Full wwPDB EM Validation Report

Sep 23, 2025 – 04:48 pm BST

PDB ID	:	7P48 / pdb_00007p48
EMDB ID	:	EMD-13191
Title	:	Staphylococcus aureus ribosome in complex with Sal(B)
Authors	:	Nicholson, D.; Ranson, N.A.; O'Neill, A.J.
Deposited on	:	2021-07-09
Resolution	:	2.90 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:

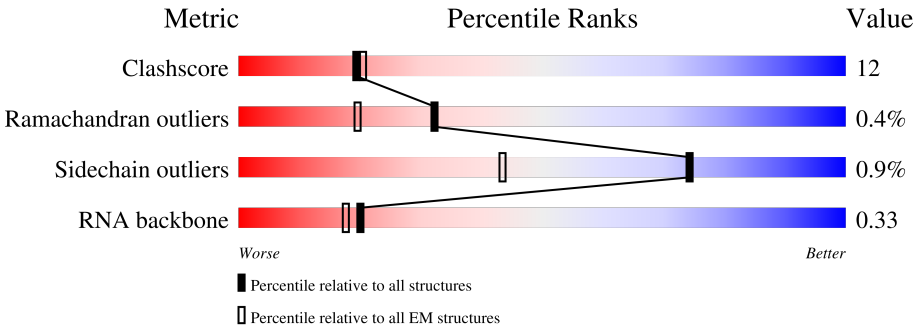
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

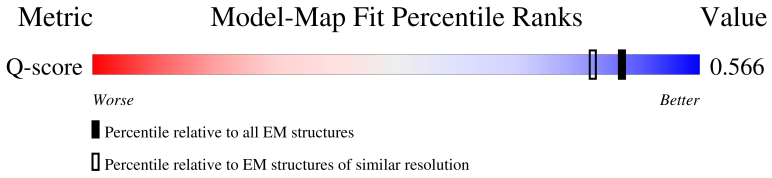
1 Overall quality at a glance

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

The reported resolution of this entry is 2.90 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	13054 (2.40 - 3.40)

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

Mol	Chain	Length	Quality of chain
1	1	49	69% 24%
2	2	45	71% 24%
3	3	66	62% 33%

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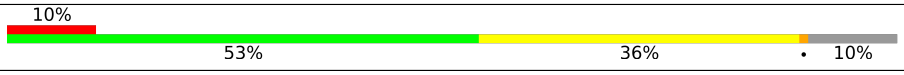
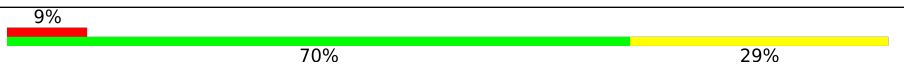
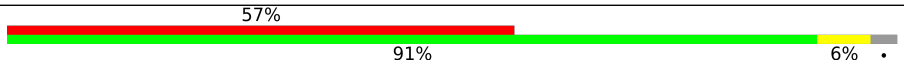
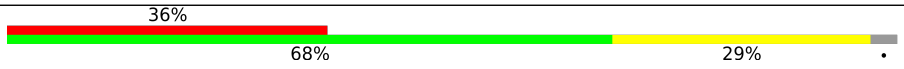
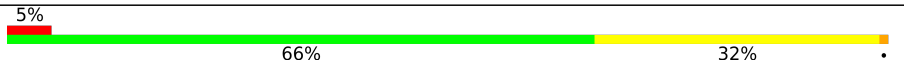
Mol	Chain	Length	Quality of chain
4	4	37	
5	5	73	
6	6	565	
7	7	3	
8	A	2921	
9	B	115	
10	C	276	
11	D	220	
12	E	207	
13	F	179	
14	G	178	
15	H	145	
16	I	122	
17	J	146	
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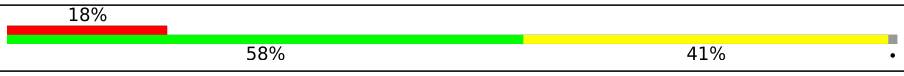
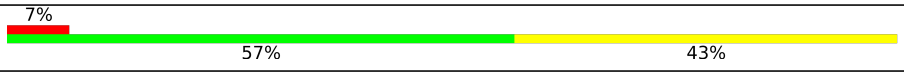
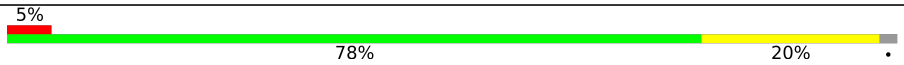
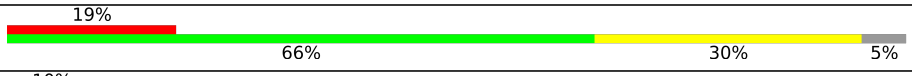
19	L	122	
20	M	119	
21	N	116	
22	O	118	
23	P	102	
24	Q	117	
25	R	91	
26	S	105	
27	T	219	
28	U	94	

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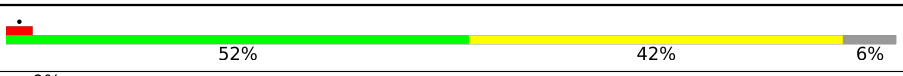
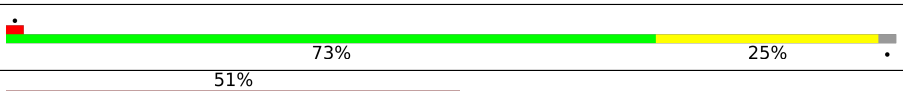
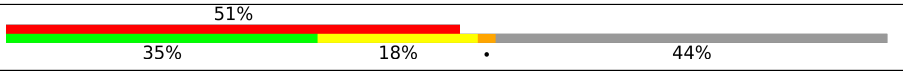
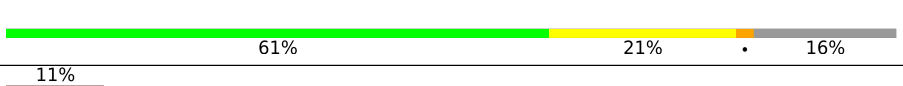
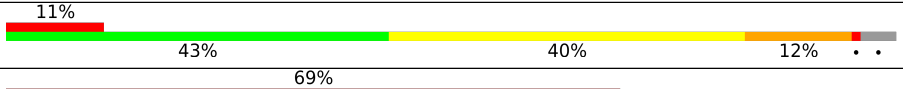
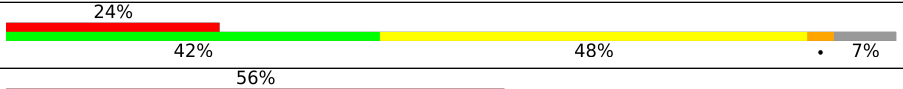
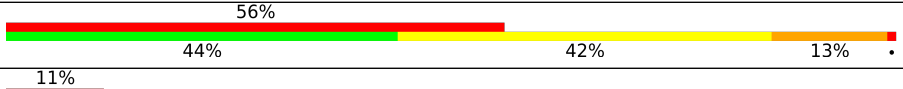
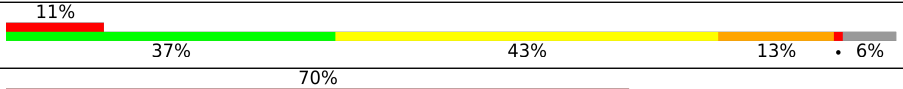
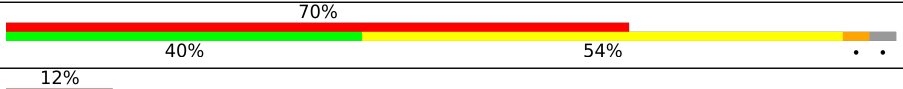
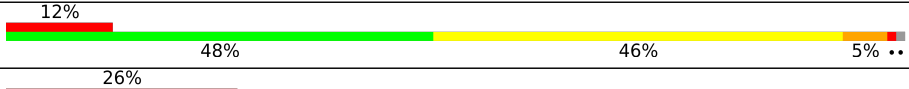
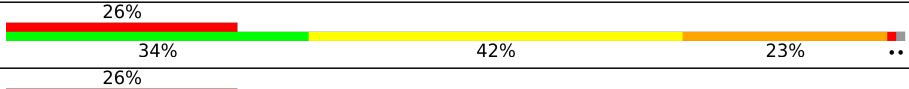
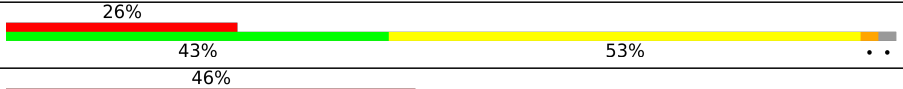
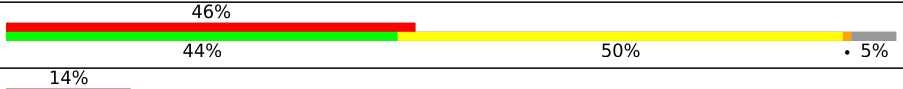
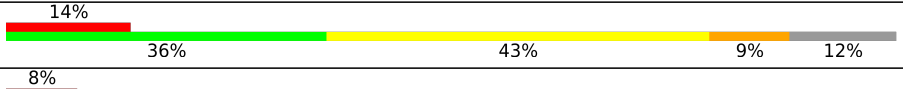
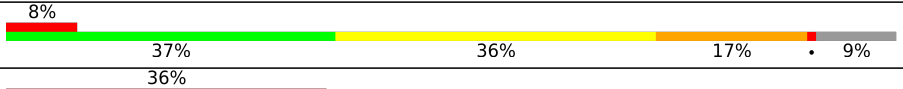
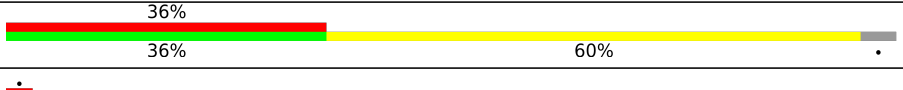
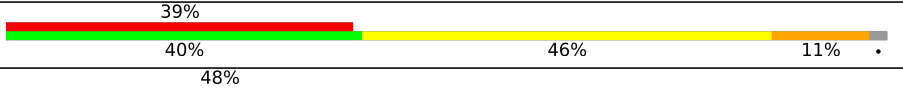
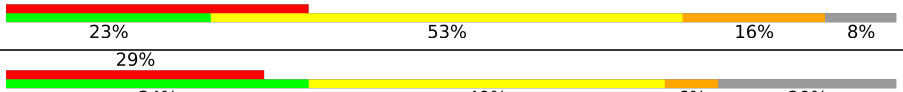
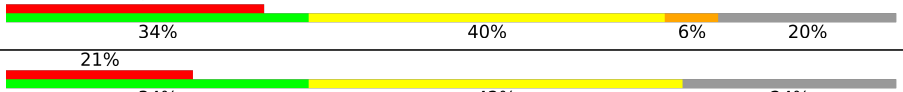
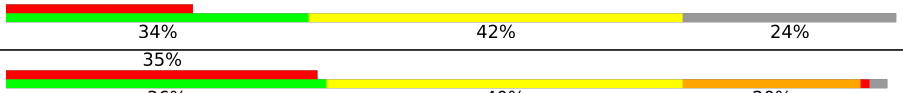
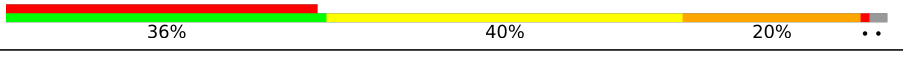
Mol	Chain	Length	Quality of chain
29	V	62	
30	W	69	
31	X	59	
32	Y	125	
33	Z	57	
34	a	1548	
35	b	232	
36	c	217	
37	d	200	
38	e	166	
39	f	98	
40	g	156	
41	h	132	
42	i	130	
43	j	102	
44	k	129	
45	l	149	
46	m	121	
47	n	61	
48	o	89	
49	p	91	
50	q	87	
51	r	80	
52	s	108	
53	t	83	

2 Entry composition

There are 56 unique types of molecules in this entry. The entry contains 138850 atoms, of which 24 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1	47	394	240	78	72	4	0	0

- Molecule 2 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	2	43	367	225	89	52	1	0	0

- Molecule 3 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	3	64	521	324	113	82	2	0	0

- Molecule 4 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	4	37	295	186	60	44	5	0	0

- Molecule 5 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	5	73	1560	695	281	511	73	0	0

- Molecule 6 is a protein called ABC-F type ribosomal protection protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	6	510	4190	2659	706	808	17	0	0

There are 34 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
6	33	LEU	ILE	conflict	UNP A0A7D7YNB9
6	39	ILE	VAL	conflict	UNP A0A7D7YNB9
6	66	HIS	TYR	conflict	UNP A0A7D7YNB9
6	84	GLU	GLY	conflict	UNP A0A7D7YNB9
6	156	GLN	GLU	conflict	UNP A0A7D7YNB9
6	253	ARG	SER	conflict	UNP A0A7D7YNB9
6	406	MET	THR	conflict	UNP A0A7D7YNB9
6	456	GLN	GLU	conflict	UNP A0A7D7YNB9
6	464	SER	GLY	conflict	UNP A0A7D7YNB9
6	518	ALA	THR	conflict	UNP A0A7D7YNB9
6	542	GLY	-	expression tag	UNP A0A7D7YNB9
6	543	GLY	-	expression tag	UNP A0A7D7YNB9
6	544	ASP	-	expression tag	UNP A0A7D7YNB9
6	545	TYR	-	expression tag	UNP A0A7D7YNB9
6	546	LYS	-	expression tag	UNP A0A7D7YNB9
6	547	ASP	-	expression tag	UNP A0A7D7YNB9
6	548	HIS	-	expression tag	UNP A0A7D7YNB9
6	549	ASP	-	expression tag	UNP A0A7D7YNB9
6	550	GLY	-	expression tag	UNP A0A7D7YNB9
6	551	ASP	-	expression tag	UNP A0A7D7YNB9
6	552	TYR	-	expression tag	UNP A0A7D7YNB9
6	553	LYS	-	expression tag	UNP A0A7D7YNB9
6	554	ASP	-	expression tag	UNP A0A7D7YNB9
6	555	HIS	-	expression tag	UNP A0A7D7YNB9
6	556	ASP	-	expression tag	UNP A0A7D7YNB9
6	557	ILE	-	expression tag	UNP A0A7D7YNB9
6	558	ASP	-	expression tag	UNP A0A7D7YNB9
6	559	TYR	-	expression tag	UNP A0A7D7YNB9
6	560	LYS	-	expression tag	UNP A0A7D7YNB9
6	561	ASP	-	expression tag	UNP A0A7D7YNB9
6	562	ASP	-	expression tag	UNP A0A7D7YNB9
6	563	ASP	-	expression tag	UNP A0A7D7YNB9
6	564	ASP	-	expression tag	UNP A0A7D7YNB9
6	565	LYS	-	expression tag	UNP A0A7D7YNB9

- Molecule 7 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	7	3	Total	C	N	O	P	0	0
			65	29	12	21	3		

- Molecule 8 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	A	2661	Total	C	N	O	P	0	0
			57062	25475	10455	18471	2661		

- Molecule 9 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	B	113	Total	C	N	O	P	0	0
			2408	1076	431	788	113		

- Molecule 10 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	C	274	Total	C	N	O	S	0	0
			2094	1303	415	371	5		

- Molecule 11 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	D	215	Total	C	N	O	S	0	0
			1628	1018	299	306	5		

- Molecule 12 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	E	206	Total	C	N	O	S	0	0
			1572	986	288	296	2		

- Molecule 13 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	F	173	Total	C	N	O	0	0
			853	507	173	173		

- Molecule 14 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	G	173	Total	C	N	O	S	0	0
			1180	728	223	227	2		

- Molecule 15 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	H	145	Total	C	N	O	S	0	0
			1150	717	211	219	3		

- Molecule 16 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	I	122	Total	C	N	O	S	0	0
			918	572	174	168	4		

- Molecule 17 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	J	146	Total	C	N	O	S	0	0
			1097	680	215	201	1		

- Molecule 18 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	K	137	Total	C	N	O	S	0	0
			1096	704	207	181	4		

- Molecule 19 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	L	120	Total	C	N	O	S	0	0
			950	584	182	183	1		

- Molecule 20 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	M	118	Total	C	N	O	0	0
			913	569	173	171		

- Molecule 21 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	N	114	Total	C	N	O	0	0
			921	580	185	156		

- Molecule 22 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	O	116	Total	C	N	O	S	0	0
			943	593	189	157	4		

- Molecule 23 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	P	102	Total	C	N	O	S	0	0
			797	506	142	148	1		

- Molecule 24 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Q	112	Total	C	N	O	S	0	0
			861	537	164	157	3		

- Molecule 25 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	R	89	Total	C	N	O	S	0	0
			724	457	130	133	4		

- Molecule 26 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	S	100	Total	C	N	O	S	0	0
			739	464	137	136	2		

- Molecule 27 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	T	94	Total	C	N	O	S	0	0
			735	469	131	134	1		

- Molecule 28 is a protein called LSU ribosomal protein L27P.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	U	77	Total	C	N	O	0	0
			590	364	115	111		

- Molecule 29 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	V	58	Total	C	N	O	S	0	0
			458	285	98	74	1		

- Molecule 30 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	W	65	Total	C	N	O	0	0
			535	330	101	104		

- Molecule 31 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	X	58	Total	C	N	O	0	0
			449	280	85	84		

- Molecule 32 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	Y	70	Total	C	N	O	0	0
			390	238	79	73		

- Molecule 33 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Z	48	Total	C	N	O	S	0	0
			385	235	80	65	5		

- Molecule 34 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	1479	Total	C	N	O	P	0	0
			31706	14154	5809	10264	1479		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
35	b	224	Total	C	N	O	S	0	0
			1802	1149	314	332	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
36	c	202	Total	C	N	O	S	0	0
			1596	1005	300	289	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
37	d	199	Total	C	N	O	S	0	0
			1616	1020	302	292	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
38	e	156	Total	C	N	O	S	0	0
			1160	731	212	215	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
39	f	95	Total	C	N	O	S	0	0
			789	498	138	150	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	g	155	Total	C	N	O	S	0	0
			1242	775	239	224	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
41	h	131	Total	C	N	O	S	0	0
			1031	652	183	192	4		

- Molecule 42 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	i	127	Total	C	N	O	S	0	0
			1007	624	201	181	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
43	j	97	Total	C	N	O	S	0	0
			773	488	141	143	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
44	k	114	Total	C	N	O	S	0	0
			844	520	160	161	3		

- Molecule 45 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	l	135	Total	C	N	O	S	0	0
			1058	658	214	184	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
46	m	116	Total	C	N	O	S	0	0
			922	566	183	172	1		

- Molecule 47 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	n	60	Total	C	N	O	S	0	0
			501	317	100	79	5		

- Molecule 48 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	o	87	Total	C	N	O	S	0	0
			726	448	149	128	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
49	p	87	Total	C	N	O	S	0	0
			688	433	127	127	1		

- Molecule 50 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	q	80	Total	C	N	O	S	0	0
			657	416	117	123	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
51	r	64	Total	C	N	O	S	0	0
			525	336	98	88	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
52	s	82	Total	C	N	O	S	0	0
			665	427	121	115	2		

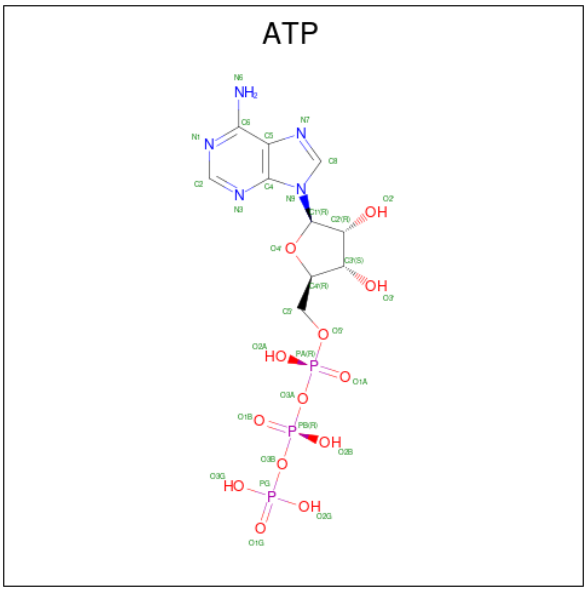
- Molecule 53 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	t	81	Total	C	N	O	S	0	0
			611	370	120	119	2		

- Molecule 54 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
54	4	1	Total	Zn	0
			1	1	
54	Z	1	Total	Zn	0
			1	1	
54	n	1	Total	Zn	0
			1	1	

- Molecule 55 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms						AltConf
55	6	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
55	6	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	

- Molecule 56 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

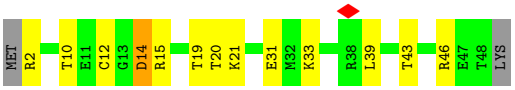
Mol	Chain	Residues	Atoms		AltConf
56	6	2	Total	Mg	0
			2	2	

3 Residue-property plots

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

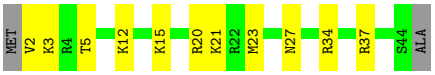
• Molecule 1: 50S ribosomal protein L33

Chain 1:



• Molecule 2: 50S ribosomal protein L34

Chain 2:

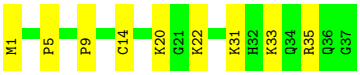


• Molecule 3: 50S ribosomal protein L35

Chain 3:

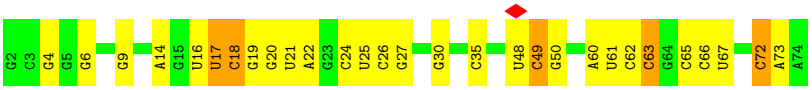
• Molecule 4: 50S ribosomal protein L36

Chain 4:



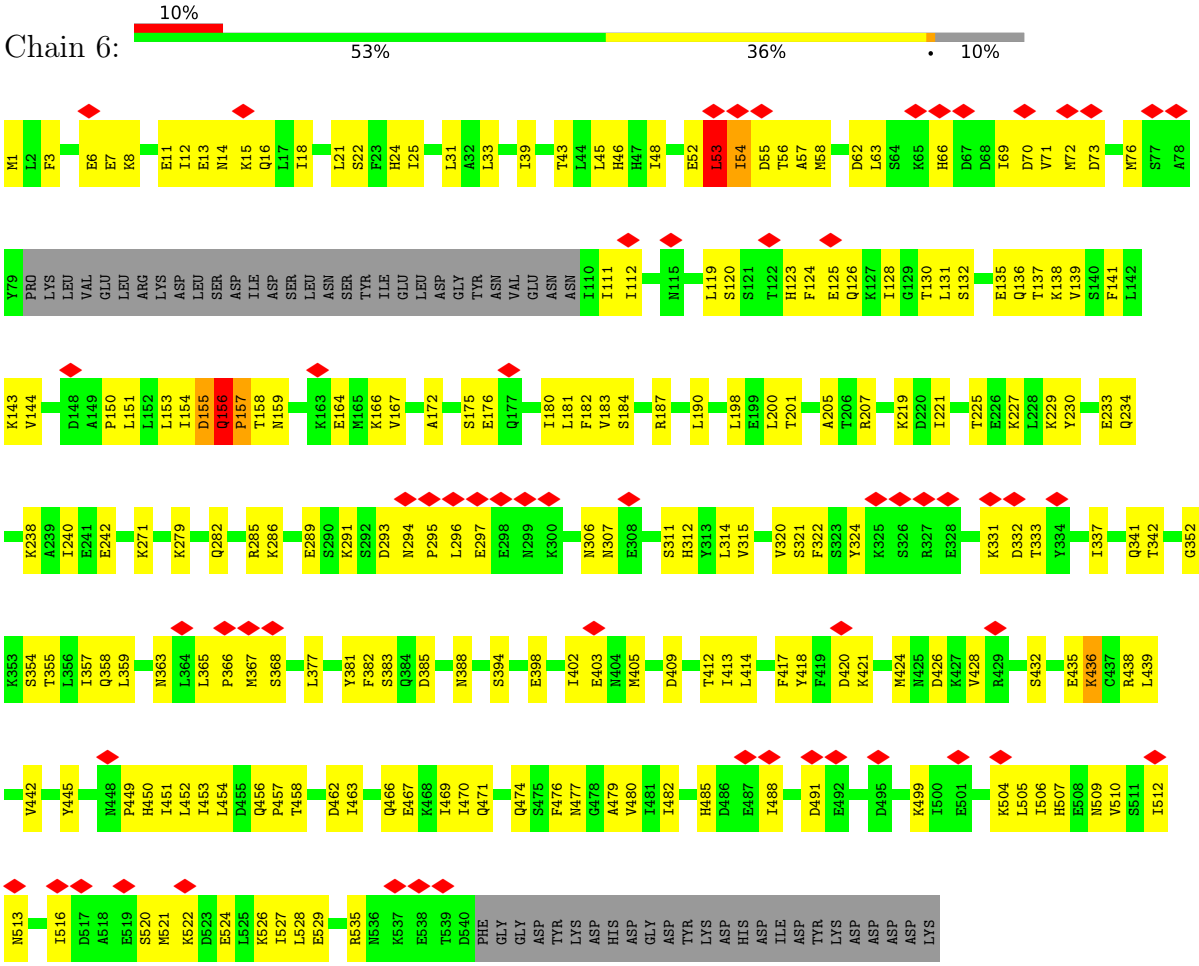
• Molecule 5: P-site tRNA

Chain 5:



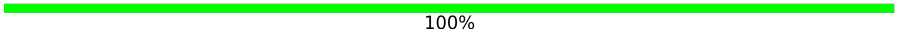
• Molecule 6: ABC-F type ribosomal protection protein

Chain 6:



• Molecule 7: mRNA

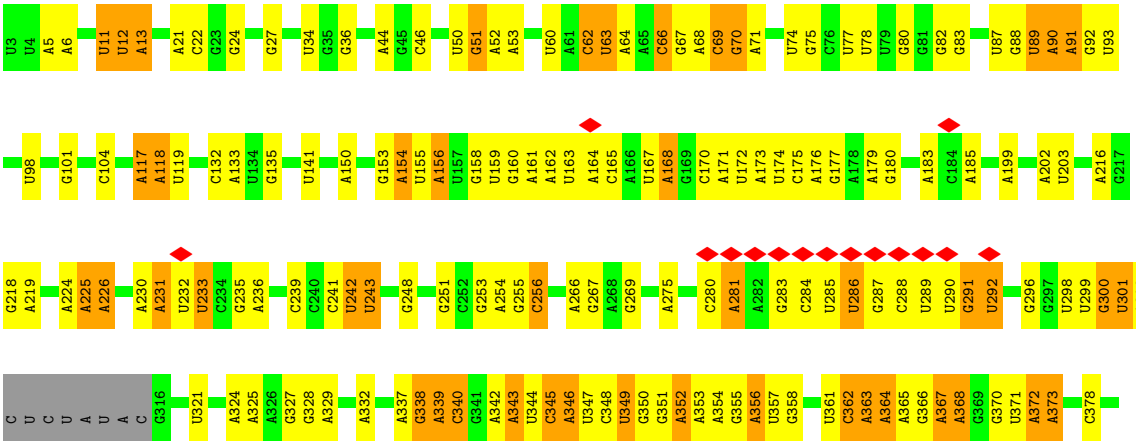
Chain 7:

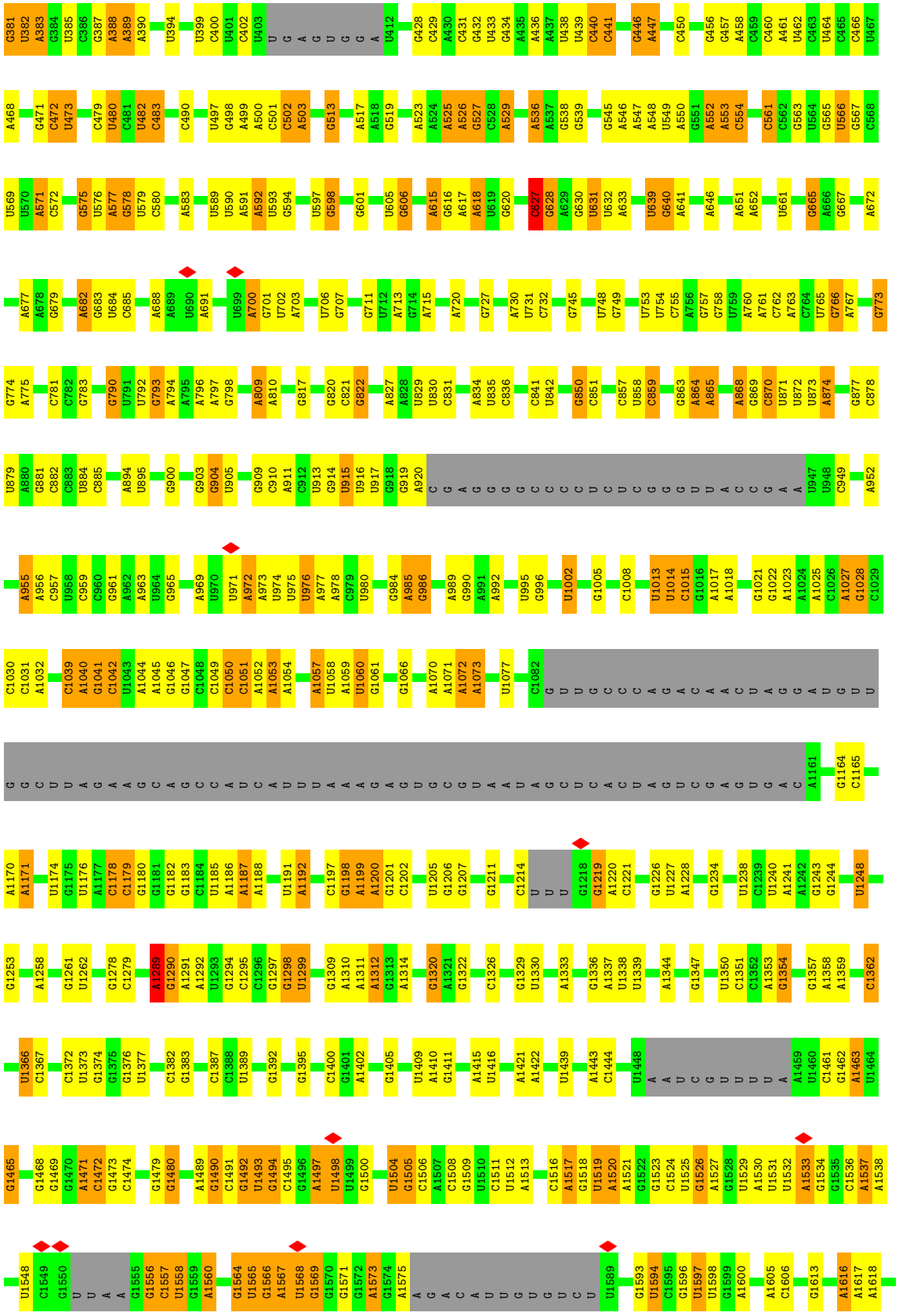


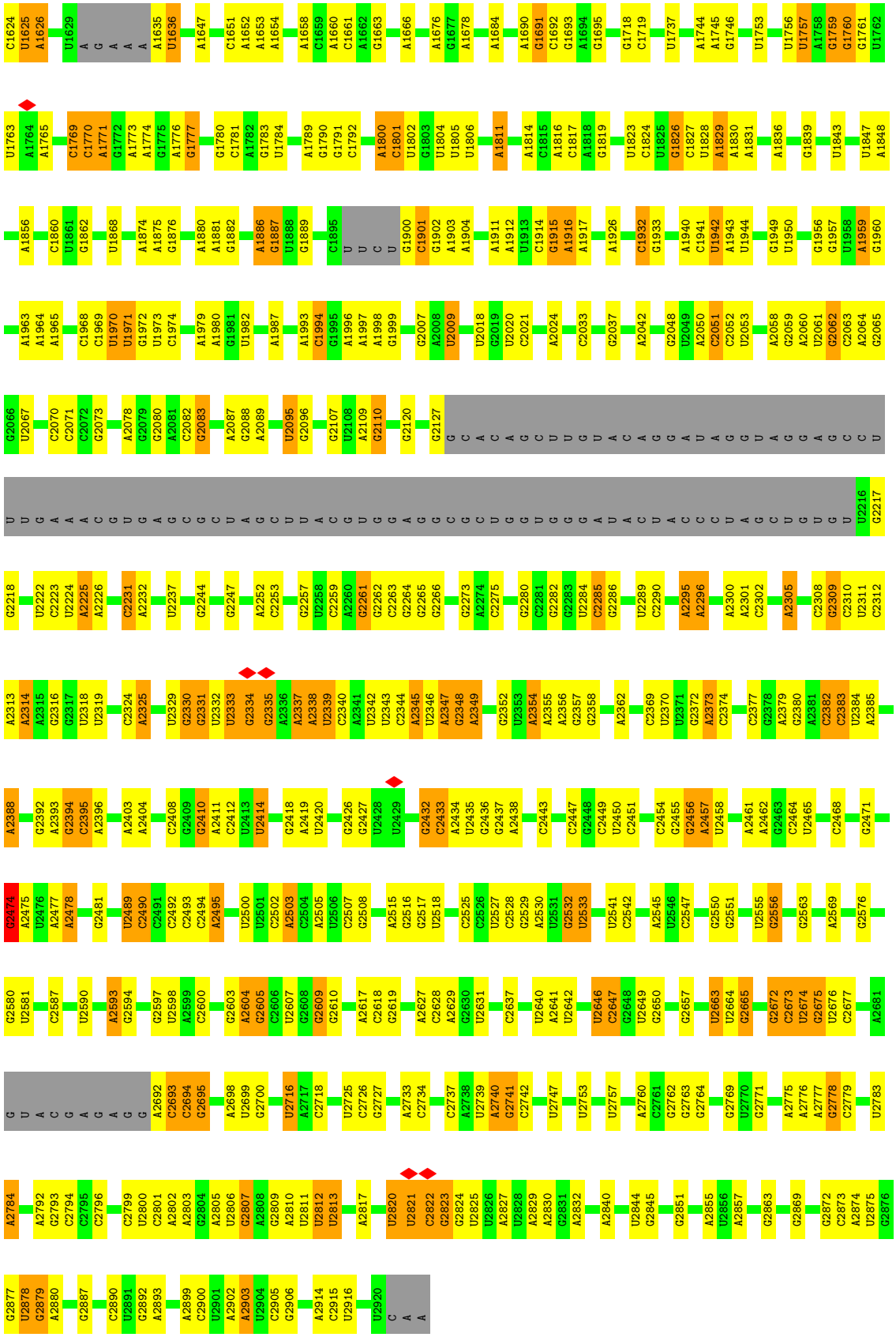
There are no outlier residues recorded for this chain.

• Molecule 8: 23S rRNA

Chain A:

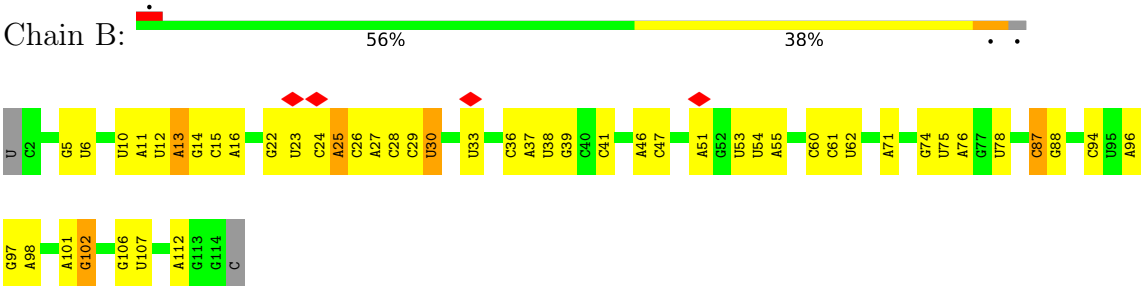






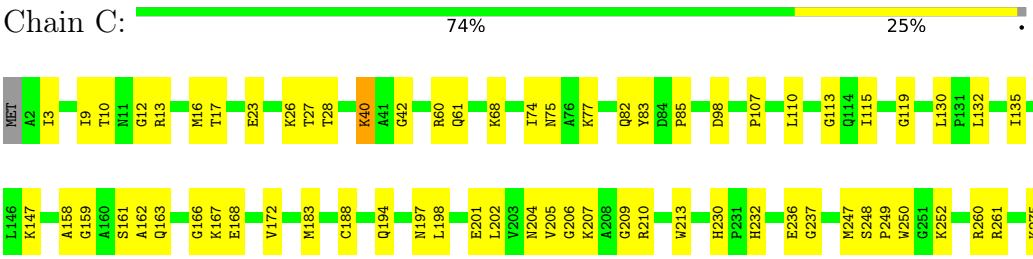
• Molecule 9: 5S rRNA

Chain B:



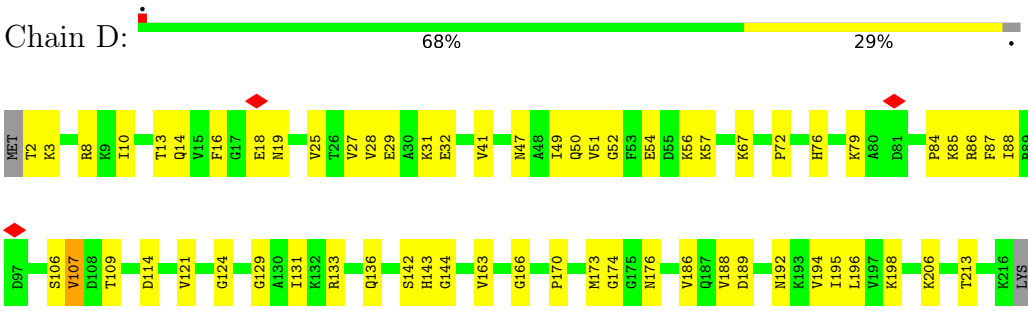
• Molecule 10: 50S ribosomal protein L2

Chain C:



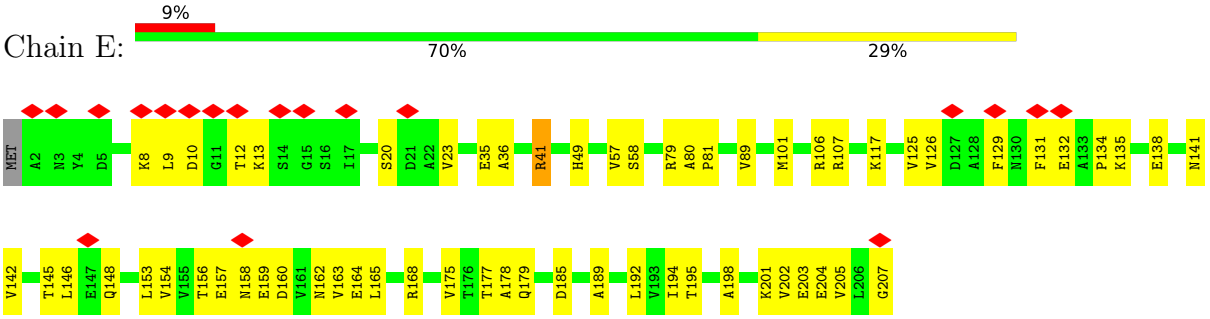
• Molecule 11: 50S ribosomal protein L3

Chain D:



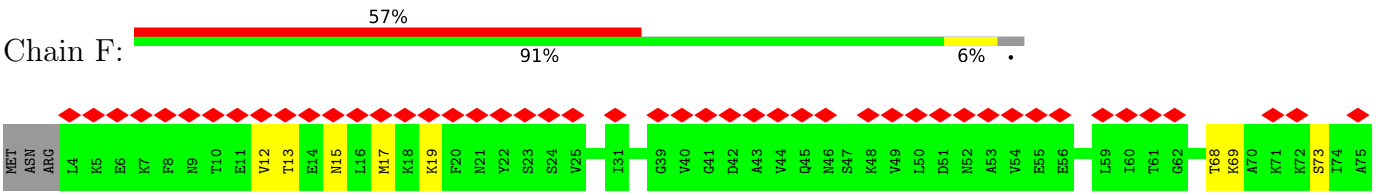
• Molecule 12: 50S ribosomal protein L4

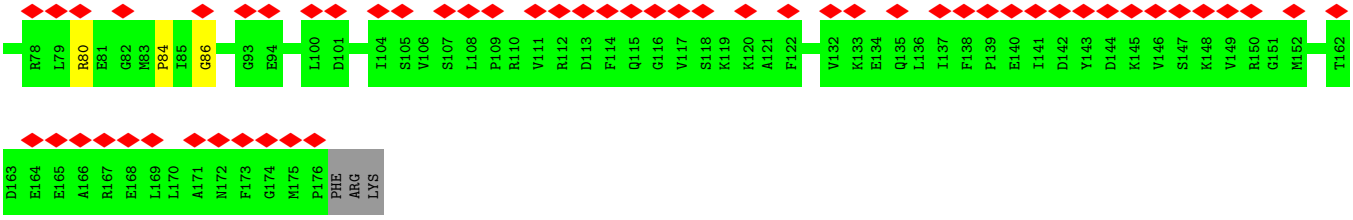
Chain E:



• Molecule 13: 50S ribosomal protein L5

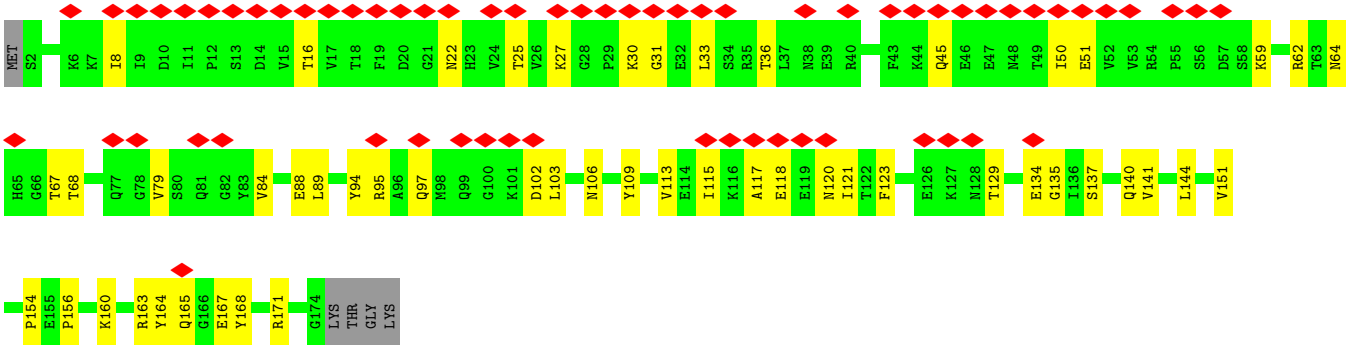
Chain F:





• Molecule 14: 50S ribosomal protein L6

Chain G:



• Molecule 15: 50S ribosomal protein L13

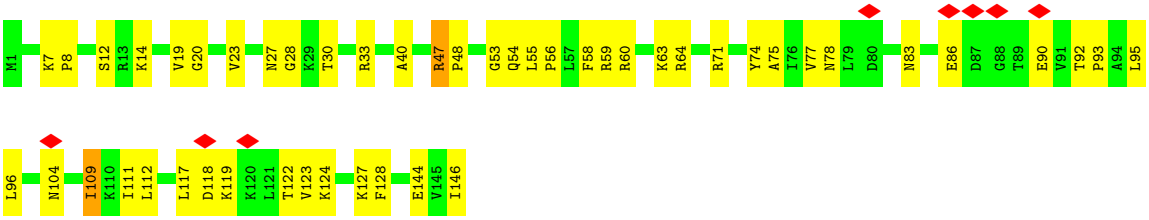
Chain H:

• Molecule 16: 50S ribosomal protein L14

Chain I:

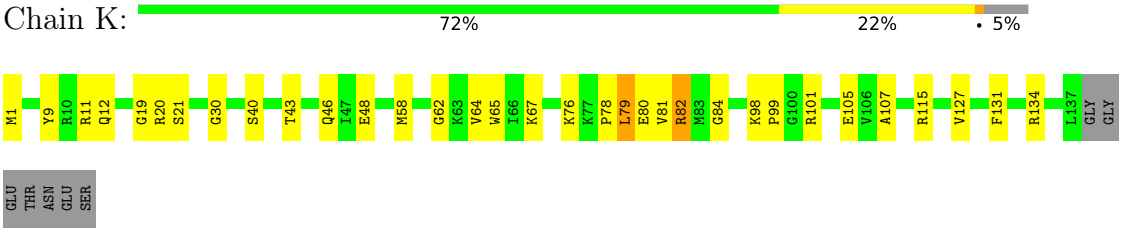
• Molecule 17: 50S ribosomal protein L15

Chain J:



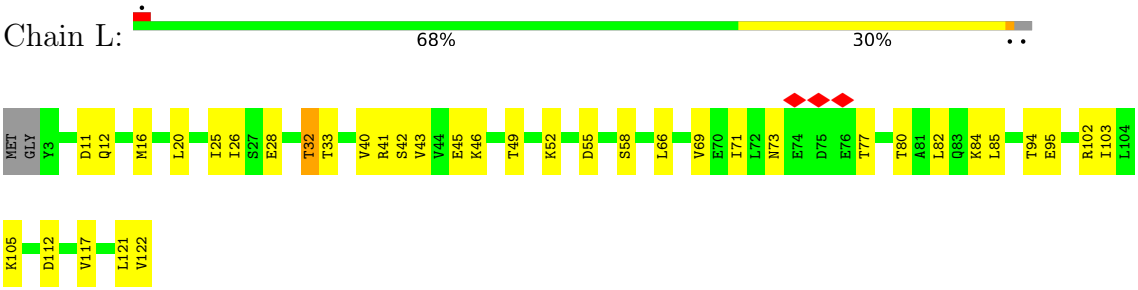
• Molecule 18: 50S ribosomal protein L16

Chain K:



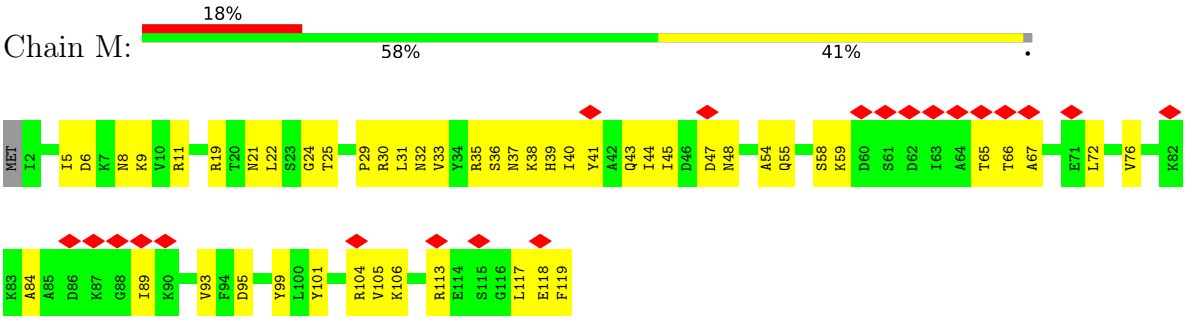
• Molecule 19: 50S ribosomal protein L17

Chain L:



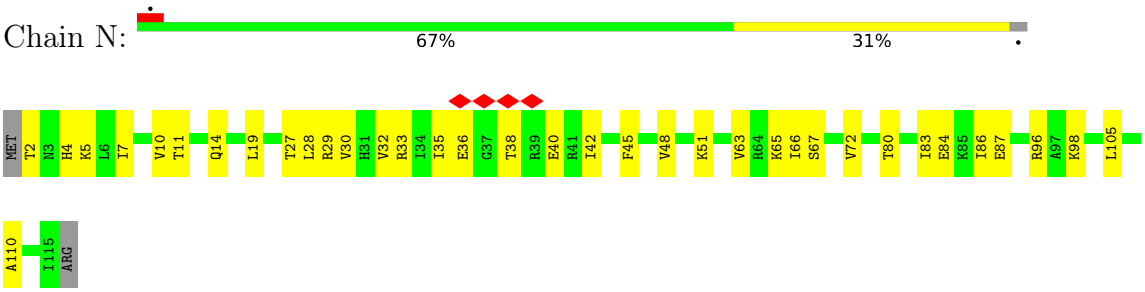
• Molecule 20: 50S ribosomal protein L18

Chain M:



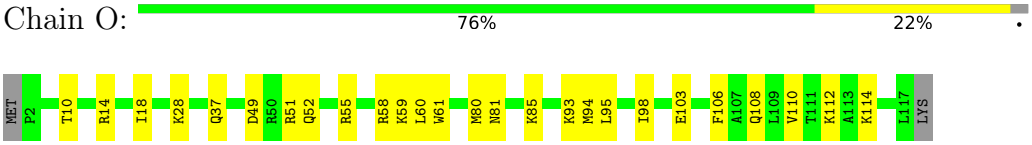
• Molecule 21: 50S ribosomal protein L19

Chain N:



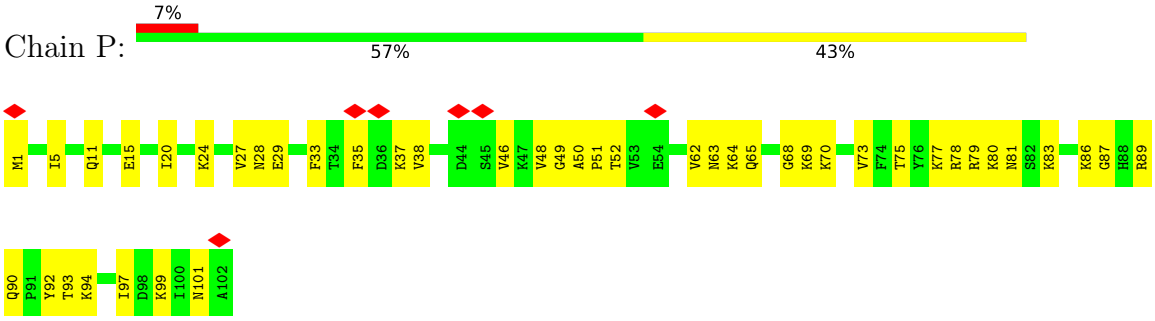
• Molecule 22: 50S ribosomal protein L20

Chain O:



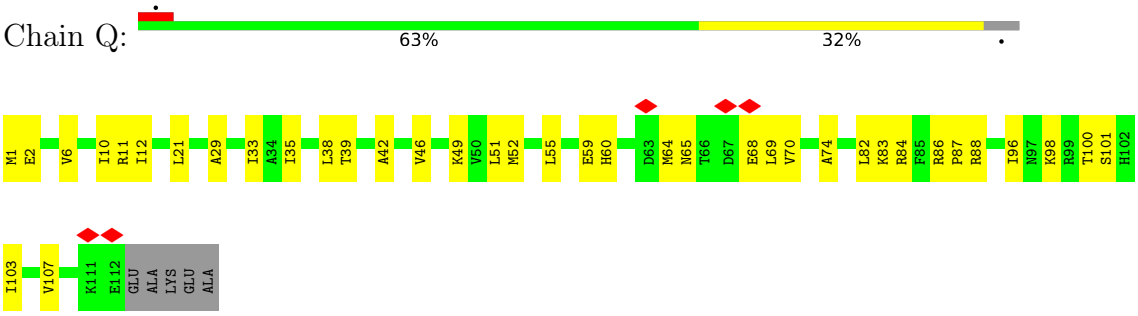
• Molecule 23: 50S ribosomal protein L21

Chain P:



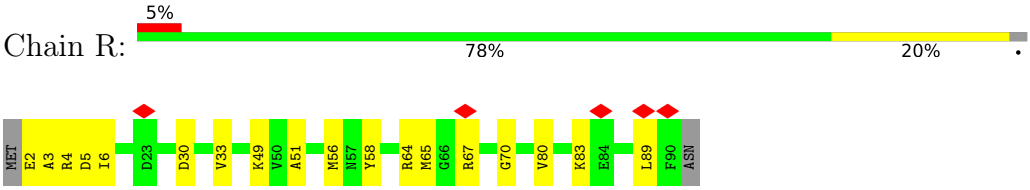
• Molecule 24: 50S ribosomal protein L22

Chain Q:



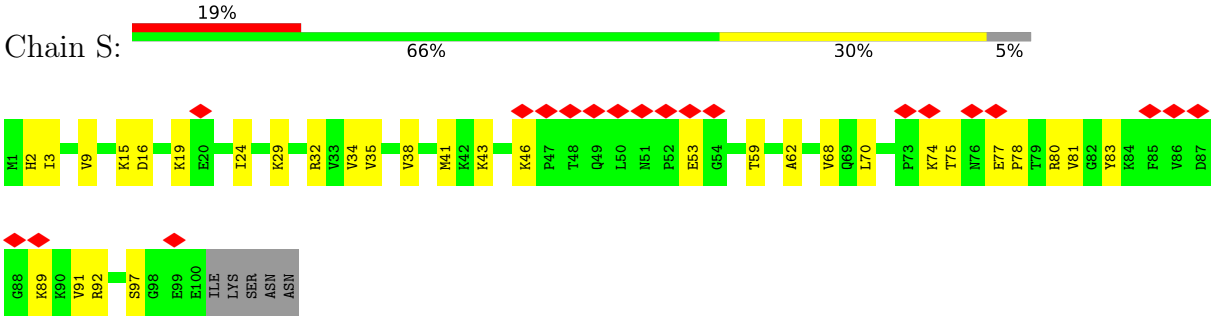
• Molecule 25: 50S ribosomal protein L23

Chain R:



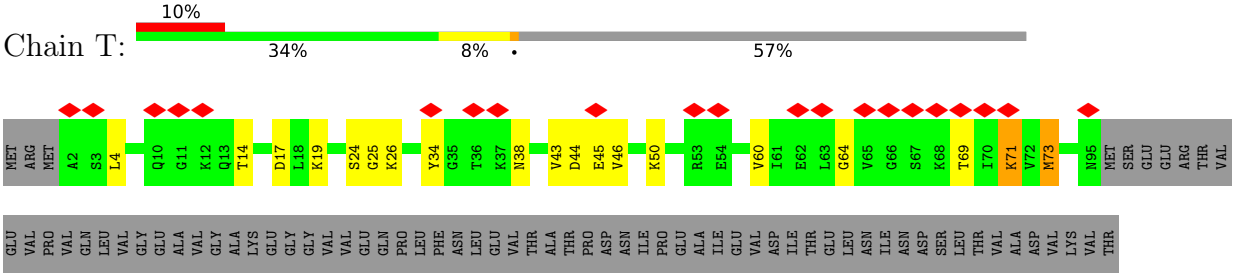
• Molecule 26: 50S ribosomal protein L24

Chain S:

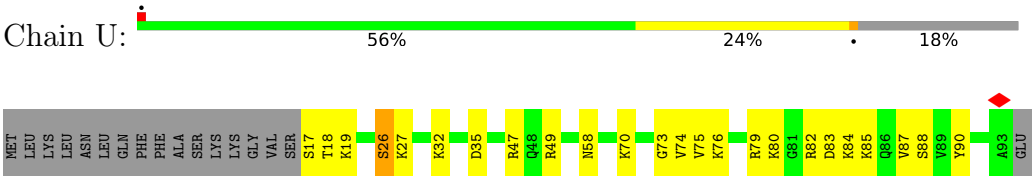


• Molecule 27: 50S ribosomal protein L25

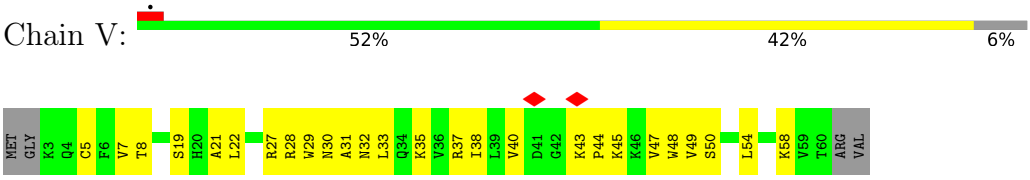
Chain T:



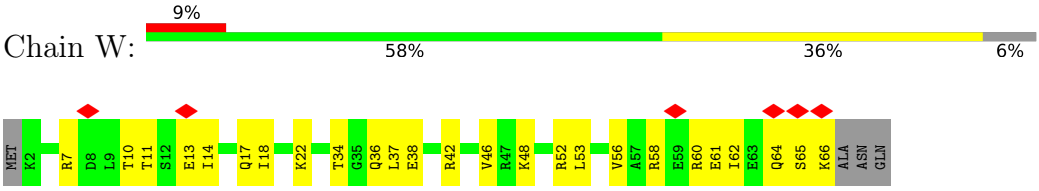
• Molecule 28: LSU ribosomal protein L27P



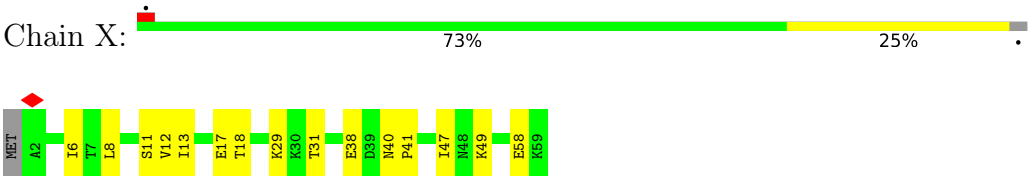
• Molecule 29: 50S ribosomal protein L28



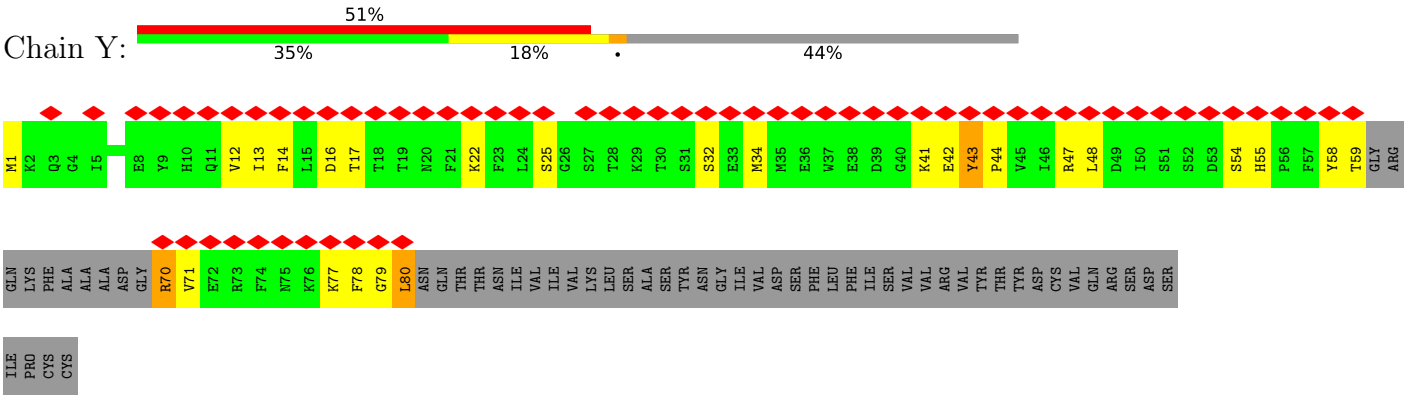
• Molecule 30: 50S ribosomal protein L29



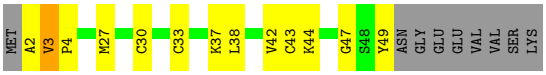
• Molecule 31: 50S ribosomal protein L30



