



Full wwPDB EM Validation Report ⓘ

Jun 17, 2026 – 07:50 pm BST

PDB ID : 7PJV / pdb_00007pjb
EMDB ID : EMD-13461
Title : Structure of the 70S-EF-G-GDP-Pi ribosome complex with tRNAs in hybrid state 1 (H1-EF-G-GDP-Pi)
Authors : Petrychenko, V.; Peng, B.Z.; Schwarzer, A.C.; Peske, F.; Rodnina, M.V.; Fischer, N.
Deposited on : 2021-08-24
Resolution : 3.10 Å (reported)
Based on initial models : 5LZD, 5J9Z, 4AQY, 6YSS

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.dev132
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
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) : 2.49

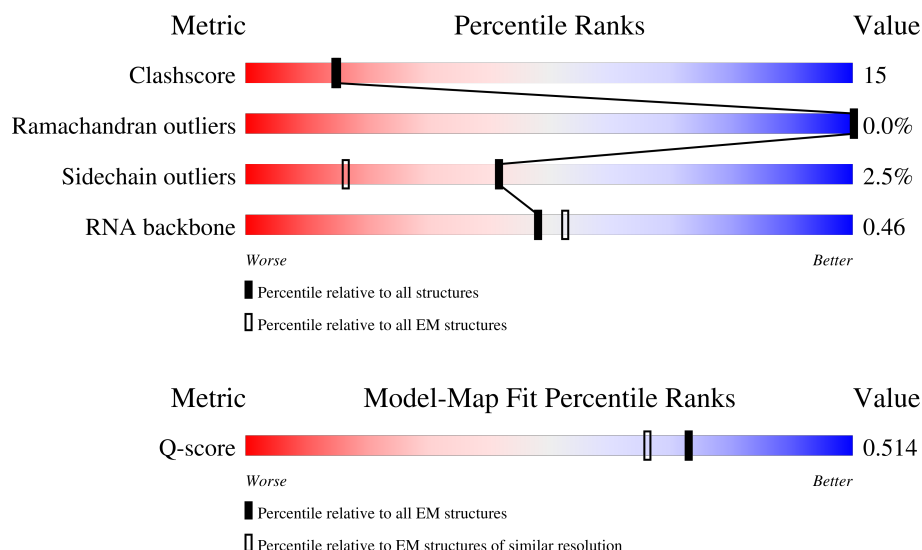
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.10 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	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	14724 (2.60 - 3.60)

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

Mol	Chain	Length	Quality of chain
1	0	57	 67% 32% .
2	1	55	 65% 24% . 9%

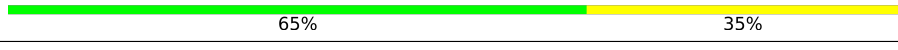
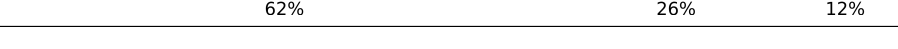
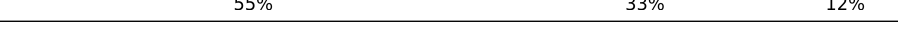
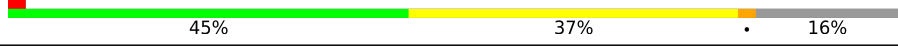
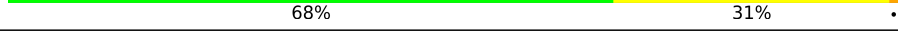
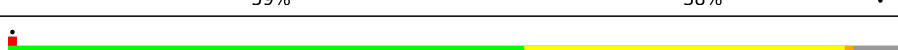
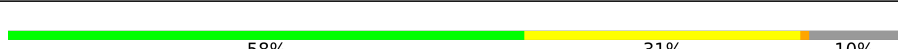
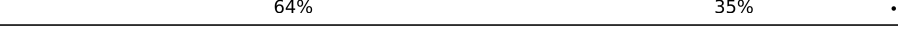
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Mol	Chain	Length	Quality of chain
3	2	46	
4	3	65	
5	4	38	
6	5	165	
7	6	70	
8	A	2903	
9	B	120	
10	C	273	
11	D	209	
12	E	201	
13	F	179	
14	G	177	
15	H	149	
16	I	142	
17	J	142	
18	K	123	
19	L	144	
20	M	136	
21	N	127	
22	O	117	
23	P	115	
24	Q	118	
25	R	103	
26	S	110	
27	T	100	

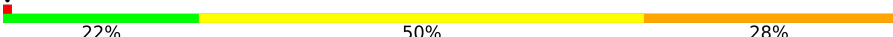
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Mol	Chain	Length	Quality of chain
28	U	104	
29	V	94	
30	W	85	
31	X	78	
32	Y	63	
33	Z	59	
34	a	1542	
35	b	240	
36	c	233	
37	d	206	
38	e	167	
39	f	135	
40	g	179	
41	h	130	
42	i	130	
43	j	103	
44	k	129	
45	l	124	
46	m	118	
47	n	102	
48	o	89	
49	p	82	
50	q	84	
51	r	75	
52	s	92	

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Mol	Chain	Length	Quality of chain
53	t	87	
54	u	71	
55	v	77	
56	w	76	
57	x	704	
58	y	2	
59	z	33	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
65	PO4	x	802	-	-	X	-

2 Entry composition

There are 65 unique types of molecules in this entry. The entry contains 153165 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 50S ribosomal protein L32.

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

- Molecule 2 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	1	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 3 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 4 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	3	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 5 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	4	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 6 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	5	131	Total	C	N	O	0	0
			647	385	131	131		

- Molecule 7 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	6	66	Total	C	N	O	S	0	0
			522	323	99	94	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
8	A	2903	Total	C	N	O	P	0	0
			62338	27816	11471	20148	2903		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
9	B	120	Total	C	N	O	P	0	0
			2570	1144	468	838	120		

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

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

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

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

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

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

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

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

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

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

- Molecule 15 is a protein called 50S ribosomal protein L9.

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

- Molecule 16 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	I	141	Total	C	N	O	S	0	0
			693	411	141	141			

- Molecule 17 is a protein called 50S ribosomal protein L13.

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

- Molecule 18 is a protein called 50S ribosomal protein L14.

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

- Molecule 19 is a protein called 50S ribosomal protein L15.

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

- Molecule 20 is a protein called 50S ribosomal protein L16.

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

- Molecule 21 is a protein called 50S ribosomal protein L17.

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

- Molecule 22 is a protein called 50S ribosomal protein L18.

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

- Molecule 23 is a protein called 50S ribosomal protein L19.

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

- Molecule 24 is a protein called 50S ribosomal protein L20.

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

- Molecule 25 is a protein called 50S ribosomal protein L21.

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

- Molecule 26 is a protein called 50S ribosomal protein L22.

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

- Molecule 27 is a protein called 50S ribosomal protein L23.

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

- Molecule 28 is a protein called 50S ribosomal protein L24.

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

- Molecule 29 is a protein called 50S ribosomal protein L25.

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

- Molecule 30 is a protein called 50S ribosomal protein L27.

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

- Molecule 31 is a protein called 50S ribosomal protein L28.

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

- Molecule 32 is a protein called 50S ribosomal protein L29.

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

- Molecule 33 is a protein called 50S ribosomal protein L30.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	1540	Total	C	N	O	P	0	0
			33050	14748	6057	10705	1540		

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
38	e	157	Total	C	N	O	S	0	0
			1141	709	218	208	6		

- Molecule 39 is a protein called 30S ribosomal protein S6, fully modified isoform.

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

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

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

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

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

- 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
			1022	634	206	179	3		

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
47	n	101	Total	C	N	O	S	0	0
			799	498	165	133	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	35	ALA	-	insertion	UNP P0AG59

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
49	p	82	Total	C	N	O	S	0	0
			649	406	128	114	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
			648	411	121	113	3		

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

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

- 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
			658	421	125	110	2		

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
54	u	65	Total	C	N	O	S	0	0
			506	313	105	87	1		

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

Mol	Chain	Residues	Atoms						AltConf	Trace
55	v	77	Total	C	N	O	P	S	0	0
			1642	733	297	534	77	1		

- Molecule 56 is a RNA chain called P-site fMet-Phe-tRNA(Phe).

Mol	Chain	Residues	Atoms						AltConf	Trace
56	w	76	Total	C	N	O	P	S	0	0
			1631	731	291	531	76	2		

- Molecule 57 is a protein called Elongation factor G.

Mol	Chain	Residues	Atoms						AltConf	Trace
57	x	703	Total	C	N	O	S		0	0
			5444	3429	942	1048	25			

- Molecule 58 is a protein called Dipeptide (FME-PHE).

Mol	Chain	Residues	Atoms					AltConf	Trace
58	y	2	Total	C	N	O	S	0	0
			21	15	2	3	1		

- Molecule 59 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	z	11	Total	C	N	O	P	0	0
			230	103	35	81	11		

- Molecule 60 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
60	0	1	Total	Mg	0
			1	1	
60	A	262	Total	Mg	0
			262	262	
60	B	7	Total	Mg	0
			7	7	
60	C	3	Total	Mg	0
			3	3	
60	D	1	Total	Mg	0
			1	1	
60	O	1	Total	Mg	0
			1	1	

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Mol	Chain	Residues	Atoms		AltConf
60	P	1	Total 1	Mg 1	0
60	Q	1	Total 1	Mg 1	0
60	Z	1	Total 1	Mg 1	0
60	a	85	Total 85	Mg 85	0
60	m	1	Total 1	Mg 1	0
60	n	1	Total 1	Mg 1	0
60	v	1	Total 1	Mg 1	0
60	w	1	Total 1	Mg 1	0
60	x	1	Total 1	Mg 1	0
60	z	1	Total 1	Mg 1	0

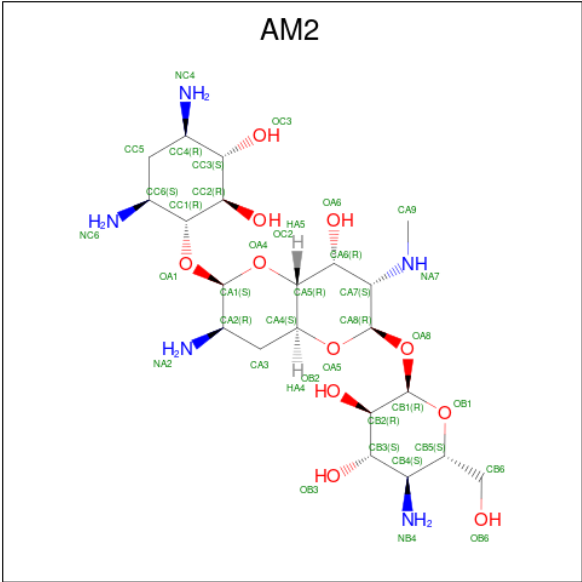
- Molecule 61 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
61	4	1	Total 1	Zn 1	0
61	6	1	Total 1	Zn 1	0

- Molecule 62 is SODIUM ION (CCD ID: NA) (formula: Na).

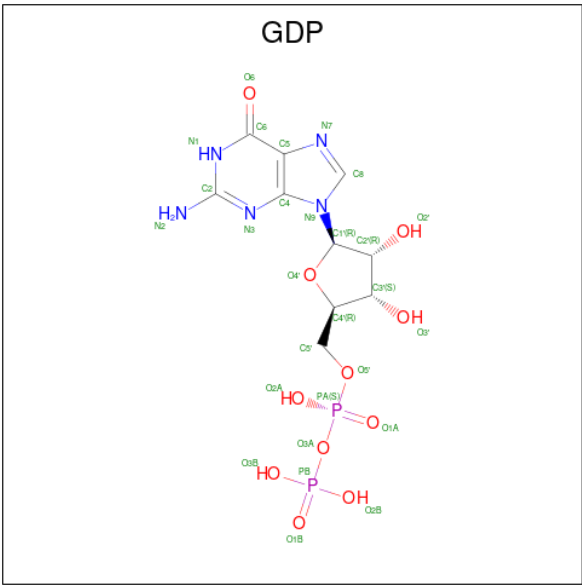
Mol	Chain	Residues	Atoms		AltConf
62	A	1	Total 1	Na 1	0
62	B	1	Total 1	Na 1	0

- Molecule 63 is APRAMYCIN (CCD ID: AM2) (formula: C₂₁H₄₁N₅O₁₁).



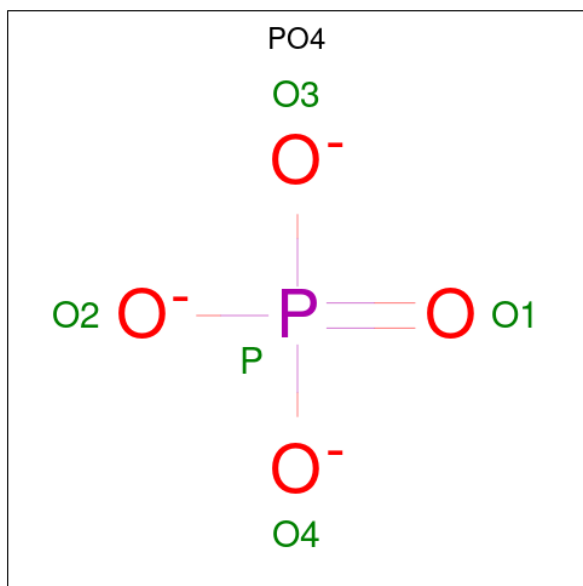
Mol	Chain	Residues	Atoms				AltConf
63	a	1	Total	C	N	O	0
			37	21	5	11	
63	a	1	Total	C	N	O	0
			37	21	5	11	
63	a	1	Total	C	N	O	0
			37	21	5	11	

- Molecule 64 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂).



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

- Molecule 65 is PHOSPHATE ION (CCD ID: PO4) (formula: O_4P).



Mol	Chain	Residues	Atoms			AltConf
			Total	O	P	
65	x	1	5	4	1	0

3 Residue-property plots [i](#)

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

- Molecule 1: 50S ribosomal protein L32

Chain 0: 



- Molecule 2: 50S ribosomal protein L33

Chain 1: 



- Molecule 3: 50S ribosomal protein L34

Chain 2: 



- Molecule 4: 50S ribosomal protein L35

Chain 3: 

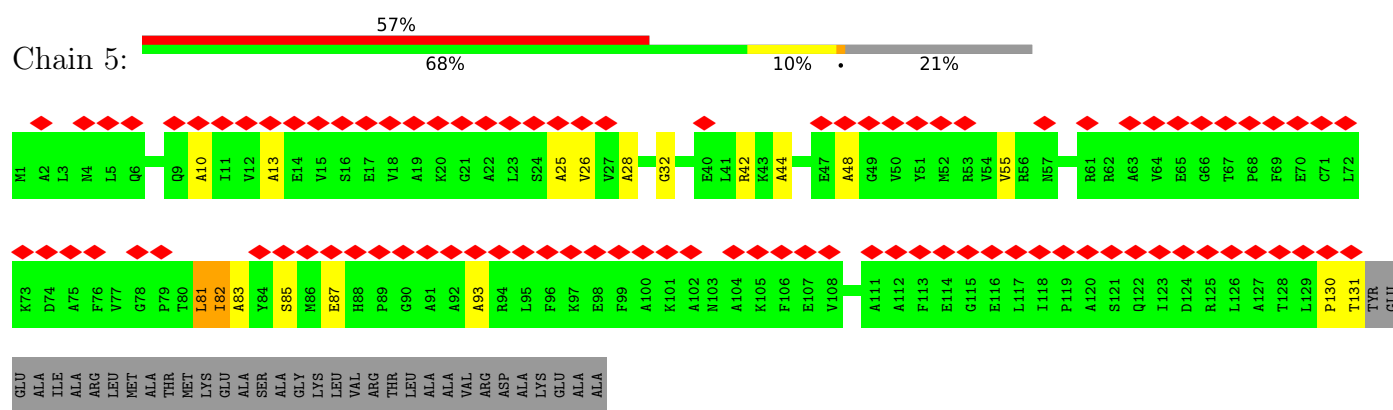


- Molecule 5: 50S ribosomal protein L36

Chain 4: 



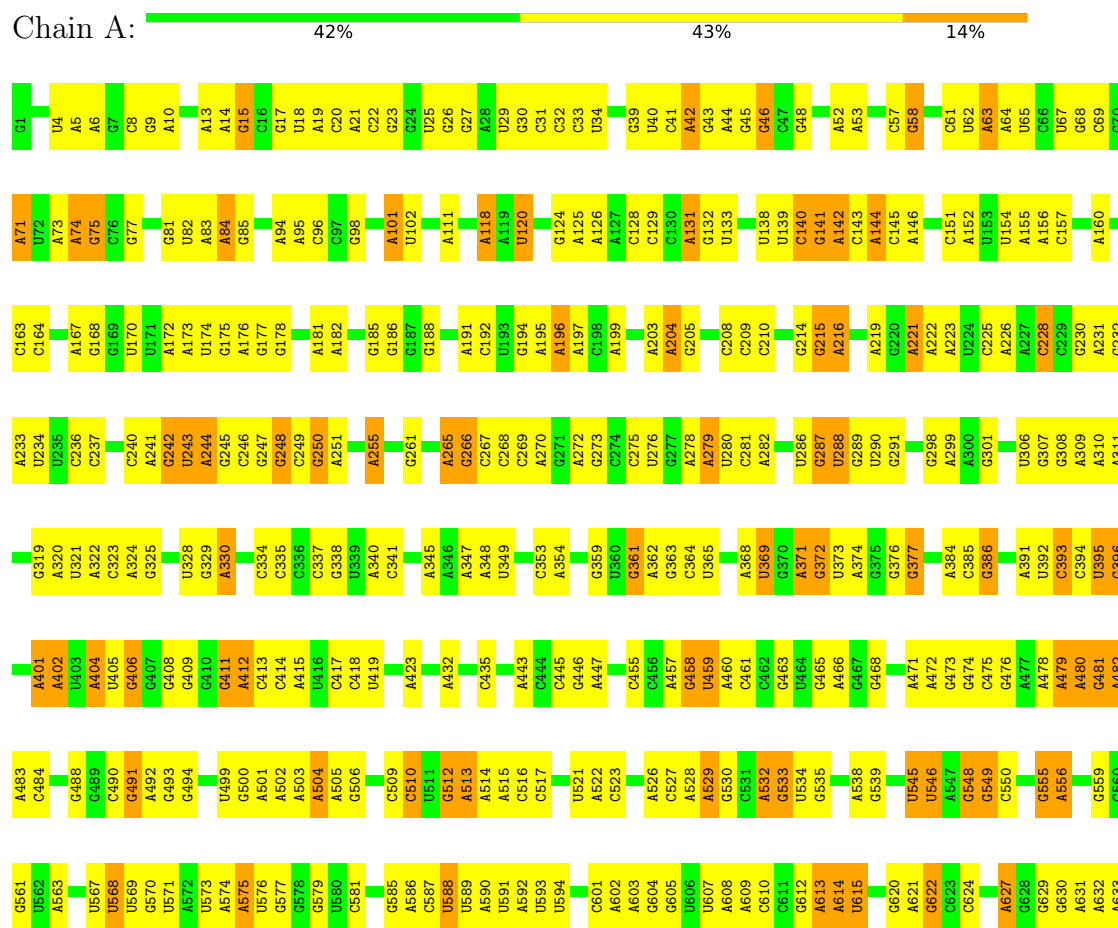
- Molecule 6: 50S ribosomal protein L10



• Molecule 7: 50S ribosomal protein L31



• Molecule 8: 23S ribosomal RNA

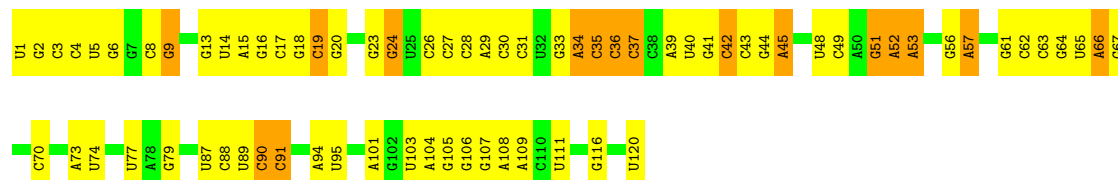


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G1763	U1683	C1600	C1437	G1364	U1282	A1203	G1112	C1052	A981	C889	U810	A718	A637
C1764	G1601	A1522	U1438	A1366	U1283	A1205	U1113	A1053	C982	C890	U811	C719	G638
U1769	U1523	G1524	U1441	A1367	A1284	U1210	G1115	A1054	A984	G891	U813	U720	U639
G1770	C1603	U1530	U1442	G1368	A1285	G1211	G1116	G1055	G989	A892	C814	A721	C640
C1771	G1606	C1531	U1443	C1376	A1286	C1212	U1119	A1057	U899	U894	C817	C723	U641
A1772	C1607	A1532	G1444	G1377	A1287	A1213	G1120	U1058	A990	C893	U818	G726	A644
C1773	A1608	C1533	G1445	A1378	U1288	A1214	C1121	A1060	C991	U895	A819	A727	C645
U1774	U1534	U1534	C1451	U1379	G1292	G1215	G1122	U1061	G993	C897	U826	G728	U646
G1775	A1535	A1536	G1452	G1380	C1293	G1216	C1125	G1062	C994	C898	A825	G729	G647
U1779	C1611	G1537	A1453	A1383	U1294	U1219	A1126	G1063	C995	A900	U827	A730	G648
U1782	G1613	U1538	U1458	A1384	C1297	G1220	A1129	U1065	A996	C901	U828	A734	U652
G1783	A1614	C1539	G1459	A1385	C1298	C1221	U1130	A1066	A1000	C902	U829	U734	U653
A1784	U1540	C1540	U1460	A1386	G1299	U1222	U1131	A1067	A1001	C903	G830	A742	A654
U1788	A1618	C1541	C1461	A1387	G1300	G1223	G1131	G1068	G1002	U906	G831	A743	A655
C1789	G1631	U1542	U1466	A1393	A1301	U1224	U1132	A1069	U1004	G907	U832	U744	G656
A1790	A1632	G1543	U1467	U1394	A1302	G1225	A1133	A1070	U1005	A910	U833	G745	U657
G1791	G1633	A1544	U1468	A1395	C1306	G1227	A1134	G1071	C1006	A911	C835	G747	G659
U1794	A1634	A1545	U1469	U1396	U1318	U1230	G1136	C1072	U1009	G916	U839	A752	G669
C1795	U1549	U1549	G1471	U1397	C1319	U1231	G1139	A1073	A1010	U831	C840	A670	A670
U1796	U1554	U1554	U1474	U1398	G1311	U1234	G1140	G1074	G1011	A920	G843	G757	C671
G1797	G1555	G1555	U1475	C1399	U1312	G1235	U1141	C1076	U1012	C921	U844	U762	C672
U1798	C1556	C1556	U1476	A1401	G1317	U1239	A1151	A1077	C922	G922	G845	G763	G674
G1799	C1557	C1557	U1477	U1402	U1318	G1239	C1152	C1079	A1014	U931	U846	A764	C674
U1801	C1558	C1558	G1478	U1405	C1319	U1239	C1153	A1080	U1019	U932	U847	C679	C679
A1802	G1642	C1564	U1482	U1406	A1322	A1247	G1154	U1081	U1023	A933	C848	U773	C680
C1803	U1636	C1565	G1483	A1407	C1323	G1248	U1155	A1082	U1024	U934	A849	G774	G681
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C1816	G1653	A1580	G1491	U1415	G1334	G1256	U1177	A1090	G1031	G943	G859	A781	G690
U1817	A1654	C1581	U1494	G1417	G1338	A1260	A1174	G1091	G1032	A944	U860	A783	C691
U1818	A1655	G1582	A1495	G1418	U1339	C1261	A1175	G1092	U1033	A945	A861	G784	C692
A1821	C1656	A1583	U1496	A1419	U1340	A1262	U1176	G1093	G1034	C946	G862	G785	A693
U1822	U1657	C1584	U1497	A1420	G1341	U1263	C1178	U1094	U1035	A947	U870	C787	U694
G1823	G1658	C1585	U1497	G1421	U1342	A1264	G1179	A1095	G1036	C948	U871	A788	C697
U1824	U1659	A1586	U1497	U1422	G1344	U1265	U1180	A1096	G1037	G954	U872	A789	C698
U1827	G1660	G1587	G1501	G1423	C1345	G1266	U1181	U1097	U1038	U955	U873	U790	A699
U1828	A1664	U1588	A1504	G1426	C1351	U1269	U1182	A1098	A1040	G956	A877	C791	G700
G1829	U1590	A1590	A1505	A1427	U1352	C1270	U1183	G1099	G1041	U955	A878	A792	U703
U1829	G1667	C1591	U1505	C1428	A1353	G1271	G1186	U1101	G1042	C961	A879	A793	G704
G1835	A1668	C1592	U1509	G1429	G1272	A1272	U1187	C1102	C1043	G881	G880	A794	G704
U1839	U1593	A1593	G1510	G1430	C1357	U1273	U1188	A1103	C1044	G882	G881	G799	G711
G1839	C1670	U1594	U1513	A1431	G1358	A1274	C1196	C1104	C1045	G883	G883	A800	G712
U1840	U1671	C1595	G1514	G1432	A1359	A1275	U1197	U1105	G1047	A973	U884	G713	G713
U1841	A1672	A1596	U1515	A1433	G1360	A1276	G1198	G1106	A1048	G974	C885	G714	U714
C1842	G1673	U1597	G1516	A1434	G1361	G1277	U1198	U1107	A1049	A975	A886	C806	U715
	C1761	A1598	G1516	G1435	C1362	C1278	U1199	C1109	A1050	G976	A887		A716



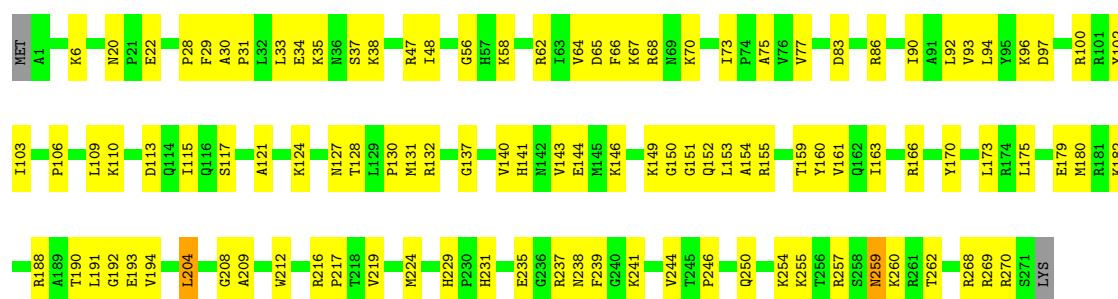
- Molecule 9: 5S ribosomal RNA

Chain B: 



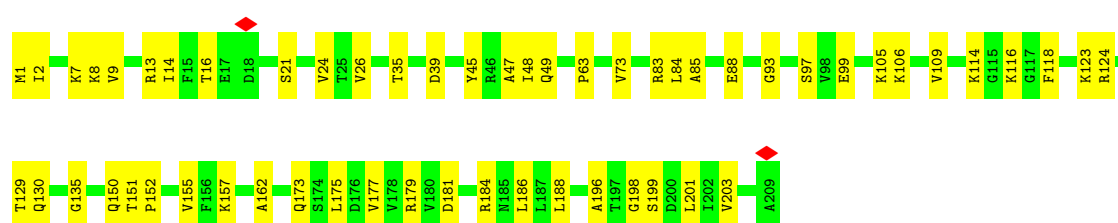
- Molecule 10: 50S ribosomal protein L2

Chain C: 



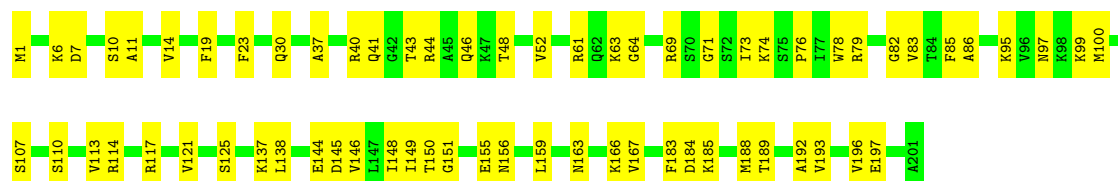
- Molecule 11: 50S ribosomal protein L3

Chain D: 



- Molecule 12: 50S ribosomal protein L4

Chain E: 

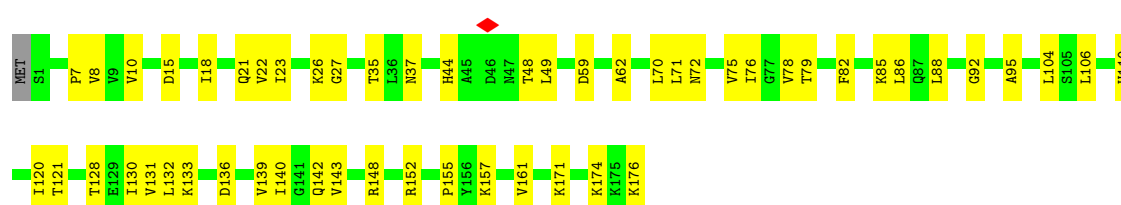


- Molecule 13: 50S ribosomal protein L5

Chain F: 



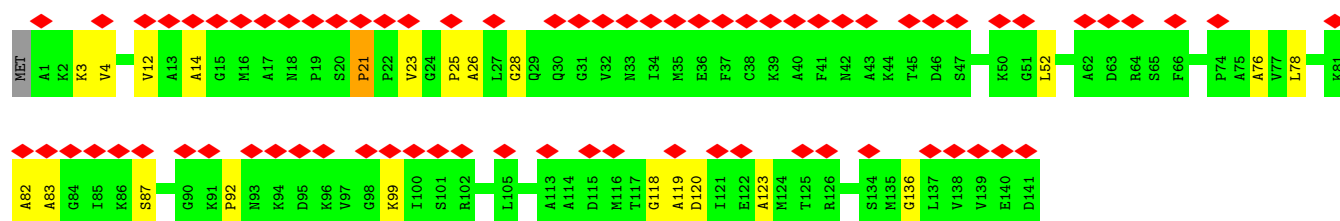
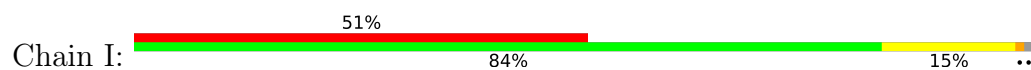
- Molecule 14: 50S ribosomal protein L6



- Molecule 15: 50S ribosomal protein L9

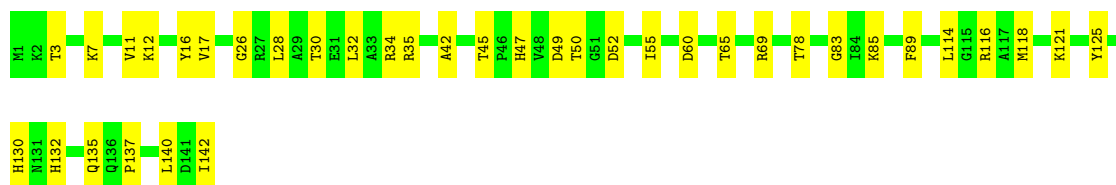


- Molecule 16: 50S ribosomal protein L11



- Molecule 17: 50S ribosomal protein L13





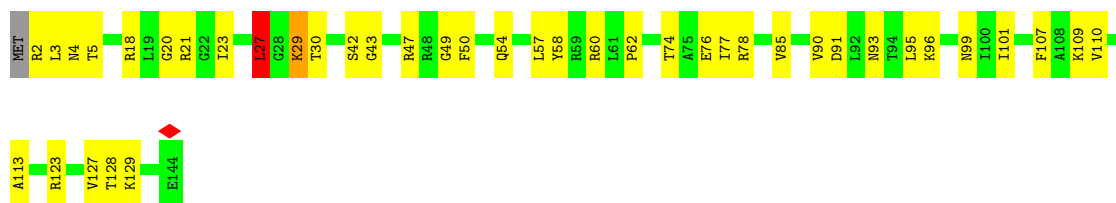
- Molecule 18: 50S ribosomal protein L14

Chain K: 72% 27%



- Molecule 19: 50S ribosomal protein L15

Chain L: 71% 27%



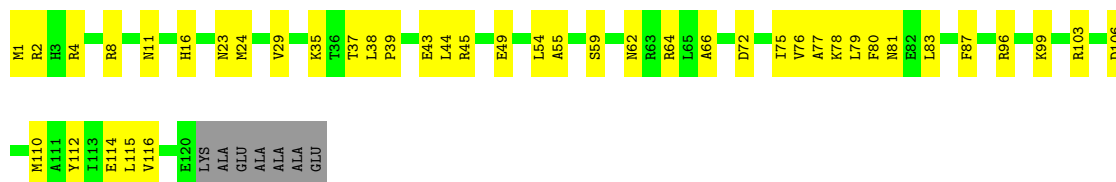
- Molecule 20: 50S ribosomal protein L16

Chain M: 65% 35%



- Molecule 21: 50S ribosomal protein L17

Chain N: 61% 33% 6%



- Molecule 22: 50S ribosomal protein L18

Chain O: 74% 25%



- Molecule 23: 50S ribosomal protein L19



- Molecule 24: 50S ribosomal protein L20



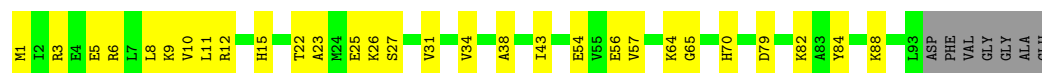
- Molecule 25: 50S ribosomal protein L21



- Molecule 26: 50S ribosomal protein L22

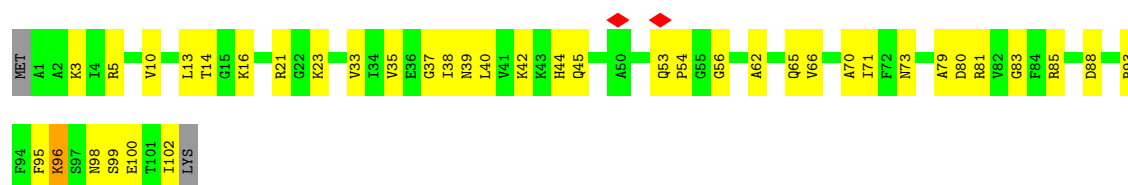


- Molecule 27: 50S ribosomal protein L23



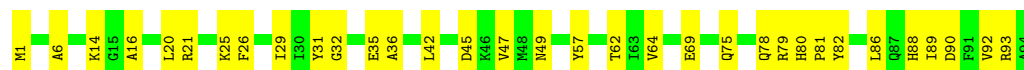
- Molecule 28: 50S ribosomal protein L24





- Molecule 29: 50S ribosomal protein L25

Chain V: 65% 35%



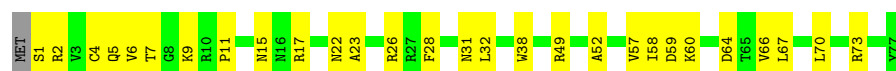
- Molecule 30: 50S ribosomal protein L27

Chain W: 62% 26% 12%



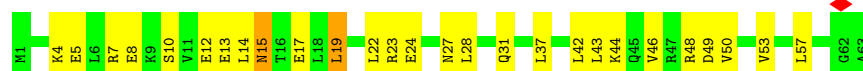
- Molecule 31: 50S ribosomal protein L28

Chain X: 63% 36%



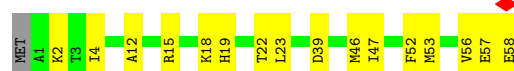
- Molecule 32: 50S ribosomal protein L29

Chain Y: 57% 40%



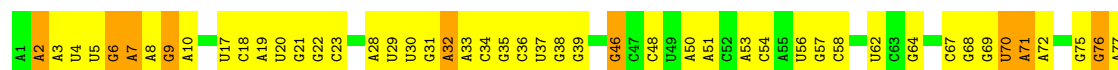
- Molecule 33: 50S ribosomal protein L30

Chain Z: 71% 27%



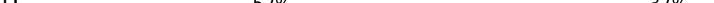
- Molecule 34: 16S ribosomal RNA

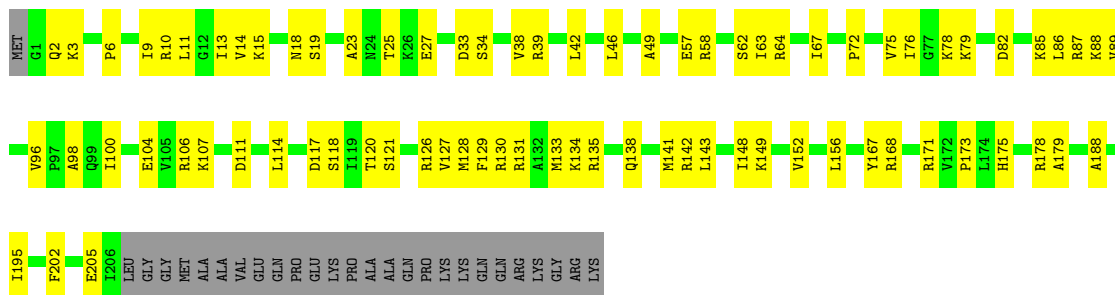
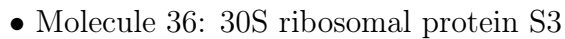
Chain a: 36% 51% 13%

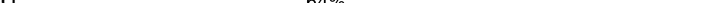


G1203	A1130	G1054	U986	U842	G756	A681	A600	G530	A485	A383	A298	G227	G27	A78
A1204	G1131	A1055	G987	U843	U757	G682	G601	U531	A488	G384	G299	A228	G79	A80
U1205	C1132	U1056	G988	G844	C758	G683	A602	A532	A468	C385	A303	U229	A81	A81
G1206	G1133	G1057		A845	A759		U603		C469			G230	G165	G82
G1207	G1134	G1058	U991	G846	U686	U686	U604	A535	C470	G388	A309	U231	U167	C83
C1208		C1059	G992	G847	G687		U605	C536	U471	A389		G232	G168	U84
C1209	G1137	U1060	G993	C848	C764				U472	U390		C233	G169	
G1210	G1138	G1061	A994	G849	G765	G691	A607	A539	U473	G391	C312	C234		
U1211	G1139	U1062	A995	U850	U766	U692	A608	G540	U474			C235		
U1212		C1063	A996	G851	A767	G693	U609	G541	C475	A397	C316	A236	U173	C87
A1213	G1142	G1064		G852	U768	A694	U610	G542	U476			G237	U174	U88
C1214	G1143	U1065	C999	U855	G769	A695		U543	C477	C401	A320	G240	C175	U89
G1215	G1144	G934	C934	U856	G773		C613	G544	A478	G402	A321		C176	C90
A1216	A1145	A935	A935	C856			C614	C545	U479	C403	C322	G241	G177	U91
C1217	A1146	U936			A702		G615	A546	U480	G404	U323		U178	U92
C1218	C1147	A937	G936	G859	A703	G703		A547	U481	U405	G324	A243	U179	U93
A1219	U1148	A938	U938	A860	A704	G704	C620	G548	A482	U406	U325	U244	U93	G94
G1220	C1149	A1005	C939		G705	G705	A621	C549	A483	U407	G326	U245	C95	
A1221	A1150	G1006	C940	A865	A706	U706	A622	G550	G484		A327	G247	U96	
G1222				C866	U707			U551		G410	C328		G183	U97
A1223	A1152	G1079	G944	G867			U625	U552	A487	A411	A329	G251	U185	A98
U1224	G1153	A1080	G945	U789	A712	G713	G626	A553	C488	A412	C330	U252	C186	C99
A1225			A946	G868	G713	G713	G627	A554		A413	G331	A253	G187	
C1226	A1157	U1084	G947	G869	G714	G714		U555	C492	A414			A182	
A1227	U1158	U1085	C948	U870	A715	A715	A629	C556	A493	A415	C335	U256	G188	U103
G1228	U1159	U1086	A949	A872	A716				G494	G416	A336	G257	A190	G104
A1229	C1160	G1087		A873			U632	A559	A495		A337	C257	G191	G105
C1230	C1162	U1088		G874	U717	G717	G633	A560	A496	U420	A338	G258	A192	C106
G1231			G954	U875	C796	G719	C634	U561	A497	U421		G260	C193	G107
					C797	G720	A641	U562	A498	C422		U261	C194	G108
						G721		A563	A499	G423	C344	A262	A195	A109
						G722		C564	G500		C345	A263	A196	C110
						G723		U565	C501	U427	G346	G264	A197	G111
						G724		U566	A502	G428	G347	G265	G198	G112
						G725		G567	C503	U429		G266	G199	G113
						G726			C504		G350	C267	G200	U114
						G727		G570	G505	C436	G351	U268	G201	
						G728		U571	G506	U437	C352	C269	G202	U121
						A729		A572	C507	U438	A353	A270	G203	G122
						G730		A573	U508	U439	G354	C271	G204	
						G731		A574	A509	C440	C355	C272	A205	A130
						G732		G575	A510		A356	U273	C206	A131
						G733		C576	C511	G444		A274	C207	C132
						G734		G577	U512	G445	G359		U208	U133
						G735		C578	C513	G446	G360	G278	U209	G134
						C736		A579	C514	G447	G361	A279	C210	
						C737		C580	G515	A448	G362	C280	G211	U137
						C738		G581	G516	G449		G281	G212	
						C739		C582	G517	G450	U365	A282	G213	G141
						G742			C518	A451	A366	U283	C214	
						A743		C586	G521	G455	U367	C284	C215	G144
						C744		G587	C522	A456	U368	C285	G145	G145
						G745			A523			C286	U219	G146
						U834		G592	G524	A459	C372		G220	G147
						U835		U593	A525	A460	A373	G289	C221	G148
						G836		U594	C526	A461	A374		G222	A149
						U837		A595	G527	A462	U375		A223	
						G838		A596	G528	U463		U294	G224	
						C839		A597	G529	U464	C381	C295	C225	G158
						C841		C690		U464	A382	G297	G226	A160

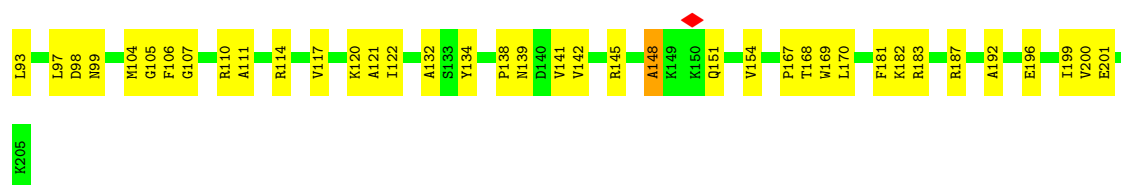


- Chain b:  5% 52% 37% 9%



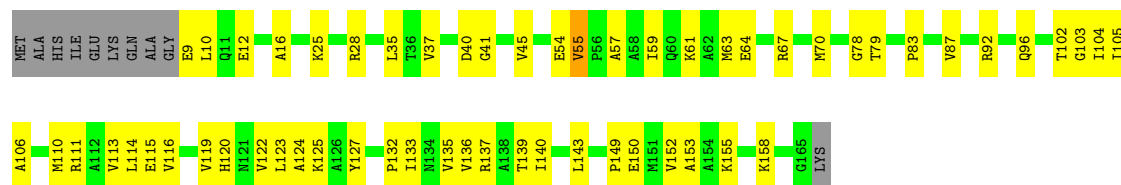
- Chain d:  64% 35%





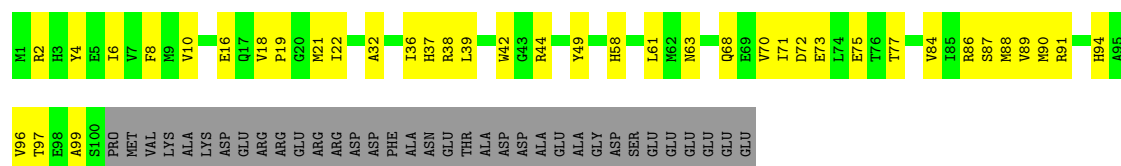
- Molecule 38: 30S ribosomal protein S5

Chain e: 59% 34% 6%



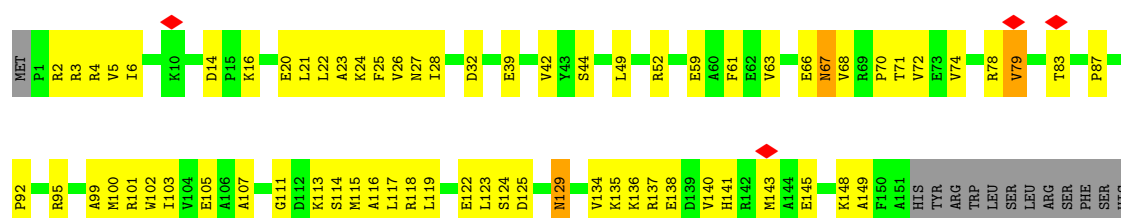
- Molecule 39: 30S ribosomal protein S6, fully modified isoform

Chain f: 45% 29% 26%



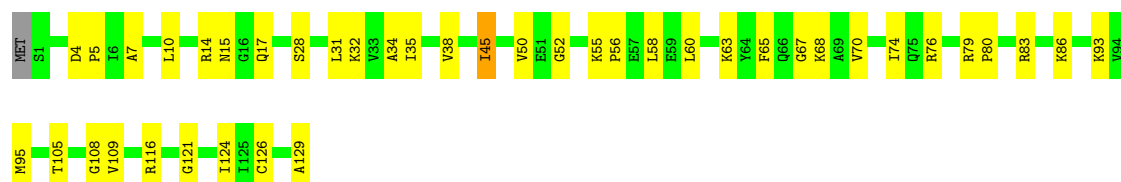
- Molecule 40: 30S ribosomal protein S7

Chain g: 45% 37% 16%

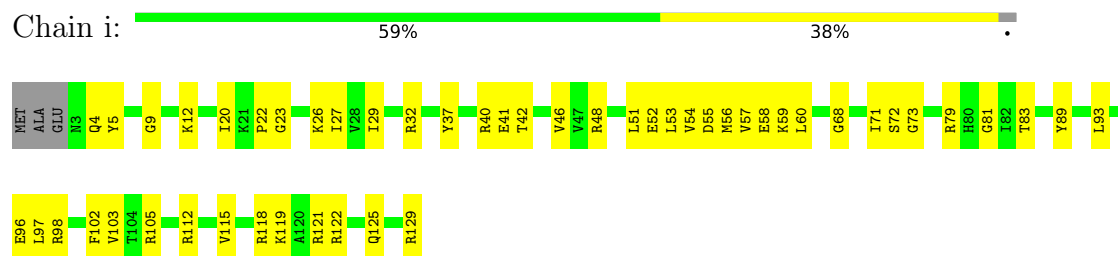


- Molecule 41: 30S ribosomal protein S8

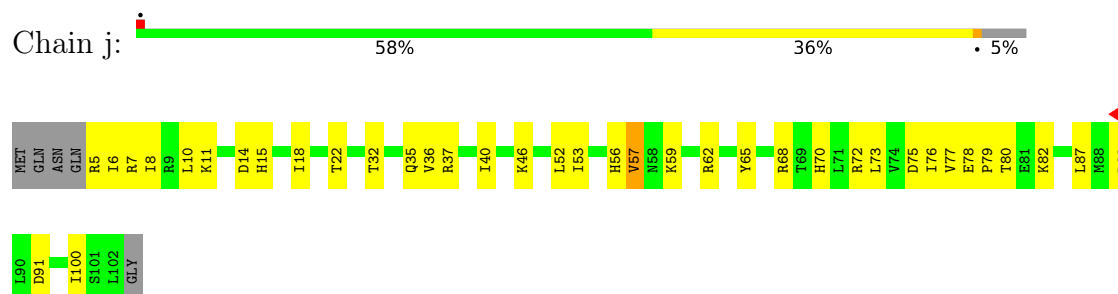
Chain h: 68% 31% 1%



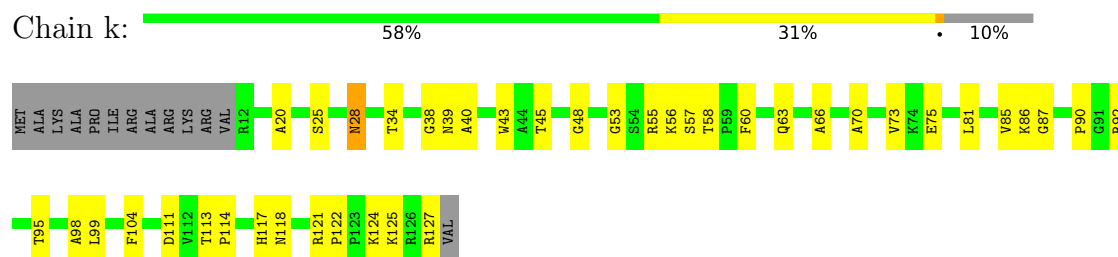
- Molecule 42: 30S ribosomal protein S9



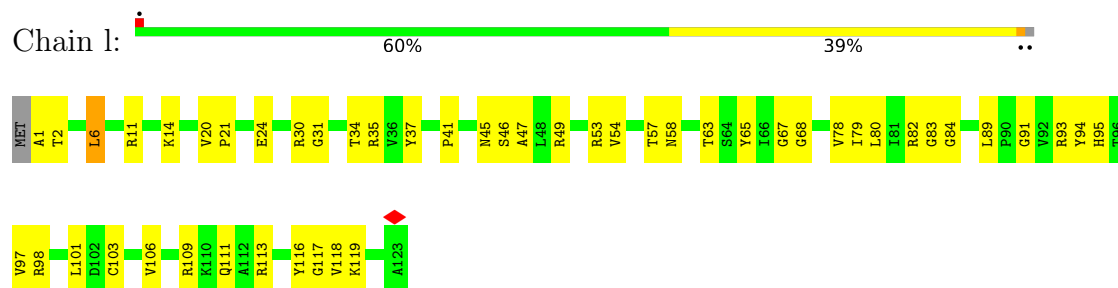
- Molecule 43: 30S ribosomal protein S10



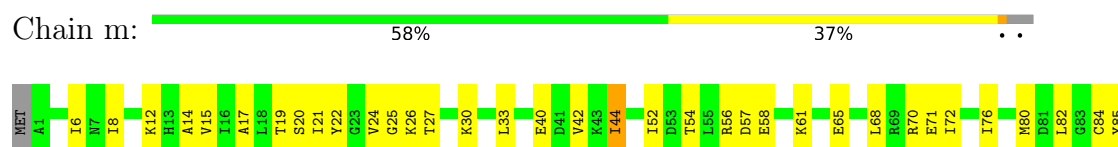
- Molecule 44: 30S ribosomal protein S11



- Molecule 45: 30S ribosomal protein S12



- Molecule 46: 30S ribosomal protein S13





• Molecule 47: 30S ribosomal protein S14

Chain n: 64% 35%



• Molecule 48: 30S ribosomal protein S15

Chain o: 70% 29%



• Molecule 49: 30S ribosomal protein S16

Chain p: 77% 23%



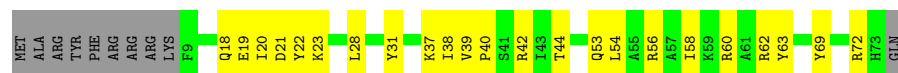
• Molecule 50: 30S ribosomal protein S17

Chain q: 62% 32% 5%



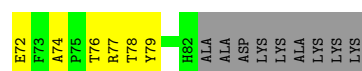
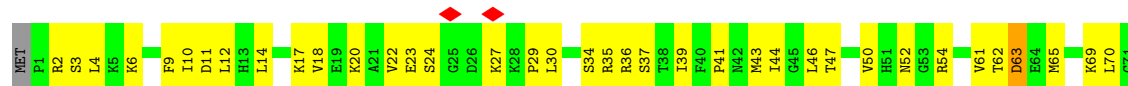
• Molecule 51: 30S ribosomal protein S18

Chain r: 56% 31% 13%



• Molecule 52: 30S ribosomal protein S19

Chain s: 42% 46% 11%



- Molecule 53: 30S ribosomal protein S20

Chain t: 



- Molecule 54: 30S ribosomal protein S21

Chain u: 

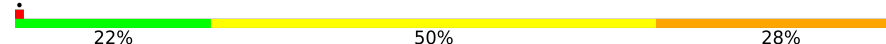


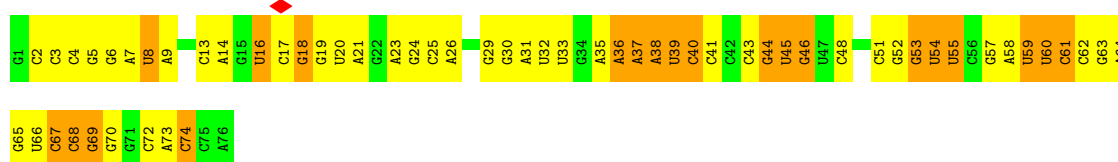
- Molecule 55: P-site tRNA(fMet)

Chain v: 



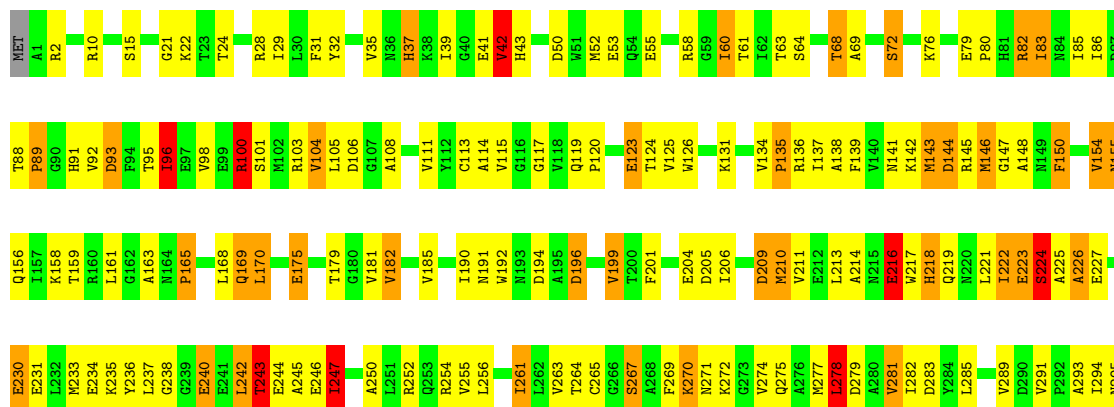
- Molecule 56: P-site fMet-Phe-tRNA(Phe)

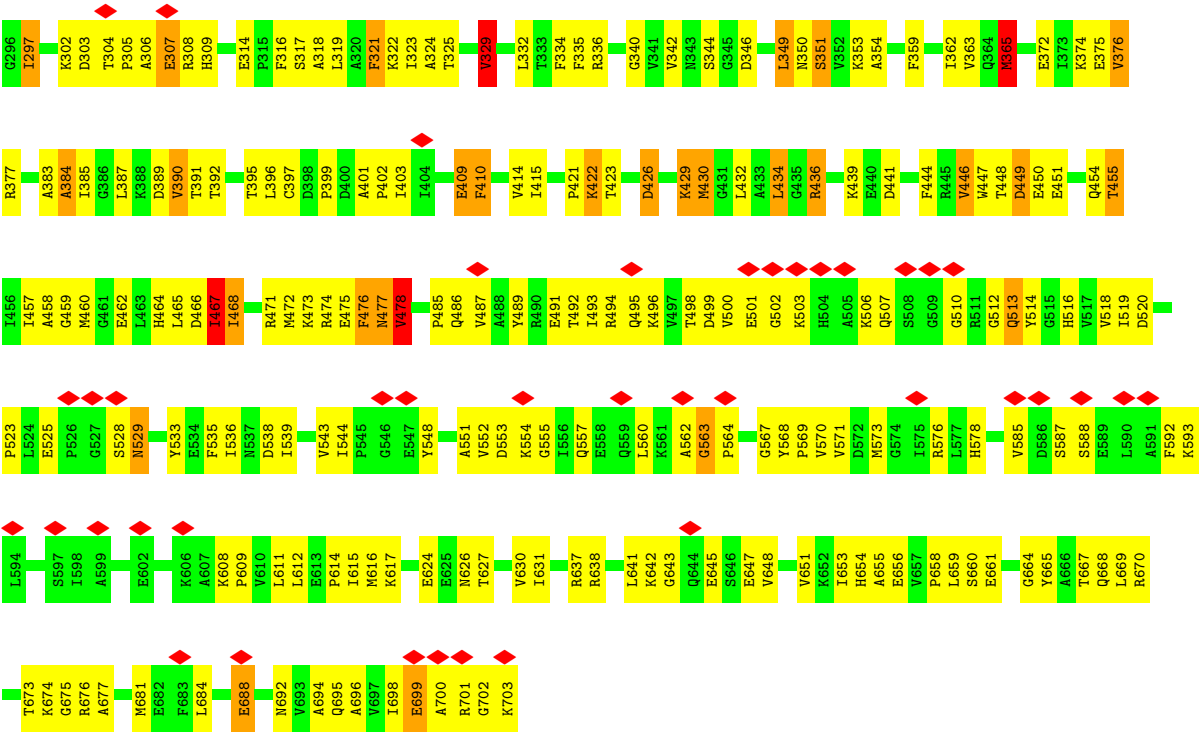
Chain w: 



- Molecule 57: Elongation factor G

Chain x: 





● Molecule 58: Dipeptide (FME-PHE)



● Molecule 59: mRNA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	24313	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 ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1200	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	16.323	Depositor
Minimum map value	-7.685	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	1.5	Depositor
Map size ($\text{\AA}$)	334.08, 334.08, 334.08	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.6525, 0.6525, 0.6525	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 1MG, 4OC, FME, PO4, G7M, MIA, H2U, AM2, OMC, OMG, MG, 3TD, 4SU, ZN, 2MA, PSU, NA, UR3, MA6, 2MG, 5MC, OMU, GDP, 5MU, 6MZ

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	0	0.38	0/450	0.40	0/599
2	1	0.36	0/416	0.47	0/554
3	2	0.41	0/380	0.44	0/498
4	3	0.41	0/513	0.78	2/676 (0.3%)
5	4	0.37	0/303	0.45	0/397
6	5	0.35	0/646	0.83	2/898 (0.2%)
7	6	0.33	0/531	0.68	0/709
8	A	0.40	0/69266	0.40	6/108055 (0.0%)
9	B	0.33	0/2873	0.36	0/4478
10	C	0.42	0/2121	0.60	3/2852 (0.1%)
11	D	0.39	0/1586	0.51	1/2134 (0.0%)
12	E	0.37	0/1571	0.46	0/2113
13	F	0.29	0/1434	0.55	1/1926 (0.1%)
14	G	0.26	0/1343	0.44	0/1816
15	H	0.24	0/1122	0.60	2/1515 (0.1%)
16	I	0.36	0/692	0.79	3/960 (0.3%)
17	J	0.36	0/1152	0.41	0/1551
18	K	0.43	0/947	0.69	3/1268 (0.2%)
19	L	0.43	0/1054	0.66	1/1403 (0.1%)
20	M	0.38	0/1093	0.50	0/1460
21	N	0.40	0/973	0.57	0/1301
22	O	0.34	0/902	0.56	0/1209
23	P	0.36	0/929	0.51	0/1242
24	Q	0.40	0/960	0.43	0/1278
25	R	0.41	0/829	0.74	4/1107 (0.4%)
26	S	0.34	0/864	0.44	0/1156
27	T	0.34	0/744	0.55	1/994 (0.1%)
28	U	0.33	0/787	0.66	2/1051 (0.2%)
29	V	0.30	0/766	0.41	0/1025
30	W	0.35	0/582	0.43	0/769
31	X	0.37	0/635	0.45	0/848

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	Y	0.35	0/510	0.49	1/677 (0.1%)
33	Z	0.33	0/453	0.40	0/605
34	a	0.34	0/36725	0.39	1/57285 (0.0%)
35	b	0.27	0/1735	0.69	3/2338 (0.1%)
36	c	0.27	0/1651	0.41	0/2225
37	d	0.34	0/1665	0.69	3/2227 (0.1%)
38	e	0.37	0/1154	0.61	1/1554 (0.1%)
39	f	0.26	0/835	0.42	0/1128
40	g	0.25	0/1195	0.57	1/1602 (0.1%)
41	h	0.31	0/989	0.55	2/1326 (0.2%)
42	i	0.25	0/1034	0.48	0/1375
43	j	0.36	0/796	0.74	2/1077 (0.2%)
44	k	0.35	0/885	0.57	1/1195 (0.1%)
45	l	0.40	0/969	0.55	0/1300
46	m	0.29	0/892	0.64	2/1193 (0.2%)
47	n	0.30	0/811	0.52	0/1081
48	o	0.31	0/722	0.42	0/964
49	p	0.38	0/659	0.58	0/884
50	q	0.40	0/657	0.71	2/881 (0.2%)
51	r	0.35	0/544	0.54	0/731
52	s	0.25	0/675	0.43	0/908
53	t	0.27	0/671	0.41	0/888
54	u	0.23	0/512	0.67	2/683 (0.3%)
55	v	0.31	0/1745	0.42	0/2716
56	w	0.33	0/1650	0.49	2/2569 (0.1%)
57	x	0.83	7/5546 (0.1%)	1.43	78/7504 (1.0%)
58	y	0.33	0/11	0.31	0/13
59	z	0.34	0/255	0.32	0/394
All	All	0.39	7/164410 (0.0%)	0.51	132/245165 (0.1%)

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
57	x	317	SER	CA-CB	-6.74	1.41	1.53
57	x	267	SER	CA-CB	-5.81	1.44	1.53
57	x	89	PRO	C-O	-5.31	1.17	1.23
57	x	224	SER	CA-CB	-5.30	1.44	1.53
57	x	344	SER	CA-CB	-5.26	1.44	1.53
57	x	351	SER	CA-CB	-5.13	1.45	1.53
57	x	119	GLN	C-O	-5.08	1.19	1.24

All (132) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	b	16	GLY	N-CA-C	19.51	136.09	112.48
37	d	148	ALA	N-CA-C	-12.59	98.40	113.88
28	U	98	ASN	N-CA-C	-12.13	90.89	108.60
57	x	563	GLY	N-CA-C	11.93	136.68	112.34
40	g	79	VAL	N-CA-C	-11.34	99.88	110.53
10	C	238	ASN	N-CA-C	10.46	122.76	111.36
4	3	34	LYS	N-CA-C	-10.01	99.88	114.39
46	m	106	ARG	N-CA-C	9.35	121.47	111.28
57	x	512	GLY	N-CA-C	8.98	126.88	115.21
57	x	222	ILE	N-CA-C	-8.54	102.22	110.42
8	A	1025	G	C1'-C2'-O2'	8.27	124.21	111.80
43	j	57	VAL	N-CA-C	8.25	126.49	109.34
57	x	307	GLU	N-CA-C	-8.22	94.92	108.49
54	u	13	VAL	N-CA-C	-8.16	104.65	111.91
50	q	57	VAL	N-CA-C	-8.14	96.78	108.17
57	x	209	ASP	N-CA-C	-8.14	102.41	111.28
57	x	365	MET	N-CA-C	8.11	121.49	109.24
57	x	144	ASP	CB-CA-C	-8.11	97.97	111.02
18	K	37	ASP	N-CA-C	7.98	121.20	110.35
57	x	410	PHE	CA-CB-CG	7.96	121.76	113.80
10	C	204	LEU	N-CA-C	-7.92	97.17	109.76
57	x	323	ILE	N-CA-C	-7.80	97.19	108.11
35	b	17	HIS	N-CA-C	-7.79	96.45	108.76
57	x	660	SER	N-CA-C	-7.65	102.95	111.82
57	x	422	LYS	N-CA-C	-7.55	102.99	111.07
57	x	169	GLN	CB-CA-C	-7.41	97.85	110.16
57	x	329	VAL	N-CA-C	-7.25	105.71	112.96
57	x	155	ASN	N-CA-C	-7.12	103.60	111.36
43	j	91	ASP	N-CA-C	-7.11	101.91	110.44
8	A	894	U	C4'-C3'-O3'	7.07	120.01	109.40
56	w	36	A	C1'-C2'-O2'	-7.00	97.90	108.40
57	x	238	GLY	N-CA-C	-6.85	104.84	115.73
18	K	109	SER	N-CA-C	-6.83	98.63	108.60
57	x	150	PHE	CB-CA-C	-6.83	100.11	110.90
57	x	562	ALA	N-CA-C	6.75	119.48	108.55
8	A	1025	G	C3'-C2'-O2'	6.70	124.65	114.60
57	x	96	ILE	N-CA-C	-6.70	103.79	110.62
8	A	2655	G	C4'-C3'-O3'	6.68	119.42	109.40
57	x	143	MET	N-CA-C	-6.63	105.07	113.02
57	x	120	PRO	N-CA-C	6.59	122.90	113.47
57	x	476	PHE	N-CA-C	-6.58	102.31	111.39
57	x	100	ARG	N-CA-C	-6.58	104.03	111.07
57	x	72	SER	N-CA-C	-6.57	104.04	111.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	x	466	ASP	CA-CB-CG	6.52	119.12	112.60
57	x	271	ASN	CB-CA-C	6.51	121.30	111.80
57	x	699	GLU	N-CA-C	-6.45	105.37	113.18
11	D	150	GLN	N-CA-C	6.39	118.24	111.28
27	T	38	ALA	N-CA-C	6.37	119.59	110.10
57	x	95	THR	N-CA-C	-6.36	106.06	113.88
19	L	27	LEU	N-CA-C	-6.33	104.46	111.36
16	I	28	GLY	N-CA-C	6.27	121.56	114.67
15	H	105	ALA	CB-CA-C	-6.25	109.36	116.54
38	e	55	VAL	CB-CA-C	-6.21	107.76	114.35
57	x	698	ILE	N-CA-C	-6.20	106.17	113.42
46	m	44	ILE	N-CA-C	-6.20	106.46	112.29
4	3	32	LEU	N-CA-C	-6.20	100.26	109.86
57	x	429	LYS	N-CA-C	-6.18	104.46	111.07
37	d	151	GLN	N-CA-C	-6.13	102.27	110.55
13	F	176	PHE	N-CA-C	6.11	119.83	111.39
25	R	55	ASP	N-CA-C	-6.09	104.27	113.89
16	I	23	VAL	N-CA-C	6.08	120.64	111.89
57	x	410	PHE	CB-CA-C	6.05	119.66	109.32
25	R	50	GLY	N-CA-C	5.99	120.41	111.18
35	b	22	TRP	N-CA-C	5.99	118.49	110.35
57	x	168	LEU	N-CA-C	-5.97	104.98	112.93
56	w	38	A	C1'-C2'-O2'	5.93	117.30	108.40
57	x	237	LEU	N-CA-C	-5.91	106.05	113.20
57	x	119	GLN	N-CA-C	-5.88	98.59	109.06
57	x	218	HIS	N-CA-C	-5.83	104.92	111.28
6	5	81	LEU	N-CA-C	-5.82	101.50	109.71
57	x	226	ALA	N-CA-C	-5.82	105.28	112.38
57	x	135	PRO	N-CA-CB	-5.82	97.93	103.34
25	R	72	VAL	N-CA-C	-5.80	100.05	108.17
6	5	82	ILE	N-CA-C	5.80	116.90	109.30
8	A	1024	G	C1'-C2'-O2'	5.79	117.08	108.40
41	h	65	PHE	N-CA-C	5.79	117.39	111.14
15	H	105	ALA	N-CA-C	5.77	117.08	108.31
57	x	37	HIS	N-CA-C	5.71	118.45	111.82
57	x	426	ASP	N-CA-C	-5.70	106.18	113.02
41	h	67	GLY	N-CA-C	-5.68	107.12	115.30
57	x	15	SER	N-CA-C	5.64	118.41	110.23
28	U	96	LYS	N-CA-C	-5.61	102.45	110.59
32	Y	15	ASN	N-CA-C	-5.61	103.97	112.04
57	x	477	ASN	N-CA-C	5.60	118.48	110.24
57	x	283	ASP	N-CA-C	5.58	117.45	111.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	x	82	ARG	CB-CA-C	-5.56	101.63	110.81
57	x	194	ASP	N-CA-C	5.54	117.39	111.36
57	x	700	ALA	N-CA-C	-5.54	105.25	111.28
34	a	158	G	C4'-C3'-C2'	-5.53	97.07	102.60
57	x	88	THR	CB-CA-C	-5.53	100.81	109.22
57	x	281	VAL	N-CA-C	-5.52	105.15	110.72
57	x	85	ILE	N-CA-CB	-5.49	104.54	111.46
57	x	214	ALA	N-CA-C	-5.49	105.20	111.07
10	C	237	ARG	N-CA-C	5.45	118.95	111.54
37	d	47	LEU	N-CA-C	5.43	117.69	110.53
57	x	467	ILE	N-CA-C	-5.42	104.44	112.04
57	x	510	GLY	N-CA-C	5.41	119.22	112.73
57	x	426	ASP	CB-CA-C	5.40	119.99	110.37
57	x	216	GLU	CB-CA-C	-5.40	102.37	110.90
57	x	321	PHE	CA-CB-CG	5.40	119.20	113.80
57	x	478	VAL	N-CA-C	-5.39	100.71	108.42
57	x	211	VAL	N-CA-C	-5.38	107.88	113.10
57	x	297	ILE	N-CA-C	-5.34	100.78	108.48
57	x	42	VAL	N-CA-C	5.32	116.10	110.72
57	x	147	GLY	N-CA-C	-5.32	107.98	115.32
57	x	69	ALA	CA-C-O	-5.29	115.77	121.38
57	x	243	THR	CB-CA-C	5.27	119.24	109.54
57	x	293	ALA	N-CA-C	5.27	116.89	110.41
57	x	434	LEU	N-CA-C	-5.27	105.54	111.28
57	x	278	LEU	N-CA-C	-5.24	105.57	111.28
57	x	60	ILE	CA-C-N	-5.23	115.82	122.77
57	x	60	ILE	C-N-CA	-5.23	115.82	122.77
57	x	384	ALA	N-CA-C	5.23	117.24	107.99
57	x	79	GLU	N-CA-C	-5.22	102.87	110.08
54	u	14	ALA	N-CA-C	-5.21	106.98	113.55
57	x	247	ILE	CA-C-O	-5.20	115.66	121.17
57	x	391	THR	CB-CA-C	-5.20	99.42	109.76
57	x	234	GLU	CB-CA-C	5.19	119.40	110.79
57	x	135	PRO	CA-C-O	-5.16	115.12	121.31
57	x	279	ASP	CB-CA-C	-5.15	102.24	110.79
50	q	56	ASP	N-CA-C	5.14	117.69	110.23
57	x	64	SER	CA-C-N	-5.14	115.23	122.94
57	x	64	SER	C-N-CA	-5.14	115.23	122.94
57	x	154	VAL	N-CA-C	-5.07	105.45	110.62
44	k	38	GLY	N-CA-C	5.05	121.48	114.92
8	A	1136	G	O4'-C1'-C2'	-5.04	102.56	107.60
18	K	89	ASN	N-CA-C	-5.04	105.79	111.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	x	93	ASP	N-CA-C	-5.03	105.80	111.28
57	x	76	LYS	N-CA-C	-5.02	105.82	112.24
16	I	21	PRO	N-CA-C	5.01	116.81	110.70
57	x	436	ARG	N-CA-C	-5.01	105.71	111.07
25	R	14	VAL	N-CA-C	5.00	115.91	108.65

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	444	0	461	21	0
2	1	409	0	440	12	0
3	2	377	0	418	12	0
4	3	504	0	574	17	0
5	4	302	0	340	14	0
6	5	647	0	336	13	0
7	6	522	0	521	27	0
8	A	62338	0	31369	1341	0
9	B	2570	0	1301	64	0
10	C	2082	0	2157	85	0
11	D	1565	0	1616	43	0
12	E	1552	0	1619	54	0
13	F	1410	0	1447	75	0
14	G	1323	0	1374	39	0
15	H	1111	0	1148	37	0
16	I	693	0	347	18	0
17	J	1129	0	1162	31	0
18	K	938	0	1012	27	0
19	L	1045	0	1117	36	0
20	M	1074	0	1157	37	0
21	N	960	0	1000	34	0
22	O	892	0	923	24	0
23	P	917	0	965	29	0
24	Q	947	0	1022	31	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
25	R	816	0	839	23	0
26	S	857	0	922	31	0
27	T	738	0	807	22	0
28	U	779	0	834	27	0
29	V	753	0	780	29	0
30	W	575	0	592	20	0
31	X	625	0	655	24	0
32	Y	509	0	543	19	0
33	Z	449	0	491	9	0
34	a	33050	0	16652	827	0
35	b	1704	0	1732	70	0
36	c	1624	0	1699	53	0
37	d	1643	0	1710	58	0
38	e	1141	0	1170	38	0
39	f	817	0	808	30	0
40	g	1181	0	1240	58	0
41	h	979	0	1034	30	0
42	i	1022	0	1070	43	0
43	j	786	0	828	39	0
44	k	869	0	878	35	0
45	l	955	0	1019	42	0
46	m	883	0	944	33	0
47	n	799	0	841	33	0
48	o	714	0	737	23	0
49	p	649	0	666	10	0
50	q	648	0	691	17	0
51	r	535	0	552	16	0
52	s	658	0	685	47	0
53	t	665	0	714	23	0
54	u	506	0	502	17	0
55	v	1642	0	839	45	0
56	w	1631	0	837	55	0
57	x	5444	0	5416	235	0
58	y	21	0	19	0	0
59	z	230	0	116	4	0
60	0	1	0	0	0	0
60	A	262	0	0	0	0
60	B	7	0	0	0	0
60	C	3	0	0	0	0
60	D	1	0	0	0	0
60	O	1	0	0	0	0
60	P	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
60	Q	1	0	0	0	0
60	Z	1	0	0	0	0
60	a	85	0	0	0	0
60	m	1	0	0	0	0
60	n	1	0	0	0	0
60	v	1	0	0	0	0
60	w	1	0	0	0	0
60	x	1	0	0	0	0
60	z	1	0	0	0	0
61	4	1	0	0	0	0
61	6	1	0	0	0	0
62	A	1	0	0	0	0
62	B	1	0	0	0	0
63	a	111	0	123	2	0
64	x	28	0	12	3	0
65	x	5	0	0	2	0
All	All	153165	0	103823	3743	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 15.

