



Full wwPDB EM Validation Report ⓘ

Jun 21, 2026 – 04:52 am BST

PDB ID : 7PJX / pdb_00007pjax
EMDB ID : EMD-13463
Title : Structure of the 70S-EF-G-GDP ribosome complex with tRNAs in hybrid state 1 (H1-EF-G-GDP)
Authors : Petrychenko, V.; Peng, B.Z.; Schwarzer, A.C.; Peske, F.; Rodnina, M.V.; Fischer, N.
Deposited on : 2021-08-24
Resolution : 6.50 Å (reported)
Based on initial models : 5LZD, 6YSS, 4AQY, 5J9Z

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

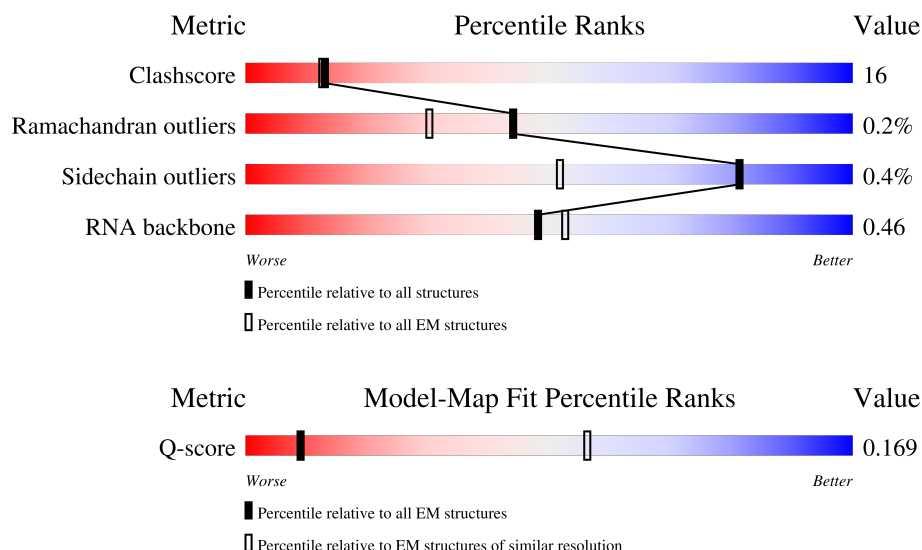
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.50 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.



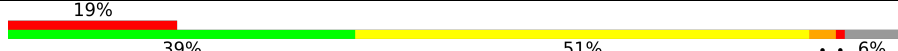
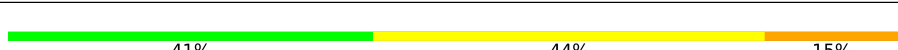
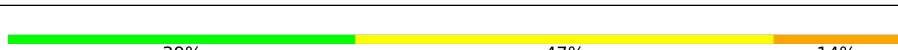
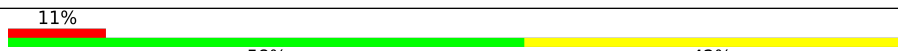
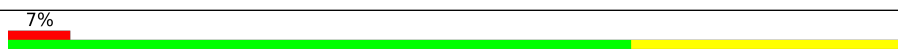
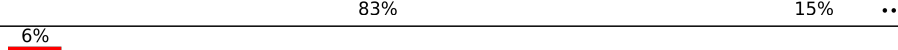
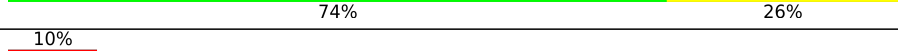
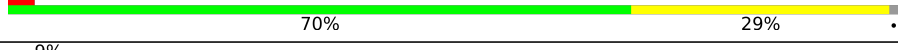
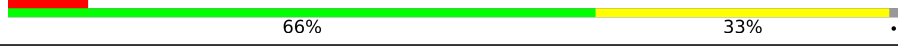
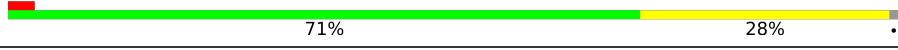
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	556 (6.00 - 7.00)

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	
2	1	55	

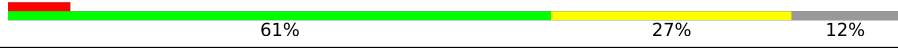
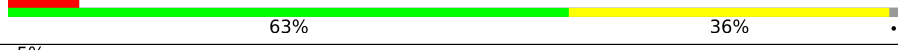
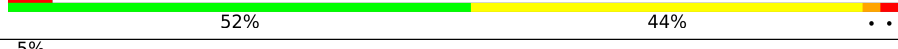
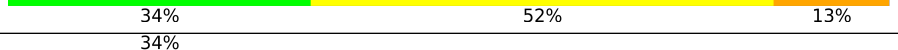
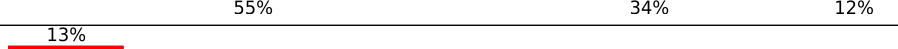
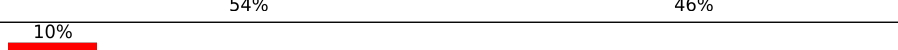
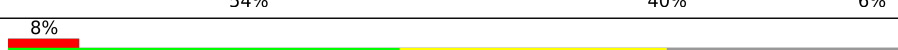
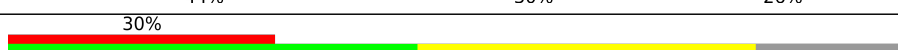
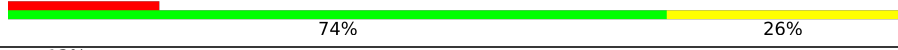
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Mol	Chain	Length	Quality of chain
3	2	46	
4	3	65	
5	4	38	
6	5	165	
7	6	70	
8	A	2903	
9	B	120	
10	C	273	
11	D	209	
12	E	201	
13	F	179	
14	G	177	
15	H	149	
16	I	142	
17	J	142	
18	K	123	
19	L	144	
20	M	136	
21	N	127	
22	O	117	
23	P	115	
24	Q	118	
25	R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

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

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

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
61	GDP	x	801	-	-	X	-

2 Entry composition

There are 61 unique types of molecules in this entry. The entry contains 151321 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	35	ALA	-	insertion	UNP C3SR07

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
52	s	82	Total	C	N	O	S	0	0
			658	421	125	110	2		

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

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

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

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

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

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

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

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

- Molecule 57 is a protein called Elongation factor G.

Mol	Chain	Residues	Atoms						AltConf	Trace
57	x	522	Total	C	N	O	S		0	0
			4052	2546	702	783	21			

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

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

- Molecule 59 is a RNA chain called mRNA.

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

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



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

- Molecule 61 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: $\text{C}_{10}\text{H}_{15}\text{N}_5\text{O}_{11}\text{P}_2$).

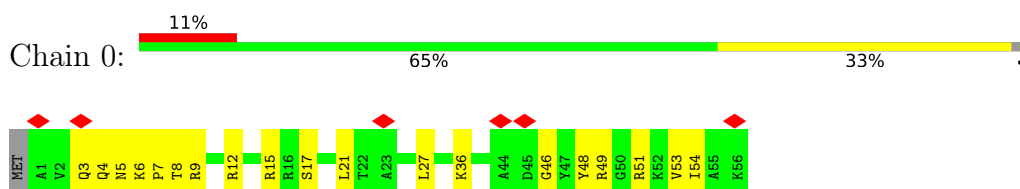


Mol	Chain	Residues	Atoms					AltConf
61	x	1	Total 28	C 10	N 5	O 11	P 2	0

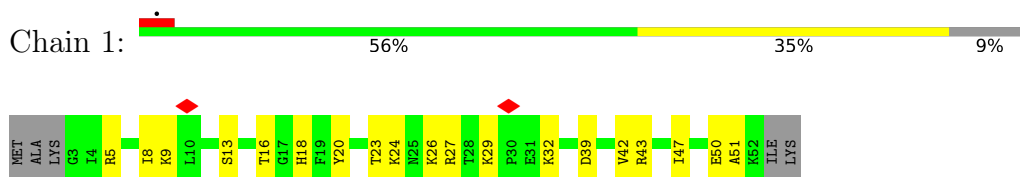
3 Residue-property plots [i](#)

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.

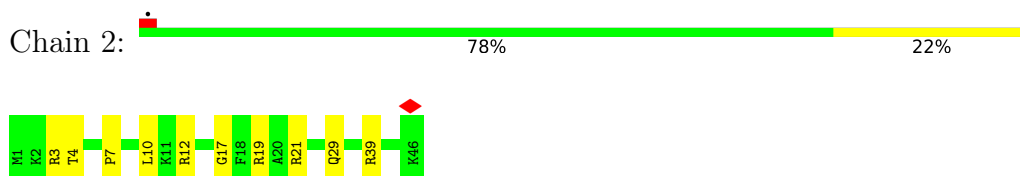
- Molecule 1: 50S ribosomal protein L32



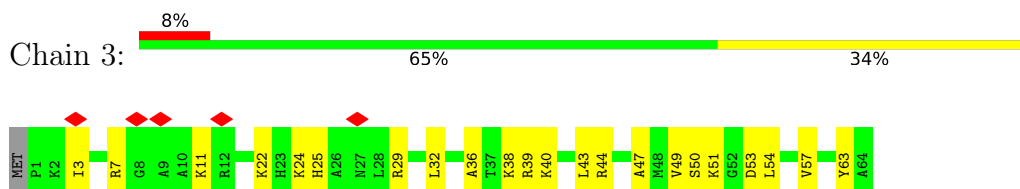
- Molecule 2: 50S ribosomal protein L33



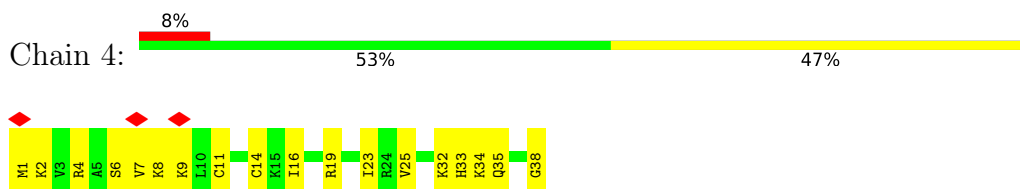
- Molecule 3: 50S ribosomal protein L34



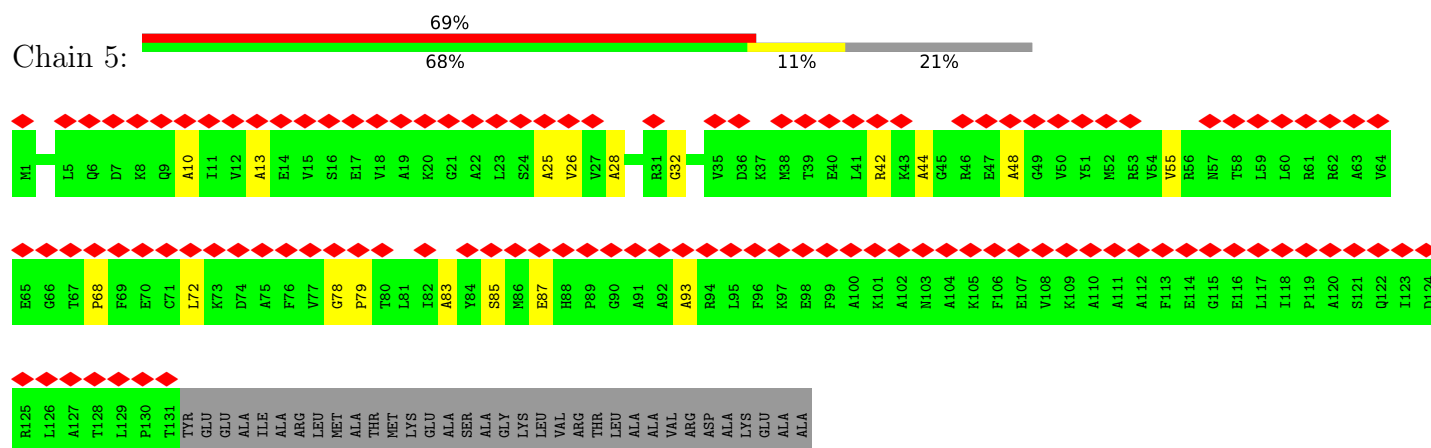
- Molecule 4: 50S ribosomal protein L35



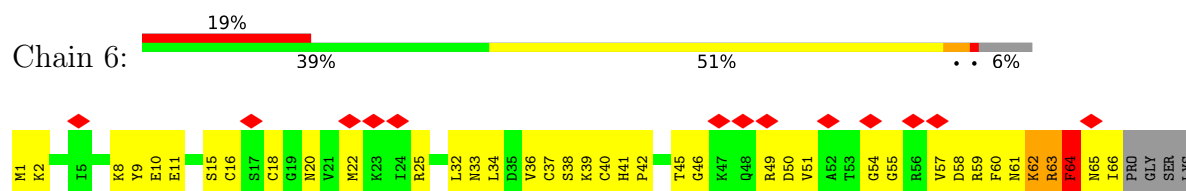
- Molecule 5: 50S ribosomal protein L36



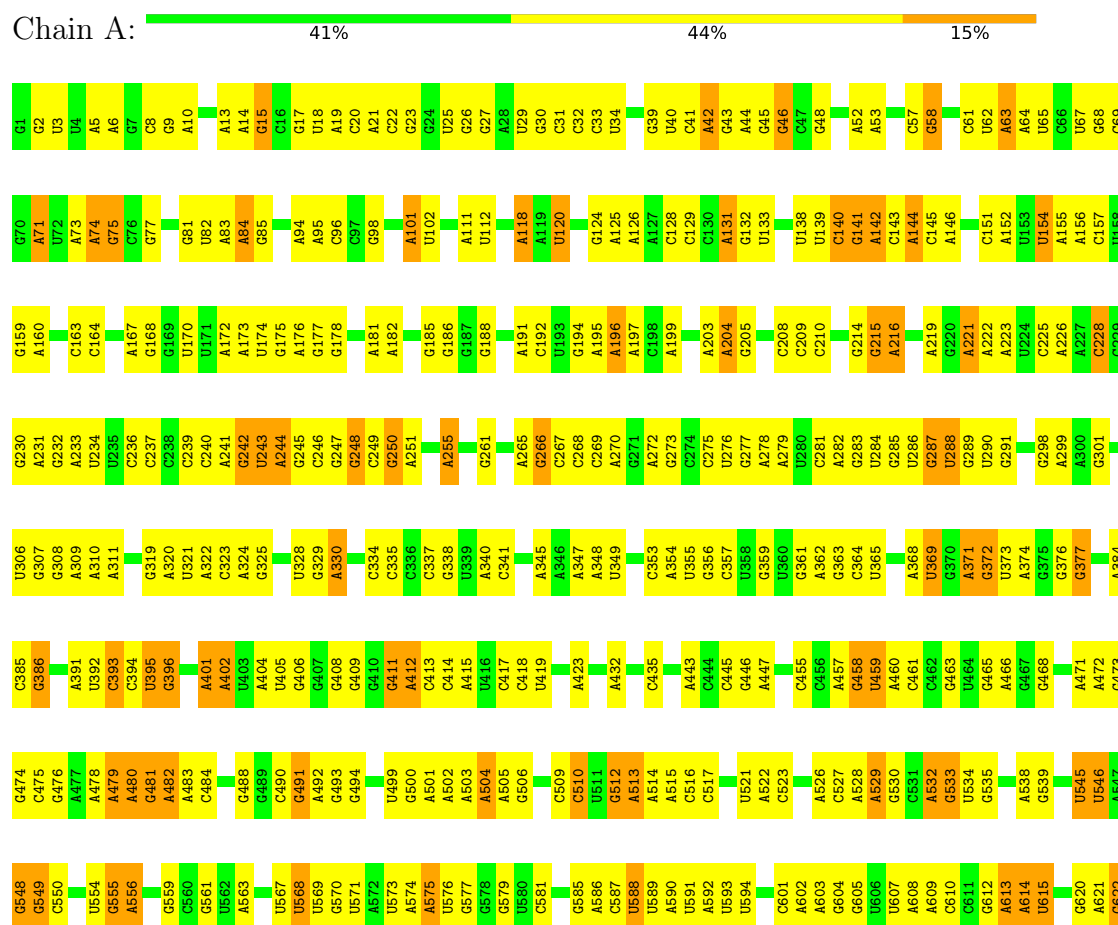
- Molecule 6: 50S ribosomal protein L10



- Molecule 7: 50S ribosomal protein L31

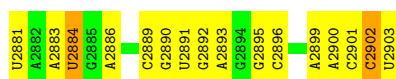


- Molecule 8: 23S ribosomal RNA



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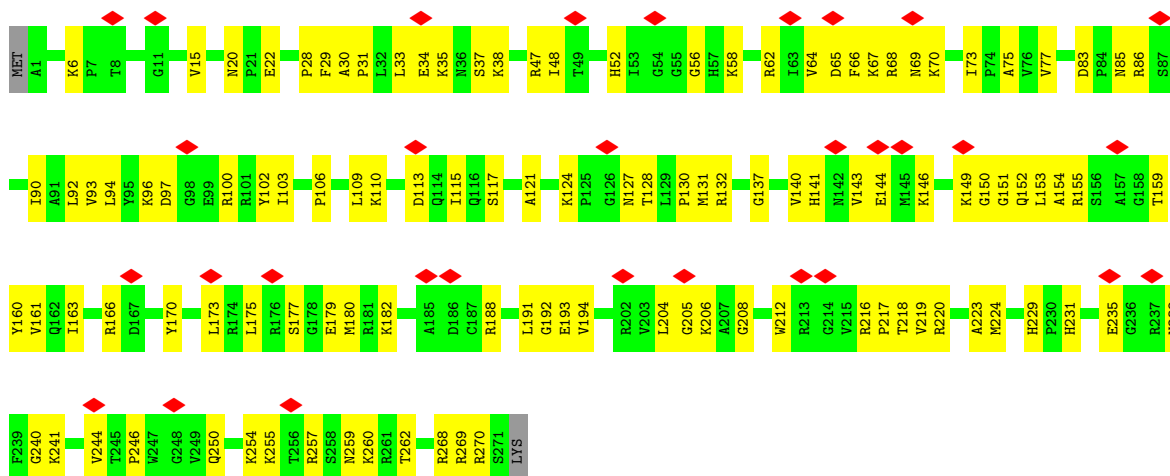
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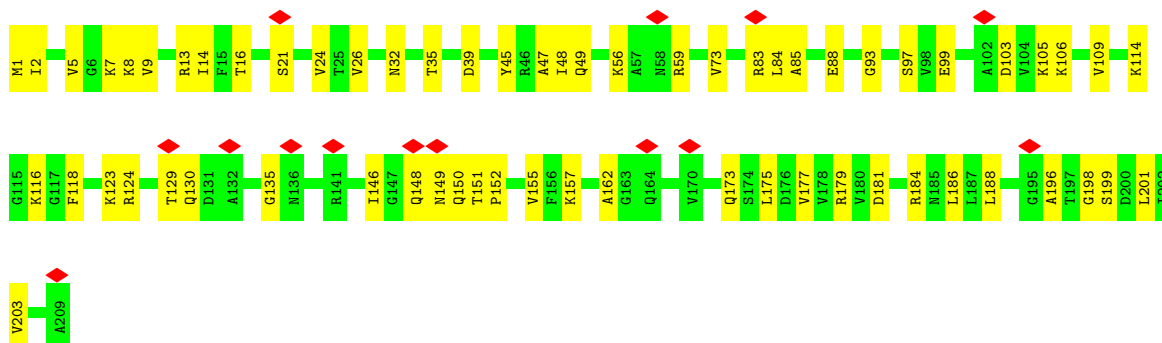
• Molecule 9: 5S ribosomal RNA



• Molecule 10: 50S ribosomal protein L2

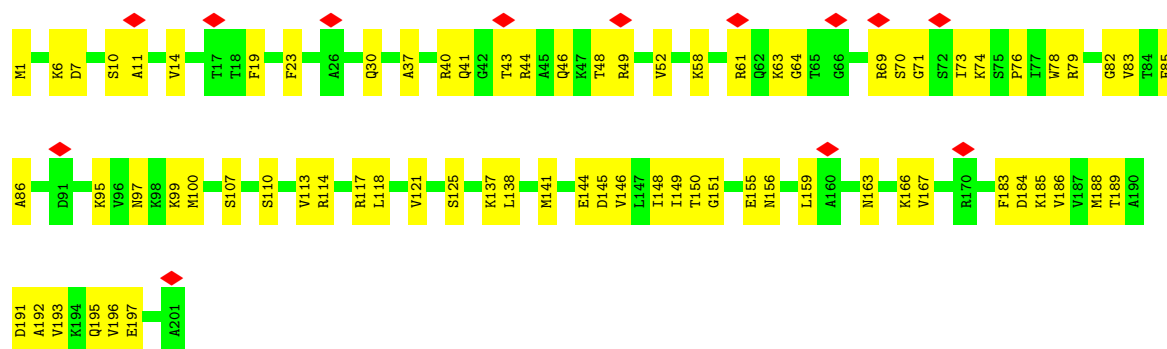


• Molecule 11: 50S ribosomal protein L3

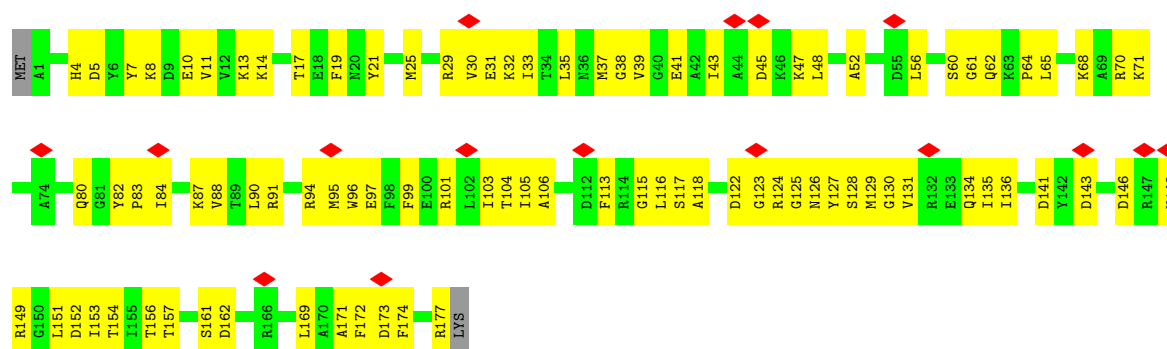


• Molecule 12: 50S ribosomal protein L4

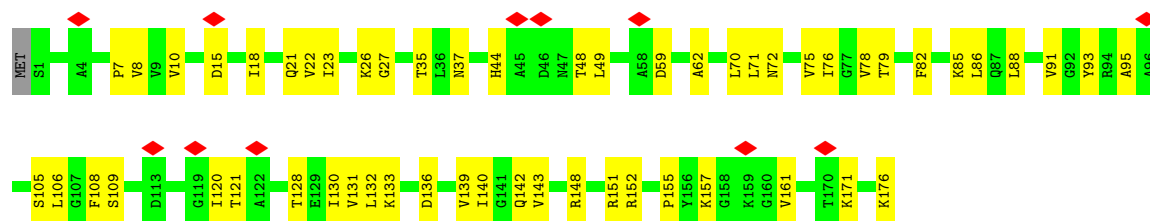




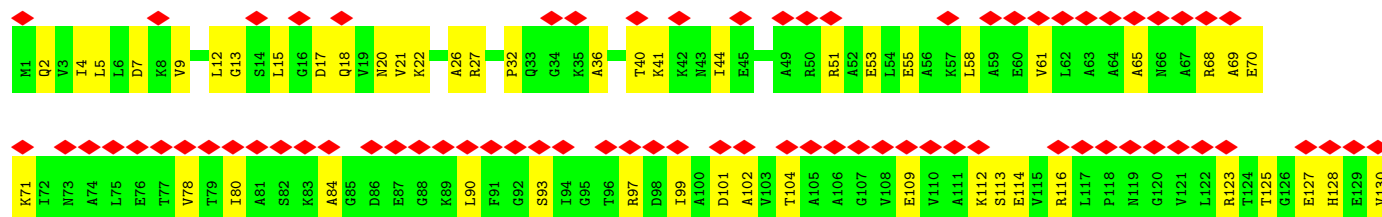
• Molecule 13: 50S ribosomal protein L5

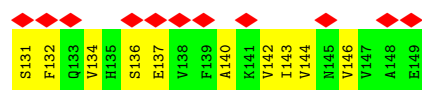


• Molecule 14: 50S ribosomal protein L6

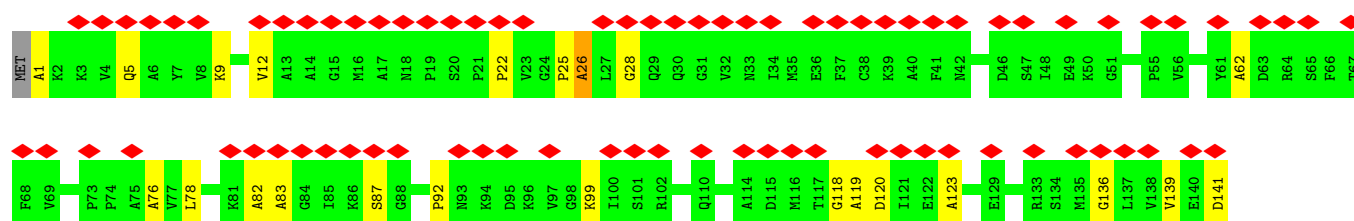
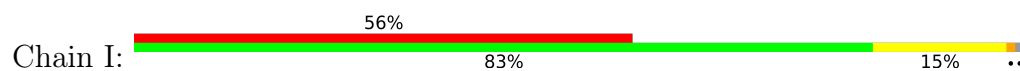


• Molecule 15: 50S ribosomal protein L9

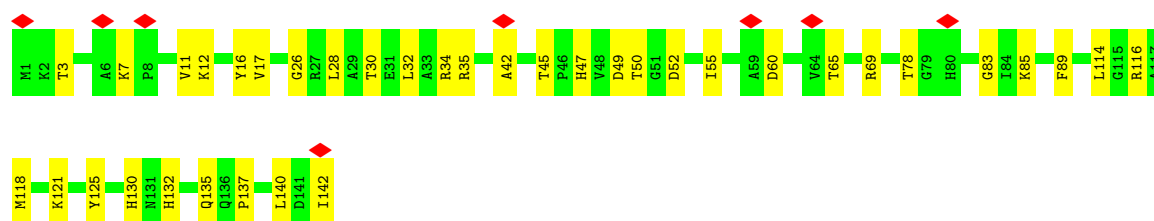
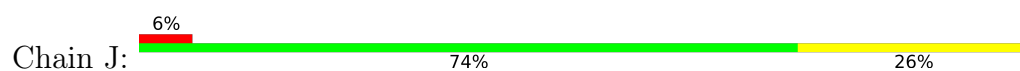




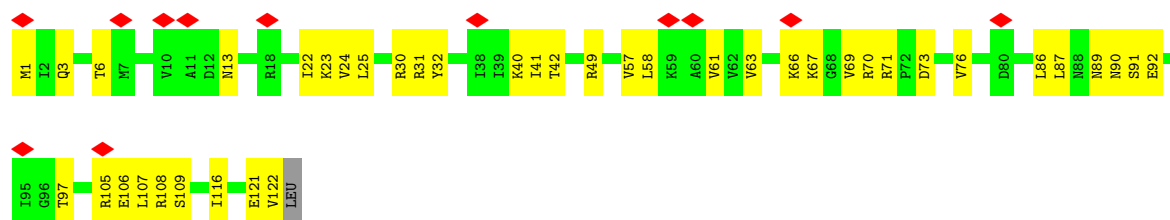
• Molecule 16: 50S ribosomal protein L11



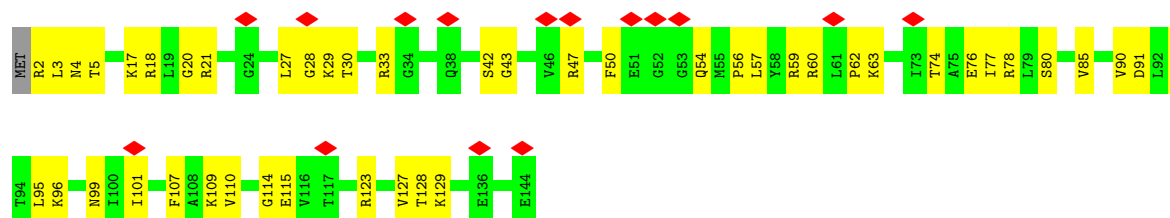
• Molecule 17: 50S ribosomal protein L13



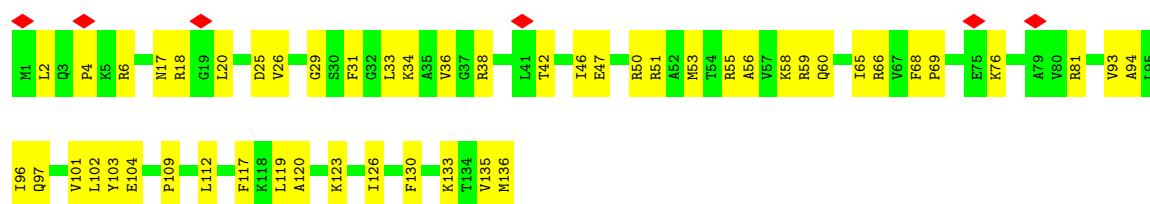
• Molecule 18: 50S ribosomal protein L14



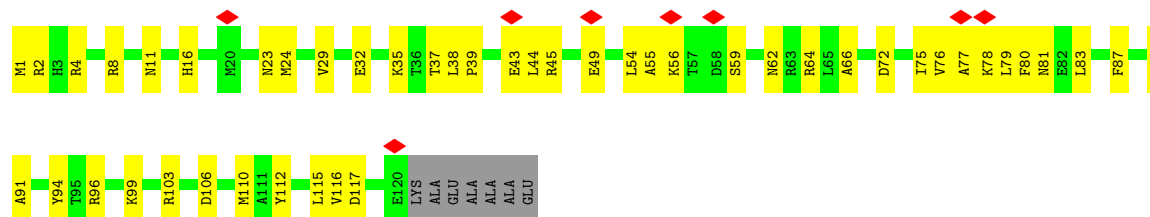
• Molecule 19: 50S ribosomal protein L15



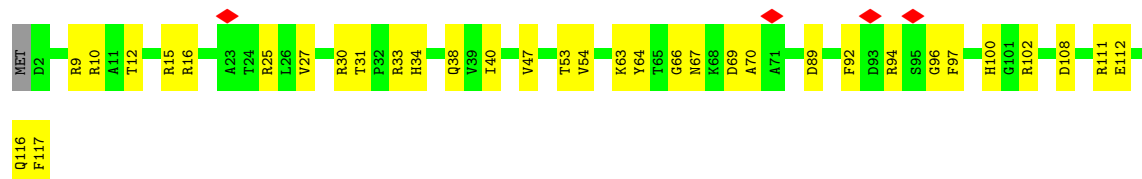
• Molecule 20: 50S ribosomal protein L16



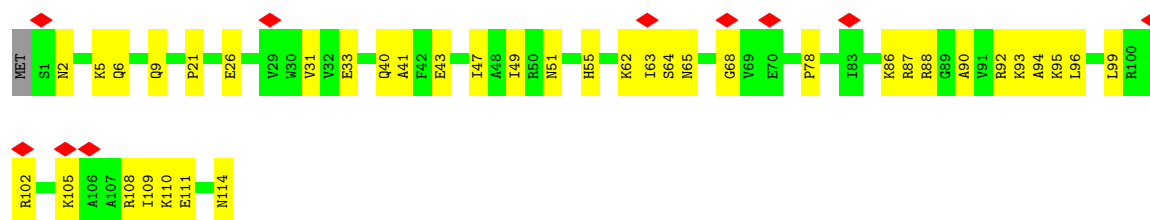
- Molecule 21: 50S ribosomal protein L17



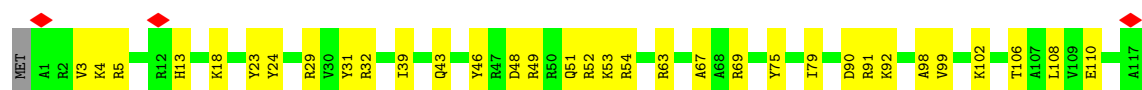
- Molecule 22: 50S ribosomal protein L18



- Molecule 23: 50S ribosomal protein L19

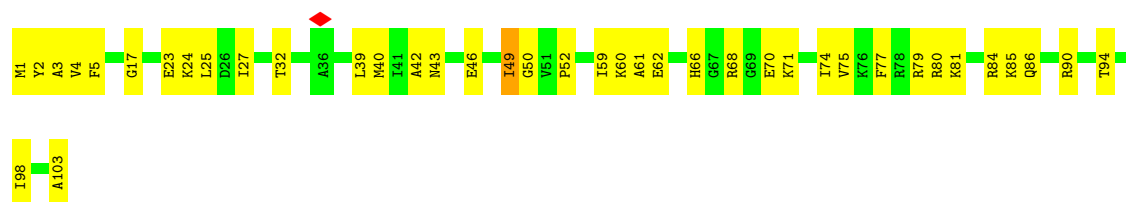


- Molecule 24: 50S ribosomal protein L20



- Molecule 25: 50S ribosomal protein L21

Chain R: 



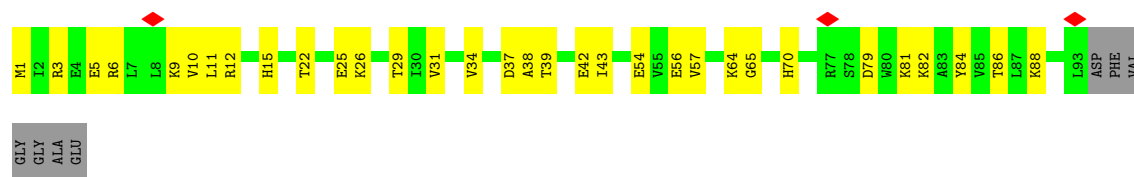
- Molecule 26: 50S ribosomal protein L22

Chain S: 



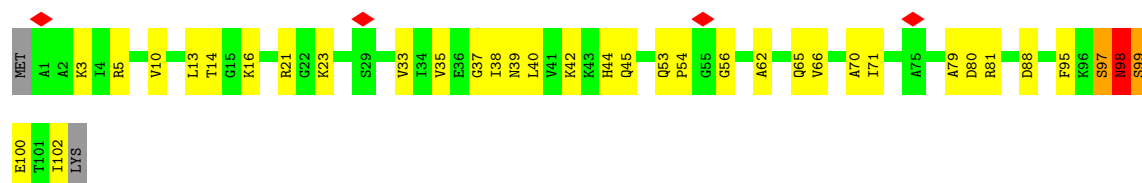
- Molecule 27: 50S ribosomal protein L23

Chain T: 



- Molecule 28: 50S ribosomal protein L24

Chain U: 



- Molecule 29: 50S ribosomal protein L25

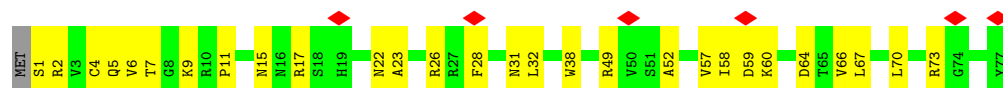
Chain V: 



- Molecule 30: 50S ribosomal protein L27



- Molecule 31: 50S ribosomal protein L28



- Molecule 32: 50S ribosomal protein L29



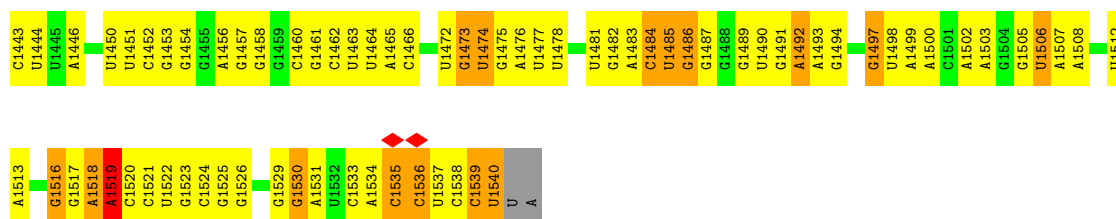
- Molecule 33: 50S ribosomal protein L30



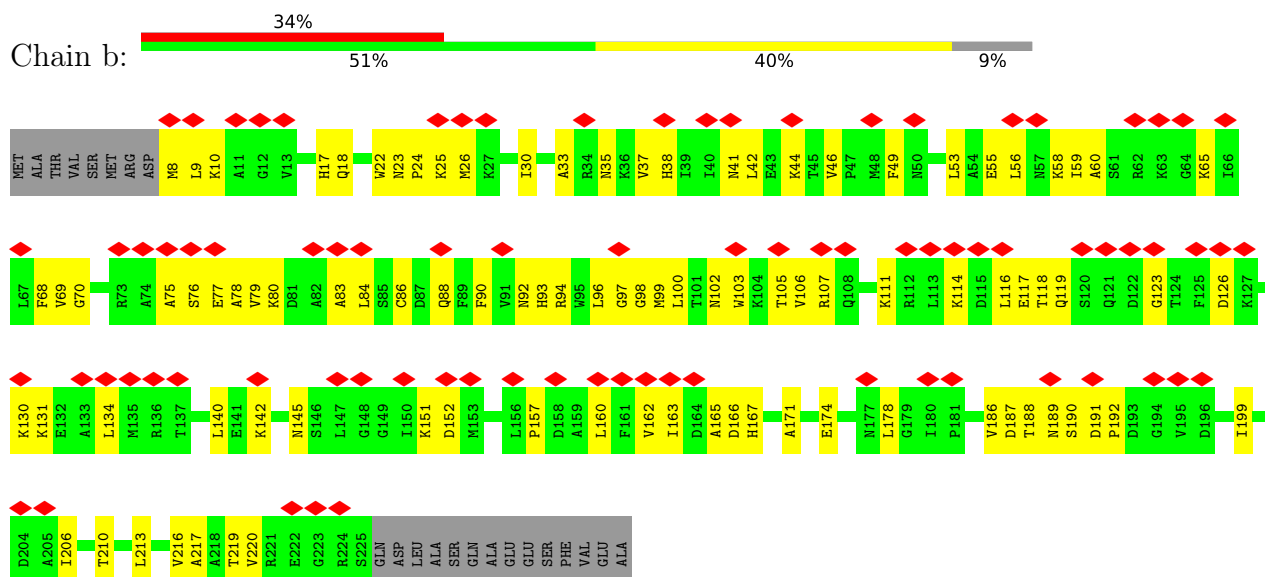
- Molecule 34: 16S ribosomal RNA



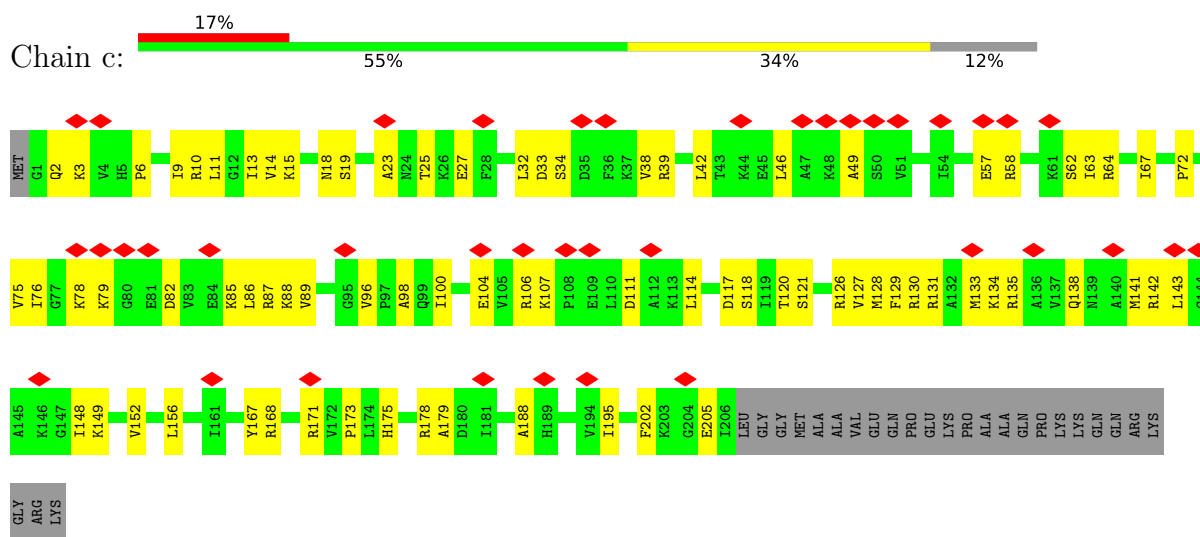
U1372	U1308	C1243	G1175	A1102	G1031	A969	C896	G821	G737	G664	C582	G515	A448	U365
G1373	G1309	G1244	G1176	C1103	G1032	C970	A900	U822	C738	A665	C586	U516	G449	U368
U1376	A1311	A1250	G1177	C1107	G1033	G971	G902	C826	C739	G666	G587	C518	G450	G369
A1377	G1312	G1251	G1178	A1108	A1035	G972	A906	G829	G742	A673	G592	G521	A455	C370
G1379	U1313	A1262	A1179	G1109	A1036	A974	A907	U834	G743	G674	U593	C522	A456	C372
C1382	U1315	G1253	A1180	C1112	C1037	A975	A908	U835	G744	A675	U594	A524	A459	A373
C1383	G1316	G1255	G1182	C1117	G1038	G976	A909	U836	G745	A676	U595	G525	A460	A374
U1386	C1317	A1256	G1183	A1118	U1040	A977	C910	U837	G746	U677	A596	C526	A461	U375
U1391	A1318	A1257	G1184	G1119	A1041	C979	U911	G838	G748	C679	G597	G527	G462	C361
G1392	G1320	G1258	G1190	C1119	A1042	C980	C912	G839	A753	C680	A600	U530	A382	A382
G1393	U1321	G1260	A1196	U1121	A1043	U981	C840	C841	C754	A681	G601	U531	A464	A383
A1394	C1322	C1261	A1197	U1122	A1045	U982	C842	U842	G755	G682	A602	A532	A465	C384
C1397	A1324	C1262	G1198	U1123	A1046	C983	U921	U843	G757	G683	G603	U535	A468	C385
A1398	G1325	G1263	G1199	G1124	C984	C985	G922	U844	C758	U686	U605	A535	C469	G388
C1399	U1326	U1264	U1199	A1125	U986	C986	A935	A845	A759	A687	G606	A539	U471	A389
G1400	C1327	G1266	C1200	U1126	G987	G988	C924	G846	G763	G688	A607	G540	U472	U390
C1401	G1328	C1267	A1201	G1127	C1053	U991	G925	G847	C764	G689	A608	G541	G473	G391
G1402	A1329	U1268	C1203	A1130	C1054	U992	G926	C848	G765	G690	A609	G542	G474	U405
C1403	U1330	A1269	A1204	G1131	U1055	U993	G927	G849	A766	G691	U610	U543	U407	U406
C1404	G1331	G1270	U1205	G1132	G1057	G993	U928	U850	A767	U692	C613	G544	U476	C401
G1405	A1332	A1271	G1206	G1133	C1058	A994	C932	G851	A768	G693	C614	C545	C477	G402
U1406	C1336	G1272	G1207	G1134	C1059	C995	G933	G852	G769	A694	G615	A546	U478	C403
C1407	G1337	C1273	C1208	C1137	U1060	A996	C934	U855	G773	A695	U619	A547	U479	G404
A1408	G1338	A1274	C1209	U1137	G1061	C999	C935	C856	A777	U701	C620	G548	G481	U405
U1412	A1339	U1275	U1211	G1139	U1062	A1000	G936	G859	C778	G703	A621	C549	G482	G406
C1413	C1342	G1277	U1212	G1142	C1063	C1001	A937	A860	C779	A704	A622	U551	C483	U407
U1414	U1345	G1278	A1213	G1143	U1065	G1002	G939	U870	A780	G705	U625	U552	G484	G410
G1415	A1280	G1279	C1214	G1144	U1070	A1003	C940	A866	C781	U706	A626	A553	A487	A411
A1416	C1281	A1280	G1215	G1145	C1071	A1005	G942	C866	C782	A707	G626	U554	C488	A412
G1417	U1282	C1281	A1216	A1146	G1072	A1006	G943	C867	U789	A712	G627	U555	G413	G413
A1418	C1283	U1283	C1217	G1147	U1073	G1007	U944	C868	C796	G713	G628	C556	A414	A414
G1419	A1284	C1284	C1218	C1147	G1074	U1008	G944	G869	C797	G714	A629	A559	A493	A415
U1420	U1285	A1285	A1219	U1148	U1075	U1009	G945	U871	A790	A715	U632	A560	G494	G416
A1421	A1286	G1221	C1220	C1149	C1077	U1010	A946	U872	A792	A716	G633	U561	G495	U420
G1422	U1287	G1222	G1221	A1150	U1078	C1011	G947	A873	U793	U717	C634	U562	A496	U421
C1423	A1288	A1287	C1223	A1151	G1079	A1012	C948	A874	A794	A718	C635	A563	G497	U422
U1424	U1354	U1224	U1224	G1153	A1080	G1013	A949	G874	C795	C719	U636	C564	A498	C423
U1425	G1355	U1225	A1225	A1157	G1084	A1014	U950	U875	C796	C720	C637	U565	A499	G423
G1426	G1356	C1226	C1226	C1157	U1085	G1015	G954	A878	C797	G721	U638	G566	G500	U426
C1427	A1357	A1227	C1227	C1158	U1086	A1016	U955	C879	G803	U722	G639	G567	A502	U427
A1428	U1358	G1228	G1228	U1159	U1087	G1017	U956	C880	U804	U723	A640	G570	U428	G428
C1429	C1359	U1295	A1229	G1160	G1087	G1018	U957	C881	C810	G724	U641	C503	U429	A430
A1430	A1360	C1296	C1230	C1161	G1088	A1019	U958	C882	C811	G725	A642	U571	C504	A431
U1431	G1361	G1297	G1231	C1162	U1089	G1020	A958	C883	C812	C726	A648	A572	G505	A432
A1432	A1362	U1298	G1231	A1163	A1092	A1021	A959	C884	C813	G727	A649	A573	G506	U433
G1433	U1299	A1299	C1234	G1164	A1093	A1022	U960	U884	U812	A728	G650	A574	C507	U434
A1434	U1363	G1300	U1235	U1165	G1094	U1023	U961	C885	U813	A729	A651	A575	U508	U435
G1435	A1364	U1301	A1236	G1166	U1095	G1024	C962	G890	A814	G730	C651	C576	A509	U436
C1436	G1365	C1302	C1237	A1167	C1096	U1025	C963	U891	A815	G733	U652	C577	A510	C440
U1437	C1367	C1303	A1238	U1168	C1097	U1026	A964	U892	A816	G734	U653	C578	C511	G444
A1438	A1368	G1304	A1239	A1169	C1098	C1027	U965	C893	C817	C735	U662	A579	U512	G445
C1369	G1369	G1305	U1240	A1170	C1099	C1028	C966	C894	G818	C736	U663	C580	U513	G446
U1440	A1441	G1370	G1241	A1171	C1100	U1029	A968	G895	U820	C736	A663	C581	C514	G447
G1442	G1371	U1307	G1242	C1172	A1101	U1030								



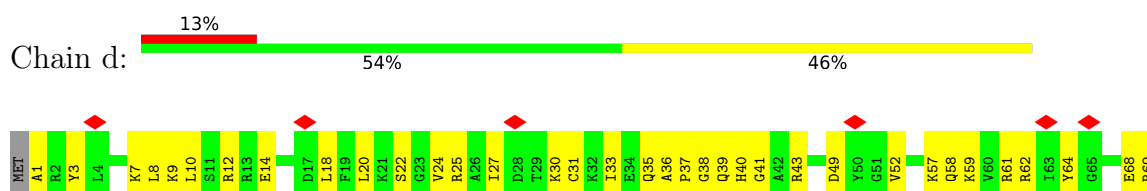
• Molecule 35: 30S ribosomal protein S2

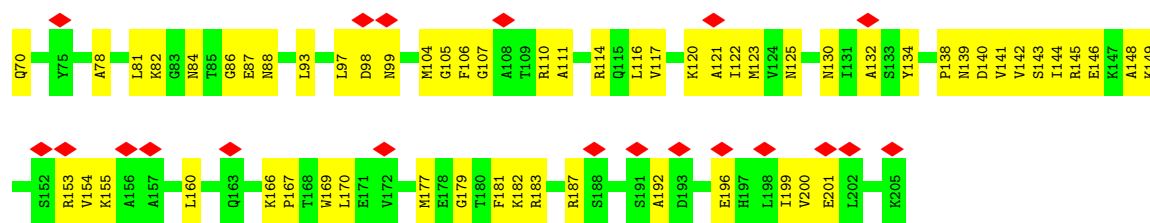


• Molecule 36: 30S ribosomal protein S3

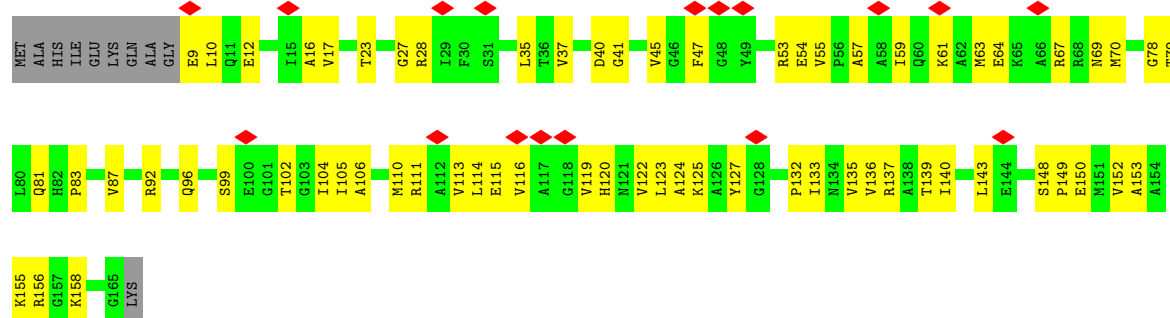


• Molecule 37: 30S ribosomal protein S4

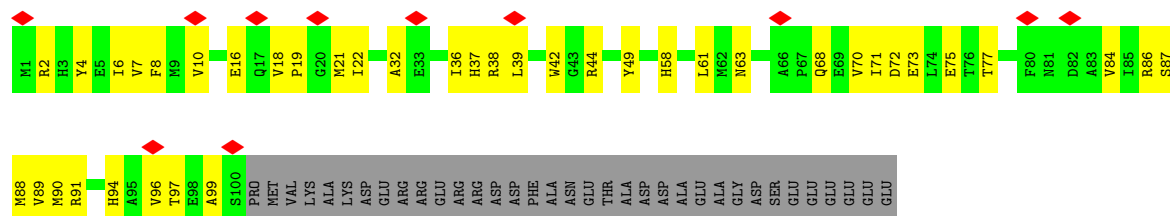




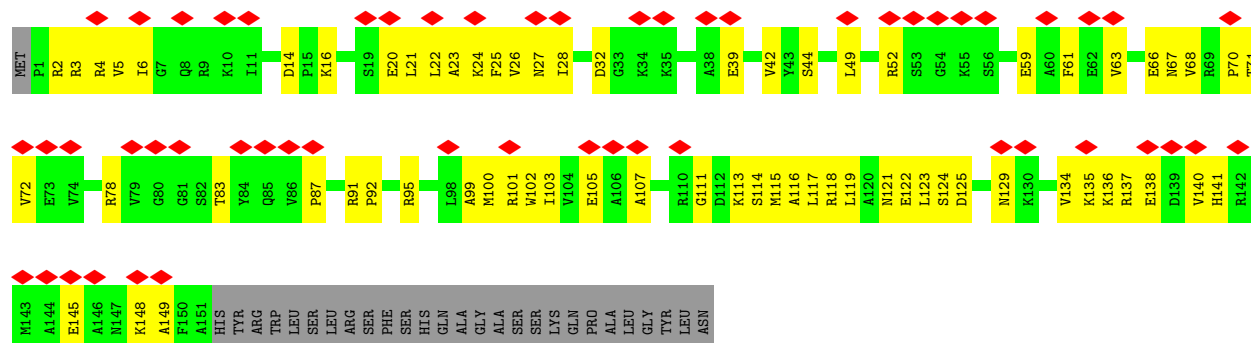
• Molecule 38: 30S ribosomal protein S5



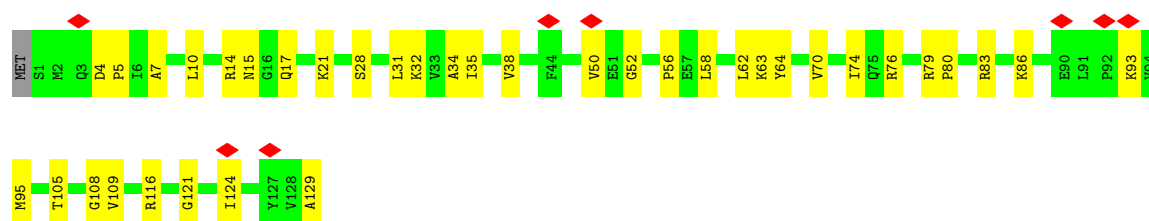
• Molecule 39: 30S ribosomal protein S6



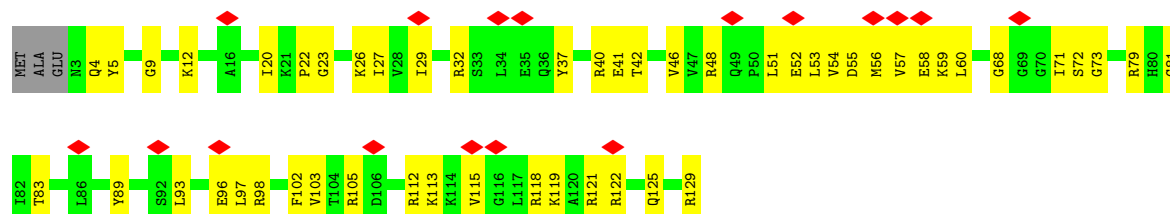
• Molecule 40: 30S ribosomal protein S7



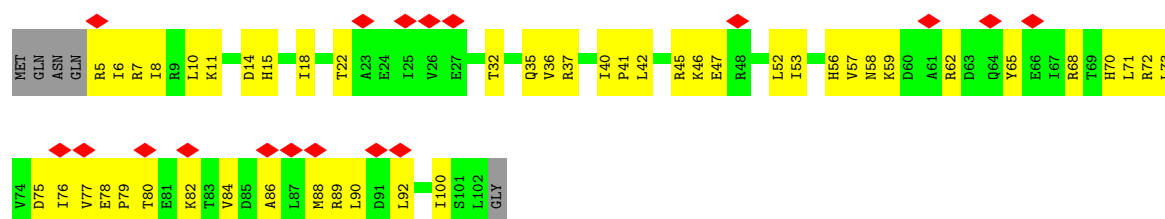
• Molecule 41: 30S ribosomal protein S8



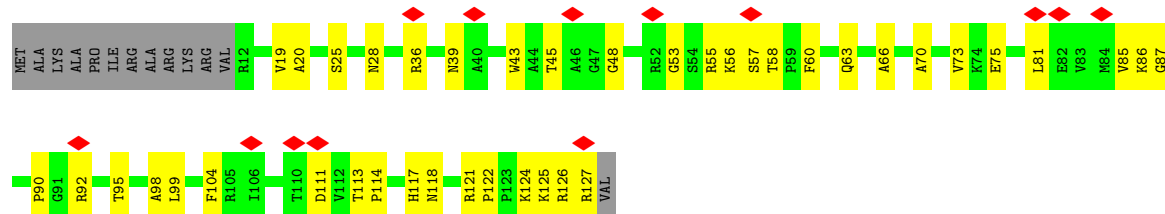
- Molecule 42: 30S ribosomal protein S9



- Molecule 43: 30S ribosomal protein S10

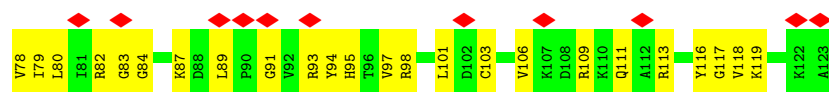


- Molecule 44: 30S ribosomal protein S11

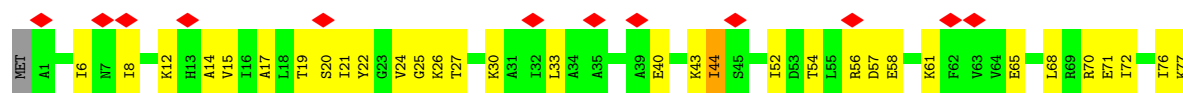


- Molecule 45: 30S ribosomal protein S12

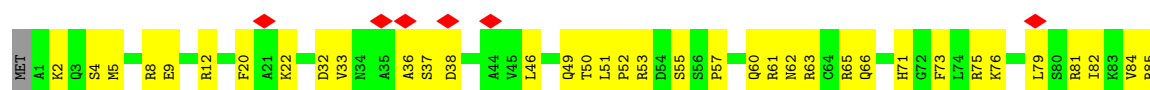




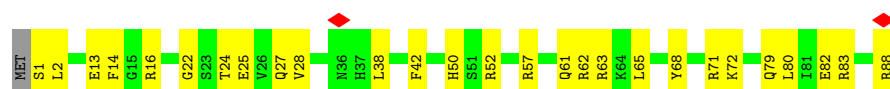
- Molecule 46: 30S ribosomal protein S13



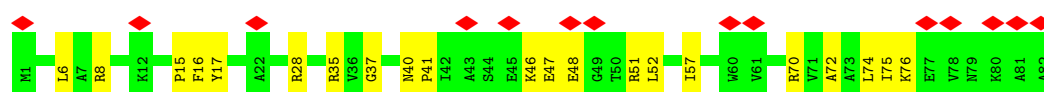
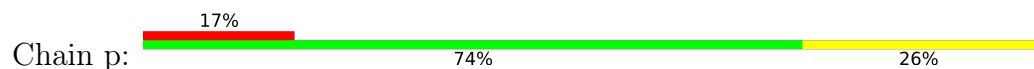
- Molecule 47: 30S ribosomal protein S14



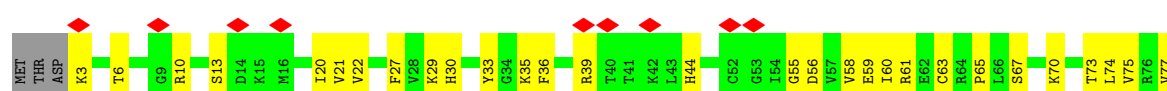
- Molecule 48: 30S ribosomal protein S15

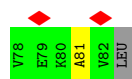


- Molecule 49: 30S ribosomal protein S16

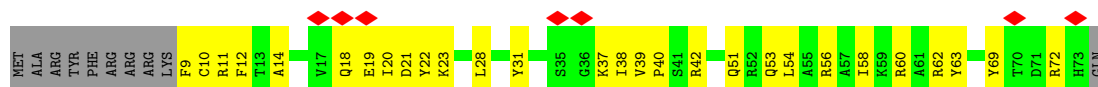


- Molecule 50: 30S ribosomal protein S17

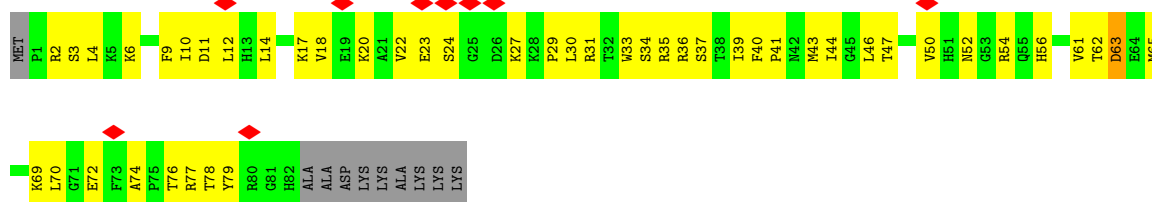




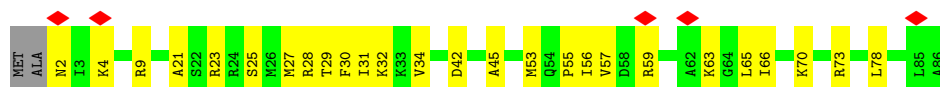
- Molecule 51: 30S ribosomal protein S18



- Molecule 52: 30S ribosomal protein S19



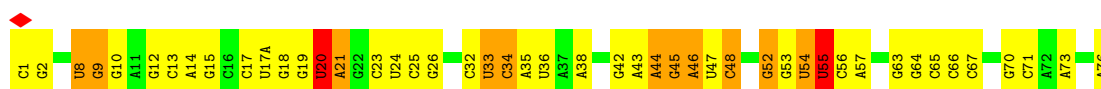
- Molecule 53: 30S ribosomal protein S20



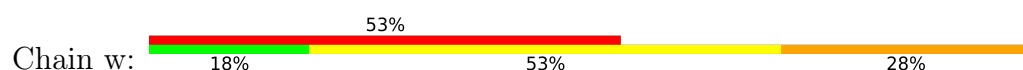
- Molecule 54: 30S ribosomal protein S21

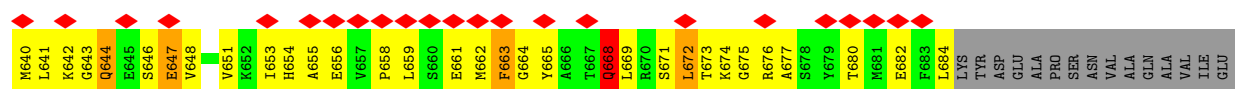


- Molecule 55: P-site tRNA(fMet)



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





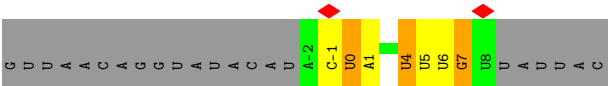
ARG
GLY
LYS

● Molecule 58: Dipeptide (FME-PHE)



M101
F102

● Molecule 59: mRNA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	6412	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	10.657	Depositor
Minimum map value	-5.451	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	1.5	Depositor
Map size (Å)	334.08, 334.08, 334.08	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	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: MIA, 4SU, OMC, GDP, 5MC, 2MA, 2MG, 5MU, PSU, FME, UR3, 3TD, 6MZ, OMG, G7M, AM2, OMU, H2U, 1MG, MA6, 4OC

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	0	0.38	0/450	0.40	0/599
2	1	0.28	0/416	0.37	0/554
3	2	0.41	0/380	0.44	0/498
4	3	0.46	0/513	0.63	0/676
5	4	0.37	0/303	0.46	0/397
6	5	0.18	0/646	0.44	0/898
7	6	0.37	0/531	0.74	3/709 (0.4%)
8	A	0.40	0/69266	0.38	0/108055
9	B	0.33	0/2873	0.36	0/4478
10	C	0.38	0/2121	0.49	0/2852
11	D	0.36	0/1586	0.44	0/2134
12	E	0.35	0/1571	0.42	0/2113
13	F	0.26	0/1434	0.43	0/1926
14	G	0.27	0/1343	0.43	0/1816
15	H	0.20	0/1122	0.48	0/1515
16	I	0.28	0/692	0.57	1/960 (0.1%)
17	J	0.36	0/1152	0.41	0/1551
18	K	0.34	0/947	0.46	0/1268
19	L	0.36	0/1054	0.51	0/1403
20	M	0.34	0/1093	0.44	0/1460
21	N	0.37	0/973	0.51	0/1301
22	O	0.29	0/902	0.43	0/1209
23	P	0.33	0/929	0.41	0/1242
24	Q	0.42	0/960	0.48	0/1278
25	R	0.42	0/829	0.55	2/1107 (0.2%)
26	S	0.35	0/864	0.45	0/1156
27	T	0.30	0/744	0.40	0/994
28	U	0.34	0/787	0.66	3/1051 (0.3%)
29	V	0.30	0/766	0.41	0/1025
30	W	0.36	0/582	0.43	0/769
31	X	0.37	0/635	0.45	0/848

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	Y	0.37	0/510	0.79	4/677 (0.6%)
33	Z	0.33	0/453	0.40	0/605
34	a	0.34	0/36725	0.39	4/57285 (0.0%)
35	b	0.23	0/1735	0.45	0/2338
36	c	0.28	0/1651	0.41	0/2225
37	d	0.28	0/1665	0.54	0/2227
38	e	0.29	0/1154	0.45	0/1554
39	f	0.26	0/835	0.42	0/1128
40	g	0.22	0/1195	0.45	0/1602
41	h	0.30	0/989	0.43	0/1326
42	i	0.25	0/1034	0.48	0/1375
43	j	0.27	0/796	0.56	0/1077
44	k	0.30	0/885	0.50	0/1195
45	l	0.34	0/969	0.49	0/1300
46	m	0.23	0/892	0.51	1/1193 (0.1%)
47	n	0.37	0/811	0.57	0/1081
48	o	0.28	0/722	0.41	0/964
49	p	0.30	0/659	0.47	0/884
50	q	0.31	0/657	0.49	0/881
51	r	0.26	0/544	0.49	0/731
52	s	0.31	0/675	0.54	1/908 (0.1%)
53	t	0.28	0/671	0.41	0/888
54	u	0.23	0/512	0.67	2/683 (0.3%)
55	v	0.31	0/1745	0.42	0/2716
56	w	0.31	1/1650 (0.1%)	0.41	0/2569
57	x	0.42	0/4120	0.68	4/5573 (0.1%)
58	y	0.33	0/11	0.30	0/13
59	z	0.34	0/255	0.32	0/394
All	All	0.36	1/162984 (0.0%)	0.42	25/243234 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	w	46	G7M	O3'-P	5.02	1.61	1.56

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	154	U	C4'-C3'-O3'	10.98	129.48	113.00
28	U	98	ASN	N-CA-C	-9.63	90.28	110.80
34	a	154	U	C2'-C3'-O3'	-8.87	100.39	113.70
54	u	13	VAL	N-CA-C	-8.10	104.70	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	159	G	C4'-C3'-O3'	7.61	124.42	113.00
57	x	327	PRO	N-CA-C	-7.20	103.53	113.53
32	Y	16	THR	N-CA-C	-6.81	103.88	111.71
28	U	97	SER	CA-C-N	6.75	134.43	121.54
28	U	97	SER	C-N-CA	6.75	134.43	121.54
7	6	64	PHE	N-CA-C	6.61	124.89	110.80
25	R	50	GLY	CA-C-O	-6.54	116.78	121.88
7	6	65	ASN	N-CA-C	-6.50	106.31	114.56
32	Y	21	LEU	N-CA-C	-6.30	104.41	111.28
46	m	44	ILE	N-CA-C	-6.21	106.46	112.29
32	Y	19	LEU	N-CA-C	-5.87	102.63	110.55
7	6	62	LYS	N-CA-C	-5.75	104.39	111.40
25	R	52	PRO	N-CA-C	-5.68	105.63	113.53
32	Y	17	GLU	CA-C-O	-5.66	115.43	121.94
34	a	153	C	P-O5'-C5'	5.60	129.30	120.90
52	s	6	LYS	N-CA-C	-5.55	106.86	113.97
57	x	668	GLN	N-CA-C	-5.40	105.29	111.07
57	x	632	GLY	N-CA-C	-5.25	106.43	112.73
54	u	14	ALA	N-CA-C	-5.21	106.98	113.55
57	x	402	PRO	N-CA-C	5.16	123.10	112.47
16	I	26	ALA	N-CA-C	-5.08	105.75	111.28

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	23	0
2	1	409	0	440	16	0
3	2	377	0	418	11	0
4	3	504	0	574	18	0
5	4	302	0	343	14	0
6	5	647	0	336	13	0
7	6	522	0	524	49	0
8	A	62338	0	31373	1419	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	B	2570	0	1301	64	0
10	C	2082	0	2157	92	0
11	D	1565	0	1616	49	0
12	E	1552	0	1618	60	0
13	F	1410	0	1447	81	0
14	G	1323	0	1374	43	0
15	H	1111	0	1148	42	0
16	I	693	0	347	18	0
17	J	1129	0	1162	32	0
18	K	938	0	1012	36	0
19	L	1045	0	1117	42	0
20	M	1074	0	1157	36	0
21	N	960	0	1000	39	0
22	O	892	0	923	28	0
23	P	917	0	965	31	0
24	Q	947	0	1022	31	0
25	R	816	0	839	28	0
26	S	857	0	922	29	0
27	T	738	0	807	24	0
28	U	779	0	834	26	0
29	V	753	0	780	28	0
30	W	575	0	592	20	0
31	X	625	0	655	25	0
32	Y	509	0	543	23	0
33	Z	449	0	491	10	0
34	a	33050	0	16655	913	0
35	b	1704	0	1732	75	0
36	c	1624	0	1699	53	0
37	d	1643	0	1710	74	0
38	e	1141	0	1170	46	0
39	f	817	0	808	32	0
40	g	1181	0	1240	56	0
41	h	979	0	1034	29	0
42	i	1022	0	1070	45	0
43	j	786	0	828	43	0
44	k	869	0	878	39	0
45	l	955	0	1019	45	0
46	m	883	0	944	39	0
47	n	799	0	841	38	0
48	o	714	0	737	23	0
49	p	649	0	666	13	0
50	q	648	0	691	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
51	r	535	0	552	20	0
52	s	658	0	685	53	0
53	t	665	0	714	23	0
54	u	506	0	502	18	0
55	v	1642	0	839	45	0
56	w	1631	0	838	78	0
57	x	4052	0	4038	243	0
58	y	21	0	19	2	0
59	z	230	0	116	10	0
60	a	37	0	41	3	0
61	x	28	0	12	13	0
All	All	151321	0	102376	4024	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 16.

