Full wwPDB EM Validation Report ⓘ

Sep 8, 2025 – 01:46 PM JST

PDB ID	:	5ZLU / pdb_00005zlu
EMDB ID	:	EMD-6934
Title	:	Ribosome Structure bound to ABC-F protein.
Authors	:	Su, W.X.; Kumar, V.; Ero, R.; Andrew, S.W.W.; Jian, S.; Yong-Gui, G.
Deposited on	:	2018-03-29
Resolution	:	3.60 Å(reported)

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

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

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

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

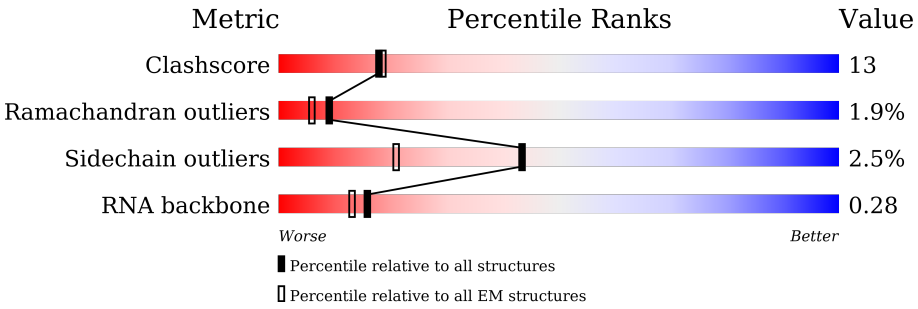
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)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

1 Overall quality at a glance

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

The reported resolution of this entry is 3.60 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	W	25	20% 72%
2	A	104	77% 15% 7%
3	B	73	12% 67% 32%
4	C	106	84% 8% 7%
5	D	93	5% 72% 15% 12%
6	E	105	10% 77% 14% 7%
7	F	27	7% 59% 30% 11%

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Mol	Chain	Length	Quality of chain
8	G	1514	54% 38% 8%
9	H	256	70% 15% 13%
10	I	239	74% 13% 14%
11	J	209	80% 19%
12	K	162	80% 12% 7%
13	L	101	13% 76% 23%
14	M	156	83% 15%
15	N	138	86% 13%
16	O	128	82% 16%
17	P	129	5% 66% 26% 8%
18	Q	132	5% 73% 20% 6%
19	R	126	6% 68% 19% 10%
20	S	61	5% 56% 33% 10%
21	T	89	83% 16%
22	U	88	80% 15% 6%
23	V	2875	46% 38% 15%
24	X	123	59% 34% 7%
25	Y	229	75% 55% 38% 6%
26	Z	276	83% 16%
27	a	206	79% 20%
28	b	210	5% 76% 21%
29	c	182	8% 65% 23% 8%
30	d	180	62% 29% 5%
31	e	173	63% 59% 10% 27%
32	f	147	67% 41% 39% 8% 9%

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Mol	Chain	Length	Quality of chain
33	g	140	75% 8% 16%
34	h	122	7% 67% 26% 6%
35	i	150	71% 17% 7%
36	j	141	6% 69% 24%
37	k	118	86% 14%
38	l	112	55% 34% 9%
39	m	146	5% 60% 16% 5% 20%
40	n	118	88% 10%
41	o	101	6% 76% 22%
42	p	113	88% 10%
43	q	96	78% 17%
44	r	110	17% 71% 25%
45	s	206	39% 59% 25% 13%
46	t	85	6% 82% 12% 6%
47	u	67	85% 13%
48	v	60	78% 18%
49	CC	71	44% 55%
49	w	71	7% 72% 27%
50	x	60	67% 25% 5%
51	y	54	48% 37% 6% 9%
52	z	49	8% 92% 8%
53	AA	65	78% 15%
54	BB	37	65% 32%
55	DD	77	9% 44% 30% 22%
56	EE	497	11% 91% 7%

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 150313 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 RNA (25-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	W	7	149	67	26	49	7	0	0

- Molecule 2 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	97	808	519	149	138	2	0	0

- Molecule 3 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	B	73	597	380	118	99	0	0

- Molecule 4 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	99	763	470	162	129	2	0	0

- Molecule 5 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	82	656	419	121	113	3	0	1

- Molecule 6 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	98	794	499	156	138	1	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
7	F	24	Total	C	N	O	0	0
			208	128	50	30		

- Molecule 8 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	1514	Total	C	N	O	P	0	0
			32534	14481	6019	10520	1514		

- Molecule 9 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	H	222	Total	C	N	O	S	0	0
			1810	1154	328	323	5		

- Molecule 10 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	206	Total	C	N	O	S	0	0
			1612	1016	314	281	1		

- Molecule 11 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	208	Total	C	N	O	S	0	0
			1703	1066	339	291	7		

- Molecule 12 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	150	Total	C	N	O	S	0	0
			1146	724	217	201	4		

- Molecule 13 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	101	Total	C	N	O	S	0	0
			843	531	155	154	3		

- Molecule 14 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	155	Total	C	N	O	S	0	0
			1257	781	252	218	6		

- Molecule 15 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	138	Total	C	N	O	S	0	0
			1116	705	215	193	3		

- Molecule 16 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	O	127	Total	C	N	O	0	0
			1010	639	197	174		

- Molecule 17 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	119	Total	C	N	O	S	0	0
			885	549	168	165	3		

- Molecule 18 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	124	Total	C	N	O	S	0	0
			970	611	195	163	1		

- Molecule 19 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	114	Total	C	N	O	S	0	0
			914	565	189	158	2		

- Molecule 20 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	60	Total	C	N	O	S	0	0
			492	312	104	72	4		

- Molecule 21 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	88	Total	C	N	O	S	0	0
			734	459	147	126	2		

- Molecule 22 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	U	83	Total	C	N	O	S	0	0
			700	443	139	117	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
23	V	2875	Total	C	N	O	P	0	0
			61917	27558	11575	19909	2875		

- Molecule 24 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	123	Total	C	N	O	P	0	0
			2641	1175	488	855	123		

- Molecule 25 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Y	228	Total	C	N	O	S	0	0
			1742	1102	318	319	3		

- Molecule 26 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	273	Total	C	N	O	S	0	0
			2126	1341	424	358	3		

- Molecule 27 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	a	206	Total	C	N	O	S	0	0
			1578	997	302	273	6		

- Molecule 28 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	208	Total	C	N	O	S	0	0
			1625	1034	303	286	2		

- Molecule 29 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	c	179	Total	C	N	O	S	0	0
			1455	929	266	256	4		

- Molecule 30 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	176	Total	C	N	O	S	0	0
			1335	847	250	237	1		

- Molecule 31 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	e	126	Total	C	N	O	0	0
			621	369	126	126		

- Molecule 32 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	134	Total	C	N	O	S	0	0
			993	632	175	181	5		

- Molecule 33 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	g	117	Total	C	N	O	S	0	0
			931	603	171	154	3		

- Molecule 34 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	h	122	Total	C	N	O	S	0	0
			932	587	171	170	4		

- Molecule 35 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	i	145	Total	C	N	O	S	0	0
			1108	689	226	191	2		

- Molecule 36 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	j	136	Total	C	N	O	S	0	0
			1080	688	204	183	5		

- Molecule 37 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	k	117	Total	C	N	O	0	0
			960	599	202	159		

- Molecule 38 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	l	110	Total	C	N	O	0	0
			877	553	175	149		

- Molecule 39 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	m	117	Total	C	N	O	S	0	0
			976	614	197	164	1		

- Molecule 40 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	n	117	Total	C	N	O	S	0	0
			964	610	202	151	1		

- Molecule 41 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	o	101	Total	C	N	O	S	0	0
			779	501	142	135	1		

- Molecule 42 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	p	110	Total	C	N	O	S	0	0
			876	552	171	151	2		

- Molecule 43 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	q	94	Total	C	N	O	0	0
			742	483	133	126		

- Molecule 44 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	r	110	Total	C	N	O	S	0	0
			844	539	158	141	6		

- Molecule 45 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	s	180	Total	C	N	O	S	0	0
			1435	916	256	260	3		

- Molecule 46 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	t	80	Total	C	N	O	S	0	0
			629	389	132	107	1		

- Molecule 47 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	u	67	Total	C	N	O	S	0	0
			567	350	116	99	2		

- Molecule 48 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
48	v	59	Total	C	N	O	0	0
			469	298	90	81		

- Molecule 49 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms	AltConf	Trace
49	w	71	Total C N O S 581 364 108 104 5	0	0
49	CC	32	Total C N O 157 93 32 32	0	0

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

Mol	Chain	Residues	Atoms	AltConf	Trace
50	x	57	Total C N O S 445 279 87 74 5	0	0

- Molecule 51 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms	AltConf	Trace
51	y	49	Total C N O S 422 262 87 69 4	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
y	7	LEU	ILE	see sequence details	UNP P35871

- Molecule 52 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms	AltConf	Trace
52	z	49	Total C N O S 430 263 108 57 2	0	0

- Molecule 53 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms	AltConf	Trace
53	AA	64	Total C N O S 515 331 102 79 3	0	0

- Molecule 54 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms	AltConf	Trace
54	BB	37	Total C N O S 307 188 68 47 4	0	0

- Molecule 55 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
55	DD	77	Total	C	N	O	P	S	0	0
			1648	736	301	533	77	1		

- Molecule 56 is a protein called Macrolide efflux protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	EE	490	Total	C	N	O	S	0	0
			3841	2415	668	742	16		

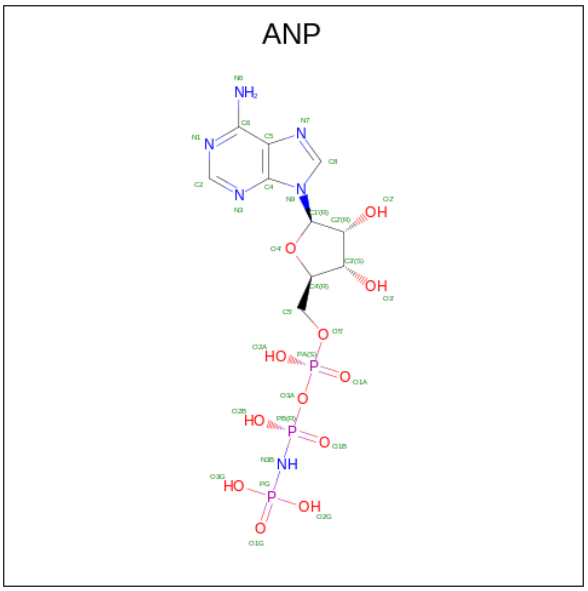
There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
EE	492	HIS	-	expression tag	UNP A0A1I9WCL8
EE	493	HIS	-	expression tag	UNP A0A1I9WCL8
EE	494	HIS	-	expression tag	UNP A0A1I9WCL8
EE	495	HIS	-	expression tag	UNP A0A1I9WCL8
EE	496	HIS	-	expression tag	UNP A0A1I9WCL8
EE	497	HIS	-	expression tag	UNP A0A1I9WCL8

- Molecule 57 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
57	Z	1	Total	Mg	0
			1	1	
57	i	1	Total	Mg	0
			1	1	

- Molecule 58 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$).

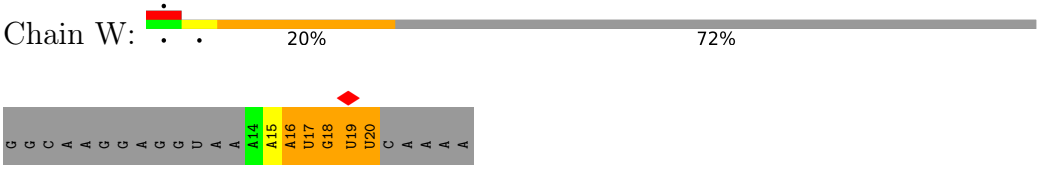


Mol	Chain	Residues	Atoms					AltConf
58	EE	1	Total	C	N	O	P	0
			31	10	6	12	3	
58	EE	1	Total	C	N	O	P	0
			31	10	6	12	3	

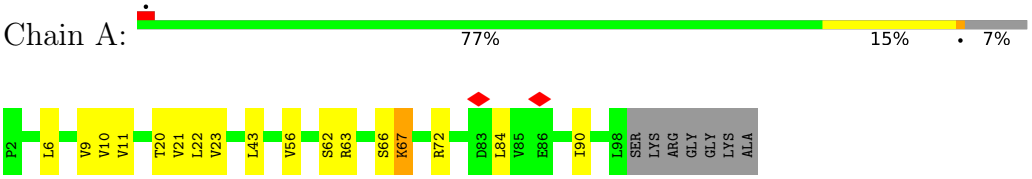
3 Residue-property plots (i)

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.

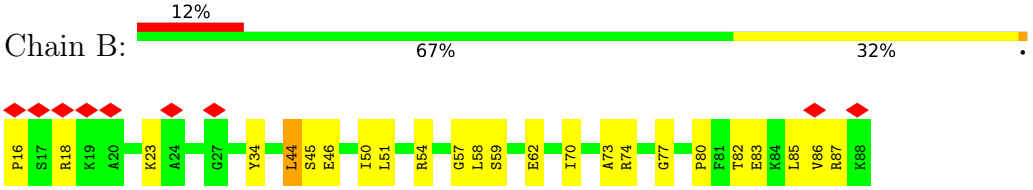
• Molecule 1: RNA (25-mer)



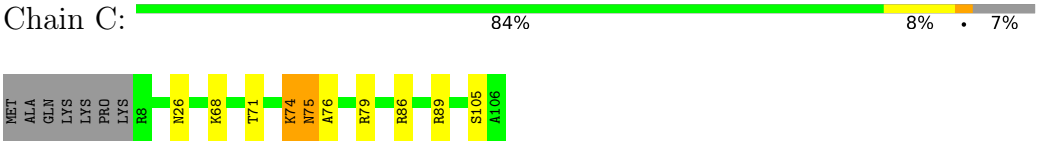
• Molecule 2: 30S ribosomal protein S17



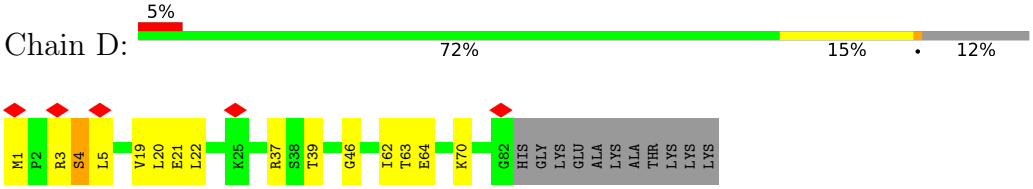
• Molecule 3: 30S ribosomal protein S18



• Molecule 4: 30S ribosomal protein S20

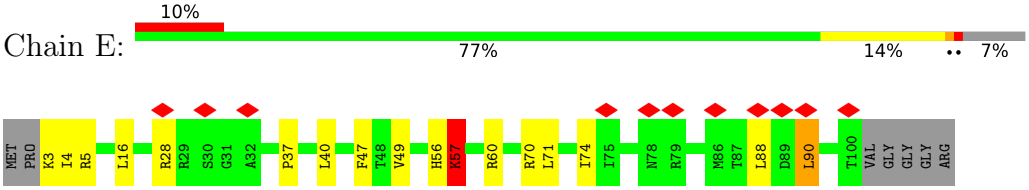


• Molecule 5: 30S ribosomal protein S19



• Molecule 6: 30S ribosomal protein S10

Chain E:

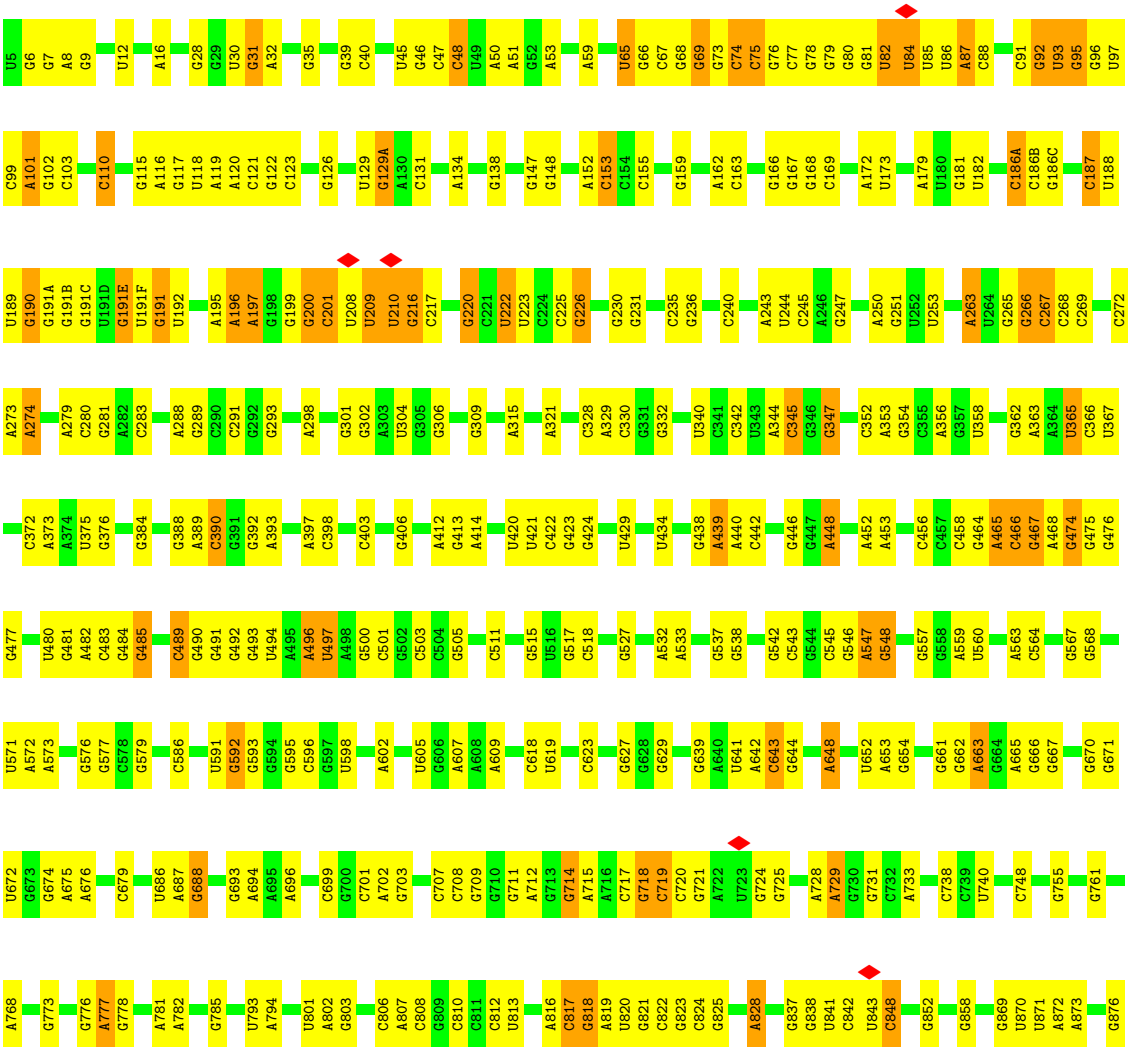


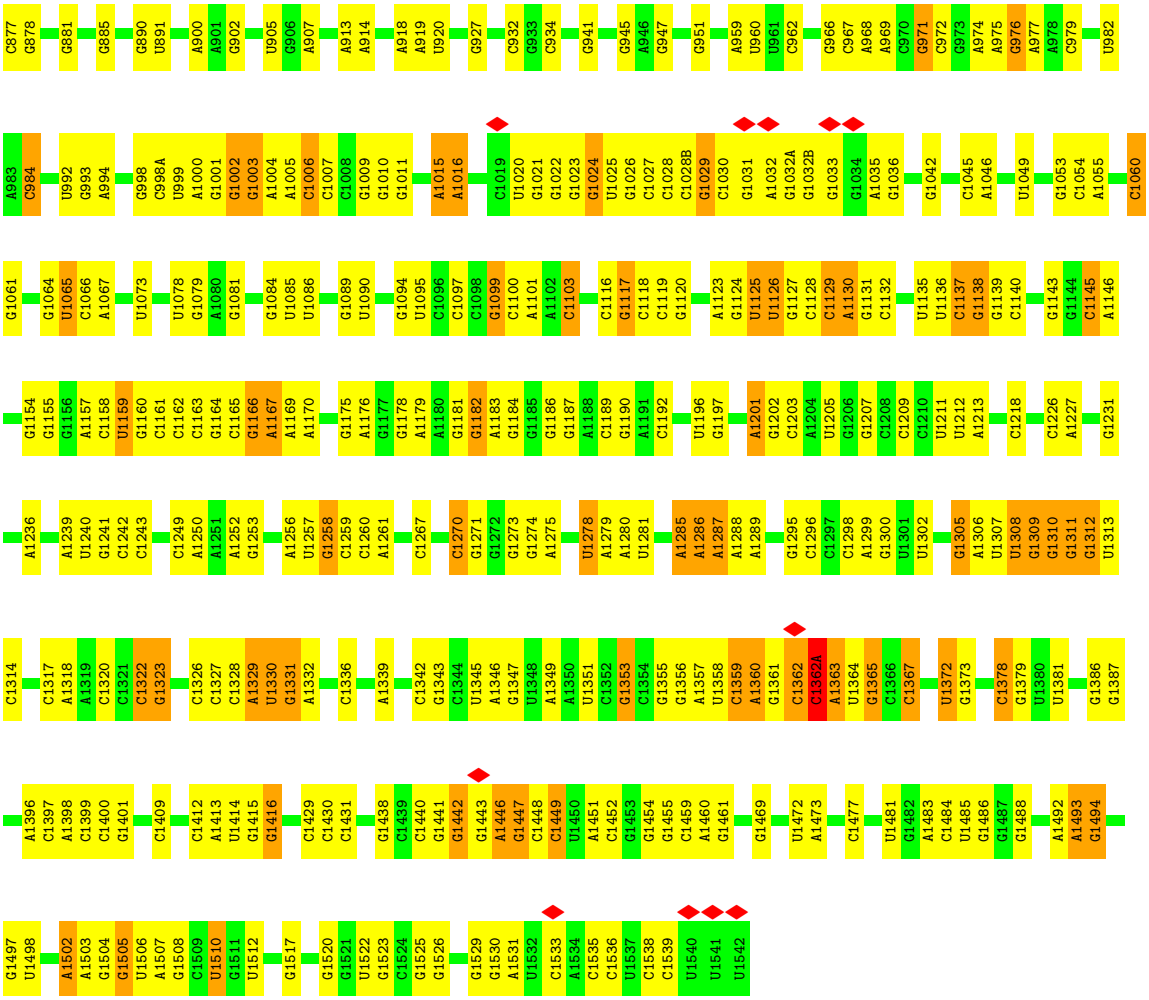
• Molecule 7: 30S ribosomal protein Thx

Chain F:

• Molecule 8: 16S ribosomal RNA

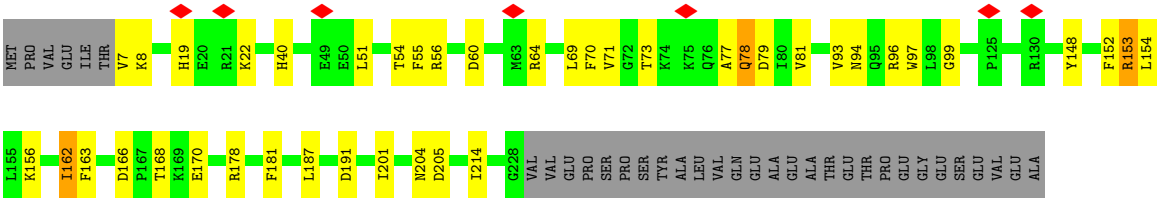
Chain G:





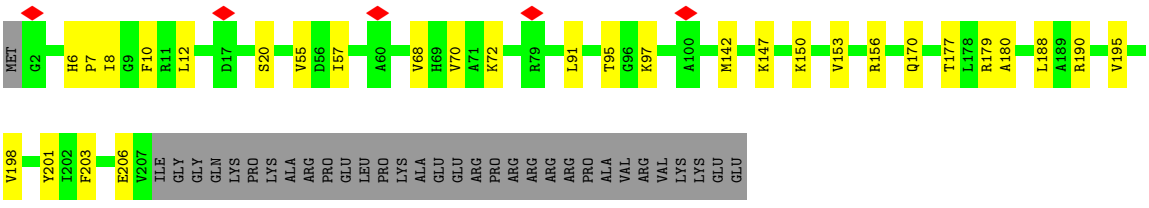
• Molecule 9: 30S ribosomal protein S2

Chain H:



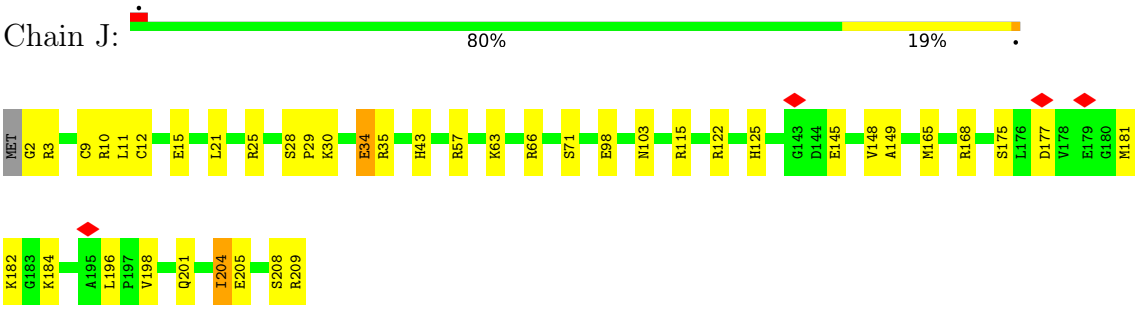
• Molecule 10: 30S ribosomal protein S3

Chain I:



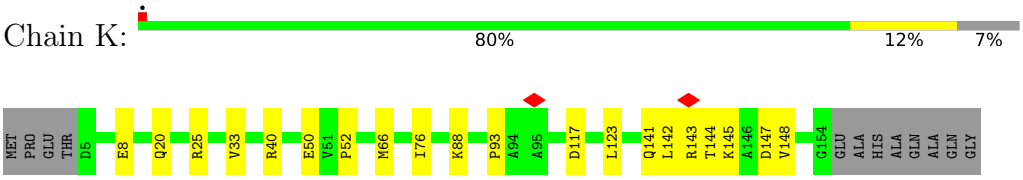
• Molecule 11: 30S ribosomal protein S4

Chain J:



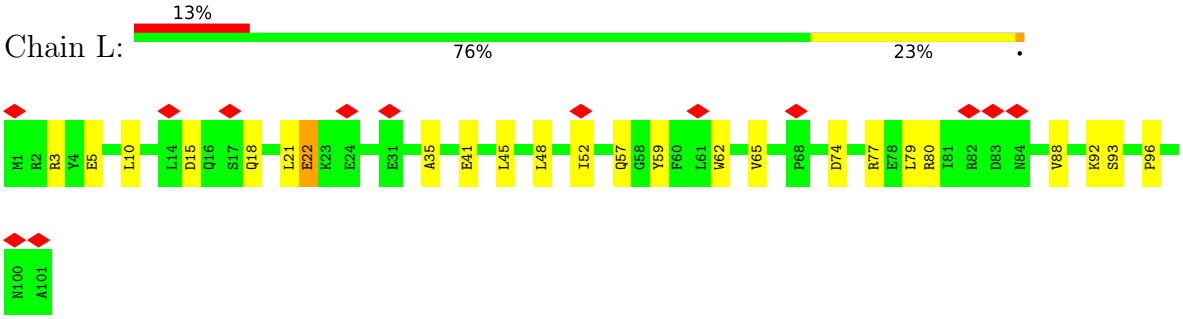
• Molecule 12: 30S ribosomal protein S5

Chain K:



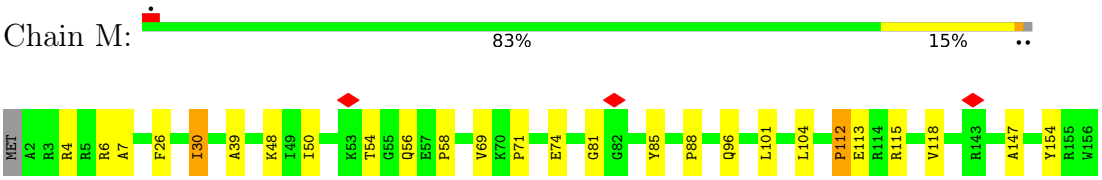
• Molecule 13: 30S ribosomal protein S6

Chain L:



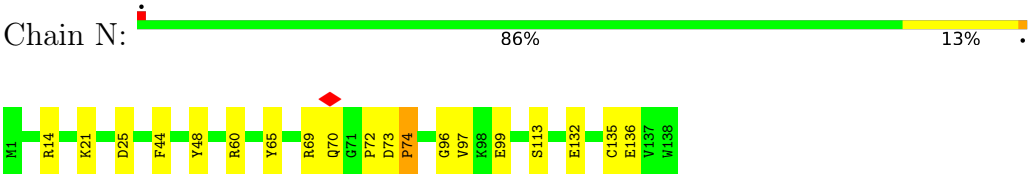
• Molecule 14: 30S ribosomal protein S7

Chain M:



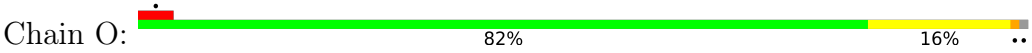
• Molecule 15: 30S ribosomal protein S8

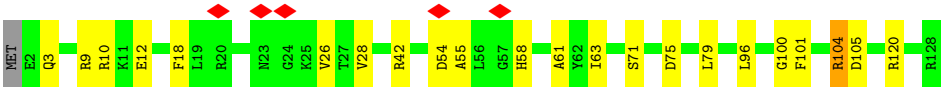
Chain N:



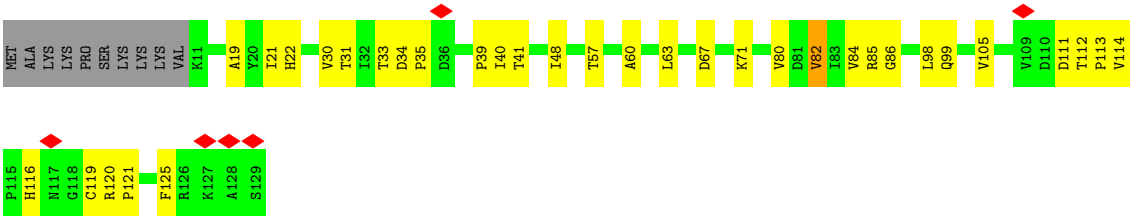
• Molecule 16: 30S ribosomal protein S9

Chain O:

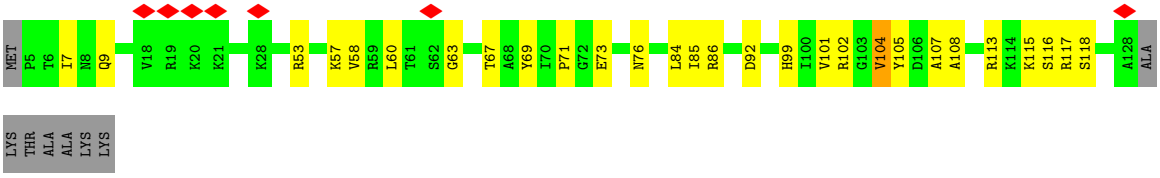




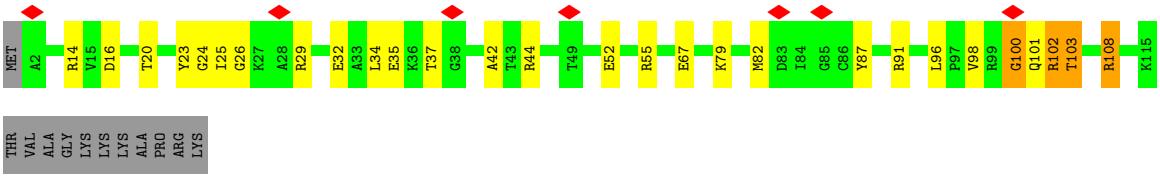
• Molecule 17: 30S ribosomal protein S11



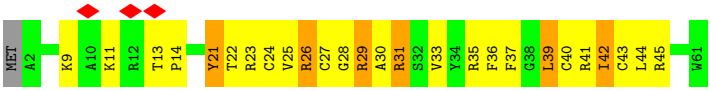
• Molecule 18: 30S ribosomal protein S12



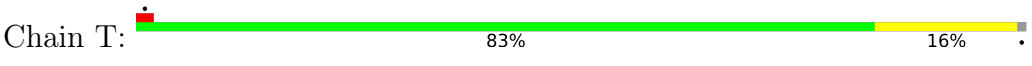
• Molecule 19: 30S ribosomal protein S13

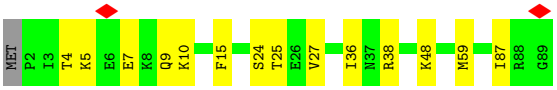


• Molecule 20: 30S ribosomal protein S14 type Z



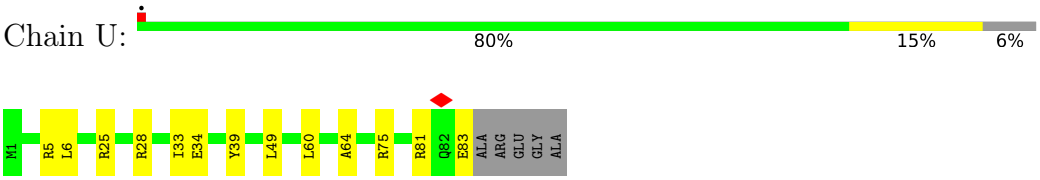
• Molecule 21: 30S ribosomal protein S15





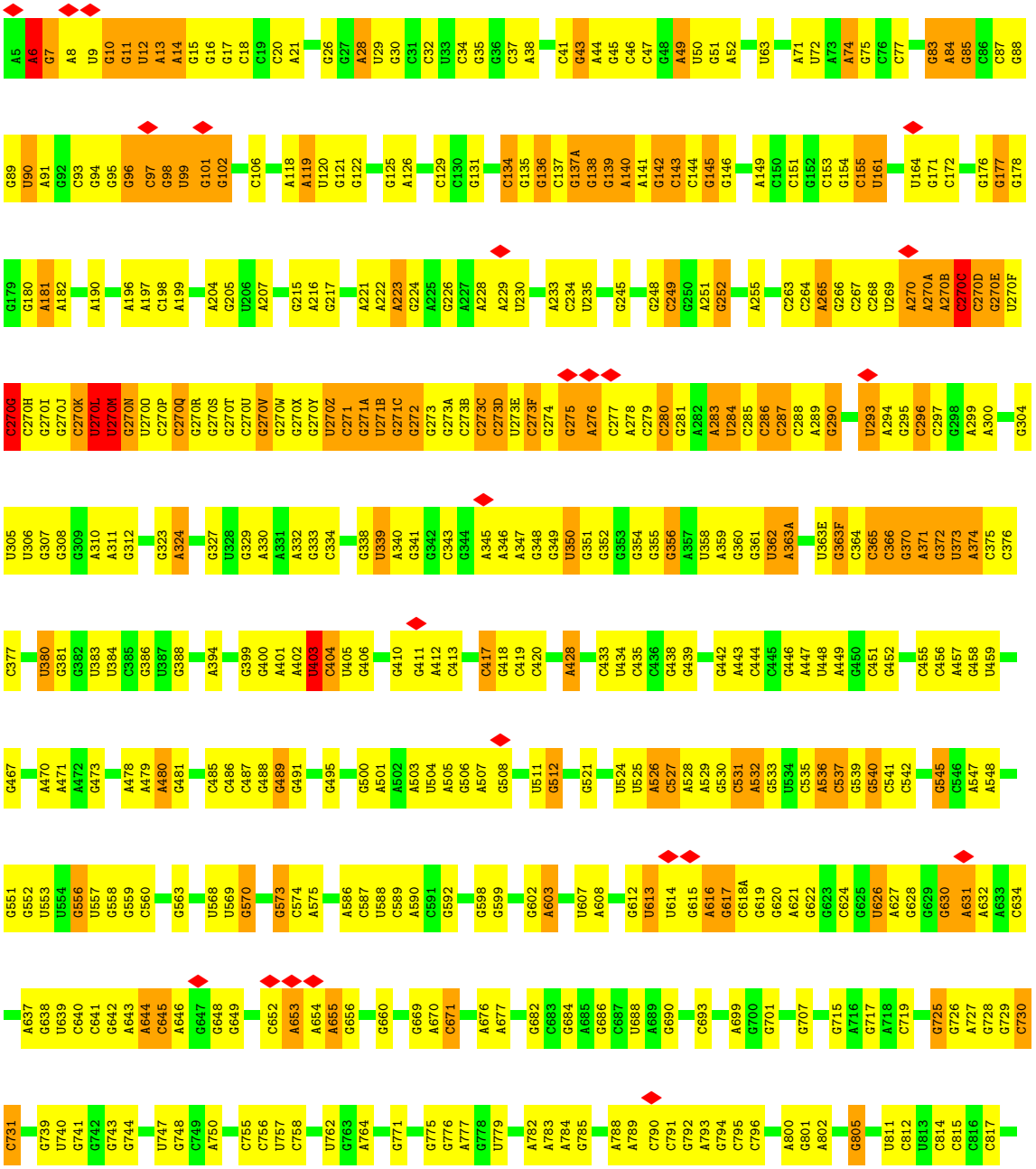
• Molecule 22: 30S ribosomal protein S16

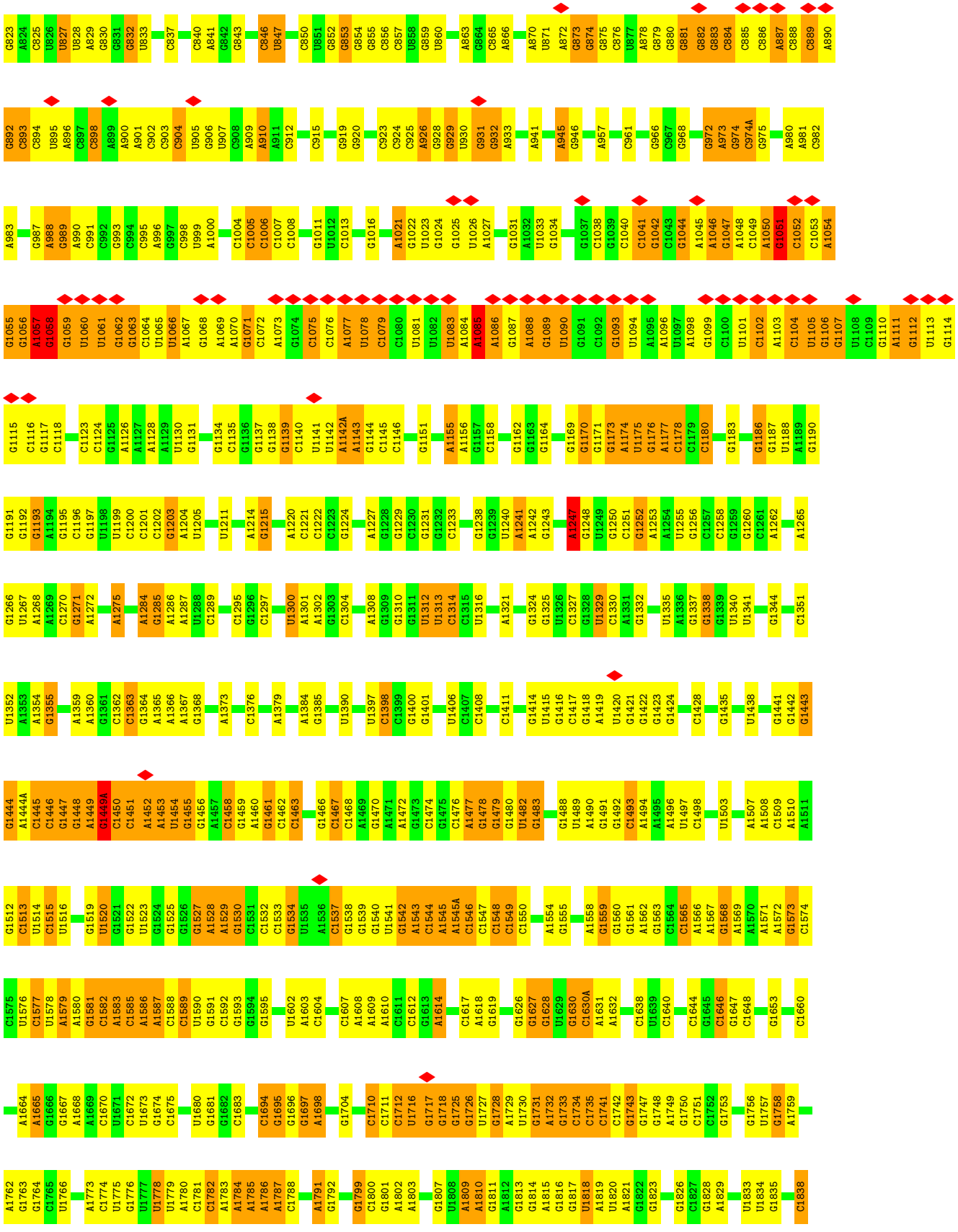
Chain U:

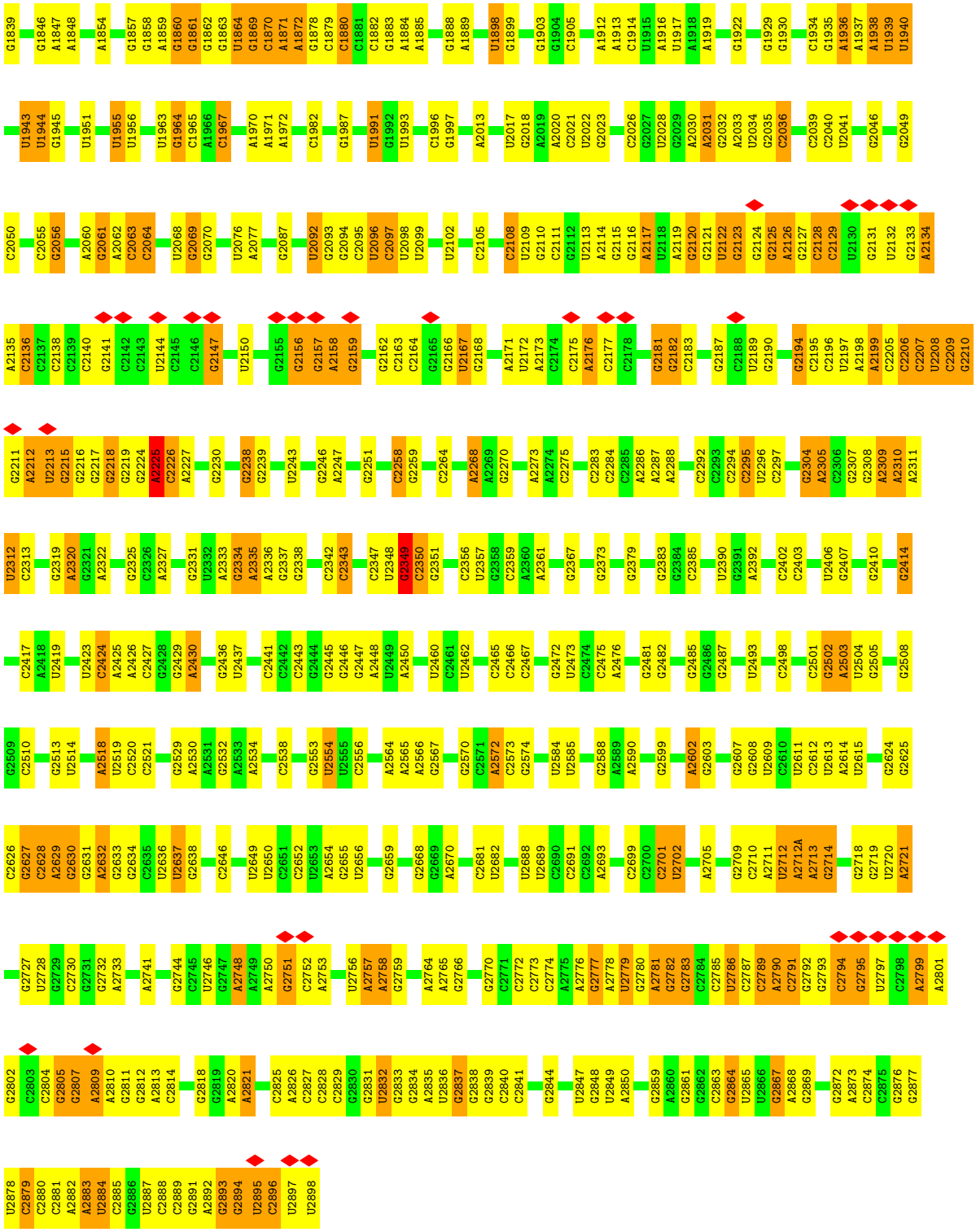


• Molecule 23: 23S ribosomal RNA

Chain V:

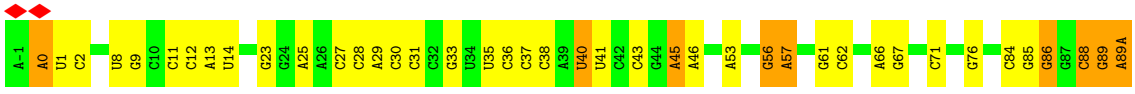


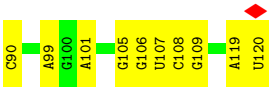




• Molecule 24: 5S ribosomal RNA

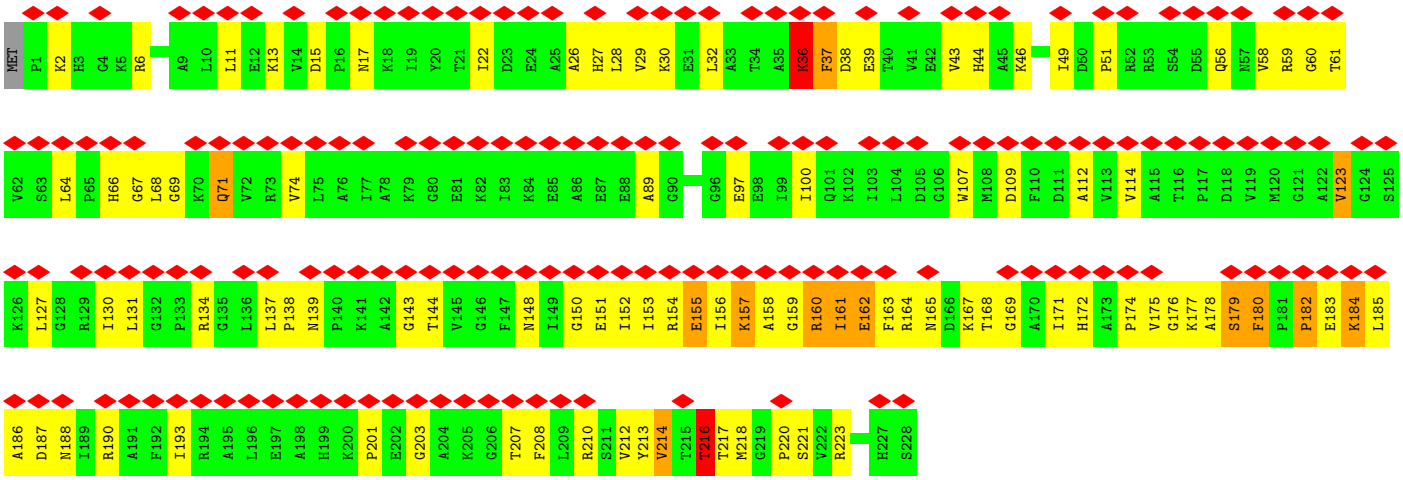
Chain X:





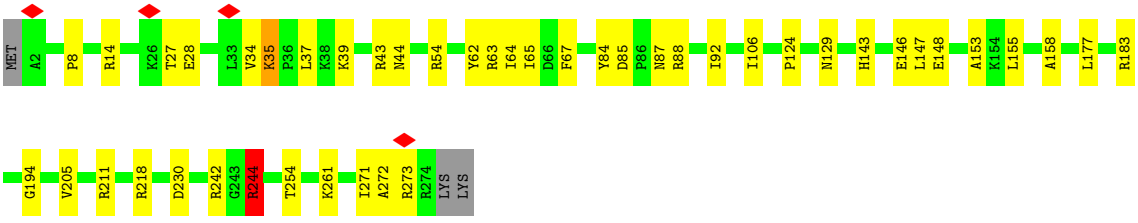
• Molecule 25: 50S ribosomal protein L1

Chain Y:



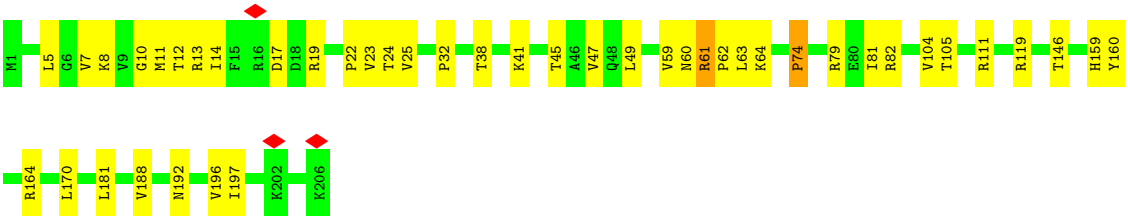
• Molecule 26: 50S ribosomal protein L2

Chain Z:



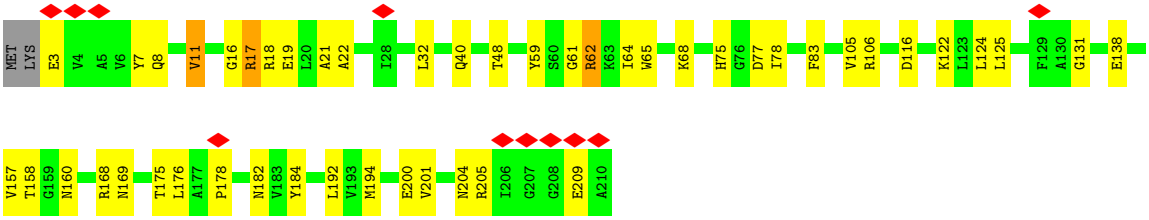
• Molecule 27: 50S ribosomal protein L3

Chain a:



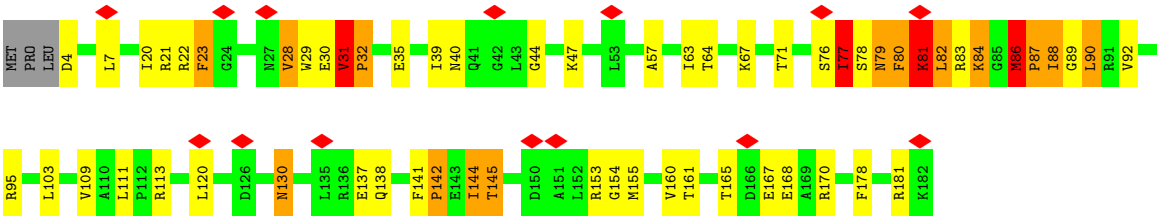
• Molecule 28: 50S ribosomal protein L4

Chain b:



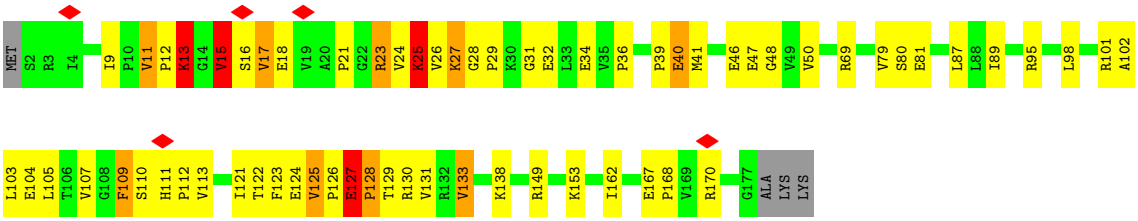
• Molecule 29: 50S ribosomal protein L5

Chain c:



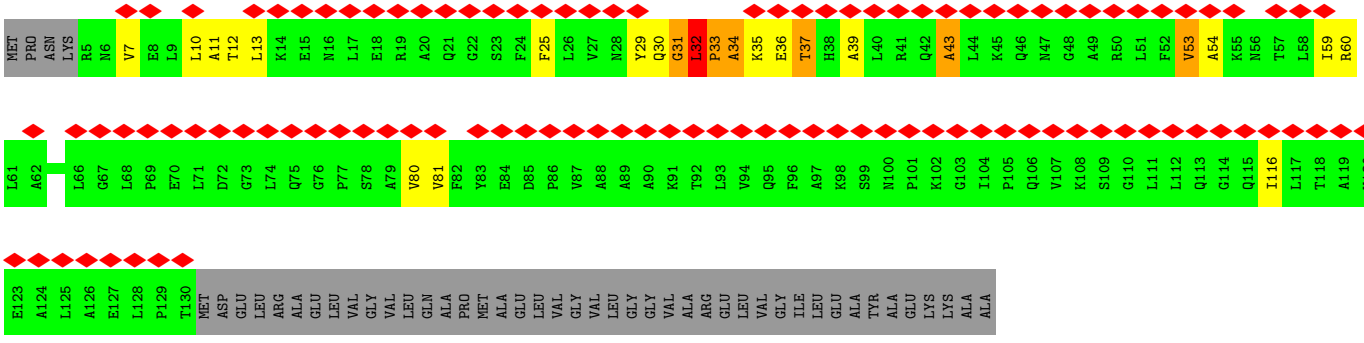
• Molecule 30: 50S ribosomal protein L6

Chain d:



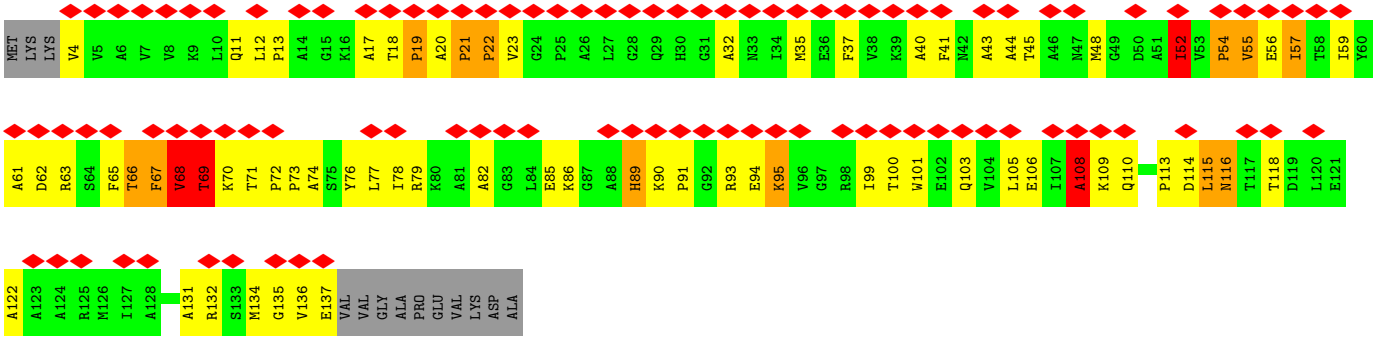
• Molecule 31: 50S ribosomal protein L10

Chain e:



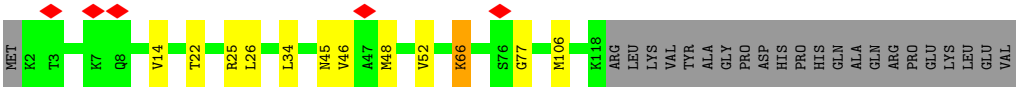
• Molecule 32: 50S ribosomal protein L11

Chain f:



