



Full wwPDB EM Validation Report ⓘ

Mar 18, 2024 – 03:19 pm GMT

PDB ID : 8QE5
EMDB ID : EMD-18343
Title : Apo Hantaan virus polymerase in monomeric state
Authors : Durieux Trouilleton, Q.; Arragain, B.; Malet, H.
Deposited on : 2023-08-30
Resolution : 2.60 Å (reported)
Based on initial model : 8C4S

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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

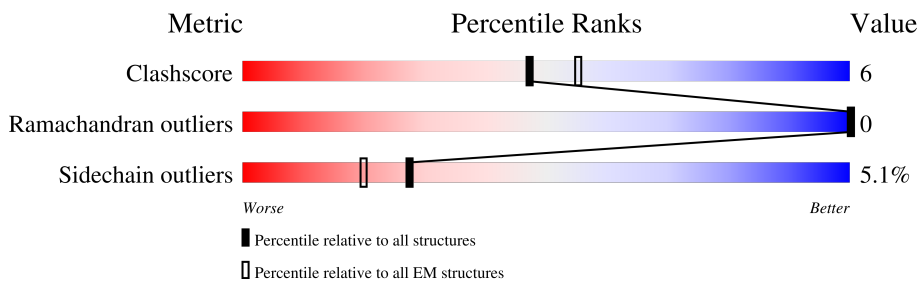
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.60 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	2173	 49% 11% 38%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 10794 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 RNA-directed RNA polymerase L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1340	10794	6957	1807	1972	58	0	0

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-21	MET	-	initiating methionine	UNP P23456
A	-20	GLY	-	expression tag	UNP P23456
A	-19	HIS	-	expression tag	UNP P23456
A	-18	HIS	-	expression tag	UNP P23456
A	-17	HIS	-	expression tag	UNP P23456
A	-16	HIS	-	expression tag	UNP P23456
A	-15	HIS	-	expression tag	UNP P23456
A	-14	HIS	-	expression tag	UNP P23456
A	-13	ASP	-	expression tag	UNP P23456
A	-12	TYR	-	expression tag	UNP P23456
A	-11	ASP	-	expression tag	UNP P23456
A	-10	ILE	-	expression tag	UNP P23456
A	-9	PRO	-	expression tag	UNP P23456
A	-8	THR	-	expression tag	UNP P23456
A	-7	THR	-	expression tag	UNP P23456
A	-6	GLU	-	expression tag	UNP P23456
A	-5	ASN	-	expression tag	UNP P23456
A	-4	LEU	-	expression tag	UNP P23456
A	-3	TYR	-	expression tag	UNP P23456
A	-2	PHE	-	expression tag	UNP P23456
A	-1	GLN	-	expression tag	UNP P23456
A	0	GLY	-	expression tag	UNP P23456

F1076	D1285	F1426	K1557	TRP	LEU	SER	CYS	ASN	ILE	ILE	VAL	LYS
F1090	K1286	R1427	R1588	ARG	GLN	ILE	VAL	VAL	ASN	GLU	ASN	GLY
F1091	G1287	R1428	M1562	TRP	LEU	LEU	ARG	TRP	PRO	ALA	ILE	ILE
E1092	A1292	S1441	L1563	CYS	GLN	ARG	THR	PHE	ARG	ASP	ASP	PRO
H1095	L1293	F1450	Y1564	LYS	ALA	THR	HIS	ASN	THR	THR	HIS	GLU
D1098	K1299	F1450	K1565	ASN	ARG	VAL	LYS	LEU	LEU	GLY	LYS	ASP
G1105	R1300	K1460	S1566	SER	ARG	ARG	ARG	THR	VAL	THR	VAL	VAL
Y1106	M1304	E1461	S1567	PRO	ALA	THR	ILE	LEU	LEU	LEU	LEU	PRO
Y1134	Q1323	H1472	K1568	TYR	SER	GLN	GLN	ALA	ALA	TYR	LYS	SER
M1138	H1324	C1473	Q1575	ARG	LYS	ASP	ILE	ASN	THR	THR	PHE	PHE
M1139	E1325	I1476	E1583	TRP	GLN	VAL	HIS	PRO	TYR	THR	ASN	SER
I1149	R1326	T1477	L1582	GLN	TRP	SER	LYS	ILE	GLY	THR	ILE	THR
K1160	L1327	T1478	R1587	ALA	ALA	LYS	PHE	ILE	ASP	GLY	THR	ARG
V1164	G1328	K1479	Y1588	LEU	TYR	GLY	MET	GLU	ASP	THR	LYS	THR
F1175	Q1329	Q1480	K1591	TRP	CYS	ILE	THR	SER	PHE	GLY	GLN	THR
V1186	F1332	R1483	S1592	PHE	VAL	THR	THR	LEU	LEU	LEU	VAL	VAL
S1192	I1340	A1484	M1593	GLU	GLN	LYS	ARG	ARG	ASN	ARG	ASN	PRO
L1193	T1342	K1485	V1596	TRP	THR	CYS	GLY	ILE	THR	LEU	LEU	THR
L1196	P1343	T1491	R1600	LYS	THR	ASN	LEU	ARG	ASN	THR	ASN	ASN
P1197	K1344	ARG	V1601	GLU	THR	ASN	ARG	ASN	ASN	TRP	PRO	THR
G1198	V1336	LYS	K1602	LEU	LYS	GLY	ILE	ALA	ALA	LEU	LEU	GLN
L1199	Q1337	ASP	F1603	ASP	THR	THR	ASP	GLU	GLU	TRP	TRP	LYS
L1205	K1335	ASP	H1604	ARG	GLY	VAL	GLN	ALA	ALA	ALA	GLU	MET
R1211	V1336	ASP	K1605	PHE	GLY	VAL	HIS	GLN	ILE	PRO	GLU	GLY
L1218	Q1364	ASP	E1606	SER	VAL	VAL	ARG	PRO	VAL	ALA	VAL	THR
Q1223	T1367	ASP	V1607	GLY	THR	THR	MET	THR	ARG	TYR	ASP	LEU
L1239	R1376	ASP	L1608	LEU	PHE	PHE	VAL	ARG	VAL	ASN	SER	LEU
G1241	D1377	ASP	Q1609	GLY	ASN	LEU	PHE	THR	PHE	THR	THR	GLU
F1242	V1383	ASP	ALA	ASP	ASN	LEU	LEU	ASP	ASP	ASP	ASP	ASP
A1243	Q1399	ASP	VAL	ILE	ASN	VAL	ILE	ASP	ASP	ASP	ASP	ASP
M1246	S1400	ASP	VAL	THR	ASN	PRO	ILE	ARG	ARG	ARG	ARG	ARG
P1264	P1401	ASP	VAL	TRP	ASN	PRO	ILE	THR	THR	TYR	TYR	TYR
G1269	R1405	ASP	ALA	ALA	LYS	PRO	ILE	THR	THR	ILE	ILE	ILE
A1279	F1406	ASP	ALA	GLY	LYS	ALA	ALA	VAL	VAL	ALA	VAL	VAL
M1283	R1407	ASP	LEU	ASP	LEU	ILE	VAL	ASP	PHE	GLU	GLU	GLU
S1284	H1408	ASP	LEU	ASP	LEU	THR	THR	ASP	THR	ASN	ASN	ASN
	Q1409	ASP	LEU	VAL	LEU	VAL	VAL	ASP	THR	VAL	VAL	VAL
	R1418	ASP	GLY	VAL	LEU	VAL	VAL	ASP	THR	VAL	VAL	VAL
	T1425	ASP	VAL	VAL	THR	ASN	SER	LEU	ASP	ASN	ASN	ASN
		ASP	VAL	VAL	THR	ASN	SER	LEU	ASP	ASN	ASN	ASN

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	1209529	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 ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	4.568	Depositor
Minimum map value	-3.567	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.070	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	295.328, 295.328, 295.328	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.839, 0.839, 0.839	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.29	0/11035	0.47	0/14911

There are no bond length outliers.

