



## Full wwPDB EM Validation Report ⓘ

Feb 11, 2025 – 06:54 PM EST

PDB ID : 9CQ9  
EMDB ID : EMD-45812  
Title : Modifying region of EcPKS1  
Authors : Schubert, H.L.; Hill, C.P.  
Deposited on : 2024-07-19  
Resolution : 3.50 Å(reported)  
Based on initial model : .

This is a Full wwPDB EM Validation 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.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) : 2.40

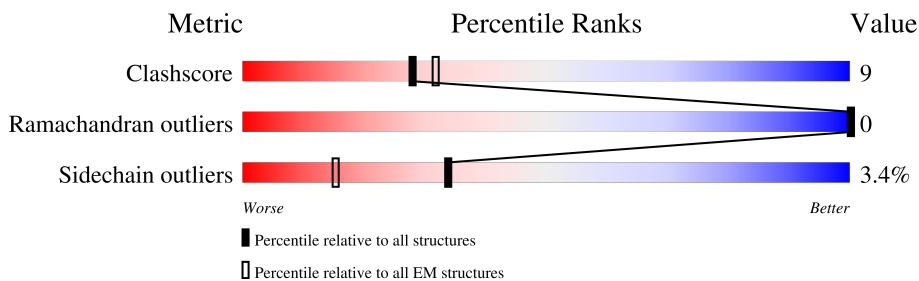
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.50 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  $\geq 3$ , 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	2272	
1	B	2272	

## 2 Entry composition

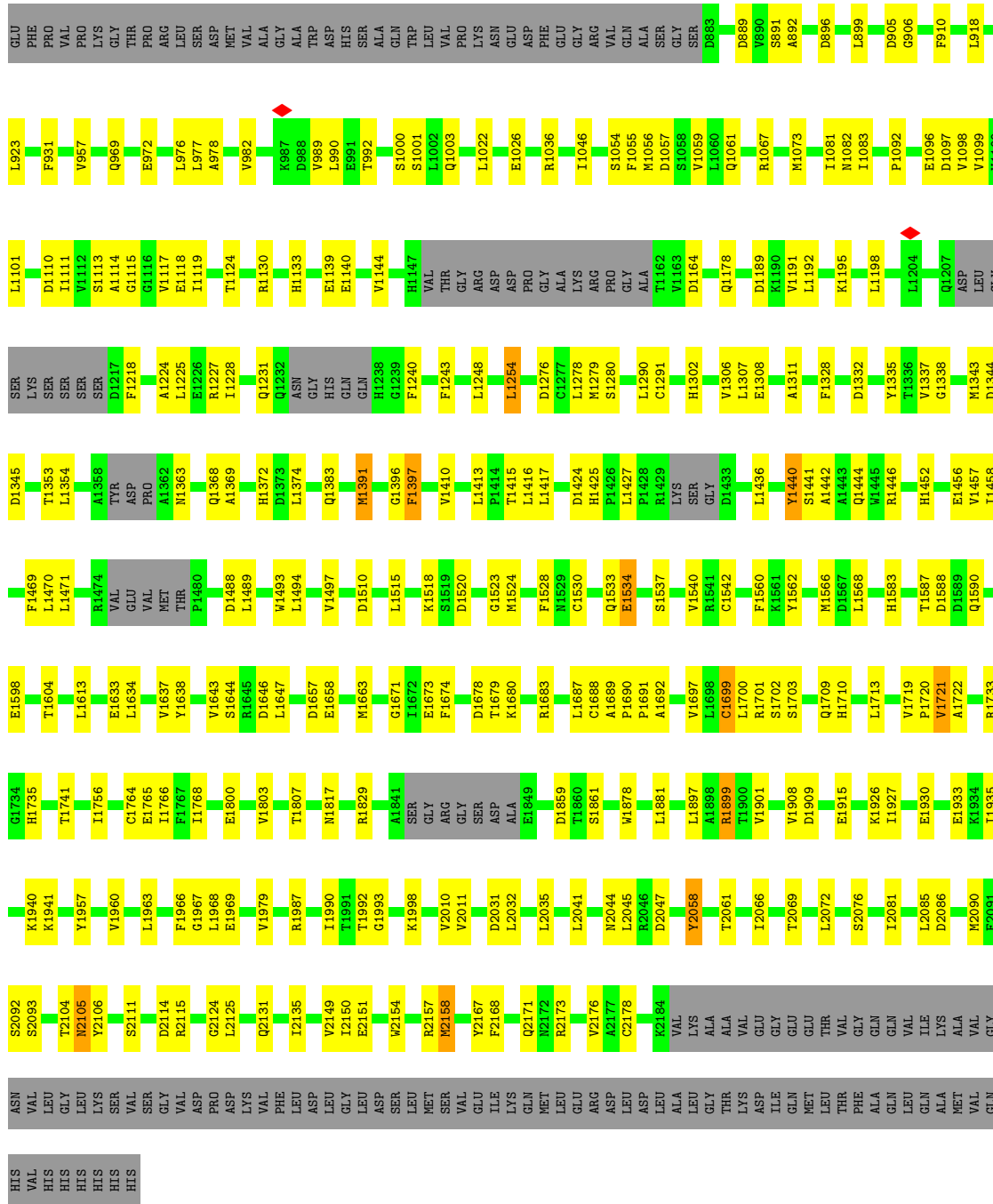
There is only 1 type of molecule in this entry. The entry contains 38874 atoms, of which 19370 are hydrogens and 0 are deuteriums.

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.

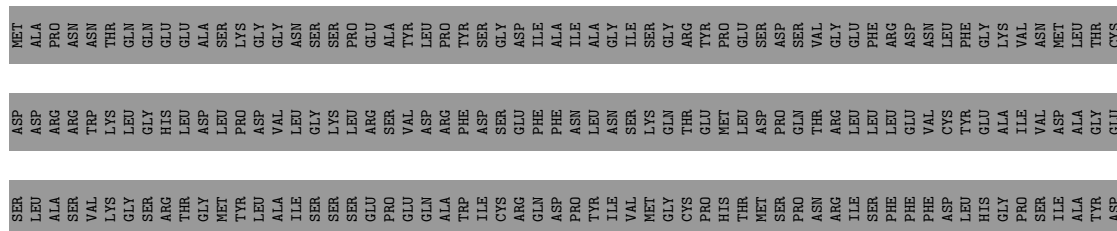
- Molecule 1 is a protein called Polyketide synthase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
1	A	1256	19437	6164	9685	1709	1825	54	0	0
1	B	1256	19437	6164	9685	1709	1825	54	0	0





● Molecule 1: Polyketide synthase 1



E1598	F1469	M1343	SER	GLU	SER	L923	V1099	GLU	SER	VAL	GLY	SER	ASP	ASN	ALA	CYS	THR
T1604	L1470	D1344	SER	LEU	ALA	F931	V1100	PHE	LYS	PRO	PRO	ALA	ALA	ALA	HIS	TYR	ALA
L1613	L1471	D1345	SER	ALA	ALA	F957	L1101	PRO	ILE	VAL	VAL	VAL	LEU	ALA	ALA	ASN	CYS
E1633	R1474	T1353	GLY	HIS	HIS	Q969	D1110	PRO	PRO	PRO	LYS	ASN	SER	VAL	VAL	VAL	VAL
L1634	VAL	L1354	LEU	LEU	GLY	THR	V1111	LEU	ALA	ALA	GLY	ALA	SER	LEU	VAL	VAL	VAL
V1637	GLU	A1358	PRO	GLN	ASP	E972	S1113	PRO	ASP	ASP	CYS	ASP	TYR	VAL	VAL	VAL	VAL
Y1638	VAL	TYR	ASP	SER	ARG	L976	A1114	ARG	THR	THR	ALA	VAL	VAL	VAL	VAL	VAL	VAL
V1643	THR	E1226	ASP	VAL	VAL	L977	G1115	VAL	ALA	ALA	VAL	VAL	VAL	VAL	VAL	VAL	VAL
S1644	P1480	PRO	A1362	ILE	ASP	A978	V1117	THR	TRP	TRP	ASP	THR	THR	THR	THR	THR	THR
R1645	D1488	M1363	GLY	ARG	MET	V982	I1118	SER	LEU	LEU	SER	GLY	GLY	GLY	GLY	GLY	GLY
L1647	L1489	Q1368	VAL	THR	VAL	D986	I1119	VAL	PRO	PRO	ALA	CYS	CYS	CYS	CYS	CYS	CYS
D1657	L1493	A1369	GLY	LEU	ALA	K987	T1124	ALA	THR	THR	ALA	ALA	ALA	ALA	ALA	ALA	ALA
E1658	L1494	H1372	HIS	GLY	GLY	V988	R1130	GLY	THR	THR	GLY	THR	THR	THR	THR	THR	THR
M1663	L1497	D1375	GLN	ASN	ASP	L990	E1139	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
G1671	D1510	L1374	GLN	VAL	SER	E991	E1140	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
E1673	L1515	Q1383	THR	GLY	THR	T992	V1144	THR	TRP	TRP	ALA	ALA	ALA	ALA	ALA	ALA	ALA
F1674	K1518	M1391	VAL	GLN	ASP	S1000	H1447	GLU	ALA	ALA	GLU	GLU	GLU	GLU	GLU	GLU	GLU
D1678	K1518	G1396	THR	LYS	PRO	S1001	VAL	LEU	PRO	PRO	LEU	LEU	LEU	LEU	LEU	LEU	LEU
K1680	S1519	F1397	ARG	ARG	ALA	L1002	THR	LEU	ALA	ALA	LEU	LEU	LEU	LEU	LEU	LEU	LEU
R1683	D1520	G1397	LYS	LYS	LYS	Q1003	VAL	PRO	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
L1687	G1523	V1410	PRO	ASN	ASN	L1022	ARG	ALA	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN
C1688	M1524	L1413	GLY	ASP	ASP	E1026	ASP	VAL	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP
P1690	F1528	P1414	GLY	PRO	PRO	R1036	GLY	PHE	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
P1691	C1530	T1415	LYS	ALA	ALA	I1046	LEU	ARG	THR	THR	THR	THR	THR	THR	THR	THR	THR
A1692	Q1533	L1416	PRO	VAL	VAL	S1054	PHE	GLN	ASN	ASN	ASN	ASN	ASN	ASN	ASN	ASN	ASN
V1697	E1534	L1417	GLY	GLY	GLY	F1055	ALA	VAL	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
C1699	C1542	L1427	ALA	ALA	ALA	M1056	THR	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR
L1700	F1560	P1428	SER	SER	SER	D1057	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
S1702	R1561	R1429	LYS	LYS	LYS	S1058	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
Q1709	Y1562	LYS	GLY	GLY	GLY	V1069	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
H1710	M1566	SER	GLY	GLY	GLY	L1060	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
L1713	D1567	GLY	GLY	GLY	GLY	Q1061	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
P1720	L1568	D1433	VAL	VAL	VAL	Q1081	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
V1721	H1583	L1436	VAL	VAL	VAL	R1067	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
A1722	T1587	Y1440	VAL	VAL	VAL	M1073	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
R1733	D1588	S1441	VAL	VAL	VAL	I1081	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
G1734	T1588	A1442	VAL	VAL	VAL	I1082	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
H1735	D1590	Q1444	VAL	VAL	VAL	I1083	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
	Q1590	R1446	VAL	VAL	VAL	P1082	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
		H1452	VAL	VAL	VAL	D1095	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
		E1456	VAL	VAL	VAL	E1096	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
		V1457	VAL	VAL	VAL	D1097	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
		I1458	VAL	VAL	VAL	V1098	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL

HIS	GLY	V1960	M2105	T1741
HIS	LEU	L1963	Y2106	I1756
HIS	LYS	M2110	N2110	C1764
HIS	VAL	S2111	S2111	E1765
HIS	SER	D2114	D2114	I1766
	GLY	R2115	R2115	F1767
	VAL	L2116	L2116	I1768
	ASP	G2124	G2124	E1800
	PRO	L2125	L2125	V1803
	ASP	Q2131	Q2131	T1807
	LYS	I2135	I2135	M1817
	VAL	V2149	V2149	R1829
	PHE	T2150	T2150	A1841
	LEU	E2151	E2151	GLY
	LEU	M2154	M2154	SER
	LEU	M2158	M2158	GLY
	SER	Y2167	Y2167	ARG
	MET	F2168	F2168	GLY
	SER	Q2171	Q2171	SER
	LEU	N2172	N2172	ASP
	LEU	R2173	R2173	ALA
	GLU	V2176	V2176	E1849
	GLU	A2177	A2177	D1859
	ARG	C2178	C2178	T1860
	ASP	K2184	K2184	S1861
	ASP	VAL	VAL	M1878
	LEU	LYS	LYS	L1881
	ALA	ALA	ALA	L1897
	LEU	THR	THR	A1898
	GLY	LYS	LYS	R1899
	THR	VAL	VAL	T1900
	LYS	GLU	GLU	V1901
	ASP	ILE	ILE	V1908
	ILE	GLY	GLY	D1909
	GLN	GLU	GLU	E1915
	MET	THR	THR	K1926
	LEU	VAL	VAL	I1927
	LEU	GLN	GLN	E1930
	GLN	ILE	ILE	K1940
	ALA	LYS	LYS	K1941
	GLN	ALA	ALA	Y1957
	MET	VAL	VAL	
	VAL	GLY	GLY	
	HIS	ASN	ASN	
	VAL	VAL	VAL	
	HIS	LEU	LEU	

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	143694	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.226	Depositor
Minimum map value	-0.124	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.0229	Depositor
Map size (Å)	271.36, 271.36, 271.36	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.53, 0.53, 0.53	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	0/9950	0.51	0/13478
1	B	0.29	0/9950	0.51	0/13478
All	All	0.29	0/19900	0.51	0/26956

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	9752	9685	9684	186	0
1	B	9752	9685	9684	184	0
All	All	19504	19370	19368	365	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (365) 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:1311:ALA:HB2	1:A:1337:VAL:HG13	1.23	1.11
1:B:1311:ALA:HB2	1:B:1337:VAL:HG13	1.23	1.10

