Full wwPDB EM Validation Report ⓘ

Oct 29, 2024 – 08:23 PM JST

PDB ID	:	8YQV
EMDB ID	:	EMD-39507
Title	:	African swine fever virus RNA Polymerase core
Authors	:	Feng, X.Y.
Deposited on	:	2024-03-20
Resolution	:	2.67 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:

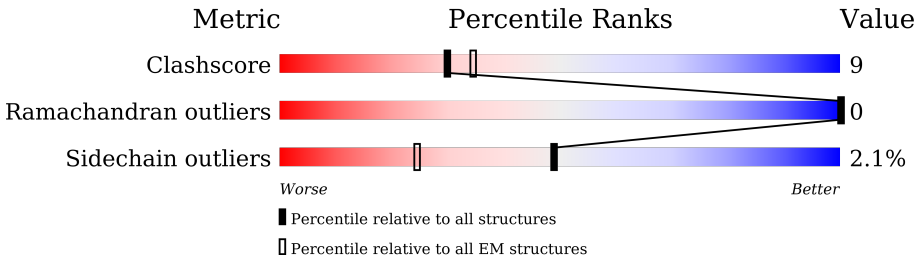
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.67 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

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	A	1450	20% 75% 19% • 5%
2	E	147	6% 55% 16% • 28%
3	B	1242	45% 69% 26% •
4	C	359	• 84% 15% ••
5	D	205	18% 72% 27% •
6	H	80	14% 72% 26% •
7	G	105	10% 40% 16% 44%
8	F	339	80% 74% 24% •

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 29637 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 DNA-directed RNA polymerase subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1375	10954	6958	1906	2030	60	0	0

- Molecule 2 is a protein called C147L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	106	829	528	143	153	5	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	1196	9459	5983	1653	1773	50	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase RPB3-11 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	357	2897	1880	480	525	12	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerase RPB5 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	205	1668	1088	278	294	8	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerase RPB10 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	H	80	630	411	102	110	7	0	0

- Molecule 7 is a protein called C122R.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	59	Total	C	N	O	S	0	0
			468	295	80	85	8		

- Molecule 8 is a protein called D339L.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F	339	Total	C	N	O	S	0	0
			2727	1753	451	509	14		

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

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

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

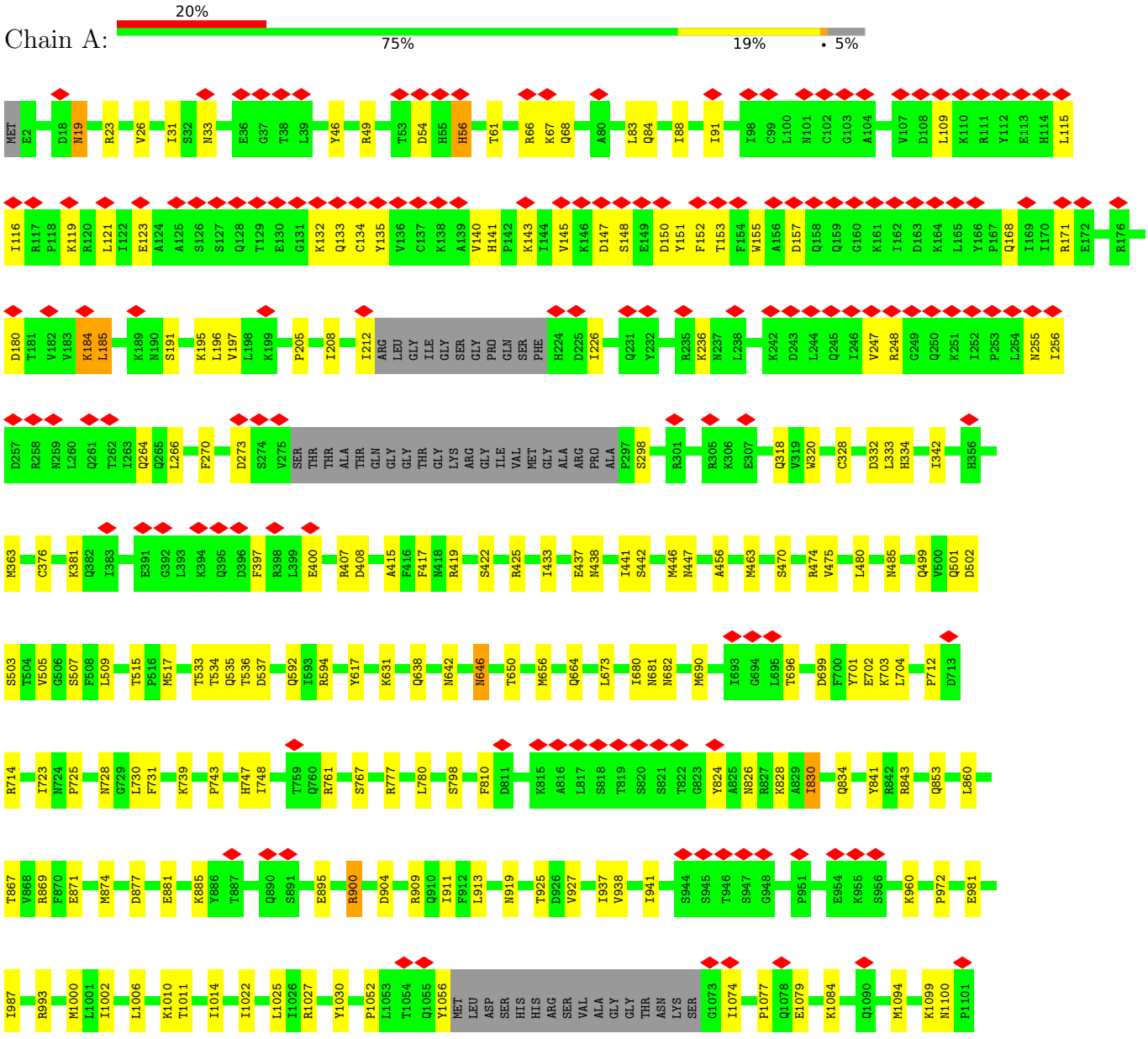
Mol	Chain	Residues	Atoms		AltConf
10	A	1	Total	Zn	0
			1	1	
10	B	1	Total	Zn	0
			1	1	
10	H	1	Total	Zn	0
			1	1	
10	G	1	Total	Zn	0
			1	1	

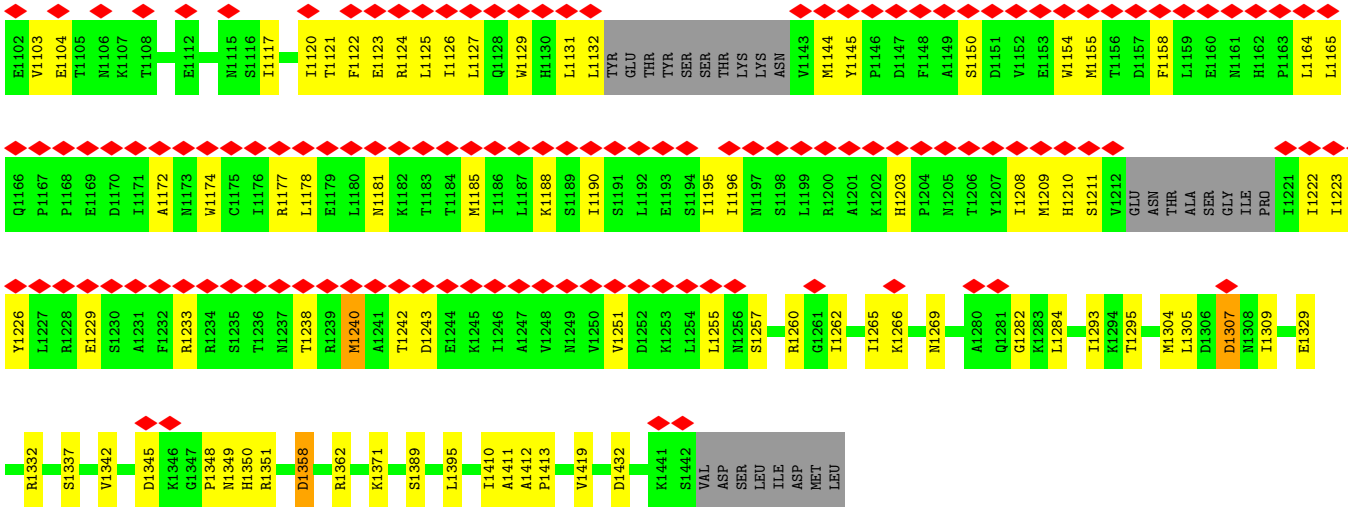
3 Residue-property plots (i)

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-directed RNA polymerase subunit

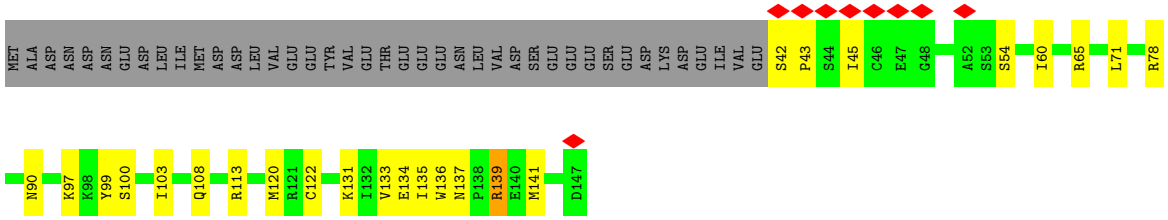
Chain A:





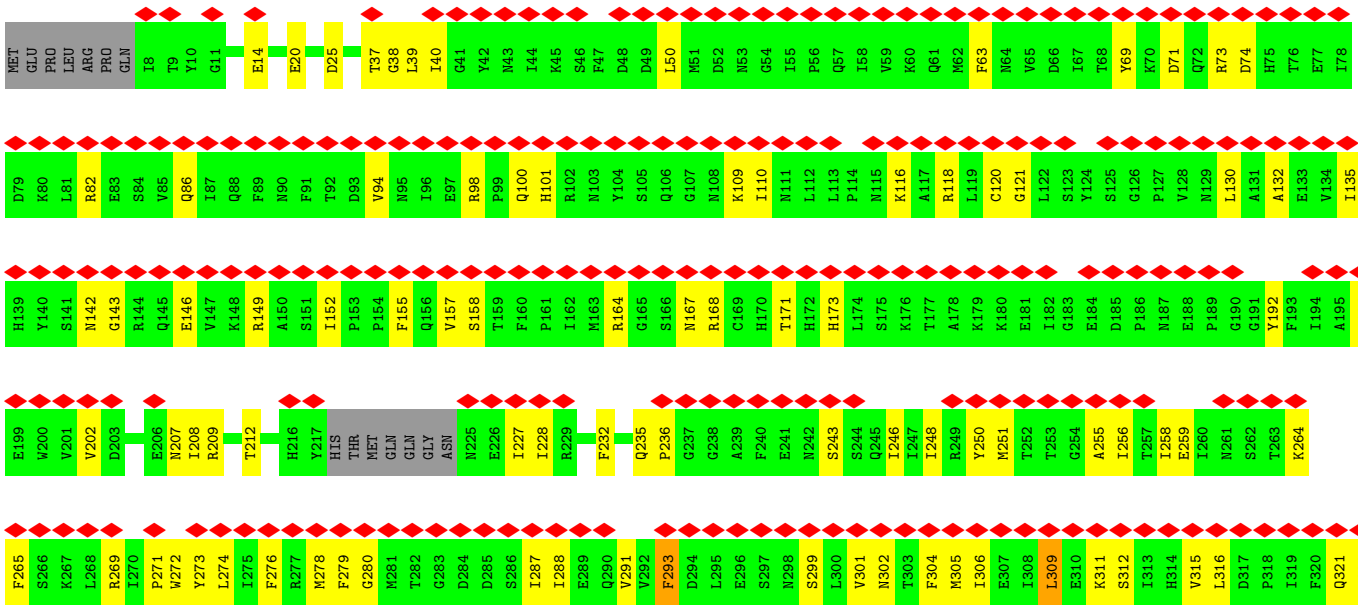
• Molecule 2: C147L

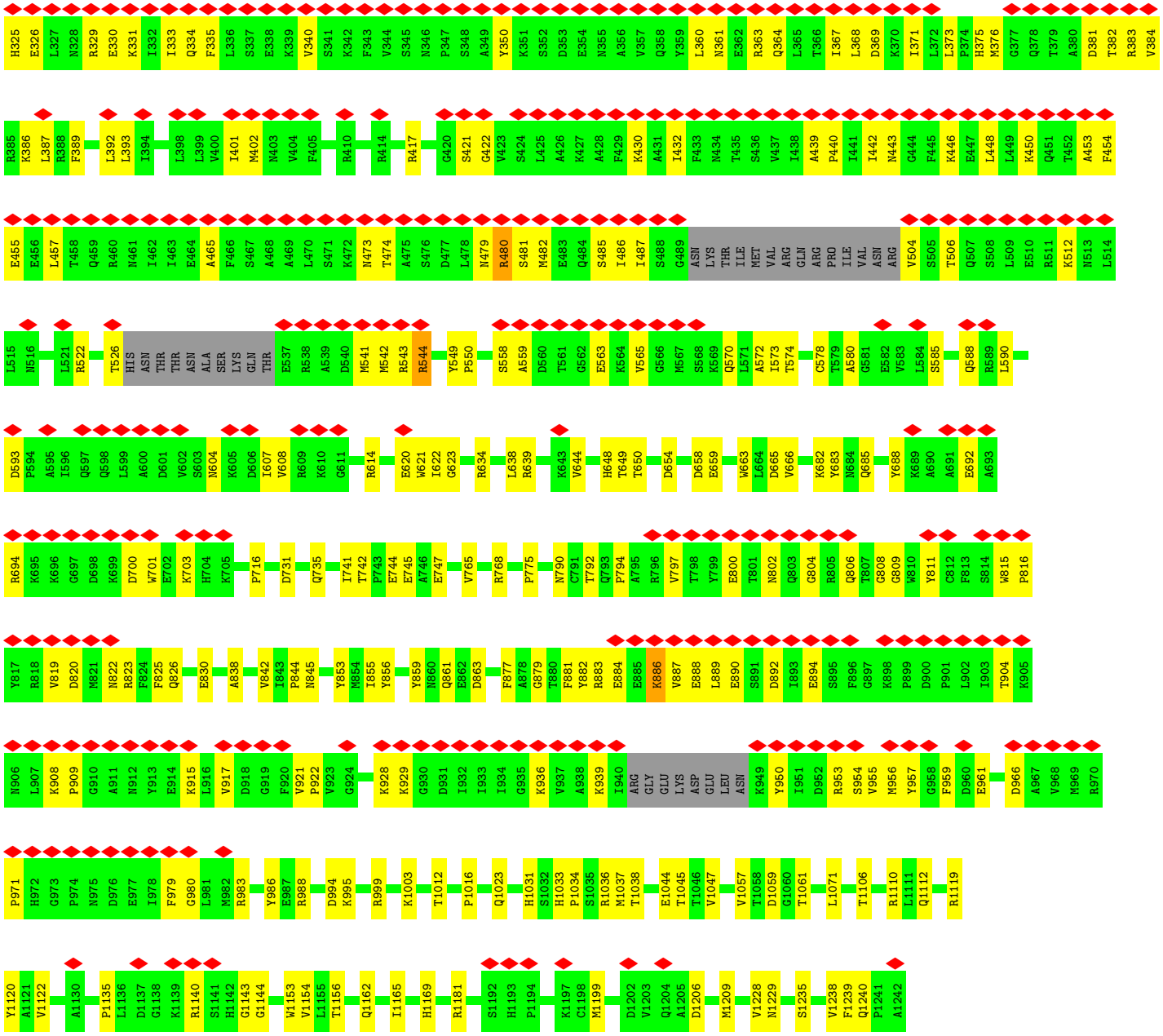
Chain E:



• Molecule 3: DNA-directed RNA polymerase subunit beta

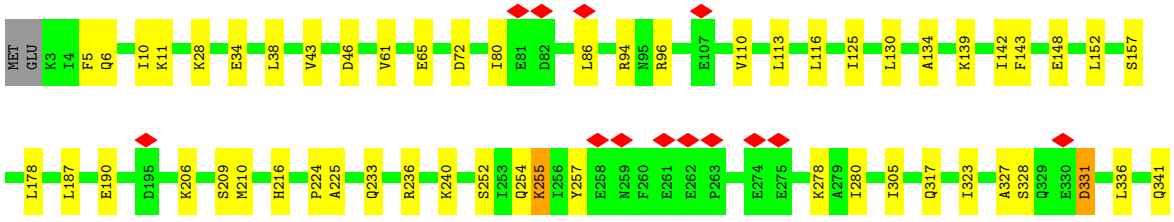
Chain B:

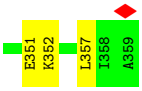




• Molecule 4: DNA-directed RNA polymerase RPB3-11 homolog

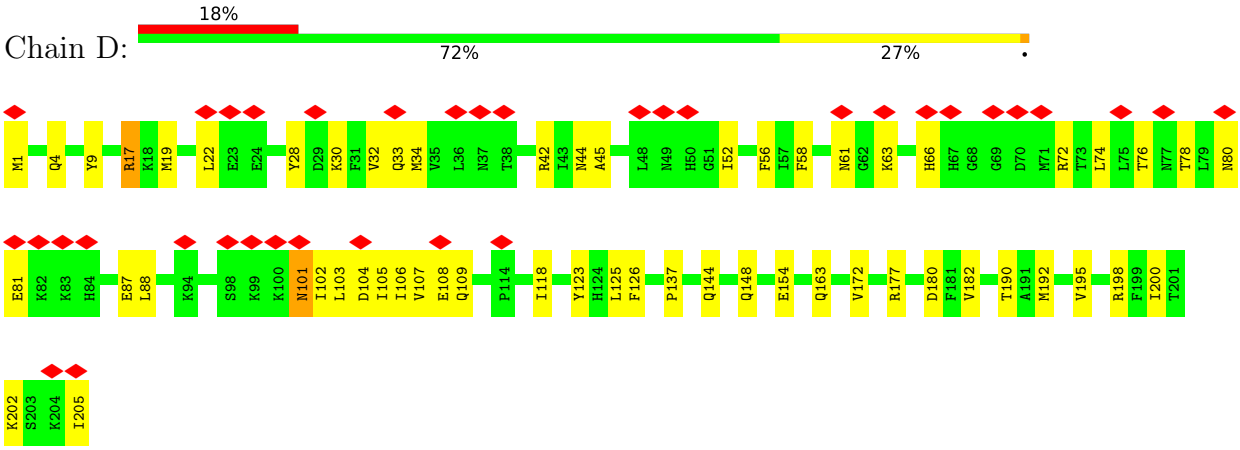
Chain C:





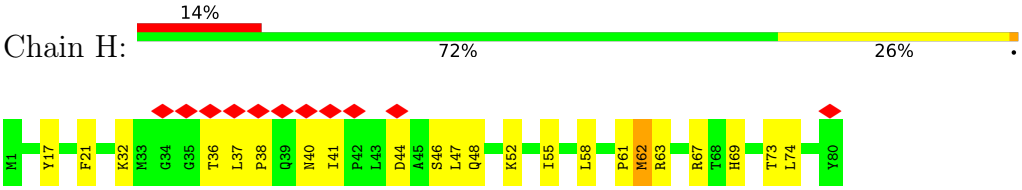
• Molecule 5: DNA-directed RNA polymerase RPB5 homolog

Chain D:



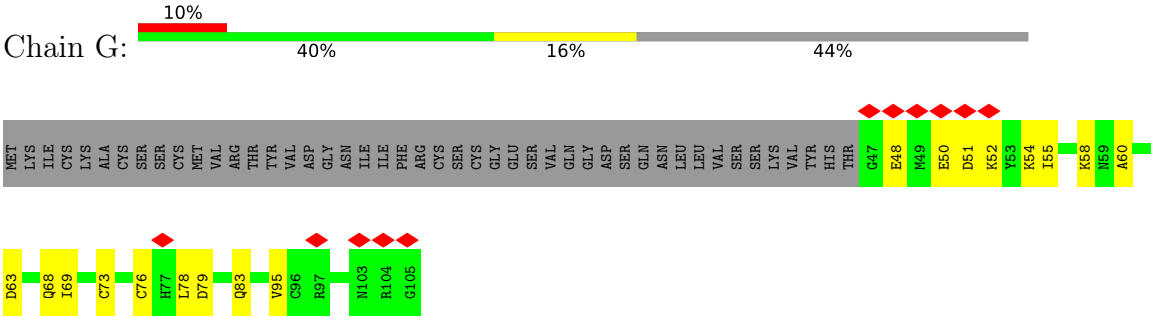
• Molecule 6: DNA-directed RNA polymerase RPB10 homolog

Chain H:



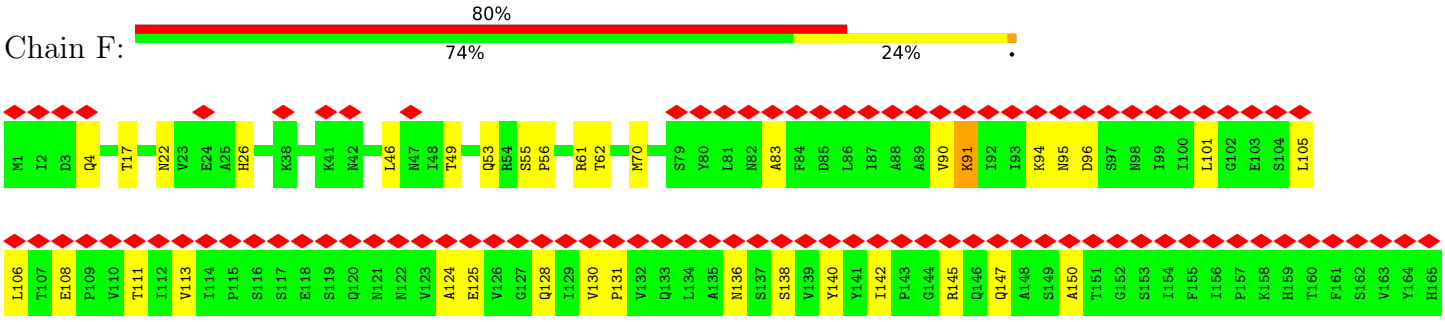
• Molecule 7: C122R

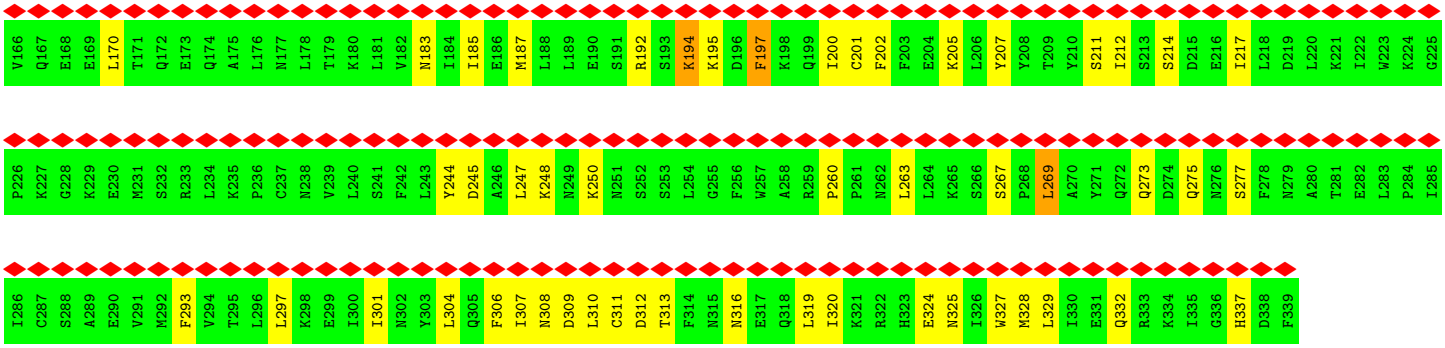
Chain G:



• Molecule 8: D339L

Chain F:




V166 Q167 E168 E169 L170 T171 Q172 E173 Q174 A175 L176 N177 L178 T179 K180 L181 V182 N183 I184 I185 E186 M187 L188 L189 E190 S191 R192 S193 K194 K195 D196 F197 K198 Q199 I200 C201 F202 F203 E204 K205 L206 Y207 Y208 T209 Y210 S211 I212 S213 S214 D215 E216 I217 L218 D219 L220 K221 I222 W223 K224 G225
P226 K227 G228 K229 E230 M231 S232 R233 L234 K235 P236 C237 N238 V239 L240 S241 F242 L243 Y244 D245 A246 L247 K248 N249 K250 N251 S252 S253 L254 G255 F256 W257 A258 R259 P260 P261 N262 L263 L264 K265 S266 S267 P268 L269 A270 Y271 Q272 Q273 D274 Q275 N276 S277 F278 N279 A280 T281 E282 L283 P284 I285
I286 C287 S288 A289 E290 V291 M292 F293 V294 T295 L296 L297 K298 E299 I300 I301 N302 Y303 L304 Q305 F306 I307 N308 D309 L310 C311 D312 T313 F314 N315 N316 E317 Q318 L319 I320 K321 R322 H323 E324 N325 I326 W327 M328 L329 I330 E331 Q332 R333 K334 I335 G336 H337 D338 F339

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	354548	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	1.25	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	3.260	Depositor
Minimum map value	-1.946	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.095	Depositor
Recommended contour level	0.488	Depositor
Map size (Å)	290.88, 290.88, 290.88	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.808, 0.808, 0.808	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.36	0/11163	0.52	2/15116 (0.0%)
2	E	0.35	0/841	0.54	0/1139
3	B	0.34	0/9648	0.52	1/13055 (0.0%)
4	C	0.38	0/2959	0.50	0/4000
5	D	0.36	0/1707	0.52	0/2311
6	H	0.41	0/643	0.56	0/872
7	G	0.32	0/476	0.53	0/638
8	F	0.28	0/2782	0.48	0/3767
All	All	0.35	0/30219	0.52	3/40898 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	185	LEU	CA-CB-CG	8.20	134.16	115.30
3	B	741	ILE	C-N-CA	5.42	135.25	121.70
1	A	121	LEU	CA-CB-CG	5.34	127.58	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	10954	0	11085	177	0
2	E	829	0	877	21	0
3	B	9459	0	9413	217	0
4	C	2897	0	2976	33	0
5	D	1668	0	1713	42	0
6	H	630	0	659	13	0
7	G	468	0	467	11	0
8	F	2727	0	2755	62	0
9	A	1	0	0	0	0
10	A	1	0	0	0	0
10	B	1	0	0	0	0
10	G	1	0	0	0	0
10	H	1	0	0	0	0
All	All	29637	0	29945	529	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 9.