• Molecule 32: 50S ribosomal protein L31 type B

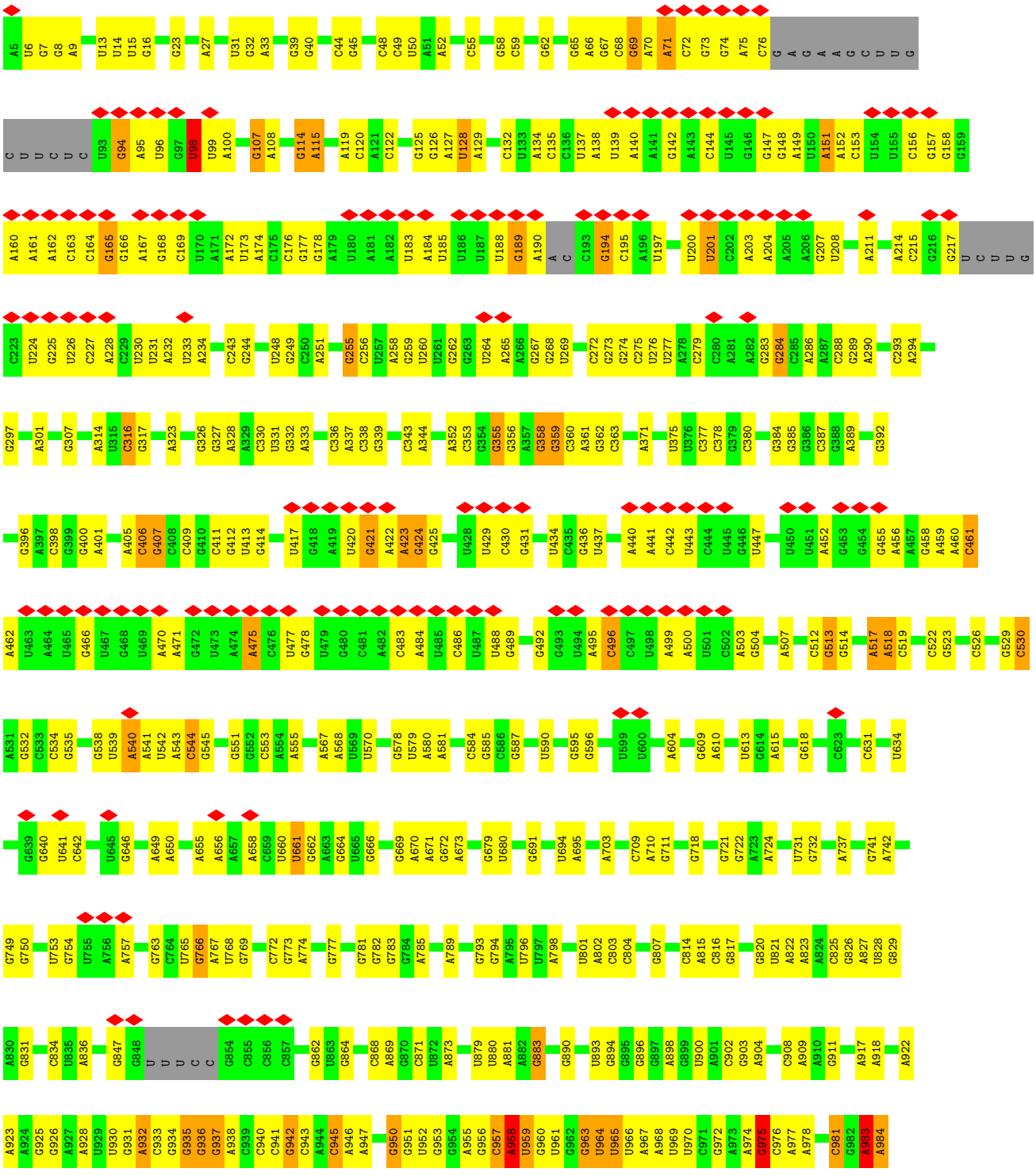


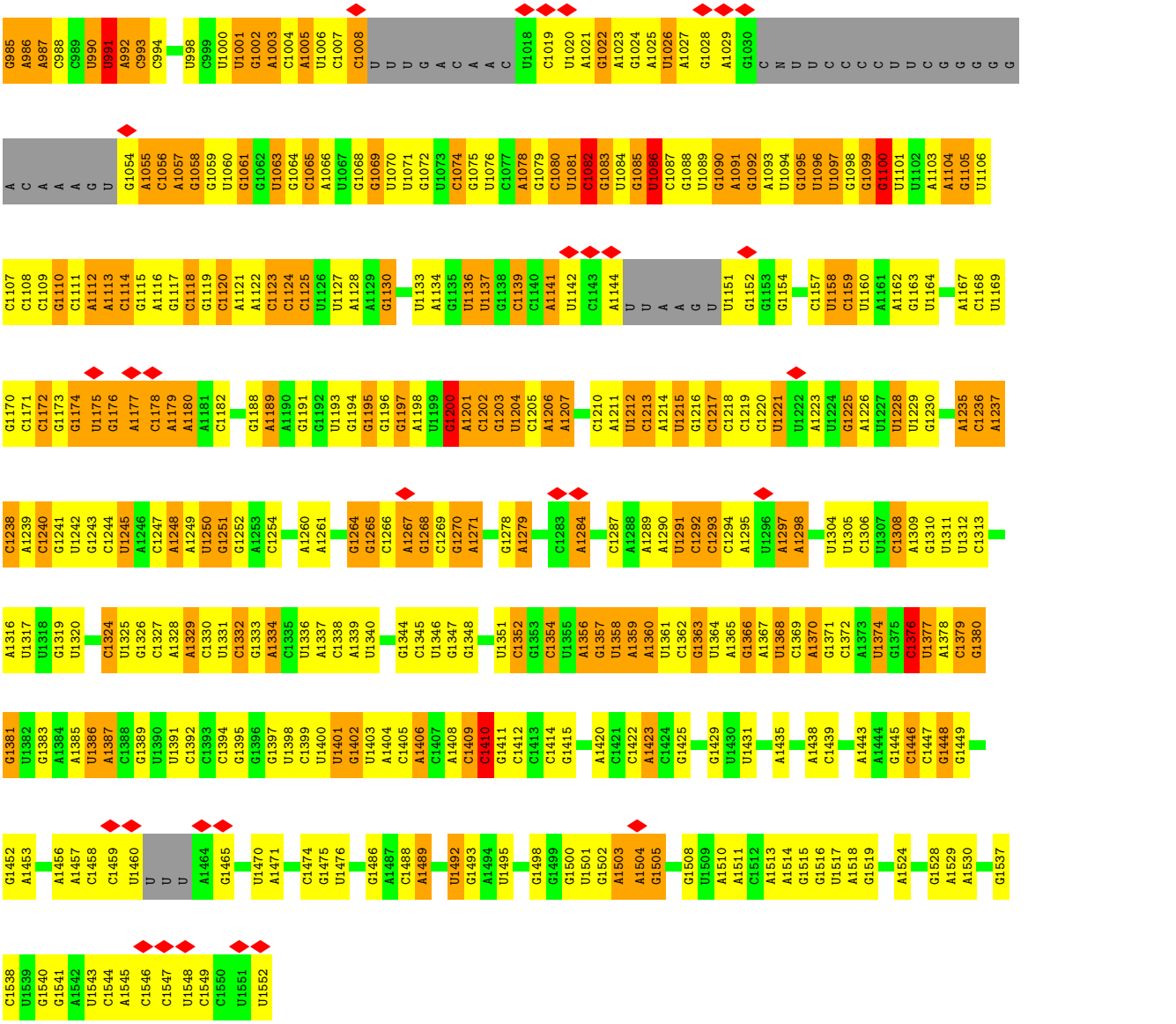
• Molecule 33: 50S ribosomal protein L32



• Molecule 34: 16S rRNA

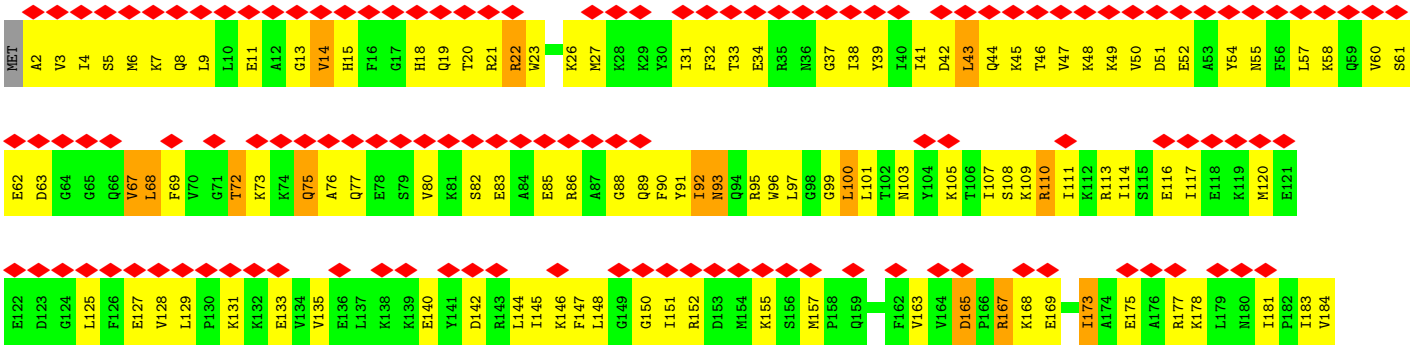
Chain a:





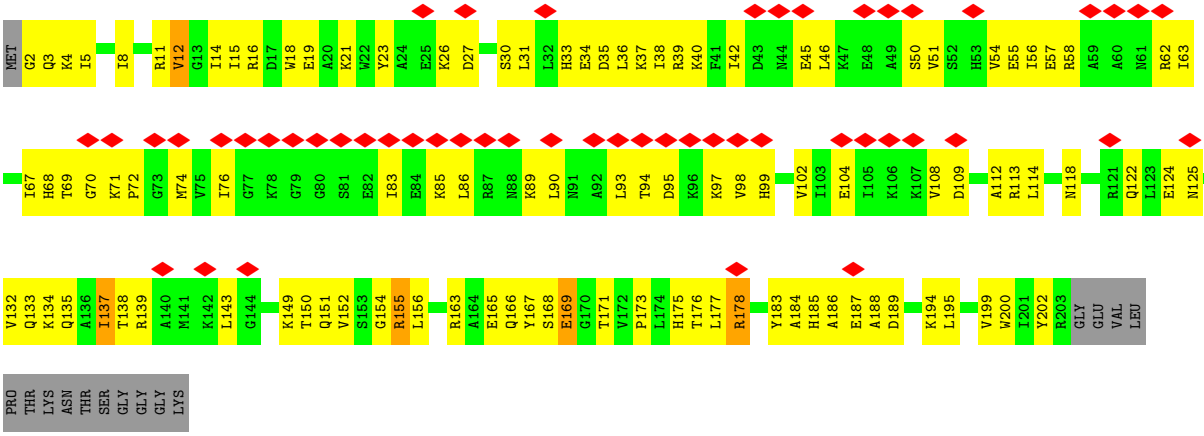
• Molecule 35: 30S ribosomal protein S2

Chain b:



• Molecule 36: 30S ribosomal protein S3

Chain c:

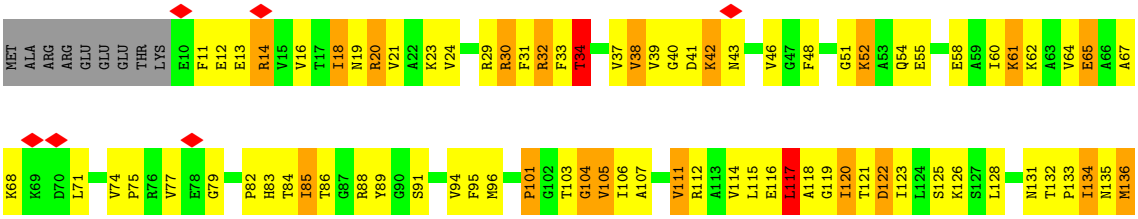


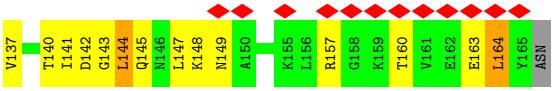
• Molecule 37: 30S ribosomal protein S4

Chain d:

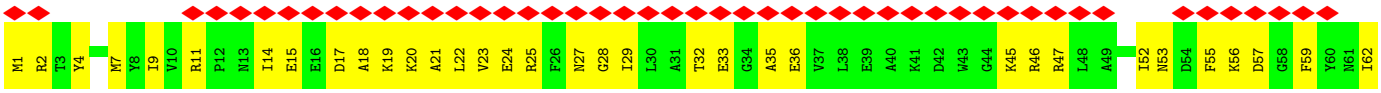
• Molecule 38: 30S ribosomal protein S5

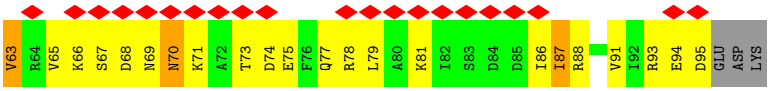
Chain e:



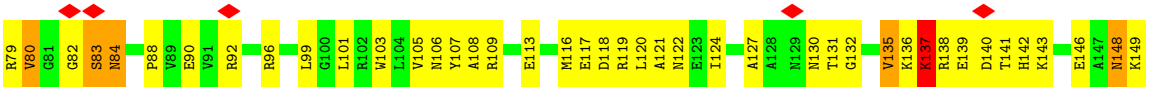


• Molecule 39: 30S ribosomal protein S6

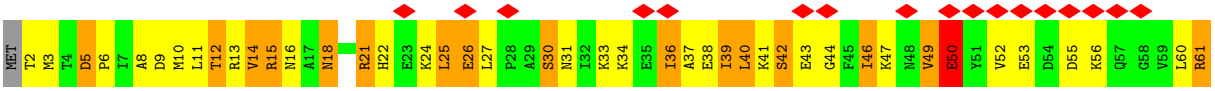




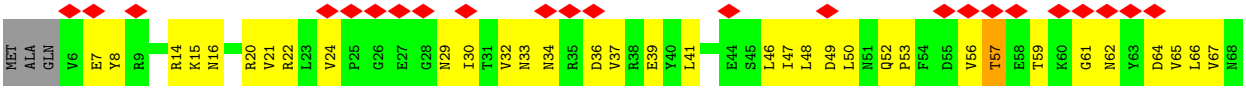
• Molecule 40: 30S ribosomal protein S7

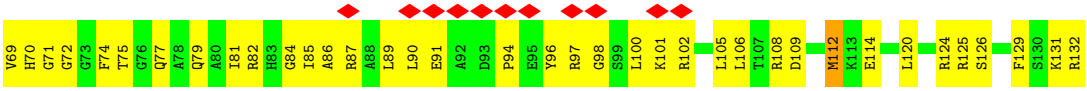


• Molecule 41: 30S ribosomal protein S8

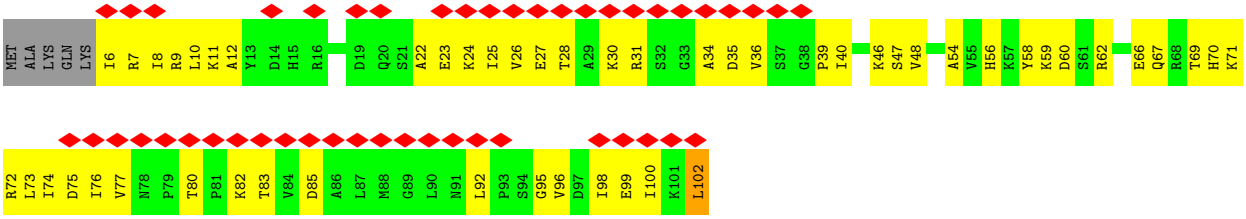


• Molecule 42: 30S ribosomal protein S9

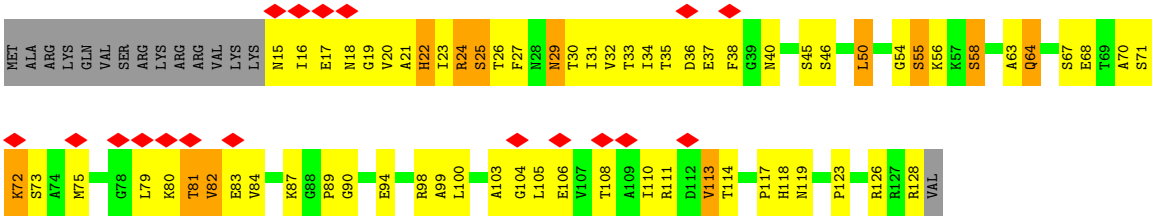




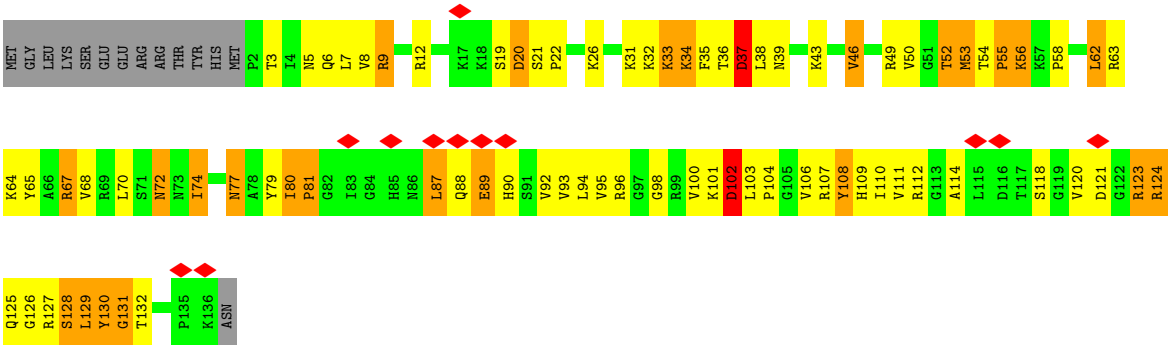
• Molecule 43: 30S ribosomal protein S10



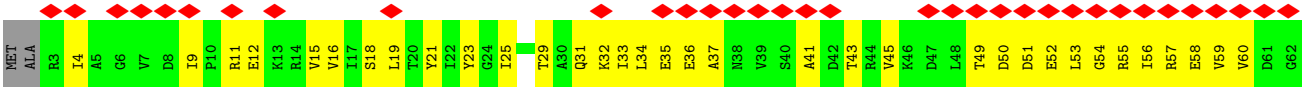
• Molecule 44: 30S ribosomal protein S11

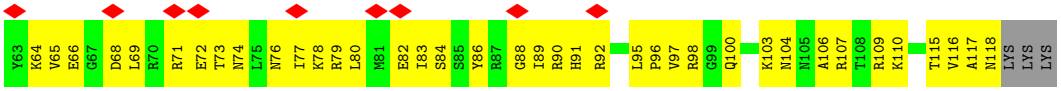


• Molecule 45: 30S ribosomal protein S12

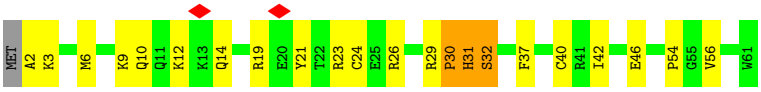


• Molecule 46: 30S ribosomal protein S13

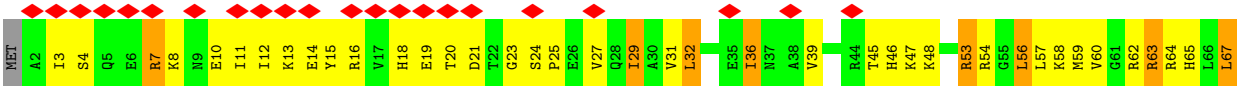


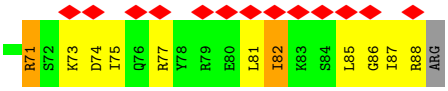


• Molecule 47: 30S ribosomal protein S14 type Z

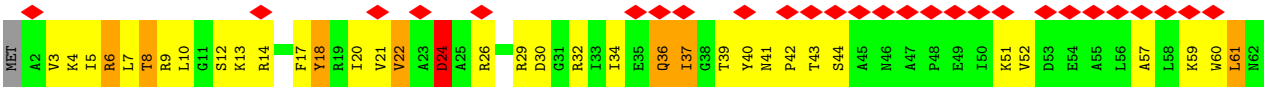


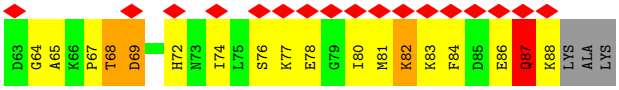
• Molecule 48: 30S ribosomal protein S15



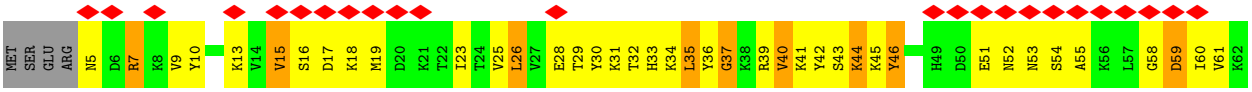


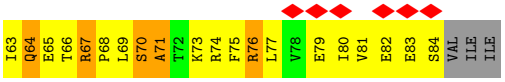
• Molecule 49: 30S ribosomal protein S16



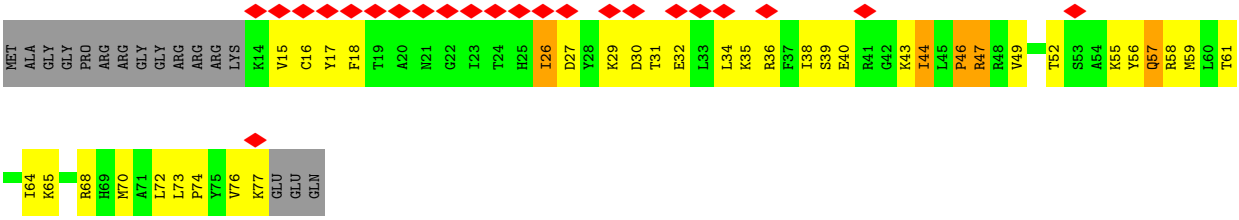


• Molecule 50: 30S ribosomal protein S17

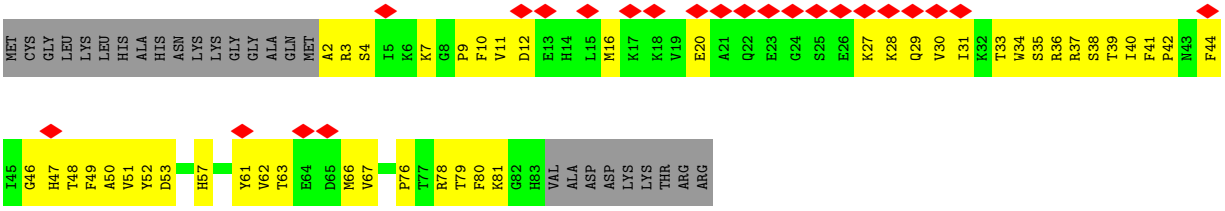




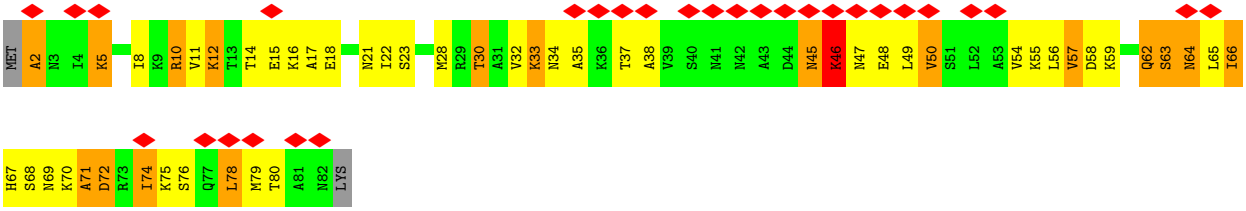
• Molecule 51: 30S ribosomal protein S18



• Molecule 52: 30S ribosomal protein S19



• Molecule 53: 30S ribosomal protein S20



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	59889	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 ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.935	Depositor
Minimum map value	-0.478	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.065	Depositor
Map size (Å)	445.12003, 445.12003, 445.12003	wwPDB
Map dimensions	416, 416, 416	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	1	0.32	0/399	0.59	0/535
2	2	0.50	0/371	0.70	0/484
3	3	0.44	0/526	0.66	0/690
4	4	0.39	0/298	0.45	0/392
5	5	0.30	0/1743	0.27	0/2716
6	6	0.28	0/4264	0.51	2/5725 (0.0%)
7	7	0.45	0/72	0.30	0/110
8	A	0.50	0/63900	0.47	3/99638 (0.0%)
9	B	0.28	0/2692	0.26	0/4193
10	C	0.39	0/2129	0.53	0/2858
11	D	0.39	0/1652	0.59	0/2216
12	E	0.37	0/1595	0.57	0/2154
13	F	0.12	0/852	0.35	0/1184
14	G	0.20	0/1192	0.44	0/1617
15	H	0.39	0/1172	0.52	0/1578
16	I	0.34	0/925	0.51	0/1242
17	J	0.41	0/1111	0.57	0/1480
18	K	0.41	0/1120	0.58	0/1502
19	L	0.38	0/954	0.53	0/1276
20	M	0.26	0/922	0.52	0/1234
21	N	0.34	0/933	0.50	0/1247
22	O	0.43	0/955	0.59	0/1265
23	P	0.42	0/807	0.59	0/1079
24	Q	0.38	0/869	0.56	0/1170
25	R	0.38	0/732	0.55	0/977
26	S	0.26	0/746	0.43	0/997
27	T	0.38	0/743	0.55	0/997
28	U	0.39	0/596	0.54	0/792
29	V	0.34	0/464	0.53	0/619
30	W	0.27	0/536	0.46	0/713
31	X	0.34	0/451	0.48	0/606
32	Y	0.55	1/390 (0.3%)	0.61	0/532

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	Z	0.42	0/392	0.60	0/521
34	a	0.88	202/35498 (0.6%)	0.80	87/55345 (0.2%)
35	b	1.58	12/1829 (0.7%)	1.41	12/2455 (0.5%)
36	c	1.03	2/1618 (0.1%)	1.17	5/2173 (0.2%)
37	d	2.31	46/1646 (2.8%)	1.77	36/2211 (1.6%)
38	e	2.56	72/1174 (6.1%)	1.90	34/1584 (2.1%)
39	f	1.97	10/800 (1.2%)	1.62	9/1073 (0.8%)
40	g	0.96	1/1262 (0.1%)	1.14	3/1698 (0.2%)
41	h	2.62	59/1043 (5.7%)	1.85	40/1401 (2.9%)
42	i	0.76	1/1023 (0.1%)	1.07	2/1374 (0.1%)
43	j	0.64	0/785	0.94	0/1060
44	k	1.91	16/859 (1.9%)	1.72	22/1161 (1.9%)
45	l	2.55	60/1075 (5.6%)	2.25	47/1439 (3.3%)
46	m	0.54	0/929	0.93	2/1246 (0.2%)
47	n	0.99	2/511 (0.4%)	1.30	3/678 (0.4%)
48	o	2.37	27/735 (3.7%)	1.68	10/982 (1.0%)
49	p	2.54	36/699 (5.2%)	2.01	29/942 (3.1%)
50	q	2.24	21/665 (3.2%)	1.79	13/889 (1.5%)
51	r	2.56	26/534 (4.9%)	1.80	9/715 (1.3%)
52	s	0.51	0/683	0.85	0/916
53	t	2.46	26/611 (4.3%)	2.04	24/817 (2.9%)
All	All	0.86	620/150482 (0.4%)	0.76	392/224498 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	1	0	1
6	6	0	3
10	C	0	1
16	I	0	1
17	J	0	1
22	O	0	1
28	U	0	1
32	Y	0	1
34	a	0	1
35	b	0	2
36	c	0	4
37	d	0	5
38	e	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
40	g	0	4
41	h	0	2
43	j	0	1
44	k	0	2
45	l	0	5
47	n	0	2
48	o	0	1
49	p	0	2
50	q	0	2
52	s	0	1
53	t	0	3
All	All	0	50

All (620) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	t	46	LYS	CB-CG	-12.04	1.16	1.52
45	l	102	ASP	CB-CG	-11.71	1.22	1.52
45	l	124	ARG	CG-CD	-11.13	1.19	1.52
37	d	65	GLU	CB-CG	-10.86	1.19	1.52
44	k	22	HIS	CA-CB	-9.83	1.27	1.53
45	l	56	LYS	CB-CG	-9.82	1.23	1.52
34	a	1088	G	C5-C4	-9.81	1.18	1.38
34	a	1401	U	N1-C2	-9.72	1.19	1.38
38	e	122	ASP	CB-CG	-9.55	1.28	1.52
34	a	930	U	N1-C2	-9.36	1.19	1.38
32	Y	70	ARG	CZ-NH2	-9.19	1.21	1.33
53	t	12	LYS	CB-CG	-9.10	1.25	1.52
34	a	930	U	C2-N3	-9.09	1.19	1.37
49	p	7	LEU	CG-CD2	-9.04	1.22	1.52
34	a	1400	U	C2-N3	-9.03	1.19	1.37
37	d	85	ASN	CB-CG	-9.02	1.29	1.52
34	a	1400	U	N1-C2	-8.94	1.20	1.38
41	h	50	GLU	CB-CG	-8.92	1.25	1.52
34	a	1088	G	C5-C6	-8.88	1.24	1.42
50	q	67	ARG	C-N	-8.87	1.22	1.33
53	t	16	LYS	CB-CG	-8.84	1.25	1.52
45	l	124	ARG	CB-CG	-8.82	1.25	1.52
38	e	20	ARG	CG-CD	-8.76	1.26	1.52
34	a	930	U	C2-O2	-8.71	1.04	1.22
53	t	8	ILE	CB-CG2	-8.68	1.24	1.52
49	p	36	GLN	CG-CD	-8.68	1.30	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1403	U	P-OP2	-8.43	1.32	1.49
41	h	127	ILE	CG1-CD1	-8.41	1.19	1.51
38	e	140	THR	CB-CG2	-8.38	1.25	1.52
41	h	128	ILE	CG1-CD1	-8.35	1.19	1.51
38	e	14	ARG	CB-CG	-8.32	1.27	1.52
37	d	112	GLN	CG-CD	-8.30	1.31	1.52
38	e	84	THR	CB-CG2	-8.29	1.25	1.52
34	a	1094	U	N1-C2	-8.25	1.22	1.38
37	d	53	GLU	CB-CG	-8.14	1.28	1.52
34	a	1401	U	C2-N3	-8.14	1.21	1.37
41	h	78	LYS	CB-CG	-8.11	1.28	1.52
34	a	1403	U	P-OP1	-8.03	1.32	1.49
49	p	61	LEU	CG-CD2	-8.02	1.26	1.52
45	l	95	VAL	CB-CG1	-8.01	1.26	1.52
51	r	43	LYS	CB-CG	-8.01	1.28	1.52
37	d	60	LEU	CG-CD2	-7.96	1.26	1.52
45	l	123	ARG	CB-CG	-7.96	1.28	1.52
49	p	65	ALA	C-N	-7.91	1.24	1.33
41	h	61	ARG	CB-CG	-7.89	1.28	1.52
34	a	1403	U	C2-O2	-7.88	1.06	1.22
34	a	1403	U	N1-C2	-7.87	1.22	1.38
38	e	131	ASN	CB-CG	-7.82	1.32	1.52
34	a	1094	U	C2-N3	-7.81	1.22	1.37
41	h	12	THR	CB-CG2	-7.80	1.26	1.52
49	p	21	VAL	CB-CG1	-7.69	1.27	1.52
34	a	930	U	N3-C4	-7.66	1.23	1.38
34	a	1400	U	C2-O2	-7.66	1.07	1.22
50	q	64	GLN	CB-CG	-7.65	1.29	1.52
35	b	93	ASN	CB-CG	-7.63	1.32	1.52
47	n	31	HIS	CB-CG	-7.61	1.39	1.50
34	a	1092	G	N1-C2	-7.61	1.22	1.37
45	l	58	PRO	CB-CG	-7.61	1.11	1.49
34	a	1092	G	P-OP1	-7.59	1.33	1.49
45	l	8	VAL	CB-CG1	-7.57	1.27	1.52
45	l	106	VAL	CB-CG2	-7.57	1.27	1.52
48	o	67	LEU	CG-CD2	-7.57	1.27	1.52
48	o	32	LEU	CG-CD1	-7.55	1.27	1.52
45	l	110	ILE	CB-CG2	-7.54	1.27	1.52
51	r	43	LYS	CG-CD	-7.43	1.30	1.52
49	p	24	ASP	CB-CG	-7.43	1.33	1.52
38	e	94	VAL	CB-CG1	-7.42	1.28	1.52
45	l	37	ASP	CB-CG	-7.40	1.33	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	930	U	P-OP1	-7.37	1.34	1.49
34	a	1096	U	N3-C4	-7.33	1.23	1.38
34	a	1089	U	P-OP1	-7.32	1.34	1.49
38	e	68	LYS	CB-CG	-7.31	1.30	1.52
45	l	67	ARG	CB-CG	-7.31	1.30	1.52
48	o	63	ARG	CB-CG	-7.30	1.30	1.52
34	a	1401	U	C2-O2	-7.29	1.07	1.22
38	e	88	ARG	CB-CG	-7.27	1.30	1.52
37	d	65	GLU	CG-CD	-7.24	1.33	1.52
45	l	55	PRO	CB-CG	-7.24	1.13	1.49
38	e	23	LYS	CB-CG	-7.23	1.30	1.52
53	t	12	LYS	CG-CD	-7.23	1.30	1.52
38	e	135	ASN	CB-CG	-7.22	1.33	1.52
48	o	27	VAL	CB-CG2	-7.17	1.28	1.52
45	l	67	ARG	CG-CD	-7.16	1.30	1.52
34	a	1095	G	N1-C2	-7.14	1.23	1.37
53	t	65	LEU	CG-CD2	-7.14	1.28	1.52
41	h	131	VAL	CB-CG2	-7.14	1.28	1.52
34	a	1402	G	C5-C6	-7.13	1.28	1.42
34	a	1411	G	N7-C5	-7.12	1.25	1.39
34	a	1404	A	P-OP1	-7.12	1.34	1.49
37	d	3	ARG	CD-NE	-7.11	1.36	1.46
37	d	13	ARG	CG-CD	-7.11	1.31	1.52
53	t	34	ASN	CB-CG	-7.10	1.34	1.52
38	e	54	GLN	CB-CG	-7.08	1.31	1.52
34	a	1095	G	C5-C4	-7.08	1.24	1.38
49	p	29	ARG	CZ-NH2	-7.07	1.24	1.33
34	a	1092	G	C6-N1	-7.07	1.25	1.39
38	e	64	VAL	CB-CG2	-7.03	1.29	1.52
49	p	29	ARG	CB-CG	-7.01	1.31	1.52
38	e	86	THR	CB-CG2	-7.01	1.29	1.52
34	a	1105	G	C5-C6	-7.00	1.28	1.42
34	a	1399	C	N1-C2	-7.00	1.26	1.40
50	q	68	PRO	CG-CD	-6.98	1.27	1.50
34	a	1411	G	C5-C6	-6.96	1.28	1.42
34	a	1402	G	N7-C5	-6.95	1.25	1.39
49	p	5	ILE	CB-CG2	-6.95	1.29	1.52
34	a	1090	G	N1-C2	-6.93	1.23	1.37
37	d	58	ARG	CZ-NH2	-6.92	1.24	1.33
34	a	1091	A	C5-C6	-6.92	1.27	1.41
34	a	1092	G	C5-C6	-6.91	1.28	1.42
45	l	93	VAL	CB-CG1	-6.90	1.29	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1089	U	P-OP2	-6.90	1.35	1.49
34	a	931	G	N1-C2	-6.89	1.24	1.37
38	e	117	LEU	CG-CD2	-6.89	1.29	1.52
38	e	105	VAL	CB-CG2	-6.88	1.29	1.52
34	a	1092	G	C5-C4	-6.88	1.24	1.38
50	q	76	ARG	CG-CD	-6.87	1.31	1.52
50	q	44	LYS	CA-CB	-6.85	1.41	1.53
34	a	1094	U	N3-C4	-6.85	1.24	1.38
38	e	126	LYS	CG-CD	-6.83	1.31	1.52
34	a	1091	A	P-OP1	-6.83	1.35	1.49
49	p	7	LEU	CG-CD1	-6.83	1.30	1.52
49	p	22	VAL	CB-CG2	-6.82	1.30	1.52
49	p	32	ARG	CB-CG	-6.82	1.32	1.52
41	h	42	SER	CA-C	-6.81	1.41	1.52
45	l	127	ARG	CB-CG	-6.80	1.32	1.52
34	a	1093	A	P-OP2	-6.80	1.35	1.49
37	d	52	ARG	CG-CD	-6.79	1.32	1.52
49	p	3	VAL	CB-CG1	-6.79	1.30	1.52
38	e	136	MET	CB-CG	-6.79	1.32	1.52
34	a	1085	G	N1-C2	-6.78	1.24	1.37
34	a	1090	G	P-OP2	-6.78	1.35	1.49
34	a	1113	A	C5-C4	-6.77	1.25	1.38
34	a	1402	G	N9-C4	-6.76	1.24	1.38
48	o	57	LEU	CG-CD1	-6.75	1.30	1.52
34	a	1405	C	P-OP1	-6.74	1.35	1.49
48	o	27	VAL	CB-CG1	-6.73	1.30	1.52
41	h	79	ARG	CB-CG	-6.73	1.32	1.52
48	o	39	VAL	CB-CG2	-6.73	1.30	1.52
37	d	3	ARG	CB-CG	-6.71	1.32	1.52
34	a	1089	U	N3-C4	-6.71	1.25	1.38
49	p	74	ILE	CB-CG2	-6.71	1.30	1.52
48	o	53	ARG	CG-CD	-6.70	1.32	1.52
34	a	1092	G	P-OP2	-6.69	1.35	1.49
38	e	16	VAL	CB-CG1	-6.68	1.30	1.52
48	o	25	PRO	CB-CG	-6.67	1.16	1.49
34	a	1089	U	C2-N3	-6.66	1.24	1.37
34	a	1114	C	N1-C2	-6.64	1.26	1.40
38	e	103	THR	CB-CG2	-6.63	1.30	1.52
34	a	1087	C	N3-C4	-6.62	1.20	1.33
34	a	1113	A	N9-C4	-6.62	1.24	1.37
45	l	62	LEU	CA-CB	-6.60	1.41	1.53
44	k	87	LYS	CB-CG	-6.60	1.32	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	p	10	LEU	CG-CD2	-6.59	1.30	1.52
34	a	1082	C	N1-C2	-6.58	1.26	1.40
37	d	125	ARG	CG-CD	-6.56	1.32	1.52
34	a	1409	C	C2-N3	-6.54	1.22	1.35
37	d	51	LEU	CG-CD1	-6.54	1.30	1.52
49	p	61	LEU	CG-CD1	-6.52	1.31	1.52
41	h	103	ILE	CG1-CD1	-6.51	1.26	1.51
41	h	126	GLU	CB-CG	-6.51	1.32	1.52
51	r	68	ARG	CB-CG	-6.51	1.32	1.52
34	a	1409	C	N1-C2	-6.50	1.27	1.40
49	p	34	ILE	CB-CG2	-6.50	1.31	1.52
41	h	78	LYS	CG-CD	-6.50	1.32	1.52
48	o	57	LEU	CG-CD2	-6.50	1.31	1.52
50	q	64	GLN	CG-CD	-6.49	1.35	1.52
45	l	54	THR	CB-CG2	-6.49	1.31	1.52
45	l	70	LEU	CG-CD2	-6.49	1.31	1.52
34	a	975	G	C5-C6	-6.48	1.29	1.42
37	d	112	GLN	CB-CG	-6.47	1.33	1.52
34	a	1401	U	N1-C6	-6.45	1.25	1.38
34	a	1095	G	C5-C6	-6.44	1.29	1.42
48	o	82	ILE	CB-CG2	-6.44	1.31	1.52
34	a	1084	U	N1-C2	-6.42	1.25	1.38
34	a	1399	C	C2-N3	-6.40	1.23	1.35
34	a	1082	C	N3-C4	-6.40	1.21	1.33
45	l	106	VAL	CB-CG1	-6.40	1.31	1.52
50	q	44	LYS	CB-CG	-6.38	1.33	1.52
41	h	5	ASP	CB-CG	-6.38	1.36	1.52
34	a	1091	A	C6-N1	-6.37	1.22	1.35
34	a	1114	C	C2-N3	-6.37	1.23	1.35
50	q	26	LEU	CG-CD2	-6.36	1.31	1.52
50	q	45	LYS	CB-CG	-6.35	1.33	1.52
37	d	54	LYS	CG-CD	-6.35	1.33	1.52
34	a	1093	A	P-OP1	-6.34	1.36	1.49
41	h	41	LYS	CB-CG	-6.34	1.33	1.52
34	a	1401	U	C4-O4	-6.34	1.10	1.23
34	a	1082	C	C2-N3	-6.33	1.23	1.35
41	h	47	LYS	CB-CG	-6.33	1.33	1.52
45	l	123	ARG	CG-CD	-6.33	1.33	1.52
38	e	105	VAL	CB-CG1	-6.32	1.31	1.52
38	e	20	ARG	CB-CG	-6.32	1.33	1.52
38	e	94	VAL	CB-CG2	-6.32	1.31	1.52
53	t	12	LYS	CD-CE	-6.32	1.33	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
41	h	85	LEU	CG-CD1	-6.31	1.31	1.52
34	a	1100	G	N9-C4	-6.31	1.25	1.38
37	d	97	VAL	CB-CG1	-6.31	1.31	1.52
34	a	1087	C	C2-N3	-6.30	1.23	1.35
45	l	108	TYR	CE2-CZ	-6.29	1.23	1.38
45	l	7	LEU	CG-CD1	-6.27	1.31	1.52
41	h	85	LEU	CG-CD2	-6.26	1.31	1.52
44	k	24	ARG	CG-CD	-6.26	1.33	1.52
51	r	46	PRO	CB-CG	-6.26	1.18	1.49
34	a	1094	U	C2-O2	-6.26	1.09	1.22
41	h	50	GLU	CG-CD	-6.26	1.36	1.52
34	a	1094	U	P-OP1	-6.25	1.36	1.49
37	d	74	ILE	CB-CG1	-6.25	1.41	1.53
45	l	9	ARG	CG-CD	-6.25	1.33	1.52
41	h	78	LYS	CA-CB	-6.25	1.43	1.53
38	e	88	ARG	CG-CD	-6.24	1.33	1.52
48	o	36	ILE	CG1-CD1	-6.22	1.27	1.51
34	a	1088	G	C6-O6	-6.21	1.11	1.24
34	a	1400	U	N3-C4	-6.21	1.26	1.38
34	a	1081	U	N1-C6	-6.21	1.25	1.38
35	b	183	ILE	CG1-CD1	-6.21	1.27	1.51
37	d	59	TYR	CB-CG	-6.21	1.38	1.51
45	l	74	ILE	CG1-CD1	-6.21	1.27	1.51
34	a	1098	G	N1-C2	-6.20	1.25	1.37
41	h	16	ASN	CB-CG	-6.19	1.36	1.52
34	a	1402	G	N9-C8	-6.19	1.25	1.37
34	a	1084	U	C2-N3	-6.18	1.25	1.37
39	f	53	ASN	CB-CG	-6.18	1.36	1.52
41	h	34	LYS	CB-CG	-6.18	1.33	1.52
34	a	1088	G	C2-N2	-6.17	1.22	1.34
51	r	57	GLN	CG-CD	-6.17	1.36	1.52
34	a	930	U	P-OP2	-6.16	1.36	1.49
41	h	90	LYS	CB-CG	-6.16	1.33	1.52
50	q	25	VAL	CB-CG2	-6.16	1.32	1.52
34	a	1098	G	C6-N1	-6.16	1.27	1.39
50	q	44	LYS	CD-CE	-6.16	1.33	1.52
38	e	46	VAL	CB-CG1	-6.16	1.32	1.52
35	b	190	ASN	CB-CG	-6.15	1.36	1.52
39	f	91	VAL	CB-CG2	-6.15	1.32	1.52
48	o	54	ARG	CZ-NH2	-6.15	1.25	1.33
53	t	55	LYS	CB-CG	-6.15	1.34	1.52
41	h	103	ILE	CB-CG2	-6.15	1.32	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1090	G	P-OP1	-6.14	1.36	1.49
45	l	128	SER	CB-OG	-6.14	1.29	1.42
51	r	43	LYS	CD-CE	-6.14	1.34	1.52
34	a	1086	U	N1-C2	-6.14	1.26	1.38
38	e	89	TYR	CD1-CE1	-6.12	1.20	1.38
35	b	110	ARG	CG-CD	-6.12	1.34	1.52
34	a	1402	G	C6-N1	-6.11	1.27	1.39
41	h	65	LYS	CD-CE	-6.10	1.34	1.52
34	a	1401	U	C4-C5	-6.10	1.31	1.43
38	e	145	GLN	CB-CG	-6.10	1.34	1.52
34	a	1083	G	C6-N1	-6.10	1.27	1.39
41	h	6	PRO	CB-CG	-6.10	1.19	1.49
34	a	1402	G	C5-C4	-6.10	1.26	1.38
51	r	68	ARG	CG-CD	-6.10	1.34	1.52
34	a	1087	C	N1-C2	-6.09	1.27	1.40
41	h	14	VAL	CB-CG1	-6.09	1.32	1.52
34	a	1086	U	N1-C6	-6.09	1.25	1.38
37	d	56	LYS	CG-CD	-6.08	1.34	1.52
41	h	21	ARG	CG-CD	-6.08	1.34	1.52
53	t	57	VAL	CB-CG2	-6.08	1.32	1.52
38	e	111	VAL	CB-CG2	-6.08	1.32	1.52
53	t	2	ALA	CA-C	-6.07	1.40	1.52
38	e	46	VAL	CB-CG2	-6.06	1.32	1.52
53	t	11	VAL	CB-CG1	-6.06	1.32	1.52
45	l	77	ASN	CB-CG	-6.05	1.36	1.52
34	a	930	U	C4-O4	-6.04	1.11	1.23
41	h	101	LEU	CG-CD2	-6.04	1.32	1.52
35	b	167	ARG	CB-CG	-6.03	1.34	1.52
37	d	60	LEU	CG-CD1	-6.03	1.32	1.52
34	a	1405	C	P-OP2	-6.02	1.36	1.49
53	t	10	ARG	CZ-NH2	-6.02	1.25	1.33
34	a	1112	A	C5-C4	-6.01	1.26	1.38
34	a	1085	G	C5-C4	-6.01	1.26	1.38
34	a	1401	U	N3-C4	-6.00	1.26	1.38
45	l	65	TYR	CD1-CE1	-5.99	1.20	1.38
53	t	65	LEU	CG-CD1	-5.99	1.32	1.52
53	t	54	VAL	CB-CG1	-5.99	1.32	1.52
50	q	44	LYS	CG-CD	-5.99	1.34	1.52
49	p	9	ARG	CB-CG	-5.97	1.34	1.52
34	a	1085	G	C2-N2	-5.97	1.22	1.34
34	a	1096	U	C2-N3	-5.97	1.25	1.37
34	a	1400	U	C4-C5	-5.97	1.31	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
37	d	139	ILE	CG1-CD1	-5.96	1.28	1.51
40	g	148	ASN	CB-CG	-5.96	1.37	1.52
53	t	16	LYS	CG-CD	-5.96	1.34	1.52
34	a	1096	U	C2-O2	-5.95	1.10	1.22
34	a	1091	A	C6-N6	-5.94	1.22	1.33
34	a	1399	C	N1-C6	-5.94	1.25	1.37
45	l	5	ASN	CB-CG	-5.94	1.37	1.52
53	t	72	ASP	CB-CG	-5.94	1.37	1.52
45	l	3	THR	CB-CG2	-5.93	1.32	1.52
50	q	46	TYR	CB-CG	-5.93	1.38	1.51
37	d	74	ILE	CB-CG2	-5.93	1.32	1.52
37	d	125	ARG	CB-CG	-5.93	1.34	1.52
45	l	111	VAL	CB-CG1	-5.92	1.33	1.52
34	a	1411	G	N1-C2	-5.92	1.25	1.37
38	e	149	ASN	CB-CG	-5.91	1.37	1.52
34	a	1095	G	P-OP1	-5.91	1.37	1.49
34	a	1114	C	N3-C4	-5.91	1.22	1.33
49	p	69	ASP	CB-CG	5.91	1.66	1.52
34	a	1087	C	N1-C6	-5.90	1.25	1.37
49	p	3	VAL	CB-CG2	-5.90	1.33	1.52
45	l	34	LYS	CB-CG	5.90	1.70	1.52
44	k	55	SER	CA-C	-5.89	1.42	1.53
48	o	64	ARG	CB-CG	-5.88	1.34	1.52
51	r	65	LYS	CD-CE	-5.88	1.34	1.52
38	e	29	ARG	CG-CD	-5.88	1.34	1.52
37	d	77	LYS	CB-CG	-5.87	1.34	1.52
34	a	1095	G	C6-N1	-5.87	1.27	1.39
38	e	95	PHE	CE2-CZ	-5.86	1.21	1.38
38	e	20	ARG	CD-NE	-5.86	1.38	1.46
38	e	65	GLU	CB-CG	-5.86	1.34	1.52
45	l	94	LEU	CG-CD1	-5.86	1.33	1.52
39	f	87	ILE	CB-CG2	-5.85	1.33	1.52
34	a	932	A	C5-C6	-5.84	1.29	1.41
49	p	68	THR	CB-CG2	-5.83	1.33	1.52
34	a	1090	G	C5-C6	-5.83	1.30	1.42
34	a	1091	A	P-OP2	-5.83	1.37	1.49
53	t	5	LYS	CB-CG	-5.83	1.34	1.52
48	o	58	LYS	CB-CG	-5.83	1.34	1.52
34	a	1092	G	C2-N3	-5.82	1.21	1.32
34	a	1099	G	C5-C6	-5.82	1.30	1.42
41	h	41	LYS	CG-CD	-5.81	1.35	1.52
34	a	1402	G	N3-C4	-5.81	1.23	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	p	18	TYR	CE1-CZ	-5.81	1.24	1.38
48	o	53	ARG	CB-CG	-5.81	1.35	1.52
34	a	1401	U	C5-C6	-5.81	1.22	1.34
38	e	116	GLU	CG-CD	-5.80	1.37	1.52
41	h	40	LEU	CG-CD1	-5.80	1.33	1.52
51	r	64	ILE	CG1-CD1	-5.80	1.29	1.51
38	e	117	LEU	CG-CD1	-5.79	1.33	1.52
34	a	1113	A	N9-C8	-5.79	1.26	1.37
38	e	142	ASP	CB-CG	5.79	1.66	1.52
44	k	87	LYS	CD-CE	-5.79	1.35	1.52
34	a	1411	G	C2-N3	-5.79	1.21	1.32
45	l	108	TYR	CZ-OH	-5.78	1.25	1.38
34	a	1403	U	C2-N3	-5.78	1.26	1.37
41	h	96	LYS	CB-CG	-5.78	1.35	1.52
41	h	131	VAL	CB-CG1	-5.77	1.33	1.52
34	a	1404	A	P-OP2	-5.77	1.37	1.49
34	a	1402	G	C6-O6	-5.77	1.12	1.24
34	a	936	G	C6-N1	-5.76	1.28	1.39
38	e	52	LYS	CB-CG	-5.76	1.35	1.52
41	h	82	LYS	CB-CG	-5.76	1.35	1.52
51	r	47	ARG	CB-CG	-5.76	1.35	1.52
34	a	1083	G	N1-C2	-5.76	1.26	1.37
38	e	164	LEU	CG-CD2	-5.75	1.33	1.52
34	a	1085	G	C6-N1	-5.75	1.28	1.39
45	l	6	GLN	CD-OE1	-5.75	1.12	1.23
34	a	1411	G	C5-C4	-5.74	1.26	1.38
34	a	1083	G	C5-C6	-5.73	1.30	1.42
34	a	1105	G	N1-C2	-5.73	1.26	1.37
34	a	1088	G	N7-C5	-5.73	1.27	1.39
34	a	1105	G	C5-C4	-5.73	1.26	1.38
44	k	117	PRO	CB-CG	-5.72	1.21	1.49
34	a	1088	G	N9-C8	-5.71	1.26	1.37
41	h	82	LYS	CD-CE	-5.71	1.35	1.52
49	p	67	PRO	CB-CG	-5.71	1.21	1.49
34	a	1081	U	N1-C2	-5.71	1.27	1.38
34	a	1092	G	C6-O6	-5.70	1.12	1.24
53	t	59	LYS	CD-CE	-5.70	1.35	1.52
41	h	113	ILE	CB-CG2	-5.69	1.33	1.52
34	a	1091	A	N7-C5	-5.69	1.27	1.39
41	h	99	ASN	CB-CG	-5.69	1.37	1.52
45	l	7	LEU	CG-CD2	-5.68	1.33	1.52
34	a	1094	U	C4-C5	-5.68	1.32	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
50	q	23	ILE	CB-CG2	-5.68	1.33	1.52
41	h	21	ARG	CB-CG	-5.67	1.35	1.52
51	r	56	TYR	CA-C	-5.67	1.45	1.52
44	k	123	PRO	CB-CG	-5.67	1.21	1.49
34	a	1115	G	C5-C6	-5.66	1.31	1.42
34	a	1400	U	N1-C6	-5.66	1.26	1.38
34	a	1403	U	N3-C4	-5.65	1.27	1.38
38	e	23	LYS	CG-CD	-5.65	1.35	1.52
45	l	95	VAL	CB-CG2	-5.65	1.33	1.52
34	a	1401	U	C1'-N1	-5.65	1.40	1.48
34	a	1086	U	P-OP1	-5.64	1.37	1.49
38	e	141	ILE	CB-CG2	-5.64	1.33	1.52
38	e	112	ARG	CZ-NH2	-5.63	1.26	1.33
34	a	1111	C	N1-C2	-5.63	1.28	1.40
41	h	105	LEU	CG-CD2	-5.62	1.33	1.52
34	a	1401	U	P-OP1	-5.62	1.37	1.49
37	d	115	ASN	CB-CG	-5.62	1.38	1.52
38	e	48	PHE	CG-CD1	-5.61	1.27	1.38
34	a	931	G	C6-N1	-5.60	1.28	1.39
38	e	77	VAL	CB-CG2	-5.60	1.34	1.52
34	a	1113	A	N3-C4	-5.59	1.23	1.34
38	e	126	LYS	CB-CG	-5.59	1.35	1.52
34	a	1088	G	N1-C2	-5.59	1.26	1.37
37	d	33	PRO	CG-CD	-5.59	1.31	1.50
34	a	1410	C	N1-C2	-5.59	1.28	1.40
41	h	14	VAL	CB-CG2	-5.58	1.34	1.52
45	l	96	ARG	CG-CD	-5.58	1.35	1.52
41	h	16	ASN	CG-ND2	-5.57	1.21	1.33
49	p	42	PRO	CB-CG	-5.56	1.21	1.49
38	e	64	VAL	CB-CG1	-5.56	1.34	1.52
37	d	192	GLN	CB-CG	-5.56	1.35	1.52
51	r	58	ARG	CB-CG	-5.55	1.35	1.52
35	b	165	ASP	C-N	-5.55	1.20	1.33
38	e	48	PHE	CE2-CZ	-5.55	1.22	1.38
38	e	62	LYS	CD-CE	-5.55	1.35	1.52
37	d	128	ILE	CB-CG2	-5.54	1.34	1.52
38	e	33	PHE	CB-CG	-5.54	1.38	1.50
45	l	130	TYR	CE2-CZ	-5.54	1.25	1.38
37	d	94	LEU	CG-CD2	-5.53	1.34	1.52
34	a	1399	C	C2-O2	-5.53	1.13	1.24
48	o	56	LEU	CG-CD2	-5.53	1.34	1.52
34	a	1114	C	C2-O2	-5.53	1.13	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1409	C	N3-C4	-5.52	1.22	1.33
38	e	116	GLU	CB-CG	-5.51	1.35	1.52
38	e	133	PRO	CB-CG	-5.51	1.22	1.49
38	e	60	ILE	CG1-CD1	-5.51	1.30	1.51
45	l	6	GLN	CD-NE2	-5.51	1.21	1.33
51	r	65	LYS	CE-NZ	-5.50	1.32	1.49
34	a	1094	U	C4-O4	-5.50	1.12	1.23
45	l	80	ILE	CG1-CD1	-5.50	1.30	1.51
39	f	93	ARG	CG-CD	-5.50	1.35	1.52
38	e	61	LYS	CB-CG	-5.50	1.35	1.52
45	l	54	THR	C-N	-5.50	1.21	1.33
45	l	81	PRO	CB-CG	-5.50	1.22	1.49
44	k	114	THR	CB-CG2	-5.49	1.34	1.52
34	a	1088	G	N9-C4	-5.49	1.26	1.38
51	r	64	ILE	CB-CG2	-5.49	1.34	1.52
34	a	936	G	N1-C2	-5.48	1.26	1.37
44	k	29	ASN	CB-CG	-5.48	1.38	1.52
37	d	63	MET	CB-CG	-5.48	1.36	1.52
48	o	29	ILE	CG1-CD1	-5.48	1.30	1.51
34	a	932	A	C6-N1	-5.47	1.24	1.35
50	q	68	PRO	CB-CG	-5.47	1.22	1.49
53	t	59	LYS	CG-CD	-5.47	1.36	1.52
41	h	82	LYS	CE-NZ	-5.46	1.32	1.49
45	l	63	ARG	CB-CG	-5.46	1.36	1.52
34	a	1084	U	C4-O4	-5.45	1.12	1.23
44	k	34	ILE	CB-CG2	-5.45	1.34	1.52
49	p	40	TYR	CD1-CE1	-5.44	1.22	1.38
37	d	194	ILE	CG1-CD1	-5.43	1.30	1.51
45	l	101	LYS	CB-CG	-5.43	1.36	1.52
51	r	59	MET	CB-CG	-5.43	1.36	1.52
41	h	26	GLU	CG-CD	-5.43	1.38	1.52
38	e	31	PHE	CD2-CE2	-5.42	1.22	1.38
47	n	31	HIS	N-CA	-5.42	1.39	1.46
48	o	3	ILE	CB-CG2	-5.41	1.34	1.52
34	a	1085	G	C6-O6	-5.41	1.13	1.24
49	p	9	ARG	CZ-NH2	-5.41	1.26	1.33
34	a	1088	G	C1'-N9	-5.40	1.39	1.48
34	a	1095	G	C6-O6	-5.40	1.13	1.24
37	d	10	LYS	CB-CG	-5.40	1.36	1.52
53	t	10	ARG	CG-CD	-5.40	1.36	1.52
38	e	147	LEU	CG-CD2	-5.40	1.34	1.52
35	b	26	LYS	CB-CG	-5.40	1.36	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1113	A	C5-C6	-5.40	1.30	1.41
44	k	126	ARG	CB-CG	-5.39	1.36	1.52
34	a	1402	G	P-OP1	-5.39	1.38	1.49
50	q	23	ILE	CG1-CD1	-5.39	1.30	1.51
39	f	91	VAL	CB-CG1	-5.39	1.34	1.52
34	a	1086	U	N3-C4	-5.38	1.27	1.38
39	f	52	ILE	CG1-CD1	-5.38	1.30	1.51
45	l	79	TYR	CD2-CE2	-5.38	1.22	1.38
34	a	1090	G	C8-N7	-5.37	1.20	1.30
53	t	30	THR	CB-CG2	-5.37	1.34	1.52
45	l	12	ARG	CG-CD	-5.37	1.36	1.52
34	a	1092	G	N9-C8	-5.36	1.27	1.37
37	d	47	TYR	CD2-CE2	-5.36	1.22	1.38
34	a	1085	G	C2-N3	-5.36	1.22	1.32
44	k	119	ASN	CB-CG	-5.36	1.38	1.52
41	h	116	LYS	CB-CG	-5.35	1.36	1.52
51	r	52	THR	CB-CG2	-5.35	1.34	1.52
51	r	36	ARG	CA-CB	-5.35	1.44	1.53
53	t	8	ILE	CG1-CD1	-5.35	1.30	1.51
37	d	70	ASN	CB-CG	-5.35	1.38	1.52
41	h	61	ARG	CG-CD	-5.35	1.36	1.52
48	o	62	ARG	CB-CG	-5.35	1.36	1.52
34	a	1090	G	C6-N1	-5.34	1.28	1.39
34	a	1398	U	N3-C4	-5.34	1.27	1.38
34	a	1400	U	C4-O4	-5.33	1.12	1.23
50	q	64	GLN	CA-CB	-5.33	1.45	1.53
49	p	30	ASP	CB-CG	-5.33	1.38	1.52
45	l	53	MET	CB-CG	-5.33	1.36	1.52
34	a	1090	G	N7-C5	-5.32	1.28	1.39
36	c	130	ARG	CB-CG	-5.32	1.36	1.52
34	a	1411	G	C8-N7	-5.32	1.20	1.30
51	r	61	THR	CB-CG2	-5.31	1.35	1.52
41	h	77	LEU	CG-CD1	-5.31	1.35	1.52
34	a	1099	G	N1-C2	-5.31	1.27	1.37
49	p	37	ILE	CG1-CD1	-5.30	1.31	1.51
41	h	11	LEU	CG-CD1	-5.30	1.35	1.52
41	h	90	LYS	CG-CD	-5.30	1.36	1.52
37	d	89	LEU	CG-CD2	-5.29	1.35	1.52
48	o	65	HIS	CA-C	-5.29	1.45	1.52
44	k	87	LYS	CG-CD	-5.28	1.36	1.52
45	l	123	ARG	CZ-NH2	-5.28	1.26	1.33
34	a	933	C	N3-C4	-5.27	1.23	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1081	U	C2-N3	-5.27	1.27	1.37
45	l	92	VAL	CB-CG1	-5.27	1.35	1.52
45	l	22	PRO	CB-CG	-5.26	1.23	1.49
37	d	13	ARG	CB-CG	-5.26	1.36	1.52
37	d	3	ARG	NE-CZ	-5.26	1.27	1.33
45	l	102	ASP	C-N	-5.26	1.24	1.33
34	a	1090	G	C6-O6	-5.26	1.13	1.24
41	h	26	GLU	CB-CG	-5.26	1.36	1.52
51	r	72	LEU	CG-CD1	-5.25	1.35	1.52
49	p	32	ARG	CG-CD	-5.25	1.36	1.52
34	a	1096	U	N1-C2	-5.25	1.28	1.38
34	a	1094	U	P-OP2	-5.25	1.38	1.49
38	e	82	PRO	CB-CG	-5.25	1.23	1.49
45	l	120	VAL	CB-CG1	-5.25	1.35	1.52
51	r	44	ILE	CB-CG2	-5.25	1.35	1.52
35	b	177	ARG	CB-CG	-5.24	1.36	1.52
38	e	144	LEU	CG-CD1	-5.24	1.35	1.52
51	r	35	LYS	CB-CG	-5.24	1.36	1.52
51	r	26	ILE	CG1-CD1	-5.24	1.31	1.51
37	d	198	TYR	CG-CD1	-5.23	1.28	1.39
34	a	1404	A	C5-C6	-5.23	1.30	1.41
34	a	1402	G	P-OP2	-5.23	1.38	1.49
34	a	1404	A	C5-C4	-5.22	1.28	1.38
37	d	53	GLU	CG-CD	-5.22	1.39	1.52
38	e	38	VAL	CB-CG1	-5.22	1.35	1.52
39	f	65	VAL	CB-CG1	-5.22	1.35	1.52
41	h	18	ASN	CB-CG	-5.22	1.39	1.52
51	r	57	GLN	CD-NE2	-5.22	1.22	1.33
34	a	1089	U	C2-O2	-5.21	1.11	1.22
34	a	1093	A	N9-C8	-5.21	1.27	1.37
41	h	46	ILE	CB-CG2	-5.21	1.35	1.52
34	a	1108	C	N1-C2	-5.21	1.29	1.40
38	e	147	LEU	CG-CD1	-5.21	1.35	1.52
41	h	114	THR	CB-CG2	-5.21	1.35	1.52
45	l	102	ASP	CA-CB	-5.21	1.45	1.53
48	o	32	LEU	CG-CD2	-5.21	1.35	1.52
49	p	82	LYS	CB-CG	-5.21	1.36	1.52
49	p	83	LYS	CB-CG	-5.21	1.36	1.52
34	a	1397	G	C6-N1	-5.20	1.29	1.39
41	h	75	THR	CB-CG2	-5.20	1.35	1.52
34	a	1409	C	C2-O2	-5.19	1.14	1.24
48	o	48	LYS	CB-CG	-5.19	1.36	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
38	e	132	THR	CB-CG2	-5.19	1.35	1.52
50	q	17	ASP	CB-CG	-5.19	1.39	1.52
48	o	67	LEU	CG-CD1	-5.18	1.35	1.52
39	f	4	TYR	CE2-CZ	-5.18	1.25	1.38
34	a	1082	C	N1-C6	-5.17	1.26	1.37
35	b	173	ILE	CG1-CD1	-5.17	1.31	1.51
34	a	1404	A	N7-C5	-5.17	1.28	1.39
42	i	120	LEU	CG-CD2	-5.17	1.35	1.52
45	l	33	LYS	CB-CG	-5.17	1.36	1.52
45	l	70	LEU	CG-CD1	-5.17	1.35	1.52
34	a	1093	A	N1-C2	-5.16	1.24	1.34
50	q	59	ASP	CB-CG	-5.16	1.39	1.52
34	a	1099	G	C5-C4	-5.15	1.28	1.38
38	e	54	GLN	CA-CB	-5.15	1.44	1.53
53	t	16	LYS	CA-CB	-5.15	1.44	1.53
34	a	935	G	C2-N3	-5.15	1.22	1.32
34	a	1093	A	N7-C5	-5.15	1.28	1.39
41	h	128	ILE	CB-CG2	-5.15	1.35	1.52
34	a	1115	G	C5-C4	-5.15	1.28	1.38
34	a	1411	G	N9-C8	-5.15	1.27	1.37
38	e	164	LEU	CG-CD1	-5.15	1.35	1.52
41	h	49	VAL	CB-CG2	-5.15	1.35	1.52
38	e	89	TYR	CG-CD1	-5.14	1.28	1.39
45	l	89	GLU	CB-CG	-5.14	1.37	1.52
37	d	197	TYR	CD2-CE2	-5.13	1.23	1.38
53	t	79	MET	CB-CG	-5.13	1.37	1.52
36	c	169	GLU	CB-CG	-5.12	1.37	1.52
45	l	111	VAL	CB-CG2	-5.12	1.35	1.52
50	q	5	ASN	CA-C	-5.12	1.42	1.52
34	a	1090	G	C5-C4	-5.12	1.28	1.38
34	a	1093	A	C5-C6	-5.12	1.30	1.41
38	e	120	ILE	CB-CG2	-5.12	1.35	1.52
41	h	15	ARG	CZ-NH2	-5.12	1.26	1.33
34	a	1402	G	C2-N3	-5.12	1.22	1.32
44	k	32	VAL	CB-CG2	-5.12	1.35	1.52
49	p	29	ARG	CZ-NH1	-5.12	1.25	1.32
37	d	195	VAL	CB-CG2	-5.11	1.35	1.52
51	r	73	LEU	CG-CD1	-5.11	1.35	1.52
53	t	74	ILE	CB-CG2	-5.11	1.35	1.52
39	f	63	VAL	CB-CG2	-5.11	1.35	1.52
45	l	12	ARG	CD-NE	-5.11	1.39	1.46
34	a	933	C	P-OP1	-5.11	1.38	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
51	r	73	LEU	CG-CD2	-5.11	1.35	1.52
37	d	54	LYS	C-N	-5.10	1.25	1.33
38	e	31	PHE	CE1-CZ	-5.10	1.23	1.38
37	d	98	VAL	CB-CG2	-5.10	1.35	1.52
50	q	35	LEU	CG-CD2	-5.10	1.35	1.52
34	a	1409	C	P-OP2	-5.10	1.38	1.49
38	e	18	ILE	CB-CG2	-5.10	1.35	1.52
51	r	58	ARG	CG-CD	-5.09	1.37	1.52
37	d	77	LYS	CG-CD	-5.09	1.37	1.52
41	h	80	ILE	CG1-CD1	-5.09	1.31	1.51
34	a	1088	G	C8-N7	-5.08	1.20	1.30
34	a	1094	U	N1-C6	-5.08	1.27	1.38
45	l	88	GLN	CB-CG	-5.08	1.37	1.52
41	h	128	ILE	CB-CG1	-5.08	1.43	1.53
34	a	1081	U	C5-C6	-5.08	1.24	1.34
49	p	8	THR	CB-CG2	-5.07	1.35	1.52
41	h	11	LEU	CG-CD2	-5.07	1.35	1.52
41	h	15	ARG	CZ-NH1	-5.07	1.25	1.32
35	b	72	THR	CB-CG2	-5.07	1.35	1.52
44	k	23	ILE	CB-CG2	-5.06	1.35	1.52
34	a	1114	C	N1-C6	-5.06	1.27	1.37
37	d	200	ARG	CB-CG	-5.06	1.37	1.52
39	f	4	TYR	CD2-CE2	-5.06	1.23	1.38
34	a	931	G	C6-O6	-5.06	1.14	1.24
48	o	7	ARG	CG-CD	-5.06	1.37	1.52
34	a	1110	G	N9-C4	-5.06	1.27	1.38
38	e	31	PHE	CB-CG	-5.06	1.39	1.50
34	a	1095	G	P-OP2	-5.06	1.38	1.49
34	a	1403	U	N1-C6	-5.05	1.27	1.38
37	d	141	VAL	CB-CG2	-5.05	1.35	1.52
34	a	1091	A	N9-C8	-5.05	1.27	1.37
44	k	34	ILE	CG1-CD1	-5.04	1.32	1.51
38	e	134	ILE	CG1-CD1	-5.04	1.32	1.51
49	p	13	LYS	CB-CG	-5.04	1.37	1.52
49	p	36	GLN	CB-CG	-5.04	1.37	1.52
34	a	936	G	P-OP2	-5.04	1.38	1.49
34	a	1080	C	N3-C4	-5.04	1.23	1.33
48	o	85	LEU	CG-CD2	-5.04	1.35	1.52
49	p	18	TYR	CG-CD1	-5.04	1.28	1.39
38	e	120	ILE	CG1-CD1	-5.04	1.32	1.51
35	b	196	ILE	CB-CG2	-5.03	1.35	1.52
48	o	60	VAL	CB-CG1	-5.02	1.35	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1089	U	N1-C2	-5.01	1.28	1.38
38	e	136	MET	CG-SD	-5.01	1.68	1.80
38	e	37	VAL	CB-CG1	-5.01	1.36	1.52
38	e	126	LYS	CD-CE	-5.01	1.37	1.52
34	a	1114	C	P-OP2	-5.00	1.39	1.49
35	b	96	TRP	CA-C	-5.00	1.46	1.52