All (4024) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1416:G:H1	34:a:1483:A:N6	1.36	1.21
34:a:81:A:H61	34:a:86:G:N2	1.41	1.19
57:x:404:ILE:HD11	57:x:408:MET:HE3	1.24	1.16
8:A:2901:C:N4	8:A:2902:C:H41	1.42	1.15
8:A:2901:C:N4	8:A:2902:C:N4	1.95	1.15
7:6:18:CYS:HB2	7:6:40:CYS:HB3	1.28	1.09
57:x:19:ASP:HA	61:x:801:GDP:O3B	1.52	1.09
7:6:66:ILE:HD13	52:s:40:PHE:CZ	1.91	1.05
57:x:19:ASP:CA	61:x:801:GDP:O3B	2.03	1.05
34:a:166:U:OP1	34:a:166:U:H4'	1.53	1.03
8:A:1024:G:OP2	8:A:1026:G:OP1	1.79	1.01
56:w:5:G:N2	56:w:68:C:O2	1.93	1.00
55:v:44:A:H5''	55:v:44:A:H8	1.24	1.00
34:a:765:G:H1	34:a:812:G:HO2'	1.02	0.99
34:a:980:C:OP2	34:a:981:U:O4	1.80	0.99
34:a:999:C:N4	34:a:1000:A:N6	2.11	0.99
57:x:404:ILE:CD1	57:x:408:MET:HE3	1.92	0.98
57:x:19:ASP:N	61:x:801:GDP:O3B	1.97	0.97
8:A:1445:G:O6	8:A:1466:U:O2	1.83	0.97
57:x:103:ARG:HD2	57:x:407:ARG:HB2	1.44	0.97
57:x:269:PHE:HB2	61:x:801:GDP:C5	1.99	0.97
34:a:414:A:OP2	34:a:428:G:N2	1.99	0.96

