



Full wwPDB EM Validation Report ⓘ

Jan 16, 2025 – 12:53 am GMT

PDB ID : 9HA6
EMDB ID : EMD-51978
Title : mature 50S subunit supplemented with Api137
Authors : Lauer, S.; Nikolay, R.; Spahn, C.M.T.
Deposited on : 2024-11-01
Resolution : 3.08 Å (reported)

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.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

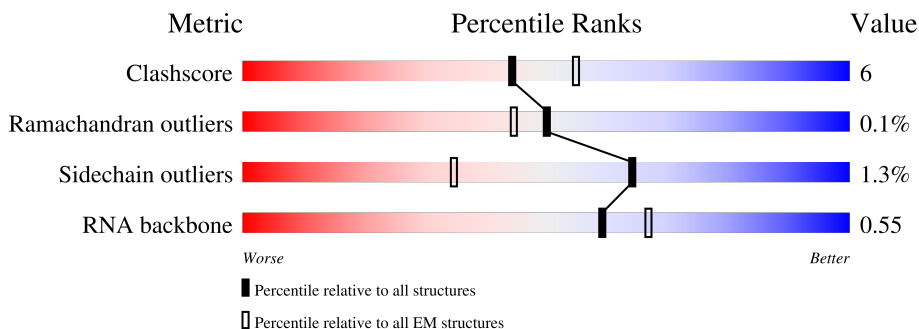
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.08 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	0	56	
2	1	50	
3	2	46	
4	3	64	
5	4	38	
6	B	120	
7	C	271	

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Mol	Chain	Length	Quality of chain
8	D	209	87% 13%
9	E	201	76% 24%
10	F	177	10% 79% 19%
11	G	176	7% 91% 9%
12	H	149	75% 89% 11%
13	J	142	91% 9%
14	K	122	5% 89% 11%
15	L	143	78% 22%
16	M	136	88% 12%
17	N	120	84% 15%
18	O	116	84% 16%
19	P	114	11% 79% 21%
20	Q	117	77% 23%
21	R	103	90% 10%
22	S	110	82% 17%
23	T	93	82% 18%
24	U	102	86% 14%
25	V	94	81% 19%
26	W	75	84% 16%
27	X	77	88% 12%
28	Y	63	6% 86% 14%
29	Z	58	5% 81% 17%
30	A	2904	64% 30% 5%
31	y	17	47% 94% 6%
31	z	17	47% 100%

2 Entry composition [i](#)

There are 31 unique types of molecules in this entry. The entry contains 90242 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Large ribosomal subunit protein bL32.

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

- Molecule 2 is a protein called Large ribosomal subunit protein bL33.

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

- Molecule 3 is a protein called Large ribosomal subunit protein bL34.

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

- Molecule 4 is a protein called Large ribosomal subunit protein bL35.

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

- Molecule 5 is a protein called Large ribosomal subunit protein bL36A.

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

- Molecule 6 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	B	120	2572	1145	471	836	120	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	120	A	U	conflict	GB 1402434313

- Molecule 7 is a protein called Large ribosomal subunit protein uL2.

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

- Molecule 8 is a protein called 50S ribosomal protein L3.

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

- Molecule 9 is a protein called Large ribosomal subunit protein uL4.

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

- Molecule 10 is a protein called Large ribosomal subunit protein uL5.

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

- Molecule 11 is a protein called Large ribosomal subunit protein uL6.

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

- Molecule 12 is a protein called Large ribosomal subunit protein bL9.

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

- Molecule 13 is a protein called Large ribosomal subunit protein uL13.

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

- Molecule 14 is a protein called Large ribosomal subunit protein uL14.

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

- Molecule 15 is a protein called Large ribosomal subunit protein uL15.

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

- Molecule 16 is a protein called 50S ribosomal protein L16.

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

- Molecule 17 is a protein called Large ribosomal subunit protein bL17.

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

- Molecule 18 is a protein called Large ribosomal subunit protein uL18.

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

- Molecule 19 is a protein called Large ribosomal subunit protein bL19.

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

- Molecule 20 is a protein called Large ribosomal subunit protein bL20.

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

- Molecule 21 is a protein called Large ribosomal subunit protein bL21.

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

- Molecule 22 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	S	110	Total	C	N	O	S	1	0
			868	538	170	157	3		

- Molecule 23 is a protein called Large ribosomal subunit protein uL23.

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

- Molecule 24 is a protein called Large ribosomal subunit protein uL24.

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

- Molecule 25 is a protein called Large ribosomal subunit protein bL25.

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

- Molecule 26 is a protein called Large ribosomal subunit protein bL27.

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

- Molecule 27 is a protein called Large ribosomal subunit protein bL28.

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

- Molecule 28 is a protein called Large ribosomal subunit protein uL29.

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

- Molecule 29 is a protein called Large ribosomal subunit protein uL30.

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

- Molecule 30 is a RNA chain called 23S ribosomal rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	A	2900	Total	C	N	O	P	1	0
			62281	27783	11461	20136	2901		

- Molecule 31 is a protein called Apidaecins type 22.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	z	17	Total	C	N	O	0	0
			148	94	33	21		
31	y	17	Total	C	N	O	0	0
			148	94	33	21		

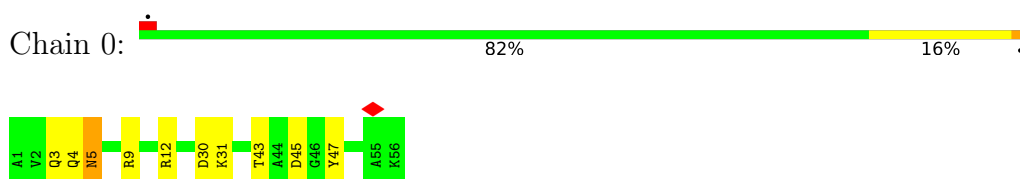
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
z	10	ARG	GLN	conflict	UNP P35581
y	10	ARG	GLN	conflict	UNP P35581

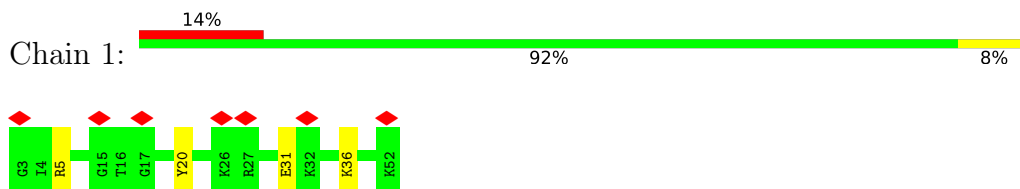
3 Residue-property plots [i](#)

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

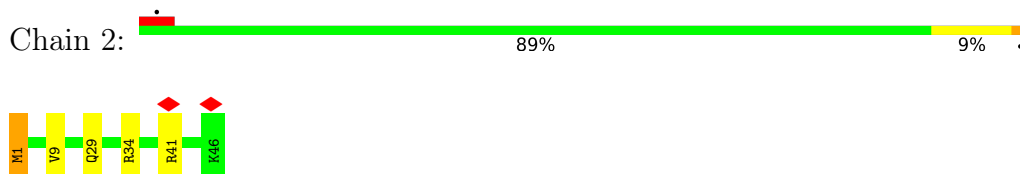
- Molecule 1: Large ribosomal subunit protein bL32



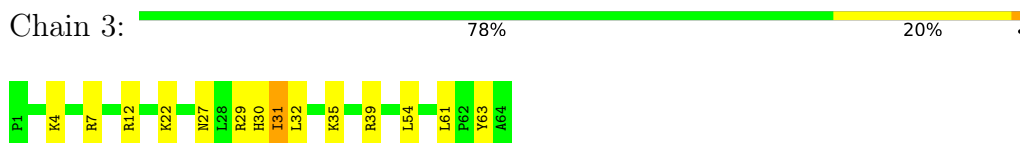
- Molecule 2: Large ribosomal subunit protein bL33



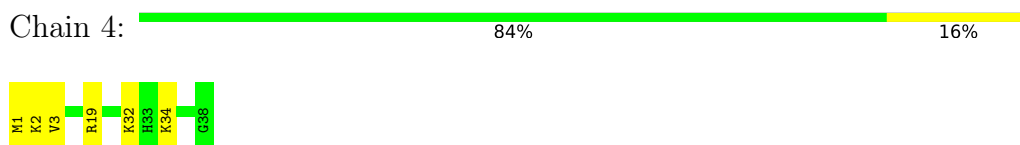
- Molecule 3: Large ribosomal subunit protein bL34



- Molecule 4: Large ribosomal subunit protein bL35

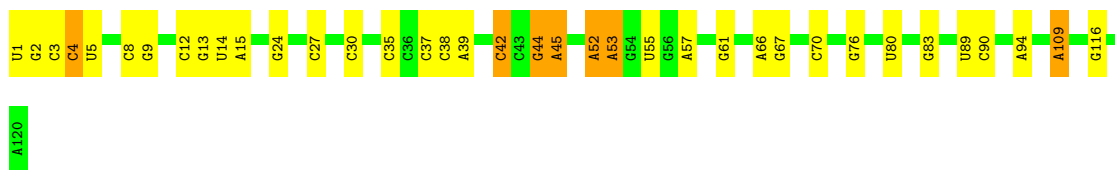


- Molecule 5: Large ribosomal subunit protein bL36A




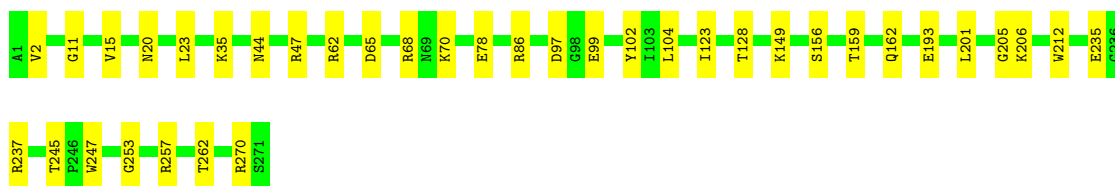
- Molecule 6: 5S ribosomal RNA

Chain B: 



- Molecule 7: Large ribosomal subunit protein uL2

Chain C: 



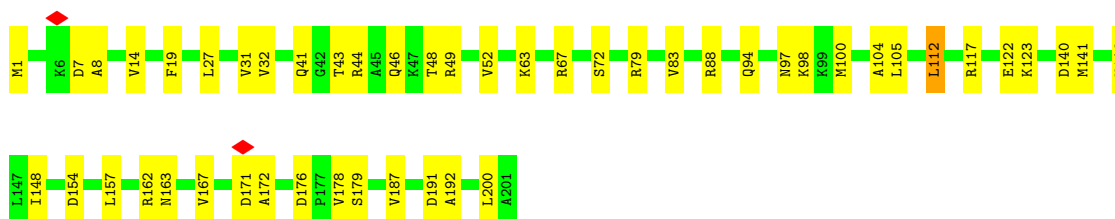
- Molecule 8: 50S ribosomal protein L3

Chain D: 




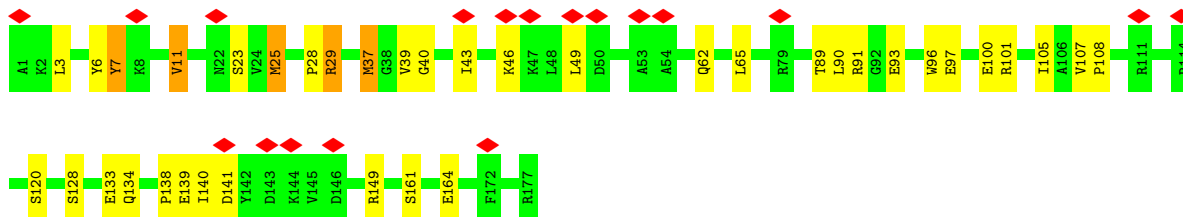
- Molecule 9: Large ribosomal subunit protein uL4

Chain E: 

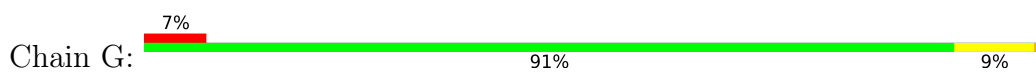


- Molecule 10: Large ribosomal subunit protein uL5

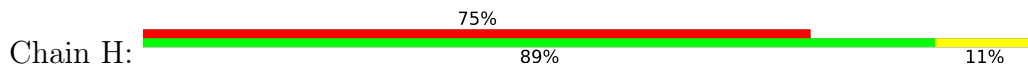
Chain F: 



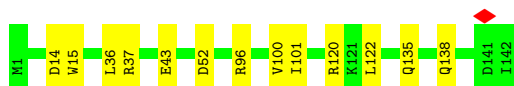
- Molecule 11: Large ribosomal subunit protein uL6



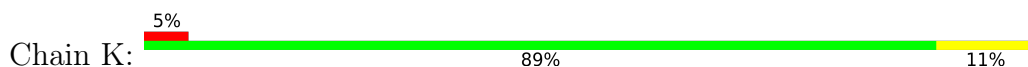
- Molecule 12: Large ribosomal subunit protein bL9



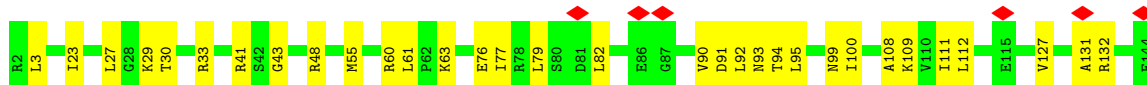
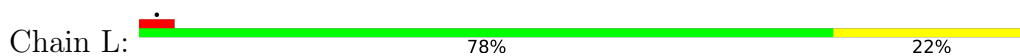
- Molecule 13: Large ribosomal subunit protein uL13



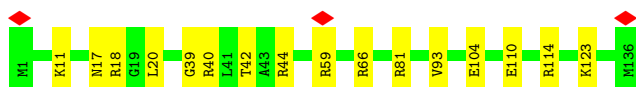
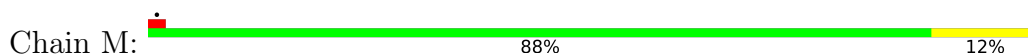
- Molecule 14: Large ribosomal subunit protein uL14




- Molecule 15: Large ribosomal subunit protein uL15

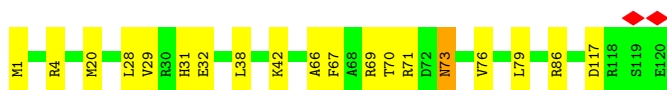


- Molecule 16: 50S ribosomal protein L16




- Molecule 17: Large ribosomal subunit protein bL17

Chain N:  84% 15%




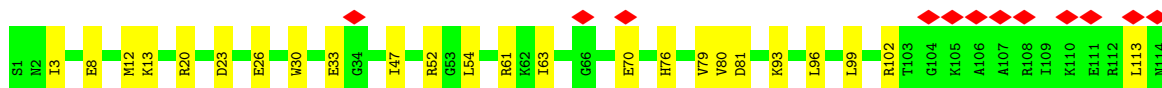
- Molecule 18: Large ribosomal subunit protein uL18

Chain O:  84% 16%




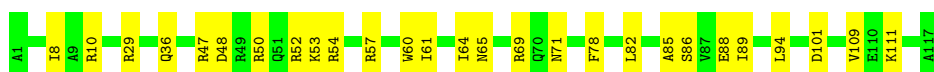
- Molecule 19: Large ribosomal subunit protein bL19

Chain P:  11% 79% 21%




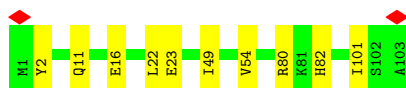
- Molecule 20: Large ribosomal subunit protein bL20

Chain Q:  77% 23%




- Molecule 21: Large ribosomal subunit protein bL21

Chain R:  90% 10%




- Molecule 22: Large ribosomal subunit protein uL22

Chain S:  82% 17%

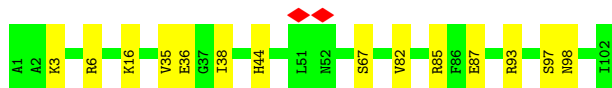
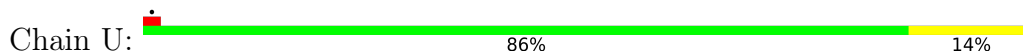


- Molecule 23: Large ribosomal subunit protein uL23

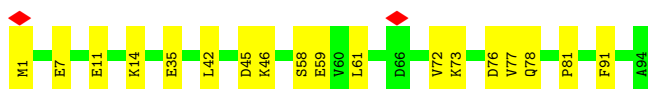
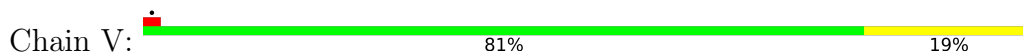
Chain T:  82% 18%



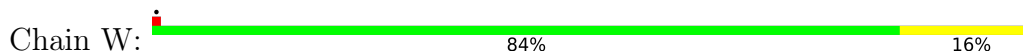
- Molecule 24: Large ribosomal subunit protein uL24



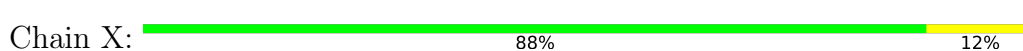
- Molecule 25: Large ribosomal subunit protein bL25



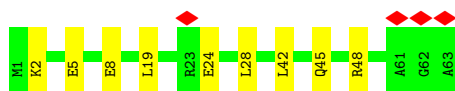
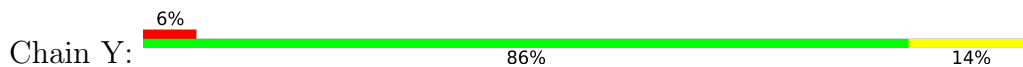
- Molecule 26: Large ribosomal subunit protein bL27



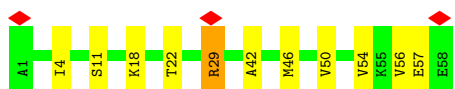
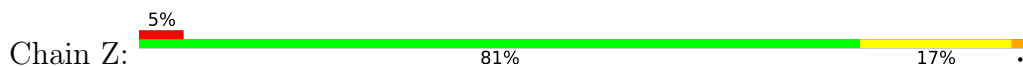
- Molecule 27: Large ribosomal subunit protein bL28