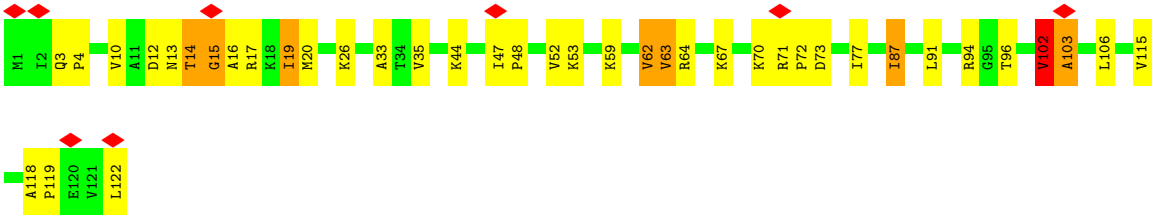
• Molecule 33: 50S ribosomal protein L13

Chain g:



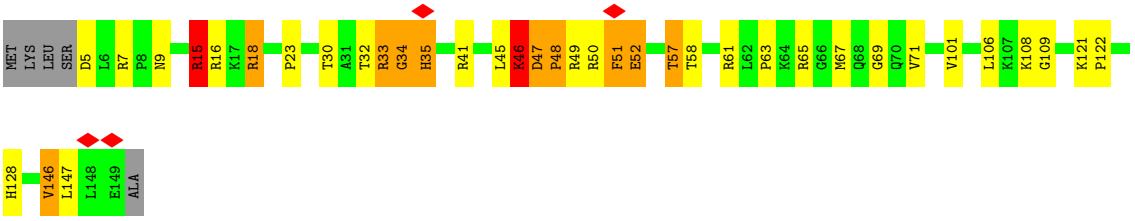
• Molecule 34: 50S ribosomal protein L14

Chain h:



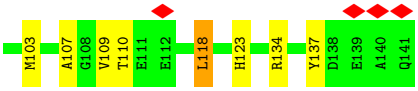
• Molecule 35: 50S ribosomal protein L15

Chain i:



• Molecule 36: 50S ribosomal protein L16

Chain j:

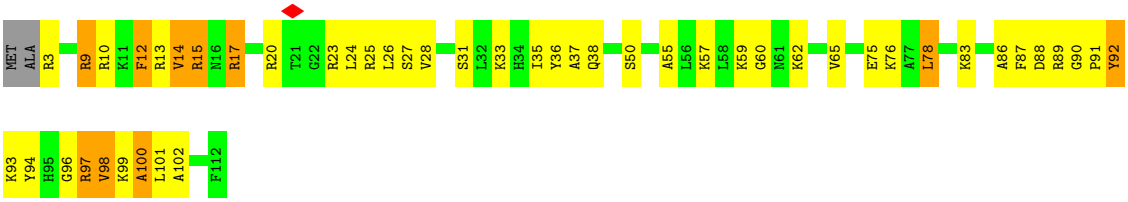


• Molecule 37: 50S ribosomal protein L17

Chain k:

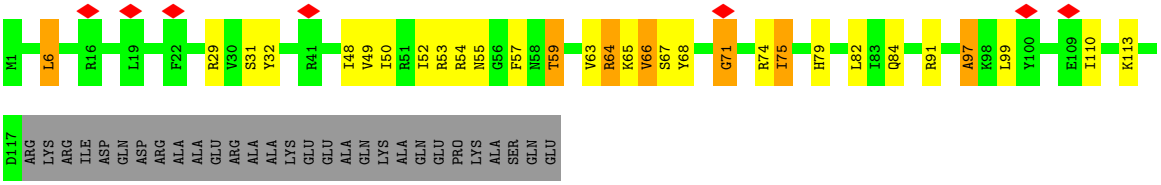
• Molecule 38: 50S ribosomal protein L18

Chain l:



• Molecule 39: 50S ribosomal protein L19

Chain m:

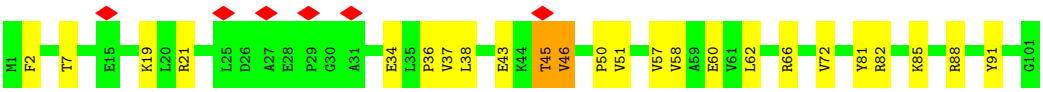


• Molecule 40: 50S ribosomal protein L20

Chain n:

• Molecule 41: 50S ribosomal protein L21

Chain o:

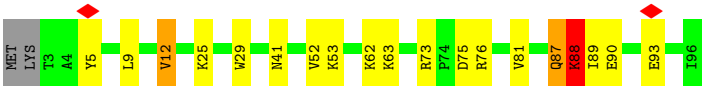


• Molecule 42: 50S ribosomal protein L22

Chain p:

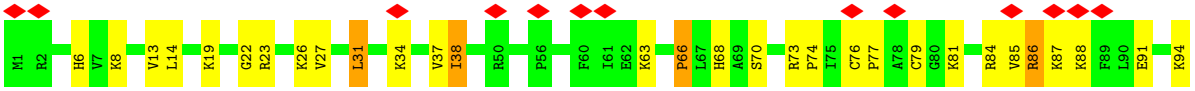
• Molecule 43: 50S ribosomal protein L23

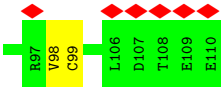
Chain q:



• Molecule 44: 50S ribosomal protein L24

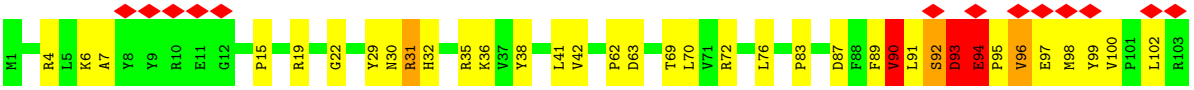
Chain r:

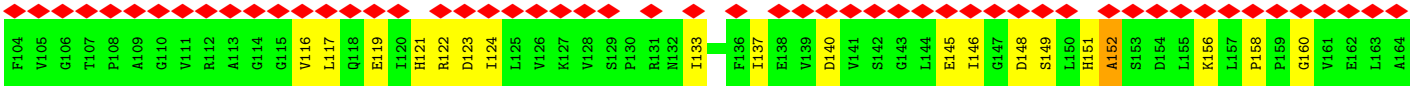


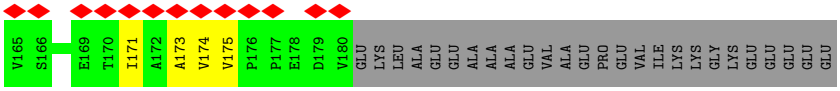


• Molecule 45: 50S ribosomal protein L25

Chain s:





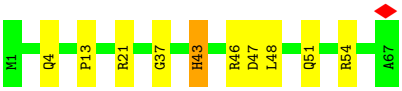


• Molecule 46: 50S ribosomal protein L27

Chain t:

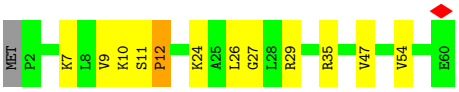
• Molecule 47: 50S ribosomal protein L29

Chain u:



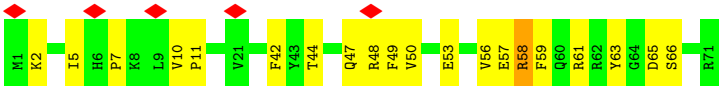
• Molecule 48: 50S ribosomal protein L30

Chain v:



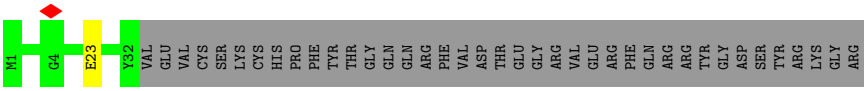
• Molecule 49: 50S ribosomal protein L31

Chain w:



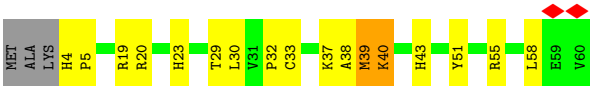
• Molecule 49: 50S ribosomal protein L31

Chain CC:



• Molecule 50: 50S ribosomal protein L32

Chain x:

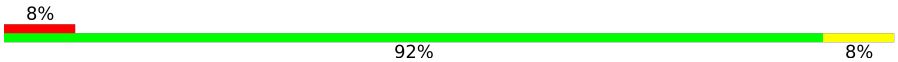


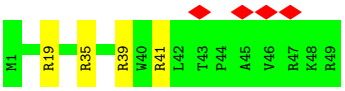
• Molecule 51: 50S ribosomal protein L33

Chain y:

• Molecule 52: 50S ribosomal protein L34

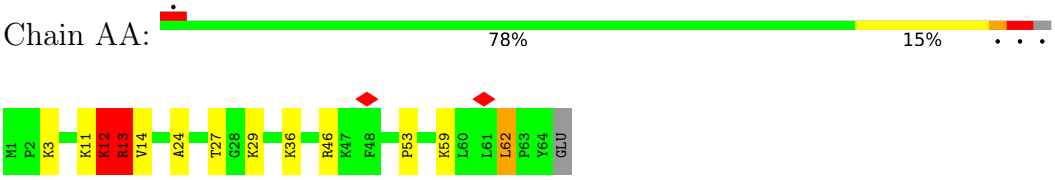
Chain z:





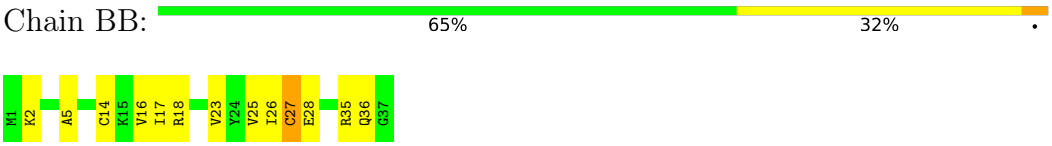
• Molecule 53: 50S ribosomal protein L35

Chain AA:



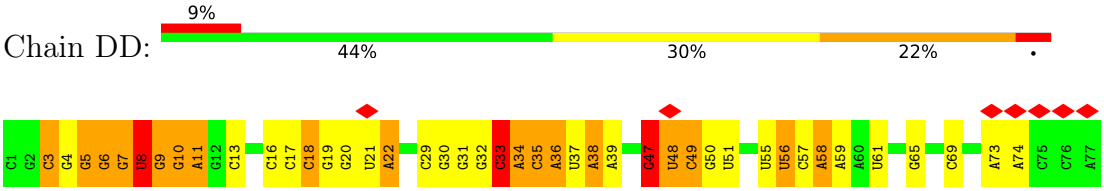
• Molecule 54: 50S ribosomal protein L36

Chain BB:



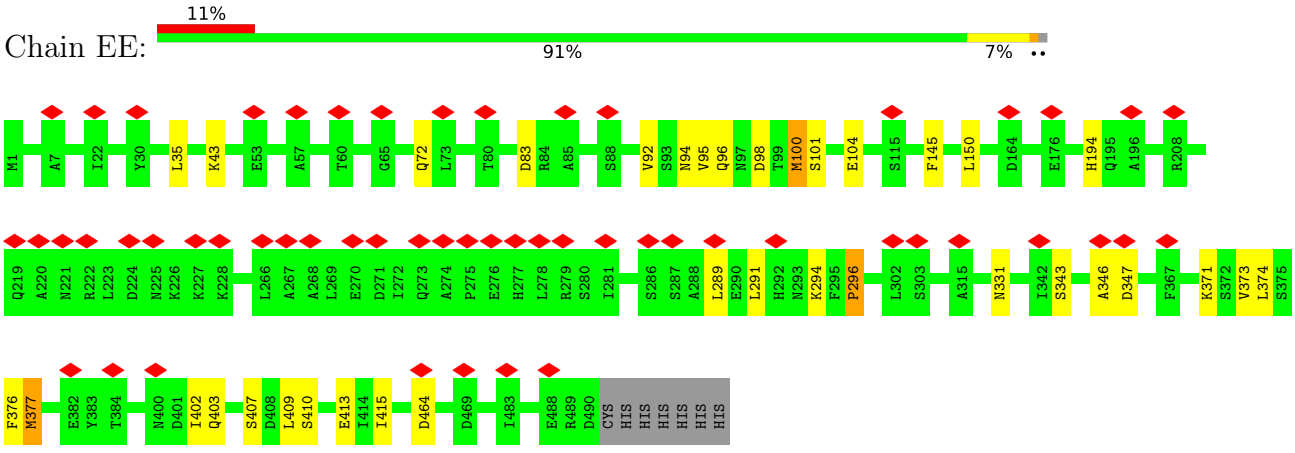
• Molecule 55: P-site tRNA

Chain DD:



• Molecule 56: Macrolide efflux protein

Chain EE:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	127778	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.568	Depositor
Minimum map value	-0.339	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.021	Depositor
Recommended contour level	0.052	Depositor
Map size (Å)	396.0, 396.0, 396.0	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, 4SU, PSU, ANP, 5MU, OMC, 7MG

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	W	0.30	0/166	0.57	0/256
2	A	0.30	0/821	0.70	0/1098
3	B	0.29	0/603	0.80	2/799 (0.3%)
4	C	0.28	0/765	0.68	0/1007
5	D	0.36	0/670	0.70	0/903
6	E	0.29	0/807	0.81	2/1085 (0.2%)
7	F	0.27	0/212	0.61	0/277
8	G	0.33	2/36416 (0.0%)	0.51	4/56835 (0.0%)
9	H	0.28	0/1842	0.77	0/2479
10	I	0.28	0/1636	0.67	0/2205
11	J	0.32	0/1733	0.79	7/2318 (0.3%)
12	K	0.33	0/1162	0.72	0/1564
13	L	0.29	0/856	0.74	0/1154
14	M	0.30	0/1276	0.75	1/1709 (0.1%)
15	N	0.30	0/1136	0.74	1/1527 (0.1%)
16	O	0.29	0/1029	0.74	0/1379
17	P	0.27	0/900	0.68	0/1213
18	Q	0.36	0/986	0.86	0/1320
19	R	0.29	0/924	0.80	2/1238 (0.2%)
20	S	0.27	0/501	0.71	0/664
21	T	0.29	0/745	0.64	0/992
22	U	0.28	0/716	0.66	0/963
23	V	0.43	2/69349 (0.0%)	0.61	36/108263 (0.0%)
24	X	0.30	0/2954	0.51	1/4606 (0.0%)
25	Y	0.46	1/1775 (0.1%)	0.90	5/2393 (0.2%)
26	Z	0.44	0/2176	0.87	5/2933 (0.2%)
27	a	0.44	0/1611	0.95	1/2171 (0.0%)
28	b	0.40	0/1660	0.85	2/2247 (0.1%)
29	c	0.31	0/1479	0.90	4/1989 (0.2%)
30	d	0.32	0/1360	0.92	6/1838 (0.3%)
31	e	0.53	0/620	1.05	6/861 (0.7%)
32	f	0.35	0/1012	1.01	7/1373 (0.5%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	g	0.37	0/952	0.87	2/1283 (0.2%)
34	h	0.42	0/942	1.06	4/1268 (0.3%)
35	i	0.40	0/1125	1.01	4/1497 (0.3%)
36	j	0.44	0/1100	1.01	1/1470 (0.1%)
37	k	0.39	0/974	0.80	0/1302
38	l	0.30	0/887	0.76	0/1180
39	m	0.42	0/990	0.99	2/1325 (0.2%)
40	n	0.42	0/982	0.74	0/1306
41	o	0.38	0/790	1.03	5/1057 (0.5%)
42	p	0.39	0/886	0.74	2/1189 (0.2%)
43	q	0.35	0/756	0.91	2/1015 (0.2%)
44	r	0.36	0/857	1.08	5/1142 (0.4%)
45	s	0.36	0/1467	0.81	4/1992 (0.2%)
46	t	0.33	0/637	0.69	0/848
47	u	0.33	0/569	0.76	0/751
48	v	0.40	0/474	0.87	0/635
49	CC	0.19	0/156	0.62	0/215
49	w	0.51	0/594	1.14	0/795
50	x	0.39	0/459	0.92	0/621
51	y	0.46	0/429	1.05	3/572 (0.5%)
52	z	0.53	0/438	1.03	0/575
53	AA	0.47	0/523	1.05	4/690 (0.6%)
54	BB	0.37	0/310	0.89	1/407 (0.2%)
55	DD	0.29	0/1724	0.52	1/2687 (0.0%)
56	EE	0.31	0/3892	0.76	2/5224 (0.0%)
All	All	0.38	5/162811 (0.0%)	0.66	134/242705 (0.1%)

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
3	B	0	3
4	C	0	1
5	D	0	1
6	E	0	4
9	H	0	2
11	J	0	2
12	K	0	1
13	L	0	2
14	M	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
15	N	0	1
16	O	0	2
18	Q	0	1
19	R	0	1
23	V	0	6
25	Y	0	4
26	Z	0	8
27	a	0	2
28	b	0	5
29	c	0	4
30	d	0	2
31	e	0	8
32	f	0	2
33	g	0	2
34	h	0	10
35	i	0	8
36	j	0	6
38	l	0	1
39	m	0	8
41	o	0	4
43	q	0	2
44	r	0	7
46	t	0	1
47	u	0	2
48	v	0	1
49	w	0	2
50	x	0	1
51	y	0	1
52	z	0	1
53	AA	0	2
56	EE	0	6
All	All	0	129

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	V	1449(A)	G	O3'-P	-12.49	1.42	1.61
23	V	1146	C	O3'-P	9.51	1.75	1.61
8	G	93	U	O3'-P	-7.18	1.50	1.61
8	G	1167	A	O3'-P	-6.22	1.51	1.61
25	Y	180	PHE	C-N	5.13	1.39	1.33

All (134) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	V	1449(A)	G	O3'-P-O5'	-24.54	67.19	104.00
23	V	155	C	O3'-P-O5'	-22.82	69.77	104.00
30	d	11	VAL	C-N-CD	-12.70	72.92	125.00
26	Z	244	ARG	C-N-CD	-11.75	94.75	120.60
26	Z	244	ARG	CA-C-N	11.29	154.11	127.00
26	Z	244	ARG	C-N-CA	11.29	154.11	127.00
8	G	93	U	O3'-P-O5'	-11.00	87.50	104.00
23	V	1146	C	O3'-P-O5'	10.57	119.85	104.00
30	d	127	GLU	C-N-CD	-10.49	82.00	125.00
23	V	1060	U	OP1-P-O3'	-10.09	77.72	108.00
23	V	1060	U	OP2-P-O3'	-9.91	78.27	108.00
23	V	920	G	OP1-P-O3'	-9.43	79.71	108.00
32	f	108	ALA	CA-C-N	9.34	137.60	122.10
32	f	108	ALA	C-N-CA	9.34	137.60	122.10
32	f	22	PRO	CA-N-CD	-9.23	99.07	112.00
56	EE	296	PRO	CA-N-CD	-9.19	99.14	112.00
23	V	1061	U	OP1-P-OP2	9.15	147.06	119.60
29	c	86	MET	C-N-CD	-8.85	88.71	125.00
23	V	155	C	OP2-P-O3'	8.56	133.69	108.00
23	V	1449(A)	G	C2'-C3'-O3'	8.15	121.72	109.50
23	V	403	U	C2'-C3'-O3'	8.14	121.70	109.50
23	V	6	A	C2'-C3'-O3'	8.12	121.67	109.50
30	d	109	PHE	CA-C-N	7.66	136.17	121.54
30	d	109	PHE	C-N-CA	7.66	136.17	121.54
8	G	1362(A)	C	C2'-C3'-O3'	7.54	120.81	109.50
11	J	9	CYS	CA-CB-SG	7.46	131.56	114.40
31	e	34	ALA	N-CA-C	7.43	120.44	111.82
29	c	31	VAL	C-N-CD	-7.18	95.57	125.00
23	V	1057	A	O3'-P-O5'	7.12	114.68	104.00
45	s	31	ARG	CA-C-N	7.01	134.93	121.54
45	s	31	ARG	C-N-CA	7.01	134.93	121.54
23	V	136	G	C2'-C3'-O3'	6.95	124.12	113.70
23	V	1085	A	P-O3'-C3'	6.84	130.46	120.20
33	g	66	LYS	CA-C-N	6.80	134.53	121.54
33	g	66	LYS	C-N-CA	6.80	134.53	121.54
54	BB	27	CYS	CA-CB-SG	6.79	130.01	114.40
23	V	920	G	OP2-P-O3'	-6.73	87.82	108.00
44	r	85	VAL	CA-C-N	6.63	134.20	121.54
44	r	85	VAL	C-N-CA	6.63	134.20	121.54
23	V	1052	C	O5'-C5'-C4'	6.62	121.43	111.50
43	q	87	GLN	CA-C-N	6.56	134.07	121.54
43	q	87	GLN	C-N-CA	6.56	134.07	121.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
35	i	69	GLY	CA-C-N	-6.46	109.20	121.54
35	i	69	GLY	C-N-CA	-6.46	109.20	121.54
31	e	31	GLY	N-CA-C	6.43	128.42	113.18
23	V	136	G	C3'-C2'-O2'	6.42	120.33	110.70
32	f	18	THR	C-N-CD	-6.36	98.91	125.00
35	i	35	HIS	CA-C-N	6.32	133.61	121.54
35	i	35	HIS	C-N-CA	6.32	133.61	121.54
23	V	1052	C	C5'-C4'-C3'	6.31	125.46	116.00
31	e	59	ILE	CA-C-N	6.20	133.38	121.54
31	e	59	ILE	C-N-CA	6.20	133.38	121.54
11	J	29	PRO	CA-C-N	6.13	131.37	122.36
11	J	29	PRO	C-N-CA	6.13	131.37	122.36
25	Y	180	PHE	CA-C-N	-6.13	114.07	120.38
25	Y	180	PHE	C-N-CA	-6.13	114.07	120.38
30	d	25	LYS	N-CA-C	6.12	118.72	109.23
23	V	1051	G	P-O3'-C3'	6.07	129.30	120.20
23	V	1057	A	C3'-C2'-C1'	6.06	107.36	101.30
23	V	270(M)	U	C2'-C3'-O3'	-6.01	100.49	109.50
27	a	61	ARG	CA-CB-CG	6.00	126.09	114.10
14	M	147	ALA	N-CA-C	-5.98	106.62	114.04
44	r	66	PRO	CA-C-N	5.96	135.46	121.52
44	r	66	PRO	C-N-CA	5.96	135.46	121.52
23	V	270(L)	U	C2'-C3'-O3'	5.95	118.43	109.50
39	m	64	ARG	CA-C-N	5.92	132.85	121.54
39	m	64	ARG	C-N-CA	5.92	132.85	121.54
23	V	1057	A	P-O3'-C3'	5.92	129.07	120.20
23	V	155	C	P-O3'-C3'	-5.89	111.36	120.20
8	G	1446	A	C2'-C3'-O3'	5.87	118.31	109.50
11	J	12	CYS	CA-CB-SG	5.87	127.90	114.40
11	J	34	GLU	CA-C-N	5.87	132.74	121.54
11	J	34	GLU	C-N-CA	5.87	132.74	121.54
51	y	18	ARG	CA-C-N	5.87	132.74	121.54
51	y	18	ARG	C-N-CA	5.87	132.74	121.54
23	V	1146	C	P-O3'-C3'	-5.84	111.44	120.20
19	R	103	THR	CA-C-N	5.82	132.65	121.54
19	R	103	THR	C-N-CA	5.82	132.65	121.54
6	E	56	HIS	CA-C-N	5.80	132.62	121.54
6	E	56	HIS	C-N-CA	5.80	132.62	121.54
34	h	12	ASP	CA-C-N	5.80	130.41	121.19
34	h	12	ASP	C-N-CA	5.80	130.41	121.19
26	Z	27	THR	CA-C-N	5.77	135.89	121.80
26	Z	27	THR	C-N-CA	5.77	135.89	121.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	87	ARG	CA-C-N	5.75	132.05	121.70
3	B	87	ARG	C-N-CA	5.75	132.05	121.70
45	s	94	GLU	CA-C-N	-5.71	114.08	119.90
45	s	94	GLU	C-N-CA	-5.71	114.08	119.90
23	V	2238	G	P-O3'-C3'	5.66	128.70	120.20
42	p	89	ALA	CA-C-N	5.63	132.30	121.54
42	p	89	ALA	C-N-CA	5.63	132.30	121.54
23	V	846	C	P-O3'-C3'	5.57	128.55	120.20
36	j	23	GLY	N-CA-C	5.52	126.26	113.18
30	d	125	VAL	C-N-CD	-5.49	102.50	125.00
41	o	81	TYR	CA-C-N	5.49	130.42	122.36
41	o	81	TYR	C-N-CA	5.49	130.42	122.36
23	V	2349	G	C4-N9-C1'	5.47	142.92	126.50
23	V	1247	A	P-O3'-C3'	5.47	128.41	120.20
23	V	2225	A	C4'-C3'-O3'	5.47	117.61	109.40
53	AA	13	ARG	CA-C-N	5.42	131.72	121.97
53	AA	13	ARG	C-N-CA	5.42	131.72	121.97
41	o	82	ARG	N-CA-C	5.41	119.30	111.56
34	h	102	VAL	CA-C-N	5.40	131.85	121.54
34	h	102	VAL	C-N-CA	5.40	131.85	121.54
32	f	109	LYS	N-CA-C	-5.36	101.15	108.38
23	V	2158	A	P-O3'-C3'	5.36	128.23	120.20
56	EE	377	MET	N-CA-C	-5.35	105.45	111.28
51	y	23	THR	N-CA-C	5.35	122.20	110.80
23	V	119	A	C2'-C3'-O3'	5.33	117.50	109.50
8	G	1065	U	P-O3'-C3'	5.30	128.16	120.20
31	e	53	VAL	CA-C-N	5.28	131.62	121.54
31	e	53	VAL	C-N-CA	5.28	131.62	121.54
28	b	17	ARG	CA-C-N	5.27	131.61	121.54
28	b	17	ARG	C-N-CA	5.27	131.61	121.54
23	V	1085	A	C2'-C3'-O3'	5.25	117.38	109.50
41	o	45	THR	CA-C-N	5.25	131.41	121.97
41	o	45	THR	C-N-CA	5.25	131.41	121.97
11	J	196	LEU	CA-CB-CG	5.22	134.58	116.30
29	c	145	THR	CA-C-N	5.21	131.50	121.54
29	c	145	THR	C-N-CA	5.21	131.50	121.54
23	V	1062	G	P-O3'-C3'	5.19	127.98	120.20
55	DD	18	C	P-O3'-C3'	5.19	127.98	120.20
23	V	119	A	P-O3'-C3'	5.16	127.94	120.20
25	Y	216	THR	CB-CA-C	5.15	120.67	110.42
32	f	116	ASN	CA-C-N	5.11	131.29	121.54
32	f	116	ASN	C-N-CA	5.11	131.29	121.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	AA	12	LYS	CA-C-N	5.09	131.26	121.54
53	AA	12	LYS	C-N-CA	5.09	131.26	121.54
25	Y	36	LYS	CA-C-N	5.08	131.24	121.54
25	Y	36	LYS	C-N-CA	5.08	131.24	121.54
23	V	1058	G	O5'-P-OP2	-5.07	92.78	108.00
44	r	31	LEU	CA-CB-CG	5.07	134.03	116.30
15	N	44	PHE	N-CA-C	5.01	116.44	110.97
24	X	56	G	P-O3'-C3'	5.00	127.71	120.20

There are no chirality outliers.

All (129) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
53	AA	53	PRO	Peptide
53	AA	62	LEU	Peptide
3	B	44	LEU	Peptide
3	B	83	GLU	Peptide
3	B	86	VAL	Peptide
4	C	75	ASN	Peptide
5	D	4	SER	Peptide
6	E	28	ARG	Peptide
6	E	40	LEU	Peptide
6	E	57	LYS	Peptide
6	E	90	LEU	Peptide
56	EE	194	HIS	Peptide
56	EE	289	LEU	Peptide
56	EE	343	SER	Peptide
56	EE	346	ALA	Peptide
56	EE	464	ASP	Peptide
56	EE	83	ASP	Peptide
9	H	152	PHE	Peptide
9	H	99	GLY	Peptide
11	J	28	SER	Peptide
11	J	34	GLU	Peptide
12	K	143	ARG	Peptide
13	L	22	GLU	Peptide
13	L	41	GLU	Peptide
14	M	112	PRO	Peptide
14	M	7	ALA	Peptide
15	N	73	ASP	Peptide
16	O	104	ARG	Peptide
16	O	54	ASP	Peptide

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Mol	Chain	Res	Type	Group
18	Q	104	VAL	Peptide
19	R	103	THR	Peptide
23	V	270(C)	C	Sidechain
23	V	270(D)	C	Sidechain
23	V	270(G)	C	Sidechain
23	V	270(Q)	C	Sidechain
23	V	273(C)	C	Sidechain
23	V	273(D)	C	Sidechain
25	Y	11	LEU	Peptide
25	Y	2	LYS	Peptide
25	Y	214	VAL	Peptide
25	Y	71	GLN	Peptide
26	Z	148	GLU	Peptide
26	Z	158	ALA	Peptide
26	Z	211	ARG	Peptide
26	Z	244	ARG	Peptide
26	Z	271	ILE	Peptide
26	Z	272	ALA	Peptide
26	Z	28	GLU	Peptide
26	Z	35	LYS	Peptide
27	a	38	THR	Peptide
27	a	74	PRO	Peptide
28	b	125	LEU	Peptide
28	b	176	LEU	Peptide
28	b	19	GLU	Peptide
28	b	59	TYR	Peptide
28	b	61	GLY	Peptide
29	c	130	ASN	Peptide
29	c	145	THR	Peptide
29	c	181	ARG	Peptide
29	c	23	PHE	Peptide
30	d	110	SER	Peptide
30	d	40	GLU	Peptide
31	e	29	TYR	Peptide
31	e	32	LEU	Mainchain
31	e	33	PRO	Peptide
31	e	36	GLU	Peptide
31	e	37	THR	Peptide
31	e	43	ALA	Peptide
31	e	53	VAL	Peptide
31	e	80	VAL	Peptide
32	f	108	ALA	Peptide

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Mol	Chain	Res	Type	Group
32	f	118	THR	Peptide
33	g	34	LEU	Peptide
33	g	77	GLY	Peptide
34	h	102	VAL	Peptide
34	h	103	ALA	Peptide
34	h	118	ALA	Peptide
34	h	13	ASN	Peptide
34	h	26	LYS	Peptide
34	h	52	VAL	Peptide
34	h	62	VAL	Peptide
34	h	63	VAL	Peptide
34	h	73	ASP	Peptide
34	h	87	ILE	Peptide
35	i	108	LYS	Peptide
35	i	15	ARG	Peptide
35	i	18	ARG	Peptide
35	i	30	THR	Peptide
35	i	32	THR	Peptide
35	i	34	GLY	Peptide
35	i	57	THR	Peptide
35	i	9	ASN	Peptide
36	j	118	LEU	Peptide
36	j	123	HIS	Peptide
36	j	58	PHE	Peptide
36	j	77	LYS	Peptide
36	j	92	GLY	Peptide
36	j	93	TYR	Peptide
38	l	55	ALA	Peptide
39	m	49	VAL	Peptide
39	m	57	PHE	Peptide
39	m	59	THR	Peptide
39	m	6	LEU	Peptide
39	m	63	VAL	Peptide
39	m	71	GLY	Peptide
39	m	75	ILE	Peptide
39	m	97	ALA	Peptide
41	o	45	THR	Peptide
41	o	50	PRO	Peptide
41	o	51	VAL	Peptide
41	o	91	TYR	Peptide
43	q	62	LYS	Peptide
43	q	88	LYS	Peptide

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Mol	Chain	Res	Type	Group
44	r	31	LEU	Peptide
44	r	37	VAL	Peptide
44	r	6	HIS	Peptide
44	r	70	SER	Peptide
44	r	79	CYS	Peptide
44	r	86	ARG	Peptide
44	r	98	VAL	Peptide
46	t	83	PRO	Peptide
47	u	37	GLY	Peptide
47	u	43	HIS	Peptide
48	v	27	GLY	Peptide
49	w	2	LYS	Peptide
49	w	53	GLU	Peptide
50	x	58	LEU	Peptide
51	y	20	ASN	Peptide
52	z	41	ARG	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	W	149	0	75	18	0
2	A	808	0	875	9	0
3	B	597	0	668	15	0
4	C	763	0	861	8	0
5	D	656	0	684	11	0
6	E	794	0	840	10	0
7	F	208	0	221	10	0
8	G	32534	0	16418	443	0
9	H	1810	0	1861	26	0
10	I	1612	0	1677	17	0
11	J	1703	0	1763	20	0
12	K	1146	0	1207	10	0
13	L	843	0	857	15	0
14	M	1257	0	1296	13	0
15	N	1116	0	1177	11	0
16	O	1010	0	1037	16	0
17	P	885	0	904	23	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	Q	970	0	1057	19	0
19	R	914	0	971	18	0
20	S	492	0	533	65	0
21	T	734	0	771	9	0
22	U	700	0	720	14	0
23	V	61917	0	31186	1550	0
24	X	2641	0	1337	26	0
25	Y	1742	0	1796	159	0
26	Z	2126	0	2208	26	0
27	a	1578	0	1646	43	0
28	b	1625	0	1666	26	0
29	c	1455	0	1511	101	0
30	d	1335	0	1402	81	0
31	e	621	0	301	18	0
32	f	993	0	1030	149	0
33	g	931	0	1002	6	0
34	h	932	0	994	20	0
35	i	1108	0	1182	45	0
36	j	1080	0	1127	25	0
37	k	960	0	1021	13	0
38	l	877	0	936	86	0
39	m	976	0	1033	19	0
40	n	964	0	1022	9	0
41	o	779	0	852	12	0
42	p	876	0	941	5	0
43	q	742	0	800	12	0
44	r	844	0	930	15	0
45	s	1435	0	1463	59	0
46	t	629	0	650	4	0
47	u	567	0	621	22	0
48	v	469	0	518	8	0
49	CC	157	0	69	1	0
49	w	581	0	577	13	0
50	x	445	0	459	15	0
51	y	422	0	443	20	0
52	z	430	0	480	2	0
53	AA	515	0	587	11	0
54	BB	307	0	335	9	0
55	DD	1648	0	845	57	0
56	EE	3841	0	3897	2	0
57	Z	1	0	0	0	0
57	i	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
58	EE	62	0	26	0	0
All	All	150313	0	103366	3151	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

All (3151) 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)
23:V:1084:A:H1'	23:V:1106:G:C6	1.34	1.60
32:f:44:ALA:CB	32:f:67:PHE:HA	1.32	1.57
32:f:44:ALA:HB2	32:f:67:PHE:CA	1.22	1.57
23:V:1778:U:C4	23:V:1784:A:C2	1.93	1.56
32:f:48:MET:HE3	32:f:69:THR:CG2	1.27	1.54
23:V:1778:U:C5	23:V:1784:A:C2	1.93	1.54
32:f:48:MET:HE3	32:f:69:THR:CB	1.41	1.50
23:V:1778:U:C4	23:V:1784:A:H2	1.22	1.49
20:S:29:ARG:CD	20:S:42:ILE:HD11	1.40	1.49
8:G:1309:G:N2	8:G:1328:C:C5	1.81	1.48
23:V:1169:G:H2'	23:V:1170:G:C8	1.47	1.48
23:V:536:A:C2	23:V:558:G:C2	2.00	1.47
23:V:2124:G:C8	25:Y:218:MET:N	1.79	1.46
45:s:70:LEU:HD11	45:s:98:MET:CE	1.43	1.46
23:V:96:G:H4'	47:u:43:HIS:CE1	1.53	1.42
30:d:127:GLU:HB3	30:d:128:PRO:CD	1.49	1.42
23:V:2124:G:C8	25:Y:217:THR:C	1.95	1.40
29:c:67:LYS:NZ	29:c:90:LEU:HD13	1.22	1.40
23:V:1786:A:C2	23:V:1938:A:N7	1.90	1.39
8:G:1309:G:N2	8:G:1328:C:C4	1.85	1.39
38:l:17:ARG:NH1	38:l:89:ARG:HD2	1.38	1.38
23:V:96:G:O3'	47:u:43:HIS:CE1	1.74	1.37
23:V:1067:A:H4'	32:f:21:PRO:CG	1.52	1.37
38:l:25:ARG:HB3	38:l:87:PHE:CZ	1.59	1.37
30:d:16:SER:O	30:d:17:VAL:CG2	1.74	1.36
50:x:30:LEU:HB3	50:x:39:MET:SD	1.65	1.34
23:V:96:G:O3'	47:u:43:HIS:ND1	1.61	1.34
8:G:440:A:N6	8:G:493:G:N3	1.71	1.33
23:V:974:G:C8	23:V:1187:G:O2'	1.79	1.32
30:d:101:ARG:O	30:d:123:PHE:CD2	1.83	1.31
32:f:48:MET:CE	32:f:69:THR:CG2	2.09	1.31
30:d:13:LYS:CE	30:d:29:PRO:HD3	1.61	1.30

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:974:G:O6	23:V:1187:G:N3	1.61	1.30
23:V:1084:A:H1'	23:V:1106:G:C5	1.67	1.30
8:G:69:G:N2	8:G:101:A:C6	1.97	1.29
23:V:2124:G:N7	25:Y:217:THR:C	1.91	1.29
23:V:2209:C:N4	23:V:2215:G:O6	1.66	1.29
23:V:2209:C:N3	23:V:2216:G:N2	1.80	1.28
35:i:47:ASP:O	35:i:49:ARG:N	1.64	1.28
23:V:975:G:N2	23:V:990:A:N9	1.78	1.28
23:V:41:C:O2	23:V:439:G:N2	1.64	1.28
25:Y:177:LYS:N	25:Y:180:PHE:CD1	2.01	1.28
29:c:67:LYS:NZ	29:c:90:LEU:CD1	1.94	1.28
23:V:972:G:H3'	23:V:973:A:C2'	1.65	1.27
23:V:2124:G:H5'	25:Y:217:THR:OG1	1.22	1.27
23:V:2124:G:OP2	25:Y:218:MET:HB2	1.31	1.26
29:c:31:VAL:CB	29:c:32:PRO:CD	2.13	1.26
55:DD:47:7MG:O2'	55:DD:48:U:H4'	1.31	1.25
23:V:536:A:C6	23:V:558:G:N1	2.04	1.25
23:V:96:G:C4'	47:u:43:HIS:HE1	1.48	1.25
45:s:30:ASN:ND2	45:s:89:PHE:CE1	2.02	1.25
23:V:2809:A:C6	27:a:60:ASN:ND2	2.05	1.25
29:c:31:VAL:HB	29:c:32:PRO:CD	1.63	1.25
8:G:222:U:N3	8:G:223:U:O4	1.68	1.24
23:V:536:A:N1	23:V:558:G:N1	1.85	1.24
23:V:923:C:C4	23:V:924:C:N4	2.04	1.24
23:V:96:G:C4'	47:u:43:HIS:CE1	2.20	1.24
23:V:1778:U:C6	23:V:1784:A:C2	2.24	1.24
23:V:974:G:C6	23:V:1187:G:N3	2.07	1.23
23:V:1084:A:O2'	23:V:1106:G:N7	1.72	1.23
29:c:31:VAL:CB	29:c:32:PRO:HD2	1.68	1.23
20:S:26:ARG:CD	20:S:43:CYS:HB2	1.69	1.23
23:V:1778:U:N3	23:V:1784:A:H2	1.36	1.23
1:W:16:A:H2	1:W:17:U:C2	1.57	1.22
50:x:30:LEU:CB	50:x:39:MET:SD	2.26	1.22
8:G:1306:A:H62	8:G:1331:G:N2	1.35	1.22
8:G:500:G:C6	8:G:546:G:N2	2.08	1.22
23:V:271(B):U:O4	23:V:404:C:N3	1.74	1.21
23:V:1086:A:P	23:V:1104:C:O2'	1.96	1.21
23:V:1442:G:N2	23:V:1550:C:C2	2.09	1.21
23:V:527:C:O2	23:V:2779:U:C5	1.94	1.21
30:d:127:GLU:CB	30:d:128:PRO:HD2	1.66	1.20
1:W:16:A:C2	1:W:17:U:C2	2.30	1.19

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2809:A:N6	27:a:60:ASN:HD22	1.40	1.19
23:V:536:A:N1	23:V:558:G:C6	2.11	1.18
23:V:1084:A:C1'	23:V:1106:G:C6	2.26	1.18
23:V:2209:C:C2	23:V:2216:G:N2	2.12	1.18
35:i:51:PHE:HB3	35:i:57:THR:OG1	1.38	1.18
23:V:1778:U:C6	23:V:1784:A:N1	2.11	1.17
32:f:19:PRO:HA	32:f:22:PRO:HG2	1.20	1.17
23:V:269:U:H5"	23:V:270(Y):G:H2'	1.23	1.17
32:f:93:ARG:HD2	32:f:135:GLY:O	1.37	1.17
23:V:1086:A:OP1	23:V:1104:C:O2'	1.58	1.17
30:d:18:GLU:HG3	30:d:24:VAL:HB	1.21	1.17
23:V:270(C):C:H2'	23:V:270(D):C:H6	1.10	1.16
32:f:52:ILE:HG13	32:f:76:TYR:CG	1.79	1.16
8:G:1306:A:N6	8:G:1331:G:N3	1.93	1.16
45:s:70:LEU:CD1	45:s:98:MET:HE1	1.74	1.16
23:V:1041:C:O2	23:V:1115:G:O6	1.64	1.16
32:f:68:VAL:CG2	32:f:69:THR:H	1.51	1.15
32:f:48:MET:CE	32:f:69:THR:HB	1.74	1.15
23:V:1173:G:H1'	23:V:1177:A:N6	1.61	1.15
29:c:31:VAL:CG1	29:c:32:PRO:HD3	1.75	1.15
23:V:832:G:O2'	35:i:52:GLU:HG3	1.42	1.14
32:f:48:MET:HE3	32:f:69:THR:HB	1.22	1.14
8:G:1309:G:N2	8:G:1328:C:C6	2.15	1.14
23:V:95:G:H2'	23:V:96:G:C1'	1.77	1.14
23:V:2209:C:C5	23:V:2212:A:N1	2.14	1.14
30:d:16:SER:C	30:d:17:VAL:HG23	1.72	1.14
32:f:44:ALA:HB1	32:f:67:PHE:O	1.48	1.14
23:V:885:C:N4	23:V:892:G:O6	1.81	1.13
32:f:68:VAL:HG23	32:f:69:THR:N	1.45	1.13
32:f:19:PRO:HA	32:f:22:PRO:CG	1.78	1.12
8:G:222:U:H2'	8:G:223:U:C5	1.83	1.12
8:G:474:G:C5'	22:U:75:ARG:HH21	1.62	1.12
8:G:671:G:O2'	13:L:80:ARG:NH1	1.83	1.12
20:S:29:ARG:HD3	20:S:42:ILE:HD11	1.19	1.12
23:V:1106:G:H21	31:e:81:VAL:CB	1.61	1.12
55:DD:48:U:O2'	55:DD:49:C:H5'	1.47	1.12
51:y:14:THR:HG22	51:y:52:VAL:HB	1.21	1.12
23:V:2196:C:H2'	23:V:2197:U:H6	1.12	1.12
38:l:25:ARG:HB3	38:l:87:PHE:CE2	1.84	1.12
23:V:153:C:H2'	23:V:154:G:C8	1.84	1.12
23:V:1106:G:O2'	23:V:1107:G:C5'	1.97	1.12

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:222:U:C2	8:G:223:U:C4	2.36	1.11
23:V:1442:G:N1	23:V:1550:C:N3	1.96	1.11
30:d:102:ALA:HA	30:d:123:PHE:HE2	0.99	1.11
20:S:26:ARG:HD2	20:S:43:CYS:HB2	1.12	1.11
23:V:1786:A:H2	23:V:1938:A:C8	1.69	1.11
30:d:18:GLU:HB2	30:d:24:VAL:HG23	1.12	1.11
23:V:270(X):G:H2'	23:V:270(Y):G:H5'	1.32	1.11
23:V:536:A:C6	23:V:558:G:C6	2.37	1.11
23:V:1786:A:N3	23:V:1938:A:N7	1.99	1.11
23:V:10:G:N2	23:V:2629:A:C4	2.18	1.10
23:V:2630:G:N1	23:V:2790:A:H2	1.46	1.10
23:V:2637:U:C4	23:V:2782:G:O6	2.04	1.10
8:G:77:C:N4	8:G:92:G:O6	1.82	1.10
23:V:1067:A:H4'	32:f:21:PRO:HG3	1.25	1.10
25:Y:180:PHE:CD2	25:Y:185:LEU:HD12	1.87	1.10
8:G:129(A):G:C2	8:G:191(A):G:N7	2.20	1.10
23:V:972:G:H3'	23:V:973:A:H2'	1.23	1.09
32:f:86:LYS:HB3	32:f:95:LYS:HB2	1.34	1.09
23:V:1075:C:H1'	32:f:91:PRO:HG3	1.18	1.09
30:d:101:ARG:O	30:d:123:PHE:HD2	1.19	1.09
30:d:15:VAL:O	30:d:26:VAL:HG22	1.52	1.09
23:V:137(A):G:O6	23:V:142:G:N1	1.86	1.09
32:f:48:MET:HE3	32:f:69:THR:HG21	1.32	1.09
32:f:52:ILE:HG13	32:f:76:TYR:CD2	1.87	1.09
23:V:1067:A:H4'	32:f:21:PRO:HG2	1.29	1.08
29:c:67:LYS:HZ3	29:c:90:LEU:CD1	1.56	1.08
23:V:972:G:C3'	23:V:973:A:H2'	1.83	1.08
32:f:22:PRO:HD2	32:f:23:VAL:H	1.08	1.07
35:i:51:PHE:CB	35:i:57:THR:OG1	2.02	1.07
23:V:536:A:N1	23:V:558:G:C2	2.20	1.07
23:V:536:A:N6	23:V:558:G:O6	1.87	1.07
23:V:2124:G:H21	25:Y:221:SER:N	1.51	1.07
23:V:552:G:C2	23:V:553:U:O2	2.06	1.07
23:V:1169:G:C6	23:V:1170:G:O6	2.08	1.07
23:V:1444(A):A:H1'	23:V:1732:A:H61	1.19	1.07
23:V:2813:A:H2	23:V:2888:C:O2	1.35	1.07
30:d:13:LYS:HE3	30:d:29:PRO:HD3	1.15	1.07
30:d:18:GLU:HB2	30:d:24:VAL:CG2	1.84	1.07
23:V:975:G:N2	23:V:990:A:C4	2.22	1.06
29:c:47:LYS:HG3	29:c:80:PHE:CD2	1.90	1.06
38:l:17:ARG:NH1	38:l:89:ARG:CD	2.18	1.06

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:48:MET:CE	32:f:69:THR:CB	2.27	1.06
23:V:1169:G:C2'	23:V:1170:G:C8	2.37	1.06
30:d:127:GLU:CB	30:d:128:PRO:CD	2.19	1.06
23:V:96:G:C3'	47:u:43:HIS:CE1	2.38	1.05
23:V:974:G:O6	23:V:1187:G:C2	2.09	1.05
23:V:2209:C:C5	23:V:2212:A:C2	2.43	1.05
25:Y:176:GLY:HA3	25:Y:180:PHE:CZ	1.91	1.05
30:d:16:SER:O	30:d:17:VAL:HG23	0.87	1.05
23:V:139:G:N2	23:V:1408:C:O2	1.87	1.05
23:V:923:C:C5	23:V:924:C:N4	2.18	1.05
23:V:2209:C:N3	23:V:2216:G:C2	2.23	1.05
30:d:102:ALA:HA	30:d:123:PHE:CE2	1.90	1.05
30:d:95:ARG:HB2	30:d:129:THR:OG1	1.52	1.05
8:G:1306:A:N6	8:G:1331:G:C2	2.24	1.05
23:V:1778:U:C5	23:V:1784:A:H2	1.49	1.05
23:V:1445:C:C5	23:V:1446:C:N3	2.23	1.04
8:G:69:G:N2	8:G:101:A:C5	2.26	1.04
23:V:2226:C:C6	23:V:2227:A:C8	2.46	1.04
8:G:129(A):G:C2	8:G:191(A):G:C5	2.45	1.04
23:V:832:G:O2'	35:i:52:GLU:CG	2.04	1.04
23:V:2124:G:C8	25:Y:217:THR:N	2.26	1.04
20:S:29:ARG:HD2	20:S:42:ILE:HD11	1.07	1.04
29:c:31:VAL:HG12	29:c:32:PRO:HD3	1.09	1.04
29:c:31:VAL:CG1	29:c:32:PRO:CD	2.33	1.03
20:S:29:ARG:CD	20:S:42:ILE:CD1	2.35	1.03
29:c:31:VAL:HG12	29:c:32:PRO:CD	1.88	1.03
8:G:69:G:C2	8:G:101:A:C6	2.45	1.03
23:V:1173:G:C1'	23:V:1177:A:N6	2.20	1.03
23:V:887:A:O2'	23:V:889:C:C6	2.11	1.03
23:V:975:G:N2	23:V:990:A:C1'	2.21	1.03
23:V:1742:C:C5	23:V:1743:G:O6	2.12	1.03
20:S:29:ARG:HD3	20:S:42:ILE:CD1	1.88	1.02
23:V:539:G:N3	23:V:556:G:N2	1.71	1.02
32:f:48:MET:CB	32:f:69:THR:HG21	1.89	1.02
32:f:48:MET:HB2	32:f:69:THR:HG21	1.34	1.02
23:V:43:G:C6	23:V:438:G:N1	2.28	1.02
23:V:1534:G:C2	23:V:1538:G:C6	2.47	1.02
8:G:474:G:H5"	22:U:75:ARG:HH21	1.20	1.02
23:V:2809:A:N6	27:a:60:ASN:ND2	2.03	1.02
25:Y:180:PHE:CD2	25:Y:185:LEU:CD1	2.43	1.02
32:f:19:PRO:CA	32:f:22:PRO:HG2	1.90	1.02

