



Full wwPDB EM Validation Report ⓘ

Jun 18, 2026 – 02:43 pm BST

PDB ID : 7PJU / pdb_00007pju
EMDB ID : EMD-13460
Title : Structure of the 70S ribosome with tRNAs in hybrid state 2 (H2)
Authors : Petrychenko, V.; Peng, B.Z.; Schwarzer, A.C.; Peske, F.; Rodnina, M.V.;
Fischer, N.
Deposited on : 2021-08-24
Resolution : 9.50 Å(reported)
Based on initial models : 5LZD, 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:

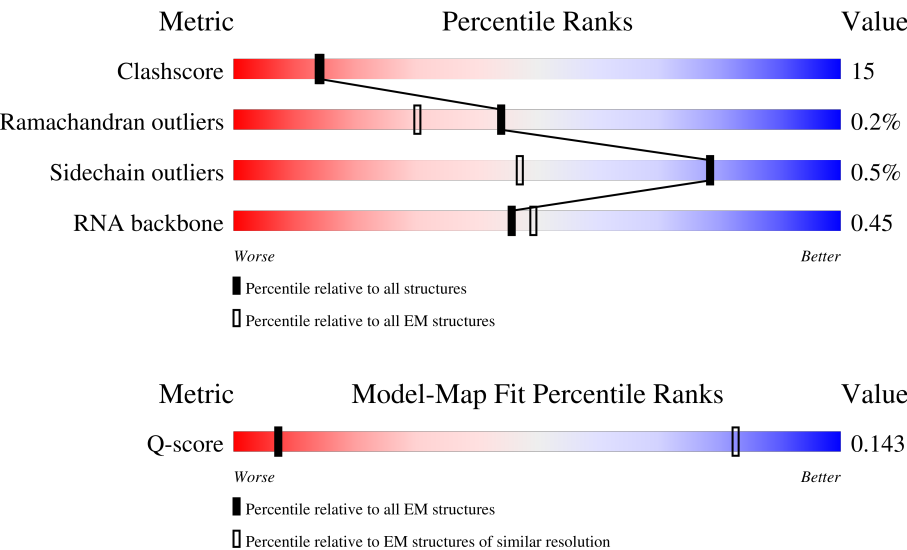
EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data 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 i

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

The reported resolution of this entry is 9.50 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	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	234 (9.00 - 10.00)

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	37% 65% 33% .
2	1	55	16% 58% 33% 9%
3	2	46	20% 74% 26%

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Mol	Chain	Length	Quality of chain
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	
28	U	104	

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Mol	Chain	Length	Quality of chain
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	
53	t	87	

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Mol	Chain	Length	Quality of chain
54	u	71	
55	v	77	
56	w	76	
57	y	2	
58	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
57	FME	y	101	-	-	X	-

2 Entry composition

There are 60 unique types of molecules in this entry. The entry contains 147243 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
			62339	27816	11471	20149	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 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 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 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 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		

- 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 Dipeptide (FME-PHE).

Mol	Chain	Residues	Atoms					AltConf	Trace
57	y	2	Total	C	N	O	S	0	0
			20	15	2	2	1		

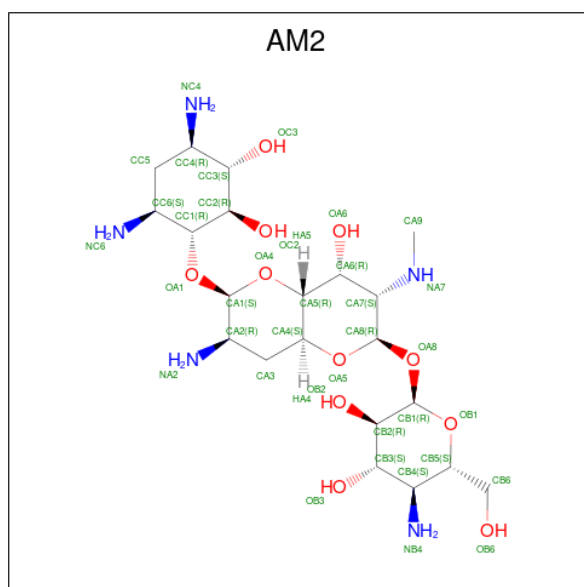
- Molecule 58 is a RNA chain called mRNA.

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

- Molecule 59 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
59	4	1	Total	Zn	0
			1	1	
59	6	1	Total	Zn	0
			1	1	

- Molecule 60 is APRAMYCIN (CCD ID: AM2) (formula: C₂₁H₄₁N₅O₁₁).

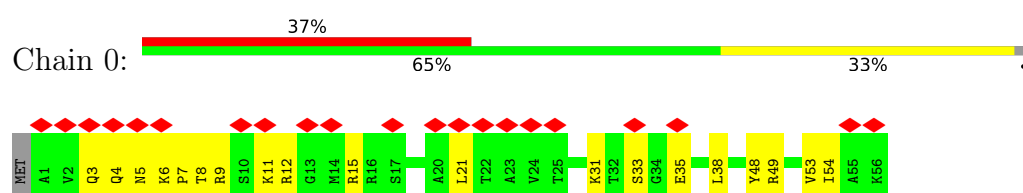


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
60	a	1	37	21	5	11	0

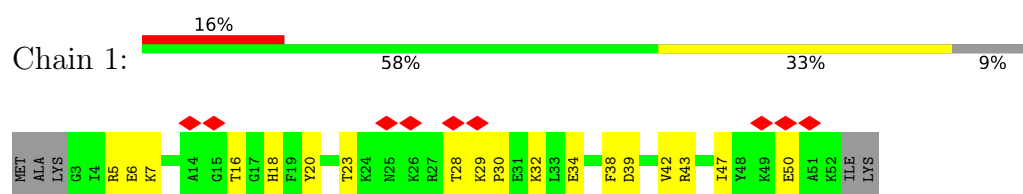
3 Residue-property plots [i](#)

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.

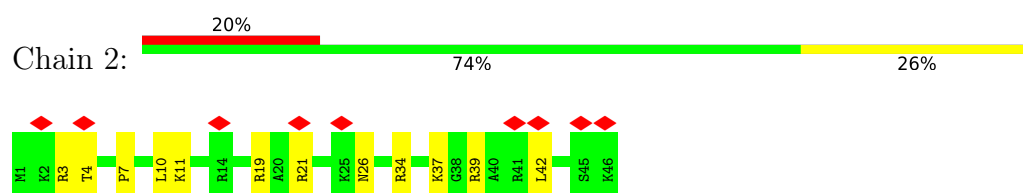
- Molecule 1: 50S ribosomal protein L32



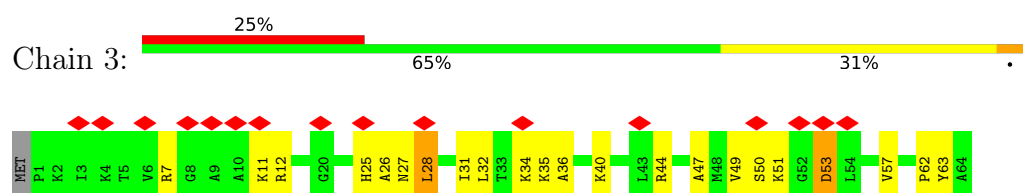
- Molecule 2: 50S ribosomal protein L33



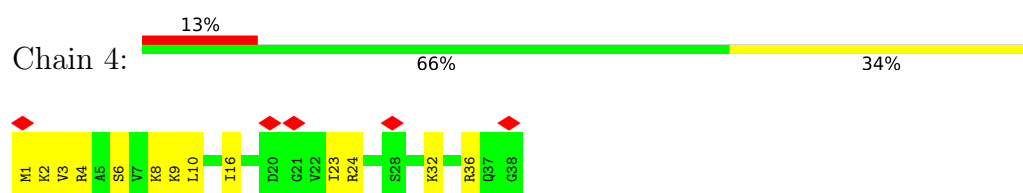
- Molecule 3: 50S ribosomal protein L34



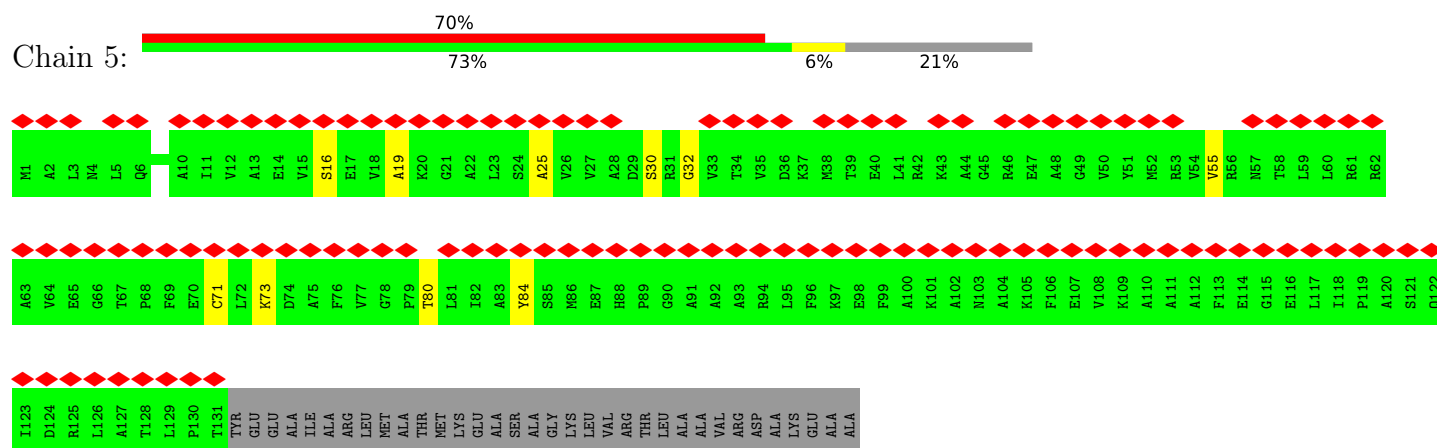
- Molecule 4: 50S ribosomal protein L35



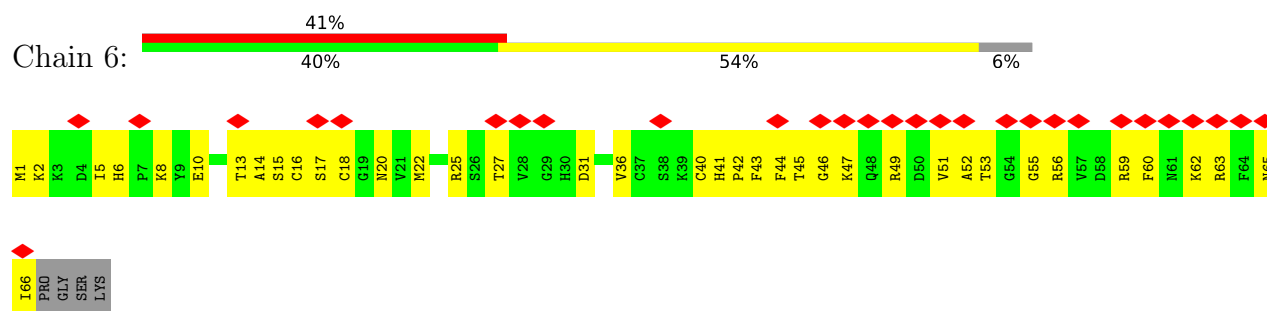
- Molecule 5: 50S ribosomal protein L36



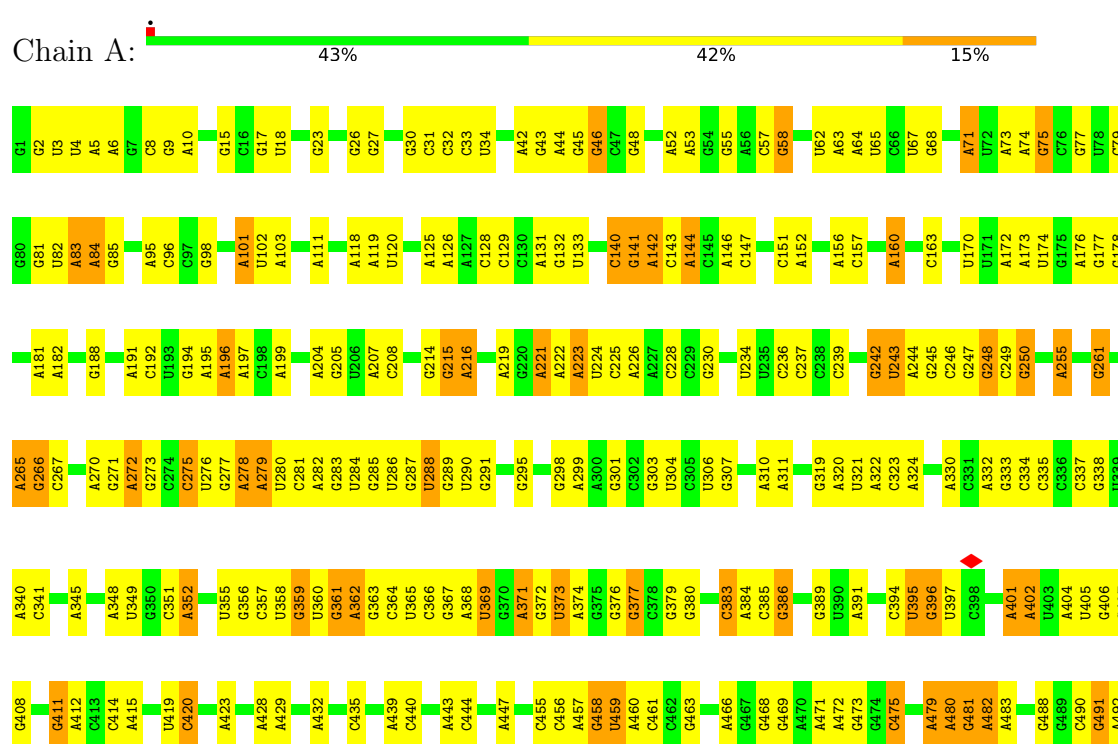
- Molecule 6: 50S ribosomal protein L10

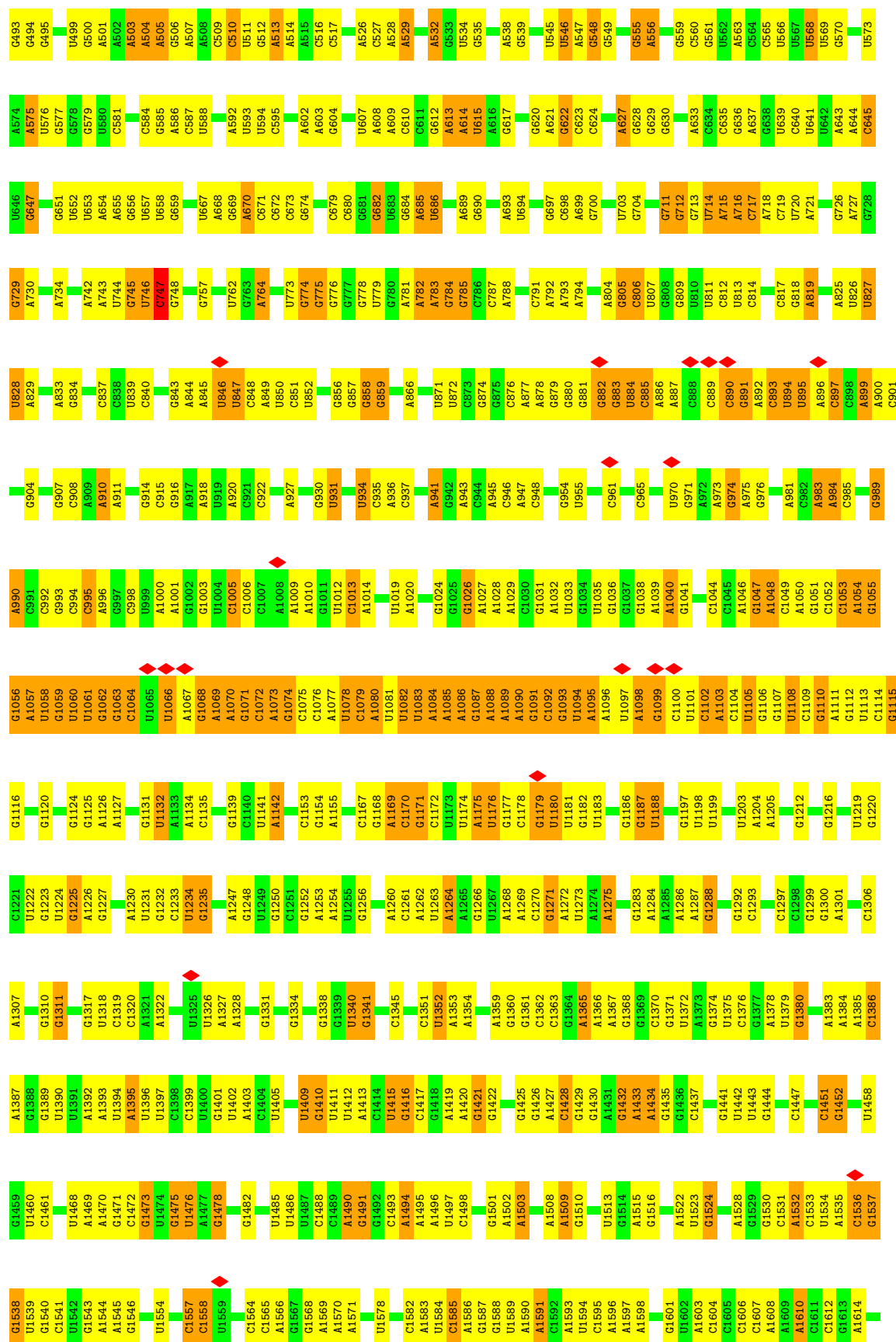


- Molecule 7: 50S ribosomal protein L31

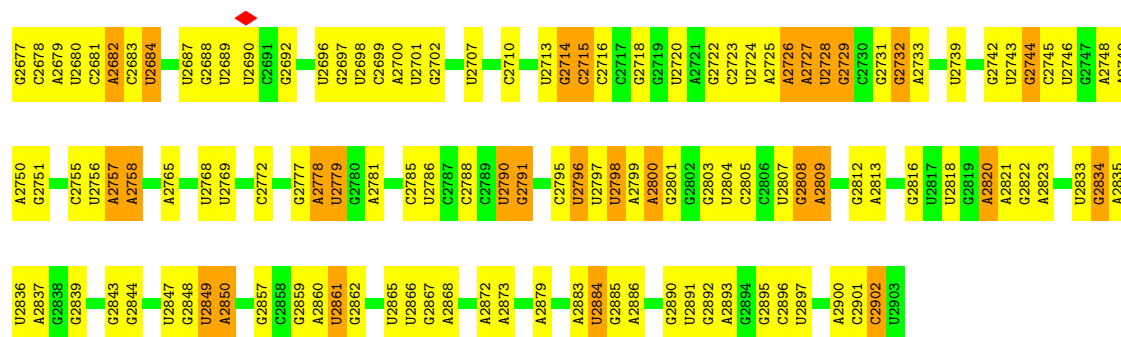


- Molecule 8: 23S ribosomal RNA



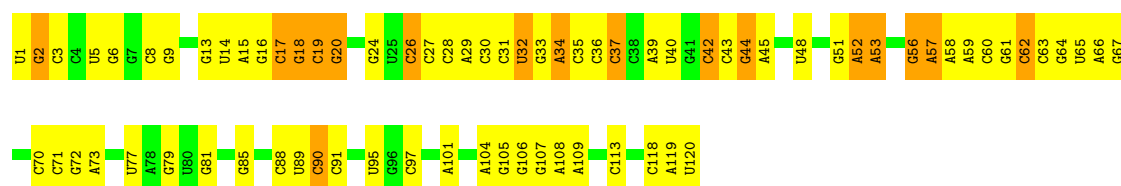


U2605	C2606	G2607	G2608	U2609	C2610	C2611	G2612	G2613	A2614	U2615	G2616	G2617	G2618	C2619	C2620	G2621	G2622	G2623	G2624	G2625	G2626	G2627	U2628	U2629	G2630	G2631	G2632	G2633	A2634	G2635	G2636	G2637	G2638	G2639	G2640	G2641	G2642	G2643	G2644	G2645	G2646	G2647	G2648	G2649	U2650	C2651	A2652	G2653	G2654	G2655	G2656	G2657	G2658	G2659	U2660	G2661	G2662	G2663	G2664	C2665	C2666	C2667	G2668	G2669	A2670	G2671	G2672	G2673	G2674	G2675	G2676																				
G1618	G1715	G1716	A1626	G1631	G1721	C1795	G1632	G1633	A1634	U1635	U1636	G1726	C1727	G1728	U1729	G1730	G1645	G1646	G1732	G1733	U1647	G1734	A1648	A1649	U1650	G1651	A1652	G1653	A1654	A1655	C1658	U1662	G1663	A1664	G1667	G1668	A1669	C1670	U1671	G1672	A1673	G1674	C1675	A1676	G1763	C1764	A1679	U1680	G1681	A1772	G1682	U1683	G1684	C1685	U1693	G1707	A1783	C1708	U1709	G1710	A1786	A1787	C1788																												
A1789	C1790	A1791	A1794	C1795	U1796	U1797	U1798	C1799	C1800	A1801	A1802	A1803	G1807	G1808	A1809	A1810	G1811	U1812	G1813	G1816	G1817	U1818	G1824	U1827	G1828	A1829	G1835	G1838	U1841	G1842	C1843	C1844	G1845	G1846	A1847	A1848	G1849	A1853	A1854	G1857	A1858	U1859	G1860	G1861	G1862	A1863	U1864	U1865	A1866																																										
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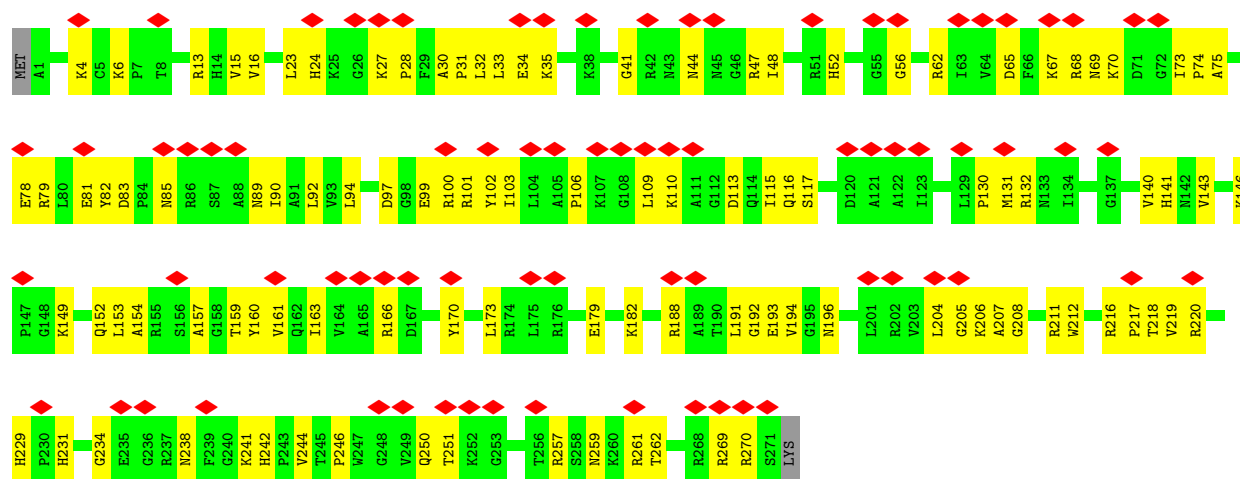
• Molecule 9: 5S ribosomal RNA

Chain B: 38% 48% 14%



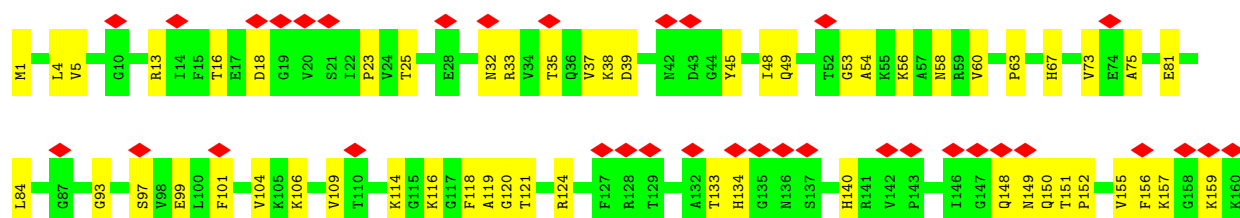
• Molecule 10: 50S ribosomal protein L2

Chain C: 29% 60% 40%



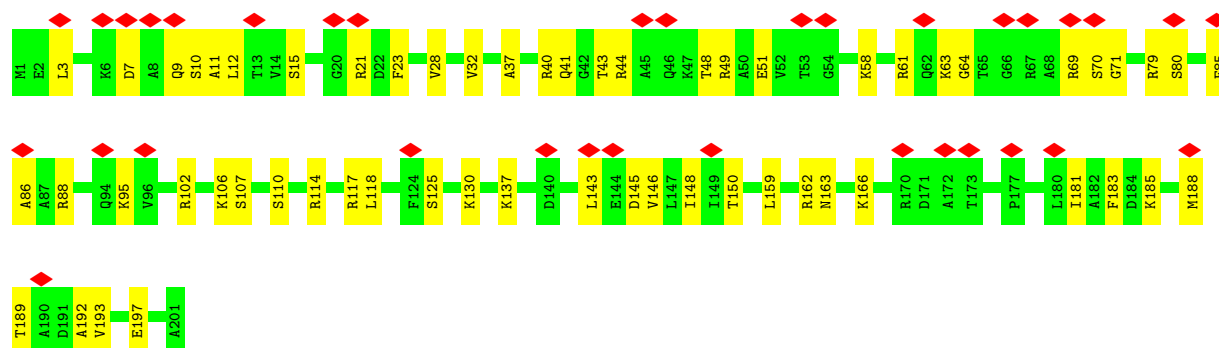
• Molecule 11: 50S ribosomal protein L3

Chain D: 25% 68% 32%

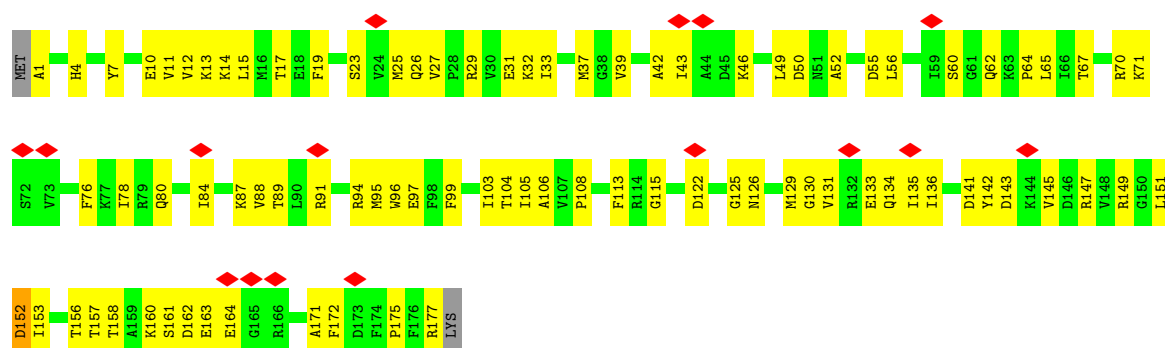




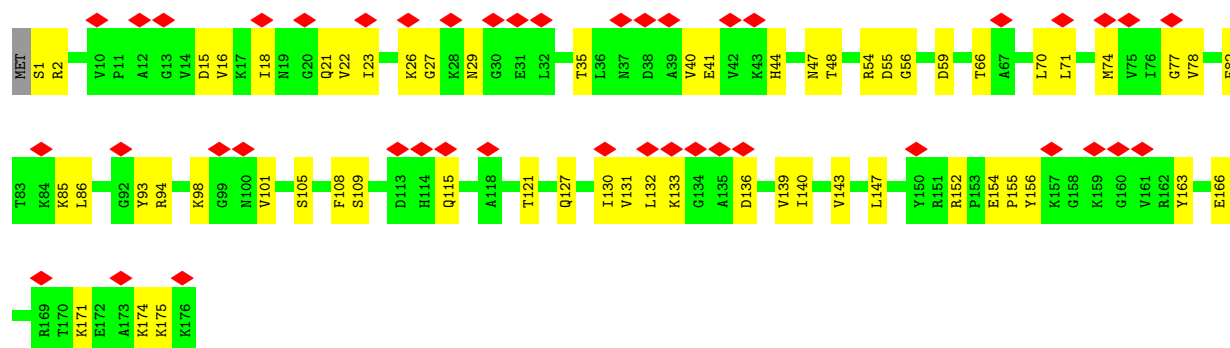
- Molecule 12: 50S ribosomal protein L4



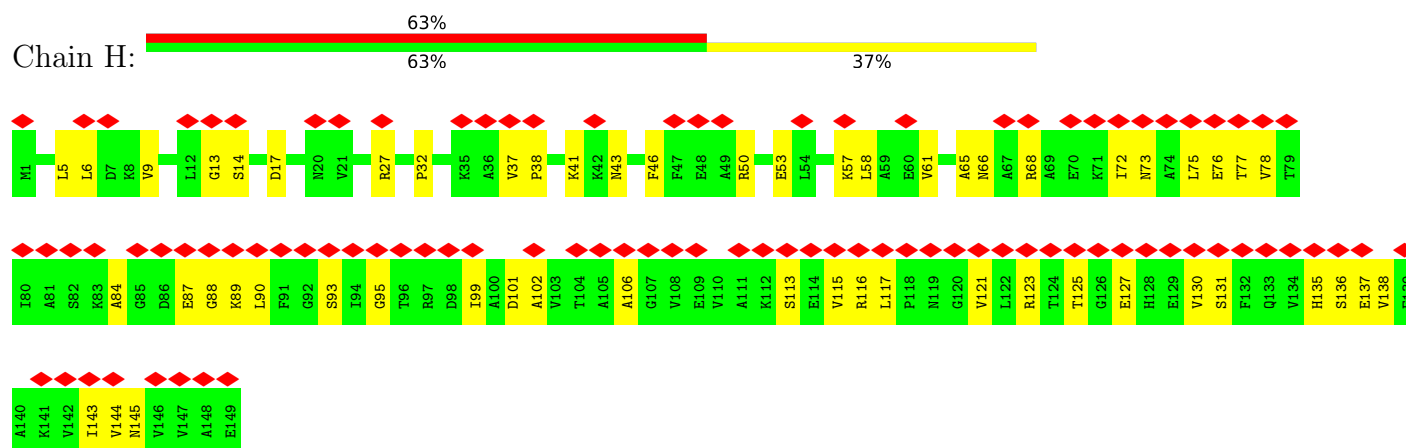
- Molecule 13: 50S ribosomal protein L5



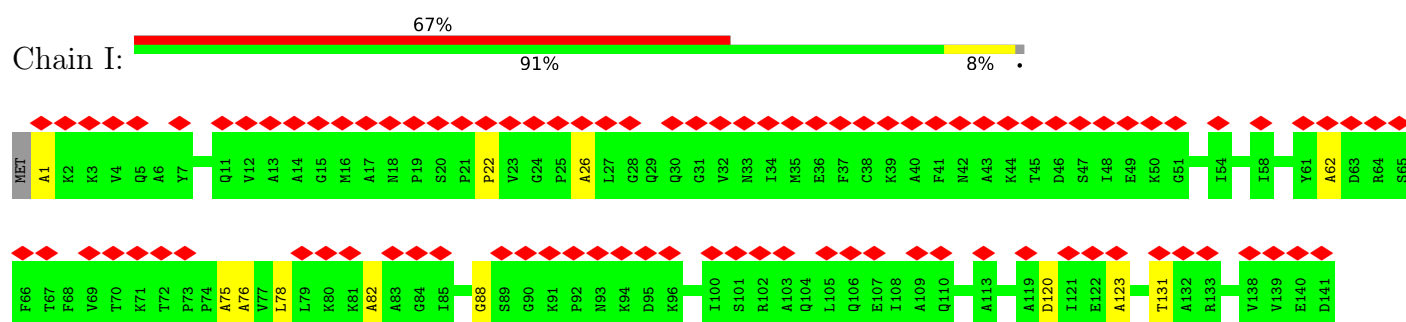
- Molecule 14: 50S ribosomal protein L6



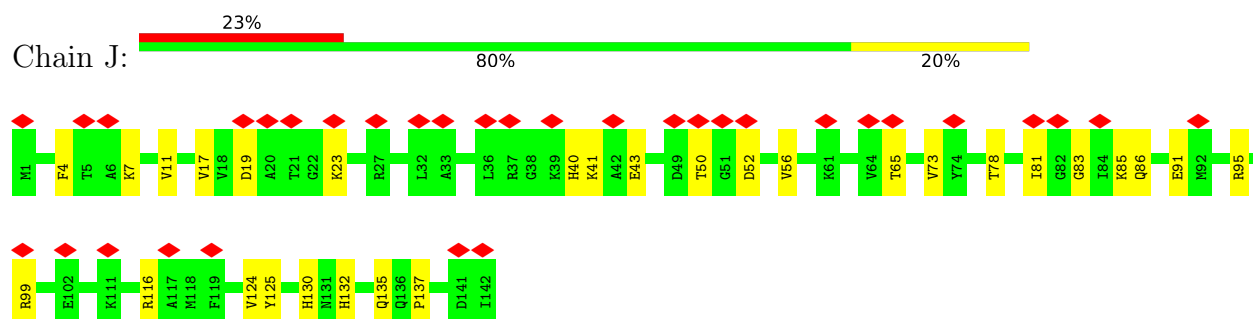
- Molecule 15: 50S ribosomal protein L9



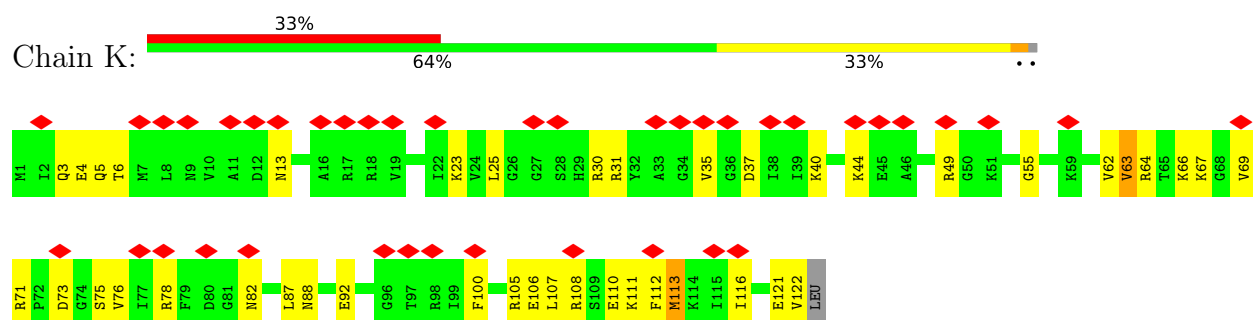
- Molecule 16: Ribosomal protein L11



- Molecule 17: 50S ribosomal protein L13

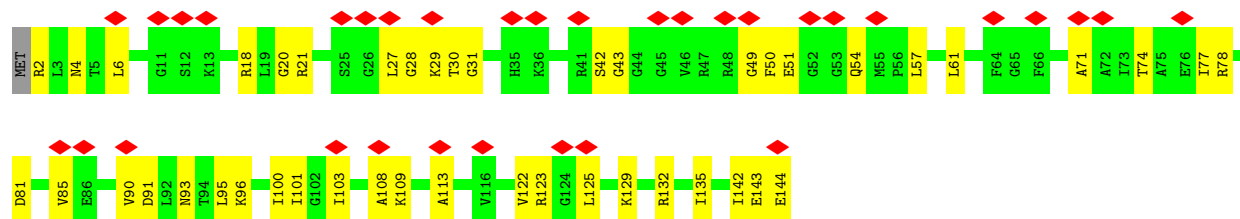


- Molecule 18: 50S ribosomal protein L14

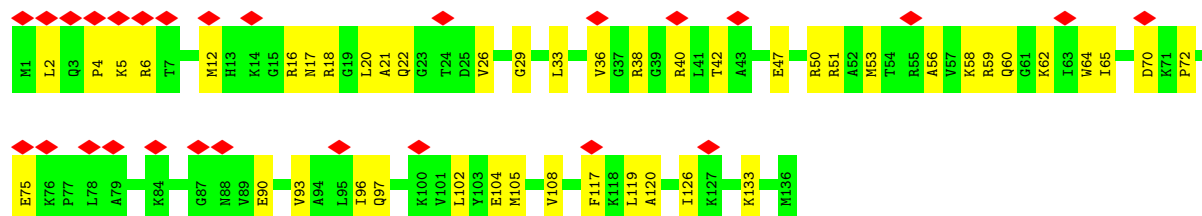


- Molecule 19: 50S ribosomal protein L15

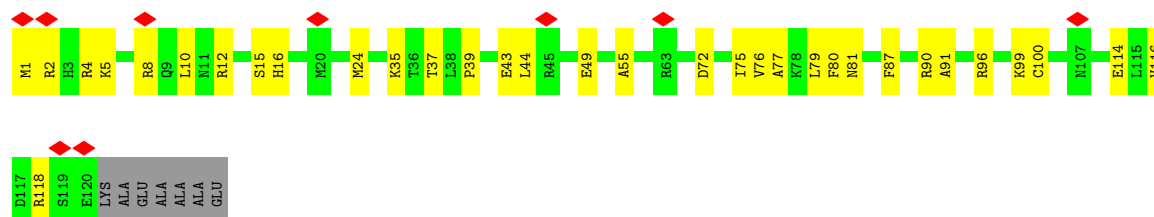




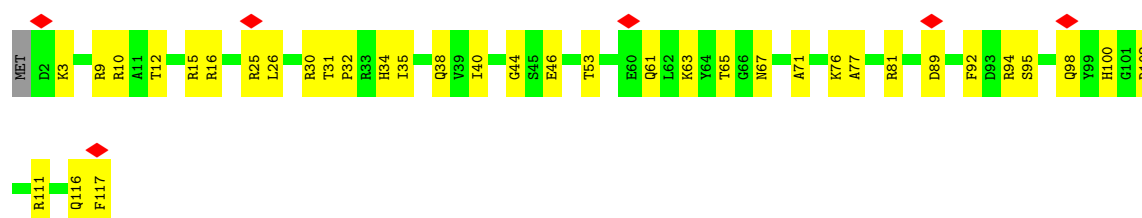
• Molecule 20: 50S ribosomal protein L16



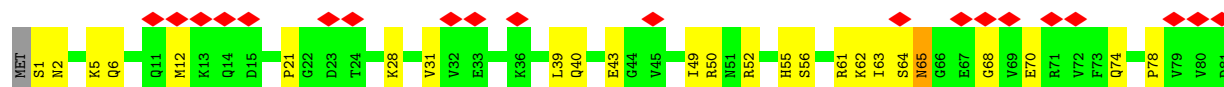
• Molecule 21: 50S ribosomal protein L17

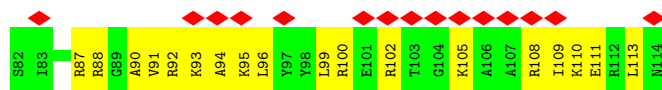


• Molecule 22: 50S ribosomal protein L18



• Molecule 23: 50S ribosomal protein L19

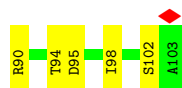
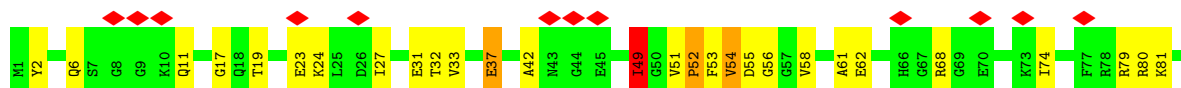




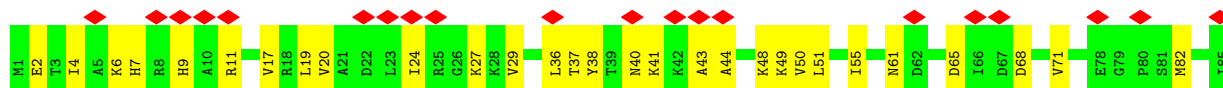
- Molecule 24: 50S ribosomal protein L20



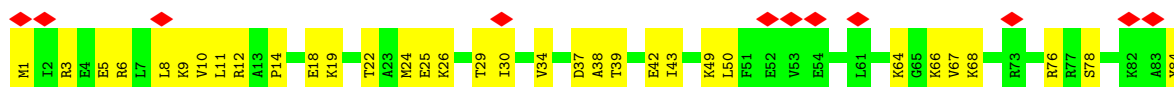
- Molecule 25: 50S ribosomal protein L21



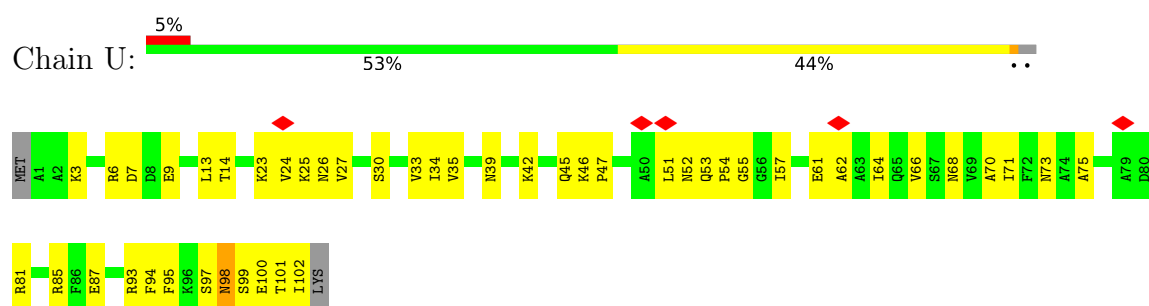
- Molecule 26: Ribosomal protein L22



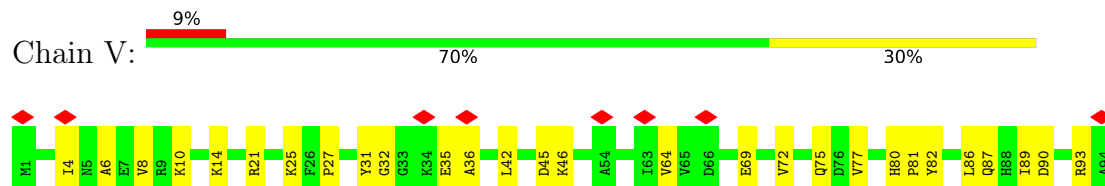
- Molecule 27: 50S ribosomal protein L23



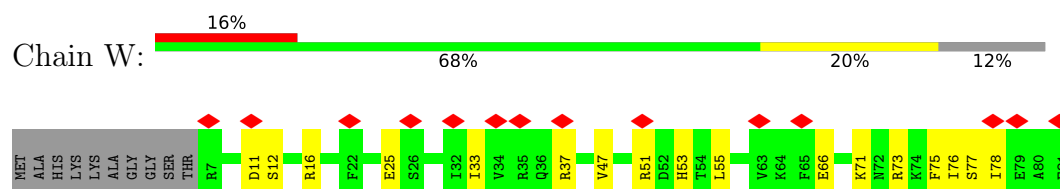
- Molecule 28: Ribosomal protein L24



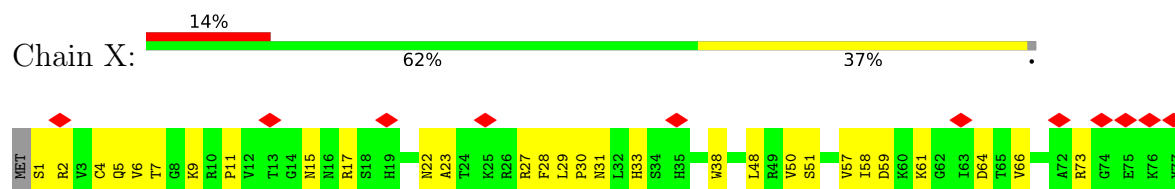
- Molecule 29: 50S ribosomal protein L25



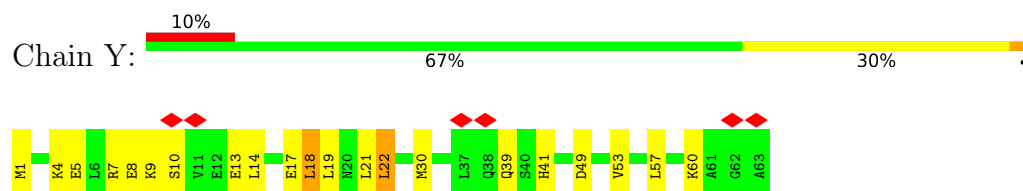
- Molecule 30: 50S ribosomal protein L27



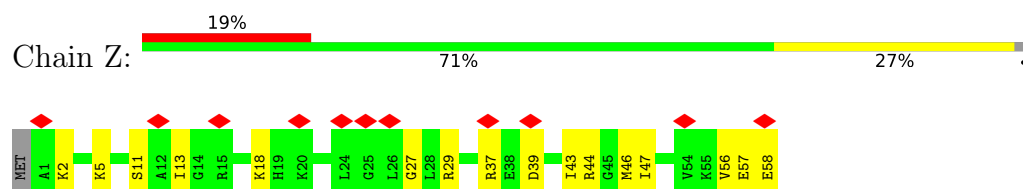
- Molecule 31: 50S ribosomal protein L28



- Molecule 32: 50S ribosomal protein L29

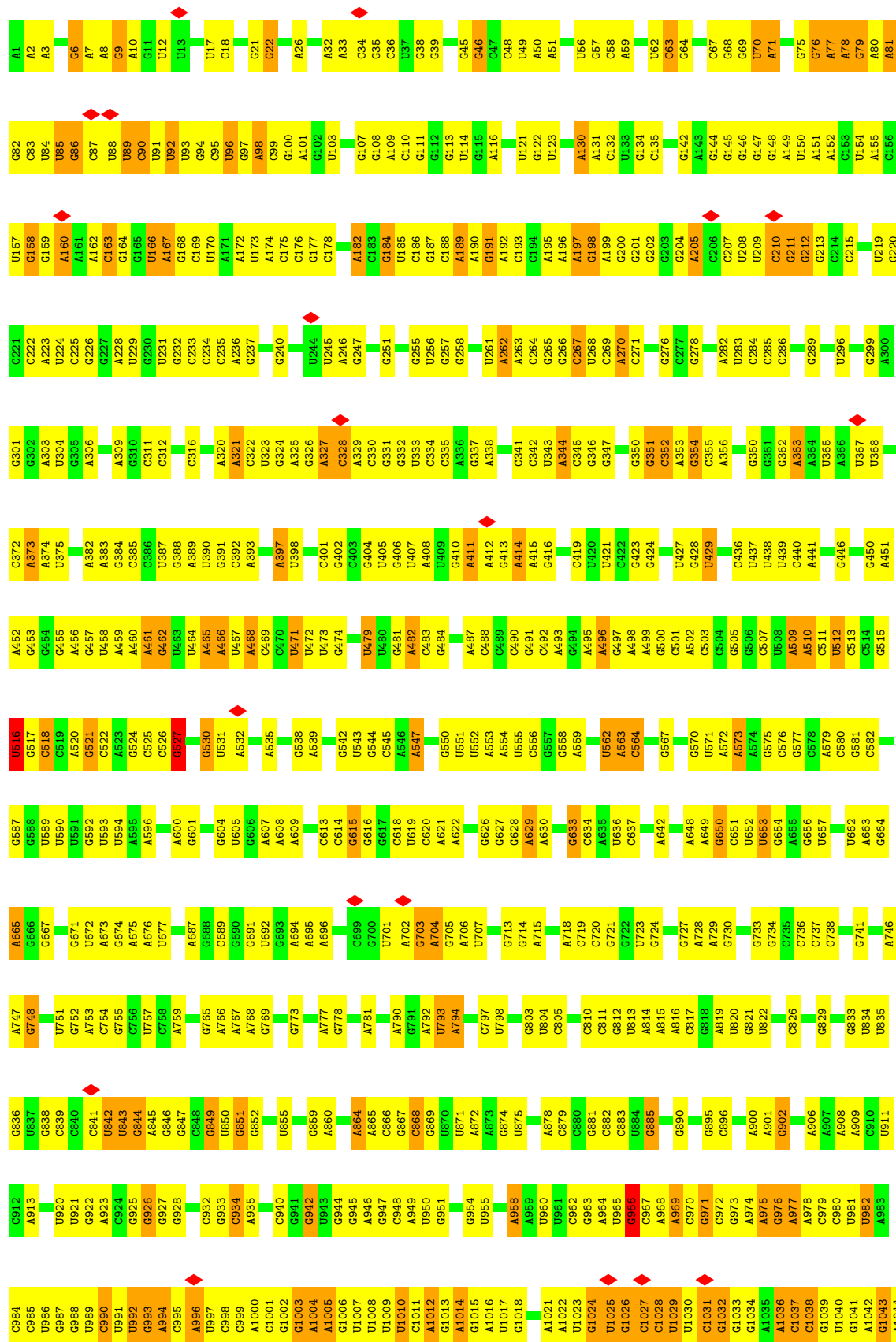


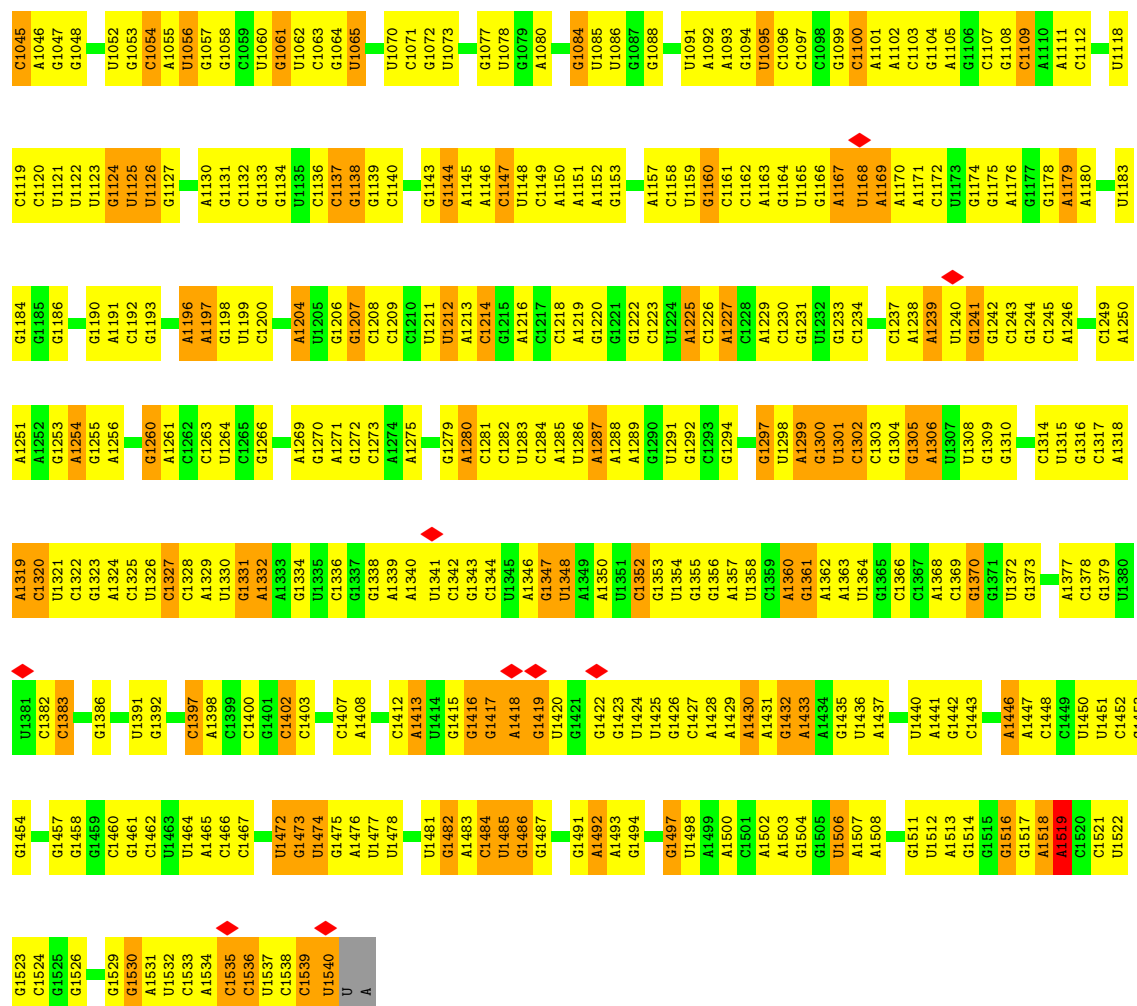
- Molecule 33: 50S ribosomal protein L30



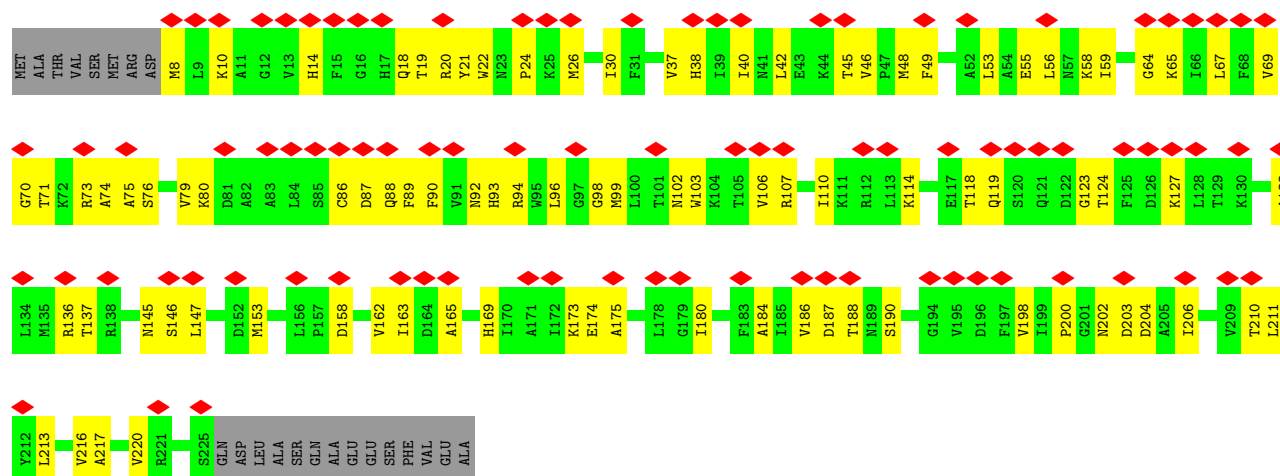
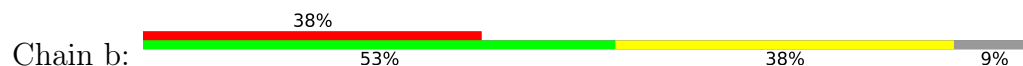
- Molecule 34: 16S ribosomal RNA



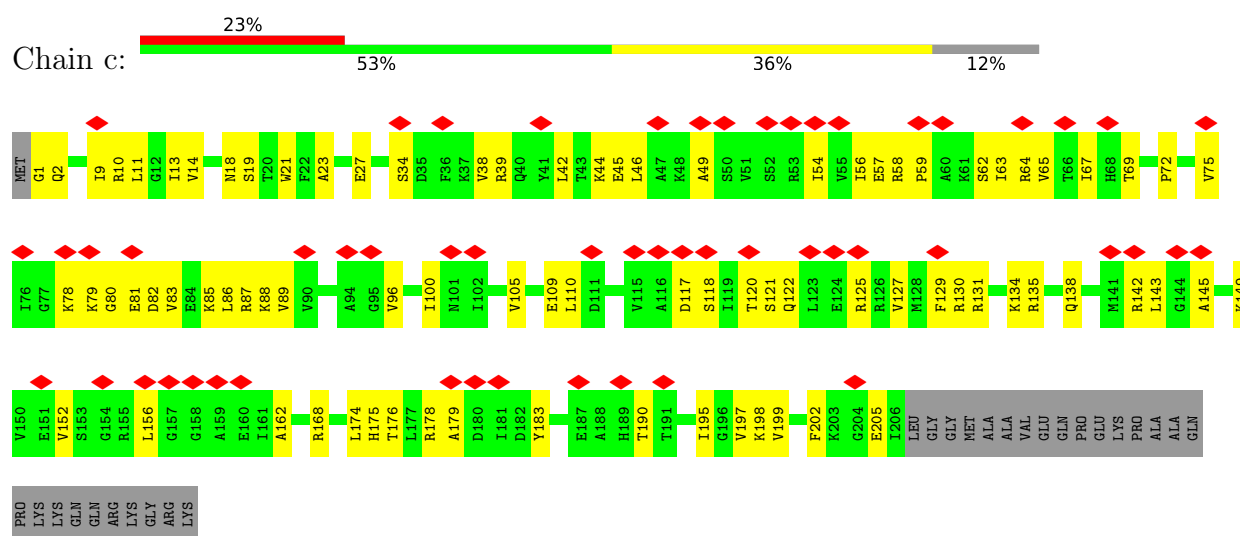




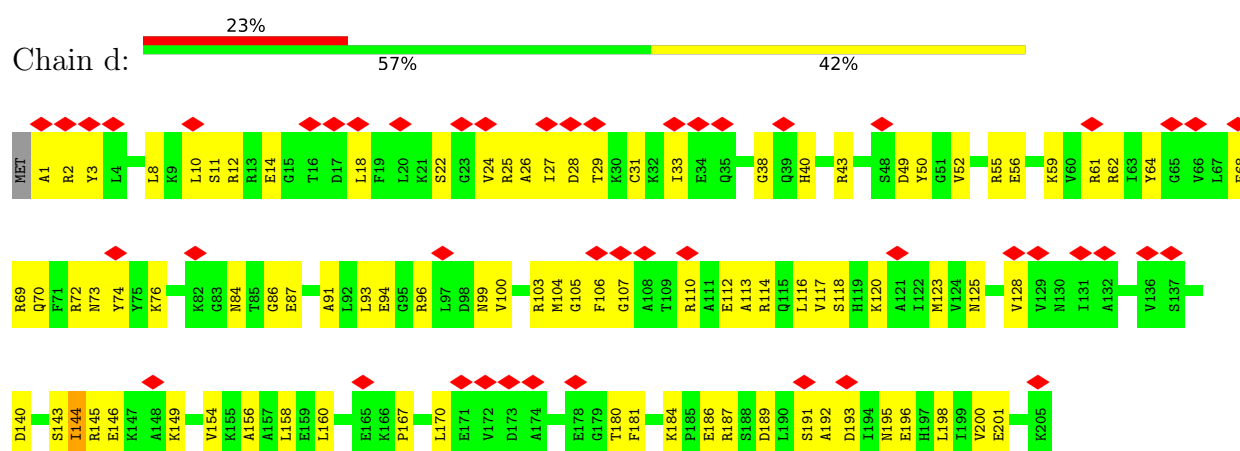
• Molecule 35: 30S ribosomal protein S2



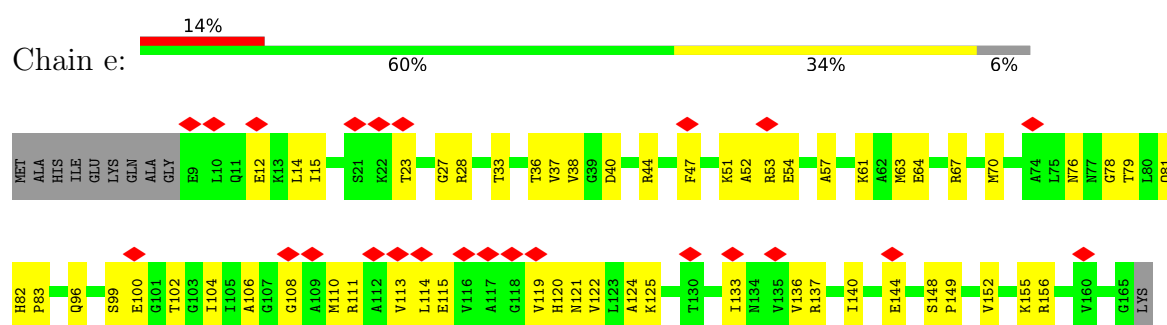
• Molecule 36: 30S ribosomal protein S3



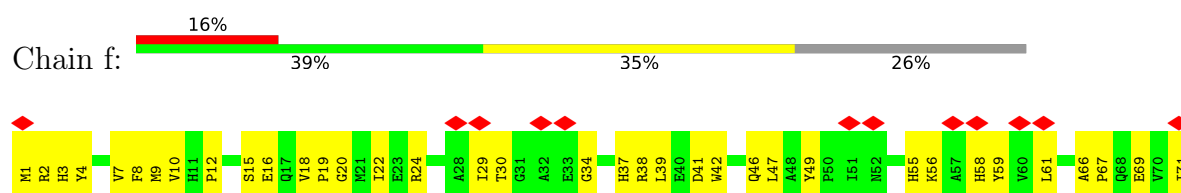
• Molecule 37: Ribosomal protein S4

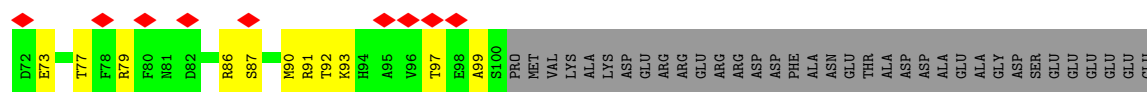


• Molecule 38: 30S ribosomal protein S5

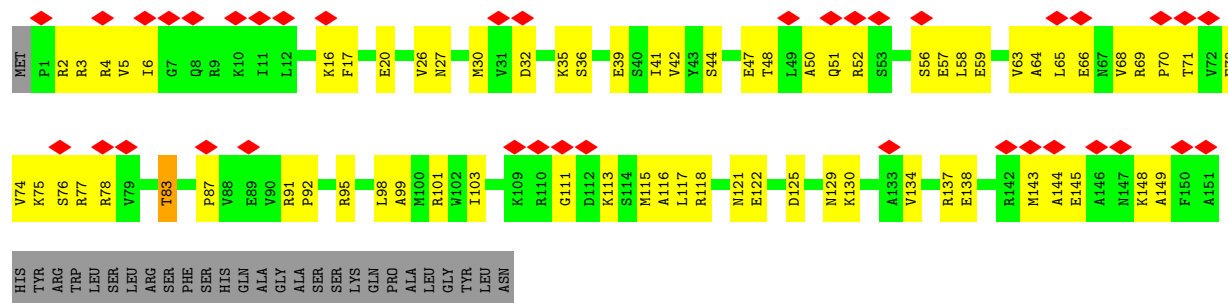


• Molecule 39: 30S ribosomal protein S6, fully modified isoform

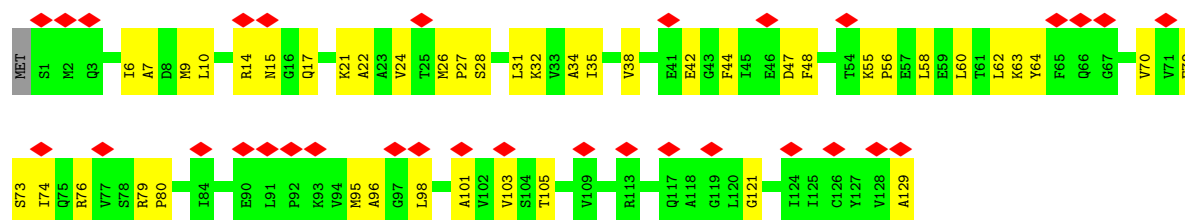




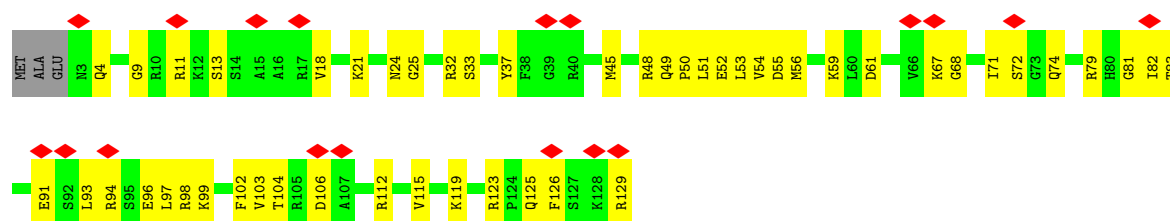
• Molecule 40: 30S ribosomal protein S7



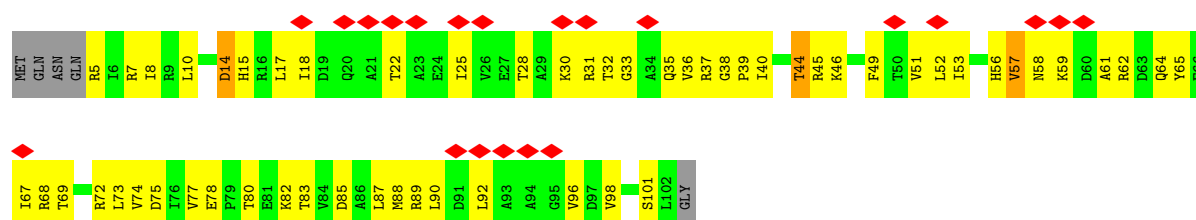
• Molecule 41: 30S ribosomal protein S8



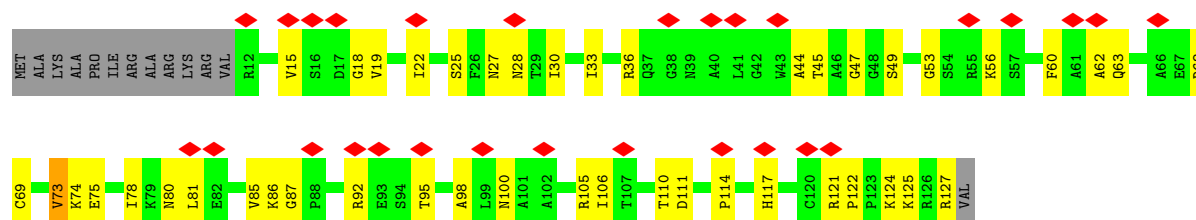
• Molecule 42: 30S ribosomal protein S9



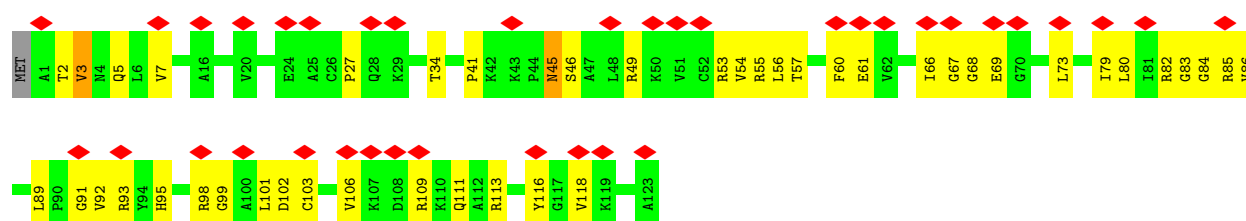
• Molecule 43: 30S ribosomal protein S10



