



Full wwPDB EM Validation Report ⓘ

Oct 29, 2024 – 08:21 PM JST

PDB ID : 8YQZ
EMDB ID : EMD-39511
Title : African swine fever virus RNA Polymerase–DNA complex
Authors : Feng, X.Y.
Deposited on : 2024-03-20
Resolution : 2.78 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:

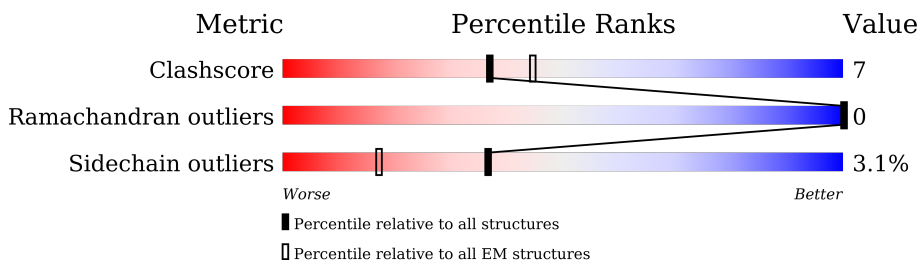
EMDB validation analysis : 0.0.1.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) :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

1 Overall quality at a glance

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

The reported resolution of this entry is 2.78 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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1450	
2	B	1242	
3	C	359	
4	D	205	
5	E	147	
6	F	339	
7	G	105	
8	H	80	

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Mol	Chain	Length	Quality of chain
9	X	8	
10	Y	7	

2 Entry composition [i](#)

There are 12 unique types of molecules in this entry. The entry contains 29943 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 DNA-directed RNA polymerase subunit beta.

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

- Molecule 3 is a protein called DNA-directed RNA polymerase RPB3-11 homolog.

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

- Molecule 4 is a protein called DNA-directed RNA polymerase RPB5 homolog.

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

- Molecule 5 is a protein called C147L.

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

- Molecule 6 is a protein called D339L.

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

- Molecule 7 is a protein called C122R.

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

- Molecule 8 is a protein called DNA-directed RNA polymerase RPB10 homolog.

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

- Molecule 9 is a DNA chain called DNA (5'-D(P*GP*CP*CP*GP*AP*GP*CP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
9	X	8	165	77	34	46	8	0	0

- Molecule 10 is a DNA chain called DNA (5'-D(P*TP*CP*GP*GP*CP*TP*C)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
10	Y	7	141	67	23	44	7	0	0

- Molecule 11 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

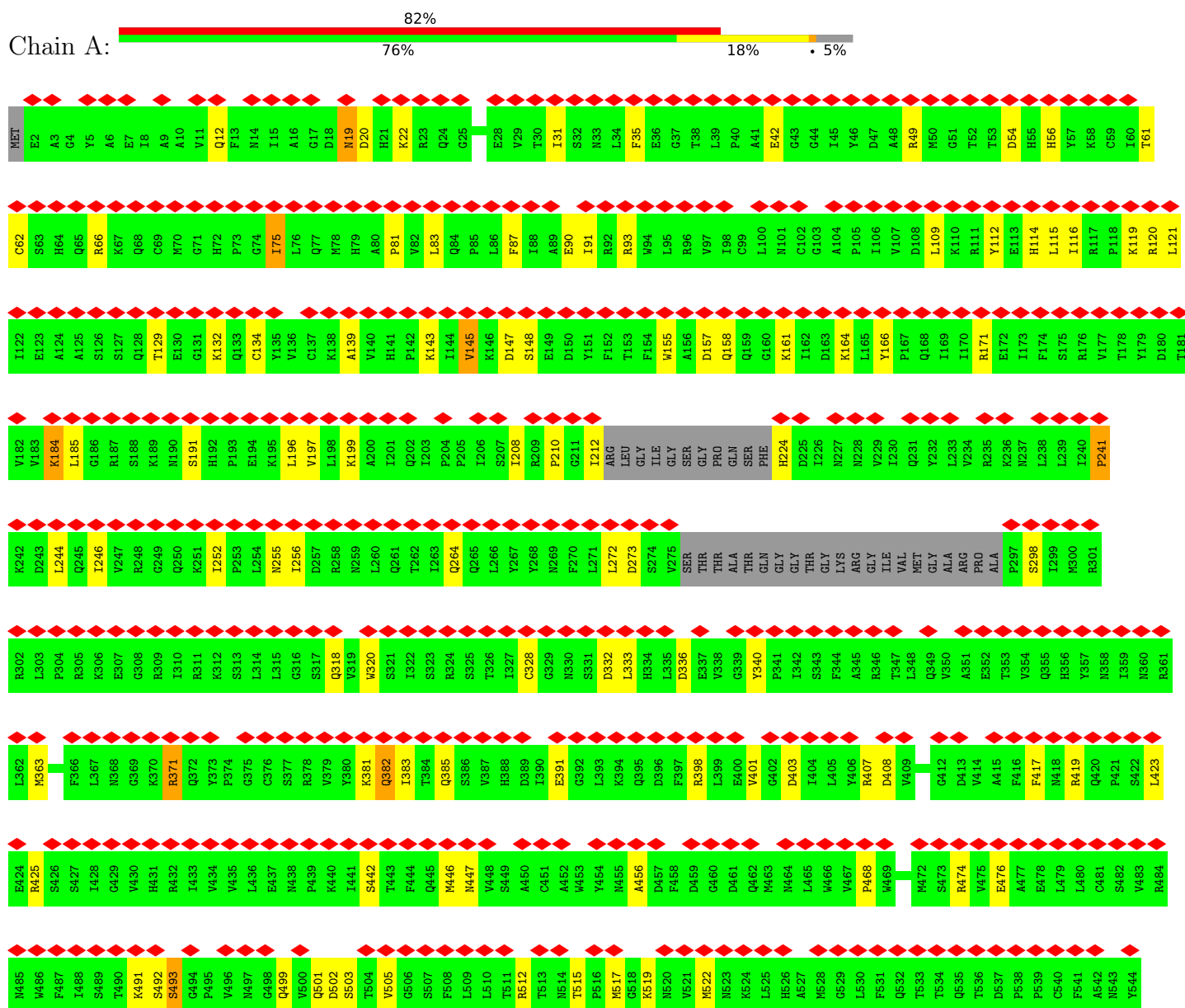
- Molecule 12 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

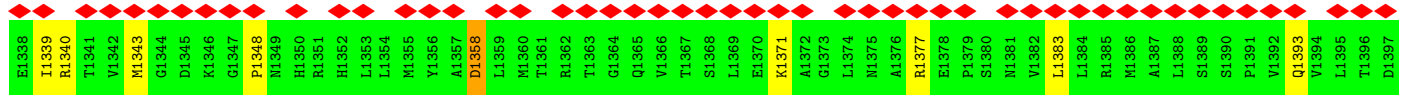
3 Residue-property plots [i](#)

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

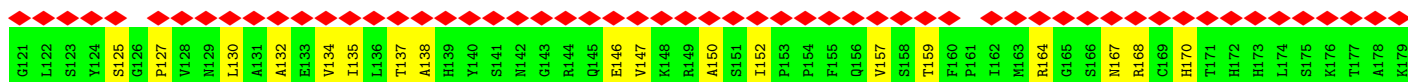
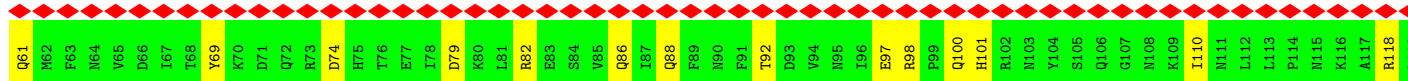
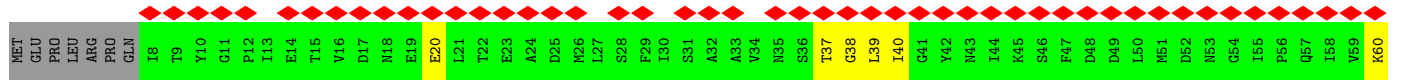
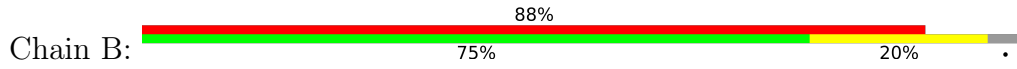
- Molecule 1: DNA-directed RNA polymerase subunit



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F912	L913	N914	V915	E916	N917	F918	N919	F920	S921	Q922	L923	R924	T925	D926	V927	R928	Q929	Y930	F931	Y932	N933	Y934	A935	S936	I937	V938	K939	L943	S944	S945	T946	S947	Q948	V949	L950	P951	F952	D953	E954	K955	S956	I957	L958	Q959	K960	Y961	A962	N963	Y964	K965	T966	F967	C968	K969	N970	L971	P972	Y973							
Q852	Q853	L854	Y855	G856	E857	D858	G859	L860	D861	A862	R863	Q864	L865	E866	T867	R869	F870	E871	T872	R873	M874	L875	S876	O877	Q878	E879	L880	E881	D882	R883	F884	K885	Y886	T887	G888	I889	Q890	S891	P892	L893	F894	E895	E896	E897	F898	S899	R900	L901	K902	K903	D904	R905	D906	K907	D908	T908	Y908	R909	Q910	I911					
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K606	A607	V608	G609	A610	S612	S613	G614	G615	I616	Y617	H618	L619	I620	S621	R622	R623	Y624	Q627	Q628	A629	L630	K631	I633	F634	A635	Q638	L639	A640	L641	N642	V643	V644	R645	H646	A647	G648	F649	T650	V651	S652	T653	A654	D655	M656	L657	L658	T659	P660	E661	A662	H663	Q664	E665	V666	Q667										
S645	P646	T647	D648	L649	D651	G652	K653	S654	V655	V656	S657	M658	L659	L660	Q662	R663	Y664	Q667	G668	P664	N666	Y667	Q668	R669	S671	T672	W673	Y674	S675	E676	V677	Y678	P680	Y681	M682	H683	Y684	N685	K686	Q687	D688	I689	S689	T691	W692	D693	V694	M695	G696	E697	E600	V602	L603	D604	K605										
E668	I669	I670	N671	E672	L673	L674	E675	E676	S677	E678	E679	I680	M681	N682	R683	L684	L685	H686	G687	D688	I689	M690	P691	P692	I693	G694	L695	T696	R697	H698	T699	E700	Y701	E702	K703	L704	Q705	L706	A707	L709	K710	F711	P712	S652	T653	A654	D655	M656	L657	L658	T659	P660	E661	A662	H663	Q664	E665	V666	T727						
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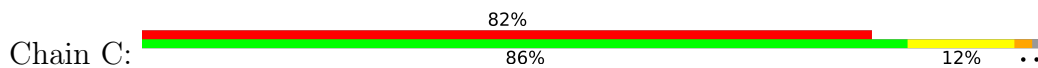


• Molecule 2: DNA-directed RNA polymerase subunit beta

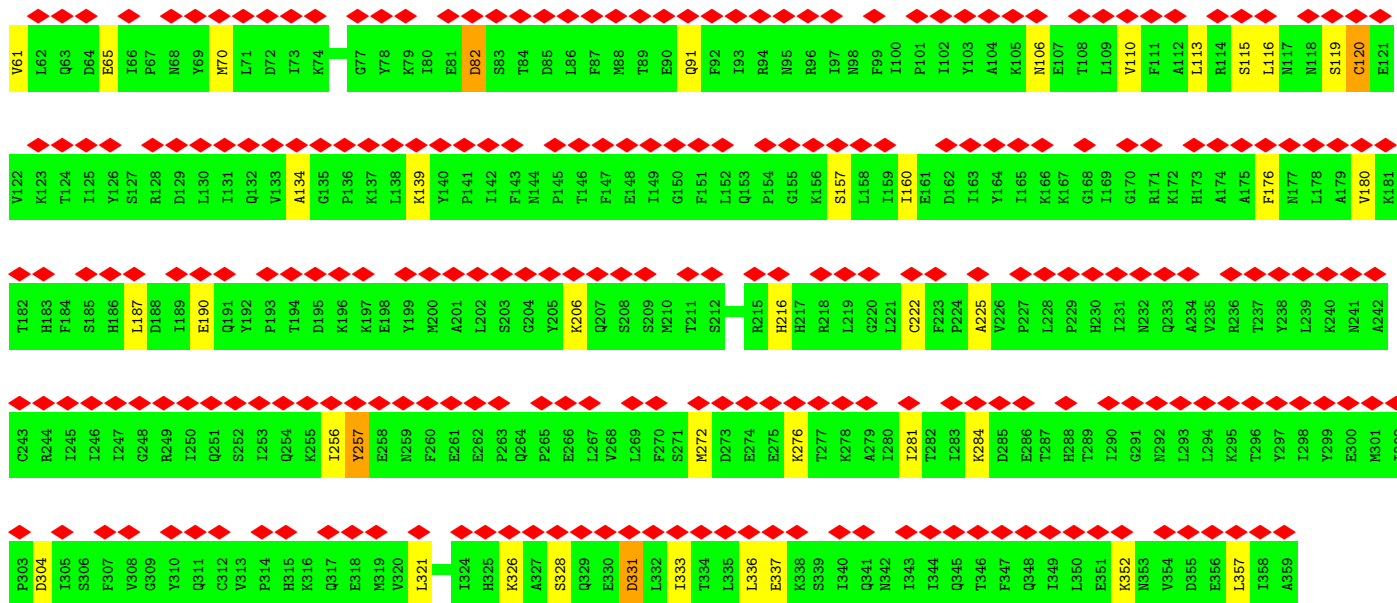


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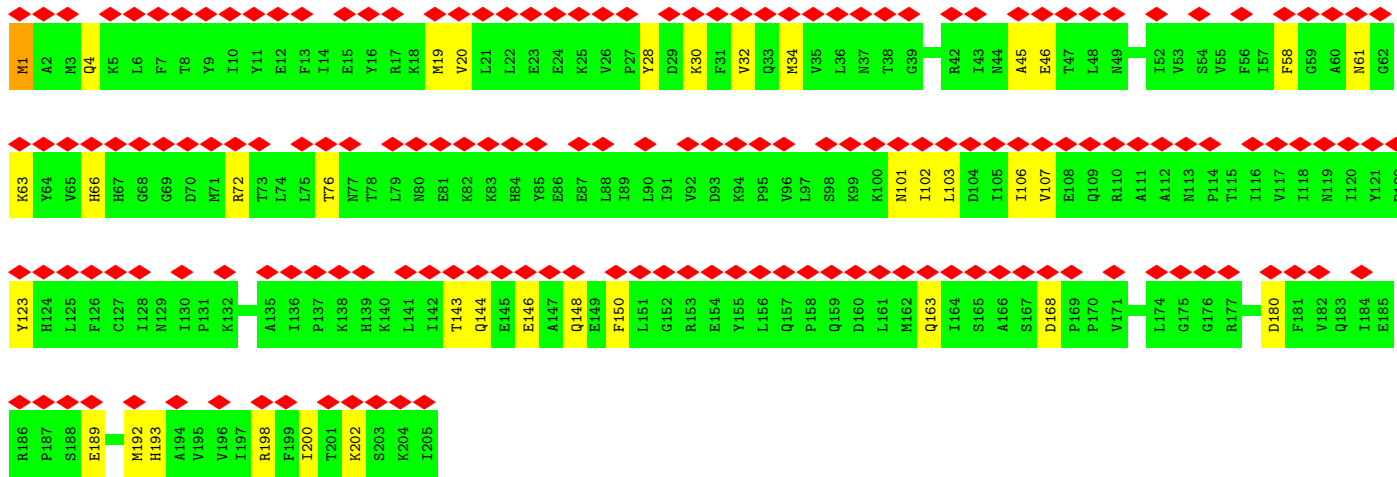
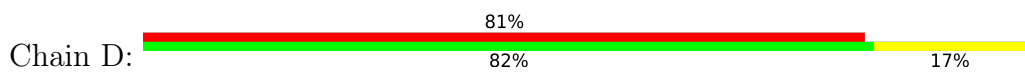
● Molecule 3: DNA-directed RNA polymerase RPB3-11 homolog



