



Full wwPDB EM Validation Report ⓘ

Mar 9, 2024 – 08:08 AM EST

PDB ID : 6O90
EMDB ID : EMD-0660
Title : Cryo-EM image reconstruction of the 70S Ribosome *Enterococcus faecalis* Class05
Authors : Jogl, G.; Khayat, R.
Deposited on : 2019-03-12
Resolution : 3.49 Å (reported)
Based on initial models : 5LI0, 4YBB

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.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

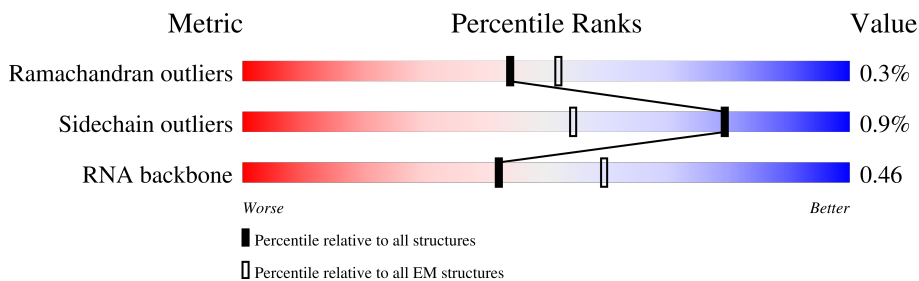
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.49 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.



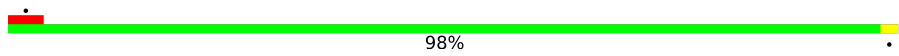
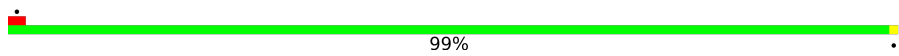
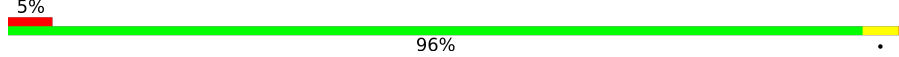
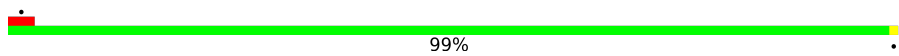
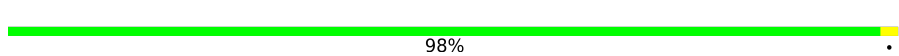
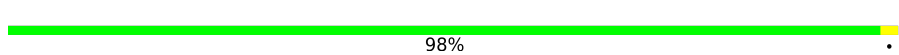
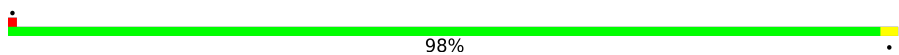
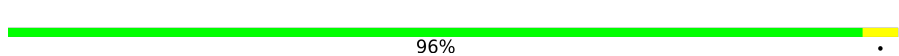
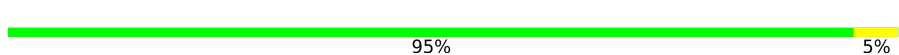
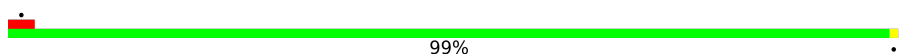
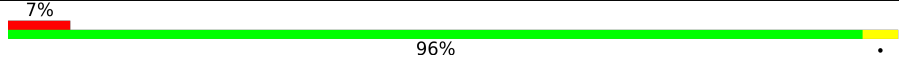

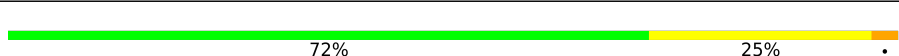
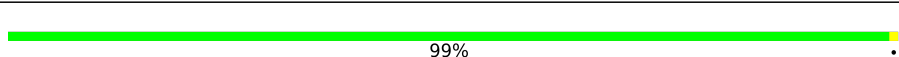
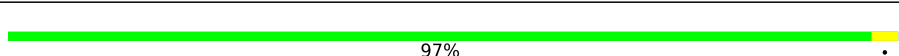
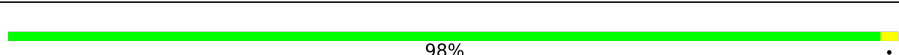
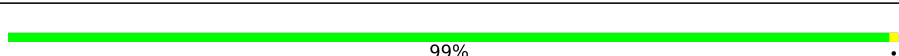
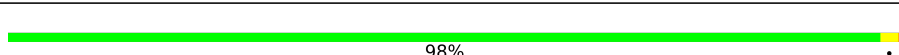
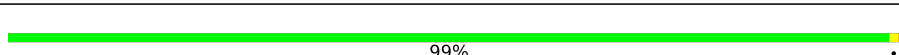
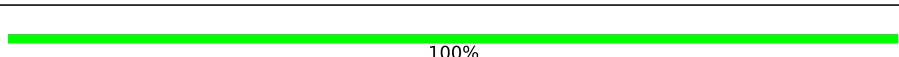
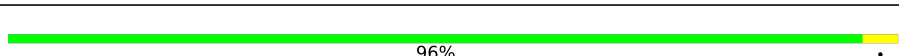
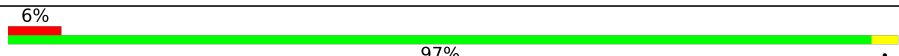
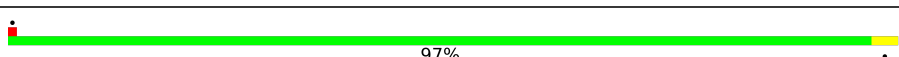
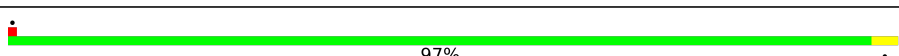
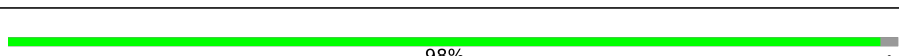
Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	a	1528	
2	c	204	
3	d	201	
4	e	163	
5	f	97	
6	g	154	
7	h	131	
8	i	128	

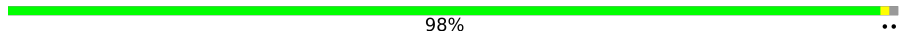
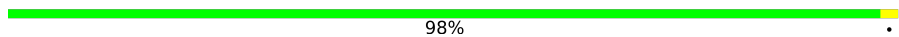
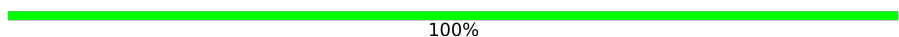
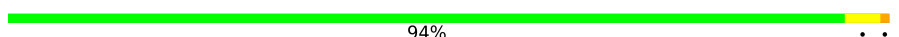
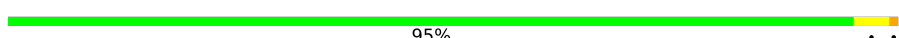

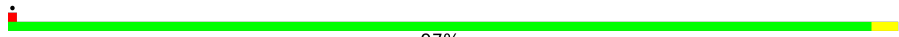



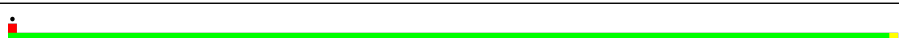

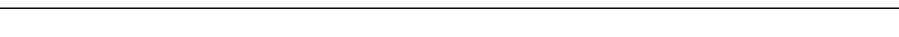
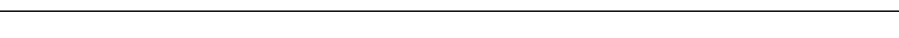
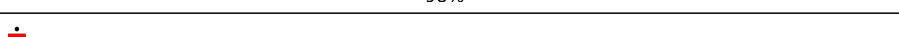
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Mol	Chain	Length	Quality of chain
9	j	99	 98%
10	k	117	 99%
11	l	136	 96%
12	m	112	 99%
13	n	60	 98%
14	o	88	 98%
15	p	89	 98%
16	q	83	 96%
17	r	66	 95% 5%
18	s	78	 99%
19	t	81	 96%
20	A	2903	 72% 25%
21	B	116	 72% 25%
22	C	275	 99%
23	D	207	 97%
24	E	206	 98%
25	F	177	 99%
26	G	176	 98%
27	K	145	 99%
28	L	122	 100%
29	M	146	 96%
30	N	141	 97%
31	O	123	 97%
32	P	117	 97%
33	Q	114	 98%

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Mol	Chain	Length	Quality of chain
34	R	118	 98% ..
35	S	102	 98% .
36	T	112	 100%
37	U	89	 94% ..
38	V	101	 95% ..
39	W	94	 65% 98% .
40	X	76	 97% .
41	Y	54	 94% 6%
42	Z	61	 98% .
43	0	58	 100%
44	1	83	 99% .
45	2	56	 100%
46	3	49	 100%
47	4	44	 98% .
48	5	64	 100%
49	6	38	 100%

2 Entry composition [i](#)

There are 50 unique types of molecules in this entry. The entry contains 138532 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 RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	a	1528	32746	14609	5979	10630	1528	0	0

- Molecule 2 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	c	204	1610	1012	303	292	3	0	0

- Molecule 3 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	d	201	1620	1016	303	297	4	0	0

- Molecule 4 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	e	163	1204	759	222	221	2	0	0

- Molecule 5 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	f	97	795	501	137	154	3	0	0

- Molecule 6 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	g	154	1229	765	236	222	6	0	0

- Molecule 7 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	h	131	1041	662	184	193	2	0	0

- Molecule 8 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	i	128	990	615	197	177	1	0	0

- Molecule 9 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	j	99	800	504	147	147	2	0	0

- Molecule 10 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	k	117	863	533	165	161	4	0	0

- Molecule 11 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	l	136	1065	661	214	188	2	0	0

- Molecule 12 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	m	112	884	540	180	163	1	0	0

- Molecule 13 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	n	60	492	310	100	77	5	0	0

- Molecule 14 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	o	88	Total	C	N	O	S	0	0
			741	455	152	133	1		

- Molecule 15 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	p	89	Total	C	N	O	S	0	0
			708	448	131	127	2		

- Molecule 16 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	q	83	Total	C	N	O	S	0	0
			681	427	127	124	3		

- Molecule 17 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	r	66	Total	C	N	O	S	0	0
			537	343	99	94	1		

- Molecule 18 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	s	78	Total	C	N	O	S	0	0
			634	410	113	109	2		

- Molecule 19 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	t	81	Total	C	N	O	S	0	0
			610	372	119	117	2		

- Molecule 20 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	A	2903	Total	C	N	O	P	0	0
			62302	27811	11457	20131	2903		

- Molecule 21 is a RNA chain called 4S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
21	B	116	2478	1106	444	812	116	0	0

- Molecule 22 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	C	275	2114	1310	416	381	7	0	0

- Molecule 23 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	D	207	1577	992	292	289	4	0	0

- Molecule 24 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	E	206	1573	984	290	297	2	0	0

- Molecule 25 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	F	177	1391	887	239	259	6	0	0

- Molecule 26 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	G	176	1344	842	243	255	4	0	0

- Molecule 27 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	K	145	1129	713	205	207	4	0	0

- Molecule 28 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	L	122	Total	C	N	O	S	0	0
			922	574	176	170	2		

- Molecule 29 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	M	146	Total	C	N	O	S	0	0
			1094	676	212	205	1		

- Molecule 30 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	N	141	Total	C	N	O	S	0	0
			1117	710	215	185	7		

- Molecule 31 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	O	123	Total	C	N	O	S	0	0
			978	602	190	183	3		

- Molecule 32 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	P	117	Total	C	N	O	S	0	0
			898	556	175	166	1		

- Molecule 33 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	Q	112	Total	C	N	O	0	0
			897	566	177	154		

- Molecule 34 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	R	117	Total	C	N	O	S	0	0
			940	597	181	158	4		

- Molecule 35 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	S	102	Total	C	N	O	S	0	0
			783	499	139	143	2		

- Molecule 36 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	T	112	Total	C	N	O	S	0	0
			849	532	156	159	2		

- Molecule 37 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	U	89	Total	C	N	O	S	0	0
			719	457	127	132	3		

- Molecule 38 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	V	101	Total	C	N	O	S	0	0
			763	486	135	140	2		

- Molecule 39 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	W	94	Total	C	N	O	S	0	0
			757	479	135	139	4		

- Molecule 40 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	X	76	Total	C	N	O	0	0
			571	351	108	112		

- Molecule 41 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Y	54	Total	C	N	O	S	0	0
			425	265	86	72	2		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	51	ALA	THR	conflict	UNP A0A1B4XRZ8

- Molecule 42 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	Z	61	504	314	94	95	1	0	0

- Molecule 43 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	0	58	434	270	81	82	1	0	0

- Molecule 44 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	1	83	673	424	114	133	2	0	0

- Molecule 45 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	2	56	429	262	88	73	6	0	0

- Molecule 46 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	3	49	418	253	85	76	4	0	0

- Molecule 47 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	4	44	374	227	91	54	2	0	0

- Molecule 48 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	5	64	522	320	122	78	2	0	0

- Molecule 49 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	6	38	303	188	66	43	6	0	0

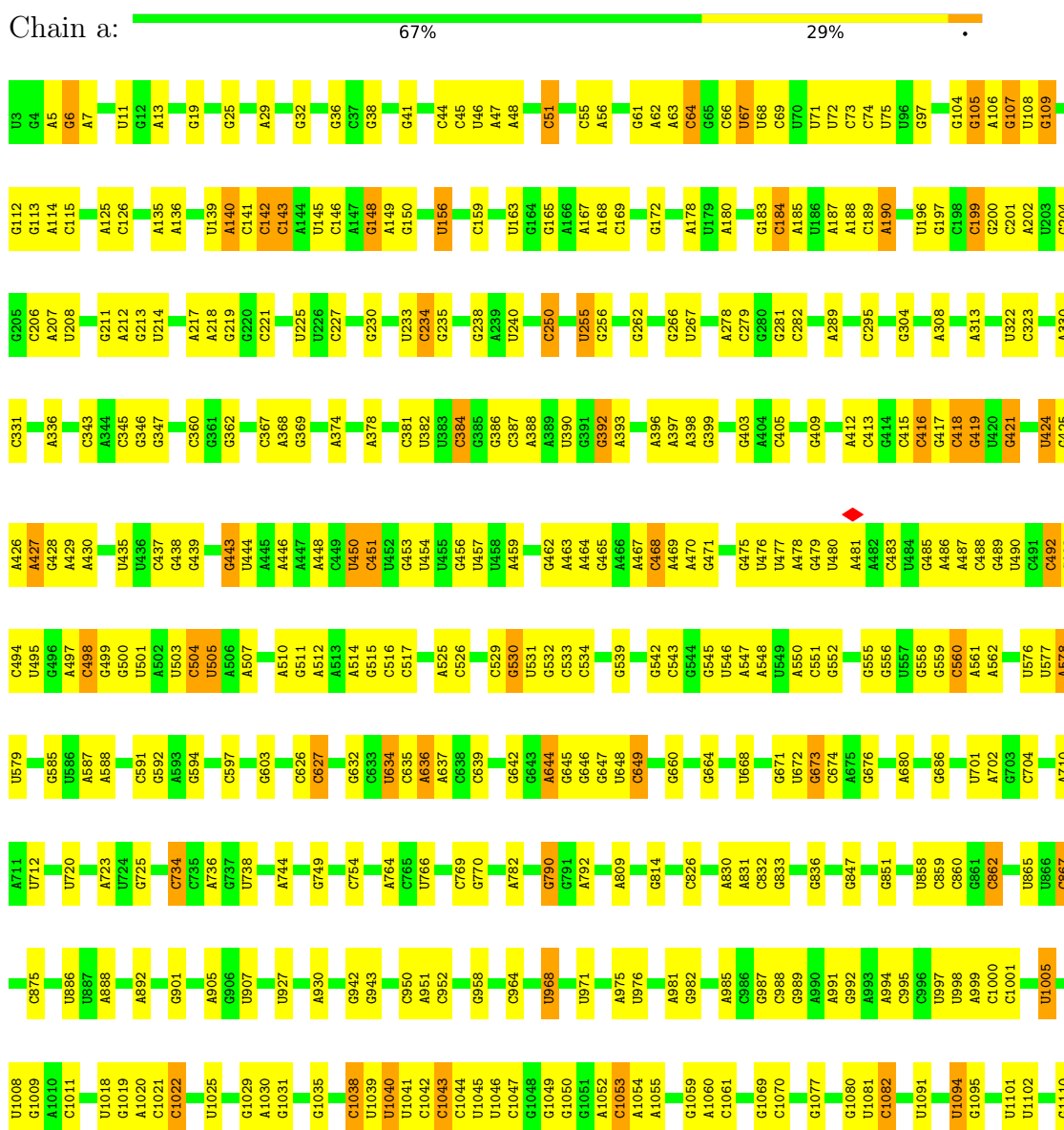
- Molecule 50 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

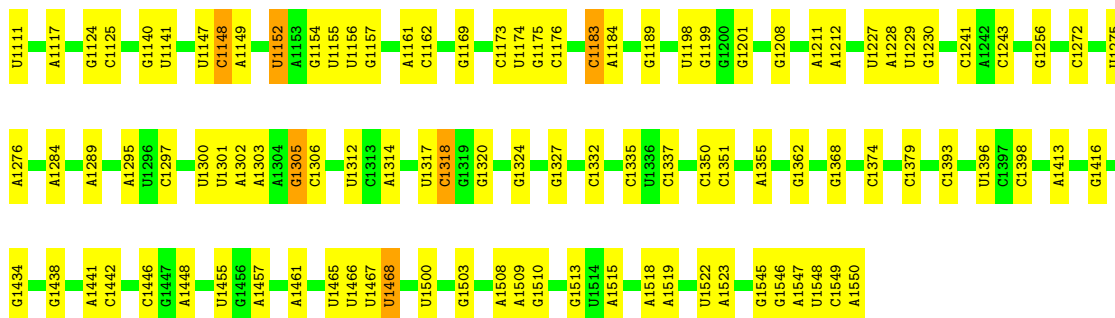
Mol	Chain	Residues	Atoms		AltConf
50	n	1	Total	Zn	0
			1	1	
50	2	1	Total	Zn	0
			1	1	
50	3	1	Total	Zn	0
			1	1	
50	6	1	Total	Zn	0
			1	1	

3 Residue-property plots

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

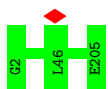
- Molecule 1: 16S rRNA





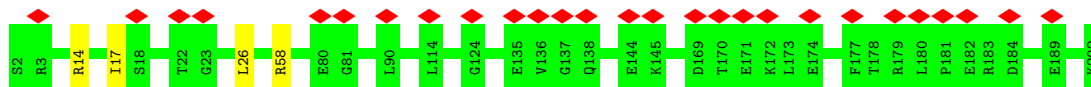
- Molecule 2: 30S ribosomal protein S3

Chain c: 100%



- Molecule 3: 30S ribosomal protein S4

Chain d: 13% 98%



- Molecule 4: 30S ribosomal protein S5

Chain e: 100%

There are no outlier residues recorded for this chain.

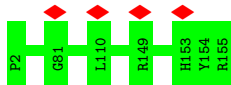
- Molecule 5: 30S ribosomal protein S6

Chain f: 100%

There are no outlier residues recorded for this chain.

- Molecule 6: 30S ribosomal protein S7

Chain g: 100%



- Molecule 7: 30S ribosomal protein S8

Chain h: 100%

There are no outlier residues recorded for this chain.

