



# wwPDB EM Validation Summary Report ⓘ

Jul 7, 2024 – 12:39 AM JST

PDB ID : 8JHK  
EMDB ID : EMD-36271  
Title : Cryo-EM structure of the DOCK5/ELMO1 complex, focused on one protomer  
Authors : Kukimoto-Niino, M.; Katsura, K.; Ishizuka-Katsura, Y.; Mishima-Tsumagari, C.; Yonemochi, M.; Inoue, M.; Nakagawa, R.; Kaushik, R.; Zhang, K.Y.J.; Shirouzu, M.  
Deposited on : 2023-05-23  
Resolution : 4.76 Å (reported)  
Based on initial models : 7DPA, 6IE1

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

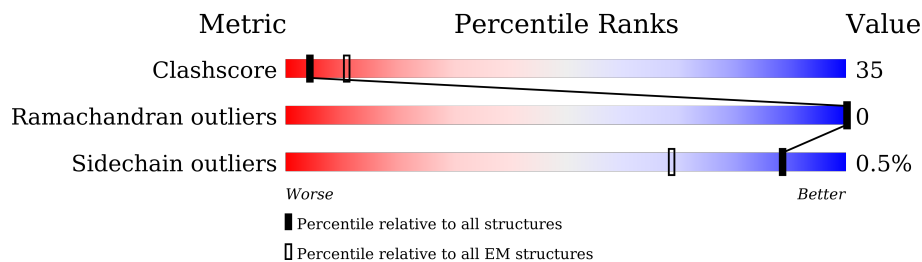
EMDB validation analysis : 0.0.1.dev92  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.37.1

# 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 4.76 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  $\geq 3$ , 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	733	36% 63% ..
2	B	1648	40% 59% .
2	E	1648	5% 92% .

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 20512 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 Engulfment and cell motility protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	727	5879	3721	1009	1108	41	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	GLY	-	expression tag	UNP Q92556
A	-4	GLY	-	expression tag	UNP Q92556
A	-3	SER	-	expression tag	UNP Q92556
A	-2	GLY	-	expression tag	UNP Q92556
A	-1	GLY	-	expression tag	UNP Q92556
A	0	SER	-	expression tag	UNP Q92556

- Molecule 2 is a protein called Deducator of cytokinesis protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1642	13436	8618	2264	2484	70	0	0
2	E	140	1197	773	197	222	5	0	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-5	GLY	-	expression tag	UNP Q9H7D0
B	-4	GLY	-	expression tag	UNP Q9H7D0
B	-3	SER	-	expression tag	UNP Q9H7D0
B	-2	GLY	-	expression tag	UNP Q9H7D0
B	-1	GLY	-	expression tag	UNP Q9H7D0
B	0	SER	-	expression tag	UNP Q9H7D0
B	1285	ARG	LYS	variant	UNP Q9H7D0
E	-5	GLY	-	expression tag	UNP Q9H7D0
E	-4	GLY	-	expression tag	UNP Q9H7D0

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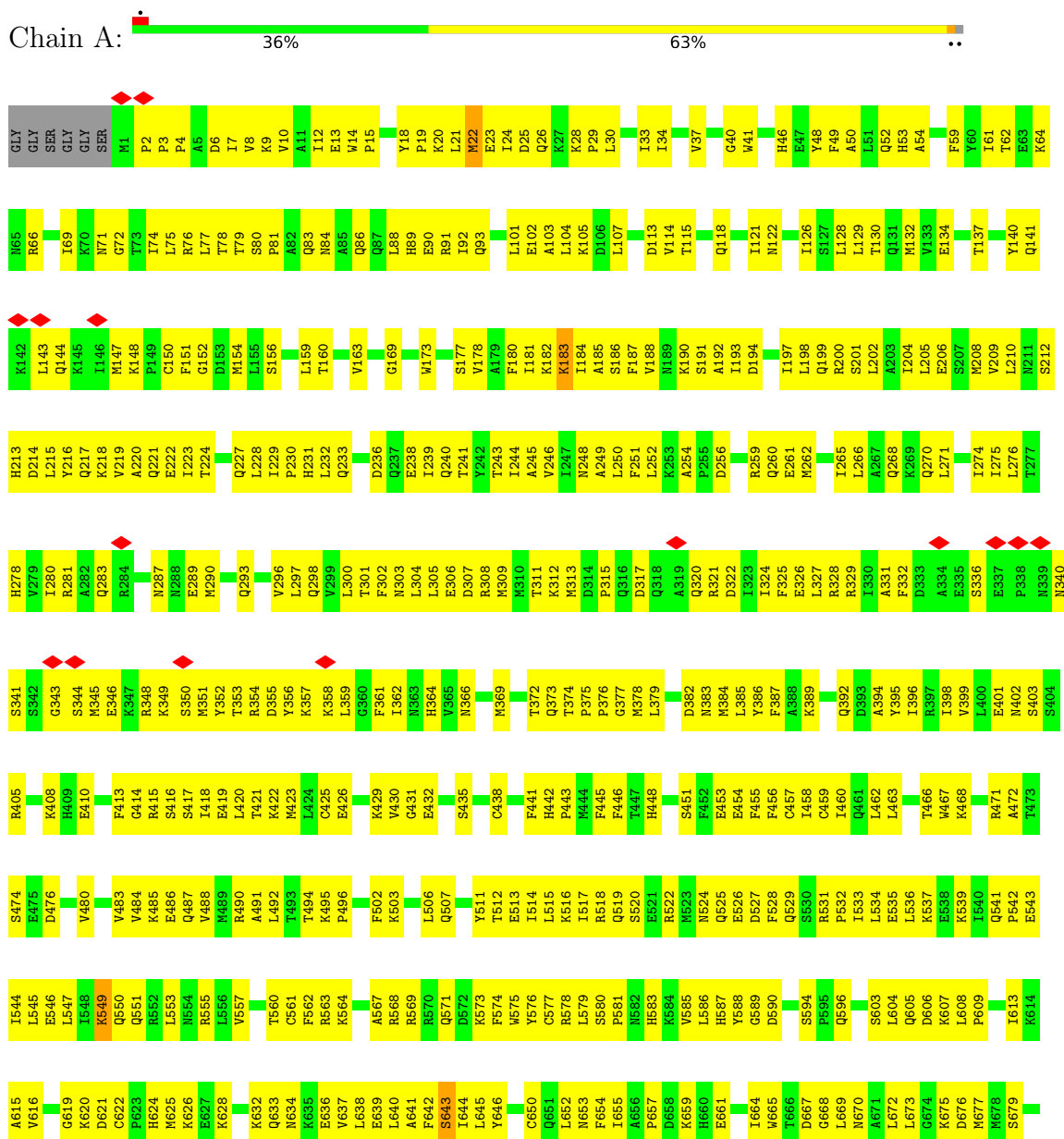
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Chain	Residue	Modelled	Actual	Comment	Reference
E	-3	SER	-	expression tag	UNP Q9H7D0
E	-2	GLY	-	expression tag	UNP Q9H7D0
E	-1	GLY	-	expression tag	UNP Q9H7D0
E	0	SER	-	expression tag	UNP Q9H7D0
E	1285	ARG	LYS	variant	UNP Q9H7D0