- Molecule 28: Large ribosomal subunit protein uL29



- Molecule 29: Large ribosomal subunit protein uL30



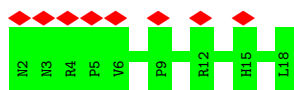
- Molecule 30: 23S ribosomal rRNA



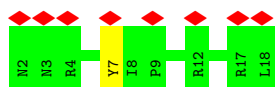
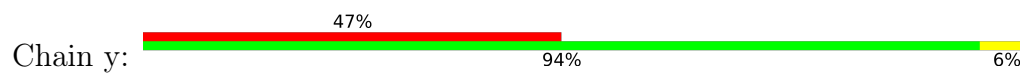
G1	U139	A244	C357	A466	A563	U652	G776	C890	A1009	A1088	U1183	A1272	A1387
A6	C140	G245	U356	G473	A653	U653	G780	G891	A1010	A1089	G1182	U1273	U1390
A10	G141	C246	A362	G474	U654	A654	A781	U895	U1011	G1093	U1183	A1274	U1390
U13	A142	G247	G370	C475	A655	A655	A782	A896	U1012	U1094	G1185	A1275	U1390
G24	U160	C249	A371	G476	U656	A656	A783	A897	U1013	U1095	G1186	A1276	U1390
U25	A161	G250	A372	A477	U657	A657	G784	C897	U1018	A1096	G1187	U1282	U1397
G26	U162	A251	U373	A478	U658	A658	G785	G907	U1019	U1097	C1196	A1286	G1416
A28	C163	A255	U378	A480	U659	A659	A789	A910	A1020	U1101	G1197	A1287	G1416
U29	U166	G259	G378	A481	U660	A660	A793	A911	G1022	U1104	G1203	G1288	A1419
G30	G177	A263	G379	A482	U661	A661	G789	A918	U1023	C1104	A1204	C1290	A1420
U34	G181	G266	A384	G488	U662	A662	A800	A941	G1025	G1110	A1205	C1291	G1421
G35	C184	C267	C385	C491	U663	A663	A801	A942	G1026	A1111	G1206	C1295	G1425
G36	U191	U200	U386	C497	U664	A664	G805	C946	U1033	G1112	U1209	G1300	G1426
G45	A196	C210	G396	A498	U665	A665	G806	A947	G1034	G1116	G1212	A1301	A1427
G46	U199	C211	A404	U499	U666	A666	U807	C948	U1035	U1119	G1215	C1306	A1428
C47	A202	C212	U405	U500	U667	A667	C812	C951	A1040	G1120	G1216	G1309	A1431
C48	U203	C213	G406	A501	U668	A668	U813	C952	C1045	G1125	G1217	G1309	G1432
G51	A209	C214	G411	A505	U669	A669	A819	C953	A1046	G1126	G1218	U1313	A1433
A52	U200	C215	C417	C509	U670	A670	U827	G954	A1048	A1129	G1223	C1314	C1447
C57	C201	G212	G424	G512	U671	A671	U828	A958	C1053	U1130	U1224	U1326	G1448
C58	U202	G213	A424	A513	U672	A672	G831	A959	A1054	G1131	A1225	U1329	G1448
U59	A210	C216	A428	A514	U673	A673	C837	A960	A1057	G1132	A1226	U1332	C1454
G60	C210	C217	A429	A515	U674	A674	U850	A961	A1057	A1133	G1232	G1332	U1454
G61	C211	G218	A432	C517	U675	A675	C851	A962	U1058	A1134	G1233	G1332	U1458
U62	G212	G219	A432	A526	U676	A676	U845	A963	U1059	C1135	C1233	G1339	C1461
A63	A213	G308	A435	C527	U677	A677	U846	A964	G1060	G1139	U1234	U1339	C1461
A64	G214	A309	C435	A528	U678	A678	U847	A965	U1061	G1140	G1235	U1340	U1466
A71	C215	A310	A435	A529	U679	A679	U850	A966	G1062	U1141	G1236	A1342	U1466
U72	A216	A320	G442	A530	U680	A680	C851	A967	G1063	U1142	A1237	G1343	U1475
A73	A217	U321	A443	G530	U681	A681	G855	A972	U1064	A1143	G1248	U1344	U1475
A74	A218	A322	C444	C531	U682	A682	G856	A973	U1065	A1144	U1249	U1344	U1477
G75	G220	C323	G446	A532	U683	A683	G857	A974	U1066	C1145	G1250	U1345	U1477
C76	A221	A324	A447	U534	U684	A684	C857	A975	U1067	C1146	C1251	A1353	G1482
A83	A222	U448	U448	U534	U685	A685	G864	A976	A1067	A1155	G1252	G1358	A1490
A84	C225	A330	A449	C542	U686	A686	C865	A977	U1068	A1156	A1253	A1358	G1490
G85	A226	C331	U451	G543	U687	A687	C866	A978	U1069	G1157	A1254	A1359	G1491
G98	C227	A332	G452	U545	U688	A688	G869	C982	A1070	C1161	U1255	G1360	G1491
A103	C228	C333	A454	U546	U689	A689	G877	A984	C1072	U1161	G1256	U1361	U1497
A118	A231	C334	A455	A547	U690	A690	A878	A985	A1073	C1164	U1257	C1362	C1498
A119	G232	C335	C456	G546	U691	A691	A879	C985	U1074	U1164	G1259	G1363	A1508
A119	G232	C335	C456	G546	U692	A692	A878	C986	G1075	A1169	A1262	A1365	G1508
U120	A233	A340	A457	C550	U693	A693	G881	A989	C1076	G1170	U1263	A1377	G1514
U126	C239	U435	U459	G551	U694	A694	G881	A990	A1077	C1171	U1264	A1378	A1515
U135	C240	A347	C462	U554	U695	A695	G881	A991	U1078	U1174	A1265	U1379	G1524
G136	U243	U464	U465	G555	U696	A696	G886	A996	C1079	A1175	A1268	G1380	A1528
					U		U			U1176	A1269	A1383	A1528
					C		C			G1179	C1270	A1535	A1535
										U1180	G1271	C1386	C1536

G1537	G1543	A1544	A1545	G1546	C1550	U1559	G1560	U1563	G1564	C1565	G1697	A1566	G1567	G1699	A1700	A1569	C1670	G1674	G1681	G1682	U1683	G1684	C1685	G1686	G1687	U1688	G1696	G1697	A1698	G1699	A1701	G1702	G1703	A1705	U1712	A1713	G1714	G1715	U1720	G1721	G1724	U1729	C1730	G1731	C1732	A1634	G1733	U1734	A1735	C1638	G1645	C1646	U1647	U1648	G1649	A1654	G1659	U1662	G1663	A1664	A1665	G1666	G1667	A1668	A1669																																																																																																																																																																																																																																																				
C1870	A1872	A1901	G1906	G1907	U1911	A1912	A1913	C1914	A1915	A1916	U1917	C1924	A1927	A1928	G1929	G1930	A1936	A1937	U1940	C1941	U1943	A1953	G1954	U1955	C1962	U1963	G1964	C1967	A1970	U1971	G1972	A1977	G1983	U1991	G1992	U1995	C1996	A1997	C1999	C2006	G2010	A2013	C2021	U2022	C2023	G2024	C2025	U2028	G2029	A2030	A2031	C2032	A2033	U2034	G2043	C2047	C2050	A2051	A2052	C2055	G2056	A2058	A2059	A2060	G2061	A2062	C2063	G2069	A2070	A2071	C2072	C2073	U2074	U2075	U2076	A2077	U2078	U2079	U2085	C2089	A2090	G2093	C2096	U2099	G2100	A2101	G2102	C2103	C2104	U2105	U2106	G2107	A2108	U2109	G2110	U2111	G2112	U2113	A2114	G2115	G2116	A2117	U2118	A2119	G2120	G2121	U2122	G2123	G2124	G2125	A2126	G2127	G2128	C2200	G2201	G2204	U2131	U2132	C2208	A2211	A2212	U2213	G2214	C2215	A2225	C2226	G2230	G2234	G2238	C2239	G2250	G2251	C2258	A2266	A2267	A2151	C2152	A2153	A2154	U2155	G2156	A2157	G2158	C2159	C2160																																																																																																																																																																				
C2161	G2162	A2163	C2164	U2165	U2166	G2168	A2169	A2170	A2171	U2172	C2173	A2174	C2175	A2176	C2177	C2178	C2179	U2180	U2181	U2182	A2183	A2184	U2189	A2198	A2199	G2201	G2204	C2208	A2211	A2212	U2213	G2214	C2215	A2225	C2226	G2230	G2234	G2238	C2239	G2250	G2251	C2258	A2266	A2267	A2161	A2162	A2163	A2164	A2165	A2166	A2168	A2169	A2170	A2171	A2172	A2173	A2174	A2175	A2176	A2177	A2178	A2179	A2180	A2181	A2182	A2183	A2184	A2189	A2198	A2199	A2200	A2201	A2204	A2211	A2212	A2213	A2214	A2215	A2225	A2226	A2230	A2234	A2238	A2239	A2250	A2251	A2258	A2266	A2267	A2161	A2162	A2163	A2164	A2165	A2166	A2168	A2169	A2170	A2171	A2172	A2173	A2174	A2175	A2176	A2177	A2178	A2179	A2180	A2181	A2182	A2183	A2184	A2189	A2198	A2199	A2200	A2201	A2204	A2211	A2212	A2213	A2214	A2215	A2225	A2226	A2230	A2234	A2238	A2239	A2250	A2251	A2258	A2266	A2267																																																																																																																																																																															
G2271	A2274	G2279	C2283	A2284	C2285	G2286	A2287	U2291	U2296	A2297	C2298	C2299	G2305	A2309	U2321	U2324	A2334	A2335	A2336	G2337	U2343	U2344	G2345	A2346	U2347	U2348	G2349	C2350	G2351	G2357	G2360	C2361	C2362	G2363	G2364	C2365	A2369	G2373	C2374	G2375	A2376	A2377	A2378	A2379	A2380	A2381	A2382	A2383	A2384	A2385	A2386	A2387	A2388	A2389	A2390	A2391	A2392	A2393	A2394	A2395	A2396	U2402	C2403	U2404	A2407	G2410	U2419	C2422	U2423	A2424	A2425	A2426	C2427	G2428	G2429	A2430	U2431	A2432	A2433	A2434	A2435	A2439	U2441	C2442	C2443	G2444	G2445	G2446	G2447	A2448	A2451	G2454	U2457	A2376	A2377	A2378	A2379	A2380	A2381	A2382	A2383	A2384	A2385	A2386	A2387	A2388	A2389	A2390	A2391	A2392	A2393	A2394	A2395	A2396	U2402	C2403	U2404	A2407	G2410	U2419	C2422	U2423	A2424	A2425	A2426	C2427	G2428	G2429	A2430	U2431	A2432	A2433	A2434	A2435	A2439	U2441	C2442	C2443	G2444	G2445	G2446	G2447	A2448	A2451	G2454	U2457																																																																																																																																																																			
G2464	A2468	A2469	U2474	C2475	U2477	A2478	G2481	G2484	G2487	U2489	G2490	U2491	U2492	G2494	G2495	G2496	A2497	C2498	C2499	U2500	C2501	G2502	A2503	U2504	G2505	U2506	G2509	A2513	U2514	C2515	A2518	U2519	C2520	C2521	U2522	G2526	C2527	U2528	C2529	A2530	G2535	A2547	U2552	G2553	C2554	C2555	A2559	A2564	A2565	A2566	G2567	C2573	G2576	A2577	G2578	C2579	U2580	G2581	G2582	U2585	C2594	G2595	U2596	C2597	A2598	G2599	A2600	C2601	A2602	U2609	C2610	C2611	U2612	A2614	U2615	G2618	C2619	C2620	C2628	U2629	A2635	U2637	G2638	G2645	C2646	U2647	C2652	U2653	A2654	G2655	A2464	A2465	A2466	A2467	A2468	A2469	A2470	A2471	A2472	A2473	A2474	A2475	A2476	A2477	A2478	A2479	A2480	A2481	A2482	A2483	A2484	A2485	A2486	A2487	A2488	A2489	A2490	A2491	A2492	A2493	A2494	A2495	A2496	A2497	A2498	A2499	A2500	A2501	A2502	A2503	A2504	A2505	A2506	A2509	A2513	A2514	A2515	A2518	A2519	A2520	A2521	A2522	A2526	A2527	A2528	A2529	A2530	A2535	A2547	A2552	A2553	A2554	A2555	A2559	A2564	A2565	A2566	A2567	A2573	A2576	A2577	A2578	A2579	A2580	A2581	A2582	A2585	A2594	A2595	A2596	A2597	A2598	A2599	A2600	A2601	A2602	A2609	A2610	A2611	A2612	A2614	A2615	A2618	A2619	A2620	A2628	A2629	A2635	A2637	A2638	A2645	A2646	A2647	A2652	A2653	A2654	A2655	A2464	A2465	A2466	A2467	A2468	A2469	A2470	A2471	A2472	A2473	A2474	A2475	A2476	A2477	A2478	A2479	A2480	A2481	A2482	A2483	A2484	A2485	A2486	A2487	A2488	A2489	A2490	A2491	A2492	A2493	A2494	A2495	A2496	A2497	A2498	A2499	A2500	A2501	A2502	A2503	A2504	A2505	A2506	A2509	A2513	A2514	A2515	A2518	A2519	A2520	A2521	A2522	A2526	A2527	A2528	A2529	A2530	A2535	A2547	A2552	A2553	A2554	A2555	A2559	A2564	A2565	A2566	A2567	A2573	A2576	A2577	A2578	A2579	A2580	A2581	A2582	A2585	A2594	A2595	A2596	A2597	A2598	A2599	A2600	A2601	A2602	A2609	A2610	A2611	A2612	A2614	A2615	A2618	A2619	A2620	A2628	A2629	A2635	A2637	A2638	A2645	A2646	A2647	A2652	A2653	A2654	A2655					
U2656	A2659	A2660	A2661	A2662	A2679	A2682	U2687	G2688	U2689	G2690	C2691	G2692	U2698	C2699	A2700	C2704	A2705	A2706	U2707	G2708	C2709	C2710	G2714	C2717	G2718	G2719	U2720	A2721	G2722	C2723	G2732	A2733	U2739	U2743	G2744	G2747	A2748	A2749	A2750	G2751	C2755	U2756	A2757	A2758	A2759	A2760	A2761	A2762	A2763	A2764	A2765	A2766	G2777	U2778	U2779	G2780	A2781	G2782	U2786	C2787	C2788	G2791	A2799	A2800	G2808	A2809	G2816	U2817	U2818	G2819	A2820	A2821	G2822	A2823	U2833	U2845	G2846	U2847	G2848	U2849	G2852	G2857	A2860	U2865	U2866	G2867	A2868	U2871	A2872	A2873	A2656	A2657	A2658	A2659	A2660	A2661	A2662	A2663	A2664	A2665	A2666	A2667	A2668	A2669	A2670	A2671	A2672	A2673	A2674	A2675	A2676	A2677	A2678	A2679	A2680	A2681	A2682	A2683	A2684	A2685	A2686	A2687	A2688	A2689	A2690	A2691	A2692	A2693	A2694	A2695	A2696	A2697	A2698	A2699	A2700	A2701	A2702	A2703	A2704	A2705	A2706	A2707	A2708	A2709	A2710	A2711	A2712	A2713	A2714	A2715	A2716	A2717	A2718	A2719	A2720	A2721	A2722	A2723	A2724	A2725	A2726	A2727	A2728	A2729	A2730	A2731	A2732	A2733	A2734	A2735	A2736	A2737	A2738	A2739	A2740	A2741	A2742	A2743	A2744	A2745	A2746	A2747	A2748	A2749	A2750	A2751	A2752	A2753	A2754	A2755	A2756	A2757	A2758	A2759	A2760	A2761	A2762	A2763	A2764	A2765	A2766	A2767	A2768	A2769	A2770	A2771	A2772	A2773	A2774	A2775	A2776	A2777	A2778	A2779	A2780	A2781	A2782	A2783	A2784	A2785	A2786	A2787	A2788	A2789	A2790	A2791	A2792	A2793	A2794	A2795	A2796	A2797	A2798	A2799	A2800	A2801	A2802	A2803	A2804	A2805	A2806	A2807	A2808	A2809	A2810	A2811	A2812	A2813	A2814	A2815	A2816	A2817	A2818	A2819	A2820	A2821	A2822	A2823	A2824	A2825	A2826	A2827	A2828	A2829	A2830	A2831	A2832	A2833	A2834	A2835	A2836	A2837	A2838	A2839	A2840	A2841	A2842	A2843	A2844	A2845	A2846	A2847	A2848	A2849	A2850	A2851	A2852	A2853	A2854	A2855	A2856	A2857	A2858	A2859	A2860	A2861	A2862	A2863	A2864	A2865	A2866	A2867	A2868	A2869	A2870	A2871	A2872	A2873	A2874

- Molecule 31: Apidaecins type 22



- Molecule 31: Apidaecins type 22



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	41476	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	46.2	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.850	Depositor
Minimum map value	-0.385	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.040	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	399.6, 399.6, 399.6	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.332, 1.332, 1.332	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	0	0.23	0/450	0.54	0/599
2	1	0.24	0/416	0.48	0/554
3	2	0.25	0/380	0.64	0/498
4	3	0.23	0/513	0.52	0/676
5	4	0.26	0/303	0.56	0/397
6	B	0.24	1/2876 (0.0%)	0.70	0/4483
7	C	0.24	0/2121	0.55	0/2852
8	D	0.25	0/1586	0.50	0/2134
9	E	0.24	0/1571	0.48	0/2113
10	F	0.25	0/1434	0.53	0/1926
11	G	0.24	0/1343	0.48	0/1816
12	H	0.24	0/1122	0.48	0/1515
13	J	0.24	0/1152	0.49	0/1551
14	K	0.24	0/947	0.55	0/1268
15	L	0.25	0/1054	0.57	0/1403
16	M	0.25	0/1093	0.54	0/1460
17	N	0.25	0/973	0.59	0/1301
18	O	0.24	0/902	0.53	0/1209
19	P	0.25	0/929	0.55	0/1242
20	Q	0.24	0/960	0.52	0/1278
21	R	0.25	0/829	0.53	0/1107
22	S	0.24	0/875	0.52	0/1170
23	T	0.29	0/744	0.51	0/994
24	U	0.25	0/787	0.51	0/1051
25	V	0.25	0/766	0.48	0/1025
26	W	0.25	0/582	0.53	0/769
27	X	0.24	0/635	0.56	0/848
28	Y	0.24	0/510	0.49	0/677
29	Z	0.24	0/453	0.53	0/605
30	A	0.16	1/69755 (0.0%)	0.72	8/108820 (0.0%)
31	y	0.27	0/155	0.62	0/212
31	z	0.22	0/155	0.58	0/212
All	All	0.19	2/98371 (0.0%)	0.68	8/147765 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
23	T	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	A	1	G	OP3-P	-10.58	1.48	1.61
6	B	1	U	OP3-P	-10.57	1.48	1.61

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
30	A	1913	A	OP1-P-O3'	-10.68	81.70	105.20
30	A	1913	A	OP2-P-O3'	-10.06	83.07	105.20
30	A	1914	C	OP1-P-OP2	7.08	130.22	119.60
30	A	2474	U	C2-N1-C1'	5.71	124.55	117.70
30	A	2321	U	C2-N1-C1'	5.58	124.40	117.70
30	A	62	U	C2-N1-C1'	5.48	124.28	117.70
30	A	1313	U	C2-N1-C1'	5.16	123.89	117.70
30	A	2704	C	N1-C2-O2	5.02	121.91	118.90