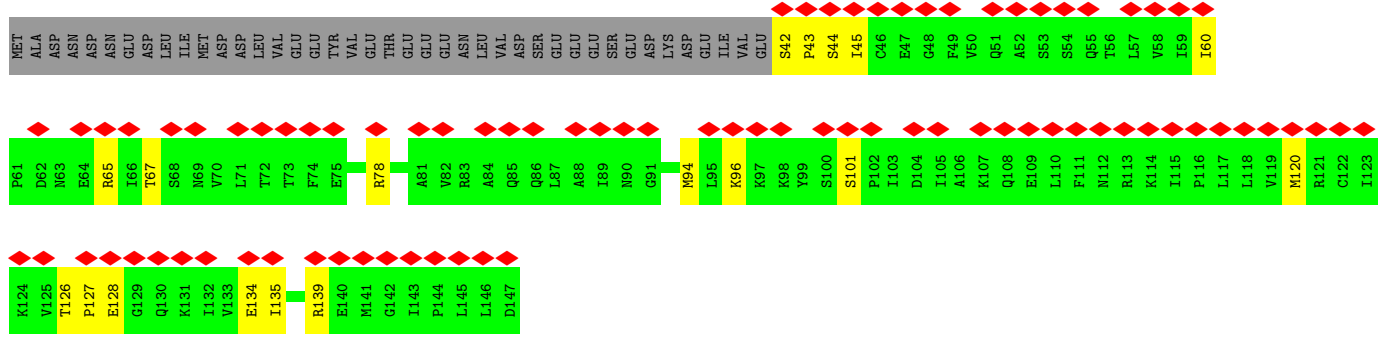
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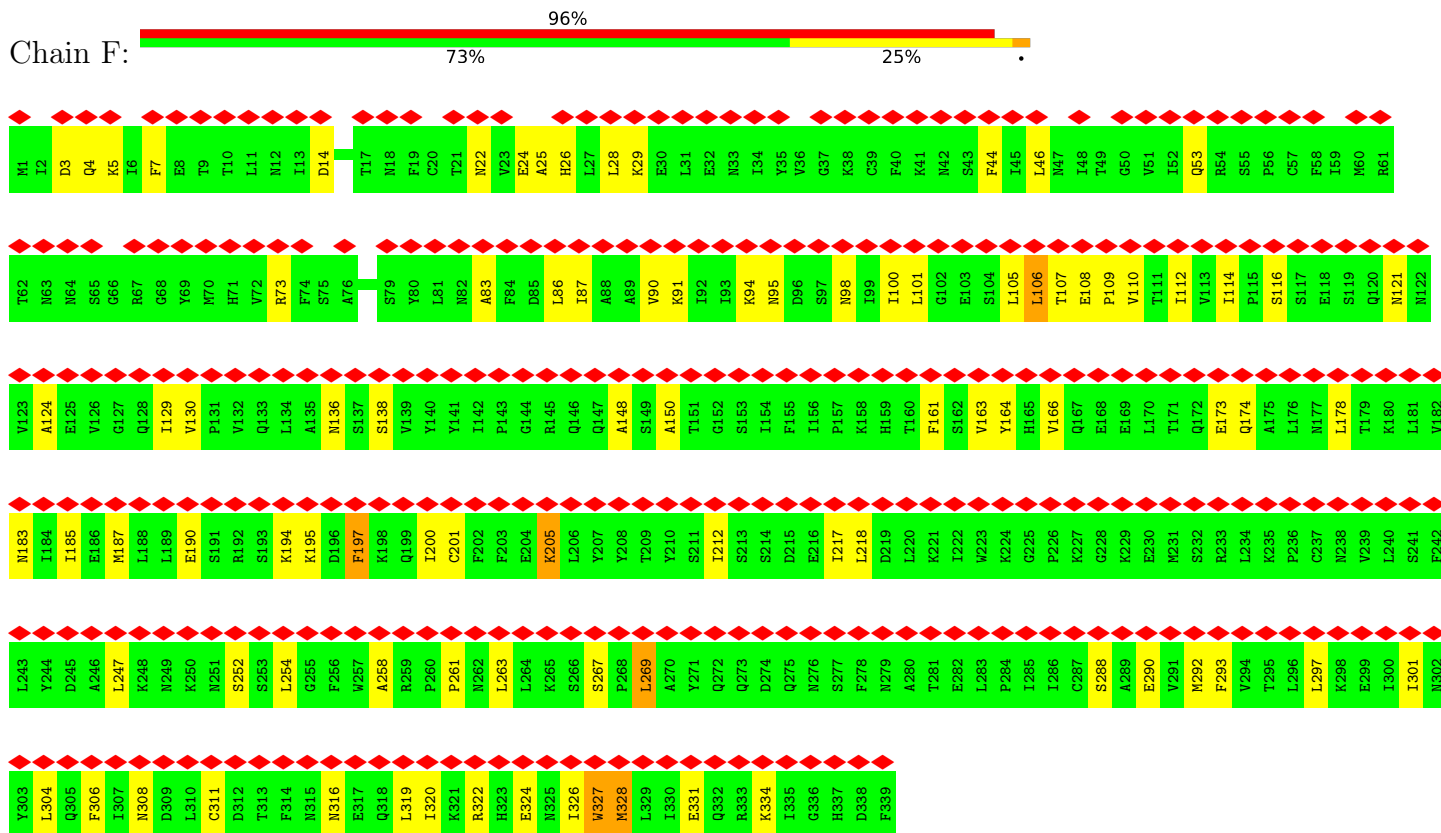
• Molecule 4: DNA-directed RNA polymerase RPB5 homolog



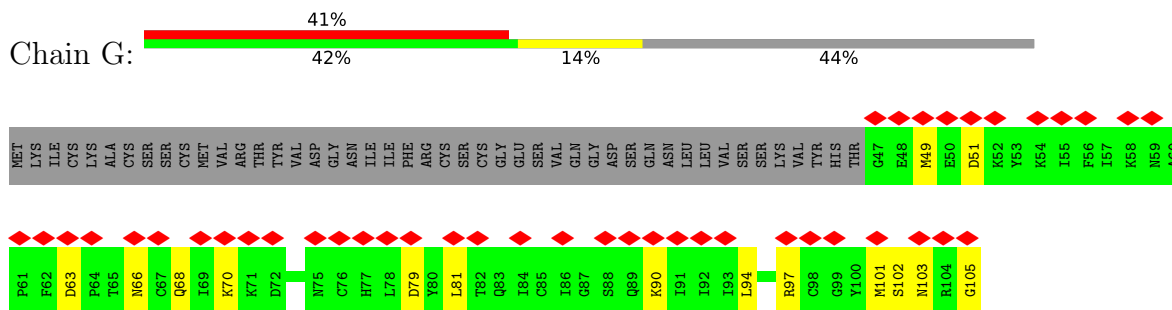
• Molecule 5: C147L



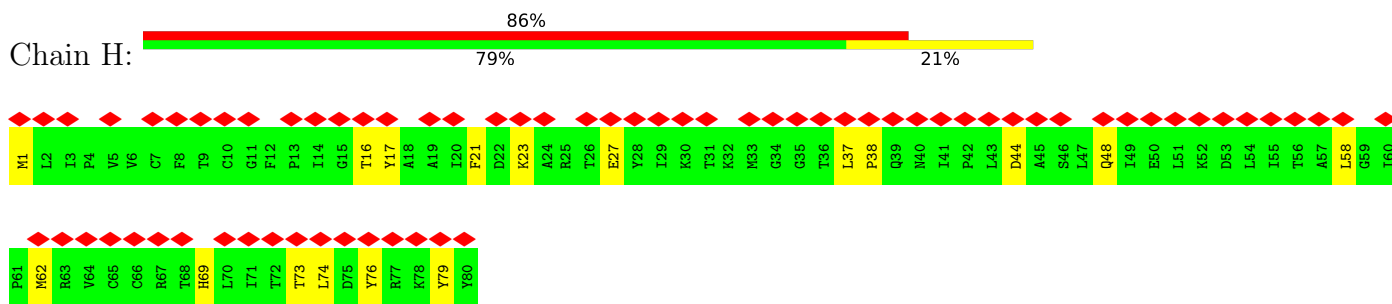
- Molecule 6: D339L



- Molecule 7: C122R

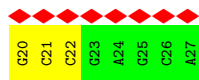


- Molecule 8: DNA-directed RNA polymerase RPB10 homolog

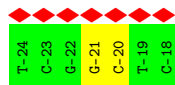
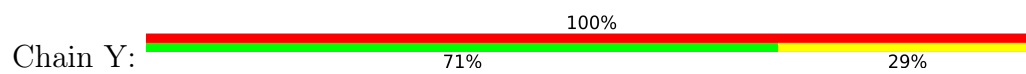


- Molecule 9: DNA (5'-D(P*GP*CP*CP*GP*AP*GP*CP*A)-3')





- Molecule 10: DNA (5'-D(P*TP*CP*GP*GP*CP*TP*C)-3')



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	266388	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	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	0.148	Depositor
Minimum map value	-0.090	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.0129	Depositor
Map size (Å)	258.56, 258.56, 258.56	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.80799997, 0.80799997, 0.80799997	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, 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	0.42	0/11163	0.56	2/15116 (0.0%)
2	B	0.38	0/9648	0.55	1/13055 (0.0%)
3	C	0.43	0/2959	0.51	0/4000
4	D	0.39	0/1707	0.52	0/2311
5	E	0.41	0/841	0.57	0/1139
6	F	0.30	0/2782	0.51	0/3767
7	G	0.35	0/476	0.50	0/638
8	H	0.46	0/643	0.56	0/872
9	X	0.49	0/185	0.79	0/283
10	Y	0.57	0/156	0.90	0/238
All	All	0.40	0/30560	0.55	3/41419 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1101	PRO	N-CD-CG	-8.09	91.07	103.20
2	B	971	PRO	N-CD-CG	-5.39	95.11	103.20
1	A	1101	PRO	CA-N-CD	-5.13	104.31	111.50

There are no chirality outliers.

There are no planarity outliers.

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	A	10954	0	11085	162	0
2	B	9459	0	9413	171	0
3	C	2897	0	2976	31	0
4	D	1668	0	1713	18	0
5	E	829	0	877	17	0
6	F	2727	0	2755	55	0
7	G	468	0	467	9	0
8	H	630	0	659	11	0
9	X	165	0	89	4	0
10	Y	141	0	80	3	0
11	A	1	0	0	0	0
12	A	1	0	0	0	0
12	B	1	0	0	0	0
12	G	1	0	0	0	0
12	H	1	0	0	0	0
All	All	29943	0	30114	443	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 7.