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:82:U:O2	8:G:87:A:C2	2.12	1.02
23:V:374:A:C2	23:V:401:A:C4	2.48	1.02
23:V:972:G:O2'	23:V:973:A:OP1	1.78	1.02
23:V:1063:G:OP1	32:f:52:ILE:HD11	1.57	1.02
23:V:1084:A:C1'	23:V:1106:G:C5	2.41	1.02
23:V:1300:U:C4	23:V:1627:G:OP2	2.12	1.02
23:V:2124:G:C8	25:Y:217:THR:CA	2.43	1.02
23:V:270(C):C:H2'	23:V:270(D):C:C6	1.94	1.02
23:V:2092:U:O4'	23:V:2225:A:H2	1.40	1.02
23:V:2637:U:N3	23:V:2782:G:C6	2.28	1.02
8:G:222:U:H2'	8:G:223:U:C6	1.95	1.01
23:V:2805:G:N2	23:V:2892:A:H62	1.58	1.01
8:G:1203:C:H4'	20:S:27:CYS:CB	1.91	1.01
23:V:1085:A:O3'	23:V:1104:C:O2'	1.79	1.01
45:s:70:LEU:CD1	45:s:98:MET:CE	2.35	1.01
23:V:270(M):U:H4'	23:V:270(N):G:H4'	1.01	1.01
23:V:270(O):U:H5"	23:V:270(P):C:H5	1.23	1.01
23:V:1106:G:O2'	23:V:1107:G:H5'	1.57	1.01
8:G:222:U:O2	8:G:223:U:C4	2.14	1.00
23:V:2209:C:C6	23:V:2212:A:N1	2.29	1.00
55:DD:47:7MG:O2'	55:DD:48:U:C4'	2.08	1.00
23:V:270(M):U:C4'	23:V:270(N):G:H4'	1.91	1.00
29:c:86:MET:HB3	29:c:87:PRO:HD2	1.41	1.00
35:i:47:ASP:C	35:i:49:ARG:H	1.68	1.00
23:V:2124:G:C5'	25:Y:217:THR:OG1	2.10	1.00
23:V:974:G:N2	23:V:1186:G:C5	2.28	1.00
23:V:1544:C:H2'	23:V:1545:A:H5'	1.43	1.00
8:G:222:U:C2	8:G:223:U:O4	2.14	1.00
23:V:1534:G:N1	23:V:1538:G:O6	1.93	1.00
38:l:12:PHE:HD1	38:l:13:ARG:N	1.60	0.99
23:V:97:C:H4'	47:u:47:ASP:OD2	1.60	0.99
23:V:270(Z):U:H5	23:V:370:G:N7	1.59	0.99
23:V:10:G:N2	23:V:2629:A:C5	2.29	0.99
23:V:2809:A:N1	27:a:60:ASN:CB	2.26	0.99
38:l:25:ARG:CB	38:l:87:PHE:CZ	2.45	0.99
25:Y:176:GLY:HA3	25:Y:180:PHE:CE1	1.97	0.99
24:X:89:G:H2'	24:X:89(A):A:C8	1.97	0.99
8:G:474:G:H5"	22:U:75:ARG:NH2	1.77	0.98
23:V:10:G:O6	23:V:2628:C:OP1	1.79	0.98
30:d:95:ARG:CB	30:d:129:THR:OG1	2.10	0.98
29:c:47:LYS:HG3	29:c:80:PHE:HD2	1.19	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1067:A:C4'	32:f:21:PRO:HG3	1.93	0.98
38:l:9:ARG:O	38:l:12:PHE:CD1	2.16	0.98
23:V:1169:G:C6	23:V:1170:G:C6	2.49	0.98
23:V:1482:U:O4	23:V:1510:A:N6	1.97	0.98
23:V:2832:U:O2'	23:V:2879:C:N4	1.96	0.98
8:G:86:U:OP2	8:G:87:A:N6	1.97	0.98
8:G:222:U:C2	8:G:223:U:C5	2.51	0.98
30:d:103:LEU:HD22	30:d:123:PHE:CZ	1.98	0.98
23:V:96:G:C3'	47:u:43:HIS:HE1	1.75	0.98
23:V:536:A:N6	23:V:558:G:C6	2.32	0.98
23:V:1090:U:C4	23:V:1103:A:N6	2.32	0.98
23:V:2809:A:N1	27:a:60:ASN:HB3	1.78	0.98
32:f:37:PHE:CZ	32:f:62:ASP:CG	2.42	0.98
35:i:47:ASP:OD2	35:i:50:ARG:HD2	1.63	0.97
23:V:2813:A:C2	23:V:2888:C:O2	2.17	0.97
55:DD:47:7MG:HO2'	55:DD:48:U:H4'	1.24	0.97
23:V:1786:A:H2	23:V:1938:A:N7	1.39	0.97
32:f:20:ALA:HB3	32:f:21:PRO:HD3	1.46	0.97
32:f:86:LYS:HA	32:f:95:LYS:HD3	1.46	0.97
23:V:2334:G:H1'	38:l:15:ARG:HE	1.30	0.97
23:V:270(O):U:H5"	23:V:270(P):C:C5	1.97	0.97
23:V:974(A):C:O2	23:V:989:G:N2	1.97	0.97
32:f:37:PHE:HZ	32:f:62:ASP:CG	1.73	0.96
32:f:48:MET:CE	32:f:69:THR:HG22	1.92	0.96
51:y:34:LEU:HG	51:y:51:GLU:CD	1.87	0.96
38:l:25:ARG:CB	38:l:87:PHE:CE2	2.47	0.96
8:G:951:G:OP1	8:G:1362(A):C:N3	1.99	0.96
23:V:270(X):G:C2'	23:V:270(Y):G:H5'	1.96	0.96
23:V:2124:G:OP2	25:Y:218:MET:CB	2.13	0.96
23:V:87:C:C2	23:V:96:G:N2	2.34	0.96
32:f:43:ALA:C	32:f:67:PHE:CD1	2.43	0.95
23:V:270(M):U:H4'	23:V:270(N):G:C4'	1.95	0.95
23:V:1778:U:C2	23:V:1784:A:C2	2.55	0.95
23:V:271(A):G:H4'	23:V:271(B):U:OP2	1.64	0.95
23:V:134:C:N4	23:V:135:G:O6	1.99	0.95
23:V:2196:C:H2'	23:V:2197:U:C6	2.00	0.95
23:V:16:G:H1	23:V:525:U:H3	1.11	0.95
8:G:1203:C:H5'	20:S:27:CYS:HB2	1.46	0.95
23:V:2209:C:C6	23:V:2212:A:C2	2.54	0.95
29:c:31:VAL:HB	29:c:32:PRO:HD2	0.95	0.95
23:V:271(B):U:C4	23:V:404:C:N3	2.19	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2127:G:OP1	25:Y:36:LYS:HG2	1.67	0.94
23:V:43:G:C6	23:V:438:G:C2	2.55	0.94
23:V:1786:A:C2	23:V:1938:A:C8	2.49	0.94
1:W:16:A:C2	1:W:17:U:N3	2.34	0.94
23:V:1778:U:N3	23:V:1784:A:C2	2.19	0.94
25:Y:176:GLY:CA	25:Y:180:PHE:CE1	2.50	0.94
8:G:500:G:O6	8:G:546:G:C2	2.20	0.93
23:V:975:G:N2	23:V:990:A:C8	2.35	0.93
23:V:1173:G:H1'	23:V:1177:A:H62	1.17	0.93
23:V:41:C:O2	23:V:439:G:C2	2.20	0.93
30:d:102:ALA:CA	30:d:123:PHE:HE2	1.81	0.93
23:V:536:A:C2	23:V:558:G:N3	2.36	0.93
23:V:2226:C:C5	23:V:2227:A:N7	2.36	0.93
23:V:2630:G:N1	23:V:2790:A:C2	2.35	0.93
23:V:2791:C:H42	23:V:2893:G:N2	1.67	0.93
23:V:1106:G:O2'	23:V:1107:G:P	2.25	0.93
23:V:1778:U:C4	23:V:1784:A:N3	2.37	0.93
23:V:153:C:C2'	23:V:154:G:C8	2.51	0.93
23:V:2123:G:O2'	25:Y:217:THR:CA	2.17	0.92
30:d:13:LYS:HE2	30:d:29:PRO:HD3	1.48	0.92
23:V:1493:C:OP1	23:V:2210:G:N1	2.01	0.92
23:V:2124:G:N7	25:Y:218:MET:N	2.12	0.92
23:V:1478:G:N2	23:V:1515:C:O2	1.99	0.92
23:V:1778:U:C2	23:V:1784:A:H2	1.86	0.92
30:d:89:ILE:CG2	30:d:129:THR:HG22	1.98	0.92
8:G:500:G:C6	8:G:546:G:C2	2.57	0.92
23:V:43:G:N1	23:V:438:G:C2	2.38	0.92
23:V:974:G:C5	23:V:1187:G:H1'	2.05	0.92
23:V:134:C:C4	23:V:135:G:O6	2.23	0.92
23:V:972:G:C2'	23:V:973:A:OP1	2.18	0.92
23:V:1444:G:O6	23:V:1463:C:N4	2.02	0.92
8:G:1306:A:H62	8:G:1331:G:H21	1.17	0.91
23:V:1479:G:H2'	23:V:1480:G:C8	2.05	0.91
25:Y:177:LYS:H	25:Y:180:PHE:HD1	1.05	0.91
8:G:1306:A:N6	8:G:1331:G:N2	2.17	0.91
23:V:280:C:C5	23:V:283:A:C6	2.59	0.91
38:l:17:ARG:HH11	38:l:89:ARG:HD2	1.11	0.91
23:V:265:A:N6	23:V:428:A:N7	2.18	0.91
23:V:2226:C:C5	23:V:2227:A:C8	2.57	0.91
8:G:1309:G:C2	8:G:1328:C:C4	2.58	0.91
23:V:1718:G:N2	23:V:1741:C:O2	2.04	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:69:G:N2	8:G:101:A:N1	2.18	0.91
23:V:552:G:O2'	23:V:553:U:H5'	1.69	0.91
32:f:19:PRO:C	32:f:22:PRO:CD	2.43	0.91
23:V:1442:G:N2	23:V:1550:C:O2	2.03	0.91
30:d:89:ILE:HG23	30:d:129:THR:HG22	1.52	0.91
32:f:52:ILE:CG1	32:f:76:TYR:CG	2.53	0.90
23:V:1169:G:H2'	23:V:1170:G:H8	1.34	0.90
38:l:17:ARG:HH12	38:l:89:ARG:HD2	1.30	0.90
8:G:500:G:O6	8:G:546:G:N2	2.04	0.90
23:V:280:C:C5	23:V:283:A:C5	2.60	0.90
23:V:852:G:H2'	23:V:853:G:H8	1.35	0.90
23:V:975:G:H22	23:V:990:A:C1'	1.82	0.90
23:V:1300:U:O4	23:V:1627:G:OP2	1.89	0.90
23:V:1544:C:H2'	23:V:1545:A:C5'	2.02	0.90
23:V:270(I):G:C2	23:V:270(J):G:H1'	2.07	0.90
23:V:2123:G:H2'	25:Y:217:THR:O	1.71	0.90
23:V:2127:G:N2	23:V:2162:G:H2'	1.87	0.90
25:Y:152:ILE:O	25:Y:156:ILE:HG13	1.72	0.90
20:S:29:ARG:HD2	20:S:42:ILE:CD1	1.99	0.89
23:V:879:G:N2	23:V:898:C:C2	2.40	0.89
23:V:2123:G:O2'	25:Y:217:THR:C	2.15	0.89
23:V:271(B):U:O4	23:V:404:C:C4	2.20	0.89
23:V:527:C:O2	23:V:2779:U:H5	1.52	0.89
23:V:1106:G:O2'	23:V:1107:G:O5'	1.90	0.89
25:Y:66:HIS:N	25:Y:158:ALA:HB1	1.85	0.89
23:V:2128:C:H5"	25:Y:6:ARG:HB3	1.55	0.89
32:f:44:ALA:CB	32:f:67:PHE:O	2.21	0.89
23:V:270(Z):U:C5	23:V:370:G:N7	2.41	0.89
23:V:1075:C:C1'	32:f:91:PRO:HG3	2.01	0.89
23:V:1542:G:O2'	23:V:1544:C:O4'	1.89	0.89
23:V:14:A:H5'	23:V:14:A:N3	1.87	0.89
8:G:440:A:H62	8:G:493:G:N2	1.70	0.89
23:V:95:G:C4	23:V:96:G:H1'	2.08	0.89
45:s:30:ASN:HD21	45:s:89:PHE:HE1	0.94	0.88
23:V:2720:U:H2'	23:V:2721:A:C8	2.09	0.88
30:d:18:GLU:CG	30:d:24:VAL:HB	2.03	0.88
32:f:22:PRO:HD2	32:f:23:VAL:N	1.87	0.88
45:s:30:ASN:ND2	45:s:89:PHE:CD1	2.33	0.88
23:V:95:G:H2'	23:V:96:G:H1'	1.54	0.88
23:V:2125:G:O2'	23:V:2126:A:O4'	1.89	0.88
25:Y:176:GLY:CA	25:Y:180:PHE:CZ	2.56	0.88

