Full wwPDB EM Validation Report ⓘ

Nov 7, 2026 – 10:06 am GMT

PDB ID	:	9TCO / pdb_00009tco
EMDB ID	:	EMD-55794
Title	:	Structural characterization of hibernating ribosomes in the Gram-negative pathogen Klebsiella quasipneumoniae with E-site tRNA and no bS21
Authors	:	Vasanthakrishnan, R.K.B.S.; Olivier, D.; Sophie, C.; Yann, L.C.; Sylvie, G.D.; Sassi, M.; Emmanuel, G.; Reynald, G.
Deposited on	:	2025-11-21
Resolution	:	2.70 Å(reported)
Based on initial model	:	8B0X

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:

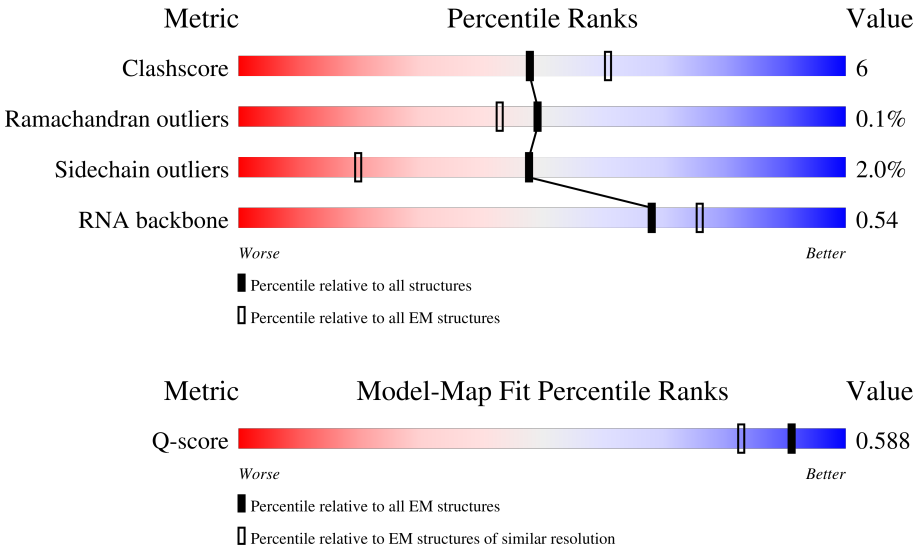
EMDB validation analysis	:	0.0.1.dev133
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.2
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

1 Overall quality at a glance

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

The reported resolution of this entry is 2.70 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.



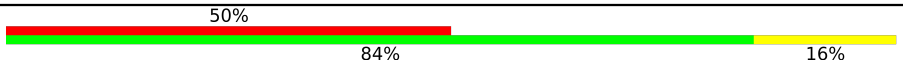
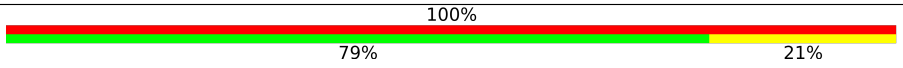
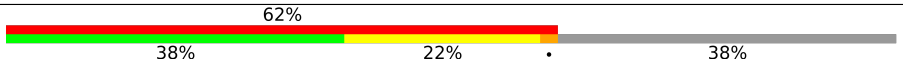
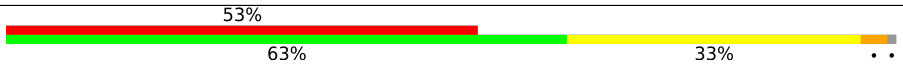
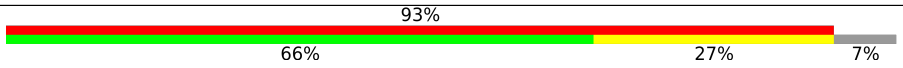
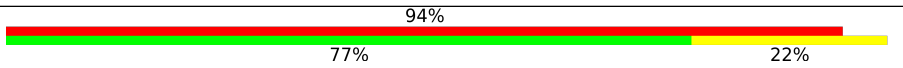
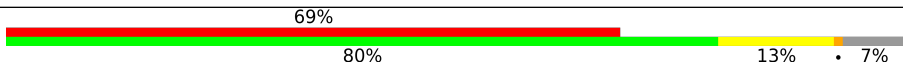
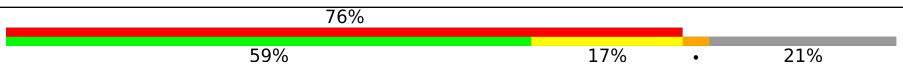
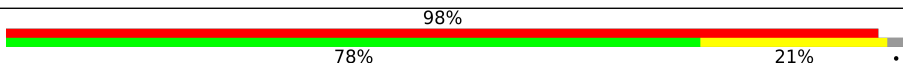
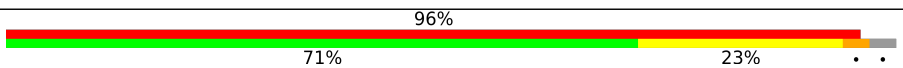
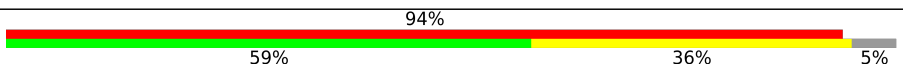
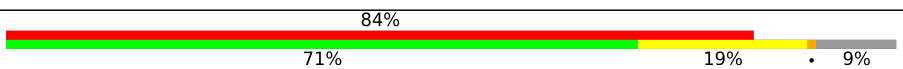
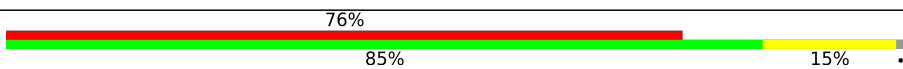
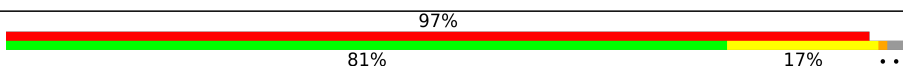
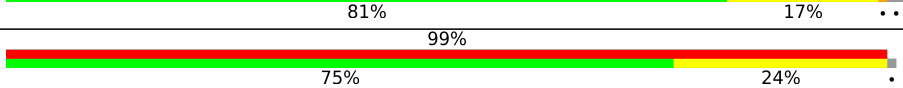
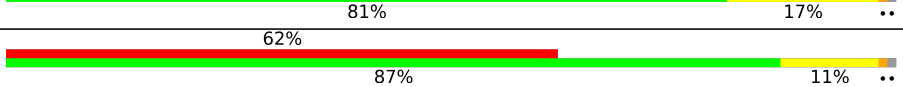
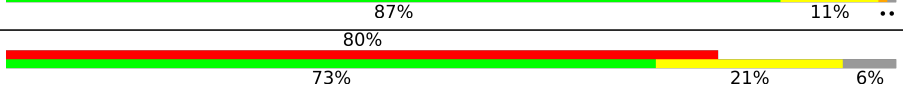
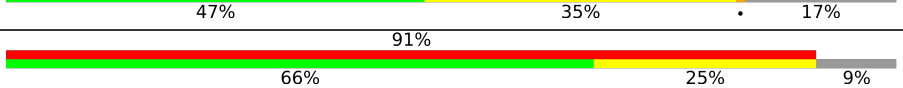
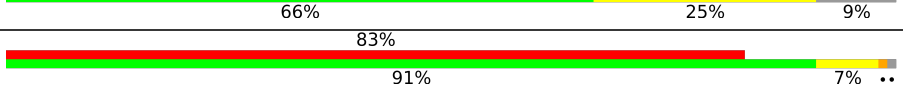
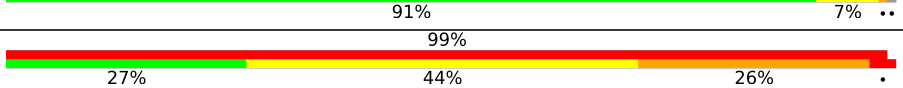
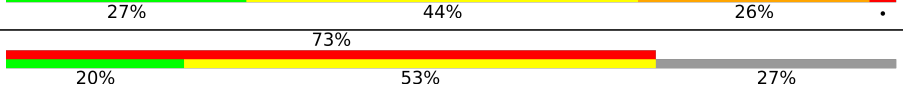
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	10327 (2.20 - 3.20)

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

Mol	Chain	Length	Quality of chain
1	0	55	51% 73% 20% 7%
2	1	46	20% 76% 24%
3	2	65	18% 85% 14%

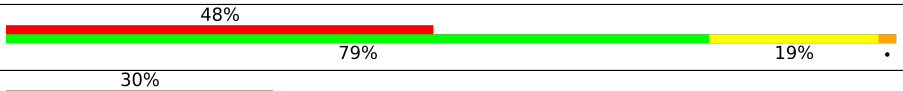
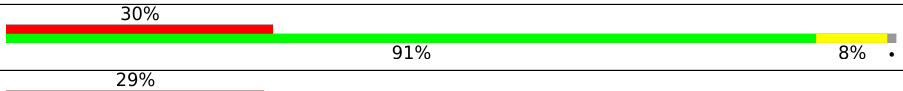
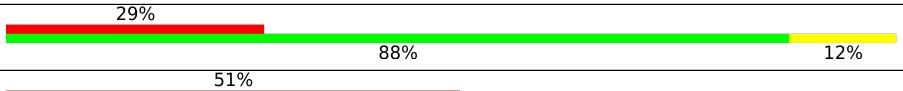
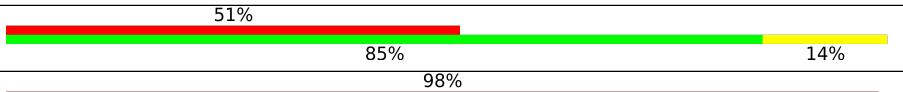
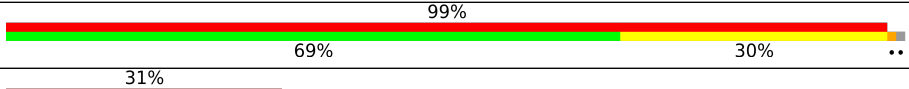
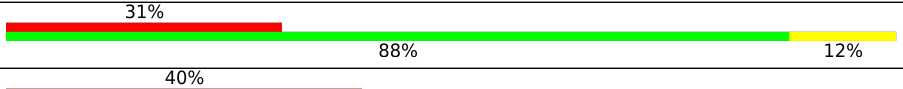
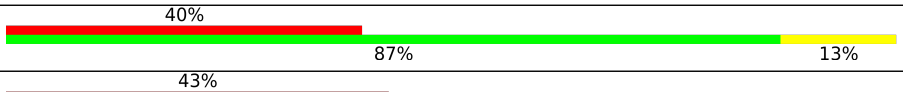
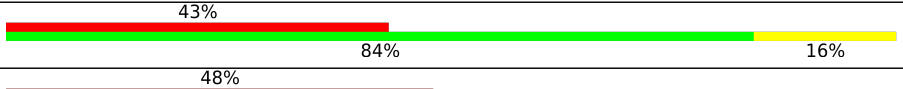
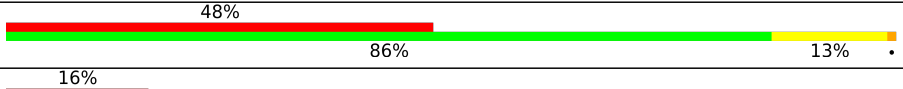
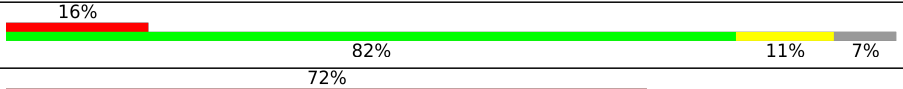
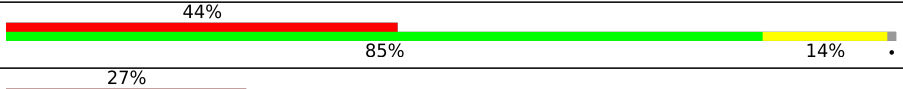
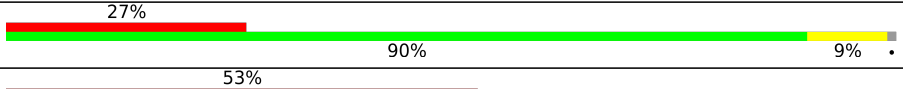
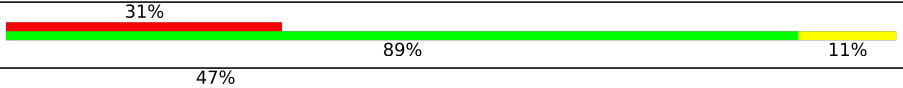
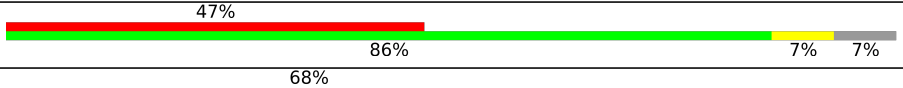
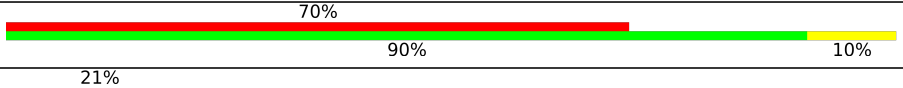
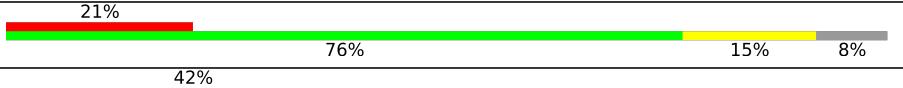
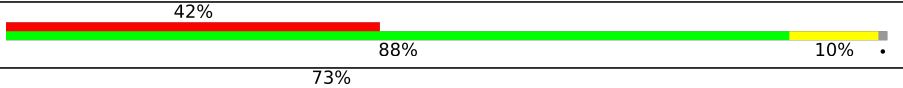
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Mol	Chain	Length	Quality of chain
4	3	38	
5	4	70	
6	5	234	
7	A	1550	
8	B	241	
9	C	232	
10	D	206	
11	E	167	
12	F	131	
13	G	156	
14	H	130	
15	I	130	
16	J	103	
17	K	129	
18	L	124	
19	M	118	
20	N	101	
21	O	89	
22	P	82	
23	Q	84	
24	R	75	
25	S	92	
26	T	87	
27	V	77	
28	W	15	

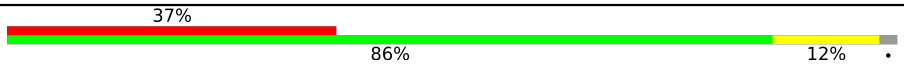
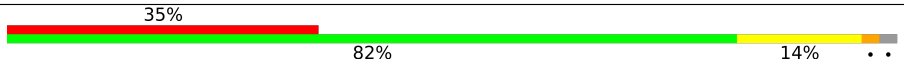
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Mol	Chain	Length	Quality of chain
29	X	111	
30	a	2923	
31	b	116	
32	c	273	
33	d	209	
34	e	201	
35	f	179	
36	g	177	
37	h	149	
38	i	142	
39	j	123	
40	k	144	
41	l	136	
42	m	128	
43	n	117	
44	o	115	
45	p	118	
46	q	103	
47	r	110	
48	s	100	
49	t	104	
50	u	94	
51	v	85	
52	w	78	
53	x	63	

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Mol	Chain	Length	Quality of chain
54	y	59	
55	z	57	

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 146071 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 Large ribosomal subunit protein bL33.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	51	418	268	76	73	1	0	0

- Molecule 2 is a protein called Large ribosomal subunit protein bL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	1	46	377	228	90	57	2	0	0

- Molecule 3 is a protein called Large ribosomal subunit protein bL35.

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

- Molecule 4 is a protein called Large ribosomal subunit protein bL36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	3	38	302	185	65	48	4	0	0

- Molecule 5 is a protein called Large ribosomal subunit protein bL31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	4	70	540	333	103	98	6	0	0

- Molecule 6 is a protein called Large ribosomal subunit protein uL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	5	146	1105	688	204	211	2	0	0

- Molecule 7 is a RNA chain called 16S rRNA (1538-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
7	A	1538	Total	C	N	O	P	0	0
			33009	14730	6051	10690	1538		

- Molecule 8 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	B	224	Total	C	N	O	S	0	0
			1749	1106	315	320	8		

- Molecule 9 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	C	206	Total	C	N	O	S	0	0
			1623	1028	305	287	3		

- Molecule 10 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	D	205	Total	C	N	O	S	0	0
			1644	1025	316	298	5		

- Molecule 11 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	E	156	Total	C	N	O	S	0	0
			1155	719	219	211	6		

- Molecule 12 is a protein called Small ribosomal subunit protein bS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	F	103	Total	C	N	O	S	0	0
			832	524	151	150	7		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	62	MET	LEU	variant	UNP A0A2N4W582

- Molecule 13 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	G	153	Total	C	N	O	S	0	0
			1204	751	231	218	4		

- Molecule 14 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	H	129	Total	C	N	O	S	0	0
			977	616	171	184	6		

- Molecule 15 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	I	126	Total	C	N	O	S	0	0
			1010	628	202	177	3		

- Molecule 16 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	J	98	Total	C	N	O	S	0	0
			788	493	151	143	1		

- Molecule 17 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	K	117	Total	C	N	O	S	0	0
			878	541	173	161	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
K	119	IAS	ASN	modified residue	UNP A0A1C1EGM1

- Molecule 18 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	L	123	Total	C	N	O	S	0	0
			958	592	196	165	5		

- Molecule 19 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	M	116	Total	C	N	O	S	0	0
			907	564	181	158	4		

- Molecule 20 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	N	100	Total	C	N	O	S	0	0
			805	500	164	138	3		

- Molecule 21 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	O	88	Total	C	N	O	S	0	0
			710	438	144	127	1		

- Molecule 22 is a protein called Small ribosomal subunit protein bS16.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	P	81	Total	C	N	O	S	0	0
			636	397	127	111	1		

- Molecule 23 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	Q	79	Total	C	N	O	S	0	0
			639	402	121	112	4		

- Molecule 24 is a protein called Small ribosomal subunit protein bS18.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	R	62	Total	C	N	O	0	0
			507	321	94	92		

- Molecule 25 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	S	84	Total	C	N	O	S	0	0
			667	426	127	112	2		

- Molecule 26 is a protein called Small ribosomal subunit protein bS20.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	T	86	Total	C	N	O	S	0	0
			669	413	138	115	3		

- Molecule 27 is a RNA chain called E site tRNA (77-MER).

Mol	Chain	Residues	Atoms						AltConf	Trace
27	V	77	Total	C	N	O	P	S	0	0
			1644	734	297	535	77	1		

- Molecule 28 is a RNA chain called Non Stop mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	W	11	Total	C	N	O	P	0	0
			242	107	46	78	11		

- Molecule 29 is a protein called Ribosomal subunit interface protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	X	98	Total	C	N	O	S	0	0
			778	484	149	142	3		

- Molecule 30 is a RNA chain called 23S rRNA (2901-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
30	a	2901	Total	C	N	O	P	0	0
			62284	27795	11452	20136	2901		

- Molecule 31 is a RNA chain called 5S rRNA (119-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
31	b	116	Total	C	N	O	P	0	0
			2483	1106	453	808	116		

- Molecule 32 is a protein called Large ribosomal subunit protein uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	c	271	Total	C	N	O	S	0	0
			2080	1286	423	364	7		

- Molecule 33 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	d	209	Total	C	N	O	S	0	0
			1567	981	289	294	3		

- Molecule 34 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	e	201	Total	C	N	O	S	0	0
			1554	975	284	290	5		

- Molecule 35 is a protein called Large ribosomal subunit protein uL5.

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

- Molecule 36 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	g	176	Total	C	N	O	S	0	0
			1319	830	243	244	2		

- Molecule 37 is a protein called Large ribosomal subunit protein bL9.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	h	148	Total	C	N	O	S	0	0
			1099	693	197	208	1		

- Molecule 38 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	i	142	Total	C	N	O	S	0	0
			1134	716	211	202	5		

- Molecule 39 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	j	123	Total	C	N	O	S	0	0
			947	594	181	166	6		

- Molecule 40 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	k	144	Total	C	N	O	S	0	0
			1063	658	211	191	3		

- Molecule 41 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	l	136	Total	C	N	O	S	0	0
			1074	685	204	179	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
l	82	MS6	MET	modified residue	UNP A0A1C1EGZ5

- Molecule 42 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	m	119	Total	C	N	O	S	0	0
			950	588	195	162	5		

- Molecule 43 is a protein called Large ribosomal subunit protein uL18.

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

- Molecule 44 is a protein called Large ribosomal subunit protein bL19.

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

- Molecule 45 is a protein called Large ribosomal subunit protein bL20.

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

- Molecule 46 is a protein called Large ribosomal subunit protein bL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	q	103	Total	C	N	O	S	0	0
			816	517	153	144	2		

- Molecule 47 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	r	110	Total	C	N	O	S	0	0
			855	530	166	156	3		

- Molecule 48 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	s	93	Total	C	N	O	S	0	0
			739	467	139	131	2		

- Molecule 49 is a protein called Large ribosomal subunit protein uL24.

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

- Molecule 50 is a protein called Large ribosomal subunit protein bL25.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	u	94	Total	C	N	O	S	0	0
			749	477	136	134	2		

- Molecule 51 is a protein called Large ribosomal subunit protein bL27.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	v	78	Total	C	N	O	S	0	0
			592	367	118	106	1		

- Molecule 52 is a protein called Large ribosomal subunit protein bL28.

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

- Molecule 53 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	x	62	Total 499	C 308	N 98	O 92	S 1	0	0

- Molecule 54 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	y	58	Total 447	C 279	N 87	O 79	S 2	0	0

- Molecule 55 is a protein called Large ribosomal subunit protein bL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	z	56	Total 443	C 269	N 94	O 79	S 1	0	0

- Molecule 56 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
56	3	1	Total 1	Zn 1	0
56	4	1	Total 1	Zn 1	0

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

Mol	Chain	Residues	Atoms		AltConf
57	A	94	Total 94	Mg 94	0
57	N	1	Total 1	Mg 1	0
57	Q	1	Total 1	Mg 1	0
57	a	253	Total 253	Mg 253	0
57	b	5	Total 5	Mg 5	0
57	c	2	Total 2	Mg 2	0
57	p	2	Total 2	Mg 2	0
57	z	1	Total 1	Mg 1	0

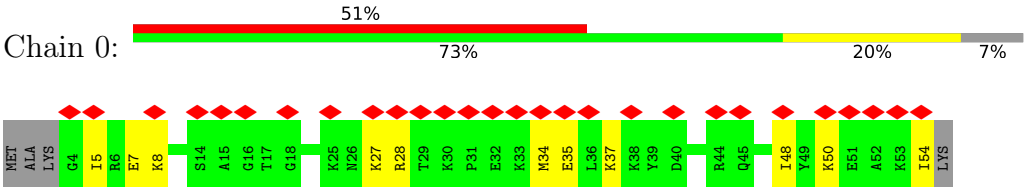
- Molecule 58 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms	AltConf
58	A	46	Total K 46 46	0
58	L	1	Total K 1 1	0
58	a	114	Total K 114 114	0
58	b	1	Total K 1 1	0
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58	f	1	Total K 1 1	0

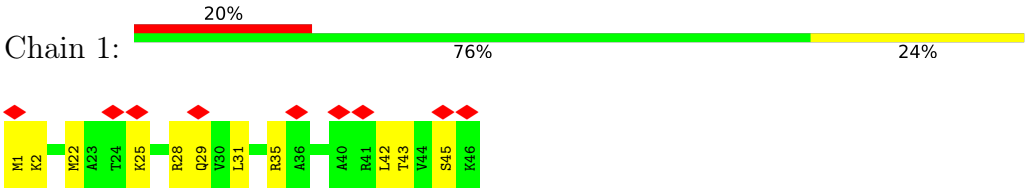
3 Residue-property plots (i)

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

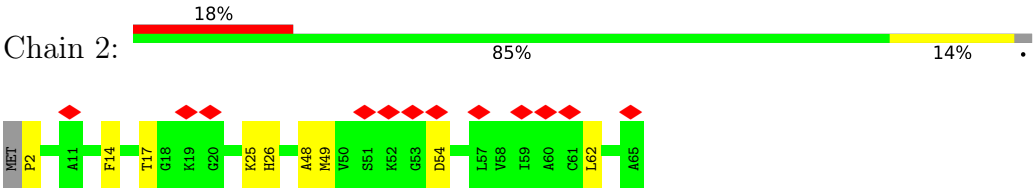
• Molecule 1: Large ribosomal subunit protein bL33



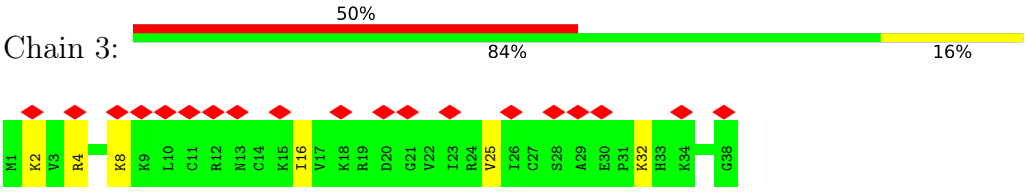
• Molecule 2: Large ribosomal subunit protein bL34



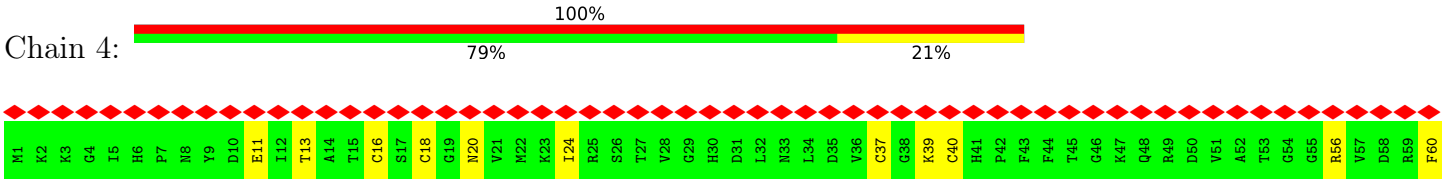
• Molecule 3: Large ribosomal subunit protein bL35



• Molecule 4: Large ribosomal subunit protein bL36



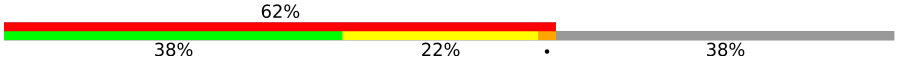
• Molecule 5: Large ribosomal subunit protein bL31

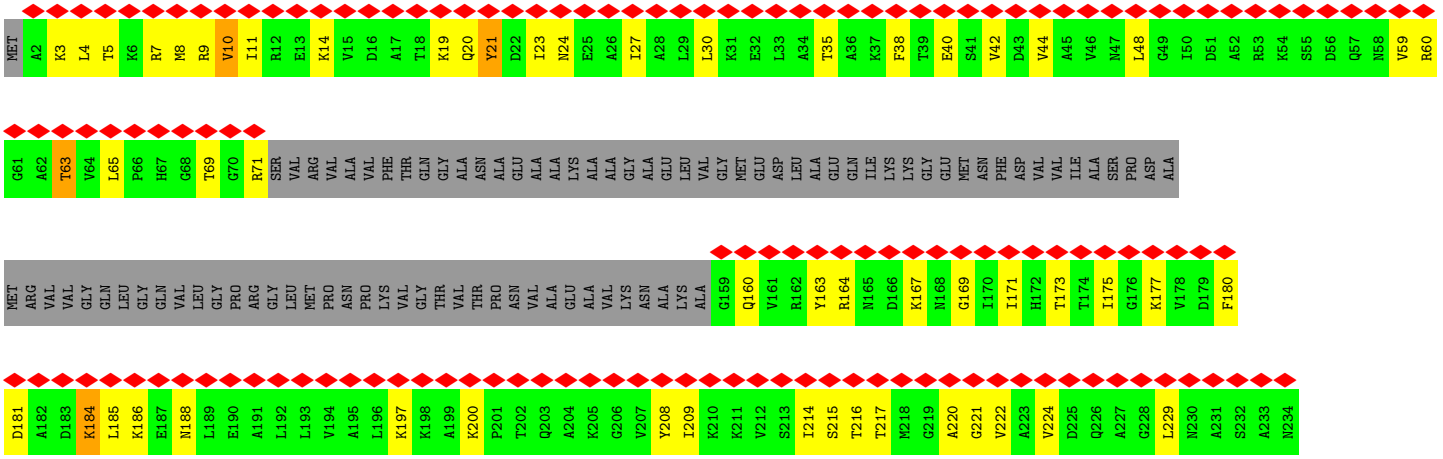




• Molecule 6: Large ribosomal subunit protein uL1

Chain 5:

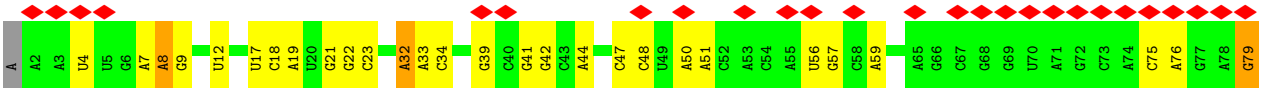


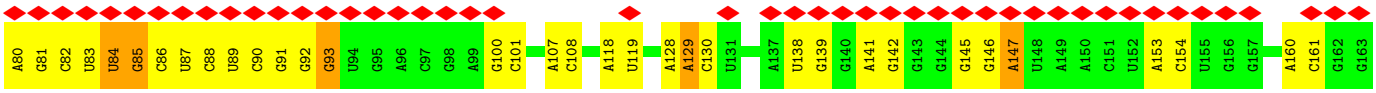


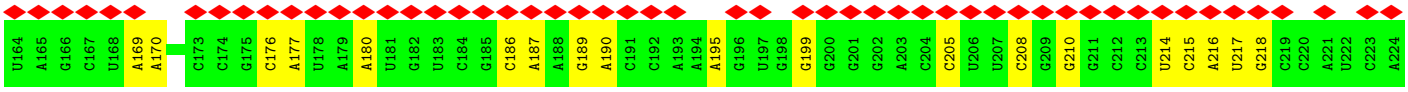
• Molecule 7: 16S rRNA (1538-MER)

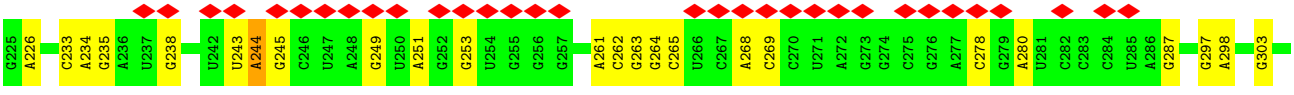
Chain A:

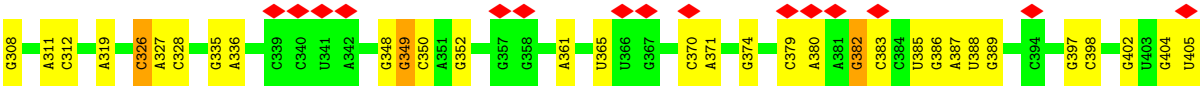


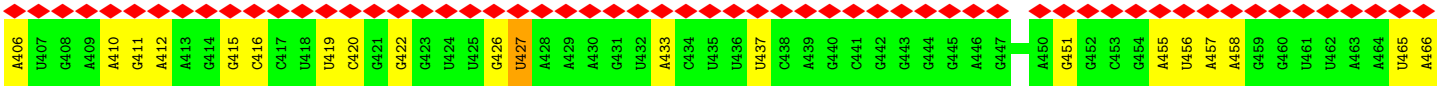


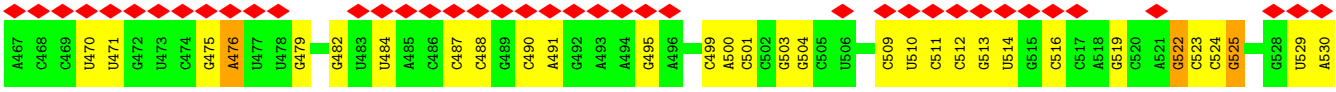


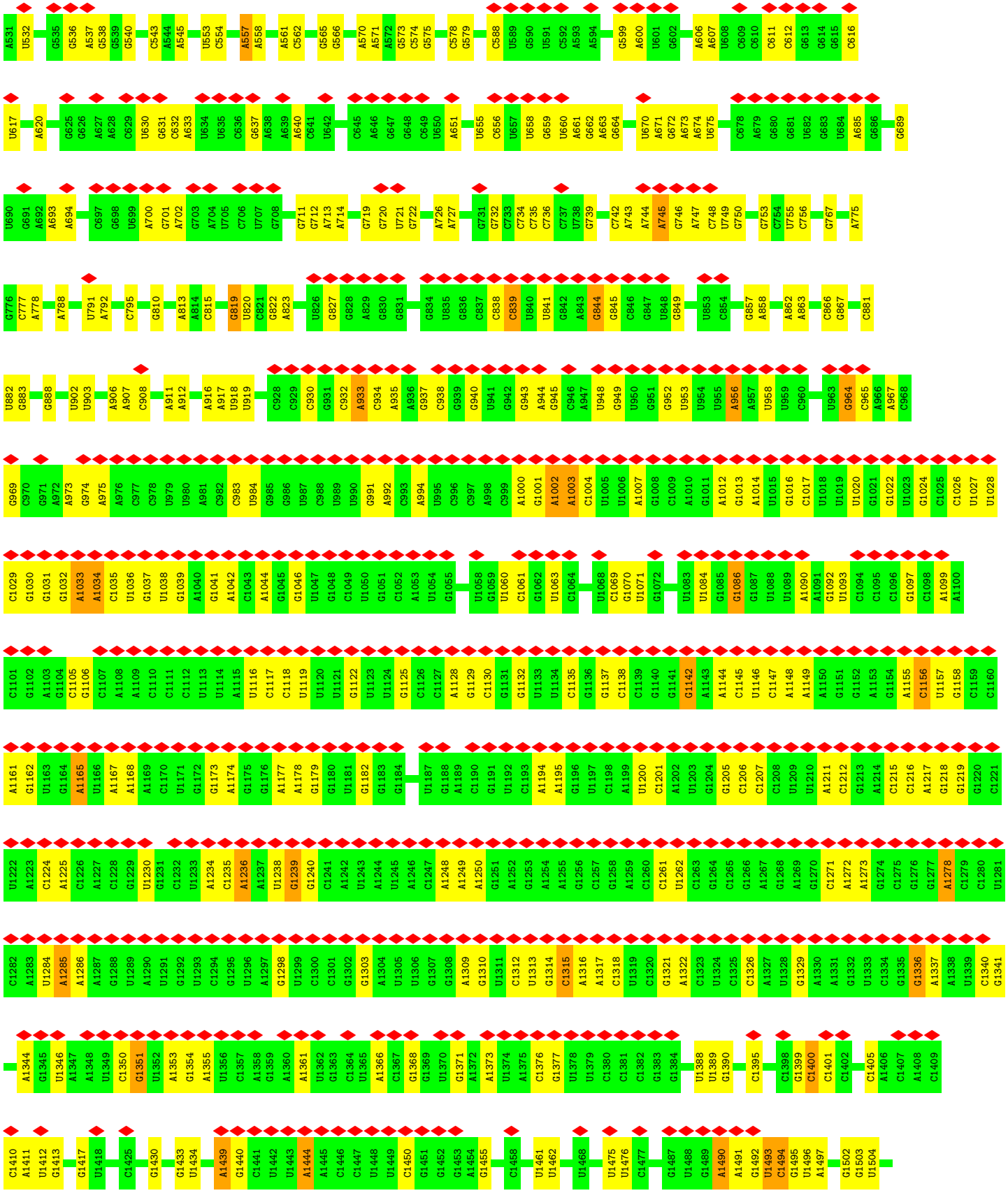


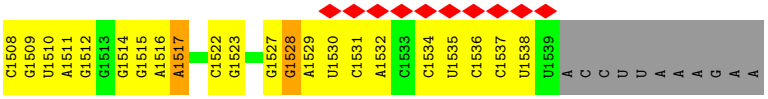






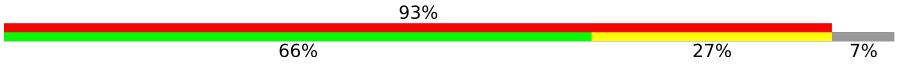



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G776 C777 A778 A788 U791 A792 C795 G810 A813 A814 C815 G819 U820 C821 G822 A823 U826 G827 G828 A829 G830 G831 G834 U835 G836 C837 C838 C839 U840 U841 G842 A843 G844 G845 C846 G847 U848 G849 U853 C854 G857 A858 A862 A863 C866 G867 C881
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G969 C970 G971 A972 A973 G974 A975 A976 C977 C978 U979 U980 A981 C982 C983 U984 G985 G986 U987 C988 U989 U990 G991 A992 C993 A994 U995 C996 C997 A998 C999 A1000 G1001 A1002 A1003 C1004 U1005 U1006 A1007 G1008 C1009 A1010 G1011 A1012 G1013 A1014 U1015 G1016 C1017 U1018 U1019 U1020 G1021 G1022 U1023 G1024 C1025 C1026 U1027 U1028
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A1161 G1162 U1163 G1164 A1165 A1166 U1166 A1167 A1168 A1169 C1170 U1171 G1172 G1173 A1174 G1175 G1176 A1177 A1178 G1179 G1180 U1181 G1182 G1183 G1184 U1187 G1188 A1189 C1190 G1191 U1192 C1193 A1194 A1195 G1196 U1197 C1198 A1199 U1200 C1201 A1202 U1203 C1204 G1205 C1206 C1207 C1208 U1209 U1210 A1211 C1212 G1213 A1214 C1215 C1216 A1217 G1218 G1219 G1220 C1221
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A1344 G1345 U1346 A1347 A1348 U1349 C1350 G1351 U1352 A1353 G1354 A1355 U1356 C1357 A1358 G1359 A1360 A1361 U1362 G1363 C1364 U1365 A1366 C1367 G1368 G1369 U1370 G1371 A1372 A1373 U1374 A1375 C1376 G1377 U1378 U1379 C1380 C1381 C1382 G1383 G1384 U1388 U1389 G1390 C1395 C1398 G1399 C1400 C1401 C1402 C1405 A1406 C1407 A1408 C1409
C1410 A1411 U1412 G1413 G1417 U1418 C1425 G1430 G1433 U1434 A1439 G1440 C1441 U1442 U1443 A1444 A1445 C1446 C1447 U1448 U1449 C1450 G1451 G1452 G1453 A1454 G1455 C1458 U1461 U1462 U1468 U1475 U1476 C1477 G1487 U1488 G1489 A1490 A1491 G1492 U1493 C1494 G1495 U1496 A1497 G1502 G1503 U1504



• Molecule 8: Small ribosomal subunit protein uS2

Chain B:





• Molecule 9: Small ribosomal subunit protein uS3

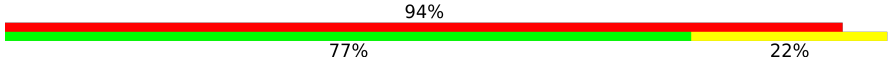
Chain C:

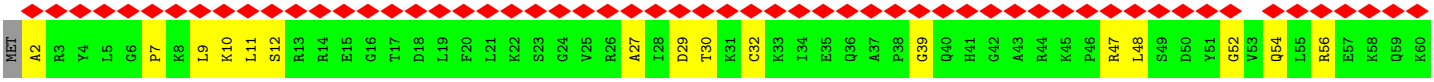


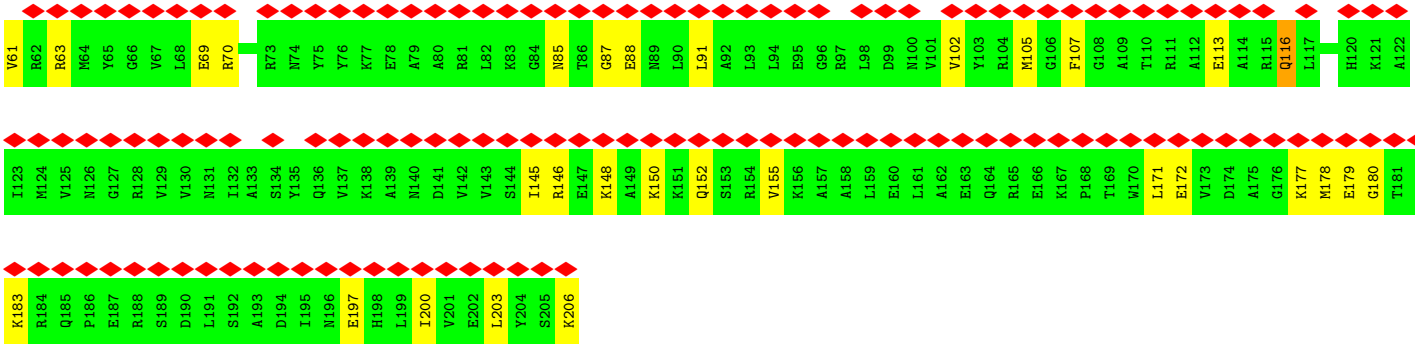


• Molecule 10: Small ribosomal subunit protein uS4

Chain D:



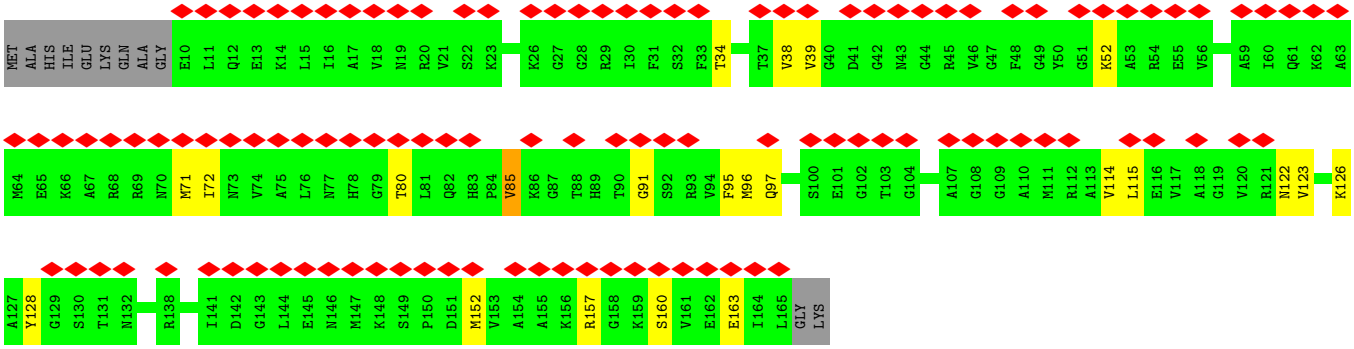




• Molecule 11: Small ribosomal subunit protein uS5

Chain E:

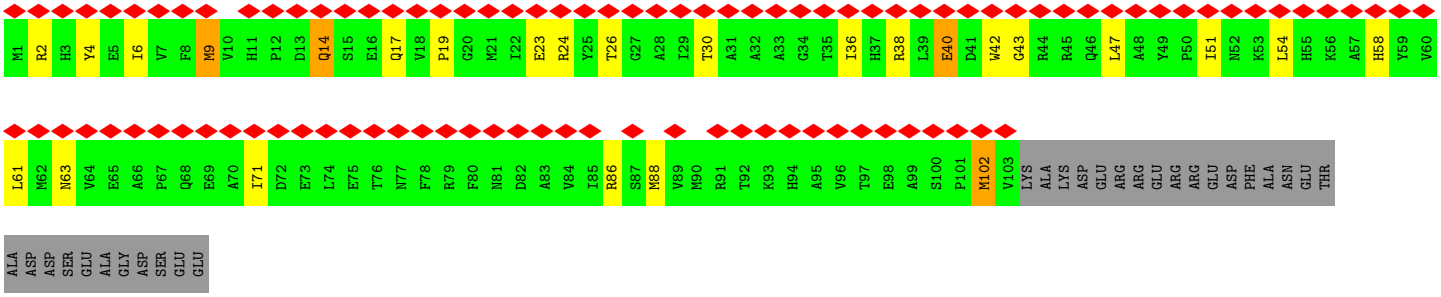




• Molecule 12: Small ribosomal subunit protein bS6

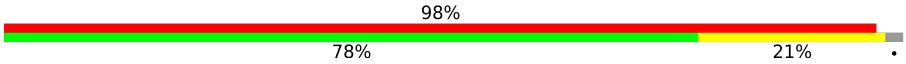
Chain F:

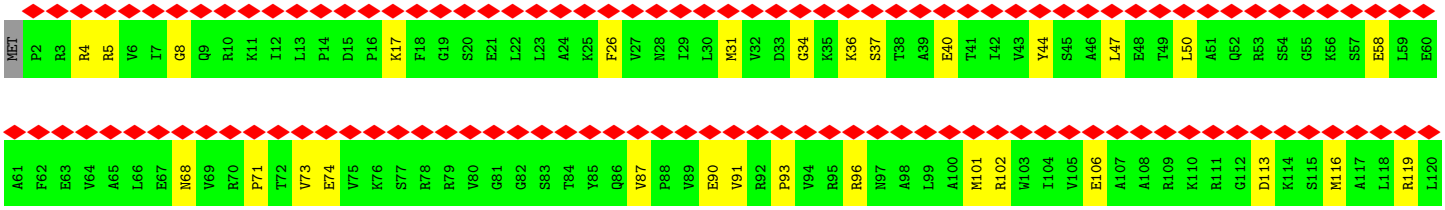


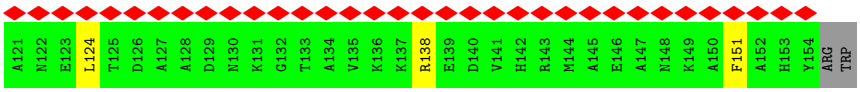


• Molecule 13: Small ribosomal subunit protein uS7

Chain G:



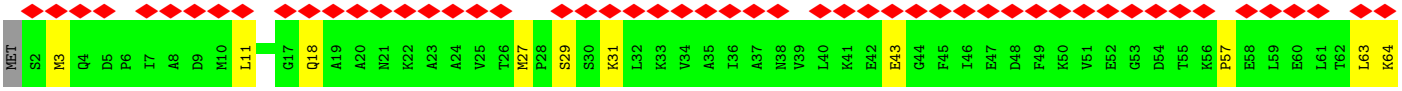


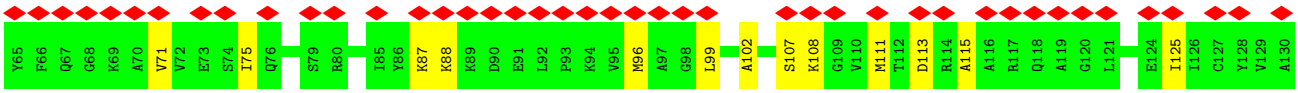


• Molecule 14: Small ribosomal subunit protein uS8

Chain H:

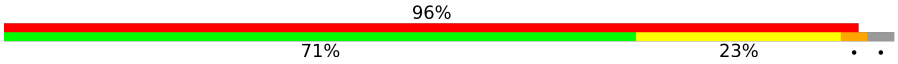


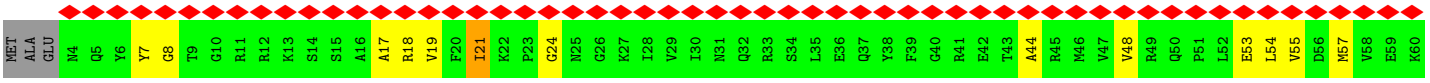


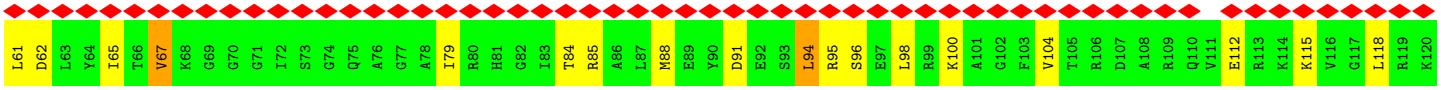


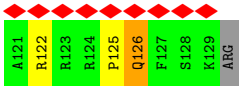
• Molecule 15: Small ribosomal subunit protein uS9

Chain I:



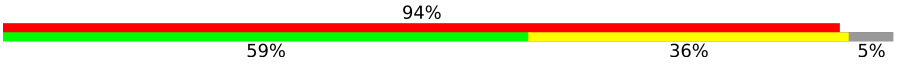


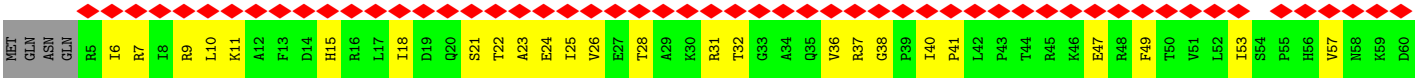


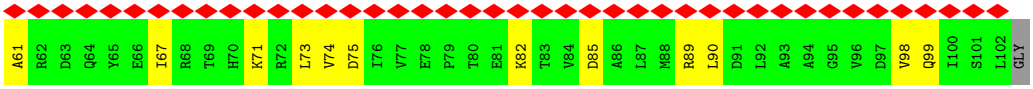


• Molecule 16: Small ribosomal subunit protein uS10

Chain J:



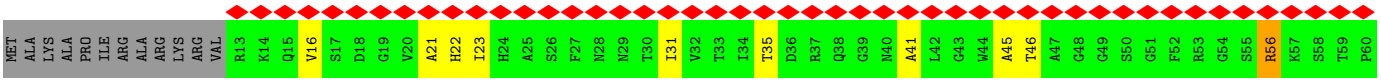




• Molecule 17: Small ribosomal subunit protein uS11

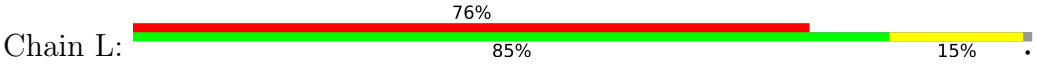
Chain K:

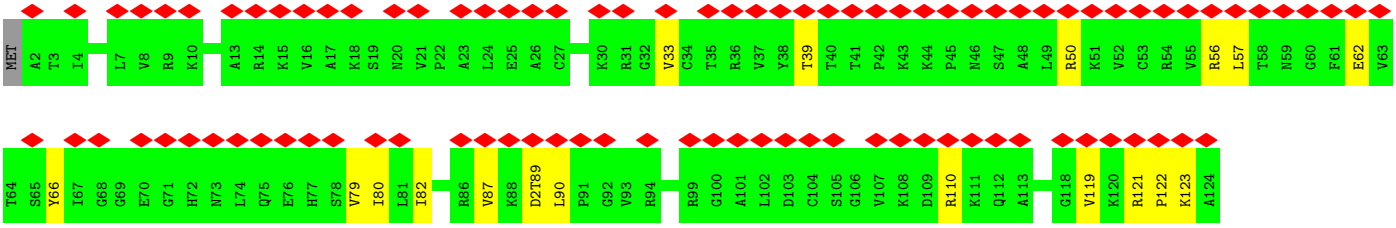




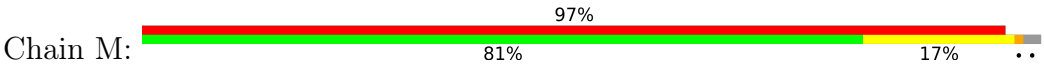


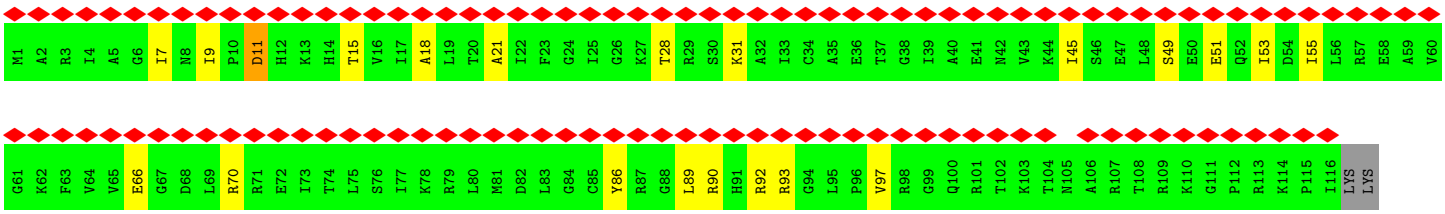
• Molecule 18: Small ribosomal subunit protein uS12



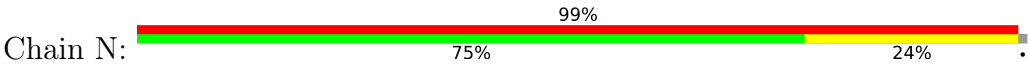


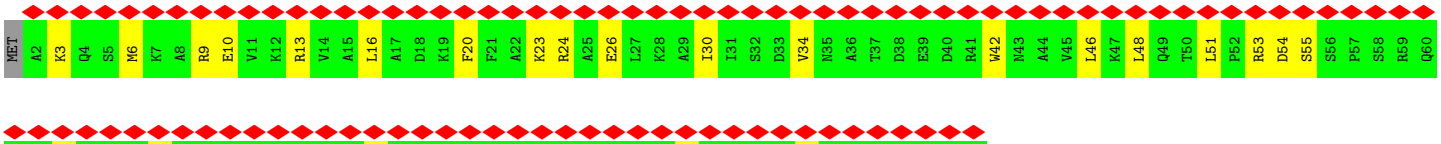
• Molecule 19: Small ribosomal subunit protein uS13



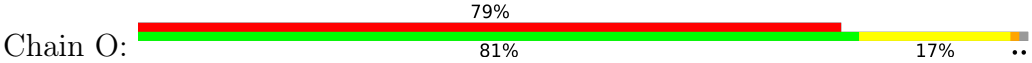


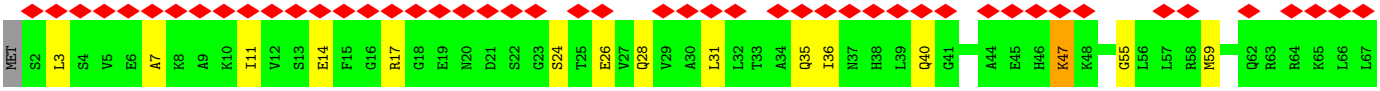
• Molecule 20: Small ribosomal subunit protein uS14

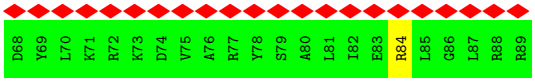




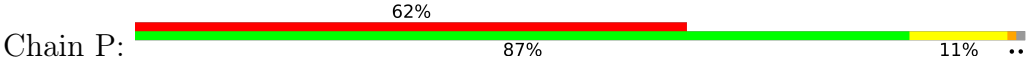
• Molecule 21: Small ribosomal subunit protein uS15

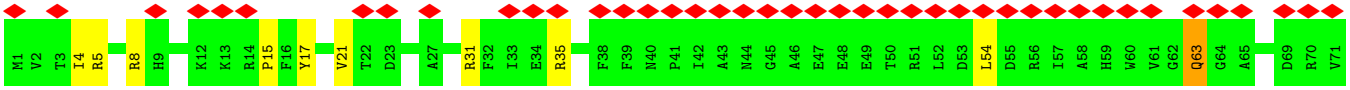


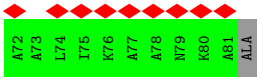




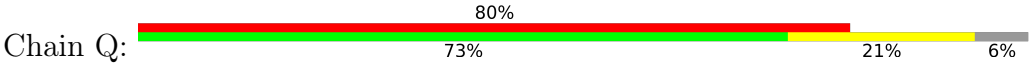
• Molecule 22: Small ribosomal subunit protein bS16

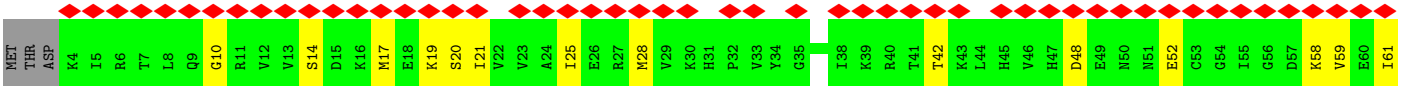


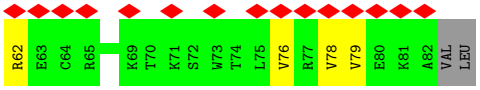




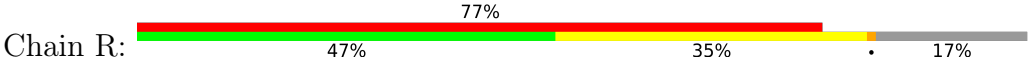
• Molecule 23: Small ribosomal subunit protein uS17

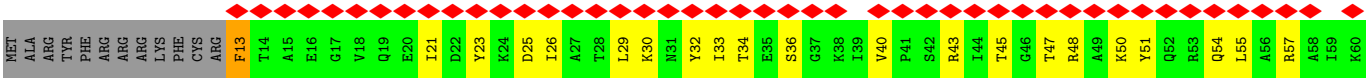


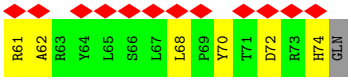




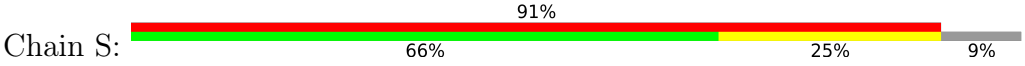
• Molecule 24: Small ribosomal subunit protein bS18

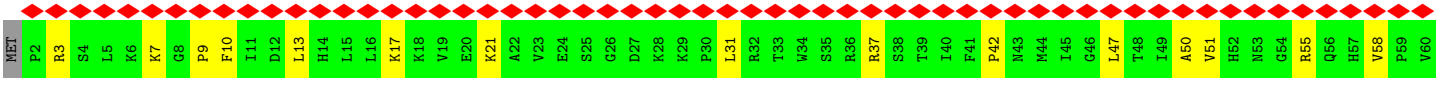


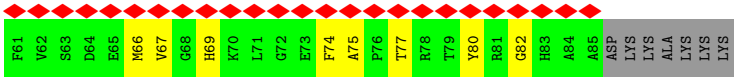




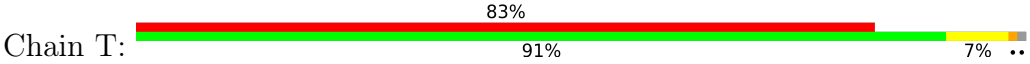
• Molecule 25: Small ribosomal subunit protein uS19

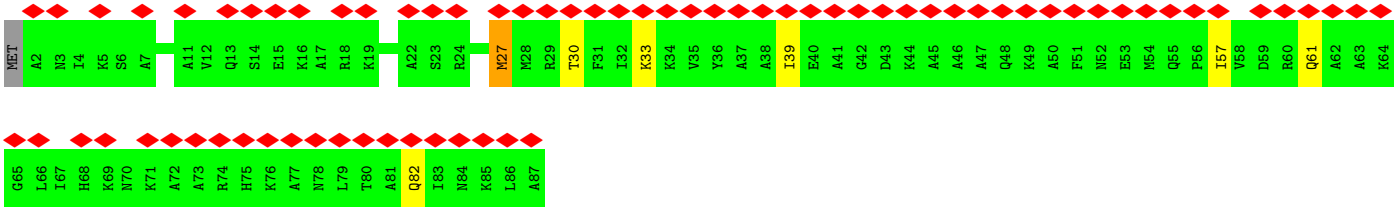






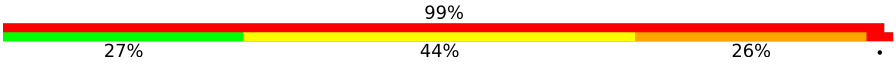
• Molecule 26: Small ribosomal subunit protein bS20

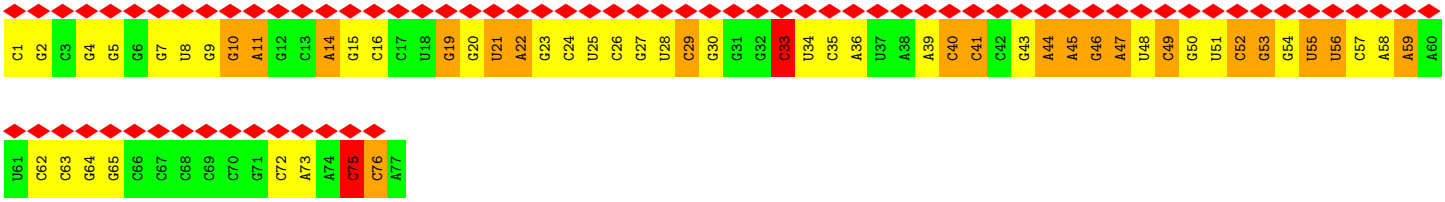




• Molecule 27: E site tRNA (77-MER)

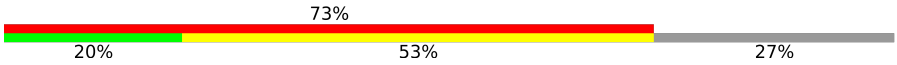
Chain V:





• Molecule 28: Non Stop mRNA

Chain W:

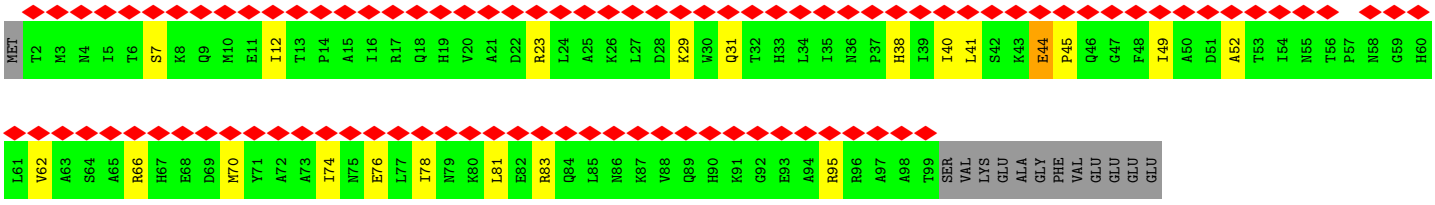




• Molecule 29: Ribosomal subunit interface protein

Chain X:

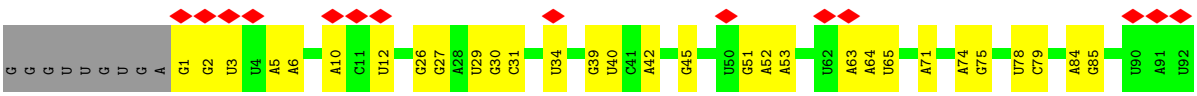


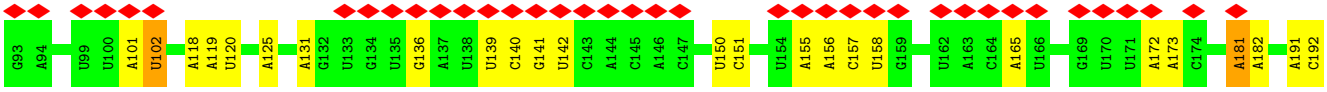


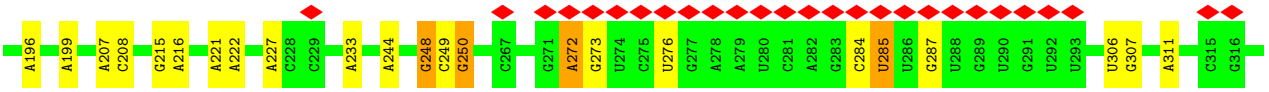
• Molecule 30: 23S rRNA (2901-MER)

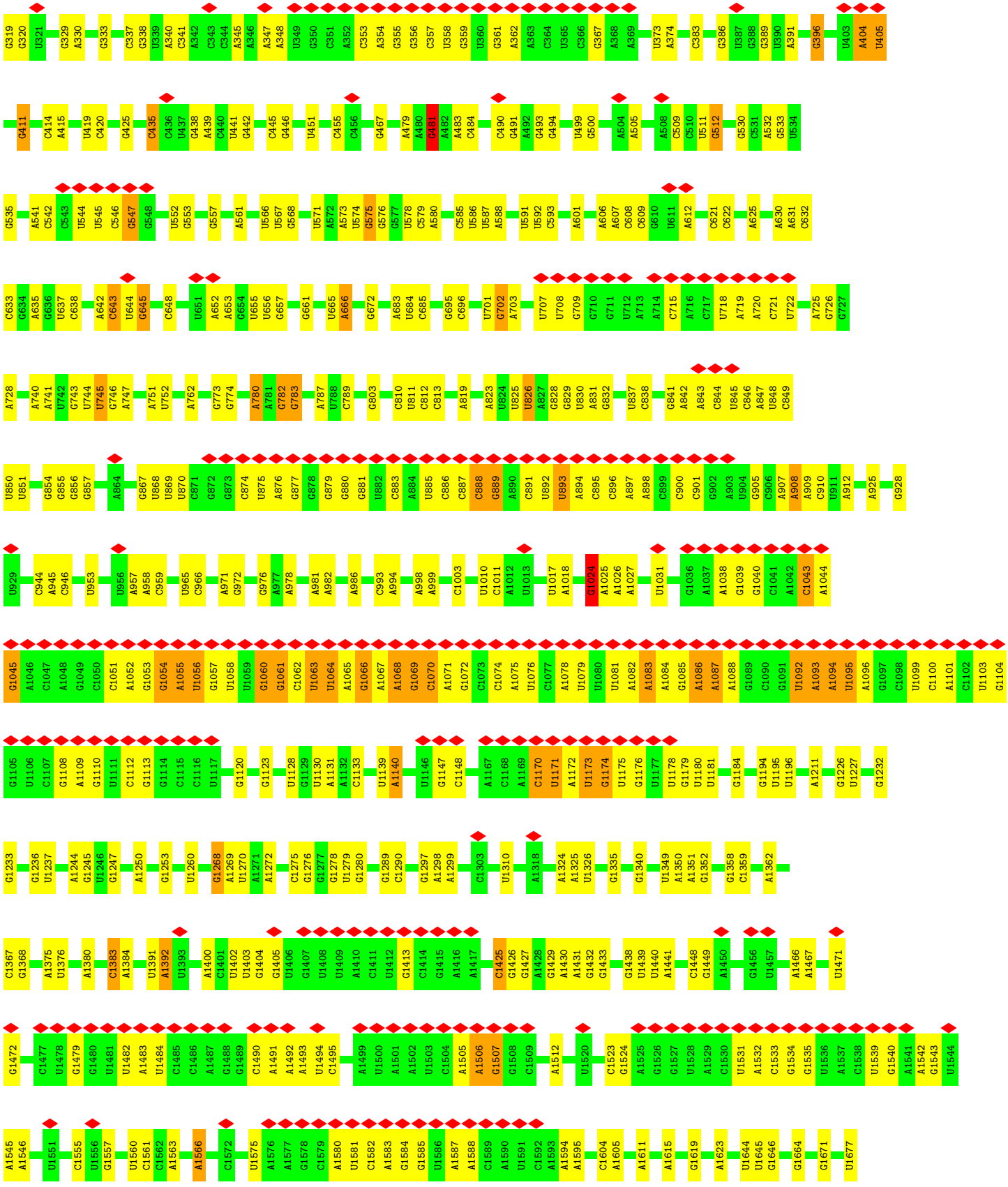
Chain a:

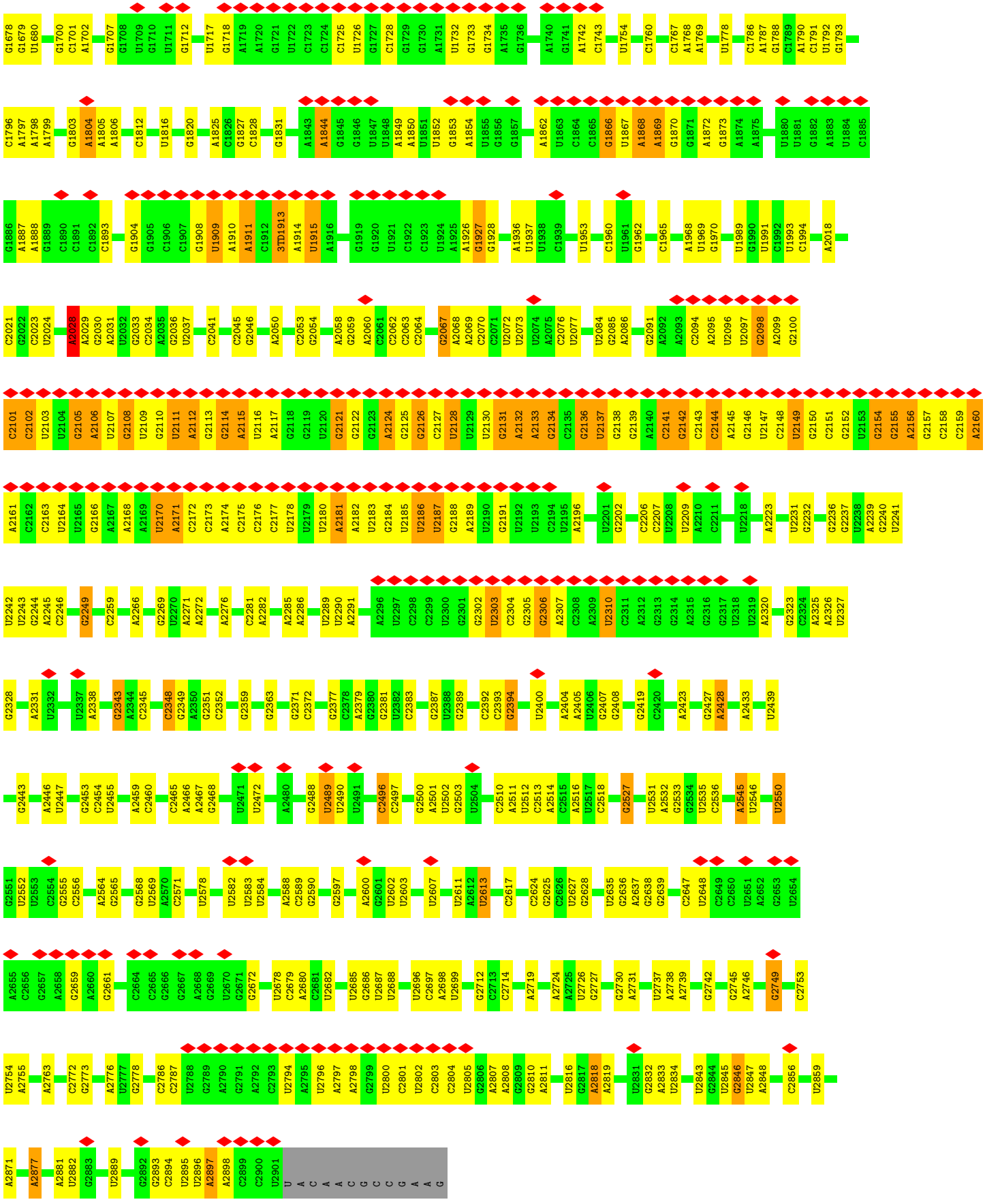






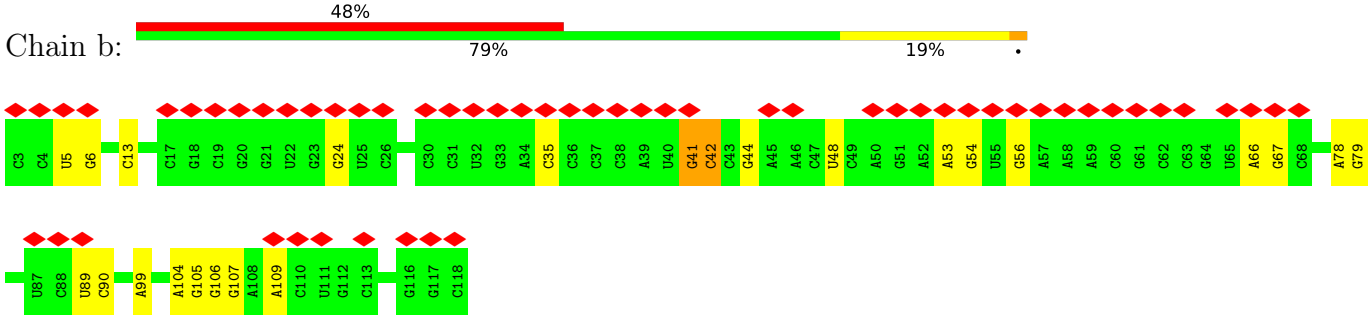






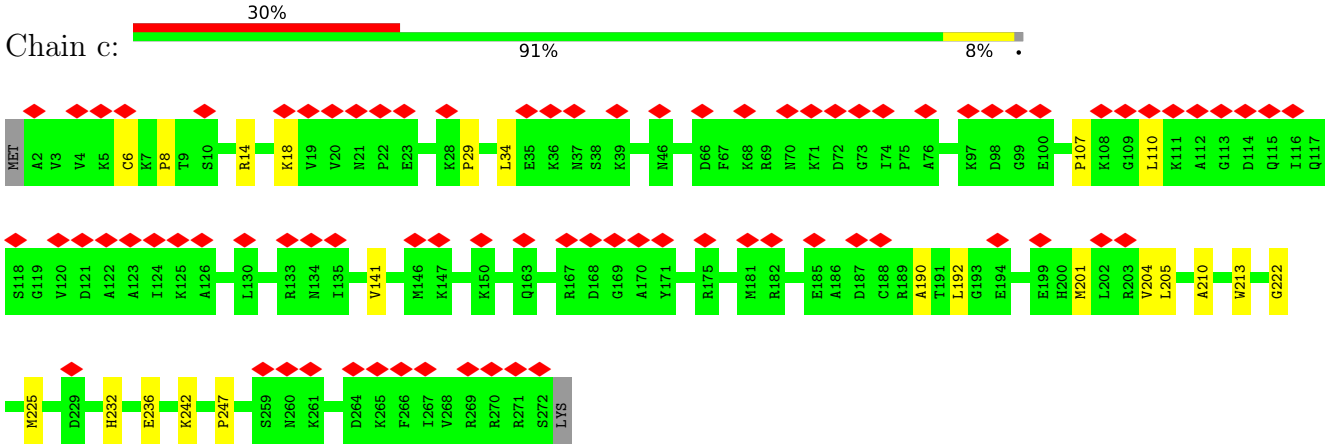
• Molecule 31: 5S rRNA (119-MER)

Chain b:



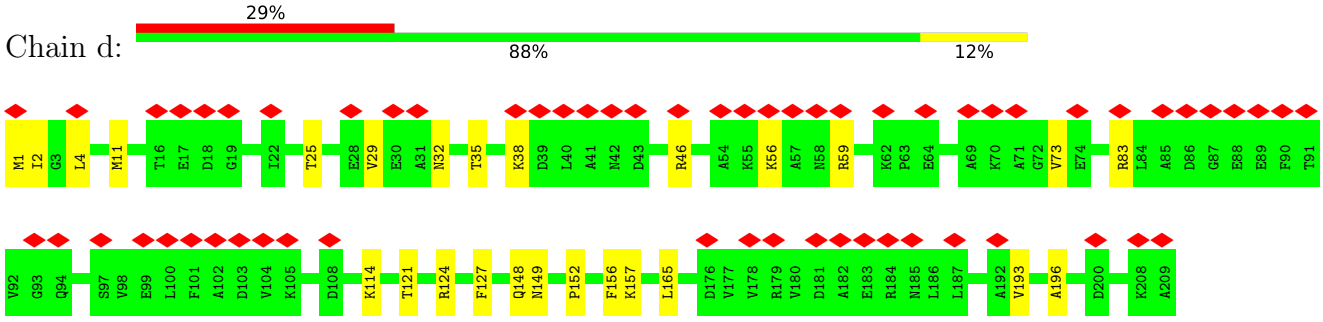
• Molecule 32: Large ribosomal subunit protein uL2

Chain c:



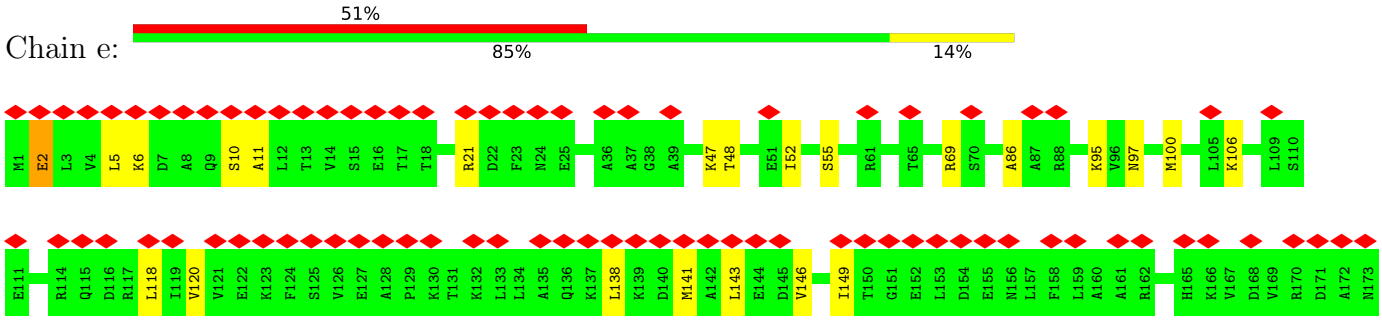
• Molecule 33: Large ribosomal subunit protein uL3

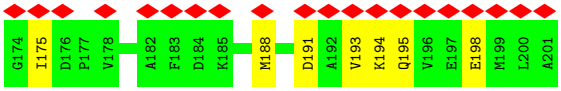
Chain d:



• Molecule 34: Large ribosomal subunit protein uL4

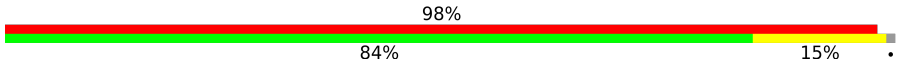
Chain e:

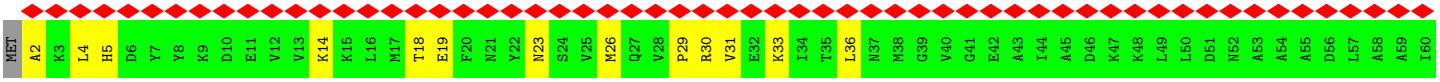


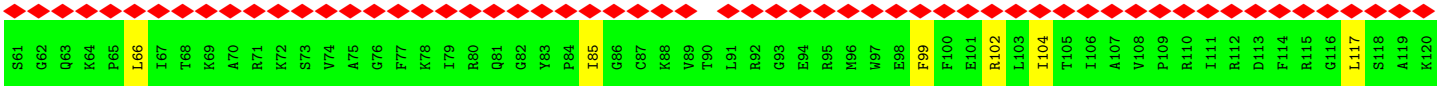


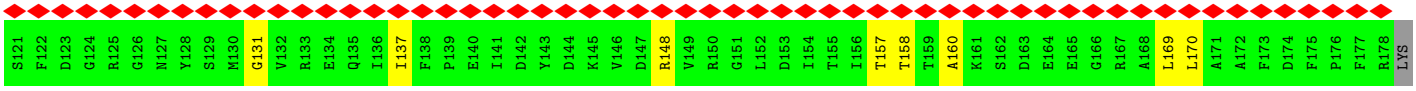
• Molecule 35: Large ribosomal subunit protein uL5

Chain f:



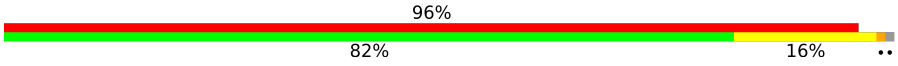


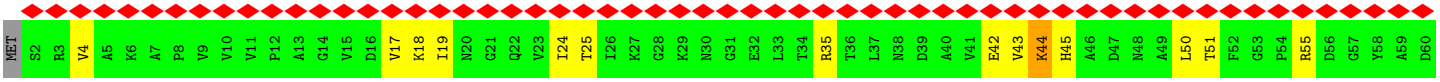


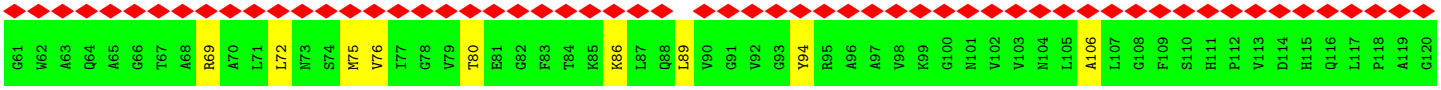


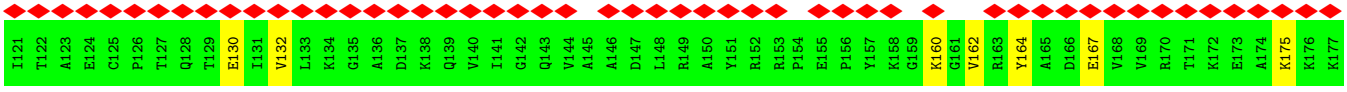
• Molecule 36: Large ribosomal subunit protein uL6

Chain g:



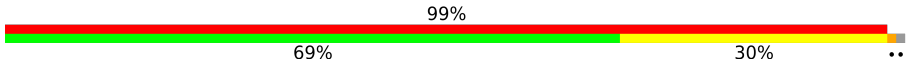


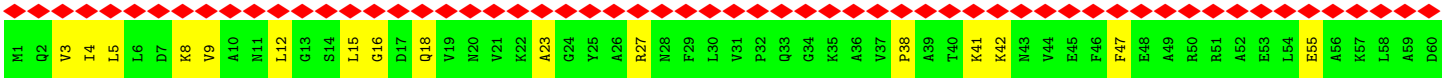


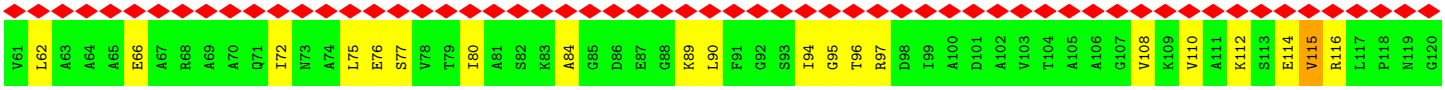


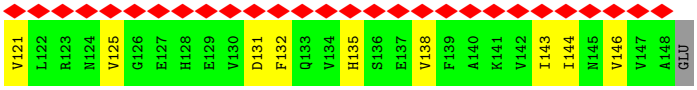
• Molecule 37: Large ribosomal subunit protein bL9

Chain h:



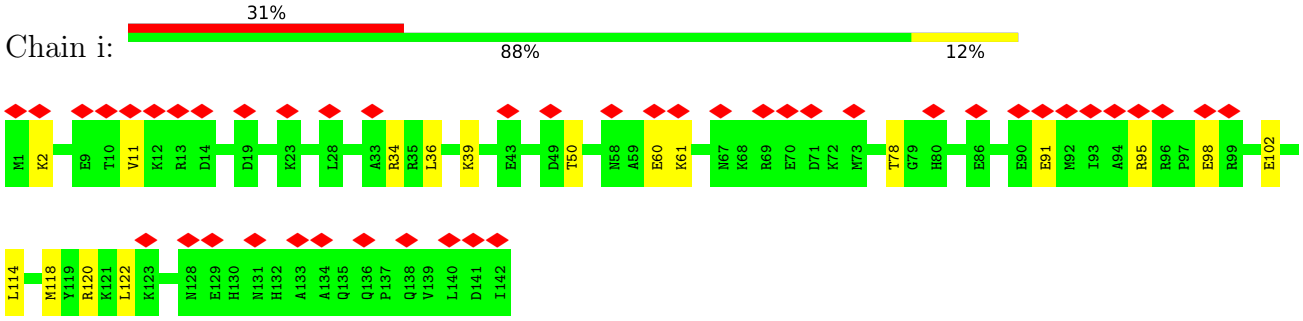






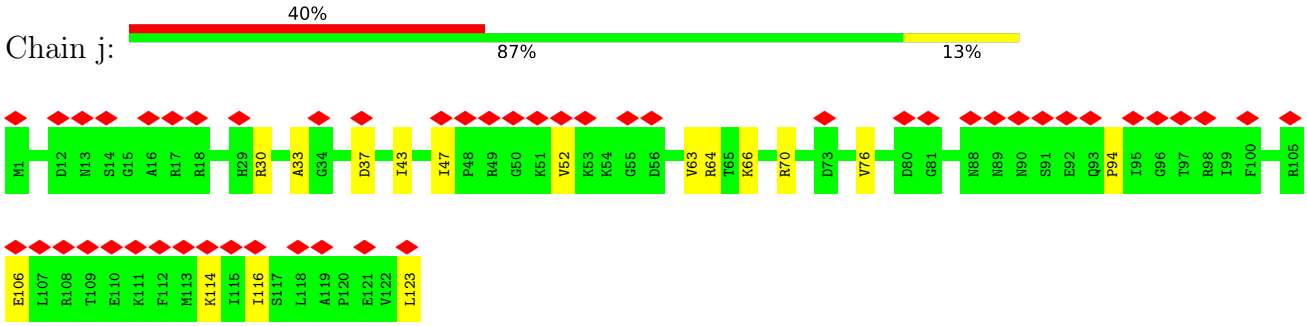
• Molecule 38: Large ribosomal subunit protein uL13