All (443) 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)
2:B:807:THR:OG1	2:B:845:ASN:ND2	1.99	0.95
6:F:91:LYS:HG3	6:F:105:LEU:HD11	1.56	0.87
5:E:42:SER:OG	5:E:43:PRO:HD3	1.74	0.86
1:A:121:LEU:HD23	1:A:185:LEU:HG	1.58	0.84
1:A:83:LEU:H	1:A:264:GLN:HE22	1.28	0.81
1:A:515:THR:HG22	1:A:517:MET:H	1.48	0.79
1:A:1078:GLN:OE1	1:A:1084:LYS:NZ	2.14	0.76
1:A:109:LEU:HD13	1:A:184:LYS:HD3	1.65	0.76
2:B:892:ASP:O	2:B:939:LYS:NZ	2.20	0.75
6:F:22:ASN:O	6:F:26:HIS:ND1	2.19	0.75
2:B:138:ALA:HB3	2:B:146:GLU:HB3	1.70	0.73
1:A:1128:GLN:N	1:A:1179:GLU:OE1	2.22	0.73
2:B:886:LYS:NZ	2:B:888:GLU:OE2	2.22	0.72
9:X:21:DC:N3	10:Y:-21:DG:N1	2.31	0.72
5:E:96:LYS:HE3	5:E:96:LYS:HA	1.70	0.72
1:A:872:THR:HG22	1:A:905:ARG:HG3	1.73	0.70
6:F:95:ASN:ND2	6:F:124:ALA:O	2.24	0.70
1:A:1123:GLU:HG3	1:A:1255:LEU:HD12	1.72	0.70
1:A:1200:ARG:NE	1:A:1206:THR:O	2.23	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:543:ARG:NH1	2:B:563:GLU:O	2.24	0.70
6:F:173:GLU:OE2	6:F:174:GLN:NE2	2.25	0.70
8:H:17:TYR:HB3	8:H:58:LEU:HD22	1.74	0.69
1:A:1126:ILE:HG21	1:A:1178:LEU:HD23	1.75	0.69
1:A:1432:ASP:OD2	5:E:139:ARG:NH2	2.23	0.69
1:A:381:LYS:NZ	1:A:403:ASP:OD2	2.25	0.69
2:B:130:LEU:HD22	2:B:157:VAL:HG21	1.76	0.68
1:A:91:ILE:HG12	1:A:196:LEU:HD23	1.77	0.67
1:A:501:GLN:O	2:B:1031:HIS:NE2	2.26	0.67
2:B:1229:ASN:HD22	5:E:45:ILE:HG13	1.60	0.67
1:A:145:VAL:HG13	1:A:155:TRP:HB2	1.76	0.67
6:F:46:LEU:HD21	6:F:108:GLU:HG2	1.76	0.66
5:E:67:THR:OG1	5:E:134:GLU:OE1	2.14	0.66
2:B:236:PRO:HD3	2:B:374:PRO:HB2	1.78	0.66
3:C:82:ASP:OD1	3:C:82:ASP:N	2.25	0.66
1:A:49:ARG:O	1:A:61:THR:OG1	2.14	0.66
6:F:293:PHE:O	6:F:297:LEU:HG	1.96	0.66
6:F:94:LYS:HB3	6:F:101:LEU:HB3	1.78	0.65
6:F:267:SER:HB2	6:F:269:LEU:HD22	1.79	0.65
2:B:792:THR:HG23	2:B:1038:THR:HA	1.76	0.65
2:B:1162:GLN:HE21	5:E:78:ARG:HH11	1.45	0.65
4:D:163:GLN:O	4:D:198:ARG:NH1	2.30	0.64
4:D:102:ILE:O	4:D:106:ILE:HG12	1.97	0.64
1:A:1203:HIS:NE2	1:A:1257:SER:OG	2.25	0.64
2:B:330:GLU:HA	2:B:333:ILE:HD12	1.80	0.64
2:B:486:ILE:HG13	2:B:487:ILE:HG13	1.80	0.64
2:B:330:GLU:OE2	2:B:361:ASN:ND2	2.31	0.64
2:B:393:LEU:O	2:B:397:ILE:HD12	1.98	0.64
2:B:1059:ASP:OD2	2:B:1061:THR:OG1	2.15	0.64
1:A:886:TYR:HE2	1:A:889:ILE:HD12	1.64	0.63
2:B:486:ILE:O	2:B:506:THR:OG1	2.14	0.63
3:C:110:VAL:HB	3:C:134:ALA:HB3	1.80	0.63
6:F:166:VAL:HG23	6:F:292:MET:HE3	1.80	0.63
1:A:728:ASN:HD22	1:A:731:PHE:H	1.45	0.63
1:A:877:ASP:OD1	1:A:1282:GLY:HA3	1.99	0.62
1:A:1224:ARG:NH1	1:A:1226:TYR:OH	2.32	0.62
2:B:657:VAL:HG23	2:B:659:GLU:HG3	1.82	0.62
3:C:190:GLU:HB2	3:C:206:LYS:HD2	1.82	0.62
4:D:58:PHE:O	4:D:123:TYR:OH	2.17	0.61
2:B:621:TRP:NE1	2:B:623:GLY:O	2.33	0.61
7:G:101:MET:HG2	7:G:105:GLY:HA3	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1332:ARG:NH1	1:A:1358:ASP:OD1	2.34	0.60
1:A:241:PRO:HG2	1:A:244:LEU:HB2	1.84	0.60
6:F:304:LEU:O	6:F:308:ASN:ND2	2.33	0.60
1:A:916:GLU:OE2	1:A:923:LEU:HD13	2.02	0.60
1:A:116:ILE:HG13	1:A:119:LYS:HG3	1.83	0.60
2:B:885:GLU:HB2	2:B:982:MET:HB3	1.83	0.60
1:A:676:GLU:HG2	1:A:708:ALA:HB1	1.83	0.59
1:A:681:ASN:OD1	1:A:701:TYR:OH	2.19	0.59
2:B:360:LEU:O	2:B:364:GLN:NE2	2.34	0.59
9:X:20:DG:H1	10:Y:-20:DC:H42	1.51	0.59
2:B:844:PRO:HG2	8:H:74:LEU:HD11	1.85	0.59
2:B:208:ILE:HD12	2:B:208:ILE:H	1.68	0.59
6:F:164:TYR:HB2	6:F:292:MET:CE	2.32	0.59
6:F:164:TYR:HB2	6:F:292:MET:HE2	1.83	0.58
6:F:328:MET:HA	6:F:331:GLU:HB2	1.84	0.58
2:B:920:PHE:HE1	2:B:934:ILE:HG23	1.67	0.58
1:A:1274:MET:SD	1:A:1286:ARG:NH1	2.77	0.58
2:B:650:THR:HB	2:B:663:TRP:HB2	1.84	0.58
2:B:807:THR:HG1	2:B:845:ASN:HD21	1.46	0.58
6:F:163:VAL:HG22	6:F:258:ALA:HB2	1.86	0.58
1:A:90:GLU:OE1	1:A:93:ARG:NH1	2.36	0.58
1:A:333:LEU:O	1:A:447:ASN:ND2	2.29	0.58
1:A:332:ASP:OD2	2:B:859:TYR:OH	2.21	0.58
1:A:696:THR:HG23	1:A:699:ASP:H	1.69	0.58
1:A:143:LYS:HB3	1:A:157:ASP:HB3	1.86	0.57
5:E:120:MET:HG3	5:E:135:ILE:HD13	1.85	0.57
1:A:1184:THR:OG1	1:A:1185:MET:SD	2.62	0.57
1:A:1177:ARG:HH11	1:A:1222:ILE:HD11	1.70	0.57
7:G:81:LEU:HD23	7:G:94:LEU:HB3	1.86	0.57
2:B:485:SER:HG	2:B:504:VAL:N	2.02	0.57
6:F:319:LEU:HD23	6:F:322:ARG:HD2	1.87	0.57
6:F:324:GLU:HA	6:F:327:TRP:CD1	2.39	0.57
1:A:468:PRO:HB2	1:A:474:ARG:HG3	1.86	0.57
2:B:260:ILE:HG21	2:B:371:ILE:HD12	1.86	0.57
2:B:86:GLN:HB3	2:B:137:THR:HB	1.87	0.56
1:A:1410:ILE:HD12	2:B:1156:THR:HG21	1.88	0.56
2:B:202:VAL:HA	2:B:506:THR:HG22	1.86	0.56
1:A:273:ASP:N	1:A:298:SER:OG	2.35	0.56
5:E:42:SER:OG	5:E:43:PRO:CD	2.52	0.56
5:E:65:ARG:HG2	5:E:134:GLU:HG2	1.86	0.56
1:A:1150:SER:O	1:A:1154:TRP:N	2.33	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:999:ARG:NH2	2:B:1044:GLU:OE2	2.35	0.56
3:C:328:SER:OG	3:C:331:ASP:OD1	2.24	0.56
1:A:1126:ILE:HD13	1:A:1129:TRP:HB3	1.86	0.56
2:B:1069:GLN:NE2	2:B:1073:GLU:OE2	2.35	0.56
6:F:116:SER:OG	6:F:121:ASN:ND2	2.39	0.56
2:B:302:ASN:O	2:B:306:ILE:HD12	2.05	0.56
1:A:1305:LEU:HB3	4:D:1:MET:HB3	1.86	0.56
1:A:872:THR:HG23	1:A:880:LEU:HD13	1.88	0.56
1:A:1096:LEU:HD22	1:A:1309:ILE:HG21	1.87	0.56
2:B:580:ALA:HB2	2:B:666:VAL:HG13	1.88	0.56
2:B:134:VAL:HB	2:B:150:ALA:HB3	1.88	0.56
2:B:118:ARG:NH2	2:B:192:TYR:OH	2.38	0.55
3:C:113:LEU:HD23	3:C:160:ILE:HD12	1.88	0.55
2:B:235:GLN:NE2	2:B:238:GLY:O	2.35	0.55
1:A:54:ASP:OD2	1:A:56:HIS:ND1	2.38	0.55
1:A:134:CYS:HB3	1:A:139:ALA:H	1.71	0.55
6:F:53:GLN:OE1	6:F:73:ARG:NH1	2.39	0.55
3:C:6:GLN:HA	3:C:357:LEU:HD11	1.89	0.55
1:A:1109:TYR:CZ	1:A:1113:ILE:HD11	2.43	0.54
1:A:1052:PRO:HG2	1:A:1348:PRO:HD3	1.90	0.54
6:F:183:ASN:O	6:F:187:MET:HG2	2.07	0.54
2:B:255:ALA:HB2	2:B:315:VAL:HG11	1.90	0.54
1:A:35:PHE:HE2	1:A:212:ILE:HG21	1.72	0.54
1:A:1340:ARG:NH2	4:D:189:GLU:OE2	2.41	0.54
2:B:429:PHE:O	2:B:433:PHE:HB2	2.08	0.54
1:A:255:ASN:OD1	1:A:256:ILE:N	2.41	0.53
1:A:147:ASP:OD1	1:A:148:SER:N	2.42	0.53
1:A:1313:THR:O	1:A:1313:THR:HG22	2.08	0.53
2:B:870:SER:HG	2:B:1012:THR:HG1	1.55	0.53
1:A:158:GLN:HB3	1:A:161:LYS:HB3	1.90	0.53
1:A:1051:GLU:HB3	1:A:1052:PRO:HD3	1.91	0.53
1:A:336:ASP:OD1	1:A:336:ASP:N	2.42	0.53
2:B:20:GLU:HG2	2:B:716:PRO:HG2	1.90	0.53
4:D:30:LYS:O	4:D:34:MET:HG3	2.08	0.53
3:C:38:LEU:HD23	3:C:225:ALA:HB1	1.91	0.53
1:A:442:SER:HB3	2:B:1119:ARG:HD3	1.91	0.52
2:B:315:VAL:O	2:B:324:GLN:NE2	2.43	0.52
1:A:1208:ILE:HG13	1:A:1223:ILE:HD11	1.91	0.52
1:A:1195:ILE:O	1:A:1199:LEU:HD12	2.10	0.52
1:A:1249:ASN:O	1:A:1253:LYS:N	2.36	0.52
2:B:417:ARG:NH1	2:B:665:ASP:OD2	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:60:LYS:HB2	2:B:61:GLN:OE1	2.10	0.52
2:B:74:ASP:N	2:B:74:ASP:OD1	2.41	0.52
3:C:61:VAL:HA	3:C:65:GLU:HB2	1.90	0.52
6:F:320:ILE:HG23	6:F:327:TRP:HE1	1.75	0.52
1:A:81:PRO:HD3	1:A:199:LYS:HE2	1.92	0.52
1:A:491:LYS:HZ2	1:A:492:SER:HB3	1.74	0.52
1:A:1174:TRP:HZ2	1:A:1243:ASP:HB3	1.75	0.52
2:B:320:PHE:CZ	2:B:339:LYS:HE3	2.45	0.52
3:C:190:GLU:CD	3:C:190:GLU:H	2.13	0.51
2:B:722:ILE:HG13	2:B:727:LEU:HD23	1.92	0.51
1:A:22:LYS:HA	1:A:75:ILE:HD13	1.92	0.51
1:A:1185:MET:SD	1:A:1185:MET:N	2.83	0.51
2:B:881:PHE:HB3	2:B:986:TYR:HB2	1.91	0.51
1:A:499:GLN:HB3	1:A:503:SER:HB2	1.93	0.51
2:B:101:HIS:N	2:B:110:ILE:O	2.35	0.51
6:F:25:ALA:O	6:F:29:LYS:HG3	2.11	0.51
2:B:235:GLN:OE1	2:B:243:SER:OG	2.29	0.51
1:A:62:CYS:O	2:B:1190:ASN:ND2	2.41	0.51
2:B:299:SER:O	2:B:303:THR:HG23	2.11	0.51
2:B:482:MET:HG3	2:B:483:GLU:N	2.26	0.51
1:A:371:ARG:NH1	1:A:391:GLU:OE2	2.44	0.51
2:B:97:GLU:HG3	2:B:127:PRO:HD2	1.93	0.51
6:F:200:ILE:HG22	6:F:311:CYS:SG	2.51	0.51
2:B:375:HIS:HD2	2:B:620:GLU:HB3	1.75	0.51
2:B:132:ALA:HB3	2:B:152:ILE:HD12	1.93	0.50
1:A:1439:ASN:HB3	5:E:94:MET:SD	2.51	0.50
2:B:877:PHE:O	2:B:1110:ARG:NH1	2.43	0.50
2:B:482:MET:O	2:B:486:ILE:HG23	2.11	0.50
4:D:1:MET:SD	4:D:4:GLN:HB3	2.50	0.50
2:B:79:ASP:HA	2:B:82:ARG:HH12	1.77	0.50
2:B:578:CYS:HG	2:B:648:HIS:HD1	1.58	0.50
2:B:957:TYR:CZ	2:B:959:PHE:HB2	2.46	0.50
6:F:138:SER:O	6:F:150:ALA:HA	2.12	0.50
2:B:1177:SER:HB3	2:B:1210:VAL:HG22	1.93	0.50
1:A:493:SER:OG	1:A:862:ALA:O	2.17	0.50
1:A:1152:VAL:HG23	1:A:1155:MET:HE2	1.94	0.50
1:A:407:ARG:NH1	1:A:408:ASP:O	2.45	0.49
2:B:486:ILE:HG13	2:B:487:ILE:N	2.27	0.49
8:H:21:PHE:HB2	8:H:58:LEU:HD11	1.94	0.49
9:X:21:DC:N4	10:Y:-21:DG:O6	2.20	0.49
2:B:209:ARG:NE	2:B:212:THR:HG21	2.26	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:604:ASN:HA	2:B:607:ILE:HG12	1.94	0.49
2:B:227:ILE:HG13	2:B:228:ILE:HG23	1.94	0.49
2:B:285:ASP:OD1	2:B:285:ASP:N	2.45	0.49
2:B:324:GLN:HG3	2:B:325:HIS:CD2	2.47	0.49
2:B:1190:ASN:O	2:B:1194:PRO:HA	2.13	0.49
4:D:103:LEU:O	4:D:107:VAL:HG12	2.12	0.49
1:A:1098:LEU:HD12	1:A:1104:GLU:HA	1.94	0.49
2:B:543:ARG:HD3	2:B:565:VAL:O	2.13	0.49
8:H:37:LEU:HD12	8:H:38:PRO:HD2	1.94	0.49
1:A:423:LEU:HD23	2:B:1150:MET:HE3	1.95	0.49
2:B:486:ILE:HG22	2:B:504:VAL:HB	1.95	0.49
2:B:389:PHE:O	2:B:393:LEU:HG	2.13	0.49
3:C:333:ILE:O	3:C:337:GLU:HG2	2.12	0.49
2:B:185:ASP:OD1	2:B:813:PHE:HB2	2.11	0.49
2:B:922:PRO:HG2	2:B:925:THR:HG21	1.95	0.49
6:F:263:LEU:HD11	6:F:269:LEU:HG	1.95	0.49
2:B:202:VAL:HG11	2:B:421:SER:HA	1.95	0.49
4:D:143:THR:OG1	4:D:146:GLU:HG3	2.13	0.49
1:A:1307:ASP:N	1:A:1307:ASP:OD1	2.45	0.48
1:A:586:LYS:HA	1:A:586:LYS:HD3	1.64	0.48
1:A:20:ASP:OD1	5:E:44:SER:OG	2.26	0.48
2:B:271:PRO:HB2	2:B:273:TYR:CE1	2.48	0.48
2:B:281:MET:HG2	2:B:287:ILE:HD13	1.96	0.48
3:C:3:LYS:NZ	3:C:357:LEU:HG	2.28	0.48
1:A:1174:TRP:HD1	1:A:1227:LEU:HD11	1.79	0.48
1:A:208:ILE:HD11	2:B:1218:VAL:HA	1.95	0.48
2:B:192:TYR:CD2	2:B:199:GLU:HG2	2.49	0.47
2:B:379:THR:OG1	2:B:381:ASP:OD1	2.17	0.47
2:B:1058:THR:HG22	8:H:48:GLN:HE22	1.79	0.47
6:F:3:ASP:N	6:F:3:ASP:OD1	2.46	0.47
2:B:1181:ARG:HB2	2:B:1206:ASP:HB3	1.96	0.47
1:A:1129:TRP:HB2	1:A:1178:LEU:HG	1.96	0.47
2:B:916:LEU:HD21	2:B:932:ILE:HG22	1.96	0.47
2:B:1162:GLN:NE2	5:E:78:ARG:HH11	2.10	0.47
2:B:457:LEU:HD22	2:B:461:ASN:HB3	1.96	0.47
2:B:894:GLU:HG2	2:B:938:ALA:HB2	1.96	0.47
5:E:127:PRO:HD2	5:E:128:GLU:OE2	2.14	0.47
2:B:995:LYS:HD2	2:B:1111:LEU:HD12	1.97	0.47
3:C:281:ILE:HD13	3:C:321:LEU:HD23	1.95	0.47
1:A:320:TRP:CE2	2:B:1135:PRO:HG3	2.50	0.47
1:A:501:GLN:O	2:B:1031:HIS:CE1	2.67	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1185:MET:O	1:A:1189:SER:N	2.48	0.47
2:B:512:LYS:HD3	2:B:516:ASN:ND2	2.30	0.47
2:B:987:GLU:HG3	3:C:91:GLN:CD	2.34	0.47
6:F:24:GLU:CD	6:F:24:GLU:H	2.18	0.47
2:B:423:VAL:O	2:B:427:LYS:HG2	2.14	0.47
3:C:139:LYS:HA	3:C:139:LYS:HD3	1.66	0.47