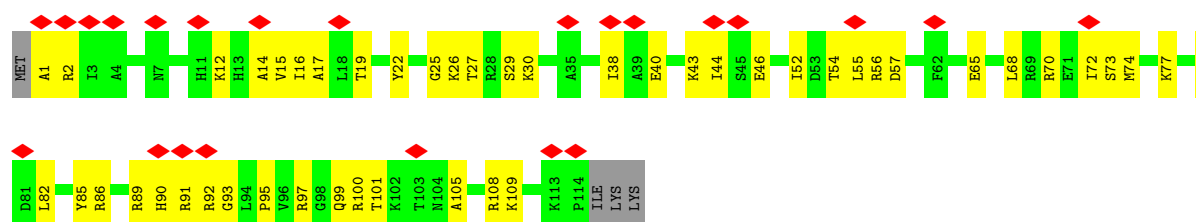
- Molecule 44: 30S ribosomal protein S11



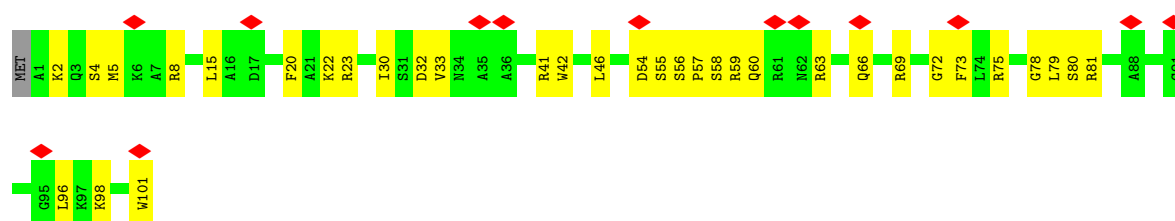
- Molecule 45: 30S ribosomal protein S12



- Molecule 46: 30S ribosomal protein S13

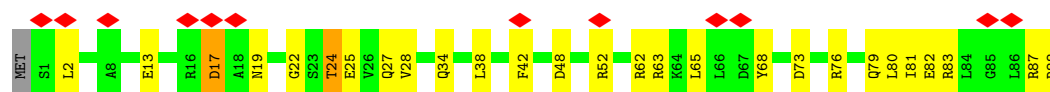


- Molecule 47: 30S ribosomal protein S14

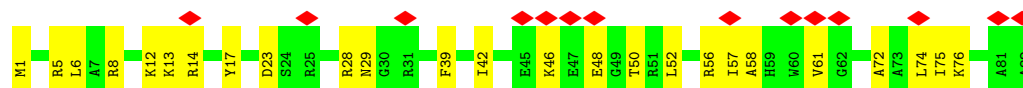


- Molecule 48: 30S ribosomal protein S15

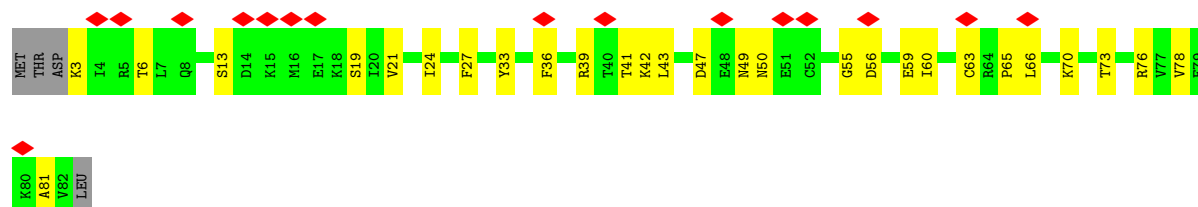




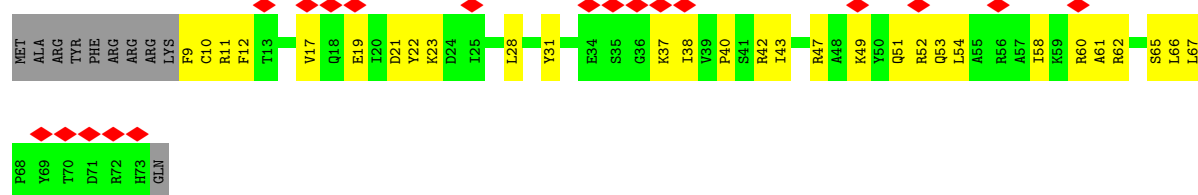
- Molecule 49: 30S ribosomal protein S16



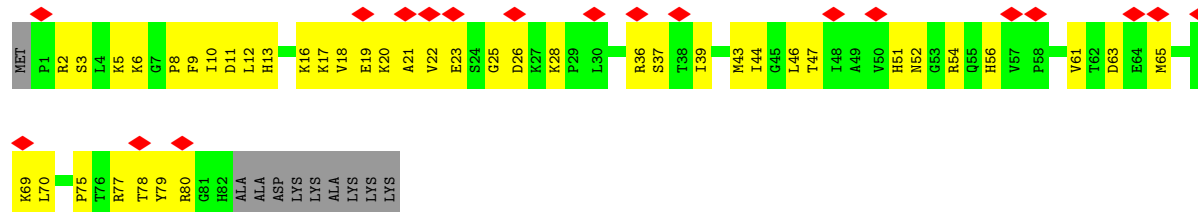
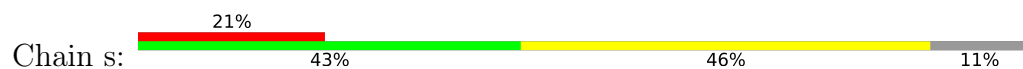
- Molecule 50: 30S ribosomal protein S17



- Molecule 51: 30S ribosomal protein S18



- Molecule 52: 30S ribosomal protein S19



- Molecule 53: 30S ribosomal protein S20

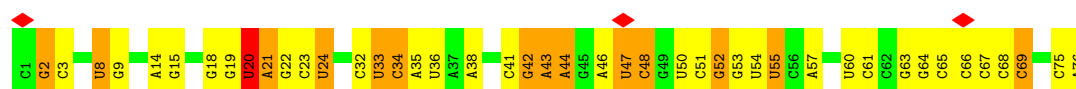




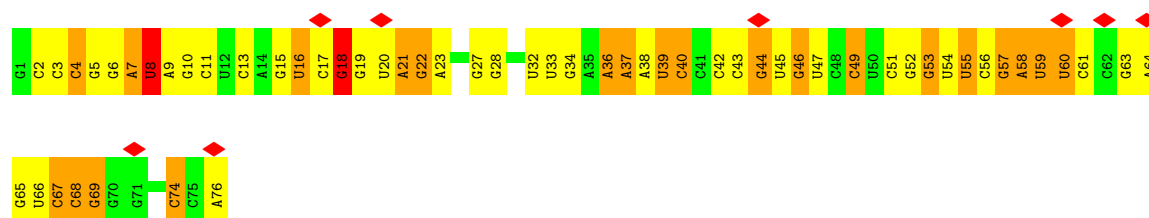
- Molecule 54: 30S ribosomal protein S21



- Molecule 55: P-site tRNA(fMet)



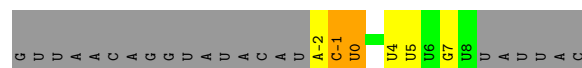
- Molecule 56: P-site fMet-Phe-tRNA(Phe)



- Molecule 57: Dipeptide (FME-PHE)



- Molecule 58: mRNA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	1737	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	7.499	Depositor
Minimum map value	-4.218	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.837	Depositor
Recommended contour level	1.5	Depositor
Map size ($\text{\AA}$)	334.08, 334.08, 334.08	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.16, 1.16, 1.16	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.44	0/450	0.42	0/599
2	1	0.34	0/416	0.41	0/554
3	2	0.50	0/380	0.48	0/498
4	3	0.51	0/513	0.67	0/676
5	4	0.41	0/303	0.54	0/397
6	5	0.19	0/646	0.51	0/898
7	6	0.25	0/531	0.62	1/709 (0.1%)
8	A	0.49	1/69266 (0.0%)	0.41	1/108055 (0.0%)
9	B	0.40	0/2873	0.38	0/4478
10	C	0.47	0/2121	0.54	0/2852
11	D	0.43	0/1586	0.45	0/2134
12	E	0.41	0/1571	0.42	0/2113
13	F	0.29	0/1434	0.45	0/1926
14	G	0.31	0/1343	0.42	0/1816
15	H	0.23	0/1122	0.52	0/1515
16	I	0.19	0/692	0.50	0/960
17	J	0.42	0/1152	0.45	0/1551
18	K	0.53	0/947	0.66	1/1268 (0.1%)
19	L	0.45	0/1054	0.53	0/1403
20	M	0.42	0/1093	0.47	0/1460
21	N	0.44	0/973	0.54	0/1301
22	O	0.33	0/902	0.49	0/1209
23	P	0.42	0/929	0.45	0/1242
24	Q	0.53	0/960	0.50	0/1278
25	R	0.49	0/829	0.62	2/1107 (0.2%)
26	S	0.42	0/864	0.46	0/1156
27	T	0.38	0/744	0.47	0/994
28	U	0.36	0/787	0.45	0/1051
29	V	0.37	0/766	0.41	0/1025
30	W	0.43	0/582	0.44	0/769
31	X	0.44	0/635	0.48	0/848

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	Y	0.41	0/510	0.71	1/677 (0.1%)
33	Z	0.40	0/453	0.43	0/605
34	a	0.41	2/36725 (0.0%)	0.40	2/57285 (0.0%)
35	b	0.26	0/1735	0.45	0/2338
36	c	0.32	0/1651	0.45	0/2225
37	d	0.32	0/1665	0.57	0/2227
38	e	0.35	0/1154	0.47	0/1554
39	f	0.31	0/835	0.49	0/1128
40	g	0.33	0/1195	0.59	0/1602
41	h	0.36	0/989	0.43	0/1326
42	i	0.29	0/1034	0.45	0/1375
43	j	0.42	0/796	0.65	1/1077 (0.1%)
44	k	0.34	0/885	0.53	1/1195 (0.1%)
45	l	0.50	0/969	0.68	1/1300 (0.1%)
46	m	0.29	0/892	0.51	0/1193
47	n	0.30	0/811	0.47	0/1081
48	o	0.35	0/722	0.46	0/964
49	p	0.37	0/659	0.47	0/884
50	q	0.39	0/657	0.51	0/881
51	r	0.33	0/544	0.50	0/731
52	s	0.31	0/675	0.57	0/908
53	t	0.33	0/671	0.44	0/888
54	u	0.44	0/512	0.72	0/683
55	v	0.35	0/1745	0.44	0/2716
56	w	0.33	0/1650	0.44	1/2569 (0.0%)
57	y	0.33	0/10	0.36	0/12
58	z	0.43	0/255	0.46	0/394
All	All	0.44	3/158863 (0.0%)	0.44	12/237660 (0.0%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	527	G7M	O3'-P	8.74	1.65	1.56
8	A	874	G	O3'-P	7.23	1.72	1.61
34	a	1053	G	O3'-P	-5.94	1.52	1.61

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	527	G7M	P-O3'-C3'	12.41	134.59	119.70
43	j	44	THR	CB-CA-C	6.26	122.88	110.42
32	Y	19	LEU	N-CA-C	-6.18	104.55	111.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	K	63	VAL	N-CA-C	-5.75	108.25	113.71
56	w	18	G	C2'-C3'-O3'	5.70	118.05	109.50
34	a	793	U	C2'-C3'-O3'	5.60	117.91	109.50
44	k	73	VAL	N-CA-C	-5.59	107.68	113.10
25	R	54	VAL	N-CA-C	-5.30	101.94	109.51
7	6	5	ILE	N-CA-C	-5.25	107.72	112.96
8	A	504	A	C3'-C2'-O2'	5.21	118.51	110.70
25	R	52	PRO	N-CA-C	-5.19	102.80	111.26
45	l	45	ASN	CB-CA-C	5.04	119.41	110.85