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:68:VAL:CG2	32:f:69:THR:N	2.18	0.88
23:V:1067:A:C4'	32:f:21:PRO:CG	2.45	0.88
23:V:2226:C:H2'	23:V:2227:A:O4'	1.72	0.88
23:V:1869:G:H2'	23:V:1871:A:OP2	1.74	0.87
38:l:35:ILE:HD11	38:l:97:ARG:HH12	1.34	0.87
8:G:1203:C:C5'	20:S:27:CYS:HB2	2.04	0.87
23:V:1864:U:O2'	23:V:1869:G:H5'	1.74	0.87
38:l:17:ARG:HB3	38:l:17:ARG:HH21	1.39	0.87
23:V:270(I):G:N3	23:V:270(J):G:H1'	1.90	0.87
23:V:1169:G:C5	23:V:1170:G:O6	2.27	0.87
38:l:97:ARG:HG2	38:l:97:ARG:HH11	1.39	0.87
50:x:30:LEU:HB2	50:x:39:MET:SD	2.12	0.87
23:V:1532:C:C5	23:V:1539:G:N2	2.42	0.87
29:c:71:THR:O	29:c:88:ILE:N	2.07	0.87
51:y:14:THR:HG22	51:y:52:VAL:CB	2.05	0.87
23:V:269:U:H3	23:V:270:A:H62	1.20	0.87
23:V:2637:U:C4	23:V:2782:G:C6	2.63	0.87
23:V:2720:U:H2'	23:V:2721:A:H8	1.37	0.87
8:G:129(A):G:N1	8:G:191(A):G:C5	2.43	0.86
23:V:265:A:N3	23:V:281:G:N2	2.21	0.86
23:V:1442:G:C2	23:V:1550:C:C2	2.63	0.86
23:V:2787:C:O2'	23:V:2809:A:N6	2.05	0.86
23:V:974:G:O6	23:V:1187:G:N2	2.06	0.86
23:V:87:C:N3	23:V:96:G:N2	2.22	0.86
23:V:536:A:C2	23:V:558:G:N2	2.43	0.86
23:V:265:A:C2	23:V:281:G:N3	2.43	0.86
32:f:55:VAL:HG13	32:f:70:LYS:HG2	1.56	0.86
23:V:1534:G:C2	23:V:1538:G:O6	2.29	0.86
23:V:2128:C:H5"	25:Y:6:ARG:CB	2.05	0.86
23:V:2124:G:H8	25:Y:218:MET:N	1.46	0.86
25:Y:180:PHE:HD2	25:Y:185:LEU:HD12	1.35	0.86
29:c:71:THR:HB	29:c:88:ILE:N	1.90	0.86
23:V:280:C:H2'	23:V:283:A:C8	2.10	0.86
24:X:57:A:H1'	29:c:30:GLU:CB	2.06	0.86
29:c:71:THR:HB	29:c:87:PRO:CA	2.06	0.86
23:V:95:G:H2'	23:V:96:G:O4'	1.75	0.85
55:DD:9:G:O2'	55:DD:10:G:N7	2.08	0.85
23:V:270(Z):U:N3	23:V:271(B):U:H1'	1.91	0.85
23:V:1106:G:N2	31:e:81:VAL:CB	2.37	0.85
30:d:13:LYS:HE3	30:d:29:PRO:CD	2.04	0.85
20:S:25:VAL:CG1	20:S:39:LEU:HD23	2.06	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:832:G:O2'	35:i:52:GLU:CD	2.18	0.85
8:G:474:G:H5'	22:U:75:ARG:HH21	1.40	0.85
8:G:1359:C:O2'	8:G:1360:A:O5'	1.93	0.85
23:V:2712:U:O2'	23:V:2713:A:H5'	1.77	0.85
32:f:21:PRO:N	32:f:22:PRO:HD3	1.91	0.85
32:f:44:ALA:CB	32:f:67:PHE:CA	2.14	0.85
23:V:273(B):C:H2'	23:V:273(C):C:C6	2.11	0.85
23:V:374:A:N1	23:V:401:A:C4	2.45	0.85
23:V:552:G:C5	23:V:553:U:N3	2.44	0.85
23:V:853:G:N2	23:V:925:C:O2	2.08	0.85
32:f:20:ALA:HB3	32:f:21:PRO:CD	2.06	0.85
23:V:269:U:H3	23:V:270:A:N6	1.74	0.84
23:V:884:C:H5'	23:V:892:G:H22	1.41	0.84
32:f:48:MET:HE3	32:f:69:THR:HG22	1.49	0.84
23:V:2213:U:OP2	23:V:2213:U:H4'	1.78	0.84
23:V:2710:C:H2'	23:V:2711:A:C8	2.12	0.84
38:l:12:PHE:HD1	38:l:13:ARG:H	1.23	0.84
1:W:19:U:O2'	1:W:20:U:OP1	1.94	0.84
23:V:270(A):A:H5'	23:V:270(B):A:OP2	1.78	0.84
23:V:270(B):A:H1'	23:V:270(C):C:C5	2.11	0.84
8:G:1440:C:H2'	8:G:1441:G:H5'	1.58	0.84
23:V:2124:G:N7	25:Y:218:MET:HA	1.93	0.84
8:G:1203:C:H4'	20:S:27:CYS:SG	2.17	0.84
23:V:153:C:C3'	23:V:154:G:C8	2.61	0.84
23:V:974:G:C4	23:V:1187:G:H1'	2.12	0.83
8:G:977:A:H62	8:G:1362(A):C:H5	1.22	0.83
23:V:97:C:P	47:u:43:HIS:ND1	2.50	0.83
8:G:68:G:O6	8:G:101:A:N6	2.11	0.83
23:V:2124:G:N7	25:Y:217:THR:O	2.11	0.83
23:V:2124:G:O5'	25:Y:218:MET:N	2.11	0.83
38:l:12:PHE:CD1	38:l:13:ARG:N	2.45	0.83
23:V:271(A):G:H5"	23:V:271(B):U:O4'	1.77	0.83
23:V:975:G:C2	23:V:990:A:C8	2.66	0.83
23:V:2312:U:O2'	29:c:89:GLY:HA2	1.78	0.83
32:f:44:ALA:HB2	32:f:67:PHE:C	2.03	0.83
23:V:269:U:H5"	23:V:270(Y):G:C2'	2.08	0.83
23:V:2123:G:H22	23:V:2176:A:H61	1.27	0.83
23:V:2124:G:C8	25:Y:218:MET:CA	2.61	0.83
23:V:2809:A:N1	27:a:60:ASN:ND2	2.24	0.83
8:G:977:A:N6	8:G:1362(A):C:H5	1.75	0.83
23:V:1545(A):A:H3'	23:V:1546:C:C4'	2.09	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:489:G:C6	23:V:1284:A:N1	2.46	0.82
32:f:23:VAL:O	32:f:23:VAL:HG12	1.78	0.82
32:f:44:ALA:CB	32:f:67:PHE:C	2.51	0.82
23:V:885:C:C5	23:V:889:C:O2'	2.30	0.82
23:V:2636:U:H1'	23:V:2783:G:N2	1.93	0.82
23:V:10:G:C6	23:V:2628:C:OP1	2.32	0.82
23:V:362:U:C2'	23:V:363(A):A:OP1	2.26	0.82
23:V:270(P):C:H2'	23:V:270(Q):C:C6	2.15	0.82
23:V:1084:A:H1'	23:V:1106:G:O6	1.80	0.82
20:S:23:ARG:HH11	20:S:30:ALA:HB2	1.45	0.82
20:S:31:ARG:HB3	20:S:31:ARG:HH11	1.45	0.82
23:V:885:C:N3	23:V:892:G:C5	2.48	0.82
23:V:852:G:O2'	23:V:853:G:H5'	1.79	0.81
23:V:2709:G:O2'	23:V:2710:C:H5'	1.80	0.81
38:l:17:ARG:HH11	38:l:89:ARG:CD	1.85	0.81
23:V:1545(A):A:H3'	23:V:1546:C:H4'	1.61	0.81
25:Y:177:LYS:N	25:Y:180:PHE:CE1	2.48	0.81
38:l:25:ARG:HB3	38:l:87:PHE:HZ	1.42	0.81
8:G:199:G:H2'	8:G:200:G:C8	2.15	0.81
23:V:1040:C:O2	23:V:1116:C:O2	1.98	0.81
20:S:23:ARG:NH1	20:S:30:ALA:HB2	1.96	0.81
23:V:1055:G:N2	23:V:1105:U:O2	2.14	0.81
23:V:1545:A:O2'	23:V:1546:C:OP2	1.97	0.81
29:c:67:LYS:HZ2	29:c:90:LEU:CD1	1.89	0.81
23:V:1550:C:OP1	23:V:1727:U:O2'	1.98	0.81
23:V:972:G:H3'	23:V:973:A:O2'	1.81	0.80
23:V:536:A:N3	23:V:558:G:N2	2.29	0.80
23:V:972:G:C2'	23:V:973:A:H2'	2.11	0.80
51:y:14:THR:CG2	51:y:52:VAL:HB	2.09	0.80
23:V:2124:G:N7	25:Y:218:MET:CA	2.45	0.80
32:f:44:ALA:HB2	32:f:67:PHE:N	1.96	0.80
20:S:29:ARG:HD3	20:S:42:ILE:CG1	2.12	0.80
23:V:280:C:H2'	23:V:283:A:H8	1.43	0.80
45:s:30:ASN:ND2	45:s:89:PHE:HE1	1.57	0.80
23:V:2198:A:H5"	23:V:2198:A:N3	1.96	0.80
23:V:2630:G:C1'	23:V:2894:G:H1'	2.11	0.80
29:c:28:VAL:O	29:c:31:VAL:HG23	1.81	0.80
23:V:280:C:C6	23:V:283:A:C5	2.69	0.80
23:V:2127:G:P	25:Y:36:LYS:HG2	2.21	0.80
32:f:48:MET:CE	32:f:69:THR:HG21	1.96	0.80
45:s:70:LEU:HD11	45:s:98:MET:HE3	1.61	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:153:C:H3'	23:V:154:G:C8	2.16	0.80
23:V:269:U:C5'	23:V:270(Y):G:H2'	2.09	0.80
23:V:2092:U:O4'	23:V:2225:A:C2	2.32	0.79
32:f:67:PHE:O	32:f:68:VAL:C	2.24	0.79
23:V:1938:A:C2	23:V:2590:A:O2'	2.35	0.79
23:V:2126:A:N7	23:V:2164:C:OP1	2.14	0.79
23:V:153:C:C3'	23:V:154:G:H8	1.94	0.79
23:V:1169:G:C5	23:V:1170:G:C6	2.70	0.79
23:V:1203:G:C6	23:V:1241:A:N7	2.51	0.79
32:f:19:PRO:O	32:f:22:PRO:HD2	1.81	0.79
23:V:2124:G:H8	25:Y:217:THR:CA	1.86	0.79
38:l:17:ARG:HB3	38:l:17:ARG:NH2	1.96	0.79
23:V:552:G:C6	23:V:553:U:N3	2.50	0.79
32:f:37:PHE:CZ	32:f:62:ASP:OD1	2.36	0.79
45:s:70:LEU:HD11	45:s:98:MET:HE1	0.79	0.79
8:G:129(A):G:N2	8:G:191(A):G:C6	2.51	0.79
29:c:86:MET:HB3	29:c:87:PRO:CD	2.13	0.79
23:V:370:G:N3	23:V:370:G:H2'	1.98	0.78
23:V:2123:G:C2'	25:Y:217:THR:C	2.57	0.78
23:V:2630:G:C6	23:V:2790:A:H2	1.99	0.78
23:V:12:U:O4	23:V:526:A:N7	2.16	0.78
23:V:270:A:H2'	23:V:270(A):A:O4'	1.84	0.78
23:V:1169:G:H2'	23:V:1170:G:N7	1.97	0.78
23:V:2791:C:N4	23:V:2892:A:H61	1.82	0.78
30:d:98:LEU:HD11	30:d:125:VAL:HG23	1.62	0.78
23:V:527:C:C2	23:V:2779:U:C5	2.72	0.78
23:V:1533:C:O2	23:V:1538:G:N2	2.15	0.78
23:V:1545(A):A:C3'	23:V:1546:C:H4'	2.13	0.78
25:Y:161:ILE:HG22	25:Y:174:PRO:HG2	1.66	0.78
23:V:1443:G:O6	23:V:1549:C:N3	2.16	0.78
23:V:2805:G:H21	23:V:2892:A:H62	1.32	0.78
23:V:155:C:O2'	23:V:161:U:H3'	1.84	0.78
23:V:270(P):C:H2'	23:V:270(Q):C:H6	1.49	0.78
25:Y:22:ILE:O	25:Y:26:ALA:HB2	1.84	0.78
8:G:1203:C:C4'	20:S:27:CYS:SG	2.72	0.77
23:V:274:G:H3'	23:V:274:G:N3	1.98	0.77
23:V:489:G:C5	23:V:1284:A:N1	2.52	0.77
23:V:885:C:N3	23:V:892:G:C6	2.52	0.77
23:V:1449(A):G:H2'	23:V:1449(A):G:N3	1.99	0.77
23:V:2096:U:O2'	23:V:2097:C:H5'	1.84	0.77
32:f:22:PRO:CD	32:f:23:VAL:H	1.92	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:c:31:VAL:CB	29:c:32:PRO:HD3	2.01	0.77
29:c:67:LYS:HZ2	29:c:90:LEU:HD13	1.39	0.77
30:d:23:ARG:HG3	30:d:34:GLU:HB2	1.64	0.77
23:V:374:A:C2	23:V:401:A:C5	2.73	0.77
23:V:974:G:N7	23:V:1187:G:O2'	1.98	0.77
23:V:1482:U:H2'	23:V:1483:G:H4'	1.66	0.77
8:G:1308:U:O4	8:G:1330:U:O4	2.03	0.77
29:c:71:THR:HB	29:c:87:PRO:HA	1.66	0.77
29:c:47:LYS:HA	29:c:86:MET:CE	2.14	0.77
32:f:43:ALA:C	32:f:67:PHE:HD1	1.89	0.77
32:f:48:MET:SD	32:f:69:THR:HG21	2.24	0.77
8:G:222:U:H2'	8:G:223:U:H5	1.46	0.77
23:V:552:G:C2	23:V:553:U:C2	2.72	0.77
23:V:13:A:N6	23:V:525:U:C6	2.53	0.77
23:V:2811:G:N1	23:V:2891:G:N2	2.33	0.77
23:V:134:C:H2'	23:V:135:G:C8	2.20	0.77
23:V:270(X):G:N1	23:V:270(Y):G:H1'	2.00	0.77
23:V:280:C:C6	23:V:283:A:N7	2.53	0.77
23:V:1142(A):A:N3	23:V:1142(A):A:H2'	2.00	0.77
23:V:1742:C:C6	23:V:1743:G:C6	2.72	0.77
8:G:1306:A:N6	8:G:1331:G:H21	1.82	0.76
20:S:26:ARG:HD2	20:S:43:CYS:CB	2.05	0.76
32:f:19:PRO:C	32:f:22:PRO:HD3	2.10	0.76
55:DD:29:C:H2'	55:DD:30:G:H8	1.50	0.76
8:G:69:G:C2	8:G:101:A:N6	2.54	0.76
23:V:1786:A:H4'	23:V:1787:A:OP1	1.86	0.76
23:V:2712(A):A:H4'	37:k:13:HIS:CE1	2.20	0.76
30:d:18:GLU:HG3	30:d:24:VAL:CB	2.10	0.76
38:l:99:LYS:O	38:l:101:LEU:N	2.18	0.76
38:l:99:LYS:O	38:l:102:ALA:N	2.19	0.76
32:f:48:MET:SD	32:f:69:THR:CG2	2.74	0.76
1:W:19:U:H1'	1:W:20:U:OP2	1.86	0.76
23:V:2813:A:O2'	23:V:2814:C:H5'	1.85	0.76
35:i:51:PHE:CG	35:i:57:THR:OG1	2.20	0.76
23:V:95:G:C2'	23:V:96:G:O4'	2.33	0.75
23:V:134:C:C4	23:V:135:G:C6	2.73	0.75
8:G:77:C:C4	8:G:92:G:O6	2.38	0.75
8:G:199:G:H2'	8:G:200:G:H8	1.49	0.75
23:V:1441:G:O6	23:V:1442:G:O6	2.04	0.75
30:d:13:LYS:CE	30:d:29:PRO:CD	2.55	0.75
55:DD:29:C:H2'	55:DD:30:G:C8	2.21	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:671:G:O2'	13:L:80:ARG:CZ	2.35	0.75
8:G:1442:G:H3'	8:G:1442:G:N3	2.00	0.75
23:V:270(E):G:O2'	23:V:270(F):U:H5'	1.86	0.75
23:V:371:A:N3	23:V:371:A:H2'	2.00	0.75
32:f:48:MET:HB2	32:f:69:THR:CG2	2.16	0.75
1:W:19:U:H1'	1:W:20:U:P	2.26	0.75
23:V:852:G:H2'	23:V:853:G:C8	2.20	0.75
23:V:1717:G:N3	23:V:1717:G:H5"	2.01	0.75
23:V:1742:C:C5	23:V:1743:G:C6	2.75	0.75
29:c:67:LYS:NZ	29:c:90:LEU:HD12	2.00	0.75
23:V:95:G:C3'	23:V:96:G:O4'	2.35	0.75
23:V:2097:C:O2'	23:V:2098:U:H5'	1.84	0.75
23:V:2211:G:H3'	23:V:2211:G:N3	2.01	0.75
29:c:86:MET:CB	29:c:87:PRO:HD2	2.17	0.75
32:f:68:VAL:HG23	32:f:69:THR:H	0.64	0.75
23:V:536:A:N1	23:V:558:G:C5	2.55	0.75
23:V:43:G:O6	23:V:438:G:N1	2.18	0.75
30:d:27:LYS:HE3	30:d:32:GLU:OE2	1.86	0.75
23:V:856:C:C4	23:V:857:C:N4	2.55	0.74
23:V:975:G:N2	23:V:990:A:H1'	2.01	0.74
23:V:1106:G:O2'	23:V:1107:G:OP1	2.02	0.74
20:S:31:ARG:HB3	20:S:31:ARG:NH1	2.02	0.74
23:V:1169:G:N1	23:V:1170:G:C6	2.56	0.74
23:V:1203:G:O6	23:V:1241:A:C5	2.40	0.74
32:f:52:ILE:HG13	32:f:76:TYR:CD1	2.21	0.74
45:s:4:ARG:HE	45:s:62:PRO:HB3	1.52	0.74
8:G:1203:C:C4'	20:S:27:CYS:HG	1.99	0.74
23:V:270(G):C:H2'	23:V:270(H):C:C6	2.22	0.74
23:V:270(Z):U:H4'	23:V:270(Z):U:OP1	1.88	0.74
23:V:270(Z):U:O2	23:V:270(Z):U:H2'	1.85	0.74
23:V:1728:G:H2'	23:V:1728:G:N3	2.02	0.74
29:c:47:LYS:HA	29:c:86:MET:HE2	1.69	0.74
38:l:94:TYR:OH	38:l:99:LYS:HG3	1.86	0.74
23:V:2209:C:C5	23:V:2212:A:C6	2.75	0.74
25:Y:152:ILE:HG23	25:Y:160:ARG:HD3	1.66	0.74
1:W:16:A:N1	1:W:17:U:N3	2.34	0.74
23:V:101:G:H4'	23:V:101:G:OP1	1.88	0.74
23:V:138:G:H2'	23:V:138:G:N3	2.02	0.74
23:V:1480:G:H2'	23:V:1480:G:N3	2.03	0.74
23:V:1583:A:N7	23:V:1585:C:N4	2.31	0.74
23:V:1084:A:O2'	23:V:1106:G:C8	2.40	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:X:0:A:H5”	24:X:0:A:N3	2.03	0.74
25:Y:64:LEU:HB2	25:Y:159:GLY:HA3	1.70	0.74
23:V:2123:G:O2’	25:Y:217:THR:HA	1.87	0.74
31:e:39:ALA:O	31:e:43:ALA:HB3	1.87	0.74
23:V:270(C):C:O2’	23:V:270(D):C:H5’	1.88	0.73
23:V:1778:U:N1	23:V:1784:A:C2	2.56	0.73
23:V:2123:G:C2’	25:Y:217:THR:O	2.35	0.73
23:V:2335:A:OP1	38:l:12:PHE:CB	2.36	0.73
30:d:16:SER:O	30:d:17:VAL:CB	2.35	0.73
23:V:2630:G:C6	23:V:2790:A:C2	2.75	0.73
32:f:44:ALA:CA	32:f:67:PHE:HA	2.17	0.73
8:G:222:U:O2	8:G:223:U:C5	2.39	0.73
29:c:86:MET:CB	29:c:87:PRO:CD	2.63	0.73
23:V:2712(A):A:H4’	37:k:13:HIS:HE1	1.51	0.73
38:l:9:ARG:HB3	38:l:12:PHE:CZ	2.24	0.73
23:V:11:G:H5”	23:V:11:G:N3	2.02	0.73
23:V:2709:G:H2’	23:V:2710:C:C6	2.24	0.73
25:Y:64:LEU:O	25:Y:159:GLY:HA3	1.88	0.73
56:EE:96:GLN:CD	56:EE:96:GLN:H	1.96	0.73
19:R:102:ARG:HG2	19:R:102:ARG:HH11	1.51	0.73
23:V:270(H):C:H2’	23:V:270(I):G:H8	1.51	0.73
23:V:2630:G:C4	23:V:2894:G:H8	2.06	0.73
8:G:1166:G:H4’	8:G:1166:G:OP1	1.88	0.73
23:V:2096:U:O2	23:V:2194:G:C2	2.42	0.73
32:f:19:PRO:CA	32:f:22:PRO:CG	2.58	0.73
8:G:199:G:O2’	8:G:200:G:H5’	1.88	0.73
23:V:270(X):G:H2’	23:V:270(Y):G:C5’	2.17	0.73
23:V:271(A):G:H5”	23:V:271(B):U:C5’	2.19	0.73
23:V:1718:G:N2	23:V:1741:C:C2	2.57	0.73
25:Y:180:PHE:CD2	25:Y:185:LEU:HD13	2.23	0.73
8:G:465:A:N7	8:G:467:G:C2	2.57	0.72
23:V:1075:C:H1’	32:f:91:PRO:CG	2.10	0.72
23:V:97:C:P	47:u:43:HIS:CE1	2.81	0.72
20:S:31:ARG:HH11	20:S:31:ARG:CB	2.02	0.72
23:V:273(C):C:H2’	23:V:273(D):C:C6	2.24	0.72
23:V:2226:C:O2’	23:V:2227:A:H5’	1.88	0.72
38:l:35:ILE:HD11	38:l:97:ARG:NH1	2.04	0.72
8:G:129(A):G:N2	8:G:191(A):G:C5	2.57	0.72
23:V:2206:C:O2’	23:V:2207:C:H5’	1.88	0.72
23:V:2213:U:O4	49:w:47:GLN:NE2	2.21	0.72
23:V:270(J):G:H3’	23:V:270(K):C:C6	2.24	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:c:71:THR:HB	29:c:88:ILE:H	1.50	0.72
25:Y:30:LYS:HG2	25:Y:179:SER:HA	1.72	0.72
24:X:89:G:C8	24:X:89:G:OP2	2.43	0.72
23:V:1174:A:N3	23:V:1174:A:H2'	2.05	0.72
38:l:24:LEU:C	38:l:87:PHE:CE1	2.67	0.72
55:DD:48:U:HO2'	55:DD:49:C:H5'	1.54	0.72
23:V:140:A:H2'	23:V:140:A:N3	2.05	0.72
23:V:2837:G:C2	23:V:2882:A:C2	2.78	0.72
46:t:7:LEU:HD21	55:DD:3:C:OP1	1.90	0.72
23:V:362:U:O2'	23:V:363(A):A:OP1	2.08	0.71
23:V:885:C:C6	23:V:889:C:O2'	2.43	0.71
23:V:374:A:N1	23:V:401:A:C5	2.58	0.71
3:B:70:ILE:O	3:B:74:ARG:HB2	1.91	0.71
23:V:972:G:O2'	23:V:973:A:P	2.48	0.71
23:V:1782:C:H6	23:V:1782:C:C5'	2.02	0.71
55:DD:30:G:O2'	55:DD:31:G:H5'	1.91	0.71
55:DD:37:U:H2'	55:DD:38:A:H5'	1.72	0.71
55:DD:37:U:O2'	55:DD:38:A:H5'	1.89	0.71
8:G:465:A:N6	8:G:467:G:H21	1.88	0.71
23:V:18:C:O2'	23:V:553:U:OP1	2.08	0.71
23:V:1778:U:C5	23:V:1784:A:N1	2.46	0.71
23:V:2813:A:H2'	23:V:2814:C:C6	2.25	0.71
23:V:270(Q):C:O2'	23:V:270(R):G:H5'	1.91	0.71
23:V:923:C:H2'	23:V:924:C:C6	2.25	0.71
23:V:2124:G:N2	25:Y:221:SER:N	2.33	0.71
30:d:127:GLU:CB	30:d:128:PRO:HD3	2.18	0.71
23:V:270(Q):C:C2	23:V:270(R):G:C8	2.79	0.71
32:f:86:LYS:CA	32:f:95:LYS:HD3	2.21	0.71
8:G:1323:G:H4'	8:G:1362:C:C4	2.26	0.71
23:V:96:G:H4'	47:u:43:HIS:NE2	2.03	0.71
23:V:2335:A:OP1	38:l:12:PHE:HB2	1.90	0.71
29:c:67:LYS:HZ3	29:c:90:LEU:HD13	0.66	0.71
23:V:270(X):G:C6	23:V:270(Y):G:H1'	2.26	0.70
23:V:972:G:C3'	23:V:973:A:C2'	2.49	0.70
23:V:2710:C:H2'	23:V:2711:A:H8	1.53	0.70
32:f:93:ARG:CD	32:f:135:GLY:O	2.30	0.70
45:s:94:GLU:H	45:s:95:PRO:CD	2.04	0.70
23:V:2809:A:C2	27:a:60:ASN:HB3	2.25	0.70
8:G:138:G:C4	8:G:226:G:N2	2.59	0.70
23:V:374:A:C2	23:V:401:A:C2	2.79	0.70
23:V:374:A:C2	23:V:401:A:N3	2.59	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1103:A:H2'	23:V:1103:A:N3	2.05	0.70
23:V:852:G:C4	23:V:853:G:N7	2.59	0.70
29:c:71:THR:CA	29:c:88:ILE:H	2.04	0.70
32:f:66:THR:O	32:f:68:VAL:HG13	1.92	0.70
8:G:129(A):G:N2	8:G:191(A):G:O6	2.24	0.70
23:V:1778:U:C6	23:V:1784:A:H2	1.85	0.70
23:V:1862:G:O2'	23:V:1863:G:H5'	1.91	0.70
29:c:165:THR:HG22	29:c:168:GLU:HG2	1.72	0.70
23:V:278:A:C2	23:V:362:U:N3	2.57	0.70
23:V:2782:G:H2'	23:V:2782:G:N3	2.06	0.70
55:DD:7:G:H3'	55:DD:8:4SU:C5'	2.21	0.70
23:V:374:A:C6	23:V:401:A:N7	2.60	0.70
23:V:1479:G:O3'	23:V:1559:G:N7	2.12	0.70
23:V:2627:G:N2	23:V:2777:G:C2	2.59	0.70
25:Y:44:HIS:HA	25:Y:171:ILE:O	1.91	0.70
30:d:18:GLU:CB	30:d:24:VAL:HG23	2.07	0.70
20:S:25:VAL:HG11	20:S:39:LEU:HD23	1.73	0.70
30:d:16:SER:OG	30:d:17:VAL:N	2.19	0.70
38:l:97:ARG:HG2	38:l:97:ARG:NH1	1.98	0.70
55:DD:37:U:C2'	55:DD:38:A:H5'	2.21	0.70
23:V:374:A:C6	23:V:401:A:C5	2.80	0.70
32:f:68:VAL:O	32:f:69:THR:CB	2.38	0.70
45:s:100:VAL:HG12	45:s:133:ILE:HG13	1.73	0.70
23:V:95:G:C2	23:V:96:G:N3	2.60	0.69
23:V:1532:C:C4	23:V:1539:G:N2	2.58	0.69
30:d:101:ARG:O	30:d:123:PHE:CE2	2.41	0.69
23:V:270(E):G:H2'	23:V:270(F):U:H6	1.57	0.69
23:V:975:G:C2	23:V:990:A:C4	2.79	0.69
23:V:2124:G:H5'	25:Y:217:THR:HG1	1.52	0.69
30:d:27:LYS:HE3	30:d:32:GLU:CD	2.17	0.69
35:i:51:PHE:HB3	35:i:57:THR:CB	2.23	0.69
23:V:1418:G:H21	23:V:1579:A:H62	1.41	0.69
23:V:923:C:N4	23:V:924:C:N4	2.40	0.69
23:V:1938:A:N1	23:V:2590:A:O2'	2.24	0.69
30:d:18:GLU:HB2	30:d:24:VAL:CB	2.22	0.69
32:f:52:ILE:O	32:f:73:PRO:HD2	1.91	0.69
23:V:1864:U:HO2'	23:V:1869:G:H5'	1.56	0.69
23:V:2123:G:H2'	25:Y:217:THR:C	2.16	0.69
29:c:31:VAL:CG1	29:c:32:PRO:HD2	2.10	0.69
23:V:2209:C:H5	23:V:2212:A:C6	2.10	0.69
29:c:71:THR:CB	29:c:88:ILE:H	2.04	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:270(K):C:H3'	23:V:270(L):U:H6	1.57	0.69
23:V:1450:C:OP2	23:V:1461:G:N1	2.25	0.69
8:G:77:C:N3	8:G:92:G:C6	2.61	0.69
8:G:267:C:H2'	8:G:268:C:C6	2.28	0.69
23:V:12:U:N3	23:V:2626:C:O2'	2.20	0.69
23:V:552:G:N2	23:V:553:U:O2	2.25	0.69
31:e:11:ALA:C	31:e:13:LEU:H	2.00	0.69
8:G:465:A:H62	8:G:467:G:N2	1.90	0.68
8:G:977:A:N6	8:G:1362(A):C:C5	2.61	0.68
23:V:1169:G:C4	23:V:1170:G:C5	2.81	0.68
23:V:2098:U:H2'	23:V:2099:U:C6	2.28	0.68
23:V:2198:A:N3	23:V:2198:A:H3'	2.08	0.68
23:V:2209:C:C4	23:V:2216:G:N2	2.61	0.68
29:c:83:ARG:O	29:c:84:LYS:C	2.37	0.68
23:V:272:G:O2'	23:V:273:G:H5'	1.93	0.68
23:V:972:G:O3'	23:V:973:A:H3'	1.94	0.68
8:G:1309:G:N2	8:G:1328:C:C2	2.56	0.68
23:V:2894:G:H3'	23:V:2894:G:N3	2.08	0.68
25:Y:176:GLY:HA2	25:Y:185:LEU:HD13	1.76	0.68
30:d:127:GLU:HB3	30:d:128:PRO:HD2	0.75	0.68
23:V:974:G:N2	23:V:1186:G:C4	2.62	0.68
23:V:1543:A:H2'	23:V:1544:C:H4'	1.76	0.68
29:c:71:THR:C	29:c:88:ILE:H	2.02	0.68
41:o:7:THR:O	41:o:21:ARG:NH1	2.27	0.68
23:V:1449:A:H4'	23:V:1449(A):G:H5'	1.73	0.68
23:V:2123:G:O2'	25:Y:217:THR:CB	2.41	0.68
28:b:168:ARG:HG2	28:b:169:ASN:HB2	1.75	0.68
23:V:85:G:H1	23:V:98:G:H21	1.41	0.68
23:V:270(Q):C:H2'	23:V:270(R):G:H8	1.59	0.68
23:V:275:G:H8	23:V:275:G:O5'	1.77	0.68
23:V:373:U:C1'	23:V:400:G:H22	2.07	0.68
23:V:1442:G:N1	23:V:1550:C:C2	2.60	0.68
23:V:2127:G:H22	23:V:2162:G:H2'	1.57	0.68
32:f:67:PHE:O	32:f:68:VAL:O	2.12	0.68
20:S:26:ARG:CD	20:S:43:CYS:CB	2.61	0.67
23:V:1138:G:C6	23:V:1139:G:C6	2.82	0.67
24:X:89:G:OP2	24:X:89:G:H8	1.75	0.67
25:Y:64:LEU:HD22	25:Y:188:ASN:HA	1.76	0.67
8:G:1118:C:H42	8:G:1155:G:H1	1.42	0.67
8:G:1161:C:H42	8:G:1176:A:H61	1.43	0.67
23:V:1102:C:N3	23:V:1104:C:N4	2.42	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1005:C:C6	23:V:1143:A:C8	2.82	0.67
23:V:2450:A:H62	23:V:2501:C:H42	1.43	0.67
23:V:2795:G:N3	23:V:2795:G:H2'	2.09	0.67
32:f:55:VAL:HG13	32:f:70:LYS:CG	2.24	0.67
23:V:270:A:H2'	23:V:270(A):A:C4'	2.25	0.67
23:V:362:U:H2'	23:V:363(A):A:OP1	1.94	0.67
23:V:1778:U:N1	23:V:1784:A:N1	2.41	0.67
25:Y:46:LYS:HA	25:Y:169:GLY:O	1.94	0.67
38:l:9:ARG:O	38:l:12:PHE:CE1	2.47	0.67
8:G:153:C:H42	8:G:169:C:H42	1.42	0.67
23:V:2123:G:O2'	25:Y:217:THR:HB	1.95	0.67
8:G:68:G:N1	8:G:102:G:N2	2.43	0.67
23:V:1512:G:N7	23:V:1513:C:N4	2.43	0.67
32:f:17:ALA:O	32:f:19:PRO:HD3	1.94	0.67
32:f:37:PHE:HZ	32:f:62:ASP:OD2	1.76	0.67
23:V:1450:C:OP2	23:V:1461:G:O6	2.12	0.67
23:V:2217:G:H2'	23:V:2218:G:H5"	1.76	0.67
28:b:18:ARG:HH12	28:b:201:VAL:HG21	1.59	0.67
29:c:81:LYS:HG3	29:c:83:ARG:HH12	1.58	0.67
32:f:21:PRO:N	32:f:22:PRO:CD	2.58	0.67
20:S:9:LYS:CE	20:S:21:TYR:CE1	2.78	0.67
20:S:26:ARG:HD3	20:S:43:CYS:HB2	1.72	0.67
23:V:1041:C:C2	23:V:1115:G:O6	2.46	0.67
23:V:2791:C:N4	23:V:2893:G:N2	2.43	0.67
24:X:89:G:H8	24:X:89:G:P	2.17	0.67
55:DD:33:OMC:O5'	55:DD:33:OMC:H6	1.78	0.67
8:G:222:U:C2'	8:G:223:U:C5	2.71	0.67
23:V:1441:G:N1	23:V:1442:G:C6	2.63	0.67
8:G:1308:U:O4	8:G:1330:U:C4	2.48	0.67
23:V:144:C:H6	23:V:144:C:O5'	1.78	0.67
23:V:527:C:C2	23:V:2779:U:C6	2.83	0.67
23:V:1102:C:C4	23:V:1104:C:N4	2.63	0.67
23:V:1710:C:N3	23:V:1711:C:N3	2.42	0.67
23:V:1864:U:C2'	23:V:1869:G:H5'	2.25	0.67
23:V:1864:U:H5'	23:V:2410:G:O2'	1.95	0.67
23:V:2098:U:O5'	23:V:2098:U:H6	1.78	0.67
23:V:2829:C:O5'	23:V:2829:C:H6	1.78	0.67
32:f:52:ILE:CG1	32:f:76:TYR:CD1	2.78	0.67
29:c:71:THR:HB	29:c:87:PRO:C	2.19	0.66
8:G:269:C:O5'	8:G:269:C:H6	1.78	0.66
23:V:270(B):A:H1'	23:V:270(C):C:C6	2.30	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:852:G:C6	23:V:926:A:N1	2.63	0.66
23:V:988:A:H3'	48:v:12:PRO:HG3	1.77	0.66
8:G:1203:C:H4'	20:S:27:CYS:HB3	1.75	0.66
8:G:1359:C:O2'	8:G:1360:A:C5'	2.43	0.66
23:V:270(J):G:C6	23:V:270(K):C:N3	2.64	0.66
23:V:373:U:OP1	23:V:401:A:N7	2.28	0.66
23:V:1751:C:O5'	23:V:1751:C:H6	1.79	0.66
30:d:95:ARG:HB3	30:d:129:THR:OG1	1.92	0.66
32:f:71:THR:HG21	32:f:113:PRO:HG2	1.77	0.66
18:Q:76:ASN:HD21	18:Q:108:ALA:H	1.44	0.66
23:V:1143:A:C5'	23:V:1143:A:H8	2.08	0.66
32:f:93:ARG:NE	32:f:137:GLU:OE1	2.29	0.66
8:G:129(A):G:N2	8:G:191(A):G:N7	2.42	0.66
8:G:456:C:O5'	8:G:456:C:H6	1.78	0.66
23:V:2637:U:C2	23:V:2782:G:N1	2.63	0.66
38:l:26:LEU:HA	38:l:38:GLN:O	1.95	0.66
55:DD:6:G:O2'	55:DD:7:G:O5'	2.13	0.66
8:G:138:G:N3	8:G:226:G:N2	2.44	0.66
8:G:200:G:N2	8:G:217:C:O2	2.26	0.66
23:V:2633:G:O2'	27:a:61:ARG:NH2	2.28	0.66
23:V:2099:U:H6	23:V:2099:U:O5'	1.79	0.66
32:f:32:ALA:HA	32:f:59:ILE:CG2	2.25	0.66
33:g:22:THR:O	33:g:26:LEU:CB	2.44	0.66
8:G:93:U:O5'	8:G:93:U:H6	1.79	0.65
50:x:32:PRO:HA	50:x:38:ALA:O	1.96	0.65
8:G:99:C:H6	8:G:99:C:O5'	1.79	0.65
23:V:375:C:O5'	23:V:375:C:H6	1.79	0.65
23:V:1467:C:C4	23:V:1545(A):A:C8	2.84	0.65
23:V:2828:C:O5'	23:V:2828:C:H6	1.80	0.65
50:x:30:LEU:CD1	50:x:39:MET:SD	2.84	0.65
8:G:82:U:C2	8:G:87:A:C2	2.84	0.65
8:G:841:U:O5'	8:G:841:U:H6	1.78	0.65
23:V:43:G:C2	23:V:438:G:C2	2.84	0.65
23:V:1145:C:O5'	23:V:1145:C:H6	1.78	0.65
44:r:23:ARG:NH1	44:r:38:ILE:O	2.29	0.65
8:G:464:G:O5'	8:G:464:G:H8	1.80	0.65
8:G:1165:C:O5'	8:G:1165:C:H6	1.79	0.65
23:V:1445:C:H41	23:V:1446:C:H42	1.45	0.65
8:G:268:C:O5'	8:G:268:C:H6	1.79	0.65
8:G:1414:U:O5'	8:G:1414:U:H6	1.79	0.65
17:P:40:ILE:HG22	17:P:41:THR:HG23	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1063:G:OP1	32:f:52:ILE:CD1	2.39	0.65
23:V:2878:U:O5'	23:V:2878:U:H6	1.78	0.65
55:DD:5:G:O2'	55:DD:6:G:H5'	1.97	0.65
8:G:192:U:O5'	8:G:192:U:H6	1.79	0.65
8:G:1415:G:C6	8:G:1486:G:C6	2.85	0.65
23:V:2197:U:C4	23:V:2224:G:C6	2.85	0.65
23:V:2206:C:N3	23:V:2219:G:C2	2.65	0.65
45:s:72:ARG:NH2	45:s:98:MET:SD	2.69	0.65
8:G:442:C:O5'	8:G:442:C:H6	1.79	0.65
23:V:539:G:O5'	23:V:539:G:H8	1.80	0.65
23:V:2630:G:O4'	23:V:2894:G:H1'	1.96	0.65
8:G:1162:C:H6	8:G:1162:C:O5'	1.80	0.65
8:G:1415:G:N1	8:G:1486:G:C6	2.64	0.65
23:V:374:A:C4	23:V:401:A:C6	2.85	0.65
23:V:972:G:H2'	23:V:973:A:H2'	1.77	0.65
23:V:1799:G:N2	23:V:1818:U:O2'	2.29	0.65
23:V:1838:C:O2	23:V:1899:G:N2	2.29	0.65
28:b:184:TYR:O	35:i:7:ARG:NH2	2.30	0.65
23:V:274:G:C2'	23:V:275:G:H5'	2.27	0.65
23:V:271(A):G:H5"	23:V:271(B):U:C4'	2.27	0.65
23:V:975:G:C2	23:V:990:A:C5	2.85	0.65
55:DD:29:C:N4	55:DD:30:G:O6	2.30	0.65
8:G:439:A:C8	8:G:496:A:N1	2.65	0.64
8:G:670:G:H8	8:G:670:G:O5'	1.80	0.64
23:V:363(F):G:O5'	23:V:363(F):G:H8	1.81	0.64
23:V:1450:C:OP2	23:V:1461:G:C6	2.50	0.64
23:V:2807:G:N2	23:V:2892:A:C2	2.65	0.64
30:d:122:THR:HG21	30:d:133:VAL:HG23	1.78	0.64
44:r:14:LEU:HD12	44:r:19:LYS:HB2	1.80	0.64
23:V:1480:G:H5"	23:V:1482:U:OP2	1.98	0.64
30:d:89:ILE:HG23	30:d:129:THR:CG2	2.26	0.64
50:x:30:LEU:HD13	50:x:39:MET:SD	2.37	0.64
8:G:225:C:O5'	8:G:225:C:H6	1.81	0.64
8:G:1306:A:H8	8:G:1306:A:O5'	1.80	0.64
23:V:1102:C:C2	23:V:1104:C:N4	2.65	0.64
23:V:1422:G:H22	23:V:1576:U:H1'	1.62	0.64
23:V:1442:G:C2	23:V:1550:C:O2	2.48	0.64
8:G:186(B):C:H2'	8:G:186(C):G:H8	1.61	0.64
23:V:552:G:C4	23:V:553:U:N3	2.65	0.64
23:V:1041:C:O2	23:V:1115:G:C6	2.48	0.64
30:d:89:ILE:HG21	30:d:129:THR:HG22	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:DD:38:A:O2'	55:DD:39:A:H5'	1.97	0.64
8:G:1116:C:O5'	8:G:1116:C:H6	1.81	0.64
23:V:1863:G:N2	23:V:1880:C:O2	2.29	0.64
23:V:1872:A:H8	23:V:1872:A:O5'	1.81	0.64
23:V:2128:C:OP1	25:Y:6:ARG:HD2	1.98	0.64
23:V:2710:C:O5'	23:V:2710:C:H6	1.79	0.64
32:f:86:LYS:HE3	32:f:93:ARG:HA	1.79	0.64
41:o:34:GLU:HA	41:o:62:LEU:O	1.97	0.64
23:V:489:G:C5	23:V:1284:A:C6	2.86	0.64
23:V:1057:A:OP2	23:V:1084:A:N6	2.30	0.64
29:c:47:LYS:CG	29:c:80:PHE:CD2	2.76	0.64
32:f:48:MET:CG	32:f:69:THR:HG21	2.27	0.64
8:G:77:C:N3	8:G:92:G:O6	2.30	0.64
8:G:84:U:H6	8:G:84:U:O5'	1.81	0.64
23:V:43:G:N1	23:V:438:G:N1	2.45	0.64
23:V:2124:G:H1'	25:Y:216:THR:OG1	1.98	0.64
23:V:2794:C:C2	23:V:2799:A:N6	2.66	0.64
23:V:43:G:C2	23:V:438:G:N3	2.65	0.64
23:V:972:G:OP1	23:V:974:G:OP2	2.16	0.64
23:V:2814:C:O2'	50:x:29:THR:OG1	2.03	0.64
23:V:374:A:H8	23:V:374:A:O5'	1.80	0.64
23:V:573:G:N1	23:V:2031:A:OP2	2.29	0.64
23:V:852:G:C2	23:V:853:G:C5	2.86	0.64
30:d:25:LYS:HG3	30:d:34:GLU:HA	1.80	0.64
8:G:1310:G:H1	8:G:1327:C:H42	1.46	0.63
23:V:270(W):G:C5	23:V:270(X):G:C8	2.85	0.63
23:V:1869:G:N2	23:V:1872:A:OP2	2.30	0.63
55:DD:33:OMC:H3'	55:DD:34:A:H5"	1.80	0.63
8:G:474:G:OP2	22:U:75:ARG:NE	2.31	0.63
23:V:270(S):G:C2	23:V:270(T):G:N7	2.66	0.63
23:V:270(U):C:H2'	23:V:270(V):G:C1'	2.29	0.63
23:V:402:A:H8	23:V:402:A:O5'	1.82	0.63
23:V:923:C:N4	23:V:924:C:H42	1.95	0.63
23:V:1106:G:C2'	23:V:1107:G:O5'	2.46	0.63
23:V:1106:G:H2'	23:V:1107:G:O4'	1.98	0.63
23:V:2127:G:C2	23:V:2163:C:O4'	2.51	0.63
23:V:2224:G:H8	23:V:2224:G:O5'	1.80	0.63
23:V:2626:C:H6	23:V:2626:C:O5'	1.81	0.63
23:V:489:G:N7	23:V:1284:A:C2	2.66	0.63
25:Y:74:VAL:HA	25:Y:112:ALA:O	1.97	0.63
27:a:45:THR:HG21	27:a:79:ARG:HG3	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:1129:C:N3	8:G:1143:G:N2	2.46	0.63
23:V:10:G:H2'	23:V:11:G:N3	2.14	0.63
30:d:25:LYS:HE3	30:d:34:GLU:HB3	1.79	0.63
32:f:20:ALA:CB	32:f:21:PRO:HD3	2.25	0.63
23:V:2197:U:O4	23:V:2224:G:C5	2.52	0.63
23:V:2637:U:O4	23:V:2782:G:O6	2.17	0.63
38:l:24:LEU:O	38:l:87:PHE:CE1	2.51	0.63
19:R:24:GLY:O	19:R:29:ARG:NH1	2.32	0.63
23:V:271(B):U:O4	23:V:404:C:C2	2.52	0.63
23:V:1479:G:H2'	23:V:1480:G:N7	2.13	0.63
23:V:1534:G:N2	23:V:1538:G:C6	2.66	0.63
23:V:2064:C:H42	23:V:2446:G:H1	1.46	0.63
32:f:44:ALA:N	32:f:67:PHE:HD1	1.97	0.63
54:BB:16:VAL:HG22	54:BB:25:VAL:HG22	1.81	0.63
12:K:76:ILE:HG13	12:K:142:LEU:HD11	1.78	0.63
23:V:97:C:H4'	47:u:47:ASP:CG	2.22	0.63
32:f:93:ARG:NH2	32:f:137:GLU:OE2	2.32	0.63
38:l:9:ARG:O	38:l:12:PHE:HD1	1.80	0.63
23:V:701:G:H1	23:V:731:C:H42	1.46	0.63
23:V:2813:A:H2	23:V:2888:C:C2	2.14	0.63
25:Y:163:PHE:HB3	25:Y:171:ILE:HD11	1.80	0.63
11:J:11:LEU:HD13	11:J:66:ARG:HD2	1.81	0.63
23:V:1660:C:O3'	23:V:2712:U:O4	2.17	0.63
24:X:88:C:H3'	24:X:89:G:N7	2.14	0.63
1:W:19:U:C1'	1:W:20:U:P	2.85	0.62
3:B:34:TYR:HB2	3:B:73:ALA:HB2	1.81	0.62
8:G:69:G:N2	8:G:101:A:C4	2.66	0.62
23:V:270(E):G:H2'	23:V:270(F):U:C6	2.34	0.62
23:V:489:G:C5	23:V:1284:A:C2	2.87	0.62
23:V:1173:G:H3'	23:V:1173:G:N3	2.14	0.62
43:q:73:ARG:HH12	43:q:76:ARG:HH21	1.45	0.62
23:V:138:G:O6	43:q:41:ASN:OD1	2.17	0.62
23:V:270(L):U:H2'	23:V:270(L):U:O2	1.98	0.62
23:V:1782:C:H6	23:V:1782:C:H5"	1.63	0.62
32:f:68:VAL:O	32:f:69:THR:HB	1.99	0.62
32:f:86:LYS:NZ	32:f:134:MET:SD	2.71	0.62
35:i:49:ARG:O	35:i:49:ARG:HG3	1.98	0.62
8:G:69:G:N2	8:G:101:A:C2	2.58	0.62
8:G:500:G:C5	8:G:546:G:N2	2.66	0.62
23:V:96:G:C5'	47:u:43:HIS:HE1	2.10	0.62
23:V:1791:A:N6	23:V:1828:G:O2'	2.32	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:464:G:N1	8:G:466:C:H4'	2.14	0.62
23:V:95:G:C2'	23:V:96:G:C1'	2.67	0.62
23:V:269:U:H3'	23:V:270(Y):G:O2'	2.00	0.62
23:V:1726:G:H2'	23:V:1726:G:N3	2.13	0.62
23:V:2096:U:O5'	23:V:2096:U:H6	1.81	0.62
29:c:82:LEU:O	29:c:83:ARG:HB2	1.98	0.62
8:G:1203:C:C4'	20:S:27:CYS:CB	2.72	0.62
23:V:270(I):G:H2'	23:V:270(J):G:O4'	2.00	0.62
24:X:89(A):A:O5'	24:X:89(A):A:H8	1.81	0.62
25:Y:153:ILE:HA	25:Y:156:ILE:HG13	1.82	0.62
8:G:69:G:C2	8:G:101:A:N1	2.64	0.62
23:V:270(X):G:H4'	23:V:272:G:O3'	1.99	0.62
23:V:1857:G:H21	23:V:1885:A:H62	1.47	0.62
51:y:45:LYS:HD2	51:y:47:THR:HG22	1.80	0.62
15:N:113:SER:HB3	15:N:132:GLU:HB3	1.80	0.62
23:V:1090:U:O4	23:V:1103:A:N6	2.32	0.62
23:V:1614:A:N6	42:p:91:GLY:O	2.33	0.62
23:V:2637:U:N3	23:V:2782:G:N1	2.47	0.62
23:V:2710:C:O2'	23:V:2711:A:H5'	1.99	0.62
30:d:23:ARG:HB3	30:d:36:PRO:HA	1.79	0.62
30:d:27:LYS:HE3	30:d:32:GLU:OE1	1.98	0.62
8:G:662:G:N2	8:G:663:A:N1	2.47	0.62
23:V:139:G:H8	23:V:139:G:O5'	1.81	0.62
23:V:2794:C:O2	23:V:2799:A:C6	2.52	0.62
41:o:2:PHE:HB2	41:o:43:GLU:HB3	1.82	0.62
8:G:837:G:H8	8:G:837:G:O5'	1.81	0.62
23:V:95:G:N1	23:V:96:G:N3	2.47	0.62
23:V:2123:G:H2'	25:Y:218:MET:HG2	1.81	0.62
23:V:2123:G:O3'	25:Y:217:THR:HB	2.00	0.62
23:V:2226:C:H5	23:V:2227:A:N7	1.95	0.62
23:V:2787:C:OP1	27:a:64:LYS:NZ	2.33	0.62
30:d:26:VAL:O	30:d:26:VAL:HG12	1.99	0.62
23:V:1203:G:O6	23:V:1241:A:N7	2.32	0.62
23:V:2805:G:N2	23:V:2892:A:N6	2.40	0.62
8:G:546:G:HO2'	8:G:548:G:HO2'	1.46	0.61
23:V:1049:C:N3	23:V:1050:A:N6	2.48	0.61
23:V:1627:G:H2'	23:V:1628:G:H5'	1.82	0.61
45:s:30:ASN:CG	45:s:89:PHE:CD1	2.77	0.61
23:V:280:C:C2	23:V:283:A:C8	2.87	0.61
23:V:1565:C:N4	26:Z:84:TYR:OH	2.30	0.61
23:V:1731:G:H8	23:V:1731:G:OP1	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:86:LYS:HD2	32:f:94:GLU:O	2.00	0.61
23:V:854:G:H8	23:V:854:G:O5'	1.84	0.61
23:V:1169:G:C2'	23:V:1170:G:H8	1.99	0.61
23:V:1807:G:H21	23:V:1810:A:H2	1.47	0.61
23:V:2197:U:N3	23:V:2224:G:C2	2.69	0.61
8:G:1170:A:H8	8:G:1170:A:O5'	1.83	0.61
23:V:274:G:H2'	23:V:275:G:H5'	1.82	0.61
23:V:2887:U:O5'	23:V:2887:U:H6	1.82	0.61
27:a:47:VAL:HG21	27:a:79:ARG:HH11	1.65	0.61
38:l:97:ARG:HH11	38:l:97:ARG:CG	2.13	0.61
44:r:84:ARG:HD2	44:r:86:ARG:HB3	1.83	0.61
8:G:474:G:C5'	22:U:75:ARG:NH2	2.42	0.61
8:G:1448:C:C5	8:G:1449:C:C5	2.88	0.61
8:G:1137:C:O2'	8:G:1138:G:N2	2.34	0.61
23:V:95:G:N1	23:V:96:G:C2	2.69	0.61
23:V:151:C:O2	23:V:176:G:N2	2.33	0.61
23:V:931:G:N7	23:V:932:G:O2'	2.32	0.61
23:V:1056:G:H4'	31:e:31:GLY:HA2	1.82	0.61
23:V:1173:G:C1'	23:V:1177:A:H62	1.93	0.61
23:V:1786:A:H1'	23:V:1938:A:N6	2.16	0.61
23:V:2466:C:H5"	54:BB:5:ALA:HB3	1.83	0.61
23:V:2837:G:H8	23:V:2837:G:O5'	1.83	0.61
29:c:71:THR:O	29:c:87:PRO:HA	1.99	0.61
45:s:89:PHE:CE2	45:s:95:PRO:HG3	2.35	0.61
23:V:270(U):C:H2'	23:V:270(V):G:H1'	1.82	0.61
23:V:273:G:H2'	23:V:273(A):G:H8	1.66	0.61
23:V:2098:U:H2'	23:V:2099:U:C5	2.36	0.61
8:G:1413:A:O5'	8:G:1413:A:H8	1.82	0.61
23:V:270(B):A:H1'	23:V:270(C):C:H5	1.62	0.61
23:V:270(B):A:HO2'	23:V:270(C):C:H6	1.47	0.61
23:V:2124:G:H8	25:Y:217:THR:C	1.61	0.61
23:V:1786:A:H1'	23:V:1938:A:H62	1.66	0.61
23:V:2719:G:O5'	23:V:2719:G:H8	1.83	0.61
24:X:43:C:O2	29:c:95:ARG:NH1	2.33	0.61
43:q:25:LYS:HA	43:q:81:VAL:O	2.00	0.61
8:G:273:A:H8	8:G:273:A:O5'	1.84	0.61
8:G:1483:A:OP2	8:G:1484:C:N4	2.34	0.61
23:V:1081:U:O2	32:f:116:ASN:ND2	2.34	0.61
23:V:2123:G:N2	23:V:2176:A:H61	1.97	0.61
29:c:44:GLY:HA2	29:c:88:ILE:HD13	1.83	0.61
29:c:44:GLY:CA	29:c:88:ILE:CD1	2.79	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:153:VAL:HG12	10:I:198:VAL:HG12	1.82	0.60
23:V:95:G:H3'	23:V:96:G:O4'	2.00	0.60
23:V:265:A:C2	23:V:281:G:N2	2.66	0.60
23:V:1467:C:N4	23:V:1545(A):A:C8	2.69	0.60
23:V:1870:C:H2'	23:V:1871:A:C8	2.36	0.60
23:V:1871:A:H8	23:V:1871:A:O5'	1.84	0.60
24:X:57:A:O2'	29:c:30:GLU:CB	2.48	0.60
25:Y:27:HIS:HA	25:Y:30:LYS:HD3	1.84	0.60
25:Y:56:GLN:NE2	25:Y:203:GLY:O	2.33	0.60
4:C:79:ARG:NH2	8:G:263:A:OP2	2.33	0.60
8:G:1448:C:C4	8:G:1449:C:C5	2.89	0.60
23:V:1545:A:C2'	23:V:1545(A):A:H4'	2.31	0.60
36:j:63:LYS:NZ	45:s:173:ALA:O	2.33	0.60
8:G:500:G:N1	8:G:546:G:N3	2.49	0.60
23:V:1467:C:C4	23:V:1545(A):A:N7	2.69	0.60
23:V:1710:C:C2	23:V:1711:C:N3	2.69	0.60
23:V:2123:G:O2'	25:Y:217:THR:O	2.18	0.60
2:A:66:SER:H	8:G:265:G:H4'	1.67	0.60
8:G:226:G:H4'	8:G:226:G:OP1	2.02	0.60
8:G:538:G:OP2	18:Q:115:LYS:NZ	2.35	0.60
8:G:1202:G:H1'	20:S:42:ILE:HD12	1.83	0.60
23:V:741:G:N1	23:V:757:U:O2	2.33	0.60
23:V:924:C:H6	23:V:924:C:O5'	1.83	0.60
23:V:2128:C:C5'	25:Y:6:ARG:HB3	2.30	0.60
33:g:22:THR:O	33:g:26:LEU:HB3	2.01	0.60
38:l:24:LEU:O	38:l:87:PHE:CD1	2.54	0.60
3:B:45:SER:H	3:B:51:LEU:HD11	1.67	0.60
8:G:465:A:H62	8:G:467:G:H21	1.47	0.60
8:G:542:G:OP1	11:J:10:ARG:NH2	2.34	0.60
23:V:295:G:H1	23:V:343:C:H42	1.49	0.60
23:V:1171:G:C2	23:V:1178:C:N3	2.46	0.60
23:V:2128:C:O5'	23:V:2128:C:H6	1.85	0.60
27:a:12:THR:HA	27:a:22:PRO:HD2	1.83	0.60
38:l:9:ARG:HA	38:l:12:PHE:CD1	2.36	0.60
23:V:676:A:H8	23:V:2069:G:H21	1.50	0.60
23:V:884:C:C5'	23:V:892:G:H22	2.13	0.60
23:V:904:C:O2	45:s:122:ARG:NH2	2.33	0.60
23:V:1128:A:N7	23:V:2518:A:N6	2.48	0.60
32:f:52:ILE:HG13	32:f:76:TYR:CE2	2.36	0.60
1:W:17:U:H6	1:W:17:U:O5'	1.84	0.60
8:G:138:G:C4	8:G:226:G:C2	2.90	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1710:C:C4	23:V:1711:C:N4	2.70	0.60
23:V:1782:C:C5'	23:V:1782:C:C6	2.84	0.60
32:f:22:PRO:CD	32:f:23:VAL:N	2.56	0.60
55:DD:32:G:H5'	55:DD:33:OMC:OP2	2.01	0.60
55:DD:37:U:H2'	55:DD:38:A:C5'	2.32	0.60
8:G:1349:A:H62	8:G:1373:G:H21	1.50	0.60
23:V:540:G:H2'	23:V:541:C:H6	1.66	0.60
23:V:552:G:N3	23:V:553:U:C2	2.70	0.60
23:V:660:G:H21	35:i:15:ARG:HH21	1.50	0.60
39:m:54:ARG:HG3	39:m:64:ARG:HG3	1.83	0.60
23:V:2630:G:C2	23:V:2790:A:H2	2.17	0.60
32:f:105:LEU:O	32:f:108:ALA:C	2.45	0.60
41:o:37:VAL:HB	41:o:60:GLU:HB3	1.83	0.60
8:G:1308:U:OP2	19:R:98:VAL:HB	2.02	0.59
23:V:832:G:C2'	35:i:52:GLU:HG3	2.31	0.59
23:V:2631:G:H8	23:V:2631:G:O5'	1.84	0.59
32:f:23:VAL:CG1	32:f:35:MET:HB2	2.31	0.59
23:V:270(X):G:C3'	23:V:270(Y):G:H5'	2.31	0.59
23:V:1449(A):G:O2'	23:V:1450:C:O5'	2.20	0.59
23:V:1543:A:C8	23:V:1544:C:H1'	2.37	0.59
23:V:2128:C:H5"	25:Y:6:ARG:HB2	1.81	0.59
45:s:89:PHE:HE2	45:s:95:PRO:HG3	1.66	0.59
23:V:879:G:C2	23:V:898:C:C2	2.90	0.59
23:V:1543:A:N7	23:V:1544:C:H1'	2.17	0.59
30:d:16:SER:C	30:d:17:VAL:CG2	2.46	0.59
45:s:30:ASN:OD1	45:s:89:PHE:CD1	2.55	0.59
8:G:714:G:H21	8:G:777:A:H1'	1.67	0.59
23:V:270(Z):U:C4	23:V:271(B):U:H1'	2.37	0.59
8:G:1252:A:H61	8:G:1285:A:H61	1.50	0.59
19:R:102:ARG:HG2	19:R:102:ARG:NH1	2.12	0.59
24:X:88:C:H6	24:X:88:C:OP1	1.85	0.59
45:s:96:VAL:O	45:s:98:MET:HG2	2.03	0.59
6:E:3:LYS:N	6:E:74:ILE:O	2.34	0.59
8:G:465:A:N6	8:G:467:G:N2	2.50	0.59
8:G:1359:C:HO2'	8:G:1360:A:P	2.25	0.59
23:V:95:G:H2'	23:V:96:G:C2'	2.33	0.59
23:V:273(B):C:H2'	23:V:273(C):C:H6	1.67	0.59
23:V:536:A:N3	23:V:558:G:C2	2.61	0.59
23:V:2129:C:O5'	23:V:2129:C:H6	1.86	0.59
10:I:177:THR:HG23	10:I:180:ALA:HB2	1.83	0.59
23:V:1539:G:H8	23:V:1539:G:O5'	1.86	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:X:88:C:H3'	24:X:89:G:C8	2.36	0.59
32:f:71:THR:HG21	32:f:113:PRO:CG	2.33	0.59
33:g:22:THR:O	33:g:26:LEU:HB2	2.02	0.59
45:s:69:THR:HG23	45:s:89:PHE:H	1.66	0.59
2:A:67:LYS:NZ	8:G:253:U:OP1	2.36	0.59
8:G:1447:G:H8	8:G:1447:G:OP1	1.85	0.59
14:M:54:THR:OG1	14:M:56:GLN:NE2	2.36	0.59
23:V:373:U:O4'	23:V:400:G:N2	2.36	0.59
23:V:1398:C:O3'	43:q:25:LYS:NZ	2.35	0.59
23:V:1864:U:H2'	23:V:1869:G:C8	2.37	0.59
23:V:2126:A:H4'	23:V:2127:G:OP1	2.02	0.59
8:G:828:A:H62	8:G:858:G:H21	1.48	0.59
23:V:552:G:C5	23:V:553:U:C4	2.90	0.59
23:V:1252:G:N7	40:n:36:ARG:NH1	2.51	0.59
23:V:2809:A:N1	27:a:60:ASN:CG	2.61	0.59
29:c:80:PHE:O	29:c:82:LEU:N	2.35	0.59
32:f:23:VAL:HG12	32:f:35:MET:HB2	1.84	0.59
38:l:25:ARG:CA	38:l:87:PHE:CZ	2.85	0.59
55:DD:35:C:H2'	55:DD:36:A:C8	2.37	0.59
8:G:1454:G:H2'	8:G:1455:G:C8	2.38	0.59
17:P:33:THR:HA	17:P:39:PRO:HA	1.85	0.59
20:S:25:VAL:HG13	20:S:25:VAL:O	2.02	0.59
23:V:972:G:H2'	23:V:973:A:OP1	2.02	0.59
23:V:2334:G:H1'	38:l:15:ARG:NE	2.10	0.59
23:V:2126:A:N6	23:V:2164:C:OP2	2.35	0.58
32:f:105:LEU:O	32:f:108:ALA:O	2.21	0.58
45:s:94:GLU:O	45:s:96:VAL:HG23	2.03	0.58
8:G:129(A):G:N3	8:G:191(A):G:N7	2.49	0.58
8:G:1135:U:H2'	8:G:1137:C:H1'	1.86	0.58
19:R:20:THR:HG23	19:R:26:GLY:HA2	1.85	0.58
23:V:153:C:H2'	23:V:154:G:N9	2.16	0.58
23:V:265:A:C2	23:V:281:G:C2	2.91	0.58
23:V:270(E):G:OP2	23:V:270(E):G:H8	1.86	0.58
23:V:270(X):G:N2	23:V:270(Y):G:HO2'	2.02	0.58
23:V:2821:A:OP2	37:k:2:ARG:NH2	2.36	0.58
25:Y:15:ASP:OD2	25:Y:17:ASN:ND2	2.36	0.58
29:c:84:LYS:HG3	29:c:84:LYS:O	2.03	0.58
8:G:467:G:H8	8:G:467:G:O5'	1.85	0.58
8:G:511:C:O2'	11:J:43:HIS:NE2	2.36	0.58
18:Q:86:ARG:HH21	18:Q:99:HIS:HE1	1.51	0.58
23:V:270(C):C:N4	23:V:270(D):C:N4	2.51	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1169:G:C2	23:V:1170:G:C6	2.91	0.58
23:V:270(V):G:H2'	23:V:270(W):G:C8	2.38	0.58
1:W:17:U:C2'	1:W:18:G:H5'	2.34	0.58
20:S:25:VAL:HG12	20:S:39:LEU:HD23	1.86	0.58
23:V:293:U:H3	23:V:346:A:H61	1.52	0.58
23:V:1466:G:H2'	23:V:1547:C:N4	2.18	0.58
23:V:1470:G:N2	23:V:1520:U:O2	2.36	0.58
39:m:55:ASN:HA	39:m:64:ARG:HG2	1.85	0.58
55:DD:7:G:H3'	55:DD:8:4SU:H5'	1.85	0.58
8:G:1441:G:H8	8:G:1441:G:O5'	1.87	0.58
23:V:1446:C:H6	23:V:1447:G:C8	2.22	0.58
23:V:2122:U:H2'	23:V:2123:G:O4'	2.03	0.58
27:a:49:LEU:HG	27:a:74:PRO:HB3	1.84	0.58
29:c:44:GLY:CA	29:c:88:ILE:HD13	2.33	0.58
30:d:31:GLY:HA3	30:d:79:VAL:HB	1.86	0.58
8:G:191(E):G:H8	8:G:191(E):G:O5'	1.87	0.58
11:J:63:LYS:HE2	11:J:198:VAL:HG12	1.85	0.58
23:V:270(X):G:H4'	23:V:273:G:H5'	1.85	0.58
23:V:1173:G:O4'	23:V:1177:A:N6	2.37	0.58
23:V:1534:G:N2	23:V:1538:G:C5	2.71	0.58
23:V:2127:G:N2	23:V:2162:G:C2'	2.64	0.58
23:V:2807:G:C8	23:V:2891:G:N2	2.71	0.58
25:Y:176:GLY:HA2	25:Y:180:PHE:CZ	2.38	0.58
38:l:25:ARG:HB2	38:l:87:PHE:CE2	2.36	0.58
23:V:404:C:OP1	23:V:406:G:O4'	2.22	0.58
23:V:2785:C:H2'	23:V:2786:U:C6	2.38	0.58
32:f:20:ALA:N	32:f:22:PRO:HD3	2.18	0.58
20:S:24:CYS:HB3	20:S:28:GLY:O	2.04	0.58
23:V:270(B):A:O2'	23:V:270(C):C:H6	1.86	0.58
23:V:535:C:H6	23:V:535:C:O5'	1.87	0.58
23:V:1785:A:H2	23:V:2588:G:H21	1.52	0.58
23:V:2124:G:P	25:Y:218:MET:N	2.77	0.58
23:V:2335:A:OP1	38:l:12:PHE:HB3	2.03	0.58
35:i:58:THR:O	53:AA:13:ARG:NH1	2.37	0.58
1:W:16:A:H2	1:W:17:U:O2	1.82	0.58
8:G:129(A):G:C2	8:G:191(A):G:C8	2.91	0.58
10:I:150:LYS:HB3	10:I:201:TYR:HB2	1.84	0.58
23:V:552:G:N3	23:V:553:U:O2	2.36	0.58
23:V:1441:G:C6	23:V:1442:G:C6	2.91	0.58
23:V:1939:U:H3'	23:V:1940:U:C5'	2.33	0.58
23:V:2076:U:OP1	26:Z:244:ARG:NH2	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2127:G:H21	23:V:2162:G:H2'	1.69	0.58
23:V:2636:U:H4'	27:a:79:ARG:HD2	1.86	0.58
25:Y:89:ALA:HB2	25:Y:154:ARG:HG3	1.85	0.58
32:f:48:MET:SD	32:f:69:THR:HG22	2.41	0.58
35:i:65:ARG:HD2	53:AA:11:LYS:HA	1.84	0.58
38:l:15:ARG:HG2	38:l:15:ARG:HH21	1.69	0.58
8:G:448:A:OP2	8:G:485:G:N2	2.37	0.57
8:G:1309:G:N2	8:G:1328:C:N1	2.51	0.57
23:V:270(V):G:C6	23:V:270(W):G:O6	2.57	0.57
23:V:1093:G:H21	23:V:1098:A:N6	2.00	0.57
23:V:1748:G:H2'	23:V:1749:A:H8	1.67	0.57
23:V:2197:U:O4	23:V:2224:G:C6	2.57	0.57
8:G:778:G:O2'	17:P:119:CYS:SG	2.60	0.57
8:G:1415:G:C6	8:G:1486:G:O6	2.57	0.57
11:J:15:GLU:OE2	11:J:66:ARG:NH2	2.36	0.57
16:O:10:ARG:NE	16:O:75:ASP:OD2	2.37	0.57
23:V:856:C:N4	23:V:857:C:N4	2.52	0.57
23:V:1192:G:C4	23:V:1193:G:H1'	2.40	0.57
23:V:1467:C:N3	23:V:1545(A):A:N7	2.51	0.57
44:r:73:ARG:NH2	44:r:74:PRO:O	2.35	0.57
49:w:57:GLU:OE1	49:w:57:GLU:N	2.35	0.57
15:N:48:TYR:HA	15:N:60:ARG:O	2.05	0.57
20:S:9:LYS:NZ	20:S:21:TYR:CE1	2.72	0.57
23:V:270(J):G:H2'	23:V:270(J):G:N3	2.18	0.57
23:V:366:C:OP2	23:V:366:C:H6	1.87	0.57
23:V:532:A:N6	40:n:45:TYR:OH	2.38	0.57
23:V:552:G:C2'	23:V:553:U:H5'	2.33	0.57
23:V:1441:G:C6	23:V:1442:G:O6	2.57	0.57
23:V:1493:C:P	23:V:2210:G:H1	2.27	0.57
23:V:1859:A:N6	23:V:1883:G:O2'	2.38	0.57
29:c:20:ILE:HG23	29:c:21:ARG:HE	1.70	0.57
55:DD:22:A:N6	55:DD:48:U:H1'	2.19	0.57
6:E:57:LYS:O	6:E:60:ARG:NH2	2.38	0.57
8:G:1455:G:O5'	8:G:1455:G:H8	1.88	0.57
19:R:87:TYR:OH	19:R:91:ARG:NH2	2.37	0.57
23:V:95:G:N3	23:V:96:G:H1'	2.18	0.57
23:V:99:U:H3'	23:V:99:U:H6	1.68	0.57
23:V:373:U:O4	49:w:59:PHE:CE1	2.58	0.57
23:V:852:G:N3	23:V:853:G:C8	2.71	0.57
32:f:82:ALA:HB2	32:f:99:ILE:HG23	1.86	0.57
23:V:269:U:C5	23:V:270(Z):U:OP2	2.58	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:570:G:OP1	23:V:973:A:OP2	2.23	0.57
23:V:885:C:N4	23:V:892:G:C6	2.67	0.57
23:V:1106:G:HO2'	23:V:1107:G:P	2.14	0.57
23:V:1537:C:H3'	23:V:1538:G:H8	1.70	0.57
23:V:1630:G:H2'	23:V:1630(A):C:O2	2.04	0.57
23:V:2226:C:H3'	23:V:2226:C:H6	1.69	0.57
25:Y:28:LEU:O	25:Y:32:LEU:HB2	2.03	0.57
29:c:71:THR:CB	29:c:88:ILE:N	2.64	0.57
5:D:39:THR:HB	5:D:70:LYS:HG2	1.87	0.57
23:V:2124:G:H1'	25:Y:216:THR:CB	2.34	0.57
25:Y:39:GLU:H	25:Y:178:ALA:HB2	1.68	0.57
29:c:28:VAL:C	29:c:30:GLU:H	2.12	0.57
32:f:86:LYS:HB3	32:f:95:LYS:CB	2.23	0.57
38:l:9:ARG:HA	38:l:12:PHE:CE1	2.39	0.57
47:u:48:LEU:HA	47:u:51:GLN:HG2	1.86	0.57
23:V:270(R):G:N2	23:V:270(S):G:N3	2.52	0.57
23:V:270(X):G:N2	23:V:270(Y):G:O2'	2.38	0.57
23:V:1548:C:H6	23:V:1548:C:O5'	1.88	0.57
32:f:66:THR:OG1	32:f:67:PHE:N	2.37	0.57
8:G:186(A):C:N4	8:G:191:G:N1	2.52	0.57
8:G:191(C):G:O5'	8:G:191(C):G:H8	1.88	0.57
17:P:67:ASP:O	17:P:71:LYS:NZ	2.37	0.57
23:V:404:C:H3'	23:V:404:C:OP2	2.05	0.57
37:k:86:ARG:NH2	37:k:118:GLU:OE1	2.38	0.57
38:l:14:VAL:HG22	38:l:89:ARG:HD2	1.87	0.57
47:u:51:GLN:HA	47:u:54:ARG:HG2	1.87	0.57
55:DD:30:G:H2'	55:DD:31:G:C8	2.40	0.57
55:DD:37:U:H2'	55:DD:38:A:H8	1.69	0.57
55:DD:38:A:H2'	55:DD:39:A:C8	2.40	0.57
16:O:42:ARG:NH1	16:O:71:SER:OG	2.37	0.57
18:Q:53:ARG:NH1	18:Q:92:ASP:OD2	2.38	0.57
18:Q:73:GLU:OE2	18:Q:113:ARG:NH1	2.38	0.57
23:V:270(J):G:C6	23:V:270(K):C:C4	2.93	0.57
23:V:888:C:H4'	23:V:889:C:C4'	2.35	0.57
23:V:972:G:H3'	23:V:973:A:C3'	2.30	0.57
23:V:2094:G:N2	23:V:2095:C:C2	2.73	0.57
25:Y:176:GLY:HA2	25:Y:180:PHE:CE2	2.40	0.57
31:e:11:ALA:C	31:e:13:LEU:N	2.63	0.57
32:f:19:PRO:C	32:f:22:PRO:HD2	2.20	0.57
34:h:47:ILE:O	34:h:53:LYS:NZ	2.38	0.57
45:s:96:VAL:O	45:s:98:MET:N	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:EE:96:GLN:OE1	56:EE:96:GLN:N	2.36	0.57
7:F:7:ARG:NH1	8:G:1328:C:OP2	2.38	0.57
8:G:272:C:H6	8:G:272:C:O5'	1.88	0.57
9:H:56:ARG:NH1	9:H:60:ASP:OD2	2.38	0.57
17:P:22:HIS:HB3	17:P:85:ARG:HB2	1.87	0.57
23:V:1056:G:O2'	23:V:1084:A:N1	2.37	0.57
23:V:1543:A:C8	23:V:1544:C:C1'	2.87	0.57
23:V:2061:G:O2'	23:V:2063:C:N4	2.38	0.57
34:h:20:MET:HE2	34:h:44:LYS:HE3	1.87	0.57
6:E:47:PHE:CE2	20:S:37:PHE:HZ	2.24	0.56
8:G:464:G:C2	8:G:466:C:H5'	2.40	0.56
23:V:374:A:C6	23:V:401:A:C8	2.93	0.56
23:V:923:C:H2'	23:V:924:C:C5	2.40	0.56
23:V:1541:U:O5'	23:V:1541:U:H6	1.88	0.56
23:V:2295:C:C6	38:l:9:ARG:NH2	2.73	0.56
25:Y:130:ILE:O	25:Y:134:ARG:NH1	2.39	0.56
30:d:18:GLU:CG	30:d:24:VAL:CB	2.79	0.56
52:z:35:ARG:O	52:z:39:ARG:NH1	2.38	0.56
8:G:439:A:C8	8:G:496:A:C6	2.93	0.56
23:V:77:C:OP1	47:u:54:ARG:NH2	2.33	0.56
23:V:1582:C:H6	23:V:1582:C:O5'	1.87	0.56
23:V:1787:A:O5'	23:V:1787:A:H8	1.87	0.56
32:f:19:PRO:HB2	32:f:23:VAL:CG2	2.35	0.56
5:D:46:GLY:H	5:D:62:ILE:HG23	1.70	0.56
8:G:1202:G:H1'	20:S:42:ILE:CD1	2.34	0.56
14:M:71:PRO:O	14:M:96:GLN:NE2	2.39	0.56
21:T:5:LYS:HE2	21:T:9:GLN:HG3	1.88	0.56
23:V:1042:G:N3	23:V:1114:G:O6	2.39	0.56
23:V:1447:G:H3'	23:V:1448:G:H5"	1.87	0.56
23:V:1550:C:H5"	23:V:1727:U:H1'	1.87	0.56
23:V:2127:G:C6	23:V:2163:C:H1'	2.39	0.56
23:V:2127:G:N1	23:V:2163:C:H1'	2.20	0.56
23:V:2226:C:C6	23:V:2227:A:H8	2.19	0.56
23:V:2813:A:C2	23:V:2888:C:C2	2.90	0.56
45:s:7:ALA:HB3	45:s:36:LYS:O	2.05	0.56
3:B:16:PRO:HB3	3:B:54:ARG:HB2	1.87	0.56
8:G:1203:C:H5'	20:S:27:CYS:CB	2.28	0.56
18:Q:71:PRO:O	18:Q:102:ARG:NH1	2.39	0.56
20:S:9:LYS:NZ	20:S:21:TYR:CD1	2.69	0.56
23:V:928:G:O5'	23:V:928:G:H8	1.88	0.56
23:V:1143:A:C8	23:V:1143:A:C5'	2.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1451:C:H5'	23:V:1452:A:H4'	1.88	0.56
23:V:2839:G:H8	23:V:2839:G:O5'	1.89	0.56
25:Y:176:GLY:C	25:Y:180:PHE:CE1	2.83	0.56
32:f:37:PHE:CZ	32:f:62:ASP:OD2	2.54	0.56
1:W:16:A:H2'	1:W:16:A:N3	2.21	0.56
8:G:440:A:N6	8:G:493:G:N2	2.45	0.56
23:V:270(J):G:H3'	23:V:270(K):C:H6	1.68	0.56
28:b:11:VAL:HG22	28:b:124:LEU:HD23	1.87	0.56
45:s:15:PRO:O	45:s:19:ARG:NH1	2.39	0.56
23:V:270(U):C:H2'	23:V:270(V):G:O4'	2.06	0.56
23:V:2124:G:H21	25:Y:220:PRO:C	2.10	0.56
23:V:2127:G:N1	23:V:2163:C:C1'	2.69	0.56
23:V:2837:G:H2'	23:V:2838:G:H8	1.70	0.56
26:Z:54:ARG:O	26:Z:218:ARG:NH1	2.39	0.56
27:a:5:LEU:HB3	27:a:196:VAL:O	2.06	0.56
6:E:88:LEU:HD12	6:E:90:LEU:HD13	1.86	0.56
8:G:1510:U:O2	8:G:1526:G:N2	2.38	0.56
12:K:76:ILE:HG23	12:K:93:PRO:HB3	1.88	0.56
23:V:707:G:O6	23:V:725:G:N2	2.38	0.56
25:Y:22:ILE:O	25:Y:26:ALA:CB	2.54	0.56
16:O:28:VAL:HG22	16:O:63:ILE:HD11	1.88	0.56
17:P:48:ILE:HD12	17:P:63:LEU:HD22	1.87	0.56
23:V:270(K):C:H3'	23:V:270(L):U:O4'	2.06	0.56
23:V:645:C:OP2	23:V:2367:G:N2	2.39	0.56
23:V:805:G:N2	23:V:829:A:OP1	2.39	0.56
23:V:2206:C:C2	23:V:2219:G:N2	2.74	0.56
23:V:2711:A:H8	23:V:2711:A:O5'	1.88	0.56
23:V:2805:G:N1	23:V:2892:A:N7	2.52	0.56
25:Y:182:PRO:O	25:Y:186:ALA:CB	2.54	0.56
30:d:27:LYS:CE	30:d:32:GLU:OE2	2.54	0.56
32:f:19:PRO:O	32:f:22:PRO:CD	2.50	0.56
23:V:270(X):G:C2	23:V:270(Y):G:H1'	2.41	0.56
23:V:536:A:N1	23:V:558:G:C4	2.74	0.56
23:V:852:G:C2'	23:V:853:G:H5'	2.36	0.56
23:V:1175:U:H2'	23:V:1176:G:C8	2.41	0.56
23:V:2127:G:H21	23:V:2162:G:C2'	2.19	0.56
26:Z:34:VAL:HG13	26:Z:35:LYS:HG2	1.86	0.56
36:j:63:LYS:HE2	45:s:175:VAL:H	1.71	0.56
55:DD:48:U:O2'	55:DD:49:C:C5'	2.38	0.56
11:J:175:SER:HB2	11:J:184:LYS:HB3	1.87	0.56
23:V:536:A:C4	23:V:558:G:N2	2.74	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2807:G:H8	23:V:2891:G:N2	2.03	0.56
23:V:2837:G:N1	23:V:2882:A:C2	2.74	0.56
24:X:89:G:H8	24:X:89:G:O5'	1.89	0.56
31:e:11:ALA:O	31:e:13:LEU:N	2.39	0.56
23:V:16:G:N1	23:V:525:U:N3	2.35	0.55
23:V:43:G:C5	23:V:438:G:N2	2.74	0.55
23:V:286:C:O2	23:V:356:G:N2	2.33	0.55
23:V:863:A:OP1	36:j:22:LYS:NZ	2.39	0.55
23:V:1452:A:H5'	23:V:1453:A:H4'	1.88	0.55
23:V:2633:G:H8	23:V:2633:G:O5'	1.88	0.55
23:V:2785:C:H2'	23:V:2786:U:H6	1.71	0.55
23:V:2837:G:N1	23:V:2882:A:N1	2.54	0.55
29:c:76:SER:OG	29:c:84:LYS:HB3	2.06	0.55
32:f:71:THR:HG23	32:f:71:THR:O	2.06	0.55
55:DD:33:OMC:HM23	55:DD:33:OMC:O2	2.06	0.55
9:H:168:THR:OG1	9:H:191:ASP:O	2.24	0.55
23:V:270(K):C:H5"	23:V:270(L):U:C6	2.41	0.55
23:V:280:C:N1	23:V:283:A:N7	2.54	0.55
23:V:2226:C:H2'	23:V:2227:A:C5'	2.37	0.55
29:c:111:LEU:HD11	29:c:120:LEU:HD21	1.88	0.55
35:i:47:ASP:OD2	35:i:50:ARG:CD	2.47	0.55
36:j:68:ILE:HG13	36:j:103:MET:HG3	1.89	0.55
38:l:17:ARG:HH11	38:l:89:ARG:CG	2.19	0.55
8:G:465:A:C5	8:G:467:G:N3	2.74	0.55
8:G:591:U:H3	8:G:648:A:H61	1.55	0.55
23:V:269:U:O2	23:V:269:U:H2'	2.06	0.55
23:V:1106:G:H2'	23:V:1107:G:H8	1.71	0.55
23:V:2251:G:OP2	36:j:82:ARG:NH2	2.40	0.55
49:w:48:ARG:NH2	49:w:65:ASP:OD2	2.39	0.55
4:C:74:LYS:O	4:C:76:ALA:N	2.35	0.55
18:Q:69:TYR:HB3	18:Q:99:HIS:HB3	1.87	0.55
23:V:270(F):U:C4	23:V:270(G):C:C5	2.94	0.55
23:V:2197:U:O2	23:V:2197:U:H2'	2.06	0.55
30:d:89:ILE:CG2	30:d:129:THR:CG2	2.80	0.55
36:j:16:ARG:HD3	36:j:73:PRO:HD2	1.88	0.55
37:k:28:LEU:HD23	37:k:48:VAL:HG11	1.89	0.55
44:r:23:ARG:HH12	44:r:38:ILE:HB	1.71	0.55
3:B:74:ARG:HH12	8:G:719:C:H42	1.55	0.55
23:V:74:A:N1	47:u:46:ARG:NH2	2.51	0.55
23:V:569:U:OP2	23:V:945:A:N6	2.39	0.55
29:c:71:THR:HA	29:c:88:ILE:O	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:46:GLU:HB3	3:B:85:LEU:HD11	1.89	0.55
8:G:547:A:OP2	11:J:2:GLY:N	2.39	0.55
11:J:208:SER:O	11:J:209:ARG:NH1	2.40	0.55
23:V:13:A:C2	23:V:526:A:N7	2.75	0.55
23:V:884:C:H5'	23:V:892:G:N2	2.17	0.55
23:V:1169:G:C4	23:V:1170:G:N7	2.75	0.55
23:V:1545:A:H2'	23:V:1545(A):A:C4'	2.36	0.55
23:V:2097:C:HO2'	23:V:2098:U:H5'	1.71	0.55
23:V:2295:C:H6	38:l:9:ARG:NH2	2.04	0.55
23:V:2807:G:C8	23:V:2891:G:C2	2.94	0.55
32:f:20:ALA:C	32:f:22:PRO:HD3	2.31	0.55
8:G:1128:C:O2'	8:G:1130:A:N7	2.39	0.55
10:I:20:SER:HA	10:I:57:ILE:O	2.06	0.55
27:a:12:THR:OG1	27:a:19:ARG:NH1	2.40	0.55
39:m:53:ARG:HH21	39:m:54:ARG:HD2	1.72	0.55
55:DD:48:U:H3'	55:DD:48:U:H6	1.72	0.55
8:G:537:G:OP1	18:Q:113:ARG:NH2	2.38	0.55
23:V:270(E):G:OP2	23:V:270(E):G:C8	2.60	0.55
23:V:274:G:N3	23:V:274:G:O5'	2.40	0.55
23:V:771:G:HO2'	23:V:1355:G:HO2'	1.55	0.55
23:V:975:G:H8	23:V:975:G:O5'	1.89	0.55
23:V:1447:G:H2'	23:V:1447:G:N3	2.22	0.55
23:V:1589:C:H2'	23:V:1590:U:H6	1.71	0.55
23:V:1711:C:H3'	23:V:1711:C:H6	1.72	0.55
23:V:1716:U:H6	23:V:1716:U:H3'	1.72	0.55
23:V:2757:A:H8	23:V:2758:A:H5'	1.72	0.55
25:Y:114:VAL:HG11	25:Y:152:ILE:HG21	1.89	0.55
34:h:70:LYS:HG3	34:h:72:PRO:HD2	1.87	0.55
11:J:125:HIS:HA	11:J:149:ALA:HB3	1.89	0.55
23:V:137(A):G:O6	23:V:142:G:C6	2.56	0.55
23:V:270(Y):G:H5"	23:V:270(Z):U:OP1	2.06	0.55
23:V:271(C):G:N3	23:V:272:G:C8	2.75	0.55
23:V:1084:A:O2'	23:V:1105:U:H2'	2.07	0.55
23:V:2096:U:O2	23:V:2194:G:N2	2.40	0.55
23:V:2802:G:H8	23:V:2802:G:O5'	1.90	0.55
23:V:2893:G:H4'	23:V:2893:G:OP1	2.07	0.55
8:G:497:U:O2	8:G:497:U:H2'	2.06	0.55
8:G:1440:C:C2'	8:G:1441:G:H5'	2.31	0.55
23:V:926:A:H8	23:V:926:A:O5'	1.89	0.55
23:V:1093:G:H21	23:V:1098:A:H62	1.55	0.55
23:V:1155:A:H5'	40:n:55:ARG:HD3	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2108:C:O2'	23:V:2181:G:N2	2.40	0.55
30:d:13:LYS:HE2	30:d:28:GLY:HA3	1.88	0.55
35:i:41:ARG:NH2	35:i:45:LEU:HD13	2.22	0.55
23:V:536:A:C2	23:V:558:G:C4	2.95	0.54
23:V:552:G:C4	23:V:553:U:C2	2.94	0.54
23:V:905:U:O2	45:s:121:HIS:NE2	2.40	0.54
23:V:1646:C:H5"	23:V:1647:G:H5"	1.89	0.54
23:V:1864:U:H2'	23:V:1869:G:H8	1.72	0.54
23:V:2210:G:H5'	23:V:2211:G:OP2	2.07	0.54
23:V:2827:C:H6	23:V:2827:C:O5'	1.90	0.54
25:Y:176:GLY:CA	25:Y:180:PHE:CD1	2.89	0.54
28:b:192:LEU:HD21	28:b:194:MET:HE3	1.90	0.54
49:w:5:ILE:HG22	49:w:7:PRO:HD2	1.90	0.54
23:V:270(L):U:C6	23:V:270(L):U:OP2	2.61	0.54
23:V:2832:U:C2'	23:V:2879:C:H42	2.19	0.54
25:Y:100:ILE:HD11	25:Y:123:VAL:HG12	1.87	0.54
25:Y:178:ALA:O	25:Y:179:SER:HB3	2.07	0.54
29:c:67:LYS:HZ1	29:c:90:LEU:CD1	2.11	0.54
8:G:808:C:OP2	21:T:48:LYS:NZ	2.38	0.54
23:V:20:C:O2	23:V:521:G:N2	2.41	0.54
23:V:84:A:N1	23:V:99:U:O2	2.39	0.54
23:V:134:C:N4	23:V:135:G:C6	2.76	0.54
23:V:270(W):G:C4	23:V:270(X):G:C8	2.94	0.54
23:V:270(Z):U:O2'	23:V:271:C:OP1	2.23	0.54
23:V:1493:C:OP1	23:V:2210:G:C2	2.60	0.54
23:V:2124:G:C1'	25:Y:216:THR:HB	2.38	0.54
27:a:17:ASP:O	34:h:71:ARG:NH1	2.40	0.54
35:i:23:PRO:HG3	35:i:33:ARG:HD2	1.89	0.54
36:j:63:LYS:HE3	45:s:117:LEU:HB2	1.88	0.54
38:l:9:ARG:CA	38:l:12:PHE:CE1	2.90	0.54
55:DD:9:G:O2'	55:DD:10:G:C8	2.61	0.54
8:G:40:C:H42	8:G:403:C:H42	1.53	0.54
13:L:35:ALA:HB1	13:L:65:VAL:HG13	1.89	0.54
15:N:135:CYS:SG	15:N:136:GLU:N	2.80	0.54
23:V:95:G:O3'	23:V:96:G:H4'	2.07	0.54
23:V:161:U:O2	23:V:161:U:H2'	2.06	0.54
23:V:478:A:C6	23:V:480:A:N6	2.76	0.54
23:V:2115:G:H21	23:V:2119:A:H62	1.56	0.54
23:V:2197:U:C4	23:V:2224:G:N1	2.76	0.54
23:V:2630:G:H1'	23:V:2894:G:H1'	1.87	0.54
25:Y:60:GLY:H	25:Y:163:PHE:HB2	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:54:PRO:HD2	32:f:73:PRO:HD3	1.88	0.54
50:x:39:MET:O	50:x:40:LYS:HB2	2.07	0.54
8:G:82:U:O2	8:G:87:A:H2	1.79	0.54
8:G:881:G:OP2	18:Q:9:GLN:NE2	2.37	0.54
16:O:75:ASP:OD1	16:O:75:ASP:N	2.39	0.54
20:S:44:LEU:HD23	20:S:44:LEU:C	2.32	0.54
23:V:324:A:N6	23:V:339:U:O2'	2.41	0.54
23:V:370:G:N1	23:V:404:C:H5	2.06	0.54
23:V:631:A:OP1	23:V:640:C:O2'	2.23	0.54
23:V:1169:G:N1	23:V:1170:G:N1	2.55	0.54
23:V:1826:G:O3'	26:Z:242:ARG:NH2	2.41	0.54
23:V:2840:C:O5'	23:V:2840:C:H6	1.89	0.54
30:d:27:LYS:HG2	30:d:32:GLU:OE1	2.08	0.54
36:j:32:TYR:HE2	36:j:110:THR:HA	1.71	0.54
41:o:57:VAL:HG13	41:o:58:VAL:HG23	1.89	0.54
7:F:2:GLY:N	8:G:1305:G:OP1	2.41	0.54
8:G:222:U:C2'	8:G:223:U:C6	2.83	0.54
19:R:79:LYS:HA	19:R:82:MET:HG2	1.90	0.54
20:S:9:LYS:HE3	20:S:21:TYR:CZ	2.43	0.54
23:V:690:G:H21	26:Z:43:ARG:HH22	1.56	0.54
23:V:884:C:C5'	23:V:892:G:N2	2.70	0.54
23:V:892:G:O2'	23:V:893:C:C1'	2.56	0.54
23:V:1090:U:C4	23:V:1103:A:C6	2.96	0.54
23:V:1106:G:O5'	23:V:1106:G:H8	1.90	0.54
23:V:2304:G:O6	23:V:2307:G:N2	2.40	0.54
25:Y:43:VAL:HG22	25:Y:214:VAL:HB	1.90	0.54
35:i:63:PRO:HB3	53:AA:12:LYS:HA	1.90	0.54
49:w:61:ARG:NH1	49:w:66:SER:OG	2.40	0.54
23:V:1694:C:O2	23:V:1695:G:N2	2.40	0.54
23:V:1803:A:OP1	26:Z:261:LYS:NZ	2.40	0.54
23:V:2627:G:H2'	23:V:2781:A:N1	2.23	0.54
30:d:13:LYS:HE2	30:d:29:PRO:CD	2.29	0.54
8:G:1359:C:O2'	8:G:1360:A:H5"	2.08	0.54
23:V:270(X):G:O3'	23:V:272:G:H4'	2.08	0.54
23:V:1093:G:N2	23:V:1098:A:H62	2.06	0.54
29:c:130:ASN:ND2	29:c:161:THR:O	2.41	0.54
43:q:90:GLU:HA	43:q:93:GLU:HG2	1.90	0.54
51:y:34:LEU:CD2	51:y:51:GLU:HG3	2.38	0.54
55:DD:38:A:H2'	55:DD:39:A:H8	1.72	0.54
8:G:342:C:H42	8:G:347:G:H1	1.56	0.54
8:G:475:G:O5'	8:G:475:G:H8	1.91	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:975:G:H21	23:V:990:A:H1'	1.69	0.54
23:V:1778:U:H3'	23:V:1784:A:H61	1.72	0.54
23:V:1863:G:C2	23:V:1880:C:O2	2.61	0.54
23:V:2825:C:H2'	23:V:2826:A:H5'	1.90	0.54
2:A:6:LEU:HD23	2:A:23:VAL:HG21	1.90	0.54
8:G:85:U:H6	8:G:85:U:O5'	1.91	0.54
8:G:1097:C:O2'	8:G:1169:A:H1'	2.08	0.54
12:K:117:ASP:N	12:K:117:ASP:OD1	2.40	0.54
23:V:280:C:C6	23:V:283:A:C6	2.95	0.54
23:V:536:A:H2	23:V:558:G:N3	1.99	0.54
23:V:2473:U:OP1	23:V:2529:G:N2	2.40	0.54
31:e:39:ALA:O	31:e:43:ALA:CB	2.55	0.54
34:h:14:THR:OG1	34:h:16:ALA:O	2.25	0.54
17:P:80:VAL:HG22	17:P:105:VAL:HA	1.90	0.53
23:V:1078:U:H5'	32:f:132:ARG:HD2	1.90	0.53
23:V:1143:A:H8	23:V:1143:A:H5'	1.73	0.53
23:V:1493:C:O5'	23:V:2210:G:N2	2.41	0.53
23:V:2627:G:N2	23:V:2777:G:N3	2.56	0.53
25:Y:180:PHE:CG	25:Y:185:LEU:HD12	2.42	0.53
32:f:32:ALA:HA	32:f:59:ILE:HG21	1.88	0.53
33:g:46:VAL:HB	33:g:48:MET:HE1	1.91	0.53
55:DD:6:G:C2'	55:DD:7:G:O5'	2.56	0.53
55:DD:35:C:H2'	55:DD:35:C:O2	2.08	0.53
8:G:187:C:H1'	8:G:191(A):G:H22	1.71	0.53
9:H:96:ARG:NH2	9:H:148:TYR:OH	2.41	0.53
23:V:2787:C:H3'	23:V:2787:C:H6	1.71	0.53
28:b:78:ILE:HA	28:b:83:PHE:HZ	1.72	0.53
29:c:137:GLU:HA	29:c:154:GLY:HA2	1.90	0.53
32:f:79:ARG:HD2	32:f:134:MET:HB2	1.90	0.53
46:t:31:VAL:HB	46:t:35:ASN:HD22	1.73	0.53
34:h:14:THR:OG1	34:h:15:GLY:N	2.42	0.53
4:C:105:SER:OG	8:G:186(A):C:N3	2.42	0.53
23:V:180:G:O2'	23:V:181:A:N7	2.38	0.53
23:V:832:G:O2'	35:i:52:GLU:OE1	2.26	0.53
30:d:9:ILE:HB	30:d:50:VAL:HB	1.90	0.53
42:p:35:ILE:O	42:p:39:THR:OG1	2.27	0.53
44:r:66:PRO:HB2	44:r:68:HIS:HB2	1.90	0.53
45:s:99:TYR:HE1	45:s:124:ILE:HG23	1.74	0.53
4:C:89:ARG:NH2	8:G:186(A):C:O2	2.41	0.53
24:X:88:C:H2'	24:X:88:C:O2	2.08	0.53
25:Y:184:LYS:O	25:Y:187:ASP:N	2.40	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:l:23:ARG:NH1	38:l:86:ALA:O	2.40	0.53
51:y:34:LEU:CG	51:y:51:GLU:CD	2.72	0.53
51:y:53:LYS:O	51:y:53:LYS:HD3	2.08	0.53
8:G:1160:G:OP2	8:G:1161:C:OP2	2.27	0.53
8:G:1431:C:H5'	39:m:110:ILE:HD12	1.90	0.53
18:Q:57:LYS:HG2	18:Q:67:THR:HG22	1.91	0.53
20:S:36:PHE:O	20:S:36:PHE:HD1	1.91	0.53
23:V:41:C:H2'	23:V:43:G:C8	2.43	0.53
23:V:270(F):U:H2'	23:V:270(G):C:O4'	2.08	0.53
23:V:270(J):G:C2	23:V:270(K):C:C2	2.97	0.53
23:V:814:C:O2'	23:V:1224:G:N2	2.40	0.53
23:V:1128:A:H62	23:V:2518:A:H61	1.55	0.53
23:V:2331:G:O2'	23:V:2336:A:N6	2.42	0.53
23:V:2811:G:C6	23:V:2891:G:N2	2.76	0.53
13:L:18:GLN:HA	13:L:21:LEU:HG	1.91	0.53
23:V:541:C:H2'	23:V:541:C:O2	2.08	0.53
23:V:1021:A:H5'	23:V:1123:C:H5"	1.90	0.53
23:V:2124:G:H3'	25:Y:218:MET:O	2.08	0.53
23:V:2789:C:H3'	23:V:2789:C:H6	1.72	0.53
23:V:2791:C:N4	23:V:2892:A:N6	2.56	0.53
55:DD:5:G:C2'	55:DD:6:G:H5'	2.39	0.53
19:R:34:LEU:HA	19:R:37:THR:HG22	1.90	0.53
23:V:270(W):G:N2	23:V:273:G:H4'	2.23	0.53
23:V:271(A):G:C5'	23:V:271(B):U:O4'	2.53	0.53
23:V:374:A:N1	23:V:401:A:C8	2.77	0.53
23:V:2141:G:H1	23:V:2150:U:H3	1.55	0.53
25:Y:190:ARG:HA	25:Y:193:ILE:HD12	1.90	0.53
37:k:60:LEU:HA	37:k:63:ARG:HG2	1.88	0.53
38:l:12:PHE:CD1	38:l:12:PHE:C	2.84	0.53
8:G:439:A:C8	8:G:496:A:C2	2.97	0.53
8:G:1360:A:H8	8:G:1360:A:OP1	1.90	0.53
8:G:1522:U:H2'	8:G:1523:G:H8	1.74	0.53
23:V:139:G:O6	23:V:1595:G:O2'	2.20	0.53
23:V:796:C:OP1	28:b:62:ARG:NH1	2.42	0.53
23:V:833:U:O4'	35:i:52:GLU:HB3	2.09	0.53
23:V:833:U:H5'	35:i:52:GLU:HG2	1.90	0.53
23:V:1300:U:C5	23:V:1627:G:OP2	2.62	0.53
30:d:104:GLU:HA	30:d:113:VAL:O	2.09	0.53
36:j:59:ARG:HH12	36:j:109:VAL:HG11	1.73	0.53
39:m:50:ILE:HG13	39:m:68:TYR:HB3	1.91	0.53
8:G:1163:C:H2'	8:G:1164:G:H8	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:1203:C:C4'	20:S:27:CYS:HB2	2.39	0.53
11:J:57:ARG:NH1	11:J:205:GLU:OE1	2.41	0.53
23:V:172:C:H3'	23:V:172:C:H6	1.73	0.53
23:V:274:G:N3	23:V:274:G:C3'	2.70	0.53
23:V:536:A:C2	23:V:558:G:N1	2.45	0.53
23:V:904:C:O2'	45:s:122:ARG:NH1	2.31	0.53
23:V:1817:G:OP1	26:Z:88:ARG:NH2	2.42	0.53
24:X:85:G:H2'	24:X:86:G:H5'	1.91	0.53
25:Y:182:PRO:HD2	25:Y:183:GLU:H	1.73	0.53
30:d:80:SER:OG	30:d:81:GLU:OE1	2.25	0.53
38:l:17:ARG:HH11	38:l:89:ARG:HB3	1.74	0.53
23:V:95:G:C2'	23:V:96:G:H1'	2.33	0.52
23:V:97:C:H5"	47:u:43:HIS:ND1	2.24	0.52
23:V:500:G:N1	23:V:503:A:OP2	2.39	0.52
23:V:1667:G:O2'	23:V:1991:U:O4	2.27	0.52
23:V:2124:G:C8	25:Y:216:THR:C	2.86	0.52
23:V:2628:C:O2	23:V:2781:A:H2'	2.09	0.52
23:V:2773:C:OP1	27:a:164:ARG:NH2	2.42	0.52
23:V:2785:C:O5'	23:V:2785:C:H6	1.91	0.52
25:Y:13:LYS:HD3	25:Y:32:LEU:HD23	1.92	0.52
26:Z:230:ASP:OD1	26:Z:230:ASP:N	2.41	0.52
8:G:201:C:O2	8:G:201:C:H2'	2.08	0.52
23:V:10:G:N2	23:V:2629:A:N9	2.56	0.52
23:V:853:G:C2	23:V:925:C:O2	2.61	0.52
23:V:1424:G:N1	23:V:1573:G:O6	2.42	0.52
23:V:2791:C:O2	23:V:2791:C:H2'	2.08	0.52
28:b:3:GLU:HG2	28:b:22:ALA:HA	1.91	0.52
32:f:65:PHE:N	32:f:65:PHE:CD1	2.76	0.52
38:l:15:ARG:HH21	38:l:15:ARG:CG	2.22	0.52
40:n:45:TYR:O	40:n:49:HIS:ND1	2.41	0.52
45:s:30:ASN:OD1	45:s:90:VAL:HG22	2.08	0.52
45:s:92:SER:OG	45:s:93:ASP:N	2.42	0.52
7:F:10:ARG:HH12	8:G:1289:A:H5"	1.73	0.52
8:G:1169:A:O5'	8:G:1169:A:H8	1.92	0.52
23:V:43:G:O6	23:V:438:G:C6	2.63	0.52
23:V:540:G:H2'	23:V:541:C:C6	2.45	0.52
23:V:557:U:H2'	23:V:558:G:C8	2.44	0.52
23:V:892:G:HO2'	23:V:893:C:C1'	2.22	0.52
23:V:1057:A:H2'	31:e:34:ALA:HA	1.90	0.52
23:V:1444(A):A:O5'	23:V:1444(A):A:H8	1.91	0.52
23:V:1943:U:H4'	23:V:1944:U:H5'	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:21:PRO:CD	32:f:22:PRO:HD3	2.38	0.52
8:G:1309:G:C8	8:G:1329:A:N7	2.78	0.52
13:L:3:ARG:HG3	13:L:93:SER:HB2	1.92	0.52
13:L:5:GLU:HB2	13:L:62:TRP:HE1	1.74	0.52
23:V:366:C:O2	23:V:366:C:H2'	2.08	0.52
23:V:879:G:C2	23:V:898:C:O2	2.62	0.52
23:V:1424:G:H22	23:V:1573:G:H1	1.57	0.52
29:c:63:ILE:HG22	29:c:64:THR:HG23	1.91	0.52
3:B:82:THR:HG21	8:G:675:A:H5'	1.90	0.52
8:G:440:A:N6	8:G:493:G:H21	2.07	0.52
8:G:1355:G:H2'	8:G:1356:G:H8	1.75	0.52
23:V:49:A:N6	23:V:177:G:N7	2.57	0.52
23:V:1044:G:O2'	23:V:1047:G:OP1	2.27	0.52
23:V:1417:C:O5'	23:V:1417:C:H6	1.93	0.52
23:V:2791:C:H42	23:V:2893:G:H21	1.54	0.52
23:V:2837:G:H2'	23:V:2838:G:C8	2.44	0.52
23:V:2880:C:O2	23:V:2880:C:H2'	2.08	0.52
23:V:2896:C:O2	23:V:2896:C:H2'	2.08	0.52
29:c:44:GLY:HA2	29:c:88:ILE:CD1	2.39	0.52
30:d:109:PHE:HD2	30:d:112:PRO:HD2	1.74	0.52
34:h:94:ARG:HG3	34:h:96:THR:H	1.75	0.52
35:i:128:HIS:HB3	35:i:147:LEU:HD12	1.92	0.52
41:o:43:GLU:HG2	41:o:46:VAL:HA	1.92	0.52
1:W:19:U:O2'	1:W:19:U:O2	2.28	0.52
8:G:439:A:H3'	8:G:440:A:H8	1.73	0.52
8:G:1311:G:C5	8:G:1312:G:C8	2.97	0.52
23:V:274:G:N2	23:V:274:G:OP2	2.43	0.52
23:V:2634:G:N2	23:V:2785:C:N3	2.57	0.52
36:j:36:ALA:HB2	36:j:103:MET:HE1	1.91	0.52
44:r:26:LYS:HG2	44:r:27:VAL:HG23	1.91	0.52
8:G:1118:C:O2	8:G:1118:C:H2'	2.08	0.52
16:O:96:LEU:HA	16:O:100:GLY:HA2	1.92	0.52
23:V:271(A):G:OP1	23:V:271(B):U:O4'	2.28	0.52
23:V:1173:G:N3	23:V:1173:G:C5'	2.73	0.52
23:V:1446:C:H2'	23:V:1447:G:C8	2.44	0.52
23:V:2334:G:C8	38:l:15:ARG:CD	2.93	0.52
26:Z:8:PRO:HB3	26:Z:14:ARG:HB3	1.91	0.52
32:f:19:PRO:CB	32:f:22:PRO:HG2	2.39	0.52
8:G:1261:A:N6	8:G:1274:G:O2'	2.42	0.52
13:L:21:LEU:HD12	13:L:22:GLU:HG3	1.92	0.52
15:N:96:GLY:H	15:N:99:GLU:HB2	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:O:26:VAL:HG12	16:O:61:ALA:HB3	1.92	0.52
23:V:478:A:C6	23:V:480:A:C6	2.97	0.52
23:V:527:C:H2'	23:V:2779:U:H6	1.75	0.52
23:V:2258:C:O2'	23:V:2427:C:OP2	2.27	0.52
25:Y:68:LEU:HD23	25:Y:69:GLY:H	1.75	0.52
25:Y:161:ILE:O	25:Y:162:GLU:HB2	2.09	0.52
32:f:57:ILE:HG23	32:f:57:ILE:O	2.09	0.52
1:W:19:U:C1'	1:W:20:U:OP2	2.55	0.52
8:G:390:C:O3'	22:U:28:ARG:NH2	2.43	0.52
23:V:612:G:N1	23:V:613:U:O4	2.43	0.52
23:V:2809:A:N1	27:a:60:ASN:HB2	2.22	0.52
28:b:131:GLY:HA3	28:b:138:GLU:HG3	1.91	0.52
7:F:10:ARG:HA	7:F:13:ILE:HG22	1.91	0.52
9:H:7:VAL:HG23	9:H:8:LYS:HG3	1.92	0.52
20:S:11:LYS:NZ	20:S:13:THR:OG1	2.33	0.52
23:V:442:G:H21	28:b:48:THR:HG1	1.58	0.52
24:X:0:A:N3	24:X:0:A:C5'	2.73	0.52
29:c:71:THR:CB	29:c:87:PRO:HA	2.39	0.52
6:E:4:ILE:HB	6:E:74:ILE:HB	1.91	0.51
16:O:10:ARG:NH1	16:O:105:ASP:OD2	2.43	0.51
23:V:833:U:H5'	35:i:52:GLU:CB	2.40	0.51
23:V:1103:A:N3	23:V:1103:A:C2'	2.73	0.51
23:V:1445:C:C4	23:V:1446:C:N3	2.77	0.51
23:V:1455:G:O6	23:V:2705:A:C2	2.64	0.51
23:V:2894:G:N3	23:V:2894:G:C3'	2.73	0.51
29:c:83:ARG:HG3	55:DD:57:C:H5"	1.92	0.51
38:l:99:LYS:C	38:l:101:LEU:N	2.67	0.51
44:r:73:ARG:HG2	44:r:77:PRO:HB3	1.92	0.51
8:G:138:G:H1'	8:G:226:G:N2	2.25	0.51
9:H:178:ARG:HH21	15:N:74:PRO:HD3	1.75	0.51
11:J:98:GLU:HA	11:J:103:ASN:HD22	1.75	0.51
23:V:885:C:C4	23:V:892:G:C6	2.98	0.51
23:V:1247:A:OP2	35:i:18:ARG:NH2	2.43	0.51
23:V:2198:A:N3	23:V:2198:A:C3'	2.73	0.51
25:Y:66:HIS:H	25:Y:158:ALA:HB1	1.68	0.51
25:Y:176:GLY:HA2	25:Y:180:PHE:CE1	2.43	0.51
30:d:168:PRO:HB2	30:d:170:ARG:HH12	1.74	0.51
39:m:67:SER:HB3	39:m:75:ILE:HD12	1.91	0.51
41:o:72:VAL:HG13	41:o:88:ARG:HD2	1.90	0.51
1:W:16:A:C2	1:W:17:U:C4	2.98	0.51
8:G:138:G:N3	8:G:226:G:C2	2.78	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:95:G:O3'	23:V:96:G:C4'	2.58	0.51
23:V:2117:A:O3'	23:V:2147:G:N2	2.43	0.51
35:i:50:ARG:HB3	35:i:51:PHE:CD1	2.45	0.51
8:G:129(A):G:C4	8:G:191(A):G:C8	2.99	0.51
13:L:10:LEU:HB2	13:L:59:TYR:HB3	1.91	0.51
21:T:15:PHE:HB2	21:T:27:VAL:HG23	1.92	0.51
23:V:265:A:N6	23:V:428:A:C5	2.78	0.51
23:V:363(A):A:N3	23:V:363(A):A:H2'	2.25	0.51
23:V:892:G:H2'	23:V:893:C:C6	2.46	0.51
23:V:1479:G:H8	23:V:1479:G:O5'	1.92	0.51
23:V:2064:C:O2'	23:V:2251:G:N2	2.43	0.51
23:V:2894:G:N3	23:V:2894:G:C2'	2.73	0.51
25:Y:58:VAL:HG11	25:Y:201:PRO:HD3	1.91	0.51