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1311:ALA:CB	1:A:1337:VAL:HG13	1.84	1.08
1:B:1311:ALA:CB	1:B:1337:VAL:HG13	1.84	1.05
1:A:1308:GLU:OE1	1:A:1335:TYR:OH	1.83	0.96
1:B:1308:GLU:OE1	1:B:1335:TYR:OH	1.83	0.96
1:B:1311:ALA:CB	1:B:1337:VAL:CG1	2.44	0.95
1:A:1311:ALA:CB	1:A:1337:VAL:CG1	2.44	0.94
1:B:1489:LEU:HD23	1:B:1489:LEU:O	1.71	0.91
1:A:1489:LEU:O	1:A:1489:LEU:HD23	1.71	0.89
1:B:1092:PRO:HG3	1:B:1099:VAL:HG23	1.61	0.82
1:B:2010:VAL:HG21	1:B:2032:LEU:HD21	1.62	0.82
1:A:1092:PRO:HG3	1:A:1099:VAL:HG23	1.61	0.82
1:A:2010:VAL:HG21	1:A:2032:LEU:HD21	1.62	0.81
1:B:2114:ASP:OD2	1:B:2131:GLN:NE2	2.17	0.78
1:B:1756:ILE:HD13	1:B:1766:ILE:HG21	1.67	0.77
1:A:2114:ASP:OD2	1:A:2131:GLN:NE2	2.17	0.77
1:B:2058:TYR:HH	1:B:2104:THR:HG1	1.30	0.77
1:A:1756:ILE:HD13	1:A:1766:ILE:HG21	1.67	0.76
1:A:1192:LEU:HD11	1:A:1198:LEU:HD12	1.70	0.74
1:A:1022:LEU:HD21	1:A:2158:MET:HG2	1.70	0.73
1:A:1861:SER:OG	1:B:1733:ARG:NH2	2.23	0.72
1:B:1192:LEU:HD11	1:B:1198:LEU:HD12	1.70	0.72
1:B:1022:LEU:HD21	1:B:2158:MET:HG2	1.70	0.72
1:A:905:ASP:OD2	1:A:1130:ARG:N	2.23	0.71
1:B:905:ASP:OD2	1:B:1130:ARG:N	2.23	0.71
1:A:1733:ARG:NH2	1:B:1861:SER:OG	2.24	0.71
1:B:1709:GLN:O	1:B:1710:HIS:ND1	2.25	0.69
1:A:1709:GLN:O	1:A:1710:HIS:ND1	2.25	0.69
1:B:1598:GLU:OE2	1:B:1940:LYS:NZ	2.18	0.68
1:B:1302:HIS:NE2	1:B:1332:ASP:OD1	2.27	0.68
1:B:1960:VAL:HG21	1:B:2072:LEU:HD11	1.76	0.68
1:A:1960:VAL:HG21	1:A:2072:LEU:HD11	1.76	0.67
1:A:1302:HIS:NE2	1:A:1332:ASP:OD1	2.27	0.66
1:A:1897:LEU:O	1:A:1899:ARG:NH1	2.29	0.66
1:A:2058:TYR:HH	1:A:2104:THR:HG1	1.36	0.66
1:B:1897:LEU:O	1:B:1899:ARG:NH1	2.29	0.66
1:B:2061:THR:HG21	1:B:2105:ASN:HB2	1.78	0.66
1:A:2061:THR:HG21	1:A:2105:ASN:HB2	1.78	0.65
1:B:1633:GLU:OE2	1:B:1701:ARG:NH2	2.29	0.65
1:A:1633:GLU:OE2	1:A:1701:ARG:NH2	2.29	0.64
1:B:1800:GLU:OE2	1:B:1829:ARG:NH1	2.30	0.64
1:A:1800:GLU:OE2	1:A:1829:ARG:NH1	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1969:GLU:OE2	1:A:1998:LYS:NZ	2.20	0.64
1:A:1598:GLU:OE2	1:A:1940:LYS:NZ	2.18	0.64
1:A:1337:VAL:CG1	1:A:1343:MET:SD	2.88	0.62
1:A:1456:GLU:N	1:A:1456:GLU:OE1	2.30	0.62
1:B:1337:VAL:CG1	1:B:1343:MET:SD	2.88	0.62
1:B:1587:THR:OG1	1:B:1590:GLN:OE1	2.18	0.62
1:A:1587:THR:OG1	1:A:1590:GLN:OE1	2.17	0.62
1:A:1638:TYR:HD2	1:A:1713:LEU:HD13	1.64	0.61
1:B:1638:TYR:HD2	1:B:1713:LEU:HD13	1.64	0.61
1:A:1337:VAL:HG11	1:A:1343:MET:SD	2.40	0.61
1:B:1003:GLN:OE1	1:B:1036:ARG:NE	2.34	0.61
1:B:1337:VAL:HG11	1:B:1343:MET:SD	2.40	0.61
1:B:1494:LEU:HD13	1:B:2058:TYR:CE2	2.36	0.61
1:A:1003:GLN:OE1	1:A:1036:ARG:NE	2.34	0.61
1:A:1494:LEU:HD13	1:A:2058:TYR:CE2	2.36	0.60
1:B:1456:GLU:N	1:B:1456:GLU:OE1	2.31	0.60
1:B:1678:ASP:OD1	1:B:1679:THR:N	2.33	0.60
1:B:1311:ALA:HB3	1:B:1337:VAL:CG1	2.31	0.60
1:A:1311:ALA:HB2	1:A:1337:VAL:CG1	2.08	0.60
1:A:1756:ILE:HD11	1:A:1768:ILE:HG12	1.84	0.60
1:B:1690:PRO:O	1:B:1692:ALA:N	2.34	0.60
1:B:2044:ASN:O	1:B:2061:THR:HG23	2.03	0.59
1:A:2044:ASN:O	1:A:2061:THR:HG23	2.03	0.59
1:B:1417:LEU:CD1	1:B:1436:LEU:HD13	2.33	0.59
1:A:1417:LEU:CD1	1:A:1436:LEU:HD13	2.33	0.59
1:A:2167:TYR:OH	1:A:2173:ARG:NH2	2.36	0.58
1:B:1756:ILE:HD11	1:B:1768:ILE:HG12	1.84	0.58
1:B:1523:GLY:O	1:B:2111:SER:OG	2.17	0.58
1:B:1969:GLU:OE2	1:B:1998:LYS:NZ	2.20	0.58
1:B:2167:TYR:OH	1:B:2173:ARG:NH2	2.36	0.58
1:A:1417:LEU:HD23	1:A:1417:LEU:O	2.04	0.58
1:B:1457:VAL:HG21	1:B:1568:LEU:HD11	1.86	0.58
1:B:1417:LEU:O	1:B:1417:LEU:HD23	2.04	0.57
1:B:1457:VAL:HG13	1:B:1458:ILE:HG13	1.87	0.57
1:B:1276:ASP:OD1	1:B:1278:LEU:N	2.37	0.57
1:B:1927:ILE:O	1:B:1941:LYS:NZ	2.38	0.57
1:A:1678:ASP:OD1	1:A:1679:THR:N	2.33	0.57
1:A:1927:ILE:O	1:A:1941:LYS:NZ	2.38	0.57
1:A:1518:LYS:O	1:A:1518:LYS:HG3	2.05	0.57
1:B:1139:GLU:OE2	1:B:1583:HIS:ND1	2.38	0.57
1:A:1311:ALA:HB3	1:A:1337:VAL:CG1	2.31	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1457:VAL:HG13	1:A:1458:ILE:HG13	1.86	0.56
1:A:1139:GLU:OE2	1:A:1583:HIS:ND1	2.38	0.56
1:B:1518:LYS:O	1:B:1518:LYS:HG3	2.05	0.56
1:A:1276:ASP:OD1	1:A:1278:LEU:N	2.37	0.56
1:A:1457:VAL:HG21	1:A:1568:LEU:HD11	1.86	0.56
1:A:1523:GLY:O	1:A:2111:SER:OG	2.17	0.56
1:A:906:GLY:N	1:A:1026:GLU:OE2	2.39	0.56
1:B:1658:GLU:OE1	1:B:1658:GLU:O	2.23	0.56
1:B:1992:THR:OG1	1:B:1993:GLY:N	2.38	0.55
1:A:1992:THR:OG1	1:A:1993:GLY:N	2.38	0.55
1:B:899:LEU:HD21	1:B:910:PHE:HE1	1.71	0.55
1:A:1658:GLU:O	1:A:1658:GLU:OE1	2.23	0.55
1:B:1756:ILE:HD11	1:B:1768:ILE:CG1	2.37	0.55
1:A:1690:PRO:O	1:A:1692:ALA:N	2.34	0.55
1:B:906:GLY:N	1:B:1026:GLU:OE2	2.39	0.55
1:B:1291:CYS:CB	1:B:1470:LEU:HD12	2.37	0.55
1:A:1291:CYS:CB	1:A:1470:LEU:HD12	2.37	0.54
1:B:1688:CYS:SG	1:B:1697:VAL:HG11	2.47	0.54
1:A:1096:GLU:N	1:A:1096:GLU:OE1	2.41	0.54
1:A:1756:ILE:HD11	1:A:1768:ILE:CG1	2.37	0.54
1:A:1688:CYS:SG	1:A:1697:VAL:HG11	2.47	0.54
1:B:2010:VAL:CG2	1:B:2032:LEU:HD21	2.36	0.54
1:B:2124:GLY:O	1:B:2125:LEU:HD12	2.08	0.54
1:A:1604:THR:HG22	1:A:1613:LEU:HG	1.89	0.54
1:B:1687:LEU:HD13	1:B:1878:TRP:HH2	1.73	0.54
1:B:1291:CYS:HB3	1:B:1470:LEU:HD12	1.90	0.54
1:B:1515:LEU:HB3	1:B:1524:MET:SD	2.47	0.54
1:A:899:LEU:HD21	1:A:910:PHE:HE1	1.71	0.54
1:A:1291:CYS:HB3	1:A:1470:LEU:HD12	1.90	0.54
1:A:2124:GLY:O	1:A:2125:LEU:HD12	2.08	0.54
1:A:1634:LEU:HD23	1:A:1634:LEU:O	2.08	0.54
1:A:1515:LEU:HB3	1:A:1524:MET:SD	2.47	0.54
1:B:1096:GLU:OE1	1:B:1096:GLU:N	2.41	0.54
1:A:899:LEU:HD21	1:A:910:PHE:CE1	2.43	0.53
1:A:1056:MET:HE1	1:A:1083:ILE:HD11	1.91	0.53
1:B:899:LEU:HD21	1:B:910:PHE:CE1	2.43	0.53
1:A:1687:LEU:HD13	1:A:1878:TRP:HH2	1.73	0.53
1:B:1604:THR:HG22	1:B:1613:LEU:HG	1.89	0.53
1:B:1634:LEU:HD23	1:B:1634:LEU:O	2.08	0.53
1:B:1337:VAL:HG12	1:B:1343:MET:SD	2.50	0.52
1:A:1803:VAL:O	1:A:1807:THR:HG22	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1353:THR:O	1:B:1354:LEU:HD23	2.09	0.52
1:A:1990:ILE:CD1	1:A:2011:VAL:HG21	2.40	0.52
1:B:1990:ILE:CD1	1:B:2011:VAL:HG21	2.40	0.52
1:A:1494:LEU:HD22	1:A:2058:TYR:CD2	2.45	0.52
1:B:2171:GLN:O	1:B:2171:GLN:NE2	2.43	0.52
1:A:1344:ASP:OD1	1:A:1344:ASP:N	2.43	0.51
1:B:1494:LEU:HD22	1:B:2058:TYR:CD2	2.45	0.51
1:B:1344:ASP:N	1:B:1344:ASP:OD1	2.43	0.51
1:B:1803:VAL:O	1:B:1807:THR:HG22	2.10	0.51
1:A:1967:GLY:HA2	1:A:2041:LEU:HD22	1.93	0.51
1:A:2076:SER:OG	1:A:2085:LEU:HD22	2.11	0.51
1:A:1353:THR:O	1:A:1354:LEU:HD23	2.09	0.51
1:A:1337:VAL:HG12	1:A:1343:MET:SD	2.50	0.51
1:B:1417:LEU:HD12	1:B:1436:LEU:HD13	1.93	0.51
1:A:1469:PHE:HB3	1:A:1471:LEU:HD21	1.92	0.51
1:B:1510:ASP:OD1	1:B:1510:ASP:C	2.49	0.51
1:B:1469:PHE:HB3	1:B:1471:LEU:HD21	1.92	0.51
1:B:1967:GLY:HA2	1:B:2041:LEU:HD22	1.93	0.51
1:A:2168:PHE:CD1	1:A:2176:VAL:HG21	2.46	0.50
1:B:1311:ALA:CB	1:B:1337:VAL:HG11	2.38	0.50
1:B:1720:PRO:O	1:B:1722:ALA:N	2.44	0.50
1:A:1990:ILE:HD11	1:A:2011:VAL:HG21	1.92	0.50
1:B:2168:PHE:CD1	1:B:2176:VAL:HG21	2.46	0.50
1:B:1990:ILE:HD11	1:B:2011:VAL:HG21	1.92	0.50
1:A:1510:ASP:C	1:A:1510:ASP:OD1	2.49	0.50
1:A:2171:GLN:O	1:A:2171:GLN:NE2	2.43	0.50
1:A:1337:VAL:HG12	1:A:1338:GLY:N	2.27	0.49
1:A:2035:LEU:HD23	1:A:2081:ILE:HG21	1.94	0.49
1:A:2069:THR:HG23	1:A:2090:MET:HE2	1.94	0.49
1:B:1643:VAL:HG12	1:B:1644:SER:N	2.27	0.49
1:A:1417:LEU:HD12	1:A:1436:LEU:HD13	1.93	0.49
1:A:1733:ARG:NH1	1:B:1859:ASP:OD1	2.36	0.49
1:A:1311:ALA:CB	1:A:1337:VAL:HG11	2.38	0.49
1:A:1391:MET:HB3	1:A:1452:HIS:CD2	2.47	0.49
1:B:1688:CYS:SG	1:B:1692:ALA:HB2	2.53	0.49
1:B:2076:SER:OG	1:B:2085:LEU:HD22	2.10	0.49
1:A:1101:LEU:HD23	1:A:1115:GLY:HA3	1.95	0.49
1:B:1101:LEU:HD23	1:B:1115:GLY:HA3	1.95	0.49
1:B:1337:VAL:HG12	1:B:1338:GLY:N	2.27	0.49
1:B:1279:MET:SD	1:B:1416:LEU:HD11	2.53	0.49
1:B:1391:MET:HB3	1:B:1452:HIS:CD2	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1643:VAL:HG12	1:A:1644:SER:N	2.27	0.49
1:A:1901:VAL:HG11	1:A:1926:LYS:HE3	1.94	0.49
1:A:2092:SER:OG	1:A:2093:SER:N	2.46	0.49
1:A:1881:LEU:HD23	1:A:1881:LEU:O	2.13	0.48
1:B:1881:LEU:O	1:B:1881:LEU:HD23	2.13	0.48
1:A:1533:GLN:NE2	1:A:2151:GLU:OE2	2.45	0.48
1:A:1688:CYS:SG	1:A:1692:ALA:HB2	2.53	0.48
1:B:1533:GLN:NE2	1:B:2151:GLU:OE2	2.45	0.48
1:B:1881:LEU:HD23	1:B:1881:LEU:C	2.34	0.48
1:A:1415:THR:O	1:A:1416:LEU:HB2	2.13	0.48
1:B:1488:ASP:OD2	1:B:1489:LEU:N	2.47	0.48
1:B:2035:LEU:HD23	1:B:2081:ILE:HG21	1.94	0.48
1:A:1097:ASP:OD1	1:A:1098:VAL:N	2.47	0.48
1:A:1720:PRO:O	1:A:1722:ALA:N	2.44	0.48
1:A:1957:TYR:HD2	1:A:1979:VAL:HG13	1.79	0.48
1:B:1901:VAL:HG11	1:B:1926:LYS:HE3	1.94	0.48
1:B:1957:TYR:HD2	1:B:1979:VAL:HG13	1.79	0.48
1:A:1488:ASP:OD2	1:A:1489:LEU:N	2.47	0.48
1:B:1415:THR:O	1:B:1416:LEU:HB2	2.13	0.48
1:A:2010:VAL:CG2	1:A:2032:LEU:HD21	2.36	0.48
1:B:2069:THR:HG23	1:B:2090:MET:HE2	1.95	0.48
1:A:992:THR:HG21	1:A:1113:SER:HB3	1.95	0.48
1:B:2092:SER:OG	1:B:2093:SER:N	2.46	0.47
1:A:1881:LEU:HD23	1:A:1881:LEU:C	2.34	0.47
1:A:1279:MET:SD	1:A:1416:LEU:HD11	2.53	0.47
1:A:1859:ASP:OD1	1:B:1733:ARG:NH1	2.34	0.47
1:B:992:THR:HG21	1:B:1113:SER:HB3	1.95	0.47
1:B:1679:THR:O	1:B:1680:LYS:HB2	2.15	0.47
1:B:1242:LEU:N	1:B:1276:ASP:OD2	2.39	0.47
1:B:1056:MET:CE	1:B:1083:ILE:HD11	2.45	0.47
1:B:1111:ILE:HD11	1:B:1118:GLU:CG	2.45	0.47
1:A:1056:MET:CE	1:A:1083:ILE:HD11	2.45	0.46
1:B:1097:ASP:OD1	1:B:1098:VAL:N	2.47	0.46
1:A:1111:ILE:HD11	1:A:1118:GLU:CG	2.45	0.46
1:A:1679:THR:O	1:A:1680:LYS:HB2	2.15	0.46
1:B:1057:ASP:OD2	1:B:1061:GLN:NE2	2.49	0.46
1:B:1248:LEU:HD23	1:B:1248:LEU:C	2.36	0.46
1:B:1311:ALA:HB2	1:B:1337:VAL:CG1	2.09	0.46
1:A:2047:ASP:OD1	1:A:2047:ASP:N	2.48	0.46
1:A:1248:LEU:C	1:A:1248:LEU:HD23	2.36	0.46
1:A:1280:SER:O	1:A:1280:SER:OG	2.25	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1534:GLU:O	1:B:1537:SER:OG	2.26	0.46
1:A:1306:VAL:HG22	1:A:1374:LEU:HB3	1.98	0.46
1:A:1410:VAL:HG11	1:A:1442:ALA:HB2	1.98	0.46
1:B:1683:ARG:NH1	1:B:1930:GLU:OE2	2.49	0.46
1:A:1489:LEU:HD21	1:A:2066:ILE:HG21	1.98	0.46
1:B:1280:SER:O	1:B:1280:SER:OG	2.25	0.46
1:B:1306:VAL:HG22	1:B:1374:LEU:HB3	1.98	0.46
1:B:1657:ASP:OD2	1:B:1658:GLU:N	2.50	0.46
1:A:1057:ASP:OD2	1:A:1061:GLN:NE2	2.49	0.45
1:B:1489:LEU:HD21	1:B:2066:ILE:HG21	1.98	0.45
1:A:1683:ARG:NH1	1:A:1930:GLU:OE2	2.49	0.45
1:B:1410:VAL:HG11	1:B:1442:ALA:HB2	1.98	0.45
1:A:1657:ASP:OD2	1:A:1658:GLU:N	2.50	0.45
1:B:1963:LEU:HD12	1:B:1968:LEU:HD21	1.97	0.45
1:B:1493:TRP:O	1:B:1497:VAL:HG13	2.17	0.45
1:B:2047:ASP:OD1	1:B:2047:ASP:N	2.48	0.45
1:B:1056:MET:HE1	1:B:1083:ILE:HD11	1.98	0.45
1:B:1227:ARG:O	1:B:1231:GLN:HG3	2.17	0.45
1:A:957:VAL:HG23	1:A:957:VAL:O	2.16	0.45
1:A:1493:TRP:O	1:A:1497:VAL:HG13	2.17	0.45
1:A:2086:ASP:N	1:A:2086:ASP:OD1	2.50	0.45
1:B:1721:VAL:CG2	1:B:1722:ALA:N	2.80	0.45
1:B:2086:ASP:OD1	1:B:2086:ASP:N	2.50	0.45
1:A:1963:LEU:HD12	1:A:1968:LEU:HD21	1.97	0.45
1:A:1721:VAL:CG2	1:A:1722:ALA:N	2.80	0.44
1:B:1081:ILE:HG23	1:B:1119:ILE:HG12	1.99	0.44
1:A:1081:ILE:HG23	1:A:1119:ILE:HG12	1.99	0.44
1:B:1700:LEU:O	1:B:1701:ARG:HB3	2.17	0.44
1:A:1410:VAL:O	1:A:1413:LEU:HD21	2.18	0.44
1:A:969:GLN:HG3	1:A:976:LEU:HD13	1.99	0.44
1:B:957:VAL:O	1:B:957:VAL:HG23	2.16	0.44
1:B:2124:GLY:C	1:B:2125:LEU:HD12	2.38	0.44
1:A:1227:ARG:O	1:A:1231:GLN:HG3	2.17	0.44
1:A:1663:MET:SD	1:A:1690:PRO:HG3	2.58	0.44
1:B:1067:ARG:NH2	1:B:1110:ASP:OD2	2.50	0.44
1:A:2124:GLY:C	1:A:2125:LEU:HD12	2.38	0.44
1:B:918:LEU:CD2	1:B:957:VAL:HG21	2.48	0.44
1:B:1663:MET:SD	1:B:1690:PRO:HG3	2.58	0.44
1:B:1671:GLY:O	1:B:1692:ALA:HB3	2.18	0.44
1:A:918:LEU:CD2	1:A:957:VAL:HG21	2.48	0.43
1:A:1700:LEU:O	1:A:1701:ARG:HB3	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1701:ARG:O	1:A:1701:ARG:HG3	2.18	0.43
1:A:1225:LEU:HD13	1:A:1243:PHE:CD1	2.54	0.43
1:A:1369:ALA:O	1:A:1396:GLY:O	2.37	0.43
1:A:923:LEU:HD22	1:A:982:VAL:HG22	2.00	0.43
1:A:1709:GLN:O	1:A:1710:HIS:CG	2.70	0.43
1:A:1307:LEU:HB2	1:A:1372:HIS:NE2	2.34	0.43
1:A:1225:LEU:HD13	1:A:1243:PHE:HD1	1.83	0.43
1:B:969:GLN:HG3	1:B:976:LEU:HD13	1.99	0.43
1:B:1144:VAL:HG11	1:B:1290:LEU:HD22	2.00	0.43
1:B:1701:ARG:HG3	1:B:1701:ARG:O	2.18	0.43
1:B:891:SER:OG	1:B:892:ALA:N	2.52	0.43
1:B:1410:VAL:O	1:B:1413:LEU:HD21	2.18	0.43
1:A:976:LEU:HD11	1:A:978:ALA:O	2.19	0.43
1:A:1067:ARG:NH2	1:A:1110:ASP:OD2	2.50	0.43
1:A:1417:LEU:HD13	1:A:1436:LEU:HD13	2.01	0.43
1:A:1144:VAL:HG11	1:A:1290:LEU:HD22	2.00	0.43
1:A:1671:GLY:O	1:A:1692:ALA:HB3	2.18	0.43
1:B:923:LEU:HD22	1:B:982:VAL:HG22	2.00	0.43
1:B:1046:ILE:HD13	1:B:1114:ALA:HB1	2.01	0.43
1:B:1225:LEU:HD13	1:B:1243:PHE:HD1	1.83	0.43
1:A:1311:ALA:HB3	1:A:1343:MET:SD	2.59	0.43
1:B:1225:LEU:HD13	1:B:1243:PHE:CD1	2.54	0.43
1:B:1311:ALA:HB3	1:B:1343:MET:SD	2.59	0.43
1:B:1489:LEU:O	1:B:1489:LEU:CD2	2.55	0.43
1:B:1494:LEU:HD22	1:B:2058:TYR:HD2	1.84	0.43
1:A:1046:ILE:HD13	1:A:1114:ALA:HB1	2.01	0.43
1:B:1372:HIS:HB2	1:B:1397:PHE:O	2.19	0.43
1:B:2149:VAL:HG12	1:B:2154:TRP:CE3	2.54	0.43
1:A:1372:HIS:HB2	1:A:1397:PHE:O	2.19	0.42
1:B:1059:VAL:HG21	1:B:1117:VAL:CG2	2.50	0.42
1:B:1073:MET:SD	1:B:1124:THR:HG21	2.59	0.42
1:B:1383:GLN:O	1:B:1427:LEU:HD11	2.19	0.42
1:A:1383:GLN:O	1:A:1427:LEU:HD11	2.19	0.42
1:A:2149:VAL:HG12	1:A:2154:TRP:CE3	2.54	0.42
1:B:1192:LEU:HD23	1:B:1195:LYS:CB	2.49	0.42
1:B:1224:ALA:HA	1:B:1227:ARG:HE	1.84	0.42
1:B:1369:ALA:O	1:B:1396:GLY:O	2.37	0.42
1:B:1671:GLY:O	1:B:1690:PRO:O	2.37	0.42
1:A:1059:VAL:HG21	1:A:1117:VAL:CG2	2.49	0.42
1:A:1637:VAL:HG22	1:A:1674:PHE:CD2	2.54	0.42
1:A:2168:PHE:CE1	1:A:2176:VAL:HG21	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1307:LEU:HB2	1:B:1372:HIS:NE2	2.34	0.42
1:B:1637:VAL:HG22	1:B:1674:PHE:CD2	2.54	0.42
1:B:1709:GLN:O	1:B:1710:HIS:CG	2.70	0.42
1:A:891:SER:OG	1:A:892:ALA:N	2.52	0.42
1:A:1534:GLU:O	1:A:1537:SER:OG	2.26	0.42
1:A:2171:GLN:OE1	1:A:2173:ARG:NE	2.42	0.42
1:B:2168:PHE:CE1	1:B:2176:VAL:HG21	2.54	0.42
1:A:1192:LEU:HD23	1:A:1195:LYS:CB	2.50	0.42
1:B:976:LEU:HD11	1:B:978:ALA:O	2.19	0.42
1:B:2150:ILE:N	1:B:2150:ILE:HD12	2.35	0.42
1:A:1073:MET:SD	1:A:1124:THR:HG21	2.59	0.42
1:A:1671:GLY:O	1:A:1690:PRO:O	2.37	0.42
1:B:1345:ASP:OD1	1:B:1345:ASP:N	2.53	0.42
1:A:1562:TYR:CZ	1:A:1566:MET:CE	3.03	0.42
1:A:1720:PRO:O	1:A:1721:VAL:HG22	2.20	0.42
1:B:1528:PHE:HE2	1:B:1540:VAL:HG12	1.85	0.42
1:B:1741:THR:HG22	1:B:1765:GLU:HB3	2.01	0.42
1:A:1673:GLU:HB3	1:A:1721:VAL:HG13	2.01	0.42
1:A:1528:PHE:HE2	1:A:1540:VAL:HG12	1.85	0.42
1:A:889:ASP:O	1:A:896:ASP:HB2	2.21	0.41
1:B:1225:LEU:O	1:B:1228:ILE:HG22	2.20	0.41
1:B:1440:TYR:CD2	1:B:1444:GLN:HB3	2.55	0.41
1:A:1637:VAL:HG22	1:A:1674:PHE:HD2	1.85	0.41
1:B:1637:VAL:HG22	1:B:1674:PHE:HD2	1.85	0.41
1:A:1345:ASP:N	1:A:1345:ASP:OD1	2.53	0.41
1:A:1494:LEU:HD22	1:A:2058:TYR:HD2	1.84	0.41
1:A:2045:LEU:HD23	1:A:2045:LEU:HA	1.94	0.41
1:B:1720:PRO:O	1:B:1721:VAL:HG22	2.20	0.41
1:A:1133:HIS:NE2	1:A:2157:ARG:HG2	2.35	0.41
1:A:1440:TYR:CD2	1:A:1444:GLN:HB3	2.55	0.41
1:A:989:VAL:HG13	1:A:990:LEU:N	2.36	0.41
1:A:1224:ALA:HA	1:A:1227:ARG:HE	1.84	0.41
1:B:1562:TYR:CZ	1:B:1566:MET:CE	3.03	0.41
1:B:1647:LEU:HD21	1:B:1915:GLU:HB2	2.02	0.41
1:B:1337:VAL:CG1	1:B:1338:GLY:N	2.84	0.41
1:A:1646:ASP:OD1	1:A:1671:GLY:N	2.46	0.41
1:A:2150:ILE:HD12	1:A:2150:ILE:N	2.35	0.41
1:B:1270:ARG:HA	1:B:1273:MET:HB3	2.03	0.41
1:A:1000:SER:O	1:A:1001:SER:HB3	2.21	0.41
1:A:1735:HIS:NE2	1:B:1735:HIS:NE2	2.69	0.41
1:A:1741:THR:HG22	1:A:1765:GLU:HB3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1191:VAL:HG21	1:B:1254:LEU:O	2.21	0.41
1:B:1673:GLU:HB3	1:B:1721:VAL:HG13	2.01	0.41
1:A:1191:VAL:HG21	1:A:1254:LEU:O	2.21	0.41
1:A:1690:PRO:N	1:A:1691:PRO:HD2	2.35	0.41
1:A:1699:CYS:SG	1:A:1703:SER:OG	2.74	0.41
1:A:2135:ILE:H	1:A:2135:ILE:HD12	1.85	0.41
1:B:1000:SER:O	1:B:1001:SER:HB3	2.21	0.41
1:B:1308:GLU:O	1:B:1308:GLU:HG2	2.21	0.41
1:B:1646:ASP:OD1	1:B:1671:GLY:N	2.46	0.41
1:B:2171:GLN:OE1	1:B:2173:ARG:NE	2.42	0.41
1:A:1178:GLN:OE1	1:A:1218:PHE:HA	2.21	0.41
1:B:1178:GLN:OE1	1:B:1218:PHE:HA	2.21	0.41
1:B:1689:ALA:HB1	1:B:1690:PRO:HD2	2.03	0.41
1:A:1189:ASP:OD1	1:A:1189:ASP:N	2.52	0.40
1:A:1719:VAL:N	1:A:1720:PRO:HD2	2.36	0.40
1:B:889:ASP:O	1:B:896:ASP:HB2	2.20	0.40
1:B:1908:VAL:HG23	1:B:1909:ASP:N	2.36	0.40
1:A:1225:LEU:O	1:A:1228:ILE:HG22	2.20	0.40
1:A:1908:VAL:HG23	1:A:1909:ASP:N	2.36	0.40
1:B:2065:LYS:HE2	1:B:2110:ASN:ND2	2.36	0.40
1:A:1337:VAL:CG1	1:A:1338:GLY:N	2.84	0.40
1:A:1424:ASP:OD1	1:A:1425:HIS:N	2.54	0.40
1:A:1689:ALA:HB1	1:A:1690:PRO:HD2	2.03	0.40
1:A:976:LEU:HD12	1:A:977:LEU:N	2.36	0.40
1:A:1046:ILE:HG21	1:A:1055:PHE:CE1	2.57	0.40
1:A:1082:ASN:OD1	1:A:1082:ASN:N	2.55	0.40
1:A:1933:GLU:HG3	1:A:1935:ILE:H	1.87	0.40
1:B:986:ASP:O	1:B:987:LYS:C	2.60	0.40
1:B:1690:PRO:N	1:B:1691:PRO:HD2	2.35	0.40
1:B:2073:ASP:OD2	1:B:2116:LEU:HD11	2.22	0.40
1:B:2135:ILE:HD12	1:B:2135:ILE:H	1.85	0.40
1:A:1647:LEU:HD21	1:A:1915:GLU:HB2	2.02	0.40
1:B:989:VAL:HG13	1:B:990:LEU:N	2.36	0.40
1:B:1095:ASP:OD1	1:B:1095:ASP:N	2.54	0.40
1:B:2045:LEU:HD23	1:B:2045:LEU:HA	1.94	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	1240/2272 (55%)	1137 (92%)	103 (8%)	0	100	100
1	B	1240/2272 (55%)	1137 (92%)	103 (8%)	0	100	100
All	All	2480/4544 (55%)	2274 (92%)	206 (8%)	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	1050/1892 (56%)	1014 (97%)	36 (3%)	32	60
1	B	1050/1892 (56%)	1014 (97%)	36 (3%)	32	60
All	All	2100/3784 (56%)	2028 (97%)	72 (3%)	34	60