Chain i:



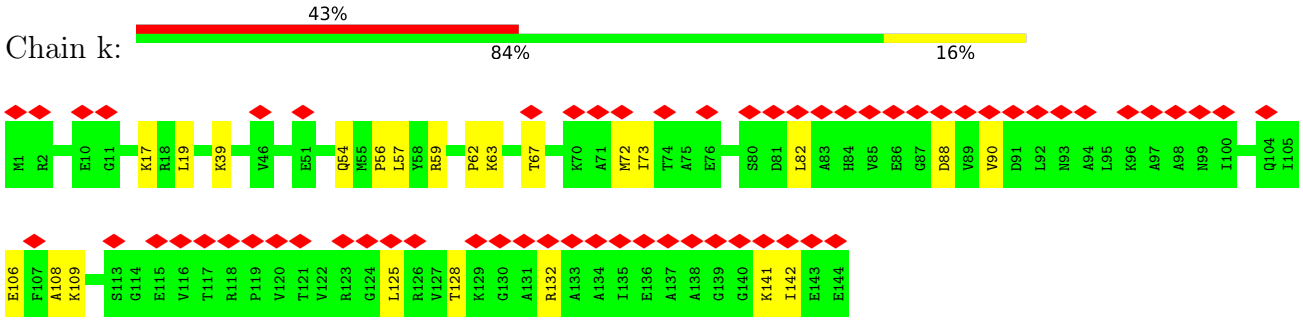
• Molecule 39: Large ribosomal subunit protein uL14

Chain j:



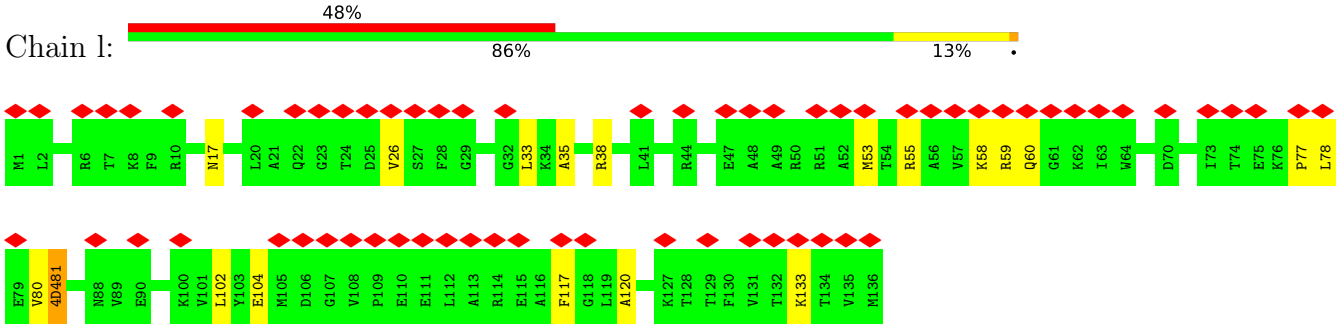
• Molecule 40: Large ribosomal subunit protein uL15

Chain k:



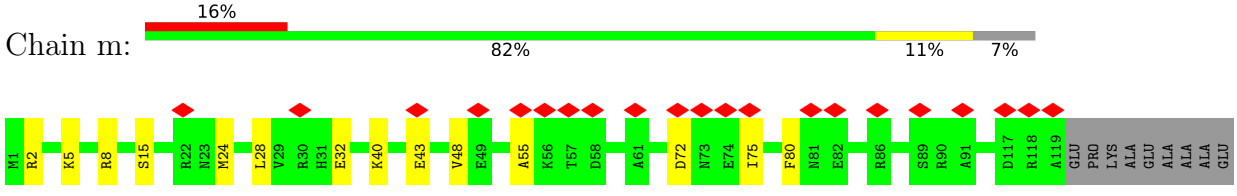
• Molecule 41: Large ribosomal subunit protein uL16

Chain l:



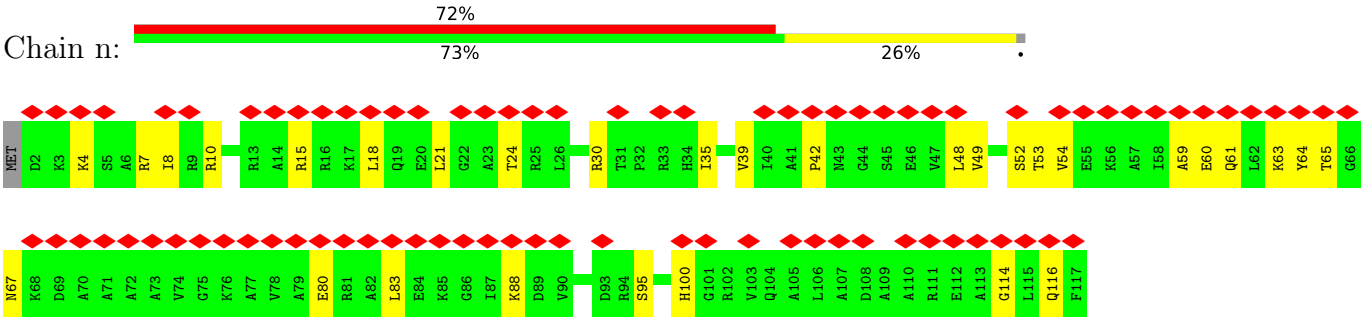
• Molecule 42: Large ribosomal subunit protein bL17

Chain m:



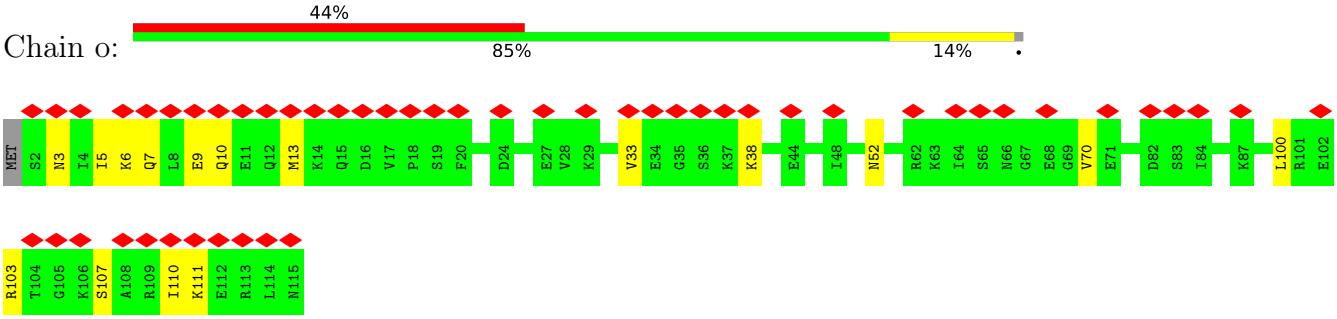
• Molecule 43: Large ribosomal subunit protein uL18

Chain n:



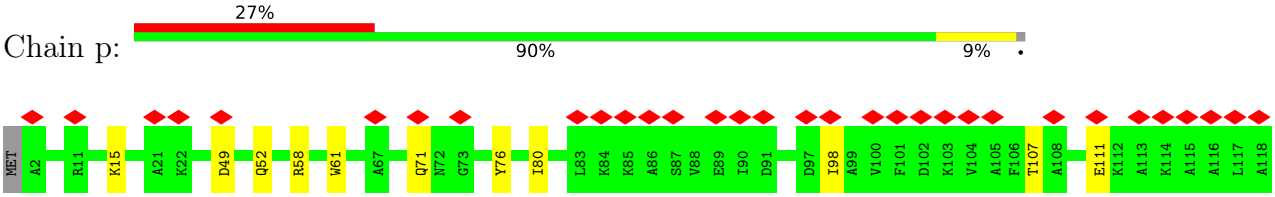
• Molecule 44: Large ribosomal subunit protein bL19

Chain o:



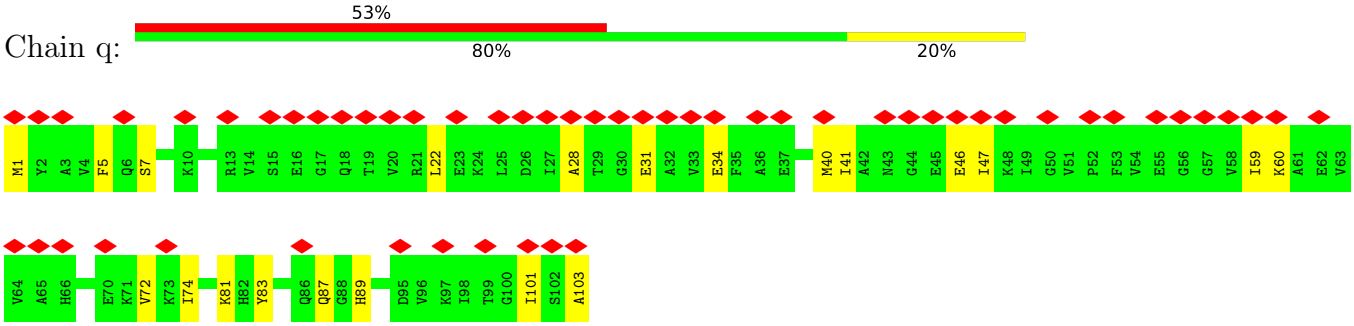
• Molecule 45: Large ribosomal subunit protein bL20

Chain p:



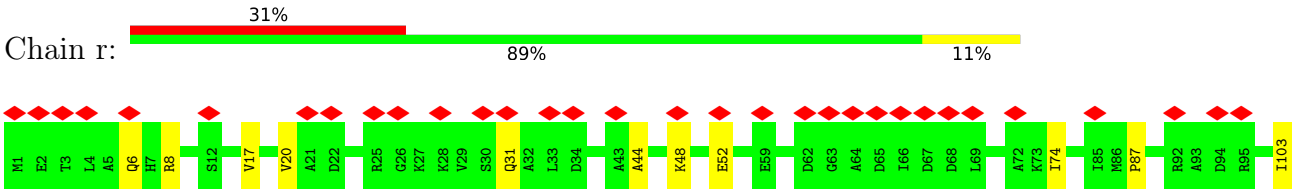
• Molecule 46: Large ribosomal subunit protein bL21

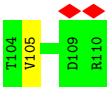
Chain q:



• Molecule 47: Large ribosomal subunit protein uL22

Chain r:

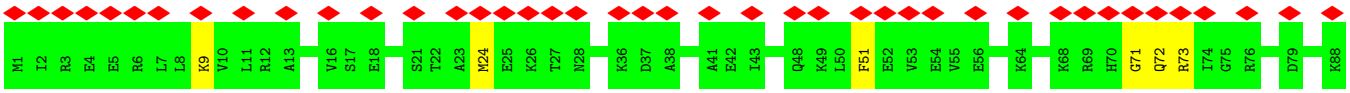


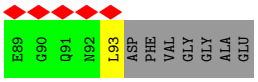


• Molecule 48: Large ribosomal subunit protein uL23

Chain s:



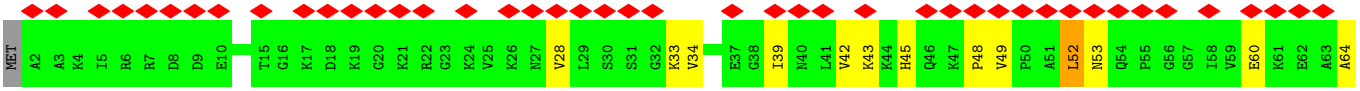


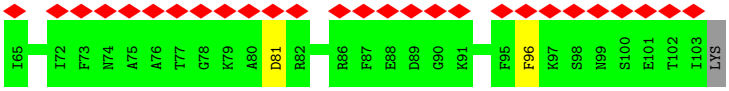


• Molecule 49: Large ribosomal subunit protein uL24

Chain t:

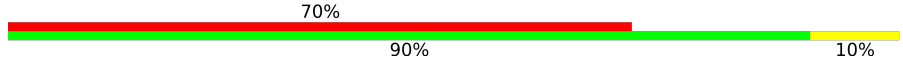


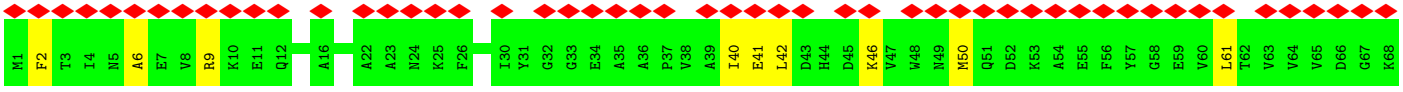


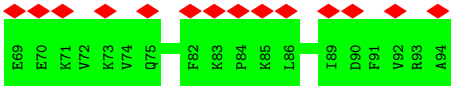


• Molecule 50: Large ribosomal subunit protein bL25

Chain u:



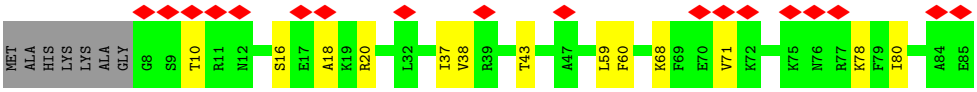




• Molecule 51: Large ribosomal subunit protein bL27

Chain v:

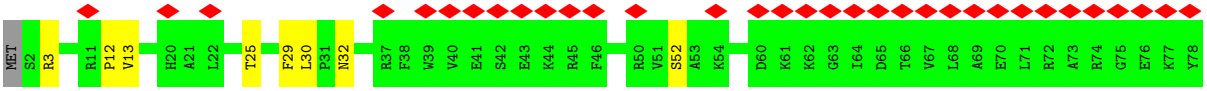




• Molecule 52: Large ribosomal subunit protein bL28

Chain w:

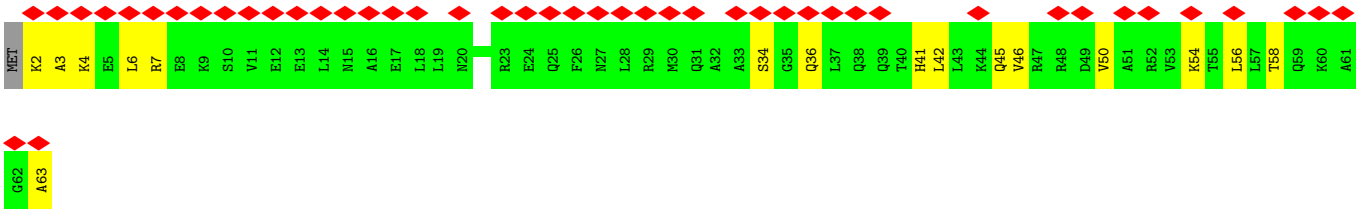




• Molecule 53: Large ribosomal subunit protein uL29

Chain x:

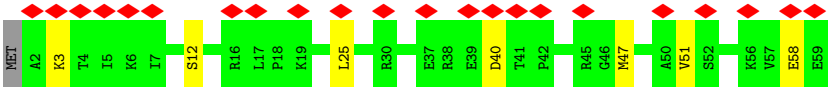




• Molecule 54: Large ribosomal subunit protein uL30

Chain y:

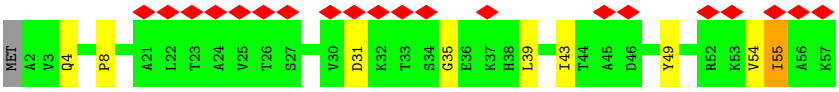




• Molecule 55: Large ribosomal subunit protein bL32

Chain z:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	56981	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	35	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.014	Depositor
Minimum map value	-0.993	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.063	Depositor
Recommended contour level	0.55	Depositor
Map size (Å)	542.72, 542.72, 542.72	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: OMU, PSU, 5MC, 4SU, 2MA, G7M, IAS, D2T, 6MZ, MEQ, OMG, K, 3TD, MA6, ZN, 4D4, H2U, 1MG, OMC, UR3, 2MG, 4OC, MS6, 5MU, MG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	0	0.30	0/425	0.39	0/566
2	1	0.35	0/380	0.38	0/498
3	2	0.32	0/513	0.33	0/676
4	3	0.29	0/303	0.34	0/397
5	4	0.19	0/550	0.43	0/734
6	5	0.17	0/1112	0.39	0/1492
7	A	0.61	0/36680	0.74	3/57215 (0.0%)
8	B	0.16	0/1780	0.38	0/2398
9	C	0.20	0/1650	0.32	0/2223
10	D	0.22	0/1665	0.28	0/2225
11	E	0.26	0/1168	0.29	0/1570
12	F	0.22	0/851	0.35	0/1152
13	G	0.21	0/1220	0.36	0/1638
14	H	0.25	0/987	0.34	0/1323
15	I	0.20	0/1022	0.33	0/1361
16	J	0.22	0/798	0.44	0/1078
17	K	0.22	0/885	0.37	0/1192
18	L	0.27	0/961	0.33	0/1287
19	M	0.19	0/916	0.36	0/1225
20	N	0.21	0/817	0.31	0/1088
21	O	0.24	0/718	0.31	0/955
22	P	0.26	0/646	0.32	0/870
23	Q	0.24	0/647	0.39	0/865
24	R	0.24	0/515	0.36	0/693
25	S	0.19	0/684	0.31	0/920
26	T	0.24	0/675	0.30	0/894
27	V	0.36	0/1724	0.83	2/2687 (0.1%)
28	W	0.37	0/271	0.86	0/422
29	X	0.20	0/791	0.38	0/1069
30	a	0.77	0/69183	0.79	14/107924 (0.0%)
31	b	0.62	0/2776	0.73	0/4328

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	c	0.32	0/2118	0.33	0/2846
33	d	0.31	0/1577	0.33	0/2122
34	e	0.30	0/1573	0.35	0/2115
35	f	0.22	0/1434	0.35	0/1926
36	g	0.23	0/1339	0.35	0/1811
37	h	0.18	0/1110	0.39	0/1500
38	i	0.30	0/1157	0.30	0/1556
39	j	0.30	0/956	0.37	0/1281
40	k	0.30	0/1073	0.32	0/1427
41	l	0.30	0/1072	0.33	0/1434
42	m	0.32	0/963	0.35	0/1288
43	n	0.25	0/902	0.40	0/1209
44	o	0.30	0/929	0.32	0/1242
45	p	0.35	0/960	0.33	0/1278
46	q	0.31	0/829	0.38	0/1106
47	r	0.30	0/862	0.33	0/1154
48	s	0.27	0/745	0.35	0/996
49	t	0.26	0/787	0.36	1/1051 (0.1%)
50	u	0.26	0/763	0.39	0/1024
51	v	0.32	0/599	0.36	0/795
52	w	0.31	0/635	0.32	0/848
53	x	0.25	0/500	0.31	0/665
54	y	0.27	0/451	0.37	0/603
55	z	0.30	0/449	0.35	0/597
All	All	0.61	0/157096	0.69	20/234839 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
41	l	0	1

There are no bond length outliers.

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	2098	G	OP1-P-O3'	-10.75	75.74	108.00
30	a	2098	G	OP2-P-O3'	-9.72	78.84	108.00
30	a	1310	U	C2-N1-C1'	6.81	125.88	117.70
30	a	1024	G	O5'-C5'-C4'	5.94	114.15	109.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	1056	U	C2-N1-C1'	5.76	124.61	117.70
27	V	75	C	C2-N1-C1'	5.66	125.03	118.80
30	a	2141	C	N3-C2-O2	-5.63	117.96	121.90
30	a	978	A	N9-C1'-C2'	5.60	118.16	112.00
30	a	1056	U	N1-C2-O2	5.59	126.71	122.80
30	a	1056	U	N3-C2-O2	-5.55	118.31	122.20
30	a	2846	G	O4'-C1'-N9	5.50	112.60	108.20
30	a	512	G	O4'-C1'-N9	5.46	112.56	108.20
7	A	1156	C	C2-N1-C1'	5.41	124.75	118.80
49	t	53	ASN	CB-CA-C	-5.22	110.54	116.54
30	a	404	A	P-O3'-C3'	5.19	125.93	119.70
30	a	746	G	O4'-C1'-N9	5.12	112.08	108.50
27	V	75	C	N3-C2-O2	-5.11	118.33	121.90
7	A	84	U	C2-N1-C1'	5.08	123.80	117.70
30	a	481	G	O4'-C1'-N9	5.06	112.25	108.20
7	A	844	G	N1-C2-N2	-5.04	111.67	116.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
41	l	81	4D4	Mainchain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	418	0	449	6	0
2	1	377	0	418	7	0
3	2	504	0	572	7	0
4	3	302	0	340	4	0
5	4	540	0	537	11	0
6	5	1105	0	1165	37	0
7	A	33009	0	16626	313	0
8	B	1749	0	1774	43	0
9	C	1623	0	1696	24	0
10	D	1644	0	1706	33	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
11	E	1155	0	1206	12	0
12	F	832	0	821	14	0
13	G	1204	0	1255	23	0
14	H	977	0	1031	16	0
15	I	1010	0	1057	21	0
16	J	788	0	830	22	0
17	K	878	0	884	16	0
18	L	958	0	1019	9	0
19	M	907	0	977	16	0
20	N	805	0	846	20	0
21	O	710	0	735	10	0
22	P	636	0	649	9	0
23	Q	639	0	684	10	0
24	R	507	0	525	21	0
25	S	667	0	691	19	0
26	T	669	0	717	5	0
27	V	1644	0	841	41	0
28	W	242	0	119	9	0
29	X	778	0	793	14	0
30	a	62284	0	31325	483	0
31	b	2483	0	1258	11	0
32	c	2080	0	2151	14	0
33	d	1567	0	1619	16	0
34	e	1554	0	1620	18	0
35	f	1410	0	1444	14	0
36	g	1319	0	1367	19	0
37	h	1099	0	1139	32	0
38	i	1134	0	1161	11	0
39	j	947	0	1025	10	0
40	k	1063	0	1130	15	0
41	l	1074	0	1138	11	0
42	m	950	0	994	7	0
43	n	892	0	923	19	0
44	o	917	0	962	9	0
45	p	947	0	1019	6	0
46	q	816	0	841	12	0
47	r	855	0	915	6	0
48	s	739	0	809	4	0
49	t	779	0	830	9	0
50	u	749	0	763	5	0
51	v	592	0	612	7	0
52	w	625	0	652	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
53	x	499	0	534	10	0
54	y	447	0	484	4	0
55	z	443	0	458	6	0
56	3	1	0	0	0	0
56	4	1	0	0	0	0
57	A	94	0	0	0	0
57	N	1	0	0	0	0
57	Q	1	0	0	0	0
57	a	253	0	0	0	0
57	b	5	0	0	0	0
57	c	2	0	0	0	0
57	p	2	0	0	0	0
57	z	1	0	0	0	0
58	A	46	0	0	0	0
58	L	1	0	0	0	0
58	a	114	0	0	0	0
58	b	1	0	0	0	0
58	c	4	0	0	0	0
58	d	1	0	0	0	0
58	e	1	0	0	0	0
58	f	1	0	0	0	0
All	All	146071	0	98136	1431	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 6.