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1417:G:N2	34:a:1483:A:N6	2.15	0.95
14:G:91:VAL:HG22	57:x:146:MET:SD	2.08	0.94
8:A:284:U:H3	8:A:356:G:H1	1.00	0.93
34:a:1416:G:N1	34:a:1483:A:N6	2.01	0.91
57:x:93:ASP:HB3	57:x:464:HIS:HB2	1.53	0.91
8:A:1913:A:C6	56:w:38:A:H5'	2.05	0.91
55:v:44:A:H5''	55:v:44:A:C8	2.05	0.91
34:a:166:U:OP1	34:a:166:U:C4'	2.17	0.91
34:a:1417:G:HO2'	34:a:1418:A:H8	0.99	0.90
5:4:11:CYS:HG	5:4:14:CYS:HG	0.94	0.90
50:q:63:CYS:HG	50:q:73:THR:HG1	1.09	0.90
8:A:1042:G:H1	8:A:1113:U:H3	1.20	0.90
8:A:308:G:N3	8:A:329:G:N2	2.19	0.89
34:a:1422:G:H1	34:a:1478:U:H3	1.18	0.89
34:a:81:A:H61	34:a:86:G:H21	0.99	0.89
8:A:627:A:H5''	19:L:78:ARG:HH12	1.38	0.88
34:a:81:A:N6	34:a:86:G:N2	2.21	0.88
34:a:1416:G:C6	34:a:1483:A:N6	2.38	0.88
34:a:1009:U:H3	34:a:1020:G:H1	0.91	0.88
56:w:6:G:N2	56:w:67:C:O2	2.07	0.88
8:A:881:G:H1	8:A:895:U:H3	0.91	0.88
8:A:545:U:O2	8:A:548:G:O6	1.92	0.87
8:A:1053:C:N3	8:A:1106:G:N1	2.23	0.87
8:A:1048:A:N6	8:A:1110:G:H21	1.73	0.86
40:g:145:GLU:HA	40:g:148:LYS:HB2	1.53	0.86
8:A:746:PSU:HO2'	8:A:2611:C:HO2'	1.17	0.86
8:A:2901:C:C4	8:A:2902:C:N4	2.42	0.86
34:a:368:U:H5'	57:x:360:GLY:HA3	1.57	0.86
56:w:31:A:N6	56:w:39:PSU:O2	2.08	0.86
34:a:368:U:H2'	57:x:361:ARG:HB2	1.59	0.85
8:A:1102:C:H3'	8:A:1103:A:H8	1.40	0.85
8:A:1475:G:HO2'	8:A:1476:U:H6	1.26	0.84
34:a:1297:G:N2	40:g:113:LYS:O	2.10	0.84
56:w:6:G:N1	56:w:67:C:N3	2.24	0.84
8:A:1271:G:OP2	8:A:1648:U:OP1	1.96	0.84
57:x:351:SER:HB2	57:x:403:ILE:HA	1.60	0.84
43:j:40:ILE:HB	43:j:73:LEU:HB3	1.60	0.83
8:A:1081:U:H3	16:I:118:GLY:HA3	1.42	0.83
57:x:662:MET:O	57:x:664:GLY:N	2.07	0.83
8:A:141:G:H1	27:T:1:MET:HE2	1.42	0.82
8:A:1270:C:H5''	8:A:1271:G:H5'	1.61	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:51:LEU:HB3	42:i:56:MET:HB2	1.59	0.82
37:d:149:LYS:HD3	37:d:177:MET:HG3	1.59	0.82
8:A:1415:U:H3	8:A:1587:G:H1	1.24	0.82
8:A:2839:G:N2	21:N:91:ALA:O	2.11	0.82
8:A:2439:A:N6	8:A:2585:U:O2'	2.13	0.82
28:U:98:ASN:O	28:U:100:GLU:N	2.13	0.82
56:w:51:C:H2'	56:w:52:G:H8	1.44	0.82
8:A:242:G:N2	8:A:255:A:OP2	2.13	0.81
8:A:1716:U:H3	8:A:1744:A:H62	1.24	0.81
8:A:1076:C:N4	8:A:1078:U:O4	2.13	0.81
8:A:247:G:OP2	8:A:249:C:N4	2.12	0.81
8:A:2114:A:N6	8:A:2117:A:N7	2.28	0.81
57:x:397:CYS:HB2	57:x:401:ALA:HB3	1.61	0.81
34:a:984:C:N3	34:a:1222:G:N2	2.29	0.81
8:A:1913:A:C6	56:w:38:A:C5'	2.63	0.81
8:A:2585:U:H1'	56:w:76:A:H5''	1.61	0.81
34:a:1419:G:O6	34:a:1481:U:O2	1.99	0.80
8:A:1172:C:N4	8:A:1176:U:O4	2.14	0.80
8:A:475:C:O2	8:A:479:A:N6	2.15	0.80
8:A:319:G:H1	8:A:323:C:H5	1.27	0.80
40:g:26:VAL:HG22	40:g:42:VAL:HG11	1.61	0.80
8:A:1478:G:H1	8:A:1513:U:H3	1.29	0.80
55:v:1:C:OP2	55:v:1:C:H4'	1.79	0.80
8:A:1053:C:O2	8:A:1106:G:N2	2.15	0.80
8:A:1042:G:N2	8:A:1113:U:O2	2.15	0.79
10:C:35:LYS:NZ	10:C:37:SER:OG	2.14	0.79
34:a:261:U:OP2	53:t:73:ARG:NH2	2.16	0.79
7:6:38:SER:HB3	13:F:104:THR:HA	1.64	0.79
8:A:1171:G:H1	8:A:1177:G:H22	1.30	0.79
34:a:1416:G:H1	34:a:1483:A:H61	0.83	0.79
44:k:92:ARG:NH2	44:k:111:ASP:OD2	2.15	0.79
8:A:25:U:O2	8:A:515:A:N6	2.16	0.79
34:a:999:C:N4	34:a:1000:A:H62	1.79	0.79
34:a:1000:A:N1	34:a:1041:G:C6	2.51	0.79
8:A:320:A:N3	12:E:163:ASN:ND2	2.30	0.79
8:A:1910:G:O6	8:A:1920:C:N4	2.15	0.79
8:A:1925:C:H42	8:A:1929:G:H22	1.28	0.79
14:G:26:LYS:NZ	14:G:27:GLY:O	2.16	0.79
57:x:407:ARG:HG3	57:x:407:ARG:NH1	1.98	0.79
8:A:2299:U:OP1	13:F:71:LYS:NZ	2.15	0.78
34:a:81:A:N6	34:a:89:U:O2'	2.16	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:691:G:O6	44:k:56:LYS:NZ	2.16	0.78
8:A:1250:G:N7	19:L:18:ARG:NH2	2.31	0.78
22:O:31:THR:O	22:O:102:ARG:NH1	2.16	0.78
31:X:31:ASN:HD22	31:X:52:ALA:HB2	1.48	0.78
8:A:500:G:N1	8:A:503:A:OP2	2.14	0.78
34:a:1004:A:H62	34:a:1024:G:H2'	1.45	0.78
40:g:114:SER:O	40:g:118:ARG:HB2	1.82	0.78
34:a:332:G:OP1	53:t:4:LYS:NZ	2.15	0.78
44:k:28:ASN:HD22	44:k:56:LYS:HD2	1.49	0.78
8:A:2666:C:N4	14:G:108:PHE:O	2.16	0.78
38:e:83:PRO:HB3	38:e:96:GLN:HG3	1.66	0.77
43:j:84:VAL:HG22	43:j:88:MET:HE2	1.65	0.77
34:a:890:G:O2'	34:a:906:A:N6	2.18	0.77
8:A:1816:C:N4	10:C:34:GLU:OE2	2.18	0.77
34:a:1329:A:H5''	46:m:25:GLY:H	1.49	0.77
37:d:10:LEU:HG	37:d:62:ARG:HE	1.48	0.77
8:A:2102:G:N1	8:A:2188:U:N3	2.33	0.77
54:u:3:ILE:N	54:u:21:SER:HG	1.83	0.77
57:x:673:THR:HG23	57:x:676:ARG:H	1.48	0.77
9:B:51:G:OP2	22:O:67:ASN:ND2	2.16	0.77
8:A:2636:C:O2'	11:D:45:TYR:OH	2.03	0.77
5:4:1:MET:HE2	5:4:34:LYS:HE3	1.66	0.77
23:P:26:GLU:HG2	23:P:86:LYS:HE2	1.65	0.77
24:Q:48:ASP:HA	24:Q:51:GLN:HB2	1.67	0.77
34:a:1416:G:O6	34:a:1483:A:N6	2.18	0.77
8:A:396:G:OP2	31:X:9:LYS:NZ	2.18	0.76
9:B:77:U:OP1	29:V:21:ARG:NH2	2.17	0.76
8:A:1779:U:OP2	8:A:1784:A:N6	2.18	0.76
34:a:429:U:H3'	37:d:8:LEU:HD12	1.67	0.76
8:A:1913:A:N1	56:w:37:MIA:O2'	2.18	0.76
8:A:1649:G:O2'	21:N:106:ASP:OD2	2.03	0.76
39:f:49:TYR:HE1	39:f:86:ARG:HH22	1.33	0.76
7:6:63:ARG:HH21	7:6:63:ARG:HB3	1.51	0.76
18:K:121:GLU:HG3	18:K:122:VAL:HG23	1.68	0.76
34:a:993:G:O2'	34:a:994:A:N7	2.17	0.76
8:A:84:A:H62	8:A:101:A:H2	1.32	0.76
34:a:71:A:N6	34:a:99:C:O2	2.19	0.76
34:a:1175:G:H2'	34:a:1176:A:H8	1.50	0.75
7:6:66:ILE:CD1	52:s:40:PHE:CZ	2.68	0.75
8:A:2111:U:H1'	8:A:2118:U:H1'	1.66	0.75
34:a:1417:G:N2	34:a:1483:A:C6	2.54	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:6:66:ILE:CD1	52:s:40:PHE:CE1	2.69	0.75
8:A:284:U:O2	8:A:356:G:N2	2.20	0.75
11:D:97:SER:OG	11:D:99:GLU:OE1	2.05	0.75
57:x:316:PHE:HA	57:x:340:GLY:HA3	1.67	0.75
57:x:662:MET:HB3	57:x:665:TYR:HB2	1.69	0.75
34:a:521:G:N7	45:l:49:ARG:NH1	2.35	0.75
8:A:1936:A:H2	8:A:1943:U:H3	1.33	0.75
8:A:920:A:OP1	33:Z:18:LYS:NZ	2.19	0.74
8:A:976:G:HO2'	8:A:1155:A:HO2'	1.28	0.74
14:G:91:VAL:CG2	57:x:146:MET:SD	2.75	0.74
10:C:259:ASN:ND2	10:C:262:THR:OG1	2.21	0.74
34:a:1322:C:OP1	52:s:77:ARG:NH2	2.20	0.74
22:O:34:HIS:ND1	22:O:53:THR:OG1	2.19	0.74
8:A:1203:U:O2'	19:L:4:ASN:ND2	2.19	0.74
9:B:30:C:O2'	9:B:57:A:N1	2.19	0.74
37:d:187:ARG:NH1	37:d:187:ARG:O	2.20	0.74
7:6:18:CYS:CB	7:6:40:CYS:HB3	2.13	0.74
57:x:407:ARG:HG3	57:x:407:ARG:HH11	1.52	0.74
8:A:1798:U:OP2	10:C:270:ARG:NH2	2.20	0.73
8:A:2332:C:OP1	30:W:73:ARG:NH1	2.16	0.73
34:a:1298:U:O2	34:a:1299:A:N6	2.20	0.73
8:A:2012:G:OP1	26:S:11:ARG:NH2	2.21	0.73
8:A:2162:G:H4'	8:A:2173:A:C8	2.24	0.73
34:a:414:A:P	34:a:428:G:H22	2.11	0.73
34:a:1211:U:H5'	34:a:1212:U:H5'	1.69	0.73
34:a:1481:U:H2'	34:a:1482:G:C4	2.23	0.73
8:A:2304:G:H22	8:A:2312:U:H3	1.37	0.73
14:G:27:GLY:HA3	14:G:78:VAL:HB	1.69	0.73
34:a:324:G:N2	34:a:327:A:OP2	2.18	0.73
8:A:529:A:OP2	17:J:116:ARG:NH2	2.19	0.73
8:A:2743:U:O2'	14:G:152:ARG:NH1	2.20	0.73
31:X:58:ILE:HG12	31:X:66:VAL:HG21	1.70	0.73
36:c:87:ARG:HG3	36:c:100:ILE:HG12	1.70	0.73
1:0:12:ARG:NH2	8:A:517:C:OP1	2.21	0.73
57:x:19:ASP:HA	61:x:801:GDP:PB	2.28	0.73
13:F:130:GLY:HA2	13:F:152:ASP:HA	1.70	0.73
8:A:2584:U:H3'	8:A:2585:U:H5''	1.71	0.73
55:v:8:4SU:O2'	55:v:21:A:N1	2.20	0.73
34:a:481:G:O2'	34:a:483:C:N4	2.21	0.72
52:s:24:SER:O	52:s:27:LYS:NZ	2.20	0.72
8:A:627:A:OP1	19:L:78:ARG:NH2	2.17	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1858:A:N6	8:A:1884:G:O2'	2.21	0.72
34:a:1355:G:H2'	34:a:1356:G:H8	1.53	0.72
38:e:106:ALA:HB2	38:e:124:ALA:HB3	1.72	0.72
8:A:2202:U:O2'	8:A:2204:G:OP1	2.07	0.72
57:x:19:ASP:OD1	61:x:801:GDP:O3B	2.07	0.72
11:D:179:ARG:HB3	11:D:188:LEU:HD12	1.72	0.72
46:m:80:MET:O	46:m:91:ARG:NH2	2.22	0.72
7:6:55:GLY:HA2	7:6:59:ARG:HG3	1.69	0.72
8:A:1019:U:OP1	8:A:1035:U:O2'	2.07	0.72
20:M:102:LEU:HD11	20:M:126:ILE:HD11	1.71	0.72
34:a:539:A:OP2	45:l:111:GLN:NE2	2.21	0.72
3:2:39:ARG:NH2	8:A:468:G:N7	2.36	0.72
8:A:1799:G:OP1	10:C:257:ARG:NH1	2.23	0.72
8:A:545:U:C2	8:A:548:G:O6	2.42	0.72
40:g:111:GLY:HA2	40:g:118:ARG:HD3	1.71	0.72
57:x:144:ASP:CG	61:x:801:GDP:HN1	1.98	0.72
8:A:894:U:O2'	8:A:895:U:O5'	2.07	0.71
34:a:177:G:N2	34:a:177:G:OP2	2.18	0.71
34:a:1095:U:OP1	34:a:1108:G:N1	2.21	0.71
8:A:848:C:H2'	8:A:849:A:H8	1.55	0.71
25:R:75:VAL:HG22	25:R:86:GLN:HG2	1.73	0.71
8:A:577:G:O2'	8:A:1254:A:OP1	2.08	0.71
8:A:881:G:O6	8:A:895:U:O4	2.07	0.71
8:A:1053:C:N4	8:A:1106:G:O6	2.19	0.71
8:A:1080:A:O2'	8:A:1082:U:O4	2.08	0.71
29:V:64:VAL:HG22	29:V:69:GLU:HG3	1.72	0.71
37:d:104:MET:HG3	37:d:170:LEU:HD13	1.71	0.71
8:A:881:G:N2	8:A:895:U:O2	2.22	0.71
34:a:1440:U:H3	34:a:1461:G:H1	1.37	0.71
8:A:776:G:O6	8:A:2072:C:OP1	2.08	0.71
10:C:244:VAL:HG12	10:C:250:GLN:HA	1.73	0.71
15:H:113:SER:O	15:H:116:ARG:NH1	2.24	0.71
7:6:16:CYS:HB3	7:6:20:ASN:HB2	1.72	0.71
24:Q:99:VAL:O	24:Q:102:LYS:NZ	2.22	0.71
34:a:1425:U:H3	34:a:1475:G:H1	1.38	0.71
8:A:1754:A:N1	8:A:2716:C:O2'	2.23	0.70
8:A:475:C:N3	8:A:479:A:N7	2.39	0.70
8:A:2102:G:O6	8:A:2188:U:O4	2.09	0.70
8:A:2800:A:C2	8:A:2895:G:H1'	2.27	0.70
26:S:60:HIS:ND1	26:S:61:ASN:OD1	2.22	0.70
36:c:104:GLU:OE2	36:c:106:ARG:NH2	2.25	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1959:G:O2'	34:a:1418:A:N3	2.23	0.70
8:A:2788:C:O2'	8:A:2809:A:N3	2.22	0.70
37:d:58:GLN:OE1	37:d:61:ARG:NH1	2.25	0.70
57:x:138:ALA:HB3	57:x:263:VAL:HG12	1.73	0.70
8:A:301:G:OP2	28:U:81:ARG:NH1	2.24	0.70
9:B:27:C:OP1	22:O:34:HIS:NE2	2.23	0.70
34:a:1432:G:O2'	34:a:1433:A:O5'	2.09	0.70
55:v:44:A:OP1	55:v:44:A:H4'	1.91	0.70
9:B:48:U:OP2	22:O:30:ARG:NH2	2.24	0.70
8:A:1996:C:OP1	18:K:31:ARG:NH1	2.24	0.70
36:c:107:LYS:HB3	36:c:143:LEU:HD21	1.74	0.70
8:A:1419:A:O2'	8:A:1421:G:N7	2.21	0.70
46:m:76:ILE:HG22	46:m:80:MET:HE2	1.73	0.70
34:a:160:A:N6	34:a:347:G:O2'	2.25	0.70
34:a:1007:U:H2'	34:a:1008:U:C6	2.27	0.70
8:A:270:A:N1	8:A:369:U:O2'	2.24	0.70
9:B:5:U:OP1	9:B:61:G:O2'	2.08	0.70
8:A:291:G:O6	8:A:349:U:O2	2.09	0.69
8:A:476:G:N1	8:A:479:A:OP2	2.25	0.69
34:a:461:A:N6	34:a:471:U:O4	2.24	0.69
46:m:105:ALA:O	46:m:109:LYS:HB2	1.91	0.69
7:6:66:ILE:HD11	52:s:40:PHE:CE1	2.27	0.69
8:A:1664:A:N3	18:K:67:LYS:NZ	2.40	0.69
37:d:64:TYR:HD1	37:d:110:ARG:HH22	1.38	0.69
57:x:401:ALA:HB1	57:x:402:PRO:HD2	1.73	0.69
8:A:2809:A:OP2	8:A:2890:G:N1	2.23	0.69
15:H:27:ARG:NH1	31:X:59:ASP:OD2	2.26	0.69
8:A:1799:G:OP2	10:C:269:ARG:NH2	2.25	0.69
12:E:117:ARG:NH2	12:E:183:PHE:O	2.26	0.69
17:J:130:HIS:HE1	17:J:137:PRO:HG3	1.56	0.69
34:a:360:G:OP1	57:x:436:ARG:NH1	2.24	0.69
57:x:256:LEU:HD11	57:x:286:PRO:HB3	1.74	0.69
34:a:1524:C:OP1	44:k:121:ARG:NH1	2.26	0.69
38:e:9:GLU:HG3	38:e:10:LEU:HD12	1.74	0.69
1:0:53:VAL:HG23	1:0:54:ILE:HG12	1.75	0.69
8:A:602:A:HO2'	8:A:604:G:HO2'	1.39	0.69
8:A:1437:C:O2'	8:A:1516:G:O2'	2.11	0.69
8:A:1913:A:N1	56:w:38:A:H5'	2.07	0.69
35:b:187:ASP:OD1	35:b:188:THR:N	2.20	0.69
8:A:1127:A:N7	8:A:2488:G:O2'	2.25	0.69
34:a:50:A:O2'	34:a:360:G:N2	2.25	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1060:U:H2'	34:a:1061:G:H8	1.57	0.69
34:a:1086:U:O4	34:a:1099:G:O6	2.11	0.69
34:a:1218:C:H2'	34:a:1219:A:H8	1.58	0.69
56:w:16:U:N3	56:w:59:U:O2	2.22	0.69
8:A:1340:U:OP1	27:T:84:TYR:OH	2.08	0.69
8:A:2100:G:H2'	8:A:2101:A:C8	2.28	0.69
15:H:78:VAL:HB	15:H:144:VAL:HG22	1.75	0.69
34:a:1218:C:H2'	34:a:1219:A:C8	2.28	0.69
57:x:302:LYS:HB2	57:x:305:PRO:HB3	1.74	0.69
8:A:111:A:O2'	32:Y:58:ASN:ND2	2.26	0.69
8:A:1959:G:O2'	34:a:1418:A:O2'	2.08	0.69
8:A:1631:G:N1	8:A:1634:A:OP2	2.22	0.68
8:A:1715:G:N2	8:A:1744:A:OP2	2.25	0.68
34:a:652:U:O2'	34:a:653:U:O5'	2.11	0.68
57:x:269:PHE:HB2	61:x:801:GDP:C6	2.28	0.68
4:3:11:LYS:NZ	8:A:249:C:O2	2.26	0.68
8:A:1141:U:H2'	17:J:65:THR:HG21	1.74	0.68
34:a:459:A:H2'	34:a:460:A:C8	2.28	0.68
34:a:1149:C:H2'	34:a:1150:A:H8	1.56	0.68
57:x:640:MET:HG3	57:x:656:GLU:HB2	1.75	0.68
8:A:481:G:H1'	8:A:506:G:H21	1.58	0.68
8:A:2552:OMU:H2'	8:A:2554:U:OP2	1.94	0.68
36:c:46:LEU:HB3	36:c:49:ALA:HB3	1.75	0.68
8:A:1918:A:O2'	8:A:1920:C:N4	2.25	0.68
8:A:2110:G:N1	8:A:2120:G:N7	2.42	0.68
10:C:106:PRO:HD2	10:C:109:LEU:HD22	1.75	0.68
34:a:427:U:OP1	37:d:12:ARG:NH2	2.27	0.68
34:a:107:G:N7	53:t:9:ARG:NH1	2.42	0.68
34:a:1124:G:N2	34:a:1125:U:O4	2.20	0.68
46:m:82:LEU:HD21	52:s:65:MET:HB3	1.76	0.68
57:x:8:ARG:NH1	57:x:80:PRO:O	2.26	0.68
8:A:371:A:N3	31:X:60:LYS:NZ	2.38	0.68
8:A:2251:OMG:OP1	20:M:81:ARG:NH1	2.27	0.68
10:C:28:PRO:HG2	10:C:33:LEU:HD11	1.75	0.68
36:c:72:PRO:HA	36:c:75:VAL:HG22	1.75	0.68
36:c:117:ASP:HA	36:c:120:THR:HG22	1.74	0.68
34:a:662:U:O2'	34:a:836:G:OP1	2.10	0.68
34:a:1497:G:H1'	34:a:1518:MA6:H2	1.75	0.68
8:A:2469:A:N6	8:A:2481:G:O2'	2.25	0.68
24:Q:49:ARG:O	24:Q:53:LYS:NZ	2.27	0.68
25:R:24:LYS:HA	25:R:94:THR:HG23	1.76	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1007:U:H2'	34:a:1008:U:H6	1.58	0.68
8:A:324:A:OP2	8:A:1205:A:N6	2.27	0.68
8:A:2328:A:H2'	8:A:2329:U:C6	2.28	0.68
34:a:673:A:H2'	34:a:674:G:C8	2.29	0.68
8:A:629:G:N3	8:A:639:U:O2'	2.27	0.67
8:A:2676:C:OP1	18:K:31:ARG:NH2	2.27	0.67
10:C:92:LEU:HD11	10:C:100:ARG:HB3	1.76	0.67
1:0:15:ARG:NH1	8:A:1266:G:OP2	2.25	0.67
8:A:698:C:O2'	8:A:734:A:N6	2.26	0.67
8:A:1474:U:H3	8:A:1517:G:H1	1.41	0.67
8:A:1965:C:OP1	8:A:1966:A:O2'	2.12	0.67
20:M:136:MET:O	29:V:79:ARG:NH1	2.26	0.67
45:l:21:PRO:HD2	45:l:93:ARG:HH21	1.59	0.67
45:l:49:ARG:HB3	45:l:65:TYR:HE1	1.59	0.67
46:m:14:ALA:HB3	46:m:40:GLU:HA	1.76	0.67
54:u:10:PRO:O	54:u:13:VAL:HG22	1.95	0.67
55:v:44:A:H8	55:v:44:A:C5'	2.06	0.67
23:P:63:ILE:HA	23:P:68:GLY:HA2	1.76	0.67
34:a:1240:U:OP2	40:g:115:MET:N	2.27	0.67
35:b:99:MET:HA	35:b:106:VAL:HG21	1.75	0.67
46:m:22:TYR:N	46:m:65:GLU:OE2	2.21	0.67
8:A:1048:A:H62	8:A:1110:G:N2	1.91	0.67
34:a:69:G:H2'	34:a:70:U:C6	2.28	0.67
34:a:816:A:OP1	34:a:1526:G:O2'	2.12	0.67
6:5:32:GLY:H	8:A:1055:G:H4'	1.58	0.67
11:D:109:VAL:HG22	11:D:203:VAL:HG22	1.76	0.67
34:a:982:U:OP2	47:n:63:ARG:NH2	2.24	0.67
34:a:1506:U:O2	44:k:127:ARG:NH1	2.28	0.67
8:A:1114:C:H2'	8:A:1115:G:C8	2.29	0.67
8:A:2127:G:N2	8:A:2128:G:O6	2.27	0.67
34:a:8:A:N6	37:d:201:GLU:O	2.28	0.67
34:a:1356:G:H2'	34:a:1357:A:C8	2.29	0.67
2:1:29:LYS:NZ	8:A:2286:G:OP1	2.28	0.67
8:A:2901:C:H42	8:A:2902:C:N4	1.90	0.67
34:a:1418:A:O2'	34:a:1419:G:O4'	2.12	0.67
56:w:48:C:N4	56:w:59:U:O4	2.28	0.67
1:0:21:LEU:HD11	26:S:41:LYS:HE3	1.76	0.67
8:A:1048:A:N6	8:A:1110:G:N2	2.42	0.67
8:A:1724:G:O6	8:A:1737:G:N2	2.27	0.67
10:C:68:ARG:O	10:C:188:ARG:NH1	2.28	0.67
11:D:48:ILE:HG23	11:D:84:LEU:HD21	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:w:43:C:H2'	56:w:44:G:C8	2.30	0.67
8:A:630:G:N2	8:A:633:A:OP2	2.23	0.67
8:A:1084:A:H1'	8:A:1106:G:H1'	1.77	0.67
8:A:1176:U:H2'	8:A:1177:G:C8	2.29	0.67
34:a:1328:C:H5''	46:m:27:THR:HG21	1.77	0.67
42:i:48:ARG:HG2	42:i:52:GLU:HB2	1.77	0.67
43:j:18:ILE:O	43:j:22:THR:HG23	1.95	0.67
49:p:6:LEU:HB3	49:p:17:TYR:HB3	1.77	0.67
52:s:63:ASP:N	52:s:63:ASP:OD1	2.28	0.67
57:x:10:ARG:NH2	57:x:282:ILE:O	2.28	0.67
8:A:142:A:O2'	27:T:1:MET:N	2.28	0.66
8:A:2162:G:OP2	8:A:2171:A:N6	2.27	0.66
8:A:2175:C:H2'	8:A:2176:A:H8	1.60	0.66
27:T:39:THR:HB	27:T:42:GLU:HG2	1.78	0.66
8:A:2170:A:H2'	8:A:2171:A:H4'	1.77	0.66
13:F:141:ASP:OD1	46:m:70:ARG:NH2	2.27	0.66
34:a:28:A:O2'	34:a:296:U:OP1	2.12	0.66
35:b:77:GLU:HA	35:b:80:LYS:HE2	1.77	0.66
35:b:93:HIS:ND1	35:b:145:ASN:O	2.29	0.66
9:B:8:C:OP1	22:O:15:ARG:NH2	2.28	0.66
20:M:25:ASP:O	20:M:66:ARG:NH1	2.28	0.66
34:a:1486:G:H2'	34:a:1487:G:O4'	1.95	0.66
36:c:63:ILE:HG23	36:c:98:ALA:HA	1.77	0.66
7:6:1:MET:SD	13:F:94:ARG:NH1	2.68	0.66
8:A:514:A:N3	8:A:581:C:O2'	2.28	0.66
8:A:1288:G:OP2	8:A:1288:G:N2	2.27	0.66
8:A:2032:G:N2	11:D:151:THR:OG1	2.28	0.66
8:A:2246:G:H2'	8:A:2247:A:H8	1.61	0.66
13:F:146:ASP:HB3	13:F:149:ARG:HH22	1.59	0.66
34:a:154:U:H2'	34:a:155:A:OP1	1.96	0.66
34:a:1417:G:O2'	34:a:1418:A:H5'	1.96	0.66
36:c:19:SER:OG	36:c:39:ARG:NH2	2.29	0.66
8:A:1532:A:H2'	8:A:1533:C:C6	2.31	0.66
8:A:2183:A:H2'	8:A:2184:A:C8	2.31	0.66
8:A:2199:A:N1	8:A:2226:C:N4	2.43	0.66
13:F:125:GLY:O	13:F:157:THR:OG1	2.13	0.66
18:K:42:THR:HG22	18:K:57:VAL:HG22	1.77	0.66
26:S:37:THR:OG1	26:S:48:LYS:NZ	2.22	0.66
35:b:119:GLN:HA	35:b:123:GLY:HA3	1.77	0.66
8:A:18:U:OP1	24:Q:29:ARG:NH1	2.23	0.66
8:A:291:G:O6	8:A:349:U:C2	2.49	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1153:C:OP1	24:Q:91:ARG:NH2	2.28	0.66
8:A:1509:A:H2'	8:A:1510:G:C8	2.31	0.66
8:A:1794:A:H2'	8:A:1795:C:C6	2.31	0.66
8:A:2142:A:N7	8:A:2143:C:N4	2.43	0.66
8:A:2684:U:O4'	18:K:70:ARG:NH1	2.28	0.66
9:B:37:C:O2	22:O:100:HIS:NE2	2.26	0.66
34:a:350:G:H2'	34:a:351:G:C8	2.30	0.66
40:g:67:ASN:ND2	40:g:129:ASN:OD1	2.29	0.66
57:x:404:ILE:HD11	57:x:408:MET:CE	2.16	0.66
34:a:81:A:N6	34:a:86:G:H21	1.84	0.66
34:a:1077:G:N2	34:a:1080:A:OP2	2.28	0.66
57:x:407:ARG:HH22	57:x:410:PHE:HD2	1.41	0.66
20:M:58:LYS:O	20:M:60:GLN:N	2.28	0.66
34:a:944:G:N1	34:a:1338:G:OP2	2.29	0.66
8:A:2295:C:OP2	22:O:9:ARG:NH2	2.29	0.66
8:A:2585:U:H1'	56:w:76:A:C5'	2.25	0.66
34:a:309:A:O2'	34:a:607:A:N1	2.26	0.66
35:b:83:ALA:HB2	35:b:90:PHE:HB3	1.78	0.66
44:k:66:ALA:HB2	44:k:95:THR:HG23	1.78	0.66
8:A:658:U:O2'	12:E:95:LYS:NZ	2.29	0.65
8:A:704:G:H2'	8:A:726:G:H22	1.59	0.65
8:A:1409:U:H2'	8:A:1410:G:H8	1.61	0.65
22:O:10:ARG:NH2	22:O:96:GLY:O	2.29	0.65
34:a:581:G:N1	34:a:759:A:OP2	2.23	0.65
34:a:1418:A:H2'	34:a:1419:G:C8	2.31	0.65
8:A:1386:C:H2'	8:A:1387:A:C8	2.32	0.65
8:A:1802:A:H2'	8:A:1803:A:C8	2.31	0.65
23:P:105:LYS:O	23:P:108:ARG:NH2	2.28	0.65
34:a:1152:A:OP1	43:j:70:HIS:ND1	2.30	0.65
8:A:197:A:H62	8:A:2430:A:H2'	1.62	0.65
8:A:645:C:H2'	8:A:647:G:C8	2.32	0.65
8:A:2314:A:OP1	13:F:87:LYS:NZ	2.30	0.65
34:a:979:C:OP1	34:a:981:U:O4	2.15	0.65
8:A:463:G:N2	8:A:466:A:OP2	2.26	0.65
8:A:659:G:O2'	12:E:95:LYS:O	2.15	0.65
8:A:2233:U:H2'	8:A:2234:G:C8	2.32	0.65
13:F:30:VAL:HG12	13:F:157:THR:HG22	1.78	0.65
18:K:121:GLU:OE2	23:P:40:GLN:NE2	2.30	0.65
34:a:1391:U:H2'	34:a:1392:G:C8	2.31	0.65
55:v:45:G:H8	55:v:45:G:O5'	1.78	0.65
28:U:95:PHE:O	28:U:99:SER:HA	1.97	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:V:45:ASP:O	29:V:49:ASN:ND2	2.30	0.65
44:k:86:LYS:HG3	44:k:114:PRO:HD3	1.77	0.65
53:t:28:ARG:O	53:t:32:LYS:HG2	1.96	0.65
57:x:350:ASN:O	57:x:354:ALA:N	2.28	0.65
8:A:781:A:OP1	10:C:216:ARG:NH2	2.27	0.65
8:A:1187:G:OP1	25:R:85:LYS:NZ	2.30	0.65
37:d:14:GLU:HG3	37:d:18:LEU:HD11	1.78	0.65
37:d:25:ARG:HH11	37:d:30:LYS:HG3	1.62	0.65
38:e:12:GLU:OE2	38:e:67:ARG:NH1	2.25	0.65
57:x:407:ARG:HG3	57:x:407:ARG:O	1.97	0.65
1:0:3:GLN:NE2	8:A:2016:U:O2	2.28	0.65
8:A:673:C:OP1	12:E:49:ARG:NH2	2.27	0.64
8:A:2094:A:OP2	15:H:22:LYS:NZ	2.24	0.64
9:B:42:C:C6	13:F:65:LEU:HB2	2.32	0.64
18:K:13:ASN:ND2	18:K:97:THR:OG1	2.29	0.64
34:a:713:G:H2'	34:a:714:G:C8	2.32	0.64
34:a:1000:A:N1	34:a:1041:G:O6	2.29	0.64
43:j:65:TYR:HB3	47:n:96:LEU:HD11	1.78	0.64
8:A:1125:G:OP2	8:A:1126:A:O2'	2.14	0.64
8:A:2474:U:H5''	8:A:2475:C:H5	1.63	0.64
21:N:87:PHE:HD1	21:N:90:ARG:HG3	1.61	0.64
34:a:428:G:OP2	37:d:9:LYS:NZ	2.24	0.64
8:A:1818:U:O2'	10:C:152:GLN:O	2.10	0.64
34:a:344:A:H5''	34:a:345:C:H5	1.63	0.64
14:G:8:VAL:HB	14:G:49:LEU:HB2	1.78	0.64
34:a:812:G:OP1	34:a:902:G:N2	2.27	0.64
34:a:1073:U:O2	35:b:102:ASN:ND2	2.30	0.64
57:x:2:ARG:NH1	57:x:312:ASP:OD1	2.31	0.64
8:A:411:G:OP2	8:A:2406:A:O2'	2.14	0.64
8:A:700:G:O2'	8:A:1632:A:N3	2.25	0.64
8:A:1722:A:N6	8:A:1738:G:H1'	2.12	0.64
8:A:1791:A:N6	8:A:1828:G:O2'	2.22	0.64
8:A:2006:C:O2'	8:A:2823:A:N3	2.31	0.64
8:A:2271:G:H5''	30:W:16:ARG:HE	1.61	0.64
8:A:2728:U:H2'	8:A:2729:G:H8	1.62	0.64
34:a:1355:G:H2'	34:a:1356:G:C8	2.33	0.64
37:d:86:GLY:HA3	37:d:196:GLU:HG3	1.78	0.64
7:6:25:ARG:NE	13:F:97:GLU:OE2	2.28	0.64
8:A:2127:G:N1	8:A:2161:C:O2'	2.30	0.64
4:3:7:ARG:NH2	8:A:244:A:OP2	2.30	0.64
34:a:401:C:O2'	34:a:621:A:N3	2.27	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:555:U:H2'	34:a:556:C:C6	2.33	0.64
34:a:957:U:H4'	52:s:78:THR:HG23	1.79	0.64
44:k:113:THR:O	51:r:72:ARG:NH1	2.29	0.64
27:T:9:LYS:O	27:T:12:ARG:NH1	2.31	0.64
34:a:205:A:H3'	34:a:206:C:H6	1.63	0.64
55:v:17:C:H3'	55:v:17(A):U:H2'	1.78	0.64
8:A:2111:U:HO2'	8:A:2118:U:HO2'	1.38	0.64
8:A:2312:U:H5'	13:F:84:ILE:HD11	1.80	0.64
10:C:140:VAL:HG12	10:C:191:LEU:HD23	1.80	0.64
15:H:9:VAL:H	15:H:13:GLY:HA3	1.61	0.64
21:N:24:MET:HG2	21:N:44:LEU:HD22	1.80	0.64
32:Y:14:LEU:HA	32:Y:17:GLU:HB2	1.80	0.64
34:a:208:U:H2'	34:a:209:U:H3'	1.80	0.64
34:a:243:A:N7	34:a:281:G:C2	2.65	0.64
34:a:1209:C:O2'	34:a:1214:C:N4	2.31	0.64
46:m:15:VAL:O	46:m:19:THR:HG23	1.98	0.64
30:W:55:LEU:HD12	30:W:76:ILE:HD12	1.80	0.64
34:a:2:A:N3	34:a:613:C:O2'	2.31	0.64
34:a:1009:U:O2	34:a:1020:G:N2	2.20	0.64
21:N:103:ARG:HD3	21:N:110:MET:HE2	1.79	0.63
56:w:8:4SU:O2'	56:w:21:A:N1	2.28	0.63
8:A:575:A:OP2	8:A:2055:C:N4	2.31	0.63
8:A:883:G:N2	8:A:884:U:O2'	2.30	0.63
36:c:49:ALA:HB1	36:c:75:VAL:HG12	1.80	0.63
45:l:109:ARG:HB3	45:l:118:VAL:HG21	1.80	0.63
55:v:33:U:O2'	55:v:34:C:O5'	2.16	0.63
57:x:365:MET:HB2	57:x:371:GLU:H	1.62	0.63
8:A:1900:A:H1'	8:A:1970:A:H2'	1.80	0.63
9:B:63:C:H2'	9:B:64:G:C8	2.33	0.63
13:F:70:ARG:O	13:F:80:GLN:NE2	2.31	0.63
8:A:1597:A:H5''	8:A:1598:A:H5'	1.79	0.63
45:l:49:ARG:HG3	45:l:89:LEU:HD21	1.80	0.63
45:l:76:HIS:CE1	57:x:453:ASN:ND2	2.67	0.63
53:t:65:LEU:HD23	53:t:66:ILE:HG23	1.79	0.63
57:x:627:THR:O	57:x:631:ILE:HG12	1.99	0.63
8:A:310:A:O2'	8:A:311:A:O5'	2.16	0.63
8:A:693:A:O2'	8:A:1353:A:N3	2.31	0.63
9:B:1:U:H2'	9:B:2:G:H8	1.62	0.63
34:a:1109:C:OP1	36:c:175:HIS:ND1	2.28	0.63
34:a:1360:A:OP2	47:n:75:ARG:NH2	2.31	0.63
8:A:877:A:O2'	8:A:900:A:N6	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1054:A:H2'	8:A:1055:G:C8	2.33	0.63
25:R:70:GLU:OE1	25:R:70:GLU:N	2.31	0.63
34:a:1241:G:H2'	34:a:1242:G:H8	1.63	0.63
37:d:84:ASN:OD1	37:d:87:GLU:N	2.28	0.63
40:g:149:ALA:HA	44:k:60:PHE:HB3	1.81	0.63
57:x:10:ARG:HH21	57:x:252:ARG:HH12	1.47	0.63
8:A:488:G:O2'	26:S:49:LYS:NZ	2.20	0.63
10:C:160:TYR:HB3	10:C:193:GLU:HG2	1.81	0.63
23:P:99:LEU:HD11	23:P:109:ILE:HD11	1.81	0.63
34:a:552:U:H2'	34:a:553:A:H8	1.64	0.63
34:a:628:G:H2'	34:a:629:A:C8	2.34	0.63
36:c:188:ALA:HB3	36:c:195:ILE:HB	1.80	0.63
40:g:21:LEU:HB3	40:g:61:PHE:HE2	1.64	0.63
43:j:46:LYS:HE2	43:j:68:ARG:HD3	1.81	0.63
8:A:793:A:OP2	8:A:2071:A:O2'	2.17	0.63
8:A:1688:U:O2'	8:A:1700:A:N7	2.28	0.63
34:a:459:A:H2'	34:a:460:A:H8	1.64	0.63
34:a:664:G:N2	34:a:726:C:O2'	2.25	0.63
36:c:179:ALA:HA	36:c:205:GLU:HA	1.80	0.63
43:j:10:LEU:HB2	43:j:72:ARG:HB2	1.80	0.63
7:6:63:ARG:HH21	7:6:63:ARG:CB	2.11	0.63
8:A:242:G:H1'	8:A:243:U:H5	1.64	0.63
8:A:2134:A:N6	8:A:2156:G:O2'	2.31	0.63
8:A:2684:U:H4'	18:K:76:VAL:HG21	1.81	0.63
34:a:131:A:H2'	34:a:132:C:C6	2.33	0.63
37:d:125:ASN:ND2	37:d:140:ASP:OD1	2.28	0.63
43:j:42:LEU:HB3	43:j:71:LEU:HD23	1.81	0.63
50:q:27:PHE:CE2	50:q:36:PHE:HB3	2.34	0.63
57:x:139:PHE:HD1	57:x:264:THR:HG23	1.63	0.63
9:B:1:U:H2'	9:B:2:G:C8	2.33	0.62
10:C:67:LYS:HD3	10:C:150:GLY:HA2	1.81	0.62
34:a:335:C:O2'	34:a:1433:A:N3	2.28	0.62
34:a:946:A:H2'	34:a:947:G:C8	2.34	0.62
34:a:1000:A:C6	34:a:1041:G:O6	2.52	0.62
34:a:1314:C:OP2	52:s:3:SER:OG	2.11	0.62
37:d:82:LYS:O	37:d:88:ASN:ND2	2.31	0.62
57:x:298:LEU:H	57:x:305:PRO:HB2	1.64	0.62
8:A:545:U:H3'	8:A:546:U:C6	2.35	0.62
9:B:44:G:H4'	9:B:45:A:OP2	1.99	0.62
17:J:114:LEU:HG	17:J:118:MET:HE3	1.80	0.62
28:U:33:VAL:HG13	28:U:66:VAL:HG12	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:703:G:H4'	34:a:704:A:O5'	1.98	0.62
40:g:23:ALA:O	40:g:27:ASN:ND2	2.32	0.62
8:A:2129:C:O2	8:A:2129:C:H2'	1.99	0.62
34:a:933:G:O6	40:g:2:ARG:NH2	2.32	0.62
34:a:1149:C:H2'	34:a:1150:A:C8	2.34	0.62
57:x:169:GLN:OE1	57:x:264:THR:OG1	2.14	0.62
8:A:990:A:OP2	8:A:991:C:OP2	2.17	0.62
8:A:1170:C:H3'	8:A:1171:G:H8	1.63	0.62
8:A:2118:U:H5	8:A:2148:G:H1'	1.65	0.62
8:A:2439:A:N6	8:A:2585:U:HO2'	1.96	0.62
12:E:1:MET:N	12:E:14:VAL:O	2.31	0.62
13:F:25:MET:O	13:F:29:ARG:NH1	2.32	0.62
45:l:67:GLY:O	45:l:98:ARG:NH1	2.31	0.62
8:A:720:U:H2'	8:A:721:A:C8	2.34	0.62
8:A:2468:A:O2'	8:A:2469:A:O5'	2.13	0.62
8:A:2627:G:O2'	8:A:2781:A:N1	2.29	0.62
8:A:2728:U:H2'	8:A:2729:G:C8	2.34	0.62
34:a:1167:A:H4'	34:a:1168:U:H5	1.62	0.62
52:s:36:ARG:O	52:s:69:LYS:NZ	2.32	0.62
8:A:1474:U:O4	8:A:1517:G:O6	2.18	0.62
10:C:106:PRO:HG2	10:C:109:LEU:HB2	1.80	0.62
10:C:204:LEU:O	10:C:206:LYS:N	2.30	0.62
54:u:30:GLU:OE1	54:u:34:ARG:NH2	2.32	0.62
56:w:25:C:H2'	56:w:26:A:H8	1.63	0.62
57:x:252:ARG:NH2	57:x:290:ASP:OD2	2.28	0.62
7:6:60:PHE:O	7:6:61:ASN:ND2	2.32	0.62
8:A:32:C:H2'	8:A:33:C:C6	2.35	0.62
34:a:359:G:H4'	57:x:436:ARG:HH22	1.64	0.62
34:a:464:U:H2'	34:a:465:A:H2'	1.82	0.62
45:l:45:ASN:HD22	45:l:49:ARG:HH21	1.48	0.62
57:x:641:LEU:HA	57:x:655:ALA:HA	1.82	0.62
2:1:8:ILE:HD13	2:1:24:LYS:HB2	1.81	0.62
8:A:870:U:O2	8:A:907:G:O6	2.18	0.62
14:G:88:LEU:HD11	14:G:95:ALA:HB2	1.80	0.62
8:A:882:G:O6	8:A:894:U:O2	2.18	0.62
8:A:1009:A:N3	8:A:1153:C:O2'	2.31	0.62
28:U:39:ASN:HB3	28:U:62:ALA:HB3	1.82	0.62
34:a:542:G:H5'	37:d:38:GLY:HA2	1.81	0.62
57:x:407:ARG:HH11	57:x:407:ARG:C	2.07	0.62
8:A:624:C:O2'	8:A:657:U:OP1	2.18	0.62
34:a:210:C:O2'	34:a:211:G:N2	2.32	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:358:U:H2'	34:a:359:G:C8	2.35	0.62
34:a:628:G:H2'	34:a:629:A:H8	1.65	0.62
8:A:1538:G:H2'	8:A:1539:U:C6	2.35	0.61
34:a:413:G:N2	34:a:428:G:O3'	2.33	0.61
2:1:43:ARG:NH1	8:A:2370:G:O2'	2.33	0.61
8:A:534:U:O2'	24:Q:48:ASP:OD2	2.14	0.61
8:A:859:G:O2'	8:A:916:G:O6	2.12	0.61
26:S:4:ILE:HG13	26:S:106:VAL:HG22	1.81	0.61
34:a:320:A:H2'	34:a:321:A:O4'	2.00	0.61
34:a:1064:G:H1'	34:a:1190:G:H21	1.64	0.61
35:b:18:GLN:HG3	35:b:37:VAL:HG22	1.82	0.61
35:b:116:LEU:HB3	35:b:140:LEU:HD12	1.80	0.61
57:x:326:ASP:HB3	57:x:329:VAL:H	1.65	0.61
5:4:23:ILE:HD13	8:A:1032:A:H1'	1.83	0.61
34:a:373:A:H1'	34:a:481:G:C8	2.35	0.61
34:a:975:A:N1	34:a:1366:C:O2'	2.27	0.61
36:c:57:GLU:HB2	36:c:64:ARG:HB3	1.81	0.61
50:q:6:THR:OG1	50:q:59:GLU:OE2	2.18	0.61
50:q:56:ASP:OD1	50:q:81:ALA:N	2.33	0.61
8:A:1266:G:O2'	8:A:2012:G:O6	2.14	0.61
8:A:1475:G:O2'	8:A:1476:U:H6	1.84	0.61
8:A:2012:G:P	26:S:11:ARG:HH22	2.24	0.61
8:A:2620:C:O2'	11:D:162:ALA:O	2.16	0.61
28:U:16:LYS:NZ	28:U:39:ASN:OD1	2.33	0.61
34:a:333:U:P	53:t:2:ASN:HD21	2.23	0.61
34:a:1287:A:H2	34:a:1353:G:H1'	1.65	0.61
57:x:440:GLU:OE1	57:x:471:ARG:NH2	2.33	0.61
16:I:1:ALA:HA	16:I:62:ALA:H	1.65	0.61
57:x:366:HIS:HB2	57:x:369:LYS:HE3	1.83	0.61
2:1:5:ARG:NH2	2:1:23:THR:O	2.32	0.61
8:A:1794:A:H2'	8:A:1795:C:H6	1.64	0.61
9:B:91:C:OP2	20:M:18:ARG:NE	2.34	0.61
34:a:77:A:H2'	34:a:78:A:C8	2.36	0.61
34:a:205:A:H3'	34:a:206:C:C6	2.36	0.61
34:a:246:A:N1	34:a:278:G:O2'	2.32	0.61
34:a:321:A:H2'	34:a:322:C:C6	2.35	0.61
34:a:843:U:H3'	34:a:844:G:C8	2.35	0.61
37:d:8:LEU:HD13	37:d:31:CYS:HB3	1.81	0.61
42:i:5:TYR:HB2	42:i:20:ILE:HD11	1.81	0.61
57:x:269:PHE:CB	61:x:801:GDP:C6	2.83	0.61
8:A:494:G:H4'	26:S:6:LYS:HB2	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:D:7:LYS:HE3	11:D:198:GLY:HA2	1.81	0.61
34:a:1100:C:N4	34:a:1103:C:OP1	2.34	0.61
8:A:2246:G:H2'	8:A:2247:A:C8	2.36	0.61
34:a:215:C:O2'	34:a:465:A:N7	2.34	0.61
34:a:720:C:O2'	51:r:51:GLN:NE2	2.34	0.61
34:a:1005:A:H5'	34:a:1036:A:H2	1.66	0.61
34:a:1086:U:H3	34:a:1099:G:H1	1.48	0.61
34:a:1326:U:H2'	34:a:1327:C:C6	2.35	0.61
45:l:76:HIS:CE1	57:x:453:ASN:HD22	2.19	0.61
57:x:308:ARG:NH2	57:x:315:PRO:O	2.34	0.61
8:A:2136:G:H2'	8:A:2137:U:C6	2.36	0.61
8:A:2627:G:N2	8:A:2777:G:OP2	2.32	0.61
27:T:34:VAL:HG21	27:T:43:ILE:HD11	1.82	0.61
34:a:1088:G:H21	34:a:1167:A:H61	1.48	0.61
43:j:52:LEU:O	47:n:81:ARG:NH1	2.32	0.61
1:O:48:TYR:OH	8:A:2883:A:OP1	2.13	0.61
8:A:644:A:H2'	8:A:645:C:O4'	2.01	0.61
8:A:1727:C:H2'	8:A:1728:C:C6	2.36	0.61
8:A:1856:U:H2'	8:A:1857:G:O4'	2.00	0.61
14:G:176:LYS:HA	57:x:672:LEU:HA	1.83	0.61
34:a:1219:A:H2'	34:a:1220:G:H8	1.65	0.61
34:a:1238:A:H5'	34:a:1336:C:H41	1.66	0.61
56:w:37:MIA:H112	59:z:4:U:N1	2.16	0.61
8:A:1052:C:N4	8:A:1107:G:O6	2.34	0.60
15:H:58:LEU:HA	15:H:61:VAL:HG22	1.83	0.60
34:a:1260:G:OP1	34:a:1284:C:O2'	2.16	0.60
45:l:84:GLY:O	45:l:95:HIS:ND1	2.26	0.60
6:5:10:ALA:HA	6:5:13:ALA:HB3	1.82	0.60
17:J:125:TYR:OH	17:J:132:HIS:NE2	2.34	0.60
19:L:93:ASN:HA	19:L:96:LYS:HB2	1.81	0.60
30:W:37:ARG:O	30:W:53:HIS:ND1	2.27	0.60
44:k:87:GLY:O	44:k:92:ARG:NH1	2.34	0.60
49:p:52:LEU:HD12	49:p:57:ILE:HD11	1.81	0.60
8:A:2243:U:H2'	8:A:2244:U:C6	2.36	0.60
8:A:2313:C:H5''	13:F:87:LYS:HD3	1.82	0.60
8:A:2722:G:H4'	21:N:4:ARG:HB2	1.83	0.60
15:H:9:VAL:O	15:H:13:GLY:N	2.34	0.60
34:a:928:G:O2'	34:a:1533:C:OP1	2.19	0.60
34:a:1054:C:OP2	34:a:1197:A:OP2	2.20	0.60
35:b:25:LYS:HE2	35:b:192:PRO:HD2	1.84	0.60
8:A:828:U:H2'	8:A:829:A:C8	2.36	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:974:G:O2'	8:A:989:G:N2	2.34	0.60
8:A:2638:G:H1'	8:A:2778:A:H61	1.65	0.60
22:O:111:ARG:NH1	22:O:117:PHE:OXT	2.34	0.60
34:a:67:C:H2'	34:a:68:G:C8	2.35	0.60
35:b:18:GLN:HA	35:b:37:VAL:HA	1.83	0.60
56:w:6:G:O6	56:w:67:C:N4	2.25	0.60
8:A:636:G:N7	19:L:109:LYS:NZ	2.39	0.60
8:A:1926:U:H2'	8:A:1927:A:H8	1.66	0.60
37:d:10:LEU:HB3	37:d:62:ARG:HD3	1.82	0.60
55:v:32:C:N4	55:v:33:U:O4	2.35	0.60
57:x:150:PHE:CE1	57:x:265:CYS:HB2	2.37	0.60
27:T:54:GLU:HG3	27:T:88:LYS:HD2	1.84	0.60
34:a:757:U:O2'	34:a:879:C:O2	2.20	0.60
34:a:1024:G:O2'	34:a:1025:U:OP1	2.18	0.60
38:e:78:GLY:O	38:e:120:HIS:N	2.31	0.60
8:A:240:C:OP2	8:A:241:A:O2'	2.20	0.60
34:a:766:A:OP2	34:a:812:G:N2	2.30	0.60
34:a:1417:G:C2	34:a:1483:A:N6	2.70	0.60
48:o:22:GLY:O	48:o:27:GLN:NE2	2.28	0.60
2:l:5:ARG:NH1	8:A:2285:C:OP2	2.32	0.60
6:5:26:VAL:HA	6:5:83:ALA:H	1.66	0.60
8:A:483:A:O2'	28:U:56:GLY:N	2.34	0.60
8:A:2063:C:H2'	8:A:2064:C:H6	1.66	0.60
8:A:2079:U:O2'	31:X:22:ASN:OD1	2.19	0.60
8:A:2522:U:O2'	8:A:2647:U:OP1	2.12	0.60
34:a:269:C:H2'	34:a:270:A:C8	2.37	0.60
34:a:769:G:H4'	34:a:1513:A:H4'	1.84	0.60
43:j:37:ARG:HB2	43:j:75:ASP:HB3	1.84	0.60
8:A:781:A:C8	10:C:217:PRO:HG2	2.37	0.60
8:A:2638:G:HO2'	8:A:2639:A:H8	1.49	0.60
30:W:17:LEU:HD21	30:W:37:ARG:HH21	1.67	0.60
34:a:137:U:H3	34:a:226:G:H1	1.50	0.60
36:c:23:ALA:HB1	36:c:27:GLU:HG2	1.83	0.60
53:t:34:VAL:HG21	53:t:53:MET:HG2	1.83	0.60
8:A:75:G:H22	8:A:111:A:H2	1.50	0.60
8:A:151:C:H2'	8:A:152:A:H8	1.66	0.60
34:a:1418:A:H3'	34:a:1419:G:H5''	1.84	0.60
42:i:83:THR:HG23	42:i:97:LEU:HD23	1.83	0.60
10:C:143:VAL:HB	10:C:153:LEU:HB2	1.84	0.59
15:H:137:GLU:OE1	15:H:137:GLU:N	2.35	0.59
34:a:942:G:N2	42:i:125:GLN:HE22	2.00	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:8:MET:HG2	35:b:9:LEU:H	1.67	0.59
46:m:21:ILE:HB	46:m:24:VAL:HB	1.84	0.59
8:A:1533:C:H2'	8:A:1534:U:O4'	2.02	0.59
8:A:2530:A:N6	14:G:155:PRO:HG3	2.17	0.59
8:A:2713:U:H3'	8:A:2714:G:H5''	1.84	0.59
53:t:27:MET:HG3	53:t:57:VAL:HG12	1.84	0.59
57:x:178:PHE:O	57:x:272:LYS:NZ	2.26	0.59
8:A:1771:C:H2'	8:A:1772:A:H8	1.66	0.59
8:A:2204:G:H4'	10:C:149:LYS:HD3	1.84	0.59
20:M:50:ARG:HD3	20:M:65:ILE:HD11	1.84	0.59
29:V:32:GLY:O	29:V:93:ARG:NH1	2.35	0.59
34:a:1000:A:N6	34:a:1041:G:O6	2.35	0.59
34:a:1088:G:N2	34:a:1167:A:H61	1.99	0.59
40:g:59:GLU:O	40:g:63:VAL:HG23	2.02	0.59
40:g:61:PHE:HZ	40:g:100:MET:HE2	1.66	0.59
52:s:62:THR:HG23	52:s:65:MET:HE2	1.84	0.59
8:A:481:G:H1'	8:A:506:G:N2	2.16	0.59
8:A:555:G:O2'	8:A:556:A:O5'	2.20	0.59
8:A:848:C:H2'	8:A:849:A:C8	2.37	0.59
8:A:1086:A:OP1	8:A:1087:G:N2	2.35	0.59
34:a:1052:U:O2'	34:a:1055:A:OP2	2.16	0.59
1:0:49:ARG:NH1	8:A:2884:U:O4'	2.36	0.59
8:A:1418:G:N1	8:A:1579:A:OP2	2.27	0.59
8:A:2297:A:H61	8:A:2319:G:H1'	1.67	0.59
18:K:71:ARG:NH1	18:K:106:GLU:OE1	2.36	0.59
34:a:695:A:OP1	44:k:53:GLY:HA3	2.02	0.59
35:b:56:LEU:HD13	35:b:216:VAL:HG23	1.82	0.59
8:A:851:C:H2'	8:A:852:U:C6	2.37	0.59
8:A:1779:U:H5	8:A:1784:A:N7	2.00	0.59
34:a:673:A:O3'	39:f:86:ARG:NH2	2.36	0.59
34:a:980:C:O2'	47:n:12:ARG:NH1	2.36	0.59
34:a:1306:A:H1'	34:a:1332:A:C2	2.37	0.59
35:b:99:MET:HG3	35:b:106:VAL:HG11	1.83	0.59
56:w:5:G:N2	56:w:68:C:C2	2.63	0.59
8:A:1338:G:O2'	8:A:1393:A:N1	2.32	0.59
14:G:121:THR:HB	14:G:133:LYS:HG3	1.85	0.59
15:H:125:THR:HG23	15:H:146:VAL:HG23	1.85	0.59
34:a:359:G:H5''	57:x:436:ARG:NH2	2.17	0.59
34:a:499:A:H61	34:a:547:A:H5''	1.66	0.59
34:a:746:A:H2'	34:a:747:A:C8	2.38	0.59
35:b:22:TRP:CZ3	35:b:24:PRO:HA	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:n:90:ARG:NE	47:n:92:GLU:OE2	2.36	0.59
8:A:849:A:H2'	8:A:850:U:H6	1.68	0.59
8:A:1796:U:H2'	8:A:1797:G:H8	1.68	0.59
8:A:2111:U:O2'	8:A:2118:U:O2'	2.10	0.59
8:A:2328:A:H2'	8:A:2329:U:H6	1.67	0.59
8:A:2595:G:N2	8:A:2598:A:OP2	2.27	0.59
18:K:105:ARG:HH21	23:P:31:VAL:HG11	1.68	0.59
34:a:509:A:N3	34:a:543:U:O2'	2.33	0.59
34:a:1432:G:O2'	34:a:1433:A:P	2.60	0.59
56:w:68:C:H2'	56:w:69:G:C8	2.37	0.59
8:A:813:U:H2'	8:A:814:C:C6	2.38	0.59
8:A:2528:U:O2	8:A:2535:G:O6	2.20	0.59
34:a:1126:U:O2'	34:a:1127:G:H5'	2.02	0.59
36:c:18:ASN:O	36:c:39:ARG:NH2	2.23	0.59
8:A:818:G:N1	8:A:1188:U:OP2	2.30	0.59
34:a:1144:G:N2	34:a:1146:A:H62	2.00	0.59
57:x:616:MET:HA	57:x:684:LEU:H	1.67	0.59
8:A:310:A:H5''	28:U:14:THR:HG23	1.84	0.58
8:A:1359:A:OP1	8:A:1360:G:OP2	2.20	0.58
8:A:2110:G:O5'	8:A:2145:C:N4	2.36	0.58
13:F:45:ASP:HB3	13:F:48:LEU:HB2	1.85	0.58
14:G:44:HIS:ND1	14:G:48:THR:O	2.36	0.58
8:A:373:U:H2'	8:A:374:A:H8	1.68	0.58
9:B:5:U:H2'	9:B:6:G:H8	1.67	0.58
43:j:86:ALA:HA	43:j:89:ARG:HE	1.68	0.58
48:o:13:GLU:HG2	48:o:83:ARG:HH21	1.67	0.58
50:q:10:ARG:NH1	50:q:55:GLY:O	2.36	0.58
8:A:805:G:N2	8:A:829:A:OP1	2.36	0.58
8:A:1223:G:OP1	25:R:68:ARG:NH2	2.36	0.58
34:a:1033:G:H2'	34:a:1034:G:O4'	2.03	0.58
34:a:1150:A:C2	43:j:41:PRO:HG2	2.38	0.58
36:c:13:ILE:HG22	36:c:14:VAL:HG13	1.84	0.58
46:m:26:LYS:HG3	46:m:30:LYS:HE2	1.83	0.58
56:w:5:G:H2'	56:w:6:G:C8	2.38	0.58
57:x:144:ASP:OD1	61:x:801:GDP:N1	2.36	0.58
3:2:19:ARG:HG3	8:A:126:A:H5'	1.86	0.58
8:A:221:A:H1'	8:A:233:A:H1'	1.84	0.58
8:A:1490:A:C8	10:C:97:ASP:HB3	2.39	0.58
8:A:1925:C:H42	8:A:1929:G:N2	2.00	0.58
8:A:2076:U:OP2	8:A:2238:G:N2	2.29	0.58
10:C:56:GLY:HA2	10:C:212:TRP:HA	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:P:33:GLU:OE1	23:P:33:GLU:N	2.37	0.58
31:X:15:ASN:HD22	31:X:23:ALA:HB1	1.67	0.58
34:a:1350:A:O2'	40:g:32:ASP:OD1	2.21	0.58
40:g:4:ARG:HH11	40:g:6:ILE:HD13	1.69	0.58
55:v:20:H2U:H2'	55:v:21:A:H5'	1.85	0.58
8:A:2543:G:H2'	8:A:2544:G:C8	2.38	0.58
34:a:91:U:H2'	34:a:92:U:C6	2.38	0.58
34:a:337:G:H2'	34:a:338:A:C8	2.39	0.58
34:a:636:U:H2'	34:a:637:C:C6	2.38	0.58
34:a:719:C:O2'	51:r:38:ILE:O	2.20	0.58
34:a:925:G:O6	34:a:1391:U:O2	2.20	0.58
34:a:1304:G:N2	34:a:1332:A:N7	2.52	0.58
36:c:10:ARG:HB3	36:c:14:VAL:HG22	1.85	0.58
57:x:627:THR:HG22	57:x:651:VAL:HG11	1.84	0.58
8:A:191:A:H2'	8:A:192:C:H6	1.68	0.58
8:A:994:C:OP1	24:Q:52:ARG:NH2	2.37	0.58
8:A:1092:C:N3	8:A:1098:A:N6	2.51	0.58
8:A:1926:U:O2'	8:A:1927:A:OP1	2.20	0.58
14:G:75:VAL:O	14:G:79:THR:OG1	2.19	0.58
18:K:22:ILE:HG21	18:K:42:THR:HG23	1.86	0.58
20:M:42:THR:HG22	20:M:93:VAL:HG12	1.84	0.58
34:a:389:A:H3'	34:a:390:U:H6	1.68	0.58
34:a:980:C:OP2	34:a:981:U:C4	2.56	0.58
43:j:45:ARG:NH2	43:j:47:GLU:OE1	2.36	0.58
56:w:51:C:H2'	56:w:52:G:C8	2.33	0.58
8:A:778:G:H5'	10:C:47:ARG:HH11	1.68	0.58
8:A:2405:G:O2'	8:A:2411:A:N6	2.36	0.58
10:C:15:VAL:HG22	10:C:205:GLY:HA3	1.84	0.58
12:E:58:LYS:NZ	12:E:70:SER:O	2.34	0.58
13:F:126:ASN:OD1	13:F:157:THR:N	2.32	0.58
19:L:77:ILE:HD11	19:L:101:ILE:HG23	1.85	0.58
20:M:33:LEU:HD13	20:M:117:PHE:HB3	1.83	0.58
45:l:93:ARG:NH2	45:l:94:TYR:OH	2.37	0.58
8:A:910:A:N3	8:A:2264:C:O2'	2.35	0.58
8:A:2319:G:O2'	8:A:2320:U:O5'	2.20	0.58
11:D:13:ARG:HH11	23:P:55:HIS:HA	1.68	0.58
21:N:77:ALA:O	21:N:81:ASN:HB2	2.02	0.58
34:a:95:C:O2'	34:a:96:U:OP1	2.19	0.58
34:a:113:G:H2'	34:a:114:U:C6	2.38	0.58
37:d:58:GLN:HB3	37:d:62:ARG:NH1	2.18	0.58
57:x:662:MET:C	57:x:664:GLY:H	2.08	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:641:U:O2'	8:A:2350:C:OP1	2.22	0.58
8:A:1746:A:H2'	8:A:1747:U:C6	2.39	0.58
9:B:14:U:OP2	9:B:70:C:O2'	2.20	0.58
34:a:402:G:OP1	37:d:70:GLN:NE2	2.37	0.58
34:a:938:A:N3	34:a:1376:U:O2'	2.31	0.58
34:a:1219:A:H2'	34:a:1220:G:C8	2.39	0.58
34:a:1323:G:H2'	34:a:1324:A:C8	2.38	0.58
36:c:82:ASP:HA	36:c:85:LYS:HG2	1.85	0.58
8:A:45:G:H5'	8:A:46:G:OP1	2.03	0.58
8:A:57:C:H2'	8:A:58:G:O4'	2.04	0.58
8:A:704:G:O2'	8:A:727:A:N6	2.37	0.58
8:A:2143:C:H2'	8:A:2144:G:O4'	2.03	0.58
8:A:2144:G:H1'	8:A:2148:G:H22	1.69	0.58
13:F:10:GLU:OE1	13:F:10:GLU:N	2.36	0.58
45:l:80:LEU:HB3	45:l:97:VAL:HB	1.86	0.58
53:t:56:ILE:HD13	53:t:59:ARG:HH12	1.69	0.58
57:x:16:ALA:HB2	57:x:111:VAL:HB	1.86	0.58
57:x:407:ARG:HH11	57:x:407:ARG:CG	2.17	0.58
8:A:1248:G:OP1	12:E:44:ARG:NH2	2.31	0.57
13:F:65:LEU:HD23	13:F:87:LYS:HE2	1.86	0.57
34:a:137:U:O2	34:a:226:G:N2	2.33	0.57
34:a:473:U:H2'	34:a:474:G:H8	1.68	0.57
34:a:926:G:N2	59:z:0:U:OP2	2.25	0.57
34:a:942:G:H21	42:i:125:GLN:HE22	1.52	0.57
35:b:76:SER:OG	35:b:92:ASN:HB2	2.04	0.57
41:h:7:ALA:HB2	41:h:76:ARG:HD3	1.85	0.57
56:w:64:A:H2'	56:w:65:G:C8	2.39	0.57
8:A:1844:C:H4'	10:C:255:LYS:HZ3	1.69	0.57
8:A:2061:G:HO2'	8:A:2063:C:H5	1.51	0.57
34:a:146:G:N2	34:a:177:G:N7	2.51	0.57
54:u:12:ASP:HA	54:u:15:LEU:HB3	1.85	0.57
8:A:1412:U:H2'	8:A:1413:A:C8	2.39	0.57
10:C:52:HIS:CE1	10:C:218:THR:HA	2.39	0.57
12:E:125:SER:O	12:E:137:LYS:NZ	2.37	0.57
12:E:144:GLU:OE1	12:E:144:GLU:N	2.37	0.57
13:F:37:MET:HE2	13:F:56:LEU:HG	1.86	0.57
34:a:122:G:HO2'	34:a:312:C:HO2'	1.51	0.57
34:a:1314:C:H2'	34:a:1315:U:C6	2.39	0.57
37:d:3:TYR:CZ	37:d:10:LEU:HD11	2.39	0.57
52:s:50:VAL:HG21	52:s:70:LEU:HB3	1.86	0.57
5:4:2:LYS:NZ	5:4:32:LYS:O	2.34	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:181:A:H1'	8:A:435:C:H5'	1.87	0.57
10:C:30:ALA:HA	10:C:33:LEU:HD12	1.87	0.57
14:G:18:ILE:HG22	14:G:23:ILE:HG23	1.86	0.57
17:J:3:THR:HG22	24:Q:63:ARG:HH12	1.70	0.57
30:W:33:ILE:HD11	30:W:78:ILE:HD11	1.85	0.57
34:a:1491:G:N2	60:a:2001:AM2:OB6	2.29	0.57
50:q:30:HIS:N	50:q:35:LYS:O	2.29	0.57
57:x:643:GLY:H	57:x:654:HIS:HB2	1.69	0.57
8:A:1068:G:H2'	8:A:1069:A:H4'	1.87	0.57
8:A:1582:C:O2'	8:A:1585:C:N3	2.37	0.57
8:A:2847:U:H2'	8:A:2848:G:O4'	2.04	0.57
9:B:40:U:N3	9:B:44:G:OP2	2.23	0.57
14:G:136:ASP:HB3	14:G:139:VAL:HG22	1.86	0.57
34:a:416:G:O6	34:a:427:U:O2	2.23	0.57
36:c:149:LYS:HD3	36:c:168:ARG:HE	1.69	0.57
39:f:73:GLU:O	39:f:77:THR:HG23	2.05	0.57
7:6:10:GLU:OE1	7:6:10:GLU:N	2.25	0.57
8:A:245:G:O2'	8:A:384:A:N1	2.28	0.57
8:A:1098:A:H3'	8:A:1099:G:C8	2.40	0.57
8:A:2142:A:N6	8:A:2150:C:O2	2.34	0.57
17:J:17:VAL:HG13	17:J:137:PRO:HB2	1.85	0.57
26:S:20:VAL:HG11	26:S:44:ALA:HA	1.86	0.57
29:V:1:MET:HE3	29:V:62:THR:HG22	1.87	0.57
34:a:1007:U:H3	34:a:1022:A:H2	1.53	0.57
46:m:12:LYS:HB2	46:m:17:ALA:HB2	1.87	0.57
8:A:1909:C:H2'	8:A:1910:G:H5''	1.87	0.57
8:A:1926:U:H2'	8:A:1927:A:C8	2.39	0.57
25:R:61:ALA:HB2	25:R:98:ILE:HD13	1.85	0.57
41:h:10:LEU:HD22	41:h:74:ILE:HD11	1.86	0.57
8:A:534:U:H2'	8:A:535:G:H8	1.70	0.57
8:A:2105:U:H2'	8:A:2106:U:C6	2.39	0.57
8:A:2468:A:O2'	8:A:2469:A:H8	1.87	0.57
8:A:2584:U:H3'	8:A:2585:U:C5'	2.34	0.57
8:A:2660:A:H5'	57:x:674:LYS:HE2	1.87	0.57
8:A:2816:G:N3	8:A:2883:A:O2'	2.32	0.57
32:Y:46:VAL:O	32:Y:50:VAL:HG23	2.03	0.57
38:e:47:PHE:O	38:e:69:ASN:ND2	2.28	0.57
39:f:68:GLN:OE1	39:f:68:GLN:N	2.35	0.57
57:x:193:ASN:ND2	57:x:200:THR:OG1	2.35	0.57
57:x:229:SER:HB3	57:x:232:LEU:HD23	1.87	0.57
57:x:407:ARG:NH2	57:x:410:PHE:HD2	2.03	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:488:G:H1'	8:A:492:A:N6	2.20	0.57
8:A:1131:G:N2	8:A:1132:U:O4	2.33	0.57
8:A:1171:G:H1	8:A:1177:G:N2	1.99	0.57
8:A:1530:G:H2'	8:A:1531:C:C6	2.40	0.57
8:A:1656:C:H2'	8:A:1657:U:H6	1.70	0.57
8:A:2848:G:H1'	8:A:2868:A:H61	1.69	0.57
13:F:68:LYS:HE3	13:F:83:PRO:HB3	1.87	0.57
19:L:115:GLU:N	19:L:115:GLU:OE1	2.37	0.57
34:a:1108:G:H2'	34:a:1109:C:H5'	1.85	0.57
34:a:1408:A:N1	60:a:2001:AM2:OA6	2.36	0.57
40:g:99:ALA:O	40:g:103:ILE:HG13	2.04	0.57
42:i:79:ARG:HD2	42:i:102:PHE:CD1	2.39	0.57
56:w:9:A:N3	56:w:45:U:H2'	2.20	0.57
8:A:143:C:H2'	8:A:144:A:H8	1.70	0.57
8:A:555:G:O2'	8:A:556:A:H8	1.87	0.57
8:A:1283:G:N1	8:A:1286:A:OP2	2.37	0.57
8:A:1799:G:O2'	10:C:179:GLU:OE2	2.21	0.57
8:A:1954:G:O2'	8:A:1956:U:O4	2.13	0.57
12:E:149:ILE:HB	12:E:188:MET:HG2	1.86	0.57
34:a:714:G:H2'	34:a:715:A:C8	2.40	0.57
34:a:1040:U:O4	34:a:1041:G:O6	2.23	0.57
40:g:44:SER:HB2	40:g:116:ALA:HB1	1.85	0.57
53:t:59:ARG:HG2	53:t:63:LYS:NZ	2.20	0.57
8:A:322:A:H5'	8:A:340:A:H1'	1.86	0.56
8:A:532:A:OP1	8:A:561:G:N2	2.26	0.56
8:A:1429:G:H2'	8:A:1430:G:H8	1.69	0.56
9:B:66:A:O5'	9:B:108:A:N6	2.38	0.56
34:a:178:C:H2'	34:a:179:A:H8	1.70	0.56
34:a:456:A:N1	34:a:476:U:H5	2.03	0.56
34:a:946:A:H2'	34:a:947:G:H8	1.69	0.56
34:a:1512:U:H2'	34:a:1513:A:C8	2.39	0.56
38:e:150:GLU:OE1	38:e:150:GLU:N	2.38	0.56
41:h:28:SER:HB3	41:h:58:LEU:H	1.69	0.56
8:A:307:G:N1	8:A:310:A:OP2	2.29	0.56
20:M:53:MET:HG3	20:M:120:ALA:HB2	1.87	0.56
34:a:17:U:H2'	34:a:18:C:C6	2.40	0.56
34:a:1320:C:H42	52:s:35:ARG:HB2	1.70	0.56
35:b:68:PHE:HB3	35:b:79:VAL:HG13	1.86	0.56
44:k:124:LYS:HG3	44:k:125:LYS:H	1.70	0.56
46:m:93:GLY:HA2	46:m:108:ARG:HH12	1.69	0.56
5:4:9:LYS:HE3	5:4:16:ILE:HG12	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:714:U:O2'	8:A:716:A:N7	2.28	0.56
8:A:1080:A:N6	8:A:1088:A:O4'	2.38	0.56
8:A:1914:C:H4'	56:w:26:A:H4'	1.87	0.56
8:A:2229:U:H2'	8:A:2230:G:H8	1.69	0.56
8:A:2836:U:H2'	8:A:2837:A:C8	2.41	0.56
13:F:32:LYS:HD3	13:F:91:ARG:NH1	2.20	0.56
13:F:82:TYR:CD1	13:F:83:PRO:HD2	2.41	0.56
31:X:32:LEU:HD22	31:X:49:ARG:HG2	1.87	0.56
34:a:38:G:H22	34:a:397:A:H5'	1.69	0.56
34:a:107:G:OP1	34:a:325:A:N6	2.37	0.56
34:a:211:G:C4	34:a:212:G:H1'	2.40	0.56
34:a:667:G:H4'	48:o:50:HIS:ND1	2.20	0.56
34:a:792:A:O2'	34:a:794:A:N7	2.37	0.56
34:a:939:G:H2'	34:a:940:C:C6	2.40	0.56
37:d:27:ILE:HG13	37:d:33:ILE:HG21	1.87	0.56
43:j:36:VAL:HG12	43:j:76:ILE:HG12	1.88	0.56
57:x:72:SER:HA	57:x:80:PRO:HA	1.87	0.56
8:A:849:A:H2'	8:A:850:U:C6	2.39	0.56
8:A:1113:U:H2'	8:A:1114:C:C6	2.40	0.56
34:a:77:A:C6	34:a:78:A:N6	2.74	0.56
34:a:91:U:C4	34:a:92:U:O4	2.58	0.56
34:a:976:G:OP2	34:a:1358:U:O2'	2.22	0.56
34:a:999:C:C4	34:a:1000:A:N6	2.72	0.56
34:a:1306:A:H1'	34:a:1332:A:N1	2.21	0.56
34:a:1321:U:O2'	52:s:77:ARG:NH2	2.38	0.56
37:d:169:TRP:HA	37:d:182:LYS:HE2	1.86	0.56
45:l:2:THR:O	45:l:5:GLN:N	2.39	0.56
57:x:317:SER:OG	57:x:339:SER:OG	2.21	0.56
8:A:672:C:OP2	19:L:42:SER:OG	2.17	0.56
8:A:1079:C:H1'	8:A:1087:G:OP1	2.06	0.56
12:E:97:ASN:HB2	12:E:100:MET:HG3	1.87	0.56
34:a:1054:C:OP2	34:a:1197:A:P	2.64	0.56
34:a:1143:G:H2'	34:a:1144:G:H8	1.71	0.56
35:b:114:LYS:O	35:b:118:THR:HG23	2.06	0.56
43:j:52:LEU:HB2	47:n:81:ARG:HD2	1.88	0.56
8:A:587:C:H5'	12:E:85:PHE:HE2	1.71	0.56
8:A:593:U:H2'	8:A:594:U:C6	2.41	0.56
8:A:1224:U:H2'	8:A:1225:G:C8	2.40	0.56
8:A:1386:C:H2'	8:A:1387:A:H8	1.69	0.56
8:A:1485:U:H2'	8:A:1486:U:C6	2.40	0.56
8:A:1720:U:H2'	8:A:1721:G:O4'	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1724:G:H1	8:A:1736:U:H3	1.53	0.56
22:O:34:HIS:HA	22:O:53:THR:OG1	2.05	0.56
34:a:1151:A:O4'	43:j:41:PRO:HB3	2.06	0.56
8:A:228:C:N3	8:A:417:C:O2'	2.37	0.56
8:A:843:G:H2'	8:A:844:A:C8	2.41	0.56
8:A:1443:U:H2'	8:A:1444:G:C8	2.41	0.56
8:A:1445:G:O6	8:A:1466:U:C2	2.56	0.56
8:A:1734:G:H2'	8:A:1735:A:H8	1.70	0.56
8:A:2262:U:H2'	8:A:2263:C:H6	1.69	0.56
14:G:82:PHE:HB2	14:G:140:ILE:HD12	1.87	0.56
32:Y:18:LEU:HD23	32:Y:53:VAL:HB	1.88	0.56
34:a:257:G:H2'	34:a:258:G:H8	1.71	0.56
34:a:1415:G:H2'	34:a:1416:G:C8	2.41	0.56
8:A:674:G:H5''	12:E:71:GLY:N	2.21	0.56
8:A:2063:C:H2'	8:A:2064:C:C6	2.41	0.56
8:A:2131:U:O2	8:A:2158:A:N6	2.39	0.56
12:E:110:SER:OG	12:E:114:ARG:NH2	2.38	0.56
34:a:664:G:H21	34:a:726:C:HO2'	1.52	0.56
55:v:64:G:H2'	55:v:65:C:H6	1.70	0.56
8:A:1171:G:H22	8:A:1177:G:H22	1.54	0.56
11:D:181:ASP:HB3	11:D:186:LEU:HB2	1.87	0.56
34:a:34:C:H2'	34:a:35:G:H8	1.70	0.56
34:a:210:C:HO2'	34:a:211:G:N2	2.04	0.56
34:a:1243:C:H2'	34:a:1244:G:C8	2.40	0.56
34:a:1417:G:N2	34:a:1482:G:C2	2.74	0.56
40:g:101:ARG:O	40:g:105:GLU:HG2	2.06	0.56
51:r:11:ARG:HA	51:r:14:ALA:HB3	1.87	0.56
8:A:414:C:H2'	8:A:415:A:C8	2.41	0.56
8:A:715:A:O2'	8:A:716:A:OP1	2.22	0.56
8:A:1652:A:N6	21:N:11:ASN:OD1	2.39	0.56
8:A:2099:U:H2'	8:A:2100:G:C8	2.40	0.56
34:a:550:G:H2'	34:a:551:U:C6	2.41	0.56
34:a:1309:G:C6	34:a:1329:A:N1	2.74	0.56
34:a:1312:G:H5'	52:s:4:LEU:HD11	1.87	0.56
44:k:63:GLN:HG3	44:k:98:ALA:HB2	1.86	0.56
50:q:67:SER:HB2	50:q:70:LYS:HG3	1.87	0.56
56:w:5:G:C2	56:w:68:C:O2	2.59	0.56
57:x:363:VAL:HG23	57:x:383:ALA:HB3	1.88	0.56
1:0:27:LEU:HD13	1:0:36:LYS:HB3	1.88	0.55
7:6:16:CYS:SG	7:6:37:CYS:HB3	2.45	0.55
8:A:1102:C:H3'	8:A:1103:A:C8	2.32	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2638:G:H1'	8:A:2778:A:N6	2.21	0.55
34:a:421:U:H5''	34:a:422:C:H5	1.72	0.55
34:a:1040:U:C4	34:a:1041:G:O6	2.59	0.55
34:a:1326:U:H2'	34:a:1327:C:H6	1.70	0.55
36:c:72:PRO:O	36:c:76:ILE:HG12	2.06	0.55
41:h:34:ALA:O	41:h:38:VAL:HG23	2.06	0.55
41:h:93:LYS:HE3	41:h:116:ARG:HH12	1.71	0.55
48:o:24:THR:HG22	48:o:65:LEU:HD22	1.87	0.55
8:A:934:U:H2'	8:A:935:C:C6	2.41	0.55
8:A:2637:U:H2'	8:A:2638:G:O4'	2.06	0.55
20:M:29:GLY:N	20:M:104:GLU:OE1	2.23	0.55
34:a:86:G:H22	34:a:90:C:H41	1.54	0.55
34:a:562:U:H5''	34:a:563:A:C5	2.41	0.55
34:a:1412:C:H2'	34:a:1413:A:C8	2.41	0.55
47:n:62:ASN:HB3	47:n:73:PHE:CE2	2.41	0.55
8:A:776:G:C6	8:A:2072:C:OP1	2.59	0.55
8:A:1093:G:N2	8:A:1097:U:OP2	2.39	0.55
8:A:2175:C:H2'	8:A:2176:A:C8	2.41	0.55
8:A:2599:G:O6	10:C:238:ASN:ND2	2.39	0.55
34:a:368:U:C5	57:x:385:ILE:HG12	2.41	0.55
34:a:945:G:C2	34:a:946:A:C8	2.95	0.55
34:a:1125:U:H2'	34:a:1126:U:H2'	1.88	0.55
36:c:33:ASP:HB2	47:n:65:ARG:HD3	1.86	0.55
37:d:69:ARG:O	37:d:70:GLN:HB3	2.07	0.55
42:i:54:VAL:HG11	42:i:93:LEU:HD21	1.88	0.55
47:n:50:THR:HG21	52:s:12:LEU:HD13	1.88	0.55
8:A:2530:A:N7	14:G:171:LYS:NZ	2.36	0.55
8:A:2698:U:H2'	8:A:2699:C:C6	2.42	0.55
15:H:97:ARG:HG2	15:H:112:LYS:HG2	1.88	0.55
19:L:20:GLY:HA2	19:L:28:GLY:HA2	1.87	0.55
57:x:189:ALA:HB3	57:x:204:GLU:HB2	1.88	0.55
57:x:231:GLU:HA	57:x:234:GLU:HG2	1.87	0.55
57:x:484:LYS:HA	57:x:663:PHE:HE1	1.72	0.55
8:A:1682:G:H2'	8:A:1683:U:C6	2.42	0.55
8:A:2692:G:H1'	8:A:2847:U:H1'	1.88	0.55
9:B:2:G:H2'	9:B:3:C:C6	2.42	0.55
29:V:86:LEU:HD13	29:V:89:ILE:HD11	1.89	0.55
34:a:996:A:N1	34:a:1045:C:O2'	2.39	0.55
37:d:106:PHE:HA	37:d:154:VAL:HG23	1.89	0.55
44:k:25:SER:OG	44:k:28:ASN:O	2.23	0.55
8:A:219:A:N3	8:A:234:U:O2'	2.26	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1073:A:N6	8:A:1074:G:N3	2.54	0.55
8:A:1923:U:H2'	8:A:1924:C:C6	2.42	0.55
8:A:1925:C:N4	8:A:1929:G:H22	2.03	0.55
8:A:2723:C:OP1	11:D:114:LYS:NZ	2.34	0.55
12:E:193:VAL:O	12:E:197:GLU:HG2	2.07	0.55
15:H:104:THR:HB	15:H:109:GLU:CD	2.31	0.55
34:a:373:A:O2'	34:a:451:A:N7	2.40	0.55
57:x:184:LEU:HD22	57:x:218:HIS:HB2	1.87	0.55
6:5:78:GLY:HA2	8:A:1108:U:OP1	2.07	0.55
7:6:50:ASP:OD1	7:6:51:VAL:N	2.38	0.55
8:A:659:G:H4'	12:E:95:LYS:HD2	1.88	0.55
8:A:2291:U:H2'	8:A:2292:U:C6	2.42	0.55
9:B:2:G:H2'	9:B:3:C:H6	1.72	0.55
9:B:104:A:H2'	9:B:105:G:O4'	2.06	0.55
12:E:189:THR:HG23	12:E:192:ALA:H	1.72	0.55
13:F:4:HIS:CD2	13:F:8:LYS:HE2	2.42	0.55
14:G:22:VAL:HG23	14:G:35:THR:HG22	1.87	0.55
34:a:187:G:N2	34:a:190:A:OP2	2.40	0.55
34:a:1103:C:OP1	35:b:94:ARG:NH1	2.40	0.55
36:c:6:PRO:HA	36:c:9:ILE:HG22	1.89	0.55
36:c:18:ASN:HB3	36:c:39:ARG:HH12	1.70	0.55
43:j:14:ASP:N	43:j:14:ASP:OD1	2.35	0.55
55:v:1:C:O2	55:v:73:A:C2	2.60	0.55
56:w:37:MIA:H112	59:z:4:U:C6	2.41	0.55
57:x:171:ALA:HA	57:x:181:VAL:HG12	1.88	0.55
8:A:532:A:N1	8:A:2020:A:H1'	2.21	0.55
8:A:559:G:N2	24:Q:48:ASP:OD1	2.39	0.55
8:A:1879:C:H2'	8:A:1880:U:O4'	2.07	0.55
8:A:2567:G:H2'	8:A:2568:U:C6	2.42	0.55
19:L:20:GLY:O	19:L:21:ARG:NH2	2.36	0.55
20:M:20:LEU:HD13	29:V:81:PRO:HG2	1.89	0.55
25:R:17:GLY:N	25:R:98:ILE:O	2.32	0.55
34:a:727:G:N2	34:a:730:G:OP2	2.30	0.55
34:a:1006:G:H3'	34:a:1007:U:C5	2.42	0.55
34:a:1240:U:P	40:g:115:MET:HB2	2.46	0.55
7:6:54:GLY:O	7:6:58:ASP:N	2.40	0.55
8:A:2821:A:O2'	8:A:2826:A:N1	2.34	0.55
9:B:30:C:H2'	9:B:31:C:H5'	1.89	0.55
9:B:39:A:H2'	9:B:40:U:C6	2.41	0.55
9:B:49:C:OP1	22:O:102:ARG:N	2.31	0.55
16:I:78:LEU:O	16:I:82:ALA:HB3	2.05	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:96:U:H2'	34:a:97:G:H8	1.72	0.55
34:a:1319:A:O2'	34:a:1323:G:N7	2.36	0.55
35:b:75:ALA:O	35:b:79:VAL:HG23	2.07	0.55
57:x:21:GLY:HA3	57:x:141:ASN:HD22	1.72	0.55
8:A:521:U:H2'	8:A:522:A:C8	2.42	0.55
8:A:871:U:H2'	8:A:872:U:C6	2.42	0.55
8:A:1341:G:OP2	8:A:1394:U:O2'	2.20	0.55
8:A:1509:A:H2'	8:A:1510:G:H8	1.71	0.55
8:A:2102:G:N2	8:A:2188:U:O2	2.39	0.55
34:a:1004:A:H2'	34:a:1005:A:C4	2.42	0.55
35:b:96:LEU:HB2	35:b:99:MET:HE3	1.87	0.55
50:q:13:SER:OG	50:q:21:VAL:HB	2.07	0.55
52:s:2:ARG:NH2	52:s:9:PHE:HB2	2.22	0.55
53:t:42:ASP:HB3	53:t:45:ALA:HB3	1.88	0.55
57:x:296:GLY:O	57:x:305:PRO:HG2	2.06	0.55
8:A:191:A:H2'	8:A:192:C:C6	2.42	0.54
8:A:1028:A:N6	8:A:1125:G:H2'	2.22	0.54
8:A:1068:G:H22	57:x:644:GLN:HE22	1.53	0.54
8:A:1090:A:O2'	8:A:1091:G:OP1	2.20	0.54
11:D:123:LYS:HE2	21:N:1:MET:HE1	1.88	0.54
13:F:60:SER:HB3	13:F:90:LEU:HD21	1.89	0.54
15:H:5:LEU:HD13	15:H:13:GLY:HA2	1.88	0.54
34:a:570:G:H2'	34:a:571:U:C6	2.42	0.54
34:a:890:G:N2	34:a:891:U:O4	2.24	0.54
34:a:932:C:OP1	40:g:3:ARG:HB2	2.06	0.54
34:a:985:C:H2'	34:a:986:U:C6	2.42	0.54
43:j:8:ILE:HG23	43:j:100:ILE:HG13	1.89	0.54
52:s:20:LYS:HA	52:s:23:GLU:HG2	1.89	0.54
57:x:144:ASP:OD2	57:x:270:LYS:HG2	2.07	0.54
8:A:499:U:H5''	28:U:42:LYS:HD2	1.88	0.54
8:A:613:A:H4'	8:A:614:A:C8	2.42	0.54
8:A:1432:G:H2'	8:A:1433:A:C8	2.42	0.54
8:A:2602:A:H5''	56:w:74:C:H5''	1.89	0.54
9:B:15:A:H3'	9:B:16:G:H8	1.72	0.54
22:O:108:ASP:O	22:O:112:GLU:HG2	2.07	0.54
34:a:1057:G:H2'	34:a:1058:G:O4'	2.07	0.54
35:b:56:LEU:HD23	35:b:59:ILE:HD11	1.90	0.54
35:b:103:TRP:NE1	35:b:107:ARG:HD3	2.23	0.54
4:3:49:VAL:HG11	4:3:57:VAL:HG21	1.89	0.54
8:A:718:A:H2'	8:A:719:C:O4'	2.08	0.54
8:A:2188:U:H2'	8:A:2189:U:O4'	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:H:127:GLU:HB3	15:H:143:ILE:HG22	1.90	0.54
20:M:17:ASN:O	20:M:38:ARG:NH1	2.36	0.54
34:a:524:G:H2'	34:a:525:C:C6	2.42	0.54
8:A:215:G:O3'	8:A:216:A:H4'	2.08	0.54
8:A:512:G:OP1	8:A:1234:U:O2'	2.19	0.54
8:A:807:U:O2'	8:A:2060:A:N1	2.40	0.54
8:A:2166:U:H2'	8:A:2167:U:O4'	2.07	0.54
8:A:2547:A:H2'	8:A:2548:U:C6	2.43	0.54
8:A:2804:U:H2'	8:A:2805:C:C6	2.42	0.54
9:B:63:C:H2'	9:B:64:G:H8	1.72	0.54
23:P:90:ALA:HB3	23:P:110:LYS:HG3	1.89	0.54
31:X:70:LEU:HD23	31:X:73:ARG:HH21	1.73	0.54
34:a:999:C:N3	34:a:1042:A:N6	2.56	0.54
35:b:55:GLU:HA	35:b:58:LYS:HD2	1.90	0.54
41:h:63:LYS:HE2	41:h:70:VAL:HG21	1.89	0.54
57:x:10:ARG:HB2	57:x:83:ILE:HG22	1.90	0.54
57:x:631:ILE:HD11	57:x:653:ILE:HG12	1.88	0.54
3:2:7:PRO:HG3	8:A:1612:C:H5'	1.88	0.54
8:A:1264:A:H5''	8:A:1265:A:H2'	1.90	0.54
8:A:1531:C:H2'	8:A:1532:A:H5''	1.88	0.54
10:C:117:SER:OG	10:C:188:ARG:NH1	2.41	0.54
34:a:473:U:H2'	34:a:474:G:C8	2.43	0.54
34:a:971:G:OP2	34:a:1231:G:N2	2.34	0.54
34:a:1040:U:H2'	34:a:1041:G:C8	2.42	0.54
35:b:98:GLY:N	35:b:174:GLU:OE2	2.31	0.54
36:c:127:VAL:HG11	36:c:135:ARG:NH2	2.23	0.54
40:g:4:ARG:NH1	40:g:5:VAL:O	2.40	0.54
42:i:29:ILE:N	42:i:32:ARG:O	2.40	0.54
45:l:54:VAL:HG11	45:l:79:ILE:HD11	1.89	0.54
8:A:493:G:H2'	8:A:494:G:O4'	2.08	0.54
8:A:1351:C:H2'	8:A:1352:U:O4'	2.08	0.54
8:A:2071:A:H2'	8:A:2072:C:C6	2.42	0.54
12:E:23:PHE:HA	12:E:107:SER:OG	2.07	0.54
27:T:6:ARG:HH22	27:T:37:ASP:HB2	1.72	0.54
34:a:404:G:P	37:d:114:ARG:HH21	2.30	0.54
34:a:722:G:H1	34:a:733:G:H1	1.55	0.54
34:a:1243:C:H2'	34:a:1244:G:H8	1.73	0.54
35:b:49:PHE:HD1	35:b:199:ILE:HG12	1.72	0.54
57:x:191:ASN:HD22	57:x:204:GLU:HG3	1.73	0.54
57:x:422:LYS:HE3	57:x:479:GLU:HG3	1.90	0.54
1:O:15:ARG:HA	8:A:2046:G:H5'	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1061:U:H2'	8:A:1068:G:H1'	1.90	0.54
34:a:1013:G:N2	34:a:1015:G:H3'	2.23	0.54
40:g:49:LEU:HD22	40:g:123:LEU:HD13	1.90	0.54
57:x:64:SER:OG	57:x:97:GLU:O	2.24	0.54
1:0:5:ASN:ND2	8:A:2020:A:H62	2.03	0.54
1:0:8:THR:HG21	8:A:2020:A:H5'	1.89	0.54
8:A:813:U:H2'	8:A:814:C:H6	1.73	0.54
8:A:1751:U:H2'	8:A:1752:C:C6	2.43	0.54
8:A:2816:G:H5''	21:N:99:LYS:HE3	1.89	0.54
9:B:36:C:O2'	9:B:37:C:OP1	2.24	0.54
34:a:865:A:H2'	34:a:866:C:C6	2.42	0.54
34:a:1125:U:O3'	43:j:7:ARG:NH2	2.41	0.54
34:a:1426:G:H1	34:a:1474:U:H3	1.54	0.54
39:f:22:ILE:HD11	39:f:39:LEU:HD11	1.90	0.54
57:x:444:PHE:HE1	57:x:457:ILE:HG23	1.72	0.54
8:A:483:A:H4'	28:U:45:GLN:O	2.08	0.54
8:A:641:U:O4	8:A:647:G:O6	2.26	0.54
8:A:1113:U:H2'	8:A:1114:C:H6	1.73	0.54
8:A:1219:U:H2'	8:A:1220:G:C8	2.42	0.54
8:A:2812:G:H2'	8:A:2813:A:C8	2.42	0.54
9:B:48:U:H4'	22:O:100:HIS:CD2	2.42	0.54
13:F:115:GLY:HA3	13:F:177:ARG:HB2	1.90	0.54
28:U:97:SER:O	28:U:97:SER:OG	2.14	0.54
34:a:1351:U:H3	34:a:1371:G:H1	1.54	0.54
34:a:1493:A:C6	56:w:37:MIA:H5'	2.43	0.54
34:a:1507:A:H2'	34:a:1508:A:C8	2.43	0.54
38:e:114:LEU:HD13	38:e:122:VAL:HG11	1.89	0.54
57:x:135:PRO:HB3	57:x:255:VAL:O	2.08	0.54
8:A:71:A:H5''	8:A:73:A:C8	2.42	0.54
8:A:2081:U:H2'	8:A:2082:A:H8	1.73	0.54
13:F:61:GLY:O	13:F:94:ARG:NH2	2.39	0.54
33:Z:47:ILE:HD13	33:Z:56:VAL:HG21	1.90	0.54
34:a:154:U:H2'	34:a:154:U:O2	2.08	0.54
34:a:596:A:OP2	34:a:597:G:OP2	2.26	0.54
34:a:1004:A:H2'	34:a:1005:A:C5	2.43	0.54
35:b:114:LYS:O	35:b:117:GLU:HG3	2.08	0.54
40:g:63:VAL:O	40:g:66:GLU:HG2	2.08	0.54
56:w:59:U:O2'	56:w:60:U:O5'	2.25	0.54
57:x:682:GLU:OE1	57:x:682:GLU:N	2.41	0.54
8:A:1948:G:O2'	34:a:1419:G:N2	2.41	0.53
8:A:2064:C:H2'	8:A:2065:C:C6	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2327:A:H2'	8:A:2328:A:C8	2.44	0.53
8:A:2645:G:OP2	8:A:2645:G:N2	2.29	0.53
34:a:246:A:C2	34:a:282:A:C5	2.96	0.53
34:a:449:G:H2'	34:a:450:G:C8	2.44	0.53
34:a:1012:A:N6	34:a:1018:G:O6	2.41	0.53
34:a:1500:A:H5''	34:a:1508:A:H5''	1.90	0.53
35:b:186:VAL:HG13	35:b:190:SER:HB2	1.91	0.53
42:i:32:ARG:HD2	42:i:37:TYR:HD1	1.73	0.53
56:w:69:G:H2'	56:w:70:G:C8	2.43	0.53
57:x:390:VAL:HG23	57:x:394:ASP:HB2	1.90	0.53
4:3:50:SER:O	4:3:54:LEU:HB2	2.08	0.53
8:A:1171:G:H1	8:A:1177:G:H1	1.56	0.53
8:A:1249:U:OP1	8:A:1250:G:OP1	2.25	0.53
8:A:1311:G:H21	8:A:1603:A:H62	1.55	0.53
8:A:1716:U:O4	8:A:1744:A:N7	2.41	0.53
8:A:2184:A:H2'	8:A:2185:U:C6	2.43	0.53
34:a:10:A:O2'	34:a:507:C:O2'	2.26	0.53
34:a:593:U:H2'	34:a:594:U:C6	2.43	0.53
34:a:738:C:OP1	39:f:91:ARG:NH1	2.40	0.53
34:a:1430:A:H2'	34:a:1431:A:C8	2.44	0.53
53:t:55:PRO:HB2	53:t:59:ARG:HH21	1.73	0.53
57:x:28:ARG:NE	57:x:268:ALA:O	2.41	0.53
8:A:1024:G:P	8:A:1026:G:OP1	2.67	0.53
8:A:2655:G:H4'	8:A:2656:U:O5'	2.08	0.53
12:E:184:ASP:OD1	19:L:2:ARG:NH1	2.40	0.53
13:F:39:VAL:HG12	13:F:41:GLU:H	1.74	0.53
22:O:69:ASP:OD1	22:O:70:ALA:N	2.41	0.53
29:V:42:LEU:HB3	29:V:47:VAL:HG21	1.89	0.53
34:a:268:U:H2'	34:a:269:C:C6	2.44	0.53
34:a:911:U:OP1	45:l:91:GLY:HA2	2.08	0.53
34:a:1516:2MG:N2	34:a:1519:MA6:OP2	2.37	0.53
35:b:23:ASN:H	35:b:189:ASN:HA	1.73	0.53
37:d:39:GLN:HE21	37:d:40:HIS:CE1	2.25	0.53
44:k:75:GLU:H	44:k:75:GLU:CD	2.16	0.53
7:6:9:TYR:OH	13:F:101:ARG:NH1	2.40	0.53
8:A:532:A:P	8:A:561:G:H21	2.31	0.53
8:A:569:U:O2'	8:A:983:A:N1	2.34	0.53
8:A:1318:U:H2'	8:A:1319:C:C6	2.43	0.53
8:A:2850:A:N7	8:A:2868:A:O2'	2.36	0.53
13:F:122:ASP:OD2	13:F:126:ASN:HB2	2.09	0.53
18:K:41:ILE:HD11	18:K:86:LEU:HD22	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:285:C:H2'	34:a:286:C:C6	2.43	0.53
34:a:1382:C:H2'	34:a:1383:C:H6	1.73	0.53
34:a:1432:G:HO2'	34:a:1433:A:P	2.31	0.53
34:a:1493:A:C5	56:w:37:MIA:H4'	2.43	0.53
39:f:38:ARG:NH2	39:f:99:ALA:O	2.41	0.53
42:i:115:VAL:HG13	43:j:62:ARG:HH11	1.73	0.53
4:3:53:ASP:O	4:3:57:VAL:HG23	2.09	0.53
7:6:64:PHE:CD1	7:6:64:PHE:C	2.86	0.53
8:A:155:A:H2'	8:A:156:A:H8	1.74	0.53
8:A:322:A:OP2	12:E:163:ASN:HB2	2.09	0.53
8:A:483:A:HO2'	28:U:56:GLY:H	1.52	0.53
8:A:934:U:H2'	8:A:935:C:H6	1.73	0.53
8:A:1070:A:H2'	8:A:1096:A:OP1	2.09	0.53
8:A:1980:G:O2'	8:A:1982:U:OP2	2.27	0.53
8:A:2205:A:H2'	8:A:2206:C:H6	1.73	0.53
13:F:13:LYS:O	13:F:17:THR:HG23	2.09	0.53
31:X:6:VAL:HG13	31:X:7:THR:HG23	1.89	0.53
34:a:34:C:H2'	34:a:35:G:C8	2.43	0.53
34:a:405:U:O4	37:d:1:ALA:N	2.37	0.53
35:b:41:ASN:HB3	35:b:44:LYS:HD2	1.91	0.53
41:h:86:LYS:HB2	41:h:124:ILE:HD11	1.90	0.53
43:j:15:HIS:O	43:j:18:ILE:HG22	2.09	0.53
56:w:23:A:H2'	56:w:24:G:C8	2.44	0.53
2:1:8:ILE:HG21	2:1:24:LYS:HE3	1.90	0.53
8:A:310:A:HO2'	8:A:311:A:P	2.32	0.53
8:A:1814:G:OP2	8:A:1815:A:O2'	2.21	0.53
8:A:2528:U:C2	8:A:2535:G:O6	2.62	0.53
8:A:2771:C:O2'	11:D:173:GLN:NE2	2.33	0.53
13:F:152:ASP:OD1	13:F:152:ASP:N	2.41	0.53
34:a:359:G:C4'	57:x:436:ARG:HH22	2.21	0.53
34:a:619:U:N3	37:d:130:ASN:OD1	2.31	0.53
34:a:1291:U:H2'	34:a:1292:G:C8	2.43	0.53
42:i:115:VAL:HG11	43:j:62:ARG:HB2	1.90	0.53
57:x:179:THR:HG22	57:x:191:ASN:HB3	1.91	0.53
8:A:659:G:N2	12:E:30:GLN:OE1	2.35	0.53
8:A:856:G:H2'	8:A:857:G:C8	2.43	0.53
8:A:922:C:O2'	30:W:25:GLU:OE2	2.22	0.53
8:A:1223:G:N2	8:A:1226:A:OP2	2.27	0.53
8:A:1292:G:H2'	8:A:1293:C:C6	2.43	0.53
8:A:1441:G:H2'	8:A:1442:U:C6	2.44	0.53
8:A:2140:G:H2'	8:A:2141:G:O4'	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:D:39:ASP:N	11:D:39:ASP:OD1	2.38	0.53
14:G:23:ILE:HG21	14:G:71:LEU:HD11	1.91	0.53
21:N:59:SER:OG	21:N:62:ASN:OD1	2.25	0.53
34:a:390:U:H2'	34:a:391:G:C8	2.44	0.53
34:a:607:A:H2'	34:a:608:A:C8	2.44	0.53
34:a:754:C:O5'	48:o:71:ARG:NH2	2.41	0.53
48:o:16:ARG:H	48:o:16:ARG:HD2	1.73	0.53
8:A:391:A:H1'	8:A:411:G:O4'	2.08	0.53
8:A:586:A:N1	8:A:809:G:O2'	2.31	0.53
8:A:1964:G:O2'	8:A:1967:C:OP2	2.21	0.53
8:A:2025:C:H2'	8:A:2026:U:C6	2.44	0.53
8:A:2660:A:C2	57:x:675:GLY:HA3	2.44	0.53
13:F:68:LYS:HA	13:F:83:PRO:HA	1.89	0.53
20:M:2:LEU:HD12	20:M:2:LEU:H	1.73	0.53
20:M:6:ARG:O	20:M:6:ARG:HD3	2.08	0.53
34:a:1397:C:OP2	38:e:28:ARG:NH2	2.42	0.53
37:d:10:LEU:O	37:d:14:GLU:HG2	2.09	0.53
57:x:93:ASP:OD2	57:x:463:LEU:HB3	2.08	0.53
57:x:104:VAL:HG21	57:x:321:PHE:CD2	2.44	0.53
8:A:993:G:N2	25:R:23:GLU:OE1	2.41	0.53
8:A:1654:A:N1	8:A:2048:G:O2'	2.42	0.53
8:A:2687:U:H2'	8:A:2688:G:O4'	2.09	0.53
13:F:7:TYR:HB2	13:F:172:PHE:HZ	1.73	0.53
30:W:46:ASN:HB2	30:W:78:ILE:HB	1.89	0.53
34:a:264:C:O2'	50:q:65:PRO:O	2.27	0.53
34:a:526:C:OP2	45:l:87:LYS:HE3	2.09	0.53
34:a:1417:G:N2	34:a:1483:A:H62	1.99	0.53
34:a:1464:U:H2'	34:a:1465:A:H8	1.74	0.53
35:b:107:ARG:O	35:b:111:LYS:HG3	2.08	0.53
42:i:118:ARG:HB2	42:i:122:ARG:HB3	1.91	0.53
57:x:101:SER:O	57:x:104:VAL:HG12	2.08	0.53
57:x:348:VAL:HG23	57:x:357:GLU:HB2	1.89	0.53
57:x:465:LEU:O	57:x:469:VAL:HG23	2.09	0.53
8:A:1056:G:N3	8:A:1087:G:N1	2.56	0.53
8:A:2172:U:O2'	8:A:2174:C:OP2	2.25	0.53
28:U:80:ASP:CG	28:U:95:PHE:HB3	2.34	0.53
33:Z:22:THR:HG23	33:Z:46:MET:HG2	1.91	0.53
34:a:420:U:O2'	34:a:423:G:O6	2.23	0.53
34:a:464:U:H3'	34:a:465:A:H5''	1.91	0.53
34:a:472:U:H2'	34:a:473:U:C6	2.44	0.53
34:a:999:C:H42	34:a:1000:A:N6	2.04	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1482:G:H2'	34:a:1483:A:O4'	2.08	0.53
47:n:66:GLN:HG3	47:n:79:LEU:HD22	1.89	0.53
8:A:141:G:O2'	8:A:142:A:O5'	2.25	0.52
8:A:764:A:H5''	10:C:208:GLY:HA3	1.91	0.52
8:A:1798:U:H5''	10:C:257:ARG:HB2	1.91	0.52
34:a:1164:G:H2'	34:a:1165:U:C6	2.45	0.52
37:d:167:PRO:HG2	37:d:170:LEU:HD12	1.90	0.52
40:g:134:VAL:HG13	40:g:137:ARG:HH21	1.74	0.52
51:r:20:ILE:HD12	51:r:53:GLN:HB2	1.90	0.52
53:t:55:PRO:HB2	53:t:59:ARG:NH2	2.24	0.52
56:w:63:G:H2'	56:w:64:A:C8	2.45	0.52
57:x:407:ARG:NH1	57:x:407:ARG:CG	2.72	0.52
8:A:1059:G:H1	8:A:1080:A:C1'	2.23	0.52
8:A:1199:U:H1'	24:Q:3:VAL:HG22	1.91	0.52
8:A:2505:G:O2'	8:A:2506:U:O5'	2.26	0.52
38:e:92:ARG:O	38:e:127:TYR:N	2.31	0.52
8:A:621:A:OP2	19:L:99:ASN:ND2	2.42	0.52
8:A:2137:U:H2'	8:A:2138:G:C8	2.45	0.52
8:A:2252:G:H1	56:w:74:C:H42	1.57	0.52
17:J:11:VAL:HG11	17:J:50:THR:HA	1.90	0.52
24:Q:106:THR:O	24:Q:110:GLU:HG2	2.10	0.52
30:W:67:VAL:HG23	30:W:74:LYS:HG3	1.90	0.52
34:a:637:C:OP1	50:q:3:LYS:NZ	2.40	0.52
34:a:1354:U:H2'	34:a:1355:G:H8	1.75	0.52
34:a:1417:G:N2	34:a:1482:G:N1	2.57	0.52
39:f:4:TYR:CE2	39:f:71:ILE:HG13	2.44	0.52
57:x:21:GLY:O	57:x:25:THR:HG23	2.09	0.52
57:x:115:VAL:HG21	57:x:145:ARG:HH11	1.73	0.52
57:x:251:LEU:O	57:x:255:VAL:HG23	2.09	0.52
57:x:673:THR:HG21	57:x:677:ALA:HB3	1.92	0.52
7:6:63:ARG:CB	7:6:63:ARG:NH2	2.73	0.52
8:A:30:G:H2'	8:A:31:C:C6	2.44	0.52
8:A:246:C:O2'	8:A:385:C:H4'	2.09	0.52
8:A:2092:U:OP1	8:A:2199:A:O2'	2.22	0.52
8:A:2131:U:H4'	8:A:2133:G:H4'	1.91	0.52
8:A:2618:G:O2'	11:D:155:VAL:O	2.28	0.52
8:A:2796:U:O2'	8:A:2797:U:OP1	2.26	0.52
18:K:87:LEU:HD13	18:K:92:GLU:HB3	1.92	0.52
34:a:202:G:H2'	34:a:203:G:H8	1.74	0.52
34:a:228:A:H2'	34:a:229:U:O4'	2.09	0.52
53:t:34:VAL:HG11	53:t:78:LEU:HD13	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:317:SER:HG	57:x:339:SER:HG	1.50	0.52
7:6:62:LYS:N	7:6:62:LYS:CD	2.73	0.52
8:A:639:U:H2'	8:A:640:C:C6	2.44	0.52
8:A:729:G:C5	10:C:206:LYS:HB2	2.44	0.52
8:A:774:G:O2'	8:A:775:G:O5'	2.26	0.52
8:A:776:G:N1	8:A:2072:C:OP1	2.42	0.52
8:A:1060:U:H4'	8:A:1062:G:H4'	1.91	0.52
13:F:14:LYS:HD2	13:F:171:ALA:HB1	1.92	0.52
34:a:191:G:H2'	34:a:192:A:C8	2.44	0.52
34:a:1180:A:P	42:i:98:ARG:HH22	2.32	0.52
34:a:1296:C:H3'	34:a:1297:G:C8	2.45	0.52
39:f:42:TRP:HZ2	39:f:61:LEU:HD22	1.74	0.52
56:w:34:G:C5	59:z:7:G:C6	2.97	0.52
8:A:82:U:H2'	8:A:83:A:C8	2.44	0.52
8:A:1913:A:N6	56:w:38:A:H4'	2.24	0.52
8:A:2373:G:H2'	8:A:2374:C:C6	2.44	0.52
8:A:2515:C:H2'	8:A:2516:A:H8	1.73	0.52
13:F:32:LYS:HG2	13:F:156:THR:OG1	2.10	0.52
34:a:33:A:H2'	34:a:34:C:C6	2.45	0.52
34:a:965:U:H5''	34:a:966:2MG:OP1	2.10	0.52
34:a:1415:G:O6	34:a:1484:C:N4	2.43	0.52
37:d:105:GLY:C	37:d:107:GLY:H	2.18	0.52
57:x:293:ALA:HB1	57:x:308:ARG:O	2.10	0.52
57:x:424:LYS:H	57:x:424:LYS:HD2	1.74	0.52
6:5:44:ALA:O	6:5:48:ALA:HB3	2.09	0.52
34:a:269:C:H2'	34:a:270:A:H8	1.73	0.52
34:a:352:C:O2	34:a:355:C:N4	2.42	0.52
34:a:1313:U:H2'	34:a:1314:C:C6	2.44	0.52
34:a:1477:U:H2'	34:a:1478:U:C6	2.44	0.52
46:m:54:THR:OG1	46:m:58:GLU:OE2	2.26	0.52
2:1:32:LYS:NZ	2:1:50:GLU:O	2.42	0.52
8:A:143:C:H2'	8:A:144:A:C8	2.45	0.52
8:A:1416:G:H2'	8:A:1417:C:H6	1.74	0.52
8:A:1485:U:H2'	8:A:1486:U:H6	1.75	0.52
8:A:1557:C:H5''	8:A:1558:C:H5''	1.92	0.52
8:A:2247:A:H2'	8:A:2248:C:H6	1.75	0.52
8:A:2314:A:H2'	8:A:2315:G:C8	2.45	0.52
11:D:5:VAL:HB	11:D:32:ASN:HD21	1.75	0.52
34:a:908:A:H2'	34:a:909:A:C8	2.45	0.52
34:a:1096:C:H2'	34:a:1097:C:C6	2.44	0.52
34:a:1148:U:H2'	34:a:1149:C:O4'	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:53:LEU:HA	35:b:56:LEU:HD12	1.90	0.52
47:n:2:LYS:O	47:n:5:MET:N	2.40	0.52
55:v:9:G:O2'	55:v:10:G:N7	2.41	0.52
8:A:151:C:H2'	8:A:152:A:C8	2.45	0.52
8:A:742:A:H2'	8:A:743:A:C8	2.45	0.52
8:A:2273:A:H2'	8:A:2274:A:C8	2.45	0.52
8:A:2861:U:H2'	8:A:2862:G:C8	2.45	0.52
11:D:196:ALA:O	11:D:199:SER:OG	2.24	0.52
23:P:64:SER:OG	23:P:65:ASN:N	2.37	0.52
33:Z:57:GLU:N	33:Z:57:GLU:OE1	2.43	0.52
34:a:256:U:H2'	34:a:257:G:C8	2.45	0.52
34:a:1013:G:H21	34:a:1016:A:H8	1.58	0.52
34:a:1070:U:O3'	38:e:53:ARG:NH2	2.43	0.52
39:f:37:HIS:HB3	39:f:97:THR:HB	1.90	0.52
55:v:52:G:C2	55:v:63:G:C2	2.98	0.52
57:x:113:CYS:SG	57:x:115:VAL:HG22	2.50	0.52
3:2:21:ARG:NH1	8:A:466:A:H5'	2.25	0.52
8:A:84:A:N1	8:A:98:G:O2'	2.29	0.52
8:A:155:A:H2'	8:A:156:A:C8	2.45	0.52
8:A:214:G:N2	8:A:216:A:N3	2.57	0.52
8:A:1324:G:O2'	8:A:1326:U:OP2	2.26	0.52
8:A:1913:A:N6	56:w:38:A:C4'	2.73	0.52
8:A:2205:A:H2'	8:A:2206:C:C6	2.45	0.52
8:A:2554:U:H2'	8:A:2555:U:C6	2.45	0.52
8:A:2658:C:H5''	14:G:157:LYS:HE2	1.91	0.52
18:K:90:ASN:OD1	18:K:91:SER:N	2.34	0.52
31:X:15:ASN:ND2	31:X:23:ALA:HB1	2.25	0.52
34:a:210:C:HO2'	34:a:211:G:H21	1.58	0.52
34:a:256:U:H2'	34:a:257:G:H8	1.75	0.52
34:a:515:G:O2'	34:a:516:PSU:H6	1.92	0.52
34:a:1216:A:OP1	47:n:2:LYS:HE3	2.08	0.52
34:a:1241:G:H2'	34:a:1242:G:C8	2.45	0.52
39:f:8:PHE:HA	39:f:87:SER:HA	1.91	0.52
45:l:68:GLY:HA3	45:l:106:VAL:HG21	1.92	0.52
49:p:57:ILE:HG21	49:p:75:ILE:HD11	1.92	0.52
55:v:1:C:H2'	55:v:2:G:C8	2.45	0.52
4:3:25:HIS:NE2	4:3:47:ALA:HB2	2.24	0.51
8:A:112:U:H5'	32:Y:58:ASN:ND2	2.25	0.51
8:A:883:G:H21	8:A:884:U:C2'	2.23	0.51
8:A:2447:G:O6	8:A:2504:PSU:O2	2.27	0.51
16:I:25:PRO:O	57:x:646:SER:HB3	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:M:17:ASN:OD1	20:M:97:GLN:NE2	2.43	0.51
34:a:389:A:H5''	34:a:390:U:H5	1.75	0.51
34:a:984:C:C4	34:a:1222:G:N2	2.78	0.51
34:a:1279:G:O2'	34:a:1282:C:N4	2.44	0.51
44:k:86:LYS:HZ2	44:k:114:PRO:HG3	1.76	0.51
56:w:23:A:H2'	56:w:24:G:H8	1.75	0.51
57:x:299:ASP:HA	57:x:403:ILE:HD12	1.91	0.51
57:x:342:VAL:O	57:x:375:GLU:HB2	2.10	0.51
8:A:248:G:H5'	8:A:250:G:N7	2.26	0.51
8:A:414:C:H2'	8:A:415:A:H8	1.74	0.51
8:A:1587:G:H2'	8:A:1588:G:H8	1.75	0.51
8:A:1638:C:H4'	8:A:2710:C:O2	2.10	0.51
8:A:1664:A:H2	18:K:1:MET:HE1	1.74	0.51
8:A:1936:A:H2	8:A:1943:U:N3	2.06	0.51
8:A:2165:C:H42	8:A:2170:A:H62	1.56	0.51
8:A:2514:U:H2'	8:A:2515:C:C6	2.44	0.51
8:A:2714:G:C2'	8:A:2715:C:H5'	2.40	0.51
13:F:161:SER:OG	13:F:162:ASP:N	2.42	0.51
21:N:35:LYS:HB2	21:N:112:TYR:CE1	2.45	0.51
32:Y:14:LEU:HD13	32:Y:57:LEU:HG	1.91	0.51
34:a:6:G:O6	38:e:102:THR:OG1	2.29	0.51
34:a:81:A:C6	34:a:90:C:C5	2.98	0.51
34:a:96:U:H2'	34:a:97:G:C8	2.44	0.51
39:f:36:ILE:HG21	39:f:39:LEU:HD13	1.92	0.51
43:j:10:LEU:O	43:j:72:ARG:N	2.43	0.51
52:s:2:ARG:HH22	52:s:9:PHE:HB2	1.74	0.51
57:x:173:GLY:HA3	57:x:178:PHE:HA	1.92	0.51
8:A:2297:A:N6	8:A:2319:G:H1'	2.25	0.51
14:G:15:ASP:HB2	14:G:26:LYS:HB3	1.92	0.51
21:N:55:ALA:HA	21:N:80:PHE:CE1	2.45	0.51
32:Y:27:ASN:O	32:Y:31:GLN:HG2	2.11	0.51
34:a:243:A:C8	34:a:281:G:N2	2.79	0.51
34:a:958:A:H1'	34:a:985:C:O2'	2.11	0.51
34:a:974:A:O4'	47:n:71:HIS:ND1	2.44	0.51
35:b:25:LYS:NZ	35:b:191:ASP:OD2	2.43	0.51
8:A:5:A:H2'	8:A:6:A:C8	2.46	0.51
8:A:320:A:H4'	8:A:322:A:C8	2.46	0.51
8:A:1061:U:C4	16:I:12:VAL:HA	2.45	0.51
8:A:1079:C:H4'	8:A:1079:C:OP2	2.09	0.51
8:A:1908:C:H2'	8:A:1909:C:C6	2.46	0.51
8:A:2031:A:N3	8:A:2455:G:O2'	2.34	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2118:U:C5	8:A:2148:G:H1'	2.44	0.51
15:H:51:ARG:O	15:H:55:GLU:HB3	2.10	0.51
22:O:89:ASP:HA	22:O:116:GLN:HB2	1.92	0.51
23:P:47:ILE:HA	23:P:96:LEU:HB2	1.91	0.51
34:a:972:C:OP2	43:j:59:LYS:NZ	2.43	0.51
34:a:991:U:C4	34:a:1212:U:H1'	2.46	0.51
34:a:1125:U:OP1	43:j:37:ARG:NE	2.34	0.51
34:a:1171:A:H2'	34:a:1172:C:C6	2.46	0.51
38:e:81:GLN:NE2	38:e:148:SER:OG	2.43	0.51
38:e:106:ALA:HB1	38:e:110:MET:HE3	1.91	0.51
38:e:132:PRO:HA	38:e:135:VAL:HG12	1.92	0.51
38:e:153:ALA:HB1	38:e:158:LYS:O	2.10	0.51
46:m:6:ILE:HD11	46:m:21:ILE:HG12	1.92	0.51
55:v:35:A:H2'	55:v:36:U:C6	2.45	0.51
55:v:44:A:C8	55:v:44:A:C5'	2.86	0.51
57:x:167:PRO:HA	57:x:263:VAL:HG22	1.91	0.51
8:A:418:C:H2'	8:A:419:U:O4'	2.09	0.51
8:A:679:C:H2'	8:A:680:C:H6	1.75	0.51
8:A:897:C:H2'	8:A:898:C:C6	2.46	0.51
8:A:2106:U:H2'	8:A:2107:G:C8	2.45	0.51
8:A:2387:U:O4'	30:W:37:ARG:NH1	2.43	0.51
8:A:2848:G:H1'	8:A:2868:A:N6	2.25	0.51
34:a:235:C:H2'	34:a:236:A:C8	2.46	0.51
34:a:359:G:H2'	34:a:360:G:O4'	2.11	0.51
34:a:687:A:C2	34:a:704:A:C5	2.98	0.51
34:a:1000:A:H2'	34:a:1001:C:C6	2.45	0.51
34:a:1036:A:H2'	34:a:1037:C:O4'	2.09	0.51
34:a:1300:G:O2'	34:a:1301:U:O5'	2.26	0.51
34:a:1435:G:H2'	34:a:1436:U:C6	2.46	0.51
57:x:336:ARG:HG2	57:x:380:ASP:O	2.10	0.51
2:1:20:TYR:OH	8:A:2347:C:O2'	2.17	0.51
8:A:242:G:O2'	8:A:243:U:P	2.69	0.51
8:A:492:A:H2'	8:A:493:G:O4'	2.11	0.51
8:A:521:U:H2'	8:A:522:A:H8	1.75	0.51
8:A:882:G:N1	8:A:895:U:O4'	2.43	0.51
8:A:891:G:O6	8:A:892:A:N6	2.43	0.51
8:A:1327:A:H2'	8:A:1328:A:O4'	2.11	0.51
8:A:1775:U:O4	8:A:1789:A:H2	1.93	0.51
8:A:1853:A:H2'	8:A:1854:A:C8	2.46	0.51
9:B:106:G:H2'	9:B:107:G:O4'	2.10	0.51
34:a:527:G7M:O2'	34:a:535:A:N1	2.41	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1522:U:H2'	34:a:1523:G:H8	1.75	0.51
56:w:61:C:H2'	56:w:62:C:H6	1.75	0.51
57:x:155:ASN:O	57:x:159:THR:HG22	2.11	0.51
8:A:1061:U:H5'	8:A:1062:G:H5''	1.93	0.51
8:A:1082:U:H3'	8:A:1086:A:N6	2.26	0.51
8:A:1197:G:H2'	8:A:1198:U:H6	1.76	0.51
8:A:1847:G:O2'	8:A:1848:A:H8	1.94	0.51
8:A:2037:A:H2'	8:A:2038:G:C8	2.45	0.51
34:a:202:G:H1	34:a:215:C:H41	1.58	0.51
34:a:739:C:OP2	39:f:2:ARG:NH1	2.34	0.51
34:a:1071:C:H2'	34:a:1072:G:H8	1.75	0.51
34:a:1347:G:N2	34:a:1373:G:H2'	2.25	0.51
34:a:1485:U:C2'	34:a:1486:G:H5'	2.40	0.51
35:b:70:GLY:HA3	35:b:79:VAL:HG21	1.93	0.51
45:l:3:VAL:HG23	50:q:33:TYR:HB3	1.93	0.51
45:l:98:ARG:HB2	45:l:116:TYR:HA	1.91	0.51
8:A:128:C:H2'	8:A:129:C:H6	1.75	0.51
8:A:154:U:H2'	8:A:155:A:C8	2.46	0.51
8:A:1841:U:C2	8:A:1842:G:C8	2.99	0.51
8:A:1916:A:O2'	8:A:1917:PSU:O4'	2.29	0.51
10:C:28:PRO:HG3	10:C:62:ARG:NH2	2.26	0.51
19:L:74:THR:HG23	19:L:107:PHE:HB2	1.93	0.51
28:U:71:ILE:HD13	28:U:102:ILE:HD12	1.91	0.51
34:a:413:G:H22	34:a:429:U:P	2.33	0.51
34:a:1216:A:OP1	47:n:4:SER:OG	2.22	0.51
34:a:1297:G:O2'	40:g:113:LYS:NZ	2.39	0.51
34:a:1338:G:H2'	34:a:1339:A:C8	2.46	0.51
35:b:26:MET:HE2	35:b:187:ASP:O	2.11	0.51
37:d:93:LEU:O	37:d:99:ASN:ND2	2.43	0.51
41:h:31:LEU:O	41:h:35:ILE:HG13	2.10	0.51
45:l:35:ARG:HB3	45:l:53:ARG:HB3	1.93	0.51
52:s:61:VAL:HA	52:s:65:MET:HE3	1.93	0.51
8:A:281:C:H2'	8:A:282:A:C8	2.45	0.51
8:A:1028:A:N3	8:A:2486:C:O2'	2.42	0.51
8:A:1902:C:H4'	10:C:241:LYS:O	2.11	0.51
8:A:2066:C:C2'	8:A:2067:G:H5'	2.41	0.51
8:A:2108:A:N6	8:A:2183:A:N1	2.50	0.51
9:B:42:C:O2'	13:F:62:GLN:HG2	2.11	0.51
12:E:7:ASP:OD1	12:E:7:ASP:N	2.41	0.51
12:E:10:SER:OG	12:E:11:ALA:N	2.44	0.51
21:N:29:VAL:HG11	21:N:75:ILE:HG23	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:321:A:H2'	34:a:322:C:H6	1.74	0.51
34:a:972:C:O3'	43:j:59:LYS:HD3	2.11	0.51
34:a:1112:C:O2	36:c:178:ARG:N	2.32	0.51
46:m:14:ALA:HA	46:m:44:ILE:HD11	1.93	0.51
55:v:21:A:C6	55:v:46:A:C2	2.99	0.51
57:x:350:ASN:HB3	57:x:353:LYS:HB2	1.92	0.51
8:A:601:C:O2'	12:E:99:LYS:NZ	2.34	0.51
8:A:1417:C:HO2'	8:A:1587:G:HO2'	1.49	0.51
8:A:2637:U:OP1	11:D:83:ARG:NH2	2.40	0.51
8:A:2696:U:H2'	8:A:2697:G:H8	1.76	0.51
13:F:103:ILE:HG23	13:F:104:THR:HG23	1.93	0.51
14:G:142:GLN:O	14:G:142:GLN:NE2	2.44	0.51
34:a:455:G:H2'	34:a:456:A:C8	2.46	0.51
34:a:948:C:H2'	34:a:949:A:H8	1.76	0.51
38:e:111:ARG:O	38:e:115:GLU:HG3	2.10	0.51
1:0:4:GLN:O	8:A:2017:U:H4'	2.12	0.50
7:6:20:ASN:O	7:6:22:MET:HG2	2.10	0.50
8:A:176:A:O2'	8:A:177:G:H5'	2.11	0.50
8:A:2259:U:H2'	8:A:2260:C:H6	1.76	0.50
8:A:2467:C:O2	20:M:123:LYS:NZ	2.31	0.50
8:A:2650:U:H2'	8:A:2651:C:C6	2.45	0.50
34:a:987:G:H2'	34:a:988:G:H8	1.77	0.50
34:a:1063:C:OP2	34:a:1064:G:O2'	2.23	0.50
34:a:1419:G:O6	34:a:1481:U:C2	2.64	0.50
35:b:49:PHE:O	35:b:53:LEU:HG	2.12	0.50
36:c:86:LEU:HA	36:c:89:VAL:HG12	1.93	0.50
44:k:19:VAL:HG23	44:k:36:ARG:HA	1.92	0.50
57:x:350:ASN:ND2	57:x:357:GLU:OE2	2.30	0.50
8:A:64:A:H2'	8:A:65:U:C6	2.45	0.50
8:A:528:A:C2	8:A:2043:C:H4'	2.46	0.50
8:A:1141:U:H4'	8:A:1142:A:O4'	2.12	0.50
8:A:1294:U:O2	21:N:23:ASN:ND2	2.45	0.50
8:A:1642:G:H2'	8:A:1643:G:O4'	2.11	0.50
8:A:1771:C:H2'	8:A:1772:A:C8	2.46	0.50
8:A:1917:PSU:N1	8:A:1918:A:N7	2.58	0.50
8:A:2600:A:H2'	8:A:2601:C:C6	2.46	0.50
13:F:64:PRO:HA	13:F:88:VAL:HG12	1.93	0.50
25:R:1:MET:HE1	25:R:103:ALA:HB2	1.93	0.50
26:S:2:GLU:HG2	26:S:108:SER:HB2	1.93	0.50
27:T:25:GLU:HG3	27:T:26:LYS:N	2.25	0.50
34:a:195:A:H2'	34:a:196:A:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1000:A:C6	34:a:1041:G:C6	2.99	0.50
34:a:1222:G:OP1	52:s:77:ARG:NH1	2.44	0.50
42:i:129:ARG:NH2	55:v:33:U:H2'	2.26	0.50
49:p:70:ARG:O	49:p:74:LEU:HG	2.11	0.50
7:6:15:SER:HB3	7:6:33:ASN:HD22	1.76	0.50
8:A:20:C:H2'	8:A:21:A:H8	1.75	0.50
8:A:504:A:O2'	8:A:1235:G:OP1	2.24	0.50
8:A:1044:C:H4'	8:A:1047:G:H4'	1.93	0.50
8:A:1198:U:H2'	8:A:1199:U:C6	2.46	0.50
8:A:1475:G:O2'	8:A:1476:U:O5'	2.30	0.50
8:A:2098:U:H2'	8:A:2099:U:O4'	2.11	0.50
8:A:2149:U:H3'	8:A:2150:C:C6	2.47	0.50
8:A:2586:U:H2'	8:A:2587:A:C8	2.47	0.50
11:D:84:LEU:HD22	11:D:88:GLU:HG3	1.92	0.50
15:H:84:ALA:HB2	15:H:90:LEU:HA	1.93	0.50
17:J:130:HIS:CE1	17:J:137:PRO:HG3	2.43	0.50
18:K:3:GLN:O	18:K:6:THR:OG1	2.19	0.50
23:P:88:ARG:H	23:P:88:ARG:HD3	1.76	0.50
31:X:4:CYS:HA	31:X:32:LEU:HD21	1.93	0.50
34:a:1349:A:OP1	42:i:119:LYS:HG3	2.12	0.50
34:a:1492:A:N6	45:l:46:SER:OG	2.45	0.50
38:e:152:VAL:HG12	38:e:155:LYS:HE3	1.94	0.50
40:g:39:GLU:HA	40:g:42:VAL:HG12	1.91	0.50
44:k:20:ALA:HB2	44:k:81:LEU:HD13	1.93	0.50
57:x:9:TYR:CE1	57:x:82:ARG:HD3	2.46	0.50
57:x:103:ARG:O	57:x:103:ARG:HD3	2.11	0.50
4:3:44:ARG:NH2	8:A:2349:G:OP1	2.44	0.50
8:A:61:C:H5''	32:Y:43:LEU:HD12	1.94	0.50
8:A:197:A:N6	8:A:2430:A:H2'	2.25	0.50
8:A:458:G:H1'	8:A:459:U:H5	1.75	0.50
8:A:613:A:H4'	8:A:614:A:N7	2.26	0.50
8:A:1063:G:O2'	16:I:87:SER:O	2.30	0.50
8:A:1172:C:H2'	8:A:1173:U:O4'	2.12	0.50
8:A:1539:U:C4	8:A:1540:G:N7	2.80	0.50
10:C:92:LEU:HB2	10:C:102:TYR:HE1	1.76	0.50
26:S:24:ILE:HD13	26:S:36:LEU:HD11	1.94	0.50
34:a:149:A:H2'	34:a:150:U:C6	2.45	0.50
34:a:553:A:H2'	34:a:554:A:H8	1.77	0.50
34:a:1072:G:H2'	34:a:1073:U:C6	2.47	0.50
34:a:1254:A:H2'	34:a:1255:G:H8	1.76	0.50
34:a:1287:A:H2'	34:a:1288:A:C8	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1376:U:H2'	34:a:1377:A:C8	2.46	0.50
35:b:190:SER:O	35:b:192:PRO:HD3	2.12	0.50
41:h:21:LYS:O	41:h:64:TYR:OH	2.20	0.50
46:m:99:GLN:OE1	46:m:99:GLN:N	2.44	0.50
47:n:46:LEU:O	47:n:50:THR:HG23	2.11	0.50
57:x:345:GLY:HA2	57:x:359:PHE:O	2.11	0.50
2:1:16:THR:OG1	2:1:39:ASP:OD2	2.30	0.50
8:A:458:G:O2'	8:A:459:U:P	2.69	0.50
8:A:1532:A:C6	8:A:1540:G:C6	3.00	0.50
8:A:1582:C:H2'	8:A:1583:A:O4'	2.12	0.50
8:A:1946:U:H2'	8:A:1947:C:C6	2.46	0.50
8:A:2468:A:HO2'	8:A:2469:A:P	2.34	0.50
8:A:2865:U:OP2	8:A:2866:U:O2'	2.26	0.50
12:E:61:ARG:HH11	12:E:64:GLY:HA3	1.76	0.50
15:H:40:THR:HG22	15:H:41:LYS:H	1.76	0.50
34:a:706:A:H2'	34:a:707:U:O4'	2.11	0.50
34:a:1167:A:H4'	34:a:1168:U:C5	2.45	0.50
8:A:684:G:C2	8:A:794:A:C2	2.99	0.50
8:A:764:A:H5''	10:C:208:GLY:CA	2.41	0.50
8:A:878:A:H5''	8:A:879:G:N7	2.27	0.50
8:A:936:A:H2'	8:A:937:C:C6	2.46	0.50
8:A:1716:U:H3	8:A:1744:A:N6	2.02	0.50
12:E:48:THR:HG23	12:E:86:ALA:HB3	1.94	0.50
13:F:7:TYR:HB2	13:F:172:PHE:CZ	2.46	0.50
21:N:32:GLU:HA	21:N:115:LEU:HD12	1.94	0.50
33:Z:23:LEU:HD11	33:Z:53:MET:HE2	1.93	0.50
34:a:368:U:O4	57:x:329:VAL:HG21	2.12	0.50
34:a:1001:C:H2'	34:a:1002:G:H8	1.75	0.50
34:a:1107:C:C4	34:a:1108:G:C8	2.99	0.50
34:a:1348:U:H2'	34:a:1349:A:H8	1.75	0.50
40:g:68:VAL:HA	40:g:137:ARG:HD3	1.93	0.50
47:n:8:ARG:O	47:n:12:ARG:HG3	2.12	0.50
8:A:636:G:OP1	19:L:129:LYS:HG3	2.12	0.50
8:A:2014:A:H2'	8:A:2015:A:C8	2.47	0.50
8:A:2469:A:H2'	8:A:2470:G:O4'	2.11	0.50
8:A:2557:G:H2'	8:A:2558:C:C6	2.47	0.50
8:A:2836:U:H2'	8:A:2837:A:H8	1.77	0.50
9:B:52:A:O2'	9:B:53:A:O5'	2.30	0.50
10:C:154:ALA:HB2	10:C:161:VAL:HG23	1.93	0.50
27:T:65:GLY:N	27:T:79:ASP:OD1	2.45	0.50
34:a:718:A:C2	51:r:37:LYS:HG2	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:757:U:OP1	34:a:822:U:O2'	2.29	0.50
34:a:947:G:H2'	34:a:948:C:C6	2.46	0.50
34:a:1216:A:H5''	47:n:4:SER:OG	2.11	0.50
34:a:1373:G:N7	42:i:12:LYS:NZ	2.59	0.50
57:x:326:ASP:HB3	57:x:330:GLY:H	1.76	0.50
57:x:423:THR:OG1	57:x:426:ASP:OD2	2.30	0.50
8:A:376:G:H2'	8:A:377:G:H8	1.77	0.50
8:A:526:A:O2'	8:A:2043:C:O2	2.29	0.50
8:A:2572:A:N6	11:D:150:GLN:OE1	2.39	0.50
9:B:5:U:H2'	9:B:6:G:C8	2.44	0.50
15:H:9:VAL:N	15:H:13:GLY:HA3	2.27	0.50
25:R:40:MET:HG3	25:R:49:ILE:HG23	1.94	0.50
34:a:821:G:H2'	34:a:822:U:C6	2.46	0.50
34:a:1060:U:H5''	43:j:53:ILE:HD12	1.94	0.50
34:a:1143:G:H2'	34:a:1144:G:C8	2.47	0.50
34:a:1314:C:H2'	34:a:1315:U:H6	1.75	0.50
34:a:1524:C:H2'	34:a:1525:G:C8	2.46	0.50
35:b:103:TRP:HE1	35:b:107:ARG:HD3	1.77	0.50
35:b:217:ALA:HA	35:b:220:VAL:HG12	1.94	0.50
36:c:63:ILE:HG22	36:c:96:VAL:HG23	1.94	0.50
39:f:6:ILE:HG13	39:f:89:VAL:HG22	1.94	0.50
42:i:98:ARG:HD2	42:i:103:VAL:HG21	1.94	0.50
43:j:90:LEU:HD22	43:j:92:LEU:HD11	1.94	0.50
56:w:58:A:C2	56:w:60:U:H5''	2.46	0.50
1:0:48:TYR:O	1:0:51:ARG:HG2	2.12	0.50
8:A:69:C:H4'	8:A:75:G:N7	2.26	0.50
8:A:1182:G:H2'	8:A:1183:U:O4'	2.12	0.50
8:A:1796:U:H2'	8:A:1797:G:C8	2.46	0.50
8:A:1915:3TD:O2'	8:A:1916:A:H5'	2.11	0.50
8:A:2408:U:H2'	8:A:2409:G:H8	1.77	0.50
10:C:146:LYS:HB2	10:C:149:LYS:HB2	1.93	0.50
14:G:22:VAL:HA	14:G:35:THR:HA	1.94	0.50
20:M:17:ASN:ND2	20:M:96:ILE:O	2.34	0.50
34:a:285:C:H2'	34:a:286:C:H6	1.77	0.50
34:a:1028:C:H2'	34:a:1034:G:H21	1.77	0.50
34:a:1169:A:OP2	34:a:1169:A:H8	1.94	0.50
34:a:1266:G:N2	34:a:1269:A:OP2	2.38	0.50
38:e:63:MET:O	38:e:67:ARG:HG3	2.12	0.50
47:n:46:LEU:HG	52:s:12:LEU:HD12	1.94	0.50
56:w:4:C:N4	56:w:5:G:O6	2.45	0.50
8:A:19:A:H2'	8:A:20:C:C6	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:154:U:H2'	8:A:155:A:H8	1.77	0.49
8:A:208:C:H2'	8:A:209:C:H6	1.77	0.49
8:A:534:U:C2	8:A:535:G:N7	2.79	0.49
8:A:1604:C:O2'	8:A:1610:A:N1	2.32	0.49
11:D:151:THR:HB	11:D:152:PRO:HD3	1.92	0.49
31:X:64:ASP:N	31:X:64:ASP:OD1	2.45	0.49
34:a:35:G:H2'	34:a:36:C:C6	2.47	0.49
34:a:122:G:O2'	34:a:312:C:O2'	2.25	0.49
34:a:637:C:H2'	34:a:638:U:C6	2.47	0.49
34:a:673:A:H2'	34:a:674:G:H8	1.77	0.49
36:c:78:LYS:HG3	36:c:79:LYS:HG3	1.93	0.49
37:d:169:TRP:HB3	37:d:183:ARG:NH2	2.26	0.49
43:j:88:MET:O	43:j:89:ARG:HG2	2.11	0.49
51:r:22:TYR:HA	51:r:28:LEU:HD11	1.94	0.49
52:s:72:GLU:OE1	52:s:72:GLU:N	2.45	0.49
56:w:64:A:H2'	56:w:65:G:H8	1.74	0.49
57:x:424:LYS:HD2	57:x:424:LYS:N	2.27	0.49
7:6:36:VAL:HG11	7:6:41:HIS:HD2	1.77	0.49
8:A:144:A:H2'	8:A:145:C:C6	2.47	0.49
8:A:364:C:H2'	8:A:365:U:C6	2.47	0.49
8:A:641:U:H3	8:A:647:G:H1	1.60	0.49
8:A:716:A:H2'	8:A:717:C:O4'	2.11	0.49
34:a:4:U:H2'	34:a:5:U:H3'	1.94	0.49
34:a:185:U:H2'	34:a:186:C:C6	2.48	0.49
34:a:677:U:H3	34:a:713:G:H22	1.60	0.49
34:a:970:C:N4	42:i:129:ARG:OXT	2.46	0.49
34:a:1227:A:OP1	52:s:79:TYR:OH	2.16	0.49
34:a:1291:U:H2'	34:a:1292:G:H8	1.77	0.49
34:a:1313:U:H2'	34:a:1314:C:H6	1.77	0.49
34:a:1378:C:H5	34:a:1379:G:C4	2.30	0.49
49:p:8:ARG:CZ	49:p:15:PRO:HB3	2.42	0.49
57:x:169:GLN:C	57:x:170:LEU:HD12	2.37	0.49
7:6:57:VAL:HG12	7:6:62:LYS:NZ	2.28	0.49
8:A:443:A:N7	12:E:40:ARG:HG2	2.28	0.49
8:A:883:G:O2'	8:A:885:C:OP2	2.22	0.49
8:A:1274:A:N1	8:A:1644:C:O2'	2.39	0.49
8:A:1399:C:H2'	8:A:1400:U:C6	2.46	0.49
8:A:1801:A:H5''	8:A:2203:U:H2'	1.95	0.49
10:C:229:HIS:HB3	10:C:231:HIS:O	2.13	0.49
20:M:26:VAL:HB	20:M:133:LYS:HA	1.94	0.49
21:N:54:LEU:HD23	21:N:66:ALA:HB2	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:X:2:ARG:O	31:X:11:PRO:HD3	2.13	0.49
34:a:37:U:OP2	45:l:119:LYS:NZ	2.45	0.49
34:a:197:A:N1	34:a:220:G:O2'	2.37	0.49
34:a:1347:G:H4'	34:a:1348:U:O5'	2.12	0.49
34:a:1465:A:H2'	34:a:1466:C:C6	2.47	0.49
35:b:103:TRP:CD1	35:b:107:ARG:HH21	2.30	0.49
38:e:17:VAL:HG21	38:e:55:VAL:HG13	1.94	0.49
38:e:37:VAL:HG11	38:e:113:VAL:HG22	1.94	0.49
43:j:80:THR:C	43:j:82:LYS:H	2.20	0.49
51:r:31:TYR:O	51:r:39:VAL:HG12	2.11	0.49
59:z:0:U:H2'	59:z:1:A:C8	2.47	0.49
6:5:42:ARG:O	16:I:119:ALA:HA	2.12	0.49
8:A:2022:U:O2'	8:A:2616:C:O2'	2.18	0.49
8:A:2646:C:OP2	8:A:2732:G:O2'	2.29	0.49
9:B:31:C:O2'	9:B:53:A:N1	2.46	0.49
13:F:65:LEU:N	13:F:87:LYS:O	2.41	0.49
27:T:15:HIS:HB3	27:T:31:VAL:HG12	1.94	0.49
34:a:323:U:H2'	34:a:324:G:O4'	2.12	0.49
34:a:384:G:H2'	34:a:385:C:C6	2.46	0.49
34:a:600:A:H2'	34:a:601:G:C8	2.47	0.49
48:o:42:PHE:HB3	48:o:52:ARG:HH21	1.78	0.49
55:v:63:G:C2	55:v:64:G:N7	2.81	0.49
56:w:38:A:H2'	56:w:39:PSU:O4'	2.11	0.49
7:6:16:CYS:HG	7:6:40:CYS:HG	1.57	0.49
8:A:64:A:H2'	8:A:65:U:H6	1.77	0.49
8:A:576:U:H2'	8:A:577:G:C8	2.47	0.49
8:A:1926:U:HO2'	8:A:1927:A:P	2.36	0.49
8:A:2245:U:O2'	8:A:2436:G:OP2	2.28	0.49
8:A:2342:C:O2'	8:A:2374:C:H5''	2.13	0.49
8:A:2808:G:O2'	8:A:2809:A:H8	1.96	0.49
15:H:80:ILE:O	15:H:146:VAL:HA	2.13	0.49
19:L:77:ILE:HD12	19:L:95:LEU:HD22	1.94	0.49
29:V:21:ARG:HA	29:V:25:LYS:O	2.12	0.49
29:V:75:GLN:HB2	29:V:92:VAL:HG13	1.94	0.49
34:a:69:G:HO2'	34:a:70:U:P	2.35	0.49
34:a:652:U:HO2'	34:a:653:U:P	2.35	0.49
34:a:1253:G:O2'	34:a:1254:A:H5'	2.13	0.49
34:a:1254:A:H2'	34:a:1255:G:C8	2.47	0.49
39:f:10:VAL:HG11	39:f:21:MET:HE1	1.94	0.49
40:g:20:GLU:CD	40:g:20:GLU:H	2.20	0.49
54:u:9:GLU:H	54:u:9:GLU:CD	2.20	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:946:C:H2'	8:A:947:A:H8	1.77	0.49
8:A:1179:G:OP2	8:A:1180:U:H5'	2.12	0.49
8:A:1857:G:H1'	8:A:1885:A:N6	2.28	0.49
8:A:2583:G:H2'	8:A:2584:U:O4'	2.12	0.49
19:L:29:LYS:O	19:L:30:THR:OG1	2.26	0.49
25:R:32:THR:HA	25:R:62:GLU:HA	1.93	0.49
34:a:1064:G:H1'	34:a:1190:G:N2	2.27	0.49
34:a:1237:C:O2'	34:a:1300:G:N2	2.42	0.49
34:a:1238:A:N7	34:a:1303:C:H1'	2.27	0.49
34:a:1320:C:H2'	34:a:1321:U:C6	2.48	0.49
34:a:1494:G:N7	60:a:2001:AM2:NC6	2.61	0.49
46:m:85:TYR:O	46:m:89:ARG:HG2	2.12	0.49
48:o:42:PHE:CE1	48:o:52:ARG:HG2	2.47	0.49
56:w:54:5MU:H2'	56:w:55:PSU:C6	2.47	0.49
8:A:67:U:C2	8:A:68:G:C8	3.00	0.49
8:A:203:A:OP2	8:A:204:A:O2'	2.28	0.49
8:A:522:A:H2'	8:A:523:C:C6	2.47	0.49
8:A:609:A:H2'	8:A:610:C:O4'	2.13	0.49
8:A:1062:G:N2	8:A:1064:C:O2'	2.45	0.49
8:A:2448:A:OP1	8:A:2499:C:OP1	2.29	0.49
8:A:2461:A:H1'	8:A:2492:U:C2	2.48	0.49
8:A:2895:G:H2'	8:A:2896:C:C6	2.48	0.49
34:a:545:C:H5''	37:d:68:GLU:HG2	1.95	0.49
34:a:1250:A:H4'	42:i:68:GLY:HA2	1.95	0.49
34:a:1295:U:O2'	34:a:1302:C:N4	2.44	0.49
34:a:1297:G:H8	34:a:1297:G:OP2	1.96	0.49
34:a:1391:U:H2'	34:a:1392:G:H8	1.77	0.49
35:b:166:ASP:OD1	35:b:167:HIS:N	2.46	0.49
39:f:10:VAL:CG2	39:f:58:HIS:HB3	2.43	0.49
50:q:61:ARG:HD3	50:q:75:VAL:HG22	1.95	0.49
5:4:9:LYS:HG3	5:4:16:ILE:HD11	1.95	0.49
8:A:1260:A:H2'	8:A:1261:C:O4'	2.13	0.49
8:A:1730:C:H1'	8:A:1731:G:C6	2.48	0.49
8:A:2745:C:H2'	8:A:2746:U:C6	2.47	0.49
9:B:29:A:H2'	9:B:30:C:H6	1.77	0.49
10:C:141:HIS:ND1	10:C:192:GLY:O	2.46	0.49
14:G:85:LYS:HD3	14:G:131:VAL:HG22	1.93	0.49
15:H:65:ALA:HA	15:H:68:ARG:HB3	1.95	0.49
20:M:4:PRO:HG3	20:M:68:PHE:HE2	1.78	0.49
32:Y:44:LYS:O	32:Y:48:ARG:HG2	2.12	0.49
34:a:847:G:H2'	34:a:848:C:C6	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:s:50:VAL:HG13	52:s:74:ALA:HB2	1.95	0.49
1:0:8:THR:CG2	8:A:2020:A:H5'	2.42	0.49
7:6:60:PHE:CE2	52:s:41:PRO:HD3	2.46	0.49
8:A:102:U:O4	32:Y:4:LYS:HG3	2.11	0.49
8:A:670:A:OP1	19:L:43:GLY:HA3	2.13	0.49
8:A:1434:A:H2'	8:A:1435:G:C8	2.46	0.49
8:A:1601:G:OP1	27:T:64:LYS:NZ	2.41	0.49
8:A:1783:A:C2	8:A:2587:A:C5	3.01	0.49
8:A:1842:G:H2'	8:A:1843:C:C6	2.48	0.49
8:A:2345:G:N3	8:A:2381:A:H2'	2.28	0.49
10:C:83:ASP:OD1	10:C:85:ASN:ND2	2.45	0.49
11:D:184:ARG:NH1	23:P:6:GLN:OE1	2.46	0.49
21:N:56:LYS:NZ	21:N:90:ARG:O	2.45	0.49
34:a:283:U:H2'	34:a:284:C:H6	1.78	0.49
35:b:165:ALA:HB2	35:b:186:VAL:HG22	1.94	0.49
57:x:2:ARG:NH1	57:x:377:ARG:HB3	2.28	0.49
2:1:16:THR:HG21	2:1:42:VAL:HG13	1.94	0.49
8:A:337:C:OP2	28:U:3:LYS:NZ	2.43	0.49
8:A:348:A:H2'	8:A:349:U:O4'	2.13	0.49
8:A:499:U:H2'	8:A:500:G:O4'	2.13	0.49
8:A:1152:C:H2'	8:A:1153:C:H6	1.78	0.49
8:A:1709:U:H2'	8:A:1710:G:C8	2.47	0.49
8:A:2151:U:H2'	8:A:2152:G:H8	1.77	0.49
10:C:20:ASN:OD1	10:C:22:GLU:HG2	2.13	0.49
34:a:130:A:N6	34:a:233:C:O2	2.46	0.49
34:a:389:A:H3'	34:a:390:U:C6	2.47	0.49
34:a:578:C:O2'	34:a:728:A:N3	2.41	0.49
34:a:621:A:H2'	34:a:622:A:C8	2.48	0.49
34:a:738:C:OP1	39:f:2:ARG:NH2	2.46	0.49
34:a:826:C:O2	41:h:15:ASN:ND2	2.45	0.49
38:e:104:ILE:O	38:e:111:ARG:NH2	2.46	0.49
41:h:28:SER:HB3	41:h:58:LEU:N	2.28	0.49
8:A:118:A:N3	8:A:178:G:H1'	2.28	0.48
8:A:685:A:N1	8:A:787:C:H1'	2.28	0.48
8:A:774:G:N2	8:A:787:C:O2'	2.46	0.48
8:A:1230:A:H2'	8:A:1231:U:O4'	2.13	0.48
8:A:1672:A:C2	8:A:2582:G:H5'	2.48	0.48
8:A:2182:U:O2'	8:A:2183:A:H5'	2.13	0.48
8:A:2469:A:H4'	20:M:55:ARG:HD2	1.95	0.48
8:A:2650:U:H2'	8:A:2651:C:H6	1.78	0.48
9:B:79:G:N7	29:V:14:LYS:NZ	2.59	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:985:C:H2'	34:a:986:U:H6	1.77	0.48
35:b:53:LEU:O	35:b:219:THR:HG21	2.12	0.48
39:f:16:GLU:O	39:f:19:PRO:HD2	2.12	0.48
48:o:14:PHE:HD2	48:o:25:GLU:HG2	1.78	0.48
57:x:264:THR:HG1	57:x:265:CYS:H	1.59	0.48
57:x:391:THR:HG22	57:x:392:THR:H	1.78	0.48
8:A:491:G:O6	26:S:49:LYS:NZ	2.44	0.48
8:A:555:G:HO2'	8:A:556:A:P	2.36	0.48
8:A:1005:C:H1'	8:A:1012:U:H3	1.78	0.48
8:A:1038:G:H2'	8:A:1039:A:C8	2.48	0.48
15:H:99:ILE:HD11	15:H:144:VAL:HG21	1.95	0.48
19:L:56:PRO:HD2	19:L:59:ARG:HD3	1.95	0.48
32:Y:5:GLU:OE1	32:Y:5:GLU:N	2.30	0.48
34:a:648:A:H2'	34:a:649:A:C8	2.48	0.48
34:a:1417:G:N2	34:a:1482:G:N2	2.60	0.48
34:a:1530:G:H2'	34:a:1531:A:C8	2.48	0.48
35:b:77:GLU:HG2	35:b:78:ALA:H	1.77	0.48
35:b:131:LYS:O	35:b:134:LEU:HG	2.13	0.48
38:e:16:ALA:O	38:e:35:LEU:N	2.46	0.48
38:e:40:ASP:OD1	38:e:41:GLY:N	2.46	0.48
41:h:105:THR:OG1	41:h:108:GLY:O	2.28	0.48
50:q:60:ILE:HG22	50:q:74:LEU:HD12	1.95	0.48
55:v:64:G:H2'	55:v:65:C:C6	2.48	0.48
57:x:361:ARG:HH22	57:x:370:ARG:HE	1.61	0.48
57:x:398:ASP:O	57:x:400:ASP:N	2.46	0.48
8:A:538:A:H2'	8:A:539:G:O4'	2.13	0.48
8:A:1061:U:H5'	8:A:1062:G:C5'	2.42	0.48
8:A:1474:U:C4	8:A:1517:G:O6	2.66	0.48
8:A:1842:G:H2'	8:A:1843:C:H6	1.78	0.48
8:A:2796:U:HO2'	8:A:2797:U:P	2.36	0.48
9:B:90:C:H5''	20:M:18:ARG:HG2	1.93	0.48
14:G:88:LEU:HD12	14:G:128:THR:HA	1.95	0.48
18:K:87:LEU:HD22	18:K:92:GLU:HB3	1.95	0.48
34:a:368:U:C5'	57:x:360:GLY:HA3	2.38	0.48
34:a:501:C:H1'	34:a:549:C:H1'	1.96	0.48
34:a:593:U:H2'	34:a:594:U:H6	1.78	0.48
34:a:639:G:H2'	34:a:640:A:H8	1.78	0.48
34:a:674:G:H2'	34:a:675:A:H8	1.77	0.48
34:a:937:A:N3	34:a:1378:C:N4	2.60	0.48
41:h:5:PRO:HB2	41:h:32:LYS:HE3	1.96	0.48
57:x:617:LYS:HB2	57:x:684:LEU:HB2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:x:618:VAL:HA	57:x:680:THR:O	2.13	0.48
6:5:68:PRO:HA	6:5:72:LEU:HA	1.96	0.48
8:A:354:A:H2'	8:A:355:U:O4'	2.14	0.48
8:A:1937:A:O2'	8:A:1939:5MU:OP2	2.28	0.48
8:A:2261:C:OP1	30:W:15:LYS:NZ	2.36	0.48
9:B:28:C:H2'	9:B:29:A:C8	2.49	0.48
10:C:75:ALA:HB3	10:C:115:ILE:HG13	1.95	0.48
11:D:149:ASN:OD1	11:D:150:GLN:N	2.34	0.48
29:V:31:TYR:CE2	29:V:90:ASP:HB3	2.48	0.48
34:a:9:G:OP2	38:e:125:LYS:NZ	2.28	0.48
34:a:212:G:H2'	34:a:213:G:C8	2.48	0.48
34:a:634:C:H2'	34:a:635:A:H8	1.78	0.48
37:d:116:LEU:HD22	37:d:153:ARG:HH11	1.77	0.48
40:g:136:LYS:O	40:g:140:VAL:HG23	2.13	0.48
43:j:46:LYS:HG2	43:j:68:ARG:HG2	1.95	0.48
45:l:34:THR:N	45:l:53:ARG:O	2.46	0.48
8:A:1219:U:H2'	8:A:1220:G:H8	1.77	0.48
10:C:66:PHE:HB3	10:C:150:GLY:O	2.14	0.48
19:L:2:ARG:HD3	19:L:2:ARG:HA	1.58	0.48
34:a:404:G:O2'	34:a:498:A:N1	2.41	0.48
34:a:410:G:H2'	34:a:429:U:C5	2.49	0.48
34:a:803:G:H2'	34:a:804:U:H6	1.77	0.48
34:a:1117:A:H5''	42:i:105:ARG:NH2	2.29	0.48
38:e:149:PRO:HA	38:e:152:VAL:HG22	1.95	0.48
55:v:70:G:H2'	55:v:71:C:C6	2.48	0.48
4:3:38:LYS:NZ	8:A:2365:G:N7	2.48	0.48
7:6:11:GLU:HA	7:6:25:ARG:HA	1.96	0.48
8:A:992:C:OP1	24:Q:46:TYR:OH	2.21	0.48
8:A:1009:A:OP2	8:A:1010:A:OP2	2.32	0.48
8:A:1019:U:H3	8:A:1142:A:H62	1.62	0.48
8:A:2313:C:H2'	8:A:2314:A:H8	1.79	0.48