There are no bond angle outliers.

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	10794	0	10847	138	0
All	All	10794	0	10847	138	0

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

All (138) 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:579:ILE:HD12	1:A:1193:LEU:HD11	1.66	0.76
1:A:317:ALA:HB1	1:A:509:ILE:HG12	1.74	0.69
1:A:624:ASP:OD1	1:A:627:ARG:NH2	2.25	0.68
1:A:1279:ALA:HB1	1:A:1283:MET:HG3	1.77	0.67
1:A:1323:GLN:O	1:A:1325:GLU:HG3	1.95	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1090:PHE:CZ	1:A:1092:GLU:HG2	2.31	0.66
1:A:1476:ILE:HD11	1:A:1600:ARG:HE	1.59	0.66
1:A:843:LEU:HD23	1:A:880:ARG:HB2	1.77	0.65
1:A:1027:ILE:HG21	1:A:1041:LEU:HD21	1.78	0.65
1:A:821:TYR:O	1:A:827:ASN:ND2	2.30	0.64
1:A:604:VAL:HG22	1:A:705:MET:HG3	1.79	0.64
1:A:341:TYR:HH	1:A:353:TYR:HH	1.43	0.64
1:A:576:LYS:NZ	1:A:728:GLU:OE2	2.30	0.63
1:A:880:ARG:NH1	1:A:881:ILE:O	2.31	0.62
1:A:1343:PRO:HB2	1:A:1346:GLU:HB2	1.81	0.62
1:A:1583:GLU:O	1:A:1587:ARG:HG3	2.00	0.61
1:A:1367:THR:HG21	1:A:1517:GLU:HB3	1.82	0.61
1:A:1564:TYR:CZ	1:A:1566:SER:HB2	2.36	0.61
1:A:748:TRP:CD1	1:A:978:PRO:HB2	2.35	0.61
1:A:1499:ILE:HG23	1:A:1534:ASP:HB3	1.82	0.60
1:A:874:GLU:H	1:A:874:GLU:CD	2.05	0.60
1:A:406:ASN:HD22	1:A:409:SER:HB2	1.68	0.59
1:A:490:SER:HB2	1:A:518:LEU:HB2	1.86	0.58
1:A:1491:THR:HA	1:A:1568:LYS:HB3	1.85	0.58
1:A:739:ALA:O	1:A:743:LEU:HG	2.03	0.58
1:A:1539:LYS:HA	1:A:1550:ILE:HD12	1.86	0.58
1:A:1425:THR:HG22	1:A:1427:ARG:H	1.67	0.57
1:A:545:THR:HG22	1:A:556:VAL:HB	1.86	0.57
1:A:1068:PHE:O	1:A:1072:MET:HG2	2.04	0.57
1:A:735:MET:HE2	1:A:1022:LYS:HE2	1.86	0.56
1:A:1564:TYR:CE1	1:A:1566:SER:HB2	2.40	0.56
1:A:1027:ILE:HA	1:A:1030:MET:HG3	1.88	0.56
1:A:637:TYR:HB2	1:A:1164:VAL:HB	1.87	0.56
1:A:345:THR:OG1	1:A:348:ASP:OD2	2.22	0.56
1:A:1483:ARG:HB3	1:A:1575:GLN:HB3	1.89	0.55
1:A:965:LYS:HB2	1:A:1106:TYR:CZ	2.42	0.55
1:A:593:GLY:HA3	1:A:1479:LYS:HE3	1.88	0.54
1:A:411:ILE:O	1:A:415:GLU:HG2	2.08	0.54
1:A:1510:LYS:HE3	1:A:1556:MET:HG2	1.90	0.54
1:A:838:GLN:NE2	1:A:844:SER:OG	2.40	0.53
1:A:1554:ASP:OD2	1:A:1558:ARG:NH2	2.42	0.52
1:A:1090:PHE:HB3	1:A:1105:GLY:HA3	1.91	0.51
1:A:492:LEU:HG	1:A:519:GLU:HG3	1.92	0.51
1:A:521:ALA:HB2	1:A:1401:PRO:HG3	1.92	0.51
1:A:513:LEU:HD12	1:A:526:ARG:HB3	1.93	0.51
1:A:677:ALA:HB3	1:A:695:VAL:HG13	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1014:LYS:HE2	1:A:1053:LYS:HE2	1.93	0.51
1:A:1205:LEU:HD21	1:A:1269:GLY:HA3	1.92	0.51
1:A:722:THR:HG23	1:A:1186:VAL:HG21	1.93	0.50
1:A:1528:PRO:O	1:A:1531:LEU:HB2	2.09	0.50
1:A:1472:HIS:HB3	1:A:1602:LYS:HB2	1.92	0.50
1:A:467:LEU:HD21	1:A:601:ILE:HG22	1.92	0.50
1:A:597:LEU:HB2	1:A:599:TYR:CE1	2.47	0.50
1:A:1327:LEU:HD23	1:A:1504:PRO:HG3	1.93	0.50
1:A:230:TYR:HB2	1:A:1003:ASN:HB3	1.94	0.49
1:A:819:GLU:HG2	1:A:820:PRO:HD2	1.95	0.49
1:A:366:ARG:HG3	1:A:372:LYS:HD2	1.95	0.49
1:A:526:ARG:HA	1:A:560:MET:O	2.14	0.48
1:A:1243:ALA:HB3	1:A:1246:MET:SD	2.54	0.48
1:A:233:MET:HE1	1:A:986:ARG:HB3	1.93	0.48
1:A:786:CYS:O	1:A:790:ILE:HG12	2.13	0.48
1:A:756:GLU:HG2	1:A:761:GLU:HA	1.95	0.48
1:A:1134:VAL:HG22	1:A:1138:MET:HE2	1.95	0.48
1:A:856:LEU:O	1:A:1376:ARG:NH1	2.46	0.47
1:A:227:ILE:HG12	1:A:866:LEU:HD13	1.95	0.47
1:A:1239:LEU:HD21	1:A:1407:ARG:HG2	1.96	0.47
1:A:764:VAL:O	1:A:981:ASN:ND2	2.46	0.47
1:A:389:LEU:HD21	1:A:559:VAL:HG11	1.96	0.46
1:A:308:LEU:H	1:A:308:LEU:HD22	1.81	0.46
1:A:451:LEU:HD13	1:A:1593:MET:HG2	1.98	0.46
1:A:459:THR:OG1	1:A:1223:GLN:OE1	2.20	0.46
1:A:855:TYR:OH	1:A:863:PRO:HG3	2.16	0.46
1:A:1335:LYS:HE3	1:A:1336:VAL:O	2.15	0.46
1:A:974:THR:HB	1:A:1098:ASP:HA	1.96	0.46
1:A:1264:PRO:HB3	1:A:1335:LYS:HD2	1.98	0.46
1:A:1293:LEU:HD13	1:A:1450:PHE:HB3	1.96	0.46
1:A:1347:PHE:HE2	1:A:1393:VAL:HG22	1.80	0.45
1:A:1460:LYS:HE3	1:A:1562:MET:O	2.16	0.45
1:A:1342:THR:C	1:A:1344:LYS:H	2.20	0.45
1:A:921:GLU:H	1:A:921:GLU:CD	2.20	0.45
1:A:626:LEU:HA	1:A:629:LEU:HB2	1.97	0.45
1:A:1485:LYS:HB2	1:A:1485:LYS:HE3	1.67	0.45
1:A:1539:LYS:HB2	1:A:1539:LYS:HE3	1.74	0.45
1:A:1337:GLN:HB3	1:A:1418:ARG:HB3	1.99	0.45
1:A:231:LYS:HB3	1:A:231:LYS:HE3	1.66	0.44
1:A:1326:ARG:H	1:A:1329:GLN:HG2	1.81	0.44
1:A:758:LYS:HE3	1:A:758:LYS:HB2	1.60	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:362:THR:HG22	1:A:363:GLN:H	1.83	0.44
1:A:690:VAL:HG11	1:A:943:LEU:HD22	1.99	0.44
1:A:882:VAL:HG21	1:A:885:TYR:HB2	1.99	0.44
1:A:566:ARG:HD2	1:A:615:GLN:HB2	1.99	0.44
1:A:1063:LYS:HD3	1:A:1063:LYS:HA	1.68	0.44
1:A:1492:VAL:CG1	1:A:1568:LYS:HE3	2.48	0.44
1:A:1341:PHE:CD1	1:A:1341:PHE:N	2.85	0.44
1:A:740:LYS:HB2	1:A:740:LYS:NZ	2.33	0.43
1:A:797:LEU:HD21	1:A:1067:LEU:HG	2.00	0.43
1:A:1565:LYS:HE2	1:A:1565:LYS:HB3	1.89	0.43
1:A:342:ILE:HD12	1:A:342:ILE:HA	1.90	0.43
1:A:1356:LYS:H	1:A:1356:LYS:HD2	1.83	0.43
1:A:284:MET:HB3	1:A:286:ARG:NH1	2.34	0.43
1:A:967:MET:HG2	1:A:1139:TRP:CE3	2.54	0.43
1:A:723:CYS:HA	1:A:726:LEU:HD12	2.01	0.43
1:A:727:PHE:HB3	1:A:731:LEU:HD12	2.01	0.43
1:A:1283:MET:HA	1:A:1286:LYS:HD2	2.00	0.43
1:A:1587:ARG:O	1:A:1591:LYS:HG3	2.19	0.43
1:A:768:TYR:CE1	1:A:786:CYS:HB2	2.54	0.43
1:A:804:LYS:O	1:A:808:VAL:HG23	2.19	0.42
1:A:1292:ALA:HA	1:A:1304:MET:SD	2.59	0.42
1:A:406:ASN:ND2	1:A:409:SER:HB2	2.33	0.42
1:A:926:TYR:HE1	1:A:1063:LYS:HE3	1.85	0.42
1:A:1106:TYR:CD1	1:A:1139:TRP:HB3	2.54	0.42
1:A:1192:SER:HA	1:A:1211:ARG:NE	2.34	0.42
1:A:228:PRO:HG2	1:A:230:TYR:CZ	2.55	0.42
1:A:293:LEU:HD13	1:A:562:ILE:HD12	2.02	0.42
1:A:316:ARG:HH21	1:A:505:ASN:HA	1.84	0.42
1:A:453:LYS:HE2	1:A:453:LYS:HB3	1.61	0.42
1:A:935:ILE:HG21	1:A:1175:PHE:HE2	1.85	0.42
1:A:275:GLU:HG2	1:A:407:ILE:HG23	2.02	0.42
1:A:714:ARG:HE	1:A:714:ARG:HB3	1.72	0.42
1:A:334:ILE:HG23	1:A:511:PHE:CZ	2.56	0.41
1:A:1076:PHE:HA	1:A:1149:ILE:HD13	2.02	0.41
1:A:1480:GLN:HB2	1:A:1596:VAL:O	2.20	0.41
1:A:329:PRO:HA	1:A:332:TYR:HD2	1.85	0.41
1:A:884:LYS:HD2	1:A:884:LYS:HA	1.87	0.41
1:A:540:LYS:HA	1:A:543:LEU:HD12	2.02	0.41
1:A:1197:PRO:HB2	1:A:1199:LEU:HD12	2.02	0.41
1:A:1286:LYS:NZ	1:A:1461:GLU:OE2	2.54	0.41
1:A:1575:GLN:HG2	1:A:1588:TYR:HE1	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:676:LYS:HB2	1:A:676:LYS:HE2	1.76	0.41
1:A:992:LEU:HD12	1:A:992:LEU:HA	1.87	0.41
1:A:1241:GLY:HA2	1:A:1246:MET:CE	2.51	0.41
1:A:642:SER:CB	1:A:1160:LYS:HG2	2.52	0.40
1:A:1327:LEU:HG	1:A:1564:TYR:CD2	2.56	0.40
1:A:1027:ILE:HD13	1:A:1041:LEU:HD21	2.03	0.40
1:A:1218:LEU:HD23	1:A:1218:LEU:HA	1.92	0.40
1:A:264:GLY:HA3	1:A:673:GLN:HG3	2.02	0.40
1:A:805:SER:HB3	1:A:993:HIS:NE2	2.37	0.40
1:A:1332:PHE:CE2	1:A:1558:ARG:HA	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	1326/2173 (61%)	1282 (97%)	44 (3%)	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	1191/1941 (61%)	1130 (95%)	61 (5%)	24 46

