42:TRP:HE3	39:k:59:TYR:HB3	1.66	0.61
1:1:558:U:H5'	12:J:114:LEU:HD12	1.82	0.60
2:2:1355:G:H2'	2:2:1356:G:H8	1.66	0.60
11:G:129:GLU:CG	57:G:214:HOH:O	2.29	0.60
19:Q:89:GLU:O	20:R:11:GLN:NE2	2.34	0.60
35:g:57:LEU:HA	35:g:60:ILE:HG12	1.83	0.60
40:l:131:LYS:CD	57:l:210:HOH:O	2.29	0.60
2:2:21:G:H5'	2:2:573:A:H61	1.66	0.60
2:2:539:A:H2'	2:2:540:G:C8	2.36	0.60
24:V:86:LEU:HD13	24:V:89:ILE:HD11	1.83	0.60
38:j:162:GLU:CG	57:j:205:HOH:O	2.46	0.60
47:s:64:CYS:HB2	47:s:80:SER:OG	2.01	0.60
1:1:2013:A:H4'	21:S:96:ILE:HG22	1.82	0.60
1:1:2818:U:OP2	16:N:42:LYS:NZ	2.29	0.60
2:2:75:G:H2'	2:2:76:G:C8	2.36	0.60
36:h:131:ARG:NH2	36:h:166:GLU:OE1	2.34	0.60
36:h:150:LYS:HZ2	36:h:201:TRP:CD1	2.20	0.60
40:l:113:ASP:OD1	40:l:114:LYS:N	2.29	0.60
44:p:34:ILE:HG12	44:p:70:CYS:SG	2.41	0.60
1:1:1870:C:N4	57:1:3309:HOH:O	2.33	0.60
1:1:2032:G:H21	7:C:151:THR:HG22	1.65	0.60
2:2:728:A:H2'	2:2:729:A:H8	1.66	0.60
2:2:1318:A:OP1	52:x:7:LYS:NZ	2.25	0.60
3:3:35:C:H2'	3:3:36:C:H5'	1.81	0.60
7:C:48:ILE:HG13	7:C:48:ILE:O	2.01	0.60
43:o:7:ARG:NH1	43:o:75:ASP:OD1	2.34	0.60
2:2:1238:A:H5'	2:2:1336:C:H41	1.66	0.60
15:M:39:GLY:HA3	15:M:126:ILE:HD11	1.83	0.60
35:g:24:ASN:ND2	35:g:191:SER:O	2.34	0.60
41:m:77:ARG:NE	41:m:79:SER:O	2.34	0.60
44:p:98:ARG:NH1	54:z:13:ASP:OD2	2.34	0.60
2:2:528:C:H41	45:q:46:ASN:HD21	1.49	0.60
2:2:1279:G:O2'	2:2:1282:C:N4	2.35	0.60
3:3:118:C:H2'	3:3:119:A:O4'	2.01	0.60
29:a:14:ALA:HA	29:a:32:LEU:O	2.01	0.60
35:g:66:LYS:HD2	35:g:154:MET:HE3	1.83	0.60
36:h:154:SER:OG	36:h:165:THR:HG22	2.02	0.60
43:o:89:ARG:NH2	43:o:89:ARG:O	2.33	0.60
1:1:370:G:O2'	1:1:424:G:OP1	2.20	0.60
2:2:824:G:H2'	2:2:825:A:O4'	2.01	0.60
2:2:1360:A:OP2	47:s:75:ARG:NH2	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:13:U:H2'	4:4:13:U:O2	2.00	0.60
29:a:12:ILE:HD11	29:a:29:GLY:H	1.66	0.60
38:j:143:GLY:HA2	38:j:146:ASN:HD21	1.67	0.60
34:f:16:ILE:HG22	34:f:25:VAL:HG22	1.82	0.60
35:g:15:HIS:HB3	35:g:43:LEU:HD21	1.83	0.60
37:i:26:ARG:HD3	37:i:31:LYS:NZ	2.17	0.60
38:j:81:LEU:HG	38:j:147:MET:HE1	1.84	0.60
1:1:2685:G:OP1	13:K:78:ARG:NH2	2.35	0.60
2:2:1309:G:OP2	46:r:98:ARG:NH2	2.35	0.60
7:C:84:LEU:HD22	7:C:88:GLU:HB2	1.84	0.60
35:g:82:ASP:OD1	35:g:83:ALA:N	2.34	0.60
36:h:11:ARG:NH1	36:h:182:ILE:HG12	2.15	0.60
38:j:20:ARG:NH1	38:j:22:SER:OG	2.35	0.60
43:o:89:ARG:NH2	43:o:91:ASP:OD2	2.35	0.60
51:w:14:THR:HG21	51:w:48:ARG:HE	1.66	0.60
2:2:256:U:H2'	2:2:257:G:C8	2.37	0.60
2:2:560:A:OP2	2:2:566:G:N2	2.35	0.60
2:2:147:G:H2'	2:2:148:G:C8	2.36	0.59
2:2:216:U:H2'	2:2:217:C:C6	2.37	0.59
23:U:48:PRO:HB3	23:U:55:PRO:O	2.01	0.59
44:p:46:THR:O	44:p:49:GLY:N	2.34	0.59
45:q:42:PRO:HG3	45:q:50:ARG:HG2	1.84	0.59
46:r:106:ALA:HB3	46:r:110:LYS:HE2	1.84	0.59
2:2:357:G:C2	2:2:358:U:C5	2.90	0.59
3:3:42:C:OP2	29:a:2:LYS:NZ	2.35	0.59
3:3:74:U:C5	3:3:75:G:C5	2.90	0.59
3:3:79:G:N7	24:V:14:LYS:NZ	2.50	0.59
3:3:119:A:H2'	3:3:120:U:O4'	2.02	0.59
12:J:18:VAL:HG22	12:J:56:VAL:HA	1.84	0.59
13:K:56:ASP:OD2	13:K:57:VAL:N	2.33	0.59
23:U:54:GLN:OE1	23:U:55:PRO:HD2	2.00	0.59
25:W:37:ILE:HG21	25:W:80:ILE:HG21	1.83	0.59
41:m:7:ILE:HD11	41:m:32:LEU:HD23	1.84	0.59
1:1:475:C:O2	1:1:479:A:N6	2.34	0.59
2:2:1314:C:H2'	2:2:1315:U:C6	2.37	0.59
8:D:9:GLN:NE2	57:D:401:HOH:O	2.35	0.59
38:j:20:ARG:HH11	38:j:31:PHE:HB3	1.68	0.59
1:1:1475:G:O2'	1:1:1732:C:N4	2.35	0.59
2:2:193:C:H2'	2:2:194:C:C6	2.37	0.59
23:U:9:ASP:OD2	23:U:94:ARG:NH1	2.33	0.59
38:j:21:VAL:HG13	38:j:32:SER:HB2	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:t:39:LEU:HD12	48:t:56:LEU:HD13	1.85	0.59
2:2:1304:G:N2	2:2:1334:G:C6	2.71	0.59
11:G:127:GLU:O	11:G:128:HIS:ND1	2.35	0.59
47:s:9:ARG:O	47:s:12:LYS:HG2	2.03	0.59
2:2:460:A:H2'	2:2:461:A:H8	1.67	0.59
2:2:1263:C:H2'	2:2:1264:U:C6	2.36	0.59
28:Z:4:THR:OG1	28:Z:37:GLU:HG2	2.03	0.59
31:c:45:GLN:CD	57:c:102:HOH:O	2.46	0.59
36:h:30:ALA:HB1	47:s:65:ARG:HH22	1.67	0.59
39:k:9:MET:CE	39:k:86:ARG:HB3	2.32	0.59
50:v:21:ILE:O	50:v:46:VAL:HG22	2.03	0.59
52:x:3:ARG:NH1	52:x:8:GLY:O	2.36	0.59
1:1:752:A:P	32:d:3:ARG:HH12	2.25	0.59
1:1:2531:A:H5'	10:F:157:TYR:CZ	2.37	0.59
2:2:118:U:O4	2:2:288:A:H2'	2.03	0.59
2:2:407:U:H2'	2:2:408:A:H8	1.68	0.59
2:2:826:C:O2	41:m:16:ASN:ND2	2.36	0.59
3:3:74:U:H3'	3:3:75:G:H8	1.67	0.59
9:E:148:ARG:NH2	9:E:149:VAL:O	2.36	0.59
47:s:16:LEU:HD23	47:s:55:SER:HB3	1.84	0.59
50:v:15:ASP:HA	50:v:21:ILE:HG22	1.85	0.59
52:x:11:ILE:HG13	52:x:15:LEU:HD23	1.85	0.59
1:1:583:G:OP1	19:Q:7:GLY:HA2	2.03	0.59
1:1:2305:U:C2	9:E:151:GLY:HA3	2.38	0.59
2:2:256:U:H2'	2:2:257:G:H8	1.68	0.59
2:2:675:A:H2'	2:2:676:A:C8	2.38	0.59
8:D:178:VAL:HG23	14:L:3:LEU:HD11	1.84	0.59
28:Z:48:ILE:O	28:Z:51:VAL:N	2.33	0.59
37:i:114:ALA:O	37:i:118:VAL:HG23	2.03	0.59
38:j:101:GLU:HA	38:j:122:ASN:ND2	2.18	0.59
43:o:65:TYR:HE1	47:s:89:MET:HE2	1.68	0.59
2:2:133:U:H1'	2:2:230:G:N2	2.17	0.59
2:2:254:G:P	50:v:68:SER:HG	2.26	0.59
17:O:99:TYR:OH	17:O:111:ARG:NH1	2.36	0.59
35:g:80:VAL:HA	35:g:214:LEU:HD21	1.83	0.59
35:g:182:PRO:HB2	35:g:184:PHE:HE1	1.68	0.59
1:1:2508:G:H1	1:1:2580:U:H5	1.50	0.59
2:2:413:G:O3'	2:2:428:G:N2	2.35	0.59
2:2:687:A:C2	2:2:704:A:C5	2.91	0.59
9:E:37:ASN:OD1	9:E:38:MET:N	2.35	0.59
29:a:36:VAL:HG21	29:a:41:HIS:HD2	1.67	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:m:105:SER:HB3	41:m:124:GLU:HG2	1.85	0.59
49:u:61:VAL:HG21	49:u:67:ILE:HD11	1.84	0.59
2:2:1029:U:C5	57:2:1851:HOH:O	2.55	0.58
2:2:1095:U:P	2:2:1108:G:H1	2.26	0.58
36:h:7:PRO:HA	36:h:10:ILE:HG22	1.85	0.58
36:h:59:ARG:HB3	36:h:64:ILE:HD13	1.85	0.58
37:i:90:LEU:HD23	37:i:94:LEU:HD23	1.85	0.58
38:j:20:ARG:NH1	38:j:31:PHE:HB3	2.18	0.58
51:w:16:GLU:CD	57:w:102:HOH:O	2.45	0.58
1:1:244:A:OP2	33:e:8:ARG:NH2	2.36	0.58
1:1:2331:G:C1’	25:W:42:GLY:HA3	2.33	0.58
1:1:2376:A:C4	17:O:99:TYR:CZ	2.91	0.58
2:2:642:A:N3	41:m:105:SER:OG	2.35	0.58
2:2:1249:C:O2’	42:n:75:GLN:NE2	2.36	0.58
7:C:61:THR:O	7:C:65:ALA:N	2.31	0.58
36:h:139:GLN:NE2	57:h:302:HOH:O	2.31	0.58
1:1:585:G:N7	19:Q:6:ARG:NH1	2.52	0.58
1:1:1533:C:O2	1:1:1538:G:N2	2.36	0.58
1:1:2531:A:C5’	10:F:157:TYR:CZ	2.86	0.58
2:2:555:U:H2’	2:2:556:C:C6	2.38	0.58
7:C:6:GLY:HA3	7:C:29:VAL:HG22	1.85	0.58
17:O:35:ILE:HD12	17:O:106:LEU:HD12	1.85	0.58
38:j:69:ARG:HD2	38:j:70:ASN:H	1.68	0.58
1:1:246:C:N4	33:e:8:ARG:HG3	2.19	0.58
1:1:2015:A:C2	30:b:3:VAL:HG22	2.38	0.58
2:2:628:G:H2’	2:2:629:A:H8	1.69	0.58
2:2:1305:G:HO2’	2:2:1306:A:H8	1.52	0.58
6:B:144:VAL:HB	6:B:154:LEU:HB2	1.84	0.58
10:F:96:ALA:HB1	10:F:131:ILE:HD11	1.86	0.58
36:h:151:VAL:HG23	36:h:200:VAL:HG22	1.85	0.58
36:h:156:ARG:NH1	36:h:161:GLU:HA	2.19	0.58
2:2:548:G:H5”	2:2:548:G:H8	1.67	0.58
2:2:730:G:N2	2:2:766:A:OP1	2.35	0.58
2:2:1147:C:H2’	2:2:1148:U:H6	1.69	0.58
6:B:232:HIS:HA	6:B:242:LYS:HD2	1.86	0.58
16:N:44:LEU:HD23	16:N:113:ILE:HD13	1.85	0.58
1:1:615:U:C4	8:D:39:ALA:HB2	2.38	0.58
2:2:108:G:OP1	2:2:326:G:N2	2.36	0.58
2:2:160:A:H2’	2:2:161:A:O4’	2.04	0.58
2:2:1073:U:O2	35:g:103:ASN:ND2	2.37	0.58
2:2:1530:G:N7	54:z:46:LYS:HE2	2.19	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:812:G:OP1	2:2:903:G:H1'	2.04	0.58
20:R:91:GLN:NE2	20:R:92:TRP:H	2.02	0.58
30:b:29:SER:HB3	30:b:40:ARG:HD3	1.86	0.58
35:g:31:ILE:HD11	35:g:39:HIS:HB3	1.86	0.58
51:w:71:THR:HG21	51:w:73:ARG:HH21	1.69	0.58
1:1:2011:U:OP2	21:S:16:LYS:NZ	2.30	0.58
2:2:401:C:O2'	2:2:621:A:N3	2.36	0.58
2:2:637:C:H2'	2:2:638:U:C6	2.39	0.58
2:2:1151:A:O2'	2:2:1152:A:H5"	2.02	0.58
3:3:118:C:H5"	3:3:119:A:OP2	2.04	0.58
36:h:155:GLY:O	36:h:196:ILE:HG13	2.03	0.58
45:q:24:LEU:O	45:q:27:CYS:N	2.37	0.58
1:1:210:C:OP1	32:d:25:LYS:NZ	2.32	0.58
1:1:1501:G:H5"	6:B:95:LEU:HD11	1.85	0.58
2:2:17:U:H2'	2:2:18:C:C6	2.39	0.58
2:2:957:U:H4'	52:x:79:THR:OG1	2.04	0.58
2:2:1137:C:H1'	2:2:1138:G:H22	1.69	0.58
2:2:1513:A:H2'	2:2:1514:G:H8	1.67	0.58
36:h:73:PRO:HG2	36:h:105:GLU:HB3	1.86	0.58
39:k:51:ILE:O	39:k:54:LEU:HG	2.04	0.58
44:p:94:GLU:O	44:p:97:ILE:HG22	2.04	0.58
1:1:2298:A:OP1	9:E:71:ARG:NH2	2.36	0.58
2:2:1228:C:P	46:r:107:ARG:HH21	2.26	0.58
35:g:14:VAL:HG12	35:g:209:ALA:HB1	1.86	0.58
35:g:165:ASP:HB2	35:g:204:ASP:HB2	1.86	0.58
41:m:10:MET:HG3	41:m:27:MET:SD	2.44	0.58
46:r:95:LEU:O	46:r:109:ARG:NH2	2.37	0.58
1:1:704:G:O2'	1:1:726:G:N2	2.37	0.57
2:2:1126:U:OP1	43:o:7:ARG:NH2	2.37	0.57
35:g:104:TRP:CD1	57:g:306:HOH:O	2.57	0.57
46:r:72:GLU:OE1	46:r:76:SER:OG	2.22	0.57
1:1:1067:A:H1'	57:1:3391:HOH:O	2.03	0.57
1:1:1566:A:H5'	6:B:214:ARG:NH1	2.18	0.57
1:1:2073:C:H5"	6:B:228:VAL:HG22	1.85	0.57
2:2:409:U:O2	2:2:433:G:N2	2.29	0.57
2:2:460:A:H2'	2:2:461:A:C8	2.39	0.57
2:2:679:C:H2'	2:2:680:C:H6	1.68	0.57
18:P:71:GLU:OE1	18:P:101:ARG:NE	2.27	0.57
23:U:28:VAL:HG12	23:U:34:VAL:HG12	1.85	0.57
43:o:7:ARG:HB2	43:o:101:SER:OG	2.05	0.57
1:1:886:A:N6	46:r:92:ARG:HH22	2.00	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:376:G:H5”	49:u:5:ARG:HB2	1.86	0.57
2:2:390:U:O3’	49:u:28:ARG:NH1	2.35	0.57
2:2:547:A:H4’	2:2:548:G:O5’	2.04	0.57
2:2:1040:U:H2’	2:2:1041:G:H8	1.65	0.57
2:2:1209:C:O2’	2:2:1214:C:N4	2.37	0.57
11:G:68:ARG:HD3	57:G:210:HOH:O	2.05	0.57
13:K:63:VAL:HG23	13:K:64:ARG:HG3	1.85	0.57
18:P:2:SER:OG	18:P:4:ILE:N	2.35	0.57
1:1:2428:G:N2	14:L:60:ARG:NH2	2.51	0.57
2:2:21:G:H2’	2:2:22:G:C8	2.39	0.57
2:2:1095:U:OP1	2:2:1108:G:N1	2.37	0.57
2:2:1147:C:H2’	2:2:1148:U:C6	2.39	0.57
3:3:57:A:H4’	9:E:27:GLN:HE21	1.70	0.57
10:F:166:ASP:OD1	10:F:167:GLU:N	2.37	0.57
14:L:85:VAL:HG11	14:L:90:VAL:HG12	1.85	0.57
36:h:148:GLY:HA3	36:h:172:ARG:O	2.05	0.57
46:r:95:LEU:HB3	46:r:96:PRO:HD2	1.85	0.57
1:1:320:A:N1	8:D:164:LEU:HD21	2.18	0.57
1:1:1365:A:P	26:X:28:ARG:HH22	2.26	0.57
1:1:2010:G:P	21:S:41:LYS:HD3	2.45	0.57
1:1:2428:G:N2	14:L:60:ARG:HH21	2.03	0.57
2:2:539:A:H2’	2:2:540:G:H8	1.69	0.57
2:2:845:A:H2’	57:2:1820:HOH:O	2.04	0.57
2:2:908:A:H2’	2:2:909:A:H8	1.68	0.57
21:S:2:GLU:HA	21:S:108:SER:HB2	1.86	0.57
2:2:1244:G:H2’	2:2:1245:C:C6	2.38	0.57
6:B:230:HIS:CD2	6:B:247:PRO:HG3	2.39	0.57
23:U:49:VAL:O	23:U:54:GLN:N	2.38	0.57
1:1:126:A:OP1	32:d:45:SER:HB2	2.05	0.57
1:1:1140:C:P	12:J:68:LYS:NZ	2.78	0.57
1:1:1870:C:C4	57:1:3309:HOH:O	2.58	0.57
2:2:313:A:H2’	2:2:314:C:C6	2.40	0.57
8:D:149:ILE:HD11	8:D:172:ALA:HA	1.86	0.57
40:l:36:LYS:O	40:l:40:GLU:HG2	2.04	0.57
41:m:104:VAL:O	41:m:110:VAL:HG23	2.05	0.57
1:1:2428:G:H21	14:L:60:ARG:HH21	1.53	0.57
2:2:482:A:H2’	2:2:483:C:O4’	2.04	0.57
2:2:766:A:OP2	2:2:812:G:N2	2.37	0.57
2:2:843:U:H3’	2:2:844:G:H5”	1.87	0.57
6:B:129:THR:HB	6:B:191:THR:HG22	1.86	0.57
10:F:44:LYS:HB2	10:F:51:THR:OG1	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:g:100:MET:HA	35:g:107:VAL:HG21	1.85	0.57
51:w:13:PHE:O	51:w:16:GLU:HG2	2.04	0.57
1:1:518:G:C4'	21:S:18:ARG:NH2	2.68	0.57
1:1:1056:G:O2'	1:1:1103:A:N6	2.37	0.57
2:2:45:G:H2'	2:2:46:G:H8	1.70	0.57
2:2:265:G:N2	2:2:267:C:H5'	2.20	0.57
2:2:581:G:OP1	48:t:65:LYS:NZ	2.38	0.57
2:2:782:A:C6	2:2:801:U:C2	2.93	0.57
2:2:875:U:O2'	41:m:15:ARG:HD2	2.04	0.57
2:2:1137:C:O3'	2:2:1138:G:N2	2.38	0.57
2:2:1291:U:H2'	2:2:1292:G:H8	1.70	0.57
17:O:49:VAL:HG11	17:O:82:ALA:HA	1.87	0.57
41:m:86:TYR:O	41:m:87:LYS:HD3	2.05	0.57
2:2:253:A:N6	2:2:274:A:N1	2.52	0.57
2:2:675:A:H2'	2:2:676:A:H8	1.70	0.57
2:2:880:C:OP1	45:q:5:ASN:ND2	2.38	0.57
2:2:1122:U:H2'	2:2:1123:U:O4'	2.04	0.57
10:F:49:THR:OG1	10:F:50:LEU:N	2.36	0.57
35:g:159:ASP:HB3	57:g:320:HOH:O	2.04	0.57
1:1:910:A:C4	15:M:13:HIS:NE2	2.73	0.56
1:1:2303:G:H1'	9:E:123:ASP:OD1	2.05	0.56
2:2:3:A:N3	2:2:613:C:H1'	2.20	0.56
2:2:528:C:N4	45:q:46:ASN:HD21	2.03	0.56
2:2:647:C:H2'	2:2:648:A:H8	1.69	0.56
2:2:718:A:C8	44:p:118:HIS:CG	2.93	0.56
11:G:7:ASP:OD2	11:G:8:LYS:N	2.37	0.56
11:G:72:ILE:O	11:G:74:ALA:N	2.37	0.56
35:g:142:GLU:HA	57:g:314:HOH:O	2.05	0.56
36:h:9:GLY:HA3	47:s:89:MET:SD	2.44	0.56
36:h:131:ARG:NH1	36:h:168:TYR:OH	2.34	0.56
47:s:41:ARG:O	47:s:45:VAL:HG23	2.04	0.56
48:t:45:GLU:HG2	48:t:46:HIS:ND1	2.20	0.56
2:2:35:G:C6	2:2:550:G:N1	2.72	0.56
2:2:654:G:C4	2:2:753:A:C6	2.93	0.56
2:2:1095:U:H2'	2:2:1096:C:H6	1.70	0.56
8:D:118:LEU:HA	8:D:186:VAL:O	2.05	0.56
12:J:12:LYS:O	12:J:41:LYS:NZ	2.37	0.56
22:T:82:LYS:HE2	22:T:84:TYR:HE2	1.69	0.56
42:n:42:GLU:OE1	42:n:42:GLU:N	2.37	0.56
44:p:113:VAL:HA	51:w:73:ARG:HD3	1.86	0.56
51:w:32:TYR:HE2	51:w:55:LEU:HG	1.69	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:518:G:H4'	21:S:18:ARG:CZ	2.35	0.56
1:1:955:U:H5	1:1:962:G:H1	1.52	0.56
1:1:2815:C:O2	30:b:41:HIS:HE1	1.88	0.56
2:2:206:C:H2'	2:2:207:C:H6	1.70	0.56
2:2:1184:G:C2	2:2:1185:G:C8	2.94	0.56
2:2:1228:C:H5"	46:r:113:ARG:HB2	1.87	0.56
2:2:1320:C:N3	52:x:72:GLY:HA3	2.20	0.56
11:G:79:THR:HG22	11:G:145:ASN:HD21	1.70	0.56
12:J:112:GLY:O	12:J:115:GLY:N	2.38	0.56
14:L:82:LEU:HD22	14:L:90:VAL:HG11	1.87	0.56
24:V:4:ILE:O	24:V:64:VAL:HB	2.04	0.56
37:i:188:ARG:NH1	37:i:188:ARG:O	2.36	0.56
38:j:157:ARG:NH1	41:m:99:LEU:O	2.38	0.56
42:n:55:VAL:O	42:n:57:MET:N	2.35	0.56
1:1:912:C:OP1	15:M:8:LYS:NZ	2.39	0.56
1:1:2029:G:N1	1:1:2033:A:OP2	2.33	0.56
1:1:2428:G:H21	14:L:60:ARG:NH2	2.04	0.56
2:2:323:U:OP1	53:y:25:ARG:NH2	2.37	0.56
2:2:709:U:H2'	2:2:710:G:C8	2.39	0.56
2:2:922:G:H2'	2:2:923:A:C8	2.40	0.56
2:2:1060:U:H5"	43:o:53:ILE:HD12	1.86	0.56
2:2:1152:A:H4'	43:o:15:HIS:NE2	2.20	0.56
3:3:73:A:C2	3:3:74:U:C4	2.94	0.56
35:g:73:LYS:C	35:g:75:ALA:N	2.62	0.56
35:g:159:ASP:OD1	35:g:159:ASP:N	2.26	0.56
36:h:142:MET:HE2	36:h:149:ILE:HG22	1.86	0.56
40:l:85:TYR:O	40:l:87:VAL:HG12	2.04	0.56
44:p:109:ASN:HD21	54:z:5:LYS:HZ1	1.53	0.56
1:1:2846:G:P	18:P:53:ARG:HH12	2.28	0.56
2:2:556:C:C2	2:2:557:G:C8	2.93	0.56
2:2:1467:C:H2'	2:2:1468:A:C8	2.40	0.56
10:F:115:HIS:CD2	10:F:148:LEU:HD21	2.40	0.56
17:O:10:ARG:NH2	17:O:96:GLY:O	2.38	0.56
24:V:35:GLU:OE1	24:V:35:GLU:N	2.34	0.56
29:a:65:ASN:CB	57:a:103:HOH:O	2.54	0.56
35:g:105:LYS:NZ	57:g:306:HOH:O	2.39	0.56
42:n:6:TYR:CE2	42:n:90:TYR:HA	2.41	0.56
51:w:33:ILE:HD13	51:w:59:ILE:HD13	1.88	0.56
1:1:857:G:H5'	25:W:69:PHE:CD1	2.41	0.56
2:2:429:U:H3'	37:i:9:LEU:HD21	1.87	0.56
2:2:744:C:H2'	2:2:745:G:C8	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:780:A:N6	2:2:801:U:OP2	2.39	0.56
2:2:1409:C:H2'	2:2:1410:A:H8	1.71	0.56
11:G:68:ARG:CD	57:G:210:HOH:O	2.54	0.56
35:g:173:ILE:HG22	35:g:183:VAL:HG21	1.88	0.56
43:o:51:VAL:CG2	47:s:81:ARG:HB2	2.34	0.56
46:r:3:ARG:NH1	46:r:8:ASN:HD21	2.03	0.56
1:1:1936:A:H2	1:1:1943:U:H3	1.52	0.56
2:2:407:U:H2'	2:2:408:A:C8	2.41	0.56
2:2:880:C:H2'	2:2:881:G:H8	1.70	0.56
3:3:99:A:C2	3:3:100:G:H1'	2.40	0.56
12:J:24:THR:HG23	12:J:27:ARG:HB2	1.87	0.56
31:c:45:GLN:HG2	57:c:102:HOH:O	2.03	0.56
2:2:634:C:H2'	2:2:635:A:H8	1.71	0.56
2:2:700:G:O2'	2:2:704:A:H1'	2.06	0.56
2:2:1042:A:H2'	2:2:1043:G:C8	2.41	0.56
2:2:1404:C:H2'	2:2:1405:G:C8	2.41	0.56
3:3:10:G:H3'	3:3:11:C:H6	1.71	0.56
45:q:43:LYS:HG2	45:q:44:LYS:H	1.70	0.56
2:2:522:C:C2	2:2:523:A:C8	2.94	0.56
2:2:682:G:C2	2:2:683:G:C8	2.93	0.56
2:2:1507:A:H2'	2:2:1508:A:C8	2.41	0.56
29:a:66:ILE:C	57:a:128:HOH:O	2.48	0.56
36:h:85:GLU:OE1	36:h:88:ARG:NE	2.29	0.56
42:n:41:ARG:NH2	42:n:43:THR:OG1	2.39	0.56
43:o:67:ILE:HG13	47:s:96:LEU:HD13	1.86	0.56
48:t:29:VAL:HG11	48:t:81:LEU:HD21	1.86	0.56
1:1:1094:U:H1'	57:1:3334:HOH:O	2.05	0.56
2:2:548:G:H2'	2:2:549:C:O4'	2.05	0.56
2:2:1138:G:C5'	57:2:1812:HOH:O	2.54	0.56
46:r:16:VAL:O	46:r:20:THR:HG23	2.05	0.56
2:2:537:G:H2'	2:2:538:G:C8	2.41	0.55
2:2:635:A:C6	2:2:636:U:C4	2.95	0.55
2:2:642:A:C6	2:2:643:C:C4	2.93	0.55
2:2:1002:G:H2'	2:2:1003:G:H8	1.70	0.55
6:B:105:LEU:HD12	6:B:143:ASN:HD22	1.70	0.55
7:C:116:LYS:HB3	16:N:1:MET:HE1	1.86	0.55
14:L:19:LEU:HD23	14:L:27:LEU:HD23	1.88	0.55
28:Z:16:ARG:HG3	28:Z:54:MET:HE1	1.87	0.55
2:2:268:U:H2'	2:2:269:C:C6	2.41	0.55
2:2:419:C:N3	2:2:425:G:N1	2.53	0.55
2:2:628:G:H2'	2:2:629:A:C8	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:711:G:H2'	2:2:712:A:H8	1.70	0.55
3:3:12:C:O2'	25:W:74:PRO:O	2.23	0.55
11:G:67:ALA:O	11:G:71:LYS:HG2	2.06	0.55
11:G:124:THR:HG23	11:G:128:HIS:CE1	2.41	0.55
45:q:66:TYR:O	45:q:97:THR:HG22	2.07	0.55
2:2:91:U:C2	2:2:92:U:C5	2.93	0.55
2:2:247:G:O2'	2:2:282:A:N1	2.30	0.55
2:2:746:A:H2'	2:2:747:A:C8	2.40	0.55
17:O:94:ARG:NH2	17:O:97:PHE:O	2.38	0.55
35:g:20:THR:HA	35:g:39:HIS:CE1	2.41	0.55
42:n:67:VAL:HG11	42:n:79:ILE:HD11	1.89	0.55
1:1:896:A:N6	57:1:3317:HOH:O	2.38	0.55
2:2:45:G:C2	2:2:46:G:C5	2.94	0.55
2:2:252:U:C2	2:2:253:A:N7	2.75	0.55
2:2:447:G:H21	2:2:487:A:H62	1.54	0.55
2:2:472:U:H2'	2:2:473:U:C6	2.41	0.55
2:2:711:G:H2'	2:2:712:A:C8	2.42	0.55
2:2:840:C:C4	2:2:842:U:H5'	2.42	0.55
2:2:1191:A:H5"	36:h:4:LYS:HZ1	1.71	0.55
2:2:1320:C:C2	2:2:1321:U:C5	2.94	0.55
17:O:15:ARG:NH2	17:O:95:SER:OG	2.40	0.55
35:g:21:ARG:NH1	57:g:302:HOH:O	2.30	0.55
1:1:929:U:H4'	28:Z:38:ARG:NH2	2.20	0.55
1:1:2682:A:H61	1:1:2728:U:H1'	1.72	0.55
2:2:505:G:H2'	2:2:506:G:C8	2.41	0.55
2:2:909:A:H2'	2:2:910:C:C6	2.41	0.55
38:j:89:HIS:ND1	38:j:90:THR:OG1	2.34	0.55
1:1:873:C:C4'	15:M:64:TRP:HE1	2.13	0.55
1:1:1073:A:N6	57:1:3302:HOH:O	2.37	0.55
1:1:2032:G:N2	7:C:151:THR:HG22	2.22	0.55
1:1:2286:G:OP1	31:c:30:LYS:HE3	2.06	0.55
2:2:198:G:H2'	2:2:199:A:H8	1.72	0.55
2:2:514:C:H2'	2:2:515:G:C8	2.40	0.55
2:2:537:G:H2'	2:2:538:G:H8	1.72	0.55
2:2:1095:U:H2'	2:2:1096:C:C6	2.40	0.55
2:2:1292:G:H2'	2:2:1293:C:H6	1.72	0.55
2:2:1313:U:H2'	2:2:1314:C:H6	1.72	0.55
5:5:3:G:C4'	57:5:202:HOH:O	2.50	0.55
15:M:17:ASN:OD1	15:M:97:GLN:NE2	2.40	0.55
17:O:114:GLY:O	17:O:116:GLN:NE2	2.39	0.55
1:1:1365:A:OP1	26:X:3:ARG:NH2	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2820:A:OP2	1:1:2821:A:N6	2.33	0.55
2:2:75:G:H2'	2:2:76:G:H8	1.72	0.55
2:2:252:U:O4	2:2:253:A:N6	2.36	0.55
2:2:955:U:H2'	2:2:956:U:C6	2.42	0.55
2:2:1181:G:H1'	2:2:1182:G:C5	2.41	0.55
2:2:1317:C:OP2	47:s:28:LYS:NZ	2.25	0.55
9:E:117:LEU:N	9:E:177:PHE:O	2.38	0.55
13:K:112:PHE:HB3	13:K:115:ILE:HD12	1.89	0.55
39:k:37:HIS:CE1	39:k:95:ALA:HB1	2.41	0.55
46:r:95:LEU:HD22	46:r:110:LYS:HG2	1.87	0.55
1:1:84:A:OP1	23:U:6:ARG:NH1	2.40	0.55
1:1:995:C:C2	19:Q:57:PHE:HE1	2.24	0.55
1:1:1171:G:N2	1:1:1178:C:N3	2.54	0.55
1:1:1824:G:H4'	6:B:246:THR:OG1	2.06	0.55
1:1:2839:G:P	16:N:46:ARG:HG2	2.47	0.55
2:2:558:G:OP2	2:2:559:A:O2'	2.15	0.55
2:2:1081:A:H5'	38:j:23:LYS:HD3	1.87	0.55
2:2:1151:A:O2'	2:2:1152:A:H8	1.87	0.55
2:2:1452:C:O2	2:2:1453:G:N2	2.39	0.55
14:L:106:GLU:CD	57:L:204:HOH:O	2.49	0.55
32:d:16:HIS:HB2	32:d:44:VAL:HG11	1.89	0.55
37:i:65:TYR:CD1	37:i:94:LEU:HD12	2.42	0.55
40:l:22:LEU:HB2	40:l:101:MET:HE1	1.89	0.55
45:q:73:ASN:HD21	45:q:105:SER:HB3	1.72	0.55
1:1:275:C:N1	57:1:3304:HOH:O	2.40	0.55
1:1:540:C:H2'	1:1:541:A:C8	2.42	0.55
2:2:585:G:O3'	50:v:36:LYS:NZ	2.36	0.55
2:2:676:A:H2'	2:2:677:U:H6	1.70	0.55
2:2:754:C:O5'	48:t:72:ARG:NH1	2.39	0.55
2:2:949:A:H2'	2:2:950:U:O4'	2.07	0.55
2:2:1047:G:O6	2:2:1211:U:O4	2.24	0.55
3:3:75:G:H21	24:V:29:ILE:HD13	1.72	0.55
6:B:49:ILE:HD11	6:B:52:ARG:HA	1.89	0.55
6:B:225:MET:SD	6:B:230:HIS:HB2	2.47	0.55
11:G:29:PHE:HD2	11:G:30:LEU:HD23	1.72	0.55
15:M:40:ARG:HB2	15:M:93:VAL:CG2	2.37	0.55
49:u:54:LEU:HA	49:u:57:ILE:HG22	1.89	0.55
1:1:1789:A:OP2	6:B:221:ARG:NH1	2.39	0.55
1:1:1826:G:P	6:B:222:GLY:H	2.29	0.55
2:2:1250:A:N3	2:2:1370:G:O2'	2.36	0.55
14:L:129:LYS:HG3	14:L:130:GLY:N	2.20	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:q:28:PRO:HB2	45:q:29:GLN:OE1	2.06	0.55
1:1:1068:G:H1'	57:1:3316:HOH:O	2.07	0.54
2:2:1238:A:H2	2:2:1241:G:N3	2.05	0.54
11:G:117:LEU:HD12	11:G:117:LEU:O	2.08	0.54
26:X:5:CYS:SG	26:X:8:THR:OG1	2.63	0.54
29:a:20:ASN:ND2	29:a:37:CYS:SG	2.68	0.54
37:i:170:TRP:CD2	37:i:186:PRO:HB3	2.42	0.54
42:n:119:ARG:HH11	42:n:123:ARG:HD3	1.71	0.54
1:1:1009:A:N3	1:1:1153:C:O2'	2.39	0.54
2:2:80:A:H3'	57:2:1808:HOH:O	2.06	0.54
2:2:1123:U:O2'	43:o:39:PRO:O	2.25	0.54
2:2:1249:C:H4'	42:n:75:GLN:HE22	1.72	0.54
7:C:4:LEU:HD12	7:C:32:ASN:ND2	2.21	0.54
9:E:112:ARG:NE	9:E:113:ASP:OD1	2.40	0.54
41:m:106:THR:HG22	41:m:108:LYS:H	1.73	0.54
48:t:33:THR:HG21	48:t:87:LEU:HD11	1.88	0.54
50:v:44:LEU:HD21	50:v:73:TRP:CG	2.42	0.54
53:y:71:LYS:HG3	53:y:74:ARG:HH22	1.72	0.54
1:1:355:U:H2'	1:1:356:G:H8	1.71	0.54
1:1:2266:A:N6	1:1:2273:A:OP2	2.39	0.54
1:1:2821:A:H4'	7:C:167:ASN:ND2	2.23	0.54
2:2:417:G:H2'	2:2:418:C:C6	2.43	0.54
2:2:861:G:O2'	2:2:874:G:O2'	2.23	0.54
2:2:1118:U:P	42:n:106:ARG:HE	2.30	0.54
2:2:1130:A:C8	2:2:1146:A:C6	2.95	0.54
2:2:1300:G:H4'	2:2:1301:U:H5'	1.89	0.54
2:2:1384:C:H2'	2:2:1385:G:H8	1.73	0.54
2:2:1530:G:N2	2:2:1531:A:H62	2.05	0.54
15:M:34:LYS:HA	15:M:101:VAL:HA	1.90	0.54
18:P:43:PHE:HE1	18:P:61:VAL:HB	1.72	0.54
35:g:115:LYS:O	35:g:118:GLU:HG3	2.07	0.54
39:k:37:HIS:NE2	39:k:65:GLU:HB2	2.23	0.54
40:l:85:TYR:O	40:l:86:GLN:C	2.49	0.54
43:o:42:LEU:HD23	43:o:71:LEU:HD13	1.88	0.54
1:1:1866:A:N6	1:1:1875:G:O2'	2.40	0.54
2:2:1007:U:O2'	2:2:1008:U:O5'	2.18	0.54
2:2:1056:U:OP1	36:h:163:ALA:N	2.35	0.54
2:2:1267:C:H2'	2:2:1268:G:C8	2.43	0.54
1:1:2848:G:O2'	1:1:2868:A:N6	2.41	0.54
2:2:622:A:C8	2:2:623:C:C6	2.95	0.54
7:C:24:VAL:HG12	7:C:178:VAL:HG21	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:U:40:ASN:HD22	23:U:63:ALA:HB3	1.72	0.54
36:h:174:PRO:HD2	36:h:203:PHE:CD1	2.42	0.54
38:j:111:MET:HG3	38:j:140:THR:CG2	2.36	0.54
41:m:96:MET:HE2	41:m:99:LEU:HB2	1.90	0.54
1:1:775:G:H4'	1:1:776:G:H5'	1.88	0.54
1:1:2539:C:H5'	34:f:3:VAL:HG21	1.90	0.54
2:2:1206:G:H2'	2:2:1207:2MG:C8	2.42	0.54
7:C:5:VAL:N	7:C:32:ASN:HD21	1.98	0.54
12:J:31:GLU:OE1	12:J:35:ARG:NH1	2.40	0.54
18:P:31:TRP:CZ3	18:P:38:LYS:HB3	2.42	0.54
35:g:4:VAL:HG13	35:g:9:MET:HE3	1.88	0.54
38:j:35:ALA:HB1	38:j:60:ILE:HD13	1.90	0.54
53:y:79:LEU:O	53:y:83:ILE:HG12	2.06	0.54
1:1:2574:G:O2'	7:C:148:GLN:CB	2.52	0.54
1:1:2821:A:H4'	7:C:167:ASN:HD21	1.72	0.54
2:2:35:G:C6	2:2:550:G:C6	2.95	0.54
2:2:109:A:C8	2:2:326:G:H2'	2.42	0.54
2:2:964:A:N3	2:2:969:A:O2'	2.38	0.54
2:2:1041:G:H2'	2:2:1042:A:H8	1.73	0.54
38:j:71:MET:HE3	57:j:201:HOH:O	2.08	0.54
40:l:131:LYS:NZ	57:l:202:HOH:O	2.39	0.54
42:n:107:ASP:OD1	42:n:109:ARG:HG3	2.08	0.54
43:o:36:VAL:HG22	43:o:76:ILE:HG23	1.90	0.54
47:s:49:GLN:NE2	52:x:12:ASP:OD1	2.40	0.54
1:1:328:U:H4'	23:U:66:GLN:OE1	2.08	0.54
1:1:1496:A:N3	1:1:1577:C:O2'	2.39	0.54
2:2:1120:C:H2'	2:2:1121:U:C6	2.42	0.54
14:L:55:MET:HG3	14:L:59:ARG:HB2	1.88	0.54
16:N:55:ALA:HB2	16:N:79:LEU:HD22	1.89	0.54
35:g:145:GLU:HB2	57:g:314:HOH:O	2.07	0.54
37:i:64:ILE:HG22	37:i:65:TYR:HD2	1.72	0.54
44:p:37:ARG:O	44:p:38:GLN:NE2	2.40	0.54
2:2:176:C:H2'	2:2:177:G:N3	2.23	0.54
2:2:502:A:C6	2:2:544:G:C6	2.96	0.54
2:2:672:U:H2'	2:2:673:A:C8	2.43	0.54
2:2:1152:A:O3'	43:o:15:HIS:NE2	2.41	0.54
2:2:1419:G:N7	2:2:1482:G:N2	2.56	0.54
3:3:117:G:H2'	3:3:118:C:C6	2.42	0.54
12:J:140:LEU:HG	12:J:141:ASP:O	2.08	0.54
18:P:92:VAL:HG21	18:P:97:LEU:HD11	1.90	0.54
37:i:12:SER:HB3	37:i:19:LEU:HG	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:s:24:ARG:HH11	47:s:51:LEU:HD23	1.72	0.54
1:1:1607:C:N4	1:1:1622:G:OP2	2.32	0.54
1:1:2469:A:H4'	15:M:55:ARG:HD3	1.90	0.54
2:2:455:G:C2	2:2:478:A:N1	2.76	0.54
2:2:559:A:H4'	2:2:560:A:H3'	1.89	0.54
2:2:660:C:H2'	2:2:661:G:O4'	2.08	0.54
2:2:949:A:C6	2:2:950:U:C4	2.95	0.54
2:2:1223:C:H5"	2:2:1224:U:H5"	1.89	0.54
2:2:1440:U:OP2	2:2:1440:U:H6	1.91	0.54
7:C:148:GLN:HB2	7:C:152:PRO:HD3	1.89	0.54
39:k:7:VAL:HG11	51:w:65:LEU:HD11	1.90	0.54
1:1:200:U:O2	1:1:386:G:N2	2.41	0.53
2:2:104:G:C2	2:2:105:G:N7	2.75	0.53
2:2:552:U:H4'	45:q:84:GLY:O	2.08	0.53
2:2:1157:A:C2	2:2:1181:G:C4	2.96	0.53
2:2:1206:G:C4	2:2:1207:2MG:C8	2.96	0.53
2:2:1228:C:OP1	46:r:113:ARG:HA	2.08	0.53
3:3:72:G:O3'	3:3:73:A:H4'	2.08	0.53
5:5:28:C:H42	5:5:42:G:H1	1.56	0.53
10:F:38:ASN:ND2	10:F:64:GLN:OE1	2.41	0.53
14:L:81:ASP:HB3	14:L:100:ILE:HD13	1.90	0.53
38:j:150:PRO:HA	38:j:153:VAL:HG12	1.90	0.53
1:1:483:A:H5"	23:U:47:LYS:HG2	1.91	0.53
1:1:1816:C:C5	6:B:62:TYR:CD2	2.96	0.53
1:1:2069:A:H61	1:1:2442:C:H42	1.55	0.53
2:2:20:U:H2'	2:2:21:G:O4'	2.07	0.53
2:2:201:G:H1	2:2:216:U:H3	1.56	0.53
2:2:227:G:H2'	2:2:228:A:H8	1.73	0.53
2:2:512:U:H2'	2:2:513:C:H6	1.71	0.53
2:2:999:C:H2'	2:2:1000:A:C8	2.43	0.53
2:2:1521:C:H2'	2:2:1522:U:C6	2.43	0.53
3:3:75:G:C2	3:3:76:G:C5	2.97	0.53
3:3:118:C:C4	3:3:119:A:C8	2.97	0.53
37:i:73:ARG:HG3	37:i:204:TYR:HE1	1.72	0.53
41:m:10:MET:SD	41:m:33:LYS:HG2	2.47	0.53
44:p:110:ILE:HD13	54:z:4:ILE:HD11	1.90	0.53
1:1:320:A:OP1	8:D:130:LYS:NZ	2.41	0.53
1:1:2881:U:O2'	16:N:96:ARG:HA	2.09	0.53
2:2:110:C:O2'	49:u:25:ARG:O	2.26	0.53
2:2:384:G:H2'	2:2:385:C:C6	2.42	0.53
2:2:908:A:H2'	2:2:909:A:C8	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1152:A:OP1	43:o:70:HIS:ND1	2.41	0.53
2:2:1246:A:C2	2:2:1292:G:C6	2.96	0.53
11:G:81:ALA:HA	11:G:147:VAL:HG23	1.89	0.53
14:L:133:ALA:HB2	57:L:206:HOH:O	2.07	0.53
35:g:219:ALA:HA	35:g:222:ARG:HG3	1.90	0.53
36:h:57:ILE:CG1	36:h:64:ILE:HD11	2.39	0.53
46:r:97:VAL:HG23	46:r:109:ARG:HH22	1.73	0.53
49:u:34:GLU:OE2	49:u:56:ARG:NH2	2.36	0.53
1:1:1490:A:N1	6:B:74:ILE:HG12	2.24	0.53
1:1:1614:A:C6	21:S:87:PRO:CB	2.92	0.53
1:1:2624:G:H1'	30:b:19:HIS:CE1	2.43	0.53
2:2:45:G:H2'	2:2:46:G:C8	2.44	0.53
2:2:299:G:N2	2:2:565:U:O2	2.40	0.53
2:2:517:G:N2	2:2:530:G:OP1	2.40	0.53
2:2:627:G:H2'	2:2:628:G:H8	1.73	0.53
2:2:794:A:H2'	2:2:795:C:C6	2.44	0.53
3:3:72:G:H21	3:3:104:A:H62	1.56	0.53
6:B:150:LYS:HE2	6:B:153:GLN:HE22	1.72	0.53
8:D:22:ASP:HA	8:D:114:ARG:HH12	1.72	0.53
10:F:42:GLU:HG3	10:F:55:ARG:HB2	1.90	0.53
22:T:14:PRO:HD3	27:Y:30:MET:SD	2.48	0.53
22:T:80:TRP:CZ3	22:T:82:LYS:HB2	2.44	0.53
29:a:37:CYS:N	29:a:40:CYS:SG	2.78	0.53
35:g:73:LYS:HG3	35:g:73:LYS:O	2.09	0.53
1:1:2732:G:P	7:C:208:LYS:HZ3	2.31	0.53
2:2:884:U:H4'	2:2:885:G:H5"	1.89	0.53
7:C:3:GLY:HA3	7:C:203:VAL:O	2.09	0.53
9:E:74:VAL:H	9:E:79:ILE:HG13	1.73	0.53
43:o:31:ARG:HA	57:o:206:HOH:O	2.09	0.53
47:s:39:GLU:OE2	47:s:43:ASN:ND2	2.39	0.53
48:t:30:ALA:HA	48:t:85:LEU:HD11	1.89	0.53
1:1:322:A:OP2	8:D:163:ASN:HB2	2.07	0.53
1:1:580:U:O3'	19:Q:31:VAL:HG13	2.08	0.53
1:1:2852:G:H5'	16:N:64:ARG:NH2	2.24	0.53
2:2:298:A:H2'	2:2:299:G:H8	1.71	0.53
2:2:842:U:H3'	2:2:843:U:C5'	2.39	0.53
2:2:1087:G:H21	54:z:71:TYR:HA	1.73	0.53
2:2:1171:A:H2'	2:2:1172:C:C6	2.44	0.53
2:2:1376:U:H2'	2:2:1377:A:C8	2.44	0.53
2:2:1380:U:C4	40:l:3:ARG:HG3	2.44	0.53
2:2:1523:G:OP1	44:p:128:ARG:NH1	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:C:184:ARG:NH1	18:P:11:GLU:OE2	2.41	0.53
11:G:90:LEU:HD11	11:G:146:VAL:HG11	1.90	0.53
30:b:31:ASP:OD2	30:b:33:THR:OG1	2.22	0.53
50:v:13:VAL:N	50:v:22:VAL:O	2.37	0.53
1:1:227:A:H61	1:1:410:G:H21	1.54	0.53
1:1:2076:U:OP2	1:1:2238:G:N2	2.35	0.53
1:1:2880:C:H1'	16:N:92:GLY:O	2.09	0.53
2:2:102:G:OP1	53:y:5:LYS:NZ	2.41	0.53
2:2:235:C:H2'	2:2:236:A:H8	1.72	0.53
2:2:286:C:C4	2:2:287:U:C4	2.97	0.53
2:2:428:G:C5	2:2:430:A:C6	2.97	0.53
2:2:1025:U:H4'	2:2:1026:G:N7	2.22	0.53
2:2:1072:G:H2'	2:2:1073:U:C6	2.43	0.53
2:2:1317:C:H42	47:s:53:ARG:NE	2.06	0.53
6:B:67:PHE:HD1	6:B:143:ASN:HD21	1.56	0.53
6:B:146:MET:HE3	6:B:154:LEU:HD21	1.89	0.53
11:G:68:ARG:O	11:G:72:ILE:HG12	2.09	0.53
40:l:42:ILE:HG21	40:l:116:MET:HG3	1.91	0.53
44:p:26:SER:OG	44:p:27:PHE:N	2.42	0.53
1:1:540:C:H2'	1:1:541:A:H8	1.74	0.53
1:1:1031:G:H4'	34:f:6:SER:HB2	1.91	0.53
2:2:113:G:C6	2:2:114:U:C4	2.97	0.53
2:2:255:G:P	50:v:71:LYS:HZ1	2.31	0.53
9:E:17:MET:HA	9:E:22:TYR:HD2	1.74	0.53
9:E:64:LYS:HD2	9:E:65:PRO:HD2	1.89	0.53
35:g:56:GLU:O	35:g:60:ILE:HG23	2.08	0.53
38:j:151:GLU:N	38:j:151:GLU:OE2	2.41	0.53
1:1:929:U:H1'	28:Z:26:GLY:O	2.08	0.53
1:1:2198:A:C5	11:G:29:PHE:CD1	2.97	0.53
2:2:124:C:H2'	2:2:125:U:C6	2.44	0.53
2:2:197:A:N3	2:2:198:G:H1'	2.24	0.53
2:2:508:U:O2	2:2:510:A:N6	2.41	0.53
2:2:713:G:H2'	2:2:714:G:C8	2.43	0.53
2:2:1305:G:N2	2:2:1332:A:OP2	2.42	0.53
3:3:75:G:H2'	3:3:76:G:H8	1.74	0.53
13:K:19:VAL:HB	13:K:41:ILE:HD12	1.90	0.53
22:T:6:ARG:O	22:T:10:VAL:HG23	2.07	0.53
29:a:55:GLY:O	29:a:58:ASP:HB3	2.09	0.53
35:g:9:MET:HB2	35:g:14:VAL:HG21	1.91	0.53
35:g:94:HIS:CE1	57:g:309:HOH:O	2.62	0.53
40:l:47:LEU:HD11	40:l:58:GLU:HB2	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:863:A:H4'	3:3:99:A:N1	2.24	0.53
1:1:1094:U:C1'	57:1:3334:HOH:O	2.56	0.53
2:2:56:U:H2'	2:2:57:G:C8	2.44	0.53
2:2:203:G:C2	2:2:215:C:C2	2.97	0.53
2:2:522:C:C4	2:2:523:A:C5	2.97	0.53
2:2:1346:A:H61	2:2:1374:A:H5"	1.73	0.53
3:3:111:U:H2'	3:3:112:G:C8	2.45	0.53
7:C:186:LEU:HD21	18:P:4:ILE:HG21	1.91	0.53
20:R:4:VAL:HG23	20:R:39:LEU:HB2	1.90	0.53
21:S:15:GLN:O	21:S:18:ARG:N	2.42	0.53
23:U:13:VAL:HG12	23:U:70:VAL:HG22	1.90	0.53
26:X:32:ASN:OD1	26:X:34:HIS:NE2	2.42	0.53
29:a:44:PHE:HD2	57:a:122:HOH:O	1.90	0.53
37:i:64:ILE:HG22	37:i:65:TYR:CD2	2.44	0.53
1:1:476:G:N1	1:1:479:A:OP2	2.39	0.52
1:1:2641:G:H5"	12:J:78:THR:HB	1.91	0.52
2:2:227:G:H2'	2:2:228:A:C8	2.44	0.52
2:2:505:G:H2'	2:2:506:G:H8	1.74	0.52
2:2:769:G:H4'	2:2:1513:A:H4'	1.91	0.52
2:2:1148:U:H2'	2:2:1149:C:O4'	2.09	0.52
2:2:1263:C:H2'	2:2:1264:U:H6	1.74	0.52
2:2:1294:G:H2'	2:2:1295:U:C6	2.44	0.52
2:2:1311:A:OP1	29:a:59:ARG:NE	2.43	0.52
6:B:141:VAL:HG12	6:B:192:LEU:HD13	1.91	0.52
9:E:10:ASP:OD1	9:E:11:GLU:N	2.42	0.52
36:h:7:PRO:HG2	36:h:201:TRP:CZ3	2.45	0.52
36:h:83:ASP:O	36:h:86:LYS:HG2	2.09	0.52
2:2:84:U:H5	57:2:1860:HOH:O	1.92	0.52
2:2:673:A:H5"	39:k:86:ARG:NH1	2.24	0.52
2:2:714:G:O2'	2:2:777:A:N7	2.40	0.52
2:2:950:U:H1'	2:2:971:G:C6	2.44	0.52
2:2:1513:A:H2'	2:2:1514:G:C8	2.45	0.52
7:C:2:ILE:HD13	7:C:90:PHE:CE1	2.30	0.52
8:D:31:VAL:HG22	8:D:96:VAL:HG21	1.89	0.52
14:L:95:LEU:O	14:L:98:ALA:N	2.43	0.52
1:1:861:A:N3	3:3:79:G:O2'	2.42	0.52
1:1:1248:G:O2'	19:Q:3:ARG:HA	2.09	0.52
3:3:109:A:C6	3:3:110:C:C4	2.98	0.52
6:B:205:LEU:HD12	6:B:210:ALA:HB1	1.90	0.52
9:E:111:ILE:HG13	9:E:137:ILE:HG21	1.92	0.52
16:N:35:LYS:HB2	16:N:112:TYR:CE1	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:h:182:ILE:O	36:h:182:ILE:HG13	2.08	0.52
51:w:43:ARG:HB2	51:w:44:ILE:HD12	1.92	0.52
54:z:14:VAL:HA	54:z:17:ARG:HB2	1.92	0.52
1:1:481:G:O2'	1:1:506:G:N2	2.43	0.52
1:1:2729:G:O2'	7:C:191:GLY:HA3	2.09	0.52
2:2:109:A:H8	2:2:327:A:H5'	1.74	0.52
2:2:246:A:C2	2:2:282:A:C5	2.97	0.52
2:2:579:A:H2'	2:2:580:C:C6	2.45	0.52
2:2:642:A:C5	2:2:643:C:C5	2.98	0.52
2:2:868:C:H2'	2:2:869:G:O4'	2.09	0.52
2:2:921:U:H1'	38:j:23:LYS:HG3	1.90	0.52
2:2:1037:C:H2'	2:2:1038:C:C6	2.44	0.52
2:2:1506:U:O2'	2:2:1507:A:H5'	2.08	0.52
10:F:23:VAL:HA	10:F:36:THR:HA	1.92	0.52
21:S:15:GLN:O	21:S:17:VAL:N	2.42	0.52
29:a:9:TYR:HD1	29:a:27:THR:HG23	1.74	0.52
2:2:47:C:O4'	2:2:365:U:N3	2.42	0.52
2:2:230:G:H2'	2:2:231:U:O4'	2.08	0.52
2:2:950:U:H5"	46:r:101:ARG:HH11	1.75	0.52
2:2:1308:U:OP1	46:r:97:VAL:N	2.39	0.52
14:L:61:LEU:HD13	33:e:24:HIS:CG	2.45	0.52
18:P:3:ASN:OD1	18:P:7:GLN:NE2	2.41	0.52
29:a:59:ARG:HG2	29:a:63:ARG:HE	1.75	0.52
35:g:49:MET:SD	35:g:199:VAL:HG23	2.49	0.52
35:g:162:PHE:HA	35:g:184:PHE:O	2.09	0.52
38:j:46:VAL:HG22	38:j:118:ALA:HA	1.91	0.52
50:v:46:VAL:HG11	50:v:61:ILE:HG21	1.92	0.52
1:1:1225:G:H5"	20:R:73:LYS:NZ	2.24	0.52
1:1:2348:U:OP2	33:e:38:THR:HG21	2.10	0.52
2:2:313:A:C6	2:2:314:C:N4	2.78	0.52
2:2:1061:G:H2'	2:2:1062:U:O4'	2.10	0.52
2:2:1299:A:H2'	2:2:1299:A:N3	2.24	0.52
2:2:1391:U:H2'	2:2:1392:G:H8	1.74	0.52
2:2:1391:U:H2'	2:2:1392:G:C8	2.45	0.52
3:3:78:A:C2	3:3:99:A:C4	2.98	0.52
9:E:80:ARG:HG3	9:E:83:TYR:HE2	1.74	0.52
11:G:30:LEU:HB3	11:G:36:ALA:HB3	1.91	0.52
39:k:37:HIS:HB3	39:k:97:THR:HG22	1.91	0.52
42:n:80:ARG:HD3	42:n:103:PHE:CD2	2.45	0.52
47:s:46:LEU:O	47:s:50:THR:HG23	2.10	0.52
49:u:40:ASN:HB3	49:u:43:ALA:HB2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2223:G:P	6:B:171:TYR:HH	2.32	0.52
2:2:705:G:C4	2:2:706:A:C8	2.98	0.52
2:2:980:C:H4'	47:s:13:ARG:HH22	1.74	0.52
2:2:1013:G:N2	2:2:1015:G:H8	2.07	0.52
2:2:1130:A:C6	2:2:1131:G:C6	2.97	0.52
2:2:1143:G:H2'	2:2:1144:G:C8	2.45	0.52
3:3:74:U:C4	3:3:75:G:C4	2.97	0.52
18:P:91:ALA:HB2	18:P:113:ARG:HB2	1.91	0.52
22:T:40:LYS:HE2	22:T:60:THR:HG22	1.92	0.52
41:m:22:LYS:O	41:m:65:TYR:OH	2.26	0.52
53:y:35:VAL:HG11	53:y:79:LEU:HD23	1.91	0.52
54:z:7:ARG:NE	54:z:7:ARG:HA	2.25	0.52
1:1:1129:A:O2'	1:1:2515:C:O2	2.28	0.52
2:2:137:U:H2'	2:2:138:G:H8	1.74	0.52
2:2:983:A:O2'	2:2:1050:G:OP2	2.26	0.52
2:2:1236:A:H4'	2:2:1304:G:H4'	1.90	0.52
2:2:1348:U:OP2	2:2:1373:G:N1	2.26	0.52
29:a:8:LYS:O	29:a:27:THR:HG22	2.10	0.52
36:h:33:LEU:HD21	47:s:93:ILE:HG12	1.91	0.52
37:i:27:ALA:HB3	37:i:30:THR:HG23	1.92	0.52
37:i:159:LEU:O	37:i:163:GLU:HG2	2.09	0.52
44:p:18:ASP:HB3	44:p:81:ASN:HB2	1.91	0.52
54:z:62:ARG:HG2	57:z:211:HOH:O	2.10	0.52
1:1:533:G:OP1	19:Q:24:TYR:HB3	2.10	0.52
1:1:2014:A:H4'	21:S:92:ARG:HH11	1.73	0.52
2:2:93:U:C4'	57:2:1833:HOH:O	2.57	0.52
2:2:579:A:O2'	48:t:54:ARG:NH2	2.43	0.52
2:2:710:G:H2'	2:2:711:G:H8	1.74	0.52
2:2:1216:A:H5"	47:s:5:SER:HB2	1.92	0.52
2:2:1347:G:C8	42:n:109:ARG:HB3	2.44	0.52
2:2:1434:A:H2'	2:2:1435:G:O4'	2.09	0.52
3:3:26:C:H2'	3:3:27:C:H6	1.75	0.52
3:3:74:U:H3'	3:3:75:G:C8	2.45	0.52
6:B:69:ARG:HH21	6:B:116:ILE:HG21	1.74	0.52
17:O:39:VAL:HB	17:O:49:VAL:HG22	1.92	0.52
35:g:91:PHE:N	35:g:150:GLY:O	2.42	0.52
48:t:17:ARG:NH2	48:t:24:SER:OG	2.35	0.52
1:1:1140:C:OP2	12:J:68:LYS:NZ	2.38	0.52
1:1:2572:A:OP1	1:1:2574:G:H4'	2.09	0.52
2:2:40:C:C2	2:2:41:G:C8	2.98	0.52
2:2:282:A:C5	2:2:283:U:C6	2.97	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:414:A:C4	2:2:415:A:C8	2.98	0.52
2:2:555:U:C2	2:2:556:C:C5	2.98	0.52
2:2:679:C:O2'	2:2:680:C:H5'	2.10	0.52
5:5:23:C:H2'	5:5:24:G:C8	2.44	0.52
10:F:26:ILE:HG22	10:F:79:VAL:HG21	1.91	0.52
17:O:55:GLU:OE1	17:O:81:ARG:NH1	2.38	0.52
37:i:9:LEU:HD23	37:i:22:LYS:HD2	1.90	0.52
1:1:30:G:O2'	1:1:1214:A:N3	2.41	0.51
1:1:1064:C:N4	1:1:1069:A:OP2	2.43	0.51
