Full wwPDB EM Validation Report ⓘ

Jan 8, 2024 – 07:44 pm GMT

PDB ID	:	8REB
EMDB ID	:	EMD-19081
Title	:	Cryo-EM structure of bacterial RNA polymerase-sigma54 initial transcribing complex - 6nt complex
Authors	:	Gao, F.; Zhang, X.
Deposited on	:	2023-12-10
Resolution	:	3.40 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:

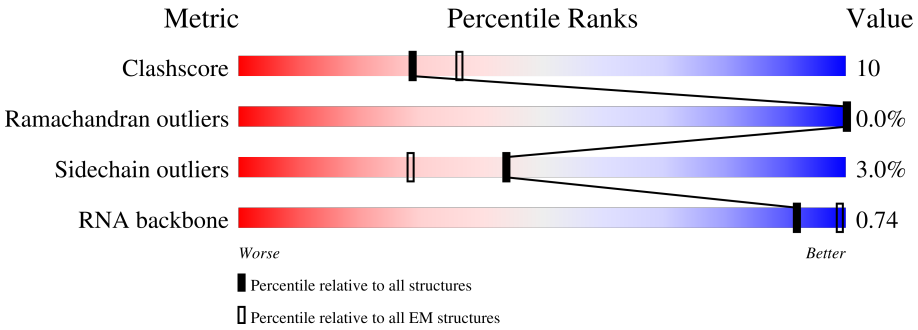
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance

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

The reported resolution of this entry is 3.40 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	N	43	19% 51% 49%
2	R	6	17% 67% 33%
3	T	52	23% 54% 46%
4	A	321	25% 75% 20%
4	B	321	12% 51% 21% 27%
5	C	1341	28% 75% 25%
6	D	1373	28% 72% 24%

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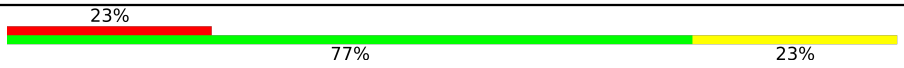
Mol	Chain	Length	Quality of chain
7	E	74	
8	M	350	

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 28681 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 DNA chain called DNA (43-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
1	N	43	Total	C	N	O	P	0	0
			875	419	148	265	43		

- Molecule 2 is a RNA chain called RNA (5'-R(P*GP*CP*CP*GP*CP*G)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
2	R	6	Total	C	N	O	P	0	0
			129	57	24	42	6		

- Molecule 3 is a DNA chain called DNA (52-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
3	T	52	Total	C	N	O	P	0	0
			1072	507	207	306	52		

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	A	308	Total	C	N	O	S	0	0
			2365	1481	415	461	8		
4	B	235	Total	C	N	O	S	0	0
			1735	1085	305	340	5		

- Molecule 5 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	C	1341	Total	C	N	O	S	0	0
			10080	6328	1748	1964	40		

- Molecule 6 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	D	1330	Total 9682	C 6085	N 1738	O 1818	S 41	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	E	74	Total 546	C 337	N 105	O 103	S 1	0	0

- Molecule 8 is a protein called RNA polymerase sigma-54 factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	M	350	Total 2194	C 1385	N 403	O 403	S 3	0	0

- Molecule 9 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
9	D	1	Total 1	Mg 1	0

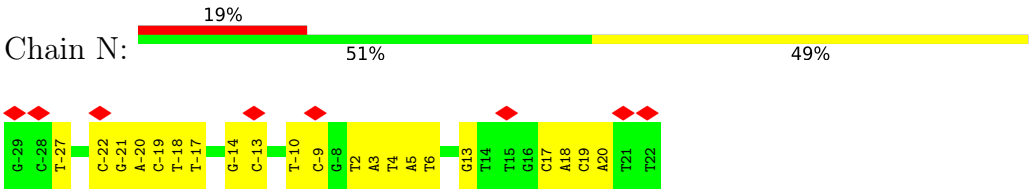
- Molecule 10 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
10	D	2	Total 2	Zn 2	0

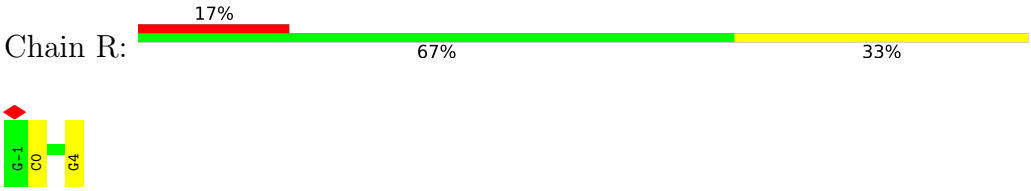
3 Residue-property plots (i)

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

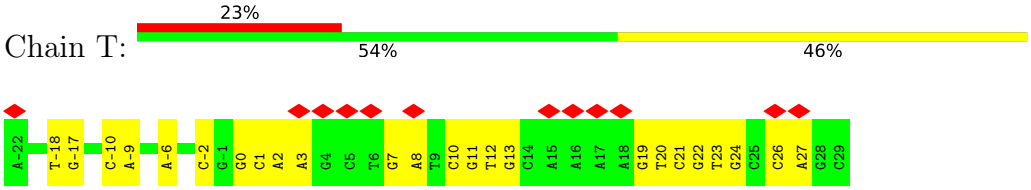
• Molecule 1: DNA (43-MER)



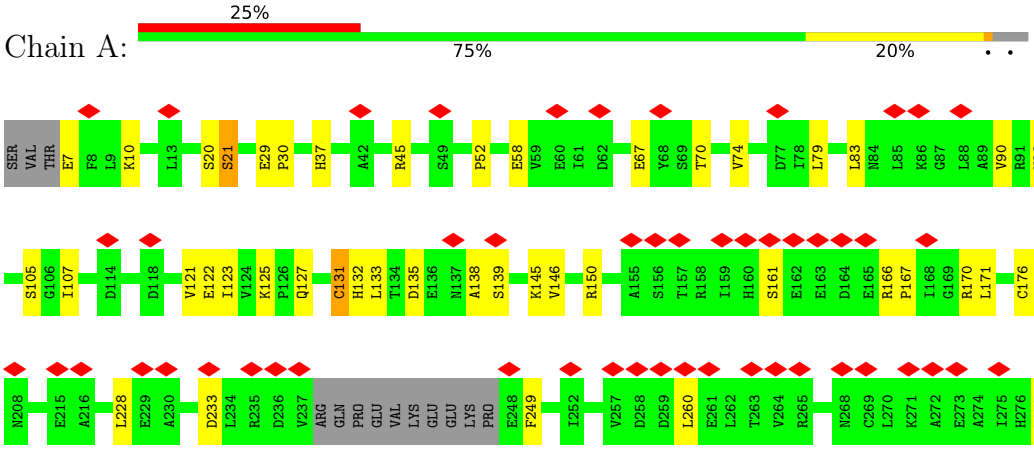
• Molecule 2: RNA (5'-R(P*GP*CP*CP*GP*CP*G)-3')

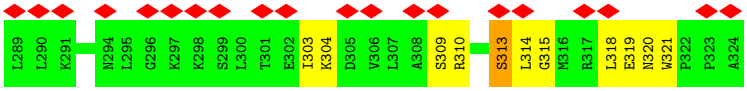


• Molecule 3: DNA (52-MER)



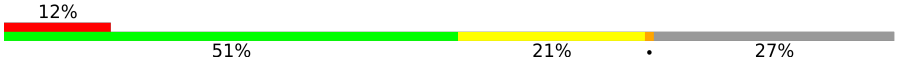
• Molecule 4: DNA-directed RNA polymerase subunit alpha

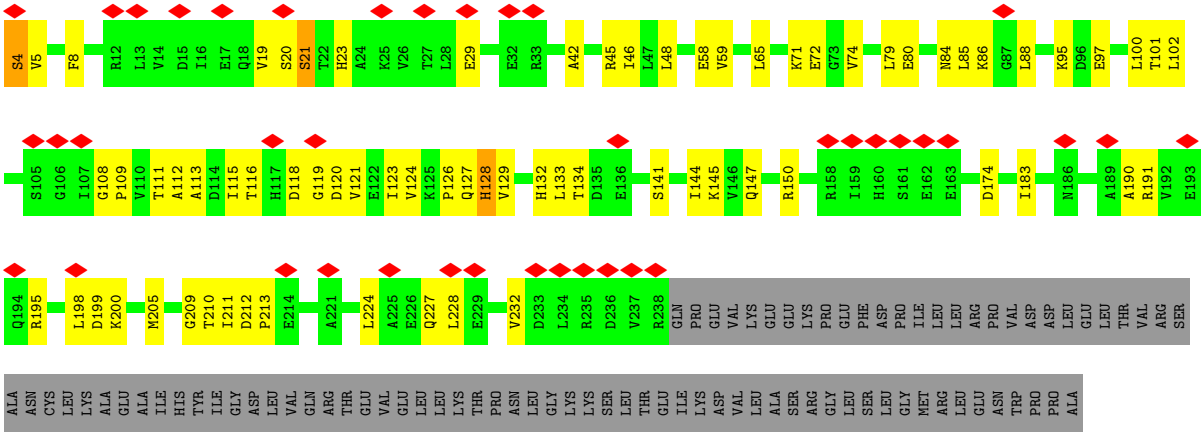




• Molecule 4: DNA-directed RNA polymerase subunit alpha

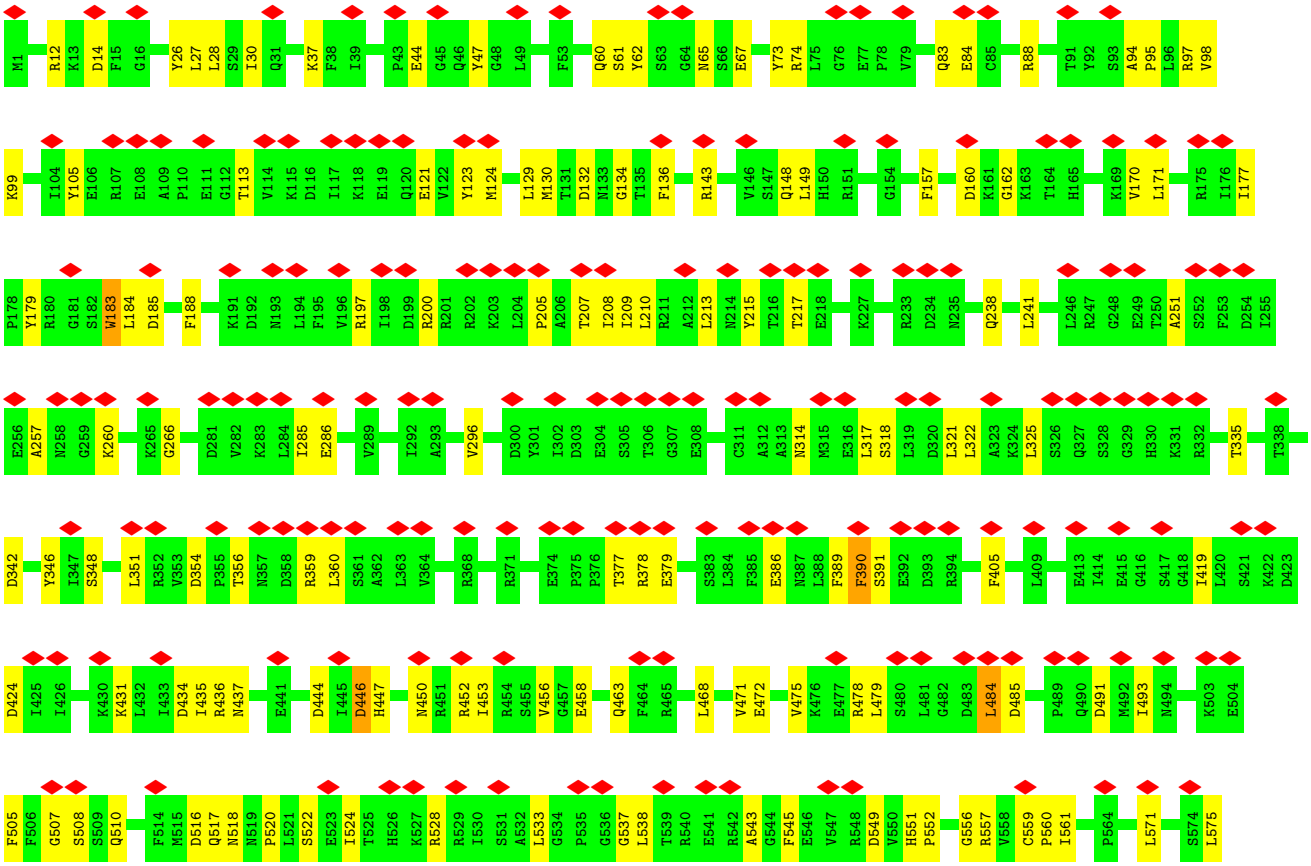
Chain B:





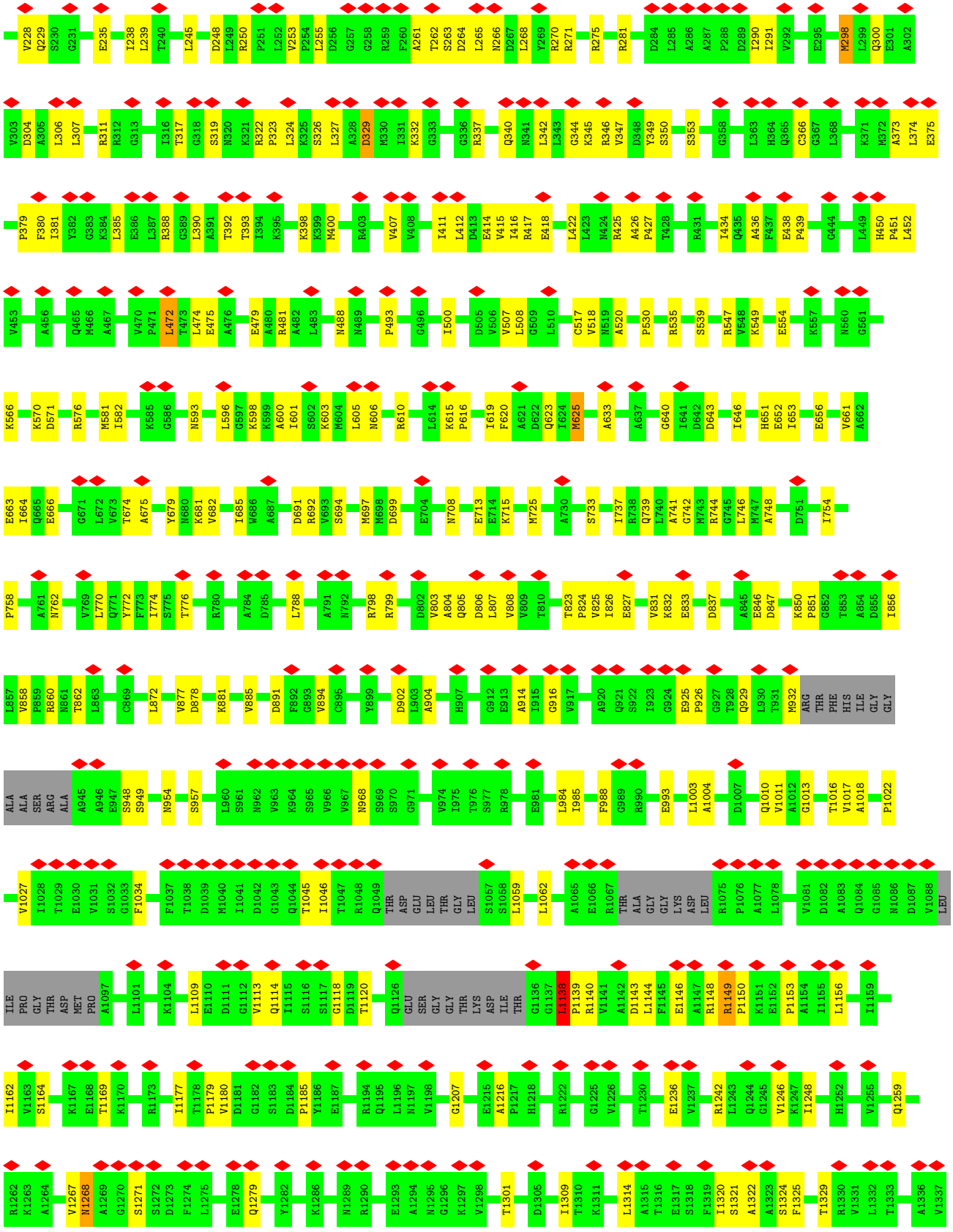
• Molecule 5: DNA-directed RNA polymerase subunit beta

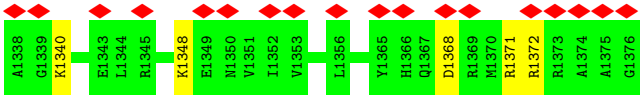
Chain C:



• Molecule 6: DNA-directed RNA polymerase subunit beta'

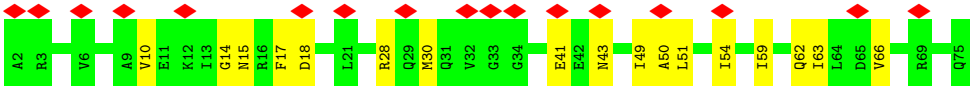
Chain D:


V228 Q229 S230 G231 E235 I238 L239 T240 L245 D248 L249 R250 P251 L252 V253 P254 L255 D256 G257 G258 R259 F260 A261 T262 S263 D264 L265 N266 D267 L268 Y269 R270 R271 R275 R281 D284 L285 A286 A287 P288 D289 I290 I291 V292 E295 M298 L299 Q300 E301 A302
V303 D304 A305 L306 L307 R311 R312 G313 I316 T317 G318 S319 N320 K321 R322 P323 L324 K325 S326 L327 A328 D329 M330 I331 K332 G333 G336 R337 Q340 N341 L342 L343 G344 K345 R346 V347 D348 Y349 S350 S353 G358 L363 H364 G365 C366 G367 L368 K371 M372 A373 L374 E375
P379 F380 I381 Y382 G383 K384 L385 E386 L387 R388 G389 L390 A391 T392 T393 I394 K395 K398 K399 M400 R403 V407 V408 I411 L412 D413 E414 V415 I416 R417 E418 L422 L423 N424 R425 A426 P427 T428 R431 I434 Q435 A436 F437 E438 P439 G444 L449 H450 P451 L452
V453 A456 Q465 M466 A467 V470 P471 L472 T473 L474 E475 A476 E479 A480 R481 A482 L483 N488 N489 P493 G496 I500 D505 V506 V507 L508 G509 L510 C517 V518 N519 A520 P530 R535 S539 R547 V548 K549 E554 K557 N560 G561
K566 K570 D571 R576 M581 I582 K585 G586 N593 L596 G597 K598 K599 A600 I601 S602 K603 M604 L605 N606 R610 L614 K615 P616 I619 F620 A621 D622 Q623 I624 M625 A633 A637 G640 I641 D642 D643 I646 H651 E652 I653 E656 V661 A662
E663 I664 Q665 E666 G671 L672 V673 T674 A675 Y679 N680 K681 V682 I685 W686 A687 D691 R692 V693 S694 M697 M698 D699 E704 N708 E713 E714 K715 M725 A730 S733 I737 R738 Q739 L740 A741 G742 M743 R744 G745 L746 M747 A748 D751 I754
P758 A761 N762 V769 L770 Q771 Y772 F773 I774 S775 T776 R780 A784 D785 L788 A791 N792 R798 R799 D802 V803 A804 Q805 D806 L807 V808 V809 T810 T823 P824 V825 I826 E827 V831 K832 E833 D837 A845 E846 D847 K850 P851 G852 T853 A854 D855 I856
L857 V858 P859 R860 N861 T862 L863 C869 L872 V877 D878 K881 V885 D891 F892 G893 V894 C896 Y899 D902 L903 A904 H907 G912 E913 A914 I915 G916 V917 A920 Q921 S922 I923 G924 E925 P926 G927 T928 Q929 L930 T931 M932 ARG THR PHE HIS ILE GLY GLY
ALA ALA SER ARG ALA A945 A946 E947 S948 S949 N954 S957 L960 S961 N962 V963 K964 S965 V966 V967 N968 S969 S970 G971 V974 I975 T976 S977 R978 E981 L984 I985 F988 G989 R990 E993 L1003 A1004 D1007 Q1010 V1011 A1012 G1013 T1016 V1017 A1018 P1022
V1027 I1028 T1029 E1030 V1031 S1032 G1033 F1034 F1037 T1038 D1039 M1040 I1041 D1042 G1043 Q1044 T1045 I1046 T1047 R1048 Q1049 THR ASP GLU LEU THR GLY LEU S1057 S1058 L1059 L1062 A1065 E1066 R1067 THR ALA GLY GLY LYS ASP LEU R1075 P1076 A1077 L1078 V1081 D1082 A1083 Q1084 G1085 N1086 D1087 V1088 LEU
ILE PRO GLY THR ASP MET PRO A1097 L1101 K1104 L1109 E1110 D1111 G1112 V1113 Q1114 I1115 S1116 S1117 G1118 D1119 T1120 Q1126 GLU SER GLY GLY THR LYS ASP ILE THR G1136 G1137 L1138 P1139 R1140 V1141 A1142 D1143 L1144 F1145 E1146 A1147 R1148 R1149 P1150 K1151 E1152 P1153 A1164 I1155 L1156 I1159
I1162 V1163 S1164 K1167 E1168 T1169 K1170 R1173 I1177 T1178 P1179 V1180 D1181 G1182 S1183 D1184 P1185 Y1186 E1187 R1194 Q1195 L1196 N1197 V1198 G1207 E1215 A1216 P1217 H1218 R1222 G1225 V1226 T1230 E1236 V1237 R1242 L1243 Q1244 G1245 V1246 K1247 I1248 H1252 V1255 Q1259
R1262 K1263 A1264 V1267 N1268 A1269 G1270 S1271 S1272 D1273 F1274 L1275 E1278 Q1279 Y1282 K1286 N1289 R1290 E1293 A1294 N1295 G1296 K1297 V1298 T1301 D1305 I1309 T1310 K1311 L1314 A1315 T1316 E1317 S1318 F1319 I1320 S1321 A1322 A1323 S1324 F1325 T1329 R1330 V1331 L1332 T1333 A1336 V1337



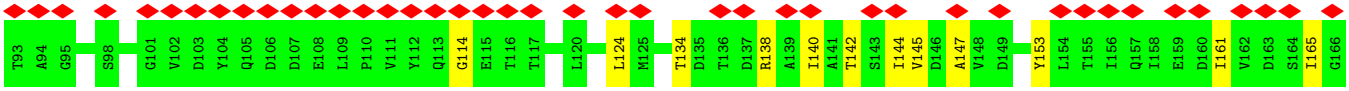
• Molecule 7: DNA-directed RNA polymerase subunit omega

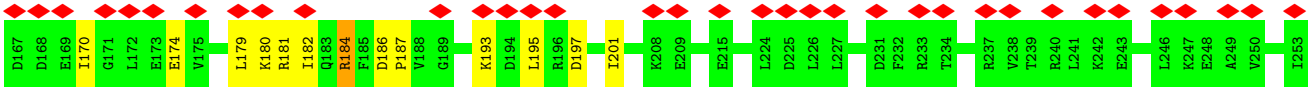
Chain E:

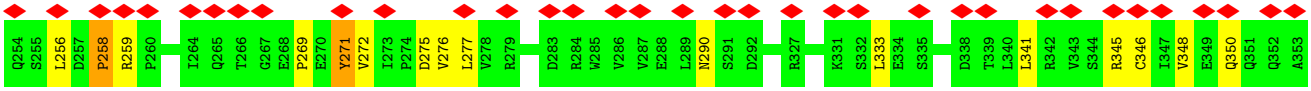


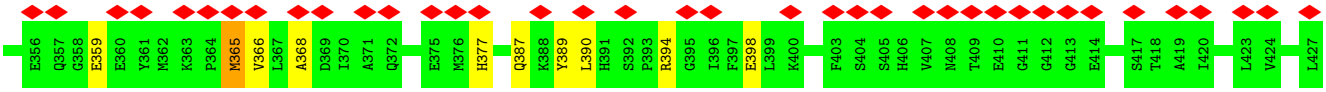
• Molecule 8: RNA polymerase sigma-54 factor

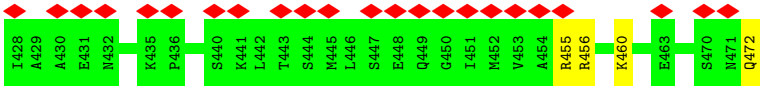
Chain M:











4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	73619	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	30	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.034	Depositor
Minimum map value	-0.012	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0067	Depositor
Map size (Å)	211.99998, 211.99998, 211.99998	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	N	0.49	0/976	0.95	0/1501
2	R	0.40	0/143	0.85	0/221
3	T	0.54	0/1205	0.85	0/1858
4	A	0.28	0/2396	0.55	0/3252
4	B	0.29	0/1754	0.57	0/2388
5	C	0.30	0/10235	0.55	2/13877 (0.0%)
6	D	0.30	0/9818	0.56	5/13339 (0.0%)
7	E	0.30	0/548	0.57	0/743
8	M	0.31	1/2226 (0.0%)	0.60	2/3071 (0.1%)
All	All	0.32	1/29301 (0.0%)	0.60	9/40250 (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
6	D	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	M	258	PRO	CG-CD	-6.00	1.30	1.50

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	M	258	PRO	CA-N-CD	-12.20	94.43	111.50
8	M	258	PRO	N-CD-CG	-9.49	88.97	103.20
6	D	1139	PRO	CA-N-CD	-6.91	101.82	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	D	159	ILE	CG1-CB-CG2	-5.69	98.89	111.40
5	C	446	ASP	CB-CG-OD1	5.64	123.37	118.30
6	D	699	ASP	CB-CG-OD2	5.55	123.29	118.30
6	D	691	ASP	CB-CG-OD1	5.54	123.28	118.30
5	C	160	ASP	CB-CG-OD1	5.36	123.12	118.30
6	D	1138	LEU	C-N-CD	-5.14	109.28	120.60

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	D	1138	LEU	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	N	875	0	490	16	0
2	R	129	0	66	2	0
3	T	1072	0	582	25	0
4	A	2365	0	2387	46	0
4	B	1735	0	1724	47	0
5	C	10080	0	9757	221	0
6	D	9682	0	9408	216	0
7	E	546	0	537	12	0
8	M	2194	0	1711	45	0
9	D	1	0	0	0	0
10	D	2	0	0	0	0
All	All	28681	0	26662	574	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 10.