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	14	0
3	2	377	0	418	14	0
4	3	504	0	574	19	0
5	4	302	0	340	11	0
6	5	647	0	336	8	0
7	6	522	0	521	43	0
8	A	62339	0	31373	1371	0
9	B	2570	0	1301	64	0
10	C	2082	0	2157	90	0
11	D	1565	0	1616	52	0
12	E	1552	0	1618	48	0
13	F	1410	0	1447	76	0
14	G	1323	0	1374	39	0
15	H	1111	0	1148	43	0
16	I	693	0	347	11	0
17	J	1129	0	1162	23	0
18	K	938	0	1012	41	0
19	L	1045	0	1117	41	0
20	M	1074	0	1157	36	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
21	N	960	0	1000	27	0
22	O	892	0	923	31	0
23	P	917	0	965	38	0
24	Q	947	0	1022	31	0
25	R	816	0	839	25	0
26	S	857	0	922	34	0
27	T	738	0	807	27	0
28	U	779	0	834	34	0
29	V	753	0	780	23	0
30	W	575	0	592	13	0
31	X	625	0	655	24	0
32	Y	509	0	543	17	0
33	Z	449	0	491	9	0
34	a	33050	0	16654	883	0
35	b	1704	0	1732	67	0
36	c	1624	0	1699	69	0
37	d	1643	0	1710	79	0
38	e	1141	0	1170	42	0
39	f	817	0	808	49	0
40	g	1181	0	1240	58	0
41	h	979	0	1034	35	0
42	i	1022	0	1070	42	0
43	j	786	0	828	48	0
44	k	869	0	878	34	0
45	l	955	0	1019	36	0
46	m	883	0	944	44	0
47	n	799	0	841	34	0
48	o	714	0	737	18	0
49	p	649	0	666	20	0
50	q	648	0	691	21	0
51	r	535	0	552	23	0
52	s	658	0	685	54	0
53	t	665	0	714	28	0
54	u	506	0	502	13	0
55	v	1642	0	840	32	0
56	w	1631	0	838	73	0
57	y	20	0	19	15	0
58	z	230	0	116	4	0
59	4	1	0	0	0	0
59	6	1	0	0	0	0
60	a	37	0	41	17	0
All	All	147243	0	98320	3680	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 (3680) 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)
8:A:2451:A:C1'	56:w:76:A:H2'	1.62	1.28
8:A:1915:3TD:C1'	8:A:1915:3TD:O4'	1.67	1.25
8:A:2451:A:H1'	56:w:76:A:C2'	1.67	1.24
8:A:279:A:C8	8:A:361:G:N2	2.12	1.17
8:A:1056:G:N2	8:A:1103:A:C5	2.15	1.14
7:6:59:ARG:HB2	52:s:20:LYS:HG3	1.34	1.06
8:A:1071:G:H21	8:A:1089:A:N6	1.54	1.06
34:a:1417:G:N2	34:a:1483:A:C6	2.24	1.05
8:A:2253:G:C2	56:w:74:C:N4	2.26	1.04
54:u:3:ILE:N	54:u:21:SER:HG	1.56	1.01
8:A:2451:A:N3	56:w:76:A:O2'	1.96	0.97
8:A:1056:G:C2	8:A:1103:A:C5	2.51	0.97
8:A:1053:C:O2	8:A:1106:G:N2	1.97	0.96
34:a:765:G:H1	34:a:812:G:HO2'	1.02	0.96
56:w:5:G:N2	56:w:68:C:O2	1.97	0.96
8:A:2142:A:N6	8:A:2150:C:O2	2.00	0.94
34:a:1492:A:H5''	60:a:2001:AM2:OB2	1.69	0.92
34:a:1028:C:HO2'	34:a:1033:G:H1	1.17	0.92
34:a:1416:G:O6	34:a:1483:A:N6	2.03	0.91
8:A:279:A:N7	8:A:361:G:N2	2.18	0.91
8:A:1056:G:N3	8:A:1087:G:N2	2.16	0.91
9:B:57:A:OP2	9:B:58:A:OP2	1.90	0.90
40:g:111:GLY:HA2	40:g:118:ARG:HD3	1.54	0.89
34:a:980:C:OP2	34:a:981:U:O4	1.90	0.89
8:A:2602:A:H2'	56:w:74:C:H5'	1.51	0.89
8:A:1056:G:N2	8:A:1103:A:C4	2.40	0.89
8:A:1071:G:N2	8:A:1089:A:H61	1.69	0.89
52:s:17:LYS:HA	52:s:20:LYS:HD2	1.55	0.89
8:A:1053:C:N3	8:A:1106:G:N1	2.23	0.87
8:A:1271:G:OP2	8:A:1648:U:OP1	1.93	0.86
56:w:51:C:H2'	56:w:52:G:H8	1.38	0.86
34:a:1426:G:H1	34:a:1474:U:H3	0.91	0.86
8:A:1478:G:H1	8:A:1513:U:H3	0.91	0.86
8:A:2451:A:O2'	56:w:76:A:H3'	1.76	0.86
8:A:1936:A:H2	8:A:1943:U:H3	1.21	0.85
8:A:1071:G:H21	8:A:1089:A:H61	1.19	0.85
8:A:2111:U:H1'	8:A:2118:U:H1'	1.55	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:m:105:ALA:O	46:m:109:LYS:HB2	1.76	0.85
34:a:429:U:H3'	37:d:8:LEU:HD12	1.59	0.85
8:A:247:G:OP2	8:A:249:C:N4	2.08	0.85
8:A:1079:C:H42	8:A:1083:U:H3	1.24	0.85
34:a:1211:U:H5'	34:a:1212:U:H5'	1.58	0.85
8:A:627:A:H5''	19:L:78:ARG:HH12	1.41	0.84
8:A:1171:G:H1	8:A:1177:G:H22	1.25	0.84
34:a:1028:C:O2'	34:a:1033:G:N1	2.10	0.83
8:A:1056:G:C2	8:A:1103:A:C6	2.67	0.83
32:Y:14:LEU:HA	32:Y:17:GLU:HG2	1.61	0.82
56:w:6:G:N2	56:w:67:C:O2	2.11	0.82
5:4:2:LYS:NZ	5:4:32:LYS:O	2.12	0.82
56:w:6:G:N1	56:w:67:C:N3	2.25	0.82
8:A:2332:C:OP1	30:W:73:ARG:NH1	2.12	0.82
34:a:1305:G:N2	34:a:1332:A:OP2	2.12	0.82
40:g:145:GLU:HA	40:g:148:LYS:HB2	1.60	0.82
8:A:1059:G:H1	8:A:1080:A:H1'	1.46	0.81
8:A:242:G:N2	8:A:255:A:OP2	2.13	0.81
8:A:2131:U:H4'	8:A:2133:G:H4'	1.63	0.81
8:A:2299:U:OP1	13:F:71:LYS:NZ	2.13	0.81
8:A:2452:C:C6	57:y:101:FME:HG3	2.15	0.81
34:a:1316:G:H22	34:a:1319:A:H5''	1.44	0.81
10:C:259:ASN:ND2	10:C:262:THR:OG1	2.12	0.81
8:A:270:A:N1	8:A:369:U:O2'	2.13	0.81
8:A:2451:A:H2'	57:y:101:FME:SD	2.21	0.80
8:A:279:A:N7	8:A:361:G:C2	2.49	0.80
8:A:1168:G:H1	8:A:1181:U:H3	1.30	0.80
39:f:29:ILE:HG22	39:f:34:GLY:HA3	1.62	0.80
34:a:1491:G:C6	60:a:2001:AM2:HA2	2.16	0.79
34:a:1416:G:N1	34:a:1483:A:N1	2.29	0.79
8:A:2140:G:N2	8:A:2151:U:O2	2.15	0.79
8:A:2666:C:N4	14:G:108:PHE:O	2.14	0.79
35:b:96:LEU:HD11	35:b:146:SER:HB3	1.64	0.79
46:m:90:HIS:HA	46:m:108:ARG:HH22	1.45	0.79
8:A:1798:U:OP2	10:C:270:ARG:NH2	2.16	0.79
34:a:261:U:OP2	53:t:73:ARG:NH2	2.16	0.79
34:a:1492:A:OP1	60:a:2001:AM2:HB2	1.82	0.79
35:b:186:VAL:HG13	35:b:190:SER:HB2	1.64	0.79
34:a:332:G:O3'	53:t:2:ASN:ND2	2.16	0.79
13:F:115:GLY:HA3	13:F:177:ARG:HB2	1.63	0.79
34:a:1007:U:H3	34:a:1022:A:H2	1.30	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:12:GLU:HG2	38:e:38:VAL:HG12	1.65	0.78
56:w:5:G:H2'	56:w:6:G:H8	1.48	0.78
8:A:2602:A:H5''	56:w:74:C:H4'	1.64	0.78
15:H:65:ALA:H	15:H:68:ARG:HG3	1.47	0.78
8:A:2127:G:N2	8:A:2128:G:O6	2.16	0.78
39:f:22:ILE:HD11	39:f:39:LEU:HD11	1.65	0.78
8:A:2100:G:N1	8:A:2189:U:O2	2.14	0.78
34:a:1356:G:H2'	34:a:1357:A:C8	2.19	0.78
37:d:8:LEU:HD13	37:d:31:CYS:HB3	1.65	0.78
8:A:545:U:O2	8:A:548:G:O6	2.00	0.78
34:a:1419:G:O6	34:a:1481:U:O2	2.01	0.78
39:f:90:MET:SD	51:r:60:ARG:NH1	2.57	0.78
34:a:1297:G:N2	40:g:113:LYS:O	2.16	0.78
8:A:1203:U:O2'	19:L:4:ASN:ND2	2.18	0.77
8:A:1415:U:H3	8:A:1587:G:H1	0.80	0.77
34:a:1422:G:H1	34:a:1478:U:H3	1.30	0.77
8:A:848:C:H2'	8:A:849:A:H8	1.47	0.77
34:a:1329:A:H5''	46:m:25:GLY:H	1.49	0.77
34:a:1175:G:H2'	34:a:1176:A:H8	1.46	0.77
8:A:1019:U:OP1	8:A:1035:U:O2'	2.02	0.77
34:a:453:G:O6	34:a:479:U:N3	2.15	0.77
10:C:106:PRO:HG2	10:C:109:LEU:HB2	1.66	0.77
35:b:18:GLN:HA	35:b:37:VAL:HA	1.67	0.77
8:A:2130:U:O4'	8:A:2159:G:N2	2.17	0.77
34:a:481:G:O2'	34:a:483:C:N4	2.18	0.77
7:6:53:THR:HG22	52:s:47:THR:HG21	1.66	0.77
8:A:1791:A:N6	8:A:1828:G:O2'	2.15	0.77
34:a:278:G:OP2	50:q:42:LYS:NZ	2.18	0.77
34:a:1137:C:O2'	34:a:1138:G:N2	2.18	0.77
8:A:920:A:OP1	33:Z:18:LYS:NZ	2.16	0.76
24:Q:49:ARG:O	24:Q:53:LYS:NZ	2.18	0.76
34:a:812:G:OP1	34:a:902:G:N2	2.18	0.76
43:j:36:VAL:HG22	43:j:38:GLY:H	1.50	0.76
9:B:77:U:OP1	29:V:21:ARG:NH2	2.18	0.76
26:S:2:GLU:HG2	26:S:108:SER:HB2	1.67	0.76
34:a:1266:G:N2	34:a:1269:A:OP2	2.15	0.76
3:2:39:ARG:NH2	8:A:468:G:N7	2.33	0.76
5:4:2:LYS:HE3	5:4:4:ARG:HH21	1.50	0.76
8:A:2202:U:O2'	8:A:2204:G:OP1	2.04	0.76
15:H:116:ARG:HB2	15:H:131:SER:HB3	1.68	0.76
24:Q:99:VAL:O	24:Q:102:LYS:NZ	2.18	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:933:G:O6	40:g:2:ARG:NH2	2.17	0.76
34:a:1238:A:H5'	34:a:1336:C:H41	1.50	0.76
7:6:18:CYS:HB2	7:6:40:CYS:HB3	1.66	0.76
8:A:320:A:N3	12:E:163:ASN:ND2	2.33	0.76
34:a:1417:G:N2	34:a:1483:A:N6	2.33	0.76
14:G:1:SER:OG	14:G:2:ARG:N	2.18	0.76
34:a:1432:G:O2'	34:a:1433:A:O5'	2.04	0.76
8:A:2452:C:N1	57:y:101:FME:HG3	2.01	0.75
34:a:971:G:OP2	34:a:1231:G:N2	2.19	0.75
8:A:529:A:OP2	17:J:116:ARG:NH2	2.19	0.75
18:K:108:ARG:HG2	18:K:116:ILE:HG12	1.68	0.75
34:a:637:C:OP1	50:q:3:LYS:NZ	2.19	0.75
34:a:1338:G:H1'	55:v:42:G:H5''	1.67	0.75
40:g:26:VAL:HG22	40:g:42:VAL:HG11	1.67	0.75
8:A:2144:G:O2'	8:A:2147:A:N6	2.19	0.75
31:X:58:ILE:HG12	31:X:66:VAL:HG21	1.68	0.75
34:a:1347:G:O6	42:i:11:ARG:NH2	2.20	0.75
36:c:19:SER:OG	36:c:39:ARG:NH2	2.18	0.75
37:d:125:ASN:ND2	37:d:140:ASP:OD1	2.19	0.75
12:E:146:VAL:HG12	12:E:185:LYS:HB2	1.68	0.75
23:P:105:LYS:O	23:P:108:ARG:NH2	2.20	0.75
8:A:627:A:OP1	19:L:78:ARG:NH2	2.15	0.75
57:y:101:FME:HE3	57:y:102:PHE:H	1.51	0.75
7:6:14:ALA:HB3	7:6:22:MET:HB2	1.69	0.75
34:a:1491:G:C6	60:a:2001:AM2:HA4	2.21	0.75
7:6:42:PRO:O	7:6:45:THR:O	2.05	0.74
8:A:2113:U:O4	8:A:2169:A:N6	2.20	0.74
7:6:56:ARG:O	7:6:60:PHE:HB2	1.86	0.74
36:c:110:LEU:HD23	36:c:143:LEU:HD23	1.69	0.74
8:A:2839:G:N2	21:N:91:ALA:O	2.17	0.74
34:a:309:A:O2'	34:a:607:A:N1	2.19	0.74
8:A:2032:G:N2	11:D:151:THR:OG1	2.21	0.74
34:a:1535:C:H5'	34:a:1536:C:H5''	1.68	0.74
8:A:499:U:H5''	28:U:42:LYS:HD2	1.69	0.74
1:0:12:ARG:NH2	8:A:517:C:OP1	2.21	0.74
28:U:6:ARG:NH2	28:U:7:ASP:OD1	2.18	0.74
34:a:1088:G:N2	34:a:1167:A:H61	1.85	0.74
34:a:1095:U:OP1	34:a:1108:G:N1	2.14	0.74
8:A:1063:G:H5'	16:I:76:ALA:HB1	1.70	0.74
8:A:1250:G:N7	19:L:18:ARG:NH2	2.31	0.74
18:K:87:LEU:HD13	18:K:92:GLU:HB3	1.69	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:M:17:ASN:OD1	20:M:97:GLN:NE2	2.21	0.73
21:N:77:ALA:O	21:N:81:ASN:HB2	1.87	0.73
29:V:21:ARG:NH1	29:V:87:GLN:O	2.21	0.73
8:A:84:A:H62	8:A:101:A:H2	1.34	0.73
8:A:859:G:O2'	8:A:916:G:O6	2.06	0.73
8:A:2474:U:OP2	8:A:2475:C:N4	2.19	0.73
34:a:1417:G:O2'	34:a:1418:A:O4'	2.06	0.73
8:A:141:G:H1	27:T:1:MET:HE2	1.53	0.73
8:A:805:G:N2	8:A:829:A:OP1	2.20	0.73
8:A:2901:C:N4	8:A:2902:C:H41	1.87	0.73
34:a:1350:A:O2'	40:g:32:ASP:OD1	2.07	0.73
35:b:67:LEU:HG	35:b:153:MET:HE1	1.71	0.73
8:A:1386:C:H2'	8:A:1387:A:H8	1.54	0.73
34:a:1432:G:O2'	34:a:1433:A:P	2.47	0.73
8:A:1248:G:OP1	12:E:44:ARG:NH2	2.21	0.73
8:A:2108:A:H2	8:A:2182:U:H3	1.36	0.73
8:A:2636:C:O2'	11:D:45:TYR:OH	2.06	0.73
34:a:993:G:O2'	34:a:994:A:N7	2.21	0.73
35:b:55:GLU:HA	35:b:58:LYS:HD2	1.70	0.73
17:J:17:VAL:HG23	17:J:137:PRO:HB2	1.69	0.73
34:a:691:G:O6	44:k:56:LYS:NZ	2.18	0.73
34:a:1124:G:N2	34:a:1125:U:O4	2.17	0.73
44:k:28:ASN:HD22	44:k:56:LYS:HD2	1.54	0.73
8:A:2328:A:H2'	8:A:2329:U:C6	2.24	0.72
41:h:7:ALA:HB2	41:h:76:ARG:HD3	1.71	0.72
56:w:5:G:H2'	56:w:6:G:C8	2.23	0.72
1:O:49:ARG:NH1	8:A:2884:U:O4'	2.23	0.72
8:A:1858:A:N6	8:A:1884:G:O2'	2.22	0.72
13:F:125:GLY:O	13:F:157:THR:OG1	2.07	0.72
36:c:72:PRO:HA	36:c:75:VAL:HG22	1.71	0.72
47:n:41:ARG:NH2	52:s:5:LYS:O	2.21	0.72
8:A:2292:U:H2'	8:A:2293:G:H8	1.54	0.72
34:a:1491:G:N1	60:a:2001:AM2:HA4	2.02	0.72
44:k:92:ARG:NH2	44:k:111:ASP:OD1	2.21	0.72
8:A:1068:G:N2	16:I:22:PRO:O	2.23	0.72
8:A:2125:G:N2	8:A:2172:U:OP1	2.21	0.72
9:B:27:C:OP1	22:O:34:HIS:NE2	2.19	0.72
34:a:926:G:N2	58:z:0:U:OP2	2.22	0.72
34:a:1355:G:H2'	34:a:1356:G:H8	1.53	0.72
34:a:1493:A:OP2	60:a:2001:AM2:HA7	1.88	0.72
8:A:658:U:O2'	12:E:95:LYS:NZ	2.21	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:t:2:ASN:HB2	53:t:7:LYS:HG2	1.71	0.72
57:y:101:FME:CE	57:y:102:PHE:H	2.03	0.72
13:F:141:ASP:OD1	46:m:70:ARG:NH2	2.23	0.72
8:A:1734:G:H2'	8:A:1735:A:H8	1.54	0.72
19:L:95:LEU:HD11	19:L:125:LEU:HD21	1.72	0.72
34:a:343:U:O2'	34:a:346:G:O6	2.06	0.72
8:A:673:C:OP1	12:E:49:ARG:NH2	2.23	0.71
8:A:2199:A:N1	8:A:2226:C:N4	2.37	0.71
30:W:71:LYS:HD3	30:W:73:ARG:HH21	1.55	0.71
8:A:1092:C:N3	8:A:1098:A:N6	2.36	0.71
34:a:1481:U:H2'	34:a:1482:G:N3	2.04	0.71
8:A:1816:C:N4	10:C:34:GLU:OE2	2.23	0.71
8:A:2439:A:N6	8:A:2585:U:O2'	2.24	0.71
8:A:396:G:OP2	31:X:9:LYS:NZ	2.24	0.71
14:G:94:ARG:HG3	14:G:127:GLN:HG3	1.72	0.71
25:R:24:LYS:HA	25:R:94:THR:HG23	1.70	0.71
8:A:1141:U:H2'	17:J:65:THR:HG21	1.72	0.71
8:A:2308:G:O6	8:A:2311:A:N6	2.17	0.71
8:A:2451:A:C2'	56:w:76:A:H2'	2.20	0.71
34:a:197:A:N1	34:a:220:G:O2'	2.23	0.71
37:d:91:ALA:HB1	37:d:184:LYS:HD2	1.72	0.71
55:v:8:4SU:O2'	55:v:21:A:N1	2.21	0.71
8:A:881:G:H1	8:A:895:U:H3	1.37	0.71
8:A:2313:C:H5''	13:F:87:LYS:HD3	1.73	0.71
23:P:99:LEU:HD11	23:P:109:ILE:HD11	1.71	0.71
4:3:11:LYS:NZ	8:A:249:C:O2	2.22	0.71
8:A:2012:G:OP1	26:S:11:ARG:NH2	2.24	0.71
34:a:177:G:OP2	34:a:177:G:N2	2.20	0.71
8:A:324:A:OP2	8:A:1205:A:N6	2.23	0.71
8:A:645:C:H2'	8:A:647:G:C8	2.26	0.71
36:c:122:GLN:HG2	36:c:125:ARG:HH21	1.56	0.71
8:A:883:G:N2	8:A:884:U:O2'	2.23	0.71
11:D:48:ILE:HG23	11:D:84:LEU:HD21	1.72	0.71
34:a:1088:G:H21	34:a:1167:A:H61	1.38	0.70
7:6:16:CYS:HB3	7:6:20:ASN:HB2	1.73	0.70
8:A:534:U:O2'	24:Q:48:ASP:OD2	2.08	0.70
10:C:70:LYS:O	10:C:117:SER:OG	2.08	0.70
15:H:101:ASP:OD1	15:H:102:ALA:N	2.24	0.70
8:A:2106:U:H2'	8:A:2107:G:H8	1.56	0.70
8:A:2304:G:H22	8:A:2312:U:H3	1.38	0.70
10:C:143:VAL:HB	10:C:153:LEU:HB2	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:276:G:OP1	50:q:13:SER:OG	2.08	0.70
41:h:73:SER:HB2	41:h:129:ALA:HB3	1.73	0.70
56:w:37:MIA:H113	56:w:38:A:H1'	1.73	0.70
8:A:704:G:H2'	8:A:726:G:H22	1.56	0.70
34:a:427:U:OP1	37:d:12:ARG:NH2	2.24	0.70
34:a:673:A:H2'	34:a:674:G:C8	2.27	0.70
8:A:277:G:O2'	8:A:361:G:O6	2.09	0.70
34:a:1493:A:OP1	60:a:2001:AM2:HA5	1.92	0.70
7:6:42:PRO:O	7:6:45:THR:C	2.34	0.70
38:e:104:ILE:HD12	38:e:115:GLU:HG3	1.74	0.70
8:A:698:C:O2'	8:A:734:A:N6	2.25	0.69
7:6:55:GLY:HA3	52:s:20:LYS:C	2.17	0.69
8:A:1754:A:N1	8:A:2716:C:O2'	2.25	0.69
8:A:1857:G:O2'	8:A:1885:A:N6	2.24	0.69
9:B:42:C:C6	13:F:65:LEU:HB2	2.27	0.69
11:D:196:ALA:O	11:D:199:SER:OG	2.09	0.69
40:g:70:PRO:O	40:g:95:ARG:NH1	2.25	0.69
8:A:693:A:O2'	8:A:1353:A:N3	2.24	0.69
8:A:1664:A:N3	18:K:67:LYS:NZ	2.41	0.69
34:a:1417:G:H4'	34:a:1418:A:H5'	1.74	0.69
40:g:56:SER:OG	40:g:59:GLU:OE2	2.09	0.69
7:6:43:PHE:HA	7:6:47:LYS:HB3	1.74	0.69
8:A:1960:A:O2'	34:a:1483:A:O2'	2.10	0.69
8:A:659:G:O2'	12:E:95:LYS:O	2.10	0.69
8:A:1070:A:H61	16:I:26:ALA:HB1	1.58	0.69
20:M:102:LEU:HD11	20:M:126:ILE:HD11	1.73	0.69
8:A:481:G:H1'	8:A:506:G:H21	1.58	0.69
8:A:1080:A:N6	8:A:1088:A:O4'	2.26	0.69
8:A:1597:A:H5''	8:A:1598:A:H5'	1.75	0.69
34:a:544:G:OP1	37:d:55:ARG:NH2	2.26	0.69
40:g:65:LEU:O	40:g:69:ARG:HB2	1.92	0.69
8:A:1451:C:O2'	8:A:1452:G:OP2	2.10	0.69
8:A:1270:C:H5''	8:A:1271:G:H5'	1.74	0.69
8:A:2743:U:O2'	14:G:152:ARG:NH1	2.26	0.69
9:B:37:C:O2	22:O:100:HIS:NE2	2.24	0.69
34:a:96:U:H2'	34:a:97:G:H8	1.58	0.69
8:A:954:G:OP2	20:M:16:ARG:NH1	2.26	0.69
8:A:1386:C:H2'	8:A:1387:A:C8	2.27	0.69
9:B:30:C:O2'	9:B:57:A:N1	2.24	0.69
13:F:152:ASP:N	13:F:152:ASP:OD1	2.22	0.69
34:a:159:G:O2'	34:a:162:A:N7	2.25	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:m:82:LEU:HD21	52:s:65:MET:HB3	1.73	0.69
8:A:479:A:H1'	8:A:480:A:H5''	1.75	0.69
15:H:84:ALA:HB2	15:H:90:LEU:HD23	1.75	0.69
26:S:4:ILE:HG13	26:S:106:VAL:HG22	1.75	0.69
34:a:1491:G:N2	60:a:2001:AM2:HA8	2.07	0.69
37:d:106:PHE:HA	37:d:154:VAL:HG23	1.74	0.69
8:A:2451:A:H1'	56:w:76:A:H2'	0.79	0.68
20:M:5:LYS:HE2	56:w:53:G:H4'	1.75	0.68
34:a:1417:G:C2	34:a:1483:A:N6	2.61	0.68
38:e:33:THR:HG22	38:e:51:LYS:HB3	1.75	0.68
41:h:17:GLN:HE22	41:h:62:LEU:HB3	1.58	0.68
8:A:1779:U:OP2	8:A:1784:A:N6	2.25	0.68
8:A:1799:G:OP1	10:C:257:ARG:NH1	2.26	0.68
35:b:18:GLN:HB3	35:b:37:VAL:HG22	1.75	0.68
8:A:1073:A:N6	8:A:1074:G:N3	2.40	0.68
8:A:1557:C:H5''	8:A:1558:C:H5''	1.74	0.68
34:a:1112:C:O2	36:c:178:ARG:N	2.21	0.68
34:a:1219:A:H2'	34:a:1220:G:H8	1.57	0.68
8:A:1054:A:H2'	8:A:1055:G:C8	2.28	0.68
8:A:2243:U:H2'	8:A:2244:U:C6	2.29	0.68
34:a:946:A:H2'	34:a:947:G:C8	2.29	0.68
34:a:1131:G:O6	34:a:1143:G:N2	2.15	0.68
8:A:475:C:H4'	8:A:510:C:H5'	1.75	0.68
8:A:2139:U:C4	8:A:2152:G:O6	2.46	0.68
34:a:766:A:OP2	34:a:812:G:N2	2.27	0.68
34:a:1308:U:H3	34:a:1330:U:H3	1.42	0.68
12:E:145:ASP:HB2	12:E:166:LYS:HE3	1.73	0.68
13:F:14:LYS:HD2	13:F:171:ALA:HB1	1.76	0.68
34:a:1486:G:H2'	34:a:1487:G:O4'	1.92	0.68
44:k:87:GLY:O	44:k:92:ARG:NH1	2.26	0.68
7:6:65:ASN:HB3	34:a:1012:A:OP1	1.93	0.68
8:A:1415:U:O4	8:A:1587:G:O6	2.11	0.68
34:a:264:C:O2'	50:q:65:PRO:O	2.10	0.68
35:b:93:HIS:ND1	35:b:145:ASN:O	2.26	0.68
8:A:488:G:O2'	26:S:49:LYS:NZ	2.19	0.68
8:A:1930:G:HO2'	8:A:1968:G:H1	1.42	0.68
34:a:82:G:N2	34:a:88:U:OP2	2.26	0.68
34:a:324:G:N2	34:a:327:A:OP2	2.26	0.68
34:a:521:G:N7	45:l:49:ARG:NH1	2.41	0.68
34:a:1309:G:C6	34:a:1329:A:N1	2.62	0.68
37:d:123:MET:HG3	37:d:145:ARG:HB2	1.76	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2683:C:OP1	23:P:50:ARG:NH2	2.23	0.67
8:A:2790:U:O2'	8:A:2791:G:O5'	2.12	0.67
12:E:21:ARG:HD3	12:E:106:LYS:HB3	1.76	0.67
34:a:1368:A:OP1	43:j:64:GLN:NE2	2.26	0.67
8:A:1056:G:H1'	8:A:1087:G:H22	1.57	0.67
6:5:32:GLY:H	8:A:1055:G:H5'	1.60	0.67
23:P:63:ILE:HA	23:P:68:GLY:HA2	1.76	0.67
8:A:1071:G:N2	8:A:1089:A:N6	2.29	0.67
8:A:2468:A:O2'	8:A:2469:A:H8	1.78	0.67
44:k:80:ASN:HD22	44:k:105:ARG:HB3	1.59	0.67
8:A:1070:A:N7	8:A:1095:A:O2'	2.24	0.67
34:a:1491:G:C5	60:a:2001:AM2:HA2	2.29	0.67
8:A:2100:G:H2'	8:A:2101:A:C8	2.30	0.67
9:B:57:A:O2'	13:F:160:LYS:NZ	2.25	0.67
31:X:15:ASN:HD22	31:X:23:ALA:HB1	1.60	0.67
34:a:542:G:H5'	37:d:38:GLY:HA2	1.77	0.67
14:G:27:GLY:HA3	14:G:78:VAL:HB	1.77	0.67
34:a:1144:G:N2	34:a:1146:A:H62	1.92	0.67
8:A:545:U:H3'	8:A:546:U:C6	2.30	0.67
9:B:79:G:N7	29:V:14:LYS:NZ	2.42	0.67
13:F:130:GLY:HA2	13:F:152:ASP:HA	1.75	0.67
34:a:76:G:O6	34:a:93:U:O2	2.13	0.67
8:A:1062:G:O2'	8:A:1063:G:O5'	2.12	0.67
8:A:1509:A:H2'	8:A:1510:G:C8	2.29	0.67
36:c:178:ARG:HG2	36:c:205:GLU:HB3	1.77	0.67
55:v:20:H2U:H52	55:v:22:G:H5'	1.75	0.67
5:4:23:ILE:HD13	8:A:1032:A:H1'	1.77	0.66
8:A:2076:U:OP2	8:A:2238:G:N2	2.25	0.66
34:a:718:A:O2'	54:u:34:ARG:NH1	2.29	0.66
34:a:1417:G:H1	34:a:1482:G:H1	1.43	0.66
34:a:1356:G:H2'	34:a:1357:A:H8	1.60	0.66
34:a:1391:U:H2'	34:a:1392:G:C8	2.30	0.66
44:k:111:ASP:H	54:u:3:ILE:HG23	1.60	0.66
37:d:94:GLU:OE2	37:d:103:ARG:NH2	2.28	0.66
8:A:310:A:O2'	8:A:311:A:O5'	2.12	0.66
8:A:444:C:OP1	12:E:40:ARG:NH2	2.29	0.66
8:A:617:G:OP1	12:E:102:ARG:NH2	2.28	0.66
8:A:2186:G:OP1	8:A:2186:G:H4'	1.94	0.66
34:a:673:A:O3'	39:f:86:ARG:NH2	2.28	0.66
34:a:1397:C:OP2	38:e:28:ARG:NH2	2.29	0.66
55:v:33:U:O2'	55:v:34:C:O5'	2.12	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2179:C:HO2'	8:A:2180:U:H3'	1.58	0.66
20:M:5:LYS:CE	56:w:53:G:H4'	2.25	0.66
34:a:373:A:H1'	34:a:481:G:C8	2.30	0.66
34:a:1426:G:N2	34:a:1474:U:O2	2.23	0.66
8:A:575:A:OP2	8:A:2055:C:N4	2.28	0.66
8:A:1084:A:O2'	8:A:1105:U:O2	2.10	0.66
8:A:2788:C:O2'	8:A:2809:A:N3	2.25	0.66
8:A:849:A:H2'	8:A:850:U:H6	1.61	0.66
8:A:1437:C:O2'	8:A:1516:G:O2'	2.13	0.66
8:A:1631:G:N1	8:A:1634:A:OP2	2.25	0.66
32:Y:18:LEU:HA	32:Y:21:LEU:HB2	1.77	0.66
34:a:652:U:O2'	34:a:653:U:O5'	2.14	0.66
7:6:46:GLY:O	7:6:49:ARG:NH2	2.29	0.66
8:A:1056:G:N3	8:A:1103:A:C6	2.64	0.66
8:A:2129:C:O2	8:A:2159:G:N1	2.29	0.66
14:G:136:ASP:HB3	14:G:139:VAL:HG12	1.78	0.66
14:G:155:PRO:O	14:G:171:LYS:N	2.29	0.66
34:a:628:G:H2'	34:a:629:A:H8	1.61	0.66
34:a:1426:G:N1	34:a:1474:U:N3	2.23	0.66
49:p:6:LEU:HB3	49:p:17:TYR:HB3	1.77	0.66
8:A:1102:C:H3'	8:A:1103:A:H8	1.60	0.66
8:A:1226:A:OP1	24:Q:15:LYS:NZ	2.25	0.66
8:A:1475:G:HO2'	8:A:1476:U:H6	1.44	0.66
8:A:700:G:O2'	8:A:1632:A:N3	2.28	0.65
15:H:58:LEU:HA	15:H:61:VAL:HG22	1.76	0.65
34:a:1530:G:O6	54:u:45:LYS:NZ	2.28	0.65
35:b:19:THR:O	35:b:22:TRP:HD1	1.79	0.65
42:i:32:ARG:HD2	42:i:37:TYR:HD1	1.60	0.65
16:I:120:ASP:H	16:I:123:ALA:HB3	1.62	0.65
34:a:1219:A:H2'	34:a:1220:G:C8	2.30	0.65
45:l:109:ARG:HB3	45:l:118:VAL:HG21	1.77	0.65
8:A:1283:G:N1	8:A:1286:A:OP2	2.28	0.65
13:F:46:LYS:NZ	13:F:50:ASP:OD2	2.29	0.65
34:a:1338:G:O2'	55:v:42:G:OP1	2.13	0.65
34:a:539:A:OP2	45:l:111:GLN:NE2	2.22	0.65
34:a:719:C:O2'	51:r:38:ILE:O	2.13	0.65
8:A:1959:G:O2'	34:a:1418:A:N3	2.29	0.65
10:C:250:GLN:NE2	10:C:251:THR:O	2.30	0.65
8:A:1078:U:H5	8:A:1088:A:H5''	1.62	0.65
34:a:296:U:O2'	34:a:556:C:O2	2.13	0.65
1:0:15:ARG:NH1	8:A:1266:G:OP2	2.26	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:84:A:N1	8:A:98:G:O2'	2.25	0.65
8:A:672:C:OP2	19:L:42:SER:OG	2.15	0.65
8:A:2584:U:H3'	8:A:2585:U:H5''	1.79	0.65
8:A:1176:U:H2'	8:A:1177:G:C8	2.32	0.65
8:A:1900:A:H1'	8:A:1970:A:H2'	1.79	0.65
12:E:3:LEU:HB2	12:E:12:LEU:HB3	1.78	0.65
34:a:720:C:O2'	51:r:51:GLN:NE2	2.29	0.65
51:r:22:TYR:HA	51:r:28:LEU:HD11	1.79	0.65
8:A:495:G:N3	26:S:61:ASN:ND2	2.43	0.65
8:A:2667:C:N3	14:G:109:SER:HB2	2.12	0.65
34:a:195:A:H2'	34:a:196:A:C8	2.31	0.65
8:A:2431:U:O2'	8:A:2433:A:N7	2.28	0.64
42:i:91:GLU:OE2	42:i:94:ARG:NH2	2.31	0.64
8:A:1051:G:O6	8:A:1108:U:O2	2.16	0.64
8:A:1469:A:H2'	8:A:1470:A:C8	2.32	0.64
34:a:1077:G:N2	34:a:1080:A:OP2	2.26	0.64
36:c:109:GLU:HB2	36:c:143:LEU:HD22	1.77	0.64
37:d:87:GLU:HG2	37:d:187:ARG:HB2	1.79	0.64
37:d:86:GLY:HA3	37:d:196:GLU:HG3	1.78	0.64
38:e:14:LEU:HA	38:e:36:THR:HG22	1.79	0.64
43:j:14:ASP:N	43:j:14:ASP:OD1	2.31	0.64
8:A:2253:G:N2	56:w:74:C:N4	2.45	0.64
8:A:2676:C:OP1	18:K:31:ARG:NH2	2.30	0.64
22:O:31:THR:O	22:O:102:ARG:NH1	2.29	0.64
34:a:581:G:N1	34:a:759:A:OP2	2.24	0.64
34:a:1036:A:H2'	34:a:1037:C:O4'	1.97	0.64
56:w:36:A:H61	58:z:5:U:H3	1.45	0.64
8:A:628:G:HO2'	8:A:651:G:HO2'	1.43	0.64
8:A:1936:A:H2	8:A:1943:U:N3	1.95	0.64
36:c:179:ALA:HA	36:c:205:GLU:HA	1.79	0.64
36:c:179:ALA:HB1	36:c:202:PHE:HE1	1.62	0.64
46:m:14:ALA:HB3	46:m:40:GLU:HA	1.79	0.64
48:o:28:VAL:HG13	48:o:62:ARG:HG3	1.80	0.64
4:3:44:ARG:NH2	8:A:2349:G:OP1	2.30	0.64
12:E:110:SER:OG	12:E:114:ARG:NH1	2.31	0.64
34:a:890:G:O2'	34:a:906:A:N6	2.30	0.64
34:a:1026:G:N7	34:a:1028:C:N4	2.46	0.64
52:s:44:ILE:HD13	52:s:63:ASP:HB3	1.79	0.64
8:A:2451:A:O2'	56:w:76:A:C3'	2.45	0.64
34:a:555:U:H2'	34:a:556:C:C6	2.33	0.64
12:E:15:SER:N	12:E:197:GLU:OE2	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:H:113:SER:O	15:H:116:ARG:NH1	2.27	0.64
34:a:1052:U:O2'	34:a:1055:A:OP2	2.13	0.64
8:A:659:G:H4'	12:E:95:LYS:HD3	1.80	0.64
8:A:880:G:H2'	8:A:881:G:C8	2.33	0.64
8:A:1170:C:H41	8:A:1178:C:H42	1.46	0.64
8:A:1802:A:H2'	8:A:1803:A:C8	2.32	0.64
8:A:1848:A:H61	8:A:1894:C:H1'	1.62	0.64
8:A:2522:U:O2'	8:A:2647:U:OP1	2.16	0.64
9:B:90:C:H5''	20:M:18:ARG:HG2	1.80	0.64
39:f:38:ARG:NH2	39:f:99:ALA:O	2.31	0.64
8:A:1068:G:N7	8:A:1069:A:H1'	2.12	0.64
30:W:37:ARG:O	30:W:53:HIS:ND1	2.27	0.64
34:a:269:C:H2'	34:a:270:A:C8	2.33	0.64
34:a:946:A:H2'	34:a:947:G:H8	1.61	0.64
35:b:53:LEU:HA	35:b:56:LEU:HD12	1.80	0.64
35:b:87:ASP:O	35:b:88:GLN:NE2	2.30	0.64
8:A:447:A:OP1	24:Q:4:LYS:NZ	2.31	0.63
34:a:8:A:N6	37:d:201:GLU:O	2.31	0.63
34:a:67:C:H2'	34:a:68:G:H8	1.63	0.63
34:a:1013:G:N2	34:a:1015:G:H3'	2.13	0.63
8:A:2468:A:O2'	8:A:2469:A:O5'	2.16	0.63
8:A:2674:G:H4'	18:K:30:ARG:HD2	1.80	0.63
18:K:92:GLU:HB2	18:K:111:LYS:HZ1	1.64	0.63
28:U:39:ASN:HB3	28:U:62:ALA:HB3	1.80	0.63
34:a:62:U:OP1	34:a:385:C:O2'	2.16	0.63
35:b:119:GLN:HA	35:b:123:GLY:HA3	1.80	0.63
35:b:133:ALA:O	35:b:137:THR:HG23	1.98	0.63
37:d:10:LEU:HD22	37:d:62:ARG:HE	1.62	0.63
56:w:76:A:O3'	57:y:101:FME:SD	2.56	0.63
8:A:714:U:O2'	8:A:716:A:N7	2.23	0.63
14:G:98:LYS:HE3	14:G:101:VAL:HB	1.80	0.63
37:d:186:GLU:N	37:d:189:ASP:OD2	2.31	0.63
34:a:107:G:N7	53:t:9:ARG:NH1	2.47	0.63
35:b:14:HIS:HB2	35:b:202:ASN:HB2	1.79	0.63
56:w:51:C:H2'	56:w:52:G:C8	2.28	0.63
7:6:53:THR:O	52:s:28:LYS:N	2.31	0.63
8:A:2:G:O6	8:A:2902:C:N4	2.31	0.63
8:A:1794:A:H2'	8:A:1795:C:C6	2.33	0.63
9:B:2:G:H2'	9:B:3:C:C6	2.33	0.63
34:a:67:C:H2'	34:a:68:G:C8	2.34	0.63
50:q:63:CYS:SG	50:q:73:THR:OG1	2.54	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:494:G:H4'	26:S:6:LYS:HB2	1.80	0.63
8:A:2319:G:O2'	8:A:2320:U:O5'	2.17	0.63
34:a:79:G:C2	34:a:90:C:C2	2.86	0.63
34:a:1032:G:H3'	34:a:1033:G:C8	2.33	0.63
2:1:5:ARG:NH1	8:A:2285:C:OP2	2.29	0.63
7:6:59:ARG:CB	52:s:20:LYS:HG3	2.20	0.63
8:A:569:U:O2'	8:A:983:A:N1	2.29	0.63
8:A:2127:G:N2	8:A:2129:C:H1'	2.14	0.63
8:A:2127:G:O6	8:A:2161:C:H1'	1.99	0.63
34:a:1418:A:H3'	34:a:1419:G:H5''	1.80	0.63
8:A:2728:U:H2'	8:A:2729:G:C8	2.34	0.63
34:a:35:G:H2'	34:a:36:C:C6	2.34	0.63
34:a:113:G:H1'	34:a:354:G:H5'	1.81	0.63
34:a:1318:A:H1'	52:s:36:ARG:HH11	1.63	0.63
34:a:928:G:O2'	34:a:1533:C:OP1	2.15	0.63
8:A:2684:U:O4'	18:K:70:ARG:NH1	2.32	0.62
34:a:1415:G:O6	34:a:1484:C:N4	2.31	0.62
37:d:120:LYS:O	37:d:145:ARG:NH1	2.32	0.62
55:v:42:G:O2'	55:v:43:A:H8	1.82	0.62
8:A:1056:G:C2	8:A:1103:A:N7	2.66	0.62
8:A:1754:A:O3'	23:P:102:ARG:NH2	2.32	0.62
8:A:2162:G:OP2	8:A:2171:A:N6	2.31	0.62
11:D:109:VAL:HG22	11:D:203:VAL:HG22	1.81	0.62
19:L:20:GLY:O	19:L:21:ARG:NH2	2.29	0.62
34:a:855:U:OP2	34:a:871:U:N3	2.29	0.62
45:l:54:VAL:HG11	45:l:79:ILE:HD11	1.81	0.62
7:6:65:ASN:HA	34:a:1011:C:H5''	1.80	0.62
8:A:781:A:OP1	10:C:216:ARG:NH2	2.30	0.62
9:B:48:U:OP2	22:O:30:ARG:NH2	2.32	0.62
34:a:337:G:H2'	34:a:338:A:C8	2.34	0.62
34:a:628:G:H2'	34:a:629:A:C8	2.34	0.62
50:q:27:PHE:CE2	50:q:36:PHE:HB3	2.34	0.62
8:A:1796:U:H2'	8:A:1797:G:H8	1.64	0.62
8:A:2092:U:OP1	8:A:2199:A:O2'	2.16	0.62
8:A:2638:G:H1'	8:A:2778:A:H61	1.65	0.62
51:r:42:ARG:HG3	51:r:43:ILE:HG13	1.81	0.62
52:s:11:ASP:OD2	52:s:13:HIS:NE2	2.33	0.62
8:A:511:U:H4'	8:A:1235:G:H4'	1.82	0.62
8:A:1052:C:N4	8:A:1107:G:O6	2.33	0.62
13:F:55:ASP:OD2	13:F:149:ARG:NH1	2.33	0.62
22:O:89:ASP:HA	22:O:116:GLN:HB2	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1432:G:C2'	34:a:1433:A:OP2	2.47	0.62
36:c:13:ILE:HG22	36:c:14:VAL:HG13	1.81	0.62
8:A:1490:A:C8	10:C:97:ASP:HB3	2.34	0.62
14:G:101:VAL:HG22	14:G:115:GLN:HA	1.80	0.62
34:a:81:A:N6	34:a:89:U:O2'	2.32	0.62
34:a:459:A:H2'	34:a:460:A:H8	1.64	0.62
34:a:1516:2MG:N2	34:a:1519:MA6:OP2	2.26	0.62
37:d:93:LEU:O	37:d:99:ASN:ND2	2.31	0.62
8:A:32:C:H2'	8:A:33:C:C6	2.34	0.62
8:A:818:G:N1	8:A:1188:U:OP2	2.30	0.62
8:A:1590:A:H2'	8:A:1591:A:C8	2.35	0.62
9:B:8:C:O3'	22:O:25:ARG:NH1	2.32	0.62
21:N:2:ARG:HA	21:N:5:LYS:HD2	1.81	0.62
28:U:95:PHE:O	28:U:99:SER:HA	2.00	0.62
34:a:458:U:H2'	34:a:459:A:C8	2.35	0.62
34:a:662:U:O2'	34:a:836:G:OP1	2.17	0.62
35:b:76:SER:HB2	35:b:92:ASN:HB2	1.81	0.62
38:e:78:GLY:O	38:e:120:HIS:N	2.32	0.62
56:w:59:U:H2'	56:w:60:U:C6	2.35	0.62
1:0:3:GLN:NE2	8:A:2016:U:O2	2.33	0.62
5:4:9:LYS:HE3	5:4:16:ILE:HG12	1.82	0.62
7:6:55:GLY:HA3	52:s:20:LYS:O	1.99	0.62
8:A:1131:G:N2	8:A:1132:U:O4	2.24	0.62
8:A:1587:G:H2'	8:A:1588:G:H8	1.65	0.62
8:A:2172:U:O5'	8:A:2174:C:N4	2.33	0.62
13:F:64:PRO:HA	13:F:88:VAL:HG12	1.81	0.62
15:H:88:GLY:HA2	15:H:125:THR:HG23	1.82	0.62
34:a:1491:G:C2	60:a:2001:AM2:HA4	2.34	0.62
36:c:122:GLN:HB3	36:c:127:VAL:HG11	1.82	0.62
40:g:113:LYS:HB2	40:g:117:LEU:HD13	1.80	0.62
8:A:265:A:O2'	8:A:428:A:N6	2.33	0.62
8:A:612:G:H2'	8:A:614:A:C8	2.35	0.62
3:2:37:LYS:NZ	8:A:469:G:N7	2.47	0.62
4:3:49:VAL:HG11	4:3:57:VAL:HG21	1.82	0.62
8:A:1437:C:HO2'	8:A:1516:G:HO2'	1.45	0.62
8:A:2543:G:H2'	8:A:2544:G:C8	2.34	0.62
13:F:37:MET:HE2	13:F:56:LEU:HG	1.82	0.62
34:a:2:A:N3	34:a:613:C:O2'	2.31	0.62
8:A:908:C:OP1	20:M:22:GLN:NE2	2.33	0.61
8:A:2157:G:O2'	8:A:2158:A:O4'	2.17	0.61
9:B:14:U:OP2	9:B:70:C:O2'	2.17	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:H:127:GLU:HG2	15:H:143:ILE:HG22	1.81	0.61
34:a:1355:G:H2'	34:a:1356:G:C8	2.35	0.61
34:a:1506:U:O2	44:k:127:ARG:NH1	2.33	0.61
8:A:514:A:N3	8:A:581:C:O2'	2.31	0.61
8:A:778:G:H5''	10:C:47:ARG:HD3	1.82	0.61
8:A:1125:G:OP2	8:A:1126:A:O2'	2.17	0.61
8:A:1794:A:H2'	8:A:1795:C:H6	1.65	0.61
11:D:13:ARG:HH11	23:P:55:HIS:HA	1.64	0.61
37:d:167:PRO:HG2	37:d:170:LEU:HD12	1.82	0.61
1:O:7:PRO:HD2	8:A:1263:U:O2'	1.99	0.61
8:A:340:A:O2'	12:E:162:ARG:NH1	2.32	0.61
8:A:2165:C:H42	8:A:2170:A:H62	1.47	0.61
8:A:2233:U:H2'	8:A:2234:G:C8	2.35	0.61
8:A:2627:G:N2	8:A:2777:G:OP2	2.31	0.61
27:T:66:LYS:HD2	27:T:68:LYS:HE2	1.83	0.61
34:a:1260:G:OP1	34:a:1284:C:O2'	2.18	0.61
7:6:20:ASN:HB3	7:6:22:MET:HE2	1.80	0.61
8:A:275:C:O2'	8:A:362:A:N6	2.33	0.61
8:A:1478:G:O6	8:A:1513:U:O4	2.18	0.61
8:A:1818:U:O2'	10:C:152:GLN:O	2.13	0.61
18:K:121:GLU:HG3	18:K:122:VAL:HG23	1.82	0.61
34:a:1322:C:OP1	52:s:77:ARG:NH2	2.32	0.61
8:A:286:U:H2'	8:A:287:G:H8	1.64	0.61
20:M:5:LYS:HB2	56:w:53:G:O2'	2.00	0.61
34:a:71:A:N1	34:a:99:C:O2'	2.29	0.61
34:a:1291:U:OP1	40:g:36:SER:OG	2.14	0.61
43:j:32:THR:O	43:j:80:THR:OG1	2.17	0.61
8:A:993:G:N2	25:R:23:GLU:OE1	2.33	0.61
8:A:1063:G:N2	16:I:131:THR:O	2.24	0.61
12:E:58:LYS:NZ	12:E:70:SER:O	2.30	0.61
36:c:57:GLU:HB2	36:c:64:ARG:HB3	1.83	0.61
8:A:629:G:N3	8:A:639:U:O2'	2.34	0.61
8:A:1061:U:C2	8:A:1068:G:H1'	2.35	0.61
8:A:2638:G:H1'	8:A:2778:A:N6	2.15	0.61
9:B:32:U:H2'	9:B:33:G:H8	1.66	0.61
10:C:110:LYS:N	10:C:113:ASP:OD2	2.31	0.61
25:R:37:GLU:HA	25:R:53:PHE:HB2	1.83	0.61
31:X:48:LEU:HB3	31:X:50:VAL:HG13	1.82	0.61
34:a:1408:A:N1	60:a:2001:AM2:OA6	2.32	0.61
35:b:10:LYS:HG3	35:b:211:LEU:HD21	1.81	0.61
8:A:2452:C:C2	57:y:101:FME:HG3	2.36	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:m:38:ILE:HD12	46:m:55:LEU:HD21	1.82	0.61
6:5:30:SER:HA	8:A:1054:A:H4'	1.82	0.61
8:A:197:A:H62	8:A:2430:A:H2'	1.66	0.61
8:A:2179:C:O2'	8:A:2180:U:H3'	2.00	0.61
8:A:2291:U:H2'	8:A:2292:U:C6	2.36	0.61
34:a:738:C:OP1	39:f:2:ARG:NH2	2.34	0.61
52:s:36:ARG:O	52:s:69:LYS:NZ	2.32	0.61
8:A:877:A:O2'	8:A:900:A:N6	2.34	0.61
8:A:1996:C:OP1	18:K:31:ARG:NH1	2.34	0.61
8:A:2514:U:H2'	8:A:2515:C:C6	2.36	0.61
9:B:51:G:OP2	22:O:67:ASN:ND2	2.26	0.61
13:F:134:GLN:NE2	13:F:147:ARG:O	2.33	0.61
13:F:142:TYR:HA	13:F:145:VAL:HB	1.82	0.61
31:X:5:GLN:O	31:X:73:ARG:NH2	2.33	0.61
34:a:664:G:H22	34:a:741:G:H1	1.49	0.61
8:A:1775:U:O4	8:A:1789:A:H2	1.82	0.60
34:a:1088:G:H21	34:a:1167:A:N6	1.99	0.60
34:a:1151:A:HO2'	34:a:1152:A:H8	1.49	0.60
34:a:1180:A:H5'	42:i:104:THR:HG23	1.83	0.60
42:i:4:GLN:HE21	42:i:21:LYS:HD3	1.65	0.60
49:p:52:LEU:HD12	49:p:57:ILE:HD11	1.83	0.60
8:A:1071:G:N2	8:A:1089:A:C6	2.67	0.60
8:A:1980:G:O2'	8:A:1982:U:OP2	2.19	0.60
12:E:143:LEU:HD13	12:E:146:VAL:HG11	1.83	0.60
28:U:6:ARG:NE	28:U:25:LYS:O	2.34	0.60
34:a:1054:C:OP2	34:a:1196:A:O2'	2.18	0.60
8:A:2012:G:P	26:S:11:ARG:HH22	2.24	0.60
19:L:20:GLY:HA2	19:L:28:GLY:HA2	1.83	0.60
34:a:404:G:OP2	37:d:114:ARG:NH2	2.34	0.60
8:A:1068:G:O6	8:A:1070:A:N6	2.34	0.60
8:A:1654:A:N1	8:A:2048:G:O2'	2.34	0.60
9:B:5:U:OP1	9:B:61:G:O2'	2.15	0.60
33:Z:2:LYS:HE2	33:Z:39:ASP:HB3	1.84	0.60
34:a:1417:G:N2	34:a:1482:G:C2	2.69	0.60
34:a:1492:A:H2'	34:a:1493:A:C8	2.36	0.60
40:g:122:GLU:HA	40:g:125:ASP:HB2	1.82	0.60
42:i:79:ARG:HD2	42:i:102:PHE:CD1	2.37	0.60
43:j:46:LYS:HE2	43:j:68:ARG:HD3	1.83	0.60
8:A:630:G:N2	8:A:633:A:OP2	2.29	0.60
8:A:639:U:H2'	8:A:640:C:C6	2.37	0.60
8:A:2134:A:H2'	8:A:2135:A:O4'	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:s:19:GLU:HA	52:s:22:VAL:HG22	1.83	0.60
8:A:191:A:H2'	8:A:192:C:C6	2.37	0.60
8:A:397:U:H5''	31:X:31:ASN:HB2	1.84	0.60
8:A:849:A:H2'	8:A:850:U:C6	2.36	0.60
12:E:61:ARG:HH11	12:E:64:GLY:HA3	1.67	0.60
32:Y:14:LEU:HD13	32:Y:57:LEU:HG	1.82	0.60
34:a:769:G:H4'	34:a:1513:A:H4'	1.83	0.60
34:a:985:C:H2'	34:a:986:U:C6	2.35	0.60
37:d:27:ILE:HG13	37:d:33:ILE:HG21	1.84	0.60
42:i:45:MET:O	42:i:49:GLN:HG3	2.01	0.60
8:A:1089:A:H2	8:A:1090:A:H62	1.48	0.60
8:A:2448:A:OP1	8:A:2499:C:OP1	2.18	0.60
10:C:56:GLY:HA2	10:C:212:TRP:HA	1.83	0.60
19:L:132:ARG:NH2	19:L:144:GLU:OE1	2.35	0.60
26:S:37:THR:OG1	26:S:48:LYS:NZ	2.27	0.60
8:A:641:U:O2'	8:A:2350:C:OP1	2.19	0.60
8:A:895:U:O2'	8:A:897:C:OP2	2.13	0.60
8:A:1730:C:H1'	8:A:1731:G:C6	2.36	0.60
20:M:58:LYS:O	20:M:60:GLN:N	2.34	0.60
34:a:999:C:H2'	34:a:1000:A:C8	2.36	0.60
26:S:11:ARG:HH21	26:S:98:LYS:HD2	1.67	0.60
34:a:1032:G:H3'	34:a:1033:G:H8	1.66	0.60
34:a:1373:G:H5''	40:g:35:LYS:HB2	1.84	0.60
37:d:84:ASN:OD1	37:d:87:GLU:N	2.24	0.60
49:p:28:ARG:HE	49:p:29:ASN:ND2	1.98	0.60
8:A:813:U:H2'	8:A:814:C:C6	2.37	0.60
11:D:13:ARG:NH2	23:P:74:GLN:OE1	2.28	0.60
34:a:331:G:H2'	53:t:4:LYS:HE2	1.83	0.60
34:a:1417:G:N2	34:a:1483:A:C5	2.69	0.60
46:m:14:ALA:HA	46:m:44:ILE:HD11	1.84	0.60
8:A:1026:G:H2'	8:A:1027:A:C8	2.37	0.59
8:A:1102:C:H5'	8:A:1103:A:C8	2.37	0.59
14:G:121:THR:HB	14:G:133:LYS:HG3	1.84	0.59
36:c:49:ALA:HB1	36:c:75:VAL:HG12	1.84	0.59
37:d:40:HIS:HA	37:d:43:ARG:NH1	2.16	0.59
37:d:104:MET:HG3	37:d:170:LEU:HD13	1.84	0.59
39:f:55:HIS:HB2	39:f:56:LYS:HD2	1.84	0.59
54:u:19:LYS:O	54:u:19:LYS:HD3	2.02	0.59
8:A:848:C:H2'	8:A:849:A:C8	2.33	0.59
8:A:1531:C:H2'	8:A:1532:A:H5''	1.83	0.59
8:A:1171:G:H1	8:A:1177:G:N2	1.97	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2728:U:H2'	8:A:2729:G:H8	1.67	0.59
8:A:2839:G:O2'	21:N:49:GLU:OE1	2.16	0.59
19:L:71:ALA:HA	19:L:74:THR:HG22	1.83	0.59
19:L:96:LYS:HG3	19:L:101:ILE:HD11	1.82	0.59
20:M:29:GLY:N	20:M:104:GLU:OE1	2.30	0.59
8:A:291:G:O6	8:A:349:U:O2	2.20	0.59
8:A:1733:G:H2'	8:A:1734:G:C8	2.38	0.59
34:a:1491:G:C2	60:a:2001:AM2:HA8	2.36	0.59
36:c:39:ARG:NH1	36:c:54:ILE:O	2.35	0.59
7:6:16:CYS:SG	7:6:17:SER:N	2.75	0.59
8:A:286:U:H2'	8:A:287:G:C8	2.37	0.59
14:G:22:VAL:HA	14:G:35:THR:HA	1.84	0.59
28:U:94:PHE:HA	28:U:101:THR:HA	1.85	0.59
34:a:107:G:OP1	34:a:325:A:N6	2.36	0.59
34:a:157:U:H3	34:a:164:G:H1	1.49	0.59
34:a:1196:A:O2'	34:a:1197:A:OP1	2.21	0.59
6:5:80:THR:HA	8:A:1107:G:H4'	1.83	0.59
8:A:2139:U:N3	8:A:2153:C:O2	2.35	0.59
19:L:123:ARG:NE	19:L:143:GLU:OE2	2.32	0.59
30:W:55:LEU:HD12	30:W:76:ILE:HD12	1.84	0.59
34:a:131:A:H2'	34:a:132:C:C6	2.38	0.59
34:a:344:A:H5''	34:a:345:C:H5	1.67	0.59
34:a:1004:A:H62	34:a:1024:G:H2'	1.67	0.59
34:a:1086:U:H3	34:a:1099:G:H1	1.51	0.59
34:a:1241:G:H2'	34:a:1242:G:H8	1.68	0.59
42:i:83:THR:HG23	42:i:97:LEU:HD22	1.85	0.59
42:i:129:ARG:NH2	55:v:33:U:OP2	2.35	0.59
8:A:261:G:HO2'	8:A:610:C:HO2'	1.50	0.59
8:A:279:A:H8	8:A:361:G:N2	1.94	0.59
8:A:463:G:N2	8:A:466:A:OP2	2.31	0.59
8:A:1114:C:H2'	8:A:1115:G:C8	2.38	0.59
8:A:1727:C:H2'	8:A:1728:C:C6	2.37	0.59
8:A:2292:U:H2'	8:A:2293:G:C8	2.37	0.59
26:S:65:ASP:OD1	26:S:68:ASP:N	2.36	0.59
34:a:1368:A:OP1	42:i:112:ARG:NH2	2.35	0.59
57:y:101:FME:CG	57:y:102:PHE:N	2.60	0.59
8:A:310:A:HO2'	8:A:311:A:P	2.26	0.59
10:C:28:PRO:HG2	10:C:33:LEU:HD11	1.83	0.59
34:a:404:G:O2'	34:a:498:A:N1	2.27	0.59
34:a:687:A:H61	34:a:703:G:H1'	1.68	0.59
8:A:593:U:H2'	8:A:594:U:C6	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:974:G:O2'	8:A:989:G:N2	2.36	0.59
8:A:2809:A:OP2	8:A:2890:G:N1	2.31	0.59
16:I:78:LEU:O	16:I:82:ALA:HB3	2.02	0.59
25:R:58:VAL:HB	25:R:102:SER:HB3	1.85	0.59
28:U:33:VAL:HG13	28:U:66:VAL:HG12	1.85	0.59
34:a:38:G:H22	34:a:397:A:H5'	1.67	0.59
34:a:320:A:H2'	34:a:321:A:O4'	2.03	0.59
34:a:459:A:H2'	34:a:460:A:C8	2.37	0.59
34:a:1130:A:O2'	42:i:4:GLN:OE1	2.12	0.59
2:1:5:ARG:NH2	2:1:23:THR:O	2.24	0.59
7:6:55:GLY:HA2	52:s:25:GLY:HA3	1.85	0.59
8:A:644:A:H2'	8:A:645:C:O4'	2.03	0.59
8:A:1366:A:OP1	31:X:1:SER:OG	2.21	0.59
8:A:2253:G:N2	56:w:74:C:H41	2.01	0.59
13:F:103:ILE:HG23	13:F:104:THR:HG23	1.85	0.59
22:O:34:HIS:HA	22:O:53:THR:OG1	2.03	0.59
39:f:73:GLU:O	39:f:77:THR:HG23	2.02	0.59
8:A:828:U:H2'	8:A:829:A:C8	2.38	0.58
8:A:2728:U:O2'	8:A:2729:G:O5'	2.19	0.58
34:a:674:G:H2'	34:a:675:A:H8	1.67	0.58
42:i:98:ARG:HD2	42:i:103:VAL:HG21	1.84	0.58
55:v:41:C:O2'	55:v:42:G:H5'	2.03	0.58
55:v:46:A:O2'	55:v:47:U:O4'	2.20	0.58
56:w:68:C:H2'	56:w:69:G:C8	2.38	0.58
8:A:191:A:H2'	8:A:192:C:H6	1.68	0.58
8:A:2554:U:H2'	8:A:2555:U:C6	2.39	0.58
8:A:2857:G:N2	8:A:2860:A:OP2	2.29	0.58
34:a:95:C:O2'	34:a:96:U:OP1	2.18	0.58
34:a:816:A:OP1	34:a:1526:G:O2'	2.20	0.58
35:b:99:MET:HA	35:b:106:VAL:HG21	1.85	0.58
8:A:1035:U:O2	8:A:1120:G:O6	2.20	0.58
17:J:56:VAL:HB	17:J:124:VAL:HG12	1.85	0.58
25:R:68:ARG:O	25:R:90:ARG:NH2	2.36	0.58
34:a:1125:U:O3'	43:j:7:ARG:NH2	2.34	0.58
34:a:1500:A:H5''	34:a:1508:A:H5''	1.85	0.58
8:A:641:U:O4	8:A:647:G:O6	2.21	0.58
8:A:2186:G:C2	8:A:2187:U:H1'	2.37	0.58
8:A:2637:U:H2'	8:A:2638:G:O4'	2.04	0.58
34:a:78:A:H2'	34:a:79:G:C8	2.38	0.58
38:e:79:THR:HA	38:e:119:VAL:HG13	1.85	0.58
8:A:1338:G:O2'	8:A:1393:A:N1	2.35	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2110:G:N1	8:A:2120:G:N7	2.51	0.58
34:a:1103:C:OP1	35:b:94:ARG:NH1	2.36	0.58
45:l:113:ARG:HB3	45:l:118:VAL:HB	1.85	0.58
8:A:1538:G:H2'	8:A:1539:U:C6	2.39	0.58
8:A:2205:A:H2'	8:A:2206:C:C6	2.38	0.58
9:B:48:U:H4'	22:O:100:HIS:HD2	1.69	0.58
15:H:78:VAL:HB	15:H:144:VAL:HG22	1.85	0.58
17:J:91:GLU:HB3	17:J:95:ARG:NH2	2.19	0.58
34:a:521:G:H4'	45:l:69:GLU:HG2	1.86	0.58
34:a:713:G:H2'	34:a:714:G:C8	2.39	0.58
34:a:859:G:H2'	34:a:860:A:C8	2.39	0.58
34:a:1418:A:H61	34:a:1482:G:H1'	1.67	0.58
36:c:152:VAL:HG12	36:c:156:LEU:HD21	1.86	0.58
8:A:141:G:O2'	8:A:142:A:O5'	2.22	0.58
8:A:319:G:H1	8:A:323:C:H5	1.52	0.58
8:A:1432:G:H2'	8:A:1433:A:C8	2.39	0.58
8:A:2128:G:C2	8:A:2129:C:H4'	2.39	0.58
10:C:24:HIS:HB3	10:C:81:GLU:HG2	1.84	0.58
10:C:83:ASP:OD1	10:C:85:ASN:ND2	2.37	0.58
21:N:114:GLU:OE1	21:N:118:ARG:NE	2.30	0.58
34:a:1004:A:H2'	34:a:1005:A:C8	2.38	0.58
34:a:1426:G:O6	34:a:1474:U:O4	2.21	0.58
8:A:643:A:N1	8:A:2369:A:O2'	2.30	0.58
8:A:1485:U:H2'	8:A:1486:U:C6	2.39	0.58
15:H:38:PRO:O	15:H:43:ASN:ND2	2.37	0.58
23:P:28:LYS:HB3	23:P:39:LEU:HD21	1.86	0.58
34:a:838:G:H2'	34:a:839:C:C6	2.39	0.58
34:a:1026:G:H2'	34:a:1027:C:C5	2.38	0.58
8:A:532:A:N1	8:A:2020:A:H1'	2.19	0.58
8:A:555:G:O2'	8:A:556:A:H8	1.87	0.58
8:A:613:A:H4'	8:A:614:A:N7	2.19	0.58
14:G:174:LYS:HG2	14:G:175:LYS:H	1.69	0.58
34:a:363:A:OP1	45:l:57:THR:OG1	2.17	0.58
34:a:1226:C:O2'	46:m:109:LYS:NZ	2.30	0.58
34:a:1481:U:H2'	34:a:1482:G:C4	2.39	0.58
8:A:793:A:OP2	8:A:2071:A:O2'	2.22	0.58
8:A:1469:A:H2'	8:A:1470:A:H8	1.68	0.58
8:A:1924:C:N3	8:A:1925:C:N4	2.51	0.58
8:A:2469:A:N6	8:A:2481:G:O2'	2.32	0.58
34:a:356:A:N3	34:a:368:U:O2'	2.29	0.58
34:a:843:U:H5''	34:a:844:G:C8	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:981:U:OP1	47:n:8:ARG:NH1	2.34	0.58
34:a:1485:U:C2	34:a:1486:G:N7	2.72	0.58
40:g:4:ARG:HH11	40:g:6:ILE:HD13	1.69	0.58
43:j:10:LEU:HD23	43:j:98:VAL:HG12	1.85	0.58
43:j:88:MET:O	43:j:89:ARG:HG2	2.03	0.58
52:s:10:ILE:HG13	52:s:37:SER:HB2	1.86	0.58
8:A:1009:A:N3	8:A:1153:C:O2'	2.36	0.57
8:A:1434:A:H2'	8:A:1435:G:C8	2.39	0.57
8:A:2554:U:H2'	8:A:2555:U:H6	1.68	0.57
12:E:189:THR:HG23	12:E:192:ALA:H	1.69	0.57
34:a:162:A:C6	34:a:163:C:H1'	2.39	0.57
8:A:613:A:H4'	8:A:614:A:C8	2.39	0.57
15:H:14:SER:OG	15:H:17:ASP:OD1	2.20	0.57
29:V:86:LEU:HD13	29:V:89:ILE:HD11	1.85	0.57
34:a:210:C:O2'	34:a:211:G:N2	2.38	0.57
34:a:411:A:OP1	37:d:25:ARG:NH2	2.31	0.57
35:b:187:ASP:OD1	35:b:188:THR:N	2.28	0.57
4:3:32:LEU:HD23	4:3:35:LYS:HD2	1.86	0.57
8:A:974:G:H8	8:A:990:A:H62	1.50	0.57
8:A:1069:A:H2'	8:A:1073:A:N7	2.19	0.57
8:A:1723:G:H2'	8:A:1724:G:O4'	2.04	0.57
10:C:141:HIS:ND1	10:C:192:GLY:O	2.37	0.57
1:0:8:THR:HG21	8:A:2020:A:H5'	1.86	0.57
8:A:1907:G:O2'	8:A:1908:C:H5''	2.04	0.57
8:A:2149:U:H3'	8:A:2150:C:C6	2.40	0.57
17:J:78:THR:HG21	17:J:85:LYS:HE2	1.86	0.57
34:a:91:U:H2'	34:a:92:U:C6	2.39	0.57
34:a:1493:A:OP1	60:a:2001:AM2:HA32	2.03	0.57
37:d:74:TYR:OH	37:d:96:ARG:NH1	2.38	0.57
56:w:6:G:O6	56:w:67:C:N4	2.22	0.57
56:w:43:C:H2'	56:w:44:G:C8	2.39	0.57
8:A:1019:U:H3	8:A:1142:A:H62	1.51	0.57
8:A:1365:A:OP1	31:X:27:ARG:NH2	2.35	0.57
8:A:2722:G:H4'	21:N:4:ARG:HB2	1.86	0.57
18:K:70:ARG:HG2	18:K:76:VAL:HG22	1.86	0.57
20:M:17:ASN:ND2	20:M:96:ILE:O	2.31	0.57
43:j:52:LEU:HB2	47:n:81:ARG:HD2	1.87	0.57
45:l:3:VAL:O	45:l:7:VAL:HG23	2.05	0.57
8:A:488:G:O2'	8:A:491:G:N7	2.31	0.57
8:A:2439:A:N6	8:A:2585:U:HO2'	2.03	0.57
34:a:1300:G:O2'	34:a:1301:U:O5'	2.20	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:306:U:H3	8:A:310:A:H62	1.51	0.57
8:A:714:U:H1'	8:A:717:C:H5	1.70	0.57
8:A:2584:U:H3'	8:A:2585:U:C5'	2.34	0.57
9:B:29:A:H2'	9:B:30:C:O4'	2.04	0.57
10:C:204:LEU:O	10:C:206:LYS:N	2.33	0.57
11:D:124:ARG:HG3	11:D:165:MET:HG3	1.85	0.57
18:K:110:GLU:N	18:K:110:GLU:OE1	2.37	0.57
34:a:71:A:H61	34:a:99:C:H1'	1.69	0.57
34:a:932:C:H5'	40:g:3:ARG:HB2	1.87	0.57
43:j:5:ARG:N	43:j:77:VAL:HG12	2.19	0.57
50:q:13:SER:HB3	50:q:21:VAL:HB	1.85	0.57
8:A:291:G:O6	8:A:349:U:C2	2.58	0.57
8:A:568:U:H1'	8:A:2030:6MZ:H9C1	1.86	0.57
8:A:1351:C:H2'	8:A:1352:U:O4'	2.03	0.57
8:A:18:U:OP1	24:Q:29:ARG:NH1	2.38	0.57
8:A:774:G:O2'	8:A:775:G:O5'	2.21	0.57
8:A:1734:G:H2'	8:A:1735:A:C8	2.37	0.57
8:A:1771:C:H2'	8:A:1772:A:H8	1.70	0.57
14:G:82:PHE:HB2	14:G:140:ILE:HD12	1.85	0.57
21:N:24:MET:HG2	21:N:44:LEU:HD22	1.86	0.57
26:S:24:ILE:HG13	26:S:24:ILE:O	2.05	0.57
32:Y:9:LYS:HB3	32:Y:13:GLU:HB2	1.87	0.57
34:a:662:U:OP1	39:f:93:LYS:NZ	2.32	0.57
37:d:123:MET:HE2	37:d:145:ARG:HA	1.86	0.57
56:w:27:G:H2'	56:w:28:G:H8	1.69	0.57
8:A:776:G:O6	8:A:2072:C:OP1	2.22	0.57
8:A:1059:G:H5'	8:A:1060:U:C5	2.40	0.57
8:A:1681:G:N2	8:A:1763:G:OP2	2.29	0.57
8:A:2127:G:C8	8:A:2162:G:N7	2.73	0.57
17:J:4:PHE:O	24:Q:63:ARG:NH2	2.38	0.57
29:V:72:VAL:HG12	29:V:93:ARG:HA	1.86	0.57
52:s:18:VAL:HG21	52:s:43:MET:HE2	1.86	0.57
56:w:6:G:H2'	56:w:7:A:C8	2.40	0.57
1:O:15:ARG:HA	8:A:2046:G:H5'	1.87	0.56
6:5:55:VAL:HA	8:A:1084:A:H5'	1.85	0.56
8:A:299:A:N3	8:A:319:G:O2'	2.28	0.56
8:A:1796:U:H2'	8:A:1797:G:C8	2.40	0.56
8:A:2066:C:C2'	8:A:2067:G:H5'	2.35	0.56
8:A:2205:A:H2'	8:A:2206:C:H6	1.69	0.56
8:A:2772:C:H5'	11:D:173:GLN:NE2	2.21	0.56
12:E:110:SER:HG	12:E:114:ARG:HH12	1.52	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:11:VAL:HG11	17:J:50:THR:HA	1.87	0.56
29:V:31:TYR:HE2	29:V:90:ASP:HB3	1.69	0.56
34:a:414:A:OP2	34:a:428:G:N2	2.27	0.56
34:a:757:U:O2'	34:a:879:C:O2	2.23	0.56
34:a:826:C:O2	41:h:15:ASN:ND2	2.38	0.56
41:h:10:LEU:HD22	41:h:74:ILE:HD11	1.87	0.56