All (1431) 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)
7:A:76:A:N6	7:A:91:G:H1	1.40	1.19
30:a:879:G:H1	30:a:893:U:H3	1.04	1.01
37:h:94:ILE:HG13	37:h:146:VAL:HG11	1.47	0.97
30:a:285:U:H3	30:a:355:G:H1	0.92	0.92
12:F:9:MET:HE2	12:F:86:ARG:HB3	1.52	0.90
7:A:81:G:H22	7:A:86:C:H42	1.20	0.86
7:A:76:A:N1	7:A:91:G:N2	2.25	0.83
27:V:27:G:N1	27:V:45:A:N6	2.27	0.83
7:A:1086:G:H21	7:A:1165:A:H61	1.24	0.81
3:2:17:THR:HG21	3:2:49:MET:HE1	1.62	0.81
30:a:544:U:O2	30:a:547:G:O6	1.97	0.80
13:G:113:ASP:HB2	13:G:119:ARG:HG2	1.61	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:111:ILE:HD11	8:B:152:LYS:HA	1.64	0.80
53:x:58:THR:HG23	53:x:63:ALA:HB3	1.66	0.78
7:A:475:G:H2'	7:A:476:A:C8	2.18	0.78
5:4:16:CYS:SG	5:4:37:CYS:HB3	2.25	0.77
49:t:49:VAL:HG11	49:t:52:LEU:HG	1.65	0.77
42:m:24:MET:HE1	42:m:40:LYS:HD3	1.67	0.77
6:5:71:ARG:HG2	6:5:177:LYS:HE3	1.67	0.76
6:5:180:PHE:HB3	6:5:184:LYS:HG3	1.67	0.76
6:5:65:LEU:HD21	6:5:175:ILE:HG22	1.68	0.75
34:e:21:ARG:HD3	34:e:106:LYS:HB3	1.68	0.75
27:V:27:G:H1	27:V:45:A:N6	1.84	0.75
30:a:566:U:H1'	30:a:2028:6MZ:H9C1	1.69	0.74
7:A:1086:G:N2	7:A:1165:A:H61	1.85	0.74
37:h:41:LYS:HE2	37:h:42:LYS:HG2	1.70	0.74
30:a:880:G:H1	30:a:892:U:H3	1.34	0.74
16:J:26:VAL:HG12	16:J:36:VAL:HG11	1.70	0.74
37:h:135:HIS:HB3	37:h:138:VAL:HB	1.70	0.74
18:L:56:ARG:HD3	18:L:62:GLU:HG2	1.69	0.74
18:L:121:ARG:HB3	18:L:123:LYS:HE2	1.69	0.74
10:D:9:LEU:HD13	10:D:32:CYS:HB3	1.71	0.73
13:G:31:MET:HE3	13:G:34:GLY:HA2	1.68	0.73
30:a:2154:G:H2'	30:a:2155:G:C4	2.23	0.73
7:A:76:A:H61	7:A:91:G:H1	0.75	0.72
7:A:662:G:H22	7:A:739:G:H1	1.37	0.72
7:A:253:G:H4'	23:Q:19:LYS:HD3	1.72	0.71
30:a:1055:A:H5"	30:a:1087:A:H61	1.55	0.71
7:A:1354:G:H2'	7:A:1355:A:C8	2.26	0.71
43:n:39:VAL:HB	43:n:49:VAL:HG22	1.71	0.71
7:A:1046:G:H5"	20:N:3:LYS:HD2	1.73	0.71
30:a:2303:U:H5"	35:f:131:GLY:HA3	1.73	0.71
7:A:778:A:H5"	17:K:125:LYS:HD3	1.73	0.70
30:a:2133:A:H3'	30:a:2134:G:H8	1.56	0.70
21:O:11:ILE:HD12	21:O:31:LEU:HD23	1.73	0.70
7:A:1086:G:H21	7:A:1165:A:N6	1.89	0.70
7:A:671:A:H2'	7:A:672:G:C8	2.26	0.70
9:C:110:GLU:HB2	9:C:144:LEU:HD22	1.72	0.69
32:c:107:PRO:HD2	32:c:110:LEU:HD22	1.75	0.69
23:Q:17:MET:HE3	23:Q:20:SER:HB3	1.75	0.69
21:O:3:LEU:HG	21:O:35:GLN:HG2	1.75	0.68
19:M:92:ARG:HH12	30:a:885:U:H5"	1.56	0.68
30:a:1060:G:H3'	30:a:1061:G:H21	1.59	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:e:2:GLU:HG3	34:e:11:ALA:HB1	1.74	0.68
14:H:96:MET:HE2	14:H:99:LEU:HB2	1.76	0.68
7:A:1535:U:H3	28:W:8:G:H22	1.42	0.68
8:B:92:VAL:HG22	8:B:151:ILE:HD11	1.76	0.67
30:a:1798:A:H2'	30:a:1799:A:C8	2.29	0.67
7:A:930:C:H5"	13:G:4:ARG:HE	1.59	0.67
13:G:74:GLU:HG2	13:G:91:VAL:HG22	1.76	0.67
54:y:3:LYS:HG3	54:y:40:ASP:HB3	1.78	0.66
30:a:2132:A:H8	30:a:2155:G:H21	1.41	0.66
4:3:16:ILE:HD13	4:3:25:VAL:HG22	1.78	0.66
37:h:16:GLY:HA2	37:h:47:PHE:HE2	1.61	0.65
30:a:1095:U:H3'	30:a:1096:A:H8	1.61	0.65
30:a:2132:A:H1'	30:a:2157:G:H1'	1.79	0.65
36:g:18:LYS:HB3	36:g:25:THR:HB	1.78	0.65
7:A:712:G:H2'	7:A:713:A:C8	2.32	0.65
30:a:2527:G:H4'	36:g:175:LYS:HD3	1.78	0.65
30:a:637:U:H2'	30:a:638:C:C6	2.31	0.65
33:d:124:ARG:HG3	33:d:165:LEU:HD13	1.79	0.64
30:a:1068:A:H3'	30:a:1070:C:H41	1.63	0.64
13:G:5:ARG:HD3	13:G:5:ARG:O	1.97	0.64
7:A:1531:C:H2'	7:A:1532:A:C8	2.33	0.64
21:O:7:ALA:O	21:O:11:ILE:HG13	1.98	0.64
30:a:1038:A:H61	30:a:1113:G:H1	1.45	0.64
36:g:164:TYR:HB2	36:g:167:GLU:HB3	1.80	0.64
15:I:96:SER:O	15:I:100:LYS:HG2	1.98	0.64
30:a:1466:A:H2'	30:a:1467:A:C8	2.32	0.64
37:h:97:ARG:HD2	37:h:112:LYS:HE3	1.80	0.64
30:a:2100:G:H22	30:a:2185:U:H3	1.46	0.64
7:A:1354:G:H2'	7:A:1355:A:H8	1.61	0.63
36:g:19:ILE:HG12	36:g:24:ILE:HD13	1.80	0.63
7:A:475:G:H2'	7:A:476:A:H8	1.60	0.63
7:A:944:A:H2'	7:A:945:G:C8	2.32	0.63
3:2:54:ASP:HB3	40:k:57:LEU:HD22	1.81	0.63
12:F:26:THR:O	12:F:30:THR:HG23	1.99	0.63
15:I:67:VAL:HG21	15:I:79:ILE:HD11	1.80	0.63
30:a:579:C:H2'	30:a:580:A:C8	2.34	0.63
30:a:2726:U:HO2'	30:a:2727:G:H8	1.46	0.63
43:n:4:LYS:O	43:n:8:ILE:HG12	1.98	0.63
45:p:49:ASP:HA	45:p:52:GLN:HB2	1.80	0.63
6:5:38:PHE:HB2	30:a:2124:A:H5'	1.79	0.63
27:V:75:C:H2'	27:V:76:C:O4'	1.97	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:u:46:LYS:O	50:u:50:MET:HG3	1.99	0.63
17:K:35:THR:HG22	17:K:41:ALA:HA	1.81	0.63
30:a:1053:G:C2	30:a:1054:G:H1'	2.33	0.63
30:a:285:U:O4	30:a:355:G:O6	2.17	0.63
37:h:96:THR:HG22	37:h:112:LYS:HB2	1.81	0.63
10:D:7:PRO:HB2	10:D:10:LYS:HG3	1.81	0.62
16:J:40:ILE:HD12	16:J:41:PRO:HD2	1.81	0.62
30:a:552:U:H2'	30:a:553:G:O4'	1.99	0.62
30:a:2302:G:H22	30:a:2310:U:H3	1.47	0.62
27:V:35:C:H2'	27:V:36:A:C8	2.34	0.62
10:D:172:GLU:HB2	10:D:183:LYS:HD2	1.80	0.62
30:a:1058:U:H3	30:a:1086:A:H8	1.45	0.62
34:e:141:MET:HE2	34:e:143:LEU:HD11	1.82	0.62
17:K:67:ALA:HB2	17:K:96:THR:HG23	1.81	0.62
29:X:49:ILE:HD12	29:X:66:ARG:HG2	1.81	0.62
30:a:2326:A:H2'	30:a:2327:U:C6	2.34	0.62
46:q:28:ALA:HB3	46:q:31:GLU:HG3	1.81	0.62
7:A:711:G:H2'	7:A:712:G:C8	2.34	0.62
20:N:46:LEU:HD22	25:S:13:LEU:HD23	1.82	0.62
30:a:2244:G:H2'	30:a:2245:A:C8	2.34	0.62
37:h:80:ILE:HB	37:h:146:VAL:HG12	1.80	0.62
7:A:522:G:H2'	7:A:523:C:C6	2.35	0.61
53:x:42:LEU:O	53:x:46:VAL:HG23	2.00	0.61
7:A:744:A:H2'	7:A:745:A:C8	2.35	0.61
7:A:1216:C:H2'	7:A:1217:A:C8	2.34	0.61
41:l:77:PRO:HG2	41:l:80:VAL:HG21	1.81	0.61
35:f:14:LYS:O	35:f:18:THR:HG23	2.00	0.61
30:a:854:G:H2'	30:a:855:G:C8	2.35	0.61
43:n:30:ARG:HG3	43:n:35:ILE:HD12	1.83	0.61
7:A:1346:U:H4'	15:I:122:ARG:HG3	1.83	0.61
27:V:24:C:H2'	27:V:25:U:C6	2.36	0.61
37:h:84:ALA:HB2	37:h:90:LEU:HD23	1.83	0.61
37:h:96:THR:HG23	37:h:115:VAL:HB	1.82	0.61
7:A:90:C:H2'	7:A:91:G:C8	2.36	0.61
8:B:119:THR:HA	8:B:122:GLN:HE21	1.66	0.61
8:B:160:ALA:HB1	8:B:184:PHE:HE2	1.65	0.61
2:1:22:MET:HE2	2:1:28:ARG:HG2	1.83	0.61
7:A:457:A:H2'	7:A:458:A:C8	2.36	0.61
15:I:17:ALA:HB2	15:I:67:VAL:HG13	1.83	0.61
7:A:490:C:H2'	7:A:491:A:C8	2.36	0.60
30:a:869:U:H2'	30:a:870:U:C6	2.36	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:2107:U:H2'	30:a:2108:G:C8	2.36	0.60
43:n:7:ARG:HG3	43:n:10:ARG:HH21	1.66	0.60
41:l:35:ALA:HB2	41:l:102:LEU:HD11	1.83	0.60
48:s:24:MET:HE3	48:s:24:MET:O	2.01	0.60
51:v:71:VAL:HG22	51:v:78:LYS:HD2	1.83	0.60
7:A:145:G:H2'	7:A:146:G:C8	2.37	0.60
8:B:217:VAL:O	8:B:221:VAL:HG23	2.01	0.60
30:a:1026:A:H2'	30:a:1027:A:C8	2.36	0.60
43:n:83:LEU:HD11	43:n:114:GLY:HA3	1.82	0.60
16:J:7:ARG:HD3	16:J:73:LEU:HD11	1.83	0.60
30:a:2794:U:H3	30:a:2797:A:H61	1.48	0.60
32:c:29:PRO:HG2	32:c:34:LEU:HD11	1.83	0.60
1:0:8:LYS:HB3	1:0:54:ILE:HD13	1.83	0.60
15:I:44:ALA:O	15:I:48:VAL:HG23	2.00	0.60
6:5:11:ILE:HB	6:5:220:ALA:HB2	1.84	0.60
13:G:26:PHE:HD1	13:G:101:MET:HG2	1.66	0.60
15:I:8:GLY:HA2	15:I:85:ARG:HG2	1.84	0.60
30:a:1792:U:H2'	30:a:1793:G:H8	1.67	0.60
7:A:616:C:O2	7:A:620:A:N6	2.35	0.60
45:p:107:THR:O	45:p:111:GLU:HG2	2.02	0.59
30:a:1383:C:H2'	30:a:1384:A:C8	2.37	0.59
30:a:499:U:H5"	49:t:43:LYS:HD3	1.83	0.59
7:A:1002:A:H2'	7:A:1003:A:O4'	2.02	0.59
7:A:1321:G:H2'	7:A:1322:A:C8	2.38	0.59
48:s:51:PHE:HB3	48:s:93:LEU:HD21	1.84	0.59
7:A:944:A:H2'	7:A:945:G:H8	1.68	0.59
7:A:767:G:H4'	7:A:1511:A:H4'	1.83	0.59
30:a:1429:G:H2'	30:a:1430:A:C8	2.38	0.59
24:R:50:LYS:O	24:R:54:GLN:HG3	2.02	0.59
35:f:33:LYS:HG3	35:f:157:THR:HB	1.85	0.58
34:e:97:ASN:HB2	34:e:100:MET:HG3	1.84	0.58
30:a:579:C:H2'	30:a:580:A:H8	1.69	0.58
7:A:76:A:N6	7:A:91:G:N1	2.16	0.58
7:A:297:G:H2'	7:A:298:A:C8	2.39	0.58
9:C:20:SER:HB3	20:N:94:PRO:HG3	1.85	0.58
19:M:93:ARG:HA	19:M:93:ARG:NE	2.18	0.58
47:r:20:VAL:HG11	47:r:44:ALA:HA	1.86	0.58
30:a:2181:A:H2'	30:a:2182:A:C8	2.39	0.58
7:A:457:A:H2'	7:A:458:A:H8	1.68	0.58
7:A:1032:G:H2'	7:A:1033:A:H8	1.69	0.58
29:X:44:GLU:HB2	29:X:45:PRO:HD2	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:b:66:A:H61	31:b:107:G:H2'	1.69	0.58
6:5:7:ARG:HE	6:5:35:THR:HB	1.69	0.58
7:A:129:A:H2'	7:A:130:C:C6	2.39	0.57
25:S:3:ARG:HH11	25:S:10:PHE:HB2	1.69	0.57
30:a:1913:3TD:H2'	30:a:1914:A:H8	1.68	0.57
10:D:11:LEU:HD13	10:D:63:ARG:HG2	1.85	0.57
7:A:1532:A:H2	28:W:11:G:H22	1.52	0.57
38:i:91:GLU:O	38:i:95:ARG:HD2	2.03	0.57
7:A:1000:A:H2'	7:A:1001:G:H8	1.69	0.57
9:C:72:ARG:HH21	9:C:75:ILE:HD11	1.68	0.57
30:a:1742:A:H2'	30:a:1743:C:C6	2.39	0.57
30:a:2613:U:C2	55:z:4:GLN:HA	2.39	0.57
3:2:49:MET:HE3	30:a:648:C:H4'	1.87	0.57
19:M:89:LEU:HD23	19:M:92:ARG:HE	1.70	0.57
36:g:24:ILE:HG21	36:g:72:LEU:HD11	1.85	0.57
2:1:22:MET:HE3	2:1:31:LEU:HD12	1.86	0.57
6:5:23:ILE:HG12	6:5:186:LYS:HG3	1.85	0.57
24:R:48:ARG:HH22	24:R:50:LYS:HD3	1.70	0.57
30:a:2244:G:H2'	30:a:2245:A:H8	1.69	0.57
42:m:2:ARG:HA	42:m:5:LYS:HD2	1.86	0.57
19:M:93:ARG:HA	19:M:93:ARG:HE	1.69	0.57
30:a:2050:A:H4'	33:d:148:GLN:O	2.04	0.57
34:e:194:LYS:O	34:e:198:GLU:HG2	2.05	0.57
41:l:26:VAL:HG13	41:l:104:GLU:HG2	1.87	0.57
7:A:1312:C:H2'	7:A:1313:U:C6	2.40	0.57
30:a:1054:G:H21	30:a:1101:A:H62	1.53	0.57
7:A:1216:C:H2'	7:A:1217:A:H8	1.68	0.57
30:a:1060:G:C8	30:a:1086:A:H2'	2.40	0.57
30:a:1583:A:H3'	30:a:1584:G:H8	1.70	0.57
5:4:64:PHE:O	5:4:67:PRO:HD3	2.04	0.56
7:A:388:U:H2'	7:A:389:G:C8	2.39	0.56
24:R:57:ARG:HB3	24:R:61:ARG:HH21	1.70	0.56
30:a:1867:U:H3'	30:a:1868:A:H8	1.70	0.56
30:a:2271:A:H2'	30:a:2272:A:C8	2.40	0.56
5:4:18:CYS:SG	5:4:40:CYS:HB2	2.41	0.56
51:v:38:VAL:HG12	51:v:59:LEU:HB2	1.87	0.56
7:A:1060:U:H2'	7:A:1061:C:C6	2.41	0.56
30:a:1431:A:H2'	30:a:1432:G:C8	2.40	0.56
47:r:74:ILE:HD12	47:r:105:VAL:HG22	1.86	0.56
5:4:60:PHE:HE2	25:S:9:PRO:HG2	1.70	0.56
7:A:1000:A:H2'	7:A:1001:G:C8	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:J:85:ASP:O	16:J:89:ARG:HG3	2.04	0.56
27:V:72:C:H2'	27:V:73:A:C8	2.41	0.56
42:m:8:ARG:HB2	42:m:43:GLU:HG3	1.87	0.56
7:A:499:C:H2'	7:A:500:A:C8	2.40	0.56
7:A:1315:C:H4'	20:N:48:LEU:HD21	1.88	0.56
12:F:4:TYR:CD2	12:F:71:ILE:HG13	2.40	0.56
30:a:1173:U:H4'	30:a:1174:G:O5'	2.05	0.56
41:l:53:MET:HG3	41:l:120:ALA:HB2	1.87	0.56
42:m:8:ARG:HD2	42:m:43:GLU:HG2	1.88	0.56
7:A:79:G:H22	7:A:88:C:N4	2.04	0.56
30:a:718:U:H2'	30:a:719:A:C8	2.40	0.56
27:V:1:C:H42	27:V:73:A:H61	1.52	0.56
29:X:23:ARG:HB3	29:X:78:ILE:HG13	1.86	0.56
30:a:419:U:H2'	30:a:420:C:C6	2.40	0.56
30:a:587:U:H2'	30:a:588:A:C8	2.41	0.56
7:A:80:A:H2'	7:A:81:G:C8	2.41	0.56
30:a:1491:A:H2'	30:a:1492:A:C8	2.41	0.56
30:a:1147:G:H2'	30:a:1148:C:C6	2.41	0.56
47:r:17:VAL:HG11	47:r:103:ILE:HG12	1.88	0.56
19:M:11:ASP:HA	19:M:45:ILE:HB	1.88	0.55
35:f:36:LEU:HD21	35:f:99:PHE:CZ	2.41	0.55
7:A:1012:A:H2'	7:A:1013:G:C8	2.41	0.55
8:B:114:LEU:HD13	8:B:144:LEU:HB3	1.89	0.55
10:D:105:MET:HE2	10:D:171:LEU:HD22	1.89	0.55
27:V:29:C:H2'	27:V:30:G:H8	1.72	0.55
29:X:7:SER:HB2	29:X:12:ILE:HG12	1.87	0.55
30:a:591:U:H2'	30:a:592:U:C6	2.41	0.55
30:a:1852:U:H2'	30:a:1853:G:O4'	2.07	0.55
7:A:1069:C:H2'	7:A:1070:G:H8	1.70	0.55
30:a:740:A:H2'	30:a:741:A:C8	2.42	0.55
37:h:15:LEU:HD23	37:h:55:GLU:HG3	1.87	0.55
55:z:43:ILE:HG22	55:z:49:TYR:HB2	1.87	0.55
30:a:483:A:C8	49:t:45:HIS:HD2	2.25	0.55
30:a:1560:U:H2'	30:a:1561:C:C6	2.42	0.55
34:e:191:ASP:O	34:e:195:GLN:HG3	2.06	0.55
55:z:31:ASP:HB3	55:z:35:GLY:H	1.71	0.55
7:A:742:C:H2'	7:A:743:A:C8	2.42	0.55
9:C:130:PHE:O	9:C:134:MET:HG3	2.05	0.55
30:a:2069:A:H2'	30:a:2070:C:C6	2.41	0.55
12:F:38:ARG:HB3	12:F:63:ASN:HB2	1.88	0.55
13:G:71:PRO:O	13:G:96:ARG:HD2	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:J:22:THR:HA	16:J:25:ILE:HB	1.88	0.55
7:A:405:U:H2'	7:A:406:A:C8	2.42	0.55
7:A:1312:C:H2'	7:A:1313:U:H6	1.72	0.55
30:a:2289:U:H2'	30:a:2290:U:C6	2.42	0.55
44:o:100:LEU:HD11	44:o:110:ILE:HD11	1.88	0.55
6:5:186:LYS:HE3	6:5:229:LEU:HD23	1.89	0.54
6:5:197:LYS:HD3	6:5:209:ILE:HD11	1.89	0.54
28:W:10:G:H2'	28:W:11:G:C8	2.43	0.54
30:a:358:U:H2'	30:a:359:G:H8	1.73	0.54
30:a:1383:C:H2'	30:a:1384:A:H8	1.72	0.54
7:A:1400:4OC:HN4	29:X:83:ARG:HH21	1.55	0.54
8:B:117:LEU:HB3	8:B:141:LEU:HG	1.89	0.54
7:A:1038:U:H2'	7:A:1039:G:H8	1.73	0.54
5:4:61:ASN:HA	5:4:65:SER:HB3	1.89	0.54
7:A:382:G:H2'	7:A:383:C:C6	2.42	0.54
8:B:80:VAL:HG23	8:B:214:LEU:HD21	1.89	0.54
30:a:2112:A:H2'	30:a:2113:G:O4'	2.07	0.54
30:a:2182:A:H2'	30:a:2183:U:C6	2.42	0.54
30:a:5:A:H2'	30:a:6:A:C8	2.43	0.54
30:a:2647:C:H2'	30:a:2648:U:H6	1.72	0.54
30:a:2738:A:H2'	30:a:2739:A:C8	2.43	0.54
36:g:35:ARG:HG2	36:g:75:MET:HE1	1.89	0.54
7:A:86:C:H2'	7:A:87:U:C6	2.42	0.54
7:A:660:U:H2'	7:A:661:A:C8	2.43	0.54
30:a:1:G:H2'	30:a:2:G:H8	1.73	0.54
30:a:2100:G:H2'	30:a:2101:C:C6	2.41	0.54
30:a:2243:U:H5"	30:a:2244:G:H5'	1.89	0.54
30:a:2325:A:H2'	30:a:2326:A:C8	2.43	0.54
6:5:3:LYS:HE2	6:5:9:ARG:HD2	1.89	0.54
30:a:830:U:H2'	30:a:831:A:C8	2.43	0.54
46:q:7:SER:HB3	46:q:22:LEU:HD22	1.90	0.54
1:0:7:GLU:HG3	1:0:27:LYS:HG3	1.90	0.54
7:A:268:A:H2'	7:A:269:C:C6	2.43	0.54
30:a:172:A:H2'	30:a:173:A:C8	2.42	0.54
30:a:1792:U:H2'	30:a:1793:G:C8	2.42	0.54
37:h:4:ILE:HG22	37:h:18:GLN:HG3	1.90	0.54
7:A:632:C:H2'	7:A:633:A:C8	2.43	0.54
15:I:84:THR:HG23	15:I:98:LEU:HD22	1.89	0.54
30:a:2062:C:H2'	30:a:2063:C:C6	2.43	0.54
30:a:2136:G:C6	30:a:2152:G:C6	2.96	0.54
7:A:1173:G:H2'	7:A:1174:A:H8	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:129:MET:HB2	9:C:132:ARG:HG3	1.89	0.54
34:e:118:LEU:HD11	34:e:188:MET:HE2	1.90	0.54
14:H:29:SER:HB3	14:H:57:PRO:HB2	1.90	0.53
27:V:27:G:C6	27:V:45:A:N6	2.76	0.53
30:a:879:G:H2'	30:a:880:G:H8	1.72	0.53
7:A:92:G:H4'	7:A:93:G:H5'	1.91	0.53
16:J:40:ILE:HD12	16:J:41:PRO:CD	2.37	0.53
44:o:10:GLN:HA	44:o:13:MET:HG3	1.90	0.53
7:A:1371:G:H4'	13:G:31:MET:HE1	1.89	0.53
30:a:358:U:H2'	30:a:359:G:C8	2.42	0.53
30:a:928:G:H1'	54:y:25:LEU:HD11	1.90	0.53
7:A:17:U:H2'	7:A:18:C:C6	2.43	0.53
30:a:2023:C:H2'	30:a:2024:U:C6	2.43	0.53
30:a:2177:C:H2'	30:a:2178:U:H6	1.73	0.53
30:a:2310:U:H5'	35:f:85:ILE:HD11	1.90	0.53
6:5:5:THR:HG22	6:5:8:MET:HB3	1.89	0.53
27:V:51:U:H3	27:V:65:G:H1	1.55	0.53
43:n:60:GLU:HG3	43:n:61:GLN:HG2	1.89	0.53
7:A:427:U:H3'	10:D:9:LEU:HD12	1.91	0.53
8:B:151:ILE:HG23	8:B:154:MET:HE2	1.91	0.53
30:a:155:A:H2'	30:a:156:A:C8	2.43	0.53
7:A:56:U:H2'	7:A:57:G:C8	2.43	0.53
7:A:75:C:H2'	7:A:76:A:C8	2.44	0.53
28:W:12:U:H2'	28:W:13:A:C8	2.44	0.53
30:a:998:A:H2'	30:a:999:A:C8	2.43	0.53
30:a:1026:A:N6	30:a:1123:G:H2'	2.24	0.53
30:a:2696:U:H2'	30:a:2697:C:C6	2.44	0.53
7:A:388:U:H2'	7:A:389:G:H8	1.74	0.53
7:A:405:U:H2'	7:A:406:A:H8	1.73	0.53
27:V:29:C:H2'	27:V:30:G:C8	2.44	0.53
30:a:637:U:H2'	30:a:638:C:H6	1.74	0.53
30:a:2241:U:H2'	30:a:2242:U:C6	2.44	0.53
7:A:1084:U:H3	7:A:1097:G:H22	1.56	0.53
7:A:1511:A:H2'	7:A:1512:G:C8	2.43	0.53
10:D:197:GLU:HA	10:D:200:ILE:HD12	1.91	0.53
24:R:33:ILE:HD13	24:R:68:LEU:HD22	1.89	0.53
30:a:1051:C:H2'	30:a:1052:A:H8	1.73	0.53
30:a:1179:G:H2'	30:a:1180:U:O4'	2.09	0.53
7:A:557:A:H4'	7:A:558:A:H3'	1.92	0.53
20:N:26:GLU:O	20:N:30:ILE:HD13	2.09	0.53
30:a:2132:A:H2'	30:a:2133:A:C8	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:q:5:PHE:HB3	46:q:59:ILE:HD12	1.91	0.53
7:A:1012:A:C2	7:A:1217:A:H1'	2.44	0.52
7:A:1122:G:H5"	16:J:37:ARG:O	2.09	0.52
9:C:121:THR:HG23	9:C:189:ALA:HB2	1.90	0.52
30:a:78:U:H2'	30:a:79:C:C6	2.44	0.52
30:a:643:C:H2'	30:a:645:G:C8	2.44	0.52
30:a:1440:U:H2'	30:a:1441:A:H8	1.74	0.52
44:o:33:VAL:HG22	44:o:38:LYS:HG3	1.90	0.52
1:0:35:GLU:OE1	1:0:50:LYS:HD3	2.09	0.52
30:a:2138:G:C6	30:a:2150:G:C5	2.97	0.52
53:x:3:ALA:O	53:x:7:ARG:HG3	2.08	0.52
7:A:1285:A:H2'	7:A:1286:A:C8	2.45	0.52
7:A:1326:C:H5"	19:M:28:THR:HG21	1.92	0.52
13:G:50:LEU:HD22	13:G:124:LEU:HB3	1.92	0.52
30:a:2786:C:H2'	30:a:2787:C:C6	2.45	0.52
30:a:2843:U:H5"	44:o:52:ASN:O	2.09	0.52
30:a:1790:A:H2'	30:a:1791:C:C6	2.44	0.52
7:A:1161:A:H2'	7:A:1162:G:C8	2.45	0.52
30:a:244:A:H4'	40:k:72:MET:HE1	1.91	0.52
30:a:672:G:O2'	34:e:69:ARG:HD2	2.09	0.52
30:a:2807:A:H2'	30:a:2808:A:C8	2.45	0.52
6:5:185:LEU:HA	6:5:188:ASN:HD22	1.74	0.52
22:P:4:ILE:HG12	22:P:21:VAL:HG22	1.92	0.52
30:a:78:U:H5'	53:x:7:ARG:HH21	1.75	0.52
30:a:155:A:H2'	30:a:156:A:H8	1.74	0.52
30:a:587:U:H2'	30:a:588:A:H8	1.75	0.52
30:a:2896:U:H2'	30:a:2897:A:C8	2.45	0.52
21:O:14:GLU:HG2	21:O:84:ARG:HH12	1.73	0.52
30:a:2647:C:H2'	30:a:2648:U:C6	2.45	0.52
36:g:89:LEU:HD22	36:g:162:VAL:HG22	1.91	0.52
55:z:54:VAL:HG23	55:z:55:ILE:HG23	1.91	0.52
6:5:48:LEU:HD12	6:5:59:VAL:HG21	1.92	0.52
7:A:1161:A:H2'	7:A:1162:G:H8	1.75	0.52
30:a:511:U:H4'	30:a:1232:G:H4'	1.92	0.52
30:a:2555:G:H2'	30:a:2556:C:C6	2.45	0.52
7:A:499:C:H2'	7:A:500:A:H8	1.73	0.52
30:a:441:U:H2'	30:a:442:G:C8	2.45	0.52
34:e:5:LEU:HD12	34:e:10:SER:HB2	1.92	0.52
27:V:62:C:H2'	27:V:63:C:H6	1.74	0.51
30:a:847:A:H2'	30:a:848:U:C6	2.45	0.51
30:a:1350:A:H2'	30:a:1351:A:C8	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:2154:G:H2'	30:a:2155:G:C5	2.45	0.51
30:a:2794:U:H3	30:a:2797:A:N6	2.07	0.51
15:I:21:ILE:HD13	15:I:61:LEU:HD13	1.92	0.51
23:Q:25:ILE:HD11	23:Q:61:ILE:HD11	1.91	0.51
27:V:4:G:H2'	27:V:5:G:H8	1.76	0.51
30:a:191:A:H2'	30:a:192:C:C6	2.45	0.51
30:a:1545:A:H2'	30:a:1546:A:C8	2.45	0.51
40:k:108:ALA:HB3	40:k:125:LEU:HD22	1.92	0.51
7:A:397:G:H2'	7:A:398:C:C6	2.46	0.51
30:a:2137:U:O2	30:a:2150:G:O6	2.28	0.51
30:a:2639:G:H5"	38:i:78:THR:HB	1.92	0.51
7:A:1142:G:N2	7:A:1144:A:H62	2.08	0.51
30:a:306:U:H2'	30:a:307:G:O4'	2.10	0.51
30:a:1083:A:H2'	30:a:1084:A:O4'	2.11	0.51
30:a:1174:G:H8	30:a:1174:G:OP2	1.94	0.51
30:a:1887:A:H2'	30:a:1888:A:C8	2.46	0.51
35:f:2:ALA:HB1	35:f:5:HIS:HB3	1.92	0.51
7:A:943:G:C2	7:A:944:A:C8	2.99	0.51
10:D:177:LYS:HG3	10:D:179:GLU:HG3	1.93	0.51
30:a:896:C:H2'	30:a:897:A:O4'	2.09	0.51
30:a:2231:U:H2'	30:a:2232:G:C8	2.46	0.51
30:a:2617:C:OP1	33:d:157:LYS:HE2	2.09	0.51
32:c:232:HIS:HA	32:c:242:LYS:HD2	1.92	0.51
33:d:32:ASN:N	33:d:32:ASN:HD22	2.09	0.51
35:f:169:LEU:HD23	35:f:170:LEU:HD23	1.92	0.51
37:h:75:LEU:O	37:h:76:GLU:HG3	2.10	0.51
8:B:114:LEU:HB2	8:B:144:LEU:HD23	1.91	0.51
16:J:21:SER:C	16:J:23:ALA:H	2.18	0.51
30:a:585:C:C2	40:k:19:LEU:HD12	2.46	0.51
30:a:642:A:H2'	30:a:643:C:O4'	2.10	0.51
30:a:849:C:H2'	30:a:850:U:C6	2.45	0.51
30:a:2467:A:H4'	41:l:55:ARG:HD3	1.92	0.51
43:n:24:THR:HG22	43:n:42:PRO:HD3	1.92	0.51
7:A:56:U:H2'	7:A:57:G:H8	1.76	0.51
7:A:862:A:H2'	7:A:863:A:C8	2.45	0.51
7:A:1271:C:H2'	7:A:1272:A:O4'	2.11	0.51
20:N:42:TRP:O	20:N:46:LEU:HD12	2.11	0.51
23:Q:52:GLU:O	23:Q:52:GLU:HG2	2.11	0.51
30:a:1679:G:H2'	30:a:1680:U:C6	2.46	0.51
30:a:2114:G:H5"	30:a:2115:A:N7	2.26	0.51
7:A:234:A:H2'	7:A:235:G:C8	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:1118:C:H2'	7:A:1119:U:H6	1.76	0.51
24:R:23:TYR:HA	24:R:29:LEU:HD11	1.93	0.51
7:A:599:G:H2'	7:A:600:A:H8	1.76	0.51
27:V:39:A:H2'	27:V:40:C:C6	2.46	0.51
30:a:248:G:O5'	30:a:249:C:H5"	2.10	0.51
30:a:438:G:H2'	30:a:439:A:C8	2.46	0.51
30:a:1594:A:H5"	30:a:1595:A:H5'	1.92	0.51
30:a:2126:G:H4'	30:a:2172:C:H4'	1.93	0.51
3:2:25:LYS:HB3	40:k:62:PRO:HG2	1.93	0.51
7:A:87:U:H2'	7:A:88:C:C6	2.46	0.51
9:C:152:GLU:HG3	9:C:167:TRP:HB3	1.93	0.51
30:a:2338:A:H5'	31:b:41:G:H21	1.75	0.51
31:b:5:U:H2'	31:b:6:G:H8	1.76	0.51
36:g:24:ILE:HD11	36:g:43:VAL:HG11	1.92	0.51
47:r:6:GLN:HG2	47:r:8:ARG:HG3	1.92	0.51
52:w:13:VAL:HG23	52:w:29:PHE:HB2	1.93	0.51
12:F:26:THR:HG22	12:F:36:ILE:HG12	1.92	0.50
14:H:11:LEU:HD22	14:H:75:ILE:HD11	1.92	0.50
25:S:3:ARG:HH21	25:S:7:LYS:HB3	1.75	0.50
31:b:66:A:N6	31:b:107:G:H2'	2.25	0.50
37:h:16:GLY:HA2	37:h:47:PHE:CE2	2.44	0.50
7:A:675:U:H3	7:A:711:G:H22	1.59	0.50
17:K:21:ALA:HB2	17:K:82:LEU:HD13	1.93	0.50
30:a:665:U:H2'	30:a:666:A:O4'	2.12	0.50
37:h:8:LYS:HD2	37:h:9:VAL:N	2.26	0.50
4:3:2:LYS:HD3	4:3:4:ARG:NH1	2.26	0.50
6:5:24:ASN:O	6:5:27:ILE:HG13	2.10	0.50
7:A:1412:U:H2'	7:A:1413:G:H8	1.75	0.50
7:A:1531:C:H2'	7:A:1532:A:H8	1.75	0.50
9:C:8:ASN:OD1	9:C:16:LYS:HG2	2.11	0.50
13:G:93:PRO:HA	13:G:96:ARG:HG3	1.92	0.50
18:L:87:VAL:HB	18:L:90:LEU:HB2	1.93	0.50
30:a:2177:C:H2'	30:a:2178:U:C6	2.46	0.50
30:a:2588:A:H2'	30:a:2589:C:H6	1.76	0.50
7:A:819:G:H2'	7:A:820:U:C6	2.47	0.50
30:a:1069:G:H3'	30:a:1070:C:C5	2.46	0.50
30:a:1184:G:H5'	46:q:83:TYR:CE1	2.47	0.50
30:a:1506:A:HO2'	30:a:1507:G:H8	1.60	0.50
33:d:4:LEU:HD13	33:d:29:VAL:HG11	1.93	0.50
7:A:755:U:H2'	7:A:756:C:O4'	2.12	0.50
29:X:38:HIS:CE1	29:X:40:ILE:HD11	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:D:102:VAL:HG13	10:D:107:PHE:HB2	1.94	0.50
30:a:856:G:N3	30:a:2266:A:H2'	2.26	0.50
30:a:971:A:H5"	46:q:81:LYS:HD2	1.94	0.50
30:a:2428:A:H2'	30:a:2428:A:N3	2.25	0.50
37:h:77:SER:HA	37:h:143:ILE:O	2.11	0.50
40:k:82:LEU:HD22	40:k:90:VAL:HG11	1.94	0.50
43:n:80:GLU:OE1	43:n:80:GLU:HA	2.11	0.50
6:5:44:VAL:HB	6:5:214:ILE:HG22	1.94	0.50
30:a:1260:U:O2'	55:z:8:PRO:HD2	2.12	0.50
30:a:1804:A:H3'	30:a:1805:A:C8	2.47	0.50
31:b:104:A:H2'	31:b:105:G:O4'	2.12	0.50
33:d:1:MET:HG2	33:d:2:ILE:N	2.27	0.50
5:4:60:PHE:CE2	25:S:9:PRO:HG2	2.47	0.49
7:A:1248:A:H2'	7:A:1249:A:C8	2.47	0.49
24:R:57:ARG:HB3	24:R:61:ARG:NH2	2.27	0.49
31:b:42:C:C6	35:f:66:LEU:HB2	2.47	0.49
36:g:86:LYS:HG2	36:g:132:VAL:HG22	1.94	0.49
49:t:28:VAL:HG22	49:t:34:VAL:HG12	1.93	0.49
7:A:335:G:H2'	7:A:336:A:C8	2.46	0.49
7:A:512:C:H2'	7:A:513:G:H8	1.77	0.49
7:A:743:A:H2'	7:A:744:A:C8	2.47	0.49
11:E:160:SER:HB3	11:E:163:GLU:HG3	1.94	0.49
23:Q:58:LYS:HG2	23:Q:79:VAL:HB	1.94	0.49
30:a:2589:C:H2'	30:a:2590:G:C8	2.47	0.49
16:J:11:LYS:HG2	16:J:71:LYS:HG2	1.94	0.49
30:a:1426:G:H2'	30:a:1427:G:H8	1.77	0.49
30:a:1466:A:H2'	30:a:1467:A:H8	1.74	0.49
30:a:1717:U:H2'	30:a:1718:G:O4'	2.12	0.49
34:e:188:MET:HE3	34:e:193:VAL:HG22	1.94	0.49
44:o:5:ILE:HG22	44:o:9:GLU:OE2	2.12	0.49
27:V:19:G:H21	27:V:59:A:H5'	1.77	0.49
29:X:41:LEU:HD21	29:X:74:ILE:HD11	1.93	0.49
30:a:907:A:H2'	30:a:910:C:H5	1.77	0.49
30:a:1178:U:H2'	30:a:1179:G:C8	2.47	0.49
7:A:1036:U:H2'	7:A:1037:G:H8	1.76	0.49
30:a:2797:A:O2'	30:a:2798:A:H5"	2.12	0.49
53:x:7:ARG:HG2	53:x:56:LEU:HD11	1.94	0.49
7:A:1439:A:C8	7:A:1440:G:C8	3.00	0.49
27:V:43:G:H2'	27:V:44:A:O4'	2.13	0.49
30:a:1402:U:H2'	30:a:1403:U:C6	2.48	0.49
13:G:5:ARG:HH22	13:G:8:GLY:HA2	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:G:36:LYS:O	13:G:40:GLU:HG2	2.13	0.49
30:a:1060:G:N3	30:a:1060:G:H2'	2.27	0.49
30:a:2269:G:OP1	51:v:18:ALA:HB1	2.13	0.49
30:a:2305:G:H4'	30:a:2306:G:O4'	2.13	0.49
6:5:60:ARG:NH2	6:5:164:ARG:HH11	2.11	0.49
7:A:189:G:H2'	7:A:190:A:C8	2.48	0.49
7:A:902:U:H2'	7:A:903:U:C6	2.48	0.49
7:A:1026:C:H2'	7:A:1027:U:C6	2.48	0.49
30:a:2147:U:H2'	30:a:2148:C:C6	2.48	0.49
37:h:80:ILE:HD13	37:h:94:ILE:HG21	1.94	0.49
37:h:110:VAL:HG11	37:h:132:PHE:CD2	2.48	0.49
45:p:98:ILE:HD13	46:q:40:MET:HE1	1.95	0.49
2:1:2:LYS:HE2	30:a:685:C:H5"	1.94	0.49
7:A:1475:U:H2'	7:A:1476:U:C6	2.48	0.49
30:a:172:A:H2'	30:a:173:A:H8	1.77	0.49
30:a:1194:G:H2'	30:a:1195:U:H6	1.78	0.49
30:a:2183:U:H2'	30:a:2184:G:C8	2.48	0.49
33:d:152:PRO:HG3	33:d:156:PHE:CZ	2.47	0.49
6:5:214:ILE:HG13	6:5:222:VAL:HG23	1.95	0.49
7:A:81:G:H22	7:A:86:C:N4	1.99	0.49
19:M:9:ILE:HG22	19:M:21:ALA:HB3	1.95	0.49
30:a:782:G:H5'	30:a:783:G:OP1	2.12	0.49
7:A:233:C:H2'	7:A:234:A:C8	2.48	0.48
7:A:537:A:H2'	7:A:538:G:C8	2.48	0.48
7:A:726:A:H2'	7:A:727:A:C8	2.48	0.48
20:N:16:LEU:HD12	20:N:54:ASP:HB2	1.95	0.48
23:Q:62:ARG:HG2	23:Q:76:VAL:HG22	1.95	0.48
30:a:248:G:H5'	30:a:250:G:N7	2.27	0.48
30:a:1289:G:H2'	30:a:1290:C:C6	2.48	0.48
30:a:2749:G:H4'	36:g:4:VAL:HG23	1.95	0.48
37:h:89:LYS:HB3	37:h:89:LYS:HE3	1.63	0.48
7:A:89:U:H2'	7:A:90:C:C5	2.48	0.48
7:A:189:G:H2'	7:A:190:A:H8	1.78	0.48
7:A:1105:C:C4	7:A:1106:G:C8	3.01	0.48
30:a:1:G:H2'	30:a:2:G:C8	2.48	0.48
35:f:31:VAL:HG22	35:f:169:LEU:HD21	1.95	0.48
8:B:187:VAL:HG21	8:B:199:VAL:HG13	1.95	0.48
30:a:39:G:H2'	30:a:40:U:C6	2.48	0.48
30:a:632:C:H2'	30:a:633:C:C6	2.48	0.48
30:a:1039:G:H2'	30:a:1040:G:H8	1.78	0.48
30:a:2170:U:H3'	30:a:2171:A:H8	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:g:42:GLU:HG3	36:g:55:ARG:HE	1.78	0.48
7:A:1410:C:H2'	7:A:1411:A:C8	2.48	0.48
6:5:21:TYR:HE1	6:5:222:VAL:HB	1.78	0.48
7:A:382:G:H2'	7:A:383:C:H6	1.77	0.48
11:E:85:VAL:HG23	11:E:96:MET:HE3	1.93	0.48
7:A:734:C:H2'	7:A:735:C:C6	2.48	0.48
7:A:749:U:H2'	7:A:750:G:O4'	2.14	0.48
7:A:916:A:H2'	7:A:917:A:C8	2.48	0.48
7:A:964:2MG:C5	29:X:62:VAL:HG11	2.49	0.48
9:C:72:ARG:HE	9:C:75:ILE:HD13	1.78	0.48
23:Q:21:ILE:HG12	23:Q:48:ASP:HB2	1.96	0.48
27:V:24:C:H2'	27:V:25:U:H6	1.76	0.48
30:a:30:G:H2'	30:a:31:C:C6	2.48	0.48
30:a:1868:A:H2'	30:a:1869:A:C8	2.48	0.48
11:E:157:ARG:HH21	14:H:43:GLU:HB3	1.77	0.48
30:a:1584:G:H2'	30:a:1585:G:H8	1.78	0.48
30:a:2163:C:H2'	30:a:2164:U:C6	2.49	0.48
7:A:1069:C:H2'	7:A:1070:G:C8	2.48	0.48
9:C:59:ARG:HG2	9:C:64:ILE:HG22	1.95	0.48
10:D:107:PHE:CG	10:D:145:ILE:HD11	2.48	0.48
11:E:38:VAL:HG11	11:E:114:VAL:HG22	1.96	0.48
30:a:191:A:H2'	30:a:192:C:H6	1.79	0.48
39:j:123:LEU:HD13	44:o:70:VAL:HG11	1.94	0.48
7:A:85:G:H3'	7:A:86:C:C6	2.49	0.48
8:B:7:ARG:HB3	8:B:11:LYS:HZ2	1.79	0.48
21:O:55:GLY:O	21:O:59:MET:HG3	2.14	0.48
30:a:52:A:H2'	30:a:53:A:C8	2.48	0.48
30:a:643:C:H2'	30:a:645:G:N7	2.28	0.48
30:a:945:A:H2'	30:a:946:C:C6	2.49	0.48
46:q:34:GLU:HG2	46:q:60:LYS:HG2	1.94	0.48
7:A:866:C:H2'	7:A:867:G:O4'	2.14	0.48
30:a:5:A:H2'	30:a:6:A:H8	1.78	0.48
30:a:1483:A:H2'	30:a:1484:U:H6	1.78	0.48
30:a:1542:A:H2'	30:a:1543:G:O4'	2.13	0.48
30:a:2582:U:H2'	30:a:2583:U:H2'	1.94	0.48
7:A:59:A:H5"	7:A:385:U:H5"	1.96	0.47
7:A:1249:A:H2'	7:A:1250:A:C8	2.49	0.47
19:M:66:GLU:OE2	19:M:66:GLU:HA	2.13	0.47
30:a:830:U:H2'	30:a:831:A:H8	1.78	0.47
30:a:831:A:OP2	40:k:39:LYS:HE2	2.15	0.47
30:a:1174:G:H2'	30:a:1175:U:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:2597:G:C8	32:c:236:GLU:HG2	2.49	0.47
6:5:60:ARG:HA	6:5:163:TYR:O	2.13	0.47
7:A:21:G:H2'	7:A:22:G:C8	2.49	0.47
7:A:262:C:H2'	7:A:263:G:O4'	2.14	0.47
7:A:1032:G:H2'	7:A:1033:A:C8	2.49	0.47
15:I:112:GLU:HG2	15:I:115:LYS:NZ	2.29	0.47
30:a:1324:A:H2'	30:a:1325:A:O4'	2.14	0.47
36:g:42:GLU:HA	36:g:55:ARG:HH21	1.78	0.47
7:A:630:U:H5"	7:A:631:G:C8	2.49	0.47
30:a:1065:A:H2	30:a:1093:A:C2	2.32	0.47
30:a:1278:G:H2'	30:a:1279:U:C6	2.50	0.47
40:k:132:ARG:HG3	40:k:142:ILE:HD13	1.96	0.47
50:u:9:ARG:HG2	50:u:41:GLU:HG2	1.96	0.47
8:B:152:LYS:HB3	8:B:152:LYS:HE2	1.71	0.47
12:F:42:TRP:NE1	12:F:102:MET:HB3	2.30	0.47
30:a:1139:U:H4'	30:a:1140:A:O4'	2.13	0.47
30:a:2173:C:H2'	30:a:2174:A:H8	1.79	0.47
30:a:2589:C:H2'	30:a:2590:G:H8	1.77	0.47
30:a:2896:U:H2'	30:a:2897:A:H8	1.78	0.47
36:g:76:VAL:O	36:g:80:THR:HG23	2.15	0.47
20:N:10:GLU:HG3	20:N:63:ARG:HD2	1.96	0.47
30:a:2142:G:H2'	30:a:2144:C:C4	2.49	0.47
30:a:2832:G:H2'	30:a:2877:A:H61	1.80	0.47
2:1:25:LYS:O	2:1:29:GLN:HG2	2.15	0.47
7:A:616:C:H5'	7:A:617:U:H5"	1.97	0.47
7:A:844:G:H2'	7:A:845:G:C8	2.49	0.47
7:A:1118:C:H2'	7:A:1119:U:C6	2.50	0.47
7:A:1400:4OC:H2'	7:A:1401:C:O4'	2.14	0.47
8:B:27:MET:O	8:B:31:ILE:HG13	2.14	0.47
8:B:108:ARG:HA	8:B:111:ILE:HG22	1.96	0.47
26:T:39:ILE:HD13	26:T:82:GLN:HB2	1.96	0.47
30:a:207:A:H2'	30:a:208:C:O4'	2.14	0.47
30:a:414:C:H2'	30:a:415:A:H8	1.80	0.47
30:a:661:G:H5"	40:k:17:LYS:HD2	1.95	0.47
30:a:1440:U:H2'	30:a:1441:A:C8	2.50	0.47
30:a:1493:A:H2'	30:a:1495:C:C5	2.49	0.47
35:f:29:PRO:HB3	35:f:160:ALA:HB2	1.96	0.47
53:x:2:LYS:O	53:x:6:LEU:HG	2.15	0.47
7:A:22:G:H2'	7:A:23:C:H6	1.79	0.47
7:A:1389:U:H2'	7:A:1390:G:C8	2.49	0.47
8:B:108:ARG:O	8:B:111:ILE:HG22	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:P:35:ARG:NH1	22:P:35:ARG:HG2	2.29	0.47
23:Q:59:VAL:HG12	23:Q:78:VAL:HG13	1.97	0.47
27:V:1:C:N4	27:V:73:A:H61	2.13	0.47
30:a:965:U:H2'	30:a:966:C:C6	2.50	0.47
30:a:1611:A:C6	47:r:87:PRO:HB3	2.49	0.47
30:a:1849:A:H2'	30:a:1850:A:C8	2.49	0.47
30:a:2096:U:H2'	30:a:2097:U:O4'	2.15	0.47
30:a:2121:G:H2'	30:a:2122:G:C8	2.50	0.47
37:h:3:VAL:HG12	37:h:38:PRO:HA	1.96	0.47
7:A:599:G:H2'	7:A:600:A:C8	2.50	0.47
8:B:81:LYS:HG3	8:B:82:ASP:N	2.30	0.47
21:O:17:ARG:H	21:O:17:ARG:HG2	1.49	0.47
27:V:25:U:H2'	27:V:26:C:C6	2.50	0.47
30:a:157:C:H2'	30:a:158:U:O4'	2.15	0.47
30:a:479:A:N3	30:a:481:G:H5"	2.30	0.47
30:a:1043:C:H4'	30:a:1045:G:H1'	1.96	0.47
30:a:1483:A:H2'	30:a:1484:U:C6	2.49	0.47
30:a:2095:A:H2'	30:a:2096:U:C6	2.50	0.47
30:a:2745:G:O6	30:a:2753:C:H5"	2.14	0.47
43:n:88:LYS:O	43:n:88:LYS:HG3	2.13	0.47
7:A:160:A:H2'	7:A:161:C:O4'	2.15	0.47
7:A:176:C:C2	7:A:177:A:C8	3.03	0.47
7:A:713:A:H2'	7:A:714:A:C8	2.49	0.47
15:I:19:VAL:HG22	15:I:65:ILE:HG23	1.97	0.47
30:a:592:U:H2'	30:a:593:C:C6	2.50	0.47
30:a:837:U:H2'	30:a:838:C:C6	2.50	0.47
30:a:1051:C:H2'	30:a:1052:A:C8	2.50	0.47
30:a:1913:3TD:H2'	30:a:1914:A:C8	2.49	0.47
7:A:1491:A:H5'	30:a:1911:A:N3	2.29	0.47
13:G:102:ARG:O	13:G:106:GLU:HG3	2.14	0.47
30:a:846:C:H2'	30:a:847:A:C8	2.50	0.47
30:a:1431:A:H2'	30:a:1432:G:H8	1.77	0.47
30:a:2063:C:H2'	30:a:2064:C:H6	1.80	0.47
30:a:2303:U:H2'	30:a:2304:C:C6	2.50	0.47
30:a:2802:U:H2'	30:a:2803:C:C6	2.49	0.47
31:b:5:U:H2'	31:b:6:G:C8	2.50	0.47
33:d:35:THR:HG22	33:d:73:VAL:HG21	1.97	0.47
30:a:29:U:H2'	30:a:30:G:C8	2.50	0.46
30:a:1438:G:H2'	30:a:1439:U:C6	2.50	0.46
30:a:2094:C:H2'	30:a:2095:A:C8	2.49	0.46
37:h:80:ILE:O	37:h:146:VAL:HA	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:p:58:ARG:HA	45:p:61:TRP:CE3	2.50	0.46
7:A:88:C:OP2	7:A:89:U:H5	1.97	0.46
7:A:543:C:H5'	10:D:69:GLU:HB2	1.96	0.46
7:A:1234:A:H2'	7:A:1235:C:C6	2.51	0.46
14:H:64:LYS:HG2	14:H:71:VAL:HG21	1.97	0.46
30:a:1074:C:N4	30:a:1075:A:H62	2.13	0.46
30:a:2778:G:OP2	38:i:120:ARG:HD3	2.15	0.46
7:A:631:G:H2'	7:A:632:C:C6	2.51	0.46
9:C:88:ARG:HH21	9:C:89:LYS:HG2	1.81	0.46
25:S:31:LEU:HD21	25:S:47:LEU:HD13	1.97	0.46
30:a:493:G:H2'	30:a:494:G:O4'	2.15	0.46
30:a:811:U:H2'	30:a:812:C:C6	2.51	0.46
30:a:1017:U:H2'	30:a:1018:A:C8	2.50	0.46
30:a:1195:U:H2'	30:a:1196:U:C6	2.50	0.46
30:a:2393:C:H2'	30:a:2394:G:O4'	2.15	0.46
7:A:19:A:H5"	11:E:91:GLY:HA3	1.97	0.46
7:A:138:U:H2'	7:A:139:G:O4'	2.16	0.46
10:D:27:ALA:HB3	10:D:30:THR:HG23	1.97	0.46
16:J:10:LEU:HD22	16:J:98:VAL:HG22	1.96	0.46
25:S:50:ALA:HA	25:S:58:VAL:O	2.16	0.46
30:a:575:G:H2'	30:a:576:G:C8	2.50	0.46
30:a:849:C:H2'	30:a:850:U:H6	1.80	0.46
30:a:1175:U:H2'	30:a:1176:G:C8	2.51	0.46
41:l:33:LEU:HD13	41:l:117:PHE:HB3	1.97	0.46
52:w:32:ASN:O	52:w:52:SER:HA	2.16	0.46
7:A:199:G:H1	7:A:214:U:H3	1.63	0.46
7:A:308:G:H5"	22:P:31:ARG:HB2	1.98	0.46
7:A:611:C:H2'	7:A:612:C:C6	2.51	0.46
7:A:933:A:H2'	7:A:934:C:H6	1.79	0.46
22:P:35:ARG:HG2	22:P:35:ARG:HH11	1.81	0.46
30:a:27:G:N2	30:a:512:G:H1'	2.31	0.46
30:a:445:C:H2'	30:a:446:G:O4'	2.15	0.46
30:a:1055:A:C5	30:a:1056:U:H1'	2.51	0.46
30:a:1180:U:H2'	30:a:1181:U:C6	2.50	0.46
30:a:2512:U:H2'	30:a:2513:C:C6	2.50	0.46
30:a:2531:U:H2'	30:a:2532:A:O4'	2.16	0.46
36:g:94:TYR:HA	36:g:106:ALA:O	2.15	0.46
52:w:3:ARG:O	52:w:12:PRO:HD3	2.16	0.46
7:A:487:C:H2'	7:A:488:C:C6	2.51	0.46
12:F:19:PRO:O	12:F:23:GLU:HG2	2.16	0.46
13:G:37:SER:O	13:G:40:GLU:HG3	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:L:33:VAL:HG22	18:L:79:VAL:HG22	1.96	0.46
30:a:695:G:H2'	30:a:696:C:C6	2.50	0.46
30:a:826:U:H4'	30:a:829:G:N1	2.31	0.46
30:a:1827:G:H2'	30:a:1828:C:C6	2.51	0.46
30:a:2467:A:H4'	41:l:55:ARG:CD	2.45	0.46
33:d:38:LYS:O	33:d:46:ARG:HA	2.16	0.46
3:2:14:PHE:HB2	3:2:62:LEU:HD11	1.98	0.46
6:5:60:ARG:CZ	6:5:164:ARG:HD3	2.46	0.46
6:5:63:THR:O	6:5:160:GLN:HA	2.15	0.46
8:B:26:LYS:HB3	8:B:193:PRO:HD2	1.96	0.46
16:J:9:ARG:HG3	16:J:99:GLN:HB3	1.97	0.46
27:V:10:G:H2'	27:V:11:A:C8	2.51	0.46
30:a:841:G:H2'	30:a:842:A:C8	2.50	0.46
30:a:1384:A:H5'	30:a:1466:A:H1'	1.98	0.46
30:a:1426:G:H2'	30:a:1427:G:C8	2.51	0.46
30:a:1867:U:H3'	30:a:1868:A:C8	2.51	0.46
30:a:2818:A:H2'	30:a:2818:A:N3	2.30	0.46
41:l:58:LYS:O	41:l:59:ARG:HG2	2.16	0.46
7:A:1313:U:H2'	7:A:1314:G:O4'	2.16	0.46
10:D:116:GLN:HE21	10:D:116:GLN:HB2	1.59	0.46
16:J:10:LEU:HD12	16:J:22:THR:HG22	1.96	0.46
27:V:62:C:H2'	27:V:63:C:C6	2.49	0.46
30:a:574:U:H2'	30:a:575:G:C8	2.51	0.46
30:a:2181:A:H2'	30:a:2182:A:H8	1.79	0.46
37:h:125:VAL:HG13	37:h:146:VAL:O	2.15	0.46
43:n:52:SER:HB2	43:n:54:VAL:HG22	1.98	0.46
7:A:426:G:OP2	10:D:7:PRO:HG2	2.16	0.46
15:I:88:MET:SD	15:I:95:ARG:HG3	2.56	0.46
30:a:568:G:H2'	30:a:2028:6MZ:N7	2.31	0.46
30:a:908:A:H2'	30:a:909:A:C8	2.51	0.46
30:a:1391:U:H2'	30:a:1392:A:O4'	2.16	0.46
30:a:2028:6MZ:C2	30:a:2497:C:H5"	2.46	0.46
40:k:56:PRO:HG2	40:k:59:ARG:HB2	1.98	0.46
7:A:1353:A:H2'	7:A:1354:G:C8	2.51	0.46
8:B:54:LEU:HD22	8:B:220:THR:OG1	2.15	0.46
8:B:160:ALA:HB1	8:B:184:PHE:CE2	2.50	0.46
9:C:80:LYS:HE3	9:C:80:LYS:HB3	1.84	0.46
16:J:49:PHE:HE1	16:J:67:ILE:HG13	1.80	0.46
17:K:94:GLU:O	17:K:97:ILE:HG13	2.16	0.46
7:A:1002:A:N6	7:A:1024:G:H1'	2.31	0.45
7:A:1038:U:H2'	7:A:1039:G:C8	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:G:73:VAL:HG12	13:G:90:GLU:HA	1.98	0.45
20:N:3:LYS:HB2	20:N:6:MET:HE2	1.98	0.45
24:R:30:LYS:HA	24:R:33:ILE:HG12	1.97	0.45
30:a:719:A:H2'	30:a:720:A:C8	2.51	0.45
30:a:831:A:H2'	30:a:832:G:C8	2.50	0.45
30:a:2377:G:H4'	43:n:21:LEU:HD11	1.98	0.45
30:a:2513:C:H2'	30:a:2514:A:H8	1.80	0.45
30:a:2802:U:H2'	30:a:2803:C:H6	1.81	0.45
37:h:72:ILE:HD11	37:h:110:VAL:HG21	1.99	0.45
40:k:141:LYS:HB2	40:k:141:LYS:HE2	1.60	0.45
4:3:8:LYS:HB2	4:3:8:LYS:HE2	1.56	0.45
10:D:48:LEU:HD22	10:D:52:GLY:HA3	1.97	0.45
14:H:102:ALA:HB3	14:H:113:ASP:HB3	1.97	0.45
22:P:54:LEU:HD23	22:P:54:LEU:HA	1.82	0.45
27:V:1:C:H42	27:V:73:A:N6	2.14	0.45
30:a:701:U:H2'	30:a:702:G:O4'	2.15	0.45
30:a:946:C:H1'	30:a:982:A:C8	2.51	0.45
30:a:1742:A:H2'	30:a:1743:C:H6	1.82	0.45
37:h:80:ILE:CD1	37:h:144:ILE:HD11	2.46	0.45
44:o:3:ASN:HA	44:o:6:LYS:HE2	1.97	0.45
7:A:1219:G:O3'	25:S:77:THR:HG21	2.16	0.45
30:a:84:A:H4'	30:a:85:G:O5'	2.15	0.45
30:a:630:A:H2'	30:a:631:A:C8	2.52	0.45
30:a:1425:C:C5	30:a:1566:A:H5"	2.50	0.45
30:a:2173:C:H2'	30:a:2174:A:C8	2.51	0.45
31:b:78:A:H2'	31:b:79:G:O4'	2.16	0.45
32:c:205:LEU:HB3	32:c:210:ALA:HB3	1.98	0.45
6:5:48:LEU:HB2	6:5:169:GLY:O	2.16	0.45
7:A:216:A:H2'	7:A:217:U:O4'	2.17	0.45
7:A:537:A:H2'	7:A:538:G:H8	1.81	0.45
7:A:1522:C:H2'	7:A:1523:G:C8	2.51	0.45
7:A:1535:U:H3	28:W:8:G:H1	1.64	0.45
8:B:68:LEU:HD12	8:B:92:VAL:HG23	1.98	0.45
8:B:70:VAL:HB	8:B:163:VAL:HG22	1.98	0.45
25:S:80:TYR:CZ	25:S:82:GLY:HA2	2.51	0.45
30:a:1539:U:H2'	30:a:1540:G:O4'	2.16	0.45
30:a:2068:A:H2'	30:a:2069:A:C8	2.51	0.45
30:a:2085:G:H2'	30:a:2086:A:C8	2.51	0.45
30:a:2124:A:N6	30:a:2161:A:H4'	2.31	0.45
5:4:60:PHE:HD1	25:S:67:VAL:HG13	1.82	0.45
7:A:734:C:H2'	7:A:735:C:H6	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:16:LYS:HG3	9:C:17:PRO:HD2	1.98	0.45
9:C:47:LEU:HB3	9:C:50:ALA:HB3	1.99	0.45
9:C:123:GLN:HG2	9:C:126:ARG:HH22	1.81	0.45
30:a:181:A:H2'	30:a:182:A:C8	2.52	0.45
30:a:606:A:H2'	30:a:607:A:C8	2.52	0.45
30:a:608:C:H2'	30:a:609:C:C6	2.51	0.45
30:a:1056:U:O2	30:a:1056:U:H2'	2.17	0.45
30:a:1211:A:H61	30:a:1232:G:H1'	1.81	0.45
30:a:1275:C:H2'	30:a:1276:G:H8	1.82	0.45
30:a:2290:U:H2'	30:a:2291:A:C8	2.51	0.45
30:a:2371:G:H2'	30:a:2372:C:C6	2.51	0.45
30:a:2535:U:H2'	30:a:2536:C:C6	2.52	0.45
30:a:2672:G:H4'	39:j:30:ARG:HG3	1.98	0.45
49:t:81:ASP:OD2	49:t:96:PHE:HB3	2.16	0.45
7:A:1090:A:H5"	13:G:4:ARG:NH1	2.30	0.45
7:A:1261:C:H2'	7:A:1262:U:C6	2.51	0.45
9:C:9:GLY:HA3	20:N:89:MET:SD	2.56	0.45
10:D:105:MET:SD	10:D:180:GLY:HA3	2.56	0.45
24:R:48:ARG:HH21	24:R:51:TYR:HE2	1.64	0.45
30:a:541:A:H2'	30:a:542:C:C6	2.52	0.45
30:a:1523:C:H2'	30:a:1524:G:O4'	2.17	0.45
30:a:2072:U:H2'	30:a:2073:U:C6	2.51	0.45
31:b:48:U:H4'	43:n:100:HIS:HD2	1.81	0.45
38:i:34:ARG:HG3	38:i:39:LYS:HB2	1.98	0.45
7:A:33:A:H2'	7:A:34:C:C6	2.52	0.45
7:A:1117:C:H2'	7:A:1118:C:H6	1.82	0.45
7:A:1206:C:H2'	7:A:1207:C:O4'	2.17	0.45
12:F:47:LEU:HD13	12:F:51:ILE:HD12	1.97	0.45
30:a:709:G:H1	30:a:718:U:H3	1.63	0.45
35:f:4:LEU:HD23	35:f:4:LEU:HA	1.74	0.45
37:h:114:GLU:O	37:h:116:ARG:HG2	2.16	0.45
39:j:66:LYS:HB3	39:j:66:LYS:HE2	1.76	0.45
7:A:672:G:H2'	7:A:673:A:H8	1.81	0.45
7:A:1030:G:H2'	7:A:1031:G:O4'	2.17	0.45
7:A:1215:C:H2'	7:A:1216:C:H6	1.82	0.45
9:C:169:ARG:HH11	9:C:169:ARG:HB3	1.81	0.45
37:h:76:GLU:OE1	37:h:77:SER:HB2	2.16	0.45
7:A:536:G:H2'	7:A:537:A:C8	2.52	0.45
15:I:115:LYS:HB2	15:I:118:LEU:HD13	1.99	0.45
27:V:4:G:H2'	27:V:5:G:C8	2.52	0.45
27:V:52:C:H2'	27:V:53:G:O4'	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:780:A:C2	32:c:225:MET:HG2	2.51	0.45
30:a:2635:U:H2'	30:a:2636:G:O4'	2.16	0.45
30:a:2893:G:H2'	30:a:2894:C:C6	2.52	0.45
7:A:952:G:H2'	7:A:953:U:C6	2.51	0.45
12:F:9:MET:HE3	12:F:9:MET:HB2	1.90	0.45
16:J:36:VAL:HG12	16:J:38:GLY:H	1.82	0.45
30:a:181:A:H1'	30:a:435:C:H5'	1.97	0.45
30:a:1024:G:H2'	30:a:1025:A:H8	1.81	0.45
30:a:1677:U:H2'	30:a:1678:G:O4'	2.17	0.45
41:l:133:LYS:HB3	41:l:133:LYS:HE2	1.71	0.45
50:u:40:ILE:HD12	50:u:42:LEU:HD21	1.99	0.45
1:0:5:ILE:HG22	30:a:2282:A:OP1	2.17	0.44
7:A:387:A:H3'	7:A:388:U:H6	1.82	0.44
7:A:1321:G:H2'	7:A:1322:A:H8	1.82	0.44
7:A:1491:A:N3	7:A:1491:A:H2'	2.32	0.44
10:D:47:ARG:HA	10:D:47:ARG:NE	2.32	0.44
11:E:34:THR:HG22	11:E:52:LYS:HG2	1.99	0.44
15:I:24:GLY:HA3	15:I:62:ASP:CG	2.43	0.44
16:J:99:GLN:OE1	16:J:99:GLN:HA	2.17	0.44
30:a:358:U:C2	30:a:359:G:C8	3.05	0.44
30:a:414:C:H2'	30:a:415:A:C8	2.52	0.44
30:a:1052:A:H2'	30:a:1053:G:O4'	2.17	0.44
30:a:1078:A:H2'	30:a:1079:U:H6	1.82	0.44
30:a:2036:G:H2'	30:a:2037:U:O4'	2.17	0.44
30:a:2113:G:H2'	30:a:2115:A:H62	1.81	0.44
33:d:11:MET:HE2	33:d:11:MET:HB3	1.88	0.44
42:m:28:LEU:HD23	42:m:48:VAL:HG21	1.99	0.44
7:A:906:A:H2'	7:A:907:A:C8	2.53	0.44
20:N:23:LYS:HG2	20:N:51:LEU:HD11	1.99	0.44
30:a:404:A:H1'	30:a:405:U:OP2	2.18	0.44
30:a:823:A:O2'	40:k:54:GLN:HB2	2.17	0.44
30:a:867:G:H2'	30:a:868:U:O4'	2.18	0.44
30:a:2231:U:H2'	30:a:2232:G:H8	1.82	0.44
43:n:63:LYS:HB2	43:n:63:LYS:HE2	1.70	0.44
7:A:1261:C:H2'	7:A:1262:U:H6	1.81	0.44
14:H:3:MET:HE2	14:H:3:MET:HB2	1.91	0.44
19:M:86:TYR:O	19:M:90:ARG:HG2	2.17	0.44
30:a:64:A:H2'	30:a:65:U:C6	2.53	0.44
30:a:846:C:H2'	30:a:847:A:H8	1.83	0.44
30:a:1816:U:C2	32:c:201:MET:HG2	2.52	0.44
30:a:2085:G:H2'	30:a:2086:A:H8	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:2459:A:H2'	30:a:2460:C:C6	2.52	0.44
30:a:2678:U:O2'	30:a:2679:C:H5'	2.17	0.44
7:A:930:C:H5'	13:G:4:ARG:HH21	1.83	0.44
10:D:91:LEU:HD23	10:D:91:LEU:HA	1.83	0.44
11:E:95:PHE:CZ	11:E:97:GLN:HG3	2.53	0.44
12:F:51:ILE:O	12:F:54:LEU:HB2	2.18	0.44
17:K:16:VAL:HB	17:K:79:ILE:HD11	1.99	0.44
30:a:740:A:H2'	30:a:741:A:H8	1.82	0.44
30:a:1054:G:H4'	30:a:1084:A:C8	2.52	0.44
30:a:1092:U:C4	30:a:1094:A:H5'	2.53	0.44
30:a:1701:C:H2'	30:a:1702:A:C8	2.52	0.44
30:a:2259:C:C6	51:v:16:SER:HB3	2.52	0.44
30:a:2810:G:H2'	30:a:2811:A:C8	2.53	0.44
37:h:95:GLY:HA2	37:h:121:VAL:HG23	1.98	0.44
37:h:110:VAL:HG11	37:h:132:PHE:HD2	1.81	0.44
38:i:98:GLU:O	38:i:102:GLU:HG3	2.16	0.44
41:l:58:LYS:O	41:l:60:GLN:HG2	2.17	0.44
48:s:71:GLY:O	48:s:72:GLN:HB3	2.17	0.44
7:A:186:C:H2'	7:A:187:A:O4'	2.17	0.44
7:A:511:C:H2'	7:A:512:C:C6	2.53	0.44
7:A:1510:U:H2'	7:A:1511:A:C8	2.53	0.44
9:C:169:ARG:HB3	9:C:169:ARG:NH1	2.33	0.44
20:N:53:ARG:NH2	25:S:37:ARG:HH12	2.15	0.44
27:V:51:U:H2'	27:V:52:C:C6	2.52	0.44
30:a:1069:G:H3'	30:a:1070:C:C6	2.53	0.44
30:a:1112:C:H2'	30:a:1113:G:C8	2.51	0.44
1:0:5:ILE:HD11	1:0:28:ARG:NH2	2.32	0.44
7:A:685:A:C2	7:A:702:A:C5	3.06	0.44
7:A:1003:A:C5	7:A:1004:C:H1'	2.53	0.44
8:B:90:PHE:HE1	8:B:153:ASP:HB2	1.81	0.44
9:C:72:ARG:HH21	9:C:75:ILE:CD1	2.30	0.44
17:K:31:ILE:HG23	17:K:46:THR:HG22	1.98	0.44
27:V:14:A:H3'	27:V:15:G:H8	1.82	0.44
30:a:1175:U:H2'	30:a:1176:G:H8	1.83	0.44
30:a:1545:A:H2'	30:a:1546:A:H8	1.81	0.44
30:a:2545:A:H2'	30:a:2546:U:C6	2.53	0.44
33:d:56:LYS:HB3	33:d:56:LYS:HE2	1.78	0.44
40:k:109:LYS:HE2	40:k:128:THR:HG22	1.99	0.44
43:n:64:TYR:HB3	43:n:67:ASN:ND2	2.33	0.44
51:v:18:ALA:HB3	51:v:20:ARG:NH1	2.33	0.44
7:A:937:G:H2'	7:A:938:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:1031:G:C4	7:A:1032:G:C8	3.05	0.44
7:A:1215:C:H2'	7:A:1216:C:C6	2.52	0.44
7:A:1508:C:H2'	7:A:1509:G:C8	2.52	0.44
7:A:1538:U:H3	28:W:5:G:H22	1.65	0.44
13:G:138:ARG:HE	13:G:138:ARG:HB3	1.59	0.44
27:V:10:G:H2'	27:V:11:A:H8	1.83	0.44
30:a:2138:G:C6	30:a:2150:G:C6	3.05	0.44
30:a:2407:G:H2'	30:a:2408:G:O4'	2.18	0.44
35:f:26:MET:HE2	35:f:30:ARG:HH22	1.83	0.44
7:A:606:A:H2'	7:A:607:A:O4'	2.18	0.44
8:B:85:LEU:HG	8:B:91:PHE:HE2	1.83	0.44
14:H:88:LYS:HZ2	14:H:88:LYS:HG2	1.73	0.44
15:I:88:MET:HE1	15:I:104:VAL:HG22	1.98	0.44
15:I:91:ASP:HB3	15:I:94:LEU:HD11	1.99	0.44
24:R:36:SER:HA	24:R:72:ASP:HB3	2.00	0.44
27:V:45:A:H3'	27:V:46:G:C8	2.53	0.44
30:a:888:C:H3'	30:a:889:G:H8	1.83	0.44
30:a:1170:C:H3'	30:a:1171:U:H6	1.83	0.44
30:a:1404:G:H2'	30:a:1405:G:H8	1.83	0.44
30:a:1805:A:H2'	30:a:1806:A:C8	2.53	0.44
30:a:2155:G:H1'	30:a:2156:A:C8	2.52	0.44
30:a:2453:G:H2'	30:a:2454:C:C6	2.53	0.44
30:a:2685:U:H2'	30:a:2686:G:O4'	2.17	0.44
43:n:63:LYS:HG3	43:n:64:TYR:N	2.33	0.44
3:2:2:PRO:HD2	30:a:665:U:O2	2.18	0.44
7:A:22:G:H2'	7:A:23:C:C6	2.53	0.44
7:A:536:G:H2'	7:A:537:A:H8	1.83	0.44
7:A:540:G:H5'	10:D:39:GLY:HA3	2.00	0.44
8:B:45:LYS:O	8:B:49:MET:HG3	2.18	0.44
17:K:22:HIS:C	17:K:23:ILE:HD13	2.43	0.44
25:S:10:PHE:HZ	25:S:37:ARG:HH21	1.65	0.44
26:T:57:ILE:O	26:T:61:GLN:HG2	2.18	0.44
30:a:721:C:H2'	30:a:722:U:O4'	2.18	0.44
30:a:1180:U:H2'	30:a:1181:U:H6	1.83	0.44
30:a:1351:A:H2'	30:a:1352:G:O4'	2.18	0.44
30:a:1786:C:H2'	30:a:1787:A:C8	2.52	0.44
30:a:2084:U:H2'	30:a:2085:G:C8	2.53	0.44
30:a:2249:OMG:HM23	30:a:2249:OMG:H1'	1.69	0.44
3:2:26:HIS:CE1	3:2:48:ALA:HB2	2.53	0.43
5:4:24:ILE:HD12	35:f:102:ARG:HD3	2.00	0.43
7:A:1013:G:H2'	7:A:1014:A:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:186:ILE:HG21	8:B:213:TYR:CE2	2.53	0.43
21:O:24:SER:O	21:O:28:GLN:HG3	2.18	0.43
24:R:62:ALA:HB3	24:R:68:LEU:HD12	2.00	0.43
30:a:2045:C:H2'	30:a:2046:G:H8	1.81	0.43
30:a:2327:U:H2'	30:a:2328:G:C8	2.52	0.43
30:a:2348:C:H2'	30:a:2349:G:O4'	2.18	0.43
34:e:48:THR:O	34:e:52:ILE:HG12	2.18	0.43
42:m:72:ASP:HB3	42:m:75:ILE:HB	1.99	0.43
7:A:75:C:H2'	7:A:76:A:H8	1.82	0.43
7:A:374:G:H5"	22:P:5:ARG:HB2	2.00	0.43
7:A:503:G:H5'	7:A:532:U:H2'	2.00	0.43
7:A:510:U:H2'	7:A:511:C:C6	2.52	0.43
27:V:22:A:H61	27:V:47:A:H2'	1.83	0.43
30:a:907:A:H2'	30:a:910:C:C5	2.53	0.43
30:a:1872:A:H2'	30:a:1873:G:O4'	2.18	0.43
30:a:2698:A:H2'	30:a:2699:U:C6	2.53	0.43
32:c:141:VAL:HB	32:c:190:ALA:HB1	2.00	0.43
33:d:56:LYS:HD2	33:d:59:ARG:HG3	1.99	0.43
36:g:4:VAL:O	36:g:69:ARG:HD2	2.18	0.43
36:g:44:LYS:HG3	36:g:51:THR:OG1	2.19	0.43
49:t:33:LYS:HB3	49:t:64:ALA:HB1	2.00	0.43
6:5:60:ARG:HG2	6:5:164:ARG:HA	2.01	0.43
7:A:226:A:H4'	22:P:63:GLN:HG2	2.01	0.43
7:A:234:A:H2'	7:A:235:G:H8	1.83	0.43
8:B:21:ARG:HG3	8:B:22:TYR:CD2	2.53	0.43
8:B:142:ASP:C	8:B:144:LEU:H	2.26	0.43
10:D:152:GLN:HB2	10:D:155:VAL:HG23	2.00	0.43
16:J:32:THR:HG23	16:J:82:LYS:HB3	2.00	0.43
19:M:92:ARG:HG2	30:a:886:C:C5	2.53	0.43
29:X:70:MET:O	29:X:74:ILE:HG13	2.18	0.43
30:a:319:G:H2'	30:a:320:G:O4'	2.19	0.43
30:a:1587:A:H2'	30:a:1588:A:C8	2.53	0.43
30:a:1926:A:H2'	30:a:1927:G:O4'	2.18	0.43
30:a:2094:C:H2'	30:a:2095:A:H8	1.82	0.43
30:a:2326:A:H2'	30:a:2327:U:H6	1.82	0.43
30:a:2894:C:H2'	30:a:2895:U:C6	2.53	0.43
43:n:53:THR:O	43:n:59:ALA:HB2	2.18	0.43
45:p:15:LYS:HE3	45:p:15:LYS:HB3	1.82	0.43
53:x:34:SER:HB2	53:x:36:GLN:HG2	1.99	0.43
6:5:181:ASP:H	6:5:184:LYS:HZ3	1.67	0.43
7:A:561:A:H2'	7:A:565:G:C8	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:673:A:H1'	17:K:118:HIS:CG	2.53	0.43
7:A:1177:A:H2'	7:A:1178:A:C8	2.54	0.43
13:G:87:VAL:HG13	13:G:151:PHE:O	2.19	0.43
15:I:55:VAL:HG23	15:I:57:MET:HB2	1.99	0.43
25:S:17:LYS:O	25:S:21:LYS:HG3	2.17	0.43
30:a:751:A:H2'	30:a:752:U:C6	2.54	0.43
30:a:886:C:H2'	30:a:887:C:O4'	2.18	0.43
30:a:1482:U:H2'	30:a:1483:A:H8	1.82	0.43
30:a:2754:U:H1'	30:a:2755:A:H5"	2.01	0.43
32:c:210:ALA:HA	32:c:213:TRP:CE3	2.53	0.43
46:q:46:GLU:C	46:q:47:ILE:HD13	2.44	0.43
7:A:214:U:H2'	7:A:215:C:C6	2.54	0.43
7:A:565:G:H2'	7:A:566:G:O4'	2.19	0.43
7:A:1012:A:H2	7:A:1217:A:H1'	1.82	0.43
7:A:1399:G:H2'	7:A:1400:4OC:O4'	2.18	0.43
7:A:1433:G:H2'	7:A:1434:U:C6	2.53	0.43
25:S:66:MET:HG2	25:S:74:PHE:CZ	2.53	0.43
30:a:353:C:H2'	30:a:354:A:H8	1.84	0.43
30:a:396:G:H1'	52:w:29:PHE:HB3	1.99	0.43
30:a:2157:G:H2'	30:a:2158:C:C6	2.54	0.43
44:o:111:LYS:HE3	44:o:111:LYS:HB3	1.73	0.43
45:p:76:TYR:CZ	45:p:80:ILE:HG13	2.52	0.43
47:r:48:LYS:HE2	47:r:52:GLU:OE1	2.19	0.43
7:A:244:A:C2	7:A:280:A:C5	3.07	0.43
7:A:735:C:H2'	7:A:736:C:H6	1.84	0.43
7:A:918:U:H2'	7:A:919:U:C6	2.53	0.43
7:A:1238:U:C5	13:G:116:MET:HG2	2.53	0.43
7:A:1309:A:H2'	7:A:1310:G:O4'	2.18	0.43
10:D:48:LEU:HD11	10:D:56:ARG:HG3	2.01	0.43
10:D:146:ARG:O	10:D:150:LYS:HG3	2.19	0.43
30:a:1236:G:H2'	30:a:1237:U:O4'	2.19	0.43
30:a:2133:A:H3'	30:a:2134:G:C8	2.46	0.43
2:1:43:THR:HG22	2:1:45:SER:H	1.83	0.43
7:A:573:G:O2'	7:A:819:G:H5'	2.19	0.43
7:A:674:A:H2'	7:A:675:U:H6	1.83	0.43
7:A:748:C:H2'	7:A:749:U:H6	1.84	0.43
7:A:1493:U:H5'	30:a:1910:A:H4'	2.00	0.43
23:Q:10:GLY:HA3	23:Q:25:ILE:HD13	2.01	0.43
27:V:51:U:O2'	27:V:52:C:H5'	2.18	0.43
30:a:1279:U:H2'	30:a:1280:G:O4'	2.18	0.43
30:a:2804:C:H2'	30:a:2805:U:O4'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:y:47:MET:O	54:y:51:VAL:HG22	2.19	0.43
7:A:500:A:H2'	7:A:501:C:O4'	2.18	0.43
7:A:742:C:H2'	7:A:743:A:H8	1.81	0.43
33:d:114:LYS:HE3	33:d:196:ALA:HB2	1.99	0.43
53:x:50:VAL:O	53:x:54:LYS:HG3	2.19	0.43
6:5:167:LYS:H	6:5:167:LYS:HG2	1.67	0.43
7:A:881:C:O2'	7:A:882:U:H5'	2.18	0.43
7:A:1536:C:H2'	7:A:1537:C:C6	2.54	0.43
12:F:14:GLN:HG3	12:F:17:GLN:HG3	2.00	0.43
15:I:65:ILE:HG21	15:I:79:ILE:HG12	2.00	0.43
16:J:28:THR:O	16:J:31:ARG:HG3	2.19	0.43
22:P:8:ARG:HG3	22:P:17:TYR:CE1	2.53	0.43
27:V:54:G:H2'	27:V:55:5MU:H6	1.84	0.43
30:a:347:A:H2'	30:a:348:A:C8	2.54	0.43
30:a:544:U:O2	30:a:547:G:C6	2.72	0.43
30:a:655:U:H2'	30:a:656:U:C6	2.54	0.43
30:a:957:A:H2'	30:a:958:A:C8	2.54	0.43
30:a:1063:U:C4	30:a:1067:A:H8	2.37	0.43
34:e:48:THR:HG22	34:e:86:ALA:HB3	2.01	0.43
7:A:81:G:H2'	7:A:82:C:O4'	2.19	0.43
7:A:169:A:H2'	7:A:170:A:C8	2.54	0.43
7:A:632:C:H2'	7:A:633:A:H8	1.83	0.43
7:A:672:G:H2'	7:A:673:A:C8	2.54	0.43
7:A:857:G:H2'	7:A:858:A:C8	2.54	0.43
8:B:60:ILE:HD13	8:B:63:ARG:HD3	2.00	0.43
11:E:115:LEU:HD13	11:E:123:VAL:HG11	2.00	0.43
19:M:66:GLU:O	19:M:70:ARG:HG3	2.18	0.43
20:N:46:LEU:CD2	25:S:13:LEU:HD23	2.49	0.43
30:a:874:C:H2'	30:a:875:U:O4'	2.19	0.43
30:a:1790:A:H2'	30:a:1791:C:H6	1.81	0.43
30:a:2698:A:H2'	30:a:2699:U:H6	1.83	0.43
42:m:55:ALA:HA	42:m:80:PHE:CE2	2.53	0.43
6:5:30:LEU:HD11	6:5:42:VAL:HG22	2.01	0.42
7:A:32:A:H2'	7:A:33:A:C8	2.53	0.42
7:A:777:C:H2'	7:A:778:A:O4'	2.19	0.42
7:A:822:G:H2'	7:A:823:A:H8	1.84	0.42
7:A:1314:G:N2	7:A:1316:A:H3'	2.34	0.42
7:A:1317:A:C8	7:A:1321:G:C5	3.07	0.42
7:A:1317:A:C8	7:A:1321:G:C6	3.07	0.42
7:A:1502:G:H4'	7:A:1503:G:C4	2.54	0.42
10:D:145:ILE:HG12	10:D:178:MET:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:102:U:O4	53:x:4:LYS:HD3	2.18	0.42
30:a:1226:G:H2'	30:a:1227:U:C6	2.54	0.42
30:a:1275:C:H2'	30:a:1276:G:C8	2.54	0.42
30:a:2095:A:H2'	30:a:2096:U:H6	1.84	0.42
30:a:2133:A:H4'	30:a:2158:C:H4'	2.00	0.42
30:a:2510:C:H2'	30:a:2511:A:O4'	2.18	0.42
34:e:149:ILE:HD13	34:e:175:ILE:HG22	2.01	0.42
46:q:1:MET:HE1	46:q:101:ILE:HB	2.01	0.42
7:A:100:G:H2'	7:A:101:C:H6	1.83	0.42
7:A:107:A:H5'	7:A:108:C:C5	2.54	0.42
7:A:153:A:H2'	7:A:154:C:C6	2.54	0.42
7:A:326:C:H4'	7:A:327:A:H5'	2.01	0.42
7:A:1145:C:H2'	7:A:1146:U:C6	2.53	0.42
7:A:1534:C:H42	28:W:9:A:H61	1.67	0.42
8:B:23:TRP:CH2	8:B:25:PRO:HA	2.54	0.42
13:G:47:LEU:HD23	13:G:58:GLU:HB3	2.00	0.42
27:V:76:C:P	30:a:2419:G:H21	2.42	0.42
30:a:337:C:H2'	30:a:338:G:O4'	2.19	0.42
30:a:986:A:P	54:y:12:SER:HB3	2.59	0.42
30:a:1289:G:H2'	30:a:1290:C:H6	1.84	0.42
30:a:1993:U:H3'	30:a:1994:C:H2'	2.01	0.42
30:a:2489:U:H5"	30:a:2568:G:C5'	2.50	0.42
43:n:53:THR:HB	43:n:65:THR:HB	2.00	0.42
44:o:103:ARG:HG2	44:o:107:SER:HB3	2.00	0.42
7:A:553:U:H2'	7:A:554:C:C6	2.53	0.42
7:A:934:C:C2	7:A:935:A:C8	3.07	0.42
10:D:87:GLY:HA3	10:D:197:GLU:HG3	2.00	0.42
14:H:111:MET:HE2	14:H:115:ALA:HB1	2.01	0.42
20:N:51:LEU:HD23	20:N:51:LEU:HA	1.87	0.42
24:R:34:THR:HG22	24:R:40:VAL:HG22	2.01	0.42
25:S:51:VAL:HG13	25:S:75:ALA:HB2	2.01	0.42
29:X:12:ILE:HD11	29:X:41:LEU:HD13	2.01	0.42
30:a:1700:G:H2'	30:a:1701:C:C6	2.54	0.42
37:h:114:GLU:O	37:h:115:VAL:C	2.62	0.42
39:j:70:ARG:HD2	39:j:76:VAL:HG22	2.01	0.42
7:A:670:U:H2'	7:A:671:A:C8	2.53	0.42
7:A:1128:A:H2'	7:A:1129:G:H8	1.84	0.42
7:A:1230:U:OP1	15:I:126:GLN:HG2	2.20	0.42
9:C:123:GLN:HG2	9:C:126:ARG:NH2	2.35	0.42
14:H:27:MET:HE2	14:H:27:MET:HB3	1.75	0.42
15:I:118:LEU:HA	15:I:125:PRO:HD3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:R:29:LEU:HB3	24:R:68:LEU:HD11	2.00	0.42
24:R:43:ARG:HG3	24:R:43:ARG:HH11	1.84	0.42
30:a:340:A:H2'	30:a:341:C:O4'	2.19	0.42
30:a:356:G:H2'	30:a:357:C:C6	2.54	0.42
30:a:391:A:H1'	30:a:411:G:O4'	2.19	0.42
30:a:2392:C:H5"	40:k:63:LYS:HE2	2.02	0.42
30:a:2894:C:H2'	30:a:2895:U:H6	1.85	0.42
49:t:42:VAL:O	49:t:60:GLU:HA	2.18	0.42
2:1:1:MET:HE2	2:1:1:MET:HB3	1.86	0.42
6:5:200:LYS:HA	6:5:208:TYR:OH	2.20	0.42
7:A:1116:U:H2'	7:A:1117:C:H6	1.84	0.42
7:A:1147:C:H2'	7:A:1148:A:C8	2.54	0.42
7:A:1490:A:H4'	7:A:1491:A:OP1	2.19	0.42
8:B:15:HIS:HB3	8:B:43:LEU:HD11	2.01	0.42
8:B:142:ASP:O	8:B:143:LYS:HB2	2.20	0.42
9:C:110:GLU:HG2	9:C:140:ASN:HB3	2.01	0.42
16:J:90:LEU:HD12	16:J:90:LEU:HA	1.77	0.42
24:R:13:PHE:HD1	24:R:13:PHE:HA	1.72	0.42
24:R:26:ILE:HD13	24:R:29:LEU:HD12	2.01	0.42
30:a:1103:U:H2'	30:a:1104:G:H8	1.85	0.42
30:a:1367:C:H2'	30:a:1368:G:O4'	2.19	0.42
30:a:2076:C:H2'	30:a:2077:U:C6	2.54	0.42
30:a:2726:U:O2'	30:a:2727:G:H8	2.01	0.42
32:c:8:PRO:HB3	32:c:14:ARG:HG3	2.01	0.42
35:f:26:MET:HE2	35:f:30:ARG:NH2	2.34	0.42
7:A:948:U:H2'	7:A:949:G:H8	1.85	0.42
7:A:1236:A:H2	7:A:1239:G:N3	2.17	0.42
7:A:1388:U:H2'	7:A:1389:U:C6	2.55	0.42
8:B:108:ARG:HG3	8:B:108:ARG:HH11	1.85	0.42
21:O:26:GLU:OE2	21:O:26:GLU:N	2.52	0.42
21:O:36:ILE:O	21:O:40:GLN:HG2	2.19	0.42
24:R:48:ARG:NH2	24:R:50:LYS:HD3	2.33	0.42
24:R:70:TYR:HB2	24:R:74:HIS:NE2	2.35	0.42
30:a:1786:C:H2'	30:a:1787:A:C5	2.55	0.42
30:a:2185:U:HO2'	30:a:2186:U:H6	1.66	0.42
30:a:2588:A:H2'	30:a:2589:C:C6	2.54	0.42
32:c:222:GLY:HA2	32:c:225:MET:SD	2.59	0.42
34:e:138:LEU:HD22	34:e:146:VAL:HG11	2.01	0.42
46:q:72:VAL:HG22	46:q:89:HIS:HB3	2.02	0.42
2:1:35:ARG:HG3	2:1:42:LEU:HD21	2.02	0.42
7:A:348:G:H2'	7:A:349:G:C8	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:720:G:H3'	7:A:720:G:N3	2.35	0.42
7:A:956:A:C6	25:S:55:ARG:HG2	2.54	0.42
10:D:61:VAL:HG21	10:D:200:ILE:HD11	2.02	0.42
11:E:39:VAL:HG23	11:E:71:MET:SD	2.60	0.42
13:G:151:PHE:CZ	17:K:56:ARG:HD2	2.55	0.42
17:K:45:ALA:HB3	17:K:70:CYS:HB2	2.02	0.42
20:N:9:ARG:O	20:N:13:ARG:HG3	2.20	0.42
30:a:2:G:H2'	30:a:3:U:C6	2.55	0.42
30:a:484:C:OP1	49:t:48:PRO:HG2	2.19	0.42
30:a:578:U:H2'	30:a:579:C:C6	2.55	0.42
30:a:621:C:H2'	30:a:622:C:C6	2.54	0.42
30:a:1063:U:H3'	30:a:1064:U:C5'	2.50	0.42
30:a:1531:U:H1'	30:a:1535:G:N2	2.34	0.42
30:a:1732:U:H2'	30:a:1733:G:O4'	2.19	0.42
30:a:2148:C:H2'	30:a:2149:U:O4'	2.19	0.42
36:g:160:LYS:HE2	36:g:160:LYS:HB3	1.84	0.42
5:4:20:ASN:HB2	5:4:39:LYS:HE3	2.01	0.42
6:5:40:GLU:HG3	6:5:217:THR:HB	2.02	0.42
6:5:215:SER:OG	6:5:221:GLY:HA3	2.19	0.42
7:A:693:A:H2'	7:A:694:A:C8	2.54	0.42
7:A:1530:U:H2'	7:A:1531:C:C6	2.55	0.42
14:H:18:GLN:HG2	14:H:63:LEU:HD13	2.02	0.42
14:H:87:LYS:HB2	14:H:125:ILE:HD11	2.02	0.42
16:J:47:GLU:OE2	20:N:76:LYS:HD3	2.20	0.42
23:Q:19:LYS:HA	23:Q:48:ASP:O	2.19	0.42
29:X:23:ARG:HE	29:X:23:ARG:HA	1.84	0.42
30:a:879:G:H2'	30:a:880:G:C8	2.54	0.42
6:5:10:VAL:HG22	6:5:14:LYS:HD2	2.01	0.42
7:A:100:G:H2'	7:A:101:C:C6	2.55	0.42
7:A:964:2MG:C2	29:X:62:VAL:HG21	2.54	0.42
8:B:16:PHE:HD1	8:B:16:PHE:HA	1.73	0.42
27:V:25:U:H2'	27:V:26:C:H6	1.85	0.42
29:X:52:ALA:HB3	29:X:81:LEU:HD11	2.01	0.42
30:a:451:U:H4'	34:e:47:LYS:HE2	2.02	0.42
30:a:993:C:N4	38:i:2:LYS:HD3	2.35	0.42
46:q:41:ILE:HD12	46:q:103:ALA:HA	2.02	0.42
7:A:906:A:H2'	7:A:907:A:H8	1.85	0.42
7:A:937:G:N3	7:A:1373:A:H2	2.18	0.42
7:A:948:U:H2'	7:A:949:G:C8	2.55	0.42
7:A:1239:G:H2'	7:A:1240:G:H8	1.83	0.42
7:A:1340:C:H2'	7:A:1341:G:C8	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:D:107:PHE:CD1	10:D:145:ILE:HD11	2.55	0.42
16:J:53:ILE:HG12	16:J:61:ALA:O	2.19	0.42
19:M:49:SER:O	19:M:53:ILE:HD12	2.19	0.42
30:a:12:U:O2	30:a:2624:C:H4'	2.20	0.42
30:a:1078:A:C2	30:a:1079:U:C4	3.08	0.42
30:a:1103:U:H2'	30:a:1104:G:C8	2.54	0.42
30:a:1707:G:H4'	30:a:2856:C:O2	2.19	0.42
38:i:60:GLU:HG2	38:i:61:LYS:HG2	2.01	0.42
6:5:19:LYS:O	6:5:20:GLN:HG2	2.20	0.41
6:5:48:LEU:HD23	6:5:48:LEU:HA	1.72	0.41
7:A:1167:A:H2'	7:A:1168:A:C8	2.55	0.41
7:A:1201:C:H4'	20:N:67:THR:HG22	2.02	0.41
8:B:66:LYS:HD2	8:B:154:MET:HG3	2.02	0.41
8:B:157:LEU:H	8:B:157:LEU:HD22	1.84	0.41
10:D:70:ARG:HA	10:D:70:ARG:HD2	1.78	0.41
11:E:80:THR:HG23	11:E:122:ASN:O	2.20	0.41
21:O:47:LYS:HB2	21:O:47:LYS:HE2	1.86	0.41
30:a:812:C:H2'	30:a:813:C:H6	1.85	0.41
30:a:2186:U:H2'	30:a:2187:U:O4'	2.20	0.41
36:g:17:VAL:HG12	36:g:19:ILE:HG13	2.01	0.41
39:j:94:PRO:HG2	39:j:114:LYS:HD3	2.02	0.41
7:A:41:G:H2'	7:A:42:G:C8	2.55	0.41
7:A:402:G:N7	10:D:2:ALA:HB3	2.33	0.41
7:A:640:A:N7	14:H:107:SER:HA	2.35	0.41
7:A:788:A:C2	29:X:29:LYS:HD3	2.55	0.41
7:A:1535:U:H3	28:W:8:G:N2	2.15	0.41
9:C:9:GLY:HA2	9:C:12:LEU:HG	2.02	0.41
24:R:32:TYR:CD2	24:R:45:THR:HG21	2.55	0.41
30:a:850:U:H2'	30:a:851:U:C6	2.55	0.41
30:a:900:C:H2'	30:a:901:C:H6	1.85	0.41
30:a:2686:G:H1'	30:a:2719:A:H61	1.84	0.41
37:h:62:LEU:O	37:h:66:GLU:HG2	2.20	0.41
43:n:15:ARG:HH21	43:n:95:SER:HB2	1.86	0.41
55:z:39:LEU:HD23	55:z:39:LEU:HA	1.84	0.41
7:A:1538:U:H3	28:W:5:G:H1	1.67	0.41
8:B:35:ARG:HA	8:B:35:ARG:HD2	1.86	0.41
8:B:108:ARG:HG3	8:B:108:ARG:NH1	2.34	0.41
17:K:79:ILE:HG22	17:K:105:PHE:CE2	2.55	0.41
30:a:1471:U:H2'	30:a:1472:G:O4'	2.20	0.41
30:a:1788:G:H5'	32:c:204:VAL:HG13	2.02	0.41
30:a:1820:G:O3'	32:c:247:PRO:HD3	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:2239:A:H2'	30:a:2240:G:C8	2.55	0.41
30:a:2772:C:H2'	30:a:2773:G:O4'	2.20	0.41
30:a:2845:U:H2'	30:a:2846:G:O4'	2.20	0.41
1:0:37:LYS:HD3	1:0:48:ILE:HG12	2.02	0.41
7:A:658:U:H2'	7:A:659:G:O4'	2.21	0.41
7:A:1155:A:C2	7:A:1179:G:C4	3.08	0.41
7:A:1156:C:C4	7:A:1158:G:C8	3.08	0.41
7:A:1461:U:H2'	7:A:1462:U:C6	2.55	0.41
11:E:126:LYS:HG2	11:E:128:TYR:CZ	2.55	0.41
13:G:17:LYS:HE3	13:G:44:TYR:CD2	2.55	0.41
14:H:108:LYS:HA	14:H:108:LYS:HD3	1.79	0.41
15:I:7:TYR:HE2	15:I:18:ARG:HB3	1.84	0.41
17:K:79:ILE:HG22	17:K:105:PHE:HE2	1.86	0.41
24:R:21:ILE:HD12	24:R:21:ILE:H	1.85	0.41
30:a:499:U:H2'	30:a:500:G:O4'	2.20	0.41
30:a:1066:G:H1'	30:a:1094:A:H1'	2.02	0.41
30:a:1914:A:H2'	30:a:1915:PSU:C6	2.56	0.41
30:a:2128:U:H4'	30:a:2131:G:O3'	2.20	0.41
30:a:2363:G:H4'	51:v:60:PHE:CZ	2.56	0.41
30:a:2800:U:H2'	30:a:2801:C:C6	2.56	0.41
41:l:17:ASN:O	41:l:38:ARG:HD3	2.20	0.41
53:x:41:HIS:HD2	53:x:45:GLN:OE1	2.02	0.41
7:A:217:U:H2'	7:A:218:G:H8	1.85	0.41
8:B:67:ILE:HD12	8:B:160:ALA:HB3	2.02	0.41
8:B:85:LEU:HG	8:B:91:PHE:CE2	2.56	0.41
18:L:110:ARG:HB3	18:L:119:VAL:HG21	2.02	0.41
18:L:121:ARG:HA	18:L:122:PRO:HD3	1.95	0.41
24:R:25:ASP:O	24:R:29:LEU:HG	2.20	0.41
30:a:535:G:C6	30:a:557:G:C6	3.09	0.41
30:a:719:A:H2'	30:a:720:A:H8	1.84	0.41
30:a:1078:A:H2'	30:a:1079:U:C6	2.56	0.41
30:a:1887:A:H2'	30:a:1888:A:H8	1.85	0.41
30:a:2550:OMU:HM23	30:a:2552:U:C6	2.55	0.41
38:i:36:LEU:HD11	38:i:122:LEU:HB2	2.02	0.41
6:5:177:LYS:H	6:5:180:PHE:HD2	1.67	0.41
7:A:268:A:H2'	7:A:269:C:H6	1.85	0.41
7:A:631:G:H2'	7:A:632:C:H6	1.86	0.41
7:A:838:C:H2'	7:A:839:C:C1'	2.51	0.41
18:L:57:LEU:HD11	18:L:82:ILE:HD11	2.02	0.41
20:N:20:PHE:HB2	20:N:55:SER:HB2	2.02	0.41
27:V:40:C:H2'	27:V:41:C:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:V:55:5MU:H2'	27:V:56:PSU:O4'	2.21	0.41
30:a:2102:C:C4	30:a:2103:U:C4	3.09	0.41
30:a:2343:G:N3	30:a:2379:A:H2'	2.36	0.41
46:q:74:ILE:HB	46:q:87:GLN:HB3	2.03	0.41
50:u:2:PHE:O	50:u:61:LEU:HB2	2.21	0.41
52:w:12:PRO:HB3	52:w:30:LEU:HD23	2.03	0.41
5:4:60:PHE:CD1	25:S:42:PRO:HD3	2.55	0.41
6:5:69:THR:OG1	6:5:71:ARG:HG3	2.20	0.41
7:A:578:C:H2'	7:A:579:G:O4'	2.19	0.41
7:A:1029:C:H4'	7:A:1030:G:O4'	2.21	0.41
8:B:47:VAL:HB	8:B:48:PRO:HD3	2.03	0.41
26:T:27:MET:HE3	26:T:27:MET:HB3	1.90	0.41
30:a:567:U:H5"	30:a:819:A:C2	2.56	0.41
30:a:1767:C:H2'	30:a:1768:A:C8	2.56	0.41
30:a:2111:U:H3	30:a:2168:A:N6	2.17	0.41
30:a:2160:A:H4'	30:a:2171:A:O4'	2.20	0.41
30:a:2624:C:H2'	30:a:2625:G:O4'	2.21	0.41
31:b:53:A:H2'	31:b:54:G:O4'	2.20	0.41
36:g:45:HIS:HA	36:g:50:LEU:HD22	2.02	0.41
49:t:39:ILE:HD13	49:t:39:ILE:HA	1.90	0.41
7:A:12:U:H4'	7:A:524:C:H4'	2.03	0.41
7:A:1033:A:C5	7:A:1034:A:C2	3.08	0.41
7:A:1217:A:H2'	7:A:1218:G:C8	2.56	0.41
7:A:1350:C:H2'	7:A:1351:G:C8	2.55	0.41
15:I:53:GLU:OE1	15:I:53:GLU:HA	2.19	0.41
17:K:64:GLN:HB2	17:K:95:SER:OG	2.21	0.41
19:M:51:GLU:O	19:M:55:ILE:HG13	2.20	0.41
19:M:90:ARG:HA	19:M:90:ARG:HD2	1.82	0.41
30:a:227:A:C2	30:a:2405:A:H1'	2.56	0.41
30:a:2105:G:C2	30:a:2106:A:C8	3.09	0.41
31:b:106:G:H2'	31:b:107:G:O4'	2.21	0.41
33:d:25:THR:HG21	33:d:193:VAL:HG22	2.02	0.41
38:i:98:GLU:CD	38:i:98:GLU:H	2.29	0.41
7:A:261:A:H2'	7:A:262:C:C6	2.56	0.41
7:A:689:G:O2'	7:A:795:C:H4'	2.20	0.41
7:A:907:A:H2'	7:A:908:C:O4'	2.20	0.41
7:A:983:C:H2'	7:A:984:U:C6	2.55	0.41
7:A:1125:G:H5'	7:A:1278:A:O2'	2.21	0.41
7:A:1218:G:P	20:N:53:ARG:HH12	2.44	0.41
8:B:115:LYS:O	8:B:119:THR:HG23	2.21	0.41
10:D:54:GLN:HB3	10:D:203:LEU:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:D:85:ASN:HB3	10:D:88:GLU:HB2	2.03	0.41
12:F:43:GLY:HA2	12:F:58:HIS:NE2	2.35	0.41
16:J:24:GLU:OE2	16:J:25:ILE:HG12	2.20	0.41
16:J:37:ARG:HH11	16:J:37:ARG:HA	1.85	0.41
17:K:98:ARG:HB2	17:K:98:ARG:CZ	2.51	0.41
17:K:122:ARG:HA	17:K:123:PRO:HD3	1.97	0.41
22:P:8:ARG:CZ	22:P:15:PRO:HB3	2.50	0.41
27:V:57:C:H2'	27:V:58:A:O4'	2.20	0.41
30:a:150:U:H2'	30:a:151:C:C6	2.56	0.41
30:a:181:A:H2'	30:a:182:A:H8	1.84	0.41
30:a:272:A:H2'	30:a:273:G:C8	2.56	0.41
30:a:1913:3TD:H3'	30:a:1914:A:OP2	2.21	0.41
30:a:2682:U:H4'	39:j:76:VAL:HG21	2.03	0.41
32:c:6:CYS:SG	32:c:18:LYS:HD3	2.61	0.41
34:e:120:VAL:HA	34:e:188:MET:O	2.20	0.41
37:h:12:LEU:HD23	37:h:12:LEU:HA	1.80	0.41
37:h:23:ALA:O	37:h:27:ARG:HB3	2.20	0.41
39:j:116:ILE:HD13	39:j:116:ILE:HA	1.94	0.41
40:k:73:ILE:HB	40:k:106:GLU:HG3	2.03	0.41
50:u:6:ALA:HB2	50:u:42:LEU:HD23	2.03	0.41
7:A:8:A:N7	10:D:206:LYS:HA	2.36	0.41
7:A:85:G:H3'	7:A:86:C:H6	1.86	0.41
7:A:470:U:H2'	7:A:471:U:C6	2.56	0.41
7:A:655:U:H2'	7:A:656:C:H6	1.86	0.41
7:A:1070:G:H2'	7:A:1071:U:C6	2.56	0.41
7:A:1336:G:H2'	7:A:1337:A:C8	2.56	0.41
7:A:1534:C:H2'	7:A:1535:U:C6	2.56	0.41
19:M:9:ILE:HD13	19:M:18:ALA:HB1	2.02	0.41
20:N:24:ARG:HD2	20:N:55:SER:OG	2.20	0.41
27:V:33:OMC:H1'	27:V:33:OMC:HM23	1.61	0.41
27:V:54:G:H2'	27:V:55:5MU:C6	2.56	0.41
30:a:30:G:H2'	30:a:31:C:H6	1.85	0.41
30:a:707:U:H2'	30:a:708:U:C6	2.56	0.41
30:a:747:A:H4'	30:a:1268:G:N3	2.36	0.41
30:a:1054:G:H4'	30:a:1084:A:N7	2.36	0.41
30:a:1100:C:C2	30:a:1101:A:C8	3.09	0.41
30:a:2063:C:H2'	30:a:2064:C:C6	2.56	0.41
39:j:43:ILE:HD13	39:j:52:VAL:HB	2.03	0.41
51:v:37:ILE:HG21	51:v:80:ILE:HG21	2.02	0.41
6:5:38:PHE:CE2	30:a:2125:G:H4'	2.55	0.40
7:A:147:A:H1'	7:A:1444:A:C2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:311:A:H2'	7:A:312:C:C6	2.56	0.40
7:A:503:G:H2'	7:A:504:G:C8	2.56	0.40
24:R:50:LYS:HB2	24:R:50:LYS:HE3	1.76	0.40
30:a:1358:G:H2'	30:a:1359:C:C6	2.56	0.40
30:a:2206:C:H2'	30:a:2207:C:C6	2.55	0.40
30:a:2245:A:H2'	30:a:2246:C:H6	1.85	0.40
43:n:18:LEU:HD23	43:n:18:LEU:HA	1.94	0.40
7:A:415:G:H2'	7:A:416:C:C6	2.56	0.40
7:A:1455:G:H5"	26:T:30:THR:HG21	2.02	0.40
10:D:148:LYS:HA	10:D:148:LYS:HD2	1.94	0.40
18:L:110:ARG:HD2	18:L:110:ARG:HA	1.81	0.40
30:a:586:U:H2'	30:a:587:U:C6	2.55	0.40
30:a:657:G:H4'	34:e:95:LYS:HG2	2.02	0.40
30:a:2635:U:H5"	33:d:83:ARG:NH1	2.37	0.40
34:e:6:LYS:HD3	34:e:141:MET:HE3	2.03	0.40
38:i:114:LEU:HG	38:i:118:MET:HE3	2.03	0.40
6:5:171:ILE:HD13	6:5:171:ILE:HA	1.84	0.40
7:A:640:A:C5	14:H:107:SER:HA	2.56	0.40
7:A:1528:G:H2'	7:A:1529:A:C8	2.57	0.40
9:C:7:PRO:HD2	9:C:184:TYR:CD2	2.57	0.40
12:F:40:GLU:HG3	12:F:61:LEU:HD23	2.03	0.40
18:L:50:ARG:HB3	18:L:66:TYR:HE1	1.86	0.40
30:a:643:C:O2'	30:a:644:U:H5"	2.21	0.40
30:a:876:A:H2'	30:a:877:G:O4'	2.21	0.40
30:a:1038:A:N6	30:a:1113:G:H1	2.14	0.40
30:a:1492:A:H2'	30:a:1493:A:C8	2.56	0.40
30:a:2465:C:H2'	30:a:2466:A:O4'	2.21	0.40
33:d:121:THR:HB	33:d:127:PHE:CD2	2.57	0.40
37:h:5:LEU:HD21	37:h:12:LEU:HD13	2.04	0.40
4:3:2:LYS:HE2	4:3:32:LYS:O	2.22	0.40
7:A:379:C:H2'	7:A:380:A:O4'	2.22	0.40
7:A:543:C:H5'	10:D:69:GLU:CB	2.51	0.40
7:A:1511:A:H2'	7:A:1512:G:H8	1.87	0.40
7:A:1536:C:H2'	7:A:1537:C:H6	1.87	0.40
8:B:161:LEU:HD23	8:B:181:ILE:HG21	2.03	0.40
9:C:62:LYS:HB3	9:C:62:LYS:HE2	1.86	0.40
26:T:33:LYS:HD2	26:T:33:LYS:HA	1.84	0.40
27:V:28:U:C2	27:V:29:C:C5	3.09	0.40
27:V:48:U:H4'	27:V:49:C:H5'	2.04	0.40
30:a:65:U:H4'	48:s:73:ARG:HD2	2.03	0.40
30:a:373:U:H2'	30:a:374:A:H8	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:703:A:C2	30:a:725:A:H1'	2.56	0.40
30:a:841:G:H2'	30:a:842:A:H8	1.87	0.40
30:a:1211:A:N6	30:a:1232:G:H1'	2.36	0.40
30:a:2351:G:H2'	30:a:2352:C:O4'	2.21	0.40
30:a:2489:U:H5"	30:a:2568:G:H5'	2.03	0.40
30:a:2568:G:H2'	30:a:2569:U:O4'	2.22	0.40
30:a:2637:A:H2'	30:a:2638:G:O4'	2.20	0.40
39:j:33:ALA:HB1	39:j:37:ASP:HB2	2.03	0.40
5:4:56:ARG:HH12	25:S:69:HIS:CE1	2.40	0.40
6:5:167:LYS:HE2	6:5:167:LYS:HB3	1.77	0.40
7:A:588:C:OP1	14:H:31:LYS:HG2	2.22	0.40
7:A:659:G:H2'	7:A:660:U:C6	2.57	0.40
7:A:700:A:H5'	30:a:1844:A:H5'	2.03	0.40
7:A:1028:U:H1'	7:A:1030:G:N1	2.36	0.40
7:A:1028:U:H2'	7:A:1029:C:C6	2.56	0.40
7:A:1494:C:H2'	7:A:1495:G:O4'	2.22	0.40
11:E:152:MET:H	11:E:152:MET:HG3	1.62	0.40
12:F:6:ILE:HA	12:F:88:MET:O	2.22	0.40
19:M:15:THR:HA	19:M:45:ILE:HD11	2.02	0.40
27:V:33:OMC:H2'	27:V:34:U:C6	2.57	0.40
30:a:26:G:H2'	30:a:27:G:O4'	2.21	0.40
30:a:1432:G:H2'	30:a:1433:G:C8	2.57	0.40
30:a:1866:G:H5'	30:a:1867:U:OP2	2.22	0.40
38:i:11:VAL:HG21	38:i:50:THR:HA	2.02	0.40
39:j:63:VAL:HG23	39:j:64:ARG:HG3	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	49/55 (89%)	48 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	1	44/46 (96%)	43 (98%)	1 (2%)	0	100	100
3	2	62/65 (95%)	60 (97%)	2 (3%)	0	100	100
4	3	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
5	4	68/70 (97%)	58 (85%)	10 (15%)	0	100	100
6	5	142/234 (61%)	132 (93%)	10 (7%)	0	100	100
8	B	222/241 (92%)	204 (92%)	18 (8%)	0	100	100
9	C	204/232 (88%)	199 (98%)	5 (2%)	0	100	100
10	D	203/206 (98%)	200 (98%)	3 (2%)	0	100	100
11	E	154/167 (92%)	146 (95%)	8 (5%)	0	100	100
12	F	101/131 (77%)	99 (98%)	2 (2%)	0	100	100
13	G	151/156 (97%)	146 (97%)	5 (3%)	0	100	100
14	H	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
15	I	124/130 (95%)	121 (98%)	3 (2%)	0	100	100
16	J	96/103 (93%)	91 (95%)	4 (4%)	1 (1%)	12	32
17	K	113/129 (88%)	107 (95%)	6 (5%)	0	100	100
18	L	120/124 (97%)	117 (98%)	3 (2%)	0	100	100
19	M	114/118 (97%)	108 (95%)	6 (5%)	0	100	100
20	N	98/101 (97%)	98 (100%)	0	0	100	100
21	O	86/89 (97%)	85 (99%)	1 (1%)	0	100	100
22	P	79/82 (96%)	76 (96%)	3 (4%)	0	100	100
23	Q	77/84 (92%)	73 (95%)	4 (5%)	0	100	100
24	R	60/75 (80%)	59 (98%)	1 (2%)	0	100	100
25	S	82/92 (89%)	80 (98%)	2 (2%)	0	100	100
26	T	84/87 (97%)	83 (99%)	1 (1%)	0	100	100
29	X	96/111 (86%)	94 (98%)	2 (2%)	0	100	100
32	c	269/273 (98%)	262 (97%)	7 (3%)	0	100	100
33	d	206/209 (99%)	202 (98%)	3 (2%)	1 (0%)	24	48
34	e	199/201 (99%)	197 (99%)	2 (1%)	0	100	100
35	f	175/179 (98%)	165 (94%)	10 (6%)	0	100	100
36	g	174/177 (98%)	168 (97%)	6 (3%)	0	100	100
37	h	146/149 (98%)	135 (92%)	10 (7%)	1 (1%)	18	41