All (61) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	226	TYR
1	A	231	LYS
1	A	258	SER
1	A	269	GLU
1	A	284	MET
1	A	286	ARG
1	A	307	THR
1	A	319	SER
1	A	331	SER
1	A	334	ILE
1	A	340	ARG
1	A	356	ARG
1	A	377	MET
1	A	450	VAL
1	A	469	LYS
1	A	516	LYS
1	A	526	ARG
1	A	552	SER
1	A	645	GLU
1	A	676	LYS
1	A	678	ARG
1	A	682	LYS
1	A	705	MET
1	A	711	LYS
1	A	714	ARG
1	A	729	LYS
1	A	735	MET
1	A	738	GLU
1	A	758	LYS
1	A	805	SER
1	A	806	SER
1	A	844	SER
1	A	874	GLU
1	A	894	PHE
1	A	917	LYS
1	A	921	GLU
1	A	926	TYR
1	A	949	GLU
1	A	980	ASP
1	A	1012	VAL
1	A	1042	ASP
1	A	1095	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1134	VAL
1	A	1192	SER
1	A	1246	MET
1	A	1284	SER
1	A	1300	ARG
1	A	1337	GLN
1	A	1351	ASP
1	A	1356	LYS
1	A	1364	GLN
1	A	1367	THR
1	A	1377	ASP
1	A	1405	ARG
1	A	1407	ARG
1	A	1409	GLN
1	A	1441	SER
1	A	1473	CYS
1	A	1480	GLN
1	A	1564	TYR
1	A	1607	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1378	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

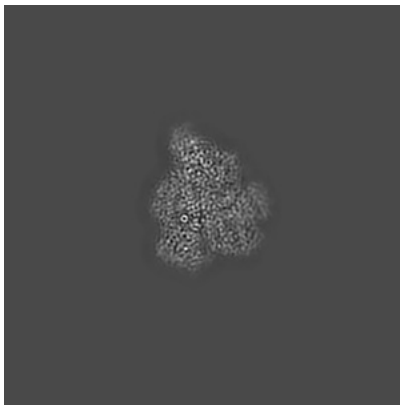
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-18343. These allow visual inspection of the internal detail of the map and identification of artifacts.