### 3 Residue-property plots

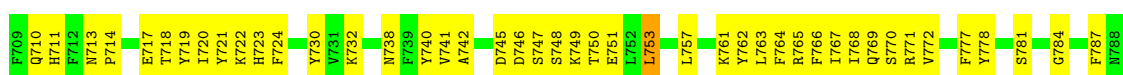
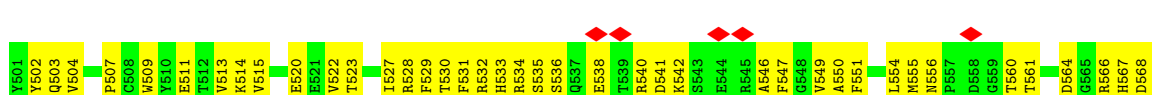
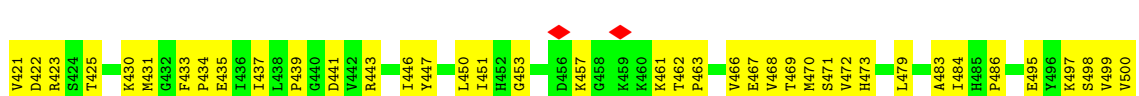
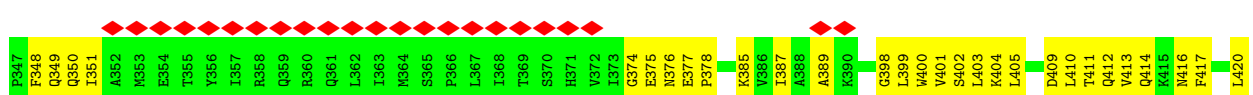
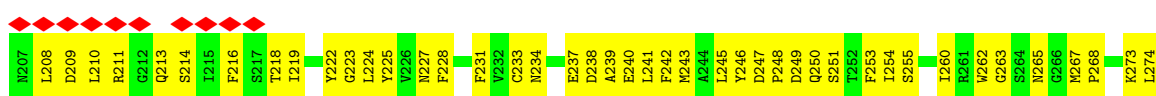
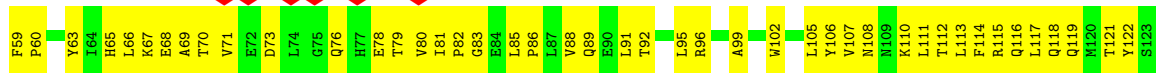
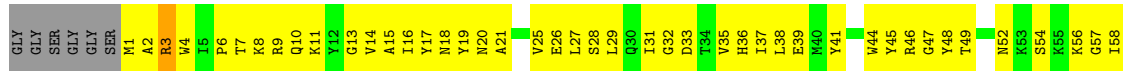
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Engulfment and cell motility protein 1





• Molecule 2: Deducator of cytokines protein 5



K856	L857	R851	L932	R933	T861	R954	R955	R956	R957	L868	F869	R870	Q871	R872	E873	C874	R875	E876	V877	S878	L879	F880	L881	T883	D884	Q885	Q889	L890	D891	Q963	R964	D965	D966	S967	E900	S903	Q904	L906	S907	N908	I909	L910	D914	R915	K916	D917	T921	A922	V923	H924	I925	Q926	L927	N928	M929	E930		
L931	Y1002	Y1076	G1077	F1107	K1004	M1005	H1006	M1007	E1082	M1009	G1083	G1084	F1085	M1011	T1012	V1016	F1017	L1018	R1019	E1097	H1098	A1020	I1021	N1022	F1023	F1024	V1027	L1028	F1032	M1033	D1034	Q1035	A1036	Q1040	L1041	L1042	L1043	F1047	V1051	H1056	E1057	S1058	L1059	Q1060	I1061	E1062	D1063	D084	M987	E988	F989	H990	I991	M992	F993	L996		
K1074	K1075	Y1076	G1077	F1107	K1004	M1005	H1006	M1007	E1082	M1009	G1083	G1084	F1085	M1011	T1012	G1095	F1096	H1097	K1098	I1099	K1100	G1164	I1102	F1103	S1104	M1105	G1107	F1108	M1109	L1110	E1111	V1112	T1113	L1114	T1115	P1116	E1117	V1118	E1119	L1120	R1121	T1124	I1125	F1126	F1127	F1128	F1129	D1130	M1131	M1132	Q1133	C1134	E1135	S1199	F1136	M1137	F1138	S1139
M1143	F1144	H1145	M1146	E1147	E1148	M1149	E1150	L1151	L1152	T1153	G1154	L1155	E1156	Y1157	E1158	V1159	E1160	G1161	R1162	G1163	D1164	D1165	E1166	Q1167	Y1168	K1169	V1170	M1171	L1172	E1173	K1174	L1175	L1176	L1177	E1178	H1179	H1183	K1184	Y1185	L1186	S1187	S1188	G1189	E1190	E1191	F1192	F1193	A1194	L1195	L1196	Y1197	S1198	E1199	L1200	L1201	N1202	K1276	
D1206	Y1207	R1208	E1209	I1210	L1211	M1212	E1213	D1214	E1215	S1216	K1217	L1218	M1219	R1220	T1224	Y1231	K1232	E1233	K1234	K1235	L1236	E1237	M1238	Y1240	R1241	R1242	Y1243	L1244	L1245	K1246	L1247	R1248	D1249	L1250	H1251	R1252	E1255	M1256	E1259	A1260	T1263	L1264	L1265	L1266	H1267	A1268	L1271	M1272	M1273	S1274	E1275	K1276						
P1277	C1278	V1279	L1282	L1283	Y1288	Y1291	M1295	Q1294	E1295	L1296	K1297	E1298	K1299	L1300	Y1301	Q1302	E1303	S1306	Y1307	K1310	G1311	M1313	Y1314	E1315	K1316	K1319	L1320	S1321	K1322	R1323	L1324	E1325	T1327	E1328	S1329	K1331	V1332	Y1335	E1336	G1337	L1338	G1339	S1340	L1341	L1342	K1343	K1344	E1345	E1346									
S1347	F1348	Y1349	E1350	M1351	L1352	L1353	K1354	A1355	M1356	R1357	P1358	Q1359	A1364	Y1367	M1369	Q1370	F1372	R1377	M1378	K1379	F1380	K1381	Y1382	Y1383	L1384	C1385	K1386	E1387	Y1388	E1389	R1390	L1391	E1392	D1393	F1394	S1395	L1399	F1400	Q1401	F1402	A1405	E1406	K1407	M1408	S1410	S1411	T1412	P1413	P1414	G1415	E1416							
D1417	I1418	S1419	S1420	S1421	P1422	K1423	Q1424	Y1425	F1426	G1427	C1428	V1431	K1432	P1433	M1434	S1435	Q1437	P1438	D1443	P1447	E1448	Q1449	L1450	L1451	N1452	Y1453	Y1454	R1455	E1458	L1459	Q1460	Q1461	F1462	R1463	Y1464	S1465	R1466	P1467	F1468	R1469	G1471	E1472	K1473	D1474	P1475	M1477	E1478	M1482	W1483	E1484	E1485							
R1486	T1487	T1488	Y1489	T1490	T1491	T1494	F1495	P1496	G1497	I1498	L1499	K1500	W1501	F1502	E1503	Y1504	K1505	Q1506	L1507	S1508	T1509	E1510	E1511	P1514	L1515	E1516	M1517	T1521	M1522	E1523	L1524	T1525	M1526	E1527	R1528	T1529	S1530	M1531	C1532	V1533	Q1534	H1535	H1536	A1537	M1538	D1539	L1542	S1543	V1544	H1545	P1546	L1547	L1550	L1551				
S1552	G1553	V1554	V1555	P1556	P1557	A1558	V1559	F1563	S1564	F1570	M1571	T1572	E1573	K1574	Y1575	L1576	Q1577	E1578	H1579	P1580	E1581	D1582	Q1583	E1584	K1585	V1586	E1587	L1588	L1589	K1590	R1591	A1594	M1597	P1598	L1599	L1600	T1601	E1602	G1603	I1604	R1605	H1606	H1607	K1610	L1611	T1612	L1615	K1616	P1617									
L1618	H1619	E1620	R1621	C1625	F1626	R1627	E1628	L1629	K1630	E1631	Y1632	V1633	H1636	Y1637	T1641	L1642																																										