8:A:2445:2MG:P	12:E:69:ARG:HH12	2.35	0.48
28:U:10:VAL:O	28:U:21:ARG:HG3	2.13	0.48
34:a:85:U:H5'	34:a:86:G:OP1	2.14	0.48
34:a:185:U:H2'	34:a:186:C:H6	1.78	0.48
34:a:294:U:OP1	34:a:610:U:O2'	2.29	0.48
34:a:1402:4OC:H2'	34:a:1403:C:O4'	2.14	0.48
36:c:171:ARG:HG2	36:c:173:PRO:HD3	1.94	0.48
37:d:141:VAL:HG12	37:d:142:VAL:H	1.78	0.48
49:p:72:ALA:O	49:p:76:LYS:HG2	2.13	0.48
8:A:447:A:OP1	24:Q:4:LYS:NZ	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:612:G:H2'	8:A:614:A:C8	2.48	0.48
8:A:1079:C:H2'	8:A:1081:U:P	2.53	0.48
8:A:1590:A:H2'	8:A:1591:A:C8	2.49	0.48
8:A:1930:G:HO2'	8:A:1968:G:H1	1.61	0.48
8:A:2066:C:H2'	8:A:2067:G:H5'	1.95	0.48
8:A:2170:A:H2'	8:A:2171:A:C4'	2.43	0.48
8:A:2192:U:H2'	8:A:2193:G:H8	1.77	0.48
8:A:2342:C:H2'	8:A:2343:U:O4'	2.13	0.48
8:A:2405:G:HO2'	8:A:2406:A:P	2.36	0.48
8:A:2822:G:H2'	8:A:2823:A:H5''	1.96	0.48
10:C:90:ILE:HD12	10:C:102:TYR:CG	2.48	0.48
14:G:93:TYR:HA	14:G:105:SER:O	2.13	0.48
19:L:110:VAL:HB	19:L:127:VAL:HG22	1.96	0.48
26:S:20:VAL:HG21	26:S:43:ALA:HB3	1.95	0.48
29:V:31:TYR:OH	29:V:75:GLN:HG2	2.14	0.48
34:a:390:U:O3'	49:p:28:ARG:NH1	2.39	0.48
34:a:651:C:H2'	34:a:652:U:C6	2.49	0.48
34:a:1238:A:H2'	34:a:1239:A:H5'	1.95	0.48
35:b:65:LYS:HB2	35:b:157:PRO:HA	1.96	0.48
36:c:14:VAL:HG23	36:c:15:LYS:HG2	1.96	0.48
42:i:51:LEU:HD12	42:i:56:MET:HA	1.96	0.48
49:p:17:TYR:HE1	49:p:41:PRO:HG3	1.78	0.48
52:s:34:SER:O	52:s:34:SER:OG	2.27	0.48
57:x:642:LYS:HB2	57:x:656:GLU:OE2	2.14	0.48
8:A:479:A:H1'	8:A:480:A:H5''	1.94	0.48
8:A:679:C:H2'	8:A:680:C:C6	2.49	0.48
8:A:1530:G:H2'	8:A:1531:C:H6	1.78	0.48
8:A:1538:G:C5	8:A:1539:U:C4	3.01	0.48
8:A:1946:U:H2'	8:A:1947:C:H6	1.78	0.48
8:A:2086:U:H2'	8:A:2087:G:C8	2.48	0.48
8:A:2114:A:H3'	8:A:2115:G:O4'	2.14	0.48
13:F:141:ASP:C	13:F:143:ASP:H	2.21	0.48
14:G:59:ASP:OD1	14:G:59:ASP:N	2.39	0.48
15:H:2:GLN:HB3	15:H:18:GLN:NE2	2.28	0.48
15:H:68:ARG:HH11	15:H:70:GLU:HB2	1.79	0.48
27:T:22:THR:HG23	27:T:26:LYS:HE3	1.96	0.48
34:a:82:G:H8	34:a:82:G:O5'	1.97	0.48
34:a:105:G:H2'	34:a:106:C:C6	2.49	0.48
34:a:1304:G:H2'	34:a:1305:G:C4	2.49	0.48
35:b:56:LEU:HA	35:b:59:ILE:HG12	1.96	0.48
35:b:163:ILE:HD11	35:b:213:LEU:HD21	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:88:MET:HE3	39:f:90:MET:HE2	1.95	0.48
40:g:16:LYS:HE3	42:i:41:GLU:HG2	1.96	0.48
42:i:22:PRO:HA	42:i:60:LEU:HD23	1.95	0.48
44:k:55:ARG:O	44:k:58:THR:OG1	2.29	0.48
52:s:10:ILE:HG13	52:s:37:SER:HB2	1.96	0.48
8:A:138:U:H2'	8:A:140:C:C5	2.49	0.48
8:A:471:A:OP1	12:E:79:ARG:NH2	2.25	0.48
8:A:893:C:H2'	8:A:894:U:C5	2.48	0.48
8:A:1668:A:O2'	8:A:1674:G:N7	2.38	0.48
8:A:1874:C:H2'	8:A:1875:G:O4'	2.14	0.48
8:A:1913:A:N6	56:w:38:A:H5'	2.27	0.48
8:A:2144:G:H2'	8:A:2146:C:O2'	2.12	0.48
8:A:2308:G:H2'	8:A:2310:C:H5	1.79	0.48
9:B:29:A:H2'	9:B:30:C:C6	2.49	0.48
10:C:67:LYS:HB2	10:C:69:ASN:HD22	1.79	0.48
18:K:63:VAL:HG12	18:K:107:LEU:HD21	1.95	0.48
21:N:83:LEU:HD21	21:N:115:LEU:HD13	1.95	0.48
28:U:53:GLN:N	28:U:54:PRO:HD3	2.29	0.48
29:V:36:ALA:O	29:V:93:ARG:NH2	2.46	0.48
34:a:3:A:H5''	34:a:4:U:O4'	2.14	0.48
34:a:270:A:H2'	34:a:271:C:C6	2.49	0.48
34:a:592:G:H2'	34:a:593:U:C6	2.49	0.48
34:a:859:G:H2'	34:a:860:A:H8	1.79	0.48
34:a:875:U:O2'	41:h:14:ARG:NH1	2.46	0.48
35:b:77:GLU:HA	35:b:80:LYS:CE	2.42	0.48
39:f:10:VAL:HG22	39:f:58:HIS:HB3	1.95	0.48
50:q:44:HIS:HB3	50:q:70:LYS:HG2	1.95	0.48
56:w:37:MIA:H112	59:z:4:U:C1'	2.43	0.48
57:x:365:MET:HB3	57:x:369:LYS:O	2.13	0.48
8:A:124:G:N2	8:A:126:A:H4'	2.29	0.48
8:A:284:U:O4	8:A:356:G:O6	2.32	0.48
8:A:1051:G:O6	8:A:1108:U:O2	2.31	0.48
8:A:1060:U:O2'	8:A:1062:G:OP2	2.32	0.48
8:A:1196:C:C2	8:A:1197:G:C8	3.01	0.48
8:A:2093:G:N7	8:A:2225:A:H2'	2.29	0.48
8:A:2279:G:N7	30:W:10:ARG:NH2	2.53	0.48
8:A:2498:OMC:HM22	8:A:2499:C:H5'	1.95	0.48
8:A:2649:C:H2'	8:A:2650:U:H6	1.78	0.48
10:C:73:ILE:HG23	10:C:96:LYS:HB2	1.94	0.48
11:D:13:ARG:NH1	23:P:55:HIS:HA	2.29	0.48
26:S:25:ARG:NH2	26:S:74:ILE:O	2.40	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:718:A:C1'	54:u:34:ARG:HH12	2.27	0.48
34:a:781:A:O2'	34:a:1522:U:O2	2.30	0.48
34:a:1474:U:H6	34:a:1474:U:H5''	1.79	0.48
34:a:1485:U:C2	34:a:1486:G:N7	2.81	0.48
35:b:126:ASP:OD1	35:b:126:ASP:N	2.47	0.48
43:j:56:HIS:CD2	43:j:57:VAL:HG13	2.49	0.48
4:3:50:SER:OG	4:3:51:LYS:N	2.47	0.47
8:A:195:A:H5''	19:L:47:ARG:NH2	2.29	0.47
8:A:1057:A:N6	8:A:1086:A:H2'	2.29	0.47
8:A:1544:A:H2'	8:A:1545:A:C8	2.49	0.47
8:A:1710:G:H2'	8:A:1711:A:C8	2.48	0.47
8:A:1843:C:H2'	8:A:1844:C:C6	2.48	0.47
8:A:2172:U:H4'	8:A:2174:C:C5	2.49	0.47
9:B:29:A:H2'	9:B:30:C:O4'	2.14	0.47
10:C:219:VAL:HB	10:C:224:MET:HE2	1.96	0.47
12:E:138:LEU:HD13	12:E:167:VAL:HG21	1.95	0.47
26:S:29:VAL:HB	26:S:55:ILE:HD11	1.96	0.47
34:a:82:G:N2	34:a:88:U:OP2	2.40	0.47
34:a:113:G:H1'	34:a:354:G:H5'	1.95	0.47
34:a:633:G:H2'	34:a:634:C:C6	2.48	0.47
34:a:1481:U:H2'	34:a:1482:G:N3	2.29	0.47
36:c:141:MET:HG2	36:c:148:ILE:HG22	1.96	0.47
46:m:68:LEU:HA	46:m:71:GLU:HG2	1.95	0.47
8:A:671:C:P	19:L:33:ARG:HH12	2.37	0.47
8:A:851:C:H2'	8:A:852:U:H6	1.78	0.47
8:A:1049:C:C2	8:A:1050:A:C8	3.02	0.47
8:A:1155:A:H5''	24:Q:54:ARG:HD3	1.97	0.47
8:A:1747:U:H2'	8:A:1748:C:C6	2.49	0.47
14:G:72:ASN:O	14:G:76:ILE:HG12	2.14	0.47
15:H:93:SER:HB3	15:H:123:ARG:NH1	2.29	0.47
34:a:182:A:C4	34:a:184:G:C8	3.03	0.47
34:a:691:G:O2'	34:a:797:C:H4'	2.15	0.47
34:a:767:A:H2'	34:a:768:A:O4'	2.14	0.47
34:a:1006:G:C2	34:a:1023:U:H1'	2.49	0.47
37:d:8:LEU:O	37:d:12:ARG:HG2	2.14	0.47
57:x:126:TRP:CG	57:x:161:LEU:HD22	2.50	0.47
57:x:170:LEU:HB2	57:x:182:VAL:HG22	1.96	0.47
57:x:298:LEU:N	57:x:305:PRO:HB2	2.28	0.47
8:A:128:C:H2'	8:A:129:C:C6	2.50	0.47
8:A:247:G:N2	8:A:250:G:H3'	2.28	0.47
8:A:533:G:H5'	24:Q:23:TYR:CE1	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:773:U:O2	8:A:778:G:O2'	2.27	0.47
8:A:2133:G:N7	8:A:2157:G:N2	2.63	0.47
8:A:2194:U:H2'	8:A:2195:U:C6	2.49	0.47
8:A:2454:G:C6	8:A:2499:C:N4	2.82	0.47
8:A:2649:C:H2'	8:A:2650:U:C6	2.50	0.47
8:A:2845:U:H5''	23:P:51:ASN:O	2.14	0.47
8:A:2861:U:H2'	8:A:2862:G:H8	1.78	0.47
34:a:272:C:H2'	34:a:273:U:C6	2.49	0.47
34:a:836:G:C6	34:a:851:G:C5	3.02	0.47
34:a:1352:C:H2'	34:a:1353:G:C8	2.50	0.47
34:a:1519:MA6:H5''	34:a:1519:MA6:H8	1.94	0.47
35:b:60:ALA:HB2	35:b:220:VAL:HG23	1.96	0.47
44:k:118:ASN:H	54:u:34:ARG:HH11	1.61	0.47
45:l:5:GLN:HG2	45:l:8:ARG:HH21	1.79	0.47
47:n:79:LEU:HB2	47:n:84:VAL:HG23	1.95	0.47
52:s:33:TRP:CE2	52:s:56:HIS:HE1	2.33	0.47
57:x:244:GLU:O	57:x:247:ILE:HG22	2.14	0.47
8:A:145:C:H2'	8:A:146:A:C8	2.49	0.47
8:A:347:A:H2'	8:A:348:A:C8	2.50	0.47
8:A:811:U:H2'	19:L:21:ARG:HA	1.95	0.47
8:A:1086:A:H5''	8:A:1087:G:OP1	2.14	0.47
8:A:1309:G:O2'	8:A:1611:C:O2'	2.30	0.47
8:A:1843:C:H2'	8:A:1844:C:H6	1.79	0.47
8:A:2313:C:H2'	8:A:2314:A:C8	2.49	0.47
11:D:16:THR:O	23:P:78:PRO:HG2	2.15	0.47
13:F:60:SER:O	13:F:62:GLN:N	2.47	0.47
13:F:117:SER:OG	13:F:118:ALA:N	2.47	0.47
17:J:16:TYR:CD1	17:J:140:LEU:HB2	2.49	0.47
17:J:35:ARG:HD2	17:J:140:LEU:HD21	1.96	0.47
17:J:78:THR:HG23	17:J:83:GLY:O	2.15	0.47
34:a:32:A:H2'	34:a:33:A:C8	2.49	0.47
34:a:189:A:OP2	34:a:189:A:H8	1.97	0.47
34:a:427:U:P	37:d:12:ARG:HH22	2.37	0.47
34:a:455:G:H2'	34:a:456:A:H8	1.79	0.47
34:a:509:A:H2'	34:a:510:A:C8	2.49	0.47
34:a:626:G:O3'	49:p:51:ARG:NH2	2.47	0.47
34:a:768:A:H4'	34:a:1523:G:N2	2.29	0.47
34:a:821:G:H2'	34:a:822:U:H6	1.78	0.47
34:a:1060:U:H2'	34:a:1061:G:C8	2.45	0.47
41:h:28:SER:OG	41:h:56:PRO:HB2	2.14	0.47
42:i:129:ARG:NH2	55:v:33:U:OP2	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:o:38:LEU:HD12	48:o:42:PHE:CE2	2.49	0.47
48:o:68:TYR:O	48:o:72:LYS:HB2	2.14	0.47
57:x:308:ARG:HD2	57:x:402:PRO:HD3	1.96	0.47
8:A:143:C:O2'	8:A:144:A:H5'	2.14	0.47
8:A:356:G:H2'	8:A:357:C:C6	2.49	0.47
8:A:568:U:H1'	8:A:2030:6MZ:H9C1	1.96	0.47
8:A:639:U:H2'	8:A:640:C:H6	1.80	0.47
8:A:686:U:H2'	8:A:788:A:N1	2.29	0.47
8:A:1028:A:H2'	8:A:1029:A:C8	2.49	0.47
8:A:1036:G:H1	8:A:1119:U:H3	1.61	0.47
8:A:1411:U:H2'	8:A:1412:U:C6	2.50	0.47
8:A:1452:G:N2	8:A:1452:G:OP2	2.47	0.47
8:A:2302:U:O2'	13:F:122:ASP:O	2.30	0.47
8:A:2329:U:H2'	8:A:2330:G:C8	2.50	0.47
11:D:35:THR:N	11:D:49:GLN:O	2.47	0.47
12:E:146:VAL:HG12	12:E:167:VAL:HG22	1.96	0.47
13:F:30:VAL:HA	13:F:157:THR:HA	1.96	0.47
15:H:21:VAL:HG21	15:H:26:ALA:HB2	1.96	0.47
18:K:24:VAL:HG12	18:K:30:ARG:HD3	1.96	0.47
23:P:88:ARG:NH2	23:P:111:GLU:OE1	2.47	0.47
27:T:6:ARG:O	27:T:10:VAL:HG23	2.15	0.47
29:V:35:GLU:OE1	29:V:35:GLU:N	2.27	0.47
31:X:5:GLN:O	31:X:73:ARG:NH2	2.48	0.47
34:a:236:A:H2'	34:a:237:G:C8	2.50	0.47
34:a:1121:U:H2'	34:a:1122:U:H6	1.80	0.47
34:a:1133:G:H2'	34:a:1134:G:O4'	2.14	0.47
38:e:133:ILE:O	38:e:137:ARG:HG3	2.14	0.47
40:g:78:ARG:HD3	40:g:83:THR:HG22	1.96	0.47
46:m:54:THR:HA	46:m:57:ASP:OD1	2.13	0.47
57:x:138:ALA:O	57:x:264:THR:HG22	2.14	0.47
57:x:269:PHE:HB3	61:x:801:GDP:C6	2.49	0.47
8:A:1416:G:O2'	8:A:1417:C:O5'	2.30	0.47
8:A:1754:A:O3'	23:P:102:ARG:NH2	2.48	0.47
8:A:1992:G:N2	8:A:1996:C:O2'	2.48	0.47
8:A:2635:A:H2'	8:A:2636:C:O4'	2.15	0.47
8:A:2728:U:O2'	8:A:2729:G:O5'	2.21	0.47
11:D:47:ALA:HB2	11:D:83:ARG:HD2	1.96	0.47
12:E:189:THR:O	12:E:193:VAL:HG23	2.15	0.47
13:F:122:ASP:OD1	13:F:124:ARG:N	2.48	0.47
15:H:7:ASP:HA	15:H:15:LEU:HG	1.97	0.47
25:R:5:PHE:HB3	25:R:59:ILE:HD12	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:163:C:HO2'	34:a:164:G:H8	1.63	0.47
34:a:214:C:H2'	34:a:215:C:O2	2.15	0.47
40:g:91:ARG:HB2	40:g:92:PRO:HD2	1.95	0.47
44:k:85:VAL:HG21	44:k:92:ARG:HB2	1.96	0.47
49:p:47:GLU:OE2	49:p:51:ARG:NH1	2.47	0.47
57:x:311:SER:HB2	57:x:314:GLU:HG2	1.97	0.47
8:A:5:A:H2'	8:A:6:A:H8	1.80	0.47
8:A:68:G:N2	8:A:74:A:OP2	2.48	0.47
8:A:188:G:O2'	8:A:1365:A:N6	2.47	0.47
8:A:373:U:H2'	8:A:374:A:C8	2.48	0.47
8:A:549:G:H2'	8:A:550:C:C6	2.49	0.47
8:A:569:U:H2'	8:A:570:G:O4'	2.15	0.47
8:A:1000:A:H2'	8:A:1001:A:C8	2.49	0.47
8:A:1073:A:H4'	8:A:1094:U:C4	2.49	0.47
8:A:1857:G:H1'	8:A:1885:A:H61	1.79	0.47
8:A:1913:A:N6	56:w:38:A:C5'	2.77	0.47
8:A:1932:A:H2'	8:A:1933:G:O4'	2.15	0.47
8:A:2189:U:H2'	8:A:2190:G:C8	2.50	0.47
8:A:2266:A:H4'	8:A:2267:A:O5'	2.14	0.47
12:E:145:ASP:HB2	12:E:166:LYS:HE3	1.97	0.47
26:S:17:VAL:HA	26:S:43:ALA:HB1	1.96	0.47
31:X:17:ARG:CZ	31:X:23:ALA:HB2	2.45	0.47
34:a:35:G:C6	34:a:550:G:N1	2.83	0.47
34:a:71:A:C6	34:a:72:A:N7	2.82	0.47
34:a:203:G:O2'	34:a:204:G:H8	1.98	0.47
34:a:575:G:O2'	34:a:821:G:H5'	2.14	0.47
34:a:923:A:H2'	34:a:924:C:C6	2.50	0.47
34:a:1006:G:H3'	34:a:1007:U:C6	2.49	0.47
34:a:1458:G:OP1	53:t:29:THR:OG1	2.30	0.47
34:a:1461:G:H2'	34:a:1462:C:H6	1.79	0.47
40:g:87:PRO:HG2	40:g:148:LYS:HA	1.95	0.47
43:j:40:ILE:N	43:j:73:LEU:O	2.47	0.47
56:w:69:G:H2'	56:w:70:G:H8	1.80	0.47
57:x:12:ILE:HD11	57:x:85:ILE:HG12	1.95	0.47
57:x:169:GLN:CD	57:x:264:THR:HG1	2.15	0.47
57:x:170:LEU:HD11	57:x:184:LEU:HD11	1.97	0.47
57:x:407:ARG:NH1	57:x:407:ARG:C	2.72	0.47
57:x:452:SER:OG	57:x:453:ASN:N	2.47	0.47
57:x:464:HIS:O	57:x:468:ILE:HG12	2.15	0.47
8:A:77:G:O3'	32:Y:7:ARG:NH1	2.43	0.47
8:A:177:G:H3'	8:A:178:G:H8	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1437:C:H2'	8:A:1438:U:H6	1.80	0.47
8:A:1722:A:H62	8:A:1738:G:H1'	1.79	0.47
8:A:1738:G:O2'	8:A:1739:A:H8	1.96	0.47
8:A:1797:G:H2'	8:A:1798:U:O4'	2.14	0.47
8:A:2241:A:H2'	8:A:2242:G:C8	2.50	0.47
8:A:2659:G:H1'	8:A:2662:A:N6	2.30	0.47
25:R:66:HIS:ND1	25:R:94:THR:HG22	2.29	0.47
32:Y:4:LYS:O	32:Y:8:GLU:HG2	2.15	0.47
34:a:411:A:OP1	37:d:25:ARG:NH2	2.43	0.47
34:a:563:A:H2'	34:a:567:G:C8	2.50	0.47
34:a:834:U:H3	34:a:852:G:H1	1.62	0.47
34:a:908:A:H2'	34:a:909:A:H8	1.78	0.47
34:a:1120:C:H2'	34:a:1121:U:H6	1.80	0.47
34:a:1277:C:H1'	34:a:1282:C:O2	2.15	0.47
34:a:1310:G:N1	34:a:1328:C:N3	2.63	0.47
46:m:8:ILE:HG22	46:m:20:SER:OG	2.15	0.47
46:m:52:ILE:O	46:m:56:ARG:HG3	2.15	0.47
46:m:65:GLU:OE1	46:m:65:GLU:N	2.46	0.47
55:v:52:G:C2	55:v:53:G:C8	3.02	0.47
7:6:45:THR:O	7:6:49:ARG:NH1	2.47	0.47
8:A:299:A:N3	8:A:319:G:O2'	2.29	0.47
8:A:1187:G:N2	8:A:1188:U:O4	2.47	0.47
8:A:1408:G:O2'	8:A:1409:U:H5'	2.15	0.47
8:A:2287:A:N7	8:A:2289:G:C8	2.83	0.47
8:A:2718:G:O2'	8:A:2847:U:OP1	2.27	0.47
12:E:151:GLY:N	12:E:192:ALA:HB2	2.30	0.47
34:a:193:C:H2'	34:a:194:C:H6	1.79	0.47
34:a:810:C:C4	34:a:811:C:C5	3.03	0.47
34:a:1256:A:H62	34:a:1279:G:N2	2.13	0.47
34:a:1418:A:H61	34:a:1482:G:H1'	1.80	0.47
37:d:149:LYS:HA	37:d:154:VAL:HG11	1.96	0.47
41:h:52:GLY:HA3	41:h:56:PRO:HA	1.97	0.47
44:k:122:PRO:HD2	54:u:37:TYR:HD1	1.79	0.47
45:l:35:ARG:HG2	45:l:37:TYR:CD1	2.50	0.47
5:4:4:ARG:NH2	8:A:2477:U:H2'	2.29	0.47
8:A:188:G:HO2'	8:A:1365:A:N6	2.12	0.47
8:A:579:G:O2'	8:A:2019:A:OP1	2.33	0.47
8:A:685:A:C8	8:A:773:U:C4	3.03	0.47
8:A:1709:U:H2'	8:A:1710:G:H8	1.79	0.47
8:A:2680:U:O2'	8:A:2681:C:H5'	2.14	0.47
8:A:2723:C:P	11:D:114:LYS:HZ3	2.38	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2847:U:H3	8:A:2869:G:H1	1.63	0.47
11:D:21:SER:H	18:K:73:ASP:HA	1.79	0.47
12:E:41:GLN:NE2	12:E:43:THR:OG1	2.43	0.47
12:E:148:ILE:HG22	12:E:150:THR:HG23	1.96	0.47
12:E:155:GLU:O	12:E:159:LEU:HG	2.15	0.47
13:F:122:ASP:OD1	13:F:123:GLY:N	2.48	0.47
15:H:5:LEU:HD23	15:H:36:ALA:HB2	1.96	0.47
25:R:46:GLU:N	25:R:46:GLU:OE1	2.48	0.47
34:a:601:G:H2'	34:a:602:A:C8	2.50	0.47
34:a:789:U:O2'	34:a:791:G:N7	2.43	0.47
34:a:1236:A:H2'	34:a:1237:C:C6	2.50	0.47
45:l:79:ILE:HG22	45:l:103:CYS:HB2	1.96	0.47
51:r:18:GLN:O	51:r:19:GLU:HG3	2.13	0.47
54:u:27:VAL:HG23	54:u:28:LEU:HD12	1.96	0.47
57:x:168:LEU:HD12	57:x:262:LEU:HD12	1.96	0.47
57:x:309:HIS:NE2	57:x:314:GLU:OE2	2.48	0.47
8:A:659:G:H21	12:E:30:GLN:CD	2.21	0.46
8:A:671:C:H2'	8:A:672:C:C6	2.49	0.46
8:A:1080:A:N6	8:A:1088:A:O5'	2.47	0.46
8:A:1469:A:H2'	8:A:1470:A:C8	2.50	0.46
8:A:1534:U:H2'	8:A:1537:G:O6	2.15	0.46
8:A:2106:U:H2'	8:A:2107:G:H8	1.79	0.46
8:A:2250:G:OP1	8:A:2275:C:O2'	2.25	0.46
8:A:2405:G:H1'	8:A:2412:A:N6	2.30	0.46
8:A:2431:U:O2'	8:A:2433:A:N7	2.33	0.46
22:O:40:ILE:HG12	22:O:47:VAL:HG22	1.97	0.46
34:a:144:G:H3'	34:a:145:G:H8	1.79	0.46
34:a:201:G:H2'	34:a:202:G:C8	2.50	0.46
34:a:600:A:H2'	34:a:601:G:H8	1.80	0.46
34:a:722:G:N2	34:a:733:G:O6	2.46	0.46
34:a:1175:G:H2'	34:a:1176:A:C8	2.40	0.46
34:a:1484:C:C3'	34:a:1485:U:H4'	2.46	0.46
36:c:58:ARG:HA	36:c:62:SER:O	2.15	0.46
37:d:123:MET:O	37:d:143:SER:HB2	2.15	0.46
45:l:24:GLU:HG3	45:l:58:ASN:HD22	1.80	0.46
46:m:95:PRO:HG2	46:m:101:THR:HG22	1.97	0.46
55:v:1:C:H2'	55:v:2:G:H8	1.78	0.46
57:x:170:LEU:HD21	57:x:217:TRP:CD1	2.49	0.46
57:x:219:GLN:HA	57:x:222:ILE:HD12	1.97	0.46
8:A:1172:C:H3'	8:A:1173:U:O2	2.15	0.46
8:A:1959:G:H2'	8:A:1960:A:O4'	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2699:C:H2'	8:A:2700:A:C8	2.50	0.46
14:G:120:ILE:HG21	14:G:132:LEU:HD23	1.97	0.46
18:K:49:ARG:HH12	34:a:1424:U:P	2.38	0.46
19:L:96:LYS:HG3	19:L:101:ILE:HD11	1.97	0.46
20:M:69:PRO:HA	20:M:94:ALA:HB2	1.97	0.46
24:Q:39:ILE:O	24:Q:43:GLN:HG3	2.15	0.46
34:a:1003:G:H2'	34:a:1003:G:N3	2.29	0.46
34:a:1157:A:N3	34:a:1181:G:C2	2.83	0.46
34:a:1206:G:C4	34:a:1207:2MG:C8	3.03	0.46
34:a:1263:C:H2'	34:a:1264:U:C6	2.50	0.46
42:i:53:LEU:HD21	42:i:96:GLU:HG2	1.97	0.46
46:m:72:ILE:O	46:m:76:ILE:HG13	2.15	0.46
57:x:669:LEU:O	57:x:673:THR:HG22	2.14	0.46
4:3:24:LYS:HB3	19:L:62:PRO:HG2	1.97	0.46
8:A:26:G:H1'	8:A:514:A:N6	2.30	0.46
8:A:221:A:C4	8:A:266:G:N7	2.83	0.46
8:A:980:A:N7	8:A:1136:G:H5'	2.30	0.46
8:A:1013:C:H2'	8:A:1014:A:H8	1.80	0.46
8:A:2320:U:O2'	8:A:2322:A:N7	2.45	0.46
8:A:2474:U:H5''	8:A:2475:C:C5	2.49	0.46
9:B:19:C:H2'	9:B:20:G:C8	2.50	0.46
15:H:5:LEU:HD12	15:H:17:ASP:HB2	1.96	0.46
16:I:92:PRO:CB	16:I:136:GLY:HA3	2.46	0.46
22:O:94:ARG:NH2	22:O:97:PHE:O	2.49	0.46
34:a:21:G:H2'	34:a:22:G:C8	2.50	0.46
34:a:146:G:C2	34:a:177:G:N7	2.83	0.46
34:a:663:A:H61	34:a:742:G:H1	1.64	0.46
34:a:895:G:H2'	34:a:896:C:C6	2.51	0.46
34:a:1037:C:H2'	34:a:1038:C:C6	2.50	0.46
34:a:1229:A:H2'	34:a:1230:C:C6	2.51	0.46
40:g:111:GLY:HA2	40:g:118:ARG:CD	2.43	0.46
42:i:23:GLY:N	42:i:59:LYS:O	2.39	0.46
51:r:21:ASP:OD1	51:r:23:LYS:NZ	2.28	0.46
55:v:44:A:H3'	55:v:45:G:C8	2.49	0.46
8:A:1024:G:HO2'	8:A:1144:A:HO2'	1.61	0.46
8:A:1996:C:N4	18:K:32:TYR:OH	2.45	0.46
8:A:2043:C:H1'	8:A:2779:U:O4	2.16	0.46
21:N:37:THR:HG22	21:N:39:PRO:HD2	1.97	0.46
34:a:592:G:C6	34:a:593:U:C4	3.04	0.46
34:a:1102:A:O2'	35:b:97:GLY:O	2.26	0.46
34:a:1238:A:C8	34:a:1303:C:H1'	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1401:G:H2'	34:a:1402:4OC:O4'	2.15	0.46
34:a:1473:G:N3	34:a:1473:G:H2'	2.30	0.46
35:b:142:LYS:O	35:b:145:ASN:HB3	2.15	0.46
40:g:149:ALA:HA	44:k:60:PHE:CB	2.45	0.46
50:q:63:CYS:SG	50:q:73:THR:OG1	2.43	0.46
54:u:28:LEU:HA	54:u:31:VAL:HG22	1.97	0.46
56:w:6:G:H2'	56:w:7:A:C8	2.50	0.46
56:w:34:G:C2	59:z:7:G:C4	3.04	0.46
56:w:52:G:C5	56:w:53:G:C8	3.04	0.46
57:x:365:MET:HB2	57:x:371:GLU:N	2.28	0.46
57:x:661:GLU:HG3	57:x:662:MET:H	1.79	0.46
1:0:9:ARG:NH1	8:A:516:C:OP1	2.48	0.46
7:6:64:PHE:CD1	7:6:64:PHE:O	2.69	0.46
8:A:310:A:O2'	8:A:311:A:H2'	2.15	0.46
8:A:368:A:H2'	8:A:369:U:O4'	2.16	0.46
8:A:401:A:H2'	8:A:402:A:C8	2.51	0.46
8:A:1108:U:H3'	8:A:1109:C:C5	2.51	0.46
8:A:1361:G:H2'	8:A:1362:C:C6	2.50	0.46
8:A:1394:U:H2'	8:A:1395:A:O4'	2.15	0.46
8:A:1656:C:H2'	8:A:1657:U:C6	2.50	0.46
8:A:2291:U:OP1	8:A:2380:C:O2'	2.29	0.46
8:A:2428:G:H5''	8:A:2429:G:O5'	2.16	0.46
8:A:2876:G:H4'	23:P:2:ASN:HD21	1.80	0.46
10:C:30:ALA:HB3	10:C:31:PRO:HD3	1.96	0.46
13:F:31:GLU:N	13:F:156:THR:O	2.47	0.46
25:R:25:LEU:HB3	25:R:27:ILE:HG12	1.96	0.46
27:T:3:ARG:HB3	27:T:5:GLU:OE1	2.16	0.46
38:e:139:THR:O	38:e:143:LEU:HG	2.15	0.46
44:k:53:GLY:H	44:k:56:LYS:HB2	1.80	0.46
47:n:36:ALA:O	47:n:38:ASP:N	2.44	0.46
51:r:40:PRO:HB2	51:r:42:ARG:HG2	1.98	0.46
57:x:317:SER:N	57:x:339:SER:O	2.49	0.46
57:x:364:GLN:HE21	57:x:373:ILE:HG21	1.80	0.46
8:A:39:G:H2'	8:A:40:U:C6	2.50	0.46
8:A:285:G:H2'	8:A:286:U:C6	2.50	0.46
8:A:373:U:O2'	8:A:423:A:N3	2.43	0.46
8:A:1068:G:H3'	8:A:1069:A:H4'	1.98	0.46
8:A:1385:A:H1'	8:A:1386:C:C6	2.51	0.46
8:A:2108:A:O2'	8:A:2109:U:O4'	2.32	0.46
8:A:2322:A:N6	8:A:2333:A:H62	2.13	0.46
8:A:2855:C:H2'	8:A:2856:A:H8	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:77:U:P	29:V:21:ARG:HH22	2.34	0.46
10:C:170:TYR:HD2	10:C:182:LYS:HD3	1.81	0.46
12:E:52:VAL:HB	12:E:74:LYS:HD2	1.97	0.46
13:F:5:ASP:HA	13:F:8:LYS:HE3	1.97	0.46
17:J:60:ASP:N	17:J:60:ASP:OD1	2.48	0.46
22:O:27:VAL:HG21	22:O:40:ILE:HD12	1.98	0.46
29:V:78:GLN:OE1	29:V:88:HIS:HB3	2.15	0.46
34:a:359:G:H5''	57:x:436:ARG:HH21	1.79	0.46
34:a:613:C:H2'	34:a:614:C:C6	2.51	0.46
34:a:707:U:OP1	44:k:86:LYS:HE3	2.16	0.46
34:a:715:A:H2'	34:a:716:A:C8	2.50	0.46
34:a:736:C:H2'	34:a:737:C:H6	1.81	0.46
37:d:138:PRO:HA	37:d:181:PHE:HD1	1.81	0.46
37:d:187:ARG:NH2	37:d:192:ALA:HA	2.31	0.46
37:d:196:GLU:HA	37:d:199:ILE:HD12	1.98	0.46
55:v:53:G:C5	55:v:54:5MU:C4	3.04	0.46
56:w:43:C:H2'	56:w:44:G:H8	1.76	0.46
3:2:3:ARG:NH2	8:A:752:A:OP1	2.48	0.46
8:A:196:A:C2	19:L:50:PHE:HZ	2.34	0.46
8:A:268:C:H2'	8:A:269:C:H6	1.81	0.46
8:A:819:A:OP2	8:A:1187:G:N2	2.45	0.46
8:A:1269:A:H2'	8:A:1270:C:C6	2.51	0.46
8:A:2512:C:H2'	8:A:2513:A:O4'	2.15	0.46
8:A:2834:G:H2'	8:A:2879:A:H61	1.80	0.46
11:D:9:VAL:HB	11:D:26:VAL:HG23	1.98	0.46
27:T:12:ARG:HG2	27:T:34:VAL:C	2.41	0.46
34:a:1032:G:N7	34:a:1033:G:C2	2.84	0.46
34:a:1118:U:H1'	34:a:1179:A:C4	2.51	0.46
34:a:1493:A:N1	56:w:37:MIA:H5'	2.30	0.46
35:b:17:HIS:ND1	35:b:187:ASP:OD2	2.49	0.46
36:c:152:VAL:HG12	36:c:156:LEU:HD21	1.98	0.46
57:x:103:ARG:HB2	57:x:132:TYR:CE2	2.50	0.46
1:0:46:GLY:HA3	1:0:54:ILE:HB	1.97	0.46
8:A:692:C:H5''	10:C:38:LYS:HB2	1.97	0.46
8:A:1171:G:H22	8:A:1177:G:N2	2.13	0.46
8:A:1357:C:H2'	8:A:1358:G:O4'	2.16	0.46
8:A:2122:U:H2'	8:A:2123:G:O4'	2.15	0.46
14:G:148:ARG:HA	14:G:161:VAL:HB	1.98	0.46
15:H:41:LYS:HA	15:H:44:ILE:HG22	1.96	0.46
25:R:77:PHE:HD1	25:R:84:ARG:HB3	1.81	0.46
34:a:223:A:H2'	34:a:224:U:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:539:A:H2'	34:a:540:G:C8	2.50	0.46
34:a:592:G:H2'	34:a:593:U:H6	1.79	0.46
34:a:1377:A:N6	40:g:6:ILE:HG21	2.30	0.46
38:e:152:VAL:HA	38:e:155:LYS:HG2	1.97	0.46
51:r:10:CYS:C	51:r:12:PHE:H	2.24	0.46
57:x:218:HIS:NE2	57:x:222:ILE:HD11	2.31	0.46
57:x:328:PHE:HD2	57:x:370:ARG:HH12	1.62	0.46
57:x:616:MET:O	57:x:656:GLU:HA	2.16	0.46
2:1:18:HIS:HE1	2:1:20:TYR:CE1	2.33	0.46
8:A:607:U:N3	8:A:608:A:N7	2.64	0.46
8:A:1730:C:H1'	8:A:1731:G:N1	2.31	0.46
8:A:2047:C:O2'	8:A:2823:A:N1	2.44	0.46
8:A:2131:U:H5''	8:A:2132:U:C5	2.51	0.46
8:A:2333:A:H5'	8:A:2335:A:H1'	1.98	0.46
8:A:2364:C:OP1	30:W:51:ARG:HD3	2.16	0.46
8:A:2405:G:O2'	8:A:2406:A:OP2	2.33	0.46
11:D:129:THR:HG22	11:D:130:GLN:O	2.16	0.46
34:a:362:G:N1	34:a:365:U:OP2	2.46	0.46
34:a:426:U:OP1	37:d:35:GLN:NE2	2.48	0.46
34:a:450:G:OP1	34:a:451:A:H3'	2.15	0.46
34:a:765:G:N2	34:a:813:U:OP2	2.42	0.46
34:a:925:G:C6	34:a:927:G:N7	2.84	0.46
36:c:25:THR:HA	47:n:76:LYS:HE3	1.96	0.46
36:c:34:SER:O	36:c:38:VAL:HG12	2.15	0.46
42:i:42:THR:O	42:i:46:VAL:HG23	2.16	0.46
57:x:243:THR:HG22	57:x:245:ALA:H	1.81	0.46
57:x:407:ARG:HH12	57:x:409:GLU:H	1.64	0.46
59:z:0:U:H2'	59:z:1:A:H8	1.81	0.46
7:6:2:LYS:HE3	9:B:40:U:H2'	1.97	0.46
7:6:42:PRO:O	7:6:46:GLY:C	2.58	0.46
7:6:57:VAL:O	7:6:61:ASN:N	2.48	0.46
8:A:247:G:H4'	8:A:386:G:C5	2.51	0.46
8:A:353:C:H2'	8:A:354:A:C8	2.50	0.46
8:A:585:G:N7	24:Q:5:ARG:NH1	2.53	0.46
8:A:1098:A:H8	8:A:1098:A:OP2	1.99	0.46
8:A:1734:G:C2	8:A:1735:A:C5	3.04	0.46
8:A:2455:G:C4	8:A:2456:C:C5	3.04	0.46
8:A:2506:U:H1'	58:y:101:FME:CE	2.46	0.46
8:A:2648:G:H2'	8:A:2649:C:C6	2.51	0.46
10:C:137:GLY:N	10:C:163:ILE:O	2.38	0.46
13:F:37:MET:HE1	13:F:52:ALA:O	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:R:2:TYR:H	25:R:42:ALA:HB3	1.81	0.46
34:a:381:C:H2'	34:a:382:A:O4'	2.16	0.46
34:a:390:U:H2'	34:a:391:G:H8	1.79	0.46
34:a:1157:A:H4'	34:a:1158:C:O4'	2.15	0.46
35:b:142:LYS:HA	35:b:142:LYS:HD2	1.74	0.46
42:i:48:ARG:HG3	42:i:56:MET:SD	2.56	0.46
44:k:118:ASN:N	54:u:34:ARG:HH11	2.14	0.46
8:A:714:U:OP2	48:o:88:ARG:HD2	2.16	0.45
8:A:885:C:H1'	8:A:891:G:H22	1.79	0.45
8:A:1715:G:O2'	8:A:1716:U:O5'	2.34	0.45
8:A:2157:G:O2'	8:A:2158:A:O4'	2.25	0.45
8:A:2655:G:H1'	8:A:2656:U:OP2	2.17	0.45
8:A:2696:U:H2'	8:A:2697:G:C8	2.51	0.45
9:B:4:C:H2'	9:B:5:U:C6	2.50	0.45
10:C:110:LYS:NZ	10:C:113:ASP:OD1	2.49	0.45
10:C:141:HIS:CD2	10:C:194:VAL:HG22	2.50	0.45
18:K:105:ARG:HH11	18:K:108:ARG:HD2	1.82	0.45
34:a:46:G:O2'	34:a:365:U:O2	2.33	0.45
34:a:206:C:H2'	34:a:207:C:H6	1.80	0.45
34:a:259:G:H2'	34:a:260:G:H8	1.81	0.45
34:a:436:C:H2'	34:a:437:U:H6	1.81	0.45
34:a:947:G:H2'	34:a:948:C:H6	1.81	0.45
34:a:1121:U:H2'	34:a:1122:U:C6	2.52	0.45
34:a:1225:A:H1'	52:s:77:ARG:HD2	1.97	0.45
52:s:46:LEU:O	52:s:61:VAL:HG23	2.17	0.45
57:x:251:LEU:HB2	57:x:284:TYR:HE2	1.81	0.45
1:O:17:SER:HB2	8:A:14:A:H2'	1.99	0.45
4:3:63:TYR:CE2	8:A:242:G:H5''	2.51	0.45
8:A:1059:G:H1	8:A:1080:A:H1'	1.81	0.45
8:A:1069:A:H2'	8:A:1073:A:C5	2.51	0.45
8:A:1360:G:N7	8:A:1361:G:C8	2.83	0.45
8:A:1664:A:C2	18:K:1:MET:HE1	2.51	0.45
8:A:2140:G:H1	8:A:2151:U:H3	1.64	0.45
8:A:2531:A:C4	8:A:2532:G:C8	3.04	0.45
8:A:2847:U:OP1	23:P:95:LYS:HD3	2.16	0.45
8:A:2895:G:H2'	8:A:2896:C:H6	1.81	0.45
34:a:338:A:H2	34:a:351:G:H22	1.63	0.45
34:a:553:A:H5''	45:l:20:VAL:HG21	1.98	0.45
34:a:745:G:H2'	34:a:746:A:C8	2.51	0.45
34:a:1026:G:H2'	34:a:1027:C:H5	1.81	0.45
34:a:1084:G:H1'	34:a:1102:A:N7	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1182:G:H4'	34:a:1184:G:H5''	1.97	0.45
34:a:1308:U:H2'	34:a:1309:G:H8	1.82	0.45
34:a:1319:A:C8	34:a:1323:G:C6	3.04	0.45
34:a:1382:C:H2'	34:a:1383:C:C6	2.49	0.45
34:a:1484:C:H3'	34:a:1485:U:H4'	1.97	0.45
36:c:42:LEU:HD13	36:c:67:ILE:HD11	1.98	0.45
37:d:7:LYS:HB3	37:d:20:LEU:HB2	1.98	0.45
46:m:90:HIS:HA	46:m:108:ARG:NH2	2.31	0.45
48:o:24:THR:HG21	48:o:68:TYR:HD2	1.80	0.45
57:x:668:GLN:HE21	57:x:668:GLN:HB3	1.46	0.45
5:4:7:VAL:HG22	5:4:38:GLY:HA2	1.98	0.45
7:6:66:ILE:HD13	52:s:40:PHE:HZ	1.71	0.45
8:A:17:G:H4'	24:Q:24:TYR:CE2	2.51	0.45
8:A:48:G:N1	8:A:177:G:OP2	2.35	0.45
8:A:588:U:H2'	8:A:589:U:C6	2.52	0.45
8:A:648:G:H5''	8:A:2352:A:H5''	1.98	0.45
8:A:1060:U:H1'	8:A:1088:A:C2	2.51	0.45
8:A:2050:C:H2'	8:A:2051:A:O4'	2.16	0.45
8:A:2102:G:O6	8:A:2188:U:C4	2.70	0.45
8:A:2571:U:O2	11:D:148:GLN:HG2	2.17	0.45
8:A:2682:A:H2'	8:A:2683:C:H6	1.80	0.45
8:A:2848:G:C8	23:P:94:ALA:HB2	2.51	0.45
9:B:4:C:H2'	9:B:5:U:H6	1.81	0.45
10:C:65:ASP:HB3	10:C:103:ILE:HG22	1.98	0.45
15:H:114:GLU:OE1	15:H:134:VAL:HA	2.17	0.45
28:U:37:GLY:HA2	28:U:40:LEU:HD21	1.97	0.45
30:W:17:LEU:HD11	30:W:37:ARG:HE	1.82	0.45
30:W:47:VAL:HG22	30:W:78:ILE:HG12	1.99	0.45
34:a:202:G:H22	34:a:215:C:H5	1.64	0.45
34:a:212:G:H2'	34:a:213:G:H8	1.80	0.45
34:a:512:U:H2'	34:a:513:C:C6	2.51	0.45
34:a:1347:G:H22	34:a:1373:G:H2'	1.81	0.45
42:i:71:ILE:HG13	42:i:72:SER:H	1.82	0.45
57:x:184:LEU:HB2	57:x:221:LEU:HD13	1.97	0.45
57:x:448:THR:HA	57:x:455:THR:HA	1.97	0.45
8:A:18:U:O2'	8:A:554:U:OP1	2.32	0.45
8:A:896:A:H3'	8:A:897:C:H5''	1.98	0.45
8:A:1048:A:H62	8:A:1110:G:H21	1.44	0.45
8:A:1073:A:H4'	8:A:1094:U:C5	2.51	0.45
8:A:1416:G:H2'	8:A:1417:C:C6	2.51	0.45
8:A:1443:U:H2'	8:A:1444:G:H8	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1913:A:C6	56:w:38:A:H5''	2.49	0.45
8:A:2161:C:H2'	8:A:2162:G:H5'	1.98	0.45
8:A:2407:A:H2'	8:A:2408:U:C6	2.51	0.45
8:A:2455:G:H2'	8:A:2456:C:H6	1.80	0.45
12:E:191:ASP:O	12:E:195:GLN:HG3	2.16	0.45
20:M:31:PHE:HB3	20:M:130:PHE:CE1	2.51	0.45
29:V:80:HIS:CD2	29:V:81:PRO:HD2	2.51	0.45
34:a:881:G:H2'	34:a:882:C:O4'	2.16	0.45
34:a:1436:U:H2'	34:a:1437:A:C8	2.51	0.45
38:e:23:THR:HA	38:e:27:GLY:O	2.17	0.45
41:h:21:LYS:HB3	41:h:21:LYS:HE3	1.82	0.45
47:n:52:PRO:O	47:n:55:SER:OG	2.21	0.45
50:q:58:VAL:HG12	50:q:77:VAL:HG22	1.97	0.45
52:s:50:VAL:HG11	52:s:70:LEU:O	2.17	0.45
57:x:414:VAL:HG22	57:x:460:MET:HA	1.98	0.45
8:A:85:G:C6	8:A:98:G:C2	3.05	0.45
8:A:194:G:H2'	8:A:195:A:O4'	2.17	0.45
8:A:574:A:N6	8:A:2034:U:OP1	2.47	0.45
8:A:784:G:H5'	8:A:785:G:OP1	2.17	0.45
8:A:1734:G:H2'	8:A:1735:A:C8	2.49	0.45
8:A:1806:C:H2'	8:A:1807:G:O4'	2.16	0.45
8:A:2074:U:H2'	8:A:2075:U:C6	2.51	0.45
8:A:2112:G:H2'	8:A:2112:G:N3	2.32	0.45
13:F:95:MET:HE2	13:F:95:MET:HB3	1.88	0.45
17:J:49:ASP:OD2	17:J:121:LYS:HD3	2.17	0.45
28:U:13:LEU:HD11	28:U:70:ALA:HB2	1.98	0.45
33:Z:16:LEU:HB2	33:Z:19:HIS:HD2	1.80	0.45
34:a:744:C:H2'	34:a:745:G:C8	2.52	0.45
34:a:1014:A:N3	34:a:1219:A:H1'	2.32	0.45
46:m:90:HIS:HA	46:m:108:ARG:HH22	1.82	0.45
57:x:169:GLN:NE2	57:x:181:VAL:HG21	2.32	0.45
2:1:13:SER:OG	2:1:47:ILE:O	2.20	0.45
6:5:55:VAL:HA	8:A:1084:A:H5'	1.99	0.45
8:A:654:A:H5'	8:A:655:A:OP2	2.16	0.45
8:A:2038:G:H2'	8:A:2039:U:O4'	2.17	0.45
8:A:2549:G:H2'	8:A:2550:G:H8	1.82	0.45
8:A:2705:A:H2'	8:A:2706:A:O4'	2.17	0.45
8:A:2843:G:H2'	8:A:2844:G:O4'	2.16	0.45
10:C:29:PHE:N	10:C:102:TYR:OH	2.49	0.45
17:J:49:ASP:HB2	17:J:114:LEU:HD11	1.97	0.45
34:a:493:A:H2'	34:a:494:G:C8	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:562:U:H1'	45:l:11:ARG:HB3	1.99	0.45
35:b:206:ILE:O	35:b:210:THR:HG23	2.17	0.45
50:q:22:VAL:HG21	50:q:60:ILE:HD13	1.98	0.45
51:r:31:TYR:HB3	51:r:54:LEU:HD21	1.99	0.45
1:0:6:LYS:NZ	8:A:1262:A:N3	2.59	0.45
8:A:84:A:H4'	8:A:85:G:O5'	2.17	0.45
8:A:413:C:H2'	8:A:414:C:H6	1.81	0.45
8:A:1087:G:N3	8:A:1102:C:N4	2.65	0.45
8:A:1667:G:O2'	8:A:1991:U:O4	2.20	0.45
8:A:1735:A:C6	8:A:1736:U:C4	3.04	0.45
8:A:2474:U:O2	8:A:2474:U:H2'	2.16	0.45
8:A:2615:U:H2'	8:A:2616:C:H6	1.82	0.45
8:A:2850:A:H2'	8:A:2851:A:C8	2.52	0.45
10:C:268:ARG:NH2	34:a:681:A:OP1	2.49	0.45
11:D:124:ARG:NH1	11:D:162:ALA:O	2.50	0.45
13:F:127:TYR:CE2	13:F:129:MET:HB2	2.52	0.45
18:K:58:LEU:HA	18:K:89:ASN:HD21	1.81	0.45
34:a:152:A:C8	34:a:153:C:C5	3.04	0.45
34:a:202:G:H2'	34:a:203:G:C8	2.51	0.45
34:a:881:G:P	45:l:8:ARG:HH22	2.40	0.45
34:a:1296:C:O4'	34:a:1302:C:N4	2.49	0.45
34:a:1474:U:H2'	34:a:1475:G:C8	2.51	0.45
40:g:68:VAL:O	40:g:68:VAL:HG12	2.16	0.45
44:k:57:SER:O	44:k:90:PRO:HG3	2.16	0.45
53:t:21:ALA:O	53:t:25:SER:OG	2.34	0.45
8:A:298:G:O2'	8:A:322:A:N1	2.42	0.45
8:A:1715:G:O2'	8:A:1716:U:H6	2.00	0.45
8:A:2215:C:H2'	8:A:2216:G:C8	2.52	0.45
8:A:2378:A:C5	8:A:2379:G:H1'	2.52	0.45
9:B:34:A:H4'	9:B:35:C:H6	1.82	0.45
13:F:135:ILE:HG21	46:m:77:LYS:NZ	2.31	0.45
25:R:71:LYS:HA	25:R:90:ARG:HG2	1.99	0.45
32:Y:10:SER:OG	32:Y:13:GLU:OE2	2.32	0.45
34:a:102:G:H2'	34:a:103:U:H6	1.82	0.45
34:a:865:A:H5'	34:a:1078:U:O4	2.17	0.45
34:a:1003:G:H5'	34:a:1024:G:H1	1.81	0.45
34:a:1088:G:H21	34:a:1167:A:N6	2.12	0.45
35:b:83:ALA:CB	35:b:90:PHE:HB3	2.46	0.45
36:c:134:LYS:HA	36:c:134:LYS:HD2	1.74	0.45
38:e:47:PHE:CZ	38:e:137:ARG:HG2	2.52	0.45
55:v:15:G:O6	55:v:48:C:O2	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:v:33:U:O2'	55:v:35:A:OP2	2.18	0.45
57:x:103:ARG:HH22	57:x:294:ILE:HD11	1.80	0.45
8:A:139:U:C2	27:T:1:MET:HE1	2.51	0.45
8:A:481:G:O2'	8:A:482:A:P	2.74	0.45
8:A:858:G:H3'	8:A:859:G:C8	2.52	0.45
8:A:1028:A:OP2	8:A:1126:A:N6	2.42	0.45
8:A:1063:G:H5'	16:I:76:ALA:O	2.17	0.45
8:A:2192:U:C2	8:A:2193:G:C8	3.05	0.45
8:A:2798:U:H4'	8:A:2799:A:C4	2.51	0.45
19:L:80:SER:OG	19:L:114:GLY:HA3	2.17	0.45
30:W:52:ASP:OD1	30:W:52:ASP:N	2.49	0.45
34:a:29:U:O2'	34:a:30:U:H5'	2.17	0.45
34:a:299:G:OP2	34:a:299:G:H8	2.00	0.45
34:a:592:G:O6	34:a:648:A:N6	2.49	0.45
34:a:1120:C:H2'	34:a:1121:U:C6	2.52	0.45
34:a:1422:G:H2'	34:a:1423:G:O4'	2.16	0.45
34:a:1461:G:H2'	34:a:1462:C:C6	2.52	0.45
36:c:111:ASP:HB3	36:c:114:LEU:HB2	1.98	0.45
47:n:9:GLU:OE2	47:n:61:ARG:N	2.28	0.45
52:s:18:VAL:HG21	52:s:43:MET:HB3	1.98	0.45
52:s:62:THR:H	52:s:65:MET:HE2	1.82	0.45
56:w:67:C:C2'	56:w:68:C:H5'	2.47	0.45
4:3:32:LEU:HD13	8:A:2419:U:C6	2.52	0.45
7:6:62:LYS:N	7:6:62:LYS:HD3	2.32	0.45
8:A:1599:U:H2'	8:A:1600:C:H6	1.82	0.45
8:A:1839:G:H1'	8:A:1926:U:O2'	2.17	0.45
8:A:1894:C:C2'	8:A:1895:C:H5'	2.46	0.45
8:A:2104:C:O2	8:A:2104:C:H2'	2.17	0.45
8:A:2505:G:HO2'	8:A:2506:U:P	2.38	0.45
8:A:2848:G:HO2'	8:A:2849:U:P	2.38	0.45
9:B:23:G:H2'	9:B:24:G:C8	2.52	0.45
11:D:106:LYS:HA	11:D:175:LEU:O	2.17	0.45
29:V:31:TYR:HH	29:V:75:GLN:HG2	1.82	0.45
34:a:344:A:H5''	34:a:345:C:C5	2.49	0.45
34:a:580:C:H2'	34:a:581:G:O4'	2.17	0.45
34:a:675:A:H1'	44:k:117:HIS:CD2	2.52	0.45
34:a:859:G:H2'	34:a:860:A:C8	2.52	0.45
34:a:867:G:O2'	34:a:873:A:N1	2.33	0.45
34:a:1037:C:H2'	34:a:1038:C:H6	1.82	0.45
34:a:1158:C:C4	34:a:1160:G:C8	3.05	0.45
34:a:1226:C:OP2	46:m:101:THR:OG1	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1345:U:C2	34:a:1377:A:C2	3.05	0.45
35:b:33:ALA:HB2	35:b:38:HIS:HA	1.99	0.45
38:e:132:PRO:O	38:e:136:VAL:HG23	2.17	0.45
39:f:38:ARG:HH12	51:r:23:LYS:HE3	1.82	0.45
56:w:61:C:H2'	56:w:62:C:C6	2.52	0.45
56:w:65:G:H2'	56:w:66:U:C6	2.51	0.45
57:x:405:LEU:HD23	57:x:405:LEU:HA	1.88	0.45
7:6:64:PHE:O	7:6:64:PHE:CG	2.69	0.44
8:A:283:G:H2'	8:A:284:U:C6	2.51	0.44
8:A:894:U:O2'	8:A:895:U:H6	1.99	0.44
8:A:910:A:H2	8:A:2264:C:O2	2.00	0.44
8:A:1317:G:H2'	8:A:1318:U:O4'	2.17	0.44
8:A:1378:A:O2'	8:A:1380:G:OP2	2.35	0.44
8:A:2131:U:H1'	8:A:2158:A:C6	2.52	0.44
8:A:2506:U:O2	8:A:2506:U:H2'	2.16	0.44
8:A:2529:G:H5''	8:A:2530:A:H5''	1.98	0.44
8:A:2667:C:N3	14:G:109:SER:HB2	2.31	0.44
10:C:144:GLU:HG2	10:C:151:GLY:N	2.33	0.44
21:N:24:MET:HE3	21:N:44:LEU:HB2	1.98	0.44
25:R:1:MET:HA	25:R:43:ASN:H	1.82	0.44
27:T:11:LEU:C	27:T:12:ARG:HD2	2.43	0.44
34:a:6:G:O6	38:e:99:SER:OG	2.22	0.44
34:a:530:G:O2'	56:w:35:A:H4'	2.17	0.44
34:a:1327:C:H2'	34:a:1328:C:C6	2.52	0.44
37:d:40:HIS:HB3	37:d:43:ARG:HD2	1.98	0.44
48:o:42:PHE:HB3	48:o:52:ARG:NH2	2.31	0.44
55:v:23:C:H2'	55:v:24:U:C6	2.52	0.44
57:x:96:ILE:HD12	57:x:443:SER:HB3	1.98	0.44
57:x:434:LEU:HD21	57:x:472:MET:SD	2.57	0.44
1:O:7:PRO:HD2	8:A:1263:U:O2'	2.17	0.44
2:1:9:LYS:O	2:1:51:ALA:N	2.50	0.44
8:A:63:A:H2	27:T:70:HIS:CD2	2.35	0.44
8:A:285:G:H2'	8:A:286:U:H6	1.82	0.44
8:A:567:U:H2'	8:A:568:U:O4'	2.17	0.44
8:A:1306:C:N4	8:A:1606:C:H2'	2.32	0.44
8:A:1536:C:H4'	8:A:1537:G:C8	2.52	0.44
8:A:1542:U:H2'	8:A:1543:G:O4'	2.17	0.44
8:A:1853:A:N1	8:A:2087:G:H1'	2.32	0.44
8:A:2619:C:H5''	11:D:157:LYS:HG2	1.99	0.44
26:S:84:ARG:O	26:S:96:ILE:N	2.44	0.44
34:a:205:A:N6	34:a:214:C:H1'	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:284:C:H2'	34:a:285:C:H6	1.82	0.44
34:a:298:A:H2'	34:a:299:G:O4'	2.17	0.44
34:a:620:C:H2'	34:a:621:A:C8	2.52	0.44
34:a:1272:G:H2'	34:a:1273:C:C6	2.52	0.44
35:b:26:MET:O	35:b:30:ILE:HG13	2.17	0.44
35:b:70:GLY:O	35:b:92:ASN:HA	2.17	0.44
44:k:70:ALA:HB1	44:k:104:PHE:HE2	1.81	0.44
56:w:30:G:C2	56:w:31:A:C8	3.05	0.44
8:A:75:G:N3	8:A:75:G:H2'	2.33	0.44
8:A:885:C:H1'	8:A:891:G:N2	2.32	0.44
8:A:1070:A:H61	16:I:26:ALA:HB3	1.82	0.44
8:A:1081:U:C2	16:I:123:ALA:HB1	2.53	0.44
8:A:1214:A:H4'	8:A:1239:G:H4'	2.00	0.44
8:A:1916:A:O2'	8:A:1917:PSU:O5'	2.34	0.44
8:A:1999:C:H4'	8:A:2723:C:O2	2.17	0.44
8:A:2408:U:H2'	8:A:2409:G:C8	2.52	0.44
8:A:2723:C:H2'	8:A:2724:U:O4'	2.17	0.44
20:M:36:VAL:HG13	29:V:82:TYR:CD2	2.52	0.44
34:a:284:C:C2	34:a:285:C:C5	3.04	0.44
34:a:372:C:O2	34:a:389:A:N6	2.50	0.44
34:a:414:A:OP2	34:a:428:G:C2	2.69	0.44
34:a:565:U:H3'	34:a:566:G:H2'	1.99	0.44
34:a:846:G:C2	34:a:847:G:C5	3.05	0.44
34:a:1026:G:H2'	34:a:1027:C:C5	2.53	0.44
34:a:1057:G:C6	34:a:1204:A:N1	2.85	0.44
34:a:1223:C:OP2	52:s:77:ARG:NH1	2.51	0.44
34:a:1417:G:N2	34:a:1483:A:C5	2.86	0.44
35:b:86:CYS:SG	35:b:88:GLN:HB2	2.57	0.44
53:t:30:PHE:CE2	53:t:56:ILE:HG13	2.53	0.44
55:v:12:G:H2'	55:v:13:C:O4'	2.16	0.44
57:x:422:LYS:HG2	57:x:479:GLU:O	2.17	0.44
5:4:6:SER:OG	5:4:8:LYS:NZ	2.51	0.44
7:6:46:GLY:HA2	7:6:49:ARG:HH11	1.81	0.44
8:A:833:A:H2'	8:A:834:G:C8	2.53	0.44
8:A:898:C:H3'	8:A:899:A:H5''	1.98	0.44
8:A:954:G:O2'	8:A:2274:A:N1	2.38	0.44
8:A:1405:U:H2'	8:A:1406:U:C6	2.52	0.44
8:A:1594:U:H2'	8:A:1595:C:C6	2.52	0.44
8:A:1803:A:H2	8:A:1823:G:H1'	1.81	0.44
8:A:2233:U:H2'	8:A:2234:G:H8	1.80	0.44
12:E:19:PHE:HD2	12:E:113:VAL:HG21	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:F:61:GLY:C	13:F:94:ARG:HH22	2.25	0.44
17:J:49:ASP:OD1	17:J:121:LYS:NZ	2.50	0.44
19:L:57:LEU:HA	19:L:60:ARG:HG2	1.99	0.44
20:M:53:MET:HE1	20:M:103:TYR:HB3	2.00	0.44
23:P:40:GLN:HG2	23:P:41:ALA:H	1.83	0.44
32:Y:18:LEU:HD21	32:Y:54:LYS:HG2	1.99	0.44
34:a:530:G:O6	59:z:6:U:H1'	2.16	0.44
34:a:718:A:H1'	54:u:34:ARG:HH12	1.81	0.44
34:a:1157:A:N7	34:a:1180:A:N6	2.66	0.44
34:a:1299:A:C5	34:a:1301:U:C2	3.05	0.44
56:w:24:G:H2'	56:w:25:C:C6	2.53	0.44
57:x:154:VAL:HG13	57:x:165:PRO:HG2	1.99	0.44
57:x:395:THR:OG1	57:x:405:LEU:HB2	2.18	0.44
57:x:640:MET:O	57:x:656:GLU:N	2.40	0.44
4:3:39:ARG:O	4:3:43:LEU:HG	2.17	0.44
8:A:181:A:H2'	8:A:182:A:C8	2.53	0.44
8:A:395:U:H2'	8:A:396:G:N7	2.33	0.44
8:A:697:G:H2'	8:A:698:C:C6	2.53	0.44
8:A:1715:G:HO2'	8:A:1716:U:H6	1.64	0.44
8:A:1730:C:H1'	8:A:1731:G:C2	2.52	0.44
8:A:1736:U:H2'	8:A:1737:G:O4'	2.17	0.44
8:A:1790:C:H2'	8:A:1791:A:C8	2.52	0.44
8:A:1889:A:H2'	8:A:1890:A:O4'	2.17	0.44
8:A:1926:U:O2'	8:A:1927:A:P	2.74	0.44
8:A:1930:G:O2'	8:A:1968:G:N1	2.48	0.44
8:A:2186:G:C2	8:A:2187:U:C2	3.05	0.44
8:A:2213:U:O2'	8:A:2214:C:H5'	2.17	0.44
8:A:2301:C:H2'	8:A:2302:U:C6	2.53	0.44
10:C:250:GLN:HB3	10:C:254:LYS:HD2	1.99	0.44
34:a:421:U:H3	36:c:126:ARG:NE	2.16	0.44
34:a:502:A:H2'	34:a:503:C:O4'	2.18	0.44
34:a:834:U:O2	34:a:852:G:N2	2.46	0.44
34:a:1180:A:OP1	42:i:98:ARG:NH2	2.48	0.44
37:d:24:VAL:HG12	37:d:160:LEU:HD22	1.99	0.44
37:d:117:VAL:HG11	37:d:132:ALA:HA	1.98	0.44
38:e:79:THR:HA	38:e:119:VAL:HG13	1.98	0.44
38:e:104:ILE:HD12	38:e:115:GLU:HG2	1.99	0.44
42:i:26:LYS:C	42:i:27:ILE:HG13	2.42	0.44
43:j:84:VAL:O	43:j:88:MET:HG3	2.17	0.44
45:l:30:ARG:CZ	45:l:57:THR:HG21	2.46	0.44
49:p:46:LYS:O	49:p:48:GLU:N	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:w:67:C:O2'	56:w:68:C:H5'	2.18	0.44
57:x:95:THR:OG1	57:x:128:GLN:NE2	2.50	0.44
57:x:308:ARG:NH2	57:x:315:PRO:HG2	2.32	0.44
57:x:337:VAL:HG21	57:x:376:VAL:HG23	1.99	0.44
8:A:301:G:H5'	8:A:334:C:H2'	1.99	0.44
8:A:330:A:H8	8:A:1210:G:C5	2.35	0.44
8:A:534:U:H2'	8:A:535:G:C8	2.50	0.44
8:A:636:G:N1	19:L:76:GLU:OE1	2.37	0.44
8:A:861:A:H2'	8:A:862:G:O4'	2.18	0.44
8:A:947:A:H2'	8:A:948:C:C6	2.52	0.44
8:A:1417:C:O2'	8:A:1587:G:O2'	2.22	0.44
8:A:1782:U:O2'	8:A:2609:U:H5''	2.18	0.44
8:A:1848:A:H61	8:A:1894:C:H1'	1.81	0.44
8:A:2061:G:OP2	12:E:63:LYS:NZ	2.37	0.44
8:A:2079:U:H4'	8:A:2433:A:H2	1.83	0.44
8:A:2142:A:N7	8:A:2143:C:C4	2.85	0.44
8:A:2683:C:C2'	8:A:2684:U:H5'	2.47	0.44
8:A:2902:C:H2'	8:A:2903:U:C6	2.52	0.44
10:C:173:LEU:O	10:C:180:MET:HA	2.18	0.44
13:F:33:ILE:HG13	13:F:95:MET:HG3	1.99	0.44
34:a:878:A:OP1	41:h:79:ARG:NH1	2.44	0.44
34:a:1160:G:C6	34:a:1161:C:C4	3.06	0.44
8:A:631:A:N3	8:A:2415:G:O2'	2.45	0.44
8:A:817:C:H2'	8:A:818:G:O4'	2.18	0.44
8:A:1056:G:N3	8:A:1087:G:C2	2.86	0.44
8:A:1361:G:H2'	8:A:1362:C:H6	1.83	0.44
8:A:1731:G:C6	8:A:1733:G:C5	3.06	0.44
8:A:2079:U:H4'	8:A:2433:A:C2	2.53	0.44
8:A:2377:A:H2'	8:A:2378:A:C8	2.53	0.44
8:A:2585:U:C1'	56:w:76:A:H5''	2.40	0.44
12:E:192:ALA:O	12:E:196:VAL:HG23	2.18	0.44
13:F:131:VAL:N	13:F:151:LEU:O	2.49	0.44
14:G:18:ILE:HG22	14:G:23:ILE:HD12	1.99	0.44
15:H:132:PHE:HB3	15:H:140:ALA:HB3	2.00	0.44
24:Q:18:LYS:HA	24:Q:18:LYS:HD2	1.74	0.44
34:a:5:U:H5''	34:a:6:G:OP1	2.18	0.44
34:a:20:U:H2'	34:a:21:G:O4'	2.17	0.44
34:a:35:G:O2'	45:l:117:GLY:HA2	2.17	0.44
34:a:109:A:H5'	34:a:110:C:C5	2.52	0.44
34:a:193:C:H2'	34:a:194:C:C6	2.53	0.44
34:a:206:C:H2'	34:a:207:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1055:A:C2	34:a:1206:G:C4	3.06	0.44
34:a:1182:G:O2'	34:a:1183:U:H5''	2.17	0.44
34:a:1464:U:H2'	34:a:1465:A:C8	2.51	0.44
36:c:133:MET:HE2	36:c:167:TYR:CD2	2.53	0.44
36:c:134:LYS:O	36:c:138:GLN:HG2	2.17	0.44
40:g:107:ALA:O	40:g:118:ARG:HD2	2.17	0.44
53:t:25:SER:O	53:t:29:THR:OG1	2.36	0.44
53:t:27:MET:O	53:t:31:ILE:HG13	2.16	0.44
56:w:70:G:H2'	56:w:71:G:C8	2.52	0.44
57:x:112:TYR:O	57:x:141:ASN:N	2.50	0.44
57:x:178:PHE:CD2	57:x:272:LYS:HD2	2.52	0.44
8:A:8:C:H2'	8:A:9:G:O4'	2.18	0.44
8:A:590:A:H2'	8:A:591:U:C6	2.52	0.44
8:A:704:G:C2'	8:A:726:G:H22	2.29	0.44
8:A:1248:G:P	12:E:44:ARG:HH12	2.40	0.44
8:A:1468:U:H2'	8:A:1522:A:N6	2.33	0.44
8:A:1683:U:H2'	8:A:1684:G:C8	2.53	0.44
8:A:2543:G:H2'	8:A:2544:G:H8	1.81	0.44
8:A:2633:G:H2'	8:A:2634:A:O4'	2.18	0.44
10:C:121:ALA:HB1	10:C:127:ASN:HB3	2.00	0.44
10:C:130:PRO:C	10:C:132:ARG:H	2.25	0.44
11:D:85:ALA:N	11:D:88:GLU:OE2	2.50	0.44
12:E:48:THR:O	12:E:52:VAL:HG23	2.17	0.44
18:K:23:LYS:HB3	18:K:40:LYS:HB3	2.00	0.44
22:O:33:ARG:HA	22:O:66:GLY:HA3	2.00	0.44
29:V:26:PHE:HZ	29:V:47:VAL:HG11	1.83	0.44
34:a:190:A:H2'	34:a:191:G:O4'	2.17	0.44
34:a:331:G:H2'	53:t:4:LYS:HZ2	1.81	0.44
34:a:461:A:H2'	34:a:462:G:H8	1.82	0.44
34:a:689:C:OP1	44:k:28:ASN:ND2	2.50	0.44
34:a:978:A:C4	34:a:1319:A:C2	3.06	0.44
34:a:1456:A:H2'	34:a:1457:G:O4'	2.18	0.44
8:A:1059:G:H5'	8:A:1060:U:C5	2.53	0.44
8:A:1409:U:H2'	8:A:1410:G:C8	2.46	0.44
8:A:1662:U:O2'	8:A:2687:U:OP1	2.25	0.44
8:A:1749:A:H2'	8:A:1750:G:H8	1.83	0.44
8:A:1810:A:H2'	8:A:1811:G:O4'	2.18	0.44
8:A:2192:U:H2'	8:A:2193:G:C8	2.53	0.44
8:A:2316:G:H2'	8:A:2317:A:C8	2.53	0.44
8:A:2503:2MA:N3	8:A:2503:2MA:H5'	2.32	0.44
8:A:2840:C:H2'	8:A:2841:C:C6	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:C:6:LYS:HE3	10:C:6:LYS:HB3	1.77	0.44
13:F:103:ILE:HD11	13:F:173:ASP:O	2.15	0.44
17:J:7:LYS:O	17:J:11:VAL:HG23	2.18	0.44
19:L:85:VAL:HG21	19:L:90:VAL:HG22	1.98	0.44
21:N:79:LEU:O	21:N:80:PHE:HB2	2.17	0.44
34:a:134:G:H1'	34:a:325:A:C5	2.53	0.44
34:a:253:A:N6	34:a:274:A:N1	2.66	0.44
34:a:515:G:C4	34:a:516:PSU:C6	3.05	0.44
34:a:1142:G:C2	34:a:1143:G:H1'	2.53	0.44
34:a:1253:G:C2'	34:a:1254:A:H5'	2.47	0.44
34:a:1271:A:H2'	34:a:1272:G:C8	2.53	0.44
34:a:1300:G:O2'	34:a:1301:U:P	2.76	0.44
55:v:56:C:H2'	55:v:57:A:O4'	2.18	0.44
57:x:658:PRO:HB2	57:x:661:GLU:HB2	2.00	0.44
3:2:3:ARG:HA	3:2:3:ARG:HD3	1.65	0.43
8:A:26:G:H2'	8:A:27:G:O4'	2.17	0.43
8:A:208:C:H2'	8:A:209:C:C6	2.53	0.43
8:A:1220:G:H2'	8:A:1221:C:C6	2.52	0.43
8:A:1723:G:H2'	8:A:1724:G:O4'	2.18	0.43
8:A:1782:U:O2	8:A:2609:U:H5'	2.18	0.43
8:A:2660:A:H62	57:x:671:SER:HA	1.82	0.43
13:F:35:LEU:HB2	13:F:88:VAL:CG2	2.48	0.43
13:F:90:LEU:C	13:F:95:MET:HB2	2.43	0.43
13:F:99:PHE:CZ	13:F:174:PHE:HE1	2.36	0.43
15:H:9:VAL:O	15:H:12:LEU:N	2.50	0.43
19:L:3:LEU:HD12	19:L:3:LEU:HA	1.79	0.43
19:L:91:ASP:OD1	19:L:123:ARG:HB3	2.17	0.43
21:N:8:ARG:HD2	21:N:43:GLU:HG2	2.00	0.43
30:W:34:VAL:HG12	30:W:55:LEU:HB2	1.99	0.43
34:a:198:G:H2'	34:a:199:A:H8	1.82	0.43
34:a:407:U:H5''	37:d:111:ALA:HB1	1.99	0.43
34:a:468:A:H3'	34:a:469:C:C6	2.52	0.43
34:a:712:A:H2'	34:a:713:G:C8	2.52	0.43
34:a:958:A:C5	52:s:54:ARG:HD2	2.52	0.43
34:a:1176:A:H2'	34:a:1177:G:C8	2.52	0.43
37:d:36:ALA:HB3	37:d:41:GLY:HA2	2.00	0.43
57:x:141:ASN:CG	57:x:142:LYS:H	2.26	0.43
8:A:328:U:O3'	28:U:65:GLN:HG3	2.18	0.43
8:A:843:G:H2'	8:A:844:A:H8	1.82	0.43
8:A:933:A:H5'	8:A:934:U:OP2	2.18	0.43
8:A:1036:G:C6	8:A:1120:G:C6	3.07	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1168:G:O2'	8:A:1169:A:H5'	2.19	0.43
8:A:1292:G:H2'	8:A:1293:C:H6	1.83	0.43
8:A:2245:U:H5''	8:A:2246:G:H5'	2.00	0.43
8:A:2473:U:OP2	57:x:636:ARG:HG2	2.18	0.43
8:A:2591:C:H2'	8:A:2592:G:C8	2.53	0.43
9:B:74:U:O2	29:V:29:ILE:HD13	2.18	0.43
12:E:61:ARG:NE	12:E:63:LYS:O	2.51	0.43
20:M:47:GLU:O	20:M:51:ARG:HG3	2.18	0.43
34:a:71:A:C2	34:a:72:A:C8	3.06	0.43
34:a:106:C:H2'	34:a:107:G:O4'	2.18	0.43
34:a:867:G:H2'	34:a:868:C:C6	2.53	0.43
34:a:1161:C:C2	34:a:1162:C:C5	3.06	0.43
34:a:1234:C:H1'	34:a:1364:U:O2	2.18	0.43
34:a:1482:G:P	34:a:1482:G:C8	3.11	0.43
38:e:59:ILE:O	38:e:63:MET:HG2	2.18	0.43
39:f:38:ARG:HB2	39:f:63:ASN:HB2	1.99	0.43
56:w:51:C:C2	56:w:52:G:N7	2.86	0.43
57:x:351:SER:HB2	57:x:403:ILE:CA	2.41	0.43
57:x:448:THR:O	57:x:448:THR:OG1	2.31	0.43
7:6:1:MET:N	9:B:44:G:OP1	2.52	0.43
7:6:32:LEU:O	7:6:33:ASN:ND2	2.50	0.43
8:A:132:G:H2'	8:A:133:U:C6	2.53	0.43
8:A:744:U:H2'	8:A:745:1MG:O4'	2.17	0.43
8:A:825:A:O2'	19:L:54:GLN:HB2	2.17	0.43
8:A:1029:A:H2'	8:A:1030:C:O4'	2.18	0.43
8:A:1105:U:H2'	8:A:1106:G:C8	2.53	0.43
8:A:1532:A:N6	8:A:1540:G:C6	2.87	0.43
8:A:1541:C:H2'	8:A:1542:U:C6	2.53	0.43
8:A:1753:G:H5''	23:P:92:ARG:HD3	2.01	0.43
8:A:1940:U:H1'	8:A:1942:C:N4	2.33	0.43
16:I:26:ALA:C	16:I:28:GLY:H	2.25	0.43
20:M:109:PRO:HD2	20:M:112:LEU:HD23	2.01	0.43
34:a:62:U:OP1	34:a:385:C:O2'	2.36	0.43
34:a:82:G:N2	34:a:89:U:O4'	2.51	0.43
34:a:111:G:HO2'	34:a:389:A:HO2'	1.63	0.43
34:a:219:U:C2	34:a:220:G:C8	3.06	0.43
34:a:561:U:O2	45:l:14:LYS:NZ	2.51	0.43
34:a:592:G:C6	34:a:648:A:C6	3.06	0.43
34:a:604:G:H2'	34:a:605:U:C6	2.53	0.43
34:a:692:U:O2'	34:a:694:A:N7	2.34	0.43
34:a:794:A:H2'	34:a:795:C:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:851:G:C2	34:a:852:G:C8	3.06	0.43
34:a:1074:G:O2'	34:a:1101:A:N1	2.43	0.43
35:b:160:LEU:HD21	35:b:171:ALA:HB1	2.00	0.43
39:f:10:VAL:HA	39:f:84:VAL:HA	2.00	0.43
41:h:21:LYS:N	41:h:64:TYR:OH	2.51	0.43
41:h:105:THR:HG22	41:h:121:GLY:O	2.18	0.43
50:q:20:ILE:HD11	50:q:74:LEU:HD13	2.00	0.43
53:t:23:ARG:HB2	53:t:65:LEU:HD13	2.00	0.43
8:A:396:G:H1'	31:X:28:PHE:HB3	1.99	0.43
8:A:527:C:C2	8:A:2779:U:H2'	2.53	0.43
8:A:784:G:O2'	8:A:785:G:H5''	2.17	0.43
8:A:880:G:H2'	8:A:881:G:C8	2.53	0.43
8:A:1365:A:OP2	31:X:1:SER:HB3	2.19	0.43
8:A:1398:C:H2'	8:A:1399:C:C6	2.52	0.43
8:A:2618:G:H21	11:D:155:VAL:HG21	1.83	0.43
8:A:2688:G:N1	8:A:2720:U:OP2	2.24	0.43
8:A:2807:U:H1'	8:A:2892:G:N2	2.33	0.43
8:A:2820:A:OP2	21:N:2:ARG:NH1	2.51	0.43
10:C:77:VAL:HG22	10:C:93:VAL:HG12	1.99	0.43
34:a:91:U:H2'	34:a:92:U:H6	1.81	0.43
34:a:270:A:H2'	34:a:271:C:H6	1.82	0.43
34:a:501:C:H2'	34:a:502:A:C8	2.52	0.43
34:a:683:G:H21	44:k:39:ASN:HA	1.82	0.43
34:a:1005:A:H3'	34:a:1005:A:OP2	2.19	0.43
34:a:1216:A:H2'	34:a:1217:C:C6	2.54	0.43
34:a:1316:G:H2'	34:a:1317:C:H5''	2.00	0.43
36:c:2:GLN:HG3	36:c:3:LYS:HD3	2.00	0.43
37:d:9:LYS:HG3	37:d:37:PRO:CG	2.48	0.43
41:h:38:VAL:HG21	41:h:109:VAL:HG12	2.01	0.43
51:r:9:PHE:CZ	51:r:11:ARG:HB3	2.53	0.43
52:s:39:ILE:HG23	52:s:43:MET:SD	2.58	0.43
57:x:318:ALA:N	57:x:396:LEU:O	2.51	0.43
7:6:34:LEU:HD13	13:F:105:ILE:HG23	1.99	0.43
8:A:337:C:H2'	8:A:338:G:O4'	2.18	0.43
8:A:1056:G:H1'	8:A:1087:G:H1	1.82	0.43
8:A:1283:G:N2	8:A:1285:A:H3'	2.33	0.43
8:A:1363:C:O2'	8:A:1809:A:N3	2.41	0.43
8:A:1429:G:H2'	8:A:1430:G:C8	2.50	0.43
8:A:1570:A:H2'	8:A:1571:A:C8	2.54	0.43
8:A:2341:G:H2'	8:A:2342:C:C6	2.54	0.43
8:A:2547:A:C8	8:A:2566:A:C8	3.07	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:73:ILE:HG13	12:E:78:TRP:CZ3	2.53	0.43
14:G:139:VAL:O	14:G:143:VAL:HG12	2.19	0.43
15:H:78:VAL:O	15:H:144:VAL:HA	2.18	0.43
21:N:72:ASP:O	21:N:76:VAL:HG23	2.18	0.43
29:V:16:ALA:O	29:V:20:LEU:HG	2.18	0.43
30:W:59:ALA:O	30:W:78:ILE:HG21	2.19	0.43
34:a:893:C:N4	34:a:894:G:O6	2.51	0.43
34:a:954:G:H2'	34:a:955:U:C6	2.53	0.43
34:a:1167:A:H5''	34:a:1168:U:OP1	2.19	0.43
37:d:97:LEU:HB2	37:d:134:TYR:HB3	2.01	0.43
38:e:61:LYS:HA	38:e:64:GLU:HG2	1.99	0.43
43:j:65:TYR:OH	47:n:85:ARG:HG3	2.18	0.43
47:n:62:ASN:HB3	47:n:73:PHE:CD2	2.53	0.43
49:p:16:PHE:CE2	49:p:40:ASN:HB2	2.54	0.43
55:v:54:5MU:H2'	55:v:55:PSU:C6	2.53	0.43
56:w:33:U:O2'	56:w:35:A:N7	2.43	0.43
7:6:37:CYS:SG	7:6:40:CYS:N	2.67	0.43
8:A:239:C:HO2'	8:A:622:G:HO2'	1.64	0.43
8:A:471:A:H2'	8:A:472:A:O4'	2.18	0.43
8:A:1034:G:C5	8:A:1122:G:C2	3.06	0.43
8:A:1273:U:H5'	8:A:1646:C:N4	2.33	0.43
8:A:2229:U:H2'	8:A:2230:G:C8	2.52	0.43
8:A:2777:G:H5''	8:A:2778:A:H5'	1.99	0.43
11:D:186:LEU:HD23	11:D:186:LEU:HA	1.82	0.43
20:M:58:LYS:HE2	20:M:58:LYS:HB2	1.89	0.43
26:S:24:ILE:HG13	26:S:24:ILE:O	2.19	0.43
26:S:83:LYS:HB3	26:S:95:ARG:HD2	1.99	0.43
32:Y:4:LYS:HE3	32:Y:4:LYS:HB2	1.85	0.43
34:a:67:C:H2'	34:a:68:G:H8	1.83	0.43
34:a:517:G:N2	34:a:530:G:OP1	2.49	0.43
34:a:686:U:H1'	44:k:43:TRP:HE1	1.83	0.43
34:a:1460:C:C2	34:a:1461:G:C8	3.05	0.43
34:a:1535:C:H5'	34:a:1536:C:H5''	2.00	0.43
35:b:80:LYS:O	35:b:84:LEU:HD13	2.19	0.43
36:c:57:GLU:O	36:c:64:ARG:N	2.44	0.43
37:d:139:ASN:N	37:d:181:PHE:O	2.42	0.43
42:i:9:GLY:HA3	42:i:81:GLY:N	2.33	0.43
42:i:79:ARG:HD2	42:i:102:PHE:CE1	2.53	0.43
56:w:48:C:C4	56:w:59:U:C4	3.06	0.43
57:x:104:VAL:O	57:x:336:ARG:NH2	2.51	0.43
8:A:321:U:C2	12:E:159:LEU:HD13	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:657:U:H2'	8:A:658:U:C6	2.54	0.43
8:A:722:A:H2'	8:A:723:C:O4'	2.18	0.43
8:A:1171:G:N2	8:A:1177:G:H22	2.15	0.43
8:A:1341:G:OP1	8:A:1397:U:N3	2.41	0.43
8:A:1651:G:H5'	21:N:39:PRO:HG2	1.99	0.43
8:A:1907:G:O2'	8:A:1908:C:H5''	2.18	0.43
8:A:1952:A:O2'	8:A:2560:A:H4'	2.19	0.43
8:A:2812:G:H2'	8:A:2813:A:O4'	2.19	0.43
8:A:2818:U:H3	8:A:2828:G:H1	1.67	0.43
13:F:19:PHE:HB3	13:F:21:TYR:CE1	2.54	0.43
18:K:107:LEU:O	18:K:109:SER:N	2.51	0.43
20:M:56:ALA:HB2	20:M:119:LEU:HD12	1.99	0.43
28:U:35:VAL:HG23	28:U:38:ILE:HB	2.01	0.43
34:a:146:G:H2'	34:a:147:G:C8	2.54	0.43
34:a:723:U:O2	54:u:48:LYS:NZ	2.52	0.43
34:a:1130:A:H2'	34:a:1131:G:H8	1.83	0.43
34:a:1211:U:O2'	34:a:1213:A:N1	2.48	0.43
34:a:1217:C:OP1	47:n:8:ARG:NE	2.50	0.43
34:a:1273:C:H2'	34:a:1274:A:O4'	2.19	0.43
34:a:1279:G:O2'	34:a:1281:C:OP2	2.30	0.43
34:a:1372:U:OP1	42:i:73:GLY:N	2.45	0.43
37:d:121:ALA:O	37:d:122:ILE:HD13	2.19	0.43
39:f:86:ARG:NH1	51:r:63:TYR:O	2.49	0.43
42:i:4:GLN:HA	42:i:20:ILE:O	2.19	0.43
43:j:35:GLN:HG3	43:j:78:GLU:HB2	1.99	0.43
44:k:75:GLU:OE1	44:k:75:GLU:N	2.46	0.43
46:m:33:LEU:HD13	46:m:40:GLU:HG2	2.00	0.43
57:x:269:PHE:CB	61:x:801:GDP:C5	2.87	0.43
57:x:302:LYS:O	57:x:305:PRO:HD3	2.19	0.43
1:0:3:GLN:HA	8:A:2615:U:C2	2.54	0.43
3:2:4:THR:O	8:A:686:U:O2'	2.36	0.43
5:4:16:ILE:HD13	5:4:25:VAL:HG22	2.00	0.43
8:A:9:G:O2'	8:A:2800:A:N6	2.51	0.43
8:A:636:G:O2'	8:A:638:G:O2'	2.26	0.43
8:A:689:A:H2'	8:A:690:G:C8	2.53	0.43
8:A:778:G:H5'	10:C:47:ARG:NH1	2.32	0.43
8:A:781:A:O2'	8:A:1788:C:O2	2.32	0.43
8:A:1097:U:O2'	16:I:5:GLN:O	2.24	0.43
8:A:1523:U:H5''	8:A:1524:G:C8	2.54	0.43
8:A:1535:A:C5	8:A:1537:G:C5	3.07	0.43
8:A:1654:A:O2'	11:D:118:PHE:O	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2162:G:H2'	8:A:2163:A:O4'	2.18	0.43
14:G:7:PRO:HB2	14:G:48:THR:OG1	2.19	0.43
17:J:34:ARG:NH2	24:Q:69:ARG:HD2	2.33	0.43
18:K:69:VAL:HG21	18:K:106:GLU:CD	2.43	0.43
21:N:45:ARG:O	21:N:49:GLU:HG3	2.18	0.43
22:O:63:LYS:HG3	22:O:64:TYR:H	1.84	0.43
23:P:87:ARG:NH2	23:P:109:ILE:O	2.39	0.43
26:S:40:ASN:C	26:S:41:LYS:HG2	2.44	0.43
34:a:110:C:H2'	34:a:111:G:O4'	2.17	0.43
34:a:162:A:H2'	34:a:163:C:H5'	2.00	0.43
34:a:440:C:OP1	37:d:120:LYS:NZ	2.35	0.43
34:a:460:A:C6	34:a:461:A:C6	3.07	0.43
34:a:468:A:H2'	34:a:468:A:N3	2.33	0.43
34:a:1319:A:C8	34:a:1323:G:C5	3.06	0.43
34:a:1477:U:H2'	34:a:1478:U:H6	1.84	0.43
35:b:42:LEU:O	35:b:46:VAL:HG13	2.19	0.43
45:l:31:GLY:O	45:l:78:VAL:HA	2.19	0.43
47:n:57:PRO:HA	47:n:60:GLN:OE1	2.18	0.43
48:o:28:VAL:HG13	48:o:62:ARG:HG3	2.00	0.43
52:s:29:PRO:HB3	52:s:47:THR:O	2.18	0.43
8:A:376:G:H2'	8:A:377:G:C8	2.54	0.43
8:A:727:A:H2'	8:A:728:G:C8	2.54	0.43
8:A:1152:C:H2'	8:A:1153:C:C6	2.54	0.43
8:A:1322:A:H5''	26:S:82:MET:HE1	2.01	0.43
8:A:1415:U:O4	8:A:1587:G:O6	2.36	0.43
8:A:1952:A:N3	8:A:2560:A:O2'	2.38	0.43
8:A:2097:A:H2'	8:A:2098:U:C6	2.54	0.43
8:A:2256:G:H2'	8:A:2257:U:O4'	2.19	0.43
8:A:2306:C:N4	13:F:38:GLY:O	2.45	0.43
16:I:78:LEU:O	16:I:82:ALA:CB	2.67	0.43
19:L:110:VAL:O	19:L:128:THR:HG23	2.19	0.43
23:P:43:GLU:O	23:P:62:LYS:HG3	2.18	0.43
27:T:22:THR:O	27:T:26:LYS:HG2	2.19	0.43
34:a:361:G:H2'	34:a:362:G:O4'	2.19	0.43
34:a:736:C:OP1	51:r:60:ARG:NH2	2.52	0.43
34:a:1036:A:P	34:a:1036:A:H8	2.41	0.43
34:a:1062:U:H2'	34:a:1063:C:C6	2.54	0.43
34:a:1484:C:C2	34:a:1485:U:H1'	2.54	0.43
43:j:11:LYS:HA	43:j:70:HIS:O	2.18	0.43
43:j:32:THR:HA	43:j:82:LYS:HE3	1.99	0.43
48:o:1:SER:OG	48:o:2:LEU:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:6:8:LYS:HG3	7:6:10:GLU:OE1	2.19	0.43
7:6:39:LYS:HE2	7:6:39:LYS:HB3	1.75	0.43
8:A:6:A:N3	17:J:135:GLN:NE2	2.65	0.43
8:A:67:U:N3	8:A:68:G:N7	2.67	0.43
8:A:167:A:H2'	8:A:168:G:O4'	2.18	0.43
8:A:501:A:H2'	8:A:502:A:C8	2.54	0.43
8:A:607:U:C5	8:A:620:G:C4	3.07	0.43
8:A:1470:A:H3'	8:A:1471:G:H8	1.84	0.43
8:A:1501:G:H5''	10:C:94:LEU:HD21	2.01	0.43
8:A:2600:A:N7	10:C:235:GLU:HG3	2.33	0.43
8:A:2607:G:H2'	8:A:2608:G:O4'	2.19	0.43
9:B:9:G:O6	9:B:111:U:O2	2.37	0.43
13:F:48:LEU:HD11	13:F:149:ARG:HH21	1.83	0.43
14:G:105:SER:O	14:G:105:SER:OG	2.32	0.43
17:J:12:LYS:HA	17:J:12:LYS:HD2	1.67	0.43
17:J:140:LEU:HG	17:J:142:ILE:HG12	2.00	0.43
29:V:31:TYR:HE2	29:V:90:ASP:HB3	1.82	0.43
33:Z:12:ALA:HA	33:Z:15:ARG:HG2	2.00	0.43
34:a:436:C:H2'	34:a:437:U:C6	2.53	0.43
34:a:736:C:H2'	34:a:737:C:C6	2.54	0.43
34:a:1157:A:C5	34:a:1180:A:C6	3.07	0.43
34:a:1315:U:H2'	34:a:1316:G:C8	2.54	0.43
34:a:1351:U:O4'	40:g:32:ASP:HB3	2.19	0.43
34:a:1500:A:OP1	34:a:1505:G:OP1	2.36	0.43
36:c:131:ARG:NE	36:c:131:ARG:HA	2.34	0.43
37:d:22:SER:O	37:d:24:VAL:N	2.47	0.43
40:g:25:PHE:HE2	40:g:119:LEU:HD21	1.83	0.43
46:m:84:CYS:HB2	52:s:72:GLU:HB3	2.00	0.43
53:t:66:ILE:HB	53:t:70:LYS:HD3	2.01	0.43
55:v:52:G:C6	55:v:53:G:N7	2.87	0.43
57:x:471:ARG:HD2	57:x:475:GLU:OE2	2.18	0.43
6:5:79:PRO:O	8:A:1107:G:H4'	2.19	0.42
8:A:286:U:C2	8:A:287:G:C8	3.07	0.42
8:A:392:U:H2'	8:A:393:C:C6	2.54	0.42
8:A:826:U:H2'	8:A:828:U:O4'	2.19	0.42
8:A:1048:A:C5	8:A:1110:G:N2	2.86	0.42
8:A:1067:A:H2'	8:A:1068:G:H21	1.83	0.42
8:A:1402:U:O2'	8:A:1470:A:N1	2.43	0.42
8:A:2340:A:H2'	8:A:2341:G:C8	2.54	0.42
8:A:2758:A:C2	14:G:70:LEU:HD11	2.54	0.42
8:A:2857:G:N2	8:A:2859:G:H3'	2.33	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:7:G:O2'	22:O:38:GLN:NE2	2.52	0.42
9:B:14:U:O2	9:B:107:G:H4'	2.18	0.42
17:J:78:THR:HG21	17:J:85:LYS:HE2	2.01	0.42
24:Q:90:ASP:N	24:Q:90:ASP:OD1	2.49	0.42
28:U:70:ALA:HB3	28:U:79:ALA:HB1	2.00	0.42
34:a:284:C:H2'	34:a:285:C:C6	2.54	0.42
34:a:586:C:H2'	34:a:587:G:O4'	2.19	0.42
34:a:649:A:H2'	34:a:650:G:O4'	2.19	0.42
34:a:1315:U:O2'	34:a:1360:A:N3	2.45	0.42
34:a:1372:U:C4	34:a:1373:G:C5	3.07	0.42
34:a:1493:A:C6	56:w:37:MIA:C5'	3.01	0.42
44:k:45:THR:OG1	44:k:48:GLY:N	2.42	0.42
46:m:68:LEU:HA	46:m:68:LEU:HD12	1.78	0.42
51:r:62:ARG:HB3	51:r:69:TYR:CZ	2.54	0.42
56:w:18:G:O2'	56:w:57:G:N1	2.40	0.42
57:x:167:PRO:O	57:x:184:LEU:HD12	2.19	0.42
57:x:254:ARG:NH2	57:x:259:GLU:HB3	2.34	0.42
57:x:617:LYS:HB2	57:x:684:LEU:HD13	2.00	0.42
8:A:995:C:O2	17:J:3:THR:OG1	2.33	0.42
8:A:1005:C:H1'	8:A:1012:U:N3	2.33	0.42
8:A:1168:G:H2'	8:A:1169:A:C8	2.55	0.42
8:A:1276:A:O2'	21:N:16:HIS:NE2	2.46	0.42
8:A:1278:C:H2'	8:A:1279:G:H8	1.84	0.42
8:A:1504:A:H2'	8:A:1505:A:H8	1.85	0.42
8:A:2052:A:C8	11:D:146:ILE:HD11	2.53	0.42
8:A:2113:U:H2'	8:A:2114:A:H4'	2.01	0.42
8:A:2114:A:H2'	8:A:2114:A:N3	2.35	0.42
8:A:2194:U:H2'	8:A:2195:U:H6	1.83	0.42
9:B:116:G:H4'	22:O:54:VAL:O	2.19	0.42
11:D:8:LYS:HB2	11:D:201:LEU:HD11	2.01	0.42
14:G:59:ASP:HB2	14:G:62:ALA:HB3	2.01	0.42
22:O:111:ARG:NE	22:O:117:PHE:O	2.52	0.42
34:a:91:U:H6	34:a:91:U:O5'	2.01	0.42
34:a:487:A:H3'	34:a:488:C:C6	2.54	0.42
34:a:634:C:H2'	34:a:635:A:C8	2.53	0.42
34:a:674:G:H2'	34:a:675:A:C8	2.54	0.42
34:a:838:G:H2'	34:a:839:C:C6	2.54	0.42
36:c:88:LYS:HD2	36:c:88:LYS:HA	1.80	0.42
37:d:142:VAL:HG22	37:d:179:GLY:O	2.19	0.42
39:f:94:HIS:O	39:f:96:VAL:HG23	2.19	0.42
40:g:26:VAL:HG11	40:g:39:GLU:HG2	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:j:52:LEU:HB2	47:n:81:ARG:CD	2.48	0.42
48:o:63:ARG:HA	48:o:63:ARG:HD2	1.70	0.42
52:s:31:ARG:HD2	52:s:56:HIS:CD2	2.54	0.42
54:u:4:LYS:HD2	54:u:6:ARG:NH2	2.34	0.42
54:u:20:ARG:O	54:u:23:GLU:HG2	2.20	0.42
57:x:126:TRP:CD1	57:x:161:LEU:HD22	2.54	0.42
3:2:12:ARG:NH1	8:A:465:G:OP1	2.51	0.42
8:A:445:C:H2'	8:A:446:G:O4'	2.18	0.42
8:A:614:A:O2'	8:A:615:U:OP2	2.36	0.42
8:A:881:G:H2'	8:A:881:G:N3	2.34	0.42
8:A:1754:A:H4'	23:P:102:ARG:HH21	1.84	0.42
8:A:2389:G:H5''	8:A:2390:U:O4'	2.20	0.42
15:H:69:ALA:O	15:H:71:LYS:HG3	2.19	0.42
17:J:42:ALA:O	24:Q:63:ARG:HD3	2.19	0.42
18:K:71:ARG:HH22	18:K:105:ARG:H	1.67	0.42
33:Z:4:ILE:HG22	33:Z:58:GLU:HA	2.01	0.42
34:a:195:A:H1'	34:a:222:C:O2'	2.19	0.42
34:a:501:C:OP1	45:l:113:ARG:NH2	2.52	0.42
34:a:595:A:N6	34:a:641:U:O2'	2.51	0.42
34:a:768:A:N3	34:a:1512:U:O2'	2.53	0.42
34:a:855:U:OP2	34:a:871:U:N3	2.34	0.42
34:a:1220:G:P	47:n:53:ARG:HH12	2.42	0.42
34:a:1417:G:H1	34:a:1482:G:H1	1.67	0.42
40:g:71:THR:HA	40:g:95:ARG:NH2	2.33	0.42
42:i:40:ARG:HH21	42:i:71:ILE:HD12	1.84	0.42
51:r:54:LEU:O	51:r:58:ILE:HG12	2.20	0.42
56:w:22:G:H2'	56:w:23:A:H8	1.85	0.42
57:x:459:GLY:HA3	57:x:465:LEU:HD21	2.01	0.42
7:6:63:ARG:HD2	52:s:4:LEU:HD21	2.00	0.42
8:A:13:A:O2'	8:A:15:G:N7	2.40	0.42
8:A:39:G:H1'	12:E:43:THR:HG21	2.01	0.42
8:A:81:G:H2'	8:A:82:U:O4'	2.20	0.42
8:A:131:A:H2'	8:A:132:G:C8	2.55	0.42
8:A:353:C:H2'	8:A:354:A:H8	1.84	0.42
8:A:621:A:C5	8:A:622:G:H1'	2.55	0.42
8:A:1084:A:O2'	8:A:1105:U:O2	2.30	0.42
8:A:1422:G:H1'	8:A:1496:A:N1	2.35	0.42
8:A:1534:U:H3	8:A:1537:G:H1	1.65	0.42
8:A:2506:U:H1'	58:y:101:FME:HE3	2.02	0.42
8:A:2552:OMU:HM23	8:A:2552:OMU:H1'	1.46	0.42
8:A:2679:A:H2'	8:A:2680:U:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:F:11:VAL:HA	13:F:14:LYS:HG2	2.01	0.42
27:T:29:THR:OG1	27:T:86:THR:HG22	2.20	0.42
34:a:496:A:O2'	34:a:497:G:C8	2.73	0.42
34:a:604:G:H2'	34:a:605:U:O4'	2.18	0.42
34:a:1237:C:C4	34:a:1336:C:N3	2.88	0.42
34:a:1282:C:H2'	34:a:1283:U:C6	2.55	0.42
34:a:1353:G:H2'	34:a:1354:U:H6	1.85	0.42
37:d:12:ARG:HA	37:d:33:ILE:HG13	2.01	0.42
42:i:55:ASP:N	42:i:55:ASP:OD1	2.51	0.42
57:x:130:ASN:OD1	57:x:136:ARG:NH2	2.49	0.42
8:A:172:A:H2'	8:A:173:A:H8	1.84	0.42
8:A:984:A:H2'	8:A:984:A:N3	2.34	0.42
8:A:995:C:H1'	24:Q:92:LYS:HZ3	1.84	0.42
8:A:1048:A:C6	8:A:1110:G:N2	2.87	0.42
8:A:1079:C:H2'	8:A:1080:A:H3'	2.01	0.42
8:A:1426:G:OP2	8:A:1427:A:O2'	2.26	0.42
8:A:1478:G:O6	8:A:1513:U:O4	2.38	0.42
8:A:1783:A:C2	8:A:2587:A:C4	3.08	0.42
8:A:1816:C:H41	10:C:34:GLU:CD	2.25	0.42
8:A:2795:C:H2'	8:A:2796:U:O4'	2.19	0.42
8:A:2851:A:O2'	21:N:64:ARG:NH2	2.53	0.42
9:B:28:C:OP1	22:O:31:THR:HG21	2.19	0.42
10:C:92:LEU:HB2	10:C:102:TYR:CE1	2.54	0.42
15:H:2:GLN:NE2	15:H:20:ASN:HB3	2.34	0.42
18:K:41:ILE:CD1	18:K:86:LEU:HD22	2.49	0.42
24:Q:75:TYR:CZ	24:Q:79:ILE:HG13	2.55	0.42
25:R:3:ALA:HB1	25:R:59:ILE:HD11	2.02	0.42
34:a:260:G:H2'	34:a:261:U:C6	2.54	0.42
34:a:872:A:C8	34:a:874:G:C8	3.07	0.42
34:a:949:A:H2'	34:a:950:U:C6	2.55	0.42
34:a:1009:U:H2'	34:a:1010:U:H6	1.85	0.42
34:a:1208:C:H2'	34:a:1209:C:H6	1.84	0.42
34:a:1418:A:OP2	34:a:1419:G:H5''	2.20	0.42
39:f:42:TRP:CD1	39:f:42:TRP:N	2.87	0.42
52:s:14:LEU:HD22	52:s:34:SER:OG	2.19	0.42
57:x:278:LEU:HA	57:x:278:LEU:HD23	1.78	0.42
57:x:616:MET:HE3	57:x:616:MET:HB3	1.85	0.42
8:A:195:A:H3'	8:A:196:A:H4'	2.02	0.42
8:A:372:G:H2'	31:X:57:VAL:HG22	2.01	0.42
8:A:729:G:C6	10:C:206:LYS:HB2	2.53	0.42
8:A:943:A:O5'	8:A:943:A:H8	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:956:G:H5''	20:M:76:LYS:HD2	2.02	0.42
8:A:1224:U:OP2	25:R:68:ARG:NH1	2.47	0.42
8:A:1405:U:H2'	8:A:1406:U:H6	1.84	0.42
8:A:1614:A:C6	26:S:87:PRO:HB3	2.55	0.42
8:A:1684:G:H2'	8:A:1685:C:C6	2.55	0.42
8:A:2014:A:H5'	26:S:94:ASP:CG	2.44	0.42
8:A:2020:A:O2'	8:A:2021:C:H5'	2.19	0.42
8:A:2329:U:H2'	8:A:2330:G:H8	1.84	0.42
8:A:2455:G:H2'	8:A:2456:C:C6	2.54	0.42
8:A:2839:G:O2'	21:N:49:GLU:OE1	2.34	0.42
13:F:134:GLN:HE22	13:F:148:VAL:HA	1.84	0.42
17:J:45:THR:HG22	17:J:47:HIS:CD2	2.54	0.42
22:O:12:THR:O	22:O:16:ARG:HG2	2.19	0.42
24:Q:13:HIS:HD2	24:Q:31:TYR:CZ	2.37	0.42
24:Q:108:LEU:CD2	25:R:49:ILE:HG21	2.49	0.42
28:U:5:ARG:HA	28:U:5:ARG:HD3	1.83	0.42
34:a:102:G:H2'	34:a:103:U:C6	2.54	0.42
34:a:421:U:H5''	34:a:422:C:C5	2.54	0.42
34:a:648:A:H2'	34:a:649:A:H8	1.84	0.42
34:a:813:U:H2'	34:a:814:A:H5''	2.00	0.42
34:a:1160:G:C2	34:a:1161:C:C6	3.08	0.42
34:a:1213:A:O2'	34:a:1215:G:N7	2.46	0.42
34:a:1258:G:H2'	34:a:1259:C:C6	2.55	0.42
34:a:1303:C:N4	34:a:1304:G:C6	2.88	0.42
34:a:1489:G:H2'	34:a:1490:U:O4'	2.20	0.42
34:a:1539:C:O3'	34:a:1540:U:H4'	2.20	0.42
35:b:151:LYS:NZ	35:b:152:ASP:OD2	2.52	0.42
38:e:54:GLU:HG2	38:e:57:ALA:HB3	2.01	0.42
55:v:19:G:C2	55:v:57:A:N3	2.87	0.42
55:v:66:C:H2'	55:v:67:C:C6	2.55	0.42
57:x:179:THR:C	57:x:272:LYS:HD3	2.44	0.42
57:x:413:PRO:HG2	57:x:445:ARG:HG2	2.00	0.42
5:4:19:ARG:NE	8:A:2756:U:OP2	2.36	0.42
7:6:1:MET:HB3	7:6:1:MET:HE2	1.78	0.42
8:A:306:U:H2'	8:A:307:G:O4'	2.20	0.42
8:A:1141:U:H2'	17:J:65:THR:CG2	2.45	0.42
8:A:1474:U:H5'	8:A:1475:G:OP2	2.20	0.42
8:A:1564:C:H2'	8:A:1565:C:C6	2.54	0.42
9:B:34:A:H2'	9:B:44:G:N7	2.35	0.42
10:C:83:ASP:HB2	10:C:90:ILE:HG23	2.01	0.42
13:F:43:ILE:HA	13:F:82:TYR:HE2	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:F:116:LEU:HD22	13:F:129:MET:HG2	2.01	0.42
21:N:38:LEU:HB3	21:N:39:PRO:HD3	2.02	0.42
23:P:5:LYS:HD3	23:P:5:LYS:HA	1.73	0.42
24:Q:46:TYR:CD1	25:R:74:ILE:HG23	2.54	0.42
26:S:9:HIS:ND1	26:S:102:HIS:HE1	2.18	0.42
26:S:30:SER:OG	26:S:31:GLN:N	2.51	0.42
28:U:42:LYS:O	28:U:44:HIS:HD2	2.03	0.42
34:a:79:G:N2	34:a:91:U:O2	2.52	0.42
34:a:113:G:H2'	34:a:114:U:H6	1.84	0.42
34:a:402:G:H5'	34:a:621:A:H1'	2.02	0.42
34:a:1057:G:C4	34:a:1204:A:C2	3.08	0.42
34:a:1118:U:H5'	42:i:105:ARG:HG3	2.02	0.42
34:a:1332:A:N3	46:m:107:THR:HG21	2.34	0.42
34:a:1356:G:H2'	34:a:1357:A:H8	1.80	0.42
37:d:170:LEU:HD23	37:d:170:LEU:HA	1.76	0.42
38:e:87:VAL:HG23	38:e:92:ARG:HG2	2.00	0.42
41:h:17:GLN:NE2	41:h:62:LEU:HB3	2.34	0.42
54:u:39:LYS:HG2	54:u:41:THR:HG22	2.01	0.42
57:x:26:THR:O	57:x:30:LEU:HG	2.19	0.42
57:x:257:ASN:HB3	57:x:259:GLU:HG3	2.02	0.42
57:x:272:LYS:HB2	57:x:272:LYS:HE3	1.80	0.42
57:x:647:GLU:HB3	57:x:648:VAL:H	1.62	0.42
1:0:27:LEU:HD23	1:0:27:LEU:HA	1.84	0.42
3:2:10:LEU:HD13	8:A:125:A:C6	2.55	0.42
8:A:308:G:H2'	8:A:309:A:C8	2.54	0.42
8:A:910:A:H2'	8:A:911:A:C8	2.55	0.42
8:A:1061:U:O2'	16:I:9:LYS:O	2.30	0.42
8:A:1178:C:H4'	8:A:1179:G:N7	2.34	0.42
8:A:1318:U:C2	8:A:1319:C:C5	3.08	0.42
8:A:2251:OMG:HM23	8:A:2251:OMG:H1'	1.55	0.42
8:A:2577:A:H2'	8:A:2614:A:N6	2.35	0.42
8:A:2677:G:H2'	8:A:2678:C:C6	2.55	0.42
11:D:103:ASP:OD1	11:D:103:ASP:N	2.52	0.42
18:K:25:LEU:HD21	18:K:40:LYS:HB2	2.01	0.42
21:N:96:ARG:CZ	21:N:116:VAL:HG12	2.50	0.42
27:T:82:LYS:HE3	27:T:82:LYS:HB2	1.85	0.42
29:V:31:TYR:O	29:V:92:VAL:HA	2.20	0.42
34:a:5:U:H4'	34:a:6:G:O5'	2.20	0.42
34:a:147:G:H2'	34:a:148:G:C8	2.55	0.42
34:a:211:G:C5	34:a:212:G:H1'	2.55	0.42
34:a:513:C:H2'	34:a:514:C:H6	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:859:G:OP2	34:a:869:G:N1	2.29	0.42
34:a:1264:U:H2'	34:a:1265:C:C6	2.55	0.42
34:a:1268:G:N3	34:a:1326:U:O2'	2.50	0.42
34:a:1308:U:H2'	34:a:1309:G:C8	2.54	0.42
34:a:1520:C:H2'	34:a:1521:C:H6	1.85	0.42
36:c:118:SER:O	36:c:121:SER:OG	2.34	0.42
37:d:78:ALA:HA	37:d:81:LEU:HB2	2.02	0.42
39:f:18:VAL:HG21	39:f:58:HIS:CD2	2.54	0.42
43:j:6:ILE:HD11	43:j:79:PRO:HG3	2.01	0.42
45:l:21:PRO:HD2	45:l:93:ARG:NH2	2.31	0.42
45:l:101:LEU:C	45:l:103:CYS:H	2.27	0.42
46:m:105:ALA:O	46:m:109:LYS:CB	2.66	0.42
55:v:20:H2U:C2'	55:v:21:A:H5'	2.50	0.42
56:w:36:A:C2	59:z:5:U:N3	2.88	0.42
57:x:86:ILE:HD11	57:x:381:ILE:HD13	2.02	0.42
57:x:373:ILE:HD11	57:x:376:VAL:HG12	2.01	0.42
8:A:694:U:OP1	10:C:58:LYS:NZ	2.43	0.42
8:A:714:U:H2'	8:A:715:A:H3'	2.02	0.42
8:A:1398:C:C2	8:A:1399:C:C5	3.07	0.42
8:A:1504:A:H2'	8:A:1505:A:C8	2.55	0.42
8:A:1671:U:O2'	8:A:1673:G:N7	2.43	0.42
8:A:2302:U:C2	8:A:2303:G:C8	3.08	0.42
8:A:2325:G:O2'	8:A:2326:C:H5'	2.20	0.42
9:B:33:G:H2'	9:B:34:A:C8	2.54	0.42
9:B:42:C:C5	13:F:65:LEU:HD22	2.55	0.42
13:F:127:TYR:HB2	13:F:169:LEU:HD11	2.02	0.42
17:J:28:LEU:O	17:J:32:LEU:HG	2.19	0.42
34:a:477:C:H2'	34:a:478:A:C8	2.55	0.42
34:a:901:A:C5	34:a:902:G:H1'	2.55	0.42
34:a:1454:G:H8	34:a:1454:G:OP2	2.02	0.42
40:g:21:LEU:HB3	40:g:61:PHE:CE2	2.51	0.42
41:h:4:ASP:HB2	41:h:80:PRO:HG3	2.01	0.42
48:o:25:GLU:HG3	48:o:80:LEU:HD13	2.02	0.42
48:o:79:GLN:O	48:o:82:GLU:HG3	2.20	0.42
55:v:21:A:C6	55:v:46:A:N3	2.87	0.42
57:x:322:LYS:HB3	57:x:334:PHE:HB2	2.01	0.42
57:x:414:VAL:HG23	57:x:415:ILE:HG12	2.02	0.42
57:x:661:GLU:HG3	57:x:662:MET:N	2.33	0.42
57:x:682:GLU:H	57:x:682:GLU:CD	2.27	0.42
1:O:4:GLN:NE2	8:A:2056:G:H4'	2.35	0.42
7:6:60:PHE:CD2	52:s:41:PRO:HD3	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:226:A:N1	8:A:418:C:O2'	2.48	0.42
8:A:394:C:H2'	8:A:395:U:O4'	2.20	0.42
8:A:460:A:H2'	8:A:461:C:O4'	2.19	0.42
8:A:585:G:N1	8:A:1253:A:OP2	2.33	0.42
8:A:627:A:H5''	19:L:78:ARG:NH1	2.20	0.42
8:A:743:A:OP1	11:D:135:GLY:HA2	2.20	0.42
8:A:906:U:H2'	8:A:907:G:O4'	2.20	0.42
8:A:1585:C:H3'	8:A:1586:A:H8	1.84	0.42
8:A:1761:C:H2'	8:A:1762:A:O4'	2.20	0.42
8:A:1912:A:H1'	34:a:1494:G:H21	1.84	0.42
8:A:2162:G:H3'	8:A:2163:A:H8	1.85	0.42
8:A:2287:A:C8	8:A:2289:G:C8	3.08	0.42
8:A:2418:A:H2'	8:A:2419:U:O4'	2.20	0.42
8:A:2726:A:O2'	8:A:2727:A:O5'	2.34	0.42
8:A:2873:A:O2'	8:A:2874:C:H5'	2.19	0.42
10:C:231:HIS:CD2	10:C:231:HIS:N	2.86	0.42
11:D:73:VAL:CG1	11:D:93:GLY:HA2	2.50	0.42
15:H:116:ARG:HB2	15:H:131:SER:HB3	2.02	0.42
15:H:128:HIS:O	15:H:143:ILE:HA	2.19	0.42
17:J:26:GLY:O	17:J:30:THR:HG23	2.20	0.42
17:J:69:ARG:HD3	17:J:89:PHE:HD1	1.85	0.42
20:M:18:ARG:HE	20:M:18:ARG:HB3	1.55	0.42
34:a:7:A:H5''	34:a:298:A:O4'	2.20	0.42
34:a:1213:A:C4	34:a:1215:G:C8	3.08	0.42
34:a:1342:C:O2'	42:i:125:GLN:HA	2.20	0.42
34:a:1404:C:H2'	34:a:1405:G:C8	2.55	0.42
34:a:1462:C:H2'	34:a:1463:U:C6	2.55	0.42
35:b:35:ASN:OD1	35:b:35:ASN:N	2.52	0.42
35:b:213:LEU:HA	35:b:216:VAL:HG12	2.02	0.42
36:c:171:ARG:HE	36:c:173:PRO:HG3	1.85	0.42
38:e:156:ARG:HA	41:h:63:LYS:NZ	2.35	0.42
40:g:72:VAL:HG11	40:g:87:PRO:HB3	2.02	0.42
41:h:95:MET:SD	41:h:129:ALA:HB1	2.60	0.42
45:l:41:PRO:HD3	45:l:49:ARG:HG2	2.01	0.42
45:l:82:ARG:NH1	45:l:83:GLY:O	2.52	0.42
47:n:20:PHE:C	47:n:22:LYS:H	2.27	0.42
52:s:41:PRO:HA	52:s:44:ILE:HG12	2.02	0.42
57:x:31:PHE:HD2	57:x:32:TYR:CE1	2.37	0.42
57:x:440:GLU:O	57:x:442:PRO:HD3	2.20	0.42
1:0:6:LYS:HB2	1:0:6:LYS:HE3	1.75	0.41
4:3:44:ARG:NH1	8:A:2350:C:OP2	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:6:1:MET:HB3	9:B:43:C:H5''	2.02	0.41
8:A:29:U:H2'	8:A:30:G:C8	2.54	0.41
8:A:52:A:H2'	8:A:53:A:C8	2.55	0.41
8:A:216:A:C8	8:A:432:A:C6	3.08	0.41
8:A:250:G:H2'	8:A:251:A:C8	2.55	0.41
8:A:568:U:H5'	8:A:945:A:N6	2.35	0.41
8:A:704:G:H1'	8:A:727:A:H61	1.85	0.41
8:A:895:U:C4	8:A:897:C:N4	2.88	0.41
8:A:1130:U:O2'	8:A:1131:G:H8	2.02	0.41
8:A:1399:C:H2'	8:A:1400:U:H6	1.84	0.41
8:A:1614:A:C2	26:S:93:ALA:HB2	2.54	0.41
8:A:1827:U:H2'	8:A:1828:G:O4'	2.19	0.41
8:A:2461:A:H2'	8:A:2462:C:C6	2.55	0.41
8:A:2638:G:H22	8:A:2775:G:H2'	1.84	0.41
11:D:1:MET:HE2	11:D:2:ILE:HG12	2.02	0.41
11:D:56:LYS:HZ1	11:D:59:ARG:HG3	1.84	0.41
19:L:2:ARG:O	19:L:5:THR:HG22	2.20	0.41
20:M:135:VAL:HG23	29:V:57:TYR:CD2	2.54	0.41
26:S:10:ALA:O	26:S:12:SER:N	2.53	0.41
34:a:95:C:HO2'	34:a:96:U:P	2.41	0.41
34:a:518:C:H2'	34:a:530:G:N3	2.35	0.41
34:a:545:C:H2'	34:a:546:A:O4'	2.20	0.41
34:a:587:G:OP1	41:h:83:ARG:NH2	2.53	0.41
34:a:792:A:C4	34:a:794:A:C6	3.08	0.41
34:a:1303:C:C4	34:a:1304:G:N7	2.87	0.41
34:a:1332:A:H8	34:a:1332:A:P	2.43	0.41
36:c:129:PHE:CE2	36:c:130:ARG:HG3	2.55	0.41
40:g:14:ASP:OD2	40:g:22:LEU:HG	2.20	0.41
40:g:70:PRO:HB3	40:g:102:TRP:CH2	2.54	0.41
52:s:18:VAL:O	52:s:22:VAL:HG22	2.20	0.41
55:v:55:PSU:H2'	55:v:56:C:H3'	2.02	0.41
56:w:22:G:C2	56:w:23:A:N7	2.88	0.41
4:3:3:ILE:HD11	8:A:592:A:H2	1.85	0.41
7:6:16:CYS:SG	7:6:37:CYS:CB	3.07	0.41
8:A:940:G:H2'	8:A:941:A:O4'	2.20	0.41
8:A:1416:G:O2'	8:A:1417:C:O4'	2.36	0.41
8:A:2135:A:H3'	8:A:2136:G:H8	1.84	0.41
8:A:2142:A:H3'	8:A:2143:C:C6	2.54	0.41
8:A:2261:C:C2	8:A:2262:U:C5	3.08	0.41
8:A:2290:G:H2'	8:A:2291:U:C6	2.55	0.41
8:A:2468:A:O2'	8:A:2469:A:C8	2.71	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2848:G:O2'	8:A:2849:U:O5'	2.23	0.41
9:B:52:A:O2'	9:B:53:A:C8	2.73	0.41
12:E:46:GLN:HB3	12:E:83:VAL:HG21	2.02	0.41
12:E:185:LYS:HA	12:E:185:LYS:HD3	1.88	0.41
18:K:61:VAL:HB	18:K:87:LEU:HD11	2.03	0.41
19:L:127:VAL:HG12	19:L:128:THR:O	2.20	0.41
34:a:79:G:O3'	34:a:80:A:H3'	2.20	0.41
34:a:246:A:C8	34:a:279:A:C6	3.08	0.41
34:a:522:C:OP1	45:l:68:GLY:N	2.33	0.41
34:a:838:G:H2'	34:a:839:C:H6	1.86	0.41
34:a:900:A:H2'	34:a:901:A:C8	2.55	0.41
34:a:921:U:H2'	34:a:922:G:O4'	2.20	0.41
34:a:1415:G:H2'	34:a:1416:G:H8	1.81	0.41
36:c:179:ALA:HB1	36:c:202:PHE:CE1	2.56	0.41
38:e:9:GLU:HB3	38:e:10:LEU:H	1.73	0.41
40:g:70:PRO:HA	40:g:141:HIS:NE2	2.35	0.41
45:l:49:ARG:CG	45:l:89:LEU:HD21	2.48	0.41
45:l:80:LEU:HD12	45:l:80:LEU:HA	1.95	0.41
48:o:24:THR:HG21	48:o:68:TYR:CD2	2.55	0.41
56:w:14:A:C5	56:w:22:G:C2	3.08	0.41
56:w:40:C:H2'	56:w:41:C:H6	1.85	0.41
57:x:15:SER:OG	57:x:110:MET:SD	2.77	0.41
57:x:192:TRP:CD1	57:x:201:PHE:HB3	2.55	0.41
57:x:335:PHE:CE1	57:x:384:ALA:HB2	2.55	0.41
8:A:236:C:H2'	8:A:237:C:H6	1.85	0.41
8:A:288:U:H2'	8:A:289:G:H8	1.84	0.41
8:A:783:A:H2'	8:A:784:G:H4'	2.03	0.41
8:A:1050:A:C5	8:A:1051:G:C8	3.08	0.41
8:A:1071:G:H2'	8:A:1071:G:N3	2.35	0.41
8:A:1093:G:O3'	8:A:1094:U:H4'	2.20	0.41
8:A:1435:G:H2'	8:A:1436:G:C8	2.56	0.41
8:A:2089:C:C4	8:A:2090:A:N7	2.88	0.41
8:A:2259:U:H2'	8:A:2260:C:C6	2.55	0.41
8:A:2295:C:O2'	8:A:2296:U:H5'	2.20	0.41
8:A:2561:U:O3'	18:K:40:LYS:NZ	2.41	0.41
8:A:2814:A:H2'	8:A:2815:C:H6	1.85	0.41
10:C:64:VAL:HG21	10:C:86:ARG:HH12	1.85	0.41
10:C:153:LEU:HD22	10:C:175:LEU:HD22	2.02	0.41
10:C:163:ILE:HA	10:C:173:LEU:HD23	2.02	0.41
11:D:116:LYS:HG3	21:N:1:MET:SD	2.60	0.41
12:E:6:LYS:HB3	12:E:121:VAL:HG12	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:37:ALA:HA	12:E:40:ARG:HG3	2.03	0.41
14:G:21:GLN:NE2	14:G:37:ASN:O	2.52	0.41
16:I:83:ALA:HB1	16:I:99:LYS:H	1.85	0.41
33:Z:2:LYS:HG3	33:Z:39:ASP:HB3	2.01	0.41
34:a:18:C:H4'	34:a:1078:U:O2	2.21	0.41
34:a:109:A:H5'	34:a:110:C:H5	1.84	0.41
34:a:151:A:H2'	34:a:152:A:O4'	2.20	0.41
34:a:492:C:H2'	34:a:493:A:C8	2.56	0.41
34:a:548:G:H2'	34:a:549:C:C6	2.54	0.41
34:a:803:G:H2'	34:a:804:U:C6	2.55	0.41
34:a:963:G:C2	34:a:964:A:C8	3.09	0.41
34:a:1096:C:H2'	34:a:1097:C:H6	1.83	0.41
34:a:1318:A:H1'	52:s:36:ARG:HH11	1.84	0.41
37:d:10:LEU:HG	37:d:62:ARG:NE	2.27	0.41
37:d:196:GLU:O	37:d:200:VAL:HG23	2.20	0.41
48:o:42:PHE:CD1	48:o:52:ARG:HG2	2.55	0.41
48:o:57:ARG:O	48:o:61:GLN:HG2	2.20	0.41
50:q:39:ARG:HA	50:q:39:ARG:HD2	1.81	0.41
52:s:44:ILE:HD12	52:s:63:ASP:HA	2.01	0.41
55:v:25:C:C4	55:v:26:G:N7	2.88	0.41
57:x:199:VAL:HA	57:x:275:GLN:HE22	1.84	0.41
57:x:616:MET:HE1	57:x:659:LEU:HA	2.02	0.41
6:5:26:VAL:HA	6:5:83:ALA:N	2.34	0.41
8:A:21:A:H2'	8:A:22:C:C6	2.55	0.41
8:A:69:C:O2	8:A:73:A:O2'	2.36	0.41
8:A:185:G:H2'	8:A:186:G:O4'	2.20	0.41
8:A:243:U:C2	8:A:255:A:N7	2.88	0.41
8:A:779:U:OP1	10:C:48:ILE:HG13	2.20	0.41
8:A:892:A:H2'	8:A:893:C:O4'	2.20	0.41
8:A:995:C:H1'	24:Q:92:LYS:NZ	2.34	0.41
8:A:1477:A:N1	8:A:1557:C:O2'	2.50	0.41
8:A:1722:A:H2'	8:A:1723:G:H8	1.85	0.41
8:A:1824:G:O3'	10:C:246:PRO:HD3	2.20	0.41
8:A:1915:3TD:OP1	56:w:25:C:O2'	2.37	0.41
8:A:2120:G:N1	8:A:2180:U:O4	2.53	0.41
8:A:2553:G:N1	8:A:2554:U:O2	2.54	0.41
8:A:2808:G:O2'	8:A:2809:A:O5'	2.36	0.41
14:G:10:VAL:HG12	14:G:48:THR:HA	2.01	0.41
14:G:108:PHE:HE1	14:G:151:ARG:HD3	1.85	0.41
21:N:8:ARG:NH2	21:N:43:GLU:OE2	2.49	0.41
21:N:90:ARG:HB2	21:N:94:TYR:CE1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:22:G:H2'	34:a:23:C:H6	1.85	0.41
34:a:384:G:H2'	34:a:385:C:H6	1.85	0.41
34:a:1152:A:H2'	34:a:1153:G:C8	2.55	0.41
34:a:1163:A:H2'	34:a:1164:G:H8	1.85	0.41
35:b:100:LEU:HB3	35:b:178:LEU:HD12	2.03	0.41
36:c:11:LEU:HD11	47:n:91:GLY:HA2	2.02	0.41
38:e:67:ARG:O	38:e:70:MET:HE2	2.20	0.41
39:f:32:ALA:HB2	39:f:70:VAL:HG11	2.02	0.41
40:g:70:PRO:O	40:g:95:ARG:NH1	2.52	0.41
40:g:122:GLU:HA	40:g:125:ASP:HB2	2.03	0.41
45:l:41:PRO:HD2	45:l:47:ALA:O	2.20	0.41
47:n:51:LEU:HD23	47:n:51:LEU:HA	1.92	0.41
48:o:63:ARG:HH12	48:o:88:ARG:HH22	1.69	0.41
57:x:196:ASP:OD1	57:x:200:THR:OG1	2.28	0.41
57:x:277:MET:HE3	57:x:277:MET:HB3	1.96	0.41
57:x:361:ARG:HB3	57:x:385:ILE:HG21	2.02	0.41
57:x:365:MET:HG3	57:x:366:HIS:H	1.85	0.41
8:A:175:G:H2'	8:A:176:A:C8	2.55	0.41
8:A:608:A:H2'	8:A:609:A:O4'	2.21	0.41
8:A:671:C:H2'	8:A:672:C:H6	1.86	0.41
8:A:981:A:H2	8:A:2027:G:N3	2.19	0.41
8:A:1282:U:H2'	8:A:1283:G:O4'	2.20	0.41
8:A:1366:A:OP1	31:X:1:SER:OG	2.37	0.41
8:A:1433:A:H2'	8:A:1434:A:O4'	2.21	0.41
8:A:1769:U:O2'	8:A:1958:C:OP1	2.36	0.41
8:A:2061:G:O2'	8:A:2063:C:H5	2.03	0.41
8:A:2090:A:C6	8:A:2230:G:O6	2.74	0.41
8:A:2507:C:O5'	8:A:2507:C:H6	2.04	0.41
8:A:2711:A:N6	8:A:2714:G:C5	2.89	0.41
8:A:2743:U:H2'	8:A:2744:G:O4'	2.21	0.41
9:B:8:C:O3'	22:O:25:ARG:NH1	2.53	0.41
9:B:48:U:H2'	9:B:49:C:C6	2.55	0.41
10:C:159:THR:O	10:C:194:VAL:HG23	2.20	0.41
12:E:76:PRO:HA	12:E:82:GLY:O	2.20	0.41
15:H:4:ILE:HA	15:H:17:ASP:O	2.20	0.41
15:H:101:ASP:OD1	15:H:102:ALA:N	2.53	0.41
15:H:130:VAL:N	15:H:142:VAL:O	2.54	0.41
15:H:136:SER:OG	15:H:137:GLU:OE1	2.32	0.41
20:M:25:ASP:OD1	20:M:25:ASP:N	2.49	0.41
20:M:34:LYS:HA	20:M:101:VAL:HA	2.03	0.41
21:N:78:LYS:HG3	21:N:83:LEU:HD12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:Q:67:ALA:HB2	24:Q:98:ALA:HB1	2.02	0.41
34:a:515:G:O2'	34:a:516:PSU:O4'	2.33	0.41
34:a:701:U:OP1	34:a:702:A:O2'	2.30	0.41
34:a:962:C:C2	34:a:963:G:C8	3.08	0.41
34:a:1160:G:H5'	35:b:130:LYS:HE2	2.03	0.41
34:a:1235:U:H2'	34:a:1236:A:O4'	2.20	0.41
34:a:1264:U:H2'	34:a:1265:C:H6	1.86	0.41
36:c:128:MET:HG2	36:c:130:ARG:H	1.86	0.41
36:c:142:ARG:HG3	36:c:143:LEU:N	2.35	0.41
37:d:49:ASP:O	37:d:52:VAL:HG22	2.21	0.41
38:e:136:VAL:O	38:e:140:ILE:HG12	2.19	0.41
52:s:17:LYS:HA	52:s:20:LYS:HE3	2.02	0.41
55:v:35:A:H2'	55:v:36:U:H6	1.83	0.41
57:x:222:ILE:HA	57:x:247:ILE:HD11	2.01	0.41
57:x:267:SER:N	57:x:272:LYS:O	2.31	0.41
57:x:642:LYS:HB3	57:x:654:HIS:HB2	2.02	0.41
3:2:17:GLY:O	3:2:21:ARG:HG2	2.21	0.41
5:4:2:LYS:HD3	5:4:4:ARG:HE	1.85	0.41
5:4:7:VAL:HG12	5:4:35:GLN:HB3	2.03	0.41
8:A:2:G:H2'	8:A:3:U:C6	2.55	0.41
8:A:408:G:H2'	8:A:409:G:C8	2.56	0.41
8:A:501:A:O5'	8:A:501:A:H8	2.04	0.41
8:A:1010:A:H1'	8:A:1153:C:H1'	2.02	0.41
8:A:1039:A:H2'	8:A:1040:A:O4'	2.20	0.41
8:A:1070:A:C6	8:A:1095:A:H8	2.38	0.41
8:A:1469:A:H2'	8:A:1470:A:H8	1.84	0.41
8:A:1669:A:O3'	8:A:2549:G:H5'	2.20	0.41
8:A:1710:G:H2'	8:A:1711:A:H8	1.84	0.41
8:A:1910:G:H2'	8:A:1911:PSU:O4'	2.20	0.41
8:A:1912:A:N1	34:a:1407:5MC:O2'	2.49	0.41
8:A:2298:A:OP1	13:F:70:ARG:HD2	2.20	0.41
8:A:2340:A:H2'	8:A:2341:G:H8	1.85	0.41
8:A:2376:A:N1	22:O:92:PHE:HD2	2.19	0.41
8:A:2393:U:H2'	8:A:2394:C:O4'	2.20	0.41
11:D:14:ILE:HG12	11:D:24:VAL:HG21	2.02	0.41
14:G:148:ARG:NH1	14:G:152:ARG:HG2	2.35	0.41
15:H:32:PRO:HA	31:X:38:TRP:CD1	2.56	0.41
16:I:120:ASP:N	16:I:123:ALA:HB3	2.35	0.41
16:I:139:VAL:O	16:I:141:ASP:N	2.51	0.41
19:L:20:GLY:CA	19:L:28:GLY:HA2	2.50	0.41
25:R:79:ARG:O	25:R:80:ARG:HB2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:355:C:C4	34:a:356:A:N7	2.89	0.41
34:a:987:G:H2'	34:a:988:G:C8	2.56	0.41
34:a:1208:C:H2'	34:a:1209:C:C6	2.56	0.41
34:a:1392:G:H2'	34:a:1393:U:C6	2.56	0.41
44:k:66:ALA:HB1	44:k:99:LEU:HD12	2.01	0.41
46:m:43:LYS:HB2	46:m:43:LYS:HE2	1.88	0.41
47:n:32:ASP:OD1	47:n:33:VAL:N	2.54	0.41
57:x:170:LEU:CB	57:x:210:MET:HE1	2.50	0.41
57:x:385:ILE:C	57:x:387:LEU:H	2.29	0.41
57:x:463:LEU:O	57:x:467:ILE:HG12	2.21	0.41
3:2:29:GLN:NE2	8:A:210:C:OP1	2.44	0.41
6:5:28:ALA:O	8:A:1084:A:N6	2.53	0.41
8:A:132:G:H2'	8:A:133:U:H6	1.86	0.41
8:A:240:C:H3'	8:A:241:A:H2'	2.02	0.41
8:A:290:U:H2'	8:A:291:G:O4'	2.21	0.41
8:A:483:A:H3'	8:A:484:C:H6	1.86	0.41
8:A:513:A:H5''	8:A:1216:G:O2'	2.20	0.41
8:A:602:A:O2'	8:A:604:G:O2'	2.17	0.41
8:A:608:A:H2'	8:A:609:A:C8	2.55	0.41
8:A:839:U:H2'	8:A:840:C:C6	2.56	0.41
8:A:1197:G:H2'	8:A:1198:U:C6	2.56	0.41
8:A:1198:U:H2'	8:A:1199:U:H6	1.85	0.41
8:A:1411:U:H2'	8:A:1412:U:O4'	2.20	0.41
8:A:1754:A:C8	23:P:93:LYS:HE2	2.55	0.41
8:A:1817:G:H3'	10:C:155:ARG:HH21	1.86	0.41
8:A:2031:A:C6	8:A:2498:OMC:H1'	2.56	0.41
8:A:2232:C:P	31:X:26:ARG:HH12	2.43	0.41
8:A:2523:G:O2'	8:A:2764:A:O2'	2.34	0.41
9:B:52:A:O2'	9:B:53:A:P	2.78	0.41
10:C:68:ARG:HB3	10:C:128:THR:HG21	2.02	0.41
10:C:260:LYS:HB3	10:C:260:LYS:HE2	1.83	0.41
12:E:155:GLU:HG2	12:E:156:ASN:N	2.34	0.41
19:L:17:LYS:HE2	19:L:27:LEU:HD11	2.03	0.41
23:P:5:LYS:O	23:P:9:GLN:HG2	2.21	0.41
25:R:4:VAL:HG12	25:R:39:LEU:HD12	2.02	0.41
34:a:58:C:O2	34:a:58:C:H2'	2.21	0.41
34:a:843:U:H3'	34:a:844:G:H8	1.85	0.41
34:a:878:A:H5'	41:h:80:PRO:HG2	2.01	0.41
34:a:1350:A:H2'	34:a:1351:U:C6	2.55	0.41
34:a:1368:A:OP1	42:i:112:ARG:NH2	2.53	0.41
35:b:8:MET:C	35:b:10:LYS:H	2.28	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:b:22:TRP:HB3	35:b:38:HIS:CD2	2.56	0.41
35:b:26:MET:HE3	35:b:26:MET:HB3	1.90	0.41
52:s:52:ASN:O	52:s:76:THR:HG22	2.21	0.41
6:5:87:GLU:CB	6:5:93:ALA:HB3	2.51	0.41
8:A:173:A:H2'	8:A:174:U:C6	2.56	0.41
8:A:799:G:OP2	8:A:800:A:O2'	2.31	0.41
8:A:1186:G:H2'	8:A:1187:G:O4'	2.20	0.41
8:A:1394:U:H4'	8:A:1603:A:H4'	2.02	0.41
8:A:1801:A:H5''	8:A:2203:U:C2'	2.51	0.41
8:A:2060:A:O2'	12:E:63:LYS:NZ	2.53	0.41
8:A:2064:C:H2'	8:A:2065:C:H6	1.81	0.41
8:A:2127:G:O6	8:A:2161:C:H1'	2.20	0.41
8:A:2650:U:C2	8:A:2671:G:N2	2.88	0.41
8:A:2812:G:H2'	8:A:2813:A:H8	1.82	0.41
9:B:34:A:H5''	9:B:35:C:H5'	2.02	0.41
10:C:132:ARG:HG3	10:C:166:ARG:NH2	2.35	0.41
17:J:34:ARG:HH22	24:Q:69:ARG:HD2	1.86	0.41
20:M:46:ILE:HA	20:M:103:TYR:OH	2.21	0.41
28:U:80:ASP:OD2	28:U:95:PHE:HB3	2.19	0.41
29:V:6:ALA:HB2	29:V:42:LEU:HD23	2.02	0.41
30:W:71:LYS:CD	30:W:73:ARG:HH21	2.34	0.41
31:X:67:LEU:HD23	31:X:70:LEU:HD12	2.02	0.41
34:a:55:A:H1'	57:x:328:PHE:CD1	2.56	0.41
34:a:75:G:H2'	34:a:76:G:O4'	2.21	0.41
34:a:191:G:H2'	34:a:192:A:H8	1.85	0.41
34:a:371:A:O2'	34:a:373:A:N7	2.48	0.41
34:a:717:U:H5''	34:a:734:G:OP2	2.21	0.41
34:a:855:U:H2'	34:a:856:C:C6	2.56	0.41
38:e:105:ILE:HB	38:e:123:LEU:HA	2.03	0.41
44:k:118:ASN:OD1	54:u:34:ARG:NH1	2.53	0.41
49:p:35:ARG:HH21	49:p:37:GLY:C	2.29	0.41
57:x:25:THR:HG22	57:x:268:ALA:HB2	2.02	0.41
2:1:26:LYS:H	2:1:26:LYS:HG2	1.68	0.41
2:1:27:ARG:HE	2:1:27:ARG:HB2	1.65	0.41
5:4:11:CYS:HB3	5:4:33:HIS:CE1	2.56	0.41
6:5:25:ALA:H	6:5:85:SER:H	1.69	0.41
8:A:41:C:C4	8:A:42:A:N7	2.88	0.41
8:A:225:C:H2'	8:A:226:A:O4'	2.20	0.41
8:A:324:A:H2'	8:A:325:G:O4'	2.21	0.41
8:A:408:G:H2'	8:A:409:G:H8	1.86	0.41
8:A:478:A:N6	8:A:500:G:O2'	2.43	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:488:G:N2	8:A:491:G:H5''	2.36	0.41
8:A:581:C:OP1	24:Q:32:ARG:HG3	2.21	0.41
8:A:685:A:H5''	8:A:788:A:H62	1.86	0.41
8:A:703:U:H2'	8:A:704:G:O4'	2.21	0.41
8:A:902:C:H2'	8:A:903:C:C6	2.56	0.41
8:A:1011:G:C6	8:A:1151:A:C6	3.09	0.41
8:A:1188:U:H4'	25:R:81:LYS:O	2.20	0.41
8:A:1344:U:O2	8:A:1385:A:H5'	2.21	0.41
8:A:1484:U:H2'	8:A:1485:U:C6	2.56	0.41
8:A:2128:G:H1	8:A:2129:C:HO2'	1.61	0.41
8:A:2199:A:N6	8:A:2224:G:O2'	2.51	0.41
8:A:2388:A:H5'	8:A:2389:G:OP2	2.20	0.41
8:A:2529:G:H5''	8:A:2530:A:C5'	2.51	0.41
8:A:2881:U:H4'	21:N:116:VAL:HG11	2.03	0.41
8:A:2899:A:H2'	8:A:2900:A:C8	2.56	0.41
8:A:2902:C:H2'	8:A:2903:U:H6	1.85	0.41
9:B:94:A:H2'	9:B:95:U:O4'	2.20	0.41
10:C:70:LYS:HE2	10:C:73:ILE:HD12	2.03	0.41
13:F:106:ALA:HB1	13:F:136:ILE:HG13	2.03	0.41
18:K:108:ARG:HE	18:K:116:ILE:HD12	1.86	0.41
21:N:87:PHE:CZ	21:N:117:ASP:HB2	2.55	0.41
23:P:21:PRO:HD3	23:P:49:ILE:HD12	2.03	0.41
23:P:88:ARG:NE	23:P:114:ASN:OD1	2.54	0.41
25:R:60:LYS:HE2	25:R:60:LYS:HB2	1.93	0.41
31:X:5:GLN:HG2	31:X:70:LEU:HD21	2.02	0.41
32:Y:19:LEU:HD12	32:Y:19:LEU:HA	1.91	0.41
32:Y:31:GLN:HG3	32:Y:37:LEU:HB2	2.03	0.41
32:Y:54:LYS:HD2	32:Y:54:LYS:HA	1.86	0.41
34:a:19:A:N3	34:a:572:A:H2	2.18	0.41
34:a:175:C:H2'	34:a:176:C:C6	2.56	0.41
34:a:230:G:H2'	34:a:231:U:O4'	2.21	0.41
34:a:303:A:O2'	34:a:555:U:H4'	2.21	0.41
34:a:603:U:H2'	34:a:604:G:C8	2.56	0.41
34:a:625:U:H2'	34:a:626:G:H8	1.86	0.41
34:a:836:G:C5	34:a:851:G:C6	3.09	0.41
34:a:911:U:H2'	34:a:912:C:C6	2.55	0.41
34:a:947:G:C2	34:a:948:C:C2	3.08	0.41
34:a:977:A:O2'	34:a:1223:C:N4	2.54	0.41
34:a:1086:U:H2'	34:a:1087:G:H8	1.86	0.41
34:a:1367:C:P	42:i:113:LYS:HZ1	2.43	0.41
34:a:1399:C:N3	34:a:1502:A:N1	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:1417:G:H4'	34:a:1418:A:C5'	2.51	0.41
34:a:1484:C:H3'	34:a:1485:U:C4'	2.51	0.41
36:c:32:LEU:HD23	36:c:32:LEU:HA	1.86	0.41
37:d:144:ILE:O	37:d:144:ILE:HG22	2.21	0.41
43:j:5:ARG:HH21	43:j:79:PRO:HG3	1.85	0.41
46:m:58:GLU:O	46:m:61:LYS:HB2	2.20	0.41
47:n:49:GLN:OE1	52:s:11:ASP:HA	2.21	0.41
50:q:29:LYS:HB2	50:q:36:PHE:CE1	2.56	0.41
55:v:33:U:H2'	55:v:33:U:H6	1.66	0.41
56:w:18:G:H21	56:w:58:A:C5'	2.33	0.41
57:x:100:ARG:O	57:x:321:PHE:HB2	2.21	0.41
57:x:254:ARG:HA	57:x:259:GLU:OE1	2.20	0.41
57:x:632:GLY:O	57:x:636:ARG:HB2	2.21	0.41
2:l:29:LYS:HE2	8:A:2287:A:OP1	2.21	0.41
8:A:118:A:H2'	8:A:120:U:O4	2.21	0.41
8:A:340:A:H2'	8:A:341:C:O4'	2.20	0.41
8:A:483:A:H3'	8:A:484:C:C6	2.56	0.41
8:A:571:U:C4	8:A:575:A:C5	3.09	0.41
8:A:680:C:H2'	8:A:681:G:C8	2.55	0.41
8:A:1082:U:O2'	8:A:1083:U:P	2.79	0.41
8:A:2128:G:N3	8:A:2174:C:H5'	2.36	0.41
8:A:2182:U:C2'	8:A:2183:A:H5'	2.51	0.41
8:A:2286:G:H4'	8:A:2287:A:O4'	2.21	0.41
8:A:2528:U:O2	8:A:2535:G:C6	2.74	0.41
10:C:124:LYS:NZ	10:C:127:ASN:HD21	2.18	0.41
13:F:4:HIS:HB2	13:F:96:TRP:CG	2.56	0.41
13:F:129:MET:HE3	13:F:129:MET:HA	2.03	0.41
13:F:129:MET:O	13:F:153:ILE:N	2.53	0.41
15:H:51:ARG:C	15:H:53:GLU:H	2.29	0.41
17:J:17:VAL:HG12	17:J:55:ILE:HB	2.02	0.41
18:K:66:LYS:HE2	18:K:66:LYS:HB3	1.79	0.41
34:a:64:G:C2	34:a:67:C:N4	2.89	0.41
34:a:187:G:C2	34:a:189:A:OP2	2.73	0.41
34:a:246:A:N6	34:a:279:A:O4'	2.54	0.41
34:a:427:U:O2'	34:a:541:G:OP1	2.38	0.41
34:a:1310:G:OP2	46:m:86:ARG:NH2	2.49	0.41
35:b:69:VAL:HB	35:b:162:VAL:HG22	2.02	0.41
37:d:57:LYS:HE3	37:d:57:LYS:HB3	1.96	0.41
37:d:121:ALA:HB1	37:d:148:ALA:HB1	2.04	0.41
38:e:133:ILE:H	38:e:133:ILE:HG13	1.69	0.41
39:f:72:ASP:O	39:f:75:GLU:HG3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:113:LYS:HB2	40:g:117:LEU:HD13	2.03	0.41
42:i:57:VAL:HG23	42:i:58:GLU:H	1.86	0.41
43:j:5:ARG:N	43:j:77:VAL:HG12	2.35	0.41
55:v:21:A:H2'	55:v:46:A:N6	2.36	0.41
57:x:243:THR:HB	57:x:246:GLU:CD	2.46	0.41
8:A:412:A:N7	8:A:2411:A:H2	2.18	0.40
8:A:474:G:C6	8:A:510:C:N4	2.89	0.40
8:A:1078:U:O4	8:A:1088:A:H3'	2.21	0.40
8:A:1311:G:H8	8:A:1311:G:OP2	2.04	0.40
8:A:1659:G:H2'	8:A:1660:G:O4'	2.20	0.40
8:A:1779:U:C5	8:A:1784:A:N7	2.86	0.40
8:A:2889:C:H2'	8:A:2890:G:O4'	2.21	0.40
10:C:220:ARG:O	10:C:223:ALA:N	2.52	0.40
27:T:38:ALA:HB3	27:T:81:LYS:HD2	2.03	0.40
27:T:56:GLU:HG3	27:T:57:VAL:HG22	2.03	0.40
32:Y:24:GLU:O	32:Y:28:LEU:HD13	2.20	0.40
32:Y:49:ASP:O	32:Y:53:VAL:HG23	2.21	0.40
34:a:2:A:H8	34:a:2:A:OP2	2.04	0.40
34:a:1198:G:H2'	34:a:1199:U:C6	2.56	0.40
34:a:1332:A:C2	46:m:107:THR:HG21	2.57	0.40
37:d:155:LYS:HB3	37:d:155:LYS:HE3	1.93	0.40
39:f:44:ARG:HA	39:f:58:HIS:HA	2.02	0.40
39:f:44:ARG:HG2	39:f:58:HIS:HB2	2.02	0.40
40:g:113:LYS:HB2	40:g:117:LEU:HD22	2.02	0.40
56:w:67:C:H2'	56:w:68:C:C6	2.55	0.40
57:x:102:MET:HB3	57:x:132:TYR:HD2	1.87	0.40
8:A:94:A:H2'	8:A:95:A:C8	2.56	0.40
8:A:364:C:H2'	8:A:365:U:H6	1.86	0.40
8:A:538:A:N6	8:A:555:G:H1'	2.36	0.40
8:A:833:A:H2'	8:A:834:G:H8	1.85	0.40
8:A:886:A:N1	8:A:891:G:H1'	2.36	0.40
8:A:1364:G:P	31:X:49:ARG:HH12	2.44	0.40
8:A:1838:C:C2	8:A:1898:U:C4	3.09	0.40
8:A:2100:G:C6	8:A:2190:G:C6	3.09	0.40
8:A:2128:G:N1	8:A:2129:C:O2'	2.42	0.40
8:A:2365:G:H2'	8:A:2366:A:C8	2.56	0.40
8:A:2814:A:H2'	8:A:2815:C:C6	2.56	0.40
13:F:4:HIS:CG	13:F:8:LYS:HE2	2.57	0.40
13:F:47:LYS:HA	13:F:47:LYS:HD3	1.89	0.40
32:Y:22:LEU:O	32:Y:23:ARG:C	2.63	0.40
32:Y:28:LEU:HD21	32:Y:42:LEU:HB3	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:79:G:N1	34:a:91:U:N3	2.69	0.40
34:a:123:U:H2'	34:a:124:C:C6	2.56	0.40
34:a:471:U:C4	34:a:472:U:C4	3.09	0.40
34:a:487:A:H3'	34:a:488:C:H6	1.86	0.40
34:a:790:A:OP1	55:v:38:A:O2'	2.36	0.40
34:a:874:G:C2'	34:a:875:U:H5'	2.51	0.40
34:a:1060:U:OP1	47:n:85:ARG:NH2	2.48	0.40
34:a:1103:C:O2	35:b:105:THR:HG21	2.21	0.40
37:d:123:MET:HG3	37:d:145:ARG:HB2	2.03	0.40
37:d:166:LYS:HD2	37:d:166:LYS:HA	1.92	0.40
41:h:50:VAL:HG12	41:h:50:VAL:O	2.21	0.40
42:i:5:TYR:HD2	42:i:89:TYR:HB2	1.86	0.40
52:s:17:LYS:HE3	52:s:30:LEU:HD12	2.04	0.40
57:x:144:ASP:OD2	61:x:801:GDP:N1	2.52	0.40
4:3:29:ARG:NH1	19:L:63:LYS:O	2.54	0.40
4:3:36:ALA:O	4:3:40:LYS:HG3	2.21	0.40
8:A:641:U:C4	8:A:647:G:O6	2.75	0.40
8:A:1328:A:H2'	8:A:1330:C:C5	2.56	0.40
8:A:1670:C:H2'	8:A:1671:U:O4'	2.21	0.40
8:A:2079:U:C2	8:A:2080:A:C8	3.10	0.40
8:A:2147:A:H3'	8:A:2148:G:C8	2.56	0.40
8:A:2247:A:H2'	8:A:2248:C:C6	2.56	0.40
8:A:2287:A:HO2'	8:A:2288:A:P	2.43	0.40
8:A:2554:U:H2'	8:A:2555:U:H6	1.84	0.40
8:A:2586:U:H2'	8:A:2587:A:H8	1.83	0.40
8:A:2720:U:C2	8:A:2721:A:C8	3.09	0.40
10:C:29:PHE:CE2	10:C:31:PRO:HD2	2.56	0.40
10:C:130:PRO:HA	10:C:188:ARG:HA	2.03	0.40
12:E:137:LYS:O	12:E:141:MET:HG3	2.22	0.40
25:R:40:MET:HE2	25:R:40:MET:HB3	1.98	0.40
26:S:11:ARG:HH21	26:S:98:LYS:HD2	1.86	0.40
34:a:513:C:H2'	34:a:514:C:C6	2.56	0.40
34:a:603:U:H2'	34:a:604:G:H8	1.85	0.40
34:a:883:C:O2'	34:a:884:U:H5'	2.22	0.40
34:a:925:G:C2	34:a:927:G:C8	3.09	0.40
34:a:1167:A:C6	34:a:1169:A:N1	2.90	0.40
34:a:1512:U:H2'	34:a:1513:A:H8	1.83	0.40
35:b:213:LEU:HA	35:b:213:LEU:HD23	1.84	0.40
38:e:45:VAL:HG23	38:e:116:VAL:HG23	2.03	0.40
40:g:4:ARG:NH1	40:g:6:ILE:HA	2.36	0.40
40:g:24:LYS:O	40:g:28:ILE:HG12	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:52:ARG:HD2	40:g:124:SER:OG	2.21	0.40
44:k:70:ALA:HA	44:k:73:VAL:HG22	2.03	0.40
51:r:56:ARG:O	51:r:60:ARG:HD3	2.22	0.40
57:x:637:ARG:NE	57:x:662:MET:HA	2.36	0.40
8:A:231:A:H2'	8:A:232:G:O4'	2.21	0.40
8:A:532:A:N3	8:A:532:A:H2'	2.36	0.40
8:A:834:G:H2'	8:A:835:C:O4'	2.22	0.40
8:A:882:G:O6	8:A:894:U:C2	2.74	0.40
8:A:1278:C:H2'	8:A:1279:G:C8	2.56	0.40
8:A:1295:C:C2	8:A:1296:G:C8	3.09	0.40
8:A:1799:G:N7	10:C:177:SER:OG	2.44	0.40
8:A:1821:A:H2'	8:A:1822:C:C6	2.56	0.40
8:A:1942:C:H2'	8:A:1943:U:C5	2.56	0.40
8:A:2102:G:C6	8:A:2188:U:N3	2.87	0.40
8:A:2454:G:C4	8:A:2455:G:C8	3.09	0.40
10:C:131:MET:HG2	10:C:163:ILE:HD11	2.02	0.40
11:D:105:LYS:O	11:D:177:VAL:HG23	2.22	0.40
13:F:113:PHE:HZ	13:F:116:LEU:HG	1.85	0.40
13:F:128:SER:HB2	13:F:154:THR:HG22	2.03	0.40
17:J:52:ASP:O	17:J:121:LYS:HE3	2.21	0.40
19:L:27:LEU:HD12	19:L:27:LEU:H	1.87	0.40
26:S:11:ARG:NH2	26:S:98:LYS:HD2	2.36	0.40
30:W:29:ALA:N	30:W:60:ASP:OD1	2.55	0.40
34:a:427:U:O5'	34:a:427:U:H6	2.04	0.40
34:a:499:A:O4'	34:a:547:A:N6	2.54	0.40
34:a:778:G:C6	34:a:779:C:C4	3.09	0.40
34:a:1161:C:H2'	34:a:1162:C:H6	1.86	0.40
34:a:1202:U:C2	47:n:82:ILE:HG21	2.56	0.40
34:a:1345:U:OP1	42:i:121:ARG:HD2	2.22	0.40
34:a:1363:A:O2'	34:a:1364:U:H2'	2.21	0.40
34:a:1399:C:O2	34:a:1502:A:N6	2.54	0.40
37:d:98:ASP:OD1	37:d:99:ASN:N	2.55	0.40
40:g:52:ARG:HH12	40:g:121:ASN:HA	1.86	0.40
40:g:135:LYS:HD2	40:g:138:GLU:OE2	2.20	0.40
43:j:65:TYR:HB3	47:n:96:LEU:CD1	2.50	0.40
44:k:111:ASP:H	54:u:3:ILE:HG23	1.86	0.40
56:w:59:U:O2'	56:w:60:U:P	2.79	0.40
57:x:345:GLY:H	57:x:359:PHE:HB2	1.86	0.40
4:3:22:LYS:HA	4:3:47:ALA:O	2.21	0.40
8:A:605:G:OP1	12:E:99:LYS:NZ	2.55	0.40
8:A:886:A:H3'	8:A:887:A:H4'	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1005:C:C2	8:A:1006:C:C5	3.09	0.40
8:A:1168:G:C2'	8:A:1169:A:H5'	2.52	0.40
8:A:1532:A:N6	8:A:1540:G:O6	2.54	0.40
8:A:1637:A:H4'	8:A:2711:A:O2'	2.21	0.40
8:A:1908:C:H2'	8:A:1909:C:H6	1.86	0.40
8:A:2128:G:H3'	8:A:2129:C:H5''	2.03	0.40
8:A:2701:U:H3'	8:A:2702:G:C5'	2.50	0.40
9:B:24:G:O2'	9:B:56:G:N7	2.51	0.40
12:E:118:LEU:HD12	12:E:186:VAL:O	2.22	0.40
14:G:86:LEU:HB2	14:G:130:ILE:HB	2.03	0.40
14:G:106:LEU:HD13	14:G:151:ARG:HG2	2.04	0.40
21:N:72:ASP:HB3	21:N:75:ILE:HG12	2.03	0.40
28:U:23:LYS:HE2	28:U:23:LYS:HB2	1.83	0.40
33:Z:15:ARG:HA	33:Z:15:ARG:HD3	1.84	0.40
34:a:487:A:H2'	34:a:488:C:O4'	2.21	0.40
34:a:639:G:H2'	34:a:640:A:C8	2.56	0.40
34:a:678:U:H2'	34:a:679:C:H6	1.87	0.40
34:a:763:G:H2'	34:a:764:C:C6	2.57	0.40
34:a:1309:G:C6	34:a:1329:A:C2	3.09	0.40
37:d:18:LEU:HD21	37:d:59:LYS:HG3	2.02	0.40
39:f:7:VAL:HG22	39:f:61:LEU:HD13	2.04	0.40
41:h:17:GLN:HE22	41:h:62:LEU:HB3	1.85	0.40
44:k:126:ARG:HE	44:k:126:ARG:HB3	1.73	0.40
45:l:52:CYS:HB3	45:l:66:ILE:HD11	2.03	0.40
53:t:78:LEU:HD23	53:t:78:LEU:HA	1.77	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