1:1:2392:A:C2	14:L:55:MET:HE3	2.45	0.51
1:1:2638:G:O2'	1:1:2778:A:N6	2.43	0.51
2:2:33:A:H2'	2:2:34:C:H6	1.75	0.51
2:2:235:C:H2'	2:2:236:A:C8	2.46	0.51
2:2:254:G:O2'	50:v:18:GLU:O	2.27	0.51
2:2:298:A:H8	2:2:298:A:OP1	1.93	0.51
2:2:308:C:H2'	2:2:309:A:H8	1.75	0.51
2:2:833:G:H2'	2:2:834:U:C6	2.44	0.51
6:B:21:ASN:HB2	6:B:24:LEU:HD12	1.92	0.51
8:D:113:VAL:HG22	8:D:118:LEU:HD21	1.91	0.51
14:L:132:ARG:HG3	14:L:142:ILE:HG13	1.91	0.51
36:h:152:GLU:HG3	36:h:167:TRP:HB3	1.92	0.51
37:i:27:ALA:O	37:i:30:THR:N	2.40	0.51
39:k:6:ILE:HB	39:k:62:MET:HG3	1.91	0.51
43:o:12:ALA:HB3	43:o:18:ILE:HB	1.92	0.51
1:1:279:A:N6	1:1:361:G:N3	2.56	0.51
1:1:1140:C:H5'	12:J:26:GLY:HA3	1.91	0.51
2:2:413:G:H1'	2:2:428:G:H21	1.75	0.51
2:2:451:A:H4'	2:2:452:A:O4'	2.10	0.51
2:2:469:C:H2'	2:2:470:C:H6	1.74	0.51
2:2:623:C:H2'	2:2:624:C:H6	1.74	0.51
2:2:1112:C:O2	36:h:178:LEU:N	2.43	0.51
21:S:23:LEU:HD11	30:b:24:ALA:HB2	1.92	0.51
48:t:67:LEU:HD13	48:t:78:TYR:HE1	1.75	0.51
1:1:1275:A:OP2	1:1:1646:C:N4	2.43	0.51
2:2:55:A:N6	2:2:357:G:H1'	2.24	0.51
2:2:339:C:H2'	2:2:340:U:H6	1.74	0.51
2:2:418:C:H2'	2:2:419:C:C6	2.45	0.51
2:2:1306:A:C5	2:2:1307:U:C4	2.98	0.51
2:2:1374:A:N3	2:2:1375:A:C8	2.78	0.51
2:2:1525:G:H2'	2:2:1526:G:H8	1.75	0.51
9:E:17:MET:HA	9:E:22:TYR:CD2	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:O:69:ASP:N	17:O:69:ASP:OD1	2.41	0.51
33:e:15:LYS:HB2	33:e:23:LYS:HE2	1.92	0.51
54:z:4:ILE:CD1	54:z:19:PHE:HB2	2.41	0.51
1:1:600:G:H5'	8:D:27:LEU:CD2	2.39	0.51
1:1:2884:U:C6	30:b:50:ARG:HG2	2.45	0.51
2:2:102:G:P	53:y:5:LYS:HZ1	2.34	0.51
2:2:412:A:N6	2:2:431:A:H61	2.07	0.51
2:2:842:U:O3'	2:2:844:G:N2	2.43	0.51
2:2:1013:G:O2'	2:2:1015:G:O6	2.28	0.51
2:2:1187:G:H2'	2:2:1188:A:H8	1.76	0.51
2:2:1355:G:H2'	2:2:1356:G:C8	2.46	0.51
2:2:1371:G:O3'	42:n:71:GLY:HA3	2.10	0.51
2:2:1463:U:H2'	2:2:1464:U:H6	1.75	0.51
8:D:1:MET:O	8:D:13:THR:HA	2.10	0.51
11:G:117:LEU:HB3	11:G:130:VAL:HG23	1.92	0.51
16:N:28:LEU:HD23	16:N:48:VAL:HG21	1.93	0.51
37:i:126:ASN:ND2	37:i:141:ASP:OD2	2.37	0.51
47:s:39:GLU:O	47:s:43:ASN:ND2	2.44	0.51
1:1:565:C:OP2	20:R:80:ARG:N	2.38	0.51
1:1:2406:A:C2	14:L:69:ARG:NH2	2.78	0.51
1:1:2682:A:C8	7:C:11:MET:HE2	2.45	0.51
2:2:405:U:P	37:i:3:ARG:HH21	2.33	0.51
2:2:440:C:C2	2:2:441:A:C8	2.99	0.51
2:2:681:A:N6	2:2:710:G:O6	2.43	0.51
2:2:851:G:C6	2:2:852:G:N7	2.79	0.51
2:2:1296:C:H4'	2:2:1302:C:H41	1.76	0.51
3:3:73:A:H2'	3:3:74:U:C6	2.45	0.51
21:S:109:ASP:OD1	21:S:110:ARG:N	2.44	0.51
23:U:36:VAL:HG13	23:U:39:ILE:HB	1.92	0.51
25:W:49:ALA:O	25:W:82:ILE:HG22	2.11	0.51
38:j:95:PHE:O	38:j:125:ALA:HA	2.11	0.51
39:k:38:ARG:HH21	39:k:63:ASN:ND2	2.07	0.51
1:1:1744:A:H3'	1:1:1745:A:H8	1.76	0.51
2:2:3:A:H5"	2:2:4:U:O4'	2.10	0.51
2:2:432:A:C4	2:2:433:G:C8	2.98	0.51
2:2:601:G:C4	2:2:602:A:C8	2.99	0.51
2:2:705:G:C5	2:2:706:A:C8	2.98	0.51
2:2:1291:U:H2'	2:2:1292:G:C8	2.46	0.51
3:3:100:G:C6	3:3:101:A:C5	2.99	0.51
8:D:15:SER:OG	8:D:17:THR:N	2.43	0.51
9:E:122:PHE:HB3	9:E:163:ASP:HB2	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:Q:49:ASP:HA	19:Q:52:GLN:HB2	1.92	0.51
37:i:26:ARG:HB2	37:i:31:LYS:HE2	1.91	0.51
42:n:116:VAL:HG21	43:o:62:ARG:HB3	1.93	0.51
1:1:1980:G:O2'	1:1:1982:U:OP2	2.26	0.51
1:1:2205:A:H61	1:1:2219:U:H3	1.57	0.51
1:1:2387:U:H4'	25:W:41:ARG:NH1	2.24	0.51
1:1:2406:A:C6	14:L:69:ARG:NH1	2.79	0.51
1:1:2657:A:C2'	1:1:2658:C:H5'	2.40	0.51
2:2:299:G:H2'	2:2:300:A:C8	2.46	0.51
2:2:680:C:H2'	2:2:681:A:C8	2.46	0.51
2:2:932:C:OP1	40:l:4:ARG:HD3	2.10	0.51
2:2:935:A:H61	40:l:3:ARG:HG3	1.75	0.51
2:2:940:C:H2'	2:2:941:G:C8	2.45	0.51
2:2:1023:U:H3'	2:2:1024:G:H8	1.76	0.51
11:G:79:THR:HG22	11:G:145:ASN:ND2	2.26	0.51
12:J:125:TYR:HH	12:J:132:HIS:CD2	2.23	0.51
35:g:72:THR:C	35:g:74:ARG:H	2.18	0.51
37:i:170:TRP:CE2	37:i:186:PRO:HB3	2.46	0.51
1:1:992:C:O3'	20:R:74:ILE:HG12	2.11	0.51
1:1:1124:G:O2'	34:f:37:GLN:HG2	2.10	0.51
1:1:2444:G:H5'	8:D:62:GLN:HE22	1.76	0.51
2:2:380:G:N1	2:2:384:G:O6	2.44	0.51
2:2:468:A:H3'	2:2:469:C:C6	2.46	0.51
2:2:737:C:H2'	2:2:738:C:H6	1.75	0.51
2:2:1094:G:O2'	2:2:1108:G:N2	2.44	0.51
11:G:73:ASN:ND2	11:G:73:ASN:O	2.44	0.51
28:Z:24:LEU:O	28:Z:26:GLY:N	2.43	0.51
35:g:96:TRP:CD2	35:g:100:MET:HE3	2.45	0.51
36:h:70:THR:O	36:h:105:GLU:HA	2.11	0.51
43:o:19:ASP:O	43:o:22:THR:HG22	2.10	0.51
50:v:20:SER:HB3	50:v:71:LYS:NZ	2.25	0.51
2:2:109:A:N6	2:2:326:G:N7	2.59	0.51
2:2:951:G:C6	2:2:1231:G:C6	2.99	0.51
2:2:1526:G:OP1	54:z:45:ARG:NH1	2.44	0.51
8:D:191:ASP:OD1	8:D:191:ASP:N	2.41	0.51
10:F:78:GLY:HA2	10:F:82:GLY:HA2	1.92	0.51
21:S:88:ARG:HG3	21:S:94:ASP:OD1	2.10	0.51
35:g:199:VAL:O	35:g:200:ILE:HD13	2.10	0.51
36:h:156:ARG:HH12	36:h:161:GLU:HA	1.75	0.51
39:k:9:MET:O	39:k:85:ILE:N	2.44	0.51
43:o:7:ARG:HD3	43:o:73:LEU:HD11	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2659:G:P	10:F:158:LYS:HD2	2.50	0.51
2:2:18:C:O2'	2:2:1078:U:O4	2.29	0.51
2:2:114:U:H2'	2:2:115:G:H8	1.75	0.51
2:2:1274:A:H2'	2:2:1275:A:C8	2.45	0.51
7:C:40:LEU:HD23	7:C:46:ARG:HG3	1.92	0.51
11:G:47:PHE:HA	11:G:51:ARG:HB3	1.93	0.51
14:L:109:LYS:HA	14:L:126:ARG:O	2.11	0.51
37:i:71:GLN:O	37:i:72:PHE:C	2.52	0.51
39:k:38:ARG:NH1	39:k:98:GLU:O	2.43	0.51
40:l:57:SER:OG	40:l:58:GLU:N	2.44	0.51
1:1:1085:A:O2'	1:1:1104:C:O2	2.27	0.50
1:1:1365:A:OP1	26:X:28:ARG:NH2	2.34	0.50
1:1:2060:A:OP2	8:D:66:GLY:HA2	2.10	0.50
1:1:2811:G:OP1	7:C:61:THR:OG1	2.28	0.50
2:2:71:A:N1	2:2:72:A:C8	2.79	0.50
2:2:93:U:H4'	57:2:1833:HOH:O	2.11	0.50
2:2:892:A:C4	2:2:907:A:N6	2.79	0.50
3:3:10:G:C8	3:3:11:C:C5	2.99	0.50
8:D:76:PRO:HB3	8:D:84:THR:HB	1.93	0.50
13:K:76:VAL:HG22	18:P:73:VAL:CG1	2.40	0.50
22:T:8:LEU:HD23	22:T:50:LEU:HD21	1.93	0.50
22:T:12:ARG:HB2	22:T:33:LYS:O	2.11	0.50
23:U:14:LEU:HD11	23:U:71:ALA:HB2	1.93	0.50
28:Z:24:LEU:O	28:Z:27:LEU:N	2.45	0.50
35:g:104:TRP:HD1	57:g:306:HOH:O	1.94	0.50
35:g:182:PRO:HB2	35:g:184:PHE:CE1	2.46	0.50
37:i:55:LEU:O	37:i:59:GLN:HG2	2.11	0.50
43:o:59:LYS:HE2	43:o:62:ARG:HH22	1.77	0.50
1:1:1614:A:N1	21:S:87:PRO:HB3	2.26	0.50
2:2:76:G:H1	2:2:93:U:H3	1.57	0.50
2:2:416:G:H2'	2:2:417:G:H8	1.75	0.50
2:2:440:C:C4	2:2:441:A:N7	2.80	0.50
2:2:458:U:O2	2:2:474:G:N2	2.37	0.50
2:2:647:C:H2'	2:2:648:A:C8	2.45	0.50
2:2:958:A:N1	52:x:54:GLY:HA3	2.26	0.50
2:2:1088:G:H2'	2:2:1089:G:O4'	2.11	0.50
2:2:1163:A:C6	2:2:1174:G:C6	3.00	0.50
2:2:1287:A:H2'	2:2:1288:A:C8	2.47	0.50
2:2:1356:G:H2'	2:2:1357:A:H8	1.76	0.50
6:B:5:LYS:HA	6:B:17:VAL:HG12	1.91	0.50
10:F:94:TYR:CE2	10:F:107:LEU:HB3	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:O:30:ARG:HA	17:O:35:ILE:HG22	1.93	0.50
17:O:48:LEU:O	17:O:85:LYS:NZ	2.30	0.50
24:V:48:MET:O	24:V:51:GLN:HG3	2.12	0.50
51:w:45:THR:OG1	51:w:47:THR:HG22	2.11	0.50
1:1:1799:G:N2	1:1:1818:U:O2'	2.44	0.50
1:1:1870:C:C5	57:1:3309:HOH:O	2.54	0.50
2:2:61:G:H2'	2:2:62:U:O4'	2.11	0.50
2:2:138:G:C6	2:2:226:G:C6	2.99	0.50
2:2:1008:U:H2'	2:2:1009:U:O2	2.10	0.50
2:2:1129:C:C2	2:2:1139:G:C6	3.00	0.50
2:2:1146:A:N3	2:2:1146:A:H2'	2.27	0.50
2:2:1250:A:OP1	42:n:69:GLY:N	2.42	0.50
7:C:183:GLU:H	7:C:183:GLU:CD	2.19	0.50
9:E:164:GLU:HG2	9:E:167:ARG:HH21	1.77	0.50
24:V:30:ILE:O	24:V:37:PRO:HA	2.11	0.50
40:l:102:ARG:HA	40:l:105:VAL:HG12	1.94	0.50
44:p:110:ILE:HB	54:z:4:ILE:HG12	1.92	0.50
46:r:23:TYR:HB3	46:r:66:GLU:HG3	1.92	0.50
1:1:882:G:N2	1:1:895:U:O2'	2.44	0.50
1:1:1140:C:P	12:J:68:LYS:HZ2	2.34	0.50
1:1:1779:U:OP2	1:1:1784:A:N6	2.40	0.50
2:2:41:G:H2'	2:2:42:G:C8	2.46	0.50
2:2:172:A:H2'	2:2:173:U:H3'	1.93	0.50
2:2:196:A:N3	2:2:222:C:H1'	2.27	0.50
2:2:552:U:O2'	45:q:83:ARG:O	2.21	0.50
2:2:838:G:C6	2:2:849:G:C6	3.00	0.50
2:2:1310:G:N1	2:2:1328:C:N3	2.59	0.50
3:3:30:C:H1'	3:3:57:A:H61	1.74	0.50
3:3:37:C:C4	3:3:38:C:C4	2.99	0.50
26:X:18:ARG:NH2	26:X:24:ALA:HB2	2.26	0.50
29:a:65:ASN:OD1	29:a:65:ASN:N	2.45	0.50
38:j:80:THR:OG1	38:j:81:LEU:N	2.43	0.50
42:n:20:PHE:HD1	42:n:64:TYR:HD2	1.59	0.50
1:1:668:A:H2'	1:1:670:A:H62	1.75	0.50
1:1:2848:G:C8	18:P:95:ALA:HB2	2.46	0.50
2:2:108:G:H5'	2:2:109:A:C5'	2.41	0.50
2:2:821:G:H2'	2:2:822:U:C6	2.46	0.50
2:2:1035:A:H2'	2:2:1036:A:H8	1.77	0.50
2:2:1268:G:N3	2:2:1326:U:O2'	2.45	0.50
2:2:1308:U:H5"	46:r:97:VAL:HG23	1.94	0.50
2:2:1313:U:H2'	2:2:1314:C:C6	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:16:C:H5'	5:5:59:A:N1	2.26	0.50
42:n:110:GLN:HE21	42:n:111:VAL:HG12	1.76	0.50
43:o:65:TYR:CE1	47:s:89:MET:HE2	2.47	0.50
44:p:30:THR:HG21	44:p:63:ALA:HB1	1.93	0.50
44:p:59:THR:OG1	44:p:60:PRO:HD2	2.10	0.50
2:2:224:U:H2'	2:2:225:C:C6	2.46	0.50
2:2:359:G:C6	2:2:360:G:C5	3.00	0.50
2:2:489:C:H2'	2:2:490:C:C6	2.46	0.50
2:2:607:A:H2'	2:2:608:A:C8	2.47	0.50
2:2:640:A:H2'	2:2:641:U:H6	1.77	0.50
2:2:834:U:H2'	2:2:835:U:C6	2.47	0.50
2:2:932:C:H2'	2:2:933:G:C8	2.46	0.50
2:2:1130:A:C6	2:2:1131:G:C5	2.99	0.50
12:J:16:TYR:HE1	12:J:138:GLN:OE1	1.94	0.50
15:M:29:GLY:HA2	15:M:106:ASP:OD1	2.12	0.50
35:g:70:VAL:HG13	35:g:163:VAL:HG13	1.92	0.50
37:i:187:GLU:O	37:i:191:LEU:HD23	2.12	0.50
42:n:7:TYR:HD1	42:n:20:PHE:CE2	2.29	0.50
47:s:10:GLU:OE2	47:s:61:ARG:N	2.44	0.50
48:t:71:LYS:HB2	48:t:78:TYR:CD1	2.46	0.50
1:1:162:U:H1'	1:1:163:C:H5	1.76	0.50
1:1:482:A:OP2	1:1:507:A:N6	2.42	0.50
1:1:910:A:N9	15:M:13:HIS:CD2	2.79	0.50
1:1:1380:G:O2'	1:1:1569:A:N6	2.44	0.50
1:1:2223:G:OP1	6:B:171:TYR:OH	2.23	0.50
2:2:107:G:OP1	2:2:325:A:N6	2.42	0.50
2:2:113:G:C2	2:2:114:U:C2	2.99	0.50
2:2:373:A:C2	2:2:374:A:C8	3.00	0.50
2:2:920:U:H2'	2:2:921:U:C6	2.47	0.50
2:2:974:A:OP1	47:s:69:ARG:NH1	2.42	0.50
2:2:1060:U:O2'	43:o:58:ASN:OD1	2.29	0.50
13:K:15:GLY:O	13:K:47:ILE:HG12	2.12	0.50
35:g:52:GLU:O	35:g:56:GLU:HG2	2.12	0.50
40:l:61:ALA:O	40:l:64:VAL:HG12	2.11	0.50
50:v:38:ILE:O	50:v:40:ARG:HG2	2.12	0.50
1:1:637:A:C5'	14:L:112:LEU:HD23	2.42	0.50
1:1:1675:C:C4	7:C:134:HIS:CE1	2.99	0.50
1:1:2428:G:O2'	14:L:54:GLN:HA	2.12	0.50
2:2:918:A:H2'	2:2:919:A:H8	1.77	0.50
3:3:101:A:H2'	3:3:102:G:O4'	2.11	0.50
14:L:59:ARG:HA	33:e:13:ARG:HH22	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:a:12:ILE:HD11	29:a:29:GLY:N	2.26	0.50
38:j:39:VAL:HG22	38:j:67:ALA:HB1	1.93	0.50
45:q:44:LYS:HB3	45:q:45:PRO:HD3	1.94	0.50
49:u:5:ARG:HH21	49:u:22:ALA:HB3	1.76	0.50
1:1:247:G:OP2	1:1:249:C:N4	2.44	0.50
1:1:2014:A:H4'	21:S:92:ARG:NH1	2.27	0.50
1:1:2839:G:OP1	16:N:46:ARG:HG2	2.12	0.50
2:2:186:C:H2'	2:2:187:G:C8	2.47	0.50
2:2:308:C:C2	2:2:309:A:C8	2.99	0.50
2:2:459:A:N6	2:2:474:G:O6	2.45	0.50
2:2:1174:G:C2'	2:2:1175:G:H5'	2.40	0.50
2:2:1187:G:H2'	2:2:1188:A:C8	2.47	0.50
15:M:60:GLN:NE2	57:M:302:HOH:O	2.44	0.50
29:a:47:LYS:NZ	57:a:102:HOH:O	2.43	0.50
35:g:77:SER:OG	35:g:93:ASN:O	2.23	0.50
43:o:45:ARG:HB3	43:o:69:THR:HG23	1.94	0.50
51:w:22:ASP:OD2	51:w:23:TYR:N	2.44	0.50
1:1:2624:G:H1'	30:b:19:HIS:HE1	1.76	0.49
2:2:224:U:H2'	2:2:225:C:H6	1.77	0.49
2:2:438:U:C2	2:2:494:G:N1	2.80	0.49
2:2:552:U:H2'	2:2:553:A:C8	2.33	0.49
2:2:634:C:C2	2:2:635:A:C8	3.00	0.49
2:2:738:C:H2'	2:2:739:C:H6	1.77	0.49
2:2:904:U:C2	2:2:905:U:C5	2.99	0.49
2:2:1157:A:N7	2:2:1180:A:N6	2.60	0.49
2:2:1158:C:C4	2:2:1160:G:C8	3.00	0.49
2:2:1227:A:N7	46:r:116:ILE:HD12	2.27	0.49
30:b:9:THR:HG23	30:b:12:LYS:H	1.76	0.49
36:h:60:PRO:O	36:h:63:SER:OG	2.26	0.49
37:i:104:ARG:NH1	37:i:111:ARG:HH22	2.10	0.49
1:1:17:G:H4'	19:Q:25:TYR:CE2	2.47	0.49
2:2:122:G:C6	2:2:123:U:C4	3.00	0.49
2:2:608:A:C5	2:2:609:A:C8	3.00	0.49
9:E:8:TYR:HB2	9:E:173:PHE:CZ	2.46	0.49
11:G:135:HIS:HB3	11:G:138:VAL:HG12	1.93	0.49
26:X:59:ILE:HD11	26:X:67:VAL:HG11	1.95	0.49
29:a:57:VAL:HA	52:x:67:VAL:HG11	1.93	0.49
36:h:64:ILE:HG23	36:h:99:ALA:HA	1.93	0.49
37:i:89:ASN:O	37:i:93:LEU:HG	2.12	0.49
38:j:143:GLY:HA2	38:j:146:ASN:ND2	2.27	0.49
48:t:39:LEU:O	48:t:42:HIS:HB3	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:565:C:P	20:R:80:ARG:H	2.35	0.49
1:1:829:A:N7	1:1:2247:A:O2'	2.44	0.49
1:1:2092:U:OP1	1:1:2199:A:O2'	2.27	0.49
2:2:173:U:H4'	2:2:174:A:OP2	2.10	0.49
2:2:261:U:OP2	53:y:71:LYS:NZ	2.39	0.49
2:2:431:A:C4	2:2:432:A:C8	3.00	0.49
2:2:704:A:C5	2:2:705:G:C8	3.00	0.49
2:2:993:G:C6	2:2:1046:A:N1	2.80	0.49
2:2:1227:A:O2'	46:r:114:LYS:HB2	2.11	0.49
2:2:1244:G:C6	2:2:1294:G:C6	3.00	0.49
3:3:24:G:N7	3:3:56:G:C4	2.81	0.49
10:F:9:VAL:HG23	10:F:50:LEU:HD23	1.94	0.49
11:G:126:GLY:N	11:G:146:VAL:O	2.45	0.49
12:J:36:LEU:O	12:J:51:GLY:HA3	2.12	0.49
25:W:17:GLU:OE1	25:W:18:ALA:N	2.43	0.49
40:l:25:LYS:O	40:l:29:ILE:HG13	2.12	0.49
1:1:514:A:N3	1:1:581:C:O2'	2.40	0.49
1:1:1012:U:OP2	19:Q:70:ARG:NH1	2.36	0.49
2:2:109:A:C6	2:2:326:G:C5	3.00	0.49
2:2:714:G:H1'	2:2:777:A:C8	2.48	0.49
2:2:750:C:C2	2:2:751:U:C5	3.00	0.49
2:2:984:C:N3	2:2:1222:G:N2	2.59	0.49
2:2:1129:C:H5"	42:n:18:ARG:HH12	1.76	0.49
2:2:1213:A:C5	2:2:1215:G:C5	3.01	0.49
2:2:1363:A:C5	2:2:1365:G:C6	3.00	0.49
7:C:5:VAL:H	7:C:32:ASN:ND2	1.99	0.49
9:E:135:GLN:NE2	9:E:150:ARG:HG2	2.28	0.49
10:F:45:HIS:HD2	10:F:49:THR:O	1.95	0.49
18:P:28:VAL:HG12	18:P:84:ILE:HG23	1.94	0.49
28:Z:24:LEU:HD11	28:Z:54:MET:SD	2.52	0.49
28:Z:52:SER:OG	28:Z:53:PHE:N	2.45	0.49
41:m:2:SER:O	41:m:4:GLN:HG2	2.13	0.49
1:1:96:C:C4'	27:Y:41:HIS:CE1	2.90	0.49
1:1:1138:G:C2	12:J:108:MET:HE2	2.47	0.49
1:1:1287:A:N7	16:N:105:GLY:HA3	2.27	0.49
1:1:2405:G:O2'	1:1:2411:A:N6	2.46	0.49
1:1:2729:G:H21	7:C:172:VAL:HG11	1.78	0.49
1:1:2849:U:OP1	18:P:93:ARG:NH2	2.37	0.49
2:2:246:A:C8	2:2:279:A:C6	3.01	0.49
2:2:907:A:C6	2:2:908:A:C4	3.00	0.49
2:2:1069:C:O2'	2:2:1192:C:H1'	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:F:32:GLU:OE1	10:F:32:GLU:N	2.45	0.49
13:K:87:LEU:HB3	13:K:92:GLU:HA	1.93	0.49
15:M:23:GLY:O	15:M:101:VAL:HG12	2.12	0.49
19:Q:94:ILE:HD12	20:R:13:ARG:HB2	1.93	0.49
28:Z:8:THR:HA	28:Z:34:HIS:O	2.13	0.49
38:j:87:GLY:O	38:j:94:VAL:HG22	2.13	0.49
1:1:542:C:H2'	1:1:543:G:C8	2.48	0.49
2:2:243:A:C4	2:2:281:G:N2	2.80	0.49
2:2:677:U:H1'	44:p:121:CYS:SG	2.51	0.49
2:2:985:C:C2	2:2:1221:G:C2	3.01	0.49
2:2:1191:A:OP1	36:h:3:GLN:HB3	2.13	0.49
2:2:1320:C:N4	52:x:36:ARG:O	2.46	0.49
3:3:101:A:H2'	3:3:102:G:C8	2.46	0.49
31:c:40:ASP:OD1	31:c:42:VAL:HG12	2.12	0.49
35:g:101:LEU:HB2	35:g:157:LEU:HD11	1.94	0.49
1:1:286:U:H2'	1:1:287:G:H8	1.78	0.49
2:2:513:C:H2'	2:2:514:C:H6	1.78	0.49
2:2:515:G:C6	2:2:537:G:N1	2.81	0.49
2:2:1137:C:H1'	2:2:1138:G:N2	2.27	0.49
2:2:1220:G:C2	2:2:1221:G:C5	3.00	0.49
2:2:1333:A:H2'	2:2:1334:G:O4'	2.13	0.49
3:3:73:A:C8	3:3:104:A:C6	3.00	0.49
6:B:196:GLY:O	6:B:198:ALA:N	2.46	0.49
8:D:48:THR:HG23	8:D:86:ALA:HB3	1.95	0.49
14:L:91:ASP:O	14:L:94:THR:N	2.45	0.49
32:d:43:THR:HG23	32:d:45:SER:H	1.77	0.49
46:r:16:VAL:HA	46:r:30:SER:OG	2.13	0.49
1:1:2902:C:H4'	57:1:3402:HOH:O	2.12	0.49
2:2:125:U:H2'	2:2:126:G:C8	2.47	0.49
2:2:131:A:H2'	2:2:132:C:H6	1.77	0.49
2:2:406:G:C4	2:2:495:A:C6	3.01	0.49
2:2:791:G:H22	2:2:1497:G:H4'	1.77	0.49
2:2:1077:G:O2'	2:2:1079:G:O6	2.29	0.49
3:3:71:C:H2'	3:3:72:G:O4'	2.12	0.49
9:E:23:ASN:ND2	57:E:202:HOH:O	2.44	0.49
11:G:81:ALA:HA	11:G:147:VAL:O	2.13	0.49
36:h:7:PRO:O	36:h:11:ARG:HG2	2.12	0.49
36:h:11:ARG:O	36:h:13:GLY:N	2.46	0.49
40:l:50:LEU:HD22	40:l:124:LEU:HD23	1.93	0.49
1:1:139:U:H2'	1:1:140:C:H5	1.78	0.49
1:1:1077:A:C5	57:1:3323:HOH:O	2.56	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1750:G:O2'	1:1:2860:A:N1	2.44	0.49
1:1:2295:C:OP2	17:O:9:ARG:NH2	2.46	0.49
1:1:2820:A:H4'	16:N:3:HIS:CD2	2.48	0.49
2:2:461:A:C4	2:2:462:G:C8	3.01	0.49
2:2:1133:G:C5	2:2:1142:G:C2	3.01	0.49
5:5:61:C:H2'	5:5:62:C:C6	2.47	0.49
7:C:3:GLY:HA3	7:C:204:LYS:HA	1.95	0.49
12:J:17:VAL:HG13	12:J:137:PRO:HB2	1.94	0.49
21:S:36:LEU:HB3	21:S:48:LYS:HB2	1.94	0.49
24:V:30:ILE:HD11	24:V:40:ILE:HD13	1.95	0.49
26:X:38:PHE:CE1	26:X:59:ILE:HG21	2.47	0.49
34:f:27:CYS:SG	34:f:33:HIS:ND1	2.86	0.49
36:h:177:THR:O	36:h:180:ALA:N	2.28	0.49
40:l:22:LEU:HD23	40:l:22:LEU:H	1.77	0.49
1:1:2184:A:C1'	57:1:3327:HOH:O	2.60	0.49
2:2:430:A:OP1	37:i:9:LEU:HG	2.12	0.49
2:2:592:G:C6	2:2:648:A:N1	2.81	0.49
2:2:1388:C:H2'	2:2:1389:C:H6	1.78	0.49
3:3:74:U:H2'	57:3:301:HOH:O	2.13	0.49
7:C:37:VAL:HG12	7:C:48:ILE:HG22	1.94	0.49
11:G:31:VAL:HG13	11:G:32:PRO:HD3	1.95	0.49
14:L:108:ALA:HB3	14:L:125:LEU:HD13	1.94	0.49
24:V:4:ILE:HD11	24:V:63:ILE:HG12	1.95	0.49
52:x:19:VAL:HG11	52:x:44:MET:SD	2.53	0.49
1:1:783:A:H2'	1:1:784:G:H4'	1.95	0.48
1:1:959:A:N6	1:1:2495:G:O2'	2.45	0.48
1:1:2245:U:H5"	1:1:2246:G:H5'	1.95	0.48
2:2:149:A:H2'	2:2:150:U:C6	2.48	0.48
2:2:411:A:H61	2:2:430:A:H62	1.60	0.48
2:2:546:A:P	37:i:69:GLU:HB3	2.52	0.48
2:2:876:C:H2'	2:2:877:G:H8	1.77	0.48
2:2:1162:C:H2'	2:2:1163:A:H8	1.78	0.48
2:2:1213:A:N7	2:2:1215:G:C6	2.81	0.48
2:2:1409:C:H2'	2:2:1410:A:C8	2.48	0.48
13:K:58:LEU:HD21	13:K:86:LEU:HD23	1.94	0.48
14:L:90:VAL:HG23	14:L:90:VAL:O	2.13	0.48
30:b:52:ARG:NH2	30:b:54:VAL:HG12	2.27	0.48
41:m:36:ILE:HD11	41:m:126:ILE:HD13	1.95	0.48
42:n:10:GLY:HA2	42:n:81:HIS:ND1	2.28	0.48
47:s:46:LEU:HB3	52:x:13:LEU:HD13	1.95	0.48
53:y:59:ASP:OD2	53:y:76:LYS:NZ	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:253:C:OP2	33:e:5:LYS:NZ	2.37	0.48
1:1:729:G:H5'	6:B:207:LYS:NZ	2.28	0.48
1:1:1070:A:O2'	1:1:1097:U:O5'	2.28	0.48
1:1:2471:A:N6	1:1:2476:A:O2'	2.45	0.48
2:2:41:G:C6	2:2:402:G:C6	3.02	0.48
2:2:403:C:C2	2:2:404:G:C8	3.02	0.48
2:2:477:C:H2'	2:2:478:A:C8	2.48	0.48
2:2:647:C:C2	2:2:648:A:C8	3.01	0.48
2:2:687:A:H2	2:2:704:A:C5	2.31	0.48
2:2:1080:A:H5"	38:j:21:VAL:HG21	1.95	0.48
2:2:1472:U:H2'	2:2:1473:G:C8	2.49	0.48
2:2:1478:U:H2'	2:2:1479:C:C6	2.47	0.48
7:C:172:VAL:HG13	7:C:194:PRO:HG3	1.94	0.48
12:J:35:ARG:HG2	12:J:40:HIS:ND1	2.28	0.48
12:J:49:ASP:OD1	12:J:118:MET:HG2	2.13	0.48
29:a:9:TYR:CD1	29:a:27:THR:HG23	2.48	0.48
36:h:27:LYS:NZ	57:h:303:HOH:O	2.45	0.48
39:k:43:GLY:HA2	39:k:58:HIS:NE2	2.27	0.48
1:1:805:G:N2	1:1:829:A:OP1	2.46	0.48
2:2:100:G:C6	2:2:101:A:C5	3.01	0.48
2:2:376:G:H4'	49:u:5:ARG:HD2	1.94	0.48
2:2:736:C:H2'	2:2:737:C:H6	1.77	0.48
2:2:1447:A:O2'	2:2:1448:C:H5'	2.13	0.48
10:F:9:VAL:C	10:F:49:THR:HG1	2.21	0.48
15:M:72:PRO:HB3	15:M:92:TRP:CZ3	2.48	0.48
25:W:46:HIS:HB2	25:W:79:PHE:CE1	2.48	0.48
45:q:46:ASN:HB2	45:q:89:0TD:SB	2.54	0.48
48:t:74:ASP:OD2	48:t:77:ARG:HD3	2.14	0.48
1:1:1826:G:OP2	6:B:221:ARG:HB2	2.12	0.48
1:1:2838:G:O3'	16:N:46:ARG:CG	2.61	0.48
2:2:87:C:H2'	2:2:88:U:C6	2.48	0.48
2:2:284:C:H2'	2:2:285:C:C6	2.49	0.48
2:2:393:A:H2'	2:2:393:A:N3	2.29	0.48
6:B:132:MET:HE3	6:B:190:ALA:HB2	1.94	0.48
38:j:13:GLU:OE2	38:j:68:ARG:NH1	2.46	0.48
39:k:4:TYR:HD1	39:k:71:ILE:HG13	1.79	0.48
43:o:84:VAL:O	43:o:88:MET:HG2	2.14	0.48
46:r:3:ARG:HH11	46:r:8:ASN:HD21	1.60	0.48
1:1:45:G:H5"	1:1:46:G:H5'	1.95	0.48
1:1:533:G:C5'	19:Q:24:TYR:CD1	2.94	0.48
1:1:958:U:C2'	3:3:89:U:O2	2.59	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1614:A:C6	21:S:87:PRO:HB3	2.49	0.48
1:1:1826:G:O2'	1:1:1971:U:OP2	2.31	0.48
2:2:468:A:H3'	2:2:469:C:H6	1.78	0.48
2:2:673:A:H2'	2:2:674:G:C8	2.48	0.48
2:2:828:U:C4	2:2:859:G:C4	3.02	0.48
2:2:942:G:H2'	2:2:943:U:C6	2.48	0.48
2:2:1175:G:HO2'	2:2:1176:A:H8	1.61	0.48
2:2:1319:A:C8	2:2:1323:G:C6	3.01	0.48
6:B:88:SER:HB3	6:B:200:HIS:CD2	2.49	0.48
12:J:43:GLU:OE2	12:J:43:GLU:N	2.45	0.48
28:Z:11:ARG:HH11	28:Z:53:PHE:HB2	1.79	0.48
29:a:60:PHE:HE1	52:x:42:PRO:HD3	1.79	0.48
35:g:67:ILE:N	35:g:89:GLN:OE1	2.46	0.48
37:i:78:GLU:CD	37:i:81:ARG:HE	2.22	0.48
39:k:20:GLY:O	39:k:23:GLU:HG3	2.13	0.48
54:z:17:ARG:O	54:z:21:ARG:HG2	2.14	0.48
1:1:675:A:H4'	8:D:62:GLN:OE1	2.13	0.48
1:1:1537:G:N1	1:1:1538:G:N3	2.62	0.48
2:2:671:G:O2'	39:k:79:ARG:NH1	2.47	0.48
2:2:872:A:C4	2:2:874:G:N7	2.81	0.48
2:2:878:A:OP2	41:m:80:ARG:NH1	2.47	0.48
2:2:987:G:N1	2:2:1219:A:C6	2.82	0.48
3:3:117:G:OP2	3:3:117:G:H8	1.97	0.48
9:E:43:ALA:HA	9:E:46:ASP:O	2.13	0.48
25:W:37:ILE:HG12	25:W:67:VAL:HG11	1.96	0.48
35:g:169:GLU:O	35:g:171:ILE:N	2.47	0.48
36:h:147:LYS:HB2	36:h:203:PHE:CD2	2.49	0.48
40:l:53:ARG:HH12	40:l:118:LEU:HD11	1.79	0.48
40:l:58:GLU:HA	40:l:61:ALA:HB3	1.94	0.48
42:n:19:VAL:HG21	42:n:82:GLY:C	2.38	0.48
45:q:5:ASN:O	45:q:9:ARG:HG3	2.13	0.48
50:v:47:HIS:N	50:v:73:TRP:O	2.40	0.48
1:1:1061:U:H4'	1:1:1070:A:C4	2.49	0.48
2:2:13:U:N3	2:2:916:U:O4	2.46	0.48
2:2:185:U:N3	2:2:186:C:C5	2.81	0.48
2:2:215:C:H2'	2:2:216:U:H6	1.77	0.48
2:2:543:U:C2	2:2:544:G:C8	3.02	0.48
2:2:586:C:H2'	2:2:587:G:O4'	2.14	0.48
2:2:627:G:H2'	2:2:628:G:C8	2.48	0.48
2:2:792:A:H1'	2:2:794:A:N7	2.29	0.48
2:2:1234:C:OP1	42:n:119:ARG:NH2	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1523:G:H2'	2:2:1524:C:C6	2.48	0.48
10:F:23:VAL:HB	10:F:36:THR:HG22	1.96	0.48
14:L:12:SER:OG	14:L:13:LYS:N	2.46	0.48
21:S:96:ILE:HG13	21:S:96:ILE:O	2.14	0.48
35:g:8:ASP:O	35:g:11:LYS:HB3	2.14	0.48
35:g:84:ALA:HB1	35:g:89:GLN:O	2.13	0.48
36:h:130:PHE:CD1	36:h:157:LEU:HD23	2.49	0.48
41:m:18:GLN:HG3	41:m:72:VAL:HG23	1.96	0.48
43:o:53:ILE:HG12	43:o:61:ALA:O	2.13	0.48
48:t:25:THR:O	48:t:29:VAL:HG12	2.14	0.48
48:t:47:LYS:O	48:t:53:ARG:NH2	2.47	0.48
54:z:4:ILE:HG21	54:z:19:PHE:HA	1.96	0.48
1:1:372:G:P	26:X:61:LYS:HZ3	2.35	0.48
1:1:981:A:OP2	1:1:982:C:N4	2.43	0.48
1:1:1246:A:H4'	8:D:40:ARG:HH12	1.79	0.48
1:1:1819:A:O2'	6:B:178:SER:HB2	2.14	0.48
2:2:119:A:C8	2:2:288:A:N1	2.81	0.48
2:2:512:U:H2'	2:2:513:C:C6	2.48	0.48
2:2:674:G:H2'	2:2:675:A:H8	1.78	0.48
2:2:945:G:N3	2:2:945:G:H2'	2.28	0.48
2:2:1084:G:H8	2:2:1084:G:O5'	1.97	0.48
2:2:1173:U:H2'	2:2:1174:G:O4'	2.13	0.48
2:2:1339:A:O5'	2:2:1339:A:H8	1.97	0.48
2:2:1507:A:H2'	2:2:1508:A:H8	1.79	0.48
7:C:38:LYS:O	7:C:46:ARG:HA	2.13	0.48
9:E:122:PHE:O	9:E:124:GLY:N	2.47	0.48
13:K:13:ASN:HD21	13:K:97:THR:HG22	1.77	0.48
24:V:67:GLY:C	24:V:68:LYS:HD3	2.38	0.48
35:g:104:TRP:NE1	35:g:108:ARG:HH11	2.12	0.48
41:m:78:VAL:HG21	41:m:128:TYR:CE2	2.49	0.48
43:o:8:ILE:HD13	43:o:100:ILE:HA	1.96	0.48
44:p:84:VAL:HG11	44:p:97:ILE:HD11	1.95	0.48
49:u:29:ASN:OD1	49:u:29:ASN:N	2.41	0.48
50:v:68:SER:HG	50:v:69:LYS:H	1.61	0.48
2:2:71:A:C2	2:2:100:G:C8	3.02	0.48
2:2:358:U:C2	2:2:359:G:C8	3.02	0.48
2:2:417:G:H2'	2:2:418:C:H6	1.78	0.48
2:2:418:C:H2'	2:2:419:C:H6	1.78	0.48
2:2:620:C:H2'	2:2:621:A:C8	2.49	0.48
2:2:920:U:C2	2:2:921:U:C5	3.01	0.48
2:2:949:A:C5	2:2:950:U:C5	3.02	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1152:A:H2'	2:2:1153:G:C8	2.49	0.48
2:2:1171:A:H2'	2:2:1172:C:H6	1.79	0.48
2:2:1454:G:OP2	2:2:1454:G:H8	1.97	0.48
5:5:7:G:N2	57:5:205:HOH:O	2.44	0.48
8:D:136:GLN:O	8:D:139:LYS:HG2	2.13	0.48
38:j:101:GLU:OE1	38:j:122:ASN:ND2	2.47	0.48
40:l:66:LEU:O	40:l:70:ARG:HG3	2.13	0.48
41:m:80:ARG:O	41:m:81:PRO:C	2.57	0.48
51:w:13:PHE:HA	51:w:16:GLU:HG2	1.96	0.48
1:1:1847:G:H1'	2:2:702:A:C2	2.49	0.48
1:1:2311:A:C5	9:E:77:PHE:HB3	2.48	0.48
2:2:47:C:O2	2:2:49:U:C4	2.67	0.48
2:2:606:G:H5"	2:2:607:A:H5'	1.96	0.48
2:2:1038:C:C2	2:2:1039:G:C8	3.02	0.48
10:F:109:PHE:CE1	10:F:152:ARG:HD3	2.48	0.48
12:J:32:LEU:O	12:J:36:LEU:HG	2.14	0.48
18:P:51:ARG:CZ	18:P:53:ARG:HG3	2.44	0.48
20:R:4:VAL:HG22	20:R:40:MET:HB3	1.95	0.48
40:l:143:ARG:NH1	57:l:205:HOH:O	2.47	0.48
50:v:61:ILE:HA	50:v:75:LEU:HA	1.96	0.48
54:z:4:ILE:HG13	54:z:4:ILE:O	2.14	0.48
2:2:108:G:H5'	2:2:109:A:H5"	1.95	0.47
2:2:502:A:C6	2:2:544:G:N1	2.82	0.47
2:2:815:A:N6	2:2:1509:C:H1'	2.29	0.47
2:2:1063:C:C4	2:2:1064:G:C5	3.02	0.47
2:2:1157:A:H4'	2:2:1158:C:O5'	2.14	0.47
7:C:96:ILE:CG2	7:C:100:LEU:HD12	2.43	0.47
23:U:84:GLY:HA3	23:U:97:LYS:HZ1	1.78	0.47
37:i:76:TYR:CE2	37:i:204:TYR:HB3	2.49	0.47
37:i:122:ALA:HB1	37:i:149:ALA:HB2	1.95	0.47
38:j:134:ILE:HG23	38:j:135:ASN:OD1	2.14	0.47
42:n:80:ARG:O	42:n:84:THR:HG23	2.14	0.47
45:q:29:GLN:HA	45:q:82:ILE:O	2.14	0.47
1:1:275:C:C2	57:1:3304:HOH:O	2.55	0.47
1:1:290:U:H2'	1:1:291:G:C8	2.49	0.47
1:1:811:U:C4	14:L:21:ARG:CZ	2.97	0.47
2:2:17:U:H2'	2:2:18:C:H6	1.79	0.47
2:2:150:U:O4	2:2:171:A:N7	2.47	0.47
2:2:257:G:H2'	2:2:258:G:H8	1.79	0.47
2:2:522:C:H41	45:q:50:ARG:HH12	1.62	0.47
2:2:524:G:H2'	2:2:525:C:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:544:G:H2'	2:2:545:C:C6	2.48	0.47
2:2:563:A:H5'	2:2:566:G:N2	2.29	0.47
2:2:696:A:H2'	2:2:697:U:H6	1.79	0.47
2:2:723:U:C6	54:z:52:ALA:HB1	2.49	0.47
2:2:784:A:C6	2:2:799:G:C6	3.03	0.47
2:2:1053:G:N7	2:2:1200:C:H5"	2.29	0.47
2:2:1315:U:C4	2:2:1316:G:C6	3.02	0.47
2:2:1317:C:H42	47:s:53:ARG:HE	1.62	0.47
3:3:26:C:H2'	3:3:27:C:C6	2.49	0.47
3:3:73:A:N6	3:3:104:A:H1'	2.29	0.47
10:F:18:LYS:HB3	10:F:25:THR:HB	1.95	0.47
10:F:19:ILE:HG12	10:F:24:ILE:HD12	1.96	0.47
13:K:65:THR:HG23	13:K:68:GLY:H	1.79	0.47
38:j:76:LEU:HG	38:j:77:ASN:H	1.78	0.47
42:n:83:ILE:O	42:n:87:LEU:HB2	2.14	0.47
47:s:13:ARG:HD3	47:s:59:ARG:HG3	1.96	0.47
47:s:24:ARG:NH1	47:s:51:LEU:HD23	2.29	0.47
1:1:602:A:O2'	1:1:604:G:O2'	2.30	0.47
1:1:811:U:C4	14:L:21:ARG:NH1	2.82	0.47
1:1:1341:G:O4'	22:T:61:LEU:HD23	2.13	0.47
1:1:2406:A:N1	14:L:69:ARG:NH1	2.62	0.47
2:2:91:U:H2'	2:2:92:U:C6	2.48	0.47
2:2:137:U:H2'	2:2:138:G:C8	2.49	0.47
2:2:228:A:H2'	2:2:229:U:C6	2.49	0.47
2:2:240:G:N1	2:2:241:G:C5	2.81	0.47
2:2:337:G:C2	2:2:338:A:C5	3.02	0.47
2:2:728:A:N7	48:t:54:ARG:NE	2.62	0.47
2:2:892:A:C4	2:2:907:A:C6	3.02	0.47
2:2:950:U:C6	46:r:101:ARG:NH1	2.82	0.47
2:2:1166:G:N1	2:2:1169:A:OP2	2.47	0.47
3:3:9:G:C4	3:3:112:G:N2	2.83	0.47
19:Q:47:TYR:CE2	19:Q:51:ARG:CZ	2.94	0.47
36:h:191:THR:OG1	36:h:192:THR:N	2.46	0.47
39:k:40:GLU:O	39:k:42:TRP:N	2.47	0.47
45:q:70:GLU:OE1	45:q:70:GLU:N	2.47	0.47
46:r:39:ILE:HA	57:r:207:HOH:O	2.13	0.47
1:1:1270:C:H5"	1:1:1271:G:H5'	1.96	0.47
2:2:99:C:O2'	2:2:100:G:H8	1.98	0.47
2:2:939:G:C6	2:2:940:C:C4	3.01	0.47
2:2:950:U:C5	46:r:101:ARG:CZ	2.97	0.47
2:2:1110:A:C4	2:2:1111:A:C8	3.02	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1116:U:H3	2:2:1184:G:H1	1.61	0.47
6:B:145:GLU:OE1	6:B:150:LYS:N	2.48	0.47
10:F:87:LEU:HD23	10:F:164:TYR:HA	1.95	0.47
13:K:22:ILE:HG12	13:K:40:LYS:O	2.15	0.47
40:l:126:ASP:O	40:l:131:LYS:N	2.44	0.47
42:n:5:GLN:HG2	42:n:5:GLN:O	2.13	0.47
46:r:20:THR:HA	46:r:25:VAL:HG12	1.97	0.47
52:x:13:LEU:HG	52:x:17:LYS:HZ2	1.79	0.47
1:1:1296:G:OP1	1:1:2709:G:O2'	2.27	0.47
2:2:81:A:N6	2:2:88:U:O4	2.48	0.47
2:2:437:U:H4'	37:i:154:ARG:NH2	2.29	0.47
2:2:745:G:H2'	2:2:746:A:C8	2.48	0.47
2:2:780:A:H2	2:2:803:G:C6	2.32	0.47
2:2:834:U:H2'	2:2:835:U:H6	1.79	0.47
2:2:1130:A:N6	2:2:1144:G:H1'	2.29	0.47
2:2:1152:A:H4'	43:o:15:HIS:CD2	2.50	0.47
2:2:1220:G:N1	2:2:1221:G:C6	2.82	0.47
2:2:1384:C:H2'	2:2:1385:G:C8	2.49	0.47
6:B:93:LEU:HB2	6:B:103:TYR:HE1	1.79	0.47
11:G:70:GLU:OE1	11:G:138:VAL:HG22	2.14	0.47
11:G:78:VAL:HG13	11:G:144:VAL:HG23	1.97	0.47
39:k:4:TYR:CD1	39:k:71:ILE:HG13	2.50	0.47
39:k:43:GLY:HA2	39:k:58:HIS:CE1	2.49	0.47
53:y:74:ARG:HG2	53:y:78:ASN:OD1	2.15	0.47
2:2:411:A:N6	2:2:430:A:H62	2.12	0.47
2:2:936:C:C2	2:2:937:A:C8	3.02	0.47
2:2:1203:C:H2'	2:2:1204:A:H8	1.80	0.47
2:2:1238:A:H5'	2:2:1336:C:N4	2.29	0.47
2:2:1260:G:N2	2:2:1276:G:O6	2.47	0.47
3:3:35:C:C2'	3:3:36:C:H5'	2.45	0.47
5:5:27:C:H2'	5:5:28:C:C6	2.50	0.47
7:C:105:LYS:NZ	57:C:301:HOH:O	2.47	0.47
7:C:111:GLY:HA3	7:C:201:LEU:HD22	1.96	0.47
8:D:28:VAL:O	8:D:32:VAL:HG23	2.13	0.47
9:E:35:THR:HB	9:E:155:THR:OG1	2.15	0.47
9:E:61:SER:HB2	9:E:62:GLY:H	1.58	0.47
9:E:143:TYR:HA	9:E:146:VAL:HG22	1.97	0.47
34:f:27:CYS:HB3	34:f:33:HIS:HB2	1.97	0.47
35:g:14:VAL:HB	35:g:213:TYR:OH	2.14	0.47
38:j:11:LEU:CD2	38:j:71:MET:HE1	2.45	0.47
43:o:6:ILE:CG2	43:o:76:ILE:HB	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:o:37:ARG:N	43:o:75:ASP:O	2.33	0.47
44:p:55:SER:OG	44:p:56:ARG:N	2.48	0.47
54:z:50:ALA:O	54:z:54:LYS:HG2	2.15	0.47
1:1:536:G:H4'	19:Q:57:PHE:CZ	2.50	0.47
1:1:752:A:H3'	32:d:1:MET:HE3	1.95	0.47
1:1:2091:C:H1'	26:X:34:HIS:CD2	2.49	0.47
1:1:2429:G:C8	14:L:55:MET:CE	2.98	0.47
1:1:2429:G:N7	14:L:55:MET:HE3	2.30	0.47
2:2:32:A:H2'	2:2:33:A:C8	2.50	0.47
2:2:147:G:H2'	2:2:148:G:H8	1.76	0.47
2:2:158:G:H2'	2:2:159:G:O4'	2.13	0.47
2:2:226:G:C2	2:2:227:G:C8	3.02	0.47
2:2:380:G:C2	2:2:384:G:C6	3.02	0.47
2:2:402:G:C6	2:2:403:C:C5	3.03	0.47
2:2:513:C:H2'	2:2:514:C:C6	2.50	0.47
2:2:646:G:C6	2:2:647:C:C4	3.02	0.47
2:2:674:G:H2'	2:2:675:A:C8	2.50	0.47
2:2:680:C:H2'	2:2:681:A:H8	1.79	0.47
2:2:708:C:H2'	2:2:709:U:C6	2.49	0.47
2:2:951:G:N1	2:2:1231:G:C6	2.83	0.47
2:2:1045:C:H2'	2:2:1046:A:C8	2.50	0.47
2:2:1135:U:H2'	2:2:1137:C:C2	2.49	0.47
2:2:1167:A:C4	2:2:1169:A:N1	2.83	0.47
2:2:1176:A:C6	2:2:1177:G:C5	3.02	0.47
2:2:1251:A:H2'	2:2:1252:A:C8	2.49	0.47
2:2:1401:G:C6	2:2:1402:4OC:N3	2.83	0.47
2:2:1408:A:H2'	2:2:1409:C:H6	1.80	0.47
2:2:1436:U:N3	2:2:1437:A:N7	2.63	0.47
5:5:28:C:H2'	5:5:29:G:C8	2.50	0.47
8:D:171:ASP:OD2	8:D:172:ALA:N	2.48	0.47
10:F:22:GLN:O	10:F:37:LEU:HB2	2.15	0.47
11:G:87:GLU:HG2	39:k:17:GLN:HG3	1.95	0.47
14:L:52:GLY:O	14:L:54:GLN:N	2.48	0.47
16:N:63:ARG:HD3	16:N:80:PHE:CD2	2.49	0.47
16:N:94:TYR:C	16:N:116:VAL:HG13	2.40	0.47
17:O:36:TYR:N	17:O:36:TYR:CD1	2.82	0.47
22:T:48:GLN:HE21	22:T:55:VAL:H	1.63	0.47
30:b:3:VAL:HG12	30:b:4:GLN:N	2.30	0.47
34:f:1:MET:HA	34:f:34:LYS:O	2.15	0.47
35:g:28:LYS:O	35:g:31:ILE:HG22	2.14	0.47
35:g:108:ARG:O	35:g:111:ILE:HB	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:h:6:HIS:HE1	47:s:90:ARG:NH1	2.13	0.47
36:h:19:ASN:OD1	36:h:40:ARG:NH2	2.48	0.47
37:i:73:ARG:HG3	37:i:204:TYR:CE1	2.48	0.47
41:m:47:GLU:HB3	41:m:62:THR:O	2.15	0.47
42:n:85:ARG:HA	42:n:88:MET:HE3	1.97	0.47
43:o:35:GLN:NE2	57:o:203:HOH:O	2.47	0.47
51:w:32:TYR:O	51:w:40:VAL:HG22	2.15	0.47
52:x:31:LEU:O	52:x:49:ILE:HG23	2.15	0.47
1:1:274:C:C2	57:1:3304:HOH:O	2.55	0.47
1:1:748:G:C8	21:S:89:ALA:CB	2.98	0.47
1:1:2355:G:O3'	25:W:24:LYS:NZ	2.25	0.47
2:2:89:U:C1'	57:2:1809:HOH:O	2.62	0.47
2:2:134:G:H2'	2:2:135:C:O4'	2.15	0.47
2:2:844:G:H3'	2:2:844:G:N3	2.30	0.47
2:2:1043:G:C2	2:2:1044:A:C5	3.02	0.47
2:2:1239:A:O2'	2:2:1298:U:O4	2.24	0.47
2:2:1385:G:H2'	2:2:1386:G:H8	1.80	0.47
2:2:1391:U:C2	2:2:1392:G:N7	2.83	0.47
3:3:99:A:C6	3:3:100:G:C4	3.03	0.47
7:C:77:ARG:HG3	7:C:78:GLY:N	2.30	0.47
7:C:185:ASN:O	7:C:186:LEU:HD23	2.14	0.47
9:E:117:LEU:H	9:E:177:PHE:HA	1.80	0.47
30:b:34:SER:OG	30:b:36:GLU:OE1	2.23	0.47
36:h:43:LEU:HD12	36:h:55:ILE:HD11	1.96	0.47
36:h:131:ARG:HE	36:h:135:LYS:HZ1	1.63	0.47
40:l:124:LEU:HD12	40:l:124:LEU:HA	1.69	0.47
46:r:109:ARG:HD2	46:r:109:ARG:HA	1.66	0.47
50:v:54:GLY:N	50:v:57:ASP:OD2	2.23	0.47
1:1:161:A:H3'	1:1:162:U:H5"	1.97	0.47
1:1:320:A:C2	8:D:164:LEU:CD2	2.90	0.47
2:2:27:G:H2'	2:2:28:A:O4'	2.15	0.47
2:2:68:G:C5	2:2:69:G:H1'	2.50	0.47
2:2:83:C:H4'	2:2:84:U:OP1	2.15	0.47
2:2:501:C:C2	2:2:502:A:C8	3.03	0.47
2:2:722:G:C6	2:2:724:G:C5	3.03	0.47
2:2:735:C:H2'	2:2:736:C:H6	1.80	0.47
2:2:980:C:H2'	2:2:981:U:C6	2.50	0.47
2:2:1082:A:C4	2:2:1083:U:C5	3.02	0.47
2:2:1203:C:C2	2:2:1204:A:C8	3.03	0.47
6:B:73:GLY:HA2	6:B:117:GLN:HE21	1.80	0.47
6:B:106:ALA:O	6:B:196:GLY:N	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:G:132:PHE:HB2	11:G:140:ALA:HB3	1.97	0.47
22:T:46:ALA:O	22:T:50:LEU:HB2	2.15	0.47
24:V:9:ARG:HG2	24:V:41:GLU:HB3	1.96	0.47
24:V:17:SER:HB2	24:V:21:ARG:NH1	2.29	0.47
35:g:54:LEU:HD12	35:g:54:LEU:HA	1.71	0.47
35:g:69:PHE:HE2	35:g:89:GLN:HB3	1.80	0.47
35:g:134:ALA:O	35:g:138:THR:HG22	2.15	0.47
37:i:26:ARG:HD3	37:i:31:LYS:HZ3	1.80	0.47
39:k:44:ARG:O	39:k:45:ARG:HG3	2.15	0.47
40:l:15:ASP:CG	40:l:23:LEU:HD23	2.40	0.47
46:r:56:LEU:O	46:r:60:VAL:HG22	2.15	0.47
1:1:586:A:OP1	8:D:84:THR:CG2	2.63	0.47
1:1:700:G:O2'	1:1:1632:A:N3	2.39	0.47
1:1:886:A:H1'	1:1:891:G:H22	1.80	0.47
1:1:1475:G:HO2'	1:1:1732:C:N4	2.12	0.47
2:2:592:G:C6	2:2:648:A:C6	3.03	0.47
2:2:762:U:H2'	2:2:763:G:H8	1.80	0.47
2:2:811:C:O2'	2:2:901:A:N6	2.41	0.47
2:2:974:A:O4'	47:s:71:HIS:ND1	2.46	0.47
2:2:1244:G:H2'	2:2:1245:C:H6	1.80	0.47
14:L:124:GLY:O	14:L:125:LEU:HD23	2.15	0.47
18:P:88:ARG:HH12	18:P:110:ILE:HG13	1.78	0.47
24:V:20:LEU:O	24:V:23:ALA:N	2.48	0.47
36:h:62:LYS:HG3	57:h:306:HOH:O	2.14	0.47
37:i:85:ASN:OD1	37:i:85:ASN:C	2.58	0.47
48:t:15:PHE:CZ	48:t:84:ARG:HD3	2.50	0.47
50:v:26:GLU:HA	50:v:41:THR:HA	1.96	0.47
1:1:752:A:H3'	32:d:1:MET:HE1	1.97	0.46
1:1:882:G:H1	1:1:894:U:H3	1.63	0.46
1:1:964:C:O2'	1:1:2273:A:N3	2.43	0.46
1:1:987:C:O2'	1:1:1000:A:N3	2.39	0.46
1:1:2045:C:H5"	30:b:15:MET:SD	2.55	0.46
1:1:2447:G:H1	1:1:2451:A:H62	1.63	0.46
1:1:2852:G:H5'	16:N:64:ARG:HH22	1.79	0.46
2:2:37:U:C2	2:2:548:G:N1	2.83	0.46
2:2:309:A:C2	2:2:310:G:N7	2.83	0.46
2:2:333:U:C2	2:2:334:C:C5	3.03	0.46
2:2:338:A:H2'	2:2:339:C:H6	1.80	0.46
2:2:859:G:H2'	2:2:860:A:C8	2.50	0.46
2:2:896:C:H2'	2:2:897:C:H6	1.80	0.46
2:2:1111:A:N1	36:h:177:THR:HG22	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1134:G:O6	2:2:1141:C:N4	2.48	0.46
2:2:1194:U:H2'	2:2:1195:C:C6	2.50	0.46
2:2:1330:U:O4	2:2:1331:G:N1	2.48	0.46
4:4:14:G:N3	4:4:14:G:C2'	2.76	0.46
25:W:45:PHE:O	25:W:59:LEU:HD11	2.15	0.46
41:m:95:VAL:HG12	41:m:100:GLY:HA3	1.96	0.46
43:o:78:GLU:CG	57:o:210:HOH:O	2.63	0.46
45:q:81:LEU:HB3	45:q:98:VAL:CG2	2.45	0.46
49:u:67:ILE:HG23	49:u:71:VAL:HG13	1.96	0.46
53:y:36:TYR:CZ	53:y:79:LEU:HD11	2.50	0.46
1:1:613:A:H1'	57:1:3311:HOH:O	2.14	0.46
1:1:675:A:HO2'	8:D:62:GLN:CD	2.23	0.46
1:1:2311:A:N7	9:E:77:PHE:CD1	2.83	0.46
2:2:595:A:O2'	2:2:596:A:OP2	2.33	0.46
2:2:620:C:C4	2:2:621:A:C6	3.02	0.46
2:2:737:C:H2'	2:2:738:C:C6	2.50	0.46
2:2:892:A:O2'	2:2:1415:G:O2'	2.32	0.46
2:2:1071:C:H2'	2:2:1072:G:H8	1.80	0.46
2:2:1109:C:C2	2:2:1110:A:C8	3.03	0.46
2:2:1217:C:OP1	47:s:9:ARG:NE	2.47	0.46
5:5:66:C:H2'	5:5:67:G:C8	2.50	0.46
10:F:29:LYS:HG3	10:F:30:ASN:N	2.31	0.46
11:G:66:ASN:HD21	11:G:134:VAL:C	2.19	0.46
17:O:33:ARG:O	17:O:34:HIS:CG	2.68	0.46
28:Z:19:LYS:HD3	28:Z:19:LYS:HA	1.66	0.46
35:g:73:LYS:NZ	57:g:305:HOH:O	2.37	0.46
37:i:100:ASN:OD1	37:i:111:ARG:NH1	2.46	0.46