All (72) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	931	PHE
1	A	972	GLU
1	A	1054	SER
1	A	1140	GLU
1	A	1164	ASP
1	A	1240	PHE
1	A	1254	LEU
1	A	1328	PHE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	1363	ASN
1	A	1368	GLN
1	A	1391	MET
1	A	1397	PHE
1	A	1440	TYR
1	A	1441	SER
1	A	1446	ARG
1	A	1520	ASP
1	A	1530	CYS
1	A	1534	GLU
1	A	1542	CYS
1	A	1560	PHE
1	A	1588	ASP
1	A	1699	CYS
1	A	1702	SER
1	A	1721	VAL
1	A	1764	CYS
1	A	1817	ASN
1	A	1899	ARG
1	A	1966	PHE
1	A	1987	ARG
1	A	2031	ASP
1	A	2058	TYR
1	A	2105	ASN
1	A	2106	TYR
1	A	2115	ARG
1	A	2158	MET
1	A	2178	CYS
1	B	931	PHE
1	B	972	GLU
1	B	1054	SER
1	B	1140	GLU
1	B	1164	ASP
1	B	1240	PHE
1	B	1254	LEU
1	B	1328	PHE
1	B	1363	ASN
1	B	1368	GLN
1	B	1391	MET
1	B	1397	PHE
1	B	1440	TYR
1	B	1441	SER