All (392) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	t	46	LYS	CB-CG-CD	18.33	153.46	111.30
34	a	1095	G	OP1-P-OP2	-18.32	64.65	119.60
45	l	114	ALA	CA-C-N	-15.69	103.76	122.44
45	l	114	ALA	C-N-CA	-15.69	103.76	122.44
34	a	930	U	O5'-P-OP1	-14.04	65.89	108.00
34	a	1409	C	OP1-P-OP2	-13.85	78.04	119.60
45	l	129	LEU	N-CA-C	-11.52	92.77	110.17
34	a	1409	C	O5'-P-OP2	-11.18	74.46	108.00
34	a	1105	G	OP1-P-OP2	-10.33	88.61	119.60
34	a	1205	C	O5'-P-OP1	-10.31	77.06	108.00
45	l	72	ASN	CA-C-N	-10.30	104.28	122.62
45	l	72	ASN	C-N-CA	-10.30	104.28	122.62
45	l	124	ARG	CA-C-N	-10.19	102.08	121.54
45	l	124	ARG	C-N-CA	-10.19	102.08	121.54
34	a	1094	U	OP1-P-O3'	-9.94	78.17	108.00
34	a	930	U	O5'-P-OP2	-9.69	78.92	108.00
47	n	31	HIS	CA-CB-CG	-9.52	104.28	113.80
34	a	1094	U	OP1-P-OP2	-9.51	91.06	119.60
45	l	20	ASP	N-CA-C	-9.08	95.61	109.96
53	t	63	SER	CA-C-N	-9.07	110.64	122.79
53	t	63	SER	C-N-CA	-9.07	110.64	122.79
47	n	30	PRO	CA-C-N	-8.97	106.82	122.79
47	n	30	PRO	C-N-CA	-8.97	106.82	122.79
53	t	46	LYS	CA-CB-CG	-8.92	96.26	114.10
34	a	941	C	O5'-P-OP1	-8.84	81.48	108.00
53	t	46	LYS	CB-CA-C	-8.77	92.97	110.42
49	p	6	ARG	NE-CZ-NH2	8.76	127.08	119.20
53	t	63	SER	CA-CB-OG	-8.69	93.71	111.10
34	a	1093	A	OP1-P-OP2	-8.65	93.65	119.60
38	e	118	ALA	CA-C-N	-8.64	104.47	121.41
38	e	118	ALA	C-N-CA	-8.64	104.47	121.41
45	l	128	SER	CB-CA-C	-8.50	95.89	110.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
44	k	118	HIS	CA-C-N	8.39	137.56	121.54
44	k	118	HIS	C-N-CA	8.39	137.56	121.54
34	a	945	C	O5'-P-OP1	-8.38	82.86	108.00
45	l	102	ASP	CB-CA-C	-8.36	97.62	110.92
34	a	1091	A	O3'-P-O5'	8.34	116.52	104.00
34	a	1095	G	O5'-P-OP1	-8.13	83.61	108.00
41	h	50	GLU	CB-CA-C	-8.12	101.07	111.70
34	a	1104	A	OP2-P-O3'	8.10	132.31	108.00
34	a	1409	C	O3'-P-O5'	8.05	116.07	104.00
49	p	65	ALA	CA-C-N	-8.04	108.72	123.11
49	p	65	ALA	C-N-CA	-8.04	108.72	123.11
45	l	118	SER	CA-CB-OG	-8.04	95.02	111.10
45	l	125	GLN	CA-C-N	-8.04	105.66	121.41
45	l	125	GLN	C-N-CA	-8.04	105.66	121.41
49	p	69	ASP	CA-CB-CG	7.95	120.55	112.60
38	e	144	LEU	CA-C-N	-7.81	109.94	122.66
38	e	144	LEU	C-N-CA	-7.81	109.94	122.66
34	a	1404	A	OP1-P-O3'	-7.78	84.67	108.00
50	q	70	SER	CA-CB-OG	-7.67	95.75	111.10
37	d	52	ARG	CB-CG-CD	-7.62	93.77	111.30
34	a	1088	G	C5-C6-O6	-7.61	105.78	128.60
38	e	104	GLY	N-CA-C	-7.57	102.92	111.63
34	a	1088	G	OP2-P-O3'	7.49	130.47	108.00
34	a	1402	G	OP1-P-O3'	7.44	130.31	108.00
45	l	102	ASP	CA-C-N	-7.41	108.52	121.35
45	l	102	ASP	C-N-CA	-7.41	108.52	121.35
34	a	98	U	C2'-C3'-O3'	7.41	120.61	109.50
44	k	119	ASN	CA-CB-CG	-7.38	105.22	112.60
49	p	68	THR	CA-C-N	-7.32	109.97	122.56
49	p	68	THR	C-N-CA	-7.32	109.97	122.56
51	r	58	ARG	CA-C-N	-7.32	110.46	122.54
51	r	58	ARG	C-N-CA	-7.32	110.46	122.54
49	p	13	LYS	CB-CG-CD	-7.27	94.58	111.30
38	e	20	ARG	CB-CG-CD	-7.27	94.58	111.30
39	f	93	ARG	CA-C-N	-7.26	108.30	122.02
39	f	93	ARG	C-N-CA	-7.26	108.30	122.02
37	d	74	ILE	CB-CG1-CD1	-7.21	98.66	113.80
44	k	25	SER	CA-CB-OG	-7.18	96.74	111.10
53	t	12	LYS	CB-CG-CD	-7.13	94.91	111.30
41	h	21	ARG	CB-CG-CD	-7.09	94.98	111.30
44	k	89	PRO	CA-C-N	-7.06	110.78	121.87
44	k	89	PRO	C-N-CA	-7.06	110.78	121.87

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
48	o	23	GLY	CA-C-N	-7.03	110.67	121.92
48	o	23	GLY	C-N-CA	-7.03	110.67	121.92
49	p	26	ARG	CA-C-N	7.03	132.11	120.86
49	p	26	ARG	C-N-CA	7.03	132.11	120.86
50	q	44	LYS	CB-CG-CD	-7.03	95.14	111.30
34	a	1409	C	O5'-P-OP1	7.02	129.07	108.00
34	a	937	G	O5'-P-OP1	-6.97	87.08	108.00
50	q	7	ARG	CB-CG-CD	-6.97	95.26	111.30
53	t	64	ASN	CA-C-N	-6.96	110.70	122.11
53	t	64	ASN	C-N-CA	-6.96	110.70	122.11
45	l	52	THR	CB-CA-C	-6.92	98.59	109.72
37	d	18	SER	CA-CB-OG	-6.91	97.29	111.10
45	l	124	ARG	CA-CB-CG	-6.90	100.30	114.10
36	c	200	TRP	CA-CB-CG	6.88	126.67	113.60
44	k	119	ASN	N-CA-C	6.86	125.41	110.80
53	t	33	LYS	CB-CA-C	-6.83	100.10	110.90
53	t	50	VAL	CA-C-N	-6.82	110.46	122.26
53	t	50	VAL	C-N-CA	-6.82	110.46	122.26
36	c	178	ARG	CG-CD-NE	6.78	126.91	112.00
45	l	108	TYR	OH-CZ-CE2	-6.75	99.64	119.90
50	q	40	VAL	CA-C-N	-6.75	112.81	122.94
50	q	40	VAL	C-N-CA	-6.75	112.81	122.94
49	p	4	LYS	CA-CB-CG	-6.72	100.66	114.10
38	e	51	GLY	N-CA-C	-6.72	100.90	110.91
34	a	1096	U	O5'-P-OP1	-6.71	87.88	108.00
35	b	92	ILE	CG1-CB-CG2	-6.68	90.66	110.70
45	l	102	ASP	N-CA-C	6.67	119.15	111.02
34	a	935	G	O5'-P-OP2	6.64	127.92	108.00
37	d	134	LYS	CB-CG-CD	-6.64	96.03	111.30
41	h	85	LEU	CD1-CG-CD2	-6.64	96.20	110.80
37	d	85	ASN	CA-CB-CG	-6.63	105.97	112.60
44	k	58	SER	CA-C-N	6.60	132.48	121.92
44	k	58	SER	C-N-CA	6.60	132.48	121.92
38	e	54	GLN	CB-CA-C	-6.59	98.14	110.01
34	a	1089	U	OP1-P-OP2	-6.58	99.87	119.60
41	h	92	SER	CA-C-N	-6.57	111.83	122.34
41	h	92	SER	C-N-CA	-6.57	111.83	122.34
44	k	89	PRO	N-CA-C	-6.55	100.82	111.77
45	l	58	PRO	CA-N-CD	-6.55	102.83	112.00
45	l	129	LEU	CA-C-N	-6.54	113.52	125.02
45	l	129	LEU	C-N-CA	-6.54	113.52	125.02
53	t	23	SER	CA-CB-OG	-6.50	98.09	111.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
41	h	108	THR	CA-CB-OG1	-6.50	99.85	109.60
45	l	35	PHE	CA-C-N	6.48	132.96	121.75
45	l	35	PHE	C-N-CA	6.48	132.96	121.75
37	d	54	LYS	CA-C-N	-6.45	110.06	122.06
37	d	54	LYS	C-N-CA	-6.45	110.06	122.06
45	l	114	ALA	O-C-N	-6.44	114.92	122.32
34	a	937	G	C1'-C2'-O2'	-6.43	98.75	108.40
48	o	59	MET	CB-CG-SD	-6.39	93.52	112.70
41	h	36	ILE	CG1-CB-CG2	-6.39	91.53	110.70
35	b	189	THR	CA-C-N	-6.38	113.65	124.31
35	b	189	THR	C-N-CA	-6.38	113.65	124.31
37	d	69	ARG	NE-CZ-NH2	6.37	124.94	119.20
50	q	71	ALA	CA-C-N	-6.37	112.62	122.49
50	q	71	ALA	C-N-CA	-6.37	112.62	122.49
34	a	1404	A	O5'-P-OP1	-6.36	88.92	108.00
34	a	1097	U	O5'-P-OP1	-6.35	88.95	108.00
34	a	1404	A	OP2-P-O3'	6.33	126.98	108.00
53	t	33	LYS	N-CA-CB	6.32	119.24	110.07
46	m	103	LYS	CA-C-N	-6.32	112.44	122.17
46	m	103	LYS	C-N-CA	-6.32	112.44	122.17
45	l	3	THR	OG1-CB-CG2	-6.32	96.67	109.30
34	a	1399	C	OP1-P-OP2	-6.31	100.67	119.60
34	a	983	A	N9-C1'-C2'	6.30	123.45	114.00
41	h	37	ALA	CA-C-N	-6.29	111.63	122.14
41	h	37	ALA	C-N-CA	-6.29	111.63	122.14
44	k	113	VAL	N-CA-CB	-6.29	105.96	112.06
38	e	23	LYS	CD-CE-NZ	6.29	132.01	111.90
45	l	21	SER	CB-CA-C	-6.28	97.81	110.17
37	d	82	HIS	CA-C-N	-6.26	111.55	122.83
37	d	82	HIS	C-N-CA	-6.26	111.55	122.83
45	l	87	LEU	CA-C-N	6.25	133.48	121.54
45	l	87	LEU	C-N-CA	6.25	133.48	121.54
34	a	1090	G	O3'-P-O5'	6.25	113.37	104.00
37	d	49	LEU	CA-CB-CG	6.25	138.16	116.30
34	a	1092	G	O3'-P-O5'	6.23	113.34	104.00
49	p	34	ILE	CG1-CB-CG2	-6.23	92.02	110.70
44	k	98	ARG	CA-C-N	-6.22	110.11	120.68
44	k	98	ARG	C-N-CA	-6.22	110.11	120.68
45	l	35	PHE	CB-CA-C	-6.19	96.83	109.65
48	o	4	SER	CA-CB-OG	-6.19	98.72	111.10
37	d	2	ALA	N-CA-C	-6.19	93.67	111.00
45	l	37	ASP	CA-CB-CG	-6.19	106.41	112.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
37	d	165	LEU	CD1-CG-CD2	-6.19	97.19	110.80
38	e	119	GLY	CA-C-N	-6.18	112.50	121.65
38	e	119	GLY	C-N-CA	-6.18	112.50	121.65
34	a	1404	A	OP1-P-OP2	-6.17	101.08	119.60
34	a	1065	C	O5'-P-OP2	-6.14	89.57	108.00
51	r	47	ARG	NE-CZ-NH2	6.14	124.72	119.20
37	d	64	THR	CB-CA-C	-6.13	99.78	111.48
38	e	103	THR	CA-C-N	-6.13	112.75	122.92
38	e	103	THR	C-N-CA	-6.13	112.75	122.92
34	a	1090	G	O5'-P-OP1	-6.12	89.65	108.00
44	k	72	LYS	CA-C-N	-6.12	112.94	122.67
44	k	72	LYS	C-N-CA	-6.12	112.94	122.67
38	e	32	ARG	NE-CZ-NH2	6.10	124.69	119.20
44	k	87	LYS	CB-CG-CD	-6.10	97.27	111.30
34	a	1204	U	OP1-P-O3'	6.10	126.30	108.00
53	t	11	VAL	CG1-CB-CG2	-6.09	97.41	110.80
34	a	935	G	OP1-P-OP2	-6.08	101.35	119.60
34	a	1394	C	O5'-P-OP1	-6.04	89.88	108.00
53	t	66	ILE	N-CA-C	-6.03	100.39	108.96
50	q	5	ASN	CA-C-N	-6.03	111.32	121.75
50	q	5	ASN	C-N-CA	-6.03	111.32	121.75
34	a	1201	A	N9-C1'-C2'	6.02	121.02	112.00
39	f	53	ASN	CB-CA-C	-6.01	103.34	112.11
51	r	36	ARG	CA-CB-CG	-5.99	102.12	114.10
41	h	61	ARG	CB-CG-CD	-5.96	97.59	111.30
38	e	29	ARG	NE-CZ-NH1	-5.95	115.55	121.50
44	k	50	LEU	CA-CB-CG	-5.95	95.47	116.30
45	l	130	TYR	OH-CZ-CE2	-5.93	102.11	119.90
36	c	178	ARG	CB-CG-CD	5.92	124.91	111.30
45	l	132	THR	CA-C-N	-5.92	112.46	123.05
45	l	132	THR	C-N-CA	-5.92	112.46	123.05
39	f	87	ILE	CG1-CB-CG2	-5.91	92.97	110.70
45	l	131	GLY	CA-C-N	5.90	132.72	122.81
45	l	131	GLY	C-N-CA	5.90	132.72	122.81
49	p	51	LYS	CA-CB-CG	-5.90	102.31	114.10
34	a	1205	C	O5'-P-OP2	5.89	125.68	108.00
34	a	1082	C	O5'-P-OP1	-5.89	90.34	108.00
48	o	24	SER	CA-CB-OG	-5.88	99.33	111.10
53	t	78	LEU	CB-CG-CD2	-5.87	93.08	110.70
34	a	1113	A	O5'-P-OP2	-5.86	90.43	108.00
37	d	101	LEU	CA-C-N	-5.85	111.46	122.05
37	d	101	LEU	C-N-CA	-5.85	111.46	122.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
39	f	2	ARG	CG-CD-NE	-5.85	99.13	112.00
37	d	125	ARG	CA-CB-CG	-5.85	102.41	114.10
38	e	40	GLY	CA-C-N	-5.85	113.17	122.29
38	e	40	GLY	C-N-CA	-5.85	113.17	122.29
37	d	40	GLN	CA-CB-CG	5.82	125.73	114.10
41	h	60	LEU	CB-CG-CD2	-5.81	93.27	110.70
45	l	33	LYS	CA-C-N	5.80	131.92	122.81
45	l	33	LYS	C-N-CA	5.80	131.92	122.81
53	t	15	GLU	CB-CG-CD	5.80	122.46	112.60
49	p	67	PRO	CA-C-N	-5.79	112.30	121.86
49	p	67	PRO	C-N-CA	-5.79	112.30	121.86
8	A	2474	G	O4'-C1'-N9	5.79	116.89	108.20
38	e	30	ARG	CD-NE-CZ	5.77	132.47	124.40
37	d	15	LEU	CA-C-N	-5.76	110.12	121.41
37	d	15	LEU	C-N-CA	-5.76	110.12	121.41
37	d	165	LEU	CA-CB-CG	5.75	136.44	116.30
49	p	8	THR	CA-C-N	-5.75	113.88	122.74
49	p	8	THR	C-N-CA	-5.75	113.88	122.74
37	d	58	ARG	CA-C-N	-5.74	111.99	121.92
37	d	58	ARG	C-N-CA	-5.74	111.99	121.92
34	a	1089	U	OP1-P-O3'	5.73	125.19	108.00
41	h	92	SER	CA-CB-OG	-5.73	99.64	111.10
49	p	9	ARG	CG-CD-NE	-5.72	99.42	112.00
37	d	53	GLU	CA-CB-CG	-5.71	102.67	114.10
34	a	1404	A	O5'-P-OP2	5.70	125.11	108.00
53	t	79	MET	CA-C-N	-5.70	111.89	122.09
53	t	79	MET	C-N-CA	-5.70	111.89	122.09
34	a	1376	C	OP1-P-OP2	-5.67	102.59	119.60
34	a	1091	A	C2'-C3'-O3'	-5.65	105.23	113.70
49	p	69	ASP	CB-CG-OD1	5.64	131.37	118.40
34	a	1080	C	OP1-P-OP2	-5.63	102.70	119.60
50	q	37	GLY	N-CA-C	5.62	126.50	113.18
34	a	513	G	C2'-C3'-O3'	5.62	122.13	113.70
37	d	125	ARG	CD-NE-CZ	-5.61	116.55	124.40
8	A	627	C	O4'-C1'-N1	5.59	116.58	108.20
45	l	114	ALA	N-CA-C	5.58	120.10	111.56
41	h	12	THR	OG1-CB-CG2	-5.58	98.14	109.30
37	d	185	LEU	N-CA-C	-5.58	103.11	108.07
34	a	1088	G	OP1-P-O3'	-5.57	91.29	108.00
34	a	1093	A	O5'-P-OP1	5.55	124.66	108.00
41	h	50	GLU	CB-CG-CD	-5.55	103.16	112.60
34	a	964	U	O5'-P-OP1	-5.53	91.41	108.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
44	k	21	ALA	CA-C-N	-5.53	114.56	123.23
44	k	21	ALA	C-N-CA	-5.53	114.56	123.23
34	a	933	C	C5'-C4'-C3'	-5.52	107.71	116.00
34	a	1094	U	O3'-P-O5'	5.52	112.28	104.00
38	e	30	ARG	NE-CZ-NH2	5.52	124.17	119.20
34	a	958	A	O5'-P-OP2	5.52	124.55	108.00
34	a	1398	U	O5'-P-OP2	5.51	124.52	108.00
44	k	82	VAL	N-CA-C	5.50	120.79	109.34
35	b	163	VAL	CA-C-N	-5.50	116.09	122.63
35	b	163	VAL	C-N-CA	-5.50	116.09	122.63
45	l	35	PHE	N-CA-C	5.50	117.63	110.43
34	a	1400	U	O5'-P-OP1	-5.49	91.54	108.00
45	l	43	LYS	N-CA-C	-5.47	100.76	109.07
36	c	12	VAL	N-CA-C	-5.45	104.11	110.05
41	h	105	LEU	CD1-CG-CD2	-5.45	98.82	110.80
49	p	5	ILE	CA-C-N	-5.45	113.76	122.53
49	p	5	ILE	C-N-CA	-5.45	113.76	122.53
38	e	54	GLN	CB-CG-CD	-5.44	103.35	112.60
42	i	72	GLY	N-CA-C	5.43	120.95	111.50
51	r	56	TYR	CA-C-N	-5.42	113.25	120.79
51	r	56	TYR	C-N-CA	-5.42	113.25	120.79
38	e	23	LYS	CB-CG-CD	-5.42	98.83	111.30
37	d	53	GLU	CB-CG-CD	-5.40	103.42	112.60
34	a	1403	U	OP1-P-OP2	-5.39	103.42	119.60
51	r	68	ARG	CB-CG-CD	-5.39	98.90	111.30
34	a	1105	G	O4'-C1'-N9	5.38	116.27	108.20
51	r	65	LYS	CD-CE-NZ	-5.38	94.70	111.90
34	a	1374	U	O5'-P-OP1	-5.37	91.91	108.00
40	g	4	LYS	CB-CG-CD	5.36	123.64	111.30
37	d	137	GLN	CA-CB-CG	-5.36	103.38	114.10
39	f	70	ASN	CA-C-N	-5.36	113.70	122.54
39	f	70	ASN	C-N-CA	-5.36	113.70	122.54
37	d	120	LEU	CA-CB-CG	5.36	135.05	116.30
38	e	128	LEU	N-CA-C	-5.36	102.08	110.17
45	l	12	ARG	NE-CZ-NH1	-5.36	116.14	121.50
35	b	100	LEU	CA-CB-CG	5.35	135.03	116.30
41	h	50	GLU	N-CA-C	5.35	116.15	107.32
34	a	1115	G	OP1-P-O3'	-5.35	91.95	108.00
34	a	1085	G	O5'-P-OP1	-5.34	91.97	108.00
41	h	79	ARG	CA-C-N	-5.34	112.68	121.34
41	h	79	ARG	C-N-CA	-5.34	112.68	121.34
48	o	57	LEU	CB-CG-CD1	-5.34	94.67	110.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
37	d	21	GLY	CA-C-N	-5.34	112.00	121.29
37	d	21	GLY	C-N-CA	-5.34	112.00	121.29
34	a	1411	G	P-O5'-C5'	5.34	128.91	120.90
34	a	1094	U	N1-C1'-C2'	5.33	120.00	112.00
34	a	1063	U	OP1-P-OP2	-5.33	103.61	119.60
34	a	1211	A	C2'-C3'-O3'	-5.33	101.51	109.50
41	h	41	LYS	CA-C-N	-5.32	113.82	122.65
41	h	41	LYS	C-N-CA	-5.32	113.82	122.65
48	o	32	LEU	CD1-CG-CD2	-5.32	99.10	110.80
48	o	67	LEU	CB-CG-CD2	-5.32	94.76	110.70
34	a	1079	G	OP1-P-OP2	-5.31	103.66	119.60
34	a	1078	A	P-O3'-C3'	5.31	128.16	120.20
38	e	34	THR	CB-CA-C	-5.30	99.37	109.66
53	t	15	GLU	CA-CB-CG	5.30	124.70	114.10
37	d	14	ARG	CA-CB-CG	5.29	124.67	114.10
41	h	74	ILE	CA-C-N	-5.28	113.12	122.26
41	h	74	ILE	C-N-CA	-5.28	113.12	122.26
41	h	81	SER	CA-C-N	-5.28	112.41	122.08
41	h	81	SER	C-N-CA	-5.28	112.41	122.08
53	t	12	LYS	CG-CD-CE	-5.28	99.15	111.30
34	a	932	A	OP1-P-O3'	-5.28	92.16	108.00
38	e	71	LEU	CB-CG-CD1	-5.28	94.86	110.70
49	p	87	GLN	CA-CB-CG	-5.28	103.55	114.10
51	r	47	ARG	NE-CZ-NH1	-5.27	116.23	121.50
37	d	69	ARG	NE-CZ-NH1	-5.27	116.23	121.50
6	6	155	ASP	CA-C-N	5.27	134.66	121.80
6	6	155	ASP	C-N-CA	5.27	134.66	121.80
41	h	128	ILE	CG1-CB-CG2	-5.26	94.93	110.70
34	a	1411	G	OP1-P-OP2	-5.24	103.87	119.60
41	h	112	VAL	CA-C-N	-5.24	116.28	123.46
41	h	112	VAL	C-N-CA	-5.24	116.28	123.46
48	o	71	ARG	CA-C-N	-5.24	113.90	122.54
48	o	71	ARG	C-N-CA	-5.24	113.90	122.54
49	p	61	LEU	CB-CG-CD2	-5.23	95.02	110.70
50	q	67	ARG	NE-CZ-NH2	5.21	123.89	119.20
49	p	7	LEU	CD1-CG-CD2	-5.21	99.34	110.80
34	a	1092	G	O5'-P-OP2	-5.21	92.37	108.00
34	a	1204	U	OP1-P-OP2	-5.21	103.97	119.60
37	d	60	LEU	CD1-CG-CD2	-5.20	99.37	110.80
41	h	65	LYS	CD-CE-NZ	-5.20	95.27	111.90
38	e	131	ASN	CB-CA-C	-5.19	99.84	109.29
38	e	103	THR	CB-CA-C	-5.19	103.14	111.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	a	1093	A	OP2-P-O3'	5.19	123.57	108.00
44	k	81	THR	CA-C-N	-5.19	112.63	121.97
44	k	81	THR	C-N-CA	-5.19	112.63	121.97
41	h	93	GLU	CA-CB-CG	5.19	124.47	114.10
34	a	1377	U	P-O3'-C3'	-5.18	112.43	120.20
39	f	74	ASP	CB-CA-C	-5.18	99.49	110.31
34	a	1410	C	O3'-P-O5'	5.17	111.76	104.00
50	q	35	LEU	CD1-CG-CD2	-5.17	99.42	110.80
37	d	66	ARG	CA-C-N	-5.17	111.74	120.58
37	d	66	ARG	C-N-CA	-5.17	111.74	120.58
41	h	11	LEU	CB-CG-CD1	-5.15	95.24	110.70
35	b	75	GLN	CA-C-N	-5.15	112.59	121.66
35	b	75	GLN	C-N-CA	-5.15	112.59	121.66
34	a	991	U	O5'-C5'-C4'	-5.15	103.97	111.70
41	h	30	SER	CA-CB-OG	-5.15	100.81	111.10
53	t	56	LEU	CA-CB-CG	5.15	134.32	116.30
34	a	1207	A	C1'-C2'-O2'	-5.14	100.69	108.40
45	l	37	ASP	CA-C-N	-5.14	107.61	122.15
45	l	37	ASP	C-N-CA	-5.14	107.61	122.15
38	e	30	ARG	NE-CZ-NH1	-5.13	116.37	121.50
38	e	106	ILE	CA-C-N	-5.13	113.98	122.39
38	e	106	ILE	C-N-CA	-5.13	113.98	122.39
53	t	65	LEU	CB-CG-CD1	-5.12	95.33	110.70
42	i	112	MET	CG-SD-CE	-5.12	89.63	100.90
40	g	137	LYS	CA-C-N	-5.11	114.17	122.65
40	g	137	LYS	C-N-CA	-5.11	114.17	122.65
49	p	69	ASP	N-CA-CB	5.11	117.88	110.47
41	h	44	GLY	CA-C-N	-5.11	110.76	121.64
41	h	44	GLY	C-N-CA	-5.11	110.76	121.64
36	c	137	ILE	CG1-CB-CG2	-5.11	95.38	110.70
41	h	109	SER	CA-CB-OG	-5.10	100.90	111.10
34	a	1088	G	C6-N1-C2	-5.10	109.80	125.10
45	l	121	ASP	CA-C-N	-5.10	111.42	121.41
45	l	121	ASP	C-N-CA	-5.10	111.42	121.41
38	e	91	SER	CA-CB-OG	-5.10	100.91	111.10
41	h	25	LEU	CA-C-N	-5.10	113.77	122.33
41	h	25	LEU	C-N-CA	-5.10	113.77	122.33
34	a	1120	C	O5'-P-OP1	5.09	123.28	108.00
38	e	42	LYS	CA-CB-CG	-5.09	103.92	114.10
50	q	68	PRO	N-CA-CB	-5.09	98.61	103.34
49	p	12	SER	CA-CB-OG	5.09	121.28	111.10
41	h	63	PHE	CA-C-N	-5.09	113.87	122.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
41	h	63	PHE	C-N-CA	-5.09	113.87	122.67
34	a	1115	G	C3'-C2'-O2'	-5.08	103.07	110.70
34	a	1377	U	OP2-P-O3'	-5.08	92.77	108.00
35	b	68	LEU	CD1-CG-CD2	-5.07	99.64	110.80
34	a	983	A	O5'-P-OP2	-5.07	92.79	108.00
41	h	3	MET	CG-SD-CE	-5.07	89.75	100.90
49	p	83	LYS	CA-CB-CG	-5.07	103.96	114.10
34	a	1401	U	O3'-P-O5'	5.07	111.60	104.00
49	p	64	GLY	CA-C-O	-5.07	111.76	120.57
45	l	108	TYR	CE1-CZ-OH	5.06	135.09	119.90
38	e	88	ARG	CB-CA-C	-5.06	103.76	110.79
38	e	32	ARG	CA-CB-CG	5.05	124.21	114.10
35	b	43	LEU	CA-CB-CG	-5.05	98.63	116.30
38	e	136	MET	CB-CA-C	-5.05	99.52	109.67
41	h	78	LYS	CB-CG-CD	-5.05	99.69	111.30
8	A	1289	A	C2'-C3'-O3'	5.04	117.06	109.50
34	a	1200	G	OP1-P-OP2	-5.04	104.49	119.60
34	a	1119	G	C4'-C3'-O3'	5.02	120.54	113.00
39	f	81	LYS	CA-CB-CG	-5.02	104.06	114.10
35	b	62	GLU	CA-C-N	-5.02	115.10	122.83
35	b	62	GLU	C-N-CA	-5.02	115.10	122.83
49	p	57	ALA	CA-C-N	-5.01	112.36	121.14
49	p	57	ALA	C-N-CA	-5.01	112.36	121.14
34	a	963	G	O5'-P-OP2	5.01	123.02	108.00

There are no chirality outliers.

All (50) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	1	14	ASP	Peptide
6	6	156	GLN	Peptide
6	6	436	LYS	Peptide
6	6	53	LEU	Peptide
10	C	40	LYS	Peptide
16	I	119	PRO	Peptide
17	J	47	ARG	Peptide
22	O	60	LEU	Peptide
28	U	26	SER	Peptide
32	Y	43	TYR	Peptide
34	a	983	A	Sidechain
35	b	188	ASP	Peptide
35	b	189	THR	Peptide

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Mol	Chain	Res	Type	Group
36	c	125	ASN	Peptide
36	c	2	GLY	Peptide
36	c	4	LYS	Peptide
36	c	68	HIS	Peptide
37	d	2	ALA	Peptide
37	d	21	GLY	Peptide
37	d	39	ASN	Peptide
37	d	66	ARG	Mainchain
37	d	73	ASP	Peptide
38	e	117	LEU	Peptide
38	e	34	THR	Mainchain
38	e	85	ILE	Peptide
40	g	135	VAL	Peptide
40	g	137	LYS	Peptide
40	g	83	SER	Peptide
40	g	84	ASN	Peptide
41	h	38	GLU	Peptide
41	h	50	GLU	Mainchain
43	j	56	HIS	Peptide
44	k	29	ASN	Mainchain
44	k	64	GLN	Peptide
45	l	102	ASP	Mainchain
45	l	128	SER	Mainchain
45	l	130	TYR	Peptide
45	l	37	ASP	Sidechain
45	l	56	LYS	Mainchain
47	n	30	PRO	Mainchain,Peptide
48	o	86	GLY	Peptide
49	p	24	ASP	Peptide
49	p	44	SER	Peptide
50	q	15	VAL	Peptide
50	q	52	ASN	Peptide
52	s	2	ALA	Peptide
53	t	2	ALA	Peptide
53	t	45	ASN	Mainchain
53	t	62	GLN	Peptide

5.2 Too-close contacts (i)

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	394	0	398	16	0
2	2	367	0	415	15	0
3	3	521	0	586	24	0
4	4	295	0	339	9	0
5	5	1560	0	790	19	0
6	6	4190	0	4184	186	0
7	7	65	0	33	0	0
8	A	57062	0	28694	575	0
9	B	2408	0	1218	26	0
10	C	2094	0	2205	68	0
11	D	1628	0	1667	58	0
12	E	1572	0	1619	54	0
13	F	853	0	378	6	0
14	G	1180	0	1027	39	0
15	H	1150	0	1145	34	0
16	I	918	0	981	27	0
17	J	1097	0	1142	53	0
18	K	1096	0	1166	22	0
19	L	950	0	999	28	0
20	M	913	0	956	53	0
21	N	921	0	994	29	0
22	O	943	0	1014	28	0
23	P	797	0	836	45	0
24	Q	861	0	920	35	0
25	R	724	0	761	23	0
26	S	739	0	763	20	0
27	T	735	0	783	16	0
28	U	590	0	602	25	0
29	V	458	0	498	24	0
30	W	535	0	567	22	0
31	X	449	0	491	12	0
32	Y	390	0	224	25	0
33	Z	385	0	399	14	0
34	a	31706	0	15808	322	0
35	b	1802	0	1866	155	0
36	c	1596	0	1659	107	0
37	d	1616	0	1646	82	0
38	e	1160	0	1223	44	0
39	f	789	0	788	50	0
40	g	1242	0	1276	79	0
41	h	1031	0	1082	55	0
42	i	1007	0	1031	77	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
43	j	773	0	812	56	0
44	k	844	0	851	65	0
45	l	1058	0	1130	37	0
46	m	922	0	970	80	0
47	n	501	0	525	26	0
48	o	726	0	756	33	0
49	p	688	0	713	25	0
50	q	657	0	694	46	0
51	r	525	0	561	23	0
52	s	665	0	668	52	0
53	t	611	0	655	32	0
54	4	1	0	0	0	0
54	Z	1	0	0	0	0
54	n	1	0	0	0	0
55	6	62	24	24	3	0
56	6	2	0	0	0	0
All	All	138826	24	93532	2815	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 12.