50:v:46:VAL:CG1	50:v:61:ILE:HG21	2.46	0.46
50:v:63:GLU:HG3	50:v:73:TRP:CZ2	2.50	0.46
2:2:204:G:C6	2:2:465:A:C6	3.03	0.46
2:2:322:C:N3	2:2:332:G:N2	2.63	0.46
2:2:431:A:C5	2:2:432:A:C8	3.04	0.46
2:2:545:C:H5"	2:2:545:C:H6	1.79	0.46
2:2:715:A:H2'	2:2:716:A:H8	1.78	0.46
2:2:1256:A:N6	2:2:1277:C:C2	2.83	0.46
2:2:1323:G:H2'	2:2:1324:A:H8	1.81	0.46
2:2:1324:A:C6	2:2:1325:C:C4	3.03	0.46
3:3:14:U:OP2	3:3:70:C:O2'	2.34	0.46
8:D:149:ILE:HG22	8:D:187:VAL:O	2.15	0.46
10:F:109:PHE:HE1	10:F:152:ARG:HH21	1.62	0.46
11:G:57:LYS:O	11:G:61:VAL:HG23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:U:44:LYS:HD2	23:U:61:LYS:HE2	1.97	0.46
28:Z:31:ARG:HG2	28:Z:34:HIS:HB2	1.96	0.46
37:i:107:PHE:CG	37:i:145:ILE:HD11	2.50	0.46
39:k:29:ILE:HD13	39:k:64:VAL:CG2	2.41	0.46
44:p:21:ALA:O	44:p:84:VAL:HG23	2.16	0.46
47:s:3:LYS:HB2	47:s:6:MET:HG2	1.96	0.46
1:1:1826:G:OP1	6:B:223:THR:N	2.48	0.46
1:1:2465:C:O3'	34:f:5:ALA:HB3	2.14	0.46
2:2:451:A:C8	2:2:452:A:C6	3.03	0.46
2:2:1055:A:C6	2:2:1206:G:C5	3.03	0.46
3:3:39:A:H2'	3:3:40:U:C6	2.50	0.46
3:3:104:A:N1	3:3:105:G:H1'	2.30	0.46
10:F:88:GLN:O	10:F:163:ARG:HG2	2.15	0.46
35:g:10:LEU:HD21	35:g:43:LEU:HG	1.97	0.46
35:g:99:GLY:HA2	35:g:175:GLU:OE1	2.16	0.46
39:k:47:LEU:HD12	39:k:56:LYS:N	2.30	0.46
1:1:910:A:H2'	1:1:911:A:C8	2.51	0.46
1:1:2229:U:O2	26:X:34:HIS:HE1	1.98	0.46
1:1:2657:A:H2'	1:1:2658:C:H5'	1.98	0.46
2:2:35:G:C6	2:2:36:C:C4	3.04	0.46
2:2:1241:G:C2	2:2:1242:G:N7	2.84	0.46
2:2:1429:A:H2'	2:2:1430:A:H8	1.80	0.46
2:2:1460:C:C2	2:2:1461:G:C8	3.04	0.46
10:F:2:SER:O	10:F:3:ARG:C	2.56	0.46
27:Y:36:GLN:OE1	57:Y:101:HOH:O	2.20	0.46
32:d:3:ARG:O	32:d:6:GLN:NE2	2.41	0.46
37:i:9:LEU:HA	37:i:12:SER:OG	2.15	0.46
37:i:104:ARG:HH11	37:i:111:ARG:HH22	1.63	0.46
40:l:150:ALA:HB1	44:p:59:THR:HG21	1.97	0.46
44:p:33:THR:O	44:p:34:ILE:HD13	2.15	0.46
1:1:956:G:H5"	15:M:76:LYS:HG3	1.97	0.46
1:1:1490:A:N7	6:B:98:ASP:HB3	2.31	0.46
2:2:100:G:C4	2:2:101:A:C8	3.03	0.46
2:2:404:G:H4'	2:2:439:U:C6	2.51	0.46
2:2:556:C:N3	2:2:557:G:C8	2.83	0.46
2:2:591:U:H2'	2:2:592:G:H8	1.81	0.46
2:2:673:A:H5"	39:k:86:ARG:HH11	1.79	0.46
2:2:737:C:C2	2:2:738:C:C5	3.04	0.46
2:2:1271:A:H2'	2:2:1272:G:C8	2.50	0.46
2:2:1320:C:N4	52:x:37:ARG:HA	2.29	0.46
2:2:1497:G:H3'	2:2:1498:UR3:H6	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:76:G:H21	24:V:88:HIS:CE1	2.33	0.46
8:D:7:ASP:OD1	8:D:7:ASP:N	2.43	0.46
9:E:34:ILE:HD12	9:E:156:ILE:CD1	2.46	0.46
9:E:102:ARG:NH1	29:a:9:TYR:OH	2.48	0.46
10:F:84:THR:HA	10:F:133:LEU:O	2.16	0.46
14:L:59:ARG:HA	33:e:13:ARG:NH2	2.30	0.46
18:P:25:THR:HB	18:P:88:ARG:HB3	1.97	0.46
19:Q:18:LEU:O	19:Q:21:ALA:N	2.41	0.46
22:T:69:ARG:NH2	22:T:71:GLY:O	2.48	0.46
27:Y:48:ARG:O	27:Y:52:ARG:HG3	2.15	0.46
37:i:8:LYS:H	37:i:8:LYS:HD3	1.80	0.46
40:l:20:SER:HG	40:l:23:LEU:HB3	1.80	0.46
42:n:117:GLY:HA3	43:o:60:ASP:OD1	2.15	0.46
1:1:1509:A:H2'	1:1:1510:G:C8	2.50	0.46
1:1:2273:A:H2'	1:1:2274:A:C8	2.50	0.46
1:1:2636:C:H2'	1:1:2637:U:H6	1.79	0.46
2:2:58:C:C2	2:2:59:A:C8	3.04	0.46
2:2:131:A:C4	2:2:132:C:C5	3.03	0.46
2:2:172:A:N7	2:2:174:A:N7	2.64	0.46
2:2:246:A:C5	2:2:279:A:C5	3.04	0.46
2:2:490:C:H2'	2:2:491:G:C8	2.50	0.46
2:2:685:G:C2	2:2:686:U:C4	3.04	0.46
2:2:718:A:H5'	44:p:119:ASN:ND2	2.30	0.46
2:2:986:U:H2'	2:2:987:G:C8	2.51	0.46
2:2:1515:G:H2'	2:2:1516:2MG:O4'	2.16	0.46
3:3:60:C:H2'	3:3:61:G:C8	2.46	0.46
3:3:68:C:H41	3:3:107:G:N2	2.13	0.46
7:C:4:LEU:HD23	7:C:101:PHE:CZ	2.50	0.46
11:G:82:SER:O	11:G:149:GLU:N	2.47	0.46
39:k:82:ASP:OD1	39:k:82:ASP:N	2.44	0.46
40:l:138:ARG:NH2	57:l:201:HOH:O	2.33	0.46
44:p:58:SER:O	44:p:91:PRO:HG2	2.15	0.46
47:s:37:SER:O	47:s:41:ARG:HG3	2.15	0.46
1:1:162:U:H6	1:1:162:U:OP1	1.99	0.46
2:2:71:A:C2	2:2:72:A:C8	3.04	0.46
2:2:163:C:H2'	2:2:164:G:O4'	2.15	0.46
2:2:208:U:H2'	2:2:210:C:N3	2.31	0.46
2:2:286:C:N4	2:2:287:U:O4	2.49	0.46
2:2:327:A:C5	2:2:329:A:C5	3.03	0.46
2:2:938:A:H1'	2:2:1376:U:O2'	2.15	0.46
2:2:985:C:C2	2:2:1221:G:N2	2.84	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1221:G:H5”	2:2:1321:U:O2	2.14	0.46
2:2:1251:A:H2’	2:2:1252:A:H8	1.79	0.46
5:5:74:C:H2’	5:5:74:C:OP2	2.15	0.46
20:R:61:ALA:HB2	20:R:98:ILE:HD13	1.98	0.46
33:e:36:LYS:HG2	33:e:40:ARG:NH2	2.31	0.46
35:g:166:ALA:O	35:g:168:HIS:N	2.49	0.46
37:i:118:VAL:HG11	37:i:133:ALA:HA	1.97	0.46
41:m:25:VAL:HG13	41:m:63:LEU:HD11	1.98	0.46
45:q:81:LEU:O	45:q:98:VAL:HG22	2.15	0.46
50:v:61:ILE:HG13	50:v:73:TRP:CE3	2.51	0.46
1:1:881:G:N2	1:1:897:C:N3	2.64	0.46
1:1:1007:C:H5”	12:J:37:ARG:HH21	1.79	0.46
1:1:2286:G:O6	31:c:23:THR:OG1	2.33	0.46
2:2:119:A:C4	2:2:240:G:C8	3.03	0.46
2:2:176:C:OP2	53:y:64:LYS:NZ	2.26	0.46
2:2:321:A:H2’	2:2:322:C:H6	1.80	0.46
2:2:371:A:N1	2:2:391:G:C6	2.84	0.46
2:2:374:A:H2’	2:2:375:U:C6	2.50	0.46
2:2:679:C:H2’	2:2:680:C:C6	2.49	0.46
2:2:695:A:H2’	2:2:696:A:O4’	2.16	0.46
2:2:1004:A:H8	2:2:1025:U:O2	1.99	0.46
2:2:1034:G:H3’	2:2:1035:A:C8	2.51	0.46
2:2:1081:A:C4	2:2:1082:A:C8	3.04	0.46
2:2:1279:G:N3	2:2:1279:G:H2’	2.31	0.46
2:2:1408:A:H2’	2:2:1409:C:C6	2.51	0.46
6:B:157:SER:OG	6:B:158:ALA:N	2.45	0.46
7:C:108:ASP:OD1	7:C:173:GLN:HA	2.16	0.46
8:D:104:ALA:O	8:D:108:ILE:HG23	2.16	0.46
9:E:75:ALA:C	9:E:77:PHE:H	2.23	0.46
21:S:34:ASP:OD1	21:S:35:ILE:N	2.49	0.46
36:h:127:ARG:N	36:h:127:ARG:HD2	2.31	0.46
38:j:101:GLU:CD	38:j:122:ASN:HD21	2.24	0.46
40:l:111:ARG:CZ	40:l:122:ASN:HB3	2.45	0.46
45:q:25:GLU:OE1	45:q:59:ASN:ND2	2.49	0.46
45:q:100:GLY:N	45:q:104:CYS:O	2.47	0.46
53:y:25:ARG:HD2	53:y:29:ARG:NH2	2.31	0.46
1:1:160:A:N3	1:1:2208:C:O2’	2.48	0.46
1:1:413:C:O2’	1:1:1880:U:O2’	2.24	0.46
1:1:2788:C:O2’	1:1:2809:A:N3	2.47	0.46
2:2:181:A:C2	2:2:195:A:C6	3.04	0.46
2:2:265:G:H21	2:2:267:C:H5’	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:496:A:O2'	2:2:497:G:N7	2.49	0.46
2:2:549:C:H2'	2:2:550:G:H8	1.81	0.46
2:2:704:A:C4	2:2:705:G:C8	3.04	0.46
2:2:778:G:C6	2:2:779:C:C4	3.04	0.46
2:2:866:C:C4	2:2:867:G:H1'	2.51	0.46
2:2:1030:U:O2'	2:2:1031:C:H5"	2.15	0.46
2:2:1150:A:O2'	2:2:1151:A:H5'	2.16	0.46
2:2:1261:A:N6	2:2:1274:A:O2'	2.49	0.46
2:2:1290:G:C6	2:2:1291:U:C4	3.04	0.46
3:3:16:G:C5	3:3:69:G:C2	3.04	0.46
9:E:103:LEU:HD11	9:E:175:PHE:HE1	1.81	0.46
11:G:99:ILE:HD12	11:G:117:LEU:HD23	1.97	0.46
15:M:26:VAL:HG23	15:M:104:GLU:CD	2.40	0.46
16:N:8:ARG:HD2	16:N:43:GLU:HB2	1.97	0.46
17:O:35:ILE:HG21	17:O:102:ARG:HD2	1.98	0.46
35:g:78:GLU:H	35:g:78:GLU:CD	2.24	0.46
40:l:108:ALA:N	40:l:123:GLU:HG3	2.31	0.46
41:m:63:LEU:H	41:m:63:LEU:HD12	1.81	0.46
44:p:54:GLY:H	44:p:57:LYS:HD3	1.81	0.46
46:r:95:LEU:CD2	46:r:110:LYS:HG2	2.46	0.46
46:r:104:THR:HG22	46:r:105:ASN:N	2.31	0.46
1:1:1900:A:H1'	1:1:1970:A:H2'	1.98	0.45
2:2:64:G:H4'	2:2:65:A:C3'	2.45	0.45
2:2:324:G:N1	2:2:327:A:OP2	2.49	0.45
2:2:767:A:H2'	2:2:768:A:H8	1.81	0.45
2:2:1315:U:H2'	2:2:1316:G:O4'	2.16	0.45
8:D:2:GLU:CD	57:D:402:HOH:O	2.59	0.45
9:E:74:VAL:HG12	9:E:76:GLY:H	1.81	0.45
11:G:77:THR:HG23	11:G:143:ILE:HG22	1.97	0.45
13:K:19:VAL:CB	13:K:41:ILE:HD12	2.46	0.45
24:V:70:ILE:HG22	24:V:72:VAL:HG13	1.97	0.45
36:h:6:HIS:CE1	47:s:90:ARG:HH11	2.31	0.45
36:h:53:SER:OG	36:h:112:ASP:OD2	2.29	0.45
39:k:9:MET:HB2	39:k:9:MET:HE3	1.48	0.45
41:m:51:VAL:HB	41:m:59:LEU:HD13	1.98	0.45
42:n:97:GLU:OE1	42:n:97:GLU:N	2.48	0.45
44:p:48:GLY:HA2	44:p:52:PHE:O	2.16	0.45
45:q:21:VAL:O	45:q:21:VAL:HG13	2.16	0.45
1:1:196:A:OP2	14:L:47:ARG:NH1	2.49	0.45
1:1:862:G:O2'	3:3:78:A:C2	2.63	0.45
2:2:181:A:C6	2:2:195:A:C5	3.04	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:198:G:H2'	2:2:199:A:C8	2.49	0.45
2:2:247:G:C6	2:2:278:G:C2	3.05	0.45
2:2:252:U:N3	2:2:253:A:N7	2.63	0.45
2:2:691:G:H1'	2:2:696:A:H61	1.81	0.45
2:2:833:G:H2'	2:2:834:U:H6	1.81	0.45
2:2:887:G:N2	2:2:911:U:C2	2.84	0.45
2:2:1150:A:H4'	43:o:43:PRO:HG3	1.99	0.45
2:2:1181:G:H1'	2:2:1182:G:C4	2.51	0.45
2:2:1287:A:H2	2:2:1353:G:H1'	1.81	0.45
6:B:157:SER:O	6:B:195:VAL:HG21	2.16	0.45
8:D:130:LYS:HD2	8:D:130:LYS:HA	1.70	0.45
11:G:100:ALA:CB	11:G:112:LYS:HA	2.46	0.45
15:M:69:PRO:HA	15:M:94:ALA:HB2	1.97	0.45
17:O:24:THR:HG22	17:O:42:PRO:HD3	1.98	0.45
21:S:57:ASN:O	21:S:61:ASN:HB2	2.16	0.45
24:V:7:GLU:O	24:V:41:GLU:HG2	2.16	0.45
24:V:31:TYR:O	24:V:92:VAL:HA	2.16	0.45
35:g:74:ARG:CD	57:g:313:HOH:O	2.24	0.45
38:j:11:LEU:HD21	38:j:71:MET:HE1	1.97	0.45
42:n:119:ARG:HD3	42:n:123:ARG:HD3	1.98	0.45
50:v:17:MET:SD	50:v:20:SER:OG	2.74	0.45
2:2:204:G:H2'	2:2:205:A:C8	2.51	0.45
2:2:348:G:O6	2:2:349:A:N6	2.50	0.45
2:2:654:G:H1'	2:2:753:A:N1	2.31	0.45
2:2:738:C:H2'	2:2:739:C:C6	2.51	0.45
2:2:892:A:C6	2:2:893:C:C4	3.05	0.45
2:2:1076:U:H2'	2:2:1077:G:H8	1.81	0.45
2:2:1107:C:C4	2:2:1108:G:C8	3.04	0.45
2:2:1355:G:C6	2:2:1368:A:N1	2.84	0.45
2:2:1501:C:C4	2:2:1504:G:C5	3.04	0.45
3:3:33:G:N1	3:3:50:A:C6	2.84	0.45
5:5:18:G:N2	5:5:57:A:H2'	2.30	0.45
6:B:125:LYS:HG2	6:B:128:ASN:ND2	2.32	0.45
6:B:243:HIS:O	6:B:245:VAL:HG13	2.15	0.45
9:E:70:ALA:HB3	9:E:83:TYR:H	1.81	0.45
9:E:170:LEU:HB3	9:E:177:PHE:HE1	1.80	0.45
17:O:31:THR:OG1	17:O:34:HIS:O	2.30	0.45
21:S:41:LYS:O	21:S:44:ALA:N	2.49	0.45
34:f:2:LYS:HE2	34:f:2:LYS:HB2	1.64	0.45
43:o:83:THR:O	43:o:87:LEU:HG	2.15	0.45
44:p:19:GLY:HA2	44:p:37:ARG:HG3	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:r:90:ARG:HD3	46:r:95:LEU:HB2	1.98	0.45
51:w:14:THR:HG21	51:w:48:ARG:NE	2.31	0.45
1:1:124:G:N9	32:d:19:ARG:NH2	2.64	0.45
1:1:1615:C:OP2	1:1:1617:C:N4	2.44	0.45
2:2:46:G:C6	2:2:366:A:C2	3.04	0.45
2:2:241:G:C2	2:2:286:C:C2	3.05	0.45
2:2:253:A:N6	2:2:274:A:C6	2.84	0.45
2:2:469:C:H2'	2:2:470:C:C6	2.51	0.45
2:2:557:G:C5	2:2:558:G:C6	3.04	0.45
2:2:830:G:C6	2:2:857:C:N3	2.84	0.45
2:2:935:A:N1	40:l:3:ARG:NE	2.63	0.45
2:2:1129:C:C4	2:2:1139:G:C4	3.04	0.45
2:2:1204:A:C5	2:2:1205:U:C4	3.04	0.45
2:2:1226:C:P	46:r:90:ARG:HH12	2.39	0.45
2:2:1320:C:C5	52:x:70:LYS:HD2	2.52	0.45
10:F:9:VAL:CG2	10:F:50:LEU:HB2	2.47	0.45
18:P:86:VAL:HG23	18:P:86:VAL:O	2.17	0.45
35:g:111:ILE:HD11	35:g:148:LEU:HD22	1.97	0.45
35:g:115:LYS:CD	57:g:329:HOH:O	2.24	0.45
36:h:111:LEU:HD12	36:h:111:LEU:HA	1.80	0.45
47:s:69:ARG:HD3	47:s:80:SER:HB3	1.98	0.45
48:t:64:ARG:NH1	48:t:89:ARG:O	2.36	0.45
1:1:729:G:H5'	6:B:207:LYS:HZ2	1.81	0.45
1:1:2092:U:OP2	11:G:27:ARG:NH2	2.43	0.45
2:2:142:G:C4	2:2:143:A:C8	3.04	0.45
2:2:318:G:C6	2:2:336:A:C6	3.04	0.45
2:2:415:A:C4	2:2:416:G:C8	3.05	0.45
2:2:640:A:C8	2:2:641:U:H5	2.34	0.45
2:2:963:G:O2'	43:o:56:HIS:HE1	2.00	0.45
2:2:1415:G:C6	2:2:1486:G:C6	3.05	0.45
2:2:1486:G:H2'	2:2:1487:G:O4'	2.17	0.45
3:3:24:G:C8	3:3:56:G:C5	3.05	0.45
3:3:101:A:C6	3:3:102:G:C6	3.05	0.45
6:B:80:ARG:NE	6:B:82:GLU:OE2	2.39	0.45
23:U:12:ILE:HG13	23:U:21:LYS:O	2.17	0.45
28:Z:27:LEU:O	28:Z:27:LEU:HD23	2.17	0.45
39:k:42:TRP:CZ2	39:k:61:LEU:HD13	2.51	0.45
51:w:72:ASP:OD1	51:w:73:ARG:N	2.50	0.45
1:1:616:A:C4'	8:D:101:TYR:CE2	2.98	0.45
1:1:1049:C:H2'	1:1:1050:A:H8	1.81	0.45
1:1:2079:U:O2'	26:X:23:ASN:OD1	2.29	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2615:U:C2	30:b:4:GLN:HA	2.52	0.45
2:2:109:A:N6	2:2:324:G:O2'	2.49	0.45
2:2:215:C:H2'	2:2:216:U:C6	2.51	0.45
2:2:518:C:H4'	2:2:519:C:H6	1.81	0.45
2:2:523:A:H2	45:q:88:LYS:HB3	1.81	0.45
2:2:574:A:N3	2:2:883:C:H1'	2.32	0.45
2:2:788:U:C4	2:2:789:U:C4	3.05	0.45
2:2:838:G:H2'	2:2:839:C:O4'	2.16	0.45
2:2:888:G:N2	2:2:910:C:N4	2.65	0.45
2:2:1050:G:H1'	2:2:1214:C:O2	2.17	0.45
2:2:1129:C:C5'	42:n:18:ARG:HH12	2.29	0.45
2:2:1176:A:H2'	2:2:1177:G:O4'	2.15	0.45
2:2:1349:A:H2'	2:2:1350:A:O4'	2.16	0.45
3:3:59:A:H2'	3:3:60:C:O4'	2.16	0.45
5:5:65:U:H2'	5:5:66:C:C6	2.52	0.45
6:B:107:PRO:HD2	6:B:110:LEU:HD12	1.97	0.45
6:B:251:GLN:HB3	6:B:255:LYS:HB2	1.98	0.45
11:G:28:ASN:O	11:G:32:PRO:HG2	2.17	0.45
14:L:91:ASP:O	14:L:92:LEU:C	2.59	0.45
16:N:35:LYS:HB2	16:N:112:TYR:CD1	2.52	0.45
1:1:1086:A:O2'	1:1:1087:G:N7	2.49	0.45
1:1:1301:A:H62	1:1:1641:A:H61	1.63	0.45
2:2:453:G:H3'	2:2:454:G:H8	1.82	0.45
2:2:623:C:H2'	2:2:624:C:C6	2.51	0.45
2:2:791:G:O6	2:2:792:A:N6	2.48	0.45
2:2:1304:G:H8	2:2:1304:G:O5'	1.99	0.45
6:B:36:LYS:HB2	6:B:36:LYS:HE2	1.71	0.45
7:C:51:THR:OG1	7:C:52:THR:N	2.49	0.45
18:P:73:VAL:O	18:P:73:VAL:HG13	2.17	0.45
21:S:56:ALA:HB2	57:S:202:HOH:O	2.15	0.45
23:U:31:SER:OG	23:U:33:LYS:HG3	2.16	0.45
28:Z:29:LEU:HA	28:Z:29:LEU:HD23	1.75	0.45
29:a:11:GLU:OE2	29:a:24:ILE:N	2.50	0.45
30:b:15:MET:O	30:b:16:ARG:C	2.59	0.45
35:g:66:LYS:HD2	35:g:154:MET:CE	2.45	0.45
37:i:95:GLU:O	37:i:100:ASN:ND2	2.49	0.45
41:m:11:LEU:HG	41:m:75:ILE:HD12	1.99	0.45
44:p:47:ALA:O	44:p:52:PHE:HB2	2.16	0.45
46:r:80:LEU:O	46:r:83:LEU:N	2.50	0.45
49:u:57:ILE:CD1	49:u:75:ILE:HD11	2.47	0.45
50:v:49:GLU:HB3	50:v:50:ASN:OD1	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:28:A:O2'	19:Q:11:ARG:NH2	2.49	0.45
1:1:569:U:O2'	1:1:983:A:N1	2.45	0.45
1:1:1256:G:N2	8:D:77:ILE:HG23	2.31	0.45
1:1:1363:C:O2'	1:1:1809:A:N3	2.46	0.45
1:1:2429:G:N7	14:L:55:MET:CE	2.80	0.45
2:2:212:G:C2	2:2:213:G:C8	3.05	0.45
2:2:674:G:C2	2:2:675:A:C5	3.05	0.45
2:2:881:G:C6	2:2:882:C:C4	3.04	0.45
2:2:1176:A:C4	2:2:1177:G:C8	3.05	0.45
2:2:1342:C:O3'	42:n:127:PHE:HB3	2.16	0.45
2:2:1377:A:H4'	2:2:1378:C:C5	2.52	0.45
2:2:1402:4OC:O5'	2:2:1402:4OC:H6	2.17	0.45
2:2:1415:G:C5	2:2:1486:G:C6	3.05	0.45
2:2:1497:G:H1'	2:2:1518:MA6:H2	1.98	0.45
10:F:38:ASN:O	10:F:40:ALA:N	2.50	0.45
37:i:143:VAL:O	37:i:143:VAL:HG23	2.17	0.45
43:o:45:ARG:HB3	43:o:69:THR:CG2	2.46	0.45
43:o:53:ILE:HD11	43:o:61:ALA:HB1	1.98	0.45
44:p:18:ASP:HA	44:p:81:ASN:O	2.17	0.45
48:t:69:TYR:HA	48:t:72:ARG:HG2	1.98	0.45
49:u:44:SER:N	49:u:47:GLU:OE2	2.50	0.45
1:1:807:U:O2'	1:1:2060:A:N1	2.44	0.45
1:1:857:G:C5'	25:W:69:PHE:CD1	3.00	0.45
1:1:2343:U:O2'	1:1:2373:G:O2'	2.35	0.45
1:1:2457:U:H5	1:1:2494:G:H1	1.64	0.45
1:1:2522:U:O2'	1:1:2647:U:OP1	2.29	0.45
1:1:2580:U:H5"	7:C:135:GLY:O	2.17	0.45
2:2:133:U:H1'	2:2:230:G:H22	1.82	0.45
2:2:1144:G:H8	2:2:1144:G:O5'	2.00	0.45
2:2:1342:C:H2'	2:2:1343:G:H8	1.82	0.45
2:2:1526:G:C2	2:2:1527:U:C4	3.05	0.45
2:2:1531:A:H2'	2:2:1532:U:O4'	2.17	0.45
3:3:28:C:H2'	3:3:29:A:C8	2.52	0.45
36:h:79:LYS:HE2	36:h:79:LYS:HB2	1.41	0.45
37:i:19:LEU:HB2	37:i:21:LEU:HB2	1.99	0.45
44:p:104:GLY:HA2	57:p:205:HOH:O	2.16	0.45
48:t:18:ASP:OD1	48:t:21:ASP:N	2.50	0.45
53:y:55:GLN:HG3	53:y:76:LYS:HE2	1.98	0.45
1:1:275:C:C1'	57:1:3304:HOH:O	2.65	0.45
1:1:2285:C:P	31:c:6:ARG:HH21	2.40	0.45
2:2:19:A:H2'	2:2:20:U:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:325:A:H8	2:2:325:A:O5'	2.00	0.45
2:2:608:A:C4	2:2:609:A:C8	3.05	0.45
2:2:736:C:H2'	2:2:737:C:C6	2.51	0.45
2:2:756:C:H2'	2:2:757:U:H6	1.82	0.45
2:2:1005:A:C2	2:2:1006:G:H1'	2.52	0.45
2:2:1131:G:C6	2:2:1132:C:C4	3.05	0.45
2:2:1150:A:N3	43:o:41:PRO:HG2	2.32	0.45
2:2:1240:U:OP2	40:l:116:MET:N	2.45	0.45
2:2:1278:G:H5'	2:2:1278:G:N3	2.32	0.45
2:2:1287:A:C2	2:2:1353:G:H1'	2.51	0.45
2:2:1335:U:H5"	2:2:1336:C:H5'	1.97	0.45
2:2:1436:U:O4	2:2:1437:A:N6	2.49	0.45
3:3:45:A:C4	3:3:46:A:C8	3.05	0.45
9:E:106:ILE:HG21	9:E:139:PRO:HG3	1.99	0.45
35:g:47:VAL:N	35:g:48:PRO:HD2	2.32	0.45
36:h:73:PRO:CG	36:h:105:GLU:HB3	2.46	0.45
1:1:1482:G:O2'	1:1:1509:A:N1	2.43	0.44
2:2:649:A:H2'	2:2:650:G:O4'	2.16	0.44
2:2:855:U:OP2	2:2:871:U:N3	2.32	0.44
2:2:1223:C:P	2:2:1224:U:H2'	2.56	0.44
6:B:93:LEU:HD11	6:B:101:ARG:HD3	1.98	0.44
7:C:131:ASP:O	7:C:136:ASN:ND2	2.50	0.44
8:D:131:THR:HG22	8:D:160:ALA:O	2.18	0.44
10:F:42:GLU:HA	10:F:55:ARG:NH2	2.32	0.44
15:M:69:PRO:CA	15:M:94:ALA:HB2	2.47	0.44
19:Q:44:GLN:NE2	20:R:77:PHE:HB3	2.33	0.44
40:l:40:GLU:HA	40:l:43:VAL:HG12	1.98	0.44
48:t:71:LYS:HB2	48:t:78:TYR:CG	2.52	0.44
49:u:80:LYS:CD	57:u:105:HOH:O	2.44	0.44
53:y:71:LYS:HA	53:y:74:ARG:NH2	2.32	0.44
1:1:586:A:N1	1:1:809:G:O2'	2.46	0.44
1:1:753:A:OP1	32:d:1:MET:SD	2.74	0.44
1:1:2198:A:C8	11:G:29:PHE:HD1	2.35	0.44
1:1:2310:C:H2'	9:E:77:PHE:CE2	2.52	0.44
2:2:171:A:O2'	2:2:172:A:O4'	2.26	0.44
2:2:555:U:H2'	2:2:556:C:H6	1.79	0.44
2:2:911:U:OP2	45:q:94:ARG:NH2	2.45	0.44
2:2:1413:A:N6	2:2:1488:G:C6	2.85	0.44
6:B:62:TYR:HA	6:B:86:ASN:OD1	2.18	0.44
7:C:13:ARG:HD2	7:C:21:SER:HB2	1.99	0.44
10:F:38:ASN:O	10:F:41:VAL:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:F:42:GLU:HA	10:F:55:ARG:HH21	1.81	0.44
21:S:42:LYS:O	21:S:45:VAL:HB	2.16	0.44
27:Y:2:LYS:O	27:Y:5:GLU:HB2	2.17	0.44
28:Z:24:LEU:HD23	28:Z:24:LEU:HA	1.64	0.44
29:a:46:GLY:O	29:a:50:ASP:HB2	2.17	0.44
43:o:88:MET:HE1	43:o:100:ILE:HD13	1.99	0.44
47:s:49:GLN:HE22	52:x:12:ASP:HA	1.83	0.44
48:t:24:SER:O	48:t:27:VAL:N	2.50	0.44
2:2:282:A:N7	2:2:283:U:C5	2.85	0.44
2:2:370:C:H2'	2:2:371:A:C8	2.53	0.44
2:2:563:A:H2	45:q:12:ARG:NH2	2.14	0.44
2:2:593:U:N3	2:2:594:U:O4	2.51	0.44
2:2:709:U:H2'	2:2:710:G:H8	1.83	0.44
2:2:949:A:C6	2:2:1233:G:C6	3.05	0.44
2:2:1053:G:H4'	2:2:1054:C:H3'	2.00	0.44
2:2:1342:C:H2'	2:2:1343:G:C8	2.52	0.44
2:2:1415:G:C2	2:2:1416:G:C8	3.05	0.44
3:3:29:A:C6	3:3:56:G:C6	3.05	0.44
7:C:5:VAL:HG11	7:C:80:TRP:CE3	2.52	0.44
9:E:76:GLY:C	9:E:77:PHE:CG	2.96	0.44
11:G:81:ALA:C	11:G:149:GLU:HB2	2.42	0.44
15:M:1:MET:N	15:M:47:GLU:HB2	2.32	0.44
17:O:2:ASP:O	17:O:5:SER:N	2.51	0.44
22:T:69:ARG:HG2	22:T:74:ILE:HG12	1.98	0.44
22:T:89:GLU:OE1	22:T:90:GLY:N	2.49	0.44
24:V:55:GLU:HB3	24:V:59:GLU:HG2	1.99	0.44
30:b:54:VAL:HG23	30:b:55:ILE:HG22	1.99	0.44
35:g:125:THR:O	35:g:125:THR:HG22	2.17	0.44
35:g:132:LYS:O	35:g:136:MET:HG2	2.17	0.44
39:k:1:MET:SD	39:k:1:MET:N	2.73	0.44
45:q:3:THR:HG23	45:q:6:GLN:H	1.83	0.44
47:s:89:MET:HE1	47:s:98:LYS:HG3	1.99	0.44
1:1:307:G:N1	1:1:310:A:OP2	2.44	0.44
1:1:801:G:OP1	8:D:50:ALA:HB1	2.16	0.44
1:1:1791:A:N6	1:1:1828:G:O2'	2.47	0.44
1:1:2881:U:H4'	16:N:116:VAL:CG1	2.48	0.44
2:2:89:U:O2	2:2:90:C:C5	2.70	0.44
2:2:632:U:O2	2:2:632:U:H2'	2.16	0.44
2:2:656:G:O2'	48:t:28:GLN:OE1	2.33	0.44
2:2:1141:C:O2'	2:2:1142:G:H5"	2.18	0.44
2:2:1324:A:C5	2:2:1325:C:C5	3.06	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1356:G:H2'	2:2:1357:A:C8	2.52	0.44
7:C:172:VAL:HG22	7:C:194:PRO:HD3	1.99	0.44
10:F:20:ASN:OD1	10:F:20:ASN:N	2.49	0.44
11:G:9:VAL:HG23	11:G:12:LEU:HB2	1.97	0.44
11:G:127:GLU:CD	57:G:206:HOH:O	2.60	0.44
19:Q:44:GLN:HE21	20:R:77:PHE:HB3	1.81	0.44
35:g:164:ILE:O	35:g:186:ILE:HB	2.17	0.44
38:j:76:LEU:C	38:j:82:GLN:HE21	2.26	0.44
42:n:72:ILE:HD12	42:n:72:ILE:H	1.82	0.44
54:z:58:LYS:HE2	57:z:207:HOH:O	2.18	0.44
1:1:747:C:O2'	21:S:92:ARG:NH2	2.51	0.44
1:1:907:G:OP1	15:M:23:GLY:HA2	2.18	0.44
2:2:212:G:H2'	2:2:213:G:H8	1.82	0.44
2:2:255:G:C2	2:2:272:C:C2	3.06	0.44
2:2:522:C:H5	45:q:50:ARG:HH22	1.65	0.44
2:2:681:A:C6	2:2:710:G:C6	3.04	0.44
2:2:1343:G:C6	2:2:1344:C:C4	3.05	0.44
2:2:1375:A:P	40:l:25:LYS:HZ3	2.39	0.44
2:2:1386:G:C2	2:2:1387:G:N7	2.86	0.44
3:3:66:A:H61	3:3:107:G:H2'	1.83	0.44
3:3:119:A:C5	3:3:120:U:N3	2.86	0.44
12:J:35:ARG:HG2	12:J:40:HIS:CE1	2.53	0.44
16:N:73:ASN:O	16:N:76:VAL:HG12	2.18	0.44
28:Z:6:LYS:HB2	28:Z:58:GLU:HB2	2.00	0.44
35:g:50:PHE:HA	35:g:200:ILE:HD12	1.98	0.44
35:g:171:ILE:O	35:g:175:GLU:HG3	2.16	0.44
36:h:64:ILE:HD12	36:h:65:ARG:H	1.82	0.44
36:h:138:VAL:HG23	36:h:149:ILE:HG23	1.99	0.44
54:z:5:LYS:HE2	54:z:5:LYS:HB2	1.65	0.44
1:1:373:U:H2'	1:1:374:A:H8	1.83	0.44
1:1:2526:G:O2'	34:f:1:MET:CB	2.60	0.44
1:1:2627:G:N2	1:1:2777:G:OP2	2.40	0.44
2:2:74:A:C4	2:2:75:G:C8	3.05	0.44
2:2:247:G:C5	2:2:278:G:C2	3.06	0.44
2:2:403:C:H2'	2:2:404:G:H8	1.82	0.44
2:2:499:A:C2	2:2:547:A:C4	3.05	0.44
2:2:544:G:OP1	37:i:59:GLN:HG3	2.18	0.44
2:2:691:G:H1'	2:2:696:A:N6	2.33	0.44
2:2:706:A:C6	2:2:707:U:C4	3.05	0.44
2:2:1272:G:C5	2:2:1273:C:C4	3.06	0.44
8:D:119:ILE:HB	8:D:187:VAL:HG12	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:126:GLY:CA	9:E:163:ASP:HA	2.44	0.44
10:F:137:ASP:O	10:F:141:ILE:HG23	2.17	0.44
14:L:108:ALA:HB3	14:L:125:LEU:HB3	2.00	0.44
16:N:103:ARG:HD3	16:N:110:MET:HE2	2.00	0.44
36:h:76:VAL:HG11	36:h:103:ILE:HG21	1.99	0.44
39:k:49:TYR:CE1	51:w:66:SER:HA	2.52	0.44
43:o:6:ILE:HG23	43:o:76:ILE:HB	1.99	0.44
45:q:89:0TD:OD1	45:q:90:LEU:N	2.50	0.44
1:1:1652:A:OP1	16:N:8:ARG:NH2	2.51	0.44
2:2:16:A:O2'	38:j:21:VAL:HG23	2.18	0.44
2:2:216:U:H4'	2:2:464:U:H4'	1.98	0.44
2:2:413:G:H22	2:2:429:U:P	2.41	0.44
2:2:908:A:C4	2:2:909:A:N7	2.86	0.44
2:2:1014:A:C4	2:2:1015:G:N2	2.86	0.44
2:2:1244:G:C2	2:2:1245:C:C2	3.06	0.44
2:2:1438:G:H1	2:2:1463:U:H3	1.66	0.44
3:3:2:G:C6	3:3:3:C:C4	3.06	0.44
3:3:28:C:H2'	3:3:29:A:H8	1.83	0.44
13:K:53:LYS:CD	57:K:202:HOH:O	2.61	0.44
16:N:30:ARG:HB2	16:N:75:ILE:HD11	2.00	0.44
18:P:20:PHE:CE2	18:P:50:ILE:HD12	2.53	0.44
26:X:68:LEU:HD23	26:X:68:LEU:HA	1.75	0.44
27:Y:21:LEU:HA	27:Y:21:LEU:HD23	1.74	0.44
36:h:147:LYS:HB2	36:h:203:PHE:HD2	1.83	0.44
42:n:110:GLN:NE2	42:n:111:VAL:HG12	2.33	0.44
43:o:53:ILE:CG2	43:o:63:ASP:HB2	2.48	0.44
45:q:78:SER:OG	45:q:103:ASP:OD1	2.24	0.44
53:y:36:TYR:CE2	53:y:79:LEU:HD11	2.52	0.44
1:1:587:C:OP2	14:L:21:ARG:NH2	2.50	0.44
1:1:774:G:N2	1:1:787:C:O2'	2.47	0.44
1:1:1653:G:O6	16:N:11:ASN:OD1	2.35	0.44
2:2:17:U:O2'	2:2:1079:G:H1'	2.18	0.44
2:2:160:A:H1'	2:2:344:A:N7	2.33	0.44
2:2:181:A:N3	2:2:194:C:C4	2.86	0.44
2:2:335:C:H2'	2:2:336:A:C8	2.46	0.44
2:2:410:G:H1'	2:2:432:A:H61	1.82	0.44
2:2:701:U:O2	2:2:703:G:N1	2.51	0.44
2:2:702:A:O2'	2:2:703:G:OP1	2.33	0.44
2:2:1129:C:N3	2:2:1139:G:C6	2.86	0.44
2:2:1143:G:H8	2:2:1143:G:O5'	2.00	0.44
2:2:1428:A:N6	2:2:1473:G:O6	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1465:A:H2'	2:2:1466:C:C6	2.53	0.44
10:F:89:LEU:HD21	10:F:96:ALA:HB2	2.00	0.44
15:M:34:LYS:HD3	24:V:82:TYR:HA	1.99	0.44
21:S:109:ASP:O	21:S:110:ARG:NH2	2.51	0.44
32:d:18:PHE:CZ	32:d:22:MET:HE2	2.53	0.44
35:g:12:ALA:HA	35:g:208:ARG:NH1	2.33	0.44
43:o:57:VAL:HG23	43:o:57:VAL:O	2.18	0.44
44:p:13:ARG:HA	44:p:13:ARG:HD2	1.76	0.44
45:q:89:0TD:H8	45:q:89:0TD:H4	1.51	0.44
1:1:615:U:O2	8:D:38:GLY:HA3	2.17	0.44
1:1:2032:G:OP2	1:1:2454:G:O2'	2.36	0.44
2:2:64:G:C2	2:2:69:G:O6	2.71	0.44
2:2:66:A:C6	2:2:104:G:C2	3.05	0.44
2:2:408:A:H2'	2:2:409:U:O4'	2.18	0.44
2:2:815:A:H62	2:2:1509:C:H1'	1.83	0.44
2:2:958:A:N7	52:x:55:ARG:NH2	2.65	0.44
2:2:1163:A:C6	2:2:1174:G:N1	2.86	0.44
3:3:28:C:C2	3:3:29:A:C8	3.05	0.44
8:D:176:ASP:N	8:D:176:ASP:OD1	2.48	0.44
11:G:26:ALA:O	11:G:31:VAL:HG12	2.18	0.44
14:L:52:GLY:C	14:L:54:GLN:H	2.26	0.44
14:L:95:LEU:HA	14:L:95:LEU:HD23	1.57	0.44
14:L:108:ALA:CB	14:L:125:LEU:HD13	2.48	0.44
17:O:64:TYR:CG	17:O:65:THR:N	2.86	0.44
18:P:60:THR:HA	18:P:73:VAL:HA	2.00	0.44
27:Y:44:LYS:O	27:Y:48:ARG:HG2	2.17	0.44
36:h:53:SER:HB2	36:h:115:LEU:HD11	2.00	0.44
40:l:80:VAL:HB	40:l:81:GLY:H	1.67	0.44
47:s:61:ARG:O	47:s:63:ARG:N	2.50	0.44
48:t:28:GLN:O	48:t:32:LEU:HG	2.18	0.44
1:1:651:G:OP1	33:e:19:LYS:CB	2.65	0.43
1:1:871:U:H4'	15:M:68:PHE:CD2	2.53	0.43
1:1:1026:G:H2'	1:1:1027:A:H8	1.82	0.43
1:1:1138:G:N2	12:J:108:MET:HE2	2.32	0.43
2:2:10:A:H2'	2:2:11:G:C8	2.53	0.43
2:2:65:A:C5	2:2:381:C:C4	3.06	0.43
2:2:241:G:C2	2:2:286:C:N3	2.85	0.43
2:2:246:A:C2	2:2:282:A:C6	3.06	0.43
2:2:286:C:H2'	2:2:287:U:O4'	2.17	0.43
2:2:391:G:H2'	2:2:392:C:O4'	2.18	0.43
2:2:455:G:C2	2:2:456:A:C5	3.05	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:544:G:C6	2:2:545:C:N4	2.86	0.43
2:2:704:A:C5	2:2:705:G:N7	2.86	0.43
2:2:917:G:H2'	2:2:918:A:H8	1.82	0.43
2:2:931:C:H2'	2:2:932:C:H6	1.82	0.43
7:C:13:ARG:HH12	18:P:75:GLN:HB3	1.82	0.43
10:F:43:VAL:O	10:F:44:LYS:HD2	2.18	0.43
17:O:7:ARG:HA	17:O:10:ARG:CZ	2.48	0.43
17:O:35:ILE:C	17:O:36:TYR:HD1	2.25	0.43
26:X:17:ASN:OD1	26:X:27:ARG:HD2	2.18	0.43
38:j:30:ILE:HG13	38:j:30:ILE:O	2.17	0.43
48:t:30:ALA:O	48:t:33:THR:OG1	2.32	0.43
49:u:4:ILE:HD13	49:u:57:ILE:HG13	1.99	0.43
51:w:12:ARG:O	51:w:15:ALA:HB3	2.18	0.43
52:x:13:LEU:HG	52:x:17:LYS:NZ	2.33	0.43
2:2:125:U:H2'	2:2:126:G:H8	1.81	0.43
2:2:241:G:N1	2:2:286:C:C4	2.86	0.43
2:2:374:A:H5"	2:2:452:A:C2	2.52	0.43
2:2:523:A:C2	45:q:88:LYS:HB3	2.54	0.43
2:2:642:A:H2'	2:2:643:C:H6	1.83	0.43
2:2:894:G:C4	2:2:895:G:C8	3.06	0.43
2:2:938:A:C6	2:2:939:G:C5	3.06	0.43
2:2:1271:A:C2	2:2:1272:G:C5	3.05	0.43
2:2:1296:C:H4'	2:2:1302:C:C5	2.53	0.43
2:2:1401:G:C5	2:2:1402:4OC:N3	2.86	0.43
3:3:73:A:N7	3:3:104:A:C4	2.85	0.43
14:L:82:LEU:C	14:L:84:LYS:H	2.26	0.43
17:O:67:ASN:O	17:O:68:LYS:C	2.60	0.43
21:S:24:ILE:HD13	21:S:36:LEU:HD11	1.99	0.43
39:k:84:VAL:HG23	39:k:84:VAL:O	2.18	0.43
39:k:86:ARG:HD2	51:w:64:TYR:CE1	2.53	0.43
45:q:7:LEU:HD21	45:q:12:ARG:HH11	1.82	0.43
46:r:54:ASP:HA	46:r:57:ARG:NH1	2.33	0.43
1:1:467:G:N7	32:d:39:ARG:NH2	2.66	0.43
1:1:1125:G:H5'	34:f:38:GLY:HA2	2.00	0.43
2:2:284:C:H2'	2:2:285:C:H6	1.82	0.43
2:2:384:G:C2	2:2:385:C:C4	3.07	0.43
2:2:432:A:C5	2:2:433:G:N7	2.85	0.43
2:2:872:A:C8	2:2:874:G:C8	3.06	0.43
2:2:1041:G:C2	2:2:1042:A:C5	3.06	0.43
2:2:1072:G:H2'	2:2:1073:U:H6	1.82	0.43
2:2:1371:G:C6	2:2:1372:U:C4	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1386:G:C2	2:2:1387:G:C8	3.06	0.43
2:2:1413:A:H2'	2:2:1414:U:H6	1.83	0.43
3:3:8:C:O2'	17:O:44:GLY:O	2.26	0.43
3:3:12:C:N3	25:W:74:PRO:HB3	2.34	0.43
3:3:29:A:H2'	3:3:30:C:O4'	2.18	0.43
9:E:48:LYS:H	9:E:48:LYS:HD2	1.84	0.43
9:E:131:GLY:HA2	9:E:153:ASP:HA	2.00	0.43
11:G:45:GLU:OE2	11:G:46:PHE:N	2.51	0.43
12:J:114:LEU:HD23	12:J:114:LEU:HA	1.81	0.43
15:M:110:GLU:OE2	15:M:114:ARG:NE	2.49	0.43
30:b:38:HIS:ND1	30:b:42:HIS:O	2.49	0.43
33:e:30:ARG:HD2	33:e:30:ARG:HA	1.82	0.43
36:h:65:ARG:HG2	36:h:100:GLN:HB2	2.00	0.43
46:r:17:ILE:O	46:r:20:THR:OG1	2.23	0.43
1:1:1263:U:OP1	30:b:13:ARG:NH1	2.51	0.43
1:1:1808:A:H3'	1:1:1809:A:C8	2.54	0.43
2:2:96:U:H2'	2:2:97:G:C8	2.54	0.43
2:2:119:A:C8	2:2:288:A:C6	3.05	0.43
2:2:175:C:H2'	2:2:176:C:C6	2.54	0.43
2:2:179:A:C5	2:2:180:U:C5	3.05	0.43
2:2:195:A:N7	2:2:196:A:N6	2.66	0.43
2:2:402:G:C6	2:2:403:C:C4	3.07	0.43
2:2:985:C:C2	2:2:1221:G:N1	2.87	0.43
2:2:1185:G:C2	2:2:1186:G:C4	3.06	0.43
2:2:1383:C:HO2'	2:2:1384:C:P	2.42	0.43
3:3:51:G:OP1	17:O:67:ASN:ND2	2.46	0.43
3:3:61:G:H2'	3:3:62:C:C6	2.53	0.43
3:3:106:G:H2'	3:3:107:G:O4'	2.18	0.43
13:K:7:MET:C	13:K:8:LEU:HD12	2.43	0.43
13:K:114:LYS:NZ	57:K:201:HOH:O	2.51	0.43
14:L:20:GLY:O	14:L:21:ARG:HD2	2.19	0.43
14:L:61:LEU:O	33:e:13:ARG:HG2	2.19	0.43
16:N:59:SER:OG	16:N:60:VAL:N	2.52	0.43
17:O:3:LYS:HE3	17:O:3:LYS:HB2	1.77	0.43
24:V:10:LYS:HE2	24:V:10:LYS:HB2	1.74	0.43
35:g:63:ARG:NH1	57:g:308:HOH:O	2.51	0.43
35:g:154:MET:C	35:g:156:GLY:H	2.26	0.43
36:h:52:VAL:HG23	36:h:68:ILE:HG23	2.00	0.43
38:j:18:VAL:HG12	38:j:35:ALA:HA	2.00	0.43
38:j:149:SER:OG	38:j:152:MET:HG3	2.18	0.43
40:l:47:LEU:HD21	40:l:58:GLU:HB3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:p:110:ILE:O	44:p:111:THR:OG1	2.32	0.43
50:v:11:ARG:O	50:v:23:VAL:HA	2.18	0.43
1:1:1614:A:C2	21:S:93:ALA:CB	2.96	0.43
1:1:2427:C:H5'	1:1:2429:G:H5'	2.01	0.43
2:2:8:A:C6	37:i:206:LYS:HD2	2.53	0.43
2:2:35:G:H2'	2:2:36:C:C6	2.53	0.43
2:2:607:A:H2'	2:2:608:A:H8	1.83	0.43
2:2:651:C:H2'	2:2:652:U:C6	2.54	0.43
2:2:1309:G:H2'	2:2:1310:G:H8	1.83	0.43
7:C:105:LYS:O	7:C:177:VAL:HG22	2.18	0.43
9:E:112:ARG:NE	9:E:113:ASP:N	2.66	0.43
12:J:99:ARG:HA	12:J:99:ARG:HD2	1.74	0.43
14:L:103:ILE:HG23	14:L:104:GLN:H	1.82	0.43
17:O:63:LYS:HZ2	17:O:64:TYR:HB2	1.83	0.43
30:b:13:ARG:O	30:b:17:ARG:HG2	2.18	0.43
33:e:55:LEU:HD23	33:e:55:LEU:HA	1.79	0.43
39:k:47:LEU:HD12	39:k:55:HIS:C	2.44	0.43
40:l:103:TRP:HH2	40:l:141:VAL:HG21	1.82	0.43
45:q:24:LEU:HB3	45:q:27:CYS:O	2.18	0.43
47:s:33:ASP:OD1	47:s:36:ALA:HB2	2.19	0.43
53:y:20:HIS:CE1	53:y:24:ARG:HE	2.36	0.43
1:1:910:A:C5	15:M:13:HIS:NE2	2.86	0.43
1:1:1056:G:H4'	1:1:1086:A:H8	1.84	0.43
2:2:33:A:H2'	2:2:34:C:C6	2.54	0.43
2:2:282:A:C2	2:2:283:U:H1'	2.54	0.43
2:2:470:C:C2	2:2:471:U:C5	3.06	0.43
2:2:585:G:C6	2:2:586:C:C4	3.07	0.43
2:2:640:A:H2'	2:2:641:U:C6	2.53	0.43
2:2:654:G:N3	2:2:753:A:C2	2.87	0.43
2:2:797:C:P	44:p:127:ARG:HH21	2.40	0.43
2:2:950:U:C2	2:2:951:G:C8	3.06	0.43
2:2:955:U:C2	2:2:956:U:C5	3.05	0.43
2:2:978:A:C5	2:2:1319:A:C2	3.06	0.43
2:2:1223:C:H5"	2:2:1224:U:C5'	2.48	0.43
5:5:54:U:H2'	5:5:55:U:O4'	2.18	0.43
22:T:79:ASP:OD1	22:T:79:ASP:N	2.34	0.43
32:d:12:ARG:HE	32:d:44:VAL:HG22	1.84	0.43
34:f:19:ARG:O	34:f:22:VAL:HG12	2.18	0.43
35:g:34:ALA:O	35:g:35:ARG:NH2	2.51	0.43
35:g:225:ARG:HD3	35:g:225:ARG:HA	1.75	0.43
37:i:197:GLU:O	37:i:201:VAL:HG12	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:n:7:TYR:HE1	42:n:18:ARG:HB3	1.83	0.43
44:p:46:THR:C	44:p:49:GLY:H	2.25	0.43
46:r:55:THR:HA	46:r:58:ASP:OD2	2.19	0.43
47:s:69:ARG:HB3	47:s:80:SER:OG	2.19	0.43
1:1:910:A:N3	1:1:2264:C:O2'	2.41	0.43
1:1:1263:U:O2'	30:b:8:PRO:HD2	2.19	0.43
1:1:2258:C:O2'	1:1:2427:C:OP2	2.33	0.43
1:1:2370:G:N2	31:c:39:PHE:CE1	2.86	0.43
1:1:2449:U:O2'	1:1:2501:C:N4	2.52	0.43
1:1:2658:C:H2'	1:1:2659:G:O4'	2.18	0.43
2:2:155:A:H2'	2:2:156:C:O4'	2.18	0.43
2:2:406:G:C5	2:2:495:A:C5	3.06	0.43
2:2:596:A:C2	2:2:597:G:C8	3.06	0.43
2:2:958:A:N6	52:x:55:ARG:H	2.17	0.43
2:2:962:C:C2	2:2:963:G:C8	3.07	0.43
2:2:973:G:C8	2:2:974:A:C8	3.06	0.43
2:2:1027:C:H3'	2:2:1028:C:C6	2.53	0.43
2:2:1035:A:H2'	2:2:1036:A:C8	2.53	0.43
2:2:1087:G:C2	2:2:1088:G:C5	3.07	0.43
2:2:1223:C:OP2	2:2:1224:U:H2'	2.18	0.43
2:2:1314:C:C2	2:2:1315:U:C5	3.06	0.43
2:2:1323:G:C2	2:2:1324:A:C4	3.07	0.43
3:3:47:C:H2'	3:3:48:U:O4'	2.19	0.43
3:3:101:A:C5	3:3:102:G:C5	3.06	0.43
6:B:98:ASP:OD1	6:B:98:ASP:N	2.50	0.43
7:C:125:TRP:CE3	7:C:160:LYS:HD3	2.54	0.43
9:E:170:LEU:HD12	9:E:175:PHE:CG	2.53	0.43
9:E:175:PHE:HD2	9:E:177:PHE:HD1	1.67	0.43
10:F:18:LYS:HB3	10:F:18:LYS:HE3	1.83	0.43
12:J:16:TYR:HB3	12:J:140:LEU:HB2	2.00	0.43
15:M:135:VAL:O	15:M:136:MET:HB3	2.18	0.43
16:N:53:THR:HG23	16:N:94:TYR:HE2	1.84	0.43
17:O:63:LYS:HG3	17:O:64:TYR:H	1.81	0.43
17:O:115:LEU:HA	17:O:115:LEU:HD12	1.68	0.43
35:g:102:THR:HG22	35:g:179:LEU:HD23	2.00	0.43
37:i:4:TYR:C	37:i:5:LEU:HD22	2.44	0.43
42:n:47:VAL:HA	42:n:50:GLN:HB2	2.00	0.43
51:w:65:LEU:HD23	51:w:65:LEU:HA	1.87	0.43
1:1:560:C:O2'	19:Q:52:GLN:NE2	2.52	0.43
1:1:1019:U:H2'	1:1:1020:A:C8	2.45	0.43
2:2:57:G:C6	2:2:58:C:C4	3.07	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:81:A:N7	2:2:83:C:N4	2.66	0.43
2:2:359:G:C6	2:2:360:G:C6	3.07	0.43
2:2:381:C:C4	2:2:382:A:C5	3.06	0.43
2:2:511:C:O2'	2:2:512:U:H5"	2.19	0.43
2:2:583:A:C6	2:2:759:A:N7	2.86	0.43
2:2:864:A:H2'	2:2:865:A:C8	2.54	0.43
2:2:893:C:H2'	2:2:894:G:O4'	2.19	0.43
2:2:900:A:O5'	2:2:900:A:H8	2.02	0.43
2:2:951:G:C2	2:2:1231:G:C5	3.06	0.43
2:2:1261:A:C4	2:2:1275:A:C6	3.07	0.43
2:2:1354:U:H2'	2:2:1355:G:H8	1.84	0.43
3:3:9:G:H2'	3:3:10:G:H5'	2.00	0.43
3:3:40:U:H6	3:3:40:U:H2'	1.67	0.43
3:3:91:C:H2'	3:3:92:C:H6	1.82	0.43
6:B:111:LYS:HB3	6:B:111:LYS:HE2	1.82	0.43
9:E:112:ARG:HE	9:E:113:ASP:N	2.17	0.43
9:E:137:ILE:HG13	9:E:138:PHE:N	2.33	0.43
13:K:113:MET:SD	13:K:116:ILE:HD11	2.59	0.43
16:N:34:ILE:HG12	16:N:113:ILE:HG23	1.99	0.43
31:c:38:LYS:HE2	31:c:38:LYS:HB3	1.88	0.43
35:g:60:ILE:HA	35:g:63:ARG:HG2	2.00	0.43
38:j:162:GLU:CB	57:j:205:HOH:O	2.66	0.43
39:k:9:MET:SD	39:k:59:TYR:CZ	3.12	0.43
46:r:7:ILE:HG23	46:r:9:ILE:HD11	1.99	0.43
1:1:411:G:OP2	1:1:2406:A:O2'	2.36	0.43
1:1:650:C:H5"	33:e:49:MET:CE	2.41	0.43
2:2:36:C:C4	2:2:37:U:C4	3.07	0.43
2:2:71:A:C6	2:2:72:A:C8	3.07	0.43
2:2:144:G:C4	2:2:145:G:C8	3.07	0.43
2:2:306:A:C5	2:2:307:C:C5	3.06	0.43
2:2:343:U:O2'	2:2:344:A:H2'	2.18	0.43
2:2:473:U:C4	2:2:474:G:N7	2.87	0.43
2:2:640:A:C4	2:2:641:U:C5	3.06	0.43
2:2:688:G:C5	2:2:700:G:C2	3.07	0.43
2:2:898:G:C2	2:2:902:G:C6	3.07	0.43
2:2:967:5MC:OP2	2:2:969:A:H5'	2.19	0.43
2:2:1014:A:H2'	2:2:1015:G:C4	2.53	0.43
2:2:1388:C:H2'	2:2:1389:C:C6	2.54	0.43
2:2:1478:U:H2'	2:2:1479:C:H6	1.83	0.43
2:2:1510:C:N3	2:2:1526:G:N1	2.66	0.43
3:3:2:G:C2	3:3:3:C:C2	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:D:128:ALA:O	8:D:130:LYS:N	2.52	0.43
9:E:108:VAL:HG13	9:E:114:PHE:CE2	2.54	0.43
11:G:18:GLN:HE22	11:G:39:ALA:HB1	1.84	0.43
17:O:46:GLU:OE2	17:O:47:VAL:N	2.52	0.43
18:P:28:VAL:HG23	18:P:28:VAL:O	2.18	0.43
21:S:15:GLN:C	21:S:17:VAL:N	2.76	0.43
28:Z:52:SER:O	28:Z:54:MET:N	2.51	0.43
35:g:6:MET:HE1	35:g:47:VAL:HG21	1.99	0.43
35:g:32:PHE:HB3	35:g:40:ILE:O	2.19	0.43
35:g:100:MET:O	35:g:104:TRP:HE3	2.02	0.43
35:g:118:GLU:HB3	35:g:141:LEU:HD13	2.01	0.43
40:l:27:VAL:HG21	40:l:40:GLU:OE2	2.19	0.43
44:p:77:TYR:N	44:p:77:TYR:CD1	2.86	0.43
45:q:67:ILE:HD13	45:q:72:HIS:CE1	2.54	0.43
52:x:16:LEU:O	52:x:20:GLU:HG2	2.18	0.43
1:1:1842:G:H1'	6:B:243:HIS:CD2	2.54	0.43
1:1:2780:G:OP2	12:J:120:ARG:NE	2.29	0.43
2:2:115:G:H1'	2:2:116:A:N7	2.34	0.43
2:2:155:A:C6	2:2:156:C:C4	3.07	0.43
2:2:234:C:H2'	2:2:235:C:H6	1.83	0.43
2:2:432:A:C6	2:2:433:G:C5	3.06	0.43
2:2:549:C:H2'	2:2:550:G:C8	2.54	0.43
2:2:640:A:C4	2:2:641:U:H5	2.36	0.43
2:2:690:G:H2'	2:2:691:G:O4'	2.19	0.43
2:2:719:C:OP2	2:2:720:C:N4	2.49	0.43
2:2:765:G:N1	2:2:812:G:O2'	2.45	0.43
2:2:792:A:O2'	2:2:794:A:N6	2.42	0.43
2:2:838:G:C5	2:2:849:G:C2	3.07	0.43
2:2:1057:G:C6	2:2:1204:A:C6	3.06	0.43
2:2:1341:U:H6	2:2:1341:U:O5'	2.02	0.43
2:2:1349:A:C6	2:2:1374:A:C8	3.07	0.43
2:2:1415:G:C5	2:2:1486:G:N1	2.87	0.43
2:2:1427:C:H2'	2:2:1428:A:H8	1.84	0.43
2:2:1461:G:H2'	2:2:1462:C:H6	1.83	0.43
3:3:118:C:C4	3:3:119:A:N7	2.87	0.43
6:B:50:THR:OG1	6:B:51:THR:N	2.51	0.43
6:B:154:LEU:HD23	6:B:154:LEU:HA	1.78	0.43
7:C:46:ARG:NH2	7:C:87:GLY:H	2.17	0.43
7:C:146:ILE:HD12	7:C:155:VAL:HG21	2.01	0.43
9:E:123:ASP:C	9:E:125:ARG:H	2.27	0.43
10:F:89:LEU:HD13	10:F:94:TYR:HB3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:G:117:LEU:H	11:G:117:LEU:HG	1.58	0.43
28:Z:24:LEU:C	28:Z:26:GLY:N	2.77	0.43
31:c:29:THR:C	31:c:31:PRO:HD3	2.44	0.43
36:h:155:GLY:HA2	36:h:163:ALA:HB1	2.00	0.43
44:p:111:THR:HG22	44:p:112:ASP:O	2.18	0.43
46:r:48:LEU:HD12	46:r:48:LEU:HA	1.85	0.43