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	1	48/55 (87%)	45 (94%)	3 (6%)	0	100	100
3	2	44/46 (96%)	40 (91%)	4 (9%)	0	100	100
4	3	62/65 (95%)	58 (94%)	4 (6%)	0	100	100
5	4	36/38 (95%)	31 (86%)	5 (14%)	0	100	100
6	5	129/165 (78%)	97 (75%)	32 (25%)	0	100	100
7	6	64/70 (91%)	51 (80%)	12 (19%)	1 (2%)	7	38
10	C	269/273 (98%)	241 (90%)	27 (10%)	1 (0%)	30	67
11	D	207/209 (99%)	184 (89%)	23 (11%)	0	100	100
12	E	199/201 (99%)	189 (95%)	10 (5%)	0	100	100
13	F	175/179 (98%)	149 (85%)	26 (15%)	0	100	100
14	G	174/177 (98%)	161 (92%)	13 (8%)	0	100	100
15	H	147/149 (99%)	117 (80%)	30 (20%)	0	100	100
16	I	139/142 (98%)	104 (75%)	34 (24%)	1 (1%)	18	56
17	J	140/142 (99%)	132 (94%)	8 (6%)	0	100	100
18	K	120/123 (98%)	101 (84%)	19 (16%)	0	100	100
19	L	141/144 (98%)	122 (86%)	19 (14%)	0	100	100
20	M	134/136 (98%)	118 (88%)	15 (11%)	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%)	100 (89%)	12 (11%)	0	100	100
24	Q	115/118 (98%)	109 (95%)	6 (5%)	0	100	100
25	R	101/103 (98%)	88 (87%)	13 (13%)	0	100	100
26	S	108/110 (98%)	98 (91%)	10 (9%)	0	100	100
27	T	91/100 (91%)	80 (88%)	11 (12%)	0	100	100
28	U	100/104 (96%)	87 (87%)	11 (11%)	2 (2%)	6	31
29	V	92/94 (98%)	86 (94%)	6 (6%)	0	100	100
30	W	73/85 (86%)	67 (92%)	6 (8%)	0	100	100
31	X	75/78 (96%)	70 (93%)	5 (7%)	0	100	100
32	Y	61/63 (97%)	55 (90%)	6 (10%)	0	100	100
33	Z	56/59 (95%)	53 (95%)	3 (5%)	0	100	100
35	b	216/240 (90%)	190 (88%)	26 (12%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
36	c	204/233 (88%)	194 (95%)	10 (5%)	0	100	100
37	d	203/206 (98%)	165 (81%)	37 (18%)	1 (0%)	24	63
38	e	155/167 (93%)	140 (90%)	15 (10%)	0	100	100
39	f	98/135 (73%)	88 (90%)	10 (10%)	0	100	100
40	g	149/179 (83%)	138 (93%)	11 (7%)	0	100	100
41	h	127/130 (98%)	117 (92%)	10 (8%)	0	100	100
42	i	125/130 (96%)	108 (86%)	17 (14%)	0	100	100
43	j	96/103 (93%)	78 (81%)	17 (18%)	1 (1%)	12	48
44	k	114/129 (88%)	95 (83%)	19 (17%)	0	100	100
45	l	121/124 (98%)	105 (87%)	16 (13%)	0	100	100
46	m	112/118 (95%)	95 (85%)	17 (15%)	0	100	100
47	n	99/102 (97%)	90 (91%)	8 (8%)	1 (1%)	12	48
48	o	86/89 (97%)	79 (92%)	7 (8%)	0	100	100
49	p	80/82 (98%)	70 (88%)	10 (12%)	0	100	100
50	q	78/84 (93%)	66 (85%)	12 (15%)	0	100	100
51	r	63/75 (84%)	52 (82%)	11 (18%)	0	100	100
52	s	80/92 (87%)	76 (95%)	4 (5%)	0	100	100
53	t	83/87 (95%)	81 (98%)	2 (2%)	0	100	100
54	u	63/71 (89%)	55 (87%)	8 (13%)	0	100	100
57	x	516/704 (73%)	441 (86%)	71 (14%)	4 (1%)	16	54
All	All	6366/6924 (92%)	5619 (88%)	734 (12%)	13 (0%)	44	78

