



Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 05:41 pm GMT

PDB ID : 4BGN
EMDB ID : EMD-2347
Title : cryo-EM structure of the NavCt voltage-gated sodium channel
Authors : Tsai, C.J.; Tani, K.; Irie, K.; Hiroaki, Y.; Shimomura, T.; Mcmillan, D.G.;
Cook, G.M.; Schertler, G.; Fujiyoshi, Y.; Li, X.D.
Deposited on : 2013-03-28
Resolution : 9.00 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

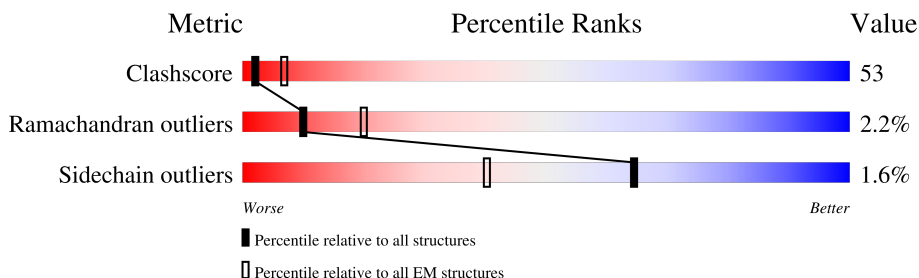
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON CRYSTALLOGRAPHY

The reported resolution of this entry is 9.00 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	298	<div> <div>66%</div> <div> <div>22%</div> <div>47%</div> <div>28%</div> </div> </div>
1	B	298	<div> <div>24%</div> <div>22%</div> <div>47%</div> <div>29%</div> </div>

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 3464 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 VOLTAGE-GATED SODIUM CHANNEL.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	214	Total	C	N	O	S	0	1
			1742	1177	276	282	7		
1	B	212	Total	C	N	O	S	0	1
			1722	1162	269	284	7		

E249	Q189	
E250	V190	
G251	V191	
G252	T192	
ARG	L193	
GLU	E194	
GLU	S195	
ARG	V196	
GLN	A197	
GLY	S198	
LEU	G199	
PHE	T200	
GLU	L201	
GLY	R202	
ASP	P203	
GLY	T204	
SER	SER	
SER	M205	
VAL	A206	
SER	E207	
ALA	V208	
ALA	GLU	
GLU	F209	
GLU	ILE	
ILE	W210	
ALA	ALA	
LYS	S211	
LEU	W212	
LEU	I213	
ARG		
GLN	Y214	
GLN	F215	
ILE	V216	
LYS	A217	
GLU	F218	
LEU	I219	
ARG	L220	
GLN	V221	
LEU	G222	
LEU	T223	
LYS	T224	
GLU	V225	
LEU	L226	
LYS	F227	
ASP		
HIS	N228	
HIS	L229	
SER	N237	
SER	F230	
GLN	V231	
SER	G232	
SER	V233	
THR	T234	
	V235	
	S236	
	N237	
	V238	
	E239	
	R240	
	A241	
	E242	
	T243	
	E244	
	D245	
	A246	
	E247	
	F248	

4 Experimental information

Property	Value	Source
EM reconstruction method	CRYSTALLOGRAPHY	Depositor
Imposed symmetry	2D CRYSTAL, a =Not provided Å, b =Not provided Å, c =Not provided Å, γ =Not provided°, space group=Not provided	Depositor
Number of images used	Not provided	
Resolution determination method	OTHER	Depositor
CTF correction method	Not provided	
Microscope	JEOL KYOTO-3000SFF	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	20	Depositor
Minimum defocus (nm)	910	Depositor
Maximum defocus (nm)	3820	Depositor
Magnification	40000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	6.820	Depositor
Minimum map value	-5.027	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.993	Depositor
Recommended contour level	1.3	Depositor
Map size (Å)	115.0, 115.0, 180.0	wwPDB
Map dimensions	55, 55, 81	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.090909, 2.090909, 2.222223	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	0.31	0/1790	0.52	1/2439 (0.0%)
1	B	0.31	0/1770	0.53	1/2412 (0.0%)
All	All	0.31	0/3560	0.53	2/4851 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	82	ARG	N-CA-C	-5.16	97.08	111.00
1	B	82	ARG	N-CA-C	-5.15	97.10	111.00

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	1742	0	1793	188	0
1	B	1722	0	1754	185	0
All	All	3464	0	3547	373	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 53.