All (529) 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)
1:A:1123:GLU:O	1:A:1126:ILE:HG13	1.62	0.97
3:B:522:ARG:HB2	3:B:570:GLN:HE22	1.35	0.89
2:E:42:SER:OG	2:E:43:PRO:HD3	1.72	0.88
6:H:37:LEU:HD12	6:H:38:PRO:HD2	1.59	0.85
4:C:139:LYS:HE3	4:C:139:LYS:HA	1.61	0.83
1:A:54:ASP:OD2	1:A:56:HIS:ND1	2.12	0.82
1:A:1123:GLU:HG3	1:A:1255:LEU:HD12	1.64	0.79
1:A:1432:ASP:OD2	2:E:139:ARG:NH2	2.16	0.79
8:F:46:LEU:HD21	8:F:108:GLU:HG2	1.65	0.78
8:F:91:LYS:HB2	8:F:105:LEU:HD11	1.64	0.77
1:A:1224:ARG:NH1	1:A:1226:TYR:OH	2.18	0.75
2:E:122:CYS:SG	2:E:131:LYS:NZ	2.59	0.75
1:A:109:LEU:HD13	1:A:184:LYS:HD3	1.67	0.74
8:F:267:SER:HB2	8:F:269:LEU:HD22	1.69	0.74
3:B:522:ARG:CB	3:B:570:GLN:HE22	2.00	0.73
1:A:1196:ILE:HD12	1:A:1208:ILE:HG21	1.69	0.73
3:B:578:CYS:SG	3:B:648:HIS:ND1	2.63	0.72
3:B:863:ASP:OD1	3:B:1036:ARG:NH2	2.22	0.71
3:B:167:ASN:OD1	3:B:168:ARG:NH1	2.23	0.71
3:B:522:ARG:HB2	3:B:570:GLN:NE2	2.05	0.71
3:B:73:ARG:NH1	3:B:450:LYS:O	2.22	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:871:GLU:OE1	1:A:1010:LYS:NZ	2.17	0.70
2:E:65:ARG:HG2	2:E:134:GLU:HG2	1.73	0.70
1:A:515:THR:HG22	1:A:517:MET:H	1.56	0.70
3:B:86:GLN:HB3	3:B:137:THR:HB	1.74	0.70
1:A:1079:GLU:HG2	1:A:1084:LYS:HD2	1.74	0.69
3:B:368:LEU:HA	3:B:371:ILE:HG22	1.74	0.69
4:C:34:GLU:N	4:C:34:GLU:OE1	2.25	0.69
8:F:22:ASN:O	8:F:26:HIS:ND1	2.25	0.69
1:A:501:GLN:O	3:B:1031:HIS:NE2	2.25	0.69
3:B:236:PRO:HA	3:B:375:HIS:HA	1.75	0.69
2:E:78:ARG:HH11	3:B:1162:GLN:HE21	1.38	0.69
3:B:302:ASN:O	3:B:306:ILE:HG13	1.92	0.69
3:B:844:PRO:HG2	6:H:74:LEU:HD11	1.74	0.69
4:C:233:GLN:OE1	4:C:236:ARG:NH2	2.26	0.68
3:B:118:ARG:NH2	3:B:192:TYR:OH	2.25	0.68
5:D:87:GLU:OE2	5:D:177:ARG:NH2	2.26	0.68
1:A:1052:PRO:HG2	1:A:1348:PRO:HD3	1.76	0.68
1:A:1177:ARG:HG3	1:A:1224:ARG:HG2	1.74	0.68
1:A:900:ARG:NH2	1:A:904:ASP:OD1	2.27	0.68
3:B:886:LYS:NZ	3:B:888:GLU:OE2	2.26	0.68
1:A:777:ARG:NH1	7:G:63:ASP:OD2	2.26	0.67
3:B:792:THR:HG23	3:B:1038:THR:HA	1.77	0.67
3:B:164:ARG:NH1	3:B:171:THR:OG1	2.27	0.67
1:A:1188:LYS:HB3	1:A:1260:ARG:HH22	1.59	0.66
8:F:4:GLN:NE2	8:F:49:THR:OG1	2.28	0.66
8:F:94:LYS:HB3	8:F:101:LEU:HB3	1.77	0.66
1:A:925:THR:HG22	1:A:927:VAL:H	1.59	0.66
3:B:69:TYR:CZ	3:B:446:LYS:HG2	2.31	0.66
1:A:332:ASP:OD2	3:B:859:TYR:OH	2.13	0.66
3:B:683:TYR:OH	7:G:79:ASP:OD1	2.13	0.65
5:D:72:ARG:O	5:D:76:THR:HG23	1.96	0.65
1:A:1164:LEU:HG	1:A:1165:LEU:HG	1.77	0.65
1:A:1126:ILE:HG21	1:A:1178:LEU:HD23	1.79	0.65
1:A:133:GLN:HA	1:A:140:VAL:HA	1.78	0.65
1:A:1129:TRP:HB2	1:A:1178:LEU:HG	1.78	0.65
1:A:1332:ARG:NH1	1:A:1358:ASP:OD2	2.29	0.65
3:B:248:ILE:HG12	3:B:258:ILE:HG12	1.77	0.64
3:B:808:GLY:HA2	3:B:1112:GLN:HE21	1.62	0.64
3:B:1181:ARG:HB2	3:B:1206:ASP:HB3	1.77	0.64
3:B:995:LYS:HD3	3:B:1003:LYS:HD2	1.79	0.64
3:B:158:SER:OG	3:B:479:ASN:ND2	2.25	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:646:ASN:ND2	4:C:209:SER:OG	2.30	0.64
5:D:42:ARG:NH1	5:D:44:ASN:OD1	2.31	0.64
3:B:100:GLN:HB3	3:B:109:LYS:HB3	1.79	0.64
3:B:209:ARG:NE	3:B:212:THR:HG21	2.12	0.64
8:F:111:THR:OG1	8:F:147:GLN:HG3	1.98	0.64
3:B:417:ARG:NH1	3:B:665:ASP:OD2	2.31	0.63
6:H:69:HIS:O	6:H:73:THR:OG1	2.15	0.63
2:E:45:ILE:HD13	3:B:1229:ASN:HD22	1.63	0.62
1:A:767:SER:HB3	3:B:747:GLU:OE1	2.00	0.62
3:B:138:ALA:HB2	3:B:454:PHE:HE2	1.65	0.62
1:A:145:VAL:HG13	1:A:155:TRP:HB2	1.82	0.62
3:B:486:ILE:HG13	3:B:487:ILE:HG13	1.81	0.62
3:B:522:ARG:CB	3:B:570:GLN:NE2	2.61	0.62
1:A:1129:TRP:CB	1:A:1178:LEU:HG	2.30	0.62
2:E:136:TRP:HB3	2:E:141:MET:SD	2.39	0.62
3:B:650:THR:HB	3:B:663:TRP:HB2	1.81	0.61
5:D:180:ASP:HB2	5:D:200:ILE:HD12	1.82	0.61
1:A:425:ARG:HA	3:B:1154:VAL:HG13	1.81	0.61
1:A:342:ILE:HD12	1:A:437:GLU:HG2	1.82	0.61
4:C:96:ARG:NH2	4:C:148:GLU:O	2.33	0.61
8:F:324:GLU:HA	8:F:327:TRP:CD1	2.35	0.61
1:A:19:ASN:ND2	2:E:42:SER:O	2.33	0.61
3:B:593:ASP:OD2	3:B:634:ARG:NH2	2.26	0.61
3:B:957:TYR:CZ	3:B:959:PHE:HB2	2.35	0.61
8:F:183:ASN:O	8:F:187:MET:HG2	2.01	0.61
3:B:255:ALA:HB2	3:B:315:VAL:HG11	1.83	0.61
3:B:541:MET:SD	3:B:544:ARG:NH2	2.72	0.61
4:C:110:VAL:HB	4:C:134:ALA:HB3	1.83	0.61
8:F:142:ILE:HB	8:F:145:ARG:HD3	1.82	0.60
1:A:1262:ILE:HB	1:A:1265:ILE:HD12	1.82	0.60
3:B:580:ALA:HB2	3:B:666:VAL:HG23	1.83	0.60
5:D:101:ASN:O	5:D:105:ILE:HD12	2.01	0.60
3:B:485:SER:HG	3:B:504:VAL:N	1.99	0.60
8:F:94:LYS:HE3	8:F:96:ASP:OD2	2.02	0.60
1:A:116:ILE:HD11	1:A:119:LYS:HD3	1.83	0.60
1:A:1150:SER:O	1:A:1154:TRP:N	2.31	0.60
1:A:1172:ALA:HB2	1:A:1229:GLU:HG2	1.83	0.60
3:B:373:LEU:HB3	3:B:376:MET:HG3	1.84	0.60
4:C:305:ILE:HD11	4:C:323:ILE:HG23	1.84	0.60
3:B:330:GLU:OE2	3:B:361:ASN:ND2	2.33	0.59
5:D:17:ARG:NH2	5:D:172:VAL:O	2.34	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:820:ASP:HB3	3:B:823:ARG:HD3	1.84	0.59
3:B:1012:THR:HG23	3:B:1023:GLN:HE22	1.67	0.59
8:F:205:LYS:HZ1	8:F:214:SER:HA	1.66	0.59
1:A:1177:ARG:HD2	1:A:1222:ILE:HD11	1.83	0.59
8:F:273:GLN:OE1	8:F:277:SER:OG	2.20	0.59
1:A:273:ASP:O	1:A:298:SER:OG	2.18	0.59
3:B:101:HIS:N	3:B:110:ILE:O	2.34	0.59
3:B:305:MET:O	3:B:309:LEU:HD12	2.03	0.59
3:B:915:LYS:HB3	3:B:921:VAL:HG13	1.85	0.59
4:C:254:GLN:NE2	4:C:341:GLN:OE1	2.35	0.59
1:A:171:ARG:NH1	1:A:197:VAL:HG12	2.19	0.58
1:A:960:LYS:NZ	1:A:1011:THR:O	2.32	0.58
2:E:42:SER:OG	2:E:43:PRO:CD	2.48	0.58
3:B:486:ILE:HA	3:B:504:VAL:HB	1.85	0.58
3:B:917:VAL:HG12	3:B:922:PRO:HD3	1.84	0.58
3:B:74:ASP:N	3:B:74:ASP:OD1	2.36	0.58
8:F:211:SER:O	8:F:337:HIS:NE2	2.35	0.58
1:A:247:VAL:HG12	1:A:248:ARG:N	2.19	0.58
1:A:83:LEU:H	1:A:264:GLN:HE22	1.50	0.57
1:A:470:SER:O	1:A:474:ARG:HB2	2.04	0.57
8:F:101:LEU:HD21	8:F:111:THR:HG23	1.85	0.57
3:B:360:LEU:O	3:B:364:GLN:NE2	2.37	0.57
8:F:194:LYS:HD2	8:F:194:LYS:O	2.04	0.57
5:D:163:GLN:O	5:D:198:ARG:NH1	2.38	0.57
3:B:889:LEU:HD23	3:B:936:LYS:HE3	1.85	0.57
5:D:74:LEU:O	5:D:78:THR:OG1	2.14	0.57
4:C:6:GLN:HA	4:C:357:LEU:HD11	1.86	0.57
1:A:919:ASN:ND2	1:A:1337:SER:OG	2.38	0.56
3:B:369:ASP:O	3:B:386:LYS:NZ	2.39	0.56
3:B:417:ARG:NH2	3:B:744:GLU:OE1	2.37	0.56
3:B:1239:PHE:HB3	8:F:53:GLN:HG2	1.87	0.56
4:C:61:VAL:HA	4:C:65:GLU:HB2	1.88	0.56
4:C:328:SER:OG	4:C:331:ASP:OD2	2.23	0.56
6:H:61:PRO:HB2	6:H:63:ARG:HG3	1.85	0.56
4:C:252:SER:O	4:C:255:LYS:HG3	2.05	0.56
1:A:712:PRO:HB2	1:A:714:ARG:HG2	1.87	0.56
3:B:130:LEU:HD22	3:B:157:VAL:HG21	1.86	0.56
3:B:392:LEU:HD22	3:B:614:ARG:HH11	1.70	0.56
1:A:499:GLN:NE2	1:A:617:TYR:OH	2.32	0.56
1:A:656:MET:HG2	1:A:730:LEU:HD22	1.88	0.56
1:A:748:ILE:HD11	3:B:1037:MET:HG2	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:105:ILE:HD12	5:D:105:ILE:H	1.71	0.56
3:B:815:TRP:CG	3:B:816:PRO:HD3	2.40	0.56
3:B:877:PHE:O	3:B:1110:ARG:NH1	2.37	0.56
6:H:17:TYR:HB3	6:H:58:LEU:HD22	1.86	0.56
1:A:981:GLU:OE1	1:A:1027:ARG:NH2	2.39	0.55
5:D:104:ASP:O	5:D:108:GLU:HG3	2.06	0.55
3:B:235:GLN:NE2	3:B:243:SER:OG	2.40	0.55
4:C:327:ALA:HB1	4:C:331:ASP:HB2	1.89	0.55
5:D:30:LYS:O	5:D:34:MET:HG3	2.06	0.55
1:A:909:ARG:O	1:A:913:LEU:HB2	2.07	0.55
1:A:867:THR:HG22	1:A:927:VAL:HG12	1.89	0.55
3:B:256:ILE:HB	3:B:272:TRP:CD1	2.42	0.55
3:B:274:LEU:O	3:B:278:MET:HG3	2.07	0.55
5:D:76:THR:HG22	5:D:109:GLN:HE22	1.70	0.55
1:A:320:TRP:CE2	3:B:1135:PRO:HG3	2.42	0.55
5:D:22:LEU:HD11	5:D:52:ILE:HD12	1.88	0.54
3:B:82:ARG:NH1	3:B:455:GLU:OE1	2.40	0.54
5:D:102:ILE:HA	5:D:105:ILE:HD13	1.89	0.54
3:B:999:ARG:NH2	3:B:1044:GLU:OE2	2.30	0.54
1:A:1127:LEU:HB2	1:A:1181:ASN:HB2	1.88	0.54
3:B:448:LEU:HD22	3:B:465:ALA:HB2	1.89	0.54
3:B:904:THR:HA	3:B:950:TYR:HB2	1.90	0.54
3:B:994:ASP:OD2	3:B:1110:ARG:NH2	2.41	0.54
3:B:316:LEU:HD11	3:B:321:GLN:HG3	1.89	0.54
4:C:72:ASP:OD1	4:C:94:ARG:NH1	2.40	0.54
8:F:95:ASN:ND2	8:F:124:ALA:O	2.40	0.54
1:A:1185:MET:HG2	1:A:1190:ILE:HB	1.89	0.54
3:B:228:ILE:HG22	3:B:250:TYR:HB3	1.90	0.54
1:A:885:LYS:NZ	1:A:895:GLU:OE1	2.32	0.54
1:A:1419:VAL:O	8:F:61:ARG:NH2	2.41	0.54
3:B:482:MET:O	3:B:486:ILE:HG23	2.08	0.54
3:B:639:ARG:NH1	3:B:649:THR:O	2.39	0.54
7:G:73:CYS:HB3	7:G:78:LEU:H	1.73	0.54
5:D:30:LYS:O	5:D:33:GLN:HG2	2.08	0.53
3:B:881:PHE:HB3	3:B:986:TYR:HB2	1.91	0.53
5:D:102:ILE:O	5:D:106:ILE:HG12	2.09	0.53
1:A:1120:ILE:HD13	1:A:1260:ARG:HH21	1.73	0.53
1:A:26:VAL:HG12	3:B:1199:MET:SD	2.49	0.53
3:B:1059:ASP:OD2	3:B:1061:THR:OG1	2.21	0.53
1:A:874:MET:SD	1:A:1284:LEU:HD23	2.48	0.53
8:F:202:PHE:HE1	8:F:320:ILE:HD12	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:38:LEU:HD23	4:C:225:ALA:HB1	1.90	0.53
5:D:19:MET:HB3	5:D:45:ALA:HB1	1.90	0.53
5:D:76:THR:O	5:D:80:ASN:ND2	2.42	0.53
1:A:84:GLN:NE2	1:A:195:LYS:O	2.42	0.53
1:A:91:ILE:HG12	1:A:196:LEU:HD13	1.91	0.53
5:D:42:ARG:HG2	5:D:42:ARG:HH11	1.73	0.53
1:A:723:ILE:HB	1:A:728:ASN:HD22	1.74	0.52
5:D:28:TYR:O	5:D:32:VAL:HG23	2.09	0.52
8:F:195:LYS:NZ	8:F:312:ASP:OD1	2.42	0.52
1:A:877:ASP:OD1	1:A:1282:GLY:HA3	2.09	0.52
3:B:1045:THR:HG1	3:B:1106:THR:HG1	1.57	0.52
5:D:103:LEU:HD22	5:D:205:ILE:HG21	1.92	0.52
1:A:83:LEU:HD23	1:A:197:VAL:HG22	1.92	0.52
8:F:244:TYR:HA	8:F:247:LEU:HD12	1.90	0.52
3:B:304:PHE:HD2	3:B:402:MET:SD	2.32	0.52
3:B:259:GLU:HB2	3:B:269:ARG:HG2	1.92	0.52
3:B:375:HIS:HD2	3:B:620:GLU:HB3	1.75	0.52
5:D:22:LEU:HD12	5:D:44:ASN:HB3	1.92	0.52
1:A:502:ASP:HB2	3:B:861:GLN:NE2	2.25	0.52
3:B:604:ASN:HA	3:B:607:ILE:HG12	1.91	0.52
8:F:83:ALA:HB1	8:F:136:ASN:HA	1.91	0.52
1:A:681:ASN:OD1	1:A:701:TYR:OH	2.14	0.51
1:A:696:THR:HG23	1:A:699:ASP:H	1.75	0.51
3:B:526:THR:HG21	3:B:542:MET:CE	2.40	0.51
7:G:50:GLU:O	7:G:54:LYS:HB2	2.10	0.51
3:B:324:GLN:HG3	3:B:325:HIS:CD2	2.45	0.51
3:B:961:GLU:OE2	3:B:988:ARG:NH2	2.31	0.51
6:H:36:THR:HB	6:H:41:ILE:HG13	1.91	0.51
1:A:205:PRO:HG2	1:A:208:ILE:HG12	1.91	0.51
1:A:255:ASN:OD1	1:A:256:ILE:N	2.44	0.51
1:A:1132:LEU:HD22	1:A:1145:TYR:CZ	2.46	0.51
4:C:190:GLU:HB2	4:C:206:LYS:HD2	1.92	0.51
8:F:106:LEU:HD13	8:F:309:ASP:HB3	1.91	0.51
1:A:318:GLN:NE2	3:B:1144:GLY:O	2.42	0.51
3:B:816:PRO:HB3	4:C:86:LEU:HB3	1.93	0.51
8:F:304:LEU:O	8:F:308:ASN:ND2	2.42	0.51
1:A:941:ILE:HG21	1:A:1022:ILE:HD11	1.93	0.51
3:B:364:GLN:HA	3:B:367:ILE:HG22	1.91	0.51
3:B:887:VAL:HG21	3:B:955:VAL:HG21	1.93	0.51
3:B:135:ILE:HG12	3:B:149:ARG:HG2	1.93	0.51
3:B:522:ARG:NH2	3:B:572:ALA:O	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1410:ILE:HG12	3:B:1156:THR:HG21	1.93	0.51
8:F:125:GLU:OE1	8:F:128:GLN:NE2	2.44	0.51
1:A:1129:TRP:HZ3	1:A:1131:LEU:HB3	1.76	0.51
1:A:1371:LYS:HE3	1:A:1389:SER:OG	2.11	0.51
3:B:207:ASN:OD1	3:B:208:ILE:N	2.44	0.51
3:B:621:TRP:NE1	3:B:623:GLY:O	2.40	0.51
8:F:200:ILE:HG22	8:F:311:CYS:SG	2.50	0.51
8:F:260:PRO:HD2	8:F:263:LEU:HD22	1.92	0.51
2:E:71:LEU:HG	2:E:141:MET:HE2	1.91	0.50
1:A:592:GLN:HE22	1:A:594:ARG:HH21	1.58	0.50
4:C:178:LEU:O	4:C:224:PRO:HD3	2.12	0.50
7:G:76:CYS:SG	7:G:78:LEU:HB2	2.51	0.50
1:A:1174:TRP:HZ2	1:A:1243:ASP:HB3	1.77	0.50
3:B:142:ASN:OD1	3:B:143:GLY:N	2.45	0.50
3:B:278:MET:HE3	3:B:333:ILE:HG12	1.94	0.50
3:B:279:PHE:CD1	3:B:383:ARG:HD2	2.47	0.50
1:A:1100:ASN:HB3	1:A:1103:VAL:HG22	1.93	0.50
3:B:486:ILE:O	3:B:506:THR:OG1	2.15	0.50
3:B:573:ILE:HG23	3:B:574:THR:HG23	1.92	0.50
3:B:892:ASP:O	3:B:939:LYS:NZ	2.44	0.50
1:A:185:LEU:O	1:A:185:LEU:HD23	2.11	0.49
1:A:881:GLU:O	1:A:885:LYS:HB3	2.11	0.49
3:B:63:PHE:CE2	3:B:430:LYS:HE3	2.47	0.49
3:B:650:THR:OG1	3:B:742:THR:HG21	2.12	0.49
1:A:143:LYS:HB3	1:A:157:ASP:HB3	1.94	0.49
4:C:190:GLU:H	4:C:190:GLU:CD	2.16	0.49
8:F:94:LYS:CE	8:F:96:ASP:OD2	2.60	0.49
1:A:1349:ASN:ND2	1:A:1351:ARG:HE	2.11	0.49
1:A:480:LEU:O	1:A:485:ASN:ND2	2.45	0.49
4:C:187:LEU:HB2	4:C:216:HIS:CD2	2.48	0.49
3:B:293:PHE:HB2	3:B:608:VAL:HG11	1.94	0.49
3:B:559:ALA:HB3	3:B:565:VAL:HA	1.95	0.49
4:C:278:LYS:HE2	4:C:280:ILE:HD11	1.94	0.49
1:A:834:GLN:HE22	1:A:1411:ALA:HB2	1.78	0.49
3:B:543:ARG:HH22	3:B:563:GLU:HG2	1.78	0.49
7:G:48:GLU:HG2	7:G:52:LYS:HD2	1.93	0.48
8:F:275:GLN:N	8:F:275:GLN:OE1	2.46	0.48
1:A:109:LEU:HD23	1:A:185:LEU:HD12	1.95	0.48
2:E:122:CYS:HA	2:E:133:VAL:HG12	1.95	0.48
3:B:367:ILE:O	3:B:371:ILE:N	2.42	0.48
8:F:212:ILE:HD12	8:F:217:ILE:HD13	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:132:LYS:O	1:A:141:HIS:N	2.39	0.48
1:A:381:LYS:HD3	1:A:397:PHE:CZ	2.49	0.48
1:A:739:LYS:HG3	3:B:1034:PRO:HG2	1.95	0.48
3:B:288:ILE:HG12	3:B:306:ILE:HG23	1.94	0.48
8:F:101:LEU:CD2	8:F:111:THR:HG23	2.43	0.48
2:E:60:ILE:HD12	2:E:134:GLU:HG3	1.95	0.48
3:B:894:GLU:OE2	3:B:953:ARG:NH2	2.40	0.48