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
23	T	73	ARG	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	444	0	461	7	0
2	1	409	0	440	4	0
3	2	377	0	418	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	3	504	0	574	11	0
5	4	302	0	343	6	0
6	B	2572	0	1302	22	0
7	C	2082	0	2157	30	0
8	D	1565	0	1616	20	0
9	E	1552	0	1619	35	0
10	F	1410	0	1447	29	0
11	G	1323	0	1374	11	0
12	H	1111	0	1148	12	0
13	J	1129	0	1162	9	0
14	K	938	0	1012	10	0
15	L	1045	0	1117	27	0
16	M	1074	0	1157	11	0
17	N	960	0	1000	15	0
18	O	892	0	923	14	0
19	P	917	0	965	16	0
20	Q	947	0	1022	23	0
21	R	816	0	839	8	0
22	S	868	0	934	15	0
23	T	738	0	807	11	0
24	U	779	0	834	11	0
25	V	753	0	780	15	0
26	W	575	0	592	10	0
27	X	625	0	655	8	0
28	Y	509	0	543	6	0
29	Z	449	0	491	10	0
30	A	62281	0	31323	520	0
31	y	148	0	152	0	0
31	z	148	0	150	0	0
All	All	90242	0	59357	788	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (788) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:727:A:OP2	30:A:1431:A:O2'	1.88	0.91
30:A:177:G:OP2	30:A:177:G:N2	2.05	0.89
15:L:93:ASN:O	15:L:94:THR:OG1	1.91	0.88
30:A:1837:C:O2'	30:A:1927:A:N3	2.05	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:2343:U:HO2'	30:A:2373:G:HO2'	1.12	0.87
30:A:2258:C:O2'	30:A:2427:C:OP2	1.92	0.87
30:A:959:A:N3	30:A:2457:U:O2'	2.09	0.85
30:A:1681:G:OP2	30:A:1757:A:N6	2.09	0.85
30:A:2576:G:O2'	30:A:2579:C:OP2	1.93	0.85
30:A:1798:U:O2'	30:A:1802:A:N3	2.10	0.85
30:A:948:C:O2	30:A:984:A:O2'	1.96	0.84
7:C:253:GLY:O	30:A:1843:C:O2'	1.96	0.84
30:A:2522:U:O2'	30:A:2647:U:OP1	1.93	0.84
30:A:2530:A:OP2	30:A:2535:G:N2	2.11	0.83
18:O:117:PHE:O	30:A:2377:A:O2'	1.95	0.83
30:A:1447:C:O2'	30:A:1544:A:N3	2.09	0.83
6:B:5:U:OP1	6:B:61:G:O2'	1.96	0.83
30:A:1826:G:O2'	30:A:1971:U:OP2	1.97	0.83
30:A:275:C:O2	30:A:362:A:N6	2.12	0.82
30:A:612:G:N2	30:A:614:A:O2'	2.12	0.82
30:A:1962:C:O2'	30:A:1964:G:OP2	1.97	0.82
30:A:1942:C:OP2	30:A:1943:U:O2'	1.96	0.82
30:A:227:A:O2'	30:A:228:C:O5'	1.97	0.82
30:A:463:G:N2	30:A:466:A:OP2	2.14	0.81
20:Q:52:ARG:NH2	30:A:994:C:OP1	2.13	0.81
2:1:5:ARG:NH1	30:A:2285:C:OP2	2.13	0.81
30:A:2326:C:O2'	30:A:2327:A:OP1	1.98	0.80
15:L:55:MET:O	15:L:60:ARG:NH1	2.14	0.80
30:A:698:C:O2'	30:A:734:A:N6	2.14	0.80
29:Z:29:ARG:NE	30:A:1184:U:OP1	2.14	0.80
21:R:80:ARG:NH2	30:A:572:A:OP2	2.15	0.80
30:A:2144:G:O2'	30:A:2147:A:N1	2.15	0.80
30:A:234:U:O4	30:A:263:G:N2	2.15	0.79
30:A:2645:G:OP2	30:A:2645:G:N2	2.13	0.79
30:A:200:U:O2	30:A:386:G:N2	2.15	0.79
30:A:2857:G:N2	30:A:2860:A:OP2	2.14	0.79
7:C:149:LYS:NZ	30:A:1801:A:OP2	2.15	0.79
30:A:1779:U:OP2	30:A:1784:A:N6	2.16	0.79
1:0:4:GLN:OE1	30:A:2056:G:O2'	2.00	0.79
16:M:66:ARG:NH1	16:M:104:GLU:OE2	2.15	0.79
19:P:102:ARG:NH2	30:A:1754:A:O2'	2.17	0.78
25:V:11:GLU:N	25:V:11:GLU:OE1	2.17	0.78
30:A:1907:G:O6	30:A:1924:C:N4	2.16	0.78
30:A:1953:A:O2'	30:A:2559:C:O2	2.00	0.78
9:E:63:LYS:NZ	30:A:2061:G:OP2	2.16	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:X:22:ASN:OD1	30:A:2079:U:O2'	2.01	0.78
30:A:191:A:O2'	30:A:678:C:O2	2.00	0.78
30:A:675:A:N3	30:A:2443:C:O2'	2.16	0.78
17:N:86:ARG:NH2	17:N:117:ASP:OD2	2.16	0.77
2:1:20:TYR:HH	30:A:2347:C:HO2'	1.32	0.77
4:3:31:ILE:O	4:3:35:LYS:NZ	2.17	0.77
11:G:29:ASN:ND2	11:G:77:GLY:O	2.18	0.77
25:V:58:SER:OG	25:V:59:GLU:OE1	2.03	0.77
29:Z:11:SER:OG	30:A:989:G:OP2	2.03	0.76
15:L:41:ARG:NH2	30:A:807:U:OP2	2.18	0.76
9:E:163:ASN:ND2	30:A:320:A:N3	2.33	0.76
23:T:36:LYS:NZ	30:A:57:C:O2'	2.19	0.76
9:E:67:ARG:NE	30:A:1257:C:OP1	2.19	0.76
26:W:37:ARG:NH2	30:A:2387:U:O2'	2.19	0.76
30:A:2816:G:N3	30:A:2883:A:O2'	2.19	0.75
30:A:570:G:O4'	30:A:983:A:N6	2.20	0.75
6:B:14:U:OP2	6:B:70:C:O2'	2.04	0.75
30:A:2006:C:O2'	30:A:2823:A:N3	2.18	0.75
30:A:2595:G:O2'	30:A:2597:G:O6	2.03	0.75
30:A:2115:G:N2	30:A:2118:U:OP2	2.19	0.75
30:A:1668:A:N3	30:A:1670:C:N4	2.34	0.74
20:Q:101:ASP:OD2	21:R:2:TYR:OH	2.04	0.74
30:A:2063:C:N4	30:A:2501:C:O2	2.21	0.74
28:Y:48:ARG:NH1	30:A:76:C:OP1	2.21	0.74
30:A:248:G:O2'	30:A:2432:A:OP1	2.05	0.74
30:A:725:G:O2'	30:A:726:G:O4'	2.04	0.74
30:A:2469:A:N6	30:A:2481:G:O2'	2.21	0.74
30:A:2646:C:OP2	30:A:2732:G:O2'	2.06	0.73
30:A:647:G:N2	30:A:2350:C:O2'	2.21	0.73
30:A:542:C:N4	30:A:543:G:O6	2.20	0.73
3:2:34:ARG:NH2	3:2:41:ARG:O	2.21	0.73
5:4:19:ARG:NE	30:A:2756:U:OP2	2.20	0.73
30:A:2564:A:O2'	30:A:2565:A:O4'	2.01	0.73
4:3:63:TYR:HH	30:A:592:A:HO2'	1.35	0.73
21:R:11:GLN:N	21:R:11:GLN:OE1	2.21	0.73
10:F:25:MET:O	10:F:29:ARG:NH1	2.22	0.72
15:L:77:ILE:HD11	15:L:108:ALA:HB1	1.71	0.72
16:M:40:ARG:NH2	30:A:958:U:OP1	2.21	0.72
30:A:1936:A:OP2	30:A:1962:C:N4	2.22	0.72
30:A:240:C:OP2	30:A:241:A:O2'	2.03	0.72
30:A:1209:U:O2'	30:A:1237:A:N1	2.20	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:D:115:GLY:N	30:A:2821:A:OP2	2.22	0.72
18:O:8:ILE:O	18:O:12:THR:HG23	1.89	0.72
30:A:1724:G:O6	30:A:1737:G:N2	2.23	0.72
30:A:2865:U:OP2	30:A:2866:U:O2'	2.06	0.71
30:A:1834:U:O2'	30:A:1970:A:OP2	2.08	0.71
30:A:249:C:OP2	30:A:2394:C:O2'	2.05	0.71
30:A:372:G:O2'	30:A:373:U:O5'	2.09	0.71
30:A:603:A:N6	30:A:655:A:O4'	2.23	0.71
9:E:44:ARG:NH1	30:A:1248:G:OP1	2.24	0.71
16:M:81:ARG:NH1	30:A:2251:G:OP1	2.23	0.71
30:A:571:U:O2'	30:A:573:U:OP2	2.08	0.70
30:A:807:U:O2'	30:A:2060:A:N1	2.22	0.70
30:A:963:U:O4'	30:A:2250:G:N2	2.24	0.70
30:A:1062:G:O2'	30:A:1063:G:O4'	2.06	0.70
7:C:70:LYS:NZ	7:C:99:GLU:OE2	2.25	0.70
30:A:1048:A:OP2	30:A:1110:G:N2	2.24	0.70
30:A:1638:C:O2	30:A:2698:U:O2'	2.09	0.70
15:L:99:ASN:ND2	30:A:621:A:OP2	2.25	0.70
4:3:39:ARG:NH2	30:A:2362:C:OP1	2.25	0.70
25:V:45:ASP:OD1	25:V:46:LYS:N	2.24	0.70
30:A:227:A:HO2'	30:A:228:C:P	2.15	0.70
30:A:584:C:N4	30:A:585:G:O6	2.25	0.70
6:B:76:G:O2'	25:V:78:GLN:OE1	2.09	0.69
30:A:18:U:O2'	30:A:554:U:OP1	2.10	0.69
30:A:219:A:N3	30:A:234:U:O2'	2.25	0.69
1:0:5:ASN:ND2	30:A:2022:U:O4	2.24	0.69
18:O:31:THR:OG1	18:O:33:ARG:O	2.10	0.69
30:A:2705:A:O2'	30:A:2852:G:OP1	2.09	0.69
10:F:134:GLN:NE2	10:F:149:ARG:O	2.25	0.69
7:C:86:ARG:NH2	30:A:1817:G:OP1	2.26	0.69
30:A:1125:G:OP2	30:A:1126:A:O2'	2.10	0.69
30:A:1129:A:O2'	30:A:2515:C:O2	2.10	0.69
30:A:1264:A:OP2	30:A:1265:A:O2'	2.08	0.69
30:A:1426:G:OP2	30:A:1427:A:O2'	2.11	0.69
19:P:30:TRP:NE1	19:P:81:ASP:OD2	2.26	0.69
30:A:28:A:HO2'	30:A:582:A:HO2'	1.41	0.69
30:A:1019:U:OP1	30:A:1035:U:O2'	2.07	0.69
30:A:1682:G:OP2	30:A:1699:G:N2	2.26	0.69
30:A:1218:G:N1	30:A:1232:G:N7	2.41	0.68
30:A:1869:G:N2	30:A:1872:A:OP2	2.26	0.68
8:D:70:LYS:NZ	30:A:2786:U:OP1	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:H:113:SER:O	12:H:116:ARG:NH1	2.25	0.68
30:A:514:A:N3	30:A:581:C:O2'	2.26	0.68
30:A:743:A:O2'	30:A:1659:G:OP1	2.09	0.68
30:A:2788:C:O2'	30:A:2809:A:N3	2.24	0.68
8:D:118:PHE:O	30:A:1654:A:O2'	2.11	0.68
20:Q:57:ARG:HE	20:Q:61:ILE:HD11	1.59	0.68
30:A:1696:G:N2	30:A:1977:A:O2'	2.22	0.68
10:F:89:THR:OG1	10:F:91:ARG:NH2	2.27	0.68
27:X:36:ARG:NH2	30:A:2199:A:OP1	2.27	0.68
30:A:1528:A:OP2	30:A:1543:G:N2	2.27	0.68
23:T:19:LYS:NZ	30:A:1340:U:OP1	2.27	0.67
30:A:239:C:O2'	30:A:622:G:O2'	2.12	0.67
4:3:4:LYS:O	15:L:48:ARG:NH1	2.27	0.67
7:C:156:SER:HG	7:C:159:THR:HG1	1.29	0.67
30:A:1712:U:OP2	30:A:1713:A:O2'	2.02	0.67
30:A:1363:C:O2'	30:A:1809:A:N3	2.26	0.67
7:C:62:ARG:NH2	30:A:1568:G:OP2	2.28	0.67
30:A:1361:G:HO2'	30:A:2215:C:HO2'	1.38	0.67
30:A:2595:G:N2	30:A:2598:A:OP2	2.25	0.67
3:2:29:GLN:NE2	30:A:210:C:OP1	2.28	0.67
22:S:25:ARG:NH1	22:S:74:ILE:O	2.28	0.66
30:A:1021:A:H61	30:A:1142:A:H61	1.43	0.66
30:A:2659:G:N2	30:A:2662:A:OP2	2.29	0.66
30:A:1721:G:O2'	30:A:1739:A:N6	2.28	0.66
22:S:49:LYS:NZ	30:A:488:G:O3'	2.28	0.66
30:A:1536:C:O2'	30:A:1537:G:N2	2.29	0.66
13:J:37:ARG:NH1	30:A:1007:C:OP1	2.29	0.66
29:Z:46:MET:O	29:Z:50:VAL:HG22	1.95	0.66
30:A:693:A:O2'	30:A:1353:A:N3	2.26	0.66
9:E:97:ASN:OD1	9:E:98:LYS:N	2.29	0.65
10:F:133:GLU:OE1	10:F:133:GLU:N	2.29	0.65
30:A:1217:U:O2	30:A:1232:G:O6	2.14	0.65
9:E:46:GLN:O	9:E:88:ARG:NH2	2.29	0.65
30:A:482:A:O2'	30:A:497:A:N1	2.27	0.65
30:A:969:G:N2	30:A:984:A:O2'	2.28	0.65
30:A:1801:A:N6	30:A:2201:G:O2'	2.30	0.65
22:S:18:ARG:NH1	22:S:76:VAL:O	2.30	0.65
6:B:80:U:O4	25:V:14:LYS:NZ	2.30	0.65
30:A:569:U:O2'	30:A:983:A:N1	2.26	0.65
15:L:76:GLU:OE1	15:L:76:GLU:N	2.29	0.64
6:B:27:C:OP1	18:O:34:HIS:NE2	2.31	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:1929:G:OP2	30:A:1929:G:N2	2.31	0.64
22:S:18:ARG:NH2	30:A:517:C:O2'	2.31	0.64
28:Y:8:GLU:N	28:Y:8:GLU:OE1	2.31	0.64
12:H:7:ASP:OD1	12:H:8:LYS:N	2.30	0.64
22:S:77:ASP:OD2	30:A:24:G:O2'	2.11	0.64
29:Z:18:LYS:O	29:Z:22:THR:HG23	1.97	0.64
15:L:33:ARG:NH2	30:A:587:C:O2	2.31	0.64
7:C:257:ARG:NH2	7:C:262:THR:OG1	2.31	0.63
20:Q:36:GLN:NE2	30:A:563:A:N3	2.46	0.63
30:A:577:G:O2'	30:A:1254:A:OP1	2.16	0.63
30:A:881:G:O6	30:A:895:U:O2	2.16	0.63
10:F:7:TYR:OH	10:F:28:PRO:O	2.16	0.63
9:E:148:ILE:HG21	9:E:157:LEU:HD21	1.81	0.63
18:O:48:LEU:O	18:O:85:LYS:NZ	2.30	0.63
25:V:76:ASP:OD1	25:V:77:VAL:N	2.31	0.63
30:A:1223:G:N2	30:A:1226:A:OP2	2.28	0.63
30:A:2594:C:N4	30:A:2595:G:O6	2.31	0.63
30:A:475:C:O2	30:A:479:A:N6	2.31	0.63
20:Q:48:ASP:OD2	30:A:534:U:O2'	2.05	0.63
29:Z:22:THR:HG22	30:A:850:U:O2'	1.98	0.63
17:N:71:ARG:NH2	30:A:2707:U:O2	2.32	0.63
30:A:271:G:O2'	30:A:272:A:OP2	2.13	0.63
9:E:1:MET:N	9:E:14:VAL:O	2.32	0.62
12:H:109:GLU:N	12:H:109:GLU:OE1	2.33	0.62
30:A:1697:G:OP2	30:A:1698:A:O2'	2.13	0.62
25:V:35:GLU:N	25:V:35:GLU:OE1	2.32	0.62
30:A:1550:C:OP1	30:A:1720:U:O2'	2.08	0.62
6:B:80:U:O2'	30:A:918:A:N3	2.31	0.62
30:A:2291:U:O2'	30:A:2374:C:O2	2.17	0.62
30:A:1060:U:O2'	30:A:1071:G:OP1	2.17	0.62
11:G:46:ASP:O	11:G:47:ASN:ND2	2.33	0.62
30:A:83:A:O2'	30:A:103:A:N6	2.33	0.62
1:O:9:ARG:NH2	30:A:516:C:OP1	2.33	0.61
30:A:345:A:N3	30:A:347:A:N6	2.47	0.61
30:A:966:G:H4'	30:A:2271:G:H22	1.64	0.61
30:A:2047:C:O2'	30:A:2823:A:N1	2.33	0.61
10:F:161:SER:N	10:F:164:GLU:OE2	2.34	0.61
17:N:73:ASN:OD1	30:A:1454:C:N4	2.33	0.61
27:X:40:GLU:OE1	27:X:40:GLU:N	2.34	0.61
30:A:1021:A:N6	30:A:1142:A:H61	1.98	0.61
3:2:1:MET:SD	3:2:1:MET:N	2.66	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:D:148:GLN:OE1	8:D:148:GLN:N	2.34	0.61
6:B:42:C:C5	10:F:65:LEU:HD13	2.36	0.60
17:N:42:LYS:NZ	30:A:2817:U:OP1	2.29	0.60
30:A:36:G:N3	30:A:450:G:O2'	2.34	0.60
25:V:58:SER:O	25:V:73:LYS:NZ	2.35	0.60
30:A:372:G:HO2'	30:A:373:U:P	2.24	0.60
30:A:1864:U:OP1	30:A:2410:G:O2'	2.19	0.60
20:Q:88:GLU:N	20:Q:88:GLU:OE1	2.35	0.60
6:B:52:A:O2'	6:B:53:A:OP2	2.17	0.60
23:T:13:ALA:O	23:T:33:LYS:N	2.35	0.60
30:A:2439:A:O2'	30:A:2600:A:OP1	2.18	0.60
8:D:131:ASP:O	8:D:136:ASN:ND2	2.34	0.59
27:X:56:ARG:NH2	30:A:372:G:O6	2.34	0.59
30:A:259:G:HO2'	30:A:621:A:HO2'	1.47	0.59
30:A:754:U:O2'	30:A:1272:A:N1	2.35	0.59
30:A:2032:G:OP2	30:A:2454:G:O2'	2.13	0.59
30:A:160:A:N3	30:A:2208:C:O2'	2.33	0.59
30:A:972:A:OP2	30:A:973:A:O2'	2.17	0.59
30:A:1771:C:O2'	30:A:1786:A:O4'	2.18	0.59
30:A:2090:A:N6	30:A:2230:G:O6	2.35	0.59
1:O:12:ARG:NH2	30:A:517:C:OP1	2.35	0.59
17:N:29:VAL:HG21	17:N:79:LEU:HD11	1.82	0.59
28:Y:5:GLU:OE1	28:Y:5:GLU:N	2.36	0.59
30:A:648:G:O2'	30:A:2351:G:OP1	2.13	0.59
12:H:135:HIS:HB3	12:H:138:VAL:HG12	1.85	0.59
22:S:79:GLY:N	22:S:100:THR:O	2.35	0.59
14:K:28:SER:OG	30:A:2566:A:N1	2.35	0.59
30:A:1130:U:N3	30:A:2025:C:OP1	2.35	0.59
9:E:97:ASN:ND2	30:A:606:U:OP1	2.36	0.58
11:G:66:THR:HG22	30:A:2747:G:O2'	2.03	0.58
8:D:16:THR:OG1	8:D:18:ASP:OD1	2.16	0.58
25:V:1:MET:SD	25:V:1:MET:N	2.77	0.58
9:E:43:THR:O	30:A:442:G:N2	2.33	0.58
10:F:120:SER:OG	10:F:128:SER:O	2.22	0.58
22:S:2:GLU:OE1	22:S:2:GLU:N	2.36	0.58
26:W:37:ARG:O	26:W:53:HIS:ND1	2.33	0.58
22:S:78:GLU:OE1	22:S:78:GLU:N	2.37	0.58
26:W:25:GLU:OE2	30:A:855:G:N2	2.37	0.58
30:A:726:G:O5'	30:A:1432:G:O2'	2.21	0.58
8:D:151:THR:OG1	30:A:2032:G:N2	2.37	0.58
20:Q:101:ASP:N	20:Q:101:ASP:OD1	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:1131:G:O2'	30:A:2025:C:O2'	2.22	0.58
30:A:1068:G:N2	30:A:1095:A:O2'	2.36	0.58
9:E:49:ARG:NH2	9:E:72:SER:OG	2.36	0.58
9:E:122:GLU:OE1	9:E:123:LYS:N	2.37	0.58
5:4:1:MET:SD	5:4:34:LYS:NZ	2.77	0.57
22:S:77:ASP:O	22:S:102:HIS:N	2.35	0.57
30:A:644:A:O2'	30:A:645:C:O5'	2.14	0.57
30:A:2580:U:O2'	30:A:2581:G:O4'	2.20	0.57
10:F:37:MET:SD	10:F:37:MET:N	2.78	0.57