All (373) 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:B:52:TYR:O	1:B:56:GLN:HB3	1.60	0.99
1:A:147:LEU:HD22	1:A:229:LEU:HD11	1.41	0.97
1:A:52:TYR:O	1:A:56:GLN:HB3	1.62	0.96
1:A:78:LEU:HG	1:A:84:ARG:HG3	1.46	0.95
1:B:53:GLN:HB3	1:B:54:PRO:HD3	1.50	0.94
1:A:53:GLN:HB3	1:A:54:PRO:HD3	1.50	0.92
1:B:238:VAL:O	1:B:242:GLU:HG3	1.69	0.92
1:B:240:ARG:HH11	1:B:240:ARG:HG3	1.41	0.85
1:B:231:VAL:O	1:B:235:VAL:HG23	1.76	0.85
1:B:188:PHE:O	1:B:191:VAL:HG22	1.76	0.84
1:A:188:PHE:O	1:A:191:VAL:HG22	1.76	0.83
1:A:44:GLY:O	1:A:47:THR:HG22	1.79	0.82
1:A:126:ALA:O	1:A:130:ILE:HG12	1.79	0.82
1:B:202:ARG:HB2	1:B:203:PRO:HD3	1.59	0.82
1:A:172:VAL:HG11	1:A:207:GLU:HG3	1.61	0.82
1:A:99:ILE:HG21	1:A:122:ARG:HA	1.61	0.81
1:A:202:ARG:HB2	1:A:203:PRO:HD3	1.61	0.81
1:B:99:ILE:HG21	1:B:122:ARG:HA	1.60	0.81
1:B:126:ALA:O	1:B:130:ILE:HG12	1.81	0.80
1:B:172:VAL:HG11	1:B:207:GLU:HG3	1.62	0.80
1:A:78:LEU:CG	1:A:84:ARG:HG3	2.12	0.79
1:B:44:GLY:O	1:B:47:THR:HG22	1.83	0.77
1:A:48:TYR:HD2	1:A:51:ILE:H	1.33	0.77
1:A:82:ARG:HB3	1:A:83:PRO:CD	2.15	0.76
1:B:40:ALA:O	1:B:43:VAL:HG22	1.85	0.76
1:B:48:TYR:HD2	1:B:51:ILE:H	1.33	0.76
1:A:201:MET:O	1:A:204:ILE:HG22	1.85	0.76
1:B:56:GLN:HA	1:B:59:PHE:CE2	2.20	0.76
1:A:40:ALA:O	1:A:43:VAL:HG22	1.84	0.76
1:A:147:LEU:O	1:A:150:ILE:HG13	1.85	0.76
1:A:56:GLN:HA	1:A:59:PHE:CE2	2.22	0.75
1:B:95:PHE:CE2	1:B:99:ILE:HD11	2.21	0.75
1:A:227:PHE:O	1:A:231:VAL:HG23	1.86	0.75
1:B:82:ARG:HB3	1:B:83:PRO:CD	2.15	0.75
1:A:95:PHE:CE2	1:A:99:ILE:HD11	2.21	0.74
1:B:170:ARG:HG3	1:B:178:GLY:O	1.88	0.74
1:B:201:MET:O	1:B:204:ILE:HG22	1.86	0.74
1:A:59:PHE:O	1:A:62:ILE:HG22	1.87	0.74
1:A:170:ARG:HG3	1:A:178:GLY:O	1.88	0.74
1:A:234:ILE:HD12	1:A:235:VAL:N	2.02	0.74
1:A:107:VAL:O	1:A:112:VAL:HG13	1.89	0.73
1:A:30:SER:O	1:A:34:VAL:HG23	1.89	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:30:SER:O	1:B:34:VAL:HG23	1.89	0.72
1:B:107:VAL:O	1:B:112:VAL:HG13	1.88	0.72
1:B:158:PHE:HZ	1:B:191:VAL:HG11	1.54	0.72
1:B:186:THR:HG23	1:B:187:LEU:HD12	1.70	0.72
1:A:108:GLY:HA2	1:A:112:VAL:HG22	1.72	0.72
1:B:95:PHE:O	1:B:99:ILE:HG13	1.90	0.72
1:A:232:GLY:O	1:A:235:VAL:HG22	1.90	0.71
1:B:108:GLY:HA2	1:B:112:VAL:HG22	1.73	0.71
1:A:95:PHE:O	1:A:99:ILE:HG13	1.90	0.70
1:A:158:PHE:HZ	1:A:191:VAL:HG11	1.54	0.70
1:A:186:THR:HG23	1:A:187:LEU:HD12	1.72	0.70
1:A:78:LEU:HD21	1:A:84:ARG:HD3	1.73	0.70
1:A:132:SER:O	1:A:135:ARG:HB2	1.92	0.69
1:A:150:ILE:HG12	1:A:229:LEU:HD13	1.72	0.69
1:B:59:PHE:O	1:B:62:ILE:HG22	1.91	0.69
1:B:150:ILE:HD12	1:B:151:MET:N	2.08	0.69
1:A:91:SER:O	1:A:94:VAL:HG12	1.93	0.69
1:B:236:SER:O	1:B:240:ARG:HG2	1.92	0.69
1:B:78:LEU:HD11	1:B:84:ARG:HG3	1.75	0.68
1:B:205:MET:HA	1:B:208:VAL:O	1.92	0.68
1:B:130:ILE:HD11	1:B:133:LEU:HD12	1.75	0.68
1:B:187:LEU:O	1:B:191:VAL:HG13	1.92	0.68
1:A:39:ASN:O	1:A:43:VAL:HG13	1.94	0.68
1:B:28:PHE:CZ	1:B:73:GLU:HG3	2.28	0.68
1:A:187:LEU:O	1:A:191:VAL:HG13	1.94	0.68
1:B:39:ASN:O	1:B:43:VAL:HG13	1.94	0.68
1:A:28:PHE:CZ	1:A:73:GLU:HG3	2.28	0.68
1:A:66:ILE:HG13	1:A:67:LEU:N	2.09	0.67
1:A:205:MET:HA	1:A:208:VAL:O	1.93	0.67
1:B:91:SER:O	1:B:94:VAL:HG12	1.94	0.67
1:B:66:ILE:HG13	1:B:67:LEU:N	2.09	0.66
1:B:158:PHE:CZ	1:B:191:VAL:HG11	2.30	0.66
1:A:78:LEU:HD11	1:A:88:PHE:CE1	2.30	0.66