2:B:727:LEU:HD12	2:B:731:ASP:OD1	2.15	0.46
5:E:120:MET:HG3	5:E:135:ILE:CD1	2.45	0.46
1:A:210:PRO:HD2	1:A:224:HIS:CE1	2.51	0.46
1:A:519:LYS:HE3	1:A:519:LYS:HB3	1.64	0.46
2:B:69:TYR:CZ	2:B:446:LYS:HG2	2.50	0.46
2:B:438:ILE:HG13	2:B:439:ALA:N	2.31	0.46
6:F:288:SER:OG	6:F:290:GLU:OE2	2.30	0.46
1:A:87:PHE:O	1:A:91:ILE:HG13	2.16	0.46
3:C:352:LYS:HE3	3:C:352:LYS:HB3	1.53	0.46
1:A:171:ARG:HB2	1:A:197:VAL:HG11	1.97	0.46
2:B:479:ASN:HA	2:B:482:MET:HG2	1.97	0.46
4:D:19:MET:HB3	4:D:45:ALA:HB1	1.96	0.46
2:B:39:LEU:O	2:B:522:ARG:NH1	2.42	0.46
6:F:98:ASN:O	6:F:116:SER:HB3	2.16	0.46
7:G:90:LYS:HB3	7:G:90:LYS:HE3	1.65	0.46
2:B:441:ILE:HA	2:B:469:ALA:HB1	1.98	0.46
2:B:796:ARG:HH22	2:B:1036:ARG:HH21	1.63	0.46
6:F:212:ILE:HG12	6:F:217:ILE:HG12	1.98	0.46
1:A:1233:ARG:HA	1:A:1233:ARG:HD2	1.74	0.46
3:C:34:GLU:N	3:C:34:GLU:OE1	2.49	0.46
6:F:212:ILE:HG21	6:F:217:ILE:HD11	1.97	0.46
1:A:166:TYR:CD2	1:A:246:ILE:HG21	2.51	0.46
2:B:364:GLN:HA	2:B:367:ILE:HG22	1.98	0.46
3:C:70:MET:HG2	3:C:176:PHE:CE1	2.51	0.46
2:B:1054:GLN:NE2	2:B:1078:GLU:OE1	2.49	0.45
6:F:83:ALA:HB1	6:F:136:ASN:HA	1.98	0.45
1:A:1211:SER:OG	1:A:1212:VAL:N	2.48	0.45
2:B:803:GLN:OE1	2:B:1001:GLY:HA2	2.16	0.45
1:A:19:ASN:OD1	1:A:19:ASN:N	2.48	0.45
1:A:1401:ASP:OD2	1:A:1401:ASP:N	2.50	0.45
2:B:167:ASN:OD1	2:B:168:ARG:NH1	2.49	0.45
2:B:807:THR:HB	2:B:1109:GLN:HB3	1.99	0.45
1:A:559:LEU:HD22	1:A:639:LEU:HD22	1.99	0.45
1:A:1173:ASN:N	1:A:1173:ASN:OD1	2.50	0.45
2:B:904:THR:HA	2:B:950:TYR:HB2	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:60:ILE:HD12	5:E:134:GLU:HG3	1.98	0.45
1:A:112:TYR:HB3	1:A:120:ARG:HB2	1.98	0.45
1:A:252:ILE:HD12	1:A:256:ILE:HG22	1.99	0.45
3:C:119:SER:OG	3:C:120:CYS:N	2.49	0.45
2:B:196:ARG:NH2	2:B:487:ILE:HD13	2.32	0.45
2:B:830:GLU:HG2	8:H:73:THR:HA	1.99	0.45
6:F:87:ILE:HD12	6:F:112:ILE:HD11	1.99	0.45
6:F:108:GLU:O	6:F:110:VAL:HG23	2.17	0.45
1:A:798:SER:OG	2:B:775:PRO:HB3	2.17	0.45
1:A:1079:GLU:OE1	1:A:1089:GLU:HA	2.17	0.45
2:B:1018:THR:HG22	2:B:1088:MET:HG2	1.99	0.45
1:A:591:THR:HA	1:A:601:GLY:HA3	1.99	0.44
9:X:21:DC:H2"	9:X:22:DC:C6	2.52	0.44
2:B:430:LYS:HD2	2:B:430:LYS:HA	1.70	0.44
2:B:614:ARG:HD3	2:B:621:TRP:CZ2	2.52	0.44
6:F:110:VAL:HG13	6:F:148:ALA:HB3	1.98	0.44
1:A:31:ILE:HD11	1:A:42:GLU:O	2.17	0.44
1:A:114:HIS:CE1	1:A:115:LEU:HG	2.52	0.44
1:A:382:GLN:NE2	1:A:401:VAL:O	2.50	0.44
6:F:5:LYS:HD3	6:F:7:PHE:CZ	2.53	0.44
1:A:923:LEU:HD12	1:A:1276:HIS:HE1	1.83	0.44
3:C:180:VAL:HG22	3:C:222:CYS:HB3	1.99	0.44
6:F:106:LEU:HD12	6:F:107:THR:N	2.32	0.44
1:A:1251:VAL:HG13	1:A:1255:LEU:HD23	2.00	0.44
2:B:479:ASN:O	2:B:483:GLU:HG2	2.17	0.44
4:D:20:VAL:HG22	4:D:46:GLU:HB3	1.99	0.44
1:A:419:ARG:HD2	1:A:456:ALA:HB2	2.00	0.44
1:A:923:LEU:HD12	1:A:1276:HIS:CE1	2.52	0.44
3:C:257:TYR:HB3	3:C:337:GLU:OE2	2.18	0.44
1:A:876:SER:HB3	1:A:1283:LYS:HG3	2.00	0.44
1:A:1015:THR:HG22	1:A:1016:CYS:H	1.83	0.44
2:B:60:LYS:HE2	2:B:92:THR:O	2.18	0.44
2:B:118:ARG:NE	2:B:199:GLU:OE1	2.40	0.44
3:C:106:ASN:OD1	3:C:106:ASN:N	2.51	0.44
1:A:960:LYS:NZ	1:A:1011:THR:O	2.45	0.44
2:B:543:ARG:HB3	2:B:566:GLY:HA3	2.00	0.44
6:F:44:PHE:CZ	6:F:109:PRO:HG2	2.53	0.44
2:B:305:MET:O	2:B:309:LEU:HD12	2.17	0.43
2:B:381:ASP:OD1	2:B:381:ASP:N	2.44	0.43
2:B:843:ILE:HD11	8:H:79:TYR:CD2	2.53	0.43
1:A:208:ILE:HG13	2:B:1218:VAL:HG13	1.98	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:849:ARG:NH1	1:A:1377:ARG:O	2.49	0.43
1:A:1158:PHE:HA	1:A:1161:ASN:HD22	1.83	0.43
1:A:1208:ILE:HD12	1:A:1225:ILE:HG23	2.00	0.43
2:B:125:SER:HB3	2:B:159:THR:HB	2.00	0.43
2:B:994:ASP:OD2	2:B:1110:ARG:NH2	2.52	0.43
6:F:22:ASN:HB3	6:F:26:HIS:CE1	2.53	0.43
6:F:316:ASN:HD21	6:F:319:LEU:HG	1.82	0.43
1:A:318:GLN:NE2	2:B:1136:LEU:O	2.52	0.43
1:A:822:THR:HG21	1:A:1054:THR:HA	2.00	0.43
1:A:1182:LYS:HA	1:A:1185:MET:CE	2.49	0.43
2:B:39:LEU:O	2:B:40:ILE:HD13	2.18	0.43
2:B:100:GLN:HG3	2:B:110:ILE:O	2.19	0.43
2:B:279:PHE:CG	2:B:383:ARG:HD2	2.53	0.43
1:A:834:GLN:HE22	1:A:1411:ALA:HB2	1.84	0.43
1:A:911:ILE:HD13	4:D:192:MET:O	2.19	0.43
2:B:185:ASP:HB3	2:B:188:GLU:HB3	2.01	0.43
2:B:225:ASN:O	2:B:252:THR:HG23	2.19	0.43
2:B:305:MET:HG3	2:B:398:LEU:HD23	2.00	0.43
2:B:471:SER:OG	2:B:473:ASN:OD1	2.32	0.43
2:B:860:ASN:OD1	2:B:860:ASN:N	2.51	0.43
7:G:49:MET:HE1	7:G:103:ASN:HB2	2.00	0.43
1:A:920:PHE:CE2	1:A:1095:LEU:HB2	2.53	0.43
6:F:174:GLN:O	6:F:178:LEU:HG	2.19	0.43
6:F:205:LYS:HE2	6:F:205:LYS:N	2.34	0.43
1:A:164:LYS:HE3	1:A:164:LYS:HB2	1.77	0.43
1:A:1074:ILE:O	1:A:1077:PRO:HD2	2.18	0.43
2:B:88:GLN:HB3	2:B:135:ILE:O	2.18	0.43
2:B:808:GLY:HA2	2:B:1112:GLN:OE1	2.19	0.43
6:F:324:GLU:HG3	6:F:327:TRP:HD1	1.84	0.43
8:H:1:MET:HB3	8:H:76:TYR:HB2	2.01	0.43
8:H:69:HIS:O	8:H:73:THR:OG1	2.29	0.43
1:A:425:ARG:HA	2:B:1154:VAL:HG13	2.00	0.43
1:A:1157:ASP:O	1:A:1160:GLU:HG3	2.19	0.43
1:A:1205:ASN:HA	1:A:1228:ARG:HD3	2.00	0.43
2:B:299:SER:OG	7:G:51:ASP:OD2	2.33	0.43
3:C:116:LEU:HD13	3:C:157:SER:HB3	2.00	0.43
1:A:35:PHE:CE2	1:A:212:ILE:HG21	2.51	0.43
1:A:698:HIS:HA	7:G:90:LYS:HD2	2.01	0.43
2:B:130:LEU:HB2	2:B:157:VAL:HG23	2.01	0.43
2:B:453:ALA:O	2:B:457:LEU:HG	2.19	0.43
2:B:885:GLU:O	2:B:981:LEU:HD12	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:187:LEU:HB2	3:C:216:HIS:CD2	2.54	0.43
1:A:1383:LEU:H	1:A:1405:ASN:ND2	2.17	0.42
2:B:957:TYR:CE2	2:B:959:PHE:HB2	2.53	0.42
3:C:28:LYS:HD3	8:H:23:LYS:NZ	2.33	0.42
3:C:257:TYR:CZ	3:C:336:LEU:HD13	2.54	0.42
1:A:512:ARG:HE	1:A:512:ARG:HB3	1.61	0.42
1:A:1120:ILE:HD12	1:A:1124:ARG:HD3	2.01	0.42
2:B:696:LYS:HE3	2:B:696:LYS:HB3	1.92	0.42
1:A:1174:TRP:CD1	1:A:1227:LEU:HD11	2.55	0.42
2:B:665:ASP:OD1	2:B:665:ASP:N	2.52	0.42
3:C:11:LYS:HE2	3:C:11:LYS:HB2	1.56	0.42
3:C:276:LYS:NZ	3:C:326:LYS:HE2	2.35	0.42
5:E:126:THR:HG22	5:E:127:PRO:HD2	2.01	0.42
6:F:331:GLU:HA	6:F:334:LYS:HE3	2.01	0.42
1:A:767:SER:O	1:A:777:ARG:NH1	2.53	0.42
1:A:853:GLN:HE22	4:D:150:PHE:HZ	1.68	0.42
1:A:1106:ASN:ND2	1:A:1109:TYR:HB2	2.34	0.42
2:B:235:GLN:HA	2:B:236:PRO:HD2	1.90	0.42
4:D:72:ARG:O	4:D:76:THR:HG23	2.19	0.42
7:G:70:LYS:HD2	7:G:70:LYS:HA	1.77	0.42
1:A:12:GLN:HB2	2:B:1231:THR:HB	2.00	0.42
1:A:788:ILE:HG23	1:A:800:GLU:HG2	2.02	0.42
1:A:1177:ARG:HD2	1:A:1222:ILE:HD11	2.01	0.42
4:D:28:TYR:O	4:D:32:VAL:HG12	2.20	0.42
1:A:661:GLU:OE2	1:A:661:GLU:N	2.51	0.42
2:B:98:ARG:HB3	2:B:170:HIS:CE1	2.55	0.42
6:F:252:SER:OG	6:F:254:LEU:HG	2.19	0.42
8:H:44:ASP:O	8:H:48:GLN:HG2	2.20	0.42
1:A:476:GLU:OE2	2:B:1163:THR:OG1	2.30	0.42
1:A:874:MET:SD	1:A:1284:LEU:HD23	2.60	0.42
2:B:137:THR:HG23	2:B:147:VAL:HG22	2.01	0.42
3:C:13:PHE:HD2	3:C:40:PRO:HB2	1.84	0.42
6:F:185:ILE:HG13	6:F:301:ILE:HG12	2.01	0.42
1:A:1123:GLU:OE2	1:A:1255:LEU:HB3	2.19	0.42
1:A:1177:ARG:HG3	1:A:1224:ARG:HG2	2.02	0.42
2:B:207:ASN:HB3	2:B:419:HIS:CE1	2.55	0.42
6:F:86:LEU:HD21	6:F:306:PHE:CD2	2.55	0.41
1:A:634:PHE:O	1:A:638:GLN:HG2	2.19	0.41
2:B:326:GLU:OE2	2:B:331:LYS:HB2	2.19	0.41
6:F:161:PHE:CD1	6:F:261:PRO:HD3	2.55	0.41
6:F:263:LEU:HD21	6:F:269:LEU:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1262:ILE:HB	1:A:1265:ILE:HD12	2.00	0.41
1:A:1421:ARG:O	1:A:1422:ILE:HG13	2.20	0.41
3:C:256:ILE:HD13	3:C:256:ILE:HA	1.90	0.41
3:C:272:MET:HE2	3:C:276:LYS:HD2	2.01	0.41
1:A:383:ILE:HD12	1:A:383:ILE:HA	1.97	0.41
1:A:385:GLN:N	1:A:385:GLN:OE1	2.53	0.41
1:A:1002:ILE:O	1:A:1006:LEU:HB2	2.21	0.41
1:A:1177:ARG:HA	1:A:1224:ARG:HA	2.02	0.41
2:B:37:THR:HG22	2:B:38:GLY:O	2.20	0.41
2:B:641:GLU:OE1	2:B:643:LYS:N	2.52	0.41
5:E:45:ILE:H	5:E:45:ILE:HG12	1.74	0.41
6:F:100:ILE:HB	6:F:114:ILE:HB	2.02	0.41
6:F:195:LYS:HE3	6:F:308:ASN:HA	2.01	0.41
1:A:1178:LEU:HB2	1:A:1223:ILE:HG23	2.03	0.41
2:B:928:LYS:HE2	2:B:928:LYS:HB2	1.95	0.41
2:B:560:ASP:OD1	2:B:560:ASP:N	2.51	0.41
1:A:913:LEU:HD23	1:A:913:LEU:HA	1.88	0.41
2:B:207:ASN:ND2	2:B:208:ILE:HD12	2.36	0.41
6:F:187:MET:HA	6:F:190:GLU:HG2	2.02	0.41
6:F:200:ILE:HG13	6:F:201:CYS:N	2.34	0.41
1:A:381:LYS:NZ	1:A:398:ARG:O	2.50	0.41
1:A:965:LYS:HB3	1:A:965:LYS:HE3	1.71	0.41
2:B:412:SER:OG	2:B:414:ARG:HG2	2.21	0.41
1:A:881:GLU:O	1:A:885:LYS:HB3	2.21	0.41
1:A:1076:ARG:HB3	1:A:1077:PRO:HD3	2.03	0.41
1:A:1339:ILE:O	1:A:1343:MET:HG2	2.20	0.41
2:B:276:PHE:HD2	2:B:287:ILE:HG23	1.85	0.41
2:B:898:LYS:HG3	2:B:916:LEU:HB2	2.02	0.41
2:B:911:ALA:HB2	2:B:956:MET:HE2	2.02	0.41
4:D:180:ASP:HB2	4:D:200:ILE:HD12	2.03	0.41
6:F:130:VAL:HG12	6:F:326:ILE:HG13	2.02	0.41
1:A:1170:ASP:OD1	1:A:1229:GLU:HB2	2.21	0.41
2:B:138:ALA:N	2:B:146:GLU:O	2.45	0.41
7:G:63:ASP:HB3	7:G:66:ASN:ND2	2.35	0.41
1:A:1150:SER:HA	1:A:1153:GLU:HB3	2.03	0.40
1:A:1210:HIS:HA	1:A:1223:ILE:HD13	2.03	0.40
1:A:1242:THR:OG1	1:A:1243:ASP:N	2.54	0.40
1:A:779:ALA:O	1:A:785:TYR:OH	2.30	0.40
2:B:317:ASP:OD2	2:B:320:PHE:HD2	2.03	0.40
2:B:483:GLU:HA	2:B:486:ILE:HG12	2.03	0.40
2:B:585:SER:O	2:B:588:GLN:HG3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1193:HIS:O	2:B:1193:HIS:ND1	2.53	0.40
1:A:758:ASN:N	1:A:758:ASN:HD22	2.18	0.40
4:D:144:GLN:O	4:D:148:GLN:HB2	2.21	0.40
6:F:90:VAL:O	6:F:129:ILE:HA	2.20	0.40
6:F:197:PHE:CE1	6:F:218:LEU:HD22	2.56	0.40
1:A:129:THR:HG22	1:A:132:LYS:NZ	2.36	0.40
1:A:502:ASP:HB2	2:B:861:GLN:NE2	2.37	0.40
2:B:207:ASN:HD22	2:B:207:ASN:HA	1.72	0.40
2:B:768:ARG:NH2	7:G:68:GLN:OE1	2.54	0.40
3:C:304:ASP:OD2	3:C:304:ASP:N	2.54	0.40
2:B:228:ILE:HG12	2:B:250:TYR:HB3	2.02	0.40
2:B:543:ARG:HH12	2:B:563:GLU:HG2	1.86	0.40
2:B:819:VAL:HG12	2:B:884:GLU:HB2	2.03	0.40
4:D:61:ASN:HA	4:D:66:HIS:HE1	1.86	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%)	1314 (96%)	49 (4%)	0	100	100
2	B	1186/1242 (96%)	1143 (96%)	43 (4%)	0	100	100
3	C	355/359 (99%)	344 (97%)	11 (3%)	0	100	100
4	D	203/205 (99%)	196 (97%)	7 (3%)	0	100	100
5	E	104/147 (71%)	102 (98%)	2 (2%)	0	100	100
6	F	337/339 (99%)	321 (95%)	16 (5%)	0	100	100
7	G	57/105 (54%)	53 (93%)	4 (7%)	0	100	100
8	H	78/80 (98%)	76 (97%)	2 (3%)	0	100	100
All	All	3683/3927 (94%)	3549 (96%)	134 (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%)	1176 (96%)	43 (4%)	31	62
2	B	1038/1081 (96%)	1014 (98%)	24 (2%)	45	75
3	C	326/328 (99%)	316 (97%)	10 (3%)	35	66
4	D	185/185 (100%)	179 (97%)	6 (3%)	34	65
5	E	96/136 (71%)	95 (99%)	1 (1%)	73	89
6	F	312/312 (100%)	301 (96%)	11 (4%)	31	62
7	G	54/96 (56%)	51 (94%)	3 (6%)	17	43
8	H	70/70 (100%)	67 (96%)	3 (4%)	25	54
All	All	3300/3487 (95%)	3199 (97%)	101 (3%)	37	66