All (574) 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)
4:B:190:ALA:O	4:B:198:LEU:HB2	1.71	0.89
5:C:883:LEU:HD11	5:C:920:VAL:HG23	1.58	0.86
6:D:825:VAL:HB	6:D:833:GLU:HB2	1.60	0.81
6:D:807:LEU:HD12	6:D:1259:GLN:HE21	1.45	0.80
4:B:183:ILE:HD13	4:B:205:MET:HE2	1.64	0.80
8:M:180:LYS:HG2	8:M:184:ARG:HH12	1.47	0.79
5:C:12:ARG:NH1	5:C:793:GLU:OE2	2.16	0.79
6:D:799:ARG:NH1	6:D:1146:GLU:OE1	2.15	0.79
5:C:1142:ARG:HG2	5:C:1169:VAL:HG11	1.68	0.75
6:D:1177:ILE:HG13	6:D:1179:PRO:HD3	1.70	0.73
5:C:105:TYR:HA	5:C:113:THR:HA	1.71	0.73
1:N:5:DA:H5'	5:C:200:ARG:HH12	1.53	0.72
4:A:281:LEU:HD11	4:A:303:ILE:HD11	1.71	0.72
6:D:342:LEU:HD22	6:D:1324:SER:HB2	1.72	0.71
6:D:46:TYR:O	8:M:387:GLN:NE2	2.24	0.70
4:B:210:THR:O	4:B:211:ILE:HD13	1.92	0.70
6:D:417:ARG:NH1	7:E:43:ASN:OD1	2.25	0.70
4:A:161:SER:OG	4:A:166:ARG:NH2	2.26	0.69
4:B:74:VAL:HA	4:B:134:THR:HA	1.72	0.69
5:C:88:ARG:NH2	5:C:1040:ASP:OD2	2.25	0.69
6:D:388:ARG:NH2	6:D:414:GLU:OE2	2.25	0.69
6:D:1144:LEU:HD11	6:D:1236:GLU:HB3	1.75	0.69
3:T:-2:DC:OP1	6:D:346:ARG:NH2	2.26	0.69
4:A:319:GLU:OE2	4:A:320:ASN:ND2	2.26	0.68
5:C:1276:TRP:HH2	6:D:798:ARG:HG2	1.58	0.68
6:D:275:ARG:NH2	6:D:298:MET:SD	2.65	0.68
5:C:241:LEU:HD11	5:C:285:ILE:HG12	1.75	0.68
6:D:741:ALA:O	6:D:762:ASN:ND2	2.24	0.67
6:D:20:ILE:HD11	6:D:1320:ILE:HG13	1.76	0.67
5:C:1117:LEU:HG	5:C:1182:ILE:HD11	1.75	0.67
3:T:3:DA:H4'	5:C:508:SER:HB2	1.76	0.66
6:D:770:LEU:O	6:D:774:ILE:HG13	1.95	0.66
6:D:342:LEU:HD11	6:D:1348:LYS:HD2	1.75	0.66
5:C:1117:LEU:HD13	5:C:1195:ILE:HG12	1.76	0.66
6:D:826:ILE:HD11	6:D:831:VAL:HG23	1.78	0.66
6:D:1140:ARG:HA	6:D:1143:ASP:HB2	1.78	0.66
6:D:1164:SER:HB3	6:D:1177:ILE:HD12	1.76	0.66
5:C:1061:GLN:NE2	5:C:1240:ASP:OD1	2.30	0.65
5:C:44:GLU:OE1	5:C:44:GLU:N	2.29	0.65
4:A:92:VAL:HG12	4:A:121:VAL:HG22	1.79	0.65
5:C:318:SER:H	5:C:321:LEU:HD12	1.62	0.65
5:C:714:VAL:O	5:C:767:GLN:NE2	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:5:DA:N6	5:C:537:GLY:O	2.30	0.64
4:B:4:SER:OG	4:B:5:VAL:N	2.30	0.64
6:D:190:LYS:HG2	6:D:235:GLU:HG2	1.79	0.64
4:A:98:VAL:HG23	4:A:146:VAL:HB	1.80	0.64
5:C:799:ASN:O	5:C:827:ARG:NH2	2.31	0.64
6:D:326:SER:OG	6:D:329:ASP:OD1	2.14	0.64
5:C:251:ALA:HB3	5:C:266:GLY:H	1.64	0.63
5:C:61:SER:HB3	5:C:479:LEU:HB2	1.81	0.63
5:C:545:PHE:HE1	6:D:788:LEU:HD12	1.64	0.63
4:A:194:GLN:OE1	4:A:194:GLN:N	2.25	0.63
6:D:385:LEU:HD12	6:D:411:ILE:HD13	1.81	0.63
4:B:113:ALA:HB2	4:B:126:PRO:HB2	1.81	0.63
6:D:1371:ARG:HG3	6:D:1372:ARG:HE	1.63	0.63
8:M:165:ILE:HG21	8:M:170:ILE:HG21	1.80	0.63
8:M:455:ARG:O	8:M:455:ARG:NH1	2.25	0.62
5:C:528:ARG:NH2	5:C:576:SER:O	2.31	0.62
6:D:127:LEU:O	6:D:220:ARG:NH2	2.32	0.62
5:C:207:THR:HA	5:C:210:LEU:HD23	1.79	0.62
6:D:932:MET:HA	6:D:1138:LEU:H	1.65	0.62
6:D:739:GLN:OE1	6:D:744:ARG:NH1	2.32	0.62
5:C:808:ASN:H	6:D:633:ALA:HB2	1.65	0.62
4:A:122:GLU:OE2	4:A:122:GLU:N	2.33	0.62
6:D:646:ILE:HD13	6:D:762:ASN:HD21	1.63	0.62
6:D:36:GLY:HA3	6:D:61:ILE:HG21	1.82	0.61
5:C:84:GLU:O	5:C:88:ARG:HG2	2.00	0.61
6:D:332:LYS:HD2	6:D:340:GLN:HG2	1.82	0.61
6:D:858:VAL:HG12	6:D:862:THR:HG21	1.82	0.61
5:C:739:ASP:OD2	5:C:740:GLU:N	2.33	0.61
5:C:185:ASP:HB2	5:C:197:ARG:HB2	1.83	0.61
6:D:417:ARG:HG3	6:D:418:GLU:HG2	1.83	0.61
5:C:561:ILE:HD11	6:D:772:TYR:HE2	1.64	0.60
6:D:49:PHE:HE1	8:M:387:GLN:HE22	1.47	0.60
8:M:144:ILE:HD12	8:M:179:LEU:HD13	1.83	0.60
4:B:97:GLU:HG3	4:B:147:GLN:HB3	1.83	0.60
5:C:677:ASN:O	5:C:681:MET:HG3	2.00	0.60
4:A:58:GLU:OE2	4:A:170:ARG:NH1	2.26	0.60
4:A:92:VAL:HG11	4:A:98:VAL:HG21	1.83	0.60
4:A:313:SER:HB3	8:M:181:ARG:HE	1.66	0.60
6:D:268:LEU:HD13	6:D:306:LEU:HA	1.83	0.60
6:D:833:GLU:OE1	6:D:1242:ARG:NH1	2.32	0.60
6:D:748:ALA:HB3	6:D:754:ILE:HA	1.82	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:45:ASN:N	6:D:52:GLU:OE2	2.35	0.60
1:N:-20:DA:H2"	1:N:-19:DC:H5"	1.83	0.60
5:C:1069:ARG:NH1	5:C:1114:GLU:OE2	2.35	0.60
7:E:59:ILE:HA	7:E:63:ILE:HD11	1.84	0.60
5:C:517:GLN:HG3	5:C:760:ASN:H	1.66	0.59
6:D:846:GLU:HG2	6:D:881:LYS:HB3	1.84	0.59
4:A:10:LYS:NZ	4:B:227:GLN:OE1	2.35	0.59
3:T:7:DG:H1'	3:T:8:DA:C5	2.38	0.59
6:D:416:ILE:HG23	6:D:439:PRO:HG2	1.83	0.59
5:C:559:CYS:HB2	5:C:662:SER:HB3	1.84	0.59
5:C:897:PRO:HA	5:C:900:LYS:HG2	1.85	0.59
6:D:606:ASN:OD1	6:D:610:ARG:NH1	2.35	0.59
6:D:1011:VAL:HG22	6:D:1013:GLY:H	1.66	0.59
6:D:15:GLU:OE2	6:D:15:GLU:N	2.34	0.58
5:C:631:GLU:OE1	5:C:633:LEU:N	2.34	0.58
5:C:1269:ARG:NH1	6:D:344:GLY:O	2.36	0.58
5:C:1327:LEU:HD21	5:C:1339:LEU:HD21	1.85	0.58
6:D:493:PRO:HB3	6:D:904:ALA:HB2	1.85	0.58
4:A:127:GLN:OE1	4:A:127:GLN:N	2.36	0.58
6:D:374:LEU:HB2	6:D:412:LEU:HD22	1.86	0.58
4:A:131:CYS:SG	4:A:132:HIS:N	2.77	0.58
5:C:200:ARG:HG3	5:C:200:ARG:HH11	1.68	0.58
6:D:535:ARG:O	6:D:539:SER:OG	2.21	0.58
5:C:1308:ILE:HG21	6:D:379:PRO:HB2	1.85	0.57
6:D:805:GLN:HG3	6:D:806:ASP:N	2.17	0.57
5:C:478:ARG:HH12	5:C:491:ASP:HA	1.69	0.57
5:C:607:SER:OG	5:C:608:ALA:N	2.38	0.57
6:D:746:LEU:HA	6:D:758:PRO:HB3	1.87	0.57
4:A:37:HIS:HB2	4:B:45:ARG:HH21	1.70	0.57
4:B:113:ALA:N	4:B:126:PRO:O	2.36	0.57
8:M:180:LYS:O	8:M:184:ARG:NH1	2.38	0.57
6:D:52:GLU:N	6:D:52:GLU:OE1	2.38	0.57
6:D:596:LEU:HA	6:D:600:ALA:HB3	1.87	0.57
6:D:380:PHE:HB3	6:D:415:VAL:HG21	1.86	0.57
5:C:901:LEU:O	5:C:905:ILE:HG22	2.04	0.56
6:D:530:PRO:HB2	6:D:581:MET:HG3	1.87	0.56
5:C:60:GLN:HB3	5:C:67:GLU:HG2	1.88	0.56
5:C:1253:LEU:HB2	8:M:114:GLY:HA3	1.87	0.56
4:B:124:VAL:HG21	4:B:210:THR:HG22	1.87	0.56
3:T:2:DA:H2"	3:T:3:DA:C8	2.41	0.56
7:E:62:GLN:O	7:E:66:VAL:HG13	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:130:MET:SD	5:C:134:GLY:HA2	2.46	0.56
6:D:245:LEU:O	6:D:250:ARG:NH1	2.39	0.56
5:C:296:VAL:O	5:C:335:THR:OG1	2.17	0.56
5:C:390:PHE:HA	5:C:419:ILE:HG13	1.87	0.56
5:C:518:ASN:O	5:C:522:SER:HB3	2.05	0.56
5:C:890:LYS:HE3	5:C:890:LYS:HA	1.88	0.56
6:D:159:ILE:HG22	6:D:159:ILE:O	2.05	0.56
6:D:474:LEU:HD12	7:E:28:ARG:HE	1.70	0.56
5:C:12:ARG:HE	5:C:1183:ALA:HB2	1.70	0.56
6:D:808:VAL:HG12	6:D:914:ALA:HA	1.86	0.56
2:R:4:G:O2'	6:D:425:ARG:NH2	2.37	0.55
5:C:162:GLY:HA3	5:C:170:VAL:HG22	1.87	0.55
6:D:381:ILE:HD11	6:D:412:LEU:HD13	1.88	0.55
6:D:58:CYS:SG	6:D:59:ALA:N	2.78	0.55
5:C:660:VAL:HG13	5:C:661:VAL:HG13	1.88	0.55
5:C:883:LEU:HD23	5:C:1052:VAL:HG11	1.88	0.55
5:C:890:LYS:HD3	5:C:914:LYS:HD3	1.88	0.55
6:D:582:ILE:HD11	6:D:623:GLN:HB3	1.88	0.55
6:D:224:LEU:O	6:D:228:VAL:HG13	2.06	0.55
3:T:11:DG:H2'	3:T:12:DT:H71	1.89	0.55
4:A:105:SER:HB2	4:A:139:SER:HB3	1.88	0.55
5:C:797:GLY:N	5:C:1231:TYR:OH	2.38	0.55
6:D:968:ASN:HA	6:D:1118:GLY:HA3	1.89	0.55
6:D:708:ASN:HA	6:D:713:GLU:HA	1.89	0.55
4:B:80:GLU:O	4:B:84:ASN:ND2	2.40	0.54
5:C:207:THR:HG21	5:C:351:LEU:HB2	1.88	0.54
5:C:257:ALA:N	5:C:260:LYS:O	2.35	0.54
6:D:742:GLY:O	6:D:762:ASN:HB3	2.07	0.54
4:B:212:ASP:OD1	4:B:213:PRO:HD2	2.06	0.54
4:B:59:VAL:HG12	4:B:144:ILE:HG22	1.89	0.54
5:C:360:LEU:HD11	5:C:378:ARG:HD3	1.89	0.54
1:N:5:DA:H5'	5:C:200:ARG:NH1	2.20	0.54
5:C:906:PHE:CZ	8:M:258:PRO:HD3	2.43	0.54
5:C:1275:VAL:HG13	5:C:1287:LEU:HD11	1.89	0.54
5:C:903:ARG:HD2	5:C:908:GLU:O	2.08	0.54
5:C:209:ILE:HG13	5:C:210:LEU:HD22	1.90	0.54
5:C:629:PHE:CD2	5:C:634:VAL:HG11	2.42	0.54
5:C:533:LEU:HD21	5:C:571:LEU:HD13	1.91	0.53
6:D:926:PRO:HG2	6:D:1248:ILE:HD11	1.91	0.53
8:M:197:ASP:O	8:M:201:ILE:HG22	2.07	0.53
4:A:167:PRO:HD2	4:A:170:ARG:HE	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:309:SER:O	8:M:184:ARG:NH2	2.41	0.53
6:D:53:ARG:HG3	6:D:54:ASP:OD2	2.09	0.53
8:M:144:ILE:HG22	8:M:161:ILE:HD13	1.90	0.53
4:A:90:VAL:HG12	4:A:123:ILE:HD13	1.89	0.53
4:A:95:LYS:HE2	4:A:98:VAL:HG12	1.89	0.53
5:C:472:GLU:HA	5:C:475:VAL:HG12	1.90	0.53
6:D:507:VAL:HG11	6:D:598:LYS:HB2	1.90	0.53
5:C:718:ALA:HB2	5:C:783:LEU:HD21	1.91	0.53
5:C:1146:GLN:HE22	5:C:1160:ASP:HA	1.74	0.53
5:C:424:ASP:OD1	5:C:424:ASP:N	2.41	0.53
8:M:275:ASP:O	8:M:290:ASN:ND2	2.41	0.53
4:B:20:SER:OG	4:B:21:SER:N	2.42	0.53
5:C:377:THR:OG1	5:C:379:GLU:OE1	2.19	0.53
5:C:1125:GLY:HA3	5:C:1179:GLY:HA2	1.90	0.52
4:A:90:VAL:HG21	4:A:146:VAL:HG11	1.91	0.52
5:C:95:PRO:HB3	5:C:123:TYR:HE2	1.73	0.52
5:C:561:ILE:HD11	6:D:772:TYR:CE2	2.43	0.52
5:C:444:ASP:O	5:C:450:ASN:ND2	2.42	0.52
5:C:560:PRO:HB2	6:D:776:THR:HG21	1.91	0.52
5:C:870:ILE:HG21	5:C:931:VAL:HG11	1.91	0.52
5:C:1290:MET:HG3	6:D:347:VAL:HG11	1.90	0.52
5:C:97:ARG:HB3	5:C:121:GLU:HG3	1.92	0.52
5:C:346:TYR:O	5:C:348:SER:N	2.38	0.52
5:C:692:THR:HG21	5:C:798:GLN:HE21	1.73	0.52
6:D:97:VAL:HG21	6:D:101:ARG:HH21	1.75	0.52
6:D:128:LEU:HB3	6:D:130:MET:HG2	1.92	0.52
5:C:734:ILE:HD12	5:C:751:TYR:HE1	1.74	0.52
5:C:1024:GLU:HA	5:C:1027:LYS:HG2	1.91	0.52