5:D:61:ASN:HA	5:D:66:HIS:HE1	1.77	0.48
7:G:68:GLN:O	7:G:69:ILE:HD13	2.14	0.48
3:B:202:VAL:HG11	3:B:421:SER:HA	1.95	0.48
3:B:765:VAL:O	3:B:768:ARG:NH1	2.47	0.48
3:B:1122:VAL:HG11	3:B:1143:GLY:O	2.14	0.48
8:F:197:PHE:HD1	8:F:200:ILE:HD11	1.77	0.48
8:F:245:ASP:O	8:F:248:LYS:HG2	2.14	0.48
1:A:49:ARG:O	1:A:61:THR:OG1	2.31	0.48
5:D:88:LEU:HD12	5:D:118:ILE:HD12	1.96	0.48
1:A:1094:MET:HB3	1:A:1295:THR:OG1	2.12	0.47
1:A:1242:THR:OG1	1:A:1243:ASP:N	2.47	0.47
3:B:790:ASN:OD1	3:B:790:ASN:N	2.44	0.47
3:B:971:PRO:HG2	3:B:979:PHE:CZ	2.48	0.47
5:D:58:PHE:O	5:D:123:TYR:OH	2.26	0.47
1:A:147:ASP:OD1	1:A:148:SER:N	2.47	0.47
1:A:419:ARG:HD2	1:A:456:ALA:HB2	1.95	0.47
1:A:824:TYR:CZ	1:A:828:LYS:HD2	2.50	0.47
1:A:972:PRO:HB2	1:A:987:ILE:HD13	1.96	0.47
8:F:248:LYS:HG3	8:F:250:LYS:HG3	1.96	0.47
3:B:132:ALA:HB3	3:B:152:ILE:HD12	1.97	0.47
3:B:1057:VAL:HB	6:H:47:LEU:HB3	1.95	0.47
1:A:1412:ALA:HB3	1:A:1413:PRO:HD3	1.96	0.47
3:B:321:GLN:HB3	3:B:322:PRO:HD3	1.96	0.47
3:B:638:LEU:HD13	3:B:644:VAL:HG11	1.96	0.47
4:C:113:LEU:HB2	4:C:130:LEU:HD23	1.95	0.47
1:A:702:GLU:OE1	1:A:761:ARG:NE	2.45	0.47
2:E:113:ARG:HD3	2:E:139:ARG:O	2.15	0.47
3:B:822:ASN:N	3:B:882:TYR:O	2.48	0.47
8:F:328:MET:HB3	8:F:332:GLN:HE22	1.80	0.47
3:B:700:ASP:O	3:B:703:LYS:HG2	2.15	0.47
3:B:928:LYS:NZ	3:B:929:LYS:O	2.46	0.47
8:F:205:LYS:NZ	8:F:214:SER:HA	2.30	0.47
1:A:501:GLN:O	3:B:1031:HIS:CE1	2.67	0.47
1:A:534:THR:HG22	1:A:638:GLN:HB2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:938:VAL:HG13	1:A:1014:ILE:HD11	1.96	0.47
1:A:1345:ASP:OD1	1:A:1345:ASP:N	2.41	0.47
5:D:104:ASP:O	5:D:107:VAL:HG22	2.15	0.47
1:A:499:GLN:HB3	1:A:503:SER:HB2	1.95	0.46
1:A:1178:LEU:HB2	1:A:1223:ILE:HG23	1.98	0.46
3:B:473:ASN:OD1	3:B:474:THR:N	2.46	0.46
8:F:170:LEU:HD13	8:F:293:PHE:CD2	2.49	0.46
1:A:1265:ILE:HG23	1:A:1295:THR:HB	1.97	0.46
8:F:138:SER:O	8:F:150:ALA:HA	2.15	0.46
8:F:192:ARG:HH11	8:F:307:ILE:HG21	1.80	0.46
1:A:134:CYS:SG	1:A:135:TYR:N	2.89	0.46
1:A:1056:TYR:HE2	1:A:1074:ILE:HG22	1.80	0.46
8:F:94:LYS:NZ	8:F:96:ASP:OD2	2.44	0.46
1:A:442:SER:HB3	3:B:1119:ARG:HD3	1.96	0.46
3:B:323:VAL:HG13	3:B:326:GLU:OE1	2.15	0.46
1:A:1126:ILE:O	1:A:1126:ILE:HD12	2.16	0.46
3:B:639:ARG:NH2	3:B:745:GLU:OE2	2.41	0.46
3:B:694:ARG:HD3	3:B:701:TRP:CE2	2.51	0.46
3:B:966:ASP:OD2	3:B:983:ARG:NH2	2.48	0.46
1:A:843:ARG:HG2	1:A:853:GLN:O	2.15	0.46
3:B:37:THR:HG22	3:B:38:GLY:O	2.16	0.46
3:B:232:PHE:HB3	3:B:246:ILE:HG13	1.97	0.46
3:B:443:ASN:HA	3:B:446:LYS:HD3	1.96	0.46
1:A:247:VAL:CG1	1:A:248:ARG:N	2.78	0.46
1:A:830:ILE:HD12	3:B:1153:TRP:CE3	2.51	0.46
2:E:137:ASN:O	2:E:141:MET:HG3	2.15	0.46
3:B:809:GLY:HA2	3:B:826:GLN:HB3	1.98	0.46
1:A:334:HIS:NE2	1:A:535:GLN:OE1	2.42	0.46
1:A:536:THR:HG22	1:A:631:LYS:HE3	1.97	0.46
1:A:798:SER:OG	3:B:775:PRO:HB3	2.16	0.46
1:A:1305:LEU:HB3	5:D:1:MET:HB3	1.97	0.46
3:B:856:TYR:CE1	3:B:1016:PRO:HG3	2.51	0.46
3:B:454:PHE:HD1	3:B:457:LEU:HD12	1.81	0.46
1:A:885:LYS:HZ2	1:A:895:GLU:HA	1.81	0.46
1:A:31:ILE:HD12	1:A:33:ASN:HB3	1.97	0.45
3:B:202:VAL:HA	3:B:506:THR:HG22	1.97	0.45
3:B:838:ALA:O	3:B:842:VAL:HG22	2.14	0.45
2:E:120:MET:HG3	2:E:135:ILE:CD1	2.45	0.45
7:G:60:ALA:HB3	7:G:95:VAL:HG21	1.98	0.45
1:A:115:LEU:HD22	1:A:123:GLU:OE2	2.17	0.45
1:A:376:CYS:HA	1:A:407:ARG:HA	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1293:ILE:HD12	1:A:1309:ILE:HD11	1.98	0.45
2:E:100:SER:O	2:E:100:SER:OG	2.34	0.45
4:C:28:LYS:HB3	4:C:28:LYS:HE2	1.68	0.45
1:A:333:LEU:O	1:A:447:ASN:ND2	2.49	0.45
2:E:120:MET:HG3	2:E:135:ILE:HD13	1.98	0.45
3:B:278:MET:HE3	3:B:278:MET:HB3	1.87	0.45
4:C:80:ILE:HG22	4:C:80:ILE:O	2.17	0.45
5:D:42:ARG:HD2	5:D:56:PHE:CE1	2.52	0.45
1:A:19:ASN:OD1	1:A:19:ASN:N	2.49	0.45
1:A:937:ILE:HG23	1:A:1025:LEU:HD23	1.98	0.45
1:A:1126:ILE:HD13	1:A:1129:TRP:CD1	2.52	0.45
3:B:887:VAL:O	3:B:980:GLY:N	2.46	0.45
1:A:115:LEU:HD13	1:A:123:GLU:OE1	2.17	0.45
1:A:1077:PRO:HG3	1:A:1342:VAL:HG11	1.99	0.45
1:A:1158:PHE:CZ	1:A:1209:MET:HA	2.52	0.45
3:B:928:LYS:HG2	3:B:929:LYS:H	1.81	0.45
7:G:58:LYS:HE3	7:G:58:LYS:HB3	1.77	0.45
8:F:194:LYS:HD2	8:F:194:LYS:C	2.38	0.45
3:B:453:ALA:O	3:B:457:LEU:HG	2.17	0.45
4:C:352:LYS:HE3	4:C:352:LYS:HB2	1.66	0.45
1:A:1074:ILE:O	1:A:1077:PRO:HD2	2.17	0.44
3:B:549:TYR:N	3:B:550:PRO:HD2	2.32	0.44
3:B:264:LYS:HE2	3:B:371:ILE:HD12	1.98	0.44
3:B:94:VAL:HG22	3:B:130:LEU:HG	2.00	0.44
3:B:800:GLU:O	3:B:804:GLY:N	2.46	0.44
8:F:101:LEU:HD21	8:F:111:THR:CG2	2.47	0.44
1:A:505:VAL:O	1:A:509:LEU:HG	2.17	0.44
1:A:1238:THR:HG23	1:A:1240:MET:SD	2.58	0.44
3:B:381:ASP:OD1	3:B:381:ASP:N	2.50	0.44
3:B:486:ILE:HG13	3:B:487:ILE:N	2.32	0.44
3:B:1047:VAL:HG22	3:B:1071:LEU:HD22	2.00	0.44
8:F:316:ASN:HD21	8:F:319:LEU:HD12	1.81	0.44
1:A:1100:ASN:O	1:A:1104:GLU:HG3	2.18	0.44
3:B:227:ILE:HD11	3:B:250:TYR:CD2	2.52	0.44
4:C:5:PHE:HB2	4:C:46:ASP:O	2.17	0.44
1:A:911:ILE:HG21	5:D:192:MET:O	2.18	0.44
1:A:1210:HIS:ND1	1:A:1211:SER:O	2.47	0.44
3:B:291:VAL:HG11	3:B:309:LEU:HD21	2.00	0.44
5:D:144:GLN:O	5:D:148:GLN:HG2	2.18	0.44
1:A:236:LYS:HE3	1:A:266:LEU:HD11	1.99	0.44
1:A:703:LYS:NZ	1:A:703:LYS:HB3	2.33	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1240:GLN:HE21	8:F:56:PRO:HG3	1.82	0.44
1:A:592:GLN:NE2	1:A:594:ARG:HE	2.16	0.44
3:B:819:VAL:HG12	3:B:884:GLU:HB3	2.00	0.44
4:C:116:LEU:HD13	4:C:157:SER:HB2	2.00	0.44
5:D:109:GLN:HA	5:D:109:GLN:OE1	2.17	0.44
1:A:904:ASP:HB3	1:A:1000:MET:HG3	2.00	0.43
3:B:50:LEU:HD22	3:B:422:GLY:HA2	2.00	0.43
3:B:877:PHE:HB3	3:B:1110:ARG:HD2	2.00	0.43
3:B:1165:ILE:O	3:B:1169:HIS:HB2	2.17	0.43
6:H:52:LYS:HE2	6:H:62:MET:HE3	2.00	0.43
8:F:197:PHE:CD1	8:F:200:ILE:HD11	2.52	0.43
1:A:503:SER:O	1:A:507:SER:OG	2.25	0.43
3:B:271:PRO:HB2	3:B:273:TYR:CE1	2.52	0.43
8:F:325:ASN:O	8:F:329:LEU:HD13	2.19	0.43
2:E:97:LYS:HE2	2:E:99:TYR:CZ	2.53	0.43
3:B:417:ARG:HA	3:B:417:ARG:HD3	1.79	0.43
3:B:480:ARG:NH1	3:B:480:ARG:HA	2.34	0.43
3:B:688:TYR:O	3:B:692:GLU:HG2	2.18	0.43
3:B:1120:TYR:CE2	3:B:1122:VAL:HG13	2.54	0.43
5:D:103:LEU:O	5:D:107:VAL:HG13	2.18	0.43
3:B:309:LEU:O	3:B:312:SER:OG	2.30	0.43
3:B:432:ILE:HG21	3:B:481:SER:HB2	2.01	0.43
1:A:1233:ARG:HD2	1:A:1233:ARG:HA	1.80	0.43
3:B:39:LEU:C	3:B:40:ILE:HD13	2.39	0.43
3:B:301:VAL:HA	3:B:402:MET:HE3	2.01	0.43
3:B:558:SER:O	3:B:802:ASN:ND2	2.52	0.43
4:C:240:LYS:HG2	4:C:351:GLU:HG3	2.01	0.43
1:A:810:PHE:CZ	3:B:544:ARG:NH1	2.87	0.43
1:A:1350:HIS:HD2	5:D:190:THR:HG23	1.83	0.43
3:B:323:VAL:HG21	3:B:335:PHE:CD2	2.54	0.43
4:C:257:TYR:CZ	4:C:336:LEU:HD13	2.54	0.43
8:F:297:LEU:O	8:F:301:ILE:HG13	2.19	0.43
8:F:320:ILE:HG23	8:F:327:TRP:HE1	1.84	0.43
1:A:415:ALA:HB2	1:A:433:ILE:HD11	2.00	0.43
3:B:299:SER:OG	7:G:51:ASP:OD2	2.30	0.43
3:B:794:PRO:HA	3:B:797:VAL:HG23	2.01	0.43
3:B:825:PHE:O	3:B:879:GLY:HA3	2.19	0.43
3:B:830:GLU:HG2	6:H:73:THR:HA	2.00	0.43
5:D:87:GLU:HG3	5:D:88:LEU:N	2.34	0.43
1:A:1203:HIS:NE2	1:A:1257:SER:OG	2.49	0.43
3:B:1238:VAL:O	8:F:55:SER:HB3	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:182:VAL:O	5:D:182:VAL:HG13	2.19	0.43
8:F:101:LEU:HD23	8:F:113:VAL:HG22	2.01	0.43
1:A:725:PRO:HB3	1:A:731:PHE:CE2	2.54	0.43
3:B:585:SER:O	3:B:588:GLN:HG3	2.19	0.43
3:B:808:GLY:O	3:B:845:ASN:HB2	2.18	0.43
8:F:192:ARG:NH1	8:F:307:ILE:HG21	2.34	0.43
1:A:1395:LEU:HD11	3:B:1228:VAL:HG11	2.00	0.42
3:B:265:PHE:HE1	3:B:340:VAL:HG21	1.84	0.42
3:B:389:PHE:O	3:B:393:LEU:HG	2.18	0.42
4:C:142:ILE:HG13	4:C:143:PHE:CD2	2.54	0.42
3:B:130:LEU:O	3:B:155:PHE:N	2.52	0.42
6:H:37:LEU:HD23	6:H:40:ASN:ND2	2.34	0.42
1:A:1002:ILE:O	1:A:1006:LEU:HB2	2.19	0.42
3:B:682:LYS:O	3:B:685:GLN:HG3	2.19	0.42
5:D:42:ARG:NH1	5:D:42:ARG:HG2	2.34	0.42
1:A:88:ILE:HG21	1:A:151:TYR:O	2.19	0.42
3:B:121:GLY:HA2	3:B:197:GLY:HA3	2.01	0.42
1:A:1121:THR:OG1	1:A:1122:PHE:N	2.53	0.42
3:B:811:TYR:HE1	3:B:825:PHE:HB2	1.85	0.42
3:B:883:ARG:HD2	3:B:986:TYR:CE2	2.54	0.42
3:B:908:LYS:HA	3:B:909:PRO:HD3	1.91	0.42
1:A:226:ILE:HG23	1:A:270:PHE:HE1	1.85	0.42
1:A:438:ASN:HB2	4:C:317:GLN:HE22	1.84	0.42
5:D:9:TYR:HB2	5:D:126:PHE:O	2.20	0.42
1:A:407:ARG:NH1	1:A:408:ASP:O	2.52	0.42
1:A:1126:ILE:CG2	1:A:1178:LEU:HD23	2.49	0.42
1:A:1307:ASP:OD2	1:A:1307:ASP:N	2.53	0.42
3:B:280:GLY:HA2	3:B:329:ARG:HD3	2.01	0.42
3:B:384:VAL:O	3:B:387:LEU:HB2	2.19	0.42
3:B:442:ILE:O	3:B:446:LYS:HG3	2.19	0.42
1:A:1329:GLU:HB3	5:D:137:PRO:HG2	2.01	0.42
2:E:90:ASN:HD22	8:F:17:THR:HB	1.85	0.42
3:B:334:GLN:HE22	3:B:350:TYR:HE2	1.68	0.42
3:B:512:LYS:HE3	3:B:806:GLN:HA	2.02	0.42
3:B:731:ASP:O	3:B:735:GLN:HG2	2.20	0.42
1:A:422:SER:HB3	3:B:1154:VAL:HG21	2.01	0.42
1:A:810:PHE:HZ	3:B:544:ARG:NH1	2.18	0.42
3:B:71:ASP:CG	3:B:82:ARG:HH21	2.23	0.42
3:B:98:ARG:NH2	3:B:173:HIS:HE1	2.18	0.42
3:B:439:ALA:HB3	3:B:440:PRO:HD3	2.01	0.42
6:H:21:PHE:HB2	6:H:58:LEU:HD11	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1251:VAL:HG13	1:A:1255:LEU:HD23	2.02	0.41
3:B:116:LYS:HD2	3:B:120:CYS:SG	2.60	0.41
4:C:10:ILE:HG12	4:C:43:VAL:HG22	2.01	0.41
8:F:90:VAL:HG12	8:F:130:VAL:O	2.20	0.41
8:F:106:LEU:HD11	8:F:313:THR:OG1	2.20	0.41
1:A:150:ASP:OD1	1:A:150:ASP:N	2.53	0.41
1:A:843:ARG:NH1	5:D:154:GLU:OE1	2.46	0.41
1:A:1120:ILE:HA	1:A:1124:ARG:HD3	2.01	0.41
1:A:1125:LEU:HD13	1:A:1195:ILE:HD11	2.02	0.41
3:B:288:ILE:HD12	3:B:288:ILE:HA	1.94	0.41
3:B:890:GLU:H	3:B:894:GLU:HB2	1.85	0.41
5:D:78:THR:HA	5:D:81:GLU:OE2	2.21	0.41
1:A:438:ASN:HB3	1:A:441:ILE:HD12	2.03	0.41
1:A:533:THR:HB	1:A:642:ASN:HD21	1.84	0.41
1:A:681:ASN:ND2	1:A:780:LEU:O	2.51	0.41
1:A:938:VAL:O	1:A:941:ILE:HG22	2.20	0.41
3:B:228:ILE:HB	3:B:401:ILE:HD11	2.01	0.41
3:B:326:GLU:OE2	3:B:331:LYS:HB2	2.19	0.41
8:F:306:PHE:CZ	8:F:310:LEU:HD11	2.56	0.41
3:B:138:ALA:HB3	3:B:146:GLU:HB3	2.03	0.41
3:B:658:ASP:HB2	7:G:55:ILE:HG21	2.03	0.41
8:F:200:ILE:HG13	8:F:201:CYS:N	2.35	0.41
1:A:650:THR:OG1	3:B:853:TYR:O	2.24	0.41
3:B:227:ILE:HD11	3:B:250:TYR:CE2	2.56	0.41
3:B:855:ILE:HD11	3:B:1031:HIS:HE1	1.85	0.41
8:F:131:PRO:HG3	8:F:207:TYR:OH	2.20	0.41
1:A:67:LYS:HE2	1:A:67:LYS:HB2	1.83	0.41
1:A:993:ARG:HG3	5:D:195:VAL:HG23	2.01	0.41
3:B:14:GLU:CD	3:B:14:GLU:H	2.23	0.41
6:H:55:ILE:HG21	6:H:67:ARG:HG2	2.03	0.41
8:F:195:LYS:HE3	8:F:308:ASN:HA	2.03	0.41
2:E:99:TYR:CZ	2:E:108:GLN:HG3	2.56	0.41
3:B:251:MET:HG2	3:B:255:ALA:O	2.21	0.41
4:C:125:ILE:HD11	4:C:152:LEU:HG	2.03	0.41
1:A:46:TYR:CE1	1:A:212:ILE:HG23	2.56	0.41
1:A:656:MET:SD	3:B:1033:HIS:CE1	3.14	0.41
1:A:743:PRO:O	1:A:747:HIS:ND1	2.54	0.41
1:A:860:LEU:HD21	1:A:1030:TYR:HE1	1.86	0.41
3:B:276:PHE:HB3	3:B:287:ILE:HD12	2.01	0.41
3:B:908:LYS:HE2	3:B:954:SER:H	1.86	0.41
8:F:263:LEU:HG	8:F:269:LEU:HG	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:841:TYR:HB2	1:A:843:ARG:HG3	2.03	0.40
1:A:1117:ILE:HD11	1:A:1293:ILE:HG21	2.02	0.40
1:A:419:ARG:HB2	1:A:463:MET:HG2	2.04	0.40
8:F:185:ILE:HG13	8:F:301:ILE:HG12	2.02	0.40
8:F:293:PHE:O	8:F:297:LEU:HD23	2.22	0.40
1:A:152:PHE:HD1	1:A:153:THR:HG23	1.86	0.40
1:A:680:ILE:HD13	1:A:704:LEU:HB3	2.03	0.40
3:B:382:THR:O	3:B:386:LYS:HG3	2.21	0.40
3:B:590:LEU:HD13	3:B:622:ILE:HD11	2.03	0.40
3:B:654:ASP:HB3	3:B:659:GLU:HG2	2.02	0.40
5:D:76:THR:HG22	5:D:109:GLN:NE2	2.35	0.40
6:H:44:ASP:O	6:H:48:GLN:HG2	2.21	0.40
1:A:673:LEU:HD11	1:A:712:PRO:HD3	2.03	0.40
1:A:475:VAL:HG22	2:E:103:ILE:HG23	2.04	0.40
3:B:20:GLU:HG2	3:B:716:PRO:HG2	2.04	0.40
3:B:815:TRP:CD1	3:B:816:PRO:HD3	2.56	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	A	1363/1450 (94%)	1307 (96%)	56 (4%)	0	100	100
2	E	104/147 (71%)	102 (98%)	2 (2%)	0	100	100
3	B	1186/1242 (96%)	1138 (96%)	48 (4%)	0	100	100
4	C	355/359 (99%)	346 (98%)	9 (2%)	0	100	100
5	D	203/205 (99%)	195 (96%)	8 (4%)	0	100	100
6	H	78/80 (98%)	75 (96%)	3 (4%)	0	100	100
7	G	57/105 (54%)	51 (90%)	6 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	F	337/339 (99%)	324 (96%)	13 (4%)	0	100	100
All	All	3683/3927 (94%)	3538 (96%)	145 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	A	1219/1279 (95%)	1186 (97%)	33 (3%)	40	67
2	E	96/136 (71%)	94 (98%)	2 (2%)	48	74
3	B	1038/1081 (96%)	1025 (99%)	13 (1%)	65	84
4	C	326/328 (99%)	322 (99%)	4 (1%)	67	85
5	D	185/185 (100%)	179 (97%)	6 (3%)	34	60
6	H	70/70 (100%)	67 (96%)	3 (4%)	25	49
7	G	54/96 (56%)	53 (98%)	1 (2%)	52	77
8	F	312/312 (100%)	305 (98%)	7 (2%)	47	73
All	All	3300/3487 (95%)	3231 (98%)	69 (2%)	49	74