All (101) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	19	ASN
1	A	66	ARG
1	A	75	ILE
1	A	145	VAL
1	A	184	LYS
1	A	191	SER
1	A	241	PRO
1	A	272	LEU
1	A	328	CYS
1	A	340	TYR
1	A	363	MET
1	A	371	ARG
1	A	382	GLN
1	A	417	PHE
1	A	446	MET
1	A	493	SER

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Mol	Chain	Res	Type
1	A	505	VAL
1	A	522	MET
1	A	646	ASN
1	A	714	ARG
1	A	728	ASN
1	A	747	HIS
1	A	830	ILE
1	A	848	THR
1	A	871	GLU
1	A	877	ASP
1	A	928	ARG
1	A	952	PHE
1	A	974	VAL
1	A	1012	LEU
1	A	1030	TYR
1	A	1078	GLN
1	A	1171	ILE
1	A	1227	LEU
1	A	1240	MET
1	A	1304	MET
1	A	1307	ASP
1	A	1358	ASP
1	A	1371	LYS
1	A	1393	GLN
1	A	1401	ASP
1	A	1428	ASP
1	A	1437	THR
2	B	164	ARG
2	B	196	ARG
2	B	249	ARG
2	B	268	LEU
2	B	304	PHE
2	B	363	ARG
2	B	414	ARG
2	B	478	LEU
2	B	480	ARG
2	B	519	SER
2	B	634	ARG
2	B	641	GLU
2	B	670	THR
2	B	694	ARG
2	B	703	LYS

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Mol	Chain	Res	Type
2	B	735	GLN
2	B	765	VAL
2	B	823	ARG
2	B	864	SER
2	B	886	LYS
2	B	1054	GLN
2	B	1113	LYS
2	B	1141	SER
2	B	1210	VAL
3	C	5	PHE
3	C	11	LYS
3	C	27	LYS
3	C	28	LYS
3	C	82	ASP
3	C	115	SER
3	C	120	CYS
3	C	257	TYR
3	C	284	LYS
3	C	331	ASP
4	D	1	MET
4	D	63	LYS
4	D	101	ASN
4	D	168	ASP
4	D	193	HIS
4	D	202	LYS
5	E	101	SER
6	F	4	GLN
6	F	14	ASP
6	F	28	LEU
6	F	106	LEU
6	F	194	LYS
6	F	197	PHE
6	F	205	LYS
6	F	247	LEU
6	F	269	LEU
6	F	327	TRP
6	F	328	MET
7	G	79	ASP
7	G	97	ARG
7	G	102	SER
8	H	16	THR
8	H	27	GLU

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Mol	Chain	Res	Type
8	H	62	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (49) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	GLN
1	A	21	HIS
1	A	68	GLN
1	A	224	HIS
1	A	228	ASN
1	A	231	GLN
1	A	264	GLN
1	A	265	GLN
1	A	420	GLN
1	A	455	ASN
1	A	592	GLN
1	A	663	HIS
1	A	667	GLN
1	A	698	HIS
1	A	721	ASN
1	A	728	ASN
1	A	758	ASN
1	A	834	GLN
1	A	853	GLN
1	A	919	ASN
1	A	1161	ASN
1	A	1276	HIS
1	A	1289	ASN
1	A	1349	ASN
1	A	1393	GLN
1	A	1439	ASN
2	B	75	HIS
2	B	207	ASN
2	B	216	HIS
2	B	325	HIS
2	B	364	GLN
2	B	419	HIS
2	B	557	GLN
2	B	845	ASN
2	B	861	GLN
2	B	906	ASN
2	B	1039	ASN

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Mol	Chain	Res	Type
2	B	1112	GLN
2	B	1142	HIS
2	B	1162	GLN
2	B	1182	ASN
2	B	1227	ASN
2	B	1229	ASN
3	C	345	GLN
6	F	4	GLN
6	F	121	ASN
6	F	332	GLN
7	G	103	ASN
8	H	48	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

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 [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

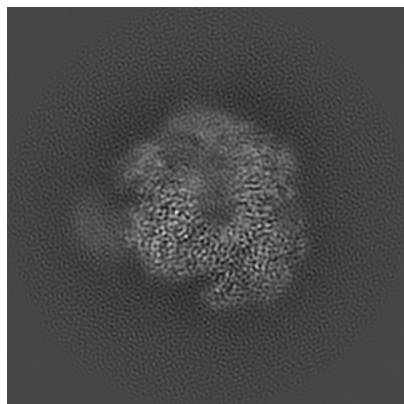
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-39511. These allow visual inspection of the internal detail of the map and identification of artifacts.