1:1:1666:G:O2'	13:K:6:THR:OG1	2.37	0.42
1:1:1798:U:H5	6:B:271:ARG:NH2	2.16	0.42
1:1:2065:C:O2	1:1:2449:U:N3	2.43	0.42
1:1:2429:G:C8	14:L:55:MET:HE3	2.54	0.42
2:2:38:G:N2	2:2:397:A:C4	2.87	0.42
2:2:54:C:P	2:2:351:G:H21	2.42	0.42
2:2:59:A:C4	2:2:331:G:N2	2.87	0.42
2:2:150:U:H2'	2:2:151:A:H8	1.83	0.42
2:2:226:G:C6	2:2:227:G:N7	2.86	0.42
2:2:340:U:C2	2:2:350:G:N2	2.87	0.42
2:2:359:G:C5	2:2:360:G:C5	3.07	0.42
2:2:363:A:H5'	45:q:31:ARG:HB2	2.01	0.42
2:2:406:G:C6	2:2:407:U:C4	3.07	0.42
2:2:410:G:OP1	37:i:26:ARG:HD2	2.19	0.42
2:2:455:G:H2'	2:2:456:A:H8	1.83	0.42
2:2:592:G:C5	2:2:593:U:C4	3.07	0.42
2:2:1306:A:N6	2:2:1331:G:H1'	2.34	0.42
5:5:2:G:H4'	5:5:3:G:OP1	2.19	0.42
8:D:80:SER:O	8:D:80:SER:OG	2.26	0.42
10:F:48:ASN:N	10:F:48:ASN:OD1	2.51	0.42
14:L:90:VAL:HG22	14:L:122:VAL:HA	2.01	0.42
23:U:79:LYS:HB3	23:U:79:LYS:HE2	1.55	0.42
35:g:97:LEU:HB2	35:g:100:MET:HE2	2.01	0.42
36:h:23:PHE:HZ	43:o:11:LYS:HD3	1.84	0.42
40:l:62:PHE:CD1	40:l:124:LEU:HD21	2.46	0.42
44:p:23:ILE:HD13	44:p:96:THR:OG1	2.19	0.42
45:q:43:LYS:NZ	45:q:91:PRO:HB3	2.34	0.42
1:1:1789:A:OP1	6:B:220:VAL:HA	2.19	0.42
2:2:369:G:C2	2:2:370:C:C5	3.07	0.42
2:2:473:U:H2'	2:2:474:G:O4'	2.19	0.42
2:2:540:G:H2'	2:2:541:G:O4'	2.19	0.42
2:2:604:G:C6	2:2:635:A:C6	3.06	0.42
2:2:835:U:OP1	51:w:50:LYS:HB2	2.20	0.42
2:2:844:G:N2	2:2:846:G:C4	2.86	0.42
2:2:874:G:C4	2:2:875:U:C5	3.07	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:953:G:C6	2:2:1229:A:C6	3.07	0.42
2:2:1157:A:N6	2:2:1180:A:N7	2.67	0.42
2:2:1319:A:OP1	52:x:3:ARG:HB2	2.19	0.42
2:2:1323:G:C2	2:2:1324:A:C5	3.07	0.42
2:2:1326:U:H2'	2:2:1327:C:H6	1.84	0.42
2:2:1443:C:H2'	2:2:1444:U:O4'	2.18	0.42
2:2:1477:U:O2'	2:2:1478:U:H5'	2.19	0.42
3:3:10:G:H3'	3:3:11:C:C6	2.52	0.42
3:3:118:C:H3'	3:3:119:A:H5"	2.01	0.42
6:B:133:ARG:NH1	57:B:401:HOH:O	2.51	0.42
10:F:110:SER:O	10:F:110:SER:OG	2.37	0.42
12:J:15:TRP:HA	12:J:53:TYR:O	2.19	0.42
12:J:27:ARG:HD3	12:J:27:ARG:N	2.34	0.42
12:J:45:THR:HB	12:J:48:VAL:HG22	2.00	0.42
12:J:69:ARG:NH1	12:J:89:PHE:HE2	2.17	0.42
21:S:18:ARG:HG3	21:S:76:VAL:HB	2.01	0.42
21:S:69:LEU:HD23	21:S:69:LEU:HA	1.80	0.42
24:V:16:ALA:HA	24:V:19:ARG:NH2	2.34	0.42
28:Z:6:LYS:HD3	28:Z:37:GLU:HG3	2.00	0.42
28:Z:48:ILE:O	28:Z:50:ALA:N	2.52	0.42
35:g:94:HIS:CE1	35:g:146:ASN:OD1	2.72	0.42
38:j:162:GLU:O	38:j:165:LEU:N	2.51	0.42
47:s:66:GLN:HE21	47:s:79:LEU:HD22	1.84	0.42
47:s:83:LYS:HD3	47:s:83:LYS:HA	1.59	0.42
50:v:8:LEU:HD23	50:v:73:TRP:HZ3	1.83	0.42
51:w:57:ARG:HG2	51:w:61:ARG:NH1	2.34	0.42
51:w:66:SER:O	51:w:66:SER:OG	2.26	0.42
1:1:1386:C:H2'	1:1:1387:A:C8	2.54	0.42
1:1:2198:A:C8	11:G:29:PHE:CD1	3.08	0.42
1:1:2564:A:OP1	1:1:2648:G:O2'	2.34	0.42
1:1:2574:G:N3	7:C:148:GLN:HG3	2.35	0.42
2:2:119:A:C5	2:2:288:A:C2	3.07	0.42
2:2:151:A:H2'	2:2:151:A:N3	2.33	0.42
2:2:459:A:C6	2:2:474:G:C6	3.07	0.42
2:2:518:C:H4'	2:2:519:C:C6	2.55	0.42
2:2:539:A:C2	2:2:540:G:C5	3.07	0.42
2:2:801:U:H2'	2:2:802:A:H8	1.83	0.42
2:2:1191:A:H5"	36:h:4:LYS:NZ	2.33	0.42
2:2:1290:G:N3	2:2:1290:G:H2'	2.34	0.42
2:2:1496:C:C2	2:2:1497:G:C8	3.07	0.42
3:3:75:G:N1	3:3:76:G:C5	2.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:98:G:O6	24:V:14:LYS:HB2	2.20	0.42
6:B:78:VAL:HG13	6:B:78:VAL:O	2.19	0.42
14:L:109:LYS:HD2	14:L:126:ARG:O	2.19	0.42
23:U:9:ASP:O	23:U:11:VAL:HG13	2.20	0.42
35:g:82:ASP:O	35:g:85:LEU:HG	2.19	0.42
35:g:154:MET:SD	35:g:158:PRO:HD3	2.59	0.42
46:r:44:LYS:HB3	46:r:44:LYS:HE2	1.78	0.42
1:1:308:G:O2'	1:1:329:G:N2	2.52	0.42
1:1:1769:U:O2'	1:1:1958:C:OP1	2.37	0.42
1:1:2466:C:P	34:f:5:ALA:HB3	2.59	0.42
2:2:127:G:N2	2:2:128:G:H1'	2.34	0.42
2:2:335:C:C2	2:2:336:A:C8	3.07	0.42
2:2:394:G:H2'	2:2:395:C:C6	2.55	0.42
2:2:501:C:P	45:q:114:ARG:HH22	2.43	0.42
2:2:597:G:C2	2:2:644:U:C2	3.08	0.42
2:2:687:A:C2	2:2:704:A:C6	3.08	0.42
2:2:818:G:O2'	2:2:819:A:H5'	2.19	0.42
2:2:867:G:C2	2:2:868:C:C4	3.07	0.42
2:2:990:C:O2'	2:2:991:U:H5'	2.19	0.42
2:2:1130:A:H2'	2:2:1131:G:C8	2.54	0.42
2:2:1134:G:N1	2:2:1141:C:C4	2.88	0.42
2:2:1246:A:H2'	2:2:1247:U:O4'	2.19	0.42
2:2:1399:C:C2	2:2:1401:G:C6	3.08	0.42
3:3:87:U:H3'	3:3:88:C:H5'	2.00	0.42
5:5:75:C:H5'	5:5:76:A:OP2	2.20	0.42
8:D:63:LYS:HE3	8:D:63:LYS:HB3	1.87	0.42
35:g:149:GLY:O	35:g:152:LYS:HG2	2.19	0.42
35:g:157:LEU:HD12	35:g:157:LEU:HA	1.86	0.42
35:g:162:PHE:HE2	35:g:164:ILE:HD13	1.85	0.42
36:h:100:GLN:HE21	36:h:100:GLN:HB3	1.64	0.42
37:i:58:LYS:HD3	37:i:203:LEU:HD22	2.01	0.42
37:i:76:TYR:CE1	37:i:201:VAL:HG23	2.54	0.42
37:i:105:MET:SD	37:i:171:LEU:HD13	2.60	0.42
43:o:36:VAL:HG13	43:o:76:ILE:HG12	2.01	0.42
49:u:21:VAL:O	49:u:33:ILE:HG22	2.19	0.42
49:u:44:SER:O	49:u:47:GLU:HG2	2.20	0.42
1:1:636:G:H1	14:L:111:ILE:HD11	1.77	0.42
1:1:651:G:H5'	33:e:19:LYS:HB2	2.02	0.42
1:1:1539:U:H2'	1:1:1540:G:H8	1.84	0.42
1:1:2508:G:N1	1:1:2580:U:H5	2.16	0.42
2:2:35:G:H2'	2:2:36:C:H6	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:255:G:N1	2:2:272:C:N3	2.68	0.42
2:2:296:U:H2'	2:2:297:G:C8	2.54	0.42
2:2:466:A:C2	2:2:468:A:C4	3.08	0.42
2:2:595:A:H2	2:2:645:G:O6	2.03	0.42
2:2:685:G:N1	2:2:704:A:OP2	2.53	0.42
2:2:735:C:H2'	2:2:736:C:C6	2.55	0.42
2:2:1402:4OC:H1'	2:2:1402:4OC:HM23	1.60	0.42
2:2:1465:A:H2'	2:2:1466:C:H6	1.85	0.42
2:2:1489:G:H2'	2:2:1490:U:C6	2.54	0.42
3:3:46:A:C5	3:3:47:C:C4	3.07	0.42
7:C:34:VAL:HG23	7:C:96:ILE:HD11	2.00	0.42
7:C:108:ASP:OD2	7:C:207:VAL:HG12	2.19	0.42
9:E:34:ILE:HD12	9:E:156:ILE:HD12	2.02	0.42
10:F:6:LYS:HE3	10:F:62:TRP:CH2	2.54	0.42
12:J:110:PRO:C	12:J:111:LYS:HD2	2.45	0.42
19:Q:22:LYS:HB3	19:Q:22:LYS:HE3	1.84	0.42
19:Q:43:GLY:HA3	20:R:75:VAL:HG11	2.01	0.42
19:Q:66:ASN:HA	19:Q:76:TYR:HB2	2.01	0.42
22:T:7:LEU:HD12	22:T:7:LEU:HA	1.91	0.42
23:U:100:SER:O	23:U:100:SER:OG	2.27	0.42
29:a:34:LEU:HD12	29:a:35:ASP:N	2.33	0.42
35:g:60:ILE:HD12	35:g:160:ALA:HB2	2.01	0.42
36:h:8:ASN:OD1	36:h:16:LYS:HD2	2.20	0.42
36:h:152:GLU:CG	36:h:167:TRP:HB3	2.49	0.42
37:i:203:LEU:C	37:i:203:LEU:HD23	2.44	0.42
38:j:85:VAL:HG13	38:j:96:MET:HE3	2.02	0.42
40:l:138:ARG:HD2	40:l:138:ARG:C	2.45	0.42
44:p:119:ASN:ND2	54:z:35:ARG:HH22	2.17	0.42
46:r:85:CYS:HB2	52:x:73:GLU:OE1	2.20	0.42
47:s:98:LYS:HB3	47:s:98:LYS:HE2	1.79	0.42
51:w:26:ILE:HA	51:w:29:LEU:HB2	2.02	0.42
54:z:60:LEU:HD23	54:z:60:LEU:HA	1.73	0.42
1:1:75:G:H4'	27:Y:48:ARG:NH2	2.34	0.42
1:1:536:G:H4'	19:Q:57:PHE:HZ	1.83	0.42
1:1:997:G:OP1	19:Q:91:ASP:HB2	2.20	0.42
1:1:1508:A:O2'	1:1:1509:A:O4'	2.38	0.42
2:2:16:A:O2'	2:2:17:U:H5'	2.19	0.42
2:2:22:G:H2'	2:2:23:C:H6	1.84	0.42
2:2:72:A:H3'	2:2:73:C:H6	1.85	0.42
2:2:270:A:H2'	2:2:271:C:C6	2.55	0.42
2:2:594:U:N3	2:2:646:G:C6	2.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:710:G:C4	2:2:711:G:C8	3.07	0.42
2:2:833:G:C6	2:2:834:U:C4	3.07	0.42
2:2:920:U:O2'	2:2:921:U:H5'	2.18	0.42
2:2:1305:G:O2'	2:2:1306:A:H8	2.01	0.42
2:2:1416:G:C4	2:2:1417:G:C8	3.07	0.42
3:3:74:U:C4	3:3:75:G:C5	3.08	0.42
6:B:93:LEU:HB2	6:B:103:TYR:CE1	2.55	0.42
7:C:106:LYS:O	7:C:206:ALA:HB2	2.20	0.42
9:E:135:GLN:OE1	9:E:135:GLN:N	2.52	0.42
11:G:46:PHE:O	11:G:50:ARG:CB	2.47	0.42
11:G:56:ALA:O	11:G:60:GLU:HG2	2.19	0.42
12:J:14:ASP:OD1	12:J:14:ASP:N	2.49	0.42
16:N:24:MET:HG2	16:N:44:LEU:HD22	2.01	0.42
27:Y:14:LEU:HD23	27:Y:14:LEU:HA	1.80	0.42
35:g:169:GLU:C	35:g:171:ILE:N	2.77	0.42
35:g:188:ASP:CG	35:g:189:THR:N	2.78	0.42
42:n:27:LYS:HB2	42:n:62:ASP:CG	2.44	0.42
46:r:89:LEU:HD23	46:r:89:LEU:HA	1.93	0.42
48:t:21:ASP:C	48:t:23:GLY:H	2.27	0.42
54:z:40:LYS:HE2	54:z:40:LYS:HB3	1.58	0.42
1:1:1042:G:H1	1:1:1113:U:H3	1.68	0.42
1:1:2601:C:H2'	1:1:2603:G:C8	2.55	0.42
1:1:2616:C:H5'	30:b:12:LYS:NZ	2.34	0.42
2:2:92:U:C4	2:2:93:U:C5	3.07	0.42
2:2:225:C:H2'	2:2:226:G:O4'	2.20	0.42
2:2:432:A:C5	2:2:433:G:C8	3.08	0.42
2:2:486:U:C2	2:2:487:A:C8	3.07	0.42
2:2:505:G:C2	2:2:506:G:C5	3.07	0.42
2:2:820:U:H4'	2:2:821:G:OP2	2.20	0.42
2:2:903:G:C5	2:2:904:U:C5	3.08	0.42
2:2:1234:C:H2'	2:2:1235:U:C6	2.55	0.42
2:2:1281:C:H2'	2:2:1282:C:C5	2.55	0.42
2:2:1320:C:C2	52:x:72:GLY:HA3	2.55	0.42
2:2:1463:U:H2'	2:2:1464:U:C6	2.53	0.42
3:3:9:G:C6	3:3:10:G:C8	3.08	0.42
3:3:115:A:N3	3:3:115:A:H2'	2.33	0.42
9:E:90:THR:O	9:E:91:LEU:HD23	2.19	0.42
11:G:130:VAL:HG13	11:G:132:PHE:HE1	1.85	0.42
28:Z:24:LEU:O	28:Z:25:LEU:C	2.62	0.42
35:g:127:ASP:O	35:g:129:LEU:N	2.53	0.42
36:h:177:THR:O	36:h:179:ARG:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:l:110:LYS:HD2	40:l:110:LYS:HA	1.86	0.42
41:m:27:MET:HB2	41:m:27:MET:HE2	1.49	0.42
1:1:34:U:N3	57:1:3325:HOH:O	2.48	0.42
1:1:51:G:H4'	1:1:52:A:H5'	2.01	0.42
1:1:637:A:H5'	14:L:112:LEU:HD23	2.00	0.42
1:1:2729:G:H21	7:C:172:VAL:CG1	2.33	0.42
2:2:89:U:C6	57:2:1809:HOH:O	2.73	0.42
2:2:206:C:H2'	2:2:207:C:C6	2.51	0.42
2:2:240:G:C6	2:2:241:G:C5	3.08	0.42
2:2:317:U:N3	2:2:318:G:N7	2.68	0.42
2:2:719:C:O2'	51:w:38:LYS:HB3	2.20	0.42
2:2:783:C:C2'	2:2:784:A:H5'	2.49	0.42
2:2:895:G:C6	2:2:896:C:C4	3.07	0.42
2:2:1302:C:N3	46:r:17:ILE:HD11	2.33	0.42
2:2:1436:U:C2	2:2:1437:A:C8	3.07	0.42
9:E:135:GLN:CD	9:E:150:ARG:H	2.28	0.42
15:M:136:MET:HE3	15:M:136:MET:HB2	1.78	0.42
23:U:46:GLN:HB3	23:U:59:VAL:HG23	2.02	0.42
37:i:4:TYR:O	37:i:5:LEU:HD22	2.20	0.42
38:j:153:VAL:HG23	38:j:156:LYS:HE2	2.02	0.42
42:n:55:VAL:HG11	42:n:94:LEU:HD12	2.01	0.42
45:q:48:ALA:C	45:q:49:LEU:HD22	2.45	0.42
45:q:94:ARG:HB2	45:q:95:TYR:CE2	2.55	0.42
46:r:76:SER:O	46:r:80:LEU:HD23	2.19	0.42
47:s:42:TRP:O	47:s:46:LEU:HG	2.20	0.42
49:u:6:LEU:HB3	49:u:17:TYR:HD1	1.85	0.42
52:x:52:HIS:HD2	52:x:54:GLY:H	1.61	0.42
1:1:784:G:C6	6:B:228:VAL:HG21	2.54	0.42
2:2:180:U:H3	2:2:181:A:N6	2.17	0.42
2:2:191:G:N3	2:2:192:A:C8	2.88	0.42
2:2:506:G:C6	2:2:507:C:C4	3.08	0.42
2:2:683:G:N2	44:p:40:ASN:OD1	2.44	0.42
2:2:1460:C:H2'	2:2:1461:G:C8	2.55	0.42
3:3:73:A:C8	3:3:104:A:C5	3.07	0.42
6:B:205:LEU:HB3	6:B:210:ALA:HB3	2.02	0.42
9:E:169:LEU:HD12	9:E:169:LEU:HA	1.90	0.42
10:F:37:LEU:HD21	10:F:72:LEU:HD11	2.01	0.42
10:F:176:LYS:HE3	10:F:176:LYS:HB3	1.83	0.42
15:M:73:ILE:HD13	15:M:73:ILE:HA	1.87	0.42
18:P:24:ASP:OD2	18:P:89:ARG:HA	2.19	0.42
31:c:10:LYS:HE3	31:c:20:PHE:CD2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:g:15:HIS:CB	35:g:43:LEU:HD21	2.48	0.42
36:h:57:ILE:HG13	36:h:64:ILE:HD11	2.01	0.42
36:h:156:ARG:H	36:h:163:ALA:CB	2.33	0.42
52:x:45:ILE:HG12	52:x:63:THR:O	2.20	0.42
52:x:52:HIS:NE2	52:x:54:GLY:O	2.52	0.42
1:1:709:U:H3	1:1:722:A:H61	1.68	0.42
1:1:2013:A:OP1	21:S:97:LEU:N	2.52	0.42
2:2:35:G:C2	2:2:36:C:C2	3.07	0.42
2:2:74:A:N1	2:2:97:G:C6	2.87	0.42
2:2:191:G:H2'	2:2:192:A:H8	1.85	0.42
2:2:293:G:H2'	2:2:294:U:H6	1.85	0.42
2:2:483:C:C4	2:2:484:G:C5	3.08	0.42
2:2:819:A:N6	2:2:1529:G:N7	2.68	0.42
2:2:918:A:C6	2:2:919:A:C6	3.08	0.42
2:2:942:G:H2'	2:2:943:U:H6	1.85	0.42
2:2:1017:U:O2'	2:2:1018:G:H8	2.01	0.42
2:2:1076:U:H2'	2:2:1077:G:C8	2.55	0.42
2:2:1319:A:N7	2:2:1323:G:C5	2.88	0.42
2:2:1381:U:C4	2:2:1382:C:C5	3.08	0.42
2:2:1421:G:C2	2:2:1422:G:C4	3.08	0.42
3:3:21:G:C2	3:3:63:C:C2	3.07	0.42
6:B:70:ASN:O	6:B:72:ASP:N	2.53	0.42
6:B:129:THR:OG1	6:B:190:ALA:O	2.29	0.42
6:B:132:MET:H	6:B:132:MET:HG2	1.63	0.42
8:D:2:GLU:CB	57:D:405:HOH:O	2.22	0.42
9:E:14:LYS:HB3	9:E:14:LYS:HE2	1.81	0.42
9:E:42:GLU:OE1	9:E:46:ASP:HB2	2.19	0.42
11:G:45:GLU:C	11:G:45:GLU:CD	2.88	0.42
15:M:119:LEU:HD23	15:M:119:LEU:HA	1.83	0.42
24:V:56:PHE:CE2	24:V:61:LEU:HD21	2.55	0.42
26:X:59:ILE:HD13	26:X:67:VAL:HG21	2.01	0.42
35:g:166:ALA:HB1	35:g:173:ILE:HD13	2.02	0.42
36:h:107:ARG:C	36:h:108:LYS:HG2	2.45	0.42
36:h:114:LYS:HD2	36:h:114:LYS:HA	1.71	0.42
36:h:134:MET:O	36:h:138:VAL:HG12	2.19	0.42
43:o:33:GLY:N	43:o:83:THR:OG1	2.53	0.42
45:q:51:LYS:HG2	45:q:72:HIS:NE2	2.34	0.42
1:1:807:U:O2	8:D:69:ARG:NH2	2.46	0.41
1:1:1824:G:O3'	6:B:247:PRO:HD3	2.20	0.41
1:1:2310:C:H2'	9:E:77:PHE:HE2	1.85	0.41
1:1:2513:A:H2	7:C:148:GLN:HE21	1.66	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2886:A:N6	30:b:40:ARG:NE	2.68	0.41
2:2:69:G:N3	2:2:69:G:H2'	2.35	0.41
2:2:246:A:N7	2:2:279:A:C6	2.88	0.41
2:2:263:A:H2'	2:2:264:C:H5	1.79	0.41
2:2:393:A:C2	2:2:394:G:C8	3.08	0.41
2:2:521:G:C6	2:2:522:C:C5	3.07	0.41
2:2:622:A:H8	2:2:623:C:C6	2.37	0.41
2:2:674:G:C2	2:2:675:A:N7	2.88	0.41
2:2:960:U:O2'	2:2:1223:C:H5'	2.20	0.41
2:2:1010:U:H2'	2:2:1011:C:C6	2.55	0.41
2:2:1221:G:OP1	2:2:1321:U:N3	2.44	0.41
2:2:1447:A:P	2:2:1448:C:H5	2.43	0.41
9:E:4:LEU:HD22	9:E:173:PHE:CD2	2.55	0.41
29:a:16:CYS:HB3	29:a:20:ASN:OD1	2.20	0.41
35:g:179:LEU:HD13	35:g:179:LEU:HA	1.86	0.41
38:j:78:ASN:OD1	38:j:79:GLY:N	2.52	0.41
40:l:108:ALA:HB2	40:l:120:LEU:HD12	2.01	0.41
42:n:119:ARG:HB3	42:n:123:ARG:HG2	2.01	0.41
43:o:33:GLY:N	43:o:83:THR:HG1	2.18	0.41
43:o:101:SER:HA	57:o:207:HOH:O	2.20	0.41
45:q:110:ARG:O	45:q:119:VAL:HG11	2.20	0.41
48:t:42:HIS:CE1	48:t:46:HIS:CD2	3.07	0.41
49:u:12:LYS:C	49:u:14:ARG:N	2.78	0.41
53:y:25:ARG:O	53:y:29:ARG:HG3	2.20	0.41
54:z:5:LYS:O	54:z:6:VAL:C	2.63	0.41
2:2:172:A:C8	2:2:174:A:N7	2.88	0.41
2:2:213:G:N3	2:2:213:G:H2'	2.35	0.41
2:2:886:G:C6	2:2:912:C:N3	2.88	0.41
2:2:1030:U:HO2'	2:2:1031:C:H6	1.66	0.41
2:2:1131:G:C2	2:2:1132:C:C2	3.08	0.41
2:2:1268:G:H2'	2:2:1269:A:C8	2.55	0.41
2:2:1397:C:H4'	2:2:1398:A:OP2	2.20	0.41
3:3:61:G:C6	3:3:62:C:C4	3.09	0.41
3:3:63:C:H2'	3:3:64:G:C8	2.55	0.41
3:3:72:G:N2	3:3:104:A:H62	2.18	0.41
7:C:62:LYS:HA	7:C:65:ALA:HB3	2.01	0.41
9:E:144:ASP:OD1	9:E:145:LYS:HD2	2.21	0.41
10:F:159:GLY:O	10:F:163:ARG:NH1	2.49	0.41
16:N:65:LEU:HA	16:N:65:LEU:HD23	1.65	0.41
22:T:45:ALA:O	22:T:49:LYS:HD3	2.21	0.41
40:l:23:LEU:HD11	40:l:43:VAL:HG21	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:m:18:GLN:OE1	41:m:18:GLN:HA	2.20	0.41
41:m:85:ILE:HD13	41:m:85:ILE:HA	1.87	0.41
42:n:7:TYR:CD1	42:n:20:PHE:HE2	2.38	0.41
42:n:99:ARG:O	42:n:102:GLY:N	2.52	0.41
43:o:36:VAL:HG22	43:o:76:ILE:HG12	2.01	0.41
44:p:105:PHE:N	44:p:105:PHE:CD1	2.86	0.41
45:q:48:ALA:O	45:q:49:LEU:HD22	2.20	0.41
47:s:88:ALA:HB2	47:s:96:LEU:HD23	2.00	0.41
1:1:871:U:H5”	15:M:68:PHE:CZ	2.56	0.41
1:1:995:C:OP2	19:Q:53:ARG:HD2	2.20	0.41
1:1:1816:C:C5	6:B:62:TYR:CE2	3.08	0.41
1:1:2885:G:N2	30:b:32:LYS:HB3	2.36	0.41
2:2:32:A:OP1	2:2:398:U:O2’	2.29	0.41
2:2:80:A:C2	2:2:90:C:C4	3.09	0.41
2:2:179:A:C4	2:2:180:U:C6	3.08	0.41
2:2:259:G:C4	2:2:260:G:C8	3.08	0.41
2:2:626:G:C2	2:2:627:G:C4	3.08	0.41
2:2:672:U:H2’	2:2:673:A:H8	1.85	0.41
2:2:696:A:C4	2:2:697:U:C5	3.08	0.41
2:2:892:A:C2	2:2:893:C:C2	3.08	0.41
2:2:932:C:H2’	2:2:933:G:H8	1.84	0.41
2:2:963:G:N3	2:2:964:A:C8	2.88	0.41
2:2:1030:U:O2’	2:2:1031:C:H6	2.03	0.41
2:2:1159:U:C4	2:2:1182:G:C5	3.08	0.41
2:2:1384:C:C2	2:2:1385:G:C8	3.09	0.41
2:2:1461:G:H2’	2:2:1462:C:C6	2.55	0.41
2:2:1475:G:C2	2:2:1476:A:C8	3.09	0.41
7:C:33:ARG:HH12	7:C:53:GLY:H	1.67	0.41
13:K:114:LYS:CE	57:K:201:HOH:O	2.63	0.41
15:M:66:ARG:NH1	15:M:104:GLU:OE2	2.53	0.41
16:N:45:ARG:HE	16:N:45:ARG:HB2	1.49	0.41
19:Q:97:ASP:OD1	19:Q:98:ILE:N	2.52	0.41
36:h:23:PHE:CZ	43:o:11:LYS:HD3	2.54	0.41
36:h:26:THR:HB	47:s:76:LYS:HZ3	1.85	0.41
37:i:140:ASN:ND2	37:i:183:LYS:O	2.53	0.41
42:n:7:TYR:CE1	42:n:18:ARG:HB3	2.55	0.41
47:s:19:LYS:HE3	47:s:20:TYR:CE2	2.55	0.41
47:s:23:LYS:O	47:s:26:GLU:HG3	2.21	0.41
47:s:64:CYS:HB3	47:s:68:GLY:H	1.85	0.41
1:1:162:U:H1’	1:1:163:C:C5	2.54	0.41
1:1:249:C:O2	33:e:12:LYS:NZ	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1266:G:O2'	1:1:2012:G:O6	2.29	0.41
1:1:1805:A:H4'	6:B:248:TRP:CZ2	2.56	0.41
2:2:10:A:H2'	2:2:11:G:H8	1.85	0.41
2:2:277:C:O5'	2:2:277:C:H6	2.03	0.41
2:2:404:G:H4'	2:2:439:U:H6	1.84	0.41
2:2:431:A:C5	2:2:432:A:N7	2.88	0.41
2:2:657:U:H1'	48:t:22:THR:O	2.21	0.41
2:2:674:G:N2	44:p:118:HIS:HB2	2.35	0.41
2:2:948:C:H2'	2:2:949:A:H8	1.85	0.41
2:2:1096:C:H1'	2:2:1170:A:O2'	2.21	0.41
2:2:1160:G:C6	2:2:1161:C:C4	3.08	0.41
2:2:1219:A:C2	2:2:1220:G:C5	3.08	0.41
3:3:45:A:H5'	9:E:92:ARG:HD3	2.03	0.41
7:C:2:ILE:HG22	7:C:88:GLU:OE2	2.20	0.41
8:D:119:ILE:HG22	8:D:121:VAL:HG23	2.02	0.41
8:D:181:ILE:HG23	14:L:1:MET:HE3	2.02	0.41
10:F:109:PHE:CZ	10:F:152:ARG:HD3	2.56	0.41
13:K:21:CYS:HB2	13:K:39:ILE:HD12	2.02	0.41
17:O:21:LEU:HD23	17:O:21:LEU:HA	1.89	0.41
28:Z:44:ILE:HA	28:Z:44:ILE:HD13	1.78	0.41
35:g:67:ILE:O	35:g:89:GLN:HG3	2.20	0.41
36:h:131:ARG:HD2	36:h:131:ARG:HA	1.75	0.41
36:h:177:THR:OG1	36:h:180:ALA:HB2	2.20	0.41
37:i:191:LEU:HD13	37:i:191:LEU:HA	1.88	0.41
1:1:126:A:OP1	32:d:45:SER:CB	2.67	0.41
1:1:1338:G:O2'	1:1:1393:A:N1	2.49	0.41
1:1:1930:G:H1'	1:1:1931:U:OP2	2.20	0.41
1:1:2021:C:H5	19:Q:25:TYR:CG	2.39	0.41
1:1:2417:C:H5"	33:e:45:ARG:HD3	2.02	0.41
1:1:2898:U:H2'	1:1:2899:A:C8	2.56	0.41
2:2:57:G:C6	2:2:356:A:N1	2.89	0.41
2:2:108:G:OP2	2:2:109:A:H2	2.04	0.41
2:2:110:C:C4	2:2:111:G:N7	2.88	0.41
2:2:203:G:N2	2:2:215:C:C2	2.89	0.41
2:2:674:G:H21	44:p:118:HIS:HB2	1.85	0.41
2:2:1383:C:O2'	2:2:1384:C:OP1	2.34	0.41
6:B:251:GLN:HE21	6:B:252:THR:H	1.68	0.41
6:B:259:SER:O	6:B:259:SER:OG	2.28	0.41
10:F:81:GLU:C	10:F:81:GLU:CD	2.88	0.41
11:G:66:ASN:ND2	11:G:134:VAL:HG12	2.35	0.41
11:G:124:THR:HG23	11:G:128:HIS:HE1	1.81	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:L:74:THR:HG22	14:L:107:PHE:HD2	1.85	0.41
19:Q:83:LEU:HA	19:Q:83:LEU:HD23	1.72	0.41
22:T:86:THR:O	22:T:86:THR:OG1	2.36	0.41
25:W:59:LEU:HD12	25:W:80:ILE:HG13	2.02	0.41
27:Y:21:LEU:HD22	27:Y:46:VAL:HG23	2.02	0.41
37:i:19:LEU:HB3	37:i:64:ILE:HG12	2.01	0.41
40:l:77:SER:HA	40:l:86:GLN:HA	2.03	0.41
41:m:13:ARG:HH11	41:m:27:MET:HA	1.84	0.41
41:m:95:VAL:HG21	41:m:101:ILE:O	2.21	0.41
45:q:35:THR:HG21	45:q:62:GLU:OE2	2.20	0.41
1:1:301:G:H1	1:1:316:C:H42	1.68	0.41
1:1:581:C:H2'	1:1:582:A:C8	2.56	0.41
1:1:633:A:OP1	14:L:68:SER:OG	2.31	0.41
1:1:1952:A:H5'	13:K:55:GLY:O	2.21	0.41
1:1:2531:A:H5"	10:F:157:TYR:CZ	2.55	0.41
2:2:74:A:O2'	2:2:75:G:H5"	2.20	0.41
2:2:149:A:C4	2:2:150:U:C5	3.09	0.41
2:2:405:U:O4	37:i:2:ALA:N	2.53	0.41
2:2:509:A:C6	2:2:510:A:N1	2.88	0.41
2:2:673:A:H2'	2:2:674:G:O4'	2.20	0.41
2:2:690:G:C6	2:2:691:G:C6	3.08	0.41
2:2:718:A:H2'	2:2:718:A:N3	2.36	0.41
2:2:731:G:OP1	2:2:766:A:H1'	2.20	0.41
2:2:762:U:C2	2:2:763:G:C8	3.08	0.41
2:2:1150:A:C2	43:o:41:PRO:HG2	2.55	0.41
2:2:1164:G:C6	2:2:1165:U:C4	3.09	0.41
5:5:64:C:H2'	5:5:65:U:C6	2.55	0.41
10:F:87:LEU:HB2	10:F:131:ILE:HB	2.02	0.41
13:K:64:ARG:HD3	13:K:102:PRO:O	2.21	0.41
22:T:10:VAL:HG12	22:T:11:LEU:HD12	2.03	0.41
28:Z:11:ARG:NH1	28:Z:53:PHE:HB2	2.35	0.41
35:g:59:LYS:HB3	35:g:59:LYS:HE3	1.80	0.41
35:g:166:ALA:O	35:g:169:GLU:N	2.54	0.41
36:h:114:LYS:O	36:h:118:ASP:HB2	2.20	0.41
36:h:119:SER:O	36:h:123:GLN:HB2	2.20	0.41
37:i:101:VAL:O	37:i:105:MET:HG2	2.19	0.41
38:j:100:SER:O	38:j:122:ASN:HB3	2.20	0.41
47:s:31:ILE:HD11	47:s:45:VAL:HA	2.02	0.41
54:z:25:LYS:NZ	57:z:203:HOH:O	2.49	0.41
1:1:253:C:P	33:e:5:LYS:HZ2	2.40	0.41
1:1:1710:G:O2'	1:1:2858:C:N3	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1798:U:C5	6:B:271:ARG:NH2	2.87	0.41
1:1:1827:U:O2'	1:1:1970:A:N3	2.43	0.41
1:1:2100:G:H8	1:1:2100:G:O5'	2.03	0.41
1:1:2564:A:H5'	1:1:2648:G:H4'	2.02	0.41
2:2:64:G:C5	2:2:99:C:N4	2.89	0.41
2:2:186:C:C2	2:2:187:G:C8	3.08	0.41
2:2:191:G:C2	2:2:192:A:C8	3.09	0.41
2:2:240:G:C2	2:2:241:G:C8	3.08	0.41
2:2:710:G:C2	2:2:711:G:C4	3.08	0.41
2:2:892:A:N7	2:2:906:A:H2	2.19	0.41
2:2:936:C:C4	2:2:937:A:N7	2.89	0.41
2:2:963:G:C2	2:2:964:A:C8	3.09	0.41
2:2:990:C:H2'	2:2:991:U:C6	2.56	0.41
2:2:1008:U:H2'	2:2:1009:U:C2	2.56	0.41
2:2:1094:G:O2'	2:2:1108:G:C2	2.73	0.41
2:2:1100:C:P	54:z:69:ARG:HH11	2.44	0.41
2:2:1472:U:H2'	2:2:1473:G:H8	1.83	0.41
2:2:1525:G:H2'	2:2:1526:G:C8	2.56	0.41
3:3:9:G:C6	3:3:10:G:N7	2.88	0.41
3:3:32:U:C4	3:3:51:G:N1	2.88	0.41
7:C:187:LEU:O	7:C:188:LEU:HD23	2.21	0.41
9:E:38:MET:HE3	9:E:53:ALA:HB1	2.02	0.41
10:F:45:HIS:HE1	57:F:203:HOH:O	1.82	0.41
10:F:73:ASN:OD1	10:F:73:ASN:C	2.64	0.41
12:J:140:LEU:HD12	12:J:140:LEU:HA	1.54	0.41
13:K:11:ALA:O	13:K:100:PHE:N	2.52	0.41
13:K:103:VAL:HG12	13:K:104:THR:N	2.36	0.41
14:L:95:LEU:O	14:L:96:LYS:C	2.63	0.41
15:M:78:LEU:HD23	15:M:79:ALA:N	2.35	0.41
20:R:101:ILE:O	20:R:101:ILE:HG13	2.20	0.41
25:W:83:GLU:HB3	25:W:85:GLU:OE2	2.21	0.41
26:X:10:LYS:O	26:X:31:PRO:HG3	2.20	0.41
26:X:31:PRO:HG2	26:X:33:LEU:HD23	2.02	0.41
28:Z:7:ILE:O	28:Z:35:THR:HA	2.20	0.41
35:g:20:THR:HA	35:g:39:HIS:HE1	1.86	0.41
35:g:183:VAL:O	35:g:197:ASP:HB3	2.20	0.41
36:h:30:ALA:CB	47:s:65:ARG:HH22	2.33	0.41
37:i:161:LEU:HD23	37:i:161:LEU:HA	1.77	0.41
42:n:7:TYR:CD1	42:n:20:PHE:CE2	3.09	0.41
42:n:96:SER:O	42:n:99:ARG:HB3	2.21	0.41
42:n:99:ARG:HE	42:n:104:VAL:HG21	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:p:125:LYS:HZ1	44:p:128:ARG:HH22	1.69	0.41
45:q:67:ILE:HA	45:q:97:THR:CG2	2.50	0.41
45:q:89:0TD:OD1	45:q:90:LEU:HD22	2.20	0.41
47:s:80:SER:O	47:s:84:VAL:HG23	2.21	0.41
48:t:66:LEU:HD23	48:t:66:LEU:HA	1.71	0.41
51:w:16:GLU:HG3	51:w:18:VAL:H	1.86	0.41
51:w:19:GLN:NE2	57:w:101:HOH:O	2.54	0.41
53:y:60:ARG:O	53:y:64:LYS:HG2	2.21	0.41
1:1:788:A:OP1	1:1:791:C:N4	2.43	0.41
1:1:912:C:P	15:M:8:LYS:HZ2	2.43	0.41
1:1:995:C:C2	19:Q:57:PHE:CD1	3.08	0.41
1:1:2577:A:N3	30:b:2:ALA:N	2.65	0.41
1:1:2595:G:O6	6:B:239:ASN:ND2	2.54	0.41
2:2:45:G:N1	2:2:46:G:C6	2.89	0.41
2:2:962:C:H2'	2:2:963:G:H8	1.86	0.41
2:2:966:2MG:HO2'	2:2:967:5MC:P	2.41	0.41
2:2:1104:G:H2'	2:2:1105:A:O4'	2.21	0.41
2:2:1130:A:N6	2:2:1131:G:C6	2.89	0.41
2:2:1215:G:N1	2:2:1216:A:C5	2.89	0.41
2:2:1445:U:H3	2:2:1457:G:H1	1.67	0.41
3:3:45:A:C5	3:3:46:A:N7	2.89	0.41
8:D:41:GLN:HG2	8:D:43:THR:HG23	2.02	0.41
8:D:170:ARG:HE	8:D:170:ARG:HB3	1.68	0.41
9:E:36:LEU:HG	9:E:154:ILE:CD1	2.50	0.41
13:K:109:SER:O	13:K:113:MET:HG2	2.21	0.41
18:P:4:ILE:O	18:P:8:LEU:HD23	2.20	0.41
19:Q:92:ARG:O	19:Q:93:LYS:C	2.63	0.41
23:U:95:PHE:HD1	23:U:100:SER:HA	1.85	0.41
35:g:87:CYS:HB2	35:g:221:VAL:HG11	2.03	0.41
35:g:127:ASP:O	35:g:129:LEU:HD22	2.20	0.41
35:g:183:VAL:CG1	35:g:197:ASP:H	2.26	0.41
36:h:11:ARG:C	36:h:13:GLY:N	2.79	0.41
36:h:116:VAL:HG23	36:h:200:VAL:HG11	2.02	0.41
37:i:7:PRO:HB2	37:i:10:LYS:HB3	2.02	0.41
38:j:36:LEU:HD12	38:j:49:GLY:O	2.20	0.41
38:j:142:ASP:O	38:j:146:ASN:ND2	2.54	0.41
38:j:156:LYS:HG2	41:m:71:VAL:HG12	2.02	0.41
40:l:102:ARG:O	40:l:102:ARG:HG2	2.20	0.41
42:n:35:LEU:HD11	42:n:49:ARG:NH1	2.35	0.41
42:n:120:LYS:HE2	42:n:120:LYS:HB3	1.84	0.41
44:p:21:ALA:HB2	44:p:82:LEU:HD11	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:x:77:THR:HG23	52:x:78:ARG:NE	2.36	0.41
1:1:533:G:OP1	19:Q:25:TYR:N	2.47	0.41
1:1:598:U:H2'	1:1:599:A:C8	2.56	0.41
1:1:1528:A:OP2	1:1:1543:G:N2	2.53	0.41
1:1:2184:A:H1'	57:1:3327:HOH:O	2.20	0.41
1:1:2261:C:OP2	25:W:17:GLU:CB	2.68	0.41
2:2:2:A:O2'	2:2:3:A:H5'	2.21	0.41
2:2:77:A:H2'	2:2:78:A:H8	1.86	0.41
2:2:142:G:C2	2:2:222:C:C2	3.08	0.41
2:2:207:C:O2	2:2:207:C:H2'	2.20	0.41
2:2:253:A:H2'	2:2:254:G:H8	1.85	0.41
2:2:263:A:H2'	2:2:264:C:C6	2.56	0.41
2:2:357:G:H2'	2:2:358:U:H6	1.85	0.41
2:2:358:U:N3	2:2:359:G:N7	2.69	0.41
2:2:619:U:O2'	37:i:130:VAL:HG22	2.21	0.41
2:2:628:G:C2	2:2:629:A:C4	3.09	0.41
2:2:710:G:H2'	2:2:711:G:C8	2.54	0.41
2:2:738:C:OP1	39:k:4:TYR:OH	2.27	0.41
2:2:765:G:H1	2:2:812:G:HO2'	1.60	0.41
2:2:852:G:C6	2:2:853:C:C4	3.09	0.41
2:2:915:A:H2'	2:2:916:U:O4'	2.21	0.41
2:2:961:U:C4	2:2:983:A:N6	2.88	0.41
2:2:1039:G:H2'	2:2:1040:U:C6	2.56	0.41
2:2:1144:G:H21	2:2:1146:A:N6	2.14	0.41
2:2:1242:G:C6	2:2:1243:C:C4	3.08	0.41
2:2:1353:G:C4	2:2:1370:G:N2	2.89	0.41
2:2:1375:A:H5"	40:l:25:LYS:HD2	2.03	0.41
2:2:1392:G:O2'	2:2:1393:U:H5'	2.21	0.41
2:2:1462:C:H2'	2:2:1463:U:H6	1.85	0.41
3:3:12:C:C2	25:W:74:PRO:HA	2.55	0.41
3:3:112:G:O5'	3:3:112:G:H8	2.04	0.41
3:3:118:C:N3	3:3:119:A:C8	2.88	0.41
6:B:78:VAL:HG23	6:B:94:VAL:HG12	2.03	0.41
7:C:176:ASP:OD1	7:C:176:ASP:N	2.39	0.41
8:D:65:THR:OG1	8:D:66:GLY:N	2.53	0.41
15:M:40:ARG:HB2	15:M:93:VAL:HG21	2.03	0.41
19:Q:95:LEU:HD23	19:Q:95:LEU:HA	1.83	0.41
29:a:34:LEU:HD12	29:a:35:ASP:H	1.86	0.41
33:e:26:HIS:HB2	33:e:44:LEU:O	2.21	0.41
33:e:44:LEU:HD23	33:e:44:LEU:HA	1.92	0.41
34:f:14:CYS:SG	34:f:33:HIS:ND1	2.93	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:g:28:LYS:HB3	35:g:29:PRO:HD3	2.03	0.41
36:h:115:LEU:HD23	36:h:115:LEU:HA	1.86	0.41
36:h:135:LYS:NZ	36:h:168:TYR:OH	2.54	0.41
40:l:31:MET:SD	40:l:34:GLY:HA2	2.61	0.41
40:l:68:ASN:ND2	40:l:128:ALA:O	2.54	0.41
43:o:38:GLY:C	43:o:74:VAL:HG23	2.46	0.41
44:p:19:GLY:O	44:p:82:LEU:HD12	2.20	0.41
45:q:3:THR:HG22	45:q:6:GLN:OE1	2.21	0.41
51:w:21:ILE:CG2	51:w:54:GLN:HB3	2.47	0.41
53:y:15:GLU:OE1	53:y:19:LYS:HE3	2.21	0.41
53:y:25:ARG:HD2	53:y:29:ARG:HH22	1.84	0.41
54:z:30:ALA:HB2	54:z:33:ARG:NH2	2.35	0.41
1:1:219:A:N3	1:1:234:U:O2'	2.49	0.41
1:1:1779:U:O2	1:1:1783:A:N6	2.54	0.41
1:1:2420:C:OP2	33:e:33:LEU:N	2.45	0.41
1:1:2656:U:H2'	1:1:2657:A:H8	1.86	0.41
1:1:2732:G:P	7:C:208:LYS:NZ	2.94	0.41
2:2:205:A:N7	2:2:206:C:N4	2.68	0.41
2:2:262:A:C6	2:2:263:A:C5	3.09	0.41
2:2:736:C:C2	2:2:737:C:C5	3.09	0.41
2:2:778:G:H1'	44:p:121:CYS:HB3	2.02	0.41
2:2:838:G:C6	2:2:839:C:C4	3.09	0.41
2:2:919:A:C2	2:2:920:U:C5	3.09	0.41
2:2:954:G:C6	2:2:955:U:C4	3.09	0.41
2:2:954:G:H2'	2:2:955:U:C6	2.56	0.41
2:2:1162:C:H2'	2:2:1163:A:C8	2.56	0.41
2:2:1389:C:H2'	2:2:1390:U:H6	1.85	0.41
9:E:114:PHE:CZ	9:E:176:PRO:HB2	2.55	0.41
12:J:6:ALA:HB3	12:J:48:VAL:HG21	2.02	0.41
28:Z:48:ILE:O	28:Z:49:ASN:C	2.64	0.41
35:g:43:LEU:O	35:g:46:THR:HG22	2.21	0.41
35:g:97:LEU:HA	35:g:97:LEU:HD23	1.71	0.41
35:g:161:LEU:HD22	35:g:176:ALA:HB2	2.02	0.41
36:h:156:ARG:HE	36:h:193:TYR:HB3	1.85	0.41
38:j:64:MET:O	38:j:68:ARG:HG3	2.20	0.41
40:l:30:LEU:HA	40:l:105:VAL:HG21	2.03	0.41
41:m:32:LEU:HA	41:m:32:LEU:HD12	1.76	0.41
42:n:8:GLY:N	42:n:86:ALA:HB2	2.36	0.41
43:o:51:VAL:HG22	43:o:52:LEU:O	2.21	0.41
52:x:41:PHE:HD1	52:x:41:PHE:HA	1.72	0.41
1:1:1394:U:H4'	1:1:1603:A:H4'	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1416:G:H1	1:1:1582:C:H42	1.68	0.40
1:1:1827:U:OP1	1:1:1971:U:O2'	2.32	0.40
2:2:68:G:C4	2:2:69:G:H1'	2.56	0.40
2:2:120:A:C5	2:2:122:G:C5	3.09	0.40
2:2:141:G:C4	2:2:142:G:C8	3.09	0.40
2:2:617:G:C2	2:2:624:C:C2	3.09	0.40
2:2:955:U:H2'	2:2:956:U:H6	1.83	0.40
2:2:997:U:H2'	2:2:998:C:O4'	2.21	0.40
2:2:1304:G:C6	2:2:1305:G:N2	2.89	0.40
2:2:1411:C:H2'	2:2:1412:C:C6	2.56	0.40
3:3:20:G:C6	3:3:64:G:C6	3.09	0.40
3:3:31:C:O2	3:3:52:A:H2	2.04	0.40
3:3:62:C:H2'	3:3:63:C:C6	2.56	0.40
3:3:63:C:H2'	3:3:64:G:H8	1.86	0.40
6:B:154:LEU:HD13	6:B:176:LEU:HD21	2.02	0.40
6:B:200:HIS:O	6:B:200:HIS:ND1	2.55	0.40
10:F:38:ASN:C	10:F:40:ALA:N	2.79	0.40
10:F:85:LYS:HB2	10:F:85:LYS:HE2	1.94	0.40
10:F:86:LYS:HB2	10:F:165:ALA:HB2	2.03	0.40
11:G:133:GLN:O	11:G:133:GLN:HG3	2.21	0.40
12:J:2:LYS:HD2	12:J:2:LYS:N	2.36	0.40
12:J:132:HIS:C	12:J:134:ALA:N	2.76	0.40
14:L:61:LEU:HD13	33:e:24:HIS:ND1	2.35	0.40
22:T:82:LYS:HE2	22:T:84:TYR:CE2	2.53	0.40
25:W:29:GLU:O	25:W:31:VAL:HG23	2.21	0.40
26:X:33:LEU:O	26:X:34:HIS:CG	2.74	0.40
35:g:23:TRP:HA	35:g:189:THR:O	2.20	0.40
35:g:48:PRO:HA	35:g:51:ASN:OD1	2.21	0.40
35:g:94:HIS:O	35:g:95:ARG:C	2.63	0.40
36:h:161:GLU:HA	36:h:161:GLU:OE1	2.21	0.40
37:i:13:ARG:NH2	37:i:38:PRO:HA	2.36	0.40
37:i:148:LYS:HB3	37:i:148:LYS:HE3	1.88	0.40
42:n:68:LYS:HB2	42:n:68:LYS:HE3	1.80	0.40
51:w:33:ILE:HG23	51:w:34:THR:O	2.20	0.40
2:2:9:G:C2	2:2:26:A:C2	3.09	0.40
2:2:15:G:C6	2:2:16:A:C5	3.09	0.40
2:2:35:G:C6	2:2:36:C:N4	2.89	0.40
2:2:41:G:N1	2:2:402:G:C6	2.89	0.40
2:2:66:A:H4'	2:2:173:U:C5	2.56	0.40
2:2:122:G:C5	2:2:123:U:C5	3.10	0.40
2:2:149:A:H2'	2:2:150:U:H6	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:185:U:C2	2:2:186:C:C5	3.09	0.40
2:2:1014:A:C5	2:2:1015:G:N1	2.89	0.40
2:2:1041:G:H2'	2:2:1042:A:C8	2.54	0.40
2:2:1119:C:C2	2:2:1120:C:C5	3.09	0.40
2:2:1139:G:N2	2:2:1143:G:C6	2.89	0.40
2:2:1323:G:N1	2:2:1324:A:C6	2.89	0.40
2:2:1518:MA6:O5'	2:2:1518:MA6:H8	2.21	0.40
5:5:19:G:N2	5:5:57:A:H61	2.19	0.40
5:5:20:U:H6	5:5:20:U:H2'	1.76	0.40
7:C:114:LYS:HG2	7:C:196:ALA:HB2	2.04	0.40
10:F:9:VAL:HG23	10:F:50:LEU:HB2	2.03	0.40
15:M:2:LEU:HB3	15:M:68:PHE:CE1	2.55	0.40
19:Q:19:LYS:HB3	19:Q:19:LYS:HE2	1.69	0.40
20:R:4:VAL:O	20:R:39:LEU:N	2.53	0.40
21:S:28:LYS:HB2	21:S:31:GLN:OE1	2.21	0.40
25:W:63:ALA:CB	25:W:84:ALA:HB2	2.47	0.40
25:W:71:VAL:O	25:W:71:VAL:HG22	2.21	0.40
27:Y:22:LEU:HD23	27:Y:22:LEU:HA	1.74	0.40
33:e:8:ARG:HA	33:e:8:ARG:HD2	1.78	0.40
35:g:106:THR:O	35:g:109:GLN:HG3	2.21	0.40
38:j:111:MET:HE3	38:j:111:MET:HB2	1.84	0.40
40:l:31:MET:HE2	40:l:31:MET:HB3	1.86	0.40
42:n:6:TYR:HD2	42:n:89:GLU:HG2	1.85	0.40
51:w:71:THR:HG21	51:w:73:ARG:NH2	2.32	0.40
52:x:41:PHE:H	52:x:44:MET:CE	2.32	0.40
1:1:1341:G:C2	22:T:84:TYR:CD1	3.09	0.40
2:2:203:G:N1	2:2:215:C:N3	2.69	0.40
2:2:324:G:N2	2:2:327:A:C8	2.90	0.40
2:2:332:G:H4'	53:y:7:ALA:HB1	2.02	0.40
2:2:655:A:H2'	2:2:656:G:O4'	2.21	0.40
2:2:707:U:H2'	2:2:708:C:C6	2.57	0.40
2:2:771:G:C6	2:2:809:G:C6	3.09	0.40
2:2:838:G:C5	2:2:849:G:N1	2.90	0.40
2:2:866:C:H4'	2:2:919:A:H5'	2.02	0.40
2:2:902:G:N3	2:2:903:G:C8	2.90	0.40
2:2:1088:G:N3	2:2:1167:A:N6	2.66	0.40
2:2:1320:C:H5	52:x:70:LYS:HD2	1.85	0.40
6:B:199:GLU:H	6:B:199:GLU:HG2	1.73	0.40
9:E:25:VAL:O	9:E:28:VAL:HG12	2.20	0.40
35:g:101:LEU:HD12	35:g:102:THR:HG23	2.03	0.40
36:h:131:ARG:HB3	36:h:135:LYS:NZ	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:i:17:THR:HG22	37:i:18:ASP:N	2.37	0.40
43:o:38:GLY:O	43:o:74:VAL:HA	2.22	0.40
1:1:2466:C:OP1	34:f:5:ALA:HB3	2.21	0.40
2:2:39:G:H2'	2:2:40:C:H6	1.86	0.40
2:2:101:A:C4	2:2:102:G:C8	3.09	0.40
2:2:116:A:H2'	2:2:117:G:O4'	2.22	0.40
2:2:483:C:C6	2:2:484:G:C8	3.10	0.40
2:2:504:C:H5'	2:2:510:A:C6	2.56	0.40
2:2:715:A:H2'	2:2:716:A:C8	2.55	0.40
2:2:832:G:C6	2:2:855:U:C4	3.10	0.40
2:2:891:U:H2'	2:2:892:A:C8	2.48	0.40
2:2:1226:C:N4	46:r:103:LYS:HD2	2.37	0.40
2:2:1477:U:H2'	2:2:1478:U:C6	2.57	0.40
2:2:1520:C:C2	2:2:1521:C:C5	3.09	0.40
3:3:91:C:C2	3:3:92:C:C5	3.09	0.40
4:4:17:C:H2'	4:4:18:C:C6	2.56	0.40
8:D:121:VAL:HG12	8:D:123:LYS:H	1.87	0.40
8:D:147:LEU:HD23	8:D:180:LEU:HD23	2.03	0.40
10:F:85:LYS:HE3	10:F:142:GLY:HA2	2.04	0.40
10:F:94:TYR:HE2	10:F:107:LEU:HB3	1.85	0.40
16:N:38:LEU:HB3	16:N:39:PRO:HD3	2.02	0.40
17:O:49:VAL:HG21	17:O:82:ALA:HB2	2.04	0.40
18:P:92:VAL:HG21	18:P:97:LEU:HD21	2.03	0.40
32:d:26:ASN:O	32:d:30:VAL:HG23	2.22	0.40
37:i:58:LYS:HA	37:i:200:ILE:HG12	2.03	0.40
43:o:24:GLU:OE1	43:o:90:LEU:HD23	2.21	0.40
44:p:94:GLU:HG2	54:z:20:LYS:NZ	2.36	0.40
48:t:3:LEU:HD12	48:t:3:LEU:HA	1.85	0.40
52:x:12:ASP:OD2	52:x:35:SER:OG	2.26	0.40
52:x:71:LEU:H	52:x:71:LEU:HD12	1.85	0.40
1:1:96:C:H4'	27:Y:41:HIS:ND1	2.36	0.40
1:1:298:G:N1	1:1:339:U:OP2	2.46	0.40
1:1:581:C:OP2	19:Q:33:ARG:HD2	2.21	0.40
2:2:100:G:C6	2:2:101:A:C6	3.10	0.40
2:2:104:G:C2	2:2:105:G:C5	3.10	0.40
2:2:258:G:C4	2:2:259:G:C8	3.10	0.40
2:2:444:G:C6	2:2:491:G:C6	3.09	0.40
2:2:599:C:H5"	41:m:88:ARG:HG2	2.04	0.40
2:2:660:C:C4	2:2:661:G:N7	2.89	0.40
2:2:683:G:N2	44:p:40:ASN:HA	2.37	0.40
2:2:787:A:C6	2:2:788:U:C4	3.10	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:859:G:H2'	2:2:860:A:H8	1.85	0.40
2:2:1077:G:N1	2:2:1081:A:C6	2.90	0.40
2:2:1301:U:HO2'	2:2:1302:C:C5'	2.33	0.40
2:2:1404:C:H2'	2:2:1405:G:H8	1.84	0.40
3:3:99:A:C5	3:3:100:G:C8	3.10	0.40
5:5:47:U:H2'	5:5:48:C:C5	2.56	0.40
9:E:14:LYS:O	9:E:17:MET:HB3	2.21	0.40
9:E:38:MET:CG	9:E:152:LEU:HB3	2.50	0.40
9:E:79:ILE:HG13	9:E:79:ILE:O	2.21	0.40
14:L:55:MET:HE2	14:L:55:MET:HB2	1.92	0.40
16:N:75:ILE:HD13	16:N:75:ILE:HA	1.88	0.40
17:O:83:LEU:HD23	17:O:83:LEU:HA	1.83	0.40
22:T:6:ARG:NH1	22:T:37:ASP:OD1	2.55	0.40
35:g:54:LEU:HD12	35:g:57:LEU:HB3	2.04	0.40
36:h:116:VAL:CG2	36:h:200:VAL:HG11	2.52	0.40
36:h:156:ARG:HG2	36:h:193:TYR:O	2.22	0.40
37:i:48:LEU:HD12	37:i:48:LEU:HA	1.92	0.40
38:j:115:LEU:HD13	38:j:123:VAL:HG11	2.04	0.40
40:l:30:LEU:HD12	40:l:30:LEU:O	2.22	0.40
49:u:12:LYS:C	49:u:14:ARG:H	2.28	0.40
50:v:75:LEU:HD23	50:v:75:LEU:H	1.86	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
6	B	269/273 (98%)	241 (90%)	28 (10%)	0	100 100
7	C	207/209 (99%)	176 (85%)	29 (14%)	2 (1%)	13 39
8	D	199/201 (99%)	192 (96%)	7 (4%)	0	100 100
9	E	175/179 (98%)	154 (88%)	21 (12%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
10	F	173/177 (98%)	153 (88%)	19 (11%)	1 (1%)	22 50
11	G	147/149 (99%)	129 (88%)	18 (12%)	0	100 100
12	J	140/142 (99%)	133 (95%)	6 (4%)	1 (1%)	19 47
13	K	121/123 (98%)	110 (91%)	11 (9%)	0	100 100
14	L	142/144 (99%)	116 (82%)	26 (18%)	0	100 100
15	M	134/136 (98%)	117 (87%)	17 (13%)	0	100 100
16	N	117/127 (92%)	104 (89%)	13 (11%)	0	100 100
17	O	114/117 (97%)	108 (95%)	6 (5%)	0	100 100
18	P	112/115 (97%)	104 (93%)	8 (7%)	0	100 100
19	Q	115/118 (98%)	111 (96%)	4 (4%)	0	100 100
20	R	101/103 (98%)	85 (84%)	16 (16%)	0	100 100
21	S	108/110 (98%)	103 (95%)	5 (5%)	0	100 100
22	T	92/100 (92%)	88 (96%)	4 (4%)	0	100 100
23	U	101/104 (97%)	88 (87%)	13 (13%)	0	100 100
24	V	92/94 (98%)	84 (91%)	8 (9%)	0	100 100
25	W	73/84 (87%)	62 (85%)	11 (15%)	0	100 100
26	X	75/78 (96%)	70 (93%)	5 (7%)	0	100 100
27	Y	60/63 (95%)	58 (97%)	2 (3%)	0	100 100
28	Z	56/59 (95%)	47 (84%)	8 (14%)	1 (2%)	7 27
29	a	64/70 (91%)	60 (94%)	4 (6%)	0	100 100
30	b	54/57 (95%)	48 (89%)	6 (11%)	0	100 100
31	c	50/55 (91%)	49 (98%)	1 (2%)	0	100 100
32	d	44/46 (96%)	39 (89%)	5 (11%)	0	100 100
33	e	62/65 (95%)	55 (89%)	6 (10%)	1 (2%)	8 29
34	f	36/38 (95%)	34 (94%)	2 (6%)	0	100 100
35	g	223/241 (92%)	195 (87%)	27 (12%)	1 (0%)	30 60
36	h	206/233 (88%)	186 (90%)	19 (9%)	1 (0%)	25 54
37	i	203/206 (98%)	178 (88%)	25 (12%)	0	100 100
38	j	154/167 (92%)	140 (91%)	14 (9%)	0	100 100
39	k	102/135 (76%)	89 (87%)	12 (12%)	1 (1%)	13 39
40	l	149/179 (83%)	134 (90%)	12 (8%)	3 (2%)	6 25