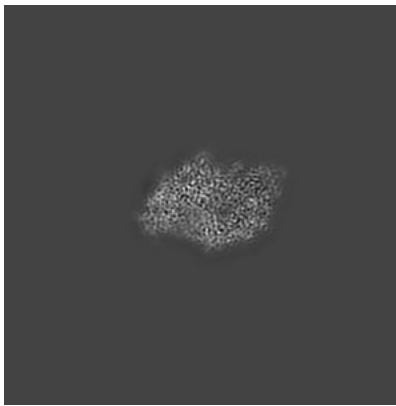
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

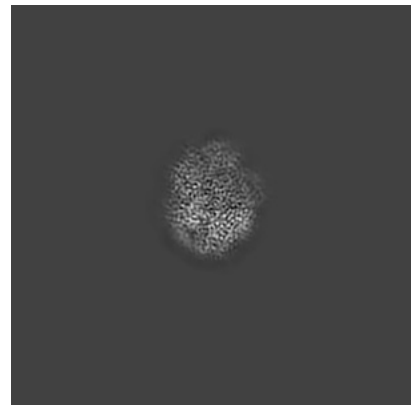
6.1.1 Primary map



X

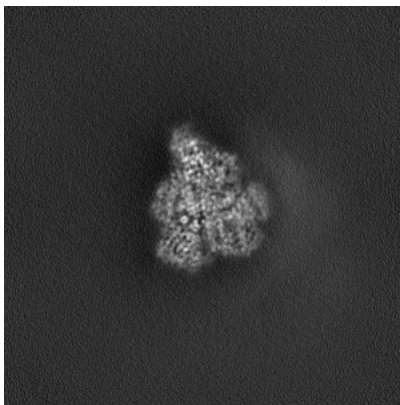


Y

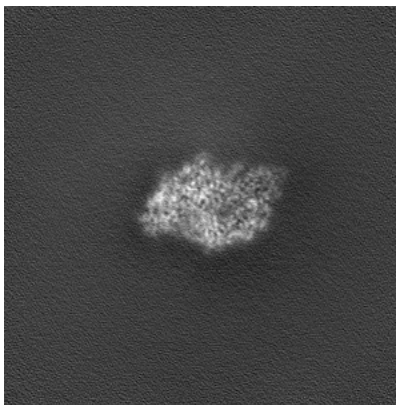


Z

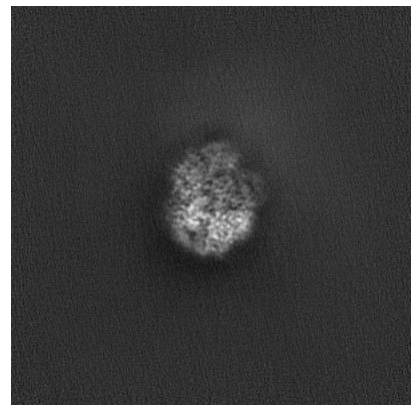
6.1.2 Raw map



X



Y

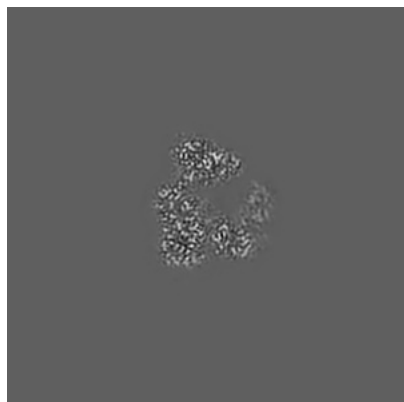


Z

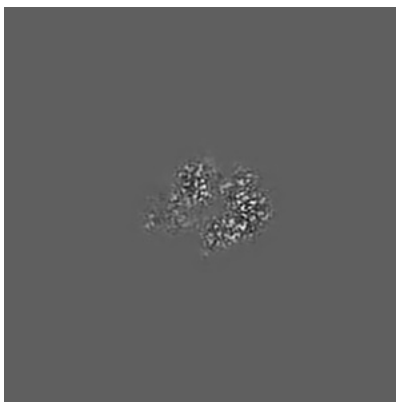
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

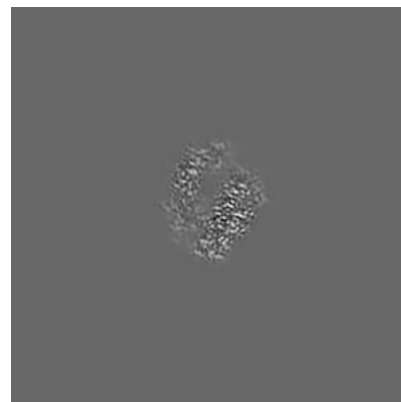
6.2.1 Primary map



X Index: 176

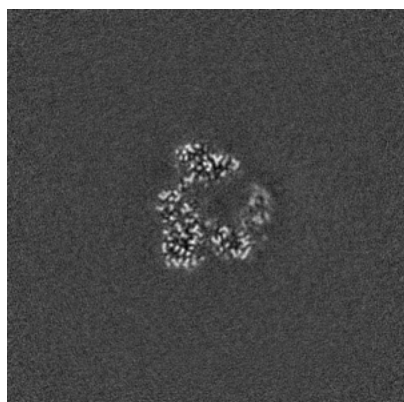


Y Index: 176

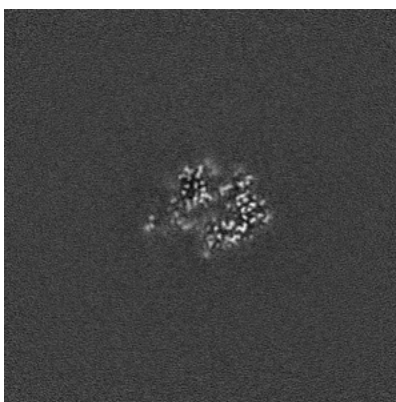


Z Index: 176

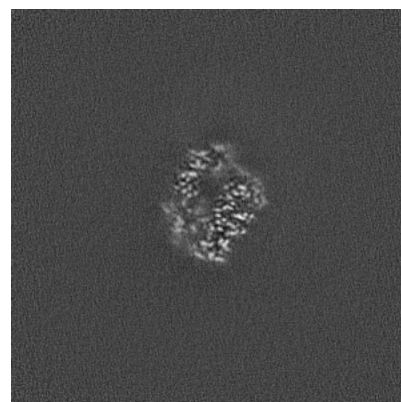
6.2.2 Raw map



X Index: 176



Y Index: 176

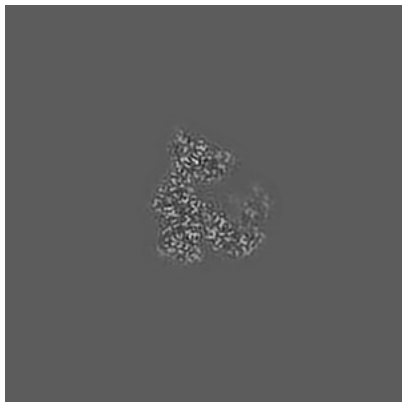


Z Index: 176

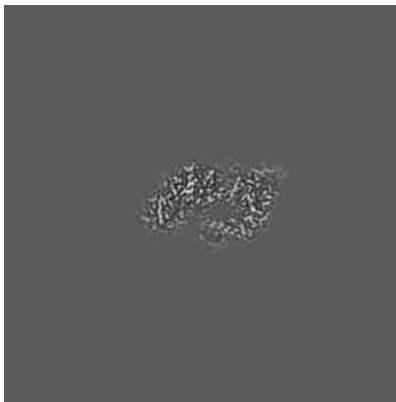
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