All (2815) 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)
46:m:50:ASP:HA	46:m:53:LEU:HB2	1.37	1.06
43:j:9:ARG:HB2	43:j:99:GLU:HB2	1.39	1.05
41:h:114:THR:HG22	41:h:117:GLU:HG2	1.40	1.04
8:A:2346:U:H4'	8:A:2347:A:H5'	1.41	1.02
35:b:117:ILE:HA	35:b:120:MET:HE2	1.41	1.00
6:6:45:LEU:HD22	6:6:153:LEU:HD12	1.44	0.99
34:a:1060:U:H2'	47:n:2:ALA:HB2	1.44	0.99
18:K:1:MET:HE2	18:K:48:GLU:HG3	1.42	0.98
53:t:10:ARG:O	53:t:14:THR:OG1	1.82	0.97
34:a:1176:G:H2'	34:a:1177:A:H5"	1.45	0.97
29:V:49:VAL:HG11	29:V:58:LYS:HE2	1.47	0.96
20:M:101:TYR:HB2	20:M:106:LYS:HE3	1.48	0.96
6:6:187:ARG:HD3	6:6:463:ILE:HD12	1.47	0.95
36:c:71:LYS:HG2	36:c:74:MET:HE2	1.49	0.94
17:J:56:PRO:HD2	17:J:59:ARG:HD2	1.50	0.94
34:a:1114:C:OP1	35:b:95:ARG:NH1	2.02	0.93
8:A:284:C:HO2'	8:A:287:G:H1	1.11	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:D:57:LYS:HE2	11:D:67:LYS:HE2	1.48	0.93
6:6:72:MET:HB2	6:6:124:PHE:HB3	1.50	0.93
37:d:95:ASP:OD1	37:d:95:ASP:N	1.98	0.92
40:g:27:ILE:HG13	40:g:43:LEU:HD23	1.50	0.92
41:h:10:MET:HG3	41:h:27:LEU:HD22	1.48	0.92
36:c:171:THR:HG22	36:c:173:PRO:HD3	1.52	0.91
35:b:46:THR:HG22	35:b:50:VAL:HG23	1.51	0.91
10:C:10:THR:HG22	10:C:12:GLY:H	1.36	0.91
35:b:75:GLN:HG3	35:b:207:ILE:HG13	1.53	0.91
46:m:88:GLY:HA2	46:m:91:HIS:HB2	1.53	0.90
14:G:84:VAL:HG23	14:G:134:GLU:HG2	1.52	0.90
34:a:1392:C:O2'	40:g:79:ARG:NH1	2.04	0.90
17:J:55:LEU:HD23	17:J:60:ARG:HG2	1.51	0.90
42:i:49:ASP:HB2	42:i:52:GLN:HE21	1.33	0.89
14:G:154:PRO:HG3	14:G:163:ARG:HG2	1.53	0.89
34:a:1175:U:H2'	34:a:1176:G:H5"	1.55	0.88
16:I:63:VAL:HG11	16:I:102:VAL:HG22	1.54	0.88
40:g:16:PRO:HA	42:i:48:LEU:HD13	1.54	0.88
36:c:163:ARG:NE	36:c:165:GLU:OE2	2.07	0.87
34:a:1488:C:C2'	34:a:1489:A:H5'	2.04	0.87
52:s:30:VAL:HG12	52:s:48:THR:HG23	1.57	0.87
32:Y:70:ARG:NH2	46:m:79:ARG:NE	2.23	0.86
6:6:315:VAL:HG22	6:6:337:ILE:HG22	1.56	0.86
18:K:65:TRP:HB2	18:K:105:GLU:HB2	1.57	0.86
19:L:26:ILE:HD11	19:L:69:VAL:HG21	1.56	0.86
36:c:38:ILE:HG22	36:c:93:LEU:HG	1.58	0.86
18:K:43:THR:HG22	18:K:46:GLN:HG2	1.56	0.86
23:P:5:ILE:HG22	23:P:38:VAL:HG12	1.57	0.86
6:6:451:ILE:HG22	6:6:479:ALA:HB3	1.58	0.85
42:i:57:THR:HG22	42:i:59:THR:HG23	1.57	0.85
47:n:12:LYS:NZ	47:n:14:GLN:OE1	2.09	0.85
6:6:56:THR:HB	6:6:153:LEU:HD23	1.57	0.85
40:g:118:ASP:HA	40:g:121:ALA:HB3	1.57	0.85
23:P:27:VAL:HG21	23:P:62:VAL:HG11	1.57	0.85
34:a:1004:C:H2'	34:a:1005:A:H5"	1.57	0.85
41:h:98:LEU:HD22	41:h:132:TRP:HB2	1.59	0.85
20:M:30:ARG:HE	20:M:95:ASP:HB3	1.41	0.85
25:R:51:ALA:HB2	25:R:83:LYS:HG2	1.57	0.84
46:m:88:GLY:O	46:m:92:ARG:N	2.11	0.84
52:s:28:LYS:HD3	52:s:48:THR:HG22	1.59	0.84
34:a:1006:U:H3	34:a:1055:A:H61	1.24	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:c:11:ARG:NH2	36:c:176:THR:O	2.11	0.84
49:p:78:GLU:HB3	49:p:80:ILE:HG13	1.58	0.84
8:A:2418:G:O2'	8:A:2456:G:N2	2.10	0.83
36:c:23:TYR:HH	43:j:69:THR:HG1	1.10	0.83
40:g:105:VAL:O	40:g:109:ARG:NH2	2.12	0.83
41:h:109:SER:O	41:h:109:SER:OG	1.96	0.83
13:F:73:SER:HA	13:F:80:ARG:HA	1.59	0.83
8:A:2474:G:H21	8:A:2528:C:H5"	1.43	0.82
8:A:337:A:O2'	8:A:338:G:O4'	1.98	0.82
3:3:13:ARG:HG2	17:J:63:LYS:HD2	1.61	0.81
43:j:27:GLU:HB3	43:j:30:LYS:HE2	1.63	0.81
43:j:40:ILE:HB	43:j:73:LEU:HB3	1.62	0.81
35:b:216:LYS:O	35:b:219:ASP:N	2.14	0.81
8:A:1826:G:OP2	10:C:275:LYS:NZ	2.13	0.81
35:b:46:THR:O	35:b:49:LYS:N	2.13	0.81
39:f:45:LYS:HD2	39:f:59:PHE:HE1	1.45	0.81
14:G:64:ASN:HA	14:G:67:THR:HG22	1.60	0.81
35:b:6:MET:HE1	35:b:47:VAL:HG21	1.62	0.81
43:j:92:LEU:HD12	43:j:96:VAL:HB	1.61	0.81
34:a:1270:G:OP1	34:a:1294:C:O2'	1.98	0.81
44:k:67:SER:OG	44:k:67:SER:O	1.96	0.80
50:q:13:LYS:HE2	50:q:58:GLY:HA2	1.64	0.80
24:Q:1:MET:HB3	24:Q:64:MET:HE2	1.62	0.80
2:2:12:LYS:HA	2:2:15:LYS:HE3	1.63	0.80
12:E:9:LEU:HD12	12:E:142:VAL:HG13	1.64	0.80
34:a:75:A:H8	34:a:94:G:H21	1.28	0.80
27:T:4:LEU:HD21	27:T:43:VAL:HG21	1.63	0.80
39:f:14:ILE:HD11	39:f:19:LYS:HB2	1.62	0.80
41:h:94:MET:HG3	41:h:95:PRO:HD2	1.61	0.80
8:A:2663:U:H5'	11:D:90:GLU:HG3	1.62	0.80
40:g:88:PRO:O	40:g:155:ARG:NH1	2.14	0.80
37:d:142:ARG:HH11	37:d:144:LYS:HD3	1.47	0.79
34:a:1091:A:H5"	38:e:21:VAL:HG11	1.64	0.79
34:a:1212:U:O2'	47:n:3:LYS:NZ	2.15	0.79
8:A:579:U:O2'	22:O:49:ASP:OD2	1.99	0.79
45:l:67:ARG:HH11	45:l:77:ASN:HD21	1.30	0.79
8:A:2863:G:HO2'	21:N:2:THR:N	1.81	0.79
46:m:95:LEU:O	46:m:109:ARG:NH1	2.16	0.79
50:q:26:LEU:HD21	50:q:43:SER:HB2	1.62	0.79
6:6:72:MET:HE3	6:6:76:MET:HE3	1.65	0.79
40:g:49:LEU:O	40:g:53:ARG:NH2	2.16	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:k:18:ASN:OD1	44:k:81:THR:OG1	1.99	0.79
50:q:15:VAL:O	50:q:16:SER:OG	2.00	0.79
34:a:127:A:C2'	34:a:128:U:H5'	2.12	0.79
52:s:48:THR:HA	52:s:61:TYR:HA	1.65	0.79
23:P:1:MET:HG2	23:P:15:GLU:HG3	1.64	0.79
19:L:102:ARG:HD2	19:L:122:VAL:HG11	1.63	0.78
36:c:134:LYS:O	36:c:138:THR:OG1	2.00	0.78
12:E:20:SER:N	12:E:203:GLU:OE2	2.16	0.78
35:b:100:LEU:HA	35:b:107:ILE:HD12	1.65	0.78
35:b:108:SER:OG	35:b:109:LYS:N	2.16	0.78
39:f:69:ASN:HD21	39:f:71:LYS:HE3	1.48	0.78
46:m:37:ALA:HA	46:m:55:ARG:HH21	1.48	0.78
50:q:66:THR:OG1	50:q:67:ARG:N	2.08	0.78
8:A:498:G:H21	8:A:503:A:H8	1.31	0.78
31:X:8:LEU:HD22	31:X:31:THR:HA	1.65	0.78
35:b:5:SER:H	35:b:8:GLN:HE21	1.28	0.78
50:q:70:SER:OG	50:q:71:ALA:N	2.10	0.78
8:A:1290:G:H1	22:O:37:GLN:HE21	1.30	0.77
8:A:1960:G:H1	8:A:1994:C:H5	1.31	0.77
53:t:17:ALA:O	53:t:21:ASN:ND2	2.18	0.77
44:k:71:SER:O	44:k:75:MET:N	2.11	0.77
36:c:14:ILE:HG22	36:c:15:ILE:HG23	1.66	0.77
8:A:2280:G:O6	18:K:82:ARG:NH2	2.17	0.77
36:c:90:LEU:HA	36:c:93:LEU:HD23	1.66	0.77
53:t:45:ASN:O	53:t:48:GLU:N	2.17	0.77
6:6:57:ALA:HB1	6:6:144:VAL:HG23	1.65	0.77
34:a:976:C:OP2	34:a:977:A:O2'	2.02	0.77
36:c:33:HIS:NE2	47:n:37:PHE:O	2.15	0.77
8:A:1376:G:O6	25:R:58:TYR:OH	2.02	0.77
32:Y:70:ARG:HH22	46:m:79:ARG:NE	1.82	0.77
36:c:93:LEU:O	36:c:97:LYS:NZ	2.19	0.76
41:h:94:MET:HG3	41:h:95:PRO:CD	2.15	0.76
43:j:67:GLN:NE2	47:n:54:PRO:O	2.18	0.76
3:3:54:ASP:OD1	3:3:57:ARG:NH2	2.18	0.76
17:J:90:GLU:HA	17:J:122:THR:HG23	1.66	0.76
6:6:522:LYS:O	6:6:526:LYS:NZ	2.18	0.76
20:M:30:ARG:HG2	20:M:93:VAL:HG13	1.67	0.76
34:a:127:A:O2'	34:a:128:U:H5'	1.86	0.76
34:a:964:U:C2'	34:a:965:U:H5'	2.14	0.76
35:b:77:GLN:O	35:b:93:ASN:ND2	2.18	0.76
39:f:1:MET:N	39:f:67:SER:O	2.15	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:q:54:SER:OG	50:q:55:ALA:N	2.16	0.76
6:6:414:LEU:HD23	6:6:424:MET:HE1	1.65	0.76
37:d:134:LYS:HB2	37:d:135:PRO:HD2	1.65	0.76
19:L:20:LEU:HB3	19:L:40:VAL:HG21	1.66	0.76
8:A:527:G:O2'	8:A:552:A:N6	2.17	0.76
8:A:1207:G:OP1	23:P:24:LYS:NZ	2.17	0.76
44:k:35:THR:OG1	44:k:40:ASN:N	2.19	0.76
12:E:177:THR:HG22	12:E:179:GLN:H	1.50	0.76
38:e:122:ASP:N	38:e:122:ASP:OD1	2.12	0.76
8:A:2820:U:O2'	8:A:2821:U:O4'	2.04	0.76
8:A:503:A:H2	8:A:517:A:H62	1.35	0.75
8:A:615:A:OP2	23:P:79:ARG:NH1	2.18	0.75
39:f:15:GLU:N	39:f:15:GLU:OE1	2.18	0.75
53:t:45:ASN:O	53:t:47:ASN:N	2.19	0.75
8:A:1862:G:H1	8:A:1932:C:H5	1.34	0.75
45:l:19:SER:OG	45:l:20:ASP:O	2.03	0.75
34:a:1214:A:N3	36:c:194:LYS:NZ	2.29	0.75
48:o:10:GLU:HA	48:o:13:LYS:HD2	1.69	0.75
44:k:37:GLU:N	44:k:37:GLU:OE1	2.17	0.75
8:A:2330:G:O2'	8:A:2331:G:O5'	2.03	0.75
34:a:942:G:N7	40:g:3:ARG:NE	2.30	0.75
34:a:1265:G:O6	34:a:1292:C:N4	2.19	0.75
6:6:458:THR:HG22	6:6:469:ILE:HD11	1.69	0.75
8:A:66:C:N4	8:A:88:G:O6	2.17	0.75
8:A:545:G:H22	8:A:548:A:H5'	1.51	0.75
12:E:58:SER:O	12:E:79:ARG:NH1	2.20	0.75
6:6:33:LEU:HD11	6:6:200:LEU:HD13	1.69	0.75
42:i:21:VAL:HG22	42:i:67:VAL:HG13	1.69	0.74
3:3:13:ARG:HH21	17:J:58:PHE:HB3	1.50	0.74
37:d:142:ARG:NH1	37:d:144:LYS:HD3	2.00	0.74
3:3:13:ARG:HB3	17:J:63:LYS:HG3	1.66	0.74
39:f:32:THR:OG1	39:f:33:GLU:OE1	2.02	0.74
20:M:104:ARG:CZ	20:M:105:VAL:HB	2.16	0.74
36:c:27:ASP:HB3	36:c:31:LEU:HD13	1.69	0.74
11:D:196:LEU:HD11	21:N:10:VAL:HG11	1.68	0.74
34:a:972:G:N2	34:a:981:C:O2	2.19	0.74
42:i:7:GLU:HG2	42:i:24:VAL:HG12	1.68	0.74
11:D:2:THR:N	11:D:93:ASN:O	2.21	0.74
12:E:131:PHE:HD2	12:E:162:ASN:HB2	1.51	0.74
47:n:10:GLN:NE2	47:n:21:TYR:O	2.21	0.74
35:b:44:GLN:HA	35:b:47:VAL:HG12	1.70	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:34:ARG:HD2	8:A:513:G:OP1	1.88	0.73
8:A:1053:A:OP2	15:H:40:LYS:NZ	2.17	0.73
8:A:2820:U:O2'	8:A:2822:C:O2	2.05	0.73
34:a:1203:G:O6	36:c:3:GLN:NE2	2.19	0.73
52:s:47:HIS:O	52:s:62:VAL:N	2.18	0.73
1:1:12:CYS:HB3	1:1:39:LEU:HG	1.70	0.73
8:A:1564:G:H2'	8:A:1565:U:H5'	1.69	0.73
8:A:1781:C:H5	21:N:96:ARG:HH21	1.36	0.73
32:Y:17:THR:H	32:Y:48:LEU:HA	1.53	0.73
46:m:116:VAL:HG22	46:m:117:ALA:H	1.53	0.73
8:A:882:C:H5	8:A:986:G:H1	1.37	0.73
8:A:367:A:H2	8:A:381:G:H21	1.37	0.73
25:R:64:ARG:HD2	25:R:67:ARG:HA	1.71	0.73
36:c:12:VAL:HA	36:c:16:ARG:HB2	1.69	0.73
34:a:1271:A:N6	34:a:1284:A:O2'	2.22	0.73
1:1:19:THR:HG21	8:A:2313:A:H61	1.54	0.72
10:C:75:ASN:HD22	10:C:115:ILE:HD12	1.53	0.72
8:A:1377:U:H2'	25:R:56:MET:HE3	1.71	0.72
8:A:1886:A:O2'	8:A:1887:G:O4'	2.07	0.72
34:a:1024:G:H2'	34:a:1025:A:C8	2.24	0.72
44:k:17:GLU:OE2	44:k:18:ASN:N	2.22	0.72
8:A:2649:U:O2'	8:A:2845:G:N2	2.21	0.72
20:M:24:GLY:O	20:M:47:ASP:N	2.22	0.72
34:a:987:A:H62	34:a:1370:A:H61	1.38	0.72
3:3:24:ARG:NH1	8:A:2388:A:OP2	2.22	0.72
8:A:1760:G:O6	8:A:1769:C:N4	2.19	0.72
11:D:13:THR:HG21	21:N:11:THR:HG21	1.71	0.72
34:a:1447:C:O2'	34:a:1448:G:O5'	2.06	0.72
8:A:606:G:H21	22:O:37:GLN:HE22	1.36	0.72
17:J:33:ARG:HD2	17:J:40:ALA:HB1	1.71	0.72
34:a:1171:C:H2'	34:a:1172:C:H6	1.54	0.72
24:Q:65:ASN:ND2	24:Q:68:GLU:OE1	2.21	0.72
34:a:225:G:H1'	34:a:477:U:H3	1.55	0.72
45:l:52:THR:O	45:l:52:THR:OG1	2.07	0.72
52:s:36:ARG:HH12	52:s:53:ASP:HA	1.55	0.72
20:M:24:GLY:HA2	20:M:29:PRO:HA	1.72	0.72
34:a:1488:C:O2'	34:a:1489:A:H5'	1.90	0.72
35:b:114:ILE:HG21	35:b:145:ILE:HD11	1.72	0.72
41:h:12:THR:HG23	41:h:15:ARG:NH1	2.04	0.72
16:I:88:ARG:HG3	16:I:94:ARG:HG2	1.70	0.72
34:a:1214:A:H2'	34:a:1215:U:O4'	1.89	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:43:LEU:O	35:b:46:THR:N	2.23	0.72
38:e:34:THR:OG1	38:e:34:THR:O	2.07	0.72
35:b:216:LYS:HB2	35:b:217:MET:HE2	1.70	0.71
41:h:52:VAL:HG12	41:h:53:GLU:H	1.54	0.71
52:s:36:ARG:NH1	52:s:52:TYR:O	2.23	0.71
11:D:107:VAL:HG22	11:D:195:ILE:HD11	1.71	0.71
48:o:87:ILE:HG22	48:o:88:ARG:H	1.56	0.71
8:A:24:G:H1	8:A:561:C:H5	1.38	0.71
35:b:54:TYR:CE1	35:b:220:ALA:HB2	2.24	0.71
8:A:529:A:H4'	26:S:46:LYS:HA	1.70	0.71
10:C:275:LYS:HE2	10:C:275:LYS:HA	1.72	0.71
8:A:963:A:N3	9:B:78:U:O2'	2.23	0.71
8:A:1831:A:OP2	10:C:261:ARG:NH2	2.23	0.71
23:P:92:TYR:HE2	23:P:94:LYS:HG2	1.55	0.71
44:k:64:GLN:HG3	44:k:99:ALA:HB2	1.73	0.71
6:6:333:THR:HG21	6:6:504:LYS:HA	1.73	0.71
8:A:2334:G:C3'	8:A:2335:G:H4'	2.21	0.70
32:Y:12:VAL:H	32:Y:25:SER:HA	1.56	0.70
39:f:17:ASP:O	39:f:20:LYS:N	2.25	0.70
41:h:30:SER:OG	41:h:31:ASN:N	2.24	0.70
46:m:49:THR:HG23	46:m:51:ASP:H	1.55	0.70
8:A:2481:G:H1	8:A:2525:C:H5	1.37	0.70
43:j:10:LEU:HB2	43:j:72:ARG:HB2	1.73	0.70
8:A:765:U:O2'	8:A:766:G:O5'	2.09	0.70
8:A:2902:A:H2'	8:A:2903:A:H5"	1.74	0.70
9:B:11:A:O2'	9:B:13:A:OP2	2.10	0.70
35:b:75:GLN:OE1	35:b:75:GLN:N	2.25	0.70
8:A:1051:C:OP1	15:H:38:ARG:NH1	2.24	0.70
36:c:69:THR:HG21	36:c:102:VAL:HG13	1.71	0.70
6:6:295:PRO:HG2	6:6:296:LEU:HD12	1.73	0.70
34:a:942:G:O6	40:g:3:ARG:NH1	2.23	0.70
34:a:1173:G:H2'	34:a:1174:G:H5'	1.72	0.70
35:b:210:VAL:O	35:b:214:THR:HG22	1.92	0.70
45:l:89:GLU:HB3	45:l:90:HIS:HD2	1.57	0.70
8:A:367:A:O2'	8:A:368:A:O4'	2.10	0.70
32:Y:70:ARG:HH22	46:m:79:ARG:CZ	2.03	0.70
35:b:5:SER:OG	35:b:8:GLN:NE2	2.24	0.70
43:j:6:ILE:N	43:j:102:LEU:O	2.25	0.70
6:6:135:GLU:HA	6:6:138:LYS:HZ3	1.56	0.70
8:A:863:G:O2'	8:A:864:A:H5'	1.91	0.70
8:A:1017:A:H5"	23:P:80:LYS:HE2	1.74	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:432:SER:OG	55:6:601:ATP:O2G	2.09	0.69
12:E:117:LYS:NZ	12:E:189:ALA:O	2.17	0.69
24:Q:12:ILE:O	24:Q:101:SER:OG	2.08	0.69
8:A:353:A:O2'	8:A:354:A:H2'	1.92	0.69
48:o:19:GLU:OE2	48:o:20:THR:N	2.25	0.69
34:a:1244:C:O2'	34:a:1245:U:H5'	1.93	0.69
48:o:11:ILE:HD12	48:o:31:VAL:HA	1.75	0.69
8:A:523:A:H62	8:A:546:A:H2	1.38	0.69
8:A:1823:U:H2'	8:A:1824:C:C6	2.28	0.69
35:b:72:THR:HG23	35:b:93:ASN:O	1.92	0.69
40:g:118:ASP:HA	40:g:121:ALA:CB	2.23	0.69
53:t:63:SER:OG	53:t:64:ASN:N	2.21	0.69
8:A:2419:A:H2	8:A:2451:C:H42	1.40	0.69
20:M:99:TYR:HB2	20:M:104:ARG:HH11	1.58	0.69
34:a:1332:C:OP1	52:s:78:ARG:NH2	2.25	0.69
51:r:27:ASP:OD2	51:r:29:LYS:N	2.26	0.69
8:A:300:G:H4'	8:A:301:U:H5"	1.75	0.69
8:A:339:A:O2'	8:A:340:C:OP1	2.09	0.69
20:M:19:ARG:HB3	20:M:22:LEU:HD13	1.75	0.69
34:a:1070:U:O2'	34:a:1071:U:H5'	1.93	0.69
35:b:6:MET:SD	35:b:6:MET:N	2.65	0.69
38:e:120:ILE:O	38:e:121:THR:OG1	2.07	0.69
50:q:28:GLU:OE2	50:q:41:LYS:HD3	1.92	0.69
8:A:2289:U:OP1	28:U:49:ARG:NH1	2.26	0.69
34:a:284:G:H5'	50:q:19:MET:HE2	1.75	0.69
35:b:83:GLU:OE1	35:b:86:ARG:NH1	2.26	0.69
43:j:7:ARG:HA	43:j:75:ASP:OD1	1.91	0.69
8:A:620:G:O2'	8:A:1292:A:OP1	2.09	0.69
42:i:7:GLU:CG	42:i:24:VAL:HG12	2.23	0.69
48:o:74:ASP:OD1	48:o:74:ASP:N	2.21	0.69
50:q:59:ASP:O	50:q:61:VAL:HG13	1.92	0.69
8:A:1008:C:O2'	8:A:2300:A:N3	2.27	0.68
6:6:31:LEU:HD21	6:6:198:LEU:HB2	1.75	0.68
8:A:12:U:O2'	8:A:13:A:H5'	1.93	0.68
8:A:1693:G:O2'	19:L:112:ASP:OD2	2.08	0.68
17:J:7:LYS:HD2	17:J:8:PRO:HD2	1.75	0.68
32:Y:70:ARG:NH2	46:m:79:ARG:CD	2.56	0.68
34:a:1118:C:OP1	36:c:171:THR:HG23	1.93	0.68
34:a:1130:G:OP1	42:i:87:ARG:NH2	2.26	0.68
36:c:128:SER:O	36:c:132:VAL:HG13	1.92	0.68
1:1:19:THR:HG22	1:1:20:THR:H	1.59	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1176:G:C2'	34:a:1177:A:H5"	2.20	0.68
35:b:111:ILE:HD11	35:b:151:ILE:HG13	1.73	0.68
8:A:1753:U:O2'	8:A:2879:G:O2'	2.11	0.68
32:Y:71:VAL:HG13	52:s:42:PRO:HB3	1.76	0.68
21:N:33:ARG:HB3	21:N:40:GLU:OE2	1.93	0.68
38:e:32:ARG:HE	38:e:52:LYS:HD3	1.58	0.68
17:J:30:THR:O	17:J:33:ARG:HG2	1.94	0.68
34:a:1359:A:H62	34:a:1383:G:H8	1.38	0.68
39:f:67:SER:OG	39:f:68:ASP:N	2.23	0.68
43:j:40:ILE:HD13	43:j:73:LEU:HD23	1.76	0.68
52:s:11:VAL:HB	52:s:41:PHE:HE2	1.58	0.68
28:U:18:THR:HG22	28:U:19:LYS:H	1.57	0.68
35:b:75:GLN:HG2	35:b:205:ASP:O	1.94	0.68
45:l:100:VAL:HG11	45:l:103:LEU:HD12	1.76	0.68
6:6:271:LYS:NZ	8:A:2465:U:OP1	2.22	0.68
8:A:1362:C:OP1	8:A:1691:G:O2'	2.10	0.68
26:S:3:ILE:HG13	26:S:70:LEU:HD11	1.76	0.68
34:a:1264:G:C2'	34:a:1265:G:H5'	2.24	0.68
41:h:26:GLU:O	41:h:26:GLU:HG2	1.92	0.68
17:J:19:VAL:HG13	17:J:27:ASN:HB3	1.74	0.67
39:f:24:GLU:HA	39:f:27:ASN:OD1	1.94	0.67
1:1:15:ARG:H	1:1:15:ARG:HD2	1.58	0.67
39:f:47:ARG:HA	39:f:57:ASP:OD2	1.95	0.67
40:g:18:HIS:HB3	40:g:59:LEU:HD12	1.76	0.67
40:g:80:VAL:N	40:g:83:SER:O	2.26	0.67
8:A:2436:G:H2'	8:A:2437:G:H5'	1.77	0.67
43:j:59:LYS:HE2	43:j:62:ARG:NH2	2.10	0.67
8:A:1027:A:O2'	8:A:1028:G:OP1	2.10	0.67
43:j:36:VAL:HA	43:j:76:ILE:HA	1.77	0.67
6:6:66:HIS:HB3	6:6:69:ILE:HD12	1.77	0.67
8:A:2334:G:H3'	8:A:2335:G:H4'	1.76	0.67
8:A:2432:G:O2'	8:A:2433:C:OP2	2.11	0.67
35:b:211:LYS:O	35:b:215:ALA:N	2.26	0.67
46:m:90:ARG:HB2	46:m:97:VAL:HG12	1.76	0.67
18:K:19:GLY:O	18:K:20:ARG:NH2	2.28	0.67
35:b:184:VAL:HG22	35:b:198:TYR:HB2	1.76	0.67
21:N:4:HIS:ND1	21:N:5:LYS:O	2.27	0.67
34:a:1162:A:OP1	43:j:70:HIS:ND1	2.27	0.67
46:m:64:LYS:HG3	46:m:68:ASP:HB3	1.75	0.67
8:A:985:A:O2'	8:A:986:G:OP1	2.11	0.67
34:a:1488:C:H2'	34:a:1489:A:H5'	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:r:39:SER:OG	51:r:40:GLU:N	2.26	0.67
3:3:4:MET:HE3	8:A:711:G:H1'	1.77	0.67
16:I:50:GLY:O	16:I:53:LYS:NZ	2.28	0.67
35:b:2:ALA:HB1	35:b:51:ASP:HB2	1.75	0.67
6:6:320:VAL:HG13	6:6:365:LEU:HG	1.77	0.66
34:a:1060:U:H2'	47:n:2:ALA:CB	2.21	0.66
34:a:1338:C:H2'	34:a:1339:A:H8	1.60	0.66
50:q:84:SER:O	50:q:84:SER:OG	1.97	0.66
8:A:90:A:H4'	8:A:91:A:H5'	1.76	0.66
34:a:1144:A:N6	34:a:1151:U:O2	2.16	0.66
53:t:46:LYS:HB3	53:t:47:ASN:OD1	1.95	0.66
32:Y:55:HIS:N	32:Y:58:TYR:O	2.27	0.66
34:a:1228:U:H2'	34:a:1229:U:C6	2.30	0.66
8:A:1040:A:OP2	15:H:2:ARG:NH1	2.27	0.66
12:E:132:GLU:OE1	12:E:132:GLU:N	2.29	0.66
44:k:72:LYS:HA	44:k:75:MET:HB2	1.76	0.66
8:A:2477:A:H62	8:A:2528:C:H5	1.42	0.66
38:e:104:GLY:H	38:e:122:ASP:HB3	1.59	0.66
12:E:178:ALA:HB1	12:E:202:VAL:HG22	1.77	0.66
34:a:1328:A:OP1	52:s:3:ARG:NH1	2.29	0.66
36:c:37:LYS:HG3	36:c:93:LEU:HD12	1.76	0.66
42:i:47:ILE:HA	42:i:50:LEU:CD2	2.25	0.66
45:l:72:ASN:N	45:l:72:ASN:OD1	2.25	0.66
11:D:129:GLY:HA2	11:D:170:PRO:HB3	1.76	0.66
36:c:72:PRO:HG3	36:c:104:GLU:HB3	1.76	0.66
53:t:18:GLU:O	53:t:18:GLU:HG2	1.94	0.66
10:C:230:HIS:HD2	10:C:232:HIS:H	1.44	0.66
35:b:3:VAL:O	35:b:4:ILE:HD13	1.95	0.66
52:s:36:ARG:NH1	52:s:53:ASP:HA	2.10	0.66
8:A:2224:U:H2'	8:A:2225:A:H5"	1.77	0.66
8:A:1504:U:H5'	8:A:1505:G:H5'	1.78	0.65
8:A:2325:A:H62	8:A:2345:A:H8	1.44	0.65
14:G:31:GLY:HA2	14:G:79:VAL:HG13	1.78	0.65
14:G:109:TYR:OH	14:G:151:VAL:O	2.12	0.65
18:K:62:GLY:HA3	18:K:107:ALA:O	1.96	0.65
34:a:942:G:OP1	40:g:4:LYS:HG2	1.95	0.65
34:a:1378:A:C2'	34:a:1379:C:H5'	2.26	0.65
6:6:119:LEU:HD12	6:6:138:LYS:HB2	1.77	0.65
27:T:17:ASP:OD1	27:T:17:ASP:N	2.28	0.65
34:a:73:G:H22	34:a:96:U:H3	1.43	0.65
37:d:117:GLY:O	37:d:142:ARG:NH2	2.30	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:16:PRO:HA	42:i:48:LEU:CD1	2.26	0.65
8:A:1200:A:C8	22:O:51:ARG:HG3	2.31	0.65
20:M:21:ASN:O	20:M:30:ARG:NH1	2.29	0.65
8:A:2650:G:O5'	8:A:2845:G:N2	2.30	0.65
12:E:8:LYS:NZ	12:E:13:LYS:O	2.29	0.65
15:H:51:THR:HG22	15:H:52:GLY:H	1.60	0.65
36:c:40:LYS:HZ1	47:n:26:ARG:HH21	1.45	0.65
13:F:68:THR:N	13:F:86:GLY:O	2.29	0.65
23:P:73:VAL:HB	23:P:86:LYS:HE2	1.77	0.65
35:b:2:ALA:HA	35:b:54:TYR:CD1	2.32	0.65
42:i:98:GLY:O	42:i:102:ARG:HG2	1.97	0.65
6:6:1:MET:HE1	6:6:24:HIS:HB2	1.78	0.65
14:G:118:GLU:OE2	14:G:140:GLN:NE2	2.29	0.65
32:Y:70:ARG:HH21	46:m:79:ARG:CD	2.10	0.65
34:a:975:G:O2'	42:i:131:LYS:O	2.15	0.65
35:b:14:VAL:HA	35:b:203:ASN:HB2	1.78	0.65
42:i:24:VAL:HG22	42:i:64:ASP:O	1.96	0.65
42:i:29:ASN:HB3	42:i:64:ASP:OD1	1.96	0.65
46:m:15:VAL:HG13	46:m:43:THR:O	1.97	0.65
53:t:67:HIS:O	53:t:69:ASN:N	2.30	0.65
34:a:1082:C:H2'	34:a:1083:G:C8	2.32	0.65
50:q:29:THR:HG22	50:q:30:TYR:H	1.61	0.65
8:A:1593:G:N2	8:A:1593:G:OP2	2.28	0.65
8:A:291:G:H2'	8:A:292:U:C6	2.32	0.64
38:e:83:HIS:HE1	38:e:148:LYS:H	1.44	0.64
39:f:73:THR:O	39:f:77:GLN:HG3	1.97	0.64
41:h:68:GLN:OE1	41:h:69:ASN:N	2.31	0.64
51:r:76:VAL:HG12	51:r:77:LYS:H	1.61	0.64
34:a:1070:U:C2'	34:a:1071:U:H5'	2.27	0.64
42:i:14:ARG:NH1	42:i:109:ASP:OD2	2.30	0.64
42:i:87:ARG:HA	42:i:90:LEU:CD2	2.26	0.64
46:m:71:ARG:HA	46:m:74:ASN:HB2	1.80	0.64
51:r:46:PRO:O	51:r:49:VAL:HG12	1.97	0.64
6:6:24:HIS:O	6:6:207:ARG:NH1	2.29	0.64
8:A:773:G:H4'	10:C:13:ARG:HD2	1.79	0.64
36:c:51:VAL:HB	36:c:67:ILE:HD11	1.79	0.64
8:A:241:C:H2'	8:A:242:U:H5'	1.79	0.64
12:E:134:PRO:HB3	12:E:165:LEU:HD12	1.78	0.64
28:U:73:GLY:HA3	28:U:90:TYR:O	1.98	0.64
44:k:26:THR:HG22	44:k:27:PHE:H	1.62	0.64
20:M:6:ASP:OD2	20:M:9:LYS:NZ	2.29	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:985:G:O5'	34:a:1368:U:O2'	2.16	0.64
34:a:1447:C:C2'	34:a:1448:G:O5'	2.45	0.64
38:e:41:ASP:OD1	38:e:43:ASN:N	2.31	0.64
34:a:1136:U:H1'	34:a:1137:U:O2	1.97	0.64
37:d:106:THR:HG22	37:d:109:GLN:HB3	1.80	0.64
18:K:30:GLY:O	18:K:134:ARG:NH2	2.31	0.64
34:a:1364:U:O2'	34:a:1365:A:H5'	1.97	0.64
37:d:85:ASN:N	37:d:85:ASN:OD1	2.20	0.64
8:A:571:A:H8	8:A:2071:C:H1'	1.62	0.64
43:j:8:ILE:HA	43:j:99:GLU:O	1.98	0.64
2:2:34:ARG:O	2:2:37:ARG:HD3	1.97	0.64
9:B:22:G:N7	9:B:54:U:O2'	2.27	0.64
11:D:13:THR:HG22	11:D:14:GLN:H	1.60	0.64
6:6:136:GLN:HA	6:6:139:VAL:HG22	1.80	0.63
16:I:105:GLU:OE1	16:I:105:GLU:N	2.30	0.63
19:L:66:LEU:HD11	19:L:85:LEU:HD22	1.80	0.63
34:a:1136:U:O2'	34:a:1137:U:O5'	2.16	0.63
38:e:11:PHE:C	38:e:12:GLU:HG3	2.24	0.63
6:6:454:LEU:HD12	6:6:482:ILE:HD11	1.81	0.63
24:Q:35:ILE:O	24:Q:39:THR:OG1	2.11	0.63
40:g:118:ASP:O	40:g:122:ASN:N	2.28	0.63
6:6:11:GLU:HB2	6:6:15:LYS:O	1.99	0.63
34:a:1109:C:O2'	34:a:1178:C:O2'	2.15	0.63
34:a:1220:C:C2'	34:a:1221:U:H5'	2.29	0.63
35:b:91:TYR:CE1	35:b:150:GLY:HA3	2.33	0.63
45:l:67:ARG:HH11	45:l:77:ASN:ND2	1.97	0.63
48:o:32:LEU:O	48:o:36:ILE:HG13	1.99	0.63
52:s:53:ASP:HB2	52:s:76:PRO:O	1.98	0.63
8:A:446:G:O2'	8:A:447:A:OP1	2.16	0.63
8:A:2532:G:O2'	8:A:2603:G:N1	2.31	0.63
10:C:26:LYS:HE3	10:C:82:GLN:CG	2.29	0.63
46:m:58:GLU:CD	46:m:59:VAL:HG23	2.23	0.63
8:A:1830:A:OP1	10:C:261:ARG:NH1	2.32	0.63
46:m:36:GLU:CB	46:m:59:VAL:HG21	2.28	0.63
24:Q:82:LEU:HB2	24:Q:98:LYS:HB2	1.80	0.63
41:h:25:LEU:HD11	41:h:62:LEU:HD22	1.81	0.63
1:1:12:CYS:HB3	1:1:39:LEU:CG	2.29	0.63
8:A:1400:C:O2'	8:A:1836:A:N3	2.30	0.63
12:E:153:LEU:HD11	12:E:185:ASP:HB3	1.80	0.63
32:Y:70:ARG:HG3	52:s:67:VAL:HB	1.80	0.63
34:a:1220:C:H2'	34:a:1221:U:H5'	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1358:U:H5'	42:i:114:GLU:OE1	1.99	0.63
37:d:150:ILE:O	37:d:154:SER:OG	2.15	0.63
6:6:198:LEU:HG	6:6:205:ALA:HB1	1.80	0.62
17:J:56:PRO:HD2	17:J:59:ARG:CD	2.26	0.62
24:Q:84:ARG:HB2	24:Q:96:ILE:HB	1.81	0.62
35:b:216:LYS:HA	35:b:216:LYS:HE3	1.81	0.62
41:h:67:GLY:O	41:h:70:ASP:N	2.32	0.62
44:k:64:GLN:CG	44:k:99:ALA:HB2	2.28	0.62
6:6:154:ILE:HG22	6:6:155:ASP:O	1.98	0.62
17:J:83:ASN:ND2	17:J:117:LEU:O	2.32	0.62
34:a:1158:U:H5"	42:i:20:ARG:HG2	1.80	0.62
8:A:1753:U:HO2'	8:A:2879:G:HO2'	1.45	0.62
35:b:207:ILE:HD12	35:b:207:ILE:H	1.64	0.62
46:m:79:ARG:O	46:m:83:ILE:HG12	1.99	0.62
34:a:540:A:H62	36:c:155:ARG:HH12	1.48	0.62
35:b:125:LEU:HD23	35:b:125:LEU:O	2.00	0.62
42:i:67:VAL:HG11	42:i:81:ILE:HG12	1.80	0.62
8:A:1187:A:OP1	15:H:28:ARG:NH2	2.27	0.62
31:X:18:THR:HG22	31:X:49:LYS:NZ	2.14	0.62
34:a:1194:G:H2'	34:a:1195:G:H5'	1.80	0.62
24:Q:55:LEU:HD23	24:Q:69:LEU:HD23	1.81	0.62
32:Y:34:MET:O	32:Y:42:GLU:HA	2.00	0.62
37:d:134:LYS:HB2	37:d:135:PRO:CD	2.29	0.62
8:A:1183:G:O3'	15:H:27:GLY:HA3	1.99	0.62
34:a:455:G:H21	34:a:495:A:H2	1.48	0.62
34:a:1326:G:O6	52:s:7:LYS:HE2	1.99	0.62
39:f:14:ILE:HD11	39:f:19:LYS:CB	2.28	0.62
6:6:359:LEU:HD23	6:6:363:ASN:HB3	1.81	0.62
8:A:162:A:H8	8:A:2244:G:H21	1.47	0.62
8:A:2502:C:O2'	8:A:2503:A:O5'	2.17	0.62
17:J:96:LEU:HD23	17:J:109:ILE:HD13	1.80	0.62
32:Y:14:PHE:CB	32:Y:22:LYS:HA	2.29	0.62
34:a:1326:G:N2	34:a:1328:A:H3'	2.14	0.62
46:m:16:VAL:HG21	46:m:31:GLN:HB3	1.80	0.62
20:M:19:ARG:O	20:M:22:LEU:HD22	2.00	0.62
31:X:11:SER:OG	31:X:13:ILE:HD12	2.00	0.62
50:q:83:GLU:N	50:q:83:GLU:OE1	2.32	0.62
8:A:241:C:C2'	8:A:242:U:H5'	2.29	0.62
46:m:50:ASP:HA	46:m:53:LEU:CB	2.23	0.62
50:q:81:VAL:HG12	50:q:82:GLU:OE1	1.99	0.62
6:6:402:ILE:HD12	6:6:405:MET:HE1	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1491:C:O2'	8:A:1492:G:H5"	2.00	0.61
20:M:19:ARG:HD3	20:M:22:LEU:HB2	1.81	0.61
46:m:69:LEU:O	46:m:72:GLU:HB3	2.00	0.61
8:A:345:C:O2'	8:A:346:A:OP2	2.12	0.61
8:A:1479:G:C2'	8:A:1480:G:H5'	2.30	0.61
11:D:131:ILE:HD12	11:D:136:GLN:O	2.00	0.61
34:a:114:G:H1'	34:a:115:A:N7	2.15	0.61
41:h:81:SER:O	41:h:82:LYS:HG3	2.00	0.61
45:l:123:ARG:C	45:l:124:ARG:HG3	2.12	0.61
50:q:31:LYS:HE3	50:q:42:TYR:CE1	2.35	0.61
8:A:976:U:OP1	31:X:29:LYS:NZ	2.33	0.61
8:A:2877:G:N2	8:A:2880:A:OP2	2.28	0.61
52:s:62:VAL:HA	52:s:66:MET:SD	2.40	0.61
8:A:2064:A:H2'	8:A:2065:G:C8	2.36	0.61
22:O:112:LYS:HE3	23:P:48:VAL:HG21	1.82	0.61
34:a:1163:G:H2'	34:a:1164:U:O4'	2.00	0.61
19:L:55:ASP:OD1	19:L:58:SER:OG	2.09	0.61
37:d:192:GLN:O	37:d:196:GLU:HG3	2.00	0.61
52:s:16:MET:O	52:s:20:GLU:HG2	2.00	0.61
34:a:1362:C:O2	34:a:1381:G:N1	2.34	0.61
5:5:61:U:H5"	5:5:62:C:H5	1.65	0.61
20:M:22:LEU:HA	20:M:30:ARG:NH1	2.15	0.61
29:V:5:CYS:SG	29:V:8:THR:HG22	2.40	0.61
31:X:18:THR:HG22	31:X:49:LYS:HZ3	1.64	0.61
34:a:988:C:O2	47:n:19:ARG:NE	2.34	0.61
37:d:199:SER:O	37:d:199:SER:OG	2.14	0.61
39:f:69:ASN:ND2	39:f:71:LYS:HE3	2.14	0.61
6:6:3:PHE:HB3	6:6:25:ILE:CG2	2.30	0.61
8:A:2418:G:H2'	8:A:2451:C:N4	2.16	0.61
12:E:131:PHE:CD2	12:E:162:ASN:HB2	2.34	0.61
13:F:69:LYS:HA	13:F:84:PRO:HA	1.83	0.61
36:c:63:ILE:HD12	36:c:97:LYS:HG3	1.81	0.61
47:n:42:ILE:O	47:n:46:GLU:HG3	2.00	0.61
50:q:55:ALA:HB2	50:q:80:ILE:CD1	2.30	0.61
8:A:1463:A:H2'	8:A:1465:G:N7	2.14	0.61
8:A:1979:A:N3	8:A:2587:C:O2'	2.33	0.61
24:Q:83:LYS:O	24:Q:84:ARG:HD3	2.01	0.61
43:j:22:ALA:O	43:j:26:VAL:HG13	2.01	0.61
49:p:8:THR:O	49:p:18:TYR:HD1	1.83	0.61
51:r:38:ILE:HG13	51:r:39:SER:O	2.01	0.61
3:3:30:SER:O	8:A:2447:C:N4	2.34	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:R:64:ARG:CD	25:R:67:ARG:HA	2.31	0.61
34:a:224:U:H2'	34:a:225:G:H8	1.66	0.61
35:b:46:THR:O	35:b:50:VAL:N	2.34	0.61
37:d:102:GLY:HA3	37:d:158:ASN:HD22	1.64	0.61
43:j:23:GLU:HG3	43:j:39:PRO:HG3	1.83	0.61
35:b:58:LYS:HE2	35:b:223:GLU:OE1	2.00	0.60
50:q:69:LEU:HD23	50:q:69:LEU:O	2.01	0.60
8:A:1041:G:H2'	8:A:1042:C:H5'	1.82	0.60
40:g:18:HIS:HB3	40:g:59:LEU:CD1	2.31	0.60
10:C:107:PRO:HD2	10:C:110:LEU:CD2	2.31	0.60
15:H:20:ASP:HA	15:H:58:ILE:HG22	1.84	0.60
35:b:44:GLN:HA	35:b:47:VAL:CG1	2.32	0.60
36:c:112:ALA:O	36:c:184:ALA:HB3	2.02	0.60
6:6:402:ILE:HD12	6:6:405:MET:CE	2.32	0.60
8:A:1297:G:C2'	8:A:1298:G:H5'	2.31	0.60
8:A:2107:G:H5'	29:V:19:SER:HB2	1.83	0.60
8:A:2418:G:H2'	8:A:2451:C:H41	1.66	0.60
34:a:992:A:H5'	34:a:993:C:OP2	2.01	0.60
34:a:1366:G:O2'	34:a:1367:A:H5'	2.01	0.60
40:g:22:LEU:HD23	40:g:63:GLU:OE1	2.01	0.60
46:m:18:SER:HA	46:m:21:TYR:HD2	1.65	0.60
12:E:129:PHE:HZ	12:E:157:GLU:H	1.47	0.60
29:V:40:VAL:CG2	29:V:45:LYS:HB3	2.31	0.60
34:a:957:C:H2'	34:a:958:A:H5'	1.84	0.60
34:a:983:A:C8	47:n:31:HIS:CE1	2.89	0.60
34:a:1060:U:C2'	47:n:2:ALA:HB2	2.25	0.60
37:d:164:TYR:HB2	37:d:178:ARG:O	2.00	0.60
17:J:92:THR:HG23	17:J:95:LEU:H	1.66	0.60
20:M:24:GLY:N	20:M:47:ASP:OD1	2.33	0.60
34:a:1054:G:O2'	34:a:1055:A:O5'	2.09	0.60
48:o:11:ILE:CD1	48:o:31:VAL:HG22	2.31	0.60
2:2:2:VAL:N	8:A:1663:G:HO2'	1.99	0.60
12:E:160:ASP:CB	12:E:163:VAL:HG12	2.31	0.60
23:P:29:GLU:HA	23:P:62:VAL:HG23	1.84	0.60
34:a:987:A:H62	34:a:1370:A:N6	1.99	0.60
34:a:1298:A:N3	34:a:1362:C:O2'	2.35	0.60
36:c:45:GLU:HG2	36:c:86:LEU:CD1	2.31	0.60
43:j:28:THR:HA	43:j:31:ARG:CG	2.31	0.60
51:r:40:GLU:O	51:r:77:LYS:HD2	2.01	0.60
8:A:2474:G:N2	8:A:2528:C:H5"	2.16	0.60
8:A:2878:U:O2'	8:A:2879:G:OP1	2.18	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:P:68:GLY:N	23:P:90:GLN:O	2.27	0.60
34:a:1024:G:H2'	34:a:1025:A:H8	1.66	0.60
34:a:1364:U:H2'	34:a:1365:A:H8	1.67	0.60
36:c:109:ASP:OD1	36:c:143:LEU:HD22	2.01	0.60
39:f:7:MET:SD	51:r:70:MET:HE2	2.40	0.60
39:f:45:LYS:NZ	39:f:57:ASP:OD1	2.32	0.60
4:4:31:LYS:HE2	8:A:2505:A:H5'	1.83	0.60
8:A:266:A:H2'	8:A:267:G:O4'	2.02	0.60
34:a:1406:A:H2	38:e:24:VAL:HG11	1.64	0.60
37:d:182:ARG:HD2	37:d:182:ARG:O	2.02	0.60
16:I:68:GLY:HA3	16:I:77:ILE:O	2.02	0.60
46:m:54:GLY:HA2	46:m:57:ARG:HB2	1.83	0.60
46:m:86:TYR:O	46:m:89:ILE:HG12	2.00	0.60
53:t:30:THR:O	53:t:33:LYS:N	2.35	0.60
3:3:55:MET:HE3	3:3:59:LYS:HD2	1.84	0.59
6:6:409:ASP:HA	6:6:412:THR:HG22	1.83	0.59
8:A:864:A:O2'	8:A:1017:A:N6	2.35	0.59
8:A:1816:A:H2'	8:A:1817:C:O4'	2.01	0.59
29:V:40:VAL:HG21	29:V:45:LYS:HB3	1.82	0.59
8:A:627:C:OP2	8:A:627:C:H2'	2.02	0.59
8:A:1564:G:C2'	8:A:1565:U:H5'	2.32	0.59
14:G:89:LEU:HD13	14:G:94:TYR:HB3	1.83	0.59
15:H:19:ILE:O	15:H:58:ILE:HG22	2.02	0.59
35:b:108:SER:O	35:b:111:ILE:N	2.26	0.59
8:A:372:A:H61	26:S:15:LYS:HG2	1.65	0.59
8:A:2663:U:OP1	11:D:90:GLU:N	2.32	0.59
23:P:27:VAL:CG2	23:P:62:VAL:HG11	2.31	0.59
34:a:1379:C:H2'	34:a:1380:G:C8	2.37	0.59
34:a:1446:C:H2'	34:a:1447:C:C6	2.36	0.59
38:e:115:LEU:CD1	38:e:123:ILE:HD11	2.31	0.59
43:j:80:THR:OG1	43:j:83:THR:HG23	2.03	0.59
43:j:100:ILE:HG22	43:j:102:LEU:HD22	1.84	0.59
6:6:454:LEU:HB2	6:6:482:ILE:HD13	1.82	0.59
21:N:7:ILE:O	21:N:11:THR:OG1	2.20	0.59
34:a:1248:A:N1	34:a:1309:A:N6	2.50	0.59
36:c:124:GLU:HG2	36:c:189:ASP:O	2.03	0.59
40:g:116:MET:HG2	40:g:116:MET:O	2.02	0.59
6:6:381:TYR:HD2	6:6:388:ASN:HD21	1.49	0.59
26:S:16:ASP:HB3	26:S:19:LYS:HD2	1.85	0.59
35:b:18:HIS:O	35:b:38:ILE:HD13	2.01	0.59
43:j:27:GLU:HA	43:j:30:LYS:HB2	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:q:33:HIS:O	50:q:35:LEU:N	2.35	0.59
8:A:571:A:C8	8:A:2071:C:H1'	2.38	0.59
26:S:32:ARG:HB3	26:S:62:ALA:HB1	1.84	0.59
34:a:127:A:H2'	34:a:128:U:H5'	1.84	0.59
40:g:136:LYS:O	40:g:140:ASP:N	2.35	0.59
48:o:87:ILE:HG22	48:o:88:ARG:N	2.18	0.59
6:6:342:THR:HG23	6:6:480:VAL:CG2	2.32	0.59
6:6:417:PHE:O	6:6:438:ARG:HD2	2.02	0.59
8:A:365:A:H5'	8:A:383:A:H1'	1.83	0.59
8:A:963:A:H62	8:A:2295:A:H2	1.51	0.59
9:B:27:A:OP2	20:M:37:ASN:ND2	2.36	0.59
10:C:16:MET:HG3	10:C:206:GLY:HA3	1.83	0.59
11:D:188:VAL:HG22	11:D:195:ILE:CD1	2.33	0.59
34:a:959:U:H2'	34:a:960:G:C8	2.38	0.59
40:g:27:ILE:CG1	40:g:43:LEU:HD23	2.30	0.59
40:g:79:ARG:HD2	40:g:84:ASN:OD1	2.03	0.59
44:k:17:GLU:HG3	44:k:18:ASN:CG	2.27	0.59
50:q:82:GLU:OE1	50:q:82:GLU:N	2.35	0.59
1:1:2:ARG:HG2	8:A:2311:U:OP2	2.02	0.59
8:A:677:A:H5"	17:J:71:ARG:NH2	2.18	0.59
8:A:914:G:C2'	8:A:915:U:H5'	2.32	0.59
8:A:1940:A:C5	34:a:1505:G:H5'	2.37	0.59
34:a:959:U:H2'	34:a:960:G:H8	1.67	0.59
36:c:72:PRO:HG3	36:c:104:GLU:CB	2.33	0.59
35:b:7:LYS:O	35:b:11:GLU:HG2	2.03	0.59
5:5:72:C:H5"	5:5:73:A:OP2	2.03	0.59
34:a:1173:G:C2'	34:a:1174:G:H5'	2.33	0.59
35:b:58:LYS:HE2	35:b:223:GLU:CD	2.27	0.59
35:b:89:GLN:OE1	35:b:89:GLN:HA	2.02	0.59
36:c:21:LYS:HB2	36:c:57:GLU:OE1	2.03	0.59
8:A:1980:A:H8	8:A:2576:G:H21	1.51	0.58
26:S:41:MET:HE2	26:S:59:THR:CG2	2.32	0.58
34:a:1238:C:O2'	46:m:116:VAL:HG12	2.02	0.58
35:b:18:HIS:O	35:b:38:ILE:HA	2.02	0.58
35:b:99:GLY:O	35:b:103:ASN:HB3	2.03	0.58
40:g:80:VAL:HG12	40:g:83:SER:N	2.17	0.58
42:i:50:LEU:HA	42:i:82:ARG:HB2	1.86	0.58
50:q:81:VAL:O	50:q:82:GLU:HB3	2.03	0.58
53:t:35:ALA:O	53:t:37:THR:N	2.36	0.58
8:A:1039:C:C5	15:H:4:THR:HB	2.38	0.58
8:A:1039:C:C2	15:H:1:MET:HA	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1489:A:N3	8:A:1504:U:N3	2.50	0.58
10:C:75:ASN:ND2	10:C:115:ILE:HD12	2.17	0.58
11:D:189:ASP:HB3	11:D:194:VAL:HG22	1.84	0.58
24:Q:38:LEU:HD12	33:Z:38:LEU:CD2	2.33	0.58
34:a:1319:G:C5'	46:m:77:ILE:HG22	2.33	0.58
6:6:156:GLN:HA	6:6:183:VAL:O	2.03	0.58
8:A:601:G:OP1	15:H:113:THR:HB	2.03	0.58
8:A:1314:A:C5'	19:L:16:MET:HE3	2.33	0.58
8:A:1756:U:H1'	8:A:1757:U:H5'	1.84	0.58
10:C:201:GLU:HG3	10:C:202:LEU:HD13	1.84	0.58
12:E:134:PRO:HB3	12:E:165:LEU:CD1	2.32	0.58
14:G:121:ILE:HD13	14:G:135:GLY:HA3	1.83	0.58
20:M:40:ILE:CG2	20:M:76:VAL:HG21	2.33	0.58
20:M:101:TYR:HA	20:M:105:VAL:HG11	1.85	0.58
32:Y:32:SER:HA	32:Y:43:TYR:HA	1.84	0.58
34:a:992:A:H3'	34:a:992:A:N3	2.18	0.58
36:c:69:THR:O	36:c:72:PRO:HD3	2.03	0.58
8:A:1533:A:O2'	10:C:98:ASP:OD1	2.20	0.58
10:C:236:GLU:HG2	10:C:237:GLY:H	1.68	0.58
23:P:35:PHE:CE2	23:P:37:LYS:HG3	2.38	0.58
30:W:52:ARG:O	30:W:56:VAL:HG23	2.03	0.58
34:a:1082:C:H2'	34:a:1083:G:H8	1.67	0.58
36:c:149:LYS:HE3	36:c:166:GLN:NE2	2.17	0.58
50:q:31:LYS:HE3	50:q:42:TYR:CD1	2.39	0.58
8:A:1556:G:H2'	8:A:1557:C:H5'	1.83	0.58
8:A:1565:U:O2'	8:A:1566:G:H5"	2.03	0.58
11:D:189:ASP:OD2	11:D:192:ASN:ND2	2.36	0.58
20:M:104:ARG:NE	20:M:105:VAL:HB	2.17	0.58
34:a:1458:C:O2'	34:a:1459:C:H5'	2.03	0.58
37:d:142:ARG:HD3	37:d:144:LYS:HG2	1.86	0.58
46:m:72:GLU:OE1	46:m:73:THR:HG23	2.04	0.58
8:A:1490:G:C2'	8:A:1491:C:H5'	2.33	0.58
23:P:20:ILE:HD13	23:P:97:ILE:HD11	1.84	0.58
29:V:43:LYS:HB2	29:V:44:PRO:HD2	1.86	0.58
34:a:189:G:H1	34:a:201:U:H3	1.51	0.58
40:g:72:VAL:HG22	40:g:142:HIS:NE2	2.19	0.58
52:s:28:LYS:CD	52:s:48:THR:HG22	2.32	0.58
8:A:529:A:O2'	26:S:53:GLU:O	2.21	0.58
8:A:1049:C:H5	8:A:1182:G:H1	1.51	0.58
35:b:51:ASP:OD1	35:b:52:GLU:N	2.36	0.58
45:l:129:LEU:H	45:l:129:LEU:HD12	1.67	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:m:19:LEU:HD13	46:m:33:ILE:HG21	1.86	0.58
14:G:16:THR:O	14:G:27:LYS:N	2.35	0.58
48:o:53:ARG:O	48:o:53:ARG:HG2	2.04	0.58
8:A:1240:U:O2'	12:E:41:ARG:NH2	2.36	0.58
23:P:29:GLU:OE1	23:P:29:GLU:N	2.34	0.58
24:Q:86:ARG:HH11	24:Q:88:ARG:HD2	1.68	0.58
28:U:82:ARG:HD3	28:U:83:ASP:HB2	1.86	0.58
37:d:65:GLU:O	37:d:66:ARG:HB3	2.04	0.58
37:d:158:ASN:OD1	37:d:159:ASN:N	2.36	0.58
39:f:11:ARG:NH1	39:f:14:ILE:HG22	2.19	0.58
42:i:50:LEU:HD12	42:i:81:ILE:HG21	1.86	0.58
48:o:18:HIS:CD2	48:o:21:ASP:HB2	2.39	0.58
8:A:64:A:O2'	25:R:70:GLY:HA3	2.04	0.58
14:G:118:GLU:N	14:G:118:GLU:OE1	2.37	0.58
35:b:211:LYS:HA	35:b:214:THR:CG2	2.33	0.58
8:A:1901:C:C2'	8:A:1902:G:H5'	2.34	0.57
34:a:68:C:H2'	34:a:69:G:C8	2.39	0.57
34:a:107:G:H5"	34:a:108:A:H5"	1.86	0.57
34:a:151:A:H3'	34:a:152:A:H8	1.68	0.57
34:a:411:C:H5"	37:d:129:PRO:HD2	1.85	0.57
34:a:831:G:HO2'	41:h:2:THR:N	2.01	0.57
52:s:31:ILE:HD12	52:s:49:PHE:CE1	2.39	0.57
14:G:88:GLU:OE2	14:G:165:GLN:HG2	2.04	0.57
34:a:991:U:H5"	47:n:6:MET:HE2	1.85	0.57
36:c:8:ILE:O	36:c:12:VAL:HG23	2.03	0.57
8:A:460:C:O2'	8:A:461:A:H5'	2.05	0.57
11:D:10:ILE:HD11	11:D:27:VAL:CG1	2.34	0.57
34:a:964:U:H2'	34:a:965:U:H5'	1.86	0.57
35:b:91:TYR:CZ	35:b:150:GLY:HA3	2.40	0.57
6:6:128:ILE:HA	6:6:131:LEU:HD23	1.86	0.57
6:6:314:LEU:CD2	6:6:377:LEU:HD21	2.35	0.57
8:A:821:C:H3'	8:A:822:G:H5'	1.86	0.57
8:A:1059:A:O2'	8:A:1060:U:H5'	2.04	0.57
8:A:1915:G:H5'	8:A:1916:A:OP1	2.04	0.57
15:H:38:ARG:NH1	15:H:40:LYS:HD2	2.20	0.57
37:d:66:ARG:O	37:d:70:ASN:HB2	2.04	0.57
37:d:101:LEU:HD23	37:d:165:LEU:CD2	2.34	0.57
38:e:115:LEU:HD13	38:e:123:ILE:HD11	1.86	0.57
51:r:16:CYS:O	51:r:17:TYR:HB3	2.03	0.57
5:5:66:C:H2'	5:5:67:U:C6	2.39	0.57
6:6:506:ILE:HG22	6:6:507:HIS:H	1.70	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1520:A:O2'	8:A:1560:A:N6	2.37	0.57
35:b:73:LYS:O	35:b:76:ALA:N	2.20	0.57
48:o:75:ILE:H	48:o:75:ILE:HD12	1.69	0.57
4:4:1:MET:HB2	4:4:33:LYS:NZ	2.19	0.57
6:6:184:SER:HB3	6:6:190:LEU:HD21	1.86	0.57
6:6:315:VAL:HG22	6:6:337:ILE:CG2	2.31	0.57
8:A:471:G:C2'	8:A:472:C:H5'	2.35	0.57
8:A:1336:G:O2'	8:A:1684:A:N6	2.38	0.57
10:C:23:GLU:OE1	10:C:23:GLU:N	2.37	0.57
22:O:80:MET:HE1	22:O:95:LEU:CD1	2.35	0.57
34:a:1319:G:H5"	46:m:77:ILE:HG22	1.85	0.57
41:h:22:HIS:O	41:h:66:TYR:OH	2.18	0.57
46:m:36:GLU:OE1	46:m:59:VAL:HG11	2.05	0.57
46:m:50:ASP:OD2	46:m:50:ASP:N	2.37	0.57
2:2:12:LYS:HG3	2:2:15:LYS:HE3	1.86	0.57
8:A:1566:G:O2'	8:A:1567:A:H5'	2.03	0.57
8:A:2334:G:O2'	8:A:2335:G:O3'	2.12	0.57
8:A:2528:C:O2	8:A:2528:C:H2'	2.04	0.57
12:E:160:ASP:HB2	12:E:163:VAL:HG12	1.87	0.57
34:a:224:U:H2'	34:a:225:G:C8	2.39	0.57
34:a:255:G:H21	34:a:290:A:H1'	1.70	0.57
11:D:10:ILE:HD11	11:D:27:VAL:HG12	1.86	0.57
11:D:31:LYS:NZ	11:D:32:GLU:OE2	2.37	0.57
51:r:31:THR:O	51:r:31:THR:OG1	2.21	0.57
2:2:5:THR:HG22	8:A:732:C:H1'	1.87	0.57
5:5:62:C:C2'	5:5:63:C:H5'	2.34	0.57
8:A:1047:G:H21	8:A:1054:A:H8	1.52	0.57
8:A:2694:C:H2'	8:A:2695:G:H5"	1.86	0.57
24:Q:38:LEU:HD12	33:Z:38:LEU:HG	1.86	0.57
27:T:24:SER:HB2	27:T:26:LYS:HE2	1.85	0.57
36:c:19:GLU:O	36:c:39:ARG:NH2	2.38	0.57
36:c:36:LEU:O	36:c:40:LYS:HG3	2.05	0.57
39:f:17:ASP:OD1	39:f:17:ASP:N	2.35	0.57
42:i:30:ILE:HG13	42:i:65:VAL:HG11	1.86	0.57
44:k:104:GLY:O	44:k:105:LEU:HG	2.05	0.57
8:A:821:C:C3'	8:A:822:G:H5'	2.34	0.57
8:A:2674:U:O2'	8:A:2675:G:OP2	2.20	0.57
11:D:13:THR:CG2	21:N:11:THR:HG21	2.35	0.57
45:l:102:ASP:OD1	45:l:102:ASP:N	2.30	0.57
46:m:106:ALA:O	46:m:110:LYS:HG3	2.04	0.57
8:A:1504:U:H4'	8:A:1505:G:H8	1.69	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2354:A:H2'	8:A:2355:A:C8	2.40	0.56
12:E:117:LYS:HG3	12:E:192:LEU:HD13	1.87	0.56
18:K:43:THR:HG22	18:K:46:GLN:CG	2.32	0.56
30:W:17:GLN:HG3	30:W:53:LEU:HD11	1.86	0.56
34:a:666:G:H5"	48:o:8:LYS:HZ3	1.69	0.56
43:j:9:ARG:HG3	43:j:9:ARG:HH11	1.70	0.56
48:o:29:ILE:O	48:o:29:ILE:HG22	2.04	0.56
53:t:76:SER:O	53:t:80:THR:HG23	2.05	0.56
8:A:591:A:H4'	8:A:592:A:H5'	1.86	0.56
9:B:29:C:C2'	9:B:30:U:H5'	2.35	0.56
3:3:37:SER:O	3:3:41:LYS:HG3	2.05	0.56
6:6:126:GLN:HB3	6:6:130:THR:HG21	1.86	0.56
6:6:420:ASP:O	6:6:421:LYS:HG3	2.05	0.56
8:A:640:G:C2'	8:A:641:A:H5'	2.35	0.56
8:A:1519:U:O2'	8:A:1520:A:O5'	2.17	0.56
8:A:1940:A:N1	34:a:1504:A:H5"	2.20	0.56
10:C:26:LYS:HE3	10:C:82:GLN:HG3	1.87	0.56
25:R:4:ARG:HH21	30:W:22:LYS:HE2	1.71	0.56
25:R:49:LYS:CD	25:R:83:LYS:HB2	2.35	0.56
32:Y:54:SER:HA	32:Y:59:THR:O	2.04	0.56
34:a:957:C:C2'	34:a:958:A:H5'	2.35	0.56
34:a:984:A:H5'	34:a:984:A:C8	2.40	0.56
34:a:1316:A:H2'	34:a:1317:U:C6	2.40	0.56
35:b:196:ILE:HG22	35:b:197:ASP:H	1.71	0.56
51:r:55:LYS:HG2	51:r:55:LYS:O	2.05	0.56
6:6:48:ILE:O	6:6:52:GLU:HB2	2.06	0.56
8:A:287:G:H2'	8:A:288:C:O4'	2.05	0.56
8:A:552:A:H5"	8:A:553:A:OP1	2.05	0.56
8:A:1372:C:O2'	8:A:1373:U:H5'	2.06	0.56
20:M:19:ARG:HD3	20:M:22:LEU:CB	2.36	0.56
43:j:92:LEU:HD23	43:j:92:LEU:H	1.71	0.56
45:l:36:THR:HG22	45:l:37:ASP:H	1.70	0.56
48:o:7:ARG:O	48:o:7:ARG:HG3	2.00	0.56
6:6:417:PHE:O	6:6:438:ARG:NH1	2.28	0.56
6:6:499:LYS:O	6:6:505:LEU:HA	2.05	0.56
8:A:350:G:N2	8:A:352:A:H3'	2.20	0.56
24:Q:86:ARG:NH1	24:Q:88:ARG:HD2	2.19	0.56
34:a:1287:C:H1'	34:a:1292:C:O2	2.04	0.56
36:c:27:ASP:O	36:c:31:LEU:HB2	2.05	0.56
40:g:47:PHE:HD1	40:g:58:ALA:HB1	1.69	0.56
44:k:24:ARG:O	44:k:24:ARG:HG3	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:r:30:ASP:O	51:r:34:LEU:HG	2.05	0.56
6:6:123:HIS:HB3	6:6:125:GLU:OE1	2.05	0.56
37:d:93:ARG:NH2	37:d:130:SER:HB3	2.21	0.56
6:6:418:TYR:HB2	6:6:438:ARG:NH1	2.20	0.56
8:A:762:C:H2'	8:A:763:A:O4'	2.06	0.56
8:A:974:U:C2'	8:A:975:U:H5'	2.36	0.56
8:A:992:A:H1'	8:A:1028:G:C8	2.41	0.56
8:A:2329:U:C2'	8:A:2330:G:H5'	2.35	0.56
10:C:236:GLU:OE1	10:C:236:GLU:N	2.30	0.56
32:Y:17:THR:N	32:Y:48:LEU:HA	2.20	0.56
34:a:194:G:H1'	34:a:195:C:H5	1.71	0.56
34:a:1124:C:H5'	36:c:178:ARG:HH11	1.71	0.56
36:c:39:ARG:NH1	36:c:54:VAL:O	2.29	0.56
37:d:94:LEU:HD13	37:d:133:VAL:HG21	1.87	0.56
12:E:154:VAL:CG2	12:E:175:VAL:HG22	2.35	0.56
15:H:123:LEU:CD2	15:H:125:VAL:HG23	2.35	0.56
17:J:33:ARG:HD2	17:J:40:ALA:CB	2.36	0.56
21:N:35:ILE:HG12	21:N:40:GLU:OE1	2.06	0.56
32:Y:13:ILE:HA	32:Y:41:LYS:HA	1.86	0.56
34:a:1005:A:N6	34:a:1056:C:O2'	2.39	0.56
43:j:39:PRO:HA	43:j:73:LEU:O	2.06	0.56
8:A:864:A:O2'	8:A:865:A:OP2	2.17	0.56
8:A:1565:U:H2'	8:A:1565:U:OP2	2.05	0.56
10:C:132:LEU:HD23	10:C:135:ILE:HD12	1.88	0.56
15:H:126:TYR:OH	15:H:133:HIS:NE2	2.20	0.56
49:p:84:PHE:HA	49:p:87:GLN:HE21	1.70	0.56
8:A:499:A:N3	8:A:503:A:O2'	2.38	0.56
16:I:61:VAL:CG2	16:I:87:ILE:HD13	2.36	0.56
6:6:467:GLU:O	6:6:471:GLN:HG2	2.06	0.55
8:A:1052:A:H1'	8:A:1053:A:H2	1.71	0.55
8:A:1516:C:H2'	8:A:1517:A:H5'	1.87	0.55
12:E:154:VAL:HG22	12:E:175:VAL:HG22	1.88	0.55
15:H:77:ARG:O	15:H:85:ILE:HA	2.06	0.55
38:e:85:ILE:HD12	38:e:143:GLY:HA3	1.87	0.55
48:o:71:ARG:HG2	48:o:71:ARG:O	2.06	0.55
53:t:71:ALA:O	53:t:75:LYS:HE3	2.06	0.55
8:A:288:C:H2'	8:A:289:U:C6	2.41	0.55
8:A:2042:A:C2	33:Z:3:VAL:HG23	2.41	0.55
17:J:47:ARG:HB3	17:J:48:PRO:HD3	1.88	0.55
27:T:25:GLY:O	27:T:45:GLU:N	2.37	0.55
34:a:161:A:H3'	34:a:162:A:H8	1.71	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1025:A:H2'	34:a:1026:U:H5'	1.88	0.55
41:h:30:SER:HB3	41:h:33:LYS:HD3	1.88	0.55
42:i:30:ILE:HG13	42:i:65:VAL:CG1	2.36	0.55
3:3:19:SER:OG	3:3:20:GLY:N	2.31	0.55
8:A:1516:C:C2'	8:A:1517:A:H5'	2.36	0.55
37:d:98:VAL:O	37:d:98:VAL:HG12	2.05	0.55
53:t:70:LYS:O	53:t:72:ASP:N	2.39	0.55
8:A:1226:G:O2'	8:A:1227:U:O2	2.09	0.55
11:D:25:VAL:HG11	11:D:196:LEU:HG	1.89	0.55
12:E:153:LEU:CD1	12:E:185:ASP:HB3	2.37	0.55
28:U:26:SER:C	28:U:27:LYS:HD2	2.31	0.55
29:V:38:ILE:HG21	29:V:58:LYS:HD3	1.89	0.55
37:d:94:LEU:HD13	37:d:133:VAL:CG2	2.37	0.55
40:g:7:VAL:HB	40:g:8:PRO:HD2	1.88	0.55
41:h:10:MET:HG2	41:h:10:MET:O	2.07	0.55
45:l:26:LYS:HE3	45:l:74:ILE:HD11	1.89	0.55
6:6:33:LEU:CD1	6:6:200:LEU:HD13	2.37	0.55
6:6:156:GLN:O	6:6:158:THR:N	2.40	0.55
8:A:289:U:H2'	8:A:290:U:C6	2.41	0.55
8:A:868:A:C2'	8:A:869:G:H5'	2.35	0.55
8:A:1531:U:O2'	8:A:1532:U:H5'	2.07	0.55
20:M:30:ARG:NE	20:M:95:ASP:HB3	2.17	0.55
34:a:1174:G:OP2	34:a:1174:G:H2'	2.06	0.55
34:a:1267:A:H5'	34:a:1268:G:OP1	2.06	0.55
35:b:82:SER:O	35:b:85:GLU:HB2	2.07	0.55
36:c:118:ASN:O	36:c:122:GLN:HG3	2.07	0.55
43:j:80:THR:N	43:j:83:THR:OG1	2.38	0.55
8:A:809:A:H61	8:A:1816:A:H8	1.55	0.55
12:E:9:LEU:HD12	12:E:142:VAL:CG1	2.35	0.55
20:M:25:THR:HA	20:M:48:ASN:OD1	2.07	0.55
31:X:40:ASN:HB3	31:X:41:PRO:HD2	1.89	0.55
39:f:87:ILE:O	39:f:88:ARG:HB2	2.06	0.55
44:k:83:GLU:HB3	44:k:108:THR:HB	1.87	0.55
3:3:8:ARG:NE	8:A:256:C:H41	2.04	0.55
8:A:1556:G:C2'	8:A:1557:C:H5'	2.36	0.55
11:D:8:ARG:HH21	11:D:206:LYS:HD2	1.72	0.55
12:E:57:VAL:HG12	12:E:79:ARG:HD2	1.88	0.55
28:U:80:LYS:HE3	28:U:84:LYS:CB	2.37	0.55
30:W:37:LEU:O	30:W:38:GLU:HG3	2.07	0.55
49:p:86:GLU:O	49:p:88:LYS:N	2.40	0.55
6:6:526:LYS:O	6:6:529:GLU:HG3	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1013:U:OP1	31:X:17:GLU:HG3	2.07	0.55
8:A:1297:G:H2'	8:A:1298:G:H5'	1.89	0.55
8:A:2037:G:H5"	24:Q:42:ALA:HB2	1.87	0.55
8:A:2419:A:H2'	8:A:2420:U:O4'	2.06	0.55
12:E:141:ASN:O	12:E:145:THR:HG23	2.07	0.55
34:a:1174:G:O2'	34:a:1175:U:OP2	2.15	0.55
35:b:2:ALA:HB1	35:b:51:ASP:CB	2.36	0.55
35:b:69:PHE:HB3	35:b:80:VAL:CG2	2.37	0.55
41:h:55:ASP:OD1	41:h:55:ASP:N	2.39	0.55
45:l:107:ARG:HG3	45:l:108:TYR:CE2	2.41	0.55
48:o:10:GLU:OE2	48:o:13:LYS:HE2	2.06	0.55
48:o:19:GLU:O	48:o:20:THR:OG1	2.22	0.55
8:A:460:C:H2'	8:A:461:A:C8	2.42	0.55
12:E:135:LYS:HB3	12:E:138:GLU:HG2	1.88	0.55
14:G:156:PRO:O	14:G:171:ARG:HG3	2.07	0.55
15:H:46:THR:HB	15:H:49:VAL:HG12	1.89	0.55
35:b:117:ILE:HA	35:b:120:MET:CE	2.28	0.55
40:g:108:ALA:CB	40:g:116:MET:HE3	2.37	0.55
41:h:114:THR:HG23	41:h:115:ASP:N	2.21	0.55
43:j:47:SER:O	43:j:66:GLU:HB2	2.06	0.55
44:k:110:ILE:HG22	44:k:111:ARG:H	1.72	0.55
5:5:48:U:H3'	5:5:49:C:H5'	1.88	0.55
8:A:353:A:O2'	8:A:354:A:O5'	2.25	0.55
10:C:236:GLU:HG2	10:C:237:GLY:N	2.22	0.55
14:G:59:LYS:HA	14:G:62:ARG:NH2	2.22	0.55
28:U:74:VAL:HB	28:U:76:LYS:HZ2	1.72	0.55
32:Y:70:ARG:HH21	46:m:79:ARG:HD2	1.71	0.55
34:a:1354:C:H5'	42:i:124:ARG:O	2.07	0.55
37:d:101:LEU:HD23	37:d:165:LEU:HD23	1.88	0.55
53:t:28:MET:HG2	53:t:28:MET:O	2.06	0.55
3:3:30:SER:O	3:3:31:HIS:HB3	2.07	0.54
6:6:470:ILE:O	6:6:474:GLN:HG3	2.06	0.54
8:A:2007:G:O2'	8:A:2009:U:OP2	2.26	0.54
18:K:1:MET:HE2	18:K:48:GLU:CG	2.27	0.54
21:N:32:VAL:HG12	21:N:83:ILE:CD1	2.37	0.54
34:a:387:C:H5	34:a:392:G:H1	1.54	0.54