30:A:1040:A:N6	30:A:1116:G:O6	2.37	0.57
7:C:235:GLU:N	7:C:235:GLU:OE1	2.37	0.57
10:F:97:GLU:OE1	10:F:101:ARG:NE	2.37	0.57
30:A:324:A:N6	30:A:339:U:O4'	2.37	0.57
30:A:2324:U:O2'	30:A:2337:G:OP1	2.21	0.57
6:B:37:C:O2	18:O:100:HIS:NE2	2.37	0.57
15:L:95:LEU:HD11	15:L:100:ILE:HD11	1.85	0.57
30:A:629:G:N3	30:A:639:U:O2'	2.38	0.57
30:A:1326:U:HO2'	30:A:2010:G:HO2'	1.52	0.57
7:C:99:GLU:N	7:C:99:GLU:OE1	2.37	0.57
23:T:54:GLU:OE1	23:T:54:GLU:N	2.37	0.57
24:U:3:LYS:O	24:U:93:ARG:NH1	2.37	0.57
24:U:6:ARG:N	30:A:85:G:OP1	2.37	0.57
10:F:93:GLU:OE1	10:F:93:GLU:N	2.37	0.57
4:3:30:HIS:NE2	30:A:2392:A:OP2	2.37	0.57
7:C:270:ARG:NH2	30:A:1798:U:OP2	2.33	0.57
30:A:2692:G:N3	30:A:2847:U:O2'	2.38	0.57
8:D:123:LYS:NZ	30:A:1999:C:OP1	2.38	0.57
16:M:20:LEU:HD21	25:V:81:PRO:HG2	1.87	0.56
29:Z:57:GLU:N	29:Z:57:GLU:OE1	2.38	0.56
9:E:162:ARG:NH2	30:A:340:A:O2'	2.38	0.56
9:E:154:ASP:OD1	9:E:154:ASP:N	2.38	0.56
9:E:176:ASP:N	9:E:176:ASP:OD1	2.35	0.56
11:G:87:GLN:OE1	11:G:87:GLN:N	2.39	0.56
30:A:586:A:OP2	30:A:1251:C:N4	2.38	0.56
10:F:62:GLN:OE1	10:F:62:GLN:N	2.39	0.56
10:F:7:TYR:HA	10:F:11:VAL:HG12	1.88	0.56
30:A:1205:A:O2'	30:A:1206:G:OP1	2.22	0.56
20:Q:85:ALA:O	20:Q:86:SER:OG	2.21	0.56
26:W:7:ARG:O	26:W:10:ARG:NH1	2.38	0.56
30:A:527:C:OP2	30:A:2779:U:N3	2.35	0.56
30:A:2528:U:O2'	30:A:2530:A:OP1	2.10	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:D:25:THR:OG1	8:D:191:GLY:O	2.14	0.55
8:D:114:LYS:NZ	30:A:2723:C:OP1	2.39	0.55
15:L:111:ILE:HD11	30:A:627:A:C5	2.40	0.55
20:Q:47:ARG:NH2	30:A:560:C:O2	2.39	0.55
25:V:61:LEU:N	25:V:72:VAL:O	2.39	0.55
4:3:32:LEU:HD22	30:A:2419:U:OP2	2.06	0.55
30:A:2637:U:O4	30:A:2776:A:N7	2.40	0.55
16:M:11:LYS:O	30:A:911:A:N6	2.39	0.55
2:1:31:GLU:OE1	2:1:31:GLU:N	2.39	0.55
24:U:16:LYS:N	30:A:329:G:O6	2.39	0.55
27:X:57:VAL:HG12	30:A:372:G:H3'	1.89	0.55
30:A:84:A:N1	30:A:98:G:O2'	2.31	0.55
30:A:1353:A:OP2	30:A:1377:G:N1	2.36	0.55
24:U:85:ARG:NE	24:U:87:GLU:OE2	2.40	0.55
30:A:976:G:O2'	30:A:1155:A:O2'	2.14	0.55
30:A:2451:A:OP1	30:A:2497:A:N6	2.39	0.55
18:O:116:GLN:OE1	18:O:116:GLN:N	2.39	0.54
30:A:1007:C:OP2	30:A:1008:A:O2'	2.12	0.54
7:C:78:GLU:N	7:C:78:GLU:OE1	2.40	0.54
30:A:184:C:O2'	30:A:217:A:N3	2.41	0.54
30:A:793:A:OP2	30:A:2071:A:O2'	2.25	0.54
30:A:2349:G:O6	30:A:2369:A:N6	2.40	0.54
30:A:2776:A:O2'	30:A:2782:G:N7	2.37	0.54
19:P:13:LYS:NZ	19:P:76:HIS:O	2.41	0.54
30:A:222:A:H61	30:A:232:G:H1'	1.71	0.54
12:H:2:GLN:N	12:H:2:GLN:OE1	2.39	0.54
13:J:138:GLN:OE1	13:J:138:GLN:N	2.37	0.54
14:K:6:THR:HG23	30:A:1666:G:H4'	1.89	0.54
30:A:2075:U:O2'	30:A:2077:A:OP2	2.15	0.54
30:A:2509:G:N1	30:A:2580:U:O4	2.41	0.54
4:3:12:ARG:NE	15:L:61:LEU:O	2.39	0.54
30:A:1341:G:OP1	30:A:1397:U:N3	2.40	0.54
30:A:1999:C:O2	30:A:2687:U:O2'	2.23	0.54
30:A:1084:A:N6	30:A:1085:A:N1	2.56	0.54
30:A:2133:G:N2	30:A:2157:G:O6	2.41	0.54
8:D:155:VAL:HG21	30:A:2618:G:H21	1.73	0.54
19:P:33:GLU:N	19:P:33:GLU:OE1	2.40	0.54
30:A:48:G:H22	30:A:177:G:P	2.31	0.54
30:A:462:C:N4	30:A:463:G:O6	2.41	0.54
30:A:954:G:O2'	30:A:2274:A:N1	2.38	0.54
30:A:1018:U:O3'	30:A:1120:G:N2	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:2468:A:O2'	30:A:2469:A:O4'	2.25	0.54
30:A:2751:G:OP1	30:A:2751:G:N2	2.37	0.53
19:P:93:LYS:NZ	30:A:2848:G:OP1	2.40	0.53
9:E:79:ARG:NE	30:A:448:U:O4'	2.41	0.53
15:L:91:ASP:OD1	15:L:92:LEU:N	2.41	0.53
30:A:245:G:O2'	30:A:384:A:N1	2.37	0.53
30:A:1048:A:O2'	30:A:1112:G:N2	2.41	0.53
30:A:1662:U:O2'	30:A:2687:U:OP1	2.24	0.53
30:A:1779:U:O2	30:A:1783:A:N6	2.41	0.53
30:A:2099:U:O2'	30:A:2100:G:O5'	2.20	0.53
13:J:135:GLN:NE2	30:A:6:A:N3	2.56	0.53
30:A:575:A:OP2	30:A:2055:C:N4	2.42	0.53
30:A:2077:A:N3	30:A:2434:A:O2'	2.40	0.53
30:A:453:A:N3	30:A:457:A:O2'	2.42	0.53
26:W:11:ASP:OD1	26:W:12:SER:N	2.40	0.53
4:3:7:ARG:NH1	30:A:243:U:OP1	2.42	0.53
10:F:139:GLU:OE1	10:F:139:GLU:N	2.40	0.53
19:P:12:MET:HB2	19:P:54:LEU:HD11	1.91	0.53
26:W:25:GLU:N	26:W:25:GLU:OE1	2.42	0.53
30:A:370:G:O2'	30:A:424:G:OP1	2.26	0.53
30:A:2506[A]:U:OP2	30:A:2576:G:N1	2.39	0.53
9:E:32:VAL:HG23	9:E:178:VAL:HG22	1.89	0.52
17:N:1:MET:N	30:A:1654:A:OP2	2.42	0.52
30:A:630:G:N2	30:A:633:A:OP2	2.41	0.52
9:E:140:ASP:OD1	9:E:141:MET:N	2.42	0.52
30:A:799:G:OP2	30:A:800:A:O2'	2.22	0.52
9:E:146:VAL:HG21	9:E:187:VAL:HG13	1.90	0.52
25:V:72:VAL:HG21	25:V:91:PHE:HB3	1.91	0.52
30:A:2250:G:O2'	30:A:2496:C:OP1	2.27	0.52
30:A:212:G:H2'	30:A:213:A:C8	2.45	0.52
30:A:477:A:N6	30:A:501:A:OP1	2.43	0.52
30:A:1020:A:H1'	30:A:1021:A:OP2	2.09	0.52
30:A:966:G:O4'	30:A:2267:A:N6	2.43	0.52
30:A:2628:C:O2'	30:A:2782:G:OP1	2.22	0.52
10:F:134:GLN:N	10:F:134:GLN:OE1	2.42	0.52
19:P:26:GLU:N	19:P:26:GLU:OE1	2.42	0.52
19:P:47:ILE:HG22	19:P:99:LEU:HD12	1.91	0.52
25:V:7:GLU:N	25:V:7:GLU:OE1	2.42	0.52
30:A:981:A:OP2	30:A:982:C:N4	2.37	0.52
30:A:2468:A:P	30:A:2476:A:H61	2.33	0.52
28:Y:24:GLU:HA	28:Y:28:LEU:HD23	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:974:G:O4'	30:A:990:A:N6	2.43	0.52
13:J:14:ASP:OD1	13:J:15:TRP:N	2.43	0.52
21:R:22:LEU:HD12	21:R:23:GLU:O	2.10	0.52
9:E:171:ASP:OD1	9:E:172:ALA:N	2.41	0.51
30:A:45:G:N7	30:A:215:G:O2'	2.43	0.51
30:A:644:A:HO2'	30:A:645:C:P	2.31	0.51
30:A:59:U:O2'	30:A:74:A:OP2	2.19	0.51
30:A:1026:G:OP2	30:A:1134:A:O2'	2.27	0.51
15:L:29:LYS:O	15:L:30:THR:OG1	2.17	0.51
22:S:18:ARG:NH2	22:S:78:GLU:OE2	2.43	0.51
30:A:28:A:O2'	30:A:582:A:O2'	2.17	0.51
9:E:48:THR:O	9:E:52:VAL:HG23	2.11	0.51
30:A:1205:A:HO2'	30:A:1206:G:P	2.33	0.51
1:O:43:THR:OG1	1:O:45:ASP:OD1	2.18	0.51
5:4:2:LYS:NZ	30:A:2478:A:OP2	2.42	0.51
7:C:47:ARG:NH1	30:A:774:G:OP1	2.44	0.51
30:A:574:A:N6	30:A:2034:U:OP1	2.41	0.51
20:Q:8:ILE:HD12	20:Q:8:ILE:H	1.76	0.51
22:S:109:ASP:OD1	22:S:110:ARG:N	2.43	0.51
15:L:82:LEU:O	15:L:82:LEU:HD23	2.11	0.51
30:A:1255:U:O4'	30:A:2502:G:N2	2.43	0.51
19:P:79:VAL:HG13	19:P:80:VAL:HG13	1.93	0.51
30:A:1447:C:N4	30:A:1448:G:O6	2.43	0.51
30:A:2637:U:H3	30:A:2776:A:H62	1.57	0.51
15:L:79:LEU:HD21	15:L:131:ALA:HB1	1.93	0.50
30:A:2076:U:OP2	30:A:2238:G:N2	2.41	0.50
20:Q:54:ARG:NH2	30:A:1155:A:O3'	2.44	0.50
30:A:378:C:N4	30:A:379:G:O6	2.44	0.50
24:U:67:SER:O	30:A:335:C:O2'	2.25	0.50
30:A:1141:U:O2	30:A:1142:A:N6	2.44	0.50
7:C:62:ARG:NH2	30:A:1567:G:O2'	2.45	0.50
30:A:1733:G:C2	30:A:1734:G:N7	2.79	0.50
30:A:2638:G:O2'	30:A:2778:A:N6	2.44	0.50
30:A:1275:A:N1	30:A:1295:C:O2'	2.37	0.50
6:B:52:A:O2'	6:B:53:A:P	2.70	0.50
30:A:308:G:O2'	30:A:329:G:N2	2.45	0.50
30:A:951:C:N4	30:A:952:G:O6	2.44	0.50
18:O:61:GLN:OE1	18:O:61:GLN:N	2.44	0.50
30:A:1018:U:O2'	30:A:1120:G:N2	2.36	0.50
22:S:67:ASP:OD1	22:S:68:ASP:N	2.45	0.49
30:A:1688:U:O2'	30:A:1700:A:N7	2.39	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:B:8:C:OP1	18:O:15:ARG:NH2	2.45	0.49
9:E:191:ASP:OD1	9:E:192:ALA:N	2.45	0.49
24:U:44:HIS:N	30:A:481:G:OP2	2.39	0.49
30:A:724:U:C2'	30:A:725:G:O5'	2.60	0.49
30:A:837:C:N3	30:A:941:A:N6	2.61	0.49
30:A:1022:G:H4'	30:A:1023:U:O5'	2.12	0.49
30:A:2743:U:OP2	30:A:2755:C:N4	2.45	0.49
7:C:123:ILE:O	7:C:123:ILE:HG22	2.11	0.49
30:A:259:G:O2'	30:A:621:A:O2'	2.20	0.49
30:A:1664:A:H61	30:A:1996:C:N4	2.10	0.49
30:A:1814:G:OP2	30:A:1815:A:O2'	2.26	0.49
30:A:2808:G:O2'	30:A:2809:A:N7	2.45	0.49
30:A:2577:A:O4'	30:A:2612:C:N4	2.45	0.49
7:C:245:THR:HG23	7:C:247:TRP:H	1.77	0.49
22:S:80:PRO:O	22:S:100:THR:OG1	2.28	0.49
30:A:220:G:N1	30:A:428:A:OP2	2.44	0.49
30:A:1282:U:O4	30:A:1286:A:N7	2.45	0.49
20:Q:53:LYS:NZ	30:A:994:C:OP2	2.45	0.49
26:W:38:GLY:HA2	30:A:2330:G:H21	1.76	0.49
29:Z:4:ILE:HD11	29:Z:56:VAL:CG2	2.42	0.49
14:K:22:ILE:HD11	14:K:40:LYS:HG2	1.95	0.49
30:A:451:U:O2	30:A:453:A:N6	2.46	0.49
30:A:1288:G:OP2	30:A:1288:G:N2	2.33	0.49
30:A:2474:U:H2'	30:A:2474:U:O2	2.12	0.49
10:F:25:MET:SD	10:F:25:MET:N	2.84	0.49
10:F:90:LEU:HD23	10:F:90:LEU:H	1.77	0.49
7:C:237:ARG:NH2	30:A:1787:A:OP1	2.46	0.49
30:A:728:G:O2'	30:A:730:A:O4'	2.31	0.49
30:A:1794:A:N6	30:A:1826:G:O6	2.45	0.49
8:D:3:GLY:C	8:D:4:LEU:HD12	2.34	0.48
14:K:19:VAL:HG11	14:K:41:ILE:HD12	1.94	0.48
20:Q:10:ARG:NH2	30:A:513:A:N3	2.59	0.48
30:A:357:C:C2	30:A:358:U:C5	3.01	0.48
30:A:864:G:H21	30:A:866:A:H62	1.61	0.48
7:C:20:ASN:O	7:C:23:LEU:HD22	2.12	0.48
9:E:7:ASP:OD1	9:E:8:ALA:N	2.46	0.48
17:N:67:PHE:HA	17:N:76:VAL:HG11	1.94	0.48
20:Q:65:ASN:OD1	20:Q:69:ARG:NE	2.45	0.48
24:U:3:LYS:NZ	24:U:82:VAL:O	2.46	0.48
30:A:1275:A:O2'	30:A:1645:G:N3	2.46	0.48
16:M:110:GLU:OE2	16:M:114:ARG:NE	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:549:G:HO2'	30:A:550:C:P	2.37	0.48
6:B:38:C:O4'	18:O:100:HIS:NE2	2.46	0.48
30:A:549:G:O2'	30:A:550:C:P	2.72	0.48
30:A:1270:C:N4	30:A:1648:U:O4	2.47	0.48
9:E:176:ASP:OD1	9:E:179:SER:OG	2.12	0.48
12:H:12:LEU:H	12:H:12:LEU:HD23	1.79	0.48
13:J:36:LEU:HD21	13:J:122:LEU:HD13	1.95	0.48
30:A:225:C:N3	30:A:231:A:N6	2.61	0.48
30:A:1276:A:N6	30:A:1645:G:O6	2.46	0.48
30:A:1638:C:OP1	30:A:2710:C:O2'	2.32	0.48
19:P:8:GLU:HB2	19:P:54:LEU:HD13	1.95	0.48
15:L:82:LEU:HD23	15:L:90:VAL:HG21	1.96	0.48
30:A:27:G:O2'	30:A:28:A:OP2	2.24	0.48
30:A:2720:U:C2	30:A:2721:A:C8	3.01	0.48
6:B:83:G:O6	6:B:94:A:N6	2.47	0.48
8:D:8:LYS:HA	8:D:27:ILE:HD12	1.96	0.48
30:A:1289:C:C2	30:A:1290:C:C5	3.02	0.48
30:A:2581:G:N2	30:A:2581:G:OP2	2.47	0.48
30:A:2699:C:N4	30:A:2700:A:H62	2.12	0.48
7:C:193:GLU:N	7:C:193:GLU:OE1	2.46	0.47
8:D:129:THR:OG1	30:A:1997:C:O5'	2.26	0.47
25:V:59:GLU:OE1	25:V:59:GLU:N	2.43	0.47
6:B:15:A:N3	6:B:109:A:N6	2.61	0.47
30:A:1754:A:N6	30:A:2717:C:O4'	2.46	0.47
19:P:61:ARG:NH1	19:P:70:GLU:OE2	2.43	0.47
30:A:1288:G:OP1	30:A:1289:C:N4	2.47	0.47
15:L:82:LEU:CD2	15:L:90:VAL:HG21	2.44	0.47
30:A:2679:A:N6	30:A:2729:G:O6	2.48	0.47
7:C:15:VAL:HG22	7:C:205:GLY:HA3	1.95	0.47
7:C:206:LYS:NZ	30:A:729:G:O4'	2.39	0.47
23:T:37:ASP:OD1	23:T:38:ALA:N	2.47	0.47
11:G:154:GLU:OE1	11:G:156:TYR:N	2.48	0.47
12:H:17:ASP:OD1	12:H:18:GLN:N	2.48	0.47
30:A:641:U:O2'	30:A:2350:C:OP1	2.17	0.47
6:B:45:A:O4'	10:F:91:ARG:NH1	2.48	0.47
16:M:44:ARG:NH2	30:A:2484:G:OP2	2.47	0.47
30:A:299:A:N6	30:A:322:A:O2'	2.45	0.47
30:A:555:G:HO2'	30:A:556:A:H8	1.60	0.47
30:A:2286:G:N2	30:A:2344:U:O2	2.48	0.47
30:A:2655:G:O2'	30:A:2656:U:O5'	2.33	0.47
30:A:1857:G:HO2'	30:A:1858:A:H8	1.55	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:3:27:ASN:ND2	30:A:2361:G:O3'	2.48	0.46
9:E:31:VAL:HG21	9:E:104:ALA:CB	2.45	0.46
17:N:66:ALA:O	17:N:69:ARG:O	2.33	0.46
23:T:70:HIS:HD2	30:A:64:A:C2	2.33	0.46
26:W:17:LEU:HD21	26:W:37:ARG:HD3	1.98	0.46
30:A:727:A:H2'	30:A:728:G:O4'	2.15	0.46
30:A:780:G:O2'	30:A:783:A:N6	2.42	0.46
8:D:14:ILE:HD13	8:D:178:VAL:CG1	2.45	0.46
15:L:3:LEU:HD21	30:A:1202:G:O2'	2.14	0.46
23:T:82:LYS:NZ	30:A:1339:G:OP1	2.49	0.46
24:U:36:GLU:O	24:U:38:ILE:HD12	2.14	0.46
30:A:2652:C:H2'	30:A:2653:U:O4'	2.16	0.46
15:L:43:GLY:N	30:A:671:C:OP1	2.42	0.46
20:Q:29:ARG:NH1	30:A:18:U:OP1	2.42	0.46
5:4:3:VAL:HG12	5:4:3:VAL:O	2.14	0.46
6:B:116:G:H4'	18:O:54:VAL:HG12	1.98	0.46
8:D:124:ARG:NH1	30:A:2620:C:O2'	2.44	0.46
9:E:27:LEU:HD13	9:E:100:MET:CE	2.45	0.46
20:Q:71:ASN:OD1	20:Q:109:VAL:HG11	2.16	0.46
30:A:971:G:O2'	30:A:983:A:N3	2.32	0.46
30:A:1432:G:H2'	30:A:1433:A:C8	2.50	0.46
7:C:65:ASP:N	7:C:102:TYR:O	2.45	0.46
10:F:3:LEU:HD21	10:F:96:TRP:HB3	1.96	0.46
14:K:92:GLU:OE1	14:K:92:GLU:N	2.45	0.46
16:M:123:LYS:O	30:A:2484:G:O2'	2.34	0.46
7:C:44:ASN:N	30:A:1812:U:O2'	2.46	0.46
30:A:969:G:H22	30:A:984:A:HO2'	1.61	0.46
30:A:1290:C:C2	30:A:1291:C:C5	3.04	0.46
7:C:104:LEU:H	7:C:104:LEU:HD12	1.81	0.46
14:K:2:ILE:HG23	14:K:6:THR:HG21	1.98	0.46
16:M:17:ASN:ND2	16:M:39:GLY:O	2.48	0.46
20:Q:89:ILE:HD12	20:Q:94:LEU:HD21	1.98	0.46
30:A:1497:U:OP2	30:A:1498:C:N4	2.42	0.46
10:F:105:ILE:HD12	10:F:138:PRO:HG2	1.98	0.46
30:A:24:G:C2	30:A:25:U:C5	3.04	0.46
30:A:1734:G:C2	30:A:1735:A:N7	2.84	0.46
5:4:1:MET:N	30:A:2526:G:N3	2.64	0.46
30:A:723:C:C2	30:A:724:U:C5	3.03	0.46
30:A:1342:A:O2'	30:A:1344:U:OP1	2.29	0.46
23:T:7:LEU:O	23:T:10:VAL:HG12	2.16	0.45
30:A:2564:A:C2	30:A:2647:U:H4'	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:105:LEU:HD23	9:E:200:LEU:HD21	1.97	0.45
30:A:1022:G:H1'	30:A:1023:U:OP2	2.16	0.45
30:A:1344:U:H3'	30:A:1345:C:H5'	1.98	0.45
30:A:1797:G:HO2'	30:A:1798:U:H5'	1.81	0.45
30:A:2777:G:OP2	30:A:2781:A:O2'	2.24	0.45