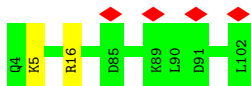
- Molecule 8: 30S ribosomal protein S9

Chain i:  98%



- Molecule 9: 30S ribosomal protein S10

Chain j:  98%



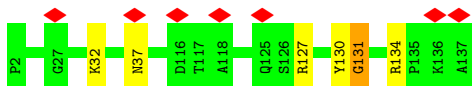
- Molecule 10: 30S ribosomal protein S11

Chain k:  99%



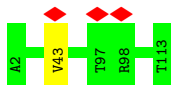
- Molecule 11: 30S ribosomal protein S12

Chain l:  5% 96%



- Molecule 12: 30S ribosomal protein S13

Chain m:  99%



- Molecule 13: 30S ribosomal protein S14 type Z

Chain n:  98%

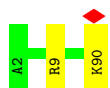


- Molecule 14: 30S ribosomal protein S15

Chain o:  98%



• Molecule 15: 30S ribosomal protein S16



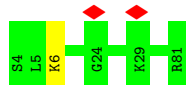
• Molecule 16: 30S ribosomal protein S17



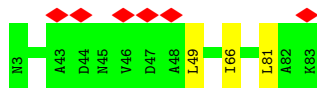
• Molecule 17: 30S ribosomal protein S18



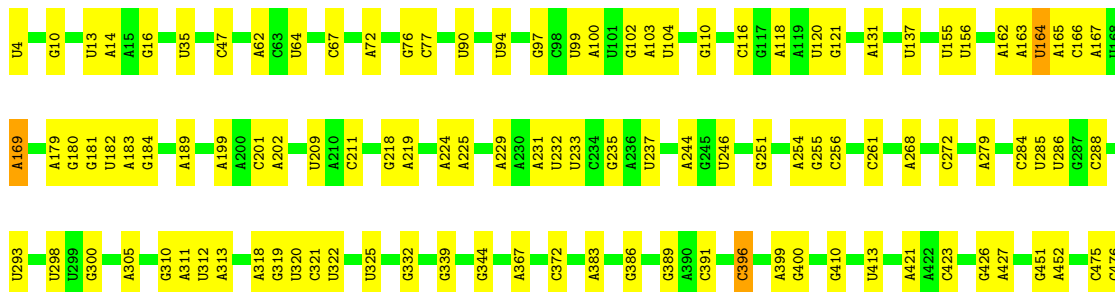
• Molecule 18: 30S ribosomal protein S19



• Molecule 19: 30S ribosomal protein S20



• Molecule 20: 23S rRNA



C2262	G2139	U1841	G1568	U1365	A1182	A1110	A1014	G923	C778	C638	U488
C2278	A2140	G1842	G1569	C1366	A1188	G1111	A1015	C924	A779	G659	C495
U2279	G2141	A1843	G1573	C1369	A1189	C1112	G1015	G925	C780	A640	C496
A2280	C2142	G1853	G1574	C1371	U1190	C1113	A1016	C926	U767	U644	U499
A2281	G2143	C1691	G1575	U1375	G1197	C1114	A1023	A927	C788	C649	G507
A2282	A2144	C1699	A1576	U1377	G1199	C1115	G1024	U928	A792	G653	G508
G2293	U2146	C1703	A1577	U1379	A1209	C1116	G1029	C931	G808	A654	G509
A2148	A2148	G1717	A1578	G1379	A1212	C1117	C1034	G933	G805	G655	A517
G2154	G2154	C1718	A1583	U1388	A1215	C1118	C1035	U935	G808	A656	A518
G2158	C2159	A1719	A1584	G1389	A1216	C1119	A1036	G939	G815	A519	A519
A2301	U2160	G1723	A1585	G1394	G1216	C1120	C1046	G940	C816	A520	A520
A2302	A2161	C1737	A1586	G1395	G1217	C1121	C1047	U942	G817	A670	G521
C2307	G2044	A1741	A1589	G1399	C1234	C1122	A1048	U943	A822	G673	C527
U2163	C2046	G1746	G1603	G1400	G1238	C1123	A1049	U944	A823	A676	A544
G2173	A2047	C1751	C1604	A1401	C1239	C1124	A1050	C945	U824	G677	U547
G2318	U2048	G1756	A1605	G1404	G1249	C1125	U1052	A951	G832	U678	C548
G2319	G2049	U1757	A1606	G1407	A1257	C1126	A1053	A952	A833	C679	C549
G2176	C2050	C1758	U1607	U1408	G1275	C1127	G1057	C953	A834	U684	U550
A2323	G2057	U1757	U1608	G1411	G1276	C1128	A1061	U954	A840	U693	G559
C2327	G2062	C1758	A1612	G1414	A1277	C1129	A1062	C955	G840	G694	U560
A2333	U2066	G1768	A1613	U1414	C1278	C1130	G1063	C956	G845	U696	G561
A2334	C1927	A1769	G1614	U1415	A1291	C1131	U1064	U960	U847	A708	C566
G2335	G2069	G1770	A1615	U1415	U1292	C1132	A1065	C961	G848	G709	A567
A2336	C2070	U1776	C1623	A1420	G1287	C1133	A1066	C962	G849	A568	A570
G2337	G2074	A1776	U1627	A1421	U1288	C1134	A1067	C963	U867	C711	A571
U2338	A2075	G1777	G1628	C1422	G1289	C1135	U1073	C964	U885	G712	G572
U2340	A2076	U1778	A1629	U1432	A1290	C1136	A1074	U975	U886	A716	U573
A2341	C2077	A1782	G1630	G1428	A1291	C1137	U1075	U976	A585	G722	A585
A2201	U2082	A1783	A1631	U1431	G1292	C1138	U1076	C978	G887	U726	A586
C2206	G2083	G1784	A1632	U1432	U1293	C1139	U1077	U979	A888	C730	G600
A2350	C1955	A1787	A1633	C1434	G1294	C1140	U1078	U981	A890	U742	C602
C2208	U1969	U1790	A1634	U1435	C1295	C1141	U1079	A891	G897	A755	G607
A2212	U1970	U1795	C1638	U1436	U1304	C1142	U1092	A892	G900	A757	G610
A2213	G1978	C1795	C1641	U1439	A1308	C1143	U1093	U983	U901	A759	A612
C2217	C1979	A1798	C1642	G1443	A1310	C1144	G1096	U984	G905	G766	C821
C2218	A1980	C1802	A1646	U1444	A1311	C1145	A1097	C985	G906	A769	G622
U2294	A1984	C1814	U1650	U1448	G1317	C1146	U1098	A985	A919	A770	A623
A2225	A1985	A1815	U1550	U1449	U1336	C1147	U1099	C986	G920	A775	G629
U2227	G1986	A1815	A1552	U1450	U1338	C1148	G1102	U987	G921	A775	G629
A2239	G1989	A1823	A1559	U1451	U1339	C1149	G1103	A988	G922	A775	G629
C2240	U1990	A1829	U1560	U1452	U1340	C1150	G1104	A989	G922	A775	G629
G2252	A1996	A1830	U1561	U1454	U1341	C1151	G1105	A990	G922	A775	G629
G2253	U2005	G1831	A1566	U1455	U1342	C1152	G1106	A1000	G922	A775	G629
C2253	G2138	C1840	C1567	U1456	U1343	C1153	G1107	A1001	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1344	C1154	G1108	A1002	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1345	C1155	G1109	A1003	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1346	C1156	G1110	A1004	G922	A775	G629
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G2253	G2138	C1840	C1567	U1456	U1348	C1158	G1112	A1006	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1349	C1159	G1113	A1007	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1350	C1160	G1114	A1008	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1351	C1161	G1115	A1009	G922	A775	G629
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G2253	G2138	C1840	C1567	U1456	U1353	C1163	G1117	A1011	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1354	C1164	G1118	A1012	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1355	C1165	G1119	A1013	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1356	C1166	G1120	A1014	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1357	C1167	G1121	A1015	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1358	C1168	G1122	A1016	G922	A775	G629
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G2253	G2138	C1840	C1567	U1456	U1362	C1172	G1126	A1020	G922	A775	G629
G2253	G2138	C1840	C1567	U1456	U1363	C1173	G1127	A1021	G922	A775	G629
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G2253	G2138	C1840	C1567	U1456	U1368	C1178	G1132	A1026	G922	A775	G629
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G2253	G2138	C1840	C1567	U1456	U1391	C1201	G1155	A1049	G922	A775	G629
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G2253	G2138	C1840	C1567	U1456	U1409	C1219	G1173	A1067	G922	A775	G629
G2253	G2138	C1840	C1567								



• Molecule 21: 4S rRNA



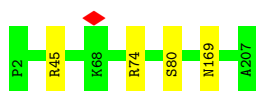
• Molecule 22: 50S ribosomal protein L2



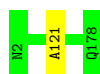
• Molecule 23: 50S ribosomal protein L3



• Molecule 24: 50S ribosomal protein L4



• Molecule 25: 50S ribosomal protein L5



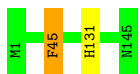
• Molecule 26: 50S ribosomal protein L6

Chain G:  98% ..



- Molecule 27: 50S ribosomal protein L13

Chain K:  99% ..



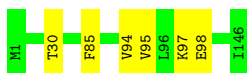
- Molecule 28: 50S ribosomal protein L14

Chain L:  100%

There are no outlier residues recorded for this chain.

- Molecule 29: 50S ribosomal protein L15

Chain M:  96% .



- Molecule 30: 50S ribosomal protein L16

Chain N:  97% .



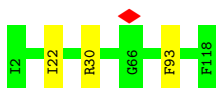
- Molecule 31: 50S ribosomal protein L17

Chain O:  97% .



- Molecule 32: 50S ribosomal protein L18

Chain P:  97% .



- Molecule 33: 50S ribosomal protein L19

Chain Q:  98%



- Molecule 34: 50S ribosomal protein L20

Chain R:  98%



- Molecule 35: 50S ribosomal protein L21

Chain S:  98%



- Molecule 36: 50S ribosomal protein L22

Chain T:  100%

There are no outlier residues recorded for this chain.

- Molecule 37: 50S ribosomal protein L23

Chain U:  94%



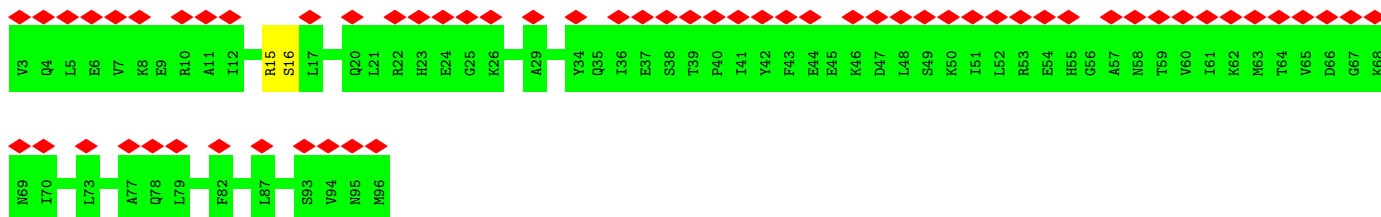
- Molecule 38: 50S ribosomal protein L24

Chain V:  95%



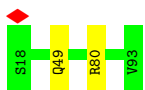
- Molecule 39: 50S ribosomal protein L25

Chain W:  65%
98%



- Molecule 40: 50S ribosomal protein L27

Chain X:  97%



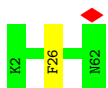
- Molecule 41: 50S ribosomal protein L28

Chain Y:  94% 6%



- Molecule 42: 50S ribosomal protein L29

Chain Z:  98%



- Molecule 43: 50S ribosomal protein L30

Chain 0:  100%

There are no outlier residues recorded for this chain.

- Molecule 44: 50S ribosomal protein L31 type B

Chain 1:  99%



- Molecule 45: 50S ribosomal protein L32

Chain 2:  100%

There are no outlier residues recorded for this chain.

- Molecule 46: 50S ribosomal protein L33

Chain 3:  100%

There are no outlier residues recorded for this chain.

- Molecule 47: 50S ribosomal protein L34

Chain 4:  98%



- Molecule 48: 50S ribosomal protein L35

Chain 5:  100%



- Molecule 49: 50S ribosomal protein L36

Chain 6:  100%

There are no outlier residues recorded for this chain.

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	46244	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	25	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	2.323	Depositor
Minimum map value	-0.893	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.095	Depositor
Recommended contour level	0.238	Depositor
Map size (\AA)	482.68, 482.68, 482.68	wwPDB
Map dimensions	440, 440, 440	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.097, 1.097, 1.097	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:
ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	a	0.65	2/36657 (0.0%)	1.19	299/57173 (0.5%)
2	c	0.31	0/1635	0.54	0/2197
3	d	0.33	0/1650	0.64	2/2217 (0.1%)
4	e	0.34	0/1217	0.62	0/1641
5	f	0.30	0/807	0.53	0/1087
6	g	0.29	0/1249	0.52	0/1682
7	h	0.36	0/1054	0.60	0/1417
8	i	0.32	0/1003	0.59	0/1343
9	j	0.30	0/812	0.65	0/1093
10	k	0.30	0/878	0.58	0/1185
11	l	0.38	0/1082	0.72	1/1453 (0.1%)
12	m	0.28	0/890	0.58	0/1195
13	n	0.33	0/504	0.53	0/669
14	o	0.33	0/751	0.57	0/1001
15	p	0.38	0/720	0.59	0/966
16	q	0.40	0/689	0.66	0/920
17	r	0.31	0/544	0.61	0/728
18	s	0.33	0/650	0.58	0/872
19	t	0.36	0/612	0.64	2/818 (0.2%)
20	A	0.89	3/69785 (0.0%)	1.20	461/108842 (0.4%)
21	B	0.72	1/2770 (0.0%)	1.17	17/4311 (0.4%)
22	C	0.50	0/2148	0.72	1/2888 (0.0%)
23	D	0.51	0/1597	0.72	0/2143
24	E	0.47	0/1595	0.63	0/2157
25	F	0.33	0/1410	0.59	0/1895
26	G	0.40	0/1362	0.67	1/1831 (0.1%)
27	K	0.50	0/1148	0.71	0/1546
28	L	0.51	0/929	0.66	0/1247
29	M	0.43	0/1102	0.78	0/1467
30	N	0.47	0/1139	0.73	0/1515
31	O	0.50	0/984	0.80	2/1317 (0.2%)
32	P	0.41	0/907	0.63	0/1214

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	Q	0.51	0/911	0.67	0/1227
34	R	0.52	0/951	0.70	1/1260 (0.1%)
35	S	0.47	0/794	0.65	0/1064
36	T	0.46	0/858	0.66	0/1157
37	U	0.48	0/725	0.73	0/969
38	V	0.41	0/772	0.75	1/1035 (0.1%)
39	W	0.29	0/768	0.65	0/1032
40	X	0.54	0/576	0.70	0/768
41	Y	0.35	0/431	0.58	0/574
42	Z	0.39	0/505	0.59	0/672
43	0	0.42	0/434	0.67	0/583
44	1	0.33	0/690	0.62	0/930
45	2	0.56	0/436	0.70	0/578
46	3	0.38	0/422	0.57	0/561
47	4	0.48	0/377	0.65	0/491
48	5	0.43	0/528	0.66	0/689
49	6	0.51	0/308	0.62	0/407
All	All	0.73	6/150766 (0.0%)	1.09	788/226027 (0.3%)

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
11	l	0	2
12	m	0	1
16	q	0	1
19	t	0	1
22	C	0	2
23	D	0	2
24	E	0	2
25	F	0	1
26	G	0	2
27	K	0	2
29	M	0	3
30	N	0	2
31	O	0	2
32	P	0	3
35	S	0	2
37	U	0	2
38	V	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
39	W	0	1
40	X	0	1
41	Y	0	1
47	4	0	1
All	All	0	36

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
21	B	1	U	OP3-P	-10.56	1.48	1.61
20	A	1689	A	N9-C4	6.30	1.41	1.37
1	a	56	A	N9-C4	5.95	1.41	1.37
1	a	140	A	N9-C4	5.89	1.41	1.37
20	A	1288	A	N9-C4	-5.71	1.34	1.37
20	A	1414	A	N9-C4	-5.05	1.34	1.37