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Mol	Chain	Res	Type
1	B	1446	ARG
1	B	1520	ASP
1	B	1530	CYS
1	B	1534	GLU
1	B	1542	CYS
1	B	1560	PHE
1	B	1588	ASP
1	B	1699	CYS
1	B	1702	SER
1	B	1721	VAL
1	B	1764	CYS
1	B	1817	ASN
1	B	1899	ARG
1	B	1966	PHE
1	B	1987	ARG
1	B	2031	ASP
1	B	2058	TYR
1	B	2105	ASN
1	B	2106	TYR
1	B	2115	ARG
1	B	2158	MET
1	B	2178	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1452	HIS
1	B	1452	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 oligosaccharides 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.

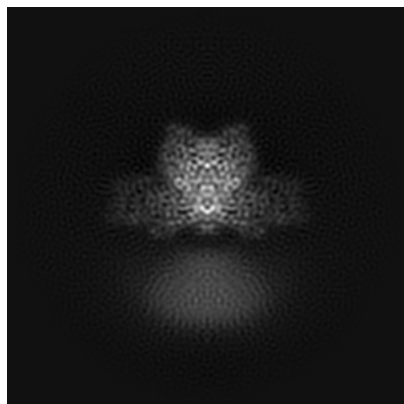
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-45812. These allow visual inspection of the internal detail of the map and identification of artifacts.

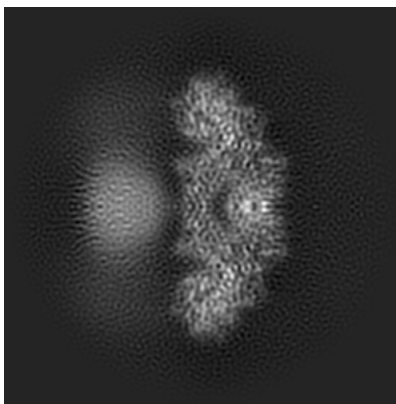
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

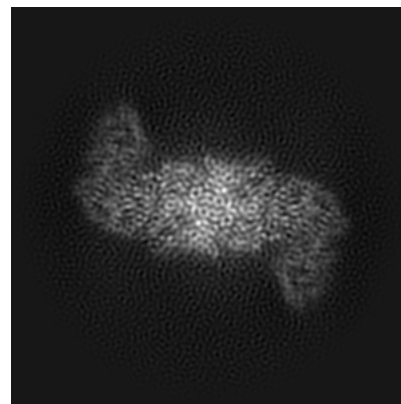
#### 6.1.1 Primary map



X

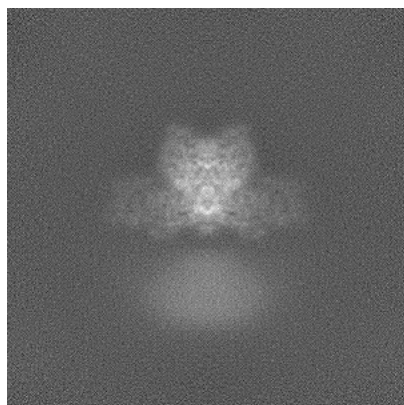


Y

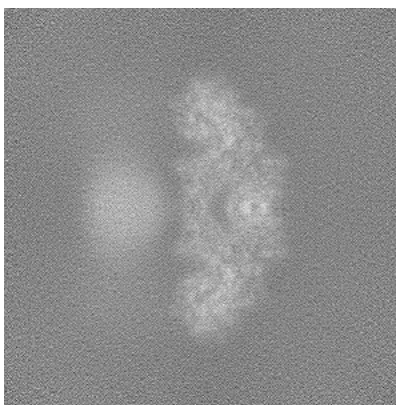


Z

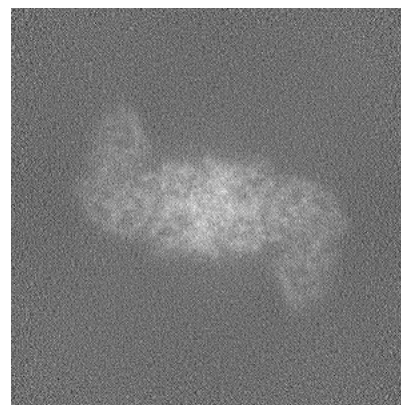
#### 6.1.2 Raw map



X



Y

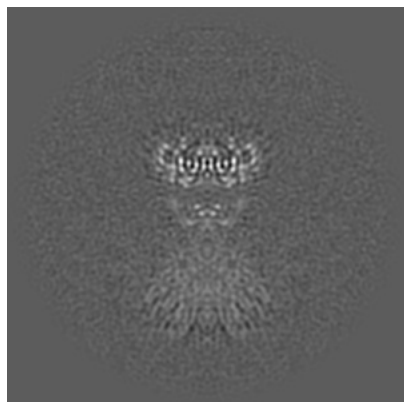


Z

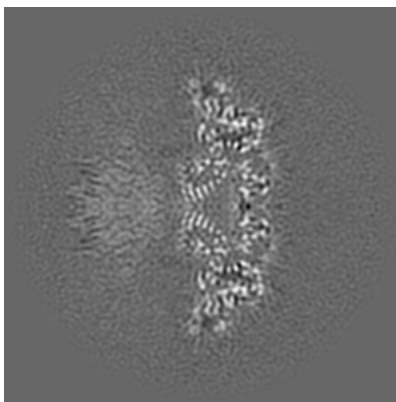
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