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
41	m	127/130 (98%)	112 (88%)	15 (12%)	0	100	100
42	n	125/130 (96%)	113 (90%)	12 (10%)	0	100	100
43	o	97/103 (94%)	84 (87%)	13 (13%)	0	100	100
44	p	115/129 (89%)	102 (89%)	13 (11%)	0	100	100
45	q	120/124 (97%)	105 (88%)	15 (12%)	0	100	100
46	r	114/118 (97%)	100 (88%)	14 (12%)	0	100	100
47	s	98/101 (97%)	87 (89%)	11 (11%)	0	100	100
48	t	86/89 (97%)	82 (95%)	4 (5%)	0	100	100
49	u	80/82 (98%)	70 (88%)	9 (11%)	1 (1%)	10	33
50	v	78/84 (93%)	70 (90%)	7 (9%)	1 (1%)	10	33
51	w	64/75 (85%)	58 (91%)	6 (9%)	0	100	100
52	x	81/92 (88%)	70 (86%)	11 (14%)	0	100	100
53	y	84/87 (97%)	82 (98%)	2 (2%)	0	100	100
54	z	68/71 (96%)	63 (93%)	5 (7%)	0	100	100
All	All	5607/5912 (95%)	5038 (90%)	555 (10%)	14 (0%)	45	72