29:c:113:ARG:NH1	49:CC:23:GLU:O	2.43	0.51
38:l:28:VAL:HG22	38:l:90:GLY:HA2	1.92	0.51
38:l:50:SER:O	38:l:76:LYS:NZ	2.33	0.51
39:m:79:HIS:HB2	39:m:82:LEU:HD22	1.92	0.51
8:G:476:G:H2'	8:G:477:G:C8	2.44	0.51
8:G:1311:G:C6	8:G:1312:G:C4	2.99	0.51
23:V:11:G:N3	23:V:11:G:C5'	2.73	0.51
23:V:531:C:O2'	23:V:2035:G:N2	2.43	0.51
29:c:4:ASP:HA	29:c:7:LEU:HD12	1.92	0.51
7:F:12:LYS:NZ	8:G:1326:C:OP1	2.40	0.51
8:G:191(F):U:O5'	8:G:191(F):U:H6	1.92	0.51
8:G:476:G:H2'	8:G:477:G:H8	1.76	0.51
8:G:876:G:O5'	15:N:14:ARG:NH2	2.42	0.51
8:G:1028(B):C:H3'	8:G:1029:G:H4'	1.92	0.51
9:H:166:ASP:O	9:H:170:GLU:HB2	2.11	0.51
13:L:48:LEU:HD13	13:L:52:ILE:HD12	1.92	0.51
20:S:44:LEU:HD23	20:S:44:LEU:O	2.10	0.51
23:V:991:C:O2	23:V:1164:G:N2	2.43	0.51
23:V:1085:A:OP1	23:V:1106:G:OP2	2.29	0.51
26:Z:124:PRO:O	26:Z:129:ASN:ND2	2.44	0.51
27:a:59:VAL:HG23	27:a:62:PRO:HD2	1.91	0.51
38:l:99:LYS:O	38:l:100:ALA:C	2.51	0.51
51:y:37:ARG:O	51:y:48:VAL:HG23	2.09	0.51
5:D:3:ARG:NH2	8:G:1312:G:O6	2.44	0.51
8:G:1055:A:O2'	10:I:156:ARG:NH1	2.41	0.51
8:G:1362(A):C:O2	8:G:1362(A):C:O2'	2.20	0.51
23:V:374:A:N1	23:V:401:A:N9	2.58	0.51
23:V:670:A:H4'	23:V:671:C:H5'	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2124:G:P	25:Y:218:MET:H	2.28	0.51
11:J:148:VAL:HB	11:J:181:MET:HE3	1.93	0.51
21:T:7:GLU:HA	21:T:10:LYS:HG2	1.93	0.51
23:V:1203:G:O6	23:V:1241:A:C6	2.64	0.51
23:V:2217:G:O5'	23:V:2217:G:H8	1.94	0.51
25:Y:164:ARG:NH1	25:Y:165:ASN:O	2.44	0.51
39:m:29:ARG:HG2	39:m:91:ARG:HB2	1.92	0.51
8:G:126:G:OP1	8:G:605:U:O2'	2.29	0.51
23:V:1102:C:H2'	23:V:1103:A:H5"	1.92	0.51
23:V:1445:C:H5'	23:V:1446:C:OP2	2.11	0.51
23:V:2127:G:N1	23:V:2163:C:O4'	2.44	0.51
45:s:29:TYR:HE1	45:s:87:ASP:HB2	1.75	0.51
4:C:86:ARG:HG3	8:G:186(A):C:H5"	1.93	0.51
6:E:47:PHE:CE2	20:S:37:PHE:CZ	2.99	0.51
8:G:1163:C:H2'	8:G:1164:G:C8	2.46	0.51
23:V:478:A:C5	23:V:480:A:N6	2.79	0.51
23:V:853:G:H2'	23:V:854:G:C8	2.46	0.51
23:V:1143:A:H8	23:V:1143:A:H5"	1.74	0.51
8:G:159:G:N2	8:G:162:A:OP2	2.43	0.50
10:I:55:VAL:HG22	10:I:68:VAL:HG12	1.93	0.50
23:V:270(H):C:H2'	23:V:270(I):G:C8	2.40	0.50
23:V:271(C):G:C2	23:V:272:G:C8	2.99	0.50
27:a:104:VAL:HG11	27:a:188:VAL:HG13	1.93	0.50
36:j:43:THR:HA	36:j:94:VAL:HG12	1.92	0.50
53:AA:14:VAL:HG12	53:AA:24:ALA:HB2	1.93	0.50
23:V:270(N):G:H3'	23:V:270(O):U:C6	2.45	0.50
23:V:511:U:O2'	23:V:1215:G:N2	2.44	0.50
23:V:602:G:O2'	23:V:655:A:N6	2.44	0.50
8:G:1372:U:H5'	16:O:71:SER:HB3	1.94	0.50
23:V:1544:C:N4	23:V:1545:A:H62	2.10	0.50
23:V:2211:G:N3	23:V:2211:G:C3'	2.73	0.50
30:d:18:GLU:CB	30:d:24:VAL:CB	2.90	0.50
8:G:1309:G:N3	8:G:1328:C:C4	2.79	0.50
23:V:41:C:H2'	23:V:43:G:H8	1.76	0.50
23:V:270(X):G:O6	23:V:270(Y):G:N3	2.43	0.50
23:V:1493:C:P	23:V:2210:G:N1	2.84	0.50
23:V:2392:A:H2	23:V:2424:C:H42	1.59	0.50
23:V:2832:U:O2	23:V:2832:U:H2'	2.11	0.50
27:a:81:ILE:HG22	27:a:82:ARG:HG2	1.93	0.50
29:c:57:ALA:HA	29:c:67:LYS:HD3	1.92	0.50
29:c:167:GLU:HA	29:c:170:ARG:HB3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:j:17:LEU:O	36:j:72:LYS:NZ	2.34	0.50
3:B:59:SER:OG	3:B:62:GLU:OE1	2.26	0.50
8:G:464:G:H1	8:G:466:C:H4'	1.75	0.50
8:G:718:G:H1'	17:P:116:HIS:HA	1.93	0.50
23:V:13:A:N9	23:V:15:G:O6	2.44	0.50
23:V:553:U:H3'	23:V:553:U:H6	1.76	0.50
23:V:974:G:N2	23:V:1186:G:C6	2.64	0.50
23:V:1275:A:N6	23:V:1295:C:O2'	2.44	0.50
35:i:49:ARG:HH12	53:AA:3:LYS:HD2	1.76	0.50
6:E:5:ARG:NH2	8:G:1125:U:O4	2.45	0.50
8:G:129(A):G:N1	8:G:191(A):G:C6	2.80	0.50
8:G:217:C:O5'	8:G:217:C:H6	1.94	0.50
8:G:266:G:H4'	8:G:268:C:H41	1.77	0.50
20:S:21:TYR:CD1	20:S:21:TYR:N	2.79	0.50
23:V:270(A):A:OP2	23:V:270(B):A:C2	2.64	0.50
23:V:280:C:C4	23:V:283:A:C4	2.99	0.50
23:V:974(A):C:H4'	23:V:975:G:H5'	1.92	0.50
23:V:1031:G:H21	54:BB:36:GLN:HE22	1.60	0.50
23:V:1143:A:C8	23:V:1143:A:H5'	2.45	0.50
23:V:1449(A):G:N3	23:V:1449(A):G:C2'	2.73	0.50
23:V:1717:G:N3	23:V:1717:G:C5'	2.73	0.50
23:V:2213:U:O4	49:w:47:GLN:CD	2.54	0.50
25:Y:46:LYS:HG2	25:Y:210:ARG:HH21	1.77	0.50
38:l:17:ARG:HH12	38:l:89:ARG:CD	2.04	0.50
41:o:19:LYS:HE3	41:o:21:ARG:HH21	1.77	0.50
51:y:28:ARG:O	51:y:32:ASN:ND2	2.45	0.50
8:G:439:A:N7	8:G:496:A:C6	2.80	0.50
8:G:1415:G:H8	8:G:1415:G:O5'	1.95	0.50
23:V:993:G:OP1	40:n:50:ARG:NH1	2.40	0.50
23:V:1169:G:C4	23:V:1170:G:C6	2.99	0.50
23:V:1545:A:H2'	23:V:1545(A):A:H4'	1.92	0.50
23:V:2584:U:O2'	23:V:2602:A:N1	2.45	0.50
23:V:2720:U:O5'	23:V:2720:U:H6	1.95	0.50
25:Y:159:GLY:O	25:Y:160:ARG:HB2	2.11	0.50
28:b:200:GLU:OE2	28:b:204:ASN:ND2	2.45	0.50
38:l:17:ARG:NH2	38:l:17:ARG:CB	2.73	0.50
45:s:151:HIS:HB3	45:s:171:ILE:HG22	1.94	0.50
51:y:14:THR:CG2	51:y:52:VAL:CB	2.79	0.50
55:DD:59:A:O2'	55:DD:61:U:OP2	2.25	0.50
8:G:35:G:N2	18:Q:118:SER:OG	2.39	0.50
16:O:3:GLN:HE21	16:O:18:PHE:HB3	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:T:24:SER:H	21:T:27:VAL:HG12	1.76	0.50
23:V:270(H):C:O2'	23:V:270(I):G:H5'	2.12	0.50
23:V:1005:C:C5	23:V:1143:A:O4'	2.65	0.50
23:V:1112:G:O2'	23:V:1113:U:O5'	2.21	0.50
23:V:1142(A):A:N3	23:V:1142(A):A:C2'	2.73	0.50
38:l:9:ARG:C	38:l:12:PHE:CD1	2.88	0.50
43:q:75:ASP:OD1	43:q:75:ASP:N	2.44	0.50
8:G:138:G:H1'	8:G:226:G:H22	1.76	0.50
8:G:464:G:N2	8:G:474:G:C6	2.80	0.50
8:G:1256:A:N6	8:G:1278:U:O2'	2.45	0.50
13:L:74:ASP:OD1	13:L:77:ARG:NH1	2.45	0.50
23:V:270(L):U:O2'	23:V:270(M):U:P	2.69	0.50
23:V:2748:A:N1	23:V:2757:A:N6	2.59	0.50
25:Y:175:VAL:O	25:Y:180:PHE:CE2	2.65	0.50
28:b:32:LEU:HD11	28:b:105:VAL:HG13	1.94	0.50
29:c:71:THR:O	29:c:88:ILE:HG22	2.12	0.50
35:i:15:ARG:HH12	35:i:16:ARG:HD2	1.76	0.50
45:s:94:GLU:N	45:s:95:PRO:CD	2.73	0.50
55:DD:31:G:O5'	55:DD:31:G:H8	1.95	0.50
8:G:643:C:H2'	8:G:644:G:H8	1.76	0.49
8:G:778:G:H21	17:P:120:ARG:HD3	1.77	0.49
8:G:1203:C:H4'	20:S:27:CYS:HB2	1.82	0.49
19:R:42:ALA:O	19:R:44:ARG:NH1	2.45	0.49
20:S:9:LYS:NZ	20:S:21:TYR:CZ	2.80	0.49
23:V:833:U:H5'	35:i:52:GLU:CG	2.42	0.49
23:V:1139:G:O5'	23:V:1139:G:H8	1.94	0.49
23:V:2624:G:H8	23:V:2624:G:O5'	1.94	0.49
32:f:19:PRO:HA	32:f:22:PRO:HG3	1.82	0.49
8:G:1355:G:H1	8:G:1367:C:H42	1.60	0.49
23:V:43:G:C6	23:V:438:G:C6	3.00	0.49
23:V:122:G:H1	23:V:129:C:H42	1.60	0.49
23:V:537:C:H2'	23:V:539:G:C8	2.47	0.49
24:X:14:U:O2'	24:X:106:G:N2	2.43	0.49
29:c:113:ARG:HG2	29:c:141:PHE:HB3	1.94	0.49
55:DD:29:C:C2	55:DD:30:G:N7	2.81	0.49
8:G:272:C:H2'	8:G:273:A:C8	2.48	0.49
8:G:1485:U:H2'	8:G:1486:G:C8	2.47	0.49
23:V:83:G:O2'	23:V:84:A:O4'	2.31	0.49
23:V:265:A:N6	23:V:428:A:C8	2.79	0.49
23:V:270(X):G:N3	23:V:270(Y):G:H4'	2.26	0.49
23:V:545:G:N1	23:V:548:A:OP2	2.41	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:547:A:H2'	23:V:548:A:H8	1.77	0.49
23:V:641:C:H42	23:V:644:A:H62	1.60	0.49
23:V:879:G:N1	23:V:898:C:C2	2.80	0.49
23:V:1445:C:H5	23:V:1446:C:N3	2.00	0.49
23:V:1586:A:O5'	23:V:1586:A:H8	1.96	0.49
23:V:1728:G:N3	23:V:1728:G:C2'	2.73	0.49
23:V:1944:U:H1'	23:V:1955:U:H1'	1.94	0.49
38:l:94:TYR:CD2	38:l:98:VAL:CG1	2.96	0.49
8:G:439:A:N7	8:G:496:A:C5	2.80	0.49
22:U:33:ILE:HG22	22:U:34:GLU:HG3	1.94	0.49
23:V:30:G:O2'	23:V:1214:A:N3	2.37	0.49
23:V:87:C:O2	23:V:96:G:N2	2.43	0.49
23:V:374:A:N3	23:V:401:A:C6	2.81	0.49
23:V:1312:U:H5'	43:q:63:LYS:HD2	1.93	0.49
25:Y:182:PRO:O	25:Y:186:ALA:HB2	2.11	0.49
27:a:14:ILE:HG13	27:a:19:ARG:HB3	1.94	0.49
8:G:976:G:C2	8:G:1363:A:C6	3.00	0.49
23:V:138:G:N3	23:V:138:G:C2'	2.74	0.49
23:V:144:C:H2'	23:V:145:G:H8	1.78	0.49
25:Y:177:LYS:CA	25:Y:180:PHE:HD1	2.25	0.49
5:D:1:MET:HE3	8:G:1311:G:P	2.53	0.49
14:M:26:PHE:HA	14:M:101:LEU:HD21	1.94	0.49
23:V:102:G:H8	23:V:102:G:OP2	1.95	0.49
23:V:1541:U:H5"	23:V:1542:G:OP2	2.11	0.49
23:V:2630:G:H1'	23:V:2894:G:C1'	2.42	0.49
23:V:2828:C:H2'	23:V:2829:C:C6	2.48	0.49
25:Y:182:PRO:CD	25:Y:183:GLU:H	2.25	0.49
29:c:47:LYS:HA	29:c:86:MET:HE1	1.91	0.49
32:f:11:GLN:NE2	32:f:12:LEU:O	2.46	0.49
32:f:52:ILE:O	32:f:73:PRO:CD	2.61	0.49
8:G:1100:C:N4	8:G:1103:C:OP1	2.45	0.49
23:V:1480:G:N3	23:V:1480:G:C2'	2.75	0.49
23:V:2631:G:H2'	23:V:2632:A:H5"	1.94	0.49
23:V:2831:G:H8	23:V:2831:G:O5'	1.94	0.49
25:Y:56:GLN:HE21	25:Y:208:PHE:HE1	1.60	0.49
30:d:125:VAL:HG13	30:d:130:ARG:O	2.13	0.49
8:G:439:A:OP2	8:G:493:G:N1	2.36	0.49
8:G:592:G:H2'	8:G:593:G:H8	1.78	0.49
8:G:1459:C:O5'	8:G:1459:C:H6	1.95	0.49
23:V:1058:G:N2	23:V:1059:G:N7	2.60	0.49
23:V:1137:G:N2	33:g:106:MET:SD	2.74	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1169:G:C3'	23:V:1170:G:C8	2.96	0.49
23:V:1285:G:N2	23:V:1329:U:OP1	2.45	0.49
23:V:1418:G:H21	23:V:1579:A:N6	2.08	0.49
23:V:1589:C:H2'	23:V:1590:U:C6	2.47	0.49
23:V:2126:A:N7	23:V:2164:C:P	2.85	0.49
23:V:2230:G:H1'	49:w:58:ARG:HH12	1.78	0.49
23:V:2636:U:C2	23:V:2783:G:N1	2.54	0.49
25:Y:36:LYS:HG3	25:Y:37:PHE:HD1	1.77	0.49
25:Y:138:PRO:HA	25:Y:144:THR:HG21	1.94	0.49
2:A:62:SER:OG	2:A:72:ARG:NE	2.46	0.49
6:E:37:PRO:HB2	6:E:70:ARG:HH11	1.77	0.49
8:G:362:G:N2	8:G:365:U:OP2	2.45	0.49
8:G:1117:G:O3'	16:O:104:ARG:HD2	2.13	0.49
20:S:40:CYS:SG	20:S:41:ARG:N	2.85	0.49
23:V:526:A:C2	23:V:2625:G:N2	2.65	0.49
23:V:975:G:N3	23:V:990:A:C5	2.81	0.49
23:V:1418:G:N2	23:V:1579:A:H62	2.10	0.49
23:V:1862:G:N2	23:V:1863:G:C5	2.81	0.49
23:V:2632:A:H2'	23:V:2633:G:C8	2.47	0.49
25:Y:176:GLY:C	25:Y:180:PHE:CD1	2.86	0.49
3:B:18:ARG:NH1	3:B:54:ARG:O	2.46	0.49
8:G:1378:C:H5"	14:M:6:ARG:HH12	1.77	0.49
23:V:270(W):G:N7	23:V:270(X):G:N7	2.61	0.49
23:V:1174:A:N3	23:V:1174:A:C2'	2.75	0.49
23:V:2216:G:O5'	23:V:2216:G:H8	1.96	0.49
23:V:2636:U:C1'	23:V:2783:G:N2	2.72	0.49
25:Y:97:GLU:HA	25:Y:100:ILE:HD12	1.94	0.49
30:d:11:VAL:HG12	30:d:48:GLY:O	2.13	0.49
32:f:23:VAL:HG12	32:f:35:MET:CB	2.42	0.49
45:s:70:LEU:CD2	45:s:91:LEU:HD21	2.41	0.49
8:G:129(A):G:N3	8:G:191(A):G:C8	2.81	0.48
8:G:266:G:O2'	8:G:268:C:OP2	2.26	0.48
8:G:376:G:H5"	22:U:5:ARG:HD2	1.94	0.48
9:H:77:ALA:O	9:H:79:ASP:N	2.45	0.48
23:V:489:G:C4	23:V:1284:A:C6	3.01	0.48
23:V:592:G:H21	53:AA:3:LYS:HZ1	1.60	0.48
23:V:1169:G:C2	23:V:1170:G:C5	3.00	0.48
23:V:1418:G:H8	23:V:1418:G:OP2	1.95	0.48
23:V:1545:A:O3'	23:V:1545(A):A:H4'	2.13	0.48
23:V:1568:G:OP2	26:Z:63:ARG:NH2	2.38	0.48
23:V:2126:A:N6	23:V:2164:C:P	2.86	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2206:C:H3'	23:V:2206:C:H6	1.78	0.48
29:c:47:LYS:CG	29:c:80:PHE:HD2	2.09	0.48
8:G:920:U:O2'	8:G:1081:G:O2'	2.31	0.48
8:G:1412:C:O5'	8:G:1412:C:H6	1.96	0.48
17:P:82:VAL:HG11	17:P:98:LEU:HD11	1.95	0.48
23:V:919:G:C6	23:V:2268:A:N7	2.81	0.48
23:V:1169:G:N3	23:V:1170:G:C5	2.81	0.48
23:V:1857:G:H21	23:V:1885:A:N6	2.11	0.48
23:V:2881:C:H6	23:V:2881:C:O5'	1.97	0.48
23:V:2883:A:H5'	23:V:2884:U:H5'	1.94	0.48
25:Y:176:GLY:HA2	25:Y:180:PHE:CD2	2.47	0.48
27:a:7:VAL:HA	27:a:25:VAL:HG12	1.94	0.48
8:G:1242:C:H42	8:G:1295:G:H1	1.59	0.48
18:Q:102:ARG:HD2	18:Q:107:ALA:HB1	1.95	0.48
20:S:9:LYS:CE	20:S:21:TYR:CZ	2.96	0.48
23:V:7:G:OP2	23:V:7:G:H4'	2.13	0.48
23:V:271(A):G:H5"	23:V:271(B):U:H5'	1.92	0.48
23:V:370:G:N3	23:V:370:G:C2'	2.73	0.48
23:V:602:G:H4'	23:V:603:A:H4'	1.95	0.48
23:V:1452:A:H3'	23:V:1453:A:H4'	1.95	0.48
25:Y:180:PHE:CG	25:Y:185:LEU:CD1	2.96	0.48
29:c:39:ILE:HG23	29:c:92:VAL:HB	1.95	0.48
8:G:403:C:O2'	11:J:122:ARG:NH1	2.42	0.48
23:V:144:C:H2'	23:V:145:G:C8	2.49	0.48
23:V:270:A:OP2	23:V:270(X):G:N2	2.37	0.48
23:V:270(J):G:N1	23:V:270(K):C:C2	2.82	0.48
23:V:1046:A:O2'	31:e:60:ARG:O	2.31	0.48
23:V:1630:G:O5'	23:V:1630:G:H8	1.96	0.48
23:V:2134:A:OP1	23:V:2159:G:N2	2.45	0.48
23:V:2226:C:C2'	23:V:2227:A:C5'	2.92	0.48
23:V:2343:C:O2'	23:V:2373:G:O2'	2.31	0.48
23:V:2701:C:H5'	23:V:2702:U:H5"	1.95	0.48
27:a:119:ARG:NH2	27:a:159:HIS:O	2.47	0.48
36:j:12:GLN:HG3	36:j:13:GLN:HG2	1.96	0.48
38:l:17:ARG:HH11	38:l:89:ARG:CB	2.27	0.48
1:W:19:U:O2'	1:W:20:U:P	2.72	0.48
8:G:92:G:OP1	8:G:92:G:H4'	2.14	0.48
10:I:147:LYS:HB2	10:I:203:PHE:HD2	1.78	0.48
23:V:1314:C:H42	23:V:1338:G:H1	1.61	0.48
23:V:1458:C:O2'	23:V:1459:G:N2	2.46	0.48
25:Y:127:LEU:HB3	25:Y:131:LEU:HD13	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:j:63:LYS:O	36:j:107:ALA:HB2	2.14	0.48
51:y:24:GLU:OE1	51:y:37:ARG:NH1	2.46	0.48
7:F:20:LYS:NZ	8:G:1267:C:O2	2.36	0.48
21:T:4:THR:N	21:T:7:GLU:OE2	2.47	0.48
23:V:255:A:O2'	23:V:384:U:OP1	2.32	0.48
23:V:2056:G:N2	50:x:4:HIS:O	2.33	0.48
23:V:2837:G:N2	23:V:2882:A:N3	2.61	0.48
25:Y:66:HIS:ND1	25:Y:184:LYS:HG2	2.28	0.48
32:f:23:VAL:CG1	32:f:35:MET:CB	2.92	0.48
34:h:67:LYS:HZ3	34:h:77:ILE:HD13	1.78	0.48
48:v:9:VAL:HG13	48:v:10:LYS:HD2	1.95	0.48
5:D:1:MET:HE3	8:G:1311:G:OP1	2.14	0.48
8:G:76:G:C2	8:G:95:G:C6	3.01	0.48
8:G:503:C:OP2	18:Q:116:SER:OG	2.28	0.48
23:V:140:A:N3	23:V:140:A:C2'	2.76	0.48
23:V:270(P):C:O2'	23:V:270(Q):C:H5'	2.12	0.48
23:V:270(T):G:H2'	23:V:270(T):G:N3	2.29	0.48
23:V:495:G:H21	42:p:61:ASN:HD21	1.62	0.48
23:V:557:U:H2'	23:V:558:G:H8	1.79	0.48
23:V:871:U:O2'	23:V:872:A:N7	2.40	0.48
23:V:1173:G:N3	23:V:1173:G:C3'	2.77	0.48
23:V:1530:G:H22	23:V:1542:G:H22	1.60	0.48
23:V:2884:U:H5	50:x:43:HIS:HD2	1.60	0.48
35:i:47:ASP:N	35:i:48:PRO:CD	2.74	0.48
8:G:129(A):G:C2	8:G:191(A):G:C6	2.94	0.48
23:V:43:G:N1	23:V:438:G:C6	2.82	0.48
23:V:270(K):C:H5"	23:V:270(L):U:C5	2.49	0.48
23:V:270(X):G:C4'	23:V:273:G:H5'	2.44	0.48
23:V:1668:A:N3	23:V:1670:C:N4	2.62	0.48
23:V:2124:G:H3'	25:Y:218:MET:C	2.39	0.48
23:V:2791:C:H41	23:V:2892:A:H61	1.57	0.48
8:G:776:G:N2	8:G:802:A:OP2	2.46	0.48
8:G:1002:G:H2'	8:G:1003:G:C8	2.48	0.48
8:G:1415:G:H2'	8:G:1416:G:H8	1.79	0.48
8:G:1448:C:H2'	8:G:1449:C:O4'	2.14	0.48
20:S:9:LYS:NZ	20:S:21:TYR:CG	2.77	0.48
23:V:270(G):C:H2'	23:V:270(H):C:C5	2.48	0.48
23:V:1138:G:O6	23:V:1139:G:O6	2.32	0.48
23:V:1710:C:N4	23:V:1711:C:H42	2.10	0.48
23:V:1823:G:OP1	26:Z:54:ARG:NH2	2.41	0.48
23:V:2134:A:H2'	23:V:2136:C:H41	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:b:157:VAL:HG23	28:b:194:MET:HA	1.94	0.48
32:f:19:PRO:HB2	32:f:23:VAL:HG23	1.96	0.48
34:h:87:ILE:HG12	34:h:91:LEU:HB3	1.95	0.48
36:j:48:GLU:OE2	36:j:51:ARG:NH1	2.40	0.48
39:m:32:TYR:HB2	39:m:48:ILE:HG23	1.96	0.48
55:DD:37:U:C2'	55:DD:38:A:C5'	2.89	0.48
55:DD:73:A:H2'	55:DD:74:A:H8	1.79	0.48
23:V:276:A:H2'	23:V:276:A:N3	2.28	0.48
23:V:852:G:C4	23:V:853:G:C8	3.02	0.48
23:V:975:G:C2	23:V:990:A:N7	2.82	0.48
23:V:1057:A:O2'	31:e:37:THR:N	2.34	0.48
23:V:1964:G:O2'	23:V:1967:C:OP2	2.29	0.48
23:V:2884:U:H5	50:x:43:HIS:CD2	2.32	0.48
23:V:2898:U:O5'	23:V:2898:U:H6	1.96	0.48
25:Y:127:LEU:O	25:Y:131:LEU:HB2	2.14	0.48
26:Z:37:LEU:HD13	26:Z:64:ILE:HD11	1.95	0.48
23:V:10:G:H2'	23:V:11:G:C2	2.49	0.47
23:V:270(K):C:H3'	23:V:270(L):U:C6	2.45	0.47
23:V:527:C:H2'	23:V:2779:U:C6	2.49	0.47
23:V:974:G:C6	23:V:1187:G:H1'	2.48	0.47
23:V:1071:G:O6	23:V:1072:C:N4	2.47	0.47
23:V:1084:A:N3	23:V:1106:G:O6	2.47	0.47
23:V:1529:A:N7	23:V:1530:G:N1	2.62	0.47
54:BB:17:ILE:HD12	54:BB:26:ILE:HD12	1.95	0.47
23:V:644:A:H5"	23:V:2349:G:H21	1.79	0.47
23:V:833:U:C4'	35:i:52:GLU:HB3	2.44	0.47
40:n:28:ARG:HD3	40:n:38:THR:HG21	1.96	0.47
43:q:52:VAL:HG12	43:q:53:LYS:HG3	1.97	0.47
6:E:47:PHE:HE2	20:S:37:PHE:HZ	1.62	0.47
8:G:738:C:OP2	13:L:92:LYS:NZ	2.46	0.47
9:H:19:HIS:HB2	9:H:204:ASN:HD21	1.79	0.47
23:V:270(L):U:O2'	23:V:270(M):U:OP1	2.32	0.47
23:V:270(N):G:C8	23:V:270(O):U:C6	3.02	0.47
23:V:374:A:C2	23:V:401:A:C6	3.01	0.47
23:V:1479:G:H4'	23:V:1559:G:N7	2.29	0.47
23:V:1534:G:H1'	23:V:1537:C:H41	1.79	0.47
23:V:1748:G:H8	23:V:1748:G:O5'	1.97	0.47
23:V:1792:G:H5'	26:Z:205:VAL:HG13	1.96	0.47
23:V:2124:G:P	25:Y:218:MET:HB2	2.47	0.47
23:V:2485:G:OP1	36:j:46:GLN:NE2	2.46	0.47
48:v:26:LEU:O	48:v:35:ARG:NH2	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:971:G:OP2	8:G:1231:G:N2	2.44	0.47
8:G:1345:U:OP1	16:O:120:ARG:NH1	2.47	0.47
13:L:15:ASP:OD1	13:L:15:ASP:N	2.47	0.47
23:V:270(Z):U:O2	23:V:271(A):G:OP1	2.32	0.47
23:V:557:U:H6	23:V:557:U:H3'	1.79	0.47
30:d:102:ALA:CA	30:d:123:PHE:CE2	2.71	0.47
41:o:85:LYS:HE2	41:o:85:LYS:HB3	1.75	0.47
8:G:688:G:N2	8:G:699:C:O2	2.40	0.47
8:G:1167:A:O2'	8:G:1169:A:H5'	2.14	0.47
8:G:1360:A:P	8:G:1360:A:H8	2.37	0.47
8:G:1442:G:N3	8:G:1442:G:C3'	2.73	0.47
19:R:32:GLU:HA	19:R:35:GLU:HG3	1.96	0.47
23:V:272:G:O6	23:V:364:C:N3	2.47	0.47
23:V:852:G:N1	23:V:853:G:C6	2.82	0.47
23:V:932:G:O2'	23:V:933:A:O4'	2.32	0.47
30:d:27:LYS:HG2	30:d:32:GLU:CD	2.40	0.47
45:s:70:LEU:CD1	45:s:98:MET:HE3	2.28	0.47
45:s:119:GLU:HG2	45:s:173:ALA:H	1.79	0.47
7:F:20:LYS:HG2	8:G:1327:C:H5"	1.97	0.47
17:P:99:GLN:HE21	17:P:105:VAL:HG21	1.79	0.47
23:V:2209:C:N4	23:V:2215:G:C6	2.69	0.47
23:V:2312:U:O2'	29:c:89:GLY:CA	2.57	0.47
8:G:440:A:N6	8:G:493:G:C2	2.35	0.47
8:G:446:G:N2	8:G:489:C:O2	2.47	0.47
8:G:842:C:H6	8:G:842:C:H3'	1.80	0.47
8:G:1441:G:H4'	8:G:1442:G:C5	2.50	0.47
9:H:78:GLN:O	9:H:94:ASN:ND2	2.47	0.47
20:S:36:PHE:CD1	20:S:36:PHE:C	2.92	0.47
23:V:234:C:H2'	23:V:235:U:H6	1.80	0.47
23:V:270(W):G:C4	23:V:270(X):G:H8	2.32	0.47
23:V:270(Z):U:H3	23:V:271(B):U:H1'	1.73	0.47
23:V:403:U:O2	23:V:403:U:O2'	2.22	0.47
23:V:1048:A:N6	23:V:1111:A:O2'	2.29	0.47
23:V:1441:G:O2'	23:V:1628:G:OP1	2.32	0.47
23:V:1544:C:H4'	23:V:1544:C:OP1	2.15	0.47
23:V:1712:C:O5'	23:V:1712:C:H6	1.97	0.47
23:V:2206:C:C2'	23:V:2207:C:H5'	2.44	0.47
25:Y:107:TRP:NE1	25:Y:109:ASP:OD2	2.43	0.47
25:Y:167:LYS:HD3	25:Y:168:THR:HG23	1.97	0.47
32:f:74:ALA:HB2	32:f:115:LEU:HD11	1.95	0.47
32:f:86:LYS:CB	32:f:95:LYS:HB2	2.25	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:h:122:LEU:HD11	39:m:71:GLY:HA3	1.96	0.47
41:o:7:THR:HB	41:o:37:VAL:HG13	1.97	0.47
47:u:48:LEU:HG	47:u:51:GLN:HE21	1.79	0.47
50:x:51:TYR:HB3	50:x:55:ARG:HA	1.96	0.47
8:G:1020:U:H2'	8:G:1021:G:H8	1.78	0.47
23:V:270(M):U:C3'	23:V:270(N):G:H4'	2.44	0.47
23:V:374:A:N6	23:V:401:A:C8	2.83	0.47
23:V:1857:G:N2	23:V:1885:A:H62	2.13	0.47
23:V:2714:G:H8	23:V:2714:G:O5'	1.98	0.47
23:V:2813:A:H8	23:V:2813:A:O5'	1.98	0.47
28:b:8:GLN:HG2	28:b:17:ARG:HG3	1.96	0.47
32:f:115:LEU:HD23	32:f:116:ASN:H	1.80	0.47
35:i:106:LEU:HG	35:i:109:GLY:HA2	1.96	0.47
38:l:14:VAL:HG22	38:l:17:ARG:NH1	2.30	0.47
53:AA:27:THR:O	53:AA:27:THR:OG1	2.31	0.47
8:G:68:G:C2	8:G:102:G:N2	2.83	0.47
8:G:474:G:H2'	8:G:475:G:C8	2.49	0.47
8:G:1119:C:H2'	8:G:1120:G:H8	1.80	0.47
23:V:371:A:N3	23:V:371:A:C2'	2.74	0.47
23:V:840:C:H2'	23:V:841:A:C8	2.50	0.47
23:V:1697:G:H5"	23:V:1698:A:H5"	1.97	0.47
23:V:2807:G:N2	23:V:2892:A:N3	2.63	0.47
25:Y:155:GLU:O	25:Y:158:ALA:N	2.43	0.47
36:j:134:ARG:HH22	45:s:123:ASP:HB2	1.80	0.47
41:o:36:PRO:HA	41:o:60:GLU:O	2.15	0.47
45:s:145:GLU:HB3	45:s:148:ASP:HB2	1.96	0.47
51:y:34:LEU:HD23	51:y:51:GLU:HG3	1.97	0.47
2:A:9:VAL:HG12	2:A:56:VAL:HG22	1.97	0.47
8:G:1023:G:H3'	8:G:1024:G:H8	1.80	0.47
17:P:19:ALA:O	17:P:82:VAL:HA	2.15	0.47
23:V:95:G:H2'	23:V:96:G:O2'	2.15	0.47
23:V:270(P):C:O5'	23:V:270(P):C:H6	1.99	0.47
23:V:270(R):G:C2	23:V:270(S):G:C4	3.03	0.47
23:V:270(X):G:H5"	23:V:273:G:OP1	2.14	0.47
23:V:882:G:H3'	23:V:883:G:H4'	1.97	0.47
23:V:1528:A:H2'	23:V:1529:A:C4	2.50	0.47
23:V:2521:C:O2'	23:V:2564:A:N3	2.41	0.47
25:Y:176:GLY:HA2	25:Y:180:PHE:CD1	2.50	0.47
8:G:31:G:N2	8:G:48:C:OP1	2.40	0.46
8:G:1415:G:O6	8:G:1486:G:O6	2.33	0.46
20:S:24:CYS:SG	20:S:25:VAL:N	2.88	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:486:C:O2'	42:p:60:ASN:ND2	2.39	0.46
23:V:852:G:C6	23:V:926:A:C6	3.03	0.46
23:V:1102:C:C2	23:V:1104:C:C4	3.03	0.46
23:V:1935:G:O2'	23:V:1936:A:H5'	2.15	0.46
25:Y:89:ALA:CB	25:Y:154:ARG:HG3	2.45	0.46
55:DD:39:A:H8	55:DD:39:A:O5'	1.98	0.46
8:G:1126:U:H2'	8:G:1127:G:C8	2.50	0.46
12:K:8:GLU:HA	12:K:33:VAL:O	2.15	0.46
23:V:270(K):C:N4	23:V:270(M):U:C6	2.83	0.46
23:V:273(E):U:N3	23:V:273(F):C:H1'	2.30	0.46
23:V:931:G:H21	48:v:24:LYS:HG3	1.80	0.46
23:V:974:G:C5	23:V:1187:G:C1'	2.88	0.46
23:V:2216:G:H2'	23:V:2217:G:C8	2.50	0.46
23:V:2807:G:OP1	23:V:2807:G:H4'	2.12	0.46
24:X:40:U:O2'	24:X:45:A:N6	2.48	0.46
32:f:52:ILE:HD11	32:f:76:TYR:CE1	2.50	0.46
32:f:59:ILE:O	32:f:59:ILE:HG22	2.15	0.46
37:k:13:HIS:HB3	37:k:16:HIS:HB3	1.98	0.46
38:l:9:ARG:HA	38:l:12:PHE:CG	2.50	0.46
8:G:129(A):G:N1	8:G:191(A):G:C4	2.81	0.46
23:V:273:G:C5	23:V:273(A):G:N7	2.83	0.46
23:V:280:C:C4	23:V:283:A:C5	3.03	0.46
23:V:852:G:C6	23:V:853:G:C6	3.02	0.46
23:V:910:A:N3	23:V:2264:C:O2'	2.47	0.46
23:V:1084:A:C2'	23:V:1106:G:C5	2.96	0.46
23:V:1102:C:N3	23:V:1104:C:C4	2.83	0.46
23:V:1493:C:OP1	23:V:2210:G:C6	2.67	0.46
23:V:2197:U:N3	23:V:2224:G:N1	2.62	0.46
29:c:138:GLN:HB2	29:c:154:GLY:H	1.79	0.46
55:DD:33:OMC:C3'	55:DD:34:A:H5"	2.44	0.46
3:B:50:ILE:N	8:G:719:C:O2	2.42	0.46
8:G:167:G:H2'	8:G:168:G:C8	2.49	0.46
8:G:375:U:H4'	22:U:6:LEU:HD11	1.97	0.46
8:G:1125:U:OP2	8:G:1145:C:N4	2.48	0.46
14:M:69:VAL:HG21	14:M:104:LEU:HD21	1.97	0.46
23:V:375:C:H2'	23:V:376:C:C6	2.50	0.46
23:V:376:C:O5'	23:V:376:C:H6	1.98	0.46
23:V:873:G:H2'	23:V:874:G:C8	2.51	0.46
23:V:2120:G:N1	23:V:2121:G:O6	2.48	0.46
23:V:2124:G:H21	25:Y:221:SER:H	1.49	0.46
23:V:2897:U:H2'	23:V:2898:U:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:l:60:GLY:HA3	38:l:62:LYS:HE3	1.97	0.46
55:DD:7:G:H3'	55:DD:8:4SU:H5"	1.97	0.46
8:G:210:U:H4'	8:G:216:G:C8	2.50	0.46
8:G:1006:C:H42	8:G:1024:G:H1'	1.80	0.46
8:G:1356:G:H2'	8:G:1357:A:C8	2.51	0.46
16:O:55:ALA:O	16:O:58:HIS:ND1	2.33	0.46
17:P:86:GLY:N	17:P:112:THR:OG1	2.49	0.46
23:V:89:G:H3'	23:V:90:U:H5"	1.98	0.46
23:V:273:G:C4	23:V:273(A):G:N7	2.83	0.46
23:V:542:C:C2	23:V:552:G:N2	2.84	0.46
23:V:1084:A:N6	31:e:30:GLN:O	2.49	0.46
23:V:1138:G:C6	23:V:1139:G:O6	2.68	0.46
23:V:1544:C:C4	23:V:1545:A:N7	2.84	0.46
23:V:1627:G:C2'	23:V:1628:G:H5'	2.46	0.46
27:a:111:ARG:HB2	27:a:160:TYR:HD2	1.80	0.46
28:b:7:TYR:HD2	28:b:21:ALA:HB3	1.80	0.46
29:c:80:PHE:O	29:c:82:LEU:HG	2.15	0.46
35:i:15:ARG:NH1	35:i:16:ARG:HA	2.31	0.46
36:j:29:PHE:HE1	36:j:137:TYR:H	1.63	0.46
37:k:38:VAL:HG22	37:k:112:ALA:HB2	1.98	0.46
8:G:979:C:H41	8:G:1360:A:H61	1.64	0.46
17:P:85:ARG:NH1	17:P:111:ASP:OD2	2.48	0.46
23:V:270:A:O2'	23:V:270(A):A:OP1	2.32	0.46
23:V:489:G:C6	23:V:1284:A:C2	3.04	0.46
23:V:1079:C:H41	23:V:1088:A:H5'	1.80	0.46
23:V:1860:G:C6	23:V:1861:G:C6	3.03	0.46
23:V:2863:C:H2'	23:V:2864:G:H8	1.79	0.46
39:m:110:ILE:HG23	39:m:113:LYS:HB2	1.97	0.46
45:s:6:LYS:HG2	45:s:35:ARG:HH22	1.80	0.46
45:s:100:VAL:HG23	45:s:100:VAL:O	2.15	0.46
5:D:20:LEU:HD12	5:D:21:GLU:HG2	1.97	0.46
9:H:71:VAL:HA	9:H:93:VAL:HB	1.98	0.46
10:I:95:THR:O	10:I:97:LYS:NZ	2.48	0.46
14:M:50:ILE:HD11	14:M:58:PRO:HB3	1.98	0.46
23:V:364:C:H2'	23:V:365:C:C5	2.50	0.46
23:V:1005:C:C5	23:V:1143:A:C8	3.04	0.46
27:a:10:GLY:HA2	27:a:23:VAL:HA	1.97	0.46
30:d:27:LYS:CD	30:d:32:GLU:OE2	2.64	0.46
34:h:102:VAL:O	39:m:74:ARG:NH1	2.41	0.46
51:y:13:CYS:O	51:y:21:TYR:HA	2.15	0.46
7:F:8:THR:HG23	8:G:1243:C:H5"	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:101:A:OP1	8:G:101:A:H4'	2.15	0.46
8:G:1413:A:C2	8:G:1488:G:C2	3.03	0.46
23:V:278:A:H2	23:V:362:U:H3	1.53	0.46
23:V:923:C:C4	23:V:924:C:C4	2.94	0.46
23:V:1546:C:OP1	23:V:1547:C:H5'	2.16	0.46
23:V:2630:G:C5	23:V:2894:G:H8	2.34	0.46
34:h:35:VAL:HG11	34:h:64:ARG:HH11	1.80	0.46
35:i:121:LYS:HD2	35:i:122:PRO:HD2	1.96	0.46
51:y:45:LYS:CD	51:y:47:THR:HG22	2.45	0.46
53:AA:29:LYS:HE3	53:AA:36:LYS:HG3	1.97	0.46
54:BB:18:ARG:HG2	54:BB:23:VAL:HG22	1.98	0.46
55:DD:9:G:N1	55:DD:47:7MG:C6	2.84	0.46
8:G:959:A:O2'	8:G:984:C:O2'	2.32	0.46
23:V:96:G:C5'	47:u:43:HIS:CE1	2.93	0.46
23:V:888:C:H4'	23:V:889:C:C5'	2.46	0.46
23:V:1083:U:H1'	23:V:1085:A:C6	2.50	0.46
23:V:1202:C:H42	23:V:1243:G:H1	1.64	0.46
23:V:2096:U:C2	23:V:2194:G:N2	2.84	0.46
23:V:2156:G:H3'	23:V:2157:G:H21	1.81	0.46
23:V:2827:C:H2'	23:V:2828:C:C6	2.51	0.46
25:Y:13:LYS:HE2	25:Y:28:LEU:HG	1.98	0.46
29:c:47:LYS:C	29:c:86:MET:HE1	2.41	0.46
50:x:20:ARG:HA	50:x:23:HIS:HD2	1.81	0.46
8:G:1205:U:OP1	10:I:190:ARG:NH1	2.42	0.46
8:G:1359:C:C2'	8:G:1360:A:O5'	2.64	0.46
23:V:10:G:N2	23:V:2629:A:C8	2.83	0.46
23:V:925:C:H6	23:V:925:C:O5'	1.98	0.46
23:V:1312:U:H2'	23:V:1313:U:O4'	2.15	0.46
23:V:1527:G:N2	23:V:1542:G:N7	2.64	0.46
23:V:1939:U:H3'	23:V:1940:U:H5"	1.97	0.46
23:V:2805:G:H22	23:V:2892:A:H62	1.56	0.46
23:V:2836:U:H2'	23:V:2837:G:C8	2.51	0.46
26:Z:85:ASP:HB2	26:Z:92:ILE:HG12	1.98	0.46
27:a:32:PRO:HA	27:a:47:VAL:O	2.16	0.46
32:f:48:MET:CB	32:f:69:THR:CG2	2.78	0.46
32:f:78:ILE:HD11	32:f:122:ALA:HB1	1.97	0.46
32:f:103:GLN:HA	32:f:106:GLU:HG3	1.98	0.46
34:h:15:GLY:HA3	34:h:47:ILE:HA	1.98	0.46
8:G:1118:C:OP1	16:O:9:ARG:NE	2.49	0.45
20:S:39:LEU:HD12	20:S:44:LEU:HD12	1.98	0.45
23:V:13:A:N6	23:V:525:U:C5	2.84	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:280:C:N1	23:V:283:A:C8	2.84	0.45
23:V:280:C:O2	23:V:280:C:O2'	2.26	0.45
23:V:1270:C:H5"	23:V:1271:G:H5'	1.98	0.45
23:V:2357:U:OP1	46:t:20:ARG:NH2	2.40	0.45
26:Z:147:LEU:HD21	26:Z:183:ARG:HH21	1.80	0.45
32:f:40:ALA:O	32:f:67:PHE:CE1	2.69	0.45
55:DD:29:C:C4	55:DD:30:G:O6	2.69	0.45
7:F:7:ARG:NH2	8:G:1327:C:OP2	2.49	0.45
8:G:392:G:H2'	8:G:393:A:H8	1.82	0.45
8:G:500:G:N1	8:G:546:G:C2	2.84	0.45
8:G:1060:C:OP1	20:S:45:ARG:NH2	2.47	0.45
8:G:1472:U:O4	8:G:1473:A:N6	2.49	0.45
23:V:43:G:N1	23:V:438:G:C4	2.84	0.45
23:V:270(C):C:C2'	23:V:270(D):C:H6	2.02	0.45
23:V:1447:G:OP2	23:V:1447:G:H8	1.99	0.45
23:V:1537:C:H3'	23:V:1538:G:C8	2.49	0.45
23:V:2226:C:C6	23:V:2226:C:C3'	3.00	0.45
23:V:2226:C:C5	23:V:2227:A:C5	3.03	0.45
25:Y:67:GLY:HA2	25:Y:157:LYS:O	2.16	0.45
26:Z:146:GLU:HG2	26:Z:153:ALA:HA	1.98	0.45
30:d:103:LEU:HD22	30:d:123:PHE:CE1	2.48	0.45
34:h:106:LEU:HD12	34:h:115:VAL:HG21	1.97	0.45
23:V:143:C:H2'	23:V:144:C:C6	2.52	0.45
23:V:270(H):C:C2	23:V:270(I):G:C8	3.03	0.45
23:V:880:G:H2'	23:V:881:G:H4'	1.98	0.45
23:V:932:G:OP2	48:v:29:ARG:NH1	2.49	0.45
23:V:974:G:N1	23:V:1187:G:N3	2.62	0.45
23:V:2035:G:H5'	23:V:2036:C:H5	1.82	0.45
35:i:46:LYS:HB3	35:i:47:ASP:H	1.65	0.45
45:s:90:VAL:O	45:s:91:LEU:HD23	2.16	0.45
49:w:44:THR:OG1	49:w:56:VAL:O	2.26	0.45
3:B:44:LEU:HD11	3:B:80:PRO:HD2	1.98	0.45
23:V:85:G:H1	23:V:98:G:N2	2.11	0.45
23:V:134:C:N3	23:V:135:G:C6	2.85	0.45
23:V:270:A:C5	23:V:270(A):A:C8	3.05	0.45
23:V:270(N):G:H3'	23:V:270(O):U:C5	2.50	0.45
23:V:536:A:C5	23:V:558:G:N1	2.78	0.45
23:V:1316:U:O2	23:V:1337:G:N2	2.49	0.45
23:V:1448:G:H2'	23:V:1449:A:H5'	1.98	0.45
23:V:2309:A:OP1	23:V:2310:A:N6	2.49	0.45
27:a:61:ARG:HG2	27:a:62:PRO:HD3	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:d:9:ILE:HD11	30:d:69:ARG:HG3	1.98	0.45
8:G:167:G:H2'	8:G:168:G:H8	1.82	0.45
8:G:1412:C:H2'	8:G:1413:A:C8	2.51	0.45
12:K:144:THR:O	12:K:147:ASP:N	2.37	0.45
23:V:271(A):G:C3'	23:V:271(B):U:H5'	2.46	0.45
23:V:827:U:O2'	23:V:2068:U:N3	2.49	0.45
23:V:1196:C:H2'	23:V:1197:G:C8	2.52	0.45
29:c:67:LYS:HA	29:c:92:VAL:HG22	1.99	0.45
4:C:26:ASN:HB2	4:C:71:THR:HG23	1.98	0.45
5:D:19:VAL:HA	5:D:22:LEU:HB2	1.98	0.45
10:I:188:LEU:HD21	10:I:195:VAL:HG13	1.98	0.45
17:P:19:ALA:HA	17:P:31:THR:O	2.17	0.45
23:V:631:A:OP2	53:AA:46:ARG:NH2	2.50	0.45
23:V:852:G:O6	23:V:926:A:N6	2.50	0.45
23:V:1545:A:C3'	23:V:1545(A):A:H4'	2.47	0.45
24:X:85:G:C2'	24:X:86:G:H5'	2.46	0.45
25:Y:131:LEU:HD23	25:Y:137:LEU:HA	1.98	0.45
32:f:41:PHE:O	32:f:45:THR:OG1	2.29	0.45
44:r:88:LYS:HB3	44:r:91:GLU:HG3	1.99	0.45
8:G:768:A:N3	8:G:1512:U:O2'	2.49	0.45
14:M:30:ILE:HG22	14:M:39:ALA:HB1	1.98	0.45
23:V:6:A:C2'	23:V:6:A:N3	2.80	0.45
23:V:531:C:H5'	23:V:532:A:C2	2.51	0.45
23:V:2124:G:C1'	25:Y:216:THR:CB	2.95	0.45
23:V:2450:A:H62	23:V:2501:C:N4	2.10	0.45
28:b:40:GLN:HE22	28:b:182:ASN:HB2	1.81	0.45
29:c:40:ASN:OD1	29:c:89:GLY:O	2.35	0.45
35:i:45:LEU:HB3	35:i:46:LYS:H	1.65	0.45
45:s:36:LYS:HE3	45:s:38:TYR:HE1	1.81	0.45
47:u:4:GLN:NE2	47:u:51:GLN:OE1	2.38	0.45
8:G:199:G:C2'	8:G:200:G:H5'	2.46	0.45
8:G:708:C:H2'	8:G:709:G:C8	2.52	0.45
8:G:1485:U:H6	8:G:1485:U:O5'	1.99	0.45
23:V:276:A:O4'	23:V:276:A:OP2	2.35	0.45
23:V:856:C:O5'	23:V:856:C:H6	2.00	0.45
27:a:61:ARG:HH21	27:a:62:PRO:HD3	1.81	0.45
28:b:68:LYS:HD3	28:b:68:LYS:HA	1.86	0.45
30:d:24:VAL:HG22	30:d:25:LYS:N	2.31	0.45
45:s:100:VAL:HG12	45:s:133:ILE:CG1	2.45	0.45
55:DD:47:7MG:H81	55:DD:47:7MG:H2'	1.71	0.45
8:G:465:A:C5	8:G:467:G:C2	3.05	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:S:36:PHE:HD1	20:S:36:PHE:C	2.25	0.45
23:V:153:C:C4	23:V:154:G:C6	3.05	0.45
23:V:270(M):U:O3'	23:V:270(N):G:H4'	2.16	0.45
23:V:270(V):G:C4	23:V:270(W):G:N7	2.85	0.45
23:V:620:G:OP2	23:V:620:G:N2	2.43	0.45
23:V:852:G:N1	23:V:853:G:C5	2.85	0.45
23:V:1482:U:H6	23:V:1482:U:H5'	1.81	0.45
23:V:1546:C:H3'	23:V:1546:C:H6	1.80	0.45
23:V:1862:G:C2	23:V:1863:G:C5	3.04	0.45
23:V:2792:G:H8	23:V:2792:G:O5'	1.99	0.45
25:Y:61:THR:HG22	25:Y:143:GLY:HA3	1.99	0.45
25:Y:71:GLN:HG2	25:Y:174:PRO:HB3	1.99	0.45
30:d:18:GLU:CB	30:d:24:VAL:HB	2.47	0.45
8:G:103:C:O5'	8:G:103:C:C6	2.70	0.45
8:G:1163:C:O5'	8:G:1163:C:C6	2.70	0.45
8:G:1323:G:H4'	8:G:1362:C:C5	2.51	0.45
8:G:1485:U:O5'	8:G:1485:U:C6	2.70	0.45
9:H:153:ARG:HG3	9:H:154:LEU:HD12	1.99	0.45
14:M:85:TYR:HD2	14:M:154:TYR:HE2	1.65	0.45
19:R:52:GLU:HB2	19:R:55:ARG:HG2	1.98	0.45
23:V:270(C):C:O2	23:V:273:G:O2'	2.33	0.45
23:V:270(E):G:C2	23:V:270(V):G:N2	2.85	0.45
23:V:279:C:O5'	23:V:279:C:C6	2.70	0.45
23:V:363(F):G:OP1	23:V:363(F):G:C8	2.71	0.45
23:V:364:C:H6	23:V:364:C:H5"	1.82	0.45
23:V:1084:A:O2'	23:V:1106:G:OP1	2.34	0.45
23:V:1116:C:H6	23:V:1116:C:H5"	1.82	0.45
23:V:1543:A:C8	23:V:1544:C:O4'	2.70	0.45
23:V:1879:C:O5'	23:V:1879:C:H6	1.99	0.45
23:V:2124:G:N2	25:Y:221:SER:H	2.11	0.45
23:V:2795:G:C8	23:V:2795:G:OP2	2.70	0.45
23:V:2840:C:H2'	23:V:2841:C:C6	2.52	0.45
28:b:65:TRP:HZ3	28:b:75:HIS:HD2	1.65	0.45
35:i:41:ARG:NH1	35:i:45:LEU:HD22	2.32	0.45
39:m:52:ILE:HA	39:m:66:VAL:HG13	1.99	0.45
44:r:76:CYS:HB3	44:r:99:CYS:HB2	1.75	0.45
51:y:12:GLU:O	51:y:52:VAL:O	2.34	0.45
55:DD:37:U:H6	55:DD:37:U:H5"	1.82	0.45
8:G:75:C:O5'	8:G:75:C:C6	2.70	0.44
8:G:97:U:O5'	8:G:97:U:C6	2.70	0.44
8:G:235:C:H2'	8:G:236:G:H8	1.81	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:848:C:OP2	8:G:848:C:C6	2.70	0.44
8:G:1286:A:H2'	8:G:1287:A:H4'	1.99	0.44
8:G:1360:A:O5'	8:G:1360:A:H8	1.99	0.44
23:V:372:G:H22	49:w:63:TYR:HB3	1.82	0.44
23:V:998:C:OP1	40:n:84:LYS:NZ	2.49	0.44
23:V:1447:G:C8	23:V:1447:G:OP2	2.71	0.44
23:V:1449(A):G:C2'	23:V:1450:C:O5'	2.63	0.44
23:V:2785:C:O5'	23:V:2785:C:C6	2.71	0.44
24:X:29:A:OP2	38:l:31:SER:OG	2.31	0.44
32:f:19:PRO:CA	32:f:22:PRO:CD	2.94	0.44
37:k:4:LEU:HD12	37:k:4:LEU:HA	1.74	0.44
38:l:9:ARG:HB3	38:l:12:PHE:CE1	2.52	0.44
55:DD:35:C:O2	55:DD:36:A:C8	2.70	0.44
5:D:39:THR:HA	5:D:70:LYS:HA	1.97	0.44
8:G:1161:C:N3	8:G:1176:A:N1	2.65	0.44
8:G:1386:G:H2'	8:G:1387:G:H8	1.81	0.44
8:G:1448:C:O5'	8:G:1448:C:C6	2.70	0.44
8:G:1484:C:C6	8:G:1484:C:O5'	2.71	0.44
23:V:270(L):U:O2	23:V:270(L):U:C2'	2.65	0.44
23:V:270(S):G:C2	23:V:270(T):G:C8	3.04	0.44
23:V:730:C:OP1	23:V:1775:U:O2'	2.35	0.44
23:V:847:U:H5"	23:V:929:G:O6	2.16	0.44
23:V:856:C:O5'	23:V:856:C:C6	2.70	0.44
23:V:1084:A:O2'	23:V:1106:G:C5	2.47	0.44
23:V:1712:C:O5'	23:V:1712:C:C6	2.71	0.44
23:V:1734:C:OP2	23:V:1734:C:C6	2.70	0.44
23:V:1735:C:OP1	23:V:1735:C:C6	2.70	0.44
23:V:2712(A):A:OP1	23:V:2712(A):A:C8	2.70	0.44
23:V:2889:C:C6	23:V:2889:C:O5'	2.71	0.44
25:Y:207:THR:HG22	25:Y:210:ARG:HA	2.00	0.44
27:a:181:LEU:HD21	39:m:6:LEU:HD13	1.99	0.44
29:c:35:GLU:HB2	29:c:160:VAL:HG23	1.99	0.44
32:f:52:ILE:HG12	32:f:76:TYR:CG	2.47	0.44
33:g:14:VAL:HB	33:g:52:VAL:HG23	1.99	0.44
38:l:94:TYR:HA	38:l:98:VAL:HG11	1.98	0.44
41:o:21:ARG:HD3	41:o:21:ARG:HA	1.82	0.44
51:y:34:LEU:HD23	51:y:51:GLU:CG	2.48	0.44
8:G:76:G:C2	8:G:95:G:C5	3.06	0.44
8:G:672:U:O5'	8:G:672:U:C6	2.70	0.44
8:G:1309:G:N3	8:G:1328:C:N4	2.66	0.44
8:G:1454:G:H2'	8:G:1455:G:H8	1.81	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:1459:C:O5'	8:G:1459:C:C6	2.70	0.44
16:O:79:LEU:HD22	16:O:101:PHE:HA	1.98	0.44
20:S:25:VAL:CG1	20:S:39:LEU:CD2	2.89	0.44
21:T:36:ILE:HD11	21:T:59:MET:HG3	1.99	0.44
23:V:134:C:C2'	23:V:135:G:C8	2.97	0.44
23:V:271(C):G:H2'	23:V:272:G:H8	1.83	0.44
23:V:925:C:H2'	23:V:926:A:C8	2.52	0.44
23:V:1479:G:O5'	23:V:1479:G:C8	2.70	0.44
23:V:2209:C:C4	23:V:2215:G:O6	2.60	0.44
23:V:2508:G:O2'	23:V:2554:U:O2'	2.34	0.44
23:V:2813:A:O5'	23:V:2813:A:C8	2.71	0.44
25:Y:29:VAL:HA	25:Y:32:LEU:HB3	1.99	0.44
29:c:138:GLN:HA	29:c:155:MET:HE2	1.99	0.44
29:c:142:PRO:HG2	29:c:144:ILE:HG13	2.00	0.44
39:m:65:LYS:HG3	39:m:75:ILE:HD11	1.99	0.44
48:v:7:LYS:O	48:v:54:VAL:HA	2.17	0.44
3:B:77:GLY:HA3	13:L:48:LEU:HD22	2.00	0.44
6:E:5:ARG:HD2	6:E:71:LEU:HD11	2.00	0.44
8:G:1310:G:H21	8:G:1328:C:H5	1.66	0.44
15:N:70:GLN:HE21	15:N:72:PRO:HG2	1.82	0.44
23:V:1107:G:H4'	31:e:81:VAL:HA	1.99	0.44
23:V:1418:G:C6	23:V:1577:C:C5	3.06	0.44
23:V:1455:G:OP2	23:V:1456:G:OP2	2.35	0.44
23:V:2633:G:O5'	23:V:2633:G:C8	2.71	0.44
23:V:2848:G:N1	23:V:2867:G:N3	2.65	0.44
23:V:2885:C:O5'	23:V:2885:C:C6	2.71	0.44
23:V:2898:U:O5'	23:V:2898:U:C6	2.71	0.44
26:Z:147:LEU:HD12	26:Z:155:LEU:HD11	2.00	0.44
32:f:89:HIS:HB3	32:f:90:LYS:H	1.62	0.44
45:s:63:ASP:OD1	45:s:63:ASP:N	2.51	0.44
55:DD:36:A:H8	55:DD:36:A:O5'	1.99	0.44
3:B:45:SER:HB3	3:B:51:LEU:HD21	2.00	0.44
8:G:1342:C:H2'	8:G:1343:G:H8	1.83	0.44
8:G:1483:A:H5"	8:G:1484:C:OP2	2.18	0.44
20:S:36:PHE:O	20:S:36:PHE:CD1	2.71	0.44
20:S:39:LEU:H	20:S:39:LEU:HG	1.61	0.44
23:V:41:C:O5'	23:V:41:C:C6	2.70	0.44
23:V:138:G:O6	43:q:41:ASN:CG	2.61	0.44
23:V:270(A):A:N6	23:V:270(Z):U:O5'	2.50	0.44
23:V:287:C:N3	23:V:355:G:N2	2.66	0.44
23:V:878:A:H2'	23:V:879:G:C8	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:925:C:O5'	23:V:925:C:C6	2.71	0.44
23:V:1423:G:H2'	23:V:1424:G:C8	2.52	0.44
23:V:1538:G:H2'	23:V:1539:G:C8	2.52	0.44
23:V:1727:U:H3'	23:V:1728:G:H5"	1.99	0.44
23:V:2126:A:OP1	25:Y:37:PHE:CZ	2.70	0.44
23:V:2895:U:O2	23:V:2895:U:H2'	2.17	0.44
25:Y:177:LYS:N	25:Y:180:PHE:HD1	1.76	0.44
25:Y:180:PHE:HB2	25:Y:185:LEU:HD12	2.00	0.44
36:j:58:PHE:O	36:j:60:ARG:N	2.49	0.44
8:G:452:A:H2'	8:G:453:A:C8	2.53	0.44
8:G:1169:A:H2'	8:G:1170:A:C8	2.53	0.44
8:G:1295:G:O3'	19:R:14:ARG:NH2	2.50	0.44
8:G:1358:U:H3	8:G:1363:A:H61	1.66	0.44
8:G:1493:A:H1'	8:G:1494:G:C8	2.53	0.44
23:V:270(B):A:C1'	23:V:270(C):C:C5	2.92	0.44
23:V:2795:G:OP1	23:V:2795:G:C5	2.70	0.44
23:V:2897:U:C6	23:V:2897:U:O5'	2.71	0.44
27:a:7:VAL:HG13	27:a:192:ASN:HA	1.99	0.44
32:f:99:ILE:HD11	32:f:134:MET:HE2	2.00	0.44
45:s:140:ASP:HB2	45:s:156:LYS:HE2	1.98	0.44
51:y:11:LEU:HD22	51:y:26:ASN:HB2	1.99	0.44
8:G:67:C:H2'	8:G:68:G:O4'	2.17	0.44
8:G:138:G:H1	8:G:225:C:H42	1.66	0.44
8:G:439:A:C5	8:G:496:A:C4	3.06	0.44
8:G:501:C:C6	8:G:501:C:O5'	2.71	0.44
8:G:676:A:H5'	17:P:113:PRO:HG3	1.99	0.44
8:G:1258:G:O2'	8:G:1259:C:O4'	2.35	0.44
9:H:51:LEU:HD22	9:H:55:PHE:HE2	1.82	0.44
10:I:8:ILE:O	10:I:12:LEU:HB2	2.17	0.44
23:V:270(X):G:C2	23:V:270(Y):G:H4'	2.53	0.44
23:V:1417:C:O5'	23:V:1417:C:C6	2.70	0.44
23:V:2502:G:H5"	23:V:2503:A:H5"	1.99	0.44
23:V:2884:U:C5	50:x:43:HIS:HD2	2.35	0.44
26:Z:39:LYS:HD2	26:Z:62:TYR:HB2	1.99	0.44
30:d:101:ARG:HB3	30:d:121:ILE:HD11	2.00	0.44
32:f:20:ALA:CB	32:f:21:PRO:CD	2.76	0.44
32:f:100:THR:O	32:f:103:GLN:N	2.50	0.44
34:h:3:GLN:HE21	34:h:33:ALA:HB3	1.82	0.44
55:DD:10:G:H2'	55:DD:11:A:C8	2.52	0.44
1:W:17:U:H2'	1:W:18:G:H5'	1.98	0.44
5:D:63:THR:OG1	5:D:64:GLU:N	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:209:U:C6	8:G:209:U:O5'	2.71	0.44
8:G:1307:U:O5'	8:G:1307:U:C6	2.71	0.44
9:H:22:LYS:HA	9:H:40:HIS:HE1	1.82	0.44
9:H:81:VAL:HB	9:H:94:ASN:HD21	1.81	0.44
15:N:21:LYS:O	15:N:65:TYR:OH	2.33	0.44
18:Q:60:LEU:O	18:Q:63:GLY:N	2.51	0.44
23:V:84:A:H5"	44:r:8:LYS:HE3	2.00	0.44
23:V:1077:A:N6	23:V:1088:A:O3'	2.51	0.44
23:V:1544:C:HO2'	23:V:1545:A:P	2.38	0.44
23:V:1756:G:H4'	23:V:1758:G:H1'	2.00	0.44
23:V:2198:A:N3	23:V:2198:A:C5'	2.74	0.44
23:V:2212:A:H4'	23:V:2212:A:OP1	2.18	0.44
23:V:2712(A):A:OP1	23:V:2712(A):A:H8	2.00	0.44
23:V:2811:G:H2'	23:V:2812:G:H5'	1.98	0.44
23:V:2885:C:O5'	23:V:2885:C:H6	2.01	0.44
29:c:81:LYS:HB3	29:c:83:ARG:CZ	2.48	0.44
44:r:13:VAL:HA	44:r:22:GLY:HA3	1.99	0.44
2:A:10:VAL:HA	2:A:21:VAL:HG12	2.00	0.44
8:G:101:A:H2	8:G:152:A:O2'	2.01	0.44
11:J:25:ARG:HH12	11:J:30:LYS:HB2	1.83	0.44
12:K:20:GLN:HG2	12:K:25:ARG:HH21	1.81	0.44
23:V:99:U:C6	23:V:99:U:C3'	3.01	0.44
23:V:1544:C:C2'	23:V:1545:A:C5'	2.86	0.44
23:V:1728:G:OP1	23:V:1728:G:C8	2.71	0.44
23:V:1879:C:O5'	23:V:1879:C:C6	2.71	0.44
23:V:2275:C:O2'	36:j:84:GLY:O	2.29	0.44
23:V:2794:C:C2	23:V:2799:A:C6	3.06	0.44
25:Y:182:PRO:HD2	25:Y:183:GLU:OE1	2.17	0.44
26:Z:43:ARG:HE	26:Z:44:ASN:ND2	2.15	0.44
26:Z:143:HIS:ND1	26:Z:194:GLY:O	2.41	0.44
30:d:105:LEU:HG	30:d:107:VAL:HG13	2.00	0.44
31:e:25:PHE:HA	31:e:116:ILE:HA	2.00	0.44
32:f:23:VAL:O	32:f:23:VAL:CG1	2.51	0.44
35:i:101:VAL:HG13	35:i:106:LEU:HD23	2.00	0.44
36:j:23:GLY:HA3	36:j:98:LYS:HB2	1.99	0.44
44:r:34:LYS:HG2	44:r:63:LYS:HD3	2.00	0.44
8:G:1159:U:O4'	8:G:1182:G:N2	2.51	0.43
8:G:1309:G:C2	8:G:1328:C:N4	2.86	0.43
14:M:48:LYS:HD2	14:M:48:LYS:HA	1.85	0.43
23:V:43:G:C6	23:V:438:G:N2	2.84	0.43
23:V:270(B):A:C1'	23:V:270(C):C:H5	2.30	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1104:C:H6	23:V:1104:C:H5”	1.83	0.43
23:V:2124:G:H1’	25:Y:216:THR:HB	1.99	0.43
26:Z:254:THR:O	26:Z:254:THR:OG1	2.31	0.43
54:BB:23:VAL:HB	54:BB:36:GLN:HG2	1.99	0.43
8:G:452:A:H62	8:G:480:U:H3	1.65	0.43
8:G:822:C:N4	8:G:823:G:O6	2.51	0.43
18:Q:58:VAL:HG11	18:Q:85:ILE:HD11	2.00	0.43
23:V:270(X):G:C2	23:V:270(Y):G:C1’	3.02	0.43
23:V:1533:C:H2’	23:V:1534:G:C8	2.54	0.43
23:V:2166:G:H2’	23:V:2167:U:C2	2.53	0.43
23:V:2208:U:H2’	23:V:2209:C:H5”	2.00	0.43
23:V:2838:G:H2’	23:V:2839:G:C8	2.52	0.43
24:X:89:G:C8	24:X:89:G:P	3.06	0.43
25:Y:44:HIS:CE1	25:Y:172:HIS:HB3	2.53	0.43
29:c:81:LYS:HB3	29:c:83:ARG:NH2	2.32	0.43
32:f:19:PRO:HB2	32:f:23:VAL:HB	2.00	0.43
32:f:131:ALA:HB1	32:f:136:VAL:HG13	2.00	0.43
34:h:15:GLY:HA3	34:h:48:PRO:HD2	2.00	0.43
35:i:61:ARG:H	35:i:61:ARG:HD2	1.83	0.43
39:m:82:LEU:HG	39:m:84:GLN:H	1.82	0.43
44:r:81:LYS:HZ1	44:r:94:LYS:HG2	1.83	0.43
45:s:76:LEU:HD23	45:s:83:PRO:HB3	1.99	0.43
8:G:45:U:H2’	8:G:46:G:H8	1.83	0.43
8:G:138:G:C2	8:G:226:G:C2	3.06	0.43
8:G:464:G:C6	8:G:466:C:H4’	2.53	0.43
10:I:142:MET:HE1	10:I:170:GLN:HB2	1.99	0.43
20:S:9:LYS:NZ	20:S:21:TYR:CD2	2.84	0.43
23:V:37:C:H2’	23:V:38:A:C8	2.53	0.43
23:V:155:C:O5’	23:V:155:C:C6	2.70	0.43
23:V:172:C:C3’	23:V:172:C:C6	3.01	0.43
23:V:249:C:O2	53:AA:11:LYS:NZ	2.49	0.43
23:V:270(C):C:O2’	23:V:270(D):C:C5’	2.62	0.43
23:V:365:C:H3’	23:V:365:C:H6	1.83	0.43
23:V:1066:U:H2’	32:f:13:PRO:HB3	2.00	0.43
23:V:1197:G:O2’	23:V:1227:A:O2’	2.36	0.43
23:V:1444(A):A:O5’	23:V:1444(A):A:C8	2.70	0.43
23:V:1589:C:C6	23:V:1589:C:O5’	2.71	0.43
23:V:2789:C:C3’	23:V:2789:C:C6	3.01	0.43
28:b:116:ASP:OD2	35:i:5:ASP:N	2.51	0.43
30:d:167:GLU:HA	30:d:168:PRO:HD3	1.78	0.43
39:m:50:ILE:HG12	39:m:66:VAL:HG12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:DD:5:G:H2'	55:DD:6:G:C8	2.53	0.43
2:A:63:ARG:NH1	8:G:190:G:O6	2.51	0.43
8:G:110:C:H4'	22:U:25:ARG:HD3	2.01	0.43
11:J:177:ASP:HB2	11:J:182:LYS:HB2	2.00	0.43
23:V:137(A):G:OP2	23:V:137(A):G:C2	2.71	0.43
23:V:373:U:O4	49:w:59:PHE:CD1	2.71	0.43
23:V:852:G:C6	23:V:853:G:O6	2.71	0.43
23:V:1544:C:N4	23:V:1545:A:N6	2.66	0.43
23:V:1630:G:C4	23:V:1630(A):C:O2	2.71	0.43
23:V:1750:G:H2'	23:V:1751:C:C6	2.53	0.43
23:V:2312:U:H2'	29:c:40:ASN:HD21	1.83	0.43
23:V:2782:G:N3	23:V:2782:G:C2'	2.79	0.43
25:Y:38:ASP:HA	25:Y:178:ALA:HB2	2.00	0.43
25:Y:39:GLU:HB3	25:Y:178:ALA:HA	2.01	0.43
28:b:8:GLN:NE2	28:b:16:GLY:O	2.51	0.43
28:b:158:THR:HG22	28:b:160:ASN:H	1.83	0.43
30:d:46:GLU:HG3	30:d:47:GLU:H	1.82	0.43
38:l:94:TYR:CD2	38:l:98:VAL:HG13	2.52	0.43
8:G:740:U:OP1	21:T:38:ARG:NH1	2.51	0.43
8:G:806:C:H2'	8:G:807:A:H8	1.83	0.43
8:G:1161:C:H42	8:G:1176:A:N6	2.12	0.43
17:P:57:THR:HG23	17:P:60:ALA:H	1.84	0.43
23:V:265:A:H2	23:V:281:G:H5'	1.82	0.43
23:V:974:G:N9	23:V:1187:G:O2'	2.41	0.43
23:V:1106:G:C8	23:V:1106:G:O5'	2.70	0.43
23:V:1363:C:H5'	23:V:1809:A:H62	1.83	0.43
23:V:1435:G:N2	23:V:1477:A:O2'	2.45	0.43
23:V:2226:C:H2'	23:V:2227:A:C4'	2.48	0.43
23:V:2379:G:OP1	38:l:20:ARG:NH1	2.52	0.43
23:V:2630:G:C8	23:V:2894:G:C8	3.06	0.43
23:V:2814:C:H6	23:V:2814:C:O5'	2.01	0.43
25:Y:150:GLY:O	25:Y:154:ARG:HB2	2.18	0.43
29:c:71:THR:O	29:c:87:PRO:CA	2.65	0.43
30:d:27:LYS:HB3	30:d:32:GLU:HA	1.99	0.43
30:d:87:LEU:HD21	30:d:162:ILE:HD11	2.01	0.43
8:G:344:A:H5"	8:G:345:C:H5	1.83	0.43
10:I:6:HIS:CD2	10:I:8:ILE:HG12	2.54	0.43
10:I:179:ARG:NE	10:I:206:GLU:OE2	2.49	0.43
20:S:26:ARG:HD3	20:S:43:CYS:CB	2.40	0.43
23:V:44:A:H2'	23:V:45:G:C8	2.53	0.43
23:V:296:C:H2'	23:V:297:C:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1450:C:H2'	23:V:1451:C:H4'	1.99	0.43
23:V:2126:A:H62	23:V:2164:C:P	2.42	0.43
23:V:2792:G:O5'	23:V:2792:G:C8	2.71	0.43
25:Y:212:VAL:O	25:Y:223:ARG:NH2	2.49	0.43
36:j:54:MET:HE2	36:j:118:LEU:HB3	2.01	0.43
8:G:976:G:N3	8:G:1363:A:N6	2.66	0.43
8:G:1007:C:N4	8:G:1023:G:O6	2.52	0.43
8:G:1160:G:N2	8:G:1161:C:C2	2.87	0.43
8:G:1256:A:H4'	8:G:1258:G:C8	2.53	0.43
8:G:1309:G:N2	8:G:1328:C:N3	2.26	0.43
8:G:1360:A:OP1	8:G:1360:A:C8	2.71	0.43
9:H:54:THR:HG21	9:H:201:ILE:HD11	2.01	0.43
10:I:70:VAL:HG12	10:I:72:LYS:H	1.84	0.43
20:S:25:VAL:O	20:S:25:VAL:HG22	2.19	0.43
23:V:270(M):U:O3'	23:V:270(N):G:C4'	2.66	0.43
23:V:366:C:OP2	23:V:366:C:C6	2.71	0.43
23:V:524:U:N3	23:V:525:U:O4	2.51	0.43
23:V:542:C:O5'	23:V:542:C:H6	2.02	0.43
23:V:1748:G:O5'	23:V:1748:G:C8	2.71	0.43
25:Y:176:GLY:HA2	25:Y:180:PHE:CG	2.54	0.43
25:Y:213:TYR:HA	25:Y:223:ARG:HB2	2.00	0.43
29:c:71:THR:O	29:c:87:PRO:C	2.61	0.43
32:f:72:PRO:HA	32:f:73:PRO:HD3	1.84	0.43
38:l:62:LYS:HD2	38:l:65:VAL:HG13	2.01	0.43
48:v:26:LEU:HD21	48:v:47:VAL:HG22	1.99	0.43
8:G:718:G:H5"	8:G:720:C:H41	1.83	0.43
8:G:971:G:H2'	8:G:1365:G:O2'	2.19	0.43
8:G:1157:A:H61	8:G:1178:G:H1'	1.82	0.43
8:G:1287:A:H2	8:G:1353:G:H1'	1.83	0.43
8:G:1485:U:H2'	8:G:1486:G:H8	1.81	0.43
9:H:181:PHE:HE1	15:N:72:PRO:HD3	1.82	0.43
15:N:69:ARG:HG3	15:N:70:GLN:H	1.83	0.43
23:V:106:C:O2	23:V:294:A:O2'	2.36	0.43
23:V:1116:C:H2'	23:V:1117:G:C8	2.53	0.43
23:V:1300:U:H6	23:V:1300:U:H2'	1.64	0.43
23:V:1838:C:N4	23:V:1898:U:OP2	2.28	0.43
23:V:2787:C:C3'	23:V:2787:C:C6	3.01	0.43
35:i:51:PHE:CA	35:i:57:THR:HG23	2.48	0.43
36:j:22:LYS:HB3	36:j:22:LYS:HE3	1.80	0.43
38:l:15:ARG:CG	38:l:15:ARG:NH2	2.79	0.43
8:G:75:C:O5'	8:G:75:C:H6	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:1010:G:H2'	8:G:1011:G:C8	2.54	0.43
8:G:1099:G:H5'	9:H:96:ARG:HH12	1.83	0.43
9:H:70:PHE:HB3	9:H:163:PHE:HB3	2.01	0.43
20:S:9:LYS:NZ	20:S:21:TYR:CE2	2.86	0.43
23:V:2813:A:HO2'	23:V:2814:C:H5'	1.81	0.43
23:V:2894:G:N3	23:V:2894:G:H2'	2.33	0.43
34:h:62:VAL:HG12	34:h:63:VAL:HG13	2.01	0.43
38:l:28:VAL:HA	38:l:36:TYR:O	2.19	0.43
38:l:75:GLU:HA	38:l:78:LEU:HD23	2.00	0.43
8:G:1118:C:C2	8:G:1179:A:C6	3.07	0.43
12:K:145:LYS:HA	12:K:148:VAL:HG12	1.99	0.43
23:V:28:A:N6	23:V:512:G:O2'	2.52	0.43
23:V:268:C:C2	23:V:269:U:C5	3.06	0.43
23:V:535:C:O5'	23:V:535:C:C6	2.70	0.43
23:V:1169:G:C3'	23:V:1170:G:H8	2.32	0.43
23:V:1711:C:C6	23:V:1711:C:C3'	3.01	0.43
23:V:2209:C:C4	23:V:2216:G:C2	3.02	0.43
30:d:95:ARG:HB2	30:d:129:THR:CB	2.44	0.43
35:i:146:VAL:HG12	35:i:147:LEU:H	1.84	0.43
38:l:9:ARG:CA	38:l:12:PHE:CD1	3.01	0.43
8:G:91:C:C4	8:G:92:G:N7	2.86	0.42
23:V:16:G:O2'	23:V:17:G:H5'	2.18	0.42
23:V:283:A:H5'	23:V:284:U:H5	1.83	0.42
23:V:1716:U:C3'	23:V:1716:U:C6	3.02	0.42
45:s:116:VAL:HG12	45:s:174:VAL:HG11	2.00	0.42
8:G:456:C:O2	8:G:477:G:C2	2.72	0.42
8:G:1015:A:H2'	8:G:1016:A:H8	1.84	0.42
8:G:1448:C:O2'	8:G:1449:C:OP1	2.35	0.42
23:V:271(B):U:O2'	23:V:271(C):G:H4'	2.20	0.42
23:V:438:G:O5'	23:V:438:G:H8	2.02	0.42
23:V:1414:G:N2	23:V:1589:C:O2	2.52	0.42
23:V:1468:C:N3	23:V:1525:G:N2	2.68	0.42
23:V:2209:C:H2'	23:V:2210:G:OP1	2.18	0.42
23:V:2305:A:N6	29:c:153:ARG:O	2.52	0.42
23:V:2791:C:N4	23:V:2893:G:H21	2.12	0.42
24:X:23:G:N3	24:X:61:G:N2	2.68	0.42
25:Y:180:PHE:CE2	25:Y:185:LEU:HB2	2.53	0.42
8:G:1360:A:O5'	8:G:1360:A:C8	2.71	0.42
20:S:22:THR:HB	20:S:33:VAL:HG21	2.01	0.42
21:T:24:SER:OG	21:T:25:THR:N	2.52	0.42
23:V:270(Z):U:O2	23:V:270(Z):U:C2'	2.56	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:281:G:C2	23:V:281:G:OP1	2.72	0.42
23:V:374:A:N3	23:V:401:A:N1	2.67	0.42
23:V:1441:G:N1	23:V:1442:G:C5	2.87	0.42
23:V:2630:G:C2	23:V:2790:A:C2	3.02	0.42
42:p:12:ILE:HG13	42:p:13:SER:H	1.84	0.42
45:s:149:SER:O	45:s:151:HIS:ND1	2.43	0.42
55:DD:48:U:C3'	55:DD:48:U:C6	3.02	0.42
8:G:824:C:H2'	8:G:825:G:H8	1.85	0.42
9:H:73:THR:HG23	9:H:96:ARG:HG2	2.02	0.42
10:I:6:HIS:HA	10:I:7:PRO:HD3	1.90	0.42
14:M:115:ARG:HB3	14:M:118:VAL:HG12	2.00	0.42
22:U:39:TYR:HD1	22:U:49:LEU:HD13	1.84	0.42
23:V:155:C:O5'	23:V:155:C:H6	2.02	0.42
23:V:278:A:H2	23:V:362:U:O2	2.01	0.42
23:V:630:G:N2	23:V:634:C:OP2	2.48	0.42
23:V:926:A:O5'	23:V:926:A:C8	2.70	0.42
23:V:973:A:O4'	23:V:1188:U:C2	2.72	0.42
23:V:1106:G:C2	31:e:81:VAL:CB	3.02	0.42
25:Y:49:ILE:HG13	25:Y:51:PRO:HD3	2.02	0.42
28:b:122:LYS:HE2	28:b:122:LYS:HB3	1.89	0.42
29:c:67:LYS:HZ1	29:c:90:LEU:HD12	1.78	0.42
32:f:85:GLU:HB3	32:f:95:LYS:HG2	2.00	0.42
37:k:73:VAL:HA	37:k:76:VAL:HG22	2.01	0.42
43:q:12:VAL:HG12	43:q:29:TRP:NE1	2.34	0.42
49:w:48:ARG:HB2	49:w:49:PHE:HD1	1.83	0.42
8:G:103:C:O5'	8:G:103:C:H6	2.02	0.42
8:G:191:G:H2'	8:G:192:U:C6	2.54	0.42
8:G:1414:U:H2'	8:G:1415:G:C8	2.54	0.42
9:H:187:LEU:HD22	9:H:205:ASP:HB3	2.01	0.42
12:K:50:GLU:HB3	12:K:52:PRO:HD2	2.02	0.42
13:L:45:LEU:HD21	13:L:57:GLN:HG3	2.02	0.42
17:P:21:ILE:HG22	17:P:30:VAL:HG13	2.02	0.42
23:V:270(J):G:C5	23:V:270(K):C:C4	3.06	0.42
23:V:644:A:H4'	23:V:2350:C:C2	2.54	0.42
23:V:644:A:H8	23:V:2349:G:N3	2.18	0.42
23:V:923:C:C6	23:V:924:C:C5	3.06	0.42
23:V:974:G:C6	23:V:1187:G:C4	2.98	0.42
23:V:1173:G:C1'	23:V:1177:A:H61	2.19	0.42
23:V:1547:C:O5'	23:V:1547:C:H6	2.03	0.42
23:V:1585:C:H6	23:V:1585:C:H3'	1.85	0.42
23:V:1586:A:O2'	23:V:1587:A:C8	2.73	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:2126:A:O3'	23:V:2127:G:C8	2.72	0.42
32:f:35:MET:N	32:f:35:MET:SD	2.92	0.42
40:n:21:ALA:HB2	40:n:39:LEU:HD12	2.02	0.42
48:v:11:SER:O	48:v:11:SER:OG	2.29	0.42
55:DD:30:G:H2'	55:DD:31:G:H8	1.81	0.42
11:J:3:ARG:HH22	11:J:115:ARG:HE	1.68	0.42
23:V:270(A):A:C2	23:V:270(X):G:N2	2.87	0.42
23:V:537:C:O5'	23:V:537:C:C6	2.73	0.42
23:V:552:G:C2'	23:V:553:U:C5'	2.97	0.42
23:V:928:G:O5'	23:V:928:G:C8	2.70	0.42
23:V:1169:G:N2	23:V:1180:C:O2	2.53	0.42
23:V:1545:A:H2'	23:V:1545(A):A:O4'	2.20	0.42
23:V:1787:A:O5'	23:V:1787:A:C8	2.71	0.42
23:V:1862:G:N2	23:V:1863:G:C6	2.88	0.42
23:V:2181:G:H2'	23:V:2182:G:C2	2.55	0.42
23:V:2209:C:C4	23:V:2212:A:C2	3.02	0.42
23:V:2795:G:C8	23:V:2795:G:P	3.12	0.42
25:Y:161:ILE:HG13	25:Y:162:GLU:N	2.35	0.42
27:a:17:ASP:OD1	27:a:17:ASP:N	2.52	0.42
29:c:76:SER:O	29:c:77:ILE:O	2.37	0.42
30:d:23:ARG:HB3	30:d:36:PRO:CA	2.47	0.42
34:h:10:VAL:HG12	34:h:17:ARG:HG3	2.01	0.42
38:l:27:SER:O	38:l:37:ALA:HA	2.18	0.42
38:l:57:LYS:HG2	38:l:59:LYS:HG3	2.01	0.42
38:l:92:TYR:HB3	38:l:93:LYS:H	1.50	0.42
45:s:158:PRO:O	45:s:160:GLY:N	2.52	0.42
8:G:693:G:O2'	14:M:81:GLY:O	2.33	0.42
8:G:1448:C:C5	8:G:1449:C:H5	2.37	0.42
13:L:79:LEU:HB3	13:L:88:VAL:HG11	2.01	0.42
18:Q:84:LEU:HD13	18:Q:104:VAL:HG11	2.01	0.42
23:V:197:A:N6	23:V:2430:A:O2'	2.53	0.42
23:V:276:A:N3	23:V:276:A:C2'	2.82	0.42
23:V:290:G:H1	23:V:350:U:H3	1.67	0.42
23:V:374:A:N3	23:V:401:A:C2	2.88	0.42
23:V:506:G:HO2'	23:V:507:A:H8	1.65	0.42
23:V:1541:U:O5'	23:V:1541:U:C6	2.70	0.42
23:V:1735:C:H6	23:V:1735:C:H5"	1.85	0.42
23:V:2295:C:H5	38:l:9:ARG:NH1	2.18	0.42
23:V:2794:C:O2	23:V:2799:A:N1	2.52	0.42
23:V:2802:G:O5'	23:V:2802:G:C8	2.70	0.42
27:a:60:ASN:HA	27:a:63:LEU:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:c:22:ARG:HG3	29:c:23:PHE:CD2	2.53	0.42
39:m:66:VAL:O	39:m:75:ILE:HA	2.19	0.42
8:G:73:G:H2'	8:G:74:C:H5'	2.01	0.42
8:G:85:U:O5'	8:G:85:U:C6	2.71	0.42
8:G:1118:C:OP1	16:O:9:ARG:CZ	2.68	0.42
8:G:1502:A:H2	8:G:1505:G:H22	1.66	0.42
17:P:114:VAL:HG12	17:P:116:HIS:H	1.85	0.42
23:V:1085:A:O2'	23:V:1086:A:OP2	2.35	0.42
23:V:1418:G:N3	23:V:1581:G:N2	2.66	0.42
23:V:1454:U:H3'	23:V:1454:U:O2	2.19	0.42
23:V:2124:G:C5	25:Y:218:MET:HA	2.53	0.42
23:V:2129:C:O5'	23:V:2129:C:C6	2.70	0.42
23:V:2226:C:H2'	23:V:2227:A:O5'	2.20	0.42
23:V:2313:C:O4'	29:c:40:ASN:ND2	2.53	0.42
29:c:81:LYS:CG	29:c:83:ARG:HH22	2.32	0.42
45:s:102:LEU:HD23	45:s:137:ILE:HD13	2.01	0.42
8:G:375:U:H2'	8:G:376:G:H8	1.84	0.42
8:G:877:C:H2'	8:G:878:G:H8	1.84	0.42
8:G:1429:C:H2'	8:G:1430:C:H6	1.85	0.42
17:P:121:PRO:HB2	17:P:125:PHE:HB2	2.00	0.42
23:V:626:U:H5'	23:V:653:A:C6	2.55	0.42
23:V:2046:G:H5"	50:x:19:ARG:HG2	2.00	0.42
23:V:2206:C:C3'	23:V:2206:C:C6	3.03	0.42
28:b:77:ASP:OD1	28:b:77:ASP:N	2.52	0.42
8:G:1015:A:H2'	8:G:1016:A:C8	2.55	0.42
23:V:13:A:C2	23:V:526:A:C5	3.08	0.42
23:V:41:C:O5'	23:V:41:C:H6	2.03	0.42
23:V:265:A:C4	23:V:281:G:N2	2.87	0.42
23:V:270(W):G:C5	23:V:270(X):G:N7	2.88	0.42
23:V:278:A:H2	23:V:362:U:C2	2.38	0.42
23:V:614:U:N3	28:b:175:THR:O	2.49	0.42
23:V:1058:G:C6	31:e:34:ALA:HB3	2.55	0.42
23:V:1171:G:H3'	23:V:1173:G:H5"	2.01	0.42
23:V:1417:C:O2	23:V:1582:C:O2'	2.23	0.42
25:Y:180:PHE:CD2	25:Y:185:LEU:HB2	2.55	0.42
39:m:31:SER:HA	39:m:48:ILE:O	2.20	0.42
49:w:42:PHE:HD2	49:w:58:ARG:HB2	1.84	0.42
51:y:14:THR:HG21	51:y:52:VAL:HG11	2.02	0.42
54:BB:14:CYS:HA	54:BB:27:CYS:HA	2.02	0.42
3:B:23:LYS:HE3	3:B:58:LEU:HD23	2.02	0.41
8:G:458:C:O5'	8:G:458:C:H6	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:1312:G:N2	8:G:1313:U:H3	2.18	0.41
11:J:145:GLU:HG2	11:J:184:LYS:HG2	2.02	0.41
23:V:143:C:H3'	23:V:143:C:H6	1.85	0.41
23:V:355:G:H2'	23:V:356:G:C4	2.55	0.41
23:V:1113:U:H5"	23:V:1113:U:H6	1.85	0.41
23:V:1782:C:C6	23:V:1782:C:H5'	2.54	0.41
23:V:1854:A:H62	23:V:1888:G:H8	1.68	0.41
25:Y:59:ARG:HD3	25:Y:139:ASN:HD22	1.85	0.41
30:d:98:LEU:HD11	30:d:125:VAL:CG2	2.41	0.41
54:BB:2:LYS:HG2	54:BB:35:ARG:HG3	2.02	0.41
2:A:20:THR:HA	2:A:43:LEU:HA	2.02	0.41
8:G:191(E):G:O5'	8:G:191(E):G:C8	2.70	0.41
8:G:817:C:H4'	8:G:818:G:H5'	2.02	0.41
8:G:1356:G:H2'	8:G:1357:A:H8	1.84	0.41
16:O:12:GLU:H	16:O:104:ARG:HH21	1.66	0.41
23:V:13:A:C4	23:V:15:G:O6	2.73	0.41
23:V:1539:G:O5'	23:V:1539:G:C8	2.71	0.41
23:V:2713:A:O2'	23:V:2714:G:H5"	2.20	0.41
23:V:2897:U:H3'	23:V:2897:U:H6	1.85	0.41
24:X:2:C:H42	24:X:119:A:N6	2.18	0.41
32:f:78:ILE:HG23	32:f:108:ALA:HB2	2.02	0.41
43:q:5:TYR:CZ	47:u:21:ARG:HD2	2.55	0.41
51:y:9:LEU:HD11	51:y:28:ARG:HG3	2.02	0.41
8:G:842:C:C3'	8:G:842:C:C6	3.03	0.41
8:G:932:C:H5'	14:M:4:ARG:HH11	1.84	0.41
8:G:1049:U:C2	8:G:1201:A:H1'	2.56	0.41
9:H:69:LEU:HB3	9:H:162:ILE:HG13	2.02	0.41
9:H:214:ILE:H	9:H:214:ILE:HG13	1.71	0.41
12:K:40:ARG:HG2	12:K:66:MET:HE3	2.02	0.41
20:S:29:ARG:HB3	20:S:40:CYS:SG	2.60	0.41
23:V:154:G:H8	23:V:154:G:P	2.43	0.41
23:V:223:A:O2'	23:V:420:C:O2	2.30	0.41
23:V:270(T):G:N1	23:V:270(U):C:C4	2.88	0.41
23:V:630:G:OP1	53:AA:46:ARG:NH1	2.54	0.41
23:V:1054:A:H2'	23:V:1055:G:C8	2.56	0.41
23:V:1725:G:H2'	23:V:1726:G:H8	1.86	0.41
23:V:2826:A:H2'	23:V:2827:C:C6	2.55	0.41
29:c:81:LYS:HA	29:c:81:LYS:HD3	1.36	0.41
32:f:66:THR:O	32:f:68:VAL:N	2.53	0.41
38:l:33:LYS:HD2	38:l:33:LYS:HA	1.87	0.41
45:s:95:PRO:HB3	45:s:98:MET:SD	2.60	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:68:LYS:NZ	8:G:196:A:OP1	2.39	0.41
4:C:105:SER:HB3	8:G:191:G:H1'	2.03	0.41
5:D:37:ARG:NH1	8:G:1318:A:O2'	2.53	0.41
8:G:1355:G:H2'	8:G:1356:G:C8	2.55	0.41
23:V:270(L):U:O2	23:V:270(M):U:C5	2.72	0.41
23:V:270(M):U:O2	23:V:270(M):U:C2'	2.68	0.41
23:V:852:G:C5	23:V:853:G:N7	2.89	0.41
23:V:1057:A:H5"	31:e:32:LEU:N	2.35	0.41
23:V:1058:G:O4'	31:e:35:LYS:N	2.37	0.41
23:V:1173:G:N3	23:V:1173:G:H5"	2.35	0.41
23:V:1936:A:H2	23:V:1943:U:H3	1.68	0.41
23:V:1938:A:N3	23:V:1938:A:C2'	2.82	0.41
23:V:2140:C:H2'	23:V:2141:G:H8	1.85	0.41
23:V:2414:G:H21	35:i:67:MET:HE1	1.85	0.41
23:V:2839:G:O5'	23:V:2839:G:C8	2.70	0.41
24:X:2:C:N3	24:X:119:A:N1	2.68	0.41
26:Z:177:LEU:HA	26:Z:177:LEU:HD23	1.79	0.41
27:a:13:ARG:HD3	27:a:13:ARG:HA	1.82	0.41
28:b:78:ILE:HG23	28:b:83:PHE:HE1	1.86	0.41
45:s:93:ASP:O	45:s:94:GLU:HG3	2.19	0.41
17:P:21:ILE:HD11	17:P:84:VAL:HG12	2.03	0.41
19:R:102:ARG:HH11	19:R:102:ARG:CG	2.26	0.41
23:V:153:C:H3'	23:V:154:G:H8	1.62	0.41
23:V:270(R):G:N2	23:V:270(S):G:C4	2.89	0.41
23:V:293:U:H3	23:V:346:A:N6	2.16	0.41
23:V:1071:G:N3	23:V:1089:G:H2'	2.36	0.41
23:V:1191:G:H2'	23:V:1192:G:C8	2.56	0.41
23:V:1446:C:H3'	23:V:1447:G:H8	1.84	0.41
25:Y:165:ASN:HB2	25:Y:169:GLY:HA2	2.02	0.41
32:f:54:PRO:CD	32:f:73:PRO:HD3	2.51	0.41
37:k:2:ARG:HE	37:k:4:LEU:HD22	1.86	0.41
38:l:9:ARG:HA	38:l:12:PHE:CZ	2.55	0.41
2:A:11:VAL:HG22	2:A:22:LEU:HD22	2.02	0.41
5:D:4:SER:OG	5:D:5:LEU:N	2.53	0.41
8:G:82:U:C2	8:G:87:A:N1	2.88	0.41
8:G:501:C:OP1	18:Q:117:ARG:NH2	2.54	0.41
9:H:154:LEU:O	9:H:156:LYS:NZ	2.50	0.41
10:I:91:LEU:HD23	10:I:91:LEU:HA	1.93	0.41
23:V:270(B):A:C2'	23:V:270(C):C:H6	2.34	0.41
23:V:270(T):G:C6	23:V:270(U):C:C4	3.08	0.41
23:V:1445:C:C5	23:V:1446:C:C4	3.05	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:1732:A:H2'	23:V:1733:G:OP1	2.21	0.41
23:V:2786:U:O2	23:V:2786:U:H2'	2.20	0.41
29:c:111:LEU:HD21	29:c:120:LEU:HG	2.02	0.41
38:l:94:TYR:HH	38:l:99:LYS:HG3	1.83	0.41
1:W:17:U:O5'	1:W:17:U:C6	2.70	0.41
8:G:250:A:H2	8:G:274:A:N6	2.18	0.41
8:G:490:G:H2'	8:G:491:G:H8	1.86	0.41
23:V:852:G:N1	23:V:926:A:C6	2.89	0.41
23:V:1546:C:C3'	23:V:1546:C:C6	3.03	0.41
23:V:1583:A:H5"	23:V:1585:C:C5	2.56	0.41
23:V:2108:C:O2'	23:V:2182:G:N2	2.54	0.41
23:V:2572:A:H5'	23:V:2574:G:H4'	2.03	0.41
25:Y:148:ASN:HB2	25:Y:151:GLU:HB2	2.02	0.41
25:Y:160:ARG:O	25:Y:161:ILE:HG12	2.21	0.41
34:h:10:VAL:HG12	34:h:17:ARG:HA	2.03	0.41
38:l:17:ARG:NH1	38:l:89:ARG:CG	2.80	0.41
3:B:23:LYS:NZ	3:B:57:GLY:O	2.46	0.41
8:G:147:G:H2'	8:G:148:G:H8	1.85	0.41
8:G:268:C:H2'	8:G:269:C:C6	2.56	0.41
8:G:711:G:H2'	8:G:712:A:H8	1.85	0.41
8:G:1429:C:H2'	8:G:1430:C:C6	2.55	0.41
8:G:1455:G:C8	8:G:1455:G:O5'	2.71	0.41
19:R:108:ARG:HD3	19:R:108:ARG:HA	1.84	0.41
23:V:270(V):G:H2'	23:V:270(W):G:H8	1.85	0.41
23:V:296:C:H2'	23:V:297:C:H6	1.86	0.41
23:V:410:G:H1	23:V:417:C:H42	1.67	0.41
23:V:487:C:H2'	23:V:488:G:H5'	2.03	0.41
23:V:589:C:H2'	23:V:590:A:C8	2.55	0.41
23:V:1444(A):A:H1'	23:V:1732:A:N6	2.04	0.41
23:V:1864:U:C6	23:V:1864:U:O5'	2.74	0.41
23:V:2092:U:C5	23:V:2199:A:H2	2.39	0.41
25:Y:64:LEU:O	25:Y:159:GLY:CA	2.63	0.41
26:Z:39:LYS:NZ	26:Z:87:ASN:OD1	2.52	0.41
26:Z:67:PHE:HB3	26:Z:153:ALA:HB3	2.03	0.41
29:c:44:GLY:N	29:c:88:ILE:HD12	2.36	0.41
29:c:47:LYS:CG	29:c:80:PHE:CE2	3.04	0.41
29:c:103:LEU:HD11	29:c:178:PHE:HZ	1.85	0.41
32:f:68:VAL:O	32:f:69:THR:OG1	2.36	0.41
34:h:19:ILE:HG12	34:h:59:LYS:HE2	2.02	0.41
38:l:35:ILE:CD1	38:l:97:ARG:HH12	2.18	0.41
40:n:76:TYR:CZ	40:n:80:ILE:HD12	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:81:G:P	8:G:82:U:OP2	2.78	0.41
8:G:222:U:H2'	8:G:223:U:H6	1.70	0.41
8:G:475:G:O5'	8:G:475:G:C8	2.71	0.41
8:G:546:G:OP1	11:J:71:SER:OG	2.39	0.41
8:G:592:G:H2'	8:G:593:G:C8	2.56	0.41
8:G:1099:G:OP2	9:H:148:TYR:OH	2.39	0.41
8:G:1258:G:N2	8:G:1259:C:N3	2.68	0.41
8:G:1322:C:H5'	19:R:100:GLY:HA3	2.02	0.41
11:J:165:MET:HE3	11:J:168:ARG:HG3	2.02	0.41
11:J:201:GLN:HA	11:J:204:ILE:HD13	2.02	0.41
19:R:16:ASP:OD1	19:R:16:ASP:N	2.54	0.41
19:R:23:TYR:CD1	19:R:67:GLU:HG2	2.56	0.41
23:V:270(B):A:H4'	23:V:270(C):C:C6	2.55	0.41
23:V:270(Z):U:HO2'	23:V:271:C:P	2.40	0.41
23:V:278:A:H2	23:V:362:U:N3	2.15	0.41
23:V:363(F):G:H8	23:V:363(F):G:P	2.44	0.41
23:V:553:U:C3'	23:V:553:U:C6	3.04	0.41
23:V:972:G:C3'	23:V:973:A:C3'	2.96	0.41
23:V:1589:C:O5'	23:V:1589:C:H6	2.04	0.41
23:V:1631:A:H62	23:V:1683:C:H5'	1.86	0.41
23:V:2127:G:C5	23:V:2128:C:N4	2.89	0.41
23:V:2709:G:H2'	23:V:2710:C:H6	1.79	0.41
23:V:2888:C:H3'	23:V:2888:C:H6	1.86	0.41
27:a:8:LYS:HZ3	27:a:24:THR:HG22	1.86	0.41
30:d:149:ARG:HG2	30:d:153:LYS:HG3	2.03	0.41
32:f:114:ASP:OD1	32:f:114:ASP:N	2.54	0.41
38:l:94:TYR:CD1	38:l:94:TYR:O	2.74	0.41
44:r:86:ARG:O	44:r:88:LYS:N	2.54	0.41
8:G:65:U:O2'	8:G:200:G:C5'	2.69	0.41
8:G:197:A:N7	8:G:220:G:N2	2.63	0.41
8:G:824:C:H2'	8:G:825:G:C8	2.56	0.41
8:G:976:G:N2	8:G:1362(A):C:OP2	2.54	0.41
23:V:270(D):C:O3'	23:V:270(E):G:O4'	2.39	0.41
23:V:270(V):G:H5'	23:V:270(W):G:OP2	2.21	0.41
23:V:815:C:H5'	23:V:1224:G:H22	1.86	0.41
23:V:852:G:N3	23:V:853:G:N7	2.69	0.41
23:V:1860:G:C6	23:V:1861:G:C5	3.09	0.41
23:V:1864:U:O5'	23:V:1864:U:H6	2.04	0.41
23:V:2218:G:H2'	23:V:2219:G:H8	1.86	0.41
23:V:2811:G:OP1	27:a:59:VAL:HB	2.21	0.41
25:Y:175:VAL:O	25:Y:180:PHE:CZ	2.73	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:a:105:THR:HB	27:a:197:ILE:HG13	2.03	0.41
29:c:80:PHE:HD1	29:c:80:PHE:HA	1.79	0.41
43:q:87:GLN:HB3	43:q:88:LYS:H	1.44	0.41
52:z:19:ARG:HA	52:z:19:ARG:HD3	1.78	0.41
18:Q:86:ARG:HD3	18:Q:101:VAL:HG12	2.03	0.40
23:V:270(B):A:O2'	23:V:270(C):C:H3'	2.21	0.40
23:V:270(D):C:H2'	23:V:270(E):G:C8	2.56	0.40
23:V:537:C:H3'	23:V:537:C:H6	1.86	0.40
23:V:840:C:H4'	23:V:1192:G:N3	2.36	0.40
23:V:1171:G:H1	23:V:1178:C:N4	2.19	0.40
23:V:1400:G:H2'	23:V:1401:G:H8	1.86	0.40
23:V:1444:G:C6	23:V:1463:C:N4	2.86	0.40
23:V:1548:C:O5'	23:V:1548:C:C6	2.70	0.40
23:V:1592:C:H2'	23:V:1593:G:C8	2.56	0.40
23:V:2630:G:C5	23:V:2894:G:C8	3.09	0.40
23:V:2786:U:C6	23:V:2786:U:O5'	2.74	0.40
23:V:2787:C:C5'	27:a:64:LYS:HE3	2.51	0.40
23:V:2811:G:C2'	23:V:2812:G:H5'	2.51	0.40
27:a:11:MET:HE1	27:a:13:ARG:HE	1.86	0.40
28:b:205:ARG:O	28:b:209:GLU:HG2	2.21	0.40
29:c:28:VAL:C	29:c:30:GLU:N	2.78	0.40
38:l:94:TYR:CE1	38:l:99:LYS:HE2	2.56	0.40
45:s:91:LEU:HD23	45:s:91:LEU:HA	1.86	0.40
46:t:46:LYS:HB2	46:t:78:TYR:CD1	2.56	0.40
14:M:74:GLU:O	14:M:88:PRO:HA	2.20	0.40
18:Q:104:VAL:HG12	18:Q:105:TYR:H	1.87	0.40
23:V:137(A):G:H2'	23:V:138:G:H5'	2.02	0.40
23:V:270(E):G:C6	23:V:270(F):U:C4	3.09	0.40
23:V:377:C:H5"	23:V:377:C:H6	1.86	0.40
23:V:380:U:H2'	23:V:381:G:H8	1.85	0.40
23:V:1051:G:N3	23:V:2751:G:H5'	2.36	0.40
23:V:1664:A:H2'	23:V:1665:A:C8	2.56	0.40
23:V:2320:A:H62	38:l:3:ARG:HH12	1.68	0.40
29:c:83:ARG:NH1	55:DD:58:A:OP2	2.47	0.40
45:s:22:GLY:HA2	45:s:41:LEU:HD22	2.03	0.40
7:F:4:GLY:H	8:G:1305:G:H5'	1.85	0.40
8:G:728:A:H2'	8:G:729:A:H8	1.86	0.40
8:G:1270:C:H2'	8:G:1271:G:C8	2.57	0.40
9:H:93:VAL:HG11	9:H:97:TRP:HB2	2.03	0.40
12:K:88:LYS:HD2	12:K:123:LEU:HB2	2.03	0.40
17:P:34:ASP:HA	17:P:35:PRO:HD3	1.84	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:V:143:C:C3'	23:V:143:C:C6	3.05	0.40
23:V:279:C:O5'	23:V:279:C:H6	2.05	0.40
23:V:616:A:H3'	23:V:617:G:H21	1.87	0.40
23:V:909:A:N6	23:V:912:C:O2	2.54	0.40
23:V:1408:C:N3	23:V:1595:G:N2	2.69	0.40
23:V:1480:G:H3'	23:V:1482:U:H5"	2.03	0.40
23:V:2789:C:H3'	23:V:2789:C:C6	2.55	0.40
24:X:89:G:C8	24:X:89:G:O5'	2.70	0.40
29:c:81:LYS:HG3	29:c:83:ARG:NH1	2.31	0.40
30:d:122:THR:O	30:d:122:THR:OG1	2.35	0.40
36:j:73:PRO:HA	36:j:93:TYR:HB2	2.02	0.40
37:k:5:LYS:HE3	37:k:5:LYS:HB3	1.91	0.40
37:k:13:HIS:O	37:k:17:ARG:NE	2.49	0.40
8:G:73:G:C6	8:G:99:C:O2	2.74	0.40
8:G:718:G:C8	17:P:116:HIS:HD2	2.39	0.40
22:U:60:LEU:HA	22:U:64:ALA:HB3	2.04	0.40
23:V:270(S):G:H2'	23:V:270(T):G:H8	1.86	0.40
23:V:1005:C:N3	23:V:1006:C:N4	2.68	0.40
23:V:1454:U:O2	23:V:1455:G:N7	2.54	0.40
23:V:1727:U:O5'	23:V:1727:U:H6	2.04	0.40
23:V:1778:U:C3'	23:V:1784:A:H61	2.33	0.40
23:V:1860:G:H2'	23:V:1861:G:C8	2.57	0.40
23:V:2209:C:N4	23:V:2216:G:N1	2.69	0.40
23:V:2649:U:H2'	23:V:2650:U:C6	2.57	0.40
23:V:2713:A:H3'	23:V:2714:G:C5'	2.52	0.40
23:V:2720:U:C2'	23:V:2721:A:H8	2.22	0.40
23:V:2807:G:N7	23:V:2891:G:C2	2.89	0.40
24:X:28:C:H2'	24:X:29:A:C8	2.57	0.40
45:s:145:GLU:HG2	45:s:146:ILE:H	1.86	0.40
54:BB:28:GLU:H	54:BB:28:GLU:HG3	1.71	0.40
55:DD:73:A:H2'	55:DD:74:A:C8	2.56	0.40
8:G:501:C:O5'	8:G:501:C:H6	2.04	0.40
9:H:60:ASP:HB2	9:H:64:ARG:HH12	1.86	0.40
15:N:25:ASP:OD1	15:N:25:ASP:N	2.55	0.40
19:R:25:ILE:HG13	19:R:29:ARG:HB3	2.04	0.40
22:U:81:ARG:HG2	22:U:83:GLU:HG2	2.02	0.40
23:V:252:G:OP2	35:i:50:ARG:NH2	2.55	0.40
23:V:2897:U:O5'	23:V:2897:U:H6	2.04	0.40
27:a:11:MET:HE1	27:a:13:ARG:NE	2.37	0.40
27:a:41:LYS:HB2	27:a:41:LYS:HE2	1.85	0.40
36:j:34:LEU:HD12	36:j:103:MET:HE2	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:l:83:LYS:HE2	38:l:83:LYS:HB2	1.94	0.40
45:s:94:GLU:H	45:s:95:PRO:HD2	1.82	0.40
45:s:152:ALA:HB2	45:s:171:ILE:HB	2.02	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
2	A	95/104 (91%)	82 (86%)	12 (13%)	1 (1%)	12 45
3	B	71/73 (97%)	59 (83%)	12 (17%)	0	100 100
4	C	97/106 (92%)	85 (88%)	10 (10%)	2 (2%)	5 33
5	D	80/93 (86%)	64 (80%)	16 (20%)	0	100 100
6	E	96/105 (91%)	81 (84%)	14 (15%)	1 (1%)	13 46
7	F	22/27 (82%)	20 (91%)	2 (9%)	0	100 100
9	H	220/256 (86%)	195 (89%)	23 (10%)	2 (1%)	14 48
10	I	204/239 (85%)	174 (85%)	30 (15%)	0	100 100
11	J	206/209 (99%)	178 (86%)	27 (13%)	1 (0%)	25 59
12	K	148/162 (91%)	129 (87%)	18 (12%)	1 (1%)	19 53
13	L	99/101 (98%)	84 (85%)	14 (14%)	1 (1%)	13 46
14	M	153/156 (98%)	135 (88%)	16 (10%)	2 (1%)	10 41
15	N	136/138 (99%)	118 (87%)	17 (12%)	1 (1%)	19 53
16	O	125/128 (98%)	97 (78%)	28 (22%)	0	100 100
17	P	117/129 (91%)	103 (88%)	14 (12%)	0	100 100
18	Q	122/132 (92%)	96 (79%)	25 (20%)	1 (1%)	16 51
19	R	112/126 (89%)	86 (77%)	23 (20%)	3 (3%)	4 28