• Molecule 2: Deducator of cytokinesis protein 5

Chain E: 5% 92%

GLY	GLY	GLY	GLY	GLY	MET	ALA	THR	ARG	THR	GLN	VAL	TRP	ILE	PRO	LEU	LYS	ALA	ARG	ASN	THR	ASN	ALA	PRO	GLY	GLU	ASP	VAL	GLU	ALA	GLY	ILE	TRP	ASN	THR	THR	THR	THR	VAL	ARG	HIS	ILE	LEU	GLU	MET	TRP	GLU	TRP	GLY	GLY	TRP	TYR	ARG	GLY	TRP	VAL	ASN	TRP	THR	LEU	LEU	GLN	ASN	THR	LEU	THR	PHE
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Y1332	PHE	TYR	PRO	LYS
Y1335	SER	ARG	LEU	TYR
E1336	LEU	ALA	GLU	LYS
G1337	ARG	ASN	ASN	TYR
L1338	LEU	VAL	ILE	GLN
G1339	LEU	GLN	THR	GLU
N1340	THR	GLN	THR	GLU
L1341	GLN	PHE	ASP	GLU
	PHE	ASP	GLU	THR
K1344	PRO	ARG	GLN	VAL
R1345	ASN	TYR	LEU	ALA
A1346	ALA	TYR	GLU	LEU
S1347	GLU	SER	ASN	GLN
F1348	GLY	PRO	ARG	GLU
Y1349	MET	PHE	ARG	LEU
E1350	THR	ARG	ILE	LEU
N1351	SER	LYS	SER	LYS
I1352	THR	GLY	ASN	LEU
I1353	THR	GLU	CYS	LEU
I1354	PRO	LYS	VAL	ILE
A1355	PRO	ASP	GLN	ALA
MET	GLY	PRO	LEU	LEU
ARG	GLU	HIS	GLN	GLN
PRO	ASP	ALA	MET	GLN
GLN	ILE	TRP	PRO	LEU
PRO	ILE	ASP	LEU	LEU
GLY	LYS	ARG	LEU	LEU
THR	THR	ARG	LEU	LEU
GLN	THR	THR	THR	THR
TYR	SER	THR	GLY	THR
GLY	PRO	LEU	GLY	THR
GLN	LYS	SER	ILE	ARG
GLY	PHE	TRP	VAL	ILE
VAL	ALA	VAL	HIS	ARG
PHE	VAL	HIS	PRO	ILE
PRO	TYR	LEU	PRO	LEU
PRO	GLY	LEU	LEU	GLY
LEU	ILE	LEU	LEU	HIS
ARG	PRO	LEU	LEU	LEU
ASN	PRO	ALA	ALA	LEU
LYS	PRO	ILE	VAL	HIS
LEU	PRO	LYS	VAL	GLU
PRO	PRO	ILE	MET	GLU
ASN	PRO	LYS	ARG	GLY
LEU	LEU	THR	GLY	LEU
ARG	LEU	SER	PHE	SER
ASN	PRO	ASN	SER	SER
LYS	PRO	ASN	CYS	CYS
LEU	PRO	ASN	ASN	ASN
PRO	LEU	ASN	GLU	GLU
GLY	PRO	ASN	GLU	GLU
ASP	PRO	ASN	GLU	GLU
GLY	PRO	ASN	GLU	GLU
THR	PRO	ASN	GLU	GLU
GLN	PRO	ASN	GLU	GLU
GLY	PRO	ASN	GLU	GLU
THR	PRO	ASN	GLU	GLU
GLY	PRO	ASN	GLU	GLU
THR	PRO	ASN	GLU	GLU
GLY	PRO	ASN	GLU	GLU
THR	PRO	ASN	GLU	GLU
LEU	PRO	ASN	GLU	GLU

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	279838	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 ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	64000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.098	Depositor
Minimum map value	-0.043	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.013	Depositor
Map size (Å)	319.2, 319.2, 319.2	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.33, 1.33, 1.33	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	0.30	0/5992	0.54	0/8086
2	B	0.35	0/13722	0.55	3/18514 (0.0%)
2	E	0.35	0/1223	0.52	0/1643
All	All	0.34	0/20937	0.55	3/28243 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
2	B	0	2
All	All	0	3

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	801	LEU	CA-CB-CG	6.13	129.40	115.30
2	B	753	LEU	CA-CB-CG	-5.79	101.97	115.30
2	B	175	PRO	C-N-CA	5.46	135.36	121.70

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	643	SER	Peptide
2	B	1064	PHE	Peptide
2	B	1288	TYR	Peptide

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5879	0	5902	456	0
2	B	13436	0	13516	931	0
2	E	1197	0	1194	96	0
All	All	20512	0	20612	1456	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 35.

The worst 5 of 1456 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:761:LYS:HE3	2:B:765:ARG:HE	1.32	0.95
2:B:201:GLU:O	2:B:205:LEU:HB2	1.67	0.93
2:B:36:HIS:HB2	2:B:48:TYR:HB2	1.52	0.88
2:B:1573:GLU:OE1	2:B:1577:GLN:NE2	2.05	0.88
2:E:1265:LEU:O	2:E:1269:GLU:N	2.07	0.88

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	725/733 (99%)	651 (90%)	74 (10%)	0	100	100
2	B	1640/1648 (100%)	1428 (87%)	212 (13%)	0	100	100
2	E	138/1648 (8%)	129 (94%)	9 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	2503/4029 (62%)	2208 (88%)	295 (12%)	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	662/664 (100%)	657 (99%)	5 (1%)	81	89
2	B	1495/1497 (100%)	1489 (100%)	6 (0%)	91	94
2	E	130/1497 (9%)	130 (100%)	0	100	100
All	All	2287/3658 (62%)	2276 (100%)	11 (0%)	89	93

5 of 11 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	644	ARG
2	B	934	ARG
2	B	1574	LYS
2	B	935	ARG
1	A	659	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 23 such sidechains are listed below:

Mol	Chain	Res	Type
2	B	1097	HIS
2	B	1449	GLN
2	B	1213	GLN
2	B	1477	ASN
2	B	65	HIS

### 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.

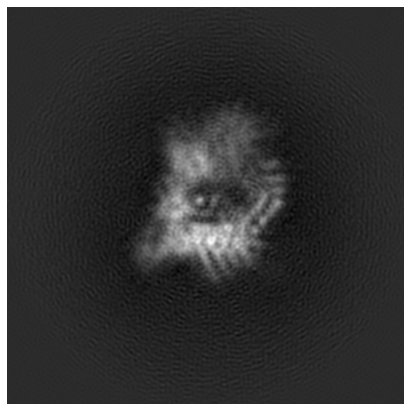
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-36271. These allow visual inspection of the internal detail of the map and identification of artifacts.