43:j:23:GLU:CG	43:j:39:PRO:HG3	2.37	0.54
43:j:28:THR:HA	43:j:31:ARG:HG2	1.89	0.54
8:A:89:U:H3'	8:A:90:A:H5"	1.88	0.54
8:A:1022:G:C2'	8:A:1023:A:H5'	2.37	0.54
8:A:2692:A:C2'	8:A:2693:C:H5'	2.37	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:86:GLU:HA	17:J:119:LYS:HD3	1.90	0.54
34:a:1104:A:O2'	34:a:1106:U:OP1	2.11	0.54
35:b:69:PHE:O	35:b:91:TYR:HA	2.08	0.54
39:f:25:ARG:O	39:f:28:GLY:N	2.34	0.54
43:j:24:LYS:HG3	43:j:25:ILE:CD1	2.37	0.54
5:5:30:G:OP1	46:m:118:ASN:HB2	2.07	0.54
8:A:337:A:O2'	8:A:338:G:O5'	2.26	0.54
8:A:1041:G:C2'	8:A:1042:C:H5'	2.35	0.54
8:A:2285:C:O2'	8:A:2454:C:OP2	2.24	0.54
11:D:54:GLU:O	11:D:85:LYS:HA	2.07	0.54
34:a:983:A:H5'	47:n:31:HIS:CE1	2.42	0.54
37:d:19:LEU:HD11	37:d:60:LEU:N	2.23	0.54
44:k:45:SER:OG	44:k:46:SER:N	2.39	0.54
23:P:35:PHE:HZ	23:P:37:LYS:HE3	1.72	0.54
31:X:38:GLU:N	31:X:38:GLU:OE1	2.40	0.54
34:a:13:U:H4'	34:a:534:C:H4'	1.90	0.54
34:a:1370:A:H2'	34:a:1370:A:N3	2.22	0.54
35:b:113:ARG:HG3	35:b:113:ARG:O	2.07	0.54
35:b:116:GLU:O	35:b:120:MET:HG3	2.07	0.54
35:b:140:GLU:O	35:b:140:GLU:HG2	2.05	0.54
37:d:120:LEU:HD23	37:d:120:LEU:O	2.07	0.54
43:j:92:LEU:HD13	43:j:98:ILE:HD11	1.89	0.54
6:6:72:MET:HE2	6:6:111:ILE:HD12	1.90	0.54
6:6:314:LEU:HB2	6:6:337:ILE:HG23	1.90	0.54
6:6:528:LEU:HD12	40:g:155:ARG:HH21	1.71	0.54
8:A:164:A:O2'	8:A:165:C:H5'	2.07	0.54
8:A:1959:A:H2'	8:A:1960:G:O4'	2.06	0.54
17:J:33:ARG:NH1	17:J:40:ALA:HB1	2.23	0.54
37:d:41:ARG:HH22	37:d:44:LEU:HD21	1.71	0.54
50:q:67:ARG:HH21	50:q:67:ARG:HG3	1.72	0.54
6:6:365:LEU:H	6:6:365:LEU:HD22	1.73	0.54
8:A:1471:A:H4'	8:A:1472:C:O5'	2.07	0.54
8:A:1776:A:H2'	8:A:1777:G:O4'	2.08	0.54
19:L:11:ASP:OD1	19:L:12:GLN:N	2.41	0.54
34:a:1103:A:H5'	40:g:4:LYS:HE3	1.89	0.54
34:a:1316:A:O2'	34:a:1317:U:H5'	2.08	0.54
35:b:5:SER:H	35:b:8:GLN:NE2	2.02	0.54
37:d:142:ARG:CD	37:d:144:LYS:HG2	2.37	0.54
46:m:12:GLU:HG3	46:m:12:GLU:O	2.08	0.54
5:5:17:U:H5"	5:5:18:C:O4'	2.07	0.54
12:E:158:ASN:O	12:E:159:GLU:HG3	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:661:U:H5'	41:h:56:LYS:HE3	1.90	0.54
34:a:1007:C:H2'	34:a:1008:C:O4'	2.07	0.54
34:a:1264:G:N2	34:a:1294:C:O2	2.40	0.54
34:a:1357:G:O2'	34:a:1383:G:O6	2.19	0.54
35:b:165:ASP:O	35:b:169:GLU:HG2	2.08	0.54
44:k:113:VAL:O	44:k:113:VAL:HG13	2.07	0.54
46:m:58:GLU:OE2	46:m:59:VAL:HG23	2.07	0.54
52:s:51:VAL:HG12	52:s:52:TYR:H	1.73	0.54
6:6:70:ASP:HB3	6:6:73:ASP:OD2	2.08	0.54
6:6:439:LEU:O	6:6:442:VAL:HG12	2.06	0.54
8:A:841:C:H2'	8:A:842:U:C6	2.43	0.54
13:F:13:THR:HA	13:F:17:MET:CB	2.37	0.54
14:G:64:ASN:O	14:G:68:THR:HG22	2.07	0.54
17:J:77:VAL:HG22	17:J:111:ILE:HD13	1.89	0.54
19:L:41:ARG:O	19:L:45:GLU:HG3	2.08	0.54
34:a:1006:U:H3	34:a:1055:A:N6	2.01	0.54
34:a:1202:C:H2'	34:a:1203:G:O4'	2.08	0.54
36:c:39:ARG:CZ	36:c:56:ILE:HD12	2.38	0.54
37:d:37:GLY:H	37:d:38:PRO:HD2	1.73	0.54
5:5:62:C:H2'	5:5:63:C:H5'	1.90	0.54
8:A:1800:A:H2'	8:A:1801:C:H5'	1.88	0.54
34:a:957:C:H42	34:a:1243:G:H1	1.56	0.54
34:a:1179:A:O2'	34:a:1180:A:O5'	2.25	0.54
35:b:51:ASP:O	35:b:54:TYR:N	2.41	0.54
43:j:92:LEU:HD13	43:j:98:ILE:CD1	2.38	0.54
8:A:1262:U:H4'	23:P:87:GLY:O	2.08	0.54
8:A:1800:A:C2'	8:A:1801:C:H5'	2.38	0.54
25:R:49:LYS:HD2	25:R:83:LYS:HB2	1.90	0.54
26:S:77:GLU:HB2	26:S:78:PRO:HD2	1.90	0.54
34:a:1128:A:H5'	42:i:112:MET:HE3	1.89	0.54
35:b:68:LEU:CD1	35:b:90:PHE:HB2	2.37	0.54
40:g:80:VAL:HG12	40:g:83:SER:H	1.73	0.54
42:i:52:GLN:O	42:i:56:VAL:HG23	2.07	0.54
43:j:27:GLU:CB	43:j:30:LYS:HE2	2.37	0.54
3:3:26:ARG:HD2	3:3:46:LYS:O	2.08	0.53
5:5:72:C:H3'	5:5:73:A:H8	1.73	0.53
8:A:665:G:OP2	8:A:665:G:N2	2.34	0.53
8:A:1970:U:H4'	8:A:1971:U:OP1	2.07	0.53
8:A:2716:U:H5"	8:A:2740:A:C2	2.43	0.53
22:O:58:ARG:HA	22:O:61:TRP:NE1	2.22	0.53
30:W:14:ILE:HG23	30:W:53:LEU:HD22	1.88	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:Z:3:VAL:HG22	33:Z:4:PRO:HD2	1.89	0.53
34:a:984:A:H5'	34:a:984:A:H8	1.74	0.53
34:a:1022:G:N2	34:a:1025:A:OP2	2.40	0.53
34:a:1178:C:H3'	34:a:1179:A:C4	2.43	0.53
38:e:32:ARG:HE	38:e:52:LYS:CD	2.20	0.53
46:m:78:LYS:HE3	46:m:82:GLU:OE2	2.08	0.53
46:m:88:GLY:C	46:m:91:HIS:H	2.16	0.53
51:r:47:ARG:HB3	51:r:57:GLN:NE2	2.22	0.53
1:1:31:GLU:OE2	1:1:46:ARG:HD2	2.08	0.53
6:6:76:MET:HE1	6:6:111:ILE:HG21	1.90	0.53
34:a:1139:C:H5	34:a:1154:G:H1	1.56	0.53
34:a:1340:U:H4'	46:m:23:TYR:CE1	2.43	0.53
35:b:58:LYS:HE2	35:b:223:GLU:OE2	2.08	0.53
42:i:71:GLY:O	42:i:77:GLN:NE2	2.37	0.53
49:p:87:GLN:HG3	49:p:87:GLN:O	2.08	0.53
50:q:30:TYR:HA	50:q:40:VAL:O	2.08	0.53
52:s:51:VAL:O	52:s:57:HIS:HA	2.07	0.53
2:2:34:ARG:HG2	2:2:37:ARG:CZ	2.39	0.53
8:A:2302:C:O2'	18:K:84:GLY:O	2.24	0.53
15:H:20:ASP:HA	15:H:58:ILE:CG2	2.38	0.53
21:N:30:VAL:CG1	21:N:83:ILE:HD12	2.39	0.53
41:h:42:SER:O	41:h:42:SER:OG	2.17	0.53
52:s:28:LYS:HE2	52:s:46:GLY:O	2.08	0.53
6:6:155:ASP:O	6:6:157:PRO:HD3	2.09	0.53
8:A:387:G:O2'	8:A:388:A:H5'	2.08	0.53
8:A:914:G:H2'	8:A:915:U:H5'	1.89	0.53
14:G:25:THR:HA	14:G:33:LEU:O	2.08	0.53
17:J:19:VAL:HG13	17:J:27:ASN:CB	2.38	0.53
20:M:39:HIS:CE1	20:M:41:TYR:HB2	2.42	0.53
20:M:99:TYR:HB2	20:M:104:ARG:NH1	2.24	0.53
34:a:1217:C:O2'	34:a:1218:C:H5'	2.09	0.53
35:b:6:MET:O	35:b:9:LEU:N	2.41	0.53
39:f:23:VAL:O	39:f:23:VAL:HG12	2.07	0.53
40:g:59:LEU:O	40:g:59:LEU:HD23	2.09	0.53
8:A:894:A:H2'	8:A:895:U:C6	2.44	0.53
8:A:1377:U:OP2	25:R:56:MET:HE1	2.09	0.53
8:A:2739:U:OP1	8:A:2741:G:H4'	2.09	0.53
16:I:68:GLY:H	16:I:78:LYS:HG2	1.73	0.53
20:M:65:THR:HG22	20:M:66:THR:H	1.74	0.53
25:R:89:LEU:HD23	25:R:89:LEU:H	1.74	0.53
36:c:55:GLU:O	36:c:56:ILE:HG13	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:45:LYS:C	39:f:46:ARG:HG3	2.33	0.53
11:D:106:SER:O	11:D:109:THR:HG23	2.08	0.53
20:M:33:VAL:HG21	20:M:104:ARG:HH22	1.72	0.53
35:b:55:ASN:N	35:b:55:ASN:OD1	2.33	0.53
35:b:211:LYS:HA	35:b:214:THR:HG22	1.91	0.53
37:d:4:PHE:CE1	37:d:6:GLY:HA3	2.44	0.53
53:t:58:ASP:OD1	53:t:75:LYS:HE2	2.09	0.53
4:4:20:LYS:HG3	4:4:20:LYS:O	2.08	0.53
8:A:82:G:O2'	8:A:83:G:H5'	2.09	0.53
8:A:2095:U:H5	8:A:2457:A:N7	2.06	0.53
10:C:110:LEU:HD12	10:C:110:LEU:O	2.09	0.53
19:L:26:ILE:HD11	19:L:69:VAL:CG2	2.35	0.53
38:e:74:VAL:HG12	38:e:75:PRO:O	2.08	0.53
42:i:69:VAL:HG12	42:i:70:HIS:H	1.74	0.53
3:3:13:ARG:NH2	17:J:58:PHE:HB3	2.22	0.53
6:6:135:GLU:HA	6:6:138:LYS:NZ	2.23	0.53
8:A:440:C:O2'	8:A:441:C:OP2	2.19	0.53
8:A:472:C:O2'	8:A:473:U:OP2	2.17	0.53
8:A:874:A:N7	8:A:2275:C:H5'	2.24	0.53
18:K:115:ARG:CZ	18:K:131:PHE:HB2	2.38	0.53
34:a:991:U:H5"	47:n:6:MET:CE	2.39	0.53
35:b:76:ALA:O	35:b:80:VAL:HG12	2.08	0.53
36:c:5:ILE:HG13	36:c:5:ILE:O	2.08	0.53
39:f:22:LEU:HA	39:f:25:ARG:HG2	1.89	0.53
43:j:59:LYS:O	43:j:60:ASP:HB2	2.07	0.53
6:6:1:MET:CE	6:6:24:HIS:HB2	2.38	0.53
8:A:1014:U:O2'	8:A:1015:C:OP2	2.22	0.53
8:A:2532:G:O2'	8:A:2533:U:OP2	2.23	0.53
26:S:9:VAL:HB	26:S:68:VAL:HG13	1.90	0.53
33:Z:27:MET:HA	33:Z:37:LYS:O	2.09	0.53
47:n:9:LYS:HG3	47:n:9:LYS:O	2.09	0.53
8:A:2414:U:O2'	28:U:49:ARG:NH1	2.42	0.53
12:E:36:ALA:HA	12:E:106:ARG:HH22	1.73	0.53
14:G:30:LYS:O	14:G:79:VAL:HG13	2.08	0.53
37:d:4:PHE:O	37:d:5:ARG:HG2	2.08	0.53
40:g:45:SER:O	40:g:49:LEU:HD13	2.09	0.53
40:g:106:ASN:O	40:g:106:ASN:ND2	2.43	0.53
46:m:52:GLU:O	46:m:56:ILE:HG12	2.09	0.53
3:3:52:LYS:HE2	3:3:52:LYS:HA	1.91	0.52
6:6:154:ILE:O	6:6:182:PHE:HA	2.09	0.52
8:A:1557:C:H2'	8:A:1557:C:OP2	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:I:61:VAL:HG23	16:I:87:ILE:HD13	1.91	0.52
24:Q:33:ILE:HD11	24:Q:51:LEU:HD22	1.91	0.52
25:R:4:ARG:HE	30:W:22:LYS:HD3	1.75	0.52
34:a:1328:A:H4'	52:s:10:PHE:CD2	2.43	0.52
35:b:142:ASP:O	35:b:146:LYS:HB2	2.08	0.52
36:c:176:THR:O	36:c:176:THR:OG1	2.23	0.52
40:g:79:ARG:HA	40:g:84:ASN:HA	1.91	0.52
8:A:1039:C:H5	15:H:4:THR:HB	1.74	0.52
8:A:2109:A:H2'	8:A:2110:G:O4'	2.09	0.52
17:J:33:ARG:HH11	17:J:40:ALA:HB1	1.72	0.52
34:a:1099:G:H2'	34:a:1100:G:O4'	2.09	0.52
35:b:100:LEU:CA	35:b:107:ILE:HD12	2.36	0.52
36:c:54:VAL:HG22	36:c:67:ILE:HD12	1.91	0.52
39:f:62:ILE:HD12	39:f:62:ILE:N	2.25	0.52
49:p:72:HIS:CD2	49:p:81:MET:HE2	2.44	0.52
52:s:30:VAL:HG12	52:s:48:THR:CG2	2.35	0.52
8:A:482:U:HO2'	8:A:483:C:P	2.31	0.52
8:A:1770:C:H3'	8:A:1771:A:H5"	1.90	0.52
8:A:2432:G:HO2'	8:A:2433:C:P	2.31	0.52
21:N:42:ILE:HG21	21:N:84:GLU:OE1	2.10	0.52
32:Y:80:LEU:N	32:Y:80:LEU:HD12	2.24	0.52
34:a:1124:C:H1'	36:c:177:LEU:HD13	1.91	0.52
38:e:61:LYS:O	38:e:65:GLU:HG2	2.09	0.52
6:6:535:ARG:HG3	44:k:90:GLY:O	2.10	0.52
34:a:1194:G:C2'	34:a:1195:G:H5'	2.39	0.52
35:b:222:LEU:HA	35:b:225:GLN:OE1	2.09	0.52
3:3:13:ARG:HB3	17:J:63:LYS:CG	2.39	0.52
6:6:321:SER:O	6:6:366:PRO:HD2	2.09	0.52
6:6:516:ILE:HG12	40:g:139:GLU:OE2	2.08	0.52
8:A:338:G:O2'	8:A:339:A:H5'	2.09	0.52
8:A:349:U:H5'	8:A:350:G:OP2	2.09	0.52
9:B:101:A:H2'	9:B:102:G:O4'	2.10	0.52
17:J:93:PRO:HD3	17:J:124:LYS:O	2.09	0.52
35:b:6:MET:HE1	35:b:47:VAL:CG2	2.36	0.52
36:c:11:ARG:O	36:c:16:ARG:HB2	2.08	0.52
39:f:78:ARG:HG2	39:f:78:ARG:HH21	1.74	0.52
44:k:20:VAL:HA	44:k:82:VAL:O	2.09	0.52
8:A:1917:A:H8	8:A:2261:G:H21	1.58	0.52
21:N:19:LEU:HD13	21:N:86:ILE:HD12	1.91	0.52
36:c:186:ALA:O	36:c:187:GLU:HB3	2.10	0.52
39:f:45:LYS:HD2	39:f:59:PHE:CE1	2.36	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:151:LEU:HD22	6:6:153:LEU:CD2	2.40	0.52
8:A:291:G:H2'	8:A:292:U:H6	1.74	0.52
8:A:357:U:O2'	8:A:358:G:H5'	2.09	0.52
8:A:1593:G:H5"	8:A:1594:U:OP1	2.09	0.52
8:A:1940:A:C2	34:a:1504:A:H5"	2.44	0.52
15:H:123:LEU:HD21	15:H:125:VAL:HG23	1.90	0.52
30:W:48:LYS:O	30:W:52:ARG:HG3	2.10	0.52
6:6:176:GLU:OE1	6:6:176:GLU:N	2.43	0.52
8:A:870:C:O2'	17:J:54:GLN:HG3	2.10	0.52
15:H:50:ASP:HB2	15:H:115:LEU:HD11	1.91	0.52
16:I:61:VAL:HG23	16:I:87:ILE:HG21	1.92	0.52
16:I:79:PHE:CD1	21:N:72:VAL:HG12	2.45	0.52
19:L:11:ASP:OD1	19:L:12:GLN:HG3	2.10	0.52
28:U:27:LYS:HD2	28:U:27:LYS:N	2.25	0.52
34:a:1230:G:OP1	52:s:37:ARG:NH1	2.36	0.52
44:k:68:GLU:O	44:k:72:LYS:HE3	2.10	0.52
8:A:877:G:H2'	8:A:878:C:C6	2.45	0.52
8:A:1523:G:H1	8:A:1557:C:H42	1.57	0.52
23:P:77:LYS:HD3	23:P:80:LYS:HD3	1.90	0.52
35:b:61:SER:OG	35:b:224:GLY:O	2.28	0.52
37:d:74:ILE:O	37:d:77:LYS:N	2.41	0.52
37:d:119:ILE:O	37:d:120:LEU:HB3	2.10	0.52
40:g:146:GLU:O	40:g:149:LYS:HB2	2.10	0.52
43:j:36:VAL:HG23	43:j:75:ASP:C	2.35	0.52
50:q:44:LYS:HE3	50:q:46:TYR:CZ	2.45	0.52
51:r:18:PHE:CE1	51:r:26:ILE:HD11	2.45	0.52
6:6:321:SER:O	6:6:365:LEU:HD12	2.09	0.52
8:A:2801:C:H2'	8:A:2802:A:O4'	2.10	0.52
12:E:157:GLU:HG3	12:E:158:ASN:ND2	2.24	0.52
12:E:201:LYS:O	12:E:205:VAL:HG23	2.09	0.52
15:H:33:VAL:O	15:H:37:LEU:HB2	2.10	0.52
29:V:47:VAL:HG22	29:V:48:TRP:H	1.73	0.52
34:a:1319:G:H2'	34:a:1320:U:O4'	2.10	0.52
36:c:124:GLU:HG3	36:c:188:ALA:HB1	1.92	0.52
36:c:133:GLN:OE1	36:c:167:TYR:HD2	1.92	0.52
37:d:82:HIS:O	37:d:82:HIS:ND1	2.36	0.52
42:i:129:PHE:CE1	42:i:131:LYS:HB3	2.45	0.52
45:l:38:LEU:O	45:l:39:ASN:HB2	2.10	0.52
46:m:4:ILE:HG22	46:m:60:VAL:HG21	1.92	0.52
46:m:11:ARG:HA	46:m:45:VAL:CG2	2.40	0.52
6:6:293:ASP:O	6:6:295:PRO:HD3	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:449:PRO:HG2	6:6:452:LEU:CD1	2.39	0.51
8:A:1759:G:O2'	8:A:1760:G:H5'	2.10	0.51
16:I:120:GLU:HG2	16:I:120:GLU:O	2.08	0.51
32:Y:77:LYS:HD2	32:Y:78:PHE:CE1	2.45	0.51
32:Y:80:LEU:N	32:Y:80:LEU:CD1	2.73	0.51
34:a:986:A:H3'	34:a:986:A:C8	2.44	0.51
34:a:1336:U:O2'	34:a:1337:A:H5'	2.10	0.51
53:t:70:LYS:C	53:t:72:ASP:H	2.19	0.51
6:6:12:ILE:HD13	55:6:601:ATP:C8	2.45	0.51
8:A:790:G:HO2'	8:A:793:G:HO2'	1.57	0.51
8:A:1050:C:O2'	8:A:1051:C:OP2	2.19	0.51
8:A:2393:A:H2'	8:A:2394:G:O4'	2.09	0.51
16:I:64:ARG:O	16:I:82:ASN:HA	2.10	0.51
35:b:18:HIS:NE2	35:b:188:ASP:OD2	2.40	0.51
6:6:357:ILE:HG23	6:6:453:ILE:HG21	1.92	0.51
8:A:615:A:OP2	23:P:78:ARG:NH1	2.43	0.51
8:A:651:A:H2'	8:A:652:A:C8	2.46	0.51
8:A:2664:U:C2'	8:A:2665:G:H5'	2.40	0.51
8:A:2807:G:OP2	15:H:121:LYS:HE3	2.10	0.51
11:D:186:VAL:CG2	11:D:198:LYS:HB2	2.40	0.51
22:O:112:LYS:HE3	23:P:48:VAL:CG2	2.40	0.51
27:T:24:SER:HB2	27:T:26:LYS:CE	2.41	0.51
34:a:1249:A:H4'	34:a:1250:U:H5"	1.91	0.51
35:b:51:ASP:O	35:b:54:TYR:HB3	2.09	0.51
40:g:13:LEU:H	40:g:13:LEU:HD23	1.75	0.51
46:m:90:ARG:CB	46:m:97:VAL:HG12	2.39	0.51
6:6:126:GLN:HB3	6:6:130:THR:CG2	2.41	0.51
8:A:1022:G:H2'	8:A:1023:A:H5'	1.92	0.51
12:E:146:LEU:O	12:E:148:GLN:HG2	2.10	0.51
34:a:1057:A:H2'	34:a:1058:G:O4'	2.10	0.51
8:A:2435:U:H2'	8:A:2436:G:C8	2.46	0.51
21:N:32:VAL:HG12	21:N:83:ILE:HD13	1.92	0.51
22:O:94:MET:O	22:O:98:ILE:HG13	2.11	0.51
34:a:952:U:H2'	34:a:953:G:H5'	1.92	0.51
34:a:1401:U:H2'	34:a:1402:G:C8	2.46	0.51
35:b:46:THR:HG22	35:b:50:VAL:CG2	2.34	0.51
35:b:212:LEU:O	35:b:215:ALA:HB3	2.10	0.51
36:c:154:GLY:O	36:c:156:LEU:N	2.43	0.51
37:d:149:ASN:O	37:d:153:GLU:HG3	2.10	0.51
38:e:96:MET:HB3	38:e:123:ILE:HD12	1.92	0.51
44:k:38:PHE:HB2	44:k:40:ASN:OD1	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:9:PRO:HB3	4:4:14:CYS:HB2	1.92	0.51
6:6:55:ASP:N	6:6:55:ASP:OD1	2.43	0.51
6:6:488:ILE:HA	6:6:491:ASP:OD2	2.10	0.51
6:6:520:SER:O	6:6:524:GLU:HG2	2.11	0.51
8:A:1773:A:O2'	8:A:1774:A:H5'	2.11	0.51
8:A:1826:G:OP1	10:C:260:ARG:HD2	2.10	0.51
8:A:2282:G:N2	28:U:17:SER:HB2	2.26	0.51
8:A:2383:C:H2'	8:A:2384:U:O4'	2.11	0.51
20:M:30:ARG:HA	20:M:93:VAL:O	2.10	0.51
20:M:30:ARG:CG	20:M:93:VAL:HG13	2.38	0.51
32:Y:16:ASP:HA	32:Y:47:ARG:C	2.36	0.51
35:b:127:GLU:HG3	35:b:128:VAL:N	2.25	0.51
44:k:84:VAL:HB	44:k:110:ILE:HG23	1.92	0.51
8:A:1200:A:OP1	22:O:51:ARG:NE	2.44	0.51
8:A:2061:U:C2'	8:A:2062:G:H5'	2.41	0.51
8:A:2627:A:N6	10:C:236:GLU:HG3	2.26	0.51
20:M:36:SER:OG	20:M:37:ASN:N	2.41	0.51
22:O:10:THR:O	22:O:14:ARG:HG3	2.11	0.51
41:h:12:THR:HG23	41:h:15:ARG:HH12	1.76	0.51
6:6:456:GLN:HE22	6:6:485:HIS:HD2	1.59	0.51
8:A:1199:A:H4'	22:O:51:ARG:HH21	1.75	0.51
8:A:2824:G:O2'	8:A:2825:U:H5'	2.11	0.51
10:C:230:HIS:CD2	10:C:232:HIS:H	2.27	0.51
34:a:421:G:H3'	34:a:436:G:H22	1.76	0.51
34:a:964:U:O2'	34:a:965:U:H5'	2.11	0.51
34:a:1064:G:H4'	34:a:1065:C:H3'	1.93	0.51
36:c:135:GLN:O	36:c:139:ARG:HG3	2.11	0.51
40:g:66:ILE:O	40:g:66:ILE:HG22	2.11	0.51
53:t:22:ILE:O	53:t:22:ILE:HG13	2.11	0.51
6:6:238:LYS:NZ	6:6:242:GLU:OE1	2.37	0.51
6:6:439:LEU:O	6:6:439:LEU:HD23	2.11	0.51
8:A:955:A:H2'	8:A:956:A:C8	2.45	0.51
30:W:42:ARG:O	30:W:46:VAL:HG23	2.11	0.51
35:b:57:LEU:O	35:b:60:VAL:HG12	2.10	0.51
36:c:83:ILE:HD11	36:c:102:VAL:HG23	1.93	0.51
38:e:18:ILE:HG22	38:e:19:ASN:N	2.26	0.51
40:g:70:MET:HB3	40:g:96:ARG:HH11	1.76	0.51
40:g:82:GLY:O	40:g:83:SER:OG	2.20	0.51
44:k:80:LYS:O	44:k:81:THR:HG23	2.11	0.51
8:A:373:A:H2	8:A:1248:U:H2'	1.76	0.51
8:A:388:A:H1'	8:A:389:A:H2	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:684:U:H2'	8:A:685:C:C6	2.46	0.51
14:G:118:GLU:OE2	14:G:144:LEU:HD12	2.11	0.51
17:J:86:GLU:HA	17:J:119:LYS:HE2	1.93	0.51
34:a:950:G:O2'	34:a:1360:A:H4'	2.11	0.51
35:b:127:GLU:HG3	35:b:128:VAL:H	1.76	0.51
11:D:121:VAL:HA	11:D:176:ASN:O	2.12	0.50
23:P:92:TYR:CE2	23:P:94:LYS:HG2	2.40	0.50
34:a:1001:U:H4'	34:a:1002:G:O5'	2.09	0.50
34:a:1297:A:H8	34:a:1363:G:O2'	1.94	0.50
35:b:2:ALA:HA	35:b:54:TYR:CG	2.45	0.50
35:b:148:LEU:HD22	35:b:151:ILE:HD11	1.92	0.50
36:c:135:GLN:HA	36:c:138:THR:HB	1.93	0.50
41:h:77:LEU:O	41:h:78:LYS:HB2	2.11	0.50
46:m:52:GLU:HA	46:m:55:ARG:HB2	1.94	0.50
1:1:2:ARG:NH2	8:A:2312:C:OP2	2.37	0.50
6:6:46:HIS:CE1	6:6:58:MET:HE2	2.46	0.50
6:6:151:LEU:HD22	6:6:153:LEU:HD22	1.92	0.50
8:A:702:U:H2'	8:A:703:A:C8	2.45	0.50
8:A:2663:U:OP1	11:D:90:GLU:HG3	2.11	0.50
8:A:2694:C:C3'	8:A:2695:G:H5"	2.40	0.50
10:C:130:LEU:HD11	10:C:135:ILE:HG12	1.92	0.50
20:M:113:ARG:NE	20:M:119:PHE:H	2.09	0.50
26:S:70:LEU:HD22	26:S:81:VAL:HG11	1.94	0.50
36:c:108:VAL:HG22	36:c:114:LEU:HD13	1.92	0.50
41:h:12:THR:O	41:h:12:THR:HG22	2.11	0.50
42:i:15:LYS:H	42:i:108:ARG:HH22	1.59	0.50
45:l:36:THR:HG22	45:l:37:ASP:N	2.27	0.50
5:5:17:U:H5"	5:5:18:C:C1'	2.40	0.50
6:6:414:LEU:HD23	6:6:424:MET:CE	2.37	0.50
6:6:510:VAL:HG22	6:6:512:ILE:HG22	1.93	0.50
8:A:275:A:N7	8:A:296:G:N2	2.60	0.50
20:M:44:ILE:HG22	20:M:54:ALA:O	2.11	0.50
29:V:31:ALA:HB3	29:V:33:LEU:HD13	1.93	0.50
30:W:64:GLN:NE2	30:W:65:SER:OG	2.44	0.50
34:a:902:C:H2'	34:a:903:G:C8	2.47	0.50
34:a:1003:A:C5	34:a:1226:A:H4'	2.47	0.50
34:a:1332:C:P	52:s:78:ARG:HH22	2.35	0.50
34:a:1409:C:H4'	34:a:1410:C:H5"	1.94	0.50
35:b:38:ILE:HG22	35:b:39:TYR:O	2.11	0.50
35:b:108:SER:O	35:b:111:ILE:HG22	2.11	0.50
35:b:131:LYS:O	35:b:135:VAL:HG13	2.10	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:d:52:ARG:O	37:d:52:ARG:HG2	2.12	0.50
37:d:184:GLU:O	37:d:185:LEU:HG	2.11	0.50
40:g:69:ILE:O	40:g:71:PRO:HD3	2.11	0.50
42:i:108:ARG:NH2	42:i:112:MET:HE1	2.26	0.50
43:j:27:GLU:O	43:j:31:ARG:HG2	2.11	0.50
44:k:25:SER:O	44:k:25:SER:OG	2.25	0.50
2:2:20:ARG:HA	2:2:23:MET:HG2	1.94	0.50
8:A:78:U:H5'	30:W:7:ARG:HH22	1.76	0.50
8:A:538:G:H2'	8:A:539:G:O4'	2.10	0.50
8:A:2436:G:C2'	8:A:2437:G:H5'	2.39	0.50
11:D:3:LYS:HB2	11:D:213:THR:HG23	1.93	0.50
19:L:80:THR:HG22	19:L:82:LEU:H	1.75	0.50
34:a:401:A:OP1	49:p:14:ARG:NH2	2.41	0.50
34:a:983:A:H8	47:n:31:HIS:CE1	2.29	0.50
36:c:187:GLU:CD	36:c:194:LYS:HE2	2.37	0.50
40:g:116:MET:HG3	40:g:119:ARG:HE	1.76	0.50
45:l:31:LYS:O	45:l:33:LYS:HG2	2.11	0.50
6:6:512:ILE:HG13	40:g:130:ASN:HB2	1.92	0.50
8:A:132:C:O2'	8:A:133:A:H5'	2.11	0.50
8:A:155:U:H2'	8:A:156:A:O4'	2.12	0.50
8:A:253:G:H2'	8:A:254:A:C8	2.46	0.50
8:A:2379:A:H2'	8:A:2380:G:O4'	2.12	0.50
16:I:88:ARG:HG3	16:I:94:ARG:CG	2.40	0.50
21:N:27:THR:O	21:N:28:LEU:HD23	2.12	0.50
30:W:11:THR:OG1	30:W:60:ARG:NH2	2.45	0.50
34:a:1057:A:C2'	34:a:1058:G:H5'	2.42	0.50
35:b:216:LYS:HA	35:b:216:LYS:CE	2.40	0.50
36:c:42:ILE:CG2	36:c:46:LEU:HD12	2.42	0.50
36:c:51:VAL:CB	36:c:67:ILE:HD11	2.40	0.50
41:h:75:THR:HG22	41:h:132:TRP:O	2.12	0.50
42:i:22:ARG:NH2	42:i:66:LEU:HD12	2.27	0.50
42:i:87:ARG:HA	42:i:90:LEU:HD22	1.92	0.50
48:o:74:ASP:OD2	48:o:77:ARG:HB2	2.11	0.50
6:6:402:ILE:HG22	6:6:403:GLU:H	1.77	0.50
8:A:1027:A:HO2'	8:A:1028:G:P	2.31	0.50
8:A:2083:G:N2	33:Z:2:ALA:HB3	2.27	0.50
8:A:2672:G:H3'	8:A:2673:C:C5'	2.40	0.50
35:b:31:ILE:HG22	35:b:32:PHE:H	1.77	0.50
35:b:86:ARG:O	35:b:86:ARG:HD2	2.12	0.50
40:g:42:ILE:HG23	40:g:116:MET:O	2.12	0.50
41:h:39:ILE:HD13	41:h:39:ILE:N	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:t:71:ALA:O	53:t:75:LYS:HG3	2.10	0.50
17:J:86:GLU:HA	17:J:119:LYS:CD	2.42	0.50
17:J:92:THR:CG2	17:J:95:LEU:H	2.24	0.50
18:K:9:TYR:O	18:K:12:GLN:NE2	2.27	0.50
28:U:80:LYS:HE3	28:U:84:LYS:HB3	1.94	0.50
34:a:1175:U:C2'	34:a:1176:G:H5"	2.35	0.50
37:d:18:SER:OG	37:d:25:GLU:OE1	2.27	0.50
42:i:32:VAL:HG21	42:i:37:VAL:HG23	1.93	0.50
5:5:20:G:H21	6:6:412:THR:HB	1.77	0.50
8:A:117:A:OP2	8:A:118:A:H2'	2.11	0.50
8:A:2318:U:H2'	8:A:2319:U:C6	2.46	0.50
8:A:2903:A:OP2	33:Z:49:TYR:OH	2.23	0.50
9:B:29:C:O2'	9:B:51:A:N1	2.37	0.50
36:c:5:ILE:O	36:c:5:ILE:HG23	2.11	0.50
36:c:130:ARG:HG2	36:c:167:TYR:OH	2.11	0.50
39:f:62:ILE:O	39:f:63:VAL:HG23	2.12	0.50
41:h:97:VAL:HG21	41:h:103:ILE:O	2.12	0.50
44:k:19:GLY:HA3	44:k:35:THR:O	2.12	0.50
3:3:29:THR:O	3:3:30:SER:HB3	2.12	0.50
8:A:2477:A:H5"	8:A:2478:A:OP2	2.12	0.50
23:P:69:LYS:HD2	23:P:70:LYS:N	2.26	0.50
34:a:1214:A:H1'	36:c:194:LYS:HZ1	1.76	0.50
36:c:98:VAL:HG12	36:c:99:HIS:CG	2.47	0.50
46:m:37:ALA:HB1	46:m:52:GLU:OE2	2.12	0.50
49:p:22:VAL:O	49:p:22:VAL:HG12	2.12	0.50
8:A:301:U:H3'	8:A:302:A:H4'	1.93	0.49
8:A:1472:C:O2'	8:A:1616:A:OP2	2.19	0.49
8:A:2647:C:OP1	11:D:166:GLY:N	2.44	0.49
13:F:12:VAL:O	13:F:17:MET:N	2.36	0.49
26:S:74:LYS:CE	26:S:97:SER:HB3	2.42	0.49
34:a:1125:C:H42	34:a:1196:G:H1	1.60	0.49
34:a:1238:C:OP1	46:m:107:ARG:NH2	2.33	0.49
36:c:26:LYS:HE2	36:c:26:LYS:HA	1.93	0.49
37:d:139:ILE:HD12	37:d:139:ILE:N	2.27	0.49
38:e:157:ARG:HG2	41:h:43:GLU:O	2.12	0.49
43:j:69:THR:HG23	43:j:71:LYS:HZ2	1.76	0.49
44:k:64:GLN:O	44:k:64:GLN:HG2	2.12	0.49
45:l:34:LYS:HZ2	45:l:34:LYS:HB3	1.77	0.49
8:A:1461:C:H2'	8:A:1462:G:H5'	1.93	0.49
8:A:2052:C:H2'	8:A:2053:U:C6	2.47	0.49
8:A:2338:A:O2'	8:A:2339:U:O4'	2.30	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:W:58:ARG:O	30:W:62:ILE:HG12	2.12	0.49
34:a:1316:A:H2'	34:a:1317:U:H6	1.77	0.49
35:b:54:TYR:CZ	35:b:220:ALA:HB2	2.47	0.49
37:d:148:LEU:HD12	37:d:151:ILE:HD11	1.94	0.49
39:f:17:ASP:OD1	39:f:18:ALA:N	2.42	0.49
1:1:10:THR:HG22	1:1:46:ARG:HG2	1.93	0.49
2:2:34:ARG:C	2:2:34:ARG:HD3	2.38	0.49
8:A:903:G:O2'	8:A:2296:A:H5'	2.11	0.49
8:A:975:U:O2'	8:A:976:U:H5"	2.11	0.49
17:J:19:VAL:HG13	17:J:27:ASN:O	2.12	0.49
19:L:105:LYS:O	33:Z:42:VAL:HG23	2.13	0.49
35:b:31:ILE:HG22	35:b:32:PHE:N	2.27	0.49
42:i:15:LYS:O	42:i:16:ASN:HB2	2.11	0.49
42:i:125:ARG:NH1	42:i:126:SER:O	2.44	0.49
44:k:17:GLU:HG3	44:k:18:ASN:ND2	2.27	0.49
45:l:46:VAL:C	45:l:68:VAL:HG23	2.38	0.49
2:2:34:ARG:HA	2:2:37:ARG:CD	2.42	0.49
5:5:49:C:H2'	5:5:60:A:H4'	1.94	0.49
6:6:48:ILE:HA	6:6:52:GLU:CG	2.42	0.49
6:6:306:ASN:ND2	6:6:477:ASN:O	2.45	0.49
8:A:68:A:C2'	8:A:69:C:H5'	2.42	0.49
8:A:1312:A:N6	8:A:1333:A:H4'	2.27	0.49
28:U:32:LYS:HE3	28:U:47:ARG:HH21	1.76	0.49
34:a:1059:G:H1	34:a:1219:C:H42	1.58	0.49
34:a:1100:G:O2'	34:a:1178:C:N4	2.46	0.49
35:b:214:THR:O	35:b:214:THR:OG1	2.24	0.49
39:f:69:ASN:O	39:f:70:ASN:HB3	2.11	0.49
40:g:118:ASP:C	40:g:121:ALA:H	2.20	0.49
45:l:98:GLY:O	45:l:109:HIS:HD2	1.95	0.49
50:q:69:LEU:HD23	50:q:69:LEU:C	2.37	0.49
51:r:16:CYS:SG	51:r:18:PHE:HB2	2.51	0.49
8:A:161:A:H62	8:A:167:U:H3	1.61	0.49
8:A:2224:U:C2'	8:A:2225:A:H5"	2.42	0.49
9:B:13:A:O2'	9:B:14:G:H5'	2.12	0.49
24:Q:33:ILE:CD1	24:Q:51:LEU:HD22	2.42	0.49
25:R:49:LYS:NZ	25:R:83:LYS:HG3	2.28	0.49
40:g:108:ALA:HB3	40:g:116:MET:HE3	1.94	0.49
50:q:26:LEU:HD23	50:q:26:LEU:C	2.37	0.49
8:A:2580:G:C2	8:A:2610:G:H1'	2.48	0.49
8:A:2747:U:H5	8:A:2893:A:N7	2.10	0.49
10:C:139:THR:O	10:C:163:GLN:HA	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1244:C:C2'	34:a:1245:U:H5'	2.41	0.49
45:l:26:LYS:HE3	45:l:74:ILE:CD1	2.43	0.49
45:l:102:ASP:O	45:l:104:PRO:HD3	2.12	0.49
6:6:285:ARG:O	6:6:289:GLU:HB3	2.13	0.49
8:A:985:A:H2'	8:A:986:G:C8	2.48	0.49
9:B:74:G:H2'	9:B:75:U:O4'	2.12	0.49
17:J:74:TYR:CZ	17:J:127:LYS:HD2	2.47	0.49
20:M:38:LYS:O	20:M:59:LYS:NZ	2.30	0.49
25:R:4:ARG:NH1	25:R:5:ASP:HB2	2.27	0.49
29:V:7:VAL:HG11	29:V:49:VAL:HG13	1.94	0.49
34:a:316:C:H2'	34:a:317:G:C8	2.48	0.49
34:a:1074:C:O2'	34:a:1075:G:OP1	2.27	0.49
35:b:45:LYS:HA	35:b:48:LYS:HZ3	1.77	0.49
53:t:67:HIS:C	53:t:69:ASN:H	2.21	0.49
6:6:342:THR:HG23	6:6:480:VAL:HG22	1.94	0.49
6:6:435:GLU:HG2	6:6:438:ARG:NH2	2.27	0.49
8:A:69:C:O2'	8:A:70:G:OP2	2.25	0.49
8:A:682:A:H4'	8:A:683:G:O5'	2.13	0.49
8:A:864:A:N7	8:A:1227:U:H5	2.11	0.49
8:A:1537:A:H2'	8:A:1538:A:C8	2.48	0.49
14:G:117:ALA:HB2	14:G:123:PHE:CE2	2.47	0.49
18:K:21:SER:HB2	18:K:101:ARG:HG3	1.93	0.49
21:N:36:GLU:OE2	21:N:38:THR:HG22	2.12	0.49
36:c:113:ARG:NH2	36:c:184:ALA:HB1	2.28	0.49
50:q:51:GLU:O	50:q:53:ASN:N	2.46	0.49
8:A:850:G:N2	8:A:874:A:OP1	2.46	0.49
8:A:2342:U:H2'	8:A:2343:U:C6	2.48	0.49
8:A:2382:C:O2'	28:U:47:ARG:NH2	2.46	0.49
8:A:2783:U:H4'	8:A:2784:A:OP1	2.13	0.49
9:B:102:G:H4'	27:T:34:TYR:OH	2.12	0.49
11:D:10:ILE:HG13	11:D:27:VAL:HB	1.95	0.49
11:D:133:ARG:HA	11:D:173:MET:SD	2.53	0.49
34:a:721:G:H2'	34:a:722:G:C8	2.48	0.49
38:e:79:GLY:O	38:e:120:ILE:O	2.31	0.49
40:g:135:VAL:O	40:g:135:VAL:HG22	2.12	0.49
41:h:127:ILE:HG23	41:h:127:ILE:HD12	1.46	0.49
42:i:100:LEU:O	42:i:105:LEU:HB2	2.13	0.49
52:s:62:VAL:HA	52:s:66:MET:CE	2.42	0.49
6:6:332:ASP:N	6:6:332:ASP:OD1	2.43	0.49
14:G:22:ASN:O	14:G:36:THR:HA	2.13	0.49
20:M:31:LEU:HD12	20:M:43:GLN:O	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1212:U:H2'	34:a:1213:C:O5'	2.13	0.49
37:d:41:ARG:NH2	37:d:44:LEU:HD21	2.28	0.49
38:e:39:VAL:HG22	38:e:67:ALA:HB1	1.94	0.49
38:e:114:VAL:HG21	38:e:137:VAL:HG23	1.94	0.49
39:f:14:ILE:CD1	39:f:19:LYS:HB2	2.39	0.49
44:k:81:THR:HG22	44:k:106:GLU:HG3	1.95	0.49
8:A:1756:U:HO2'	8:A:1757:U:H6	1.60	0.48
10:C:82:GLN:HG2	10:C:83:TYR:H	1.77	0.48
11:D:3:LYS:HB2	11:D:213:THR:CG2	2.42	0.48
14:G:31:GLY:HA2	14:G:79:VAL:CG1	2.43	0.48
21:N:80:THR:CG2	21:N:83:ILE:HG12	2.43	0.48
34:a:1025:A:H2'	34:a:1026:U:C5'	2.42	0.48
42:i:86:ALA:HB1	42:i:100:LEU:HD21	1.94	0.48
53:t:45:ASN:HB3	53:t:49:LEU:HG	1.95	0.48
6:6:141:PHE:O	6:6:144:VAL:HG12	2.12	0.48
9:B:97:G:H2'	9:B:98:A:O4'	2.12	0.48
36:c:98:VAL:HG12	36:c:99:HIS:CD2	2.48	0.48
41:h:52:VAL:HG12	41:h:53:GLU:N	2.23	0.48
8:A:328:G:N2	8:A:399:U:H1'	2.28	0.48
8:A:546:A:H2'	8:A:547:A:O4'	2.13	0.48
8:A:1366:U:H5"	8:A:1367:C:H5	1.79	0.48
9:B:15:C:H2'	9:B:16:A:H5'	1.95	0.48
20:M:84:ALA:O	20:M:89:ILE:HG22	2.13	0.48
29:V:27:ARG:NH1	29:V:28:ARG:O	2.46	0.48
34:a:1378:A:O2'	34:a:1379:C:H5'	2.13	0.48
37:d:20:SER:HB2	37:d:25:GLU:OE2	2.13	0.48
38:e:14:ARG:HG3	38:e:14:ARG:O	2.12	0.48
39:f:29:ILE:O	39:f:29:ILE:HG22	2.12	0.48
39:f:78:ARG:HG2	39:f:78:ARG:NH2	2.28	0.48
8:A:905:U:H1'	8:A:2295:A:H5"	1.96	0.48
8:A:1566:G:H5'	8:A:1567:A:H2'	1.95	0.48
8:A:2290:C:H4'	8:A:2356:A:H4'	1.94	0.48
36:c:183:TYR:HA	36:c:199:VAL:O	2.14	0.48
44:k:26:THR:HG22	44:k:27:PHE:N	2.28	0.48
50:q:73:LYS:O	50:q:74:ARG:HD2	2.13	0.48
6:6:307:ASN:HB2	6:6:450:HIS:CD2	2.48	0.48
8:A:2222:U:O2'	8:A:2223:C:H5'	2.13	0.48
8:A:2725:U:H2'	8:A:2726:C:C6	2.49	0.48
10:C:172:VAL:O	10:C:183:MET:HA	2.13	0.48
12:E:160:ASP:HB3	12:E:163:VAL:HG12	1.95	0.48
16:I:2:ILE:HG13	16:I:62:ILE:HD13	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:L:42:SER:O	19:L:46:LYS:HG2	2.12	0.48
20:M:101:TYR:HA	20:M:105:VAL:CG1	2.43	0.48
31:X:6:ILE:HD11	31:X:47:ILE:HD11	1.95	0.48
34:a:470:A:H2'	34:a:471:A:C8	2.49	0.48
35:b:191:CYS:SG	35:b:192:ASP:N	2.86	0.48
37:d:74:ILE:HG21	37:d:74:ILE:HD13	1.48	0.48
40:g:43:LEU:HD12	40:g:43:LEU:O	2.13	0.48
41:h:10:MET:HG3	41:h:27:LEU:CD2	2.32	0.48
6:6:491:ASP:OD1	6:6:491:ASP:N	2.43	0.48
8:A:80:G:H4'	8:A:389:A:H1'	1.95	0.48
8:A:688:A:N1	8:A:2396:A:O2'	2.46	0.48
8:A:2051:C:H2'	8:A:2052:C:C6	2.49	0.48
11:D:25:VAL:CG1	11:D:196:LEU:HG	2.43	0.48
17:J:93:PRO:HG2	17:J:146:ILE:CD1	2.44	0.48
27:T:64:GLY:HA2	27:T:69:THR:HA	1.94	0.48
36:c:90:LEU:O	36:c:93:LEU:HB2	2.13	0.48
36:c:133:GLN:O	36:c:137:ILE:HG12	2.13	0.48
38:e:12:GLU:C	38:e:13:GLU:HG3	2.38	0.48
38:e:104:GLY:O	38:e:122:ASP:HA	2.13	0.48
46:m:36:GLU:HB2	46:m:59:VAL:HG21	1.94	0.48
52:s:41:PHE:HD2	52:s:44:PHE:HE2	1.60	0.48
6:6:322:PHE:CD1	6:6:366:PRO:HD3	2.49	0.48
8:A:597:U:H2'	8:A:598:G:O4'	2.14	0.48
8:A:2048:G:H2'	8:A:2048:G:N3	2.28	0.48
8:A:2672:G:H3'	8:A:2673:C:H5'	1.96	0.48
14:G:137:SER:HB2	14:G:140:GLN:HB3	1.94	0.48
24:Q:29:ALA:O	24:Q:33:ILE:HG12	2.13	0.48
28:U:87:VAL:HG12	28:U:88:SER:H	1.79	0.48
34:a:1023:A:H8	34:a:1229:U:O2'	1.97	0.48
34:a:1177:A:H4'	34:a:1178:C:O5'	2.11	0.48
35:b:75:GLN:CG	35:b:207:ILE:HG13	2.33	0.48
36:c:128:SER:OG	36:c:131:ARG:HG2	2.14	0.48
3:3:13:ARG:CB	17:J:63:LYS:HG3	2.39	0.48
8:A:1071:A:C2	8:A:2515:A:H5'	2.48	0.48
9:B:112:A:H4'	20:M:55:GLN:OE1	2.14	0.48
14:G:95:ARG:CD	14:G:97:GLN:HE22	2.26	0.48
20:M:29:PRO:HB3	20:M:45:ILE:O	2.14	0.48
35:b:110:ARG:HH11	35:b:144:LEU:HD21	1.79	0.48
42:i:81:ILE:O	42:i:84:GLY:N	2.31	0.48
44:k:35:THR:HG23	44:k:36:ASP:O	2.14	0.48
8:A:900:G:O2'	28:U:35:ASP:OD2	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1880:A:H2'	8:A:1881:A:C8	2.49	0.48
17:J:78:ASN:HA	17:J:112:LEU:O	2.13	0.48
19:L:94:THR:HG23	19:L:95:GLU:CD	2.39	0.48
34:a:530:C:H1'	34:a:544:C:H5"	1.94	0.48
34:a:1252:G:N1	34:a:1306:C:O2	2.47	0.48
34:a:1470:U:H2'	34:a:1471:A:H8	1.79	0.48
35:b:20:THR:HG23	35:b:37:GLY:O	2.13	0.48
35:b:57:LEU:HD12	35:b:217:MET:SD	2.54	0.48
37:d:189:ILE:HD13	37:d:189:ILE:HA	1.43	0.48
50:q:26:LEU:CD2	50:q:43:SER:HB2	2.39	0.48
10:C:168:GLU:N	10:C:168:GLU:OE1	2.47	0.48
12:E:81:PRO:HB3	12:E:89:VAL:HG23	1.94	0.48
27:T:46:VAL:O	27:T:50:LYS:HG3	2.13	0.48
34:a:1178:C:H3'	34:a:1179:A:N9	2.29	0.48
34:a:1376:C:H2'	34:a:1377:U:C6	2.48	0.48
34:a:1383:G:H22	42:i:15:LYS:NZ	2.11	0.48
35:b:165:ASP:OD2	35:b:168:LYS:HG3	2.14	0.48
39:f:36:GLU:OE2	39:f:66:LYS:HD3	2.13	0.48
41:h:128:ILE:HG21	41:h:128:ILE:HD13	1.45	0.48
42:i:49:ASP:HB2	42:i:52:GLN:NE2	2.15	0.48
46:m:83:ILE:O	46:m:84:SER:HB2	2.13	0.48
1:1:33:LYS:HA	1:1:43:THR:O	2.14	0.47
6:6:324:TYR:HB3	55:6:602:ATP:C2	2.49	0.47
8:A:231:A:H3'	8:A:231:A:OP2	2.13	0.47
14:G:89:LEU:HG	14:G:129:THR:O	2.15	0.47
14:G:121:ILE:CD1	14:G:135:GLY:HA3	2.44	0.47
18:K:21:SER:CB	18:K:101:ARG:HG3	2.44	0.47
43:j:82:LYS:HG3	43:j:85:ASP:OD2	2.14	0.47
44:k:79:LEU:HD23	44:k:80:LYS:N	2.29	0.47
52:s:3:ARG:HG3	52:s:3:ARG:HH21	1.79	0.47
3:3:7:HIS:HD2	3:3:10:ALA:H	1.62	0.47
8:A:27:G:OP1	8:A:1298:G:H5"	2.15	0.47
8:A:343:A:OP2	26:S:80:ARG:NH2	2.47	0.47
8:A:871:U:O2'	17:J:53:GLY:HA3	2.14	0.47
27:T:73:MET:HE3	27:T:73:MET:HB3	1.71	0.47
34:a:71:A:C8	34:a:153:C:H4'	2.49	0.47
35:b:7:LYS:HB3	35:b:7:LYS:HE2	1.53	0.47
49:p:80:ILE:C	49:p:82:LYS:H	2.22	0.47
4:4:22:LYS:HD3	4:4:35:ARG:HD2	1.96	0.47
8:A:173:A:O2'	8:A:174:U:H5'	2.14	0.47
8:A:575:G:H2'	8:A:575:G:N3	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1763:U:H2'	8:A:1765:A:H2	1.79	0.47
10:C:107:PRO:HD2	10:C:110:LEU:HD21	1.96	0.47
21:N:51:LYS:HB2	21:N:98:LYS:HD3	1.95	0.47
30:W:18:ILE:O	30:W:22:LYS:HB2	2.15	0.47
34:a:176:C:H2'	34:a:177:G:H8	1.79	0.47
37:d:106:THR:HG23	37:d:109:GLN:H	1.79	0.47
37:d:191:GLU:H	37:d:191:GLU:HG2	1.21	0.47
40:g:107:TYR:OH	40:g:137:LYS:HD3	2.15	0.47
41:h:96:LYS:HE2	41:h:96:LYS:HB3	1.75	0.47
42:i:94:PRO:O	42:i:97:ARG:HB2	2.14	0.47
49:p:8:THR:O	49:p:18:TYR:CD1	2.66	0.47
49:p:86:GLU:O	49:p:88:LYS:HG2	2.14	0.47
52:s:12:ASP:HB2	52:s:38:SER:OG	2.14	0.47
8:A:565:G:H2'	8:A:566:U:O4'	2.15	0.47
8:A:1182:G:H5"	8:A:1183:G:OP2	2.14	0.47
8:A:1468:G:H2'	8:A:1469:G:O4'	2.13	0.47
8:A:2698:A:H2'	8:A:2699:U:O4'	2.14	0.47
22:O:51:ARG:HH11	22:O:52:GLN:HG3	1.79	0.47
24:Q:59:GLU:HG3	24:Q:60:HIS:N	2.28	0.47
37:d:189:ILE:HG23	37:d:189:ILE:HD12	1.44	0.47
38:e:13:GLU:CG	38:e:39:VAL:HG12	2.44	0.47
49:p:52:VAL:O	49:p:52:VAL:HG13	2.15	0.47
6:6:6:GLU:O	6:6:8:LYS:NZ	2.47	0.47
6:6:421:LYS:HD2	6:6:421:LYS:O	2.14	0.47
6:6:509:ASN:ND2	40:g:132:GLY:HA2	2.29	0.47
8:A:1357:G:C2	8:A:1366:U:H5'	2.49	0.47
9:B:60:C:O2'	9:B:61:C:H5'	2.13	0.47
10:C:68:LYS:HG3	10:C:68:LYS:O	2.15	0.47
14:G:102:ASP:HB2	14:G:115:ILE:O	2.14	0.47
19:L:73:ASN:HB2	19:L:77:THR:O	2.15	0.47
23:P:35:PHE:CZ	23:P:37:LYS:HE3	2.48	0.47
34:a:1124:C:H42	34:a:1197:G:H1	1.62	0.47
34:a:1235:A:H2'	34:a:1235:A:N3	2.30	0.47
35:b:13:GLY:O	35:b:15:HIS:N	2.47	0.47
35:b:33:THR:OG1	35:b:34:GLU:N	2.44	0.47
36:c:69:THR:CG2	36:c:102:VAL:HG13	2.42	0.47
39:f:14:ILE:HD11	39:f:19:LYS:CA	2.43	0.47
40:g:63:GLU:O	40:g:63:GLU:HG3	2.14	0.47
42:i:49:ASP:HA	42:i:52:GLN:HG3	1.96	0.47
46:m:64:LYS:HE3	46:m:69:LEU:HD12	1.97	0.47
48:o:63:ARG:HE	48:o:63:ARG:HB3	1.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:q:80:ILE:HG22	50:q:81:VAL:N	2.30	0.47
6:6:12:ILE:HB	6:6:43:THR:HG21	1.97	0.47
8:A:62:C:H5"	8:A:63:U:OP2	2.14	0.47
8:A:974:U:H2'	8:A:975:U:H5'	1.95	0.47
11:D:51:VAL:O	11:D:88:ILE:HA	2.14	0.47
22:O:14:ARG:O	22:O:18:ILE:HG12	2.15	0.47
22:O:81:ASN:O	22:O:85:LYS:HG2	2.14	0.47
29:V:35:LYS:NZ	29:V:48:TRP:HE1	2.12	0.47
38:e:18:ILE:HG22	38:e:19:ASN:H	1.79	0.47
43:j:9:ARG:C	43:j:10:LEU:HD22	2.39	0.47
44:k:79:LEU:HD21	44:k:82:VAL:HG12	1.97	0.47
46:m:96:PRO:HG3	46:m:109:ARG:HG3	1.96	0.47
1:1:2:ARG:HA	1:1:21:LYS:O	2.15	0.47
6:6:54:ILE:O	6:6:56:THR:HG23	2.15	0.47
6:6:221:ILE:O	6:6:225:THR:HG23	2.15	0.47
6:6:466:GLN:O	6:6:470:ILE:HG13	2.15	0.47
8:A:1635:A:O2'	8:A:1636:U:OP2	2.23	0.47
8:A:1806:U:H5	8:A:1811:A:N7	2.12	0.47
8:A:2217:G:H2'	8:A:2218:G:H8	1.80	0.47
10:C:201:GLU:HG3	10:C:202:LEU:CD1	2.44	0.47
12:E:165:LEU:HA	12:E:168:ARG:HB2	1.97	0.47
19:L:26:ILE:HG12	19:L:71:ILE:HD11	1.95	0.47
23:P:27:VAL:HG11	23:P:33:PHE:HD2	1.80	0.47
23:P:99:LYS:HG2	23:P:101:ASN:OD1	2.15	0.47
34:a:984:A:H4'	34:a:985:G:H5'	1.95	0.47
34:a:1356:A:OP1	42:i:124:ARG:NH1	2.35	0.47
35:b:114:ILE:HD11	35:b:144:LEU:O	2.15	0.47
41:h:36:ILE:O	41:h:36:ILE:HG22	2.14	0.47
42:i:69:VAL:CG1	42:i:77:GLN:HG2	2.45	0.47
44:k:36:ASP:OD2	44:k:40:ASN:HB2	2.13	0.47
44:k:105:LEU:O	44:k:106:GLU:HB3	2.15	0.47
46:m:57:ARG:C	46:m:60:VAL:HG12	2.39	0.47
52:s:34:TRP:O	52:s:36:ARG:N	2.48	0.47
6:6:137:THR:HG21	6:6:159:ASN:O	2.14	0.47
6:6:314:LEU:HD13	6:6:451:ILE:HG21	1.95	0.47
8:A:162:A:OP2	8:A:163:U:O2'	2.22	0.47
8:A:242:U:O2'	8:A:243:U:OP2	2.33	0.47
8:A:351:G:H2'	8:A:352:A:C8	2.50	0.47
8:A:2257:G:O3'	29:V:30:ASN:HB2	2.14	0.47
37:d:65:GLU:O	37:d:66:ARG:CB	2.63	0.47
40:g:80:VAL:HG12	40:g:83:SER:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:75:THR:O	42:i:79:GLN:HG3	2.15	0.47
43:j:54:ALA:HB1	43:j:58:TYR:HD2	1.80	0.47
45:l:64:LYS:N	45:l:64:LYS:HD2	2.29	0.47
6:6:456:GLN:HE22	6:6:485:HIS:CD2	2.33	0.47
8:A:1462:G:H21	8:A:1626:A:H2	1.62	0.47
8:A:2231:C:C5'	10:C:147:LYS:HD2	2.45	0.47
8:A:2372:G:N3	8:A:2408:C:H2'	2.30	0.47
10:C:10:THR:HG22	10:C:12:GLY:N	2.17	0.47
14:G:89:LEU:HD12	14:G:89:LEU:O	2.14	0.47
48:o:14:GLU:HB2	48:o:15:TYR:CD2	2.50	0.47
52:s:39:THR:HG22	52:s:40:ILE:H	1.80	0.47
4:4:5:PRO:HD2	8:A:2493:C:OP1	2.14	0.47
8:A:156:A:H61	8:A:172:U:H3	1.63	0.47
8:A:1298:G:O2'	8:A:1299:U:OP2	2.33	0.47
8:A:1479:G:H2'	8:A:1480:G:H5'	1.96	0.47
12:E:204:GLU:OE1	12:E:204:GLU:N	2.48	0.47
17:J:144:GLU:OE1	17:J:144:GLU:N	2.48	0.47
33:Z:43:CYS:O	33:Z:47:GLY:HA2	2.15	0.47
34:a:522:C:H2'	34:a:523:G:C8	2.50	0.47
42:i:53:PRO:HB2	42:i:85:ILE:HG22	1.96	0.47
47:n:32:SER:O	47:n:40:CYS:HA	2.15	0.47
3:3:39:LYS:NZ	8:A:2392:G:N7	2.54	0.46
6:6:331:LYS:O	6:6:333:THR:HG23	2.15	0.46
8:A:774:G:C8	10:C:207:LYS:HE3	2.50	0.46
8:A:2308:C:C2'	8:A:2309:G:H5'	2.45	0.46
8:A:2694:C:C2'	8:A:2695:G:H5"	2.44	0.46
8:A:2844:U:H2'	8:A:2845:G:O4'	2.15	0.46
9:B:25:A:H5'	9:B:26:C:OP2	2.15	0.46
10:C:107:PRO:HD2	10:C:110:LEU:HG	1.97	0.46
11:D:3:LYS:HD3	11:D:109:THR:O	2.14	0.46
12:E:160:ASP:O	12:E:164:GLU:HB2	2.14	0.46
17:J:23:VAL:CG2	23:P:81:ASN:HB3	2.45	0.46
19:L:42:SER:O	19:L:46:LYS:HE3	2.15	0.46
23:P:65:GLN:HG3	23:P:93:THR:HG23	1.97	0.46
29:V:27:ARG:HD3	29:V:29:TRP:CH2	2.50	0.46
34:a:975:G:O2'	34:a:976:C:H5'	2.14	0.46
34:a:986:A:H3'	34:a:986:A:H8	1.80	0.46
34:a:1269:C:H3'	34:a:1270:G:H5"	1.96	0.46
34:a:1278:G:H2'	34:a:1279:A:C8	2.50	0.46
35:b:31:ILE:HG23	35:b:31:ILE:HD12	1.52	0.46
39:f:75:GLU:O	39:f:79:LEU:HD12	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:136:LYS:O	40:g:139:GLU:HB2	2.14	0.46
6:6:394:SER:HA	6:6:426:ASP:O	2.16	0.46
8:A:527:G:OP2	26:S:43:LYS:NZ	2.48	0.46
8:A:707:G:O2'	17:J:14:LYS:NZ	2.47	0.46
8:A:878:C:H2'	8:A:879:U:C6	2.50	0.46
8:A:903:G:N3	8:A:2295:A:H2'	2.29	0.46
8:A:1227:U:O2'	8:A:1228:A:H5'	2.15	0.46
8:A:2410:G:O2'	8:A:2411:A:H5'	2.15	0.46
8:A:2812:U:O2'	8:A:2813:U:OP2	2.30	0.46
20:M:40:ILE:HG22	20:M:58:SER:HB2	1.97	0.46
36:c:76:ILE:HG12	36:c:83:ILE:HD12	1.97	0.46
50:q:63:ILE:HG21	50:q:63:ILE:HD13	1.52	0.46
8:A:280:C:H2'	8:A:281:A:O4'	2.15	0.46
8:A:1942:U:H2'	8:A:1943:A:O4'	2.15	0.46
8:A:1963:A:H3'	8:A:1963:A:OP1	2.14	0.46
8:A:2676:U:H2'	8:A:2677:C:C6	2.50	0.46
9:B:36:C:O2'	9:B:37:A:H5'	2.16	0.46
12:E:107:ARG:O	12:E:107:ARG:HD2	2.16	0.46
34:a:461:C:H2'	34:a:462:A:C8	2.49	0.46
34:a:1513:A:H2	34:a:1516:G:H1	1.63	0.46
35:b:114:ILE:CG2	35:b:145:ILE:HD11	2.41	0.46
41:h:14:VAL:O	41:h:18:ASN:HB2	2.16	0.46
41:h:39:ILE:HG22	41:h:43:GLU:OE2	2.16	0.46
42:i:37:VAL:HG22	42:i:41:LEU:HG	1.96	0.46
48:o:12:ILE:HG21	48:o:12:ILE:HD13	1.54	0.46
53:t:5:LYS:O	53:t:5:LYS:HG2	2.07	0.46
1:1:12:CYS:HB3	1:1:39:LEU:CD1	2.45	0.46
8:A:773:G:H4'	10:C:13:ARG:CD	2.44	0.46
8:A:1911:A:O2'	8:A:1912:A:H5'	2.16	0.46
8:A:2813:U:O2'	11:D:72:PRO:O	2.29	0.46
10:C:77:LYS:HG3	10:C:113:GLY:O	2.16	0.46
11:D:194:VAL:HG21	21:N:10:VAL:HG21	1.96	0.46
13:F:15:ASN:O	13:F:19:LYS:N	2.36	0.46
34:a:1339:A:O2'	34:a:1340:U:H5'	2.15	0.46
37:d:184:GLU:C	37:d:185:LEU:HG	2.41	0.46
38:e:13:GLU:HG2	38:e:39:VAL:HG12	1.96	0.46
39:f:86:ILE:HG23	39:f:86:ILE:HD12	1.46	0.46
41:h:36:ILE:HG21	41:h:36:ILE:HD13	1.42	0.46
53:t:57:VAL:O	53:t:57:VAL:HG12	2.15	0.46
6:6:18:ILE:HD12	6:6:21:LEU:HD12	1.97	0.46
8:A:552:A:H1'	8:A:554:C:C4	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2259:C:OP2	29:V:27:ARG:NH2	2.48	0.46
20:M:35:ARG:HD3	20:M:104:ARG:HG2	1.97	0.46
30:W:10:THR:HG22	30:W:13:GLU:HG3	1.98	0.46
34:a:1027:A:O2'	34:a:1028:G:H5'	2.16	0.46
34:a:1069:G:H5'	36:c:185:HIS:CE1	2.50	0.46
34:a:1236:C:H4'	34:a:1237:A:OP1	2.14	0.46
34:a:1459:C:O2'	34:a:1460:U:O5'	2.34	0.46
35:b:99:GLY:HA2	35:b:175:GLU:OE2	2.16	0.46
38:e:85:ILE:HD12	38:e:143:GLY:CA	2.45	0.46
42:i:39:GLU:N	42:i:39:GLU:OE1	2.48	0.46
43:j:26:VAL:HG23	43:j:30:LYS:HZ1	1.81	0.46
44:k:22:HIS:HB2	44:k:33:THR:HG22	1.98	0.46
45:l:74:ILE:HG21	45:l:74:ILE:HD13	1.66	0.46
6:6:39:ILE:HD11	6:6:201:THR:C	2.41	0.46
6:6:521:MET:HE3	40:g:90:GLU:OE1	2.16	0.46
6:6:524:GLU:HA	6:6:527:ILE:HG12	1.96	0.46
8:A:87:U:H5"	8:A:88:G:H5"	1.97	0.46
8:A:284:C:H2'	8:A:285:U:C6	2.50	0.46
8:A:1490:G:H2'	8:A:1491:C:H5'	1.96	0.46
8:A:2878:U:HO2'	8:A:2879:G:P	2.39	0.46
10:C:249:PRO:HG2	10:C:250:TRP:CZ3	2.51	0.46
18:K:40:SER:HB3	18:K:127:VAL:HG13	1.98	0.46
24:Q:11:ARG:HA	24:Q:100:THR:HG22	1.96	0.46
30:W:17:GLN:CG	30:W:53:LEU:HD11	2.46	0.46
35:b:58:LYS:HA	35:b:220:ALA:O	2.15	0.46
35:b:216:LYS:HE3	35:b:216:LYS:CA	2.44	0.46
36:c:34:GLU:HG2	36:c:58:ARG:HH21	1.81	0.46
51:r:57:GLN:HE21	51:r:57:GLN:HB2	1.40	0.46
8:A:291:G:H4'	8:A:292:U:OP1	2.16	0.46
8:A:963:A:H4'	9:B:94:C:O2	2.15	0.46
8:A:1289:A:OP1	22:O:10:THR:HG22	2.15	0.46
8:A:1329:G:H2'	8:A:1330:U:C6	2.51	0.46
8:A:1359:A:OP1	24:Q:11:ARG:HD2	2.15	0.46
8:A:1395:G:H2'	8:A:1409:U:O4	2.16	0.46
8:A:2418:G:H5'	8:A:2419:A:OP1	2.15	0.46
11:D:57:LYS:CE	11:D:67:LYS:HE2	2.34	0.46
14:G:95:ARG:HD3	14:G:97:GLN:HE22	1.80	0.46
20:M:101:TYR:HB2	20:M:106:LYS:CE	2.33	0.46
28:U:74:VAL:HB	28:U:76:LYS:NZ	2.30	0.46
34:a:1054:G:HO2'	34:a:1055:A:C5'	2.19	0.46
34:a:1492:U:O2	34:a:1492:U:H2'	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:41:ILE:HG22	35:b:42:ASP:N	2.31	0.46
37:d:81:VAL:O	37:d:81:VAL:HG23	2.16	0.46
39:f:32:THR:O	39:f:35:ALA:HB2	2.16	0.46
42:i:90:LEU:HD23	42:i:90:LEU:H	1.79	0.46
45:l:81:PRO:O	45:l:112:ARG:NH1	2.49	0.46
46:m:32:LYS:O	46:m:35:GLU:HG3	2.15	0.46
48:o:29:ILE:HD13	48:o:29:ILE:HG21	1.61	0.46
49:p:36:GLN:HG2	49:p:37:ILE:N	2.30	0.46
6:6:6:GLU:O	6:6:8:LYS:HG2	2.16	0.46
8:A:1439:U:H4'	8:A:1567:A:OP1	2.16	0.46
8:A:1568:U:H4'	8:A:1569:G:O4'	2.16	0.46
9:B:6:U:H4'	20:M:32:ASN:ND2	2.30	0.46
16:I:120:GLU:OE2	21:N:67:SER:OG	2.19	0.46
24:Q:86:ARG:HD3	24:Q:87:PRO:O	2.16	0.46
31:X:58:GLU:N	31:X:58:GLU:OE1	2.48	0.46
34:a:1446:C:H2'	34:a:1447:C:H6	1.80	0.46
37:d:41:ARG:HG3	37:d:42:LYS:O	2.16	0.46
44:k:15:ASN:CG	44:k:16:ILE:HD12	2.41	0.46
44:k:31:ILE:HG21	44:k:31:ILE:HD13	1.43	0.46
50:q:28:GLU:OE2	50:q:41:LYS:HB2	2.16	0.46
50:q:32:THR:HA	50:q:39:ARG:HA	1.98	0.46
6:6:48:ILE:HA	6:6:52:GLU:HB2	1.97	0.46
6:6:71:VAL:HG13	6:6:124:PHE:HA	1.97	0.46
6:6:333:THR:HG22	6:6:504:LYS:HB3	1.98	0.46
8:A:350:G:H21	8:A:373:A:H62	1.64	0.46
8:A:471:G:H2'	8:A:472:C:H5'	1.97	0.46
8:A:830:U:H4'	8:A:1806:U:H4'	1.97	0.46
8:A:1170:A:H4'	8:A:1171:A:H5"	1.98	0.46
8:A:2333:U:H3'	8:A:2334:G:C5'	2.46	0.46
10:C:60:ARG:HD3	10:C:85:PRO:HB2	1.97	0.46
10:C:161:SER:HB3	10:C:194:GLN:HG3	1.97	0.46
20:M:36:SER:OG	20:M:39:HIS:HB3	2.16	0.46
23:P:29:GLU:HA	23:P:62:VAL:CG2	2.46	0.46
34:a:1326:G:N2	34:a:1329:A:O5'	2.41	0.46
40:g:70:MET:CB	40:g:96:ARG:HH11	2.29	0.46
44:k:50:LEU:HD23	44:k:50:LEU:HA	1.41	0.46
44:k:113:VAL:O	44:k:113:VAL:HG22	2.16	0.46
46:m:18:SER:HA	46:m:21:TYR:CD2	2.49	0.46
8:A:1504:U:H5'	8:A:1505:G:C5'	2.45	0.46
8:A:2355:A:H2'	8:A:2356:A:C8	2.51	0.46
10:C:107:PRO:HD2	10:C:110:LEU:CG	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:47:ARG:HB3	17:J:48:PRO:CD	2.45	0.46
34:a:1141:A:O2'	34:a:1142:U:H5'	2.16	0.46
35:b:18:HIS:C	35:b:38:ILE:HD13	2.41	0.46
40:g:73:LEU:O	40:g:74:GLU:HB2	2.16	0.46
46:m:11:ARG:HA	46:m:45:VAL:HG23	1.98	0.46
50:q:60:ILE:N	50:q:60:ILE:HD13	2.30	0.46
6:6:132:SER:HB3	6:6:135:GLU:HB2	1.98	0.45
8:A:1261:G:OP2	23:P:89:ARG:NH1	2.49	0.45
8:A:1617:A:H2'	8:A:1618:A:C8	2.51	0.45
14:G:45:GLN:HA	14:G:50:ILE:HA	1.98	0.45
34:a:1291:U:O2'	34:a:1292:C:H5'	2.16	0.45
34:a:1383:G:OP2	42:i:75:THR:OG1	2.34	0.45
36:c:27:ASP:O	36:c:31:LEU:HD13	2.16	0.45
36:c:62:ARG:HB2	36:c:98:VAL:HG23	1.98	0.45
38:e:42:LYS:O	38:e:43:ASN:ND2	2.50	0.45
38:e:117:LEU:HD23	38:e:117:LEU:HA	1.30	0.45
40:g:26:LEU:O	40:g:26:LEU:HD12	2.16	0.45
48:o:45:THR:HB	48:o:46:HIS:CD2	2.51	0.45
4:4:1:MET:HB2	4:4:33:LYS:HZ3	1.81	0.45
4:4:31:LYS:HE3	8:A:2555:U:H5'	1.96	0.45
8:A:332:A:H61	8:A:394:U:H3	1.64	0.45
8:A:1497:A:H3'	8:A:1498:U:H5'	1.98	0.45
8:A:2385:A:H61	17:J:54:GLN:HE22	1.64	0.45
12:E:12:THR:OG1	12:E:13:LYS:N	2.50	0.45
19:L:43:VAL:HA	19:L:46:LYS:HE3	1.98	0.45
27:T:14:THR:HB	27:T:17:ASP:OD1	2.15	0.45
34:a:1189:A:OP2	42:i:97:ARG:NH2	2.48	0.45
34:a:1225:G:H2'	34:a:1225:G:N3	2.30	0.45
34:a:1239:A:OP1	46:m:115:THR:OG1	2.16	0.45
36:c:108:VAL:CG2	36:c:114:LEU:HD13	2.46	0.45
40:g:32:LEU:O	40:g:33:ASP:HB2	2.16	0.45
41:h:113:ILE:HG21	41:h:113:ILE:HD13	1.46	0.45
42:i:49:ASP:CA	42:i:52:GLN:HG3	2.46	0.45
43:j:34:ALA:HB1	43:j:76:ILE:HD11	1.98	0.45
44:k:24:ARG:HA	44:k:24:ARG:HD2	1.83	0.45
48:o:47:LYS:HE2	48:o:47:LYS:HB2	1.63	0.45
53:t:50:VAL:O	53:t:50:VAL:HG12	2.16	0.45
5:5:26:C:H2'	5:5:27:G:O4'	2.15	0.45
5:5:72:C:H3'	5:5:73:A:C8	2.52	0.45
6:6:62:ASP:OD1	6:6:63:LEU:N	2.50	0.45
6:6:123:HIS:HB3	6:6:125:GLU:CD	2.42	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:341:GLN:O	6:6:479:ALA:HA	2.16	0.45
8:A:1198:G:H5'	22:O:59:LYS:HE3	1.99	0.45
8:A:2489:U:O2'	8:A:2490:C:OP2	2.25	0.45
15:H:57:VAL:HB	15:H:125:VAL:HG22	1.98	0.45
16:I:31:LYS:HD3	16:I:31:LYS:HA	1.77	0.45
17:J:83:ASN:HD21	17:J:118:ASP:HB2	1.80	0.45
22:O:61:TRP:CH2	22:O:93:LYS:HD2	2.51	0.45
24:Q:83:LYS:O	24:Q:83:LYS:HG3	2.16	0.45
25:R:30:ASP:O	25:R:33:VAL:HG22	2.17	0.45
34:a:1158:U:H5'	42:i:20:ARG:HD3	1.98	0.45
34:a:1356:A:H2	34:a:1385:A:H62	1.64	0.45