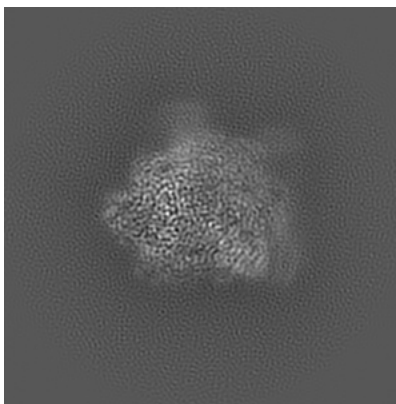
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

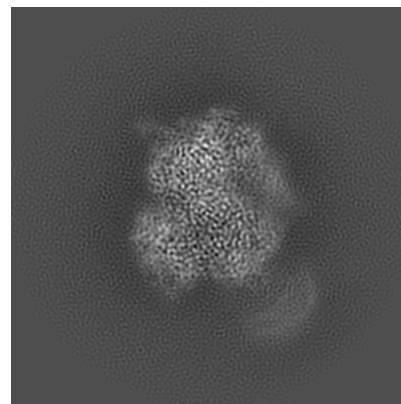
6.1.1 Primary map



X

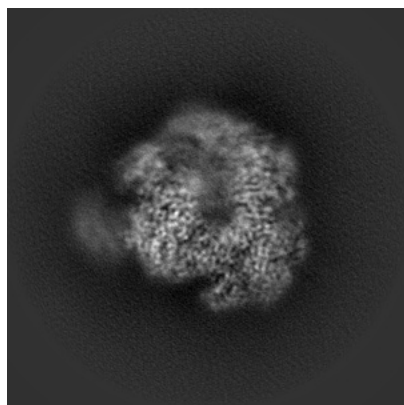


Y

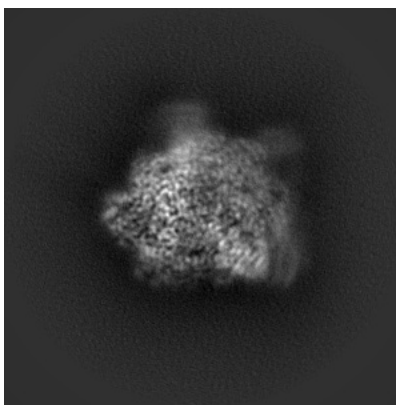


Z

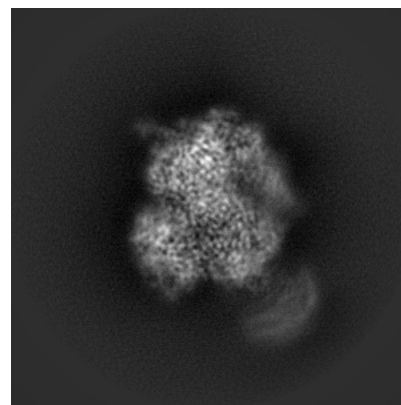
6.1.2 Raw map



X



Y

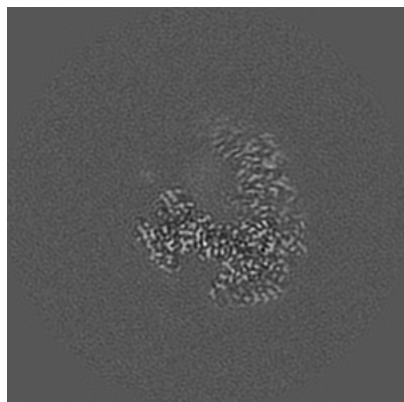


Z

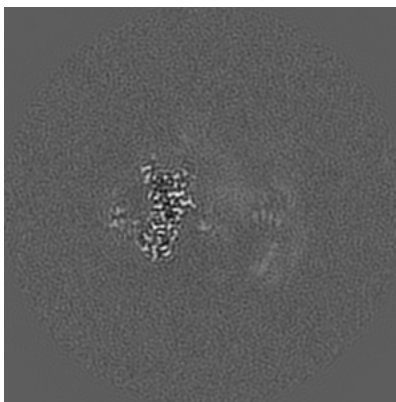
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

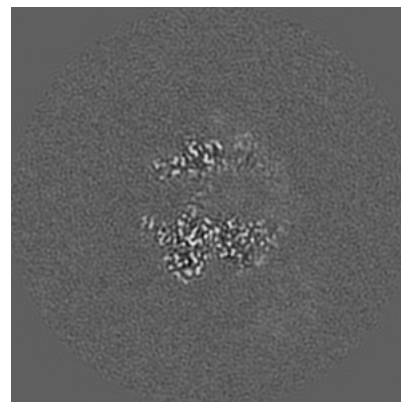
6.2.1 Primary map



X Index: 160

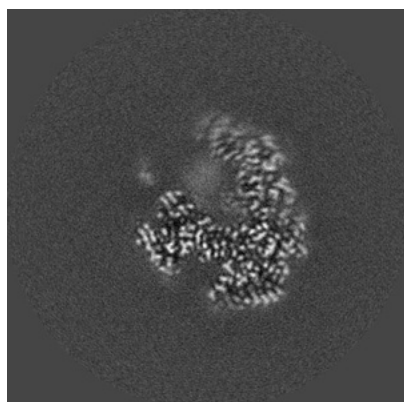


Y Index: 160

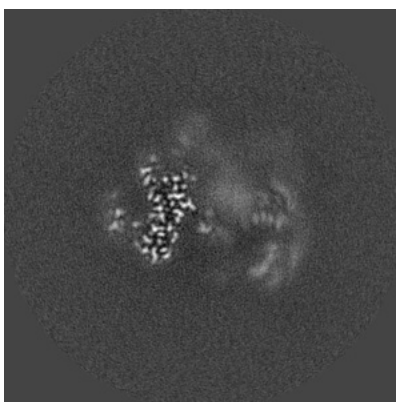


Z Index: 160

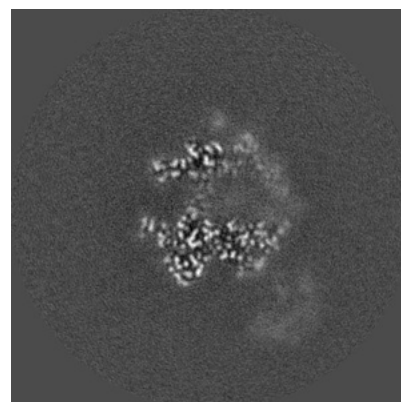
6.2.2 Raw map



X Index: 160



Y Index: 160

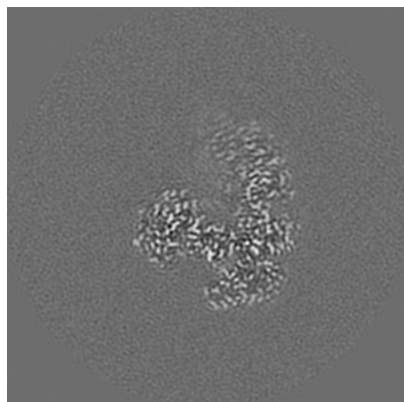


Z Index: 160

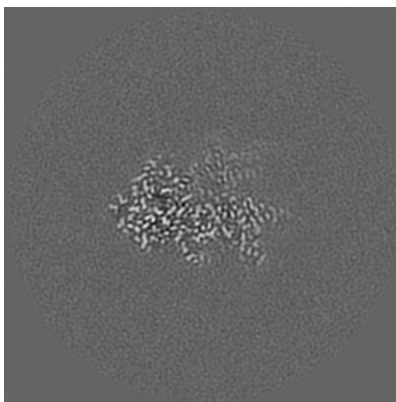
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

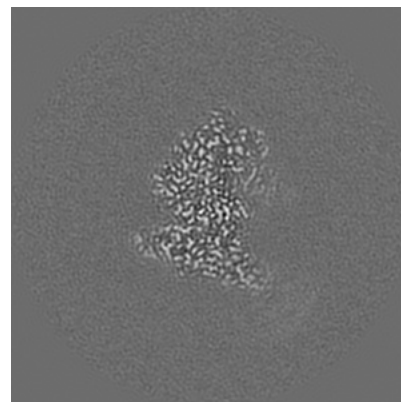
6.3.1 Primary map



X Index: 155

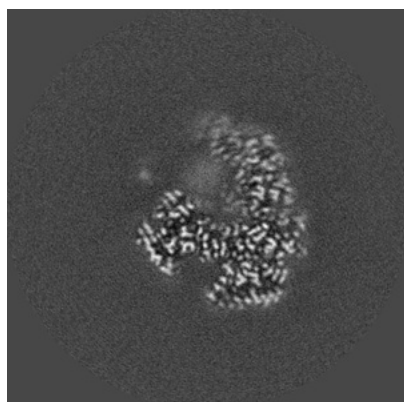


Y Index: 199

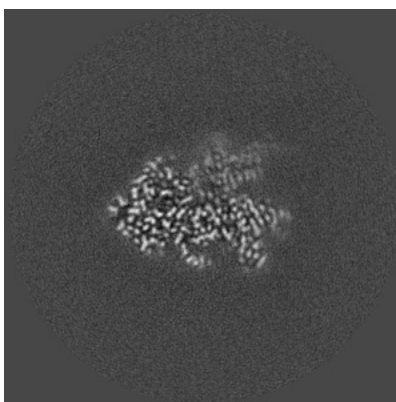


Z Index: 135

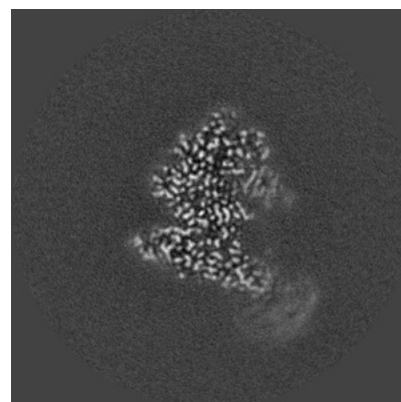
6.3.2 Raw map



X Index: 159



Y Index: 199

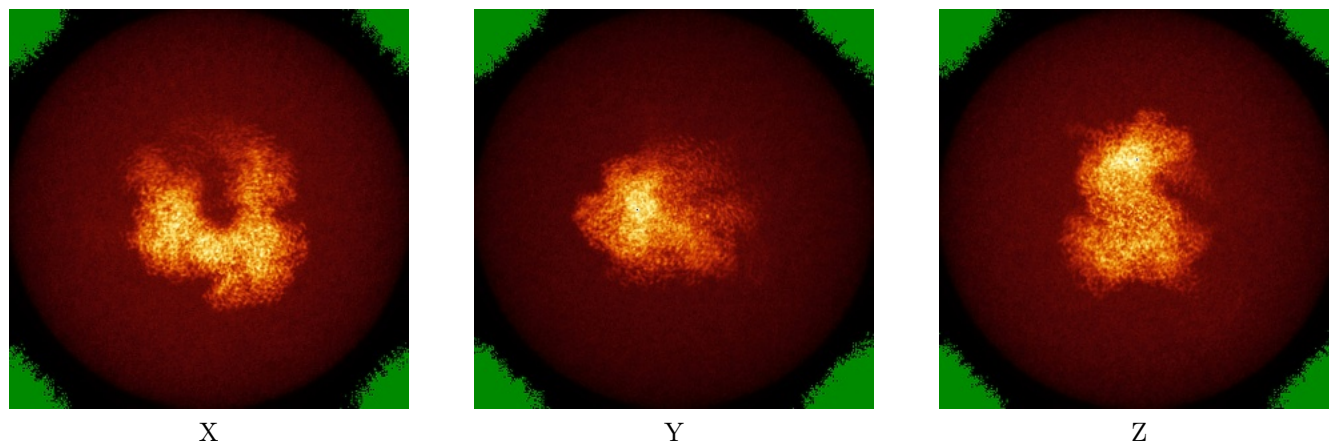


Z Index: 135

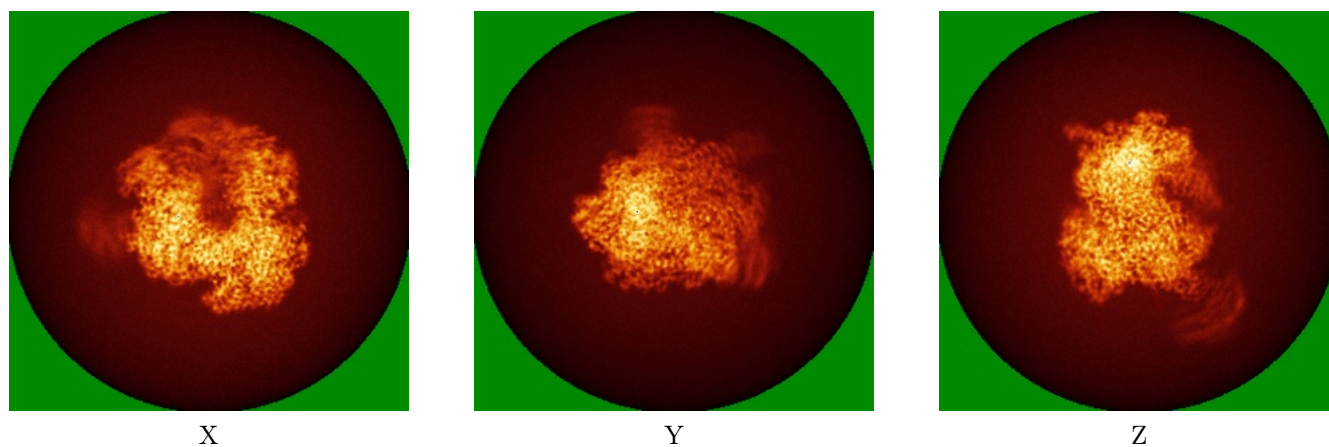
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