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
20	S	58/61 (95%)	39 (67%)	18 (31%)	1 (2%)	7 37
21	T	86/89 (97%)	83 (96%)	3 (4%)	0	100 100
22	U	81/88 (92%)	70 (86%)	11 (14%)	0	100 100
25	Y	226/229 (99%)	179 (79%)	39 (17%)	8 (4%)	3 24
26	Z	271/276 (98%)	232 (86%)	38 (14%)	1 (0%)	30 63
27	a	204/206 (99%)	162 (79%)	42 (21%)	0	100 100
28	b	206/210 (98%)	156 (76%)	48 (23%)	2 (1%)	13 46
29	c	177/182 (97%)	121 (68%)	45 (25%)	11 (6%)	1 13
30	d	174/180 (97%)	135 (78%)	27 (16%)	12 (7%)	1 11
31	e	124/173 (72%)	79 (64%)	39 (32%)	6 (5%)	2 17
32	f	132/147 (90%)	86 (65%)	34 (26%)	12 (9%)	0 7
33	g	115/140 (82%)	92 (80%)	21 (18%)	2 (2%)	7 37
34	h	120/122 (98%)	76 (63%)	39 (32%)	5 (4%)	2 20
35	i	143/150 (95%)	95 (66%)	41 (29%)	7 (5%)	2 17
36	j	134/141 (95%)	94 (70%)	37 (28%)	3 (2%)	5 32
37	k	115/118 (98%)	97 (84%)	18 (16%)	0	100 100
38	l	108/112 (96%)	82 (76%)	23 (21%)	3 (3%)	4 27
39	m	115/146 (79%)	78 (68%)	34 (30%)	3 (3%)	4 28
40	n	115/118 (98%)	103 (90%)	12 (10%)	0	100 100
41	o	99/101 (98%)	79 (80%)	19 (19%)	1 (1%)	13 46
42	p	108/113 (96%)	92 (85%)	15 (14%)	1 (1%)	14 48
43	q	92/96 (96%)	76 (83%)	14 (15%)	2 (2%)	5 32
44	r	108/110 (98%)	66 (61%)	40 (37%)	2 (2%)	6 35
45	s	178/206 (86%)	128 (72%)	41 (23%)	9 (5%)	1 16
46	t	78/85 (92%)	64 (82%)	13 (17%)	1 (1%)	10 41
47	u	65/67 (97%)	55 (85%)	9 (14%)	1 (2%)	8 39
48	v	57/60 (95%)	46 (81%)	10 (18%)	1 (2%)	7 35
49	CC	30/71 (42%)	18 (60%)	12 (40%)	0	100 100
49	w	69/71 (97%)	43 (62%)	23 (33%)	3 (4%)	2 19
50	x	55/60 (92%)	35 (64%)	18 (33%)	2 (4%)	3 23
51	y	47/54 (87%)	29 (62%)	17 (36%)	1 (2%)	5 33