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	i	140/142 (99%)	139 (99%)	1 (1%)	0	100	100
39	j	121/123 (98%)	115 (95%)	6 (5%)	0	100	100
40	k	142/144 (99%)	138 (97%)	4 (3%)	0	100	100
41	l	132/136 (97%)	129 (98%)	3 (2%)	0	100	100
42	m	117/128 (91%)	112 (96%)	5 (4%)	0	100	100
43	n	114/117 (97%)	109 (96%)	5 (4%)	0	100	100
44	o	112/115 (97%)	110 (98%)	2 (2%)	0	100	100
45	p	115/118 (98%)	113 (98%)	2 (2%)	0	100	100
46	q	101/103 (98%)	98 (97%)	3 (3%)	0	100	100
47	r	108/110 (98%)	107 (99%)	1 (1%)	0	100	100
48	s	91/100 (91%)	88 (97%)	3 (3%)	0	100	100
49	t	100/104 (96%)	96 (96%)	4 (4%)	0	100	100
50	u	92/94 (98%)	88 (96%)	4 (4%)	0	100	100
51	v	76/85 (89%)	74 (97%)	2 (3%)	0	100	100
52	w	75/78 (96%)	75 (100%)	0	0	100	100
53	x	60/63 (95%)	59 (98%)	1 (2%)	0	100	100
54	y	56/59 (95%)	55 (98%)	1 (2%)	0	100	100
55	z	54/57 (95%)	52 (96%)	2 (4%)	0	100	100
All	All	5767/6160 (94%)	5571 (97%)	193 (3%)	3 (0%)	49	73