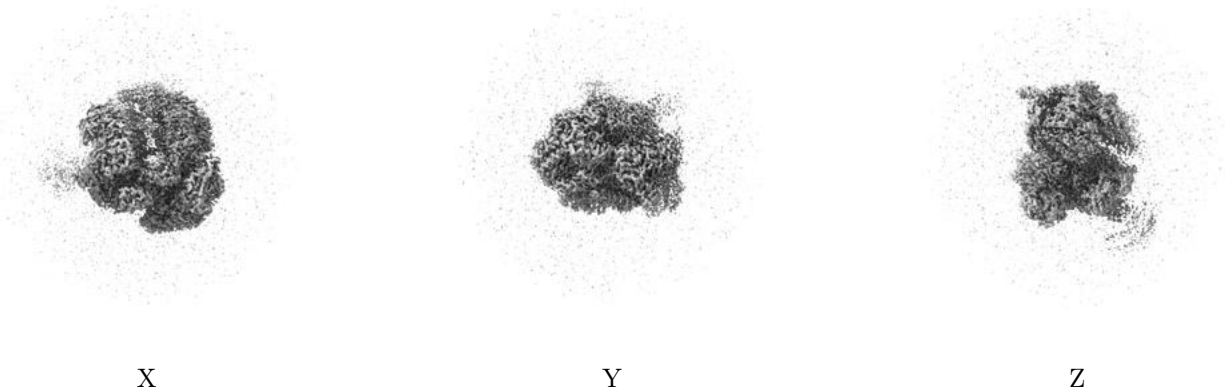
6.4.2 Raw map



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

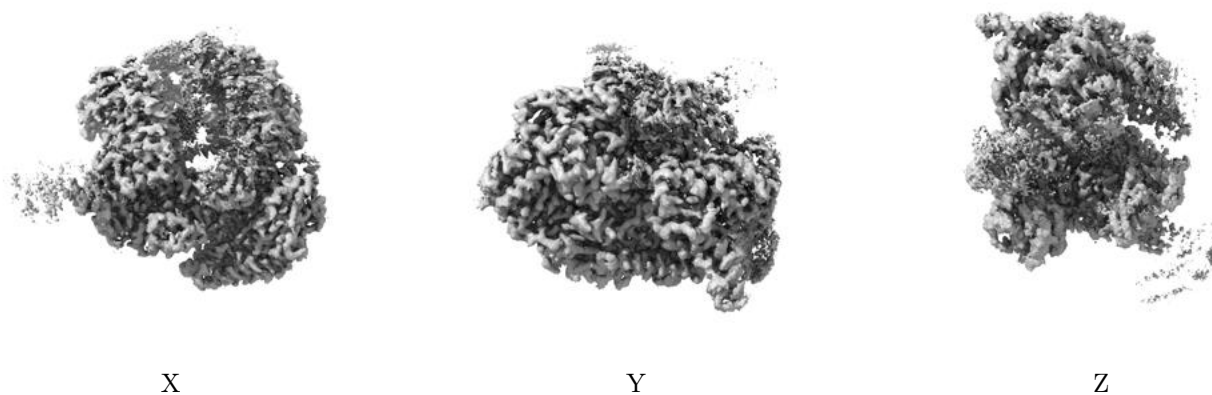
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0129. 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



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.

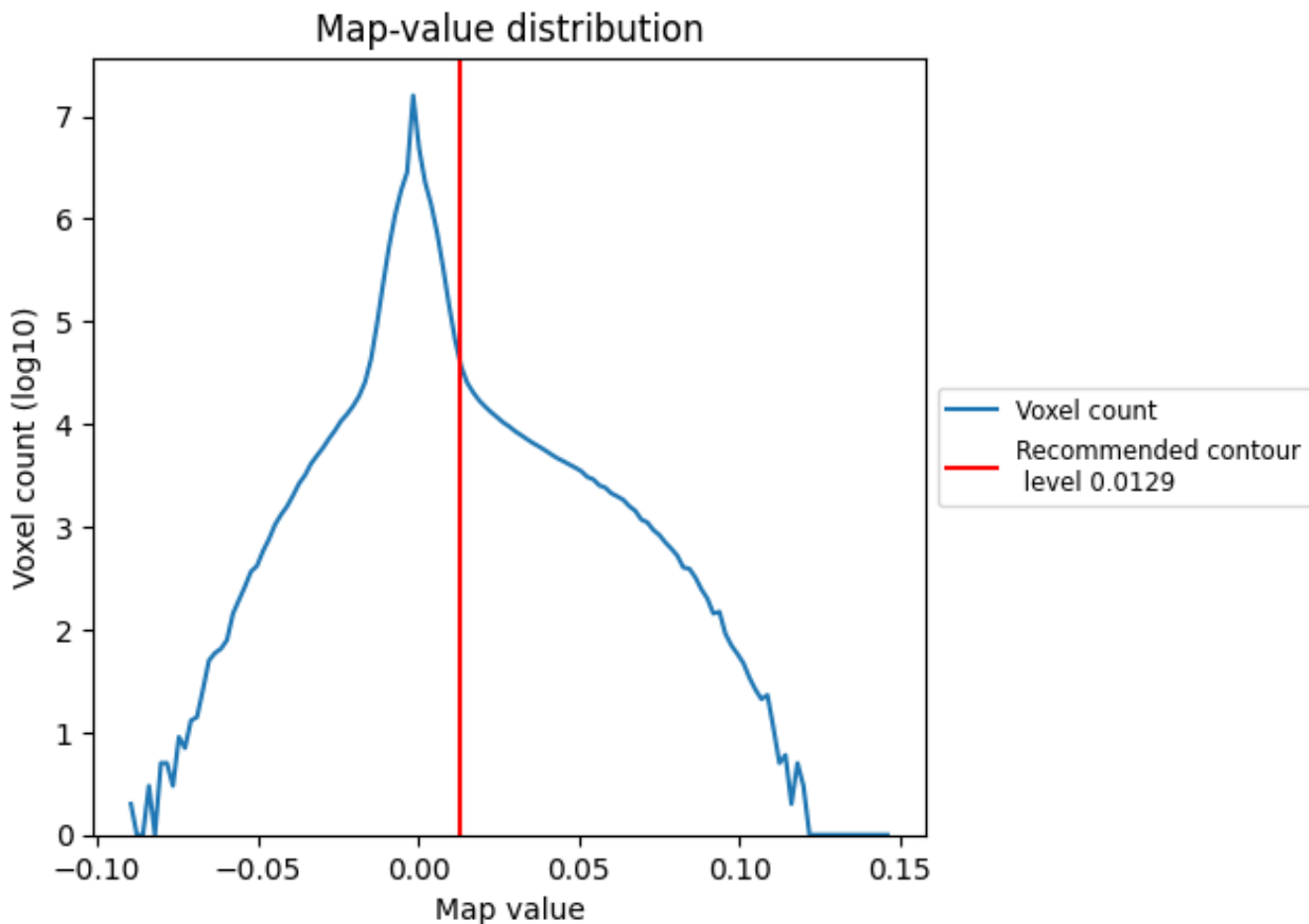
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

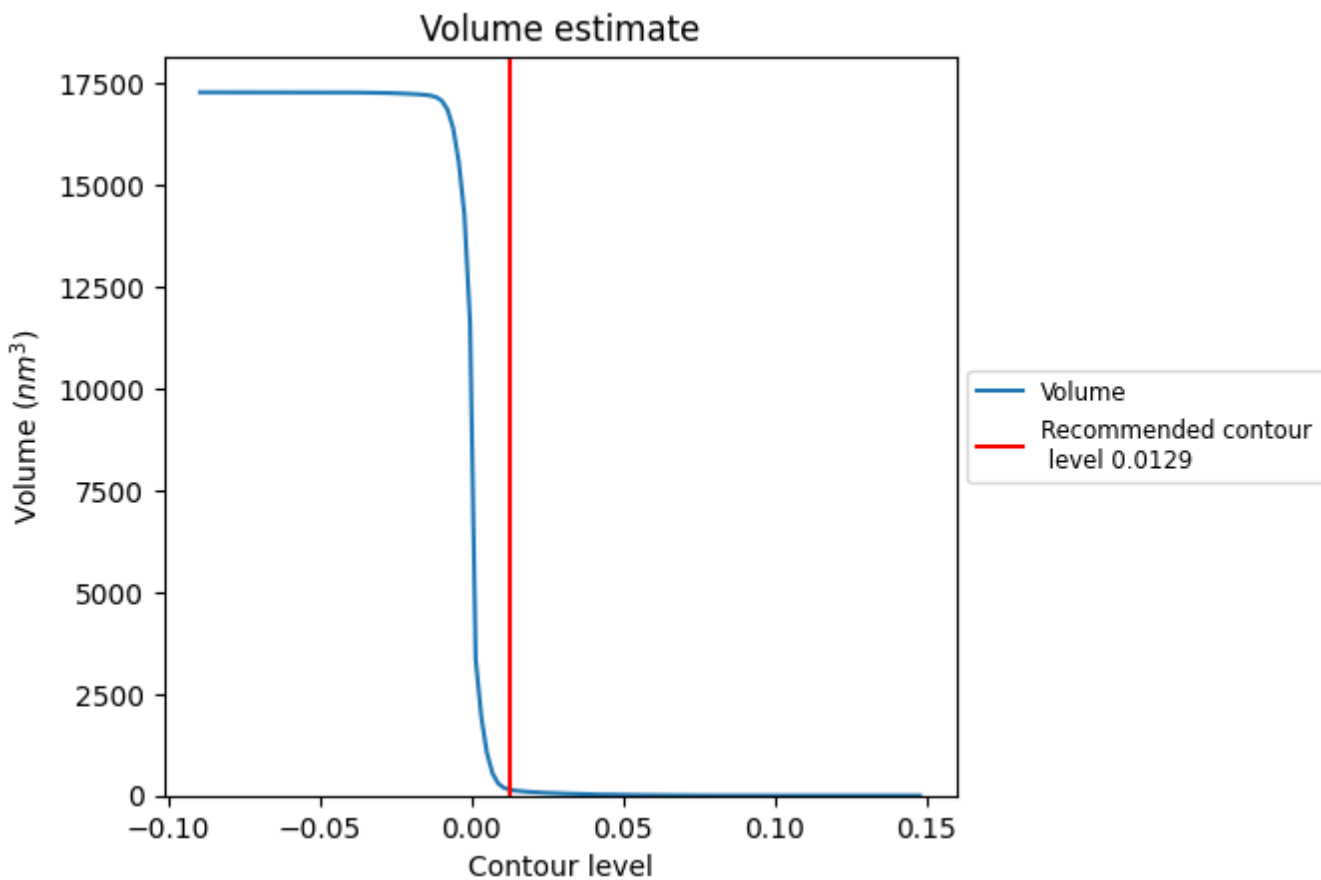
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

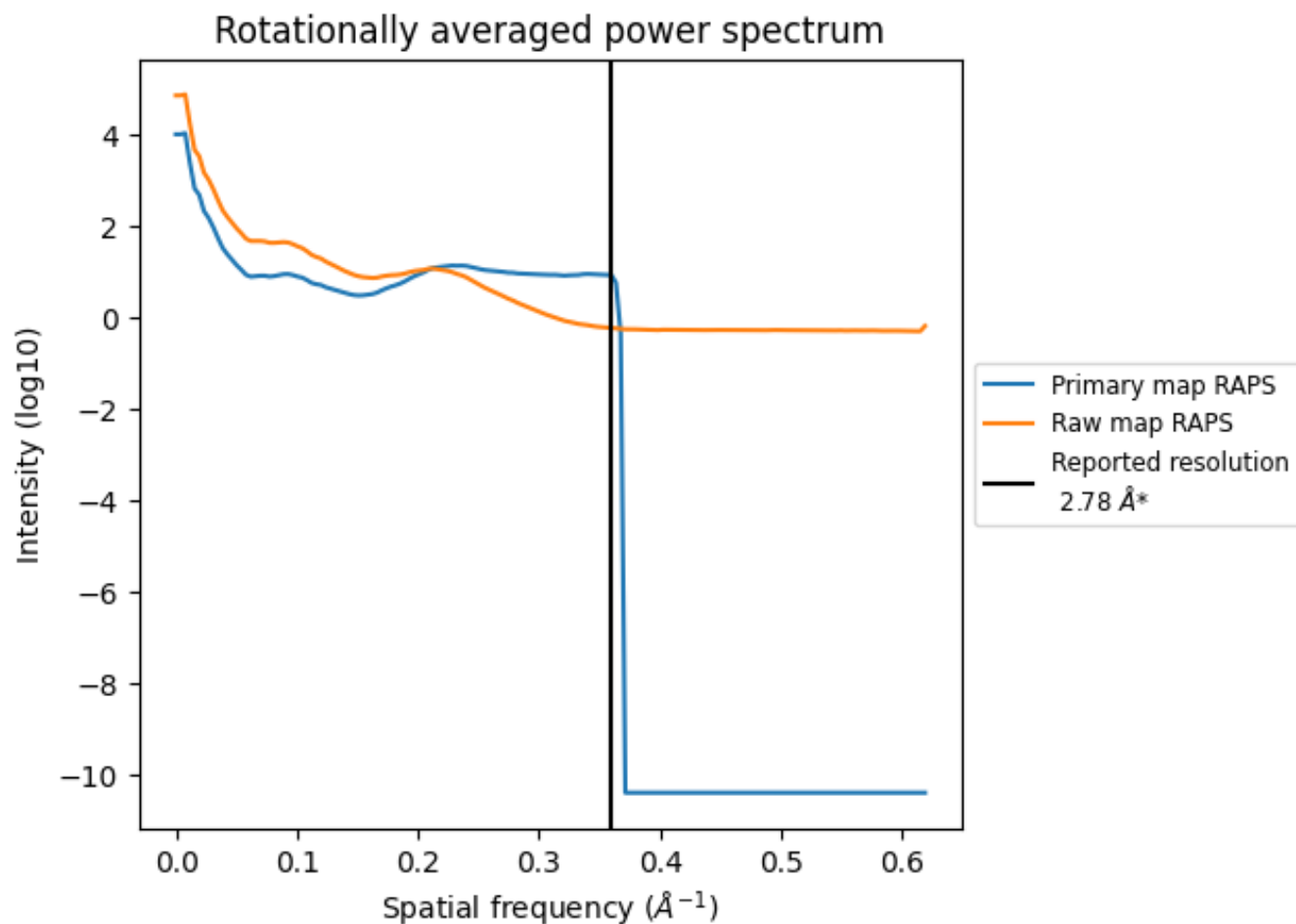
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 141 nm³; this corresponds to an approximate mass of 127 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](#)