All (788) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	346	G	N7-C8-N9	11.73	118.96	113.10
20	A	1349	U	N3-C2-O2	-11.63	114.06	122.20
1	a	1548	U	N1-C2-O2	11.43	130.80	122.80
1	a	1082	C	N1-C2-O2	11.38	125.73	118.90
20	A	1551	U	C2-N1-C1'	11.38	131.36	117.70
20	A	1551	U	N1-C2-O2	11.22	130.65	122.80
20	A	644	U	N3-C2-O2	-10.82	114.63	122.20
1	a	1548	U	C2-N1-C1'	10.68	130.51	117.70
20	A	1130	U	N1-C2-O2	10.63	130.24	122.80
20	A	1130	U	C2-N1-C1'	10.49	130.29	117.70
1	a	109	G	O4'-C1'-N9	10.01	116.21	108.20
20	A	1551	U	N3-C2-O2	-9.99	115.21	122.20
20	A	1349	U	N1-C2-O2	9.90	129.73	122.80
1	a	1548	U	N3-C2-O2	-9.89	115.28	122.20
1	a	346	G	C8-N9-C4	-9.87	102.45	106.40
20	A	1130	U	N3-C2-O2	-9.71	115.40	122.20
1	a	1082	C	N3-C2-O2	-9.63	115.16	121.90
20	A	963	C	C6-N1-C2	-9.58	116.47	120.30
20	A	1106	U	N1-C2-O2	9.50	129.45	122.80
1	a	560	C	N1-C2-O2	9.49	124.59	118.90
1	a	826	C	C2-N1-C1'	9.43	129.17	118.80
1	a	579	U	N3-C2-O2	-9.38	115.63	122.20
1	a	1082	C	C2-N1-C1'	9.37	129.11	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	141	C	N1-C2-O2	9.37	124.52	118.90
1	a	142	C	N1-C2-O2	9.24	124.45	118.90
1	a	109	G	C8-N9-C1'	9.16	138.91	127.00
21	B	68	C	N1-C2-O2	9.16	124.40	118.90
1	a	346	G	C5-N7-C8	-9.15	99.72	104.30
21	B	68	C	C2-N1-C1'	9.15	128.87	118.80
20	A	644	U	N1-C2-O2	9.13	129.19	122.80
1	a	826	C	N1-C2-O2	9.06	124.34	118.90
20	A	901	U	C2-N1-C1'	9.05	128.56	117.70
20	A	1885	C	N1-C2-O2	9.03	124.32	118.90
20	A	2825	C	N1-C2-O2	9.01	124.31	118.90
1	a	108	U	N3-C2-O2	-8.99	115.91	122.20
20	A	1130	U	C5-C6-N1	8.96	127.18	122.70
1	a	1082	C	C6-N1-C2	-8.79	116.79	120.30
1	a	109	G	C4-N9-C1'	-8.73	115.15	126.50
1	a	56	A	C2-N3-C4	8.66	114.93	110.60
20	A	1489	C	C2-N3-C4	8.65	124.23	119.90
20	A	1349	U	C2-N1-C1'	8.62	128.05	117.70
1	a	492	C	N1-C2-O2	8.59	124.06	118.90
20	A	897	G	N3-C4-N9	-8.57	120.86	126.00
1	a	997	U	C2-N1-C1'	8.44	127.83	117.70
20	A	906	C	N1-C2-O2	8.43	123.96	118.90
20	A	849	G	N1-C6-O6	-8.40	114.86	119.90
1	a	579	U	N1-C2-O2	8.39	128.67	122.80
20	A	1148	U	N1-C2-O2	8.36	128.65	122.80
20	A	2825	C	N3-C2-O2	-8.36	116.05	121.90
20	A	1489	C	C5-C6-N1	8.33	125.17	121.00
20	A	1148	U	N3-C2-O2	-8.24	116.43	122.20
20	A	901	U	N1-C2-O2	8.22	128.55	122.80
1	a	1465	U	N1-C2-O2	8.19	128.53	122.80
20	A	1350	C	C2-N1-C1'	8.17	127.79	118.80
20	A	897	G	N9-C4-C5	8.17	108.67	105.40
1	a	468	C	C6-N1-C2	-8.15	117.04	120.30
20	A	261	C	N1-C2-O2	8.11	123.77	118.90
20	A	2697	C	N1-C2-O2	8.08	123.75	118.90
1	a	875	C	N1-C2-O2	8.06	123.73	118.90
1	a	505	U	C5-C6-N1	8.01	126.70	122.70
1	a	142	C	N3-C2-O2	-7.87	116.39	121.90
1	a	140	A	C2-N3-C4	7.87	114.53	110.60
20	A	1948	C	C2-N1-C1'	7.86	127.45	118.80
1	a	1173	C	C2-N1-C1'	7.84	127.43	118.80
1	a	826	C	C6-N1-C2	-7.79	117.18	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	730	C	C6-N1-C2	-7.79	117.19	120.30
20	A	1885	C	N3-C2-O2	-7.73	116.49	121.90
1	a	108	U	N1-C2-O2	7.71	128.19	122.80
1	a	141	C	N3-C2-O2	-7.70	116.51	121.90
1	a	1053	C	N1-C2-O2	7.69	123.51	118.90
1	a	826	C	N3-C2-O2	-7.68	116.53	121.90
1	a	109	G	N9-C4-C5	7.66	108.46	105.40
20	A	925	C	C2-N1-C1'	7.66	127.22	118.80
20	A	901	U	N3-C2-O2	-7.65	116.84	122.20
20	A	1758	C	C2-N1-C1'	7.60	127.16	118.80
20	A	1551	U	C6-N1-C1'	-7.59	110.58	121.20
1	a	1306	C	C2-N1-C1'	7.55	127.11	118.80
1	a	156	U	N1-C2-O2	7.53	128.07	122.80
1	a	184	C	N1-C2-O2	7.52	123.41	118.90
1	a	995	C	N1-C2-O2	7.52	123.41	118.90
20	A	2488	C	N1-C2-O2	7.51	123.41	118.90
20	A	2858	U	N3-C2-O2	-7.50	116.95	122.20
20	A	2753	U	N1-C2-O2	7.45	128.01	122.80
1	a	108	U	C5-C6-N1	7.44	126.42	122.70
20	A	2734	U	N3-C2-O2	-7.43	117.00	122.20
1	a	190	A	N7-C8-N9	7.42	117.51	113.80
1	a	579	U	C2-N1-C1'	7.42	126.61	117.70
20	A	549	C	N1-C2-O2	7.41	123.35	118.90
1	a	148	G	C2-N3-C4	7.41	115.60	111.90
1	a	1548	U	C6-N1-C1'	-7.38	110.87	121.20
20	A	1928	C	N1-C2-O2	7.38	123.33	118.90
20	A	1304	U	C2-N1-C1'	7.37	126.54	117.70
1	a	1059	G	N1-C6-O6	-7.36	115.48	119.90
1	a	1173	C	N1-C2-O2	7.36	123.32	118.90
1	a	632	G	N3-C4-N9	-7.36	121.58	126.00
20	A	1489	C	N1-C2-O2	7.36	123.32	118.90
20	A	2143	C	C5-C6-N1	7.36	124.68	121.00
20	A	1047	C	C6-N1-C2	-7.35	117.36	120.30
1	a	907	U	N1-C2-O2	7.34	127.94	122.80
20	A	2734	U	N1-C2-O2	7.34	127.94	122.80
20	A	246	U	N3-C2-O2	-7.33	117.07	122.20
1	a	790	G	N3-C4-N9	-7.33	121.61	126.00
1	a	109	G	C6-C5-N7	7.32	134.79	130.40
20	A	1497	U	N3-C2-O2	-7.31	117.08	122.20
1	a	1183	C	C2-N1-C1'	7.30	126.83	118.80
20	A	849	G	C5-C6-O6	7.30	132.98	128.60
1	a	1465	U	N3-C2-O2	-7.29	117.09	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	560	C	C2-N1-C1'	7.29	126.82	118.80
1	a	997	U	N3-C2-O2	-7.26	117.12	122.20
20	A	1885	C	C2-N1-C1'	7.26	126.78	118.80
1	a	234	C	N3-C2-O2	-7.25	116.83	121.90
20	A	2766	C	N1-C2-O2	7.25	123.25	118.90
1	a	860	C	N1-C2-O2	7.23	123.24	118.90
1	a	492	C	N3-C2-O2	-7.23	116.84	121.90
20	A	2143	C	C6-N1-C2	-7.22	117.41	120.30
20	A	654	A	C8-N9-C4	7.21	108.69	105.80
1	a	1152	U	N1-C2-O2	7.21	127.85	122.80
20	A	1350	C	C6-N1-C2	-7.21	117.42	120.30
1	a	529	C	C6-N1-C2	-7.20	117.42	120.30
20	A	2794	G	C4-N9-C1'	7.20	135.86	126.50
20	A	2753	U	N3-C2-O2	-7.19	117.17	122.20
1	a	64	C	C6-N1-C2	-7.17	117.43	120.30
1	a	279	C	C6-N1-C2	-7.17	117.43	120.30
1	a	907	U	N3-C2-O2	-7.16	117.19	122.20
20	A	272	C	C2-N1-C1'	7.16	126.68	118.80
20	A	1907	C	N3-C2-O2	-7.15	116.89	121.90
20	A	261	C	N3-C2-O2	-7.13	116.91	121.90
1	a	1053	C	N3-C2-O2	-7.13	116.91	121.90
1	a	66	C	C6-N1-C2	-7.12	117.45	120.30
20	A	272	C	C6-N1-C2	-7.12	117.45	120.30
21	B	68	C	N3-C2-O2	-7.11	116.92	121.90
20	A	935	U	N1-C2-O2	7.11	127.77	122.80
20	A	1907	C	N1-C2-O2	7.10	123.16	118.90
20	A	906	C	C2-N1-C1'	7.08	126.59	118.80
20	A	2858	U	N1-C2-O2	7.08	127.76	122.80
1	a	1152	U	C2-N1-C1'	7.07	126.19	117.70
1	a	67	U	C2-N1-C1'	7.04	126.14	117.70
1	a	115	C	N1-C2-O2	7.03	123.12	118.90
20	A	655	G	C8-N9-C4	7.03	109.21	106.40
1	a	451	C	N1-C2-O2	7.02	123.11	118.90
1	a	148	G	N3-C4-C5	-7.01	125.09	128.60
20	A	2697	C	N3-C2-O2	-7.01	117.00	121.90
1	a	468	C	N3-C2-O2	-7.00	117.00	121.90
20	A	246	U	N1-C2-O2	7.00	127.70	122.80
20	A	527	C	N1-C2-O2	7.00	123.10	118.90
1	a	196	U	N3-C2-O2	-7.00	117.30	122.20
20	A	935	U	C2-N1-C1'	6.99	126.09	117.70
1	a	1152	U	N3-C2-O2	-6.97	117.32	122.20
20	A	1604	A	P-O3'-C3'	6.96	128.06	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	504	C	N3-C2-O2	-6.96	117.03	121.90
20	A	1106	U	N3-C2-O2	-6.95	117.34	122.20
20	A	935	U	N3-C2-O2	-6.93	117.35	122.20
20	A	1689	A	C2-N3-C4	6.91	114.06	110.60
1	a	1059	G	C5-C6-O6	6.91	132.75	128.60
20	A	1157	C	C2-N1-C1'	6.90	126.39	118.80
1	a	1305	G	C4-N9-C1'	6.90	135.47	126.50
21	B	68	C	C6-N1-C1'	-6.89	112.53	120.80
1	a	995	C	C2-N1-C1'	6.87	126.35	118.80
20	A	1130	U	C6-N1-C2	-6.85	116.89	121.00
20	A	1574	C	N1-C2-O2	6.84	123.01	118.90
20	A	649	C	C5-C6-N1	6.81	124.41	121.00
1	a	418	C	N1-C2-O2	6.81	122.98	118.90
1	a	109	G	C4-C5-N7	-6.80	108.08	110.80
1	a	141	C	C6-N1-C2	-6.80	117.58	120.30
38	V	71	ILE	C-N-CA	6.79	138.68	121.70
1	a	450	U	C5-C6-N1	6.78	126.09	122.70
1	a	1022	C	N1-C2-O2	6.78	122.97	118.90
20	A	1641	C	C6-N1-C2	-6.78	117.59	120.30
1	a	649	C	C6-N1-C2	-6.78	117.59	120.30
20	A	1024	G	N3-C4-C5	-6.78	125.21	128.60
1	a	109	G	N3-C4-N9	-6.77	121.94	126.00
1	a	1038	C	N1-C2-O2	6.76	122.96	118.90
1	a	1082	C	C5-C6-N1	6.76	124.38	121.00
20	A	396	C	C2-N1-C1'	6.75	126.22	118.80
20	A	1948	C	N1-C2-O2	6.73	122.94	118.90
20	A	925	C	N1-C2-O2	6.73	122.94	118.90
1	a	1001	C	C2-N1-C1'	6.72	126.20	118.80
20	A	1148	U	C2-N1-C1'	6.72	125.77	117.70
20	A	1758	C	C6-N1-C2	-6.68	117.63	120.30
1	a	108	U	C6-N1-C2	-6.66	117.00	121.00
20	A	956	C	N1-C2-O2	6.66	122.89	118.90
20	A	2007	U	N3-C2-O2	-6.65	117.54	122.20
1	a	115	C	N3-C2-O2	-6.64	117.25	121.90
1	a	1173	C	N3-C2-O2	-6.63	117.26	121.90
20	A	963	C	N3-C2-O2	-6.63	117.26	121.90
20	A	1454	U	N3-C2-O2	-6.63	117.56	122.20
20	A	1197	G	N3-C4-N9	6.63	129.98	126.00
20	A	1217	G	O5'-P-OP1	-6.63	99.73	105.70
20	A	2729	C	C5-C6-N1	6.62	124.31	121.00
1	a	416	C	N1-C2-O2	6.62	122.87	118.90
21	B	35	C	C6-N1-C2	-6.61	117.66	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	527	C	N3-C2-O2	-6.61	117.28	121.90
20	A	1304	U	N1-C2-O2	6.60	127.42	122.80
1	a	511	G	C4-N9-C1'	6.60	135.08	126.50
1	a	140	A	N3-C4-N9	6.58	132.66	127.40
20	A	1024	G	N3-C4-N9	6.57	129.94	126.00
1	a	511	G	N3-C4-N9	6.57	129.94	126.00
20	A	2570	C	N1-C2-O2	6.57	122.84	118.90
1	a	418	C	C2-N1-C1'	6.56	126.02	118.80
1	a	1305	G	N3-C4-N9	6.56	129.94	126.00
20	A	1647	C	C6-N1-C2	-6.56	117.68	120.30
1	a	860	C	C2-N1-C1'	6.55	126.00	118.80
21	B	96	G	C4-N9-C1'	6.54	135.01	126.50
1	a	734	C	C2-N1-C1'	6.50	125.95	118.80
1	a	952	C	N1-C2-O2	6.50	122.80	118.90
1	a	734	C	N3-C2-O2	-6.49	117.36	121.90
20	A	2090	U	N1-C2-O2	6.49	127.34	122.80
1	a	578	A	C4-N9-C1'	6.48	137.97	126.30
1	a	1306	C	C6-N1-C2	-6.48	117.71	120.30
20	A	1561	U	C2-N1-C1'	6.48	125.47	117.70
20	A	931	C	C2-N1-C1'	6.48	125.93	118.80
20	A	906	C	N3-C2-O2	-6.46	117.38	121.90
20	A	1641	C	N1-C2-O2	6.46	122.77	118.90
20	A	1605	C	P-O3'-C3'	6.44	127.43	119.70
1	a	1094	U	N3-C2-O2	-6.43	117.70	122.20
20	A	310	G	C4-N9-C1'	6.43	134.85	126.50
1	a	55	C	C6-N1-C2	-6.41	117.74	120.30
1	a	1091	U	N3-C2-O2	-6.41	117.72	122.20
1	a	67	U	N1-C2-O2	6.40	127.28	122.80
20	A	1434	C	C2-N1-C1'	6.39	125.83	118.80
1	a	1306	C	C5-C6-N1	6.39	124.20	121.00
1	a	443	G	OP1-P-O3'	6.39	119.25	105.20
20	A	1882	C	C2-N1-C1'	6.39	125.83	118.80
1	a	649	C	N1-C2-O2	6.39	122.73	118.90
20	A	1970	U	N3-C2-O2	-6.39	117.73	122.20
1	a	1468	U	N1-C2-O2	6.37	127.26	122.80
1	a	184	C	N3-C2-O2	-6.37	117.44	121.90
1	a	511	G	C8-N9-C1'	-6.36	118.73	127.00
20	A	2819	U	N1-C2-O2	6.36	127.25	122.80
26	G	54	ARG	NE-CZ-NH1	-6.36	117.12	120.30
20	A	1212	A	C2-N3-C4	6.36	113.78	110.60
1	a	1039	U	C2-N1-C1'	6.36	125.33	117.70
20	A	549	C	C2-N1-C1'	6.35	125.78	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	504	C	C6-N1-C2	-6.35	117.76	120.30
20	A	2240	C	N1-C2-O2	6.34	122.71	118.90
20	A	104	U	N1-C2-O2	6.34	127.24	122.80
20	A	509	G	O4'-C1'-N9	6.34	113.27	108.20
1	a	1043	C	C6-N1-C2	-6.34	117.77	120.30
1	a	503	U	C5-C6-N1	6.33	125.87	122.70
1	a	997	U	N1-C2-O2	6.33	127.23	122.80
20	A	1885	C	C6-N1-C2	-6.33	117.77	120.30
20	A	2127	C	C2-N1-C1'	6.33	125.76	118.80
1	a	156	U	N3-C2-O2	-6.33	117.77	122.20
20	A	1584	G	P-O3'-C3'	6.33	127.29	119.70
20	A	1092	C	N1-C2-O2	6.32	122.69	118.90
20	A	2819	U	N3-C2-O2	-6.32	117.77	122.20
1	a	267	U	C2-N1-C1'	6.32	125.28	117.70
1	a	875	C	N3-C2-O2	-6.32	117.48	121.90
20	A	256	C	C6-N1-C2	-6.32	117.77	120.30
20	A	1369	C	N3-C2-O2	-6.32	117.48	121.90
20	A	1304	U	N3-C2-O2	-6.31	117.78	122.20
20	A	2881	C	C6-N1-C2	-6.31	117.78	120.30
20	A	1703	C	C6-N1-C2	-6.30	117.78	120.30
20	A	2307	C	C5-C6-N1	6.28	124.14	121.00
1	a	56	A	N3-C4-C5	-6.28	122.41	126.80
20	A	1156	C	C2-N1-C1'	6.27	125.70	118.80
1	a	1173	C	C6-N1-C2	-6.25	117.80	120.30
20	A	1024	G	C4-N9-C1'	6.24	134.62	126.50
20	A	423	C	N1-C2-O2	6.24	122.64	118.90
1	a	450	U	C2-N1-C1'	6.23	125.18	117.70
1	a	968	U	N3-C2-O2	-6.22	117.85	122.20
1	a	529	C	C5-C6-N1	6.20	124.10	121.00
20	A	2786	C	C6-N1-C2	-6.20	117.82	120.30
1	a	597	C	N1-C2-O2	6.19	122.62	118.90
20	A	1448	U	C2-N1-C1'	6.19	125.13	117.70
20	A	1130	U	C6-N1-C1'	-6.19	112.54	121.20
20	A	1435	C	N1-C2-O2	6.18	122.61	118.90
1	a	1125	C	N1-C2-O2	6.18	122.61	118.90
20	A	2488	C	C2-N1-C1'	6.18	125.60	118.80
20	A	602	C	C6-N1-C2	-6.18	117.83	120.30
20	A	1454	U	N1-C2-O2	6.17	127.12	122.80
20	A	901	U	C5-C6-N1	6.17	125.79	122.70
20	A	1238	C	C6-N1-C2	-6.17	117.83	120.30
20	A	2729	C	C6-N1-C2	-6.17	117.83	120.30
1	a	1091	U	C2-N1-C1'	6.16	125.10	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	826	C	C6-N1-C1'	-6.15	113.42	120.80
20	A	1641	C	C2-N1-C1'	6.15	125.56	118.80
20	A	2794	G	C8-N9-C1'	-6.15	119.01	127.00
20	A	1197	G	C4-N9-C1'	6.14	134.48	126.50
1	a	451	C	C5-C6-N1	6.14	124.07	121.00
20	A	1551	U	C5-C6-N1	6.14	125.77	122.70
1	a	255	U	O4'-C1'-N1	6.13	113.11	108.20
1	a	530	G	C4-N9-C1'	6.13	134.47	126.50
20	A	956	C	C2-N1-C1'	6.13	125.54	118.80
20	A	413	U	N3-C2-O2	-6.13	117.91	122.20
1	a	1318	C	C2-N1-C1'	6.12	125.53	118.80
20	A	1641	C	N3-C2-O2	-6.12	117.61	121.90
1	a	734	C	C6-N1-C2	-6.12	117.85	120.30
1	a	649	C	C2-N1-C1'	6.12	125.53	118.80
20	A	607	G	N3-C4-C5	-6.11	125.54	128.60
20	A	897	G	N1-C6-O6	-6.11	116.23	119.90
20	A	164	U	N1-C2-N3	6.10	118.56	114.90
20	A	310	G	N3-C4-N9	6.10	129.66	126.00
1	a	634	U	C2-N1-C1'	6.10	125.02	117.70
1	a	1305	G	C8-N9-C1'	-6.09	119.08	127.00
20	A	1399	C	C2-N1-C1'	6.09	125.50	118.80
1	a	140	A	N3-C4-C5	-6.08	122.54	126.80
20	A	709	G	C4-N9-C1'	6.07	134.40	126.50
20	A	47	C	C6-N1-C2	-6.07	117.87	120.30
20	A	2670	U	C2-N1-C1'	6.07	124.98	117.70
1	a	704	C	C6-N1-C2	-6.07	117.87	120.30
20	A	201	C	C2-N1-C1'	6.06	125.47	118.80
20	A	960	U	N3-C2-O2	-6.06	117.96	122.20
21	B	85	U	C5-C6-N1	6.05	125.73	122.70
1	a	468	C	N1-C2-O2	6.05	122.53	118.90
20	A	849	G	N9-C4-C5	6.05	107.82	105.40
1	a	142	C	C2-N1-C1'	6.05	125.45	118.80
1	a	322	U	N3-C2-O2	-6.04	117.97	122.20
1	a	1053	C	C6-N1-C2	-6.04	117.88	120.30
20	A	104	U	N3-C2-O2	-6.04	117.97	122.20
20	A	1497	U	N1-C2-O2	6.03	127.02	122.80
20	A	897	G	C5-C6-O6	6.02	132.22	128.60
1	a	995	C	N3-C2-O2	-6.02	117.68	121.90
20	A	209	U	N3-C2-O2	-6.02	117.99	122.20
20	A	1379	G	N3-C4-N9	6.02	129.61	126.00
20	A	1928	C	N3-C2-O2	-6.02	117.69	121.90
20	A	1970	U	N1-C2-O2	6.02	127.01	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	423	C	C2-N1-C1'	6.01	125.41	118.80
1	a	196	U	N1-C2-O2	6.00	127.00	122.80
20	A	2766	C	N3-C2-O2	-6.00	117.70	121.90
20	A	1830	A	N7-C8-N9	6.00	116.80	113.80
31	O	41	ARG	CA-CB-CG	5.99	126.59	113.40
20	A	924	C	C6-N1-C2	-5.99	117.90	120.30
20	A	1830	A	C8-N9-C4	-5.99	103.40	105.80
20	A	621	C	C5-C6-N1	5.98	123.99	121.00
1	a	865	U	N3-C2-O2	-5.98	118.02	122.20
1	a	1305	G	N3-C4-C5	-5.97	125.61	128.60
20	A	2766	C	C2-N1-C1'	5.97	125.36	118.80
1	a	649	C	N3-C2-O2	-5.97	117.72	121.90
1	a	143	C	N3-C2-O2	-5.96	117.73	121.90
20	A	325	U	N1-C2-O2	5.96	126.97	122.80
20	A	1574	C	N3-C2-O2	-5.96	117.73	121.90
20	A	1379	G	C4-N9-C1'	5.95	134.24	126.50
20	A	1489	C	C6-N1-C2	-5.95	117.92	120.30
20	A	256	C	C5-C6-N1	5.95	123.98	121.00
20	A	973	U	N3-C2-O2	-5.95	118.04	122.20
20	A	246	U	C2-N1-C1'	5.95	124.84	117.70
20	A	1453	U	C2-N1-C1'	5.95	124.83	117.70
20	A	272	C	N3-C2-O2	-5.94	117.74	121.90
1	a	1468	U	N3-C2-O2	-5.94	118.04	122.20
20	A	1758	C	N3-C2-O2	-5.94	117.74	121.90
20	A	602	C	N1-C2-O2	5.93	122.46	118.90
20	A	1830	A	C2-N3-C4	5.93	113.56	110.60
20	A	2826	C	C2-N1-C1'	5.93	125.32	118.80
1	a	279	C	C2-N1-C1'	5.92	125.32	118.80
20	A	1655	C	C6-N1-C2	-5.91	117.93	120.30
20	A	1197	G	C8-N9-C1'	-5.91	119.32	127.00
20	A	2127	C	N1-C2-O2	5.90	122.44	118.90
20	A	1081	U	N3-C2-O2	-5.90	118.07	122.20
1	a	632	G	N9-C4-C5	5.89	107.76	105.40
1	a	560	C	C6-N1-C1'	-5.89	113.73	120.80
20	A	712	C	C6-N1-C2	-5.89	117.94	120.30
20	A	925	C	C6-N1-C2	-5.89	117.95	120.30
20	A	2307	C	C6-N1-C2	-5.89	117.95	120.30
20	A	1878	U	N1-C2-O2	5.88	126.92	122.80
1	a	1183	C	N1-C2-O2	5.88	122.43	118.90
20	A	561	G	N3-C4-N9	5.88	129.53	126.00
1	a	769	C	C2-N1-C1'	5.88	125.26	118.80
20	A	1751	C	C6-N1-C2	-5.87	117.95	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	639	C	C6-N1-C1'	5.86	127.83	120.80
20	A	1996	U	N3-C2-O2	-5.86	118.10	122.20
1	a	346	G	C4-C5-N7	5.86	113.14	110.80
20	A	1479	C	C6-N1-C2	-5.85	117.96	120.30
20	A	1130	U	O4'-C1'-N1	5.85	112.88	108.20
20	A	2787	U	N3-C2-O2	-5.84	118.11	122.20
20	A	945	C	C2-N1-C1'	5.84	125.23	118.80
20	A	1349	U	C6-N1-C1'	-5.84	113.03	121.20
1	a	108	U	C2-N1-C1'	5.83	124.70	117.70
1	a	148	G	O4'-C1'-N9	5.83	112.87	108.20
20	A	495	C	N1-C2-O2	5.83	122.40	118.90
20	A	2007	U	N1-C2-O2	5.83	126.88	122.80
20	A	962	C	C6-N1-C2	-5.83	117.97	120.30
20	A	638	C	C2-N1-C1'	5.82	125.20	118.80
20	A	2240	C	N3-C2-O2	-5.82	117.83	121.90
20	A	848	G	C5-C6-O6	5.82	132.09	128.60
1	a	55	C	C2-N1-C1'	5.81	125.19	118.80
1	a	427	A	P-O3'-C3'	5.81	126.67	119.70
20	A	602	C	N3-C2-O2	-5.80	117.84	121.90
20	A	1758	C	N1-C2-O2	5.80	122.38	118.90
1	a	597	C	N3-C2-O2	-5.80	117.84	121.90
1	a	424	U	N3-C2-O2	-5.79	118.15	122.20
20	A	1045	C	N1-C2-O2	5.79	122.37	118.90
1	a	639	C	C6-N1-C2	-5.78	117.99	120.30
1	a	644	A	C4-N9-C1'	5.78	136.70	126.30
20	A	47	C	C2-N1-C1'	5.78	125.15	118.80
20	A	1955	C	N1-C2-O2	5.78	122.36	118.90
1	a	862	C	N1-C2-O2	5.77	122.36	118.90
21	B	101	U	N1-C2-O2	5.77	126.84	122.80
19	t	49	LEU	CA-CB-CG	5.77	128.57	115.30
20	A	956	C	N3-C2-O2	-5.77	117.86	121.90
20	A	1081	U	N1-C2-O2	5.76	126.84	122.80
20	A	1948	C	C6-N1-C2	-5.76	117.99	120.30
20	A	901	U	C6-N1-C1'	-5.75	113.14	121.20
20	A	162	A	C8-N9-C4	-5.75	103.50	105.80