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
37	h	115	VAL
16	J	57	VAL
33	d	149	ASN

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	0	46/49 (94%)	45 (98%)	1 (2%)	45 74
2	1	38/38 (100%)	38 (100%)	0	100 100
3	2	51/52 (98%)	51 (100%)	0	100 100
4	3	34/34 (100%)	34 (100%)	0	100 100
5	4	60/60 (100%)	58 (97%)	2 (3%)	33 63
6	5	116/180 (64%)	108 (93%)	8 (7%)	14 34
8	B	185/198 (93%)	180 (97%)	5 (3%)	39 69
9	C	170/189 (90%)	169 (99%)	1 (1%)	78 91
10	D	171/172 (99%)	167 (98%)	4 (2%)	44 73
11	E	119/126 (94%)	117 (98%)	2 (2%)	53 79
12	F	88/111 (79%)	82 (93%)	6 (7%)	14 35
13	G	126/129 (98%)	125 (99%)	1 (1%)	73 88
14	H	104/105 (99%)	104 (100%)	0	100 100
15	I	104/107 (97%)	99 (95%)	5 (5%)	23 50
16	J	87/91 (96%)	82 (94%)	5 (6%)	18 43
17	K	89/98 (91%)	88 (99%)	1 (1%)	65 85
18	L	102/103 (99%)	100 (98%)	2 (2%)	48 76
19	M	96/98 (98%)	92 (96%)	4 (4%)	26 55
20	N	83/84 (99%)	82 (99%)	1 (1%)	63 84
21	O	75/76 (99%)	74 (99%)	1 (1%)	61 83
22	P	63/63 (100%)	62 (98%)	1 (2%)	55 80
23	Q	73/78 (94%)	70 (96%)	3 (4%)	27 56
24	R	53/65 (82%)	50 (94%)	3 (6%)	18 43
25	S	72/79 (91%)	72 (100%)	0	100 100
26	T	65/66 (98%)	64 (98%)	1 (2%)	57 81
29	X	83/94 (88%)	79 (95%)	4 (5%)	23 50
32	c	215/217 (99%)	214 (100%)	1 (0%)	81 92
33	d	163/163 (100%)	163 (100%)	0	100 100
34	e	165/165 (100%)	163 (99%)	2 (1%)	63 84
35	f	148/150 (99%)	141 (95%)	7 (5%)	23 51
36	g	135/136 (99%)	133 (98%)	2 (2%)	57 81
37	h	112/113 (99%)	110 (98%)	2 (2%)	51 78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
38	i	116/116 (100%)	116 (100%)	0	100	100
39	j	104/104 (100%)	102 (98%)	2 (2%)	50	77
40	k	105/105 (100%)	103 (98%)	2 (2%)	50	77
41	l	107/107 (100%)	106 (99%)	1 (1%)	70	87
42	m	98/103 (95%)	96 (98%)	2 (2%)	48	76
43	n	86/87 (99%)	84 (98%)	2 (2%)	44	73
44	o	99/100 (99%)	98 (99%)	1 (1%)	68	86
45	p	89/90 (99%)	88 (99%)	1 (1%)	65	85
46	q	83/83 (100%)	83 (100%)	0	100	100
47	r	92/92 (100%)	91 (99%)	1 (1%)	65	85
48	s	80/84 (95%)	79 (99%)	1 (1%)	61	83
49	t	83/85 (98%)	82 (99%)	1 (1%)	63	84
50	u	76/76 (100%)	76 (100%)	0	100	100
51	v	60/64 (94%)	57 (95%)	3 (5%)	22	48
52	w	67/68 (98%)	66 (98%)	1 (2%)	57	81
53	x	53/54 (98%)	53 (100%)	0	100	100
54	y	48/49 (98%)	47 (98%)	1 (2%)	47	75
55	z	47/48 (98%)	46 (98%)	1 (2%)	47	75
All	All	4784/5004 (96%)	4689 (98%)	95 (2%)	48	76

All (95) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	0	34	MET
5	4	11	GLU
5	4	13	THR
6	5	4	LEU
6	5	10	VAL
6	5	21	TYR
6	5	63	THR
6	5	173	THR
6	5	184	LYS
6	5	216	THR
6	5	224	VAL
8	B	16	PHE
8	B	28	LYS

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Mol	Chain	Res	Type
8	B	57	LEU
8	B	130	THR
8	B	135	LEU
9	C	21	THR
10	D	12	SER
10	D	29	ASP
10	D	113	GLU
10	D	116	GLN
11	E	72	ILE
11	E	85	VAL
12	F	2	ARG
12	F	9	MET
12	F	14	GLN
12	F	24	ARG
12	F	40	GLU
12	F	102	MET
13	G	68	ASN
15	I	21	ILE
15	I	54	LEU
15	I	67	VAL
15	I	94	LEU
15	I	126	GLN
16	J	6	ILE
16	J	15	HIS
16	J	18	ILE
16	J	74	VAL
16	J	75	ASP
17	K	56	ARG
18	L	39	THR
18	L	80	ILE
19	M	7	ILE
19	M	11	ASP
19	M	31	LYS
19	M	97	VAL
20	N	34	VAL
21	O	47	LYS
22	P	63	GLN
23	Q	14	SER
23	Q	28	MET
23	Q	42	THR
24	R	13	PHE
24	R	47	THR

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Mol	Chain	Res	Type
24	R	55	LEU
26	T	27	MET
29	X	31	GLN
29	X	44	GLU
29	X	76	GLU
29	X	95	ARG
32	c	192	LEU
34	e	2	GLU
34	e	55	SER
35	f	19	GLU
35	f	23	ASN
35	f	104	ILE
35	f	117	LEU
35	f	137	ILE
35	f	148	ARG
35	f	158	THR
36	g	44	LYS
36	g	130	GLU
37	h	108	VAL
37	h	131	ASP
39	j	47	ILE
39	j	106	GLU
40	k	67	THR
40	k	88	ASP
41	l	78	LEU
42	m	15	SER
42	m	32	GLU
43	n	48	LEU
43	n	116	GLN
44	o	7	GLN
45	p	71	GLN
47	r	31	GLN
48	s	9	LYS
49	t	52	LEU
51	v	10	THR
51	v	43	THR
51	v	68	LYS
52	w	25	THR
54	y	58	GLU
55	z	55	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (38) such sidechains are listed below:

Mol	Chain	Res	Type
5	4	20	ASN
5	4	33	ASN
5	4	48	GLN
6	5	24	ASN
8	B	36	ASN
8	B	42	ASN
8	B	58	ASN
8	B	94	HIS
8	B	122	GLN
8	B	146	ASN
10	D	36	GLN
10	D	140	ASN
12	F	77	ASN
12	F	94	HIS
14	H	4	GLN
15	I	32	GLN
17	K	28	ASN
17	K	38	GLN
18	L	112	GLN
26	T	61	GLN
33	d	49	GLN
33	d	94	GLN
34	e	165	HIS
34	e	195	GLN
35	f	23	ASN
36	g	139	GLN
37	h	20	ASN
38	i	67	ASN
38	i	136	GLN
39	j	88	ASN
43	n	29	HIS
43	n	38	GLN
43	n	98	GLN
45	p	44	GLN
46	q	18	GLN
52	w	36	HIS
53	x	15	ASN
54	y	9	GLN

5.3.3 RNA (i)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
27	V	76/77 (98%)	27 (35%)	2 (2%)
28	W	10/15 (66%)	1 (10%)	0
30	a	2898/2923 (99%)	422 (14%)	0
31	b	115/116 (99%)	12 (10%)	0
7	A	1537/1550 (99%)	196 (12%)	2 (0%)
All	All	4636/4681 (99%)	658 (14%)	4 (0%)

All (658) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
7	A	4	U
7	A	7	A
7	A	8	A
7	A	9	G
7	A	32	A
7	A	39	G
7	A	44	A
7	A	47	C
7	A	48	C
7	A	50	A
7	A	51	A
7	A	79	G
7	A	83	U
7	A	84	U
7	A	85	G
7	A	93	G
7	A	118	A
7	A	119	U
7	A	128	A
7	A	129	A
7	A	141	A
7	A	142	G
7	A	147	A
7	A	180	A
7	A	195	A
7	A	205	C
7	A	208	C
7	A	210	G
7	A	238	G
7	A	243	U
7	A	244	A

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Mol	Chain	Res	Type
7	A	245	G
7	A	249	G
7	A	251	A
7	A	264	G
7	A	265	C
7	A	278	C
7	A	287	G
7	A	303	G
7	A	319	A
7	A	326	C
7	A	328	C
7	A	349	G
7	A	350	C
7	A	352	G
7	A	361	A
7	A	365	U
7	A	370	C
7	A	371	A
7	A	382	G
7	A	386	G
7	A	404	G
7	A	410	A
7	A	411	G
7	A	412	A
7	A	419	U
7	A	420	C
7	A	422	G
7	A	427	U
7	A	433	A
7	A	437	U
7	A	451	G
7	A	455	A
7	A	456	U
7	A	465	U
7	A	466	A
7	A	476	A
7	A	479	G
7	A	482	G
7	A	484	U
7	A	495	G
7	A	509	C
7	A	516	C

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Mol	Chain	Res	Type
7	A	519	G
7	A	522	G
7	A	525	G7M
7	A	529	U
7	A	530	A
7	A	545	A
7	A	557	A
7	A	562	C
7	A	570	A
7	A	571	A
7	A	574	C
7	A	575	G
7	A	637	G
7	A	651	A
7	A	663	A
7	A	664	G
7	A	701	G
7	A	719	G
7	A	721	U
7	A	722	G
7	A	732	G
7	A	745	A
7	A	746	G
7	A	747	A
7	A	753	G
7	A	775	A
7	A	791	U
7	A	792	A
7	A	810	G
7	A	813	A
7	A	815	C
7	A	819	G
7	A	827	G
7	A	839	C
7	A	841	U
7	A	849	G
7	A	883	G
7	A	888	G
7	A	911	A
7	A	912	A
7	A	932	C
7	A	933	A

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Mol	Chain	Res	Type
7	A	940	G
7	A	956	A
7	A	958	U
7	A	967	A
7	A	969	G
7	A	973	A
7	A	974	G
7	A	975	A
7	A	991	G
7	A	992	A
7	A	994	A
7	A	1002	A
7	A	1003	A
7	A	1007	A
7	A	1016	G
7	A	1017	C
7	A	1020	U
7	A	1022	G
7	A	1033	A
7	A	1034	A
7	A	1035	C
7	A	1041	G
7	A	1042	A
7	A	1044	A
7	A	1063	U
7	A	1086	G
7	A	1092	G
7	A	1093	U
7	A	1099	A
7	A	1130	C
7	A	1132	G
7	A	1135	C
7	A	1137	G
7	A	1138	C
7	A	1142	G
7	A	1149	A
7	A	1157	U
7	A	1165	A
7	A	1182	G
7	A	1194	A
7	A	1195	A
7	A	1200	U

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Mol	Chain	Res	Type
7	A	1211	A
7	A	1212	C
7	A	1224	C
7	A	1225	A
7	A	1236	A
7	A	1239	G
7	A	1273	A
7	A	1278	A
7	A	1284	U
7	A	1285	A
7	A	1298	G
7	A	1303	G
7	A	1315	C
7	A	1318	C
7	A	1329	G
7	A	1336	G
7	A	1344	A
7	A	1351	G
7	A	1361	A
7	A	1366	A
7	A	1368	G
7	A	1376	C
7	A	1377	G
7	A	1395	C
7	A	1417	G
7	A	1430	G
7	A	1439	A
7	A	1444	A
7	A	1450	C
7	A	1490	A
7	A	1492	G
7	A	1493	U
7	A	1494	C
7	A	1497	A
7	A	1504	U
7	A	1515	G
7	A	1517	MA6
7	A	1527	G
7	A	1528	G
27	V	2	G
27	V	7	G
27	V	9	G

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Mol	Chain	Res	Type
27	V	10	G
27	V	11	A
27	V	14	A
27	V	16	C
27	V	19	G
27	V	20	G
27	V	21	H2U
27	V	22	A
27	V	23	G
27	V	29	C
27	V	33	OMC
27	V	40	C
27	V	41	C
27	V	44	A
27	V	45	A
27	V	46	G
27	V	47	A
27	V	49	C
27	V	50	G
27	V	52	C
27	V	53	G
27	V	59	A
27	V	64	G
27	V	76	C
28	W	14	U
30	a	10	A
30	a	34	U
30	a	42	A
30	a	45	G
30	a	51	G
30	a	63	A
30	a	71	A
30	a	74	A
30	a	75	G
30	a	101	A
30	a	102	U
30	a	118	A
30	a	119	A
30	a	120	U
30	a	125	A
30	a	131	A
30	a	136	G

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Mol	Chain	Res	Type
30	a	139	U
30	a	140	C
30	a	141	G
30	a	142	U
30	a	165	A
30	a	181	A
30	a	196	A
30	a	199	A
30	a	215	G
30	a	216	A
30	a	221	A
30	a	222	A
30	a	233	A
30	a	248	G
30	a	250	G
30	a	272	A
30	a	276	U
30	a	284	C
30	a	285	U
30	a	287	G
30	a	311	A
30	a	329	G
30	a	330	A
30	a	333	G
30	a	345	A
30	a	361	G
30	a	362	A
30	a	367	G
30	a	383	C
30	a	386	G
30	a	389	G
30	a	396	G
30	a	405	U
30	a	411	G
30	a	425	G
30	a	435	C
30	a	455	C
30	a	467	G
30	a	481	G
30	a	490	C
30	a	491	G
30	a	505	A

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Mol	Chain	Res	Type
30	a	509	C
30	a	530	G
30	a	532	A
30	a	533	G
30	a	545	U
30	a	546	C
30	a	547	G
30	a	561	A
30	a	571	U
30	a	573	A
30	a	575	G
30	a	601	A
30	a	612	A
30	a	625	A
30	a	635	A
30	a	643	C
30	a	645	G
30	a	652	A
30	a	653	A
30	a	666	A
30	a	683	A
30	a	684	U
30	a	702	G
30	a	715	C
30	a	726	G
30	a	728	A
30	a	745	5MU
30	a	762	A
30	a	773	G
30	a	774	G
30	a	780	A
30	a	782	G
30	a	783	G
30	a	787	A
30	a	789	C
30	a	803	G
30	a	810	C
30	a	825	U
30	a	826	U
30	a	828	G
30	a	843	A
30	a	844	C

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Mol	Chain	Res	Type
30	a	845	U
30	a	857	G
30	a	881	G
30	a	883	C
30	a	888	C
30	a	889	G
30	a	891	C
30	a	893	U
30	a	894	A
30	a	895	C
30	a	898	A
30	a	905	G
30	a	908	A
30	a	912	A
30	a	925	A
30	a	944	C
30	a	959	C
30	a	972	G
30	a	976	G
30	a	981	A
30	a	994	A
30	a	1003	C
30	a	1010	U
30	a	1011	C
30	a	1024	G
30	a	1031	U
30	a	1043	C
30	a	1044	A
30	a	1045	G
30	a	1054	G
30	a	1055	A
30	a	1057	G
30	a	1060	G
30	a	1061	G
30	a	1062	C
30	a	1063	U
30	a	1064	U
30	a	1066	G
30	a	1068	A
30	a	1069	G
30	a	1070	C
30	a	1071	A

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Mol	Chain	Res	Type
30	a	1072	G
30	a	1076	U
30	a	1081	U
30	a	1082	A
30	a	1083	A
30	a	1085	G
30	a	1086	A
30	a	1087	A
30	a	1088	A
30	a	1092	U
30	a	1093	A
30	a	1094	A
30	a	1095	U
30	a	1099	U
30	a	1108	G
30	a	1109	A
30	a	1110	G
30	a	1120	G
30	a	1128	U
30	a	1130	U
30	a	1131	A
30	a	1133	C
30	a	1140	A
30	a	1170	C
30	a	1171	U
30	a	1172	A
30	a	1173	U
30	a	1174	G
30	a	1233	G
30	a	1244	A
30	a	1245	G
30	a	1247	G
30	a	1250	A
30	a	1253	G
30	a	1268	G
30	a	1269	A
30	a	1270	U
30	a	1272	A
30	a	1297	G
30	a	1298	A
30	a	1299	A
30	a	1326	U

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Mol	Chain	Res	Type
30	a	1335	G
30	a	1340	G
30	a	1349	U
30	a	1362	A
30	a	1375	A
30	a	1376	U
30	a	1380	A
30	a	1383	C
30	a	1392	A
30	a	1400	A
30	a	1413	G
30	a	1425	C
30	a	1448	C
30	a	1449	G
30	a	1479	G
30	a	1490	C
30	a	1494	U
30	a	1505	A
30	a	1506	A
30	a	1507	G
30	a	1512	A
30	a	1532	A
30	a	1533	C
30	a	1534	G
30	a	1555	C
30	a	1557	G
30	a	1563	A
30	a	1566	A
30	a	1575	U
30	a	1580	A
30	a	1581	U
30	a	1582	C
30	a	1604	C
30	a	1605	A
30	a	1619	G
30	a	1623	A
30	a	1644	U
30	a	1645	U
30	a	1646	G
30	a	1664	G
30	a	1671	G
30	a	1712	G

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Mol	Chain	Res	Type
30	a	1725	C
30	a	1726	U
30	a	1728	C
30	a	1734	G
30	a	1754	U
30	a	1760	C
30	a	1769	A
30	a	1778	U
30	a	1796	C
30	a	1797	A
30	a	1803	G
30	a	1804	A
30	a	1812	C
30	a	1825	A
30	a	1844	A
30	a	1854	A
30	a	1862	A
30	a	1866	G
30	a	1868	A
30	a	1869	A
30	a	1870	G
30	a	1893	C
30	a	1904	G
30	a	1908	G
30	a	1909	PSU
30	a	1911	A
30	a	1927	G
30	a	1928	G
30	a	1936	A
30	a	1953	U
30	a	1962	G
30	a	1965	C
30	a	1968	A
30	a	1969	U
30	a	1970	G
30	a	1989	U
30	a	1991	U
30	a	2018	A
30	a	2021	C
30	a	2028	6MZ
30	a	2029	A
30	a	2030	G

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Mol	Chain	Res	Type
30	a	2031	A
30	a	2033	G
30	a	2034	C
30	a	2041	C
30	a	2053	C
30	a	2054	G
30	a	2058	A
30	a	2059	G
30	a	2060	A
30	a	2067	G7M
30	a	2091	G
30	a	2098	G
30	a	2099	A
30	a	2101	C
30	a	2102	C
30	a	2105	G
30	a	2106	A
30	a	2108	G
30	a	2109	U
30	a	2110	G
30	a	2111	U
30	a	2112	A
30	a	2114	G
30	a	2115	A
30	a	2116	U
30	a	2117	A
30	a	2121	G
30	a	2124	A
30	a	2126	G
30	a	2127	C
30	a	2128	U
30	a	2130	U
30	a	2131	G
30	a	2132	A
30	a	2133	A
30	a	2134	G
30	a	2136	G
30	a	2137	U
30	a	2139	G
30	a	2141	C
30	a	2142	G
30	a	2143	C

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Mol	Chain	Res	Type
30	a	2144	C
30	a	2145	A
30	a	2146	G
30	a	2149	U
30	a	2151	C
30	a	2154	G
30	a	2155	G
30	a	2156	A
30	a	2159	C
30	a	2160	A
30	a	2166	G
30	a	2170	U
30	a	2171	A
30	a	2175	C
30	a	2176	C
30	a	2180	U
30	a	2181	A
30	a	2186	U
30	a	2187	U
30	a	2188	G
30	a	2189	A
30	a	2191	G
30	a	2196	A
30	a	2202	G
30	a	2209	U
30	a	2223	A
30	a	2236	G
30	a	2237	G
30	a	2276	A
30	a	2281	C
30	a	2285	A
30	a	2286	A
30	a	2303	U
30	a	2306	G
30	a	2307	A
30	a	2310	U
30	a	2320	A
30	a	2323	G
30	a	2331	A
30	a	2343	G
30	a	2345	C
30	a	2348	C

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Mol	Chain	Res	Type
30	a	2359	G
30	a	2381	G
30	a	2383	C
30	a	2387	G
30	a	2389	G
30	a	2394	G
30	a	2400	U
30	a	2404	A
30	a	2423	A
30	a	2427	G
30	a	2428	A
30	a	2433	A
30	a	2439	U
30	a	2446	A
30	a	2468	G
30	a	2472	U
30	a	2488	G
30	a	2489	U
30	a	2490	U
30	a	2496	OMC
30	a	2500	G
30	a	2503	G
30	a	2516	A
30	a	2518	C
30	a	2527	G
30	a	2533	G
30	a	2545	A
30	a	2564	A
30	a	2565	G
30	a	2571	C
30	a	2584	U
30	a	2600	A
30	a	2607	U
30	a	2611	U
30	a	2613	U
30	a	2627	U
30	a	2628	G
30	a	2659	G
30	a	2661	G
30	a	2680	A
30	a	2687	U
30	a	2688	U

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Mol	Chain	Res	Type
30	a	2712	G
30	a	2714	C
30	a	2724	A
30	a	2730	G
30	a	2731	A
30	a	2737	U
30	a	2742	G
30	a	2746	A
30	a	2749	G
30	a	2763	A
30	a	2776	A
30	a	2796	U
30	a	2816	U
30	a	2818	A
30	a	2819	A
30	a	2833	A
30	a	2834	U
30	a	2847	U
30	a	2848	A
30	a	2859	U
30	a	2871	A
30	a	2877	A
30	a	2881	A
30	a	2882	U
30	a	2889	U
30	a	2897	A
30	a	2898	A
31	b	13	C
31	b	24	G
31	b	35	C
31	b	41	G
31	b	42	C
31	b	44	G
31	b	56	G
31	b	67	G
31	b	89	U
31	b	90	C
31	b	99	A
31	b	109	A

All (4) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
7	A	1033	A
7	A	1492	G
27	V	20	G
27	V	75	C

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

45 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	$\#\|Z\| > 2$
30	2MA	a	2501	30,58,57	22,25,26	1.34	3 (13%)	33,37,40	2.07	8 (24%)
7	MA6	A	1516	7	23,26,27	1.26	3 (13%)	34,38,41	2.24	9 (26%)
7	UR3	A	1496	7	19,22,23	2.57	6 (31%)	26,32,35	1.27	2 (7%)
30	1MG	a	743	30	22,26,27	2.54	6 (27%)	33,39,42	1.99	6 (18%)
7	5MC	A	1405	7	18,22,23	1.94	6 (33%)	26,32,35	1.30	2 (7%)
30	6MZ	a	2028	30	22,25,26	2.47	4 (18%)	30,36,39	2.37	9 (30%)
7	4OC	A	1400	7	20,23,24	2.21	3 (15%)	26,32,35	0.99	2 (7%)
7	5MC	A	965	7	18,22,23	1.91	5 (27%)	26,32,35	1.26	2 (7%)
30	G7M	a	2067	30,58	23,26,27	2.21	5 (21%)	35,39,42	1.91	7 (20%)
30	PSU	a	953	30	18,21,22	2.13	7 (38%)	22,30,33	1.89	3 (13%)
30	H2U	a	2447	30	18,21,22	4.04	5 (27%)	21,30,33	5.34	6 (28%)
7	G7M	A	525	58,7	23,26,27	2.17	5 (21%)	35,39,42	1.91	7 (20%)
27	5MU	V	55	27	19,22,23	2.35	7 (36%)	28,32,35	3.77	10 (35%)
17	IAS	K	119	17	6,7,8	1.77	1 (16%)	6,8,10	2.61	2 (33%)
30	2MG	a	1831	30	23,26,27	2.59	7 (30%)	32,38,41	2.11	10 (31%)
30	3TD	a	1913	-	18,22,23	2.89	7 (38%)	22,32,35	1.71	3 (13%)
30	PSU	a	2455	30	18,21,22	2.24	9 (50%)	22,30,33	1.97	5 (22%)
7	2MG	A	1514	7	23,26,27	2.57	7 (30%)	32,38,41	2.16	11 (34%)
41	4D4	l	81	41	9,11,12	0.82	0	8,13,15	1.84	2 (25%)
30	6MZ	a	1615	30	22,25,26	2.39	3 (13%)	30,36,39	2.35	9 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
41	MS6	l	82	41	5,7,8	0.65	0	2,7,9	1.45	0
30	PSU	a	1909	30	18,21,22	2.09	8 (44%)	22,30,33	1.84	3 (13%)
18	D2T	L	89	18	7,9,10	1.19	1 (14%)	6,11,13	1.56	1 (16%)
30	OMG	a	2249	30,58	23,26,27	2.35	6 (26%)	33,38,41	1.86	10 (30%)
30	2MG	a	2443	30	23,26,27	2.58	7 (30%)	32,38,41	2.11	11 (34%)
30	PSU	a	744	30,57	18,21,22	2.09	8 (44%)	22,30,33	1.81	3 (13%)
7	PSU	A	514	7	18,21,22	2.06	8 (44%)	22,30,33	1.81	5 (22%)
30	PSU	a	2502	30,58	18,21,22	2.18	7 (38%)	22,30,33	1.86	4 (18%)
30	PSU	a	2578	30	18,21,22	2.24	9 (50%)	22,30,33	1.99	5 (22%)
30	PSU	a	2602	30	18,21,22	2.18	8 (44%)	22,30,33	1.90	4 (18%)
33	MEQ	d	150	33	8,9,10	0.94	0	5,10,12	0.69	0
27	H2U	V	21	27	18,21,22	4.36	5 (27%)	21,30,33	4.81	6 (28%)
30	5MC	a	1960	30,58	18,22,23	1.92	6 (33%)	26,32,35	1.26	2 (7%)
7	2MG	A	1205	7	23,26,27	2.58	4 (17%)	32,38,41	2.09	9 (28%)
27	PSU	V	56	27	18,21,22	1.95	7 (38%)	22,30,33	1.80	3 (13%)
30	5MU	a	745	30	19,22,23	2.53	7 (36%)	28,32,35	3.99	12 (42%)
30	5MU	a	1937	30,58	19,22,23	2.65	7 (36%)	28,32,35	3.72	10 (35%)
27	OMC	V	33	27	19,22,23	1.73	3 (15%)	26,31,34	0.94	2 (7%)
30	OMU	a	2550	30,58,57	19,22,23	2.69	7 (36%)	26,31,34	1.74	5 (19%)
7	2MG	A	964	7	23,26,27	2.60	5 (21%)	32,38,41	2.03	9 (28%)
30	OMC	a	2496	30,57	19,22,23	1.84	4 (21%)	26,31,34	1.14	2 (7%)
30	PSU	a	1915	30	18,21,22	2.09	7 (38%)	22,30,33	1.83	5 (22%)
7	MA6	A	1517	7	23,26,27	1.27	3 (13%)	34,38,41	2.33	9 (26%)
30	PSU	a	2603	30	18,21,22	2.14	7 (38%)	22,30,33	1.90	3 (13%)
27	4SU	V	8	27	18,21,22	3.69	8 (44%)	26,30,33	2.20	5 (19%)