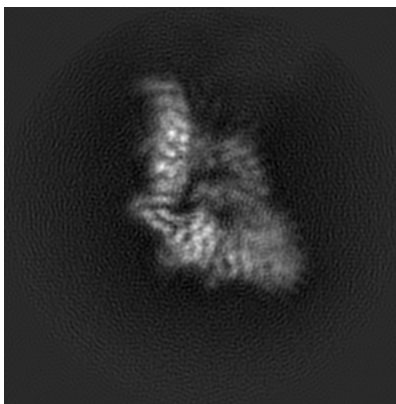
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

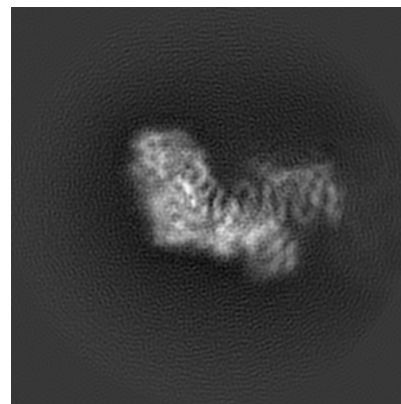
#### 6.1.1 Primary map



X

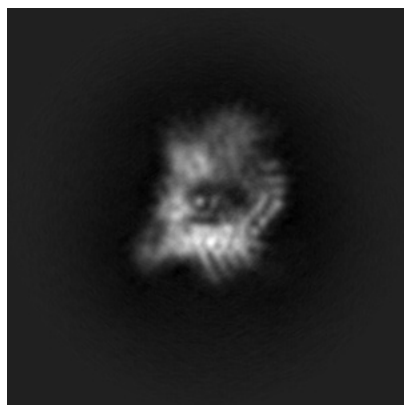


Y

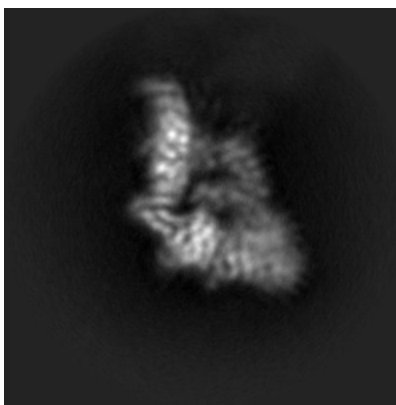


Z

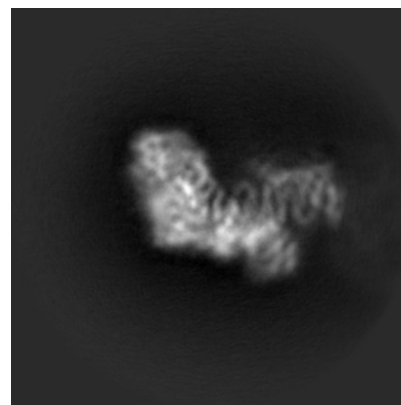
#### 6.1.2 Raw map



X



Y

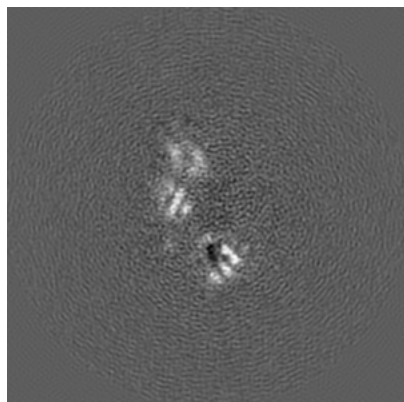


Z

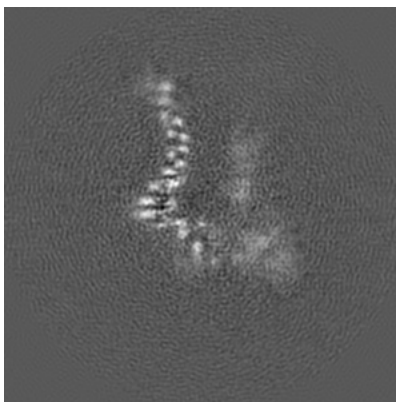
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