1	a	860	C	N3-C2-O2	-5.75	117.87	121.90
20	A	2812	A	P-O3'-C3'	5.75	126.60	119.70
1	a	386	G	P-O3'-C3'	5.75	126.60	119.70
20	A	2142	C	N1-C2-O2	5.75	122.35	118.90
20	A	638	C	C6-N1-C2	-5.74	118.00	120.30
20	A	848	G	N1-C6-O6	-5.74	116.45	119.90
20	A	2518	U	C5-C6-N1	5.74	125.57	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	943	U	C2-N1-C1'	5.74	124.58	117.70
1	a	199	C	N3-C2-O2	-5.73	117.89	121.90
20	A	897	G	C8-N9-C1'	5.73	134.45	127.00
22	C	91	ILE	CG1-CB-CG2	-5.73	98.79	111.40
1	a	1548	U	C5-C6-N1	5.73	125.56	122.70
1	a	419	G	C4-N9-C1'	5.72	133.94	126.50
20	A	2142	C	C6-N1-C2	-5.72	118.01	120.30
20	A	679	C	C5-C6-N1	5.72	123.86	121.00
1	a	107	G	C5-C6-O6	5.72	132.03	128.60
20	A	1197	G	C6-C5-N7	-5.71	126.97	130.40
20	A	1969	U	C5-C6-N1	-5.71	119.85	122.70
1	a	720	U	N3-C2-O2	-5.71	118.21	122.20
1	a	578	A	C8-N9-C1'	-5.70	117.44	127.70
20	A	272	C	N1-C2-O2	5.70	122.32	118.90
1	a	927	U	N3-C2-O2	-5.69	118.22	122.20
20	A	1723	U	N3-C2-O2	-5.69	118.22	122.20
20	A	2208	C	C2-N1-C1'	5.69	125.06	118.80
20	A	1802	C	C6-N1-C2	-5.69	118.02	120.30
20	A	571	A	C2-N3-C4	5.69	113.44	110.60
20	A	1379	G	N3-C4-C5	-5.68	125.76	128.60
20	A	310	G	C8-N9-C1'	-5.68	119.61	127.00
20	A	849	G	C8-N9-C4	-5.68	104.13	106.40
20	A	1489	C	C2-N1-C1'	5.68	125.05	118.80
20	A	495	C	C2-N1-C1'	5.68	125.05	118.80
1	a	766	U	N3-C2-O2	-5.68	118.23	122.20
20	A	561	G	C6-C5-N7	-5.67	127.00	130.40
20	A	1128	A	C5-C6-N6	-5.67	119.16	123.70
20	A	549	C	C5-C6-N1	5.67	123.84	121.00
20	A	931	C	N1-C2-O2	5.66	122.30	118.90
20	A	1075	U	N1-C2-O2	5.66	126.76	122.80
1	a	384	C	C2-N1-C1'	5.65	125.02	118.80
1	a	952	C	C2-N1-C1'	5.65	125.02	118.80
1	a	1082	C	C6-N1-C1'	-5.65	114.02	120.80
1	a	660	G	C4-N9-C1'	5.65	133.84	126.50
20	A	780	C	C6-N1-C2	-5.64	118.04	120.30
20	A	1140	C	N1-C2-O2	5.64	122.29	118.90
1	a	267	U	N3-C2-O2	-5.64	118.25	122.20
1	a	204	G	N1-C6-O6	-5.64	116.52	119.90
1	a	968	U	N1-C2-O2	5.63	126.75	122.80
20	A	1699	C	C6-N1-C2	-5.63	118.05	120.30
20	A	1100	U	N3-C4-O4	5.63	123.34	119.40
20	A	413	U	N1-C2-O2	5.62	126.73	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	973	U	N1-C2-O2	5.62	126.73	122.80
20	A	1350	C	C5-C6-N1	5.62	123.81	121.00
20	A	1502	G	P-O3'-C3'	5.62	126.45	119.70
20	A	1723	U	C2-N1-C1'	5.62	124.44	117.70
1	a	862	C	C2-N1-C1'	5.61	124.97	118.80
20	A	2030	U	N3-C2-O2	-5.61	118.27	122.20
20	A	1902	G	O4'-C1'-N9	5.61	112.69	108.20
20	A	2724	C	N3-C2-O2	-5.61	117.97	121.90
21	B	96	G	C8-N9-C1'	-5.61	119.71	127.00
20	A	1936	G	N3-C4-N9	-5.60	122.64	126.00
20	A	823	A	C2-N3-C4	5.60	113.40	110.60
20	A	730	C	C2-N1-C1'	5.59	124.95	118.80
20	A	1505	C	N3-C2-O2	-5.59	117.98	121.90
20	A	1362	U	N3-C2-O2	-5.59	118.28	122.20
20	A	933	G	N3-C4-C5	-5.59	125.81	128.60
20	A	1399	C	C6-N1-C2	-5.59	118.06	120.30
3	d	26	LEU	CA-CB-CG	5.59	128.15	115.30
20	A	654	A	N7-C8-N9	-5.59	111.01	113.80
20	A	1502	G	OP1-P-O3'	5.59	117.49	105.20
20	A	310	G	N3-C4-C5	-5.58	125.81	128.60
1	a	156	U	C2-N1-C1'	5.58	124.40	117.70
1	a	279	C	N3-C2-O2	-5.58	117.99	121.90
1	a	424	U	N1-C2-O2	5.58	126.71	122.80
21	B	101	U	N3-C2-O2	-5.58	118.29	122.20
1	a	67	U	N3-C2-O2	-5.58	118.30	122.20
20	A	573	U	C5-C6-N1	5.57	125.49	122.70
20	A	1350	C	N1-C2-O2	5.56	122.24	118.90
20	A	1479	C	C2-N1-C1'	5.56	124.92	118.80
1	a	529	C	C2-N1-C1'	5.56	124.92	118.80
1	a	1091	U	N1-C2-O2	5.56	126.69	122.80
20	A	475	C	N1-C2-O2	5.56	122.23	118.90
20	A	1434	C	C5-C6-N1	5.56	123.78	121.00
1	a	109	G	N1-C6-O6	-5.55	116.57	119.90
20	A	2836	G	C6-C5-N7	-5.55	127.07	130.40
1	a	720	U	N1-C2-O2	5.55	126.68	122.80
1	a	585	G	C4-N9-C1'	5.54	133.71	126.50
1	a	1094	U	N1-C2-O2	5.54	126.68	122.80
20	A	2317	G	P-O3'-C3'	5.54	126.35	119.70
1	a	660	G	N3-C4-C5	-5.54	125.83	128.60
20	A	571	A	C4-N9-C1'	5.54	136.27	126.30
1	a	952	C	C6-N1-C2	-5.54	118.09	120.30
1	a	6	G	O4'-C1'-N9	5.53	112.63	108.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	709	G	N3-C4-N9	5.53	129.32	126.00
20	A	2700	G	N3-C4-C5	-5.53	125.83	128.60
20	A	657	C	C6-N1-C2	-5.53	118.09	120.30
20	A	2050	C	N1-C2-O2	5.53	122.22	118.90
1	a	56	A	N3-C4-N9	5.53	131.82	127.40
20	A	2825	C	C2-N1-C1'	5.53	124.88	118.80
1	a	279	C	N1-C2-O2	5.52	122.21	118.90
1	a	968	U	C2-N1-C1'	5.52	124.32	117.70
20	A	2670	U	N3-C2-O2	-5.52	118.34	122.20
1	a	560	C	C5-C6-N1	5.52	123.76	121.00
20	A	1948	C	N3-C2-O2	-5.52	118.04	121.90
1	a	148	G	C4-N9-C1'	5.51	133.67	126.50
1	a	1043	C	C5-C6-N1	5.51	123.76	121.00
20	A	1175	C	N1-C2-O2	5.51	122.21	118.90
20	A	137	U	N3-C2-O2	-5.51	118.34	122.20
20	A	2596	G	N3-C4-C5	-5.51	125.84	128.60
1	a	543	C	C6-N1-C2	-5.51	118.10	120.30
1	a	1040	U	C2-N1-C1'	5.51	124.31	117.70
1	a	627	C	C2-N1-C1'	5.51	124.86	118.80
1	a	660	G	N3-C4-N9	5.50	129.30	126.00
20	A	423	C	N3-C2-O2	-5.50	118.05	121.90
20	A	925	C	C5-C6-N1	5.50	123.75	121.00
20	A	1045	C	C2-N1-C1'	5.50	124.85	118.80
20	A	1831	G	C4-N9-C1'	5.50	133.65	126.50
1	a	875	C	C2-N1-C1'	5.50	124.85	118.80
20	A	209	U	N1-C2-O2	5.49	126.65	122.80
1	a	143	C	N1-C2-O2	5.49	122.19	118.90
20	A	1561	U	N1-C2-O2	5.49	126.64	122.80
1	a	392	G	N3-C4-C5	-5.49	125.86	128.60
1	a	1053	C	C2-N1-C1'	5.49	124.84	118.80
20	A	1561	U	N3-C2-O2	-5.48	118.36	122.20
20	A	1092	C	N3-C2-O2	-5.48	118.06	121.90
20	A	121	G	C6-C5-N7	-5.48	127.11	130.40
1	a	754	C	C5-C6-N1	5.47	123.74	121.00
20	A	2090	U	N3-C2-O2	-5.47	118.37	122.20
1	a	421	G	N3-C4-N9	5.47	129.28	126.00
20	A	1408	U	N3-C2-O2	-5.47	118.37	122.20
20	A	2408	C	N1-C2-O2	5.47	122.18	118.90
20	A	586	A	N1-C6-N6	-5.46	115.32	118.60
20	A	2206	C	N1-C2-O2	5.46	122.18	118.90
1	a	826	C	C5-C6-N1	5.46	123.73	121.00
11	l	131	GLY	N-CA-C	5.46	126.75	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	145	U	N3-C2-O2	-5.45	118.38	122.20
20	A	823	A	C4-N9-C1'	5.45	136.10	126.30
20	A	1157	C	N1-C2-O2	5.45	122.17	118.90
20	A	164	U	C2-N3-C4	-5.44	123.73	127.00
20	A	1047	C	C2-N1-C1'	5.44	124.79	118.80
1	a	734	C	N1-C2-O2	5.44	122.16	118.90
20	A	1492	G	N3-C4-N9	-5.44	122.74	126.00
20	A	1603	C	OP2-P-O3'	5.44	117.16	105.20
20	A	657	C	C2-N1-C1'	5.43	124.78	118.80
20	A	1689	A	N3-C4-N9	5.43	131.75	127.40
20	A	1216	G	N3-C4-N9	5.42	129.25	126.00
1	a	199	C	N1-C2-O2	5.42	122.15	118.90
20	A	943	U	N1-C2-O2	5.41	126.59	122.80
20	A	1435	C	C2-N1-C1'	5.41	124.76	118.80
1	a	995	C	C6-N1-C2	-5.41	118.14	120.30
1	a	952	C	C5-C6-N1	5.41	123.70	121.00
1	a	997	U	C6-N1-C1'	-5.41	113.62	121.20
20	A	2786	C	C5-C6-N1	5.41	123.70	121.00
1	a	250	C	N3-C2-O2	-5.41	118.12	121.90
1	a	140	A	C4-N9-C1'	5.40	136.03	126.30
1	a	107	G	N1-C6-O6	-5.40	116.66	119.90
20	A	137	U	N1-C2-O2	5.40	126.58	122.80
1	a	55	C	C5-C6-N1	5.40	123.70	121.00
1	a	632	G	C5-C6-O6	5.40	131.84	128.60
20	A	1928	C	C2-N1-C1'	5.39	124.73	118.80
20	A	2121	C	N3-C2-O2	-5.39	118.12	121.90
20	A	2697	C	C6-N1-C2	-5.39	118.14	120.30
20	A	2753	U	C2-N1-C1'	5.39	124.16	117.70
1	a	1040	U	N3-C2-O2	-5.38	118.43	122.20
20	A	1092	C	C6-N1-C2	-5.38	118.15	120.30
1	a	322	U	C6-N1-C2	-5.38	117.77	121.00
20	A	716	A	O4'-C1'-N9	5.38	112.51	108.20
1	a	419	G	N3-C4-C5	-5.38	125.91	128.60
20	A	2552	C	C6-N1-C2	-5.38	118.15	120.30
1	a	1005	U	N3-C2-O2	-5.38	118.43	122.20
20	A	2488	C	N3-C2-O2	-5.38	118.14	121.90
19	t	81	LEU	CA-CB-CG	5.37	127.66	115.30
20	A	169	A	O4'-C1'-N9	5.37	112.50	108.20
20	A	730	C	C5-C6-N1	5.37	123.69	121.00
1	a	1183	C	C6-N1-C1'	-5.37	114.36	120.80
21	B	24	U	N3-C2-O2	-5.37	118.44	122.20
20	A	2020	C	C2-N1-C1'	5.37	124.70	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	1024	G	C8-N9-C1'	-5.36	120.03	127.00
20	A	209	U	C2-N1-C1'	5.36	124.13	117.70
1	a	190	A	C8-N9-C4	-5.35	103.66	105.80
1	a	199	C	C6-N1-C2	-5.35	118.16	120.30
20	A	2020	C	C6-N1-C2	-5.35	118.16	120.30
1	a	927	U	N1-C2-O2	5.35	126.54	122.80
20	A	476	C	C6-N1-C2	-5.35	118.16	120.30
20	A	509	G	N7-C8-N9	5.35	115.77	113.10
1	a	146	C	C5-C6-N1	5.34	123.67	121.00
1	a	516	C	N3-C4-N4	-5.34	114.26	118.00
20	A	1362	U	N1-C2-O2	5.34	126.54	122.80
31	O	41	ARG	CB-CG-CD	-5.33	97.73	111.60
1	a	1446	C	N1-C2-O2	5.33	122.10	118.90
20	A	1689	A	C4-N9-C1'	5.33	135.90	126.30
20	A	906	C	C6-N1-C1'	-5.33	114.40	120.80
20	A	2262	C	C2-N1-C1'	5.33	124.66	118.80
20	A	2592	G	N1-C6-O6	-5.33	116.70	119.90
1	a	644	A	N7-C8-N9	5.32	116.46	113.80
20	A	121	G	N3-C4-N9	5.32	129.19	126.00
20	A	956	C	C6-N1-C2	-5.32	118.17	120.30
20	A	955	C	C6-N1-C2	-5.31	118.17	120.30
20	A	2206	C	N3-C2-O2	-5.31	118.18	121.90
1	a	1148	C	N1-C2-O2	5.31	122.08	118.90
20	A	1408	U	N1-C2-O2	5.31	126.52	122.80
20	A	1948	C	C6-N1-C1'	-5.31	114.43	120.80
20	A	1128	A	N1-C6-N6	5.31	121.78	118.60
20	A	1638	C	C2-N1-C1'	5.31	124.64	118.80
20	A	569	C	N1-C2-O2	5.30	122.08	118.90
20	A	1379	G	C8-N9-C1'	-5.30	120.11	127.00
20	A	939	C	N3-C2-O2	-5.30	118.19	121.90
20	A	2595	G	C4-N9-C1'	5.30	133.39	126.50
1	a	66	C	C5-C6-N1	5.30	123.65	121.00
1	a	234	C	N1-C2-O2	5.30	122.08	118.90
1	a	860	C	C6-N1-C2	-5.29	118.18	120.30
21	B	32	U	P-O3'-C3'	5.29	126.05	119.70
20	A	897	G	C6-C5-N7	5.29	133.57	130.40
20	A	1317	G	N3-C4-N9	5.29	129.17	126.00
20	A	1719	A	C8-N9-C4	-5.29	103.69	105.80
1	a	66	C	C2-N1-C1'	5.29	124.62	118.80
20	A	67	C	N1-C2-O2	5.29	122.07	118.90
20	A	1295	C	N3-C2-O2	-5.29	118.20	121.90
20	A	1304	U	C5-C6-N1	5.29	125.34	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	423	C	C6-N1-C2	-5.28	118.19	120.30
20	A	1569	G	N3-C4-N9	-5.28	122.83	126.00
20	A	1369	C	C6-N1-C2	-5.28	118.19	120.30
1	a	51	C	N1-C2-O2	5.28	122.06	118.90
20	A	1574	C	C2-N1-C1'	5.28	124.60	118.80
20	A	2794	G	N3-C4-N9	5.28	129.17	126.00
20	A	1906	C	C6-N1-C2	-5.27	118.19	120.30
20	A	2858	U	C2-N1-C1'	5.27	124.02	117.70
20	A	237	U	N3-C2-O2	-5.26	118.52	122.20
20	A	2188	C	N3-C2-O2	-5.26	118.22	121.90
20	A	835	C	C5-C6-N1	5.26	123.63	121.00
1	a	331	C	C2-N1-C1'	5.25	124.58	118.80
20	A	1853	G	C4-N9-C1'	5.25	133.33	126.50
20	A	2836	G	C4-C5-N7	5.25	112.90	110.80
21	B	35	C	N1-C2-O2	5.25	122.05	118.90
1	a	634	U	N3-C2-O2	-5.25	118.52	122.20
20	A	2854	G	N3-C4-N9	5.25	129.15	126.00
20	A	2090	U	C2-N1-C1'	5.25	124.00	117.70
20	A	1768	C	C6-N1-C2	-5.25	118.20	120.30
20	A	549	C	C6-N1-C2	-5.24	118.20	120.30
20	A	602	C	C2-N1-C1'	5.24	124.57	118.80
20	A	992	G	N3-C4-N9	5.24	129.15	126.00
20	A	121	G	C4-C5-N7	5.24	112.90	110.80
20	A	960	U	N1-C2-O2	5.24	126.47	122.80
20	A	1981	C	C2-N1-C1'	5.24	124.56	118.80
20	A	77	C	C6-N1-C2	-5.24	118.20	120.30
20	A	823	A	C8-N9-C4	-5.24	103.70	105.80
20	A	325	U	N3-C2-O2	-5.24	118.53	122.20
20	A	2606	G	N3-C4-N9	5.24	129.14	126.00
20	A	2021	U	N3-C2-O2	-5.23	118.54	122.20
20	A	561	G	C4-N9-C1'	5.23	133.29	126.50
1	a	498	C	C2-N1-C1'	5.22	124.55	118.80
20	A	709	G	C8-N9-C1'	-5.22	120.21	127.00
1	a	148	G	C8-N9-C4	-5.22	104.31	106.40
20	A	1492	G	N3-C4-C5	5.22	131.21	128.60
20	A	943	U	N3-C2-O2	-5.22	118.55	122.20
20	A	2474	U	N1-C2-O2	5.22	126.45	122.80
1	a	141	C	C2-N1-C1'	5.21	124.54	118.80
1	a	148	G	N3-C4-N9	5.21	129.13	126.00
1	a	418	C	C6-N1-C1'	-5.21	114.55	120.80
1	a	71	U	N1-C2-O2	5.20	126.44	122.80
20	A	4	U	C2-N1-C1'	5.20	123.94	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	2808	C	C6-N1-C2	-5.20	118.22	120.30
1	a	644	A	C8-N9-C1'	-5.20	118.34	127.70
20	A	607	G	N3-C4-N9	5.20	129.12	126.00
20	A	1108	G	N3-C4-C5	-5.20	126.00	128.60
20	A	499	U	N3-C2-O2	-5.20	118.56	122.20
20	A	2570	C	C2-N1-C1'	5.20	124.52	118.80
20	A	1723	U	N1-C2-O2	5.19	126.44	122.80
20	A	2552	C	C5-C6-N1	5.19	123.60	121.00
20	A	2766	C	C6-N1-C2	-5.19	118.22	120.30
20	A	549	C	N3-C2-O2	-5.18	118.27	121.90
1	a	639	C	N3-C2-O2	-5.18	118.27	121.90
20	A	1689	A	N3-C4-C5	-5.18	123.17	126.80
20	A	1197	G	C4-C5-N7	5.18	112.87	110.80
1	a	1022	C	N3-C2-O2	-5.18	118.28	121.90
20	A	2278	C	N3-C2-O2	-5.18	118.28	121.90
1	a	392	G	N3-C4-N9	5.18	129.11	126.00
1	a	634	U	N1-C2-O2	5.18	126.42	122.80
20	A	1603	C	P-O3'-C3'	5.17	125.91	119.70
1	a	71	U	N3-C2-O2	-5.17	118.58	122.20
1	a	559	G	P-O3'-C3'	5.17	125.90	119.70
20	A	77	C	C5-C6-N1	5.17	123.58	121.00
20	A	167	A	N1-C2-N3	-5.16	126.72	129.30
20	A	211	C	N1-C2-O2	5.16	122.00	118.90
20	A	550	U	C2-N1-C1'	5.16	123.90	117.70
20	A	1034	C	C6-N1-C2	-5.16	118.23	120.30
20	A	1501	A	C2-N3-C4	5.16	113.18	110.60
1	a	754	C	C6-N1-C2	-5.16	118.24	120.30
1	a	1022	C	C2-N1-C1'	5.16	124.47	118.80
20	A	1317	G	C4-N9-C1'	5.16	133.21	126.50
20	A	2670	U	N1-C2-O2	5.16	126.41	122.80
20	A	621	C	C6-N1-C2	-5.16	118.24	120.30
21	B	28	C	N1-C2-O2	5.16	121.99	118.90
1	a	392	G	C4-N9-C1'	5.15	133.20	126.50
1	a	346	G	C6-C5-N7	-5.15	127.31	130.40
1	a	559	G	N7-C8-N9	5.15	115.67	113.10
20	A	2188	C	N1-C2-O2	5.15	121.99	118.90
21	B	35	C	N3-C2-O2	-5.15	118.30	121.90
20	A	588	G	N3-C4-C5	-5.15	126.03	128.60
21	B	73	U	N3-C2-O2	-5.14	118.60	122.20
20	A	709	G	N3-C4-C5	-5.14	126.03	128.60
20	A	1642	C	C2-N1-C1'	5.14	124.46	118.80
20	A	2057	C	C2-N1-C1'	5.14	124.46	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	790	G	N3-C2-N2	-5.14	116.30	119.90
20	A	509	G	C5-N7-C8	-5.14	101.73	104.30
20	A	1399	C	C5-C6-N1	5.13	123.57	121.00
20	A	638	C	C5-C6-N1	5.13	123.57	121.00
20	A	742	U	N3-C2-O2	-5.13	118.61	122.20
20	A	1106	U	C2-N1-C1'	5.13	123.86	117.70
20	A	1278	C	C2-N1-C1'	5.13	124.44	118.80
20	A	1703	C	C5-C6-N1	5.13	123.57	121.00
20	A	2819	U	C2-N1-C1'	5.13	123.86	117.70
20	A	939	C	N1-C2-O2	5.13	121.98	118.90
1	a	585	G	N3-C4-N9	5.13	129.08	126.00
20	A	2812	A	OP1-P-O3'	5.13	116.48	105.20
20	A	1149	C	N1-C2-O2	5.13	121.98	118.90
20	A	286	U	C5-C6-N1	5.12	125.26	122.70
20	A	769	G	N3-C4-N9	-5.12	122.93	126.00
34	R	13	ARG	CB-CG-CD	-5.12	98.28	111.60
1	a	673	G	C8-N9-C4	-5.12	104.35	106.40
1	a	790	G	C2-N3-C4	-5.12	109.34	111.90
20	A	2896	C	C6-N1-C2	-5.12	118.25	120.30
1	a	1162	C	N1-C2-O2	5.11	121.97	118.90
20	A	1550	U	N1-C2-O2	5.11	126.38	122.80
20	A	655	G	N9-C4-C5	-5.11	103.36	105.40
20	A	1029	G	C4-N9-C1'	5.11	133.14	126.50
1	a	790	G	N3-C4-C5	5.11	131.15	128.60
20	A	2734	U	C2-N1-C1'	5.11	123.83	117.70
20	A	201	C	N1-C2-O2	5.11	121.96	118.90
20	A	1149	C	C2-N1-C1'	5.11	124.42	118.80
1	a	704	C	C5-C6-N1	5.10	123.55	121.00
1	a	108	U	C5-C4-O4	-5.10	122.84	125.90
20	A	975	U	N1-C2-O2	5.10	126.37	122.80
1	a	1442	C	C6-N1-C2	-5.10	118.26	120.30
20	A	1350	C	C6-N1-C1'	-5.10	114.68	120.80
20	A	1216	G	N3-C4-C5	-5.09	126.05	128.60
1	a	267	U	N1-C2-O2	5.09	126.36	122.80
1	a	1318	C	N1-C2-O2	5.09	121.95	118.90
20	A	963	C	C6-N1-C1'	5.09	126.90	120.80
20	A	1350	C	N3-C2-O2	-5.09	118.34	121.90
20	A	2062	G	C4-N9-C1'	5.08	133.11	126.50
1	a	867	C	N3-C2-O2	-5.08	118.35	121.90
20	A	2474	U	N3-C2-O2	-5.08	118.65	122.20
1	a	105	G	P-O3'-C3'	5.08	125.79	119.70
3	d	17	ILE	CG1-CB-CG2	-5.08	100.23	111.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	A	325	U	C2-N1-C1'	5.08	123.79	117.70
20	A	1928	C	C6-N1-C2	-5.07	118.27	120.30
20	A	2077	C	N1-C2-O2	5.07	121.94	118.90
20	A	848	G	N3-C4-N9	-5.07	122.96	126.00
20	A	769	G	C2-N3-C4	-5.07	109.37	111.90
20	A	1434	C	C6-N1-C2	-5.06	118.28	120.30
1	a	409	G	C4-N9-C1'	5.06	133.08	126.50
20	A	2138	G	C4-N9-C1'	5.06	133.08	126.50
1	a	415	C	N3-C2-O2	-5.06	118.36	121.90
1	a	1183	C	O4'-C1'-N1	5.06	112.25	108.20
20	A	261	C	C2-N1-C1'	5.06	124.36	118.80
20	A	992	G	C4-N9-C1'	5.06	133.07	126.50
20	A	1234	C	C6-N1-C2	-5.06	118.28	120.30
1	a	178	A	C8-N9-C4	-5.05	103.78	105.80
1	a	1005	U	N1-C2-O2	5.05	126.34	122.80
1	a	1465	U	C2-N1-C1'	5.05	123.77	117.70
1	a	790	G	C8-N9-C1'	5.05	133.56	127.00
20	A	1047	C	C5-C6-N1	5.04	123.52	121.00
20	A	2576	U	N3-C2-O2	-5.04	118.67	122.20
1	a	649	C	C5-C6-N1	5.04	123.52	121.00
20	A	2897	G	C4-N9-C1'	5.04	133.05	126.50
1	a	1306	C	N1-C2-O2	5.04	121.92	118.90
20	A	1128	A	N3-C4-N9	5.04	131.43	127.40
20	A	2785	C	C2-N1-C1'	5.04	124.34	118.80
20	A	1511	C	N3-C2-O2	-5.03	118.38	121.90
1	a	109	G	N3-C2-N2	-5.03	116.38	119.90
1	a	1173	C	C6-N1-C1'	-5.03	114.77	120.80
1	a	639	C	N1-C2-N3	5.02	122.72	119.20
20	A	2311	C	N3-C2-O2	-5.02	118.39	121.90
21	B	24	U	N1-C2-O2	5.02	126.31	122.80
20	A	1584	G	OP2-P-O3'	5.02	116.24	105.20
1	a	504	C	N1-C2-O2	5.02	121.91	118.90
20	A	1634	A	N3-C4-N9	5.02	131.41	127.40
20	A	2836	G	C5-N7-C8	-5.02	101.79	104.30
1	a	1077	G	C4-N9-C1'	5.02	133.02	126.50
1	a	464	A	C8-N9-C4	-5.01	103.80	105.80
20	A	638	C	N1-C2-O2	5.01	121.91	118.90
20	A	121	G	C4-N9-C1'	5.01	133.02	126.50
20	A	1132	C	C6-N1-C2	-5.01	118.30	120.30
1	a	1125	C	N3-C2-O2	-5.01	118.39	121.90
1	a	712	U	N3-C2-O2	-5.01	118.69	122.20
20	A	1115	C	N1-C2-O2	5.01	121.90	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	636	A	C2-N3-C4	5.00	113.10	110.60
20	A	2826	C	C6-N1-C2	-5.00	118.30	120.30
1	a	190	A	C5-N7-C8	-5.00	101.40	103.90
1	a	632	G	C8-N9-C1'	5.00	133.50	127.00
1	a	1038	C	N3-C2-O2	-5.00	118.40	121.90
20	A	778	C	C2-N1-C1'	5.00	124.30	118.80
1	a	530	G	C8-N9-C1'	-5.00	120.50	127.00
20	A	890	A	P-O3'-C3'	5.00	125.70	119.70
20	A	1234	C	N3-C2-O2	-5.00	118.40	121.90