1:0:3:GLN:NE2	30:A:1263:U:O2'	2.42	0.45
30:A:2506[B]:U:OP2	30:A:2576:G:N2	2.43	0.45
30:A:2848:G:O2'	30:A:2868:A:N6	2.47	0.45
24:U:35:VAL:HB	24:U:38:ILE:HD13	1.99	0.45
30:A:51:G:HO2'	30:A:52:A:P	2.39	0.45
30:A:729:G:O2'	30:A:763:G:H4'	2.17	0.45
9:E:148:ILE:N	9:E:148:ILE:HD12	2.32	0.45
14:K:21:CYS:HA	14:K:41:ILE:HG22	1.99	0.45
15:L:127:VAL:HG23	15:L:131:ALA:HB3	1.97	0.45
21:R:16:GLU:OE2	21:R:101:ILE:N	2.49	0.45
27:X:44:ARG:NH1	30:A:166:U:O2'	2.50	0.45
30:A:29:U:C2	30:A:30:G:C8	3.05	0.45
30:A:1141:U:H4'	30:A:1142:A:O4'	2.16	0.45
30:A:1378:A:C4'	30:A:1379:U:OP1	2.65	0.45
10:F:3:LEU:HD22	10:F:100:GLU:HG2	1.98	0.45
30:A:639:U:C2	30:A:640:C:C5	3.05	0.45
30:A:2120:G:N1	30:A:2121:G:O6	2.50	0.45
14:K:113:MET:SD	14:K:113:MET:N	2.90	0.45
30:A:526:A:O2'	30:A:2043:C:O2	2.27	0.45
30:A:725:G:HO2'	30:A:726:G:C4'	2.27	0.45
30:A:1203:U:OP2	30:A:1204:A:O2'	2.13	0.45
30:A:1272:A:O2'	30:A:1274:A:OP1	2.35	0.45
15:L:77:ILE:HD12	15:L:109:LYS:O	2.17	0.45
17:N:38:LEU:HD11	17:N:42:LYS:HZ1	1.81	0.45
30:A:1378:A:O2'	30:A:1380:G:OP2	2.29	0.45
30:A:1702:G:C6	30:A:1703:G:N7	2.85	0.45
30:A:2552:U:O2'	30:A:2553:G:N7	2.41	0.45
20:Q:78:PHE:CE2	20:Q:82:LEU:HD11	2.52	0.45
30:A:532:A:N7	30:A:2021:C:O2'	2.40	0.45
30:A:554:U:H2'	30:A:555:G:O4'	2.17	0.45
30:A:1224:U:H4'	30:A:1225:G:OP1	2.18	0.45
30:A:1827:U:OP1	30:A:1971:U:O2'	2.35	0.45
19:P:20:ARG:NH1	30:A:2849:U:O4	2.50	0.44
30:A:48:G:N2	30:A:177:G:OP2	2.50	0.44
30:A:58:G:O2'	30:A:73:A:N1	2.45	0.44
30:A:1058:U:H2'	30:A:1059:G:C4	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:2552:U:H3'	30:A:2552:U:O2	2.17	0.44
6:B:39:A:C2	6:B:44:G:C2	3.05	0.44
23:T:2:ILE:HD11	30:A:144:A:H4'	1.99	0.44
30:A:724:U:H2'	30:A:725:G:O5'	2.16	0.44
30:A:1425:G:H2'	30:A:1426:G:O4'	2.17	0.44
30:A:2756:U:H4'	30:A:2757:A:OP1	2.17	0.44
11:G:36:LEU:HD23	11:G:37:ASN:H	1.83	0.44
21:R:23:GLU:OE2	30:A:1161:C:O2'	2.31	0.44
30:A:1663:G:O2'	30:A:1664:A:O5'	2.32	0.44
30:A:1769:U:O2	30:A:1983:G:O6	2.35	0.44
9:E:31:VAL:HG21	9:E:104:ALA:HB2	1.99	0.44
21:R:82:HIS:ND1	21:R:82:HIS:O	2.50	0.44
30:A:247:G:N2	30:A:251:A:OP2	2.49	0.44
30:A:1477:A:N6	30:A:1514:G:O2'	2.49	0.44
9:E:41:GLN:NE2	30:A:442:G:O4'	2.51	0.44
15:L:111:ILE:HD12	30:A:636:G:N2	2.33	0.44
30:A:2050:C:H2'	30:A:2051:A:O4'	2.17	0.44
7:C:11:GLY:O	7:C:15:VAL:HG23	2.18	0.44
11:G:36:LEU:HD23	11:G:37:ASN:N	2.32	0.44
30:A:725:G:H2'	30:A:726:G:C4	2.52	0.44
12:H:122:LEU:O	12:H:122:LEU:HD12	2.18	0.44
18:O:46:GLU:OE1	18:O:46:GLU:N	2.51	0.44
22:S:13:SER:O	22:S:17:VAL:HG23	2.18	0.44
30:A:1129:A:N6	30:A:2491:U:OP1	2.50	0.44
30:A:1142:A:C4	30:A:1144:A:N7	2.86	0.44
30:A:1145:C:C2	30:A:1146:C:C5	3.05	0.44
30:A:1313:U:O2'	30:A:1332:G:O4'	2.34	0.44
30:A:1737:G:O3'	30:A:1738:G:O4'	2.35	0.44
30:A:1790:C:H2'	30:A:1791:A:C8	2.53	0.44
7:C:2:VAL:HG21	7:C:201:LEU:HG	1.99	0.44
9:E:112:LEU:HD13	9:E:117:ARG:HB2	1.98	0.44
10:F:107:VAL:N	10:F:108:PRO:CD	2.81	0.44
20:Q:89:ILE:CD1	20:Q:94:LEU:HD21	2.48	0.44
29:Z:42:ALA:O	30:A:851:C:O2'	2.35	0.44
30:A:213:A:H2'	30:A:214:G:C8	2.52	0.44
30:A:754:U:C2	30:A:755:U:C5	3.06	0.44
9:E:27:LEU:HD13	9:E:100:MET:HE2	1.99	0.44
20:Q:111:LYS:NZ	21:R:49:ILE:O	2.39	0.44
24:U:97:SER:O	24:U:98:ASN:OD1	2.36	0.44
30:A:216:A:C8	30:A:432:A:N6	2.86	0.44
30:A:549:G:C2'	30:A:550:C:O5'	2.66	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:579:G:C6	30:A:1262:A:N6	2.86	0.44
7:C:68:ARG:NH1	7:C:128:THR:OG1	2.51	0.43
18:O:9:ARG:NH2	30:A:2296:U:OP2	2.51	0.43
30:A:582:A:N6	30:A:1259:G:O6	2.51	0.43
30:A:640:C:N4	30:A:649:G:O6	2.50	0.43
2:1:20:TYR:OH	30:A:2347:C:O2'	2.13	0.43
10:F:23:SER:OG	10:F:25:MET:SD	2.76	0.43
13:J:120:ARG:NE	30:A:2780:G:OP2	2.51	0.43
30:A:1071:G:N3	30:A:1089:A:O2'	2.47	0.43
30:A:1164:C:O2'	30:A:1224:U:C4	2.72	0.43
30:A:2375:G:N1	30:A:2379:G:O6	2.51	0.43
17:N:69:ARG:O	17:N:70:THR:OG1	2.31	0.43
26:W:16:ARG:NE	30:A:2357:G:OP1	2.44	0.43
30:A:2700:A:N6	30:A:2708:G:O6	2.51	0.43
4:3:22:LYS:NZ	30:A:630:G:OP1	2.41	0.43
10:F:140:ILE:N	10:F:140:ILE:HD12	2.33	0.43
12:H:121:VAL:HG12	12:H:121:VAL:O	2.18	0.43
30:A:1139:G:O2'	30:A:1143:A:N1	2.46	0.43
30:A:2058:A:H61	30:A:2611:C:N4	2.16	0.43
30:A:2089:C:N4	30:A:2090:A:H62	2.17	0.43
14:K:86:LEU:O	14:K:87:LEU:HD12	2.18	0.43
30:A:723:C:N3	30:A:724:U:C5	2.86	0.43
30:A:1264:A:O5'	30:A:1265:A:H2'	2.19	0.43
30:A:2749:A:OP2	30:A:2750:A:O2'	2.20	0.43
14:K:92:GLU:OE2	14:K:111:LYS:NZ	2.34	0.43
15:L:112:LEU:HD21	30:A:627:A:N6	2.33	0.43
16:M:42:THR:HG22	16:M:93:VAL:HG12	1.99	0.43
19:P:52:ARG:NH1	30:A:2845:U:O3'	2.51	0.43
27:X:64:ASP:OD1	27:X:65:THR:N	2.52	0.43
30:A:28:A:C5	30:A:29:U:C5	3.07	0.43
30:A:2093:G:O2'	30:A:2198:A:N1	2.47	0.43
7:C:97:ASP:OD1	7:C:97:ASP:N	2.51	0.43
13:J:52:ASP:OD1	13:J:52:ASP:N	2.51	0.43
30:A:372:G:O2'	30:A:373:U:P	2.74	0.43
30:A:645:C:H2'	30:A:647:G:C8	2.53	0.43
30:A:711:G:C6	30:A:721:A:C6	3.07	0.43
16:M:18:ARG:NH1	30:A:952:G:OP1	2.52	0.43
17:N:4:ARG:NE	30:A:2874:C:OP1	2.50	0.43
30:A:447:A:N1	30:A:454:A:O2'	2.41	0.43
30:A:1287:A:C2'	30:A:1288:G:O5'	2.67	0.43
6:B:55:U:O2'	10:F:25:MET:SD	2.73	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:148:ILE:HD13	9:E:167:VAL:HG23	2.01	0.43
30:A:332:A:HO2'	30:A:334:C:P	2.42	0.43
30:A:1068:G:H2'	30:A:1069:A:O4'	2.19	0.43
30:A:2117:A:N1	30:A:2170:A:N6	2.64	0.43
30:A:29:U:O2	30:A:1215:G:O2'	2.37	0.43
30:A:543:G:O6	30:A:551:G:O6	2.36	0.43
6:B:42:C:C4	10:F:65:LEU:HD22	2.54	0.42
7:C:35:LYS:NZ	30:A:1353:A:O3'	2.50	0.42
26:W:33:ILE:HD11	26:W:78:ILE:HD11	2.00	0.42
30:A:442:G:C6	30:A:444:C:N4	2.87	0.42
30:A:458:G:O2'	30:A:459:U:P	2.77	0.42
30:A:488:G:H22	30:A:491:G:H5''	1.84	0.42
30:A:570:G:C1'	30:A:983:A:N6	2.82	0.42
30:A:1287:A:N6	30:A:1649:G:O2'	2.52	0.42
30:A:1995:U:OP2	30:A:1996:C:O2'	2.30	0.42
30:A:2345:G:O2'	30:A:2381:A:N3	2.44	0.42
30:A:2506[A]:U:OP2	30:A:2576:G:N2	2.51	0.42
10:F:43:ILE:HD12	10:F:43:ILE:N	2.35	0.42
11:G:62:ALA:O	11:G:66:THR:HG23	2.19	0.42
24:U:98:ASN:O	24:U:98:ASN:CG	2.58	0.42
28:Y:19:LEU:O	28:Y:19:LEU:HD23	2.19	0.42
8:D:7:LYS:N	8:D:28:GLU:O	2.42	0.42
30:A:1686:C:N4	30:A:1703:G:O6	2.53	0.42
3:2:9:VAL:HG12	30:A:1309:G:OP1	2.19	0.42
12:H:99:ILE:O	12:H:103:VAL:HG23	2.19	0.42
22:S:36:LEU:HD22	22:S:47:VAL:CG1	2.49	0.42
30:A:1663:G:O6	30:A:1998:A:N6	2.52	0.42
30:A:1684:G:C6	30:A:1705:A:N6	2.87	0.42
30:A:1992:G:N2	30:A:1996:C:O2'	2.48	0.42
9:E:97:ASN:HB3	9:E:100:MET:HG2	2.01	0.42
28:Y:42:LEU:HD13	28:Y:45:GLN:OE1	2.20	0.42
20:Q:60:TRP:O	20:Q:64:ILE:HG12	2.20	0.42
12:H:5:LEU:HD12	12:H:5:LEU:N	2.34	0.42
19:P:3:ILE:N	19:P:3:ILE:HD12	2.35	0.42
30:A:827:U:OP2	30:A:828:U:N3	2.53	0.42
30:A:1425:G:N2	30:A:1574:C:C4	2.88	0.42
30:A:2487:G:C2	30:A:2488:G:C5	3.08	0.42
23:T:37:ASP:O	23:T:81:LYS:NZ	2.50	0.42
29:Z:4:ILE:HD11	29:Z:56:VAL:HG21	2.01	0.42
30:A:1268:A:H1'	30:A:2013:A:H61	1.84	0.42
30:A:1466:U:O3'	30:A:1546:G:O2'	2.37	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:1788:C:C2	30:A:1789:A:C8	3.07	0.42
29:Z:50:VAL:O	29:Z:54:VAL:HG22	2.19	0.42
30:A:379:G:C6	30:A:396:G:O6	2.73	0.42
6:B:2:G:H2'	6:B:3:C:C6	2.55	0.42
6:B:30:C:H1'	6:B:57:A:H61	1.85	0.42
30:A:2028:U:O4	30:A:2033:A:N7	2.53	0.42
7:C:156:SER:OG	7:C:159:THR:OG1	2.06	0.41
30:A:619:G:O5'	30:A:620:G:N2	2.53	0.41
30:A:1386:C:H2'	30:A:1387:A:C8	2.55	0.41
30:A:1604:C:O2'	30:A:1610:A:N1	2.42	0.41
4:3:29:ARG:NH2	15:L:63:LYS:O	2.52	0.41
8:D:81:GLU:OE1	30:A:2635:A:O2'	2.37	0.41
23:T:11:LEU:HD23	23:T:12:ARG:N	2.35	0.41
30:A:464:U:C2'	30:A:465:G:O5'	2.68	0.41
30:A:1024:G:H1'	30:A:1144:A:O2'	2.19	0.41
30:A:1186:G:H2'	30:A:1187:G:O4'	2.20	0.41
6:B:3:C:H3'	6:B:4:C:H5''	2.02	0.41
11:G:51:PHE:CZ	11:G:71:LEU:HD22	2.55	0.41
30:A:619:G:H3'	30:A:620:G:H21	1.85	0.41
30:A:619:G:OP2	30:A:620:G:N2	2.53	0.41
30:A:2058:A:H61	30:A:2611:C:H42	1.67	0.41
30:A:2074:U:O2'	30:A:2597:G:H1'	2.20	0.41
30:A:2464:G:C6	30:A:2487:G:C6	3.07	0.41
8:D:33:ARG:HD2	8:D:73:VAL:HG13	2.01	0.41
11:G:47:ASN:O	11:G:48:THR:HG23	2.20	0.41
12:H:12:LEU:HD23	12:H:12:LEU:N	2.35	0.41
13:J:43:GLU:N	13:J:43:GLU:OE1	2.53	0.41
15:L:23:ILE:N	30:A:813:U:OP2	2.53	0.41
20:Q:78:PHE:CZ	20:Q:82:LEU:HD11	2.56	0.41
30:A:202:U:H2'	30:A:203:A:O4'	2.20	0.41
30:A:633:A:O2'	30:A:2404:U:OP1	2.38	0.41
30:A:2085:U:O2	30:A:2234:G:O6	2.38	0.41
30:A:2447:G:H2'	30:A:2500:U:OP2	2.21	0.41
17:N:28:LEU:C	17:N:28:LEU:HD23	2.41	0.41
30:A:2364:C:H2'	30:A:2365:G:O4'	2.21	0.41
30:A:2489:U:H2'	30:A:2490:G:O4'	2.20	0.41
19:P:96:LEU:HD12	19:P:96:LEU:N	2.35	0.41
30:A:45:G:H5''	30:A:46:G:H5'	2.02	0.41
30:A:458:G:O2'	30:A:459:U:O5'	2.38	0.41
30:A:512:G:OP1	30:A:1234:U:O2'	2.22	0.41
30:A:1164:C:O2'	30:A:1224:U:O4	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:A:1425:G:N2	30:A:1574:C:N3	2.69	0.41
30:A:1664:A:H61	30:A:1996:C:H42	1.69	0.41
30:A:2125:G:N2	30:A:2170:A:O3'	2.50	0.41
30:A:2357:G:N1	30:A:2360:G:OP2	2.48	0.41
10:F:46:LYS:O	10:F:49:LEU:HD22	2.20	0.41
30:A:242:G:H4'	30:A:243:U:O5'	2.20	0.41
30:A:2028:U:H3	30:A:2033:A:H62	1.69	0.41
9:E:162:ARG:NE	30:A:322:A:OP1	2.41	0.41
13:J:100:VAL:HG23	13:J:101:ILE:N	2.36	0.41
17:N:28:LEU:HD23	17:N:28:LEU:O	2.21	0.41
19:P:63:ILE:HG23	19:P:63:ILE:O	2.20	0.41
30:A:725:G:O2'	30:A:726:G:C4'	2.67	0.41
5:4:2:LYS:NZ	5:4:32:LYS:O	2.49	0.41
15:L:127:VAL:HG21	15:L:132:ARG:N	2.35	0.41
17:N:31:HIS:O	17:N:32:GLU:HB2	2.20	0.41
18:O:72:ALA:O	18:O:76:LYS:HG2	2.21	0.41
25:V:72:VAL:HG22	25:V:73:LYS:N	2.36	0.41
30:A:196:A:H61	30:A:831:G:H21	1.69	0.41
30:A:499:U:H2'	30:A:500:G:O4'	2.21	0.41
30:A:1096:A:H3'	30:A:1097:U:H5''	2.03	0.41
30:A:1197:G:N2	30:A:1249:U:O2'	2.52	0.41
30:A:2585:U:O2	30:A:2585:U:O4'	2.38	0.41
10:F:39:VAL:HG13	10:F:40:GLY:N	2.36	0.41
11:G:157:LYS:NZ	30:A:2659:G:OP2	2.50	0.41
30:A:306:U:H2'	30:A:307:G:O4'	2.21	0.41
30:A:1215:G:O6	30:A:1235:G:C2	2.74	0.41
7:C:162:GLN:OE1	7:C:162:GLN:N	2.53	0.40
30:A:1394:U:H2'	30:A:1395:A:C4	2.56	0.40
30:A:2106:U:N3	30:A:2107:G:N7	2.69	0.40
1:0:30:ASP:OD1	1:0:31:LYS:N	2.54	0.40
20:Q:50:ARG:NH2	30:A:993:G:OP2	2.54	0.40
30:A:75:G:N3	30:A:75:G:H2'	2.36	0.40
30:A:285:G:C6	30:A:356:G:C5	3.09	0.40
30:A:1182:G:H2'	30:A:1183:U:O4'	2.22	0.40
30:A:1264:A:H4'	30:A:2615:U:H5'	2.03	0.40
30:A:1390:U:O4	30:A:1395:A:N7	2.54	0.40
30:A:2655:G:O2'	30:A:2656:U:P	2.78	0.40
8:D:130:GLN:NE2	30:A:2578:G:H21	2.19	0.40
27:X:2:ARG:NH1	30:A:1365:A:OP1	2.51	0.40
30:A:1196:C:C2	30:A:1197:G:C8	3.10	0.40
30:A:2553:G:H1'	30:A:2582:G:H21	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:L:111:ILE:HD12	30:A:636:G:C2	2.57	0.40
17:N:70:THR:O	17:N:71:ARG:C	2.60	0.40
30:A:1601:G:H2'	30:A:1602:U:O4'	2.21	0.40
30:A:886:A:O4'	30:A:891:G:N1	2.55	0.40
30:A:2687:U:H2'	30:A:2688:G:O4'	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	54/56 (96%)	53 (98%)	1 (2%)	0	100	100
2	1	48/50 (96%)	47 (98%)	1 (2%)	0	100	100
3	2	44/46 (96%)	44 (100%)	0	0	100	100
4	3	62/64 (97%)	60 (97%)	1 (2%)	1 (2%)	8	29
5	4	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
7	C	269/271 (99%)	258 (96%)	11 (4%)	0	100	100
8	D	207/209 (99%)	196 (95%)	11 (5%)	0	100	100
9	E	199/201 (99%)	192 (96%)	6 (3%)	1 (0%)	25	55
10	F	175/177 (99%)	168 (96%)	7 (4%)	0	100	100
11	G	174/176 (99%)	170 (98%)	4 (2%)	0	100	100
12	H	147/149 (99%)	140 (95%)	7 (5%)	0	100	100
13	J	140/142 (99%)	137 (98%)	3 (2%)	0	100	100
14	K	120/122 (98%)	116 (97%)	4 (3%)	0	100	100
15	L	141/143 (99%)	132 (94%)	9 (6%)	0	100	100
16	M	134/136 (98%)	130 (97%)	4 (3%)	0	100	100
17	N	118/120 (98%)	109 (92%)	9 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	O	114/116 (98%)	113 (99%)	1 (1%)	0	100	100
19	P	112/114 (98%)	109 (97%)	3 (3%)	0	100	100
20	Q	115/117 (98%)	113 (98%)	2 (2%)	0	100	100
21	R	101/103 (98%)	98 (97%)	2 (2%)	1 (1%)	13	40
22	S	109/110 (99%)	105 (96%)	4 (4%)	0	100	100
23	T	91/93 (98%)	88 (97%)	3 (3%)	0	100	100
24	U	100/102 (98%)	89 (89%)	11 (11%)	0	100	100
25	V	92/94 (98%)	91 (99%)	1 (1%)	0	100	100
26	W	73/75 (97%)	69 (94%)	4 (6%)	0	100	100
27	X	75/77 (97%)	74 (99%)	1 (1%)	0	100	100
28	Y	61/63 (97%)	58 (95%)	3 (5%)	0	100	100
29	Z	56/58 (97%)	55 (98%)	1 (2%)	0	100	100
31	y	15/17 (88%)	12 (80%)	3 (20%)	0	100	100
31	z	15/17 (88%)	15 (100%)	0	0	100	100
All	All	3197/3256 (98%)	3076 (96%)	118 (4%)	3 (0%)	50	77