All (3743) 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)
34:a:879:C:OP2	45:l:1:ALA:HB2	1.31	1.31
34:a:81:A:H61	34:a:86:G:N2	1.41	1.19
34:a:879:C:OP2	45:l:1:ALA:CB	2.02	1.08
34:a:765:G:H1	34:a:812:G:HO2'	1.04	1.01
55:v:44:A:H5''	55:v:44:A:H8	1.24	1.01
56:w:5:G:N2	56:w:68:C:O2	1.93	1.01
34:a:999:C:N4	34:a:1000:A:N6	2.11	0.99
8:A:1445:G:O6	8:A:1466:U:O2	1.83	0.97
34:a:414:A:OP2	34:a:428:G:N2	1.99	0.96
55:v:44:A:H5''	55:v:44:A:C8	2.05	0.91
57:x:548:TYR:O	57:x:552:VAL:HG23	1.71	0.91
8:A:1042:G:H1	8:A:1113:U:H3	1.20	0.90
8:A:308:G:N3	8:A:329:G:N2	2.19	0.89
34:a:81:A:H61	34:a:86:G:H21	0.99	0.89
8:A:627:A:H5''	19:L:78:ARG:HH12	1.38	0.88
34:a:81:A:N6	34:a:86:G:N2	2.21	0.88
8:A:545:U:O2	8:A:548:G:O6	1.92	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:329:VAL:HG21	57:x:385:ILE:HG23	1.55	0.87
24:Q:86:SER:HB3	25:R:52:PRO:HD3	1.57	0.87
40:g:145:GLU:HA	40:g:148:LYS:HB2	1.53	0.87
8:A:1048:A:N6	8:A:1110:G:H21	1.72	0.87
56:w:6:G:N2	56:w:67:C:O2	2.07	0.87
8:A:1053:C:N3	8:A:1106:G:N1	2.23	0.87
8:A:976:G:HO2'	8:A:1155:A:HO2'	1.24	0.86
8:A:746:PSU:HO2'	8:A:2611:C:HO2'	1.17	0.86
56:w:31:A:N6	56:w:39:PSU:O2	2.08	0.86
8:A:1102:C:H3'	8:A:1103:A:H8	1.40	0.85
8:A:1071:G:H21	8:A:1089:A:N6	1.73	0.85
50:q:63:CYS:HG	50:q:73:THR:HG1	1.13	0.84
57:x:351:SER:HB2	57:x:403:ILE:HA	1.58	0.84
34:a:1297:G:N2	40:g:113:LYS:O	2.10	0.84
56:w:6:G:N1	56:w:67:C:N3	2.24	0.83
57:x:131:LYS:HE2	57:x:409:GLU:HG3	1.60	0.83
8:A:1415:U:H3	8:A:1587:G:H1	1.24	0.83
8:A:1081:U:H3	16:I:118:GLY:HA3	1.42	0.83
8:A:141:G:H1	27:T:1:MET:HE2	1.42	0.82
8:A:1071:G:N2	8:A:1089:A:N6	2.25	0.82
8:A:1270:C:H5''	8:A:1271:G:H5'	1.61	0.82
8:A:279:A:H8	8:A:361:G:H21	1.24	0.82
8:A:2439:A:N6	8:A:2585:U:O2'	2.13	0.82
8:A:1716:U:H3	8:A:1744:A:H62	1.24	0.82
8:A:1076:C:N4	8:A:1078:U:O4	2.13	0.82
42:i:51:LEU:HB3	42:i:56:MET:HB2	1.60	0.82
14:G:174:LYS:HE2	14:G:176:LYS:HB2	1.61	0.81
8:A:247:G:OP2	8:A:249:C:N4	2.12	0.81
57:x:696:ALA:HA	57:x:699:GLU:HG2	1.60	0.81
56:w:51:C:H2'	56:w:52:G:H8	1.44	0.81
34:a:984:C:N3	34:a:1222:G:N2	2.29	0.81
8:A:2114:A:N6	8:A:2117:A:N7	2.28	0.81
8:A:475:C:O2	8:A:479:A:N6	2.15	0.80
8:A:1172:C:N4	8:A:1176:U:O4	2.14	0.80
40:g:26:VAL:HG22	40:g:42:VAL:HG11	1.61	0.80
8:A:319:G:H1	8:A:323:C:H5	1.27	0.80
8:A:1053:C:O2	8:A:1106:G:N2	2.15	0.80
8:A:1478:G:H1	8:A:1513:U:H3	1.29	0.80
8:A:1042:G:N2	8:A:1113:U:O2	2.15	0.80
8:A:1171:G:H1	8:A:1177:G:H22	1.30	0.79
34:a:999:C:N4	34:a:1000:A:H62	1.79	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:242:G:N2	8:A:255:A:OP2	2.13	0.79
7:6:38:SER:HB3	13:F:104:THR:HA	1.64	0.79
34:a:261:U:OP2	53:t:73:ARG:NH2	2.16	0.79
8:A:25:U:O2	8:A:515:A:N6	2.16	0.79
8:A:1910:G:O6	8:A:1920:C:N4	2.14	0.79
8:A:1925:C:H42	8:A:1929:G:H22	1.28	0.79
10:C:35:LYS:NZ	10:C:37:SER:OG	2.14	0.79
55:v:1:C:OP2	55:v:1:C:H4'	1.79	0.79
34:a:1000:A:N1	34:a:1041:G:C6	2.51	0.79
44:k:92:ARG:NH2	44:k:111:ASP:OD2	2.15	0.79
8:A:320:A:N3	12:E:163:ASN:ND2	2.30	0.79
8:A:2299:U:OP1	13:F:71:LYS:NZ	2.15	0.79
14:G:26:LYS:NZ	14:G:27:GLY:O	2.16	0.79
34:a:81:A:N6	34:a:89:U:O2'	2.16	0.79
34:a:1004:A:H62	34:a:1024:G:H2'	1.45	0.78
31:X:31:ASN:HD22	31:X:52:ALA:HB2	1.48	0.78
34:a:691:G:O6	44:k:56:LYS:NZ	2.16	0.78
40:g:114:SER:O	40:g:118:ARG:HB2	1.82	0.78
34:a:332:G:OP1	53:t:4:LYS:NZ	2.15	0.78
38:e:83:PRO:HB3	38:e:96:GLN:HG3	1.66	0.78
8:A:500:G:N1	8:A:503:A:OP2	2.14	0.77
34:a:890:G:O2'	34:a:906:A:N6	2.18	0.77
8:A:1816:C:N4	10:C:34:GLU:OE2	2.17	0.77
8:A:2102:G:N1	8:A:2188:U:N3	2.33	0.77
54:u:3:ILE:N	54:u:21:SER:HG	1.82	0.77
34:a:1329:A:H5''	46:m:25:GLY:H	1.49	0.77
37:d:10:LEU:HG	37:d:62:ARG:HE	1.48	0.77
24:Q:48:ASP:HA	24:Q:51:GLN:HB2	1.67	0.77
5:4:1:MET:HE2	5:4:34:LYS:HE3	1.66	0.77
8:A:2636:C:O2'	11:D:45:TYR:OH	2.03	0.77
9:B:77:U:OP1	29:V:21:ARG:NH2	2.17	0.77
23:P:26:GLU:HG2	23:P:86:LYS:HE2	1.65	0.77
34:a:324:G:N2	34:a:327:A:OP2	2.18	0.77
8:A:396:G:OP2	31:X:9:LYS:NZ	2.18	0.76
8:A:1250:G:N7	19:L:18:ARG:NH2	2.31	0.76
8:A:1649:G:O2'	21:N:106:ASP:OD2	2.03	0.76
8:A:2111:U:H1'	8:A:2118:U:H1'	1.66	0.76
39:f:49:TYR:HE1	39:f:86:ARG:HH22	1.33	0.76
8:A:1779:U:OP2	8:A:1784:A:N6	2.18	0.76
34:a:429:U:H3'	37:d:8:LEU:HD12	1.67	0.76
8:A:84:A:H62	8:A:101:A:H2	1.32	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:993:G:O2'	34:a:994:A:N7	2.17	0.76
18:K:121:GLU:HG3	18:K:122:VAL:HG23	1.68	0.76
34:a:1175:G:H2'	34:a:1176:A:H8	1.50	0.75
11:D:97:SER:OG	11:D:99:GLU:OE1	2.05	0.75
34:a:71:A:N6	34:a:99:C:O2	2.19	0.75
8:A:920:A:OP1	33:Z:18:LYS:NZ	2.19	0.75
8:A:1936:A:H2	8:A:1943:U:H3	1.33	0.75
56:w:43:C:H2'	56:w:44:G:C8	2.21	0.75
34:a:521:G:N7	45:l:49:ARG:NH1	2.35	0.75
8:A:2332:C:OP1	30:W:73:ARG:NH1	2.16	0.74
57:x:230:GLU:HA	57:x:233:MET:HB2	1.68	0.74
34:a:1322:C:OP1	52:s:77:ARG:NH2	2.20	0.74
9:B:30:C:O2'	9:B:57:A:N1	2.19	0.74
34:a:1211:U:H5'	34:a:1212:U:H5'	1.69	0.74
34:a:1298:U:O2	34:a:1299:A:N6	2.20	0.74
8:A:1798:U:OP2	10:C:270:ARG:NH2	2.20	0.74
8:A:529:A:OP2	17:J:116:ARG:NH2	2.19	0.74
34:a:414:A:P	34:a:428:G:H22	2.11	0.74
37:d:187:ARG:NH1	37:d:187:ARG:O	2.20	0.74
8:A:2304:G:H22	8:A:2312:U:H3	1.36	0.73
8:A:2743:U:O2'	14:G:152:ARG:NH1	2.20	0.73
14:G:27:GLY:HA3	14:G:78:VAL:HB	1.69	0.73
8:A:2012:G:OP1	26:S:11:ARG:NH2	2.21	0.73
8:A:2162:G:H4'	8:A:2173:A:C8	2.24	0.73
1:0:12:ARG:NH2	8:A:517:C:OP1	2.21	0.73
8:A:627:A:OP1	19:L:78:ARG:NH2	2.17	0.73
34:a:481:G:O2'	34:a:483:C:N4	2.21	0.73
56:w:16:U:N3	56:w:59:U:O2	2.22	0.73
31:X:58:ILE:HG12	31:X:66:VAL:HG21	1.70	0.73
34:a:1208:C:O2'	57:x:507:GLN:OE1	2.06	0.73
36:c:87:ARG:HG3	36:c:100:ILE:HG12	1.71	0.73
8:A:2202:U:O2'	8:A:2204:G:OP1	2.07	0.73
8:A:2584:U:H3'	8:A:2585:U:H5''	1.71	0.73
34:a:1355:G:H2'	34:a:1356:G:H8	1.53	0.73
52:s:24:SER:O	52:s:27:LYS:NZ	2.20	0.73
8:A:1858:A:N6	8:A:1884:G:O2'	2.21	0.72
13:F:130:GLY:HA2	13:F:152:ASP:HA	1.70	0.72
38:e:106:ALA:HB2	38:e:124:ALA:HB3	1.71	0.72
8:A:1061:U:C2	8:A:1068:G:H1'	2.24	0.72
55:v:8:4SU:O2'	55:v:21:A:N1	2.20	0.72
11:D:179:ARG:HB3	11:D:188:LEU:HD12	1.72	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:539:A:OP2	45:l:111:GLN:NE2	2.21	0.72
43:j:40:ILE:HB	43:j:73:LEU:HB3	1.70	0.72
8:A:1019:U:OP1	8:A:1035:U:O2'	2.07	0.72
8:A:1799:G:OP1	10:C:257:ARG:NH1	2.23	0.72
20:M:102:LEU:HD11	20:M:126:ILE:HD11	1.71	0.72
46:m:80:MET:O	46:m:91:ARG:NH2	2.22	0.72
57:x:525:GLU:HG2	57:x:528:SER:HB2	1.72	0.72
34:a:177:G:OP2	34:a:177:G:N2	2.18	0.72
57:x:58:ARG:HB2	57:x:60:ILE:HG12	1.72	0.72
8:A:545:U:C2	8:A:548:G:O6	2.43	0.71
3:2:39:ARG:NH2	8:A:468:G:N7	2.36	0.71
40:g:111:GLY:HA2	40:g:118:ARG:HD3	1.71	0.71
34:a:1095:U:OP1	34:a:1108:G:N1	2.21	0.71
34:a:1440:U:H3	34:a:1461:G:H1	1.37	0.71
35:b:150:ILE:HB	35:b:153:MET:HB2	1.71	0.71
24:Q:99:VAL:O	24:Q:102:LYS:NZ	2.22	0.71
34:a:1428:A:H61	34:a:1472:U:H3	1.39	0.71
25:R:75:VAL:HG22	25:R:86:GLN:HG2	1.73	0.71
8:A:848:C:H2'	8:A:849:A:H8	1.55	0.71
29:V:64:VAL:HG22	29:V:69:GLU:HG3	1.72	0.71
8:A:577:G:O2'	8:A:1254:A:OP1	2.09	0.71
8:A:1080:A:O2'	8:A:1082:U:O4	2.08	0.71
57:x:233:MET:HA	57:x:236:TYR:HB3	1.73	0.71
15:H:113:SER:O	15:H:116:ARG:NH1	2.24	0.71
34:a:1432:G:O2'	34:a:1433:A:O5'	2.09	0.71
8:A:2788:C:O2'	8:A:2809:A:N3	2.22	0.70
8:A:2800:A:C2	8:A:2895:G:H1'	2.26	0.70
10:C:244:VAL:HG12	10:C:250:GLN:HA	1.73	0.70
8:A:475:C:N3	8:A:479:A:N7	2.39	0.70
8:A:1053:C:N4	8:A:1106:G:O6	2.19	0.70
8:A:1996:C:OP1	18:K:31:ARG:NH1	2.24	0.70
37:d:104:MET:HG3	37:d:170:LEU:HD13	1.71	0.70
8:A:2102:G:O6	8:A:2188:U:O4	2.09	0.70
6:5:81:LEU:HA	8:A:1106:G:O2'	1.90	0.70
9:B:48:U:OP2	22:O:30:ARG:NH2	2.25	0.70
26:S:60:HIS:ND1	26:S:61:ASN:OD1	2.22	0.70
36:c:104:GLU:OE2	36:c:106:ARG:NH2	2.25	0.70
36:c:107:LYS:HB3	36:c:143:LEU:HD21	1.74	0.70
37:d:58:GLN:OE1	37:d:61:ARG:NH1	2.25	0.70
8:A:1754:A:N1	8:A:2716:C:O2'	2.23	0.70
55:v:44:A:OP1	55:v:44:A:H4'	1.91	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:500:VAL:HG23	57:x:519:ILE:HG13	1.73	0.70
8:A:301:G:OP2	28:U:81:ARG:NH1	2.24	0.70
8:A:2809:A:OP2	8:A:2890:G:N1	2.23	0.70
8:A:1419:A:O2'	8:A:1421:G:N7	2.20	0.70
37:d:64:TYR:HD1	37:d:110:ARG:HH22	1.37	0.70
34:a:461:A:N6	34:a:471:U:O4	2.24	0.69
46:m:76:ILE:HG22	46:m:80:MET:HE2	1.73	0.69
8:A:291:G:O6	8:A:349:U:O2	2.09	0.69
8:A:1664:A:N3	18:K:67:LYS:NZ	2.40	0.69
8:A:270:A:N1	8:A:369:U:O2'	2.24	0.69
8:A:1799:G:OP2	10:C:269:ARG:NH2	2.25	0.69
12:E:117:ARG:NH2	12:E:183:PHE:O	2.26	0.69
38:e:9:GLU:HG3	38:e:10:LEU:HD12	1.74	0.69
15:H:27:ARG:NH1	31:X:59:ASP:OD2	2.26	0.69
8:A:1437:C:O2'	8:A:1516:G:O2'	2.11	0.69
9:B:5:U:OP1	9:B:61:G:O2'	2.08	0.69
34:a:1060:U:H2'	34:a:1061:G:H8	1.57	0.69
8:A:1818:U:O2'	10:C:152:GLN:O	2.11	0.69
8:A:602:A:HO2'	8:A:604:G:HO2'	1.37	0.69
8:A:1141:U:H2'	17:J:65:THR:HG21	1.74	0.69
8:A:2100:G:H2'	8:A:2101:A:C8	2.28	0.69
15:H:78:VAL:HB	15:H:144:VAL:HG22	1.75	0.69
34:a:1218:C:H2'	34:a:1219:A:H8	1.58	0.69
34:a:1524:C:OP1	44:k:121:ARG:NH1	2.25	0.69
1:O:53:VAL:HG23	1:O:54:ILE:HG12	1.75	0.69
8:A:636:G:N7	19:L:109:LYS:NZ	2.39	0.69
8:A:1918:A:O2'	8:A:1920:C:N4	2.25	0.69
34:a:459:A:H2'	34:a:460:A:C8	2.28	0.69
8:A:1340:U:OP1	27:T:84:TYR:OH	2.08	0.69
34:a:1124:G:N2	34:a:1125:U:O4	2.20	0.69
34:a:1149:C:H2'	34:a:1150:A:H8	1.56	0.69
34:a:1218:C:H2'	34:a:1219:A:C8	2.28	0.69
57:x:612:LEU:HA	57:x:688:GLU:HA	1.73	0.68
4:3:11:LYS:NZ	8:A:249:C:O2	2.26	0.68
46:m:82:LEU:HD21	52:s:65:MET:HB3	1.76	0.68
35:b:187:ASP:OD1	35:b:188:THR:N	2.20	0.68
8:A:1715:G:N2	8:A:1744:A:OP2	2.25	0.68
8:A:2552:OMU:H2'	8:A:2554:U:OP2	1.94	0.68
34:a:662:U:O2'	34:a:836:G:OP1	2.10	0.68
8:A:481:G:H1'	8:A:506:G:H21	1.58	0.68
8:A:2110:G:N1	8:A:2120:G:N7	2.42	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2469:A:N6	8:A:2481:G:O2'	2.25	0.68
10:C:106:PRO:HD2	10:C:109:LEU:HD22	1.75	0.68
34:a:50:A:O2'	34:a:360:G:N2	2.25	0.68
36:c:46:LEU:HB3	36:c:49:ALA:HB3	1.75	0.68
57:x:401:ALA:HB1	57:x:402:PRO:HD2	1.74	0.68
34:a:107:G:N7	53:t:9:ARG:NH1	2.42	0.68
34:a:427:U:OP1	37:d:12:ARG:NH2	2.27	0.68
34:a:1497:G:H1'	34:a:1518:MA6:H2	1.75	0.68
36:c:117:ASP:HA	36:c:120:THR:HG22	1.74	0.68
8:A:324:A:OP2	8:A:1205:A:N6	2.27	0.68
8:A:1474:U:H3	8:A:1517:G:H1	1.40	0.68
8:A:2328:A:H2'	8:A:2329:U:C6	2.28	0.68
10:C:28:PRO:HG2	10:C:33:LEU:HD11	1.75	0.68
35:b:16:GLY:HA2	35:b:38:HIS:O	1.94	0.68
57:x:150:PHE:CE1	57:x:265:CYS:HB3	2.29	0.68
6:5:32:GLY:H	8:A:1055:G:H4'	1.58	0.68
8:A:2676:C:OP1	18:K:31:ARG:NH2	2.27	0.68
25:R:24:LYS:HA	25:R:94:THR:HG23	1.76	0.68
8:A:1631:G:N1	8:A:1634:A:OP2	2.22	0.68
8:A:1791:A:N6	8:A:1828:G:O2'	2.22	0.68
8:A:2111:U:O2'	8:A:2118:U:O2'	2.10	0.68
24:Q:49:ARG:O	24:Q:53:LYS:NZ	2.27	0.68
36:c:72:PRO:HA	36:c:75:VAL:HG22	1.75	0.68
57:x:362:ILE:HG21	57:x:376:VAL:HG22	1.75	0.68
8:A:371:A:N3	31:X:60:LYS:NZ	2.38	0.67
8:A:698:C:O2'	8:A:734:A:N6	2.26	0.67
8:A:1068:G:N7	8:A:1069:A:H1'	2.09	0.67
10:C:92:LEU:HD11	10:C:100:ARG:HB3	1.76	0.67
34:a:1356:G:H2'	34:a:1357:A:C8	2.29	0.67
35:b:99:MET:HA	35:b:106:VAL:HG21	1.75	0.67
45:l:49:ARG:HB3	45:l:65:TYR:HE1	1.59	0.67
8:A:1965:C:OP1	8:A:1966:A:O2'	2.12	0.67
46:m:14:ALA:HB3	46:m:40:GLU:HA	1.76	0.67
46:m:22:TYR:N	46:m:65:GLU:OE2	2.21	0.67
20:M:136:MET:O	29:V:79:ARG:NH1	2.27	0.67
34:a:69:G:H2'	34:a:70:U:C6	2.28	0.67
8:A:476:G:N1	8:A:479:A:OP2	2.25	0.67
8:A:629:G:N3	8:A:639:U:O2'	2.27	0.67
11:D:109:VAL:HG22	11:D:203:VAL:HG22	1.76	0.67
34:a:673:A:H2'	34:a:674:G:C8	2.29	0.67
34:a:816:A:OP1	34:a:1526:G:O2'	2.12	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:u:10:PRO:O	54:u:13:VAL:HG22	1.95	0.67
55:v:44:A:H8	55:v:44:A:C5'	2.05	0.67
34:a:1506:U:O2	44:k:127:ARG:NH1	2.28	0.67
1:0:15:ARG:NH1	8:A:1266:G:OP2	2.25	0.67
8:A:18:U:OP1	24:Q:29:ARG:NH1	2.23	0.67
8:A:1048:A:N6	8:A:1110:G:N2	2.42	0.67
8:A:1724:G:O6	8:A:1737:G:N2	2.28	0.67
26:S:37:THR:OG1	26:S:48:LYS:NZ	2.22	0.67
34:a:982:U:OP2	47:n:63:ARG:NH2	2.24	0.67
45:l:21:PRO:HD2	45:l:93:ARG:HH21	1.59	0.67
2:1:29:LYS:NZ	8:A:2286:G:OP1	2.28	0.67
8:A:1048:A:H62	8:A:1110:G:N2	1.91	0.67
8:A:2127:G:N2	8:A:2128:G:O6	2.27	0.67
34:a:1240:U:OP2	40:g:115:MET:N	2.27	0.67
56:w:48:C:N4	56:w:59:U:O4	2.28	0.67
1:0:21:LEU:HD11	26:S:41:LYS:HE3	1.76	0.67
8:A:1084:A:H1'	8:A:1106:G:H1'	1.77	0.67
11:D:48:ILE:HG23	11:D:84:LEU:HD21	1.75	0.67
34:a:8:A:N6	37:d:201:GLU:O	2.28	0.67
49:p:6:LEU:HB3	49:p:17:TYR:HB3	1.77	0.67
8:A:142:A:O2'	27:T:1:MET:N	2.28	0.67
8:A:1114:C:H2'	8:A:1115:G:C8	2.29	0.67
10:C:68:ARG:O	10:C:188:ARG:NH1	2.28	0.67
13:F:146:ASP:HB3	13:F:149:ARG:HH22	1.59	0.67
8:A:1954:G:O2'	8:A:1956:U:O4	2.13	0.66
42:i:48:ARG:HG2	42:i:52:GLU:HB2	1.77	0.66
52:s:63:ASP:N	52:s:63:ASP:OD1	2.28	0.66
8:A:2162:G:OP2	8:A:2171:A:N6	2.28	0.66
9:B:8:C:OP1	22:O:15:ARG:NH2	2.28	0.66
13:F:141:ASP:OD1	46:m:70:ARG:NH2	2.27	0.66
34:a:28:A:O2'	34:a:296:U:OP1	2.12	0.66
34:a:81:A:N6	34:a:86:G:H21	1.84	0.66
34:a:1328:C:H5''	46:m:27:THR:HG21	1.77	0.66
35:b:93:HIS:ND1	35:b:145:ASN:O	2.29	0.66
43:j:18:ILE:O	43:j:22:THR:HG23	1.95	0.66
57:x:494:ARG:HG3	57:x:495:GLN:H	1.58	0.66
8:A:2246:G:H2'	8:A:2247:A:H8	1.61	0.66
35:b:77:GLU:HA	35:b:80:LYS:HE2	1.77	0.66
36:c:63:ILE:HG23	36:c:98:ALA:HA	1.77	0.66
20:M:25:ASP:O	20:M:66:ARG:NH1	2.28	0.66
7:6:1:MET:SD	13:F:94:ARG:NH1	2.68	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1176:U:H2'	8:A:1177:G:C8	2.29	0.66
8:A:2199:A:N1	8:A:2226:C:N4	2.43	0.66
34:a:309:A:O2'	34:a:607:A:N1	2.26	0.66
36:c:19:SER:OG	36:c:39:ARG:NH2	2.29	0.66
8:A:630:G:N2	8:A:633:A:OP2	2.23	0.66
8:A:704:G:H2'	8:A:726:G:H22	1.59	0.66
13:F:125:GLY:O	13:F:157:THR:OG1	2.13	0.66
34:a:1077:G:N2	34:a:1080:A:OP2	2.28	0.66
47:n:2:LYS:HE2	47:n:5:MET:HE3	1.78	0.66
8:A:514:A:N3	8:A:581:C:O2'	2.28	0.66
8:A:1794:A:H2'	8:A:1795:C:C6	2.31	0.66
8:A:2170:A:H2'	8:A:2171:A:H4'	1.77	0.66
8:A:2175:C:H2'	8:A:2176:A:H8	1.60	0.66
8:A:2183:A:H2'	8:A:2184:A:C8	2.31	0.66
8:A:2684:U:O4'	18:K:70:ARG:NH1	2.28	0.66
34:a:350:G:H2'	34:a:351:G:C8	2.31	0.66
34:a:428:G:OP2	37:d:9:LYS:NZ	2.24	0.66
8:A:219:A:N3	8:A:234:U:O2'	2.26	0.66
18:K:42:THR:HG22	18:K:57:VAL:HG22	1.77	0.66
8:A:1509:A:H2'	8:A:1510:G:C8	2.31	0.66
8:A:1532:A:H2'	8:A:1533:C:C6	2.30	0.66
8:A:1802:A:H2'	8:A:1803:A:C8	2.31	0.66
9:B:37:C:O2	22:O:100:HIS:NE2	2.26	0.66
44:k:66:ALA:HB2	44:k:95:THR:HG23	1.78	0.66
8:A:291:G:O6	8:A:349:U:C2	2.49	0.66
8:A:1153:C:OP1	24:Q:91:ARG:NH2	2.28	0.66
8:A:2142:A:N7	8:A:2143:C:N4	2.43	0.66
18:K:48:PRO:HA	34:a:1422:G:OP1	1.95	0.66
35:b:119:GLN:HA	35:b:123:GLY:HA3	1.77	0.66
8:A:658:U:O2'	12:E:95:LYS:NZ	2.29	0.65
8:A:1288:G:OP2	8:A:1288:G:N2	2.27	0.65
8:A:2295:C:OP2	22:O:9:ARG:NH2	2.29	0.65
23:P:105:LYS:O	23:P:108:ARG:NH2	2.28	0.65
34:a:1391:U:H2'	34:a:1392:G:C8	2.31	0.65
8:A:1409:U:H2'	8:A:1410:G:H8	1.61	0.65
35:b:83:ALA:HB2	35:b:90:PHE:HB3	1.79	0.65
44:k:86:LYS:HG3	44:k:114:PRO:HD3	1.77	0.65
8:A:1386:C:H2'	8:A:1387:A:C8	2.32	0.65
34:a:1152:A:OP1	43:j:70:HIS:ND1	2.30	0.65
8:A:645:C:H2'	8:A:647:G:C8	2.32	0.65
8:A:1071:G:N2	8:A:1089:A:H61	1.93	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2094:A:OP2	15:H:22:LYS:NZ	2.24	0.65
18:K:121:GLU:OE2	23:P:40:GLN:NE2	2.30	0.65
34:a:812:G:OP1	34:a:902:G:N2	2.27	0.65
8:A:2233:U:H2'	8:A:2234:G:C8	2.32	0.65
13:F:30:VAL:HG12	13:F:157:THR:HG22	1.78	0.65
22:O:10:ARG:NH2	22:O:96:GLY:O	2.29	0.65
34:a:581:G:N1	34:a:759:A:OP2	2.23	0.65
8:A:2314:A:OP1	13:F:87:LYS:NZ	2.30	0.65
8:A:1125:G:OP2	8:A:1126:A:O2'	2.14	0.65
8:A:2636:C:HO2'	11:D:45:TYR:HH	1.44	0.65
8:A:659:G:O2'	12:E:95:LYS:O	2.15	0.65
55:v:45:G:H8	55:v:45:G:O5'	1.79	0.65
9:B:42:C:C6	13:F:65:LEU:HB2	2.32	0.65
18:K:13:ASN:ND2	18:K:97:THR:OG1	2.29	0.65
8:A:1187:G:OP1	25:R:85:LYS:NZ	2.30	0.65
8:A:2474:U:H5''	8:A:2475:C:H5	1.62	0.65
8:A:2728:U:H2'	8:A:2729:G:H8	1.62	0.65
44:k:113:THR:O	51:r:72:ARG:NH1	2.29	0.65
53:t:28:ARG:O	53:t:32:LYS:HG2	1.96	0.65
1:O:3:GLN:NE2	8:A:2016:U:O2	2.28	0.64
6:5:26:VAL:HA	6:5:83:ALA:H	1.62	0.64
34:a:713:G:H2'	34:a:714:G:C8	2.32	0.64
8:A:411:G:OP2	8:A:2406:A:O2'	2.14	0.64
8:A:700:G:O2'	8:A:1632:A:N3	2.25	0.64
8:A:2271:G:H5''	30:W:16:ARG:HE	1.61	0.64
14:G:8:VAL:HB	14:G:49:LEU:HB2	1.79	0.64
34:a:243:A:N7	34:a:281:G:C2	2.65	0.64
34:a:344:A:H5''	34:a:345:C:H5	1.63	0.64
43:j:65:TYR:HB3	47:n:96:LEU:HD11	1.78	0.64
8:A:463:G:N2	8:A:466:A:OP2	2.26	0.64
8:A:2127:G:N1	8:A:2161:C:O2'	2.30	0.64
34:a:1355:G:H2'	34:a:1356:G:C8	2.33	0.64
34:a:1000:A:N1	34:a:1041:G:O6	2.30	0.64
34:a:1073:U:O2	35:b:102:ASN:ND2	2.30	0.64
8:A:1068:G:O6	8:A:1070:A:N6	2.31	0.64
8:A:1722:A:N6	8:A:1738:G:H1'	2.12	0.64
8:A:2006:C:O2'	8:A:2823:A:N3	2.31	0.64
34:a:957:U:H4'	52:s:78:THR:HG23	1.79	0.64
7:6:25:ARG:NE	13:F:97:GLU:OE2	2.28	0.64
8:A:781:A:OP1	10:C:216:ARG:NH2	2.27	0.64
10:C:140:VAL:HG12	10:C:191:LEU:HD23	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:T:9:LYS:O	27:T:12:ARG:NH1	2.31	0.64
34:a:2:A:N3	34:a:613:C:O2'	2.31	0.64
4:3:7:ARG:NH2	8:A:244:A:OP2	2.30	0.64
34:a:401:C:O2'	34:a:621:A:N3	2.27	0.64
34:a:1109:C:OP1	36:c:175:HIS:ND1	2.28	0.64
41:h:45:ILE:HD13	41:h:60:LEU:HD22	1.80	0.64
30:W:55:LEU:HD12	30:W:76:ILE:HD12	1.80	0.64
34:a:208:U:H2'	34:a:209:U:H3'	1.80	0.64
34:a:555:U:H2'	34:a:556:C:C6	2.33	0.64
38:e:12:GLU:OE2	38:e:67:ARG:NH1	2.25	0.64
8:A:575:A:OP2	8:A:2055:C:N4	2.31	0.64
8:A:1597:A:H5''	8:A:1598:A:H5'	1.79	0.64
8:A:1688:U:O2'	8:A:1700:A:N7	2.28	0.64
9:B:1:U:H2'	9:B:2:G:H8	1.62	0.64
34:a:205:A:H3'	34:a:206:C:H6	1.63	0.64
36:c:49:ALA:HB1	36:c:75:VAL:HG12	1.80	0.64
37:d:86:GLY:HA3	37:d:196:GLU:HG3	1.78	0.64
55:v:17:C:H3'	55:v:17(A):U:H2'	1.78	0.64
8:A:279:A:H8	8:A:361:G:N2	1.95	0.63
8:A:1071:G:N2	8:A:1089:A:C6	2.66	0.63
8:A:2312:U:H5'	13:F:84:ILE:HD11	1.80	0.63
34:a:1209:C:O2'	34:a:1214:C:N4	2.31	0.63
46:m:15:VAL:O	46:m:19:THR:HG23	1.98	0.63
8:A:1070:A:N7	8:A:1095:A:O2'	2.22	0.63
13:F:70:ARG:O	13:F:80:GLN:NE2	2.31	0.63
21:N:103:ARG:HD3	21:N:110:MET:HE2	1.79	0.63
34:a:335:C:O2'	34:a:1433:A:N3	2.28	0.63
57:x:647:GLU:H	57:x:651:VAL:HA	1.63	0.63
8:A:2620:C:O2'	11:D:162:ALA:O	2.16	0.63
21:N:24:MET:HG2	21:N:44:LEU:HD22	1.80	0.63
45:l:109:ARG:HB3	45:l:118:VAL:HG21	1.80	0.63
55:v:33:U:O2'	55:v:34:C:O5'	2.16	0.63
40:g:149:ALA:HA	44:k:60:PHE:HB3	1.81	0.63
43:j:10:LEU:HB2	43:j:72:ARG:HB2	1.80	0.63
57:x:335:PHE:CE2	57:x:384:ALA:HB2	2.33	0.63
57:x:544:ILE:HD12	57:x:552:VAL:HG21	1.80	0.63
8:A:877:A:O2'	8:A:900:A:N6	2.31	0.63
8:A:2391:G:O2'	8:A:2429:G:N2	2.31	0.63
8:A:2439:A:N6	8:A:2585:U:HO2'	1.96	0.63
10:C:160:TYR:HB3	10:C:193:GLU:HG2	1.81	0.63
34:a:628:G:H2'	34:a:629:A:C8	2.34	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:664:G:N2	34:a:726:C:O2'	2.24	0.63
34:a:1241:G:H2'	34:a:1242:G:H8	1.64	0.63
36:c:188:ALA:HB3	36:c:195:ILE:HB	1.80	0.63
40:g:21:LEU:HB3	40:g:61:PHE:HE2	1.64	0.63
53:t:65:LEU:HD23	53:t:66:ILE:HG23	1.79	0.63
57:x:627:THR:O	57:x:631:ILE:HG12	1.99	0.63
8:A:488:G:O2'	26:S:49:LYS:NZ	2.21	0.63
9:B:63:C:H2'	9:B:64:G:C8	2.33	0.63
34:a:552:U:H2'	34:a:553:A:H8	1.64	0.63
45:l:49:ARG:HG3	45:l:89:LEU:HD21	1.81	0.63
8:A:310:A:O2'	8:A:311:A:O5'	2.16	0.63
8:A:693:A:O2'	8:A:1353:A:N3	2.30	0.63
8:A:1900:A:H1'	8:A:1970:A:H2'	1.80	0.63
8:A:2816:G:N3	8:A:2883:A:O2'	2.32	0.63
9:B:1:U:H2'	9:B:2:G:C8	2.33	0.63
8:A:793:A:OP2	8:A:2071:A:O2'	2.17	0.63
34:a:131:A:H2'	34:a:132:C:C6	2.33	0.63
34:a:459:A:H2'	34:a:460:A:H8	1.64	0.63
8:A:1054:A:H2'	8:A:1055:G:C8	2.33	0.63
9:B:44:G:H4'	9:B:45:A:OP2	1.99	0.63
10:C:67:LYS:HD3	10:C:150:GLY:HA2	1.81	0.63
50:q:27:PHE:CE2	50:q:36:PHE:HB3	2.34	0.63
8:A:242:G:H1'	8:A:243:U:H5	1.64	0.62
8:A:2134:A:N6	8:A:2156:G:O2'	2.31	0.62
8:A:2684:U:H4'	18:K:76:VAL:HG21	1.81	0.62
13:F:25:MET:O	13:F:29:ARG:NH1	2.32	0.62
23:P:99:LEU:HD11	23:P:109:ILE:HD11	1.81	0.62
8:A:1067:A:N3	8:A:1068:G:N2	2.47	0.62
8:A:2728:U:H2'	8:A:2729:G:C8	2.34	0.62
17:J:114:LEU:HG	17:J:118:MET:HE3	1.80	0.62
28:U:33:VAL:HG13	28:U:66:VAL:HG12	1.80	0.62
34:a:1149:C:H2'	34:a:1150:A:C8	2.34	0.62
36:c:179:ALA:HA	36:c:205:GLU:HA	1.80	0.62
8:A:545:U:H3'	8:A:546:U:C6	2.35	0.62
8:A:720:U:H2'	8:A:721:A:C8	2.34	0.62
8:A:1170:C:H3'	8:A:1171:G:H8	1.63	0.62
34:a:946:A:H2'	34:a:947:G:C8	2.34	0.62
34:a:975:A:N1	34:a:1366:C:O2'	2.27	0.62
34:a:1000:A:C6	34:a:1041:G:O6	2.52	0.62
34:a:1052:U:O2'	34:a:1055:A:OP2	2.16	0.62
45:l:67:GLY:O	45:l:98:ARG:NH1	2.31	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:s:36:ARG:O	52:s:69:LYS:NZ	2.32	0.62
8:A:2118:U:H5	8:A:2148:G:H1'	1.65	0.62
12:E:1:MET:N	12:E:14:VAL:O	2.31	0.62
56:w:25:C:H2'	56:w:26:A:H8	1.63	0.62
56:w:37:MIA:H8	56:w:37:MIA:O5'	1.99	0.62
8:A:859:G:O2'	8:A:916:G:O6	2.12	0.62
8:A:2129:C:O2	8:A:2129:C:H2'	1.99	0.62
14:G:88:LEU:HD11	14:G:95:ALA:HB2	1.80	0.62
34:a:464:U:H2'	34:a:465:A:H2'	1.82	0.62
34:a:703:G:H4'	34:a:704:A:O5'	1.98	0.62
34:a:933:G:O6	40:g:2:ARG:NH2	2.32	0.62
34:a:1167:A:H4'	34:a:1168:U:H5	1.62	0.62
37:d:82:LYS:O	37:d:88:ASN:ND2	2.31	0.62
8:A:32:C:H2'	8:A:33:C:C6	2.35	0.62
54:u:30:GLU:OE1	54:u:34:ARG:NH2	2.32	0.62
34:a:652:U:O2'	34:a:653:U:O5'	2.11	0.62
8:A:870:U:O2	8:A:907:G:O6	2.18	0.62
8:A:1474:U:O4	8:A:1517:G:O6	2.18	0.62
28:U:39:ASN:HB3	28:U:62:ALA:HB3	1.82	0.62
36:c:57:GLU:HB2	36:c:64:ARG:HB3	1.81	0.62
57:x:498:THR:HG22	57:x:499:ASP:H	1.63	0.62
57:x:548:TYR:O	57:x:552:VAL:CG2	2.45	0.62
2:1:43:ARG:NH1	8:A:2370:G:O2'	2.33	0.62
8:A:1095:A:C8	16:I:26:ALA:HB1	2.35	0.62
34:a:210:C:O2'	34:a:211:G:N2	2.32	0.62
34:a:413:G:N2	34:a:428:G:O3'	2.33	0.62
34:a:652:U:HO2'	34:a:653:U:P	2.22	0.62
35:b:116:LEU:HB3	35:b:140:LEU:HD12	1.80	0.62
8:A:624:C:O2'	8:A:657:U:OP1	2.18	0.61
8:A:2468:A:O2'	8:A:2469:A:O5'	2.13	0.61
10:C:106:PRO:HG2	10:C:109:LEU:HB2	1.80	0.61
45:l:84:GLY:O	45:l:95:HIS:ND1	2.26	0.61
57:x:533:TYR:OH	57:x:553:ASP:O	2.16	0.61
2:1:8:ILE:HD13	2:1:24:LYS:HB2	1.82	0.61
8:A:1538:G:H2'	8:A:1539:U:C6	2.35	0.61
30:W:37:ARG:O	30:W:53:HIS:ND1	2.27	0.61
34:a:320:A:H2'	34:a:321:A:O4'	2.01	0.61
34:a:542:G:H5'	37:d:38:GLY:HA2	1.81	0.61
34:a:628:G:H2'	34:a:629:A:H8	1.65	0.61
57:x:529:ASN:C	57:x:529:ASN:HD22	2.08	0.61
57:x:642:LYS:HB3	57:x:654:HIS:HB2	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1069:A:O2'	8:A:1095:A:O2'	2.18	0.61
20:M:56:ALA:HB2	20:M:119:LEU:HD12	1.83	0.61
34:a:246:A:N1	34:a:278:G:O2'	2.32	0.61
34:a:373:A:H1'	34:a:481:G:C8	2.35	0.61
34:a:1064:G:H1'	34:a:1190:G:H21	1.64	0.61
34:a:1326:U:H2'	34:a:1327:C:C6	2.35	0.61
5:4:23:ILE:HD13	8:A:1032:A:H1'	1.83	0.61
8:A:2012:G:P	26:S:11:ARG:HH22	2.24	0.61
34:a:77:A:H2'	34:a:78:A:C8	2.36	0.61
34:a:1287:A:H2	34:a:1353:G:H1'	1.65	0.61
34:a:1491:G:N2	63:a:1648:AM2:OB6	2.27	0.61
8:A:534:U:O2'	24:Q:48:ASP:OD2	2.14	0.61
8:A:1475:G:O2'	8:A:1476:U:H6	1.84	0.61
8:A:1794:A:H2'	8:A:1795:C:H6	1.64	0.61
8:A:1856:U:H2'	8:A:1857:G:O4'	2.00	0.61
26:S:4:ILE:HG13	26:S:106:VAL:HG22	1.81	0.61
34:a:205:A:H3'	34:a:206:C:C6	2.36	0.61
34:a:215:C:O2'	34:a:465:A:N7	2.34	0.61
42:i:5:TYR:HB2	42:i:20:ILE:HD11	1.81	0.61
2:1:5:ARG:NH2	2:1:23:THR:O	2.31	0.61
34:a:321:A:H2'	34:a:322:C:C6	2.35	0.61
34:a:1100:C:N4	34:a:1103:C:OP1	2.34	0.61
34:a:1260:G:OP1	34:a:1284:C:O2'	2.16	0.61
8:A:494:G:H4'	26:S:6:LYS:HB2	1.83	0.61
8:A:2136:G:H2'	8:A:2137:U:C6	2.36	0.61
9:B:91:C:OP2	20:M:18:ARG:NE	2.34	0.61
27:T:34:VAL:HG21	27:T:43:ILE:HD11	1.82	0.61
28:U:16:LYS:NZ	28:U:39:ASN:OD1	2.33	0.61
34:a:879:C:P	45:l:1:ALA:HB2	2.39	0.61
57:x:108:ALA:HB3	57:x:136:ARG:HG2	1.82	0.61
57:x:430:MET:HE1	57:x:455:THR:HG21	1.83	0.61
8:A:1009:A:N3	8:A:1153:C:O2'	2.31	0.61
37:d:8:LEU:HD13	37:d:31:CYS:HB3	1.81	0.61
43:j:52:LEU:O	47:n:81:ARG:NH1	2.32	0.61
49:p:52:LEU:HD12	49:p:57:ILE:HD11	1.81	0.61
57:x:615:ILE:HG13	57:x:658:PRO:HA	1.82	0.61
6:5:10:ALA:HA	6:5:13:ALA:HB3	1.82	0.61
8:A:2246:G:H2'	8:A:2247:A:C8	2.36	0.61
11:D:7:LYS:HE3	11:D:198:GLY:HA2	1.81	0.61
15:H:58:LEU:HA	15:H:61:VAL:HG22	1.83	0.61
34:a:1238:A:H5'	34:a:1336:C:H41	1.66	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:644:A:H2'	8:A:645:C:O4'	2.01	0.61
8:A:2313:C:H5''	13:F:87:LYS:HD3	1.82	0.61
8:A:2627:G:N2	8:A:2777:G:OP2	2.32	0.61
8:A:2722:G:H4'	21:N:4:ARG:HB2	1.83	0.61
34:a:843:U:H3'	34:a:844:G:C8	2.36	0.61
34:a:1088:G:H21	34:a:1167:A:H61	1.48	0.61
57:x:224:SER:O	57:x:227:GLU:HB2	2.01	0.61
8:A:299:A:N3	8:A:319:G:O2'	2.29	0.60
8:A:1052:C:N4	8:A:1107:G:O6	2.34	0.60
8:A:2243:U:H2'	8:A:2244:U:C6	2.36	0.60
34:a:766:A:OP2	34:a:812:G:N2	2.30	0.60
34:a:1004:A:H2'	34:a:1005:A:C4	2.36	0.60
34:a:1086:U:H3	34:a:1099:G:H1	1.48	0.60
38:e:78:GLY:O	38:e:120:HIS:N	2.31	0.60
57:x:61:THR:O	57:x:89:PRO:HB3	2.01	0.60
8:A:1727:C:H2'	8:A:1728:C:C6	2.36	0.60
19:L:93:ASN:HA	19:L:96:LYS:HB2	1.81	0.60
57:x:243:THR:HG22	57:x:246:GLU:HG2	1.82	0.60
17:J:125:TYR:OH	17:J:132:HIS:NE2	2.34	0.60
35:b:25:LYS:HE2	35:b:192:PRO:HD2	1.84	0.60
8:A:1926:U:H2'	8:A:1927:A:H8	1.66	0.60
34:a:769:G:H4'	34:a:1513:A:H4'	1.83	0.60
34:a:944:G:N1	34:a:1338:G:OP2	2.29	0.60
34:a:1054:C:OP2	34:a:1197:A:OP2	2.20	0.60
34:a:1219:A:H2'	34:a:1220:G:H8	1.65	0.60
44:k:87:GLY:O	44:k:92:ARG:NH1	2.34	0.60
8:A:828:U:H2'	8:A:829:A:C8	2.36	0.60
22:O:111:ARG:NH1	22:O:117:PHE:OXT	2.34	0.60
36:c:23:ALA:HB1	36:c:27:GLU:HG2	1.83	0.60
55:v:32:C:N4	55:v:33:U:O4	2.35	0.60
8:A:279:A:H5''	8:A:361:G:H22	1.65	0.60
34:a:928:G:O2'	34:a:1533:C:OP1	2.20	0.60
37:d:10:LEU:HB3	37:d:62:ARG:HD3	1.82	0.60
56:w:26:A:H61	56:w:44:G:H1	1.49	0.60
57:x:647:GLU:HG2	57:x:648:VAL:H	1.67	0.60
1:O:48:TYR:OH	8:A:2883:A:OP1	2.13	0.60
2:1:5:ARG:NH1	8:A:2285:C:OP2	2.32	0.60
8:A:2660:A:H5'	57:x:674:LYS:HG3	1.84	0.60
15:H:137:GLU:OE1	15:H:137:GLU:N	2.35	0.60
34:a:757:U:O2'	34:a:879:C:O2	2.20	0.60
8:A:240:C:OP2	8:A:241:A:O2'	2.20	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:974:G:O2'	8:A:989:G:N2	2.34	0.60
8:A:1771:C:H2'	8:A:1772:A:H8	1.66	0.60
8:A:2638:G:H1'	8:A:2778:A:H61	1.65	0.60
8:A:781:A:C8	10:C:217:PRO:HG2	2.37	0.60
8:A:1171:G:H1	8:A:1177:G:N2	1.99	0.60
8:A:2713:U:H3'	8:A:2714:G:H5''	1.84	0.60
10:C:143:VAL:HB	10:C:153:LEU:HB2	1.84	0.60
34:a:269:C:H2'	34:a:270:A:C8	2.37	0.60
34:a:879:C:P	45:l:1:ALA:CB	2.90	0.60
34:a:1024:G:O2'	34:a:1025:U:OP1	2.18	0.60
43:j:37:ARG:HB2	43:j:75:ASP:HB3	1.84	0.60
53:t:27:MET:HG3	53:t:57:VAL:HG12	1.84	0.60
53:t:34:VAL:HG21	53:t:53:MET:HG2	1.83	0.60
57:x:52:MET:HB2	57:x:55:GLU:HG3	1.83	0.60
57:x:506:LYS:HE3	57:x:588:SER:HB2	1.84	0.60
8:A:818:G:N1	8:A:1188:U:OP2	2.30	0.60
8:A:2530:A:N6	14:G:155:PRO:HG3	2.17	0.60
14:G:174:LYS:HG3	14:G:176:LYS:H	1.67	0.60
30:W:17:LEU:HD21	30:W:37:ARG:HH21	1.67	0.60
34:a:1382:C:H4'	40:g:78:ARG:HH21	1.67	0.60
46:m:21:ILE:HB	46:m:24:VAL:HB	1.83	0.60
57:x:548:TYR:OH	57:x:587:SER:HB3	2.01	0.60
8:A:75:G:H22	8:A:111:A:H2	1.50	0.59
8:A:483:A:O2'	28:U:56:GLY:N	2.34	0.59
8:A:1445:G:O6	8:A:1466:U:C2	2.55	0.59
8:A:1533:C:H2'	8:A:1534:U:O4'	2.02	0.59
35:b:8:MET:HG2	35:b:9:LEU:H	1.67	0.59
40:g:61:PHE:HZ	40:g:100:MET:HE2	1.66	0.59
52:s:62:THR:HG23	52:s:65:MET:HE2	1.84	0.59
7:6:16:CYS:HA	7:6:34:LEU:O	2.02	0.59
8:A:151:C:H2'	8:A:152:A:H8	1.66	0.59
8:A:2079:U:O2'	31:X:22:ASN:OD1	2.19	0.59
8:A:2522:U:O2'	8:A:2647:U:OP1	2.12	0.59
8:A:2595:G:N2	8:A:2598:A:OP2	2.27	0.59
29:V:32:GLY:O	29:V:93:ARG:NH1	2.35	0.59
34:a:137:U:H3	34:a:226:G:H1	1.50	0.59
8:A:512:G:OP1	8:A:1234:U:O2'	2.19	0.59
8:A:1604:C:O2'	8:A:1610:A:N1	2.32	0.59
8:A:2204:G:H4'	10:C:149:LYS:HD3	1.84	0.59
20:M:50:ARG:HD3	20:M:65:ILE:HD11	1.84	0.59
40:g:59:GLU:O	40:g:63:VAL:HG23	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:83:THR:HG23	42:i:97:LEU:HD23	1.83	0.59
43:j:14:ASP:N	43:j:14:ASP:OD1	2.36	0.59
57:x:213:LEU:HA	57:x:216:GLU:HG2	1.84	0.59
8:A:481:G:H1'	8:A:506:G:N2	2.16	0.59
34:a:1000:A:N6	34:a:1041:G:O6	2.35	0.59
8:A:851:C:H2'	8:A:852:U:C6	2.37	0.59
34:a:499:A:H61	34:a:547:A:H5''	1.66	0.59
37:d:84:ASN:OD1	37:d:87:GLU:N	2.28	0.59
57:x:503:LYS:HG3	57:x:516:HIS:HB2	1.82	0.59
1:0:49:ARG:NH1	8:A:2884:U:O4'	2.36	0.59
8:A:555:G:O2'	8:A:556:A:O5'	2.20	0.59
15:H:125:THR:HG23	15:H:146:VAL:HG23	1.84	0.59
34:a:746:A:H2'	34:a:747:A:C8	2.38	0.59
34:a:980:C:O2'	47:n:12:ARG:NH1	2.36	0.59
34:a:1088:G:N2	34:a:1167:A:H61	1.99	0.59
34:a:1432:G:O2'	34:a:1433:A:P	2.60	0.59
8:A:848:C:H2'	8:A:849:A:C8	2.37	0.59
8:A:2391:G:H2'	8:A:2424:C:H41	1.68	0.59
34:a:673:A:O3'	39:f:86:ARG:NH2	2.36	0.59
34:a:695:A:OP1	44:k:53:GLY:HA3	2.02	0.59
47:n:90:ARG:NE	47:n:92:GLU:OE2	2.36	0.59
8:A:813:U:H2'	8:A:814:C:C6	2.38	0.59
8:A:1086:A:OP1	8:A:1087:G:N2	2.35	0.59
8:A:1779:U:H5	8:A:1784:A:N7	2.00	0.59
13:F:60:SER:HB3	13:F:90:LEU:HD21	1.83	0.59
14:G:121:THR:HB	14:G:133:LYS:HG3	1.85	0.59
48:o:22:GLY:O	48:o:27:GLN:NE2	2.28	0.59
8:A:310:A:H5''	28:U:14:THR:HG23	1.84	0.59
8:A:601:C:O2'	12:E:99:LYS:NZ	2.34	0.59
8:A:849:A:H2'	8:A:850:U:H6	1.68	0.59
8:A:1796:U:H2'	8:A:1797:G:H8	1.68	0.59
34:a:67:C:H2'	34:a:68:G:C8	2.37	0.59
34:a:1306:A:H1'	34:a:1332:A:C2	2.37	0.59
56:w:68:C:H2'	56:w:69:G:C8	2.37	0.59
8:A:2297:A:H61	8:A:2319:G:H1'	1.67	0.59
8:A:2528:U:O2	8:A:2535:G:O6	2.20	0.59
14:G:44:HIS:ND1	14:G:48:THR:O	2.36	0.59
34:a:925:G:O6	34:a:1391:U:O2	2.20	0.59
35:b:99:MET:HG3	35:b:106:VAL:HG11	1.83	0.59
55:v:20:H2U:H2'	55:v:21:A:H5'	1.85	0.59
8:A:221:A:H1'	8:A:233:A:H1'	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:95:C:O2'	34:a:96:U:OP1	2.19	0.58
34:a:521:G:HO2'	34:a:536:C:HO2'	1.48	0.58
34:a:719:C:O2'	51:r:38:ILE:O	2.20	0.58
34:a:1144:G:N2	34:a:1146:A:H62	2.00	0.58
35:b:56:LEU:HD13	35:b:216:VAL:HG23	1.82	0.58
7:6:10:GLU:OE1	7:6:10:GLU:N	2.25	0.58
8:A:245:G:O2'	8:A:384:A:N1	2.28	0.58
8:A:373:U:H2'	8:A:374:A:H8	1.68	0.58
8:A:1071:G:N2	8:A:1072:C:O4'	2.35	0.58
8:A:2110:G:O5'	8:A:2145:C:N4	2.36	0.58
36:c:10:ARG:HB3	36:c:14:VAL:HG22	1.85	0.58
46:m:101:THR:HA	46:m:105:ALA:HB2	1.84	0.58
57:x:100:ARG:HH11	57:x:322:LYS:HG3	1.68	0.58
8:A:1925:C:H42	8:A:1929:G:N2	2.00	0.58
8:A:2728:U:O2'	8:A:2729:G:O5'	2.21	0.58
9:B:5:U:H2'	9:B:6:G:H8	1.67	0.58
13:F:45:ASP:HB3	13:F:48:LEU:HB2	1.85	0.58
23:P:33:GLU:OE1	23:P:33:GLU:N	2.37	0.58
34:a:91:U:H2'	34:a:92:U:C6	2.38	0.58
34:a:1126:U:O2'	34:a:1127:G:H5'	2.02	0.58
46:m:26:LYS:HG3	46:m:30:LYS:HE2	1.83	0.58
8:A:191:A:H2'	8:A:192:C:H6	1.68	0.58
8:A:1418:G:N1	8:A:1579:A:OP2	2.27	0.58
8:A:2405:G:O2'	8:A:2411:A:N6	2.36	0.58
8:A:2543:G:H2'	8:A:2544:G:C8	2.38	0.58
20:M:33:LEU:HD13	20:M:117:PHE:HB3	1.83	0.58
20:M:42:THR:HG22	20:M:93:VAL:HG12	1.85	0.58
31:X:15:ASN:HD22	31:X:23:ALA:HB1	1.67	0.58
34:a:926:G:N2	59:z:0:U:OP2	2.25	0.58
34:a:1350:A:O2'	40:g:32:ASP:OD1	2.21	0.58
57:x:32:TYR:CD2	57:x:275:GLN:HG2	2.38	0.58
57:x:616:MET:HA	57:x:684:LEU:H	1.67	0.58
3:2:19:ARG:HG3	8:A:126:A:H5'	1.86	0.58
8:A:1092:C:N3	8:A:1098:A:N6	2.50	0.58
8:A:1490:A:C8	10:C:97:ASP:HB3	2.39	0.58
8:A:2638:G:HO2'	8:A:2639:A:H8	1.50	0.58
10:C:56:GLY:HA2	10:C:212:TRP:HA	1.85	0.58
21:N:77:ALA:O	21:N:81:ASN:HB2	2.02	0.58
34:a:113:G:H2'	34:a:114:U:C6	2.38	0.58
34:a:1033:G:H2'	34:a:1034:G:O4'	2.03	0.58
40:g:4:ARG:HH11	40:g:6:ILE:HD13	1.69	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:778:G:H5'	10:C:47:ARG:HH11	1.69	0.58
8:A:2319:G:O2'	8:A:2320:U:O5'	2.20	0.58
14:G:75:VAL:O	14:G:79:THR:OG1	2.19	0.58
18:K:22:ILE:HG21	18:K:42:THR:HG23	1.86	0.58
34:a:636:U:H2'	34:a:637:C:C6	2.38	0.58
34:a:1304:G:N2	34:a:1332:A:N7	2.52	0.58
48:o:13:GLU:HG2	48:o:83:ARG:HH21	1.67	0.58
56:w:51:C:H2'	56:w:52:G:C8	2.33	0.58
57:x:335:PHE:HE2	57:x:384:ALA:HB2	1.68	0.58
57:x:359:PHE:CD1	57:x:387:LEU:HD21	2.39	0.58
8:A:805:G:N2	8:A:829:A:OP1	2.36	0.58
8:A:994:C:OP1	24:Q:52:ARG:NH2	2.37	0.58
8:A:1926:U:O2'	8:A:1927:A:OP1	2.20	0.58
9:B:40:U:N3	9:B:44:G:OP2	2.23	0.58
34:a:122:G:HO2'	34:a:312:C:HO2'	1.51	0.58
34:a:337:G:H2'	34:a:338:A:C8	2.39	0.58
57:x:267:SER:OG	57:x:270:LYS:HB2	2.04	0.58
8:A:45:G:H5'	8:A:46:G:OP1	2.03	0.58
8:A:197:A:H62	8:A:2430:A:H2'	1.69	0.58
8:A:1248:G:OP1	12:E:44:ARG:NH2	2.31	0.58
34:a:389:A:H3'	34:a:390:U:H6	1.68	0.58
34:a:473:U:H2'	34:a:474:G:H8	1.68	0.58
34:a:1219:A:H2'	34:a:1220:G:C8	2.39	0.58
34:a:1314:C:H2'	34:a:1315:U:C6	2.39	0.58
36:c:82:ASP:HA	36:c:85:LYS:HG2	1.85	0.58
53:t:56:ILE:HD13	53:t:59:ARG:HH12	1.69	0.58
56:w:6:G:O6	56:w:67:C:N4	2.25	0.58
57:x:138:ALA:HB2	57:x:261:ILE:HD11	1.86	0.58
8:A:57:C:H2'	8:A:58:G:O4'	2.04	0.58
8:A:1746:A:H2'	8:A:1747:U:C6	2.39	0.58
8:A:2143:C:H2'	8:A:2144:G:O4'	2.03	0.58
12:E:125:SER:O	12:E:137:LYS:NZ	2.37	0.58
36:c:13:ILE:HG22	36:c:14:VAL:HG13	1.84	0.58
37:d:58:GLN:HB3	37:d:62:ARG:NH1	2.18	0.58
45:l:93:ARG:NH2	45:l:94:TYR:OH	2.37	0.58
50:q:6:THR:OG1	50:q:59:GLU:OE2	2.18	0.58
56:w:5:G:H2'	56:w:6:G:C8	2.38	0.58
57:x:226:ALA:HB2	57:x:242:LEU:HD11	1.86	0.58
57:x:669:LEU:HD21	57:x:677:ALA:HB3	1.84	0.58
11:D:13:ARG:HH11	23:P:55:HIS:HA	1.68	0.58
13:F:10:GLU:OE1	13:F:10:GLU:N	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:F:126:ASN:OD1	13:F:157:THR:N	2.32	0.58
36:c:149:LYS:HD3	36:c:168:ARG:HE	1.68	0.58
41:h:7:ALA:HB2	41:h:76:ARG:HD3	1.85	0.58
45:l:80:LEU:HB3	45:l:97:VAL:HB	1.86	0.58
50:q:30:HIS:N	50:q:35:LYS:O	2.29	0.58
8:A:641:U:O2'	8:A:2350:C:OP1	2.22	0.57
8:A:2144:G:H1'	8:A:2148:G:H22	1.69	0.57
19:L:77:ILE:HD11	19:L:101:ILE:HG23	1.86	0.57
34:a:146:G:N2	34:a:177:G:N7	2.51	0.57
34:a:1323:G:H2'	34:a:1324:A:C8	2.38	0.57
57:x:627:THR:HG22	57:x:651:VAL:HG11	1.84	0.57
8:A:704:G:O2'	8:A:727:A:N6	2.37	0.57
8:A:1412:U:H2'	8:A:1413:A:C8	2.39	0.57
9:B:14:U:OP2	9:B:70:C:O2'	2.20	0.57
14:G:18:ILE:HG22	14:G:23:ILE:HG23	1.86	0.57
34:a:405:U:O4	37:d:1:ALA:N	2.37	0.57
40:g:99:ALA:O	40:g:103:ILE:HG13	2.03	0.57
8:A:1844:C:H4'	10:C:255:LYS:HZ3	1.69	0.57
8:A:2847:U:H2'	8:A:2848:G:O4'	2.04	0.57
13:F:37:MET:HE2	13:F:56:LEU:HG	1.86	0.57
57:x:447:TRP:HZ3	57:x:458:ALA:HB2	1.70	0.57
8:A:181:A:H1'	8:A:435:C:H5'	1.87	0.57
8:A:2076:U:OP2	8:A:2238:G:N2	2.29	0.57
10:C:30:ALA:HA	10:C:33:LEU:HD12	1.87	0.57
12:E:144:GLU:OE1	12:E:144:GLU:N	2.37	0.57
17:J:17:VAL:HG13	17:J:137:PRO:HB2	1.85	0.57
34:a:416:G:O6	34:a:427:U:O2	2.23	0.57
34:a:509:A:N3	34:a:543:U:O2'	2.33	0.57
37:d:3:TYR:CZ	37:d:10:LEU:HD11	2.39	0.57
46:m:12:LYS:HB2	46:m:17:ALA:HB2	1.87	0.57
52:s:50:VAL:HG21	52:s:70:LEU:HB3	1.86	0.57
54:u:12:ASP:HA	54:u:15:LEU:HB3	1.85	0.57
56:w:64:A:H2'	56:w:65:G:C8	2.39	0.57
57:x:506:LYS:HD3	57:x:514:TYR:HA	1.86	0.57
57:x:692:ASN:HA	57:x:695:GLN:HE22	1.69	0.57
8:A:1266:G:O2'	8:A:2012:G:O6	2.14	0.57
8:A:2142:A:N6	8:A:2150:C:O2	2.34	0.57
25:R:61:ALA:HB2	25:R:98:ILE:HD13	1.85	0.57
26:S:20:VAL:HG11	26:S:44:ALA:HA	1.86	0.57
29:V:1:MET:HE3	29:V:62:THR:HG22	1.87	0.57
30:W:33:ILE:HD11	30:W:78:ILE:HD11	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:79:ARG:HD2	42:i:102:PHE:CD1	2.39	0.57
8:A:2468:A:O2'	8:A:2469:A:H8	1.87	0.57
13:F:65:LEU:HD23	13:F:87:LYS:HE2	1.86	0.57
17:J:3:THR:HG22	24:Q:63:ARG:HH12	1.70	0.57
34:a:1423:G:OP2	34:a:1423:G:H8	1.87	0.57
35:b:76:SER:OG	35:b:92:ASN:HB2	2.04	0.57
39:f:73:GLU:O	39:f:77:THR:HG23	2.05	0.57
41:h:10:LEU:HD22	41:h:74:ILE:HD11	1.86	0.57
47:n:52:PRO:O	47:n:55:SER:OG	2.21	0.57
8:A:143:C:H2'	8:A:144:A:H8	1.70	0.57
8:A:534:U:H2'	8:A:535:G:H8	1.70	0.57
8:A:1656:C:H2'	8:A:1657:U:H6	1.70	0.57
12:E:149:ILE:HB	12:E:188:MET:HG2	1.86	0.57
34:a:137:U:O2	34:a:226:G:N2	2.33	0.57
34:a:938:A:N3	34:a:1376:U:O2'	2.31	0.57
34:a:1040:U:O4	34:a:1041:G:O6	2.23	0.57
40:g:44:SER:HB2	40:g:116:ALA:HB1	1.85	0.57
8:A:322:A:H5'	8:A:340:A:H1'	1.86	0.57
8:A:1098:A:H3'	8:A:1099:G:C8	2.40	0.57
8:A:1429:G:H2'	8:A:1430:G:H8	1.69	0.57
8:A:1530:G:H2'	8:A:1531:C:C6	2.40	0.57
8:A:1909:C:H2'	8:A:1910:G:H5''	1.87	0.57
8:A:2105:U:H2'	8:A:2106:U:C6	2.39	0.57
34:a:107:G:OP1	34:a:325:A:N6	2.37	0.57
34:a:1108:G:H2'	34:a:1109:C:H5'	1.85	0.57
37:d:27:ILE:HG13	37:d:33:ILE:HG21	1.87	0.57
13:F:68:LYS:HE3	13:F:83:PRO:HB3	1.87	0.57
34:a:714:G:H2'	34:a:715:A:C8	2.40	0.57
34:a:792:A:O2'	34:a:794:A:N7	2.37	0.57
34:a:1512:U:H2'	34:a:1513:A:C8	2.39	0.57
35:b:68:PHE:HB3	35:b:79:VAL:HG13	1.86	0.57
38:e:150:GLU:N	38:e:150:GLU:OE1	2.38	0.57
43:j:59:LYS:HE2	43:j:62:ARG:NH2	2.20	0.57
53:t:59:ARG:HG2	53:t:63:LYS:NZ	2.20	0.57
8:A:1799:G:O2'	10:C:179:GLU:OE2	2.21	0.57
8:A:1926:U:H2'	8:A:1927:A:C8	2.39	0.57
8:A:2848:G:H1'	8:A:2868:A:H61	1.69	0.57
34:a:999:C:C4	34:a:1000:A:N6	2.72	0.57
37:d:106:PHE:HA	37:d:154:VAL:HG23	1.87	0.57
5:4:2:LYS:NZ	5:4:32:LYS:O	2.34	0.56
8:A:532:A:OP1	8:A:561:G:N2	2.26	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2584:U:H3'	8:A:2585:U:C5'	2.34	0.56
14:G:136:ASP:HB3	14:G:139:VAL:HG22	1.86	0.56
34:a:667:G:H4'	48:o:50:HIS:ND1	2.20	0.56
8:A:488:G:H1'	8:A:492:A:N6	2.20	0.56
8:A:1080:A:N6	8:A:1088:A:O4'	2.38	0.56
13:F:32:LYS:HD3	13:F:91:ARG:NH1	2.20	0.56
19:L:49:GLY:HA3	19:L:58:TYR:HE2	1.69	0.56
20:M:53:MET:HG3	20:M:120:ALA:HB2	1.87	0.56
34:a:178:C:H2'	34:a:179:A:H8	1.70	0.56
34:a:211:G:C4	34:a:212:G:H1'	2.40	0.56
34:a:456:A:N1	34:a:476:U:H5	2.03	0.56
34:a:976:G:OP2	34:a:1358:U:O2'	2.22	0.56
39:f:68:GLN:OE1	39:f:68:GLN:N	2.35	0.56
44:k:124:LYS:HG3	44:k:125:LYS:H	1.70	0.56
5:4:9:LYS:HE3	5:4:16:ILE:HG12	1.87	0.56
7:6:63:ARG:HD2	52:s:4:LEU:HD21	1.86	0.56
8:A:1102:C:H3'	8:A:1103:A:C8	2.32	0.56
8:A:2328:A:H2'	8:A:2329:U:H6	1.67	0.56
8:A:2836:U:H2'	8:A:2837:A:C8	2.41	0.56
31:X:32:LEU:HD22	31:X:49:ARG:HG2	1.87	0.56
32:Y:46:VAL:O	32:Y:50:VAL:HG23	2.03	0.56
34:a:17:U:H2'	34:a:18:C:C6	2.40	0.56
34:a:91:U:C4	34:a:92:U:O4	2.58	0.56
34:a:1306:A:H1'	34:a:1332:A:N1	2.21	0.56
34:a:1320:C:H42	52:s:35:ARG:HB2	1.70	0.56
40:g:67:ASN:OD1	40:g:129:ASN:ND2	2.35	0.56
41:h:28:SER:HB3	41:h:58:LEU:H	1.69	0.56
46:m:93:GLY:HA2	46:m:108:ARG:HH12	1.69	0.56
57:x:491:GLU:HG3	57:x:570:VAL:HG13	1.88	0.56
57:x:539:ILE:HG23	57:x:543:VAL:HG13	1.88	0.56
8:A:555:G:O2'	8:A:556:A:H8	1.87	0.56
8:A:1131:G:N2	8:A:1132:U:O4	2.33	0.56
8:A:1283:G:N1	8:A:1286:A:OP2	2.37	0.56
8:A:2229:U:H2'	8:A:2230:G:H8	1.69	0.56
9:B:66:A:O5'	9:B:108:A:N6	2.38	0.56
13:F:82:TYR:CD1	13:F:83:PRO:HD2	2.41	0.56
34:a:38:G:H22	34:a:397:A:H5'	1.69	0.56
34:a:939:G:H2'	34:a:940:C:C6	2.39	0.56
37:d:169:TRP:HA	37:d:182:LYS:HE2	1.86	0.56
43:j:36:VAL:HG12	43:j:76:ILE:HG12	1.88	0.56
43:j:52:LEU:HB2	47:n:81:ARG:HD2	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:586:A:N1	8:A:809:G:O2'	2.31	0.56
8:A:672:C:OP2	19:L:42:SER:OG	2.17	0.56
8:A:714:U:O2'	8:A:716:A:N7	2.28	0.56
8:A:1079:C:H1'	8:A:1087:G:OP1	2.06	0.56
8:A:1113:U:H2'	8:A:1114:C:C6	2.40	0.56
8:A:1485:U:H2'	8:A:1486:U:C6	2.41	0.56
8:A:2099:U:H2'	8:A:2100:G:C8	2.40	0.56
34:a:34:C:H2'	34:a:35:G:H8	1.70	0.56
34:a:1143:G:H2'	34:a:1144:G:H8	1.71	0.56
34:a:1321:U:O2'	52:s:77:ARG:NH2	2.38	0.56
35:b:114:LYS:O	35:b:118:THR:HG23	2.06	0.56
8:A:1734:G:H2'	8:A:1735:A:H8	1.70	0.56
8:A:2131:U:O2	8:A:2158:A:N6	2.39	0.56
35:b:22:TRP:CZ3	35:b:24:PRO:HA	2.41	0.56
57:x:673:THR:HG23	57:x:676:ARG:H	1.70	0.56
8:A:593:U:H2'	8:A:594:U:C6	2.41	0.56
8:A:849:A:H2'	8:A:850:U:C6	2.39	0.56
8:A:1224:U:H2'	8:A:1225:G:C8	2.40	0.56
8:A:1443:U:H2'	8:A:1444:G:C8	2.41	0.56
8:A:1720:U:H2'	8:A:1721:G:O4'	2.05	0.56
8:A:1724:G:H1	8:A:1736:U:H3	1.53	0.56
34:a:77:A:C6	34:a:78:A:N6	2.73	0.56
34:a:946:A:H2'	34:a:947:G:H8	1.69	0.56
34:a:1054:C:OP2	34:a:1197:A:P	2.64	0.56
50:q:20:ILE:HD11	50:q:74:LEU:HD13	1.88	0.56
55:v:64:G:H2'	55:v:65:C:H6	1.70	0.56
8:A:587:C:H5'	12:E:85:PHE:HE2	1.71	0.56
8:A:1652:A:N6	21:N:11:ASN:OD1	2.39	0.56
12:E:97:ASN:HB2	12:E:100:MET:HG3	1.87	0.56
20:M:29:GLY:N	20:M:104:GLU:OE1	2.23	0.56
34:a:257:G:H2'	34:a:258:G:H8	1.71	0.56
48:o:24:THR:HG22	48:o:65:LEU:HD22	1.87	0.56
8:A:228:C:N3	8:A:417:C:O2'	2.37	0.56
8:A:483:A:HO2'	28:U:56:GLY:H	1.52	0.56
8:A:715:A:O2'	8:A:716:A:OP1	2.22	0.56
8:A:843:G:H2'	8:A:844:A:C8	2.41	0.56
8:A:934:U:H2'	8:A:935:C:C6	2.40	0.56
8:A:2821:A:O2'	8:A:2826:A:N1	2.34	0.56
11:D:181:ASP:HB3	11:D:186:LEU:HB2	1.87	0.56
14:G:82:PHE:HB2	14:G:140:ILE:HD12	1.87	0.56
34:a:1022:A:H2'	34:a:1023:U:H5''	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1309:G:C6	34:a:1329:A:N1	2.74	0.56
40:g:101:ARG:O	40:g:105:GLU:HG2	2.06	0.56
57:x:28:ARG:HB2	57:x:274:VAL:HG11	1.86	0.56
8:A:2175:C:H2'	8:A:2176:A:C8	2.41	0.56
8:A:2638:G:H1'	8:A:2778:A:N6	2.21	0.56
19:L:20:GLY:O	19:L:21:ARG:NH2	2.36	0.56
34:a:727:G:N2	34:a:730:G:OP2	2.30	0.56
34:a:1125:U:H2'	34:a:1126:U:H2'	1.88	0.56
34:a:1243:C:H2'	34:a:1244:G:C8	2.40	0.56
57:x:10:ARG:HH21	57:x:252:ARG:HH12	1.54	0.56
8:A:414:C:H2'	8:A:415:A:C8	2.41	0.55
8:A:1171:G:H22	8:A:1177:G:H22	1.54	0.55
8:A:1386:C:H2'	8:A:1387:A:H8	1.69	0.55
8:A:2262:U:H2'	8:A:2263:C:H6	1.69	0.55
12:E:110:SER:OG	12:E:114:ARG:NH2	2.38	0.55
19:L:57:LEU:HA	19:L:60:ARG:HG2	1.87	0.55
34:a:550:G:H2'	34:a:551:U:C6	2.41	0.55
34:a:1040:U:C4	34:a:1041:G:O6	2.59	0.55
34:a:1326:U:H2'	34:a:1327:C:H6	1.70	0.55
34:a:1412:C:H2'	34:a:1413:A:C8	2.41	0.55
36:c:72:PRO:O	36:c:76:ILE:HG12	2.06	0.55
44:k:63:GLN:HG3	44:k:98:ALA:HB2	1.87	0.55
50:q:58:VAL:HG12	50:q:77:VAL:HG22	1.88	0.55
50:q:67:SER:HB2	50:q:70:LYS:HG3	1.86	0.55
57:x:138:ALA:HB3	57:x:263:VAL:HG12	1.88	0.55
57:x:631:ILE:HD11	57:x:653:ILE:HG12	1.88	0.55
1:O:27:LEU:HD13	1:O:36:LYS:HB3	1.88	0.55
8:A:307:G:N1	8:A:310:A:OP2	2.29	0.55
8:A:1073:A:N6	8:A:1074:G:N3	2.54	0.55
8:A:1093:G:N2	8:A:1097:U:OP2	2.39	0.55
8:A:1203:U:O2'	19:L:4:ASN:OD1	2.20	0.55
8:A:2723:C:OP1	11:D:114:LYS:NZ	2.34	0.55
34:a:421:U:H5''	34:a:422:C:H5	1.72	0.55
57:x:520:ASP:HB3	57:x:576:ARG:HB3	1.88	0.55
7:6:50:ASP:OD1	7:6:51:VAL:N	2.38	0.55
8:A:2637:U:H2'	8:A:2638:G:O4'	2.06	0.55
8:A:2698:U:H2'	8:A:2699:C:C6	2.42	0.55
34:a:86:G:H22	34:a:90:C:H41	1.54	0.55
34:a:166:U:H2'	34:a:167:A:H8	1.71	0.55
34:a:1312:G:H5'	52:s:4:LEU:HD11	1.87	0.55
36:c:33:ASP:HB2	47:n:65:ARG:HD3	1.86	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:2:ARG:NH1	57:x:377:ARG:HB3	2.21	0.55
57:x:72:SER:HA	57:x:80:PRO:HA	1.88	0.55
9:B:104:A:H2'	9:B:105:G:O4'	2.06	0.55
12:E:193:VAL:O	12:E:197:GLU:HG2	2.07	0.55
29:V:86:LEU:HD13	29:V:89:ILE:HD11	1.89	0.55
34:a:96:U:H2'	34:a:97:G:H8	1.71	0.55
34:a:373:A:O2'	34:a:451:A:N7	2.40	0.55
34:a:562:U:H5''	34:a:563:A:C5	2.41	0.55
34:a:945:G:C2	34:a:946:A:C8	2.95	0.55
41:h:34:ALA:O	41:h:38:VAL:HG23	2.06	0.55
56:w:5:G:C2	56:w:68:C:O2	2.60	0.55
57:x:460:MET:O	57:x:670:ARG:NH2	2.37	0.55
8:A:1923:U:H2'	8:A:1924:C:C6	2.42	0.55
36:c:18:ASN:HB3	36:c:39:ARG:HH12	1.70	0.55
41:h:93:LYS:HE3	41:h:116:ARG:HH12	1.71	0.55
42:i:54:VAL:HG11	42:i:93:LEU:HD21	1.88	0.55
57:x:614:PRO:HG2	57:x:659:LEU:HB3	1.89	0.55
8:A:1925:C:N4	8:A:1929:G:H22	2.03	0.55
8:A:2567:G:H2'	8:A:2568:U:C6	2.42	0.55
9:B:2:G:H2'	9:B:3:C:C6	2.42	0.55
15:H:97:ARG:HG2	15:H:112:LYS:HG2	1.88	0.55
20:M:20:LEU:HD13	29:V:81:PRO:HG2	1.89	0.55
34:a:187:G:N2	34:a:190:A:OP2	2.40	0.55
53:t:42:ASP:HB3	53:t:45:ALA:HB3	1.88	0.55
55:v:1:C:O2	55:v:73:A:C2	2.60	0.55
57:x:145:ARG:O	57:x:148:ALA:HB2	2.06	0.55
9:B:39:A:H2'	9:B:40:U:C6	2.41	0.55
20:M:17:ASN:O	20:M:38:ARG:NH1	2.36	0.55
35:b:75:ALA:O	35:b:79:VAL:HG23	2.07	0.55
36:c:6:PRO:HA	36:c:9:ILE:HG22	1.89	0.55
44:k:25:SER:OG	44:k:28:ASN:O	2.23	0.55
57:x:243:THR:HG23	57:x:245:ALA:H	1.71	0.55
57:x:349:LEU:HD22	57:x:399:PRO:HA	1.88	0.55
8:A:2102:G:N2	8:A:2188:U:O2	2.39	0.55
8:A:2291:U:H2'	8:A:2292:U:C6	2.42	0.55
9:B:49:C:OP1	22:O:102:ARG:N	2.31	0.55
12:E:189:THR:HG23	12:E:192:ALA:H	1.72	0.55
14:G:22:VAL:HG23	14:G:35:THR:HG22	1.87	0.55
34:a:932:C:OP1	40:g:3:ARG:HB2	2.06	0.55
34:a:996:A:N1	34:a:1045:C:O2'	2.39	0.55
34:a:1240:U:P	40:g:115:MET:HB2	2.46	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:j:8:ILE:HG23	43:j:100:ILE:HG13	1.89	0.55
52:s:2:ARG:NH2	52:s:9:PHE:HB2	2.22	0.55
57:x:138:ALA:O	57:x:264:THR:HG22	2.07	0.55
4:3:49:VAL:HG11	4:3:57:VAL:HG21	1.89	0.55
8:A:559:G:N2	24:Q:48:ASP:OD1	2.39	0.55
8:A:776:G:C6	8:A:2072:C:OP1	2.59	0.55
8:A:1682:G:H2'	8:A:1683:U:C6	2.42	0.55
8:A:1879:C:H2'	8:A:1880:U:O4'	2.07	0.55
8:A:2771:C:O2'	11:D:173:GLN:NE2	2.32	0.55
9:B:2:G:H2'	9:B:3:C:H6	1.72	0.55
9:B:30:C:H2'	9:B:31:C:H5'	1.89	0.55
19:L:29:LYS:HG2	19:L:30:THR:N	2.20	0.55
47:n:50:THR:HG21	52:s:12:LEU:HD13	1.88	0.55
8:A:499:U:H5''	28:U:42:LYS:HD2	1.88	0.55
8:A:521:U:H2'	8:A:522:A:C8	2.42	0.55
8:A:881:G:H1	8:A:895:U:H3	1.56	0.55
8:A:1531:C:H2'	8:A:1532:A:H5''	1.88	0.55
9:B:63:C:H2'	9:B:64:G:H8	1.72	0.55
16:I:78:LEU:O	16:I:82:ALA:HB3	2.06	0.55
34:a:985:C:H2'	34:a:986:U:C6	2.42	0.55
34:a:1103:C:OP1	35:b:94:ARG:NH1	2.40	0.55
35:b:96:LEU:HB2	35:b:99:MET:HE3	1.87	0.55
52:s:20:LYS:HA	52:s:23:GLU:HG2	1.89	0.55
8:A:532:A:N1	8:A:2020:A:H1'	2.21	0.54
8:A:659:G:H4'	12:E:95:LYS:HD2	1.88	0.54
8:A:674:G:H5''	12:E:71:GLY:N	2.23	0.54
8:A:871:U:H2'	8:A:872:U:C6	2.42	0.54
8:A:2692:G:H1'	8:A:2847:U:H1'	1.88	0.54
23:P:63:ILE:HA	23:P:68:GLY:HA2	1.88	0.54
35:b:103:TRP:NE1	35:b:107:ARG:HD3	2.23	0.54
37:d:121:ALA:HA	37:d:145:ARG:HG2	1.89	0.54
8:A:191:A:H2'	8:A:192:C:C6	2.42	0.54
8:A:1432:G:H2'	8:A:1433:A:C8	2.42	0.54
8:A:2188:U:H2'	8:A:2189:U:O4'	2.07	0.54
8:A:2431:U:O2'	8:A:2433:A:N7	2.33	0.54
10:C:204:LEU:HB3	10:C:209:ALA:HB3	1.89	0.54
11:D:123:LYS:HE2	21:N:1:MET:HE1	1.88	0.54
34:a:890:G:N2	34:a:891:U:O4	2.24	0.54
34:a:971:G:OP2	34:a:1231:G:N2	2.34	0.54
45:l:54:VAL:HG11	45:l:79:ILE:HD11	1.89	0.54
8:A:215:G:O3'	8:A:216:A:H4'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:O:108:ASP:O	22:O:112:GLU:HG2	2.07	0.54
34:a:404:G:P	37:d:114:ARG:HH21	2.30	0.54
34:a:1057:G:H2'	34:a:1058:G:O4'	2.07	0.54
34:a:1491:G:H21	63:a:1648:AM2:HB6	1.51	0.54
35:b:55:GLU:HA	35:b:58:LYS:HD2	1.90	0.54
42:i:29:ILE:N	42:i:32:ARG:O	2.40	0.54
57:x:316:PHE:HA	57:x:340:GLY:HA3	1.90	0.54
3:2:7:PRO:HG3	8:A:1612:C:H5'	1.88	0.54
8:A:613:A:H4'	8:A:614:A:C8	2.42	0.54
8:A:718:A:H2'	8:A:719:C:O4'	2.08	0.54
9:B:28:C:OP1	22:O:31:THR:HG21	2.07	0.54
34:a:1314:C:OP2	52:s:3:SER:OG	2.11	0.54
35:b:56:LEU:HD23	35:b:59:ILE:HD11	1.90	0.54
40:g:49:LEU:HD22	40:g:123:LEU:HD13	1.90	0.54
8:A:71:A:H5''	8:A:73:A:C8	2.42	0.54
8:A:1264:A:H5''	8:A:1265:A:H2'	1.90	0.54
9:B:15:A:H3'	9:B:16:G:H8	1.72	0.54
31:X:70:LEU:HD23	31:X:73:ARG:HH21	1.73	0.54
34:a:473:U:H2'	34:a:474:G:C8	2.43	0.54
34:a:524:G:H2'	34:a:525:C:C6	2.42	0.54
34:a:570:G:H2'	34:a:571:U:C6	2.42	0.54
34:a:999:C:N3	34:a:1042:A:N6	2.56	0.54
36:c:127:VAL:HG11	36:c:135:ARG:NH2	2.23	0.54
56:w:59:U:O2'	56:w:60:U:O5'	2.25	0.54
57:x:436:ARG:HA	57:x:439:LYS:HD2	1.90	0.54
8:A:1090:A:O2'	8:A:1091:G:OP1	2.20	0.54
8:A:1351:C:H2'	8:A:1352:U:O4'	2.08	0.54
8:A:1509:A:H2'	8:A:1510:G:H8	1.71	0.54
8:A:2071:A:H2'	8:A:2072:C:C6	2.42	0.54
8:A:2166:U:H2'	8:A:2167:U:O4'	2.07	0.54
8:A:2547:A:H2'	8:A:2548:U:C6	2.43	0.54
10:C:117:SER:OG	10:C:188:ARG:NH1	2.41	0.54
15:H:127:GLU:HB3	15:H:143:ILE:HG22	1.90	0.54
23:P:90:ALA:HB3	23:P:110:LYS:HG3	1.89	0.54
34:a:1040:U:H2'	34:a:1041:G:C8	2.42	0.54
34:a:1243:C:H2'	34:a:1244:G:H8	1.73	0.54
40:g:4:ARG:NH1	40:g:5:VAL:O	2.40	0.54
1:O:15:ARG:HA	8:A:2046:G:H5'	1.89	0.54
8:A:910:A:N3	8:A:2264:C:O2'	2.35	0.54
8:A:1341:G:OP2	8:A:1394:U:O2'	2.20	0.54
8:A:2804:U:H2'	8:A:2805:C:C6	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2816:G:H5''	21:N:99:LYS:HE3	1.89	0.54
34:a:1013:G:N2	34:a:1015:G:H3'	2.23	0.54
34:a:1319:A:O2'	34:a:1323:G:N7	2.36	0.54
35:b:49:PHE:HD1	35:b:199:ILE:HG12	1.72	0.54
8:A:493:G:H2'	8:A:494:G:O4'	2.08	0.54
8:A:1751:U:H2'	8:A:1752:C:C6	2.43	0.54
8:A:2812:G:H2'	8:A:2813:A:C8	2.42	0.54
34:a:1125:U:O3'	43:j:7:ARG:NH2	2.41	0.54
34:a:1507:A:H2'	34:a:1508:A:C8	2.43	0.54
56:w:69:G:H2'	56:w:70:G:C8	2.43	0.54
8:A:602:A:O2'	8:A:604:G:O2'	2.17	0.54
8:A:1113:U:H2'	8:A:1114:C:H6	1.73	0.54
8:A:1219:U:H2'	8:A:1220:G:C8	2.42	0.54
8:A:2081:U:H2'	8:A:2082:A:H8	1.73	0.54
9:B:36:C:O2'	9:B:37:C:OP1	2.24	0.54
15:H:9:VAL:O	15:H:13:GLY:N	2.40	0.54
33:Z:47:ILE:HD13	33:Z:56:VAL:HG21	1.90	0.54
34:a:722:G:H1	34:a:733:G:H1	1.55	0.54
39:f:22:ILE:HD11	39:f:39:LEU:HD11	1.90	0.54
8:A:483:A:H4'	28:U:45:GLN:O	2.08	0.54
9:B:48:U:H4'	22:O:100:HIS:CD2	2.42	0.54
12:E:23:PHE:HA	12:E:107:SER:OG	2.07	0.54
18:K:80:ASP:HB3	23:P:67:GLU:HB2	1.89	0.54
29:V:42:LEU:HB3	29:V:47:VAL:HG21	1.89	0.54
31:X:6:VAL:HG13	31:X:7:THR:HG23	1.89	0.54
34:a:122:G:O2'	34:a:312:C:O2'	2.24	0.54
34:a:246:A:C2	34:a:282:A:C5	2.96	0.54
34:a:865:A:H2'	34:a:866:C:C6	2.42	0.54
34:a:1474:U:H2'	34:a:1475:G:C8	2.43	0.54
40:g:63:VAL:O	40:g:66:GLU:HG2	2.08	0.54
42:i:115:VAL:HG13	43:j:62:ARG:HH11	1.73	0.54
57:x:10:ARG:NH2	57:x:282:ILE:O	2.41	0.54
57:x:548:TYR:HB2	57:x:551:ALA:HB3	1.89	0.54
1:O:8:THR:HG21	8:A:2020:A:H5'	1.90	0.53
8:A:279:A:H3'	8:A:280:U:H6	1.72	0.53
8:A:532:A:P	8:A:561:G:H21	2.31	0.53
8:A:2327:A:H2'	8:A:2328:A:C8	2.44	0.53
8:A:2659:G:H1'	8:A:2662:A:N6	2.23	0.53
34:a:449:G:H2'	34:a:450:G:C8	2.44	0.53
34:a:596:A:OP2	34:a:597:G:OP2	2.26	0.53
34:a:738:C:OP1	39:f:91:ARG:NH1	2.40	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1351:U:H3	34:a:1371:G:H1	1.54	0.53
35:b:98:GLY:N	35:b:174:GLU:OE2	2.31	0.53
35:b:114:LYS:O	35:b:117:GLU:HG3	2.08	0.53
35:b:186:VAL:HG13	35:b:190:SER:HB2	1.91	0.53
41:h:86:LYS:HB2	41:h:124:ILE:HD11	1.90	0.53
4:3:50:SER:O	4:3:54:LEU:HB2	2.08	0.53
8:A:310:A:HO2'	8:A:311:A:P	2.31	0.53
8:A:641:U:O4	8:A:647:G:O6	2.26	0.53
8:A:2184:A:H2'	8:A:2185:U:C6	2.43	0.53
8:A:2205:A:H2'	8:A:2206:C:H6	1.73	0.53
12:E:184:ASP:OD1	19:L:2:ARG:NH1	2.40	0.53
18:K:41:ILE:HD11	18:K:86:LEU:HD22	1.91	0.53
34:a:166:U:H2'	34:a:167:A:C8	2.44	0.53
34:a:268:U:H2'	34:a:269:C:C6	2.44	0.53
34:a:285:C:H2'	34:a:286:C:C6	2.43	0.53
34:a:593:U:H2'	34:a:594:U:C6	2.43	0.53
34:a:1432:G:HO2'	34:a:1433:A:P	2.31	0.53
35:b:41:ASN:HB3	35:b:44:LYS:HD2	1.90	0.53
38:e:114:LEU:HD13	38:e:122:VAL:HG11	1.89	0.53
42:i:32:ARG:HD2	42:i:37:TYR:HD1	1.73	0.53
57:x:126:TRP:CZ2	57:x:163:ALA:HB2	2.42	0.53
8:A:279:A:H3'	8:A:280:U:C6	2.43	0.53
8:A:813:U:H2'	8:A:814:C:H6	1.73	0.53
8:A:1171:G:H1	8:A:1177:G:H1	1.56	0.53
8:A:1716:U:O4	8:A:1744:A:N7	2.41	0.53
13:F:68:LYS:HA	13:F:83:PRO:HA	1.89	0.53
16:I:14:ALA:HB3	16:I:52:LEU:O	2.08	0.53
34:a:754:C:O5'	48:o:71:ARG:NH2	2.40	0.53
36:c:18:ASN:O	36:c:39:ARG:NH2	2.23	0.53
44:k:75:GLU:H	44:k:75:GLU:CD	2.16	0.53
8:A:2064:C:H2'	8:A:2065:C:C6	2.43	0.53
8:A:2140:G:H2'	8:A:2141:G:O4'	2.08	0.53
13:F:39:VAL:HG12	13:F:41:GLU:H	1.74	0.53
13:F:122:ASP:OD2	13:F:126:ASN:HB2	2.09	0.53
34:a:911:U:OP1	45:l:91:GLY:HA2	2.08	0.53
34:a:1012:A:N6	34:a:1018:G:O6	2.41	0.53
34:a:1291:U:H2'	34:a:1292:G:C8	2.43	0.53
34:a:1500:A:H5''	34:a:1508:A:H5''	1.90	0.53
47:n:66:GLN:HG3	47:n:79:LEU:HD22	1.89	0.53
4:3:53:ASP:O	4:3:57:VAL:HG23	2.09	0.53
8:A:155:A:H2'	8:A:156:A:H8	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:322:A:OP2	12:E:163:ASN:HB2	2.09	0.53
8:A:856:G:H2'	8:A:857:G:C8	2.43	0.53
8:A:934:U:H2'	8:A:935:C:H6	1.73	0.53
8:A:1249:U:OP1	8:A:1250:G:OP1	2.25	0.53
8:A:1292:G:H2'	8:A:1293:C:C6	2.42	0.53
8:A:1311:G:H21	8:A:1603:A:H62	1.55	0.53
8:A:1980:G:O2'	8:A:1982:U:OP2	2.27	0.53
34:a:1382:C:H2'	34:a:1383:C:H6	1.73	0.53
51:r:20:ILE:HD12	51:r:53:GLN:HB2	1.90	0.53
53:t:55:PRO:HB2	53:t:59:ARG:HH21	1.73	0.53
2:1:8:ILE:HG21	2:1:24:LYS:HE3	1.90	0.53
8:A:141:G:O2'	8:A:142:A:O5'	2.25	0.53
8:A:659:G:N2	12:E:30:GLN:OE1	2.35	0.53
8:A:2528:U:C2	8:A:2535:G:O6	2.62	0.53
13:F:152:ASP:OD1	13:F:152:ASP:N	2.41	0.53
15:H:104:THR:HB	15:H:109:GLU:CD	2.33	0.53
20:M:2:LEU:HD12	20:M:2:LEU:H	1.73	0.53
39:f:38:ARG:NH2	39:f:99:ALA:O	2.41	0.53
43:j:15:HIS:O	43:j:18:ILE:HG22	2.09	0.53
48:o:16:ARG:H	48:o:16:ARG:HD2	1.73	0.53
7:6:9:TYR:OH	13:F:101:ARG:NH1	2.40	0.53
8:A:1441:G:H2'	8:A:1442:U:C6	2.44	0.53
13:F:13:LYS:O	13:F:17:THR:HG23	2.09	0.53
14:G:23:ILE:HG21	14:G:71:LEU:HD11	1.91	0.53
34:a:34:C:H2'	34:a:35:G:C8	2.43	0.53
42:i:115:VAL:HG11	43:j:62:ARG:HB2	1.90	0.53
56:w:23:A:H2'	56:w:24:G:C8	2.44	0.53
7:6:61:ASN:HA	7:6:64:PHE:HB3	1.91	0.53
8:A:569:U:O2'	8:A:983:A:N1	2.34	0.53
8:A:1096:A:H61	57:x:627:THR:HG1	1.57	0.53
8:A:1798:U:H5''	10:C:257:ARG:HB2	1.91	0.53
8:A:1964:G:O2'	8:A:1967:C:OP2	2.21	0.53
11:D:39:ASP:N	11:D:39:ASP:OD1	2.38	0.53
21:N:59:SER:OG	21:N:62:ASN:OD1	2.25	0.53
28:U:80:ASP:CG	28:U:95:PHE:HB3	2.34	0.53
30:W:67:VAL:HG23	30:W:74:LYS:HG3	1.89	0.53
34:a:210:C:HO2'	34:a:211:G:N2	2.07	0.53
34:a:390:U:H2'	34:a:391:G:C8	2.44	0.53
34:a:867:G:O2'	34:a:873:A:N1	2.33	0.53
34:a:999:C:H42	34:a:1000:A:N6	2.04	0.53
35:b:107:ARG:O	35:b:111:LYS:HG3	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:322:LYS:HB3	57:x:334:PHE:HB2	1.91	0.53
57:x:444:PHE:HE1	57:x:457:ILE:HG23	1.73	0.53
57:x:454:GLN:NE2	57:x:486:GLN:H	2.07	0.53
8:A:883:G:O2'	8:A:885:C:OP2	2.22	0.53
8:A:993:G:N2	25:R:23:GLU:OE1	2.41	0.53
8:A:1318:U:H2'	8:A:1319:C:C6	2.43	0.53
8:A:1338:G:O2'	8:A:1393:A:N1	2.32	0.53
8:A:2025:C:H2'	8:A:2026:U:C6	2.44	0.53
8:A:2505:G:O2'	8:A:2506:U:O5'	2.26	0.53
8:A:2687:U:H2'	8:A:2688:G:O4'	2.09	0.53
41:h:63:LYS:HE3	41:h:70:VAL:HG21	1.90	0.53
42:i:118:ARG:HB2	42:i:122:ARG:HB3	1.91	0.53
53:t:55:PRO:HB2	53:t:59:ARG:NH2	2.24	0.53
57:x:61:THR:HG22	57:x:63:THR:O	2.09	0.53
8:A:391:A:H1'	8:A:411:G:O4'	2.08	0.53
24:Q:106:THR:O	24:Q:110:GLU:HG2	2.09	0.53
33:Z:22:THR:HG23	33:Z:46:MET:HG2	1.91	0.53
34:a:264:C:O2'	50:q:65:PRO:O	2.27	0.53
34:a:464:U:H3'	34:a:465:A:H5''	1.91	0.53
34:a:472:U:H2'	34:a:473:U:C6	2.44	0.53
34:a:607:A:H2'	34:a:608:A:C8	2.44	0.53
34:a:1397:C:OP2	38:e:28:ARG:NH2	2.42	0.53
34:a:1464:U:H2'	34:a:1465:A:H8	1.74	0.53
57:x:10:ARG:HB2	57:x:83:ILE:HG22	1.91	0.53
7:6:58:ASP:HA	7:6:62:LYS:HD3	1.91	0.52
8:A:2092:U:OP1	8:A:2199:A:O2'	2.22	0.52
17:J:11:VAL:HG11	17:J:50:THR:HA	1.90	0.52
34:a:149:A:H1'	34:a:1446:A:C2	2.44	0.52
34:a:202:G:H2'	34:a:203:G:H8	1.74	0.52
34:a:1164:G:H2'	34:a:1165:U:C6	2.44	0.52
37:d:10:LEU:O	37:d:14:GLU:HG2	2.09	0.52
40:g:134:VAL:HG13	40:g:137:ARG:HH21	1.74	0.52
57:x:447:TRP:CZ3	57:x:458:ALA:HB2	2.43	0.52
8:A:1056:G:N3	8:A:1087:G:N1	2.56	0.52
8:A:1059:G:H1	8:A:1080:A:C1'	2.23	0.52
8:A:1654:A:N1	8:A:2048:G:O2'	2.42	0.52
8:A:2373:G:H2'	8:A:2374:C:C6	2.44	0.52
30:W:46:ASN:HB2	30:W:78:ILE:HB	1.89	0.52
34:a:1296:C:H3'	34:a:1297:G:C8	2.44	0.52
34:a:1313:U:H2'	34:a:1314:C:C6	2.44	0.52
34:a:1318:A:OP1	52:s:6:LYS:NZ	2.35	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1354:U:H2'	34:a:1355:G:H8	1.75	0.52
34:a:1516:2MG:N2	34:a:1519:MA6:OP2	2.36	0.52
39:f:4:TYR:CE2	39:f:71:ILE:HG13	2.44	0.52
39:f:42:TRP:HZ2	39:f:61:LEU:HD22	1.74	0.52
56:w:63:G:H2'	56:w:64:A:C8	2.45	0.52
8:A:2131:U:H4'	8:A:2133:G:H4'	1.91	0.52
8:A:2172:U:O2'	8:A:2174:C:OP2	2.25	0.52
8:A:2618:G:O2'	11:D:155:VAL:O	2.28	0.52
8:A:2645:G:OP2	8:A:2645:G:N2	2.29	0.52
34:a:269:C:H2'	34:a:270:A:H8	1.73	0.52
37:d:167:PRO:HG2	37:d:170:LEU:HD12	1.90	0.52
57:x:494:ARG:HG2	57:x:608:LYS:O	2.10	0.52
8:A:30:G:H2'	8:A:31:C:C6	2.45	0.52
8:A:639:U:H2'	8:A:640:C:C6	2.44	0.52
8:A:1199:U:H1'	24:Q:3:VAL:HG22	1.91	0.52
8:A:2137:U:H2'	8:A:2138:G:C8	2.45	0.52
34:a:352:C:O2	34:a:355:C:N4	2.42	0.52
34:a:637:C:OP1	50:q:3:LYS:NZ	2.40	0.52
46:m:54:THR:OG1	46:m:58:GLU:OE2	2.26	0.52
53:t:34:VAL:HG11	53:t:78:LEU:HD13	1.91	0.52
8:A:214:G:N2	8:A:216:A:N3	2.57	0.52
8:A:922:C:O2'	30:W:25:GLU:OE2	2.22	0.52
8:A:1223:G:N2	8:A:1226:A:OP2	2.27	0.52
8:A:2850:A:N7	8:A:2868:A:O2'	2.36	0.52
34:a:33:A:H2'	34:a:34:C:C6	2.45	0.52
40:g:129:ASN:HD22	40:g:129:ASN:N	2.07	0.52
6:5:44:ALA:O	6:5:48:ALA:HB3	2.10	0.52
8:A:246:C:O2'	8:A:385:C:H4'	2.09	0.52
8:A:2515:C:H2'	8:A:2516:A:H8	1.73	0.52
13:F:32:LYS:HG2	13:F:156:THR:OG1	2.10	0.52
34:a:1013:G:H21	34:a:1016:A:H8	1.58	0.52
34:a:1148:U:H2'	34:a:1149:C:O4'	2.10	0.52
37:d:105:GLY:C	37:d:107:GLY:H	2.18	0.52
55:v:9:G:O2'	55:v:10:G:N7	2.41	0.52