6:D:115:TRP:CH2	6:D:1329:THR:HG22	2.45	0.52
3:T:19:DG:H2'	3:T:20:DT:H71	1.91	0.52
4:B:111:THR:HA	4:B:129:VAL:HA	1.92	0.52
8:M:140:ILE:O	8:M:144:ILE:HG23	2.09	0.51
3:T:1:DC:H2"	3:T:2:DA:C8	2.45	0.51
6:D:94:GLN:O	6:D:94:GLN:HG3	2.11	0.51
5:C:551:HIS:CD2	5:C:552:PRO:HD2	2.44	0.51
1:N:6:DT:H73	3:T:-6:DA:C6	2.44	0.51
3:T:21:DC:H2"	3:T:22:DG:C8	2.44	0.51
5:C:1127:LYS:O	5:C:1131:MET:HG3	2.10	0.51
6:D:112:ALA:HA	6:D:238:ILE:HG22	1.91	0.51
6:D:390:LEU:HD21	6:D:407:VAL:HG21	1.91	0.51
8:M:186:ASP:HB3	8:M:187:PRO:HD3	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:35:PHE:CD2	6:D:101:ARG:HG2	2.45	0.51
6:D:925:GLU:HB3	6:D:926:PRO:HD3	1.93	0.51
6:D:1156:LEU:HD23	6:D:1207:GLY:HA2	1.93	0.51
5:C:434:ASP:OD2	5:C:435:ILE:N	2.44	0.51
6:D:135:ILE:HA	6:D:138:VAL:HG12	1.92	0.51
6:D:186:GLN:O	6:D:190:LYS:HG3	2.10	0.51
6:D:847:ASP:OD1	6:D:860:ARG:N	2.44	0.51
4:A:135:ASP:HB3	4:A:138:ALA:HB2	1.93	0.51
5:C:354:ASP:OD2	5:C:356:THR:OG1	2.28	0.50
6:D:652:GLU:O	6:D:656:GLU:HG3	2.10	0.50
1:N:-10:DT:H3	3:T:10:DC:H42	1.59	0.50
6:D:373:ALA:C	6:D:375:GLU:H	2.14	0.50
6:D:582:ILE:HG23	6:D:620:PHE:HE1	1.77	0.50
5:C:1291:LEU:HD13	6:D:345:LYS:HD2	1.92	0.50
5:C:452:ARG:NH2	5:C:458:GLU:OE2	2.44	0.50
8:M:142:THR:HA	8:M:145:VAL:HG12	1.93	0.50
6:D:1109:LEU:HD22	6:D:1113:VAL:HG21	1.92	0.50
1:N:13:DG:C3'	6:D:133:ARG:HH22	2.23	0.50
5:C:808:ASN:OD1	5:C:1216:ARG:NH2	2.45	0.50
5:C:871:VAL:HG13	5:C:883:LEU:HA	1.94	0.50
6:D:1004:ALA:N	6:D:1017:VAL:O	2.44	0.50
4:B:109:PRO:HA	4:B:132:HIS:HA	1.93	0.50
5:C:157:PHE:HE2	5:C:431:LYS:HZ3	1.60	0.50
8:M:276:VAL:HG23	8:M:277:LEU:HD23	1.93	0.50
5:C:342:ASP:O	5:C:437:ASN:HB3	2.12	0.50
5:C:538:LEU:HD13	5:C:543:ALA:HB2	1.93	0.50
6:D:271:ARG:O	6:D:275:ARG:HG2	2.12	0.50
6:D:475:GLU:O	6:D:479:GLU:HG3	2.12	0.50
6:D:733:SER:O	6:D:737:ILE:HG12	2.12	0.50
5:C:179:TYR:OH	5:C:458:GLU:OE2	2.22	0.49
5:C:1254:VAL:HG22	5:C:1255:THR:HG23	1.92	0.49
5:C:796:LEU:N	5:C:1231:TYR:OH	2.45	0.49
6:D:77:ARG:HH11	8:M:147:ALA:HA	1.75	0.49
6:D:451:PRO:HG2	6:D:625:MET:SD	2.52	0.49
4:B:101:THR:H	4:B:116:THR:HG22	1.76	0.49
6:D:957:SER:HA	6:D:1010:GLN:HA	1.94	0.49
6:D:1368:ASP:O	6:D:1372:ARG:HG2	2.12	0.49
7:E:41:GLU:HG2	7:E:49:ILE:HD11	1.93	0.49
5:C:728:ASP:OD1	5:C:729:ALA:N	2.44	0.49
6:D:1003:LEU:HA	6:D:1018:ALA:HA	1.95	0.49
8:M:366:VAL:HG13	8:M:368:ALA:H	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:890:LYS:HG2	5:C:913:VAL:HA	1.95	0.49
6:D:141:PHE:HE1	6:D:181:GLY:HA2	1.77	0.49
4:A:29:GLU:HB3	4:A:30:PRO:HD3	1.94	0.49
5:C:560:PRO:CB	6:D:776:THR:HG21	2.43	0.49
5:C:696:ASP:OD2	5:C:799:ASN:ND2	2.46	0.49
5:C:1136:GLN:HB3	5:C:1140:LYS:HD2	1.93	0.49
2:R:0:C:H5'	5:C:510:GLN:HE22	1.76	0.49
5:C:485:ASP:OD1	5:C:485:ASP:N	2.41	0.49
5:C:655:VAL:HG12	5:C:659:GLN:OE1	2.13	0.49
6:D:681:LYS:O	6:D:685:ILE:HG22	2.12	0.49
1:N:-18:DT:C6	1:N:-17:DT:H72	2.47	0.49
5:C:557:ARG:HG2	5:C:587:LEU:HB3	1.94	0.49
4:A:45:ARG:NH1	5:C:1084:ASP:OD1	2.33	0.48
6:D:948:SER:HB2	6:D:1022:PRO:HB3	1.95	0.48
6:D:1149:ARG:HB3	6:D:1149:ARG:NH1	2.27	0.48
4:B:29:GLU:HB2	4:B:200:LYS:HG3	1.96	0.48
5:C:1101:LEU:HD21	6:D:508:LEU:HD22	1.94	0.48
4:B:133:LEU:HG	4:B:134:THR:H	1.78	0.48
6:D:517:CYS:SG	6:D:520:ALA:HB2	2.54	0.48
6:D:872:LEU:HB2	6:D:877:VAL:HG21	1.95	0.48
6:D:1162:ILE:HD12	6:D:1162:ILE:H	1.78	0.48
6:D:1169:THR:O	6:D:1169:THR:OG1	2.28	0.48
3:T:23:DT:H2'	3:T:24:DG:C8	2.48	0.48
5:C:1319:MET:HE3	5:C:1323:PHE:HD2	1.78	0.48
5:C:1176:LEU:HD22	5:C:1181:PRO:HD2	1.95	0.48
6:D:1180:VAL:HA	6:D:1185:PRO:HB3	1.95	0.48
4:A:58:GLU:HG2	4:A:145:LYS:HB3	1.96	0.48
5:C:820:GLU:N	5:C:1080:ASN:O	2.47	0.48
5:C:1151:LEU:HD23	5:C:1198:LEU:HD13	1.96	0.48
6:D:640:GLY:N	6:D:643:ASP:OD2	2.44	0.48
5:C:643:SER:OG	5:C:644:LEU:N	2.47	0.48
5:C:715:THR:HG22	5:C:785:ASP:HA	1.96	0.48
8:M:144:ILE:HD11	8:M:182:ILE:HD12	1.94	0.48
6:D:554:GLU:OE2	6:D:570:LYS:NZ	2.36	0.48
6:D:847:ASP:HB3	6:D:856:ILE:HD12	1.95	0.48
4:B:118:ASP:OD2	4:B:119:GLY:N	2.46	0.48
4:B:133:LEU:HG	4:B:134:THR:N	2.28	0.48
6:D:332:LYS:HB3	6:D:337:ARG:HA	1.96	0.48
6:D:798:ARG:HH22	6:D:1325:PHE:HA	1.78	0.48
5:C:65:ASN:HB3	5:C:105:TYR:HB2	1.96	0.47
8:M:365:MET:HE3	8:M:365:MET:H	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:T:13:DG:H2"	8:M:377:HIS:CD2	2.49	0.47
5:C:317:LEU:HD13	5:C:322:LEU:HD21	1.94	0.47
5:C:468:LEU:O	5:C:471:VAL:HG12	2.14	0.47
6:D:7:PHE:HE1	6:D:9:LYS:HD3	1.78	0.47
6:D:141:PHE:CE1	6:D:181:GLY:HA2	2.48	0.47
5:C:205:PRO:O	5:C:208:ILE:HG12	2.14	0.47
5:C:524:ILE:O	5:C:528:ARG:HG2	2.14	0.47
5:C:636:CYS:O	5:C:642:SER:HA	2.15	0.47
5:C:1325:VAL:O	5:C:1329:GLU:HG3	2.15	0.47
6:D:322:ARG:HG3	6:D:323:PRO:HD2	1.97	0.47
6:D:307:LEU:HD23	6:D:307:LEU:HA	1.74	0.47
3:T:12:DT:H2"	3:T:13:DG:C8	2.50	0.47
6:D:1046:ILE:HD12	6:D:1059:LEU:HD13	1.96	0.47
4:B:85:LEU:HA	4:B:88:LEU:HD23	1.96	0.47
4:B:127:GLN:OE1	4:B:127:GLN:N	2.36	0.47
5:C:839:VAL:HG21	5:C:841:ARG:NH2	2.29	0.47
6:D:168:ALA:O	6:D:172:PHE:N	2.48	0.47
3:T:13:DG:H8	8:M:377:HIS:CG	2.33	0.47
4:B:71:LYS:O	4:B:72:GLU:HG2	2.14	0.47
5:C:484:LEU:HD12	5:C:484:LEU:H	1.80	0.47
5:C:1088:ASP:OD1	5:C:1088:ASP:N	2.36	0.47
6:D:337:ARG:O	6:D:342:LEU:HB3	2.14	0.47
6:D:438:GLU:OE2	6:D:481:ARG:NH2	2.48	0.47
6:D:598:LYS:HA	6:D:601:ILE:HG22	1.97	0.47
6:D:615:LYS:O	6:D:619:ILE:HG12	2.15	0.47
1:N:-22:DC:H2"	1:N:-21:DG:C8	2.50	0.47
4:A:228:LEU:HD11	4:B:224:LEU:HD23	1.96	0.47
5:C:833:ILE:HA	5:C:1054:LEU:O	2.15	0.47
5:C:902:LEU:HD13	8:M:259:ARG:NH2	2.30	0.47
5:C:1016:GLU:O	5:C:1020:GLU:HG3	2.14	0.47
3:T:26:DC:H2"	3:T:27:DA:C8	2.50	0.47
5:C:314:ASN:HD21	5:C:351:LEU:HD23	1.80	0.47
1:N:19:DC:H2"	1:N:20:DA:C8	2.51	0.46
8:M:174:GLU:OE1	8:M:174:GLU:N	2.38	0.46
6:D:183:GLU:HA	6:D:186:GLN:HG3	1.96	0.46
5:C:74:ARG:HH21	5:C:97:ARG:HG3	1.79	0.46
6:D:217:LEU:O	6:D:221:ILE:HG12	2.15	0.46
6:D:566:LYS:HB2	6:D:566:LYS:HE3	1.64	0.46
5:C:217:THR:HG23	5:C:351:LEU:HD21	1.96	0.46
5:C:557:ARG:HB3	5:C:587:LEU:HD13	1.97	0.46
5:C:802:VAL:HG22	5:C:1096:ILE:HB	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:839:VAL:HG12	5:C:1049:ILE:HD13	1.96	0.46
5:C:866:ASP:HB3	5:C:872:TYR:CE1	2.51	0.46
6:D:199:GLU:O	6:D:203:GLU:HG2	2.16	0.46
5:C:895:LEU:HB3	5:C:900:LYS:HE3	1.96	0.46
3:T:8:DA:C8	8:M:333:LEU:HD21	2.50	0.46
4:A:184:ALA:HB3	4:A:204:GLU:HG2	1.98	0.46
5:C:149:LEU:HD12	5:C:453:ILE:HG13	1.97	0.46
6:D:1109:LEU:HB3	6:D:1113:VAL:HG11	1.98	0.46
1:N:2:DT:H2"	1:N:3:DA:C2	2.51	0.46
6:D:827:GLU:OE2	6:D:827:GLU:N	2.48	0.46
8:M:134:THR:O	8:M:138:ARG:N	2.40	0.46
8:M:341:LEU:O	8:M:345:ARG:HG2	2.15	0.46
6:D:1149:ARG:HH12	6:D:1153:PRO:HG2	1.81	0.46
3:T:2:DA:C8	3:T:2:DA:H5"	2.51	0.45
4:B:228:LEU:O	4:B:232:VAL:HG23	2.15	0.45
5:C:136:PHE:CZ	5:C:456:VAL:HG11	2.51	0.45
5:C:700:VAL:O	5:C:1069:ARG:NH2	2.48	0.45
5:C:1020:GLU:O	5:C:1024:GLU:HG2	2.15	0.45
5:C:1247:SER:HB3	6:D:375:GLU:O	2.16	0.45
6:D:134:ASP:OD2	6:D:137:ARG:NH2	2.47	0.45
7:E:10:VAL:O	7:E:14:GLY:HA2	2.16	0.45
4:A:107:ILE:HD12	4:A:107:ILE:HA	1.81	0.45
4:A:286:GLU:OE1	4:A:304:LYS:NZ	2.32	0.45
5:C:945:ALA:O	5:C:949:GLU:HG2	2.17	0.45
6:D:452:LEU:HB3	6:D:500:ILE:HG23	1.98	0.45
6:D:803:VAL:HG11	6:D:1309:ILE:HG22	1.98	0.45
5:C:951:MET:O	5:C:954:LYS:HG2	2.15	0.45
6:D:518:VAL:HA	6:D:547:ARG:NH2	2.31	0.45
3:T:7:DG:OP2	6:D:255:LEU:HD11	2.16	0.45
4:B:102:LEU:HB3	4:B:115:ILE:HG22	1.98	0.45
5:C:95:PRO:HB3	5:C:123:TYR:CE2	2.51	0.45
5:C:921:PRO:HG2	5:C:924:VAL:HG21	1.97	0.45
5:C:1297:ASP:O	5:C:1301:ARG:HG3	2.17	0.45
6:D:832:LYS:HA	6:D:832:LYS:HD2	1.63	0.45
6:D:1045:THR:HB	6:D:1062:LEU:HA	1.98	0.45
5:C:463:GLN:HG3	5:C:505:PHE:HB2	1.98	0.45
5:C:841:ARG:HD2	8:M:272:VAL:HG13	1.97	0.45
7:E:15:ASN:HB3	7:E:18:ASP:H	1.82	0.45
8:M:345:ARG:HA	8:M:348:VAL:HG12	1.99	0.45
6:D:804:ALA:O	6:D:916:GLY:HA3	2.17	0.45
6:D:850:LYS:HG3	6:D:851:PRO:HD2	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:T:24:DG:O6	8:M:460:LYS:NZ	2.40	0.44
5:C:452:ARG:HH22	5:C:458:GLU:CD	2.20	0.44
6:D:549:LYS:HG2	6:D:571:ASP:OD1	2.17	0.44
6:D:1267:VAL:HG23	6:D:1268:ASN:OD1	2.16	0.44
7:E:50:ALA:O	7:E:54:ILE:HG13	2.17	0.44
5:C:524:ILE:HD12	5:C:524:ILE:HA	1.84	0.44
6:D:114:ILE:HD11	6:D:311:ARG:HG3	1.99	0.44
8:M:346:CYS:O	8:M:350:GLN:HG3	2.16	0.44
5:C:1161:LEU:HD22	5:C:1164:PHE:HD2	1.82	0.44
6:D:902:ASP:OD1	6:D:902:ASP:N	2.50	0.44
4:A:70:THR:HG21	5:C:755:LYS:HG3	1.98	0.44
5:C:840:SER:O	5:C:1047:LEU:HG	2.17	0.44
4:A:93:GLN:N	4:A:93:GLN:OE1	2.51	0.44
5:C:517:GLN:HG3	5:C:760:ASN:HB2	1.99	0.44
7:E:15:ASN:C	7:E:17:PHE:H	2.20	0.44
4:A:20:SER:OG	4:A:21:SER:N	2.51	0.44
5:C:434:ASP:HA	5:C:437:ASN:OD1	2.18	0.44
6:D:262:THR:HG21	6:D:270:ARG:HH21	1.81	0.44