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
21	R	54	VAL
9	E	83	VAL
4	3	31	ILE

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	47/47 (100%)	45 (96%)	2 (4%)	25	53
2	1	45/45 (100%)	44 (98%)	1 (2%)	47	68
3	2	38/38 (100%)	37 (97%)	1 (3%)	41	65

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	3	51/51 (100%)	49 (96%)	2 (4%)	27	56
5	4	34/34 (100%)	34 (100%)	0	100	100
7	C	216/216 (100%)	215 (100%)	1 (0%)	86	91
8	D	164/164 (100%)	164 (100%)	0	100	100
9	E	165/165 (100%)	162 (98%)	3 (2%)	54	74
10	F	148/148 (100%)	141 (95%)	7 (5%)	22	50
11	G	137/137 (100%)	135 (98%)	2 (2%)	60	78
12	H	114/114 (100%)	114 (100%)	0	100	100
13	J	116/116 (100%)	115 (99%)	1 (1%)	75	86
14	K	103/103 (100%)	102 (99%)	1 (1%)	73	85
15	L	102/102 (100%)	101 (99%)	1 (1%)	73	85
16	M	109/109 (100%)	108 (99%)	1 (1%)	75	86
17	N	100/100 (100%)	98 (98%)	2 (2%)	50	71
18	O	86/86 (100%)	85 (99%)	1 (1%)	67	82
19	P	99/99 (100%)	97 (98%)	2 (2%)	50	71
20	Q	89/89 (100%)	89 (100%)	0	100	100
21	R	84/84 (100%)	84 (100%)	0	100	100
22	S	94/93 (101%)	93 (99%)	1 (1%)	70	83
23	T	80/80 (100%)	79 (99%)	1 (1%)	65	80
24	U	83/83 (100%)	83 (100%)	0	100	100
25	V	78/78 (100%)	77 (99%)	1 (1%)	65	80
26	W	57/57 (100%)	57 (100%)	0	100	100
27	X	67/67 (100%)	67 (100%)	0	100	100
28	Y	55/55 (100%)	54 (98%)	1 (2%)	54	74
29	Z	48/48 (100%)	47 (98%)	1 (2%)	48	69
31	y	17/17 (100%)	16 (94%)	1 (6%)	16	42
31	z	17/17 (100%)	17 (100%)	0	100	100
All	All	2643/2642 (100%)	2609 (99%)	34 (1%)	64	80

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	0	5	ASN

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Mol	Chain	Res	Type
1	0	47	TYR
2	1	36	LYS
3	2	1	MET
4	3	54	LEU
4	3	61	LEU
7	C	212	TRP
9	E	19	PHE
9	E	94	GLN
9	E	112	LEU
10	F	6	TYR
10	F	7	TYR
10	F	11	VAL
10	F	25	MET
10	F	29	ARG
10	F	37	MET
10	F	141	ASP
11	G	36	LEU
11	G	98	LYS
13	J	96	ARG
14	K	100	PHE
15	L	27	LEU
16	M	59	ARG
17	N	20	MET
17	N	73	ASN
18	O	35	ILE
19	P	23	ASP
19	P	113	LEU
22	S	77	ASP
23	T	72	GLN
25	V	42	LEU
28	Y	2	LYS
29	Z	29	ARG
31	y	7	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	3	GLN
2	1	44	GLN
7	C	85	ASN
7	C	250	GLN
9	E	41	GLN

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Mol	Chain	Res	Type
9	E	163	ASN
11	G	47	ASN
17	N	18	GLN
20	Q	55	GLN
22	S	60	HIS
23	T	70	HIS
23	T	72	GLN
25	V	49	ASN
26	W	72	ASN
31	z	2	ASN
31	y	3	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
30	A	2897/2904 (99%)	462 (15%)	18 (0%)
6	B	119/120 (99%)	14 (11%)	2 (1%)
All	All	3016/3024 (99%)	476 (15%)	20 (0%)

All (476) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
6	B	4	C
6	B	9	G
6	B	12	C
6	B	13	G
6	B	24	G
6	B	35	C
6	B	42	C
6	B	44	G
6	B	45	A
6	B	53	A
6	B	67	G
6	B	89	U
6	B	90	C
6	B	109	A
30	A	10	A
30	A	27	G
30	A	28	A
30	A	34	U
30	A	35	G

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Mol	Chain	Res	Type
30	A	46	G
30	A	51	G
30	A	60	G
30	A	63	A
30	A	71	A
30	A	74	A
30	A	75	G
30	A	118	A
30	A	119	A
30	A	120	U
30	A	126	A
30	A	135	U
30	A	136	G
30	A	139	U
30	A	141	G
30	A	142	A
30	A	162	U
30	A	163	C
30	A	181	A
30	A	196	A
30	A	199	A
30	A	215	G
30	A	216	A
30	A	221	A
30	A	222	A
30	A	225	C
30	A	228	C
30	A	233	A
30	A	242	G
30	A	243	U
30	A	248	G
30	A	255	A
30	A	266	G
30	A	267	C
30	A	272	A
30	A	277	G
30	A	278	A
30	A	294	A
30	A	307	G
30	A	310	A
30	A	322	A
30	A	323	C

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Mol	Chain	Res	Type
30	A	324	A
30	A	329	G
30	A	330	A
30	A	345	A
30	A	356	G
30	A	362	A
30	A	371	A
30	A	372	G
30	A	373	U
30	A	386	G
30	A	387	U
30	A	404	A
30	A	406	G
30	A	411	G
30	A	417	C
30	A	424	G
30	A	429	A
30	A	435	C
30	A	446	G
30	A	456	C
30	A	457	A
30	A	458	G
30	A	459	U
30	A	465	G
30	A	473	G
30	A	480	A
30	A	481	G
30	A	491	G
30	A	505	A
30	A	509	C
30	A	528	A
30	A	530	G
30	A	531	C
30	A	532	A
30	A	533	G
30	A	543	G
30	A	544	C
30	A	545	U
30	A	547	A
30	A	550	C
30	A	563	A
30	A	573	U

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Mol	Chain	Res	Type
30	A	575	A
30	A	588	U
30	A	603	A
30	A	614	A
30	A	627	A
30	A	637	A
30	A	645	C
30	A	646	U
30	A	647	G
30	A	652	U
30	A	654	A
30	A	669	G
30	A	670	A
30	A	675	A
30	A	683	U
30	A	686	U
30	A	687	C
30	A	695	G
30	A	717	C
30	A	725	G
30	A	726	G
30	A	730	A
30	A	740	C
30	A	747	U
30	A	748	G
30	A	752	A
30	A	763	G
30	A	764	A
30	A	775	G
30	A	776	G
30	A	782	A
30	A	784	G
30	A	785	G
30	A	789	A
30	A	805	G
30	A	812	C
30	A	819	A
30	A	827	U
30	A	828	U
30	A	845	A
30	A	846	U
30	A	847	U

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Mol	Chain	Res	Type
30	A	856	G
30	A	857	G
30	A	869	G
30	A	877	A
30	A	878	A
30	A	885	C
30	A	891	G
30	A	896	A
30	A	897	C
30	A	907	G
30	A	910	A
30	A	941	A
30	A	946	C
30	A	953	G
30	A	961	C
30	A	973	A
30	A	974	G
30	A	980	A
30	A	983	A
30	A	984	A
30	A	985	C
30	A	995	C
30	A	996	A
30	A	1010	A
30	A	1011	G
30	A	1012	U
30	A	1013	C
30	A	1021	A
30	A	1022	G
30	A	1023	U
30	A	1026	G
30	A	1033	U
30	A	1040	A
30	A	1045	C
30	A	1046	A
30	A	1047	G
30	A	1053	C
30	A	1054	A
30	A	1057	A
30	A	1059	G
30	A	1060	U
30	A	1061	U

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Mol	Chain	Res	Type
30	A	1062	G
30	A	1065	U
30	A	1066	U
30	A	1068	G
30	A	1070	A
30	A	1073	A
30	A	1076	C
30	A	1079	C
30	A	1082	U
30	A	1083	U
30	A	1084	A
30	A	1088	A
30	A	1089	A
30	A	1097	U
30	A	1101	U
30	A	1104	C
30	A	1111	A
30	A	1119	U
30	A	1132	U
30	A	1135	C
30	A	1143	A
30	A	1157	G
30	A	1169	A
30	A	1171	G
30	A	1174	U
30	A	1175	A
30	A	1176	U
30	A	1180	U
30	A	1206	G
30	A	1212	G
30	A	1225	G
30	A	1236	G
30	A	1250	G
30	A	1253	A
30	A	1256	G
30	A	1271	G
30	A	1272	A
30	A	1273	U
30	A	1288	G
30	A	1300	G
30	A	1301	A
30	A	1306	C

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Mol	Chain	Res	Type
30	A	1314	C
30	A	1329	U
30	A	1341	G
30	A	1345	C
30	A	1359	A
30	A	1365	A
30	A	1378	A
30	A	1379	U
30	A	1383	A
30	A	1416	G
30	A	1419	A
30	A	1420	A
30	A	1421	G
30	A	1428	C
30	A	1437	C
30	A	1454	C
30	A	1458	U
30	A	1461	C
30	A	1475	G
30	A	1482	G
30	A	1490	A
30	A	1491	G
30	A	1508	A
30	A	1515	A
30	A	1524	G
30	A	1535	A
30	A	1536	C
30	A	1537	G
30	A	1559	U
30	A	1560	G
30	A	1563	U
30	A	1565	C
30	A	1566	A
30	A	1569	A
30	A	1578	U
30	A	1585	C
30	A	1608	A
30	A	1622	G
30	A	1634	A
30	A	1646	C
30	A	1647	U
30	A	1648	U

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Mol	Chain	Res	Type
30	A	1654	A
30	A	1664	A
30	A	1674	G
30	A	1699	G
30	A	1715	G
30	A	1729	U
30	A	1730	C
30	A	1731	G
30	A	1732	C
30	A	1733	G
30	A	1735	A
30	A	1737	G
30	A	1738	G
30	A	1744	A
30	A	1756	G
30	A	1764	C
30	A	1773	A
30	A	1776	G
30	A	1781	U
30	A	1800	C
30	A	1801	A
30	A	1808	A
30	A	1816	C
30	A	1819	A
30	A	1820	U
30	A	1829	A
30	A	1833	C
30	A	1835	G
30	A	1866	A
30	A	1871	A
30	A	1901	A
30	A	1906	G
30	A	1913	A
30	A	1917	U
30	A	1927	A
30	A	1929	G
30	A	1930	G
30	A	1937	A
30	A	1940	U
30	A	1941	C
30	A	1955	U
30	A	1963	U

Continued on next page...

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Mol	Chain	Res	Type
30	A	1967	C
30	A	1970	A
30	A	1971	U
30	A	1972	G
30	A	1991	U
30	A	1992	G
30	A	1997	C
30	A	2022	U
30	A	2023	C
30	A	2030	A
30	A	2031	A
30	A	2033	A
30	A	2043	C
30	A	2052	A
30	A	2055	C
30	A	2056	G
30	A	2059	A
30	A	2060	A
30	A	2061	G
30	A	2062	A
30	A	2069	G
30	A	2072	C
30	A	2093	G
30	A	2096	C
30	A	2100	G
30	A	2104	C
30	A	2110	G
30	A	2111	U
30	A	2112	G
30	A	2113	U
30	A	2118	U
30	A	2119	A
30	A	2120	G
30	A	2124	G
30	A	2125	G
30	A	2127	G
30	A	2131	U
30	A	2132	U
30	A	2133	G
30	A	2136	G
30	A	2137	U
30	A	2139	U

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Mol	Chain	Res	Type
30	A	2145	C
30	A	2162	G
30	A	2164	C
30	A	2172	U
30	A	2173	A
30	A	2184	A
30	A	2189	U
30	A	2199	A
30	A	2204	G
30	A	2211	A
30	A	2213	U
30	A	2225	A
30	A	2226	C
30	A	2238	G
30	A	2239	G
30	A	2250	G
30	A	2251	G
30	A	2266	A
30	A	2279	G
30	A	2283	C
30	A	2286	G
30	A	2287	A
30	A	2297	A
30	A	2305	U
30	A	2309	A
30	A	2325	G
30	A	2327	A
30	A	2333	A
30	A	2334	U
30	A	2335	A
30	A	2336	A
30	A	2345	G
30	A	2350	C
30	A	2357	G
30	A	2383	G
30	A	2385	C
30	A	2396	G
30	A	2402	U
30	A	2407	A
30	A	2422	C
30	A	2424	C
30	A	2425	A

Continued on next page...

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Mol	Chain	Res	Type
30	A	2428	G
30	A	2429	G
30	A	2430	A
30	A	2434	A
30	A	2435	A
30	A	2441	U
30	A	2445	G
30	A	2447	G
30	A	2448	A
30	A	2475	C
30	A	2476	A
30	A	2491	U
30	A	2492	U
30	A	2494	G
30	A	2497	A
30	A	2498	C
30	A	2502	G
30	A	2503	A
30	A	2504	U
30	A	2505	G
30	A	2513	A
30	A	2518	A
30	A	2520	C
30	A	2529	G
30	A	2530	A
30	A	2535	G
30	A	2547	A
30	A	2554	U
30	A	2564	A
30	A	2566	A
30	A	2567	G
30	A	2573	C
30	A	2582	G
30	A	2597	G
30	A	2602	A
30	A	2609	U
30	A	2610	C
30	A	2613	U
30	A	2614	A
30	A	2629	U
30	A	2655	G
30	A	2656	U

Continued on next page...

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Mol	Chain	Res	Type
30	A	2661	G
30	A	2682	A
30	A	2689	U
30	A	2690	U
30	A	2714	G
30	A	2718	G
30	A	2722	G
30	A	2726	A
30	A	2733	A
30	A	2739	U
30	A	2744	G
30	A	2748	A
30	A	2762	C
30	A	2764	A
30	A	2765	A
30	A	2778	A
30	A	2779	U
30	A	2780	G
30	A	2791	G
30	A	2799	A
30	A	2800	A
30	A	2809	A
30	A	2818	U
30	A	2820	A
30	A	2833	U
30	A	2849	U
30	A	2867	G
30	A	2868	A
30	A	2871	U
30	A	2872	A
30	A	2880	C
30	A	2883	A
30	A	2891	U
30	A	2894	G
30	A	2901	C
30	A	2902	C
30	A	2903	U

All (20) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
6	B	52	A

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Mol	Chain	Res	Type
6	B	66	A
30	A	227	A
30	A	242	G
30	A	372	G
30	A	458	G
30	A	549	G
30	A	644	A
30	A	784	G
30	A	1020	A
30	A	1022	G
30	A	1224	U
30	A	1358	G
30	A	1378	A
30	A	1663	G
30	A	1940	U
30	A	2058	A
30	A	2326	C
30	A	2655	G
30	A	2808	G

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

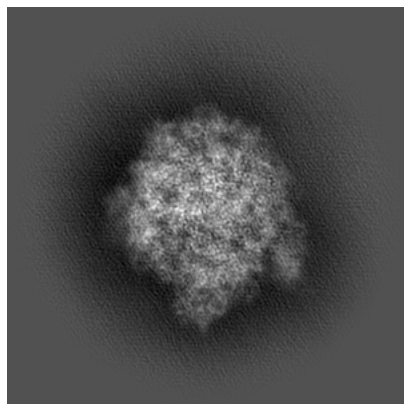
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-51978. These allow visual inspection of the internal detail of the map and identification of artifacts.