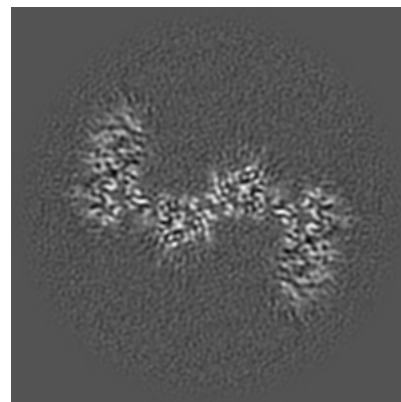
### 6.2.1 Primary map



X Index: 256

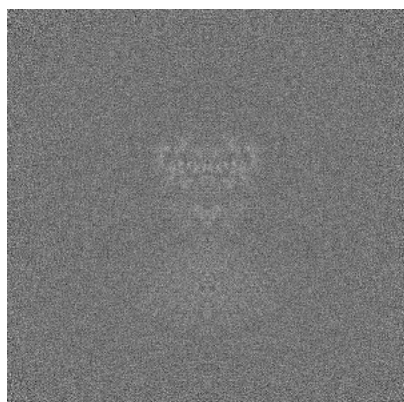


Y Index: 256

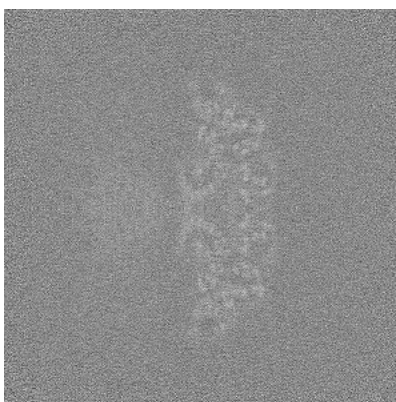


Z Index: 256

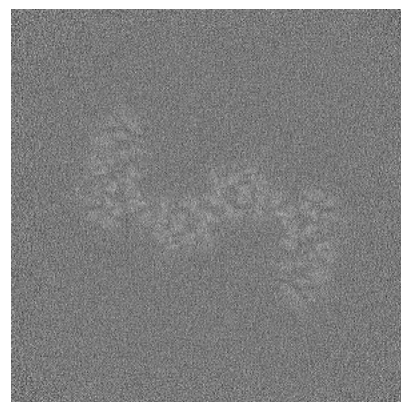
### 6.2.2 Raw map



X Index: 256



Y Index: 256



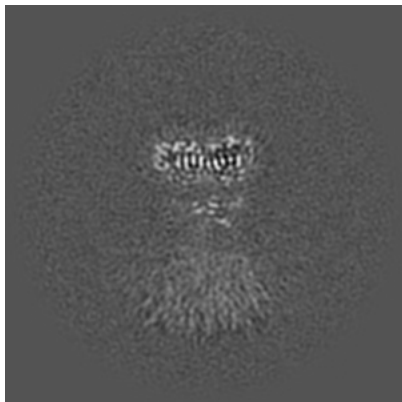
Z Index: 256

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

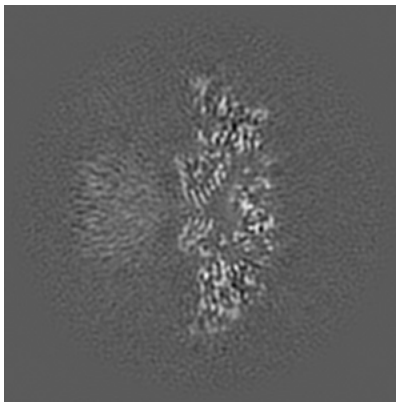


## 6.3 Largest variance slices [i](#)

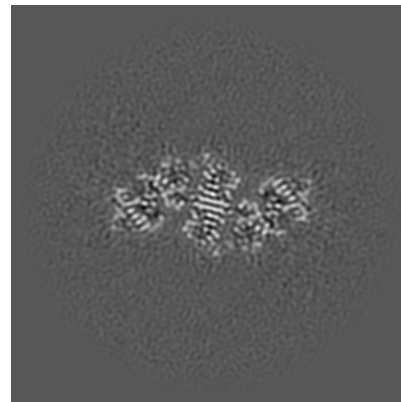
### 6.3.1 Primary map



X Index: 259

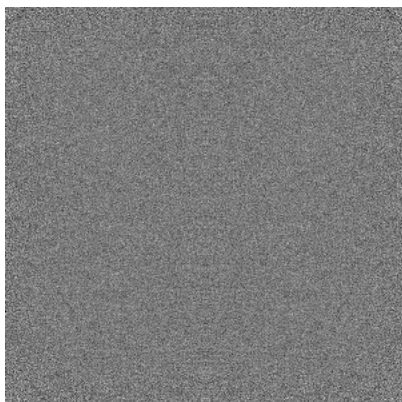


Y Index: 261

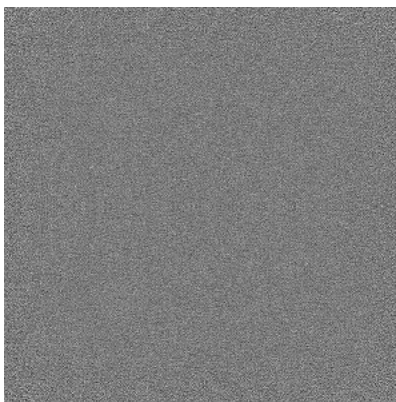


Z Index: 309

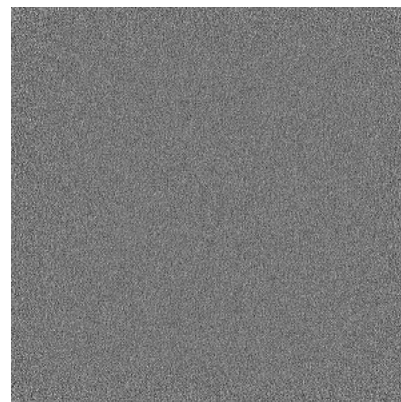
### 6.3.2 Raw map



X Index: 0



Y Index: 0

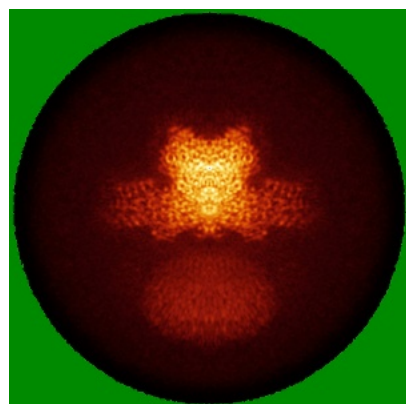


Z Index: 0

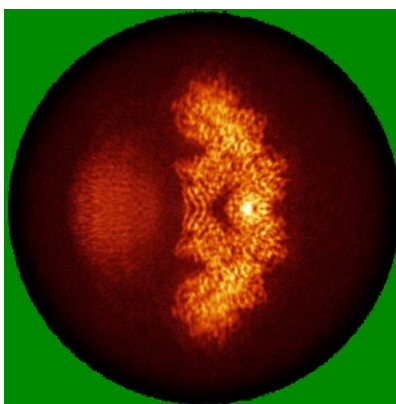
The images above show the largest variance slices of the map in three orthogonal directions.

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

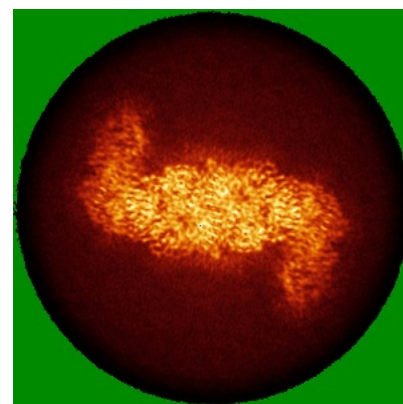
### 6.4.1 Primary map



X

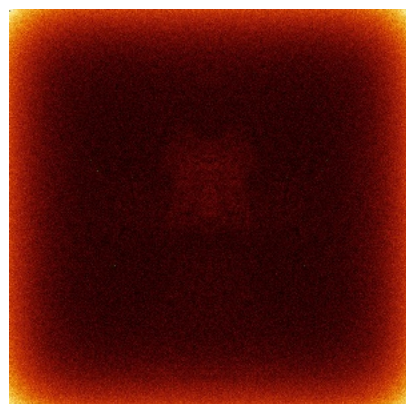


Y

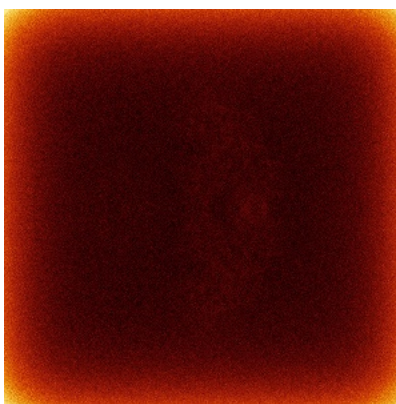


Z

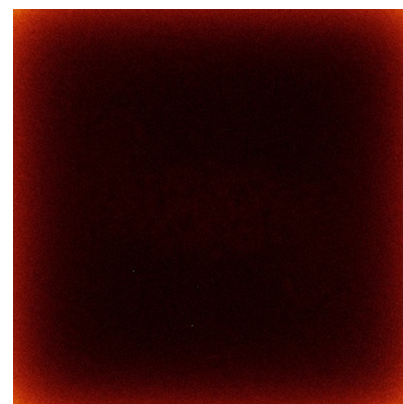
### 6.4.2 Raw map



X



Y

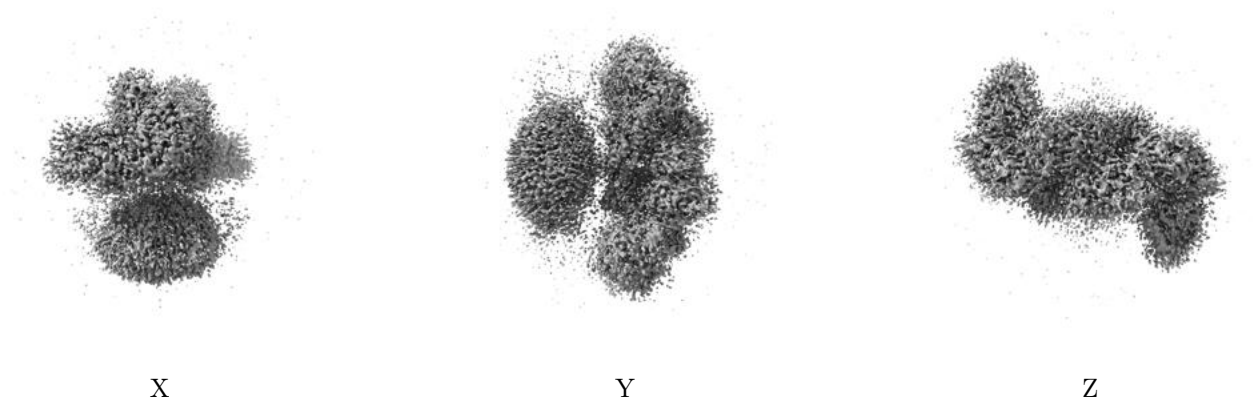


Z

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.

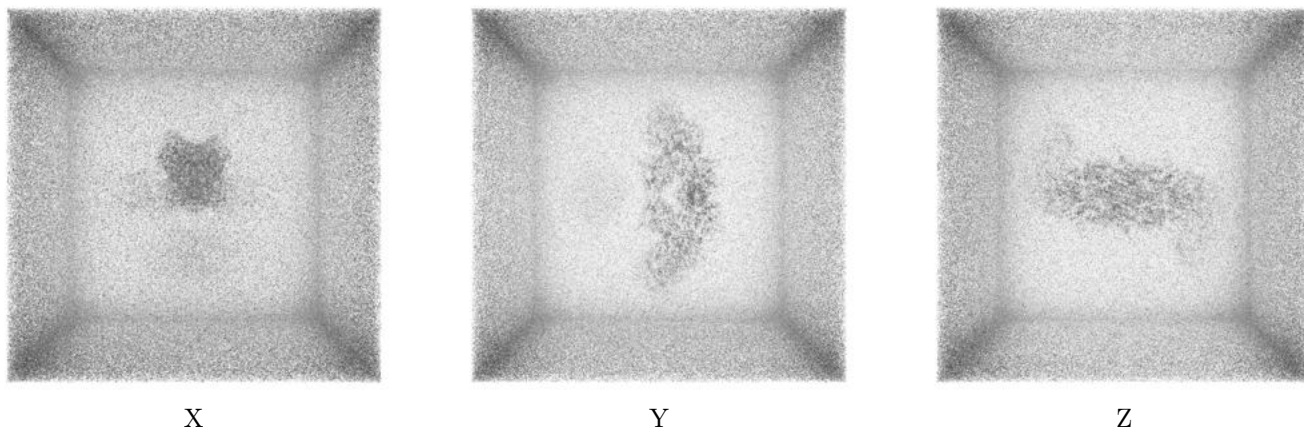
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0229. 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.

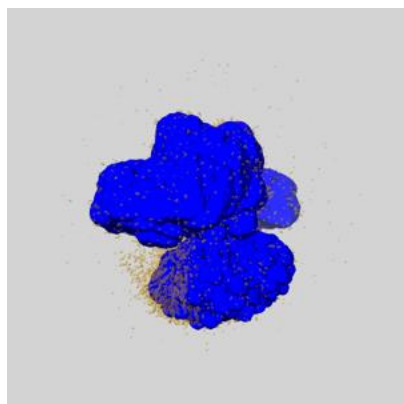
## 6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

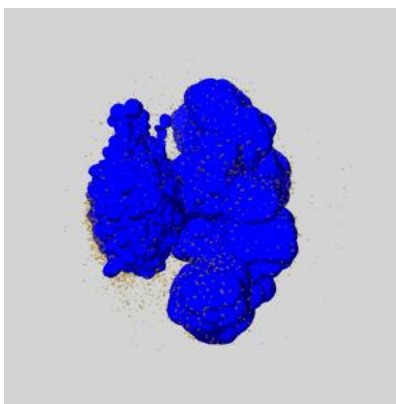
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

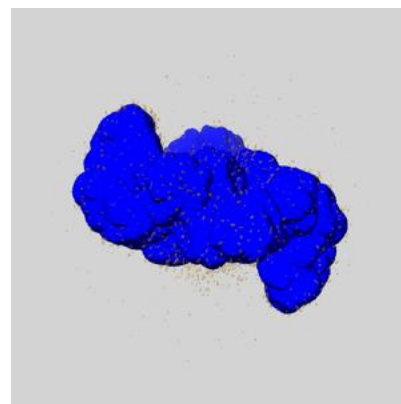
### 6.6.1 emd\_45812\_msk\_1.map [i](#)