43:j:22:THR:HG21	43:j:72:ARG:HG3	1.86	0.56
46:m:15:VAL:O	46:m:19:THR:HG23	2.05	0.56
48:o:81:ILE:HD12	48:o:87:ARG:HB2	1.87	0.56
52:s:2:ARG:NH2	52:s:9:PHE:HB2	2.20	0.56
54:u:30:GLU:OE2	54:u:33:ARG:NH2	2.37	0.56
8:A:2757:A:N1	14:G:66:THR:OG1	2.32	0.56
10:C:67:LYS:HB2	10:C:69:ASN:HD22	1.70	0.56
14:G:18:ILE:HG22	14:G:23:ILE:HD12	1.87	0.56
26:S:11:ARG:NH2	26:S:98:LYS:HD2	2.20	0.56
34:a:109:A:H5'	34:a:110:C:H5	1.70	0.56
34:a:677:U:H3	34:a:713:G:H22	1.53	0.56
8:A:82:U:H2'	8:A:83:A:C8	2.40	0.56
8:A:526:A:N1	8:A:2625:G:O2'	2.34	0.56
8:A:922:C:O2'	30:W:25:GLU:OE2	2.21	0.56
8:A:1288:G:OP2	8:A:1288:G:N2	2.37	0.56
8:A:1475:G:O2'	8:A:1476:U:H6	1.87	0.56
8:A:2243:U:H2'	8:A:2244:U:H6	1.68	0.56
8:A:2328:A:H2'	8:A:2329:U:H6	1.68	0.56
14:G:21:GLN:NE2	14:G:40:VAL:O	2.38	0.56
26:S:24:ILE:HD13	26:S:36:LEU:HD11	1.87	0.56
34:a:77:A:H2'	34:a:78:A:C8	2.40	0.56
34:a:838:G:H2'	34:a:839:C:H6	1.70	0.56
34:a:982:U:OP2	47:n:63:ARG:NH2	2.34	0.56
34:a:1125:U:H2'	34:a:1126:U:H2'	1.87	0.56
34:a:1132:C:H2'	34:a:1133:G:H8	1.70	0.56
34:a:1180:A:P	42:i:98:ARG:HH22	2.27	0.56
36:c:23:ALA:HB1	36:c:27:GLU:HG2	1.87	0.56
38:e:81:GLN:NE2	38:e:148:SER:OG	2.37	0.56
2:1:38:PHE:HZ	2:1:43:ARG:HG3	1.69	0.56
8:A:411:G:OP2	8:A:2406:A:O2'	2.14	0.56
13:F:99:PHE:O	13:F:103:ILE:HG22	2.06	0.56
15:H:27:ARG:NH1	31:X:59:ASP:OD2	2.38	0.56
8:A:243:U:O2	8:A:255:A:N7	2.38	0.56
8:A:376:G:H2'	8:A:377:G:H8	1.71	0.56
8:A:2136:G:N2	8:A:2155:U:O2'	2.33	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2166:U:H2'	8:A:2167:U:O4'	2.05	0.56
8:A:2175:C:H2'	8:A:2176:A:H8	1.69	0.56
8:A:2287:A:O2'	8:A:2288:A:O5'	2.19	0.56
8:A:2723:C:OP1	11:D:114:LYS:NZ	2.32	0.56
32:Y:4:LYS:O	32:Y:8:GLU:HG2	2.04	0.56
34:a:859:G:OP2	34:a:869:G:N1	2.27	0.56
8:A:283:G:H2'	8:A:284:U:C6	2.40	0.56
8:A:458:G:O2'	8:A:459:U:OP2	2.24	0.56
8:A:1047:G:O2'	8:A:1110:G:N1	2.34	0.56
8:A:1952:A:N3	8:A:2560:A:O2'	2.32	0.56
20:M:53:MET:HG3	20:M:120:ALA:HB2	1.87	0.56
34:a:948:C:H2'	34:a:949:A:H8	1.71	0.56
34:a:1125:U:OP1	43:j:37:ARG:NE	2.33	0.56
35:b:70:GLY:HA3	35:b:79:VAL:HG21	1.86	0.56
38:e:149:PRO:HA	38:e:152:VAL:HG22	1.88	0.56
49:p:8:ARG:HD3	49:p:17:TYR:CE1	2.40	0.56
8:A:45:G:H5'	8:A:46:G:OP1	2.05	0.56
8:A:181:A:H1'	8:A:435:C:H5'	1.88	0.56
8:A:1864:U:OP1	8:A:2410:G:O2'	2.21	0.56
34:a:878:A:OP1	41:h:79:ARG:NH1	2.34	0.56
34:a:1360:A:OP2	47:n:75:ARG:NH2	2.38	0.56
40:g:39:GLU:HA	40:g:42:VAL:HG12	1.86	0.56
43:j:85:ASP:HA	43:j:88:MET:HE2	1.87	0.56
8:A:2134:A:H5'	8:A:2156:G:N2	2.21	0.56
31:X:15:ASN:ND2	31:X:23:ALA:HB1	2.21	0.56
34:a:687:A:N6	34:a:703:G:H1'	2.21	0.56
34:a:738:C:OP1	39:f:91:ARG:NH1	2.39	0.56
34:a:843:U:H5''	34:a:844:G:H8	1.71	0.56
34:a:945:G:C2	34:a:946:A:C8	2.93	0.56
34:a:1057:G:H2'	34:a:1058:G:O4'	2.06	0.56
42:i:48:ARG:HG2	42:i:52:GLU:HB2	1.87	0.56
46:m:15:VAL:HG13	46:m:40:GLU:HB3	1.88	0.56
8:A:559:G:N2	24:Q:48:ASP:OD1	2.39	0.56
8:A:1532:A:C6	8:A:1540:G:C6	2.93	0.56
34:a:979:C:OP1	34:a:981:U:O4	2.23	0.56
34:a:1328:C:H5''	46:m:27:THR:HG21	1.87	0.56
34:a:1440:U:H3	34:a:1461:G:H1	1.53	0.56
43:j:10:LEU:HB2	43:j:72:ARG:HB2	1.87	0.56
43:j:40:ILE:HB	43:j:73:LEU:HB3	1.88	0.56
8:A:931:U:O2	8:A:1167:C:O2'	2.23	0.56
8:A:1341:G:OP2	8:A:1394:U:O2'	2.19	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:41:GLN:NE2	12:E:43:THR:OG1	2.32	0.56
34:a:727:G:N2	34:a:730:G:OP2	2.35	0.56
37:d:69:ARG:O	37:d:70:GLN:HB3	2.05	0.56
45:l:41:PRO:HD3	45:l:49:ARG:HG3	1.87	0.56
8:A:851:C:H2'	8:A:852:U:C6	2.41	0.55
8:A:1733:G:H2'	8:A:1734:G:H8	1.70	0.55
34:a:1243:C:H2'	34:a:1244:G:H8	1.71	0.55
8:A:819:A:OP2	8:A:1187:G:N2	2.31	0.55
34:a:193:C:O4'	53:t:54:GLN:NE2	2.38	0.55
34:a:999:C:H2'	34:a:1000:A:H8	1.70	0.55
47:n:23:ARG:NH1	47:n:55:SER:OG	2.36	0.55
48:o:22:GLY:O	48:o:27:GLN:NE2	2.24	0.55
55:v:44:A:H8	55:v:44:A:OP1	1.89	0.55
56:w:7:A:O2'	56:w:49:C:O4'	2.21	0.55
8:A:871:U:H2'	8:A:872:U:C6	2.41	0.55
8:A:2713:U:H3'	8:A:2714:G:H5''	1.89	0.55
34:a:79:G:N2	34:a:90:C:O2	2.39	0.55
34:a:1328:C:OP1	46:m:27:THR:OG1	2.16	0.55
35:b:40:ILE:HD11	35:b:200:PRO:HB3	1.87	0.55
36:c:18:ASN:O	36:c:39:ARG:NH2	2.29	0.55
1:O:48:TYR:OH	8:A:2883:A:OP1	2.18	0.55
8:A:219:A:N3	8:A:234:U:O2'	2.28	0.55
8:A:545:U:C2	8:A:548:G:O6	2.59	0.55
8:A:1722:A:N6	8:A:1738:G:H1'	2.22	0.55
8:A:2812:G:H2'	8:A:2813:A:C8	2.41	0.55
23:P:88:ARG:NH2	23:P:111:GLU:OE1	2.40	0.55
46:m:105:ALA:O	46:m:109:LYS:CB	2.53	0.55
8:A:2099:U:H2'	8:A:2100:G:C8	2.42	0.55
34:a:50:A:O2'	34:a:360:G:N2	2.39	0.55
34:a:96:U:H2'	34:a:97:G:C8	2.39	0.55
34:a:168:G:H2'	34:a:169:C:O4'	2.06	0.55
34:a:692:U:O2'	34:a:694:A:N7	2.33	0.55
36:c:85:LYS:O	36:c:88:LYS:HG2	2.06	0.55
47:n:46:LEU:HB3	52:s:12:LEU:HD12	1.89	0.55
8:A:614:A:O2'	8:A:615:U:OP2	2.23	0.55
8:A:2183:A:H2'	8:A:2184:A:C8	2.41	0.55
18:K:25:LEU:HD21	18:K:40:LYS:HB2	1.88	0.55
23:P:50:ARG:NH1	23:P:55:HIS:O	2.39	0.55
28:U:13:LEU:HD11	28:U:70:ALA:HB2	1.89	0.55
34:a:1039:G:H2'	34:a:1040:U:C6	2.41	0.55
34:a:1109:C:OP1	36:c:175:HIS:ND1	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1209:C:O2'	34:a:1214:C:N4	2.40	0.55
40:g:92:PRO:HA	40:g:95:ARG:HD2	1.88	0.55
56:w:59:U:O2'	56:w:60:U:OP1	2.25	0.55
8:A:2071:A:H2'	8:A:2072:C:C6	2.42	0.55
9:B:2:G:H2'	9:B:3:C:H6	1.71	0.55
9:B:31:C:O2'	9:B:53:A:N1	2.40	0.55
10:C:79:ARG:NH1	10:C:81:GLU:OE2	2.40	0.55
10:C:141:HIS:CD2	10:C:194:VAL:HG22	2.41	0.55
34:a:35:G:H2'	34:a:36:C:H6	1.72	0.55
34:a:109:A:H5'	34:a:110:C:C5	2.42	0.55
34:a:1064:G:H1'	34:a:1190:G:H21	1.72	0.55
34:a:1166:G:N1	34:a:1169:A:OP1	2.38	0.55
36:c:78:LYS:HD2	36:c:79:LYS:HE3	1.87	0.55
43:j:56:HIS:CD2	43:j:57:VAL:HG13	2.41	0.55
44:k:30:ILE:HG23	44:k:45:THR:HG22	1.88	0.55
8:A:612:G:H2'	8:A:614:A:H8	1.71	0.55
8:A:1044:C:H4'	8:A:1047:G:H4'	1.87	0.55
8:A:1056:G:N3	8:A:1103:A:N6	2.54	0.55
8:A:1059:G:N1	8:A:1080:A:H1'	2.20	0.55
8:A:2530:A:N6	14:G:155:PRO:HG3	2.22	0.55
9:B:106:G:H2'	9:B:107:G:O4'	2.06	0.55
34:a:455:G:H2'	34:a:456:A:C8	2.41	0.55
39:f:8:PHE:HA	39:f:87:SER:HA	1.88	0.55
39:f:59:TYR:OH	51:r:65:SER:OG	2.24	0.55
8:A:1026:G:H2'	8:A:1027:A:H8	1.70	0.55
8:A:2031:A:N3	8:A:2455:G:O2'	2.34	0.55
8:A:2649:C:H2'	8:A:2650:U:H6	1.71	0.55
10:C:106:PRO:HD2	10:C:109:LEU:HD22	1.89	0.55
34:a:79:G:C6	34:a:90:C:C4	2.94	0.55
34:a:1240:U:P	40:g:115:MET:HB2	2.47	0.55
34:a:1492:A:OP1	60:a:2001:AM2:CB2	2.55	0.55
8:A:704:G:H1'	8:A:727:A:H61	1.72	0.55
8:A:882:G:H22	8:A:895:U:H4'	1.72	0.55
8:A:2861:U:H2'	8:A:2862:G:H8	1.72	0.55
9:B:28:C:H2'	9:B:29:A:C8	2.41	0.55
13:F:133:GLU:HG3	13:F:135:ILE:H	1.72	0.55
13:F:141:ASP:O	46:m:70:ARG:NH2	2.39	0.55
16:I:1:ALA:HA	16:I:62:ALA:HB2	1.89	0.55
17:J:125:TYR:HH	17:J:132:HIS:CD2	2.25	0.55
34:a:257:G:H2'	34:a:258:G:H8	1.72	0.55
34:a:562:U:H5''	34:a:563:A:C5	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:714:G:H2'	34:a:715:A:C8	2.42	0.55
34:a:1240:U:OP2	40:g:115:MET:N	2.37	0.55
37:d:100:VAL:HG22	37:d:104:MET:HE2	1.88	0.55
38:e:82:HIS:HD2	41:h:98:LEU:HD12	1.71	0.55
46:m:80:MET:HE3	46:m:91:ARG:HG2	1.88	0.55
52:s:61:VAL:HA	52:s:65:MET:HE3	1.88	0.55
56:w:55:PSU:C2	56:w:57:G:H5''	2.42	0.55
8:A:428:A:H2'	8:A:429:A:C8	2.42	0.54
10:C:154:ALA:HB2	10:C:161:VAL:HG23	1.89	0.54
34:a:123:U:OP1	34:a:311:C:O2'	2.21	0.54
34:a:674:G:H2'	34:a:675:A:C8	2.42	0.54
34:a:767:A:O2'	34:a:1524:C:O2	2.24	0.54
34:a:1419:G:O6	34:a:1481:U:C2	2.59	0.54
34:a:1481:U:H2'	34:a:1482:G:C2	2.42	0.54
4:3:31:ILE:HB	4:3:34:LYS:HE3	1.87	0.54
8:A:1062:G:N2	8:A:1064:C:O2'	2.40	0.54
8:A:1292:G:H2'	8:A:1293:C:C6	2.43	0.54
8:A:1746:A:H2'	8:A:1747:U:C6	2.42	0.54
34:a:410:G:H2'	34:a:429:U:C5	2.42	0.54
36:c:69:THR:O	36:c:105:VAL:N	2.29	0.54
45:l:67:GLY:O	45:l:98:ARG:NH1	2.40	0.54
52:s:2:ARG:HE	52:s:6:LYS:HD3	1.72	0.54
8:A:172:A:H2'	8:A:173:A:H8	1.72	0.54
8:A:994:C:OP1	24:Q:52:ARG:NH2	2.40	0.54
8:A:1948:G:O2'	34:a:1419:G:N2	2.34	0.54
34:a:1323:G:H2'	34:a:1324:A:C8	2.42	0.54
36:c:57:GLU:O	36:c:64:ARG:N	2.32	0.54
37:d:14:GLU:OE2	37:d:55:ARG:NH1	2.40	0.54
8:A:285:G:H2'	8:A:286:U:C6	2.43	0.54
8:A:301:G:OP2	28:U:81:ARG:NH1	2.40	0.54
8:A:1540:G:H2'	8:A:1541:C:C6	2.42	0.54
34:a:573:A:N3	34:a:883:C:O2'	2.39	0.54
34:a:1123:U:O2'	43:j:39:PRO:O	2.24	0.54
34:a:1249:C:O2'	42:i:74:GLN:NE2	2.40	0.54
35:b:64:GLY:HA3	35:b:158:ASP:OD2	2.07	0.54
36:c:34:SER:OG	36:c:58:ARG:NH1	2.41	0.54
37:d:187:ARG:HH22	37:d:192:ALA:HA	1.72	0.54
43:j:67:ILE:HG12	47:n:96:LEU:HD13	1.89	0.54
53:t:38:ILE:HG23	53:t:85:LEU:HD12	1.90	0.54
8:A:236:C:H2'	8:A:237:C:H6	1.73	0.54
8:A:885:C:HO2'	8:A:886:A:H8	1.56	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1087:G:H8	8:A:1088:A:H4'	1.71	0.54
8:A:1801:A:OP2	10:C:149:LYS:NZ	2.41	0.54
8:A:2645:G:OP2	8:A:2645:G:N2	2.28	0.54
8:A:2687:U:H2'	8:A:2688:G:O4'	2.08	0.54
10:C:99:GLU:CD	10:C:101:ARG:HE	2.15	0.54
28:U:97:SER:O	28:U:97:SER:OG	2.26	0.54
56:w:27:G:H2'	56:w:28:G:C8	2.42	0.54
8:A:77:G:O3'	32:Y:7:ARG:NH1	2.39	0.54
8:A:288:U:H2'	8:A:289:G:C8	2.43	0.54
8:A:1532:A:N6	8:A:1540:G:O6	2.41	0.54
8:A:2167:U:H3	8:A:2170:A:P	2.31	0.54
13:F:126:ASN:OD1	13:F:157:THR:N	2.32	0.54
15:H:32:PRO:HA	31:X:38:TRP:CD1	2.42	0.54
15:H:137:GLU:N	15:H:137:GLU:OE2	2.40	0.54
27:T:8:LEU:HD13	32:Y:22:LEU:HB3	1.90	0.54
34:a:1492:A:H5''	60:a:2001:AM2:H5	1.71	0.54
35:b:22:TRP:CZ3	35:b:24:PRO:HA	2.42	0.54
38:e:106:ALA:HB2	38:e:124:ALA:HB3	1.90	0.54
43:j:52:LEU:O	47:n:81:ARG:NH1	2.41	0.54
46:m:65:GLU:OE1	46:m:65:GLU:N	2.34	0.54
7:6:1:MET:HE1	13:F:94:ARG:NH1	2.23	0.54
8:A:2152:G:H3'	8:A:2153:C:C5	2.42	0.54
17:J:130:HIS:CE1	17:J:137:PRO:HG3	2.42	0.54
20:M:62:LYS:HD2	20:M:64:TRP:CZ2	2.42	0.54
26:S:51:LEU:HD13	26:S:105:VAL:HG11	1.88	0.54
32:Y:17:GLU:O	32:Y:18:LEU:HB3	2.07	0.54
34:a:401:C:O2'	34:a:621:A:N3	2.31	0.54
34:a:552:U:H2'	34:a:553:A:H8	1.73	0.54
48:o:25:GLU:HG3	48:o:80:LEU:HD13	1.90	0.54
8:A:288:U:H2'	8:A:289:G:H8	1.72	0.54
15:H:77:THR:HB	15:H:143:ILE:O	2.07	0.54
34:a:1243:C:H2'	34:a:1244:G:C8	2.42	0.54
52:s:17:LYS:O	52:s:20:LYS:HB2	2.08	0.54
8:A:882:G:N1	8:A:895:U:O4'	2.40	0.54
8:A:1051:G:C6	8:A:1108:U:O2	2.60	0.54
8:A:1385:A:O2'	8:A:1396:U:O2	2.24	0.54
27:T:49:LYS:HG3	27:T:50:LEU:HD23	1.88	0.54
34:a:803:G:H2'	34:a:804:U:C6	2.43	0.54
34:a:1029:U:O2	34:a:1034:G:N2	2.35	0.54
55:v:64:G:H2'	55:v:65:C:C6	2.43	0.54
8:A:976:G:O2'	8:A:1155:A:O2'	2.23	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2557:G:H2'	8:A:2558:C:C6	2.43	0.54
25:R:19:THR:HG23	25:R:95:ASP:HB3	1.90	0.54
34:a:768:A:H4'	34:a:1523:G:N2	2.22	0.54
34:a:1060:U:H2'	34:a:1061:G:H8	1.73	0.54
34:a:1062:U:H2'	34:a:1063:C:C6	2.43	0.54
43:j:28:THR:HA	43:j:31:ARG:HH21	1.72	0.54
48:o:24:THR:HG22	48:o:65:LEU:HD22	1.90	0.54
8:A:636:G:N7	19:L:109:LYS:HE3	2.23	0.53
8:A:813:U:H2'	8:A:814:C:H6	1.73	0.53
8:A:1726:C:N3	8:A:1735:A:N6	2.57	0.53
8:A:1920:C:H2'	8:A:1921:G:H5'	1.89	0.53
8:A:2552:OMU:H5	8:A:2556:C:H41	1.73	0.53
22:O:61:GLN:OE1	22:O:61:GLN:N	2.40	0.53
25:R:68:ARG:HB2	25:R:90:ARG:HE	1.72	0.53
26:S:29:VAL:HB	26:S:55:ILE:HD11	1.90	0.53
34:a:202:G:H1	34:a:215:C:H5	1.56	0.53
34:a:499:A:H61	34:a:547:A:H5''	1.73	0.53
34:a:530:G:H2'	56:w:34:G:H21	1.74	0.53
34:a:1271:A:H2'	34:a:1272:G:H8	1.73	0.53
37:d:8:LEU:O	37:d:12:ARG:HG2	2.08	0.53
42:i:25:GLY:N	42:i:61:ASP:OD1	2.41	0.53
7:6:56:ARG:HA	52:s:20:LYS:HD3	1.89	0.53
8:A:825:A:O2'	19:L:54:GLN:HB2	2.09	0.53
8:A:992:C:OP1	24:Q:46:TYR:OH	2.20	0.53
8:A:2246:G:H2'	8:A:2247:A:H8	1.73	0.53
8:A:2602:A:C5'	56:w:74:C:H4'	2.34	0.53
13:F:122:ASP:OD2	13:F:126:ASN:HB2	2.09	0.53
27:T:29:THR:OG1	27:T:86:THR:HG22	2.09	0.53
34:a:350:G:H2'	34:a:351:G:C8	2.43	0.53
34:a:1432:G:HO2'	34:a:1433:A:P	2.29	0.53
8:A:776:G:N1	8:A:2072:C:OP1	2.40	0.53
8:A:2297:A:H61	8:A:2319:G:H1'	1.73	0.53
34:a:958:A:C2	52:s:54:ARG:HB3	2.43	0.53
34:a:1120:C:H2'	34:a:1121:U:C6	2.44	0.53
34:a:1482:G:H2'	34:a:1483:A:O4'	2.08	0.53
38:e:52:ALA:HB2	38:e:61:LYS:HE3	1.91	0.53
39:f:67:PRO:HB2	39:f:69:GLU:OE1	2.08	0.53
40:g:64:ALA:O	40:g:68:VAL:HG22	2.08	0.53
1:0:31:LYS:HG2	8:A:2885:G:N2	2.23	0.53
8:A:391:A:H1'	8:A:411:G:O4'	2.08	0.53
8:A:481:G:O2'	8:A:507:A:N6	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:512:G:OP1	8:A:1234:U:O2'	2.15	0.53
8:A:1060:U:O2'	8:A:1062:G:OP2	2.23	0.53
8:A:1568:G:N7	10:C:27:LYS:NZ	2.54	0.53
8:A:1853:A:H2'	8:A:1854:A:C8	2.43	0.53
8:A:2314:A:H2'	8:A:2315:G:C8	2.43	0.53
8:A:2847:U:H2'	8:A:2848:G:O4'	2.08	0.53
8:A:2848:G:H1'	8:A:2868:A:N6	2.24	0.53
8:A:2861:U:H2'	8:A:2862:G:C8	2.42	0.53
9:B:48:U:H4'	22:O:100:HIS:CD2	2.43	0.53
13:F:11:VAL:HA	13:F:14:LYS:HE3	1.89	0.53
27:T:6:ARG:HH22	27:T:37:ASP:HB2	1.72	0.53
34:a:954:G:H2'	34:a:955:U:C6	2.43	0.53
1:O:9:ARG:NH1	8:A:516:C:OP1	2.41	0.53
2:1:6:GLU:N	2:1:6:GLU:OE2	2.39	0.53
2:1:32:LYS:NZ	2:1:50:GLU:O	2.39	0.53
33:Z:43:ILE:HA	33:Z:46:MET:HE3	1.90	0.53
37:d:123:MET:O	37:d:143:SER:HB3	2.07	0.53
42:i:51:LEU:HB3	42:i:56:MET:HB2	1.90	0.53
44:k:25:SER:OG	44:k:28:ASN:O	2.25	0.53
46:m:93:GLY:HA2	46:m:108:ARG:HH12	1.73	0.53
8:A:279:A:N7	8:A:361:G:N3	2.57	0.53
8:A:373:U:H2'	8:A:374:A:H8	1.73	0.53
8:A:1066:U:OP1	8:A:1068:G:H5'	2.09	0.53
8:A:1671:U:O2'	8:A:1673:G:N7	2.30	0.53
8:A:2107:G:H3'	8:A:2108:A:C8	2.44	0.53
8:A:2250:G:OP1	8:A:2275:C:O2'	2.22	0.53
34:a:162:A:H3'	34:a:163:C:C6	2.43	0.53
34:a:1060:U:H4'	43:j:53:ILE:HG13	1.91	0.53
35:b:19:THR:HA	35:b:38:HIS:CD2	2.44	0.53
40:g:63:VAL:O	40:g:66:GLU:HG2	2.08	0.53
50:q:24:ILE:HD12	50:q:43:LEU:HD12	1.91	0.53
55:v:44:A:P	55:v:44:A:O4'	2.67	0.53
8:A:528:A:C2	8:A:2043:C:H4'	2.44	0.53
8:A:674:G:H5''	12:E:71:GLY:N	2.24	0.53
8:A:971:G:OP1	8:A:974:G:O2'	2.24	0.53
8:A:1084:A:H1'	8:A:1106:G:H1'	1.90	0.53
8:A:1720:U:H2'	8:A:1721:G:O4'	2.09	0.53
20:M:50:ARG:HD3	20:M:65:ILE:HD11	1.91	0.53
34:a:270:A:H2'	34:a:271:C:C6	2.43	0.53
34:a:674:G:H21	44:k:117:HIS:HB2	1.73	0.53
34:a:1287:A:H2	34:a:1353:G:H1'	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1447:A:P	34:a:1448:C:H41	2.31	0.53
8:A:764:A:H5''	10:C:208:GLY:HA3	1.91	0.53
8:A:1028:A:OP2	8:A:1126:A:N6	2.33	0.53
8:A:1779:U:H5	8:A:1784:A:N7	2.06	0.53
8:A:1799:G:OP2	10:C:269:ARG:NH2	2.42	0.53
8:A:2448:A:OP2	8:A:2498:OMC:OP2	2.26	0.53
9:B:1:U:H2'	9:B:2:G:C8	2.43	0.53
15:H:135:HIS:HB3	15:H:138:VAL:HG23	1.91	0.53
23:P:1:SER:OG	23:P:2:ASN:N	2.34	0.53
34:a:154:U:H2'	34:a:155:A:C8	2.44	0.53
34:a:160:A:H61	34:a:345:C:H5'	1.74	0.53
34:a:246:A:C2	34:a:282:A:C5	2.96	0.53
34:a:600:A:H2'	34:a:601:G:C8	2.44	0.53
34:a:1031:C:H3'	34:a:1032:G:H5'	1.90	0.53
34:a:1227:A:OP1	52:s:79:TYR:OH	2.13	0.53
34:a:1240:U:OP1	40:g:118:ARG:NH2	2.42	0.53
46:m:22:TYR:HB3	46:m:65:GLU:HG3	1.91	0.53
52:s:2:ARG:HH22	52:s:9:PHE:HB2	1.72	0.53
8:A:602:A:O2'	8:A:604:G:O2'	2.16	0.53
8:A:1853:A:N3	8:A:2233:U:O2'	2.41	0.53
8:A:1954:G:O2'	8:A:1956:U:O4	2.13	0.53
8:A:2405:G:HO2'	8:A:2406:A:P	2.31	0.53
8:A:2698:U:H2'	8:A:2699:C:C6	2.43	0.53
19:L:77:ILE:HD11	19:L:101:ILE:HG23	1.90	0.53
19:L:108:ALA:HB3	19:L:125:LEU:HG	1.91	0.53
34:a:10:A:HO2'	34:a:507:C:HO2'	1.54	0.53
34:a:593:U:H2'	34:a:594:U:C6	2.44	0.53
34:a:996:A:N1	34:a:1045:C:O2'	2.32	0.53
34:a:1180:A:OP1	42:i:98:ARG:NH2	2.42	0.53
35:b:19:THR:O	35:b:21:TYR:N	2.42	0.53
51:r:21:ASP:OD1	51:r:23:LYS:NZ	2.33	0.53
56:w:36:A:N6	58:z:5:U:H3	2.06	0.53
57:y:101:FME:SD	57:y:102:PHE:N	2.79	0.53
8:A:243:U:C2	8:A:255:A:N7	2.77	0.53
8:A:878:A:H1'	8:A:900:A:C6	2.44	0.53
8:A:2167:U:O2'	8:A:2169:A:N7	2.41	0.53
8:A:2262:U:H2'	8:A:2263:C:H6	1.73	0.53
11:D:184:ARG:NH1	23:P:6:GLN:OE1	2.42	0.53
29:V:8:VAL:O	29:V:10:LYS:NZ	2.42	0.53
34:a:56:U:H2'	34:a:57:G:C8	2.44	0.53
34:a:113:G:H2'	34:a:114:U:C6	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:768:A:N3	34:a:1512:U:O2'	2.42	0.53
34:a:965:U:H5''	34:a:966:2MG:OP1	2.09	0.53
39:f:9:MET:HE3	39:f:86:ARG:HB2	1.91	0.53
42:i:13:SER:O	42:i:13:SER:OG	2.27	0.53
56:w:39:PSU:H2'	56:w:40:C:H6	1.74	0.53
8:A:102:U:O4	32:Y:4:LYS:HG3	2.09	0.52
8:A:368:A:H2'	8:A:369:U:O4'	2.09	0.52
8:A:1788:C:OP1	10:C:220:ARG:NH2	2.42	0.52
8:A:1926:U:N3	8:A:1929:G:N1	2.57	0.52
15:H:9:VAL:H	15:H:13:GLY:HA3	1.73	0.52
17:J:130:HIS:HE1	17:J:137:PRO:HG3	1.72	0.52
18:K:49:ARG:NH1	34:a:1424:U:OP1	2.41	0.52
19:L:81:ASP:HB3	19:L:100:ILE:HD13	1.91	0.52
21:N:72:ASP:HB3	21:N:75:ILE:HG12	1.91	0.52
31:X:6:VAL:HG13	31:X:7:THR:HG23	1.91	0.52
34:a:563:A:H2'	34:a:567:G:C8	2.44	0.52
35:b:98:GLY:N	35:b:174:GLU:OE2	2.37	0.52
37:d:191:SER:C	37:d:193:ASP:H	2.17	0.52
38:e:114:LEU:HD13	38:e:122:VAL:HG11	1.91	0.52
44:k:124:LYS:HG3	44:k:125:LYS:H	1.75	0.52
8:A:2119:A:H61	8:A:2167:U:H1'	1.73	0.52
34:a:335:C:O2'	34:a:1433:A:N3	2.32	0.52
34:a:950:U:OP2	46:m:100:ARG:NH1	2.40	0.52
34:a:1171:A:H2'	34:a:1172:C:C6	2.43	0.52
35:b:163:ILE:HG22	35:b:203:ASP:HB2	1.91	0.52
40:g:52:ARG:NH1	40:g:121:ASN:OD1	2.34	0.52
44:k:122:PRO:HD2	54:u:37:TYR:HD1	1.73	0.52
45:l:55:ARG:HA	45:l:61:GLU:HA	1.90	0.52
8:A:242:G:O2'	8:A:243:U:P	2.67	0.52
8:A:579:G:O2'	8:A:2019:A:OP1	2.27	0.52
8:A:2103:C:O2	8:A:2103:C:H2'	2.09	0.52
8:A:2547:A:H2'	8:A:2548:U:C6	2.43	0.52
8:A:2800:A:C2	8:A:2895:G:H1'	2.44	0.52
20:M:20:LEU:HD13	29:V:81:PRO:HG2	1.90	0.52
29:V:64:VAL:HG22	29:V:69:GLU:HG3	1.90	0.52
34:a:59:A:H5''	34:a:387:U:H5''	1.91	0.52
34:a:1216:A:H5''	47:n:4:SER:OG	2.09	0.52
8:A:160:A:N3	8:A:2208:C:O2'	2.37	0.52
8:A:2571:U:O2	11:D:148:GLN:HG2	2.09	0.52
19:L:29:LYS:O	19:L:30:THR:OG1	2.27	0.52
24:Q:84:LYS:C	24:Q:86:SER:H	2.18	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:390:U:H2'	34:a:391:G:C8	2.44	0.52
34:a:1308:U:H2'	34:a:1309:G:C8	2.44	0.52
34:a:1472:U:H2'	34:a:1473:G:H8	1.74	0.52
35:b:114:LYS:O	35:b:118:THR:HG23	2.09	0.52
36:c:110:LEU:HD11	36:c:145:ALA:HB2	1.91	0.52
41:h:28:SER:HB3	41:h:58:LEU:H	1.75	0.52
42:i:48:ARG:HE	42:i:56:MET:HE1	1.74	0.52
53:t:65:LEU:HD23	53:t:66:ILE:HG23	1.92	0.52
8:A:458:G:O2'	8:A:459:U:P	2.68	0.52
8:A:607:U:N3	8:A:608:A:N7	2.57	0.52
8:A:1311:G:H21	8:A:1603:A:H62	1.58	0.52
8:A:1340:U:OP1	27:T:84:TYR:OH	2.14	0.52
8:A:2121:G:H2'	8:A:2122:U:C6	2.44	0.52
8:A:2149:U:OP2	8:A:2150:C:N4	2.42	0.52
8:A:2521:C:C2	8:A:2545:G:N2	2.78	0.52
13:F:32:LYS:HD3	13:F:91:ARG:NH1	2.25	0.52
28:U:71:ILE:HD13	28:U:102:ILE:HG12	1.90	0.52
34:a:1015:G:H2'	34:a:1016:A:O4'	2.10	0.52
34:a:1107:C:C4	34:a:1108:G:C8	2.98	0.52
34:a:1271:A:H2'	34:a:1272:G:C8	2.44	0.52
36:c:122:GLN:HG2	36:c:125:ARG:NH2	2.23	0.52
8:A:1056:G:N2	8:A:1103:A:N7	2.53	0.52
8:A:1179:G:OP2	8:A:1180:U:H5'	2.09	0.52
8:A:1798:U:H5''	10:C:257:ARG:HB2	1.92	0.52
8:A:2114:A:C5	8:A:2115:G:H1'	2.45	0.52
8:A:2246:G:H2'	8:A:2247:A:C8	2.45	0.52
8:A:2649:C:H2'	8:A:2650:U:C6	2.45	0.52
8:A:2720:U:OP1	23:P:52:ARG:NH2	2.42	0.52
8:A:2848:G:H1'	8:A:2868:A:H61	1.74	0.52
23:P:90:ALA:HB3	23:P:110:LYS:HG3	1.91	0.52
34:a:175:C:H2'	34:a:176:C:C6	2.44	0.52
34:a:526:C:C4	34:a:527:G7M:H1'	2.45	0.52
34:a:895:G:H2'	34:a:896:C:C6	2.45	0.52
34:a:995:C:N3	34:a:1046:A:O2'	2.37	0.52
34:a:1086:U:O4	34:a:1099:G:O6	2.27	0.52
34:a:1218:C:H2'	34:a:1219:A:C8	2.44	0.52
34:a:1347:G:O2'	34:a:1348:U:OP2	2.26	0.52
36:c:176:THR:HG22	36:c:179:ALA:H	1.75	0.52
37:d:14:GLU:HG3	37:d:18:LEU:HD11	1.92	0.52
39:f:1:MET:HE1	39:f:67:PRO:HD3	1.92	0.52
43:j:83:THR:O	43:j:87:LEU:HG	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:m:52:ILE:O	46:m:56:ARG:HG3	2.10	0.52
53:t:42:ASP:HB3	53:t:45:ALA:HB3	1.92	0.52
56:w:59:U:H2'	56:w:60:U:C5	2.45	0.52
8:A:245:G:O2'	8:A:384:A:N1	2.31	0.52
8:A:1057:A:H8	8:A:1060:U:H3	1.57	0.52
8:A:1478:G:N2	8:A:1513:U:O2	2.31	0.52
8:A:2273:A:H2'	8:A:2274:A:C8	2.45	0.52
8:A:2327:A:H2'	8:A:2328:A:C8	2.45	0.52
10:C:68:ARG:O	10:C:188:ARG:NH1	2.43	0.52
10:C:92:LEU:HD11	10:C:100:ARG:HB3	1.92	0.52
34:a:122:G:HO2'	34:a:312:C:HO2'	1.58	0.52
34:a:268:U:H2'	34:a:269:C:C6	2.45	0.52
36:c:46:LEU:HB3	36:c:49:ALA:HB3	1.90	0.52
43:j:59:LYS:HE2	43:j:62:ARG:HH21	1.74	0.52
7:6:44:PHE:CE2	13:F:175:PRO:HG3	2.44	0.52
8:A:151:C:H2'	8:A:152:A:H8	1.73	0.52
8:A:1168:G:O6	8:A:1181:U:O4	2.28	0.52
8:A:1363:C:O2'	8:A:1809:A:N3	2.32	0.52
8:A:1411:U:H2'	8:A:1412:U:C6	2.45	0.52
8:A:1426:G:OP2	8:A:1427:A:O2'	2.21	0.52
8:A:2129:C:O2	8:A:2129:C:H2'	2.10	0.52
8:A:2139:U:C4	8:A:2152:G:C6	2.98	0.52
8:A:2199:A:N6	8:A:2224:G:O2'	2.40	0.52
8:A:2420:C:H2'	8:A:2421:G:C8	2.45	0.52
8:A:2865:U:H3'	8:A:2866:U:H2'	1.92	0.52
29:V:6:ALA:HB2	29:V:42:LEU:HD23	1.90	0.52
34:a:142:G:N3	34:a:196:A:H2	2.08	0.52
34:a:604:G:H2'	34:a:605:U:C6	2.45	0.52
34:a:1382:C:O2'	40:g:78:ARG:NH2	2.43	0.52
45:l:82:ARG:NH1	45:l:83:GLY:O	2.43	0.52
50:q:59:GLU:OE1	50:q:76:ARG:NE	2.43	0.52
8:A:1589:U:H2'	8:A:1590:A:C8	2.45	0.52
8:A:2312:U:H5'	13:F:84:ILE:HD11	1.90	0.52
24:Q:51:GLN:HG2	24:Q:55:GLN:HE21	1.74	0.52
34:a:980:C:OP2	34:a:981:U:C4	2.62	0.52
34:a:1190:G:O2'	36:c:2:GLN:HB2	2.09	0.52
44:k:33:ILE:HG12	44:k:69:CYS:SG	2.50	0.52
7:6:41:HIS:O	7:6:45:THR:OG1	2.26	0.52
7:6:66:ILE:O	34:a:1011:C:H4'	2.09	0.52
8:A:65:U:O2'	8:A:456:C:N3	2.42	0.52
8:A:176:A:O2'	8:A:177:G:H5'	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:483:A:H4'	28:U:45:GLN:O	2.09	0.52
8:A:547:A:H4'	8:A:548:G:N7	2.25	0.52
8:A:704:G:H1'	8:A:727:A:N6	2.25	0.52
8:A:1416:G:O2'	8:A:1417:C:O5'	2.28	0.52
8:A:2140:G:H1	8:A:2151:U:H3	1.58	0.52
8:A:2530:A:OP1	8:A:2535:G:N2	2.42	0.52
9:B:40:U:N3	9:B:44:G:OP2	2.24	0.52
10:C:74:PRO:HA	10:C:116:GLN:HB3	1.90	0.52
13:F:37:MET:HE1	13:F:52:ALA:O	2.10	0.52
20:M:56:ALA:HB2	20:M:119:LEU:HD12	1.92	0.52
34:a:1118:U:H1'	34:a:1179:A:C4	2.45	0.52
55:v:32:C:N4	55:v:33:U:O4	2.42	0.52
3:2:19:ARG:HG3	8:A:126:A:H5'	1.91	0.51
8:A:320:A:H4'	8:A:322:A:C8	2.45	0.51
8:A:555:G:O2'	8:A:556:A:O5'	2.28	0.51
8:A:1028:A:N3	8:A:2486:C:O2'	2.34	0.51
8:A:1318:U:H2'	8:A:1319:C:C6	2.45	0.51
8:A:2038:G:H2'	8:A:2039:U:O4'	2.10	0.51
8:A:2319:G:O2'	8:A:2320:U:H6	1.94	0.51
8:A:2452:C:H1'	57:y:101:FME:HB2	1.90	0.51
19:L:78:ARG:HG2	19:L:113:ALA:HB3	1.92	0.51
34:a:1120:C:H2'	34:a:1121:U:H6	1.74	0.51
8:A:1248:G:P	12:E:44:ARG:HH22	2.33	0.51
8:A:1532:A:H2'	8:A:1533:C:C6	2.45	0.51
19:L:122:VAL:HG21	19:L:135:ILE:HD13	1.92	0.51
34:a:166:U:H2'	34:a:167:A:C8	2.45	0.51
34:a:191:G:H2'	34:a:192:A:C8	2.46	0.51
34:a:1402:4OC:H2'	34:a:1403:C:O4'	2.11	0.51
45:l:2:THR:O	45:l:5:GLN:N	2.43	0.51
52:s:78:THR:OG1	52:s:80:ARG:NH2	2.43	0.51
53:t:34:VAL:HG21	53:t:53:MET:HG2	1.92	0.51
8:A:1387:A:C6	8:A:1401:G:N1	2.78	0.51
8:A:1791:A:H61	8:A:1828:G:HO2'	1.55	0.51
10:C:140:VAL:HG12	10:C:191:LEU:HD23	1.92	0.51
12:E:125:SER:O	12:E:137:LYS:NZ	2.43	0.51
13:F:131:VAL:N	13:F:151:LEU:O	2.38	0.51
28:U:3:LYS:O	28:U:93:ARG:NH2	2.43	0.51
34:a:767:A:H2'	34:a:768:A:O4'	2.10	0.51
34:a:975:A:N1	34:a:1366:C:O2'	2.31	0.51
34:a:1319:A:C8	34:a:1323:G:C5	2.98	0.51
34:a:1485:U:C2'	34:a:1486:G:H5'	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:104:ILE:O	38:e:111:ARG:NH1	2.43	0.51
8:A:242:G:H1'	8:A:243:U:H5	1.76	0.51
8:A:1198:U:H2'	8:A:1199:U:C6	2.44	0.51
8:A:2297:A:N6	8:A:2319:G:H1'	2.26	0.51
33:Z:47:ILE:HD13	33:Z:56:VAL:HG21	1.92	0.51
34:a:231:U:H2'	34:a:232:G:H8	1.75	0.51
34:a:524:G:H2'	34:a:525:C:C6	2.46	0.51
34:a:821:G:H2'	34:a:822:U:C6	2.45	0.51
57:y:101:FME:HE3	57:y:102:PHE:N	2.23	0.51
8:A:280:U:H2'	8:A:281:C:C6	2.44	0.51
8:A:577:G:O2'	8:A:1254:A:OP1	2.28	0.51
8:A:934:U:H2'	8:A:935:C:C6	2.45	0.51
8:A:1475:G:O2'	8:A:1476:U:O5'	2.27	0.51
8:A:1530:G:H2'	8:A:1531:C:C6	2.45	0.51
8:A:2320:U:O2'	8:A:2322:A:N7	2.38	0.51
14:G:44:HIS:O	14:G:48:THR:OG1	2.29	0.51
21:N:8:ARG:HD2	21:N:43:GLU:HG2	1.92	0.51
27:T:67:VAL:HG22	27:T:76:ARG:HD3	1.92	0.51
34:a:56:U:H2'	34:a:57:G:H8	1.75	0.51
8:A:910:A:H2	8:A:2264:C:O2	1.93	0.51
8:A:1061:U:N3	8:A:1068:G:OP1	2.43	0.51
8:A:2451:A:O2'	56:w:76:A:H2'	2.09	0.51
24:Q:106:THR:O	24:Q:110:GLU:HG2	2.11	0.51
34:a:450:G:OP1	34:a:452:A:OP1	2.28	0.51
34:a:518:C:H2'	34:a:530:G:N3	2.25	0.51
34:a:652:U:HO2'	34:a:653:U:P	2.33	0.51
3:2:11:LYS:NZ	8:A:686:U:OP2	2.43	0.51
8:A:2192:U:H2'	8:A:2193:G:H8	1.74	0.51
8:A:2247:A:H2'	8:A:2248:C:H6	1.76	0.51
8:A:2266:A:H4'	8:A:2267:A:O5'	2.10	0.51
12:E:10:SER:OG	12:E:11:ALA:N	2.44	0.51
13:F:1:ALA:HB1	13:F:4:HIS:HB3	1.93	0.51
18:K:63:VAL:HG12	18:K:107:LEU:HD21	1.92	0.51
34:a:284:C:H2'	34:a:285:C:H6	1.76	0.51
34:a:1063:C:OP2	34:a:1064:G:O2'	2.25	0.51
34:a:1302:C:C5	46:m:16:ILE:HG13	2.45	0.51
34:a:1417:G:H5'	34:a:1418:A:OP1	2.11	0.51
34:a:1497:G:H1'	34:a:1518:MA6:H2	1.92	0.51
48:o:13:GLU:HG2	48:o:83:ARG:HH21	1.75	0.51
8:A:811:U:H2'	19:L:21:ARG:HA	1.91	0.51
8:A:2620:C:O2'	11:D:162:ALA:O	2.28	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2836:U:H2'	8:A:2837:A:C8	2.45	0.51
24:Q:39:ILE:O	24:Q:43:GLN:HG3	2.11	0.51
33:Z:44:ARG:HH12	33:Z:58:GLU:HG3	1.76	0.51
34:a:34:C:H2'	34:a:35:G:H8	1.75	0.51
34:a:1132:C:H2'	34:a:1133:G:C8	2.45	0.51
34:a:1435:G:H2'	34:a:1436:U:C6	2.46	0.51
37:d:146:GLU:HA	37:d:149:LYS:HG3	1.93	0.51
56:w:5:G:N1	56:w:68:C:N3	2.55	0.51
5:4:1:MET:SD	5:4:36:ARG:HB2	2.51	0.51
8:A:729:G:C5	10:C:206:LYS:HB2	2.46	0.51
19:L:85:VAL:HG21	19:L:90:VAL:HG22	1.91	0.51
25:R:51:VAL:O	25:R:52:PRO:C	2.52	0.51
29:V:31:TYR:CE2	29:V:90:ASP:HB3	2.45	0.51
34:a:201:G:H2'	34:a:202:G:C8	2.46	0.51
34:a:1026:G:H2'	34:a:1027:C:H5	1.74	0.51
36:c:21:TRP:CD1	36:c:58:ARG:HD2	2.46	0.51
39:f:41:ASP:OD2	39:f:58:HIS:NE2	2.39	0.51
56:w:2:C:H2'	56:w:3:C:C6	2.46	0.51
8:A:197:A:N6	8:A:2430:A:H2'	2.26	0.51
8:A:286:U:C2	8:A:287:G:C8	2.99	0.51
8:A:1056:G:N1	8:A:1103:A:N7	2.58	0.51
8:A:1582:C:O2'	8:A:1585:C:N3	2.37	0.51
8:A:1682:G:H2'	8:A:1683:U:C6	2.45	0.51
8:A:2172:U:H4'	8:A:2174:C:C5	2.46	0.51
8:A:2173:A:H8	8:A:2173:A:OP1	1.93	0.51
15:H:68:ARG:NH1	15:H:68:ARG:HB3	2.26	0.51
34:a:110:C:H2'	34:a:111:G:O4'	2.11	0.51
34:a:190:A:H2'	34:a:191:G:O4'	2.10	0.51
34:a:662:U:H2'	34:a:663:A:C8	2.46	0.51
34:a:706:A:H2'	34:a:707:U:O4'	2.11	0.51
38:e:37:VAL:HG11	38:e:113:VAL:HG22	1.93	0.51
44:k:49:SER:HB2	44:k:68:ARG:HD3	1.92	0.51
47:n:2:LYS:O	47:n:5:MET:N	2.42	0.51
1:O:38:LEU:HG	26:S:38:TYR:CD2	2.46	0.50
8:A:6:A:N3	17:J:135:GLN:NE2	2.59	0.50
8:A:641:U:C4	8:A:647:G:O6	2.64	0.50
8:A:1260:A:H2'	8:A:1261:C:O4'	2.11	0.50
8:A:1412:U:H2'	8:A:1413:A:C8	2.47	0.50
8:A:1730:C:OP1	8:A:1731:G:N2	2.43	0.50
8:A:2134:A:H62	8:A:2156:G:HO2'	1.56	0.50
8:A:2230:G:H2'	8:A:2231:U:C6	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2314:A:OP1	13:F:87:LYS:NZ	2.42	0.50
23:P:87:ARG:NH2	23:P:109:ILE:O	2.38	0.50
34:a:95:C:HO2'	34:a:96:U:P	2.34	0.50
34:a:746:A:H2'	34:a:747:A:C8	2.46	0.50
34:a:1253:G:O2'	34:a:1254:A:H5'	2.11	0.50
34:a:1522:U:H2'	34:a:1523:G:H8	1.77	0.50
40:g:27:ASN:HA	40:g:30:MET:HE3	1.92	0.50
40:g:65:LEU:HB3	40:g:69:ARG:HH21	1.77	0.50
44:k:44:ALA:HB3	44:k:69:CYS:HB2	1.93	0.50
4:3:53:ASP:O	4:3:57:VAL:HG23	2.11	0.50
8:A:285:G:H2'	8:A:286:U:H6	1.75	0.50
8:A:807:U:O2'	8:A:2060:A:N1	2.41	0.50
8:A:1060:U:H4'	8:A:1062:G:O4'	2.11	0.50
8:A:1327:A:H2'	8:A:1328:A:O4'	2.10	0.50
8:A:2150:C:O2'	8:A:2151:U:OP1	2.28	0.50
8:A:2438:U:O2'	8:A:2439:A:H5''	2.11	0.50
9:B:32:U:C2	9:B:33:G:C8	2.98	0.50
10:C:160:TYR:HB3	10:C:193:GLU:HG2	1.93	0.50
34:a:150:U:H2'	34:a:151:A:H8	1.76	0.50
34:a:908:A:H2'	34:a:909:A:C8	2.46	0.50
34:a:1303:C:N4	34:a:1304:G:C6	2.79	0.50
34:a:1491:G:O6	60:a:2001:AM2:HA2	2.11	0.50
37:d:22:SER:O	37:d:24:VAL:N	2.42	0.50
8:A:2182:U:O2'	8:A:2183:A:H5'	2.12	0.50
8:A:2573:C:OP1	8:A:2574:G:OP1	2.30	0.50
9:B:32:U:H2'	9:B:33:G:C8	2.47	0.50
15:H:135:HIS:CD2	15:H:136:SER:H	2.29	0.50
19:L:27:LEU:H	19:L:27:LEU:HD12	1.76	0.50
34:a:509:A:H2'	34:a:510:A:C8	2.46	0.50
34:a:673:A:H2'	34:a:674:G:H8	1.73	0.50
34:a:803:G:H2'	34:a:804:U:H6	1.76	0.50
34:a:1137:C:H4'	34:a:1138:G:C2	2.45	0.50
34:a:1302:C:C4	46:m:16:ILE:HG13	2.46	0.50
38:e:83:PRO:HD2	41:h:96:ALA:HB2	1.93	0.50
8:A:307:G:N1	8:A:310:A:OP2	2.37	0.50
8:A:1468:U:H2'	8:A:1522:A:N6	2.26	0.50
8:A:1494:A:H3'	8:A:1495:A:H8	1.75	0.50
8:A:2081:U:H2'	8:A:2082:A:H8	1.75	0.50
20:M:6:ARG:O	20:M:6:ARG:HD3	2.11	0.50
35:b:217:ALA:HA	35:b:220:VAL:HG12	1.93	0.50
38:e:155:LYS:HG3	38:e:156:ARG:H	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:538:A:H2'	8:A:539:G:O4'	2.11	0.50
8:A:1072:C:OP1	8:A:1088:A:O2'	2.29	0.50
8:A:1799:G:O2'	10:C:179:GLU:OE2	2.27	0.50
8:A:2512:C:H2'	8:A:2513:A:O4'	2.11	0.50
34:a:69:G:H2'	34:a:70:U:C6	2.46	0.50
34:a:908:A:H2'	34:a:909:A:H8	1.77	0.50
35:b:124:THR:HG23	35:b:127:LYS:HB2	1.93	0.50
39:f:49:TYR:HE1	39:f:86:ARG:HH22	1.60	0.50
40:g:68:VAL:HA	40:g:137:ARG:HD3	1.92	0.50
43:j:46:LYS:HG2	43:j:68:ARG:HG2	1.94	0.50
51:r:49:LYS:O	51:r:53:GLN:HG3	2.11	0.50
51:r:54:LEU:O	51:r:58:ILE:HG12	2.11	0.50
56:w:39:PSU:H2'	56:w:40:C:C6	2.46	0.50
8:A:143:C:O2'	8:A:144:A:H5'	2.12	0.50
8:A:481:G:O2'	8:A:482:A:P	2.70	0.50
8:A:532:A:OP1	8:A:561:G:N2	2.37	0.50
8:A:1523:U:H5''	8:A:1524:G:C8	2.47	0.50
8:A:2014:A:H5'	26:S:94:ASP:CG	2.37	0.50
8:A:2641:G:H5''	17:J:78:THR:HB	1.93	0.50
8:A:2682:A:H2'	8:A:2683:C:H6	1.76	0.50
14:G:85:LYS:HD3	14:G:131:VAL:HG22	1.92	0.50
20:M:58:LYS:C	20:M:60:GLN:H	2.20	0.50
34:a:407:U:OP1	37:d:2:ARG:NH2	2.45	0.50
34:a:985:C:H2'	34:a:986:U:H6	1.76	0.50
38:e:15:ILE:HD13	38:e:136:VAL:HG21	1.94	0.50
44:k:63:GLN:HG3	44:k:98:ALA:HB2	1.94	0.50
47:n:57:PRO:HA	47:n:60:GLN:NE2	2.26	0.50
8:A:181:A:H2'	8:A:182:A:C8	2.47	0.50
8:A:1668:A:H5''	18:K:5:GLN:HE21	1.76	0.50
8:A:1928:A:N6	8:A:1929:G:O6	2.45	0.50
8:A:2025:C:H2'	8:A:2026:U:C6	2.46	0.50
8:A:2066:C:H2'	8:A:2067:G:H5'	1.91	0.50
8:A:2638:G:HO2'	8:A:2639:A:H8	1.58	0.50
9:B:59:A:H2'	9:B:60:C:O4'	2.11	0.50
13:F:13:LYS:O	13:F:17:THR:HG23	2.12	0.50
34:a:270:A:H2'	34:a:271:C:H6	1.76	0.50
34:a:382:A:H2'	34:a:383:A:C8	2.47	0.50
34:a:933:G:OP2	40:g:2:ARG:HB3	2.12	0.50
38:e:79:THR:OG1	38:e:121:ASN:O	2.11	0.50
8:A:538:A:H5''	17:J:7:LYS:HE3	1.94	0.50
8:A:2139:U:H5	8:A:2140:G:C5	2.30	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:D:16:THR:OG1	11:D:18:ASP:OD1	2.28	0.50
28:U:51:LEU:H	28:U:51:LEU:HD23	1.75	0.50
34:a:9:G:OP2	38:e:125:LYS:NZ	2.30	0.50
34:a:500:G:H2'	34:a:501:C:C6	2.47	0.50
34:a:1308:U:H2'	34:a:1309:G:H8	1.77	0.50
37:d:26:ALA:HB3	37:d:29:THR:OG1	2.12	0.50
43:j:52:LEU:HD23	43:j:62:ARG:HG2	1.94	0.50
1:0:4:GLN:O	8:A:2017:U:H4'	2.12	0.50
2:1:18:HIS:HE1	2:1:20:TYR:CE1	2.30	0.50
8:A:71:A:H5''	8:A:73:A:C8	2.47	0.50
8:A:215:G:O3'	8:A:216:A:H4'	2.12	0.50
8:A:298:G:O2'	8:A:322:A:N1	2.42	0.50
8:A:856:G:H2'	8:A:857:G:C8	2.47	0.50
8:A:1937:A:O2'	8:A:1939:5MU:OP2	2.17	0.50
10:C:70:LYS:HE2	10:C:73:ILE:HD12	1.94	0.50
18:K:122:VAL:HG22	23:P:40:GLN:HE22	1.76	0.50
27:T:34:VAL:HG21	27:T:43:ILE:HD11	1.94	0.50
29:V:77:VAL:HG23	29:V:89:ILE:HG12	1.94	0.50
34:a:17:U:H2'	34:a:18:C:C6	2.46	0.50
34:a:219:U:C2	34:a:220:G:C8	2.99	0.50
34:a:1071:C:H2'	34:a:1072:G:H8	1.77	0.50
35:b:204:ASP:OD1	35:b:204:ASP:N	2.44	0.50
38:e:63:MET:O	38:e:67:ARG:HG3	2.11	0.50
44:k:86:LYS:HG3	44:k:114:PRO:HD3	1.94	0.50
8:A:1224:U:H2'	8:A:1225:G:C8	2.46	0.49
8:A:2720:U:H5''	23:P:52:ARG:NH2	2.27	0.49
8:A:2816:G:H5''	21:N:99:LYS:HE3	1.94	0.49
10:C:90:ILE:HD12	10:C:102:TYR:CG	2.46	0.49
11:D:120:GLY:O	11:D:124:ARG:HB2	2.12	0.49
29:V:36:ALA:O	29:V:93:ARG:NH2	2.45	0.49
34:a:6:G:O6	38:e:102:THR:OG1	2.30	0.49
34:a:113:G:H2'	34:a:114:U:H6	1.77	0.49
34:a:215:C:H1'	34:a:465:A:H62	1.77	0.49
34:a:509:A:OP2	34:a:509:A:O3'	2.29	0.49
34:a:900:A:H2'	34:a:901:A:C8	2.47	0.49
34:a:921:U:H2'	34:a:922:G:O4'	2.12	0.49
34:a:1340:A:H2'	34:a:1341:U:O4'	2.11	0.49
34:a:1465:A:H2'	34:a:1466:C:C6	2.47	0.49
40:g:144:ALA:O	40:g:145:GLU:HB2	2.12	0.49
42:i:18:VAL:HG11	42:i:82:ILE:HA	1.94	0.49
8:A:526:A:O2'	8:A:2043:C:O2	2.27	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:910:A:H2'	8:A:911:A:C8	2.48	0.49
8:A:1113:U:H2'	8:A:1114:C:C6	2.46	0.49
8:A:1443:U:H2'	8:A:1444:G:C8	2.47	0.49
8:A:1842:G:H2'	8:A:1843:C:C6	2.47	0.49
8:A:2312:U:O3'	13:F:67:THR:HG21	2.12	0.49
8:A:2451:A:O2'	56:w:76:A:C2'	2.60	0.49
18:K:107:LEU:O	18:K:112:PHE:HB2	2.12	0.49
21:N:37:THR:HG22	21:N:39:PRO:HD2	1.93	0.49
25:R:17:GLY:N	25:R:98:ILE:O	2.28	0.49
27:T:22:THR:HG23	27:T:26:LYS:HE3	1.94	0.49
34:a:269:C:H2'	34:a:270:A:H8	1.77	0.49
34:a:299:G:OP2	34:a:299:G:H8	1.95	0.49
35:b:86:CYS:SG	35:b:88:GLN:HB2	2.52	0.49
46:m:26:LYS:HG3	46:m:30:LYS:HE2	1.94	0.49
50:q:55:GLY:O	50:q:81:ALA:HB3	2.11	0.49
2:1:16:THR:OG1	2:1:39:ASP:OD2	2.31	0.49
8:A:272:A:H2'	8:A:273:G:C8	2.47	0.49
8:A:532:A:P	8:A:561:G:H21	2.34	0.49
8:A:720:U:H2'	8:A:721:A:C8	2.46	0.49
8:A:1028:A:H2'	8:A:1029:A:C8	2.47	0.49
8:A:1197:G:H2'	8:A:1198:U:H6	1.76	0.49
8:A:1709:U:H2'	8:A:1710:G:H8	1.76	0.49
8:A:2391:G:O2'	8:A:2424:C:N4	2.46	0.49
8:A:2850:A:OP2	8:A:2866:U:N3	2.40	0.49
8:A:2865:U:OP2	8:A:2866:U:O2'	2.27	0.49
9:B:28:C:OP1	22:O:31:THR:HG21	2.11	0.49
9:B:81:G:O6	9:B:95:U:O2	2.30	0.49
12:E:117:ARG:NH2	12:E:183:PHE:O	2.46	0.49
13:F:7:TYR:HB2	13:F:172:PHE:CZ	2.47	0.49
22:O:77:ALA:O	22:O:81:ARG:HG3	2.11	0.49
34:a:1003:G:H2'	34:a:1003:G:N3	2.27	0.49
34:a:1014:A:H4'	52:s:13:HIS:NE2	2.28	0.49
34:a:1477:U:H2'	34:a:1478:U:C6	2.47	0.49
39:f:30:THR:HA	39:f:34:GLY:H	1.77	0.49
43:j:53:ILE:HD11	43:j:61:ALA:HB1	1.94	0.49
6:5:25:ALA:O	6:5:84:TYR:HA	2.13	0.49
6:5:32:GLY:H	8:A:1055:G:C5'	2.24	0.49
8:A:322:A:OP2	12:E:163:ASN:HB2	2.12	0.49
8:A:764:A:H5''	10:C:208:GLY:CA	2.42	0.49
8:A:1056:G:C4	8:A:1103:A:N6	2.80	0.49
8:A:2159:G:H2'	8:A:2160:C:O4'	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2179:C:O2	8:A:2181:U:H5	1.94	0.49
21:N:87:PHE:HD1	21:N:90:ARG:HG3	1.78	0.49
34:a:1065:U:H5''	34:a:1190:G:N2	2.26	0.49
35:b:22:TRP:HB3	35:b:38:HIS:CD2	2.48	0.49
8:A:395:U:H2'	8:A:396:G:N7	2.27	0.49
8:A:686:U:H2'	8:A:788:A:N1	2.27	0.49
8:A:1155:A:H5''	24:Q:54:ARG:HD3	1.94	0.49
8:A:1582:C:H2'	8:A:1583:A:O4'	2.13	0.49
8:A:1727:C:H2'	8:A:1728:C:H6	1.76	0.49
8:A:2295:C:P	22:O:9:ARG:HH22	2.36	0.49
8:A:2777:G:H5''	8:A:2778:A:H5'	1.95	0.49
8:A:2822:G:H2'	8:A:2823:A:H5''	1.93	0.49
34:a:1056:U:OP1	36:c:162:ALA:N	2.28	0.49
34:a:1226:C:OP2	46:m:101:THR:OG1	2.21	0.49
34:a:1314:C:H2'	34:a:1315:U:C6	2.47	0.49
38:e:140:ILE:O	38:e:144:GLU:HG2	2.12	0.49
42:i:55:ASP:N	42:i:55:ASP:OD1	2.44	0.49
8:A:30:G:H2'	8:A:31:C:C6	2.48	0.49
8:A:742:A:H2'	8:A:743:A:C8	2.48	0.49
8:A:1322:A:H5''	26:S:82:MET:HE1	1.94	0.49
8:A:1716:U:H2'	8:A:1717:A:H8	1.78	0.49
8:A:1842:G:H2'	8:A:1843:C:H6	1.77	0.49
8:A:2128:G:N3	8:A:2128:G:H2'	2.27	0.49
8:A:2291:U:OP1	8:A:2380:C:O2'	2.30	0.49
8:A:2452:C:O4'	57:y:101:FME:SD	2.70	0.49
8:A:2618:G:H21	11:D:155:VAL:HG21	1.76	0.49
22:O:53:THR:HB	22:O:65:THR:HB	1.95	0.49
34:a:130:A:N3	34:a:263:A:O2'	2.30	0.49
34:a:321:A:H2'	34:a:322:C:C6	2.48	0.49
34:a:990:C:H2'	34:a:991:U:C6	2.47	0.49
34:a:1326:U:H2'	34:a:1327:C:C6	2.47	0.49
4:3:63:TYR:OH	8:A:592:A:O2'	2.29	0.49
8:A:471:A:H2'	8:A:472:A:O4'	2.13	0.49
8:A:503:A:H4'	8:A:505:A:H5''	1.93	0.49
8:A:1176:U:H2'	8:A:1177:G:H8	1.78	0.49
8:A:2123:G:H2'	8:A:2124:G:C8	2.47	0.49
8:A:2310:C:H2'	13:F:76:PHE:HE2	1.77	0.49
8:A:2595:G:N2	8:A:2598:A:OP2	2.36	0.49
21:N:55:ALA:HA	21:N:80:PHE:CE1	2.48	0.49
34:a:142:G:O2'	34:a:196:A:N1	2.31	0.49
34:a:842:U:H2'	34:a:843:U:H5'	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:895:G:H2'	34:a:896:C:H6	1.77	0.49
34:a:1031:C:H3'	34:a:1032:G:C5'	2.42	0.49
34:a:1108:G:H2'	34:a:1109:C:H5'	1.94	0.49
34:a:1223:C:OP2	52:s:77:ARG:NH1	2.46	0.49
34:a:1310:G:OP2	46:m:86:ARG:NH2	2.40	0.49
34:a:1416:G:H2'	34:a:1417:G:O4'	2.12	0.49
34:a:1460:C:C2	34:a:1461:G:C8	3.01	0.49
37:d:3:TYR:CZ	37:d:10:LEU:HD21	2.47	0.49
48:o:24:THR:HG21	48:o:68:TYR:HD2	1.77	0.49
50:q:56:ASP:OD1	50:q:81:ALA:N	2.43	0.49
51:r:40:PRO:HB2	51:r:42:ARG:HG2	1.94	0.49
8:A:95:A:O2'	32:Y:41:HIS:ND1	2.39	0.49
8:A:670:A:OP1	19:L:43:GLY:HA3	2.12	0.49
8:A:1585:C:H3'	8:A:1586:A:H8	1.78	0.49
8:A:2105:U:H2'	8:A:2106:U:C6	2.48	0.49
8:A:2271:G:H5'	30:W:16:ARG:HD3	1.95	0.49
8:A:2313:C:H2'	8:A:2314:A:H8	1.78	0.49
8:A:2684:U:H4'	18:K:76:VAL:HG21	1.93	0.49
10:C:15:VAL:HG22	10:C:205:GLY:HA3	1.93	0.49
13:F:31:GLU:N	13:F:31:GLU:OE2	2.46	0.49
22:O:35:ILE:HG21	22:O:71:ALA:HA	1.95	0.49
34:a:12:U:H4'	34:a:526:C:H4'	1.94	0.49
34:a:162:A:N1	34:a:347:G:O2'	2.40	0.49
34:a:182:A:O2'	34:a:184:G:N7	2.38	0.49
34:a:1419:G:O6	34:a:1482:G:N2	2.45	0.49
36:c:152:VAL:HG22	36:c:197:VAL:HG22	1.94	0.49
7:6:59:ARG:HD3	7:6:62:LYS:HE2	1.92	0.49
8:A:394:C:H2'	8:A:395:U:O4'	2.12	0.49
8:A:460:A:H2'	8:A:461:C:O4'	2.13	0.49
8:A:513:A:H5''	8:A:1216:G:O2'	2.13	0.49
8:A:851:C:H2'	8:A:852:U:H6	1.77	0.49
8:A:1416:G:H2'	8:A:1417:C:H6	1.77	0.49
8:A:2110:G:C6	8:A:2120:G:C8	3.01	0.49
19:L:77:ILE:HD12	19:L:95:LEU:HD22	1.94	0.49
34:a:337:G:H2'	34:a:338:A:H8	1.73	0.49
34:a:695:A:OP1	44:k:53:GLY:HA3	2.12	0.49
38:e:83:PRO:HB3	38:e:96:GLN:HG3	1.93	0.49
43:j:80:THR:C	43:j:82:LYS:H	2.21	0.49
56:w:52:G:C6	56:w:53:G:C5	3.00	0.49
4:3:53:ASP:HB3	19:L:57:LEU:HD22	1.95	0.49
8:A:177:G:H3'	8:A:178:G:H8	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1501:G:H5''	10:C:94:LEU:HD21	1.95	0.49
8:A:2064:C:H2'	8:A:2065:C:C6	2.47	0.49
19:L:132:ARG:HG3	19:L:142:ILE:HD12	1.94	0.49
20:M:42:THR:HG22	20:M:93:VAL:HG12	1.94	0.49
28:U:53:GLN:N	28:U:54:PRO:HD3	2.28	0.49
34:a:977:A:O2'	34:a:979:C:OP2	2.24	0.49
34:a:1432:G:H2'	34:a:1433:A:OP2	2.12	0.49
40:g:75:LYS:HD2	40:g:76:SER:N	2.27	0.49
42:i:54:VAL:HG11	42:i:93:LEU:HD21	1.94	0.49
49:p:46:LYS:O	49:p:48:GLU:N	2.45	0.49
8:A:85:G:C6	8:A:98:G:C2	3.01	0.48
8:A:569:U:H2'	8:A:570:G:O4'	2.13	0.48
8:A:2185:U:H3'	8:A:2186:G:H5''	1.94	0.48
10:C:242:HIS:O	10:C:244:VAL:HG13	2.11	0.48
14:G:74:MET:O	14:G:78:VAL:HG22	2.12	0.48
16:I:78:LEU:O	16:I:82:ALA:CB	2.61	0.48
31:X:31:ASN:OD1	31:X:33:HIS:NE2	2.46	0.48
34:a:521:G:OP1	45:l:69:GLU:HA	2.13	0.48
34:a:765:G:N2	34:a:813:U:OP2	2.42	0.48
34:a:835:U:OP1	51:r:52:ARG:NH2	2.44	0.48
34:a:1060:U:C5	36:c:1:GLY:HA3	2.48	0.48
34:a:1158:C:C4	34:a:1160:G:C8	3.00	0.48
34:a:1208:C:H2'	34:a:1209:C:H6	1.78	0.48
39:f:2:ARG:HD3	39:f:91:ARG:NH1	2.28	0.48
41:h:95:MET:SD	41:h:129:ALA:HB1	2.53	0.48
54:u:28:LEU:HA	54:u:31:VAL:HG22	1.95	0.48
56:w:22:G:H2'	56:w:23:A:H8	1.78	0.48
7:6:8:LYS:HG3	7:6:10:GLU:OE1	2.13	0.48
7:6:36:VAL:HB	7:6:41:HIS:HD2	1.77	0.48
8:A:17:G:H4'	24:Q:24:TYR:CE2	2.49	0.48
8:A:340:A:H2'	8:A:341:C:O4'	2.13	0.48
8:A:2405:G:O2'	8:A:2411:A:N6	2.46	0.48
13:F:25:MET:O	13:F:29:ARG:NH1	2.46	0.48
14:G:15:ASP:HB2	14:G:26:LYS:HB3	1.95	0.48
23:P:64:SER:OG	23:P:65:ASN:N	2.46	0.48
26:S:20:VAL:HG11	26:S:44:ALA:HA	1.95	0.48
32:Y:39:GLN:HB3	32:Y:41:HIS:CE1	2.48	0.48
34:a:75:G:C5	34:a:76:G:C8	3.01	0.48
34:a:471:U:C4	34:a:472:U:C4	3.01	0.48
34:a:1167:A:H4'	34:a:1168:U:C5	2.47	0.48
34:a:1303:C:OP1	34:a:1304:G:OP2	2.31	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1305:G:O2'	34:a:1331:G:N2	2.44	0.48
43:j:45:ARG:HB3	43:j:69:THR:HB	1.94	0.48
56:w:8:4SU:O2'	56:w:21:A:N1	2.32	0.48
1:0:33:SER:OG	1:0:35:GLU:HG3	2.14	0.48
8:A:278:A:H8	8:A:361:G:C2	2.31	0.48
8:A:781:A:C8	10:C:217:PRO:HG2	2.49	0.48
8:A:1063:G:H2'	16:I:88:GLY:HA3	1.95	0.48
8:A:1920:C:C2'	8:A:1921:G:H5'	2.44	0.48
8:A:2250:G:O2'	8:A:2496:C:OP1	2.25	0.48
13:F:19:PHE:HZ	13:F:164:GLU:HA	1.78	0.48
14:G:55:ASP:OD1	14:G:56:GLY:N	2.47	0.48
15:H:75:LEU:HG	15:H:76:GLU:H	1.77	0.48
18:K:88:ASN:N	18:K:92:GLU:O	2.46	0.48
23:P:21:PRO:HD3	23:P:49:ILE:HD12	1.94	0.48
31:X:2:ARG:O	31:X:11:PRO:HD3	2.13	0.48
32:Y:10:SER:O	32:Y:14:LEU:HG	2.13	0.48
34:a:362:G:N1	34:a:365:U:OP2	2.44	0.48
34:a:436:C:H2'	34:a:437:U:H6	1.79	0.48
34:a:459:A:C6	34:a:474:G:C6	3.01	0.48
34:a:490:C:OP1	37:d:145:ARG:NH2	2.46	0.48
37:d:146:GLU:OE2	37:d:146:GLU:N	2.38	0.48
7:6:10:GLU:OE1	7:6:10:GLU:N	2.26	0.48
8:A:1048:A:H2'	8:A:1049:C:H6	1.78	0.48
8:A:1168:G:H2'	8:A:1169:A:C8	2.48	0.48
8:A:1735:A:H2'	8:A:1736:U:O4'	2.13	0.48
8:A:1932:A:H2'	8:A:1933:G:O4'	2.14	0.48
10:C:159:THR:O	10:C:194:VAL:HG23	2.14	0.48
34:a:62:U:H2'	34:a:63:C:C6	2.48	0.48
34:a:736:C:H2'	34:a:737:C:H6	1.78	0.48
38:e:40:ASP:N	38:e:40:ASP:OD1	2.46	0.48
45:l:109:ARG:HD2	45:l:111:GLN:O	2.13	0.48
46:m:54:THR:HA	46:m:57:ASP:OD2	2.13	0.48
48:o:17:ASP:HB2	48:o:19:ASN:H	1.77	0.48
51:r:10:CYS:SG	51:r:47:ARG:N	2.82	0.48
7:6:52:ALA:O	52:s:26:ASP:HA	2.13	0.48
7:6:55:GLY:O	52:s:20:LYS:HG2	2.13	0.48
8:A:5:A:H2'	8:A:6:A:C8	2.49	0.48
8:A:547:A:H4'	8:A:548:G:C5	2.48	0.48
8:A:684:G:C2	8:A:794:A:C2	3.01	0.48
8:A:1000:A:H2'	8:A:1001:A:C8	2.48	0.48
15:H:130:VAL:HG21	15:H:144:VAL:HB	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:Z:5:LYS:HB2	33:Z:57:GLU:CD	2.38	0.48
34:a:159:G:H21	34:a:163:C:H41	1.61	0.48
34:a:236:A:H2'	34:a:237:G:C8	2.48	0.48
34:a:389:A:H3'	34:a:390:U:H6	1.78	0.48
34:a:626:G:H2'	34:a:627:G:C8	2.48	0.48
34:a:911:U:OP1	45:l:91:GLY:HA2	2.13	0.48
34:a:1029:U:O3'	34:a:1031:C:H4'	2.12	0.48