35:b:27:MET:HE1	35:b:187:VAL:CG2	2.45	0.45
35:b:54:TYR:O	35:b:57:LEU:N	2.49	0.45
37:d:57:LEU:HD12	37:d:57:LEU:HA	1.39	0.45
46:m:9:ILE:HB	46:m:18:SER:HB3	1.97	0.45
48:o:81:LEU:HA	48:o:81:LEU:HD12	1.76	0.45
52:s:27:LYS:HD3	52:s:29:GLN:NE2	2.31	0.45
52:s:44:PHE:C	52:s:47:HIS:HD1	2.23	0.45
6:6:314:LEU:HD22	6:6:377:LEU:HD21	1.98	0.45
6:6:413:ILE:HG21	6:6:445:TYR:CD2	2.51	0.45
8:A:158:G:H2'	8:A:159:U:O4'	2.17	0.45
8:A:2443:C:OP1	17:J:64:ARG:HB3	2.17	0.45
9:B:53:U:O2'	9:B:54:U:H5'	2.16	0.45
11:D:18:GLU:OE1	11:D:19:ASN:N	2.49	0.45
18:K:64:VAL:HA	18:K:105:GLU:O	2.16	0.45
19:L:103:ILE:HG23	19:L:117:VAL:CG1	2.46	0.45
20:M:67:ALA:HB3	20:M:72:LEU:HB2	1.99	0.45
24:Q:1:MET:HG2	24:Q:2:GLU:H	1.81	0.45
29:V:58:LYS:HE3	29:V:58:LYS:HB3	1.69	0.45
34:a:1264:G:O2'	34:a:1265:G:H5'	2.17	0.45
34:a:1291:U:O2	34:a:1291:U:H2'	2.17	0.45
37:d:150:ILE:H	37:d:150:ILE:HG23	1.48	0.45
38:e:114:VAL:CG2	38:e:137:VAL:HG23	2.46	0.45
42:i:101:LYS:HB2	42:i:106:LEU:HD12	1.98	0.45
46:m:64:LYS:HG3	46:m:68:ASP:CB	2.44	0.45
3:3:55:MET:CE	3:3:59:LYS:HD2	2.47	0.45
6:6:128:ILE:HA	6:6:131:LEU:CD2	2.46	0.45
6:6:321:SER:HB2	6:6:367:MET:HB2	1.97	0.45
6:6:507:HIS:HB3	6:6:509:ASN:OD1	2.17	0.45
8:A:64:A:C8	25:R:65:MET:HB3	2.51	0.45
8:A:618:A:H5'	8:A:2527:U:H4'	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:P:65:GLN:CG	23:P:93:THR:HG23	2.45	0.45
34:a:984:A:H4'	34:a:985:G:C5'	2.47	0.45
34:a:1007:C:H2'	34:a:1008:C:C4'	2.46	0.45
41:h:103:ILE:HG21	41:h:103:ILE:HD13	1.52	0.45
8:A:745:G:O2'	8:A:1676:A:N3	2.33	0.45
8:A:1044:A:H2'	8:A:1045:A:C8	2.52	0.45
8:A:2822:C:H4'	8:A:2822:C:OP1	2.16	0.45
10:C:158:ALA:HB1	10:C:197:ASN:HB3	1.98	0.45
12:E:158:ASN:O	12:E:177:THR:OG1	2.24	0.45
24:Q:11:ARG:HH11	24:Q:98:LYS:HG3	1.80	0.45
34:a:967:A:N3	34:a:994:C:O2'	2.42	0.45
35:b:129:LEU:HA	35:b:129:LEU:HD13	1.80	0.45
35:b:196:ILE:HG22	35:b:197:ASP:N	2.31	0.45
37:d:54:LYS:NZ	37:d:55:GLN:OE1	2.31	0.45
40:g:41:ARG:N	40:g:41:ARG:HD2	2.32	0.45
51:r:44:ILE:HG21	51:r:44:ILE:HD13	1.66	0.45
53:t:74:ILE:HG21	53:t:74:ILE:HD13	1.65	0.45
8:A:1031:C:H2'	8:A:1032:A:O4'	2.17	0.45
8:A:1493:U:O2'	8:A:1494:G:OP2	2.24	0.45
8:A:2395:C:H5'	8:A:2396:A:OP2	2.17	0.45
8:A:2694:C:H3'	8:A:2695:G:H5"	1.99	0.45
10:C:9:ILE:HG13	10:C:10:THR:N	2.31	0.45
11:D:10:ILE:HG12	11:D:27:VAL:O	2.17	0.45
12:E:57:VAL:CG1	12:E:79:ARG:HD2	2.47	0.45
16:I:63:VAL:CG1	16:I:102:VAL:HG22	2.37	0.45
16:I:101:PRO:HG3	21:N:67:SER:HB2	1.98	0.45
17:J:7:LYS:CD	17:J:8:PRO:HD2	2.45	0.45
21:N:48:VAL:O	21:N:63:VAL:HA	2.16	0.45
21:N:80:THR:HG23	21:N:83:ILE:HG12	1.97	0.45
24:Q:38:LEU:HD12	33:Z:38:LEU:CG	2.46	0.45
34:a:164:C:H2'	34:a:165:G:C8	2.51	0.45
34:a:424:G:H2'	34:a:425:G:C8	2.52	0.45
43:j:35:ASP:O	43:j:77:VAL:HG12	2.17	0.45
45:l:9:ARG:H	45:l:9:ARG:HG3	1.58	0.45
48:o:29:ILE:HD13	48:o:67:LEU:HD21	1.99	0.45
48:o:73:LYS:HB3	48:o:74:ASP:OD1	2.16	0.45
8:A:1021:G:H5'	22:O:51:ARG:HH22	1.82	0.45
8:A:2305:A:OP1	18:K:11:ARG:HD3	2.16	0.45
10:C:82:GLN:HG2	10:C:83:TYR:N	2.31	0.45
20:M:113:ARG:HD2	20:M:117:LEU:O	2.17	0.45
34:a:70:A:H62	34:a:98:U:H3	1.63	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1352:C:H5”	42:i:129:PHE:O	2.17	0.45
35:b:45:LYS:HA	35:b:48:LYS:NZ	2.32	0.45
38:e:20:ARG:O	38:e:20:ARG:HG2	2.16	0.45
38:e:55:GLU:HB2	38:e:58:GLU:HB3	1.97	0.45
40:g:5:GLY:O	40:g:6:SER:OG	2.33	0.45
40:g:47:PHE:O	40:g:51:GLU:HB2	2.17	0.45
42:i:37:VAL:O	42:i:41:LEU:N	2.29	0.45
42:i:47:ILE:HA	42:i:50:LEU:HD22	1.98	0.45
42:i:61:GLY:O	42:i:62:ASN:ND2	2.49	0.45
45:l:129:LEU:HD12	45:l:129:LEU:N	2.32	0.45
48:o:82:ILE:HD12	48:o:82:ILE:HG23	1.42	0.45
51:r:32:GLU:N	51:r:32:GLU:OE2	2.50	0.45
52:s:49:PHE:CE2	52:s:62:VAL:HG21	2.52	0.45
8:A:89:U:H3’	8:A:90:A:C5’	2.47	0.45
8:A:2500:U:OP1	8:A:2556:G:N2	2.50	0.45
27:T:71:LYS:HB2	27:T:71:LYS:HE2	1.54	0.45
30:W:34:THR:O	30:W:36:GLN:N	2.45	0.45
34:a:495:A:H5”	34:a:496:C:C5	2.52	0.45
34:a:1265:G:N2	34:a:1293:C:O2	2.49	0.45
40:g:118:ASP:CA	40:g:121:ALA:HB3	2.37	0.45
44:k:22:HIS:HB2	44:k:33:THR:CG2	2.46	0.45
45:l:87:LEU:HA	45:l:87:LEU:HD23	1.58	0.45
46:m:52:GLU:O	46:m:56:ILE:N	2.40	0.45
6:6:352:GLY:HA2	6:6:355:THR:HG22	1.99	0.45
8:A:226:A:H5”	8:A:468:A:H5’	1.99	0.45
8:A:1241:A:O4’	12:E:41:ARG:NH2	2.48	0.45
11:D:52:GLY:HA2	11:D:87:PHE:O	2.17	0.45
12:E:125:VAL:HA	12:E:194:ILE:O	2.18	0.45
17:J:86:GLU:HA	17:J:119:LYS:CE	2.47	0.45
20:M:5:ILE:O	20:M:5:ILE:HG13	2.15	0.45
24:Q:38:LEU:CD1	33:Z:38:LEU:HG	2.47	0.45
34:a:1378:A:H2’	34:a:1379:C:H5’	1.97	0.45
37:d:87:MET:HE3	37:d:87:MET:HB3	1.93	0.45
39:f:62:ILE:HD12	39:f:62:ILE:H	1.81	0.45
39:f:87:ILE:HG21	39:f:87:ILE:HD13	1.50	0.45
40:g:68:ASN:ND2	40:g:127:ALA:O	2.48	0.45
45:l:112:ARG:HH11	45:l:112:ARG:HD3	1.60	0.45
46:m:57:ARG:HA	46:m:60:VAL:CG1	2.47	0.45
48:o:87:ILE:HG21	48:o:87:ILE:HD13	1.55	0.45
6:6:291:LYS:HD2	6:6:291:LYS:HA	1.72	0.44
8:A:1191:U:H2’	8:A:1192:A:O4’	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:123:VAL:HG23	17:J:128:PHE:HZ	1.81	0.44
30:W:65:SER:O	30:W:66:LYS:HG3	2.17	0.44
34:a:1002:G:H2'	34:a:1002:G:N3	2.31	0.44
34:a:1188:G:N1	34:a:1191:G:OP2	2.47	0.44
34:a:1214:A:H1'	36:c:194:LYS:NZ	2.32	0.44
35:b:111:ILE:HD11	35:b:152:ARG:HA	1.97	0.44
35:b:219:ASP:O	35:b:222:LEU:HB2	2.17	0.44
35:b:220:ALA:HA	35:b:223:GLU:OE2	2.17	0.44
37:d:135:PRO:HA	37:d:176:PHE:HD2	1.82	0.44
43:j:25:ILE:HA	43:j:28:THR:OG1	2.16	0.44
43:j:46:LYS:HE3	43:j:46:LYS:HB3	1.74	0.44
52:s:11:VAL:HA	52:s:38:SER:HB3	1.98	0.44
52:s:51:VAL:HG12	52:s:52:TYR:N	2.32	0.44
8:A:356:A:O2'	8:A:357:U:H5'	2.17	0.44
8:A:579:U:H2'	8:A:580:C:C6	2.53	0.44
9:B:71:A:H2	27:T:38:ASN:HD21	1.65	0.44
10:C:248:SER:HB2	10:C:249:PRO:HD2	2.00	0.44
12:E:80:ALA:HB1	12:E:81:PRO:HD2	1.99	0.44
12:E:157:GLU:HA	12:E:198:ALA:HB2	1.99	0.44
14:G:84:VAL:CG2	14:G:134:GLU:HG2	2.36	0.44
14:G:95:ARG:HH21	14:G:106:ASN:HD21	1.65	0.44
34:a:434:U:H4'	37:d:34:GLY:O	2.16	0.44
34:a:871:C:H1'	34:a:883:G:H5'	1.99	0.44
34:a:1123:C:O2'	36:c:178:ARG:HG3	2.17	0.44
35:b:5:SER:O	35:b:8:GLN:HG2	2.17	0.44
38:e:12:GLU:O	38:e:39:VAL:HA	2.17	0.44
42:i:89:LEU:HD11	42:i:96:TYR:CE2	2.52	0.44
45:l:49:ARG:O	45:l:50:VAL:HG23	2.17	0.44
48:o:16:ARG:HG3	48:o:16:ARG:O	2.16	0.44
3:3:14:VAL:HG22	3:3:22:LEU:HB3	2.00	0.44
6:6:354:SER:O	6:6:358:GLN:HG2	2.18	0.44
8:A:160:G:H21	8:A:168:A:H2	1.65	0.44
8:A:919:G:C2'	8:A:920:A:H5'	2.47	0.44
8:A:1949:G:H2'	8:A:1950:U:O4'	2.16	0.44
34:a:343:C:H2'	34:a:344:A:C8	2.52	0.44
34:a:1326:G:H22	34:a:1329:A:P	2.39	0.44
35:b:9:LEU:HD12	35:b:9:LEU:HA	1.51	0.44
35:b:213:LEU:HD23	35:b:213:LEU:HA	1.62	0.44
36:c:51:VAL:CG1	36:c:67:ILE:HD11	2.47	0.44
44:k:68:GLU:O	44:k:68:GLU:HG3	2.14	0.44
46:m:53:LEU:O	46:m:57:ARG:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:7:GLU:HG2	6:6:22:SER:HB3	1.99	0.44
6:6:14:ASN:OD1	6:6:15:LYS:N	2.48	0.44
6:6:45:LEU:CD2	6:6:153:LEU:HD12	2.32	0.44
8:A:1439:U:H4'	8:A:1567:A:H5"	1.99	0.44
8:A:1900:G:O2'	8:A:1901:C:OP2	2.26	0.44
8:A:2078:A:H3'	8:A:2605:G:H5"	2.00	0.44
10:C:230:HIS:CD2	10:C:232:HIS:HB2	2.52	0.44
15:H:8:ASN:O	15:H:12:ILE:HG12	2.18	0.44
25:R:2:GLU:HG2	25:R:3:ALA:H	1.82	0.44
26:S:75:THR:OG1	26:S:77:GLU:HG2	2.18	0.44
34:a:1236:C:H5'	52:s:80:PHE:CE2	2.51	0.44
34:a:1361:U:O2'	34:a:1362:C:H5'	2.17	0.44
35:b:57:LEU:HA	35:b:57:LEU:HD23	1.46	0.44
35:b:92:ILE:HG21	35:b:92:ILE:HD13	1.40	0.44
42:i:69:VAL:HG12	42:i:70:HIS:N	2.32	0.44
43:j:27:GLU:HB3	43:j:30:LYS:CE	2.40	0.44
49:p:59:LYS:HE3	49:p:60:TRP:NE1	2.33	0.44
52:s:9:PRO:HG2	52:s:41:PHE:CE1	2.53	0.44
52:s:44:PHE:HA	52:s:47:HIS:HD1	1.82	0.44
8:A:1526:G:H2'	8:A:1527:A:C8	2.53	0.44
8:A:2872:G:H2'	8:A:2873:C:O4'	2.17	0.44
9:B:11:A:O2'	9:B:12:U:H3'	2.17	0.44
30:W:11:THR:HA	30:W:14:ILE:HD13	1.98	0.44
33:Z:30:CYS:HB3	33:Z:33:CYS:O	2.17	0.44
34:a:70:A:H4'	34:a:152:A:H2	1.82	0.44
34:a:765:U:H2'	34:a:766:G:O4'	2.18	0.44
40:g:148:ASN:HD22	40:g:148:ASN:HA	1.46	0.44
42:i:33:ASN:O	42:i:34:ASN:HB2	2.16	0.44
45:l:19:SER:OG	45:l:20:ASP:N	2.51	0.44
46:m:100:GLN:OE1	46:m:100:GLN:N	2.51	0.44
8:A:382:U:H4'	8:A:383:A:OP1	2.17	0.44
9:B:41:C:OP1	32:Y:1:MET:HA	2.17	0.44
11:D:188:VAL:HG22	11:D:195:ILE:HD13	1.98	0.44
22:O:28:LYS:HE2	22:O:28:LYS:HB3	1.83	0.44
26:S:29:LYS:HA	26:S:29:LYS:HD2	1.78	0.44
29:V:37:ARG:HD3	29:V:44:PRO:HB2	2.00	0.44
35:b:206:ALA:O	35:b:209:ALA:N	2.48	0.44
38:e:115:LEU:HD11	38:e:123:ILE:HD11	1.98	0.44
40:g:68:ASN:O	40:g:138:ARG:NE	2.35	0.44
40:g:141:THR:HG22	40:g:141:THR:O	2.17	0.44
41:h:36:ILE:HG23	41:h:105:LEU:HD13	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:j:24:LYS:HG3	43:j:25:ILE:HD11	1.99	0.44
44:k:72:LYS:O	44:k:72:LYS:HG3	2.15	0.44
52:s:28:LYS:O	52:s:28:LYS:HD2	2.18	0.44
6:6:462:ASP:OD1	6:6:462:ASP:N	2.50	0.44
9:B:54:U:H4'	9:B:55:A:O5'	2.17	0.44
11:D:28:VAL:O	11:D:194:VAL:HA	2.18	0.44
12:E:35:GLU:HG2	12:E:101:MET:HE3	2.00	0.44
12:E:49:HIS:O	12:E:49:HIS:ND1	2.47	0.44
29:V:54:LEU:HB3	29:V:58:LYS:CE	2.48	0.44
34:a:1200:G:H5'	36:c:175:HIS:CE1	2.52	0.44
34:a:1264:G:H2'	34:a:1265:G:H5'	1.95	0.44
41:h:49:VAL:C	41:h:50:GLU:HG3	2.43	0.44
43:j:25:ILE:HG23	43:j:28:THR:OG1	2.18	0.44
45:l:33:LYS:HE2	45:l:33:LYS:HB3	1.64	0.44
46:m:65:VAL:N	46:m:68:ASP:HB2	2.33	0.44
46:m:72:GLU:CD	46:m:73:THR:HG23	2.42	0.44
47:n:9:LYS:HA	47:n:12:LYS:HE3	2.00	0.44
49:p:20:ILE:HD13	49:p:20:ILE:HG21	1.69	0.44
2:2:27:ASN:CG	8:A:727:G:H5'	2.43	0.44
6:6:7:GLU:CG	6:6:22:SER:HB3	2.48	0.44
6:6:230:TYR:O	6:6:234:GLN:HG2	2.17	0.44
8:A:2225:A:H2'	8:A:2225:A:N3	2.33	0.44
12:E:23:VAL:CG2	12:E:207:GLY:HA2	2.47	0.44
17:J:75:ALA:HB2	17:J:104:ASN:O	2.17	0.44
21:N:105:LEU:HB3	21:N:110:ALA:HB2	1.98	0.44
22:O:108:GLN:CD	23:P:46:VAL:HG21	2.42	0.44
23:P:50:ALA:HB3	23:P:51:PRO:CD	2.47	0.44
29:V:7:VAL:CG1	29:V:49:VAL:HG13	2.48	0.44
36:c:50:SER:HB3	36:c:114:LEU:HD22	1.99	0.44
37:d:94:LEU:HD12	37:d:94:LEU:HA	1.60	0.44
37:d:193:LEU:HD23	37:d:193:LEU:HA	1.88	0.44
39:f:21:ALA:O	39:f:24:GLU:N	2.38	0.44
40:g:56:ARG:NH1	40:g:64:GLU:OE1	2.50	0.44
51:r:15:VAL:HG22	51:r:16:CYS:H	1.82	0.44
52:s:50:ALA:HB1	52:s:57:HIS:HB3	2.00	0.44
6:6:120:SER:O	6:6:120:SER:OG	2.34	0.44
8:A:1443:A:H2'	8:A:1444:C:O4'	2.17	0.44
8:A:1596:G:H2'	8:A:1597:U:C6	2.53	0.44
8:A:1770:C:C3'	8:A:1771:A:H5"	2.48	0.44
8:A:1805:U:H2'	8:A:1811:A:N6	2.33	0.44
15:H:59:ASN:O	15:H:127:GLY:HA2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:K:67:LYS:HD2	18:K:105:GLU:CG	2.48	0.44
28:U:82:ARG:O	28:U:82:ARG:NH2	2.50	0.44
32:Y:77:LYS:HD2	32:Y:78:PHE:CZ	2.53	0.44
35:b:3:VAL:C	35:b:4:ILE:HD13	2.42	0.44
36:c:18:TRP:NE1	47:n:56:VAL:O	2.43	0.44
37:d:81:VAL:H	37:d:81:VAL:HG22	1.46	0.44
37:d:196:GLU:OE2	38:e:105:VAL:N	2.45	0.44
43:j:11:LYS:O	43:j:96:VAL:HG13	2.18	0.44
47:n:21:TYR:HE1	47:n:23:ARG:HE	1.66	0.44
6:6:12:ILE:HB	6:6:43:THR:CG2	2.48	0.43
6:6:510:VAL:HG13	6:6:510:VAL:O	2.18	0.43
8:A:161:A:O2'	8:A:162:A:H5'	2.18	0.43
8:A:2329:U:O2'	8:A:2330:G:H5'	2.17	0.43
11:D:16:PHE:H	21:N:14:GLN:NE2	2.16	0.43
28:U:18:THR:C	28:U:19:LYS:HD2	2.43	0.43
29:V:32:ASN:O	29:V:50:SER:HA	2.18	0.43
35:b:111:ILE:CD1	35:b:152:ARG:HA	2.48	0.43
35:b:181:ILE:HG21	35:b:181:ILE:HD13	1.73	0.43
35:b:193:PRO:HB3	35:b:199:VAL:HG11	2.00	0.43
37:d:178:ARG:NH1	37:d:178:ARG:HB3	2.33	0.43
46:m:25:ILE:HG12	46:m:29:THR:HG21	2.00	0.43
47:n:6:MET:HE3	47:n:6:MET:HB3	1.86	0.43
49:p:41:ASN:O	49:p:43:THR:N	2.51	0.43
52:s:3:ARG:O	52:s:4:SER:HB2	2.18	0.43
6:6:57:ALA:HB1	6:6:144:VAL:CG2	2.42	0.43
6:6:166:LYS:O	6:6:166:LYS:HG2	2.18	0.43
6:6:359:LEU:HD23	6:6:363:ASN:CB	2.48	0.43
6:6:359:LEU:HD13	6:6:365:LEU:HD11	2.00	0.43
8:A:90:A:C4'	8:A:91:A:H5'	2.47	0.43
8:A:905:U:C1'	8:A:2295:A:H5"	2.48	0.43
8:A:1350:U:H5	8:A:1647:A:N1	2.16	0.43
10:C:26:LYS:HE3	10:C:82:GLN:HB2	1.99	0.43
12:E:129:PHE:CZ	12:E:156:THR:HB	2.54	0.43
19:L:25:ILE:O	19:L:84:LYS:HE2	2.18	0.43
21:N:29:ARG:HD3	21:N:87:GLU:OE1	2.17	0.43
22:O:80:MET:HE1	22:O:95:LEU:HD12	1.99	0.43
28:U:82:ARG:HH21	28:U:82:ARG:C	2.26	0.43
35:b:38:ILE:HD13	35:b:38:ILE:HA	1.87	0.43
35:b:63:ASP:N	35:b:63:ASP:OD1	2.45	0.43
37:d:188:GLU:O	37:d:189:ILE:HD13	2.18	0.43
38:e:157:ARG:NH1	38:e:164:LEU:HD22	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:94:GLU:HA	39:f:94:GLU:OE1	2.17	0.43
49:p:6:ARG:NH1	49:p:24:ASP:O	2.50	0.43
51:r:38:ILE:HD13	51:r:38:ILE:HG21	1.63	0.43
6:6:126:GLN:OE1	6:6:130:THR:HG23	2.18	0.43
6:6:311:SER:OG	6:6:312:HIS:N	2.51	0.43
8:A:536:A:H61	24:Q:49:LYS:HE2	1.84	0.43
8:A:1002:U:H5	9:B:87:C:C5	2.36	0.43
8:A:1072:A:O2'	8:A:1073:A:OP2	2.25	0.43
8:A:1314:A:H5"	19:L:16:MET:HE3	1.99	0.43
8:A:1901:C:H2'	8:A:1902:G:H5'	2.00	0.43
8:A:2516:G:O2'	8:A:2517:G:H5'	2.18	0.43
8:A:2590:U:H1'	8:A:2593:A:N6	2.33	0.43
8:A:2914:A:O2'	8:A:2915:C:H5'	2.18	0.43
14:G:8:ILE:O	14:G:51:GLU:HA	2.19	0.43
14:G:167:GLU:HG2	14:G:168:TYR:O	2.18	0.43
34:a:293:C:H2'	34:a:294:A:C8	2.53	0.43
34:a:343:C:H2'	34:a:344:A:H8	1.84	0.43
34:a:1027:A:C2'	34:a:1028:G:H5'	2.48	0.43
34:a:1422:C:H2'	34:a:1423:A:C8	2.53	0.43
38:e:144:LEU:HA	38:e:144:LEU:HD23	1.30	0.43
40:g:92:ARG:HH11	40:g:92:ARG:HD2	1.66	0.43
42:i:8:TYR:HB3	42:i:91:GLU:OE2	2.18	0.43
42:i:46:LEU:HD11	42:i:74:PHE:HD1	1.82	0.43
43:j:25:ILE:O	43:j:28:THR:HB	2.19	0.43
52:s:11:VAL:HB	52:s:41:PHE:CE2	2.47	0.43
6:6:382:PHE:CE1	6:6:457:PRO:HA	2.54	0.43
8:A:339:A:HO2'	8:A:340:C:P	2.38	0.43
8:A:1395:G:H8	8:A:1410:A:H62	1.67	0.43
8:A:1494:G:O2'	8:A:1495:C:OP2	2.24	0.43
8:A:2064:A:H2'	8:A:2065:G:H8	1.83	0.43
8:A:2300:A:H2'	8:A:2301:A:C8	2.53	0.43
8:A:2617:A:H2'	8:A:2618:C:C6	2.54	0.43
22:O:110:VAL:O	22:O:114:LYS:HG2	2.18	0.43
23:P:64:LYS:HG3	23:P:64:LYS:O	2.19	0.43
28:U:79:ARG:NH1	28:U:85:LYS:HE2	2.33	0.43
34:a:990:U:H6	34:a:990:U:O5'	2.00	0.43
34:a:1003:A:H2'	34:a:1003:A:N3	2.33	0.43
34:a:1061:G:N2	34:a:1219:C:O2	2.50	0.43
34:a:1308:C:H5"	34:a:1308:C:O2	2.17	0.43
35:b:111:ILE:CD1	35:b:151:ILE:HG13	2.47	0.43
36:c:150:THR:HG22	36:c:151:GLN:H	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:14:ILE:HG21	39:f:14:ILE:HD13	1.72	0.43
39:f:45:LYS:O	39:f:46:ARG:HG3	2.19	0.43
41:h:24:LYS:HB2	41:h:24:LYS:HE3	1.86	0.43
45:l:62:LEU:HD23	45:l:62:LEU:HA	1.66	0.43
46:m:15:VAL:O	46:m:19:LEU:HG	2.19	0.43
51:r:76:VAL:HG12	51:r:77:LYS:N	2.28	0.43
8:A:230:A:H62	8:A:456:G:H21	1.66	0.43
16:I:64:ARG:HD3	16:I:101:PRO:O	2.18	0.43
25:R:6:ILE:CD1	25:R:33:VAL:HG11	2.48	0.43
34:a:553:C:H5"	37:d:65:GLU:HG3	1.99	0.43
34:a:959:U:O4	46:m:104:ASN:HB3	2.18	0.43
34:a:983:A:OP1	47:n:31:HIS:ND1	2.52	0.43
34:a:1158:U:C5'	42:i:20:ARG:HD3	2.49	0.43
36:c:195:LEU:HD12	36:c:195:LEU:HA	1.60	0.43
37:d:3:ARG:HD2	37:d:3:ARG:HA	1.20	0.43
38:e:160:THR:OG1	38:e:163:GLU:HB2	2.18	0.43
40:g:66:ILE:HD13	40:g:101:LEU:HD12	1.98	0.43
5:5:61:U:H3'	5:5:62:C:H6	1.84	0.43
6:6:66:HIS:HB3	6:6:69:ILE:CD1	2.46	0.43
8:A:1054:A:C8	8:A:1197:C:H1'	2.53	0.43
8:A:2821:U:H4'	8:A:2823:G:C6	2.54	0.43
8:A:2844:U:H3'	8:A:2845:G:H8	1.84	0.43
10:C:159:GLY:HA2	10:C:198:LEU:HD23	1.99	0.43
10:C:252:LYS:HE3	10:C:252:LYS:HB3	1.79	0.43
11:D:79:LYS:HA	11:D:79:LYS:HD3	1.67	0.43
15:H:79:SER:O	15:H:80:ASN:HB2	2.18	0.43
20:M:65:THR:HG22	20:M:66:THR:N	2.34	0.43
22:O:94:MET:HE3	23:P:11:GLN:O	2.19	0.43
23:P:80:LYS:HD2	23:P:80:LYS:N	2.34	0.43
34:a:160:A:H61	34:a:355:G:H1'	1.83	0.43
34:a:1117:G:C2'	34:a:1118:C:H5'	2.48	0.43
36:c:90:LEU:O	36:c:93:LEU:N	2.41	0.43
36:c:129:PHE:HE1	36:c:165:GLU:OE1	2.02	0.43
44:k:128:ARG:HH11	44:k:128:ARG:HD2	1.65	0.43
53:t:66:ILE:HG21	53:t:66:ILE:HD13	1.67	0.43
6:6:154:ILE:HD12	6:6:180:ILE:CG2	2.48	0.43
6:6:414:LEU:HD12	6:6:414:LEU:HA	1.87	0.43
8:A:2874:A:H2'	8:A:2875:U:C6	2.54	0.43
17:J:23:VAL:HG23	23:P:81:ASN:HB3	2.01	0.43
35:b:208:ARG:H	35:b:208:ARG:HG2	1.54	0.43
35:b:216:LYS:O	35:b:218:ALA:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:c:171:THR:O	36:c:202:TYR:HD2	2.01	0.43
46:m:50:ASP:CA	46:m:53:LEU:HB2	2.27	0.43
46:m:66:GLU:HA	46:m:66:GLU:OE2	2.18	0.43
6:6:452:LEU:HB2	6:6:480:VAL:HG12	2.00	0.43
8:A:552:A:H4'	8:A:553:A:O5'	2.18	0.43
8:A:830:U:H2'	8:A:831:C:C6	2.54	0.43
8:A:2550:G:C2'	8:A:2551:G:H5'	2.49	0.43
9:B:5:G:H21	20:M:43:GLN:HE22	1.67	0.43
17:J:92:THR:OG1	17:J:93:PRO:HD2	2.19	0.43
22:O:52:GLN:HG2	22:O:55:ARG:NH2	2.34	0.43
34:a:423:A:O2'	34:a:424:G:H8	2.02	0.43
34:a:1026:U:O5'	34:a:1026:U:H6	2.02	0.43
34:a:1406:A:C2	38:e:24:VAL:HG11	2.51	0.43
36:c:50:SER:O	36:c:70:GLY:N	2.52	0.43
42:i:108:ARG:CZ	42:i:112:MET:HE1	2.49	0.43
52:s:48:THR:HG23	52:s:48:THR:O	2.18	0.43
8:A:77:U:O3'	30:W:7:ARG:NH2	2.52	0.43
8:A:346:A:O2'	8:A:347:U:H5'	2.19	0.43
8:A:460:C:H2'	8:A:461:A:H8	1.84	0.43
8:A:1624:C:H2'	8:A:1625:U:C1'	2.49	0.43
14:G:113:VAL:HG11	14:G:151:VAL:HG11	2.00	0.43
17:J:20:GLY:HA2	17:J:28:GLY:O	2.18	0.43
23:P:83:LYS:HB3	23:P:83:LYS:HE2	1.62	0.43
34:a:1057:A:H2'	34:a:1058:G:H5'	1.99	0.43
36:c:34:GLU:HG2	36:c:58:ARG:NH2	2.34	0.43
44:k:17:GLU:HA	44:k:79:LEU:HA	2.00	0.43
44:k:36:ASP:CG	44:k:40:ASN:HB2	2.44	0.43
44:k:100:LEU:HD12	44:k:100:LEU:HA	1.46	0.43
49:p:17:PHE:CZ	49:p:39:THR:HG23	2.53	0.43
50:q:64:GLN:O	50:q:75:PHE:HB3	2.18	0.43
1:1:31:GLU:CD	1:1:46:ARG:HD2	2.44	0.43
6:6:513:ASN:N	6:6:513:ASN:OD1	2.51	0.43
8:A:1178:C:H5"	8:A:1179:C:OP1	2.19	0.43
8:A:2335:G:H3'	8:A:2337:A:N7	2.34	0.43
8:A:2618:C:H2'	8:A:2619:G:C8	2.54	0.43
8:A:2844:U:H3'	8:A:2845:G:C8	2.54	0.43
10:C:205:VAL:O	10:C:210:ARG:HD3	2.19	0.43
24:Q:10:ILE:HG21	24:Q:46:VAL:HG11	2.00	0.43
28:U:75:VAL:O	28:U:76:LYS:HD2	2.19	0.43
35:b:44:GLN:CA	35:b:47:VAL:HG12	2.46	0.43
35:b:129:LEU:HD12	35:b:133:GLU:CG	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:165:ASP:C	35:b:167:ARG:H	2.26	0.43
37:d:132:SER:O	37:d:132:SER:OG	2.35	0.43
39:f:22:LEU:HD12	39:f:22:LEU:C	2.43	0.43
44:k:54:GLY:O	44:k:55:SER:OG	2.28	0.43
45:l:126:GLY:O	45:l:129:LEU:HD12	2.19	0.43
52:s:48:THR:CA	52:s:61:TYR:HA	2.43	0.43
6:6:3:PHE:HB3	6:6:25:ILE:HG22	2.01	0.42
8:A:372:A:O4'	8:A:523:A:H1'	2.19	0.42
8:A:971:U:H4'	8:A:972:A:OP2	2.19	0.42
8:A:1533:A:H2	10:C:74:ILE:HG23	1.83	0.42
8:A:2604:A:H5"	8:A:2605:G:O5'	2.18	0.42
11:D:3:LYS:NZ	11:D:114:ASP:OD2	2.45	0.42
14:G:154:PRO:HA	14:G:160:LYS:O	2.18	0.42
20:M:22:LEU:HA	20:M:30:ARG:HH11	1.83	0.42
22:O:108:GLN:NE2	23:P:46:VAL:HG21	2.34	0.42
23:P:20:ILE:O	23:P:20:ILE:HG13	2.19	0.42
24:Q:70:VAL:O	24:Q:107:VAL:HA	2.19	0.42
35:b:186:ILE:HG21	35:b:186:ILE:HD13	1.72	0.42
37:d:158:ASN:O	37:d:160:PHE:N	2.52	0.42
37:d:160:PHE:HD1	37:d:160:PHE:HA	1.69	0.42
41:h:46:ILE:HG21	41:h:46:ILE:HD13	1.56	0.42
44:k:56:LYS:C	44:k:58:SER:H	2.27	0.42
48:o:67:LEU:HA	48:o:67:LEU:HD23	1.78	0.42
49:p:61:LEU:HA	49:p:61:LEU:HD23	1.48	0.42
3:3:14:VAL:CG2	3:3:22:LEU:HB3	2.49	0.42
6:6:72:MET:HB2	6:6:124:PHE:CB	2.36	0.42
6:6:164:GLU:HA	6:6:167:VAL:HG12	2.01	0.42
6:6:403:GLU:OE2	6:6:403:GLU:N	2.52	0.42
8:A:232:U:H5"	8:A:233:U:OP2	2.19	0.42
8:A:364:A:O2'	8:A:383:A:N3	2.52	0.42
8:A:631:U:O4	8:A:715:A:H1'	2.19	0.42
8:A:793:G:H5'	8:A:794:A:OP2	2.19	0.42
8:A:868:A:H2'	8:A:869:G:H5'	2.00	0.42
8:A:2541:U:H2'	8:A:2542:C:C6	2.54	0.42
8:A:2664:U:H2'	8:A:2665:G:O4'	2.19	0.42
10:C:236:GLU:CG	10:C:237:GLY:H	2.31	0.42
34:a:231:U:H2'	34:a:232:A:C8	2.54	0.42
35:b:68:LEU:HD12	35:b:90:PHE:HB2	2.01	0.42
36:c:113:ARG:HD3	36:c:113:ARG:HA	1.56	0.42
36:c:137:ILE:HG23	36:c:137:ILE:HD12	1.44	0.42
37:d:200:ARG:HE	37:d:200:ARG:HB3	1.47	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:19:LYS:HB3	39:f:19:LYS:HE3	1.55	0.42
39:f:55:PHE:O	39:f:56:LYS:HG3	2.19	0.42
41:h:78:LYS:HZ3	41:h:78:LYS:HG3	1.64	0.42
42:i:97:ARG:O	42:i:97:ARG:HG2	2.19	0.42
44:k:25:SER:OG	44:k:90:GLY:HA3	2.19	0.42
46:m:15:VAL:CG2	46:m:41:ALA:HA	2.49	0.42
51:r:74:PRO:HB2	51:r:76:VAL:O	2.19	0.42
52:s:33:THR:HG22	52:s:34:TRP:N	2.33	0.42
2:2:12:LYS:HB2	2:2:12:LYS:HE3	1.87	0.42
3:3:13:ARG:HB3	17:J:63:LYS:HA	2.01	0.42
6:6:56:THR:CB	6:6:153:LEU:HD23	2.40	0.42
8:A:525:A:H1'	8:A:526:A:H5"	2.01	0.42
8:A:984:G:H2'	8:A:985:A:O4'	2.19	0.42
8:A:1351:C:O2	8:A:1351:C:H2'	2.19	0.42
8:A:1625:U:H2'	8:A:1626:A:H5"	2.01	0.42
8:A:2903:A:OP1	8:A:2903:A:H4'	2.19	0.42
10:C:166:GLY:O	10:C:167:LYS:HG2	2.20	0.42
10:C:232:HIS:HE1	10:C:247:MET:H	1.66	0.42
19:L:32:THR:HG22	19:L:33:THR:H	1.84	0.42
24:Q:1:MET:HG2	24:Q:2:GLU:N	2.35	0.42
34:a:1269:C:H3'	34:a:1270:G:C5'	2.49	0.42
37:d:158:ASN:O	37:d:159:ASN:HB2	2.20	0.42
37:d:172:LEU:HA	37:d:172:LEU:HD23	1.63	0.42
39:f:36:GLU:HG3	39:f:66:LYS:HG2	2.01	0.42
41:h:61:ARG:C	41:h:62:LEU:HD12	2.44	0.42
49:p:37:ILE:HG21	49:p:37:ILE:HD13	1.52	0.42
53:t:30:THR:O	53:t:32:VAL:N	2.52	0.42
5:5:66:C:H2'	5:5:67:U:H6	1.81	0.42
6:6:31:LEU:HD22	6:6:181:LEU:CD1	2.50	0.42
6:6:295:PRO:HG2	6:6:296:LEU:CD1	2.46	0.42
8:A:399:U:H2'	8:A:400:C:O4'	2.20	0.42
8:A:1377:U:C2'	25:R:56:MET:HE3	2.45	0.42
20:M:113:ARG:HD2	20:M:113:ARG:HA	1.80	0.42
23:P:63:ASN:O	23:P:94:LYS:HB2	2.20	0.42
34:a:966:U:O2	34:a:968:A:H8	2.02	0.42
34:a:1446:C:C4	34:a:1447:C:C4	3.07	0.42
35:b:20:THR:HG23	35:b:37:GLY:C	2.44	0.42
35:b:58:LYS:HG3	35:b:224:GLY:HA3	2.01	0.42
35:b:218:ALA:HA	35:b:221:ILE:HG12	2.00	0.42
40:g:120:LEU:O	40:g:124:ILE:HG13	2.19	0.42
42:i:36:ASP:HB3	42:i:39:GLU:OE1	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:53:PRO:CB	42:i:85:ILE:HG22	2.50	0.42
46:m:74:ASN:HA	46:m:77:ILE:HG12	2.02	0.42
48:o:63:ARG:O	48:o:67:LEU:HG	2.19	0.42
6:6:56:THR:HA	6:6:151:LEU:O	2.18	0.42
6:6:227:LYS:HB3	6:6:294:ASN:HD21	1.84	0.42
6:6:294:ASN:HB3	6:6:297:GLU:OE2	2.20	0.42
8:A:1057:A:O2'	8:A:1058:U:H5'	2.18	0.42
8:A:1529:U:H2'	8:A:1530:A:C8	2.55	0.42
8:A:2580:G:O4'	8:A:2609:G:O2'	2.33	0.42
8:A:2597:G:H2'	8:A:2598:U:O4'	2.19	0.42
10:C:140:VAL:HA	10:C:162:ALA:O	2.20	0.42
11:D:86:ARG:HA	11:D:86:ARG:HD2	1.91	0.42
27:T:4:LEU:CD2	27:T:43:VAL:HG21	2.40	0.42
27:T:43:VAL:HG22	27:T:44:ASP:H	1.84	0.42
34:a:1133:U:H2'	34:a:1134:A:O4'	2.19	0.42
34:a:1324:C:O2	34:a:1324:C:H2'	2.18	0.42
34:a:1325:U:H2'	34:a:1326:G:C8	2.54	0.42
36:c:151:GLN:O	36:c:151:GLN:HG2	2.19	0.42
44:k:80:LYS:HB2	44:k:80:LYS:HE2	1.87	0.42
6:6:452:LEU:HD13	6:6:476:PHE:CZ	2.53	0.42
8:A:700:A:H4'	8:A:701:G:OP1	2.20	0.42
8:A:757:G:H2'	8:A:758:G:O4'	2.20	0.42
8:A:985:A:HO2'	8:A:986:G:P	2.37	0.42
8:A:1013:U:C2'	8:A:1014:U:H5'	2.49	0.42
8:A:1804:U:H5	8:A:1814:A:N1	2.18	0.42
8:A:2494:C:H2'	8:A:2495:A:O4'	2.19	0.42
8:A:2829:A:H2'	8:A:2830:A:C8	2.55	0.42
10:C:27:THR:O	10:C:28:THR:OG1	2.24	0.42
10:C:210:ARG:HG3	10:C:213:TRP:CE3	2.55	0.42
11:D:50:GLN:HE22	11:D:76:HIS:HE1	1.67	0.42
15:H:88:ILE:HD11	15:H:92:GLU:HB3	2.01	0.42
18:K:98:LYS:HB3	18:K:99:PRO:HD2	2.02	0.42
20:M:35:ARG:HD3	20:M:104:ARG:HD3	2.02	0.42
34:a:814:C:H2'	34:a:815:A:C8	2.54	0.42
34:a:983:A:H8	47:n:31:HIS:HE1	1.68	0.42
34:a:1182:C:H6	34:a:1182:C:O5'	2.03	0.42
34:a:1240:C:H2'	34:a:1241:G:H8	1.84	0.42
35:b:22:ARG:H	35:b:22:ARG:HG3	1.53	0.42
35:b:85:GLU:O	35:b:88:GLY:N	2.50	0.42
35:b:97:LEU:HD12	35:b:97:LEU:HA	1.29	0.42
35:b:129:LEU:HG	35:b:133:GLU:OE1	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:216:LYS:CB	35:b:217:MET:HE2	2.44	0.42
36:c:35:ASP:OD1	36:c:56:ILE:HG21	2.20	0.42
36:c:187:GLU:OE1	36:c:194:LYS:HG2	2.20	0.42
41:h:80:ILE:HG23	41:h:80:ILE:HD12	1.51	0.42
44:k:71:SER:OG	44:k:72:LYS:N	2.51	0.42
45:l:80:ILE:HG21	45:l:80:ILE:HD13	1.66	0.42
46:m:98:ARG:HB2	46:m:100:GLN:OE1	2.20	0.42
6:6:367:MET:HG2	6:6:368:SER:N	2.34	0.42
6:6:383:SER:OG	6:6:385:ASP:O	2.34	0.42
8:A:52:A:H2'	8:A:53:A:C8	2.55	0.42
8:A:525:A:H4'	8:A:526:A:OP1	2.19	0.42
8:A:1565:U:HO2'	8:A:1566:G:H8	1.67	0.42
8:A:2403:A:H2'	8:A:2404:A:O4'	2.19	0.42
8:A:2627:A:O2'	8:A:2628:C:H5'	2.20	0.42
8:A:2778:G:H2'	8:A:2778:G:N3	2.34	0.42
8:A:2902:A:C2'	8:A:2903:A:H5"	2.47	0.42
10:C:26:LYS:CE	10:C:82:GLN:HB2	2.49	0.42
10:C:40:LYS:O	10:C:42:GLY:N	2.53	0.42
15:H:22:GLU:HB2	15:H:59:ASN:HD22	1.85	0.42
15:H:42:LYS:HD3	15:H:51:THR:HG22	2.00	0.42
34:a:68:C:H4'	34:a:172:A:H4'	2.01	0.42
34:a:243:C:H2'	34:a:244:G:H8	1.84	0.42
34:a:1362:C:H2'	34:a:1363:G:C8	2.54	0.42
35:b:146:LYS:HE2	35:b:147:PHE:CE1	2.55	0.42
35:b:173:ILE:HG21	35:b:173:ILE:HD13	1.58	0.42
35:b:196:ILE:HD13	35:b:196:ILE:HG21	1.47	0.42
36:c:35:ASP:CG	36:c:58:ARG:HH12	2.27	0.42
38:e:107:ALA:CB	38:e:125:SER:HB3	2.49	0.42
46:m:36:GLU:CD	46:m:59:VAL:HG11	2.45	0.42
46:m:36:GLU:CG	46:m:59:VAL:HG21	2.49	0.42
46:m:116:VAL:HG22	46:m:117:ALA:N	2.29	0.42
53:t:35:ALA:O	53:t:38:ALA:N	2.52	0.42
53:t:66:ILE:HD12	53:t:70:LYS:HG2	2.00	0.42
8:A:1517:A:O2'	8:A:1518:G:H5"	2.19	0.42
8:A:1635:A:H1'	8:A:1636:U:C6	2.55	0.42
8:A:1756:U:O2'	8:A:1757:U:H5'	2.20	0.42
8:A:1829:A:H2'	8:A:1830:A:C8	2.55	0.42
10:C:3:ILE:HG23	10:C:17:THR:HB	2.01	0.42
11:D:56:LYS:HE2	11:D:86:ARG:HD2	2.00	0.42
16:I:61:VAL:O	16:I:84:CYS:HB2	2.20	0.42
19:L:94:THR:HG23	19:L:95:GLU:OE1	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:S:24:ILE:HG12	26:S:34:VAL:O	2.19	0.42
31:X:11:SER:OG	31:X:12:VAL:N	2.52	0.42
34:a:522:C:H2'	34:a:523:G:H8	1.84	0.42
34:a:1248:A:C8	34:a:1251:G:H1'	2.55	0.42
34:a:1386:U:C2'	34:a:1387:A:H5'	2.50	0.42
35:b:101:LEU:HA	35:b:101:LEU:HD23	1.81	0.42
35:b:110:ARG:NH1	35:b:144:LEU:HD21	2.34	0.42
37:d:118:HIS:HD2	37:d:145:SER:OG	2.03	0.42
44:k:83:GLU:HG3	44:k:83:GLU:O	2.20	0.42
44:k:94:GLU:O	44:k:94:GLU:HG2	2.19	0.42
48:o:56:LEU:O	48:o:56:LEU:HG	2.19	0.42
51:r:16:CYS:O	51:r:17:TYR:CB	2.68	0.42
51:r:77:LYS:HD3	51:r:77:LYS:C	2.44	0.42
52:s:49:PHE:HE2	52:s:62:VAL:HG21	1.84	0.42
6:6:240:ILE:HG23	6:6:279:LYS:HG2	2.01	0.42
6:6:414:LEU:HD23	6:6:424:MET:SD	2.60	0.42
6:6:436:LYS:HA	6:6:439:LEU:CB	2.50	0.42
8:A:288:C:H2'	8:A:289:U:H6	1.84	0.42
8:A:760:A:H2'	8:A:761:A:O4'	2.20	0.42
8:A:1219:G:H2'	8:A:1220:A:C8	2.55	0.42
8:A:1243:G:H2'	8:A:1244:G:O4'	2.20	0.42
14:G:103:LEU:HD23	14:G:103:LEU:H	1.84	0.42
14:G:164:TYR:HB2	14:G:167:GLU:HB2	2.02	0.42
18:K:65:TRP:HB2	18:K:105:GLU:CB	2.39	0.42
23:P:49:GLY:HA3	23:P:52:THR:C	2.45	0.42
34:a:1001:U:H1'	34:a:1002:G:OP2	2.20	0.42
34:a:1175:U:H2'	34:a:1175:U:O2	2.20	0.42
34:a:1228:U:H2'	34:a:1229:U:C5	2.55	0.42
34:a:1364:U:H2'	34:a:1365:A:O4'	2.20	0.42
36:c:85:LYS:HZ3	36:c:89:LYS:HE3	1.85	0.42
37:d:120:LEU:HD13	37:d:142:ARG:HA	2.02	0.42
39:f:66:LYS:HE2	39:f:66:LYS:HB2	1.84	0.42
42:i:53:PRO:HB2	42:i:85:ILE:CG2	2.50	0.42
43:j:46:LYS:NZ	43:j:48:VAL:HG21	2.35	0.42
44:k:79:LEU:HD21	44:k:82:VAL:CG1	2.50	0.42
49:p:77:LYS:HZ2	49:p:77:LYS:HG2	1.56	0.42
50:q:64:GLN:HG2	50:q:65:GLU:H	1.84	0.42
50:q:77:LEU:HA	50:q:77:LEU:HD12	1.82	0.42
1:1:10:THR:CG2	1:1:46:ARG:HG2	2.50	0.42
4:4:1:MET:HB2	4:4:33:LYS:HZ2	1.85	0.42
5:5:35:C:OP2	42:i:132:ARG:NH1	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:153:G:H2'	8:A:154:A:O4'	2.20	0.42
8:A:904:G:O2'	8:A:961:G:O6	2.33	0.42
11:D:31:LYS:O	11:D:32:GLU:HB2	2.19	0.42
14:G:120:ASN:O	14:G:121:ILE:HD13	2.20	0.42
16:I:23:LYS:HE2	16:I:23:LYS:HB2	1.85	0.42
16:I:43:VAL:HG21	16:I:52:VAL:HG12	2.01	0.42
28:U:58:ASN:O	28:U:70:LYS:HB2	2.20	0.42
32:Y:12:VAL:N	32:Y:25:SER:HA	2.30	0.42
34:a:993:C:H2'	34:a:994:C:H6	1.84	0.42
34:a:1354:C:H4'	42:i:124:ARG:O	2.20	0.42
36:c:168:SER:O	36:c:169:GLU:HB2	2.20	0.42
41:h:9:ASP:O	41:h:13:ARG:HG3	2.19	0.42
53:t:12:LYS:HB2	53:t:12:LYS:HE3	1.56	0.42
6:6:11:GLU:CB	6:6:16:GLN:HA	2.49	0.41
8:A:12:U:O2'	8:A:12:U:O2	2.33	0.41
12:E:126:VAL:O	12:E:195:THR:HA	2.20	0.41
16:I:70:ARG:HB2	16:I:76:TYR:CE2	2.55	0.41
18:K:79:LEU:HB3	18:K:80:GLU:H	1.60	0.41
23:P:28:ASN:O	23:P:62:VAL:HG21	2.19	0.41
25:R:49:LYS:HZ3	25:R:83:LYS:HG3	1.85	0.41
34:a:495:A:H5"	34:a:496:C:H5	1.85	0.41
34:a:670:A:H2'	34:a:671:A:C8	2.55	0.41
34:a:1020:U:H1'	34:a:1028:G:N2	2.35	0.41
39:f:94:GLU:O	39:f:95:ASP:HB2	2.20	0.41
40:g:46:ALA:O	40:g:50:VAL:HG13	2.20	0.41
49:p:68:THR:OG1	49:p:69:ASP:N	2.53	0.41
2:2:21:LYS:HA	2:2:21:LYS:HD2	1.83	0.41
8:A:577:A:H4'	8:A:578:G:C8	2.55	0.41
14:G:103:LEU:HD22	14:G:123:PHE:CD2	2.54	0.41
15:H:18:VAL:CG2	15:H:138:PRO:HB2	2.50	0.41
22:O:103:GLU:OE2	22:O:106:PHE:HB3	2.19	0.41
24:Q:11:ARG:NH1	24:Q:98:LYS:HG3	2.35	0.41
29:V:35:LYS:CE	29:V:48:TRP:HE1	2.33	0.41
34:a:283:G:H5'	50:q:18:LYS:HD2	2.02	0.41
38:e:61:LYS:HE2	38:e:61:LYS:HB2	1.82	0.41
40:g:7:VAL:HB	40:g:8:PRO:CD	2.50	0.41
40:g:27:ILE:HG13	40:g:43:LEU:CD2	2.36	0.41
40:g:131:THR:O	40:g:131:THR:HG23	2.19	0.41
44:k:100:LEU:O	44:k:103:ALA:N	2.52	0.41
49:p:76:SER:C	49:p:78:GLU:H	2.28	0.41
50:q:26:LEU:HD21	50:q:43:SER:CB	2.41	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1616:A:H4'	10:C:61:GLN:HE22	1.85	0.41
8:A:1770:C:H2'	8:A:1771:A:O4'	2.20	0.41
8:A:2334:G:O3'	8:A:2335:G:H4'	2.20	0.41
8:A:2627:A:H62	10:C:236:GLU:HG3	1.85	0.41
11:D:124:GLY:HA2	11:D:174:GLY:HA3	2.02	0.41
16:I:113:LYS:HG3	16:I:113:LYS:O	2.20	0.41
20:M:106:LYS:HE2	20:M:106:LYS:HA	2.01	0.41
21:N:45:PHE:HE2	21:N:63:VAL:HG23	1.86	0.41
25:R:64:ARG:CG	25:R:67:ARG:HA	2.50	0.41
26:S:2:HIS:HA	26:S:92:ARG:HH21	1.85	0.41
27:T:34:TYR:HD1	27:T:34:TYR:HA	1.73	0.41
28:U:75:VAL:C	28:U:76:LYS:HD2	2.45	0.41
34:a:147:G:H2'	34:a:148:G:C8	2.55	0.41
34:a:1157:C:N4	34:a:1158:U:O4	2.52	0.41
34:a:1334:A:O4'	34:a:1372:C:H4'	2.20	0.41
35:b:90:PHE:O	35:b:91:TYR:HB3	2.20	0.41
41:h:26:GLU:N	41:h:26:GLU:OE1	2.54	0.41
46:m:34:LEU:HD12	46:m:41:ALA:HB2	2.02	0.41
8:A:868:A:H62	8:A:879:U:H3	1.67	0.41
8:A:1504:U:C5'	8:A:1505:G:H5'	2.49	0.41
8:A:1557:C:O2'	8:A:1558:U:OP2	2.29	0.41
8:A:2692:A:O2'	8:A:2693:C:H5'	2.21	0.41
8:A:2902:A:H2'	8:A:2903:A:C5'	2.48	0.41
12:E:12:THR:O	12:E:13:LYS:HB2	2.20	0.41
12:E:131:PHE:HB2	12:E:162:ASN:HB2	2.01	0.41
20:M:8:ASN:O	20:M:11:ARG:HG3	2.19	0.41
23:P:1:MET:CG	23:P:15:GLU:HG3	2.44	0.41
26:S:35:VAL:HG12	26:S:38:VAL:HG22	2.03	0.41
29:V:21:ALA:O	29:V:22:LEU:HB2	2.19	0.41
34:a:1338:C:O2'	34:a:1339:A:H5'	2.20	0.41
35:b:75:GLN:HG3	35:b:207:ILE:CG1	2.37	0.41
37:d:119:ILE:HD13	37:d:119:ILE:HA	1.85	0.41
40:g:143:LYS:O	40:g:146:GLU:N	2.43	0.41
41:h:80:ILE:HA	41:h:80:ILE:HD13	1.78	0.41
50:q:44:LYS:HE3	50:q:46:TYR:CE1	2.54	0.41
8:A:78:U:H5'	30:W:7:ARG:NH2	2.35	0.41
8:A:1973:U:H2'	8:A:1974:C:C6	2.56	0.41
8:A:2313:A:H4'	8:A:2314:A:O4'	2.21	0.41
12:E:10:ASP:OD1	12:E:12:THR:HG23	2.20	0.41
23:P:69:LYS:HD2	23:P:70:LYS:O	2.20	0.41
25:R:49:LYS:HD3	25:R:83:LYS:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:46:ALA:HB2	40:g:117:GLU:O	2.20	0.41
40:g:108:ALA:HB1	40:g:116:MET:HE3	2.01	0.41
41:h:21:ARG:HH11	41:h:21:ARG:HD2	1.54	0.41
45:l:53:MET:HE2	45:l:53:MET:HB3	1.94	0.41
52:s:63:THR:N	52:s:66:MET:SD	2.82	0.41
6:6:451:ILE:HA	6:6:479:ALA:O	2.20	0.41
8:A:639:U:O2'	8:A:640:G:OP1	2.36	0.41
12:E:101:MET:HB2	12:E:106:ARG:NE	2.36	0.41
19:L:73:ASN:HB2	19:L:77:THR:OG1	2.20	0.41
24:Q:38:LEU:HG	33:Z:27:MET:HG3	2.01	0.41
26:S:83:TYR:HA	26:S:91:VAL:O	2.21	0.41
34:a:194:G:C6	50:q:7:ARG:HG3	2.56	0.41
34:a:1136:U:C6	34:a:1137:U:H2'	2.55	0.41
34:a:1260:A:H2'	34:a:1261:A:O4'	2.20	0.41
34:a:1544:C:H2'	34:a:1545:A:C8	2.55	0.41
36:c:23:TYR:HB2	43:j:95:GLY:O	2.21	0.41
37:d:24:LYS:H	37:d:24:LYS:HG2	1.51	0.41
39:f:46:ARG:NH2	39:f:46:ARG:HG2	2.35	0.41
42:i:24:VAL:CG2	42:i:64:ASP:HB3	2.50	0.41
42:i:47:ILE:O	42:i:47:ILE:HG22	2.20	0.41
44:k:82:VAL:HG13	44:k:105:LEU:HD22	2.01	0.41
45:l:32:LYS:O	45:l:33:LYS:HB2	2.21	0.41
8:A:225:A:N6	8:A:235:G:H1'	2.36	0.41
8:A:577:A:H2'	8:A:577:A:N3	2.36	0.41
8:A:794:A:N1	8:A:798:G:O2'	2.47	0.41
8:A:1314:A:H4'	19:L:16:MET:HE3	2.03	0.41
15:H:60:ALA:HB3	15:H:126:TYR:O	2.20	0.41
17:J:93:PRO:HG2	17:J:146:ILE:HD12	2.01	0.41
34:a:316:C:H2'	34:a:317:G:H8	1.85	0.41
34:a:1172:C:O2	34:a:1172:C:H2'	2.19	0.41
35:b:67:VAL:O	35:b:67:VAL:HG12	2.19	0.41
36:c:42:ILE:HG23	36:c:46:LEU:HD12	2.02	0.41
43:j:54:ALA:CB	43:j:58:TYR:HD2	2.33	0.41
44:k:18:ASN:HA	44:k:81:THR:O	2.20	0.41
44:k:70:ALA:O	44:k:73:SER:N	2.40	0.41
46:m:16:VAL:CG2	46:m:31:GLN:HB3	2.49	0.41
50:q:9:VAL:HG22	50:q:10:TYR:H	1.85	0.41
6:6:143:LYS:O	6:6:143:LYS:HG2	2.21	0.41
8:A:21:A:H2'	8:A:22:C:O4'	2.21	0.41
8:A:363:A:H4'	8:A:365:A:N7	2.34	0.41
8:A:2348:G:H5"	8:A:2349:A:OP2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2809:G:C2'	8:A:2810:A:H5'	2.51	0.41
10:C:119:GLY:O	10:C:130:LEU:HB3	2.20	0.41
14:G:137:SER:O	14:G:141:VAL:HG12	2.20	0.41
15:H:78:HIS:HD2	15:H:85:ILE:HG23	1.85	0.41
29:V:37:ARG:CD	29:V:44:PRO:HB2	2.51	0.41
34:a:917:A:H2'	34:a:918:A:C8	2.54	0.41
34:a:1414:C:H2'	34:a:1415:G:C8	2.56	0.41
37:d:73:ASP:OD1	37:d:73:ASP:N	2.38	0.41
37:d:142:ARG:HG2	37:d:143:GLU:H	1.86	0.41
40:g:99:LEU:HD22	40:g:103:TRP:CZ2	2.56	0.41
41:h:5:ASP:OD2	41:h:8:ALA:HB3	2.20	0.41
44:k:19:GLY:N	44:k:79:LEU:HD11	2.36	0.41
44:k:19:GLY:H	44:k:79:LEU:HD11	1.86	0.41
50:q:60:ILE:O	50:q:81:VAL:HB	2.21	0.41
5:5:65:C:O2'	5:5:66:C:H5'	2.21	0.41
6:6:53:LEU:HB3	6:6:54:ILE:H	1.67	0.41
6:6:112:ILE:HG23	6:6:112:ILE:O	2.20	0.41
6:6:524:GLU:OE2	40:g:73:LEU:HD22	2.21	0.41
8:A:11:U:H2'	8:A:12:U:H5'	2.03	0.41
8:A:479:C:HO2'	8:A:480:U:H6	1.68	0.41
8:A:884:U:H2'	8:A:885:C:C6	2.56	0.41
8:A:1377:U:P	25:R:56:MET:HE1	2.61	0.41
8:A:1461:C:C2'	8:A:1462:G:H5'	2.50	0.41
8:A:2335:G:H3'	8:A:2337:A:C8	2.56	0.41
8:A:2339:U:H2'	8:A:2340:C:H5'	2.03	0.41
8:A:2435:U:H2'	8:A:2436:G:H8	1.84	0.41
8:A:2607:U:H5"	11:D:144:GLY:O	2.20	0.41
12:E:131:PHE:HB2	12:E:162:ASN:CB	2.51	0.41
15:H:46:THR:HB	15:H:49:VAL:CG1	2.50	0.41
18:K:58:MET:HE1	18:K:64:VAL:HG13	2.03	0.41
19:L:49:THR:HA	19:L:52:LYS:HG2	2.02	0.41
26:S:89:LYS:HB3	26:S:89:LYS:HE3	1.85	0.41
32:Y:54:SER:HA	32:Y:59:THR:C	2.46	0.41
33:Z:44:LYS:HE2	33:Z:44:LYS:HA	2.02	0.41
34:a:406:C:H2'	34:a:407:G:C8	2.56	0.41
34:a:1065:C:H5	34:a:1206:A:HO2'	1.66	0.41
34:a:1159:C:H2'	34:a:1160:U:O4'	2.21	0.41
34:a:1241:G:N3	34:a:1241:G:H2'	2.34	0.41
36:c:37:LYS:HG3	36:c:93:LEU:CD1	2.47	0.41
36:c:54:VAL:HG22	36:c:67:ILE:CD1	2.50	0.41
36:c:85:LYS:O	36:c:89:LYS:HG3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:d:63:MET:HE2	37:d:63:MET:HB3	1.46	0.41
39:f:9:ILE:HD12	39:f:88:ARG:HB3	2.02	0.41
41:h:24:LYS:O	41:h:25:LEU:HB3	2.21	0.41
41:h:72:ARG:HH21	41:h:72:ARG:HD2	1.63	0.41
42:i:100:LEU:HD12	42:i:105:LEU:HD13	2.02	0.41
42:i:108:ARG:O	42:i:109:ASP:HB3	2.21	0.41
43:j:9:ARG:HG3	43:j:9:ARG:NH1	2.32	0.41
43:j:40:ILE:HB	43:j:73:LEU:HD23	2.02	0.41
46:m:76:ASN:O	46:m:80:LEU:HD12	2.21	0.41
50:q:29:THR:HG22	50:q:30:TYR:N	2.33	0.41
52:s:48:THR:HB	52:s:61:TYR:CB	2.51	0.41
52:s:67:VAL:HG12	52:s:67:VAL:O	2.21	0.41
6:6:219:LYS:O	6:6:219:LYS:HG2	2.21	0.41
6:6:449:PRO:HG2	6:6:452:LEU:HD11	2.03	0.41
8:A:762:C:C2’	8:A:763:A:H5’	2.51	0.41
8:A:1320:G:H1’	8:A:1366:U:C5	2.56	0.41
8:A:1353:A:H2’	8:A:1354:G:C8	2.56	0.41
8:A:1362:C:H42	24:Q:86:ARG:HH21	1.69	0.41
8:A:1479:G:O2’	8:A:1480:G:H5’	2.21	0.41
8:A:1901:C:O2’	8:A:1902:G:H5’	2.21	0.41
8:A:2372:G:H4’	8:A:2373:A:O5’	2.21	0.41
24:Q:6:VAL:HA	24:Q:103:ILE:O	2.20	0.41
24:Q:21:LEU:HD22	24:Q:74:ALA:HB1	2.03	0.41
27:T:19:LYS:HG2	27:T:19:LYS:O	2.20	0.41
35:b:222:LEU:HA	35:b:222:LEU:HD23	1.53	0.41
36:c:38:ILE:HG13	36:c:39:ARG:N	2.36	0.41
36:c:134:LYS:HB2	36:c:134:LYS:HE2	1.66	0.41
37:d:4:PHE:CZ	37:d:6:GLY:HA3	2.56	0.41
38:e:111:VAL:HG23	38:e:136:MET:CE	2.51	0.41
43:j:28:THR:HA	43:j:31:ARG:HG3	2.03	0.41
45:l:100:VAL:CG1	45:l:103:LEU:HD12	2.48	0.41
46:m:18:SER:O	46:m:21:TYR:HB2	2.21	0.41
52:s:34:TRP:O	52:s:36:ARG:HG3	2.21	0.41
52:s:79:THR:HG22	52:s:81:LYS:HZ3	1.86	0.41
53:t:62:GLN:O	53:t:62:GLN:HG3	2.19	0.41
1:1:33:LYS:HB3	1:1:33:LYS:HE3	1.89	0.40
8:A:706:U:H1’	17:J:12:SER:O	2.20	0.40
8:A:1524:C:H2’	8:A:1525:U:H5’	2.03	0.40
10:C:145:GLU:HB2	10:C:188:CYS:HB3	2.01	0.40
11:D:41:VAL:HG23	11:D:47:ASN:OD1	2.21	0.40
24:Q:52:MET:HE3	24:Q:52:MET:HB3	1.95	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:517:A:C2'	34:a:518:A:H5'	2.51	0.40
44:k:20:VAL:HG22	44:k:35:THR:CG2	2.51	0.40
49:p:87:GLN:H	49:p:87:GLN:HG2	1.62	0.40
53:t:67:HIS:C	53:t:69:ASN:N	2.79	0.40
6:6:151:LEU:CD2	6:6:153:LEU:HD22	2.51	0.40
6:6:377:LEU:HD23	6:6:377:LEU:HA	1.83	0.40
8:A:117:A:OP2	8:A:118:A:H5"	2.21	0.40
8:A:367:A:O2'	8:A:368:A:O5'	2.39	0.40
8:A:501:C:H3'	8:A:502:C:H5"	2.03	0.40
8:A:858:U:H2'	8:A:859:C:C6	2.56	0.40
8:A:2556:G:H8	8:A:2556:G:H2'	1.74	0.40
11:D:13:THR:HG22	11:D:14:GLN:N	2.30	0.40
11:D:142:SER:O	11:D:143:HIS:HB2	2.22	0.40
23:P:86:LYS:HE2	23:P:86:LYS:HB2	1.84	0.40
30:W:62:ILE:HD13	30:W:62:ILE:HA	1.97	0.40
31:X:11:SER:HG	31:X:13:ILE:HD12	1.87	0.40
35:b:69:PHE:HB3	35:b:80:VAL:HG23	2.02	0.40
36:c:40:LYS:NZ	47:n:26:ARG:HH21	2.17	0.40
37:d:125:ARG:HG3	37:d:126:VAL:N	2.36	0.40
42:i:7:GLU:HG3	42:i:24:VAL:HG12	2.00	0.40
43:j:11:LYS:O	43:j:12:ALA:HB2	2.21	0.40
44:k:30:THR:O	44:k:46:SER:HB2	2.22	0.40
46:m:79:ARG:HB3	46:m:79:ARG:NH1	2.37	0.40
2:2:2:VAL:HG12	2:2:3:LYS:O	2.22	0.40
6:6:55:ASP:O	6:6:150:PRO:HD2	2.21	0.40
6:6:398:GLU:OE1	6:6:428:VAL:HG21	2.21	0.40
8:A:1780:G:N1	8:A:1783:G:OP2	2.53	0.40
8:A:2217:G:H2'	8:A:2218:G:C8	2.55	0.40
8:A:2385:A:H61	17:J:54:GLN:NE2	2.20	0.40
9:B:46:A:O2'	9:B:47:C:H5'	2.21	0.40
11:D:56:LYS:HB3	11:D:84:PRO:HB2	2.01	0.40
11:D:131:ILE:HD12	11:D:136:GLN:C	2.46	0.40
12:E:177:THR:HG22	12:E:178:ALA:N	2.36	0.40
16:I:90:ASP:O	16:I:91:LYS:HB2	2.22	0.40
19:L:28:GLU:OE1	19:L:121:LEU:HD12	2.21	0.40
21:N:65:LYS:HG2	21:N:66:ILE:H	1.86	0.40
29:V:27:ARG:HD3	29:V:29:TRP:CZ3	2.56	0.40
34:a:1304:U:C2'	34:a:1305:U:H5'	2.50	0.40
36:c:94:THR:O	36:c:95:ASP:HB2	2.21	0.40
40:g:113:GLU:HB2	40:g:119:ARG:HG2	2.02	0.40
41:h:40:LEU:HA	41:h:40:LEU:HD12	1.96	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:14:ASP:HB2	1:1:15:ARG:HD2	2.02	0.40
5:5:24:C:H2'	5:5:25:U:C6	2.55	0.40
6:6:15:LYS:HG2	6:6:16:GLN:N	2.35	0.40
6:6:229:LYS:O	6:6:233:GLU:HG3	2.22	0.40
6:6:282:GLN:O	6:6:286:LYS:HG2	2.21	0.40
8:A:361:U:O2'	8:A:362:C:H5'	2.22	0.40
8:A:627:C:O2'	8:A:628:G:OP2	2.25	0.40
8:A:809:A:H5'	10:C:209:GLY:HA3	2.02	0.40
8:A:1509:G:O2'	8:A:1573:A:OP1	2.37	0.40
8:A:1819:G:H5'	10:C:204:ASN:OD1	2.22	0.40
8:A:2263:C:H2'	8:A:2264:G:O4'	2.21	0.40
8:A:2646:U:H5"	11:D:163:VAL:O	2.21	0.40
8:A:2813:U:OP1	11:D:79:LYS:HG3	2.21	0.40
10:C:232:HIS:CE1	10:C:247:MET:H	2.40	0.40
11:D:29:GLU:OE1	11:D:194:VAL:HG12	2.21	0.40
11:D:49:ILE:HG23	11:D:96:VAL:HG12	2.04	0.40
16:I:4:GLN:O	16:I:5:GLU:HB2	2.22	0.40
20:M:118:GLU:O	20:M:119:PHE:HB3	2.21	0.40
28:U:80:LYS:HE3	28:U:84:LYS:HB2	2.03	0.40
30:W:61:GLU:HA	30:W:64:GLN:HG2	2.03	0.40
34:a:224:U:H1'	34:a:475:A:H61	1.87	0.40
34:a:358:G:H2'	34:a:359:G:C8	2.56	0.40
34:a:1123:C:H2'	36:c:178:ARG:CG	2.51	0.40
34:a:1370:A:H5'	34:a:1371:G:OP2	2.21	0.40
34:a:1502:G:H2'	34:a:1503:A:C8	2.56	0.40
42:i:41:LEU:HD23	42:i:41:LEU:HA	1.59	0.40
44:k:30:THR:HG21	44:k:63:ALA:CB	2.52	0.40
47:n:29:ARG:HH11	47:n:29:ARG:HD2	1.66	0.40
50:q:76:ARG:O	50:q:76:ARG:HG2	2.19	0.40
53:t:78:LEU:HA	53:t:78:LEU:HD12	1.93	0.40
2:2:34:ARG:HG2	2:2:37:ARG:NH1	2.36	0.40
6:6:172:ALA:O	6:6:175:SER:OG	2.35	0.40
8:A:44:A:H62	8:A:480:U:H3	1.69	0.40
8:A:50:U:H3'	8:A:51:G:H5'	2.03	0.40
8:A:285:U:O2'	8:A:286:U:H5"	2.21	0.40
15:H:126:TYR:HH	15:H:133:HIS:CD2	2.35	0.40
16:I:9:LYS:O	16:I:83:ALA:HA	2.22	0.40
20:M:89:ILE:HD12	20:M:89:ILE:HA	1.90	0.40
22:O:51:ARG:CZ	22:O:55:ARG:HD2	2.51	0.40
28:U:18:THR:HG22	28:U:19:LYS:N	2.29	0.40
34:a:672:G:H22	34:a:749:G:H1	1.69	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:777:G:H4'	34:a:1524:A:H4'	2.04	0.40
34:a:1086:U:OP1	35:b:178:LYS:HE2	2.21	0.40
35:b:11:GLU:OE1	35:b:11:GLU:HA	2.20	0.40
36:c:133:GLN:HE21	36:c:152:VAL:HG23	1.86	0.40
37:d:128:ILE:HG23	37:d:128:ILE:HD12	1.52	0.40
43:j:8:ILE:HB	43:j:74:ILE:HG13	2.03	0.40
44:k:79:LEU:O	44:k:80:LYS:HG3	2.21	0.40
49:p:20:ILE:O	49:p:20:ILE:HG22	2.20	0.40
50:q:33:HIS:HD2	50:q:36:TYR:H	1.69	0.40
50:q:79:GLU:O	50:q:79:GLU:HG2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	1	45/49 (92%)	39 (87%)	6 (13%)	0	100	100
2	2	41/45 (91%)	39 (95%)	2 (5%)	0	100	100
3	3	62/66 (94%)	55 (89%)	7 (11%)	0	100	100
4	4	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
6	6	506/565 (90%)	422 (83%)	80 (16%)	4 (1%)	16	45
10	C	272/276 (99%)	253 (93%)	19 (7%)	0	100	100
11	D	213/220 (97%)	186 (87%)	27 (13%)	0	100	100
12	E	204/207 (99%)	185 (91%)	19 (9%)	0	100	100
13	F	171/179 (96%)	137 (80%)	34 (20%)	0	100	100
14	G	171/178 (96%)	149 (87%)	22 (13%)	0	100	100
15	H	143/145 (99%)	130 (91%)	13 (9%)	0	100	100
16	I	120/122 (98%)	108 (90%)	12 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	J	144/146 (99%)	130 (90%)	14 (10%)	0	100	100
18	K	135/144 (94%)	124 (92%)	10 (7%)	1 (1%)	19	49
19	L	118/122 (97%)	108 (92%)	10 (8%)	0	100	100
20	M	116/119 (98%)	105 (90%)	11 (10%)	0	100	100
21	N	112/116 (97%)	100 (89%)	12 (11%)	0	100	100
22	O	114/118 (97%)	111 (97%)	3 (3%)	0	100	100
23	P	100/102 (98%)	88 (88%)	12 (12%)	0	100	100
24	Q	110/117 (94%)	108 (98%)	2 (2%)	0	100	100
25	R	87/91 (96%)	79 (91%)	8 (9%)	0	100	100
26	S	98/105 (93%)	85 (87%)	13 (13%)	0	100	100
27	T	92/219 (42%)	83 (90%)	9 (10%)	0	100	100
28	U	75/94 (80%)	71 (95%)	4 (5%)	0	100	100
29	V	56/62 (90%)	51 (91%)	5 (9%)	0	100	100
30	W	63/69 (91%)	57 (90%)	6 (10%)	0	100	100
31	X	56/59 (95%)	52 (93%)	4 (7%)	0	100	100
32	Y	66/125 (53%)	48 (73%)	16 (24%)	2 (3%)	3	15
33	Z	46/57 (81%)	39 (85%)	7 (15%)	0	100	100
35	b	222/232 (96%)	180 (81%)	39 (18%)	3 (1%)	9	31
36	c	200/217 (92%)	169 (84%)	30 (15%)	1 (0%)	25	56
37	d	197/200 (98%)	157 (80%)	40 (20%)	0	100	100
38	e	154/166 (93%)	134 (87%)	19 (12%)	1 (1%)	22	52
39	f	93/98 (95%)	64 (69%)	29 (31%)	0	100	100
40	g	153/156 (98%)	125 (82%)	28 (18%)	0	100	100
41	h	129/132 (98%)	115 (89%)	14 (11%)	0	100	100
42	i	125/130 (96%)	109 (87%)	16 (13%)	0	100	100
43	j	95/102 (93%)	80 (84%)	15 (16%)	0	100	100
44	k	112/129 (87%)	82 (73%)	30 (27%)	0	100	100
45	l	133/149 (89%)	104 (78%)	27 (20%)	2 (2%)	8	29
46	m	114/121 (94%)	95 (83%)	19 (17%)	0	100	100
47	n	58/61 (95%)	46 (79%)	11 (19%)	1 (2%)	7	27
48	o	85/89 (96%)	72 (85%)	13 (15%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
49	p	85/91 (93%)	68 (80%)	16 (19%)	1 (1%)	11 35
50	q	78/87 (90%)	57 (73%)	19 (24%)	2 (3%)	4 17
51	r	62/80 (78%)	57 (92%)	5 (8%)	0	100 100
52	s	80/108 (74%)	65 (81%)	14 (18%)	1 (1%)	10 33
53	t	79/83 (95%)	64 (81%)	12 (15%)	3 (4%)	2 11
All	All	5825/6385 (91%)	5019 (86%)	784 (14%)	22 (0%)	32 60