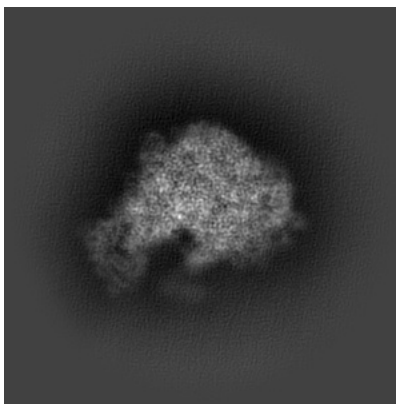
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

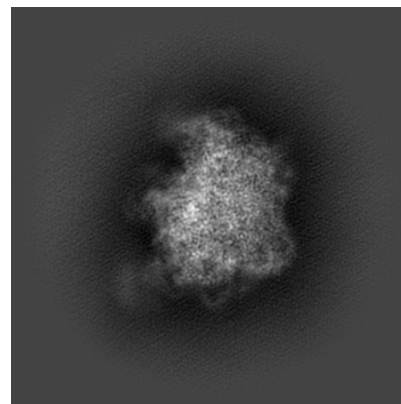
6.1.1 Primary map



X

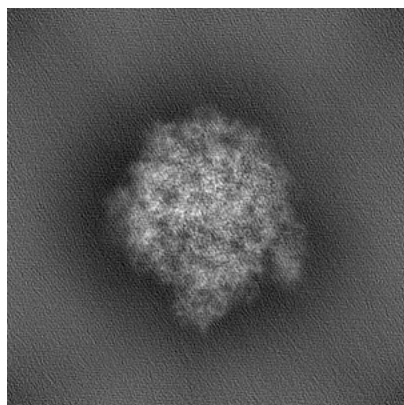


Y

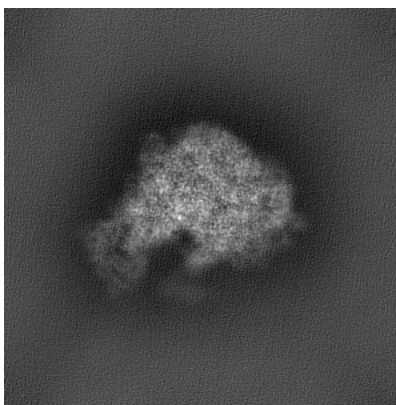


Z

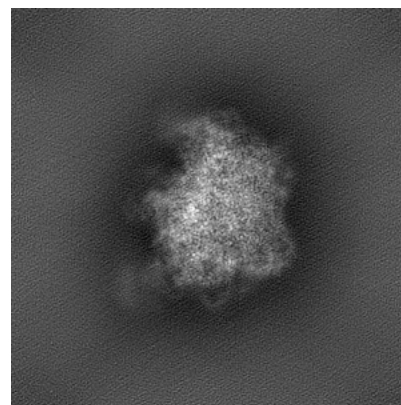
6.1.2 Raw map



X



Y

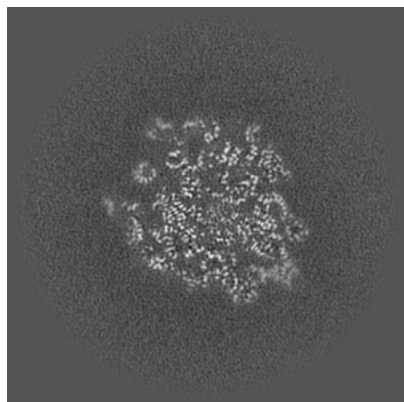


Z

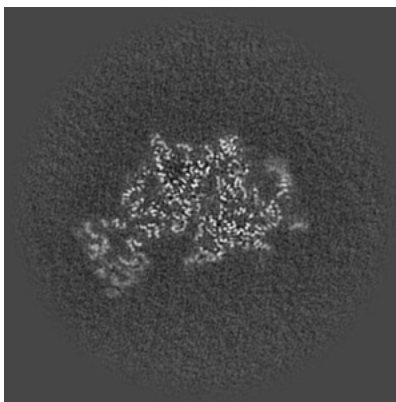
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

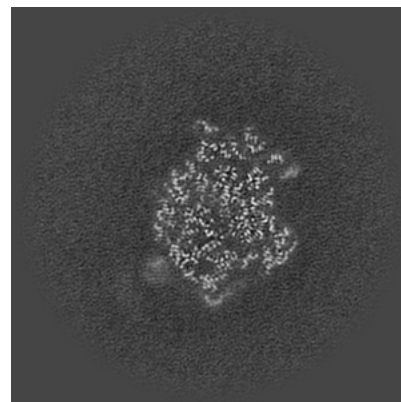
6.2.1 Primary map



X Index: 150

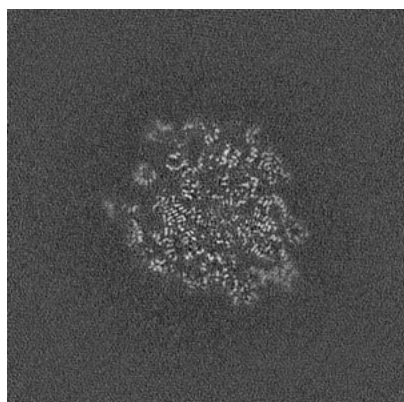


Y Index: 150

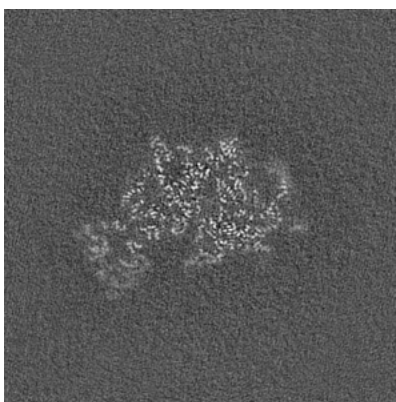


Z Index: 150

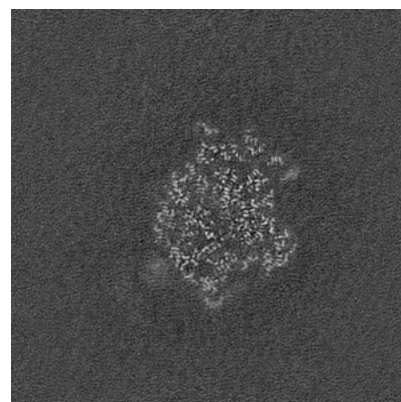
6.2.2 Raw map



X Index: 150



Y Index: 150

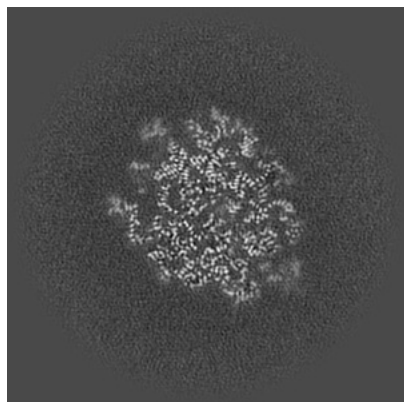


Z Index: 150

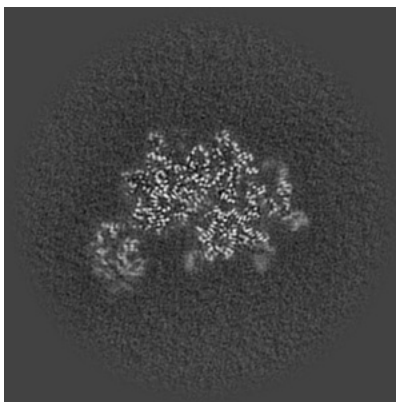
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

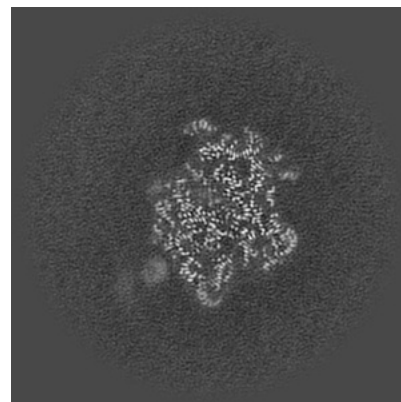
6.3.1 Primary map



X Index: 145

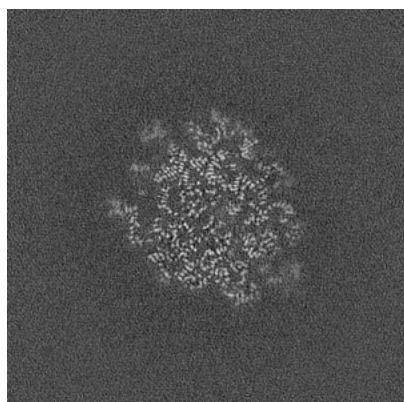


Y Index: 155

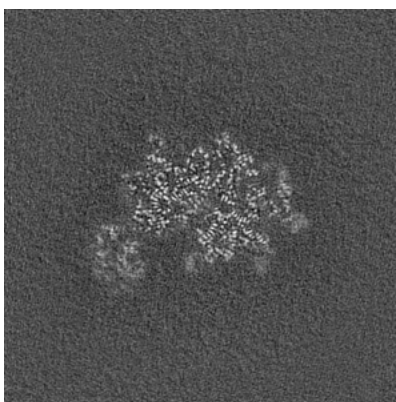


Z Index: 147

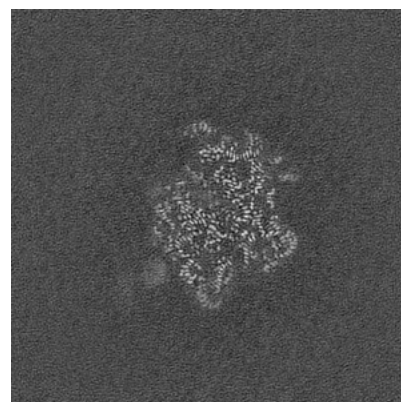
6.3.2 Raw map



X Index: 145



Y Index: 155

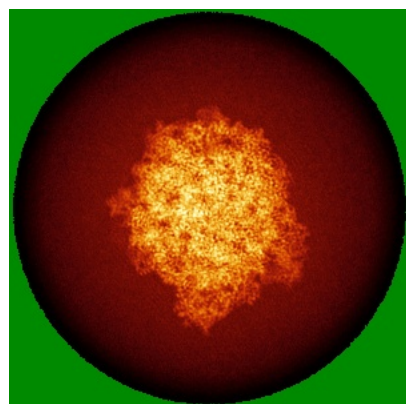


Z Index: 147

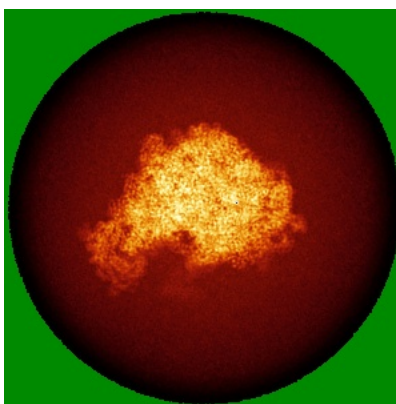
The images above show the largest variance slices of the map in three orthogonal directions.

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

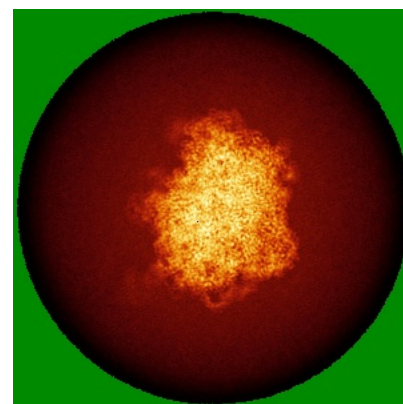
6.4.1 Primary map



X

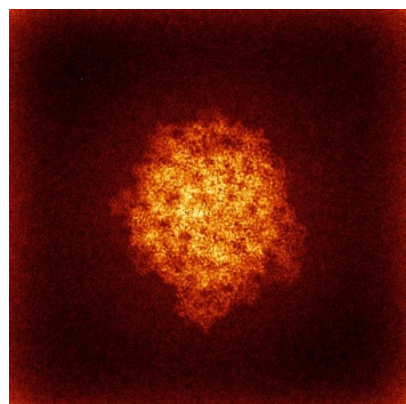


Y

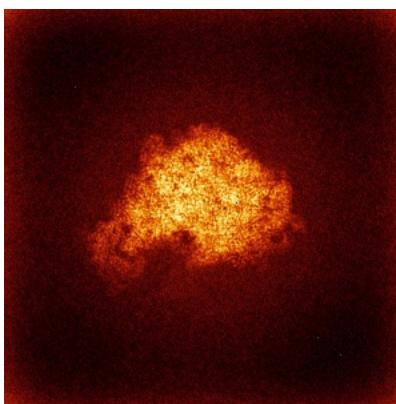


Z

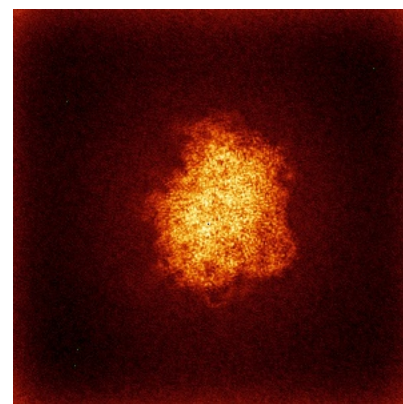
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

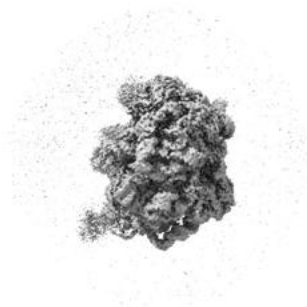
6.5.1 Primary map



X



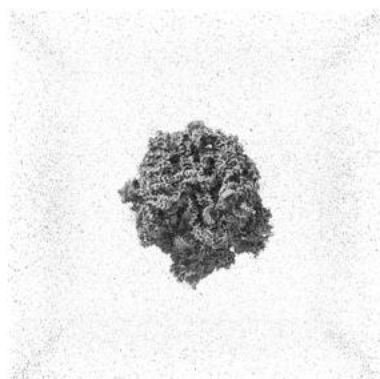
Y



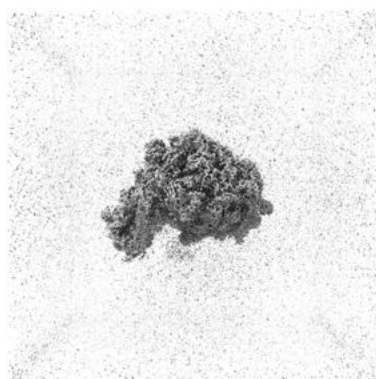
Z

The images above show the 3D surface view of the map at the recommended contour level 0.1. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

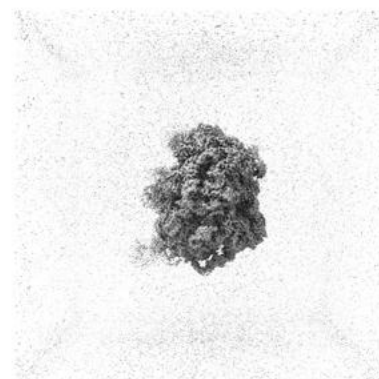
6.5.2 Raw map



X



Y



Z

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

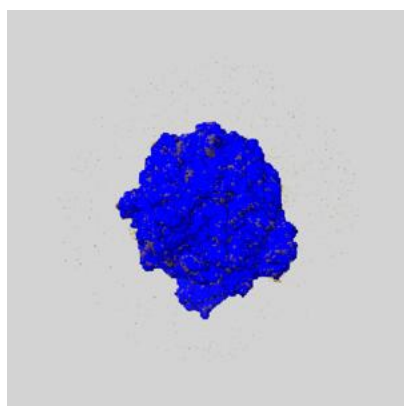
6.6 Mask visualisation [i](#)

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

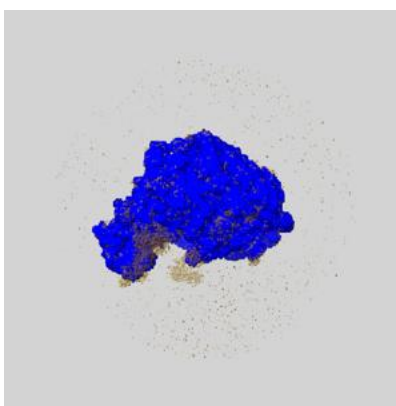
A mask typically either:

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

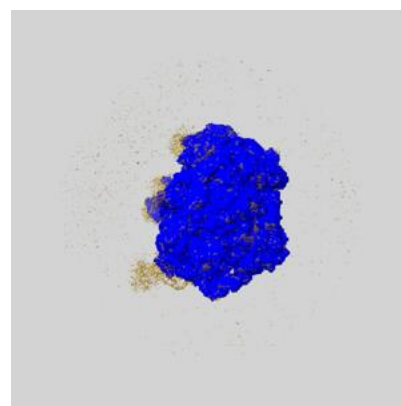
6.6.1 emd_51978_msk_1.map [i](#)



X



Y

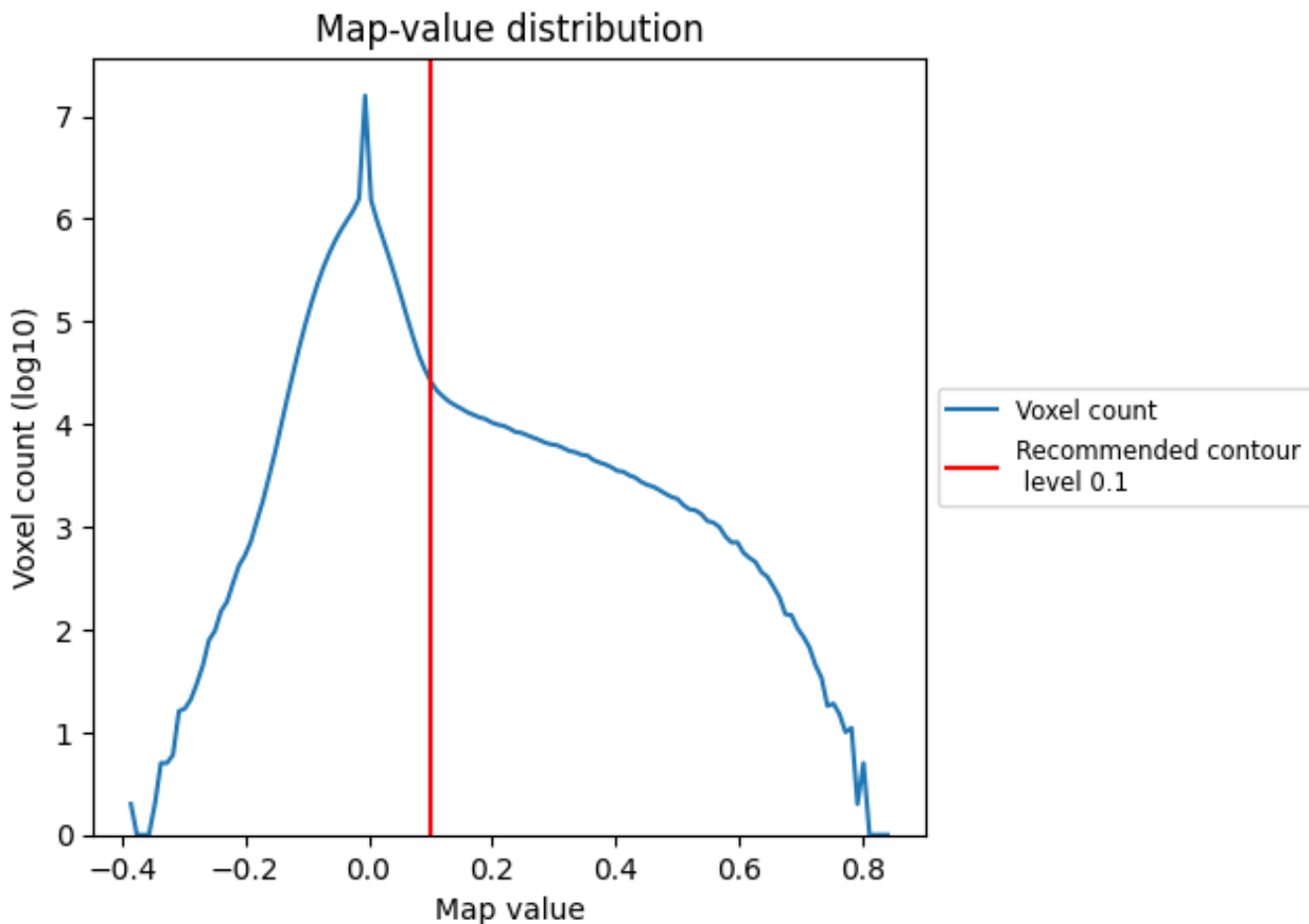


Z

7 Map analysis [i](#)

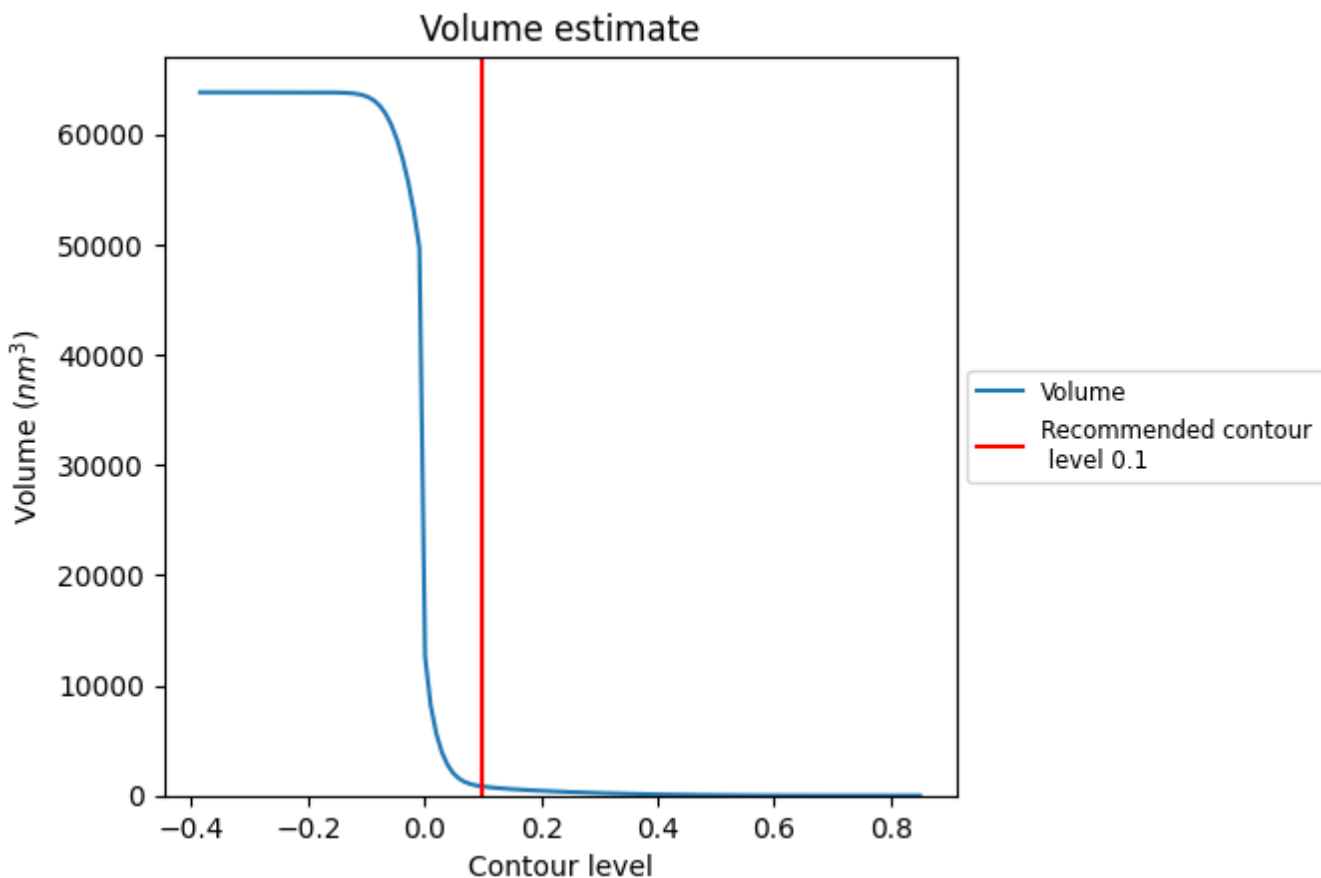
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