1:A:158:PHE:CZ	1:A:191:VAL:HG11	2.30	0.66
1:B:38:ILE:O	1:B:41:ILE:HG12	1.97	0.65
1:A:38:ILE:O	1:A:41:ILE:HG12	1.97	0.64
1:B:62:ILE:O	1:B:66:ILE:HG23	1.96	0.64
1:A:43:VAL:HG21	1:A:123:LEU:HD11	1.79	0.64
1:B:43:VAL:HG21	1:B:123:LEU:HD11	1.79	0.64
1:B:243:THR:O	1:B:247:GLU:HG3	1.98	0.64
1:A:62:ILE:O	1:A:66:ILE:HG23	1.98	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:95:PHE:CD2	1:A:99:ILE:HD11	2.33	0.64
1:A:125:ARG:HE	1:A:129:VAL:CG2	2.11	0.64
1:B:78:LEU:O	1:B:81:THR:HG22	1.98	0.63
1:B:182:LEU:O	1:B:185:ILE:HG22	1.97	0.63
1:A:50:GLY:O	1:A:54:PRO:HD2	1.99	0.63
1:A:92:TRP:CZ3	1:A:134:ARG:HG2	2.34	0.63
1:B:95:PHE:CD2	1:B:99:ILE:HD11	2.33	0.63
1:B:125:ARG:HE	1:B:129:VAL:CG2	2.12	0.62
1:B:78:LEU:HD11	1:B:88:PHE:CE1	2.34	0.62
1:A:150:ILE:HD12	1:A:151:MET:N	2.14	0.62
1:B:34:VAL:O	1:B:38:ILE:HD13	2.00	0.62
1:B:160:ILE:O	1:B:163:VAL:HG12	2.00	0.62
1:A:114:VAL:HG13	1:A:115:LEU:N	2.15	0.62
1:A:78:LEU:O	1:A:81:THR:HG22	2.00	0.61
1:B:114:VAL:HG13	1:B:115:LEU:N	2.14	0.61
1:B:239:GLU:O	1:B:243:THR:HG23	2.00	0.61
1:B:244:GLU:O	1:B:248:GLN:HG3	2.00	0.61
1:B:38:ILE:O	1:B:42:VAL:HG23	2.00	0.61
1:B:233:VAL:HG12	1:B:237:ASN:ND2	2.16	0.61
1:B:50:GLY:O	1:B:54:PRO:HD2	2.00	0.61
1:A:38:ILE:O	1:A:42:VAL:HG23	2.00	0.61
1:A:160:ILE:O	1:A:163:VAL:HG12	2.00	0.61
1:A:182:LEU:O	1:A:185:ILE:HG22	2.00	0.61
1:B:78:LEU:CG	1:B:84:ARG:HG3	2.30	0.61
1:B:240:ARG:O	1:B:244:GLU:HG3	2.01	0.61
1:A:132:SER:CA	1:A:135:ARG:HD3	2.31	0.60
1:A:28:PHE:HZ	1:A:73:GLU:HG3	1.66	0.60
1:A:34:VAL:O	1:A:38:ILE:HD13	2.00	0.60
1:B:78:LEU:CD1	1:B:84:ARG:HG3	2.31	0.60
1:A:71:THR:O	1:A:75:ILE:HG13	2.01	0.60
1:B:71:THR:O	1:B:75:ILE:HG13	2.02	0.59
1:B:150:ILE:HG12	1:B:229:LEU:HD13	1.84	0.59
1:B:28:PHE:HZ	1:B:73:GLU:HG3	1.66	0.59
1:B:78:LEU:HD11	1:B:88:PHE:HE1	1.68	0.59
1:A:92:TRP:HE3	1:A:128:THR:HG22	1.67	0.59
1:B:92:TRP:HE3	1:B:128:THR:HG22	1.67	0.59
1:A:132:SER:HA	1:A:135:ARG:HD3	1.84	0.58
1:B:240:ARG:HG3	1:B:240:ARG:NH1	2.17	0.58
1:B:109:ALA:N	1:B:112:VAL:HG22	2.19	0.58
1:B:36:ILE:HD11	1:B:129:VAL:HG21	1.85	0.58
1:B:166:THR:O	1:B:170:ARG:HB3	2.04	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:153:LEU:O	1:A:157:ILE:HG13	2.04	0.58
1:B:130:ILE:HD11	1:B:133:LEU:CD1	2.33	0.57
1:B:96:ASP:O	1:B:100:VAL:HG23	2.04	0.57
1:B:66:ILE:O	1:B:69:VAL:HG22	2.04	0.57
1:B:96:ASP:OD1	1:B:125:ARG:HD2	2.03	0.57
1:B:107:VAL:CG1	1:B:116:ARG:HH21	2.18	0.57
1:A:36:ILE:HD11	1:A:129:VAL:HG21	1.85	0.57
1:A:96:ASP:OD1	1:A:125:ARG:HD2	2.03	0.57
1:A:107:VAL:CG1	1:A:116:ARG:HH21	2.18	0.57
1:A:35:LEU:O	1:A:35:LEU:HD23	2.05	0.57
1:B:55:TYR:CD2	1:B:58:TRP:CD1	2.92	0.57
1:B:153:LEU:O	1:B:157:ILE:HG13	2.04	0.57
1:A:66:ILE:O	1:A:69:VAL:HG22	2.04	0.57
1:A:166:THR:O	1:A:170:ARG:HB3	2.04	0.57
1:B:30:SER:O	1:B:33:ILE:HG12	2.04	0.57
1:A:109:ALA:N	1:A:112:VAL:HG22	2.20	0.57
1:A:30:SER:O	1:A:33:ILE:HG12	2.04	0.57
1:A:242:GLU:HA	1:A:245:ASP:OD2	2.04	0.56
1:A:96:ASP:O	1:A:100:VAL:HG23	2.04	0.56
1:A:78:LEU:HD11	1:A:88:PHE:HE1	1.71	0.56
1:A:156:LEU:O	1:A:160:ILE:HG12	2.06	0.56
1:A:193:LEU:HD13	1:A:193:LEU:O	2.06	0.56
1:B:35:LEU:HD23	1:B:35:LEU:O	2.05	0.56
1:B:86:HIS:O	1:B:89:LYS:HB2	2.05	0.56
1:B:114:VAL:O	1:B:117:VAL:HG22	2.06	0.55
1:A:114:VAL:O	1:A:117:VAL:HG22	2.06	0.55
1:A:216:VAL:HG13	1:A:217:ALA:N	2.22	0.55