2:1:32:LYS:NZ	2:1:50:GLU:O	2.42	0.52
8:A:621:A:OP2	19:L:99:ASN:ND2	2.42	0.52
8:A:1416:G:H2'	8:A:1417:C:H6	1.74	0.52
8:A:1485:U:H2'	8:A:1486:U:H6	1.75	0.52
8:A:1557:C:H5''	8:A:1558:C:H5''	1.92	0.52
8:A:2314:A:H2'	8:A:2315:G:C8	2.45	0.52
8:A:2861:U:H2'	8:A:2862:G:C8	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:191:G:H2'	34:a:192:A:C8	2.44	0.52
34:a:228:A:H2'	34:a:229:U:O4'	2.10	0.52
34:a:515:G:O2'	34:a:516:PSU:H6	1.92	0.52
34:a:965:U:H5''	34:a:966:2MG:OP1	2.10	0.52
34:a:1180:A:P	42:i:98:ARG:HH22	2.32	0.52
34:a:1300:G:O2'	34:a:1301:U:O5'	2.26	0.52
49:p:57:ILE:HG21	49:p:75:ILE:HD11	1.92	0.52
57:x:100:ARG:HG3	57:x:321:PHE:O	2.10	0.52
8:A:82:U:H2'	8:A:83:A:C8	2.44	0.52
8:A:143:C:H2'	8:A:144:A:C8	2.45	0.52
8:A:151:C:H2'	8:A:152:A:C8	2.45	0.52
8:A:1060:U:H4'	8:A:1062:G:H4'	1.91	0.52
8:A:2297:A:N6	8:A:2319:G:H1'	2.25	0.52
32:Y:14:LEU:HD13	32:Y:57:LEU:HG	1.91	0.52
34:a:256:U:H2'	34:a:257:G:H8	1.75	0.52
56:w:5:G:N2	56:w:68:C:C2	2.63	0.52
3:2:21:ARG:NH1	8:A:466:A:H5'	2.25	0.52
8:A:774:G:O2'	8:A:775:G:O5'	2.26	0.52
8:A:2205:A:H2'	8:A:2206:C:C6	2.45	0.52
8:A:2273:A:H2'	8:A:2274:A:C8	2.45	0.52
8:A:2796:U:O2'	8:A:2797:U:OP1	2.26	0.52
33:Z:57:GLU:N	33:Z:57:GLU:OE1	2.43	0.52
34:a:256:U:H2'	34:a:257:G:C8	2.45	0.52
34:a:908:A:H2'	34:a:909:A:C8	2.45	0.52
34:a:1096:C:H2'	34:a:1097:C:C6	2.44	0.52
35:b:53:LEU:HA	35:b:56:LEU:HD12	1.90	0.52
38:e:106:ALA:HB1	38:e:110:MET:HE3	1.91	0.52
39:f:8:PHE:HA	39:f:87:SER:HA	1.91	0.52
45:l:68:GLY:HA3	45:l:106:VAL:HG21	1.92	0.52
55:v:52:G:C2	55:v:63:G:C2	2.98	0.52
57:x:703:LYS:H	57:x:703:LYS:HD2	1.73	0.52
8:A:742:A:H2'	8:A:743:A:C8	2.45	0.52
8:A:2118:U:C5	8:A:2148:G:H1'	2.44	0.52
13:F:161:SER:OG	13:F:162:ASP:N	2.42	0.52
21:N:35:LYS:HB2	21:N:112:TYR:CE1	2.45	0.52
22:O:89:ASP:HA	22:O:116:GLN:HB2	1.92	0.52
34:a:1112:C:O2	36:c:178:ARG:N	2.32	0.52
34:a:1241:G:H2'	34:a:1242:G:C8	2.45	0.52
43:j:10:LEU:O	43:j:72:ARG:N	2.43	0.52
57:x:493:ILE:HA	57:x:609:PRO:HA	1.91	0.52
8:A:1079:C:H4'	8:A:1079:C:OP2	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1417:C:HO2'	8:A:1587:G:HO2'	1.48	0.51
8:A:2165:C:H42	8:A:2170:A:H62	1.56	0.51
8:A:2247:A:H2'	8:A:2248:C:H6	1.75	0.51
8:A:2514:U:H2'	8:A:2515:C:C6	2.44	0.51
18:K:3:GLN:O	18:K:6:THR:OG1	2.19	0.51
20:M:57:VAL:HG23	20:M:112:LEU:HG	1.91	0.51
23:P:47:ILE:HA	23:P:96:LEU:HB2	1.91	0.51
31:X:15:ASN:ND2	31:X:23:ALA:HB1	2.25	0.51
32:Y:27:ASN:O	32:Y:31:GLN:HG2	2.10	0.51
34:a:96:U:H2'	34:a:97:G:C8	2.44	0.51
34:a:389:A:H5''	34:a:390:U:H5	1.75	0.51
8:A:1003:G:O2'	8:A:1010:A:N1	2.38	0.51
8:A:1638:C:H4'	8:A:2710:C:O2	2.10	0.51
8:A:2106:U:H2'	8:A:2107:G:C8	2.45	0.51
8:A:2658:C:H5''	14:G:157:LYS:HE2	1.93	0.51
20:M:17:ASN:OD1	20:M:97:GLN:NE2	2.43	0.51
34:a:6:G:O6	38:e:102:THR:OG1	2.29	0.51
34:a:235:C:H2'	34:a:236:A:C8	2.45	0.51
34:a:243:A:C8	34:a:281:G:N2	2.79	0.51
34:a:1425:U:H3	34:a:1475:G:H22	1.56	0.51
38:e:132:PRO:HA	38:e:135:VAL:HG12	1.92	0.51
39:f:37:HIS:HB3	39:f:97:THR:HB	1.90	0.51
44:k:86:LYS:HZ2	44:k:114:PRO:HG3	1.76	0.51
4:3:25:HIS:NE2	4:3:47:ALA:HB2	2.25	0.51
8:A:155:A:H2'	8:A:156:A:C8	2.45	0.51
8:A:248:G:H5'	8:A:250:G:N7	2.26	0.51
8:A:414:C:H2'	8:A:415:A:H8	1.74	0.51
8:A:418:C:H2'	8:A:419:U:O4'	2.09	0.51
8:A:891:G:O6	8:A:892:A:N6	2.43	0.51
8:A:2554:U:H2'	8:A:2555:U:C6	2.45	0.51
8:A:2714:G:C2'	8:A:2715:C:H5'	2.40	0.51
34:a:958:A:H1'	34:a:985:C:O2'	2.10	0.51
34:a:1175:G:H2'	34:a:1176:A:C8	2.40	0.51
34:a:1279:G:O2'	34:a:1282:C:N4	2.44	0.51
52:s:2:ARG:HH22	52:s:9:PHE:HB2	1.74	0.51
55:v:1:C:H2'	55:v:2:G:C8	2.45	0.51
55:v:35:A:H2'	55:v:36:U:C6	2.45	0.51
57:x:487:VAL:HB	57:x:489:TYR:CE1	2.46	0.51
57:x:538:ASP:OD2	57:x:576:ARG:NE	2.42	0.51
8:A:5:A:H2'	8:A:6:A:C8	2.46	0.51
8:A:320:A:H4'	8:A:322:A:C8	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:679:C:H2'	8:A:680:C:H6	1.75	0.51
8:A:1664:A:H2	18:K:1:MET:HE1	1.74	0.51
8:A:2279:G:N7	30:W:10:ARG:NH2	2.53	0.51
8:A:2447:G:O6	8:A:2504:PSU:O2	2.27	0.51
15:H:51:ARG:O	15:H:55:GLU:HB3	2.10	0.51
34:a:81:A:C6	34:a:90:C:C5	2.98	0.51
34:a:321:A:H2'	34:a:322:C:H6	1.74	0.51
34:a:1435:G:H2'	34:a:1436:U:C6	2.45	0.51
8:A:281:C:H2'	8:A:282:A:C8	2.45	0.51
8:A:521:U:H2'	8:A:522:A:H8	1.75	0.51
8:A:1327:A:H2'	8:A:1328:A:O4'	2.11	0.51
8:A:1587:G:H2'	8:A:1588:G:H8	1.75	0.51
8:A:1908:C:H2'	8:A:1909:C:C6	2.46	0.51
8:A:2650:U:H2'	8:A:2651:C:C6	2.45	0.51
9:B:106:G:H2'	9:B:107:G:O4'	2.10	0.51
14:G:15:ASP:HB2	14:G:26:LYS:HB3	1.93	0.51
21:N:55:ALA:HA	21:N:80:PHE:CE1	2.45	0.51
34:a:687:A:C2	34:a:704:A:C5	2.98	0.51
34:a:984:C:C4	34:a:1222:G:N2	2.78	0.51
34:a:1000:A:H2'	34:a:1001:C:C6	2.45	0.51
34:a:1171:A:H2'	34:a:1172:C:C6	2.46	0.51
35:b:25:LYS:NZ	35:b:191:ASP:OD2	2.43	0.51
38:e:153:ALA:HB1	38:e:158:LYS:O	2.10	0.51
39:f:36:ILE:HG21	39:f:39:LEU:HD13	1.92	0.51
46:m:6:ILE:HD11	46:m:21:ILE:HG12	1.92	0.51
56:w:23:A:H2'	56:w:24:G:H8	1.75	0.51
57:x:658:PRO:HB2	57:x:661:GLU:HB2	1.92	0.51
8:A:242:G:O2'	8:A:243:U:P	2.69	0.51
8:A:1936:A:H2	8:A:1943:U:N3	2.06	0.51
8:A:2037:A:H2'	8:A:2038:G:C8	2.46	0.51
34:a:1522:U:H2'	34:a:1523:G:H8	1.75	0.51
45:l:98:ARG:HB2	45:l:116:TYR:HA	1.91	0.51
57:x:350:ASN:O	57:x:354:ALA:N	2.43	0.51
57:x:421:PRO:O	57:x:422:LYS:C	2.53	0.51
8:A:488:G:O2'	8:A:491:G:N7	2.39	0.51
8:A:492:A:H2'	8:A:493:G:O4'	2.11	0.51
8:A:1082:U:H3'	8:A:1086:A:N6	2.26	0.51
8:A:1847:G:O2'	8:A:1848:A:H8	1.94	0.51
8:A:1853:A:H2'	8:A:1854:A:C8	2.46	0.51
8:A:2387:U:O4'	30:W:37:ARG:NH1	2.43	0.51
34:a:413:G:H22	34:a:429:U:P	2.33	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1125:U:OP1	43:j:37:ARG:NE	2.34	0.51
34:a:1266:G:N2	34:a:1269:A:OP2	2.38	0.51
52:s:61:VAL:HA	52:s:65:MET:HE3	1.93	0.51
57:x:351:SER:OG	57:x:395:THR:HB	2.10	0.51
57:x:563:GLY:HA2	57:x:568:TYR:N	2.26	0.51
57:x:641:LEU:HA	57:x:655:ALA:HA	1.92	0.51
8:A:776:G:N1	8:A:2072:C:OP1	2.42	0.51
8:A:1916:A:O2'	8:A:1917:PSU:O4'	2.29	0.51
8:A:1917:PSU:N1	8:A:1918:A:N7	2.58	0.51
8:A:2637:U:OP1	11:D:83:ARG:NH2	2.41	0.51
10:C:28:PRO:HG3	10:C:62:ARG:NH2	2.26	0.51
19:L:74:THR:HG23	19:L:107:PHE:HB2	1.93	0.51
34:a:202:G:H1	34:a:215:C:H41	1.59	0.51
34:a:991:U:C4	34:a:1212:U:H1'	2.46	0.51
34:a:1287:A:H2'	34:a:1288:A:C8	2.45	0.51
34:a:1338:G:H2'	34:a:1339:A:C8	2.46	0.51
37:d:93:LEU:O	37:d:99:ASN:ND2	2.43	0.51
45:l:35:ARG:HB3	45:l:53:ARG:HB3	1.93	0.51
55:v:21:A:C6	55:v:46:A:C2	2.99	0.51
8:A:154:U:H2'	8:A:155:A:C8	2.46	0.51
8:A:1775:U:O4	8:A:1789:A:H2	1.93	0.51
8:A:2108:A:N6	8:A:2183:A:N1	2.49	0.51
8:A:2259:U:H2'	8:A:2260:C:H6	1.76	0.51
8:A:2848:G:H1'	8:A:2868:A:N6	2.25	0.51
25:R:1:MET:HE1	25:R:103:ALA:HB2	1.93	0.51
34:a:1227:A:OP1	52:s:79:TYR:OH	2.16	0.51
35:b:70:GLY:HA3	35:b:79:VAL:HG21	1.93	0.51
40:g:39:GLU:HA	40:g:42:VAL:HG12	1.91	0.51
46:m:14:ALA:HA	46:m:44:ILE:HD11	1.93	0.51
57:x:154:VAL:HG13	57:x:165:PRO:HG2	1.92	0.51
8:A:128:C:H2'	8:A:129:C:H6	1.75	0.51
8:A:1061:U:H5'	8:A:1062:G:H5''	1.93	0.51
8:A:1197:G:H2'	8:A:1198:U:H6	1.76	0.51
8:A:1841:U:C2	8:A:1842:G:C8	2.99	0.51
8:A:2696:U:H2'	8:A:2697:G:H8	1.75	0.51
21:N:29:VAL:HG11	21:N:75:ILE:HG23	1.92	0.51
34:a:195:A:H2'	34:a:196:A:C8	2.46	0.51
34:a:1071:C:H2'	34:a:1072:G:H8	1.75	0.51
34:a:1347:G:N2	34:a:1373:G:H2'	2.25	0.51
34:a:1376:U:H2'	34:a:1377:A:C8	2.46	0.51
35:b:26:MET:HE2	35:b:187:ASP:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:190:SER:O	35:b:192:PRO:HD3	2.11	0.51
41:h:31:LEU:O	41:h:35:ILE:HG13	2.10	0.51
46:m:99:GLN:OE1	46:m:99:GLN:N	2.44	0.51
57:x:426:ASP:HA	57:x:429:LYS:HE2	1.92	0.51
8:A:528:A:C2	8:A:2043:C:H4'	2.46	0.50
8:A:1172:C:H2'	8:A:1173:U:O4'	2.12	0.50
8:A:1294:U:O2	21:N:23:ASN:ND2	2.45	0.50
8:A:1771:C:H2'	8:A:1772:A:C8	2.46	0.50
10:C:92:LEU:HB2	10:C:102:TYR:HE1	1.76	0.50
12:E:10:SER:OG	12:E:11:ALA:N	2.44	0.50
14:G:142:GLN:O	14:G:142:GLN:NE2	2.44	0.50
29:V:45:ASP:O	29:V:49:ASN:OD1	2.29	0.50
34:a:855:U:OP2	34:a:871:U:N3	2.34	0.50
34:a:987:G:H2'	34:a:988:G:H8	1.76	0.50
34:a:1167:A:H4'	34:a:1168:U:C5	2.45	0.50
34:a:1222:G:OP1	52:s:77:ARG:NH1	2.44	0.50
34:a:1297:G:O2'	40:g:113:LYS:NZ	2.39	0.50
34:a:1349:A:OP1	42:i:119:LYS:HG3	2.12	0.50
57:x:493:ILE:HG13	57:x:573:MET:HE2	1.93	0.50
1:0:4:GLN:O	8:A:2017:U:H4'	2.12	0.50
8:A:64:A:H2'	8:A:65:U:C6	2.45	0.50
8:A:84:A:N1	8:A:98:G:O2'	2.29	0.50
8:A:1070:A:H2'	8:A:1096:A:OP1	2.11	0.50
23:P:88:ARG:H	23:P:88:ARG:HD3	1.76	0.50
34:a:947:G:H2'	34:a:948:C:C6	2.46	0.50
34:a:948:C:H2'	34:a:949:A:H8	1.76	0.50
34:a:1000:A:C6	34:a:1041:G:C6	2.99	0.50
34:a:1254:A:H2'	34:a:1255:G:H8	1.76	0.50
35:b:49:PHE:O	35:b:53:LEU:HG	2.12	0.50
37:d:25:ARG:NH1	37:d:30:LYS:HG3	2.27	0.50
44:k:20:ALA:HB2	44:k:81:LEU:HD13	1.93	0.50
56:w:9:A:N3	56:w:45:U:H2'	2.26	0.50
8:A:61:C:H5''	32:Y:43:LEU:HD12	1.94	0.50
8:A:458:G:H1'	8:A:459:U:H5	1.75	0.50
8:A:1044:C:H4'	8:A:1047:G:H4'	1.93	0.50
8:A:2586:U:H2'	8:A:2587:A:C8	2.47	0.50
13:F:103:ILE:HG23	13:F:104:THR:HG23	1.93	0.50
15:H:84:ALA:HB2	15:H:90:LEU:HA	1.93	0.50
26:S:24:ILE:HD13	26:S:36:LEU:HD11	1.94	0.50
27:T:25:GLU:HG3	27:T:26:LYS:N	2.25	0.50
31:X:4:CYS:HA	31:X:32:LEU:HD21	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:455:G:H2'	34:a:456:A:C8	2.46	0.50
34:a:1348:U:H2'	34:a:1349:A:H8	1.75	0.50
36:c:86:LEU:HA	36:c:89:VAL:HG12	1.93	0.50
38:e:111:ARG:O	38:e:115:GLU:HG3	2.10	0.50
49:p:70:ARG:O	49:p:74:LEU:HG	2.11	0.50
55:v:44:A:C8	55:v:44:A:C5'	2.86	0.50
56:w:64:A:H2'	56:w:65:G:H8	1.74	0.50
8:A:458:G:O2'	8:A:459:U:P	2.69	0.50
8:A:504:A:O2'	8:A:1235:G:OP1	2.24	0.50
8:A:613:A:H4'	8:A:614:A:N7	2.26	0.50
8:A:1063:G:O2'	16:I:87:SER:O	2.30	0.50
8:A:1141:U:H4'	8:A:1142:A:O4'	2.12	0.50
8:A:2098:U:H2'	8:A:2099:U:O4'	2.11	0.50
11:D:84:LEU:HD22	11:D:88:GLU:HG3	1.92	0.50
11:D:151:THR:HB	11:D:152:PRO:HD3	1.93	0.50
25:R:51:VAL:HG23	25:R:54:VAL:HG13	1.92	0.50
26:S:2:GLU:HG2	26:S:108:SER:HB2	1.93	0.50
34:a:1072:G:H2'	34:a:1073:U:C6	2.47	0.50
34:a:1492:A:N6	45:l:46:SER:OG	2.44	0.50
40:g:68:VAL:HA	40:g:137:ARG:HD3	1.93	0.50
56:w:61:C:H2'	56:w:62:C:H6	1.75	0.50
57:x:294:ILE:HG22	57:x:308:ARG:HB2	1.94	0.50
8:A:176:A:O2'	8:A:177:G:H5'	2.11	0.50
8:A:1198:U:H2'	8:A:1199:U:C6	2.46	0.50
8:A:1274:A:N1	8:A:1644:C:O2'	2.39	0.50
8:A:1582:C:H2'	8:A:1583:A:O4'	2.12	0.50
8:A:1642:G:H2'	8:A:1643:G:O4'	2.11	0.50
8:A:2014:A:H2'	8:A:2015:A:C8	2.47	0.50
12:E:7:ASP:OD1	12:E:7:ASP:N	2.41	0.50
12:E:48:THR:HG23	12:E:86:ALA:HB3	1.94	0.50
27:T:65:GLY:N	27:T:79:ASP:OD1	2.45	0.50
34:a:718:A:C2	51:r:37:LYS:HG2	2.46	0.50
34:a:1063:C:OP2	34:a:1064:G:O2'	2.23	0.50
57:x:139:PHE:HD1	57:x:264:THR:HG23	1.76	0.50
8:A:1539:U:C4	8:A:1540:G:N7	2.80	0.50
8:A:2467:C:O2	20:M:123:LYS:NZ	2.31	0.50
10:C:146:LYS:HB2	10:C:149:LYS:HB2	1.93	0.50
12:E:61:ARG:HH11	12:E:64:GLY:HA3	1.76	0.50
28:U:93:ARG:HB2	28:U:102:ILE:HG12	1.94	0.50
34:a:821:G:H2'	34:a:822:U:C6	2.46	0.50
35:b:103:TRP:HE1	35:b:107:ARG:HD3	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:98:ARG:HD2	42:i:103:VAL:HG21	1.94	0.50
57:x:502:GLY:O	57:x:516:HIS:ND1	2.23	0.50
4:3:44:ARG:NH2	8:A:2349:G:OP1	2.44	0.50
8:A:20:C:H2'	8:A:21:A:H8	1.75	0.50
8:A:936:A:H2'	8:A:937:C:C6	2.46	0.50
8:A:1532:A:C6	8:A:1540:G:C6	3.00	0.50
8:A:1915:3TD:O2'	8:A:1916:A:H5'	2.11	0.50
8:A:1946:U:H2'	8:A:1947:C:C6	2.46	0.50
8:A:2149:U:H3'	8:A:2150:C:C6	2.47	0.50
8:A:2557:G:H2'	8:A:2558:C:C6	2.47	0.50
10:C:259:ASN:OD1	10:C:262:THR:OG1	2.24	0.50
13:F:65:LEU:N	13:F:87:LYS:O	2.41	0.50
34:a:553:A:H2'	34:a:554:A:H8	1.77	0.50
34:a:706:A:H2'	34:a:707:U:O4'	2.11	0.50
34:a:757:U:OP1	34:a:822:U:O2'	2.29	0.50
34:a:1143:G:H2'	34:a:1144:G:C8	2.47	0.50
35:b:217:ALA:HA	35:b:220:VAL:HG12	1.94	0.50
38:e:63:MET:O	38:e:67:ARG:HG3	2.12	0.50
43:j:80:THR:C	43:j:82:LYS:H	2.20	0.50
8:A:69:C:H4'	8:A:75:G:N7	2.26	0.50
9:B:52:A:O2'	9:B:53:A:O5'	2.30	0.50
10:C:154:ALA:HB2	10:C:161:VAL:HG23	1.93	0.50
15:H:40:THR:HG22	15:H:41:LYS:H	1.76	0.50
21:N:54:LEU:HD23	21:N:66:ALA:HB2	1.93	0.50
34:a:35:G:H2'	34:a:36:C:C6	2.47	0.50
34:a:285:C:H2'	34:a:286:C:H6	1.77	0.50
34:a:739:C:OP2	39:f:2:ARG:NH1	2.34	0.50
34:a:1313:U:H2'	34:a:1314:C:H6	1.77	0.50
47:n:8:ARG:O	47:n:12:ARG:HG3	2.12	0.50
52:s:2:ARG:HE	52:s:6:LYS:HD3	1.75	0.50
56:w:4:C:N4	56:w:5:G:O6	2.45	0.50
56:w:58:A:C2	56:w:60:U:H5''	2.46	0.50
1:0:48:TYR:O	1:0:51:ARG:HG2	2.12	0.50
8:A:526:A:O2'	8:A:2043:C:O2	2.28	0.50
8:A:684:G:C2	8:A:794:A:C2	2.99	0.50
8:A:2836:U:H2'	8:A:2837:A:H8	1.77	0.50
9:B:5:U:H2'	9:B:6:G:C8	2.44	0.50
14:G:22:VAL:HA	14:G:35:THR:HA	1.94	0.50
20:M:17:ASN:ND2	20:M:96:ILE:O	2.34	0.50
29:V:21:ARG:HA	29:V:25:LYS:O	2.12	0.50
34:a:637:C:H2'	34:a:638:U:C6	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1001:C:H2'	34:a:1002:G:H8	1.76	0.50
34:a:1028:C:H2'	34:a:1034:G:H21	1.77	0.50
34:a:1060:U:H5''	43:j:53:ILE:HD12	1.94	0.50
34:a:1373:G:N7	42:i:12:LYS:NZ	2.59	0.50
37:d:69:ARG:O	37:d:70:GLN:HB3	2.12	0.50
37:d:169:TRP:HB3	37:d:183:ARG:NH2	2.26	0.50
38:e:155:LYS:HB2	41:h:70:VAL:HG22	1.93	0.50
39:f:6:ILE:HG13	39:f:89:VAL:HG22	1.94	0.50
52:s:72:GLU:OE1	52:s:72:GLU:N	2.45	0.50
57:x:21:GLY:HA3	57:x:141:ASN:HD22	1.77	0.50
59:z:0:U:H2'	59:z:1:A:C8	2.47	0.50
8:A:144:A:H2'	8:A:145:C:C6	2.47	0.49
8:A:636:G:OP1	19:L:129:LYS:HG3	2.12	0.49
8:A:641:U:H3	8:A:647:G:H1	1.59	0.49
8:A:716:A:H2'	8:A:717:C:O4'	2.11	0.49
8:A:1399:C:H2'	8:A:1400:U:C6	2.46	0.49
8:A:1716:U:H3	8:A:1744:A:N6	2.02	0.49
8:A:2408:U:H2'	8:A:2409:G:H8	1.77	0.49
8:A:2646:C:OP2	8:A:2732:G:O2'	2.29	0.49
9:B:49:C:H5''	22:O:68:LYS:HE3	1.93	0.49
34:a:197:A:N1	34:a:220:G:O2'	2.37	0.49
34:a:1524:C:H2'	34:a:1525:G:C8	2.46	0.49
36:c:63:ILE:HG22	36:c:96:VAL:HG23	1.94	0.49
46:m:85:TYR:O	46:m:89:ARG:HG2	2.11	0.49
57:x:342:VAL:HG12	57:x:376:VAL:HG23	1.94	0.49
6:5:42:ARG:O	16:I:119:ALA:HA	2.12	0.49
8:A:376:G:H2'	8:A:377:G:H8	1.77	0.49
8:A:1182:G:H2'	8:A:1183:U:O4'	2.11	0.49
8:A:2469:A:H2'	8:A:2470:G:O4'	2.11	0.49
10:C:229:HIS:HB3	10:C:231:HIS:O	2.13	0.49
31:X:2:ARG:O	31:X:11:PRO:HD3	2.13	0.49
33:Z:23:LEU:HD11	33:Z:53:MET:HE2	1.93	0.49
34:a:4:U:H2'	34:a:5:U:H3'	1.94	0.49
34:a:1005:A:H5'	34:a:1036:A:H2	1.76	0.49
34:a:1107:C:C4	34:a:1108:G:C8	2.99	0.49
34:a:1314:C:H2'	34:a:1315:U:H6	1.75	0.49
34:a:1430:A:H2'	34:a:1431:A:C8	2.47	0.49
35:b:103:TRP:CD1	35:b:107:ARG:HH21	2.30	0.49
38:e:37:VAL:HG11	38:e:113:VAL:HG22	1.94	0.49
39:f:10:VAL:HG11	39:f:21:MET:HE1	1.94	0.49
8:A:19:A:H2'	8:A:20:C:C6	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:64:A:H2'	8:A:65:U:H6	1.77	0.49
8:A:208:C:H2'	8:A:209:C:H6	1.76	0.49
8:A:364:C:H2'	8:A:365:U:C6	2.47	0.49
8:A:443:A:N7	12:E:40:ARG:HG2	2.28	0.49
8:A:1801:A:H5''	8:A:2203:U:H2'	1.95	0.49
9:B:31:C:O2'	9:B:53:A:N1	2.46	0.49
11:D:196:ALA:O	11:D:199:SER:OG	2.24	0.49
31:X:64:ASP:N	31:X:64:ASP:OD1	2.45	0.49
34:a:185:U:H2'	34:a:186:C:C6	2.48	0.49
34:a:600:A:H2'	34:a:601:G:C8	2.47	0.49
34:a:677:U:H3	34:a:713:G:H22	1.60	0.49
34:a:970:C:N4	42:i:129:ARG:OXT	2.46	0.49
34:a:1169:A:OP2	34:a:1169:A:H8	1.94	0.49
34:a:1295:U:O2'	34:a:1302:C:N4	2.44	0.49
34:a:1320:C:H2'	34:a:1321:U:C6	2.47	0.49
48:o:42:PHE:CE1	48:o:52:ARG:HG2	2.47	0.49
48:o:42:PHE:HB3	48:o:52:ARG:HH21	1.78	0.49
51:r:31:TYR:O	51:r:39:VAL:HG12	2.11	0.49
8:A:992:C:OP1	24:Q:46:TYR:OH	2.21	0.49
8:A:1796:U:H2'	8:A:1797:G:C8	2.46	0.49
34:a:384:G:H2'	34:a:385:C:C6	2.46	0.49
34:a:1254:A:H2'	34:a:1255:G:C8	2.47	0.49
34:a:1378:C:H5	34:a:1379:G:C4	2.30	0.49
35:b:165:ALA:HB2	35:b:186:VAL:HG22	1.94	0.49
36:c:78:LYS:HG3	36:c:79:LYS:HG3	1.93	0.49
49:p:8:ARG:CZ	49:p:15:PRO:HB3	2.42	0.49
55:v:63:G:C2	55:v:64:G:N7	2.81	0.49
7:6:36:VAL:HG11	7:6:41:HIS:HD2	1.78	0.49
8:A:534:U:C2	8:A:535:G:N7	2.79	0.49
8:A:1062:G:N2	8:A:1064:C:O2'	2.45	0.49
8:A:1179:G:OP2	8:A:1180:U:H5'	2.13	0.49
8:A:2468:A:HO2'	8:A:2469:A:P	2.35	0.49
34:a:1253:G:O2'	34:a:1254:A:H5'	2.13	0.49
34:a:1291:U:H2'	34:a:1292:G:H8	1.77	0.49
34:a:1465:A:H2'	34:a:1466:C:C6	2.46	0.49
50:q:61:ARG:HD3	50:q:75:VAL:HG22	1.94	0.49
51:r:22:TYR:HA	51:r:28:LEU:HD11	1.94	0.49
8:A:154:U:H2'	8:A:155:A:H8	1.77	0.49
8:A:522:A:H2'	8:A:523:C:C6	2.47	0.49
8:A:946:C:H2'	8:A:947:A:H8	1.77	0.49
8:A:1475:G:HO2'	8:A:1476:U:P	2.34	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1601:G:OP1	27:T:64:LYS:NZ	2.41	0.49
8:A:1672:A:C2	8:A:2582:G:H5'	2.47	0.49
8:A:2342:C:O2'	8:A:2374:C:H5''	2.13	0.49
8:A:2583:G:H2'	8:A:2584:U:O4'	2.12	0.49
9:B:29:A:H2'	9:B:30:C:H6	1.77	0.49
29:V:75:GLN:HB2	29:V:92:VAL:HG13	1.95	0.49
32:Y:44:LYS:O	32:Y:48:ARG:HG2	2.12	0.49
34:a:37:U:OP2	45:l:119:LYS:NZ	2.45	0.49
34:a:323:U:H2'	34:a:324:G:O4'	2.12	0.49
34:a:1064:G:H1'	34:a:1190:G:N2	2.27	0.49
34:a:1347:G:H4'	34:a:1348:U:O5'	2.12	0.49
35:b:77:GLU:HG2	35:b:78:ALA:H	1.76	0.49
41:h:105:THR:OG1	41:h:108:GLY:O	2.28	0.49
54:u:9:GLU:H	54:u:9:GLU:CD	2.20	0.49
8:A:67:U:C2	8:A:68:G:C8	3.00	0.49
8:A:102:U:O4	32:Y:4:LYS:HG3	2.11	0.49
8:A:576:U:H2'	8:A:577:G:C8	2.47	0.49
8:A:1434:A:H2'	8:A:1435:G:C8	2.46	0.49
8:A:1842:G:H2'	8:A:1843:C:C6	2.48	0.49
8:A:1857:G:H1'	8:A:1885:A:N6	2.28	0.49
8:A:2745:C:H2'	8:A:2746:U:C6	2.48	0.49
8:A:2808:G:O2'	8:A:2809:A:H8	1.96	0.49
9:B:79:G:N7	29:V:14:LYS:NZ	2.59	0.49
15:H:65:ALA:HA	15:H:68:ARG:HB3	1.95	0.49
15:H:80:ILE:O	15:H:146:VAL:HA	2.13	0.49
19:L:77:ILE:HD12	19:L:95:LEU:HD22	1.94	0.49
20:M:26:VAL:HB	20:M:133:LYS:HA	1.94	0.49
27:T:15:HIS:HB3	27:T:31:VAL:HG12	1.94	0.49
39:f:10:VAL:CG2	39:f:58:HIS:HB3	2.43	0.49
52:s:50:VAL:HG13	52:s:74:ALA:HB2	1.95	0.49
8:A:1730:C:H1'	8:A:1731:G:C6	2.48	0.49
8:A:2895:G:H2'	8:A:2896:C:C6	2.48	0.49
11:D:184:ARG:NH1	23:P:6:GLN:OE1	2.46	0.49
24:Q:85:ALA:HB2	24:Q:115:ALA:HB2	1.94	0.49
34:a:69:G:HO2'	34:a:70:U:P	2.35	0.49
34:a:389:A:H3'	34:a:390:U:C6	2.47	0.49
34:a:1238:A:N7	34:a:1303:C:H1'	2.27	0.49
34:a:1297:G:H8	34:a:1297:G:OP2	1.96	0.49
35:b:53:LEU:O	35:b:219:THR:HG21	2.12	0.49
39:f:16:GLU:O	39:f:19:PRO:HD2	2.12	0.49
40:g:20:GLU:CD	40:g:20:GLU:H	2.20	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:29:ILE:HG23	57:x:278:LEU:HD11	1.94	0.49
5:4:9:LYS:HG3	5:4:16:ILE:HD11	1.95	0.49
8:A:348:A:H2'	8:A:349:U:O4'	2.13	0.49
8:A:609:A:H2'	8:A:610:C:O4'	2.13	0.49
8:A:1152:C:H2'	8:A:1153:C:H6	1.78	0.49
8:A:1230:A:H2'	8:A:1231:U:O4'	2.12	0.49
8:A:2345:G:N3	8:A:2381:A:H2'	2.28	0.49
8:A:2461:A:H1'	8:A:2492:U:C2	2.48	0.49
9:B:51:G:OP2	22:O:67:ASN:HB3	2.13	0.49
10:C:141:HIS:ND1	10:C:192:GLY:O	2.45	0.49
14:G:85:LYS:HD3	14:G:131:VAL:HG22	1.93	0.49
34:a:56:U:H2'	34:a:57:G:C8	2.48	0.49
34:a:130:A:N6	34:a:233:C:O2	2.46	0.49
34:a:283:U:H2'	34:a:284:C:H6	1.78	0.49
34:a:545:C:H5''	37:d:68:GLU:HG2	1.95	0.49
34:a:648:A:H2'	34:a:649:A:C8	2.48	0.49
34:a:847:G:H2'	34:a:848:C:C6	2.48	0.49
34:a:1250:A:H4'	42:i:68:GLY:HA2	1.95	0.49
34:a:1391:U:H2'	34:a:1392:G:H8	1.77	0.49
35:b:166:ASP:OD1	35:b:167:HIS:N	2.46	0.49
8:A:670:A:OP1	19:L:43:GLY:HA3	2.13	0.49
8:A:685:A:N1	8:A:787:C:H1'	2.28	0.49
8:A:1582:C:O2'	8:A:1585:C:N3	2.37	0.49
8:A:1709:U:H2'	8:A:1710:G:C8	2.47	0.49
8:A:2151:U:H2'	8:A:2152:G:H8	1.77	0.49
34:a:56:U:H2'	34:a:57:G:H8	1.77	0.49
34:a:294:U:OP1	34:a:610:U:O2'	2.29	0.49
34:a:621:A:H2'	34:a:622:A:C8	2.48	0.49
34:a:738:C:OP1	39:f:2:ARG:NH2	2.46	0.49
38:e:104:ILE:O	38:e:111:ARG:NH2	2.46	0.49
56:w:54:5MU:H2'	56:w:55:PSU:C6	2.48	0.49
8:A:499:U:H2'	8:A:500:G:O4'	2.13	0.48
8:A:897:C:H6	8:A:897:C:H5'	1.78	0.48
8:A:1260:A:H2'	8:A:1261:C:O4'	2.13	0.48
8:A:2650:U:H2'	8:A:2651:C:H6	1.78	0.48
34:a:212:G:H2'	34:a:213:G:C8	2.48	0.48
34:a:593:U:H2'	34:a:594:U:H6	1.78	0.48
34:a:826:C:O2	41:h:15:ASN:ND2	2.45	0.48
34:a:937:A:N3	34:a:1378:C:N4	2.60	0.48
35:b:131:LYS:O	35:b:134:LEU:HG	2.13	0.48
50:q:60:ILE:HG22	50:q:74:LEU:HD12	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:8:THR:CG2	8:A:2020:A:H5'	2.42	0.48
8:A:118:A:N3	8:A:178:G:H1'	2.28	0.48
8:A:538:A:H2'	8:A:539:G:O4'	2.13	0.48
8:A:1005:C:H1'	8:A:1012:U:H3	1.78	0.48
8:A:1061:U:H5'	8:A:1062:G:C5'	2.43	0.48
8:A:1066:U:OP1	8:A:1068:G:H5'	2.13	0.48
8:A:1783:A:C2	8:A:2587:A:C5	3.00	0.48
8:A:2182:U:O2'	8:A:2183:A:H5'	2.13	0.48
8:A:2245:U:O2'	8:A:2436:G:OP2	2.28	0.48
9:B:90:C:H5''	20:M:18:ARG:HG2	1.93	0.48
10:C:20:ASN:OD1	10:C:22:GLU:HG2	2.13	0.48
14:G:88:LEU:HD12	14:G:128:THR:HA	1.95	0.48
34:a:803:G:H2'	34:a:804:U:H6	1.77	0.48
34:a:1237:C:O2'	34:a:1300:G:N2	2.42	0.48
38:e:16:ALA:O	38:e:35:LEU:N	2.46	0.48
48:o:14:PHE:HD2	48:o:25:GLU:HG2	1.78	0.48
55:v:70:G:H2'	55:v:71:C:C6	2.48	0.48
57:x:210:MET:SD	57:x:213:LEU:HB3	2.53	0.48
8:A:1538:G:C5	8:A:1539:U:C4	3.01	0.48
8:A:2469:A:H4'	20:M:55:ARG:HD2	1.95	0.48
8:A:2627:G:O2'	8:A:2781:A:N1	2.29	0.48
14:G:92:GLY:HA3	57:x:146:MET:HG3	1.94	0.48
15:H:99:ILE:HD11	15:H:144:VAL:HG21	1.95	0.48
25:R:32:THR:HA	25:R:62:GLU:HA	1.93	0.48
26:S:20:VAL:HG21	26:S:43:ALA:HB3	1.95	0.48
26:S:25:ARG:NH2	26:S:74:ILE:O	2.40	0.48
34:a:9:G:OP2	38:e:125:LYS:NZ	2.28	0.48
34:a:501:C:H1'	34:a:549:C:H1'	1.96	0.48
34:a:674:G:H2'	34:a:675:A:H8	1.77	0.48
38:e:40:ASP:OD1	38:e:41:GLY:N	2.46	0.48
41:h:5:PRO:HB2	41:h:32:LYS:HE3	1.96	0.48
41:h:28:SER:HB3	41:h:58:LEU:N	2.28	0.48
45:l:34:THR:N	45:l:53:ARG:O	2.46	0.48
52:s:34:SER:O	52:s:34:SER:OG	2.27	0.48
57:x:190:ILE:O	57:x:191:ASN:C	2.53	0.48
8:A:764:A:H5''	10:C:208:GLY:HA3	1.95	0.48
8:A:1038:G:H2'	8:A:1039:A:C8	2.48	0.48
8:A:1219:U:H2'	8:A:1220:G:H8	1.77	0.48
8:A:1842:G:H2'	8:A:1843:C:H6	1.78	0.48
8:A:2114:A:H3'	8:A:2115:G:O4'	2.14	0.48
8:A:2170:A:H2'	8:A:2171:A:C4'	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:28:C:H2'	9:B:29:A:C8	2.49	0.48
19:L:2:ARG:HD3	19:L:2:ARG:HA	1.57	0.48
34:a:404:G:O2'	34:a:498:A:N1	2.41	0.48
34:a:410:G:H2'	34:a:429:U:C5	2.48	0.48
34:a:985:C:H2'	34:a:986:U:H6	1.77	0.48
34:a:1530:G:H2'	34:a:1531:A:C8	2.48	0.48
36:c:14:VAL:HG23	36:c:15:LYS:HG2	1.95	0.48
43:j:46:LYS:HE2	43:j:68:ARG:HD3	1.96	0.48
43:j:59:LYS:HE2	43:j:62:ARG:HH21	1.77	0.48
8:A:774:G:N2	8:A:787:C:O2'	2.46	0.48
8:A:980:A:C4	8:A:1136:G:O4'	2.67	0.48
8:A:1096:A:N6	57:x:627:THR:OG1	2.36	0.48
8:A:2342:C:H2'	8:A:2343:U:O4'	2.13	0.48
10:C:66:PHE:HB3	10:C:150:GLY:O	2.14	0.48
15:H:68:ARG:HH11	15:H:70:GLU:HB2	1.79	0.48
34:a:113:G:H1'	34:a:354:G:H5'	1.94	0.48
34:a:639:G:H2'	34:a:640:A:H8	1.79	0.48
34:a:875:U:O2'	41:h:14:ARG:NH1	2.46	0.48
34:a:1304:G:H2'	34:a:1305:G:C4	2.48	0.48
34:a:1402:4OC:H2'	34:a:1403:C:O4'	2.14	0.48
42:i:22:PRO:HA	42:i:60:LEU:HD23	1.95	0.48
42:i:129:ARG:NH2	55:v:33:U:H2'	2.29	0.48
57:x:42:VAL:HG22	64:x:801:GDP:H3'	1.96	0.48
57:x:302:LYS:H	57:x:305:PRO:HG3	1.79	0.48
57:x:611:LEU:HD13	57:x:694:ALA:HB1	1.94	0.48
8:A:203:A:OP2	8:A:204:A:O2'	2.28	0.48
8:A:1323:C:OP1	26:S:98:LYS:NZ	2.31	0.48
8:A:1874:C:H2'	8:A:1875:G:O4'	2.14	0.48
10:C:73:ILE:HG23	10:C:96:LYS:HB2	1.94	0.48
10:C:75:ALA:HB3	10:C:115:ILE:HG13	1.95	0.48
15:H:136:SER:OG	15:H:137:GLU:OE1	2.32	0.48
19:L:110:VAL:HB	19:L:127:VAL:HG22	1.96	0.48
28:U:10:VAL:O	28:U:21:ARG:HG3	2.13	0.48
29:V:31:TYR:OH	29:V:75:GLN:HG2	2.14	0.48
34:a:578:C:O2'	34:a:728:A:N3	2.41	0.48
8:A:491:G:O6	26:S:49:LYS:NZ	2.44	0.48
8:A:612:G:H2'	8:A:614:A:C8	2.48	0.48
8:A:781:A:O2'	8:A:1788:C:O2	2.32	0.48
8:A:1051:G:O6	8:A:1108:U:O2	2.31	0.48
8:A:1474:U:C4	8:A:1517:G:O6	2.66	0.48
8:A:1530:G:H2'	8:A:1531:C:H6	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1590:A:H2'	8:A:1591:A:C8	2.49	0.48
8:A:1710:G:H2'	8:A:1711:A:C8	2.48	0.48
8:A:2822:G:H2'	8:A:2823:A:H5''	1.96	0.48
10:C:90:ILE:HD12	10:C:102:TYR:CG	2.48	0.48
17:J:130:HIS:HD2	17:J:132:HIS:HB2	1.77	0.48
34:a:185:U:H2'	34:a:186:C:H6	1.78	0.48
34:a:592:G:H2'	34:a:593:U:C6	2.49	0.48
34:a:651:C:H2'	34:a:652:U:C6	2.49	0.48
34:a:1117:A:H5''	42:i:105:ARG:NH2	2.29	0.48
34:a:1238:A:H2'	34:a:1239:A:H5'	1.95	0.48
35:b:163:ILE:HD11	35:b:213:LEU:HD21	1.96	0.48
37:d:121:ALA:HB1	37:d:148:ALA:HB1	1.95	0.48
40:g:136:LYS:O	40:g:140:VAL:HG23	2.13	0.48
42:i:51:LEU:HD12	42:i:56:MET:HA	1.96	0.48
55:v:64:G:H2'	55:v:65:C:C6	2.48	0.48
57:x:500:VAL:O	57:x:519:ILE:N	2.41	0.48
7:6:11:GLU:HA	7:6:25:ARG:HA	1.96	0.48
8:A:447:A:OP1	24:Q:4:LYS:NZ	2.47	0.48
8:A:479:A:H1'	8:A:480:A:H5''	1.94	0.48
8:A:2086:U:H2'	8:A:2087:G:C8	2.48	0.48
8:A:2192:U:H2'	8:A:2193:G:H8	1.77	0.48
8:A:2313:C:H2'	8:A:2314:A:H8	1.79	0.48
8:A:2498:OMC:HM22	8:A:2499:C:H5'	1.95	0.48
9:B:29:A:H2'	9:B:30:C:C6	2.49	0.48
21:N:87:PHE:HE1	21:N:116:VAL:HG23	1.78	0.48
28:U:71:ILE:HD13	28:U:102:ILE:HD12	1.96	0.48
29:V:31:TYR:CE2	29:V:90:ASP:HB3	2.48	0.48
34:a:82:G:H8	34:a:82:G:O5'	1.97	0.48
34:a:82:G:N2	34:a:88:U:OP2	2.40	0.48
34:a:85:U:H5'	34:a:86:G:OP1	2.14	0.48
34:a:634:C:H2'	34:a:635:A:H8	1.78	0.48
34:a:781:A:O2'	34:a:1522:U:O2	2.30	0.48
34:a:821:G:H2'	34:a:822:U:H6	1.77	0.48
35:b:77:GLU:HA	35:b:80:LYS:CE	2.42	0.48
49:p:72:ALA:O	49:p:76:LYS:HG2	2.13	0.48
57:x:86:ILE:HG13	57:x:105:LEU:HD21	1.96	0.48
8:A:1019:U:H3	8:A:1142:A:H62	1.62	0.48
8:A:1079:C:H2'	8:A:1081:U:P	2.54	0.48
8:A:1843:C:H2'	8:A:1844:C:C6	2.48	0.48
8:A:1926:U:HO2'	8:A:1927:A:P	2.37	0.48
8:A:2022:U:O2'	8:A:2616:C:O2'	2.18	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2144:G:H2'	8:A:2146:C:O2'	2.12	0.48
8:A:2649:C:H2'	8:A:2650:U:H6	1.78	0.48
12:E:138:LEU:HD13	12:E:167:VAL:HG21	1.95	0.48
28:U:53:GLN:N	28:U:54:PRO:HD3	2.29	0.48
29:V:36:ALA:O	29:V:93:ARG:NH2	2.46	0.48
34:a:270:A:H2'	34:a:271:C:C6	2.49	0.48
35:b:56:LEU:HA	35:b:59:ILE:HG12	1.96	0.48
36:c:171:ARG:HG2	36:c:173:PRO:HD3	1.94	0.48
57:x:492:THR:OG1	57:x:571:VAL:O	2.31	0.48
2:1:16:THR:HG21	2:1:42:VAL:HG13	1.96	0.48
8:A:679:C:H2'	8:A:680:C:C6	2.49	0.48
8:A:1544:A:H2'	8:A:1545:A:C8	2.49	0.48
8:A:1747:U:H2'	8:A:1748:C:C6	2.49	0.48
8:A:1930:G:HO2'	8:A:1968:G:H1	1.61	0.48
8:A:2093:G:N7	8:A:2225:A:H2'	2.29	0.48
8:A:2308:G:H2'	8:A:2310:C:H5	1.79	0.48
8:A:2454:G:C6	8:A:2499:C:N4	2.82	0.48
8:A:2718:G:O2'	8:A:2847:U:OP1	2.27	0.48
9:B:29:A:H2'	9:B:30:C:O4'	2.14	0.48
11:D:13:ARG:NH1	23:P:55:HIS:HA	2.29	0.48
27:T:22:THR:HG23	27:T:26:LYS:HE3	1.96	0.48
34:a:509:A:H2'	34:a:510:A:C8	2.49	0.48
34:a:633:G:H2'	34:a:634:C:C6	2.48	0.48
34:a:718:A:C1'	54:u:34:ARG:HH12	2.27	0.48
34:a:1519:MA6:H5''	34:a:1519:MA6:H8	1.94	0.48
35:b:126:ASP:OD1	35:b:126:ASP:N	2.47	0.48
38:e:149:PRO:HA	38:e:152:VAL:HG22	1.95	0.48
40:g:16:LYS:HE3	42:i:41:GLU:HG2	1.96	0.48
40:g:91:ARG:HB2	40:g:92:PRO:HD2	1.95	0.48
48:o:68:TYR:O	48:o:72:LYS:HB2	2.14	0.48
52:s:10:ILE:HG13	52:s:37:SER:HB2	1.96	0.48
4:3:50:SER:OG	4:3:51:LYS:N	2.47	0.47
8:A:138:U:H2'	8:A:140:C:C5	2.49	0.47
8:A:471:A:OP1	12:E:79:ARG:NH2	2.25	0.47
8:A:773:U:O2	8:A:778:G:O2'	2.27	0.47
8:A:1009:A:OP2	8:A:1010:A:OP2	2.32	0.47
8:A:1049:C:C2	8:A:1050:A:C8	3.02	0.47
8:A:1946:U:H2'	8:A:1947:C:H6	1.78	0.47
8:A:2172:U:H4'	8:A:2174:C:C5	2.49	0.47
10:C:219:VAL:HB	10:C:224:MET:HE2	1.97	0.47
15:H:93:SER:HB3	15:H:123:ARG:NH1	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:35:ARG:HD2	17:J:140:LEU:HD21	1.96	0.47
34:a:3:A:H5''	34:a:4:U:O4'	2.14	0.47
34:a:105:G:H2'	34:a:106:C:C6	2.49	0.47
34:a:455:G:H2'	34:a:456:A:H8	1.79	0.47
34:a:859:G:H2'	34:a:860:A:H8	1.79	0.47
34:a:1060:U:H2'	34:a:1061:G:C8	2.45	0.47
37:d:8:LEU:O	37:d:12:ARG:HG2	2.14	0.47
46:m:54:THR:HA	46:m:57:ASP:OD1	2.14	0.47
47:n:62:ASN:HB3	47:n:73:PHE:CE2	2.48	0.47
57:x:156:GLN:HA	57:x:159:THR:HG22	1.95	0.47
57:x:219:GLN:HA	57:x:222:ILE:HD12	1.96	0.47
8:A:247:G:N2	8:A:250:G:H3'	2.28	0.47
8:A:533:G:H5'	24:Q:23:TYR:CE1	2.50	0.47
8:A:1057:A:N6	8:A:1086:A:H2'	2.29	0.47
8:A:2649:C:H2'	8:A:2650:U:C6	2.50	0.47
14:G:72:ASN:O	14:G:76:ILE:HG12	2.15	0.47
45:l:2:THR:HG22	45:l:6:LEU:HD13	1.96	0.47
47:n:79:LEU:HB2	47:n:84:VAL:HG23	1.95	0.47
57:x:414:VAL:HG23	57:x:415:ILE:HG12	1.95	0.47
8:A:124:G:N2	8:A:126:A:H4'	2.29	0.47
8:A:143:C:O2'	8:A:144:A:H5'	2.14	0.47
8:A:195:A:H5''	19:L:47:ARG:NH2	2.29	0.47
8:A:347:A:H2'	8:A:348:A:C8	2.50	0.47
8:A:811:U:H2'	19:L:21:ARG:HA	1.95	0.47
8:A:1060:U:O2'	8:A:1062:G:OP2	2.32	0.47
8:A:1155:A:H5''	24:Q:54:ARG:HD3	1.97	0.47
8:A:1196:C:C2	8:A:1197:G:C8	3.01	0.47
8:A:2133:G:N7	8:A:2157:G:N2	2.63	0.47
8:A:2194:U:H2'	8:A:2195:U:C6	2.49	0.47
8:A:2845:U:H5''	23:P:51:ASN:O	2.14	0.47
8:A:2861:U:H2'	8:A:2862:G:H8	1.78	0.47
15:H:21:VAL:HG21	15:H:26:ALA:HB2	1.96	0.47
18:K:71:ARG:HH22	18:K:105:ARG:H	1.62	0.47
34:a:182:A:C4	34:a:184:G:C8	3.03	0.47
34:a:189:A:OP2	34:a:189:A:H8	1.97	0.47
34:a:390:U:O3'	49:p:28:ARG:NH1	2.39	0.47
34:a:427:U:P	37:d:12:ARG:HH22	2.37	0.47
34:a:691:G:O2'	34:a:797:C:H4'	2.15	0.47
34:a:1121:U:H2'	34:a:1122:U:H6	1.80	0.47
34:a:1180:A:OP1	42:i:98:ARG:NH2	2.48	0.47
34:a:1352:C:H2'	34:a:1353:G:C8	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:c:141:MET:HG2	36:c:148:ILE:HG22	1.96	0.47
39:f:10:VAL:HG22	39:f:58:HIS:HB3	1.95	0.47
39:f:88:MET:HE3	39:f:90:MET:HE2	1.95	0.47
40:g:23:ALA:O	40:g:27:ASN:OD1	2.32	0.47
44:k:70:ALA:HB1	44:k:104:PHE:HE2	1.79	0.47
44:k:85:VAL:HG21	44:k:92:ARG:HB2	1.96	0.47
57:x:86:ILE:HB	57:x:105:LEU:HD21	1.95	0.47
8:A:128:C:H2'	8:A:129:C:C6	2.50	0.47
8:A:145:C:H2'	8:A:146:A:C8	2.49	0.47
8:A:639:U:H2'	8:A:640:C:H6	1.80	0.47
8:A:851:C:H2'	8:A:852:U:H6	1.78	0.47
8:A:1036:G:H1	8:A:1119:U:H3	1.61	0.47
8:A:2302:U:O2'	13:F:122:ASP:O	2.30	0.47
11:D:16:THR:O	23:P:78:PRO:HG2	2.15	0.47
11:D:35:THR:N	11:D:49:GLN:O	2.47	0.47
13:F:117:SER:OG	13:F:118:ALA:N	2.47	0.47
13:F:141:ASP:C	13:F:143:ASP:H	2.21	0.47
17:J:78:THR:HG23	17:J:83:GLY:O	2.14	0.47
26:S:29:VAL:HB	26:S:55:ILE:HD11	1.96	0.47
32:Y:5:GLU:OE1	32:Y:5:GLU:N	2.30	0.47
34:a:236:A:H2'	34:a:237:G:C8	2.50	0.47
34:a:272:C:H2'	34:a:273:U:C6	2.49	0.47
34:a:836:G:C6	34:a:851:G:C5	3.02	0.47
34:a:1102:A:O2'	35:b:97:GLY:O	2.26	0.47
46:m:68:LEU:HA	46:m:71:GLU:HG2	1.95	0.47
57:x:143:MET:HE3	57:x:143:MET:HB3	1.68	0.47
57:x:533:TYR:HD1	57:x:560:LEU:HD13	1.79	0.47
6:5:26:VAL:HA	6:5:82:ILE:HA	1.96	0.47
8:A:569:U:H2'	8:A:570:G:O4'	2.14	0.47
8:A:1000:A:H2'	8:A:1001:A:C8	2.49	0.47
8:A:1452:G:N2	8:A:1452:G:OP2	2.47	0.47
13:F:122:ASP:OD1	13:F:124:ARG:N	2.48	0.47
14:G:59:ASP:OD1	14:G:59:ASP:N	2.39	0.47
17:J:16:TYR:CD1	17:J:140:LEU:HB2	2.49	0.47
34:a:71:A:C6	34:a:72:A:N7	2.82	0.47
34:a:767:A:H2'	34:a:768:A:O4'	2.14	0.47
34:a:1461:G:H2'	34:a:1462:C:H6	1.79	0.47
40:g:87:PRO:HG2	40:g:148:LYS:HA	1.95	0.47
44:k:55:ARG:O	44:k:58:THR:OG1	2.29	0.47
44:k:118:ASN:H	54:u:34:ARG:HH11	1.61	0.47
57:x:222:ILE:HG23	57:x:247:ILE:HD11	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:444:PHE:CE1	57:x:457:ILE:HG23	2.49	0.47
57:x:617:LYS:HB2	57:x:684:LEU:HD22	1.97	0.47
8:A:5:A:H2'	8:A:6:A:H8	1.80	0.47
8:A:373:U:H2'	8:A:374:A:C8	2.48	0.47
8:A:1411:U:H2'	8:A:1412:U:C6	2.50	0.47
8:A:1416:G:O2'	8:A:1417:C:O5'	2.30	0.47
8:A:1722:A:H62	8:A:1738:G:H1'	1.79	0.47
8:A:1992:G:N2	8:A:1996:C:O2'	2.48	0.47
8:A:2313:C:H2'	8:A:2314:A:C8	2.49	0.47
8:A:2329:U:H2'	8:A:2330:G:C8	2.50	0.47
8:A:2668:G:O2'	14:G:110:HIS:HB3	2.14	0.47
12:E:148:ILE:HG22	12:E:150:THR:HG23	1.96	0.47
27:T:6:ARG:O	27:T:10:VAL:HG23	2.15	0.47
31:X:5:GLN:O	31:X:73:ARG:NH2	2.48	0.47
34:a:214:C:H2'	34:a:215:C:O2	2.15	0.47
34:a:768:A:H4'	34:a:1523:G:N2	2.29	0.47
34:a:908:A:H2'	34:a:909:A:H8	1.78	0.47
44:k:122:PRO:HD2	54:u:37:TYR:HD1	1.79	0.47
48:o:38:LEU:HD12	48:o:42:PHE:CE2	2.49	0.47
51:r:18:GLN:O	51:r:19:GLU:HG3	2.13	0.47
57:x:252:ARG:O	57:x:256:LEU:HG	2.14	0.47
57:x:459:GLY:HA3	57:x:465:LEU:HD21	1.96	0.47
8:A:68:G:N2	8:A:74:A:OP2	2.48	0.47
8:A:177:G:H3'	8:A:178:G:H8	1.80	0.47
8:A:188:G:O2'	8:A:1365:A:N6	2.47	0.47
8:A:882:G:H2'	8:A:883:G:H5'	1.97	0.47
8:A:994:C:O2'	8:A:996:A:OP1	2.32	0.47
8:A:1080:A:N6	8:A:1088:A:O5'	2.47	0.47
8:A:1086:A:H5''	8:A:1087:G:OP1	2.14	0.47
8:A:1187:G:N2	8:A:1188:U:O4	2.47	0.47
8:A:1437:C:H2'	8:A:1438:U:H6	1.80	0.47
8:A:1754:A:O3'	23:P:102:ARG:NH2	2.48	0.47
8:A:1797:G:H2'	8:A:1798:U:O4'	2.14	0.47
8:A:1857:G:H1'	8:A:1885:A:H61	1.79	0.47
8:A:1932:A:H2'	8:A:1933:G:O4'	2.15	0.47
8:A:2106:U:H2'	8:A:2107:G:H8	1.79	0.47
8:A:2266:A:H4'	8:A:2267:A:O5'	2.14	0.47
8:A:2287:A:N7	8:A:2289:G:C8	2.83	0.47
8:A:2635:A:H2'	8:A:2636:C:O4'	2.15	0.47
11:D:47:ALA:HB2	11:D:83:ARG:HD2	1.96	0.47
12:E:146:VAL:HG12	12:E:167:VAL:HG22	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:189:THR:O	12:E:193:VAL:HG23	2.15	0.47
13:F:30:VAL:HA	13:F:157:THR:HA	1.96	0.47
15:H:5:LEU:HD23	15:H:36:ALA:HB2	1.96	0.47
23:P:88:ARG:NH2	23:P:111:GLU:OE1	2.47	0.47
31:X:17:ARG:CZ	31:X:23:ALA:HB2	2.45	0.47
32:Y:4:LYS:O	32:Y:8:GLU:HG2	2.15	0.47
34:a:32:A:H2'	34:a:33:A:C8	2.48	0.47
34:a:203:G:O2'	34:a:204:G:H8	1.98	0.47
34:a:600:A:H2'	34:a:601:G:H8	1.80	0.47
34:a:923:A:H2'	34:a:924:C:C6	2.50	0.47
34:a:1133:G:H2'	34:a:1134:G:O4'	2.14	0.47
34:a:1224:U:O2'	34:a:1322:C:OP1	2.31	0.47
34:a:1310:G:N1	34:a:1328:C:N3	2.63	0.47
35:b:14:HIS:HB2	35:b:202:ASN:HB2	1.96	0.47
35:b:60:ALA:HB2	35:b:220:VAL:HG23	1.97	0.47
38:e:133:ILE:O	38:e:137:ARG:HG3	2.14	0.47
41:h:28:SER:OG	41:h:56:PRO:HB2	2.14	0.47
41:h:52:GLY:HA3	41:h:56:PRO:HA	1.97	0.47
42:i:129:ARG:NH2	55:v:33:U:OP2	2.44	0.47
46:m:8:ILE:HG22	46:m:20:SER:OG	2.15	0.47
55:v:52:G:C2	55:v:53:G:C8	3.02	0.47
56:w:6:G:H2'	56:w:7:A:C8	2.50	0.47
57:x:144:ASP:CG	64:x:801:GDP:HN1	2.23	0.47
57:x:170:LEU:HD21	57:x:217:TRP:HB2	1.96	0.47
8:A:568:U:H1'	8:A:2030:6MZ:H9C1	1.96	0.47
8:A:585:G:N7	24:Q:5:ARG:NH1	2.53	0.47
8:A:686:U:H2'	8:A:788:A:N1	2.29	0.47
8:A:764:A:H5''	10:C:208:GLY:CA	2.45	0.47
8:A:1408:G:O2'	8:A:1409:U:H5'	2.15	0.47
8:A:1709:U:H2'	8:A:1710:G:H8	1.79	0.47
8:A:1843:C:H2'	8:A:1844:C:H6	1.80	0.47
8:A:2241:A:H2'	8:A:2242:G:C8	2.50	0.47
8:A:2320:U:O2'	8:A:2322:A:N7	2.45	0.47
10:C:137:GLY:N	10:C:163:ILE:O	2.37	0.47
11:D:21:SER:H	18:K:73:ASP:HA	1.79	0.47
12:E:145:ASP:HB2	12:E:166:LYS:HE3	1.97	0.47
12:E:151:GLY:N	12:E:192:ALA:HB2	2.30	0.47
18:K:24:VAL:HG12	18:K:30:ARG:HD3	1.97	0.47
34:a:193:C:H2'	34:a:194:C:H6	1.79	0.47
34:a:810:C:C4	34:a:811:C:C5	3.03	0.47
34:a:834:U:H3	34:a:852:G:H1	1.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1120:C:H2'	34:a:1121:U:H6	1.80	0.47
34:a:1206:G:C4	34:a:1207:2MG:C8	3.03	0.47
40:g:111:GLY:HA2	40:g:118:ARG:CD	2.43	0.47
54:u:27:VAL:HG23	54:u:28:LEU:HD12	1.96	0.47
57:x:322:LYS:HE2	57:x:324:ALA:HB2	1.96	0.47
57:x:631:ILE:HG23	57:x:641:LEU:HD21	1.96	0.47
7:6:45:THR:O	7:6:49:ARG:NH1	2.47	0.47
8:A:197:A:N6	8:A:2430:A:H2'	2.30	0.47
8:A:549:G:H2'	8:A:550:C:C6	2.49	0.47
8:A:579:G:O2'	8:A:2019:A:OP1	2.33	0.47
8:A:1309:G:O2'	8:A:1611:C:O2'	2.30	0.47
8:A:2189:U:H2'	8:A:2190:G:C8	2.50	0.47
8:A:2660:A:H1'	57:x:675:GLY:HA3	1.97	0.47
34:a:35:G:C6	34:a:550:G:N1	2.83	0.47
34:a:201:G:H2'	34:a:202:G:C8	2.50	0.47
34:a:563:A:H2'	34:a:567:G:C8	2.50	0.47
34:a:1236:A:H2'	34:a:1237:C:C6	2.50	0.47
34:a:1277:C:H1'	34:a:1282:C:O2	2.15	0.47
45:l:35:ARG:HG2	45:l:37:TYR:CD1	2.50	0.47
46:m:52:ILE:O	46:m:56:ARG:HG3	2.15	0.47
51:r:21:ASP:OD1	51:r:23:LYS:NZ	2.28	0.47
55:v:1:C:H2'	55:v:2:G:H8	1.78	0.47
56:w:69:G:H2'	56:w:70:G:H8	1.80	0.47
57:x:141:ASN:CG	57:x:142:LYS:H	2.23	0.47
57:x:489:TYR:HB2	57:x:568:TYR:CG	2.50	0.47
5:4:4:ARG:NH2	8:A:2477:U:H2'	2.29	0.47
8:A:77:G:O3'	32:Y:7:ARG:NH1	2.43	0.47
8:A:188:G:HO2'	8:A:1365:A:N6	2.12	0.47
8:A:1095:A:N7	16:I:26:ALA:HB1	2.30	0.47
8:A:1172:C:H3'	8:A:1173:U:O2	2.15	0.47
8:A:1738:G:O2'	8:A:1739:A:H8	1.96	0.47
8:A:2680:U:O2'	8:A:2681:C:H5'	2.14	0.47
8:A:2699:C:H2'	8:A:2700:A:C8	2.50	0.47
8:A:2847:U:H3	8:A:2869:G:H1	1.63	0.47
10:C:30:ALA:HB3	10:C:31:PRO:HD3	1.96	0.47
10:C:141:HIS:N	10:C:190:THR:O	2.34	0.47
12:E:155:GLU:O	12:E:159:LEU:HG	2.15	0.47
13:F:31:GLU:N	13:F:156:THR:O	2.47	0.47
34:a:1157:A:N3	34:a:1181:G:C2	2.83	0.47
34:a:1256:A:H62	34:a:1279:G:N2	2.13	0.47
40:g:149:ALA:HA	44:k:60:PHE:CB	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:434:LEU:HD12	57:x:446:VAL:HG21	1.96	0.47
8:A:671:C:H2'	8:A:672:C:C6	2.49	0.46
8:A:1073:A:H4'	8:A:1094:U:C4	2.49	0.46
8:A:1469:A:H2'	8:A:1470:A:C8	2.50	0.46
8:A:1534:U:H2'	8:A:1537:G:O6	2.15	0.46
9:B:19:C:H2'	9:B:20:G:C8	2.50	0.46
9:B:42:C:O2'	13:F:62:GLN:HB3	2.15	0.46
26:S:17:VAL:HA	26:S:43:ALA:HB1	1.96	0.46
34:a:575:G:O2'	34:a:821:G:H5'	2.14	0.46
34:a:601:G:H2'	34:a:602:A:C8	2.50	0.46
34:a:1458:G:OP1	53:t:29:THR:OG1	2.30	0.46
38:e:152:VAL:HG12	38:e:155:LYS:HE3	1.96	0.46
42:i:23:GLY:N	42:i:59:LYS:O	2.39	0.46
45:l:79:ILE:HG22	45:l:103:CYS:HB2	1.96	0.46
56:w:2:C:H2'	56:w:3:C:C6	2.50	0.46
57:x:91:HIS:CE1	65:x:802:PO4:O3	2.68	0.46
57:x:363:VAL:HG12	57:x:372:GLU:HA	1.96	0.46
8:A:39:G:H2'	8:A:40:U:C6	2.50	0.46
8:A:685:A:C8	8:A:773:U:C4	3.03	0.46
8:A:819:A:OP2	8:A:1187:G:N2	2.45	0.46
13:F:122:ASP:OD1	13:F:123:GLY:N	2.48	0.46
15:H:41:LYS:HA	15:H:44:ILE:HG22	1.96	0.46
20:M:69:PRO:HA	20:M:94:ALA:HB2	1.97	0.46
21:N:37:THR:HG22	21:N:39:PRO:HD2	1.97	0.46
34:a:10:A:HO2'	34:a:507:C:HO2'	1.56	0.46
34:a:144:G:H3'	34:a:145:G:H8	1.79	0.46
34:a:663:A:H61	34:a:742:G:H1	1.64	0.46
34:a:715:A:H2'	34:a:716:A:C8	2.50	0.46
34:a:722:G:N2	34:a:733:G:O6	2.46	0.46
55:v:44:A:H3'	55:v:45:G:C8	2.49	0.46
57:x:169:GLN:NE2	57:x:181:VAL:HG21	2.30	0.46
57:x:664:GLY:O	57:x:668:GLN:HG2	2.15	0.46
4:3:24:LYS:HB3	19:L:62:PRO:HG2	1.96	0.46
7:6:54:GLY:O	7:6:58:ASP:N	2.48	0.46
8:A:659:G:H21	12:E:30:GLN:CD	2.21	0.46
8:A:1394:U:H2'	8:A:1395:A:O4'	2.15	0.46
8:A:2405:G:H1'	8:A:2412:A:N6	2.30	0.46
8:A:2428:G:H5''	8:A:2429:G:O5'	2.16	0.46
14:G:120:ILE:HG21	14:G:132:LEU:HD23	1.97	0.46
19:L:96:LYS:HG3	19:L:101:ILE:HD11	1.97	0.46
22:O:40:ILE:HG12	22:O:47:VAL:HG22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:R:25:LEU:HB3	25:R:27:ILE:HG12	1.96	0.46
34:a:160:A:H1'	34:a:344:A:N7	2.31	0.46
34:a:592:G:H2'	34:a:593:U:H6	1.79	0.46
34:a:592:G:C6	34:a:593:U:C4	3.04	0.46
34:a:1003:G:H2'	34:a:1003:G:N3	2.29	0.46
34:a:1401:G:H2'	34:a:1402:4OC:O4'	2.15	0.46
36:c:25:THR:HA	47:n:76:LYS:HE3	1.96	0.46
36:c:58:ARG:HA	36:c:62:SER:O	2.16	0.46
38:e:139:THR:O	38:e:143:LEU:HG	2.15	0.46
45:l:24:GLU:HG3	45:l:58:ASN:HD22	1.79	0.46
46:m:65:GLU:OE1	46:m:65:GLU:N	2.46	0.46
54:u:28:LEU:HA	54:u:31:VAL:HG22	1.97	0.46
57:x:158:LYS:HA	57:x:163:ALA:O	2.16	0.46
57:x:190:ILE:HG22	57:x:201:PHE:HB2	1.97	0.46
1:0:46:GLY:HA3	1:0:54:ILE:HB	1.96	0.46
8:A:26:G:H1'	8:A:514:A:N6	2.30	0.46
8:A:310:A:O2'	8:A:311:A:H2'	2.15	0.46
8:A:1013:C:H2'	8:A:1014:A:H8	1.81	0.46
8:A:1108:U:H3'	8:A:1109:C:C5	2.51	0.46
8:A:1385:A:H1'	8:A:1386:C:C6	2.51	0.46
8:A:2043:C:H1'	8:A:2779:U:O4	2.16	0.46
8:A:2066:C:C2'	8:A:2067:G:H5'	2.45	0.46
8:A:2474:U:H5''	8:A:2475:C:C5	2.49	0.46
8:A:2512:C:H2'	8:A:2513:A:O4'	2.14	0.46
12:E:52:VAL:HB	12:E:74:LYS:HD2	1.97	0.46
16:I:92:PRO:CB	16:I:136:GLY:HA3	2.46	0.46
19:L:27:LEU:HA	19:L:27:LEU:HD13	1.69	0.46
22:O:94:ARG:NH2	22:O:97:PHE:O	2.49	0.46
27:T:3:ARG:HB3	27:T:5:GLU:OE1	2.16	0.46
34:a:21:G:H2'	34:a:22:G:C8	2.51	0.46
34:a:539:A:H2'	34:a:540:G:C8	2.50	0.46
34:a:1229:A:H2'	34:a:1230:C:C6	2.51	0.46
34:a:1263:C:H2'	34:a:1264:U:C6	2.51	0.46
34:a:1428:A:N6	34:a:1472:U:H3	2.11	0.46
42:i:53:LEU:HD21	42:i:96:GLU:HG2	1.97	0.46
47:n:9:GLU:OE2	47:n:61:ARG:N	2.28	0.46
8:A:221:A:C4	8:A:266:G:N7	2.83	0.46
8:A:1171:G:H22	8:A:1177:G:N2	2.13	0.46
8:A:2834:G:H2'	8:A:2879:A:H61	1.80	0.46
9:B:77:U:P	29:V:21:ARG:HH22	2.34	0.46
12:E:41:GLN:NE2	12:E:43:THR:OG1	2.43	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:O:27:VAL:HG21	22:O:40:ILE:HD12	1.98	0.46
34:a:362:G:N1	34:a:365:U:OP2	2.47	0.46
34:a:613:C:H2'	34:a:614:C:C6	2.51	0.46
34:a:1048:G:H4'	47:n:2:LYS:HD2	1.97	0.46
35:b:142:LYS:O	35:b:145:ASN:HB3	2.15	0.46
44:k:53:GLY:H	44:k:56:LYS:HB2	1.80	0.46
51:r:40:PRO:HB2	51:r:42:ARG:HG2	1.97	0.46
56:w:38:A:H2'	56:w:39:PSU:O4'	2.15	0.46
56:w:52:G:C5	56:w:53:G:C8	3.04	0.46
57:x:658:PRO:HB2	57:x:661:GLU:CB	2.45	0.46
8:A:401:A:H2'	8:A:402:A:C8	2.51	0.46
8:A:1067:A:C2'	8:A:1068:G:H21	2.29	0.46
8:A:1357:C:H2'	8:A:1358:G:O4'	2.16	0.46
10:C:170:TYR:HD2	10:C:182:LYS:HD3	1.81	0.46
11:D:9:VAL:HB	11:D:26:VAL:HG23	1.98	0.46
13:F:5:ASP:HA	13:F:8:LYS:HE3	1.97	0.46
14:G:148:ARG:HA	14:G:161:VAL:HB	1.98	0.46
27:T:12:ARG:HG2	27:T:34:VAL:C	2.41	0.46
34:a:146:G:C2	34:a:177:G:N7	2.83	0.46
34:a:736:C:H2'	34:a:737:C:H6	1.81	0.46
34:a:895:G:H2'	34:a:896:C:C6	2.51	0.46
34:a:925:G:C6	34:a:927:G:N7	2.84	0.46
34:a:1037:C:H2'	34:a:1038:C:C6	2.51	0.46
37:d:187:ARG:NH2	37:d:192:ALA:HA	2.31	0.46
55:v:33:U:O2'	55:v:35:A:OP2	2.19	0.46
1:O:9:ARG:NH1	8:A:516:C:OP1	2.48	0.46
3:2:3:ARG:NH2	8:A:752:A:OP1	2.48	0.46
8:A:373:U:O2'	8:A:423:A:N3	2.43	0.46
8:A:885:C:H1'	8:A:891:G:H22	1.79	0.46
8:A:1098:A:H8	8:A:1098:A:OP2	1.99	0.46
8:A:1269:A:H2'	8:A:1270:C:C6	2.51	0.46
8:A:1656:C:H2'	8:A:1657:U:C6	2.50	0.46
8:A:1715:G:O2'	8:A:1716:U:O5'	2.34	0.46
8:A:2157:G:O2'	8:A:2158:A:O4'	2.25	0.46
8:A:2291:U:OP1	8:A:2380:C:O2'	2.28	0.46
8:A:2322:A:N6	8:A:2333:A:H62	2.13	0.46
8:A:2648:G:H2'	8:A:2649:C:C6	2.51	0.46
8:A:2723:C:P	11:D:114:LYS:HZ3	2.38	0.46
10:C:141:HIS:CD2	10:C:194:VAL:HG22	2.50	0.46
29:V:78:GLN:OE1	29:V:88:HIS:HB3	2.15	0.46
34:a:46:G:O2'	34:a:365:U:O2	2.33	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1238:A:C8	34:a:1303:C:H1'	2.51	0.46
37:d:138:PRO:HA	37:d:181:PHE:HD1	1.80	0.46
46:m:72:ILE:O	46:m:76:ILE:HG13	2.15	0.46
55:v:53:G:C5	55:v:54:5MU:C4	3.04	0.46
57:x:472:MET:O	57:x:477:ASN:HA	2.15	0.46
5:4:6:SER:O	5:4:6:SER:OG	2.33	0.46
7:6:37:CYS:SG	7:6:40:CYS:N	2.67	0.46
8:A:196:A:C2	19:L:50:PHE:HZ	2.33	0.46
8:A:268:C:H2'	8:A:269:C:H6	1.81	0.46
8:A:368:A:H2'	8:A:369:U:O4'	2.16	0.46
8:A:607:U:N3	8:A:608:A:N7	2.64	0.46
8:A:1996:C:N4	18:K:32:TYR:OH	2.45	0.46
8:A:2855:C:H2'	8:A:2856:A:H8	1.80	0.46
8:A:2876:G:H4'	23:P:2:ASN:HD21	1.80	0.46
9:B:4:C:H2'	9:B:5:U:C6	2.50	0.46
13:F:37:MET:HE1	13:F:52:ALA:O	2.15	0.46
14:G:104:LEU:HD13	14:G:106:LEU:HD11	1.97	0.46
34:a:390:U:H2'	34:a:391:G:H8	1.79	0.46
34:a:450:G:OP1	34:a:451:A:H3'	2.15	0.46
34:a:789:U:O2'	34:a:791:G:N7	2.43	0.46
34:a:1118:U:H1'	34:a:1179:A:C4	2.51	0.46
34:a:1347:G:H22	34:a:1373:G:H2'	1.81	0.46
34:a:1377:A:N6	40:g:6:ILE:HG21	2.30	0.46
36:c:152:VAL:HG12	36:c:156:LEU:HD21	1.98	0.46
57:x:616:MET:O	57:x:656:GLU:HA	2.16	0.46
59:z:0:U:H2'	59:z:1:A:H8	1.81	0.46
8:A:247:G:H4'	8:A:386:G:C5	2.51	0.46
11:D:129:THR:HG22	11:D:130:GLN:O	2.16	0.46
29:V:35:GLU:OE1	29:V:35:GLU:N	2.27	0.46
34:a:259:G:H2'	34:a:260:G:H8	1.81	0.46
34:a:338:A:H2	34:a:351:G:H22	1.63	0.46
34:a:553:A:H5''	45:l:20:VAL:HG21	1.98	0.46
34:a:707:U:OP1	44:k:86:LYS:HE3	2.16	0.46
34:a:765:G:N2	34:a:813:U:OP2	2.42	0.46
37:d:196:GLU:HA	37:d:199:ILE:HD12	1.98	0.46
42:i:42:THR:O	42:i:46:VAL:HG23	2.16	0.46
42:i:48:ARG:HG3	42:i:56:MET:SD	2.56	0.46
57:x:492:THR:HG22	57:x:493:ILE:O	2.16	0.46
6:5:130:PRO:O	6:5:131:THR:C	2.59	0.46
7:6:2:LYS:HE3	9:B:40:U:H2'	1.97	0.46
7:6:42:PRO:O	7:6:46:GLY:C	2.58	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:574:A:N6	8:A:2034:U:OP1	2.47	0.46
8:A:648:G:H5''	8:A:2352:A:H5''	1.98	0.46
8:A:714:U:OP2	48:o:88:ARG:HD2	2.16	0.46
8:A:1730:C:H1'	8:A:1731:G:N1	2.31	0.46
8:A:1734:G:C2	8:A:1735:A:C5	3.04	0.46
8:A:2405:G:HO2'	8:A:2406:A:P	2.38	0.46
8:A:2455:G:C4	8:A:2456:C:C5	3.04	0.46
10:C:231:HIS:HA	10:C:241:LYS:HE3	1.98	0.46
25:R:51:VAL:HB	25:R:52:PRO:HD2	1.97	0.46
25:R:77:PHE:HD1	25:R:84:ARG:HB3	1.81	0.46
28:U:37:GLY:HA2	28:U:40:LEU:HD21	1.97	0.46
29:V:80:HIS:CD2	29:V:81:PRO:HD2	2.51	0.46
34:a:223:A:H2'	34:a:224:U:C6	2.50	0.46
34:a:745:G:H2'	34:a:746:A:C8	2.51	0.46
34:a:1037:C:H2'	34:a:1038:C:H6	1.81	0.46
34:a:1225:A:H1'	52:s:77:ARG:HD2	1.97	0.46
34:a:1418:A:H2'	34:a:1419:G:O4'	2.16	0.46
37:d:8:LEU:HD21	37:d:21:LYS:HG3	1.98	0.46
44:k:118:ASN:N	54:u:34:ARG:HH11	2.14	0.46
56:w:38:A:C6	56:w:39:PSU:C6	3.04	0.46
57:x:100:ARG:HG2	57:x:101:SER:N	2.28	0.46
5:4:7:VAL:HG22	5:4:38:GLY:HA2	1.98	0.45
8:A:954:G:O2'	8:A:2274:A:N1	2.38	0.45
8:A:1060:U:H1'	8:A:1088:A:C2	2.51	0.45
8:A:1361:G:H2'	8:A:1362:C:C6	2.50	0.45
8:A:2131:U:H5''	8:A:2132:U:C5	2.51	0.45
8:A:2140:G:H1	8:A:2151:U:H3	1.64	0.45
8:A:2250:G:OP1	8:A:2275:C:O2'	2.25	0.45
8:A:2333:A:H5'	8:A:2335:A:H1'	1.98	0.45
8:A:2364:C:OP1	30:W:51:ARG:HD3	2.16	0.45
8:A:2696:U:H2'	8:A:2697:G:C8	2.51	0.45
8:A:2848:G:C8	23:P:94:ALA:HB2	2.51	0.45
9:B:103:U:O2'	29:V:31:TYR:OH	2.21	0.45
34:a:947:G:H2'	34:a:948:C:H6	1.81	0.45
34:a:964:A:H1'	43:j:57:VAL:HG11	1.98	0.45
34:a:1032:G:N7	34:a:1033:G:C2	2.84	0.45
34:a:1121:U:H2'	34:a:1122:U:C6	2.51	0.45
34:a:1157:A:H4'	34:a:1158:C:O4'	2.15	0.45
57:x:230:GLU:H	57:x:230:GLU:HG3	1.24	0.45
4:3:38:LYS:NZ	8:A:2365:G:N7	2.48	0.45
6:5:26:VAL:HA	6:5:83:ALA:N	2.29	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1059:G:H1	8:A:1080:A:H1'	1.81	0.45
8:A:1360:G:N7	8:A:1361:G:C8	2.83	0.45
8:A:1443:U:H2'	8:A:1444:G:H8	1.81	0.45
8:A:1664:A:C2	18:K:1:MET:HE1	2.51	0.45
8:A:2074:U:H2'	8:A:2075:U:C6	2.51	0.45
8:A:2108:A:O2'	8:A:2109:U:O4'	2.32	0.45
8:A:2122:U:H2'	8:A:2123:G:O4'	2.15	0.45
8:A:2847:U:OP1	23:P:95:LYS:HD3	2.16	0.45
10:C:29:PHE:N	10:C:102:TYR:OH	2.49	0.45
25:R:2:TYR:H	25:R:42:ALA:HB3	1.81	0.45
30:W:17:LEU:HD11	30:W:37:ARG:HE	1.82	0.45
30:W:47:VAL:HG22	30:W:78:ILE:HG12	1.99	0.45
34:a:206:C:H2'	34:a:207:C:H6	1.80	0.45
34:a:212:G:H2'	34:a:213:G:H8	1.80	0.45
34:a:381:C:H2'	34:a:382:A:O4'	2.16	0.45
34:a:436:C:H2'	34:a:437:U:H6	1.81	0.45
34:a:512:U:H2'	34:a:513:C:C6	2.51	0.45
34:a:881:G:H2'	34:a:882:C:O4'	2.16	0.45
34:a:1026:G:H2'	34:a:1027:C:H5	1.81	0.45
34:a:1084:G:H1'	34:a:1102:A:N7	2.31	0.45
36:c:34:SER:O	36:c:38:VAL:HG12	2.15	0.45
48:o:24:THR:HG21	48:o:68:TYR:HD2	1.80	0.45
1:0:17:SER:HB2	8:A:14:A:H2'	1.99	0.45
8:A:692:C:H5''	10:C:38:LYS:HB2	1.97	0.45
8:A:1061:U:C4	16:I:12:VAL:HA	2.51	0.45
8:A:2102:G:O6	8:A:2188:U:C4	2.70	0.45
8:A:2146:C:O2'	8:A:2148:G:O6	2.21	0.45
8:A:2405:G:O2'	8:A:2406:A:OP2	2.33	0.45
8:A:2843:G:H2'	8:A:2844:G:O4'	2.16	0.45
9:B:4:C:H2'	9:B:5:U:H6	1.81	0.45
13:F:61:GLY:C	13:F:94:ARG:HH22	2.24	0.45
17:J:49:ASP:OD2	17:J:121:LYS:HD3	2.16	0.45
20:M:31:PHE:HB3	20:M:130:PHE:CE1	2.51	0.45
26:S:84:ARG:O	26:S:96:ILE:N	2.44	0.45
28:U:13:LEU:HD11	28:U:70:ALA:HB2	1.99	0.45
28:U:85:ARG:HH12	28:U:99:SER:HB3	1.82	0.45
34:a:202:G:H22	34:a:215:C:H5	1.64	0.45
34:a:1014:A:N3	34:a:1219:A:H1'	2.32	0.45
34:a:1308:U:H2'	34:a:1309:G:H8	1.82	0.45
34:a:1436:U:H2'	34:a:1437:A:C8	2.51	0.45
36:c:42:LEU:HD13	36:c:67:ILE:HD11	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:c:111:ASP:HB3	36:c:114:LEU:HB2	1.98	0.45
52:s:46:LEU:O	52:s:61:VAL:HG23	2.16	0.45
4:3:63:TYR:CE2	8:A:242:G:H5'	2.51	0.45
8:A:17:G:H4'	24:Q:24:TYR:CE2	2.51	0.45
8:A:353:C:H2'	8:A:354:A:C8	2.50	0.45
8:A:588:U:H2'	8:A:589:U:C6	2.52	0.45
8:A:1073:A:H4'	8:A:1094:U:C5	2.51	0.45
8:A:2047:C:O2'	8:A:2823:A:N1	2.44	0.45
8:A:2531:A:C4	8:A:2532:G:C8	3.04	0.45
8:A:2682:A:H2'	8:A:2683:C:H6	1.80	0.45
8:A:2895:G:H2'	8:A:2896:C:H6	1.81	0.45
10:C:268:ARG:NH2	34:a:681:A:OP1	2.49	0.45
15:H:114:GLU:OE1	15:H:134:VAL:HA	2.17	0.45
34:a:744:C:H2'	34:a:745:G:C8	2.52	0.45
34:a:1088:G:H21	34:a:1167:A:N6	2.12	0.45
34:a:1256:A:O2'	34:a:1278:G:O6	2.34	0.45
34:a:1382:C:H2'	34:a:1383:C:C6	2.50	0.45
40:g:68:VAL:O	40:g:68:VAL:HG12	2.16	0.45
42:i:71:ILE:HG13	42:i:72:SER:H	1.82	0.45
51:r:31:TYR:HB3	51:r:54:LEU:HD21	1.99	0.45
52:s:18:VAL:HG21	52:s:43:MET:HB3	1.97	0.45
56:w:72:C:H2'	56:w:73:A:O4'	2.17	0.45
57:x:104:VAL:O	57:x:336:ARG:NH2	2.50	0.45
57:x:114:ALA:HB3	57:x:142:LYS:O	2.17	0.45
8:A:85:G:C6	8:A:98:G:C2	3.05	0.45
8:A:194:G:H2'	8:A:195:A:O4'	2.17	0.45
8:A:784:G:H5'	8:A:785:G:OP1	2.17	0.45
8:A:1734:G:H2'	8:A:1735:A:C8	2.49	0.45
8:A:1735:A:C6	8:A:1736:U:C4	3.04	0.45
8:A:1806:C:H2'	8:A:1807:G:O4'	2.16	0.45
8:A:2038:G:H2'	8:A:2039:U:O4'	2.17	0.45
8:A:2407:A:H2'	8:A:2408:U:C6	2.51	0.45
8:A:2455:G:H2'	8:A:2456:C:H6	1.81	0.45
10:C:65:ASP:HB3	10:C:103:ILE:HG22	1.98	0.45
10:C:110:LYS:NZ	10:C:113:ASP:OD1	2.49	0.45
13:F:127:TYR:CE2	13:F:129:MET:HB2	2.52	0.45
34:a:683:G:H21	44:k:39:ASN:HA	1.81	0.45
34:a:1319:A:C8	34:a:1323:G:C6	3.04	0.45
56:w:33:U:O2'	56:w:35:A:N7	2.43	0.45
8:A:413:C:H2'	8:A:414:C:H6	1.81	0.45
8:A:631:A:N3	8:A:2415:G:O2'	2.45	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:654:A:H5'	8:A:655:A:OP2	2.16	0.45
8:A:2112:G:H2'	8:A:2112:G:N3	2.32	0.45
8:A:2474:U:O2	8:A:2474:U:H2'	2.16	0.45
8:A:2549:G:H2'	8:A:2550:G:H8	1.82	0.45
8:A:2705:A:H2'	8:A:2706:A:O4'	2.17	0.45
8:A:2850:A:H2'	8:A:2851:A:C8	2.52	0.45
11:D:124:ARG:NH1	11:D:162:ALA:O	2.50	0.45
24:Q:18:LYS:HA	24:Q:18:LYS:HD2	1.74	0.45
34:a:1182:G:H4'	34:a:1184:G:H5''	1.97	0.45
46:m:90:HIS:HA	46:m:108:ARG:NH2	2.31	0.45
52:s:50:VAL:HG11	52:s:70:LEU:O	2.16	0.45
56:w:2:C:H2'	56:w:3:C:H6	1.82	0.45
57:x:699:GLU:C	57:x:702:GLY:H	2.24	0.45
8:A:48:G:N1	8:A:177:G:OP2	2.35	0.45
8:A:2050:C:H2'	8:A:2051:A:O4'	2.16	0.45
13:F:11:VAL:HG13	13:F:171:ALA:HB1	1.97	0.45
21:N:24:MET:HE3	21:N:44:LEU:HB2	1.98	0.45
34:a:562:U:H1'	45:l:11:ARG:HB3	1.99	0.45
34:a:865:A:H5'	34:a:1078:U:O4	2.17	0.45
34:a:1003:G:H5'	34:a:1024:G:H1	1.81	0.45
34:a:1036:A:H2'	34:a:1037:C:O4'	2.17	0.45
38:e:132:PRO:O	38:e:136:VAL:HG23	2.17	0.45
50:q:22:VAL:HG21	50:q:60:ILE:HD13	1.98	0.45
52:s:62:THR:H	52:s:65:MET:HE2	1.82	0.45
56:w:30:G:C2	56:w:31:A:C8	3.05	0.45
56:w:67:C:C2'	56:w:68:C:H5'	2.47	0.45
57:x:667:THR:HG23	57:x:668:GLN:OE1	2.16	0.45
6:5:55:VAL:HA	8:A:1084:A:H5'	1.99	0.45
8:A:84:A:H4'	8:A:85:G:O5'	2.17	0.45
8:A:280:U:H2'	8:A:281:C:C6	2.52	0.45
8:A:481:G:O2'	8:A:482:A:P	2.74	0.45
8:A:858:G:H3'	8:A:859:G:C8	2.52	0.45
8:A:1063:G:H5'	16:I:76:ALA:O	2.17	0.45
8:A:1715:G:O2'	8:A:1716:U:H6	2.00	0.45
8:A:2161:C:H2'	8:A:2162:G:H5'	1.98	0.45
8:A:2506:U:O2	8:A:2506:U:H2'	2.16	0.45
8:A:2615:U:H2'	8:A:2616:C:H6	1.82	0.45
9:B:34:A:H4'	9:B:35:C:H6	1.82	0.45
16:I:21:PRO:HA	57:x:642:LYS:O	2.17	0.45
17:J:49:ASP:HB2	17:J:114:LEU:HD11	1.97	0.45
34:a:102:G:H2'	34:a:103:U:H6	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:202:G:H2'	34:a:203:G:C8	2.51	0.45
34:a:205:A:N6	34:a:214:C:H1'	2.31	0.45
34:a:1296:C:O4'	34:a:1302:C:N4	2.49	0.45
35:b:206:ILE:O	35:b:210:THR:HG23	2.17	0.45
37:d:40:HIS:HB3	37:d:43:ARG:HD2	1.98	0.45
45:l:30:ARG:CZ	45:l:57:THR:HG21	2.46	0.45
50:q:17:GLU:CD	50:q:17:GLU:H	2.24	0.45
55:v:15:G:O6	55:v:48:C:O2	2.34	0.45
57:x:278:LEU:HA	57:x:278:LEU:HD23	1.54	0.45
57:x:457:ILE:HG22	57:x:465:LEU:HD13	1.98	0.45
57:x:616:MET:HG3	57:x:681:MET:HB2	1.99	0.45
8:A:139:U:C2	27:T:1:MET:HE1	2.51	0.45
8:A:1416:G:H2'	8:A:1417:C:C6	2.51	0.45
8:A:1599:U:H2'	8:A:1600:C:H6	1.82	0.45
8:A:2131:U:H1'	8:A:2158:A:C6	2.52	0.45
8:A:2192:U:C2	8:A:2193:G:C8	3.05	0.45
8:A:2529:G:H5''	8:A:2530:A:H5''	1.98	0.45
19:L:3:LEU:HD12	19:L:3:LEU:HA	1.79	0.45
34:a:29:U:O2'	34:a:30:U:H5'	2.17	0.45
34:a:53:A:H2'	34:a:54:C:O4'	2.17	0.45
34:a:493:A:H2'	34:a:494:G:C8	2.51	0.45
34:a:580:C:H2'	34:a:581:G:O4'	2.17	0.45
34:a:620:C:H2'	34:a:621:A:C8	2.52	0.45
34:a:627:G:H5'	49:p:51:ARG:HH22	1.82	0.45
34:a:675:A:H1'	44:k:117:HIS:CD2	2.52	0.45
34:a:859:G:H2'	34:a:860:A:C8	2.52	0.45
34:a:1158:C:C4	34:a:1160:G:C8	3.05	0.45
35:b:86:CYS:SG	35:b:88:GLN:HB2	2.57	0.45
44:k:57:SER:O	44:k:90:PRO:HG3	2.16	0.45
46:m:90:HIS:HA	46:m:108:ARG:HH22	1.82	0.45
53:t:21:ALA:O	53:t:25:SER:OG	2.34	0.45
55:v:12:G:H2'	55:v:13:C:O4'	2.16	0.45
57:x:91:HIS:HE1	65:x:802:PO4:O3	1.99	0.45
8:A:1317:G:H2'	8:A:1318:U:O4'	2.17	0.45
8:A:1848:A:H61	8:A:1894:C:H1'	1.80	0.45
11:D:106:LYS:HA	11:D:175:LEU:O	2.17	0.45
25:R:14:VAL:HG11	25:R:20:VAL:HG22	1.99	0.45
29:V:31:TYR:HH	29:V:75:GLN:HG2	1.82	0.45
30:W:52:ASP:OD1	30:W:52:ASP:N	2.49	0.45
32:Y:10:SER:OG	32:Y:13:GLU:OE2	2.32	0.45
34:a:299:G:OP2	34:a:299:G:H8	2.00	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:414:A:OP2	34:a:428:G:C2	2.69	0.45
34:a:878:A:OP1	41:h:79:ARG:NH1	2.44	0.45
34:a:1120:C:H2'	34:a:1121:U:C6	2.52	0.45
34:a:1299:A:C5	34:a:1301:U:C2	3.05	0.45
34:a:1327:C:H2'	34:a:1328:C:C6	2.52	0.45
34:a:1345:U:C2	34:a:1377:A:C2	3.05	0.45
34:a:1461:G:H2'	34:a:1462:C:C6	2.52	0.45
39:f:38:ARG:HH12	51:r:23:LYS:HE3	1.82	0.45
48:o:2:LEU:HD12	48:o:2:LEU:HA	1.81	0.45
57:x:467:ILE:O	57:x:471:ARG:HG3	2.16	0.45
7:6:8:LYS:HA	7:6:8:LYS:HD2	1.85	0.44
8:A:63:A:H2	27:T:70:HIS:CD2	2.35	0.44
8:A:567:U:H2'	8:A:568:U:O4'	2.17	0.44
8:A:1409:U:H2'	8:A:1410:G:C8	2.46	0.44
8:A:1594:U:H2'	8:A:1595:C:C6	2.52	0.44
8:A:1916:A:O2'	8:A:1917:PSU:O5'	2.34	0.44
8:A:2378:A:C5	8:A:2379:G:H1'	2.52	0.44
8:A:2619:C:H5''	11:D:157:LYS:HG2	1.99	0.44
8:A:2798:U:H4'	8:A:2799:A:C4	2.51	0.44
17:J:12:LYS:HA	17:J:12:LYS:HD2	1.67	0.44
17:J:49:ASP:OD1	17:J:121:LYS:NZ	2.50	0.44
34:a:344:A:H5''	34:a:345:C:C5	2.49	0.44
34:a:592:G:O6	34:a:648:A:N6	2.49	0.44
34:a:692:U:O2'	34:a:694:A:N7	2.34	0.44
34:a:1057:G:C6	34:a:1204:A:N1	2.85	0.44
35:b:70:GLY:O	35:b:92:ASN:HA	2.17	0.44
35:b:83:ALA:CB	35:b:90:PHE:HB3	2.46	0.44
2:1:9:LYS:O	2:1:51:ALA:N	2.50	0.44
8:A:534:U:H2'	8:A:535:G:C8	2.50	0.44
8:A:1378:A:O2'	8:A:1380:G:OP2	2.35	0.44
8:A:1405:U:H2'	8:A:1406:U:C6	2.52	0.44
8:A:1839:G:H1'	8:A:1926:U:O2'	2.17	0.44
8:A:2233:U:H2'	8:A:2234:G:H8	1.80	0.44
8:A:2723:C:H2'	8:A:2724:U:O4'	2.17	0.44
12:E:19:PHE:HD2	12:E:113:VAL:HG21	1.82	0.44
23:P:40:GLN:HG2	23:P:41:ALA:H	1.83	0.44
25:R:1:MET:HA	25:R:43:ASN:H	1.82	0.44
27:T:11:LEU:C	27:T:12:ARG:HD2	2.43	0.44
27:T:54:GLU:HB2	27:T:88:LYS:HE3	2.00	0.44
47:n:46:LEU:HB3	52:s:12:LEU:HD12	1.99	0.44
55:v:23:C:H2'	55:v:24:U:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:w:65:G:H2'	56:w:66:U:C6	2.51	0.44
57:x:491:GLU:OE2	57:x:564:PRO:HB2	2.17	0.44
5:4:6:SER:OG	5:4:8:LYS:NZ	2.51	0.44
7:6:46:GLY:HA2	7:6:49:ARG:HH11	1.81	0.44
8:A:910:A:H2	8:A:2264:C:O2	2.00	0.44
8:A:1048:A:H62	8:A:1110:G:H21	1.44	0.44
8:A:1081:U:C2	16:I:123:ALA:HB1	2.53	0.44
8:A:1853:A:N1	8:A:2087:G:H1'	2.32	0.44
8:A:1894:C:C2'	8:A:1895:C:H5'	2.46	0.44
8:A:2215:C:H2'	8:A:2216:G:C8	2.52	0.44
8:A:2287:A:O2'	8:A:2288:A:O5'	2.30	0.44
9:B:23:G:H2'	9:B:24:G:C8	2.52	0.44
10:C:144:GLU:HG2	10:C:151:GLY:N	2.33	0.44
13:F:7:TYR:OH	13:F:28:PRO:O	2.34	0.44
20:M:53:MET:HE1	20:M:103:TYR:HB3	2.00	0.44
22:O:66:GLY:O	22:O:102:ARG:HD3	2.17	0.44
23:P:87:ARG:NH2	23:P:109:ILE:O	2.39	0.44
32:Y:4:LYS:HE3	32:Y:4:LYS:HB2	1.85	0.44
34:a:298:A:H2'	34:a:299:G:O4'	2.18	0.44
34:a:372:C:O2	34:a:389:A:N6	2.50	0.44
34:a:421:U:H3	36:c:126:ARG:NE	2.15	0.44
34:a:565:U:H3'	34:a:566:G:H2'	1.99	0.44
36:c:134:LYS:O	36:c:138:GLN:HG2	2.17	0.44
37:d:117:VAL:HG11	37:d:132:ALA:HA	1.99	0.44
38:e:104:ILE:HD12	38:e:115:GLU:HG2	1.99	0.44
53:t:30:PHE:CE2	53:t:56:ILE:HG13	2.53	0.44
8:A:704:G:C2'	8:A:726:G:H22	2.29	0.44
8:A:947:A:H2'	8:A:948:C:C6	2.52	0.44
8:A:1214:A:H4'	8:A:1239:G:H4'	2.00	0.44
8:A:1542:U:H2'	8:A:1543:G:O4'	2.17	0.44
8:A:1731:G:C6	8:A:1733:G:C5	3.06	0.44
8:A:1889:A:H2'	8:A:1890:A:O4'	2.17	0.44
8:A:1999:C:H4'	8:A:2723:C:O2	2.17	0.44
8:A:2104:C:O2	8:A:2104:C:H2'	2.17	0.44
34:a:35:G:O2'	45:l:117:GLY:HA2	2.17	0.44
34:a:284:C:H2'	34:a:285:C:H6	1.82	0.44
34:a:1026:G:H2'	34:a:1027:C:C5	2.53	0.44
34:a:1272:G:H2'	34:a:1273:C:C6	2.52	0.44
38:e:79:THR:HA	38:e:119:VAL:HG13	1.98	0.44
56:w:67:C:O2'	56:w:68:C:H5'	2.18	0.44
57:x:560:LEU:HG	57:x:570:VAL:HB	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:75:G:N3	8:A:75:G:H2'	2.33	0.44
8:A:181:A:H2'	8:A:182:A:C8	2.53	0.44
8:A:301:G:H5'	8:A:334:C:H2'	1.99	0.44
8:A:395:U:H2'	8:A:396:G:N7	2.33	0.44
8:A:697:G:H2'	8:A:698:C:C6	2.53	0.44
8:A:885:C:H1'	8:A:891:G:N2	2.32	0.44
8:A:1306:C:N4	8:A:1606:C:H2'	2.32	0.44
8:A:1715:G:HO2'	8:A:1716:U:H6	1.64	0.44
8:A:1790:C:H2'	8:A:1791:A:C8	2.52	0.44
8:A:1926:U:O2'	8:A:1927:A:P	2.74	0.44
8:A:2186:G:C2	8:A:2187:U:C2	3.05	0.44