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	6	64	PHE
28	U	98	ASN
28	U	99	SER
57	x	663	PHE
47	n	37	SER
57	x	647	GLU
16	I	22	PRO
43	j	58	ASN
37	d	146	GLU
20	M	59	ARG

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Mol	Chain	Res	Type
57	x	17	HIS
10	C	240	GLY
57	x	399	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	47/48 (98%)	47 (100%)	0	100	100
2	1	45/49 (92%)	45 (100%)	0	100	100
3	2	38/38 (100%)	38 (100%)	0	100	100
4	3	51/52 (98%)	51 (100%)	0	100	100
5	4	34/34 (100%)	34 (100%)	0	100	100
7	6	59/62 (95%)	57 (97%)	2 (3%)	32	54
10	C	216/218 (99%)	216 (100%)	0	100	100
11	D	164/164 (100%)	164 (100%)	0	100	100
12	E	165/165 (100%)	165 (100%)	0	100	100
13	F	148/150 (99%)	148 (100%)	0	100	100
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%)	103 (100%)	0	100	100
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
23	P	99/100 (99%)	99 (100%)	0	100	100
24	Q	89/90 (99%)	89 (100%)	0	100	100
25	R	84/84 (100%)	83 (99%)	1 (1%)	63	75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
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%)	82 (99%)	1 (1%)	63	75
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%)	54 (98%)	1 (2%)	51	68
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%)	124 (100%)	0	100	100
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%)	86 (100%)	0	100	100
44	k	89/99 (90%)	89 (100%)	0	100	100
45	l	103/104 (99%)	103 (100%)	0	100	100
46	m	92/96 (96%)	92 (100%)	0	100	100
47	n	79/84 (94%)	79 (100%)	0	100	100
48	o	76/77 (99%)	76 (100%)	0	100	100
49	p	65/65 (100%)	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%)	71 (99%)	1 (1%)	59	72
53	t	65/66 (98%)	65 (100%)	0	100	100
54	u	46/61 (75%)	46 (100%)	0	100	100
57	x	433/578 (75%)	421 (97%)	12 (3%)	38	60
58	y	1/1 (100%)	1 (100%)	0	100	100
All	All	5060/5408 (94%)	5042 (100%)	18 (0%)	81	84