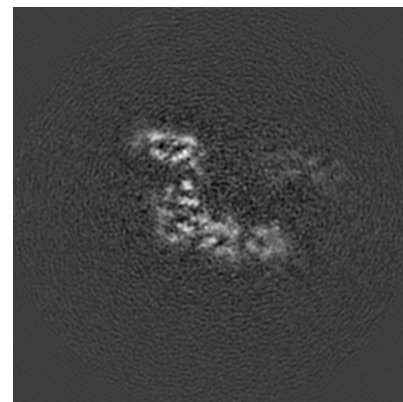
### 6.2.1 Primary map



X Index: 120

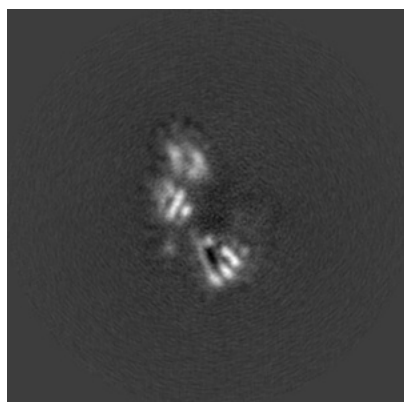


Y Index: 120

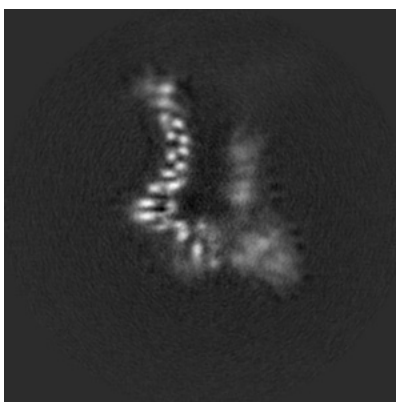


Z Index: 120

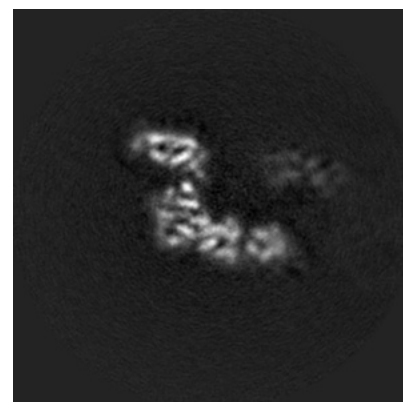
### 6.2.2 Raw map



X Index: 120



Y Index: 120



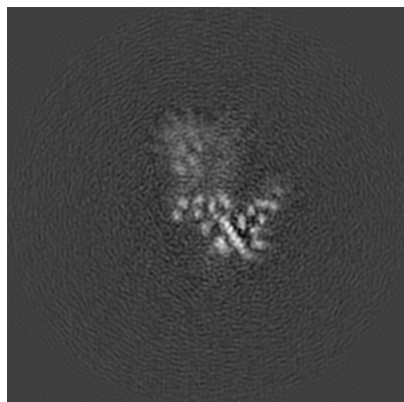
Z Index: 120

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

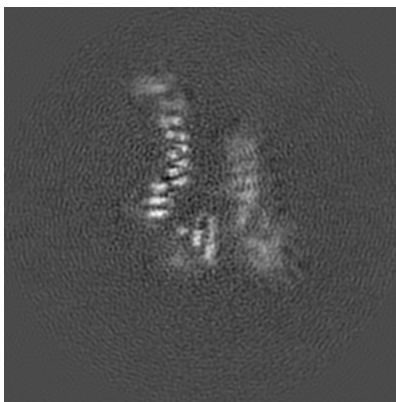


## 6.3 Largest variance slices [i](#)

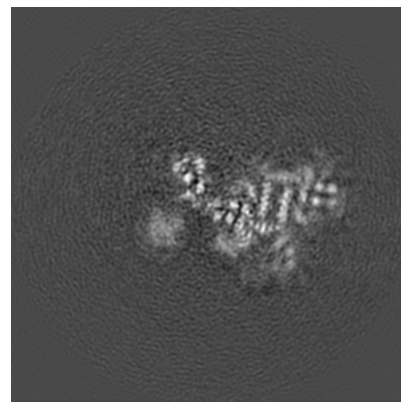
### 6.3.1 Primary map



X Index: 106

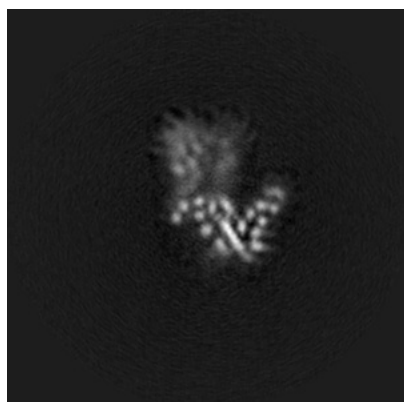


Y Index: 117

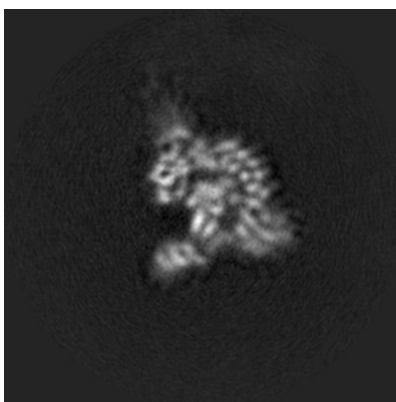


Z Index: 100

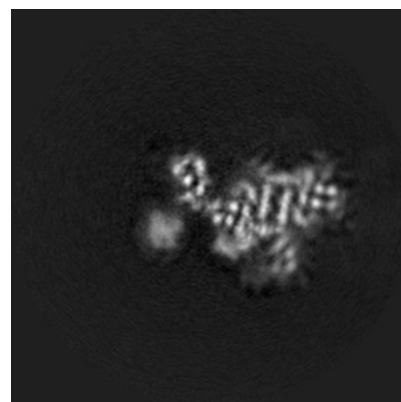
### 6.3.2 Raw map



X Index: 105



Y Index: 104

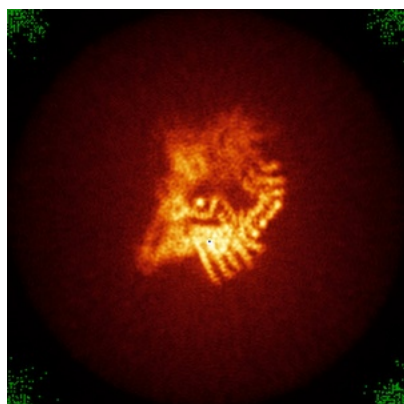


Z Index: 100

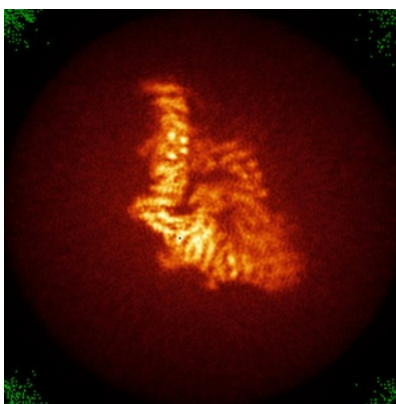
The images above show the largest variance slices of the map in three orthogonal directions.

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

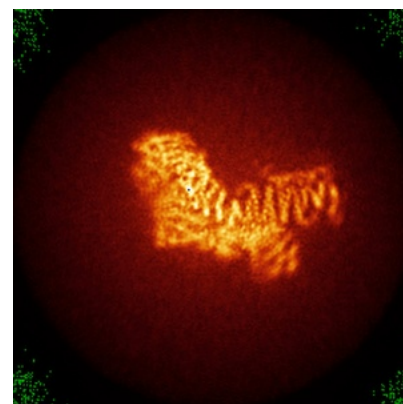
### 6.4.1 Primary map



X



Y

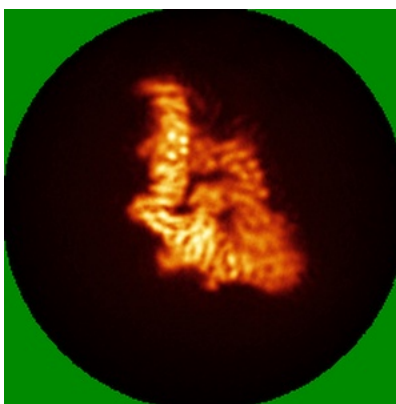


Z

### 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.

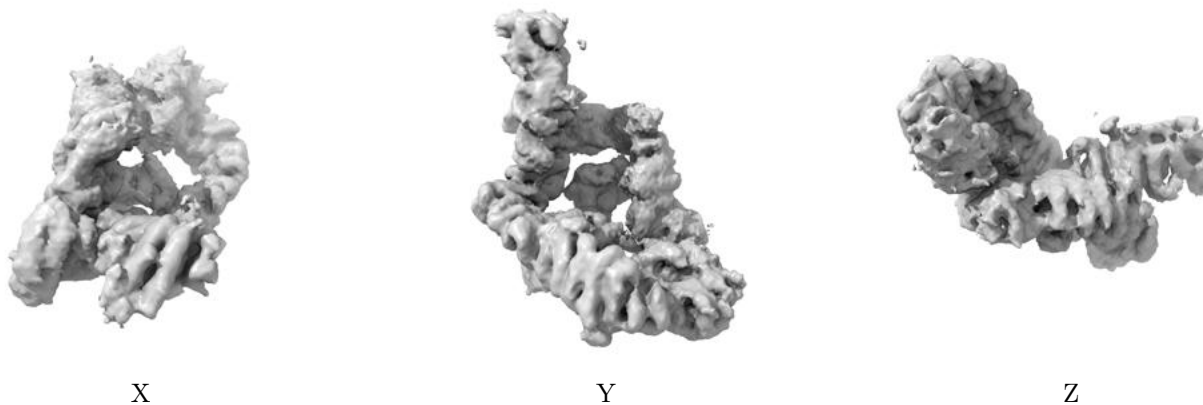
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.013. 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.

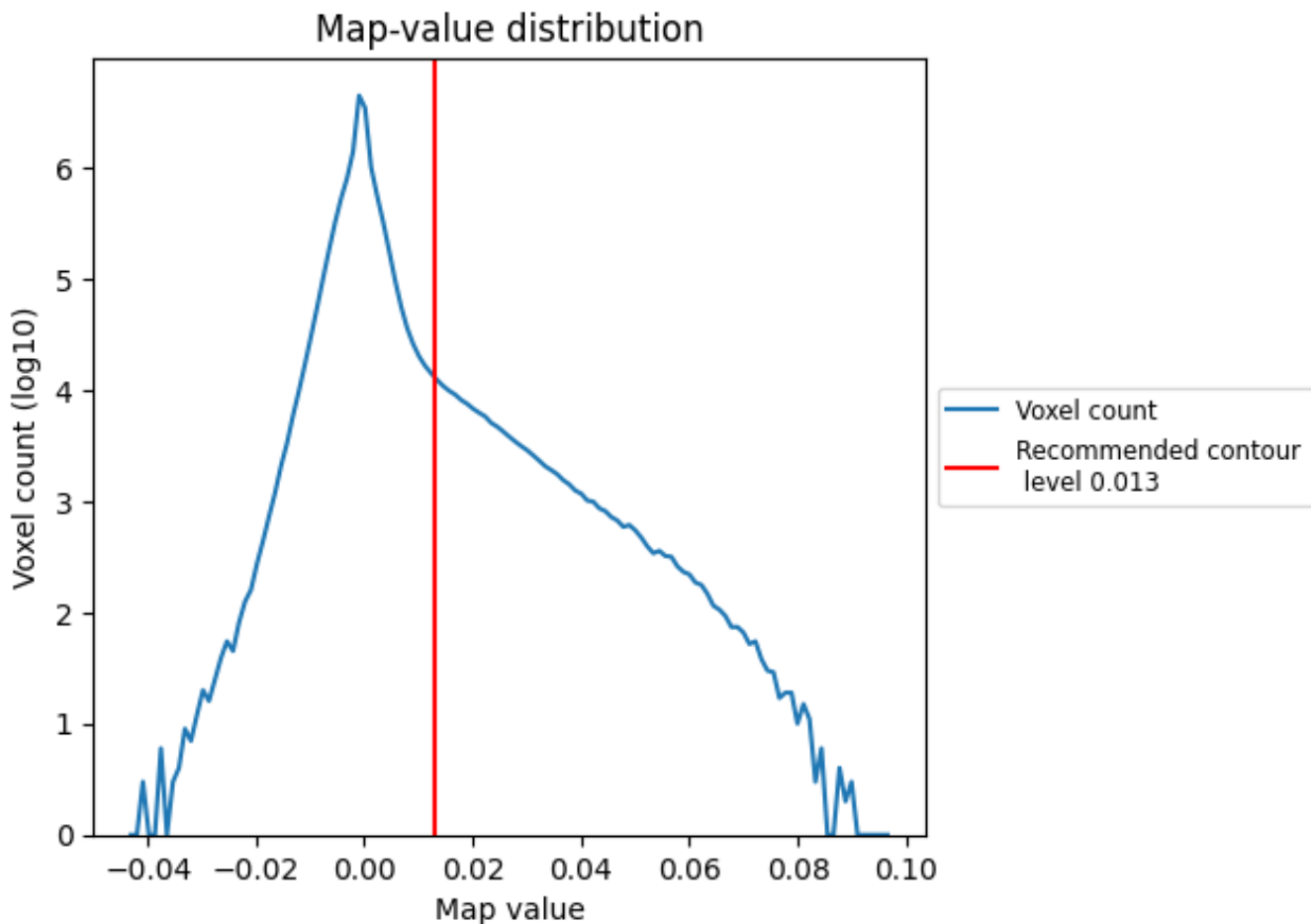
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