8:A:2213:U:O2'	8:A:2214:C:H5'	2.17	0.44
11:D:85:ALA:N	11:D:88:GLU:OE2	2.50	0.44
34:a:440:C:OP1	37:d:120:LYS:NZ	2.35	0.44
34:a:461:A:H2'	34:a:462:G:H8	1.82	0.44
34:a:530:G:O6	59:z:6:U:H1'	2.17	0.44
34:a:1160:G:C6	34:a:1161:C:C4	3.06	0.44
34:a:1176:A:H2'	34:a:1177:G:C8	2.52	0.44
34:a:1223:C:OP2	52:s:77:ARG:NH1	2.51	0.44
40:g:107:ALA:O	40:g:118:ARG:HD2	2.17	0.44
42:i:26:LYS:C	42:i:27:ILE:HG13	2.43	0.44
56:w:18:G:O2'	56:w:57:G:N1	2.40	0.44
57:x:103:ARG:HH12	57:x:294:ILE:HD11	1.83	0.44
57:x:135:PRO:HB3	57:x:255:VAL:O	2.16	0.44
57:x:192:TRP:CD1	57:x:201:PHE:HB3	2.52	0.44
57:x:281:VAL:O	57:x:285:LEU:HB2	2.18	0.44
1:0:7:PRO:HD2	8:A:1263:U:O2'	2.17	0.44
4:3:39:ARG:O	4:3:43:LEU:HG	2.17	0.44
8:A:330:A:H8	8:A:1210:G:C5	2.35	0.44
8:A:590:A:H2'	8:A:591:U:C6	2.52	0.44
8:A:833:A:H2'	8:A:834:G:C8	2.53	0.44
8:A:1248:G:P	12:E:44:ARG:HH12	2.40	0.44
8:A:1536:C:H4'	8:A:1537:G:C8	2.52	0.44
8:A:1803:A:H2	8:A:1823:G:H1'	1.82	0.44
8:A:2142:A:N7	8:A:2143:C:C4	2.85	0.44
8:A:2408:U:H2'	8:A:2409:G:C8	2.52	0.44
8:A:2683:C:C2'	8:A:2684:U:H5'	2.47	0.44
10:C:130:PRO:C	10:C:132:ARG:H	2.25	0.44
10:C:250:GLN:HB3	10:C:254:LYS:HD2	1.99	0.44
19:L:91:ASP:OD1	19:L:123:ARG:HB3	2.17	0.44
34:a:206:C:H2'	34:a:207:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:407:U:H5''	37:d:111:ALA:HB1	1.99	0.44
34:a:502:A:H2'	34:a:503:C:O4'	2.18	0.44
34:a:718:A:H1'	54:u:34:ARG:HH12	1.81	0.44
34:a:846:G:C2	34:a:847:G:C5	3.05	0.44
34:a:1157:A:N7	34:a:1180:A:N6	2.66	0.44
36:c:134:LYS:HA	36:c:134:LYS:HD2	1.74	0.44
38:e:25:LYS:HE2	38:e:25:LYS:HB3	1.70	0.44
53:t:25:SER:O	53:t:29:THR:OG1	2.36	0.44
8:A:861:A:H2'	8:A:862:G:O4'	2.18	0.44
8:A:1056:G:N3	8:A:1087:G:C2	2.86	0.44
8:A:1361:G:H2'	8:A:1362:C:H6	1.83	0.44
8:A:1468:U:H2'	8:A:1522:A:N6	2.33	0.44
8:A:1730:C:H1'	8:A:1731:G:C2	2.52	0.44
8:A:1930:G:O2'	8:A:1968:G:N1	2.48	0.44
8:A:2301:C:H2'	8:A:2302:U:C6	2.53	0.44
8:A:2633:G:H2'	8:A:2634:A:O4'	2.18	0.44
12:E:192:ALA:O	12:E:196:VAL:HG23	2.18	0.44
13:F:131:VAL:N	13:F:151:LEU:O	2.49	0.44
16:I:25:PRO:HA	57:x:643:GLY:C	2.42	0.44
17:J:60:ASP:OD1	17:J:60:ASP:N	2.48	0.44
30:W:34:VAL:HG12	30:W:55:LEU:HB2	1.99	0.44
34:a:109:A:H5'	34:a:110:C:C5	2.52	0.44
34:a:193:C:H2'	34:a:194:C:C6	2.53	0.44
34:a:834:U:O2	34:a:852:G:N2	2.46	0.44
34:a:958:A:C5	52:s:54:ARG:HD2	2.52	0.44
34:a:978:A:C4	34:a:1319:A:C2	3.06	0.44
34:a:1300:G:O2'	34:a:1301:U:P	2.76	0.44
48:o:42:PHE:HB3	48:o:52:ARG:NH2	2.31	0.44
50:q:52:CYS:HA	50:q:56:ASP:OD2	2.17	0.44
53:t:27:MET:O	53:t:31:ILE:HG13	2.16	0.44
57:x:103:ARG:HH22	57:x:294:ILE:HD11	1.82	0.44
8:A:817:C:H2'	8:A:818:G:O4'	2.18	0.44
8:A:1683:U:H2'	8:A:1684:G:C8	2.53	0.44
8:A:2061:G:OP2	12:E:63:LYS:NZ	2.37	0.44
8:A:2079:U:H4'	8:A:2433:A:C2	2.53	0.44
8:A:2316:G:H2'	8:A:2317:A:C8	2.53	0.44
8:A:2505:G:HO2'	8:A:2506:U:P	2.39	0.44
10:C:121:ALA:HB1	10:C:127:ASN:HB3	2.00	0.44
12:E:48:THR:O	12:E:52:VAL:HG23	2.17	0.44
13:F:33:ILE:HG13	13:F:95:MET:HG3	1.99	0.44
13:F:90:LEU:C	13:F:95:MET:HB2	2.43	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:F:95:MET:HE2	13:F:95:MET:HB3	1.88	0.44
14:G:18:ILE:HG22	14:G:23:ILE:HD12	1.99	0.44
15:H:9:VAL:O	15:H:12:LEU:N	2.50	0.44
15:H:132:PHE:HB3	15:H:140:ALA:HB3	2.00	0.44
17:J:7:LYS:O	17:J:11:VAL:HG23	2.18	0.44
20:M:36:VAL:HG13	29:V:82:TYR:CD2	2.52	0.44
21:N:79:LEU:O	21:N:80:PHE:HB2	2.17	0.44
27:T:8:LEU:HD13	32:Y:22:LEU:HB3	1.99	0.44
34:a:5:U:H5''	34:a:6:G:OP1	2.18	0.44
34:a:270:A:H2'	34:a:271:C:H6	1.82	0.44
34:a:1074:G:O2'	34:a:1101:A:N1	2.43	0.44
34:a:1253:G:C2'	34:a:1254:A:H5'	2.47	0.44
34:a:1456:A:H2'	34:a:1457:G:O4'	2.18	0.44
34:a:1464:U:H2'	34:a:1465:A:C8	2.51	0.44
56:w:24:G:H2'	56:w:25:C:C6	2.53	0.44
56:w:51:C:C2	56:w:52:G:N7	2.86	0.44
57:x:50:ASP:HB3	57:x:55:GLU:HB3	1.99	0.44
57:x:169:GLN:HA	57:x:182:VAL:O	2.18	0.44
57:x:222:ILE:O	57:x:223:GLU:C	2.61	0.44
8:A:8:C:H2'	8:A:9:G:O4'	2.18	0.44
8:A:784:G:O2'	8:A:785:G:H5''	2.17	0.44
8:A:1736:U:H2'	8:A:1737:G:O4'	2.17	0.44
8:A:1810:A:H2'	8:A:1811:G:O4'	2.18	0.44
8:A:2079:U:H4'	8:A:2433:A:H2	1.83	0.44
8:A:2377:A:H2'	8:A:2378:A:C8	2.52	0.44
8:A:2503:2MA:N3	8:A:2503:2MA:H5'	2.32	0.44
8:A:2840:C:H2'	8:A:2841:C:C6	2.53	0.44
10:C:173:LEU:O	10:C:180:MET:HA	2.18	0.44
13:F:35:LEU:HB2	13:F:88:VAL:CG2	2.48	0.44
18:K:23:LYS:HB3	18:K:40:LYS:HB3	2.00	0.44
19:L:85:VAL:HG21	19:L:90:VAL:HG22	1.98	0.44
29:V:26:PHE:HZ	29:V:47:VAL:HG11	1.83	0.44
34:a:67:C:H2'	34:a:68:G:H8	1.81	0.44
34:a:71:A:C2	34:a:72:A:C8	3.06	0.44
34:a:82:G:N2	34:a:89:U:O4'	2.51	0.44
34:a:134:G:H1'	34:a:325:A:C5	2.53	0.44
34:a:190:A:H2'	34:a:191:G:O4'	2.17	0.44
34:a:284:C:C2	34:a:285:C:C5	3.04	0.44
34:a:468:A:H3'	34:a:469:C:C6	2.52	0.44
34:a:517:G:N2	34:a:530:G:OP1	2.49	0.44
34:a:712:A:H2'	34:a:713:G:C8	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1055:A:C2	34:a:1206:G:C4	3.06	0.44
34:a:1182:G:O2'	34:a:1183:U:H5''	2.17	0.44
34:a:1372:U:OP1	42:i:73:GLY:N	2.45	0.44
36:c:133:MET:HE2	36:c:167:TYR:CD2	2.53	0.44
47:n:46:LEU:O	47:n:50:THR:HG23	2.18	0.44
55:v:56:C:H2'	55:v:57:A:O4'	2.18	0.44
8:A:208:C:H2'	8:A:209:C:C6	2.53	0.43
8:A:328:U:O3'	28:U:65:GLN:HG3	2.18	0.43
8:A:396:G:H1'	31:X:28:PHE:HB3	1.99	0.43
8:A:1292:G:H2'	8:A:1293:C:H6	1.83	0.43
8:A:1398:C:H2'	8:A:1399:C:C6	2.52	0.43
8:A:1429:G:H2'	8:A:1430:G:C8	2.50	0.43
8:A:1475:G:O2'	8:A:1476:U:O5'	2.30	0.43
8:A:1667:G:O2'	8:A:1991:U:O4	2.20	0.43
8:A:1723:G:H2'	8:A:1724:G:O4'	2.18	0.43
8:A:1782:U:O2'	8:A:2609:U:H5''	2.18	0.43
8:A:1782:U:O2	8:A:2609:U:H5'	2.18	0.43
8:A:1940:U:H1'	8:A:1942:C:N4	2.33	0.43
21:N:72:ASP:O	21:N:76:VAL:HG23	2.18	0.43
34:a:20:U:H2'	34:a:21:G:O4'	2.17	0.43
34:a:253:A:N6	34:a:274:A:N1	2.66	0.43
34:a:501:C:H2'	34:a:502:A:C8	2.52	0.43
34:a:515:G:C4	34:a:516:PSU:C6	3.06	0.43
34:a:1142:G:C2	34:a:1143:G:H1'	2.53	0.43
37:d:36:ALA:HB3	37:d:41:GLY:HA2	2.00	0.43
56:w:37:MIA:H163	56:w:37:MIA:H121	1.59	0.43
57:x:269:PHE:HB2	64:x:801:GDP:C5	2.53	0.43
7:6:1:MET:N	9:B:44:G:OP1	2.52	0.43
8:A:298:G:O2'	8:A:322:A:N1	2.42	0.43
8:A:744:U:H2'	8:A:745:1MG:O4'	2.17	0.43
8:A:1417:C:O2'	8:A:1587:G:O2'	2.22	0.43
8:A:1532:A:N6	8:A:1540:G:C6	2.87	0.43
8:A:1749:A:H2'	8:A:1750:G:H8	1.83	0.43
8:A:2031:A:N3	8:A:2455:G:O2'	2.34	0.43
8:A:2192:U:H2'	8:A:2193:G:C8	2.53	0.43
8:A:2807:U:H1'	8:A:2892:G:N2	2.33	0.43
13:F:134:GLN:HB3	13:F:149:ARG:O	2.18	0.43
19:L:78:ARG:HB3	19:L:113:ALA:HB3	2.01	0.43
20:M:47:GLU:O	20:M:51:ARG:HG3	2.18	0.43
34:a:91:U:H2'	34:a:92:U:H6	1.81	0.43
34:a:561:U:O2	45:l:14:LYS:NZ	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:794:A:H2'	34:a:795:C:C6	2.53	0.43
34:a:1271:A:H2'	34:a:1272:G:C8	2.53	0.43
34:a:1419:G:H8	34:a:1419:G:OP2	2.01	0.43
38:e:59:ILE:O	38:e:63:MET:HG2	2.18	0.43
38:e:61:LYS:HA	38:e:64:GLU:HG2	1.98	0.43
53:t:23:ARG:HB2	53:t:65:LEU:HD13	2.00	0.43
57:x:318:ALA:O	57:x:395:THR:HG23	2.18	0.43
57:x:321:PHE:CZ	57:x:334:PHE:HB3	2.53	0.43
57:x:374:LYS:HE2	57:x:374:LYS:HB2	1.83	0.43
57:x:473:LYS:HA	57:x:478:VAL:O	2.19	0.43
57:x:529:ASN:C	57:x:529:ASN:ND2	2.76	0.43
8:A:132:G:H2'	8:A:133:U:C6	2.53	0.43
8:A:527:C:C2	8:A:2779:U:H2'	2.53	0.43
8:A:933:A:H5'	8:A:934:U:OP2	2.18	0.43
8:A:995:C:O2	17:J:3:THR:OG1	2.33	0.43
8:A:1034:G:C5	8:A:1122:G:C2	3.06	0.43
8:A:1036:G:C6	8:A:1120:G:C6	3.07	0.43
8:A:1056:G:H1'	8:A:1087:G:H1	1.82	0.43
8:A:1059:G:H5'	8:A:1060:U:C5	2.53	0.43
8:A:1105:U:H2'	8:A:1106:G:C8	2.53	0.43
8:A:1365:A:OP2	31:X:1:SER:HB3	2.19	0.43
8:A:1541:C:H2'	8:A:1542:U:C6	2.53	0.43
8:A:1651:G:H5'	21:N:39:PRO:HG2	1.99	0.43
8:A:1753:G:H5''	23:P:92:ARG:HD3	2.01	0.43
8:A:2547:A:C8	8:A:2566:A:C8	3.07	0.43
8:A:2591:C:H2'	8:A:2592:G:C8	2.53	0.43
8:A:2848:G:HO2'	8:A:2849:U:P	2.39	0.43
9:B:74:U:O2	29:V:29:ILE:HD13	2.18	0.43
10:C:77:VAL:HG22	10:C:93:VAL:HG12	1.99	0.43
12:E:61:ARG:NE	12:E:63:LYS:O	2.51	0.43
16:I:25:PRO:N	57:x:641:LEU:HB3	2.33	0.43
20:M:109:PRO:HD2	20:M:112:LEU:HD23	2.01	0.43
21:N:8:ARG:HD2	21:N:43:GLU:HG2	2.01	0.43
26:S:83:LYS:HB3	26:S:95:ARG:HD2	1.98	0.43
34:a:62:U:OP1	34:a:385:C:O2'	2.36	0.43
34:a:851:G:C2	34:a:852:G:C8	3.06	0.43
34:a:867:G:H2'	34:a:868:C:C6	2.53	0.43
35:b:22:TRP:CZ3	35:b:27:LYS:HE2	2.52	0.43
35:b:160:LEU:HD21	35:b:171:ALA:HB1	2.00	0.43
36:c:2:GLN:HG3	36:c:3:LYS:HD3	2.00	0.43
42:i:9:GLY:HA3	42:i:81:GLY:N	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:79:ARG:HD2	42:i:102:PHE:CE1	2.53	0.43
44:k:34:THR:HG22	44:k:40:ALA:HA	2.00	0.43
52:s:29:PRO:HB3	52:s:47:THR:O	2.18	0.43
56:w:48:C:C4	56:w:59:U:C4	3.06	0.43
57:x:104:VAL:CG2	57:x:321:PHE:HB3	2.47	0.43
57:x:155:ASN:O	57:x:156:GLN:C	2.58	0.43
57:x:501:GLU:HB3	57:x:518:VAL:HG22	2.00	0.43
57:x:539:ILE:HG13	57:x:578:HIS:O	2.17	0.43
57:x:548:TYR:OH	57:x:587:SER:O	2.30	0.43
3:2:4:THR:O	8:A:686:U:O2'	2.36	0.43
5:4:19:ARG:NE	8:A:2756:U:OP2	2.36	0.43
7:6:43:PHE:CZ	13:F:177:ARG:HB2	2.52	0.43
8:A:13:A:O2'	8:A:15:G:N7	2.40	0.43
8:A:26:G:H2'	8:A:27:G:O4'	2.17	0.43
8:A:825:A:O2'	19:L:54:GLN:HB2	2.17	0.43
8:A:1029:A:H2'	8:A:1030:C:O4'	2.18	0.43
8:A:1168:G:O2'	8:A:1169:A:H5'	2.19	0.43
8:A:1171:G:N2	8:A:1177:G:H22	2.15	0.43
8:A:1570:A:H2'	8:A:1571:A:C8	2.54	0.43
8:A:2543:G:H2'	8:A:2544:G:H8	1.81	0.43
8:A:2818:U:H3	8:A:2828:G:H1	1.66	0.43
12:E:73:ILE:HG13	12:E:78:TRP:CZ3	2.53	0.43
34:a:198:G:H2'	34:a:199:A:H8	1.82	0.43
34:a:219:U:C2	34:a:220:G:C8	3.06	0.43
34:a:604:G:H2'	34:a:605:U:C6	2.53	0.43
34:a:664:G:H21	34:a:726:C:HO2'	1.54	0.43
34:a:1316:G:H2'	34:a:1317:C:H5''	2.00	0.43
34:a:1320:C:N4	52:s:35:ARG:HB2	2.34	0.43
41:h:38:VAL:HG21	41:h:109:VAL:HG12	2.00	0.43
41:h:105:THR:HG22	41:h:121:GLY:O	2.18	0.43
55:v:54:5MU:H2'	55:v:55:PSU:C6	2.53	0.43
3:2:3:ARG:HA	3:2:3:ARG:HD3	1.65	0.43
7:6:39:LYS:HE2	7:6:39:LYS:HB3	1.75	0.43
8:A:471:A:H2'	8:A:472:A:O4'	2.18	0.43
8:A:722:A:H2'	8:A:723:C:O4'	2.18	0.43
8:A:843:G:H2'	8:A:844:A:H8	1.82	0.43
8:A:1220:G:H2'	8:A:1221:C:C6	2.52	0.43
8:A:1273:U:H5'	8:A:1646:C:N4	2.33	0.43
8:A:2229:U:H2'	8:A:2230:G:C8	2.52	0.43
8:A:2488:G:H5''	8:A:2488:G:C8	2.54	0.43
8:A:2552:OMU:HM23	8:A:2552:OMU:H1'	1.46	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2618:G:H21	11:D:155:VAL:HG21	1.83	0.43
8:A:2796:U:HO2'	8:A:2797:U:P	2.41	0.43
14:G:139:VAL:O	14:G:143:VAL:HG12	2.19	0.43
21:N:8:ARG:NH2	21:N:43:GLU:OE2	2.49	0.43
29:V:16:ALA:O	29:V:20:LEU:HG	2.18	0.43
34:a:106:C:H2'	34:a:107:G:O4'	2.18	0.43
34:a:592:G:C6	34:a:648:A:C6	3.06	0.43
34:a:893:C:N4	34:a:894:G:O6	2.51	0.43
34:a:1130:A:H2'	34:a:1131:G:H8	1.83	0.43
34:a:1161:C:C2	34:a:1162:C:C5	3.06	0.43
34:a:1167:A:H5''	34:a:1168:U:OP1	2.19	0.43
34:a:1216:A:H2'	34:a:1217:C:C6	2.54	0.43
34:a:1234:C:H1'	34:a:1364:U:O2	2.18	0.43
34:a:1460:C:C2	34:a:1461:G:C8	3.05	0.43
37:d:97:LEU:HB2	37:d:134:TYR:HB3	2.01	0.43
39:f:10:VAL:HA	39:f:84:VAL:HA	2.00	0.43
57:x:104:VAL:HG21	57:x:321:PHE:HB3	2.01	0.43
57:x:250:ALA:O	57:x:254:ARG:HG3	2.18	0.43
57:x:454:GLN:OE1	57:x:485:PRO:HA	2.19	0.43
57:x:464:HIS:O	57:x:468:ILE:HB	2.19	0.43
8:A:321:U:C2	12:E:159:LEU:HD13	2.54	0.43
8:A:636:G:N1	19:L:76:GLU:OE1	2.37	0.43
8:A:689:A:H2'	8:A:690:G:C8	2.53	0.43
8:A:1415:U:O4	8:A:1587:G:O6	2.36	0.43
8:A:2341:G:H2'	8:A:2342:C:C6	2.54	0.43
8:A:2777:G:H5''	8:A:2778:A:H5'	1.99	0.43
13:F:19:PHE:HB3	13:F:21:TYR:CE1	2.54	0.43
21:N:45:ARG:O	21:N:49:GLU:HG3	2.18	0.43
26:S:40:ASN:C	26:S:41:LYS:HG2	2.44	0.43
28:U:70:ALA:HB3	28:U:79:ALA:HB1	2.00	0.43
30:W:59:ALA:O	30:W:78:ILE:HG21	2.19	0.43
34:a:686:U:H1'	44:k:43:TRP:HE1	1.83	0.43
34:a:954:G:H2'	34:a:955:U:C6	2.53	0.43
34:a:1062:U:H2'	34:a:1063:C:C6	2.54	0.43
34:a:1535:C:H5'	34:a:1536:C:H5''	2.01	0.43
35:b:42:LEU:O	35:b:46:VAL:HG13	2.19	0.43
57:x:123:GLU:HA	57:x:161:LEU:CD2	2.48	0.43
57:x:204:GLU:HB3	57:x:205:ASP:H	1.66	0.43
57:x:295:ASN:HA	57:x:306:ALA:O	2.18	0.43
57:x:554:LYS:O	57:x:557:GLN:HB3	2.18	0.43
4:3:28:LEU:HD13	4:3:43:LEU:HD12	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:6:A:N3	17:J:135:GLN:NE2	2.65	0.43
8:A:657:U:H2'	8:A:658:U:C6	2.54	0.43
8:A:1152:C:H2'	8:A:1153:C:C6	2.54	0.43
8:A:1523:U:H5''	8:A:1524:G:C8	2.54	0.43
8:A:1907:G:O2'	8:A:1908:C:H5''	2.18	0.43
8:A:1952:A:O2'	8:A:2560:A:H4'	2.19	0.43
8:A:2162:G:H2'	8:A:2163:A:O4'	2.18	0.43
8:A:2245:U:H5''	8:A:2246:G:H5'	1.99	0.43
8:A:2256:G:H2'	8:A:2257:U:O4'	2.19	0.43
8:A:2848:G:O2'	8:A:2849:U:O5'	2.23	0.43
15:H:78:VAL:O	15:H:144:VAL:HA	2.18	0.43
29:V:31:TYR:HE2	29:V:90:ASP:HB3	1.82	0.43
32:Y:19:LEU:HB3	32:Y:23:ARG:NH1	2.33	0.43
34:a:95:C:HO2'	34:a:96:U:P	2.40	0.43
34:a:468:A:H2'	34:a:468:A:N3	2.33	0.43
34:a:1211:U:O2'	34:a:1213:A:N1	2.47	0.43
34:a:1217:C:OP1	47:n:8:ARG:NE	2.50	0.43
34:a:1273:C:H2'	34:a:1274:A:O4'	2.19	0.43
35:b:80:LYS:O	35:b:84:LEU:HD13	2.19	0.43
36:c:57:GLU:O	36:c:64:ARG:N	2.43	0.43
37:d:9:LYS:HG3	37:d:37:PRO:CG	2.48	0.43
42:i:4:GLN:HA	42:i:20:ILE:O	2.18	0.43
43:j:35:GLN:HG3	43:j:78:GLU:HB2	1.99	0.43
43:j:40:ILE:N	43:j:73:LEU:O	2.47	0.43
52:s:39:ILE:HG23	52:s:43:MET:SD	2.58	0.43
5:4:16:ILE:HD13	5:4:25:VAL:HG22	2.00	0.43
7:6:34:LEU:HD13	13:F:105:ILE:HG23	2.00	0.43
8:A:9:G:O2'	8:A:2800:A:N6	2.51	0.43
8:A:337:C:H2'	8:A:338:G:O4'	2.18	0.43
8:A:376:G:H2'	8:A:377:G:C8	2.54	0.43
8:A:555:G:HO2'	8:A:556:A:P	2.42	0.43
8:A:607:U:C5	8:A:620:G:C4	3.07	0.43
8:A:1048:A:C5	8:A:1110:G:N2	2.86	0.43
8:A:2600:A:N7	10:C:235:GLU:HG3	2.33	0.43
8:A:2820:A:OP2	21:N:2:ARG:NH1	2.51	0.43
34:a:110:C:H2'	34:a:111:G:O4'	2.17	0.43
34:a:460:A:C6	34:a:461:A:C6	3.07	0.43
34:a:1315:U:O2'	34:a:1360:A:N3	2.45	0.43
34:a:1319:A:C8	34:a:1323:G:C5	3.06	0.43
37:d:121:ALA:O	37:d:122:ILE:HD13	2.19	0.43
37:d:168:THR:O	37:d:168:THR:OG1	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:71:THR:HA	40:g:95:ARG:NH2	2.33	0.43
40:g:78:ARG:HB3	40:g:83:THR:HG22	2.01	0.43
43:j:65:TYR:OH	47:n:85:ARG:HG3	2.18	0.43
45:l:31:GLY:O	45:l:78:VAL:HA	2.19	0.43
57:x:60:ILE:HG22	57:x:91:HIS:CE1	2.53	0.43
57:x:285:LEU:HD23	57:x:285:LEU:HA	1.73	0.43
7:6:8:LYS:HG3	7:6:10:GLU:OE1	2.19	0.43
8:A:501:A:H2'	8:A:502:A:C8	2.54	0.43
8:A:1283:G:N2	8:A:1285:A:H3'	2.33	0.43
8:A:2340:A:H2'	8:A:2341:G:C8	2.54	0.43
8:A:2812:G:H2'	8:A:2813:A:O4'	2.19	0.43
14:G:7:PRO:HB2	14:G:48:THR:OG1	2.19	0.43
17:J:34:ARG:NH2	24:Q:69:ARG:HD2	2.33	0.43
19:L:23:ILE:HD12	25:R:84:ARG:HG2	2.01	0.43
28:U:83:GLY:HA3	28:U:96:LYS:HE3	1.99	0.43
34:a:160:A:H1'	34:a:344:A:C8	2.54	0.43
34:a:361:G:H2'	34:a:362:G:O4'	2.19	0.43
34:a:736:C:H2'	34:a:737:C:C6	2.54	0.43
34:a:1157:A:C5	34:a:1180:A:C6	3.07	0.43
34:a:1500:A:OP1	34:a:1505:G:OP1	2.36	0.43
36:c:131:ARG:NE	36:c:131:ARG:HA	2.34	0.43
38:e:92:ARG:O	38:e:127:TYR:N	2.31	0.43
39:f:86:ARG:NH1	51:r:63:TYR:O	2.49	0.43
43:j:11:LYS:HA	43:j:70:HIS:O	2.18	0.43
43:j:59:LYS:HD2	43:j:59:LYS:HA	1.91	0.43
46:m:33:LEU:HD13	46:m:40:GLU:HG2	2.00	0.43
56:w:61:C:H2'	56:w:62:C:C6	2.52	0.43
57:x:86:ILE:CG1	57:x:105:LEU:HD21	2.48	0.43
57:x:432:LEU:O	57:x:436:ARG:HG3	2.19	0.43
1:0:3:GLN:HA	8:A:2615:U:C2	2.54	0.43
8:A:67:U:N3	8:A:68:G:N7	2.67	0.43
8:A:286:U:C2	8:A:287:G:C8	3.07	0.43
8:A:353:C:H2'	8:A:354:A:H8	1.84	0.43
8:A:694:U:OP1	10:C:58:LYS:NZ	2.43	0.43
8:A:727:A:H2'	8:A:728:G:C8	2.54	0.43
8:A:826:U:H2'	8:A:828:U:O4'	2.19	0.43
8:A:1079:C:H2'	8:A:1080:A:H3'	2.01	0.43
8:A:1402:U:O2'	8:A:1470:A:N1	2.43	0.43
8:A:1470:A:H3'	8:A:1471:G:H8	1.84	0.43
8:A:1501:G:H5''	10:C:94:LEU:HD21	2.01	0.43
8:A:1535:A:C5	8:A:1537:G:C5	3.07	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2306:C:N4	13:F:38:GLY:O	2.45	0.43
9:B:14:U:O2	9:B:107:G:H4'	2.18	0.43
15:H:5:LEU:HD13	15:H:13:GLY:HA2	2.00	0.43
17:J:78:THR:HG21	17:J:85:LYS:HE2	2.01	0.43
19:L:110:VAL:O	19:L:128:THR:HG23	2.19	0.43
26:S:24:ILE:HG13	26:S:24:ILE:O	2.19	0.43
27:T:22:THR:O	27:T:26:LYS:HG2	2.19	0.43
28:U:35:VAL:HG23	28:U:38:ILE:HB	2.01	0.43
33:Z:12:ALA:HA	33:Z:15:ARG:HG2	2.00	0.43
34:a:634:C:H2'	34:a:635:A:C8	2.54	0.43
34:a:1036:A:P	34:a:1036:A:H8	2.41	0.43
39:f:38:ARG:HB2	39:f:63:ASN:HB2	2.00	0.43
43:j:52:LEU:HB2	47:n:81:ARG:CD	2.48	0.43
47:n:1:ALA:O	47:n:5:MET:HB2	2.18	0.43
51:r:54:LEU:O	51:r:58:ILE:HG12	2.19	0.43
51:r:62:ARG:HB3	51:r:69:TYR:CZ	2.54	0.43
57:x:125:VAL:O	57:x:126:TRP:C	2.61	0.43
57:x:196:ASP:HB2	57:x:199:VAL:HG13	2.01	0.43
57:x:235:LYS:O	57:x:240:GLU:HG3	2.19	0.43
57:x:624:GLU:H	57:x:624:GLU:CD	2.27	0.43
8:A:1168:G:H2'	8:A:1169:A:C8	2.54	0.42
8:A:1426:G:OP2	8:A:1427:A:O2'	2.26	0.42
8:A:1654:A:O2'	11:D:118:PHE:O	2.33	0.42
8:A:1671:U:O2'	8:A:1673:G:N7	2.43	0.42
8:A:2758:A:C2	14:G:70:LEU:HD11	2.54	0.42
8:A:2857:G:N2	8:A:2859:G:H3'	2.33	0.42
9:B:9:G:O6	9:B:111:U:O2	2.37	0.42
11:D:8:LYS:HB2	11:D:201:LEU:HD11	2.01	0.42
15:H:69:ALA:O	15:H:71:LYS:HG3	2.19	0.42
16:I:78:LEU:O	16:I:82:ALA:CB	2.67	0.42
23:P:5:LYS:HD3	23:P:5:LYS:HA	1.73	0.42
32:Y:19:LEU:HB3	32:Y:23:ARG:HH12	1.84	0.42
34:a:146:G:H2'	34:a:147:G:C8	2.54	0.42
34:a:436:C:H2'	34:a:437:U:C6	2.53	0.42
34:a:649:A:H2'	34:a:650:G:O4'	2.19	0.42
46:m:84:CYS:HB2	52:s:72:GLU:HB3	2.00	0.42
47:n:57:PRO:HA	47:n:60:GLN:OE1	2.18	0.42
55:v:52:G:C6	55:v:53:G:N7	2.87	0.42
3:2:12:ARG:NH1	8:A:465:G:OP1	2.51	0.42
4:3:35:LYS:HD3	4:3:39:ARG:HD3	2.01	0.42
8:A:167:A:H2'	8:A:168:G:O4'	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:392:U:H2'	8:A:393:C:C6	2.54	0.42
8:A:1276:A:O2'	21:N:16:HIS:NE2	2.46	0.42
8:A:1322:A:H5''	26:S:82:MET:HE1	2.01	0.42
8:A:1816:C:H41	10:C:34:GLU:CD	2.25	0.42
8:A:2097:A:H2'	8:A:2098:U:C6	2.54	0.42
8:A:2607:G:H2'	8:A:2608:G:O4'	2.19	0.42
9:B:116:G:H4'	22:O:54:VAL:O	2.19	0.42
10:C:260:LYS:HB3	10:C:260:LYS:HE2	1.83	0.42
13:F:116:LEU:O	13:F:177:ARG:HB3	2.19	0.42
14:G:59:ASP:HB2	14:G:62:ALA:HB3	2.01	0.42
17:J:140:LEU:HG	17:J:142:ILE:HG12	2.00	0.42
34:a:260:G:H2'	34:a:261:U:C6	2.54	0.42
34:a:284:C:H2'	34:a:285:C:C6	2.54	0.42
34:a:487:A:H3'	34:a:488:C:C6	2.54	0.42
34:a:595:A:N6	34:a:641:U:O2'	2.51	0.42
34:a:736:C:OP1	51:r:60:ARG:NH2	2.52	0.42
34:a:838:G:H2'	34:a:839:C:C6	2.54	0.42
34:a:1220:G:P	47:n:53:ARG:HH12	2.42	0.42
34:a:1351:U:O4'	40:g:32:ASP:HB3	2.19	0.42
34:a:1372:U:C4	34:a:1373:G:C5	3.07	0.42
43:j:32:THR:HA	43:j:82:LYS:HE3	1.99	0.42
45:l:21:PRO:HD2	45:l:93:ARG:NH2	2.31	0.42
48:o:28:VAL:HG13	48:o:62:ARG:HG3	2.00	0.42
48:o:63:ARG:HA	48:o:63:ARG:HD2	1.70	0.42
54:u:20:ARG:O	54:u:23:GLU:HG2	2.19	0.42
56:w:5:G:N1	56:w:68:C:N3	2.67	0.42
57:x:494:ARG:NH2	57:x:496:LYS:HD2	2.33	0.42
8:A:980:A:C5	8:A:1136:G:O4'	2.72	0.42
8:A:1278:C:H2'	8:A:1279:G:H8	1.84	0.42
8:A:1363:C:O2'	8:A:1809:A:N3	2.41	0.42
8:A:1754:A:H4'	23:P:102:ARG:HH21	1.85	0.42
8:A:2389:G:H5''	8:A:2390:U:O4'	2.20	0.42
8:A:2561:U:O3'	18:K:40:LYS:NZ	2.41	0.42
13:F:48:LEU:HD11	13:F:149:ARG:HH21	1.83	0.42
33:Z:4:ILE:HG22	33:Z:58:GLU:HA	2.01	0.42
34:a:91:U:H6	34:a:91:U:O5'	2.01	0.42
34:a:356:A:N3	34:a:368:U:O2'	2.33	0.42
34:a:402:G:OP1	37:d:70:GLN:OE1	2.38	0.42
34:a:501:C:OP1	45:l:113:ARG:NH2	2.52	0.42
34:a:1282:C:H2'	34:a:1283:U:C6	2.55	0.42
34:a:1315:U:H2'	34:a:1316:G:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:94:HIS:O	39:f:96:VAL:HG23	2.19	0.42
44:k:45:THR:OG1	44:k:48:GLY:N	2.42	0.42
53:t:66:ILE:HB	53:t:70:LYS:HD3	2.01	0.42
54:u:4:LYS:HD2	54:u:6:ARG:NH2	2.34	0.42
57:x:235:LYS:HZ3	57:x:240:GLU:HB2	1.84	0.42
57:x:513:GLN:OE1	57:x:585:VAL:HB	2.19	0.42
1:0:6:LYS:HB2	1:0:6:LYS:HE3	1.75	0.42
8:A:131:A:H2'	8:A:132:G:C8	2.55	0.42
8:A:621:A:C5	8:A:622:G:H1'	2.55	0.42
8:A:636:G:O2'	8:A:638:G:O2'	2.26	0.42
8:A:1084:A:O2'	8:A:1105:U:O2	2.30	0.42
8:A:1299:G:N1	8:A:1640:A:OP2	2.33	0.42
8:A:1422:G:H1'	8:A:1496:A:N1	2.35	0.42
8:A:1478:G:O6	8:A:1513:U:O4	2.38	0.42
8:A:2114:A:H2'	8:A:2114:A:N3	2.35	0.42
8:A:2194:U:H2'	8:A:2195:U:H6	1.83	0.42
8:A:2577:A:H2'	8:A:2614:A:N6	2.35	0.42
13:F:11:VAL:HA	13:F:14:LYS:HG2	2.01	0.42
22:O:111:ARG:NE	22:O:117:PHE:O	2.52	0.42
24:Q:75:TYR:CZ	24:Q:79:ILE:HG13	2.55	0.42
34:a:195:A:H1'	34:a:222:C:O2'	2.19	0.42
34:a:420:U:O2'	34:a:423:G:O6	2.23	0.42
34:a:496:A:O2'	34:a:497:G:C8	2.73	0.42
34:a:604:G:H2'	34:a:605:U:O4'	2.18	0.42
34:a:674:G:H2'	34:a:675:A:C8	2.54	0.42
34:a:768:A:N3	34:a:1512:U:O2'	2.53	0.42
34:a:1237:C:C4	34:a:1336:C:N3	2.88	0.42
34:a:1539:C:O3'	34:a:1540:U:H4'	2.20	0.42
40:g:25:PHE:HE2	40:g:119:LEU:HD21	1.83	0.42
40:g:26:VAL:HG11	40:g:39:GLU:HG2	2.01	0.42
41:h:17:GLN:HA	41:h:17:GLN:NE2	2.34	0.42
42:i:40:ARG:HH21	42:i:71:ILE:HD12	1.84	0.42
42:i:55:ASP:N	42:i:55:ASP:OD1	2.51	0.42
43:j:56:HIS:CD2	43:j:57:VAL:HG22	2.53	0.42
8:A:81:G:H2'	8:A:82:U:O4'	2.20	0.42
8:A:445:C:H2'	8:A:446:G:O4'	2.18	0.42
8:A:778:G:H5'	10:C:47:ARG:NH1	2.33	0.42
8:A:1141:U:H2'	17:J:65:THR:CG2	2.46	0.42
8:A:1504:A:H2'	8:A:1505:A:H8	1.85	0.42
8:A:1614:A:C6	26:S:87:PRO:HB3	2.55	0.42
8:A:1684:G:H2'	8:A:1685:C:C6	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2014:A:H5'	26:S:94:ASP:CG	2.44	0.42
8:A:2329:U:H2'	8:A:2330:G:H8	1.84	0.42
8:A:2679:A:H2'	8:A:2680:U:O4'	2.19	0.42
9:B:34:A:H2'	9:B:44:G:N7	2.35	0.42
13:F:43:ILE:HA	13:F:82:TYR:HE2	1.85	0.42
17:J:42:ALA:O	24:Q:63:ARG:HD3	2.19	0.42
17:J:45:THR:HG22	17:J:47:HIS:CD2	2.55	0.42
24:Q:90:ASP:N	24:Q:90:ASP:OD1	2.49	0.42
26:S:9:HIS:ND1	26:S:102:HIS:HE1	2.18	0.42
34:a:113:G:H2'	34:a:114:U:H6	1.84	0.42
34:a:211:G:C5	34:a:212:G:H1'	2.55	0.42
34:a:586:C:H2'	34:a:587:G:O4'	2.19	0.42
34:a:813:U:H2'	34:a:814:A:H5''	2.01	0.42
34:a:872:A:C8	34:a:874:G:C8	3.07	0.42
34:a:1258:G:H2'	34:a:1259:C:C6	2.55	0.42
34:a:1303:C:N4	34:a:1304:G:C6	2.88	0.42
34:a:1353:G:H2'	34:a:1354:U:H6	1.85	0.42
37:d:12:ARG:HA	37:d:33:ILE:HG13	2.01	0.42
38:e:54:GLU:HG2	38:e:57:ALA:HB3	2.00	0.42
55:v:19:G:C2	55:v:57:A:N3	2.87	0.42
57:x:139:PHE:HA	57:x:264:THR:O	2.19	0.42
8:A:308:G:H2'	8:A:309:A:C8	2.55	0.42
8:A:372:G:H2'	31:X:57:VAL:HG22	2.01	0.42
8:A:984:A:H2'	8:A:984:A:N3	2.34	0.42
8:A:1318:U:C2	8:A:1319:C:C5	3.08	0.42
8:A:1477:A:N1	8:A:1557:C:O2'	2.50	0.42
8:A:1668:A:O2'	8:A:1674:G:N7	2.38	0.42
8:A:2113:U:H2'	8:A:2114:A:H4'	2.01	0.42
8:A:2677:G:H2'	8:A:2678:C:C6	2.55	0.42
8:A:2851:A:O2'	21:N:64:ARG:NH2	2.53	0.42
10:C:92:LEU:HB2	10:C:102:TYR:CE1	2.54	0.42
18:K:41:ILE:CD1	18:K:86:LEU:HD22	2.49	0.42
18:K:49:ARG:NH1	34:a:1422:G:O3'	2.53	0.42
34:a:79:G:N2	34:a:91:U:O2	2.52	0.42
34:a:402:G:H5'	34:a:621:A:H1'	2.02	0.42
34:a:859:G:OP2	34:a:869:G:N1	2.29	0.42
34:a:1213:A:O2'	34:a:1215:G:N7	2.46	0.42
34:a:1264:U:H2'	34:a:1265:C:C6	2.55	0.42
34:a:1489:G:H2'	34:a:1490:U:O4'	2.20	0.42
37:d:10:LEU:HG	37:d:62:ARG:NE	2.27	0.42
37:d:170:LEU:HD23	37:d:170:LEU:HA	1.76	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:j:32:THR:O	43:j:80:THR:OG1	2.24	0.42
44:k:75:GLU:OE1	44:k:75:GLU:N	2.46	0.42
55:v:66:C:H2'	55:v:67:C:C6	2.55	0.42
57:x:474:ARG:HD2	57:x:474:ARG:HA	1.66	0.42
57:x:525:GLU:CG	57:x:528:SER:HB2	2.45	0.42
57:x:552:VAL:HG11	57:x:592:PHE:CZ	2.55	0.42
7:6:1:MET:HB3	7:6:1:MET:HE2	1.78	0.42
8:A:306:U:H2'	8:A:307:G:O4'	2.20	0.42
8:A:337:C:OP2	28:U:3:LYS:NZ	2.43	0.42
8:A:1048:A:C6	8:A:1110:G:N2	2.87	0.42
8:A:1130:U:O2'	8:A:1131:G:H8	2.02	0.42
8:A:2287:A:C8	8:A:2289:G:C8	3.07	0.42
8:A:2795:C:H2'	8:A:2796:U:O4'	2.19	0.42
9:B:27:C:OP1	22:O:34:HIS:NE2	2.51	0.42
9:B:33:G:H2'	9:B:34:A:C8	2.54	0.42
10:C:6:LYS:HE3	10:C:6:LYS:HB3	1.77	0.42
15:H:5:LEU:O	15:H:16:GLY:HA2	2.20	0.42
34:a:5:U:H4'	34:a:6:G:O5'	2.20	0.42
34:a:522:C:H41	45:l:49:ARG:NH2	2.17	0.42
34:a:529:G:O6	45:l:45:ASN:HA	2.19	0.42
34:a:1208:C:H2'	34:a:1209:C:H6	1.84	0.42
34:a:1342:C:O2'	42:i:125:GLN:HA	2.20	0.42
37:d:70:GLN:HA	37:d:73:ASN:HB2	2.01	0.42
39:f:18:VAL:HG21	39:f:58:HIS:CD2	2.54	0.42
43:j:46:LYS:HG2	43:j:68:ARG:HG2	2.01	0.42
54:u:39:LYS:HG2	54:u:41:THR:HG22	2.01	0.42
55:v:20:H2U:C2'	55:v:21:A:H5'	2.50	0.42
55:v:21:A:C6	55:v:46:A:N3	2.87	0.42
56:w:43:C:H2'	56:w:44:G:H8	1.81	0.42
3:2:10:LEU:HD13	8:A:125:A:C6	2.55	0.42
8:A:1005:C:H1'	8:A:1012:U:N3	2.34	0.42
8:A:1398:C:C2	8:A:1399:C:C5	3.07	0.42
8:A:1534:U:H3	8:A:1537:G:H1	1.65	0.42
8:A:1614:A:C2	26:S:93:ALA:HB2	2.54	0.42
8:A:1783:A:C2	8:A:2587:A:C4	3.08	0.42
8:A:1937:A:O2'	8:A:1939:5MU:OP2	2.28	0.42
8:A:2020:A:O2'	8:A:2021:C:H5'	2.19	0.42
8:A:2455:G:H2'	8:A:2456:C:C6	2.54	0.42
9:B:52:A:O2'	9:B:53:A:C8	2.73	0.42
17:J:69:ARG:HD3	17:J:89:PHE:HD1	1.85	0.42
21:N:96:ARG:HB3	21:N:114:GLU:HG3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:R:3:ALA:CB	25:R:59:ILE:HD11	2.50	0.42
26:S:30:SER:OG	26:S:31:GLN:N	2.51	0.42
34:a:949:A:H2'	34:a:950:U:C6	2.55	0.42
34:a:1118:U:H5'	42:i:105:ARG:HG3	2.02	0.42
34:a:1308:U:H2'	34:a:1309:G:C8	2.55	0.42
34:a:1454:G:H8	34:a:1454:G:OP2	2.03	0.42
34:a:1462:C:H2'	34:a:1463:U:C6	2.55	0.42
34:a:1520:C:H2'	34:a:1521:C:H6	1.85	0.42
35:b:213:LEU:HA	35:b:216:VAL:HG12	2.02	0.42
45:l:101:LEU:C	45:l:103:CYS:H	2.27	0.42
46:m:68:LEU:HA	46:m:68:LEU:HD12	1.78	0.42
48:o:25:GLU:HG3	48:o:80:LEU:HD13	2.02	0.42
48:o:79:GLN:O	48:o:82:GLU:HG3	2.20	0.42
52:s:14:LEU:HD22	52:s:34:SER:OG	2.19	0.42
57:x:31:PHE:HD2	57:x:32:TYR:CE1	2.37	0.42
57:x:86:ILE:HG21	57:x:101:SER:HB3	2.02	0.42
8:A:39:G:H1'	12:E:43:THR:HG21	2.01	0.42
8:A:172:A:H2'	8:A:173:A:H8	1.84	0.42
8:A:195:A:H3'	8:A:196:A:H4'	2.02	0.42
8:A:483:A:C8	28:U:44:HIS:CD2	3.08	0.42
8:A:906:U:H2'	8:A:907:G:O4'	2.20	0.42
8:A:943:A:O5'	8:A:943:A:H8	2.03	0.42
8:A:956:G:H5''	20:M:76:LYS:HD2	2.02	0.42
8:A:1069:A:H2'	8:A:1073:A:C5	2.55	0.42
8:A:1341:G:OP1	8:A:1397:U:N3	2.41	0.42
8:A:1405:U:H2'	8:A:1406:U:H6	1.84	0.42
8:A:1474:U:H5'	8:A:1475:G:OP2	2.20	0.42
8:A:1585:C:H3'	8:A:1586:A:H8	1.84	0.42
8:A:1614:A:N6	26:S:92:ARG:O	2.48	0.42
8:A:1827:U:H2'	8:A:1828:G:O4'	2.19	0.42
8:A:2302:U:C2	8:A:2303:G:C8	3.08	0.42
8:A:2418:A:H2'	8:A:2419:U:O4'	2.20	0.42
8:A:2530:A:N7	14:G:171:LYS:NZ	2.36	0.42
8:A:2688:G:N1	8:A:2720:U:OP2	2.24	0.42
8:A:2839:G:O2'	21:N:49:GLU:OE1	2.34	0.42
10:C:83:ASP:HB2	10:C:90:ILE:HG23	2.01	0.42
11:D:1:MET:HE2	11:D:2:ILE:HG12	2.01	0.42
13:F:116:LEU:HD22	13:F:129:MET:HG2	2.01	0.42
15:H:2:GLN:NE2	15:H:20:ASN:HB3	2.35	0.42
20:M:135:VAL:HG23	29:V:57:TYR:CD2	2.54	0.42
21:N:38:LEU:HB3	21:N:39:PRO:HD3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:O:12:THR:O	22:O:16:ARG:HG2	2.19	0.42
24:Q:46:TYR:CD1	25:R:74:ILE:HG23	2.54	0.42
34:a:102:G:H2'	34:a:103:U:C6	2.54	0.42
34:a:246:A:C8	34:a:279:A:C6	3.08	0.42
34:a:513:C:H2'	34:a:514:C:H6	1.85	0.42
34:a:648:A:H2'	34:a:649:A:H8	1.84	0.42
34:a:792:A:C4	34:a:794:A:C6	3.08	0.42
34:a:901:A:C5	34:a:902:G:H1'	2.55	0.42
34:a:1160:G:C2	34:a:1161:C:C6	3.08	0.42
43:j:6:ILE:HD11	43:j:79:PRO:HG3	2.01	0.42
52:s:18:VAL:O	52:s:22:VAL:HG22	2.20	0.42
56:w:40:C:H2'	56:w:41:C:H6	1.85	0.42
57:x:106:ASP:CG	57:x:336:ARG:HH22	2.28	0.42
4:3:3:ILE:HD11	8:A:592:A:H2	1.85	0.42
4:3:44:ARG:NH1	8:A:2350:C:OP2	2.53	0.42
8:A:460:A:H2'	8:A:461:C:O4'	2.19	0.42
8:A:743:A:OP1	11:D:135:GLY:HA2	2.20	0.42
8:A:910:A:H2'	8:A:911:A:C8	2.55	0.42
8:A:940:G:H2'	8:A:941:A:O4'	2.20	0.42
8:A:1178:C:H4'	8:A:1179:G:N7	2.34	0.42
8:A:1761:C:H2'	8:A:1762:A:O4'	2.20	0.42
8:A:2089:C:C4	8:A:2090:A:N7	2.88	0.42
8:A:2142:A:H3'	8:A:2143:C:C6	2.54	0.42
8:A:2261:C:C2	8:A:2262:U:C5	3.08	0.42
8:A:2290:G:H2'	8:A:2291:U:C6	2.55	0.42
12:E:6:LYS:HB3	12:E:121:VAL:HG12	2.01	0.42
13:F:127:TYR:HB2	13:F:169:LEU:HD11	2.02	0.42
17:J:26:GLY:O	17:J:30:THR:HG23	2.20	0.42
17:J:28:LEU:O	17:J:32:LEU:HG	2.19	0.42
19:L:127:VAL:HG12	19:L:128:THR:O	2.20	0.42
28:U:73:ASN:C	28:U:73:ASN:HD22	2.27	0.42
29:V:31:TYR:O	29:V:92:VAL:HA	2.20	0.42
34:a:7:A:H5''	34:a:298:A:O4'	2.20	0.42
34:a:147:G:H2'	34:a:148:G:C8	2.55	0.42
34:a:421:U:H5''	34:a:422:C:C5	2.54	0.42
34:a:477:C:H2'	34:a:478:A:C8	2.55	0.42
34:a:1057:G:C4	34:a:1204:A:C2	3.08	0.42
34:a:1213:A:C4	34:a:1215:G:C8	3.08	0.42
34:a:1303:C:C4	34:a:1304:G:N7	2.87	0.42
36:c:88:LYS:HD2	36:c:88:LYS:HA	1.80	0.42
36:c:118:SER:O	36:c:121:SER:OG	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:87:VAL:HG23	38:e:92:ARG:HG2	2.00	0.42
40:g:72:VAL:HG11	40:g:87:PRO:HB3	2.02	0.42
41:h:95:MET:SD	41:h:129:ALA:HB1	2.60	0.42
45:l:80:LEU:HD12	45:l:80:LEU:HA	1.95	0.42
45:l:82:ARG:NH1	45:l:83:GLY:O	2.52	0.42
55:v:55:PSU:H2'	55:v:56:C:H3'	2.02	0.42
1:0:4:GLN:NE2	8:A:2056:G:H4'	2.35	0.41
2:1:27:ARG:HE	2:1:27:ARG:HB2	1.65	0.41
8:A:216:A:C8	8:A:432:A:C6	3.08	0.41
8:A:704:G:H1'	8:A:727:A:H61	1.85	0.41
8:A:783:A:H2'	8:A:784:G:H4'	2.03	0.41
8:A:1039:A:H2'	8:A:1040:A:O4'	2.19	0.41
8:A:1564:C:H2'	8:A:1565:C:C6	2.54	0.41
8:A:1710:G:H2'	8:A:1711:A:H8	1.84	0.41
8:A:1912:A:H1'	34:a:1494:G:H21	1.84	0.41
8:A:1959:G:H2'	8:A:1960:A:O4'	2.19	0.41
8:A:2128:G:N1	8:A:2129:C:O2'	2.42	0.41
8:A:2135:A:H3'	8:A:2136:G:H8	1.84	0.41
8:A:2162:G:H3'	8:A:2163:A:H8	1.85	0.41
8:A:2461:A:H2'	8:A:2462:C:C6	2.55	0.41
9:B:42:C:C5	13:F:65:LEU:HD22	2.55	0.41
10:C:153:LEU:HD22	10:C:175:LEU:HD22	2.02	0.41
11:D:73:VAL:CG1	11:D:93:GLY:HA2	2.50	0.41
15:H:116:ARG:HB2	15:H:131:SER:HB3	2.02	0.41
16:I:3:LYS:O	16:I:4:VAL:C	2.62	0.41
16:I:83:ALA:HB1	16:I:99:LYS:H	1.85	0.41
34:a:492:C:H2'	34:a:493:A:C8	2.55	0.41
34:a:587:G:OP1	41:h:83:ARG:NH2	2.53	0.41
34:a:900:A:H2'	34:a:901:A:C8	2.55	0.41
34:a:962:C:C2	34:a:963:G:C8	3.08	0.41
34:a:1096:C:H2'	34:a:1097:C:H6	1.83	0.41
34:a:1251:A:N3	34:a:1369:C:O2'	2.50	0.41
34:a:1356:G:H2'	34:a:1357:A:H8	1.79	0.41
34:a:1404:C:H2'	34:a:1405:G:C8	2.55	0.41
36:c:171:ARG:HE	36:c:173:PRO:HG3	1.85	0.41
46:m:95:PRO:HG2	46:m:101:THR:HG22	2.02	0.41
57:x:68:THR:HA	57:x:83:ILE:O	2.20	0.41
57:x:218:HIS:NE2	57:x:222:ILE:HD11	2.34	0.41
7:6:43:PHE:HZ	13:F:177:ARG:HB2	1.85	0.41
8:A:29:U:H2'	8:A:30:G:C8	2.54	0.41
8:A:404:A:HO2'	8:A:406:G:C1'	2.33	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:568:U:H5'	8:A:945:A:N6	2.35	0.41
8:A:714:U:H2'	8:A:715:A:H3'	2.02	0.41
8:A:1469:A:H2'	8:A:1470:A:H8	1.84	0.41
8:A:1504:A:H2'	8:A:1505:A:C8	2.55	0.41
8:A:1722:A:H2'	8:A:1723:G:H8	1.85	0.41
8:A:2295:C:O2'	8:A:2296:U:H5'	2.20	0.41
8:A:2325:G:O2'	8:A:2326:C:H5'	2.20	0.41
8:A:2660:A:H8	8:A:2660:A:OP1	2.03	0.41
8:A:2662:A:H2'	8:A:2663:G:O4'	2.20	0.41
8:A:2873:A:O2'	8:A:2874:C:H5'	2.19	0.41
9:B:8:C:O3'	22:O:25:ARG:NH1	2.52	0.41
11:D:186:LEU:HD23	11:D:186:LEU:HA	1.82	0.41
12:E:46:GLN:HB3	12:E:83:VAL:HG21	2.02	0.41
18:K:25:LEU:HD21	18:K:40:LYS:HB2	2.01	0.41
26:S:10:ALA:O	26:S:12:SER:N	2.53	0.41
32:Y:12:GLU:HA	32:Y:15:ASN:HB2	2.00	0.41
33:Z:2:LYS:HG3	33:Z:39:ASP:HB3	2.01	0.41
34:a:79:G:O3'	34:a:80:A:H3'	2.20	0.41
34:a:331:G:H2'	53:t:4:LYS:HZ2	1.83	0.41
34:a:515:G:O2'	34:a:516:PSU:O4'	2.33	0.41
34:a:1332:A:P	34:a:1332:A:H8	2.43	0.41
35:b:213:LEU:HA	35:b:213:LEU:HD23	1.85	0.41
36:c:179:ALA:HB1	36:c:202:PHE:CE1	2.55	0.41
37:d:78:ALA:HA	37:d:81:LEU:HB2	2.02	0.41
38:e:67:ARG:O	38:e:70:MET:HE2	2.20	0.41
39:f:32:ALA:HB2	39:f:70:VAL:HG11	2.02	0.41
41:h:4:ASP:HB2	41:h:80:PRO:HG3	2.01	0.41
41:h:68:LYS:HE3	41:h:68:LYS:HB3	1.84	0.41
47:n:51:LEU:HD23	47:n:51:LEU:HA	1.91	0.41
55:v:35:A:H2'	55:v:36:U:H6	1.83	0.41
57:x:351:SER:HB3	57:x:397:CYS:SG	2.60	0.41
57:x:555:GLY:HA3	57:x:593:LYS:HE3	2.01	0.41
8:A:21:A:H2'	8:A:22:C:C6	2.55	0.41
8:A:52:A:H2'	8:A:53:A:C8	2.55	0.41
8:A:250:G:H2'	8:A:251:A:C8	2.55	0.41
8:A:513:A:H5''	8:A:1216:G:O2'	2.20	0.41
8:A:892:A:H2'	8:A:893:C:O4'	2.20	0.41
8:A:995:C:H1'	24:Q:92:LYS:NZ	2.34	0.41
8:A:1010:A:H1'	8:A:1153:C:H1'	2.02	0.41
8:A:1067:A:H2'	8:A:1068:G:H21	1.84	0.41
8:A:1399:C:H2'	8:A:1400:U:H6	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1754:A:C8	23:P:93:LYS:HE2	2.55	0.41
8:A:2553:G:N1	8:A:2554:U:O2	2.54	0.41
12:E:37:ALA:HA	12:E:40:ARG:HG3	2.03	0.41
12:E:185:LYS:HA	12:E:185:LYS:HD3	1.89	0.41
14:G:21:GLN:NE2	14:G:37:ASN:O	2.52	0.41
16:I:120:ASP:N	16:I:123:ALA:HB3	2.35	0.41
19:L:2:ARG:O	19:L:5:THR:HG22	2.20	0.41
20:M:18:ARG:HE	20:M:18:ARG:HB3	1.55	0.41
21:N:78:LYS:HG3	21:N:83:LEU:HD12	2.02	0.41
25:R:79:ARG:O	25:R:80:ARG:HB2	2.20	0.41
33:Z:19:HIS:CD2	33:Z:52:PHE:CE1	3.08	0.41
34:a:518:C:H2'	34:a:530:G:N3	2.35	0.41
34:a:521:G:O2'	34:a:536:C:O2'	2.21	0.41
34:a:548:G:H2'	34:a:549:C:C6	2.54	0.41
34:a:673:A:H2'	34:a:674:G:H8	1.77	0.41
34:a:838:G:H2'	34:a:839:C:H6	1.85	0.41
34:a:963:G:C2	34:a:964:A:C8	3.09	0.41
34:a:1160:G:H5'	35:b:130:LYS:HE2	2.03	0.41
34:a:1235:U:H2'	34:a:1236:A:O4'	2.20	0.41
34:a:1264:U:H2'	34:a:1265:C:H6	1.86	0.41
34:a:1268:G:N3	34:a:1326:U:O2'	2.50	0.41
34:a:1368:A:OP1	42:i:112:ARG:NH2	2.53	0.41
34:a:1417:G:O2'	34:a:1483:A:N6	2.53	0.41
36:c:129:PHE:CE2	36:c:130:ARG:HG3	2.55	0.41
37:d:196:GLU:O	37:d:200:VAL:HG23	2.20	0.41
40:g:14:ASP:OD2	40:g:22:LEU:HG	2.20	0.41
40:g:70:PRO:HA	40:g:141:HIS:NE2	2.35	0.41
40:g:122:GLU:HA	40:g:125:ASP:HB2	2.02	0.41
45:l:41:PRO:HD2	45:l:47:ALA:O	2.20	0.41
48:o:24:THR:HG21	48:o:68:TYR:CD2	2.55	0.41
52:s:41:PRO:HA	52:s:44:ILE:HG12	2.02	0.41
55:v:25:C:C4	55:v:26:G:N7	2.88	0.41
57:x:332:LEU:HG	57:x:383:ALA:HB1	2.01	0.41
57:x:493:ILE:HB	57:x:523:PRO:HB3	2.02	0.41
57:x:535:PHE:CZ	57:x:553:ASP:HB3	2.55	0.41
57:x:626:ASN:O	57:x:630:VAL:HG12	2.20	0.41
7:6:1:MET:HB3	9:B:43:C:H5''	2.02	0.41
8:A:394:C:H2'	8:A:395:U:O4'	2.20	0.41
8:A:483:A:H3'	8:A:484:C:H6	1.86	0.41
8:A:1282:U:H2'	8:A:1283:G:O4'	2.20	0.41
8:A:1366:A:OP1	31:X:1:SER:OG	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1435:G:H2'	8:A:1436:G:C8	2.56	0.41
8:A:1824:G:O3'	10:C:246:PRO:HD3	2.20	0.41
8:A:2064:C:H2'	8:A:2065:C:H6	1.81	0.41
8:A:2507:C:O5'	8:A:2507:C:H6	2.04	0.41
8:A:2638:G:H22	8:A:2775:G:H2'	1.84	0.41
8:A:2711:A:N6	8:A:2714:G:C5	2.89	0.41
8:A:2814:A:H2'	8:A:2815:C:H6	1.85	0.41
9:B:94:A:H2'	9:B:95:U:O4'	2.20	0.41
10:C:64:VAL:HG21	10:C:86:ARG:HH12	1.85	0.41
10:C:163:ILE:HA	10:C:173:LEU:HD23	2.02	0.41
10:C:231:HIS:CD2	10:C:231:HIS:N	2.86	0.41
11:D:116:LYS:HG3	21:N:1:MET:SD	2.60	0.41
12:E:155:GLU:HG2	12:E:156:ASN:N	2.34	0.41
15:H:128:HIS:O	15:H:143:ILE:HA	2.19	0.41
18:K:66:LYS:HE2	18:K:66:LYS:HB3	1.79	0.41
20:M:25:ASP:OD1	20:M:25:ASP:N	2.49	0.41
25:R:4:VAL:HG12	25:R:39:LEU:HD12	2.02	0.41
34:a:18:C:H4'	34:a:1078:U:O2	2.21	0.41
34:a:191:G:H2'	34:a:192:A:H8	1.85	0.41
34:a:803:G:H2'	34:a:804:U:C6	2.55	0.41
34:a:1318:A:H1'	52:s:36:ARG:HH11	1.84	0.41
35:b:8:MET:C	35:b:10:LYS:H	2.28	0.41
35:b:26:MET:HE3	35:b:26:MET:HB3	1.90	0.41
36:c:11:LEU:HD11	47:n:91:GLY:HA2	2.02	0.41
38:e:136:VAL:O	38:e:140:ILE:HG12	2.19	0.41
40:g:70:PRO:HB3	40:g:102:TRP:CH2	2.54	0.41
45:l:49:ARG:CG	45:l:89:LEU:HD21	2.48	0.41
52:s:17:LYS:HA	52:s:20:LYS:HE3	2.02	0.41
52:s:44:ILE:HD12	52:s:63:ASP:HA	2.01	0.41
57:x:111:VAL:HA	57:x:139:PHE:O	2.20	0.41
8:A:501:A:O5'	8:A:501:A:H8	2.04	0.41
8:A:608:A:H2'	8:A:609:A:O4'	2.21	0.41
8:A:1093:G:O3'	8:A:1094:U:H4'	2.21	0.41
8:A:1433:A:H2'	8:A:1434:A:O4'	2.21	0.41
8:A:2090:A:C6	8:A:2230:G:O6	2.74	0.41
8:A:2120:G:N1	8:A:2180:U:O4	2.53	0.41
8:A:2232:C:P	31:X:26:ARG:HH12	2.43	0.41
8:A:2259:U:H2'	8:A:2260:C:C6	2.55	0.41
8:A:2298:A:OP1	13:F:70:ARG:HD2	2.20	0.41
10:C:159:THR:O	10:C:194:VAL:HG23	2.20	0.41
14:G:10:VAL:HG12	14:G:48:THR:HA	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:H:130:VAL:N	15:H:142:VAL:O	2.54	0.41
24:Q:67:ALA:HB2	24:Q:98:ALA:HB1	2.02	0.41
28:U:5:ARG:HA	28:U:5:ARG:HD3	1.83	0.41
29:V:6:ALA:HB2	29:V:42:LEU:HD23	2.02	0.41
34:a:22:G:H2'	34:a:23:C:H6	1.85	0.41
34:a:58:C:O2	34:a:58:C:H2'	2.21	0.41
34:a:384:G:H2'	34:a:385:C:H6	1.85	0.41
34:a:1163:A:H2'	34:a:1164:G:H8	1.85	0.41
34:a:1392:G:H2'	34:a:1393:U:C6	2.56	0.41
35:b:100:LEU:HB3	35:b:178:LEU:HD12	2.03	0.41
37:d:139:ASN:N	37:d:181:PHE:O	2.52	0.41
39:f:42:TRP:N	39:f:42:TRP:CD1	2.87	0.41
45:l:41:PRO:HD3	45:l:49:ARG:HG2	2.01	0.41
48:o:42:PHE:CD1	48:o:52:ARG:HG2	2.55	0.41
48:o:57:ARG:O	48:o:61:GLN:HG2	2.20	0.41
3:2:17:GLY:O	3:2:21:ARG:HG2	2.21	0.41
5:4:7:VAL:HG12	5:4:35:GLN:HB3	2.03	0.41
8:A:236:C:H2'	8:A:237:C:H6	1.85	0.41
8:A:408:G:H2'	8:A:409:G:C8	2.56	0.41
8:A:779:U:OP1	10:C:48:ILE:HG13	2.20	0.41
8:A:981:A:H2	8:A:2027:G:N3	2.19	0.41
8:A:1669:A:O3'	8:A:2549:G:H5'	2.20	0.41
8:A:2127:G:O6	8:A:2161:C:H1'	2.20	0.41
8:A:2468:A:O2'	8:A:2469:A:C8	2.71	0.41
8:A:2650:U:C2	8:A:2671:G:N2	2.88	0.41
8:A:2743:U:H2'	8:A:2744:G:O4'	2.21	0.41
8:A:2808:G:O2'	8:A:2809:A:O5'	2.36	0.41
20:M:34:LYS:HA	20:M:101:VAL:HA	2.03	0.41
25:R:40:MET:HE2	25:R:40:MET:HB3	1.98	0.41
34:a:19:A:N3	34:a:572:A:H2	2.18	0.41
34:a:109:A:H5'	34:a:110:C:H5	1.84	0.41
34:a:175:C:H2'	34:a:176:C:C6	2.56	0.41
34:a:545:C:H2'	34:a:546:A:O4'	2.20	0.41
34:a:987:G:H2'	34:a:988:G:C8	2.56	0.41
34:a:1152:A:H2'	34:a:1153:G:C8	2.55	0.41
34:a:1208:C:H2'	34:a:1209:C:C6	2.56	0.41
40:g:21:LEU:HB3	40:g:61:PHE:CE2	2.51	0.41
43:j:40:ILE:HG13	43:j:73:LEU:HD23	2.03	0.41
44:k:118:ASN:OD1	54:u:34:ARG:NH1	2.53	0.41
47:n:32:ASP:OD1	47:n:33:VAL:N	2.54	0.41
48:o:63:ARG:HH12	48:o:88:ARG:HH22	1.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:52:MET:HB2	57:x:55:GLU:CG	2.51	0.41
57:x:494:ARG:HE	57:x:496:LYS:HG3	1.85	0.41
6:5:87:GLU:CB	6:5:93:ALA:HB3	2.51	0.41
8:A:41:C:C4	8:A:42:A:N7	2.88	0.41
8:A:69:C:O2	8:A:73:A:O2'	2.36	0.41
8:A:132:G:H2'	8:A:133:U:H6	1.85	0.41
8:A:173:A:H2'	8:A:174:U:C6	2.56	0.41
8:A:185:G:H2'	8:A:186:G:O4'	2.20	0.41
8:A:240:C:H3'	8:A:241:A:H2'	2.02	0.41
8:A:288:U:H2'	8:A:289:G:H8	1.84	0.41
8:A:290:U:H2'	8:A:291:G:O4'	2.21	0.41
8:A:408:G:H2'	8:A:409:G:H8	1.86	0.41
8:A:671:C:H2'	8:A:672:C:H6	1.86	0.41
8:A:1050:A:C5	8:A:1051:G:C8	3.08	0.41
8:A:1252:G:OP2	24:Q:13:HIS:HE1	2.03	0.41
8:A:1703:G:O2'	34:a:1429:A:H5'	2.20	0.41
8:A:2031:A:C6	8:A:2498:OMC:H1'	2.56	0.41
8:A:2199:A:N6	8:A:2224:G:O2'	2.51	0.41
8:A:2340:A:H2'	8:A:2341:G:H8	1.85	0.41
8:A:2393:U:H2'	8:A:2394:C:O4'	2.20	0.41
8:A:2523:G:O2'	8:A:2764:A:O2'	2.34	0.41
9:B:48:U:H2'	9:B:49:C:C6	2.55	0.41
13:F:4:HIS:HB2	13:F:96:TRP:CG	2.55	0.41
13:F:129:MET:O	13:F:153:ILE:N	2.53	0.41
15:H:9:VAL:H	15:H:13:GLY:HA3	1.85	0.41
15:H:32:PRO:HA	31:X:38:TRP:CD1	2.56	0.41
20:M:46:ILE:HA	20:M:103:TYR:OH	2.21	0.41
20:M:56:ALA:CB	20:M:119:LEU:HD12	2.49	0.41
20:M:58:LYS:HA	20:M:58:LYS:HD3	1.82	0.41
28:U:80:ASP:OD2	28:U:95:PHE:HB3	2.19	0.41
34:a:359:G:H2'	34:a:360:G:O4'	2.20	0.41
34:a:603:U:H2'	34:a:604:G:C8	2.56	0.41
34:a:701:U:OP1	34:a:702:A:O2'	2.30	0.41
34:a:855:U:H2'	34:a:856:C:C6	2.56	0.41
34:a:1086:U:H2'	34:a:1087:G:H8	1.85	0.41
34:a:1350:A:H2'	34:a:1351:U:C6	2.55	0.41
34:a:1399:C:N3	34:a:1502:A:N1	2.69	0.41
34:a:1512:U:H2'	34:a:1513:A:H8	1.82	0.41
36:c:128:MET:HG2	36:c:130:ARG:H	1.86	0.41
38:e:105:ILE:HB	38:e:123:LEU:HA	2.03	0.41
57:x:55:GLU:OE2	57:x:61:THR:HA	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:96:ILE:HG12	57:x:100:ARG:HH21	1.86	0.41
57:x:390:VAL:HG11	57:x:396:LEU:HD11	2.02	0.41
57:x:460:MET:HE3	57:x:460:MET:HB3	1.74	0.41
57:x:568:TYR:HA	57:x:569:PRO:HD3	1.95	0.41
3:2:29:GLN:NE2	8:A:210:C:OP1	2.44	0.41
6:5:25:ALA:H	6:5:85:SER:H	1.69	0.41
6:5:28:ALA:O	8:A:1084:A:N6	2.53	0.41
8:A:225:C:H2'	8:A:226:A:O4'	2.20	0.41
8:A:226:A:N1	8:A:418:C:O2'	2.48	0.41
8:A:243:U:C2	8:A:255:A:N7	2.88	0.41
8:A:324:A:H2'	8:A:325:G:O4'	2.21	0.41
8:A:581:C:OP1	24:Q:32:ARG:HG3	2.21	0.41
8:A:1188:U:H4'	25:R:81:LYS:O	2.20	0.41
8:A:1198:U:H2'	8:A:1199:U:H6	1.85	0.41
8:A:1411:U:H2'	8:A:1412:U:O4'	2.20	0.41
8:A:1416:G:O2'	8:A:1417:C:O4'	2.36	0.41
8:A:1910:G:H2'	8:A:1911:PSU:O4'	2.20	0.41
8:A:2376:A:N1	22:O:92:PHE:HD2	2.19	0.41
8:A:2388:A:H5'	8:A:2389:G:OP2	2.20	0.41
8:A:2450:A:P	8:A:2497:A:HO2'	2.44	0.41
9:B:52:A:O2'	9:B:53:A:P	2.78	0.41
10:C:132:ARG:HG3	10:C:166:ARG:NH2	2.35	0.41
12:E:76:PRO:HA	12:E:82:GLY:O	2.20	0.41
15:H:51:ARG:C	15:H:53:GLU:H	2.29	0.41
18:K:48:PRO:HG2	34:a:1423:G:OP1	2.20	0.41
24:Q:83:LYS:HA	24:Q:83:LYS:HD3	1.92	0.41
30:W:71:LYS:CD	30:W:73:ARG:HH21	2.34	0.41
31:X:67:LEU:HD23	31:X:70:LEU:HD12	2.03	0.41
32:Y:31:GLN:HG3	32:Y:37:LEU:HB2	2.03	0.41
34:a:230:G:H2'	34:a:231:U:O4'	2.21	0.41
34:a:717:U:H5''	34:a:734:G:OP2	2.21	0.41
34:a:911:U:H2'	34:a:912:C:C6	2.55	0.41
34:a:921:U:H2'	34:a:922:G:O4'	2.20	0.41
34:a:977:A:O2'	34:a:1223:C:N4	2.54	0.41
36:c:11:LEU:HD23	36:c:11:LEU:HA	1.90	0.41
40:g:113:LYS:HB2	40:g:117:LEU:HD22	2.02	0.41
42:i:125:GLN:HE21	42:i:125:GLN:HB2	1.72	0.41
43:j:5:ARG:N	43:j:77:VAL:HG12	2.35	0.41
47:n:20:PHE:C	47:n:22:LYS:H	2.27	0.41
50:q:29:LYS:HB2	50:q:36:PHE:CE1	2.56	0.41
50:q:44:HIS:HB3	50:q:70:LYS:HG2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:w:18:G:H21	56:w:58:A:C5'	2.33	0.41
57:x:225:ALA:C	57:x:227:GLU:N	2.78	0.41
57:x:449:ASP:OD2	57:x:451:GLU:HB3	2.21	0.41
4:3:36:ALA:O	4:3:40:LYS:HG3	2.21	0.41
5:4:2:LYS:HD3	5:4:4:ARG:HE	1.85	0.41
8:A:175:G:H2'	8:A:176:A:C8	2.55	0.41
8:A:221:A:N1	8:A:265:A:O2'	2.48	0.41
8:A:483:A:H3'	8:A:484:C:C6	2.56	0.41
8:A:488:G:N2	8:A:491:G:H5''	2.36	0.41
8:A:608:A:H2'	8:A:609:A:C8	2.55	0.41
8:A:685:A:H5''	8:A:788:A:H62	1.86	0.41
8:A:703:U:H2'	8:A:704:G:O4'	2.21	0.41
8:A:799:G:OP2	8:A:800:A:O2'	2.31	0.41
8:A:839:U:H2'	8:A:840:C:C6	2.56	0.41
8:A:902:C:H2'	8:A:903:C:C6	2.56	0.41
8:A:1011:G:C6	8:A:1151:A:C6	3.09	0.41
8:A:1082:U:O2'	8:A:1083:U:P	2.79	0.41
8:A:1186:G:H2'	8:A:1187:G:O4'	2.20	0.41
8:A:1197:G:H2'	8:A:1198:U:C6	2.56	0.41
8:A:1344:U:O2	8:A:1385:A:H5'	2.21	0.41
8:A:1484:U:H2'	8:A:1485:U:C6	2.56	0.41
8:A:1769:U:O2'	8:A:1958:C:OP1	2.36	0.41
8:A:1801:A:H5''	8:A:2203:U:C2'	2.51	0.41
8:A:1817:G:H3'	10:C:155:ARG:HH21	1.86	0.41
8:A:2128:G:N3	8:A:2174:C:H5'	2.36	0.41
8:A:2182:U:C2'	8:A:2183:A:H5'	2.51	0.41
8:A:2286:G:H4'	8:A:2287:A:O4'	2.21	0.41
8:A:2529:G:H5''	8:A:2530:A:C5'	2.51	0.41
8:A:2812:G:H2'	8:A:2813:A:H8	1.82	0.41
8:A:2889:C:H2'	8:A:2890:G:O4'	2.21	0.41
10:C:68:ARG:HB3	10:C:128:THR:HG21	2.02	0.41
10:C:124:LYS:NZ	10:C:127:ASN:HD21	2.18	0.41
11:D:14:ILE:HG12	11:D:24:VAL:HG21	2.02	0.41
14:G:148:ARG:NH1	14:G:152:ARG:HG2	2.35	0.41
20:M:5:LYS:HE3	20:M:5:LYS:HB3	1.90	0.41
22:O:29:HIS:HB3	22:O:36:TYR:HB2	2.02	0.41
23:P:5:LYS:O	23:P:9:GLN:HG2	2.21	0.41
27:T:82:LYS:HE3	27:T:82:LYS:HB2	1.85	0.41
32:Y:28:LEU:HD21	32:Y:42:LEU:HB3	2.02	0.41
34:a:57:G:H2'	34:a:58:C:C6	2.56	0.41
34:a:79:G:N1	34:a:91:U:N3	2.68	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:168:G:H2'	34:a:169:C:O4'	2.21	0.41
34:a:187:G:C2	34:a:189:A:OP2	2.73	0.41
34:a:246:A:N6	34:a:279:A:O4'	2.54	0.41
34:a:625:U:H2'	34:a:626:G:H8	1.86	0.41
34:a:878:A:H5'	41:h:80:PRO:HG2	2.01	0.41
35:b:69:VAL:HB	35:b:162:VAL:HG22	2.02	0.41
36:c:142:ARG:HG3	36:c:143:LEU:N	2.35	0.41
39:f:44:ARG:HG2	39:f:58:HIS:HB2	2.02	0.41
40:g:4:ARG:NH1	40:g:6:ILE:HA	2.36	0.41
40:g:70:PRO:O	40:g:95:ARG:NH1	2.53	0.41
40:g:74:VAL:HG21	40:g:143:MET:SD	2.61	0.41
41:h:50:VAL:O	41:h:50:VAL:HG12	2.21	0.41
46:m:58:GLU:O	46:m:61:LYS:HB2	2.20	0.41
49:p:35:ARG:HH21	49:p:37:GLY:C	2.29	0.41
50:q:39:ARG:HD2	50:q:39:ARG:HA	1.81	0.41
55:v:21:A:H2'	55:v:46:A:N6	2.36	0.41
56:w:67:C:H2'	56:w:68:C:C6	2.55	0.41
57:x:29:ILE:HG12	57:x:278:LEU:HG	2.02	0.41
57:x:175:GLU:H	57:x:175:GLU:HG3	1.45	0.41
57:x:536:ILE:HD11	57:x:576:ARG:HD2	2.03	0.41
57:x:563:GLY:HA2	57:x:567:GLY:C	2.46	0.41
57:x:637:ARG:NH1	57:x:665:TYR:HD1	2.19	0.41
2:1:26:LYS:H	2:1:26:LYS:HG2	1.68	0.41
2:1:29:LYS:HE2	8:A:2287:A:OP1	2.21	0.41
5:4:11:CYS:HB3	5:4:33:HIS:CE1	2.56	0.41
8:A:340:A:H2'	8:A:341:C:O4'	2.20	0.41
8:A:538:A:N6	8:A:555:G:H1'	2.36	0.41
8:A:571:U:C4	8:A:575:A:C5	3.09	0.41
8:A:680:C:H2'	8:A:681:G:C8	2.55	0.41
8:A:833:A:H2'	8:A:834:G:H8	1.85	0.41
8:A:1078:U:O4	8:A:1088:A:H3'	2.21	0.41
8:A:1821:A:H2'	8:A:1822:C:C6	2.56	0.41
17:J:34:ARG:HH22	24:Q:69:ARG:HD2	1.86	0.41
17:J:52:ASP:O	17:J:121:LYS:HE3	2.21	0.41
32:Y:49:ASP:O	32:Y:53:VAL:HG23	2.21	0.41
34:a:2:A:H8	34:a:2:A:OP2	2.04	0.41
34:a:836:G:C5	34:a:851:G:C6	3.09	0.41
34:a:1202:U:C2	47:n:82:ILE:HG21	2.56	0.41
39:f:72:ASP:O	39:f:75:GLU:HG3	2.20	0.41
42:i:57:VAL:HG23	42:i:58:GLU:H	1.86	0.41
43:j:87:LEU:HD13	43:j:87:LEU:HA	1.89	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:n:49:GLN:OE1	52:s:11:ASP:HA	2.21	0.41
52:s:52:ASN:O	52:s:76:THR:HG22	2.21	0.41
57:x:353:LYS:O	57:x:354:ALA:C	2.64	0.41
1:0:27:LEU:HD23	1:0:27:LEU:HA	1.84	0.40
8:A:118:A:H2'	8:A:120:U:O4	2.22	0.40
8:A:474:G:C6	8:A:510:C:N4	2.89	0.40
8:A:886:A:H3'	8:A:887:A:H4'	2.03	0.40
8:A:1129:A:N1	8:A:2569:G:O2'	2.49	0.40
8:A:1394:U:H4'	8:A:1603:A:H4'	2.02	0.40
9:B:34:A:H5''	9:B:35:C:H5'	2.03	0.40
13:F:129:MET:HE3	13:F:129:MET:HA	2.03	0.40
13:F:137:PHE:HB3	13:F:139:GLU:OE1	2.21	0.40
21:N:4:ARG:HA	21:N:4:ARG:HD2	1.96	0.40
21:N:83:LEU:HD21	21:N:115:LEU:HD13	2.03	0.40
23:P:21:PRO:HD3	23:P:49:ILE:HD12	2.03	0.40
26:S:11:ARG:NH2	26:S:98:LYS:HD2	2.36	0.40
32:Y:24:GLU:O	32:Y:28:LEU:HD13	2.20	0.40
34:a:64:G:C2	34:a:67:C:N4	2.89	0.40
34:a:75:G:H2'	34:a:76:G:O4'	2.21	0.40
34:a:303:A:O2'	34:a:555:U:H4'	2.21	0.40
34:a:883:C:O2'	34:a:884:U:H5'	2.22	0.40
34:a:925:G:C2	34:a:927:G:C8	3.09	0.40
34:a:1399:C:O2	34:a:1502:A:N6	2.54	0.40
38:e:45:VAL:HG23	38:e:116:VAL:HG23	2.03	0.40
38:e:103:GLY:O	38:e:122:VAL:N	2.48	0.40
40:g:113:LYS:HB2	40:g:117:LEU:HD13	2.03	0.40
41:h:55:LYS:HB3	41:h:55:LYS:HE2	1.68	0.40
41:h:93:LYS:HE3	41:h:116:ARG:NH1	2.36	0.40
47:n:42:TRP:O	47:n:46:LEU:HD13	2.21	0.40
51:r:56:ARG:O	51:r:60:ARG:HD3	2.22	0.40
52:s:17:LYS:HE3	52:s:30:LEU:HD12	2.04	0.40
56:w:59:U:O2'	56:w:60:U:P	2.79	0.40
57:x:616:MET:HE1	57:x:659:LEU:HA	2.03	0.40
8:A:886:A:N1	8:A:891:G:H1'	2.37	0.40
8:A:894:U:HO2'	8:A:895:U:H6	1.65	0.40
8:A:894:U:H1'	8:A:895:U:O5'	2.21	0.40
8:A:1054:A:H2'	8:A:1055:G:H8	1.84	0.40
8:A:1278:C:H2'	8:A:1279:G:C8	2.56	0.40
8:A:1311:G:H8	8:A:1311:G:OP2	2.04	0.40
8:A:1637:A:H4'	8:A:2711:A:O2'	2.21	0.40
8:A:1659:G:H2'	8:A:1660:G:O4'	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2147:A:H3'	8:A:2148:G:C8	2.56	0.40
8:A:2251:OMG:H1'	8:A:2251:OMG:HM23	1.11	0.40
8:A:2528:U:O2	8:A:2535:G:C6	2.74	0.40
10:C:70:LYS:HE2	10:C:73:ILE:HD12	2.03	0.40
13:F:35:LEU:HB2	13:F:88:VAL:HG23	2.03	0.40
17:J:17:VAL:HG12	17:J:55:ILE:HB	2.02	0.40
20:M:57:VAL:HG21	20:M:108:VAL:HG11	2.02	0.40
23:P:88:ARG:NE	23:P:114:ASN:OD1	2.54	0.40
25:R:40:MET:HG3	25:R:49:ILE:HA	2.03	0.40
31:X:5:GLN:HG2	31:X:70:LEU:HD21	2.02	0.40
34:a:778:G:C6	34:a:779:C:C4	3.09	0.40
34:a:790:A:OP1	55:v:38:A:O2'	2.35	0.40
35:b:65:LYS:HB2	35:b:157:PRO:HA	2.03	0.40
42:i:5:TYR:HD2	42:i:89:TYR:HB2	1.86	0.40
43:j:5:ARG:HH21	43:j:79:PRO:HG3	1.85	0.40
44:k:111:ASP:H	54:u:3:ILE:HG23	1.86	0.40
53:t:68:LYS:HB3	53:t:68:LYS:HE2	1.77	0.40
57:x:31:PHE:HE1	57:x:37:HIS:O	2.03	0.40
57:x:113:CYS:O	57:x:117:GLY:N	2.54	0.40
57:x:206:ILE:HD12	57:x:206:ILE:HA	1.86	0.40
57:x:642:LYS:HB3	57:x:654:HIS:CB	2.49	0.40
3:2:34:ARG:NE	3:2:42:LEU:O	2.47	0.40
8:A:144:A:H2'	8:A:145:C:H6	1.85	0.40
8:A:231:A:H2'	8:A:232:G:O4'	2.21	0.40
8:A:364:C:H2'	8:A:365:U:H6	1.86	0.40
8:A:585:G:O6	8:A:1251:C:O2'	2.39	0.40
8:A:728:G:O2'	8:A:730:A:H5''	2.22	0.40
8:A:1297:C:H2'	8:A:1298:C:C6	2.56	0.40
8:A:1912:A:N1	34:a:1407:5MC:O2'	2.49	0.40
8:A:2100:G:C6	8:A:2190:G:C6	3.09	0.40
8:A:2365:G:H2'	8:A:2366:A:C8	2.56	0.40
8:A:2454:G:C4	8:A:2455:G:C8	3.09	0.40
8:A:2814:A:H2'	8:A:2815:C:C6	2.56	0.40
8:A:2865:U:OP2	8:A:2866:U:O2'	2.26	0.40
10:C:130:PRO:HA	10:C:188:ARG:HA	2.03	0.40
10:C:161:VAL:HG22	10:C:175:LEU:HA	2.03	0.40
13:F:113:PHE:HZ	13:F:116:LEU:HG	1.85	0.40
13:F:128:SER:HB2	13:F:154:THR:HG22	2.03	0.40
20:M:118:LYS:HE2	20:M:118:LYS:HB3	1.88	0.40
21:N:72:ASP:HB3	21:N:75:ILE:HG12	2.03	0.40
26:S:11:ARG:HH21	26:S:98:LYS:HD2	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:T:56:GLU:HG3	27:T:57:VAL:HG22	2.03	0.40
34:a:427:U:O2'	34:a:541:G:OP1	2.38	0.40
34:a:947:G:C2	34:a:948:C:C2	3.08	0.40
34:a:1103:C:O2	35:b:105:THR:HG21	2.21	0.40
34:a:1198:G:H2'	34:a:1199:U:C6	2.56	0.40
34:a:1220:G:C2	34:a:1221:G:C4	3.09	0.40
34:a:1363:A:O2'	34:a:1364:U:H2'	2.21	0.40
37:d:25:ARG:HH12	37:d:30:LYS:HG3	1.86	0.40
40:g:24:LYS:O	40:g:28:ILE:HG12	2.21	0.40
40:g:135:LYS:HD2	40:g:138:GLU:OE2	2.20	0.40
44:k:70:ALA:HA	44:k:73:VAL:HG22	2.03	0.40
55:v:33:U:H2'	55:v:33:U:H6	1.66	0.40
57:x:365:MET:HB3	57:x:365:MET:HE3	1.15	0.40
57:x:645:GLU:O	57:x:651:VAL:HG23	2.21	0.40
8:A:4:U:H2'	8:A:5:A:H8	1.86	0.40
8:A:94:A:H2'	8:A:95:A:C8	2.56	0.40
8:A:605:G:OP1	12:E:99:LYS:NZ	2.55	0.40
8:A:614:A:O2'	8:A:615:U:OP2	2.36	0.40
8:A:832:U:H2'	8:A:833:A:C8	2.56	0.40
8:A:1005:C:C2	8:A:1006:C:C5	3.09	0.40
8:A:1287:A:O2'	8:A:1288:G:H5'	2.21	0.40
8:A:2124:G:C5	8:A:2125:G:H1'	2.57	0.40
8:A:2128:G:H3'	8:A:2129:C:H5''	2.03	0.40
8:A:2445:2MG:P	12:E:69:ARG:HH12	2.44	0.40
8:A:2554:U:H2'	8:A:2555:U:H6	1.84	0.40
8:A:2701:U:H3'	8:A:2702:G:C5'	2.50	0.40
8:A:2720:U:C2	8:A:2721:A:C8	3.09	0.40
8:A:2786:U:O2	11:D:63:PRO:HB3	2.21	0.40
11:D:105:LYS:O	11:D:177:VAL:HG23	2.22	0.40
14:G:86:LEU:HB2	14:G:130:ILE:HB	2.03	0.40
28:U:23:LYS:HE2	28:U:23:LYS:HB2	1.83	0.40
30:W:16:ARG:N	30:W:16:ARG:HD2	2.36	0.40
34:a:113:G:C1'	34:a:354:G:H5'	2.51	0.40
34:a:603:U:H2'	34:a:604:G:H8	1.85	0.40
34:a:843:U:H3'	34:a:844:G:H8	1.85	0.40
34:a:923:A:H2'	34:a:924:C:H6	1.85	0.40
34:a:1161:C:H2'	34:a:1162:C:H6	1.86	0.40
34:a:1167:A:C6	34:a:1169:A:N1	2.90	0.40
34:a:1345:U:OP1	42:i:121:ARG:HD2	2.22	0.40
40:g:52:ARG:HD2	40:g:124:SER:OG	2.21	0.40
49:p:7:ALA:O	49:p:29:ASN:ND2	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:t:59:ARG:O	53:t:63:LYS:HG2	2.21	0.40
57:x:496:LYS:HD3	57:x:608:LYS:HB2	2.03	0.40
8:A:142:A:H2'	8:A:143:C:C6	2.56	0.40
8:A:412:A:N7	8:A:2411:A:H2	2.18	0.40
8:A:478:A:N6	8:A:500:G:O2'	2.43	0.40
8:A:532:A:N3	8:A:532:A:H2'	2.36	0.40
8:A:632:A:H2'	8:A:633:A:C8	2.57	0.40
8:A:834:G:H2'	8:A:835:C:O4'	2.22	0.40
8:A:1532:A:N6	8:A:1540:G:O6	2.54	0.40
8:A:2227:A:OP1	10:C:260:LYS:NZ	2.35	0.40
8:A:2586:U:H2'	8:A:2587:A:H8	1.83	0.40
10:C:131:MET:HG2	10:C:163:ILE:HD11	2.02	0.40
13:F:105:ILE:O	13:F:108:PRO:HG2	2.22	0.40
27:T:23:ALA:O	27:T:27:SER:OG	2.27	0.40
30:W:29:ALA:N	30:W:60:ASP:OD1	2.55	0.40
34:a:427:U:O5'	34:a:427:U:H6	2.04	0.40
34:a:471:U:C4	34:a:472:U:C4	3.10	0.40
34:a:478:A:H2'	34:a:479:U:O4'	2.21	0.40
34:a:487:A:H3'	34:a:488:C:H6	1.87	0.40
34:a:487:A:H2'	34:a:488:C:O4'	2.21	0.40
34:a:499:A:O4'	34:a:547:A:N6	2.54	0.40
34:a:513:C:H2'	34:a:514:C:C6	2.56	0.40
34:a:678:U:H2'	34:a:679:C:H6	1.87	0.40
34:a:763:G:H2'	34:a:764:C:C6	2.57	0.40
34:a:874:G:C2'	34:a:875:U:H5'	2.52	0.40
34:a:1309:G:C6	34:a:1329:A:C2	3.09	0.40
35:b:43:GLU:OE1	35:b:43:GLU:N	2.55	0.40
37:d:57:LYS:HE3	37:d:57:LYS:HB3	1.96	0.40
37:d:98:ASP:OD1	37:d:99:ASN:N	2.55	0.40
41:h:10:LEU:HD11	41:h:126:CYS:HB3	2.02	0.40
43:j:65:TYR:HB3	47:n:96:LEU:CD1	2.50	0.40
46:m:14:ALA:N	46:m:42:VAL:O	2.55	0.40
56:w:73:A:O2'	56:w:74:C:OP1	2.37	0.40
57:x:92:VAL:O	57:x:93:ASP:C	2.64	0.40
57:x:108:ALA:HB3	57:x:136:ARG:CG	2.48	0.40
57:x:548:TYR:CB	57:x:551:ALA:HB3	2.50	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	0	54/57 (95%)	53 (98%)	1 (2%)	0	100	100
2	1	48/55 (87%)	45 (94%)	3 (6%)	0	100	100
3	2	44/46 (96%)	40 (91%)	4 (9%)	0	100	100
4	3	62/65 (95%)	57 (92%)	5 (8%)	0	100	100
5	4	36/38 (95%)	31 (86%)	5 (14%)	0	100	100
6	5	129/165 (78%)	110 (85%)	19 (15%)	0	100	100
7	6	64/70 (91%)	54 (84%)	10 (16%)	0	100	100
10	C	269/273 (98%)	247 (92%)	22 (8%)	0	100	100
11	D	207/209 (99%)	186 (90%)	21 (10%)	0	100	100
12	E	199/201 (99%)	190 (96%)	9 (4%)	0	100	100
13	F	175/179 (98%)	153 (87%)	22 (13%)	0	100	100
14	G	174/177 (98%)	162 (93%)	12 (7%)	0	100	100
15	H	147/149 (99%)	122 (83%)	25 (17%)	0	100	100
16	I	139/142 (98%)	114 (82%)	25 (18%)	0	100	100
17	J	140/142 (99%)	133 (95%)	7 (5%)	0	100	100
18	K	120/123 (98%)	109 (91%)	11 (9%)	0	100	100
19	L	141/144 (98%)	131 (93%)	10 (7%)	0	100	100
20	M	134/136 (98%)	123 (92%)	11 (8%)	0	100	100
21	N	118/127 (93%)	111 (94%)	7 (6%)	0	100	100
22	O	114/117 (97%)	108 (95%)	6 (5%)	0	100	100
23	P	112/115 (97%)	103 (92%)	9 (8%)	0	100	100
24	Q	115/118 (98%)	110 (96%)	5 (4%)	0	100	100
25	R	101/103 (98%)	92 (91%)	9 (9%)	0	100	100
26	S	108/110 (98%)	98 (91%)	10 (9%)	0	100	100
27	T	91/100 (91%)	87 (96%)	4 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	U	100/104 (96%)	91 (91%)	9 (9%)	0	100	100
29	V	92/94 (98%)	86 (94%)	6 (6%)	0	100	100
30	W	73/85 (86%)	67 (92%)	6 (8%)	0	100	100
31	X	75/78 (96%)	70 (93%)	5 (7%)	0	100	100
32	Y	61/63 (97%)	58 (95%)	3 (5%)	0	100	100
33	Z	56/59 (95%)	53 (95%)	3 (5%)	0	100	100
35	b	216/240 (90%)	197 (91%)	19 (9%)	0	100	100
36	c	204/233 (88%)	194 (95%)	10 (5%)	0	100	100
37	d	203/206 (98%)	176 (87%)	27 (13%)	0	100	100
38	e	155/167 (93%)	144 (93%)	11 (7%)	0	100	100
39	f	98/135 (73%)	88 (90%)	10 (10%)	0	100	100
40	g	149/179 (83%)	139 (93%)	10 (7%)	0	100	100
41	h	127/130 (98%)	120 (94%)	7 (6%)	0	100	100
42	i	125/130 (96%)	109 (87%)	16 (13%)	0	100	100
43	j	96/103 (93%)	83 (86%)	13 (14%)	0	100	100
44	k	114/129 (88%)	98 (86%)	16 (14%)	0	100	100
45	l	121/124 (98%)	107 (88%)	14 (12%)	0	100	100
46	m	112/118 (95%)	100 (89%)	12 (11%)	0	100	100
47	n	99/102 (97%)	92 (93%)	7 (7%)	0	100	100
48	o	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
49	p	80/82 (98%)	71 (89%)	9 (11%)	0	100	100
50	q	78/84 (93%)	71 (91%)	7 (9%)	0	100	100
51	r	63/75 (84%)	57 (90%)	6 (10%)	0	100	100
52	s	80/92 (87%)	76 (95%)	4 (5%)	0	100	100
53	t	83/87 (95%)	81 (98%)	2 (2%)	0	100	100
54	u	63/71 (89%)	55 (87%)	8 (13%)	0	100	100
57	x	701/704 (100%)	652 (93%)	48 (7%)	1 (0%)	48	78
All	All	6551/6924 (95%)	5985 (91%)	565 (9%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
57	x	165	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	47/48 (98%)	47 (100%)	0	100	100
2	1	45/49 (92%)	44 (98%)	1 (2%)	45	71
3	2	38/38 (100%)	38 (100%)	0	100	100
4	3	51/52 (98%)	51 (100%)	0	100	100
5	4	34/34 (100%)	34 (100%)	0	100	100
7	6	59/62 (95%)	56 (95%)	3 (5%)	21	52
10	C	216/218 (99%)	214 (99%)	2 (1%)	70	80
11	D	164/164 (100%)	164 (100%)	0	100	100
12	E	165/165 (100%)	165 (100%)	0	100	100
13	F	148/150 (99%)	146 (99%)	2 (1%)	59	76
14	G	137/138 (99%)	137 (100%)	0	100	100
15	H	114/114 (100%)	114 (100%)	0	100	100
17	J	116/116 (100%)	116 (100%)	0	100	100
18	K	103/104 (99%)	102 (99%)	1 (1%)	68	79
19	L	102/103 (99%)	100 (98%)	2 (2%)	48	72
20	M	109/109 (100%)	108 (99%)	1 (1%)	70	80
21	N	100/103 (97%)	100 (100%)	0	100	100
22	O	86/87 (99%)	85 (99%)	1 (1%)	63	78
23	P	99/100 (99%)	98 (99%)	1 (1%)	68	79
24	Q	89/90 (99%)	88 (99%)	1 (1%)	65	78
25	R	84/84 (100%)	79 (94%)	5 (6%)	17	47
26	S	93/93 (100%)	93 (100%)	0	100	100
27	T	80/84 (95%)	80 (100%)	0	100	100
28	U	83/85 (98%)	81 (98%)	2 (2%)	43	69
29	V	78/78 (100%)	78 (100%)	0	100	100
30	W	57/63 (90%)	57 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	X	67/68 (98%)	67 (100%)	0	100	100
32	Y	55/55 (100%)	53 (96%)	2 (4%)	31	62
33	Z	48/49 (98%)	48 (100%)	0	100	100
35	b	180/198 (91%)	176 (98%)	4 (2%)	45	71
36	c	170/190 (90%)	170 (100%)	0	100	100
37	d	172/173 (99%)	170 (99%)	2 (1%)	63	78
38	e	114/126 (90%)	113 (99%)	1 (1%)	70	80
39	f	87/116 (75%)	87 (100%)	0	100	100
40	g	124/147 (84%)	121 (98%)	3 (2%)	43	69
41	h	104/105 (99%)	103 (99%)	1 (1%)	68	79
42	i	105/107 (98%)	105 (100%)	0	100	100
43	j	86/90 (96%)	85 (99%)	1 (1%)	63	78
44	k	89/99 (90%)	87 (98%)	2 (2%)	45	71
45	l	103/104 (99%)	101 (98%)	2 (2%)	50	73
46	m	92/96 (96%)	92 (100%)	0	100	100
47	n	79/84 (94%)	79 (100%)	0	100	100
48	o	76/77 (99%)	76 (100%)	0	100	100
49	p	65/65 (100%)	63 (97%)	2 (3%)	35	64
50	q	74/78 (95%)	73 (99%)	1 (1%)	59	76
51	r	56/65 (86%)	55 (98%)	1 (2%)	51	73
52	s	72/79 (91%)	71 (99%)	1 (1%)	59	76
53	t	65/66 (98%)	65 (100%)	0	100	100
54	u	46/61 (75%)	46 (100%)	0	100	100
57	x	577/578 (100%)	491 (85%)	86 (15%)	3	13
58	y	1/1 (100%)	1 (100%)	0	100	100
All	All	5204/5408 (96%)	5073 (98%)	131 (2%)	42	69