There are no chirality outliers.

All (36) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
47	4	3	ARG	Peptide
22	C	154	LEU	Peptide
22	C	195	VAL	Peptide
23	D	53	TYR	Peptide
23	D	89	GLY	Peptide
24	E	45	ARG	Peptide
24	E	80	SER	Peptide
25	F	121	ALA	Peptide
26	G	47	GLY	Peptide
26	G	61	MET	Peptide
27	K	131	HIS	Peptide
27	K	45	PHE	Peptide
29	M	30	THR	Peptide
29	M	85	PHE	Peptide
29	M	97	LYS	Peptide
30	N	133	LYS	Peptide
30	N	8	LYS	Peptide
31	O	22	THR	Peptide
31	O	77	ASP	Peptide
32	P	22	ILE	Peptide
32	P	30	ARG	Peptide
32	P	93	PHE	Peptide
35	S	100	ILE	Peptide
35	S	50	ALA	Peptide
37	U	50	VAL	Peptide
37	U	62	PHE	Peptide
38	V	72	ASP	Peptide
38	V	87	ASP	Peptide

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Mol	Chain	Res	Type	Group
39	W	15	ARG	Peptide
40	X	49	GLN	Peptide
41	Y	21	ALA	Peptide
11	l	130	TYR	Peptide
11	l	37	ASN	Peptide
12	m	43	VAL	Peptide
16	q	73	THR	Peptide
19	t	66	ILE	Peptide

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	
2	c	202/204 (99%)	178 (88%)	24 (12%)	0	100	100
3	d	199/201 (99%)	169 (85%)	30 (15%)	0	100	100
4	e	161/163 (99%)	142 (88%)	19 (12%)	0	100	100
5	f	95/97 (98%)	88 (93%)	7 (7%)	0	100	100
6	g	152/154 (99%)	138 (91%)	14 (9%)	0	100	100
7	h	129/131 (98%)	116 (90%)	13 (10%)	0	100	100
8	i	126/128 (98%)	110 (87%)	15 (12%)	1 (1%)	19	58
9	j	97/99 (98%)	87 (90%)	10 (10%)	0	100	100
10	k	115/117 (98%)	98 (85%)	17 (15%)	0	100	100
11	l	134/136 (98%)	106 (79%)	27 (20%)	1 (1%)	22	61
12	m	110/112 (98%)	86 (78%)	24 (22%)	0	100	100
13	n	58/60 (97%)	53 (91%)	5 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
14	o	86/88 (98%)	79 (92%)	7 (8%)	0	100	100
15	p	87/89 (98%)	75 (86%)	12 (14%)	0	100	100
16	q	81/83 (98%)	67 (83%)	14 (17%)	0	100	100
17	r	64/66 (97%)	53 (83%)	11 (17%)	0	100	100
18	s	76/78 (97%)	60 (79%)	16 (21%)	0	100	100
19	t	79/81 (98%)	71 (90%)	8 (10%)	0	100	100
22	C	273/275 (99%)	236 (86%)	37 (14%)	0	100	100
23	D	205/207 (99%)	182 (89%)	22 (11%)	1 (0%)	29	68
24	E	204/206 (99%)	175 (86%)	29 (14%)	0	100	100
25	F	175/177 (99%)	149 (85%)	26 (15%)	0	100	100
26	G	172/176 (98%)	145 (84%)	25 (14%)	2 (1%)	13	50
27	K	142/145 (98%)	124 (87%)	18 (13%)	0	100	100
28	L	120/122 (98%)	98 (82%)	22 (18%)	0	100	100
29	M	143/146 (98%)	105 (73%)	35 (24%)	3 (2%)	7	38
30	N	137/141 (97%)	111 (81%)	26 (19%)	0	100	100
31	O	119/123 (97%)	95 (80%)	24 (20%)	0	100	100
32	P	115/117 (98%)	100 (87%)	15 (13%)	0	100	100
33	Q	110/114 (96%)	98 (89%)	12 (11%)	0	100	100
34	R	112/118 (95%)	108 (96%)	4 (4%)	0	100	100
35	S	100/102 (98%)	92 (92%)	8 (8%)	0	100	100
36	T	110/112 (98%)	95 (86%)	15 (14%)	0	100	100
37	U	87/89 (98%)	72 (83%)	13 (15%)	2 (2%)	6	36
38	V	99/101 (98%)	75 (76%)	21 (21%)	3 (3%)	4	30
39	W	92/94 (98%)	74 (80%)	17 (18%)	1 (1%)	14	52
40	X	73/76 (96%)	64 (88%)	9 (12%)	0	100	100
41	Y	52/54 (96%)	44 (85%)	8 (15%)	0	100	100
42	Z	59/61 (97%)	55 (93%)	4 (7%)	0	100	100
43	0	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
44	1	81/83 (98%)	60 (74%)	21 (26%)	0	100	100
45	2	54/56 (96%)	47 (87%)	7 (13%)	0	100	100
46	3	47/49 (96%)	45 (96%)	2 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	4	42/44 (96%)	40 (95%)	2 (5%)	0	100	100
48	5	62/64 (97%)	55 (89%)	7 (11%)	0	100	100
49	6	36/38 (95%)	33 (92%)	3 (8%)	0	100	100
All	All	5128/5235 (98%)	4406 (86%)	708 (14%)	14 (0%)	44	75

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
26	G	48	ASN
29	M	95	VAL
29	M	98	GLU
39	W	16	SER
11	l	131	GLY
26	G	47	GLY
38	V	73	PRO
38	V	88	GLY
37	U	51	ALA
23	D	90	GLU
38	V	72	ASP
8	i	41	HIS
37	U	52	ASN
29	M	94	VAL