X



Y

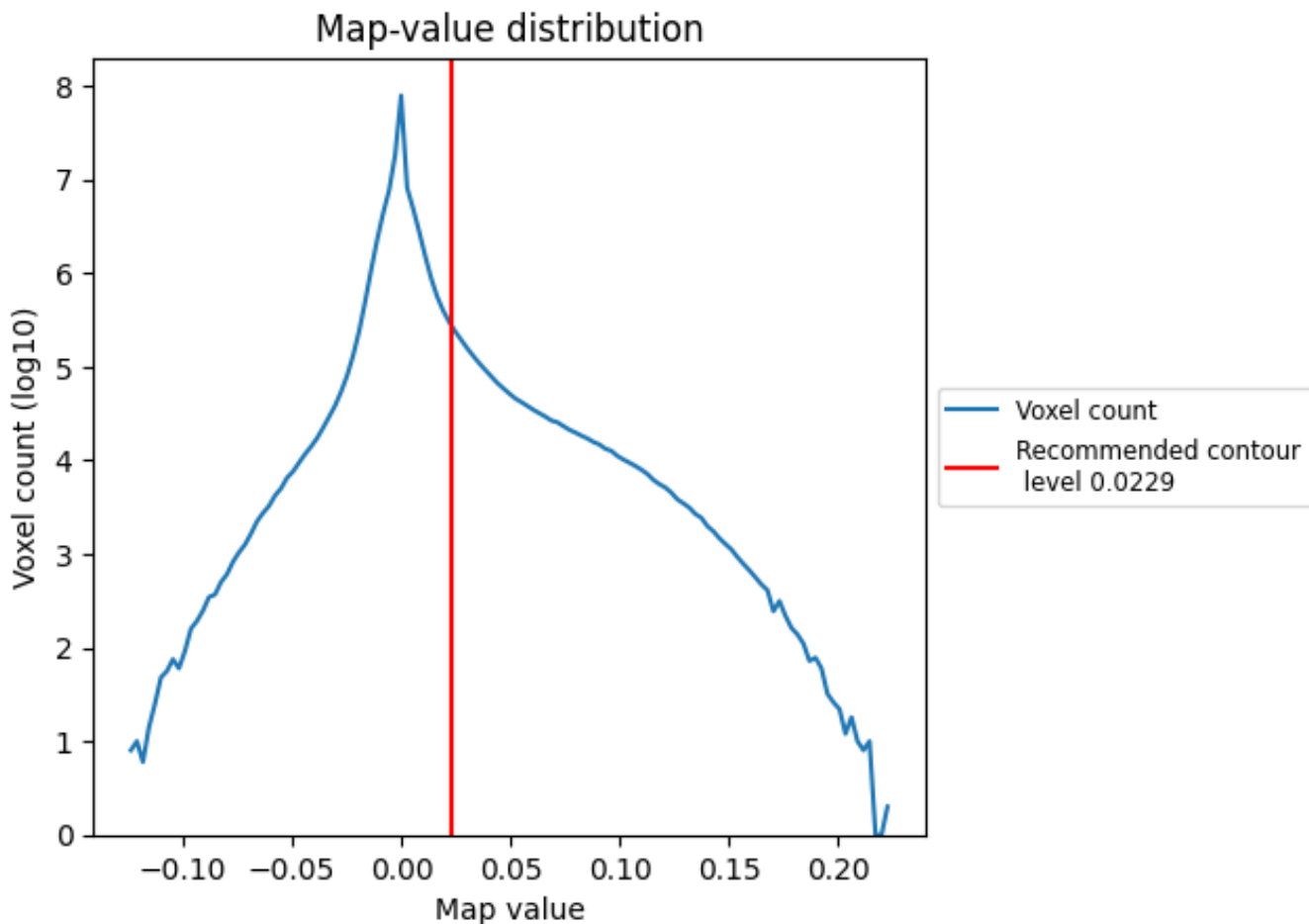


Z

## 7 Map analysis [i](#)

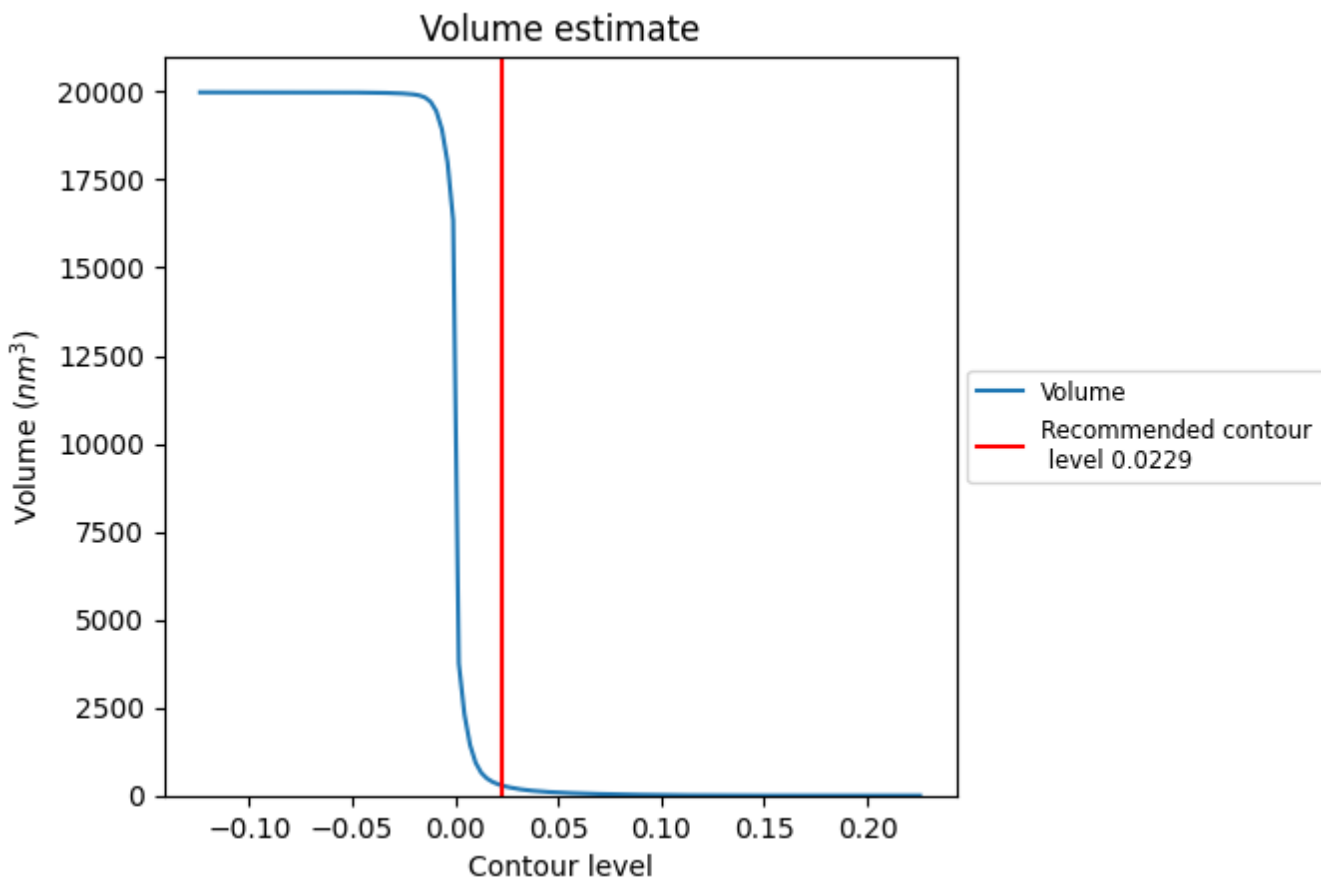
This section contains the results of statistical analysis of the map.

### 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.

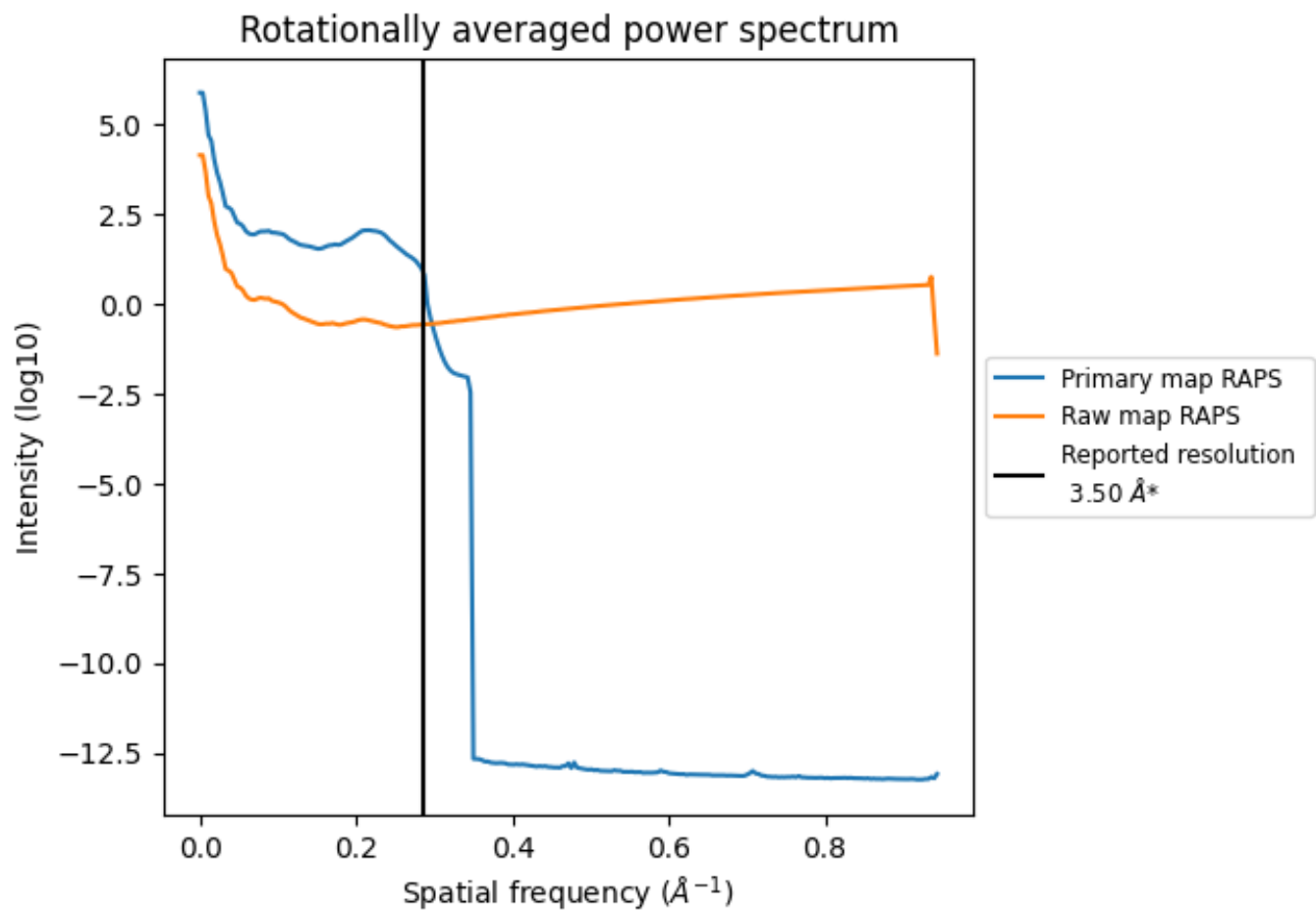
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 284 nm<sup>3</sup>; this corresponds to an approximate mass of 256 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](#)