6:D:398:LYS:HB3	6:D:398:LYS:HE3	1.81	0.44
6:D:1279:GLN:OE1	6:D:1279:GLN:N	2.44	0.44
4:A:260:LEU:HD22	4:A:310:ARG:HD2	2.00	0.44
5:C:694:ARG:HE	5:C:694:ARG:HB2	1.60	0.44
5:C:821:ARG:O	5:C:825:GLU:HG3	2.17	0.44
5:C:949:GLU:O	5:C:953:LEU:HD13	2.17	0.44
5:C:1134:GLN:H	5:C:1134:GLN:HG2	1.54	0.44
6:D:121:PRO:O	6:D:123:ARG:HD2	2.18	0.44
6:D:161:THR:OG1	6:D:162:GLU:N	2.50	0.44
6:D:805:GLN:OE1	6:D:1348:LYS:HG3	2.18	0.44
5:C:386:GLU:O	5:C:391:SER:HB2	2.18	0.44
5:C:1255:THR:O	5:C:1257:GLN:HG3	2.17	0.44
6:D:265:LEU:HD23	6:D:265:LEU:HA	1.83	0.44
6:D:1027:VAL:H	6:D:1120:THR:HG21	1.83	0.44
6:D:300:GLN:NE2	6:D:304:ASP:OD2	2.51	0.43
6:D:349:TYR:HE2	6:D:379:PRO:HG2	1.83	0.43
6:D:392:THR:OG1	6:D:393:THR:N	2.51	0.43
8:M:256:LEU:O	8:M:258:PRO:HD2	2.18	0.43
1:N:-10:DT:H2"	1:N:-9:DC:C6	2.53	0.43
4:A:7:GLU:OE1	4:B:150:ARG:NH2	2.37	0.43
4:B:19:VAL:HB	4:B:23:HIS:HB3	1.99	0.43
5:C:873:ILE:HD13	5:C:873:ILE:HA	1.86	0.43
6:D:253:VAL:HB	6:D:261:ALA:HB3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:929:GLN:HE21	6:D:1246:VAL:HG22	1.83	0.43
8:M:124:LEU:HB3	8:M:145:VAL:HG21	1.99	0.43
4:B:48:LEU:HD13	4:B:183:ILE:HG22	2.00	0.43
5:C:94:ALA:HB2	5:C:129:LEU:HD11	2.00	0.43
5:C:452:ARG:NH1	5:C:584:TYR:O	2.47	0.43
5:C:755:LYS:HD2	5:C:755:LYS:HA	1.69	0.43
5:C:909:LYS:HG3	5:C:911:SER:H	1.83	0.43
6:D:290:ILE:HG13	6:D:291:ILE:N	2.34	0.43
6:D:663:GLU:O	6:D:666:GLU:HG3	2.18	0.43
6:D:1314:LEU:HA	6:D:1322:ALA:HB1	2.00	0.43
5:C:124:MET:HB3	5:C:493:ILE:HD11	2.01	0.43
5:C:148:GLN:O	5:C:453:ILE:HA	2.18	0.43
5:C:629:PHE:HD2	5:C:634:VAL:HG11	1.83	0.43
5:C:1276:TRP:CH2	6:D:798:ARG:HG2	2.46	0.43
6:D:373:ALA:O	6:D:374:LEU:HB3	2.18	0.43
8:M:195:LEU:HD12	8:M:195:LEU:HA	1.71	0.43
5:C:478:ARG:NH1	5:C:491:ASP:HA	2.31	0.43
5:C:916:SER:O	5:C:916:SER:OG	2.35	0.43
5:C:1319:MET:HE3	5:C:1323:PHE:CD2	2.53	0.43
8:M:359:GLU:N	8:M:394:ARG:HH22	2.16	0.43
3:T:-10:DC:H2”	3:T:-9:DA:C8	2.53	0.43
4:A:74:VAL:HG12	4:A:133:LEU:HD23	2.01	0.43
4:A:176:CYS:SG	4:A:177:TYR:N	2.90	0.43
5:C:770:CYS:SG	5:C:791:LEU:HD23	2.58	0.43
6:D:1340:LYS:H	6:D:1340:LYS:HG2	1.63	0.43
4:A:314:LEU:HD12	4:A:315:GLY:N	2.34	0.43
5:C:1292:THR:OG1	5:C:1293:VAL:N	2.51	0.43
6:D:878:ASP:OD1	6:D:878:ASP:N	2.52	0.43
8:M:389:TYR:HD1	8:M:398:GLU:HA	1.84	0.43
5:C:238:GLN:HA	5:C:286:GLU:HA	2.01	0.43
6:D:674:THR:OG1	6:D:675:ALA:N	2.52	0.43
6:D:1034:PHE:HA	6:D:1114:GLN:H	1.84	0.43
4:A:283:GLN:HE21	4:A:318:LEU:H	1.65	0.43
4:B:191:ARG:HB2	4:B:195:ARG:O	2.19	0.43
5:C:1133:LYS:HA	5:C:1133:LYS:HD3	1.81	0.43
6:D:262:THR:HG21	6:D:270:ARG:NH2	2.33	0.43
6:D:885:VAL:HG12	6:D:894:VAL:HG11	2.01	0.43
4:A:125:LYS:HG3	4:A:125:LYS:O	2.19	0.42
6:D:679:TYR:O	6:D:682:VAL:HG12	2.18	0.42
4:B:42:ALA:O	4:B:46:ILE:HG23	2.18	0.42
5:C:28:LEU:HD23	5:C:28:LEU:HA	1.80	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:453:ILE:HD12	5:C:587:LEU:HG	2.01	0.42
5:C:520:PRO:HG3	5:C:714:VAL:HG21	2.01	0.42
5:C:884:VAL:HG11	5:C:1050:VAL:HG11	1.99	0.42
8:M:193:LYS:HG2	8:M:197:ASP:OD2	2.19	0.42
4:A:277:TYR:HB2	4:A:280:ASP:OD2	2.18	0.42
6:D:9:LYS:HA	6:D:12:THR:HG22	2.01	0.42
6:D:113:HIS:CD2	6:D:307:LEU:HD13	2.55	0.42
6:D:653:ILE:HD12	6:D:692:ARG:HE	1.83	0.42
8:M:153:TYR:OH	8:M:258:PRO:O	2.33	0.42
4:A:284:ARG:N	4:A:284:ARG:HD2	2.35	0.42
5:C:184:LEU:HD21	5:C:389:PHE:CE1	2.54	0.42
5:C:1137:GLU:CD	5:C:1139:ALA:H	2.23	0.42
6:D:605:LEU:HD23	6:D:605:LEU:HA	1.80	0.42
1:N:-27:DT:H4'	8:M:472:GLN:HA	2.00	0.42
3:T:12:DT:H2"	3:T:13:DG:N7	2.34	0.42
6:D:61:ILE:HG13	6:D:62:PHE:CD2	2.55	0.42
6:D:112:ALA:CB	6:D:139:LEU:HD21	2.50	0.42
6:D:949:SER:HB2	6:D:1016:THR:HG21	2.01	0.42
3:T:-18:DT:H2"	3:T:-17:DG:C8	2.54	0.42
5:C:99:LYS:HB3	5:C:99:LYS:HE3	1.85	0.42
5:C:1138:VAL:HG12	5:C:1142:ARG:HD2	2.01	0.42
6:D:132:LEU:O	6:D:135:ILE:HG12	2.19	0.42
6:D:452:LEU:HD23	6:D:452:LEU:HA	1.90	0.42
5:C:26:TYR:O	5:C:27:LEU:HB2	2.18	0.42
5:C:478:ARG:HH21	5:C:479:LEU:HD23	1.84	0.42
6:D:426:ALA:HB3	6:D:427:PRO:HD3	2.02	0.42
6:D:603:LYS:HB3	6:D:603:LYS:HE3	1.80	0.42
5:C:30:ILE:HD11	5:C:528:ARG:HA	2.00	0.42
5:C:208:ILE:HG13	5:C:209:ILE:N	2.35	0.42
5:C:447:HIS:HA	5:C:551:HIS:CE1	2.55	0.42
5:C:657:THR:OG1	5:C:1187:PHE:HB2	2.20	0.42
6:D:422:LEU:HD13	6:D:434:ILE:HD11	2.00	0.42
5:C:967:LEU:HD23	5:C:967:LEU:HA	1.92	0.42
5:C:1333:LEU:HD23	6:D:307:LEU:HD22	2.01	0.42
6:D:58:CYS:SG	6:D:60:ARG:N	2.93	0.42
4:B:209:GLY:C	4:B:211:ILE:H	2.23	0.41
5:C:210:LEU:O	5:C:215:TYR:HB2	2.20	0.41
5:C:819:SER:HB2	5:C:1085:MET:HG3	2.00	0.41
6:D:215:LYS:H	6:D:215:LYS:HG3	1.72	0.41
6:D:263:SER:OG	6:D:266:ASN:ND2	2.53	0.41
6:D:450:HIS:CE1	6:D:452:LEU:HB2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:697:MET:SD	6:D:741:ALA:HB3	2.60	0.41
6:D:985:ILE:HG23	6:D:988:PHE:O	2.20	0.41
1:N:4:DT:O2	1:N:4:DT:H5"	2.20	0.41
4:B:58:GLU:CB	4:B:145:LYS:HG2	2.50	0.41
5:C:1257:GLN:NE2	6:D:340:GLN:O	2.49	0.41
6:D:185:ILE:O	6:D:189:LEU:HB2	2.20	0.41
7:E:51:LEU:HD23	7:E:51:LEU:HA	1.91	0.41
5:C:188:PHE:HE1	5:C:436:ARG:HB2	1.84	0.41
6:D:166:LEU:HA	6:D:169:LEU:HG	2.02	0.41
6:D:239:LEU:HD23	6:D:239:LEU:H	1.84	0.41
6:D:324:LEU:HD23	6:D:324:LEU:HA	1.91	0.41
6:D:422:LEU:HA	6:D:436:ALA:HA	2.02	0.41
4:B:100:LEU:HD21	4:B:121:VAL:HG11	2.02	0.41
4:B:128:HIS:ND1	4:B:128:HIS:C	2.74	0.41
5:C:73:TYR:HB2	5:C:98:VAL:HG12	2.02	0.41
5:C:678:ARG:HA	5:C:678:ARG:HD2	1.79	0.41
5:C:896:THR:OG1	5:C:899:GLU:HG2	2.21	0.41
5:C:1294:LYS:HE3	6:D:472:LEU:HD22	2.01	0.41
6:D:34:SER:OG	6:D:36:GLY:O	2.37	0.41
4:A:52:PRO:HB3	4:B:5:VAL:HG21	2.02	0.41
4:B:79:LEU:HD12	4:B:79:LEU:HA	1.88	0.41
6:D:576:ARG:HD3	6:D:593:ASN:HA	2.01	0.41
6:D:1143:ASP:OD1	6:D:1148:ARG:HD2	2.21	0.41
4:A:279:GLY:HA3	4:A:321:TRP:CH2	2.55	0.41
5:C:177:ILE:HG23	5:C:183:TRP:CD1	2.56	0.41
8:M:365:MET:H	8:M:365:MET:CE	2.34	0.41
8:M:389:TYR:CD1	8:M:398:GLU:HA	2.55	0.41
1:N:-14:DG:H1'	1:N:-13:DC:H5'	2.02	0.41
3:T:2:DA:H5"	3:T:2:DA:H8	1.84	0.41
5:C:143:ARG:NH1	5:C:507:GLY:O	2.54	0.41
5:C:600:THR:OG1	5:C:601:ASP:N	2.52	0.41
5:C:848:GLU:OE1	5:C:886:LYS:HD2	2.21	0.41
5:C:900:LYS:N	5:C:900:LYS:HD3	2.36	0.41
5:C:1142:ARG:NH2	5:C:1161:LEU:O	2.47	0.41
6:D:615:LYS:N	6:D:616:PRO:HD2	2.36	0.41
7:E:30:MET:HB2	7:E:30:MET:HE2	1.77	0.41
8:M:455:ARG:NH1	8:M:456:ARG:HA	2.36	0.41
5:C:322:LEU:O	5:C:325:LEU:HG	2.21	0.41
5:C:791:LEU:HD23	5:C:791:LEU:HA	1.95	0.41
6:D:823:THR:OG1	6:D:824:PRO:HD2	2.21	0.41
4:A:67:GLU:HG2	4:A:171:LEU:HD22	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:233:ASP:OD1	4:A:233:ASP:O	2.39	0.41
4:B:95:LYS:HB3	4:B:95:LYS:NZ	2.36	0.41
4:B:112:ALA:HB1	4:B:123:ILE:HD11	2.03	0.41
4:B:190:ALA:O	4:B:198:LEU:CB	2.56	0.41
5:C:446:ASP:O	5:C:446:ASP:OD1	2.38	0.41
6:D:8:LEU:HD12	6:D:8:LEU:O	2.21	0.41
6:D:146:VAL:HA	6:D:178:ALA:HA	2.03	0.41
4:B:65:LEU:HD12	4:B:65:LEU:HA	1.88	0.41
4:B:86:LYS:HE3	4:B:174:ASP:HB2	2.02	0.41
5:C:696:ASP:O	5:C:795:ALA:HB1	2.21	0.41
5:C:1007:LYS:HA	5:C:1011:LEU:HD12	2.03	0.41
5:C:1100:PRO:HB2	6:D:725:MET:HE1	2.02	0.41
1:N:17:DC:H2"	1:N:18:DA:C8	2.56	0.40
3:T:0:DG:H2"	3:T:1:DC:H5'	2.03	0.40
5:C:37:LYS:HB2	5:C:37:LYS:HE3	1.74	0.40
6:D:954:ASN:OD1	6:D:954:ASN:N	2.54	0.40
6:D:1150:PRO:HD2	6:D:1216:ALA:HB2	2.03	0.40
5:C:594:VAL:HG22	5:C:599:VAL:HG22	2.03	0.40
3:T:7:DG:N2	6:D:319:SER:OG	2.54	0.40
4:A:79:LEU:O	4:A:83:LEU:HG	2.21	0.40
4:B:190:ALA:HB2	4:B:200:LYS:HB2	2.03	0.40
5:C:30:ILE:HD13	5:C:575:LEU:HD11	2.04	0.40
5:C:516:ASP:HB2	5:C:522:SER:OG	2.22	0.40
5:C:720:ARG:O	5:C:736:VAL:HG22	2.21	0.40
5:C:1117:LEU:HD12	5:C:1117:LEU:HA	1.69	0.40
5:C:1333:LEU:HD23	6:D:327:LEU:HD23	2.04	0.40
4:A:150:ARG:HD2	4:B:8:PHE:CZ	2.57	0.40
5:C:209:ILE:O	5:C:213:LEU:HD23	2.21	0.40
5:C:556:GLY:O	5:C:589:THR:OG1	2.38	0.40
5:C:1025:PHE:HA	5:C:1028:LYS:CE	2.51	0.40
5:C:1142:ARG:NH2	5:C:1164:PHE:O	2.54	0.40
6:D:255:LEU:HD11	6:D:261:ALA:HB2	2.02	0.40
6:D:661:VAL:HA	6:D:664:ILE:HG22	2.03	0.40
6:D:715:LYS:HB2	6:D:715:LYS:HE2	1.75	0.40
6:D:984:LEU:HD13	6:D:993:GLU:HB2	2.03	0.40
4:B:108:GLY:HA2	4:B:109:PRO:HD3	1.97	0.40
5:C:818:VAL:HG22	5:C:1096:ILE:HD13	2.03	0.40
6:D:58:CYS:SG	6:D:61:ILE:HG12	2.61	0.40
6:D:475:GLU:OE2	7:E:28:ARG:NH2	2.41	0.40
8:M:269:PRO:HA	8:M:271:TYR:CE1	2.57	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	
4	A	304/321 (95%)	284 (93%)	20 (7%)	0	100	100
4	B	233/321 (73%)	215 (92%)	18 (8%)	0	100	100
5	C	1339/1341 (100%)	1261 (94%)	78 (6%)	0	100	100
6	D	1318/1373 (96%)	1220 (93%)	97 (7%)	1 (0%)	51	82
7	E	72/74 (97%)	66 (92%)	6 (8%)	0	100	100
8	M	346/350 (99%)	324 (94%)	22 (6%)	0	100	100
All	All	3612/3780 (96%)	3370 (93%)	241 (7%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	D	317	THR