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
52	z	47/49 (96%)	40 (85%)	7 (15%)	0	100 100
53	AA	62/65 (95%)	50 (81%)	9 (14%)	3 (5%)	2 17
54	BB	35/37 (95%)	32 (91%)	3 (9%)	0	100 100
56	EE	488/497 (98%)	386 (79%)	98 (20%)	4 (1%)	16 51
All	All	6425/6914 (93%)	5084 (79%)	1218 (19%)	123 (2%)	9 35

All (123) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	C	75	ASN
9	H	78	GLN
25	Y	161	ILE
25	Y	179	SER
29	c	31	VAL
29	c	32	PRO
29	c	77	ILE
29	c	81	LYS
29	c	86	MET
29	c	87	PRO
30	d	12	PRO
30	d	17	VAL
30	d	21	PRO
30	d	126	PRO
30	d	127	GLU
30	d	128	PRO
31	e	32	LEU
32	f	19	PRO
32	f	54	PRO
32	f	67	PHE
32	f	68	VAL
32	f	69	THR
35	i	48	PRO
38	l	100	ALA
39	m	59	THR
43	q	88	LYS
43	q	89	ILE
45	s	93	ASP
45	s	94	GLU
45	s	97	GLU
49	w	50	VAL
53	AA	12	LYS

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Mol	Chain	Res	Type
53	AA	13	ARG
56	EE	150	LEU
56	EE	296	PRO
4	C	74	LYS
6	E	57	LYS
9	H	153	ARG
25	Y	37	PHE
25	Y	160	ARG
25	Y	184	LYS
26	Z	273	ARG
29	c	79	ASN
29	c	84	LYS
30	d	13	LYS
30	d	41	MET
31	e	7	VAL
31	e	12	THR
32	f	56	GLU
34	h	14	THR
34	h	103	ALA
36	j	99	PRO
38	l	91	PRO
41	o	46	VAL
44	r	87	LYS
45	s	90	VAL
45	s	92	SER
45	s	152	ALA
49	w	11	PRO
56	EE	100	MET
56	EE	347	ASP
2	A	67	LYS
14	M	113	GLU
25	Y	36	LYS
25	Y	182	PRO
31	e	10	LEU
32	f	61	ALA
32	f	101	TRP
32	f	110	GLN
33	g	66	LYS
35	i	33	ARG
42	p	90	ARG
45	s	42	VAL
46	t	8	GLY

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Mol	Chain	Res	Type
11	J	35	ARG
12	K	141	GLN
25	Y	162	GLU
28	b	62	ARG
29	c	29	TRP
29	c	78	SER
29	c	142	PRO
30	d	40	GLU
30	d	111	HIS
32	f	52	ILE
35	i	35	HIS
36	j	60	ARG
39	m	99	LEU
45	s	32	HIS
47	u	13	PRO
19	R	100	GLY
19	R	101	GLN
19	R	108	ARG
30	d	15	VAL
31	e	54	ALA
32	f	66	THR
33	g	45	ASN
35	i	46	LYS
49	w	58	ARG
51	y	19	ARG
35	i	47	ASP
39	m	97	ALA
14	M	112	PRO
34	h	119	PRO
44	r	38	ILE
50	x	40	LYS
30	d	39	PRO
34	h	15	GLY
35	i	34	GLY
36	j	78	PRO
53	AA	62	LEU
13	L	96	PRO
31	e	33	PRO
45	s	96	VAL
48	v	12	PRO
18	Q	7	ILE
20	S	14	PRO

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Mol	Chain	Res	Type
28	b	178	PRO
32	f	21	PRO
34	h	4	PRO
35	i	71	VAL
15	N	74	PRO
38	l	96	GLY
50	x	5	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	A	92/96 (96%)	90 (98%)	2 (2%)	47 69
3	B	64/64 (100%)	64 (100%)	0	100 100
4	C	76/82 (93%)	76 (100%)	0	100 100
5	D	72/80 (90%)	72 (100%)	0	100 100
6	E	88/92 (96%)	86 (98%)	2 (2%)	45 68
7	F	19/22 (86%)	19 (100%)	0	100 100
9	H	191/220 (87%)	190 (100%)	1 (0%)	86 93
10	I	160/188 (85%)	159 (99%)	1 (1%)	84 92
11	J	180/181 (99%)	178 (99%)	2 (1%)	70 83
12	K	115/123 (94%)	115 (100%)	0	100 100
13	L	90/90 (100%)	90 (100%)	0	100 100
14	M	126/127 (99%)	125 (99%)	1 (1%)	79 88
15	N	119/119 (100%)	118 (99%)	1 (1%)	79 88
16	O	98/99 (99%)	98 (100%)	0	100 100
17	P	90/99 (91%)	89 (99%)	1 (1%)	70 83
18	Q	104/109 (95%)	104 (100%)	0	100 100
19	R	92/101 (91%)	90 (98%)	2 (2%)	47 69
20	S	49/50 (98%)	42 (86%)	7 (14%)	2 17

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
21	T	79/80 (99%)	78 (99%)	1 (1%)	65 81
22	U	72/74 (97%)	72 (100%)	0	100 100
25	Y	180/181 (99%)	176 (98%)	4 (2%)	47 69
26	Z	215/218 (99%)	213 (99%)	2 (1%)	75 87
27	a	166/166 (100%)	164 (99%)	2 (1%)	67 82
28	b	164/166 (99%)	161 (98%)	3 (2%)	54 74
29	c	152/156 (97%)	140 (92%)	12 (8%)	10 35
30	d	142/148 (96%)	132 (93%)	10 (7%)	12 40
32	f	101/111 (91%)	90 (89%)	11 (11%)	5 25
33	g	99/119 (83%)	98 (99%)	1 (1%)	73 85
34	h	100/100 (100%)	99 (99%)	1 (1%)	73 85
35	i	112/116 (97%)	107 (96%)	5 (4%)	23 53
36	j	106/111 (96%)	106 (100%)	0	100 100
37	k	100/101 (99%)	100 (100%)	0	100 100
38	l	87/88 (99%)	76 (87%)	11 (13%)	3 19
39	m	105/127 (83%)	104 (99%)	1 (1%)	73 85
40	n	93/94 (99%)	91 (98%)	2 (2%)	47 69
41	o	82/82 (100%)	80 (98%)	2 (2%)	44 67
42	p	90/92 (98%)	88 (98%)	2 (2%)	47 69
43	q	76/78 (97%)	74 (97%)	2 (3%)	41 65
44	r	91/91 (100%)	91 (100%)	0	100 100
45	s	159/179 (89%)	155 (98%)	4 (2%)	42 66
46	t	63/67 (94%)	61 (97%)	2 (3%)	34 61
47	u	62/62 (100%)	62 (100%)	0	100 100
48	v	51/52 (98%)	51 (100%)	0	100 100
49	w	63/63 (100%)	62 (98%)	1 (2%)	58 76
50	x	50/52 (96%)	47 (94%)	3 (6%)	16 45
51	y	47/52 (90%)	43 (92%)	4 (8%)	8 33
52	z	42/42 (100%)	42 (100%)	0	100 100
53	AA	54/55 (98%)	53 (98%)	1 (2%)	52 73
54	BB	34/34 (100%)	34 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
56	EE	412/419 (98%)	386 (94%)	26 (6%)	15 44
All	All	5274/5518 (96%)	5141 (98%)	133 (2%)	43 66

All (133) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	84	LEU
2	A	90	ILE
6	E	16	LEU
6	E	49	VAL
9	H	162	ILE
10	I	10	PHE
11	J	21	LEU
11	J	204	ILE
14	M	30	ILE
15	N	97	VAL
17	P	82	VAL
19	R	96	LEU
19	R	102	ARG
20	S	21	TYR
20	S	26	ARG
20	S	29	ARG
20	S	31	ARG
20	S	35	ARG
20	S	39	LEU
20	S	42	ILE
21	T	87	ILE
25	Y	123	VAL
25	Y	155	GLU
25	Y	157	LYS
25	Y	216	THR
26	Z	65	ILE
26	Z	106	ILE
27	a	146	THR
27	a	170	LEU
28	b	11	VAL
28	b	64	ILE
28	b	106	ARG
29	c	28	VAL
29	c	31	VAL
29	c	77	ILE
29	c	79	ASN

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Mol	Chain	Res	Type
29	c	80	PHE
29	c	81	LYS
29	c	82	LEU
29	c	86	MET
29	c	88	ILE
29	c	90	LEU
29	c	109	VAL
29	c	144	ILE
30	d	13	LYS
30	d	15	VAL
30	d	23	ARG
30	d	25	LYS
30	d	27	LYS
30	d	124	GLU
30	d	127	GLU
30	d	131	VAL
30	d	133	VAL
30	d	138	LYS
32	f	4	VAL
32	f	52	ILE
32	f	55	VAL
32	f	57	ILE
32	f	63	ARG
32	f	68	VAL
32	f	69	THR
32	f	77	LEU
32	f	89	HIS
32	f	95	LYS
32	f	115	LEU
33	g	25	ARG
34	h	19	ILE
35	i	15	ARG
35	i	46	LYS
35	i	51	PHE
35	i	52	GLU
35	i	146	VAL
38	l	9	ARG
38	l	10	ARG
38	l	12	PHE
38	l	14	VAL
38	l	15	ARG
38	l	17	ARG

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Mol	Chain	Res	Type
38	l	78	LEU
38	l	88	ASP
38	l	92	TYR
38	l	97	ARG
38	l	98	VAL
39	m	66	VAL
40	n	27	LEU
40	n	80	ILE
41	o	38	LEU
41	o	66	ARG
42	p	10	VAL
42	p	71	VAL
43	q	9	LEU
43	q	12	VAL
45	s	31	ARG
45	s	90	VAL
45	s	93	ASP
45	s	94	GLU
46	t	9	SER
46	t	10	THR
49	w	10	VAL
50	x	33	CYS
50	x	37	LYS
50	x	39	MET
51	y	20	ASN
51	y	46	HIS
51	y	48	VAL
51	y	53	LYS
53	AA	59	LYS
56	EE	35	LEU
56	EE	43	LYS
56	EE	72	GLN
56	EE	92	VAL
56	EE	94	ASN
56	EE	95	VAL
56	EE	98	ASP
56	EE	100	MET
56	EE	101	SER
56	EE	104	GLU
56	EE	145	PHE
56	EE	291	LEU
56	EE	294	LYS

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Mol	Chain	Res	Type
56	EE	331	ASN
56	EE	371	LYS
56	EE	373	VAL
56	EE	374	LEU
56	EE	376	PHE
56	EE	377	MET
56	EE	402	ILE
56	EE	403	GLN
56	EE	407	SER
56	EE	409	LEU
56	EE	410	SER
56	EE	413	GLU
56	EE	415	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (64) such sidechains are listed below:

Mol	Chain	Res	Type
5	D	23	ASN
9	H	45	GLN
9	H	94	ASN
9	H	95	GLN
9	H	204	ASN
10	I	176	HIS
11	J	129	ASN
12	K	38	GLN
13	L	13	ASN
14	M	51	GLN
14	M	56	GLN
14	M	122	HIS
15	N	70	GLN
16	O	3	GLN
16	O	38	GLN
16	O	89	ASN
17	P	99	GLN
17	P	117	ASN
18	Q	99	HIS
19	R	62	ASN
21	T	37	ASN
21	T	46	HIS
22	U	76	GLN
25	Y	56	GLN
25	Y	57	ASN

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Mol	Chain	Res	Type
25	Y	139	ASN
25	Y	188	ASN
26	Z	186	HIS
27	a	85	ASN
28	b	40	GLN
28	b	75	HIS
29	c	40	ASN
29	c	41	GLN
29	c	123	ASN
32	f	11	GLN
32	f	42	ASN
32	f	103	GLN
32	f	110	GLN
34	h	3	GLN
34	h	90	GLN
35	i	128	HIS
37	k	13	HIS
40	n	117	GLN
41	o	80	GLN
42	p	57	ASN
42	p	61	ASN
43	q	31	HIS
43	q	41	ASN
44	r	92	ASN
45	s	50	GLN
46	t	12	ASN
46	t	35	ASN
47	u	66	ASN
49	w	40	HIS
49	w	47	GLN
50	x	23	HIS
50	x	43	HIS
51	y	20	ASN
51	y	32	ASN
51	y	46	HIS
53	AA	35	GLN
54	BB	36	GLN
56	EE	194	HIS
56	EE	285	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	W	6/25 (24%)	6 (100%)	1 (16%)
23	V	2874/2875 (99%)	1143 (39%)	83 (2%)
24	X	122/123 (99%)	41 (33%)	1 (0%)
55	DD	76/77 (98%)	31 (40%)	4 (5%)
8	G	1513/1514 (99%)	480 (31%)	37 (2%)
All	All	4591/4614 (99%)	1701 (37%)	126 (2%)

All (1701) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	W	15	A
1	W	16	A
1	W	17	U
1	W	18	G
1	W	19	U
1	W	20	U
8	G	6	G
8	G	7	G
8	G	8	A
8	G	9	G
8	G	12	U
8	G	16	A
8	G	28	G
8	G	30	U
8	G	31	G
8	G	32	A
8	G	39	G
8	G	47	C
8	G	48	C
8	G	50	A
8	G	51	A
8	G	53	A
8	G	59	A
8	G	65	U
8	G	66	G
8	G	69	G
8	G	74	C
8	G	75	C
8	G	78	G
8	G	79	G
8	G	80	G
8	G	82	U
8	G	84	U

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Mol	Chain	Res	Type
8	G	87	A
8	G	88	C
8	G	92	G
8	G	95	G
8	G	96	G
8	G	101	A
8	G	110	C
8	G	116	A
8	G	117	G
8	G	118	U
8	G	119	A
8	G	120	A
8	G	121	C
8	G	122	G
8	G	123	C
8	G	129(A)	G
8	G	131	C
8	G	134	A
8	G	153	C
8	G	155	C
8	G	163	C
8	G	166	G
8	G	172	A
8	G	173	U
8	G	179	A
8	G	181	G
8	G	182	U
8	G	186(A)	C
8	G	187	C
8	G	188	U
8	G	189	U
8	G	190	G
8	G	191(B)	G
8	G	191(E)	G
8	G	191	G
8	G	195	A
8	G	196	A
8	G	197	A
8	G	200	G
8	G	201	C
8	G	208	U
8	G	209	U

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Mol	Chain	Res	Type
8	G	210	U
8	G	216	G
8	G	220	G
8	G	222	U
8	G	226	G
8	G	230	G
8	G	231	G
8	G	240	C
8	G	244	U
8	G	245	C
8	G	247	G
8	G	251	G
8	G	263	A
8	G	266	G
8	G	267	C
8	G	274	A
8	G	279	A
8	G	280	C
8	G	281	G
8	G	283	C
8	G	288	A
8	G	289	G
8	G	291	C
8	G	293	G
8	G	298	A
8	G	301	G
8	G	302	G
8	G	304	U
8	G	306	G
8	G	309	G
8	G	315	A
8	G	321	A
8	G	328	C
8	G	329	A
8	G	330	C
8	G	332	G
8	G	340	U
8	G	345	C
8	G	347	G
8	G	352	C
8	G	353	A
8	G	354	G

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Mol	Chain	Res	Type
8	G	356	A
8	G	358	U
8	G	363	A
8	G	365	U
8	G	366	C
8	G	367	U
8	G	372	C
8	G	373	A
8	G	384	G
8	G	388	G
8	G	389	A
8	G	390	C
8	G	397	A
8	G	398	C
8	G	406	G
8	G	412	A
8	G	413	G
8	G	414	A
8	G	420	U
8	G	421	U
8	G	422	C
8	G	423	G
8	G	424	G
8	G	429	U
8	G	434	U
8	G	438	G
8	G	439	A
8	G	448	A
8	G	465	A
8	G	466	C
8	G	467	G
8	G	468	A
8	G	474	G
8	G	481	G
8	G	482	A
8	G	483	C
8	G	484	G
8	G	485	G
8	G	489	C
8	G	492	G
8	G	494	U
8	G	496	A

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Mol	Chain	Res	Type
8	G	497	U
8	G	505	G
8	G	515	G
8	G	517	G
8	G	518	C
8	G	527	G
8	G	532	A
8	G	533	A
8	G	543	C
8	G	545	C
8	G	547	A
8	G	548	G
8	G	557	G
8	G	559	A
8	G	560	U
8	G	563	A
8	G	564	C
8	G	567	G
8	G	568	G
8	G	571	U
8	G	572	A
8	G	573	A
8	G	576	G
8	G	577	G
8	G	579	G
8	G	586	C
8	G	592	G
8	G	596	C
8	G	598	U
8	G	602	A
8	G	607	A
8	G	609	A
8	G	618	C
8	G	619	U
8	G	623	C
8	G	627	G
8	G	629	G
8	G	639	G
8	G	642	A
8	G	643	C
8	G	648	A
8	G	652	U

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Mol	Chain	Res	Type
8	G	653	A
8	G	654	G
8	G	661	G
8	G	663	A
8	G	665	A
8	G	666	G
8	G	667	G
8	G	674	G
8	G	679	C
8	G	686	U
8	G	687	A
8	G	688	G
8	G	694	A
8	G	696	A
8	G	701	C
8	G	702	A
8	G	703	G
8	G	707	C
8	G	714	G
8	G	715	A
8	G	717	C
8	G	718	G
8	G	719	C
8	G	721	G
8	G	724	G
8	G	725	G
8	G	729	A
8	G	731	G
8	G	733	A
8	G	748	C
8	G	755	G
8	G	761	G
8	G	773	G
8	G	777	A
8	G	781	A
8	G	782	A
8	G	785	G
8	G	793	U
8	G	794	A
8	G	801	U
8	G	803	G
8	G	810	C

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Mol	Chain	Res	Type
8	G	812	C
8	G	813	U
8	G	816	A
8	G	817	C
8	G	818	G
8	G	819	A
8	G	820	U
8	G	821	G
8	G	828	A
8	G	838	G
8	G	843	U
8	G	848	C
8	G	852	G
8	G	869	G
8	G	870	U
8	G	871	U
8	G	872	A
8	G	873	A
8	G	885	G
8	G	890	G
8	G	891	U
8	G	900	A
8	G	902	G
8	G	905	U
8	G	907	A
8	G	914	A
8	G	919	A
8	G	927	G
8	G	934	C
8	G	941	G
8	G	945	G
8	G	947	G
8	G	960	U
8	G	962	C
8	G	966	G
8	G	967	C
8	G	968	A
8	G	969	A
8	G	971	G
8	G	972	C
8	G	974	A
8	G	975	A

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Mol	Chain	Res	Type
8	G	976	G
8	G	982	U
8	G	984	C
8	G	992	U
8	G	993	G
8	G	994	A
8	G	998	G
8	G	998(A)	C
8	G	999	U
8	G	1000	A
8	G	1001	G
8	G	1002	G
8	G	1003	G
8	G	1004	A
8	G	1005	A
8	G	1006	C
8	G	1009	G
8	G	1015	A
8	G	1016	A
8	G	1022	G
8	G	1024	G
8	G	1025	U
8	G	1026	G
8	G	1027	C
8	G	1028	C
8	G	1029	G
8	G	1030	C
8	G	1031	G
8	G	1032	A
8	G	1032(A)	G
8	G	1032(B)	G
8	G	1033	G
8	G	1035	A
8	G	1036	G
8	G	1042	G
8	G	1045	C
8	G	1046	A
8	G	1053	G
8	G	1054	C
8	G	1060	C
8	G	1061	G
8	G	1064	G

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Mol	Chain	Res	Type
8	G	1065	U
8	G	1066	C
8	G	1067	A
8	G	1073	U
8	G	1078	U
8	G	1079	G
8	G	1084	G
8	G	1085	U
8	G	1086	U
8	G	1089	G
8	G	1090	U
8	G	1094	G
8	G	1095	U
8	G	1099	G
8	G	1101	A
8	G	1103	C
8	G	1117	G
8	G	1123	A
8	G	1124	G
8	G	1125	U
8	G	1126	U
8	G	1129	C
8	G	1130	A
8	G	1131	G
8	G	1132	C
8	G	1136	U
8	G	1137	C
8	G	1138	G
8	G	1139	G
8	G	1140	C
8	G	1146	A
8	G	1154	G
8	G	1158	C
8	G	1159	U
8	G	1166	G
8	G	1175	G
8	G	1181	G
8	G	1182	G
8	G	1183	A
8	G	1184	G
8	G	1186	G
8	G	1187	G

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Mol	Chain	Res	Type
8	G	1189	C
8	G	1190	G
8	G	1192	C
8	G	1196	U
8	G	1197	G
8	G	1201	A
8	G	1207	G
8	G	1209	C
8	G	1211	U
8	G	1212	U
8	G	1213	A
8	G	1218	C
8	G	1226	C
8	G	1227	A
8	G	1236	A
8	G	1239	A
8	G	1240	U
8	G	1241	G
8	G	1249	C
8	G	1250	A
8	G	1253	G
8	G	1257	U
8	G	1258	G
8	G	1260	C
8	G	1270	C
8	G	1273	G
8	G	1275	A
8	G	1278	U
8	G	1279	A
8	G	1280	A
8	G	1281	U
8	G	1285	A
8	G	1286	A
8	G	1287	A
8	G	1288	A
8	G	1296	C
8	G	1298	C
8	G	1299	A
8	G	1300	G
8	G	1302	U
8	G	1305	G
8	G	1308	U

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Mol	Chain	Res	Type
8	G	1309	G
8	G	1310	G
8	G	1311	G
8	G	1312	G
8	G	1314	C
8	G	1317	C
8	G	1320	C
8	G	1322	C
8	G	1323	G
8	G	1329	A
8	G	1330	U
8	G	1331	G
8	G	1332	A
8	G	1336	C
8	G	1339	A
8	G	1347	G
8	G	1351	U
8	G	1353	G
8	G	1359	C
8	G	1360	A
8	G	1361	G
8	G	1362	C
8	G	1362(A)	C
8	G	1363	A
8	G	1364	U
8	G	1365	G
8	G	1367	C
8	G	1372	U
8	G	1378	C
8	G	1379	G
8	G	1381	U
8	G	1396	A
8	G	1397	C
8	G	1398	A
8	G	1400	C
8	G	1401	G
8	G	1409	C
8	G	1416	G
8	G	1438	G
8	G	1442	G
8	G	1443	G
8	G	1446	A

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Mol	Chain	Res	Type
8	G	1447	G
8	G	1449	C
8	G	1451	A
8	G	1452	C
8	G	1460	A
8	G	1461	G
8	G	1469	G
8	G	1477	C
8	G	1481	U
8	G	1492	A
8	G	1493	A
8	G	1494	G
8	G	1497	G
8	G	1498	U
8	G	1502	A
8	G	1503	A
8	G	1504	G
8	G	1505	G
8	G	1506	U
8	G	1507	A
8	G	1508	G
8	G	1510	U
8	G	1517	G
8	G	1520	G
8	G	1525	G
8	G	1529	G
8	G	1530	G
8	G	1531	A
8	G	1533	C
8	G	1535	C
8	G	1536	C
8	G	1538	C
8	G	1539	C
23	V	6	A
23	V	7	G
23	V	8	A
23	V	9	U
23	V	10	G
23	V	11	G
23	V	12	U
23	V	13	A
23	V	14	A

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Mol	Chain	Res	Type
23	V	21	A
23	V	26	G
23	V	28	A
23	V	29	U
23	V	32	C
23	V	34	C
23	V	35	G
23	V	43	G
23	V	46	C
23	V	47	C
23	V	49	A
23	V	50	U
23	V	51	G
23	V	52	A
23	V	63	U
23	V	71	A
23	V	72	U
23	V	74	A
23	V	75	G
23	V	83	G
23	V	84	A
23	V	85	G
23	V	88	G
23	V	90	U
23	V	91	A
23	V	93	C
23	V	94	G
23	V	96	G
23	V	97	C
23	V	98	G
23	V	99	U
23	V	101	G
23	V	102	G
23	V	118	A
23	V	120	U
23	V	121	G
23	V	125	G
23	V	126	A
23	V	131	G
23	V	134	C
23	V	136	G
23	V	137	C

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Mol	Chain	Res	Type
23	V	137(A)	G
23	V	138	G
23	V	139	G
23	V	140	A
23	V	141	A
23	V	142	G
23	V	143	C
23	V	145	G
23	V	146	G
23	V	149	A
23	V	161	U
23	V	164	U
23	V	171	G
23	V	177	G
23	V	178	G
23	V	181	A
23	V	182	A
23	V	190	A
23	V	196	A
23	V	198	C
23	V	199	A
23	V	204	A
23	V	205	G
23	V	207	A
23	V	216	A
23	V	217	G
23	V	221	A
23	V	222	A
23	V	223	A
23	V	224	G
23	V	226	G
23	V	228	A
23	V	229	A
23	V	230	U
23	V	233	A
23	V	245	G
23	V	248	G
23	V	249	C
23	V	251	A
23	V	252	G
23	V	263	C
23	V	264	C

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Mol	Chain	Res	Type
23	V	265	A
23	V	266	G
23	V	267	C
23	V	270	A
23	V	270(A)	A
23	V	270(B)	A
23	V	270(C)	C
23	V	270(E)	G
23	V	270(G)	C
23	V	270(K)	C
23	V	270(L)	U
23	V	270(M)	U
23	V	270(N)	G
23	V	270(V)	G
23	V	270(Z)	U
23	V	271	C
23	V	271(A)	G
23	V	271(B)	U
23	V	271(C)	G
23	V	272	G
23	V	273(F)	C
23	V	275	G
23	V	276	A
23	V	277	C
23	V	280	C
23	V	283	A
23	V	284	U
23	V	285	C
23	V	286	C
23	V	287	C
23	V	288	C
23	V	289	A
23	V	290	G
23	V	293	U
23	V	296	C
23	V	299	A
23	V	300	A
23	V	304	G
23	V	305	U
23	V	306	U
23	V	307	G
23	V	308	G

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Mol	Chain	Res	Type
23	V	310	A
23	V	311	A
23	V	312	G
23	V	323	G
23	V	324	A
23	V	327	G
23	V	329	G
23	V	330	A
23	V	332	A
23	V	333	G
23	V	334	C
23	V	338	G
23	V	339	U
23	V	340	A
23	V	341	G
23	V	345	A
23	V	347	A
23	V	348	G
23	V	349	G
23	V	350	U
23	V	351	G
23	V	352	G
23	V	354	G
23	V	356	G
23	V	358	U
23	V	359	A
23	V	360	G
23	V	361	G
23	V	363(A)	A
23	V	363(E)	U
23	V	363(F)	G
23	V	365	C
23	V	366	C
23	V	370	G
23	V	371	A
23	V	372	G
23	V	373	U
23	V	374	A
23	V	380	U
23	V	383	U
23	V	386	G
23	V	388	G

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Mol	Chain	Res	Type
23	V	394	A
23	V	399	G
23	V	403	U
23	V	404	C
23	V	405	U
23	V	411	G
23	V	412	A
23	V	413	C
23	V	417	C
23	V	418	G
23	V	419	C
23	V	428	A
23	V	433	C
23	V	434	U
23	V	435	C
23	V	443	A
23	V	444	C
23	V	446	G
23	V	447	A
23	V	448	U
23	V	449	A
23	V	451	C
23	V	452	G
23	V	455	C
23	V	456	C
23	V	457	A
23	V	458	G
23	V	459	U
23	V	467	G
23	V	471	A
23	V	473	G
23	V	479	A
23	V	480	A
23	V	481	G
23	V	485	C
23	V	489	G
23	V	491	G
23	V	501	A
23	V	504	U
23	V	505	A
23	V	508	G
23	V	512	G

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Mol	Chain	Res	Type
23	V	526	A
23	V	527	C
23	V	528	A
23	V	529	A
23	V	530	G
23	V	531	C
23	V	532	A
23	V	533	G
23	V	536	A
23	V	537	C
23	V	540	G
23	V	545	G
23	V	551	G
23	V	556	G
23	V	560	C
23	V	563	G
23	V	568	U
23	V	570	G
23	V	573	G
23	V	574	C
23	V	575	A
23	V	586	A
23	V	588	U
23	V	598	G
23	V	599	G
23	V	603	A
23	V	607	U
23	V	608	A
23	V	613	U
23	V	615	G
23	V	616	A
23	V	617	G
23	V	618(A)	C
23	V	619	G
23	V	621	A
23	V	622	G
23	V	624	C
23	V	626	U
23	V	627	A
23	V	628	G
23	V	631	A
23	V	632	A

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Mol	Chain	Res	Type
23	V	637	A
23	V	638	G
23	V	639	U
23	V	642	G
23	V	643	A
23	V	644	A
23	V	645	C
23	V	646	A
23	V	648	G
23	V	649	G
23	V	652	C
23	V	653	A
23	V	654	A
23	V	655	A
23	V	656	G
23	V	669	G
23	V	671	C
23	V	677	A
23	V	682	G
23	V	684	G
23	V	686	G
23	V	688	U
23	V	693	C
23	V	699	A
23	V	715	G
23	V	717	G
23	V	719	C
23	V	725	G
23	V	726	G
23	V	727	A
23	V	728	G
23	V	729	G
23	V	730	C
23	V	731	C
23	V	739	G
23	V	740	U
23	V	743	G
23	V	744	G
23	V	747	U
23	V	748	G
23	V	750	A
23	V	755	C

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Mol	Chain	Res	Type
23	V	756	C
23	V	758	C
23	V	762	U
23	V	764	A
23	V	775	G
23	V	777	A
23	V	779	U
23	V	782	A
23	V	783	A
23	V	784	A
23	V	785	G
23	V	789	A
23	V	790	C
23	V	791	C
23	V	792	G
23	V	793	A
23	V	794	G
23	V	795	C
23	V	800	A
23	V	801	G
23	V	802	A
23	V	805	G
23	V	811	U
23	V	812	C
23	V	817	C
23	V	823	G
23	V	825	C
23	V	827	U
23	V	828	U
23	V	830	G
23	V	832	G
23	V	837	C
23	V	843	G
23	V	847	U
23	V	850	C
23	V	853	G
23	V	855	G
23	V	859	G
23	V	860	U
23	V	865	C
23	V	866	A
23	V	870	A

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Mol	Chain	Res	Type
23	V	873	G
23	V	874	G
23	V	875	G
23	V	876	C
23	V	881	G
23	V	882	G
23	V	883	G
23	V	884	C
23	V	886	C
23	V	887	A
23	V	889	C
23	V	890	A
23	V	892	G
23	V	893	C
23	V	894	C
23	V	895	U
23	V	896	A
23	V	898	C
23	V	900	A
23	V	901	A
23	V	902	C
23	V	903	C
23	V	904	C
23	V	906	G
23	V	907	U
23	V	910	A
23	V	915	C
23	V	926	A
23	V	929	G
23	V	930	U
23	V	931	G
23	V	932	G
23	V	941	A
23	V	945	A
23	V	946	G
23	V	957	A
23	V	961	C
23	V	966	G
23	V	968	G
23	V	973	A
23	V	974	G
23	V	974(A)	C

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Mol	Chain	Res	Type
23	V	980	A
23	V	981	A
23	V	982	C
23	V	983	A
23	V	987	G
23	V	988	A
23	V	989	G
23	V	995	C
23	V	996	A
23	V	999	U
23	V	1000	A
23	V	1004	C
23	V	1005	C
23	V	1006	C
23	V	1007	C
23	V	1008	C
23	V	1011	G
23	V	1013	C
23	V	1016	G
23	V	1021	A
23	V	1022	G
23	V	1023	U
23	V	1024	G
23	V	1025	G
23	V	1026	U
23	V	1027	A
23	V	1033	U
23	V	1034	G
23	V	1038	C
23	V	1041	C
23	V	1042	G
23	V	1044	G
23	V	1045	A
23	V	1046	A
23	V	1047	G
23	V	1050	A
23	V	1051	G
23	V	1052	C
23	V	1053	C
23	V	1054	A
23	V	1055	G
23	V	1056	G

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Mol	Chain	Res	Type
23	V	1057	A
23	V	1058	G
23	V	1059	G
23	V	1060	U
23	V	1061	U
23	V	1062	G
23	V	1063	G
23	V	1064	C
23	V	1065	U
23	V	1066	U
23	V	1068	G
23	V	1069	A
23	V	1070	A
23	V	1071	G
23	V	1073	A
23	V	1075	C
23	V	1076	C
23	V	1077	A
23	V	1078	U
23	V	1079	C
23	V	1083	U
23	V	1085	A
23	V	1086	A
23	V	1087	G
23	V	1088	A
23	V	1089	G
23	V	1090	U
23	V	1093	G
23	V	1094	U
23	V	1096	A
23	V	1099	G
23	V	1101	U
23	V	1102	C
23	V	1104	C
23	V	1105	U
23	V	1106	G
23	V	1107	G
23	V	1110	G
23	V	1111	A
23	V	1112	G
23	V	1118	C
23	V	1124	C

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Mol	Chain	Res	Type
23	V	1126	A
23	V	1130	U
23	V	1131	G
23	V	1134	G
23	V	1135	C
23	V	1140	C
23	V	1141	U
23	V	1142	U
23	V	1142(A)	A
23	V	1143	A
23	V	1144	G
23	V	1151	G
23	V	1155	A
23	V	1156	A
23	V	1158	C
23	V	1162	G
23	V	1170	G
23	V	1173	G
23	V	1174	A
23	V	1175	U
23	V	1176	G
23	V	1177	A
23	V	1178	C
23	V	1180	C
23	V	1183	G
23	V	1186	G
23	V	1190	G
23	V	1193	G
23	V	1195	G
23	V	1199	U
23	V	1200	C
23	V	1201	C
23	V	1203	G
23	V	1204	A
23	V	1205	U
23	V	1211	U
23	V	1215	G
23	V	1220	A
23	V	1221	C
23	V	1222	C
23	V	1229	G
23	V	1231	G

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Mol	Chain	Res	Type
23	V	1233	C
23	V	1238	G
23	V	1240	U
23	V	1241	A
23	V	1242	A
23	V	1248	G
23	V	1250	G
23	V	1251	C
23	V	1252	G
23	V	1253	A
23	V	1255	U
23	V	1256	G
23	V	1258	C
23	V	1260	G
23	V	1262	A
23	V	1265	A
23	V	1266	G
23	V	1267	U
23	V	1268	A
23	V	1271	G
23	V	1272	A
23	V	1275	A
23	V	1284	A
23	V	1285	G
23	V	1286	A
23	V	1287	A
23	V	1289	C
23	V	1297	C
23	V	1300	U
23	V	1301	A
23	V	1302	A
23	V	1304	C
23	V	1308	A
23	V	1310	G
23	V	1313	U
23	V	1314	C
23	V	1321	A
23	V	1324	G
23	V	1325	G
23	V	1327	C
23	V	1329	U
23	V	1330	C

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Mol	Chain	Res	Type
23	V	1332	G
23	V	1335	U
23	V	1338	G
23	V	1340	U
23	V	1341	U
23	V	1344	G
23	V	1351	C
23	V	1352	U
23	V	1354	A
23	V	1355	G
23	V	1359	A
23	V	1360	A
23	V	1362	C
23	V	1363	C
23	V	1364	G
23	V	1365	A
23	V	1366	A
23	V	1367	A
23	V	1368	G
23	V	1373	A
23	V	1376	C
23	V	1379	A
23	V	1384	A
23	V	1385	G
23	V	1390	U
23	V	1397	U
23	V	1398	C
23	V	1406	U
23	V	1411	C
23	V	1415	U
23	V	1416	G
23	V	1419	A
23	V	1420	U
23	V	1421	G
23	V	1428	C
23	V	1438	U
23	V	1443	G
23	V	1444	G
23	V	1445	C
23	V	1446	C
23	V	1447	G
23	V	1448	G

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Mol	Chain	Res	Type
23	V	1449	A
23	V	1449(A)	G
23	V	1450	C
23	V	1451	C
23	V	1452	A
23	V	1453	A
23	V	1454	U
23	V	1455	G
23	V	1458	C
23	V	1460	A
23	V	1461	G
23	V	1462	C
23	V	1463	C
23	V	1467	C
23	V	1472	A
23	V	1474	C
23	V	1476	C
23	V	1477	A
23	V	1478	G
23	V	1479	G
23	V	1482	U
23	V	1483	G
23	V	1488	G
23	V	1490	A
23	V	1491	G
23	V	1492	G
23	V	1493	C
23	V	1494	A
23	V	1496	A
23	V	1497	U
23	V	1498	C
23	V	1503	U
23	V	1507	A
23	V	1508	A
23	V	1509	C
23	V	1513	C
23	V	1514	U
23	V	1515	C
23	V	1516	U
23	V	1519	G
23	V	1520	U
23	V	1522	G

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Mol	Chain	Res	Type
23	V	1523	U
23	V	1527	G
23	V	1528	A
23	V	1529	A
23	V	1530	G
23	V	1534	G
23	V	1537	C
23	V	1540	G
23	V	1542	G
23	V	1543	A
23	V	1544	C
23	V	1545	A
23	V	1545(A)	A
23	V	1546	C
23	V	1548	C
23	V	1549	C
23	V	1554	A
23	V	1555	G
23	V	1558	A
23	V	1559	G
23	V	1560	G
23	V	1561	G
23	V	1562	A
23	V	1563	G
23	V	1565	C
23	V	1566	A
23	V	1567	A
23	V	1568	G
23	V	1569	A
23	V	1571	A
23	V	1572	A
23	V	1573	G
23	V	1574	C
23	V	1577	C
23	V	1578	U
23	V	1579	A
23	V	1580	A
23	V	1581	G
23	V	1582	C
23	V	1583	A
23	V	1585	C
23	V	1586	A

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Mol	Chain	Res	Type
23	V	1587	A
23	V	1588	C
23	V	1589	C
23	V	1591	G
23	V	1602	U
23	V	1603	A
23	V	1604	C
23	V	1607	C
23	V	1608	A
23	V	1609	A
23	V	1610	A
23	V	1612	C
23	V	1614	A
23	V	1617	C
23	V	1618	A
23	V	1619	G
23	V	1626	G
23	V	1627	G
23	V	1628	G
23	V	1630	G
23	V	1630(A)	C
23	V	1632	A
23	V	1638	C
23	V	1640	C
23	V	1644	C
23	V	1646	C
23	V	1648	C
23	V	1653	G
23	V	1665	A
23	V	1672	C
23	V	1673	U
23	V	1674	G
23	V	1675	C
23	V	1680	U
23	V	1681	G
23	V	1694	C
23	V	1695	G
23	V	1696	G
23	V	1697	G
23	V	1698	A
23	V	1704	G
23	V	1710	C

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Mol	Chain	Res	Type
23	V	1712	C
23	V	1716	U
23	V	1717	G
23	V	1718	G
23	V	1725	G
23	V	1726	G
23	V	1728	G
23	V	1729	A
23	V	1730	U
23	V	1731	G
23	V	1732	A
23	V	1733	G
23	V	1734	C
23	V	1735	C
23	V	1741	C
23	V	1743	G
23	V	1747	G
23	V	1753	G
23	V	1757	U
23	V	1758	G
23	V	1759	A
23	V	1762	A
23	V	1763	G
23	V	1764	G
23	V	1766	U
23	V	1773	A
23	V	1774	C
23	V	1776	G
23	V	1779	U
23	V	1780	A
23	V	1781	C
23	V	1782	C
23	V	1783	A
23	V	1784	A
23	V	1785	A
23	V	1786	A
23	V	1787	A
23	V	1788	C
23	V	1791	A
23	V	1799	G
23	V	1800	C
23	V	1801	G

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Mol	Chain	Res	Type
23	V	1802	A
23	V	1809	A
23	V	1810	A
23	V	1811	G
23	V	1813	G
23	V	1814	G
23	V	1815	A
23	V	1816	G
23	V	1818	U
23	V	1819	A
23	V	1820	U
23	V	1821	A
23	V	1829	A
23	V	1834	U
23	V	1835	G
23	V	1838	C
23	V	1839	G
23	V	1846	G
23	V	1847	A
23	V	1848	A
23	V	1858	G
23	V	1860	G
23	V	1861	G
23	V	1864	U
23	V	1869	G
23	V	1870	C
23	V	1871	A
23	V	1872	A
23	V	1878	G
23	V	1880	C
23	V	1882	C
23	V	1884	A
23	V	1889	A
23	V	1898	U
23	V	1903	G
23	V	1905	C
23	V	1912	A
23	V	1913	A
23	V	1914	C
23	V	1916	A
23	V	1917	U
23	V	1919	A

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Mol	Chain	Res	Type
23	V	1922	G
23	V	1929	G
23	V	1930	G
23	V	1934	C
23	V	1936	A
23	V	1937	A
23	V	1938	A
23	V	1939	U
23	V	1940	U
23	V	1943	U
23	V	1944	U
23	V	1945	G
23	V	1951	U
23	V	1955	U
23	V	1956	U
23	V	1963	U
23	V	1964	G
23	V	1965	C
23	V	1967	C
23	V	1970	A
23	V	1971	A
23	V	1972	A
23	V	1982	C
23	V	1987	G
23	V	1991	U
23	V	1993	U
23	V	1996	C
23	V	1997	G
23	V	2013	A
23	V	2018	G
23	V	2020	A
23	V	2021	C
23	V	2022	U
23	V	2023	G
23	V	2026	C
23	V	2028	U
23	V	2030	A
23	V	2031	A
23	V	2032	G
23	V	2033	A
23	V	2034	U
23	V	2036	C

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Mol	Chain	Res	Type
23	V	2039	C
23	V	2040	C
23	V	2041	U
23	V	2049	G
23	V	2050	C
23	V	2055	C
23	V	2056	G
23	V	2060	A
23	V	2061	G
23	V	2062	A
23	V	2063	C
23	V	2064	C
23	V	2069	G
23	V	2070	G
23	V	2077	A
23	V	2087	G
23	V	2092	U
23	V	2093	G
23	V	2096	U
23	V	2097	C
23	V	2102	U
23	V	2105	C
23	V	2108	C
23	V	2109	U
23	V	2110	G
23	V	2111	C
23	V	2113	U
23	V	2114	A
23	V	2116	G
23	V	2117	A
23	V	2120	G
23	V	2122	U
23	V	2123	G
23	V	2125	G
23	V	2126	A
23	V	2128	C
23	V	2129	C
23	V	2131	G
23	V	2132	U
23	V	2133	G
23	V	2134	A
23	V	2135	A

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Mol	Chain	Res	Type
23	V	2136	C
23	V	2138	C
23	V	2144	U
23	V	2147	G
23	V	2156	G
23	V	2158	A
23	V	2159	G
23	V	2167	U
23	V	2168	G
23	V	2171	A
23	V	2172	U
23	V	2173	A
23	V	2175	C
23	V	2177	C
23	V	2182	G
23	V	2183	C
23	V	2187	G
23	V	2189	U
23	V	2190	G
23	V	2194	G
23	V	2195	C
23	V	2199	A
23	V	2205	C
23	V	2206	C
23	V	2207	C
23	V	2208	U
23	V	2209	C
23	V	2210	G
23	V	2212	A
23	V	2213	U
23	V	2215	G
23	V	2218	G
23	V	2226	C
23	V	2238	G
23	V	2239	G
23	V	2243	U
23	V	2246	G
23	V	2247	A
23	V	2258	C
23	V	2259	G
23	V	2268	A
23	V	2270	G

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Mol	Chain	Res	Type
23	V	2273	A
23	V	2283	C
23	V	2284	C
23	V	2286	A
23	V	2287	A
23	V	2288	A
23	V	2292	C
23	V	2294	C
23	V	2295	C
23	V	2296	U
23	V	2297	C
23	V	2304	G
23	V	2305	A
23	V	2308	G
23	V	2309	A
23	V	2310	A
23	V	2311	A
23	V	2312	U
23	V	2319	G
23	V	2320	A
23	V	2322	A
23	V	2325	G
23	V	2327	A
23	V	2333	A
23	V	2334	G
23	V	2335	A
23	V	2337	G
23	V	2338	G
23	V	2342	C
23	V	2343	C
23	V	2347	C
23	V	2348	U
23	V	2349	G
23	V	2350	C
23	V	2351	G
23	V	2356	C
23	V	2359	C
23	V	2361	A
23	V	2383	G
23	V	2385	C
23	V	2390	U
23	V	2403	C

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Mol	Chain	Res	Type
23	V	2406	U
23	V	2407	G
23	V	2414	G
23	V	2417	C
23	V	2419	U
23	V	2423	U
23	V	2424	C
23	V	2425	A
23	V	2426	A
23	V	2429	G
23	V	2430	A
23	V	2437	U
23	V	2441	C
23	V	2443	C
23	V	2445	G
23	V	2448	A
23	V	2460	U
23	V	2462	U
23	V	2465	C
23	V	2467	C
23	V	2472	G
23	V	2475	C
23	V	2476	A
23	V	2482	G
23	V	2487	G
23	V	2493	U
23	V	2498	C
23	V	2502	G
23	V	2503	A
23	V	2504	U
23	V	2505	G
23	V	2510	C
23	V	2513	G
23	V	2514	U
23	V	2518	A
23	V	2519	U
23	V	2520	C
23	V	2530	A
23	V	2532	G
23	V	2534	A
23	V	2538	C
23	V	2553	G

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Mol	Chain	Res	Type
23	V	2554	U
23	V	2556	C
23	V	2565	A
23	V	2566	A
23	V	2567	G
23	V	2570	G
23	V	2572	A
23	V	2573	C
23	V	2585	U
23	V	2599	G
23	V	2602	A
23	V	2603	G
23	V	2607	G
23	V	2608	G
23	V	2609	U
23	V	2611	U
23	V	2612	C
23	V	2613	U
23	V	2614	A
23	V	2615	U
23	V	2627	G
23	V	2628	C
23	V	2629	A
23	V	2630	G
23	V	2632	A
23	V	2638	G
23	V	2646	C
23	V	2652	C
23	V	2654	A
23	V	2655	G
23	V	2656	U
23	V	2659	G
23	V	2668	G
23	V	2670	A
23	V	2681	C
23	V	2682	U
23	V	2688	U
23	V	2689	U
23	V	2691	C
23	V	2693	A
23	V	2699	C
23	V	2701	C