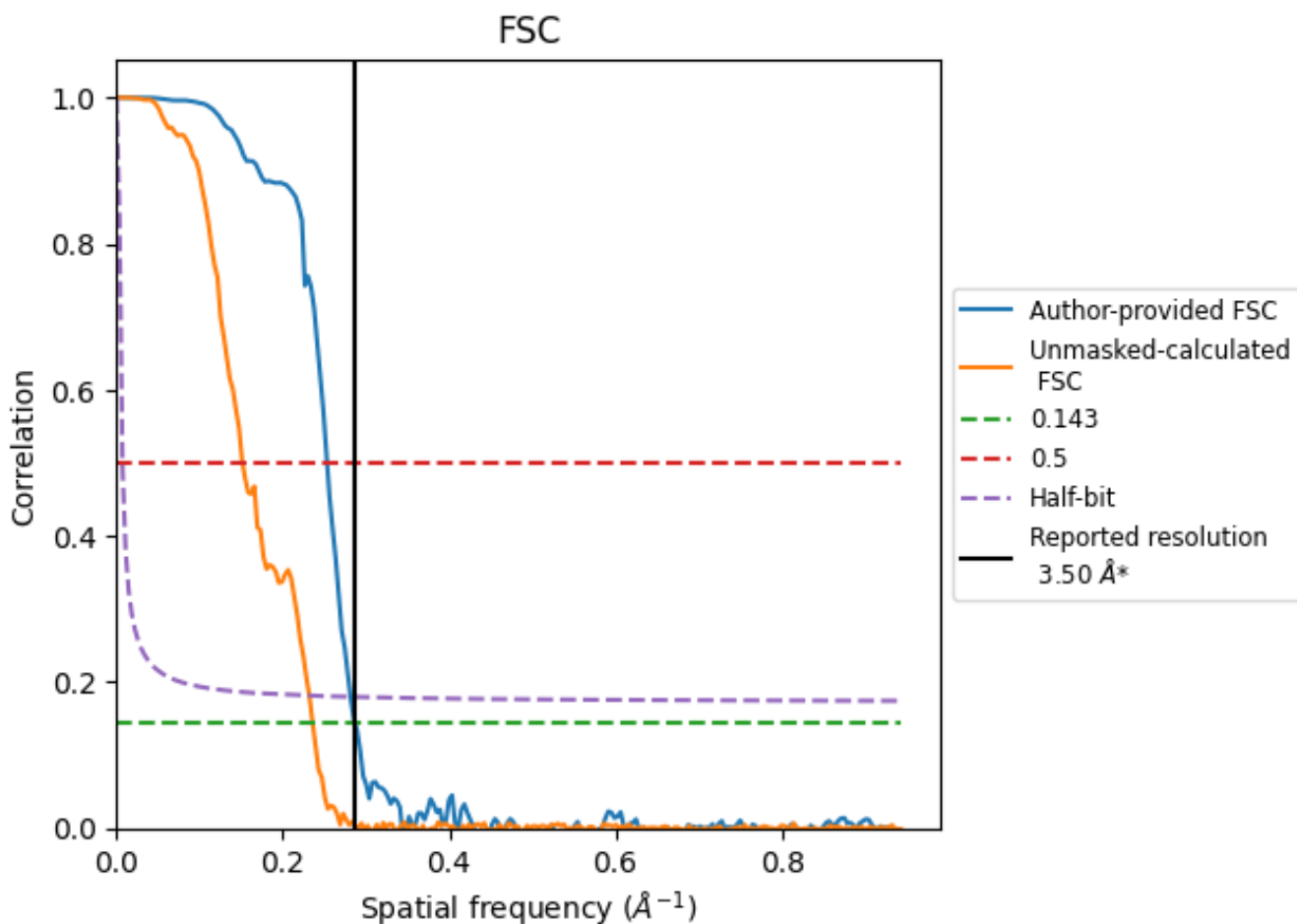


\*Reported resolution corresponds to spatial frequency of 0.286 Å<sup>-1</sup>

## 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 0.286 Å<sup>-1</sup>



## 8.2 Resolution estimates [i](#)

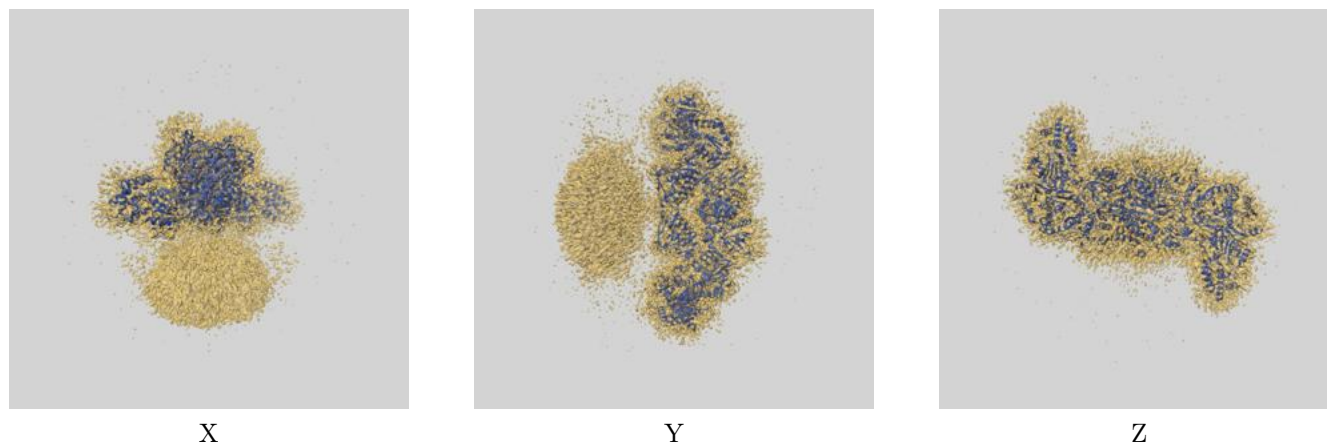
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.49	3.95	3.55
Unmasked-calculated*	4.24	6.60	4.31

\*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 4.24 differs from the reported value 3.5 by more than 10 %

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

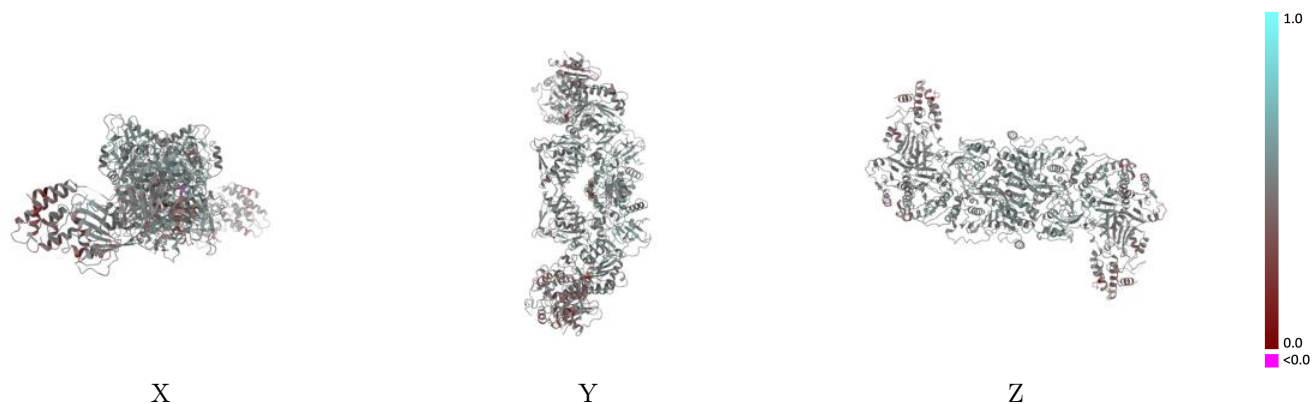
This section contains information regarding the fit between EMDB map EMD-45812 and PDB model 9CQ9. Per-residue inclusion information can be found in section 3 on page 4.

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



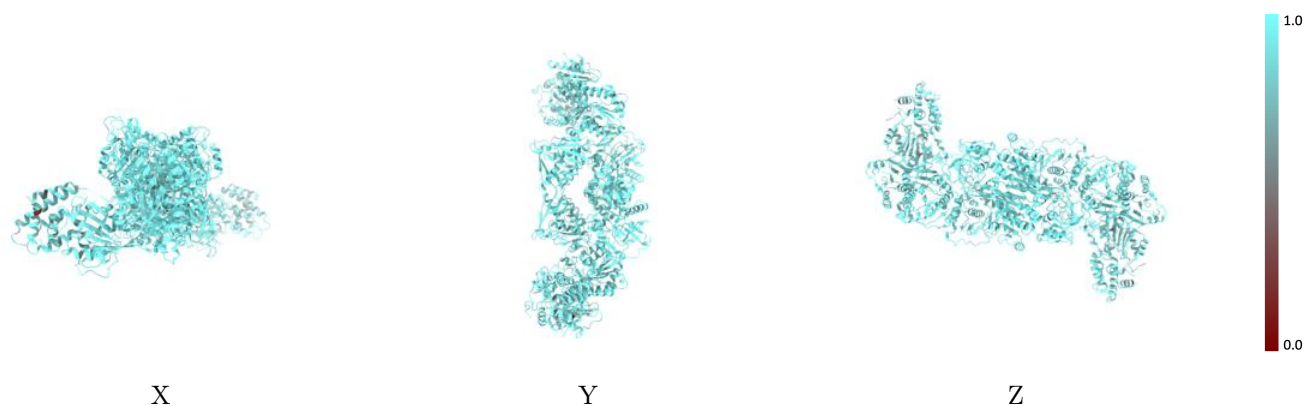
The images above show the 3D surface view of the map at the recommended contour level 0.0229 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



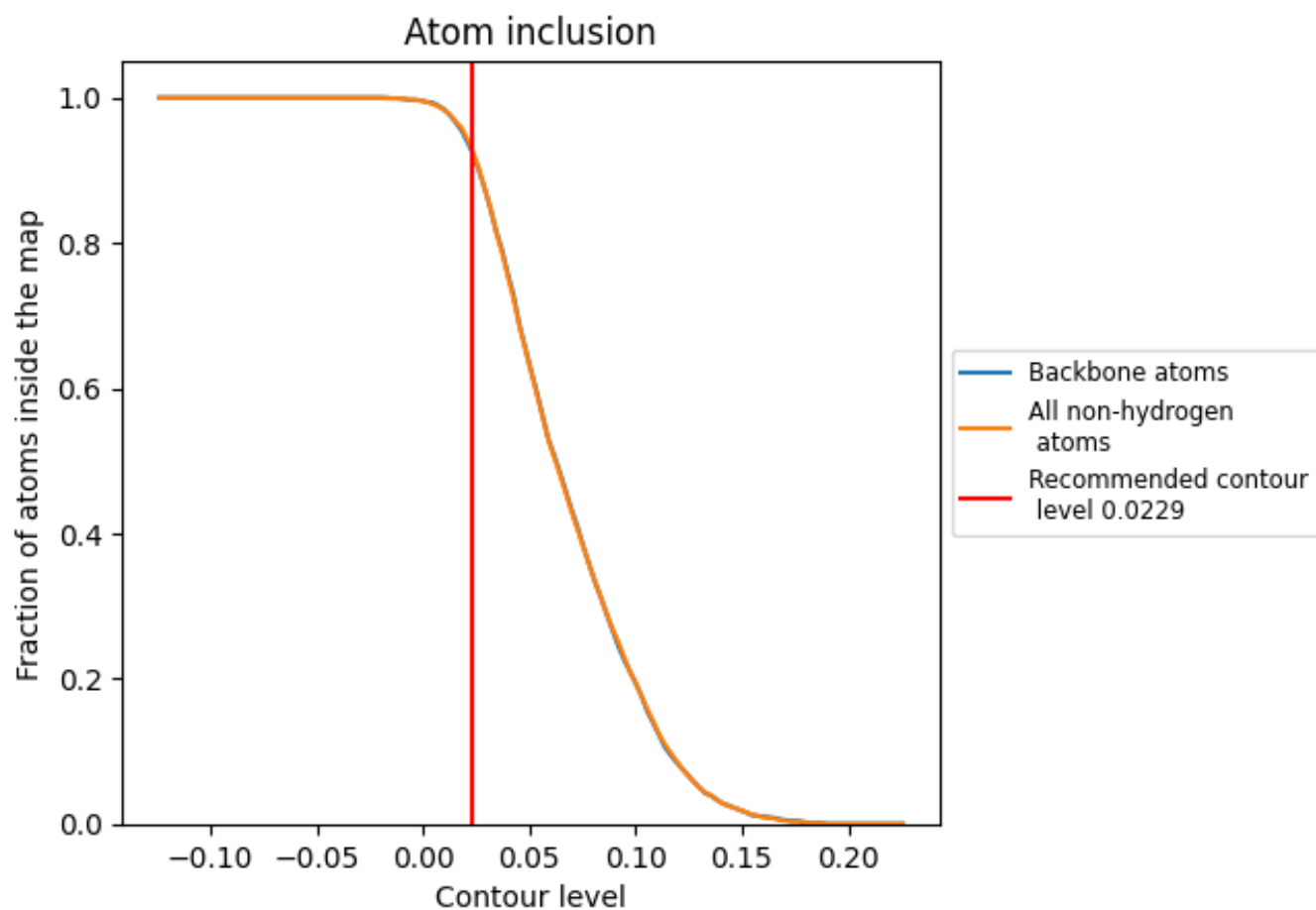
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0229).





## 9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 93% 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 (0.0229) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9310	 0.4880
A	 0.9290	 0.4880
B	 0.9290	 0.4890