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	
2	c	162/162 (100%)	162 (100%)	0	100	100
3	d	175/175 (100%)	173 (99%)	2 (1%)	73	88
4	e	126/126 (100%)	126 (100%)	0	100	100
5	f	86/86 (100%)	86 (100%)	0	100	100
6	g	131/131 (100%)	131 (100%)	0	100	100
7	h	112/112 (100%)	112 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	i	101/101 (100%)	100 (99%)	1 (1%)	76	88
9	j	90/90 (100%)	88 (98%)	2 (2%)	52	78
10	k	91/91 (100%)	90 (99%)	1 (1%)	73	88
11	l	118/118 (100%)	115 (98%)	3 (2%)	47	75
12	m	95/95 (100%)	95 (100%)	0	100	100
13	n	51/51 (100%)	50 (98%)	1 (2%)	55	79
14	o	78/78 (100%)	76 (97%)	2 (3%)	46	74
15	p	79/79 (100%)	77 (98%)	2 (2%)	47	75
16	q	76/76 (100%)	74 (97%)	2 (3%)	46	74
17	r	57/57 (100%)	54 (95%)	3 (5%)	22	55
18	s	68/68 (100%)	67 (98%)	1 (2%)	65	84
19	t	62/62 (100%)	62 (100%)	0	100	100
22	C	224/225 (100%)	223 (100%)	1 (0%)	91	96
23	D	168/170 (99%)	164 (98%)	4 (2%)	49	76
24	E	172/172 (100%)	170 (99%)	2 (1%)	71	87
25	F	154/154 (100%)	154 (100%)	0	100	100
26	G	145/146 (99%)	145 (100%)	0	100	100
27	K	121/122 (99%)	120 (99%)	1 (1%)	81	91
28	L	98/98 (100%)	98 (100%)	0	100	100
29	M	111/112 (99%)	111 (100%)	0	100	100
30	N	112/112 (100%)	110 (98%)	2 (2%)	59	81
31	O	105/105 (100%)	104 (99%)	1 (1%)	76	88
32	P	91/91 (100%)	91 (100%)	0	100	100
33	Q	94/97 (97%)	94 (100%)	0	100	100
34	R	92/94 (98%)	92 (100%)	0	100	100
35	S	82/83 (99%)	82 (100%)	0	100	100
36	T	95/95 (100%)	95 (100%)	0	100	100
37	U	80/80 (100%)	78 (98%)	2 (2%)	47	75
38	V	85/85 (100%)	85 (100%)	0	100	100
39	W	85/85 (100%)	85 (100%)	0	100	100
40	X	60/61 (98%)	59 (98%)	1 (2%)	60	82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
41	Y	47/47 (100%)	45 (96%)	2 (4%)	29	62
42	Z	55/55 (100%)	54 (98%)	1 (2%)	59	81
43	0	48/49 (98%)	48 (100%)	0	100	100
44	1	75/75 (100%)	74 (99%)	1 (1%)	69	86
45	2	46/46 (100%)	46 (100%)	0	100	100
46	3	49/49 (100%)	49 (100%)	0	100	100
47	4	39/39 (100%)	39 (100%)	0	100	100
48	5	51/51 (100%)	51 (100%)	0	100	100
49	6	35/35 (100%)	35 (100%)	0	100	100
All	All	4377/4391 (100%)	4339 (99%)	38 (1%)	79	90

All (38) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	d	14	ARG
3	d	58	ARG
8	i	14	ASN
9	j	5	LYS
9	j	16	ARG
10	k	93	ARG
11	l	32	LYS
11	l	127	ARG
11	l	134	ARG
13	n	26	ARG
14	o	54	ARG
14	o	89	ARG
15	p	9	ARG
15	p	90	LYS
16	q	5	ARG
16	q	6	ASN
17	r	13	LYS
17	r	57	ARG
17	r	65	ARG
18	s	6	LYS
22	C	257	TYR
23	D	57	ARG
23	D	119	PHE
23	D	159	ARG
23	D	168	ARG

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Mol	Chain	Res	Type
24	E	74	ARG
24	E	169	ASN
27	K	45	PHE
30	N	10	ARG
30	N	119	ARG
31	O	114	ARG
37	U	48	VAL
37	U	62	PHE
40	X	80	ARG
41	Y	17	ASN
41	Y	32	ASN
42	Z	26	PHE
44	1	75	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (43) such sidechains are listed below:

Mol	Chain	Res	Type
3	d	86	ASN
6	g	68	ASN
6	g	106	ASN
6	g	114	HIS
8	i	14	ASN
8	i	75	GLN
9	j	56	HIS
9	j	97	ASN
12	m	76	ASN
13	n	10	ASN
16	q	6	ASN
16	q	50	HIS
18	s	22	GLN
22	C	53	HIS
22	C	95	HIS
22	C	128	ASN
22	C	153	GLN
22	C	232	HIS
23	D	14	GLN
23	D	37	GLN
24	E	29	ASN
24	E	49	HIS
24	E	75	GLN
24	E	169	ASN
25	F	27	GLN

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Mol	Chain	Res	Type
25	F	37	ASN
26	G	106	ASN
28	L	13	ASN
32	P	20	ASN
32	P	32	ASN
34	R	81	HIS
35	S	88	HIS
36	T	102	ASN
38	V	44	HIS
40	X	87	GLN
41	Y	17	ASN
41	Y	23	ASN
41	Y	32	ASN
44	1	75	ASN
45	2	32	ASN
45	2	40	HIS
47	4	8	ASN
48	5	4	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	a	1526/1528 (99%)	441 (28%)	0
20	A	2895/2903 (99%)	650 (22%)	20 (0%)
21	B	113/116 (97%)	26 (23%)	2 (1%)
All	All	4534/4547 (99%)	1117 (24%)	22 (0%)

All (1117) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	a	5	A
1	a	6	G
1	a	7	A
1	a	11	U
1	a	13	A
1	a	19	G
1	a	25	G
1	a	29	A
1	a	32	G
1	a	36	G
1	a	38	G

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Mol	Chain	Res	Type
1	a	41	G
1	a	44	C
1	a	45	C
1	a	46	U
1	a	47	A
1	a	48	A
1	a	51	C
1	a	61	G
1	a	62	A
1	a	63	A
1	a	64	C
1	a	67	U
1	a	68	U
1	a	69	C
1	a	72	U
1	a	73	C
1	a	74	C
1	a	75	U
1	a	97	G
1	a	104	G
1	a	105	G
1	a	106	A
1	a	107	G
1	a	109	G
1	a	112	G
1	a	113	G
1	a	114	A
1	a	125	A
1	a	126	C
1	a	135	A
1	a	136	A
1	a	139	U
1	a	140	A
1	a	142	C
1	a	143	C
1	a	148	G
1	a	149	A
1	a	150	G
1	a	156	U
1	a	159	C
1	a	163	U
1	a	165	G

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Mol	Chain	Res	Type
1	a	167	A
1	a	168	A
1	a	169	C
1	a	172	G
1	a	180	A
1	a	183	G
1	a	184	C
1	a	185	A
1	a	187	A
1	a	188	A
1	a	189	C
1	a	190	A
1	a	197	G
1	a	199	C
1	a	200	G
1	a	201	C
1	a	202	A
1	a	206	C
1	a	207	A
1	a	208	U
1	a	211	G
1	a	212	A
1	a	213	G
1	a	214	U
1	a	217	A
1	a	218	A
1	a	219	G
1	a	221	C
1	a	225	U
1	a	227	C
1	a	230	G
1	a	233	U
1	a	234	C
1	a	235	G
1	a	238	G
1	a	240	U
1	a	250	C
1	a	255	U
1	a	256	G
1	a	262	G
1	a	266	G
1	a	278	A

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Mol	Chain	Res	Type
1	a	281	G
1	a	282	C
1	a	289	A
1	a	295	C
1	a	304	G
1	a	308	A
1	a	313	A
1	a	323	C
1	a	330	A
1	a	336	A
1	a	343	C
1	a	345	C
1	a	347	G
1	a	360	C
1	a	362	G
1	a	367	C
1	a	368	A
1	a	369	G
1	a	374	A
1	a	378	A
1	a	381	C
1	a	382	U
1	a	384	C
1	a	387	C
1	a	388	A
1	a	390	U
1	a	392	G
1	a	393	A
1	a	396	A
1	a	397	A
1	a	398	A
1	a	399	G
1	a	403	G
1	a	405	C
1	a	412	A
1	a	413	C
1	a	416	C
1	a	417	G
1	a	418	C
1	a	419	G
1	a	421	G
1	a	424	U

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Mol	Chain	Res	Type
1	a	425	G
1	a	426	A
1	a	427	A
1	a	428	G
1	a	429	A
1	a	430	A
1	a	435	U
1	a	437	C
1	a	438	G
1	a	439	G
1	a	443	G
1	a	444	U
1	a	446	A
1	a	448	A
1	a	450	U
1	a	451	C
1	a	453	G
1	a	454	U
1	a	456	G
1	a	457	U
1	a	459	A
1	a	462	G
1	a	463	A
1	a	465	G
1	a	467	A
1	a	468	C
1	a	469	A
1	a	470	A
1	a	471	G
1	a	475	G
1	a	476	U
1	a	477	U
1	a	478	A
1	a	479	G
1	a	480	U
1	a	481	A
1	a	483	C
1	a	485	G
1	a	486	A
1	a	487	A
1	a	488	C
1	a	489	G

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Mol	Chain	Res	Type
1	a	490	U
1	a	492	C
1	a	493	C
1	a	494	C
1	a	495	U
1	a	497	A
1	a	498	C
1	a	499	G
1	a	500	G
1	a	501	U
1	a	504	C
1	a	505	U
1	a	507	A
1	a	510	A
1	a	512	A
1	a	514	A
1	a	515	G
1	a	517	C
1	a	525	A
1	a	526	C
1	a	530	G
1	a	531	U
1	a	532	G
1	a	533	C
1	a	534	C
1	a	539	G
1	a	542	G
1	a	545	G
1	a	546	U
1	a	547	A
1	a	548	A
1	a	550	A
1	a	551	C
1	a	552	G
1	a	555	G
1	a	556	G
1	a	558	G
1	a	560	C
1	a	561	A
1	a	562	A
1	a	576	U
1	a	577	U

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Mol	Chain	Res	Type
1	a	578	A
1	a	587	A
1	a	588	A
1	a	591	C
1	a	592	G
1	a	594	G
1	a	603	G
1	a	626	C
1	a	627	C
1	a	634	U
1	a	635	C
1	a	636	A
1	a	637	A
1	a	642	G
1	a	644	A
1	a	645	G
1	a	646	G
1	a	647	G
1	a	648	U
1	a	649	C
1	a	664	G
1	a	668	U
1	a	671	G
1	a	672	U
1	a	673	G
1	a	674	C
1	a	676	G
1	a	680	A
1	a	686	G
1	a	701	U
1	a	702	A
1	a	710	A
1	a	723	A
1	a	725	G
1	a	734	C
1	a	736	A
1	a	738	U
1	a	744	A
1	a	749	G
1	a	764	A
1	a	770	G
1	a	782	A

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Mol	Chain	Res	Type
1	a	790	G
1	a	792	A
1	a	809	A
1	a	814	G
1	a	830	A
1	a	831	A
1	a	832	C
1	a	833	G
1	a	836	G
1	a	847	G
1	a	851	G
1	a	858	U
1	a	859	C
1	a	862	C
1	a	867	C
1	a	886	U
1	a	888	A
1	a	892	A
1	a	901	G
1	a	905	A
1	a	930	A
1	a	942	G
1	a	943	G
1	a	950	C
1	a	951	A
1	a	958	G
1	a	964	C
1	a	968	U
1	a	971	U
1	a	975	A
1	a	976	U
1	a	981	A
1	a	982	G
1	a	985	A
1	a	987	G
1	a	988	C
1	a	989	G
1	a	991	A
1	a	992	G
1	a	994	A
1	a	998	U
1	a	999	A

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Mol	Chain	Res	Type
1	a	1000	C
1	a	1005	U
1	a	1008	U
1	a	1009	G
1	a	1011	C
1	a	1018	U
1	a	1019	G
1	a	1020	A
1	a	1021	C
1	a	1022	C
1	a	1025	U
1	a	1029	G
1	a	1030	A
1	a	1031	G
1	a	1035	G
1	a	1038	C
1	a	1040	U
1	a	1041	U
1	a	1042	C
1	a	1043	C
1	a	1044	C
1	a	1045	U
1	a	1046	U
1	a	1047	C
1	a	1049	G
1	a	1050	G
1	a	1052	A
1	a	1053	C
1	a	1054	A
1	a	1055	A
1	a	1060	A
1	a	1061	C
1	a	1069	G
1	a	1070	C
1	a	1080	G
1	a	1081	U
1	a	1082	C
1	a	1094	U
1	a	1095	G
1	a	1101	U
1	a	1102	U
1	a	1110	G

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Mol	Chain	Res	Type
1	a	1111	U
1	a	1117	A
1	a	1124	G
1	a	1140	G
1	a	1141	U
1	a	1147	U
1	a	1148	C
1	a	1149	A
1	a	1152	U
1	a	1154	G
1	a	1155	U
1	a	1156	U
1	a	1157	G
1	a	1161	A
1	a	1169	G
1	a	1174	U
1	a	1175	G
1	a	1176	C
1	a	1183	C
1	a	1184	A
1	a	1189	G
1	a	1198	U
1	a	1199	G
1	a	1201	G
1	a	1208	G
1	a	1211	A
1	a	1212	A
1	a	1227	U
1	a	1228	A
1	a	1229	U
1	a	1230	G
1	a	1241	C
1	a	1243	C
1	a	1256	G
1	a	1272	C
1	a	1275	U
1	a	1276	A
1	a	1284	A
1	a	1289	A
1	a	1295	A
1	a	1297	C
1	a	1300	U

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Mol	Chain	Res	Type
1	a	1301	U
1	a	1302	A
1	a	1303	A
1	a	1305	G
1	a	1312	U
1	a	1314	A
1	a	1317	U
1	a	1318	C
1	a	1320	G
1	a	1324	G
1	a	1327	G
1	a	1332	C
1	a	1335	C
1	a	1337	C
1	a	1350	C
1	a	1351	C
1	a	1355	A
1	a	1362	G
1	a	1368	G
1	a	1374	C
1	a	1379	C
1	a	1393	C
1	a	1396	U
1	a	1398	C
1	a	1413	A
1	a	1416	G
1	a	1434	G
1	a	1438	G
1	a	1441	A
1	a	1448	A
1	a	1455	U
1	a	1457	A
1	a	1461	A
1	a	1466	U
1	a	1467	U
1	a	1468	U
1	a	1500	U
1	a	1503	G
1	a	1508	A
1	a	1509	A
1	a	1510	G
1	a	1513	G

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Mol	Chain	Res	Type
1	a	1515	A
1	a	1518	A
1	a	1519	A
1	a	1522	U
1	a	1523	A
1	a	1545	G
1	a	1546	G
1	a	1547	A
1	a	1549	C
1	a	1550	A
20	A	10	G
20	A	13	U
20	A	14	A
20	A	16	G
20	A	35	U
20	A	62	A
20	A	64	U
20	A	72	A
20	A	76	G
20	A	90	U
20	A	94	U
20	A	97	G
20	A	99	U
20	A	100	A
20	A	102	G
20	A	103	A
20	A	110	G
20	A	116	C
20	A	118	A
20	A	120	U
20	A	131	A
20	A	155	U
20	A	156	U
20	A	163	A
20	A	164	U
20	A	165	A
20	A	166	C
20	A	169	A
20	A	180	G
20	A	181	G
20	A	182	U
20	A	183	A

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Mol	Chain	Res	Type
20	A	184	G
20	A	189	A
20	A	199	A
20	A	202	A
20	A	218	G
20	A	219	A
20	A	224	A
20	A	225	A
20	A	229	A
20	A	231	A
20	A	232	U
20	A	233	U
20	A	235	G
20	A	244	A
20	A	251	G
20	A	254	A
20	A	255	G
20	A	268	A
20	A	279	A
20	A	284	C
20	A	285	U
20	A	288	C
20	A	293	U
20	A	298	U
20	A	300	G
20	A	305	A
20	A	311	A
20	A	312	U
20	A	313	A
20	A	318	A
20	A	319	G
20	A	321	C
20	A	322	U
20	A	332	G
20	A	339	G
20	A	344	G
20	A	367	A
20	A	372	C
20	A	383	A
20	A	389	G
20	A	391	C
20	A	396	C

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Mol	Chain	Res	Type
20	A	399	A
20	A	400	G
20	A	410	G
20	A	421	A
20	A	426	G
20	A	451	G
20	A	452	A
20	A	488	U
20	A	496	C
20	A	507	G
20	A	517	A
20	A	519	A
20	A	521	G
20	A	544	A
20	A	547	U
20	A	548	C
20	A	549	C
20	A	560	U
20	A	561	G
20	A	566	C
20	A	568	A
20	A	569	C
20	A	570	A
20	A	571	A
20	A	572	G
20	A	585	A
20	A	586	A
20	A	588	G
20	A	600	G
20	A	610	G
20	A	612	A
20	A	623	A
20	A	629	G
20	A	640	A
20	A	653	G
20	A	654	A
20	A	655	G
20	A	669	G
20	A	670	A
20	A	673	G
20	A	676	A
20	A	677	G

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Mol	Chain	Res	Type
20	A	684	U
20	A	693	U
20	A	694	G
20	A	696	G
20	A	708	A
20	A	710	A
20	A	711	C
20	A	712	C
20	A	722	G
20	A	726	U
20	A	756	A
20	A	757	A
20	A	759	C
20	A	766	G
20	A	769	G
20	A	770	A
20	A	775	A
20	A	778	C
20	A	787	U
20	A	788	G
20	A	792	A
20	A	805	G
20	A	808	G
20	A	815	G
20	A	816	C
20	A	817	G
20	A	822	A
20	A	823	A
20	A	824	U
20	A	832	G
20	A	833	A
20	A	840	A
20	A	845	G
20	A	846	C
20	A	849	G
20	A	852	C
20	A	867	U
20	A	885	U
20	A	886	U
20	A	887	G
20	A	888	A
20	A	891	A

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Mol	Chain	Res	Type
20	A	900	G
20	A	901	U
20	A	905	G
20	A	906	C
20	A	907	A
20	A	919	A
20	A	920	G
20	A	922	G
20	A	923	G
20	A	925	C
20	A	926	C
20	A	927	A
20	A	928	U
20	A	933	G
20	A	934	G
20	A	939	C
20	A	940	G
20	A	942	A
20	A	943	U
20	A	946	A
20	A	950	A
20	A	951	A
20	A	953	C
20	A	954	U
20	A	960	U
20	A	961	G
20	A	964	A
20	A	966	U
20	A	978	G
20	A	981	A
20	A	982	G
20	A	983	U
20	A	985	A
20	A	986	G
20	A	993	A
20	A	997	A
20	A	999	A
20	A	1001	G
20	A	1006	G
20	A	1014	A
20	A	1016	G
20	A	1023	A

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Mol	Chain	Res	Type
20	A	1036	A
20	A	1048	A
20	A	1049	A
20	A	1051	A
20	A	1052	U
20	A	1053	A
20	A	1057	G
20	A	1061	A
20	A	1062	G
20	A	1063	U
20	A	1064	G
20	A	1065	G
20	A	1066	A
20	A	1073	U
20	A	1085	C
20	A	1086	A
20	A	1087	G
20	A	1093	U
20	A	1096	G
20	A	1097	A
20	A	1098	U
20	A	1100	U
20	A	1101	U
20	A	1103	G
20	A	1104	C
20	A	1105	U
20	A	1106	U
20	A	1107	A
20	A	1108	G
20	A	1109	A
20	A	1110	A
20	A	1111	G
20	A	1113	A
20	A	1114	G
20	A	1116	C
20	A	1117	A
20	A	1118	C
20	A	1120	A
20	A	1122	U
20	A	1123	U
20	A	1124	A
20	A	1125	A

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Mol	Chain	Res	Type
20	A	1127	G
20	A	1128	A
20	A	1129	G
20	A	1131	G
20	A	1132	C
20	A	1134	U
20	A	1135	A
20	A	1136	A
20	A	1137	U
20	A	1138	A
20	A	1139	G
20	A	1140	C
20	A	1141	U
20	A	1142	C
20	A	1143	A
20	A	1144	C
20	A	1146	A
20	A	1147	G
20	A	1148	U
20	A	1149	C
20	A	1151	A
20	A	1152	G
20	A	1157	C
20	A	1167	A
20	A	1168	A
20	A	1170	U
20	A	1171	G
20	A	1172	U
20	A	1174	C
20	A	1175	C
20	A	1179	G
20	A	1181	U
20	A	1182	A
20	A	1188	A
20	A	1190	U
20	A	1209	A
20	A	1212	A
20	A	1215	A
20	A	1216	G
20	A	1217	G
20	A	1218	U
20	A	1249	G

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Mol	Chain	Res	Type
20	A	1257	A
20	A	1275	G
20	A	1277	G
20	A	1287	G
20	A	1290	A
20	A	1292	U
20	A	1293	G
20	A	1294	C
20	A	1308	G
20	A	1309	A
20	A	1310	A
20	A	1311	A
20	A	1336	U
20	A	1337	A
20	A	1338	U
20	A	1349	U
20	A	1357	A
20	A	1365	U
20	A	1366	C
20	A	1375	G
20	A	1377	U
20	A	1388	U
20	A	1394	G
20	A	1396	G
20	A	1401	A
20	A	1404	G
20	A	1407	G
20	A	1411	G
20	A	1415	U
20	A	1420	A
20	A	1422	C
20	A	1428	G
20	A	1431	A
20	A	1432	U
20	A	1436	U
20	A	1439	A
20	A	1443	G
20	A	1446	G
20	A	1447	U
20	A	1448	U
20	A	1449	U
20	A	1450	U