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	19	ASN
1	A	23	ARG
1	A	56	HIS
1	A	66	ARG
1	A	68	GLN
1	A	168	GLN
1	A	180	ASP
1	A	184	LYS
1	A	191	SER
1	A	328	CYS

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Mol	Chain	Res	Type
1	A	363	MET
1	A	400	GLU
1	A	417	PHE
1	A	446	MET
1	A	537	ASP
1	A	646	ASN
1	A	664	GLN
1	A	682	ASN
1	A	690	MET
1	A	826	ASN
1	A	830	ILE
1	A	869	ARG
1	A	900	ARG
1	A	1099	LYS
1	A	1144	MET
1	A	1155	MET
1	A	1240	MET
1	A	1266	LYS
1	A	1269	ASN
1	A	1304	MET
1	A	1307	ASP
1	A	1358	ASP
1	A	1362	ARG
2	E	54	SER
2	E	139	ARG
3	B	25	ASP
3	B	196	ARG
3	B	293	PHE
3	B	309	LEU
3	B	311	LYS
3	B	363	ARG
3	B	480	ARG
3	B	544	ARG
3	B	886	LYS
3	B	956	MET
3	B	1140	ARG
3	B	1209	MET
3	B	1235	SER
4	C	11	LYS
4	C	210	MET
4	C	255	LYS
4	C	331	ASP