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Mol	Chain	Res	Type
23	V	2702	U
23	V	2712	U
23	V	2712(A)	A
23	V	2713	A
23	V	2714	G
23	V	2718	G
23	V	2721	A
23	V	2727	G
23	V	2728	U
23	V	2730	C
23	V	2732	G
23	V	2733	A
23	V	2741	A
23	V	2744	G
23	V	2746	U
23	V	2748	A
23	V	2750	A
23	V	2751	G
23	V	2752	C
23	V	2753	A
23	V	2756	U
23	V	2757	A
23	V	2758	A
23	V	2759	G
23	V	2764	A
23	V	2765	A
23	V	2766	G
23	V	2770	G
23	V	2772	C
23	V	2774	C
23	V	2776	A
23	V	2777	G
23	V	2778	A
23	V	2779	U
23	V	2780	G
23	V	2781	A
23	V	2782	G
23	V	2783	G
23	V	2786	U
23	V	2789	C
23	V	2790	A
23	V	2791	C

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Mol	Chain	Res	Type
23	V	2793	G
23	V	2794	C
23	V	2795	G
23	V	2797	U
23	V	2799	A
23	V	2801	A
23	V	2804	C
23	V	2805	G
23	V	2807	G
23	V	2809	A
23	V	2810	A
23	V	2818	G
23	V	2820	A
23	V	2821	A
23	V	2832	U
23	V	2833	G
23	V	2834	G
23	V	2835	A
23	V	2837	G
23	V	2844	G
23	V	2847	U
23	V	2849	U
23	V	2850	A
23	V	2859	G
23	V	2861	G
23	V	2864	G
23	V	2865	U
23	V	2867	G
23	V	2868	A
23	V	2869	G
23	V	2872	G
23	V	2873	A
23	V	2874	C
23	V	2876	G
23	V	2877	G
23	V	2879	C
23	V	2883	A
23	V	2884	U
23	V	2893	G
23	V	2894	G
23	V	2895	U
23	V	2896	C

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Mol	Chain	Res	Type
24	X	0	A
24	X	1	U
24	X	8	U
24	X	9	G
24	X	11	C
24	X	12	C
24	X	13	A
24	X	25	A
24	X	27	C
24	X	30	C
24	X	31	C
24	X	33	G
24	X	35	U
24	X	36	C
24	X	37	C
24	X	38	C
24	X	40	U
24	X	41	U
24	X	45	A
24	X	46	A
24	X	53	A
24	X	56	G
24	X	57	A
24	X	62	C
24	X	66	A
24	X	67	G
24	X	71	C
24	X	76	G
24	X	84	C
24	X	86	G
24	X	88	C
24	X	89	G
24	X	89(A)	A
24	X	90	C
24	X	99	A
24	X	101	A
24	X	105	G
24	X	107	U
24	X	108	C
24	X	109	G
24	X	120	U
55	DD	3	C

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Mol	Chain	Res	Type
55	DD	4	G
55	DD	5	G
55	DD	6	G
55	DD	7	G
55	DD	8	4SU
55	DD	9	G
55	DD	10	G
55	DD	11	A
55	DD	13	C
55	DD	16	C
55	DD	17	C
55	DD	18	C
55	DD	19	G
55	DD	20	G
55	DD	21	U
55	DD	22	A
55	DD	33	OMC
55	DD	34	A
55	DD	35	C
55	DD	36	A
55	DD	38	A
55	DD	47	7MG
55	DD	48	U
55	DD	49	C
55	DD	50	G
55	DD	51	U
55	DD	56	PSU
55	DD	58	A
55	DD	65	G
55	DD	69	C

All (126) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	W	19	U
8	G	115	G
8	G	119	A
8	G	129	U
8	G	129(A)	G
8	G	196	A
8	G	208	U
8	G	243	A

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Mol	Chain	Res	Type
8	G	266	G
8	G	328	C
8	G	352	C
8	G	413	G
8	G	484	G
8	G	517	G
8	G	559	A
8	G	595	G
8	G	641	U
8	G	652	U
8	G	686	U
8	G	812	C
8	G	820	U
8	G	872	A
8	G	913	A
8	G	918	A
8	G	975	A
8	G	992	U
8	G	1065	U
8	G	1145	C
8	G	1182	G
8	G	1239	A
8	G	1257	U
8	G	1285	A
8	G	1331	G
8	G	1346	A
8	G	1359	C
8	G	1362(A)	C
8	G	1399	C
8	G	1446	A
23	V	6	A
23	V	51	G
23	V	71	A
23	V	83	G
23	V	99	U
23	V	119	A
23	V	120	U
23	V	136	G
23	V	215	G
23	V	270(B)	A
23	V	270(L)	U
23	V	270(M)	U

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Mol	Chain	Res	Type
23	V	270(Z)	U
23	V	271(A)	G
23	V	289	A
23	V	311	A
23	V	362	U
23	V	403	U
23	V	446	G
23	V	451	C
23	V	456	C
23	V	458	G
23	V	470	A
23	V	489	G
23	V	527	C
23	V	559	G
23	V	587	C
23	V	627	A
23	V	630	G
23	V	644	A
23	V	776	G
23	V	788	A
23	V	801	G
23	V	827	U
23	V	846	C
23	V	930	U
23	V	972	G
23	V	1051	G
23	V	1052	C
23	V	1057	A
23	V	1061	U
23	V	1062	G
23	V	1085	A
23	V	1106	G
23	V	1139	G
23	V	1143	A
23	V	1221	C
23	V	1247	A
23	V	1266	G
23	V	1267	U
23	V	1300	U
23	V	1312	U
23	V	1313	U
23	V	1449(A)	G

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Mol	Chain	Res	Type
23	V	1489	U
23	V	1544	C
23	V	1778	U
23	V	1782	C
23	V	1786	A
23	V	1799	G
23	V	1833	U
23	V	2017	U
23	V	2020	A
23	V	2049	G
23	V	2110	G
23	V	2157	G
23	V	2158	A
23	V	2171	A
23	V	2176	A
23	V	2181	G
23	V	2225	A
23	V	2238	G
23	V	2319	G
23	V	2349	G
23	V	2402	C
23	V	2436	G
23	V	2447	G
23	V	2481	G
23	V	2614	A
23	V	2637	U
23	V	2712	U
23	V	2750	A
23	V	2820	A
24	X	56	G
55	DD	8	4SU
55	DD	18	C
55	DD	33	OMC
55	DD	47	7MG

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

5 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	$\#\|Z\| > 2$
55	PSU	DD	56	55	18,21,22	1.00	1 (5%)	22,30,33	1.67	5 (22%)
55	4SU	DD	8	55	18,21,22	1.72	4 (22%)	26,30,33	2.31	6 (23%)
55	OMC	DD	33	55	19,22,23	0.82	0	26,31,34	1.04	1 (3%)
55	7MG	DD	47	55	22,26,27	1.32	3 (13%)	29,39,42	2.65	8 (27%)
55	5MU	DD	55	55	19,22,23	4.61	5 (26%)	28,32,35	3.70	10 (35%)

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
55	PSU	DD	56	55	-	2/7/25/26	0/2/2/2
55	4SU	DD	8	55	-	1/7/25/26	0/2/2/2
55	OMC	DD	33	55	-	2/9/27/28	0/2/2/2
55	7MG	DD	47	55	-	1/7/37/38	0/3/3/3
55	5MU	DD	55	55	-	1/7/25/26	0/2/2/2

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
55	DD	55	5MU	C2-N1	11.06	1.56	1.38
55	DD	55	5MU	C4-N3	-9.89	1.20	1.38
55	DD	55	5MU	C4-C5	9.87	1.61	1.44
55	DD	55	5MU	C6-N1	7.96	1.51	1.38
55	DD	8	4SU	C4-S4	-4.46	1.59	1.68
55	DD	55	5MU	C6-C5	4.40	1.41	1.34
55	DD	8	4SU	C4-N3	-3.15	1.34	1.37
55	DD	47	7MG	C5-C4	2.99	1.47	1.38
55	DD	56	PSU	C6-C5	2.93	1.38	1.35
55	DD	47	7MG	C4-N9	-2.72	1.34	1.37
55	DD	8	4SU	C5-C4	-2.45	1.39	1.42
55	DD	47	7MG	C6-N1	-2.31	1.34	1.38
55	DD	8	4SU	C2-N3	-2.08	1.34	1.38

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
55	DD	55	5MU	C5-C4-N3	12.26	125.78	115.31
55	DD	55	5MU	C5-C6-N1	-9.85	113.21	123.34
55	DD	47	7MG	N9-C4-N3	9.15	139.16	125.47
55	DD	8	4SU	C4-N3-C2	-6.88	120.66	127.34
55	DD	8	4SU	C5-C4-N3	5.94	120.20	114.69
55	DD	47	7MG	C5-C4-N3	-5.49	117.66	128.13
55	DD	55	5MU	O4-C4-C5	-5.42	118.62	124.90
55	DD	47	7MG	N9-C8-N7	-5.28	95.82	103.38
55	DD	55	5MU	C4-N3-C2	-4.81	121.12	127.35
55	DD	55	5MU	C5M-C5-C4	4.55	123.77	118.77
55	DD	55	5MU	C5M-C5-C6	-4.46	116.90	122.85
55	DD	56	PSU	C4-N3-C2	-4.42	119.97	126.34
55	DD	47	7MG	C2-N3-C4	4.31	119.98	112.30
55	DD	55	5MU	N3-C2-N1	4.19	120.45	114.89
55	DD	56	PSU	N1-C2-N3	4.18	119.86	115.13
55	DD	8	4SU	N3-C2-N1	4.06	120.27	114.89
55	DD	8	4SU	C5-C4-S4	-3.55	119.90	124.47
55	DD	47	7MG	C5-C6-N1	2.68	115.72	110.99
55	DD	47	7MG	C3'-C2'-C1'	2.56	106.30	101.43
55	DD	8	4SU	C3'-C2'-C1'	2.54	106.26	101.43
55	DD	47	7MG	C5-C4-N9	-2.44	103.18	106.35
55	DD	56	PSU	O2-C2-N1	-2.37	120.18	122.79
55	DD	55	5MU	O4-C4-N3	-2.35	115.60	120.12
55	DD	33	OMC	C2'-C1'-N1	-2.30	109.76	114.22
55	DD	47	7MG	O6-C6-C5	-2.21	122.12	127.54
55	DD	56	PSU	C6-N1-C2	-2.20	120.43	122.68
55	DD	55	5MU	C1'-N1-C2	2.20	121.56	117.57
55	DD	8	4SU	O2-C2-N1	-2.18	119.89	122.79
55	DD	55	5MU	O2-C2-N1	-2.05	120.06	122.79
55	DD	56	PSU	O4'-C1'-C2'	2.02	107.99	105.14

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
55	DD	8	4SU	O4'-C4'-C5'-O5'
55	DD	33	OMC	O4'-C4'-C5'-O5'
55	DD	33	OMC	C3'-C4'-C5'-O5'
55	DD	56	PSU	C3'-C4'-C5'-O5'
55	DD	56	PSU	O4'-C4'-C5'-O5'
55	DD	47	7MG	C3'-C4'-C5'-O5'
55	DD	55	5MU	O4'-C4'-C5'-O5'

There are no ring outliers.

3 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
55	DD	8	4SU	3	0
55	DD	33	OMC	5	0
55	DD	47	7MG	5	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
58	ANP	EE	502	-	29,33,33	1.86	5 (17%)	31,52,52	1.89	8 (25%)
58	ANP	EE	501	-	29,33,33	1.86	5 (17%)	31,52,52	1.88	8 (25%)

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
58	ANP	EE	502	-	-	6/14/38/38	0/3/3/3
58	ANP	EE	501	-	-	7/14/38/38	0/3/3/3

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	EE	501	ANP	PB-N3B	4.63	1.75	1.63

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	EE	502	ANP	PB-N3B	4.62	1.75	1.63
58	EE	502	ANP	PG-N3B	4.62	1.75	1.63
58	EE	501	ANP	PG-N3B	4.60	1.75	1.63
58	EE	502	ANP	PG-O1G	3.37	1.51	1.46
58	EE	501	ANP	PG-O1G	3.37	1.51	1.46
58	EE	502	ANP	PB-O1B	3.34	1.51	1.46
58	EE	501	ANP	PB-O1B	3.31	1.51	1.46
58	EE	501	ANP	C5-C4	2.53	1.47	1.40
58	EE	502	ANP	C5-C4	2.49	1.47	1.40

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
58	EE	502	ANP	O1G-PG-N3B	-4.85	104.63	111.77
58	EE	501	ANP	O1G-PG-N3B	-4.84	104.64	111.77
58	EE	501	ANP	O2B-PB-O1B	4.04	118.40	109.92
58	EE	502	ANP	O2B-PB-O1B	4.04	118.40	109.92
58	EE	502	ANP	PB-O3A-PA	-3.46	120.44	132.62
58	EE	502	ANP	C3'-C2'-C1'	3.44	106.15	100.98
58	EE	501	ANP	PB-O3A-PA	-3.42	120.56	132.62
58	EE	501	ANP	C3'-C2'-C1'	3.37	106.05	100.98
58	EE	502	ANP	N3-C2-N1	-3.21	123.66	128.68
58	EE	501	ANP	N3-C2-N1	-3.17	123.73	128.68
58	EE	501	ANP	C4-C5-N7	-2.69	106.59	109.40
58	EE	502	ANP	C4-C5-N7	-2.69	106.59	109.40
58	EE	501	ANP	O1B-PB-N3B	-2.51	108.08	111.77
58	EE	502	ANP	O1B-PB-N3B	-2.48	108.12	111.77
58	EE	502	ANP	O2G-PG-O3G	2.34	113.88	107.64
58	EE	501	ANP	O2G-PG-O3G	2.32	113.81	107.64

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
58	EE	501	ANP	PB-N3B-PG-O1G
58	EE	501	ANP	PG-N3B-PB-O1B
58	EE	501	ANP	C3'-C4'-C5'-O5'
58	EE	502	ANP	PB-N3B-PG-O1G
58	EE	502	ANP	PA-O3A-PB-O1B
58	EE	502	ANP	PA-O3A-PB-O2B
58	EE	502	ANP	C5'-O5'-PA-O1A
58	EE	502	ANP	C5'-O5'-PA-O2A

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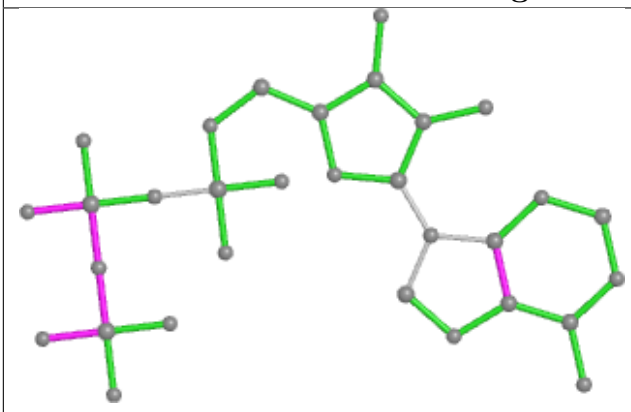
Mol	Chain	Res	Type	Atoms
58	EE	502	ANP	C5'-O5'-PA-O3A
58	EE	501	ANP	C4'-C5'-O5'-PA
58	EE	501	ANP	O4'-C4'-C5'-O5'
58	EE	501	ANP	PG-N3B-PB-O3A
58	EE	501	ANP	C5'-O5'-PA-O3A

There are no ring outliers.

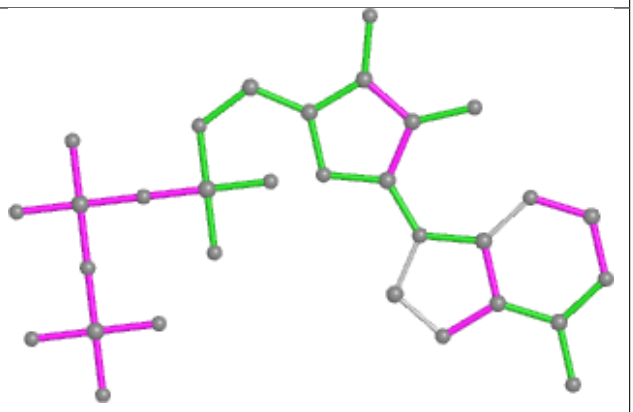
No monomer is involved in short contacts.

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

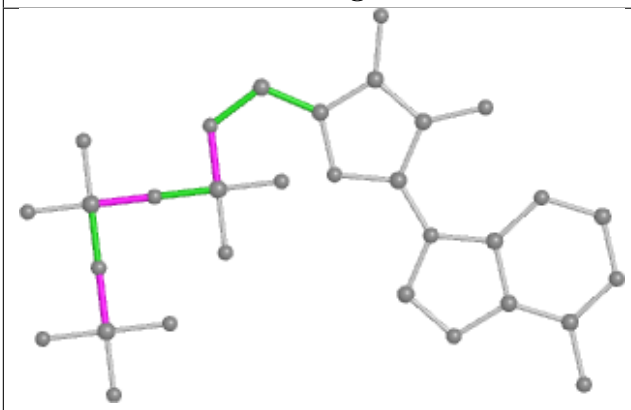
Ligand ANP EE 502



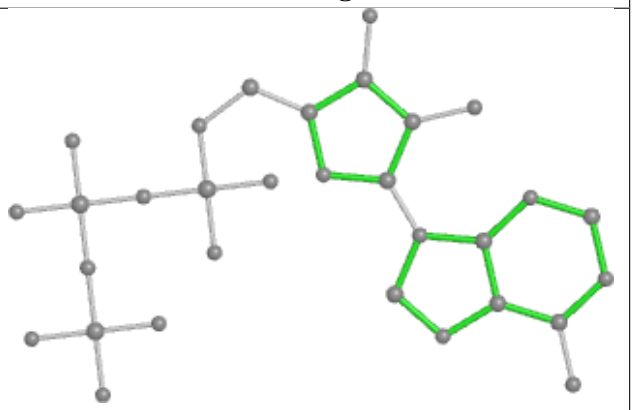
Bond lengths



Bond angles

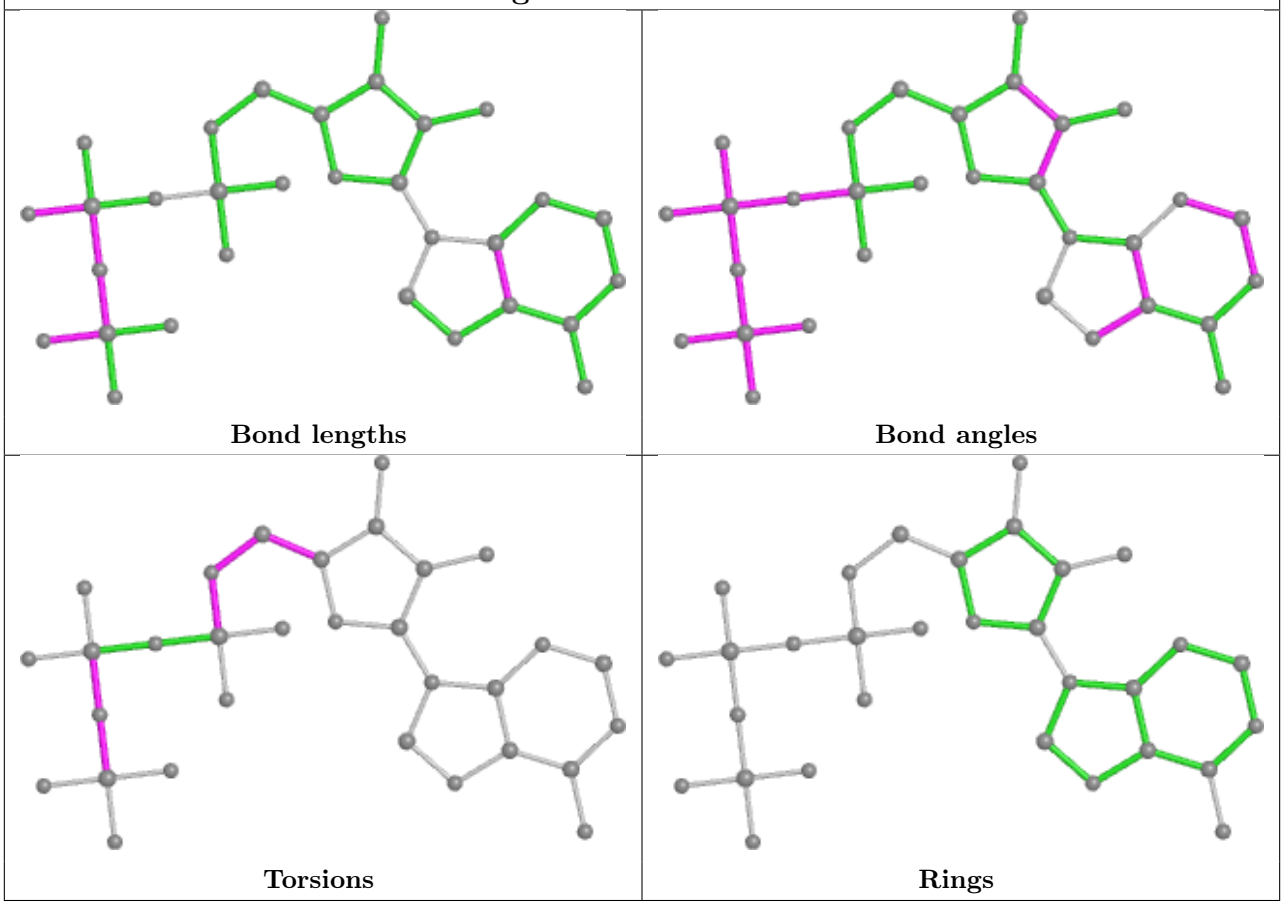


Torsions



Rings

Ligand ANP EE 501



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.

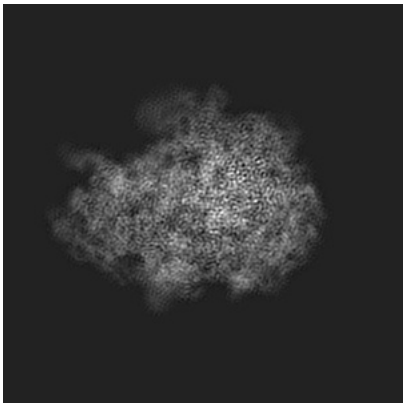
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-6934. These allow visual inspection of the internal detail of the map and identification of artifacts.

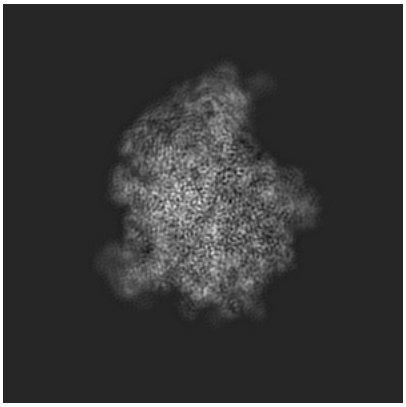
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

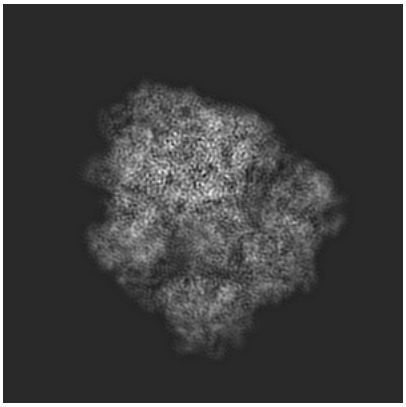
6.1.1 Primary map



X



Y

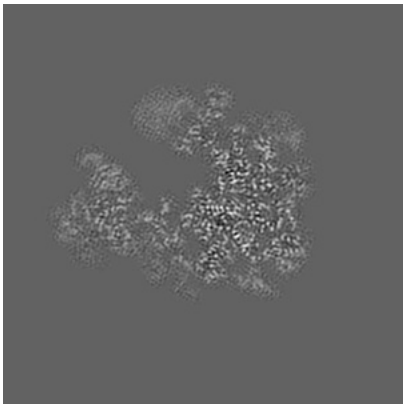


Z

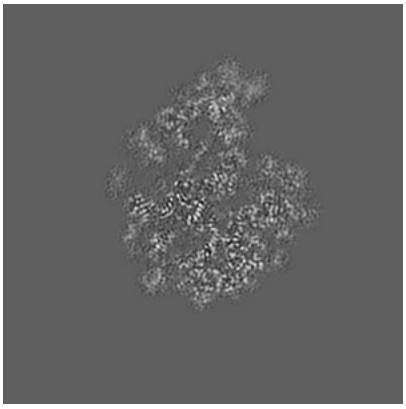
The images above show the map projected in three orthogonal directions.

6.2 Central slices

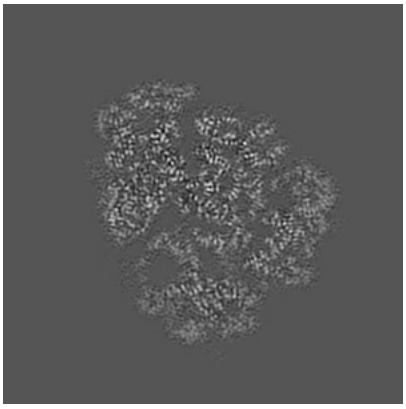
6.2.1 Primary map



X Index: 180



Y Index: 180

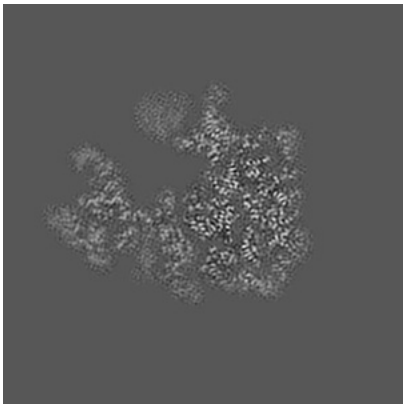


Z Index: 180

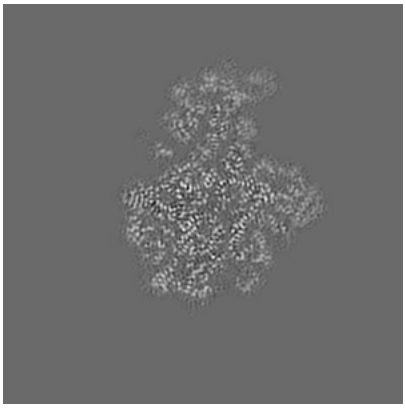
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

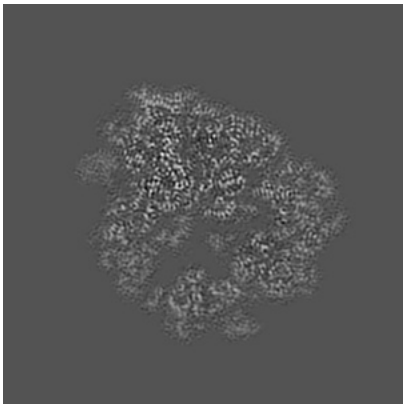
6.3.1 Primary map



X Index: 187



Y Index: 189

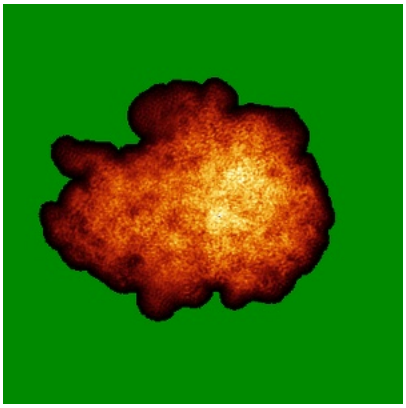


Z Index: 190

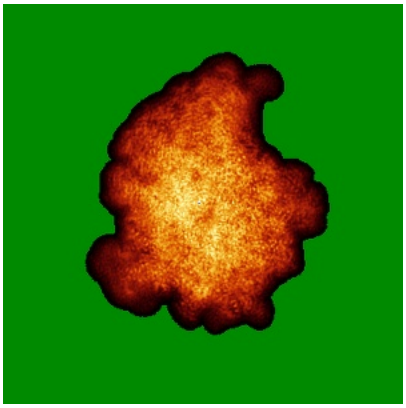
The images above show the largest variance slices of the map in three orthogonal directions.

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

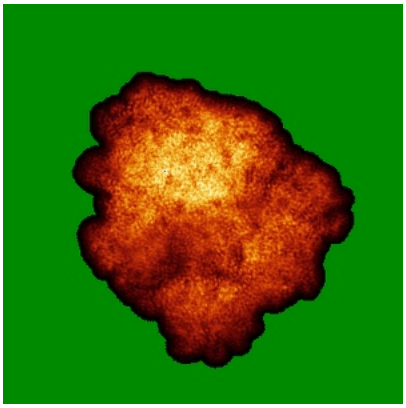
6.4.1 Primary map



X



Y

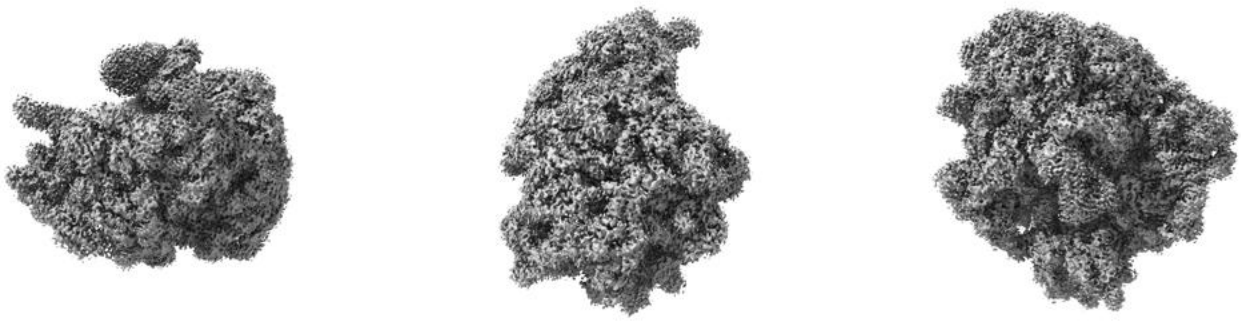


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.052. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

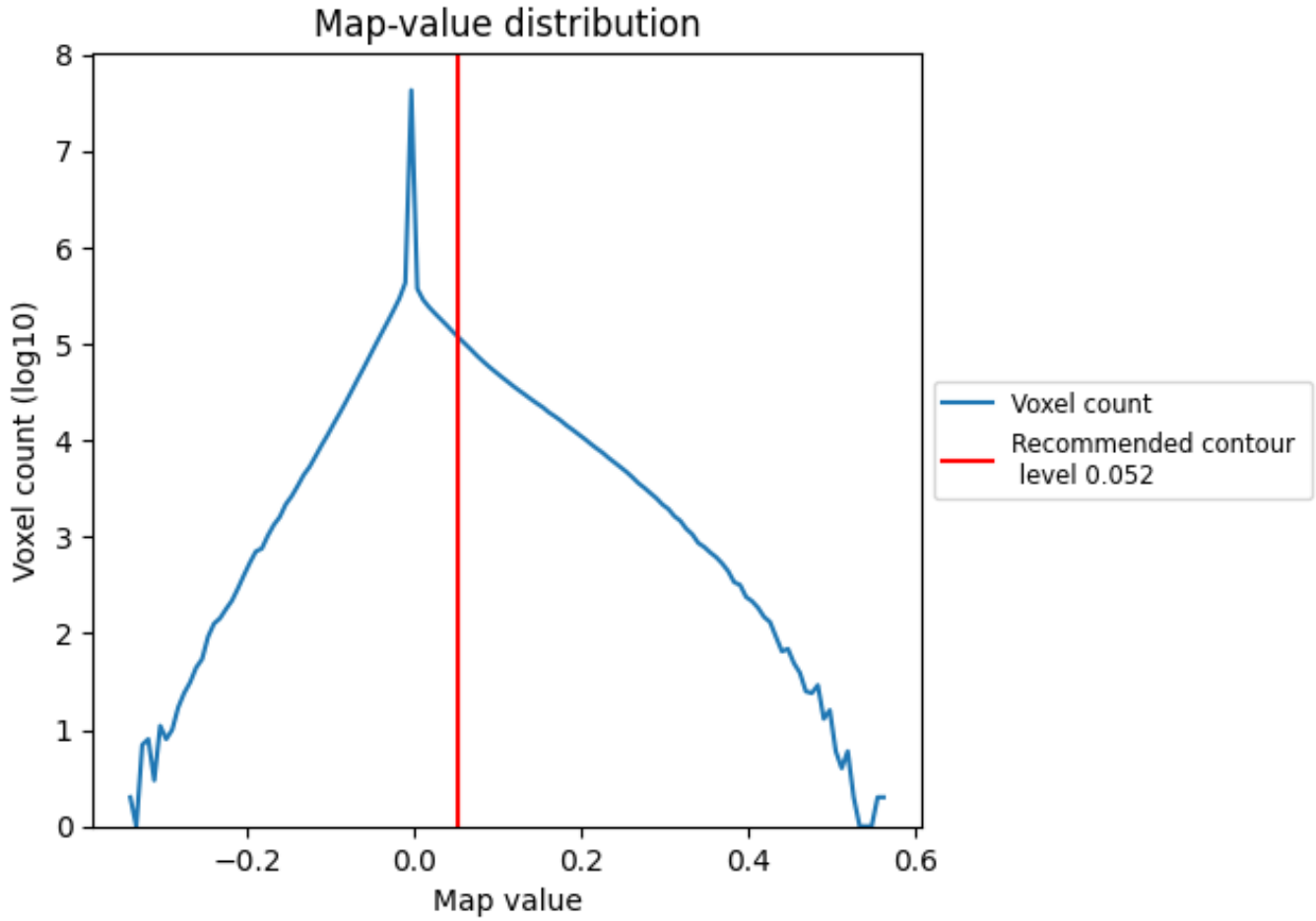
6.6 Mask visualisation (i)

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

7 Map analysis

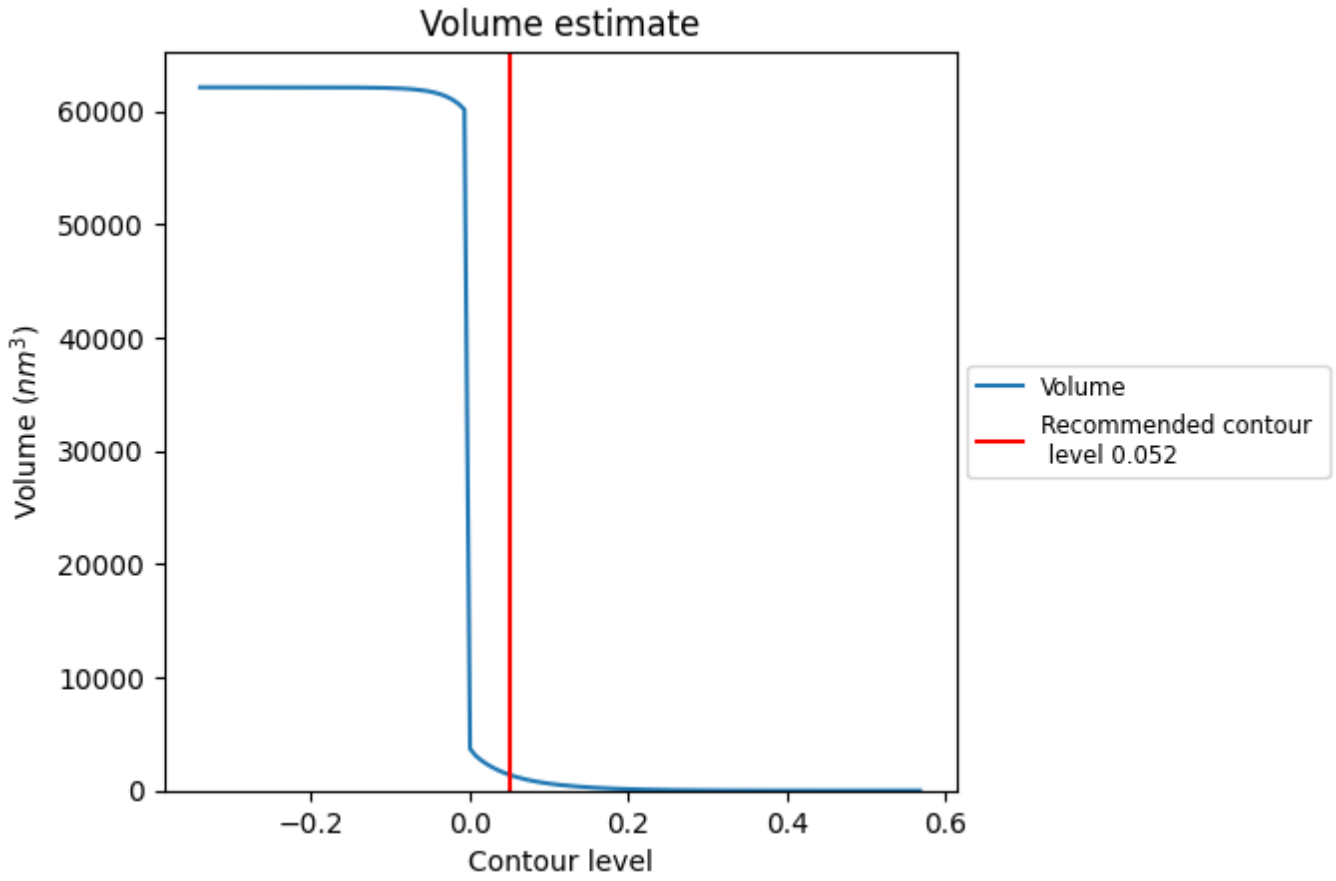
This section contains the results of statistical analysis of the map.

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.

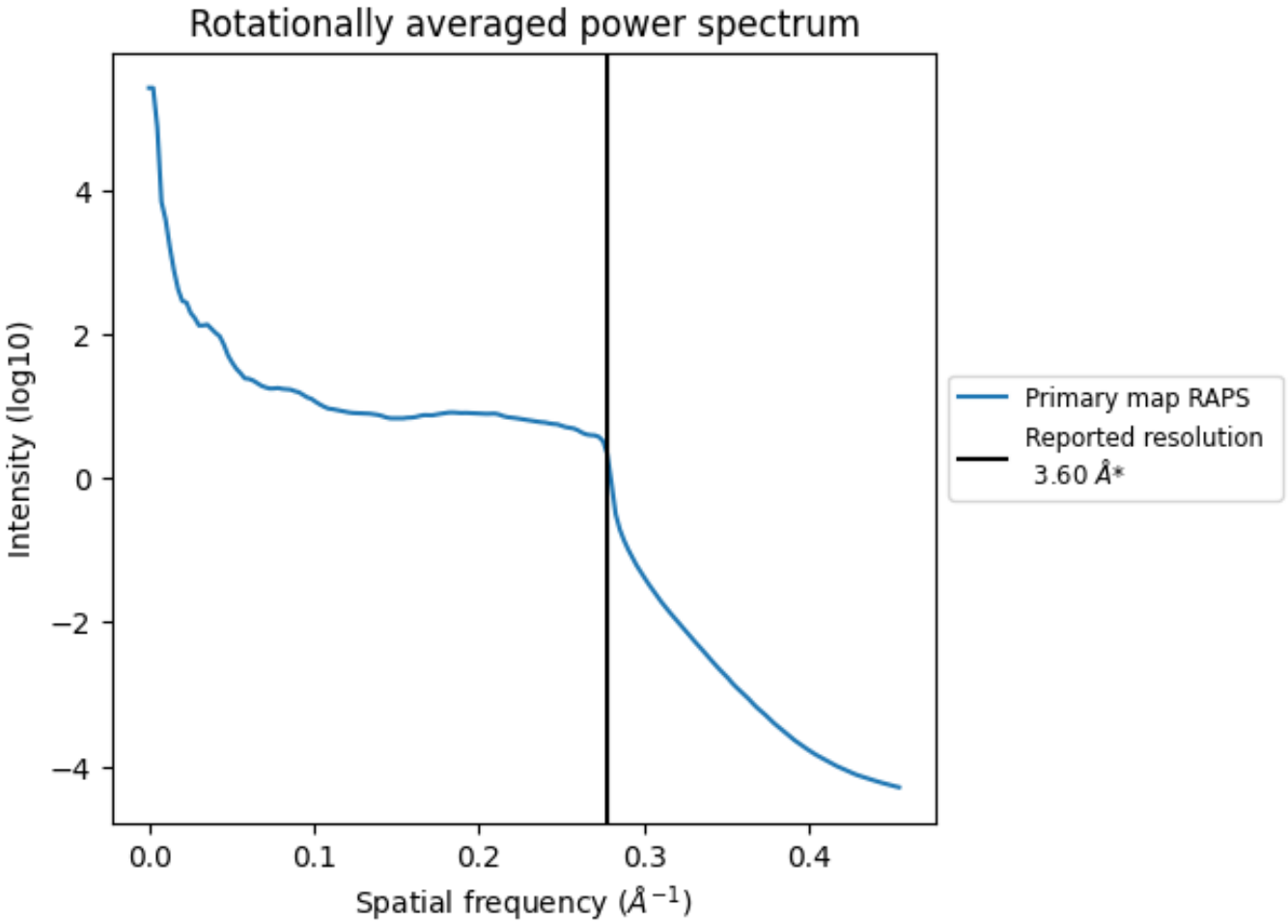
7.2 Volume estimate



The volume at the recommended contour level is 1361 nm^3; this corresponds to an approximate mass of 1230 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)

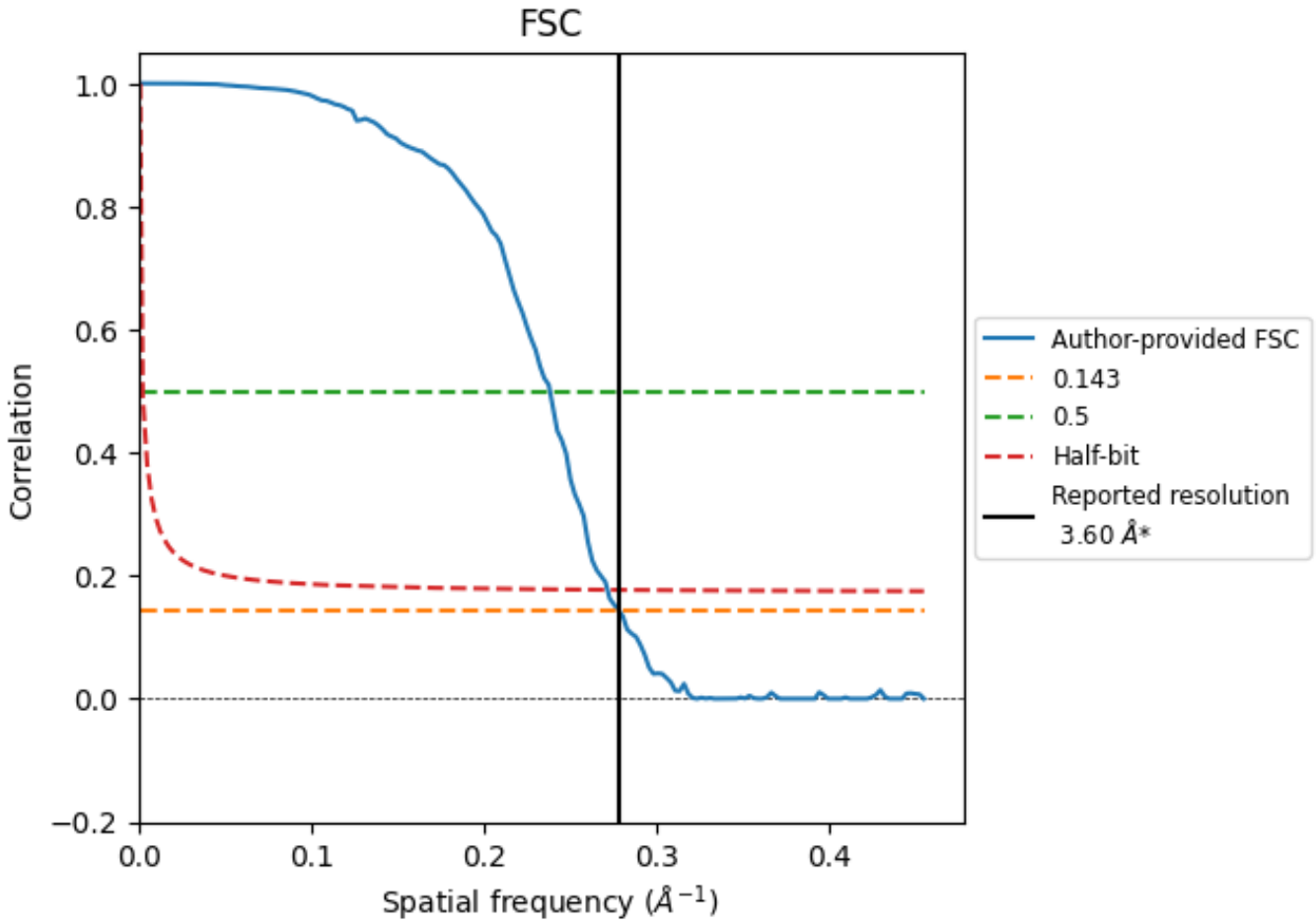


*Reported resolution corresponds to spatial frequency of 0.278 Å^{-1}

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 0.278 Å^{-1}

8.2 Resolution estimates (i)

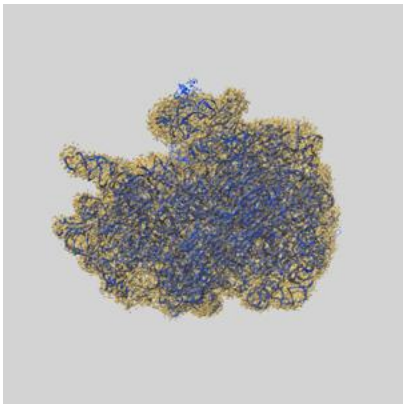
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	3.60	4.20	3.68
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

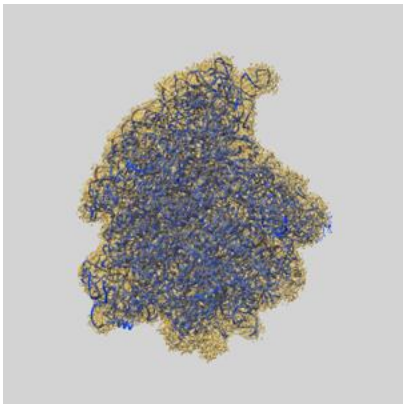
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-6934 and PDB model 5ZLU. Per-residue inclusion information can be found in section 3 on page 15.

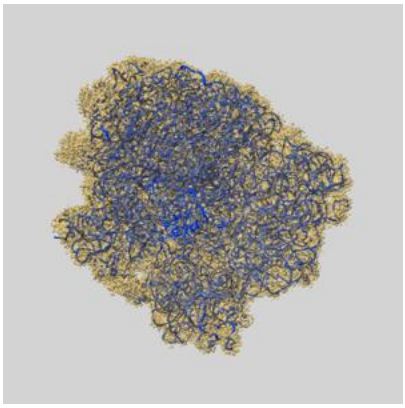
9.1 Map-model overlay



X



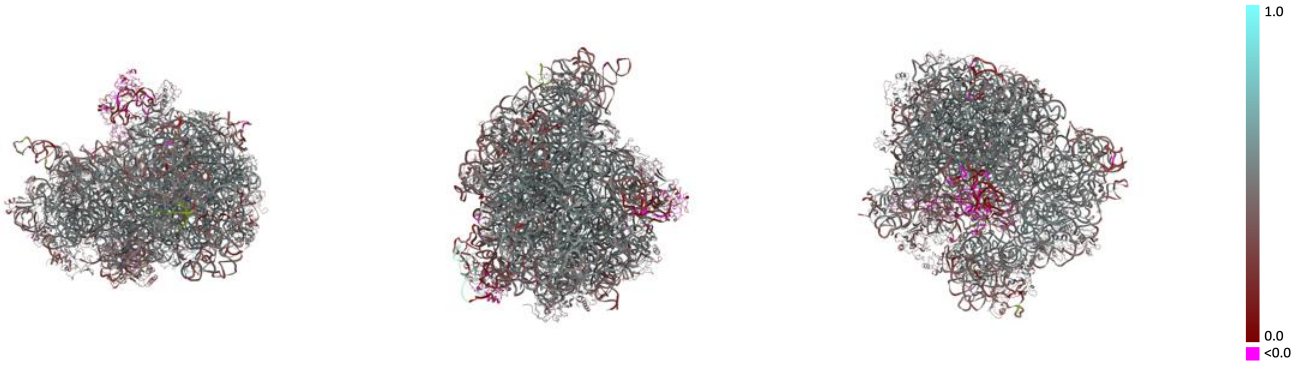
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.052 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.

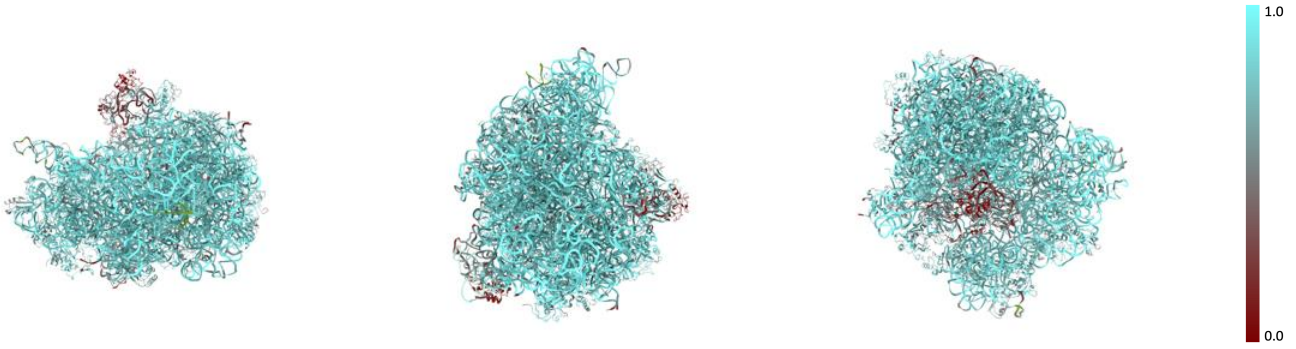
9.2 Q-score mapped to coordinate model (i)



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.

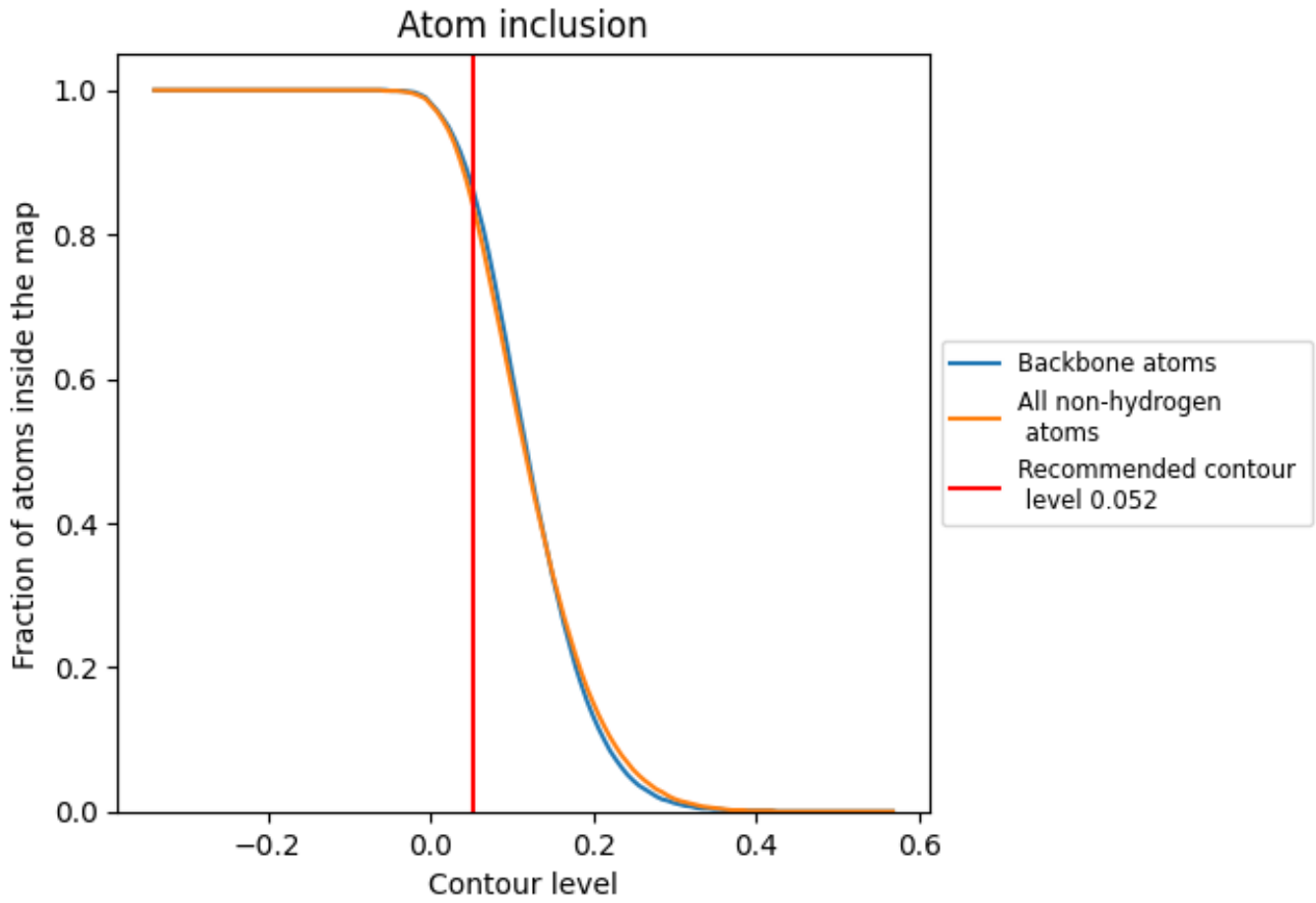
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.052).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 84% 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 (0.052) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8410	0.4410
A	0.8120	0.4810
AA	0.8010	0.4720
B	0.7000	0.3950
BB	0.8570	0.4720
C	0.8420	0.4670
CC	0.8280	0.3980
D	0.7640	0.3880
DD	0.7600	0.3870
E	0.7220	0.4220
EE	0.6980	0.4220
F	0.8380	0.4520
G	0.9120	0.4540
H	0.7460	0.4140
I	0.8110	0.4550
J	0.8130	0.4490
K	0.8210	0.4780
L	0.6810	0.3630
M	0.7670	0.4510
N	0.8140	0.4580
O	0.7820	0.4280
P	0.7670	0.4050
Q	0.7890	0.4870
R	0.7650	0.4160
S	0.8270	0.4560
T	0.8360	0.4370
U	0.8610	0.4590
V	0.8800	0.4530
W	0.7780	0.3830
X	0.9080	0.4350
Y	0.2400	0.1340
Z	0.8710	0.5170
a	0.8230	0.4760
b	0.8270	0.4600
c	0.7120	0.3730

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Chain	Atom inclusion	Q-score
d	0.7700	0.4070
e	0.1420	0.0750
f	0.2850	0.1400
g	0.8150	0.4530
h	0.7670	0.4310
i	0.8180	0.4410
j	0.7840	0.4440
k	0.8840	0.5150
l	0.7950	0.4110
m	0.7420	0.4260
n	0.8770	0.5010
o	0.7760	0.4210
p	0.8910	0.5200
q	0.8490	0.4810
r	0.6750	0.3630
s	0.4750	0.2800
t	0.8670	0.5210
u	0.8260	0.4510
v	0.8400	0.4780
w	0.7270	0.3990
x	0.8480	0.4760
y	0.8070	0.4540
z	0.8570	0.5170