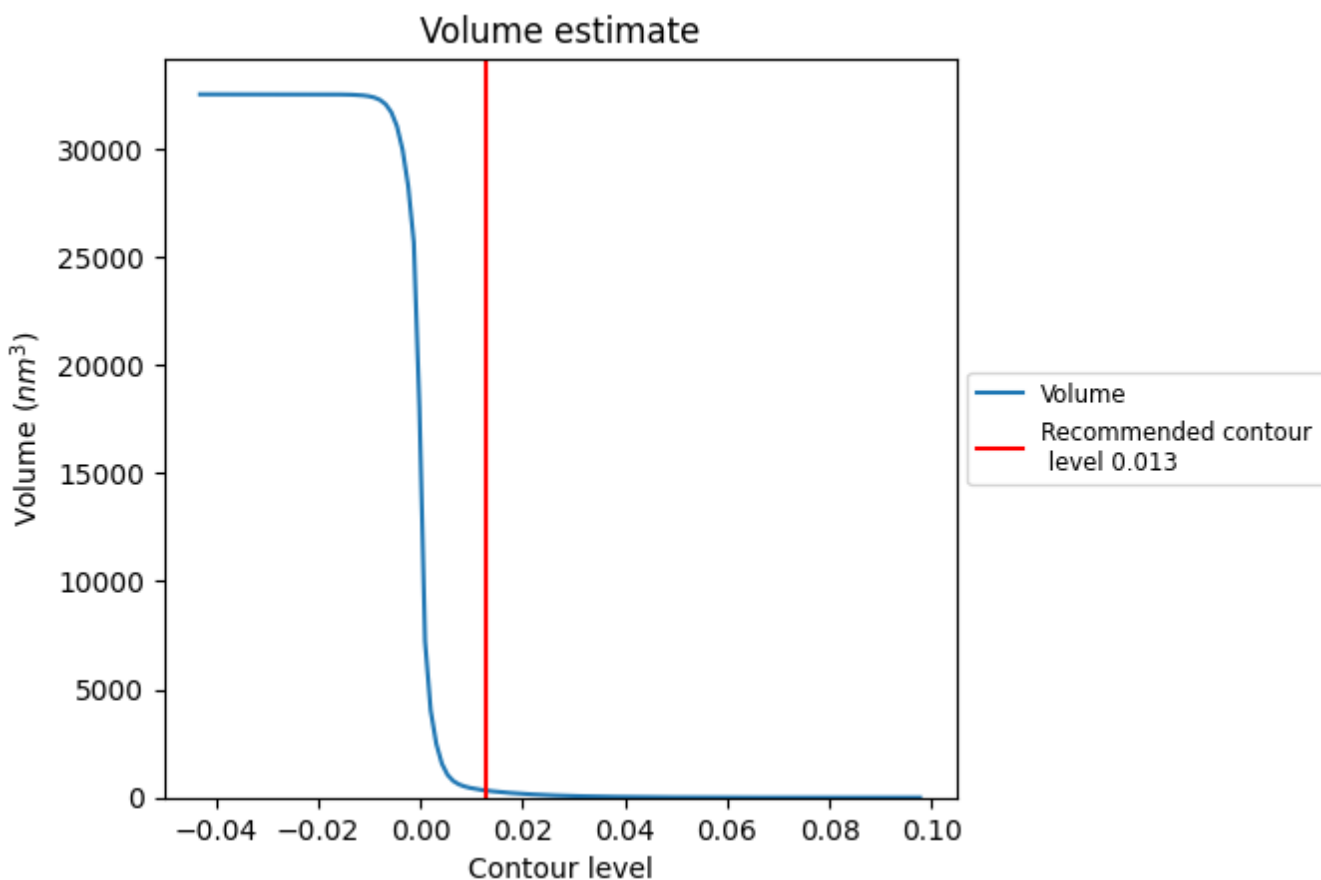
This section contains the results of statistical analysis of the map.

### 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.

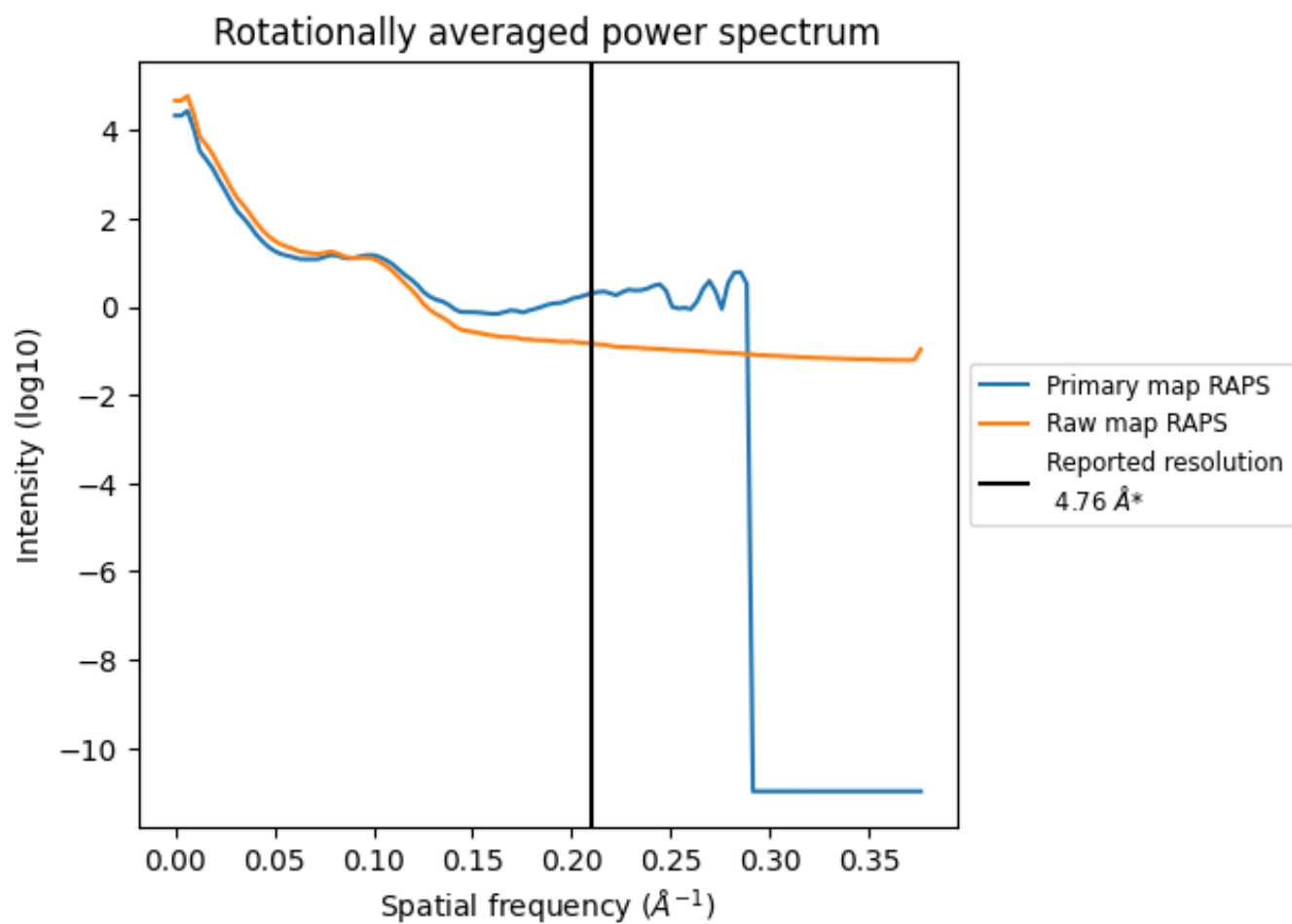
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 321  $\text{nm}^3$ ; this corresponds to an approximate mass of 290 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](#)