1:A:230:PHE:O	1:A:233:VAL:HG12	2.07	0.55
1:A:39:ASN:ND2	1:A:66:ILE:HD13	2.22	0.55
1:B:125:ARG:HG3	1:B:129:VAL:HG23	1.87	0.55
1:B:240:ARG:HH11	1:B:240:ARG:CG	2.15	0.55
1:A:208:VAL:HG13	1:A:210:TRP:CE2	2.42	0.55
1:B:67:LEU:O	1:B:71:THR:HG23	2.07	0.55
1:A:111:PHE:CB	1:A:114:VAL:HG12	2.37	0.55
1:A:33:ILE:HG22	1:A:129:VAL:CG1	2.37	0.55
1:A:125:ARG:HG3	1:A:129:VAL:HG23	1.87	0.55
1:B:33:ILE:HG22	1:B:129:VAL:CG1	2.37	0.55
1:B:216:VAL:HG13	1:B:217:ALA:N	2.22	0.54
1:A:114:VAL:HG22	1:A:118:LEU:HD13	1.89	0.54
1:B:39:ASN:ND2	1:B:66:ILE:HD13	2.22	0.54
1:B:208:VAL:HG13	1:B:210:TRP:CE2	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:239:GLU:O	1:A:243:THR:HG23	2.07	0.54
1:B:78:LEU:HG	1:B:84:ARG:HG3	1.90	0.54
1:B:111:PHE:CB	1:B:114:VAL:HG12	2.38	0.54
1:B:183:SER:O	1:B:186:THR:HG22	2.07	0.54
1:A:67:LEU:O	1:A:71:THR:HG23	2.07	0.54
1:A:111:PHE:HB3	1:A:114:VAL:HG12	1.89	0.54
1:B:82:ARG:HB3	1:B:83:PRO:HD2	1.89	0.54
1:B:156:LEU:O	1:B:160:ILE:HG12	2.07	0.54
1:A:125:ARG:HE	1:A:129:VAL:HG22	1.73	0.53
1:A:32:ILE:HD12	1:A:73:GLU:OE1	2.09	0.53
1:A:86:HIS:O	1:A:89:LYS:HB2	2.07	0.53
1:B:179:SER:OG	1:B:182:LEU:HG	2.08	0.53
1:A:48:TYR:CE2	1:A:50:GLY:HA3	2.43	0.53
1:A:56:GLN:HG3	1:A:57:ASP:N	2.23	0.53
1:B:48:TYR:CE2	1:B:50:GLY:HA3	2.43	0.53
1:B:114:VAL:HG22	1:B:118:LEU:HD13	1.89	0.53
1:B:32:ILE:HD12	1:B:73:GLU:OE1	2.08	0.53
1:A:147:LEU:HD22	1:A:229:LEU:CD1	2.27	0.53
1:A:78:LEU:CD1	1:A:84:ARG:HG3	2.39	0.53
1:A:109:ALA:H	1:A:112:VAL:HG22	1.74	0.53
1:A:179:SER:OG	1:A:182:LEU:HG	2.08	0.52
1:B:193:LEU:HD13	1:B:193:LEU:O	2.09	0.52
1:A:81:THR:O	1:A:82:ARG:HG3	2.10	0.52
1:B:233:VAL:O	1:B:237:ASN:ND2	2.42	0.52
1:B:125:ARG:HE	1:B:129:VAL:HG22	1.73	0.52
1:B:131:PRO:O	1:B:133:LEU:N	2.41	0.52
1:A:82:ARG:HB3	1:A:83:PRO:HD2	1.88	0.52
1:A:132:SER:N	1:A:135:ARG:HD3	2.24	0.52
1:A:131:PRO:HB3	1:A:135:ARG:NH1	2.25	0.52
1:A:231:VAL:O	1:A:235:VAL:HG13	2.09	0.52
1:B:67:LEU:O	1:B:67:LEU:HD13	2.10	0.52
1:A:103:GLY:HA2	1:A:119:ARG:HG2	1.92	0.51
1:A:187:LEU:O	1:A:190:VAL:HG22	2.10	0.51
1:A:63:ASP:O	1:A:66:ILE:HG12	2.11	0.51
1:A:164:MET:O	1:A:168:LEU:HG	2.11	0.51
1:A:183:SER:O	1:A:186:THR:HG22	2.10	0.51
1:A:67:LEU:O	1:A:67:LEU:HD13	2.10	0.51
1:B:63:ASP:O	1:B:66:ILE:HG12	2.11	0.51
1:B:81:THR:O	1:B:82:ARG:HG3	2.10	0.51
1:A:114:VAL:O	1:A:118:LEU:HD13	2.10	0.51
1:B:55:TYR:HD2	1:B:58:TRP:CD1	2.29	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:109:ALA:H	1:B:112:VAL:HG22	1.73	0.51
1:B:205:MET:HG3	1:B:209:PHE:HA	1.92	0.51
1:A:35:LEU:HD21	1:A:66:ILE:CG2	2.41	0.51
1:A:35:LEU:HD13	1:A:70:PHE:HE1	1.76	0.51
1:B:35:LEU:HD21	1:B:66:ILE:CG2	2.41	0.51
1:B:234:ILE:HG22	1:B:234:ILE:O	2.10	0.51
1:B:35:LEU:HD13	1:B:70:PHE:CE1	2.46	0.50
1:A:99:ILE:CG2	1:A:122:ARG:HA	2.38	0.50
1:B:53:GLN:HB3	1:B:54:PRO:CD	2.32	0.50
1:B:114:VAL:O	1:B:118:LEU:HD13	2.10	0.50
1:B:103:GLY:HA2	1:B:119:ARG:HG2	1.92	0.50
1:A:35:LEU:HD13	1:A:70:PHE:CE1	2.46	0.50
1:A:84:ARG:HG2	1:A:88:PHE:HE1	1.76	0.50
1:B:35:LEU:HD21	1:B:66:ILE:HB	1.93	0.50
1:B:111:PHE:HB3	1:B:114:VAL:HG12	1.92	0.50
1:A:92:TRP:NE1	1:A:134:ARG:NH2	2.60	0.50
1:B:223:THR:O	1:B:227:PHE:HD1	1.95	0.50
1:A:35:LEU:HD21	1:A:66:ILE:HB	1.93	0.50
1:A:78:LEU:HD21	1:A:84:ARG:CD	2.42	0.50
1:B:164:MET:O	1:B:168:LEU:HG	2.10	0.50
1:B:227:PHE:O	1:B:231:VAL:HG23	2.12	0.50