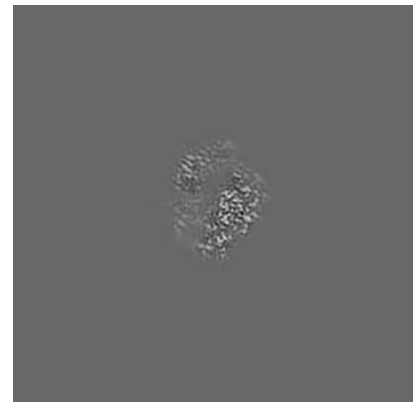
6.3.1 Primary map



X Index: 181

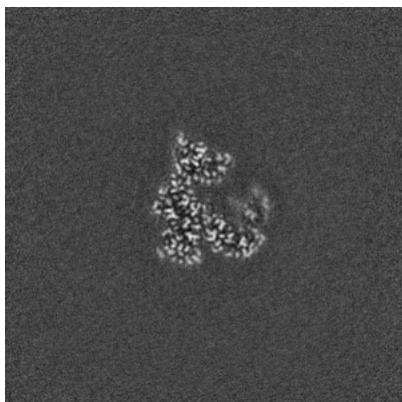


Y Index: 160

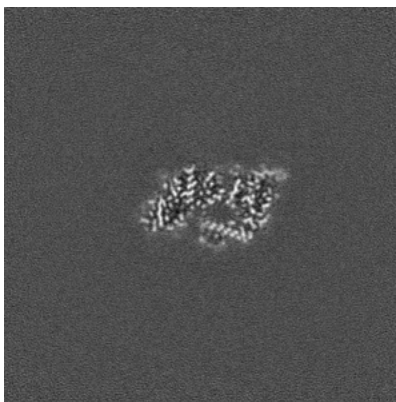


Z Index: 173

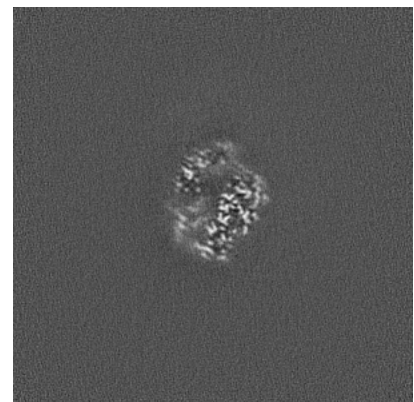
6.3.2 Raw map



X Index: 181



Y Index: 160

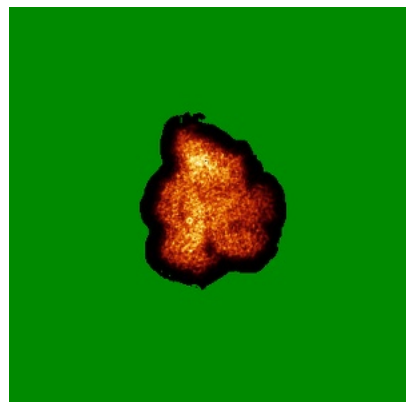


Z Index: 174

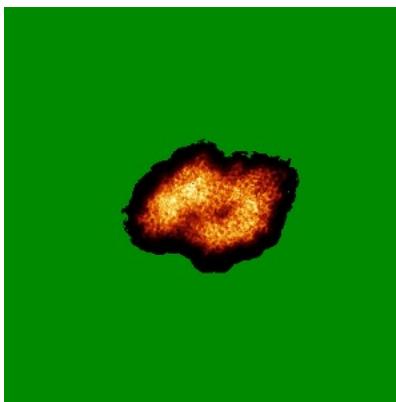
The images above show the largest variance slices of the map in three orthogonal directions.

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

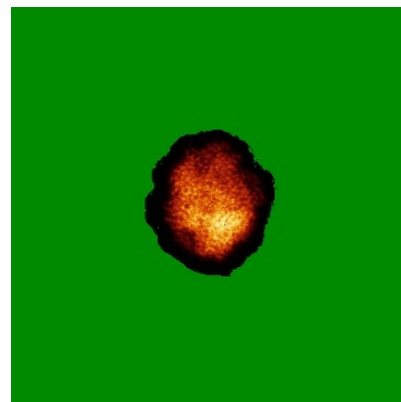
6.4.1 Primary map



X

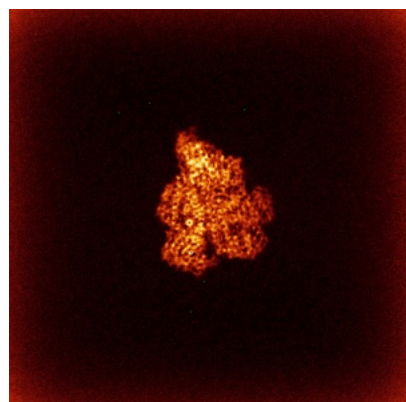


Y

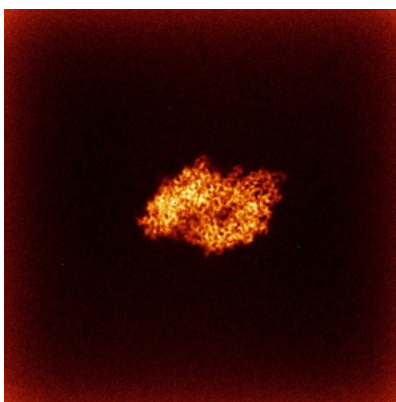


Z

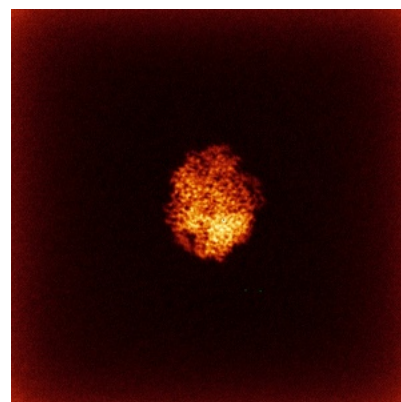
6.4.2 Raw map



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.

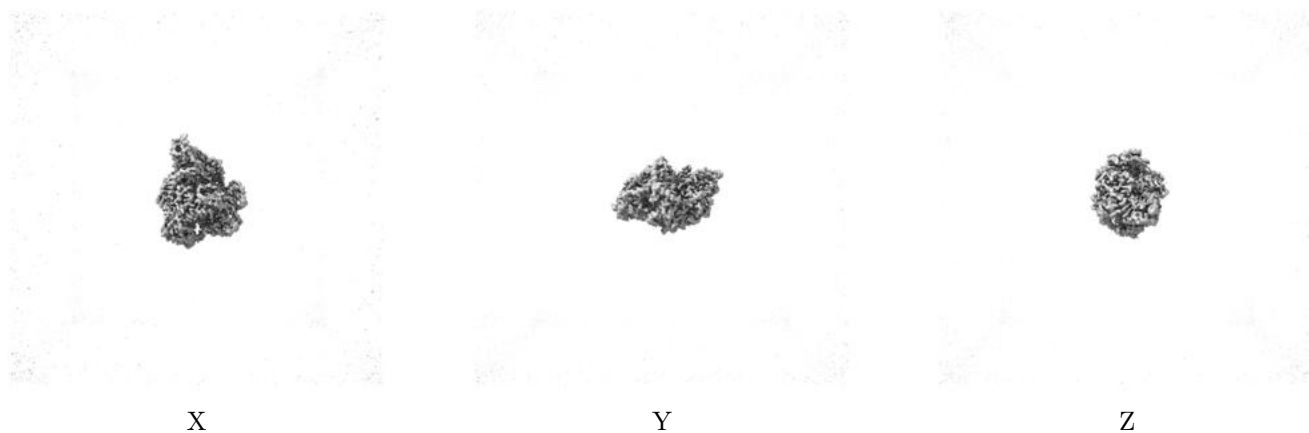
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.4. 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.