All (22) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	6	156	GLN
36	c	155	ARG
49	p	87	GLN
32	Y	44	PRO
38	e	101	PRO
50	q	34	LYS
53	t	68	SER
6	6	53	LEU
6	6	54	ILE
35	b	14	VAL
35	b	188	ASP
47	n	24	CYS
50	q	37	GLY
53	t	46	LYS
53	t	71	ALA
6	6	157	PRO
32	Y	79	GLY
35	b	189	THR
52	s	35	SER
18	K	78	PRO
45	l	131	GLY
45	l	55	PRO

5.3.2 Protein sidechains (i)

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

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

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	1	45/47 (96%)	45 (100%)	0	100 100
2	2	39/40 (98%)	39 (100%)	0	100 100
3	3	55/57 (96%)	54 (98%)	1 (2%)	54 82
4	4	35/35 (100%)	35 (100%)	0	100 100
6	6	473/524 (90%)	472 (100%)	1 (0%)	92 98
10	C	221/223 (99%)	221 (100%)	0	100 100
11	D	173/177 (98%)	172 (99%)	1 (1%)	84 95
12	E	168/169 (99%)	167 (99%)	1 (1%)	84 95
14	G	96/155 (62%)	96 (100%)	0	100 100
15	H	123/123 (100%)	122 (99%)	1 (1%)	79 93
16	I	100/100 (100%)	99 (99%)	1 (1%)	73 91
17	J	112/112 (100%)	111 (99%)	1 (1%)	75 92
18	K	114/119 (96%)	110 (96%)	4 (4%)	31 66
19	L	101/102 (99%)	100 (99%)	1 (1%)	73 91
20	M	94/95 (99%)	94 (100%)	0	100 100
21	N	100/102 (98%)	100 (100%)	0	100 100
22	O	96/98 (98%)	96 (100%)	0	100 100
23	P	86/86 (100%)	85 (99%)	1 (1%)	67 89
24	Q	91/94 (97%)	91 (100%)	0	100 100
25	R	80/82 (98%)	79 (99%)	1 (1%)	65 88
26	S	75/90 (83%)	75 (100%)	0	100 100
27	T	82/192 (43%)	79 (96%)	3 (4%)	29 64
28	U	60/75 (80%)	60 (100%)	0	100 100
29	V	49/52 (94%)	49 (100%)	0	100 100
30	W	59/62 (95%)	59 (100%)	0	100 100
31	X	52/53 (98%)	52 (100%)	0	100 100
32	Y	10/114 (9%)	9 (90%)	1 (10%)	6 20
33	Z	44/52 (85%)	43 (98%)	1 (2%)	45 77
35	b	194/201 (96%)	186 (96%)	8 (4%)	26 60
36	c	164/175 (94%)	163 (99%)	1 (1%)	84 95
37	d	174/175 (99%)	171 (98%)	3 (2%)	56 83

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
38	e	122/131 (93%)	118 (97%)	4 (3%)	33 68
39	f	83/86 (96%)	83 (100%)	0	100 100
40	g	131/132 (99%)	128 (98%)	3 (2%)	45 77
41	h	112/113 (99%)	111 (99%)	1 (1%)	75 92
42	i	105/107 (98%)	104 (99%)	1 (1%)	73 91
43	j	87/91 (96%)	86 (99%)	1 (1%)	70 90
44	k	90/104 (86%)	90 (100%)	0	100 100
45	l	117/130 (90%)	116 (99%)	1 (1%)	75 92
46	m	100/104 (96%)	100 (100%)	0	100 100
47	n	52/53 (98%)	51 (98%)	1 (2%)	52 81
48	o	79/81 (98%)	79 (100%)	0	100 100
49	p	74/77 (96%)	74 (100%)	0	100 100
50	q	75/82 (92%)	75 (100%)	0	100 100
51	r	57/68 (84%)	57 (100%)	0	100 100
52	s	71/91 (78%)	71 (100%)	0	100 100
53	t	67/69 (97%)	66 (98%)	1 (2%)	60 85
All	All	4787/5300 (90%)	4743 (99%)	44 (1%)	74 92

All (44) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	3	31	HIS
6	6	13	GLU
11	D	107	VAL
12	E	41	ARG
15	H	72	ASP
16	I	122	LEU
17	J	109	ILE
18	K	76	LYS
18	K	79	LEU
18	K	81	VAL
18	K	82	ARG
19	L	32	THR
23	P	75	THR
25	R	80	VAL
27	T	60	VAL

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Mol	Chain	Res	Type
27	T	71	LYS
27	T	73	MET
32	Y	80	LEU
33	Z	3	VAL
35	b	19	GLN
35	b	21	ARG
35	b	22	ARG
35	b	23	TRP
35	b	67	VAL
35	b	105	LYS
35	b	155	LYS
35	b	157	MET
36	c	30	SER
37	d	27	GLU
37	d	29	ARG
37	d	165	LEU
38	e	30	ARG
38	e	38	VAL
38	e	101	PRO
38	e	134	ILE
40	g	49	LEU
40	g	50	VAL
40	g	80	VAL
41	h	39	ILE
42	i	57	THR
43	j	102	LEU
45	l	46	VAL
47	n	32	SER
53	t	46	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (94) such sidechains are listed below:

Mol	Chain	Res	Type
3	3	7	HIS
3	3	31	HIS
3	3	43	GLN
6	6	66	HIS
6	6	136	GLN
6	6	218	GLN
6	6	234	GLN
6	6	294	ASN
6	6	340	ASN

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Mol	Chain	Res	Type
6	6	450	HIS
6	6	456	GLN
6	6	459	ASN
6	6	507	HIS
10	C	61	GLN
10	C	75	ASN
10	C	134	ASN
10	C	230	HIS
10	C	232	HIS
11	D	76	HIS
11	D	167	GLN
12	E	158	ASN
12	E	182	ASN
14	G	97	GLN
14	G	120	ASN
14	G	147	ASN
15	H	24	GLN
15	H	48	HIS
15	H	78	HIS
15	H	119	GLN
15	H	131	HIS
15	H	136	GLN
17	J	4	HIS
17	J	54	GLN
17	J	83	ASN
19	L	61	ASN
19	L	73	ASN
20	M	37	ASN
20	M	39	HIS
21	N	43	GLN
22	O	37	GLN
22	O	108	GLN
23	P	18	GLN
23	P	65	GLN
24	Q	65	ASN
24	Q	97	ASN
25	R	73	ASN
26	S	44	HIS
27	T	78	GLN
27	T	85	GLN
30	W	64	GLN
31	X	40	ASN

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Mol	Chain	Res	Type
32	Y	75	ASN
33	Z	14	ASN
35	b	8	GLN
35	b	36	ASN
35	b	77	GLN
35	b	190	ASN
36	c	175	HIS
36	c	185	HIS
37	d	118	HIS
37	d	166	ASN
38	e	43	ASN
38	e	83	HIS
38	e	146	ASN
40	g	52	GLN
40	g	106	ASN
40	g	122	ASN
40	g	148	ASN
42	i	52	GLN
44	k	77	HIS
45	l	25	ASN
45	l	39	ASN
45	l	77	ASN
45	l	90	HIS
45	l	109	HIS
45	l	125	GLN
46	m	74	ASN
46	m	118	ASN
47	n	31	HIS
48	o	9	ASN
48	o	18	HIS
48	o	28	GLN
48	o	37	ASN
48	o	42	HIS
48	o	68	ASN
49	p	15	ASN
49	p	87	GLN
50	q	33	HIS
50	q	49	HIS
51	r	21	ASN
51	r	57	GLN
52	s	43	ASN
53	t	42	ASN

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Mol	Chain	Res	Type
53	t	45	ASN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
34	a	1470/1548 (94%)	593 (40%)	0
5	5	72/73 (98%)	14 (19%)	0
7	7	2/3 (66%)	0	0
8	A	2648/2921 (90%)	673 (25%)	44 (1%)
9	B	112/115 (97%)	17 (15%)	1 (0%)
All	All	4304/4660 (92%)	1297 (30%)	45 (1%)

All (1297) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	5	4	G
5	5	6	G
5	5	9	G
5	5	14	A
5	5	16	U
5	5	17	U
5	5	18	C
5	5	19	G
5	5	21	U
5	5	22	A
5	5	49	C
5	5	50	G
5	5	63	C
5	5	72	C
8	A	5	A
8	A	6	A
8	A	11	U
8	A	12	U
8	A	13	A
8	A	34	U
8	A	36	G
8	A	46	C
8	A	51	G
8	A	60	U
8	A	62	C
8	A	63	U

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Mol	Chain	Res	Type
8	A	66	C
8	A	67	G
8	A	69	C
8	A	70	G
8	A	71	A
8	A	74	U
8	A	75	G
8	A	89	U
8	A	90	A
8	A	91	A
8	A	92	G
8	A	93	U
8	A	101	G
8	A	104	C
8	A	117	A
8	A	118	A
8	A	119	U
8	A	135	G
8	A	141	U
8	A	150	A
8	A	154	A
8	A	156	A
8	A	168	A
8	A	170	C
8	A	171	A
8	A	175	C
8	A	176	A
8	A	177	G
8	A	179	A
8	A	180	G
8	A	183	A
8	A	185	A
8	A	199	A
8	A	202	A
8	A	203	U
8	A	216	A
8	A	218	G
8	A	219	A
8	A	224	A
8	A	225	A
8	A	226	A
8	A	231	A

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Mol	Chain	Res	Type
8	A	233	U
8	A	236	A
8	A	239	C
8	A	242	U
8	A	243	U
8	A	248	G
8	A	251	G
8	A	255	G
8	A	256	C
8	A	269	G
8	A	281	A
8	A	283	G
8	A	286	U
8	A	292	U
8	A	298	U
8	A	299	U
8	A	300	G
8	A	301	U
8	A	321	U
8	A	324	A
8	A	325	A
8	A	327	G
8	A	329	A
8	A	338	G
8	A	340	C
8	A	342	A
8	A	343	A
8	A	344	U
8	A	345	C
8	A	346	A
8	A	348	C
8	A	349	U
8	A	352	A
8	A	356	A
8	A	363	A
8	A	364	A
8	A	366	G
8	A	367	A
8	A	368	A
8	A	370	G
8	A	371	U
8	A	372	A

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Mol	Chain	Res	Type
8	A	373	A
8	A	378	C
8	A	381	G
8	A	383	A
8	A	385	U
8	A	388	A
8	A	389	A
8	A	390	A
8	A	402	C
8	A	428	G
8	A	429	C
8	A	431	C
8	A	432	G
8	A	433	U
8	A	434	G
8	A	436	A
8	A	438	U
8	A	440	C
8	A	441	C
8	A	447	A
8	A	450	C
8	A	457	G
8	A	458	A
8	A	462	U
8	A	464	U
8	A	466	C
8	A	472	C
8	A	473	U
8	A	480	U
8	A	482	U
8	A	483	C
8	A	490	C
8	A	497	U
8	A	500	A
8	A	502	C
8	A	503	A
8	A	519	G
8	A	526	A
8	A	527	G
8	A	529	A
8	A	536	A
8	A	549	U

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Mol	Chain	Res	Type
8	A	550	A
8	A	553	A
8	A	554	C
8	A	561	C
8	A	563	G
8	A	566	U
8	A	567	G
8	A	569	U
8	A	571	A
8	A	572	C
8	A	575	G
8	A	576	U
8	A	577	A
8	A	578	G
8	A	583	A
8	A	589	U
8	A	590	U
8	A	592	A
8	A	593	U
8	A	594	G
8	A	598	G
8	A	605	U
8	A	606	G
8	A	616	G
8	A	617	A
8	A	618	A
8	A	627	C
8	A	628	G
8	A	630	G
8	A	631	U
8	A	632	U
8	A	633	A
8	A	640	G
8	A	646	A
8	A	665	G
8	A	667	G
8	A	672	A
8	A	679	G
8	A	682	A
8	A	691	A
8	A	700	A
8	A	713	A

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Mol	Chain	Res	Type
8	A	720	A
8	A	730	A
8	A	731	U
8	A	748	U
8	A	749	G
8	A	753	U
8	A	754	U
8	A	755	C
8	A	766	G
8	A	767	A
8	A	773	G
8	A	775	A
8	A	781	C
8	A	783	G
8	A	790	G
8	A	792	U
8	A	793	G
8	A	796	A
8	A	797	A
8	A	809	A
8	A	810	A
8	A	817	G
8	A	820	G
8	A	822	G
8	A	827	A
8	A	829	U
8	A	834	A
8	A	835	U
8	A	836	C
8	A	850	G
8	A	851	C
8	A	857	C
8	A	859	C
8	A	864	A
8	A	865	A
8	A	868	A
8	A	870	C
8	A	872	U
8	A	873	U
8	A	874	A
8	A	881	G
8	A	904	G

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Mol	Chain	Res	Type
8	A	909	G
8	A	910	C
8	A	911	A
8	A	913	U
8	A	915	U
8	A	916	U
8	A	917	U
8	A	949	C
8	A	952	A
8	A	955	A
8	A	957	C
8	A	959	C
8	A	965	G
8	A	969	A
8	A	972	A
8	A	973	A
8	A	976	U
8	A	978	A
8	A	980	U
8	A	985	A
8	A	986	G
8	A	989	A
8	A	990	G
8	A	995	U
8	A	996	G
8	A	1002	U
8	A	1005	G
8	A	1013	U
8	A	1014	U
8	A	1015	C
8	A	1018	A
8	A	1027	A
8	A	1028	G
8	A	1030	C
8	A	1039	C
8	A	1040	A
8	A	1041	G
8	A	1042	C
8	A	1046	G
8	A	1050	C
8	A	1051	C
8	A	1053	A

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Mol	Chain	Res	Type
8	A	1057	A
8	A	1061	G
8	A	1066	G
8	A	1070	A
8	A	1072	A
8	A	1073	A
8	A	1077	U
8	A	1164	G
8	A	1165	C
8	A	1171	A
8	A	1174	U
8	A	1176	U
8	A	1178	C
8	A	1179	C
8	A	1180	G
8	A	1185	U
8	A	1186	A
8	A	1187	A
8	A	1188	A
8	A	1192	A
8	A	1198	G
8	A	1199	A
8	A	1200	A
8	A	1201	G
8	A	1202	C
8	A	1205	U
8	A	1206	G
8	A	1211	G
8	A	1214	C
8	A	1219	G
8	A	1221	C
8	A	1234	G
8	A	1238	U
8	A	1248	U
8	A	1253	G
8	A	1258	A
8	A	1278	G
8	A	1279	C
8	A	1289	A
8	A	1290	G
8	A	1291	A
8	A	1294	G

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Mol	Chain	Res	Type
8	A	1295	C
8	A	1298	G
8	A	1299	U
8	A	1309	G
8	A	1310	A
8	A	1311	A
8	A	1312	A
8	A	1320	G
8	A	1322	G
8	A	1326	C
8	A	1337	A
8	A	1338	U
8	A	1339	U
8	A	1344	A
8	A	1354	G
8	A	1358	A
8	A	1362	C
8	A	1366	U
8	A	1374	G
8	A	1382	C
8	A	1383	G
8	A	1387	C
8	A	1389	U
8	A	1392	G
8	A	1402	A
8	A	1405	G
8	A	1415	A
8	A	1416	U
8	A	1421	A
8	A	1422	A
8	A	1463	A
8	A	1465	G
8	A	1471	A
8	A	1472	C
8	A	1473	G
8	A	1474	C
8	A	1480	G
8	A	1490	G
8	A	1493	U
8	A	1494	G
8	A	1497	A
8	A	1498	U

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Mol	Chain	Res	Type
8	A	1500	G
8	A	1504	U
8	A	1505	G
8	A	1506	C
8	A	1508	C
8	A	1511	C
8	A	1512	U
8	A	1513	A
8	A	1517	A
8	A	1520	A
8	A	1521	A
8	A	1526	G
8	A	1533	A
8	A	1534	G
8	A	1536	C
8	A	1537	A
8	A	1548	U
8	A	1556	G
8	A	1557	C
8	A	1558	U
8	A	1560	A
8	A	1564	G
8	A	1565	U
8	A	1566	G
8	A	1567	A
8	A	1568	U
8	A	1569	G
8	A	1571	G
8	A	1573	A
8	A	1575	A
8	A	1594	U
8	A	1598	U
8	A	1600	A
8	A	1606	C
8	A	1613	G
8	A	1616	A
8	A	1625	U
8	A	1626	A
8	A	1636	U
8	A	1651	C
8	A	1652	A
8	A	1653	A

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Mol	Chain	Res	Type
8	A	1654	A
8	A	1658	A
8	A	1660	A
8	A	1661	C
8	A	1666	A
8	A	1678	A
8	A	1690	A
8	A	1691	G
8	A	1692	C
8	A	1695	G
8	A	1718	G
8	A	1719	C
8	A	1737	U
8	A	1744	A
8	A	1745	A
8	A	1746	G
8	A	1757	U
8	A	1759	G
8	A	1760	G
8	A	1761	G
8	A	1769	C
8	A	1770	C
8	A	1771	A
8	A	1777	G
8	A	1784	U
8	A	1789	A
8	A	1790	G
8	A	1791	G
8	A	1792	C
8	A	1800	A
8	A	1801	C
8	A	1802	U
8	A	1811	A
8	A	1826	G
8	A	1827	C
8	A	1828	U
8	A	1829	A
8	A	1839	G
8	A	1843	U
8	A	1847	U
8	A	1848	A
8	A	1856	A

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Mol	Chain	Res	Type
8	A	1860	C
8	A	1868	U
8	A	1874	A
8	A	1875	A
8	A	1876	G
8	A	1882	G
8	A	1886	A
8	A	1887	G
8	A	1889	G
8	A	1901	C
8	A	1903	A
8	A	1904	A
8	A	1914	C
8	A	1915	G
8	A	1916	A
8	A	1926	A
8	A	1932	C
8	A	1933	G
8	A	1941	C
8	A	1942	U
8	A	1944	U
8	A	1956	G
8	A	1957	G
8	A	1959	A
8	A	1964	A
8	A	1965	A
8	A	1968	C
8	A	1969	C
8	A	1971	U
8	A	1972	G
8	A	1982	U
8	A	1987	A
8	A	1993	A
8	A	1994	C
8	A	1996	A
8	A	1997	A
8	A	1998	A
8	A	1999	G
8	A	2009	U
8	A	2018	U
8	A	2020	U
8	A	2021	C

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Mol	Chain	Res	Type
8	A	2024	A
8	A	2033	C
8	A	2050	A
8	A	2051	C
8	A	2058	A
8	A	2059	G
8	A	2060	A
8	A	2062	G
8	A	2063	C
8	A	2067	U
8	A	2070	C
8	A	2073	G
8	A	2080	G
8	A	2082	C
8	A	2083	G
8	A	2087	A
8	A	2088	G
8	A	2089	A
8	A	2095	U
8	A	2096	G
8	A	2110	G
8	A	2120	G
8	A	2127	G
8	A	2225	A
8	A	2226	A
8	A	2231	C
8	A	2232	A
8	A	2237	U
8	A	2247	G
8	A	2252	A
8	A	2253	C
8	A	2262	G
8	A	2265	G
8	A	2266	G
8	A	2273	G
8	A	2284	U
8	A	2285	C
8	A	2286	G
8	A	2295	A
8	A	2296	A
8	A	2305	A
8	A	2309	G

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Mol	Chain	Res	Type
8	A	2310	C
8	A	2314	A
8	A	2316	G
8	A	2324	C
8	A	2325	A
8	A	2330	G
8	A	2331	G
8	A	2332	U
8	A	2333	U
8	A	2334	G
8	A	2335	G
8	A	2337	A
8	A	2338	A
8	A	2339	U
8	A	2344	C
8	A	2345	A
8	A	2347	A
8	A	2348	G
8	A	2349	A
8	A	2352	G
8	A	2354	A
8	A	2357	G
8	A	2358	G
8	A	2362	A
8	A	2369	C
8	A	2370	U
8	A	2373	A
8	A	2374	C
8	A	2377	C
8	A	2382	C
8	A	2383	C
8	A	2388	A
8	A	2394	G
8	A	2395	C
8	A	2410	G
8	A	2412	C
8	A	2414	U
8	A	2426	G
8	A	2427	G
8	A	2433	C
8	A	2434	A
8	A	2438	A

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Mol	Chain	Res	Type
8	A	2449	C
8	A	2450	U
8	A	2455	G
8	A	2456	G
8	A	2457	A
8	A	2458	U
8	A	2461	A
8	A	2462	A
8	A	2464	C
8	A	2468	C
8	A	2471	G
8	A	2474	G
8	A	2475	A
8	A	2478	A
8	A	2489	U
8	A	2490	C
8	A	2492	C
8	A	2495	A
8	A	2503	A
8	A	2507	C
8	A	2508	G
8	A	2518	U
8	A	2529	G
8	A	2530	A
8	A	2532	G
8	A	2533	U
8	A	2545	A
8	A	2547	C
8	A	2556	G
8	A	2563	G
8	A	2569	A
8	A	2581	U
8	A	2593	A
8	A	2594	G
8	A	2600	C
8	A	2604	A
8	A	2605	G
8	A	2609	G
8	A	2629	A
8	A	2631	U
8	A	2637	C
8	A	2640	U

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Mol	Chain	Res	Type
8	A	2641	A
8	A	2642	U
8	A	2646	U
8	A	2647	C
8	A	2657	G
8	A	2663	U
8	A	2665	G
8	A	2672	G
8	A	2673	C
8	A	2674	U
8	A	2675	G
8	A	2693	C
8	A	2694	C
8	A	2695	G
8	A	2700	G
8	A	2716	U
8	A	2718	C
8	A	2727	G
8	A	2733	A
8	A	2734	C
8	A	2737	C
8	A	2740	A
8	A	2741	G
8	A	2742	C
8	A	2753	U
8	A	2757	U
8	A	2760	A
8	A	2762	G
8	A	2763	G
8	A	2764	G
8	A	2769	G
8	A	2771	G
8	A	2775	A
8	A	2776	A
8	A	2777	A
8	A	2778	G
8	A	2779	C
8	A	2784	A
8	A	2792	A
8	A	2793	G
8	A	2794	C
8	A	2796	C

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Mol	Chain	Res	Type
8	A	2799	C
8	A	2800	U
8	A	2803	A
8	A	2805	A
8	A	2806	U
8	A	2807	G
8	A	2811	U
8	A	2812	U
8	A	2813	U
8	A	2817	A
8	A	2820	U
8	A	2821	U
8	A	2822	C
8	A	2823	G
8	A	2827	A
8	A	2832	A
8	A	2840	A
8	A	2851	G
8	A	2855	A
8	A	2857	A
8	A	2869	G
8	A	2879	G
8	A	2887	G
8	A	2890	C
8	A	2892	G
8	A	2899	A
8	A	2900	C
8	A	2903	A
8	A	2905	C
8	A	2906	G
8	A	2916	U
9	B	10	U
9	B	13	A
9	B	23	U
9	B	24	C
9	B	25	A
9	B	28	C
9	B	30	U
9	B	33	U
9	B	39	G
9	B	62	U
9	B	76	A

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Mol	Chain	Res	Type
9	B	87	C
9	B	88	G
9	B	96	A
9	B	102	G
9	B	106	G
9	B	107	U
34	a	6	U
34	a	7	G
34	a	8	G
34	a	9	A
34	a	14	U
34	a	15	U
34	a	16	G
34	a	23	G
34	a	27	A
34	a	31	U
34	a	32	G
34	a	33	A
34	a	39	G
34	a	40	G
34	a	44	C
34	a	45	G
34	a	48	C
34	a	49	C
34	a	50	U
34	a	52	A
34	a	55	C
34	a	58	G
34	a	59	C
34	a	62	G
34	a	65	G
34	a	66	A
34	a	67	G
34	a	69	G
34	a	71	A
34	a	72	C
34	a	74	G
34	a	76	C
34	a	94	G
34	a	95	A
34	a	98	U
34	a	99	U

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Mol	Chain	Res	Type
34	a	100	A
34	a	107	G
34	a	114	G
34	a	115	A
34	a	119	A
34	a	120	C
34	a	122	C
34	a	125	G
34	a	126	G
34	a	128	U
34	a	129	A
34	a	132	C
34	a	134	A
34	a	135	C
34	a	137	U
34	a	138	A
34	a	139	U
34	a	140	A
34	a	142	G
34	a	144	C
34	a	149	A
34	a	151	A
34	a	156	C
34	a	157	G
34	a	158	G
34	a	163	C
34	a	165	G
34	a	166	G
34	a	167	A
34	a	168	G
34	a	169	C
34	a	173	U
34	a	174	A
34	a	178	G
34	a	183	U
34	a	184	A
34	a	185	U
34	a	188	U
34	a	189	G
34	a	190	A
34	a	194	G
34	a	197	U

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Mol	Chain	Res	Type
34	a	200	U
34	a	201	U
34	a	203	A
34	a	204	A
34	a	207	G
34	a	208	U
34	a	211	A
34	a	214	A
34	a	215	C
34	a	217	G
34	a	226	U
34	a	227	C
34	a	228	A
34	a	230	U
34	a	233	U
34	a	234	A
34	a	248	U
34	a	249	G
34	a	251	A
34	a	255	G
34	a	256	C
34	a	258	A
34	a	259	G
34	a	260	U
34	a	262	G
34	a	264	U
34	a	265	A
34	a	267	G
34	a	268	G
34	a	269	U
34	a	272	C
34	a	273	G
34	a	274	G
34	a	275	C
34	a	276	U
34	a	277	U
34	a	279	C
34	a	284	G
34	a	286	A
34	a	288	C
34	a	289	G
34	a	297	G

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Mol	Chain	Res	Type
34	a	301	A
34	a	307	G
34	a	314	A
34	a	316	C
34	a	323	A
34	a	326	G
34	a	327	G
34	a	328	A
34	a	330	C
34	a	331	U
34	a	332	G
34	a	333	A
34	a	336	C
34	a	337	A
34	a	338	C
34	a	339	G
34	a	352	A
34	a	353	C
34	a	355	G
34	a	356	G
34	a	358	G
34	a	359	G
34	a	360	C
34	a	361	A
34	a	362	G
34	a	363	C
34	a	371	A
34	a	375	U
34	a	377	C
34	a	378	C
34	a	380	C
34	a	384	G
34	a	385	G
34	a	389	A
34	a	396	G
34	a	398	C
34	a	400	G
34	a	405	A
34	a	406	C
34	a	407	G
34	a	409	C
34	a	412	G

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Mol	Chain	Res	Type
34	a	413	U
34	a	414	G
34	a	417	U
34	a	420	U
34	a	421	G
34	a	422	A
34	a	423	A
34	a	424	G
34	a	429	U
34	a	430	C
34	a	431	G
34	a	437	U
34	a	440	A
34	a	441	A
34	a	442	C
34	a	443	U
34	a	447	U
34	a	452	A
34	a	456	A
34	a	458	G
34	a	459	A
34	a	460	A
34	a	461	C
34	a	466	G
34	a	475	A
34	a	478	G
34	a	483	C
34	a	484	A
34	a	486	C
34	a	488	U
34	a	489	G
34	a	492	G
34	a	496	C
34	a	499	A
34	a	500	A
34	a	503	A
34	a	504	G
34	a	507	A
34	a	512	C
34	a	513	G
34	a	514	G
34	a	517	A

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Mol	Chain	Res	Type
34	a	518	A
34	a	519	C
34	a	526	C
34	a	529	G
34	a	530	C
34	a	532	G
34	a	535	G
34	a	538	G
34	a	539	U
34	a	540	A
34	a	541	A
34	a	542	U
34	a	543	A
34	a	544	C
34	a	545	G
34	a	551	G
34	a	555	A
34	a	567	A
34	a	568	A
34	a	570	U
34	a	578	G
34	a	579	U
34	a	580	A
34	a	581	A
34	a	584	C
34	a	585	G
34	a	587	G
34	a	590	U
34	a	595	G
34	a	596	G
34	a	604	A
34	a	609	G
34	a	610	A
34	a	613	U
34	a	615	A
34	a	618	G
34	a	631	C
34	a	634	U
34	a	640	G
34	a	641	U
34	a	642	C
34	a	646	G

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Mol	Chain	Res	Type
34	a	649	A
34	a	650	A
34	a	655	A
34	a	656	A
34	a	658	A
34	a	660	U
34	a	661	U
34	a	662	G
34	a	664	G
34	a	669	G
34	a	673	A
34	a	679	G
34	a	680	U
34	a	691	G
34	a	694	U
34	a	695	A
34	a	703	A
34	a	709	C
34	a	710	A
34	a	711	G
34	a	718	G
34	a	724	A
34	a	731	U
34	a	732	G
34	a	737	A
34	a	741	G
34	a	742	A
34	a	750	G
34	a	753	U
34	a	754	G
34	a	757	A
34	a	763	G
34	a	766	G
34	a	767	A
34	a	768	U
34	a	769	G
34	a	772	C
34	a	773	G
34	a	774	A
34	a	781	G
34	a	782	G
34	a	783	G

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Mol	Chain	Res	Type
34	a	785	A
34	a	789	A
34	a	793	G
34	a	794	G
34	a	796	U
34	a	798	A
34	a	801	U
34	a	802	A
34	a	803	C
34	a	804	C
34	a	807	G
34	a	816	C
34	a	817	G
34	a	820	G
34	a	821	U
34	a	822	A
34	a	823	A
34	a	825	C
34	a	826	G
34	a	827	A
34	a	828	U
34	a	829	G
34	a	834	C
34	a	836	A
34	a	847	G
34	a	862	G
34	a	864	G
34	a	868	C
34	a	869	A
34	a	873	A
34	a	879	U
34	a	880	U
34	a	881	A
34	a	883	G
34	a	890	G
34	a	893	U
34	a	894	G
34	a	896	G
34	a	898	A
34	a	900	U
34	a	904	A
34	a	908	C

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Mol	Chain	Res	Type
34	a	909	A
34	a	911	G
34	a	922	A
34	a	923	A
34	a	925	G
34	a	926	G
34	a	928	A
34	a	932	A
34	a	934	G
34	a	935	G
34	a	936	G
34	a	937	G
34	a	938	A
34	a	940	C
34	a	942	G
34	a	943	C
34	a	945	C
34	a	946	A
34	a	947	A
34	a	950	G
34	a	951	G
34	a	955	A
34	a	956	G
34	a	957	C
34	a	958	A
34	a	959	U
34	a	961	U
34	a	963	G
34	a	965	U
34	a	969	U
34	a	970	U
34	a	974	A
34	a	975	G
34	a	978	A
34	a	981	C
34	a	984	A
34	a	985	G
34	a	986	A
34	a	987	A
34	a	990	U
34	a	991	U
34	a	992	A

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Mol	Chain	Res	Type
34	a	993	C
34	a	998	U
34	a	1000	U
34	a	1001	U
34	a	1002	G
34	a	1003	A
34	a	1005	A
34	a	1008	C
34	a	1019	C
34	a	1021	A
34	a	1022	G
34	a	1026	U
34	a	1029	A
34	a	1055	A
34	a	1056	C
34	a	1057	A
34	a	1058	G
34	a	1061	G
34	a	1063	U
34	a	1066	A
34	a	1068	G
34	a	1069	G
34	a	1072	G
34	a	1074	C
34	a	1076	U
34	a	1078	A
34	a	1080	C
34	a	1081	U
34	a	1082	C
34	a	1085	G
34	a	1086	U
34	a	1090	G
34	a	1092	G
34	a	1095	G
34	a	1096	U
34	a	1097	U
34	a	1100	G
34	a	1101	U
34	a	1105	G
34	a	1107	C
34	a	1110	G
34	a	1112	A

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Mol	Chain	Res	Type
34	a	1113	A
34	a	1116	A
34	a	1118	C
34	a	1120	C
34	a	1121	A
34	a	1122	A
34	a	1123	C
34	a	1124	C
34	a	1125	C
34	a	1127	U
34	a	1130	G
34	a	1136	U
34	a	1137	U
34	a	1139	C
34	a	1141	A
34	a	1152	G
34	a	1158	U
34	a	1159	C
34	a	1167	A
34	a	1168	C
34	a	1169	U
34	a	1170	G
34	a	1172	C
34	a	1174	G
34	a	1175	U
34	a	1176	G
34	a	1177	A
34	a	1178	C
34	a	1179	A
34	a	1180	A
34	a	1189	A
34	a	1193	U
34	a	1195	G
34	a	1197	G
34	a	1198	A
34	a	1200	G
34	a	1201	A
34	a	1202	C
34	a	1203	G
34	a	1204	U
34	a	1206	A
34	a	1207	A

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Mol	Chain	Res	Type
34	a	1210	C
34	a	1212	U
34	a	1213	C
34	a	1215	U
34	a	1216	G
34	a	1217	C
34	a	1221	U
34	a	1223	A
34	a	1225	G
34	a	1228	U
34	a	1235	A
34	a	1236	C
34	a	1237	A
34	a	1238	C
34	a	1240	C
34	a	1242	U
34	a	1245	U
34	a	1247	C
34	a	1248	A
34	a	1250	U
34	a	1251	G
34	a	1254	C
34	a	1264	G
34	a	1265	G
34	a	1266	C
34	a	1267	A
34	a	1268	G
34	a	1270	G
34	a	1271	A
34	a	1279	A
34	a	1284	A
34	a	1289	A
34	a	1290	A
34	a	1291	U
34	a	1292	C
34	a	1293	C
34	a	1295	A
34	a	1297	A
34	a	1298	A
34	a	1308	C
34	a	1310	G
34	a	1311	U

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Mol	Chain	Res	Type
34	a	1312	U
34	a	1313	C
34	a	1324	C
34	a	1327	C
34	a	1329	A
34	a	1330	C
34	a	1331	U
34	a	1332	C
34	a	1333	G
34	a	1334	A
34	a	1344	G
34	a	1345	C
34	a	1346	U
34	a	1347	G
34	a	1348	G
34	a	1351	U
34	a	1352	C
34	a	1354	C
34	a	1356	A
34	a	1357	G
34	a	1358	U
34	a	1359	A
34	a	1360	A
34	a	1363	G
34	a	1366	G
34	a	1368	U
34	a	1369	C
34	a	1370	A
34	a	1374	U
34	a	1376	C
34	a	1379	C
34	a	1380	G
34	a	1381	G
34	a	1386	U
34	a	1387	A
34	a	1389	G
34	a	1391	U
34	a	1395	G
34	a	1406	A
34	a	1408	A
34	a	1410	C
34	a	1412	C

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Mol	Chain	Res	Type
34	a	1420	A
34	a	1423	A
34	a	1425	G
34	a	1429	G
34	a	1431	U
34	a	1435	A
34	a	1438	A
34	a	1439	C
34	a	1443	A
34	a	1445	G
34	a	1446	C
34	a	1448	G
34	a	1449	G
34	a	1452	G
34	a	1453	A
34	a	1456	A
34	a	1457	A
34	a	1465	G
34	a	1474	C
34	a	1475	G
34	a	1476	U
34	a	1486	G
34	a	1489	A
34	a	1492	U
34	a	1493	G
34	a	1495	U
34	a	1498	G
34	a	1500	G
34	a	1501	U
34	a	1503	A
34	a	1504	A
34	a	1505	G
34	a	1508	G
34	a	1510	A
34	a	1511	A
34	a	1514	A
34	a	1515	G
34	a	1517	U
34	a	1518	A
34	a	1519	G
34	a	1528	G
34	a	1529	A

Continued on next page...