1:A:169:PHE:HB2	1:A:177:PHE:CD2	2.47	0.50
1:B:35:LEU:HD13	1:B:70:PHE:HE1	1.76	0.50
1:B:114:VAL:CG1	1:B:115:LEU:N	2.75	0.50
1:B:169:PHE:HB2	1:B:177:PHE:CD2	2.47	0.50
1:B:180:LEU:HD13	1:B:180:LEU:O	2.12	0.49
1:A:114:VAL:CG1	1:A:115:LEU:N	2.75	0.49
1:A:212:TRP:O	1:A:216:VAL:HG12	2.11	0.49
1:B:212:TRP:O	1:B:216:VAL:HG12	2.11	0.49
1:A:107:VAL:HG13	1:A:116:ARG:HH21	1.77	0.49
1:A:181:HIS:CE1	1:A:182:LEU:HG	2.47	0.49
1:B:117:VAL:HG23	1:B:118:LEU:HD12	1.95	0.49
1:B:187:LEU:HA	1:B:190:VAL:HG22	1.94	0.49
1:A:180:LEU:HD13	1:A:180:LEU:O	2.12	0.49
1:A:35:LEU:HD23	1:A:35:LEU:C	2.33	0.49
1:B:150:ILE:CD1	1:B:229:LEU:HD13	2.43	0.49
1:B:181:HIS:CE1	1:B:182:LEU:HG	2.47	0.49
1:B:187:LEU:O	1:B:190:VAL:HG22	2.12	0.49
1:A:37:VAL:O	1:A:41:ILE:HG23	2.13	0.48
1:B:33:ILE:HG22	1:B:129:VAL:HG11	1.95	0.48
1:B:35:LEU:HD23	1:B:35:LEU:C	2.32	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:131:PRO:O	1:A:133:LEU:N	2.45	0.48
1:A:187:LEU:HA	1:A:190:VAL:HG22	1.95	0.48
1:B:37:VAL:O	1:B:41:ILE:HG23	2.14	0.48
1:A:117:VAL:HG23	1:A:118:LEU:HD12	1.94	0.48
1:B:107:VAL:HG13	1:B:116:ARG:HH21	1.77	0.48
1:A:48:TYR:HD2	1:A:51:ILE:HG13	1.78	0.48
1:A:105:LEU:CD1	1:A:115:LEU:HD13	2.44	0.48
1:B:48:TYR:HD2	1:B:51:ILE:HG13	1.77	0.48
1:B:105:LEU:CD1	1:B:115:LEU:HD13	2.44	0.48
1:B:118:LEU:O	1:B:121:LEU:HG	2.14	0.48
1:B:48:TYR:CD2	1:B:51:ILE:HG13	2.49	0.48
1:A:33:ILE:HG22	1:A:129:VAL:HG11	1.95	0.48
1:A:53:GLN:HB3	1:A:54:PRO:CD	2.32	0.48
1:A:92:TRP:CD1	1:A:134:ARG:NH2	2.82	0.48
1:B:99:ILE:CG2	1:B:122:ARG:HA	2.38	0.48
1:A:156:LEU:HD13	1:A:156:LEU:C	2.35	0.47
1:A:48:TYR:CD2	1:A:51:ILE:HG13	2.49	0.47
1:B:239:GLU:HA	1:B:242:GLU:OE1	2.14	0.47
1:A:216:VAL:O	1:A:220:LEU:HG	2.15	0.47
1:B:56:GLN:HG3	1:B:57:ASP:N	2.29	0.47
1:B:67:LEU:HD13	1:B:67:LEU:C	2.34	0.47
1:A:67:LEU:HD13	1:A:67:LEU:C	2.34	0.47
1:A:30:SER:HA	1:A:33:ILE:HG12	1.96	0.47
1:A:117:VAL:O	1:A:120:VAL:HG13	2.15	0.47
1:B:201:MET:HA	1:B:204:ILE:HG22	1.95	0.47
1:A:209:PHE:CZ	1:A:210:TRP:HE3	2.33	0.47
1:A:60:TYR:HD2	1:A:61:LEU:HD12	1.80	0.47
1:B:156:LEU:C	1:B:156:LEU:HD13	2.35	0.47
1:B:169:PHE:HB2	1:B:177:PHE:CG	2.49	0.47
1:A:118:LEU:O	1:A:121:LEU:HG	2.14	0.47
1:B:180:LEU:HD13	1:B:180:LEU:C	2.35	0.47
1:B:195:SER:HG	1:B:199:GLY:HA3	1.78	0.47
1:B:216:VAL:O	1:B:220:LEU:HG	2.15	0.47
1:A:222:GLY:O	1:A:226:ILE:HG13	2.15	0.46
1:B:30:SER:HA	1:B:33:ILE:HG12	1.96	0.46
1:B:238:VAL:O	1:B:242:GLU:N	2.48	0.46
1:B:81:THR:O	1:B:82:ARG:CB	2.63	0.46
1:B:209:PHE:CZ	1:B:210:TRP:HE3	2.33	0.46
1:A:169:PHE:HB2	1:A:177:PHE:CG	2.49	0.46
1:B:108:GLY:O	1:B:109:ALA:HB2	2.16	0.46
1:A:136:LEU:N	1:A:136:LEU:HD22	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:81:THR:O	1:A:82:ARG:CB	2.63	0.46
1:A:108:GLY:O	1:A:109:ALA:HB2	2.16	0.46
1:A:180:LEU:HD13	1:A:180:LEU:C	2.35	0.46
1:B:117:VAL:O	1:B:120:VAL:HG13	2.15	0.46
1:B:246:ALA:O	1:B:250:GLU:HG3	2.16	0.46
1:A:33:ILE:HG13	1:A:34:VAL:N	2.31	0.45
1:B:33:ILE:HG13	1:B:34:VAL:N	2.31	0.45
1:B:240:ARG:NH1	1:B:240:ARG:CG	2.74	0.45
1:A:59:PHE:CD1	1:A:59:PHE:C	2.89	0.45
1:A:201:MET:HA	1:A:204:ILE:HG22	1.97	0.45
1:A:193:LEU:HD13	1:A:196:TRP:CD1	2.52	0.45
1:A:150:ILE:HD12	1:A:150:ILE:C	2.37	0.45
1:A:234:ILE:HD12	1:A:235:VAL:HG13	1.99	0.45
1:B:59:PHE:C	1:B:59:PHE:CD1	2.90	0.45