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	C	152	PRO
40	l	84	THR
35	g	128	LYS
36	h	51	SER
39	k	41	ASP
12	J	133	ALA
40	l	86	GLN
50	v	79	VAL
10	F	3	ARG
28	Z	25	LEU
33	e	32	ILE
40	l	80	VAL
49	u	13	LYS
7	C	150	GLN

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
6	B	216/218 (99%)	214 (99%)	2 (1%)	75 86
7	C	164/164 (100%)	160 (98%)	4 (2%)	44 66
8	D	165/165 (100%)	163 (99%)	2 (1%)	67 80
9	E	148/150 (99%)	142 (96%)	6 (4%)	26 51
10	F	136/138 (99%)	133 (98%)	3 (2%)	47 68
11	G	114/114 (100%)	112 (98%)	2 (2%)	54 73
12	J	116/116 (100%)	115 (99%)	1 (1%)	75 86
13	K	104/104 (100%)	104 (100%)	0	100 100
14	L	103/103 (100%)	100 (97%)	3 (3%)	37 61
15	M	109/109 (100%)	109 (100%)	0	100 100
16	N	99/103 (96%)	96 (97%)	3 (3%)	36 61
17	O	86/87 (99%)	85 (99%)	1 (1%)	67 80
18	P	99/100 (99%)	99 (100%)	0	100 100
19	Q	89/90 (99%)	87 (98%)	2 (2%)	47 68
20	R	84/84 (100%)	80 (95%)	4 (5%)	21 48
21	S	93/93 (100%)	91 (98%)	2 (2%)	47 68
22	T	81/84 (96%)	80 (99%)	1 (1%)	67 80
23	U	84/85 (99%)	84 (100%)	0	100 100
24	V	78/78 (100%)	78 (100%)	0	100 100
25	W	57/62 (92%)	55 (96%)	2 (4%)	31 56
26	X	67/68 (98%)	66 (98%)	1 (2%)	60 76
27	Y	54/55 (98%)	49 (91%)	5 (9%)	7 25
28	Z	48/49 (98%)	48 (100%)	0	100 100
29	a	59/62 (95%)	59 (100%)	0	100 100
30	b	47/48 (98%)	44 (94%)	3 (6%)	14 39
31	c	47/49 (96%)	47 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
32	d	38/38 (100%)	38 (100%)	0	100 100
33	e	51/52 (98%)	48 (94%)	3 (6%)	16 41
34	f	34/34 (100%)	33 (97%)	1 (3%)	37 61
35	g	187/199 (94%)	185 (99%)	2 (1%)	70 81
36	h	171/190 (90%)	166 (97%)	5 (3%)	37 61
37	i	172/173 (99%)	171 (99%)	1 (1%)	84 90
38	j	119/126 (94%)	119 (100%)	0	100 100
39	k	91/116 (78%)	90 (99%)	1 (1%)	70 81
40	l	124/147 (84%)	117 (94%)	7 (6%)	17 43
41	m	104/105 (99%)	103 (99%)	1 (1%)	73 83
42	n	105/107 (98%)	103 (98%)	2 (2%)	52 71
43	o	86/90 (96%)	85 (99%)	1 (1%)	67 80
44	p	90/99 (91%)	88 (98%)	2 (2%)	47 68
45	q	102/103 (99%)	101 (99%)	1 (1%)	73 83
46	r	94/96 (98%)	91 (97%)	3 (3%)	34 59
47	s	83/84 (99%)	83 (100%)	0	100 100
48	t	76/77 (99%)	76 (100%)	0	100 100
49	u	65/65 (100%)	63 (97%)	2 (3%)	35 60
50	v	74/78 (95%)	68 (92%)	6 (8%)	9 31
51	w	57/65 (88%)	55 (96%)	2 (4%)	31 56
52	x	72/79 (91%)	69 (96%)	3 (4%)	25 51
53	y	65/66 (98%)	65 (100%)	0	100 100
54	z	60/61 (98%)	59 (98%)	1 (2%)	56 74
All	All	4667/4828 (97%)	4576 (98%)	91 (2%)	50 71