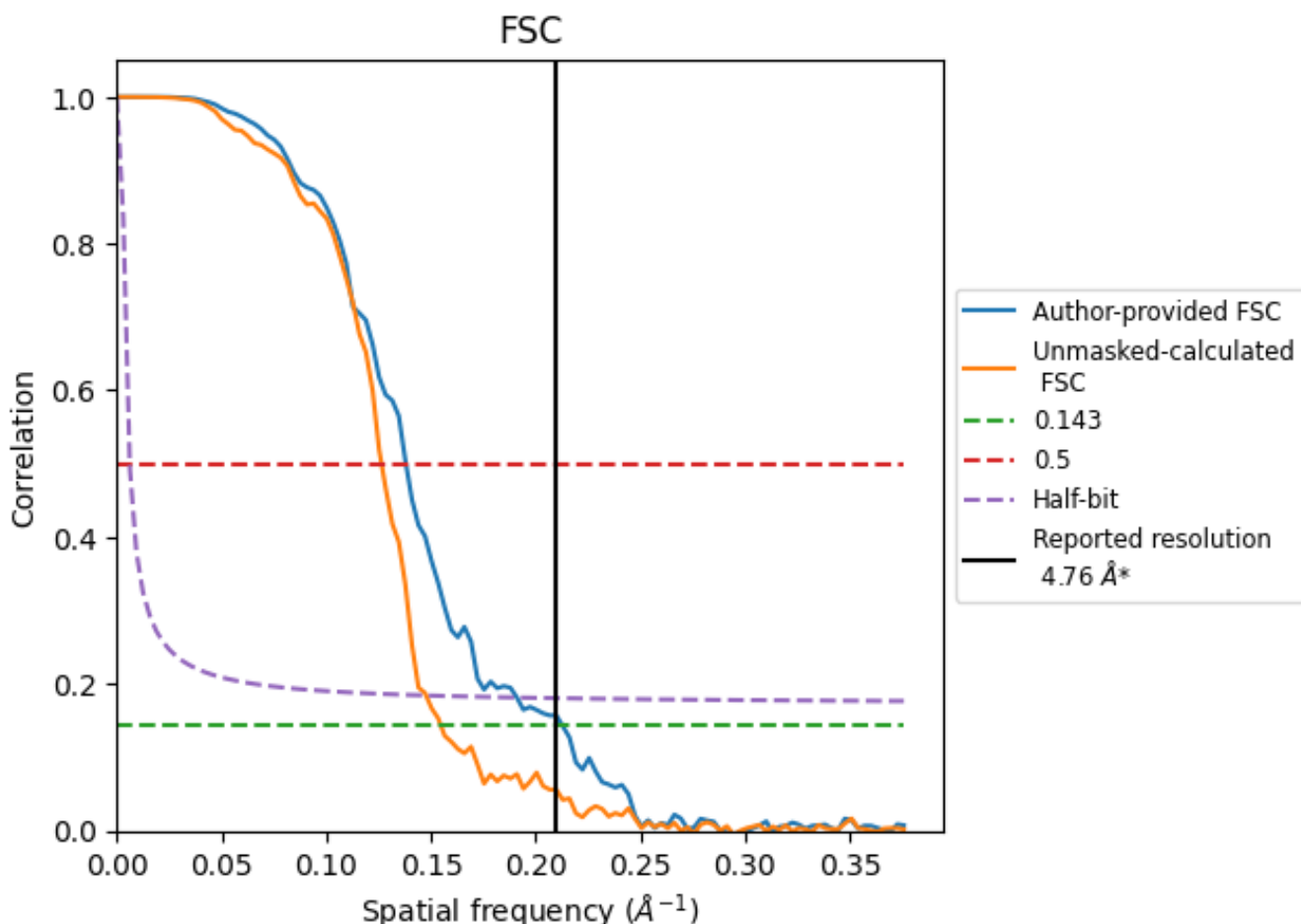


\*Reported resolution corresponds to spatial frequency of 0.210 Å<sup>-1</sup>

## 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 0.210 Å<sup>-1</sup>

## 8.2 Resolution estimates

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.76	-	-
Author-provided FSC curve	4.70	7.24	5.23
Unmasked-calculated*	6.46	7.91	6.77

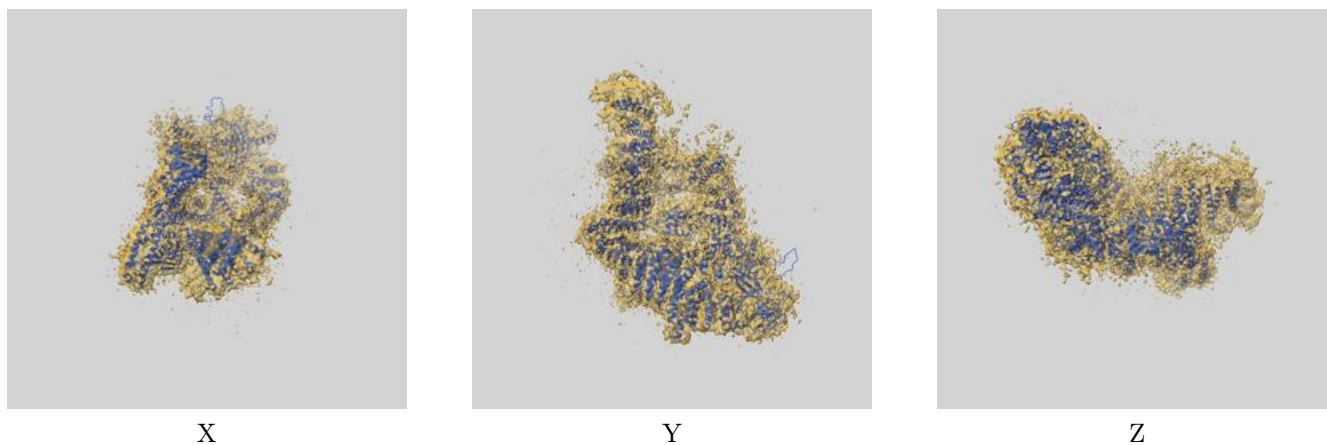
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.46 differs from the reported value 4.76 by more than 10 %