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	
4	A	259/280 (92%)	255 (98%)	4 (2%)	65	82
4	B	183/280 (65%)	177 (97%)	6 (3%)	38	66
5	C	1038/1156 (90%)	1006 (97%)	32 (3%)	40	68
6	D	942/1145 (82%)	910 (97%)	32 (3%)	37	65
7	E	53/64 (83%)	53 (100%)	0	100	100
8	M	133/309 (43%)	129 (97%)	4 (3%)	41	68

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	2608/3234 (81%)	2530 (97%)	78 (3%)	44 68

All (78) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	A	21	SER
4	A	131	CYS
4	A	249	PHE
4	A	313	SER
4	B	4	SER
4	B	21	SER
4	B	120	ASP
4	B	128	HIS
4	B	141	SER
4	B	199	ASP
5	C	14	ASP
5	C	47	TYR
5	C	62	TYR
5	C	83	GLN
5	C	132	ASP
5	C	171	LEU
5	C	183	TRP
5	C	359	ARG
5	C	390	PHE
5	C	405	PHE
5	C	484	LEU
5	C	549	ASP
5	C	613	ASN
5	C	646	SER
5	C	677	ASN
5	C	685	MET
5	C	697	LYS
5	C	739	ASP
5	C	741	MET
5	C	749	ASP
5	C	819	SER
5	C	826	ASP
5	C	842	ASP
5	C	881	ASP
5	C	1018	TYR
5	C	1059	ARG
5	C	1105	SER

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Mol	Chain	Res	Type
5	C	1165	SER
5	C	1240	ASP
5	C	1243	MET
5	C	1265	PHE
5	C	1273	MET
6	D	18	ASP
6	D	21	LYS
6	D	31	ARG
6	D	54	ASP
6	D	58	CYS
6	D	70	CYS
6	D	77	ARG
6	D	109	SER
6	D	122	SER
6	D	192	MET
6	D	229	GLN
6	D	248	ASP
6	D	264	ASP
6	D	281	ARG
6	D	298	MET
6	D	329	ASP
6	D	350	SER
6	D	353	SER
6	D	366	CYS
6	D	400	MET
6	D	472	LEU
6	D	488	ASN
6	D	625	MET
6	D	651	HIS
6	D	694	SER
6	D	837	ASP
6	D	891	ASP
6	D	1149	ARG
6	D	1268	ASN
6	D	1271	SER
6	D	1301	THR
6	D	1321	SER
8	M	184	ARG
8	M	271	TYR
8	M	365	MET
8	M	390	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such

sidechains are listed below:

Mol	Chain	Res	Type
5	C	551	HIS
6	D	1249	ASN
6	D	1259	GLN
8	M	387	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	R	5/6 (83%)	0	0

There are no RNA backbone outliers to report.

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	N	1
8	M	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	N	-8:DG	O3'	2:DT	P	24.94
1	M	292:ASP	C	323:LEU	N	22.08

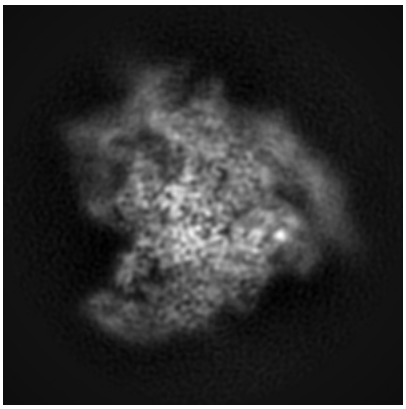
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-19081. These allow visual inspection of the internal detail of the map and identification of artifacts.

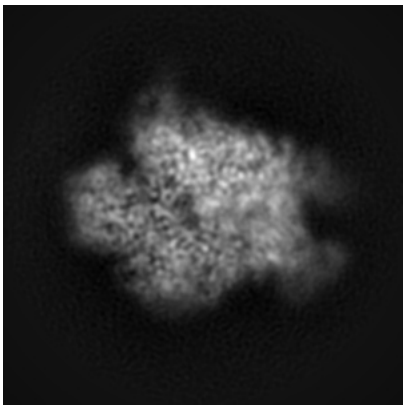
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

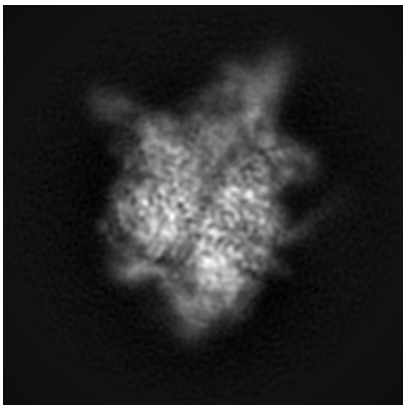
6.1.1 Primary map



X

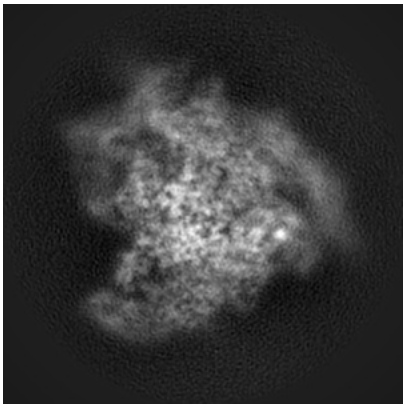


Y

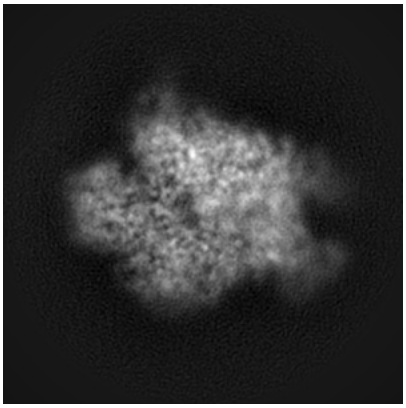


Z

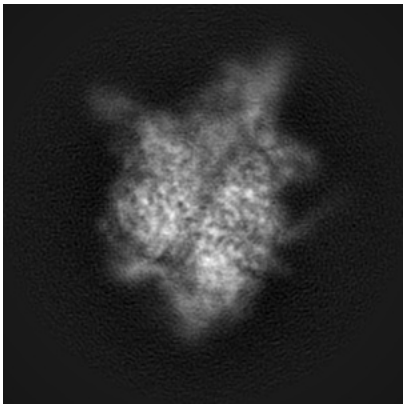
6.1.2 Raw map



X



Y

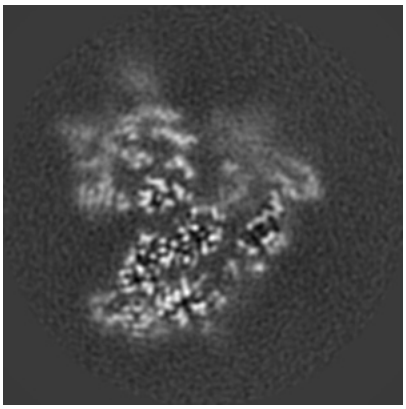


Z

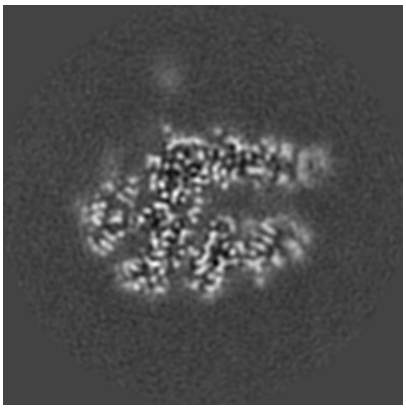
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

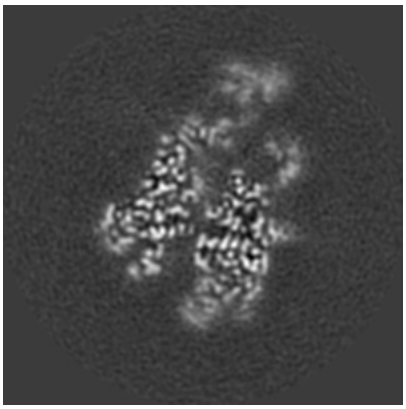
6.2.1 Primary map



X Index: 100

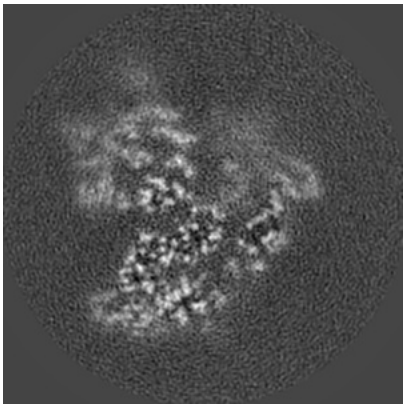


Y Index: 100

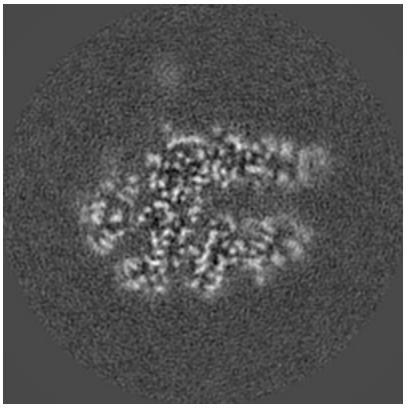


Z Index: 100

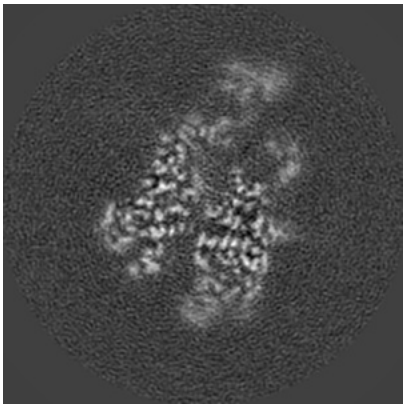
6.2.2 Raw map



X Index: 100



Y Index: 100

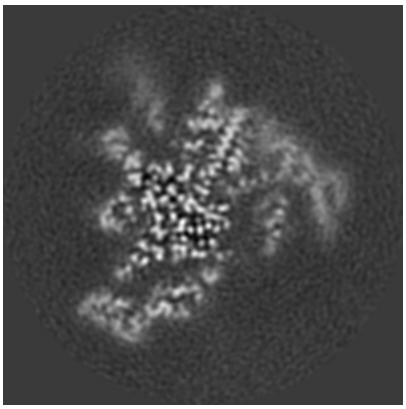


Z Index: 100

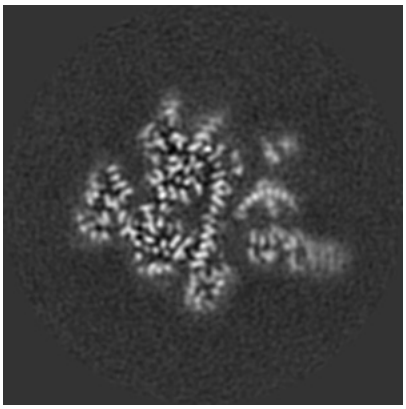
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