All (131) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	1	16	THR
7	6	16	CYS
7	6	22	MET

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Mol	Chain	Res	Type
7	6	64	PHE
10	C	239	PHE
10	C	259	ASN
13	F	135	ILE
13	F	174	PHE
18	K	111	LYS
19	L	27	LEU
19	L	29	LYS
20	M	57	VAL
22	O	31	THR
23	P	67	GLU
24	Q	36	GLN
25	R	20	VAL
25	R	46	GLU
25	R	49	ILE
25	R	51	VAL
25	R	72	VAL
28	U	88	ASP
28	U	100	GLU
32	Y	17	GLU
32	Y	19	LEU
35	b	17	HIS
35	b	41	ASN
35	b	152	ASP
35	b	153	MET
37	d	141	VAL
37	d	142	VAL
38	e	55	VAL
40	g	67	ASN
40	g	79	VAL
40	g	129	ASN
41	h	45	ILE
43	j	89	ARG
44	k	28	ASN
44	k	99	LEU
45	l	6	LEU
45	l	63	THR
49	p	42	ILE
49	p	45	GLU
50	q	16	MET
51	r	44	THR
52	s	63	ASP

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Mol	Chain	Res	Type
57	x	22	LYS
57	x	24	THR
57	x	35	VAL
57	x	39	ILE
57	x	41	GLU
57	x	42	VAL
57	x	43	HIS
57	x	53	GLU
57	x	68	THR
57	x	82	ARG
57	x	83	ILE
57	x	96	ILE
57	x	98	VAL
57	x	100	ARG
57	x	104	VAL
57	x	115	VAL
57	x	123	GLU
57	x	124	THR
57	x	134	VAL
57	x	137	ILE
57	x	146	MET
57	x	170	LEU
57	x	175	GLU
57	x	179	THR
57	x	182	VAL
57	x	185	VAL
57	x	196	ASP
57	x	199	VAL
57	x	209	ASP
57	x	210	MET
57	x	216	GLU
57	x	221	LEU
57	x	223	GLU
57	x	224	SER
57	x	230	GLU
57	x	231	GLU
57	x	240	GLU
57	x	242	LEU
57	x	243	THR
57	x	244	GLU
57	x	247	ILE
57	x	261	ILE