## 9 Map-model fit [i](#)

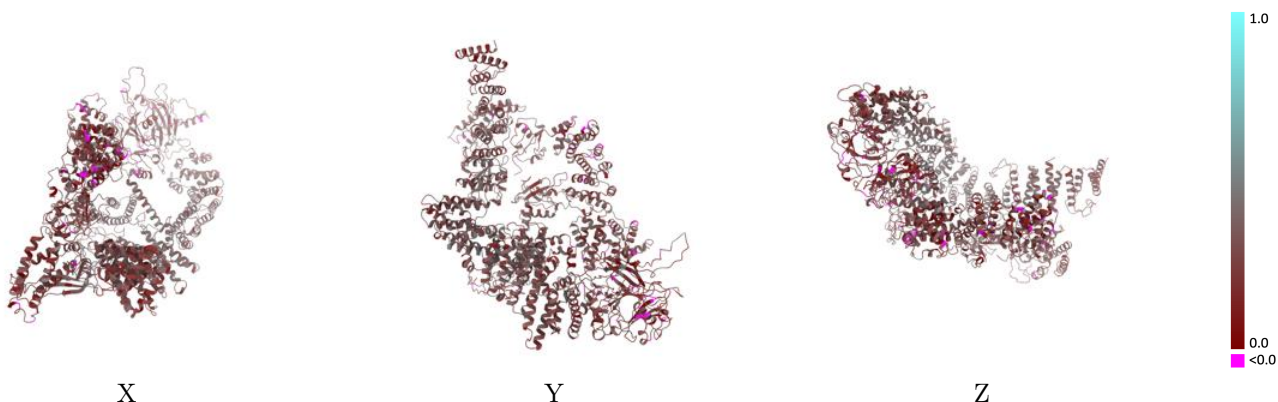
This section contains information regarding the fit between EMDB map EMD-36271 and PDB model 8JHK. Per-residue inclusion information can be found in section 3 on page 5.

### 9.1 Map-model overlay [i](#)



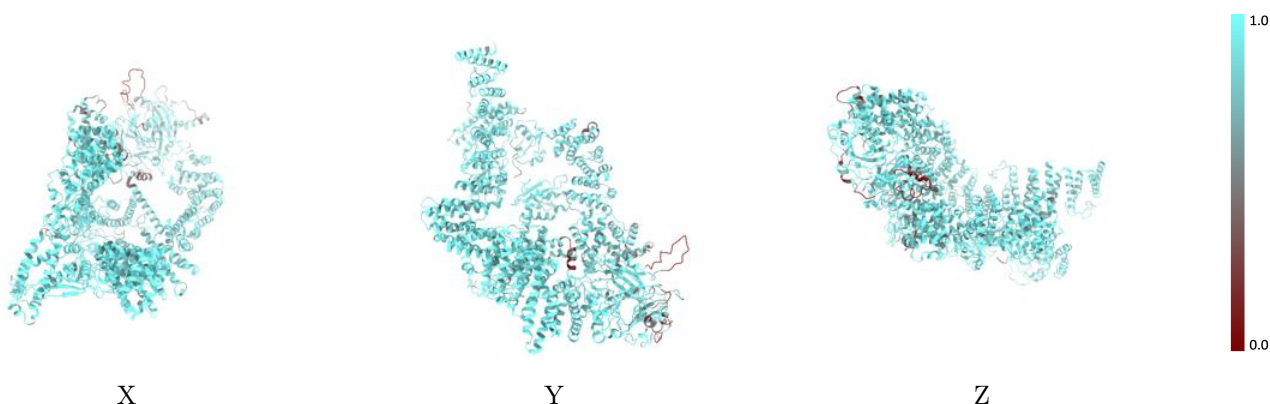
The images above show the 3D surface view of the map at the recommended contour level 0.013 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



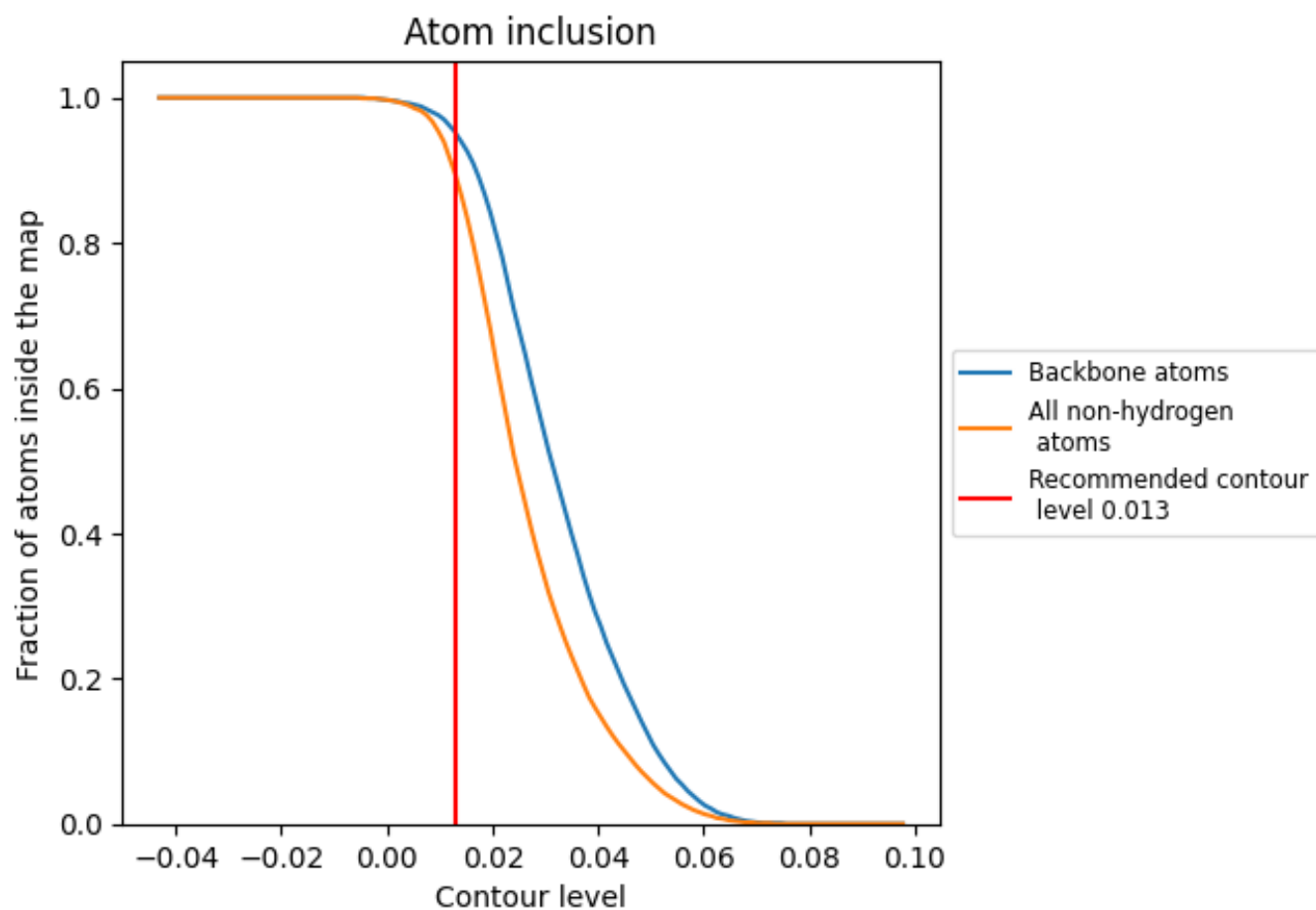
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.013).






## 9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 89% 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 (0.013) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8930	 0.2850
A	 0.8970	 0.2590
B	 0.8890	 0.2980
E	 0.9170	 0.2750