1:B:235:VAL:HG12	1:B:239:GLU:OE2	2.17	0.45
1:B:59:PHE:HA	1:B:62:ILE:HG22	1.99	0.45
1:B:150:ILE:HD12	1:B:150:ILE:C	2.37	0.45
1:B:222:GLY:O	1:B:226:ILE:HG13	2.17	0.45
1:A:108:GLY:HA2	1:A:112:VAL:CG2	2.45	0.45
1:A:35:LEU:CD1	1:A:69:VAL:HG21	2.47	0.44
1:B:193:LEU:HD13	1:B:196:TRP:CD1	2.52	0.44
1:B:35:LEU:CD1	1:B:69:VAL:HG21	2.47	0.44
1:A:110:GLN:HG3	1:A:111:PHE:CE1	2.53	0.44
1:A:150:ILE:CG1	1:A:229:LEU:HD13	2.43	0.44
1:B:32:ILE:O	1:B:36:ILE:HG13	2.18	0.44
1:A:132:SER:H	1:A:135:ARG:HD3	1.81	0.44
1:A:230:PHE:HA	1:A:233:VAL:HG12	1.99	0.44
1:A:183:SER:O	1:A:187:LEU:HD13	2.17	0.44
1:B:81:THR:O	1:B:82:ARG:CG	2.66	0.44
1:B:209:PHE:O	1:B:212:TRP:HD1	2.01	0.44
1:A:29:THR:O	1:A:33:ILE:HG23	2.17	0.43
1:A:50:GLY:O	1:A:54:PRO:CD	2.66	0.43
1:A:76:LEU:C	1:A:76:LEU:HD23	2.39	0.43
1:A:125:ARG:HG3	1:A:129:VAL:CG2	2.48	0.43
1:B:233:VAL:HG12	1:B:233:VAL:O	2.18	0.43
1:B:29:THR:O	1:B:33:ILE:HG23	2.17	0.43
1:A:150:ILE:CD1	1:A:229:LEU:HD13	2.49	0.43
1:B:186:THR:CG2	1:B:187:LEU:HD12	2.42	0.43
1:A:32:ILE:O	1:A:36:ILE:HG13	2.18	0.43
1:A:209:PHE:O	1:A:212:TRP:HD1	2.01	0.43
1:B:96:ASP:HA	1:B:99:ILE:HD12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:107:VAL:HG11	1:B:116:ARG:HH21	1.82	0.43
1:A:81:THR:O	1:A:82:ARG:CG	2.66	0.43
1:A:223:THR:O	1:A:227:PHE:HD1	2.01	0.43
1:B:235:VAL:O	1:B:239:GLU:CG	2.67	0.43
1:A:190:VAL:HG23	1:A:218:PHE:HE2	1.83	0.43
1:B:183:SER:O	1:B:187:LEU:HD13	2.18	0.43
1:A:96:ASP:HA	1:A:99:ILE:HD12	2.00	0.43
1:A:163:VAL:HG13	1:A:164:MET:N	2.34	0.43
1:A:114:VAL:HA	1:A:117:VAL:HG22	2.01	0.42
1:A:127:VAL:HA	1:A:133:LEU:HD12	2.01	0.42
1:A:195:SER:HG	1:A:199:GLY:HA3	1.84	0.42
1:B:59:PHE:CD1	1:B:60:TYR:N	2.87	0.42
1:B:190:VAL:HG23	1:B:218:PHE:HE2	1.83	0.42
1:B:114:VAL:HA	1:B:117:VAL:HG22	2.01	0.42
1:A:108:GLY:CA	1:A:112:VAL:HG22	2.45	0.42
1:A:186:THR:CG2	1:A:187:LEU:HD12	2.46	0.42
1:B:163:VAL:HG13	1:B:164:MET:N	2.34	0.42
1:B:210:TRP:HB2	1:B:213:ILE:HD12	2.02	0.42
1:B:150:ILE:CG1	1:B:229:LEU:HD13	2.49	0.42
1:B:57:ASP:O	1:B:60:TYR:HB3	2.20	0.42
1:B:108:GLY:HA2	1:B:112:VAL:CG2	2.46	0.42
1:B:125:ARG:HG3	1:B:129:VAL:CG2	2.48	0.42
1:B:166:THR:O	1:B:170:ARG:CB	2.68	0.42
1:B:60:TYR:HD2	1:B:61:LEU:HD12	1.85	0.41
1:A:107:VAL:HG11	1:A:116:ARG:HH21	1.82	0.41
1:B:125:ARG:O	1:B:129:VAL:HG23	2.21	0.41
1:A:230:PHE:O	1:A:234:ILE:HG13	2.20	0.41
1:A:56:GLN:CG	1:A:57:ASP:N	2.83	0.41
1:A:47:THR:CG2	1:A:48:TYR:N	2.84	0.41
1:B:108:GLY:CA	1:B:112:VAL:HG22	2.46	0.41
1:A:107:VAL:HG13	1:A:116:ARG:NH2	2.36	0.41
1:A:210:TRP:HB2	1:A:213:ILE:HD12	2.02	0.41
1:A:233:VAL:HG13	1:A:234:ILE:N	2.35	0.41
1:B:39:ASN:CG	1:B:66:ILE:HD13	2.41	0.41
1:B:185:ILE:HG23	1:B:186:THR:N	2.35	0.41
1:A:84:ARG:HG2	1:A:88:PHE:CE1	2.54	0.41
1:A:147:LEU:O	1:A:148:GLY:C	2.58	0.41
1:A:216:VAL:CG1	1:A:217:ALA:N	2.84	0.41
1:A:66:ILE:O	1:A:70:PHE:HD1	2.05	0.40
1:B:28:PHE:O	1:B:32:ILE:HG12	2.22	0.40
1:A:28:PHE:O	1:A:32:ILE:HG12	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:59:PHE:CD1	1:A:60:TYR:N	2.89	0.40
1:B:111:PHE:HB2	1:B:114:VAL:HG12	2.03	0.40
1:B:170:ARG:HB2	1:B:177:PHE:O	2.22	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	210/298 (70%)	195 (93%)	11 (5%)	4 (2%)	8	38
1	B	208/298 (70%)	195 (94%)	8 (4%)	5 (2%)	6	33
All	All	418/596 (70%)	390 (93%)	19 (4%)	9 (2%)	10	35