34:a:1072:G:H2'	34:a:1073:U:C6	2.48	0.48
40:g:44:SER:O	40:g:47:GLU:HG3	2.12	0.48
45:l:84:GLY:O	45:l:95:HIS:ND1	2.45	0.48
8:A:1365:A:OP1	31:X:2:ARG:NH1	2.46	0.48
8:A:1709:U:H2'	8:A:1710:G:C8	2.48	0.48
8:A:1838:C:C2	8:A:1898:U:C4	3.02	0.48
9:B:30:C:H1'	9:B:57:A:H61	1.78	0.48
34:a:199:A:H2'	34:a:200:G:C8	2.48	0.48
34:a:676:A:H2'	34:a:677:U:H6	1.78	0.48
34:a:1118:U:H2'	34:a:1119:C:H6	1.79	0.48
36:c:87:ARG:HG3	36:c:100:ILE:HG12	1.95	0.48
7:6:1:MET:HE1	13:F:94:ARG:HH11	1.79	0.48
8:A:639:U:H2'	8:A:640:C:H6	1.76	0.48
8:A:1057:A:H2'	8:A:1060:U:N3	2.29	0.48
8:A:1219:U:H2'	8:A:1220:G:C8	2.49	0.48
8:A:1645:G:H5''	8:A:1646:C:H5'	1.95	0.48
8:A:2109:U:H2'	8:A:2110:G:C4	2.48	0.48
8:A:2714:G:C2'	8:A:2715:C:H5'	2.44	0.48
10:C:75:ALA:N	10:C:115:ILE:O	2.39	0.48
11:D:149:ASN:OD1	11:D:150:GLN:N	2.35	0.48
15:H:117:LEU:HD22	15:H:121:VAL:HA	1.95	0.48
30:W:47:VAL:HG22	30:W:78:ILE:HG12	1.95	0.48
34:a:91:U:H2'	34:a:92:U:C5	2.49	0.48
34:a:991:U:O2'	34:a:992:U:O5'	2.30	0.48
37:d:8:LEU:HA	37:d:11:SER:OG	2.14	0.48
39:f:38:ARG:HG3	39:f:97:THR:HA	1.96	0.48
8:A:151:C:H2'	8:A:152:A:C8	2.49	0.48
8:A:1361:G:H2'	8:A:1362:C:C6	2.48	0.48
8:A:1544:A:H2'	8:A:1545:A:C8	2.49	0.48
8:A:2627:G:O2'	8:A:2781:A:N1	2.31	0.48
8:A:2808:G:O2'	8:A:2809:A:H8	1.96	0.48
15:H:87:GLU:HB3	15:H:89:LYS:HE3	1.95	0.48
33:Z:11:SER:OG	33:Z:13:ILE:HG13	2.13	0.48
34:a:415:A:C4	34:a:416:G:C8	3.02	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:618:C:H5'	34:a:619:U:H5''	1.96	0.48
34:a:1300:G:H1'	34:a:1301:U:H5	1.79	0.48
34:a:1338:G:H2'	34:a:1339:A:C8	2.49	0.48
35:b:56:LEU:O	35:b:59:ILE:HG12	2.12	0.48
35:b:206:ILE:O	35:b:210:THR:HG23	2.13	0.48
36:c:65:VAL:HB	36:c:100:ILE:HD13	1.96	0.48
42:i:55:ASP:HB2	42:i:59:LYS:HG3	1.95	0.48
45:l:3:VAL:HG23	50:q:33:TYR:HB3	1.95	0.48
3:2:34:ARG:NE	3:2:42:LEU:O	2.46	0.48
4:3:31:ILE:O	4:3:34:LYS:HG2	2.14	0.48
8:A:1754:A:C8	23:P:93:LYS:HE2	2.49	0.48
8:A:2251:OMG:H1'	8:A:2251:OMG:HM23	1.53	0.48
8:A:2602:A:H2'	56:w:74:C:C5'	2.35	0.48
9:B:30:C:H2'	9:B:31:C:H5'	1.96	0.48
29:V:35:GLU:OE1	29:V:35:GLU:N	2.32	0.48
34:a:35:G:C6	34:a:550:G:N1	2.81	0.48
34:a:429:U:OP1	37:d:12:ARG:NH2	2.47	0.48
34:a:515:G:C4	34:a:516:PSU:C6	3.02	0.48
34:a:790:A:OP1	55:v:38:A:O2'	2.25	0.48
34:a:978:A:C4	34:a:1319:A:C2	3.02	0.48
34:a:1314:C:OP2	52:s:3:SER:OG	2.19	0.48
34:a:1319:A:O2'	34:a:1323:G:N7	2.31	0.48
34:a:1330:U:H5	34:a:1331:G:C5	2.32	0.48
34:a:1391:U:H2'	34:a:1392:G:H8	1.76	0.48
39:f:12:PRO:HB3	39:f:56:LYS:O	2.14	0.48
8:A:581:C:OP1	24:Q:32:ARG:HG3	2.14	0.48
8:A:776:G:C6	8:A:2072:C:OP1	2.66	0.48
8:A:1053:C:C2	8:A:1106:G:N2	2.71	0.48
8:A:1614:A:C6	26:S:87:PRO:HB3	2.49	0.48
8:A:2006:C:O2'	8:A:2823:A:N3	2.43	0.48
14:G:23:ILE:HG21	14:G:71:LEU:HD11	1.95	0.48
14:G:93:TYR:HA	14:G:105:SER:O	2.13	0.48
18:K:30:ARG:HH22	18:K:37:ASP:CG	2.22	0.48
29:V:21:ARG:HD2	29:V:27:PRO:HD2	1.94	0.48
34:a:235:C:H2'	34:a:236:A:C8	2.49	0.48
34:a:636:U:H2'	34:a:637:C:C6	2.48	0.48
34:a:838:G:C4	34:a:849:G:C2	3.02	0.48
34:a:999:C:N3	34:a:1042:A:N6	2.61	0.48
34:a:1175:G:H2'	34:a:1176:A:C8	2.37	0.48
34:a:1519:MA6:H5''	34:a:1519:MA6:H8	1.95	0.48
35:b:8:MET:C	35:b:10:LYS:H	2.21	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:d:106:PHE:CE2	37:d:144:ILE:HD11	2.49	0.48
39:f:10:VAL:HG21	39:f:18:VAL:CG2	2.44	0.48
41:h:10:LEU:HD12	41:h:76:ARG:HB2	1.96	0.48
43:j:17:LEU:HG	43:j:96:VAL:HG23	1.96	0.48
8:A:246:C:O2'	8:A:385:C:H4'	2.14	0.47
8:A:1092:C:N4	8:A:1093:G:O6	2.47	0.47
8:A:1266:G:O2'	8:A:2012:G:O6	2.19	0.47
8:A:1658:C:OP1	11:D:140:HIS:NE2	2.47	0.47
8:A:1667:G:O2'	8:A:1991:U:O4	2.25	0.47
8:A:2900:A:H2'	8:A:2901:C:C6	2.49	0.47
10:C:23:LEU:HD13	10:C:82:TYR:HB2	1.95	0.47
11:D:116:LYS:HG3	21:N:1:MET:SD	2.54	0.47
11:D:156:PHE:CE1	17:J:81:ILE:HD13	2.48	0.47
12:E:80:SER:O	12:E:80:SER:OG	2.28	0.47
20:M:47:GLU:OE2	20:M:50:ARG:NH1	2.45	0.47
34:a:492:C:H2'	34:a:493:A:C8	2.49	0.47
34:a:555:U:H2'	34:a:556:C:H6	1.79	0.47
34:a:1043:G:O2'	34:a:1044:A:O5'	2.32	0.47
34:a:1417:G:O2'	34:a:1418:A:H8	1.97	0.47
35:b:110:ILE:HG12	35:b:147:LEU:HD23	1.95	0.47
53:t:35:TYR:CE1	53:t:78:LEU:HD21	2.49	0.47
6:5:16:SER:HA	6:5:19:ALA:HB3	1.96	0.47
8:A:290:U:H2'	8:A:291:G:O4'	2.14	0.47
8:A:782:A:N7	10:C:219:VAL:HG21	2.29	0.47
8:A:885:C:O2'	8:A:886:A:H8	1.97	0.47
8:A:936:A:H2'	8:A:937:C:C6	2.49	0.47
8:A:1057:A:H2'	8:A:1060:U:H3	1.79	0.47
8:A:1275:A:OP2	8:A:1646:C:N4	2.43	0.47
8:A:1395:A:OP1	8:A:1604:C:OP2	2.32	0.47
8:A:1594:U:H2'	8:A:1595:C:C6	2.48	0.47
8:A:2101:A:H5'	8:A:2102:G:OP2	2.13	0.47
8:A:2241:A:H2'	8:A:2242:G:C8	2.49	0.47
10:C:131:MET:HG2	10:C:163:ILE:HD11	1.96	0.47
13:F:10:GLU:OE1	13:F:10:GLU:N	2.47	0.47
15:H:41:LYS:HA	15:H:41:LYS:HE2	1.97	0.47
19:L:96:LYS:NZ	19:L:103:ILE:O	2.35	0.47
20:M:2:LEU:HD12	20:M:2:LEU:H	1.79	0.47
20:M:58:LYS:C	20:M:60:GLN:N	2.72	0.47
23:P:5:LYS:HA	23:P:5:LYS:HD3	1.74	0.47
34:a:778:G:O2'	44:k:121:ARG:O	2.32	0.47
34:a:810:C:C4	34:a:811:C:C5	3.02	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1454:G:H8	34:a:1454:G:OP2	1.97	0.47
46:m:95:PRO:HB3	46:m:99:GLN:HB2	1.95	0.47
48:o:79:GLN:O	48:o:82:GLU:HG3	2.14	0.47
4:3:7:ARG:NH2	8:A:244:A:OP2	2.48	0.47
8:A:458:G:H1'	8:A:459:U:H5	1.78	0.47
8:A:1930:G:O2'	8:A:1968:G:N1	2.40	0.47
9:B:28:C:H2'	9:B:29:A:H8	1.78	0.47
10:C:146:LYS:HB2	10:C:149:LYS:HB2	1.96	0.47
34:a:79:G:C2	34:a:90:C:N3	2.82	0.47
34:a:130:A:N6	34:a:233:C:O2	2.47	0.47
34:a:1126:U:O2	34:a:1280:A:H2'	2.14	0.47
34:a:1342:C:H4'	42:i:126:PHE:O	2.14	0.47
35:b:19:THR:C	35:b:21:TYR:H	2.22	0.47
47:n:32:ASP:OD1	47:n:33:VAL:N	2.46	0.47
51:r:10:CYS:C	51:r:12:PHE:H	2.21	0.47
56:w:18:G:H22	56:w:55:PSU:HN3	1.62	0.47
56:w:42:C:H2'	56:w:43:C:O4'	2.14	0.47
7:6:25:ARG:HD2	13:F:97:GLU:OE2	2.15	0.47
8:A:545:U:H3'	8:A:546:U:H6	1.76	0.47
8:A:608:A:H2'	8:A:609:A:C8	2.49	0.47
8:A:1090:A:O2'	8:A:1091:G:OP1	2.27	0.47
8:A:1262:A:P	26:S:99:ARG:HH12	2.37	0.47
8:A:1306:C:N4	8:A:1606:C:H2'	2.29	0.47
8:A:1433:A:H2'	8:A:1434:A:O4'	2.15	0.47
8:A:1672:A:H5''	8:A:2554:U:OP1	2.15	0.47
8:A:1730:C:H1'	8:A:1731:G:C5	2.49	0.47
8:A:2131:U:H1'	8:A:2158:A:N6	2.28	0.47
8:A:2333:A:H5'	8:A:2335:A:H1'	1.96	0.47
9:B:31:C:O2'	9:B:32:U:H5'	2.14	0.47
11:D:5:VAL:HB	11:D:32:ASN:HD21	1.79	0.47
22:O:12:THR:O	22:O:16:ARG:HG2	2.13	0.47
34:a:199:A:H2'	34:a:200:G:H8	1.80	0.47
34:a:390:U:H2'	34:a:391:G:H8	1.79	0.47
34:a:402:G:OP1	37:d:70:GLN:NE2	2.47	0.47
34:a:515:G:O2'	34:a:516:PSU:H6	1.97	0.47
34:a:1338:G:H1'	55:v:42:G:C5'	2.39	0.47
40:g:71:THR:HG22	40:g:95:ARG:HH22	1.79	0.47
42:i:53:LEU:HD21	42:i:96:GLU:HG2	1.96	0.47
56:w:15:G:H2'	56:w:16:U:O4'	2.14	0.47
4:3:25:HIS:NE2	4:3:47:ALA:HB2	2.28	0.47
8:A:172:A:H2'	8:A:173:A:C8	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:481:G:H1'	8:A:506:G:N2	2.28	0.47
8:A:545:U:H5''	8:A:546:U:C5	2.49	0.47
8:A:609:A:H2'	8:A:610:C:O4'	2.15	0.47
8:A:2340:A:H2'	8:A:2341:G:H8	1.78	0.47
20:M:47:GLU:O	20:M:51:ARG:HG3	2.14	0.47
34:a:284:C:H2'	34:a:285:C:C6	2.49	0.47
34:a:341:C:H2'	34:a:342:C:H6	1.79	0.47
34:a:407:U:H2'	34:a:408:A:C8	2.50	0.47
34:a:958:A:H1'	34:a:985:C:O2'	2.14	0.47
34:a:1263:C:H2'	34:a:1264:U:C6	2.48	0.47
34:a:1417:G:C2	34:a:1483:A:C6	3.01	0.47
34:a:1513:A:H2'	34:a:1514:G:C8	2.49	0.47
35:b:73:ARG:NH1	35:b:74:ALA:HB2	2.29	0.47
39:f:19:PRO:HA	39:f:22:ILE:HG22	1.96	0.47
40:g:143:MET:HE2	40:g:143:MET:HB3	1.77	0.47
41:h:21:LYS:N	41:h:64:TYR:OH	2.47	0.47
8:A:64:A:H2'	8:A:65:U:C6	2.50	0.47
8:A:75:G:H22	8:A:111:A:H2	1.62	0.47
8:A:527:C:C2	8:A:2779:U:H2'	2.49	0.47
8:A:877:A:N6	8:A:899:A:N7	2.63	0.47
10:C:4:LYS:HD2	10:C:16:VAL:HG22	1.95	0.47
10:C:30:ALA:HB3	10:C:31:PRO:HD3	1.97	0.47
10:C:259:ASN:C	10:C:261:ARG:H	2.22	0.47
13:F:42:ALA:HB2	13:F:49:LEU:HB2	1.96	0.47
18:K:13:ASN:HB3	18:K:100:PHE:HE1	1.79	0.47
34:a:392:C:H4'	49:p:13:LYS:HE3	1.96	0.47
34:a:747:A:H2'	34:a:748:G:O4'	2.14	0.47
34:a:881:G:H2'	34:a:882:C:O4'	2.15	0.47
34:a:997:U:H2'	34:a:998:C:C6	2.49	0.47
36:c:56:ILE:HD12	36:c:63:ILE:HD11	1.97	0.47
39:f:42:TRP:HB2	39:f:59:TYR:HB2	1.96	0.47
40:g:99:ALA:O	40:g:103:ILE:HG13	2.15	0.47
42:i:24:ASN:N	42:i:61:ASP:OD1	2.48	0.47
52:s:39:ILE:HG23	52:s:43:MET:HG3	1.96	0.47
1:O:5:ASN:ND2	8:A:2020:A:H62	2.11	0.47
7:6:13:THR:OG1	7:6:31:ASP:OD2	2.31	0.47
8:A:2:G:H2'	8:A:3:U:C6	2.49	0.47
8:A:365:U:H2'	8:A:366:C:C6	2.50	0.47
8:A:380:G:H5'	31:X:17:ARG:HG2	1.97	0.47
8:A:846:U:H4'	8:A:847:U:H5	1.80	0.47
8:A:891:G:H1	8:A:892:A:N6	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1047:G:N2	8:A:1110:G:O2'	2.47	0.47
8:A:1062:G:H4'	8:A:1063:G:OP1	2.14	0.47
8:A:1099:G:O5'	8:A:1099:G:H8	1.97	0.47
8:A:1670:C:H2'	8:A:1671:U:O4'	2.14	0.47
8:A:1813:G:O2'	10:C:41:GLY:O	2.32	0.47
8:A:1926:U:C4	8:A:1929:G:N1	2.77	0.47
8:A:2079:U:O2'	31:X:22:ASN:OD1	2.32	0.47
8:A:2139:U:C5	8:A:2140:G:C5	3.03	0.47
8:A:2178:C:H2'	8:A:2178:C:O2	2.14	0.47
8:A:2445:2MG:P	12:E:69:ARG:HH12	2.37	0.47
8:A:2561:U:O3'	18:K:40:LYS:NZ	2.38	0.47
8:A:2848:G:C8	23:P:94:ALA:HB2	2.50	0.47
9:B:104:A:H2'	9:B:105:G:O4'	2.14	0.47
11:D:151:THR:HB	11:D:152:PRO:HD3	1.96	0.47
13:F:29:ARG:H	13:F:158:THR:HG1	1.63	0.47
13:F:161:SER:OG	13:F:162:ASP:N	2.48	0.47
15:H:75:LEU:H	15:H:75:LEU:HD23	1.79	0.47
34:a:33:A:H2'	34:a:34:C:C6	2.49	0.47
34:a:351:G:OP2	34:a:351:G:H8	1.98	0.47
34:a:440:C:C2	34:a:441:A:C8	3.02	0.47
34:a:736:C:H2'	34:a:737:C:C6	2.50	0.47
34:a:1004:A:N1	34:a:1025:U:O2'	2.48	0.47
34:a:1164:G:H2'	34:a:1165:U:C6	2.50	0.47
34:a:1507:A:H2'	34:a:1508:A:C8	2.50	0.47
37:d:180:THR:HG22	37:d:181:PHE:N	2.30	0.47
40:g:74:VAL:HA	40:g:87:PRO:HA	1.96	0.47
43:j:90:LEU:HD22	43:j:92:LEU:HD23	1.95	0.47
53:t:34:VAL:O	53:t:38:ILE:HG13	2.14	0.47
3:2:4:THR:O	8:A:686:U:O2'	2.26	0.47
8:A:284:U:C2	8:A:285:G:C8	3.03	0.47
8:A:1056:G:N2	8:A:1103:A:C6	2.71	0.47
8:A:1539:U:N3	8:A:1540:G:N7	2.62	0.47
8:A:2098:U:H2'	8:A:2099:U:O4'	2.15	0.47
8:A:2118:U:H5	8:A:2148:G:H1'	1.80	0.47
8:A:2134:A:C8	8:A:2158:A:N3	2.83	0.47
9:B:39:A:H2'	9:B:40:U:C6	2.49	0.47
15:H:95:GLY:O	15:H:99:ILE:HG22	2.14	0.47
17:J:7:LYS:O	17:J:11:VAL:HG23	2.13	0.47
18:K:73:ASP:O	23:P:74:GLN:HG3	2.15	0.47
34:a:185:U:H2'	34:a:186:C:C6	2.50	0.47
34:a:972:C:OP2	43:j:59:LYS:NZ	2.43	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1225:A:H2'	34:a:1225:A:N3	2.29	0.47
34:a:1526:G:OP1	54:u:44:ARG:NH2	2.48	0.47
36:c:9:ILE:HD13	47:n:98:LYS:HD3	1.96	0.47
46:m:46:GLU:OE1	46:m:46:GLU:N	2.48	0.47
47:n:30:ILE:HA	47:n:41:ARG:HG2	1.97	0.47
56:w:10:G:H2'	56:w:11:C:C6	2.49	0.47
1:O:53:VAL:O	21:N:118:ARG:NH1	2.48	0.47
8:A:621:A:C5	8:A:622:G:H1'	2.50	0.47
8:A:1287:A:O2'	8:A:1288:G:H5'	2.14	0.47
8:A:1441:G:H2'	8:A:1442:U:C6	2.50	0.47
8:A:2655:G:H1'	8:A:2656:U:OP2	2.14	0.47
8:A:2726:A:O2'	8:A:2727:A:O5'	2.25	0.47
8:A:2895:G:H2'	8:A:2896:C:H6	1.80	0.47
11:D:35:THR:N	11:D:49:GLN:O	2.44	0.47
13:F:7:TYR:HB2	13:F:172:PHE:HZ	1.80	0.47
24:Q:46:TYR:CD2	25:R:74:ILE:HG23	2.50	0.47
27:T:24:MET:HE3	27:T:92:ASN:HD22	1.80	0.47
34:a:6:G:O6	38:e:99:SER:N	2.37	0.47
34:a:34:C:H2'	34:a:35:G:C8	2.50	0.47
34:a:333:U:P	53:t:2:ASN:HD21	2.36	0.47
34:a:981:U:H2'	34:a:982:U:C5	2.50	0.47
38:e:133:ILE:O	38:e:137:ARG:HG3	2.14	0.47
39:f:38:ARG:HD2	39:f:97:THR:HA	1.95	0.47
8:A:414:C:H2'	8:A:415:A:C8	2.50	0.47
8:A:1883:U:H2'	8:A:1884:G:O4'	2.15	0.47
8:A:2454:G:C6	8:A:2499:C:N4	2.83	0.47
10:C:52:HIS:CE1	10:C:218:THR:HG23	2.50	0.47
27:T:9:LYS:O	27:T:12:ARG:NH1	2.48	0.47
34:a:158:G:H1'	34:a:164:G:N2	2.29	0.47
34:a:1425:U:H3	34:a:1475:G:H1	1.63	0.47
35:b:165:ALA:HB3	35:b:190:SER:HB3	1.96	0.47
36:c:80:GLY:HA2	36:c:83:VAL:HG12	1.95	0.47
39:f:92:THR:O	39:f:93:LYS:HG2	2.15	0.47
55:v:44:A:OP1	55:v:44:A:C8	2.67	0.47
56:w:59:U:O2'	56:w:60:U:P	2.73	0.47
8:A:207:A:H2'	8:A:208:C:O4'	2.15	0.46
8:A:356:G:H2'	8:A:357:C:C6	2.49	0.46
8:A:1429:G:H2'	8:A:1430:G:H8	1.80	0.46
8:A:2172:U:H4'	8:A:2174:C:H5	1.80	0.46
8:A:2515:C:H2'	8:A:2516:A:H8	1.79	0.46
11:D:39:ASP:N	11:D:39:ASP:OD1	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:D:181:ASP:HB3	11:D:186:LEU:HB2	1.97	0.46
31:X:64:ASP:N	31:X:64:ASP:OD1	2.46	0.46
34:a:1354:U:H2'	34:a:1355:G:H8	1.80	0.46
34:a:1485:U:N3	34:a:1486:G:N7	2.64	0.46
36:c:127:VAL:HG21	36:c:135:ARG:HH21	1.79	0.46
8:A:2:G:H2'	8:A:3:U:H6	1.80	0.46
8:A:8:C:H2'	8:A:9:G:O4'	2.15	0.46
8:A:878:A:N7	8:A:899:A:O2'	2.41	0.46
8:A:894:U:O2'	8:A:895:U:H6	1.97	0.46
8:A:1366:A:H2'	8:A:1367:A:O4'	2.15	0.46
8:A:1902:C:H4'	10:C:241:LYS:O	2.14	0.46
8:A:2127:G:C6	8:A:2161:C:H1'	2.50	0.46
8:A:2682:A:C2	11:D:23:PRO:HB3	2.50	0.46
8:A:2723:C:H2'	8:A:2724:U:O4'	2.16	0.46
10:C:110:LYS:NZ	10:C:113:ASP:OD1	2.48	0.46
13:F:125:GLY:HA2	13:F:162:ASP:HA	1.98	0.46
20:M:33:LEU:HD13	20:M:117:PHE:HB3	1.97	0.46
34:a:103:U:O2'	34:a:172:A:N1	2.45	0.46
34:a:947:G:H2'	34:a:948:C:C6	2.50	0.46
34:a:951:G:C6	34:a:1231:G:C6	3.03	0.46
34:a:1350:A:OP2	42:i:119:LYS:HE3	2.16	0.46
34:a:1502:A:H5'	34:a:1504:G:N7	2.29	0.46
35:b:165:ALA:HB2	35:b:186:VAL:HG22	1.96	0.46
38:e:156:ARG:NH1	41:h:42:GLU:OE1	2.48	0.46
45:l:89:LEU:HD22	45:l:92:VAL:HG23	1.97	0.46
53:t:31:ILE:HG23	53:t:78:LEU:HD11	1.97	0.46
8:A:576:U:H2'	8:A:577:G:C8	2.49	0.46
8:A:843:G:H2'	8:A:844:A:C8	2.49	0.46
8:A:1827:U:H2'	8:A:1828:G:O4'	2.14	0.46
8:A:2679:A:H2'	8:A:2680:U:O4'	2.16	0.46
10:C:244:VAL:HG12	10:C:250:GLN:HA	1.96	0.46
34:a:176:C:H2'	34:a:177:G:N3	2.31	0.46
34:a:436:C:H2'	34:a:437:U:C6	2.50	0.46
34:a:1064:G:H1'	34:a:1190:G:N2	2.31	0.46
34:a:1121:U:H2'	34:a:1122:U:H6	1.81	0.46
39:f:4:TYR:CE1	39:f:71:ILE:HG13	2.50	0.46
39:f:18:VAL:HG21	39:f:58:HIS:CD2	2.50	0.46
41:h:28:SER:OG	41:h:56:PRO:HB2	2.16	0.46
46:m:74:MET:HE1	46:m:77:LYS:HD3	1.96	0.46
47:n:73:PHE:CZ	47:n:78:GLY:HA2	2.50	0.46
49:p:58:ALA:HA	49:p:61:VAL:HG22	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:q:19:SER:HG	50:q:70:LYS:HZ3	1.59	0.46
52:s:63:ASP:OD1	52:s:63:ASP:N	2.43	0.46
4:3:27:ASN:ND2	8:A:2361:G:O3'	2.46	0.46
8:A:1141:U:H4'	8:A:1142:A:O4'	2.16	0.46
8:A:1354:A:OP1	10:C:35:LYS:NZ	2.36	0.46
8:A:1587:G:H2'	8:A:1588:G:C8	2.49	0.46
8:A:1812:U:H1'	10:C:44:ASN:HB2	1.96	0.46
8:A:2666:C:H2'	8:A:2667:C:O4'	2.15	0.46
8:A:2843:G:H2'	8:A:2844:G:O4'	2.15	0.46
18:K:71:ARG:HD3	18:K:71:ARG:HA	1.70	0.46
28:U:39:ASN:O	28:U:61:GLU:HA	2.16	0.46
28:U:52:ASN:C	28:U:54:PRO:HD3	2.41	0.46
34:a:135:C:N3	49:p:1:MET:N	2.62	0.46
34:a:256:U:H2'	34:a:257:G:C8	2.51	0.46
34:a:283:U:H2'	34:a:284:C:H6	1.80	0.46
34:a:1412:C:H2'	34:a:1413:A:C8	2.49	0.46
38:e:61:LYS:HA	38:e:64:GLU:HG2	1.97	0.46
40:g:134:VAL:HG23	40:g:137:ARG:HE	1.81	0.46
43:j:28:THR:HA	43:j:31:ARG:NH2	2.31	0.46
49:p:5:ARG:NH2	49:p:23:ASP:O	2.49	0.46
8:A:57:C:H2'	8:A:58:G:O4'	2.16	0.46
8:A:85:G:C5	8:A:98:G:N2	2.84	0.46
8:A:1359:A:OP1	8:A:1360:G:OP2	2.34	0.46
8:A:1715:G:O2'	8:A:1716:U:P	2.74	0.46
8:A:1751:U:H2'	8:A:1752:C:C6	2.51	0.46
8:A:1779:U:C5	8:A:1784:A:N7	2.84	0.46
8:A:1879:C:H2'	8:A:1880:U:O4'	2.16	0.46
8:A:2648:G:H2'	8:A:2649:C:C6	2.50	0.46
34:a:285:C:H2'	34:a:286:C:H6	1.80	0.46
34:a:393:A:OP2	49:p:12:LYS:HD2	2.15	0.46
34:a:461:A:H2'	34:a:462:G:H8	1.79	0.46
34:a:766:A:H61	34:a:1511:G:H1'	1.80	0.46
34:a:1014:A:H4'	52:s:13:HIS:CE1	2.51	0.46
34:a:1350:A:HO2'	40:g:32:ASP:CG	2.22	0.46
34:a:1494:G:N7	60:a:2001:AM2:NC6	2.64	0.46
36:c:138:GLN:O	36:c:142:ARG:HG2	2.15	0.46
48:o:73:ASP:OD1	48:o:76:ARG:N	2.26	0.46
8:A:671:C:H2'	8:A:672:C:C6	2.50	0.46
8:A:1102:C:H3'	8:A:1103:A:C8	2.45	0.46
8:A:1197:G:H2'	8:A:1198:U:C6	2.51	0.46
8:A:1496:A:H2'	8:A:1498:C:C5	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2106:U:H2'	8:A:2107:G:C8	2.43	0.46
8:A:2512:C:O2'	11:D:159:LYS:NZ	2.34	0.46
8:A:2758:A:C2	14:G:70:LEU:HD11	2.51	0.46
34:a:1272:G:H2'	34:a:1273:C:C6	2.51	0.46
34:a:1316:G:N1	34:a:1319:A:OP2	2.49	0.46
36:c:27:GLU:N	36:c:27:GLU:OE1	2.49	0.46
37:d:112:GLU:O	37:d:116:LEU:HD23	2.16	0.46
38:e:76:ASN:HB2	38:e:81:GLN:NE2	2.30	0.46
42:i:71:ILE:HG13	42:i:72:SER:H	1.81	0.46
45:l:66:ILE:HD11	45:l:73:LEU:HD22	1.98	0.46
53:t:27:MET:O	53:t:31:ILE:HG13	2.15	0.46
8:A:143:C:H2'	8:A:144:A:C8	2.51	0.46
8:A:156:A:H2'	8:A:157:C:C6	2.51	0.46
8:A:718:A:H2'	8:A:719:C:O4'	2.15	0.46
8:A:2014:A:H2'	8:A:2015:A:C8	2.51	0.46
8:A:2061:G:OP2	12:E:63:LYS:NZ	2.42	0.46
8:A:2093:G:N7	8:A:2225:A:H2'	2.31	0.46
8:A:2341:G:H2'	8:A:2342:C:C6	2.51	0.46
10:C:132:ARG:NH2	10:C:166:ARG:HH22	2.13	0.46
13:F:4:HIS:HB2	13:F:96:TRP:CG	2.51	0.46
13:F:23:SER:OG	13:F:26:GLN:HB2	2.16	0.46
23:P:28:LYS:HD3	23:P:39:LEU:HD21	1.97	0.46
27:T:18:GLU:CD	27:T:18:GLU:H	2.24	0.46
34:a:45:G:H2'	34:a:46:G:C8	2.51	0.46
34:a:146:G:N2	34:a:177:G:N7	2.63	0.46
34:a:509:A:N3	34:a:543:U:O2'	2.38	0.46
34:a:545:C:H5''	37:d:68:GLU:HG2	1.97	0.46
34:a:600:A:H2'	34:a:601:G:H8	1.81	0.46
34:a:1014:A:C2	34:a:1219:A:H1'	2.50	0.46
34:a:1131:G:H2'	34:a:1132:C:C6	2.50	0.46
34:a:1347:G:HO2'	34:a:1373:G:H1	1.55	0.46
35:b:103:TRP:CD1	35:b:107:ARG:HH21	2.34	0.46
38:e:67:ARG:O	38:e:70:MET:HE2	2.15	0.46
39:f:16:GLU:O	39:f:19:PRO:HD2	2.16	0.46
55:v:52:G:C2	55:v:63:G:C2	3.03	0.46
4:3:26:ALA:HB2	19:L:61:LEU:HD23	1.96	0.46
5:4:8:LYS:HE3	8:A:1031:G:H5''	1.98	0.46
7:6:15:SER:HA	7:6:20:ASN:O	2.16	0.46
8:A:188:G:O2'	8:A:1365:A:N6	2.49	0.46
8:A:357:C:H2'	8:A:358:U:H6	1.81	0.46
8:A:1490:A:H8	10:C:97:ASP:HB3	1.79	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1490:A:O2'	8:A:1491:G:OP1	2.26	0.46
8:A:1684:G:H2'	8:A:1685:C:C6	2.51	0.46
8:A:1841:U:C2	8:A:1842:G:C8	3.04	0.46
8:A:2047:C:O2'	8:A:2823:A:N1	2.43	0.46
18:K:105:ARG:NH2	23:P:31:VAL:HG11	2.31	0.46
23:P:88:ARG:H	23:P:88:ARG:HD3	1.80	0.46
34:a:113:G:C1'	34:a:354:G:H5'	2.46	0.46
34:a:1303:C:C4	34:a:1304:G:C5	3.04	0.46
46:m:12:LYS:HB2	46:m:17:ALA:HB2	1.98	0.46
54:u:10:PRO:HB2	54:u:13:VAL:HG22	1.98	0.46
2:1:7:LYS:HD2	8:A:2420:C:H5''	1.98	0.46
8:A:128:C:H2'	8:A:129:C:H6	1.81	0.46
8:A:376:G:H2'	8:A:377:G:C8	2.49	0.46
8:A:1073:A:H4'	8:A:1094:U:N3	2.31	0.46
8:A:1105:U:H2'	8:A:1106:G:C8	2.51	0.46
8:A:1451:C:H1'	8:A:1452:G:C2	2.51	0.46
8:A:1538:G:H2'	8:A:1539:U:H6	1.79	0.46
8:A:1909:C:H42	8:A:1922:G:H1	1.64	0.46
8:A:2037:A:H2'	8:A:2038:G:C8	2.51	0.46
8:A:2097:A:H2'	8:A:2098:U:C6	2.50	0.46
8:A:2345:G:N3	8:A:2381:A:H2'	2.30	0.46
8:A:2498:OMC:HM22	8:A:2499:C:H5'	1.98	0.46
8:A:2577:A:H2'	8:A:2614:A:N6	2.31	0.46
18:K:73:ASP:OD1	18:K:75:SER:OG	2.31	0.46
23:P:88:ARG:HH11	23:P:113:LEU:HA	1.81	0.46
34:a:79:G:N1	34:a:90:C:C2	2.84	0.46
34:a:174:A:OP1	34:a:175:C:OP2	2.34	0.46
34:a:651:C:H2'	34:a:652:U:C6	2.51	0.46
34:a:867:G:H2'	34:a:868:C:C6	2.51	0.46
34:a:922:G:H2'	34:a:923:A:C8	2.50	0.46
34:a:1413:A:H2	34:a:1487:G:H22	1.63	0.46
34:a:1521:C:H2'	34:a:1522:U:C6	2.51	0.46
47:n:20:PHE:C	47:n:22:LYS:H	2.24	0.46
47:n:57:PRO:HA	47:n:60:GLN:HE22	1.81	0.46
52:s:21:ALA:HB1	52:s:46:LEU:HD11	1.97	0.46
8:A:443:A:N7	12:E:40:ARG:HG2	2.30	0.46
8:A:501:A:H8	8:A:501:A:O5'	1.98	0.46
8:A:560:C:C1'	24:Q:51:GLN:HE22	2.29	0.46
8:A:1539:U:C4	8:A:1540:G:N7	2.84	0.46
8:A:2743:U:H2'	8:A:2744:G:O4'	2.14	0.46
8:A:2772:C:H5'	11:D:173:GLN:HE21	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:27:C:H5''	22:O:34:HIS:CD2	2.51	0.46
17:J:78:THR:HG23	17:J:83:GLY:O	2.16	0.46
21:N:96:ARG:CZ	21:N:116:VAL:HG12	2.45	0.46
27:T:22:THR:O	27:T:26:LYS:HG2	2.16	0.46
34:a:134:G:H1'	34:a:325:A:C5	2.51	0.46
34:a:838:G:C6	34:a:849:G:C6	3.03	0.46
34:a:1239:A:O2'	40:g:118:ARG:NH2	2.49	0.46
34:a:1250:A:H4'	42:i:68:GLY:HA2	1.98	0.46
35:b:119:GLN:OE1	35:b:136:ARG:NH2	2.49	0.46
36:c:134:LYS:O	36:c:138:GLN:HG2	2.16	0.46
37:d:94:GLU:HA	37:d:99:ASN:ND2	2.31	0.46
39:f:49:TYR:CE2	51:r:65:SER:HA	2.51	0.46
3:2:37:LYS:HG2	8:A:458:G:C8	2.51	0.45
8:A:196:A:C2	19:L:50:PHE:HZ	2.34	0.45
8:A:2110:G:OP1	8:A:2145:C:N4	2.49	0.45
8:A:2378:A:C5	8:A:2379:G:H1'	2.51	0.45
10:C:78:GLU:OE2	10:C:94:LEU:HB2	2.16	0.45
20:M:12:MET:SD	20:M:72:PRO:HD2	2.57	0.45
24:Q:88:GLU:O	25:R:11:GLN:NE2	2.33	0.45
28:U:95:PHE:CZ	28:U:102:ILE:HG13	2.51	0.45
34:a:384:G:H2'	34:a:385:C:C6	2.51	0.45
34:a:419:C:OP1	34:a:513:C:O2'	2.34	0.45
34:a:667:G:N2	48:o:48:ASP:OD2	2.36	0.45
34:a:1157:A:N7	34:a:1180:A:N6	2.65	0.45
34:a:1244:G:H2'	34:a:1245:C:C6	2.51	0.45
35:b:169:HIS:O	35:b:173:LYS:HG2	2.16	0.45
35:b:213:LEU:HA	35:b:216:VAL:HG22	1.98	0.45
38:e:156:ARG:HD2	41:h:44:PHE:CZ	2.51	0.45
40:g:78:ARG:HB3	40:g:83:THR:HA	1.98	0.45
42:i:67:LYS:HB3	42:i:67:LYS:HE2	1.77	0.45
47:n:46:LEU:HD22	52:s:12:LEU:HD12	1.98	0.45
48:o:2:LEU:HD12	48:o:2:LEU:HA	1.76	0.45
8:A:481:G:O2'	8:A:482:A:OP2	2.34	0.45
8:A:586:A:N1	8:A:809:G:O2'	2.36	0.45
8:A:1443:U:H2'	8:A:1444:G:H8	1.80	0.45
8:A:2680:U:O2'	8:A:2681:C:H5'	2.17	0.45
8:A:2850:A:N7	8:A:2868:A:O2'	2.33	0.45
15:H:127:GLU:HG3	15:H:145:ASN:HB3	1.99	0.45
34:a:608:A:H2'	34:a:609:A:O4'	2.16	0.45
34:a:676:A:H2'	34:a:677:U:C6	2.51	0.45
34:a:689:C:OP1	44:k:28:ASN:ND2	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1099:G:H2'	34:a:1100:C:O4'	2.17	0.45
34:a:1120:C:C2	34:a:1121:U:C5	3.04	0.45
34:a:1484:C:C3'	34:a:1485:U:H4'	2.46	0.45
40:g:91:ARG:HB2	40:g:92:PRO:HD2	1.96	0.45
42:i:54:VAL:HG21	42:i:93:LEU:HD21	1.98	0.45
56:w:56:C:H2'	56:w:57:G:C8	2.52	0.45
8:A:303:G:H2'	8:A:304:U:C6	2.51	0.45
8:A:491:G:N7	26:S:49:LYS:NZ	2.65	0.45
8:A:699:A:H2'	8:A:700:G:O4'	2.16	0.45
8:A:711:G:H2'	8:A:712:G:H5'	1.96	0.45
8:A:1080:A:O2'	8:A:1082:U:O4	2.24	0.45
8:A:1502:A:H2'	8:A:1503:A:O4'	2.16	0.45
8:A:1528:A:N6	8:A:1543:G:O2'	2.48	0.45
8:A:2079:U:C2	8:A:2080:A:C8	3.04	0.45
8:A:2140:G:H2'	8:A:2141:G:C8	2.52	0.45
15:H:53:GLU:O	15:H:57:LYS:HG2	2.17	0.45
27:T:25:GLU:HG3	27:T:26:LYS:N	2.32	0.45
34:a:97:G:C5	34:a:98:A:H1'	2.51	0.45
34:a:689:C:O2'	34:a:705:G:O2'	2.25	0.45
34:a:944:G:N1	34:a:1338:G:OP2	2.46	0.45
34:a:1096:C:H2'	34:a:1097:C:C6	2.50	0.45
34:a:1464:U:H2'	34:a:1465:A:H8	1.81	0.45
43:j:65:TYR:HB3	47:n:96:LEU:HD11	1.98	0.45
48:o:17:ASP:OD1	48:o:17:ASP:N	2.49	0.45
53:t:25:SER:O	53:t:29:THR:OG1	2.35	0.45
8:A:1035:U:O2	8:A:1120:G:C6	2.69	0.45
8:A:2461:A:H1'	8:A:2492:U:C2	2.52	0.45
19:L:91:ASP:OD1	19:L:123:ARG:HB3	2.16	0.45
34:a:145:G:N2	34:a:178:C:N3	2.65	0.45
34:a:211:G:C4	34:a:212:G:H1'	2.51	0.45
34:a:301:G:H4'	34:a:564:C:N4	2.31	0.45
34:a:1377:A:C6	40:g:6:ILE:HG21	2.51	0.45
37:d:198:LEU:HD23	37:d:201:GLU:OE2	2.16	0.45
55:v:52:G:C2	55:v:53:G:C8	3.04	0.45
7:6:2:LYS:HE3	9:B:40:U:H2'	1.97	0.45
8:A:52:A:H2'	8:A:53:A:C8	2.52	0.45
8:A:1370:C:H2'	8:A:1371:G:O4'	2.17	0.45
8:A:1709:U:O2'	8:A:2859:G:N3	2.49	0.45
8:A:1801:A:H5''	8:A:2203:U:H2'	1.97	0.45
8:A:2107:G:N3	8:A:2107:G:H2'	2.32	0.45
8:A:2115:G:H4'	8:A:2166:U:O2'	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2514:U:H2'	8:A:2515:C:H6	1.80	0.45
8:A:2655:G:H4'	8:A:2656:U:O5'	2.17	0.45
8:A:2785:C:HO2'	11:D:67:HIS:HD1	1.62	0.45
9:B:51:G:OP1	22:O:63:LYS:NZ	2.48	0.45
11:D:16:THR:O	23:P:78:PRO:HG2	2.17	0.45
18:K:78:ARG:HH21	23:P:100:ARG:NH1	2.13	0.45
18:K:110:GLU:CD	18:K:110:GLU:H	2.24	0.45
25:R:52:PRO:O	25:R:53:PHE:HB3	2.16	0.45
32:Y:49:ASP:O	32:Y:53:VAL:HG23	2.17	0.45
34:a:204:G:C2	34:a:466:A:H2	2.35	0.45
34:a:793:U:H5'	34:a:794:A:H5''	1.99	0.45
34:a:1198:G:H2'	34:a:1199:U:C6	2.52	0.45
34:a:1300:G:C6	34:a:1334:G:C5	3.04	0.45
34:a:1484:C:C6	34:a:1485:U:H1'	2.51	0.45
36:c:45:GLU:HG2	36:c:86:LEU:HD21	1.99	0.45
37:d:158:LEU:HD23	37:d:158:LEU:HA	1.83	0.45
48:o:38:LEU:HD12	48:o:42:PHE:CE2	2.51	0.45
55:v:15:G:O6	55:v:48:C:O2	2.34	0.45
8:A:545:U:H5''	8:A:546:U:H5	1.81	0.45
8:A:587:C:H5'	12:E:85:PHE:CE2	2.52	0.45
8:A:715:A:O2'	8:A:716:A:OP1	2.31	0.45
8:A:900:A:C2	8:A:901:C:H1'	2.51	0.45
8:A:1682:G:C4	8:A:1757:A:H1'	2.51	0.45
8:A:1757:A:H8	8:A:1757:A:OP1	2.00	0.45
8:A:2117:A:H2	8:A:2170:A:H61	1.64	0.45
8:A:2325:G:H8	8:A:2325:G:OP1	2.00	0.45
8:A:2389:G:H5''	8:A:2390:U:O4'	2.17	0.45
10:C:130:PRO:C	10:C:132:ARG:H	2.25	0.45
12:E:189:THR:O	12:E:193:VAL:HG23	2.16	0.45
20:M:5:LYS:CB	56:w:53:G:O2'	2.64	0.45
21:N:10:LEU:O	21:N:12:ARG:NH2	2.50	0.45
22:O:15:ARG:NH2	22:O:95:SER:OG	2.48	0.45
24:Q:84:LYS:C	24:Q:86:SER:N	2.74	0.45
25:R:51:VAL:HB	25:R:52:PRO:HD2	1.97	0.45
28:U:27:VAL:HG22	28:U:33:VAL:HG12	1.98	0.45
29:V:45:ASP:OD1	29:V:46:LYS:N	2.49	0.45
34:a:131:A:H2'	34:a:132:C:H6	1.81	0.45
34:a:462:G:C6	34:a:471:U:O4	2.69	0.45
34:a:946:A:C2	34:a:947:G:C5	3.04	0.45
34:a:1464:U:H2'	34:a:1465:A:C8	2.51	0.45
35:b:45:THR:HG23	35:b:200:PRO:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:c:42:LEU:HD13	36:c:67:ILE:HD11	1.98	0.45
37:d:105:GLY:C	37:d:107:GLY:H	2.25	0.45
41:h:63:LYS:HG2	41:h:70:VAL:HG21	1.99	0.45
49:p:56:ARG:HA	49:p:56:ARG:HD2	1.71	0.45
52:s:21:ALA:CB	52:s:46:LEU:HD11	2.46	0.45
1:0:53:VAL:HG23	1:0:54:ILE:HG12	1.97	0.45
8:A:194:G:H2'	8:A:195:A:O4'	2.17	0.45
8:A:689:A:H2'	8:A:690:G:C8	2.51	0.45
8:A:703:U:H2'	8:A:704:G:O4'	2.17	0.45
8:A:1726:C:C2	8:A:1727:C:C5	3.04	0.45
8:A:2342:C:H2'	8:A:2343:U:O4'	2.16	0.45
8:A:2529:G:H5''	8:A:2530:A:H5''	1.98	0.45
8:A:2798:U:P	8:A:2798:U:H6	2.40	0.45
9:B:113:C:H1'	22:O:46:GLU:HA	1.98	0.45
13:F:12:VAL:HG13	13:F:27:VAL:HG21	1.97	0.45
27:T:3:ARG:HB3	27:T:5:GLU:OE1	2.17	0.45
34:a:159:G:H1'	34:a:163:C:N3	2.32	0.45
34:a:390:U:O3'	49:p:28:ARG:NH1	2.42	0.45
34:a:621:A:H2'	34:a:622:A:C8	2.52	0.45
34:a:1233:G:H2'	34:a:1234:C:C6	2.52	0.45
34:a:1432:G:O2'	34:a:1433:A:OP2	2.34	0.45
35:b:90:PHE:HE2	35:b:92:ASN:ND2	2.14	0.45
36:c:131:ARG:NE	36:c:131:ARG:HA	2.31	0.45
37:d:12:ARG:HA	37:d:33:ILE:HG13	1.97	0.45
37:d:28:ASP:HA	37:d:31:CYS:O	2.17	0.45
39:f:3:HIS:O	39:f:92:THR:OG1	2.34	0.45
39:f:42:TRP:HZ2	39:f:61:LEU:HD22	1.81	0.45
44:k:18:GLY:O	44:k:81:LEU:HA	2.17	0.45
8:A:364:C:H2'	8:A:365:U:C6	2.52	0.45
8:A:685:A:C8	8:A:773:U:C4	3.05	0.45
8:A:817:C:H2'	8:A:818:G:O4'	2.17	0.45
8:A:2119:A:H1'	8:A:2170:A:H2	1.81	0.45
8:A:2376:A:H62	22:O:94:ARG:HD3	1.81	0.45
8:A:2419:U:H2'	8:A:2420:C:C6	2.52	0.45
8:A:2820:A:OP2	21:N:2:ARG:NH1	2.50	0.45
10:C:170:TYR:HD2	10:C:182:LYS:HB3	1.82	0.45
13:F:43:ILE:HG21	13:F:78:ILE:HG22	1.99	0.45
20:M:26:VAL:HB	20:M:133:LYS:HA	1.98	0.45
23:P:91:VAL:HG11	23:P:96:LEU:HD11	1.98	0.45
27:T:1:MET:HE2	27:T:1:MET:HB2	1.74	0.45
34:a:147:G:H2'	34:a:148:G:C8	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:512:U:H2'	34:a:513:C:C6	2.51	0.45
34:a:865:A:H2'	34:a:866:C:C6	2.52	0.45
35:b:70:GLY:O	35:b:92:ASN:HA	2.17	0.45
35:b:203:ASP:OD1	35:b:203:ASP:N	2.50	0.45
41:h:72:GLU:HG3	41:h:73:SER:H	1.82	0.45
43:j:35:GLN:HG3	43:j:78:GLU:HB2	1.99	0.45
50:q:24:ILE:HB	50:q:41:THR:HG23	1.99	0.45
50:q:49:ASN:OD1	50:q:49:ASN:N	2.50	0.45
8:A:310:A:O2'	8:A:311:A:H2'	2.16	0.45
8:A:1182:G:H2'	8:A:1183:U:O4'	2.17	0.45
8:A:1409:U:H2'	8:A:1410:G:C8	2.51	0.45
8:A:1672:A:C2	8:A:2582:G:H5'	2.51	0.45
8:A:2552:OMU:H2'	8:A:2554:U:OP2	2.16	0.45
34:a:185:U:H2'	34:a:186:C:H6	1.81	0.45
34:a:451:A:H4'	34:a:452:A:O4'	2.17	0.45
34:a:461:A:N6	34:a:471:U:O4	2.50	0.45
34:a:836:G:C5	34:a:851:G:C6	3.05	0.45
34:a:1163:A:H2'	34:a:1164:G:H8	1.82	0.45
34:a:1191:A:H2'	34:a:1192:C:C6	2.51	0.45
34:a:1306:A:H1'	34:a:1332:A:C2	2.52	0.45
34:a:1485:U:H2'	34:a:1486:G:H8	1.82	0.45
34:a:1512:U:H2'	34:a:1513:A:C8	2.52	0.45
37:d:72:ARG:O	37:d:76:LYS:HG2	2.16	0.45
41:h:101:ALA:O	41:h:103:VAL:HG23	2.17	0.45
46:m:52:ILE:HA	46:m:55:LEU:HD12	1.99	0.45
51:r:17:VAL:HG23	51:r:19:GLU:H	1.81	0.45
56:w:67:C:H2'	56:w:68:C:C6	2.52	0.45
4:3:36:ALA:O	4:3:40:LYS:HG3	2.17	0.45
8:A:401:A:H2'	8:A:402:A:C8	2.51	0.45
8:A:779:U:OP1	10:C:48:ILE:HG13	2.17	0.45
8:A:1061:U:H2'	8:A:1068:G:O2'	2.17	0.45
8:A:1269:A:H2'	8:A:1270:C:C6	2.52	0.45
8:A:1387:A:H5'	8:A:1469:A:H1'	1.99	0.45
8:A:1402:U:O2'	8:A:1470:A:N1	2.46	0.45
8:A:1539:U:H2'	8:A:1540:G:H5'	1.99	0.45
8:A:2144:G:H1'	8:A:2148:G:H22	1.82	0.45
8:A:2650:U:C2	8:A:2671:G:N2	2.85	0.45
8:A:2804:U:H2'	8:A:2805:C:C6	2.52	0.45
8:A:2895:G:H2'	8:A:2896:C:C6	2.52	0.45
18:K:69:VAL:HG11	18:K:106:GLU:OE2	2.16	0.45
18:K:113:MET:H	18:K:113:MET:HG2	1.59	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:U:73:ASN:C	28:U:75:ALA:H	2.25	0.45
34:a:195:A:H1'	34:a:222:C:O2'	2.17	0.45
34:a:202:G:H1'	34:a:468:A:H2	1.82	0.45
34:a:212:G:H2'	34:a:213:G:O4'	2.17	0.45
34:a:692:U:OP2	44:k:27:ASN:ND2	2.48	0.45
34:a:821:G:H2'	34:a:822:U:H6	1.80	0.45
34:a:836:G:O6	34:a:850:U:O2	2.35	0.45
36:c:122:GLN:HB3	36:c:127:VAL:CG1	2.46	0.45
41:h:34:ALA:O	41:h:38:VAL:HG23	2.18	0.45
53:t:41:GLY:O	53:t:85:LEU:HD21	2.17	0.45
2:l:39:ASP:O	2:l:43:ARG:N	2.50	0.44
5:4:6:SER:O	5:4:6:SER:OG	2.24	0.44
8:A:223:A:N1	8:A:407:G:O2'	2.46	0.44
8:A:396:G:H1'	31:X:28:PHE:HB3	1.98	0.44
8:A:1326:U:O2'	8:A:2010:G:O2'	2.32	0.44
8:A:1959:G:H2'	8:A:1960:A:O4'	2.17	0.44
8:A:2262:U:H2'	8:A:2263:C:C6	2.52	0.44
8:A:2635:A:H2'	8:A:2636:C:O4'	2.18	0.44
11:D:13:ARG:HB3	23:P:55:HIS:HE1	1.82	0.44
11:D:119:ALA:HB3	11:D:165:MET:HB2	1.97	0.44
13:F:60:SER:O	13:F:62:GLN:N	2.51	0.44
15:H:46:PHE:CD1	15:H:50:ARG:HD2	2.52	0.44
18:K:66:LYS:HE2	18:K:66:LYS:HB3	1.79	0.44
19:L:20:GLY:CA	19:L:28:GLY:HA2	2.45	0.44
24:Q:75:TYR:CZ	24:Q:79:ILE:HG13	2.52	0.44
26:S:92:ARG:NH2	26:S:94:ASP:OD1	2.45	0.44
34:a:71:A:C2	34:a:100:G:C8	3.05	0.44
34:a:285:C:H2'	34:a:286:C:C6	2.52	0.44
34:a:1287:A:H2'	34:a:1288:A:C8	2.52	0.44
34:a:1331:G:H4'	34:a:1332:A:O5'	2.17	0.44
37:d:2:ARG:HD2	37:d:114:ARG:HE	1.82	0.44
40:g:149:ALA:HA	44:k:60:PHE:HB3	2.00	0.44
41:h:21:LYS:O	41:h:64:TYR:OH	2.13	0.44
46:m:43:LYS:N	46:m:46:GLU:OE2	2.45	0.44
47:n:56:SER:OG	47:n:58:SER:OG	2.30	0.44
53:t:29:THR:O	53:t:33:LYS:HG2	2.17	0.44
55:v:23:C:C2	55:v:24:U:C5	3.05	0.44
8:A:271:G:C6	8:A:367:G:C6	3.06	0.44
8:A:697:G:H2'	8:A:698:C:C6	2.53	0.44
8:A:998:C:P	24:Q:91:ARG:HH12	2.40	0.44
8:A:1049:C:N3	8:A:1050:A:C8	2.85	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1056:G:N2	8:A:1103:A:C8	2.84	0.44
8:A:1230:A:H2'	8:A:1231:U:O4'	2.16	0.44
8:A:1268:A:H2'	8:A:1269:A:O4'	2.16	0.44
8:A:1715:G:O2'	8:A:1716:U:O5'	2.31	0.44
8:A:2185:U:H3'	8:A:2186:G:C5'	2.46	0.44
8:A:2188:U:H2'	8:A:2189:U:O4'	2.18	0.44
8:A:2313:C:H2'	8:A:2314:A:C8	2.52	0.44
9:B:52:A:O2'	9:B:53:A:P	2.75	0.44
12:E:23:PHE:HA	12:E:107:SER:OG	2.16	0.44
18:K:78:ARG:NH2	23:P:70:GLU:OE1	2.50	0.44
21:N:35:LYS:HE2	21:N:100:CYS:SG	2.57	0.44
25:R:32:THR:HA	25:R:62:GLU:HA	1.99	0.44
34:a:1417:G:N2	34:a:1482:G:N2	2.65	0.44
34:a:1466:C:H2'	34:a:1467:C:O4'	2.18	0.44
35:b:175:ALA:HB1	35:b:180:ILE:HB	1.98	0.44
40:g:73:GLU:OE1	40:g:98:LEU:HD11	2.17	0.44
41:h:105:THR:HG22	41:h:121:GLY:O	2.16	0.44
49:p:57:ILE:HD13	49:p:75:ILE:HD11	2.00	0.44
50:q:63:CYS:SG	50:q:66:LEU:HD11	2.57	0.44
55:v:50:U:H2'	55:v:51:C:C6	2.52	0.44
1:O:21:LEU:HD11	26:S:41:LYS:HE3	2.00	0.44
8:A:383:C:N4	8:A:386:G:OP2	2.43	0.44
8:A:594:U:H2'	8:A:595:C:C6	2.53	0.44
8:A:1073:A:H4'	8:A:1094:U:C2	2.52	0.44
8:A:1127:A:N7	8:A:2488:G:O2'	2.49	0.44
8:A:1186:G:H2'	8:A:1187:G:O4'	2.17	0.44
8:A:1231:U:H2'	8:A:1232:G:H8	1.82	0.44
8:A:1662:U:O2'	8:A:2687:U:OP1	2.26	0.44
8:A:1873:G:H2'	8:A:1874:C:C6	2.53	0.44
8:A:2147:A:H3'	8:A:2148:G:C8	2.52	0.44
8:A:2619:C:H5''	11:D:157:LYS:HG2	2.00	0.44
8:A:2896:C:H2'	8:A:2897:U:H6	1.82	0.44
11:D:37:VAL:HG22	11:D:48:ILE:HG22	2.00	0.44
11:D:38:LYS:NZ	11:D:81:GLU:OE1	2.48	0.44
13:F:105:ILE:O	13:F:108:PRO:HG2	2.17	0.44
15:H:127:GLU:HA	15:H:145:ASN:HB3	1.99	0.44
34:a:182:A:C4	34:a:184:G:C8	3.05	0.44
34:a:224:U:H2'	34:a:225:C:C6	2.52	0.44
34:a:502:A:H2'	34:a:503:C:O4'	2.18	0.44
34:a:1131:G:H2'	34:a:1132:C:H6	1.81	0.44
34:a:1253:G:C2'	34:a:1254:A:H5'	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1425:U:O4	34:a:1475:G:O6	2.36	0.44
35:b:14:HIS:HB2	35:b:202:ASN:CB	2.47	0.44
7:6:1:MET:N	9:B:44:G:OP1	2.40	0.44
8:A:225:C:H2'	8:A:226:A:O4'	2.17	0.44
8:A:636:G:OP1	19:L:129:LYS:HG3	2.18	0.44
8:A:783:A:H2'	8:A:784:G:H4'	1.99	0.44
8:A:1057:A:N6	8:A:1086:A:H2'	2.32	0.44
8:A:1252:G:H22	24:Q:36:GLN:NE2	2.15	0.44
8:A:1416:G:H2'	8:A:1417:C:C6	2.52	0.44
8:A:1964:G:O2'	8:A:1967:C:OP2	2.30	0.44
8:A:2127:G:H2'	8:A:2127:G:N3	2.32	0.44
14:G:16:VAL:HG21	14:G:44:HIS:CD2	2.52	0.44
20:M:75:GLU:HB2	20:M:90:GLU:HG3	1.99	0.44
32:Y:5:GLU:OE1	32:Y:5:GLU:N	2.32	0.44
34:a:592:G:H2'	34:a:593:U:C6	2.52	0.44
34:a:970:C:N4	42:i:129:ARG:OXT	2.50	0.44
36:c:183:TYR:HA	36:c:199:VAL:O	2.18	0.44
36:c:190:THR:HG21	36:c:195:ILE:HD12	1.99	0.44
39:f:12:PRO:HA	39:f:15:SER:HB2	2.00	0.44
39:f:47:LEU:HD12	39:f:55:HIS:HA	1.98	0.44
40:g:50:ALA:HB2	40:g:57:GLU:HG3	1.99	0.44
45:l:54:VAL:O	45:l:61:GLU:HG3	2.17	0.44
8:A:534:U:H2'	8:A:535:G:H8	1.81	0.44
8:A:592:A:H2'	8:A:593:U:C6	2.53	0.44
8:A:858:G:H3'	8:A:859:G:C8	2.52	0.44
8:A:1361:G:H2'	8:A:1362:C:H6	1.81	0.44
8:A:1490:A:HO2'	8:A:1491:G:P	2.39	0.44
8:A:1824:G:O3'	10:C:246:PRO:HD3	2.17	0.44
8:A:2213:U:O2'	8:A:2214:C:H5'	2.17	0.44
8:A:2455:G:H2'	8:A:2456:C:C6	2.53	0.44
11:D:1:MET:HG3	11:D:205:PRO:HG2	2.00	0.44
19:L:96:LYS:HD3	19:L:103:ILE:HA	2.00	0.44
23:P:12:MET:HE2	23:P:12:MET:HB3	1.82	0.44
30:W:33:ILE:HD11	30:W:78:ILE:HD11	1.98	0.44
34:a:198:G:H2'	34:a:199:A:H8	1.82	0.44
34:a:373:A:O2'	34:a:374:A:H5'	2.17	0.44
34:a:575:G:O2'	34:a:821:G:H5'	2.18	0.44
34:a:671:G:O3'	39:f:79:ARG:NH1	2.51	0.44
34:a:674:G:N2	44:k:117:HIS:HB2	2.32	0.44
34:a:836:G:C6	34:a:851:G:C5	3.05	0.44
34:a:1222:G:OP1	52:s:77:ARG:NH1	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1315:U:O2'	34:a:1360:A:N3	2.41	0.44
35:b:65:LYS:HG2	35:b:89:PHE:HE2	1.82	0.44
35:b:75:ALA:O	35:b:79:VAL:HG23	2.17	0.44
35:b:76:SER:O	35:b:80:LYS:HG3	2.18	0.44
37:d:70:GLN:HA	37:d:73:ASN:HB2	2.00	0.44
48:o:42:PHE:CE1	48:o:52:ARG:HG2	2.53	0.44
8:A:17:G:H4'	24:Q:24:TYR:HE2	1.83	0.44
8:A:362:A:N3	8:A:362:A:H2'	2.32	0.44
8:A:1447:C:O2'	8:A:1544:A:N3	2.39	0.44
8:A:1601:G:OP1	27:T:64:LYS:NZ	2.28	0.44
8:A:1693:U:H1'	10:C:13:ARG:NH1	2.32	0.44
8:A:1715:G:HO2'	8:A:1716:U:P	2.40	0.44
8:A:2136:G:H22	8:A:2155:U:C2'	2.30	0.44
8:A:2290:G:H2'	8:A:2291:U:C6	2.52	0.44
12:E:9:GLN:N	12:E:9:GLN:OE1	2.51	0.44
12:E:61:ARG:NE	12:E:63:LYS:O	2.49	0.44
20:M:105:MET:HG2	20:M:108:VAL:HG21	2.00	0.44
21:N:12:ARG:HG2	21:N:16:HIS:ND1	2.32	0.44
25:R:6:GLN:HB3	25:R:11:GLN:HG2	2.00	0.44
31:X:2:ARG:HD2	31:X:29:LEU:HD23	1.99	0.44
34:a:21:G:H2'	34:a:22:G:C8	2.52	0.44
34:a:265:G:N2	34:a:267:C:H5'	2.32	0.44
34:a:468:A:H2'	34:a:468:A:N3	2.33	0.44
34:a:994:A:C4	34:a:1216:A:H4'	2.53	0.44
34:a:1061:G:H2'	34:a:1062:U:C6	2.53	0.44
34:a:1070:U:O3'	38:e:53:ARG:NH2	2.51	0.44
34:a:1361:G:H2'	34:a:1362:A:C8	2.52	0.44
36:c:78:LYS:O	36:c:81:GLU:HG2	2.18	0.44
36:c:117:ASP:HA	36:c:120:THR:HG22	1.99	0.44
38:e:54:GLU:HG2	38:e:57:ALA:HB3	1.99	0.44
40:g:44:SER:O	40:g:48:THR:HG23	2.17	0.44
43:j:72:ARG:HD3	43:j:72:ARG:HA	1.82	0.44
8:A:892:A:H2'	8:A:893:C:H1'	2.00	0.44
8:A:1013:C:H2'	8:A:1014:A:H8	1.82	0.44
8:A:1057:A:H1'	8:A:1058:U:C5	2.53	0.44
8:A:1679:A:H2'	8:A:1680:U:H6	1.82	0.44
8:A:1790:C:H2'	8:A:1791:A:C8	2.53	0.44
8:A:2050:C:H2'	8:A:2051:A:O4'	2.17	0.44
8:A:2756:U:H4'	8:A:2757:A:OP1	2.17	0.44
8:A:2820:A:P	21:N:2:ARG:HH12	2.39	0.44
14:G:29:ASN:ND2	14:G:77:GLY:O	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:H:115:VAL:C	15:H:116:ARG:HH11	2.26	0.44
28:U:97:SER:O	28:U:98:ASN:HB3	2.18	0.44
34:a:46:G:O2'	34:a:365:U:O2	2.36	0.44
34:a:177:G:H2'	34:a:178:C:C6	2.53	0.44
34:a:1148:U:H2'	34:a:1149:C:O4'	2.18	0.44
34:a:1308:U:OP2	46:m:97:ARG:HD2	2.18	0.44
34:a:1472:U:H2'	34:a:1473:G:C8	2.52	0.44
36:c:58:ARG:HA	36:c:62:SER:O	2.17	0.44
37:d:18:LEU:HD21	37:d:59:LYS:HG3	2.00	0.44
41:h:6:ILE:O	41:h:10:LEU:HG	2.18	0.44
41:h:95:MET:HE2	41:h:98:LEU:HB2	1.99	0.44
3:2:21:ARG:NH1	8:A:466:A:H5'	2.33	0.44
3:2:26:ASN:CG	8:A:682:G:H5''	2.43	0.44
4:3:28:LEU:HA	4:3:32:LEU:HD21	2.00	0.44
8:A:214:G:N2	8:A:216:A:N3	2.66	0.44
8:A:493:G:H2'	8:A:494:G:O4'	2.18	0.44
8:A:1084:A:H2'	8:A:1084:A:N3	2.33	0.44
8:A:1175:A:N3	8:A:1175:A:H2'	2.32	0.44
8:A:2140:G:H2'	8:A:2141:G:O4'	2.16	0.44
8:A:2158:A:H5''	8:A:2159:G:OP1	2.18	0.44
8:A:2531:A:C4	8:A:2532:G:C8	3.06	0.44
8:A:2710:C:OP1	21:N:15:SER:OG	2.27	0.44
12:E:118:LEU:HD11	12:E:188:MET:SD	2.58	0.44
15:H:99:ILE:HD11	15:H:144:VAL:HG21	2.00	0.44
25:R:54:VAL:O	25:R:55:ASP:C	2.60	0.44
27:T:6:ARG:O	27:T:10:VAL:HG23	2.18	0.44
34:a:205:A:N3	34:a:205:A:H2'	2.33	0.44
34:a:570:G:H2'	34:a:571:U:C6	2.53	0.44
34:a:615:G:C6	34:a:626:G:C6	3.06	0.44
34:a:616:G:H21	49:p:46:LYS:NZ	2.15	0.44
34:a:987:G:H2'	34:a:988:G:H8	1.83	0.44
34:a:1473:G:N3	34:a:1473:G:H2'	2.33	0.44
44:k:85:VAL:HG21	44:k:92:ARG:HB2	2.00	0.44
50:q:6:THR:HB	50:q:60:ILE:O	2.18	0.44
56:w:9:A:H62	56:w:23:A:H62	1.66	0.44
8:A:248:G:H5'	8:A:250:G:N7	2.33	0.44
8:A:657:U:H2'	8:A:658:U:C6	2.53	0.44
8:A:981:A:N1	8:A:2027:G:O2'	2.44	0.44
8:A:1066:U:P	8:A:1068:G:H5'	2.57	0.44
8:A:1085:A:O2'	8:A:1086:A:OP1	2.33	0.44
8:A:1264:A:H8	8:A:1264:A:OP2	2.01	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1847:G:O2'	8:A:1848:A:H8	2.01	0.44
8:A:2192:U:H2'	8:A:2193:G:C8	2.52	0.44
10:C:28:PRO:HG3	10:C:62:ARG:NH2	2.32	0.44
10:C:207:ALA:O	10:C:211:ARG:HG2	2.18	0.44
12:E:88:ARG:HD3	12:E:88:ARG:HA	1.68	0.44
17:J:40:HIS:NE2	17:J:52:ASP:OD2	2.50	0.44
25:R:54:VAL:O	25:R:56:GLY:N	2.51	0.44
34:a:389:A:H3'	34:a:390:U:C6	2.52	0.44
34:a:522:C:OP1	45:l:68:GLY:N	2.46	0.44
34:a:1461:G:H2'	34:a:1462:C:H6	1.83	0.44
38:e:40:ASP:OD1	38:e:44:ARG:HB3	2.18	0.44
40:g:134:VAL:O	40:g:138:GLU:HG3	2.18	0.44
41:h:31:LEU:O	41:h:35:ILE:HG13	2.18	0.44
46:m:92:ARG:HA	46:m:92:ARG:HD3	1.88	0.44
52:s:37:SER:OG	52:s:70:LEU:HD13	2.18	0.44
53:t:78:LEU:HD23	53:t:78:LEU:HA	1.78	0.44
8:A:177:G:H3'	8:A:178:G:C8	2.52	0.43
8:A:671:C:H2'	8:A:672:C:H6	1.83	0.43
8:A:2122:U:H2'	8:A:2123:G:O4'	2.18	0.43
8:A:2373:G:H2'	8:A:2374:C:C6	2.53	0.43
8:A:2723:C:P	11:D:114:LYS:HZ3	2.41	0.43
8:A:2849:U:O2'	8:A:2866:U:O2	2.26	0.43
9:B:5:U:H2'	9:B:6:G:H8	1.83	0.43
13:F:163:GLU:HG3	13:F:164:GLU:N	2.32	0.43
34:a:210:C:O2'	34:a:211:G:H5''	2.18	0.43
34:a:323:U:H2'	34:a:324:G:O4'	2.18	0.43
34:a:487:A:H3'	34:a:488:C:H6	1.83	0.43
34:a:592:G:H2'	34:a:593:U:H6	1.82	0.43
34:a:1096:C:H2'	34:a:1097:C:H6	1.83	0.43
34:a:1300:G:O2'	34:a:1301:U:P	2.76	0.43
34:a:1418:A:N6	34:a:1482:G:H1'	2.31	0.43
34:a:1513:A:H2'	34:a:1514:G:H8	1.83	0.43
46:m:72:ILE:HG13	46:m:73:SER:N	2.32	0.43
52:s:61:VAL:HA	52:s:65:MET:CE	2.48	0.43
57:y:101:FME:CG	57:y:102:PHE:H	2.22	0.43
8:A:282:A:H2'	8:A:283:G:H8	1.82	0.43
8:A:584:C:N4	8:A:585:G:C6	2.86	0.43
8:A:934:U:H2'	8:A:935:C:H6	1.82	0.43
8:A:1722:A:C8	8:A:1739:A:C6	3.05	0.43
8:A:1846:G:H2'	8:A:1847:G:C8	2.53	0.43
8:A:2118:U:C5	8:A:2148:G:H1'	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2143:C:H3'	8:A:2144:G:C8	2.53	0.43
8:A:2144:G:H1'	8:A:2148:G:N2	2.33	0.43
8:A:2516:A:O2'	8:A:2517:C:H5'	2.17	0.43
8:A:2795:C:H2'	8:A:2796:U:O4'	2.17	0.43
8:A:2847:U:OP1	23:P:95:LYS:HD3	2.19	0.43
10:C:143:VAL:O	10:C:152:GLN:N	2.38	0.43
11:D:33:ARG:NH1	11:D:53:GLY:O	2.37	0.43
26:S:27:LYS:O	26:S:71:VAL:HG23	2.18	0.43
26:S:92:ARG:CZ	26:S:92:ARG:HB3	2.47	0.43
33:Z:27:GLY:HA3	33:Z:37:ARG:HH21	1.83	0.43
34:a:468:A:H3'	34:a:469:C:C6	2.53	0.43
34:a:838:G:C6	34:a:849:G:C5	3.06	0.43
34:a:1458:G:OP1	53:t:29:THR:OG1	2.24	0.43
37:d:123:MET:HG2	37:d:128:VAL:HG22	2.01	0.43
39:f:37:HIS:HB3	39:f:97:THR:HB	1.99	0.43
39:f:59:TYR:CE2	51:r:66:LEU:HD21	2.53	0.43
50:q:47:ASP:OD2	50:q:50:ASN:HA	2.18	0.43
55:v:2:G:H2'	55:v:3:C:C6	2.52	0.43
56:w:6:G:C2	56:w:68:C:C2	3.06	0.43
56:w:33:U:H4'	56:w:37:MIA:H162	2.00	0.43
5:4:3:VAL:HG13	5:4:36:ARG:HD3	1.99	0.43
8:A:714:U:H1'	8:A:717:C:C5	2.52	0.43
8:A:876:C:H2'	8:A:877:A:O4'	2.18	0.43
8:A:1047:G:O3'	8:A:1048:A:H8	2.02	0.43
8:A:2325:G:O2'	8:A:2326:C:H5'	2.19	0.43
8:A:2342:C:O2'	8:A:2374:C:H5''	2.18	0.43
13:F:133:GLU:HG3	13:F:135:ILE:N	2.33	0.43
20:M:5:LYS:HD3	56:w:53:G:O3'	2.18	0.43
23:P:50:ARG:O	23:P:56:SER:HA	2.18	0.43
34:a:228:A:H2'	34:a:229:U:O4'	2.19	0.43
34:a:695:A:H2'	34:a:696:A:O4'	2.18	0.43
34:a:875:U:O2'	41:h:14:ARG:NH1	2.51	0.43
34:a:934:C:O2'	34:a:1344:C:OP2	2.36	0.43
34:a:1111:A:N1	36:c:176:THR:OG1	2.48	0.43
34:a:1144:G:H21	34:a:1146:A:H62	1.62	0.43
34:a:1298:U:O2	34:a:1299:A:N6	2.52	0.43
51:r:31:TYR:HB3	51:r:54:LEU:HD21	1.99	0.43
55:v:41:C:C2'	55:v:42:G:H5'	2.49	0.43
2:1:32:LYS:HG2	2:1:50:GLU:OE1	2.18	0.43
8:A:1374:G:H2'	8:A:1375:U:O4'	2.18	0.43
8:A:1451:C:HO2'	8:A:1452:G:P	2.37	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2271:G:H5'	30:W:16:ARG:NH1	2.33	0.43
8:A:2455:G:H2'	8:A:2456:C:H6	1.82	0.43
8:A:2848:G:O2'	8:A:2868:A:N6	2.51	0.43
9:B:19:C:H2'	9:B:20:G:O4'	2.18	0.43
10:C:70:LYS:NZ	10:C:97:ASP:OD2	2.31	0.43
13:F:147:ARG:HH11	13:F:149:ARG:HA	1.83	0.43
20:M:21:ALA:HB2	20:M:97:GLN:HB2	2.00	0.43
29:V:32:GLY:O	29:V:93:ARG:NH1	2.49	0.43