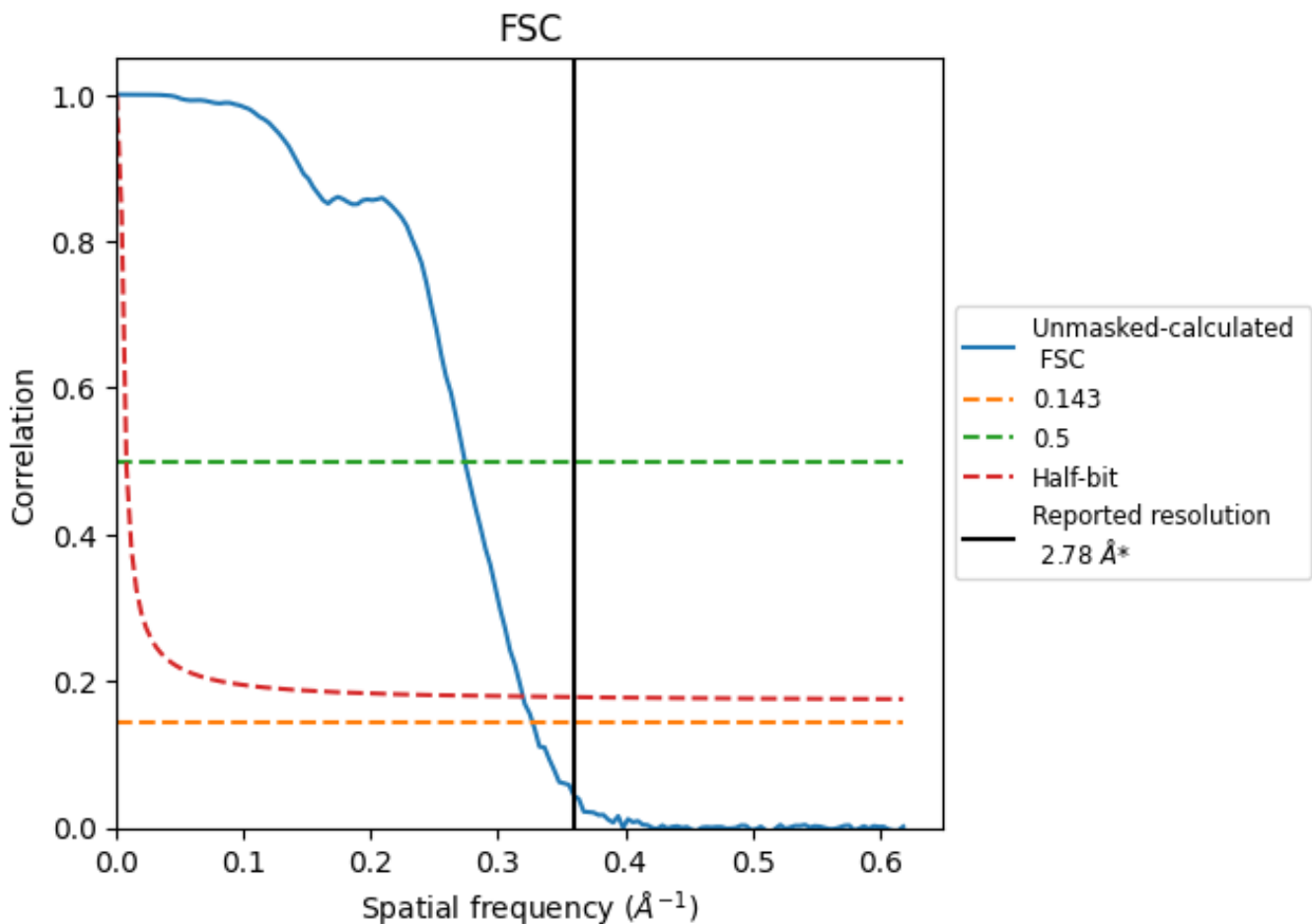


*Reported resolution corresponds to spatial frequency of 0.360 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.360 Å⁻¹

8.2 Resolution estimates [i](#)

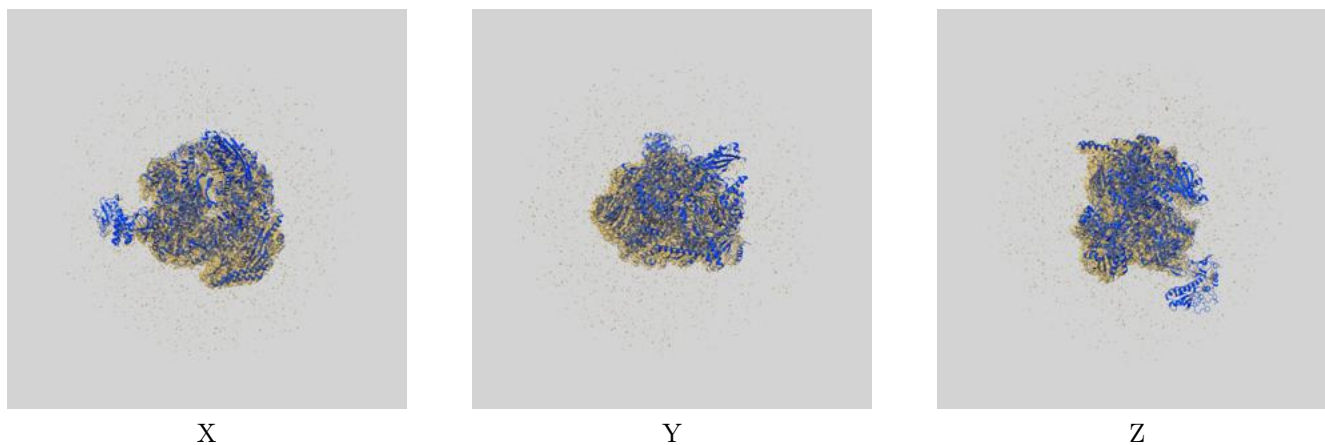
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.78	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.06	3.65	3.13

*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 3.06 differs from the reported value 2.78 by more than 10 %

9 Map-model fit [i](#)

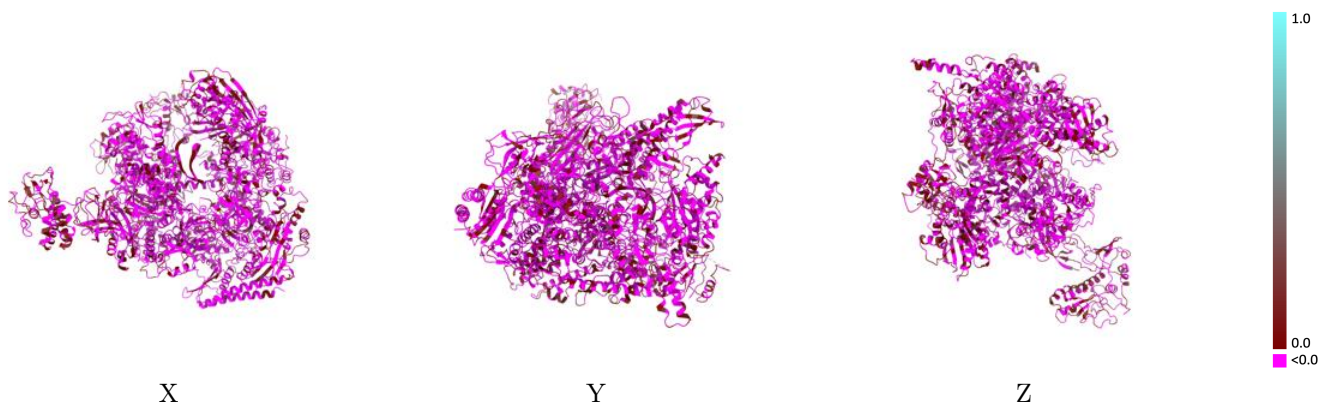
This section contains information regarding the fit between EMDB map EMD-39511 and PDB model 8YQZ. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



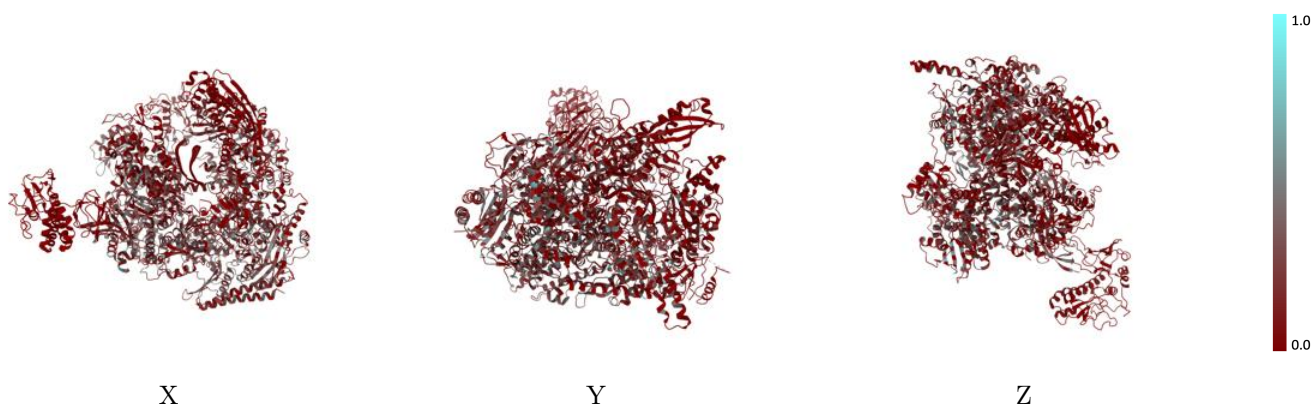
The images above show the 3D surface view of the map at the recommended contour level 0.0129 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



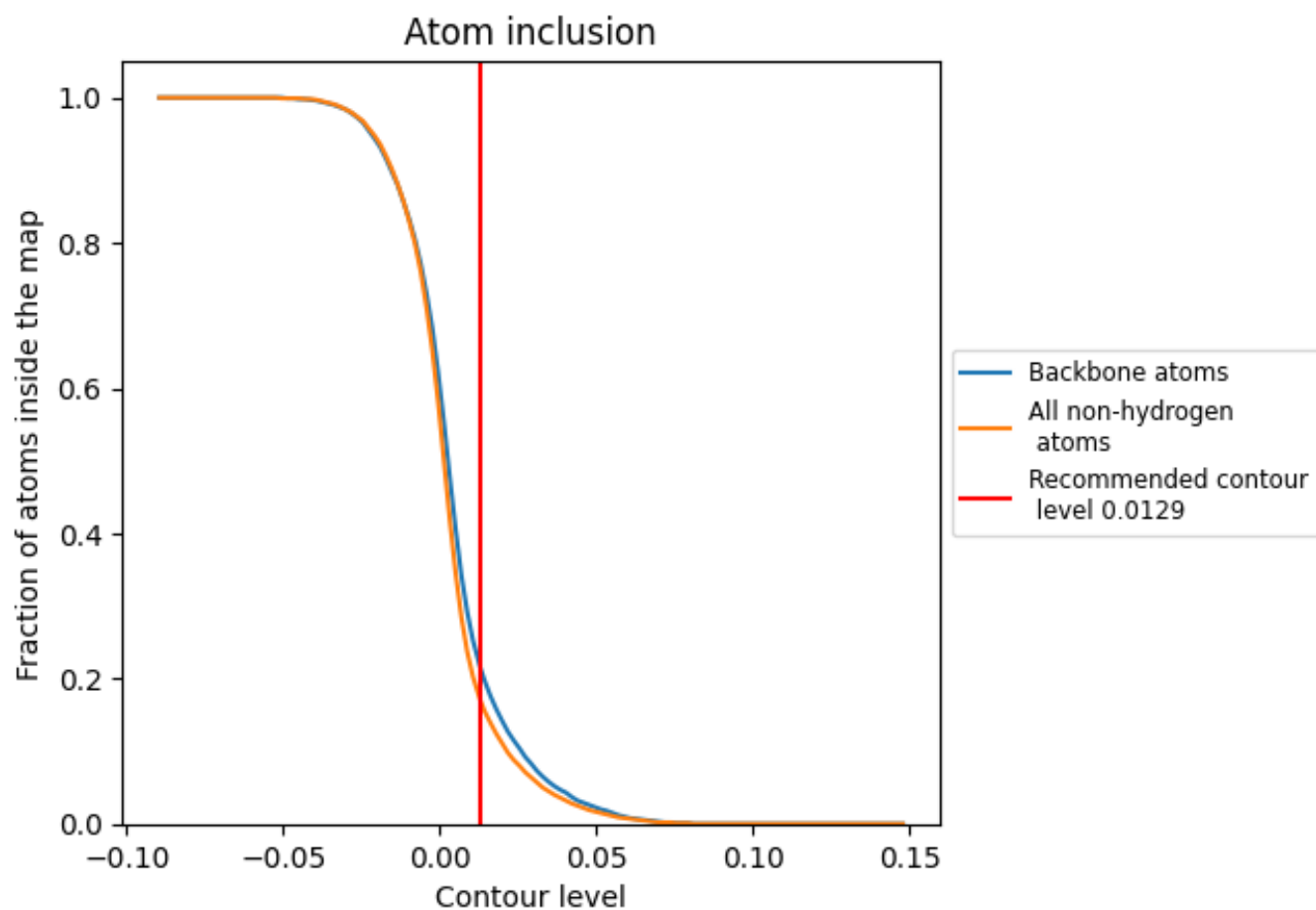
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0129).

9.4 Atom inclusion [i](#)



At the recommended contour level, 22% of all backbone atoms, 17% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.0129) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.1710	-0.0810
A	0.2010	-0.0910
B	0.1300	-0.0990
C	0.2320	-0.0920
D	0.2530	-0.0250
E	0.2540	-0.0690
F	0.0530	-0.0120
G	0.2230	-0.0700
H	0.1880	-0.0890
X	0.0360	0.0190
Y	0.0140	-0.0090