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Mol	Chain	Res	Type
57	x	270	LYS
57	x	272	LYS
57	x	277	MET
57	x	278	LEU
57	x	289	VAL
57	x	291	VAL
57	x	297	ILE
57	x	303	ASP
57	x	304	THR
57	x	307	GLU
57	x	309	HIS
57	x	314	GLU
57	x	319	LEU
57	x	325	THR
57	x	329	VAL
57	x	346	ASP
57	x	349	LEU
57	x	365	MET
57	x	375	GLU
57	x	376	VAL
57	x	389	ASP
57	x	390	VAL
57	x	392	THR
57	x	409	GLU
57	x	410	PHE
57	x	423	THR
57	x	430	MET
57	x	441	ASP
57	x	446	VAL
57	x	448	THR
57	x	449	ASP
57	x	450	GLU
57	x	455	THR
57	x	462	GLU
57	x	467	ILE
57	x	468	ILE
57	x	475	GLU
57	x	476	PHE
57	x	478	VAL
57	x	513	GLN
57	x	529	ASN
57	x	638	ARG

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Mol	Chain	Res	Type
57	x	688	GLU
57	x	701	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
4	3	30	HIS
10	C	89	ASN
10	C	199	HIS
10	C	238	ASN
11	D	173	GLN
11	D	185	ASN
14	G	103	ASN
14	G	110	HIS
17	J	47	HIS
22	O	29	HIS
23	P	2	ASN
23	P	9	GLN
25	R	12	HIS
26	S	102	HIS
27	T	70	HIS
28	U	44	HIS
28	U	73	ASN
31	X	19	HIS
36	c	7	ASN
36	c	138	GLN
37	d	99	ASN
39	f	37	HIS
40	g	96	ASN
44	k	21	HIS
52	s	51	HIS
57	x	11	ASN
57	x	495	GLN
57	x	504	HIS
57	x	513	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
34	a	1539/1542 (99%)	336 (21%)	0

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
55	v	76/77 (98%)	17 (22%)	0
56	w	75/76 (98%)	23 (30%)	0
59	z	10/33 (30%)	4 (40%)	0
8	A	2902/2903 (99%)	648 (22%)	45 (1%)
9	B	119/120 (99%)	29 (24%)	3 (2%)
All	All	4721/4751 (99%)	1057 (22%)	48 (1%)

All (1057) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
8	A	10	A
8	A	15	G
8	A	23	G
8	A	34	U
8	A	42	A
8	A	43	G
8	A	44	A
8	A	46	G
8	A	58	G
8	A	62	U
8	A	63	A
8	A	71	A
8	A	74	A
8	A	75	G
8	A	84	A
8	A	96	C
8	A	101	A
8	A	118	A
8	A	120	U
8	A	131	A
8	A	140	C
8	A	141	G
8	A	142	A
8	A	144	A
8	A	157	C
8	A	160	A
8	A	163	C
8	A	164	C
8	A	170	U
8	A	196	A
8	A	199	A
8	A	204	A

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Mol	Chain	Res	Type
8	A	205	G
8	A	215	G
8	A	216	A
8	A	221	A
8	A	222	A
8	A	223	A
8	A	228	C
8	A	230	G
8	A	242	G
8	A	243	U
8	A	244	A
8	A	248	G
8	A	250	G
8	A	255	A
8	A	261	G
8	A	265	A
8	A	266	G
8	A	267	C
8	A	272	A
8	A	273	G
8	A	275	C
8	A	276	U
8	A	278	A
8	A	279	A
8	A	287	G
8	A	288	U
8	A	330	A
8	A	335	C
8	A	345	A
8	A	359	G
8	A	361	G
8	A	362	A
8	A	363	G
8	A	369	U
8	A	371	A
8	A	372	G
8	A	377	G
8	A	386	G
8	A	393	C
8	A	395	U
8	A	396	G
8	A	401	A

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Mol	Chain	Res	Type
8	A	402	A
8	A	404	A
8	A	405	U
8	A	406	G
8	A	411	G
8	A	412	A
8	A	455	C
8	A	457	A
8	A	458	G
8	A	459	U
8	A	473	G
8	A	480	A
8	A	481	G
8	A	482	A
8	A	490	C
8	A	491	G
8	A	504	A
8	A	505	A
8	A	509	C
8	A	510	C
8	A	512	G
8	A	513	A
8	A	529	A
8	A	530	G
8	A	532	A
8	A	533	G
8	A	546	U
8	A	548	G
8	A	549	G
8	A	556	A
8	A	563	A
8	A	568	U
8	A	573	U
8	A	575	A
8	A	588	U
8	A	603	A
8	A	613	A
8	A	614	A
8	A	615	U
8	A	622	G
8	A	627	A
8	A	637	A

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Mol	Chain	Res	Type
8	A	645	C
8	A	646	U
8	A	647	G
8	A	655	A
8	A	659	G
8	A	669	G
8	A	670	A
8	A	682	G
8	A	685	A
8	A	686	U
8	A	694	U
8	A	711	G
8	A	712	G
8	A	714	U
8	A	715	A
8	A	716	A
8	A	729	G
8	A	730	A
8	A	747	5MC
8	A	757	G
8	A	762	U
8	A	763	G
8	A	764	A
8	A	775	G
8	A	782	A
8	A	783	A
8	A	784	G
8	A	785	G
8	A	789	A
8	A	791	C
8	A	792	A
8	A	805	G
8	A	806	C
8	A	812	C
8	A	819	A
8	A	827	U
8	A	828	U
8	A	831	G
8	A	846	U
8	A	847	U
8	A	858	G
8	A	859	G

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Mol	Chain	Res	Type
8	A	878	A
8	A	879	G
8	A	881	G
8	A	882	G
8	A	883	G
8	A	884	U
8	A	885	C
8	A	887	A
8	A	889	C
8	A	890	C
8	A	891	G
8	A	892	A
8	A	893	C
8	A	894	U
8	A	895	U
8	A	896	A
8	A	897	C
8	A	899	A
8	A	903	C
8	A	907	G
8	A	910	A
8	A	931	U
8	A	933	A
8	A	934	U
8	A	941	A
8	A	946	C
8	A	961	C
8	A	965	C
8	A	973	A
8	A	974	G
8	A	975	A
8	A	983	A
8	A	984	A
8	A	990	A
8	A	995	C
8	A	996	A
8	A	1005	C
8	A	1012	U
8	A	1013	C
8	A	1024	G
8	A	1025	G
8	A	1026	G

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Mol	Chain	Res	Type
8	A	1027	A
8	A	1028	A
8	A	1033	U
8	A	1040	A
8	A	1041	G
8	A	1042	G
8	A	1046	A
8	A	1047	G
8	A	1048	A
8	A	1052	C
8	A	1053	C
8	A	1056	G
8	A	1057	A
8	A	1058	U
8	A	1059	G
8	A	1060	U
8	A	1061	U
8	A	1062	G
8	A	1063	G
8	A	1064	C
8	A	1066	U
8	A	1067	A
8	A	1068	G
8	A	1069	A
8	A	1070	A
8	A	1071	G
8	A	1072	C
8	A	1073	A
8	A	1074	G
8	A	1077	A
8	A	1078	U
8	A	1079	C
8	A	1080	A
8	A	1083	U
8	A	1084	A
8	A	1085	A
8	A	1086	A
8	A	1087	G
8	A	1088	A
8	A	1089	A
8	A	1090	A
8	A	1091	G

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Mol	Chain	Res	Type
8	A	1092	C
8	A	1094	U
8	A	1096	A
8	A	1098	A
8	A	1100	C
8	A	1101	U
8	A	1102	C
8	A	1103	A
8	A	1105	U
8	A	1106	G
8	A	1108	U
8	A	1109	C
8	A	1110	G
8	A	1111	A
8	A	1112	G
8	A	1115	G
8	A	1116	G
8	A	1121	C
8	A	1130	U
8	A	1131	G
8	A	1132	U
8	A	1134	A
8	A	1135	C
8	A	1136	G
8	A	1139	G
8	A	1142	A
8	A	1169	A
8	A	1170	C
8	A	1171	G
8	A	1174	U
8	A	1175	A
8	A	1176	U
8	A	1179	G
8	A	1180	U
8	A	1188	U
8	A	1212	G
8	A	1225	G
8	A	1227	G
8	A	1234	U
8	A	1235	G
8	A	1247	A
8	A	1253	A

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Mol	Chain	Res	Type
8	A	1255	U
8	A	1256	G
8	A	1264	A
8	A	1271	G
8	A	1272	A
8	A	1273	U
8	A	1284	A
8	A	1288	G
8	A	1300	G
8	A	1301	A
8	A	1302	A
8	A	1311	G
8	A	1312	U
8	A	1334	G
8	A	1340	U
8	A	1341	G
8	A	1345	C
8	A	1365	A
8	A	1368	G
8	A	1376	C
8	A	1377	G
8	A	1379	U
8	A	1383	A
8	A	1386	C
8	A	1395	A
8	A	1409	U
8	A	1413	A
8	A	1415	U
8	A	1416	G
8	A	1419	A
8	A	1420	A
8	A	1421	G
8	A	1428	C
8	A	1432	G
8	A	1433	A
8	A	1434	A
8	A	1445	G
8	A	1452	G
8	A	1453	A
8	A	1458	U
8	A	1460	U
8	A	1461	C