34:a:78:A:H2'	34:a:79:G:H8	1.81	0.43
34:a:231:U:H2'	34:a:232:G:C8	2.53	0.43
34:a:940:C:OP1	40:g:101:ARG:HD3	2.18	0.43
34:a:1009:U:H2'	34:a:1010:U:C6	2.54	0.43
34:a:1041:G:C4	34:a:1042:A:C2	3.06	0.43
34:a:1190:G:H5'	36:c:175:HIS:CE1	2.53	0.43
34:a:1310:G:N1	34:a:1328:C:N3	2.65	0.43
39:f:18:VAL:HB	39:f:19:PRO:HD3	2.00	0.43
41:h:27:PRO:O	41:h:32:LYS:NZ	2.33	0.43
45:l:106:VAL:HG23	45:l:116:TYR:HB3	2.00	0.43
49:p:8:ARG:HD3	49:p:17:TYR:HE1	1.84	0.43
55:v:20:H2U:H2'	55:v:21:A:C5'	2.48	0.43
8:A:379:G:N1	8:A:396:G:C6	2.86	0.43
8:A:711:G:C2'	8:A:712:G:H5'	2.48	0.43
8:A:1263:U:H2'	8:A:1264:A:C8	2.53	0.43
8:A:1389:G:H2'	8:A:1390:U:O4'	2.18	0.43
8:A:1532:A:N6	8:A:1540:G:C6	2.87	0.43
8:A:1716:U:H2'	8:A:1717:A:C8	2.54	0.43
8:A:1843:C:H2'	8:A:1844:C:C6	2.53	0.43
8:A:2074:U:H2'	8:A:2075:U:C6	2.53	0.43
8:A:2329:U:H2'	8:A:2330:G:C8	2.54	0.43
8:A:2547:A:C8	8:A:2566:A:C8	3.07	0.43
8:A:2646:C:O5'	8:A:2646:C:H6	2.01	0.43
10:C:130:PRO:HA	10:C:188:ARG:HA	2.00	0.43
13:F:91:ARG:HA	13:F:95:MET:HB2	2.01	0.43
14:G:154:GLU:HG3	14:G:156:TYR:H	1.84	0.43
21:N:79:LEU:O	21:N:80:PHE:HB2	2.17	0.43
22:O:76:LYS:HE2	22:O:76:LYS:HB3	1.55	0.43
26:S:19:LEU:HD23	26:S:19:LEU:HA	1.78	0.43
34:a:351:G:OP1	53:t:3:ILE:HD11	2.18	0.43
34:a:550:G:H2'	34:a:551:U:C6	2.53	0.43
34:a:976:G:OP2	34:a:1358:U:O2'	2.34	0.43
36:c:44:LYS:HB3	36:c:44:LYS:HE2	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:76:ASN:HB2	38:e:81:GLN:CD	2.44	0.43
39:f:10:VAL:CG2	39:f:58:HIS:HB3	2.48	0.43
40:g:75:LYS:HG3	40:g:77:ARG:HB2	2.01	0.43
42:i:51:LEU:C	42:i:56:MET:HB2	2.43	0.43
47:n:66:GLN:HG3	47:n:79:LEU:HD22	2.01	0.43
47:n:72:GLY:O	47:n:80:SER:HA	2.18	0.43
49:p:28:ARG:HE	49:p:29:ASN:HD21	1.65	0.43
49:p:72:ALA:O	49:p:76:LYS:HG2	2.18	0.43
52:s:39:ILE:HA	52:s:43:MET:SD	2.58	0.43
55:v:64:G:H2'	55:v:65:C:H6	1.83	0.43
8:A:488:G:H1'	8:A:492:A:N6	2.33	0.43
8:A:746:PSU:O2'	8:A:2611:C:O2'	2.30	0.43
8:A:981:A:H2	8:A:2027:G:N3	2.17	0.43
8:A:1000:A:N6	8:A:1154:G:O2'	2.52	0.43
8:A:2139:U:H5	8:A:2140:G:N7	2.17	0.43
8:A:2529:G:H5''	8:A:2530:A:C5'	2.48	0.43
8:A:2625:G:H2'	8:A:2626:C:O4'	2.18	0.43
15:H:5:LEU:O	15:H:6:LEU:HD23	2.19	0.43
34:a:18:C:H4'	34:a:1078:U:O2	2.19	0.43
34:a:341:C:H2'	34:a:342:C:C6	2.54	0.43
34:a:352:C:O2	34:a:355:C:N4	2.47	0.43
34:a:649:A:H2'	34:a:650:G:O4'	2.19	0.43
34:a:1169:A:OP2	34:a:1169:A:H8	2.01	0.43
35:b:49:PHE:CE2	35:b:53:LEU:HD11	2.53	0.43
43:j:51:VAL:HB	47:n:81:ARG:HB2	2.01	0.43
45:l:102:ASP:C	45:l:102:ASP:OD1	2.61	0.43
8:A:118:A:N3	8:A:178:G:H1'	2.34	0.43
8:A:335:C:H5''	28:U:81:ARG:HD3	2.01	0.43
8:A:1564:C:H2'	8:A:1565:C:C6	2.52	0.43
8:A:1668:A:O2'	8:A:1674:G:N7	2.36	0.43
8:A:2896:C:H2'	8:A:2897:U:C6	2.54	0.43
10:C:65:ASP:HB3	10:C:103:ILE:HG22	2.00	0.43
15:H:37:VAL:HG22	15:H:43:ASN:HD21	1.84	0.43
17:J:41:LYS:HB3	17:J:43:GLU:OE1	2.19	0.43
19:L:49:GLY:O	19:L:51:GLU:HG3	2.19	0.43
21:N:72:ASP:O	21:N:76:VAL:HG23	2.18	0.43
27:T:11:LEU:HD23	27:T:34:VAL:HG12	2.01	0.43
34:a:189:A:OP2	34:a:189:A:H8	2.01	0.43
34:a:322:C:H4'	53:t:17:ARG:HG3	2.01	0.43
34:a:620:C:H2'	34:a:621:A:C8	2.53	0.43
34:a:728:A:H2'	34:a:729:A:C8	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1161:C:C2	34:a:1162:C:C5	3.06	0.43
34:a:1163:A:H2'	34:a:1164:G:C8	2.54	0.43
34:a:1254:A:H2'	34:a:1255:G:C8	2.53	0.43
34:a:1457:G:H2'	34:a:1458:G:O4'	2.19	0.43
35:b:89:PHE:CD2	35:b:153:MET:HG3	2.53	0.43
36:c:62:SER:O	36:c:62:SER:OG	2.36	0.43
37:d:113:ALA:O	37:d:117:VAL:HG23	2.19	0.43
40:g:41:ILE:HD13	40:g:41:ILE:HA	1.88	0.43
41:h:17:GLN:NE2	41:h:62:LEU:HD13	2.34	0.43
43:j:8:ILE:O	43:j:74:VAL:HG12	2.18	0.43
45:l:99:GLY:N	45:l:103:CYS:O	2.39	0.43
46:m:1:ALA:O	46:m:2:ARG:HD2	2.18	0.43
47:n:54:ASP:HA	47:n:59:ARG:HD3	2.01	0.43
8:A:188:G:HO2'	8:A:1365:A:N6	2.16	0.43
8:A:195:A:N7	8:A:197:A:OP1	2.52	0.43
8:A:279:A:N6	8:A:361:G:O2'	2.52	0.43
8:A:357:C:H2'	8:A:358:U:C6	2.53	0.43
8:A:729:G:C6	10:C:206:LYS:HB2	2.52	0.43
8:A:826:U:H2'	8:A:828:U:O4'	2.19	0.43
8:A:890:C:H5''	8:A:891:G:O4'	2.19	0.43
8:A:995:C:H1'	24:Q:92:LYS:NZ	2.33	0.43
8:A:1782:U:O2	8:A:2609:U:H5'	2.18	0.43
8:A:1857:G:N2	8:A:1884:G:H2'	2.33	0.43
8:A:2129:C:H5'	8:A:2130:U:H5	1.84	0.43
8:A:2399:G:C6	8:A:2418:A:C6	3.07	0.43
8:A:2648:G:H2'	8:A:2649:C:H6	1.83	0.43
8:A:2807:U:H1'	8:A:2892:G:N2	2.34	0.43
13:F:32:LYS:HG2	13:F:156:THR:OG1	2.19	0.43
14:G:163:TYR:HB2	14:G:166:GLU:HB2	2.01	0.43
18:K:64:ARG:O	18:K:82:ASN:HA	2.19	0.43
22:O:40:ILE:HG22	22:O:44:GLY:HA2	2.00	0.43
34:a:849:G:C6	34:a:850:U:C2	3.07	0.43
34:a:974:A:OP1	47:n:69:ARG:NH2	2.52	0.43
34:a:1324:A:H2'	34:a:1325:C:C6	2.53	0.43
35:b:30:ILE:HD13	35:b:38:HIS:CE1	2.53	0.43
36:c:63:ILE:HG22	36:c:96:VAL:HG23	2.00	0.43
37:d:61:ARG:NH1	37:d:68:GLU:HB2	2.34	0.43
44:k:110:THR:HG22	54:u:4:LYS:HA	2.01	0.43
49:p:14:ARG:HG3	49:p:42:ILE:CD1	2.49	0.43
52:s:12:LEU:O	52:s:16:LYS:HG2	2.18	0.43
8:A:607:U:C5	8:A:620:G:C4	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:804:A:H2'	8:A:806:C:C4	2.54	0.43
8:A:1341:G:OP1	8:A:1397:U:N3	2.46	0.43
8:A:1415:U:O2	8:A:1587:G:N2	2.40	0.43
8:A:1848:A:H2'	8:A:1849:G:O4'	2.19	0.43
8:A:2170:A:H2'	8:A:2171:A:C4'	2.48	0.43
8:A:2428:G:H5''	8:A:2429:G:O5'	2.19	0.43
8:A:2731:G:O2'	8:A:2732:G:H5'	2.19	0.43
8:A:2749:A:H5''	14:G:1:SER:HB3	2.01	0.43
9:B:63:C:H2'	9:B:64:G:C8	2.54	0.43
13:F:70:ARG:O	13:F:80:GLN:HG3	2.19	0.43
20:M:40:ARG:HB3	20:M:93:VAL:HB	2.01	0.43
22:O:26:LEU:HD12	22:O:38:GLN:O	2.19	0.43
27:T:19:LYS:HE2	27:T:84:TYR:OH	2.18	0.43
34:a:108:G:P	34:a:326:G:H22	2.42	0.43
34:a:263:A:H2'	34:a:264:C:C6	2.54	0.43
34:a:414:A:P	34:a:428:G:H22	2.39	0.43
34:a:496:A:O2'	34:a:497:G:C8	2.72	0.43
34:a:797:C:H2'	34:a:798:U:C6	2.53	0.43
34:a:867:G:H2'	34:a:868:C:H6	1.83	0.43
36:c:69:THR:HG21	36:c:75:VAL:HG21	2.01	0.43
41:h:22:ALA:O	41:h:62:LEU:N	2.44	0.43
44:k:15:VAL:O	44:k:78:ILE:HA	2.19	0.43
47:n:42:TRP:CH2	52:s:8:PRO:HG2	2.54	0.43
8:A:272:A:H2'	8:A:273:G:H8	1.84	0.43
8:A:526:A:OP1	8:A:527:C:OP1	2.37	0.43
8:A:1425:G:H2'	8:A:1426:G:C8	2.54	0.43
8:A:1735:A:C6	8:A:1736:U:C4	3.06	0.43
8:A:2170:A:H2'	8:A:2171:A:H4'	2.01	0.43
13:F:19:PHE:CZ	13:F:164:GLU:HA	2.54	0.43
13:F:62:GLN:HB2	13:F:94:ARG:HH22	1.84	0.43
28:U:39:ASN:ND2	28:U:64:ILE:HB	2.34	0.43
31:X:57:VAL:HG13	31:X:61:LYS:HE3	1.99	0.43
34:a:69:G:HO2'	34:a:70:U:P	2.42	0.43
34:a:148:G:H1	34:a:174:A:H61	1.67	0.43
34:a:1048:G:H5''	47:n:2:LYS:HD2	2.01	0.43
34:a:1254:A:H2'	34:a:1255:G:H8	1.84	0.43
34:a:1282:C:H2'	34:a:1283:U:C6	2.54	0.43
36:c:82:ASP:HA	36:c:85:LYS:HG2	2.01	0.43
44:k:19:VAL:HG23	44:k:36:ARG:HA	2.01	0.43
46:m:89:ARG:HD2	46:m:89:ARG:HA	1.78	0.43
2:1:16:THR:HG21	2:1:42:VAL:HG13	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:242:G:HO2'	8:A:243:U:P	2.41	0.42
8:A:1131:G:O6	8:A:2024:G:O2'	2.19	0.42
8:A:1545:A:H2'	8:A:1546:G:O4'	2.19	0.42
8:A:1858:A:H2'	8:A:1859:U:H5'	2.01	0.42
8:A:2130:U:H2'	8:A:2131:U:C6	2.54	0.42
8:A:2287:A:N7	8:A:2289:G:C8	2.87	0.42
8:A:2340:A:H2'	8:A:2341:G:C8	2.53	0.42
34:a:223:A:H2'	34:a:224:U:C6	2.53	0.42
34:a:284:C:C2	34:a:285:C:C5	3.06	0.42
34:a:460:A:H2'	34:a:461:A:C8	2.54	0.42
34:a:501:C:OP1	45:l:113:ARG:NH2	2.50	0.42
34:a:580:C:H2'	34:a:581:G:O4'	2.19	0.42
34:a:751:U:H2'	34:a:752:G:O4'	2.19	0.42
34:a:1323:G:H2'	34:a:1324:A:H8	1.81	0.42
34:a:1343:G:O3'	42:i:123:ARG:HG3	2.19	0.42
35:b:26:MET:HE2	35:b:187:ASP:O	2.19	0.42
42:i:99:LYS:HE2	42:i:99:LYS:HB2	1.81	0.42
44:k:33:ILE:HG13	44:k:73:VAL:HG11	2.01	0.42
52:s:52:ASN:HB2	52:s:75:PRO:O	2.19	0.42
53:t:61:ALA:HB2	53:t:71:ALA:HB2	2.01	0.42
56:w:57:G:H2'	56:w:57:G:N3	2.34	0.42
8:A:239:C:O2'	8:A:622:G:O2'	2.33	0.42
8:A:419:U:H2'	8:A:420:C:C6	2.54	0.42
8:A:1064:C:O2'	8:A:1076:C:O2	2.37	0.42
8:A:1509:A:H2'	8:A:1510:G:H8	1.80	0.42
8:A:1540:G:C6	8:A:1541:C:C4	3.07	0.42
8:A:1753:G:H5''	23:P:92:ARG:HD3	2.00	0.42
8:A:2291:U:O2'	8:A:2374:C:O2	2.37	0.42
8:A:2405:G:O2'	8:A:2406:A:OP2	2.31	0.42
8:A:2548:U:C2	8:A:2549:G:C8	3.07	0.42
13:F:32:LYS:HD2	13:F:89:THR:HG23	2.01	0.42
14:G:132:LEU:HD21	14:G:147:LEU:HD11	2.01	0.42
15:H:115:VAL:O	15:H:116:ARG:NH1	2.42	0.42
21:N:55:ALA:HA	21:N:80:PHE:CZ	2.54	0.42
22:O:111:ARG:NE	22:O:117:PHE:O	2.52	0.42
34:a:91:U:H2'	34:a:92:U:H6	1.84	0.42
34:a:191:G:H2'	34:a:192:A:H8	1.83	0.42
34:a:512:U:H2'	34:a:513:C:H6	1.84	0.42
34:a:607:A:H2'	34:a:608:A:C8	2.53	0.42
34:a:859:G:H2'	34:a:860:A:H8	1.82	0.42
34:a:1091:U:O2'	34:a:1093:A:N7	2.44	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1146:A:H2'	34:a:1147:C:H5'	2.02	0.42
34:a:1430:A:H2'	34:a:1431:A:C8	2.54	0.42
45:l:34:THR:N	45:l:53:ARG:O	2.52	0.42
47:n:5:MET:HB3	47:n:63:ARG:NH2	2.34	0.42
58:z:-2:A:H2'	58:z:-1:C:O4'	2.19	0.42
2:1:28:THR:O	2:1:30:PRO:HD3	2.19	0.42
3:2:3:ARG:HD3	3:2:3:ARG:HA	1.76	0.42
8:A:221:A:C4	8:A:266:G:N7	2.87	0.42
8:A:373:U:H2'	8:A:374:A:C8	2.52	0.42
8:A:1053:C:O2	8:A:1107:G:H1'	2.19	0.42
8:A:1299:G:N1	8:A:1640:A:OP2	2.36	0.42
8:A:1593:A:H2'	8:A:1594:U:C6	2.54	0.42
8:A:1710:G:H2'	8:A:1711:A:C8	2.54	0.42
8:A:2110:G:H5'	8:A:2111:U:O5'	2.19	0.42
8:A:2543:G:H2'	8:A:2544:G:H8	1.82	0.42
13:F:33:ILE:HG13	13:F:95:MET:HG3	2.01	0.42
19:L:2:ARG:HA	19:L:2:ARG:HD3	1.49	0.42
21:N:1:MET:HE2	21:N:1:MET:HB3	1.95	0.42
27:T:30:ILE:HG13	27:T:30:ILE:O	2.19	0.42
28:U:14:THR:HB	28:U:68:ASN:ND2	2.34	0.42
28:U:45:GLN:HG3	28:U:55:GLY:HA2	2.01	0.42
34:a:49:U:O4	34:a:365:U:H5	2.02	0.42
34:a:1055:A:C2	34:a:1206:G:H1'	2.55	0.42
34:a:1238:A:H2'	34:a:1239:A:H5'	2.00	0.42
34:a:1343:G:H2'	34:a:1344:C:C6	2.54	0.42
35:b:69:VAL:HB	35:b:162:VAL:HG22	2.01	0.42
37:d:156:ALA:O	37:d:160:LEU:HG	2.19	0.42
38:e:12:GLU:OE2	38:e:67:ARG:NH1	2.52	0.42
42:i:115:VAL:HG13	43:j:62:ARG:HH11	1.83	0.42
45:l:85:ARG:HA	45:l:93:ARG:HA	2.01	0.42
47:n:32:ASP:O	47:n:41:ARG:NH1	2.52	0.42
49:p:39:PHE:CG	49:p:74:LEU:HD21	2.54	0.42
50:q:76:ARG:NH1	50:q:78:VAL:HG12	2.33	0.42
8:A:337:C:H2'	8:A:338:G:O4'	2.19	0.42
8:A:679:C:H2'	8:A:680:C:H6	1.84	0.42
8:A:784:G:H5'	8:A:785:G:OP1	2.19	0.42
8:A:1170:C:H41	8:A:1178:C:N4	2.12	0.42
8:A:1360:G:N7	8:A:1361:G:C8	2.87	0.42
8:A:1966:A:N3	8:A:2592:G:O2'	2.46	0.42
8:A:2139:U:N3	8:A:2152:G:C6	2.88	0.42
8:A:2139:U:C5	8:A:2140:G:N7	2.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2189:U:H2'	8:A:2190:G:C8	2.55	0.42
8:A:2552:OMU:HM23	8:A:2552:OMU:H1'	1.50	0.42
8:A:2650:U:H2'	8:A:2651:C:H6	1.83	0.42
12:E:51:GLU:OE2	12:E:88:ARG:NH1	2.53	0.42
13:F:141:ASP:C	13:F:143:ASP:H	2.27	0.42
14:G:41:GLU:CB	14:G:54:ARG:HH21	2.32	0.42
18:K:23:LYS:HB3	18:K:40:LYS:HB3	2.01	0.42
22:O:92:PHE:HB2	22:O:117:PHE:CD2	2.55	0.42
24:Q:10:ARG:O	24:Q:14:LYS:HG3	2.19	0.42
34:a:77:A:HO2'	34:a:78:A:P	2.42	0.42
34:a:234:C:H4'	50:q:65:PRO:HG3	2.01	0.42
34:a:482:A:O5'	34:a:482:A:H8	2.02	0.42
34:a:737:C:H2'	34:a:738:C:C6	2.54	0.42
34:a:864:A:H2'	34:a:865:A:C8	2.54	0.42
34:a:1073:U:O2	35:b:102:ASN:ND2	2.53	0.42
34:a:1206:G:C6	34:a:1207:2MG:C5	3.08	0.42
36:c:10:ARG:NH2	36:c:174:LEU:O	2.52	0.42
36:c:34:SER:O	36:c:38:VAL:HG12	2.18	0.42
43:j:5:ARG:HD3	43:j:78:GLU:H	1.85	0.42
5:4:9:LYS:HG3	5:4:16:ILE:HD11	2.02	0.42
8:A:359:G:C5	8:A:360:U:C5	3.08	0.42
8:A:954:G:O2'	8:A:2274:A:N1	2.38	0.42
8:A:1389:G:N2	8:A:1399:C:C2	2.87	0.42
8:A:1604:C:O2'	8:A:1610:A:N1	2.32	0.42
8:A:1771:C:H2'	8:A:1772:A:C8	2.51	0.42
8:A:2179:C:H4'	8:A:2180:U:OP1	2.20	0.42
8:A:2322:A:N6	8:A:2333:A:H62	2.17	0.42
9:B:31:C:C2'	9:B:53:A:H61	2.33	0.42
13:F:113:PHE:CZ	13:F:115:GLY:HA2	2.53	0.42
18:K:3:GLN:O	18:K:6:THR:OG1	2.26	0.42
27:T:38:ALA:HB1	27:T:43:ILE:HD11	2.00	0.42
29:V:4:ILE:HG21	29:V:42:LEU:HD22	2.00	0.42
29:V:80:HIS:CD2	29:V:81:PRO:HD2	2.54	0.42
30:W:73:ARG:HG3	30:W:75:PHE:CE1	2.54	0.42
31:X:4:CYS:SG	31:X:51:SER:OG	2.65	0.42
34:a:212:G:H2'	34:a:213:G:C8	2.54	0.42
34:a:509:A:H5'	37:d:50:TYR:HD2	1.84	0.42
34:a:1178:G:N2	34:a:1180:A:H3'	2.34	0.42
34:a:1229:A:H2'	34:a:1230:C:C6	2.55	0.42
51:r:61:ALA:HB3	51:r:67:LEU:HD12	2.02	0.42
52:s:51:HIS:HD2	52:s:56:HIS:CE1	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:t:56:ILE:HD13	53:t:56:ILE:HA	1.90	0.42
56:w:18:G:H1'	56:w:57:G:H22	1.84	0.42
3:2:26:ASN:OD1	8:A:682:G:H5''	2.20	0.42
7:6:59:ARG:HA	7:6:62:LYS:HB2	2.01	0.42
8:A:4:U:H2'	8:A:5:A:C8	2.55	0.42
8:A:499:U:H2'	8:A:500:G:O4'	2.18	0.42
8:A:834:G:H1'	8:A:2358:A:N3	2.34	0.42
8:A:1040:A:H61	8:A:1115:G:H1	1.67	0.42
8:A:1360:G:H2'	8:A:1361:G:H5'	2.02	0.42
8:A:1427:A:H4'	8:A:1428:C:O4'	2.18	0.42
8:A:1889:A:H2'	8:A:1890:A:O4'	2.19	0.42
8:A:2192:U:C2	8:A:2193:G:C8	3.07	0.42
8:A:2696:U:H2'	8:A:2697:G:C8	2.55	0.42
11:D:106:LYS:HA	11:D:175:LEU:O	2.19	0.42
18:K:4:GLU:O	18:K:5:GLN:HB2	2.19	0.42
25:R:33:VAL:HG22	25:R:61:ALA:O	2.20	0.42
26:S:40:ASN:C	26:S:41:LYS:HG2	2.45	0.42
34:a:64:G:C2	34:a:67:C:N4	2.88	0.42
34:a:405:U:O4	37:d:1:ALA:N	2.52	0.42
34:a:438:U:H3	34:a:496:A:H62	1.67	0.42
34:a:457:G:H2'	34:a:458:U:C6	2.54	0.42
34:a:872:A:C8	34:a:874:G:C8	3.08	0.42
36:c:118:SER:O	36:c:121:SER:OG	2.35	0.42
37:d:56:GLU:CD	37:d:195:ASN:HD22	2.27	0.42
42:i:32:ARG:HG2	42:i:33:SER:N	2.35	0.42
43:j:15:HIS:O	43:j:18:ILE:HG22	2.19	0.42
44:k:74:LYS:HG3	44:k:75:GLU:N	2.34	0.42
44:k:100:ASN:HD22	44:k:106:ILE:HG12	1.85	0.42
1:0:8:THR:CG2	8:A:2020:A:H5'	2.49	0.42
7:6:51:VAL:HG22	52:s:22:VAL:HA	2.01	0.42
7:6:51:VAL:HG21	52:s:46:LEU:CD2	2.50	0.42
8:A:351:C:H2'	8:A:352:A:O4'	2.20	0.42
8:A:974:G:C6	8:A:1186:G:C6	3.08	0.42
8:A:1115:G:C4	8:A:1116:G:C8	3.08	0.42
8:A:2391:G:C2'	8:A:2424:C:H41	2.33	0.42
8:A:2638:G:O2'	8:A:2639:A:O5'	2.37	0.42
11:D:4:LEU:HD12	11:D:32:ASN:OD1	2.20	0.42
11:D:38:LYS:HD2	11:D:45:TYR:OH	2.20	0.42
15:H:46:PHE:CE1	15:H:50:ARG:HD2	2.55	0.42
15:H:135:HIS:CG	15:H:136:SER:H	2.38	0.42
22:O:31:THR:HG23	22:O:32:PRO:HD2	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:P:43:GLU:O	23:P:62:LYS:HG3	2.20	0.42
24:Q:23:TYR:HB2	24:Q:28:SER:HB3	2.00	0.42
34:a:1060:U:H2'	34:a:1061:G:C8	2.53	0.42
34:a:1186:G:H21	47:n:101:TRP:C	2.27	0.42
37:d:180:THR:HG22	37:d:181:PHE:H	1.84	0.42
39:f:10:VAL:HG22	39:f:58:HIS:HB3	2.01	0.42
39:f:49:TYR:OH	39:f:86:ARG:NH1	2.50	0.42
44:k:22:ILE:HD13	44:k:95:THR:OG1	2.20	0.42
44:k:28:ASN:HD21	44:k:47:GLY:H	1.68	0.42
47:n:42:TRP:HH2	52:s:8:PRO:HG2	1.85	0.42
55:v:66:C:H2'	55:v:67:C:C6	2.55	0.42
56:w:18:G:H1'	56:w:57:G:N2	2.35	0.42
8:A:284:U:H2'	8:A:285:G:H8	1.84	0.42
8:A:623:C:H2'	8:A:624:C:C6	2.54	0.42
8:A:1222:U:H2'	8:A:1223:G:C8	2.55	0.42
8:A:1421:G:C2	8:A:1422:G:C8	3.08	0.42
8:A:1472:C:C2'	8:A:1473:G:H5'	2.50	0.42
8:A:2104:C:C4	8:A:2105:U:C4	3.08	0.42
8:A:2134:A:N6	8:A:2156:G:O2'	2.29	0.42
8:A:2388:A:H5'	8:A:2389:G:OP2	2.19	0.42
8:A:2633:G:H2'	8:A:2634:A:O4'	2.20	0.42
8:A:2683:C:C2'	8:A:2684:U:H5'	2.50	0.42
8:A:2848:G:HO2'	8:A:2849:U:P	2.40	0.42
32:Y:1:MET:HE3	32:Y:1:MET:HB2	1.85	0.42
34:a:26:A:N6	34:a:558:G:H1'	2.35	0.42
34:a:150:U:C4	34:a:170:U:C4	3.08	0.42
34:a:481:G:H1'	34:a:482:A:N7	2.34	0.42
34:a:1151:A:O2'	34:a:1152:A:H5''	2.20	0.42
36:c:179:ALA:HB1	36:c:202:PHE:CE1	2.49	0.42
39:f:29:ILE:HG23	39:f:66:ALA:HB2	2.02	0.42
53:t:20:ASN:HB3	53:t:24:ARG:NH2	2.34	0.42
54:u:3:ILE:O	54:u:5:VAL:N	2.52	0.42
55:v:23:C:H2'	55:v:24:U:C6	2.53	0.42
56:w:36:A:H3'	56:w:37:MIA:H8	2.02	0.42
8:A:281:C:H2'	8:A:282:A:C8	2.54	0.42
8:A:355:U:H2'	8:A:356:G:C8	2.54	0.42
8:A:500:G:H1'	8:A:505:A:N6	2.34	0.42
8:A:947:A:H2'	8:A:948:C:C6	2.54	0.42
8:A:1081:U:H1'	16:I:123:ALA:HB1	2.02	0.42
8:A:1843:C:H2'	8:A:1844:C:H6	1.85	0.42
8:A:1946:U:H2'	8:A:1947:C:C6	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2175:C:H2'	8:A:2176:A:C8	2.53	0.42
8:A:2209:G:H2'	8:A:2210:U:C5	2.55	0.42
8:A:2215:C:H2'	8:A:2216:G:C8	2.54	0.42
8:A:2599:G:C8	10:C:234:GLY:HA2	2.54	0.42
12:E:7:ASP:OD1	12:E:7:ASP:N	2.38	0.42
13:F:15:LEU:HD22	13:F:19:PHE:HE2	1.85	0.42
13:F:29:ARG:N	13:F:158:THR:OG1	2.41	0.42
14:G:44:HIS:HE1	14:G:47:ASN:HA	1.85	0.42
24:Q:97:ILE:HG22	24:Q:105:PHE:HB2	2.02	0.42
25:R:68:ARG:HB2	25:R:90:ARG:HH21	1.84	0.42
34:a:538:G:OP1	45:l:109:ARG:HD3	2.19	0.42
34:a:553:A:H2'	34:a:554:A:H8	1.84	0.42
34:a:901:A:C5	34:a:902:G:H1'	2.55	0.42
34:a:972:C:O3'	43:j:59:LYS:HD3	2.20	0.42
34:a:1530:G:H2'	34:a:1531:A:C8	2.54	0.42
35:b:49:PHE:O	35:b:53:LEU:HG	2.20	0.42
35:b:94:ARG:O	35:b:96:LEU:HD12	2.20	0.42
40:g:75:LYS:HD2	40:g:76:SER:H	1.84	0.42
56:w:65:G:H2'	56:w:66:U:C6	2.54	0.42
7:6:1:MET:HB2	7:6:6:HIS:HE2	1.85	0.42
8:A:2:G:C6	8:A:2902:C:N4	2.88	0.42
8:A:3:U:H2'	8:A:4:U:O4'	2.20	0.42
8:A:930:G:H5''	33:Z:29:ARG:NH1	2.35	0.42
8:A:1038:G:H2'	8:A:1039:A:C8	2.55	0.42
8:A:1319:C:O2'	8:A:1320:C:H5'	2.20	0.42
8:A:1533:C:O5'	8:A:1533:C:H6	2.02	0.42
8:A:1707:G:C8	8:A:1756:G:C5	3.08	0.42
8:A:1959:G:O3'	34:a:1418:A:O2'	2.38	0.42
8:A:2154:A:H2'	8:A:2155:U:C2	2.55	0.42
8:A:2545:G:H2'	8:A:2546:U:O4'	2.20	0.42
8:A:2599:G:O6	10:C:238:ASN:ND2	2.53	0.42
9:B:26:C:C2	9:B:27:C:C6	3.08	0.42
9:B:42:C:O2'	13:F:62:GLN:HG2	2.19	0.42
11:D:101:PHE:HD1	11:D:104:VAL:HG21	1.85	0.42
13:F:32:LYS:HD3	13:F:91:ARG:HH11	1.84	0.42
15:H:68:ARG:HB3	15:H:68:ARG:HH11	1.83	0.42
15:H:101:ASP:HB2	15:H:106:ALA:C	2.45	0.42
20:M:4:PRO:CG	20:M:70:ASP:HA	2.50	0.42
30:W:11:ASP:OD1	30:W:12:SER:N	2.47	0.42
34:a:22:G:H4'	34:a:885:G:C8	2.54	0.42
34:a:100:G:C4	34:a:101:A:C8	3.08	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:159:G:C2	34:a:163:C:N4	2.87	0.42
34:a:382:A:H8	34:a:382:A:OP2	2.03	0.42
34:a:501:C:H2'	34:a:502:A:C8	2.55	0.42
34:a:1146:A:C2'	34:a:1147:C:H5'	2.49	0.42
34:a:1151:A:O2'	34:a:1152:A:H8	2.01	0.42
35:b:26:MET:HB3	35:b:26:MET:HE3	1.74	0.42
47:n:15:LEU:HD22	47:n:54:ASP:HB2	2.02	0.42
7:6:63:ARG:HD3	7:6:65:ASN:OD1	2.20	0.41
8:A:492:A:H2'	8:A:493:G:O4'	2.20	0.41
8:A:839:U:H2'	8:A:840:C:C6	2.56	0.41
8:A:1317:G:H2'	8:A:1318:U:O4'	2.20	0.41
8:A:1536:C:H1'	8:A:1537:G:C6	2.55	0.41
8:A:2513:A:H2'	8:A:2514:U:C6	2.54	0.41
9:B:52:A:O2'	9:B:53:A:O5'	2.33	0.41
14:G:86:LEU:HB2	14:G:130:ILE:HB	2.01	0.41
26:S:9:HIS:ND1	26:S:102:HIS:HE1	2.17	0.41
34:a:321:A:N7	34:a:328:C:O2'	2.49	0.41
34:a:878:A:H5'	41:h:80:PRO:HG2	2.02	0.41
34:a:1481:U:H3'	34:a:1482:G:C5	2.55	0.41
35:b:48:MET:HG2	35:b:198:VAL:O	2.19	0.41
37:d:40:HIS:HA	37:d:43:ARG:HH11	1.85	0.41
38:e:108:GLY:C	38:e:110:MET:H	2.27	0.41
46:m:90:HIS:HA	46:m:108:ARG:NH2	2.25	0.41
49:p:48:GLU:HB3	49:p:50:THR:O	2.20	0.41
3:2:42:LEU:HD12	3:2:42:LEU:HA	1.88	0.41
7:6:62:LYS:NZ	52:s:23:GLU:OE1	2.33	0.41
8:A:247:G:H4'	8:A:386:G:C5	2.56	0.41
8:A:784:G:O2'	8:A:785:G:H5''	2.20	0.41
8:A:984:A:H2'	8:A:984:A:N3	2.35	0.41
8:A:2043:C:H1'	8:A:2779:U:O4	2.20	0.41
8:A:2079:U:H2'	8:A:2080:A:O4'	2.20	0.41
8:A:2149:U:H2'	8:A:2150:C:O4'	2.20	0.41
8:A:2165:C:N4	8:A:2170:A:H62	2.17	0.41
8:A:2419:U:H2'	8:A:2420:C:H6	1.85	0.41
8:A:2659:G:H1'	8:A:2662:A:N6	2.35	0.41
8:A:2662:A:H2'	8:A:2663:G:O4'	2.20	0.41
8:A:2692:G:H1'	8:A:2847:U:H1'	2.01	0.41
9:B:34:A:H2'	9:B:44:G:N7	2.35	0.41
13:F:56:LEU:HD23	13:F:56:LEU:HA	1.84	0.41
14:G:139:VAL:O	14:G:143:VAL:HG12	2.21	0.41
22:O:98:GLN:O	22:O:100:HIS:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:U:42:LYS:HB3	28:U:57:ILE:HG22	2.02	0.41
28:U:85:ARG:NH2	28:U:101:THR:HG22	2.34	0.41
34:a:58:C:O2	34:a:58:C:H2'	2.20	0.41
34:a:264:C:H2'	34:a:265:G:O4'	2.20	0.41
34:a:283:U:C2	34:a:284:C:C6	3.08	0.41
34:a:404:G:N7	37:d:1:ALA:HB3	2.34	0.41
34:a:589:U:H2'	34:a:590:U:C6	2.55	0.41
34:a:1157:A:H5'	34:a:1158:C:N1	2.35	0.41
36:c:127:VAL:HG21	36:c:135:ARG:NH2	2.35	0.41
37:d:64:TYR:HE1	37:d:110:ARG:HH12	1.67	0.41
39:f:12:PRO:HG3	39:f:55:HIS:O	2.20	0.41
41:h:47:ASP:OD1	41:h:48:PHE:N	2.51	0.41
54:u:45:LYS:HB3	54:u:45:LYS:HE3	1.93	0.41
8:A:132:G:H2'	8:A:133:U:C6	2.56	0.41
8:A:146:A:H2'	8:A:147:C:C6	2.55	0.41
8:A:667:U:H2'	8:A:668:A:O4'	2.20	0.41
8:A:744:U:H2'	8:A:745:1MG:O4'	2.20	0.41
8:A:827:U:H4'	8:A:828:U:C5	2.55	0.41
8:A:833:A:H2'	8:A:834:G:C8	2.55	0.41
8:A:1188:U:H4'	25:R:81:LYS:O	2.20	0.41
8:A:1655:A:H1'	11:D:118:PHE:CE1	2.55	0.41
8:A:1679:A:O4'	8:A:1990:C:O2'	2.39	0.41
8:A:1827:U:OP2	10:C:220:ARG:HD2	2.20	0.41
8:A:2194:U:H2'	8:A:2195:U:H6	1.85	0.41
8:A:2366:A:H2'	8:A:2367:G:O4'	2.20	0.41
12:E:28:VAL:O	12:E:32:VAL:HG13	2.20	0.41
12:E:181:ILE:HD13	19:L:6:LEU:HD11	2.02	0.41
21:N:87:PHE:HE1	21:N:116:VAL:HG23	1.84	0.41
28:U:24:VAL:HG22	28:U:35:VAL:HG22	2.01	0.41
34:a:461:A:H8	34:a:461:A:OP2	2.02	0.41
34:a:587:G:N1	34:a:754:C:OP2	2.43	0.41
34:a:942:G:N2	42:i:125:GLN:HE22	2.19	0.41
34:a:962:C:C2	34:a:963:G:C8	3.08	0.41
34:a:981:U:O5'	34:a:981:U:H6	2.03	0.41
34:a:1422:G:H2'	34:a:1423:G:O4'	2.20	0.41
34:a:1484:C:H3'	34:a:1485:U:C4'	2.50	0.41
37:d:24:VAL:HG23	37:d:160:LEU:HD22	2.02	0.41
39:f:7:VAL:HG22	39:f:61:LEU:HD13	2.02	0.41
51:r:38:ILE:HG12	51:r:58:ILE:HG21	2.02	0.41
55:v:52:G:C6	55:v:53:G:N7	2.88	0.41
8:A:323:C:O2	8:A:1205:A:H2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:348:A:H2'	8:A:349:U:O4'	2.20	0.41
8:A:396:G:O3'	31:X:30:PRO:HA	2.21	0.41
8:A:1092:C:N4	8:A:1093:G:C6	2.88	0.41
8:A:1297:C:OP1	8:A:2710:C:H4'	2.20	0.41
8:A:1636:U:O2'	8:A:1760:C:O2	2.31	0.41
8:A:2256:G:H2'	8:A:2257:U:O4'	2.21	0.41
8:A:2298:A:OP1	13:F:70:ARG:HD2	2.21	0.41
8:A:2591:C:H2'	8:A:2592:G:C8	2.55	0.41
8:A:2696:U:H2'	8:A:2697:G:H8	1.85	0.41
9:B:52:A:O2'	9:B:53:A:C8	2.73	0.41
11:D:54:ALA:HA	11:D:75:ALA:O	2.20	0.41
13:F:39:VAL:HG21	13:F:49:LEU:HD13	2.01	0.41
25:R:27:ILE:HG22	25:R:31:GLU:HB2	2.02	0.41
25:R:79:ARG:O	25:R:80:ARG:HB2	2.20	0.41
34:a:255:G:H2'	34:a:256:U:C6	2.55	0.41
34:a:1216:A:OP1	47:n:4:SER:OG	2.19	0.41
34:a:1241:G:H2'	34:a:1242:G:C8	2.53	0.41
34:a:1300:G:H1'	34:a:1301:U:C5	2.54	0.41
36:c:129:PHE:CE2	36:c:130:ARG:HG3	2.55	0.41
43:j:25:ILE:HD12	43:j:25:ILE:HA	1.94	0.41
45:l:80:LEU:HD13	45:l:101:LEU:HD22	2.02	0.41
46:m:68:LEU:HD12	46:m:68:LEU:HA	1.86	0.41
55:v:35:A:H2'	55:v:36:U:C6	2.56	0.41
8:A:67:U:C2	8:A:68:G:C8	3.08	0.41
8:A:216:A:C8	8:A:432:A:C6	3.08	0.41
8:A:242:G:O2'	8:A:243:U:O5'	2.35	0.41
8:A:371:A:N6	8:A:402:A:OP2	2.53	0.41
8:A:712:G:H2'	8:A:713:G:O4'	2.20	0.41
8:A:714:U:P	48:o:88:ARG:HD2	2.60	0.41
8:A:1005:C:C2	8:A:1006:C:C5	3.08	0.41
8:A:1219:U:H2'	8:A:1220:G:H8	1.85	0.41
8:A:1318:U:C2	8:A:1319:C:C5	3.08	0.41
8:A:1409:U:H2'	8:A:1410:G:H8	1.85	0.41
8:A:1730:C:O2'	8:A:1731:G:P	2.79	0.41
8:A:1871:A:H3'	8:A:1872:A:H8	1.86	0.41
8:A:1952:A:H5'	18:K:55:GLY:O	2.20	0.41
8:A:2452:C:C2	57:y:101:FME:HB2	2.56	0.41
8:A:2726:A:HO2'	8:A:2727:A:P	2.41	0.41
9:B:71:C:H2'	9:B:72:G:O4'	2.20	0.41
11:D:159:LYS:HG2	11:D:161:MET:HE3	2.03	0.41
12:E:130:LYS:HD3	12:E:130:LYS:HA	1.89	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:F:147:ARG:NH1	13:F:149:ARG:HA	2.35	0.41
27:T:39:THR:O	27:T:42:GLU:HB2	2.21	0.41
28:U:30:SER:O	28:U:30:SER:OG	2.32	0.41
34:a:151:A:H2'	34:a:152:A:O4'	2.20	0.41
34:a:464:U:H2'	34:a:465:A:H2'	2.01	0.41
34:a:1002:G:C6	34:a:1003:G:C5	3.08	0.41
34:a:1017:U:H2'	34:a:1018:G:C8	2.55	0.41
34:a:1446:A:O2'	34:a:1447:A:H5'	2.20	0.41
43:j:73:LEU:HD21	43:j:75:ASP:HB2	2.02	0.41
56:w:51:C:C2	56:w:52:G:C8	3.08	0.41
8:A:173:A:H2'	8:A:174:U:C6	2.56	0.41
8:A:566:U:H5	25:R:80:ARG:HG2	1.85	0.41
8:A:1035:U:H2'	8:A:1036:G:H8	1.85	0.41
8:A:1378:A:O2'	8:A:1380:G:N7	2.44	0.41
8:A:1859:U:H2'	8:A:1860:G:O4'	2.20	0.41
8:A:1952:A:OP1	18:K:44:LYS:NZ	2.36	0.41
8:A:2110:G:N2	8:A:2180:U:H3	2.18	0.41
8:A:2123:G:H21	8:A:2176:A:H62	1.68	0.41
15:H:72:ILE:HG13	15:H:73:ASN:N	2.36	0.41
18:K:71:ARG:HH22	18:K:105:ARG:HB2	1.84	0.41
20:M:36:VAL:HG13	29:V:82:TYR:CD2	2.56	0.41
26:S:17:VAL:HA	26:S:43:ALA:HB1	2.01	0.41
26:S:86:MET:HB2	26:S:96:ILE:HG12	2.03	0.41
29:V:31:TYR:OH	29:V:75:GLN:HG2	2.20	0.41
34:a:69:G:O2'	34:a:70:U:P	2.79	0.41
34:a:85:U:H4'	34:a:86:G:H5'	2.03	0.41
34:a:262:A:H2'	34:a:263:A:C8	2.56	0.41
34:a:389:A:H5''	34:a:390:U:H5	1.85	0.41
34:a:414:A:H2'	34:a:415:A:O4'	2.21	0.41
34:a:737:C:OP1	39:f:91:ARG:N	2.54	0.41
34:a:1288:A:H2'	34:a:1289:A:H8	1.86	0.41
34:a:1315:U:O2	34:a:1360:A:H2	2.04	0.41
34:a:1329:A:H5''	46:m:25:GLY:N	2.28	0.41
42:i:9:GLY:HA3	42:i:81:GLY:N	2.36	0.41
43:j:37:ARG:HB2	43:j:75:ASP:HB3	2.03	0.41
56:w:4:C:N4	56:w:5:G:O6	2.54	0.41
8:A:58:G:OP1	27:T:78:SER:OG	2.28	0.41
8:A:140:C:H4'	8:A:141:G:O5'	2.21	0.41
8:A:656:G:H2'	8:A:657:U:C6	2.55	0.41
8:A:1570:A:H2'	8:A:1571:A:C8	2.55	0.41
8:A:1730:C:H1'	8:A:1731:G:N1	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1887:C:H2'	8:A:1888:G:O4'	2.21	0.41
8:A:2375:G:N2	8:A:2378:A:OP2	2.43	0.41
8:A:2607:G:H2'	8:A:2608:G:O4'	2.21	0.41
8:A:2700:A:H2'	8:A:2701:U:C6	2.55	0.41
9:B:52:A:HO2'	9:B:53:A:P	2.42	0.41
9:B:61:G:H2'	9:B:62:C:H6	1.85	0.41
9:B:104:A:O2'	29:V:32:GLY:HA2	2.21	0.41
15:H:66:ASN:HB3	15:H:135:HIS:HB2	2.02	0.41
15:H:93:SER:HB2	15:H:123:ARG:CZ	2.51	0.41
18:K:71:ARG:HB2	18:K:75:SER:HB2	2.02	0.41
18:K:107:LEU:HB2	18:K:116:ILE:HD13	2.03	0.41
24:Q:111:LYS:HE3	25:R:49:ILE:HB	2.02	0.41
34:a:592:G:C6	34:a:648:A:C6	3.09	0.41
34:a:665:A:C1'	34:a:733:G:H1'	2.51	0.41
34:a:909:A:N3	34:a:1413:A:O2'	2.47	0.41
34:a:1000:A:H2'	34:a:1001:C:C6	2.56	0.41
34:a:1057:G:C6	34:a:1204:A:N1	2.88	0.41
34:a:1084:G:H1'	34:a:1102:A:N7	2.36	0.41
34:a:1104:G:H2'	34:a:1105:A:O4'	2.20	0.41
34:a:1121:U:H2'	34:a:1122:U:C6	2.55	0.41
34:a:1302:C:C2	46:m:16:ILE:HD11	2.56	0.41
34:a:1320:C:H2'	34:a:1321:U:C6	2.55	0.41
34:a:1532:U:H2'	34:a:1533:C:O4'	2.21	0.41
36:c:59:PRO:HG3	36:c:64:ARG:CZ	2.50	0.41
36:c:86:LEU:HA	36:c:89:VAL:HG12	2.02	0.41
37:d:144:ILE:O	37:d:144:ILE:HG22	2.21	0.41
39:f:20:GLY:O	39:f:24:ARG:HG3	2.20	0.41
40:g:41:ILE:HD12	40:g:116:ALA:N	2.35	0.41
43:j:7:ARG:O	43:j:101:SER:N	2.52	0.41
48:o:63:ARG:HD2	48:o:63:ARG:HA	1.75	0.41
56:w:6:G:O2'	56:w:7:A:H5'	2.21	0.41
4:3:12:ARG:NE	19:L:61:LEU:O	2.45	0.41
8:A:81:G:O2'	8:A:295:G:O2'	2.28	0.41
8:A:635:C:O2'	8:A:639:U:H5''	2.21	0.41
8:A:866:A:C8	8:A:914:G:C6	3.08	0.41
8:A:1059:G:C2'	16:I:75:ALA:H	2.33	0.41
8:A:1384:A:H1'	8:A:1405:U:H1'	2.02	0.41
8:A:2172:U:H4'	8:A:2174:C:H41	1.86	0.41
8:A:2294:G:H5''	22:O:10:ARG:HD3	2.03	0.41
8:A:2455:G:C4	8:A:2456:C:C5	3.09	0.41
14:G:18:ILE:HG22	14:G:23:ILE:HG23	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:73:VAL:CG1	17:J:86:GLN:HB2	2.51	0.41
25:R:2:TYR:H	25:R:42:ALA:HB3	1.86	0.41
34:a:158:G:H3'	34:a:159:G:H8	1.86	0.41
34:a:925:G:C6	34:a:927:G:N7	2.89	0.41
34:a:1037:C:H2'	34:a:1038:C:C6	2.56	0.41
34:a:1167:A:H5''	34:a:1168:U:OP1	2.21	0.41
37:d:196:GLU:O	37:d:200:VAL:HG23	2.20	0.41
40:g:47:GLU:O	40:g:51:GLN:HG2	2.21	0.41
43:j:30:LYS:N	43:j:33:GLY:O	2.37	0.41
43:j:49:PHE:O	43:j:64:GLN:HA	2.21	0.41
44:k:62:ALA:HB1	44:k:95:THR:CG2	2.50	0.41
51:r:9:PHE:CE1	51:r:11:ARG:HB3	2.55	0.41
56:w:64:A:H2'	56:w:65:G:H8	1.86	0.41
1:0:4:GLN:NE2	8:A:2056:G:H4'	2.36	0.41
8:A:73:A:H8	8:A:73:A:O5'	2.03	0.41
8:A:244:A:H2'	8:A:245:G:O4'	2.20	0.41
8:A:407:G:H2'	8:A:408:G:H8	1.85	0.41
8:A:534:U:H2'	8:A:535:G:C8	2.56	0.41
8:A:565:C:H2'	8:A:566:U:O4'	2.21	0.41
8:A:679:C:H2'	8:A:680:C:C6	2.56	0.41
8:A:774:G:HO2'	8:A:775:G:P	2.42	0.41
8:A:891:G:N1	8:A:892:A:C6	2.89	0.41
8:A:918:A:H5''	9:B:97:C:O2'	2.21	0.41
8:A:1179:G:H2'	8:A:1179:G:N3	2.35	0.41
8:A:1199:U:H1'	24:Q:3:VAL:HG22	2.03	0.41
8:A:1485:U:H2'	8:A:1486:U:H6	1.86	0.41
8:A:1737:G:H2'	8:A:1738:G:C4	2.56	0.41
8:A:1740:G:H2'	8:A:1741:C:H6	1.85	0.41
8:A:2129:C:H3'	8:A:2130:U:C5	2.56	0.41
8:A:2181:U:H2'	8:A:2182:U:C6	2.56	0.41
8:A:2299:U:H2'	8:A:2300:C:C6	2.55	0.41
8:A:2452:C:O4'	57:y:101:FME:HE2	2.21	0.41
8:A:2467:C:H2'	8:A:2468:A:O4'	2.21	0.41
8:A:2626:C:H2'	8:A:2627:G:O4'	2.21	0.41
8:A:2677:G:H2'	8:A:2678:C:C6	2.56	0.41
8:A:2745:C:H2'	8:A:2746:U:C6	2.56	0.41
8:A:2834:G:H2'	8:A:2879:A:H61	1.85	0.41
9:B:57:A:HO2'	13:F:160:LYS:NZ	2.17	0.41
10:C:6:LYS:HE2	10:C:6:LYS:HB3	1.83	0.41
10:C:157:ALA:HB1	10:C:196:ASN:O	2.21	0.41
10:C:229:HIS:HB3	10:C:231:HIS:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:D:56:LYS:C	11:D:58:ASN:H	2.29	0.41
11:D:60:VAL:HG11	11:D:75:ALA:CB	2.51	0.41
11:D:133:THR:O	11:D:134:HIS:HB2	2.20	0.41
12:E:148:ILE:HG22	12:E:150:THR:HG23	2.02	0.41
28:U:85:ARG:HD2	28:U:87:GLU:OE1	2.21	0.41
29:V:21:ARG:HA	29:V:25:LYS:O	2.21	0.41
34:a:122:G:O2'	34:a:312:C:O2'	2.32	0.41
34:a:188:C:H2'	34:a:189:A:O4'	2.20	0.41
34:a:439:U:H1'	37:d:118:SER:OG	2.21	0.41
34:a:554:A:H2'	34:a:555:U:C6	2.56	0.41
34:a:920:U:H2'	34:a:921:U:C6	2.56	0.41
34:a:925:G:C2	34:a:927:G:C8	3.09	0.41
34:a:1057:G:C5	34:a:1204:A:N1	2.89	0.41
34:a:1152:A:H2'	34:a:1153:G:O4'	2.21	0.41
34:a:1208:C:H2'	34:a:1209:C:C6	2.56	0.41
34:a:1238:A:N7	34:a:1303:C:H1'	2.35	0.41
36:c:9:ILE:HD12	36:c:9:ILE:HA	1.85	0.41
37:d:3:TYR:CE1	37:d:10:LEU:HD11	2.56	0.41
39:f:38:ARG:NH2	51:r:23:LYS:HE3	2.35	0.41
39:f:49:TYR:OH	51:r:62:ARG:O	2.33	0.41
40:g:16:LYS:HD3	40:g:17:PHE:CZ	2.56	0.41
40:g:129:ASN:O	40:g:130:LYS:HD2	2.21	0.41
41:h:9:MET:HE3	41:h:60:LEU:HD11	2.02	0.41
42:i:104:THR:HG22	42:i:106:ASP:H	1.85	0.41
43:j:22:THR:CG2	43:j:72:ARG:HG3	2.51	0.41
45:l:56:LEU:N	45:l:60:PHE:O	2.39	0.41
52:s:22:VAL:HG12	52:s:46:LEU:HD21	2.03	0.41
56:w:51:C:C2	56:w:52:G:N7	2.89	0.41
2:1:34:GLU:HG2	2:1:47:ILE:HG23	2.03	0.41
4:3:53:ASP:HB3	19:L:57:LEU:CD2	2.50	0.41
8:A:5:A:H2'	8:A:6:A:H8	1.86	0.41
8:A:321:U:C2	12:E:159:LEU:HD13	2.56	0.41
8:A:439:A:H2'	8:A:440:C:O4'	2.21	0.41
8:A:624:C:O2'	8:A:657:U:OP1	2.33	0.41
8:A:857:G:H2'	8:A:858:G:O4'	2.20	0.41
8:A:1181:U:H2'	8:A:1182:G:C8	2.56	0.41
8:A:1232:G:C5	8:A:1233:C:C5	3.09	0.41
8:A:1403:A:O2'	8:A:1471:G:O2'	2.35	0.41
8:A:1614:A:C2	26:S:93:ALA:HB2	2.56	0.41
8:A:1926:U:O4	8:A:1929:G:N2	2.53	0.41
8:A:2142:A:H3'	8:A:2143:C:C6	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2157:G:H1'	8:A:2158:A:C2	2.56	0.41
8:A:2194:U:H2'	8:A:2195:U:C6	2.55	0.41
8:A:2305:U:H2'	8:A:2306:C:C6	2.56	0.41
8:A:2688:G:N1	8:A:2720:U:OP2	2.34	0.41
8:A:2768:U:O2'	17:J:95:ARG:NH1	2.53	0.41
9:B:118:C:H2'	9:B:119:A:C8	2.56	0.41
10:C:48:ILE:HD13	10:C:48:ILE:HG21	1.90	0.41
10:C:81:GLU:O	10:C:89:ASN:HB3	2.21	0.41
13:F:106:ALA:HB1	13:F:136:ILE:HG13	2.02	0.41
27:T:12:ARG:HG2	27:T:34:VAL:C	2.46	0.41
27:T:14:PRO:HD3	32:Y:30:MET:HE3	2.03	0.41
30:W:66:GLU:OE1	30:W:77:SER:OG	2.36	0.41
34:a:79:G:N2	34:a:90:C:C2	2.88	0.41
34:a:204:G:H2'	34:a:205:A:H4'	2.02	0.41
34:a:303:A:H2'	34:a:304:U:O4'	2.21	0.41
34:a:407:U:H2'	34:a:408:A:H8	1.84	0.41
34:a:671:G:H2'	34:a:672:U:O4'	2.20	0.41
34:a:949:A:H2'	34:a:950:U:C6	2.55	0.41
34:a:1057:G:C6	34:a:1204:A:C6	3.09	0.41
34:a:1246:A:C6	34:a:1292:G:C6	3.09	0.41
34:a:1288:A:H2'	34:a:1289:A:C8	2.56	0.41
34:a:1382:C:C5	34:a:1383:C:H5	2.39	0.41
34:a:1539:C:O3'	34:a:1540:U:H4'	2.21	0.41
38:e:23:THR:HA	38:e:27:GLY:O	2.21	0.41
40:g:65:LEU:HB3	40:g:69:ARG:NH2	2.36	0.41
45:l:45:ASN:O	45:l:46:SER:C	2.63	0.41
46:m:85:TYR:O	46:m:89:ARG:HG2	2.21	0.41
48:o:2:LEU:HB2	48:o:34:GLN:OE1	2.21	0.41
53:t:47:GLN:HE21	53:t:51:ASN:HD21	1.69	0.41
1:0:6:LYS:HE3	1:0:6:LYS:HB2	1.72	0.40
2:1:29:LYS:NZ	8:A:2286:G:OP1	2.35	0.40
4:3:62:PRO:HG2	4:3:63:TYR:CD2	2.56	0.40
8:A:570:G:H2'	8:A:2030:6MZ:N7	2.36	0.40
8:A:774:G:N2	8:A:787:C:O2'	2.54	0.40
8:A:1061:U:H5'	8:A:1062:G:C5'	2.51	0.40
8:A:1371:G:N2	8:A:1372:U:C4	2.89	0.40
8:A:1782:U:O2'	8:A:2609:U:H5''	2.21	0.40
8:A:1871:A:H2'	8:A:1872:A:O4'	2.21	0.40
8:A:2229:U:O2	31:X:33:HIS:HE1	2.03	0.40
8:A:2534:A:H2'	8:A:2535:G:O4'	2.20	0.40
8:A:2808:G:O2'	8:A:2809:A:O5'	2.34	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:30:C:OP1	22:O:3:LYS:NZ	2.41	0.40
10:C:30:ALA:O	10:C:32:LEU:N	2.54	0.40
12:E:37:ALA:HA	12:E:40:ARG:HG3	2.03	0.40
19:L:30:THR:O	19:L:31:GLY:C	2.64	0.40
20:M:17:ASN:O	20:M:38:ARG:NH1	2.46	0.40
28:U:46:LYS:HE3	28:U:47:PRO:HD2	2.03	0.40
34:a:134:G:H2'	34:a:135:C:O4'	2.20	0.40
34:a:363:A:C6	45:l:27:PRO:HD2	2.57	0.40
34:a:526:C:C2	34:a:527:G7M:H1'	2.56	0.40
34:a:656:G:H2'	34:a:657:U:H6	1.87	0.40
34:a:691:G:O2'	34:a:797:C:H4'	2.22	0.40
34:a:1058:G:OP1	36:c:198:LYS:HE2	2.21	0.40
34:a:1161:C:H2'	34:a:1162:C:H6	1.85	0.40
34:a:1250:A:H2'	34:a:1251:A:C8	2.56	0.40
34:a:1352:C:H2'	34:a:1353:G:C8	2.56	0.40
34:a:1450:U:O2'	34:a:1453:G:O6	2.39	0.40
35:b:42:LEU:O	35:b:46:VAL:HG13	2.21	0.40
37:d:59:LYS:HB3	37:d:59:LYS:HE2	1.84	0.40
37:d:61:ARG:HE	37:d:61:ARG:HB3	1.52	0.40
37:d:198:LEU:HD23	37:d:198:LEU:HA	1.90	0.40
38:e:106:ALA:H	38:e:111:ARG:NH2	2.20	0.40
41:h:24:VAL:HG23	41:h:24:VAL:O	2.20	0.40
41:h:26:MET:HE2	41:h:26:MET:HB3	1.98	0.40
46:m:15:VAL:HA	46:m:29:SER:OG	2.21	0.40
50:q:39:ARG:HD2	50:q:39:ARG:HA	1.88	0.40
8:A:26:G:H2'	8:A:27:G:O4'	2.21	0.40
8:A:414:C:H2'	8:A:415:A:H8	1.86	0.40
8:A:747:5MC:HN41	8:A:2014:A:H2	1.70	0.40
8:A:877:A:C6	8:A:899:A:C5	3.10	0.40
8:A:1031:G:C6	8:A:1124:G:C6	3.09	0.40
8:A:1102:C:H5'	8:A:1103:A:N7	2.36	0.40
8:A:1103:A:H2'	8:A:1104:C:O4'	2.20	0.40
8:A:1385:A:C6	8:A:1403:A:C6	3.09	0.40
8:A:1894:C:C2'	8:A:1895:C:H5'	2.50	0.40
8:A:2108:A:H2'	8:A:2109:U:C2	2.57	0.40
8:A:2144:G:N2	8:A:2148:G:O6	2.54	0.40
8:A:2162:G:P	8:A:2171:A:H62	2.44	0.40
8:A:2204:G:H4'	10:C:149:LYS:HD3	2.02	0.40
8:A:2331:G:O2'	8:A:2336:A:N1	2.43	0.40
8:A:2834:G:H1'	8:A:2883:A:N6	2.37	0.40
9:B:29:A:H2'	9:B:30:C:H6	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:29:A:C2	9:B:56:G:C2	3.09	0.40
12:E:48:THR:HG23	12:E:86:ALA:HB3	2.03	0.40
14:G:94:ARG:H	14:G:105:SER:HG	1.68	0.40
28:U:26:ASN:OD1	28:U:34:ILE:HD12	2.21	0.40
34:a:186:C:H2'	34:a:187:G:O4'	2.21	0.40
34:a:520:A:O2'	45:l:69:GLU:OE2	2.38	0.40
34:a:703:G:O2'	34:a:704:A:OP2	2.31	0.40
34:a:768:A:OP1	34:a:804:U:H4'	2.21	0.40
34:a:1138:G:H3'	34:a:1138:G:N3	2.36	0.40
36:c:149:LYS:HB2	36:c:168:ARG:HG3	2.04	0.40
40:g:4:ARG:HG2	40:g:5:VAL:H	1.86	0.40
52:s:43:MET:C	52:s:46:LEU:HD23	2.46	0.40
55:v:60:U:P	55:v:61:C:H41	2.44	0.40
5:4:10:LEU:HD22	8:A:2477:U:O4	2.21	0.40
5:4:24:ARG:NH1	8:A:2742:G:OP2	2.54	0.40
6:5:71:CYS:C	6:5:73:LYS:H	2.29	0.40
7:6:1:MET:HB3	9:B:43:C:H5''	2.03	0.40
8:A:685:A:N1	8:A:787:C:H1'	2.36	0.40
8:A:837:C:H42	8:A:941:A:H62	1.70	0.40
8:A:943:A:H8	8:A:943:A:O5'	2.04	0.40
8:A:1311:G:OP2	8:A:1311:G:H8	2.03	0.40
8:A:1378:A:O2'	8:A:1380:G:OP2	2.39	0.40
8:A:1385:A:H1'	8:A:1386:C:C6	2.57	0.40
8:A:1790:C:O2'	10:C:207:ALA:HB2	2.21	0.40
8:A:1857:G:N2	8:A:1885:A:OP2	2.53	0.40
8:A:1915:3TD:H6	8:A:1915:3TD:H2'	1.72	0.40
8:A:2110:G:C6	8:A:2120:G:N7	2.89	0.40
8:A:2114:A:N3	8:A:2114:A:H2'	2.36	0.40
8:A:2182:U:C2'	8:A:2183:A:H5'	2.51	0.40
8:A:2468:A:O2'	8:A:2469:A:C8	2.65	0.40
10:C:163:ILE:HA	10:C:173:LEU:HD23	2.02	0.40
11:D:25:THR:HG21	11:D:193:VAL:HG22	2.04	0.40
11:D:73:VAL:CG1	11:D:93:GLY:HA2	2.51	0.40
14:G:59:ASP:N	14:G:59:ASP:OD1	2.45	0.40
26:S:7:HIS:HB2	26:S:50:VAL:CG2	2.52	0.40
34:a:158:G:H3'	34:a:159:G:C8	2.56	0.40
34:a:407:U:P	37:d:2:ARG:HH22	2.44	0.40
34:a:718:A:C2	51:r:37:LYS:HE3	2.55	0.40
34:a:820:U:H4'	34:a:821:G:OP2	2.20	0.40
34:a:834:U:H3	34:a:852:G:H1	1.70	0.40
34:a:964:A:N3	34:a:969:A:O2'	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1000:A:N6	34:a:1041:G:O6	2.54	0.40
34:a:1063:C:H3'	34:a:1064:G:H2'	2.03	0.40
34:a:1096:C:O2	34:a:1170:A:O2'	2.38	0.40
34:a:1196:A:O2'	34:a:1197:A:P	2.80	0.40
34:a:1436:U:H2'	34:a:1437:A:C8	2.56	0.40
35:b:65:LYS:HG2	35:b:89:PHE:CE2	2.57	0.40
35:b:71:THR:HG22	35:b:93:HIS:O	2.21	0.40
52:s:46:LEU:HA	52:s:46:LEU:HD13	1.82	0.40
53:t:4:LYS:C	53:t:6:ALA:H	2.29	0.40
56:w:58:A:C2	56:w:60:U:H5''	2.55	0.40
3:2:7:PRO:HD3	8:A:1612:C:H4'	2.04	0.40
3:2:10:LEU:HD13	8:A:125:A:C6	2.56	0.40
4:3:50:SER:OG	4:3:51:LYS:N	2.54	0.40
8:A:332:A:C2	8:A:335:C:C5	3.10	0.40
8:A:471:A:OP1	12:E:79:ARG:NH2	2.42	0.40
8:A:1003:G:O2'	8:A:1010:A:N1	2.42	0.40
8:A:1310:G:H2'	8:A:1311:G:O4'	2.22	0.40
8:A:1641:A:H2'	8:A:1642:G:O4'	2.21	0.40
8:A:1909:C:H3'	8:A:1910:G:H21	1.86	0.40
8:A:1916:A:H2'	8:A:1916:A:N3	2.37	0.40
8:A:2107:G:H3'	8:A:2108:A:H8	1.86	0.40
8:A:2364:C:OP1	30:W:51:ARG:HD3	2.22	0.40
8:A:2599:G:N7	10:C:234:GLY:HA2	2.36	0.40
8:A:2786:U:O2	11:D:63:PRO:HB3	2.21	0.40
9:B:15:A:H3'	9:B:16:G:H8	1.86	0.40
10:C:75:ALA:HB3	10:C:115:ILE:HG13	2.04	0.40
11:D:97:SER:OG	11:D:99:GLU:OE1	2.20	0.40
13:F:46:LYS:HD3	13:F:46:LYS:C	2.47	0.40
13:F:129:MET:O	13:F:153:ILE:N	2.46	0.40
15:H:75:LEU:HG	15:H:76:GLU:N	2.36	0.40
17:J:19:ASP:O	17:J:23:LYS:HD2	2.21	0.40
28:U:9:GLU:OE2	28:U:23:LYS:HB3	2.21	0.40
34:a:76:G:C2	34:a:77:A:C8	3.09	0.40
34:a:77:A:O2'	34:a:78:A:OP1	2.35	0.40
34:a:334:C:H2'	34:a:335:C:H6	1.86	0.40
34:a:653:U:C5	41:h:55:LYS:HG2	2.57	0.40
34:a:865:A:H2'	34:a:866:C:H6	1.86	0.40
34:a:1160:G:C2	34:a:1161:C:C6	3.10	0.40
34:a:1477:U:H2'	34:a:1478:U:H6	1.87	0.40
35:b:162:VAL:O	35:b:184:ALA:HA	2.21	0.40
36:c:11:LEU:HD23	36:c:11:LEU:HA	1.91	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:47:PHE:CZ	38:e:137:ARG:HG2	2.57	0.40
38:e:100:GLU:H	38:e:100:GLU:CD	2.28	0.40
39:f:46:GLN:HA	39:f:56:LYS:HA	2.04	0.40
40:g:58:LEU:H	40:g:58:LEU:HG	1.66	0.40
42:i:50:PRO:O	42:i:53:LEU:HB3	2.21	0.40
53:t:55:PRO:HB2	53:t:59:ARG:NH2	2.36	0.40
55:v:68:C:H2'	55:v:69:C:C6	2.56	0.40
56:w:63:G:H2'	56:w:64:A:C8	2.55	0.40
1:0:11:LYS:HA	1:0:11:LYS:HD3	1.90	0.40
8:A:17:G:H2'	8:A:18:U:C6	2.56	0.40
8:A:48:G:N1	8:A:177:G:OP2	2.39	0.40
8:A:301:G:H5'	8:A:334:C:H2'	2.03	0.40
8:A:748:G:C8	26:S:89:ALA:HB1	2.56	0.40
8:A:970:U:N3	8:A:971:G:N7	2.69	0.40
8:A:1169:A:H2'	8:A:1170:C:O4'	2.22	0.40
8:A:1957:C:H5'	8:A:1984:G:O2'	2.22	0.40
8:A:2108:A:O2'	8:A:2109:U:OP1	2.35	0.40
8:A:2176:A:H2'	8:A:2177:C:C6	2.57	0.40
9:B:17:C:C4	9:B:18:G:C8	3.09	0.40
17:J:99:ARG:HA	17:J:99:ARG:HD2	1.82	0.40
19:L:93:ASN:HA	19:L:96:LYS:HB2	2.03	0.40
20:M:4:PRO:HG2	20:M:70:ASP:HA	2.04	0.40
23:P:61:ARG:NE	23:P:99:LEU:O	2.55	0.40
28:U:98:ASN:O	28:U:100:GLU:N	2.52	0.40
32:Y:9:LYS:O	32:Y:60:LYS:HE3	2.22	0.40
34:a:490:C:H2'	34:a:491:G:H8	1.86	0.40
34:a:633:G:H2'	34:a:634:C:C6	2.56	0.40
34:a:1237:C:O2'	34:a:1300:G:N2	2.44	0.40
34:a:1369:C:H2'	34:a:1370:G:O4'	2.22	0.40
37:d:49:ASP:O	37:d:52:VAL:HG22	2.21	0.40
40:g:129:ASN:C	40:g:134:VAL:HG11	2.46	0.40
41:h:17:GLN:NE2	41:h:62:LEU:HB3	2.31	0.40
45:l:55:ARG:O	45:l:55:ARG:HG3	2.22	0.40
45:l:73:LEU:HD11	45:l:103:CYS:SG	2.62	0.40
55:v:20:H2U:H2'	55:v:20:H2U:H61	1.87	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%)	46 (96%)	2 (4%)	0	100	100
3	2	44/46 (96%)	42 (96%)	2 (4%)	0	100	100
4	3	62/65 (95%)	57 (92%)	5 (8%)	0	100	100
5	4	36/38 (95%)	30 (83%)	6 (17%)	0	100	100
6	5	129/165 (78%)	96 (74%)	33 (26%)	0	100	100
7	6	64/70 (91%)	53 (83%)	11 (17%)	0	100	100
10	C	269/273 (98%)	239 (89%)	30 (11%)	0	100	100
11	D	207/209 (99%)	182 (88%)	25 (12%)	0	100	100
12	E	199/201 (99%)	189 (95%)	10 (5%)	0	100	100
13	F	175/179 (98%)	150 (86%)	25 (14%)	0	100	100
14	G	174/177 (98%)	159 (91%)	15 (9%)	0	100	100
15	H	147/149 (99%)	116 (79%)	31 (21%)	0	100	100
16	I	139/142 (98%)	101 (73%)	38 (27%)	0	100	100
17	J	140/142 (99%)	133 (95%)	7 (5%)	0	100	100
18	K	120/123 (98%)	102 (85%)	18 (15%)	0	100	100
19	L	141/144 (98%)	117 (83%)	24 (17%)	0	100	100
20	M	134/136 (98%)	119 (89%)	14 (10%)	1 (1%)	18	56
21	N	118/127 (93%)	107 (91%)	11 (9%)	0	100	100
22	O	114/117 (97%)	103 (90%)	11 (10%)	0	100	100
23	P	112/115 (97%)	101 (90%)	11 (10%)	0	100	100
24	Q	115/118 (98%)	110 (96%)	5 (4%)	0	100	100
25	R	101/103 (98%)	82 (81%)	18 (18%)	1 (1%)	12	49
26	S	108/110 (98%)	100 (93%)	8 (7%)	0	100	100
27	T	91/100 (91%)	80 (88%)	11 (12%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	U	100/104 (96%)	86 (86%)	13 (13%)	1 (1%)	12	49
29	V	92/94 (98%)	83 (90%)	9 (10%)	0	100	100
30	W	73/85 (86%)	67 (92%)	6 (8%)	0	100	100
31	X	75/78 (96%)	68 (91%)	7 (9%)	0	100	100
32	Y	61/63 (97%)	59 (97%)	2 (3%)	0	100	100
33	Z	56/59 (95%)	53 (95%)	3 (5%)	0	100	100
35	b	216/240 (90%)	187 (87%)	28 (13%)	1 (0%)	24	63
36	c	204/233 (88%)	192 (94%)	12 (6%)	0	100	100
37	d	203/206 (98%)	170 (84%)	32 (16%)	1 (0%)	24	63
38	e	155/167 (93%)	135 (87%)	20 (13%)	0	100	100
39	f	98/135 (73%)	86 (88%)	12 (12%)	0	100	100
40	g	149/179 (83%)	140 (94%)	9 (6%)	0	100	100
41	h	127/130 (98%)	111 (87%)	16 (13%)	0	100	100
42	i	125/130 (96%)	102 (82%)	23 (18%)	0	100	100
43	j	96/103 (93%)	78 (81%)	16 (17%)	2 (2%)	5	30
44	k	114/129 (88%)	95 (83%)	19 (17%)	0	100	100
45	l	121/124 (98%)	106 (88%)	14 (12%)	1 (1%)	16	54
46	m	112/118 (95%)	96 (86%)	16 (14%)	0	100	100
47	n	99/102 (97%)	90 (91%)	9 (9%)	0	100	100
48	o	86/89 (97%)	79 (92%)	7 (8%)	0	100	100
49	p	80/82 (98%)	67 (84%)	13 (16%)	0	100	100
50	q	78/84 (93%)	68 (87%)	10 (13%)	0	100	100
51	r	63/75 (84%)	51 (81%)	12 (19%)	0	100	100
52	s	80/92 (87%)	68 (85%)	12 (15%)	0	100	100
53	t	83/87 (95%)	81 (98%)	2 (2%)	0	100	100
54	u	63/71 (89%)	58 (92%)	4 (6%)	1 (2%)	7	38
All	All	5850/6220 (94%)	5143 (88%)	698 (12%)	9 (0%)	44	78