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	82	ARG
1	B	82	ARG
1	A	54	PRO
1	B	54	PRO
1	B	132	SER
1	B	131	PRO
1	A	109	ALA
1	A	131	PRO
1	B	109	ALA

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	188/265 (71%)	185 (98%)	3 (2%)	62	79
1	B	185/265 (70%)	182 (98%)	3 (2%)	62	79
All	All	373/530 (70%)	367 (98%)	6 (2%)	64	79

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	151	MET
1	A	154	MET
1	A	193	LEU
1	B	151	MET
1	B	154	MET
1	B	193	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	56	GLN
1	A	93	ASN
1	A	149	ASN
1	A	237	ASN
1	B	56	GLN
1	B	149	ASN
1	B	237	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no 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.

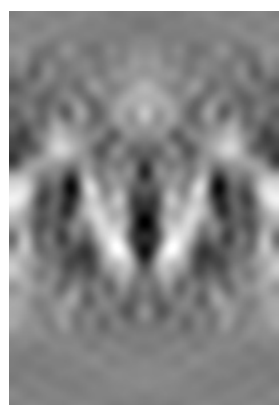
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-2347. These allow visual inspection of the internal detail of the map and identification of artifacts.

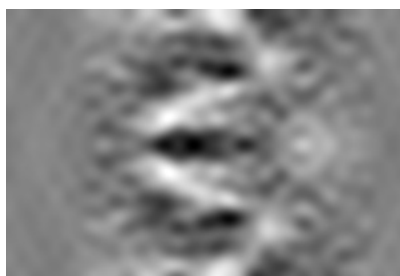
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

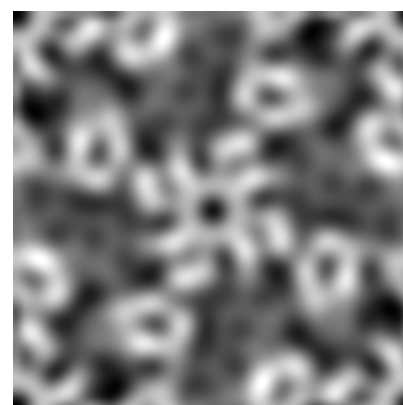
6.1.1 Primary map



X



Y



Z

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

6.2 Central slices [i](#)

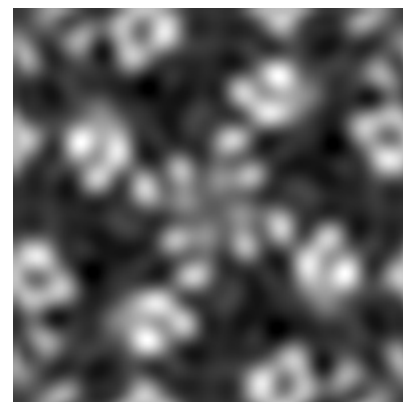
6.2.1 Primary map



X Index: 27



Y Index: 27

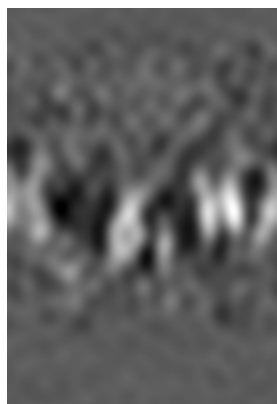


Z Index: 40

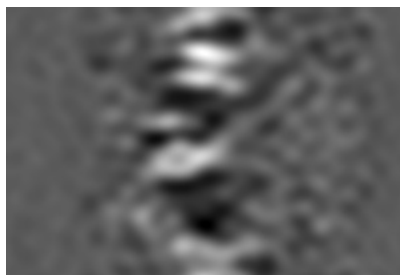
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