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Mol	Chain	Res	Type
5	D	4	GLN
5	D	17	ARG
5	D	63	LYS
5	D	101	ASN
5	D	125	LEU
5	D	202	LYS
6	H	32	LYS
6	H	46	SER
6	H	62	MET
7	G	83	GLN
8	F	62	THR
8	F	70	MET
8	F	91	LYS
8	F	140	TYR
8	F	194	LYS
8	F	197	PHE
8	F	269	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (44) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	101	ASN
1	A	224	HIS
1	A	264	GLN
1	A	265	GLN
1	A	355	GLN
1	A	420	GLN
1	A	485	ASN
1	A	592	GLN
1	A	646	ASN
1	A	721	ASN
1	A	826	ASN
1	A	834	GLN
1	A	910	GLN
1	A	919	ASN
1	A	1161	ASN
1	A	1349	ASN
1	A	1350	HIS
1	A	1439	ASN
2	E	63	ASN
2	E	90	ASN
3	B	173	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	B	216	HIS
3	B	235	GLN
3	B	314	HIS
3	B	325	HIS
3	B	364	GLN
3	B	419	HIS
3	B	557	GLN
3	B	570	GLN
3	B	845	ASN
3	B	861	GLN
3	B	1112	GLN
3	B	1142	HIS
3	B	1162	GLN
3	B	1227	ASN
3	B	1229	ASN
4	C	254	GLN
4	C	345	GLN
5	D	66	HIS
6	H	48	GLN
8	F	4	GLN
8	F	121	ASN
8	F	272	GLN
8	F	332	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 5 ligands modelled in this entry, 5 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

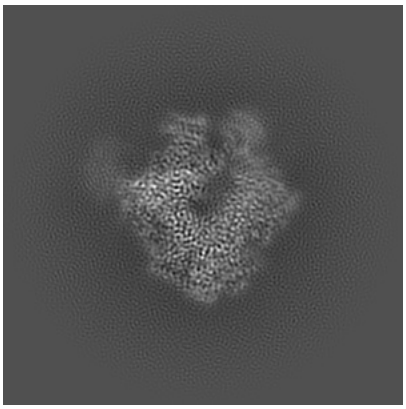
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-39507. These allow visual inspection of the internal detail of the map and identification of artifacts.

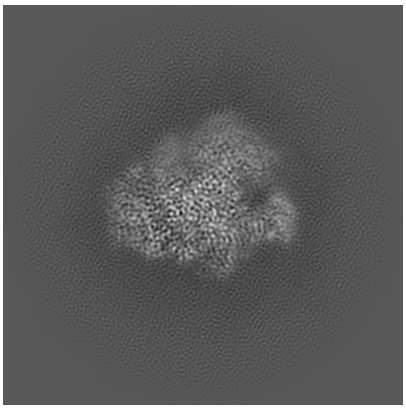
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

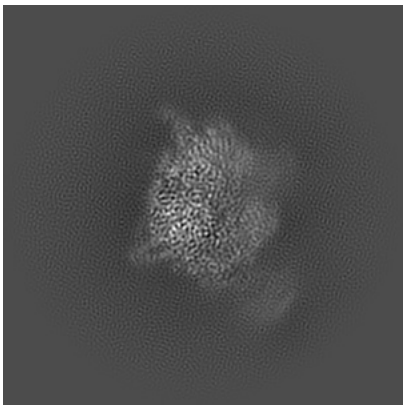
6.1.1 Primary map



X

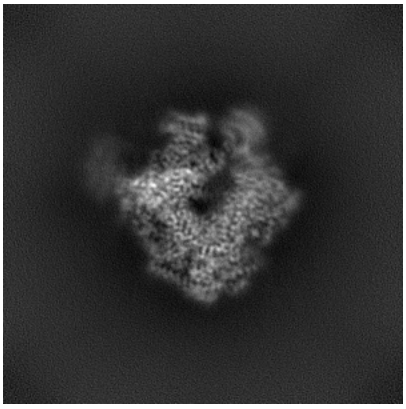


Y

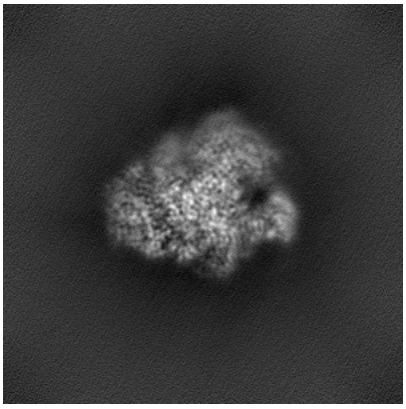


Z

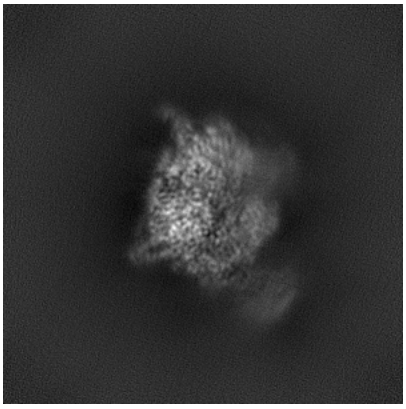
6.1.2 Raw map



X



Y

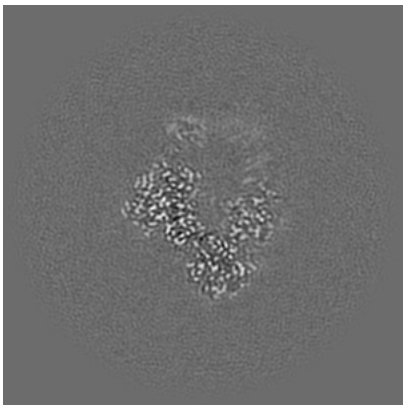


Z

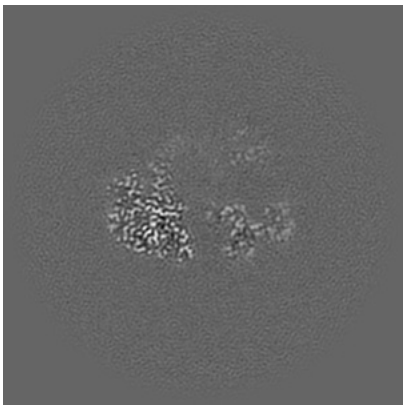
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

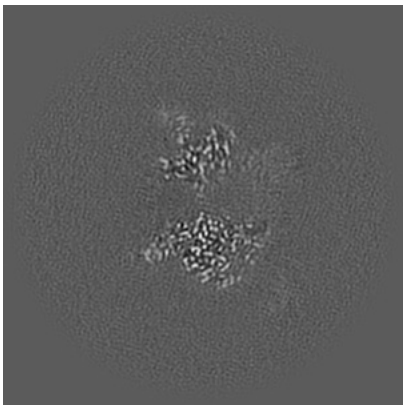
6.2.1 Primary map



X Index: 180

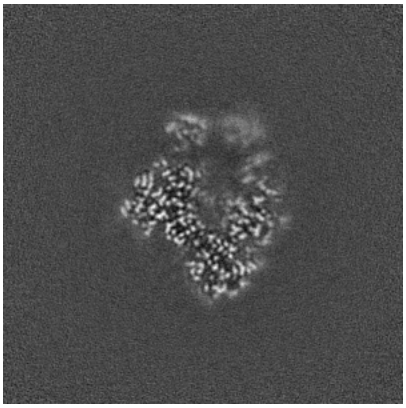


Y Index: 180

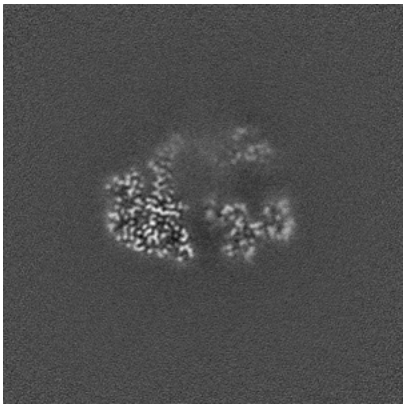


Z Index: 180

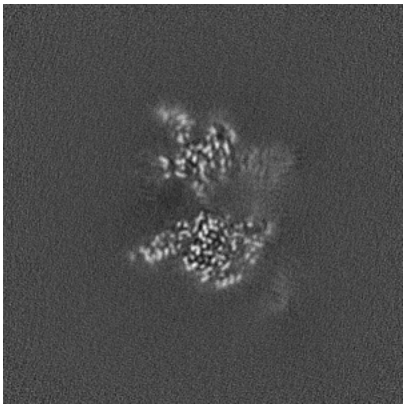
6.2.2 Raw map



X Index: 180



Y Index: 180

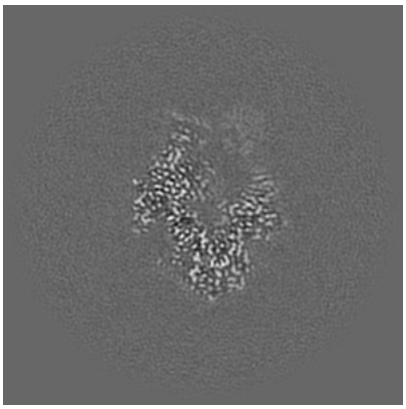


Z Index: 180

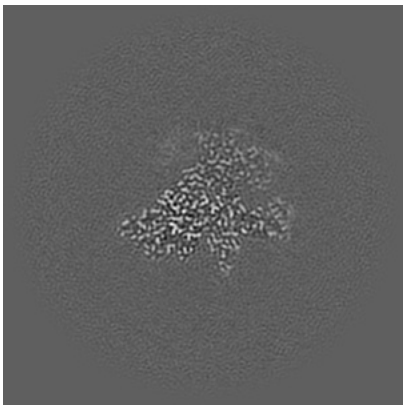
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