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Mol	Chain	Res	Type
8	A	1474	U
8	A	1476	U
8	A	1478	G
8	A	1482	G
8	A	1488	C
8	A	1490	A
8	A	1491	G
8	A	1494	A
8	A	1497	U
8	A	1504	A
8	A	1515	A
8	A	1524	G
8	A	1532	A
8	A	1535	A
8	A	1536	C
8	A	1537	G
8	A	1538	G
8	A	1549	A
8	A	1554	U
8	A	1555	G
8	A	1557	C
8	A	1558	C
8	A	1566	A
8	A	1569	A
8	A	1578	U
8	A	1580	A
8	A	1584	U
8	A	1585	C
8	A	1591	A
8	A	1592	C
8	A	1608	A
8	A	1610	A
8	A	1634	A
8	A	1635	A
8	A	1647	U
8	A	1648	U
8	A	1649	G
8	A	1651	G
8	A	1654	A
8	A	1674	G
8	A	1693	U
8	A	1698	A

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Mol	Chain	Res	Type
8	A	1715	G
8	A	1716	U
8	A	1726	C
8	A	1727	C
8	A	1730	C
8	A	1731	G
8	A	1732	C
8	A	1738	G
8	A	1757	A
8	A	1760	C
8	A	1764	C
8	A	1773	A
8	A	1782	U
8	A	1784	A
8	A	1791	A
8	A	1800	C
8	A	1801	A
8	A	1802	A
8	A	1807	G
8	A	1808	A
8	A	1809	A
8	A	1811	G
8	A	1816	C
8	A	1829	A
8	A	1835	2MG
8	A	1866	A
8	A	1869	G
8	A	1884	G
8	A	1895	C
8	A	1900	A
8	A	1901	A
8	A	1906	G
8	A	1908	C
8	A	1910	G
8	A	1912	A
8	A	1917	PSU
8	A	1922	G
8	A	1924	C
8	A	1925	C
8	A	1926	U
8	A	1927	A
8	A	1930	G

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Mol	Chain	Res	Type
8	A	1936	A
8	A	1937	A
8	A	1938	A
8	A	1939	5MU
8	A	1955	U
8	A	1960	A
8	A	1964	G
8	A	1965	C
8	A	1967	C
8	A	1970	A
8	A	1971	U
8	A	1972	G
8	A	1982	U
8	A	1991	U
8	A	1992	G
8	A	1997	C
8	A	2020	A
8	A	2021	C
8	A	2022	U
8	A	2023	C
8	A	2030	6MZ
8	A	2031	A
8	A	2032	G
8	A	2033	A
8	A	2036	C
8	A	2043	C
8	A	2046	G
8	A	2052	A
8	A	2055	C
8	A	2056	G
8	A	2060	A
8	A	2061	G
8	A	2062	A
8	A	2067	G
8	A	2069	G7M
8	A	2077	A
8	A	2090	A
8	A	2091	C
8	A	2093	G
8	A	2101	A
8	A	2102	G
8	A	2103	C

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Mol	Chain	Res	Type
8	A	2104	C
8	A	2105	U
8	A	2107	G
8	A	2110	G
8	A	2111	U
8	A	2112	G
8	A	2114	A
8	A	2115	G
8	A	2116	G
8	A	2118	U
8	A	2119	A
8	A	2120	G
8	A	2126	A
8	A	2127	G
8	A	2128	G
8	A	2129	C
8	A	2131	U
8	A	2132	U
8	A	2133	G
8	A	2134	A
8	A	2135	A
8	A	2136	G
8	A	2137	U
8	A	2138	G
8	A	2139	U
8	A	2143	C
8	A	2145	C
8	A	2146	C
8	A	2147	A
8	A	2148	G
8	A	2150	C
8	A	2151	U
8	A	2153	C
8	A	2154	A
8	A	2155	U
8	A	2158	A
8	A	2159	G
8	A	2161	C
8	A	2162	G
8	A	2165	C
8	A	2169	A
8	A	2170	A

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Mol	Chain	Res	Type
8	A	2171	A
8	A	2172	U
8	A	2173	A
8	A	2174	C
8	A	2176	A
8	A	2180	U
8	A	2181	U
8	A	2183	A
8	A	2184	A
8	A	2185	U
8	A	2186	G
8	A	2190	G
8	A	2193	G
8	A	2198	A
8	A	2204	G
8	A	2211	A
8	A	2212	A
8	A	2225	A
8	A	2226	C
8	A	2238	G
8	A	2239	G
8	A	2266	A
8	A	2271	G
8	A	2279	G
8	A	2283	C
8	A	2287	A
8	A	2288	A
8	A	2297	A
8	A	2300	C
8	A	2305	U
8	A	2309	A
8	A	2320	U
8	A	2322	A
8	A	2325	G
8	A	2326	C
8	A	2333	A
8	A	2334	U
8	A	2336	A
8	A	2345	G
8	A	2347	C
8	A	2350	C
8	A	2352	A

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Mol	Chain	Res	Type
8	A	2361	G
8	A	2383	G
8	A	2385	C
8	A	2402	U
8	A	2406	A
8	A	2410	G
8	A	2423	U
8	A	2425	A
8	A	2429	G
8	A	2430	A
8	A	2432	A
8	A	2435	A
8	A	2441	U
8	A	2447	G
8	A	2448	A
8	A	2452	C
8	A	2459	A
8	A	2469	A
8	A	2475	C
8	A	2476	A
8	A	2478	A
8	A	2480	C
8	A	2484	G
8	A	2488	G
8	A	2489	U
8	A	2491	U
8	A	2494	G
8	A	2502	G
8	A	2503	2MA
8	A	2505	G
8	A	2506	U
8	A	2518	A
8	A	2535	G
8	A	2542	A
8	A	2547	A
8	A	2552	OMU
8	A	2554	U
8	A	2566	A
8	A	2567	G
8	A	2573	C
8	A	2578	G
8	A	2585	U

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Mol	Chain	Res	Type
8	A	2586	U
8	A	2592	G
8	A	2602	A
8	A	2603	G
8	A	2609	U
8	A	2613	U
8	A	2615	U
8	A	2623	G
8	A	2624	G
8	A	2629	U
8	A	2630	G
8	A	2634	A
8	A	2636	C
8	A	2646	C
8	A	2648	G
8	A	2654	A
8	A	2655	G
8	A	2656	U
8	A	2663	G
8	A	2684	U
8	A	2689	U
8	A	2690	U
8	A	2702	G
8	A	2707	U
8	A	2714	G
8	A	2715	C
8	A	2718	G
8	A	2720	U
8	A	2725	A
8	A	2726	A
8	A	2727	A
8	A	2729	G
8	A	2732	G
8	A	2733	A
8	A	2744	G
8	A	2748	A
8	A	2750	A
8	A	2751	G
8	A	2755	C
8	A	2757	A
8	A	2765	A
8	A	2769	U

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Mol	Chain	Res	Type
8	A	2778	A
8	A	2779	U
8	A	2790	U
8	A	2791	G
8	A	2796	U
8	A	2797	U
8	A	2798	U
8	A	2799	A
8	A	2800	A
8	A	2801	G
8	A	2808	G
8	A	2809	A
8	A	2818	U
8	A	2820	A
8	A	2821	A
8	A	2833	U
8	A	2834	G
8	A	2835	A
8	A	2836	U
8	A	2849	U
8	A	2867	G
8	A	2872	A
8	A	2873	A
8	A	2879	A
8	A	2884	U
8	A	2886	A
8	A	2891	U
8	A	2893	A
9	B	9	G
9	B	13	G
9	B	17	C
9	B	18	G
9	B	19	C
9	B	24	G
9	B	26	C
9	B	34	A
9	B	35	C
9	B	37	C
9	B	41	G
9	B	42	C
9	B	45	A
9	B	51	G

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Mol	Chain	Res	Type
9	B	53	A
9	B	56	G
9	B	57	A
9	B	62	C
9	B	65	U
9	B	67	G
9	B	73	A
9	B	87	U
9	B	88	C
9	B	89	U
9	B	90	C
9	B	91	C
9	B	101	A
9	B	109	A
9	B	120	U
34	a	2	A
34	a	6	G
34	a	7	A
34	a	9	G
34	a	31	G
34	a	32	A
34	a	39	G
34	a	46	G
34	a	48	C
34	a	51	A
34	a	70	U
34	a	71	A
34	a	76	G
34	a	78	A
34	a	79	G
34	a	80	A
34	a	81	A
34	a	83	C
34	a	84	U
34	a	85	U
34	a	86	G
34	a	87	C
34	a	89	U
34	a	90	C
34	a	94	G
34	a	96	U
34	a	98	A

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Mol	Chain	Res	Type
34	a	121	U
34	a	141	G
34	a	144	G
34	a	158	G
34	a	163	C
34	a	164	G
34	a	166	U
34	a	173	U
34	a	182	A
34	a	183	C
34	a	184	G
34	a	189	A
34	a	197	A
34	a	198	G
34	a	205	A
34	a	206	C
34	a	208	U
34	a	209	U
34	a	210	C
34	a	211	G
34	a	212	G
34	a	226	G
34	a	240	G
34	a	244	U
34	a	245	U
34	a	247	G
34	a	251	G
34	a	262	A
34	a	266	G
34	a	267	C
34	a	270	A
34	a	281	G
34	a	289	G
34	a	316	C
34	a	321	A
34	a	327	A
34	a	328	C
34	a	329	A
34	a	330	C
34	a	344	A
34	a	347	G
34	a	351	G

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Mol	Chain	Res	Type
34	a	352	C
34	a	354	G
34	a	356	A
34	a	360	G
34	a	367	U
34	a	372	C
34	a	375	U
34	a	388	G
34	a	397	A
34	a	406	G
34	a	411	A
34	a	412	A
34	a	413	G
34	a	421	U
34	a	423	G
34	a	428	G
34	a	429	U
34	a	439	U
34	a	440	C
34	a	444	G
34	a	446	G
34	a	448	A
34	a	461	A
34	a	462	G
34	a	465	A
34	a	468	A
34	a	471	U
34	a	472	U
34	a	473	U
34	a	474	G
34	a	479	U
34	a	482	A
34	a	484	G
34	a	495	A
34	a	496	A
34	a	505	G
34	a	509	A
34	a	510	A
34	a	511	C
34	a	516	PSU
34	a	517	G
34	a	518	C

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Mol	Chain	Res	Type
34	a	521	G
34	a	524	G
34	a	527	G7M
34	a	531	U
34	a	532	A
34	a	535	A
34	a	547	A
34	a	559	A
34	a	562	U
34	a	563	A
34	a	564	C
34	a	572	A
34	a	573	A
34	a	576	C
34	a	577	G
34	a	582	C
34	a	596	A
34	a	607	A
34	a	614	C
34	a	615	G
34	a	629	A
34	a	632	U
34	a	642	A
34	a	650	G
34	a	653	U
34	a	665	A
34	a	703	G
34	a	704	A
34	a	721	G
34	a	723	U
34	a	724	G
34	a	734	G
34	a	747	A
34	a	748	G
34	a	753	A
34	a	755	G
34	a	773	G
34	a	777	A
34	a	781	A
34	a	792	A
34	a	793	U
34	a	794	A

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Mol	Chain	Res	Type
34	a	814	A
34	a	815	A
34	a	816	A
34	a	817	C
34	a	819	A
34	a	829	G
34	a	841	C
34	a	843	U
34	a	844	G
34	a	845	A
34	a	846	G
34	a	847	G
34	a	849	G
34	a	851	G
34	a	868	C
34	a	870	U
34	a	875	U
34	a	885	G
34	a	902	G
34	a	913	A
34	a	914	A
34	a	922	G
34	a	934	C
34	a	935	A
34	a	940	C
34	a	960	U
34	a	966	2MG
34	a	968	A
34	a	969	A
34	a	971	G
34	a	973	G
34	a	975	A
34	a	976	G
34	a	977	A
34	a	981	U
34	a	982	U
34	a	984	C
34	a	992	U
34	a	993	G
34	a	994	A
34	a	996	A
34	a	999	C

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Mol	Chain	Res	Type
34	a	1003	G
34	a	1004	A
34	a	1005	A
34	a	1006	G
34	a	1011	C
34	a	1014	A
34	a	1016	A
34	a	1017	U
34	a	1021	A
34	a	1022	A
34	a	1023	U
34	a	1025	U
34	a	1027	C
34	a	1028	C
34	a	1029	U
34	a	1030	U
34	a	1031	C
34	a	1032	G
34	a	1035	A
34	a	1040	U
34	a	1043	G
34	a	1047	G
34	a	1065	U
34	a	1084	G
34	a	1085	U
34	a	1092	A
34	a	1094	G
34	a	1095	U
34	a	1101	A
34	a	1109	C
34	a	1124	G
34	a	1125	U
34	a	1126	U
34	a	1127	G
34	a	1131	G
34	a	1134	G
34	a	1137	C
34	a	1138	G
34	a	1139	G
34	a	1144	G
34	a	1145	A
34	a	1159	U

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Mol	Chain	Res	Type
34	a	1160	G
34	a	1167	A
34	a	1168	U
34	a	1169	A
34	a	1171	A
34	a	1177	G
34	a	1179	A
34	a	1183	U
34	a	1184	G
34	a	1196	A
34	a	1197	A
34	a	1200	C
34	a	1212	U
34	a	1213	A
34	a	1214	C
34	a	1226	C
34	a	1227	A
34	a	1236	A
34	a	1239	A
34	a	1241	G
34	a	1251	A
34	a	1254	A
34	a	1260	G
34	a	1261	A
34	a	1267	C
34	a	1270	G
34	a	1275	A
34	a	1280	A
34	a	1286	U
34	a	1287	A
34	a	1294	G
34	a	1297	G
34	a	1300	G
34	a	1301	U
34	a	1302	C
34	a	1305	G
34	a	1312	G
34	a	1317	C
34	a	1320	C
34	a	1323	G
34	a	1331	G
34	a	1332	A

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Mol	Chain	Res	Type
34	a	1346	A
34	a	1347	G
34	a	1348	U
34	a	1360	A
34	a	1361	G
34	a	1363	A
34	a	1364	U
34	a	1370	G
34	a	1378	C
34	a	1379	G
34	a	1383	C
34	a	1386	G
34	a	1397	C
34	a	1398	A
34	a	1413	A
34	a	1419	G
34	a	1422	G
34	a	1423	G
34	a	1424	U
34	a	1432	G
34	a	1433	A
34	a	1441	A
34	a	1442	G
34	a	1443	C
34	a	1444	U
34	a	1446	A
34	a	1450	U
34	a	1451	U
34	a	1452	C
34	a	1453	G
34	a	1473	G
34	a	1474	U
34	a	1475	G
34	a	1476	A
34	a	1477	U
34	a	1479	C
34	a	1482	G
34	a	1483	A
34	a	1486	G
34	a	1487	G
34	a	1488	G
34	a	1492	A

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Mol	Chain	Res	Type
34	a	1497	G
34	a	1499	A
34	a	1503	A
34	a	1506	U
34	a	1517	G
34	a	1519	MA6
34	a	1529	G
34	a	1530	G
34	a	1534	A
34	a	1535	C
34	a	1536	C
34	a	1537	U
34	a	1538	C
34	a	1539	C
34	a	1540	U
55	v	9	G
55	v	14	A
55	v	18	G
55	v	20	H2U
55	v	21	A
55	v	33	U
55	v	34	C
55	v	42	G
55	v	43	A
55	v	44	A
55	v	45	G
55	v	46	A
55	v	47	U
55	v	48	C
55	v	52	G
55	v	55	PSU
55	v	76	A
56	w	8	4SU
56	w	13	C
56	w	14	A
56	w	16	U
56	w	17	C
56	w	18	G
56	w	19	G
56	w	20	U
56	w	21	A
56	w	29	G

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Mol	Chain	Res	Type
56	w	36	A
56	w	40	C
56	w	44	G
56	w	45	U
56	w	46	G7M
56	w	53	G
56	w	59	U
56	w	60	U
56	w	61	C
56	w	67	C
56	w	68	C
56	w	69	G
56	w	74	C
59	z	-1	C
59	z	0	U
59	z	4	U
59	z	7	G

All (48) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	A	242	G
8	A	361	G
8	A	458	G
8	A	479	A
8	A	481	G
8	A	545	U
8	A	555	G
8	A	652	U
8	A	715	A
8	A	746	PSU
8	A	774	G
8	A	784	G
8	A	883	G
8	A	894	U
8	A	895	U
8	A	1023	U
8	A	1024	G
8	A	1082	U
8	A	1090	A
8	A	1093	G
8	A	1300	G

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Mol	Chain	Res	Type
8	A	1331	G
8	A	1423	G
8	A	1432	G
8	A	1451	C
8	A	1475	G
8	A	1490	A
8	A	1715	G
8	A	1730	C
8	A	1907	G
8	A	1926	U
8	A	2149	U
8	A	2192	U
8	A	2287	A
8	A	2308	G
8	A	2319	G
8	A	2324	U
8	A	2405	G
8	A	2468	A
8	A	2488	G
8	A	2505	G
8	A	2655	G
8	A	2728	U
8	A	2796	U
8	A	2808	G
9	B	36	C
9	B	52	A
9	B	66	A

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
8	PSU	A	2457	8	18,21,22	1.06	3 (16%)	22,30,33	1.82	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
34	MA6	a	1518	34	23,26,27	1.45	5 (21%)	34,38,41	2.82	12 (35%)
8	1MG	A	745	8	22,26,27	2.58	6 (27%)	33,39,42	2.01	7 (21%)
8	PSU	A	1917	8	18,21,22	0.95	1 (5%)	22,30,33	1.77	4 (18%)
8	PSU	A	955	8	18,21,22	1.05	2 (11%)	22,30,33	1.89	4 (18%)
58	FME	y	101	58	8,9,10	0.99	1 (12%)	7,9,11	0.86	0
34	5MC	a	1407	34	18,22,23	3.62	7 (38%)	26,32,35	1.02	1 (3%)
8	6MZ	A	1618	8	22,25,26	2.95	5 (22%)	30,36,39	4.35	14 (46%)
8	OMG	A	2251	8,56	23,26,27	1.76	6 (26%)	33,38,41	2.17	10 (30%)
56	PSU	w	32	56	18,21,22	1.06	1 (5%)	22,30,33	1.75	4 (18%)
56	G7M	w	46	56	23,26,27	4.07	16 (69%)	35,39,42	2.38	10 (28%)
56	MIA	w	37	56	28,31,32	3.03	10 (35%)	40,44,47	3.50	19 (47%)
55	5MU	v	54	55	19,22,23	4.78	7 (36%)	28,32,35	3.60	9 (32%)
8	5MU	A	1939	8	19,22,23	4.64	7 (36%)	28,32,35	3.79	9 (32%)
8	G7M	A	2069	60,8	23,26,27	4.08	15 (65%)	35,39,42	2.46	11 (31%)
8	5MC	A	747	8	18,22,23	3.56	7 (38%)	26,32,35	1.23	2 (7%)
8	PSU	A	1911	8	18,21,22	1.15	2 (11%)	22,30,33	1.95	6 (27%)
56	4SU	w	8	56	18,21,22	1.95	4 (22%)	26,30,33	2.31	4 (15%)
56	5MU	w	54	56	19,22,23	1.43	6 (31%)	28,32,35	2.10	9 (32%)
8	PSU	A	2580	60,8	18,21,22	1.10	3 (16%)	22,30,33	1.92	6 (27%)
8	6MZ	A	2030	8	22,25,26	3.05	5 (22%)	30,36,39	4.51	14 (46%)
8	5MC	A	1962	8	18,22,23	0.95	2 (11%)	26,32,35	1.33	3 (11%)
34	MA6	a	1519	34	23,26,27	1.46	4 (17%)	34,38,41	2.77	11 (32%)
8	PSU	A	2504	60,8	18,21,22	1.03	2 (11%)	22,30,33	1.75	4 (18%)
8	OMC	A	2498	60,8	19,22,23	2.84	7 (36%)	26,31,34	0.86	1 (3%)
8	PSU	A	2605	8	18,21,22	1.03	2 (11%)	22,30,33	1.85	3 (13%)
56	PSU	w	55	56	18,21,22	1.40	2 (11%)	22,30,33	1.87	3 (13%)
8	2MG	A	1835	8	23,26,27	2.93	8 (34%)	32,38,41	2.14	10 (31%)
8	PSU	A	2604	8	18,21,22	1.06	2 (11%)	22,30,33	2.01	4 (18%)
8	2MG	A	2445	8	23,26,27	1.36	4 (17%)	32,38,41	2.30	9 (28%)
8	3TD	A	1915	8	18,22,23	4.24	5 (27%)	22,32,35	1.72	3 (13%)
55	4SU	v	8	55	18,21,22	3.59	7 (38%)	26,30,33	2.19	4 (15%)
55	PSU	v	55	55	18,21,22	1.09	1 (5%)	22,30,33	1.72	4 (18%)
34	2MG	a	966	34	23,26,27	3.03	7 (30%)	32,38,41	2.26	8 (25%)
8	PSU	A	746	60,8	18,21,22	1.03	2 (11%)	22,30,33	1.72	4 (18%)
34	2MG	a	1516	34	23,26,27	2.88	9 (39%)	32,38,41	2.31	12 (37%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
55	H2U	v	20	55	18,21,22	3.15	5 (27%)	21,30,33	1.96	5 (23%)
34	4OC	a	1402	34	20,23,24	2.97	8 (40%)	26,32,35	0.90	2 (7%)
34	PSU	a	516	60,34	18,21,22	0.96	1 (5%)	22,30,33	1.66	5 (22%)
34	UR3	a	1498	60,34	19,22,23	2.57	7 (36%)	26,32,35	1.34	3 (11%)
34	2MG	a	1207	34	23,26,27	2.92	8 (34%)	32,38,41	2.24	11 (34%)
8	OMU	A	2552	60,8	19,22,23	2.86	8 (42%)	26,31,34	1.78	5 (19%)
56	PSU	w	39	56	18,21,22	1.11	1 (5%)	22,30,33	1.84	4 (18%)
34	G7M	a	527	34	23,26,27	4.10	15 (65%)	35,39,42	2.36	11 (31%)
8	2MA	A	2503	60,8	22,25,26	3.63	9 (40%)	33,37,40	2.12	8 (24%)
34	5MC	a	967	34	18,22,23	3.68	7 (38%)	26,32,35	1.02	1 (3%)

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
8	PSU	A	2457	8	-	0/7/25/26	0/2/2/2
34	MA6	a	1518	34	-	0/11/29/30	0/3/3/3
8	1MG	A	745	8	-	0/7/25/26	0/3/3/3
8	PSU	A	1917	8	-	3/7/25/26	0/2/2/2
8	PSU	A	955	8	-	0/7/25/26	0/2/2/2
58	FME	y	101	58	-	7/7/9/11	-
34	5MC	a	1407	34	-	0/7/25/26	0/2/2/2
8	6MZ	A	1618	8	-	0/9/27/28	0/3/3/3
8	OMG	A	2251	8,56	-	2/9/27/28	0/3/3/3
56	PSU	w	32	56	-	3/7/25/26	0/2/2/2
56	G7M	w	46	56	-	1/7/25/26	0/3/3/3
56	MIA	w	37	56	-	3/15/33/34	0/3/3/3
55	5MU	v	54	55	-	0/7/25/26	0/2/2/2
8	5MU	A	1939	8	-	2/7/25/26	0/2/2/2
8	G7M	A	2069	60,8	-	2/7/25/26	0/3/3/3
8	5MC	A	747	8	-	1/7/25/26	0/2/2/2
8	PSU	A	1911	8	-	0/7/25/26	0/2/2/2
56	4SU	w	8	56	-	0/7/25/26	0/2/2/2
56	5MU	w	54	56	-	0/7/25/26	0/2/2/2
8	PSU	A	2580	60,8	-	0/7/25/26	0/2/2/2
8	6MZ	A	2030	8	-	2/9/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	5MC	A	1962	8	-	0/7/25/26	0/2/2/2
34	MA6	a	1519	34	-	3/11/29/30	0/3/3/3
8	PSU	A	2504	60,8	-	0/7/25/26	0/2/2/2
8	OMC	A	2498	60,8	-	1/9/27/28	0/2/2/2
8	PSU	A	2605	8	-	0/7/25/26	0/2/2/2
56	PSU	w	55	56	-	0/7/25/26	0/2/2/2
8	2MG	A	1835	8	-	2/9/27/28	0/3/3/3
8	PSU	A	2604	8	-	0/7/25/26	0/2/2/2
8	2MG	A	2445	8	-	0/9/27/28	0/3/3/3
8	3TD	A	1915	8	-	2/7/25/26	0/2/2/2
55	4SU	v	8	55	-	0/7/25/26	0/2/2/2
55	PSU	v	55	55	-	1/7/25/26	0/2/2/2
34	2MG	a	966	34	-	2/9/27/28	0/3/3/3
8	PSU	A	746	60,8	-	4/7/25/26	0/2/2/2
34	2MG	a	1516	34	-	0/9/27/28	0/3/3/3
55	H2U	v	20	55	-	7/7/38/39	0/2/2/2
34	4OC	a	1402	34	-	1/9/29/30	0/2/2/2
34	PSU	a	516	60,34	-	0/7/25/26	0/2/2/2
34	UR3	a	1498	60,34	-	2/7/25/26	0/2/2/2
34	2MG	a	1207	34	-	0/9/27/28	0/3/3/3
8	OMU	A	2552	60,8	-	3/9/27/28	0/2/2/2
56	PSU	w	39	56	-	3/7/25/26	0/2/2/2
34	G7M	a	527	34	-	1/7/25/26	0/3/3/3
8	2MA	A	2503	60,8	-	1/7/25/26	0/3/3/3
34	5MC	a	967	34	-	0/7/25/26	0/2/2/2

All (252) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1915	3TD	C6-C5	12.88	1.50	1.35
8	A	2030	6MZ	C6-N6	12.20	1.47	1.34
56	w	37	MIA	C2-S10	-11.90	1.65	1.75
8	A	1618	6MZ	C6-N6	11.86	1.47	1.34
8	A	2069	G7M	C2'-C3'	-11.59	1.21	1.53
34	a	527	G7M	C2'-C3'	-11.39	1.22	1.53
8	A	2503	2MA	C4-N3	11.36	1.48	1.34
55	v	54	5MU	C2-N1	10.80	1.55	1.38
56	w	46	G7M	C2'-C3'	-10.78	1.23	1.53
55	v	54	5MU	C6-N1	10.40	1.55	1.38
8	A	1939	5MU	C6-N1	10.20	1.55	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1939	5MU	C2-N1	9.82	1.54	1.38
55	v	20	H2U	C2-N1	9.80	1.49	1.35
55	v	54	5MU	C4-C5	9.71	1.60	1.44
8	A	1939	5MU	C4-C5	9.53	1.60	1.44
8	A	1915	3TD	C2-N1	9.37	1.49	1.37
34	a	967	5MC	C6-C5	9.13	1.49	1.34
34	a	1407	5MC	C6-C5	9.01	1.49	1.34
8	A	747	5MC	C6-C5	8.78	1.49	1.34
55	v	8	4SU	C4-N3	8.32	1.46	1.37
8	A	1939	5MU	C4-N3	-8.14	1.23	1.38
34	a	966	2MG	C2-N3	7.95	1.47	1.31
55	v	54	5MU	C4-N3	-7.94	1.24	1.38
8	A	1835	2MG	C2-N3	7.49	1.46	1.31
34	a	1207	2MG	C2-N3	7.29	1.45	1.31
55	v	8	4SU	C2-N1	7.18	1.50	1.38
34	a	1516	2MG	C2-N3	7.11	1.45	1.31
34	a	967	5MC	C4-N3	7.00	1.46	1.34
8	A	745	1MG	C2-N2	6.96	1.46	1.34
8	A	2552	OMU	C2-N1	6.77	1.49	1.38
34	a	966	2MG	C4-N3	6.70	1.50	1.34
8	A	747	5MC	C4-N3	6.67	1.45	1.34
34	a	1402	4OC	C4-N3	6.60	1.44	1.32
34	a	1407	5MC	C4-N3	6.59	1.45	1.34
8	A	2503	2MA	C2-N3	6.57	1.45	1.34
55	v	20	H2U	C2-N3	6.52	1.49	1.38
34	a	966	2MG	C2-N2	6.48	1.47	1.33
8	A	1835	2MG	C4-N3	6.43	1.49	1.34
34	a	1207	2MG	C4-N3	6.25	1.49	1.34
34	a	527	G7M	C4-N3	6.24	1.49	1.34
34	a	527	G7M	O4'-C4'	-6.17	1.31	1.45
34	a	1516	2MG	C4-N3	6.17	1.48	1.34
8	A	745	1MG	C4-N3	6.16	1.48	1.34
8	A	2552	OMU	C2-N3	6.16	1.49	1.38
34	a	1207	2MG	C2-N2	6.16	1.47	1.33
8	A	1835	2MG	C2-N2	6.15	1.47	1.33
34	a	1516	2MG	C2-N2	6.15	1.47	1.33
8	A	2069	G7M	C4-N3	6.13	1.48	1.34
56	w	46	G7M	C4-N3	6.11	1.48	1.34
34	a	1498	UR3	C2-N1	6.11	1.47	1.38
8	A	2498	OMC	C6-C5	6.11	1.49	1.35
8	A	747	5MC	C2-N3	6.10	1.48	1.36
34	a	967	5MC	C2-N3	6.07	1.48	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1402	4OC	C6-C5	6.06	1.49	1.35
56	w	37	MIA	C13-C14	6.05	1.49	1.32
8	A	2069	G7M	O4'-C4'	-6.05	1.31	1.45
34	a	1498	UR3	C6-C5	6.00	1.49	1.35
56	w	46	G7M	O4'-C4'	-5.98	1.31	1.45
8	A	2498	OMC	C2-N3	5.93	1.48	1.36
34	a	1407	5MC	C2-N3	5.92	1.48	1.36
55	v	54	5MU	C6-C5	5.90	1.44	1.34
8	A	1939	5MU	C6-C5	5.78	1.44	1.34
55	v	8	4SU	C6-C5	5.72	1.48	1.35
8	A	1915	3TD	C6-N1	5.68	1.45	1.36
55	v	8	4SU	C2-N3	5.50	1.47	1.38
56	w	46	G7M	C2-N3	5.50	1.46	1.33
8	A	2498	OMC	C4-N3	5.45	1.45	1.34
34	a	1402	4OC	C2-N3	5.44	1.47	1.36
34	a	527	G7M	C2-N3	5.41	1.46	1.33
8	A	2503	2MA	C2-N1	5.40	1.43	1.34
8	A	2552	OMU	C6-C5	5.38	1.47	1.35
8	A	745	1MG	C2-N3	5.37	1.44	1.34
56	w	46	G7M	C3'-C4'	5.15	1.66	1.53
8	A	2503	2MA	C6-N1	5.13	1.42	1.35
8	A	2069	G7M	C2-N3	5.12	1.45	1.33
55	v	8	4SU	C4-S4	-5.02	1.58	1.68
55	v	20	H2U	C4-N3	5.01	1.46	1.37
56	w	8	4SU	C4-S4	-4.96	1.59	1.68
34	a	967	5MC	C4-N4	4.88	1.46	1.34
8	A	2069	G7M	C5-N7	-4.85	1.33	1.39
34	a	527	G7M	C5-N7	-4.83	1.33	1.39
34	a	1407	5MC	C4-N4	4.80	1.46	1.34
8	A	1915	3TD	C2-N3	4.80	1.49	1.38
8	A	747	5MC	C4-N4	4.76	1.46	1.34
34	a	1207	2MG	C2-N1	4.64	1.44	1.36
34	a	1407	5MC	C6-N1	4.61	1.45	1.38
34	a	527	G7M	C3'-C4'	4.60	1.64	1.53
8	A	2069	G7M	C3'-C4'	4.55	1.64	1.53
8	A	2069	G7M	C1'-N9	-4.55	1.34	1.47
56	w	46	G7M	C1'-N9	-4.54	1.34	1.47
56	w	46	G7M	C5-N7	-4.52	1.33	1.39
34	a	1498	UR3	C2-N3	4.44	1.47	1.39
8	A	1835	2MG	C2-N1	4.40	1.43	1.36
34	a	1516	2MG	C2-N1	4.39	1.43	1.36
34	a	527	G7M	C1'-N9	-4.35	1.35	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	967	5MC	C6-N1	4.31	1.45	1.38
34	a	966	2MG	C2-N1	4.30	1.43	1.36
34	a	1407	5MC	C2-N1	4.24	1.49	1.40
34	a	527	G7M	C2-N2	4.23	1.44	1.34
8	A	2503	2MA	C5-C6	4.20	1.52	1.41
8	A	747	5MC	C6-N1	4.11	1.45	1.38
8	A	2251	OMG	C6-N1	-4.07	1.31	1.38
34	a	1402	4OC	C4-N4	4.07	1.44	1.35
56	w	46	G7M	C2-N2	4.07	1.43	1.34
8	A	2069	G7M	C2-N2	4.05	1.43	1.34
34	a	967	5MC	C2-N1	4.03	1.48	1.40
56	w	8	4SU	C4-N3	-4.00	1.33	1.37
34	a	1402	4OC	C5-C4	3.93	1.49	1.40
8	A	2030	6MZ	C5-C4	-3.85	1.31	1.39
56	w	46	G7M	C5-C6	3.85	1.54	1.43
8	A	747	5MC	C2-N1	3.81	1.48	1.40
8	A	2498	OMC	C4-N4	3.81	1.42	1.33
34	a	527	G7M	C5-C6	3.78	1.53	1.43
8	A	2251	OMG	C5-N7	-3.74	1.31	1.39
8	A	2069	G7M	C5-C6	3.72	1.53	1.43
8	A	2503	2MA	C6-N6	-3.71	1.24	1.34
55	v	55	PSU	C6-C5	3.64	1.39	1.35
34	a	966	2MG	C5-N7	-3.63	1.32	1.39
8	A	1835	2MG	C5-N7	-3.61	1.32	1.39
8	A	2552	OMU	C4-N3	3.57	1.45	1.38
34	a	1402	4OC	C2-N1	3.52	1.47	1.40
8	A	1618	6MZ	C5-C4	-3.50	1.32	1.39
8	A	2498	OMC	C2-N1	3.50	1.47	1.40
34	a	966	2MG	O6-C6	-3.47	1.17	1.23
8	A	1835	2MG	O6-C6	-3.45	1.17	1.23
34	a	967	5MC	O2-C2	-3.44	1.17	1.23
8	A	747	5MC	O2-C2	-3.42	1.17	1.23
8	A	2503	2MA	C5-N7	-3.40	1.32	1.39
8	A	2498	OMC	C6-N1	3.40	1.46	1.38
56	w	37	MIA	O4'-C4'	-3.38	1.37	1.45
34	a	1516	2MG	O6-C6	-3.35	1.17	1.23
34	a	527	G7M	O4'-C1'	3.35	1.49	1.42
34	a	1516	2MG	C5-N7	-3.35	1.32	1.39
56	w	39	PSU	C6-C5	3.34	1.39	1.35
34	a	1207	2MG	C5-N7	-3.34	1.32	1.39
56	w	46	G7M	O4'-C1'	3.33	1.49	1.42
8	A	2069	G7M	O4'-C1'	3.33	1.49	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	w	37	MIA	C5-N7	-3.31	1.32	1.39
8	A	2030	6MZ	C8-N9	-3.29	1.31	1.37
34	a	1207	2MG	O6-C6	-3.28	1.17	1.23
34	a	1407	5MC	O2-C2	-3.27	1.17	1.23
56	w	32	PSU	C6-C5	3.26	1.39	1.35
34	a	1402	4OC	O2-C2	-3.23	1.17	1.23
8	A	1911	PSU	C6-C5	3.22	1.39	1.35
55	v	8	4SU	C5-C4	3.22	1.46	1.42
56	w	46	G7M	O2'-C2'	3.21	1.50	1.43
8	A	2030	6MZ	C4-N9	-3.20	1.30	1.37
8	A	1618	6MZ	C8-N9	-3.20	1.31	1.37
8	A	2498	OMC	O2-C2	-3.15	1.17	1.23
34	a	1518	MA6	C6-N6	3.13	1.46	1.36
34	a	1519	MA6	C5-N7	-3.07	1.33	1.39
8	A	745	1MG	C5-N7	-3.07	1.33	1.39
34	a	1519	MA6	C6-N6	3.07	1.45	1.36
56	w	55	PSU	C6-C5	3.06	1.38	1.35
8	A	2552	OMU	O4-C4	-3.04	1.18	1.24
34	a	1402	4OC	C6-N1	3.03	1.45	1.38
34	a	1519	MA6	C8-N9	-2.98	1.32	1.37
34	a	1518	MA6	C8-N9	-2.94	1.32	1.37
34	a	527	G7M	O2'-C2'	2.91	1.49	1.43
34	a	1498	UR3	C6-N1	2.88	1.44	1.38
56	w	8	4SU	C5-C4	-2.87	1.38	1.42
34	a	1519	MA6	C5-C4	-2.87	1.33	1.39
8	A	1939	5MU	O2-C2	-2.85	1.17	1.23
8	A	2251	OMG	C4-N9	-2.84	1.30	1.38
56	w	37	MIA	C4-N9	-2.83	1.31	1.37
56	w	46	G7M	O6-C6	-2.83	1.18	1.23
8	A	1618	6MZ	C6-N1	-2.82	1.30	1.35
34	a	1518	MA6	C5-N7	-2.82	1.33	1.39
8	A	2069	G7M	O2'-C2'	2.80	1.49	1.43
8	A	2445	2MG	C6-N1	-2.80	1.33	1.38
56	w	46	G7M	O3'-C3'	2.79	1.49	1.43
55	v	54	5MU	O4-C4	-2.78	1.18	1.23
34	a	1498	UR3	O2-C2	-2.77	1.17	1.22
56	w	37	MIA	C8-N9	-2.77	1.32	1.37
8	A	2504	PSU	C6-C5	2.76	1.38	1.35
56	w	55	PSU	C4-N3	-2.75	1.33	1.38
8	A	1939	5MU	O4-C4	-2.75	1.18	1.23
34	a	1518	MA6	C5-C4	-2.73	1.33	1.39
8	A	1962	5MC	C6-N1	-2.71	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1618	6MZ	C4-N9	-2.70	1.31	1.37
8	A	1917	PSU	C6-C5	2.69	1.38	1.35
8	A	1915	3TD	C4-N3	2.68	1.46	1.40
8	A	2604	PSU	C6-C5	2.68	1.38	1.35
55	v	8	4SU	O2-C2	-2.66	1.18	1.23
8	A	2069	G7M	O6-C6	-2.64	1.18	1.23
55	v	54	5MU	O2-C2	-2.63	1.18	1.23
34	a	516	PSU	C6-C5	2.63	1.38	1.35
8	A	746	PSU	C6-C5	2.61	1.38	1.35
56	w	54	5MU	C6-C5	2.61	1.38	1.34
8	A	2605	PSU	C6-C5	2.61	1.38	1.35
34	a	527	G7M	O6-C6	-2.60	1.18	1.23
8	A	2445	2MG	C5-C4	2.58	1.45	1.38
8	A	955	PSU	C6-C5	2.58	1.38	1.35
56	w	8	4SU	C2-N3	-2.56	1.33	1.38
8	A	2503	2MA	C4-N9	-2.56	1.32	1.37
8	A	2552	OMU	O2-C2	-2.56	1.18	1.23
8	A	2580	PSU	O4'-C1'	-2.55	1.40	1.43
56	w	54	5MU	C4-N3	-2.53	1.34	1.38
8	A	745	1MG	C5-C6	2.52	1.51	1.45
8	A	2552	OMU	C6-N1	2.52	1.44	1.38
8	A	2445	2MG	C5-N7	-2.51	1.34	1.39
56	w	37	MIA	C3'-C4'	-2.50	1.46	1.53
34	a	527	G7M	O3'-C3'	2.48	1.48	1.43
56	w	46	G7M	C2-N1	2.46	1.43	1.37
8	A	2580	PSU	C6-C5	2.46	1.38	1.35
56	w	54	5MU	C6-N1	-2.46	1.33	1.38
8	A	2251	OMG	C2-N1	-2.45	1.31	1.37
34	a	1516	2MG	C5-C6	2.45	1.53	1.44
34	a	1207	2MG	C5-C6	2.43	1.53	1.44
56	w	54	5MU	C4-C5	2.42	1.48	1.44
34	a	1207	2MG	C6-N1	2.42	1.43	1.38
8	A	2457	PSU	C6-C5	2.41	1.38	1.35
34	a	1498	UR3	O4-C4	-2.38	1.18	1.23
56	w	46	G7M	C6-N1	2.37	1.43	1.38
8	A	2030	6MZ	C6-N1	-2.36	1.31	1.35
55	v	20	H2U	O4-C4	-2.32	1.18	1.23
55	v	20	H2U	O2-C2	-2.31	1.18	1.23
56	w	37	MIA	C2'-C1'	-2.29	1.46	1.53
8	A	2069	G7M	C2-N1	2.27	1.43	1.37
8	A	745	1MG	C4-N9	-2.26	1.32	1.38
34	a	527	G7M	C2-N1	2.25	1.43	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	2251	OMG	C8-N9	-2.25	1.32	1.37
34	a	1516	2MG	C4-N9	-2.25	1.32	1.38
8	A	1911	PSU	C4-C5	-2.22	1.37	1.44
34	a	527	G7M	C6-N1	2.22	1.43	1.38
8	A	2580	PSU	C4-C5	-2.21	1.37	1.44
34	a	966	2MG	C5-C6	2.19	1.52	1.44
8	A	746	PSU	C4-C5	-2.18	1.38	1.44
8	A	2445	2MG	C4-N9	-2.17	1.32	1.38
56	w	46	G7M	C2'-C1'	2.17	1.60	1.53
8	A	2069	G7M	C6-N1	2.16	1.42	1.38
8	A	2069	G7M	O3'-C3'	2.15	1.48	1.43
34	a	1518	MA6	C8-N7	2.15	1.35	1.31
56	w	54	5MU	C2-N1	2.13	1.41	1.38
8	A	2457	PSU	O4'-C1'	-2.13	1.40	1.43
8	A	2251	OMG	C2'-C1'	-2.13	1.47	1.53
8	A	1835	2MG	C5-C6	2.12	1.52	1.44
8	A	1962	5MC	C6-C5	2.12	1.38	1.34
34	a	1516	2MG	C6-N1	2.11	1.42	1.38
8	A	2604	PSU	C4-C5	-2.09	1.38	1.44
8	A	2605	PSU	C4-C5	-2.09	1.38	1.44
8	A	955	PSU	C4-C5	-2.08	1.38	1.44
8	A	1835	2MG	C6-N1	2.08	1.42	1.38
8	A	2457	PSU	C4-C5	-2.07	1.38	1.44
8	A	2503	2MA	C8-N9	-2.04	1.33	1.37
34	a	1498	UR3	C5-C4	2.04	1.49	1.43
56	w	54	5MU	C2-N3	-2.03	1.34	1.38
8	A	2552	OMU	C5-C4	2.03	1.48	1.43
56	w	37	MIA	O5'-C5'	-2.02	1.39	1.44
8	A	2504	PSU	C4-C5	-2.02	1.38	1.44
58	y	101	FME	CA-N	-2.01	1.43	1.46
56	w	37	MIA	C2'-C3'	-2.01	1.47	1.53

All (298) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2030	6MZ	C4-N9-C8	14.44	121.38	105.73
8	A	1618	6MZ	C4-N9-C8	13.24	120.08	105.73
8	A	1939	5MU	C5-C4-N3	12.35	125.85	115.31
55	v	54	5MU	C5-C4-N3	11.91	125.48	115.31
8	A	2030	6MZ	N9-C8-N7	-11.39	98.34	113.91
56	w	37	MIA	C12-C13-C14	-11.05	105.63	127.14
8	A	1939	5MU	C5-C6-N1	-10.74	112.29	123.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1618	6MZ	N9-C8-N7	-10.67	99.32	113.91
34	a	1518	MA6	N1-C6-N6	-10.19	105.94	117.08
55	v	54	5MU	C5-C6-N1	-9.98	113.07	123.34
34	a	1519	MA6	N1-C6-N6	-9.60	106.58	117.08
8	A	1618	6MZ	C5-C6-N1	8.69	127.46	118.20
8	A	2030	6MZ	C5-C6-N1	8.19	126.93	118.20
56	w	37	MIA	C5-C4-N3	-7.65	118.58	127.19
55	v	8	4SU	C4-N3-C2	-7.49	120.06	127.34
56	w	37	MIA	N3-C4-N9	7.44	137.31	126.99
8	A	2445	2MG	C2-N3-C4	7.25	121.03	112.04
55	v	20	H2U	C4-N3-C2	-6.80	120.16	125.79
56	w	8	4SU	C4-N3-C2	-6.74	120.79	127.34
34	a	1207	2MG	C2-N3-C4	6.60	120.23	112.04
34	a	966	2MG	C2-N3-C4	6.58	120.20	112.04
34	a	1516	2MG	C2-N3-C4	6.57	120.18	112.04
8	A	1618	6MZ	N3-C4-N9	6.48	137.76	127.08
56	w	8	4SU	C5-C4-N3	6.30	120.53	114.69
34	a	527	G7M	CN7-N7-C5	6.23	134.51	126.77
56	w	46	G7M	CN7-N7-C5	6.20	134.47	126.77
56	w	55	PSU	N1-C2-N3	6.02	121.95	115.13
8	A	2503	2MA	C5-C4-N3	-6.02	120.42	127.19
8	A	1835	2MG	C2-N3-C4	5.94	119.40	112.04
8	A	2030	6MZ	N3-C4-N9	5.93	136.85	127.08
8	A	2069	G7M	CN7-N7-C5	5.89	134.09	126.77
34	a	966	2MG	C5-C4-N3	-5.87	118.94	128.46
8	A	2445	2MG	C5-C4-N3	-5.82	119.02	128.46
8	A	2251	OMG	C5-C4-N3	-5.79	119.06	128.46
34	a	1519	MA6	N1-C2-N3	-5.71	119.67	128.60
34	a	1518	MA6	N1-C2-N3	-5.66	119.74	128.60
56	w	37	MIA	C16-C14-C13	-5.60	106.46	122.65
8	A	1939	5MU	O4-C4-C5	-5.54	118.48	124.90
8	A	2030	6MZ	N1-C2-N3	-5.50	119.99	128.60
8	A	745	1MG	C1'-N9-C4	-5.50	110.17	126.50
55	v	8	4SU	C5-C4-N3	5.45	119.74	114.69
8	A	2503	2MA	N9-C8-N7	-5.45	106.47	113.91
8	A	2552	OMU	C4-N3-C2	-5.35	119.53	126.58
8	A	1618	6MZ	N1-C2-N3	-5.34	120.25	128.60
8	A	1939	5MU	C4-N3-C2	-5.33	120.44	127.35
8	A	1915	3TD	N1-C2-N3	5.26	120.29	116.14
34	a	1519	MA6	C5-C4-N3	-5.24	119.91	126.75
34	a	1207	2MG	C5-C4-N3	-5.19	120.03	128.46
8	A	2251	OMG	C2-N3-C4	5.17	121.51	112.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1911	PSU	C4-N3-C2	-5.12	118.97	126.34
8	A	1835	2MG	C5-C4-N3	-5.11	120.17	128.46
56	w	54	5MU	C4-N3-C2	-5.11	120.73	127.35
8	A	2604	PSU	C4-N3-C2	-5.08	119.02	126.34
34	a	1516	2MG	C5-C4-N3	-5.03	120.30	128.46
8	A	2030	6MZ	C5-C4-N9	-4.98	99.99	105.78
8	A	2605	PSU	C4-N3-C2	-4.97	119.18	126.34
34	a	1518	MA6	C5-C6-N6	4.97	133.95	125.30
8	A	1618	6MZ	C9-N6-C6	-4.92	118.63	122.87
8	A	2604	PSU	N1-C2-N3	4.92	120.70	115.13
8	A	2030	6MZ	C9-N6-C6	-4.91	118.64	122.87
56	w	39	PSU	N1-C2-N3	4.91	120.69	115.13
55	v	54	5MU	C4-N3-C2	-4.89	121.02	127.35
8	A	745	1MG	C1'-N9-C8	4.88	140.59	126.70
56	w	37	MIA	N6-C6-N1	4.88	124.73	118.50
8	A	2069	G7M	C1'-N9-C4	-4.88	112.02	126.50
8	A	1939	5MU	N3-C2-N1	4.87	121.35	114.89
55	v	54	5MU	O4-C4-C5	-4.85	119.28	124.90
56	w	54	5MU	N3-C2-N1	4.80	121.26	114.89
34	a	527	G7M	CN7-N7-C8	-4.80	117.44	124.84
8	A	955	PSU	N1-C2-N3	4.78	120.55	115.13
8	A	1911	PSU	N1-C2-N3	4.78	120.55	115.13
56	w	37	MIA	C15-C14-C13	-4.77	108.86	122.65
8	A	746	PSU	C4-N3-C2	-4.72	119.54	126.34
8	A	955	PSU	C4-N3-C2	-4.72	119.54	126.34
8	A	2457	PSU	C4-N3-C2	-4.72	119.54	126.34
55	v	54	5MU	N3-C2-N1	4.71	121.15	114.89
8	A	2069	G7M	CN7-N7-C8	-4.68	117.61	124.84
34	a	1518	MA6	N9-C8-N7	-4.68	107.51	113.91
56	w	46	G7M	CN7-N7-C8	-4.67	117.62	124.84
34	a	527	G7M	C2-N3-C4	4.65	120.59	112.30
8	A	2030	6MZ	C5-N7-C8	4.64	110.11	103.51
8	A	1618	6MZ	C5-N7-C8	4.62	110.07	103.51
34	a	966	2MG	C2-N1-C6	-4.60	119.18	124.48
56	w	37	MIA	C4-N9-C8	4.60	110.71	105.73
8	A	2580	PSU	N1-C2-N3	4.59	120.33	115.13
56	w	39	PSU	C4-N3-C2	-4.59	119.73	126.34
8	A	745	1MG	C5-C4-N3	-4.55	121.08	128.46
8	A	2457	PSU	N1-C2-N3	4.55	120.28	115.13
8	A	1618	6MZ	C5-C4-N9	-4.54	100.50	105.78
56	w	46	G7M	C1'-N9-C4	-4.53	113.04	126.50
8	A	2069	G7M	C2-N3-C4	4.51	120.34	112.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1917	PSU	C4-N3-C2	-4.51	119.84	126.34
55	v	55	PSU	C4-N3-C2	-4.50	119.85	126.34
56	w	32	PSU	C4-N3-C2	-4.50	119.85	126.34
55	v	55	PSU	N1-C2-N3	4.50	120.23	115.13
8	A	2504	PSU	C4-N3-C2	-4.47	119.90	126.34
8	A	2605	PSU	N1-C2-N3	4.47	120.19	115.13
8	A	1917	PSU	N1-C2-N3	4.46	120.19	115.13
34	a	1516	2MG	C2-N1-C6	-4.46	119.35	124.48
34	a	1207	2MG	C2-N1-C6	-4.46	119.35	124.48
34	a	1519	MA6	C5-C6-N6	4.45	133.05	125.30
56	w	37	MIA	O4'-C4'-C3'	-4.44	96.33	105.11
8	A	2251	OMG	N9-C4-N3	4.38	134.74	125.94
34	a	1498	UR3	C4-N3-C2	-4.38	120.44	124.56
34	a	516	PSU	C4-N3-C2	-4.38	120.03	126.34
8	A	2580	PSU	C4-N3-C2	-4.37	120.04	126.34
56	w	46	G7M	C2-N3-C4	4.37	120.08	112.30
34	a	966	2MG	N9-C4-N3	4.36	134.70	125.94
8	A	1915	3TD	C4-N3-C2	-4.35	119.89	124.61
8	A	2503	2MA	N3-C4-N9	4.33	133.00	126.99
56	w	32	PSU	N1-C2-N3	4.31	120.02	115.13
8	A	1835	2MG	C2-N1-C6	-4.31	119.52	124.48
56	w	54	5MU	C5-C4-N3	4.30	118.98	115.31
8	A	2504	PSU	N1-C2-N3	4.30	120.00	115.13
8	A	2445	2MG	N9-C4-N3	4.27	134.51	125.94
56	w	37	MIA	O4'-C1'-N9	-4.24	99.70	108.06
34	a	527	G7M	C5-C4-N3	-4.24	120.03	128.15
34	a	1518	MA6	C5-C4-N3	-4.24	121.22	126.75
8	A	746	PSU	N1-C2-N3	4.17	119.86	115.13
56	w	8	4SU	N3-C2-N1	4.13	120.37	114.89
56	w	55	PSU	C4-N3-C2	-4.11	120.41	126.34
34	a	527	G7M	C1'-N9-C4	-4.08	114.37	126.50
8	A	2503	2MA	C4-N9-C8	4.07	110.14	105.73
34	a	1519	MA6	N9-C8-N7	-4.06	108.37	113.91
8	A	2069	G7M	C5-C4-N3	-4.03	120.42	128.15
8	A	1618	6MZ	C1'-N9-C8	-4.02	118.05	127.14
55	v	8	4SU	C5-C4-S4	-4.02	119.29	124.47
56	w	46	G7M	C5-C4-N3	-3.98	120.52	128.15
56	w	46	G7M	C5-C6-N1	3.98	120.10	111.79
8	A	2069	G7M	C5-C6-N1	3.90	119.93	111.79
34	a	527	G7M	C5-C6-N1	3.90	119.93	111.79
34	a	516	PSU	N1-C2-N3	3.89	119.53	115.13
8	A	2069	G7M	C1'-N9-C8	3.85	139.75	126.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1618	6MZ	C5-C4-N3	-3.85	121.73	126.75
55	v	54	5MU	C5M-C5-C6	-3.84	117.72	122.85
8	A	747	5MC	C5-C6-N1	-3.81	119.42	123.34
8	A	2552	OMU	N3-C2-N1	3.77	119.90	114.89
34	a	1519	MA6	C2-N3-C4	3.71	120.52	111.75
34	a	1518	MA6	C2-N1-C6	3.70	120.50	111.75
8	A	1939	5MU	O2-C2-N1	-3.67	117.90	122.79
8	A	2552	OMU	C5-C4-N3	3.66	120.31	114.84
56	w	54	5MU	O4-C4-C5	-3.63	120.69	124.90
8	A	1618	6MZ	C2-N3-C4	3.63	120.32	111.75
8	A	2030	6MZ	C4-C5-C6	-3.61	114.01	116.81
56	w	54	5MU	C5-C6-N1	-3.59	119.65	123.34
8	A	2251	OMG	O2'-C2'-C1'	-3.58	102.09	109.08
56	w	46	G7M	C1'-N9-C8	3.57	138.79	126.74
8	A	1939	5MU	C5M-C5-C6	-3.57	118.09	122.85
34	a	1516	2MG	C1'-N9-C4	-3.54	116.00	126.50
8	A	1835	2MG	N9-C4-N3	3.53	133.02	125.94
8	A	1962	5MC	C5-C6-N1	-3.52	119.71	123.34
55	v	54	5MU	C5M-C5-C4	3.51	122.63	118.77
34	a	1519	MA6	C2-N1-C6	3.48	119.98	111.75
8	A	2503	2MA	C5-N7-C8	3.47	108.44	103.51
8	A	2030	6MZ	C4-N9-C1'	-3.46	118.34	126.59
8	A	2580	PSU	O2-C2-N1	-3.43	119.02	122.79
55	v	8	4SU	N3-C2-N1	3.41	119.42	114.89
8	A	2030	6MZ	C2-N3-C4	3.37	119.72	111.75
56	w	37	MIA	C5-C6-N6	-3.35	116.10	121.76
56	w	8	4SU	C5-C4-S4	-3.34	120.17	124.47
34	a	967	5MC	C5-C6-N1	-3.33	119.91	123.34
34	a	1518	MA6	C2-N3-C4	3.33	119.61	111.75
56	w	37	MIA	O2'-C2'-C1'	-3.29	99.02	110.02
56	w	46	G7M	O6-C6-C5	-3.29	120.64	128.06
8	A	2445	2MG	C6-C5-N7	3.29	136.36	130.25
8	A	745	1MG	C2-N3-C4	3.28	119.35	111.98
34	a	1519	MA6	C4-C5-C6	3.28	119.55	115.88
34	a	527	G7M	O6-C6-C5	-3.26	120.70	128.06
34	a	527	G7M	C1'-N9-C8	3.25	137.69	126.74
8	A	2604	PSU	C6-C5-C4	3.24	120.47	118.20
8	A	745	1MG	N9-C8-N7	-3.21	107.34	113.39
56	w	37	MIA	O2'-C2'-C3'	-3.21	101.44	111.82
8	A	955	PSU	O2-C2-N1	-3.19	119.27	122.79
56	w	37	MIA	N9-C8-N7	-3.18	109.56	113.91
8	A	2069	G7M	O6-C6-C5	-3.18	120.89	128.06

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1939	5MU	C5M-C5-C4	3.17	122.26	118.77
8	A	2030	6MZ	C6-C5-N7	3.17	135.82	132.39
55	v	20	H2U	N3-C2-N1	3.16	120.00	116.65
34	a	1516	2MG	C1'-N9-C8	3.15	135.67	126.70
8	A	2251	OMG	C6-C5-N7	3.14	136.09	130.25
56	w	37	MIA	C2-N3-C4	3.13	120.58	112.35
56	w	37	MIA	O4'-C4'-C5'	-3.11	99.15	109.37
34	a	1207	2MG	N9-C4-N3	3.07	132.10	125.94
34	a	527	G7M	N9-C4-N3	3.06	132.09	125.94
8	A	2030	6MZ	C1'-N9-C8	-3.06	120.23	127.14
34	a	1518	MA6	C5-N7-C8	3.05	107.85	103.51
34	a	1516	2MG	N9-C8-N7	-3.04	107.66	113.39
34	a	1519	MA6	N3-C4-N9	3.03	132.07	127.08
8	A	2504	PSU	O2-C2-N1	-3.01	119.48	122.79
56	w	46	G7M	C2-N1-C6	-3.00	119.63	125.10
8	A	1835	2MG	N9-C8-N7	-2.99	107.77	113.39
8	A	2552	OMU	O4-C4-C5	-2.96	119.95	125.16
34	a	1519	MA6	C5-N7-C8	2.96	107.71	103.51
34	a	1518	MA6	C4-N9-C8	2.94	108.91	105.73
34	a	966	2MG	C5-C6-N1	2.91	120.59	113.19
56	w	55	PSU	O2-C2-N1	-2.91	119.58	122.79
8	A	2503	2MA	N3-C2-N1	-2.91	120.37	125.72
8	A	745	1MG	N9-C4-N3	2.91	131.78	125.94
8	A	2580	PSU	C6-N1-C2	-2.89	119.72	122.68
8	A	2445	2MG	O5'-C5'-C4'	-2.89	99.16	108.99
8	A	1917	PSU	O2-C2-N1	-2.86	119.64	122.79
56	w	32	PSU	O2-C2-N1	-2.85	119.65	122.79
34	a	1207	2MG	C1'-N9-C4	-2.84	118.07	126.50
34	a	1207	2MG	N9-C8-N7	-2.82	108.07	113.39
56	w	39	PSU	C6-N1-C2	-2.82	119.80	122.68
8	A	2069	G7M	C2-N1-C6	-2.79	120.01	125.10
34	a	966	2MG	O6-C6-C5	-2.78	119.23	126.60
8	A	1618	6MZ	C4-C5-C6	-2.76	114.66	116.81
8	A	2030	6MZ	C5-C4-N3	-2.76	123.15	126.75
34	a	1407	5MC	C5-C6-N1	-2.74	120.52	123.34
8	A	2069	G7M	N9-C4-N3	2.74	131.44	125.94
55	v	20	H2U	C5-C4-N3	2.73	119.72	116.65
55	v	54	5MU	O2-C2-N1	-2.73	119.15	122.79
34	a	1516	2MG	C5-C6-N1	2.73	120.12	113.19
8	A	955	PSU	C6-N1-C2	-2.72	119.90	122.68
34	a	1516	2MG	N9-C4-N3	2.72	131.40	125.94
8	A	1618	6MZ	C6-C5-N7	2.72	135.33	132.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
55	v	20	H2U	C5-C6-N1	2.71	120.55	111.61
34	a	1207	2MG	CM2-N2-C2	-2.70	117.89	123.86
56	w	46	G7M	N9-C4-N3	2.70	131.36	125.94
34	a	527	G7M	C2-N1-C6	-2.70	120.18	125.10
8	A	1917	PSU	C6-N1-C2	-2.68	119.94	122.68
34	a	516	PSU	O2-C2-N1	-2.66	119.86	122.79
8	A	1835	2MG	C5-C6-N1	2.66	119.94	113.19
56	w	37	MIA	C2'-C3'-C4'	-2.66	97.47	102.64
34	a	1207	2MG	C5-C6-N1	2.65	119.92	113.19
8	A	1835	2MG	O6-C6-C5	-2.65	119.58	126.60
8	A	745	1MG	C5-C6-N1	2.65	120.02	114.91
34	a	1516	2MG	CM2-N2-C2	-2.64	118.02	123.86
34	a	966	2MG	N9-C8-N7	-2.64	108.42	113.39
8	A	2251	OMG	O6-C6-C5	-2.63	119.63	126.60
34	a	1518	MA6	C4-C5-C6	2.62	118.81	115.88
34	a	1498	UR3	C1'-N1-C2	2.60	121.37	116.99
56	w	37	MIA	C1'-N9-C8	-2.59	121.29	127.14
56	w	37	MIA	C5-N7-C8	2.58	107.18	103.51
8	A	2457	PSU	O2-C2-N1	-2.55	119.98	122.79
8	A	2580	PSU	O4'-C1'-C2'	2.55	108.74	105.14
55	v	54	5MU	O4-C4-N3	-2.55	115.23	120.12
8	A	2552	OMU	C1'-N1-C2	2.53	122.15	117.57
8	A	2604	PSU	O2-C2-N1	-2.52	120.02	122.79
34	a	1207	2MG	C1'-N9-C8	2.50	133.81	126.70
8	A	2251	OMG	CM2-O2'-C2'	-2.48	108.01	114.52
34	a	966	2MG	N1-C2-N3	-2.48	120.12	123.95
34	a	1516	2MG	N1-C2-N3	-2.48	120.12	123.95
34	a	1207	2MG	O6-C6-C5	-2.47	120.05	126.60
56	w	32	PSU	C6-N1-C2	-2.46	120.16	122.68
34	a	1518	MA6	N3-C4-N9	2.45	131.12	127.08
8	A	2445	2MG	CM2-N2-C2	-2.45	118.45	123.86
8	A	746	PSU	O2-C2-N1	-2.44	120.10	122.79
8	A	1835	2MG	CM2-N2-C2	-2.44	118.47	123.86
34	a	1207	2MG	N1-C2-N3	-2.44	120.18	123.95
8	A	2445	2MG	C4-C5-N7	-2.43	106.87	110.72
8	A	2445	2MG	C2'-C1'-N9	-2.43	106.33	113.22
8	A	2457	PSU	C6-N1-C2	-2.43	120.20	122.68
8	A	2504	PSU	C6-N1-C2	-2.42	120.21	122.68
8	A	1835	2MG	C1'-N9-C4	-2.41	119.34	126.50
8	A	2069	G7M	C4'-O4'-C1'	-2.37	104.24	109.47
56	w	54	5MU	O2-C2-N1	-2.37	119.64	122.79
8	A	2445	2MG	O6-C6-C5	-2.33	120.41	126.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1939	5MU	O4-C4-N3	-2.32	115.66	120.12
8	A	1911	PSU	C6-C5-C4	2.32	119.82	118.20
34	a	1516	2MG	O6-C6-C5	-2.32	120.44	126.60
56	w	54	5MU	C5M-C5-C4	2.31	121.31	118.77
8	A	1911	PSU	O2-C2-N1	-2.31	120.25	122.79
8	A	1835	2MG	N1-C2-N3	-2.29	120.41	123.95
34	a	516	PSU	C6-N1-C2	-2.28	120.36	122.68
8	A	2251	OMG	C5-C6-N1	2.27	118.96	113.19
56	w	37	MIA	C11-S10-C2	-2.27	100.57	102.27
8	A	2251	OMG	O4'-C4'-C3'	-2.27	100.62	105.11
55	v	20	H2U	O2-C2-N1	-2.27	120.26	123.11
55	v	55	PSU	O2-C2-N1	-2.23	120.33	122.79
8	A	746	PSU	C6-C5-C4	2.23	119.76	118.20
8	A	1962	5MC	O4'-C1'-N1	2.20	113.40	108.36
8	A	1962	5MC	C5-C4-N3	-2.20	119.30	121.67
8	A	1911	PSU	O4-C4-C5	-2.18	118.36	124.05
8	A	2498	OMC	O2-C2-N3	-2.17	118.81	122.33
55	v	55	PSU	C6-N1-C2	-2.16	120.48	122.68
8	A	747	5MC	C5-C4-N3	-2.12	119.39	121.67
8	A	2457	PSU	O4'-C1'-C2'	2.12	108.13	105.14
34	a	1498	UR3	C6-N1-C2	-2.09	119.91	121.79
8	A	1915	3TD	O4'-C1'-C2'	2.09	108.09	105.14
8	A	2251	OMG	C4-C5-N7	-2.09	107.42	110.72
34	a	1518	MA6	C4-C5-N7	-2.09	108.08	110.62
34	a	1516	2MG	C8-N7-C5	2.09	108.02	104.24
34	a	527	G7M	O4'-C1'-C2'	-2.08	102.12	106.64
8	A	2580	PSU	C6-C5-C4	2.08	119.65	118.20
8	A	1911	PSU	C6-N1-C2	-2.07	120.56	122.68
8	A	2605	PSU	C6-C5-C4	2.05	119.63	118.20
34	a	516	PSU	O4'-C1'-C2'	2.05	108.03	105.14
34	a	1402	4OC	CM4-N4-C4	-2.05	118.45	122.45
56	w	39	PSU	O4'-C1'-C2'	2.04	108.03	105.14
8	A	2503	2MA	CM2-C2-N3	2.04	120.34	117.15
8	A	2503	2MA	C6-C5-C4	2.03	119.92	117.18
34	a	1519	MA6	C4-C5-N7	-2.03	108.14	110.62
8	A	1618	6MZ	C4-N9-C1'	-2.03	121.76	126.59
56	w	54	5MU	C5M-C5-C6	-2.02	120.16	122.85
56	w	54	5MU	C3'-C2'-C1'	2.01	105.24	101.43
34	a	1402	4OC	C6-C5-C4	2.01	119.42	116.96

There are no chirality outliers.