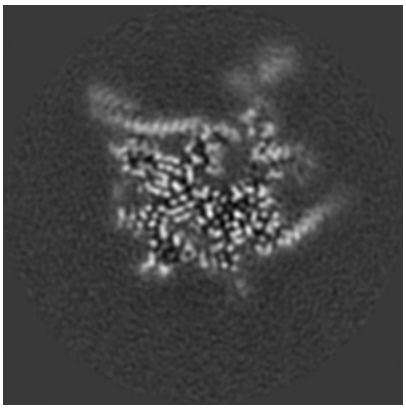
6.3.1 Primary map



X Index: 113

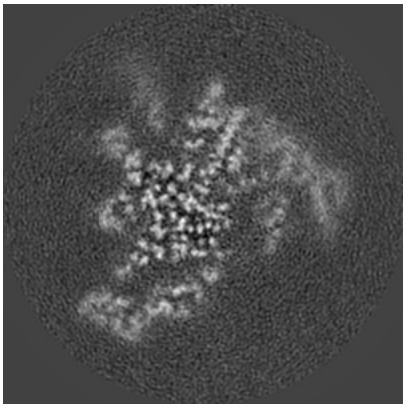


Y Index: 86

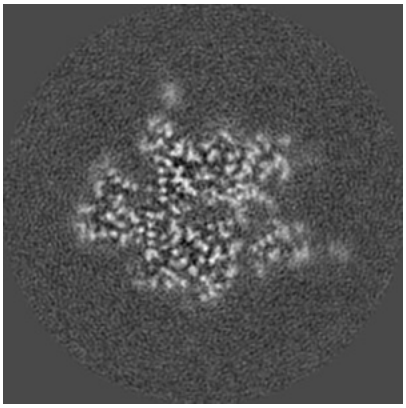


Z Index: 84

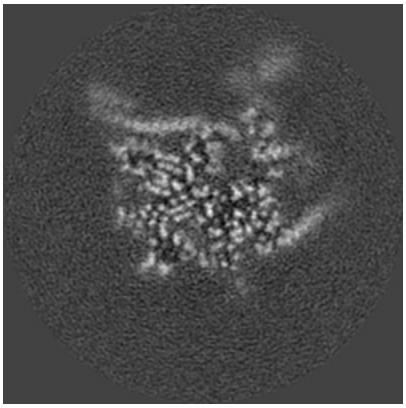
6.3.2 Raw map



X Index: 113



Y Index: 93

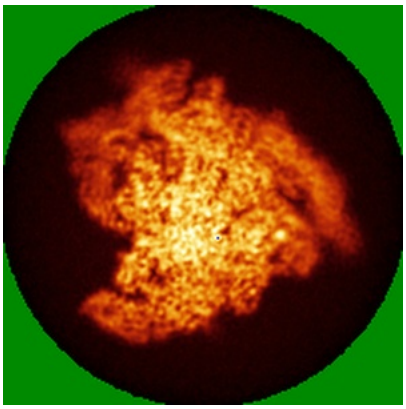


Z Index: 84

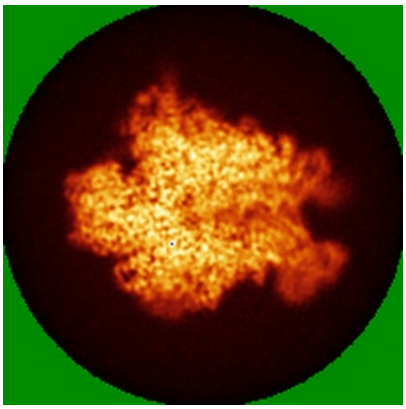
The images above show the largest variance slices of the map in three orthogonal directions.

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

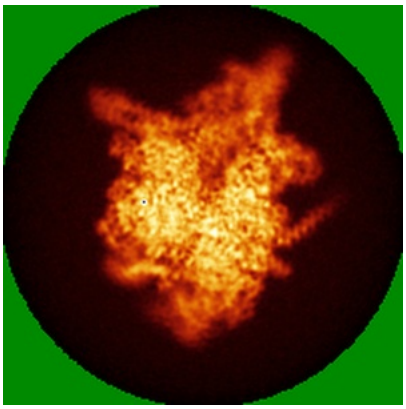
6.4.1 Primary map



X

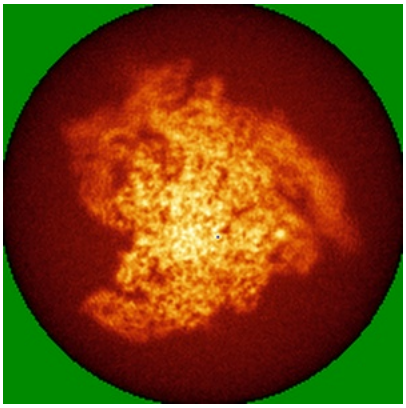


Y

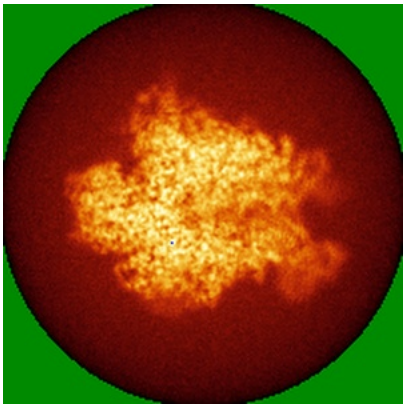


Z

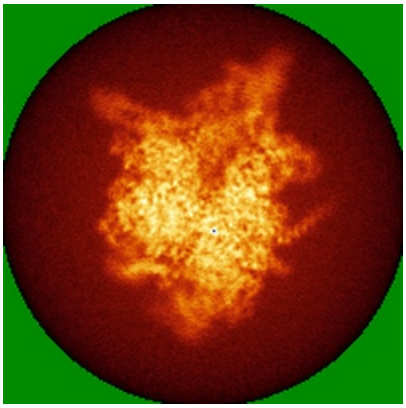
6.4.2 Raw map



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 0.0067. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

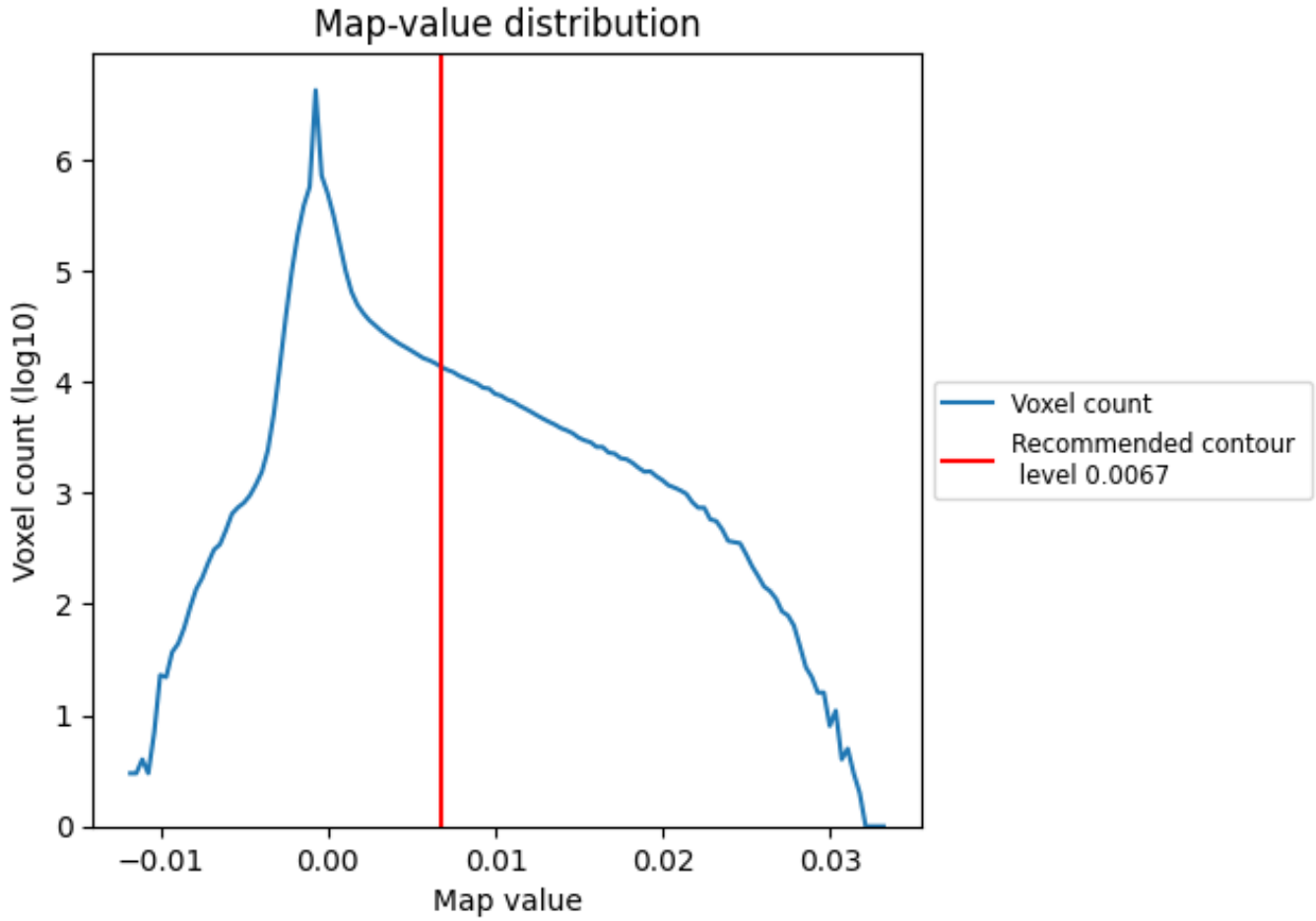
6.6 Mask visualisation (i)

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

7 Map analysis

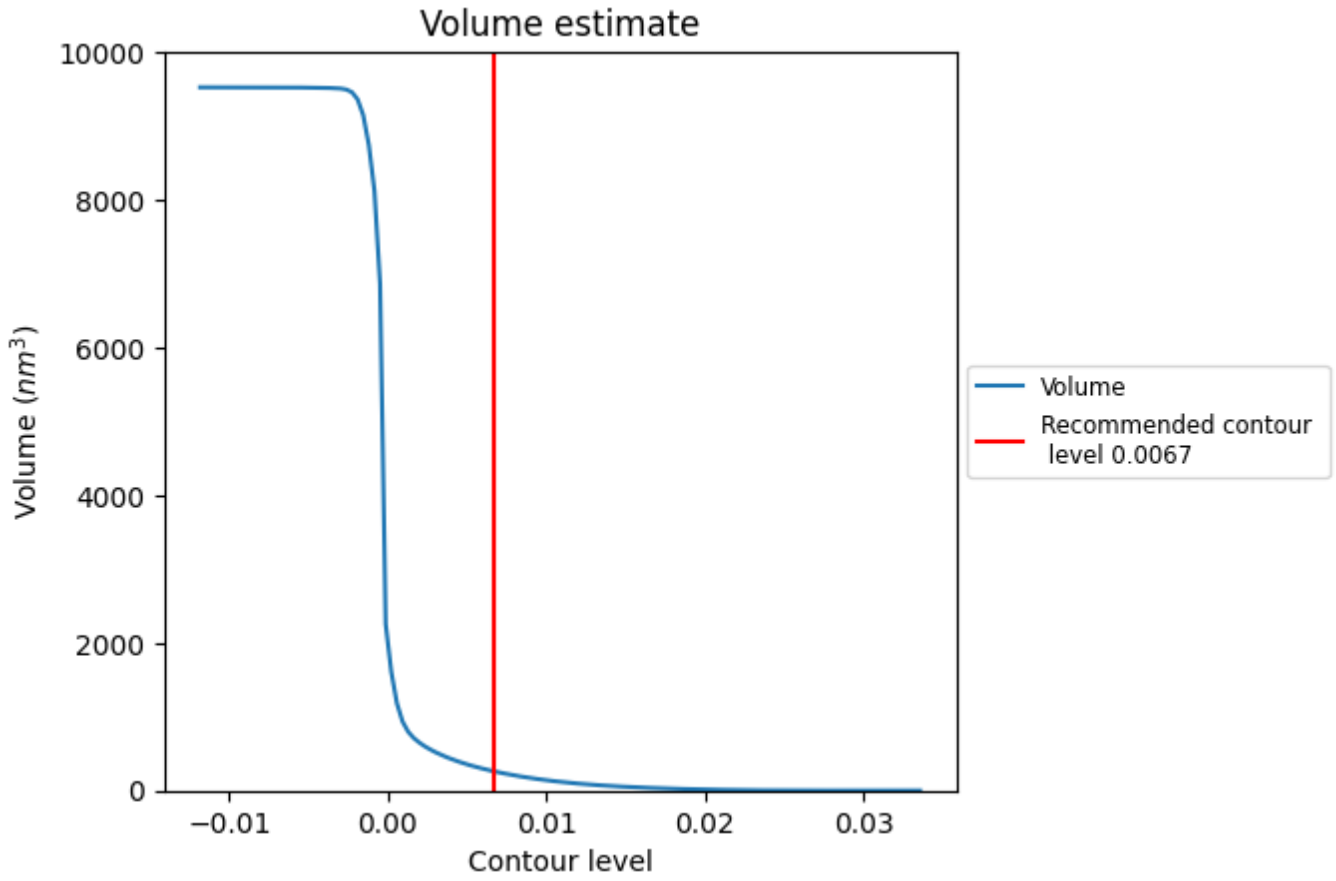
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

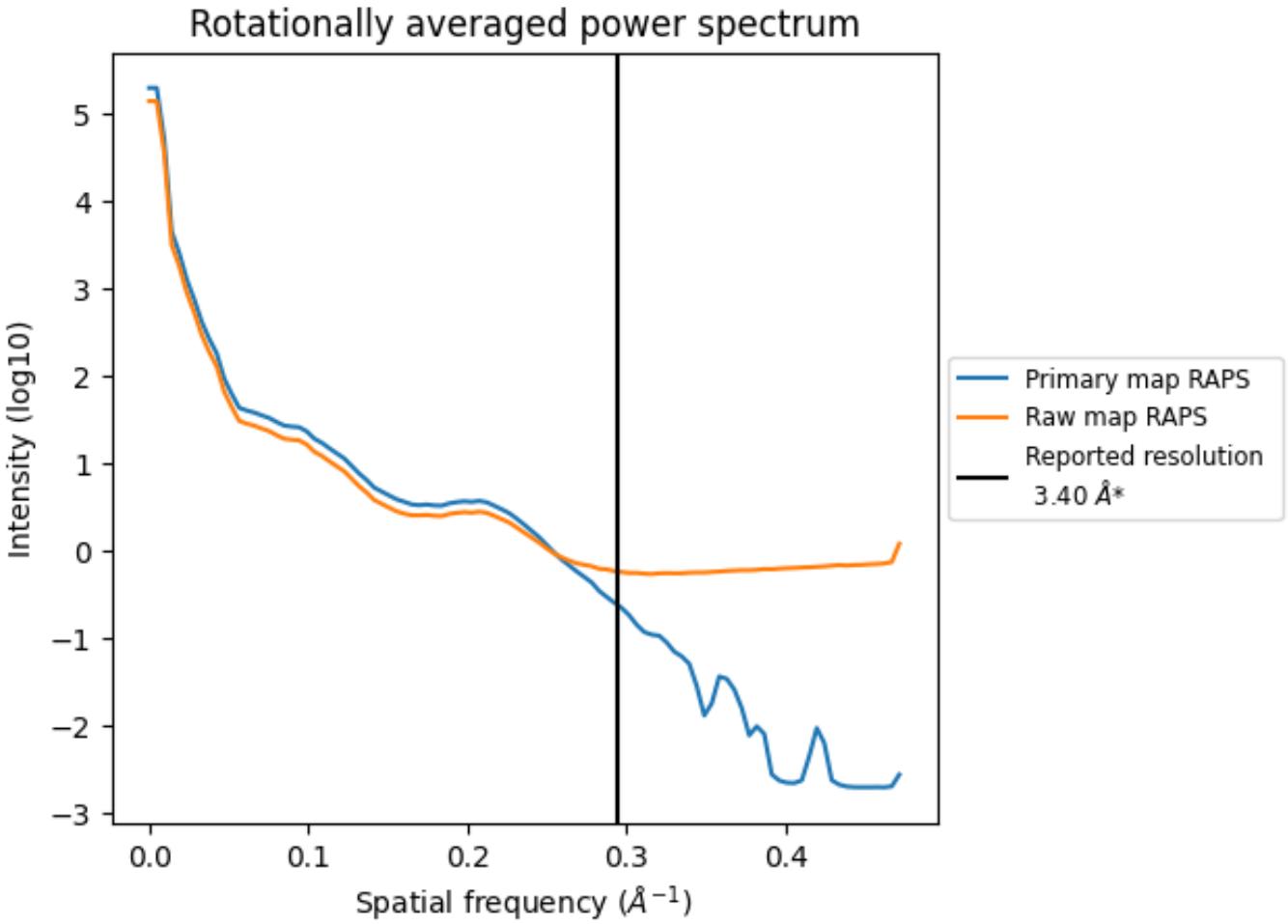
7.2 Volume estimate



The volume at the recommended contour level is 261 nm^3; this corresponds to an approximate mass of 235 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)