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Mol	Chain	Res	Type
20	A	1451	U
20	A	1452	G
20	A	1453	U
20	A	1455	U
20	A	1456	G
20	A	1457	A
20	A	1461	A
20	A	1462	U
20	A	1463	G
20	A	1465	A
20	A	1469	A
20	A	1470	C
20	A	1471	G
20	A	1475	U
20	A	1488	G
20	A	1489	C
20	A	1492	G
20	A	1493	C
20	A	1494	G
20	A	1495	A
20	A	1497	U
20	A	1500	A
20	A	1501	A
20	A	1502	G
20	A	1503	U
20	A	1504	G
20	A	1505	C
20	A	1508	G
20	A	1509	U
20	A	1510	C
20	A	1519	G
20	A	1521	G
20	A	1525	U
20	A	1535	U
20	A	1536	A
20	A	1539	U
20	A	1548	C
20	A	1551	U
20	A	1552	A
20	A	1559	A
20	A	1560	G
20	A	1566	A

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Mol	Chain	Res	Type
20	A	1567	C
20	A	1568	G
20	A	1573	G
20	A	1576	A
20	A	1577	A
20	A	1579	U
20	A	1584	G
20	A	1585	U
20	A	1586	A
20	A	1589	G
20	A	1601	G
20	A	1604	A
20	A	1605	C
20	A	1606	A
20	A	1608	U
20	A	1612	A
20	A	1613	A
20	A	1615	A
20	A	1623	C
20	A	1627	U
20	A	1629	A
20	A	1630	G
20	A	1631	A
20	A	1632	A
20	A	1633	A
20	A	1634	A
20	A	1646	A
20	A	1650	U
20	A	1651	A
20	A	1653	A
20	A	1673	A
20	A	1674	G
20	A	1677	U
20	A	1689	A
20	A	1690	G
20	A	1691	C
20	A	1717	G
20	A	1718	C
20	A	1737	C
20	A	1741	A
20	A	1746	G
20	A	1756	U

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Mol	Chain	Res	Type
20	A	1757	U
20	A	1770	G
20	A	1776	A
20	A	1777	G
20	A	1778	G
20	A	1782	A
20	A	1784	G
20	A	1787	A
20	A	1790	G
20	A	1795	U
20	A	1798	A
20	A	1814	C
20	A	1815	A
20	A	1823	A
20	A	1829	A
20	A	1830	A
20	A	1840	C
20	A	1841	U
20	A	1842	G
20	A	1843	A
20	A	1872	G
20	A	1882	C
20	A	1886	G
20	A	1896	A
20	A	1913	A
20	A	1917	G
20	A	1920	G
20	A	1927	A
20	A	1928	C
20	A	1943	G
20	A	1944	G
20	A	1948	C
20	A	1952	A
20	A	1969	U
20	A	1970	U
20	A	1978	G
20	A	1979	C
20	A	1980	A
20	A	1981	C
20	A	1984	A
20	A	1985	A
20	A	1986	G

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Mol	Chain	Res	Type
20	A	1989	G
20	A	1990	U
20	A	1996	U
20	A	2005	U
20	A	2006	G
20	A	2007	U
20	A	2010	C
20	A	2030	U
20	A	2035	G
20	A	2036	U
20	A	2037	A
20	A	2039	C
20	A	2044	A
20	A	2045	A
20	A	2046	G
20	A	2047	A
20	A	2048	U
20	A	2057	C
20	A	2066	G
20	A	2069	C
20	A	2070	G
20	A	2074	A
20	A	2075	G
20	A	2076	A
20	A	2082	U
20	A	2083	G
20	A	2114	U
20	A	2115	G
20	A	2125	U
20	A	2126	A
20	A	2127	C
20	A	2129	G
20	A	2131	A
20	A	2132	U
20	A	2133	A
20	A	2134	G
20	A	2139	G
20	A	2140	A
20	A	2141	G
20	A	2144	G
20	A	2145	A
20	A	2146	U

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Mol	Chain	Res	Type
20	A	2147	G
20	A	2148	A
20	A	2154	G
20	A	2158	G
20	A	2159	C
20	A	2160	U
20	A	2162	G
20	A	2163	U
20	A	2173	G
20	A	2174	G
20	A	2175	C
20	A	2176	G
20	A	2179	G
20	A	2180	G
20	A	2182	G
20	A	2183	G
20	A	2187	A
20	A	2189	U
20	A	2196	G
20	A	2201	A
20	A	2206	C
20	A	2207	C
20	A	2212	A
20	A	2213	A
20	A	2217	G
20	A	2218	C
20	A	2224	U
20	A	2225	A
20	A	2227	U
20	A	2239	A
20	A	2252	G
20	A	2253	G
20	A	2280	A
20	A	2281	A
20	A	2282	A
20	A	2293	G
20	A	2296	G
20	A	2297	C
20	A	2301	A
20	A	2302	A
20	A	2318	G
20	A	2319	U

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Mol	Chain	Res	Type
20	A	2323	A
20	A	2327	C
20	A	2333	A
20	A	2334	A
20	A	2336	A
20	A	2337	G
20	A	2339	G
20	A	2341	A
20	A	2348	G
20	A	2349	A
20	A	2350	A
20	A	2361	C
20	A	2364	C
20	A	2367	G
20	A	2372	A
20	A	2379	G
20	A	2390	A
20	A	2393	G
20	A	2397	G
20	A	2398	G
20	A	2399	C
20	A	2404	U
20	A	2405	G
20	A	2406	A
20	A	2417	C
20	A	2420	C
20	A	2433	U
20	A	2436	C
20	A	2437	U
20	A	2439	A
20	A	2441	C
20	A	2442	G
20	A	2443	G
20	A	2445	U
20	A	2455	C
20	A	2462	A
20	A	2473	A
20	A	2488	C
20	A	2489	C
20	A	2508	G
20	A	2517	A
20	A	2518	U

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Mol	Chain	Res	Type
20	A	2519	G
20	A	2521	C
20	A	2534	C
20	A	2548	C
20	A	2549	G
20	A	2557	G
20	A	2561	U
20	A	2563	G
20	A	2570	C
20	A	2571	G
20	A	2580	A
20	A	2581	G
20	A	2586	A
20	A	2587	C
20	A	2596	G
20	A	2599	U
20	A	2600	C
20	A	2616	A
20	A	2622	G
20	A	2623	U
20	A	2624	C
20	A	2627	U
20	A	2628	A
20	A	2629	U
20	A	2631	C
20	A	2650	U
20	A	2660	C
20	A	2675	G
20	A	2677	G
20	A	2696	G
20	A	2703	U
20	A	2722	G
20	A	2727	U
20	A	2728	G
20	A	2735	A
20	A	2740	U
20	A	2746	G
20	A	2747	A
20	A	2749	G
20	A	2753	U
20	A	2762	A
20	A	2766	C

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Mol	Chain	Res	Type
20	A	2771	A
20	A	2778	A
20	A	2779	A
20	A	2780	G
20	A	2792	A
20	A	2793	U
20	A	2804	A
20	A	2805	U
20	A	2812	A
20	A	2813	A
20	A	2814	G
20	A	2831	G
20	A	2835	U
20	A	2836	G
20	A	2841	G
20	A	2844	A
20	A	2845	G
20	A	2846	A
20	A	2850	G
20	A	2854	G
20	A	2858	U
20	A	2868	G
20	A	2870	G
20	A	2878	G
20	A	2883	G
20	A	2891	C
20	A	2895	U
20	A	2897	G
20	A	2902	A
20	A	2904	G
21	B	8	G
21	B	10	G
21	B	13	A
21	B	14	G
21	B	23	A
21	B	24	U
21	B	33	U
21	B	40	C
21	B	42	G
21	B	51	A
21	B	54	U
21	B	55	A

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Mol	Chain	Res	Type
21	B	64	A
21	B	70	G
21	B	71	A
21	B	81	A
21	B	82	G
21	B	85	U
21	B	86	U
21	B	87	U
21	B	92	U
21	B	94	G
21	B	97	A
21	B	101	U
21	B	102	A
21	B	107	G

All (22) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
20	A	179	A
20	A	311	A
20	A	320	U
20	A	386	G
20	A	427	A
20	A	559	G
20	A	654	A
20	A	755	A
20	A	890	A
20	A	960	U
20	A	963	C
20	A	1502	G
20	A	1584	G
20	A	1585	U
20	A	1604	A
20	A	1605	C
20	A	1628	G
20	A	2281	A
20	A	2317	G
20	A	2773	G
21	B	32	U
21	B	101	U

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 4 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
20	A	2
1	a	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	928:U	O3'	931:C	P	16.19
1	a	75:U	O3'	96:U	P	13.98
1	A	1579:U	O3'	1583:A	P	9.00

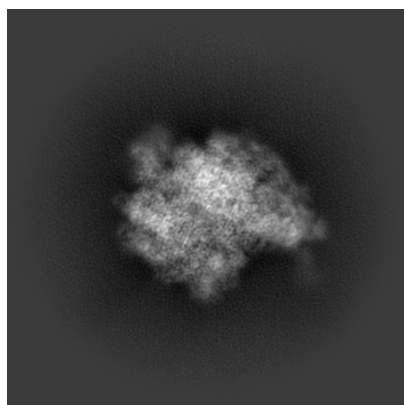
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0660. These allow visual inspection of the internal detail of the map and identification of artifacts.

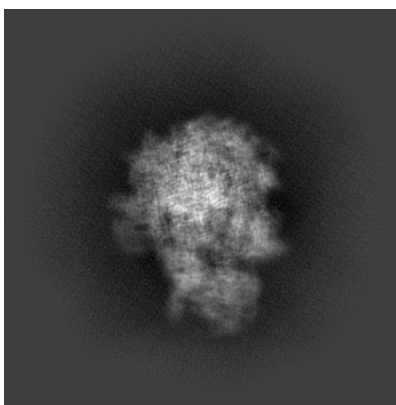
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

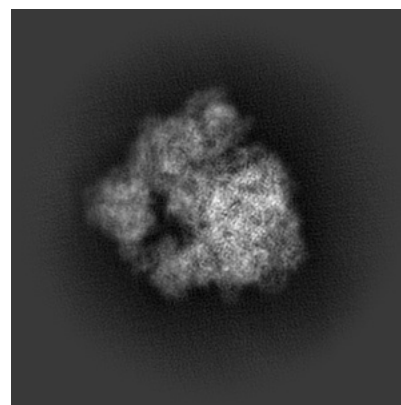
6.1.1 Primary map



X



Y

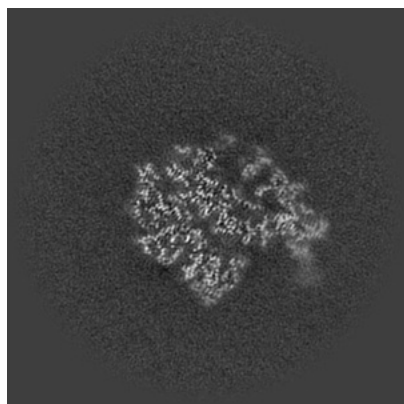


Z

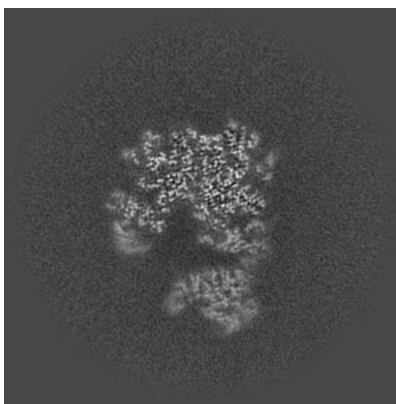
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

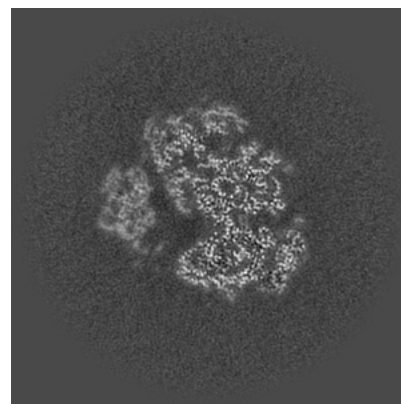
6.2.1 Primary map



X Index: 220



Y Index: 220

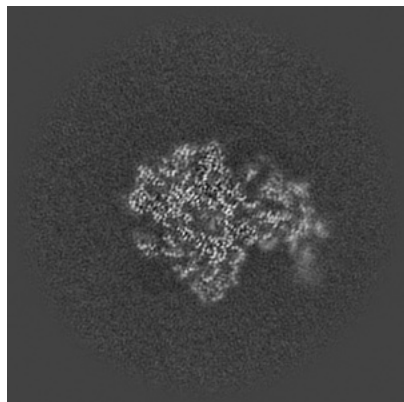


Z Index: 220

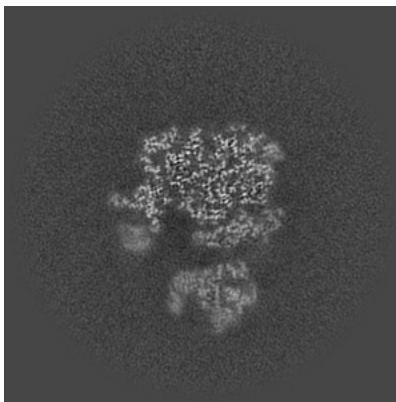
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

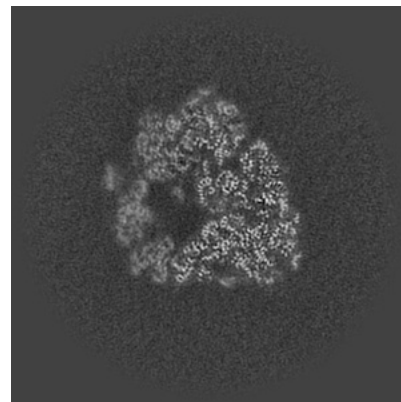
6.3.1 Primary map



X Index: 226



Y Index: 231

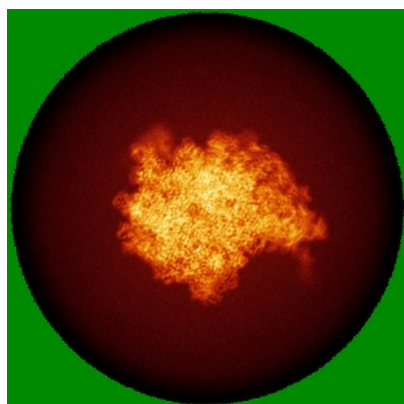


Z Index: 209

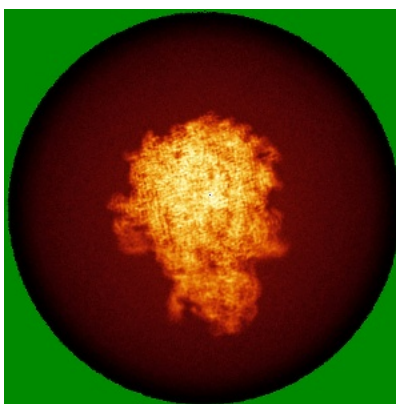
The images above show the largest variance slices of the map in three orthogonal directions.

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

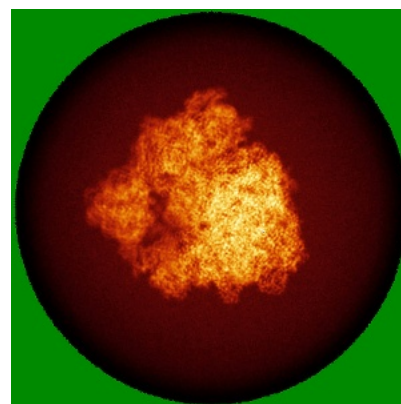
6.4.1 Primary map



X



Y

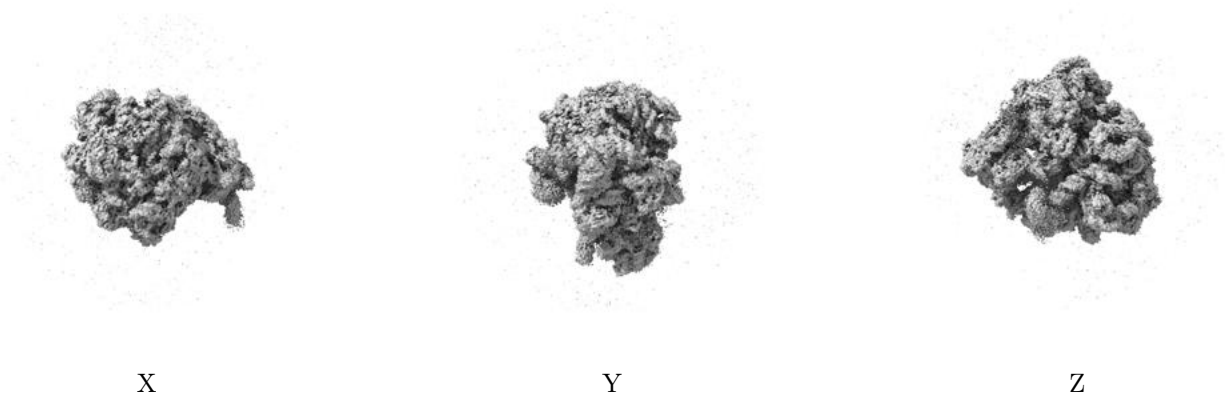


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.238. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

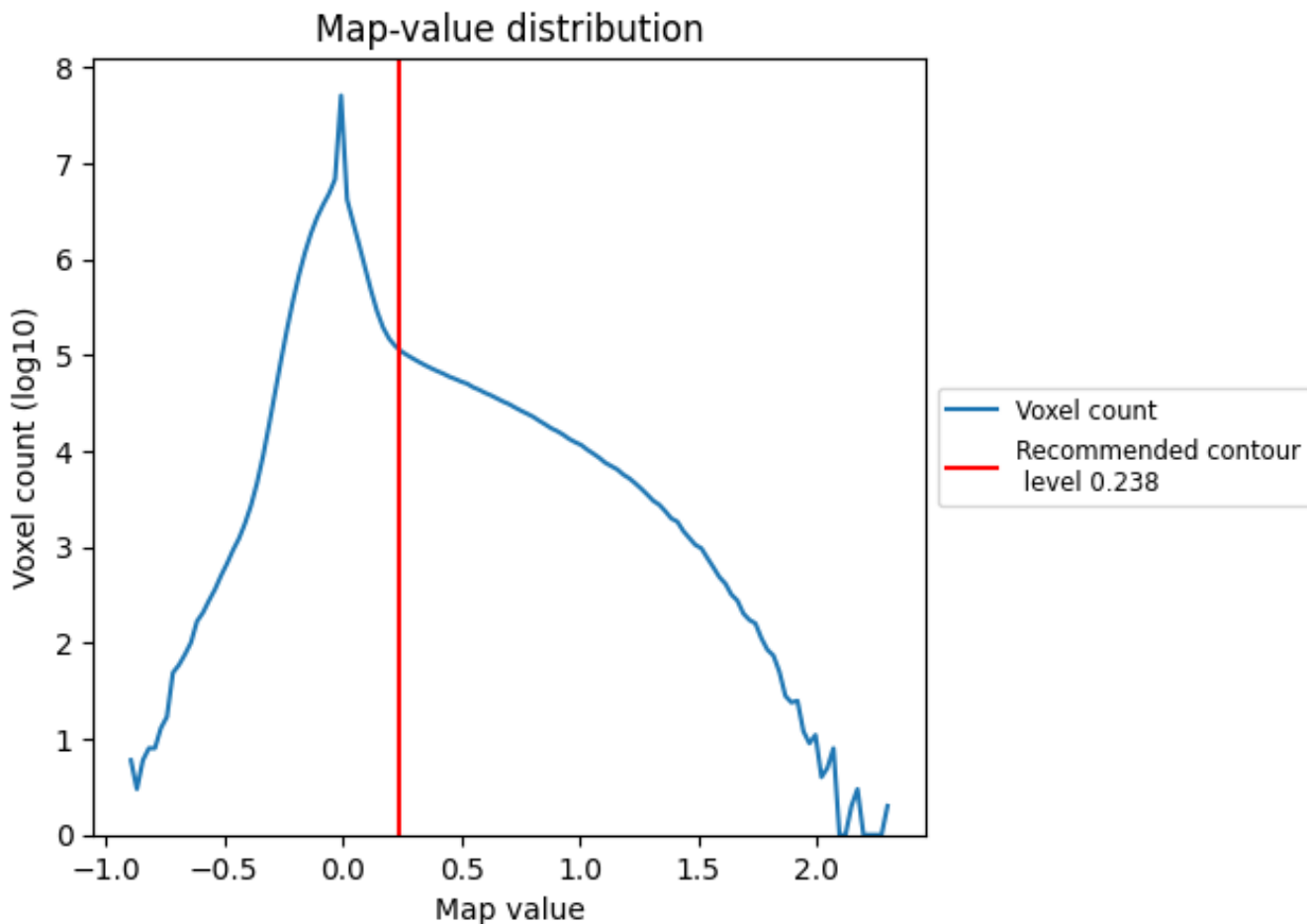
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