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
30	2MA	a	2501	30,58,57	-	2/7/25/26	0/3/3/3
7	MA6	A	1516	7	-	0/11/29/30	0/3/3/3
7	UR3	A	1496	7	-	0/7/25/26	0/2/2/2
30	1MG	a	743	30	-	0/7/25/26	0/3/3/3
7	5MC	A	1405	7	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
30	6MZ	a	2028	30	-	2/9/27/28	0/3/3/3
7	4OC	A	1400	7	-	0/9/29/30	0/2/2/2
7	5MC	A	965	7	-	0/7/25/26	0/2/2/2
30	G7M	a	2067	30,58	-	3/7/25/26	0/3/3/3
30	PSU	a	953	30	-	0/7/25/26	0/2/2/2
30	H2U	a	2447	30	-	0/7/38/39	0/2/2/2
7	G7M	A	525	58,7	-	2/7/25/26	0/3/3/3
27	5MU	V	55	27	-	0/7/25/26	0/2/2/2
17	IAS	K	119	17	-	1/7/7/8	-
30	2MG	a	1831	30	-	2/9/27/28	0/3/3/3
30	3TD	a	1913	-	-	0/7/25/26	0/2/2/2
30	PSU	a	2455	30	-	0/7/25/26	0/2/2/2
7	2MG	A	1514	7	-	0/9/27/28	0/3/3/3
41	4D4	l	81	41	-	3/11/12/14	-
30	6MZ	a	1615	30	-	0/9/27/28	0/3/3/3
41	MS6	l	82	41	-	2/4/6/8	-
30	PSU	a	1909	30	-	0/7/25/26	0/2/2/2
18	D2T	L	89	18	-	4/7/12/14	-
30	OMG	a	2249	30,58	-	1/9/27/28	0/3/3/3
30	2MG	a	2443	30	-	1/9/27/28	0/3/3/3
30	PSU	a	744	30,57	-	1/7/25/26	0/2/2/2
7	PSU	A	514	7	-	0/7/25/26	0/2/2/2
30	PSU	a	2502	30,58	-	2/7/25/26	0/2/2/2
30	PSU	a	2578	30	-	0/7/25/26	0/2/2/2
30	PSU	a	2602	30	-	0/7/25/26	0/2/2/2
33	MEQ	d	150	33	-	2/8/9/11	-
27	H2U	V	21	27	-	6/7/38/39	0/2/2/2
30	5MC	a	1960	30,58	-	0/7/25/26	0/2/2/2
7	2MG	A	1205	7	-	2/9/27/28	0/3/3/3
27	PSU	V	56	27	-	0/7/25/26	0/2/2/2
30	5MU	a	745	30	-	0/7/25/26	0/2/2/2
30	5MU	a	1937	30,58	-	0/7/25/26	0/2/2/2
27	OMC	V	33	27	-	2/9/27/28	0/2/2/2
30	OMU	a	2550	30,58,57	-	0/9/27/28	0/2/2/2
7	2MG	A	964	7	-	0/9/27/28	0/3/3/3
30	OMC	a	2496	30,57	-	1/9/27/28	0/2/2/2
30	PSU	a	1915	30	-	0/7/25/26	0/2/2/2
7	MA6	A	1517	7	-	4/11/29/30	0/3/3/3
30	PSU	a	2603	30	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
27	4SU	V	8	27	-	0/7/25/26	0/2/2/2

All (241) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
27	V	21	H2U	O4-C4	10.18	1.44	1.23
30	a	2447	H2U	O4-C4	9.98	1.43	1.23
30	a	2028	6MZ	C6-N6	9.94	1.45	1.34
30	a	1615	6MZ	C6-N6	9.74	1.44	1.34
27	V	21	H2U	C2-N1	9.19	1.48	1.35
7	A	964	2MG	O6-C6	9.13	1.41	1.23
7	A	1205	2MG	O6-C6	9.10	1.40	1.23
30	a	1831	2MG	O6-C6	9.03	1.40	1.23
7	A	1514	2MG	O6-C6	8.97	1.40	1.23
30	a	2443	2MG	O6-C6	8.78	1.40	1.23
7	A	1496	UR3	O4-C4	8.67	1.42	1.23
27	V	21	H2U	O2-C2	8.49	1.38	1.23
30	a	1913	3TD	O4-C4	8.37	1.40	1.23
30	a	2249	OMG	O6-C6	8.20	1.39	1.23
30	a	2447	H2U	O2-C2	8.12	1.37	1.23
30	a	2550	OMU	O4-C4	8.03	1.40	1.24
7	A	525	G7M	O6-C6	7.94	1.38	1.23
30	a	2067	G7M	O6-C6	7.89	1.38	1.23
30	a	743	1MG	O6-C6	7.88	1.39	1.23
30	a	2447	H2U	C2-N1	7.84	1.46	1.35
27	V	8	4SU	C4-N3	7.67	1.45	1.37
27	V	21	H2U	C2-N3	7.11	1.50	1.38
27	V	8	4SU	C2-N3	6.99	1.50	1.38
27	V	8	4SU	C4-S4	-6.74	1.55	1.68
30	a	1937	5MU	C2-N1	-6.48	1.28	1.38
30	a	2447	H2U	C2-N3	6.43	1.49	1.38
7	A	1400	4OC	O2-C2	6.40	1.35	1.23
7	A	964	2MG	C2-N2	5.98	1.46	1.33
7	A	1205	2MG	C2-N2	5.95	1.46	1.33
30	a	745	5MU	C2-N1	-5.85	1.29	1.38
7	A	1514	2MG	C2-N2	5.84	1.46	1.33
30	a	1831	2MG	C2-N2	5.80	1.46	1.33
30	a	743	1MG	C2-N2	5.79	1.44	1.34
27	V	55	5MU	C2-N1	-5.61	1.29	1.38
7	A	1400	4OC	C4-N4	5.45	1.47	1.35
30	a	2443	2MG	C2-N2	5.42	1.45	1.33
27	V	21	H2U	C4-N3	5.34	1.46	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
27	V	8	4SU	C6-C5	5.07	1.46	1.35
30	a	745	5MU	C2-N3	-5.05	1.29	1.38
30	a	1937	5MU	C2-N3	-5.04	1.29	1.38
27	V	33	OMC	C4-N4	4.95	1.45	1.33
30	a	2447	H2U	C4-N3	4.81	1.45	1.37
30	a	745	5MU	C6-N1	-4.74	1.30	1.38
30	a	2496	OMC	C4-N4	4.72	1.45	1.33
27	V	8	4SU	C2-N1	4.54	1.45	1.38
27	V	55	5MU	C2-N3	-4.53	1.29	1.38
30	a	1913	3TD	C2-N1	-4.49	1.31	1.37
30	a	2578	PSU	C2-N1	-4.42	1.30	1.36
30	a	1937	5MU	C6-N1	-4.38	1.30	1.38
27	V	55	5MU	C6-N1	-4.33	1.30	1.38
30	a	2455	PSU	C2-N1	-4.32	1.30	1.36
30	a	2501	2MA	C6-N6	4.27	1.44	1.34
30	a	2550	OMU	C2-N1	-4.22	1.31	1.38
30	a	2455	PSU	C4-N3	-4.21	1.31	1.38
30	a	2496	OMC	C2-N1	-4.18	1.30	1.40
7	A	965	5MC	C4-N4	4.11	1.44	1.34
30	a	2602	PSU	C4-N3	-4.11	1.31	1.38
30	a	743	1MG	C6-N1	-4.11	1.31	1.40
30	a	1915	PSU	C2-N1	-4.07	1.31	1.36
30	a	2502	PSU	C2-N1	-4.06	1.31	1.36
30	a	2603	PSU	C4-N3	-4.05	1.31	1.38
30	a	2249	OMG	C6-N1	-4.05	1.31	1.38
27	V	8	4SU	C5-C4	4.04	1.47	1.42
30	a	1960	5MC	C2-N1	-4.03	1.31	1.40
7	A	1405	5MC	C4-N4	4.03	1.44	1.34
30	a	2249	OMG	C2-N2	4.02	1.43	1.34
30	a	2502	PSU	C4-N3	-4.01	1.31	1.38
30	a	1960	5MC	C4-N4	3.99	1.44	1.34
30	a	1913	3TD	C4-N3	-3.98	1.31	1.40
27	V	8	4SU	C6-N1	3.97	1.47	1.38
30	a	2550	OMU	C4-N3	-3.96	1.31	1.38
27	V	33	OMC	C2-N1	-3.95	1.31	1.40
7	A	1405	5MC	C2-N1	-3.91	1.31	1.40
30	a	2550	OMU	C2-N3	-3.91	1.31	1.38
30	a	2578	PSU	C4-N3	-3.90	1.31	1.38
30	a	2602	PSU	C2-N3	-3.85	1.30	1.37
30	a	744	PSU	C4-N3	-3.85	1.31	1.38
7	A	965	5MC	C2-N1	-3.85	1.31	1.40
30	a	953	PSU	C2-N1	-3.84	1.31	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	a	953	PSU	C4-N3	-3.84	1.31	1.38
30	a	1909	PSU	C2-N1	-3.78	1.31	1.36
7	A	514	PSU	C2-N1	-3.78	1.31	1.36
7	A	1400	4OC	C2-N1	-3.76	1.31	1.40
7	A	1496	UR3	C4-N3	-3.75	1.32	1.40
30	a	2502	PSU	C2-N3	-3.75	1.31	1.37
30	a	1937	5MU	C6-C5	3.75	1.40	1.34
30	a	2602	PSU	C2-N1	-3.73	1.31	1.36
30	a	1909	PSU	C2-N3	-3.72	1.31	1.37
30	a	2578	PSU	C2-N3	-3.70	1.31	1.37
30	a	2067	G7M	C5-N7	-3.68	1.34	1.39
7	A	514	PSU	C4-N3	-3.67	1.32	1.38
30	a	1909	PSU	C4-N3	-3.67	1.32	1.38
30	a	2603	PSU	C2-N1	-3.66	1.31	1.36
30	a	744	PSU	C2-N3	-3.65	1.31	1.37
30	a	2603	PSU	C2-N3	-3.64	1.31	1.37
30	a	2455	PSU	C2-N3	-3.63	1.31	1.37
30	a	953	PSU	C2-N3	-3.60	1.31	1.37
30	a	1915	PSU	C2-N3	-3.59	1.31	1.37
17	K	119	IAS	OD1-CG	3.57	1.40	1.19
30	a	745	5MU	C4-N3	-3.56	1.32	1.38
30	a	744	PSU	C2-N1	-3.56	1.31	1.36
30	a	1915	PSU	C4-N3	-3.53	1.32	1.38
27	V	8	4SU	O2-C2	-3.52	1.16	1.23
30	a	1937	5MU	C4-N3	-3.52	1.32	1.38
7	A	514	PSU	C2-N3	-3.50	1.31	1.37
27	V	56	PSU	C6-C5	3.50	1.39	1.35
7	A	1516	MA6	C8-N9	-3.46	1.31	1.37
30	a	2067	G7M	C6-N1	-3.46	1.32	1.38
7	A	1517	MA6	C8-N9	-3.44	1.31	1.37
30	a	2028	6MZ	C8-N9	-3.42	1.31	1.37
7	A	525	G7M	C5-N7	-3.42	1.35	1.39
7	A	1496	UR3	C2-N3	-3.39	1.32	1.39
7	A	1516	MA6	C6-N6	3.39	1.46	1.36
30	a	1913	3TD	C2-N3	-3.38	1.31	1.38
27	V	56	PSU	C4-N3	-3.38	1.32	1.38
30	a	1913	3TD	C6-C5	3.37	1.39	1.35
27	V	56	PSU	C2-N1	-3.37	1.32	1.36
30	a	2443	2MG	C6-N1	-3.35	1.32	1.38
7	A	1405	5MC	C6-N1	-3.34	1.32	1.38
7	A	1517	MA6	C6-N6	3.33	1.46	1.36
7	A	965	5MC	C6-N1	-3.25	1.32	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	A	525	G7M	C6-N1	-3.23	1.32	1.38
30	a	1960	5MC	C6-N1	-3.21	1.32	1.38
27	V	55	5MU	C6-C5	3.18	1.39	1.34
7	A	525	G7M	C2-N2	3.16	1.41	1.34
27	V	55	5MU	C4-N3	-3.15	1.33	1.38
30	a	1615	6MZ	C8-N9	-3.13	1.31	1.37
30	a	2443	2MG	C5-N7	-3.10	1.33	1.39
30	a	2067	G7M	C2-N2	3.09	1.41	1.34
7	A	1514	2MG	C6-N1	-3.07	1.33	1.38
7	A	1496	UR3	C2-N1	-3.06	1.34	1.38
30	a	1831	2MG	C6-N1	-3.05	1.33	1.38
30	a	1909	PSU	C6-C5	3.05	1.38	1.35
30	a	1960	5MC	O2-C2	-3.04	1.18	1.23
7	A	964	2MG	C6-N1	-3.02	1.33	1.38
7	A	1205	2MG	C6-N1	-3.01	1.33	1.38
27	V	56	PSU	C2-N3	-3.01	1.32	1.37
7	A	1405	5MC	O2-C2	-3.00	1.18	1.23
30	a	745	5MU	C6-C5	2.96	1.39	1.34
30	a	2455	PSU	C6-N1	-2.93	1.31	1.36
30	a	2602	PSU	C6-C5	2.92	1.38	1.35
30	a	2603	PSU	C6-C5	2.90	1.38	1.35
30	a	2502	PSU	C6-C5	2.90	1.38	1.35
30	a	2603	PSU	O4-C4	-2.90	1.18	1.23
7	A	964	2MG	C5-N7	-2.89	1.33	1.39
30	a	2028	6MZ	C5-N7	-2.89	1.33	1.39
30	a	745	5MU	O4-C4	-2.88	1.18	1.23
30	a	2455	PSU	O4-C4	-2.88	1.18	1.23
30	a	953	PSU	C6-C5	2.83	1.38	1.35
7	A	1514	2MG	C5-N7	-2.83	1.33	1.39
30	a	2249	OMG	C8-N9	-2.83	1.31	1.37
30	a	2602	PSU	O4-C4	-2.82	1.18	1.23
30	a	953	PSU	O4-C4	-2.82	1.18	1.23
30	a	1831	2MG	C5-N7	-2.81	1.33	1.39
30	a	1937	5MU	O2-C2	-2.81	1.17	1.23
30	a	1915	PSU	C6-C5	2.81	1.38	1.35
7	A	1205	2MG	C5-N7	-2.81	1.33	1.39
30	a	2578	PSU	C6-N1	-2.80	1.31	1.36
30	a	1937	5MU	O4-C4	-2.79	1.18	1.23
30	a	2502	PSU	O4-C4	-2.79	1.18	1.23
7	A	514	PSU	C6-C5	2.78	1.38	1.35
7	A	965	5MC	O2-C2	-2.77	1.18	1.23
30	a	2249	OMG	C5-N7	-2.75	1.33	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	a	744	PSU	O4-C4	-2.75	1.18	1.23
30	a	1615	6MZ	C5-N7	-2.74	1.33	1.39
30	a	2603	PSU	C6-N1	-2.70	1.31	1.36
30	a	744	PSU	C6-C5	2.70	1.38	1.35
30	a	743	1MG	C5-N7	-2.69	1.33	1.39
30	a	2550	OMU	O2-C2	-2.68	1.18	1.23
30	a	2502	PSU	C6-N1	-2.68	1.31	1.36
7	A	514	PSU	O4-C4	-2.65	1.18	1.23
30	a	2578	PSU	O4-C4	-2.65	1.18	1.23
30	a	2067	G7M	C2-N1	-2.64	1.31	1.37
30	a	1913	3TD	O2-C2	-2.64	1.18	1.23
7	A	965	5MC	C6-C5	2.64	1.38	1.34
30	a	743	1MG	C8-N9	-2.62	1.31	1.37
30	a	953	PSU	C6-N1	-2.59	1.31	1.36
27	V	56	PSU	O4-C4	-2.59	1.18	1.23
30	a	2455	PSU	O2-C2	-2.57	1.18	1.23
30	a	2578	PSU	O2-C2	-2.57	1.18	1.23
30	a	1909	PSU	O2-C2	-2.57	1.18	1.23
30	a	2502	PSU	O2-C2	-2.56	1.18	1.23
30	a	2602	PSU	C6-N1	-2.56	1.32	1.36
30	a	1915	PSU	O4-C4	-2.55	1.18	1.23
30	a	1909	PSU	O4-C4	-2.55	1.18	1.23
27	V	55	5MU	O4-C4	-2.54	1.18	1.23
30	a	1915	PSU	C6-N1	-2.54	1.32	1.36
7	A	1405	5MC	C6-C5	2.54	1.38	1.34
30	a	953	PSU	O2-C2	-2.53	1.18	1.23
30	a	745	5MU	O2-C2	-2.53	1.18	1.23
30	a	1915	PSU	O2-C2	-2.52	1.18	1.23
30	a	2550	OMU	C5-C4	-2.52	1.38	1.43
30	a	2578	PSU	O4'-C1'	-2.51	1.40	1.43
30	a	744	PSU	C6-N1	-2.51	1.32	1.36
30	a	2550	OMU	C6-N1	-2.50	1.31	1.38
30	a	2578	PSU	C6-C5	2.50	1.38	1.35
30	a	2602	PSU	O2-C2	-2.48	1.18	1.23
7	A	514	PSU	C6-N1	-2.44	1.32	1.36
7	A	525	G7M	C2-N1	-2.44	1.31	1.37
30	a	1913	3TD	C6-N1	-2.43	1.32	1.36
30	a	2455	PSU	C6-C5	2.43	1.38	1.35
30	a	1909	PSU	C6-N1	-2.38	1.32	1.36
30	a	1960	5MC	C6-C5	2.37	1.38	1.34
30	a	2443	2MG	CM2-N2	-2.36	1.41	1.45
30	a	2603	PSU	O2-C2	-2.33	1.18	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	A	514	PSU	O2-C2	-2.31	1.18	1.23
7	A	1496	UR3	C6-N1	-2.29	1.32	1.38
30	a	743	1MG	C5-C6	-2.28	1.39	1.45
30	a	2249	OMG	C2-N1	-2.28	1.32	1.37
7	A	1517	MA6	C5-N7	-2.28	1.34	1.39
30	a	2496	OMC	C5-C4	-2.27	1.37	1.42
30	a	744	PSU	O2-C2	-2.26	1.18	1.23
30	a	2443	2MG	C4-N9	-2.25	1.32	1.38
27	V	55	5MU	O2-C2	-2.23	1.19	1.23
7	A	1516	MA6	C5-N7	-2.22	1.34	1.39
30	a	2496	OMC	C2-N3	-2.22	1.31	1.36
30	a	2578	PSU	C4-C5	-2.22	1.37	1.44
27	V	56	PSU	C6-N1	-2.21	1.32	1.36
27	V	56	PSU	O2-C2	-2.21	1.18	1.23
30	a	2443	2MG	C8-N9	-2.20	1.32	1.37
7	A	1496	UR3	O2-C2	2.19	1.26	1.22
27	V	33	OMC	C6-C5	2.16	1.40	1.35
30	a	2602	PSU	C4-C5	-2.15	1.38	1.44
30	a	1831	2MG	CM2-N2	-2.13	1.41	1.45
30	a	744	PSU	O4'-C1'	-2.12	1.40	1.43
30	a	1831	2MG	C4-N9	-2.12	1.32	1.38
30	a	2028	6MZ	C6-N1	-2.11	1.31	1.35
7	A	1405	5MC	C2-N3	-2.11	1.32	1.36
30	a	2501	2MA	C8-N9	-2.11	1.33	1.37
7	A	1514	2MG	C8-N9	-2.07	1.32	1.37
7	A	1514	2MG	C4-N9	-2.07	1.32	1.38
30	a	1960	5MC	C2-N3	-2.06	1.32	1.36
30	a	1831	2MG	C8-N9	-2.06	1.33	1.37
30	a	2501	2MA	C5-N7	-2.06	1.35	1.39
7	A	514	PSU	O4'-C1'	-2.05	1.41	1.43
30	a	2455	PSU	C4-C5	-2.05	1.38	1.44
7	A	1514	2MG	CM2-N2	-2.05	1.42	1.45
7	A	964	2MG	C4-N9	-2.01	1.32	1.38
30	a	1909	PSU	C4-C5	-2.01	1.38	1.44
18	L	89	D2T	CB-CG	2.00	1.55	1.52
30	a	2455	PSU	O4'-C1'	-2.00	1.41	1.43

All (243) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	2447	H2U	C4-N3-C2	-17.36	111.39	125.79
27	V	21	H2U	C4-N3-C2	-13.77	114.37	125.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
27	V	21	H2U	O2-C2-N1	-11.11	109.16	123.11
30	a	2447	H2U	O2-C2-N1	-10.63	109.77	123.11
30	a	745	5MU	C5M-C5-C4	9.40	129.11	118.77
27	V	55	5MU	C5M-C5-C4	8.94	128.60	118.77
30	a	1937	5MU	C4-N3-C2	-8.66	116.14	127.35
30	a	1937	5MU	N3-C2-N1	8.61	126.33	114.89
30	a	745	5MU	C4-N3-C2	-8.56	116.27	127.35
27	V	55	5MU	C4-N3-C2	-8.27	116.64	127.35
27	V	55	5MU	N3-C2-N1	7.98	125.48	114.89
30	a	745	5MU	N3-C2-N1	7.98	125.48	114.89
30	a	1937	5MU	C5-C6-N1	-7.77	115.34	123.34
27	V	8	4SU	C4-N3-C2	-7.73	119.83	127.34
30	a	745	5MU	C5-C6-N1	-7.53	115.59	123.34
27	V	21	H2U	O4-C4-N3	-7.43	108.50	120.28
30	a	745	5MU	C5M-C5-C6	-7.39	112.97	122.85
27	V	21	H2U	O2-C2-N3	-7.34	107.83	121.50
30	a	2447	H2U	O4-C4-N3	-7.34	108.64	120.28
7	A	1514	2MG	C2-N3-C4	7.33	121.13	112.04
30	a	1831	2MG	C2-N3-C4	7.32	121.11	112.04
30	a	1937	5MU	C5M-C5-C4	7.28	126.78	118.77
30	a	2501	2MA	C5-C4-N3	-7.24	119.04	127.19
7	A	1205	2MG	C2-N3-C4	7.23	121.00	112.04
30	a	2443	2MG	C2-N3-C4	7.23	121.00	112.04
27	V	55	5MU	C5M-C5-C6	-7.16	113.29	122.85
27	V	55	5MU	C5-C6-N1	-7.03	116.11	123.34
7	A	964	2MG	C2-N3-C4	6.90	120.60	112.04
30	a	743	1MG	C5-C4-N3	-6.84	117.36	128.46
30	a	1913	3TD	N1-C2-N3	6.81	121.52	116.14
30	a	2447	H2U	N3-C2-N1	-6.74	109.53	116.65
30	a	745	5MU	C5-C4-N3	6.52	120.88	115.31
30	a	1937	5MU	C5-C4-N3	6.44	120.80	115.31
30	a	2447	H2U	O2-C2-N3	-6.27	109.81	121.50
7	A	1517	MA6	C5-C4-N3	-6.25	118.59	126.75
30	a	2447	H2U	O4-C4-C5	-6.23	108.86	122.17
30	a	2455	PSU	N1-C2-N3	6.11	122.06	115.13
27	V	21	H2U	O4-C4-C5	-6.07	109.20	122.17
30	a	2578	PSU	N1-C2-N3	5.99	121.92	115.13
27	V	55	5MU	C5-C4-N3	5.94	120.38	115.31
30	a	2028	6MZ	C9-N6-C6	-5.91	117.78	122.87
30	a	2602	PSU	N1-C2-N3	5.82	121.72	115.13
30	a	953	PSU	N1-C2-N3	5.77	121.67	115.13
30	a	2502	PSU	N1-C2-N3	5.68	121.57	115.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	1937	5MU	C5M-C5-C6	-5.67	115.27	122.85
30	a	2603	PSU	N1-C2-N3	5.65	121.53	115.13
30	a	1909	PSU	N1-C2-N3	5.61	121.49	115.13
17	K	119	IAS	OD1-CG-CB	-5.58	109.18	125.43
30	a	2550	OMU	N3-C2-N1	5.57	122.29	114.89
7	A	1516	MA6	C5-C4-N3	-5.53	119.53	126.75
30	a	2028	6MZ	C5-C4-N3	-5.52	119.54	126.75
30	a	744	PSU	N1-C2-N3	5.48	121.34	115.13
30	a	1915	PSU	N1-C2-N3	5.48	121.33	115.13
27	V	56	PSU	N1-C2-N3	5.44	121.29	115.13
7	A	514	PSU	N1-C2-N3	5.41	121.26	115.13
7	A	525	G7M	C2-N3-C4	5.41	121.94	112.30
30	a	1615	6MZ	C5-C4-N3	-5.39	119.72	126.75
30	a	2067	G7M	C2-N3-C4	5.38	121.89	112.30
27	V	8	4SU	C5-C4-N3	5.38	119.68	114.69
30	a	2249	OMG	C5-C4-N3	-5.37	119.75	128.46
30	a	2501	2MA	N3-C4-N9	5.36	134.43	126.99
30	a	1615	6MZ	N1-C2-N3	-5.18	120.50	128.60
7	A	1514	2MG	C5-C4-N3	-5.17	120.08	128.46
7	A	1205	2MG	C5-C4-N3	-5.10	120.19	128.46
30	a	1831	2MG	C5-C4-N3	-5.09	120.20	128.46
7	A	1516	MA6	N1-C2-N3	-5.08	120.65	128.60
7	A	964	2MG	C5-C4-N3	-5.04	120.29	128.46
30	a	2443	2MG	C5-C4-N3	-5.03	120.30	128.46
30	a	743	1MG	C2-N3-C4	4.99	123.19	111.98
7	A	1517	MA6	N1-C2-N3	-4.95	120.86	128.60
30	a	743	1MG	N9-C4-N3	4.94	135.87	125.94
30	a	1615	6MZ	C9-N6-C6	-4.89	118.66	122.87
7	A	1517	MA6	N3-C4-N9	4.82	135.03	127.08
30	a	1960	5MC	C5-C6-N1	-4.81	118.39	123.34
7	A	1405	5MC	C5-C6-N1	-4.79	118.41	123.34
7	A	965	5MC	C5-C6-N1	-4.72	118.48	123.34
30	a	2028	6MZ	N1-C2-N3	-4.66	121.31	128.60
30	a	2249	OMG	C2-N3-C4	4.65	120.59	112.30
30	a	2067	G7M	C5-C4-N3	-4.61	119.31	128.15
7	A	525	G7M	C5-C4-N3	-4.60	119.32	128.15
7	A	1496	UR3	C4-N3-C2	-4.59	120.24	124.56
27	V	21	H2U	N3-C2-N1	-4.50	111.89	116.65
7	A	1517	MA6	C2-N3-C4	4.39	122.13	111.75
7	A	525	G7M	C5-C6-N1	4.34	120.86	111.79
7	A	1516	MA6	N3-C4-N9	4.30	134.17	127.08
30	a	1937	5MU	O2-C2-N1	-4.27	117.10	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	2067	G7M	C5-C6-N1	4.27	120.70	111.79
7	A	1516	MA6	C2-N1-C6	4.23	121.74	111.75
30	a	1615	6MZ	C2-N3-C4	4.15	121.56	111.75
30	a	745	5MU	O4-C4-N3	-4.14	112.17	120.12
7	A	1516	MA6	C2-N3-C4	4.14	121.52	111.75
30	a	2550	OMU	C4-N3-C2	-4.13	121.13	126.58
7	A	1517	MA6	C2-N1-C6	4.00	121.20	111.75
30	a	2028	6MZ	C2-N3-C4	3.96	121.11	111.75
30	a	2603	PSU	C4-N3-C2	-3.91	120.70	126.34
30	a	2455	PSU	C4-N3-C2	-3.91	120.71	126.34
27	V	8	4SU	N3-C2-N1	3.88	120.05	114.89
30	a	2067	G7M	C6-C5-N7	3.87	136.93	132.25
30	a	1937	5MU	O4-C4-N3	-3.83	112.78	120.12
30	a	744	PSU	C4-N3-C2	-3.81	120.84	126.34
30	a	953	PSU	C4-N3-C2	-3.80	120.86	126.34
30	a	2249	OMG	N9-C4-N3	3.79	133.55	125.94
30	a	745	5MU	C1'-N1-C6	-3.79	114.82	121.12
7	A	1516	MA6	N9-C8-N7	-3.77	108.76	113.91
27	V	55	5MU	O4-C4-N3	-3.77	112.90	120.12
7	A	525	G7M	C6-C5-N7	3.72	136.74	132.25
30	a	2602	PSU	C4-N3-C2	-3.69	121.02	126.34
41	l	81	4D4	NE-CZ-NH2	3.67	127.15	120.70
30	a	1909	PSU	C4-N3-C2	-3.63	121.11	126.34
30	a	2578	PSU	O2-C2-N1	-3.63	118.80	122.79
7	A	1517	MA6	N9-C8-N7	-3.60	108.98	113.91
7	A	964	2MG	N9-C4-N3	3.59	133.15	125.94
7	A	1517	MA6	C5-N7-C8	3.56	108.56	103.51
7	A	1516	MA6	C5-N7-C8	3.54	108.54	103.51
30	a	2443	2MG	N9-C4-N3	3.54	133.05	125.94
27	V	56	PSU	C4-N3-C2	-3.54	121.24	126.34
30	a	2067	G7M	N9-C4-N3	3.54	133.04	125.94
7	A	1516	MA6	C4-N9-C8	3.52	109.55	105.73
7	A	525	G7M	N9-C4-N3	3.52	133.00	125.94
30	a	2028	6MZ	N3-C4-N9	3.51	132.87	127.08
30	a	1831	2MG	N9-C4-N3	3.50	132.96	125.94
7	A	525	G7M	O6-C6-C5	-3.49	120.19	128.06
30	a	1615	6MZ	N3-C4-N9	3.49	132.83	127.08
30	a	2502	PSU	C4-N3-C2	-3.48	121.32	126.34
30	a	1615	6MZ	C6-C5-N7	3.48	136.15	132.39
7	A	514	PSU	C4-N3-C2	-3.48	121.33	126.34
30	a	2578	PSU	C4-N3-C2	-3.47	121.34	126.34
30	a	2455	PSU	O2-C2-N1	-3.43	119.01	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	2496	OMC	O2-C2-N3	-3.39	116.82	122.33
30	a	1915	PSU	C4-N3-C2	-3.38	121.47	126.34
30	a	745	5MU	O2-C2-N3	-3.37	115.22	121.50
27	V	8	4SU	C5-C4-S4	-3.33	120.17	124.47
7	A	1514	2MG	N9-C4-N3	3.28	132.53	125.94
7	A	1517	MA6	C4-N9-C8	3.25	109.25	105.73
7	A	1205	2MG	N9-C4-N3	3.25	132.46	125.94
30	a	2067	G7M	O6-C6-C5	-3.21	120.82	128.06
30	a	2028	6MZ	C5-N7-C8	3.19	108.04	103.51
27	V	55	5MU	O2-C2-N1	-3.18	118.56	122.79
30	a	1615	6MZ	C5-N7-C8	3.18	108.02	103.51
30	a	2028	6MZ	C4-C5-N7	-3.16	106.77	110.62
27	V	56	PSU	O2-C2-N1	-3.15	119.32	122.79
30	a	2501	2MA	N9-C8-N7	-3.13	109.63	113.91
30	a	953	PSU	O2-C2-N1	-3.13	119.35	122.79
30	a	2028	6MZ	C6-C5-N7	3.13	135.77	132.39
7	A	1517	MA6	C4-C5-N7	-3.12	106.82	110.62
7	A	1516	MA6	C4-C5-N7	-3.09	106.85	110.62
30	a	1915	PSU	O2-C2-N1	-3.09	119.39	122.79
7	A	1514	2MG	C6-C5-N7	3.07	135.96	130.25
30	a	1615	6MZ	C4-C5-N7	-3.06	106.89	110.62
7	A	514	PSU	O2-C2-N1	-3.02	119.46	122.79
30	a	744	PSU	O2-C2-N1	-2.99	119.50	122.79
30	a	2602	PSU	O2-C2-N1	-2.99	119.50	122.79
30	a	2443	2MG	C6-C5-N7	2.98	135.79	130.25
30	a	1615	6MZ	N9-C8-N7	-2.98	109.84	113.91
27	V	55	5MU	O2-C2-N3	-2.97	115.96	121.50
30	a	2501	2MA	C5-N7-C8	2.97	107.73	103.51
7	A	1205	2MG	C6-C5-N7	2.97	135.77	130.25
30	a	2502	PSU	O2-C2-N1	-2.95	119.54	122.79
30	a	1831	2MG	C6-C5-N7	2.89	135.63	130.25
30	a	2028	6MZ	N9-C8-N7	-2.85	110.01	113.91
7	A	525	G7M	C2-N1-C6	-2.78	120.02	125.10
30	a	2603	PSU	O2-C2-N1	-2.78	119.73	122.79
30	a	2249	OMG	C6-C5-N7	2.72	135.30	130.25
30	a	2501	2MA	C4-N9-C8	2.68	108.64	105.73
18	L	89	D2T	OD1-CG-CB	-2.67	116.85	122.44
27	V	55	5MU	C1'-N1-C6	-2.66	116.70	121.12
30	a	2067	G7M	C2-N1-C6	-2.65	120.26	125.10
30	a	1937	5MU	O2-C2-N3	-2.65	116.57	121.50
30	a	745	5MU	O2-C2-N1	-2.62	119.30	122.79
30	a	2249	OMG	O6-C6-C5	-2.62	119.65	126.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	2501	2MA	C4-C5-N7	-2.58	107.47	110.62
7	A	1514	2MG	C4-C5-N7	-2.58	106.64	110.72
30	a	2578	PSU	C6-N1-C2	-2.58	120.05	122.68
30	a	2578	PSU	O4'-C1'-C2'	2.58	108.78	105.14
30	a	2249	OMG	C5-C6-N1	2.57	119.71	113.19
30	a	1909	PSU	O2-C2-N1	-2.56	119.97	122.79
30	a	745	5MU	C6-N1-C2	2.54	123.87	121.30
7	A	964	2MG	C6-C5-N7	2.53	134.96	130.25
41	l	81	4D4	NH1-CZ-NE	-2.53	113.34	119.19
27	V	33	OMC	N1-C2-N3	2.49	123.34	118.81
7	A	1405	5MC	C5-C4-N3	-2.48	119.00	121.67
30	a	2550	OMU	C5-C4-N3	2.48	118.55	114.84
30	a	2550	OMU	O4-C4-C5	-2.44	120.86	125.16
7	A	1205	2MG	C4-C5-N7	-2.44	106.86	110.72
7	A	965	5MC	C5-C4-N3	-2.44	119.04	121.67
30	a	2550	OMU	O2-C2-N1	-2.43	119.56	122.79
30	a	2443	2MG	CM2-N2-C2	-2.41	118.53	123.86
30	a	743	1MG	C5-C6-N1	2.41	119.57	114.91
7	A	964	2MG	O6-C6-C5	-2.39	120.27	126.60
30	a	2496	OMC	N1-C2-N3	2.38	123.15	118.81
30	a	2443	2MG	C5-C6-N1	2.37	119.22	113.19
7	A	1400	4OC	O2-C2-N3	-2.37	118.48	122.33
7	A	1514	2MG	C2-N1-C6	-2.35	121.77	124.48
30	a	2443	2MG	N1-C2-N3	-2.32	120.37	123.95
30	a	1831	2MG	O6-C6-C5	-2.30	120.49	126.60
30	a	1831	2MG	CM2-N2-C2	-2.29	118.80	123.86
7	A	1514	2MG	O6-C6-C5	-2.28	120.55	126.60
30	a	1960	5MC	C5-C4-N3	-2.28	119.22	121.67
7	A	1514	2MG	C5-C6-N1	2.28	118.97	113.19
30	a	1831	2MG	C5-C6-N1	2.27	118.95	113.19
30	a	1915	PSU	C6-N1-C2	-2.26	120.38	122.68
30	a	1831	2MG	C4-C5-N7	-2.26	107.15	110.72
30	a	2443	2MG	O6-C6-C5	-2.24	120.65	126.60
7	A	1205	2MG	N1-C2-N3	-2.24	120.49	123.95
30	a	2502	PSU	C6-N1-C2	-2.23	120.41	122.68
7	A	1514	2MG	CM2-N2-C2	-2.23	118.95	123.86
30	a	1913	3TD	C4-N3-C2	-2.22	122.20	124.61
30	a	2249	OMG	C4-C5-N7	-2.22	107.20	110.72
27	V	8	4SU	O2-C2-N1	-2.22	119.84	122.79
30	a	2249	OMG	C8-N7-C5	2.21	108.24	104.24
30	a	2443	2MG	C4-C5-N7	-2.21	107.23	110.72
30	a	1831	2MG	N1-C2-N3	-2.20	120.55	123.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
30	a	2602	PSU	C6-N1-C2	-2.20	120.44	122.68
30	a	2501	2MA	N3-C2-N1	-2.20	121.68	125.72
30	a	1831	2MG	C2-N1-C6	-2.19	121.96	124.48
7	A	1400	4OC	C5-C4-N3	-2.19	119.07	122.59
7	A	1514	2MG	C8-N7-C5	2.19	108.21	104.24
30	a	2249	OMG	C2-N1-C6	-2.19	121.11	125.10
7	A	964	2MG	C5-C6-N1	2.18	118.72	113.19
7	A	514	PSU	O4'-C1'-C2'	2.18	108.22	105.14
7	A	1205	2MG	C5-C6-N1	2.17	118.69	113.19
30	a	2455	PSU	C6-N1-C2	-2.16	120.47	122.68
7	A	1514	2MG	N1-C2-N3	-2.14	120.64	123.95
7	A	1205	2MG	O6-C6-C5	-2.14	120.91	126.60
30	a	743	1MG	C4-C5-N7	-2.14	107.34	110.72
7	A	964	2MG	C2-N1-C6	-2.13	122.03	124.48
30	a	1913	3TD	C5-C6-N1	-2.12	118.93	122.11
30	a	1937	5MU	C6-N1-C2	2.12	123.44	121.30
7	A	1205	2MG	C8-N7-C5	2.10	108.05	104.24
30	a	1915	PSU	C6-C5-C4	-2.09	116.73	118.20
7	A	964	2MG	C4-C5-N7	-2.08	107.42	110.72
7	A	964	2MG	N1-C2-N3	-2.08	120.74	123.95
30	a	2455	PSU	O4'-C1'-C2'	2.06	108.05	105.14
17	K	119	IAS	OXT-C-CA	2.05	120.38	113.38
30	a	745	5MU	C1'-N1-C2	2.05	121.29	117.57
30	a	743	1MG	C6-C5-N7	2.05	133.99	129.35
30	a	2249	OMG	N9-C8-N7	-2.05	109.53	113.39
30	a	2501	2MA	N6-C6-N1	2.05	119.92	117.03
30	a	2443	2MG	C2-N1-C6	-2.04	122.13	124.48
30	a	2443	2MG	C8-N7-C5	2.04	107.93	104.24
7	A	514	PSU	C6-N1-C2	-2.02	120.62	122.68
7	A	1496	UR3	C5-C6-N1	-2.02	118.43	121.81
27	V	33	OMC	O2-C2-N3	-2.02	119.05	122.33

There are no chirality outliers.

All (43) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
18	L	89	D2T	CG-CB-SB-CB1
18	L	89	D2T	CA-CB-CG-OD1
18	L	89	D2T	CA-CB-CG-OD2
27	V	21	H2U	O4'-C4'-C5'-O5'
27	V	21	H2U	C3'-C4'-C5'-O5'
27	V	21	H2U	O4'-C1'-N1-C2

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Mol	Chain	Res	Type	Atoms
27	V	21	H2U	O4'-C1'-N1-C6
27	V	21	H2U	C2'-C1'-N1-C6
27	V	33	OMC	C1'-C2'-O2'-CM2
7	A	1205	2MG	N1-C2-N2-CM2
7	A	1205	2MG	N3-C2-N2-CM2
7	A	1517	MA6	O4'-C4'-C5'-O5'
17	K	119	IAS	CA-CB-CG-OD1
30	a	2249	OMG	C1'-C2'-O2'-CM2
7	A	1517	MA6	C3'-C4'-C5'-O5'
30	a	2028	6MZ	O4'-C4'-C5'-O5'
30	a	2028	6MZ	C3'-C4'-C5'-O5'
33	d	150	MEQ	NE2-CD-CG-CB
33	d	150	MEQ	OE1-CD-CG-CB
41	l	82	MS6	CB-CG-SD-CE
7	A	1517	MA6	C5-C6-N6-C10
41	l	82	MS6	CA-CB-CG-SD
30	a	2067	G7M	O4'-C4'-C5'-O5'
30	a	2502	PSU	O4'-C4'-C5'-O5'
27	V	33	OMC	C4'-C5'-O5'-P
7	A	525	G7M	C3'-C4'-C5'-O5'
7	A	525	G7M	C4'-C5'-O5'-P
30	a	2067	G7M	C4'-C5'-O5'-P
27	V	21	H2U	C4'-C5'-O5'-P
30	a	1831	2MG	O4'-C4'-C5'-O5'
41	l	81	4D4	CG-CD-NE-CZ
30	a	2443	2MG	C3'-C4'-C5'-O5'
30	a	1831	2MG	C3'-C4'-C5'-O5'
41	l	81	4D4	NE-CD-CG-CB
30	a	2067	G7M	C3'-C4'-C5'-O5'
18	L	89	D2T	SB-CB-CG-OD2
30	a	2496	OMC	C4'-C5'-O5'-P
30	a	2501	2MA	O4'-C4'-C5'-O5'
30	a	744	PSU	O4'-C1'-C5-C6
7	A	1517	MA6	C4'-C5'-O5'-P
30	a	2501	2MA	C4'-C5'-O5'-P
30	a	2502	PSU	C3'-C4'-C5'-O5'
41	l	81	4D4	O-C-CA-CB

There are no ring outliers.