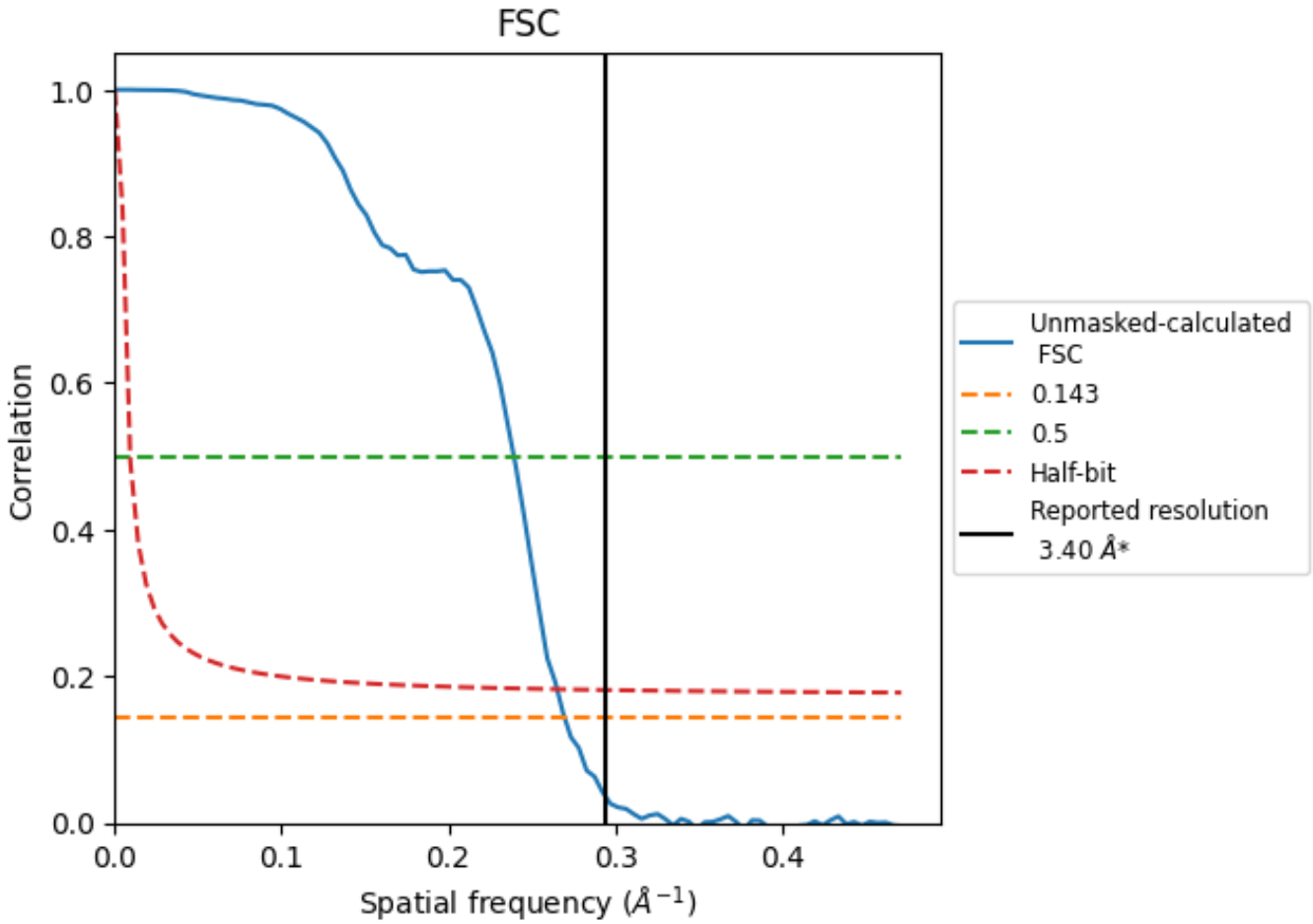


*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8.2 Resolution estimates (i)

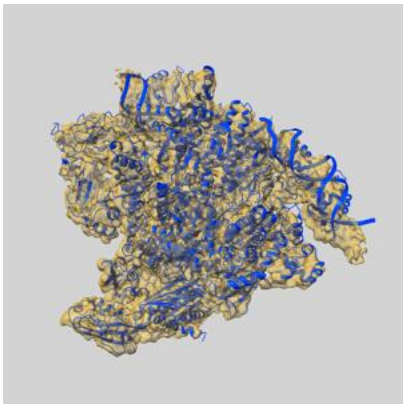
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.71	4.18	3.77

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

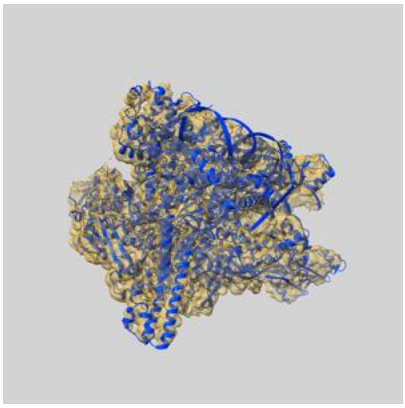
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-19081 and PDB model 8REB. Per-residue inclusion information can be found in section 3 on page 6.

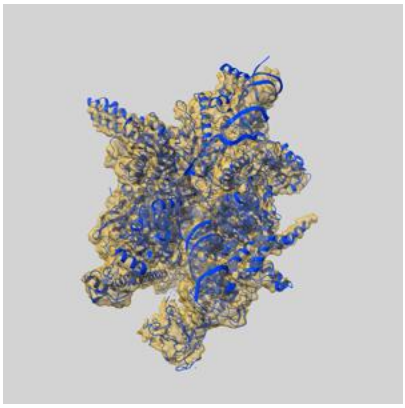
9.1 Map-model overlay



X



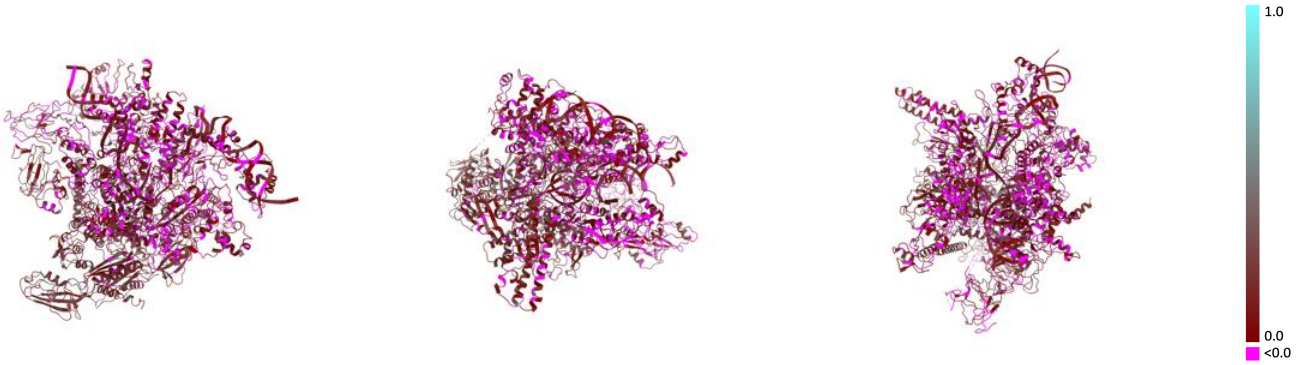
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0067 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

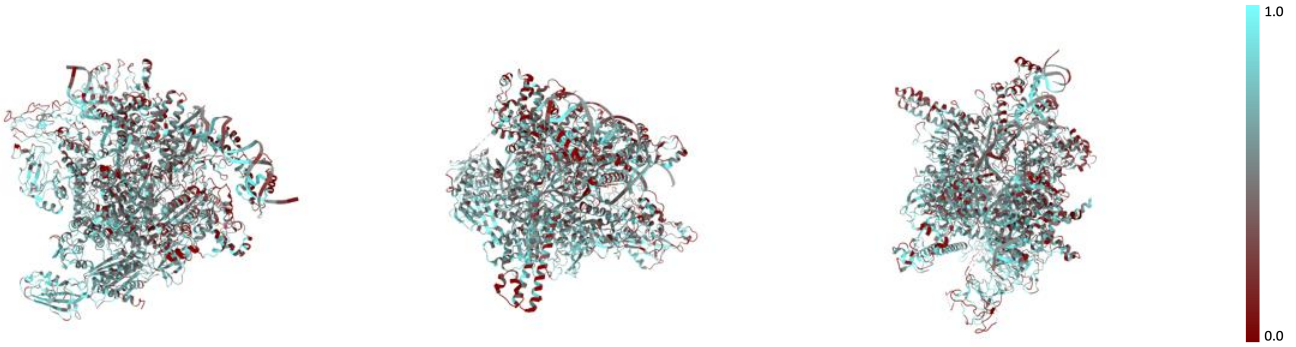
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

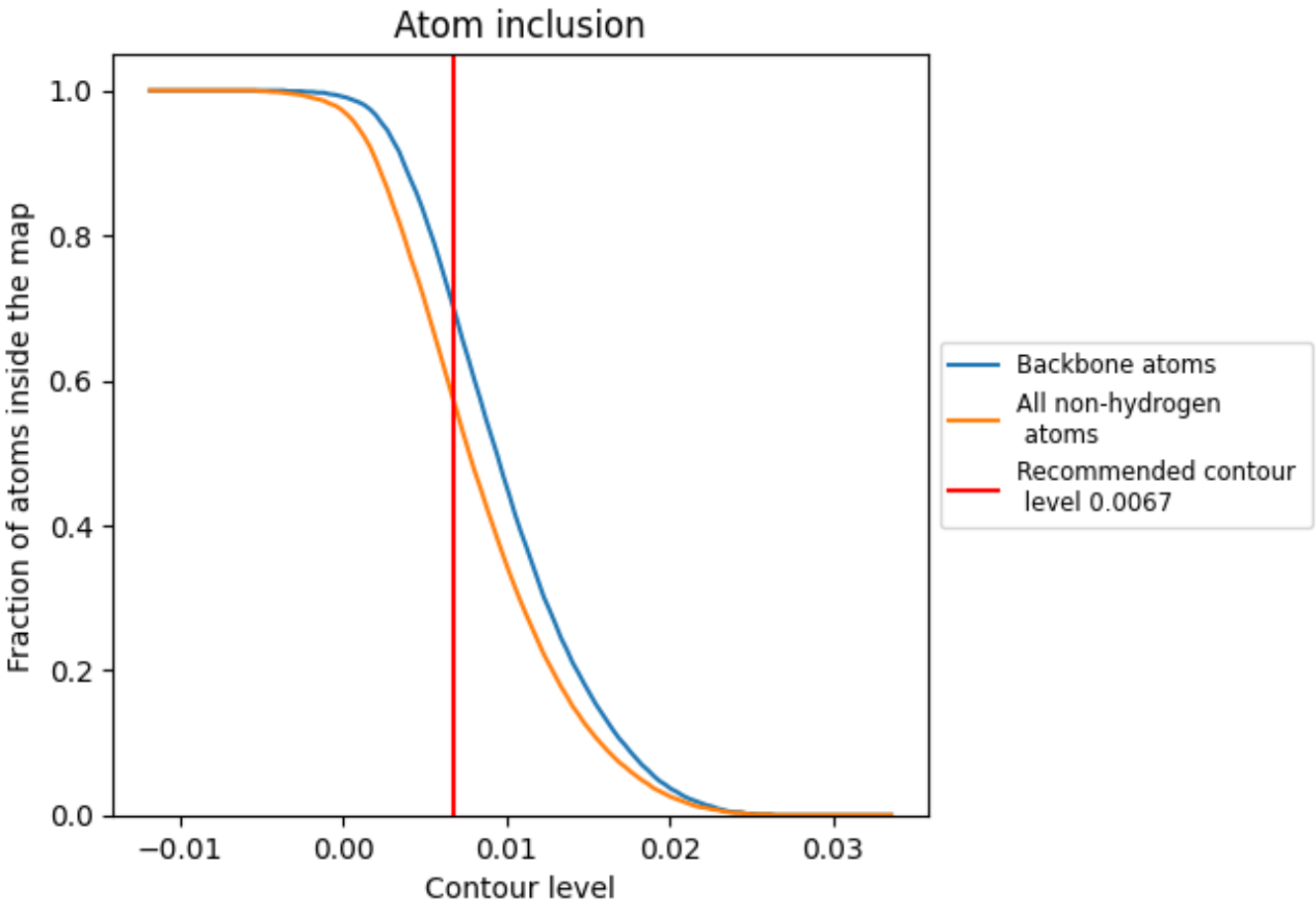
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0067).

9.4 Atom inclusion (i)



At the recommended contour level, 70% of all backbone atoms, 58% 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 (0.0067) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5760	0.1080
A	0.5830	0.1490
B	0.6630	0.2110
C	0.5720	0.0980
D	0.5760	0.1030
E	0.6300	0.1060
M	0.4770	0.0570
N	0.6390	0.1020
R	0.6430	0.1140
T	0.5860	0.0950