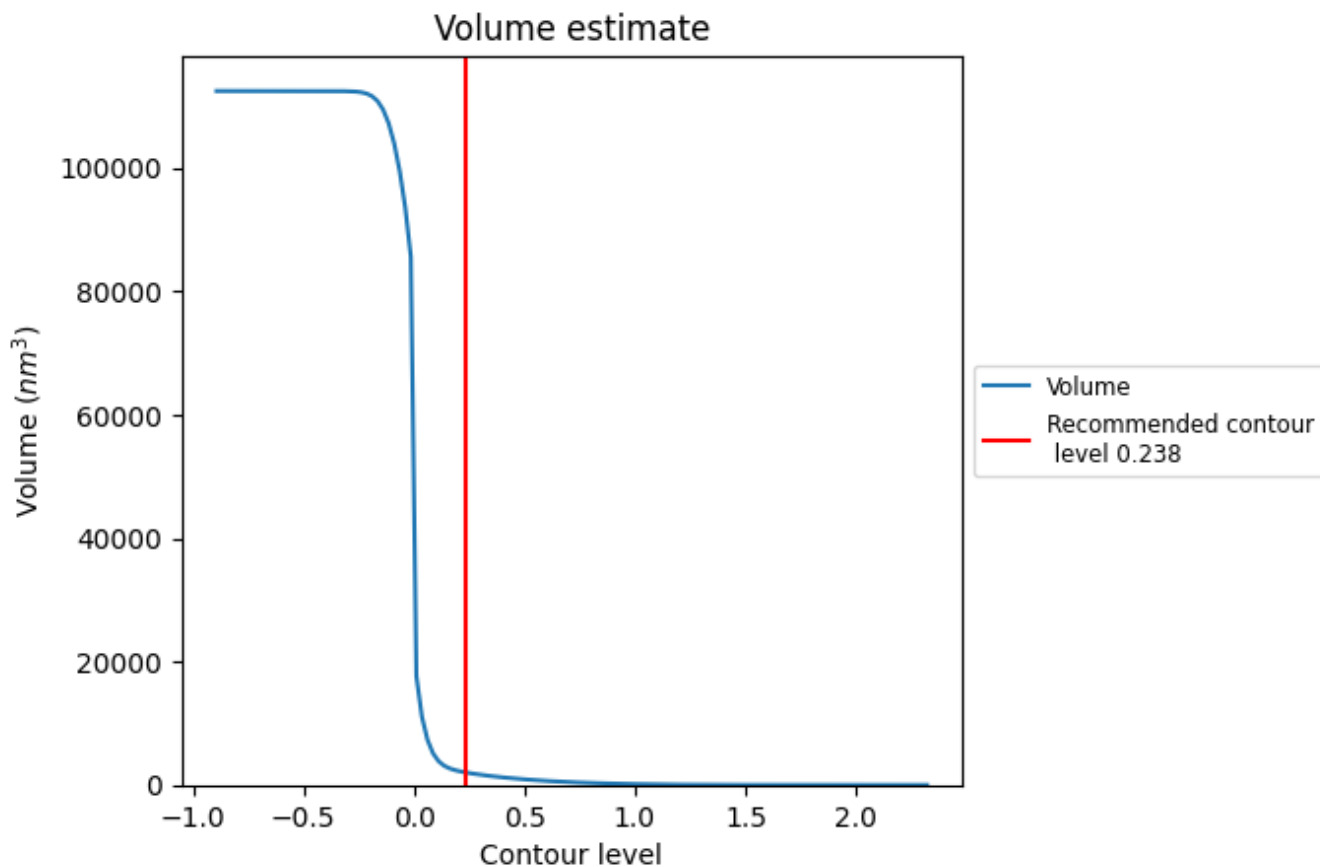
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

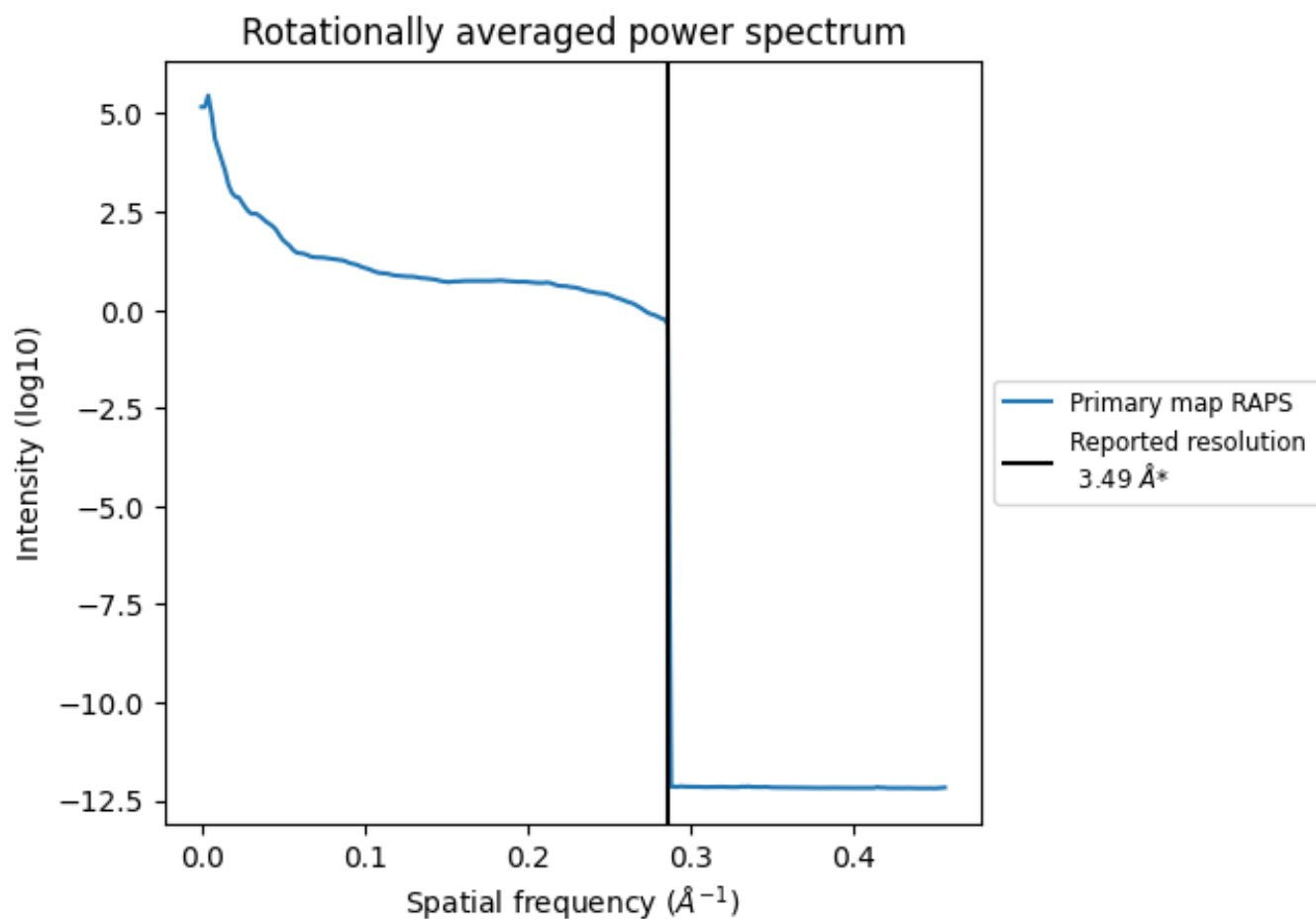
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2006 nm^3 ; this corresponds to an approximate mass of 1813 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 0.287 \AA^{-1}

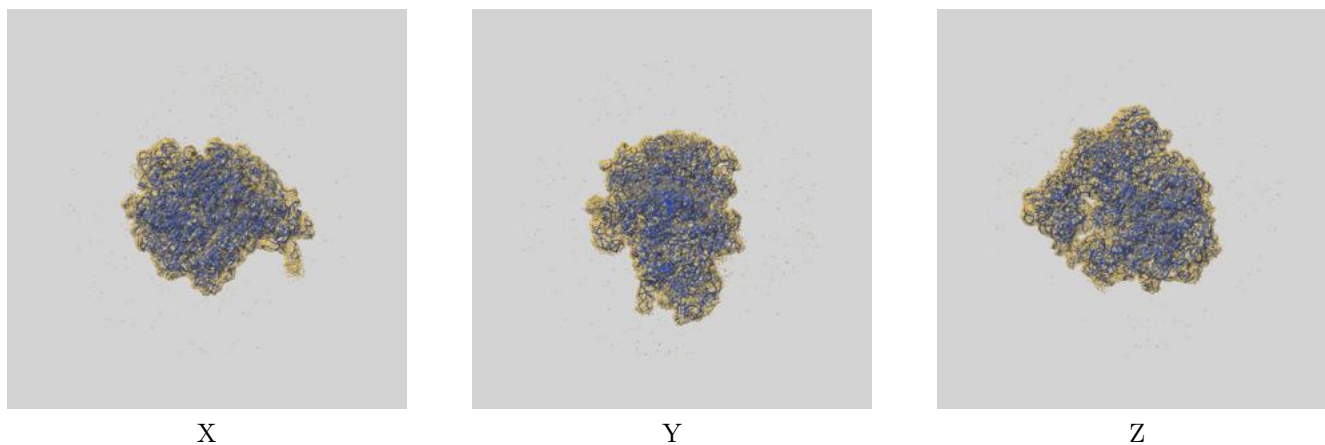
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

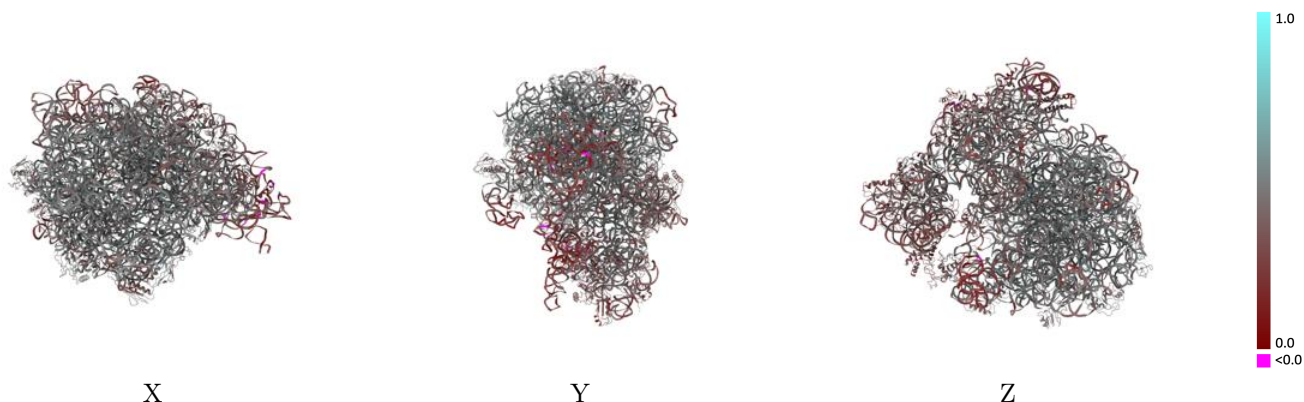
This section contains information regarding the fit between EMDB map EMD-0660 and PDB model 6O90. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay [i](#)



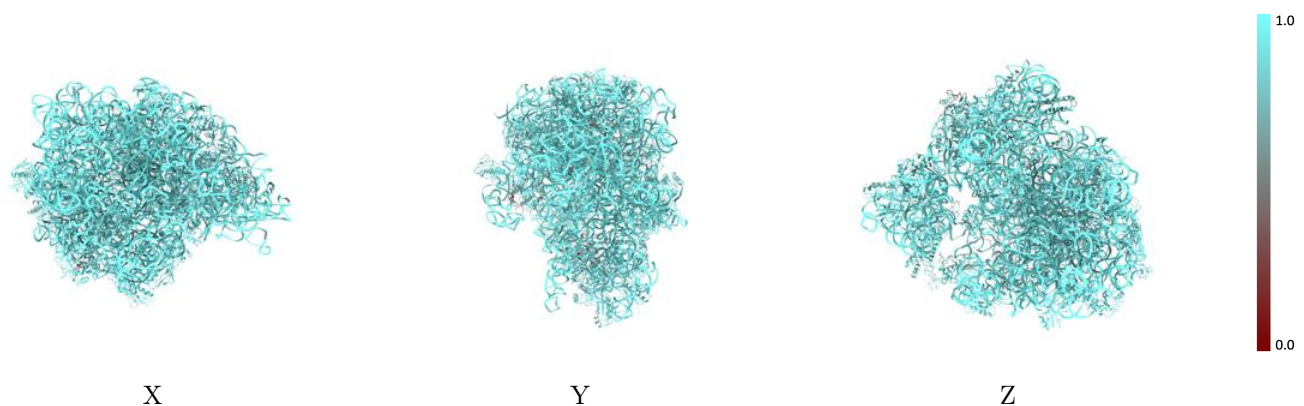
The images above show the 3D surface view of the map at the recommended contour level 0.238 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



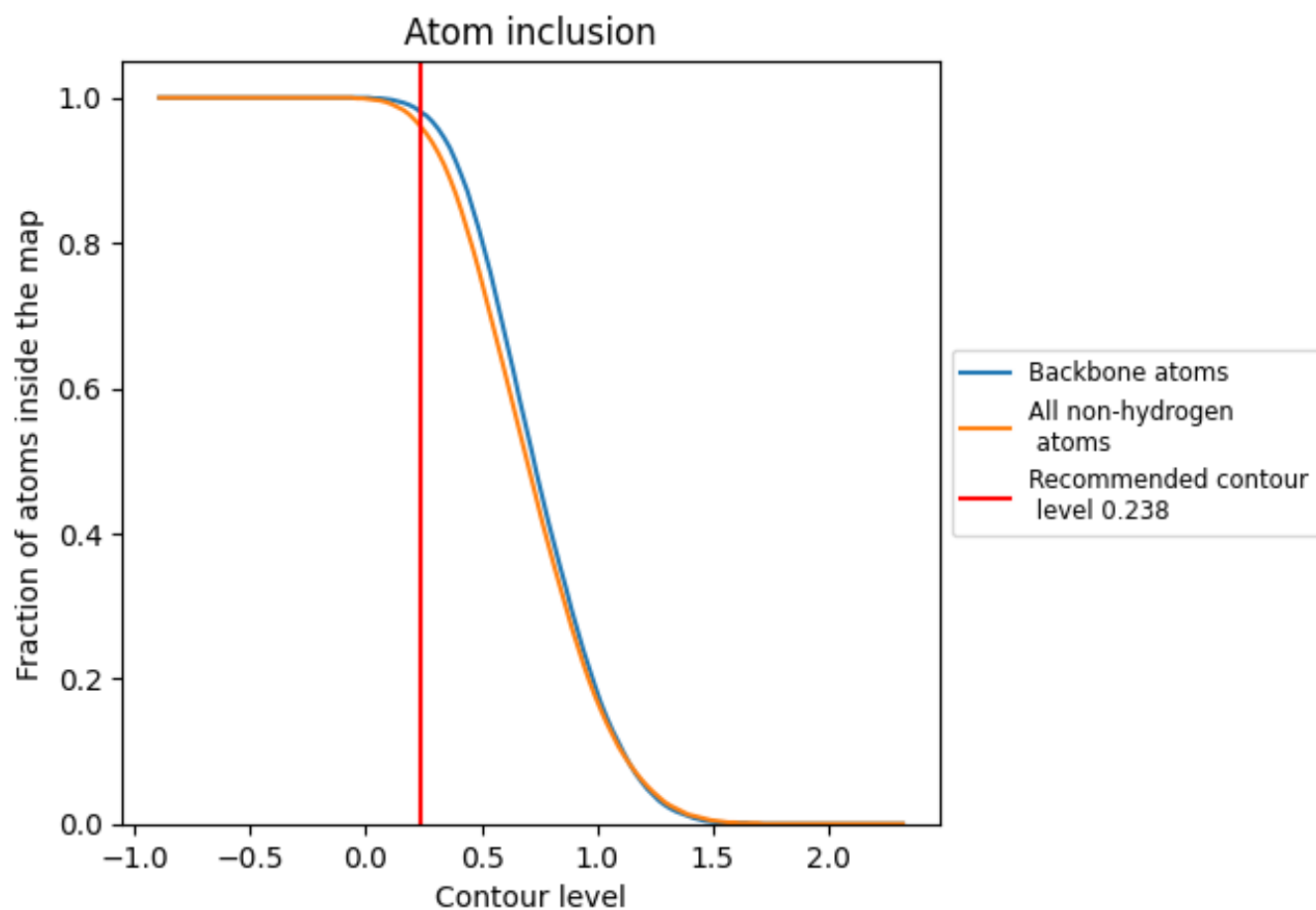
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.238).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 96% 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 (0.238) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9600	 0.4280
0	 0.9180	 0.4660
1	 0.8830	 0.3050
2	 0.9620	 0.4940
3	 0.9060	 0.4700
4	 0.9140	 0.4700
5	 0.9030	 0.4930
6	 0.9520	 0.4820
A	 0.9890	 0.4580
B	 0.9950	 0.4200
C	 0.9300	 0.4780
D	 0.9400	 0.4980
E	 0.9420	 0.4690
F	 0.8760	 0.3670
G	 0.9000	 0.4090
K	 0.9510	 0.4820
L	 0.9170	 0.4930
M	 0.9460	 0.4790
N	 0.8380	 0.4370
O	 0.9360	 0.4670
P	 0.8960	 0.3990
Q	 0.9260	 0.4810
R	 0.9260	 0.4490
S	 0.9160	 0.4630
T	 0.9340	 0.4850
U	 0.9190	 0.4580
V	 0.9000	 0.4450
W	 0.3410	 0.2950
X	 0.9280	 0.4920
Y	 0.9250	 0.4820
Z	 0.9290	 0.4210
a	 0.9910	 0.3940
c	 0.8900	 0.3580
d	 0.7230	 0.2670
e	 0.9010	 0.4220



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Chain	Atom inclusion	Q-score
f	 0.8800	 0.3790
g	 0.8730	 0.3020
h	 0.9220	 0.4100
i	 0.9380	 0.3550
j	 0.8740	 0.3470
k	 0.8780	 0.3970
l	 0.8400	 0.3770
m	 0.8740	 0.2700
n	 0.9430	 0.3970
o	 0.8810	 0.3720
p	 0.9020	 0.3740
q	 0.9030	 0.4190
r	 0.9100	 0.3700
s	 0.8850	 0.3060
t	 0.8160	 0.3340