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
54	u	9	GLU
20	M	59	ARG

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Mol	Chain	Res	Type
28	U	98	ASN
35	b	20	ARG
43	j	58	ASN
37	d	144	ILE
25	R	49	ILE
43	j	57	VAL
45	l	3	VAL

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%)	45 (100%)	0	100	100
3	2	38/38 (100%)	38 (100%)	0	100	100
4	3	51/52 (98%)	49 (96%)	2 (4%)	28	49
5	4	34/34 (100%)	34 (100%)	0	100	100
7	6	59/62 (95%)	58 (98%)	1 (2%)	53	69
10	C	216/218 (99%)	216 (100%)	0	100	100
11	D	164/164 (100%)	163 (99%)	1 (1%)	78	83
12	E	165/165 (100%)	165 (100%)	0	100	100
13	F	148/150 (99%)	147 (99%)	1 (1%)	76	81
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%)	100 (97%)	3 (3%)	37	58
19	L	102/103 (99%)	102 (100%)	0	100	100
20	M	109/109 (100%)	109 (100%)	0	100	100
21	N	100/103 (97%)	100 (100%)	0	100	100
22	O	86/87 (99%)	86 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
23	P	99/100 (99%)	98 (99%)	1 (1%)	68	78
24	Q	89/90 (99%)	88 (99%)	1 (1%)	65	76
25	R	84/84 (100%)	82 (98%)	2 (2%)	43	64
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%)	83 (100%)	0	100	100
29	V	78/78 (100%)	78 (100%)	0	100	100
30	W	57/63 (90%)	57 (100%)	0	100	100
31	X	67/68 (98%)	67 (100%)	0	100	100
32	Y	55/55 (100%)	53 (96%)	2 (4%)	31	52
33	Z	48/49 (98%)	48 (100%)	0	100	100
35	b	180/198 (91%)	180 (100%)	0	100	100
36	c	170/190 (90%)	170 (100%)	0	100	100
37	d	172/173 (99%)	172 (100%)	0	100	100
38	e	114/126 (90%)	114 (100%)	0	100	100
39	f	87/116 (75%)	87 (100%)	0	100	100
40	g	124/147 (84%)	122 (98%)	2 (2%)	55	70
41	h	104/105 (99%)	104 (100%)	0	100	100
42	i	105/107 (98%)	105 (100%)	0	100	100
43	j	86/90 (96%)	84 (98%)	2 (2%)	44	64
44	k	89/99 (90%)	89 (100%)	0	100	100
45	l	103/104 (99%)	102 (99%)	1 (1%)	68	78
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%)	74 (97%)	2 (3%)	40	62
49	p	65/65 (100%)	65 (100%)	0	100	100
50	q	74/78 (95%)	74 (100%)	0	100	100
51	r	56/65 (86%)	56 (100%)	0	100	100
52	s	72/79 (91%)	72 (100%)	0	100	100
53	t	65/66 (98%)	65 (100%)	0	100	100
54	u	46/61 (75%)	46 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
57	y	1/1 (100%)	1 (100%)	0	100	100
All	All	4627/4830 (96%)	4606 (100%)	21 (0%)	78	83

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	3	28	LEU
4	3	53	ASP
7	6	27	THR
11	D	121	THR
13	F	152	ASP
18	K	35	VAL
18	K	62	VAL
18	K	113	MET
23	P	65	ASN
24	Q	87	VAL
25	R	37	GLU
25	R	49	ILE
32	Y	18	LEU
32	Y	22	LEU
40	g	20	GLU
40	g	83	THR
43	j	14	ASP
43	j	44	THR
45	l	86	VAL
48	o	17	ASP
48	o	24	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (75) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	5	ASN
2	1	25	ASN
3	2	26	ASN
4	3	27	ASN
4	3	42	HIS
7	6	41	HIS
10	C	69	ASN
10	C	85	ASN
10	C	89	ASN
11	D	173	GLN

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Mol	Chain	Res	Type
12	E	92	HIS
12	E	195	GLN
13	F	26	GLN
14	G	47	ASN
15	H	11	ASN
15	H	18	GLN
15	H	43	ASN
15	H	66	ASN
15	H	135	HIS
17	J	47	HIS
18	K	5	GLN
18	K	93	GLN
19	L	4	ASN
21	N	73	ASN
22	O	29	HIS
23	P	9	GLN
23	P	11	GLN
23	P	40	GLN
23	P	55	HIS
24	Q	13	HIS
24	Q	51	GLN
24	Q	55	GLN
24	Q	71	ASN
25	R	89	HIS
26	S	102	HIS
27	T	59	ASN
28	U	44	HIS
29	V	5	ASN
31	X	19	HIS
32	Y	36	GLN
32	Y	45	GLN
32	Y	58	ASN
33	Z	19	HIS
35	b	17	HIS
36	c	5	HIS
36	c	99	GLN
36	c	189	HIS
37	d	35	GLN
37	d	39	GLN
37	d	40	HIS
37	d	70	GLN
37	d	73	ASN

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Mol	Chain	Res	Type
38	e	81	GLN
39	f	37	HIS
39	f	52	ASN
40	g	67	ASN
41	h	17	GLN
41	h	66	GLN
42	i	74	GLN
43	j	56	HIS
44	k	21	HIS
44	k	23	HIS
44	k	28	ASN
44	k	80	ASN
44	k	100	ASN
46	m	13	HIS
48	o	37	HIS
49	p	26	ASN
49	p	29	ASN
49	p	59	HIS
50	q	44	HIS
52	s	51	HIS
52	s	56	HIS
53	t	2	ASN
53	t	51	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
34	a	1539/1542 (99%)	358 (23%)	0
55	v	76/77 (98%)	21 (27%)	0
56	w	75/76 (98%)	28 (37%)	0
58	z	10/33 (30%)	4 (40%)	0
8	A	2902/2903 (99%)	684 (23%)	51 (1%)
9	B	119/120 (99%)	31 (26%)	4 (3%)
All	All	4721/4751 (99%)	1126 (23%)	55 (1%)

All (1126) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
8	A	10	A
8	A	15	G
8	A	23	G

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Mol	Chain	Res	Type
8	A	34	U
8	A	42	A
8	A	43	G
8	A	44	A
8	A	46	G
8	A	55	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	79	C
8	A	83	A
8	A	84	A
8	A	96	C
8	A	101	A
8	A	103	A
8	A	119	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	160	A
8	A	163	C
8	A	170	U
8	A	196	A
8	A	199	A
8	A	204	A
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	224	U
8	A	228	C
8	A	230	G
8	A	242	G
8	A	243	U

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Mol	Chain	Res	Type
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	275	C
8	A	276	U
8	A	278	A
8	A	279	A
8	A	288	U
8	A	330	A
8	A	333	G
8	A	345	A
8	A	352	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	373	U
8	A	377	G
8	A	383	C
8	A	386	G
8	A	389	G
8	A	395	U
8	A	396	G
8	A	401	A
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	420	C
8	A	423	A
8	A	455	C
8	A	457	A

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Mol	Chain	Res	Type
8	A	458	G
8	A	459	U
8	A	473	G
8	A	475	C
8	A	480	A
8	A	481	G
8	A	482	A
8	A	490	C
8	A	491	G
8	A	503	A
8	A	504	A
8	A	505	A
8	A	509	C
8	A	510	C
8	A	513	A
8	A	529	A
8	A	532	A
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
8	A	645	C
8	A	647	G
8	A	654	A
8	A	655	A
8	A	669	G
8	A	670	A
8	A	682	G
8	A	685	A
8	A	686	U

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Mol	Chain	Res	Type
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	717	C
8	A	729	G
8	A	730	A
8	A	747	5MC
8	A	757	G
8	A	762	U
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	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	845	A
8	A	846	U
8	A	847	U
8	A	858	G
8	A	859	G
8	A	879	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	893	C
8	A	894	U

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Mol	Chain	Res	Type
8	A	895	U
8	A	896	A
8	A	897	C
8	A	899	A
8	A	904	G
8	A	907	G
8	A	910	A
8	A	915	C
8	A	927	A
8	A	931	U
8	A	934	U
8	A	941	A
8	A	945	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	985	C
8	A	989	G
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	1020	A
8	A	1026	G
8	A	1033	U
8	A	1040	A
8	A	1041	G
8	A	1046	A
8	A	1047	G
8	A	1048	A
8	A	1053	C
8	A	1054	A
8	A	1055	G
8	A	1056	G
8	A	1057	A

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Mol	Chain	Res	Type
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	1075	C
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
8	A	1092	C
8	A	1093	G
8	A	1094	U
8	A	1095	A
8	A	1096	A
8	A	1097	U
8	A	1098	A
8	A	1100	C
8	A	1101	U
8	A	1102	C
8	A	1103	A
8	A	1105	U

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Mol	Chain	Res	Type
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	1132	U
8	A	1134	A
8	A	1135	C
8	A	1139	G
8	A	1142	A
8	A	1169	A
8	A	1170	C
8	A	1171	G
8	A	1172	C
8	A	1174	U
8	A	1175	A
8	A	1176	U
8	A	1179	G
8	A	1180	U
8	A	1187	G
8	A	1188	U
8	A	1204	A
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
8	A	1256	G
8	A	1264	A
8	A	1271	G
8	A	1272	A
8	A	1273	U
8	A	1275	A
8	A	1284	A
8	A	1288	G
8	A	1300	G
8	A	1301	A
8	A	1307	A
8	A	1311	G

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Mol	Chain	Res	Type
8	A	1334	G
8	A	1340	U
8	A	1341	G
8	A	1345	C
8	A	1352	U
8	A	1365	A
8	A	1368	G
8	A	1376	C
8	A	1379	U
8	A	1380	G
8	A	1383	A
8	A	1386	C
8	A	1392	A
8	A	1395	A
8	A	1409	U
8	A	1410	G
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	1452	G
8	A	1458	U
8	A	1460	U
8	A	1461	C
8	A	1473	G
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	1493	C
8	A	1494	A
8	A	1497	U
8	A	1503	A
8	A	1508	A
8	A	1509	A

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Mol	Chain	Res	Type
8	A	1515	A
8	A	1524	G
8	A	1532	A
8	A	1534	U
8	A	1535	A
8	A	1536	C
8	A	1537	G
8	A	1538	G
8	A	1554	U
8	A	1557	C
8	A	1558	C
8	A	1566	A
8	A	1569	A
8	A	1578	U
8	A	1584	U
8	A	1585	C
8	A	1591	A
8	A	1596	A
8	A	1607	C
8	A	1608	A
8	A	1610	A
8	A	1626	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	1653	G
8	A	1654	A
8	A	1674	G
8	A	1676	A
8	A	1693	U
8	A	1715	G
8	A	1716	U
8	A	1726	C
8	A	1730	C
8	A	1731	G
8	A	1732	C
8	A	1738	G
8	A	1745	A
8	A	1746	A

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Mol	Chain	Res	Type
8	A	1756	G
8	A	1757	A
8	A	1758	U
8	A	1764	C
8	A	1773	A
8	A	1784	A
8	A	1786	A
8	A	1787	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	1838	C
8	A	1857	G
8	A	1862	G
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	1909	C
8	A	1910	G
8	A	1912	A
8	A	1913	A
8	A	1915	3TD
8	A	1916	A
8	A	1919	A
8	A	1920	C
8	A	1921	G
8	A	1922	G
8	A	1923	U
8	A	1925	C

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Mol	Chain	Res	Type
8	A	1926	U
8	A	1930	G
8	A	1937	A
8	A	1938	A
8	A	1939	5MU
8	A	1946	U
8	A	1955	U
8	A	1962	5MC
8	A	1964	G
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	2035	G
8	A	2036	C
8	A	2043	C
8	A	2046	G
8	A	2049	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	2090	A
8	A	2093	G
8	A	2101	A
8	A	2102	G

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Mol	Chain	Res	Type
8	A	2103	C
8	A	2104	C
8	A	2107	G
8	A	2108	A
8	A	2109	U
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	2124	G
8	A	2125	G
8	A	2126	A
8	A	2127	G
8	A	2128	G
8	A	2129	C
8	A	2130	U
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	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	2155	U
8	A	2157	G
8	A	2159	G
8	A	2161	C
8	A	2162	G

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Mol	Chain	Res	Type
8	A	2163	A
8	A	2164	C
8	A	2169	A
8	A	2170	A
8	A	2171	A
8	A	2172	U
8	A	2173	A
8	A	2175	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	2187	U
8	A	2188	U
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	2214	C
8	A	2225	A
8	A	2226	C
8	A	2238	G
8	A	2239	G
8	A	2266	A
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	2301	C
8	A	2305	U
8	A	2307	G
8	A	2309	A
8	A	2320	U
8	A	2321	U
8	A	2322	A

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Mol	Chain	Res	Type
8	A	2325	G
8	A	2326	C
8	A	2333	A
8	A	2334	U
8	A	2335	A
8	A	2336	A
8	A	2343	U
8	A	2344	U
8	A	2345	G
8	A	2347	C
8	A	2350	C
8	A	2352	A
8	A	2355	G
8	A	2357	G
8	A	2361	G
8	A	2383	G
8	A	2385	C
8	A	2391	G
8	A	2393	U
8	A	2402	U
8	A	2403	C
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	2439	A
8	A	2441	U
8	A	2445	2MG
8	A	2447	G
8	A	2448	A
8	A	2452	C
8	A	2459	A
8	A	2469	A
8	A	2476	A
8	A	2478	A
8	A	2484	G
8	A	2491	U
8	A	2494	G

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Mol	Chain	Res	Type
8	A	2498	OMC
8	A	2502	G
8	A	2503	2MA
8	A	2505	G
8	A	2506	U
8	A	2518	A
8	A	2520	C
8	A	2524	G
8	A	2532	G
8	A	2535	G
8	A	2542	A
8	A	2547	A
8	A	2554	U
8	A	2566	A
8	A	2567	G
8	A	2573	C
8	A	2578	G
8	A	2585	U
8	A	2592	G
8	A	2602	A
8	A	2605	PSU
8	A	2609	U
8	A	2610	C
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	2639	A
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	2682	A
8	A	2684	U
8	A	2689	U
8	A	2690	U

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Mol	Chain	Res	Type
8	A	2702	G
8	A	2707	U
8	A	2714	G
8	A	2715	C
8	A	2718	G
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	2739	U
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	2758	A
8	A	2765	A
8	A	2769	U
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	2803	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	2849	U
8	A	2850	A

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Mol	Chain	Res	Type
8	A	2861	U
8	A	2867	G
8	A	2872	A
8	A	2873	A
8	A	2884	U
8	A	2886	A
8	A	2891	U
8	A	2893	A
8	A	2902	C
9	B	2	G
9	B	9	G
9	B	13	G
9	B	17	C
9	B	18	G
9	B	19	C
9	B	20	G
9	B	24	G
9	B	26	C
9	B	32	U
9	B	34	A
9	B	35	C
9	B	37	C
9	B	42	C
9	B	45	A
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	85	G
9	B	88	C
9	B	89	U
9	B	90	C
9	B	91	C
9	B	101	A
9	B	108	A
9	B	109	A
9	B	120	U
34	a	3	A
34	a	6	G

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Mol	Chain	Res	Type
34	a	7	A
34	a	9	G
34	a	22	G
34	a	32	A
34	a	39	G
34	a	46	G
34	a	48	C
34	a	51	A
34	a	63	C
34	a	70	U
34	a	71	A
34	a	76	G
34	a	77	A
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	92	U
34	a	94	G
34	a	96	U
34	a	98	A
34	a	116	A
34	a	121	U
34	a	130	A
34	a	144	G
34	a	149	A
34	a	158	G
34	a	160	A
34	a	163	C
34	a	166	U
34	a	167	A
34	a	173	U
34	a	182	A
34	a	184	G
34	a	189	A

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Mol	Chain	Res	Type
34	a	191	G
34	a	197	A
34	a	198	G
34	a	205	A
34	a	207	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	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	289	G
34	a	306	A
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	351	G
34	a	352	C
34	a	353	A
34	a	354	G
34	a	363	A
34	a	367	U
34	a	372	C
34	a	373	A
34	a	375	U
34	a	388	G
34	a	397	A
34	a	398	U
34	a	406	G
34	a	411	A

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Mol	Chain	Res	Type
34	a	412	A
34	a	413	G
34	a	414	A
34	a	421	U
34	a	423	G
34	a	424	G
34	a	429	U
34	a	446	G
34	a	461	A
34	a	462	G
34	a	465	A
34	a	466	A
34	a	467	U
34	a	468	A
34	a	471	U
34	a	473	U
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	512	U
34	a	516	PSU
34	a	517	G
34	a	518	C
34	a	521	G
34	a	527	G7M
34	a	530	G
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

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Mol	Chain	Res	Type
34	a	576	C
34	a	577	G
34	a	579	A
34	a	582	C
34	a	596	A
34	a	614	C
34	a	615	G
34	a	629	A
34	a	630	A
34	a	633	G
34	a	642	A
34	a	650	G
34	a	653	U
34	a	654	G
34	a	665	A
34	a	701	U
34	a	702	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	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	794	A
34	a	805	C
34	a	814	A
34	a	815	A
34	a	817	C
34	a	819	A
34	a	829	G
34	a	833	G
34	a	841	C
34	a	842	U
34	a	843	U
34	a	844	G

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Mol	Chain	Res	Type
34	a	845	A
34	a	846	G
34	a	847	G
34	a	849	G
34	a	851	G
34	a	864	A
34	a	868	C
34	a	885	G
34	a	902	G
34	a	913	A
34	a	926	G
34	a	934	C
34	a	935	A
34	a	942	G
34	a	958	A
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	982	U
34	a	984	C
34	a	989	U
34	a	990	C
34	a	992	U
34	a	993	G
34	a	994	A
34	a	996	A
34	a	1003	G
34	a	1004	A
34	a	1005	A
34	a	1006	G
34	a	1008	U
34	a	1010	U
34	a	1012	A
34	a	1014	A
34	a	1021	A
34	a	1023	U

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Mol	Chain	Res	Type
34	a	1024	G
34	a	1025	U
34	a	1026	G
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	1036	A
34	a	1037	C
34	a	1038	C
34	a	1043	G
34	a	1045	C
34	a	1047	G
34	a	1054	C
34	a	1056	U
34	a	1061	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	1100	C
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	1134	G
34	a	1136	C
34	a	1137	C
34	a	1138	G
34	a	1139	G
34	a	1140	C
34	a	1144	G
34	a	1145	A
34	a	1147	C
34	a	1150	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	1174	G
34	a	1179	A
34	a	1183	U
34	a	1184	G
34	a	1193	G
34	a	1196	A
34	a	1197	A
34	a	1200	C
34	a	1204	A
34	a	1212	U
34	a	1213	A
34	a	1214	C
34	a	1225	A
34	a	1227	A
34	a	1239	A
34	a	1241	G
34	a	1254	A
34	a	1256	A
34	a	1260	G
34	a	1261	A
34	a	1270	G
34	a	1275	A
34	a	1279	G
34	a	1280	A
34	a	1281	C
34	a	1285	A
34	a	1286	U
34	a	1287	A
34	a	1294	G
34	a	1297	G
34	a	1299	A
34	a	1300	G
34	a	1301	U
34	a	1302	C
34	a	1305	G
34	a	1306	A
34	a	1317	C
34	a	1319	A

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Mol	Chain	Res	Type
34	a	1320	C
34	a	1327	C
34	a	1331	G
34	a	1332	A
34	a	1346	A
34	a	1347	G
34	a	1348	U
34	a	1352	C
34	a	1360	A
34	a	1361	G
34	a	1363	A
34	a	1364	U
34	a	1370	G
34	a	1372	U
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	1400	C
34	a	1413	A
34	a	1416	G
34	a	1417	G
34	a	1418	A
34	a	1419	G
34	a	1420	U
34	a	1427	C
34	a	1428	A
34	a	1429	A
34	a	1430	A
34	a	1432	G
34	a	1433	A
34	a	1441	A
34	a	1442	G
34	a	1443	C
34	a	1446	A
34	a	1451	U
34	a	1452	C
34	a	1472	U
34	a	1473	G
34	a	1474	U

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Mol	Chain	Res	Type
34	a	1476	A
34	a	1482	G
34	a	1484	C
34	a	1485	U
34	a	1486	G
34	a	1492	A
34	a	1497	G
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	2	G
55	v	9	G
55	v	14	A
55	v	18	G
55	v	19	G
55	v	20	H2U
55	v	21	A
55	v	24	U
55	v	33	U
55	v	34	C
55	v	42	G
55	v	43	A
55	v	44	A
55	v	47	U
55	v	48	C
55	v	52	G
55	v	55	PSU
55	v	57	A
55	v	69	C
55	v	75	C
55	v	76	A
56	w	4	C

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Mol	Chain	Res	Type
56	w	7	A
56	w	8	4SU
56	w	13	C
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	22	G
56	w	36	A
56	w	40	C
56	w	44	G
56	w	45	U
56	w	46	G7M
56	w	47	U
56	w	49	C
56	w	53	G
56	w	57	G
56	w	58	A
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
58	z	-1	C
58	z	0	U
58	z	4	U
58	z	7	G

All (55) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	A	242	G
8	A	458	G
8	A	479	A
8	A	481	G
8	A	503	A
8	A	504	A
8	A	555	G

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Mol	Chain	Res	Type
8	A	652	U
8	A	653	U
8	A	715	A
8	A	774	G
8	A	784	G
8	A	883	G
8	A	894	U
8	A	1024	G
8	A	1062	G
8	A	1082	U
8	A	1085	A
8	A	1090	A
8	A	1093	G
8	A	1099	G
8	A	1300	G
8	A	1331	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	1918	A
8	A	1919	A
8	A	2108	A
8	A	2134	A
8	A	2150	C
8	A	2154	A
8	A	2158	A
8	A	2179	C
8	A	2192	U
8	A	2287	A
8	A	2319	G
8	A	2324	U
8	A	2405	G
8	A	2468	A
8	A	2505	G
8	A	2638	G
8	A	2655	G
8	A	2728	U
8	A	2790	U

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Mol	Chain	Res	Type
8	A	2796	U
8	A	2808	G
9	B	36	C
9	B	44	G
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$
56	4SU	w	8	56	18,21,22	3.45	7 (38%)	26,30,33	2.20	4 (15%)
8	PSU	A	746	8	18,21,22	1.07	2 (11%)	22,30,33	1.81	4 (18%)
8	PSU	A	2457	8	18,21,22	1.06	3 (16%)	22,30,33	1.81	4 (18%)
8	5MC	A	1962	8	18,22,23	3.52	7 (38%)	26,32,35	1.08	2 (7%)
8	OMU	A	2552	8	19,22,23	2.76	7 (36%)	26,31,34	1.83	5 (19%)
8	2MG	A	1835	8	23,26,27	2.88	6 (26%)	32,38,41	2.15	10 (31%)
55	PSU	v	55	55	18,21,22	1.06	1 (5%)	22,30,33	1.75	4 (18%)
8	6MZ	A	2030	8	22,25,26	3.00	6 (27%)	30,36,39	4.59	14 (46%)
34	2MG	a	1207	34	23,26,27	2.86	8 (34%)	32,38,41	2.28	11 (34%)
56	PSU	w	32	56	18,21,22	1.39	2 (11%)	22,30,33	1.93	4 (18%)
8	PSU	A	1911	8	18,21,22	1.40	2 (11%)	22,30,33	2.03	4 (18%)
8	3TD	A	1915	8	22,23,23	6.55	11 (50%)	29,35,35	3.49	10 (34%)
8	PSU	A	2580	8	18,21,22	1.11	3 (16%)	22,30,33	1.94	6 (27%)
56	PSU	w	55	56	18,21,22	1.36	3 (16%)	22,30,33	2.13	5 (22%)
8	OMG	A	2251	8,56	23,26,27	1.23	3 (13%)	33,38,41	1.99	7 (21%)
8	PSU	A	2604	8	18,21,22	1.06	2 (11%)	22,30,33	2.01	5 (22%)
8	G7M	A	2069	8	23,26,27	2.55	7 (30%)	35,39,42	2.28	10 (28%)
55	4SU	v	8	55	18,21,22	3.58	7 (38%)	26,30,33	2.26	5 (19%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
34	5MC	a	967	34	18,22,23	3.62	7 (38%)	26,32,35	1.00	1 (3%)
34	PSU	a	516	34	18,21,22	0.90	1 (5%)	22,30,33	1.66	5 (22%)
8	OMC	A	2498	8	19,22,23	2.79	7 (36%)	26,31,34	0.81	0
8	PSU	A	2504	8	18,21,22	1.05	1 (5%)	22,30,33	1.92	4 (18%)
8	PSU	A	955	8	18,21,22	1.07	2 (11%)	22,30,33	1.87	4 (18%)
34	UR3	a	1498	34	19,22,23	2.44	6 (31%)	26,32,35	1.30	1 (3%)
8	5MC	A	747	8	18,22,23	3.58	7 (38%)	26,32,35	1.20	2 (7%)
8	PSU	A	1917	8	18,21,22	1.36	3 (16%)	22,30,33	1.99	5 (22%)
56	G7M	w	46	56	23,26,27	2.65	8 (34%)	35,39,42	2.25	10 (28%)
34	G7M	a	527	34	23,26,27	3.95	16 (69%)	35,39,42	3.26	15 (42%)
34	MA6	a	1519	34	23,26,27	1.51	5 (21%)	34,38,41	2.76	11 (32%)
34	MA6	a	1518	34	23,26,27	1.48	5 (21%)	34,38,41	2.79	11 (32%)
55	5MU	v	54	55	19,22,23	4.66	7 (36%)	28,32,35	3.69	9 (32%)
56	5MU	w	54	56	19,22,23	1.33	5 (26%)	28,32,35	2.18	8 (28%)
34	5MC	a	1407	34	18,22,23	3.57	7 (38%)	26,32,35	1.03	1 (3%)
8	2MA	A	2503	8	22,25,26	3.60	10 (45%)	33,37,40	2.21	9 (27%)
56	MIA	w	37	56	28,31,32	2.38	6 (21%)	40,44,47	2.68	15 (37%)
8	2MG	A	2445	8	23,26,27	2.80	9 (39%)	32,38,41	2.36	12 (37%)
8	1MG	A	745	8	22,26,27	2.56	6 (27%)	33,39,42	2.07	8 (24%)
8	6MZ	A	1618	8	22,25,26	2.93	6 (27%)	30,36,39	4.42	13 (43%)
34	2MG	a	966	34	23,26,27	2.95	7 (30%)	32,38,41	2.30	9 (28%)
57	FME	y	101	57	8,9,10	0.60	0	7,9,11	1.29	1 (14%)
8	5MU	A	1939	8	19,22,23	4.61	7 (36%)	28,32,35	3.82	10 (35%)
34	2MG	a	1516	34	23,26,27	2.87	9 (39%)	32,38,41	2.33	11 (34%)
55	H2U	v	20	55	18,21,22	3.01	5 (27%)	21,30,33	1.94	5 (23%)
8	PSU	A	2605	8	18,21,22	1.11	2 (11%)	22,30,33	1.88	2 (9%)
34	4OC	a	1402	34	20,23,24	2.86	8 (40%)	26,32,35	0.93	2 (7%)
56	PSU	w	39	56	18,21,22	1.44	3 (16%)	22,30,33	1.97	5 (22%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
56	4SU	w	8	56	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	PSU	A	746	8	-	3/7/25/26	0/2/2/2
8	PSU	A	2457	8	-	0/7/25/26	0/2/2/2
8	5MC	A	1962	8	-	1/7/25/26	0/2/2/2
8	OMU	A	2552	8	-	3/9/27/28	0/2/2/2
8	2MG	A	1835	8	-	2/9/27/28	0/3/3/3
55	PSU	v	55	55	-	3/7/25/26	0/2/2/2
8	6MZ	A	2030	8	-	2/9/27/28	0/3/3/3
34	2MG	a	1207	34	-	0/9/27/28	0/3/3/3
56	PSU	w	32	56	-	2/7/25/26	0/2/2/2
8	PSU	A	1911	8	-	0/7/25/26	0/2/2/2
8	3TD	A	1915	8	-	9/10/26/26	0/2/2/2
8	PSU	A	2580	8	-	0/7/25/26	0/2/2/2
56	PSU	w	55	56	-	2/7/25/26	0/2/2/2
8	OMG	A	2251	8,56	-	1/9/27/28	0/3/3/3
8	PSU	A	2604	8	-	1/7/25/26	0/2/2/2
8	G7M	A	2069	8	-	1/7/25/26	0/3/3/3
55	4SU	v	8	55	-	0/7/25/26	0/2/2/2
34	5MC	a	967	34	-	0/7/25/26	0/2/2/2
34	PSU	a	516	34	-	0/7/25/26	0/2/2/2
8	OMC	A	2498	8	-	2/9/27/28	0/2/2/2
8	PSU	A	2504	8	-	0/7/25/26	0/2/2/2
8	PSU	A	955	8	-	0/7/25/26	0/2/2/2
34	UR3	a	1498	34	-	2/7/25/26	0/2/2/2
8	5MC	A	747	8	-	2/7/25/26	0/2/2/2
8	PSU	A	1917	8	-	0/7/25/26	0/2/2/2
56	G7M	w	46	56	-	3/7/25/26	0/3/3/3
34	G7M	a	527	34	-	1/7/25/26	0/3/3/3
34	MA6	a	1519	34	-	3/11/29/30	0/3/3/3
34	MA6	a	1518	34	-	0/11/29/30	0/3/3/3
55	5MU	v	54	55	-	0/7/25/26	0/2/2/2
56	5MU	w	54	56	-	0/7/25/26	0/2/2/2
34	5MC	a	1407	34	-	0/7/25/26	0/2/2/2
8	2MA	A	2503	8	-	1/7/25/26	0/3/3/3
56	MIA	w	37	56	-	5/15/33/34	0/3/3/3
8	2MG	A	2445	8	-	2/9/27/28	0/3/3/3
8	1MG	A	745	8	-	0/7/25/26	0/3/3/3
8	6MZ	A	1618	8	-	0/9/27/28	0/3/3/3
34	2MG	a	966	34	-	2/9/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
57	FME	y	101	57	-	4/7/9/11	-
8	5MU	A	1939	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	-	5/7/38/39	0/2/2/2
8	PSU	A	2605	8	-	0/7/25/26	0/2/2/2
34	4OC	a	1402	34	-	1/9/29/30	0/2/2/2
56	PSU	w	39	56	-	2/7/25/26	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	O4'-C1'	16.96	1.67	1.43
8	A	1915	3TD	C2'-C1'	-15.15	1.34	1.53
8	A	1915	3TD	C6-C5	13.18	1.50	1.35
8	A	2030	6MZ	C6-N6	11.77	1.46	1.34
8	A	1618	6MZ	C6-N6	11.63	1.46	1.34
8	A	2503	2MA	C4-N3	11.31	1.48	1.34
55	v	54	5MU	C2-N1	10.25	1.54	1.38
55	v	54	5MU	C6-N1	10.14	1.55	1.38
8	A	1939	5MU	C6-N1	9.98	1.55	1.38
55	v	54	5MU	C4-C5	9.85	1.61	1.44
8	A	1939	5MU	C2-N1	9.70	1.54	1.38
8	A	1915	3TD	C2-N1	9.61	1.49	1.37
8	A	1939	5MU	C4-C5	9.39	1.60	1.44
34	a	527	G7M	C3'-C4'	-9.28	1.29	1.53
8	A	747	5MC	C6-C5	9.11	1.49	1.34
55	v	20	H2U	C2-N1	9.09	1.48	1.35
34	a	967	5MC	C6-C5	8.92	1.49	1.34
34	a	1407	5MC	C6-C5	8.87	1.49	1.34
8	A	1962	5MC	C6-C5	8.50	1.48	1.34
8	A	1939	5MU	C4-N3	-8.43	1.23	1.38
55	v	8	4SU	C4-N3	8.41	1.46	1.37
34	a	527	G7M	C2'-C1'	-7.94	1.28	1.53
55	v	54	5MU	C4-N3	-7.71	1.24	1.38
34	a	966	2MG	C2-N3	7.57	1.46	1.31
56	w	37	MIA	C2-S10	-7.47	1.69	1.75
56	w	8	4SU	C4-N3	7.47	1.45	1.37
8	A	1835	2MG	C2-N3	7.31	1.45	1.31
34	a	1207	2MG	C2-N3	7.08	1.45	1.31
56	w	37	MIA	C13-C14	7.04	1.52	1.32
56	w	8	4SU	C2-N1	6.97	1.49	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1516	2MG	C2-N3	6.96	1.45	1.31
55	v	8	4SU	C2-N1	6.95	1.49	1.38
8	A	1962	5MC	C4-N3	6.93	1.45	1.34
8	A	745	1MG	C2-N2	6.92	1.46	1.34
8	A	2445	2MG	C2-N3	6.87	1.45	1.31
34	a	967	5MC	C4-N3	6.83	1.45	1.34
8	A	1915	3TD	O4'-C4'	-6.61	1.30	1.45
8	A	2552	OMU	C2-N1	6.51	1.48	1.38
34	a	1407	5MC	C4-N3	6.51	1.45	1.34
8	A	2503	2MA	C2-N3	6.50	1.45	1.34
34	a	966	2MG	C4-N3	6.47	1.49	1.34
8	A	747	5MC	C4-N3	6.44	1.45	1.34
55	v	20	H2U	C2-N3	6.42	1.49	1.38
56	w	46	G7M	C4-N3	6.40	1.49	1.34
34	a	1402	4OC	C4-N3	6.32	1.43	1.32
8	A	1835	2MG	C4-N3	6.25	1.49	1.34
34	a	966	2MG	C2-N2	6.16	1.47	1.33
8	A	2069	G7M	C4-N3	6.13	1.48	1.34
34	a	1207	2MG	C4-N3	6.11	1.48	1.34
34	a	527	G7M	C4-N3	6.11	1.48	1.34
34	a	1516	2MG	C2-N2	6.11	1.47	1.33
8	A	1962	5MC	C2-N3	6.10	1.48	1.36
8	A	2445	2MG	C4-N3	6.08	1.48	1.34
34	a	1516	2MG	C4-N3	6.04	1.48	1.34
34	a	1207	2MG	C2-N2	6.04	1.46	1.33
34	a	1407	5MC	C2-N3	6.02	1.48	1.36
8	A	2498	OMC	C6-C5	6.01	1.49	1.35
34	a	967	5MC	C2-N3	6.00	1.48	1.36
8	A	745	1MG	C4-N3	5.98	1.48	1.34
8	A	747	5MC	C2-N3	5.96	1.48	1.36
8	A	1835	2MG	C2-N2	5.93	1.46	1.33
8	A	2552	OMU	C2-N3	5.91	1.48	1.38
34	a	1402	4OC	C6-C5	5.86	1.48	1.35
8	A	2498	OMC	C2-N3	5.83	1.48	1.36
56	w	46	G7M	C2-N3	5.83	1.47	1.33
34	a	1498	UR3	C6-C5	5.79	1.48	1.35
8	A	1915	3TD	C6-N1	5.78	1.45	1.36
56	w	8	4SU	C6-C5	5.78	1.48	1.35
55	v	8	4SU	C6-C5	5.75	1.48	1.35
8	A	2445	2MG	C2-N2	5.61	1.45	1.33
55	v	54	5MU	C6-C5	5.56	1.43	1.34
8	A	2069	G7M	C5-N7	-5.56	1.32	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1939	5MU	C6-C5	5.55	1.43	1.34
55	v	8	4SU	C2-N3	5.54	1.47	1.38
34	a	1498	UR3	C2-N1	5.53	1.46	1.38
34	a	527	G7M	O4'-C1'	5.46	1.54	1.42
8	A	2498	OMC	C4-N3	5.38	1.45	1.34
56	w	8	4SU	C4-S4	-5.32	1.58	1.68
34	a	1402	4OC	C2-N3	5.27	1.47	1.36
8	A	2552	OMU	C6-C5	5.23	1.47	1.35
56	w	8	4SU	C2-N3	5.22	1.47	1.38
8	A	745	1MG	C2-N3	5.19	1.43	1.34
8	A	2503	2MA	C2-N1	5.19	1.43	1.34
34	a	527	G7M	O3'-C3'	5.17	1.55	1.43
8	A	1915	3TD	C2-N3	5.14	1.50	1.38
8	A	2069	G7M	C2-N3	5.12	1.45	1.33
56	w	46	G7M	C5-N7	-5.07	1.33	1.39
8	A	2503	2MA	C6-N1	5.01	1.42	1.35
55	v	8	4SU	C4-S4	-4.99	1.58	1.68
55	v	20	H2U	C4-N3	4.98	1.46	1.37
34	a	967	5MC	C4-N4	4.94	1.46	1.34
8	A	1915	3TD	O3'-C3'	-4.88	1.31	1.43
8	A	1962	5MC	C4-N4	4.75	1.46	1.34
8	A	747	5MC	C4-N4	4.67	1.46	1.34
34	a	1407	5MC	C4-N4	4.67	1.46	1.34
56	w	37	MIA	C5-C4	4.57	1.47	1.39
34	a	1516	2MG	C2-N1	4.45	1.43	1.36
34	a	967	5MC	C6-N1	4.45	1.45	1.38
34	a	527	G7M	O4'-C4'	4.43	1.54	1.45
34	a	1207	2MG	C2-N1	4.35	1.43	1.36
56	w	46	G7M	C2-N2	4.35	1.44	1.34
34	a	1407	5MC	C6-N1	4.27	1.45	1.38
8	A	1835	2MG	C2-N1	4.23	1.43	1.36
34	a	527	G7M	C2-N2	4.20	1.44	1.34
8	A	747	5MC	C6-N1	4.17	1.45	1.38
34	a	966	2MG	C2-N1	4.14	1.43	1.36
34	a	1407	5MC	C2-N1	4.06	1.48	1.40
8	A	2069	G7M	C2-N2	4.05	1.43	1.34
8	A	2030	6MZ	C5-C4	-4.04	1.31	1.39
34	a	1498	UR3	C2-N3	4.03	1.46	1.39
34	a	1402	4OC	C4-N4	4.00	1.44	1.35
8	A	1962	5MC	C6-N1	3.97	1.44	1.38
34	a	966	2MG	C5-N7	-3.96	1.31	1.39
8	A	2503	2MA	C5-C6	3.85	1.51	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	747	5MC	C2-N1	3.84	1.48	1.40
8	A	2445	2MG	O6-C6	-3.82	1.16	1.23
8	A	2445	2MG	C2-N1	3.80	1.42	1.36
56	w	46	G7M	C5-C6	3.79	1.54	1.43
8	A	2503	2MA	C6-N6	-3.79	1.24	1.34
8	A	2498	OMC	C4-N4	3.76	1.42	1.33
34	a	967	5MC	C2-N1	3.73	1.48	1.40
34	a	527	G7M	C2-N3	3.70	1.42	1.33
8	A	1835	2MG	C5-N7	-3.69	1.31	1.39
34	a	1402	4OC	C5-C4	3.66	1.48	1.40
8	A	2445	2MG	C5-N7	-3.66	1.32	1.39
8	A	1618	6MZ	C5-C4	-3.65	1.32	1.39
8	A	1835	2MG	O6-C6	-3.60	1.16	1.23
8	A	747	5MC	O2-C2	-3.60	1.17	1.23
8	A	1962	5MC	C2-N1	3.57	1.47	1.40
34	a	1516	2MG	O6-C6	-3.54	1.16	1.23
34	a	1207	2MG	C5-N7	-3.52	1.32	1.39
8	A	2503	2MA	C5-N7	-3.50	1.32	1.39
34	a	527	G7M	C5-N7	-3.48	1.35	1.39
34	a	967	5MC	O2-C2	-3.46	1.17	1.23
34	a	527	G7M	C2'-C3'	3.41	1.62	1.53
34	a	966	2MG	O6-C6	-3.41	1.17	1.23
55	v	55	PSU	C6-C5	3.40	1.39	1.35
34	a	1516	2MG	C5-N7	-3.40	1.32	1.39
8	A	1962	5MC	O2-C2	-3.39	1.17	1.23
8	A	2069	G7M	C5-C6	3.39	1.52	1.43
34	a	1402	4OC	O2-C2	-3.38	1.17	1.23
8	A	2030	6MZ	C8-N9	-3.35	1.31	1.37
56	w	32	PSU	C6-C5	3.32	1.39	1.35
34	a	1402	4OC	C2-N1	3.31	1.47	1.40
34	a	1407	5MC	O2-C2	-3.30	1.17	1.23
34	a	1519	MA6	C5-C4	-3.29	1.32	1.39
8	A	1618	6MZ	C8-N9	-3.29	1.31	1.37
34	a	1207	2MG	O6-C6	-3.26	1.17	1.23
8	A	2498	OMC	C2-N1	3.25	1.47	1.40
8	A	2498	OMC	C6-N1	3.24	1.45	1.38
8	A	2552	OMU	C4-N3	3.24	1.44	1.38
8	A	2498	OMC	O2-C2	-3.22	1.17	1.23
8	A	1915	3TD	C4-N3	3.18	1.47	1.40
8	A	2552	OMU	O4-C4	-3.15	1.18	1.24
8	A	2030	6MZ	C4-N9	-3.15	1.30	1.37
55	v	8	4SU	C5-C4	3.14	1.46	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1518	MA6	C8-N9	-3.14	1.31	1.37
8	A	1939	5MU	O2-C2	-3.12	1.17	1.23
34	a	1519	MA6	C5-N7	-3.10	1.33	1.39
34	a	1519	MA6	C8-N9	-3.08	1.32	1.37
8	A	745	1MG	C5-N7	-3.08	1.33	1.39
8	A	1911	PSU	C6-C5	3.07	1.38	1.35
56	w	39	PSU	C6-C5	3.07	1.38	1.35
56	w	55	PSU	C6-C5	3.04	1.38	1.35
56	w	8	4SU	C5-C4	3.03	1.46	1.42
34	a	1518	MA6	C6-N6	3.01	1.45	1.36
56	w	39	PSU	C4-N3	-3.00	1.33	1.38
34	a	1498	UR3	O2-C2	-2.95	1.17	1.22
8	A	2251	OMG	C5-C4	2.95	1.47	1.38
8	A	1911	PSU	C4-N3	-2.91	1.33	1.38
8	A	1618	6MZ	C6-N1	-2.90	1.30	1.35
8	A	1618	6MZ	C4-N9	-2.90	1.31	1.37
34	a	1518	MA6	C5-N7	-2.88	1.33	1.39
56	w	55	PSU	C4-N3	-2.86	1.33	1.38
34	a	1518	MA6	C5-C4	-2.85	1.33	1.39
34	a	1519	MA6	C6-N6	2.85	1.45	1.36
55	v	8	4SU	O2-C2	-2.79	1.17	1.23
34	a	527	G7M	C6-N1	2.78	1.44	1.38
56	w	46	G7M	O6-C6	-2.78	1.18	1.23
8	A	1917	PSU	C6-C5	2.78	1.38	1.35
34	a	1402	4OC	C6-N1	2.77	1.44	1.38
8	A	2069	G7M	O6-C6	-2.77	1.18	1.23
56	w	46	G7M	C2-N1	2.73	1.44	1.37
8	A	2503	2MA	C4-N9	-2.72	1.31	1.37
34	a	1498	UR3	C6-N1	2.71	1.44	1.38
8	A	1939	5MU	O4-C4	-2.71	1.18	1.23
56	w	54	5MU	C4-N3	-2.71	1.33	1.38
34	a	527	G7M	C5-C6	2.70	1.50	1.43
8	A	2605	PSU	C6-C5	2.70	1.38	1.35
8	A	2030	6MZ	C6-N1	-2.70	1.30	1.35
8	A	746	PSU	C6-C5	2.69	1.38	1.35
8	A	2552	OMU	O2-C2	-2.68	1.18	1.23
56	w	32	PSU	C4-N3	-2.66	1.33	1.38
56	w	8	4SU	O2-C2	-2.66	1.18	1.23
55	v	54	5MU	O2-C2	-2.63	1.18	1.23
55	v	54	5MU	O4-C4	-2.62	1.18	1.23
8	A	2580	PSU	O4'-C1'	-2.61	1.40	1.43
8	A	745	1MG	C5-C6	2.57	1.52	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1917	PSU	C4-N3	-2.56	1.34	1.38
8	A	2251	OMG	C6-N1	-2.49	1.34	1.38
8	A	2604	PSU	C6-C5	2.48	1.38	1.35
8	A	1915	3TD	C3'-C4'	2.48	1.59	1.53
56	w	46	G7M	C6-N1	2.48	1.43	1.38
8	A	745	1MG	C4-N9	-2.47	1.31	1.38
56	w	37	MIA	C5-C6	2.46	1.48	1.41
55	v	20	H2U	O2-C2	-2.46	1.18	1.23
8	A	2504	PSU	C6-C5	2.44	1.38	1.35
34	a	1207	2MG	C5-C6	2.42	1.53	1.44
34	a	1516	2MG	C5-C6	2.40	1.53	1.44
34	a	1498	UR3	O4-C4	-2.37	1.18	1.23
8	A	2251	OMG	C5-N7	-2.35	1.34	1.39
34	a	527	G7M	C2-N1	2.35	1.43	1.37
56	w	54	5MU	C6-N1	-2.35	1.34	1.38
8	A	2580	PSU	C6-C5	2.32	1.38	1.35
34	a	1207	2MG	C6-N1	2.32	1.43	1.38
8	A	2605	PSU	C4-C5	-2.31	1.37	1.44
56	w	54	5MU	C2-N3	-2.31	1.33	1.38
56	w	37	MIA	C5-N7	-2.29	1.34	1.39
8	A	955	PSU	C4-C5	-2.29	1.37	1.44
8	A	2580	PSU	C4-C5	-2.28	1.37	1.44
8	A	746	PSU	C4-C5	-2.28	1.37	1.44
34	a	1516	2MG	C4-N9	-2.28	1.32	1.38
8	A	2069	G7M	C2-N1	2.27	1.43	1.37
8	A	2445	2MG	C4-N9	-2.25	1.32	1.38
8	A	2552	OMU	C6-N1	2.24	1.43	1.38
55	v	20	H2U	O4-C4	-2.22	1.18	1.23
8	A	2457	PSU	C6-C5	2.21	1.37	1.35
56	w	37	MIA	C8-N7	2.21	1.35	1.31
56	w	39	PSU	C2-N3	-2.20	1.33	1.37
34	a	527	G7M	C4-N9	-2.20	1.32	1.38
34	a	1516	2MG	C6-N1	2.19	1.42	1.38
8	A	2030	6MZ	C5-C6	-2.18	1.36	1.41
56	w	54	5MU	C6-C5	2.17	1.38	1.34
8	A	955	PSU	C6-C5	2.16	1.37	1.35
8	A	1917	PSU	C2-N1	-2.14	1.33	1.36
34	a	516	PSU	C6-C5	2.13	1.37	1.35
8	A	2457	PSU	C4-C5	-2.13	1.38	1.44
8	A	2503	2MA	C8-N9	-2.11	1.33	1.37
8	A	2445	2MG	C8-N9	-2.10	1.32	1.37
8	A	2457	PSU	O4'-C1'	-2.10	1.40	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	2503	2MA	C5-C4	-2.09	1.35	1.39
34	a	1519	MA6	C5-C6	-2.07	1.36	1.41
8	A	2604	PSU	C4-C5	-2.07	1.38	1.44
34	a	527	G7M	O5'-C5'	-2.06	1.39	1.44
56	w	55	PSU	C2-N3	-2.06	1.34	1.37
34	a	1518	MA6	C8-N7	2.05	1.35	1.31
56	w	54	5MU	C4-C5	2.05	1.48	1.44
34	a	966	2MG	C5-C6	2.04	1.52	1.44
8	A	1618	6MZ	C5-C6	-2.03	1.36	1.41
8	A	2445	2MG	C5-C6	2.02	1.51	1.44
8	A	1915	3TD	O2'-C2'	2.01	1.47	1.43
34	a	527	G7M	O2'-C2'	2.01	1.47	1.43

All (303) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2030	6MZ	C4-N9-C8	14.29	121.22	105.73
8	A	1618	6MZ	C4-N9-C8	13.38	120.22	105.73
8	A	1939	5MU	C5-C4-N3	12.04	125.59	115.31
55	v	54	5MU	C5-C4-N3	11.82	125.40	115.31
8	A	2030	6MZ	N9-C8-N7	-11.34	98.41	113.91
8	A	1939	5MU	C5-C6-N1	-11.07	111.95	123.34
8	A	1915	3TD	O9-P-O5'	-10.97	77.55	106.73
8	A	1618	6MZ	N9-C8-N7	-10.68	99.30	113.91
55	v	54	5MU	C5-C6-N1	-10.19	112.86	123.34
34	a	1518	MA6	N1-C6-N6	-10.19	105.95	117.08
34	a	527	G7M	CN7-N7-C5	9.79	138.93	126.77
34	a	1519	MA6	N1-C6-N6	-9.67	106.51	117.08
8	A	2030	6MZ	C5-C6-N1	8.60	127.36	118.20
8	A	1618	6MZ	C5-C6-N1	8.58	127.34	118.20
8	A	1915	3TD	O9-P-OP2	-8.34	78.04	110.68
56	w	37	MIA	C12-C13-C14	-7.95	111.68	127.14
55	v	8	4SU	C4-N3-C2	-7.72	119.84	127.34
56	w	37	MIA	C5-C4-N3	-7.72	118.50	127.19
8	A	1915	3TD	O9-P-OP1	-7.66	78.35	107.64
56	w	8	4SU	C4-N3-C2	-7.57	119.99	127.34
34	a	527	G7M	CN7-N7-C8	-7.54	113.21	124.84
34	a	527	G7M	C1'-N9-C4	6.95	147.15	126.50
8	A	1618	6MZ	C9-N6-C6	-6.74	117.07	122.87
8	A	2030	6MZ	C9-N6-C6	-6.72	117.09	122.87
34	a	1516	2MG	C2-N3-C4	6.67	120.31	112.04
34	a	1207	2MG	C2-N3-C4	6.64	120.28	112.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	527	G7M	C1'-N9-C8	-6.58	104.54	126.74
55	v	20	H2U	C4-N3-C2	-6.56	120.35	125.79
34	a	966	2MG	C2-N3-C4	6.51	120.11	112.04
8	A	2445	2MG	C2-N3-C4	6.46	120.05	112.04
8	A	1618	6MZ	N3-C4-N9	6.45	137.72	127.08
8	A	1911	PSU	N1-C2-N3	6.27	122.24	115.13
56	w	55	PSU	N1-C2-N3	6.18	122.14	115.13
8	A	2030	6MZ	N3-C4-N9	6.12	137.16	127.08
56	w	37	MIA	N3-C4-N9	6.00	135.32	126.99
56	w	32	PSU	N1-C2-N3	5.98	121.91	115.13
56	w	39	PSU	N1-C2-N3	5.96	121.88	115.13
56	w	46	G7M	CN7-N7-C5	5.93	134.13	126.77
8	A	1917	PSU	N1-C2-N3	5.85	121.75	115.13
8	A	2503	2MA	N9-C8-N7	-5.84	105.92	113.91
8	A	2503	2MA	C5-C4-N3	-5.82	120.64	127.19
8	A	1835	2MG	C2-N3-C4	5.81	119.24	112.04
34	a	966	2MG	C5-C4-N3	-5.79	119.07	128.46
8	A	745	1MG	C1'-N9-C4	-5.71	109.55	126.50
55	v	8	4SU	C5-C4-N3	5.64	119.92	114.69
34	a	1519	MA6	N1-C2-N3	-5.58	119.88	128.60
8	A	2552	OMU	C4-N3-C2	-5.57	119.23	126.58
8	A	2251	OMG	C5-C4-N3	-5.53	119.49	128.46
8	A	2445	2MG	C5-C4-N3	-5.51	119.51	128.46
8	A	1939	5MU	C4-N3-C2	-5.50	120.23	127.35
34	a	1518	MA6	N1-C2-N3	-5.50	120.00	128.60
56	w	8	4SU	C5-C4-N3	5.49	119.78	114.69
8	A	2069	G7M	CN7-N7-C5	5.47	133.56	126.77
8	A	2030	6MZ	N1-C2-N3	-5.41	120.13	128.60
8	A	1939	5MU	O4-C4-C5	-5.38	118.67	124.90
8	A	1915	3TD	N1-C2-N3	5.31	120.33	116.14
8	A	1939	5MU	N3-C2-N1	5.26	121.87	114.89
34	a	1207	2MG	C5-C4-N3	-5.22	119.99	128.46
56	w	54	5MU	C4-N3-C2	-5.17	120.65	127.35
8	A	2504	PSU	N1-C2-N3	5.17	120.99	115.13
8	A	2604	PSU	C4-N3-C2	-5.17	118.89	126.34
8	A	2030	6MZ	C5-C4-N9	-5.12	99.83	105.78
34	a	966	2MG	C2-N1-C6	-5.11	118.60	124.48
8	A	1618	6MZ	N1-C2-N3	-5.10	120.62	128.60
8	A	745	1MG	C1'-N9-C8	5.05	141.09	126.70
8	A	2604	PSU	N1-C2-N3	5.04	120.84	115.13
34	a	1519	MA6	C5-C4-N3	-5.03	120.18	126.75
8	A	1835	2MG	C5-C4-N3	-5.01	120.33	128.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2605	PSU	C4-N3-C2	-5.01	119.12	126.34
8	A	2445	2MG	C2-N1-C6	-4.95	118.78	124.48
55	v	54	5MU	C4-N3-C2	-4.94	120.95	127.35
34	a	1518	MA6	C5-C6-N6	4.93	133.88	125.30
34	a	1516	2MG	C5-C4-N3	-4.89	120.53	128.46
55	v	54	5MU	O4-C4-C5	-4.89	119.23	124.90
8	A	955	PSU	C4-N3-C2	-4.83	119.38	126.34
8	A	2457	PSU	C4-N3-C2	-4.81	119.41	126.34
34	a	1207	2MG	C2-N1-C6	-4.80	118.96	124.48
56	w	54	5MU	C5-C4-N3	4.77	119.38	115.31
8	A	746	PSU	C4-N3-C2	-4.76	119.49	126.34
8	A	2580	PSU	C4-N3-C2	-4.74	119.52	126.34
8	A	2503	2MA	C4-N9-C8	4.70	110.82	105.73
8	A	2069	G7M	C1'-N9-C4	-4.68	112.61	126.50
8	A	2251	OMG	C2-N3-C4	4.67	120.61	112.30
8	A	2504	PSU	C4-N3-C2	-4.64	119.66	126.34
56	w	54	5MU	N3-C2-N1	4.64	121.05	114.89
8	A	955	PSU	N1-C2-N3	4.64	120.38	115.13
8	A	1618	6MZ	C5-C4-N9	-4.62	100.41	105.78
8	A	2030	6MZ	C5-N7-C8	4.60	110.04	103.51
34	a	1498	UR3	C4-N3-C2	-4.59	120.24	124.56
56	w	46	G7M	CN7-N7-C8	-4.59	117.76	124.84
8	A	2503	2MA	N3-C4-N9	4.57	133.32	126.99
8	A	2605	PSU	N1-C2-N3	4.54	120.28	115.13
8	A	2457	PSU	N1-C2-N3	4.54	120.28	115.13
34	a	1519	MA6	N9-C8-N7	-4.53	107.72	113.91
55	v	55	PSU	C4-N3-C2	-4.52	119.83	126.34
55	v	55	PSU	N1-C2-N3	4.52	120.25	115.13
8	A	745	1MG	C5-C4-N3	-4.51	121.15	128.46
8	A	2580	PSU	N1-C2-N3	4.51	120.24	115.13
55	v	54	5MU	C5M-C5-C6	-4.50	116.83	122.85
8	A	1618	6MZ	C5-N7-C8	4.50	109.91	103.51
34	a	527	G7M	O4'-C4'-C3'	-4.49	96.22	105.11
34	a	1516	2MG	C2-N1-C6	-4.49	119.32	124.48
34	a	1518	MA6	N9-C8-N7	-4.47	107.79	113.91
8	A	2251	OMG	C2'-C1'-N9	-4.47	105.54	114.22
8	A	746	PSU	N1-C2-N3	4.41	120.13	115.13
8	A	2069	G7M	C2-N3-C4	4.40	120.13	112.30
34	a	1518	MA6	C5-C4-N3	-4.39	121.02	126.75
55	v	54	5MU	N3-C2-N1	4.38	120.70	114.89
8	A	1835	2MG	C2-N1-C6	-4.38	119.44	124.48
34	a	516	PSU	C4-N3-C2	-4.37	120.04	126.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2069	G7M	CN7-N7-C8	-4.37	118.10	124.84
55	v	54	5MU	C5M-C5-C4	4.34	123.55	118.77
56	w	46	G7M	C2-N3-C4	4.29	119.94	112.30
8	A	1618	6MZ	C1'-N9-C8	-4.27	117.50	127.14
8	A	2251	OMG	N9-C4-N3	4.24	134.45	125.94
56	w	55	PSU	C4-N3-C2	-4.22	120.25	126.34
56	w	46	G7M	C5-C4-N3	-4.22	120.06	128.15
34	a	966	2MG	N9-C4-N3	4.21	134.39	125.94
34	a	1519	MA6	C5-C6-N6	4.20	132.62	125.30
56	w	37	MIA	C15-C14-C13	-4.17	110.60	122.65
8	A	2552	OMU	N3-C2-N1	4.12	120.35	114.89
8	A	1917	PSU	O2-C2-N1	-4.10	118.28	122.79
55	v	8	4SU	C5-C4-S4	-4.10	119.19	124.47
34	a	527	G7M	C2-N3-C4	4.09	119.59	112.30
8	A	1911	PSU	C4-N3-C2	-4.08	120.46	126.34
8	A	2069	G7M	C5-C4-N3	-4.08	120.33	128.15
8	A	1915	3TD	C4-N3-C2	-4.01	120.26	124.61
56	w	54	5MU	O4-C4-C5	-3.99	120.27	124.90
56	w	39	PSU	C4-N3-C2	-3.97	120.61	126.34
8	A	747	5MC	C5-C6-N1	-3.97	119.26	123.34
56	w	46	G7M	C5-C6-N1	3.96	120.06	111.79
8	A	2069	G7M	C5-C6-N1	3.93	120.00	111.79
34	a	516	PSU	N1-C2-N3	3.92	119.57	115.13
56	w	46	G7M	C1'-N9-C4	-3.89	114.94	126.50
8	A	1618	6MZ	C5-C4-N3	-3.75	121.86	126.75
56	w	37	MIA	C16-C14-C13	-3.74	111.84	122.65
56	w	8	4SU	N3-C2-N1	3.71	119.81	114.89
34	a	1516	2MG	C1'-N9-C4	-3.71	115.49	126.50
8	A	1939	5MU	C5M-C5-C6	-3.70	117.90	122.85
34	a	1518	MA6	C2-N1-C6	3.65	120.38	111.75
34	a	1519	MA6	C2-N3-C4	3.62	120.29	111.75
8	A	1915	3TD	O5'-P-OP2	3.61	116.59	106.47
56	w	32	PSU	C4-N3-C2	-3.61	121.14	126.34
8	A	1915	3TD	OP1-P-O5'	3.60	116.32	106.73
56	w	54	5MU	C5-C6-N1	-3.60	119.64	123.34
34	a	527	G7M	O3'-C3'-C4'	3.59	121.44	111.05
8	A	2030	6MZ	C4-C5-C6	-3.59	114.02	116.81
55	v	54	5MU	O2-C2-N1	-3.58	118.02	122.79
34	a	527	G7M	C5-C6-N1	3.58	119.26	111.79
8	A	1939	5MU	O2-C2-N1	-3.57	118.04	122.79
8	A	1835	2MG	N9-C4-N3	3.57	133.10	125.94
8	A	2069	G7M	C1'-N9-C8	3.54	138.70	126.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2552	OMU	C5-C4-N3	3.52	120.10	114.84
8	A	2445	2MG	N9-C4-N3	3.51	132.99	125.94
56	w	46	G7M	O6-C6-C5	-3.51	120.15	128.06
56	w	8	4SU	C5-C4-S4	-3.50	119.95	124.47
8	A	1911	PSU	O2-C2-N1	-3.50	118.93	122.79
55	v	8	4SU	N3-C2-N1	3.50	119.54	114.89
8	A	1917	PSU	C4-N3-C2	-3.50	121.30	126.34
8	A	2069	G7M	O6-C6-C5	-3.49	120.18	128.06
8	A	1618	6MZ	C2-N3-C4	3.47	119.96	111.75
8	A	2503	2MA	C5-N7-C8	3.47	108.44	103.51
56	w	32	PSU	O2-C2-N1	-3.42	119.02	122.79
8	A	745	1MG	N9-C8-N7	-3.42	106.94	113.39
8	A	2445	2MG	CM2-N2-C2	-3.39	116.38	123.86
8	A	2030	6MZ	C1'-N9-C8	-3.37	119.52	127.14
8	A	2030	6MZ	C2-N3-C4	3.37	119.71	111.75
34	a	1516	2MG	C1'-N9-C8	3.35	136.24	126.70
34	a	1519	MA6	C2-N1-C6	3.32	119.59	111.75
34	a	967	5MC	C5-C6-N1	-3.30	119.94	123.34
8	A	745	1MG	C2-N3-C4	3.30	119.39	111.98
34	a	1518	MA6	C2-N3-C4	3.27	119.47	111.75
56	w	46	G7M	N9-C4-N3	3.26	132.48	125.94
56	w	55	PSU	O2-C2-N1	-3.25	119.21	122.79
34	a	527	G7M	C5-C4-N3	-3.25	121.92	128.15
56	w	55	PSU	C3'-C2'-C1'	3.24	105.41	101.64
8	A	2580	PSU	O2-C2-N1	-3.23	119.23	122.79
56	w	37	MIA	C2-N3-C4	3.23	120.84	112.35
8	A	1915	3TD	C3'-C2'-C1'	3.22	105.39	101.64
8	A	2445	2MG	N9-C8-N7	-3.21	107.34	113.39
8	A	1962	5MC	C5-C6-N1	-3.18	120.07	123.34
34	a	527	G7M	O6-C6-C5	-3.17	120.92	128.06
8	A	2030	6MZ	C4-N9-C1'	-3.15	119.10	126.59
56	w	46	G7M	C2-N1-C6	-3.12	119.41	125.10
56	w	37	MIA	C11-S10-C2	-3.10	99.95	102.27
8	A	2251	OMG	C6-C5-N7	3.09	136.00	130.25
34	a	1519	MA6	N3-C4-N9	3.09	132.18	127.08
56	w	37	MIA	C4-C5-N7	-3.09	106.85	110.62
34	a	1519	MA6	C5-N7-C8	3.06	107.85	103.51
8	A	2069	G7M	N9-C4-N3	3.06	132.08	125.94
56	w	46	G7M	C1'-N9-C8	3.01	136.91	126.74
34	a	1516	2MG	N9-C8-N7	-3.01	107.72	113.39
34	a	966	2MG	C5-C6-N1	3.01	120.83	113.19
34	a	966	2MG	O6-C6-C5	-2.99	118.67	126.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1835	2MG	N9-C8-N7	-2.97	107.79	113.39
34	a	1519	MA6	C4-C5-C6	2.96	119.19	115.88
8	A	2503	2MA	N3-C2-N1	-2.96	120.28	125.72
34	a	1207	2MG	N9-C4-N3	2.94	131.84	125.94
34	a	1207	2MG	C1'-N9-C4	-2.92	117.82	126.50
34	a	1518	MA6	C5-N7-C8	2.91	107.65	103.51
8	A	2504	PSU	C6-N1-C2	-2.91	119.71	122.68
8	A	2030	6MZ	C6-C5-N7	2.90	135.53	132.39
8	A	2030	6MZ	C5-C4-N3	-2.89	122.98	126.75
8	A	746	PSU	C6-C5-C4	2.87	120.21	118.20
8	A	2445	2MG	C5-C6-N1	2.86	120.46	113.19
55	v	20	H2U	N3-C2-N1	2.85	119.67	116.65
8	A	2069	G7M	C2-N1-C6	-2.85	119.91	125.10
8	A	1939	5MU	C5M-C5-C4	2.84	121.90	118.77
55	v	20	H2U	C5-C4-N3	2.81	119.81	116.65
55	v	20	H2U	C5-C6-N1	2.81	120.87	111.61
56	w	37	MIA	C2'-C1'-N9	-2.80	106.21	113.30
34	a	1518	MA6	C4-N9-C8	2.79	108.76	105.73
8	A	955	PSU	O2-C2-N1	-2.79	119.72	122.79
56	w	54	5MU	O2-C2-N1	-2.79	119.07	122.79
56	w	32	PSU	C3'-C2'-C1'	2.79	104.88	101.64
34	a	1207	2MG	N9-C8-N7	-2.78	108.15	113.39
8	A	1835	2MG	O6-C6-C5	-2.78	119.23	126.60
8	A	2445	2MG	C1'-N9-C4	-2.78	118.26	126.50
34	a	1516	2MG	C5-C6-N1	2.77	120.22	113.19
8	A	2552	OMU	O4-C4-C5	-2.76	120.30	125.16
34	a	1518	MA6	C4-C5-C6	2.75	118.96	115.88
34	a	1207	2MG	C5-C6-N1	2.73	120.12	113.19
8	A	1835	2MG	CM2-N2-C2	-2.71	117.87	123.86
56	w	37	MIA	C6-C5-N7	2.71	135.33	132.39
34	a	1207	2MG	CM2-N2-C2	-2.71	117.87	123.86
34	a	1516	2MG	CM2-N2-C2	-2.71	117.87	123.86
34	a	1207	2MG	C1'-N9-C8	2.70	134.38	126.70
8	A	2552	OMU	C1'-N1-C2	2.70	122.45	117.57
8	A	1835	2MG	C5-C6-N1	2.69	120.03	113.19
8	A	745	1MG	N9-C4-N3	2.67	131.30	125.94
56	w	37	MIA	C2-N1-C6	2.66	122.37	117.28
34	a	1516	2MG	N9-C4-N3	2.64	131.23	125.94
56	w	37	MIA	N6-C6-N1	2.63	121.86	118.50
8	A	2445	2MG	O6-C6-C5	-2.63	119.62	126.60
8	A	745	1MG	C5-C6-N1	2.61	119.96	114.91
34	a	1518	MA6	N3-C4-N9	2.61	131.38	127.08