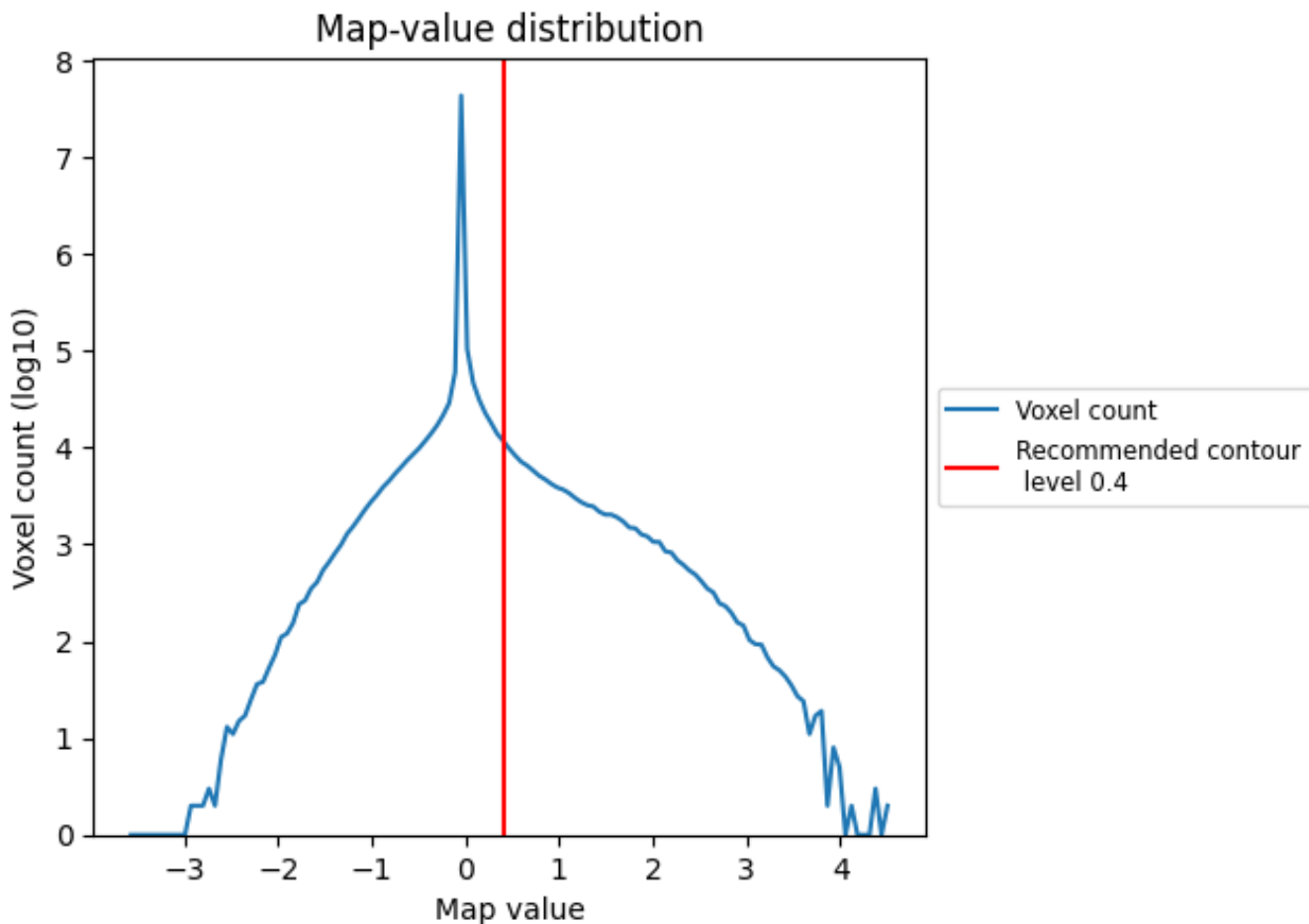
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

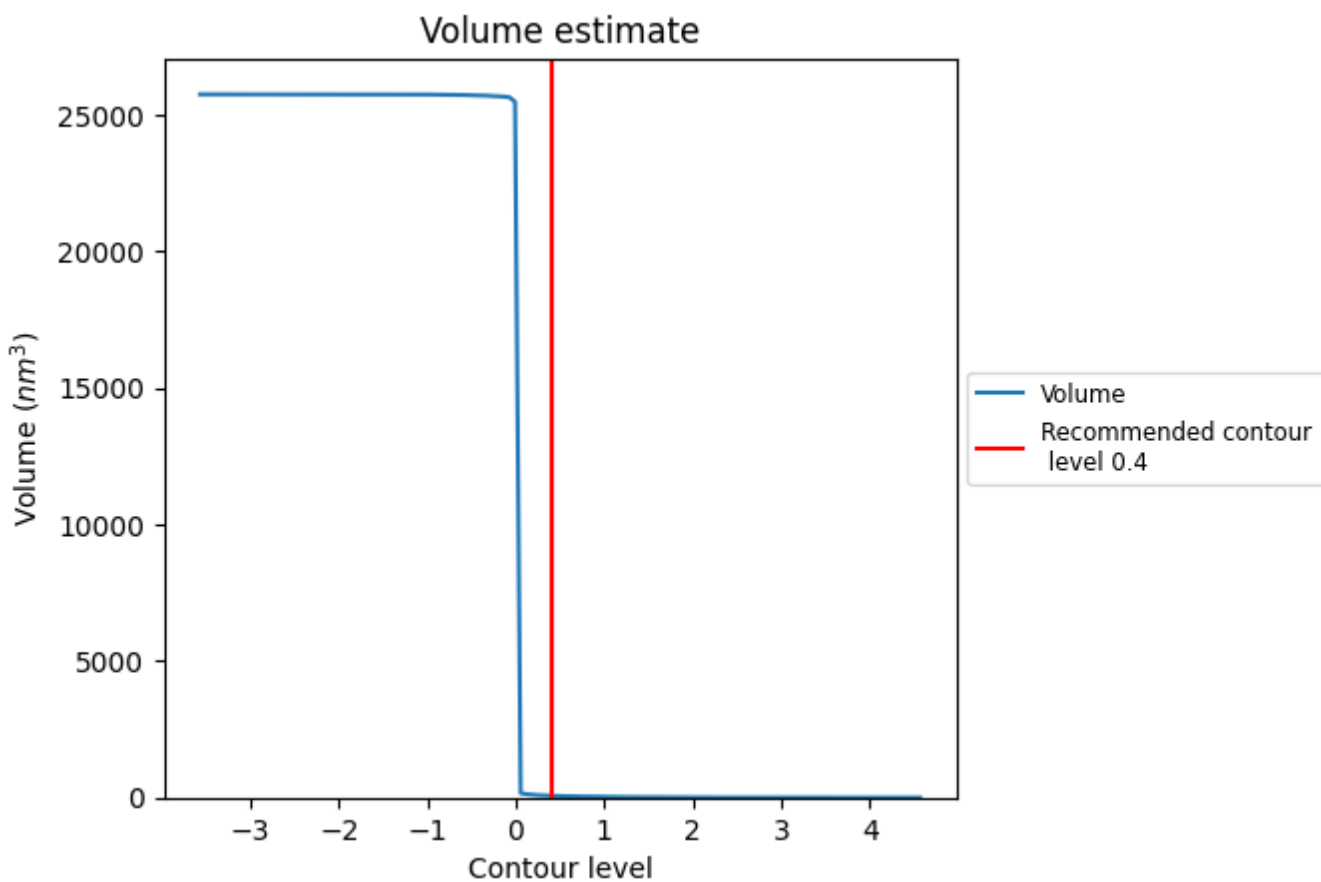
This section contains the results of statistical analysis of the map.

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.