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Mol	Chain	Res	Type
34	a	1530	A
34	a	1537	G
34	a	1538	C
34	a	1540	G
34	a	1541	G
34	a	1543	U
34	a	1546	C
34	a	1547	C
34	a	1548	U
34	a	1549	C
34	a	1552	U

All (45) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	A	5	A
8	A	98	U
8	A	202	A
8	A	218	G
8	A	291	G
8	A	339	A
8	A	355	G
8	A	362	C
8	A	382	U
8	A	439	U
8	A	446	G
8	A	457	G
8	A	513	G
8	A	525	A
8	A	552	A
8	A	571	A
8	A	576	U
8	A	615	A
8	A	639	U
8	A	640	G
8	A	661	U
8	A	872	U
8	A	977	A
8	A	985	A
8	A	1025	A
8	A	1027	A
8	A	1028	G

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Mol	Chain	Res	Type
8	A	1060	U
8	A	1178	C
8	A	1186	A
8	A	1289	A
8	A	1347	G
8	A	1383	G
8	A	1411	G
8	A	1492	G
8	A	1519	U
8	A	1597	U
8	A	1605	A
8	A	1970	U
8	A	2261	G
8	A	2347	A
8	A	2432	G
8	A	2593	A
8	A	2878	U
9	B	38	U

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 7 ligands modelled in this entry, 5 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	$\#\|Z\|>2$

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
55	ATP	6	602	56	26,33,33	0.92	1 (3%)	31,52,52	1.65	5 (16%)
55	ATP	6	601	56	26,33,33	0.95	0	31,52,52	1.66	7 (22%)

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	ATP	6	602	56	-	0/18/38/38	0/3/3/3
55	ATP	6	601	56	-	4/18/38/38	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
55	6	602	ATP	C5-C4	2.14	1.46	1.40

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
55	6	602	ATP	PB-O3B-PG	-3.88	119.51	132.83
55	6	601	ATP	PB-O3B-PG	-3.67	120.22	132.83
55	6	602	ATP	N3-C2-N1	-3.62	123.02	128.68
55	6	602	ATP	PA-O3A-PB	-3.48	120.89	132.83
55	6	601	ATP	N3-C2-N1	-3.37	123.42	128.68
55	6	601	ATP	PA-O3A-PB	-3.24	121.72	132.83
55	6	602	ATP	C3'-C2'-C1'	2.92	105.37	100.98
55	6	601	ATP	C3'-C2'-C1'	2.79	105.18	100.98
55	6	601	ATP	C4-C5-N7	-2.60	106.69	109.40
55	6	602	ATP	C4-C5-N7	-2.29	107.01	109.40
55	6	601	ATP	C2'-C3'-C4'	2.16	106.84	102.64
55	6	601	ATP	N6-C6-N1	2.04	122.81	118.57

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
55	6	601	ATP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
55	6	601	ATP	O4'-C4'-C5'-O5'
55	6	601	ATP	PG-O3B-PB-O2B
55	6	601	ATP	C5'-O5'-PA-O3A

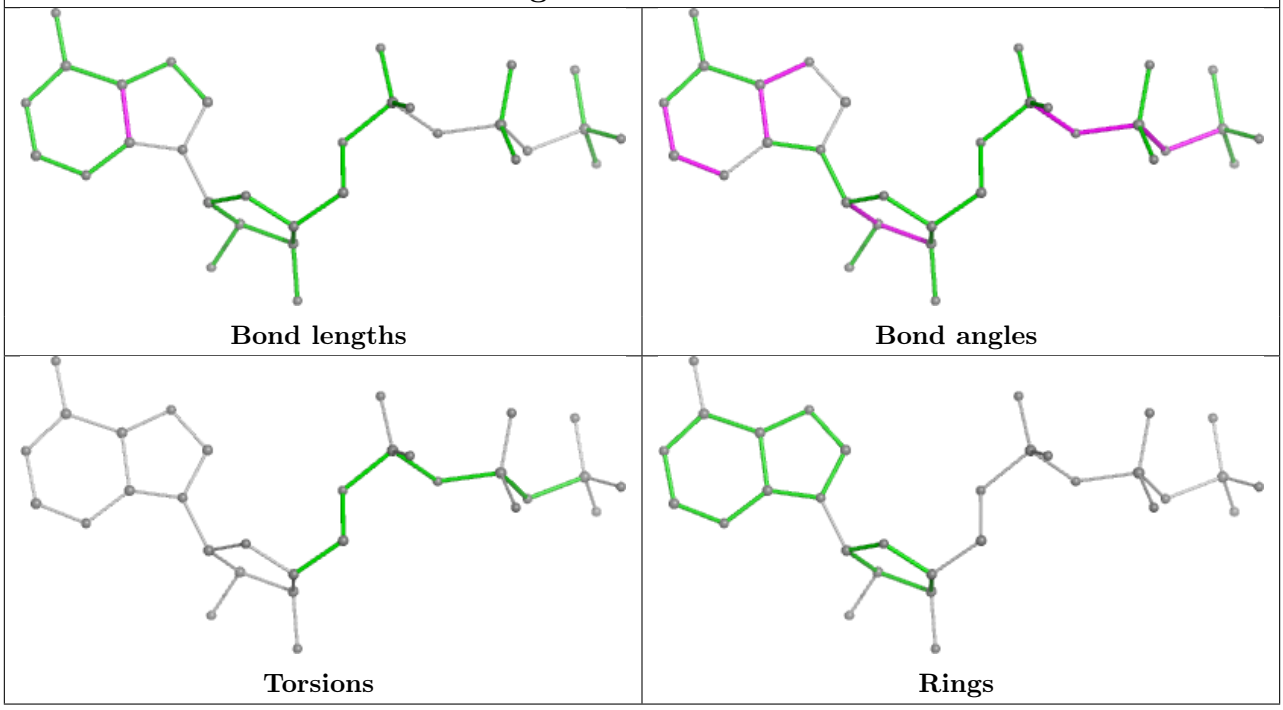
There are no ring outliers.

2 monomers are involved in 3 short contacts:

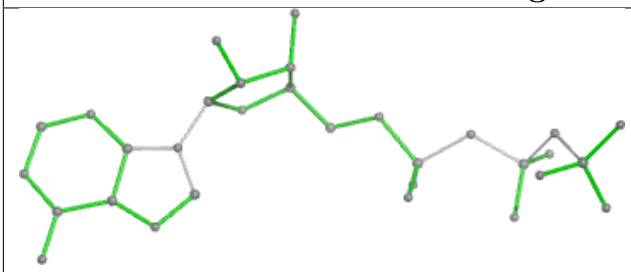
Mol	Chain	Res	Type	Clashes	Symm-Clashes
55	6	602	ATP	1	0
55	6	601	ATP	2	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

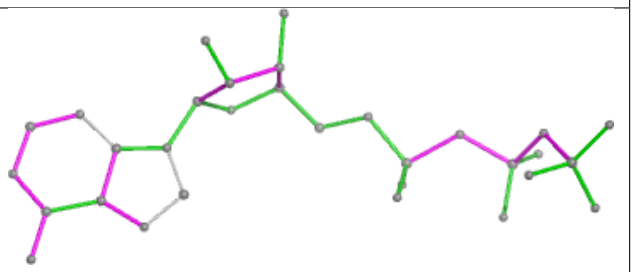
Ligand ATP 6 602



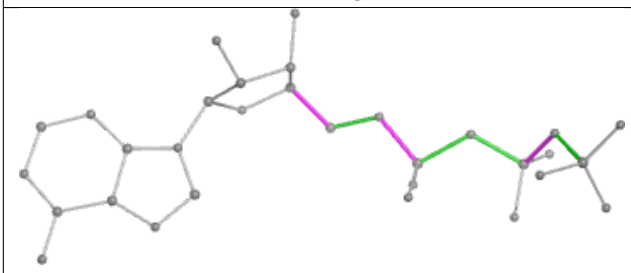
Ligand ATP 6 601



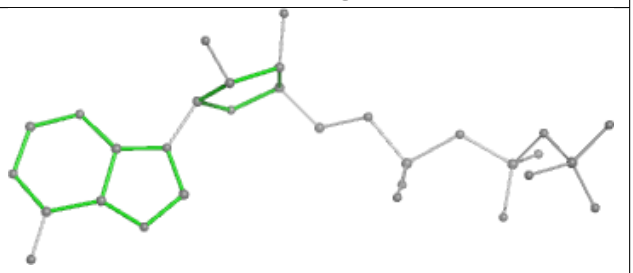
Bond lengths



Bond angles



Torsions



Rings

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.

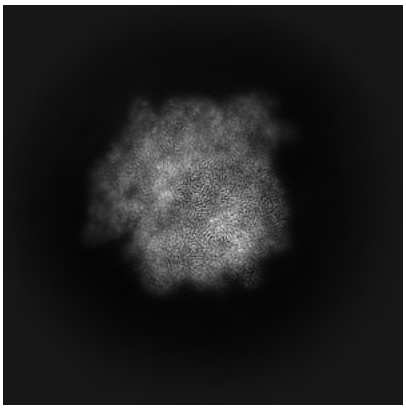
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-13191. These allow visual inspection of the internal detail of the map and identification of artifacts.

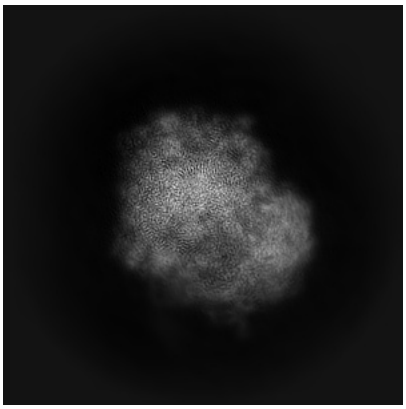
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

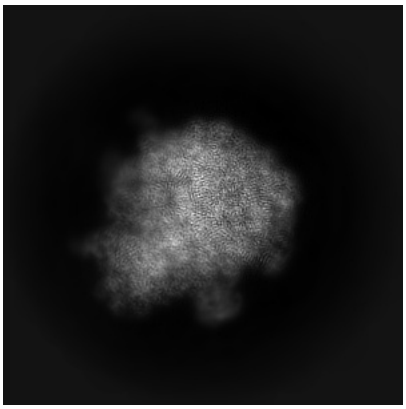
6.1.1 Primary map



X

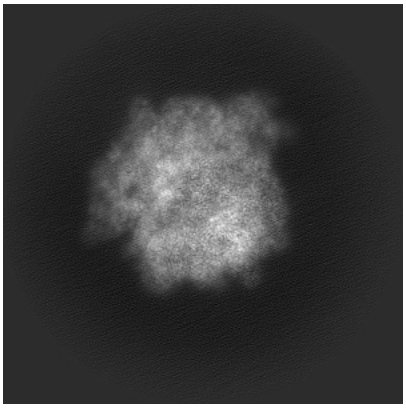


Y

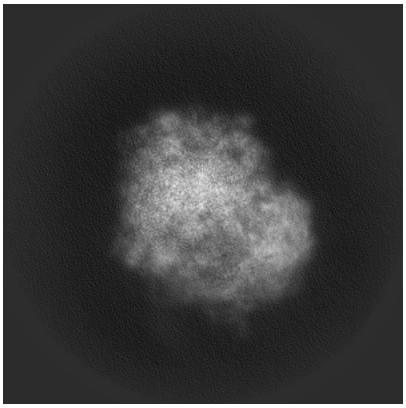


Z

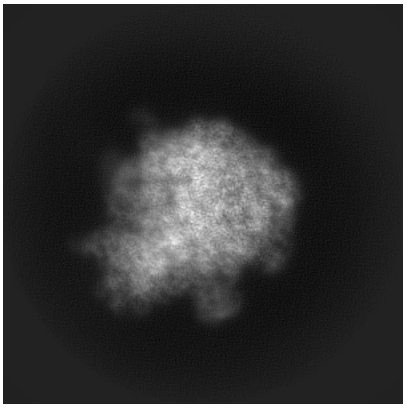
6.1.2 Raw map



X



Y

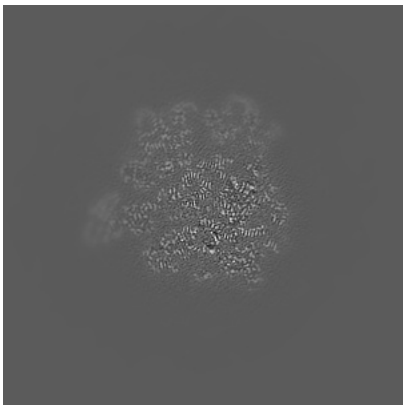


Z

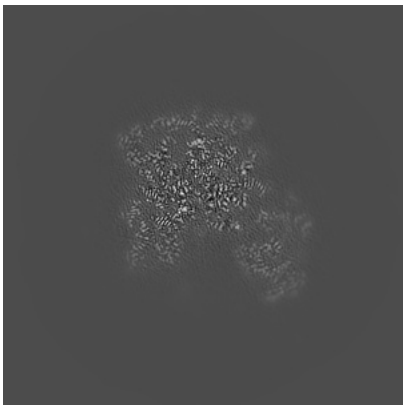
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

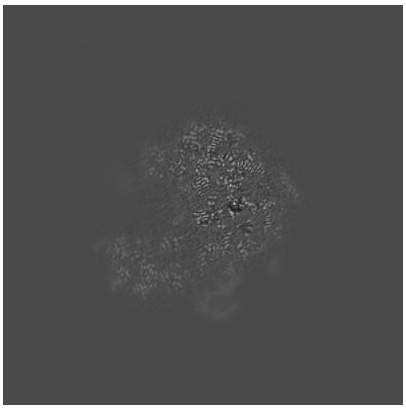
6.2.1 Primary map



X Index: 208

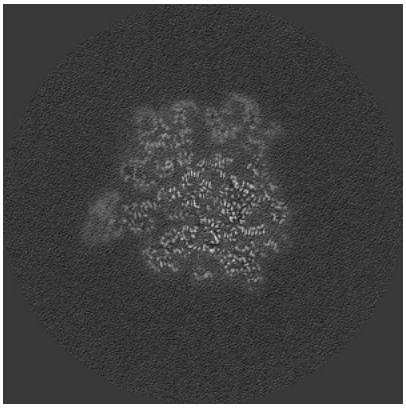


Y Index: 208

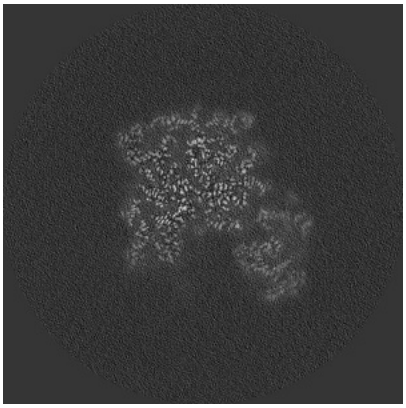


Z Index: 208

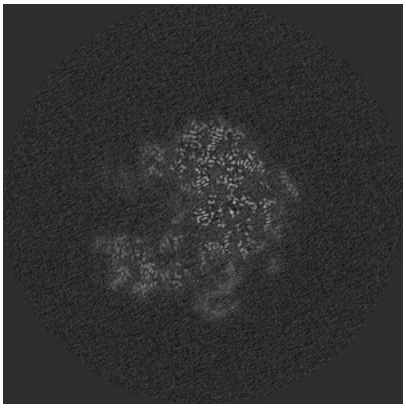
6.2.2 Raw map



X Index: 208



Y Index: 208

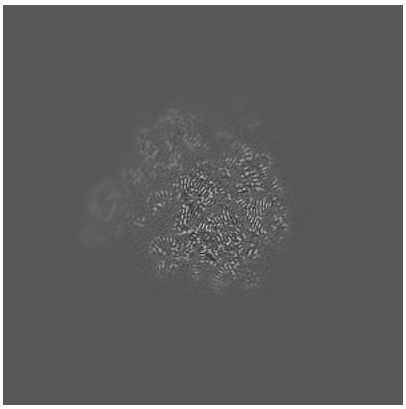


Z Index: 208

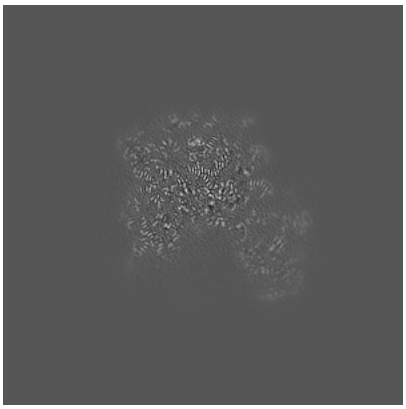
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

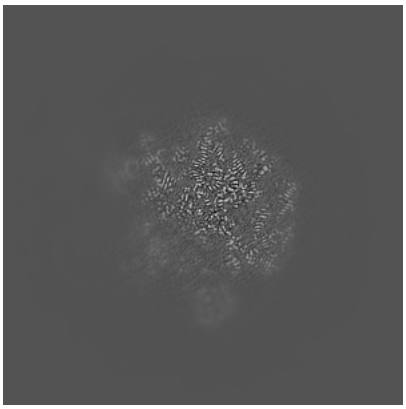
6.3.1 Primary map



X Index: 219

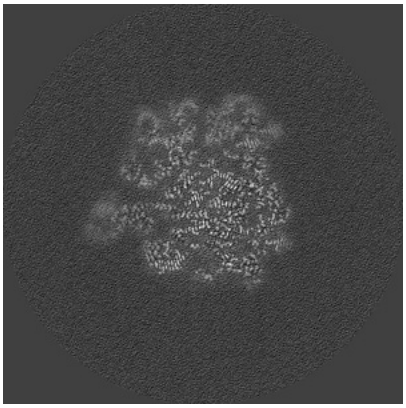


Y Index: 204

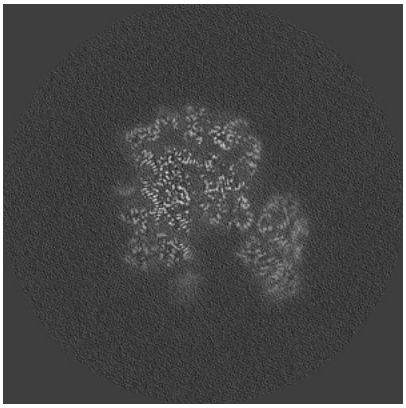


Z Index: 177

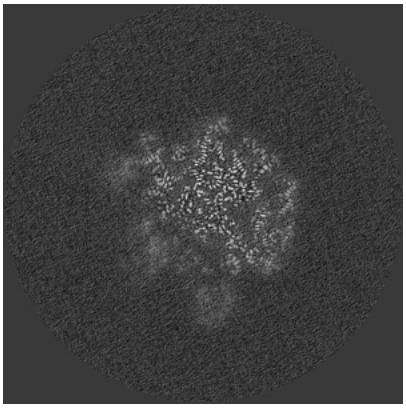
6.3.2 Raw map



X Index: 204



Y Index: 218

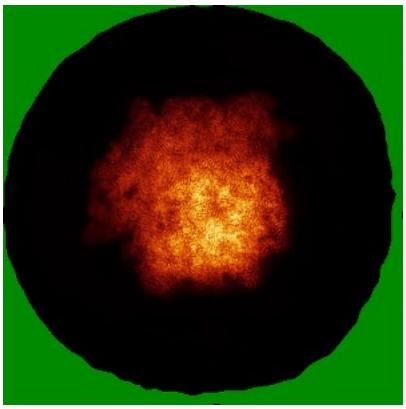


Z Index: 177

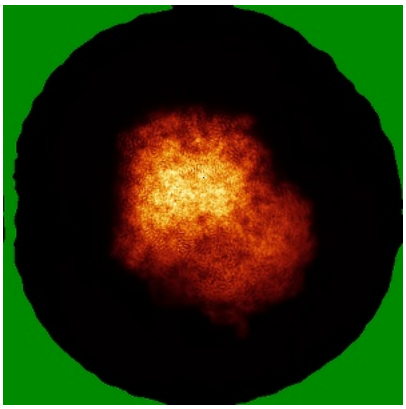
The images above show the largest variance slices of the map in three orthogonal directions.

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

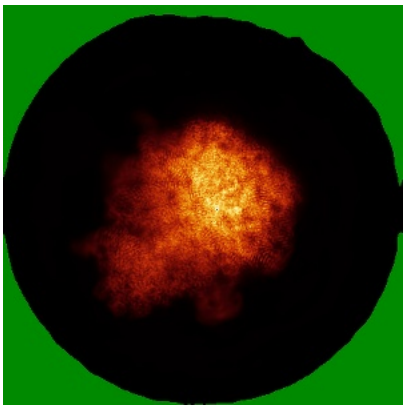
6.4.1 Primary map



X

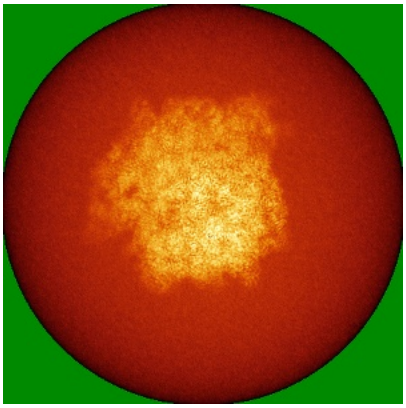


Y

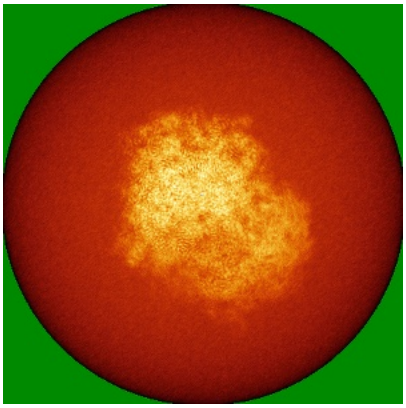


Z

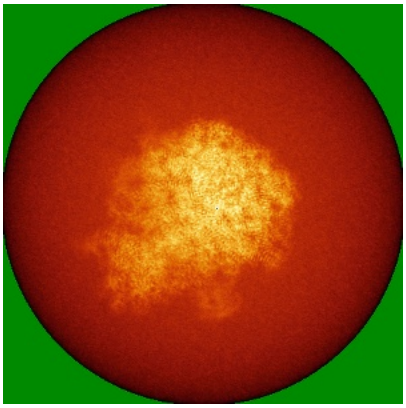
6.4.2 Raw map



X



Y

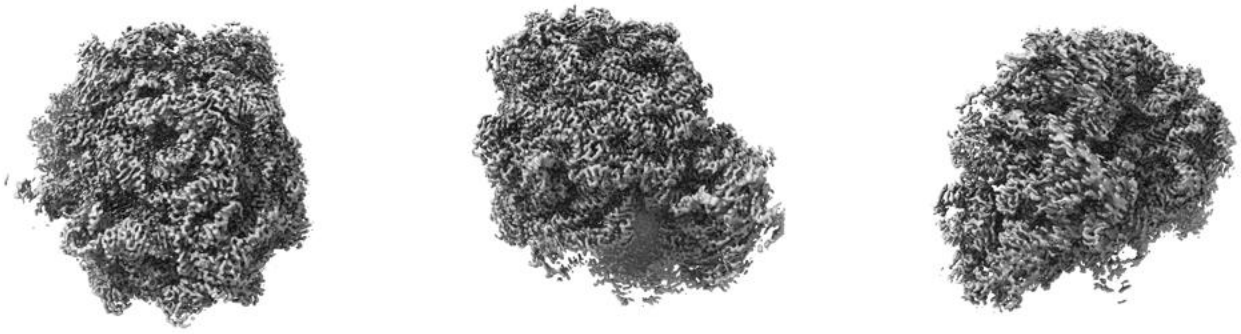


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.065. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

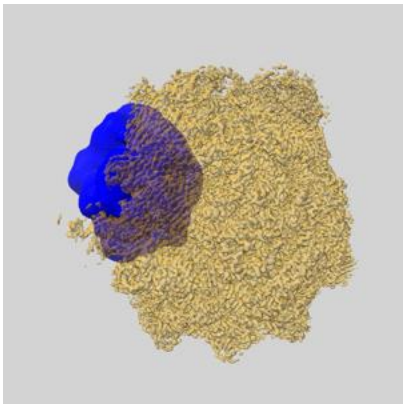
6.6 Mask visualisation

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

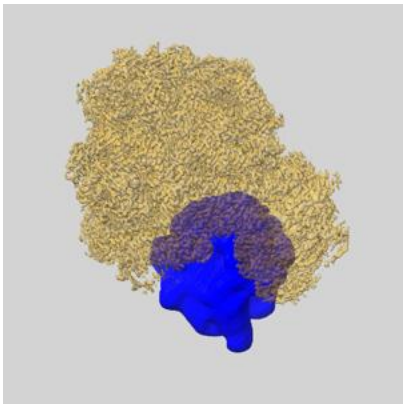
A mask typically either:

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

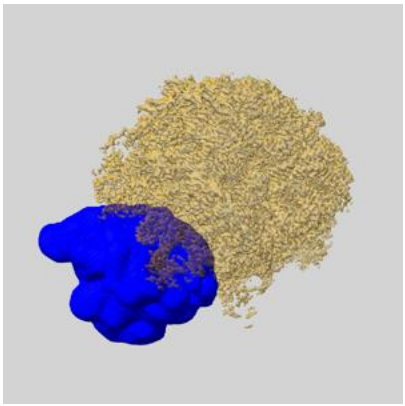
6.6.1 emd_13191_msk_1.map



X

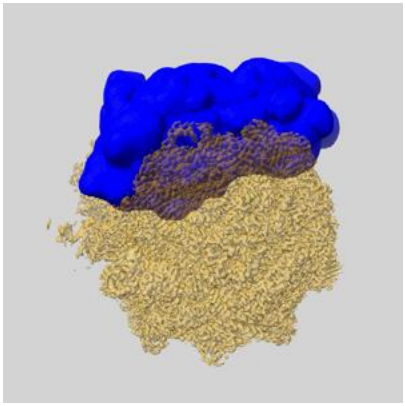


Y

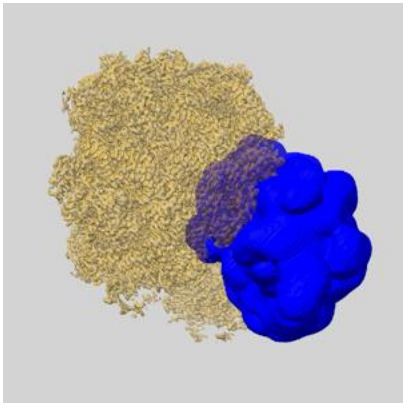


Z

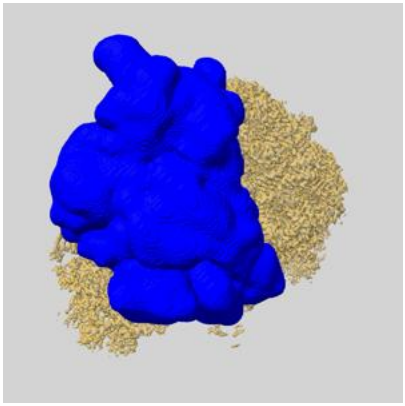
6.6.2 emd_13191_msk_2.map



X



Y

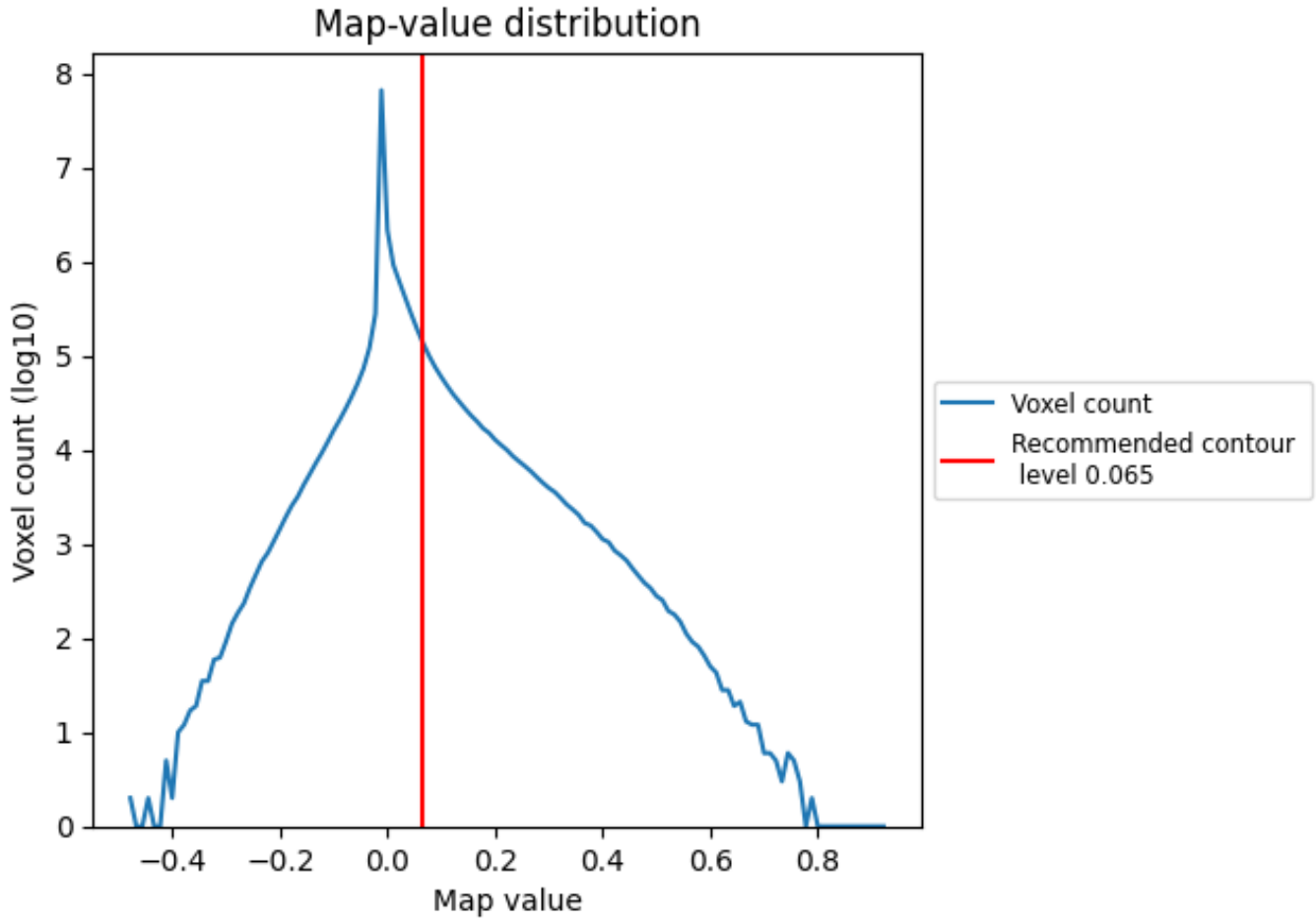


Z

7 Map analysis

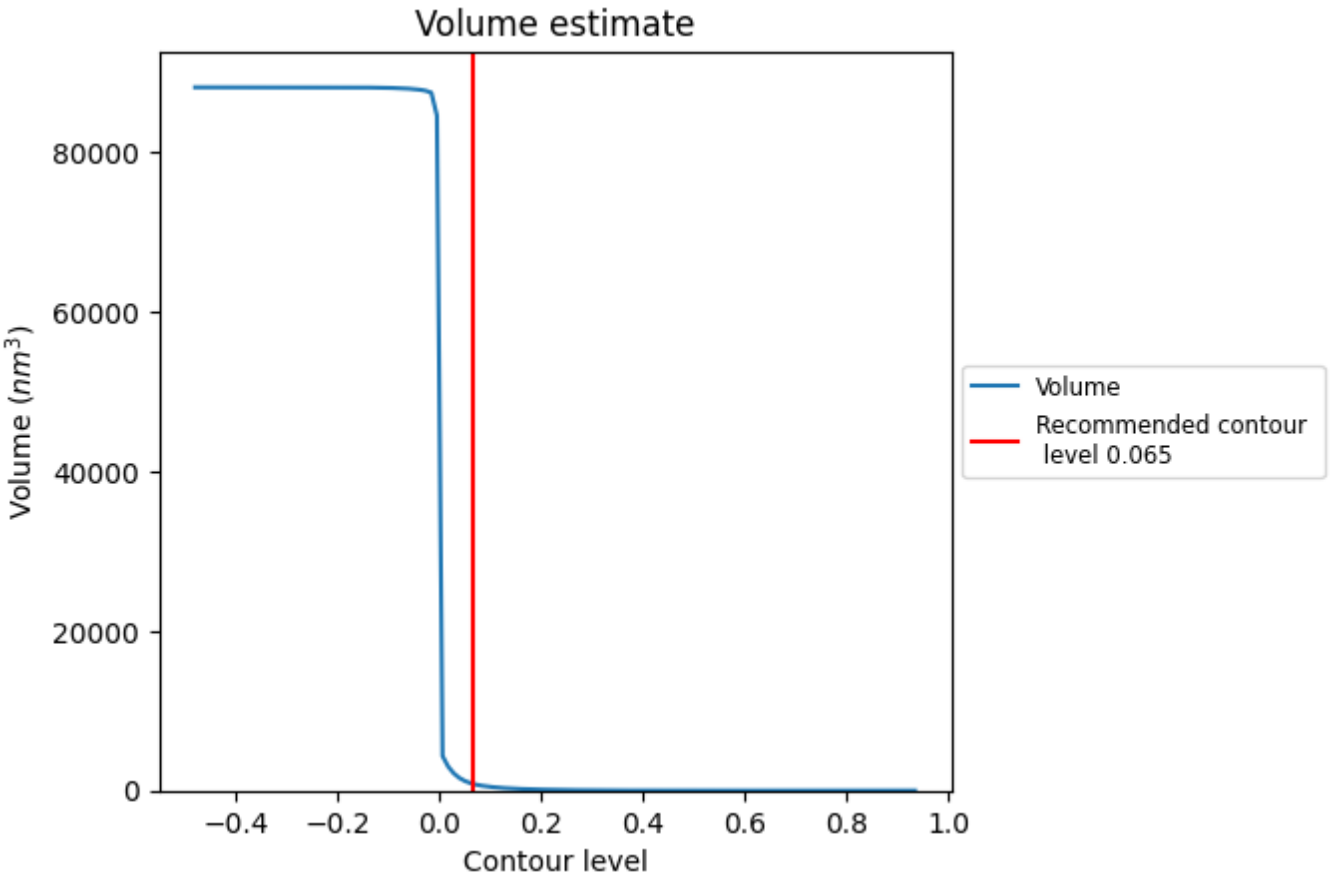
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

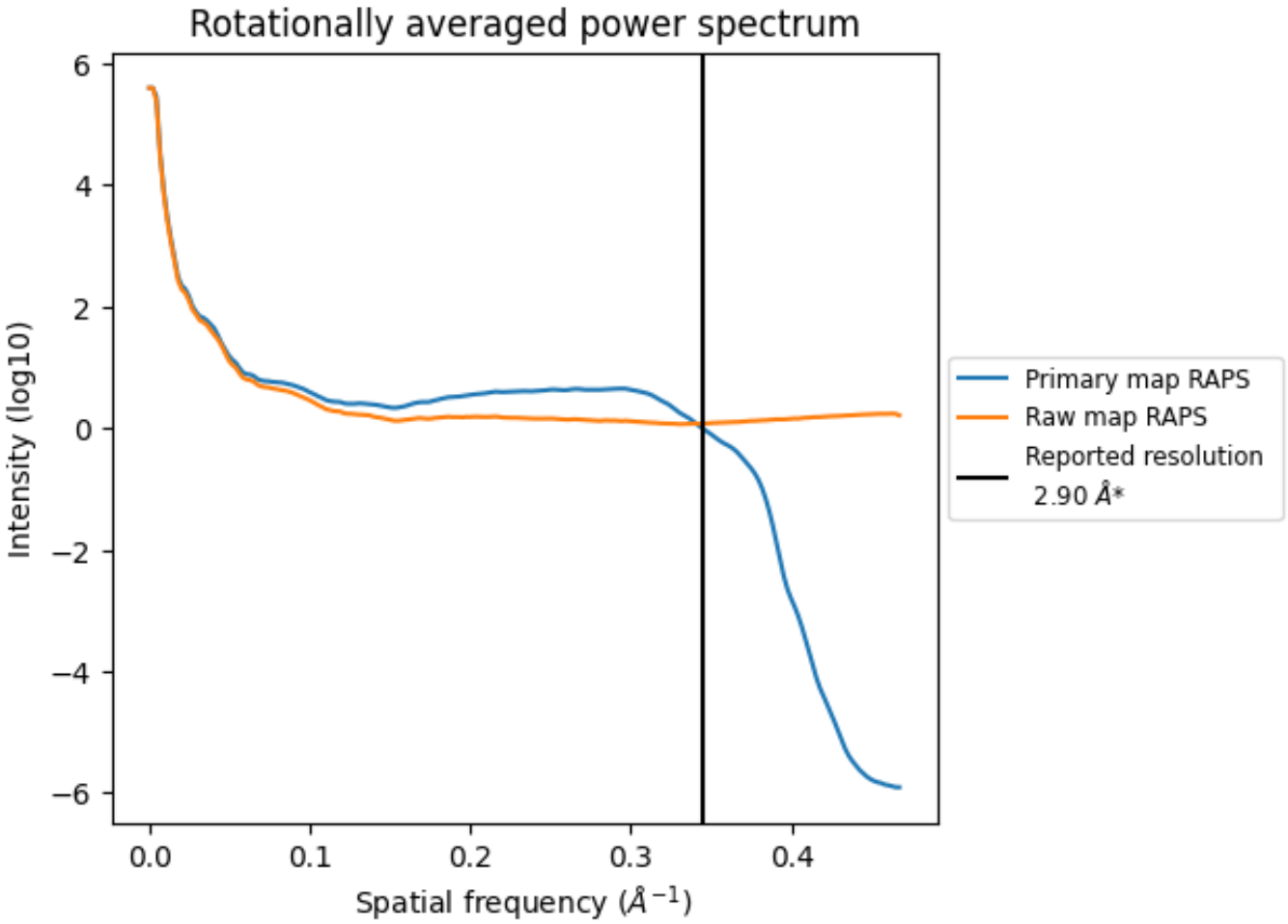
7.2 Volume estimate



The volume at the recommended contour level is 884 nm^3; this corresponds to an approximate mass of 799 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)

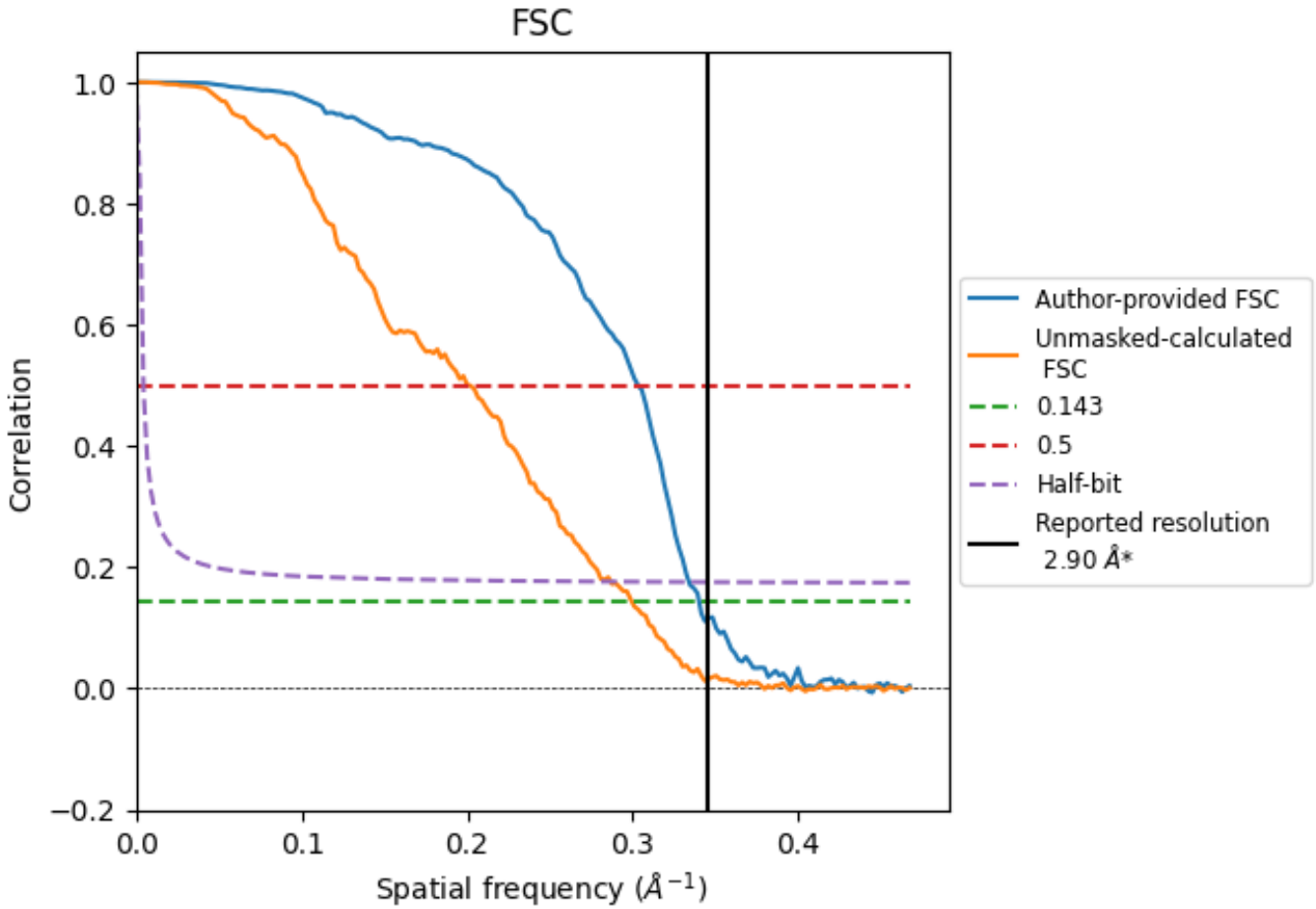


*Reported resolution corresponds to spatial frequency of 0.345 Å^{-1}

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 0.345 Å^{-1}

8.2 Resolution estimates (i)

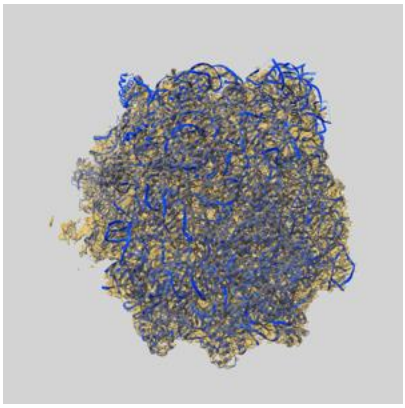
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.94	3.30	2.99
Unmasked-calculated*	3.34	4.97	3.49

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.34 differs from the reported value 2.9 by more than 10 %

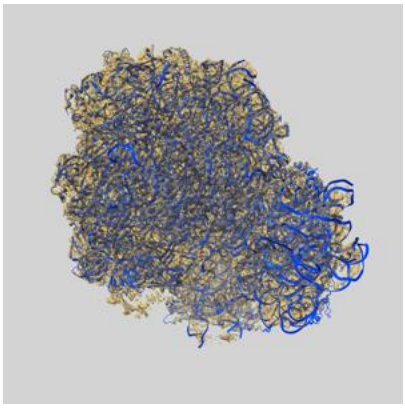
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-13191 and PDB model 7P48. Per-residue inclusion information can be found in section 3 on page 15.

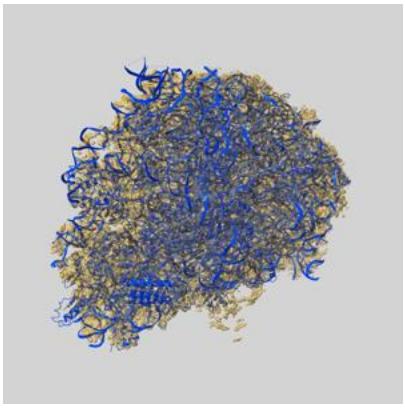
9.1 Map-model overlay



X



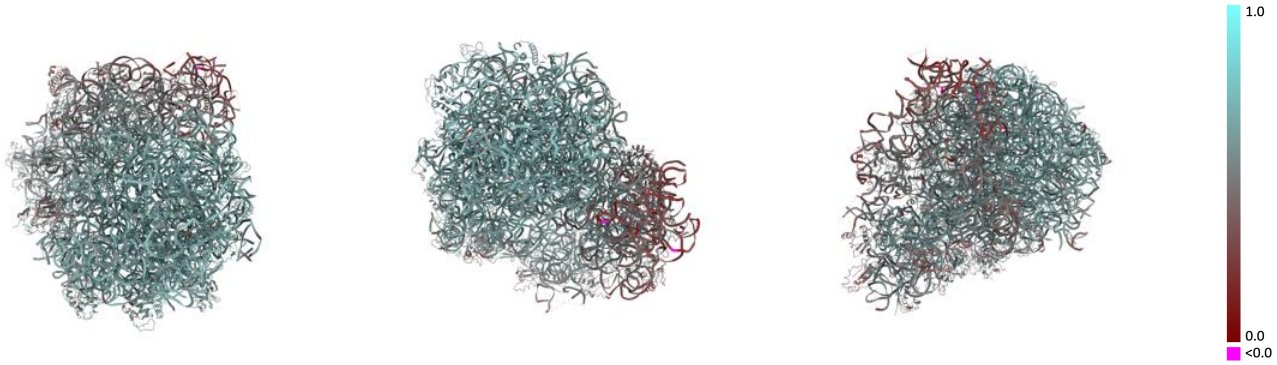
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.065 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.

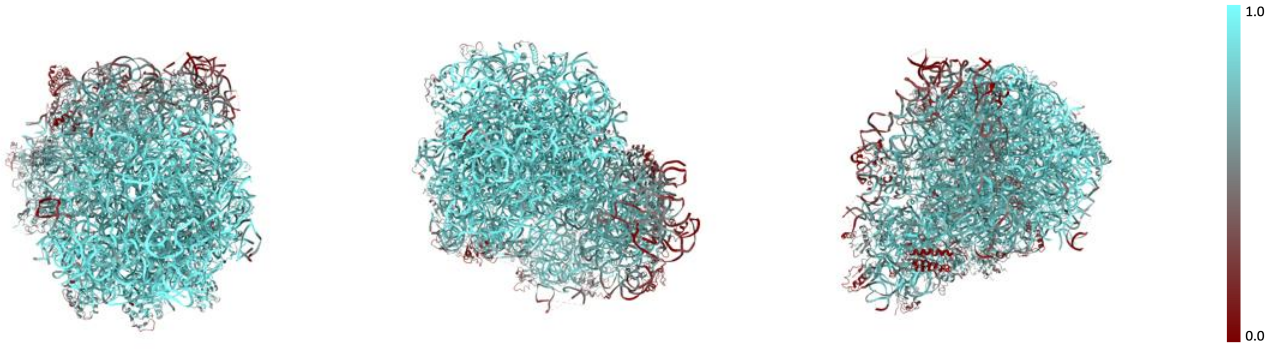
9.2 Q-score mapped to coordinate model (i)



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.

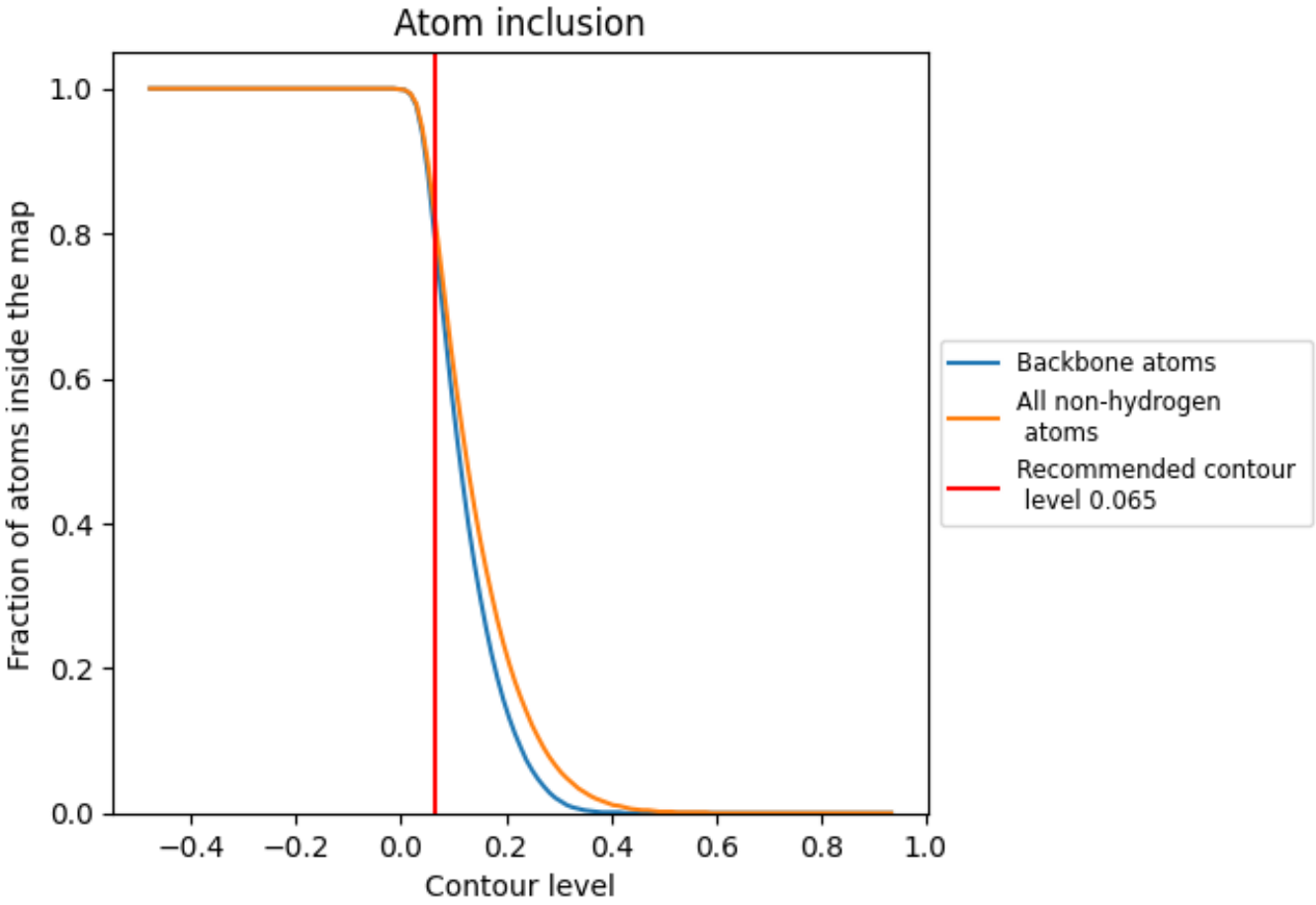
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.065).

9.4 Atom inclusion (i)



At the recommended contour level, 79% of all backbone atoms, 82% 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 (0.065) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8200	0.5660
1	0.8340	0.5770
2	0.9680	0.6590
3	0.9720	0.6530
4	0.9310	0.6210
5	0.8940	0.5850
6	0.7160	0.5560
7	1.0000	0.6410
A	0.9550	0.6310
B	0.8400	0.5650
C	0.9260	0.6370
D	0.8980	0.6300
E	0.7890	0.5870
F	0.4030	0.4500
G	0.5300	0.5100
H	0.9120	0.6190
I	0.9270	0.6280
J	0.8150	0.5950
K	0.8900	0.6040
L	0.8870	0.6210
M	0.6220	0.5230
N	0.8580	0.6100
O	0.9220	0.6370
P	0.7830	0.5800
Q	0.9140	0.6370
R	0.8360	0.5850
S	0.6750	0.5470
T	0.6370	0.5440
U	0.9090	0.6050
V	0.8690	0.6030
W	0.7360	0.5620
X	0.8710	0.5970
Y	0.1090	0.3180
Z	0.9270	0.6330
a	0.7660	0.4840

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Chain	Atom inclusion	Q-score
b	0.2580	0.4340
c	0.5960	0.4840
d	0.3810	0.4380
e	0.7020	0.5230
f	0.2810	0.4340
g	0.6650	0.4980
h	0.5470	0.5010
i	0.6090	0.4890
j	0.4600	0.4220
k	0.6820	0.5270
l	0.7070	0.5200
m	0.5300	0.4340
n	0.7900	0.5200
o	0.5260	0.4850
p	0.4410	0.4200
q	0.5080	0.4690
r	0.5310	0.5040
s	0.5060	0.4610
t	0.4740	0.4360