All (91) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	B	7	LYS
6	B	118	SER
7	C	2	ILE
7	C	43	ASP
7	C	151	THR
7	C	157	LYS

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Mol	Chain	Res	Type
8	D	55	SER
8	D	179	SER
9	E	61	SER
9	E	72	LYS
9	E	80	ARG
9	E	92	ARG
9	E	127	ASN
9	E	158	THR
10	F	3	ARG
10	F	23	VAL
10	F	36	THR
11	G	87	GLU
11	G	117	LEU
12	J	27	ARG
14	L	29	LYS
14	L	78	ARG
14	L	89	VAL
16	N	13	ASN
16	N	45	ARG
16	N	51	LEU
17	O	36	TYR
19	Q	22	LYS
19	Q	92	ARG
20	R	49	ILE
20	R	53	PHE
20	R	58	VAL
20	R	80	ARG
21	S	74	ILE
21	S	95	ARG
22	T	1	MET
25	W	37	ILE
25	W	55	ARG
26	X	19	SER
27	Y	7	ARG
27	Y	8	GLU
27	Y	13	GLU
27	Y	16	THR
27	Y	47	ARG
30	b	9	THR
30	b	10	ARG
30	b	16	ARG
33	e	30	ARG

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Mol	Chain	Res	Type
33	e	31	HIS
33	e	32	ILE
34	f	2	LYS
35	g	129	LEU
35	g	227	GLN
36	h	51	SER
36	h	77	ILE
36	h	79	LYS
36	h	82	GLU
36	h	190	HIS
37	i	100	ASN
39	k	14	GLN
40	l	76	LYS
40	l	77	SER
40	l	78	ARG
40	l	80	VAL
40	l	83	SER
40	l	86	GLN
40	l	87	VAL
41	m	27	MET
42	n	12	ARG
42	n	83	ILE
43	o	73	LEU
44	p	83	GLU
44	p	93	ARG
45	q	99	ARG
46	r	44	LYS
46	r	45	ILE
46	r	46	SER
49	u	12	LYS
49	u	29	ASN
50	v	46	VAL
50	v	77	ARG
50	v	78	VAL
50	v	79	VAL
50	v	80	GLU
50	v	81	LYS
51	w	59	ILE
51	w	70	TYR
52	x	4	SER
52	x	36	ARG
52	x	48	THR

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Mol	Chain	Res	Type
54	z	40	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (99) such sidechains are listed below:

Mol	Chain	Res	Type
6	B	21	ASN
6	B	70	ASN
6	B	90	ASN
6	B	117	GLN
6	B	143	ASN
6	B	153	GLN
6	B	243	HIS
6	B	251	GLN
7	C	130	GLN
7	C	149	ASN
7	C	167	ASN
8	D	41	GLN
8	D	90	GLN
8	D	92	HIS
8	D	97	ASN
8	D	136	GLN
8	D	165	HIS
9	E	27	GLN
10	F	45	HIS
10	F	115	HIS
13	K	89	ASN
14	L	104	GLN
15	M	13	HIS
15	M	97	GLN
16	N	9	GLN
17	O	98	GLN
17	O	116	GLN
18	P	12	GLN
19	Q	14	HIS
19	Q	44	GLN
19	Q	52	GLN
19	Q	81	ASN
21	S	7	HIS
21	S	9	HIS
21	S	15	GLN
21	S	40	ASN
22	T	48	GLN

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Mol	Chain	Res	Type
23	U	40	ASN
23	U	53	ASN
23	U	69	ASN
24	V	49	ASN
25	W	46	HIS
26	X	6	GLN
27	Y	20	ASN
27	Y	31	GLN
28	Z	9	GLN
30	b	5	GLN
30	b	6	ASN
30	b	19	HIS
30	b	42	HIS
31	c	19	HIS
32	d	13	ASN
32	d	16	HIS
33	e	28	ASN
34	f	13	ASN
35	g	39	HIS
35	g	170	HIS
35	g	190	ASN
35	g	227	GLN
36	h	6	HIS
36	h	100	GLN
36	h	102	ASN
37	i	36	GLN
37	i	40	GLN
37	i	54	GLN
37	i	74	ASN
37	i	140	ASN
38	j	97	GLN
38	j	122	ASN
38	j	146	ASN
39	k	46	GLN
39	k	63	ASN
39	k	68	GLN
40	l	86	GLN
40	l	148	ASN
41	m	21	ASN
42	n	37	GLN
42	n	75	GLN
42	n	110	GLN

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Mol	Chain	Res	Type
43	o	56	HIS
43	o	99	GLN
44	p	38	GLN
44	p	101	ASN
44	p	109	ASN
44	p	119	ASN
45	q	29	GLN
46	r	8	ASN
47	s	49	GLN
47	s	66	GLN
48	t	20	ASN
48	t	40	GLN
48	t	46	HIS
48	t	50	HIS
50	v	45	HIS
51	w	31	ASN
52	x	52	HIS
52	x	69	HIS
52	x	83	HIS
53	y	20	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2817/2903 (97%)	595 (21%)	23 (0%)
2	2	1532/1540 (99%)	361 (23%)	9 (0%)
3	3	119/120 (99%)	32 (26%)	0
4	4	6/18 (33%)	3 (50%)	1 (16%)
5	5	76/77 (98%)	37 (48%)	5 (6%)
All	All	4550/4658 (97%)	1028 (22%)	38 (0%)

All (1028) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	2	G
1	1	5	A
1	1	10	A
1	1	34	U
1	1	35	G
1	1	43	G
1	1	46	G

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Mol	Chain	Res	Type
1	1	51	G
1	1	52	A
1	1	62	U
1	1	63	A
1	1	71	A
1	1	74	A
1	1	75	G
1	1	84	A
1	1	86	G
1	1	92	U
1	1	93	G
1	1	98	G
1	1	118	A
1	1	119	A
1	1	120	U
1	1	139	U
1	1	140	C
1	1	141	G
1	1	142	A
1	1	149	A
1	1	162	U
1	1	163	C
1	1	181	A
1	1	186	G
1	1	193	U
1	1	194	G
1	1	196	A
1	1	199	A
1	1	200	U
1	1	204	A
1	1	206	U
1	1	213	A
1	1	215	G
1	1	216	A
1	1	218	A
1	1	219	A
1	1	221	A
1	1	222	A
1	1	223	A
1	1	225	C
1	1	229	C
1	1	230	G

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Mol	Chain	Res	Type
1	1	241	A
1	1	242	G
1	1	243	U
1	1	248	G
1	1	255	A
1	1	265	A
1	1	267	C
1	1	268	C
1	1	272	A
1	1	276	U
1	1	277	G
1	1	278	A
1	1	279	A
1	1	285	G
1	1	292	U
1	1	311	A
1	1	316	C
1	1	323	C
1	1	329	G
1	1	330	A
1	1	334	C
1	1	335	C
1	1	345	A
1	1	353	C
1	1	361	G
1	1	362	A
1	1	367	G
1	1	370	G
1	1	371	A
1	1	372	G
1	1	386	G
1	1	387	U
1	1	395	U
1	1	403	U
1	1	404	A
1	1	406	G
1	1	411	G
1	1	421	C
1	1	422	A
1	1	424	G
1	1	434	U
1	1	448	U

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Mol	Chain	Res	Type
1	1	458	G
1	1	473	G
1	1	481	G
1	1	491	G
1	1	505	A
1	1	508	A
1	1	509	C
1	1	531	C
1	1	532	A
1	1	533	G
1	1	544	C
1	1	545	U
1	1	546	U
1	1	547	A
1	1	548	G
1	1	549	G
1	1	550	C
1	1	555	G
1	1	563	A
1	1	573	U
1	1	575	A
1	1	586	A
1	1	603	A
1	1	614	A
1	1	615	U
1	1	616	A
1	1	622	G
1	1	627	A
1	1	637	A
1	1	644	A
1	1	645	C
1	1	646	U
1	1	647	G
1	1	654	A
1	1	655	A
1	1	659	G
1	1	668	A
1	1	669	G
1	1	670	A
1	1	677	A
1	1	686	U
1	1	695	G

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Mol	Chain	Res	Type
1	1	696	G
1	1	704	G
1	1	711	G
1	1	718	A
1	1	729	G
1	1	730	A
1	1	736	C
1	1	738	G
1	1	739	A
1	1	747	C
1	1	752	A
1	1	764	A
1	1	765	C
1	1	782	A
1	1	783	A
1	1	784	G
1	1	785	G
1	1	789	A
1	1	791	C
1	1	805	G
1	1	807	U
1	1	812	C
1	1	819	A
1	1	827	U
1	1	828	U
1	1	829	A
1	1	831	G
1	1	845	A
1	1	846	U
1	1	847	U
1	1	856	G
1	1	858	G
1	1	859	G
1	1	878	A
1	1	879	G
1	1	885	C
1	1	886	A
1	1	895	U
1	1	896	A
1	1	897	C
1	1	902	C
1	1	907	G

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Mol	Chain	Res	Type
1	1	910	A
1	1	931	U
1	1	941	A
1	1	946	C
1	1	953	G
1	1	961	C
1	1	974	G
1	1	983	A
1	1	989	G
1	1	995	C
1	1	996	A
1	1	997	G
1	1	999	U
1	1	1009	A
1	1	1012	U
1	1	1013	C
1	1	1020	A
1	1	1021	A
1	1	1022	G
1	1	1023	U
1	1	1025	G
1	1	1026	G
1	1	1033	U
1	1	1041	G
1	1	1045	C
1	1	1046	A
1	1	1052	C
1	1	1054	A
1	1	1057	A
1	1	1059	G
1	1	1060	U
1	1	1061	U
1	1	1062	G
1	1	1064	C
1	1	1065	U
1	1	1066	U
1	1	1067	A
1	1	1069	A
1	1	1070	A
1	1	1071	G
1	1	1072	C
1	1	1073	A

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Mol	Chain	Res	Type
1	1	1075	C
1	1	1076	C
1	1	1078	U
1	1	1079	C
1	1	1083	U
1	1	1084	A
1	1	1087	G
1	1	1088	A
1	1	1089	A
1	1	1090	A
1	1	1094	U
1	1	1096	A
1	1	1097	U
1	1	1098	A
1	1	1099	G
1	1	1100	C
1	1	1102	C
1	1	1103	A
1	1	1104	C
1	1	1111	A
1	1	1112	G
1	1	1130	U
1	1	1131	G
1	1	1132	U
1	1	1133	A
1	1	1135	C
1	1	1139	G
1	1	1142	A
1	1	1150	C
1	1	1155	A
1	1	1172	C
1	1	1175	A
1	1	1176	U
1	1	1180	U
1	1	1183	U
1	1	1204	A
1	1	1205	A
1	1	1206	G
1	1	1211	C
1	1	1212	G
1	1	1237	A
1	1	1247	A

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Mol	Chain	Res	Type
1	1	1248	G
1	1	1253	A
1	1	1256	G
1	1	1268	A
1	1	1271	G
1	1	1272	A
1	1	1275	A
1	1	1300	G
1	1	1301	A
1	1	1306	C
1	1	1312	U
1	1	1325	U
1	1	1329	U
1	1	1330	C
1	1	1341	G
1	1	1344	U
1	1	1345	C
1	1	1352	U
1	1	1360	G
1	1	1365	A
1	1	1368	G
1	1	1378	A
1	1	1379	U
1	1	1381	G
1	1	1383	A
1	1	1386	C
1	1	1395	A
1	1	1403	A
1	1	1414	C
1	1	1416	G
1	1	1417	C
1	1	1428	C
1	1	1434	A
1	1	1452	G
1	1	1453	A
1	1	1454	C
1	1	1458	U
1	1	1461	C
1	1	1475	G
1	1	1476	U
1	1	1482	G
1	1	1483	G

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Mol	Chain	Res	Type
1	1	1488	C
1	1	1490	A
1	1	1491	G
1	1	1494	A
1	1	1497	U
1	1	1504	A
1	1	1505	A
1	1	1508	A
1	1	1509	A
1	1	1515	A
1	1	1522	A
1	1	1524	G
1	1	1529	G
1	1	1532	A
1	1	1534	U
1	1	1535	A
1	1	1536	C
1	1	1538	G
1	1	1542	U
1	1	1554	U
1	1	1555	G
1	1	1558	C
1	1	1559	U
1	1	1560	G
1	1	1565	C
1	1	1569	A
1	1	1578	U
1	1	1583	A
1	1	1584	U
1	1	1585	C
1	1	1597	A
1	1	1608	A
1	1	1611	C
1	1	1647	U
1	1	1648	U
1	1	1649	G
1	1	1654	A
1	1	1672	A
1	1	1674	G
1	1	1694	C
1	1	1695	G
1	1	1703	G

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Mol	Chain	Res	Type
1	1	1704	C
1	1	1713	A
1	1	1715	G
1	1	1727	C
1	1	1729	U
1	1	1730	C
1	1	1731	G
1	1	1732	C
1	1	1733	G
1	1	1735	A
1	1	1738	G
1	1	1757	A
1	1	1758	U
1	1	1759	A
1	1	1764	C
1	1	1773	A
1	1	1776	G
1	1	1780	A
1	1	1781	U
1	1	1782	U
1	1	1786	A
1	1	1787	A
1	1	1791	A
1	1	1800	C
1	1	1801	A
1	1	1802	A
1	1	1808	A
1	1	1816	C
1	1	1829	A
1	1	1833	C
1	1	1859	U
1	1	1866	A
1	1	1869	G
1	1	1870	C
1	1	1871	A
1	1	1872	A
1	1	1873	G
1	1	1884	G
1	1	1896	G
1	1	1900	A
1	1	1901	A
1	1	1906	G

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Mol	Chain	Res	Type
1	1	1910	G
1	1	1911	U
1	1	1913	A
1	1	1914	C
1	1	1915	U
1	1	1916	A
1	1	1919	A
1	1	1927	A
1	1	1929	G
1	1	1930	G
1	1	1931	U
1	1	1932	A
1	1	1936	A
1	1	1937	A
1	1	1938	A
1	1	1940	U
1	1	1941	C
1	1	1946	U
1	1	1955	U
1	1	1964	G
1	1	1966	A
1	1	1967	C
1	1	1970	A
1	1	1971	U
1	1	1972	G
1	1	1991	U
1	1	1992	G
1	1	1997	C
1	1	2004	G
1	1	2006	C
1	1	2020	A
1	1	2022	U
1	1	2023	C
1	1	2030	A
1	1	2031	A
1	1	2033	A
1	1	2035	G
1	1	2036	C
1	1	2043	C
1	1	2046	G
1	1	2049	G
1	1	2052	A

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Mol	Chain	Res	Type
1	1	2055	C
1	1	2056	G
1	1	2060	A
1	1	2061	G
1	1	2062	A
1	1	2069	A
1	1	2072	C
1	1	2092	U
1	1	2093	G
1	1	2096	C
1	1	2097	A
1	1	2099	U
1	1	2101	A
1	1	2103	C
1	1	2104	U
1	1	2105	U
1	1	2185	U
1	1	2187	U
1	1	2188	U
1	1	2189	U
1	1	2190	G
1	1	2191	A
1	1	2193	G
1	1	2198	A
1	1	2203	U
1	1	2204	G
1	1	2210	U
1	1	2211	A
1	1	2213	U
1	1	2214	C
1	1	2219	U
1	1	2223	G
1	1	2225	A
1	1	2226	C
1	1	2238	G
1	1	2239	G
1	1	2250	G
1	1	2251	G
1	1	2259	U
1	1	2266	A
1	1	2267	A
1	1	2273	A

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Mol	Chain	Res	Type
1	1	2279	G
1	1	2283	C
1	1	2287	A
1	1	2288	A
1	1	2294	G
1	1	2305	U
1	1	2309	A
1	1	2311	A
1	1	2325	G
1	1	2327	A
1	1	2333	A
1	1	2334	U
1	1	2335	A
1	1	2336	A
1	1	2344	U
1	1	2345	G
1	1	2350	C
1	1	2354	C
1	1	2361	G
1	1	2372	U
1	1	2382	G
1	1	2383	G
1	1	2385	C
1	1	2392	A
1	1	2393	U
1	1	2394	C
1	1	2402	U
1	1	2406	A
1	1	2424	C
1	1	2428	G
1	1	2429	G
1	1	2430	A
1	1	2435	A
1	1	2441	U
1	1	2445	G
1	1	2448	A
1	1	2449	U
1	1	2465	C
1	1	2469	A
1	1	2474	U
1	1	2476	A
1	1	2481	G

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Mol	Chain	Res	Type
1	1	2491	U
1	1	2502	G
1	1	2503	A
1	1	2504	U
1	1	2505	G
1	1	2506	U
1	1	2507	C
1	1	2513	A
1	1	2517	C
1	1	2518	A
1	1	2529	G
1	1	2534	A
1	1	2547	A
1	1	2554	U
1	1	2556	C
1	1	2566	A
1	1	2567	G
1	1	2572	A
1	1	2573	C
1	1	2576	G
1	1	2579	C
1	1	2580	U
1	1	2581	G
1	1	2582	G
1	1	2585	U
1	1	2586	U
1	1	2602	A
1	1	2604	U
1	1	2605	U
1	1	2606	C
1	1	2610	C
1	1	2613	U
1	1	2614	A
1	1	2621	G
1	1	2629	U
1	1	2638	G
1	1	2646	C
1	1	2653	U
1	1	2658	C
1	1	2674	G
1	1	2685	G
1	1	2689	U

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Mol	Chain	Res	Type
1	1	2690	U
1	1	2706	A
1	1	2707	U
1	1	2714	G
1	1	2716	C
1	1	2718	G
1	1	2726	A
1	1	2732	G
1	1	2733	A
1	1	2744	G
1	1	2748	A
1	1	2760	C
1	1	2764	A
1	1	2765	A
1	1	2769	U
1	1	2778	A
1	1	2779	U
1	1	2790	U
1	1	2791	G
1	1	2793	C
1	1	2794	C
1	1	2796	U
1	1	2800	A
1	1	2808	G
1	1	2809	A
1	1	2818	U
1	1	2820	A
1	1	2821	A
1	1	2833	U
1	1	2835	A
1	1	2836	U
1	1	2846	G
1	1	2849	U
1	1	2861	U
1	1	2867	G
1	1	2868	A
1	1	2873	A
1	1	2880	C
1	1	2883	A
1	1	2884	U
1	1	2893	A
1	1	2899	A

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Mol	Chain	Res	Type
2	2	2	A
2	2	4	U
2	2	5	U
2	2	7	A
2	2	8	A
2	2	9	G
2	2	22	G
2	2	31	G
2	2	39	G
2	2	47	C
2	2	48	C
2	2	49	U
2	2	50	A
2	2	51	A
2	2	65	A
2	2	68	G
2	2	69	G
2	2	70	U
2	2	72	A
2	2	73	C
2	2	74	A
2	2	83	C
2	2	84	U
2	2	85	U
2	2	86	G
2	2	87	C
2	2	88	U
2	2	89	U
2	2	90	C
2	2	91	U
2	2	94	G
2	2	95	C
2	2	109	A
2	2	115	G
2	2	116	A
2	2	117	G
2	2	120	A
2	2	121	U
2	2	127	G
2	2	130	A
2	2	131	A
2	2	141	G

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Mol	Chain	Res	Type
2	2	144	G
2	2	150	U
2	2	157	U
2	2	161	A
2	2	164	G
2	2	168	G
2	2	174	A
2	2	181	A
2	2	182	A
2	2	183	C
2	2	184	G
2	2	189	A
2	2	191	G
2	2	197	A
2	2	202	G
2	2	204	G
2	2	206	C
2	2	207	C
2	2	208	U
2	2	209	U
2	2	210	C
2	2	211	G
2	2	212	G
2	2	213	G
2	2	226	G
2	2	237	G
2	2	240	G
2	2	242	G
2	2	245	U
2	2	246	A
2	2	247	G
2	2	251	G
2	2	253	A
2	2	259	G
2	2	260	G
2	2	262	A
2	2	266	G
2	2	267	C
2	2	279	A
2	2	280	C
2	2	281	G
2	2	289	G

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Mol	Chain	Res	Type
2	2	306	A
2	2	315	A
2	2	316	C
2	2	328	C
2	2	329	A
2	2	330	C
2	2	332	G
2	2	344	A
2	2	345	C
2	2	347	G
2	2	352	C
2	2	354	G
2	2	367	U
2	2	368	U
2	2	372	C
2	2	373	A
2	2	384	G
2	2	393	A
2	2	406	G
2	2	411	A
2	2	412	A
2	2	413	G
2	2	414	A
2	2	421	U
2	2	422	C
2	2	423	G
2	2	424	G
2	2	428	G
2	2	429	U
2	2	431	A
2	2	457	G
2	2	461	A
2	2	463	U
2	2	464	U
2	2	467	U
2	2	468	A
2	2	474	G
2	2	476	U
2	2	478	A
2	2	479	U
2	2	481	G
2	2	482	A

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Mol	Chain	Res	Type
2	2	484	G
2	2	486	U
2	2	495	A
2	2	496	A
2	2	499	A
2	2	500	G
2	2	509	A
2	2	511	C
2	2	517	G
2	2	518	C
2	2	519	C
2	2	521	G
2	2	524	G
2	2	527	G7M
2	2	532	A
2	2	533	A
2	2	534	U
2	2	537	G
2	2	545	C
2	2	547	A
2	2	550	G
2	2	564	C
2	2	566	G
2	2	572	A
2	2	573	A
2	2	575	G
2	2	576	C
2	2	577	G
2	2	584	G
2	2	587	G
2	2	588	G
2	2	593	U
2	2	596	A
2	2	607	A
2	2	633	G
2	2	639	G
2	2	650	G
2	2	653	U
2	2	665	A
2	2	666	G
2	2	674	G
2	2	675	A

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Mol	Chain	Res	Type
2	2	687	A
2	2	698	G
2	2	700	G
2	2	702	A
2	2	703	G
2	2	710	G
2	2	718	A
2	2	721	G
2	2	723	U
2	2	731	G
2	2	734	G
2	2	745	G
2	2	747	A
2	2	748	G
2	2	751	U
2	2	755	G
2	2	786	G
2	2	787	A
2	2	790	A
2	2	792	A
2	2	793	U
2	2	794	A
2	2	813	U
2	2	815	A
2	2	817	C
2	2	825	A
2	2	828	U
2	2	829	G
2	2	832	G
2	2	841	C
2	2	842	U
2	2	843	U
2	2	844	G
2	2	845	A
2	2	846	G
2	2	872	A
2	2	889	A
2	2	891	U
2	2	895	G
2	2	908	A
2	2	910	C
2	2	914	A

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Mol	Chain	Res	Type
2	2	928	G
2	2	934	C
2	2	935	A
2	2	942	G
2	2	945	G
2	2	950	U
2	2	954	G
2	2	960	U
2	2	966	2MG
2	2	967	5MC
2	2	968	A
2	2	969	A
2	2	974	A
2	2	975	A
2	2	976	G
2	2	977	A
2	2	978	A
2	2	981	U
2	2	987	G
2	2	988	G
2	2	992	U
2	2	993	G
2	2	994	A
2	2	996	A
2	2	1004	A
2	2	1005	A
2	2	1007	U
2	2	1008	U
2	2	1009	U
2	2	1010	U
2	2	1017	U
2	2	1018	G
2	2	1020	G
2	2	1021	A
2	2	1025	U
2	2	1026	G
2	2	1027	C
2	2	1028	C
2	2	1029	U
2	2	1030	U
2	2	1031	C
2	2	1034	G

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Mol	Chain	Res	Type
2	2	1035	A
2	2	1036	A
2	2	1037	C
2	2	1038	C
2	2	1043	G
2	2	1044	A
2	2	1053	G
2	2	1056	U
2	2	1065	U
2	2	1085	U
2	2	1089	G
2	2	1091	U
2	2	1094	G
2	2	1095	U
2	2	1101	A
2	2	1108	G
2	2	1124	G
2	2	1133	G
2	2	1135	U
2	2	1136	C
2	2	1137	C
2	2	1139	G
2	2	1140	C
2	2	1141	C
2	2	1143	G
2	2	1145	A
2	2	1150	A
2	2	1158	C
2	2	1159	U
2	2	1160	G
2	2	1162	C
2	2	1167	A
2	2	1175	G
2	2	1176	A
2	2	1179	A
2	2	1184	G
2	2	1196	A
2	2	1197	A
2	2	1212	U
2	2	1213	A
2	2	1222	G
2	2	1224	U

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Mol	Chain	Res	Type
2	2	1225	A
2	2	1227	A
2	2	1228	C
2	2	1238	A
2	2	1239	A
2	2	1240	U
2	2	1241	G
2	2	1257	A
2	2	1258	G
2	2	1261	A
2	2	1267	C
2	2	1268	G
2	2	1275	A
2	2	1279	G
2	2	1280	A
2	2	1281	C
2	2	1282	C
2	2	1285	A
2	2	1286	U
2	2	1287	A
2	2	1299	A
2	2	1300	G
2	2	1302	C
2	2	1305	G
2	2	1317	C
2	2	1319	A
2	2	1322	C
2	2	1340	A
2	2	1346	A
2	2	1351	U
2	2	1360	A
2	2	1361	G
2	2	1363	A
2	2	1370	G
2	2	1372	U
2	2	1378	C
2	2	1379	G
2	2	1380	U
2	2	1381	U
2	2	1384	C
2	2	1401	G
2	2	1404	C

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Mol	Chain	Res	Type
2	2	1419	G
2	2	1432	G
2	2	1436	U
2	2	1440	U
2	2	1441	A
2	2	1445	U
2	2	1446	A
2	2	1452	C
2	2	1453	G
2	2	1493	A
2	2	1494	G
2	2	1495	U
2	2	1497	G
2	2	1498	UR3
2	2	1499	A
2	2	1503	A
2	2	1504	G
2	2	1506	U
2	2	1507	A
2	2	1517	G
2	2	1519	MA6
2	2	1529	G
2	2	1530	G
2	2	1533	C
2	2	1534	A
3	3	2	G
3	3	8	C
3	3	9	G
3	3	13	G
3	3	15	A
3	3	16	G
3	3	35	C
3	3	37	C
3	3	45	A
3	3	56	G
3	3	57	A
3	3	67	G
3	3	68	C
3	3	73	A
3	3	77	U
3	3	78	A
3	3	79	G

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Mol	Chain	Res	Type
3	3	86	G
3	3	88	C
3	3	89	U
3	3	90	C
3	3	94	A
3	3	95	U
3	3	105	G
3	3	108	A
3	3	109	A
3	3	114	C
3	3	115	A
3	3	116	G
3	3	117	G
3	3	118	C
3	3	119	A
4	4	14	G
4	4	15	C
4	4	18	C
5	5	2	G
5	5	3	G
5	5	4	C
5	5	5	A
5	5	6	C
5	5	7	G
5	5	13	C
5	5	14	A
5	5	15	G
5	5	16	C
5	5	17	C
5	5	18	G
5	5	20	U
5	5	21	A
5	5	22	G
5	5	28	C
5	5	37	G
5	5	40	U
5	5	42	G
5	5	43	G
5	5	46	G
5	5	47	U
5	5	48	C
5	5	51	A

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Mol	Chain	Res	Type
5	5	52	G
5	5	54	U
5	5	60	U
5	5	61	C
5	5	63	U
5	5	65	U
5	5	66	C
5	5	69	G
5	5	72	G
5	5	73	A
5	5	74	C
5	5	75	C
5	5	76	A

All (38) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	51	G
1	1	242	G
1	1	421	C
1	1	490	C
1	1	615	U
1	1	784	G
1	1	1020	A
1	1	1022	G
1	1	1070	A
1	1	1111	A
1	1	1141	U
1	1	1378	A
1	1	1453	A
1	1	1730	C
1	1	1930	G
1	1	1940	U
1	1	2190	G
1	1	2286	G
1	1	2326	C
1	1	2391	G
1	1	2572	A
1	1	2581	G
1	1	2808	G
2	2	173	U
2	2	209	U

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Mol	Chain	Res	Type
2	2	315	A
2	2	516	PSU
2	2	575	G
2	2	1109	C
2	2	1299	A
2	2	1383	C
2	2	1493	A
4	4	14	G
5	5	2	G
5	5	17(A)	U
5	5	60	U
5	5	72	G
5	5	74	C

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	5MC	2	1407	2	19,22,23	3.59	8 (42%)	26,32,35	1.07	1 (3%)
2	4OC	2	1402	2	20,23,24	3.09	8 (40%)	25,32,35	0.88	2 (8%)
2	2MG	2	966	2	18,26,27	2.48	6 (33%)	16,38,41	1.76	5 (31%)
2	G7M	2	527	2	20,26,27	3.96	9 (45%)	16,39,42	0.95	1 (6%)
2	2MG	2	1207	2	18,26,27	2.47	7 (38%)	16,38,41	1.63	4 (25%)
2	2MG	2	1516	2	18,26,27	2.54	6 (33%)	16,38,41	1.53	4 (25%)
2	PSU	2	516	2	18,21,22	1.55	3 (16%)	21,30,33	2.33	7 (33%)
2	5MC	2	967	2	19,22,23	3.91	8 (42%)	26,32,35	1.02	2 (7%)
45	0TD	q	89	45	8,9,10	2.10	3 (37%)	6,11,13	2.58	3 (50%)
2	UR3	2	1498	2	19,22,23	2.76	7 (36%)	26,32,35	1.54	4 (15%)
2	MA6	2	1519	2	19,26,27	1.11	2 (10%)	18,38,41	2.34	7 (38%)
2	MA6	2	1518	2	19,26,27	1.07	0	18,38,41	2.40	9 (50%)

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
2	5MC	2	1407	2	-	0/7/25/26	0/2/2/2
2	4OC	2	1402	2	-	1/9/29/30	0/2/2/2
2	2MG	2	966	2	-	1/5/27/28	0/3/3/3
2	G7M	2	527	2	-	3/3/25/26	0/3/3/3
2	2MG	2	1207	2	-	0/5/27/28	0/3/3/3
2	2MG	2	1516	2	-	0/5/27/28	0/3/3/3
2	PSU	2	516	2	-	2/7/25/26	0/2/2/2
2	5MC	2	967	2	-	2/7/25/26	0/2/2/2
45	0TD	q	89	45	-	3/7/12/14	-
2	UR3	2	1498	2	-	3/7/25/26	0/2/2/2
2	MA6	2	1519	2	-	5/7/29/30	0/3/3/3
2	MA6	2	1518	2	-	0/7/29/30	0/3/3/3

All (67) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	527	G7M	C8-N7	9.89	1.51	1.33
2	2	527	G7M	C8-N9	9.59	1.50	1.33
2	2	967	5MC	C6-C5	9.25	1.49	1.34
2	2	1407	5MC	C6-C5	8.82	1.49	1.34
2	2	967	5MC	C5-C4	7.02	1.49	1.44
2	2	1402	4OC	C4-N3	6.89	1.44	1.32
2	2	967	5MC	C4-N3	6.84	1.45	1.34
2	2	1498	UR3	C6-C5	6.72	1.50	1.35
2	2	1407	5MC	C4-N3	6.43	1.44	1.34
2	2	1498	UR3	C2-N1	6.31	1.47	1.38
2	2	967	5MC	C2-N3	6.17	1.48	1.36
2	2	1402	4OC	C6-C5	6.08	1.49	1.35
2	2	1402	4OC	C2-N3	6.08	1.48	1.36
2	2	1407	5MC	C2-N3	5.97	1.48	1.36
2	2	1207	2MG	C2-N2	5.73	1.45	1.33
2	2	1516	2MG	C2-N2	5.70	1.45	1.33
2	2	527	G7M	C2-N3	5.53	1.46	1.33
2	2	966	2MG	C2-N2	5.52	1.45	1.33
2	2	1407	5MC	C5-C4	5.28	1.48	1.44
2	2	1498	UR3	C2-N3	5.11	1.49	1.39
2	2	1207	2MG	C4-N3	5.01	1.49	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1402	4OC	C4-N4	4.91	1.46	1.36
2	2	1516	2MG	C4-N3	4.86	1.48	1.37
2	2	1516	2MG	C2-N1	4.84	1.44	1.36
2	2	527	G7M	C2-N2	4.81	1.45	1.34
2	2	966	2MG	C4-N3	4.73	1.48	1.37
2	2	966	2MG	C2-N1	4.69	1.44	1.36
2	2	967	5MC	C4-N4	4.58	1.45	1.34
2	2	967	5MC	C6-N1	4.48	1.45	1.38
2	2	527	G7M	C6-N1	4.46	1.44	1.37
2	2	1207	2MG	C2-N1	4.41	1.43	1.36
2	2	1407	5MC	C6-N1	4.29	1.45	1.38
2	2	967	5MC	C2-N1	4.23	1.48	1.40
2	2	1407	5MC	C4-N4	4.15	1.44	1.34
2	2	527	G7M	C4-N3	4.11	1.47	1.37
2	2	1407	5MC	C2-N1	3.86	1.48	1.40
2	2	1402	4OC	C2-N1	3.85	1.48	1.40
2	2	1516	2MG	C6-N1	3.76	1.43	1.37
2	2	527	G7M	C2-N1	3.75	1.46	1.37
2	2	966	2MG	C6-N1	3.57	1.43	1.37
45	q	89	0TD	CB-CA	-3.50	1.53	1.54
2	2	1498	UR3	C6-N1	3.31	1.46	1.38
2	2	1402	4OC	C5-C4	3.28	1.48	1.41
2	2	516	PSU	C6-C5	3.28	1.38	1.35
2	2	516	PSU	C4-N3	-3.25	1.32	1.38
2	2	1207	2MG	C6-N1	3.19	1.42	1.37
2	2	1402	4OC	C6-N1	3.11	1.45	1.38
2	2	1407	5MC	O2-C2	-3.04	1.18	1.23
2	2	966	2MG	C5-C6	2.99	1.53	1.47
2	2	1402	4OC	O2-C2	-2.93	1.18	1.23
2	2	1516	2MG	C5-C6	2.91	1.53	1.47
2	2	1207	2MG	C5-C4	-2.86	1.36	1.43
2	2	967	5MC	O2-C2	-2.82	1.18	1.23
2	2	1516	2MG	C5-C4	-2.82	1.36	1.43
2	2	966	2MG	C5-C4	-2.77	1.36	1.43
2	2	1207	2MG	C5-C6	2.76	1.52	1.47
45	q	89	0TD	CB-SB	-2.73	1.79	1.82
2	2	516	PSU	C2-N3	-2.69	1.33	1.37
2	2	527	G7M	C5-C6	2.58	1.52	1.45
2	2	1498	UR3	O2-C2	-2.37	1.18	1.22
2	2	527	G7M	C5-C4	2.15	1.43	1.39
2	2	1207	2MG	O6-C6	-2.15	1.18	1.23
2	2	1519	MA6	C6-C5	2.13	1.48	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1519	MA6	O4'-C1'	2.09	1.43	1.40
45	q	89	0TD	CSB-SB	-2.06	1.75	1.79
2	2	1498	UR3	O4-C4	-2.03	1.19	1.23
2	2	1498	UR3	C4-N3	2.02	1.44	1.40

All (49) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	516	PSU	N1-C2-N3	7.07	122.63	115.17
2	2	1518	MA6	C2-N1-C6	5.18	121.92	116.84
2	2	1519	MA6	C2-N1-C6	4.75	121.50	116.84
45	q	89	0TD	OD2-CG-CB	4.67	123.23	113.15
2	2	516	PSU	C4-N3-C2	-4.45	120.24	126.37
2	2	1498	UR3	C4-N3-C2	-3.98	121.38	124.58
2	2	1407	5MC	C5-C6-N1	-3.91	119.07	123.31
2	2	1519	MA6	C10-N6-C6	-3.86	108.76	119.40
2	2	1518	MA6	N1-C6-N6	3.83	121.25	116.83
2	2	966	2MG	N1-C2-N2	3.82	120.46	116.56
2	2	1498	UR3	C6-N1-C2	-3.81	118.69	121.80
2	2	1518	MA6	C10-N6-C6	-3.78	108.97	119.40
2	2	1519	MA6	C9-N6-C6	-3.72	109.13	119.40
2	2	1207	2MG	C5-C6-N1	3.50	120.76	114.07
2	2	1516	2MG	N1-C2-N2	3.43	120.06	116.56
2	2	1498	UR3	C5-C4-N3	3.41	119.53	115.04
2	2	1519	MA6	N3-C2-N1	-3.40	124.05	128.67
2	2	1518	MA6	N3-C2-N1	-3.37	124.10	128.67
2	2	1519	MA6	N1-C6-N6	3.12	120.44	116.83
2	2	1207	2MG	C8-N7-C5	3.12	107.86	102.55
2	2	966	2MG	C5-C6-N1	3.09	119.97	114.07
2	2	966	2MG	C8-N7-C5	3.06	107.77	102.55
2	2	1207	2MG	N1-C2-N2	3.01	119.63	116.56
2	2	967	5MC	C5-C6-N1	-2.93	120.13	123.31
2	2	516	PSU	O3'-C3'-C4'	2.93	119.51	111.08
2	2	1516	2MG	C5-C6-N1	2.91	119.61	114.07
2	2	1516	2MG	C8-N7-C5	2.80	107.32	102.55
2	2	1518	MA6	C9-N6-C6	-2.80	111.68	119.40
2	2	1498	UR3	C1'-N1-C2	2.77	121.58	117.04
2	2	1518	MA6	C4'-O4'-C1'	2.75	112.45	109.92
2	2	516	PSU	O2-C2-N1	-2.73	119.97	122.79
2	2	527	G7M	C2-N1-C6	-2.73	120.11	125.11
2	2	1519	MA6	C4-C5-N7	-2.72	106.46	109.34
45	q	89	0TD	OD1-CG-CB	-2.62	116.95	122.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	966	2MG	CM2-N2-C2	-2.62	118.02	123.65
2	2	1207	2MG	O6-C6-C5	-2.53	119.30	124.32
2	2	516	PSU	O2-C2-N3	-2.51	117.40	121.86
2	2	966	2MG	O6-C6-C5	-2.41	119.55	124.32
2	2	1518	MA6	C4-C5-N7	-2.40	106.80	109.34
2	2	1519	MA6	C10-N6-C9	-2.33	108.68	116.18
45	q	89	0TD	O-C-CA	-2.29	118.88	124.77
2	2	967	5MC	CM5-C5-C6	-2.20	119.87	122.85
2	2	1516	2MG	O6-C6-C5	-2.17	120.03	124.32
2	2	1518	MA6	C10-N6-C9	-2.15	109.26	116.18
2	2	1402	4OC	C6-C5-C4	2.15	119.59	117.00
2	2	1402	4OC	C5-C4-N3	-2.12	119.28	122.60
2	2	1518	MA6	C5'-C4'-C3'	-2.09	107.68	115.21
2	2	516	PSU	C3'-C2'-C1'	2.04	104.10	101.69
2	2	516	PSU	C5-C6-N1	-2.02	119.33	122.14

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	2	516	PSU	O4'-C1'-C5-C4
2	2	516	PSU	O4'-C1'-C5-C6
2	2	967	5MC	O4'-C4'-C5'-O5'
2	2	1402	4OC	C1'-C2'-O2'-CM2
2	2	1498	UR3	O4'-C4'-C5'-O5'
2	2	1519	MA6	O4'-C4'-C5'-O5'
2	2	1519	MA6	C5-C6-N6-C9
45	q	89	0TD	O-C-CA-CB
2	2	527	G7M	C3'-C4'-C5'-O5'
2	2	967	5MC	C3'-C4'-C5'-O5'
2	2	1519	MA6	C3'-C4'-C5'-O5'
2	2	527	G7M	O4'-C4'-C5'-O5'
2	2	1498	UR3	C3'-C4'-C5'-O5'
2	2	1519	MA6	N1-C6-N6-C9
45	q	89	0TD	CG-CB-SB-CSB
45	q	89	0TD	SB-CB-CG-OD1
2	2	966	2MG	C4'-C5'-O5'-P
2	2	1519	MA6	C4'-C5'-O5'-P
2	2	527	G7M	C4'-C5'-O5'-P
2	2	1498	UR3	C2'-C1'-N1-C2

There are no ring outliers.