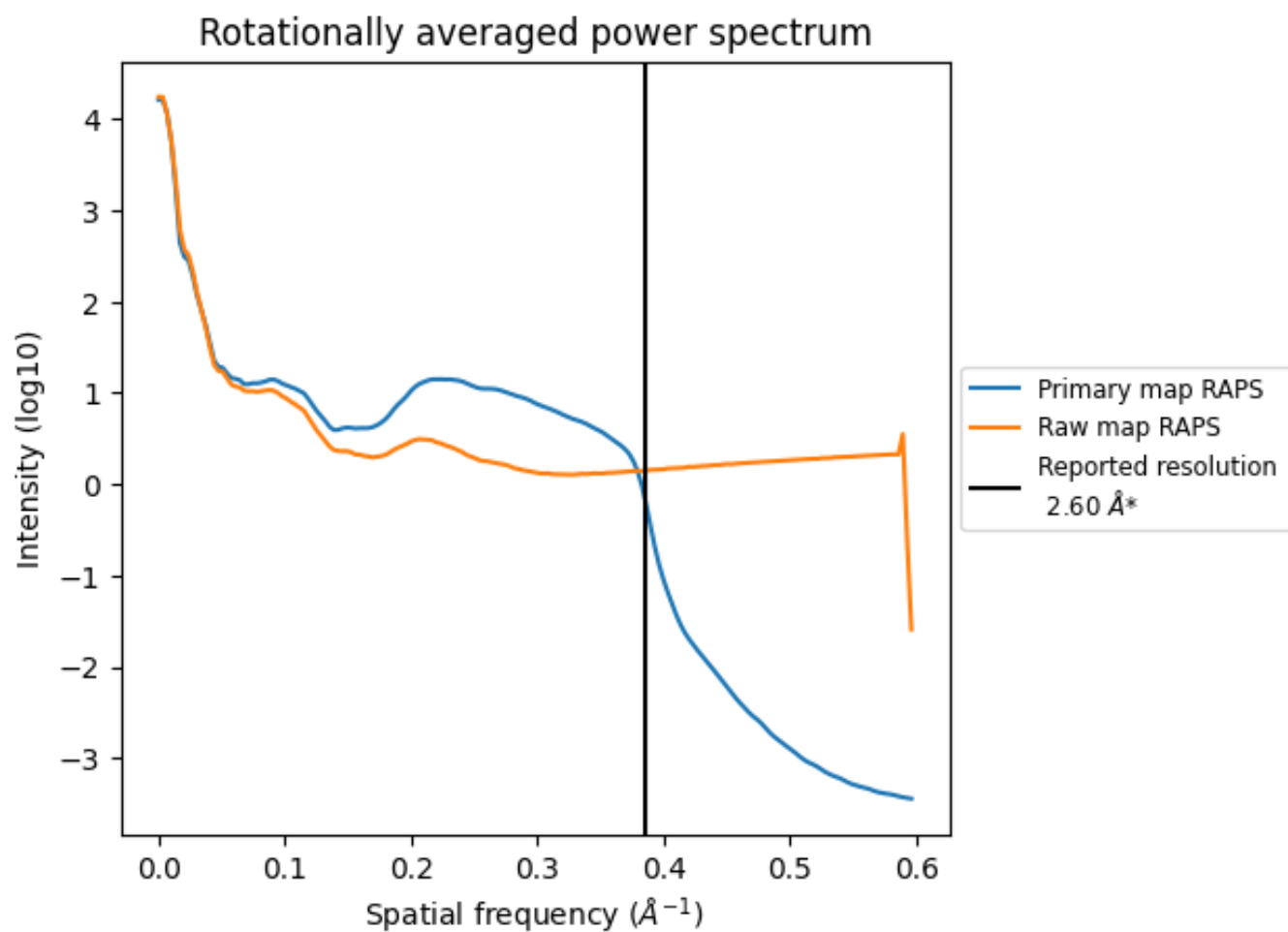
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 65 nm³; this corresponds to an approximate mass of 59 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](#)