10 monomers are involved in 19 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
30	a	2028	6MZ	3	0
7	A	1400	4OC	3	0
27	V	55	5MU	3	0
30	a	1913	3TD	3	0
30	a	2249	OMG	1	0
27	V	56	PSU	1	0
27	V	33	OMC	2	0
30	a	2550	OMU	1	0
7	A	964	2MG	2	0
30	a	1915	PSU	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 530 ligands modelled in this entry, 530 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
30	a	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	a	1912:C	O3'	1913:3TD	P	4.88
1	a	1913:3TD	O3'	1914:A	P	4.35

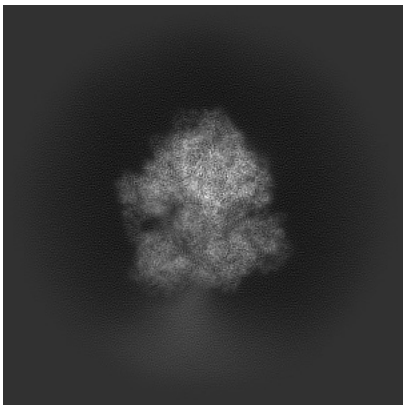
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-55794. These allow visual inspection of the internal detail of the map and identification of artifacts.

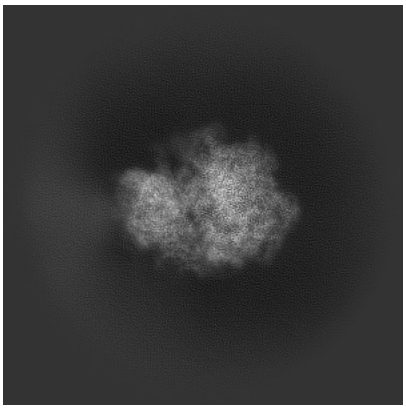
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

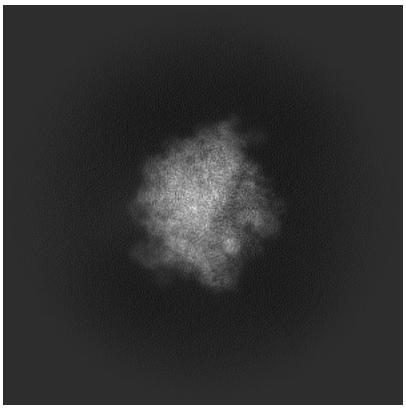
6.1.1 Primary map



X

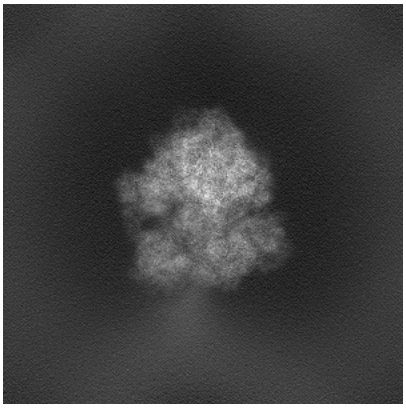


Y

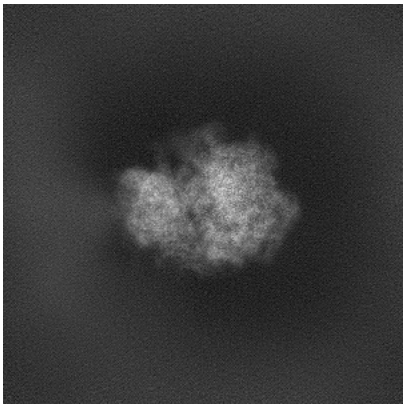


Z

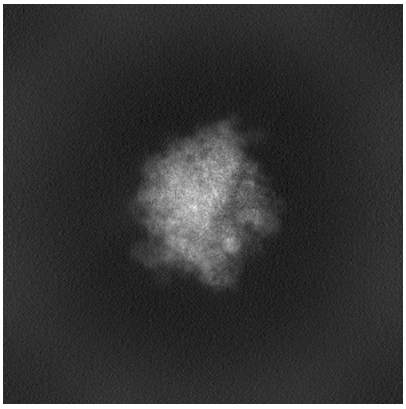
6.1.2 Raw map



X



Y

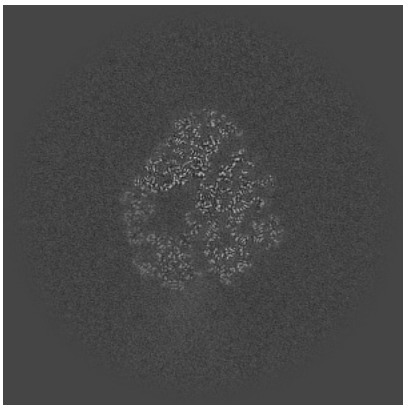


Z

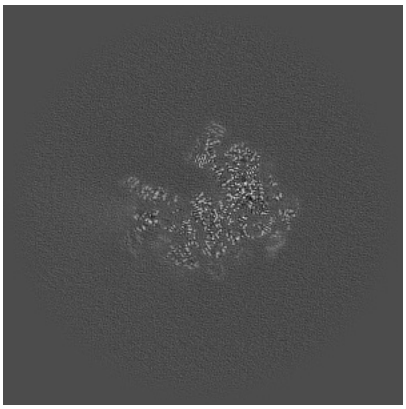
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

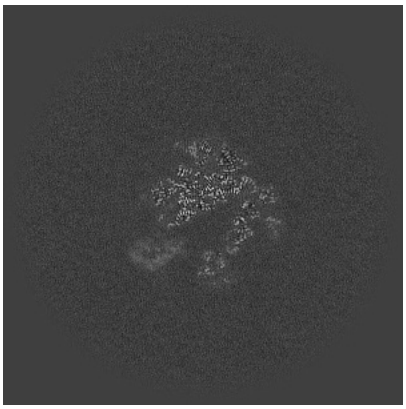
6.2.1 Primary map



X Index: 256

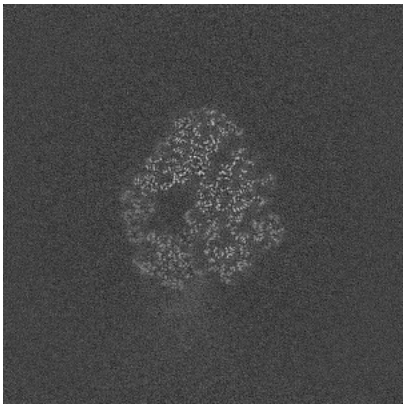


Y Index: 256



Z Index: 256

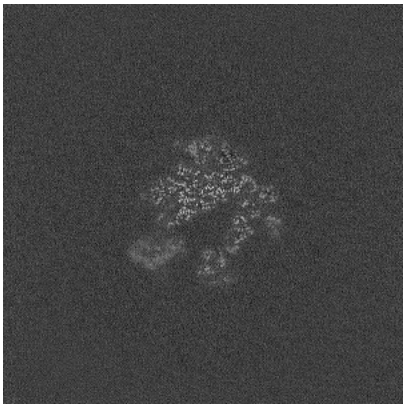
6.2.2 Raw map



X Index: 256



Y Index: 256

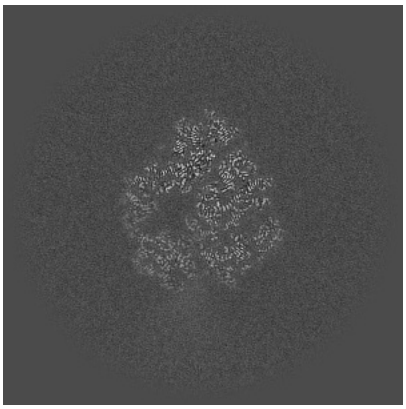


Z Index: 256

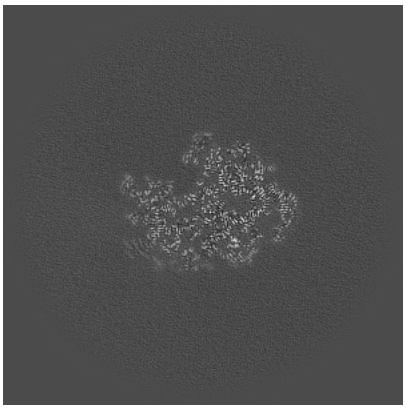
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

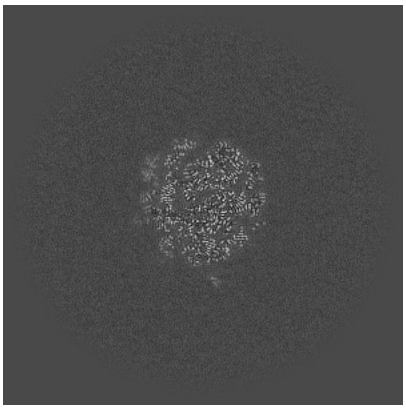
6.3.1 Primary map



X Index: 260

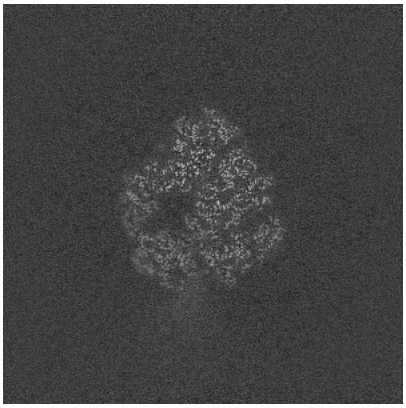


Y Index: 268

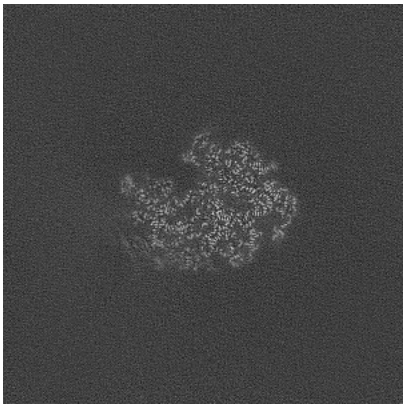


Z Index: 298

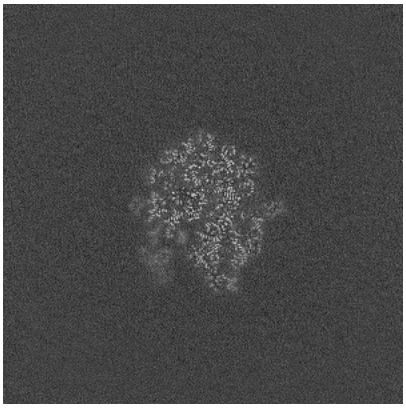
6.3.2 Raw map



X Index: 260



Y Index: 266

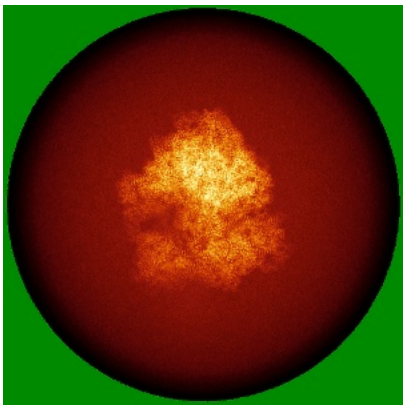


Z Index: 279

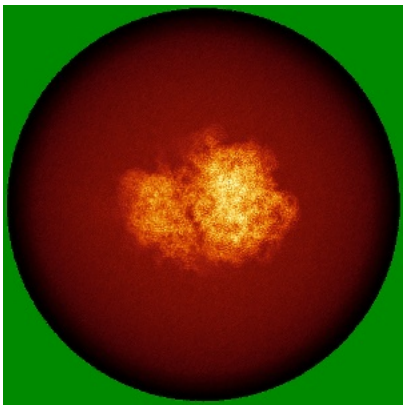
The images above show the largest variance slices of the map in three orthogonal directions.

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

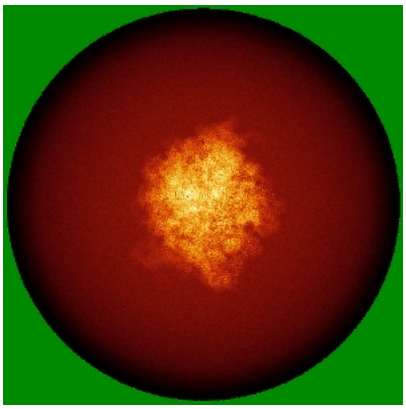
6.4.1 Primary map



X

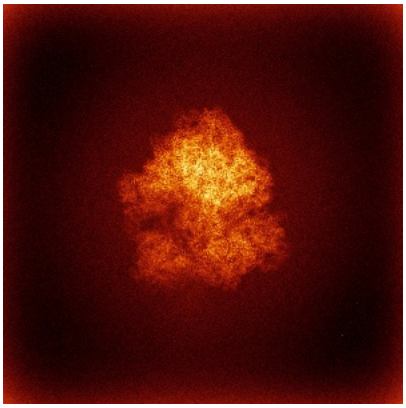


Y

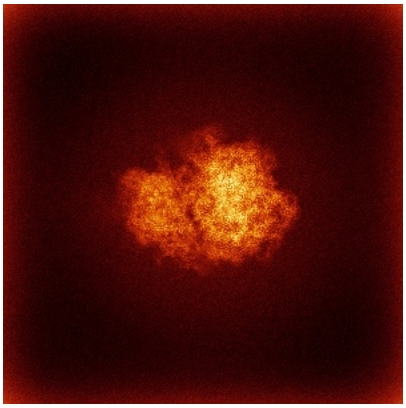


Z

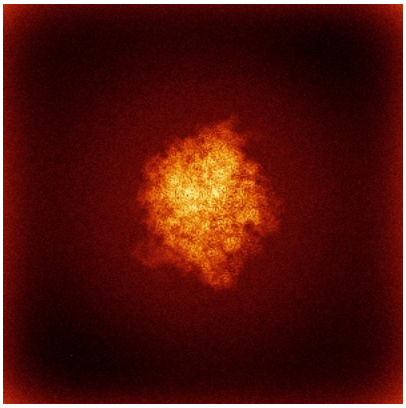
6.4.2 Raw map



X



Y

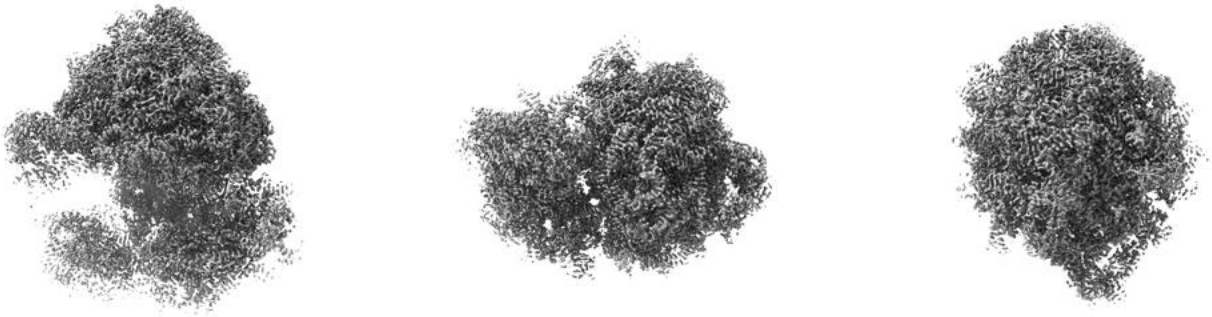


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.55. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

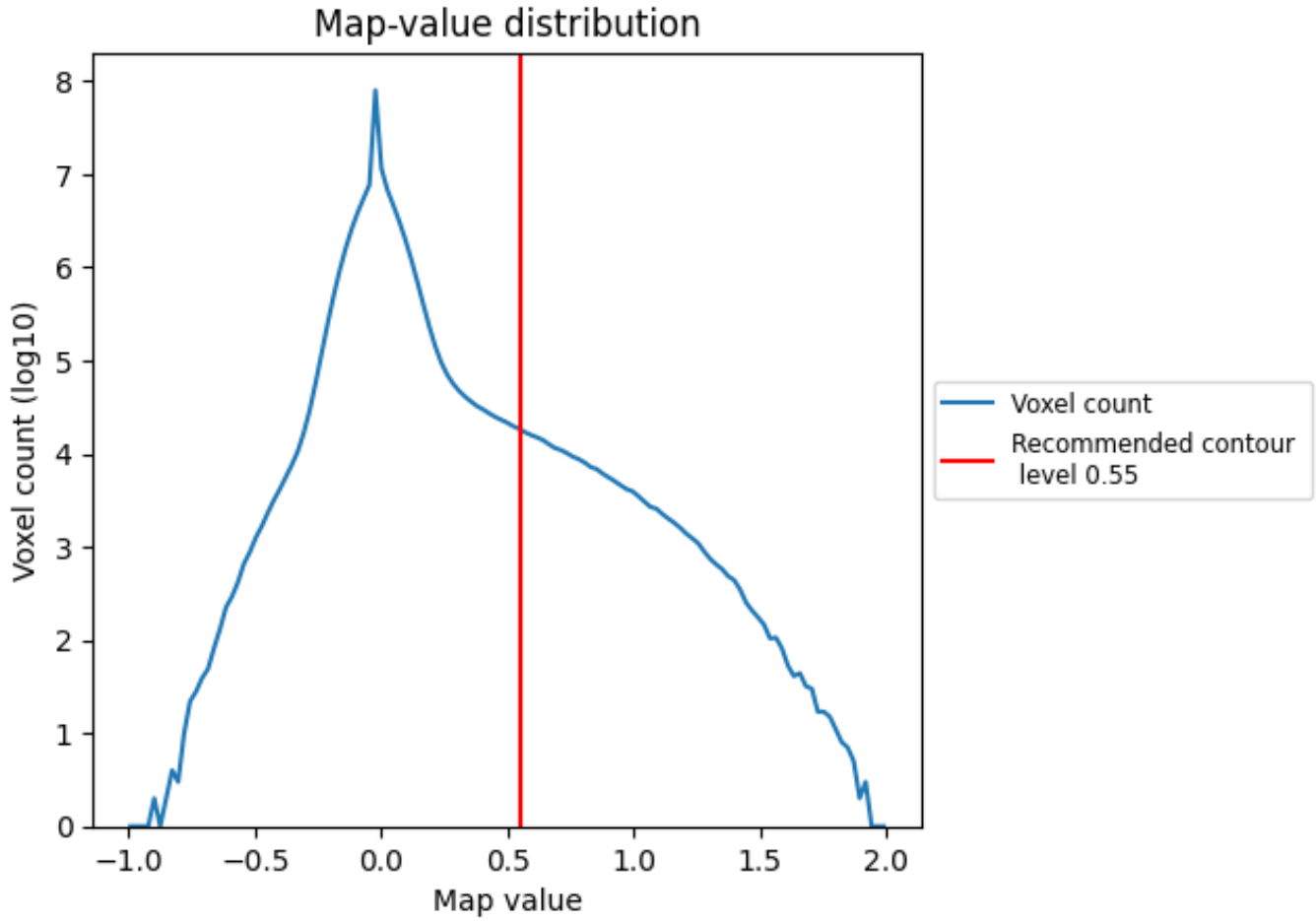
6.6 Mask visualisation (i)

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

7 Map analysis

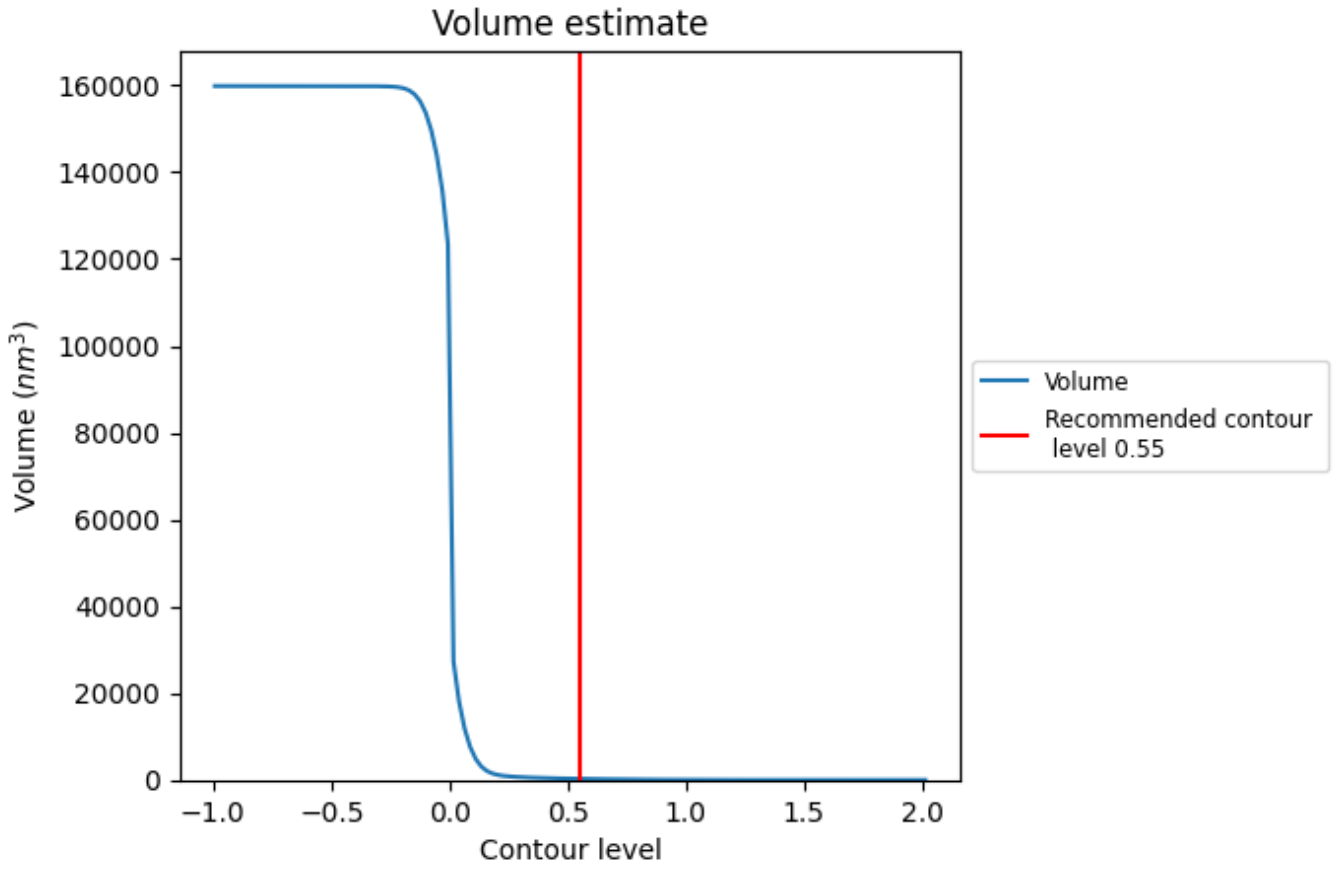
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

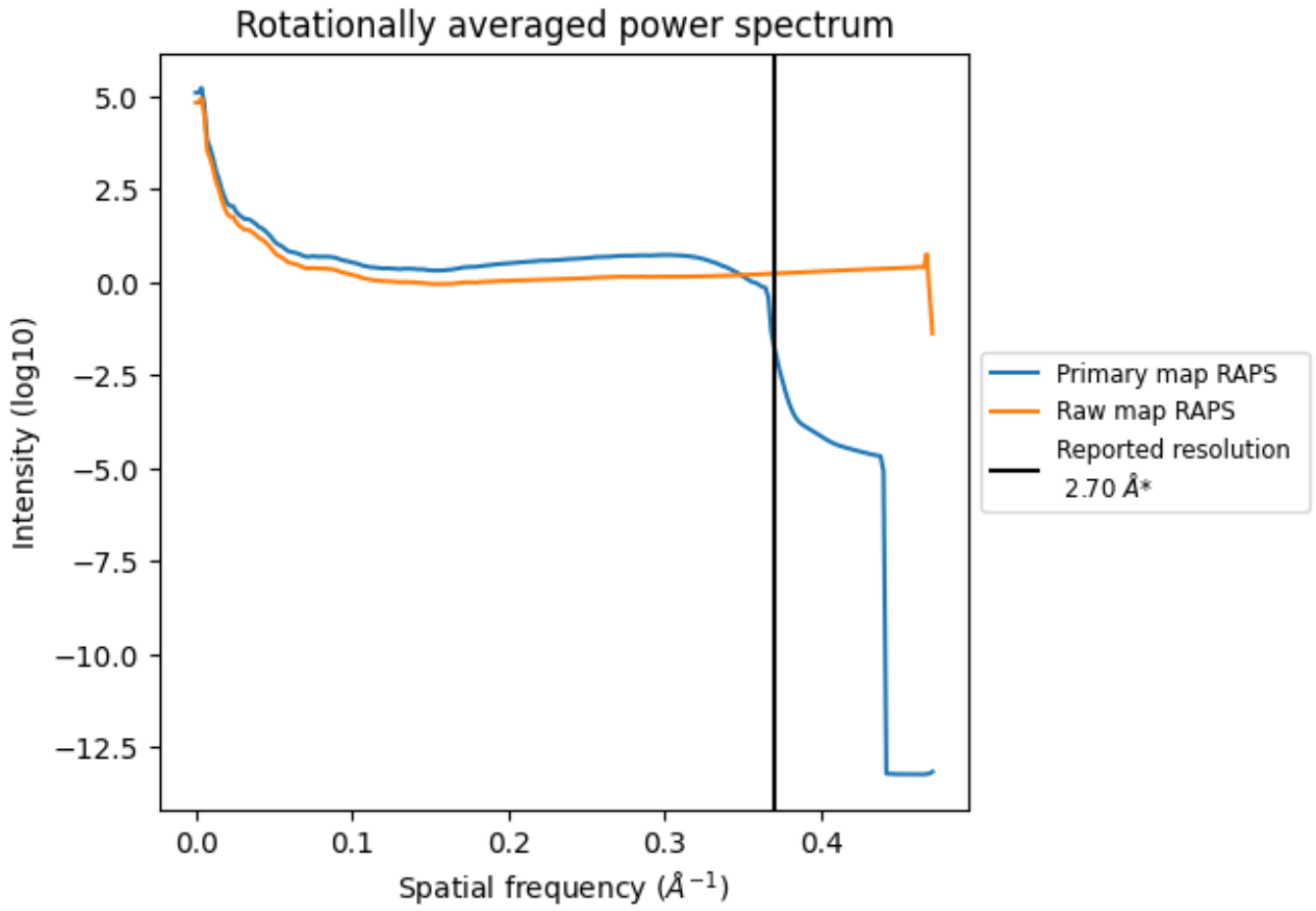
7.2 Volume estimate



The volume at the recommended contour level is 263 nm^3; this corresponds to an approximate mass of 237 kDa.

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

7.3 Rotationally averaged power spectrum (i)

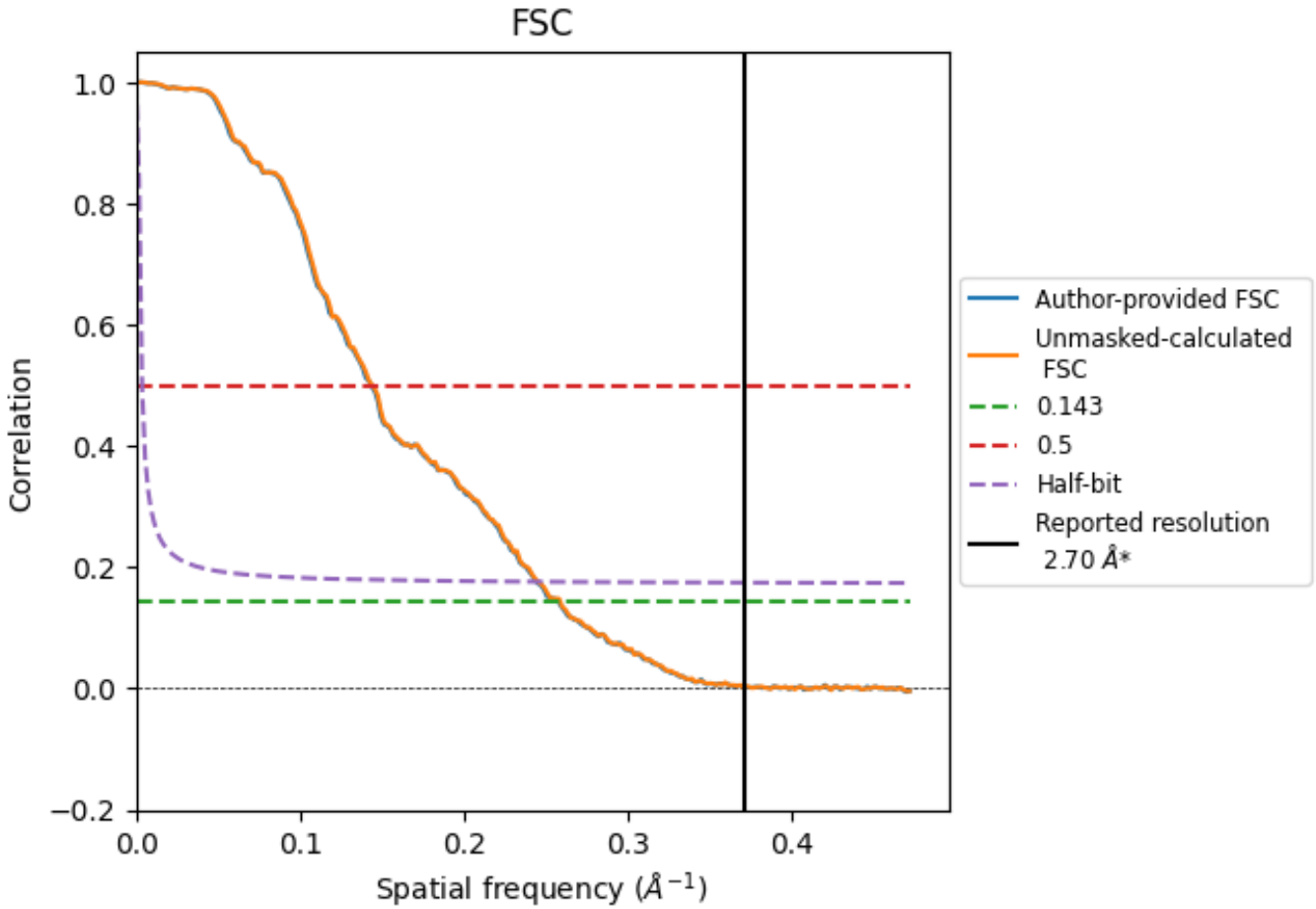


*Reported resolution corresponds to spatial frequency of 0.370 $Å^{-1}$

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.70	-	-
Author-provided FSC curve	3.88	6.98	4.10
Unmasked-calculated*	3.87	6.94	4.08

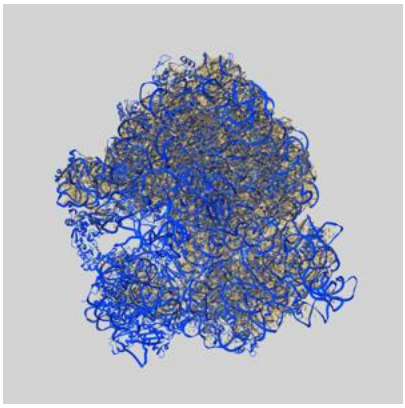
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 3.88 differs from the reported value 2.7 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.87 differs from the reported value 2.7 by more than 10 %

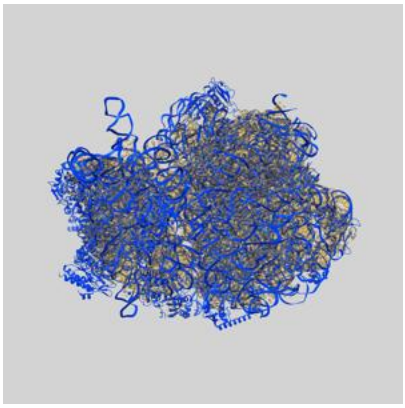
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-55794 and PDB model 9TCO. Per-residue inclusion information can be found in section 3 on page 16.

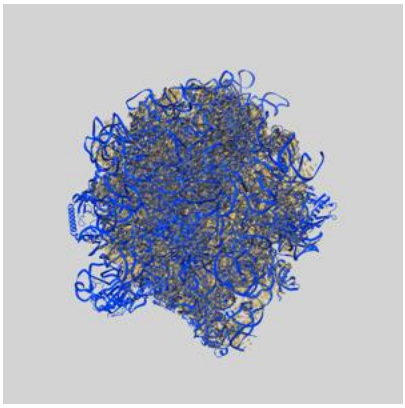
9.1 Map-model overlay



X



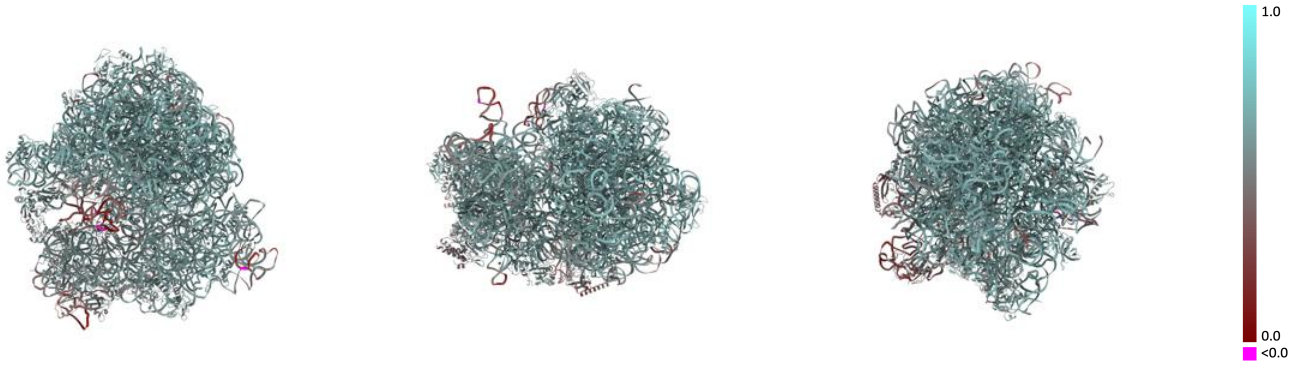
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.55 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

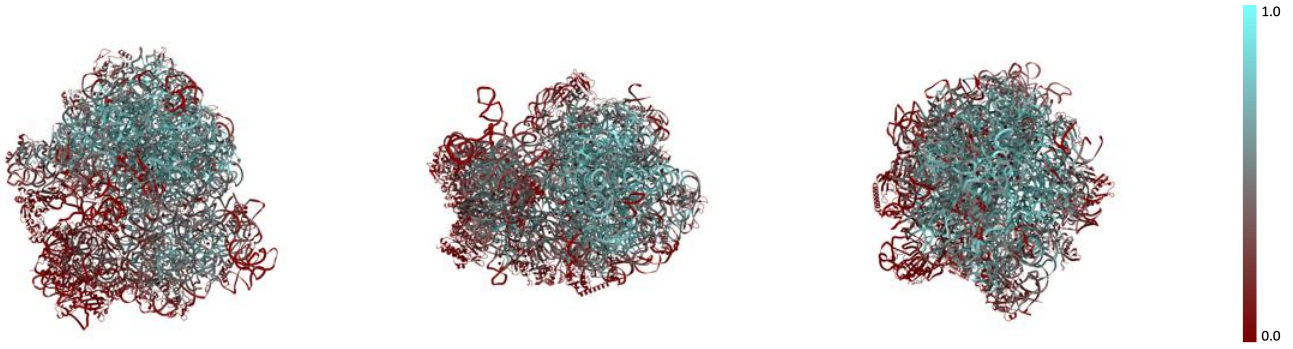
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

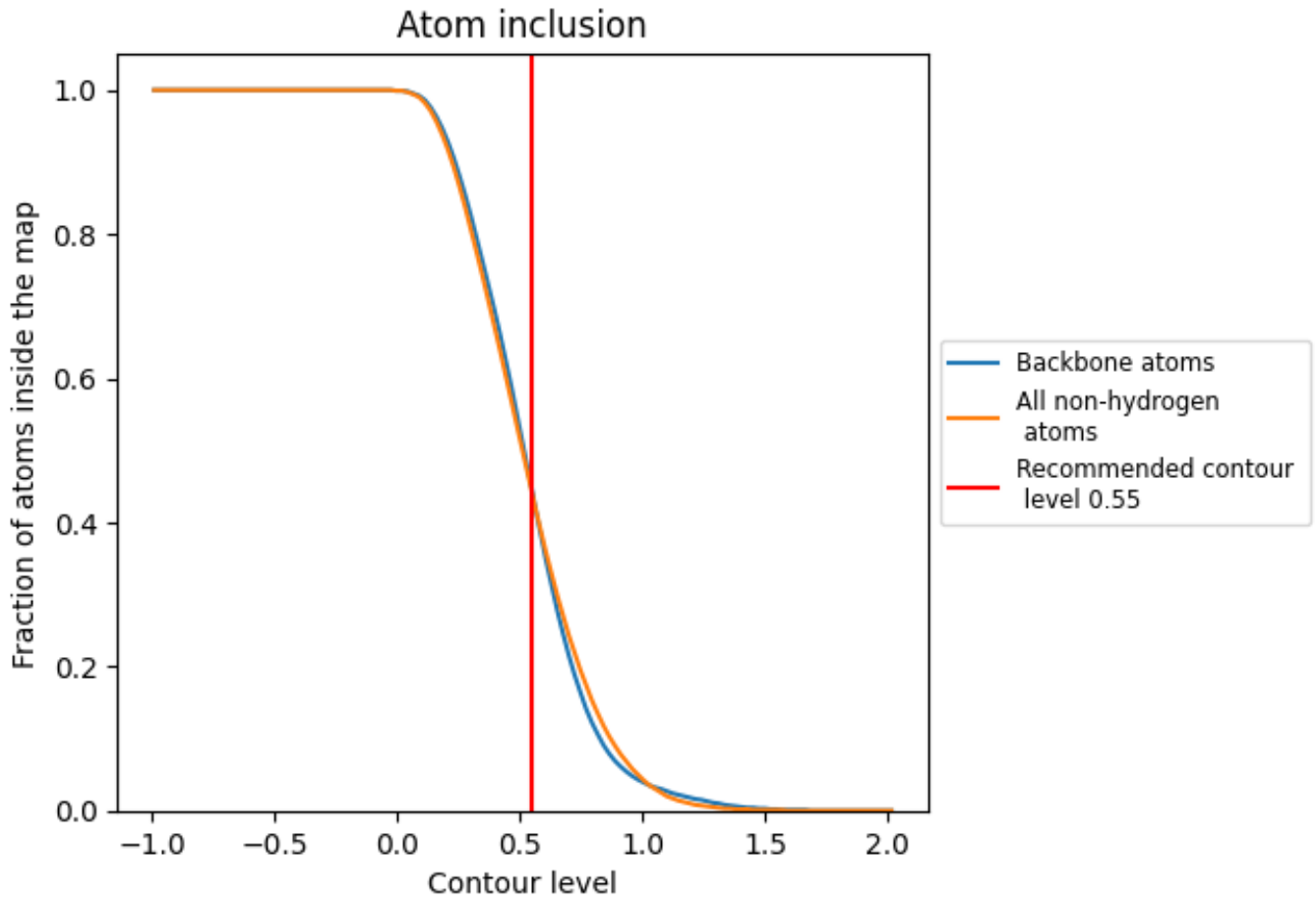
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.55).

9.4 Atom inclusion (i)



At the recommended contour level, 44% of all backbone atoms, 44% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.55) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4380	0.5880
0	0.3910	0.6250
1	0.6340	0.6540
2	0.6290	0.6480
3	0.4370	0.6350
4	0.0060	0.4750
5	0.0000	0.4060
A	0.3770	0.5760
B	0.0010	0.4410
C	0.0830	0.5560
D	0.1310	0.5750
E	0.3000	0.6020
F	0.1010	0.5590
G	0.0350	0.5390
H	0.3030	0.6050
I	0.0580	0.5430
J	0.0470	0.4960
K	0.1320	0.5740
L	0.2620	0.6110
M	0.0310	0.5340
N	0.0540	0.5570
O	0.2550	0.6000
P	0.3230	0.5950
Q	0.2180	0.5880
R	0.1520	0.5490
S	0.0060	0.5250
T	0.2650	0.5990
V	0.0120	0.3770
W	0.0000	0.3550
X	0.0580	0.5590
a	0.6010	0.6040
b	0.4260	0.6020
c	0.5340	0.6420
d	0.5120	0.6410
e	0.3950	0.6160



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Chain	Atom inclusion	Q-score
f	0.0550	0.5410
g	0.1040	0.5630
h	0.0100	0.4290
i	0.5210	0.6340
j	0.4480	0.6330
k	0.4630	0.6280
l	0.4270	0.6340
m	0.6050	0.6460
n	0.2780	0.5950
o	0.4510	0.6310
p	0.6010	0.6390
q	0.4190	0.6280
r	0.5010	0.6290
s	0.3730	0.6120
t	0.2910	0.5970
u	0.2930	0.6120
v	0.5520	0.6440
w	0.4580	0.6360
x	0.2650	0.5810
y	0.4530	0.6240
z	0.5130	0.6290