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
7	6	63	ARG
7	6	64	PHE
25	R	49	ILE
28	U	88	ASP
32	Y	17	GLU
52	s	63	ASP
57	x	297	ILE
57	x	298	LEU
57	x	329	VAL
57	x	358	ARG
57	x	363	VAL
57	x	385	ILE
57	x	403	ILE
57	x	407	ARG
57	x	636	ARG
57	x	644	GLN
57	x	668	GLN
57	x	672	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (85) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	5	ASN
4	3	42	HIS
7	6	33	ASN
10	C	69	ASN
10	C	89	ASN
10	C	199	HIS
10	C	259	ASN
11	D	32	ASN
11	D	173	GLN
11	D	185	ASN
12	E	92	HIS
12	E	195	GLN
13	F	4	HIS
13	F	51	ASN
14	G	103	ASN
15	H	2	GLN
15	H	18	GLN
17	J	47	HIS
17	J	130	HIS

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Mol	Chain	Res	Type
18	K	89	ASN
19	L	4	ASN
20	M	22	GLN
22	O	38	GLN
23	P	2	ASN
23	P	9	GLN
24	Q	13	HIS
24	Q	36	GLN
24	Q	43	GLN
25	R	89	HIS
26	S	102	HIS
27	T	70	HIS
28	U	45	GLN
28	U	68	ASN
28	U	73	ASN
29	V	49	ASN
31	X	19	HIS
32	Y	58	ASN
33	Z	19	HIS
35	b	17	HIS
35	b	41	ASN
35	b	169	HIS
36	c	7	ASN
36	c	138	GLN
37	d	35	GLN
37	d	39	GLN
37	d	70	GLN
37	d	73	ASN
37	d	99	ASN
37	d	139	ASN
38	e	42	ASN
38	e	77	ASN
38	e	81	GLN
39	f	37	HIS
39	f	63	ASN
39	f	94	HIS
40	g	27	ASN
40	g	67	ASN
40	g	96	ASN
40	g	129	ASN
41	h	17	GLN
41	h	66	GLN

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Mol	Chain	Res	Type
42	i	74	GLN
42	i	125	GLN
43	j	58	ASN
44	k	28	ASN
45	l	45	ASN
45	l	76	HIS
46	m	13	HIS
47	n	3	GLN
49	p	29	ASN
49	p	40	ASN
52	s	42	ASN
52	s	51	HIS
52	s	56	HIS
53	t	2	ASN
57	x	119	GLN
57	x	121	GLN
57	x	128	GLN
57	x	155	ASN
57	x	191	ASN
57	x	197	GLN
57	x	343	ASN
57	x	453	ASN
57	x	644	GLN
57	x	668	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
34	a	1539/1542 (99%)	343 (22%)	0
55	v	76/77 (98%)	17 (22%)	0
56	w	75/76 (98%)	26 (34%)	0
59	z	10/33 (30%)	4 (40%)	0
8	A	2902/2903 (99%)	642 (22%)	46 (1%)
9	B	119/120 (99%)	29 (24%)	3 (2%)
All	All	4721/4751 (99%)	1061 (22%)	49 (1%)

All (1061) RNA backbone outliers are listed below:

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

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Mol	Chain	Res	Type
8	A	23	G
8	A	34	U
8	A	42	A
8	A	43	G
8	A	44	A
8	A	46	G
8	A	58	G
8	A	62	U
8	A	63	A
8	A	71	A
8	A	74	A
8	A	75	G
8	A	84	A
8	A	96	C
8	A	101	A
8	A	118	A
8	A	120	U
8	A	131	A
8	A	140	C
8	A	141	G
8	A	142	A
8	A	144	A
8	A	157	C
8	A	160	A
8	A	163	C
8	A	164	C
8	A	170	U
8	A	196	A
8	A	199	A
8	A	204	A
8	A	205	G
8	A	215	G
8	A	216	A
8	A	221	A
8	A	222	A
8	A	223	A
8	A	228	C
8	A	230	G
8	A	242	G
8	A	243	U
8	A	244	A
8	A	248	G

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Mol	Chain	Res	Type
8	A	250	G
8	A	255	A
8	A	261	G
8	A	265	A
8	A	266	G
8	A	267	C
8	A	272	A
8	A	273	G
8	A	275	C
8	A	276	U
8	A	278	A
8	A	279	A
8	A	287	G
8	A	288	U
8	A	330	A
8	A	335	C
8	A	345	A
8	A	359	G
8	A	361	G
8	A	362	A
8	A	363	G
8	A	369	U
8	A	371	A
8	A	372	G
8	A	377	G
8	A	386	G
8	A	393	C
8	A	395	U
8	A	396	G
8	A	401	A
8	A	402	A
8	A	404	A
8	A	405	U
8	A	406	G
8	A	411	G
8	A	412	A
8	A	455	C
8	A	457	A
8	A	458	G
8	A	459	U
8	A	473	G
8	A	480	A

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Mol	Chain	Res	Type
8	A	481	G
8	A	482	A
8	A	490	C
8	A	491	G
8	A	504	A
8	A	505	A
8	A	509	C
8	A	510	C
8	A	512	G
8	A	513	A
8	A	529	A
8	A	530	G
8	A	532	A
8	A	533	G
8	A	546	U
8	A	548	G
8	A	549	G
8	A	556	A
8	A	563	A
8	A	568	U
8	A	573	U
8	A	575	A
8	A	588	U
8	A	603	A
8	A	613	A
8	A	614	A
8	A	615	U
8	A	622	G
8	A	627	A
8	A	637	A
8	A	645	C
8	A	646	U
8	A	647	G
8	A	655	A
8	A	659	G
8	A	669	G
8	A	670	A
8	A	682	G
8	A	685	A
8	A	686	U
8	A	694	U
8	A	711	G

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Mol	Chain	Res	Type
8	A	712	G
8	A	714	U
8	A	715	A
8	A	716	A
8	A	729	G
8	A	730	A
8	A	747	5MC
8	A	757	G
8	A	762	U
8	A	763	G
8	A	764	A
8	A	775	G
8	A	782	A
8	A	783	A
8	A	784	G
8	A	785	G
8	A	789	A
8	A	791	C
8	A	792	A
8	A	805	G
8	A	806	C
8	A	812	C
8	A	819	A
8	A	827	U
8	A	828	U
8	A	831	G
8	A	846	U
8	A	847	U
8	A	858	G
8	A	859	G
8	A	879	G
8	A	881	G
8	A	883	G
8	A	884	U
8	A	885	C
8	A	887	A
8	A	889	C
8	A	890	C
8	A	891	G
8	A	892	A
8	A	893	C
8	A	894	U

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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	903	C
8	A	907	G
8	A	910	A
8	A	931	U
8	A	933	A
8	A	934	U
8	A	941	A
8	A	946	C
8	A	961	C
8	A	965	C
8	A	973	A
8	A	974	G
8	A	975	A
8	A	983	A
8	A	984	A
8	A	990	A
8	A	995	C
8	A	996	A
8	A	1005	C
8	A	1012	U
8	A	1013	C
8	A	1023	U
8	A	1026	G
8	A	1033	U
8	A	1040	A
8	A	1041	G
8	A	1042	G
8	A	1046	A
8	A	1047	G
8	A	1048	A
8	A	1052	C
8	A	1053	C
8	A	1056	G
8	A	1057	A
8	A	1058	U
8	A	1059	G
8	A	1060	U
8	A	1061	U

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Mol	Chain	Res	Type
8	A	1062	G
8	A	1063	G
8	A	1064	C
8	A	1066	U
8	A	1067	A
8	A	1068	G
8	A	1069	A
8	A	1070	A
8	A	1071	G
8	A	1072	C
8	A	1073	A
8	A	1074	G
8	A	1077	A
8	A	1078	U
8	A	1079	C
8	A	1080	A
8	A	1083	U
8	A	1084	A
8	A	1085	A
8	A	1086	A
8	A	1087	G
8	A	1088	A
8	A	1089	A
8	A	1090	A
8	A	1091	G
8	A	1092	C
8	A	1094	U
8	A	1096	A
8	A	1098	A
8	A	1100	C
8	A	1101	U
8	A	1102	C
8	A	1103	A
8	A	1105	U
8	A	1106	G
8	A	1108	U
8	A	1109	C
8	A	1110	G
8	A	1111	A
8	A	1112	G
8	A	1115	G
8	A	1116	G

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Mol	Chain	Res	Type
8	A	1121	C
8	A	1130	U
8	A	1131	G
8	A	1132	U
8	A	1134	A
8	A	1135	C
8	A	1139	G
8	A	1142	A
8	A	1169	A
8	A	1170	C
8	A	1171	G
8	A	1174	U
8	A	1175	A
8	A	1176	U
8	A	1179	G
8	A	1180	U
8	A	1188	U
8	A	1212	G
8	A	1225	G
8	A	1227	G
8	A	1234	U
8	A	1235	G
8	A	1247	A
8	A	1253	A
8	A	1256	G
8	A	1264	A
8	A	1271	G
8	A	1272	A
8	A	1273	U
8	A	1284	A
8	A	1288	G
8	A	1300	G
8	A	1301	A
8	A	1302	A
8	A	1311	G
8	A	1312	U
8	A	1334	G
8	A	1340	U
8	A	1341	G
8	A	1345	C
8	A	1365	A
8	A	1368	G

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Mol	Chain	Res	Type
8	A	1376	C
8	A	1377	G
8	A	1379	U
8	A	1383	A
8	A	1386	C
8	A	1395	A
8	A	1409	U
8	A	1413	A
8	A	1415	U
8	A	1416	G
8	A	1419	A
8	A	1420	A
8	A	1421	G
8	A	1428	C
8	A	1432	G
8	A	1433	A
8	A	1434	A
8	A	1445	G
8	A	1452	G
8	A	1453	A
8	A	1458	U
8	A	1460	U
8	A	1461	C
8	A	1474	U
8	A	1476	U
8	A	1478	G
8	A	1482	G
8	A	1488	C
8	A	1490	A
8	A	1491	G
8	A	1494	A
8	A	1497	U
8	A	1504	A
8	A	1515	A
8	A	1524	G
8	A	1532	A
8	A	1535	A
8	A	1536	C
8	A	1537	G
8	A	1538	G
8	A	1549	A
8	A	1554	U

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Mol	Chain	Res	Type
8	A	1555	G
8	A	1557	C
8	A	1558	C
8	A	1566	A
8	A	1569	A
8	A	1578	U
8	A	1580	A
8	A	1584	U
8	A	1585	C
8	A	1591	A
8	A	1592	C
8	A	1608	A
8	A	1610	A
8	A	1634	A
8	A	1635	A
8	A	1647	U
8	A	1648	U
8	A	1649	G
8	A	1651	G
8	A	1654	A
8	A	1674	G
8	A	1693	U
8	A	1698	A
8	A	1715	G
8	A	1716	U
8	A	1726	C
8	A	1727	C
8	A	1730	C
8	A	1731	G
8	A	1732	C
8	A	1738	G
8	A	1757	A
8	A	1760	C
8	A	1764	C
8	A	1773	A
8	A	1782	U
8	A	1784	A
8	A	1791	A
8	A	1800	C
8	A	1801	A
8	A	1802	A
8	A	1807	G

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Mol	Chain	Res	Type
8	A	1808	A
8	A	1809	A
8	A	1811	G
8	A	1816	C
8	A	1829	A
8	A	1835	2MG
8	A	1866	A
8	A	1869	G
8	A	1884	G
8	A	1895	C
8	A	1900	A
8	A	1901	A
8	A	1906	G
8	A	1908	C
8	A	1910	G
8	A	1912	A
8	A	1917	PSU
8	A	1922	G
8	A	1924	C
8	A	1925	C
8	A	1926	U
8	A	1927	A
8	A	1930	G
8	A	1936	A
8	A	1937	A
8	A	1938	A
8	A	1939	5MU
8	A	1955	U
8	A	1960	A
8	A	1962	5MC
8	A	1964	G
8	A	1965	C
8	A	1967	C
8	A	1970	A
8	A	1971	U
8	A	1972	G
8	A	1982	U
8	A	1991	U
8	A	1992	G
8	A	1997	C
8	A	2020	A
8	A	2021	C

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Mol	Chain	Res	Type
8	A	2022	U
8	A	2023	C
8	A	2030	6MZ
8	A	2031	A
8	A	2032	G
8	A	2033	A
8	A	2036	C
8	A	2043	C
8	A	2046	G
8	A	2052	A
8	A	2055	C
8	A	2056	G
8	A	2060	A
8	A	2061	G
8	A	2062	A
8	A	2063	C
8	A	2067	G
8	A	2069	G7M
8	A	2077	A
8	A	2090	A
8	A	2091	C
8	A	2093	G
8	A	2101	A
8	A	2102	G
8	A	2103	C
8	A	2104	C
8	A	2105	U
8	A	2107	G
8	A	2110	G
8	A	2111	U
8	A	2112	G
8	A	2114	A
8	A	2115	G
8	A	2116	G
8	A	2118	U
8	A	2119	A
8	A	2120	G
8	A	2126	A
8	A	2127	G
8	A	2128	G
8	A	2129	C
8	A	2131	U

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Mol	Chain	Res	Type
8	A	2132	U
8	A	2133	G
8	A	2134	A
8	A	2135	A
8	A	2136	G
8	A	2137	U
8	A	2138	G
8	A	2139	U
8	A	2143	C
8	A	2145	C
8	A	2146	C
8	A	2147	A
8	A	2148	G
8	A	2150	C
8	A	2151	U
8	A	2153	C
8	A	2154	A
8	A	2155	U
8	A	2158	A
8	A	2159	G
8	A	2161	C
8	A	2162	G
8	A	2165	C
8	A	2169	A
8	A	2170	A
8	A	2171	A
8	A	2172	U
8	A	2173	A
8	A	2174	C
8	A	2176	A
8	A	2180	U
8	A	2181	U
8	A	2183	A
8	A	2184	A
8	A	2185	U
8	A	2186	G
8	A	2190	G
8	A	2193	G
8	A	2198	A
8	A	2204	G
8	A	2211	A
8	A	2212	A

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Mol	Chain	Res	Type
8	A	2225	A
8	A	2226	C
8	A	2238	G
8	A	2239	G
8	A	2266	A
8	A	2271	G
8	A	2279	G
8	A	2283	C
8	A	2287	A
8	A	2288	A
8	A	2297	A
8	A	2300	C
8	A	2305	U
8	A	2309	A
8	A	2320	U
8	A	2322	A
8	A	2325	G
8	A	2326	C
8	A	2333	A
8	A	2334	U
8	A	2336	A
8	A	2345	G
8	A	2347	C
8	A	2350	C
8	A	2352	A
8	A	2361	G
8	A	2383	G
8	A	2385	C
8	A	2402	U
8	A	2406	A
8	A	2410	G
8	A	2423	U
8	A	2425	A
8	A	2429	G
8	A	2430	A
8	A	2432	A
8	A	2435	A
8	A	2441	U
8	A	2445	2MG
8	A	2447	G
8	A	2448	A
8	A	2452	C

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Mol	Chain	Res	Type
8	A	2459	A
8	A	2469	A
8	A	2475	C
8	A	2476	A
8	A	2478	A
8	A	2480	C
8	A	2484	G
8	A	2491	U
8	A	2494	G
8	A	2502	G
8	A	2503	2MA
8	A	2505	G
8	A	2506	U
8	A	2518	A
8	A	2535	G
8	A	2542	A
8	A	2547	A
8	A	2552	OMU
8	A	2554	U
8	A	2566	A
8	A	2567	G
8	A	2573	C
8	A	2578	G
8	A	2585	U
8	A	2586	U
8	A	2592	G
8	A	2602	A
8	A	2609	U
8	A	2613	U
8	A	2615	U
8	A	2623	G
8	A	2624	G
8	A	2629	U
8	A	2630	G
8	A	2634	A
8	A	2636	C
8	A	2646	C
8	A	2648	G
8	A	2654	A
8	A	2655	G
8	A	2656	U
8	A	2663	G

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Mol	Chain	Res	Type
8	A	2684	U
8	A	2689	U
8	A	2690	U
8	A	2702	G
8	A	2707	U
8	A	2714	G
8	A	2715	C
8	A	2718	G
8	A	2720	U
8	A	2725	A
8	A	2726	A
8	A	2727	A
8	A	2729	G
8	A	2732	G
8	A	2733	A
8	A	2744	G
8	A	2748	A
8	A	2750	A
8	A	2751	G
8	A	2755	C
8	A	2757	A
8	A	2765	A
8	A	2769	U
8	A	2778	A
8	A	2779	U
8	A	2790	U
8	A	2791	G
8	A	2796	U
8	A	2797	U
8	A	2798	U
8	A	2799	A
8	A	2800	A
8	A	2801	G
8	A	2808	G
8	A	2809	A
8	A	2818	U
8	A	2820	A
8	A	2821	A
8	A	2833	U
8	A	2834	G
8	A	2835	A
8	A	2836	U

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Mol	Chain	Res	Type
8	A	2849	U
8	A	2867	G
8	A	2872	A
8	A	2873	A
8	A	2879	A
8	A	2884	U
8	A	2886	A
8	A	2891	U
8	A	2893	A
8	A	2902	C
9	B	9	G
9	B	13	G
9	B	17	C
9	B	18	G
9	B	19	C
9	B	24	G
9	B	26	C
9	B	34	A
9	B	35	C
9	B	37	C
9	B	41	G
9	B	42	C
9	B	45	A
9	B	51	G
9	B	53	A
9	B	56	G
9	B	57	A
9	B	62	C
9	B	65	U
9	B	67	G
9	B	73	A
9	B	87	U
9	B	88	C
9	B	89	U
9	B	90	C
9	B	91	C
9	B	101	A
9	B	109	A
9	B	120	U
34	a	2	A
34	a	6	G
34	a	7	A

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Mol	Chain	Res	Type
34	a	9	G
34	a	31	G
34	a	32	A
34	a	39	G
34	a	46	G
34	a	48	C
34	a	51	A
34	a	53	A
34	a	70	U
34	a	71	A
34	a	76	G
34	a	78	A
34	a	79	G
34	a	80	A
34	a	81	A
34	a	83	C
34	a	84	U
34	a	85	U
34	a	86	G
34	a	87	C
34	a	89	U
34	a	90	C
34	a	94	G
34	a	96	U
34	a	98	A
34	a	121	U
34	a	141	G
34	a	144	G
34	a	155	A
34	a	160	A
34	a	162	A
34	a	163	C
34	a	164	G
34	a	165	G
34	a	166	U
34	a	168	G
34	a	169	C
34	a	172	A
34	a	173	U
34	a	182	A
34	a	183	C
34	a	184	G

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Mol	Chain	Res	Type
34	a	189	A
34	a	197	A
34	a	198	G
34	a	205	A
34	a	206	C
34	a	208	U
34	a	209	U
34	a	210	C
34	a	211	G
34	a	212	G
34	a	226	G
34	a	240	G
34	a	244	U
34	a	245	U
34	a	247	G
34	a	251	G
34	a	262	A
34	a	266	G
34	a	267	C
34	a	270	A
34	a	281	G
34	a	289	G
34	a	316	C
34	a	321	A
34	a	327	A
34	a	328	C
34	a	329	A
34	a	330	C
34	a	344	A
34	a	347	G
34	a	348	G
34	a	351	G
34	a	352	C
34	a	354	G
34	a	356	A
34	a	360	G
34	a	368	U
34	a	369	G
34	a	372	C
34	a	375	U
34	a	388	G
34	a	397	A

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Mol	Chain	Res	Type
34	a	406	G
34	a	411	A
34	a	412	A
34	a	413	G
34	a	421	U
34	a	423	G
34	a	428	G
34	a	429	U
34	a	439	U
34	a	440	C
34	a	444	G
34	a	446	G
34	a	448	A
34	a	461	A
34	a	462	G
34	a	465	A
34	a	468	A
34	a	471	U
34	a	472	U
34	a	473	U
34	a	474	G
34	a	479	U
34	a	482	A
34	a	484	G
34	a	495	A
34	a	496	A
34	a	505	G
34	a	509	A
34	a	510	A
34	a	511	C
34	a	516	PSU
34	a	517	G
34	a	518	C
34	a	521	G
34	a	524	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

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Mol	Chain	Res	Type
34	a	564	C
34	a	572	A
34	a	573	A
34	a	576	C
34	a	577	G
34	a	582	C
34	a	596	A
34	a	607	A
34	a	614	C
34	a	615	G
34	a	629	A
34	a	632	U
34	a	642	A
34	a	650	G
34	a	653	U
34	a	665	A
34	a	703	G
34	a	704	A
34	a	721	G
34	a	723	U
34	a	724	G
34	a	734	G
34	a	747	A
34	a	748	G
34	a	753	A
34	a	755	G
34	a	773	G
34	a	777	A
34	a	781	A
34	a	792	A
34	a	793	U
34	a	794	A
34	a	814	A
34	a	815	A
34	a	816	A
34	a	817	C
34	a	819	A
34	a	829	G
34	a	841	C
34	a	843	U
34	a	844	G
34	a	845	A

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Mol	Chain	Res	Type
34	a	846	G
34	a	847	G
34	a	849	G
34	a	851	G
34	a	868	C
34	a	870	U
34	a	875	U
34	a	885	G
34	a	902	G
34	a	913	A
34	a	914	A
34	a	922	G
34	a	934	C
34	a	935	A
34	a	940	C
34	a	960	U
34	a	966	2MG
34	a	968	A
34	a	969	A
34	a	971	G
34	a	973	G
34	a	975	A
34	a	976	G
34	a	977	A
34	a	981	U
34	a	982	U
34	a	984	C
34	a	992	U
34	a	993	G
34	a	994	A
34	a	996	A
34	a	999	C
34	a	1003	G
34	a	1004	A
34	a	1005	A
34	a	1006	G
34	a	1011	C
34	a	1014	A
34	a	1016	A
34	a	1017	U
34	a	1021	A
34	a	1023	U

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Mol	Chain	Res	Type
34	a	1024	G
34	a	1025	U
34	a	1027	C
34	a	1028	C
34	a	1029	U
34	a	1030	U
34	a	1031	C
34	a	1032	G
34	a	1035	A
34	a	1040	U
34	a	1043	G
34	a	1047	G
34	a	1065	U
34	a	1084	G
34	a	1085	U
34	a	1092	A
34	a	1094	G
34	a	1095	U
34	a	1101	A
34	a	1109	C
34	a	1124	G
34	a	1125	U
34	a	1126	U
34	a	1127	G
34	a	1131	G
34	a	1134	G
34	a	1137	C
34	a	1138	G
34	a	1139	G
34	a	1144	G
34	a	1145	A
34	a	1159	U
34	a	1160	G
34	a	1167	A
34	a	1168	U
34	a	1169	A
34	a	1171	A
34	a	1177	G
34	a	1179	A
34	a	1183	U
34	a	1184	G
34	a	1196	A

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Mol	Chain	Res	Type
34	a	1197	A
34	a	1200	C
34	a	1212	U
34	a	1213	A
34	a	1214	C
34	a	1226	C
34	a	1227	A
34	a	1236	A
34	a	1239	A
34	a	1241	G
34	a	1251	A
34	a	1254	A
34	a	1260	G
34	a	1261	A
34	a	1267	C
34	a	1270	G
34	a	1275	A
34	a	1280	A
34	a	1286	U
34	a	1287	A
34	a	1294	G
34	a	1297	G
34	a	1300	G
34	a	1301	U
34	a	1302	C
34	a	1305	G
34	a	1312	G
34	a	1317	C
34	a	1320	C
34	a	1323	G
34	a	1331	G
34	a	1332	A
34	a	1346	A
34	a	1347	G
34	a	1348	U
34	a	1360	A
34	a	1361	G
34	a	1363	A
34	a	1364	U
34	a	1370	G
34	a	1378	C
34	a	1379	G

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Mol	Chain	Res	Type
34	a	1383	C
34	a	1386	G
34	a	1397	C
34	a	1398	A
34	a	1413	A
34	a	1417	G
34	a	1418	A
34	a	1419	G
34	a	1420	U
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	1444	U
34	a	1446	A
34	a	1450	U
34	a	1451	U
34	a	1452	C
34	a	1453	G
34	a	1472	U
34	a	1473	G
34	a	1474	U
34	a	1476	A
34	a	1484	C
34	a	1485	U
34	a	1486	G
34	a	1492	A
34	a	1497	G
34	a	1499	A
34	a	1503	A
34	a	1506	U
34	a	1517	G
34	a	1519	MA6
34	a	1529	G
34	a	1530	G
34	a	1534	A
34	a	1535	C
34	a	1536	C

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Mol	Chain	Res	Type
34	a	1537	U
34	a	1538	C
34	a	1539	C
34	a	1540	U
55	v	9	G
55	v	14	A
55	v	18	G
55	v	20	H2U
55	v	21	A
55	v	33	U
55	v	34	C
55	v	42	G
55	v	43	A
55	v	44	A
55	v	45	G
55	v	46	A
55	v	47	U
55	v	48	C
55	v	52	G
55	v	55	PSU
55	v	76	A
56	w	8	4SU
56	w	13	C
56	w	14	A
56	w	16	U
56	w	17	C
56	w	18	G
56	w	19	G
56	w	20	U
56	w	21	A
56	w	29	G
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	53	G
56	w	56	C
56	w	59	U
56	w	60	U
56	w	61	C

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Mol	Chain	Res	Type
56	w	67	C
56	w	68	C
56	w	69	G
56	w	73	A
56	w	74	C
59	z	-1	C
59	z	0	U
59	z	4	U
59	z	7	G

All (49) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	A	154	U
8	A	159	G
8	A	163	C
8	A	242	G
8	A	277	G
8	A	362	A
8	A	458	G
8	A	479	A
8	A	481	G
8	A	545	U
8	A	555	G
8	A	652	U
8	A	715	A
8	A	746	PSU
8	A	774	G
8	A	784	G
8	A	883	G
8	A	894	U
8	A	1024	G
8	A	1069	A
8	A	1082	U
8	A	1090	A
8	A	1093	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

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

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

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	3.59	7 (38%)	26,30,33	2.33	5 (19%)
8	PSU	A	2580	8	18,21,22	1.11	3 (16%)	22,30,33	1.93	6 (27%)
8	3TD	A	1915	8	18,22,23	4.25	5 (27%)	22,32,35	1.71	3 (13%)
8	PSU	A	2504	8	18,21,22	1.02	2 (11%)	22,30,33	1.74	4 (18%)
34	UR3	a	1498	34	19,22,23	2.57	7 (36%)	26,32,35	1.34	3 (11%)
55	5MU	v	54	55	19,22,23	4.78	7 (36%)	28,32,35	3.60	9 (32%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	5MC	A	747	8	18,22,23	3.55	7 (38%)	26,32,35	1.23	2 (7%)
8	OMU	A	2552	8	19,22,23	2.86	8 (42%)	26,31,34	1.78	5 (19%)
8	OMC	A	2498	8	19,22,23	2.85	7 (36%)	26,31,34	0.86	1 (3%)
56	PSU	w	32	56	18,21,22	1.07	1 (5%)	22,30,33	1.74	4 (18%)
56	G7M	w	46	56	23,26,27	2.60	8 (34%)	35,39,42	2.25	10 (28%)
34	5MC	a	967	34	18,22,23	3.68	7 (38%)	26,32,35	1.02	1 (3%)
56	5MU	w	54	56	19,22,23	1.46	6 (31%)	28,32,35	2.10	8 (28%)
8	OMG	A	2251	56,8	23,26,27	2.37	8 (34%)	33,38,41	1.83	9 (27%)
8	2MA	A	2503	8	22,25,26	3.64	9 (40%)	33,37,40	2.11	8 (24%)
34	PSU	a	516	34	18,21,22	0.95	1 (5%)	22,30,33	1.68	5 (22%)
8	5MU	A	1939	8	19,22,23	4.65	7 (36%)	28,32,35	3.80	10 (35%)
8	G7M	A	2069	8	23,26,27	2.53	8 (34%)	35,39,42	2.28	10 (28%)
8	6MZ	A	1618	8	22,25,26	2.95	5 (22%)	30,36,39	4.36	14 (46%)
8	PSU	A	1917	8	18,21,22	0.94	1 (5%)	22,30,33	1.77	4 (18%)
8	2MG	A	2445	8	23,26,27	2.87	8 (34%)	32,38,41	2.24	11 (34%)
34	G7M	a	527	34	23,26,27	2.59	8 (34%)	35,39,42	2.27	10 (28%)
34	5MC	a	1407	34	18,22,23	3.62	7 (38%)	26,32,35	1.02	1 (3%)
8	PSU	A	2604	8	18,21,22	1.06	2 (11%)	22,30,33	2.01	4 (18%)
8	PSU	A	955	8	18,21,22	1.06	2 (11%)	22,30,33	1.90	4 (18%)
55	PSU	v	55	55	18,21,22	1.09	1 (5%)	22,30,33	1.71	4 (18%)
34	MA6	a	1519	34	23,26,27	1.46	4 (17%)	34,38,41	2.77	11 (32%)
8	PSU	A	746	8	18,21,22	1.01	2 (11%)	22,30,33	1.73	4 (18%)
55	H2U	v	20	55	18,21,22	3.15	5 (27%)	21,30,33	1.98	5 (23%)
55	4SU	v	8	55	18,21,22	3.58	7 (38%)	26,30,33	2.19	4 (15%)
8	PSU	A	2457	8	18,21,22	1.07	3 (16%)	22,30,33	1.82	5 (22%)
34	4OC	a	1402	34	20,23,24	2.97	8 (40%)	26,32,35	0.90	2 (7%)
34	2MG	a	966	34	23,26,27	3.03	7 (30%)	32,38,41	2.25	8 (25%)
56	PSU	w	39	56	18,21,22	1.09	1 (5%)	22,30,33	1.86	5 (22%)
8	PSU	A	1911	8	18,21,22	1.16	2 (11%)	22,30,33	1.95	6 (27%)
34	2MG	a	1516	34	23,26,27	2.89	9 (39%)	32,38,41	2.31	12 (37%)
58	FME	y	101	58	8,9,10	1.01	1 (12%)	7,9,11	0.87	0
34	MA6	a	1518	34	23,26,27	1.45	5 (21%)	34,38,41	2.83	12 (35%)
8	1MG	A	745	8	22,26,27	2.58	6 (27%)	33,39,42	2.00	7 (21%)
8	6MZ	A	2030	8	22,25,26	3.06	5 (22%)	30,36,39	4.50	14 (46%)
8	PSU	A	2605	8	18,21,22	1.02	2 (11%)	22,30,33	1.85	3 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
34	2MG	a	1207	34	23,26,27	2.91	8 (34%)	32,38,41	2.25	11 (34%)
56	MIA	w	37	56	28,31,32	2.55	6 (21%)	40,44,47	3.27	15 (37%)
8	2MG	A	1835	8	23,26,27	2.94	8 (34%)	32,38,41	2.15	11 (34%)
8	5MC	A	1962	8	18,22,23	3.64	7 (38%)	26,32,35	1.02	1 (3%)
56	PSU	w	55	56	18,21,22	1.34	2 (11%)	22,30,33	1.90	4 (18%)

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
8	PSU	A	2580	8	-	0/7/25/26	0/2/2/2
8	3TD	A	1915	8	-	2/7/25/26	0/2/2/2
8	PSU	A	2504	8	-	0/7/25/26	0/2/2/2
34	UR3	a	1498	34	-	2/7/25/26	0/2/2/2
55	5MU	v	54	55	-	0/7/25/26	0/2/2/2
8	5MC	A	747	8	-	1/7/25/26	0/2/2/2
8	OMU	A	2552	8	-	3/9/27/28	0/2/2/2
8	OMC	A	2498	8	-	1/9/27/28	0/2/2/2
56	PSU	w	32	56	-	3/7/25/26	0/2/2/2
56	G7M	w	46	56	-	0/7/25/26	0/3/3/3
34	5MC	a	967	34	-	0/7/25/26	0/2/2/2
56	5MU	w	54	56	-	0/7/25/26	0/2/2/2
8	OMG	A	2251	56,8	-	1/9/27/28	0/3/3/3
8	2MA	A	2503	8	-	1/7/25/26	0/3/3/3
34	PSU	a	516	34	-	0/7/25/26	0/2/2/2
8	5MU	A	1939	8	-	2/7/25/26	0/2/2/2
8	G7M	A	2069	8	-	1/7/25/26	0/3/3/3
8	6MZ	A	1618	8	-	0/9/27/28	0/3/3/3
8	PSU	A	1917	8	-	3/7/25/26	0/2/2/2
8	2MG	A	2445	8	-	2/9/27/28	0/3/3/3
34	G7M	a	527	34	-	1/7/25/26	0/3/3/3
34	5MC	a	1407	34	-	0/7/25/26	0/2/2/2
8	PSU	A	2604	8	-	0/7/25/26	0/2/2/2
8	PSU	A	955	8	-	0/7/25/26	0/2/2/2
55	PSU	v	55	55	-	1/7/25/26	0/2/2/2
34	MA6	a	1519	34	-	3/11/29/30	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	PSU	A	746	8	-	4/7/25/26	0/2/2/2
55	H2U	v	20	55	-	7/7/38/39	0/2/2/2
55	4SU	v	8	55	-	0/7/25/26	0/2/2/2
8	PSU	A	2457	8	-	0/7/25/26	0/2/2/2
34	4OC	a	1402	34	-	1/9/29/30	0/2/2/2
34	2MG	a	966	34	-	2/9/27/28	0/3/3/3
56	PSU	w	39	56	-	3/7/25/26	0/2/2/2
8	PSU	A	1911	8	-	0/7/25/26	0/2/2/2
34	2MG	a	1516	34	-	0/9/27/28	0/3/3/3
58	FME	y	101	58	-	7/7/9/11	-
34	MA6	a	1518	34	-	0/11/29/30	0/3/3/3
8	1MG	A	745	8	-	0/7/25/26	0/3/3/3
8	6MZ	A	2030	8	-	2/9/27/28	0/3/3/3
8	PSU	A	2605	8	-	0/7/25/26	0/2/2/2
34	2MG	a	1207	34	-	0/9/27/28	0/3/3/3
56	MIA	w	37	56	-	3/15/33/34	0/3/3/3
8	2MG	A	1835	8	-	2/9/27/28	0/3/3/3
8	5MC	A	1962	8	-	0/7/25/26	0/2/2/2
56	PSU	w	55	56	-	0/7/25/26	0/2/2/2

All (240) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1915	3TD	C6-C5	12.86	1.50	1.35
8	A	2030	6MZ	C6-N6	12.27	1.47	1.34
8	A	1618	6MZ	C6-N6	11.91	1.47	1.34
8	A	2503	2MA	C4-N3	11.42	1.48	1.34
55	v	54	5MU	C2-N1	10.76	1.55	1.38
55	v	54	5MU	C6-N1	10.44	1.55	1.38
8	A	1939	5MU	C6-N1	10.23	1.55	1.38
8	A	1939	5MU	C2-N1	9.82	1.54	1.38
55	v	20	H2U	C2-N1	9.75	1.49	1.35
55	v	54	5MU	C4-C5	9.72	1.60	1.44
8	A	1939	5MU	C4-C5	9.56	1.60	1.44
8	A	1915	3TD	C2-N1	9.44	1.49	1.37
34	a	967	5MC	C6-C5	9.14	1.49	1.34
34	a	1407	5MC	C6-C5	8.99	1.49	1.34
8	A	1962	5MC	C6-C5	8.91	1.49	1.34
8	A	747	5MC	C6-C5	8.77	1.49	1.34
55	v	8	4SU	C4-N3	8.27	1.46	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	1939	5MU	C4-N3	-8.15	1.23	1.38
34	a	966	2MG	C2-N3	7.98	1.47	1.31
55	v	54	5MU	C4-N3	-7.93	1.24	1.38
56	w	8	4SU	C4-N3	7.80	1.46	1.37
8	A	1835	2MG	C2-N3	7.49	1.46	1.31
56	w	8	4SU	C2-N1	7.34	1.50	1.38
34	a	1207	2MG	C2-N3	7.24	1.45	1.31
55	v	8	4SU	C2-N1	7.23	1.50	1.38
8	A	1962	5MC	C4-N3	7.12	1.46	1.34
34	a	1516	2MG	C2-N3	7.07	1.45	1.31
56	w	37	MIA	C2-S10	7.02	1.81	1.75
34	a	967	5MC	C4-N3	7.02	1.46	1.34
56	w	37	MIA	C13-C14	7.02	1.52	1.32
8	A	2445	2MG	C2-N3	7.01	1.45	1.31
8	A	745	1MG	C2-N2	6.93	1.46	1.34
56	w	37	MIA	C6-N6	6.79	1.45	1.34
8	A	2552	OMU	C2-N1	6.74	1.49	1.38
34	a	966	2MG	C4-N3	6.73	1.50	1.34
34	a	1402	4OC	C4-N3	6.62	1.44	1.32
8	A	747	5MC	C4-N3	6.61	1.45	1.34
34	a	1407	5MC	C4-N3	6.58	1.45	1.34
55	v	20	H2U	C2-N3	6.56	1.49	1.38
8	A	2503	2MA	C2-N3	6.53	1.45	1.34
34	a	966	2MG	C2-N2	6.47	1.47	1.33
8	A	1835	2MG	C4-N3	6.44	1.49	1.34
34	a	527	G7M	C4-N3	6.36	1.49	1.34
8	A	1962	5MC	C2-N3	6.33	1.49	1.36
56	w	46	G7M	C4-N3	6.31	1.49	1.34
34	a	1207	2MG	C4-N3	6.28	1.49	1.34
8	A	2445	2MG	C4-N3	6.18	1.48	1.34
34	a	1516	2MG	C4-N3	6.17	1.48	1.34
8	A	2552	OMU	C2-N3	6.15	1.48	1.38
8	A	747	5MC	C2-N3	6.15	1.48	1.36
8	A	1835	2MG	C2-N2	6.15	1.47	1.33
34	a	1516	2MG	C2-N2	6.14	1.47	1.33
8	A	745	1MG	C4-N3	6.14	1.48	1.34
8	A	2069	G7M	C4-N3	6.13	1.48	1.34
34	a	1207	2MG	C2-N2	6.13	1.47	1.33
8	A	2498	OMC	C6-C5	6.12	1.49	1.35
34	a	1498	UR3	C2-N1	6.09	1.47	1.38
34	a	1402	4OC	C6-C5	6.08	1.49	1.35
34	a	967	5MC	C2-N3	6.06	1.48	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1498	UR3	C6-C5	6.01	1.49	1.35
8	A	2445	2MG	C2-N2	5.99	1.46	1.33
8	A	2251	OMG	C4-N3	5.97	1.48	1.34
8	A	2498	OMC	C2-N3	5.94	1.48	1.36
34	a	1407	5MC	C2-N3	5.93	1.48	1.36
55	v	54	5MU	C6-C5	5.92	1.44	1.34
56	w	46	G7M	C2-N3	5.85	1.47	1.33
56	w	8	4SU	C6-C5	5.83	1.48	1.35
8	A	1939	5MU	C6-C5	5.73	1.44	1.34
55	v	8	4SU	C6-C5	5.71	1.48	1.35
8	A	1915	3TD	C6-N1	5.67	1.45	1.36
34	a	527	G7M	C2-N3	5.67	1.46	1.33
56	w	8	4SU	C2-N3	5.52	1.47	1.38
8	A	2498	OMC	C4-N3	5.47	1.45	1.34
55	v	8	4SU	C2-N3	5.45	1.47	1.38
34	a	1402	4OC	C2-N3	5.45	1.47	1.36
8	A	745	1MG	C2-N3	5.42	1.44	1.34
8	A	2503	2MA	C2-N1	5.42	1.43	1.34
8	A	2552	OMU	C6-C5	5.37	1.47	1.35
8	A	2069	G7M	C5-N7	-5.37	1.33	1.39
56	w	8	4SU	C4-S4	-5.36	1.58	1.68
34	a	527	G7M	C5-N7	-5.22	1.33	1.39
8	A	2503	2MA	C6-N1	5.20	1.42	1.35
8	A	2069	G7M	C2-N3	5.15	1.45	1.33
8	A	2251	OMG	C2-N3	5.00	1.45	1.33
55	v	20	H2U	C4-N3	5.00	1.46	1.37
55	v	8	4SU	C4-S4	-5.00	1.58	1.68
34	a	967	5MC	C4-N4	4.89	1.46	1.34
56	w	46	G7M	C5-N7	-4.86	1.33	1.39
8	A	1915	3TD	C2-N3	4.82	1.49	1.38
8	A	1962	5MC	C4-N4	4.81	1.46	1.34
34	a	1407	5MC	C4-N4	4.79	1.46	1.34
8	A	747	5MC	C4-N4	4.76	1.46	1.34
34	a	1207	2MG	C2-N1	4.69	1.44	1.36
34	a	1407	5MC	C6-N1	4.64	1.46	1.38
8	A	2251	OMG	C2-N2	4.62	1.45	1.34
34	a	1498	UR3	C2-N3	4.49	1.47	1.39
34	a	1516	2MG	C2-N1	4.44	1.43	1.36
8	A	1835	2MG	C2-N1	4.43	1.43	1.36
34	a	967	5MC	C6-N1	4.34	1.45	1.38
34	a	966	2MG	C2-N1	4.27	1.43	1.36
8	A	1962	5MC	C6-N1	4.25	1.45	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	w	46	G7M	C2-N2	4.22	1.44	1.34
34	a	527	G7M	C2-N2	4.21	1.44	1.34
34	a	1407	5MC	C2-N1	4.21	1.49	1.40
8	A	2503	2MA	C5-C6	4.18	1.52	1.41
8	A	747	5MC	C6-N1	4.12	1.45	1.38
8	A	2445	2MG	C2-N1	4.11	1.43	1.36
34	a	1402	4OC	C4-N4	4.07	1.44	1.35
8	A	2069	G7M	C2-N2	4.07	1.43	1.34
34	a	967	5MC	C2-N1	4.03	1.48	1.40
34	a	1402	4OC	C5-C4	3.90	1.49	1.40
8	A	1962	5MC	C2-N1	3.85	1.48	1.40
8	A	2498	OMC	C4-N4	3.84	1.42	1.33
8	A	747	5MC	C2-N1	3.83	1.48	1.40
8	A	2030	6MZ	C5-C4	-3.82	1.31	1.39
34	a	527	G7M	C5-C6	3.82	1.54	1.43
56	w	46	G7M	C5-C6	3.76	1.53	1.43
8	A	2503	2MA	C6-N6	-3.72	1.24	1.34
8	A	2445	2MG	O6-C6	-3.70	1.16	1.23
8	A	1835	2MG	C5-N7	-3.65	1.32	1.39
8	A	2445	2MG	C5-N7	-3.64	1.32	1.39
55	v	55	PSU	C6-C5	3.63	1.39	1.35
34	a	966	2MG	C5-N7	-3.62	1.32	1.39
8	A	2552	OMU	C4-N3	3.61	1.45	1.38
8	A	2069	G7M	C5-C6	3.53	1.53	1.43
8	A	2498	OMC	C2-N1	3.52	1.47	1.40
8	A	2251	OMG	C5-N7	-3.52	1.32	1.39
34	a	1402	4OC	C2-N1	3.50	1.47	1.40
34	a	967	5MC	O2-C2	-3.49	1.17	1.23
8	A	1835	2MG	O6-C6	-3.49	1.16	1.23
34	a	966	2MG	O6-C6	-3.45	1.17	1.23
8	A	1618	6MZ	C5-C4	-3.45	1.32	1.39
8	A	747	5MC	O2-C2	-3.45	1.17	1.23
56	w	8	4SU	C5-C4	3.42	1.47	1.42
8	A	2503	2MA	C5-N7	-3.40	1.32	1.39
34	a	1516	2MG	C5-N7	-3.39	1.32	1.39
8	A	2498	OMC	C6-N1	3.38	1.46	1.38
34	a	1516	2MG	O6-C6	-3.36	1.17	1.23
56	w	32	PSU	C6-C5	3.32	1.39	1.35
34	a	1407	5MC	O2-C2	-3.30	1.17	1.23
34	a	1207	2MG	C5-N7	-3.29	1.32	1.39
56	w	39	PSU	C6-C5	3.29	1.39	1.35
8	A	2030	6MZ	C8-N9	-3.29	1.31	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
55	v	8	4SU	C5-C4	3.28	1.46	1.42
34	a	1207	2MG	O6-C6	-3.27	1.17	1.23
8	A	1911	PSU	C6-C5	3.26	1.39	1.35
56	w	37	MIA	C5-C4	-3.22	1.33	1.39
34	a	1402	4OC	O2-C2	-3.22	1.17	1.23
8	A	2030	6MZ	C4-N9	-3.20	1.30	1.37
8	A	1962	5MC	O2-C2	-3.17	1.17	1.23
8	A	1618	6MZ	C8-N9	-3.17	1.31	1.37
34	a	1518	MA6	C6-N6	3.15	1.46	1.36
8	A	2498	OMC	O2-C2	-3.14	1.17	1.23
34	a	1519	MA6	C6-N6	3.09	1.46	1.36
8	A	745	1MG	C5-N7	-3.07	1.33	1.39
34	a	1519	MA6	C5-N7	-3.06	1.33	1.39
8	A	2552	OMU	O4-C4	-3.06	1.18	1.24
34	a	1402	4OC	C6-N1	3.02	1.45	1.38
56	w	55	PSU	C6-C5	2.98	1.38	1.35
34	a	1518	MA6	C8-N9	-2.98	1.32	1.37
34	a	1519	MA6	C8-N9	-2.97	1.32	1.37
34	a	1498	UR3	C6-N1	2.91	1.45	1.38
8	A	2251	OMG	O6-C6	-2.87	1.18	1.23
34	a	1518	MA6	C5-N7	-2.86	1.33	1.39
34	a	1519	MA6	C5-C4	-2.84	1.33	1.39
56	w	55	PSU	C4-N3	-2.84	1.33	1.38
55	v	54	5MU	O4-C4	-2.82	1.18	1.23
8	A	1939	5MU	O2-C2	-2.80	1.17	1.23
8	A	1939	5MU	O4-C4	-2.77	1.18	1.23
8	A	1618	6MZ	C6-N1	-2.77	1.30	1.35
34	a	1498	UR3	O2-C2	-2.76	1.17	1.22
56	w	54	5MU	C6-C5	2.72	1.39	1.34
8	A	1618	6MZ	C4-N9	-2.70	1.31	1.37
34	a	1518	MA6	C5-C4	-2.70	1.34	1.39
8	A	2504	PSU	C6-C5	2.69	1.38	1.35
55	v	8	4SU	O2-C2	-2.68	1.18	1.23
56	w	46	G7M	O6-C6	-2.68	1.18	1.23
56	w	37	MIA	C5-N7	-2.67	1.34	1.39
56	w	46	G7M	C2-N1	2.67	1.44	1.37
56	w	8	4SU	O2-C2	-2.67	1.18	1.23
8	A	1917	PSU	C6-C5	2.66	1.38	1.35
8	A	1915	3TD	C4-N3	2.65	1.46	1.40
8	A	2604	PSU	C6-C5	2.62	1.38	1.35
8	A	955	PSU	C6-C5	2.61	1.38	1.35
55	v	54	5MU	O2-C2	-2.60	1.18	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	w	54	5MU	C4-C5	2.60	1.49	1.44
8	A	2580	PSU	O4'-C1'	-2.58	1.40	1.43
34	a	516	PSU	C6-C5	2.58	1.38	1.35
8	A	2552	OMU	O2-C2	-2.57	1.18	1.23
8	A	2503	2MA	C4-N9	-2.57	1.32	1.37
8	A	746	PSU	C6-C5	2.57	1.38	1.35
8	A	2605	PSU	C6-C5	2.57	1.38	1.35
56	w	54	5MU	C4-N3	-2.57	1.34	1.38
8	A	2069	G7M	O6-C6	-2.56	1.18	1.23
8	A	2552	OMU	C6-N1	2.54	1.44	1.38
8	A	745	1MG	C5-C6	2.52	1.51	1.45
34	a	527	G7M	O6-C6	-2.50	1.18	1.23
8	A	2580	PSU	C6-C5	2.49	1.38	1.35
34	a	1516	2MG	C5-C6	2.46	1.53	1.44
56	w	54	5MU	C6-N1	-2.46	1.33	1.38
34	a	1207	2MG	C5-C6	2.42	1.53	1.44
8	A	2457	PSU	C6-C5	2.41	1.38	1.35
34	a	1207	2MG	C6-N1	2.39	1.43	1.38
34	a	1498	UR3	O4-C4	-2.39	1.18	1.23
8	A	2251	OMG	C2-N1	2.37	1.43	1.37
56	w	46	G7M	C6-N1	2.37	1.43	1.38
8	A	2030	6MZ	C6-N1	-2.37	1.31	1.35
55	v	20	H2U	O4-C4	-2.32	1.18	1.23
55	v	20	H2U	O2-C2	-2.30	1.18	1.23
56	w	37	MIA	C8-N9	-2.26	1.33	1.37
8	A	2069	G7M	C2-N1	2.26	1.43	1.37
34	a	527	G7M	C2-N1	2.25	1.43	1.37
8	A	1911	PSU	C4-C5	-2.25	1.37	1.44
8	A	745	1MG	C4-N9	-2.23	1.32	1.38
8	A	2251	OMG	C4-N9	-2.23	1.32	1.38
34	a	1516	2MG	C4-N9	-2.22	1.32	1.38
8	A	2580	PSU	C4-C5	-2.22	1.37	1.44
34	a	966	2MG	C5-C6	2.20	1.52	1.44
8	A	746	PSU	C4-C5	-2.16	1.38	1.44
34	a	1516	2MG	C6-N1	2.15	1.42	1.38
8	A	2457	PSU	O4'-C1'	-2.13	1.40	1.43
34	a	527	G7M	C6-N1	2.13	1.42	1.38
34	a	1518	MA6	C8-N7	2.13	1.35	1.31
8	A	1835	2MG	C5-C6	2.12	1.52	1.44
8	A	2251	OMG	C5-C6	2.12	1.52	1.44
8	A	955	PSU	C4-C5	-2.11	1.38	1.44
8	A	2604	PSU	C4-C5	-2.09	1.38	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	2503	2MA	C8-N9	-2.08	1.33	1.37
8	A	1835	2MG	C6-N1	2.08	1.42	1.38
8	A	2445	2MG	C4-N9	-2.08	1.32	1.38
56	w	54	5MU	C2-N3	-2.08	1.34	1.38
58	y	101	FME	CA-N	-2.07	1.43	1.46
8	A	2457	PSU	C4-C5	-2.06	1.38	1.44
8	A	2069	G7M	C6-N1	2.05	1.42	1.38
8	A	2445	2MG	C5-C6	2.05	1.52	1.44
56	w	54	5MU	C2-N1	2.05	1.41	1.38
8	A	2605	PSU	C4-C5	-2.04	1.38	1.44
8	A	2552	OMU	C5-C4	2.04	1.48	1.43
34	a	1498	UR3	C5-C4	2.04	1.49	1.43
8	A	2504	PSU	C4-C5	-2.01	1.38	1.44

All (295) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2030	6MZ	C4-N9-C8	14.40	121.33	105.73
8	A	1618	6MZ	C4-N9-C8	13.22	120.06	105.73
8	A	1939	5MU	C5-C4-N3	12.31	125.82	115.31
55	v	54	5MU	C5-C4-N3	11.89	125.46	115.31
8	A	2030	6MZ	N9-C8-N7	-11.36	98.37	113.91
8	A	1939	5MU	C5-C6-N1	-10.81	112.21	123.34
8	A	1618	6MZ	N9-C8-N7	-10.68	99.31	113.91
56	w	37	MIA	C11-S10-C2	10.30	109.96	102.27
34	a	1518	MA6	N1-C6-N6	-10.22	105.90	117.08
56	w	37	MIA	C12-C13-C14	-10.02	107.64	127.14
55	v	54	5MU	C5-C6-N1	-9.97	113.09	123.34
34	a	1519	MA6	N1-C6-N6	-9.63	106.55	117.08
8	A	1618	6MZ	C5-C6-N1	8.73	127.50	118.20
8	A	2030	6MZ	C5-C6-N1	8.25	126.99	118.20
56	w	8	4SU	C4-N3-C2	-8.18	119.39	127.34
55	v	8	4SU	C4-N3-C2	-7.46	120.10	127.34
55	v	20	H2U	C4-N3-C2	-6.86	120.10	125.79
56	w	37	MIA	C5-C4-N3	-6.74	119.61	127.19
34	a	1207	2MG	C2-N3-C4	6.62	120.25	112.04
34	a	1516	2MG	C2-N3-C4	6.55	120.16	112.04
34	a	966	2MG	C2-N3-C4	6.55	120.16	112.04
8	A	1618	6MZ	N3-C4-N9	6.50	137.79	127.08
8	A	2445	2MG	C2-N3-C4	6.38	119.95	112.04
56	w	55	PSU	N1-C2-N3	6.04	121.98	115.13
8	A	2503	2MA	C5-C4-N3	-5.98	120.46	127.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	1835	2MG	C2-N3-C4	5.95	119.42	112.04
8	A	2030	6MZ	N3-C4-N9	5.91	136.82	127.08
34	a	966	2MG	C5-C4-N3	-5.85	118.97	128.46
56	w	46	G7M	CN7-N7-C5	5.84	134.03	126.77
56	w	8	4SU	C5-C4-N3	5.71	119.99	114.69
34	a	1519	MA6	N1-C2-N3	-5.68	119.71	128.60
34	a	1518	MA6	N1-C2-N3	-5.67	119.74	128.60
8	A	2069	G7M	CN7-N7-C5	5.59	133.72	126.77
8	A	1939	5MU	O4-C4-C5	-5.51	118.52	124.90
8	A	745	1MG	C1'-N9-C4	-5.49	110.19	126.50
34	a	527	G7M	CN7-N7-C5	5.47	133.57	126.77
55	v	8	4SU	C5-C4-N3	5.45	119.75	114.69
8	A	2030	6MZ	N1-C2-N3	-5.45	120.08	128.60
8	A	2503	2MA	N9-C8-N7	-5.44	106.47	113.91
8	A	2552	OMU	C4-N3-C2	-5.34	119.54	126.58
8	A	1939	5MU	C4-N3-C2	-5.33	120.45	127.35
8	A	1618	6MZ	N1-C2-N3	-5.33	120.27	128.60
34	a	1519	MA6	C5-C4-N3	-5.25	119.90	126.75
34	a	1207	2MG	C5-C4-N3	-5.24	119.96	128.46
8	A	1915	3TD	N1-C2-N3	5.23	120.27	116.14
8	A	2445	2MG	C5-C4-N3	-5.15	120.10	128.46
8	A	1911	PSU	C4-N3-C2	-5.14	118.94	126.34
8	A	1835	2MG	C5-C4-N3	-5.11	120.16	128.46
8	A	2604	PSU	C4-N3-C2	-5.11	118.97	126.34
56	w	54	5MU	C4-N3-C2	-5.08	120.77	127.35
34	a	1516	2MG	C5-C4-N3	-5.00	120.35	128.46
8	A	2030	6MZ	C5-C4-N9	-4.99	99.98	105.78
56	w	39	PSU	N1-C2-N3	4.99	120.78	115.13
34	a	1518	MA6	C5-C6-N6	4.96	133.94	125.30
8	A	2605	PSU	C4-N3-C2	-4.95	119.21	126.34
8	A	2030	6MZ	C9-N6-C6	-4.94	118.62	122.87
8	A	1618	6MZ	C9-N6-C6	-4.92	118.63	122.87
8	A	2251	OMG	C5-C4-N3	-4.90	120.52	128.46
8	A	745	1MG	C1'-N9-C8	4.89	140.62	126.70
55	v	54	5MU	C4-N3-C2	-4.89	121.02	127.35
8	A	1939	5MU	N3-C2-N1	4.88	121.37	114.89
8	A	2604	PSU	N1-C2-N3	4.88	120.66	115.13
56	w	37	MIA	N3-C4-N9	4.88	133.76	126.99
55	v	54	5MU	O4-C4-C5	-4.87	119.26	124.90
8	A	955	PSU	N1-C2-N3	4.82	120.59	115.13
56	w	54	5MU	N3-C2-N1	4.82	121.29	114.89
34	a	527	G7M	C5-C4-N3	-4.81	118.93	128.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	527	G7M	C2-N3-C4	4.78	120.82	112.30
8	A	1911	PSU	N1-C2-N3	4.78	120.55	115.13
55	v	54	5MU	N3-C2-N1	4.76	121.21	114.89
8	A	746	PSU	C4-N3-C2	-4.75	119.50	126.34
8	A	955	PSU	C4-N3-C2	-4.74	119.51	126.34
8	A	2457	PSU	C4-N3-C2	-4.72	119.53	126.34
34	a	1518	MA6	N9-C8-N7	-4.67	107.53	113.91
56	w	39	PSU	C4-N3-C2	-4.66	119.62	126.34
8	A	2030	6MZ	C5-N7-C8	4.66	110.12	103.51
8	A	1618	6MZ	C5-N7-C8	4.63	110.09	103.51
56	w	37	MIA	C16-C14-C13	-4.63	109.25	122.65
8	A	2580	PSU	N1-C2-N3	4.61	120.35	115.13
8	A	2445	2MG	C2-N1-C6	-4.60	119.19	124.48
8	A	2069	G7M	C1'-N9-C4	-4.59	112.86	126.50
34	a	966	2MG	C2-N1-C6	-4.58	119.21	124.48
8	A	2457	PSU	N1-C2-N3	4.55	120.29	115.13
56	w	37	MIA	N9-C8-N7	-4.55	107.69	113.91
8	A	745	1MG	C5-C4-N3	-4.54	121.09	128.46
8	A	1917	PSU	C4-N3-C2	-4.54	119.80	126.34
56	w	37	MIA	C15-C14-C13	-4.52	109.58	122.65
34	a	1516	2MG	C2-N1-C6	-4.52	119.28	124.48
8	A	1618	6MZ	C5-C4-N9	-4.51	100.54	105.78
8	A	2251	OMG	C2-N3-C4	4.50	120.33	112.30
56	w	32	PSU	C4-N3-C2	-4.50	119.85	126.34
55	v	55	PSU	C4-N3-C2	-4.49	119.87	126.34
34	a	1207	2MG	C2-N1-C6	-4.48	119.32	124.48
55	v	55	PSU	N1-C2-N3	4.48	120.20	115.13
8	A	1917	PSU	N1-C2-N3	4.48	120.20	115.13
8	A	2605	PSU	N1-C2-N3	4.47	120.19	115.13
8	A	2504	PSU	C4-N3-C2	-4.45	119.92	126.34
8	A	2069	G7M	C2-N3-C4	4.44	120.21	112.30
56	w	46	G7M	CN7-N7-C8	-4.43	118.00	124.84
34	a	1519	MA6	C5-C6-N6	4.43	133.02	125.30
8	A	2069	G7M	CN7-N7-C8	-4.43	118.01	124.84
8	A	2580	PSU	C4-N3-C2	-4.42	119.96	126.34
34	a	516	PSU	C4-N3-C2	-4.41	119.99	126.34
34	a	1498	UR3	C4-N3-C2	-4.40	120.42	124.56
34	a	527	G7M	CN7-N7-C8	-4.39	118.07	124.84
56	w	46	G7M	C5-C4-N3	-4.35	119.82	128.15
8	A	1835	2MG	C2-N1-C6	-4.34	119.49	124.48
34	a	966	2MG	N9-C4-N3	4.34	134.65	125.94
8	A	1915	3TD	C4-N3-C2	-4.34	119.90	124.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	w	46	G7M	C2-N3-C4	4.33	120.01	112.30
8	A	2503	2MA	N3-C4-N9	4.30	132.95	126.99
56	w	32	PSU	N1-C2-N3	4.28	119.98	115.13
8	A	2504	PSU	N1-C2-N3	4.27	119.97	115.13
34	a	1518	MA6	C5-C4-N3	-4.25	121.20	126.75
56	w	54	5MU	C5-C4-N3	4.24	118.93	115.31
8	A	746	PSU	N1-C2-N3	4.23	119.92	115.13
56	w	37	MIA	C4-C5-C6	4.12	120.00	116.81
56	w	55	PSU	C4-N3-C2	-4.10	120.43	126.34
8	A	2069	G7M	C5-C4-N3	-4.10	120.28	128.15
8	A	2503	2MA	C4-N9-C8	4.09	110.16	105.73
34	a	1519	MA6	N9-C8-N7	-4.07	108.35	113.91
34	a	527	G7M	C5-C6-N1	4.06	120.27	111.79
55	v	8	4SU	C5-C4-S4	-4.05	119.25	124.47
8	A	1618	6MZ	C1'-N9-C8	-4.03	118.04	127.14
56	w	8	4SU	N3-C2-N1	4.02	120.23	114.89
56	w	46	G7M	C5-C6-N1	3.98	120.10	111.79
34	a	516	PSU	N1-C2-N3	3.92	119.58	115.13
8	A	1618	6MZ	C5-C4-N3	-3.91	121.66	126.75
8	A	2069	G7M	C5-C6-N1	3.89	119.91	111.79
55	v	54	5MU	C5M-C5-C6	-3.83	117.73	122.85
8	A	747	5MC	C5-C6-N1	-3.81	119.42	123.34
56	w	46	G7M	C1'-N9-C4	-3.79	115.26	126.50
8	A	2552	OMU	N3-C2-N1	3.78	119.91	114.89
56	w	54	5MU	C5-C6-N1	-3.74	119.49	123.34
34	a	527	G7M	N9-C4-N3	3.71	133.39	125.94
34	a	1518	MA6	C2-N1-C6	3.71	120.51	111.75
34	a	1519	MA6	C2-N3-C4	3.70	120.49	111.75
8	A	1939	5MU	O2-C2-N1	-3.70	117.87	122.79
8	A	2030	6MZ	C4-C5-C6	-3.69	113.94	116.81
56	w	37	MIA	N3-C2-N1	-3.68	120.20	126.95
56	w	46	G7M	O6-C6-C5	-3.67	119.79	128.06
8	A	1618	6MZ	C2-N3-C4	3.65	120.38	111.75
8	A	1939	5MU	C5M-C5-C6	-3.63	118.00	122.85
8	A	2552	OMU	C5-C4-N3	3.62	120.25	114.84
56	w	8	4SU	C5-C4-S4	-3.57	119.87	124.47
56	w	54	5MU	O4-C4-C5	-3.55	120.79	124.90
34	a	1516	2MG	C1'-N9-C4	-3.54	115.98	126.50
8	A	1835	2MG	N9-C4-N3	3.54	133.04	125.94
8	A	2069	G7M	C1'-N9-C8	3.54	138.68	126.74
34	a	527	G7M	C1'-N9-C4	-3.52	116.06	126.50
55	v	54	5MU	C5M-C5-C4	3.51	122.64	118.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2069	G7M	O6-C6-C5	-3.48	120.20	128.06
34	a	1519	MA6	C2-N1-C6	3.46	119.93	111.75
8	A	2030	6MZ	C4-N9-C1'	-3.45	118.37	126.59
8	A	2580	PSU	O2-C2-N1	-3.44	119.00	122.79
8	A	2503	2MA	C5-N7-C8	3.44	108.39	103.51
55	v	8	4SU	N3-C2-N1	3.42	119.42	114.89
56	w	46	G7M	N9-C4-N3	3.37	132.70	125.94
8	A	2030	6MZ	C2-N3-C4	3.35	119.66	111.75
34	a	1518	MA6	C2-N3-C4	3.33	119.61	111.75
34	a	967	5MC	C5-C6-N1	-3.31	119.93	123.34
8	A	2604	PSU	C6-C5-C4	3.28	120.49	118.20
34	a	1519	MA6	C4-C5-C6	3.27	119.54	115.88
56	w	55	PSU	O2-C2-N1	-3.27	119.19	122.79
8	A	745	1MG	C2-N3-C4	3.26	119.31	111.98
8	A	2445	2MG	N9-C4-N3	3.24	132.45	125.94
8	A	955	PSU	O2-C2-N1	-3.24	119.23	122.79
8	A	2030	6MZ	C6-C5-N7	3.23	135.89	132.39
8	A	745	1MG	N9-C8-N7	-3.20	107.36	113.39
55	v	20	H2U	N3-C2-N1	3.20	120.03	116.65
56	w	46	G7M	C2-N1-C6	-3.19	119.28	125.10
8	A	2251	OMG	N9-C8-N7	-3.19	107.39	113.39
34	a	527	G7M	O6-C6-C5	-3.19	120.87	128.06
8	A	1939	5MU	C5M-C5-C4	3.18	122.27	118.77
34	a	527	G7M	C2-N1-C6	-3.18	119.31	125.10
34	a	1516	2MG	C1'-N9-C8	3.17	135.71	126.70
34	a	1207	2MG	N9-C4-N3	3.11	132.18	125.94
34	a	1518	MA6	C5-N7-C8	3.06	107.85	103.51
56	w	37	MIA	C5-N7-C8	3.06	107.85	103.51
8	A	2030	6MZ	C1'-N9-C8	-3.05	120.25	127.14
8	A	2251	OMG	N9-C4-N3	3.04	132.05	125.94
34	a	1516	2MG	N9-C8-N7	-3.03	107.68	113.39
34	a	1519	MA6	N3-C4-N9	3.02	132.07	127.08
34	a	1519	MA6	C5-N7-C8	3.02	107.79	103.51
8	A	2069	G7M	N9-C4-N3	3.01	131.99	125.94
8	A	1835	2MG	N9-C8-N7	-3.01	107.72	113.39
8	A	2445	2MG	N9-C8-N7	-2.99	107.77	113.39
8	A	2504	PSU	O2-C2-N1	-2.97	119.52	122.79
8	A	2251	OMG	C2-N1-C6	-2.95	119.73	125.10
34	a	1518	MA6	C4-N9-C8	2.94	108.92	105.73
8	A	2552	OMU	O4-C4-C5	-2.93	120.01	125.16
56	w	46	G7M	C1'-N9-C8	2.92	136.60	126.74
34	a	966	2MG	C5-C6-N1	2.91	120.59	113.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	w	37	MIA	C2-N3-C4	2.90	119.98	112.35
8	A	1962	5MC	C5-C6-N1	-2.89	120.36	123.34
8	A	745	1MG	N9-C4-N3	2.89	131.73	125.94
8	A	2580	PSU	C6-N1-C2	-2.87	119.75	122.68
8	A	2503	2MA	N3-C2-N1	-2.87	120.44	125.72
56	w	37	MIA	C4-N9-C8	2.84	108.81	105.73
34	a	1207	2MG	C1'-N9-C4	-2.84	118.06	126.50
8	A	1917	PSU	O2-C2-N1	-2.84	119.66	122.79
8	A	2069	G7M	C2-N1-C6	-2.83	119.93	125.10
8	A	2445	2MG	C1'-N9-C4	-2.83	118.09	126.50
56	w	32	PSU	O2-C2-N1	-2.83	119.67	122.79
56	w	39	PSU	C6-N1-C2	-2.83	119.79	122.68
34	a	1207	2MG	N9-C8-N7	-2.80	108.11	113.39
34	a	966	2MG	O6-C6-C5	-2.79	119.19	126.60
8	A	2445	2MG	C5-C6-N1	2.79	120.28	113.19
55	v	54	5MU	O2-C2-N1	-2.79	119.08	122.79
8	A	2251	OMG	C5-C6-N1	2.78	120.26	113.19
34	a	527	G7M	C1'-N9-C8	2.78	136.12	126.74
56	w	37	MIA	C1'-N9-C8	-2.77	120.88	127.14
8	A	955	PSU	C6-N1-C2	-2.76	119.86	122.68
34	a	1407	5MC	C5-C6-N1	-2.76	120.50	123.34
55	v	20	H2U	C5-C4-N3	2.74	119.73	116.65
34	a	1516	2MG	C5-C6-N1	2.74	120.14	113.19
8	A	1618	6MZ	C6-C5-N7	2.73	135.35	132.39
8	A	1618	6MZ	C4-C5-C6	-2.73	114.69	116.81
34	a	1516	2MG	N9-C4-N3	2.73	131.41	125.94
8	A	2030	6MZ	C5-C4-N3	-2.73	123.19	126.75
34	a	516	PSU	O2-C2-N1	-2.72	119.79	122.79
55	v	20	H2U	C5-C6-N1	2.71	120.55	111.61
8	A	2251	OMG	O6-C6-C5	-2.70	119.43	126.60
8	A	2445	2MG	O6-C6-C5	-2.69	119.46	126.60
34	a	1207	2MG	CM2-N2-C2	-2.68	117.93	123.86
8	A	1835	2MG	C5-C6-N1	2.68	119.98	113.19
34	a	966	2MG	N9-C8-N7	-2.67	108.36	113.39
8	A	1917	PSU	C6-N1-C2	-2.66	119.96	122.68
34	a	1207	2MG	C5-C6-N1	2.66	119.94	113.19
34	a	1516	2MG	CM2-N2-C2	-2.65	118.00	123.86
8	A	1835	2MG	O6-C6-C5	-2.63	119.61	126.60
8	A	745	1MG	C5-C6-N1	2.60	119.94	114.91
8	A	2457	PSU	O2-C2-N1	-2.60	119.93	122.79
34	a	1518	MA6	C4-C5-C6	2.59	118.78	115.88
34	a	1498	UR3	C1'-N1-C2	2.58	121.35	116.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	2445	2MG	CM2-N2-C2	-2.57	118.19	123.86
8	A	2580	PSU	O4'-C1'-C2'	2.55	108.74	105.14
8	A	2552	OMU	C1'-N1-C2	2.54	122.17	117.57
55	v	54	5MU	O4-C4-N3	-2.53	115.27	120.12
8	A	2604	PSU	O2-C2-N1	-2.50	120.04	122.79
34	a	1207	2MG	C1'-N9-C8	2.49	133.80	126.70
34	a	966	2MG	N1-C2-N3	-2.48	120.11	123.95
34	a	1207	2MG	O6-C6-C5	-2.48	120.02	126.60
34	a	1518	MA6	N3-C4-N9	2.47	131.16	127.08
8	A	2445	2MG	N1-C2-N3	-2.46	120.15	123.95
8	A	746	PSU	O2-C2-N1	-2.44	120.11	122.79
34	a	1516	2MG	N1-C2-N3	-2.43	120.19	123.95
8	A	1835	2MG	CM2-N2-C2	-2.43	118.50	123.86
34	a	1207	2MG	N1-C2-N3	-2.42	120.21	123.95
8	A	1835	2MG	C1'-N9-C4	-2.41	119.33	126.50
56	w	54	5MU	O2-C2-N1	-2.41	119.58	122.79
8	A	2504	PSU	C6-N1-C2	-2.40	120.23	122.68
8	A	2457	PSU	C6-N1-C2	-2.40	120.23	122.68
56	w	32	PSU	C6-N1-C2	-2.40	120.23	122.68
8	A	2445	2MG	C1'-N9-C8	2.37	133.45	126.70
8	A	1939	5MU	O4-C4-N3	-2.32	115.66	120.12
56	w	54	5MU	C5M-C5-C4	2.31	121.31	118.77
8	A	1911	PSU	C6-C5-C4	2.31	119.81	118.20
34	a	1516	2MG	O6-C6-C5	-2.31	120.48	126.60
8	A	1911	PSU	O2-C2-N1	-2.31	120.25	122.79
8	A	1835	2MG	N1-C2-N3	-2.30	120.39	123.95
34	a	516	PSU	C6-N1-C2	-2.30	120.33	122.68
56	w	55	PSU	C5-C6-N1	-2.30	118.66	122.11
56	w	37	MIA	S10-C2-N1	2.28	123.89	116.01
55	v	20	H2U	O2-C2-N1	-2.27	120.25	123.11
56	w	37	MIA	C16-C14-C15	-2.27	109.60	114.60
55	v	55	PSU	O2-C2-N1	-2.24	120.32	122.79
55	v	55	PSU	C6-N1-C2	-2.18	120.45	122.68
8	A	1911	PSU	O4-C4-C5	-2.18	118.36	124.05
8	A	2498	OMC	O2-C2-N3	-2.16	118.82	122.33
8	A	746	PSU	C6-C5-C4	2.15	119.70	118.20
8	A	2457	PSU	O4'-C1'-C2'	2.13	108.15	105.14
34	a	1498	UR3	C6-N1-C2	-2.11	119.90	121.79
8	A	747	5MC	C5-C4-N3	-2.11	119.40	121.67
34	a	1518	MA6	C4-C5-N7	-2.10	108.06	110.62
8	A	1915	3TD	O4'-C1'-C2'	2.10	108.11	105.14
34	a	516	PSU	O4'-C1'-C2'	2.10	108.11	105.14

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	1519	MA6	C4-C5-N7	-2.10	108.06	110.62
8	A	1911	PSU	C6-N1-C2	-2.09	120.55	122.68
56	w	8	4SU	O2-C2-N1	-2.09	120.01	122.79
8	A	2251	OMG	C8-N7-C5	2.08	108.01	104.24
34	a	1516	2MG	C8-N7-C5	2.07	107.98	104.24
8	A	2605	PSU	C6-C5-C4	2.06	119.64	118.20
8	A	2580	PSU	C6-C5-C4	2.06	119.64	118.20
56	w	39	PSU	O4'-C1'-C2'	2.05	108.03	105.14
8	A	2251	OMG	N1-C2-N3	-2.04	119.51	123.32
34	a	1402	4OC	CM4-N4-C4	-2.04	118.47	122.45
56	w	39	PSU	O2-C2-N3	-2.04	117.98	121.82
8	A	1939	5MU	C6-C5-C4	2.03	119.73	118.03
8	A	2503	2MA	C6-C5-C4	2.03	119.91	117.18
8	A	2503	2MA	CM2-C2-N3	2.03	120.31	117.15
8	A	1618	6MZ	C4-N9-C1'	-2.02	121.78	126.59
34	a	1402	4OC	C6-C5-C4	2.02	119.43	116.96
8	A	1835	2MG	C8-N7-C5	2.00	107.86	104.24
56	w	54	5MU	C5M-C5-C6	-2.00	120.17	122.85

There are no chirality outliers.