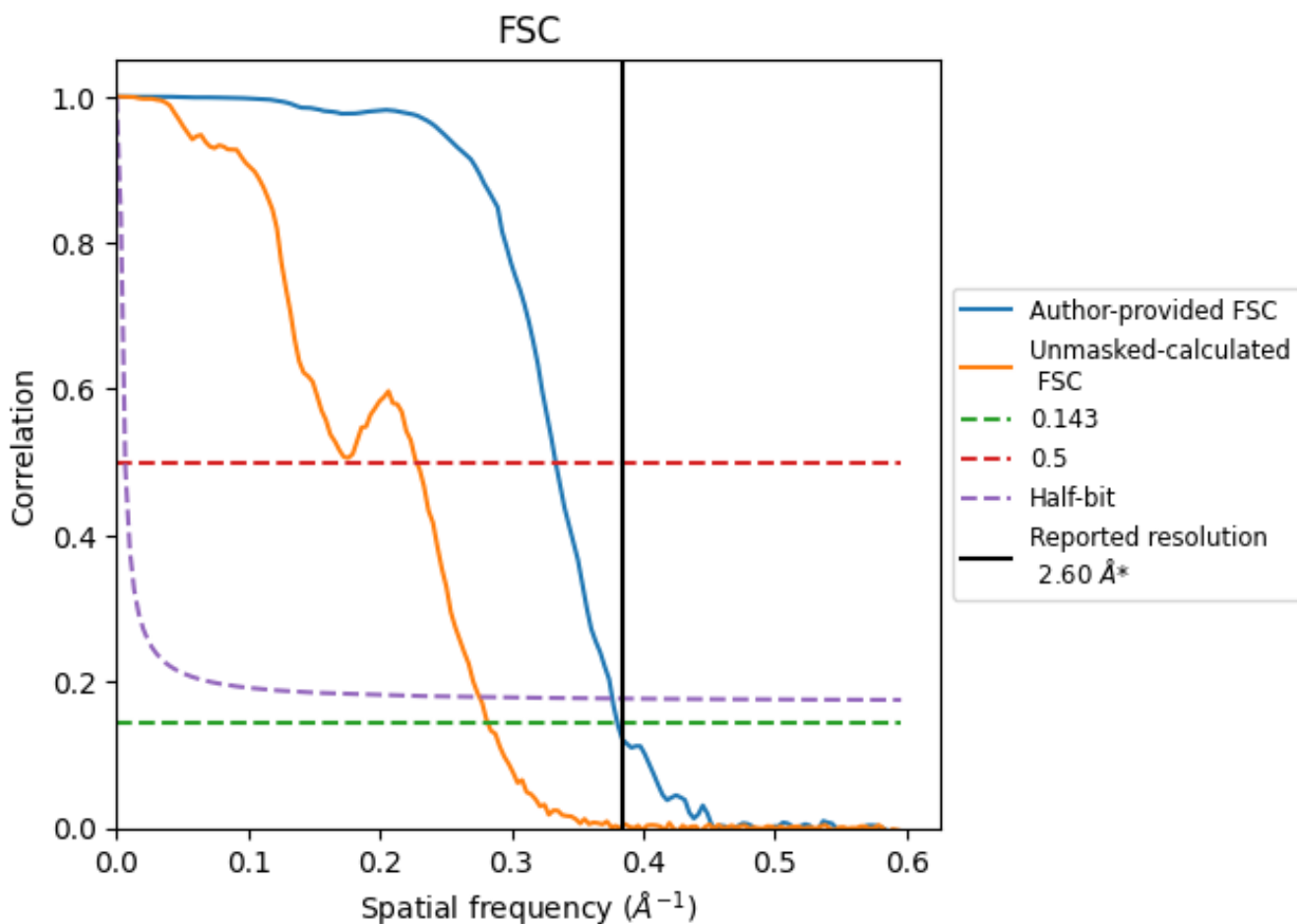


*Reported resolution corresponds to spatial frequency of 0.385 Å⁻¹

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 0.385 Å⁻¹

8.2 Resolution estimates [i](#)

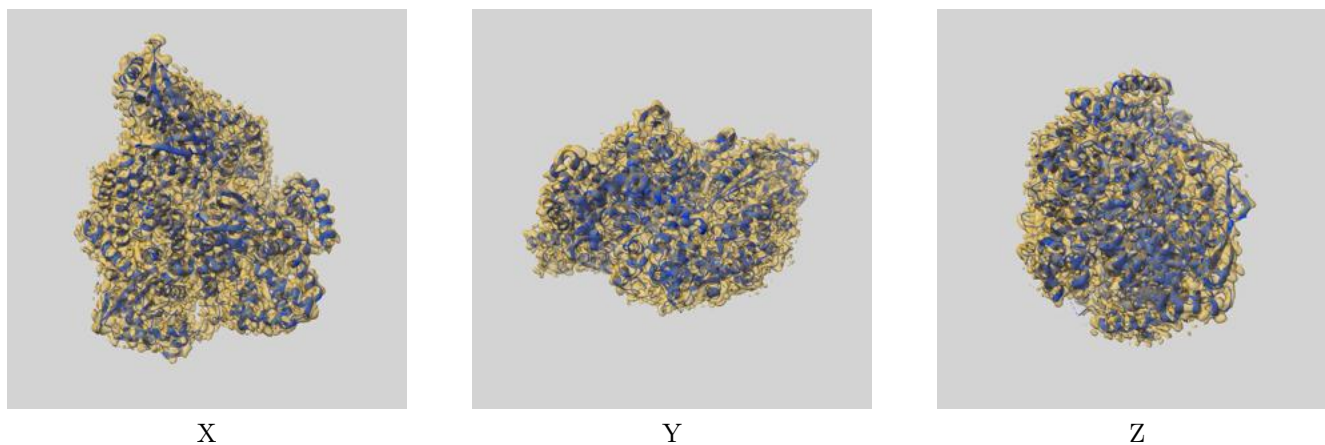
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.60	-	-
Author-provided FSC curve	2.63	3.00	2.66
Unmasked-calculated*	3.54	4.39	3.63

*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 3.54 differs from the reported value 2.6 by more than 10 %

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-18343 and PDB model 8QE5. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



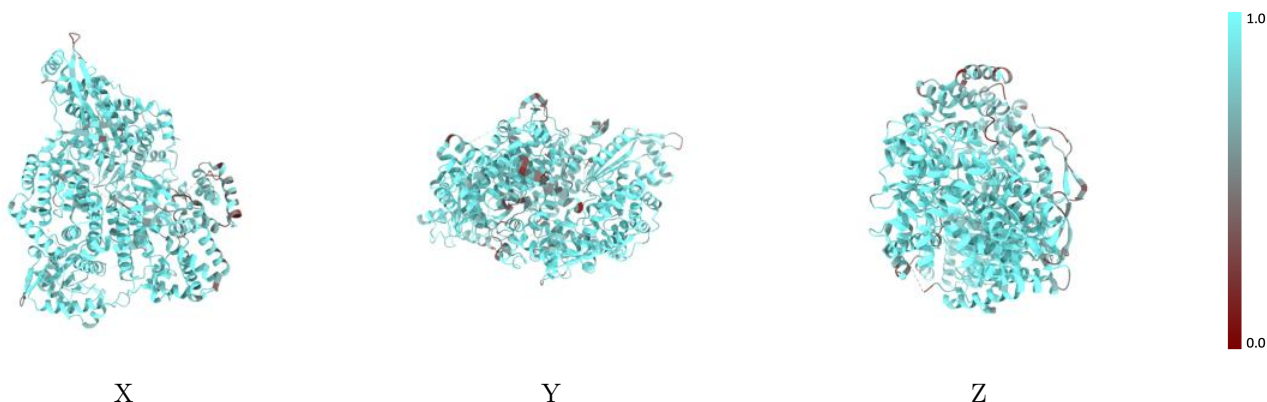
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



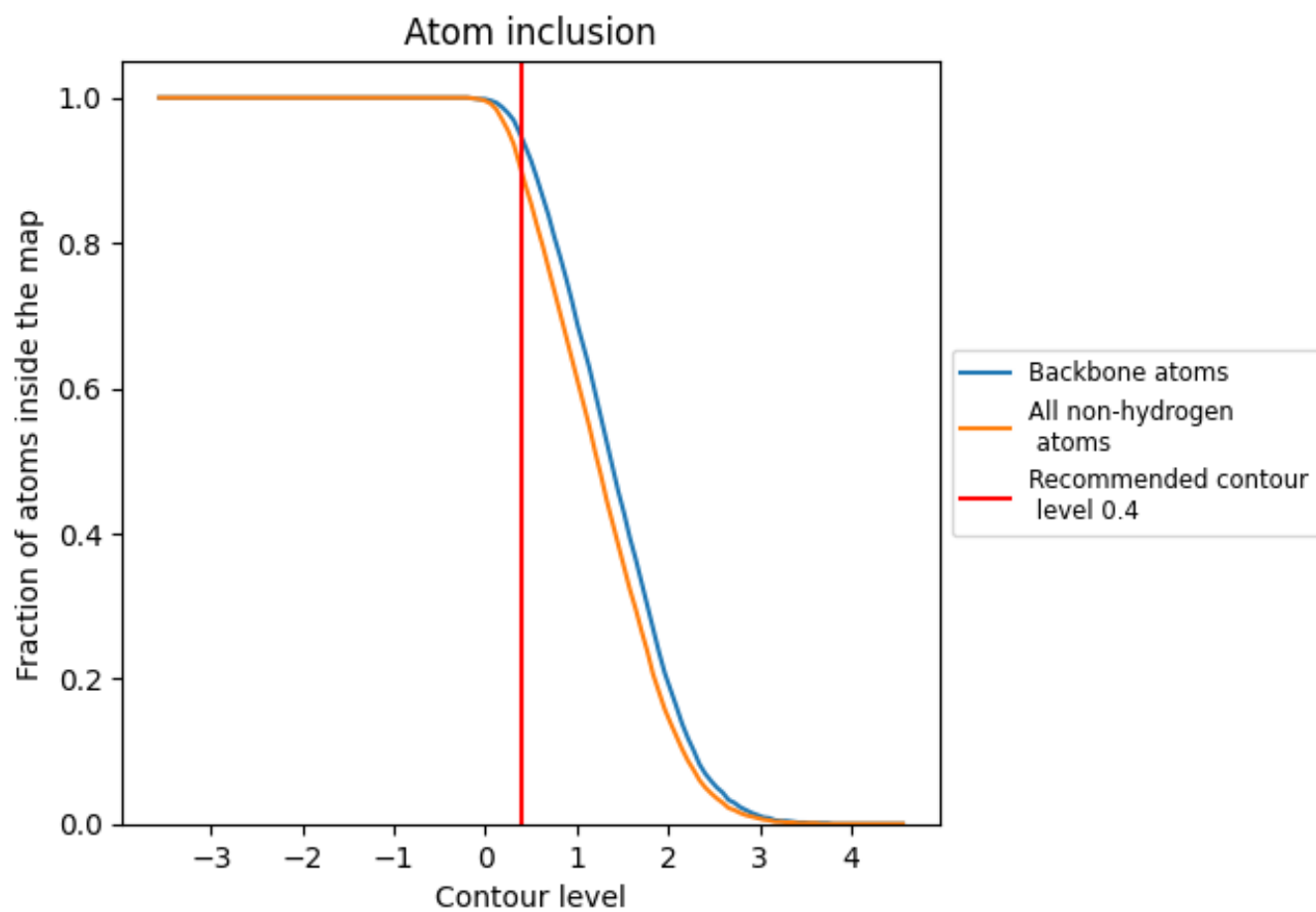
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.4).





9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 90% 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 (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8960	 0.6250
A	 0.8960	 0.6250