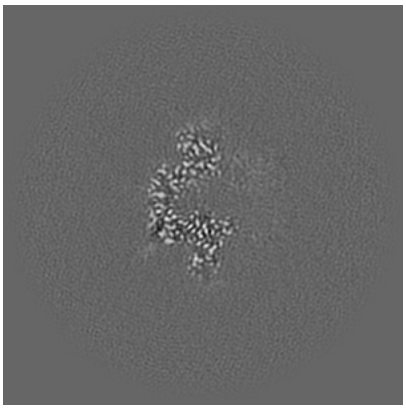
6.3.1 Primary map



X Index: 172

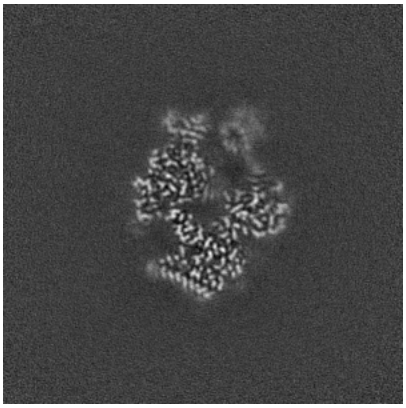


Y Index: 159

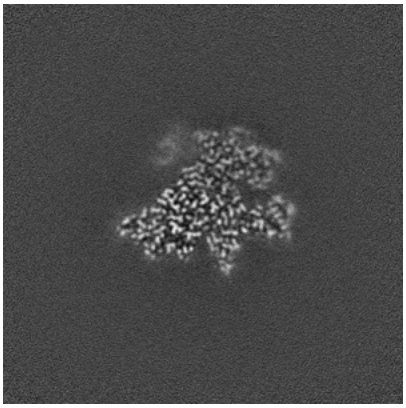


Z Index: 166

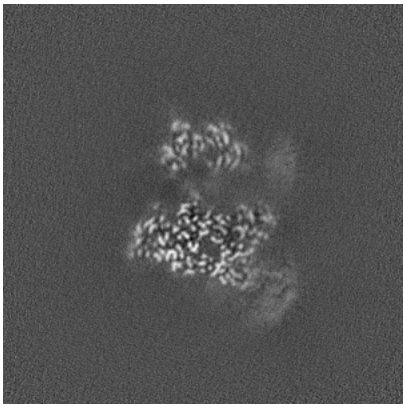
6.3.2 Raw map



X Index: 167



Y Index: 159

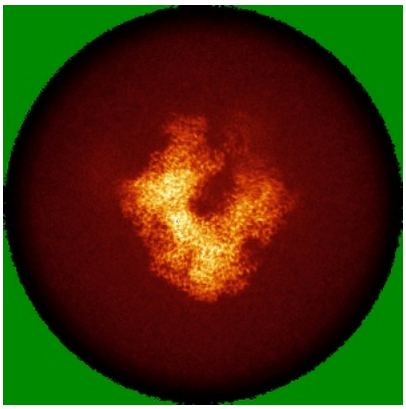


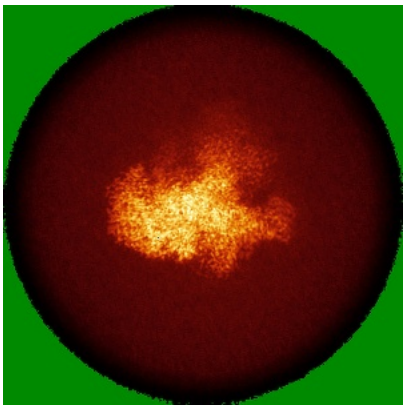
Z Index: 197

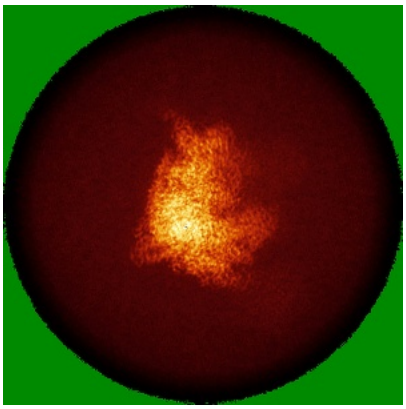
The images above show the largest variance slices of the map in three orthogonal directions.

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

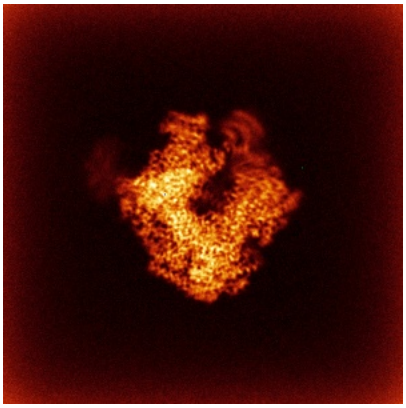
6.4.1 Primary map

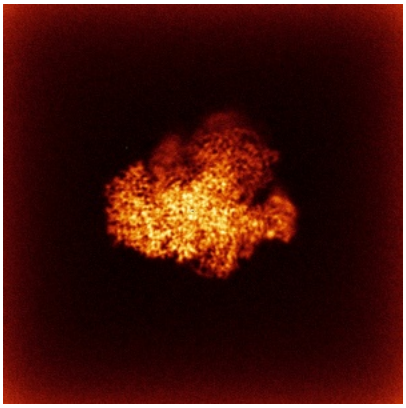

X

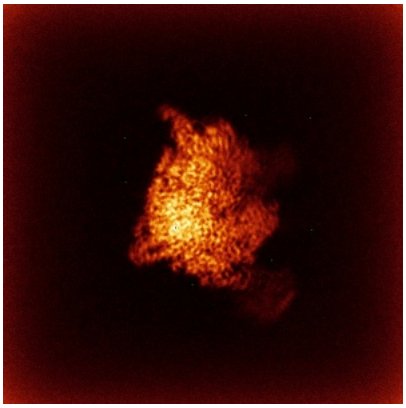

Y


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 0.488. 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.

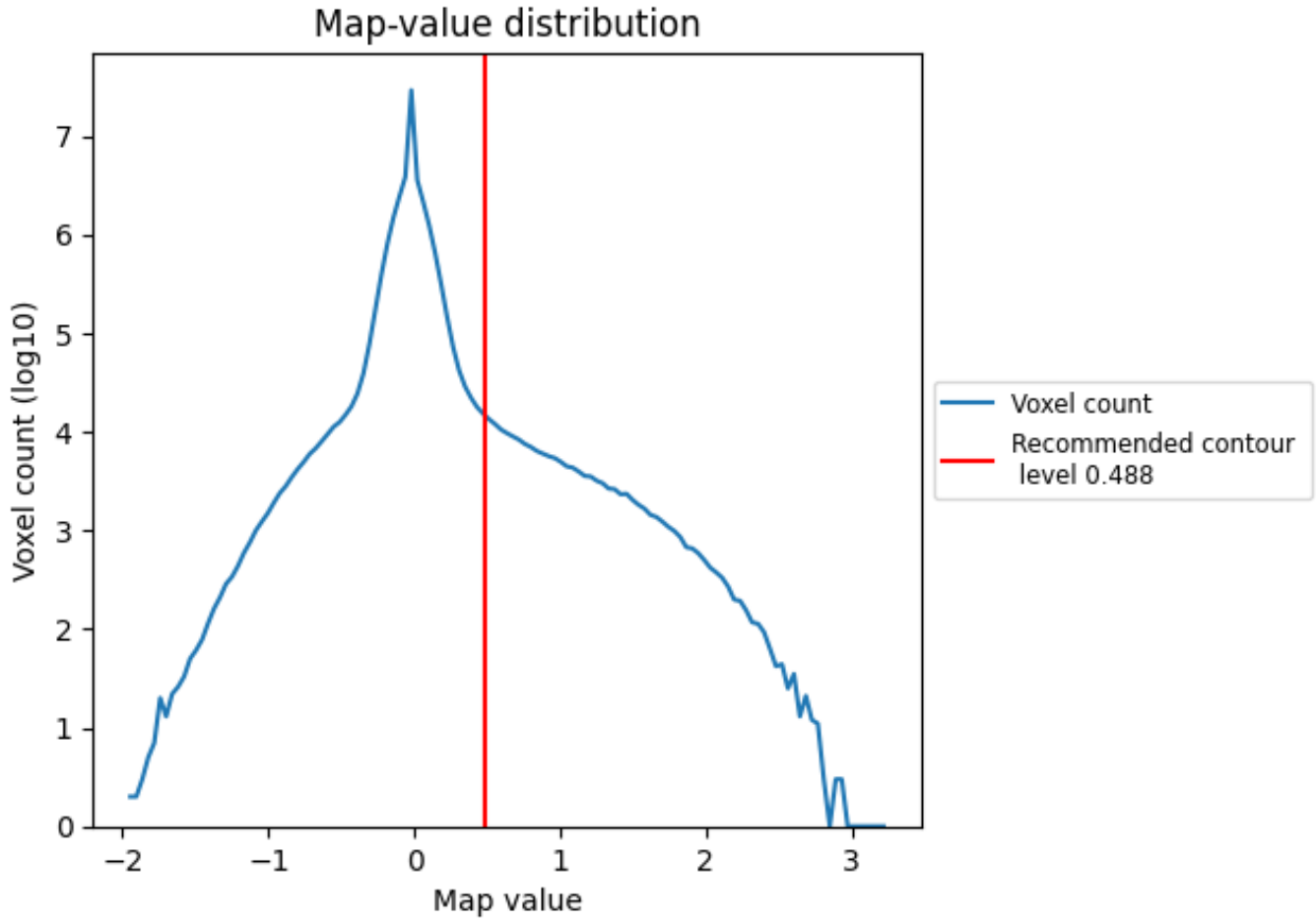
6.6 Mask visualisation (i)

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

7 Map analysis

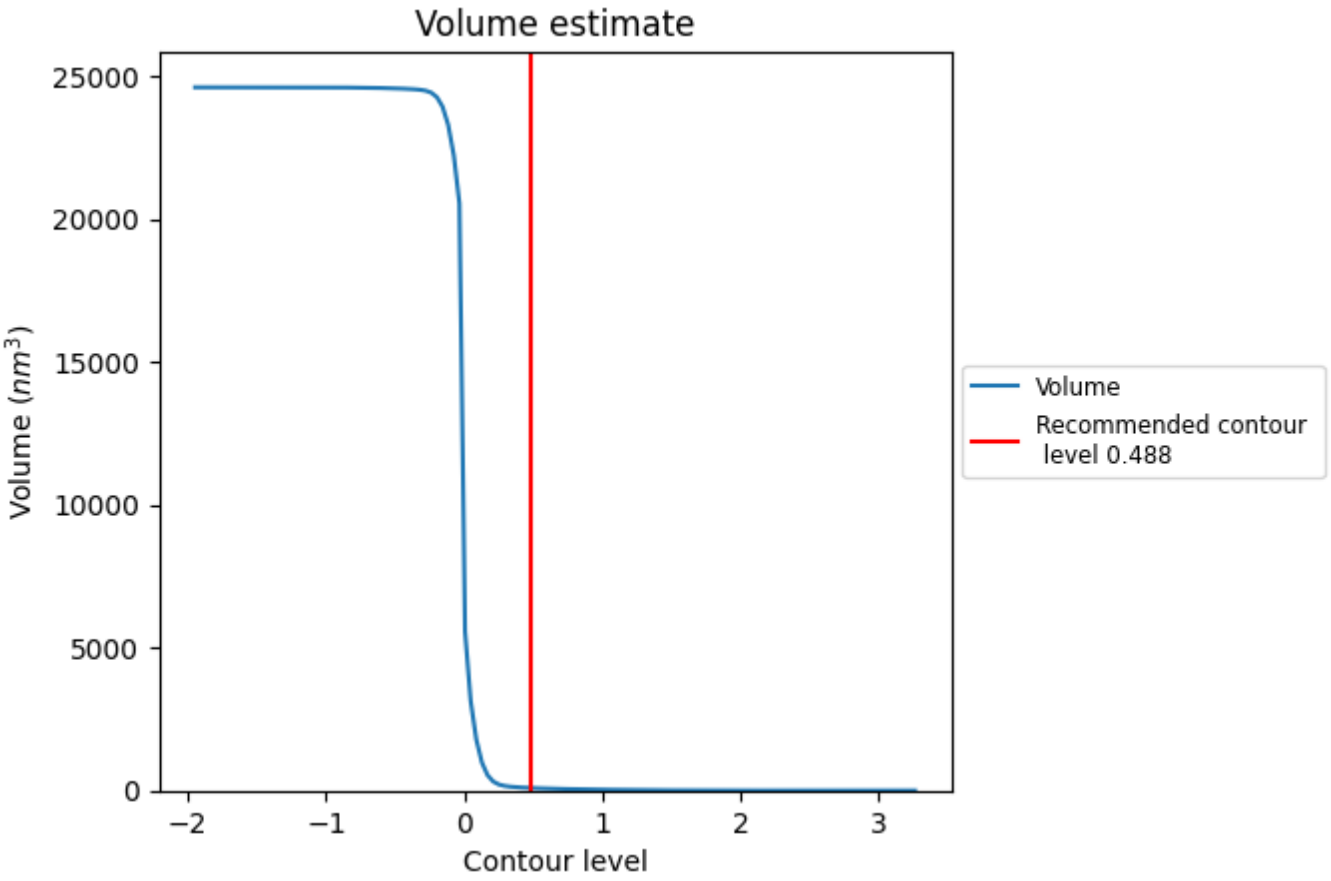
This section contains the results of statistical analysis of the map.

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.

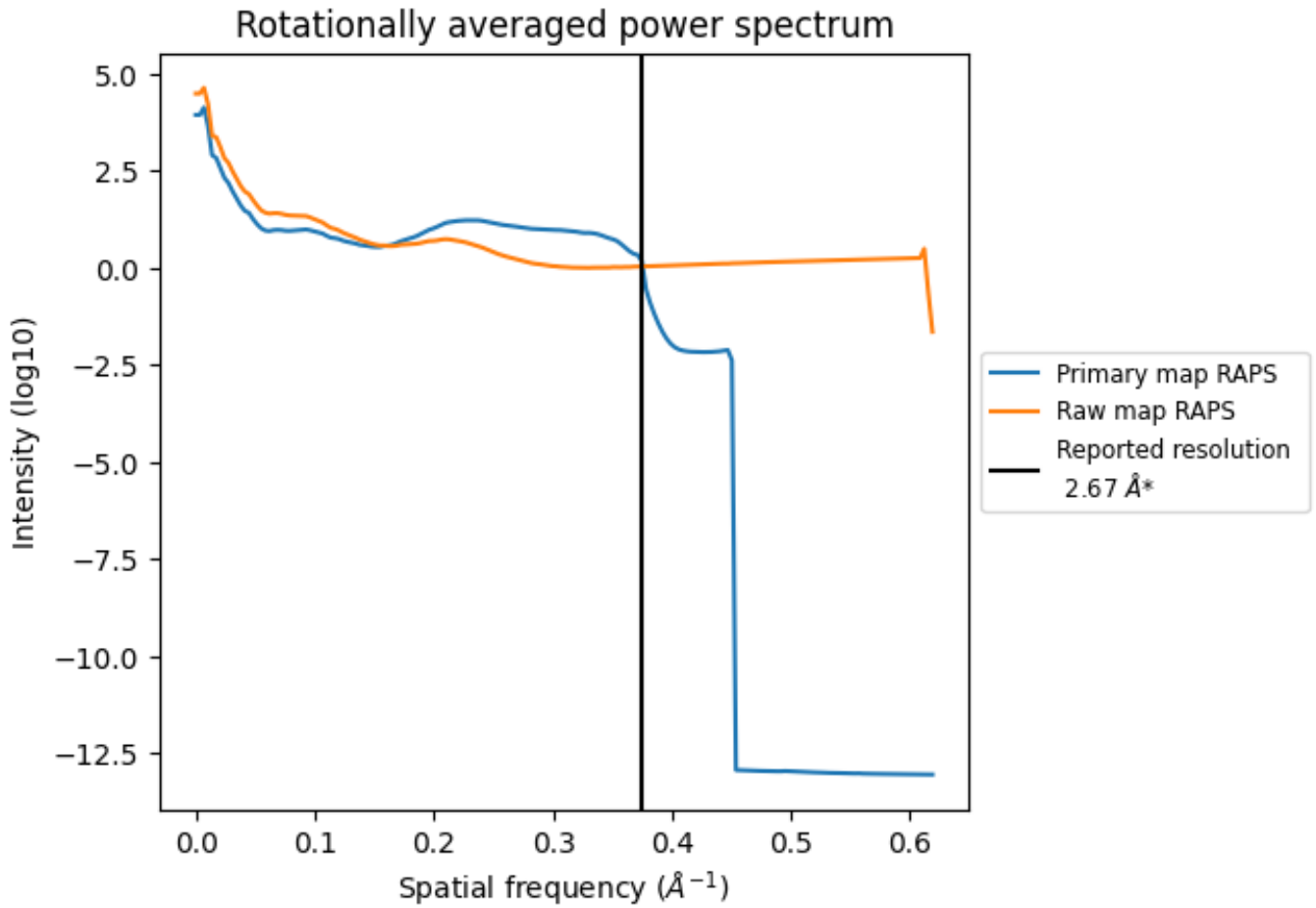
7.2 Volume estimate



The volume at the recommended contour level is 89 nm^3; this corresponds to an approximate mass of 80 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)