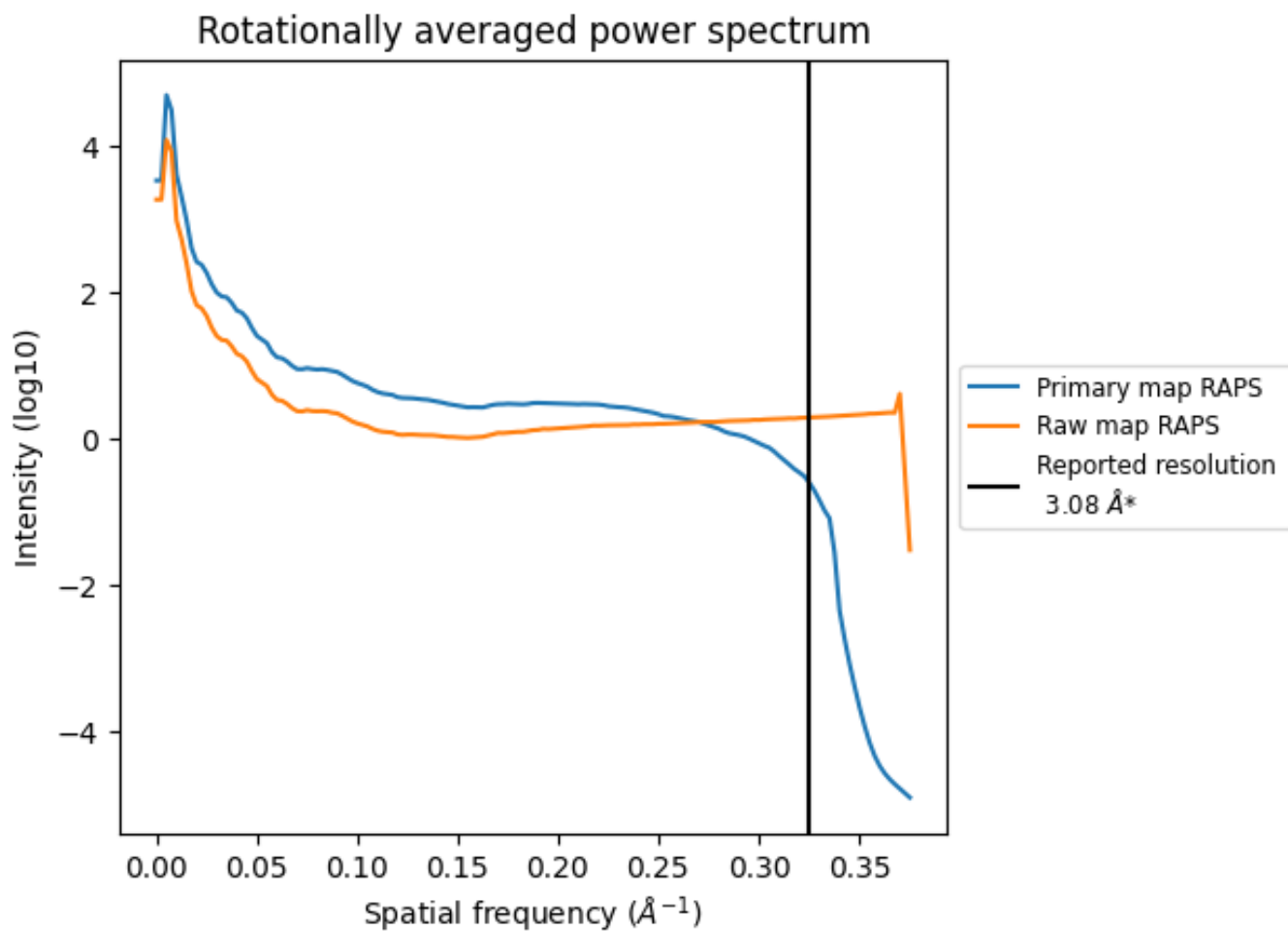
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 824 nm³; this corresponds to an approximate mass of 744 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

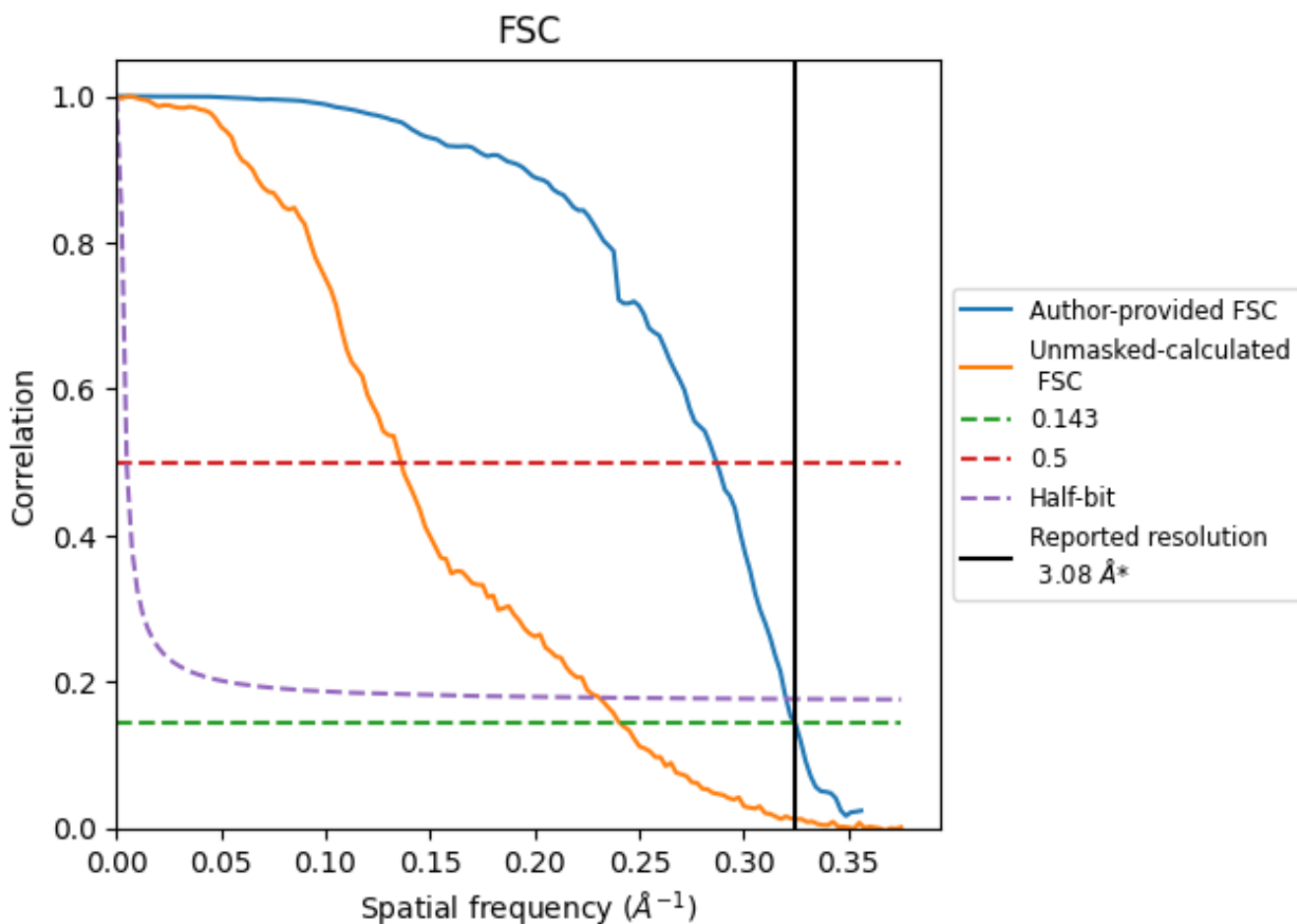


*Reported resolution corresponds to spatial frequency of 0.325 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.325 Å⁻¹

8.2 Resolution estimates [i](#)

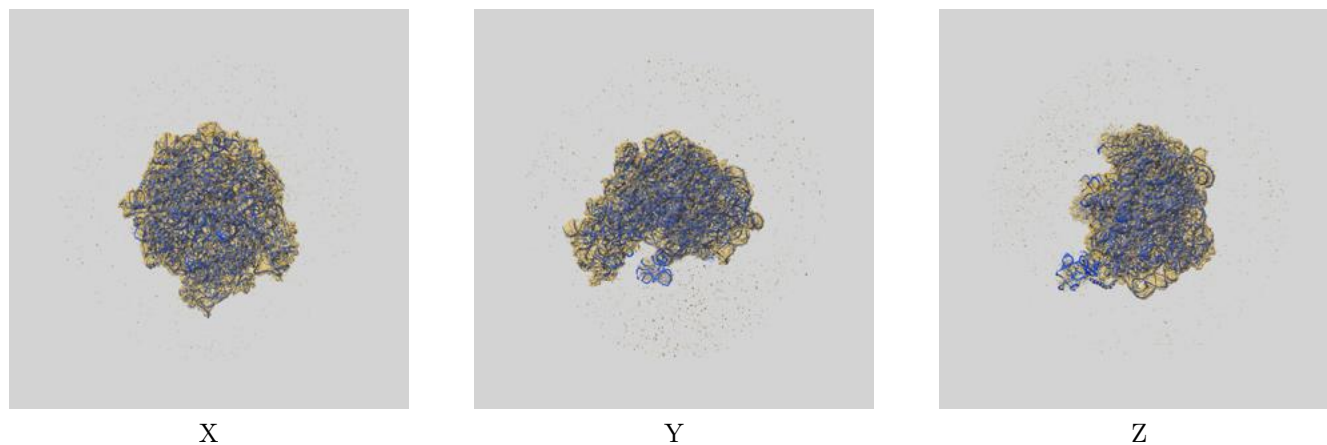
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.08	-	-
Author-provided FSC curve	3.08	3.48	3.12
Unmasked-calculated*	4.15	7.34	4.33

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.15 differs from the reported value 3.08 by more than 10 %

9 Map-model fit [i](#)

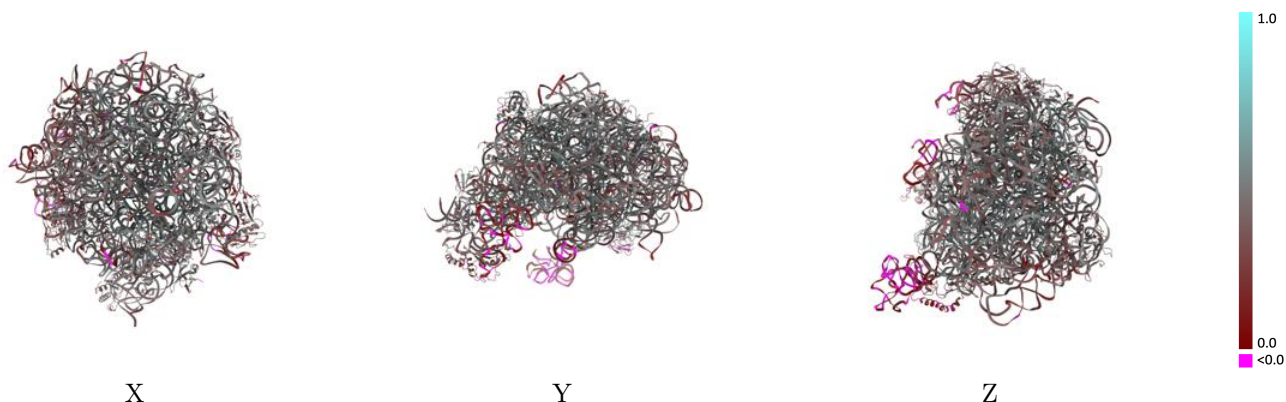
This section contains information regarding the fit between EMDB map EMD-51978 and PDB model 9HA6. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay [i](#)



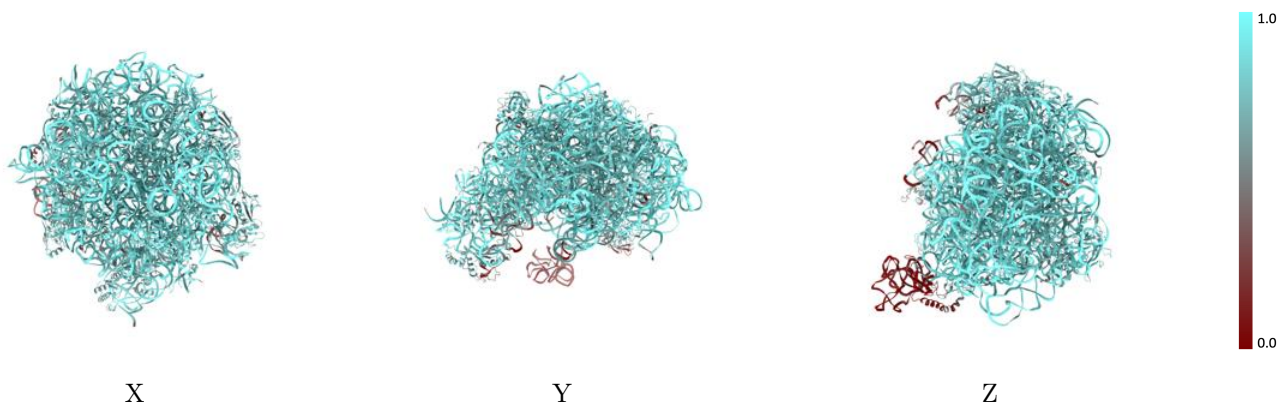
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



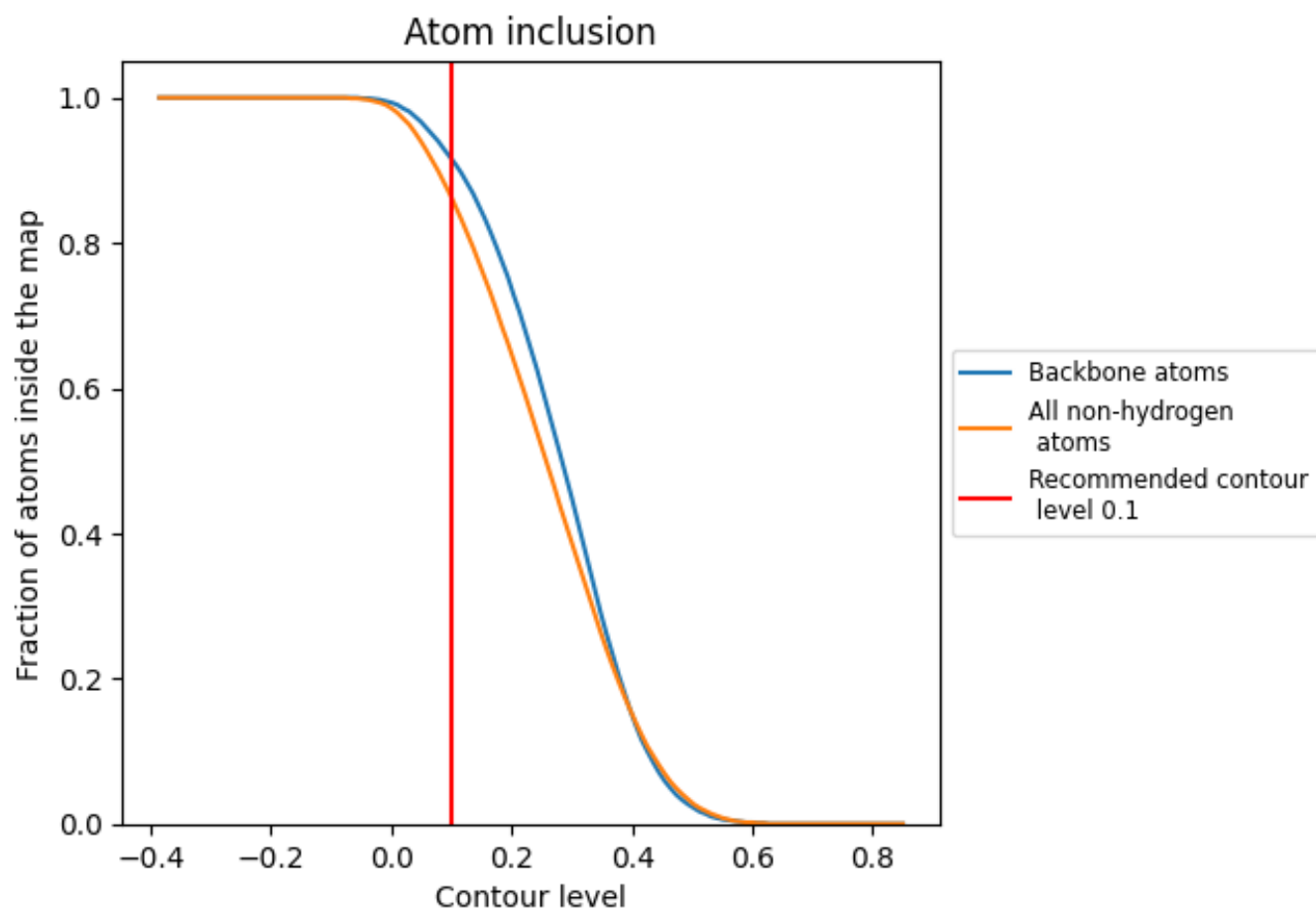
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.1).



































































9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 86% 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 (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8630	 0.4120
0	 0.8670	 0.4750
1	 0.6680	 0.4040
2	 0.8900	 0.4910
3	 0.8530	 0.4570
4	 0.7840	 0.4130
A	 0.8950	 0.4150
B	 0.9310	 0.4110
C	 0.8560	 0.4680
D	 0.8220	 0.4430
E	 0.7800	 0.3860
F	 0.6700	 0.2910
G	 0.7310	 0.3400
H	 0.2230	 0.1780
J	 0.8640	 0.4700
K	 0.7340	 0.3650
L	 0.8030	 0.4030
M	 0.8370	 0.4500
N	 0.8620	 0.4520
O	 0.7970	 0.3850
P	 0.7340	 0.3880
Q	 0.8810	 0.4770
R	 0.8180	 0.4260
S	 0.8460	 0.4630
T	 0.8100	 0.4360
U	 0.7900	 0.3910
V	 0.8280	 0.4170
W	 0.8610	 0.4820
X	 0.8550	 0.4540
Y	 0.7470	 0.3460
Z	 0.8120	 0.4540
y	 0.4100	 0.2240
z	 0.4460	 0.3410