All (59) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
34	a	966	2MG	O4'-C4'-C5'-O5'
34	a	966	2MG	C3'-C4'-C5'-O5'
34	a	1498	UR3	O4'-C1'-N1-C2
55	v	20	H2U	O4'-C4'-C5'-O5'
55	v	20	H2U	O4'-C1'-N1-C6
8	A	746	PSU	C2'-C1'-C5-C4
8	A	746	PSU	C2'-C1'-C5-C6
8	A	1915	3TD	O4'-C1'-C5-C4
8	A	1915	3TD	O4'-C1'-C5-C6
8	A	1917	PSU	C3'-C4'-C5'-O5'
8	A	2030	6MZ	O4'-C4'-C5'-O5'
8	A	2030	6MZ	C3'-C4'-C5'-O5'
8	A	2251	OMG	C1'-C2'-O2'-CM2
8	A	2552	OMU	O4'-C1'-N1-C2
8	A	2552	OMU	O4'-C1'-N1-C6
8	A	2552	OMU	C1'-C2'-O2'-CM2
56	w	32	PSU	O4'-C1'-C5-C4
56	w	32	PSU	O4'-C1'-C5-C6
56	w	37	MIA	C12-C13-C14-C15
56	w	37	MIA	C12-C13-C14-C16
56	w	39	PSU	C2'-C1'-C5-C4
56	w	39	PSU	O4'-C1'-C5-C4
56	w	39	PSU	O4'-C1'-C5-C6
58	y	101	FME	O1-CN-N-CA
58	y	101	FME	O-C-CA-CB
34	a	1498	UR3	O4'-C1'-N1-C6
55	v	20	H2U	C3'-C4'-C5'-O5'
8	A	1917	PSU	O4'-C4'-C5'-O5'
8	A	1939	5MU	O4'-C4'-C5'-O5'
8	A	2069	G7M	O4'-C4'-C5'-O5'
56	w	37	MIA	O4'-C4'-C5'-O5'
58	y	101	FME	CA-CB-CG-SD
8	A	1835	2MG	O4'-C4'-C5'-O5'
8	A	1835	2MG	C3'-C4'-C5'-O5'
8	A	1939	5MU	C3'-C4'-C5'-O5'
55	v	20	H2U	C2'-C1'-N1-C6
58	y	101	FME	N-CA-CB-CG
55	v	20	H2U	C2'-C1'-N1-C2
8	A	2069	G7M	C3'-C4'-C5'-O5'
8	A	2503	2MA	O4'-C4'-C5'-O5'
58	y	101	FME	CB-CG-SD-CE
55	v	20	H2U	O4'-C1'-N1-C2
55	v	55	PSU	C4'-C5'-O5'-P

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Mol	Chain	Res	Type	Atoms
56	w	46	G7M	C4'-C5'-O5'-P
34	a	1519	MA6	C3'-C4'-C5'-O5'
34	a	527	G7M	C4'-C5'-O5'-P
34	a	1402	4OC	O4'-C4'-C5'-O5'
34	a	1519	MA6	C5-C6-N6-C10
58	y	101	FME	C-CA-CB-CG
34	a	1519	MA6	C4'-C5'-O5'-P
8	A	746	PSU	O4'-C1'-C5-C4
8	A	1917	PSU	O4'-C1'-C5-C4
8	A	747	5MC	C4'-C5'-O5'-P
8	A	746	PSU	O4'-C1'-C5-C6
56	w	32	PSU	O4'-C4'-C5'-O5'
8	A	2498	OMC	C2'-C1'-N1-C2
55	v	20	H2U	C4'-C5'-O5'-P
8	A	2251	OMG	C3'-C4'-C5'-O5'
58	y	101	FME	CB-CA-N-CN

There are no ring outliers.

29 monomers are involved in 40 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
34	a	1518	MA6	1	0
8	A	745	1MG	1	0
8	A	1917	PSU	3	0
34	a	1407	5MC	1	0
8	A	2251	OMG	1	0
56	w	37	MIA	2	0
55	v	54	5MU	2	0
8	A	1939	5MU	1	0
8	A	1911	PSU	1	0
56	w	54	5MU	1	0
8	A	2030	6MZ	1	0
34	a	1519	MA6	2	0
8	A	2504	PSU	1	0
8	A	2498	OMC	2	0
56	w	55	PSU	1	0
8	A	2445	2MG	1	0
8	A	1915	3TD	1	0
55	v	8	4SU	1	0
55	v	55	PSU	2	0
34	a	966	2MG	1	0
8	A	746	PSU	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
34	a	1516	2MG	1	0
55	v	20	H2U	2	0
34	a	1402	4OC	2	0
34	a	516	PSU	3	0
34	a	1207	2MG	1	0
8	A	2552	OMU	2	0
56	w	39	PSU	3	0
8	A	2503	2MA	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 378 ligands modelled in this entry, 373 are monoatomic - leaving 5 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	$\# Z > 2$
63	AM2	a	1648	-	40,40,40	0.54	0	53,60,60	0.93	1 (1%)
63	AM2	a	1657	-	40,40,40	0.51	0	53,60,60	0.87	2 (3%)
64	GDP	x	801	60	28,30,30	1.38	4 (14%)	44,47,47	2.10	16 (36%)
65	PO4	x	802	60	4,4,4	4.81	2 (50%)	6,6,6	1.00	0
63	AM2	a	1652	-	40,40,40	0.52	0	53,60,60	1.00	3 (5%)

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
63	AM2	a	1657	-	-	2/12/84/84	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
63	AM2	a	1652	-	-	2/12/84/84	0/4/4/4
64	GDP	x	801	60	-	0/16/32/32	0/3/3/3
63	AM2	a	1648	-	-	0/12/84/84	0/4/4/4

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
65	x	802	PO4	P-O1	9.16	1.72	1.50
64	x	801	GDP	C6-N1	-3.56	1.32	1.38
64	x	801	GDP	C5-N7	-2.66	1.33	1.39
64	x	801	GDP	C4-N9	-2.64	1.31	1.38
64	x	801	GDP	C5-C4	2.30	1.45	1.38
65	x	802	PO4	P-O3	-2.07	1.48	1.54

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
64	x	801	GDP	C5-C4-N3	-4.95	120.42	128.46
64	x	801	GDP	PA-O3A-PB	-4.50	117.39	132.83
64	x	801	GDP	C2-N3-C4	4.37	120.08	112.30
64	x	801	GDP	O3'-C3'-C4'	-4.25	98.75	111.05
64	x	801	GDP	N9-C4-N3	3.94	133.85	125.94
64	x	801	GDP	C6-C5-N7	3.80	137.31	130.25
63	a	1648	AM2	CA9-NA7-CA7	3.70	119.77	114.38
63	a	1652	AM2	CA9-NA7-CA7	3.60	119.63	114.38
63	a	1657	AM2	CA9-NA7-CA7	3.52	119.51	114.38
63	a	1657	AM2	CB1-OA8-CA8	-2.71	109.58	114.42
64	x	801	GDP	C5'-C4'-C3'	-2.54	105.66	115.18
64	x	801	GDP	O2A-PA-O1A	2.47	124.43	112.24
64	x	801	GDP	O3A-PB-O1B	-2.43	97.68	111.19
63	a	1652	AM2	CA1-OA4-CA5	2.43	116.98	113.06
64	x	801	GDP	O6-C6-C5	-2.33	120.41	126.60
64	x	801	GDP	O3B-PB-O2B	2.33	116.55	107.64
64	x	801	GDP	C5-C6-N1	2.33	119.10	113.19
64	x	801	GDP	C4-C5-N7	-2.21	107.23	110.72
64	x	801	GDP	O3'-C3'-C2'	-2.20	104.71	111.82
64	x	801	GDP	C6-C5-C4	-2.16	115.45	118.77
64	x	801	GDP	C8-N9-C4	2.07	109.99	106.05
63	a	1652	AM2	OA4-CA5-CA4	2.03	111.95	108.88

There are no chirality outliers.

All (4) torsion outliers are listed below:

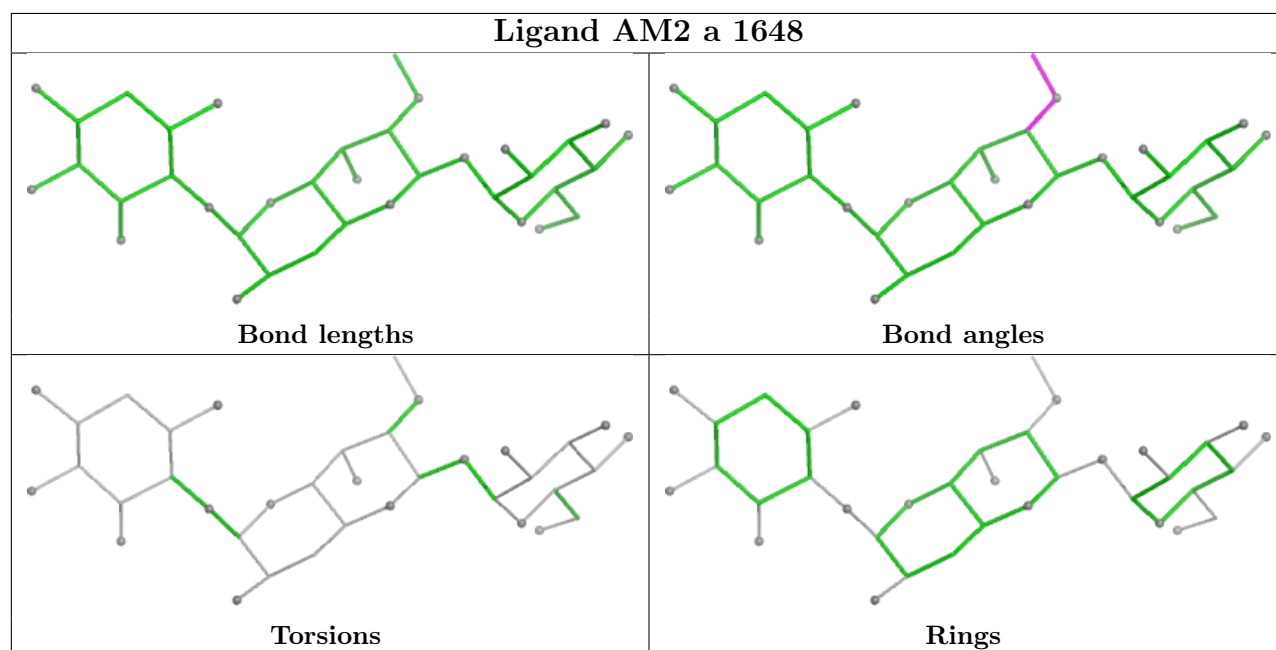
Mol	Chain	Res	Type	Atoms
63	a	1652	AM2	OA5-CA8-OA8-CB1
63	a	1657	AM2	CA6-CA7-NA7-CA9
63	a	1657	AM2	OB1-CB5-CB6-OB6
63	a	1652	AM2	OA4-CA1-OA1-CC1

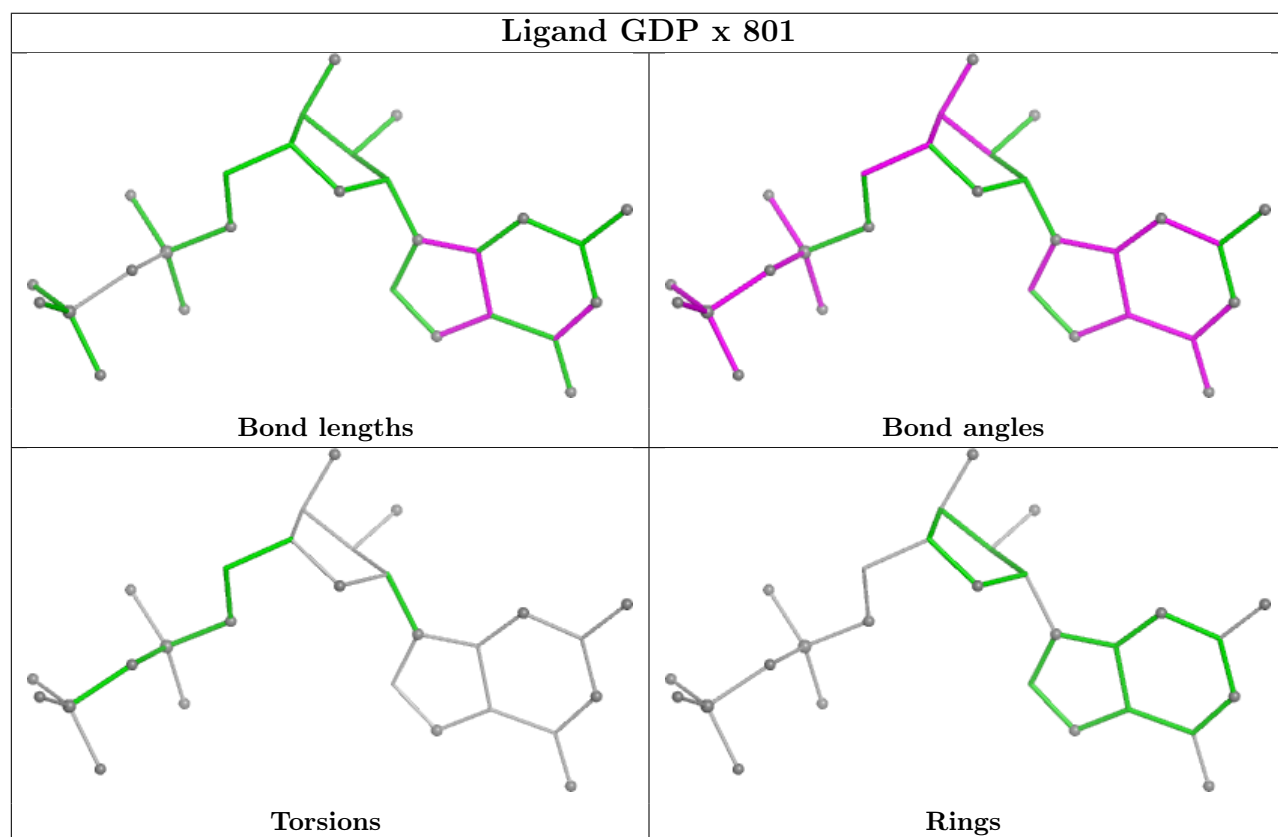
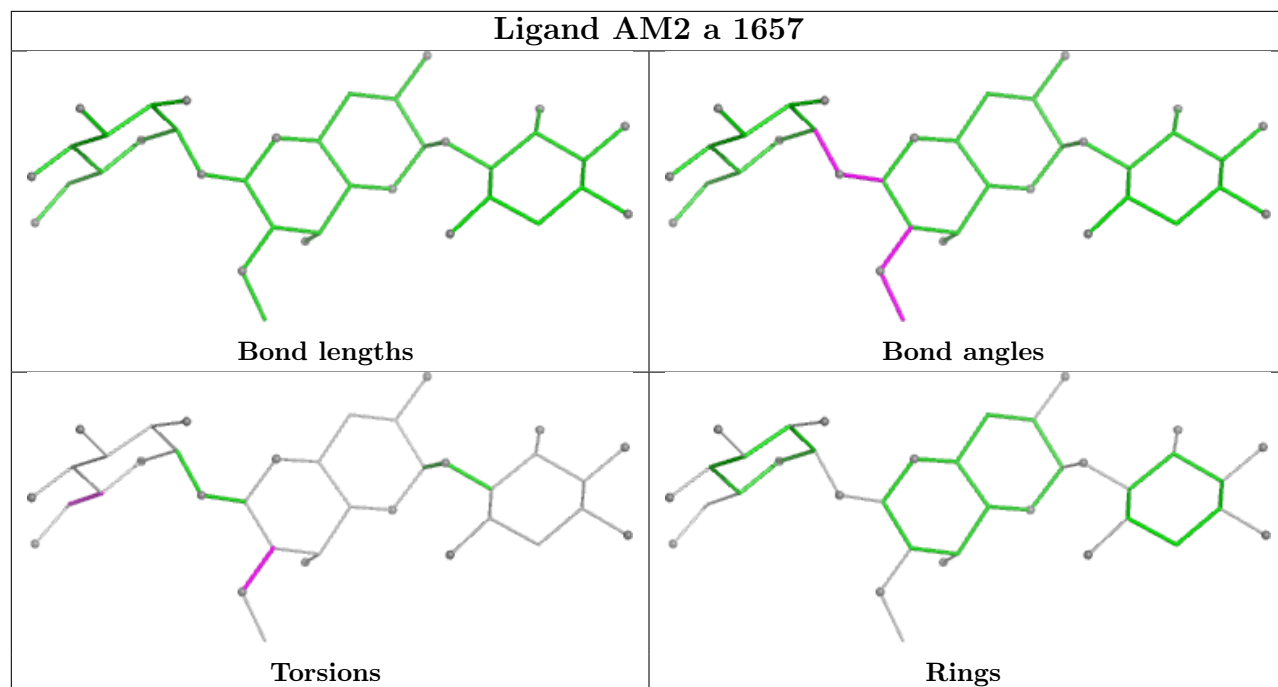
There are no ring outliers.

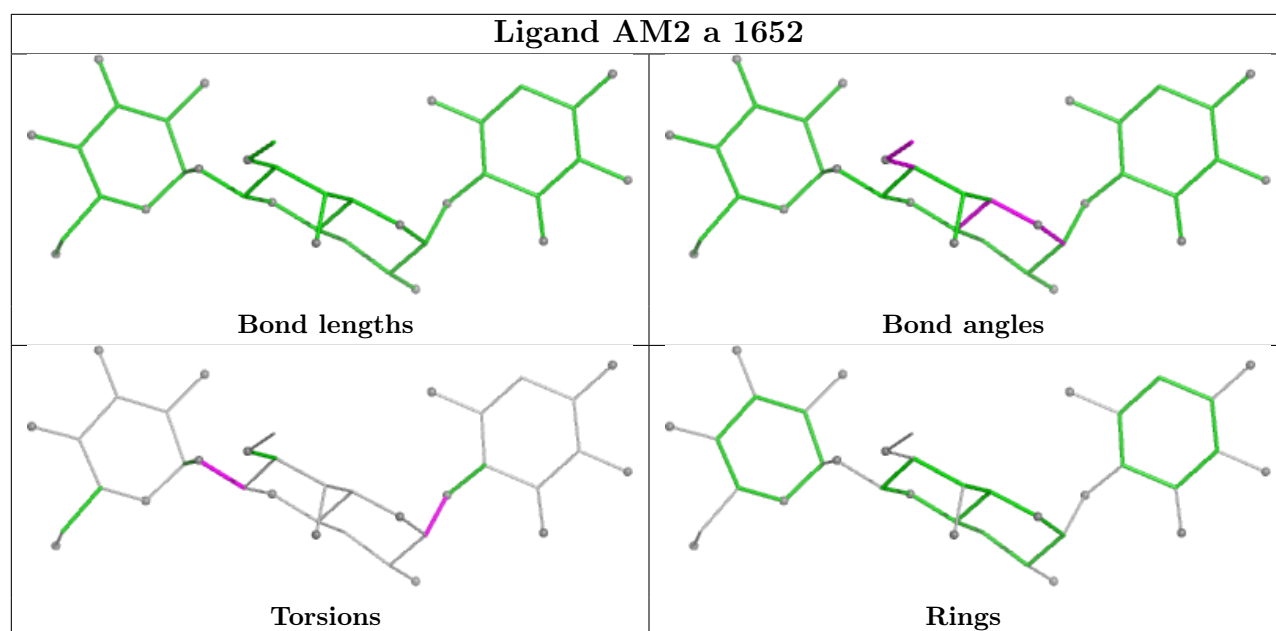
3 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
63	a	1648	AM2	2	0
64	x	801	GDP	3	0
65	x	802	PO4	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 than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.







5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

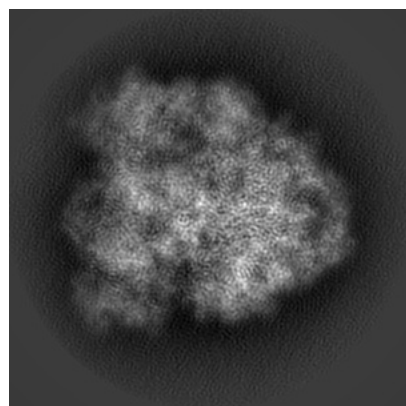
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13461. These allow visual inspection of the internal detail of the map and identification of artifacts.

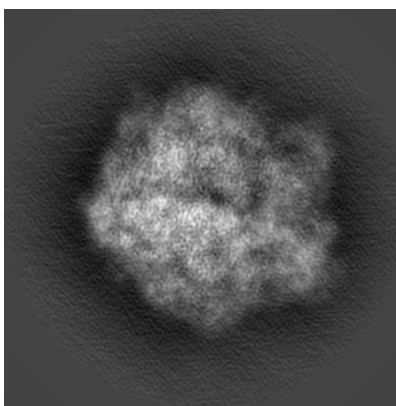
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

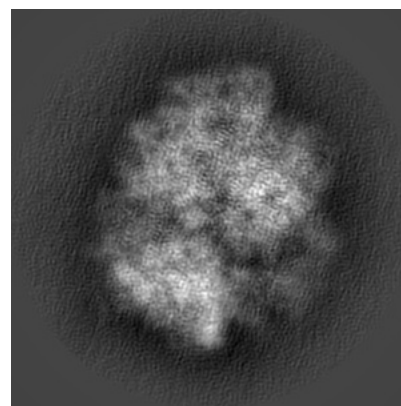
6.1.1 Primary map



X

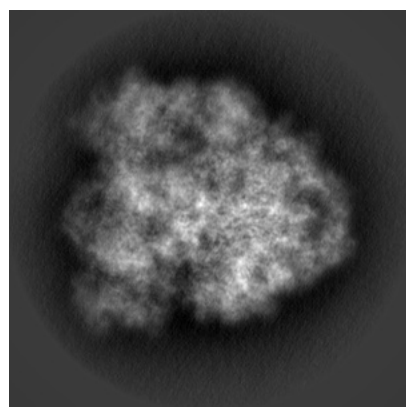


Y

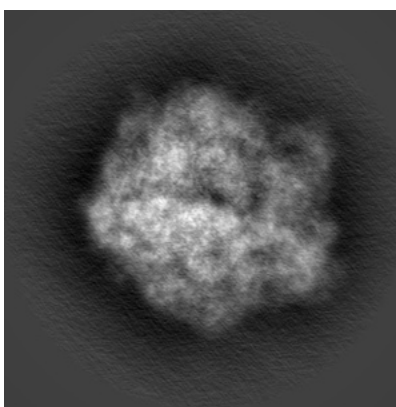


Z

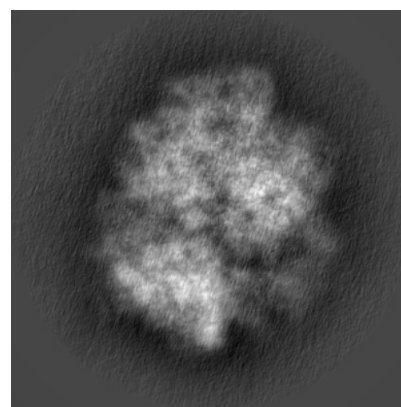
6.1.2 Raw map



X



Y

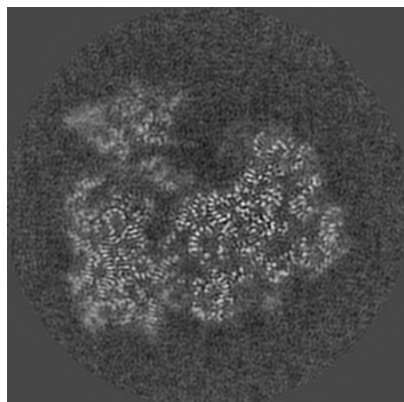


Z

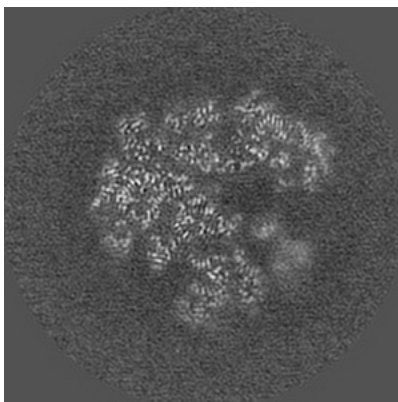
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

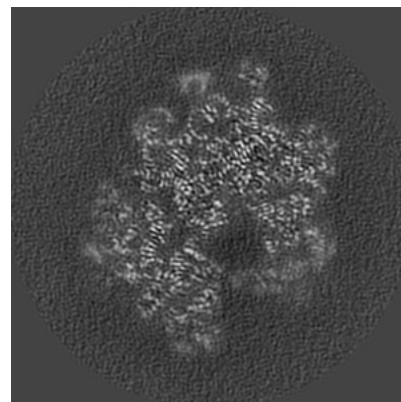
6.2.1 Primary map



X Index: 256

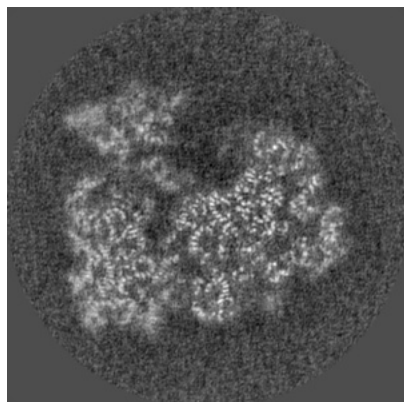


Y Index: 256

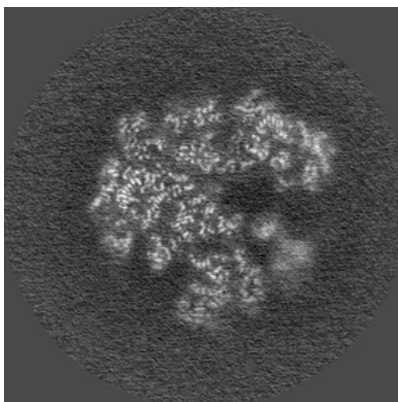


Z Index: 256

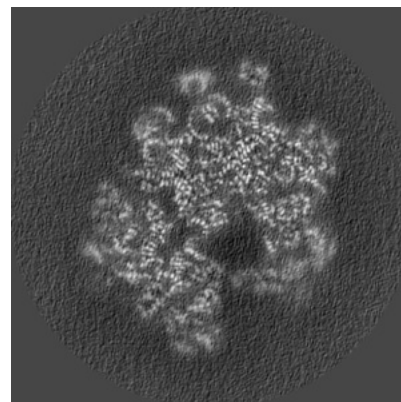
6.2.2 Raw map



X Index: 144



Y Index: 144

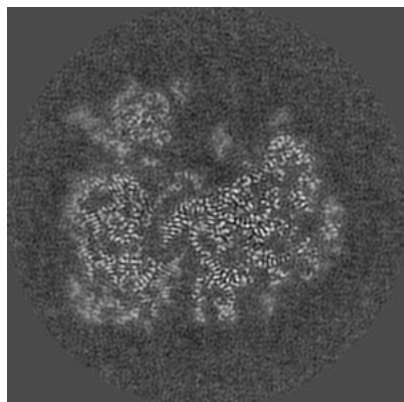


Z Index: 144

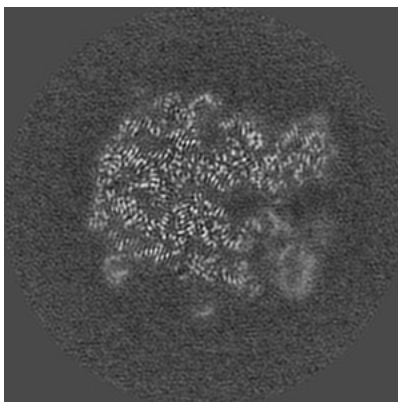
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

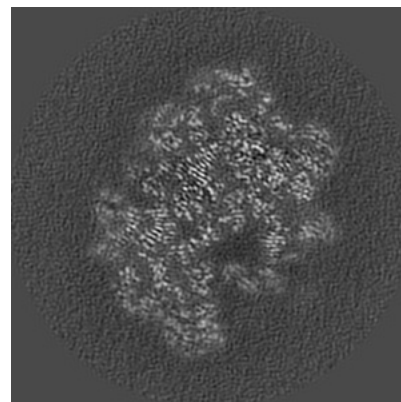
6.3.1 Primary map



X Index: 248

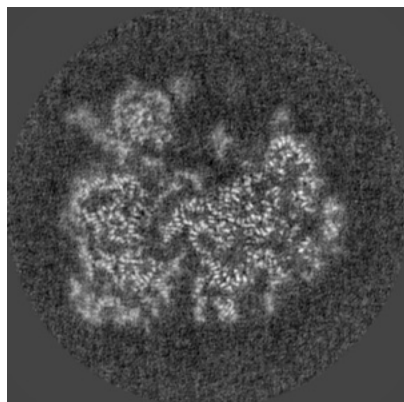


Y Index: 280

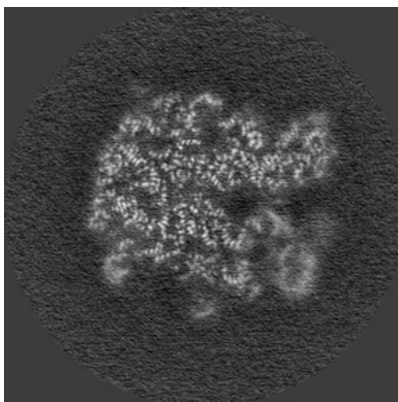


Z Index: 239

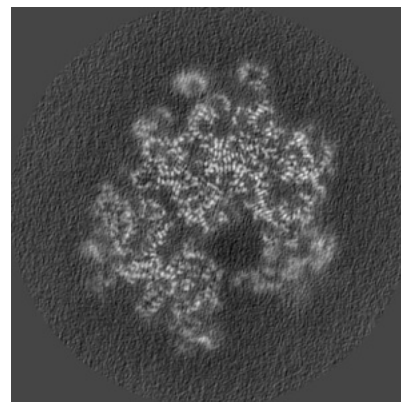
6.3.2 Raw map



X Index: 139



Y Index: 157

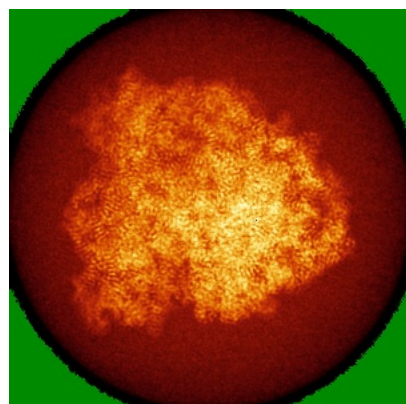


Z Index: 146

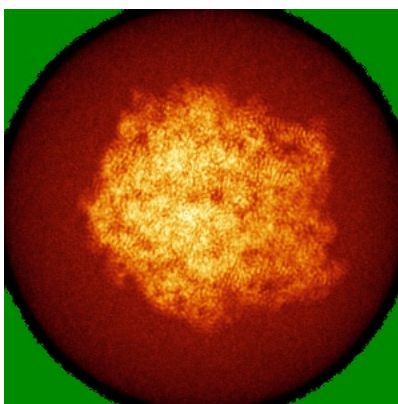
The images above show the largest variance slices of the map in three orthogonal directions.

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

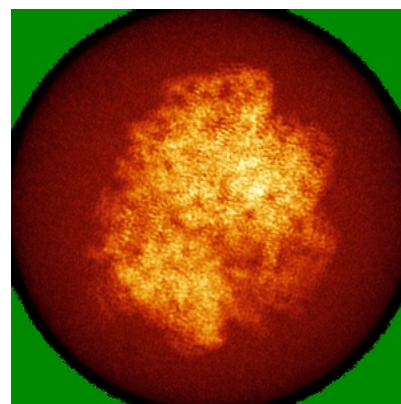
6.4.1 Primary map



X

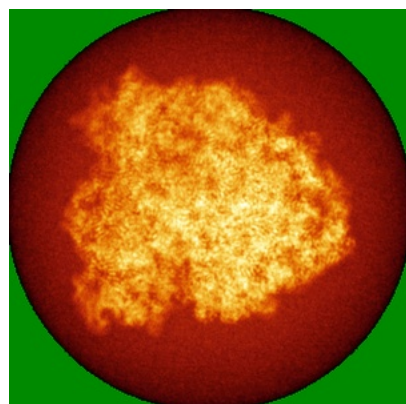


Y

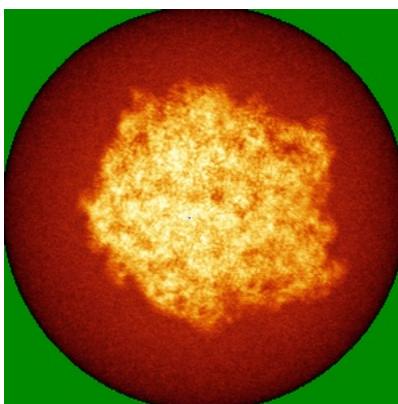


Z

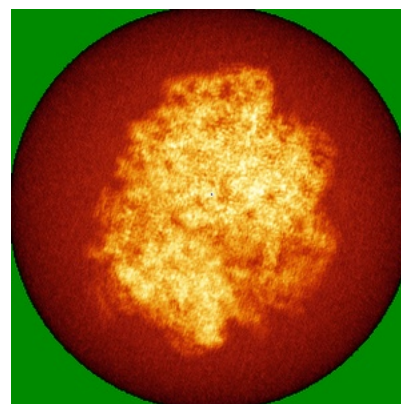
6.4.2 Raw map



X



Y

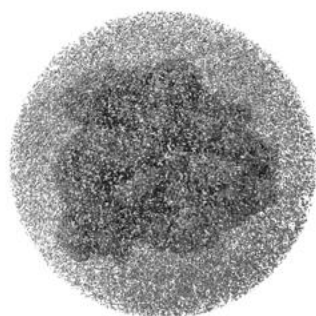


Z

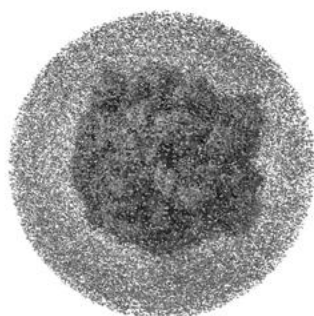
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

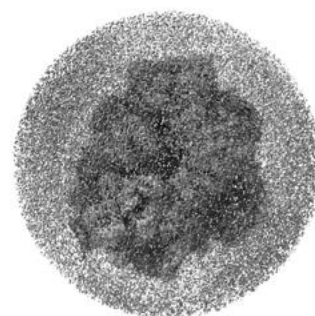
6.5.1 Primary map



X



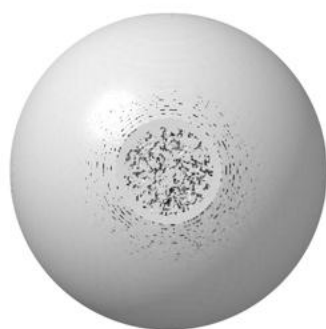
Y



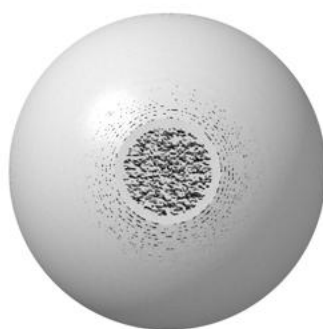
Z

The images above show the 3D surface view of the map at the recommended contour level 1.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

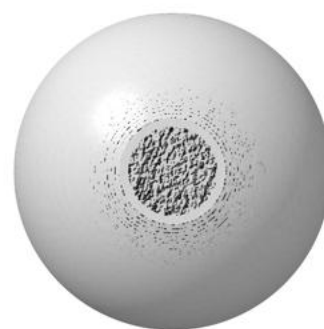
6.5.2 Raw map



X



Y



Z

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

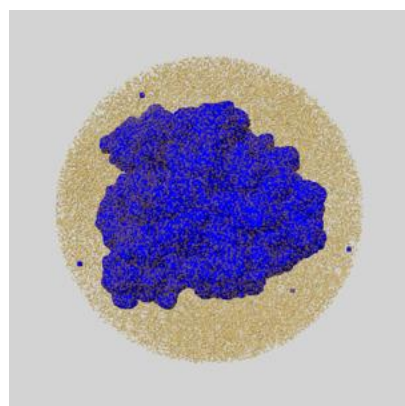
6.6 Mask visualisation [i](#)

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

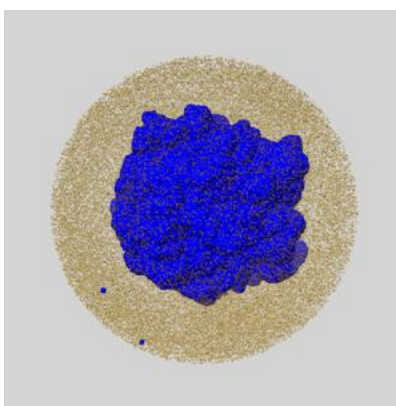
A mask typically either:

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

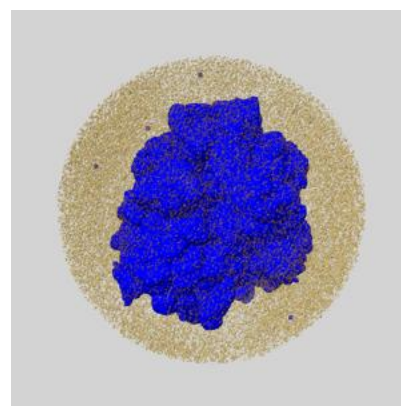
6.6.1 emd_13461_msk_1.map [i](#)



X



Y

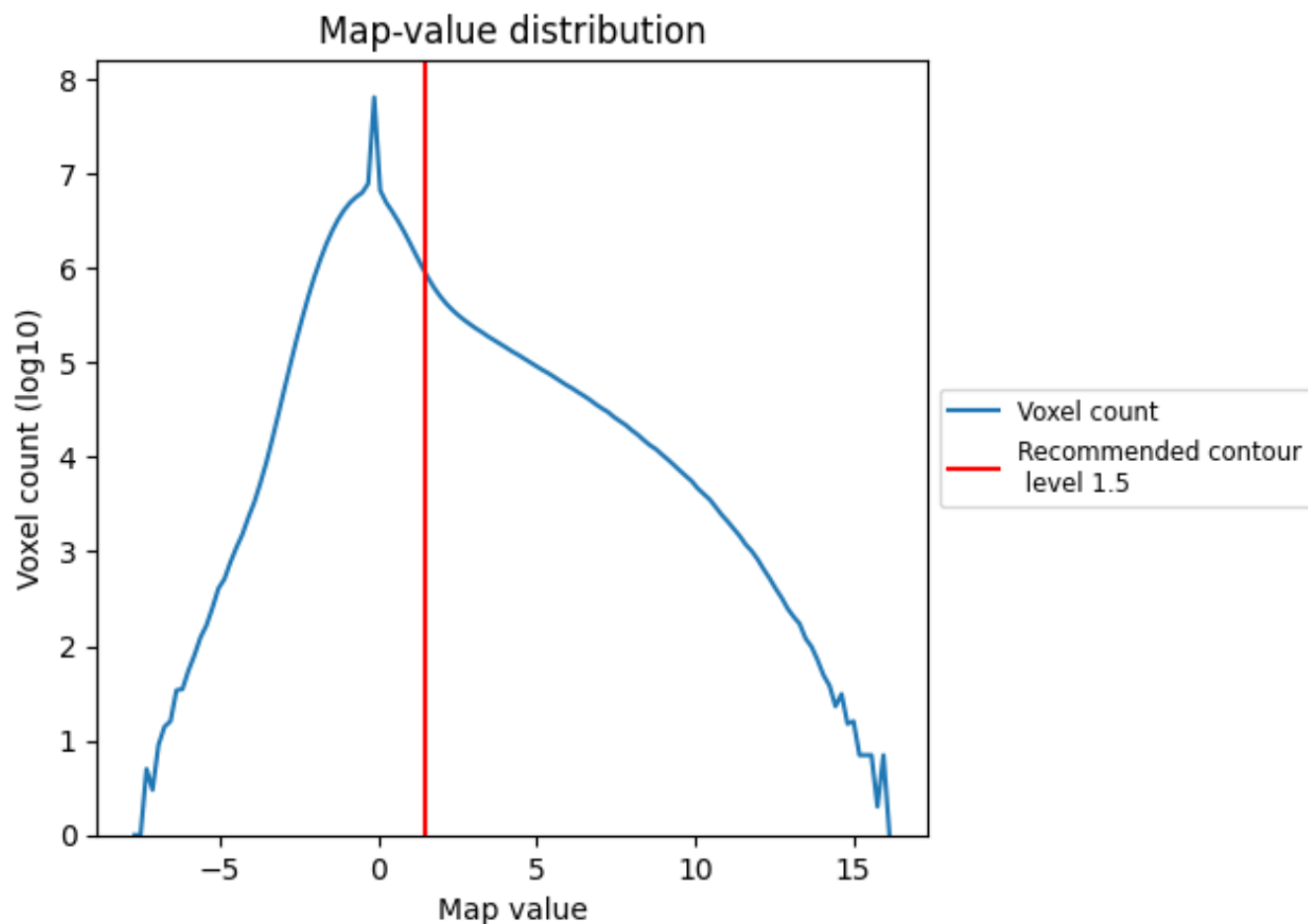


Z

7 Map analysis [i](#)

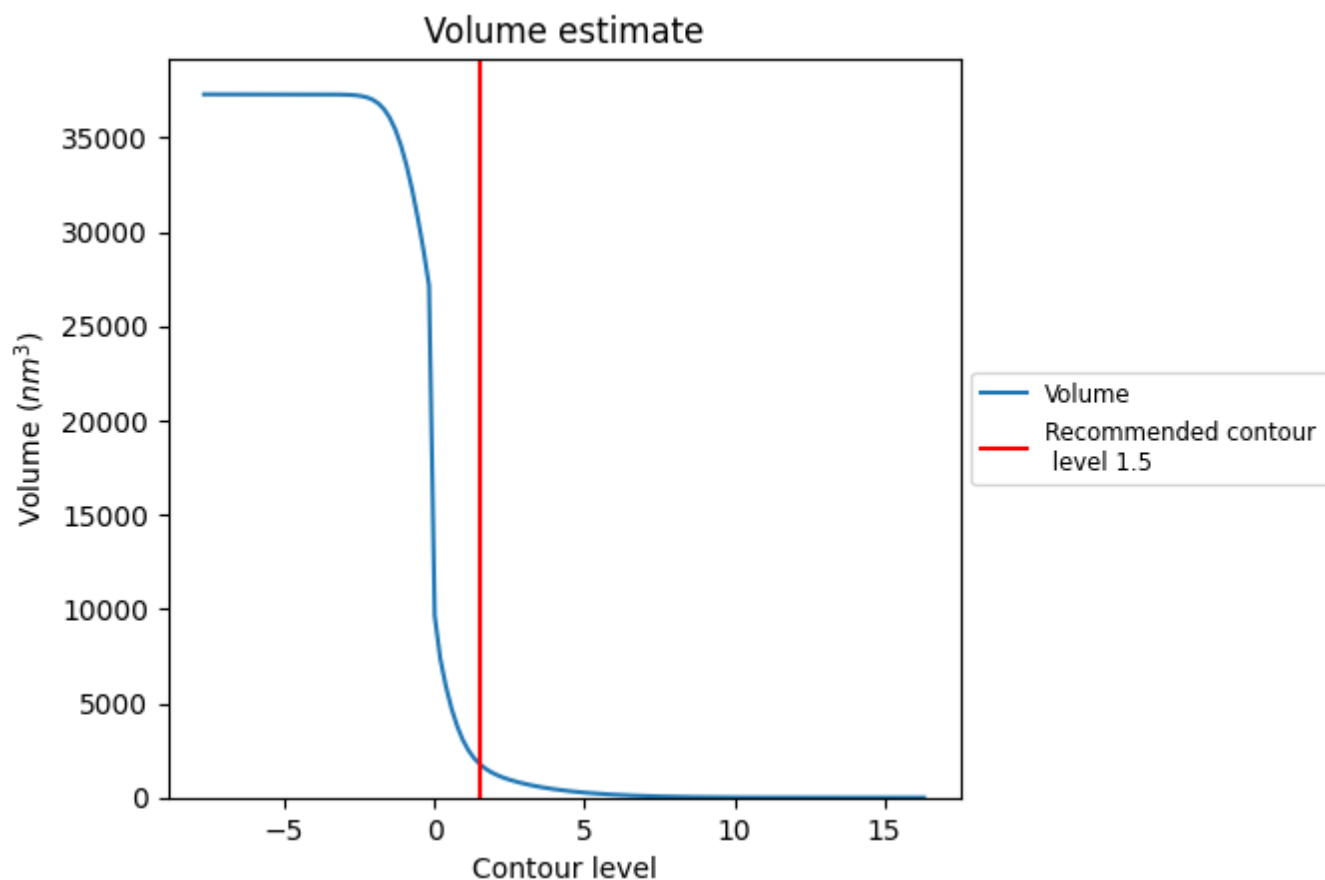
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

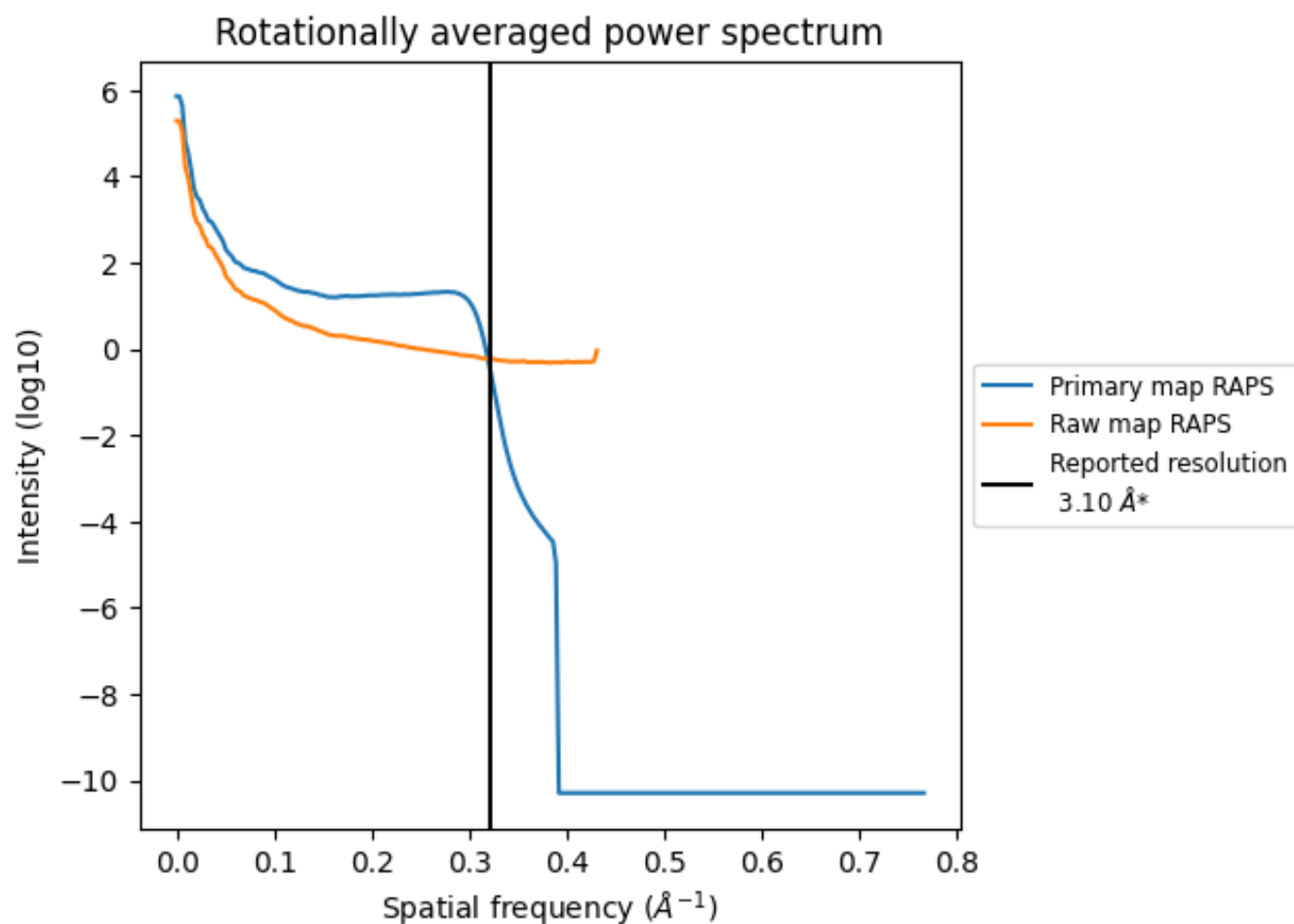
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1787 nm³; this corresponds to an approximate mass of 1614 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

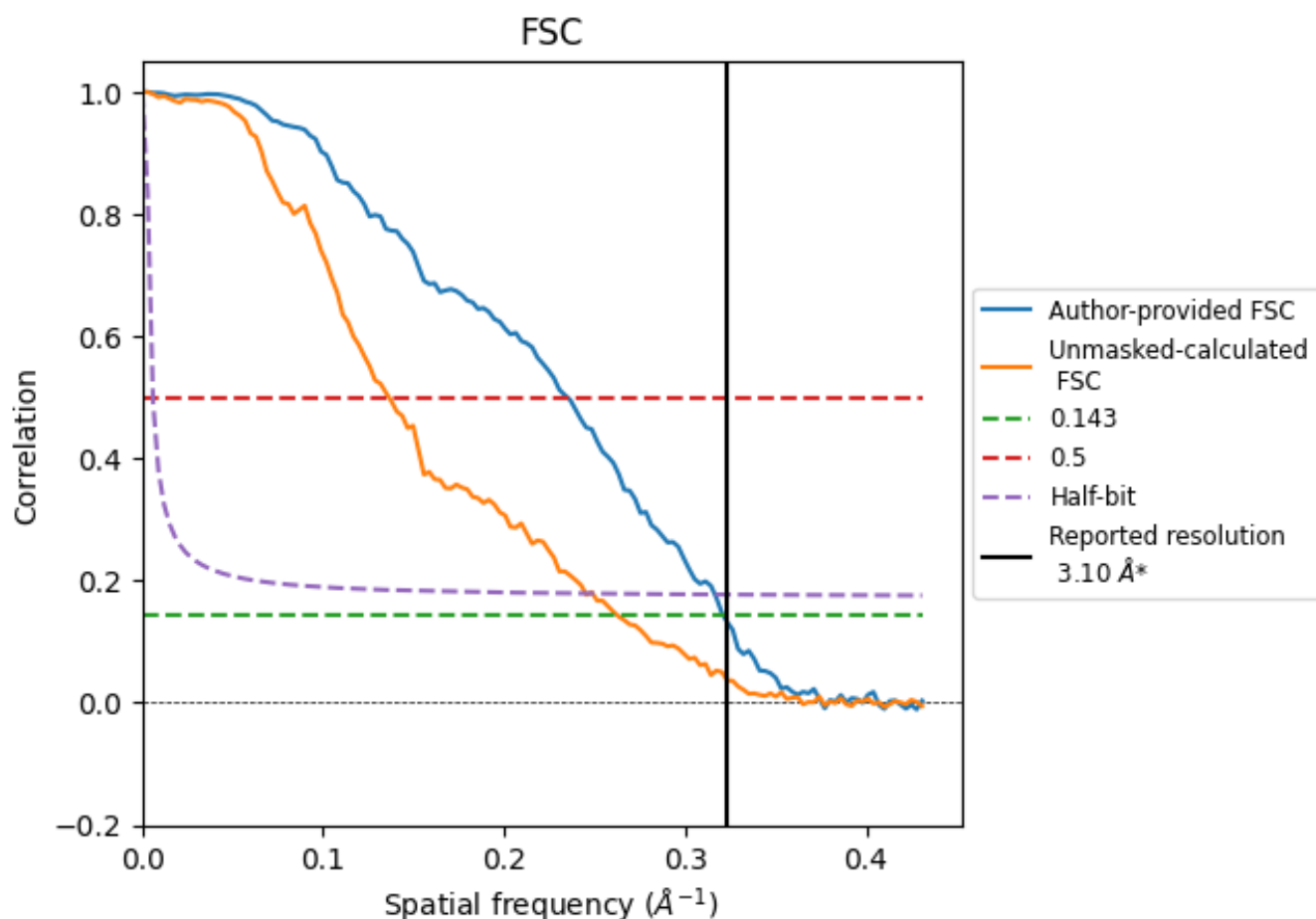


*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.323 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

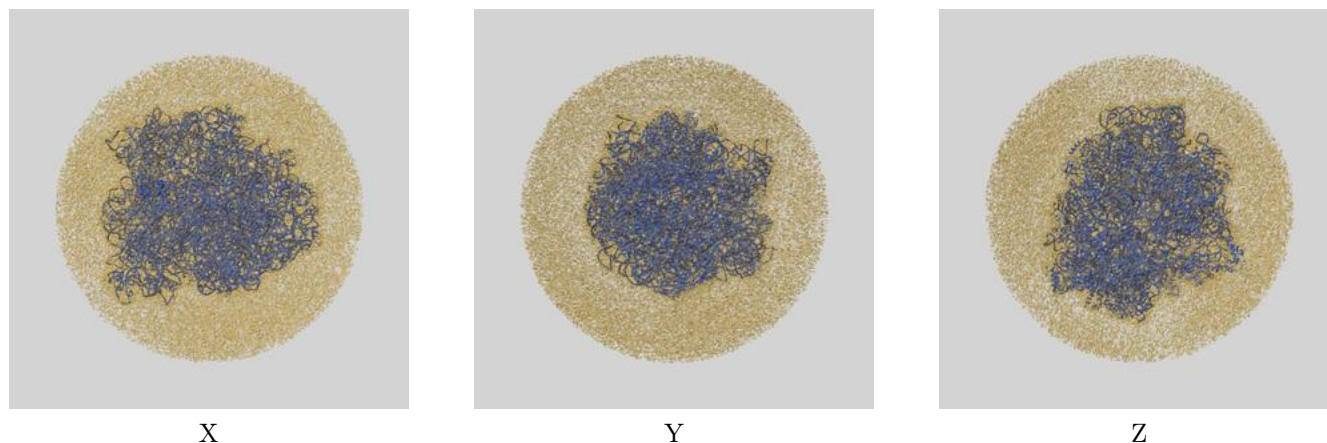
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.11	4.26	3.16
Unmasked-calculated*	3.81	7.34	4.08

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.81 differs from the reported value 3.1 by more than 10 %

9 Map-model fit [i](#)

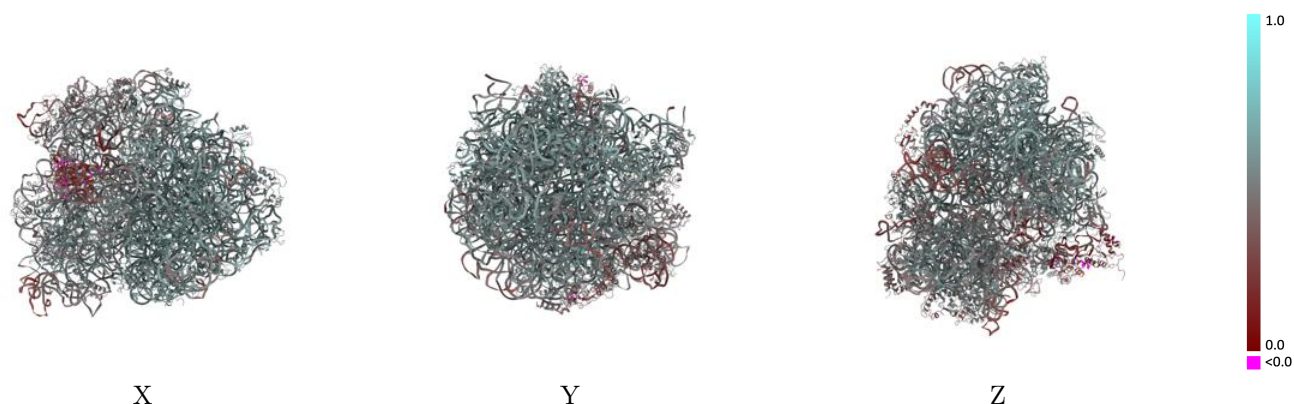
This section contains information regarding the fit between EMDB map EMD-13461 and PDB model 7PJV. Per-residue inclusion information can be found in [section 3](#) on [page 18](#).

9.1 Map-model overlay [i](#)



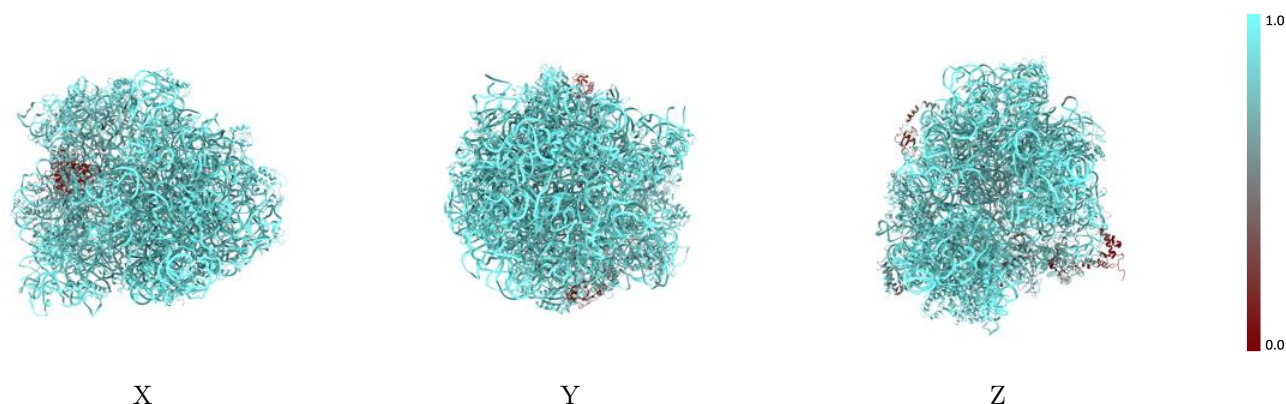
The images above show the 3D surface view of the map at the recommended contour level 1.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



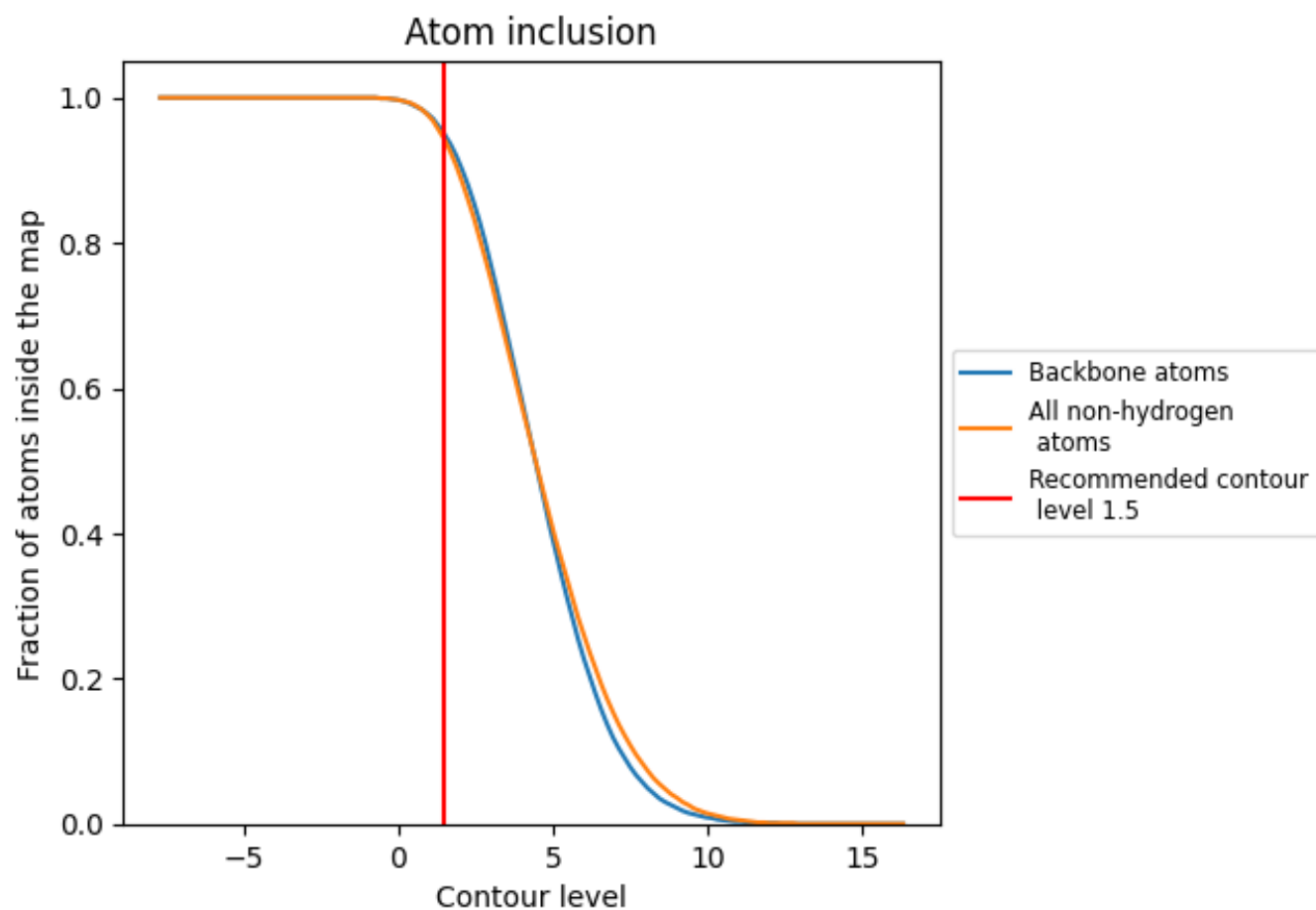
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.5).

9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 94% 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 (1.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9420	 0.5140
0	 0.9440	 0.5580
1	 0.9080	 0.5550
2	 0.9490	 0.5850
3	 0.9630	 0.5910
4	 0.9590	 0.5540
5	 0.3090	 0.2560
6	 0.8630	 0.4130
A	 0.9770	 0.5320
B	 0.9810	 0.5230
C	 0.9350	 0.5620
D	 0.9440	 0.5640
E	 0.9370	 0.5430
F	 0.8910	 0.4740
G	 0.8980	 0.4980
H	 0.4570	 0.3710
I	 0.4560	 0.2230
J	 0.9580	 0.5680
K	 0.9100	 0.5550
L	 0.9400	 0.5510
M	 0.9420	 0.5600
N	 0.9570	 0.5630
O	 0.9540	 0.5240
P	 0.9100	 0.5560
Q	 0.9740	 0.5680
R	 0.9250	 0.5330
S	 0.9340	 0.5610
T	 0.9420	 0.5310
U	 0.9320	 0.5130
V	 0.9390	 0.5300
W	 0.9610	 0.5760
X	 0.9280	 0.5560
Y	 0.9210	 0.5020
Z	 0.9380	 0.5690
a	 0.9760	 0.5070



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Chain	Atom inclusion	Q-score
b	 0.7380	 0.4420
c	 0.9120	 0.5020
d	 0.9010	 0.4830
e	 0.9390	 0.5380
f	 0.8840	 0.4600
g	 0.7770	 0.4170
h	 0.9270	 0.5350
i	 0.9220	 0.4800
j	 0.8760	 0.4390
k	 0.9090	 0.5120
l	 0.9010	 0.5370
m	 0.9080	 0.4610
n	 0.9400	 0.4970
o	 0.9350	 0.5170
p	 0.9200	 0.5160
q	 0.9220	 0.5160
r	 0.9100	 0.5110
s	 0.8880	 0.4540
t	 0.9310	 0.5060
u	 0.8330	 0.4820
v	 0.9340	 0.4530
w	 0.8620	 0.4000
x	 0.8090	 0.4470
y	 0.8090	 0.5250
z	 0.9350	 0.5320