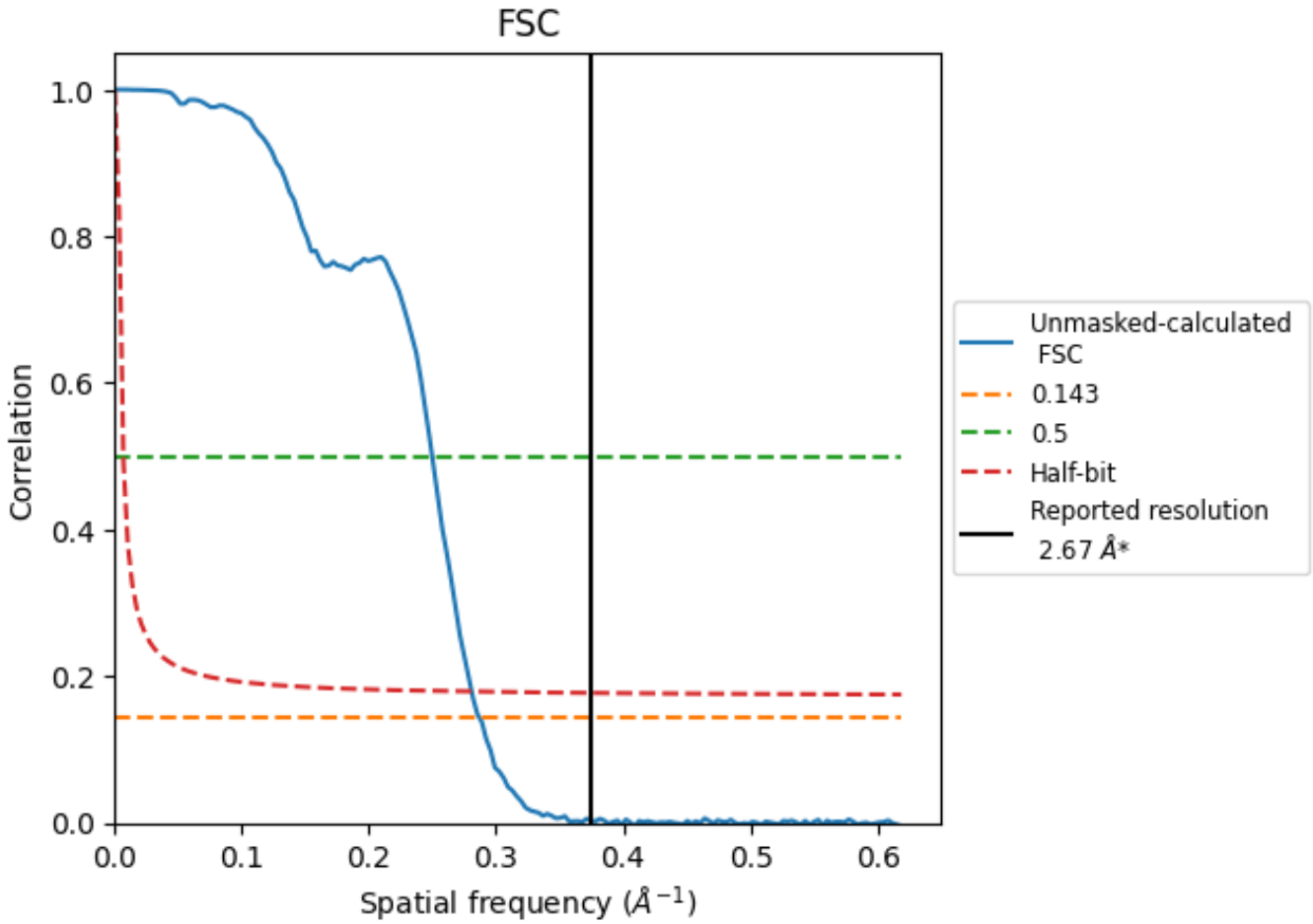


*Reported resolution corresponds to spatial frequency of 0.375 Å^{-1}

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 0.375 Å^{-1}

8.2 Resolution estimates (i)

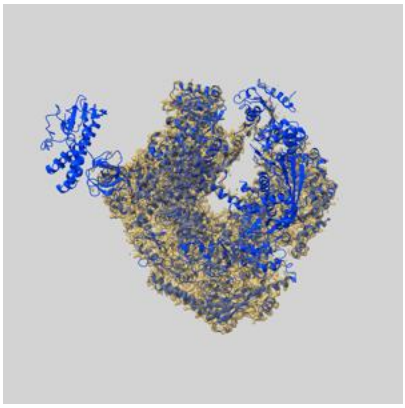
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.67	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.48	4.00	3.56

*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 3.48 differs from the reported value 2.67 by more than 10 %

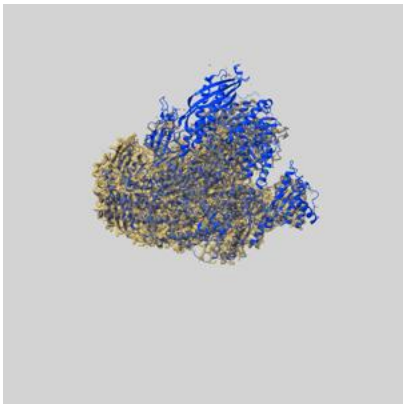
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-39507 and PDB model 8YQV. Per-residue inclusion information can be found in section 3 on page 5.

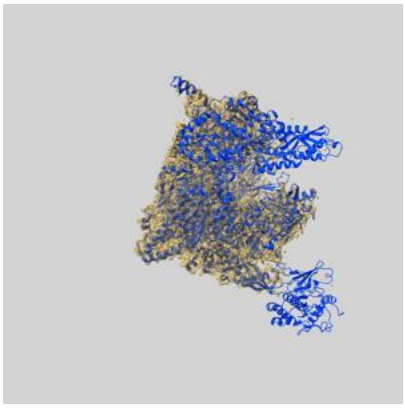
9.1 Map-model overlay



X



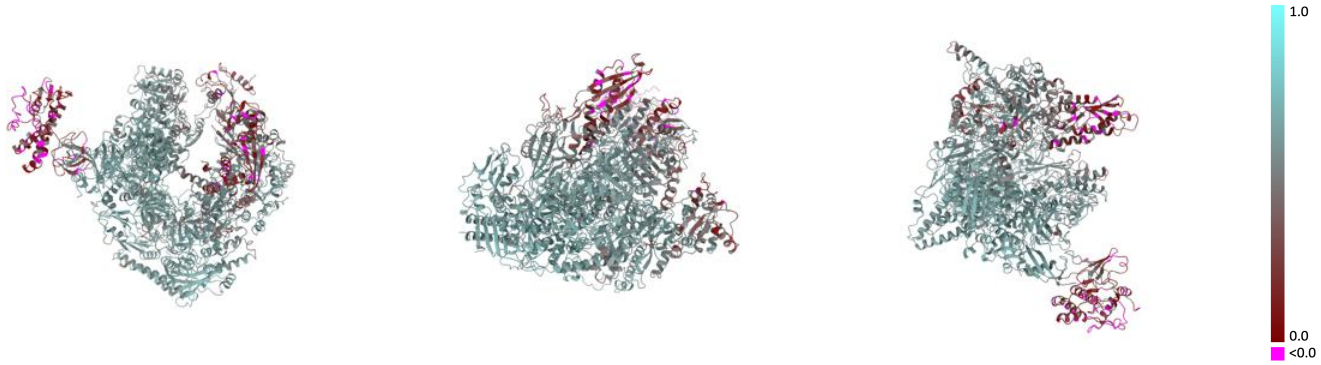
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.488 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.

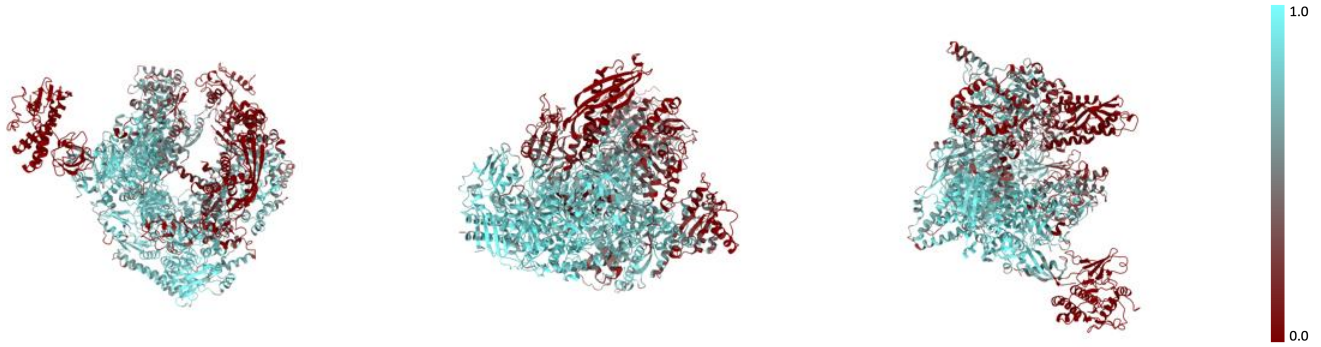
9.2 Q-score mapped to coordinate model (i)



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.

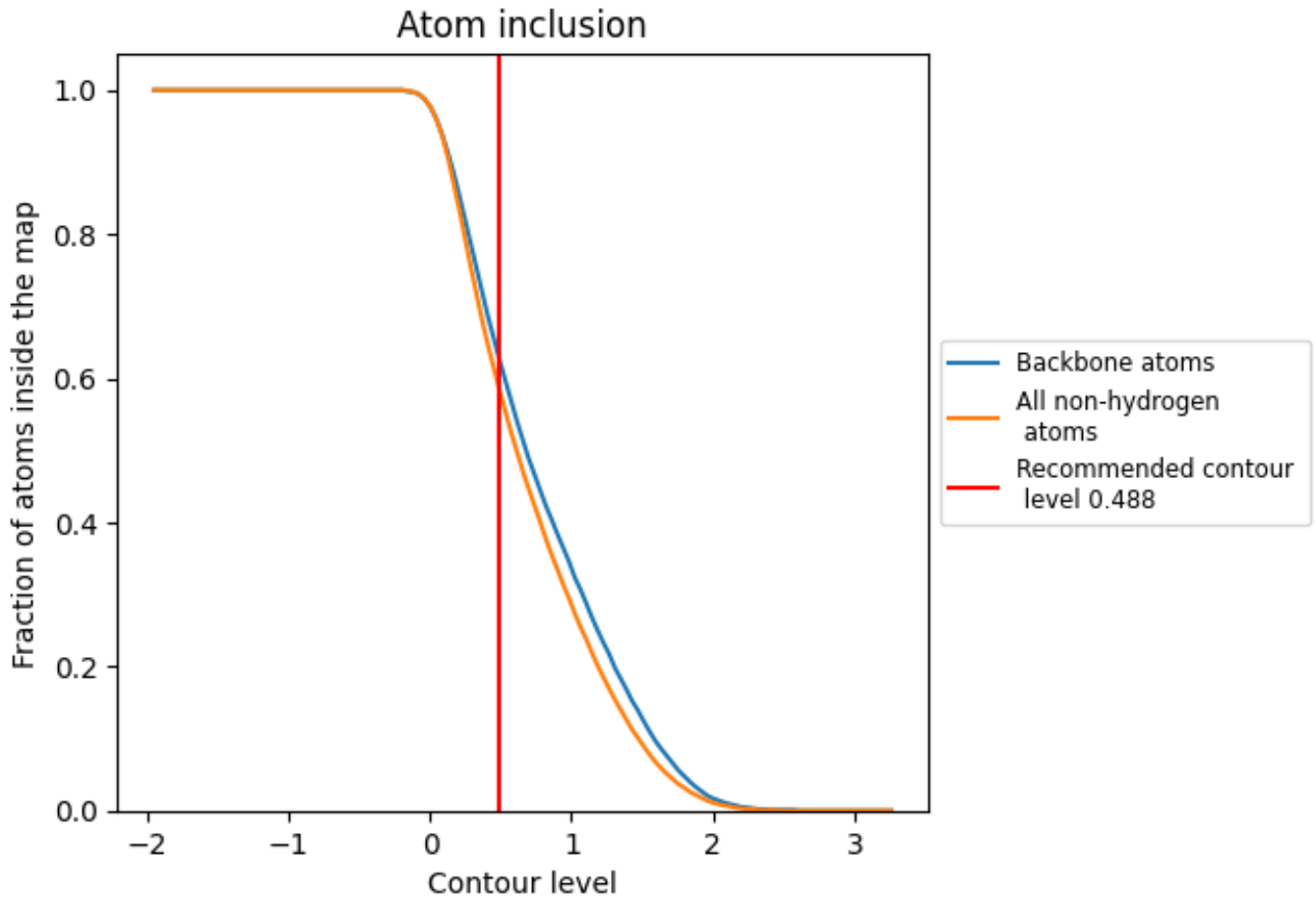
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.488).

9.4 Atom inclusion (i)



At the recommended contour level, 63% of all backbone atoms, 59% 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 (0.488) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5870	0.5370
A	0.6880	0.5840
B	0.4690	0.5080
C	0.8290	0.6230
D	0.6960	0.5940
E	0.7910	0.6170
F	0.1610	0.2850
G	0.5950	0.5490
H	0.7640	0.6010