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	1207	2MG	O6-C6-C5	-2.60	119.71	126.60
34	a	966	2MG	N9-C8-N7	-2.60	108.50	113.39
8	A	1939	5MU	C6-C5-C4	2.59	120.20	118.03
34	a	1516	2MG	N1-C2-N3	-2.58	119.96	123.95
34	a	516	PSU	O2-C2-N1	-2.58	119.95	122.79
8	A	2580	PSU	O4'-C1'-C2'	2.57	108.77	105.14
56	w	39	PSU	O2-C2-N1	-2.56	119.97	122.79
56	w	37	MIA	C5-N7-C8	2.56	107.15	103.51
8	A	1835	2MG	C1'-N9-C4	-2.56	118.89	126.50
8	A	2604	PSU	O2-C2-N1	-2.55	119.99	122.79
34	a	1407	5MC	C5-C6-N1	-2.54	120.73	123.34
8	A	2604	PSU	C6-C5-C4	2.51	119.96	118.20
34	a	1516	2MG	O6-C6-C5	-2.51	119.94	126.60
56	w	54	5MU	C5M-C5-C4	2.51	121.53	118.77
8	A	955	PSU	C6-N1-C2	-2.49	120.13	122.68
55	v	55	PSU	O2-C2-N1	-2.48	120.06	122.79
55	v	54	5MU	O4-C4-N3	-2.48	115.36	120.12
8	A	1917	PSU	C3'-C2'-C1'	2.48	104.52	101.64
57	y	101	FME	O-C-CA	-2.47	118.30	124.78
8	A	1618	6MZ	C4-C5-C6	-2.47	114.89	116.81
8	A	2457	PSU	O2-C2-N1	-2.47	120.08	122.79
34	a	1519	MA6	C4-N9-C8	2.46	108.39	105.73
8	A	1915	3TD	O4'-C4'-C3'	-2.44	100.28	105.11
8	A	1618	6MZ	C6-C5-N7	2.41	135.00	132.39
34	a	527	G7M	C2-N1-C6	-2.40	120.73	125.10
8	A	2580	PSU	C6-N1-C2	-2.39	120.24	122.68
56	w	55	PSU	C5-C6-N1	-2.39	118.53	122.11
34	a	527	G7M	C4'-O4'-C1'	-2.35	104.30	109.47
8	A	2503	2MA	CM2-C2-N3	2.34	120.81	117.15
8	A	2457	PSU	C6-N1-C2	-2.32	120.31	122.68
8	A	2251	OMG	O6-C6-C5	-2.31	120.46	126.60
8	A	746	PSU	O2-C2-N1	-2.31	120.25	122.79
34	a	516	PSU	C6-N1-C2	-2.30	120.34	122.68
8	A	2504	PSU	O2-C2-N1	-2.30	120.26	122.79
34	a	527	G7M	O4'-C1'-N9	2.28	113.58	108.36
8	A	1939	5MU	O4-C4-N3	-2.28	115.75	120.12
34	a	1207	2MG	N1-C2-N3	-2.27	120.45	123.95
56	w	37	MIA	C4-N9-C8	2.26	108.18	105.73
55	v	55	PSU	C6-N1-C2	-2.26	120.38	122.68
55	v	8	4SU	O2-C2-N1	-2.26	119.79	122.79
8	A	1835	2MG	N1-C2-N3	-2.24	120.49	123.95
56	w	39	PSU	C3'-C2'-C1'	2.22	104.23	101.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	527	G7M	N2-C2-N1	2.22	121.43	116.71
34	a	966	2MG	N1-C2-N3	-2.20	120.54	123.95
8	A	1917	PSU	C6-C5-C4	-2.20	116.66	118.20
8	A	2251	OMG	C4-C5-N7	-2.20	107.25	110.72
56	w	54	5MU	C3'-C2'-C1'	2.19	105.59	101.43
8	A	2445	2MG	N1-C2-N3	-2.18	120.58	123.95
8	A	2503	2MA	N6-C6-N1	2.18	120.11	117.03
8	A	1962	5MC	C5-C4-N4	-2.18	118.22	121.48
8	A	2445	2MG	C1'-N9-C8	2.17	132.88	126.70
34	a	527	G7M	C2'-C1'-N9	-2.16	107.10	113.22
55	v	20	H2U	O2-C2-N1	-2.15	120.41	123.11
8	A	2445	2MG	C8-N7-C5	2.14	108.11	104.24
56	w	37	MIA	N3-C2-N1	-2.14	123.03	126.95
8	A	1915	3TD	C6-C5-C4	2.13	119.69	118.22
34	a	1402	4OC	CM4-N4-C4	-2.13	118.29	122.45
8	A	745	1MG	C8-N7-C5	2.11	108.07	104.24
56	w	39	PSU	C6-C5-C4	-2.11	116.72	118.20
34	a	1402	4OC	C6-C5-C4	2.10	119.53	116.96
34	a	516	PSU	O4'-C1'-C2'	2.10	108.10	105.14
8	A	2604	PSU	C6-N1-C2	-2.05	120.58	122.68
8	A	2580	PSU	C6-C5-C4	2.04	119.62	118.20
8	A	2503	2MA	C6-C5-C4	2.03	119.91	117.18
34	a	966	2MG	CM2-N2-C2	-2.03	119.39	123.86
8	A	1911	PSU	O3'-C3'-C4'	2.02	116.89	111.05
8	A	747	5MC	C5-C4-N3	-2.01	119.51	121.67

There are no chirality outliers.

All (69) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
55	v	20	H2U	O4'-C1'-N1-C6
55	v	20	H2U	C2'-C1'-N1-C2
55	v	20	H2U	C2'-C1'-N1-C6
55	v	55	PSU	O4'-C1'-C5-C6
8	A	746	PSU	C2'-C1'-C5-C4
8	A	746	PSU	C2'-C1'-C5-C6
8	A	1915	3TD	C5'-O5'-P-OP1
8	A	1915	3TD	C5'-O5'-P-OP2
8	A	1915	3TD	C2'-C1'-C5-C4
8	A	1915	3TD	O4'-C1'-C5-C4
8	A	1915	3TD	C2'-C1'-C5-C6
8	A	1915	3TD	O4'-C1'-C5-C6

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Mol	Chain	Res	Type	Atoms
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	2445	2MG	C3'-C4'-C5'-O5'
8	A	2498	OMC	O4'-C4'-C5'-O5'
8	A	2552	OMU	O4'-C1'-N1-C2
8	A	2552	OMU	O4'-C1'-N1-C6
8	A	2552	OMU	C1'-C2'-O2'-CM2
34	a	966	2MG	O4'-C4'-C5'-O5'
34	a	966	2MG	C3'-C4'-C5'-O5'
34	a	1498	UR3	O4'-C1'-N1-C2
56	w	32	PSU	O4'-C1'-C5-C4
56	w	32	PSU	O4'-C1'-C5-C6
56	w	37	MIA	C5-C6-N6-C12
56	w	37	MIA	N1-C2-S10-C11
56	w	37	MIA	N3-C2-S10-C11
56	w	37	MIA	C12-C13-C14-C16
56	w	39	PSU	O4'-C1'-C5-C4
56	w	39	PSU	O4'-C1'-C5-C6
56	w	55	PSU	C2'-C1'-C5-C6
57	y	101	FME	O1-CN-N-CA
57	y	101	FME	O-C-CA-CB
57	y	101	FME	CA-CB-CG-SD
8	A	1939	5MU	O4'-C4'-C5'-O5'
8	A	2498	OMC	C3'-C4'-C5'-O5'
8	A	2503	2MA	O4'-C4'-C5'-O5'
34	a	1498	UR3	O4'-C1'-N1-C6
57	y	101	FME	CB-CG-SD-CE
8	A	1835	2MG	C3'-C4'-C5'-O5'
56	w	46	G7M	C3'-C4'-C5'-O5'
56	w	37	MIA	N1-C6-N6-C12
8	A	1835	2MG	O4'-C4'-C5'-O5'
8	A	2445	2MG	O4'-C4'-C5'-O5'
8	A	1939	5MU	C3'-C4'-C5'-O5'
34	a	1519	MA6	C5-C6-N6-C10
56	w	46	G7M	O4'-C4'-C5'-O5'
8	A	1915	3TD	C4'-C5'-O5'-P
8	A	1915	3TD	O4'-C4'-C5'-O5'
8	A	1915	3TD	C3'-C4'-C5'-O5'
8	A	747	5MC	C4'-C5'-O5'-P
34	a	527	G7M	C4'-C5'-O5'-P
56	w	46	G7M	C4'-C5'-O5'-P

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Mol	Chain	Res	Type	Atoms
8	A	746	PSU	O4'-C1'-C5-C4
8	A	1939	5MU	C2'-C1'-N1-C6
8	A	1939	5MU	O4'-C1'-N1-C6
34	a	1519	MA6	C5-C6-N6-C9
55	v	55	PSU	C3'-C4'-C5'-O5'
34	a	1402	4OC	O4'-C4'-C5'-O5'
56	w	55	PSU	O4'-C1'-C5-C6
55	v	20	H2U	C4'-C5'-O5'-P
55	v	20	H2U	O4'-C1'-N1-C2
8	A	747	5MC	C2'-C1'-N1-C2
8	A	2069	G7M	O4'-C4'-C5'-O5'
8	A	2604	PSU	O4'-C4'-C5'-O5'
8	A	1962	5MC	C2'-C1'-N1-C6
55	v	55	PSU	C4'-C5'-O5'-P
34	a	1519	MA6	C4'-C5'-O5'-P

There are no ring outliers.

25 monomers are involved in 52 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
56	w	8	4SU	1	0
8	A	746	PSU	1	0
8	A	2552	OMU	3	0
8	A	2030	6MZ	2	0
34	a	1207	2MG	1	0
8	A	1915	3TD	2	0
56	w	55	PSU	2	0
8	A	2251	OMG	1	0
55	v	8	4SU	1	0
34	a	516	PSU	2	0
8	A	2498	OMC	2	0
8	A	747	5MC	1	0
34	a	527	G7M	2	0
34	a	1519	MA6	2	0
34	a	1518	MA6	1	0
56	w	37	MIA	3	0
8	A	2445	2MG	1	0
8	A	745	1MG	1	0
34	a	966	2MG	1	0
57	y	101	FME	15	0
8	A	1939	5MU	1	0
34	a	1516	2MG	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
55	v	20	H2U	3	0
34	a	1402	4OC	1	0
56	w	39	PSU	2	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 2 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
60	AM2	a	2001	-	40,40,40	1.63	10 (25%)	53,60,60	1.26	2 (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
60	AM2	a	2001	-	-	3/12/84/84	0/4/4/4

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
60	a	2001	AM2	OA4-CA1	4.20	1.52	1.41
60	a	2001	AM2	CB3-CB4	-3.50	1.49	1.53
60	a	2001	AM2	OB1-CB1	3.29	1.50	1.41
60	a	2001	AM2	OA5-CA8	3.25	1.50	1.41
60	a	2001	AM2	OA5-CA4	2.82	1.51	1.44
60	a	2001	AM2	OA1-CA1	-2.63	1.34	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
60	a	2001	AM2	OA4-CA5	2.60	1.48	1.44
60	a	2001	AM2	OA8-CA8	-2.26	1.35	1.41
60	a	2001	AM2	CA7-NA7	-2.24	1.43	1.47
60	a	2001	AM2	OA8-CB1	-2.11	1.35	1.41

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
60	a	2001	AM2	CA9-NA7-CA7	-4.89	107.26	114.38
60	a	2001	AM2	OA5-CA4-CA5	2.11	114.19	109.75

There are no chirality outliers.

All (3) torsion outliers are listed below:

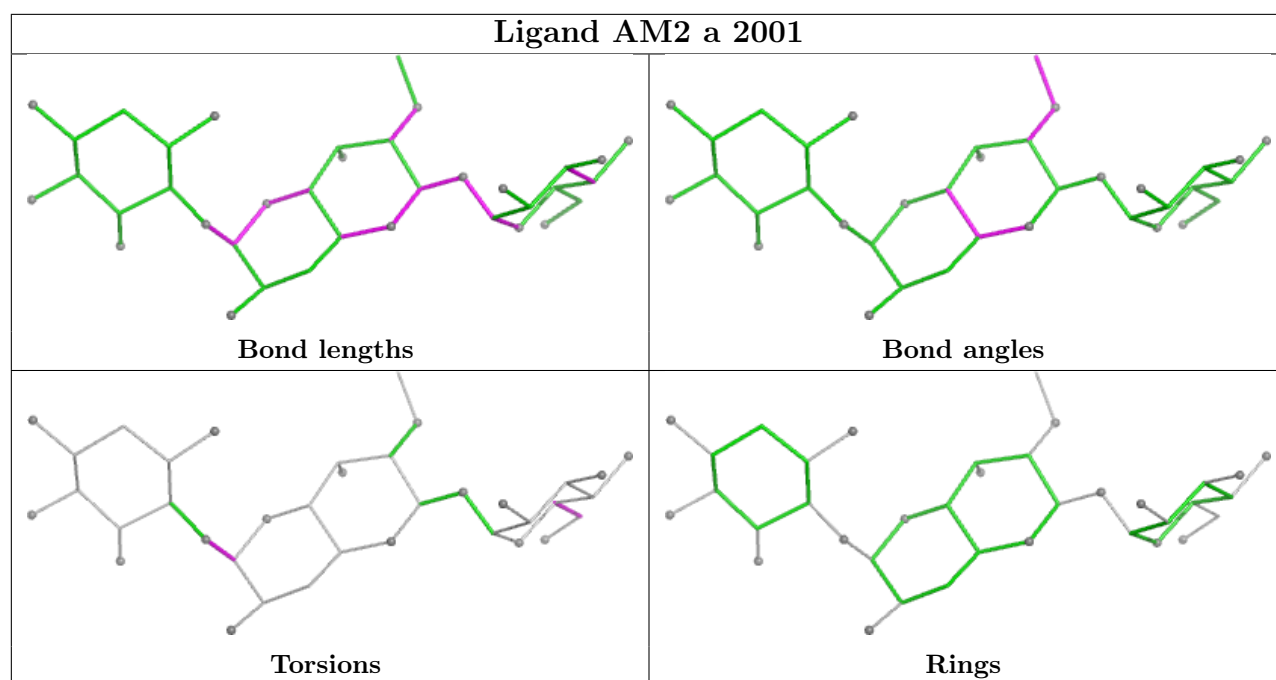
Mol	Chain	Res	Type	Atoms
60	a	2001	AM2	OB1-CB5-CB6-OB6
60	a	2001	AM2	CB4-CB5-CB6-OB6
60	a	2001	AM2	OA4-CA1-OA1-CC1

There are no ring outliers.

1 monomer is involved in 17 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
60	a	2001	AM2	17	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.

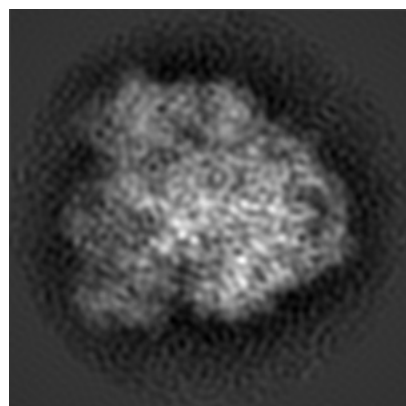
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13460. These allow visual inspection of the internal detail of the map and identification of artifacts.

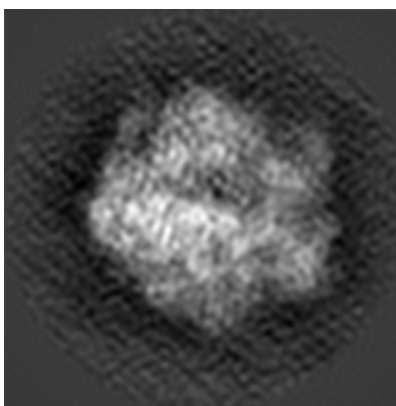
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

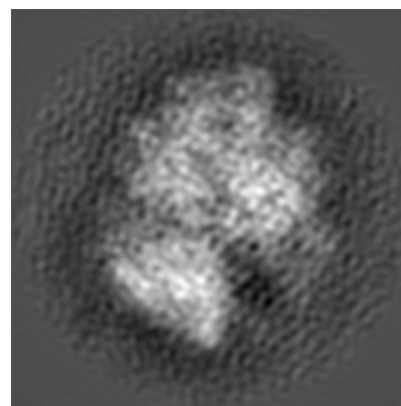
6.1.1 Primary map



X

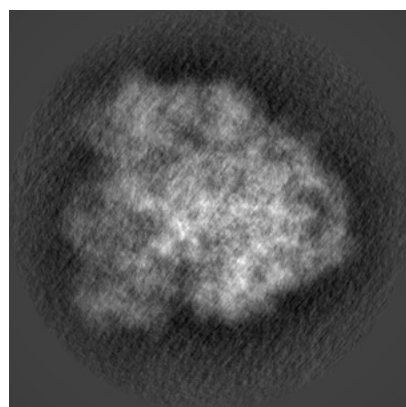


Y

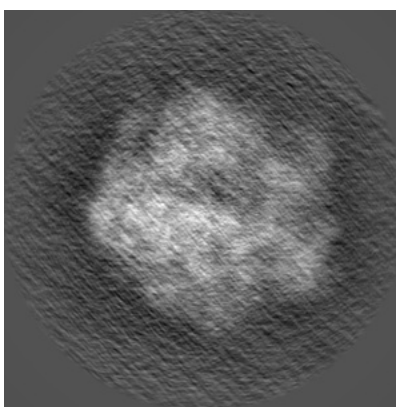


Z

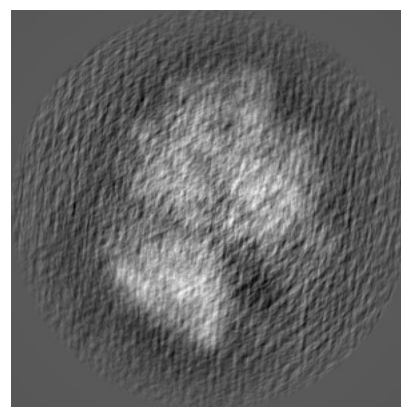
6.1.2 Raw map



X



Y

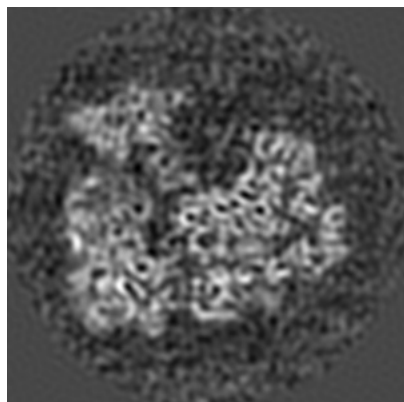


Z

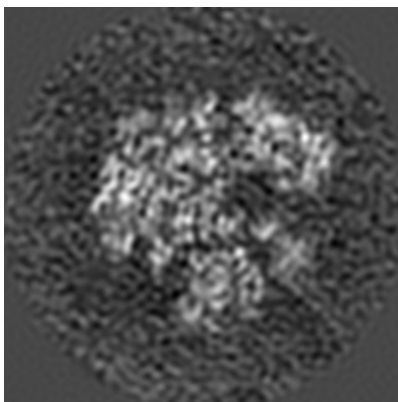
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

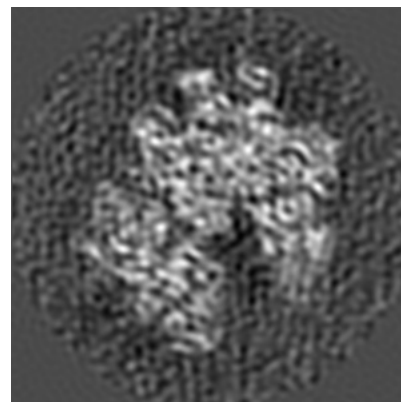
6.2.1 Primary map



X Index: 144

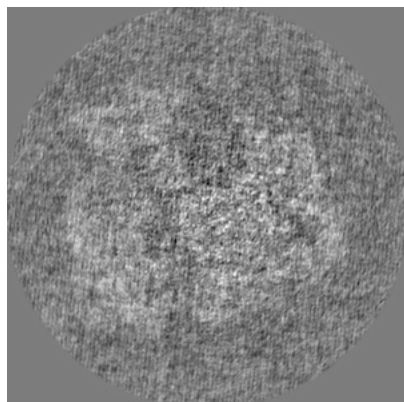


Y Index: 144

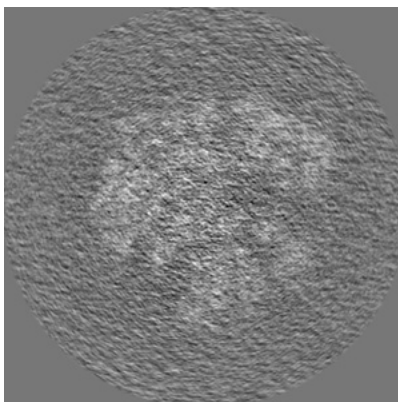


Z Index: 144

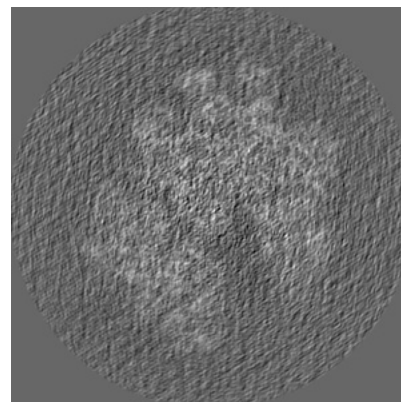
6.2.2 Raw map



X Index: 144



Y Index: 144

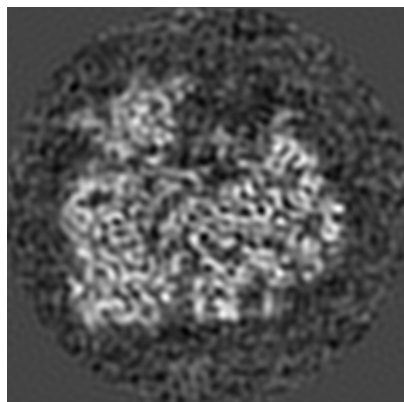


Z Index: 144

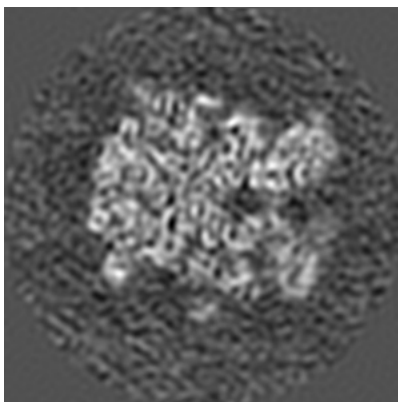
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

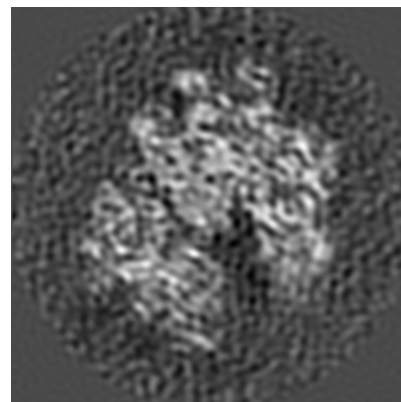
6.3.1 Primary map



X Index: 139

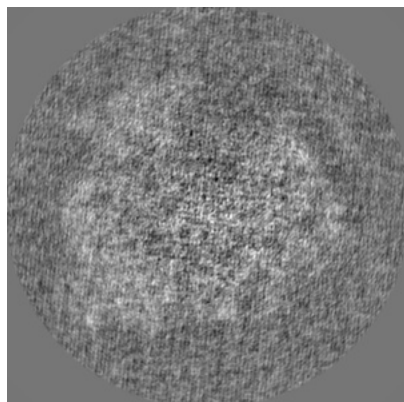


Y Index: 158

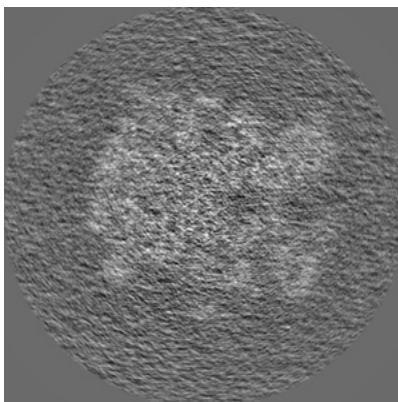


Z Index: 146

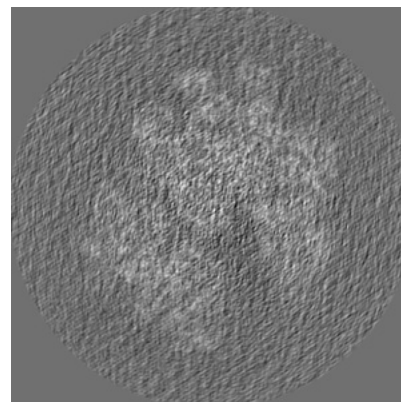
6.3.2 Raw map



X Index: 140



Y Index: 158

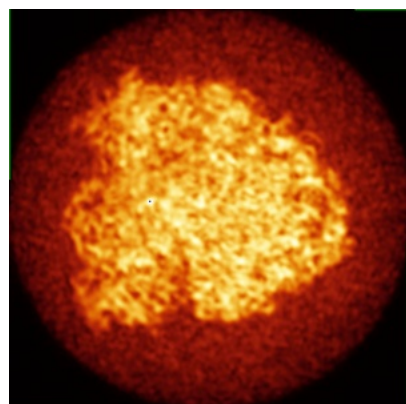


Z Index: 145

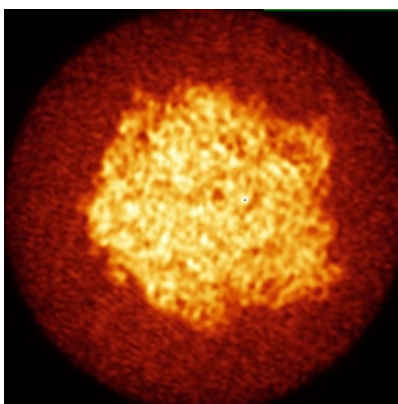
The images above show the largest variance slices of the map in three orthogonal directions.

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

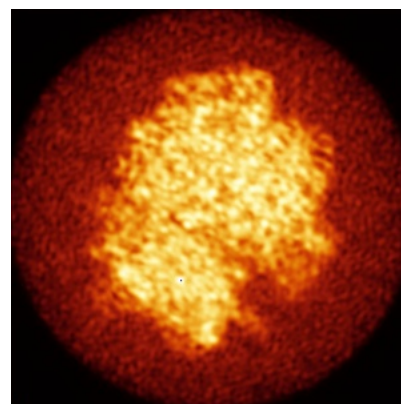
6.4.1 Primary map



X

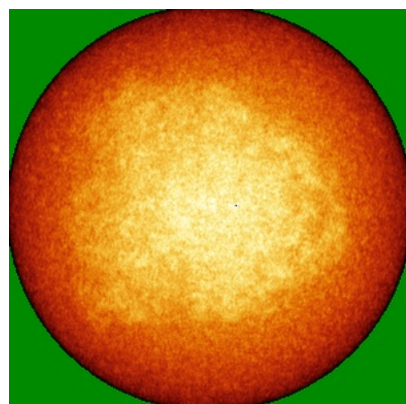


Y

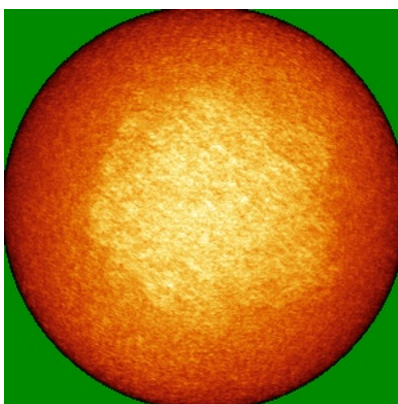


Z

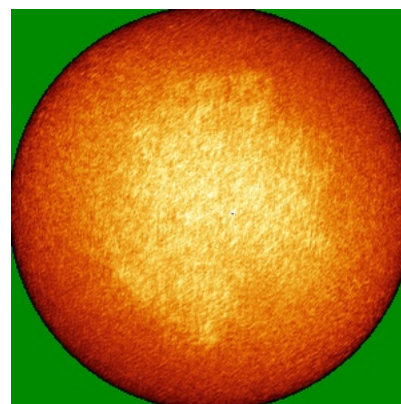
6.4.2 Raw map



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.

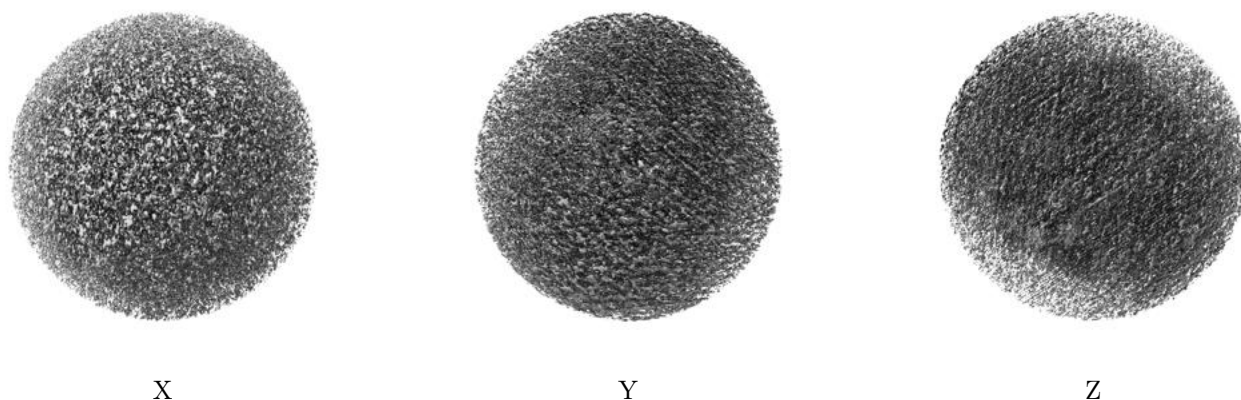
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



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



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.

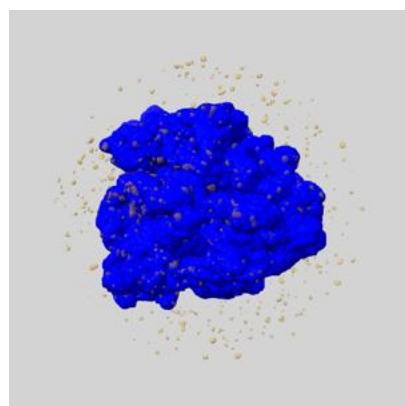
6.6 Mask visualisation [i](#)

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

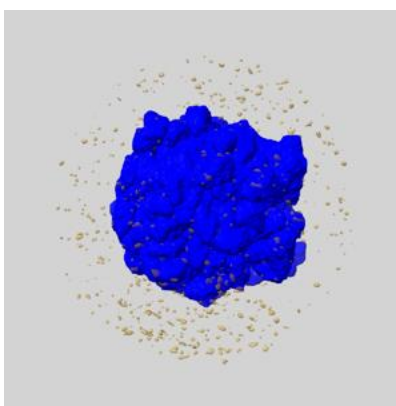
A mask typically either:

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

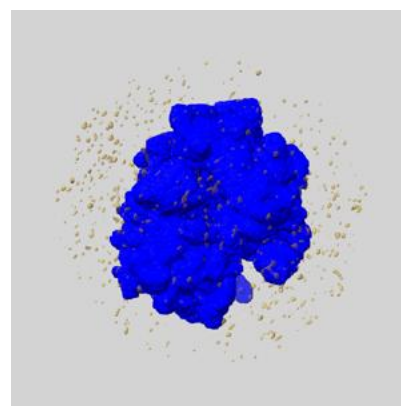
6.6.1 emd_13460_msk_1.map [i](#)



X



Y

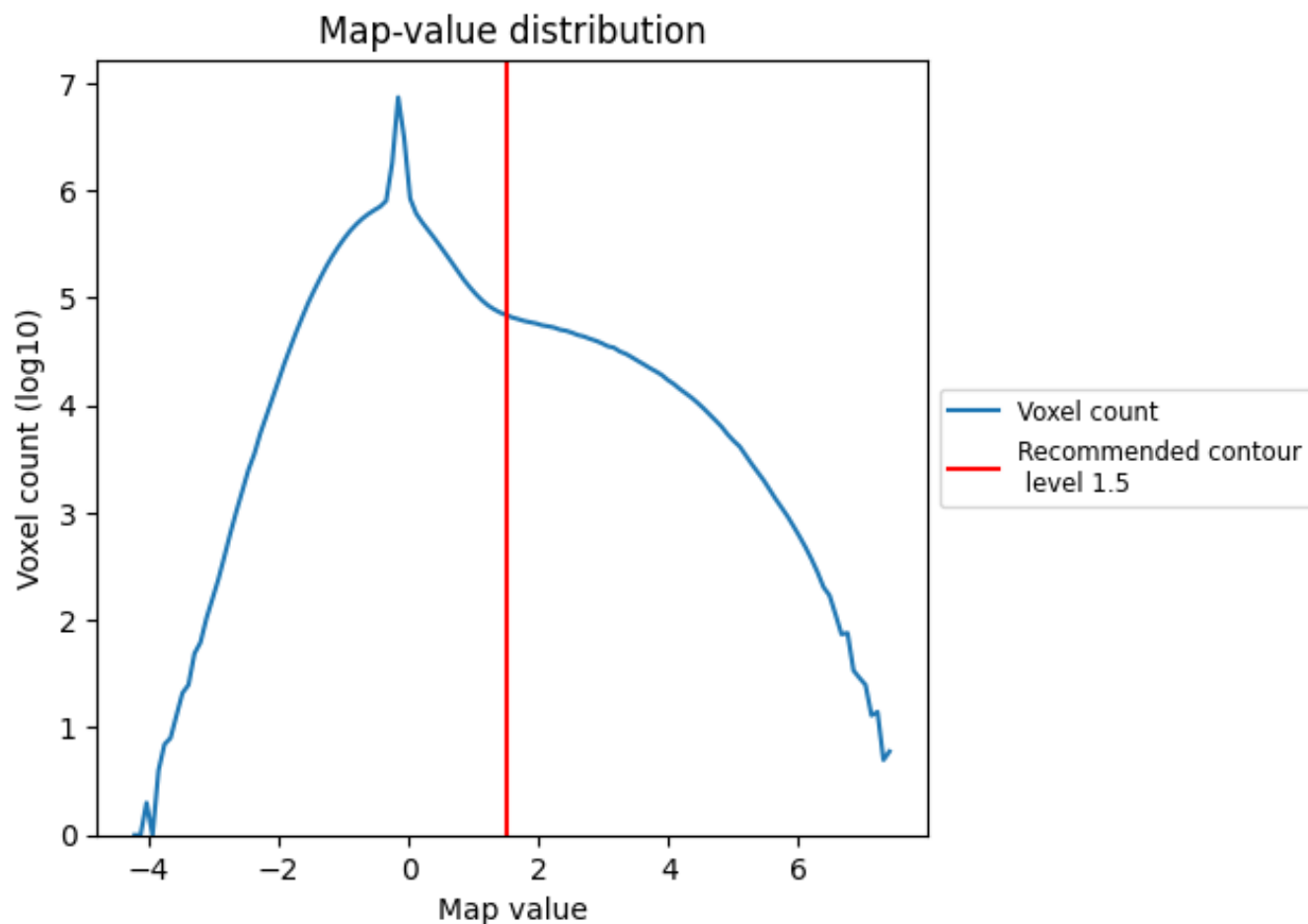


Z

7 Map analysis [i](#)

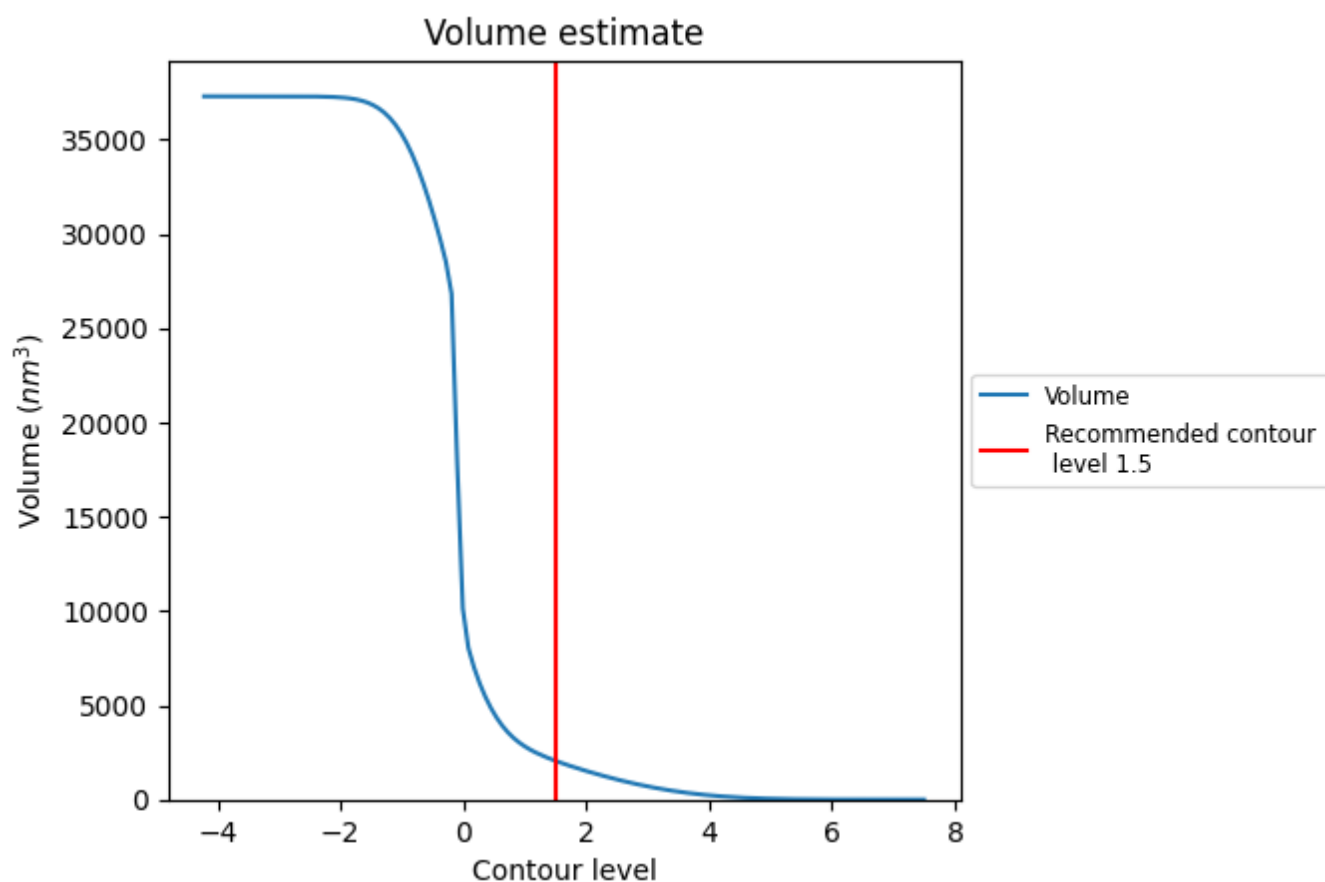
This section contains the results of statistical analysis of the map.

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.

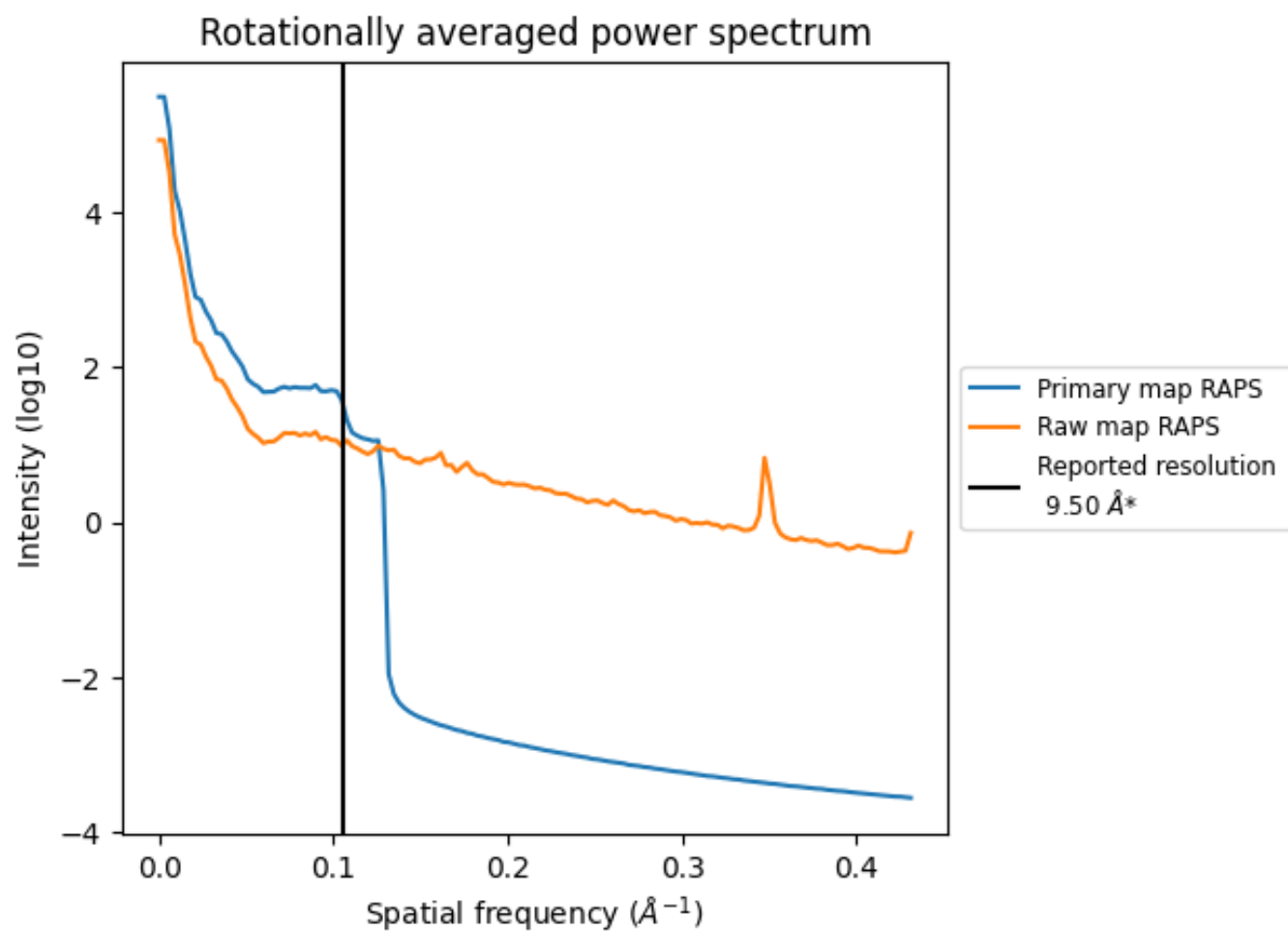
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2056 nm³; this corresponds to an approximate mass of 1857 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 ⓘ

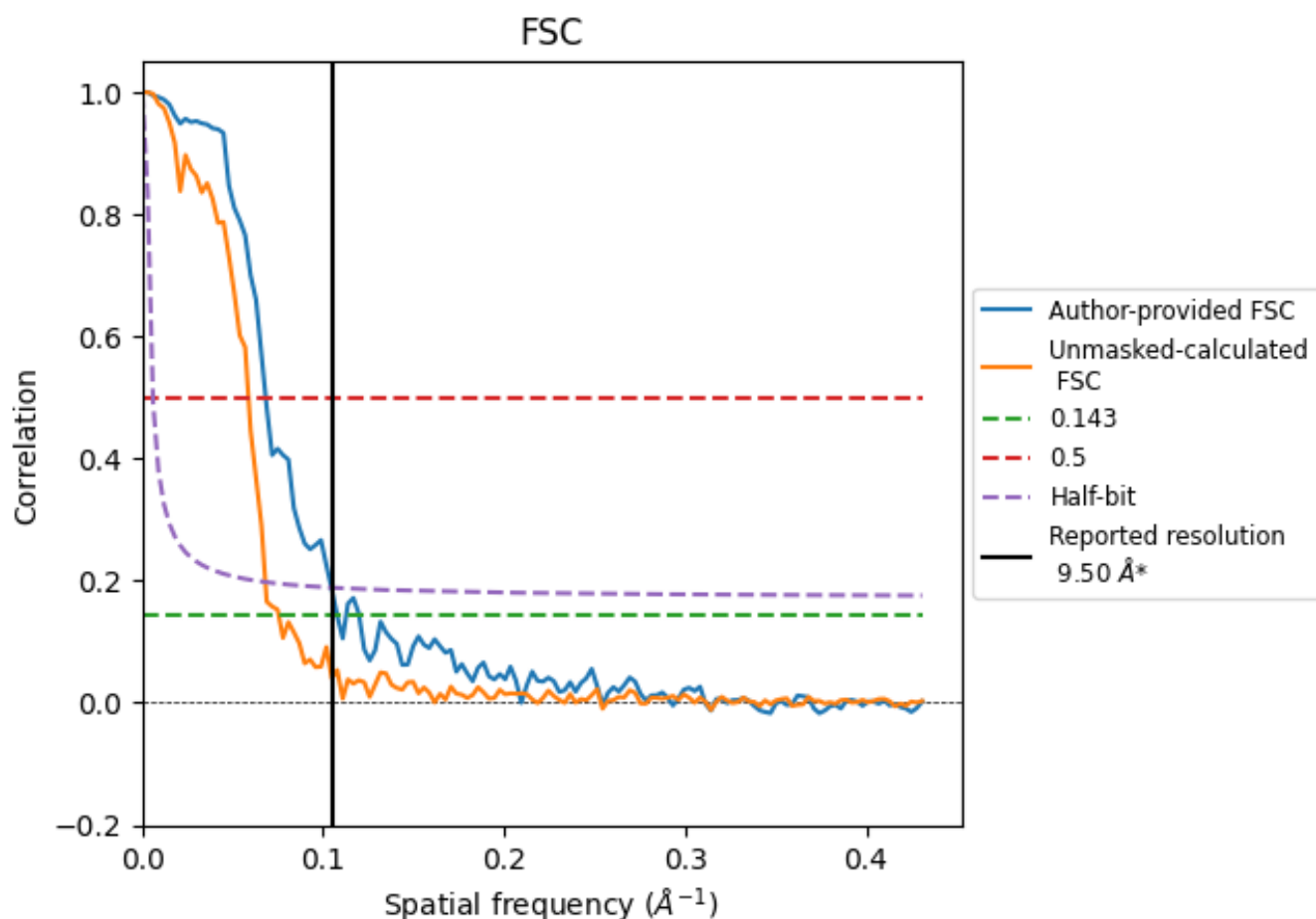


*Reported resolution corresponds to spatial frequency of 0.105 Å⁻¹

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 0.105 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

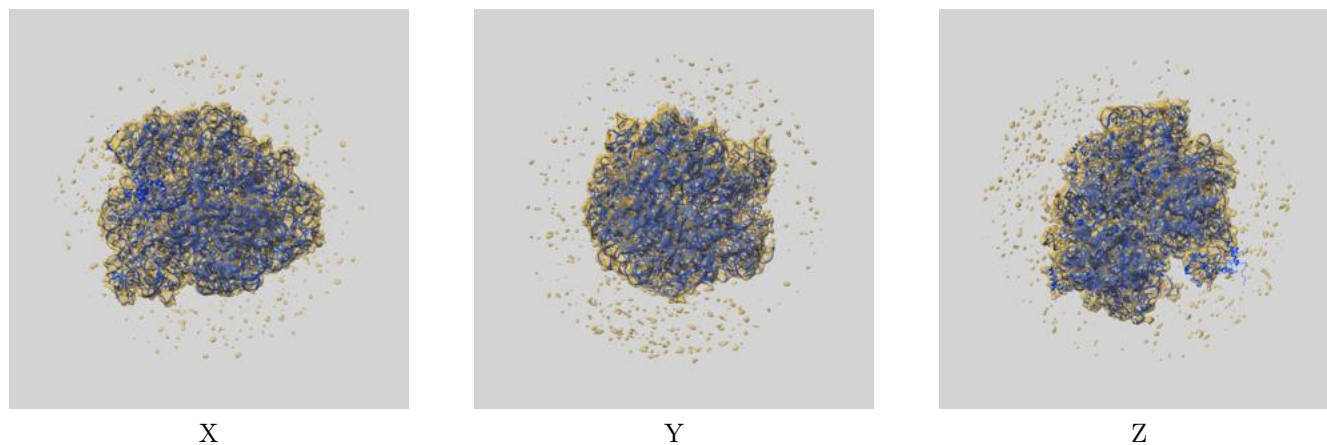
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	9.50	-	-
Author-provided FSC curve	9.29	14.64	9.56
Unmasked-calculated*	13.26	17.04	14.68

*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 13.26 differs from the reported value 9.5 by more than 10 %

9 Map-model fit [i](#)

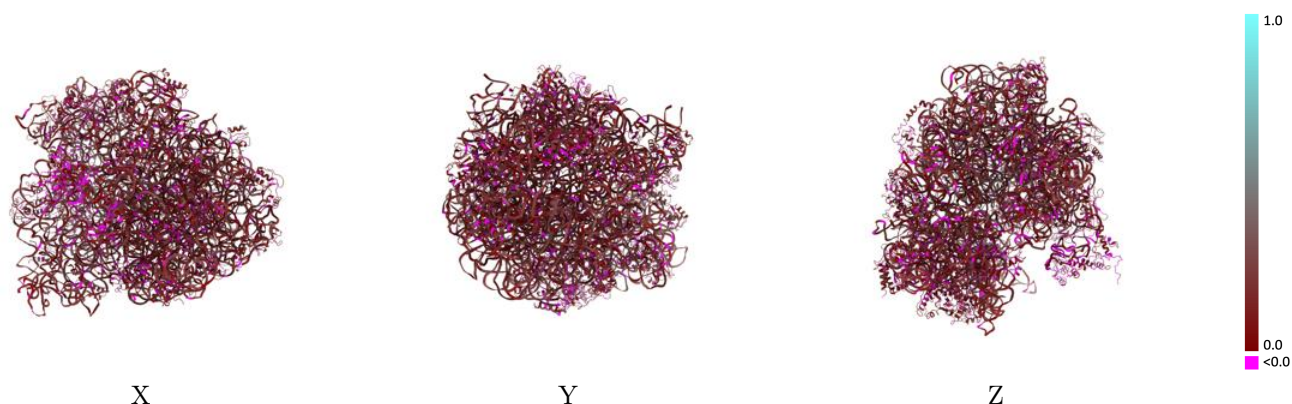
This section contains information regarding the fit between EMDB map EMD-13460 and PDB model 7PJU. Per-residue inclusion information can be found in section [3](#) on page [16](#).

9.1 Map-model overlay [i](#)



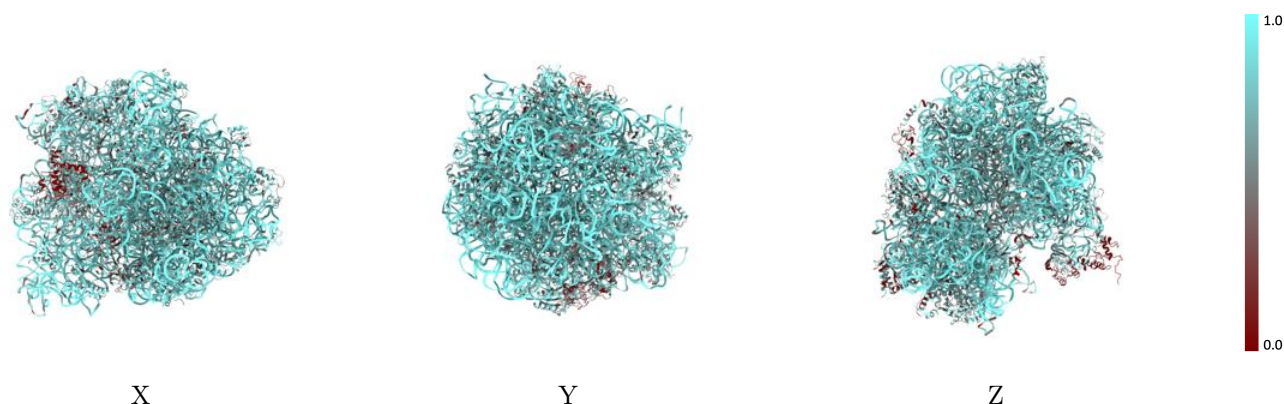
The images above show the 3D surface view of the map at the recommended contour level 1.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



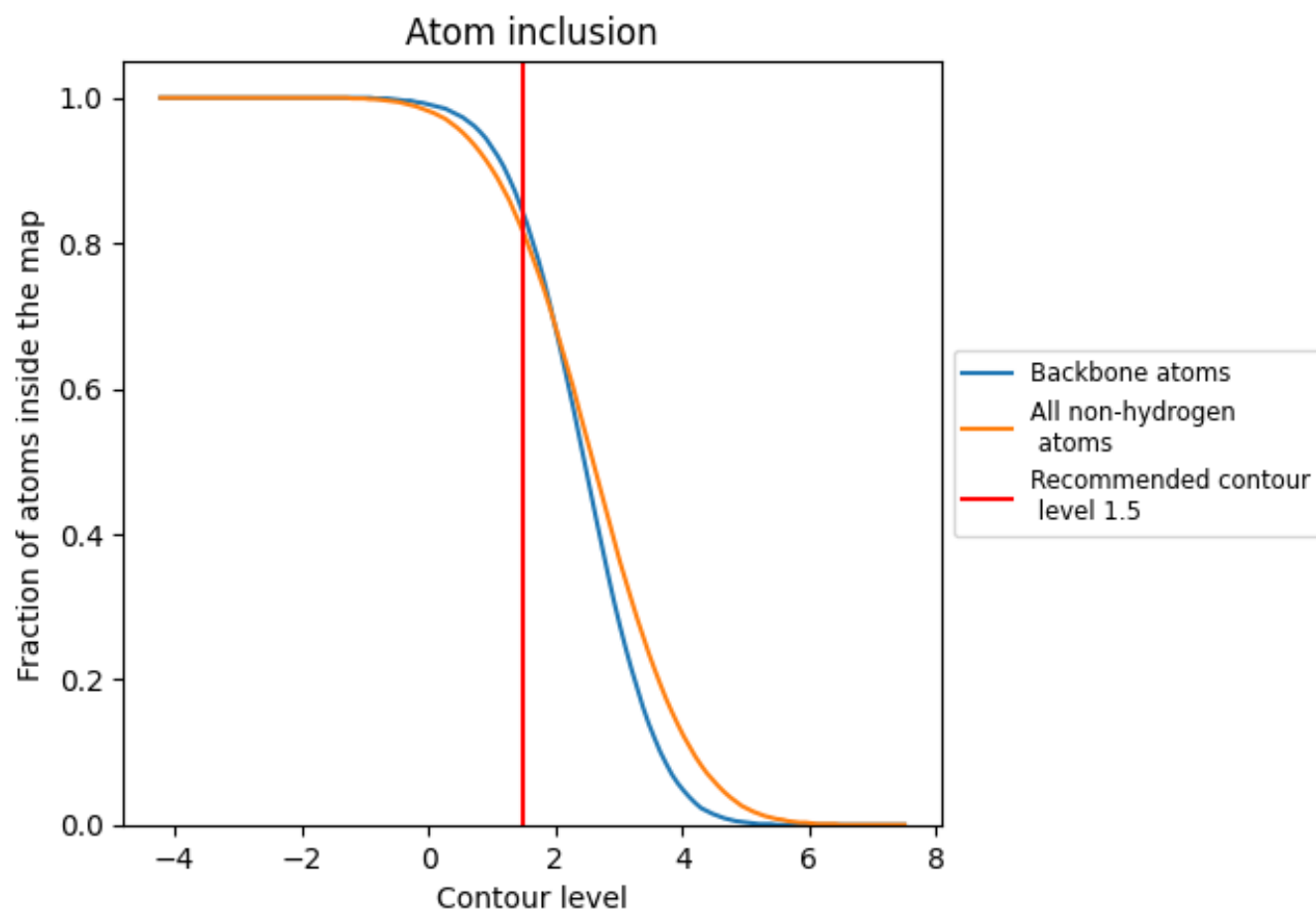
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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, 84% of all backbone atoms, 81% 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	 0.8140	 0.1430
0	 0.5650	 0.0650
1	 0.6260	 0.1320
2	 0.6450	 0.0900
3	 0.5700	 0.0710
4	 0.7340	 0.0710
5	 0.1210	 0.0200
6	 0.5190	 0.0750
A	 0.9040	 0.1600
B	 0.9440	 0.1790
C	 0.5710	 0.1070
D	 0.6130	 0.0920
E	 0.6680	 0.1090
F	 0.7140	 0.1240
G	 0.6820	 0.1040
H	 0.3030	 0.1040
I	 0.3160	 0.0210
J	 0.6400	 0.1050
K	 0.5200	 0.1080
L	 0.6270	 0.0920
M	 0.6250	 0.1010
N	 0.7040	 0.0910
O	 0.7900	 0.1170
P	 0.5700	 0.1070
Q	 0.6950	 0.0970
R	 0.7250	 0.1160
S	 0.6360	 0.1030
T	 0.6800	 0.1170
U	 0.7930	 0.1360
V	 0.7590	 0.1240
W	 0.6740	 0.0710
X	 0.6120	 0.1240
Y	 0.7490	 0.1330
Z	 0.6410	 0.1250
a	 0.9010	 0.1560



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Chain	Atom inclusion	Q-score
b	 0.4750	 0.1300
c	 0.6320	 0.1230
d	 0.6260	 0.1120
e	 0.6910	 0.1360
f	 0.6260	 0.1350
g	 0.5370	 0.1150
h	 0.6060	 0.1010
i	 0.7110	 0.0960
j	 0.6430	 0.1090
k	 0.5920	 0.1280
l	 0.5790	 0.1210
m	 0.6560	 0.1260
n	 0.7170	 0.0990
o	 0.6710	 0.0990
p	 0.6540	 0.0940
q	 0.6300	 0.0910
r	 0.5780	 0.0860
s	 0.6790	 0.0980
t	 0.7220	 0.1400
u	 0.5440	 0.1240
v	 0.8240	 0.1760
w	 0.7150	 0.1440
y	 0.4000	 0.0600
z	 0.7870	 0.1390