All (58) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
55	v	20	H2U	O4'-C4'-C5'-O5'
55	v	20	H2U	O4'-C1'-N1-C6
8	A	746	PSU	C2'-C1'-C5-C4
8	A	746	PSU	C2'-C1'-C5-C6
8	A	1915	3TD	O4'-C1'-C5-C4
8	A	1915	3TD	O4'-C1'-C5-C6
8	A	1917	PSU	C3'-C4'-C5'-O5'
8	A	2030	6MZ	O4'-C4'-C5'-O5'
8	A	2030	6MZ	C3'-C4'-C5'-O5'
8	A	2251	OMG	C1'-C2'-O2'-CM2
8	A	2445	2MG	C3'-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

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Mol	Chain	Res	Type	Atoms
56	w	37	MIA	C12-C13-C14-C15
56	w	37	MIA	C12-C13-C14-C16
56	w	39	PSU	C2'-C1'-C5-C4
56	w	39	PSU	O4'-C1'-C5-C4
56	w	39	PSU	O4'-C1'-C5-C6
58	y	101	FME	O1-CN-N-CA
58	y	101	FME	O-C-CA-CB
34	a	1498	UR3	O4'-C1'-N1-C6
55	v	20	H2U	C3'-C4'-C5'-O5'
8	A	1917	PSU	O4'-C4'-C5'-O5'
8	A	1939	5MU	O4'-C4'-C5'-O5'
58	y	101	FME	CA-CB-CG-SD
8	A	1835	2MG	O4'-C4'-C5'-O5'
8	A	1835	2MG	C3'-C4'-C5'-O5'
8	A	1939	5MU	C3'-C4'-C5'-O5'
55	v	20	H2U	C2'-C1'-N1-C6
58	y	101	FME	N-CA-CB-CG
55	v	20	H2U	C2'-C1'-N1-C2
8	A	2445	2MG	O4'-C4'-C5'-O5'
8	A	2503	2MA	O4'-C4'-C5'-O5'
58	y	101	FME	CB-CG-SD-CE
55	v	20	H2U	O4'-C1'-N1-C2
55	v	55	PSU	C4'-C5'-O5'-P
34	a	1519	MA6	C3'-C4'-C5'-O5'
34	a	1402	4OC	O4'-C4'-C5'-O5'
34	a	1519	MA6	C5-C6-N6-C10
58	y	101	FME	C-CA-CB-CG
34	a	527	G7M	C4'-C5'-O5'-P
34	a	1519	MA6	C4'-C5'-O5'-P
56	w	37	MIA	N6-C12-C13-C14
8	A	746	PSU	O4'-C1'-C5-C4
8	A	1917	PSU	O4'-C1'-C5-C4
8	A	747	5MC	C4'-C5'-O5'-P
8	A	2069	G7M	O4'-C4'-C5'-O5'
8	A	746	PSU	O4'-C1'-C5-C6
56	w	32	PSU	O4'-C4'-C5'-O5'
8	A	2498	OMC	C2'-C1'-N1-C2
55	v	20	H2U	C4'-C5'-O5'-P
58	y	101	FME	CB-CA-N-CN

There are no ring outliers.

32 monomers are involved in 51 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
56	w	8	4SU	1	0
8	A	1915	3TD	2	0
8	A	2504	PSU	1	0
55	v	54	5MU	2	0
8	A	2552	OMU	2	0
8	A	2498	OMC	2	0
56	w	54	5MU	1	0
8	A	2251	OMG	2	0
8	A	2503	2MA	1	0
34	a	516	PSU	3	0
8	A	1939	5MU	1	0
8	A	1917	PSU	3	0
8	A	2445	2MG	1	0
34	a	527	G7M	1	0
34	a	1407	5MC	1	0
55	v	55	PSU	2	0
34	a	1519	MA6	2	0
8	A	746	PSU	1	0
55	v	20	H2U	2	0
55	v	8	4SU	1	0
34	a	1402	4OC	2	0
34	a	966	2MG	1	0
56	w	39	PSU	2	0
8	A	1911	PSU	1	0
34	a	1516	2MG	1	0
58	y	101	FME	2	0
34	a	1518	MA6	1	0
8	A	745	1MG	1	0
8	A	2030	6MZ	1	0
34	a	1207	2MG	1	0
56	w	37	MIA	8	0
56	w	55	PSU	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 ligands 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
60	AM2	a	2001	-	40,40,40	1.61	9 (22%)	53,60,60	1.18	3 (5%)
61	GDP	x	801	-	28,30,30	1.11	3 (10%)	44,47,47	2.04	12 (27%)

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	-	-	2/12/84/84	0/4/4/4
61	GDP	x	801	-	-	6/16/32/32	0/3/3/3

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
60	a	2001	AM2	OA4-CA1	4.19	1.52	1.41
60	a	2001	AM2	OB1-CB1	3.40	1.50	1.41
60	a	2001	AM2	CB3-CB4	-3.28	1.49	1.53
60	a	2001	AM2	OA5-CA8	3.27	1.50	1.41
60	a	2001	AM2	OA5-CA4	2.96	1.51	1.44
60	a	2001	AM2	OA4-CA5	2.87	1.48	1.44
61	x	801	GDP	C5-C4	2.74	1.46	1.38
60	a	2001	AM2	OA1-CA1	-2.65	1.34	1.41
61	x	801	GDP	C6-N1	-2.48	1.34	1.38
61	x	801	GDP	C5-N7	-2.29	1.34	1.39
60	a	2001	AM2	OA8-CA8	-2.07	1.35	1.41
60	a	2001	AM2	CA7-NA7	-2.04	1.44	1.47

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
61	x	801	GDP	C5-C4-N3	-6.57	117.81	128.46
61	x	801	GDP	C2-N3-C4	5.28	121.71	112.30
60	a	2001	AM2	CA9-NA7-CA7	-4.71	107.52	114.38
61	x	801	GDP	N9-C4-N3	4.62	135.21	125.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
61	x	801	GDP	C6-C5-N7	3.48	136.72	130.25
61	x	801	GDP	O4'-C1'-N9	3.06	115.35	108.36
61	x	801	GDP	C4-C5-N7	-2.95	106.05	110.72
61	x	801	GDP	C2-N1-C6	-2.80	119.99	125.10
61	x	801	GDP	PA-O3A-PB	-2.74	123.44	132.83
61	x	801	GDP	C3'-C2'-C1'	2.59	106.34	101.43
61	x	801	GDP	C5-C6-N1	2.54	119.65	113.19
61	x	801	GDP	O6-C6-C5	-2.48	120.01	126.60
61	x	801	GDP	C8-N7-C5	2.14	108.12	104.24
60	a	2001	AM2	CA1-OA1-CC1	-2.14	112.67	117.96
60	a	2001	AM2	OA5-CA4-CA5	2.04	114.06	109.75

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
61	x	801	GDP	C5'-O5'-PA-O3A
61	x	801	GDP	O4'-C4'-C5'-O5'
61	x	801	GDP	C3'-C4'-C5'-O5'
60	a	2001	AM2	OB1-CB5-CB6-OB6
61	x	801	GDP	C5'-O5'-PA-O1A
61	x	801	GDP	PB-O3A-PA-O2A
60	a	2001	AM2	CB4-CB5-CB6-OB6
61	x	801	GDP	PB-O3A-PA-O1A

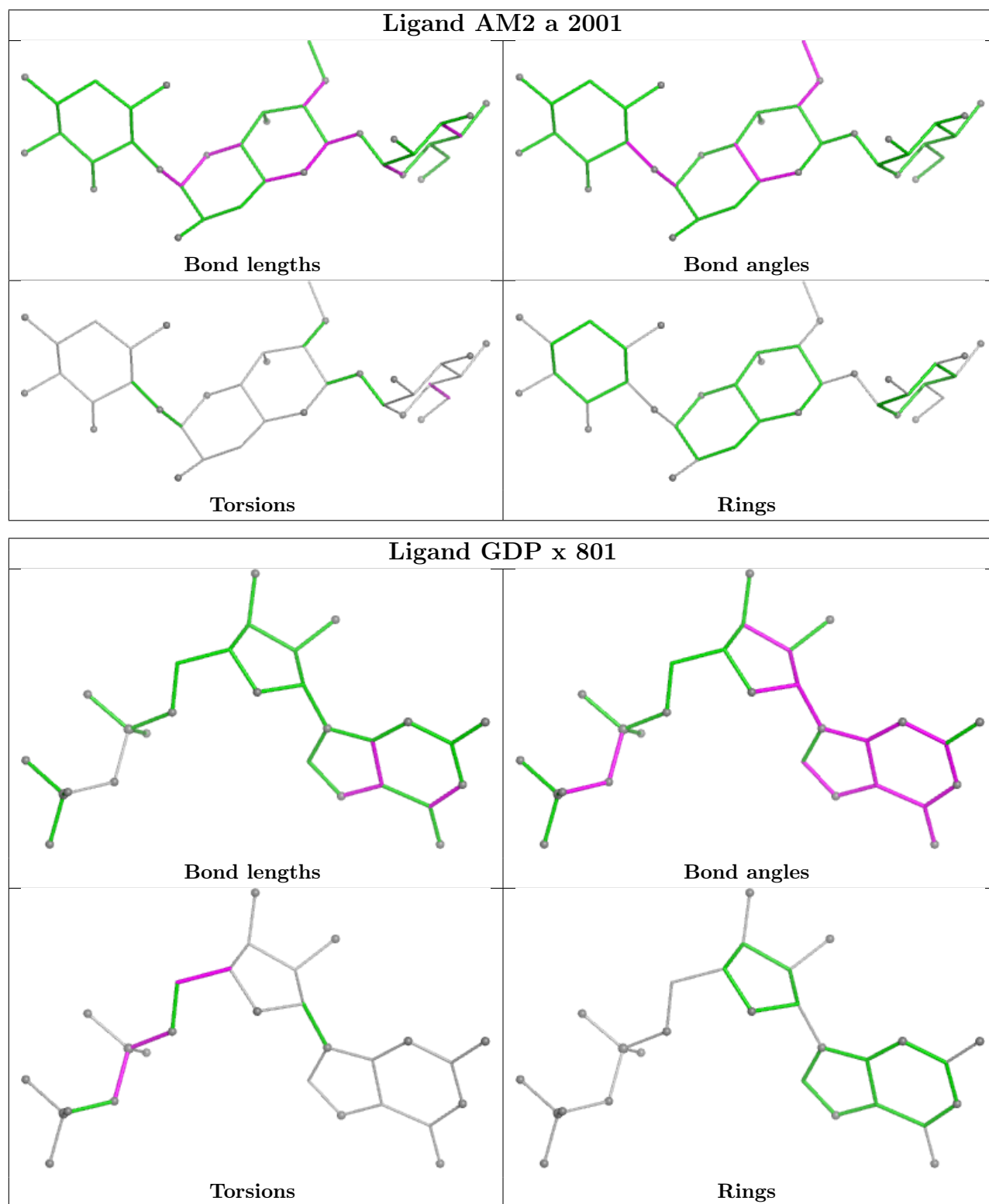
There are no ring outliers.

2 monomers are involved in 16 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
60	a	2001	AM2	3	0
61	x	801	GDP	13	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.

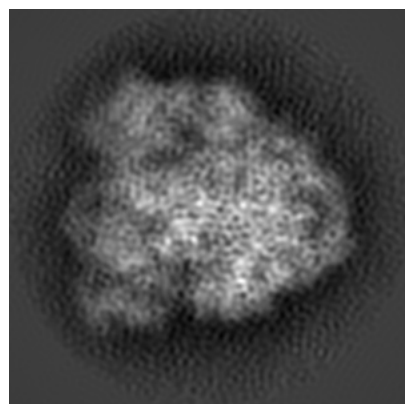
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13463. These allow visual inspection of the internal detail of the map and identification of artifacts.

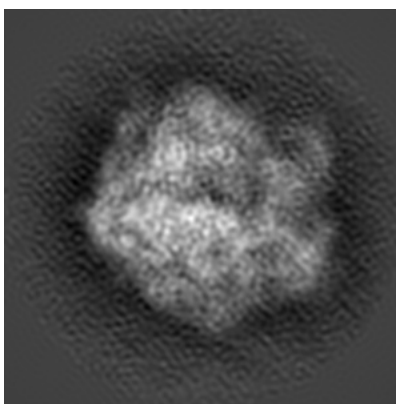
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

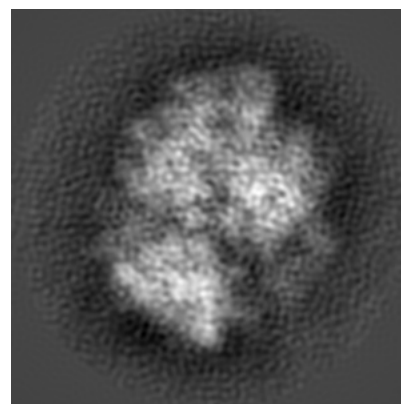
6.1.1 Primary map



X

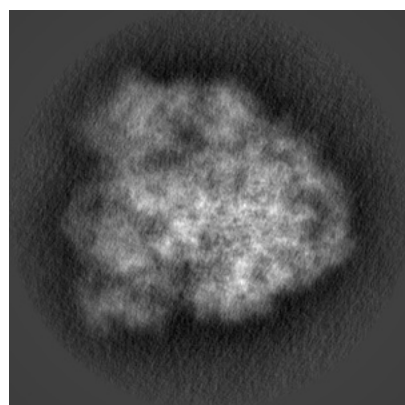


Y

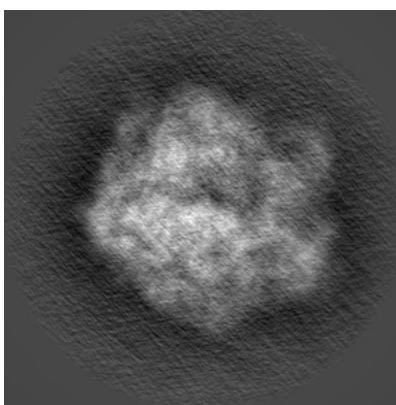


Z

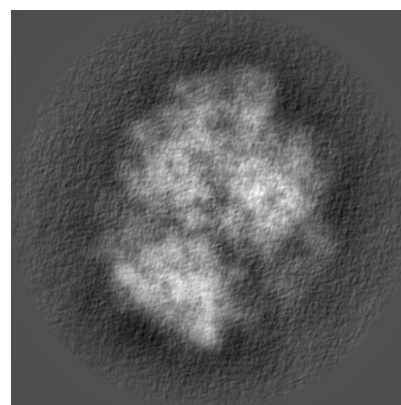
6.1.2 Raw map



X



Y

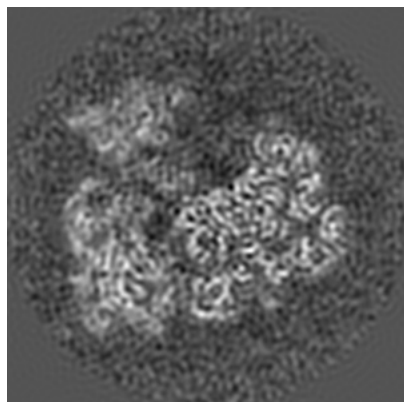


Z

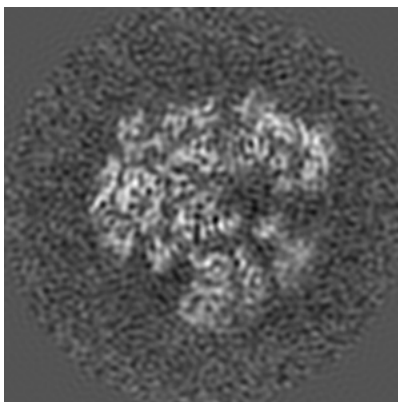
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

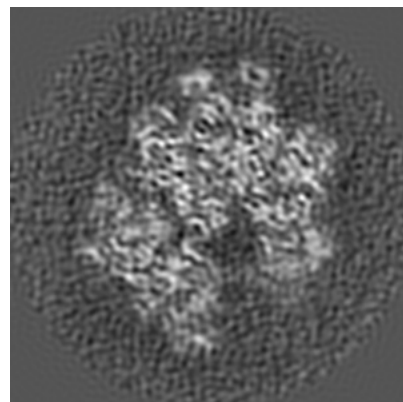
6.2.1 Primary map



X Index: 144

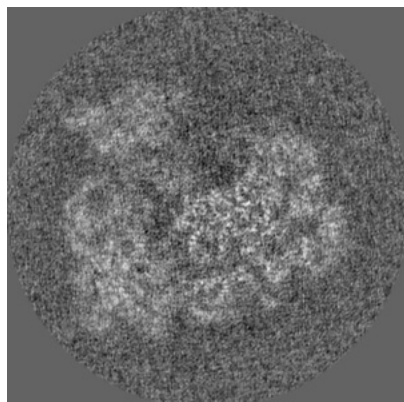


Y Index: 144

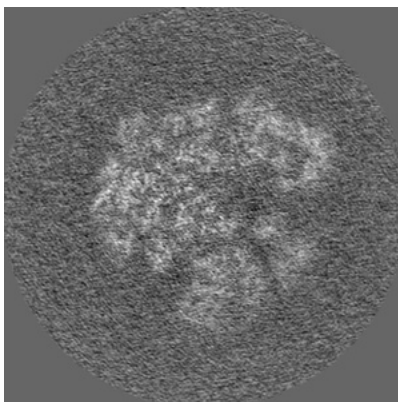


Z Index: 144

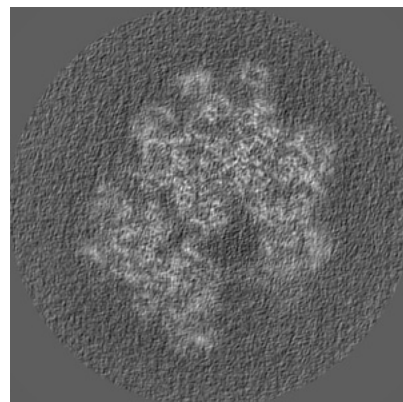
6.2.2 Raw map



X Index: 144



Y Index: 144

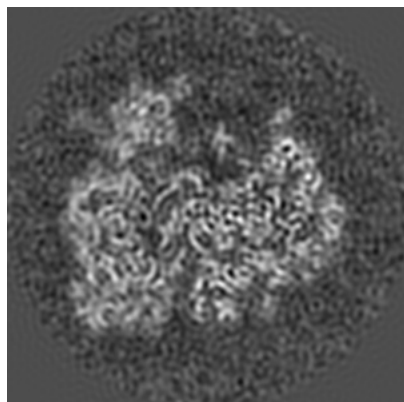


Z Index: 144

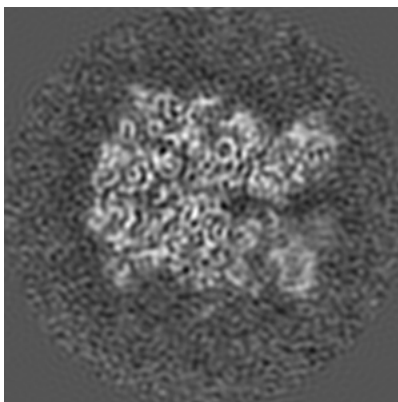
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

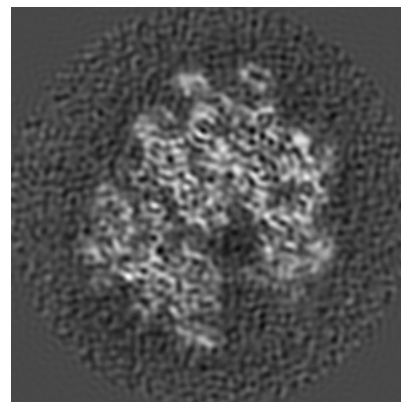
6.3.1 Primary map



X Index: 138

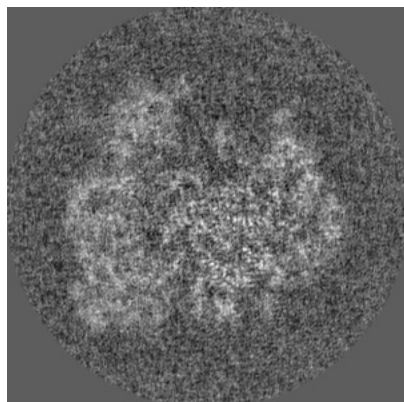


Y Index: 160

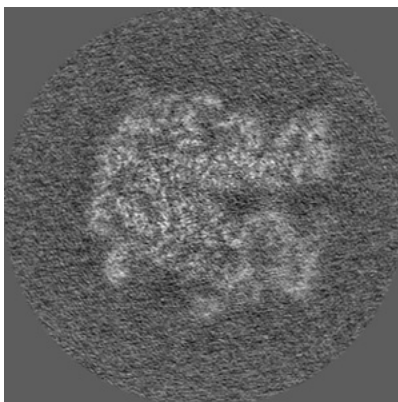


Z Index: 146

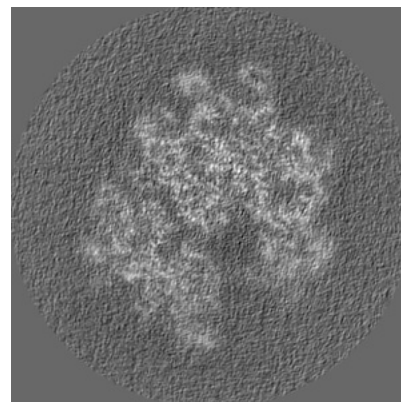
6.3.2 Raw map



X Index: 138



Y Index: 156

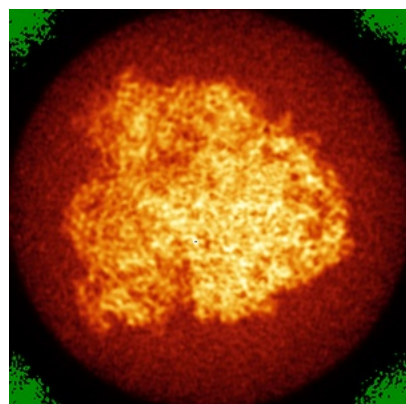


Z Index: 146

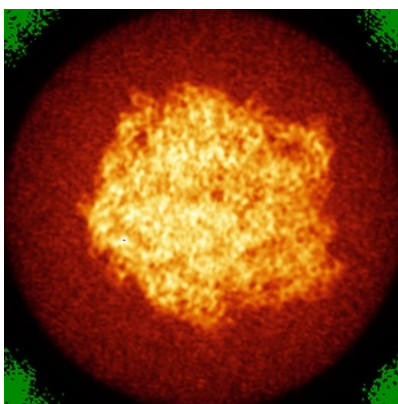
The images above show the largest variance slices of the map in three orthogonal directions.

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

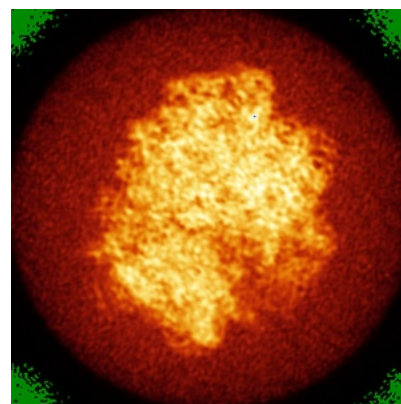
6.4.1 Primary map



X

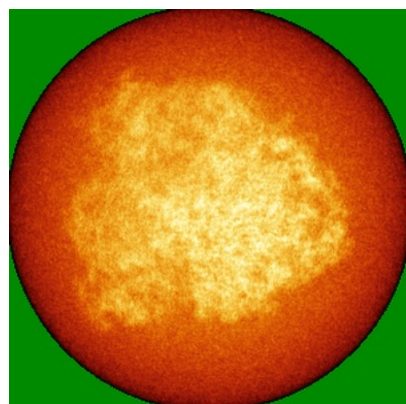


Y

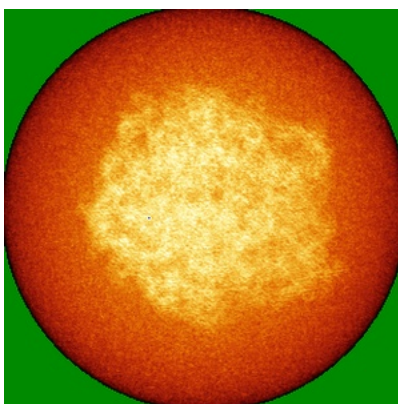


Z

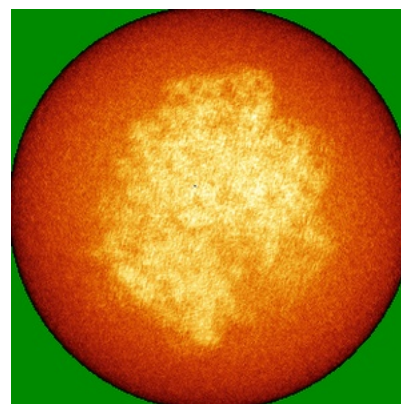
6.4.2 Raw map



X



Y

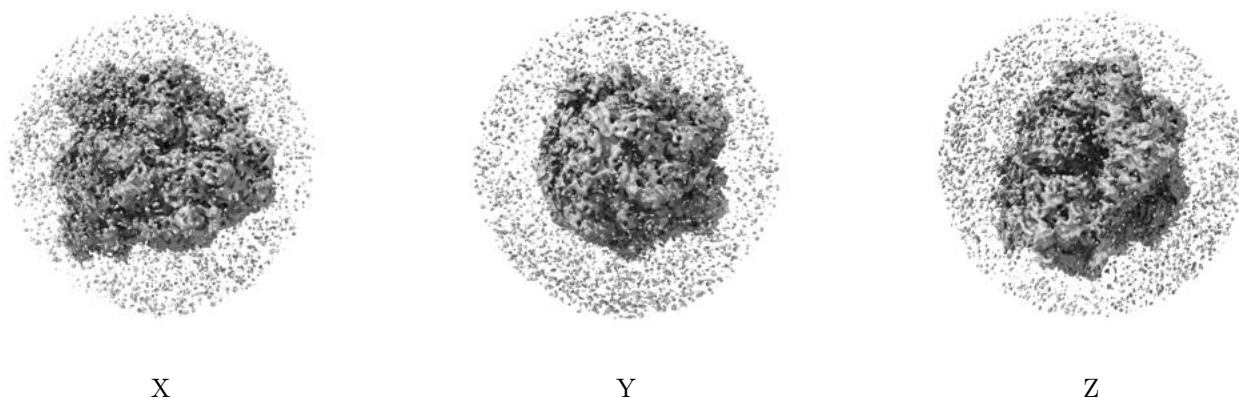


Z

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

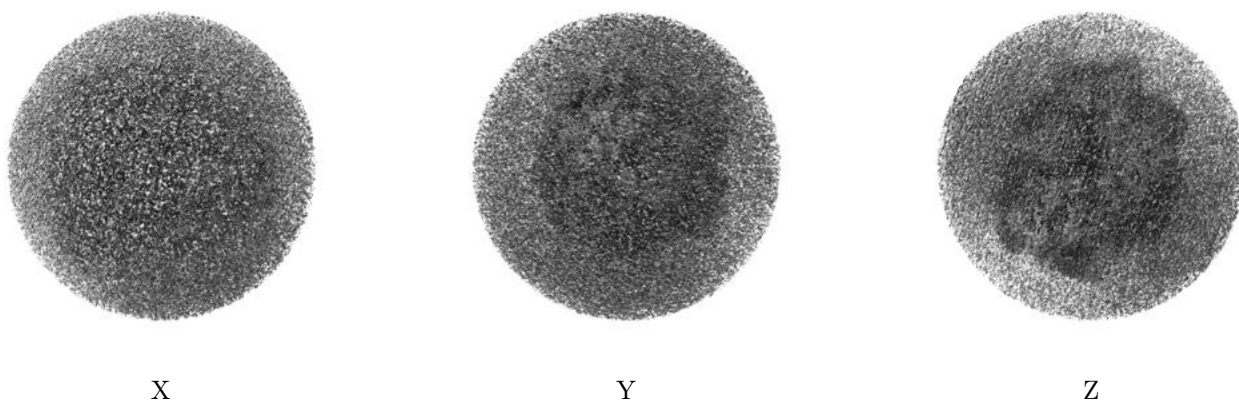
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



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.

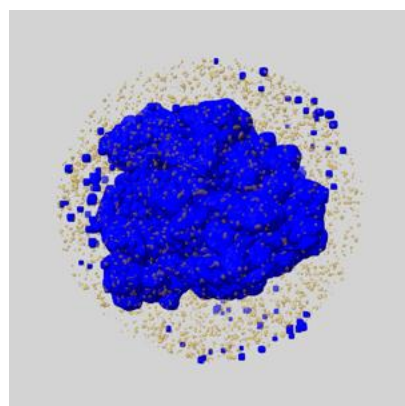
6.6 Mask visualisation [i](#)

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

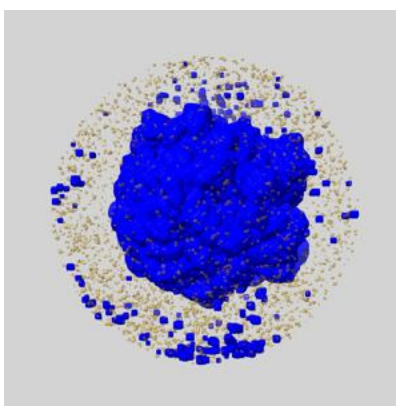
A mask typically either:

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

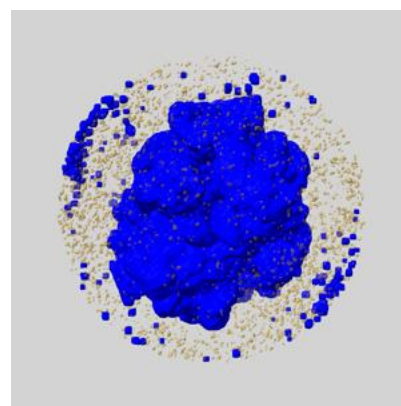
6.6.1 emd_13463_msk_1.map [i](#)



X



Y

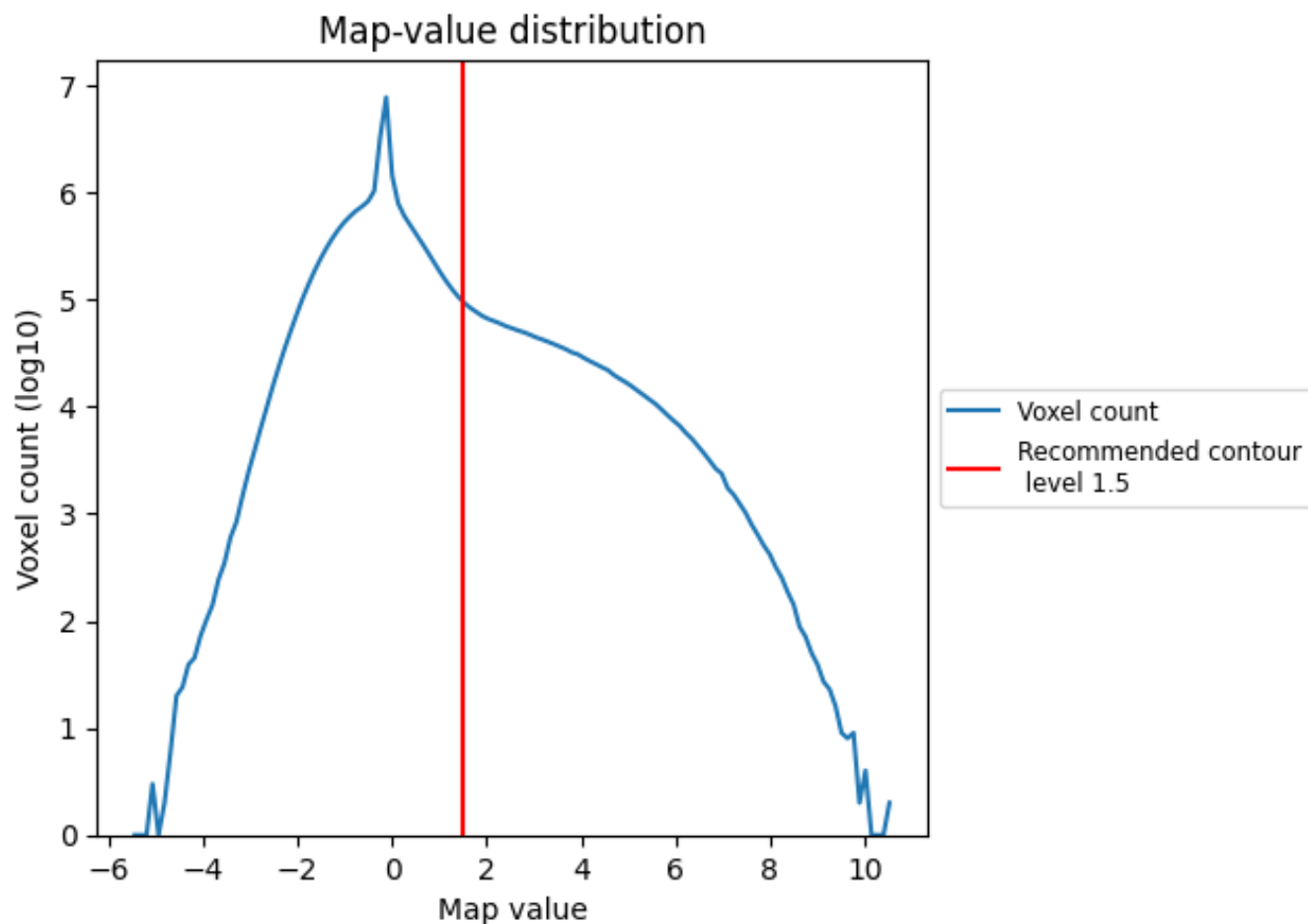


Z

7 Map analysis [i](#)

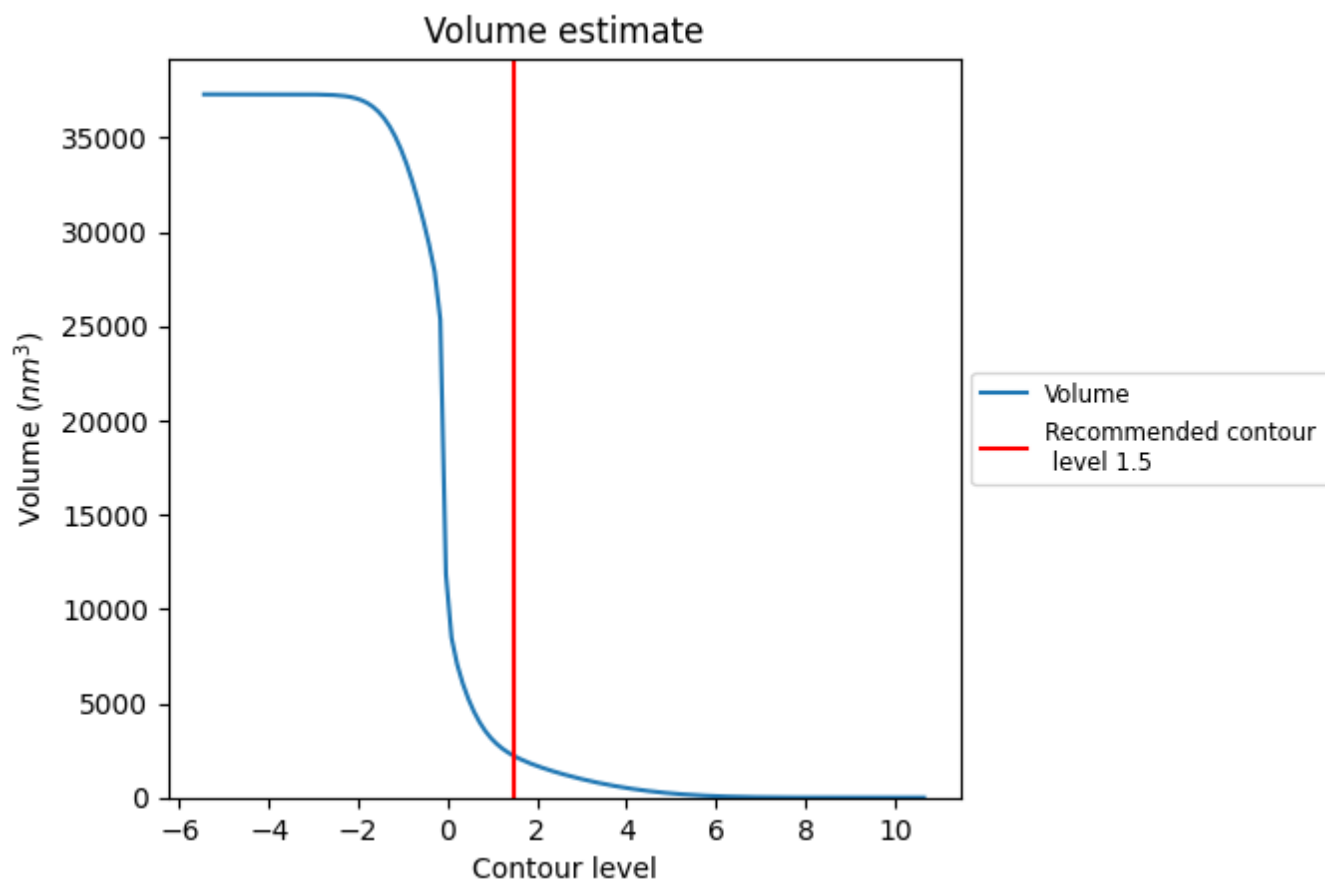
This section contains the results of statistical analysis of the map.

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.

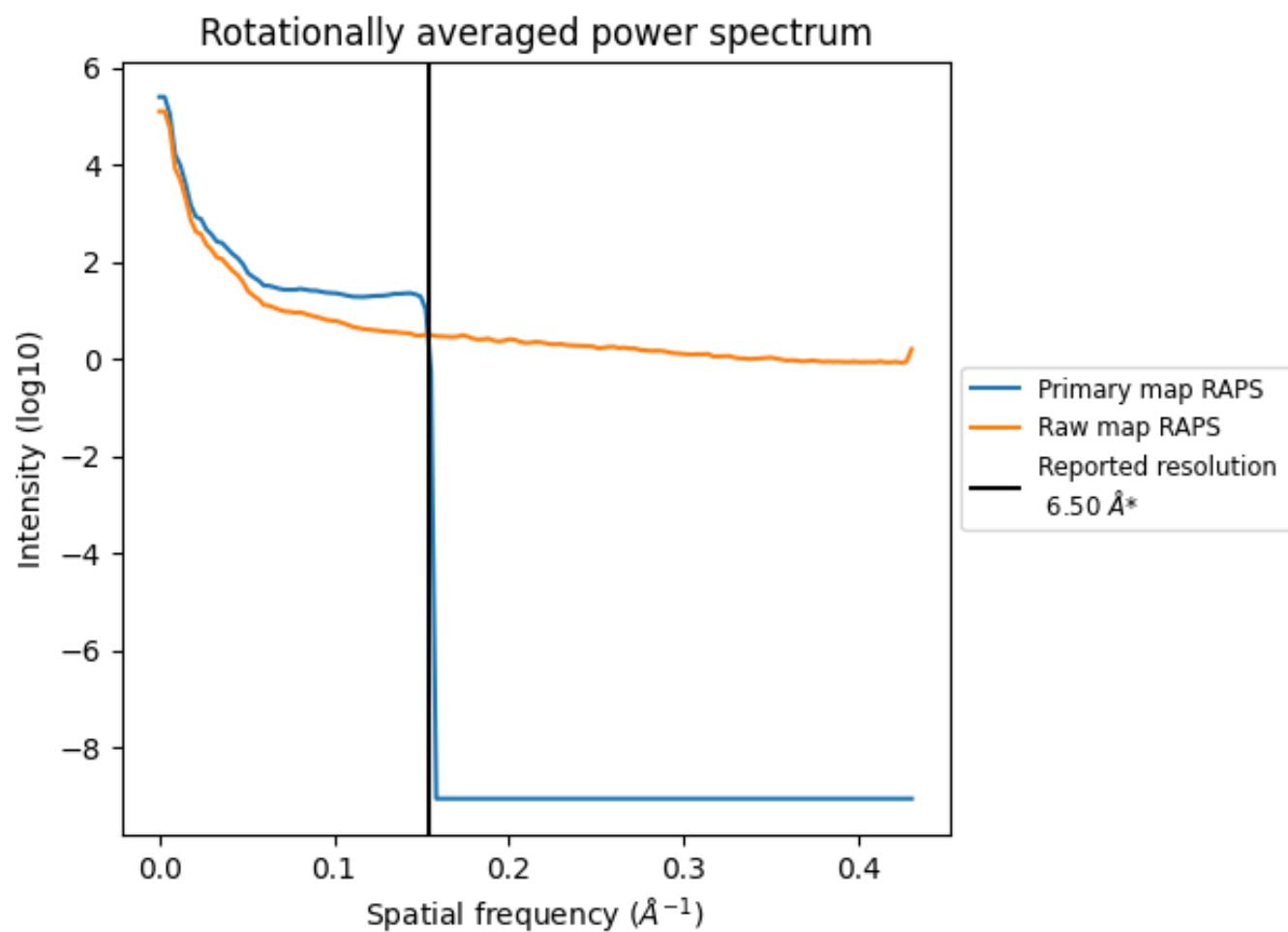
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2187 nm³; this corresponds to an approximate mass of 1976 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 ⓘ

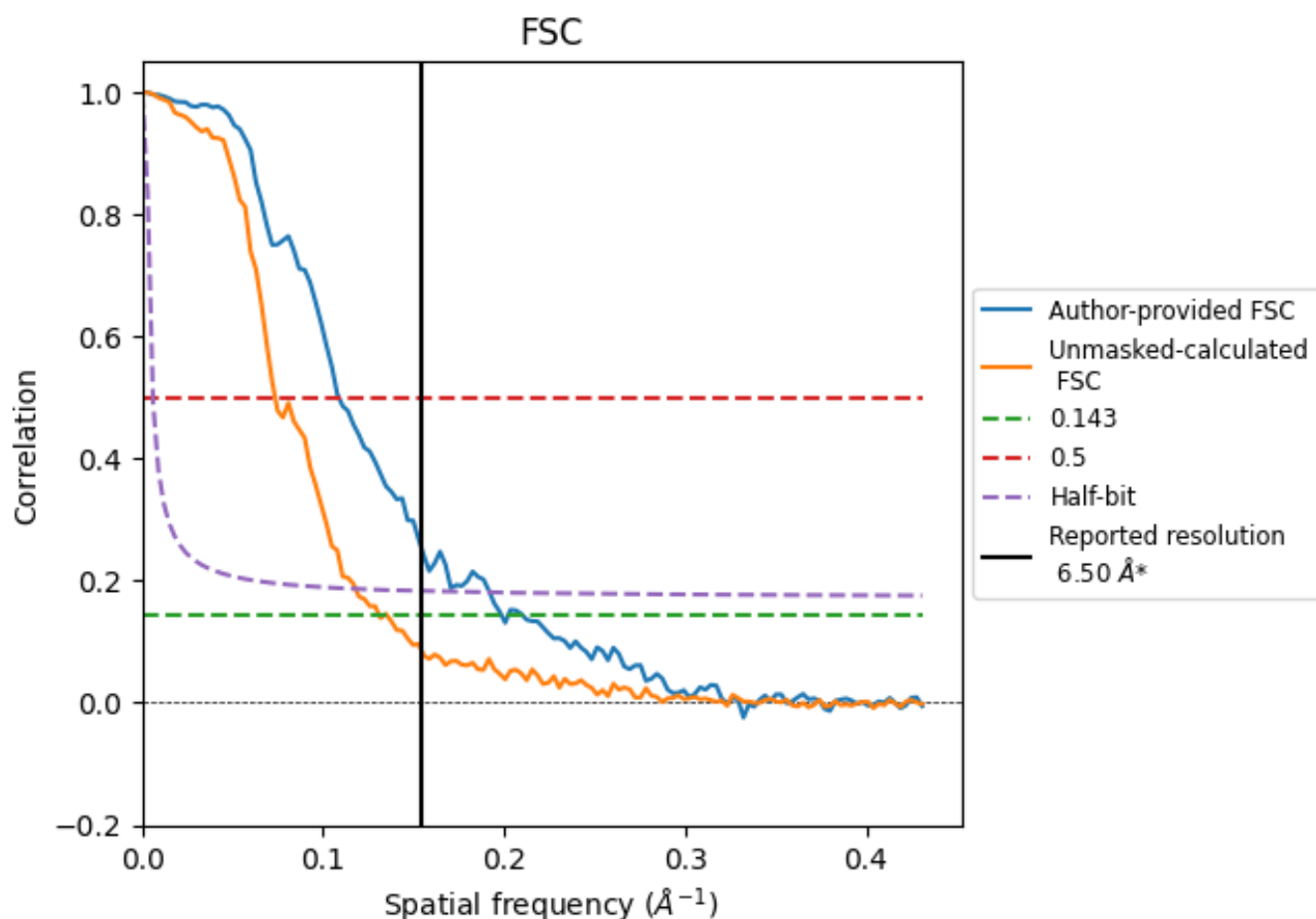


*Reported resolution corresponds to spatial frequency of 0.154 Å⁻¹

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 $0.154 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.50	-	-
Author-provided FSC curve	5.04	9.21	5.21
Unmasked-calculated*	7.63	13.61	8.48

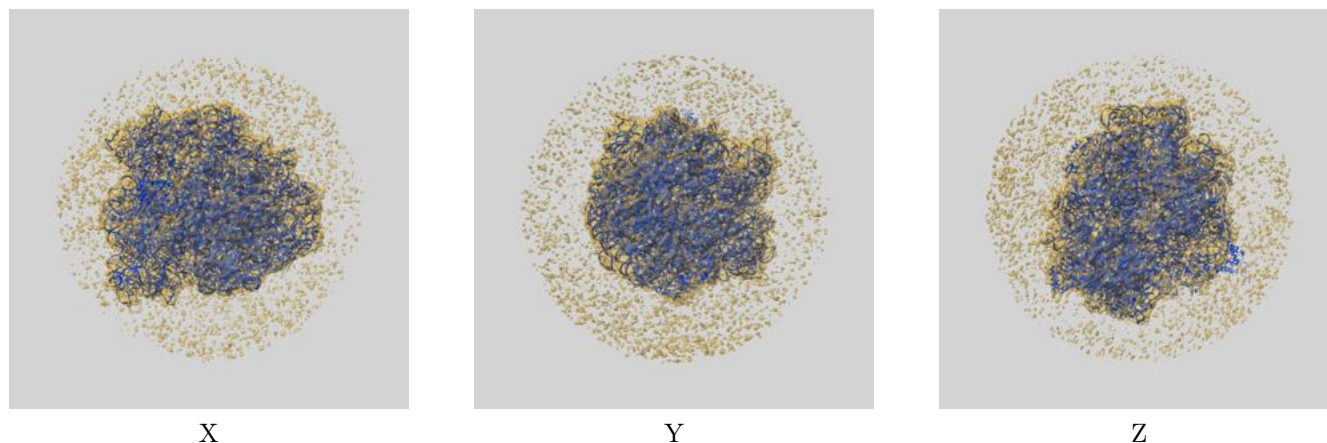
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 5.04 differs from the reported value 6.5 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.63 differs from the reported value 6.5 by more than 10 %

9 Map-model fit [i](#)

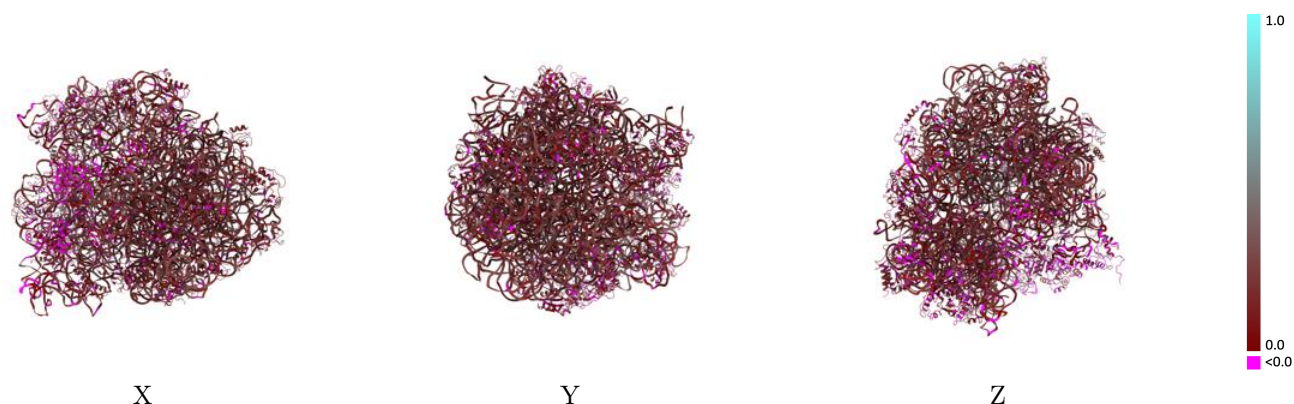
This section contains information regarding the fit between EMDB map EMD-13463 and PDB model 7PJX. Per-residue inclusion information can be found in section [3](#) on page [16](#).

9.1 Map-model overlay [i](#)



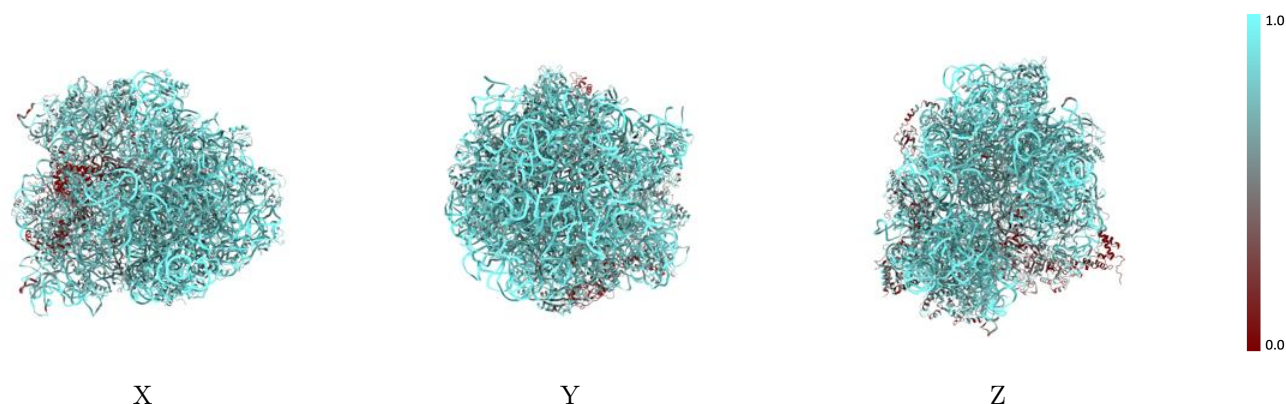
The images above show the 3D surface view of the map at the recommended contour level 1.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



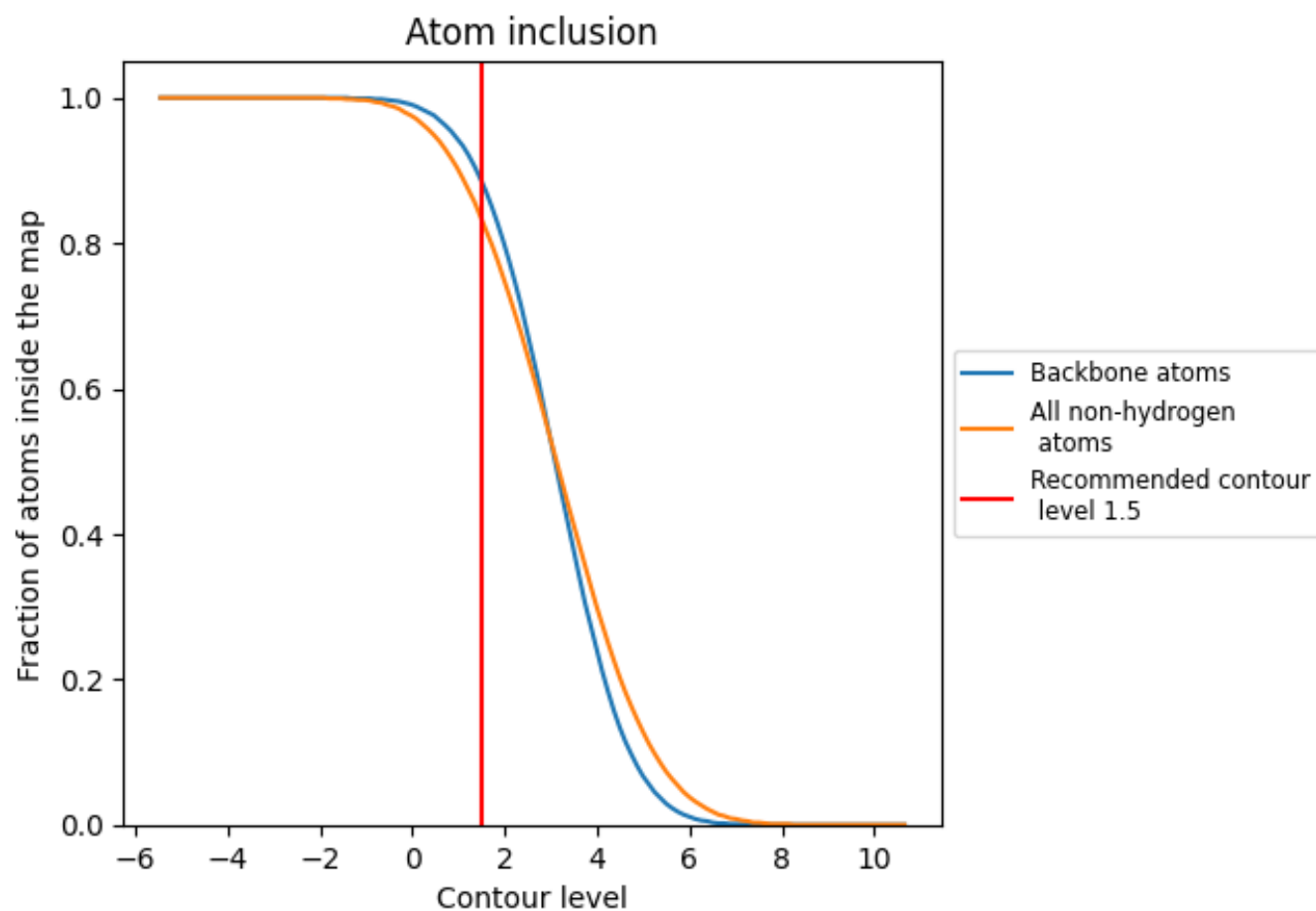
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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, 88% of all backbone atoms, 83% 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	 0.8330	 0.1690
0	 0.7360	 0.1780
1	 0.7110	 0.1560
2	 0.7380	 0.1440
3	 0.6880	 0.1400
4	 0.7430	 0.1240
5	 0.1380	 0.0340
6	 0.6630	 0.0900
A	 0.9390	 0.2010
B	 0.9530	 0.1970
C	 0.6910	 0.1380
D	 0.7190	 0.1370
E	 0.7280	 0.1490
F	 0.7280	 0.1330
G	 0.7460	 0.1460
H	 0.3480	 0.0730
I	 0.4080	 0.0520
J	 0.7530	 0.1520
K	 0.6470	 0.1540
L	 0.7000	 0.1380
M	 0.6860	 0.1420
N	 0.7220	 0.1280
O	 0.8170	 0.1200
P	 0.6940	 0.1570
Q	 0.7350	 0.1290
R	 0.7820	 0.1450
S	 0.7070	 0.1290
T	 0.7440	 0.1570
U	 0.8030	 0.1530
V	 0.7630	 0.1450
W	 0.7370	 0.1170
X	 0.7010	 0.1420
Y	 0.7730	 0.1500
Z	 0.7460	 0.1580
a	 0.9070	 0.1740



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Chain	Atom inclusion	Q-score
b	 0.4940	 0.1280
c	 0.6690	 0.1300
d	 0.7090	 0.1180
e	 0.6880	 0.1410
f	 0.7260	 0.1310
g	 0.5100	 0.1120
h	 0.7150	 0.1320
i	 0.7300	 0.1090
j	 0.6710	 0.1180
k	 0.7210	 0.1240
l	 0.5990	 0.1260
m	 0.6620	 0.1190
n	 0.7380	 0.1090
o	 0.7440	 0.1400
p	 0.6700	 0.1100
q	 0.6880	 0.0930
r	 0.6790	 0.1050
s	 0.7370	 0.1080
t	 0.7150	 0.1180
u	 0.5770	 0.1190
v	 0.8140	 0.1710
w	 0.4090	 0.1130
x	 0.4260	 0.0760
y	 0.4290	 0.0510
z	 0.7260	 0.1250