9 monomers are involved in 21 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	2	1407	5MC	1	0
2	2	1402	4OC	5	0
2	2	966	2MG	3	0
2	2	1207	2MG	3	0
2	2	1516	2MG	1	0
2	2	967	5MC	3	0
45	q	89	0TD	4	0
2	2	1498	UR3	1	0
2	2	1518	MA6	2	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 425 ligands modelled in this entry, 424 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
56	LYS	5	101	5	7,8,9	0.64	0	3,8,10	0.32	0

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
56	LYS	5	101	5	-	2/6/7/9	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
56	5	101	LYS	CE-CD-CG-CB
56	5	101	LYS	CA-CB-CG-CD

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

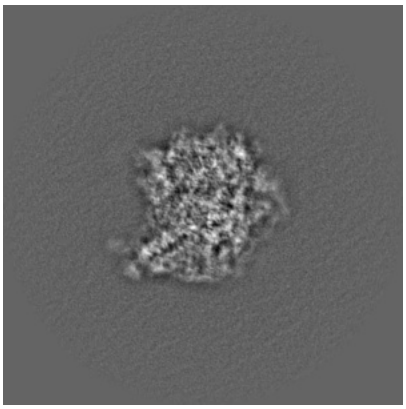
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-43549. These allow visual inspection of the internal detail of the map and identification of artifacts.

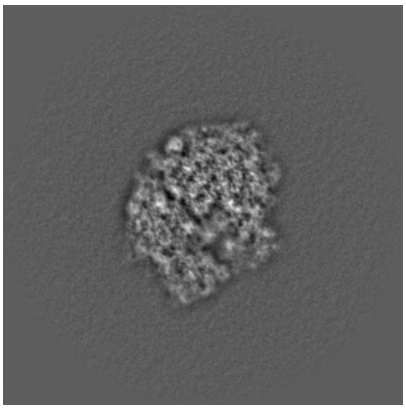
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

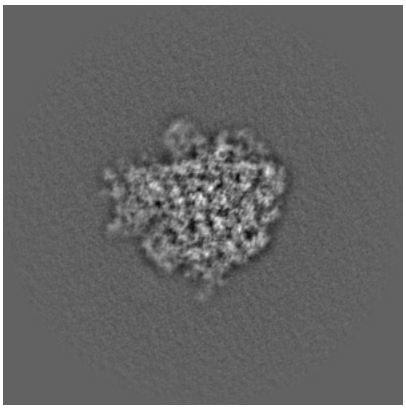
6.1.1 Primary map



X

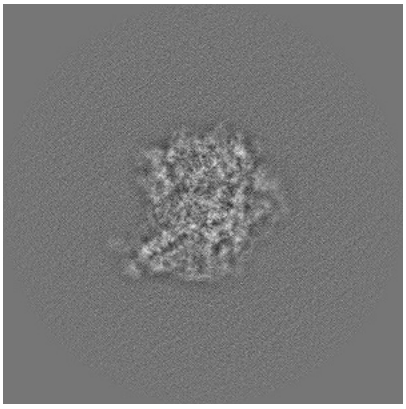


Y

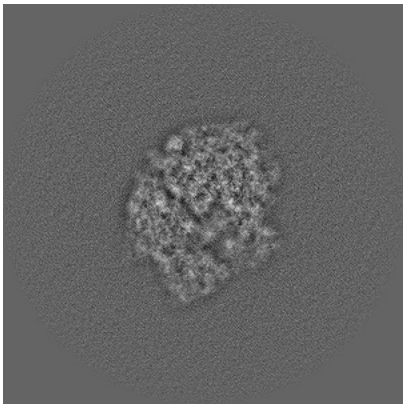


Z

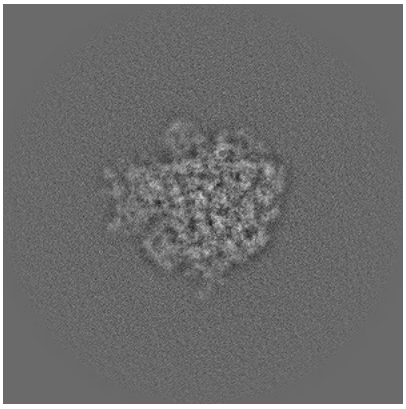
6.1.2 Raw map



X



Y

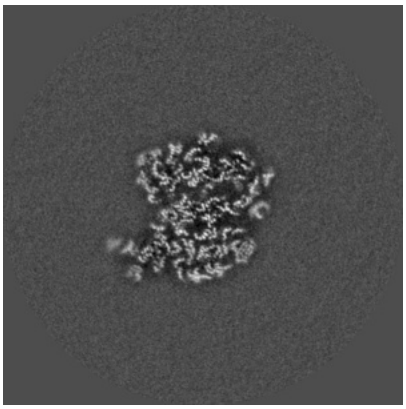


Z

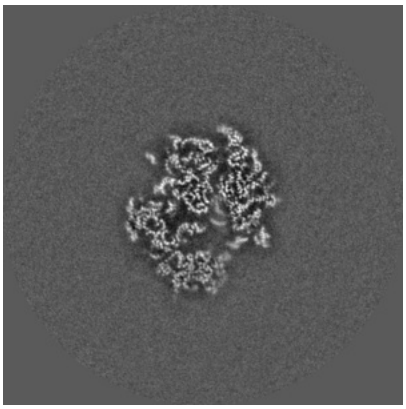
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

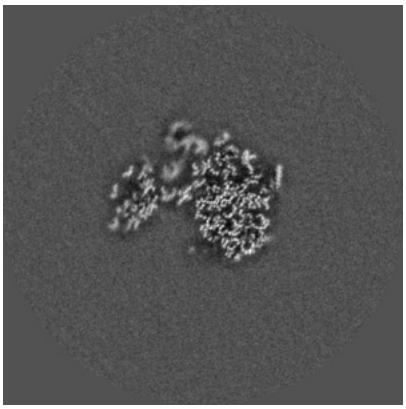
6.2.1 Primary map



X Index: 256

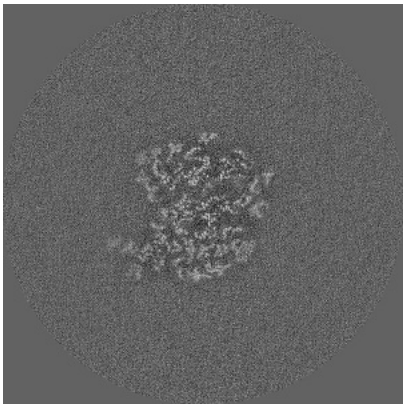


Y Index: 256

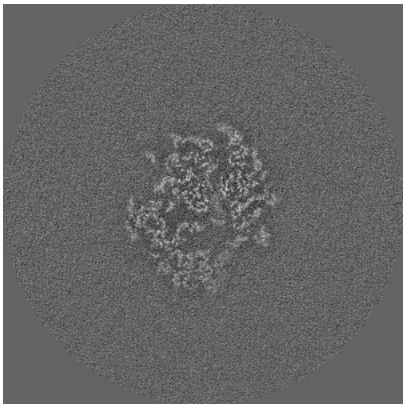


Z Index: 256

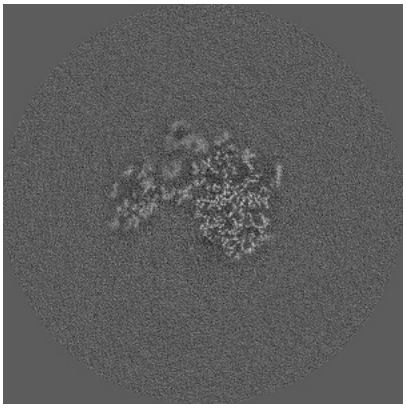
6.2.2 Raw map



X Index: 256



Y Index: 256

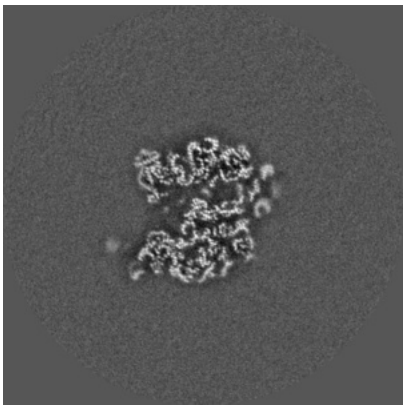


Z Index: 256

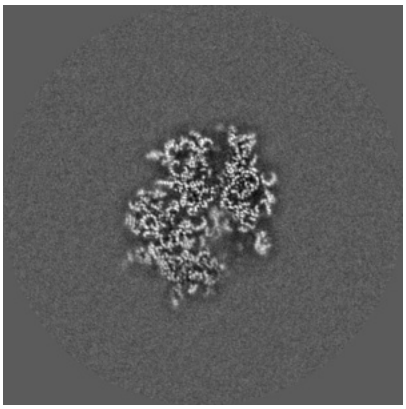
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

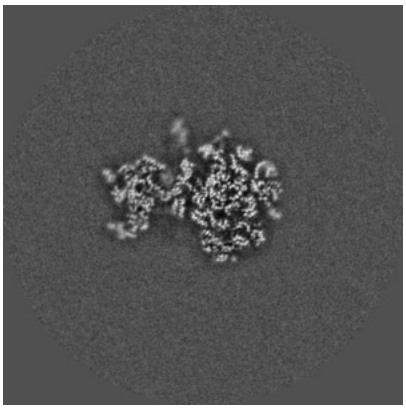
6.3.1 Primary map



X Index: 250

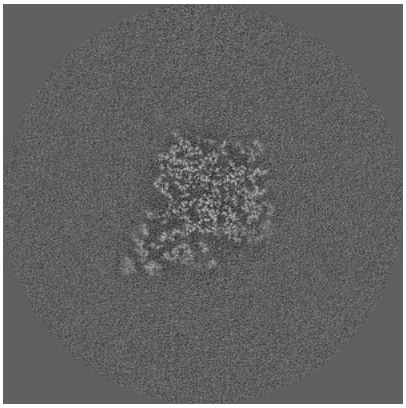


Y Index: 263

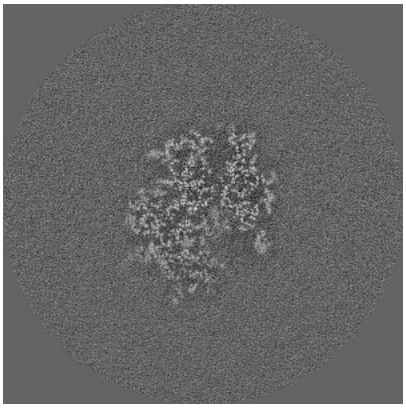


Z Index: 241

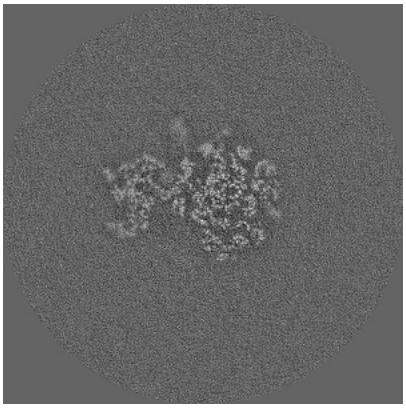
6.3.2 Raw map



X Index: 275



Y Index: 263

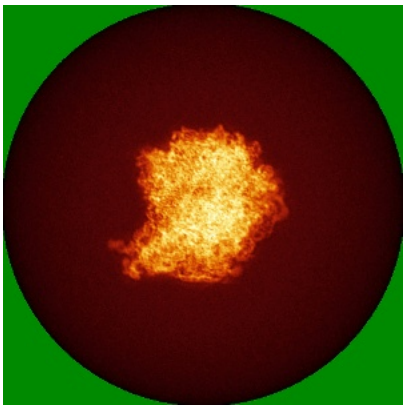


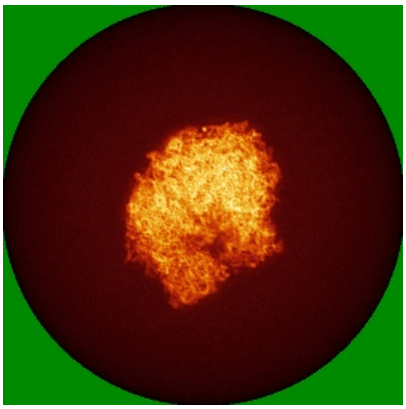
Z Index: 241

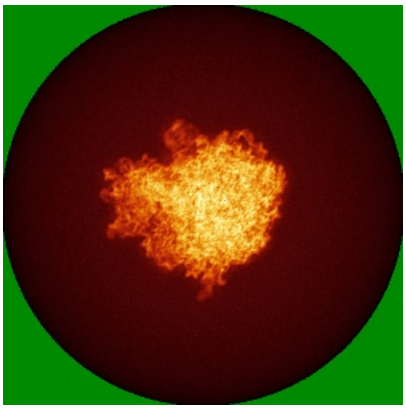
The images above show the largest variance slices of the map in three orthogonal directions.

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

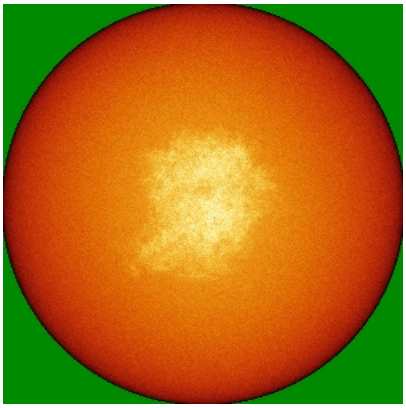
6.4.1 Primary map

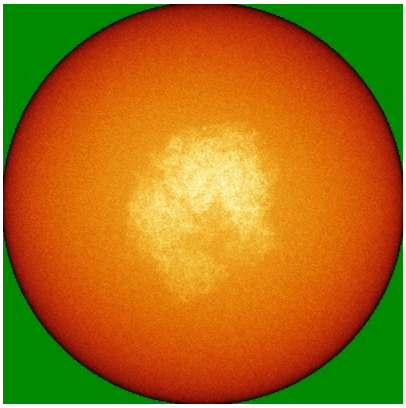

X

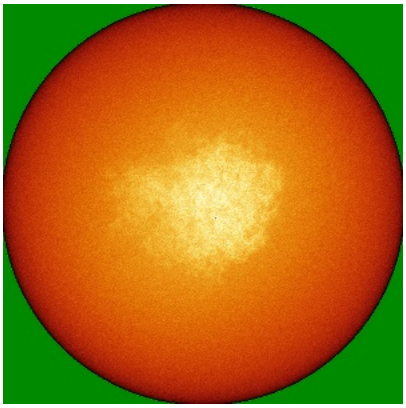

Y


Z

6.4.2 Raw map


X

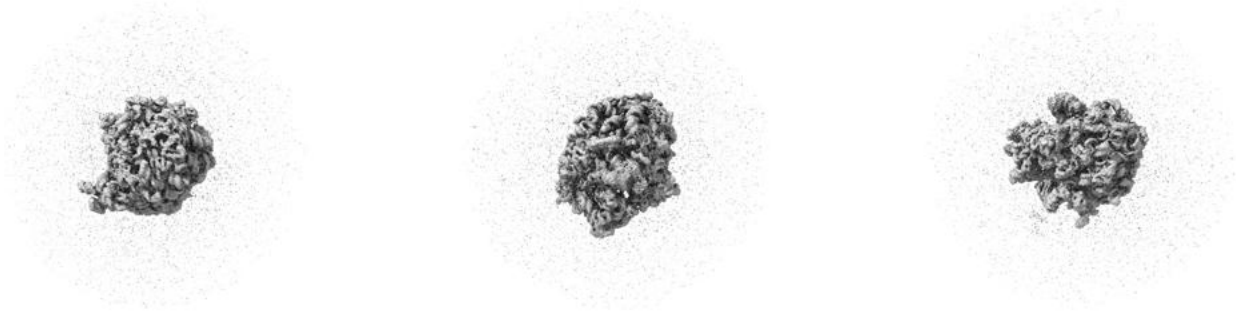

Y


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)

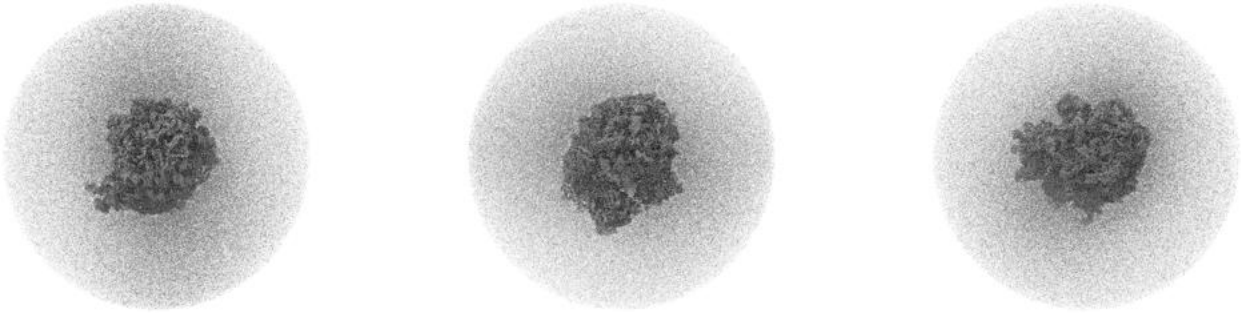
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.00281. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

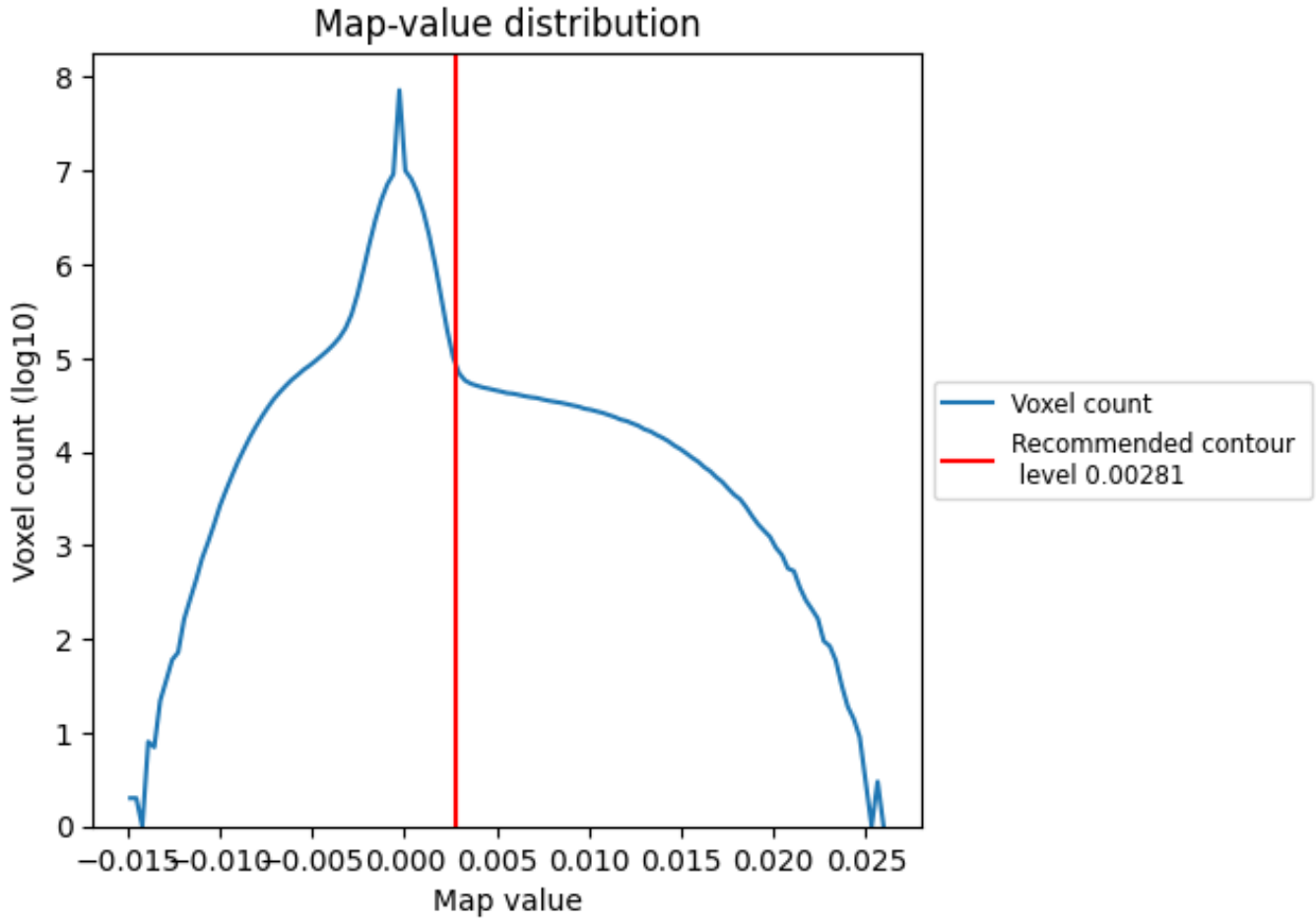
6.6 Mask visualisation (i)

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

7 Map analysis

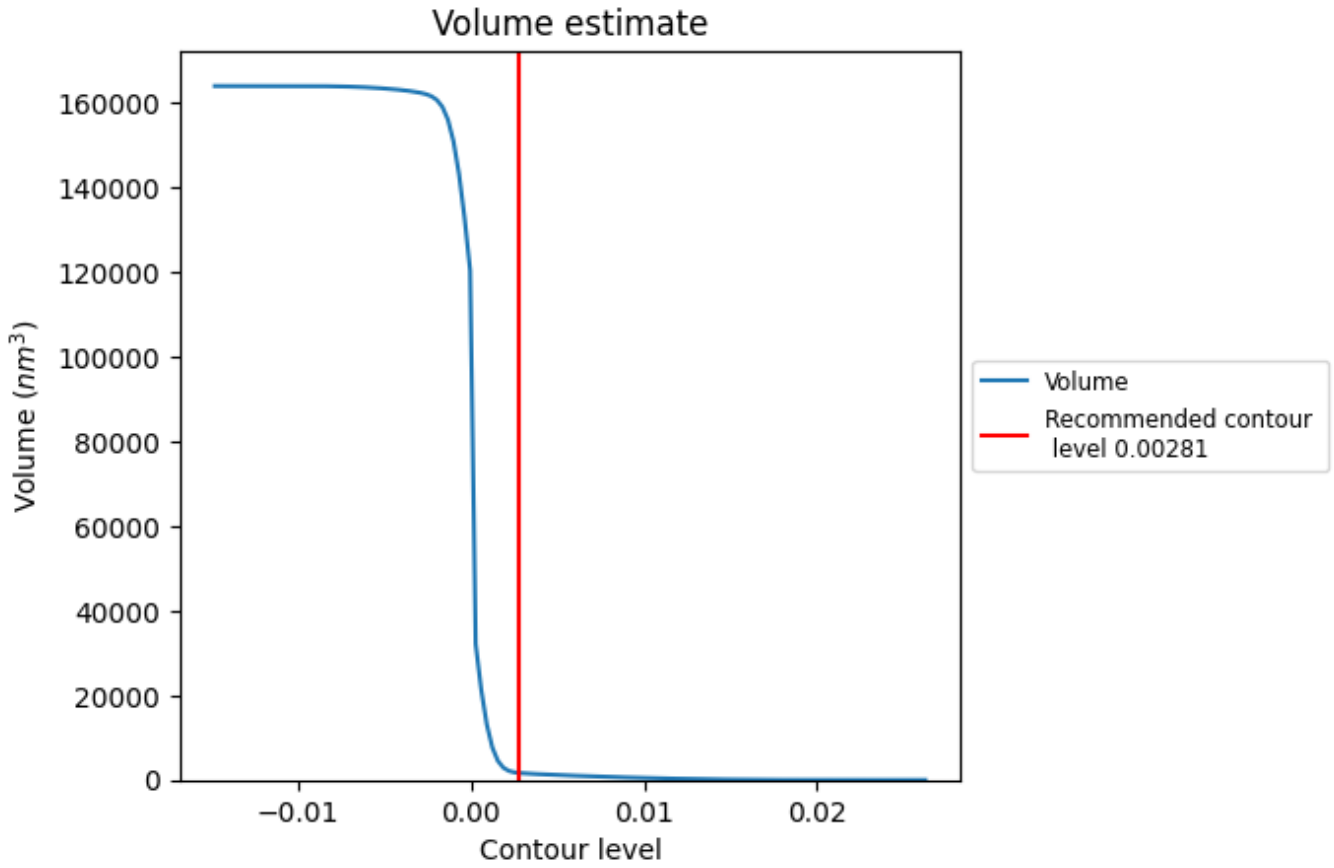
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

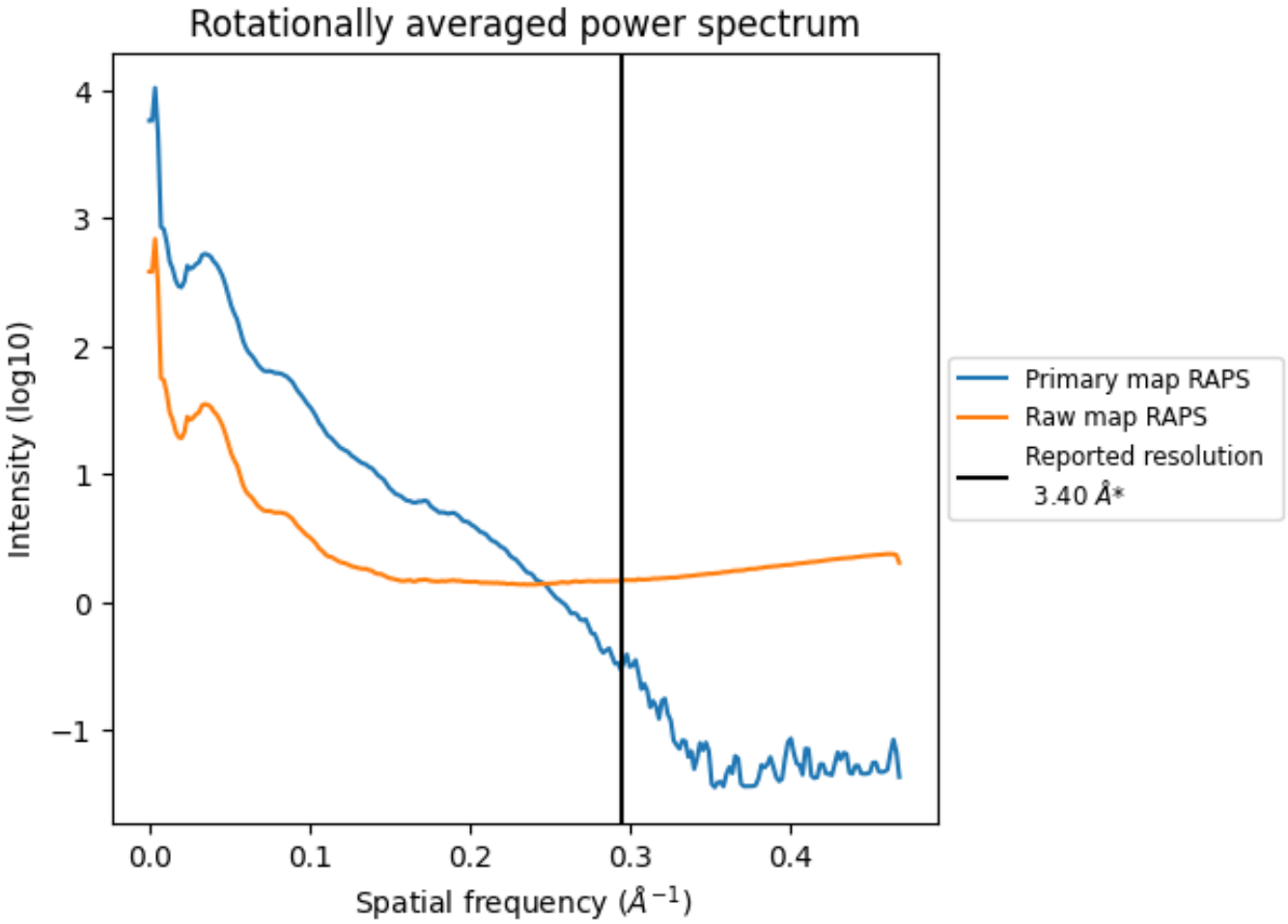
7.2 Volume estimate



The volume at the recommended contour level is 1643 nm^3; this corresponds to an approximate mass of 1485 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)

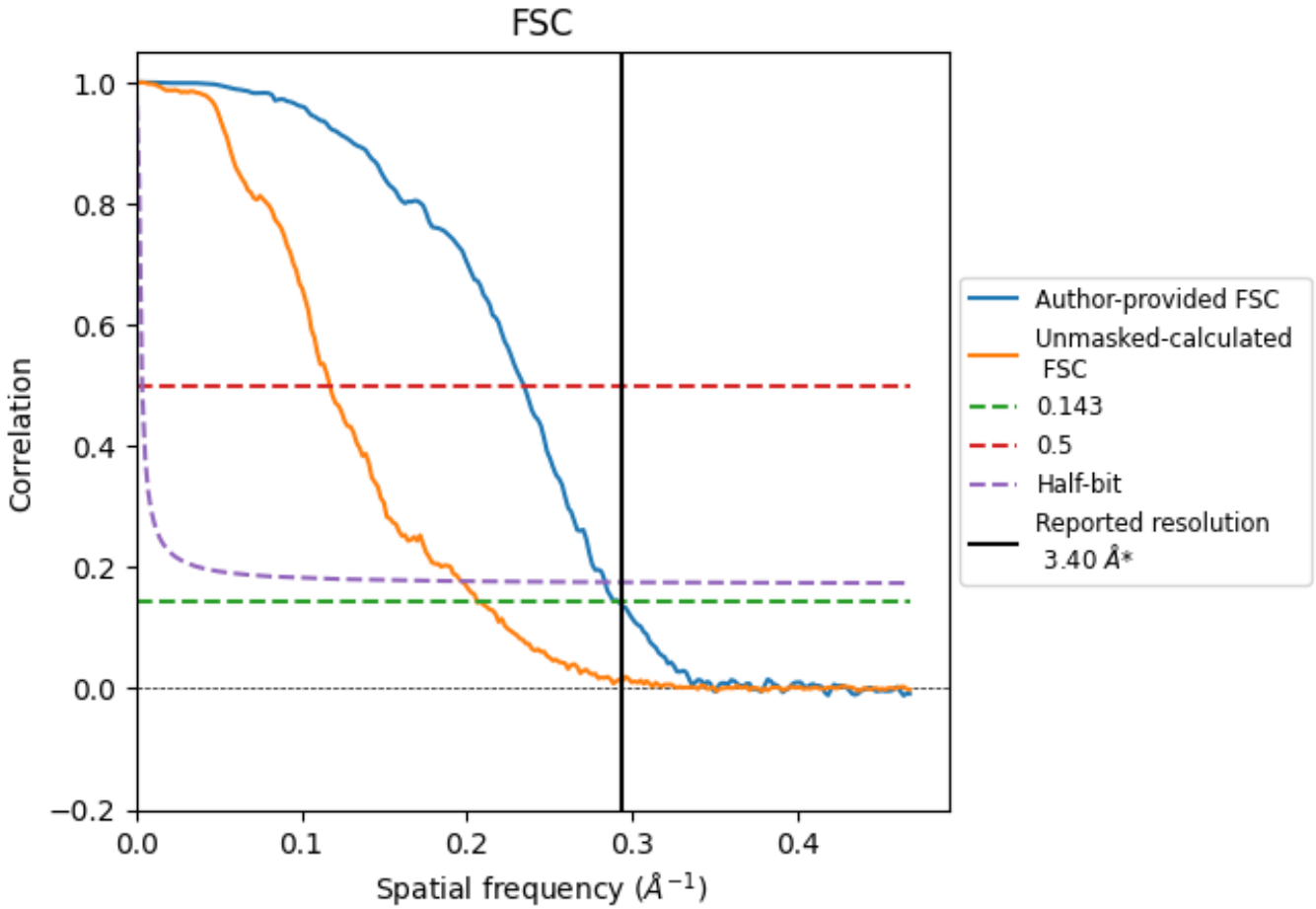


*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

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 0.294 Å^{-1}

8.2 Resolution estimates (i)

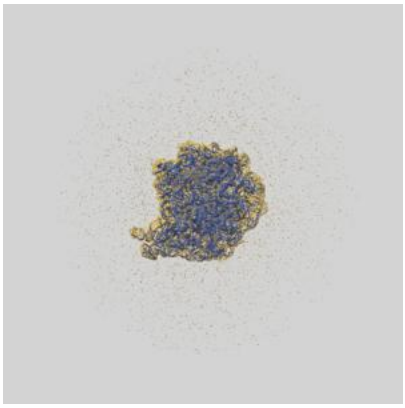
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.43	4.27	3.53
Unmasked-calculated*	4.85	8.54	5.08

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.85 differs from the reported value 3.4 by more than 10 %

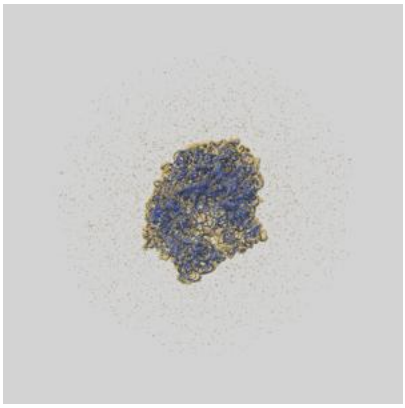
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-43549 and PDB model 8VV4. Per-residue inclusion information can be found in section 3 on page 17.

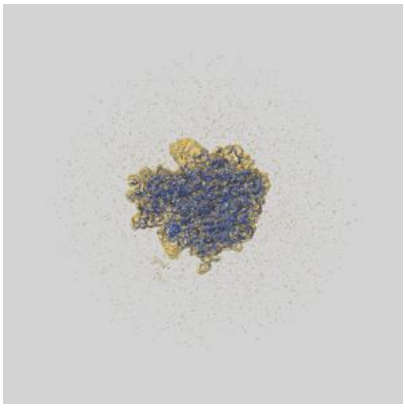
9.1 Map-model overlay



X



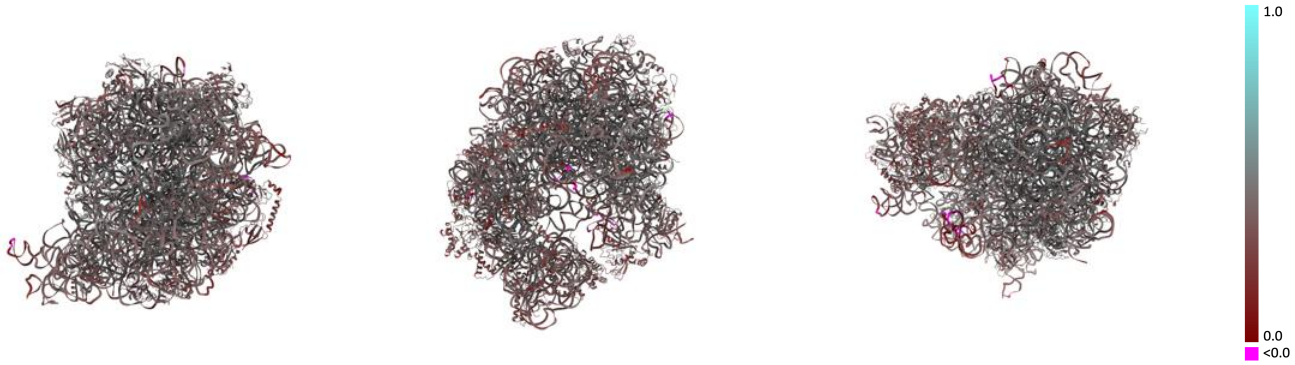
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.00281 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.

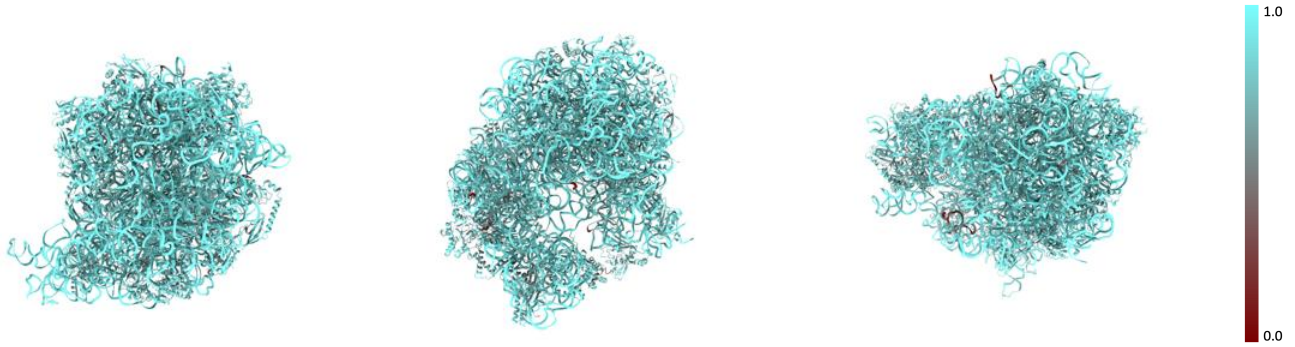
9.2 Q-score mapped to coordinate model (i)



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.

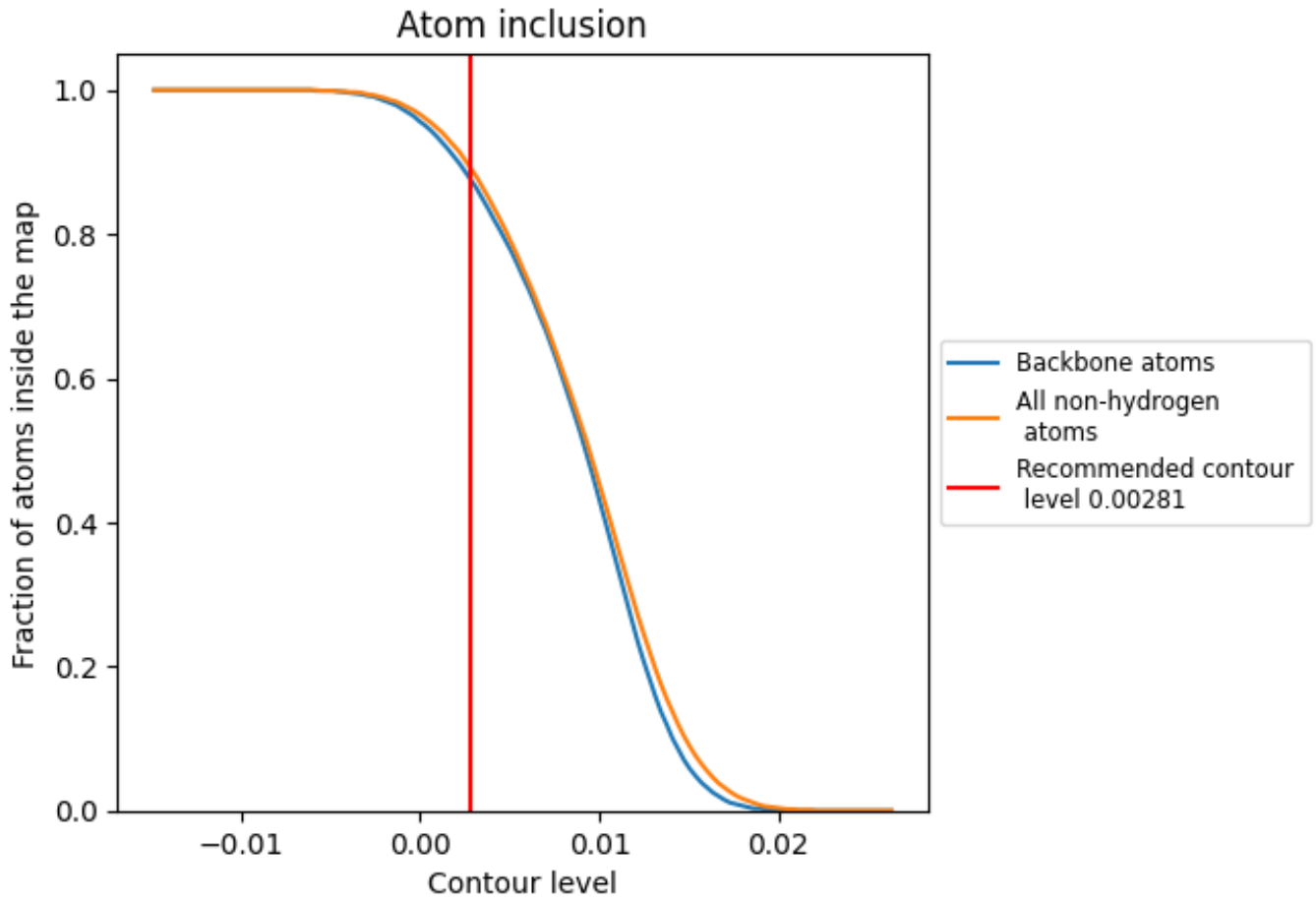
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.00281).

9.4 Atom inclusion (i)



At the recommended contour level, 88% of all backbone atoms, 89% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.00281) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8920	0.4050
1	0.9430	0.4200
2	0.9510	0.4030
3	0.9590	0.3920
4	0.7170	0.4050
5	0.9320	0.3750
B	0.7910	0.4460
C	0.8210	0.4420
D	0.8140	0.4110
E	0.8000	0.3320
F	0.8700	0.3860
G	0.8280	0.3010
J	0.8130	0.4270
K	0.7980	0.4430
L	0.7820	0.4300
M	0.7950	0.4380
N	0.7960	0.4360
O	0.7960	0.3750
P	0.8230	0.4360
Q	0.7790	0.4030
R	0.8380	0.4320
S	0.7930	0.4230
T	0.7630	0.4050
U	0.8180	0.3980
V	0.8710	0.4040
W	0.7910	0.4420
X	0.7840	0.4190
Y	0.8080	0.3520
Z	0.8400	0.4290
a	0.5580	0.2530
b	0.7790	0.4210
c	0.8330	0.4050
d	0.7610	0.4490
e	0.7050	0.4350
f	0.6850	0.4090

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Chain	Atom inclusion	Q-score
g	0.7650	0.3190
h	0.8090	0.3820
i	0.7320	0.3500
j	0.8010	0.3970
k	0.8330	0.3610
l	0.7740	0.3470
m	0.8150	0.4040
n	0.7620	0.3460
o	0.7330	0.3510
p	0.8070	0.3760
q	0.7870	0.3930
r	0.7800	0.3380
s	0.7300	0.3590
t	0.8150	0.3700
u	0.7690	0.4140
v	0.7970	0.3620
w	0.6500	0.3230
x	0.7790	0.3400
y	0.7230	0.3370
z	0.5730	0.2750