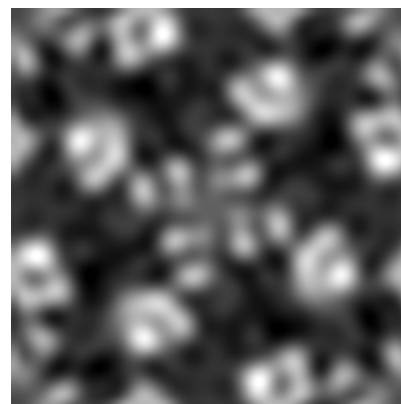
6.3.1 Primary map



X Index: 36



Y Index: 18



Z Index: 41

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

6.4 Orthogonal surface views [i](#)

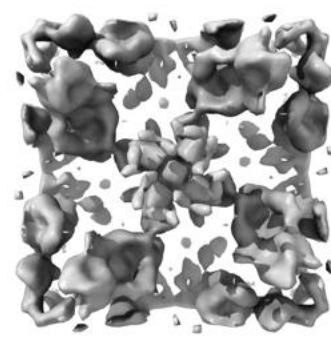
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.3. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

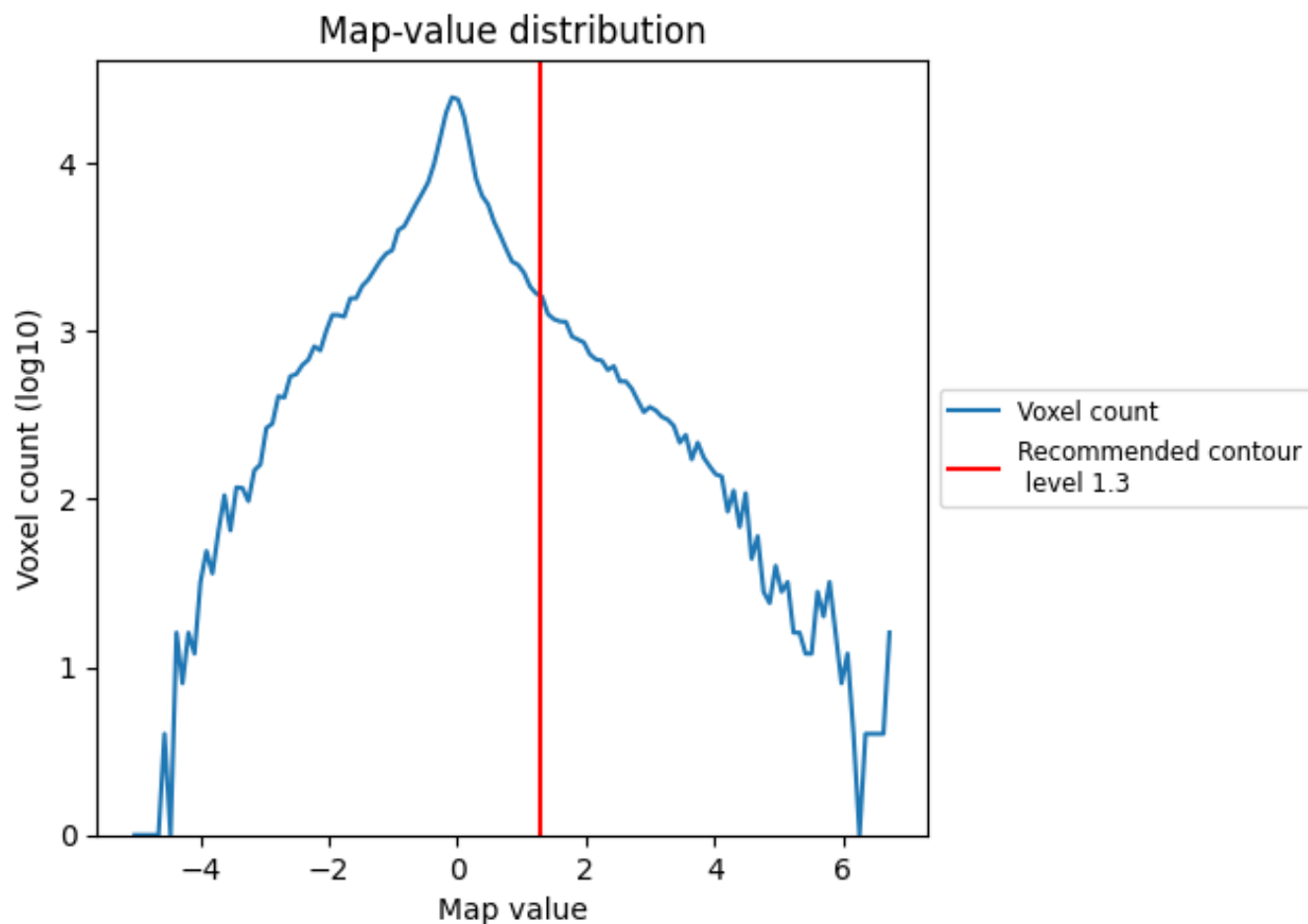
6.5 Mask visualisation

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

7 Map analysis [i](#)

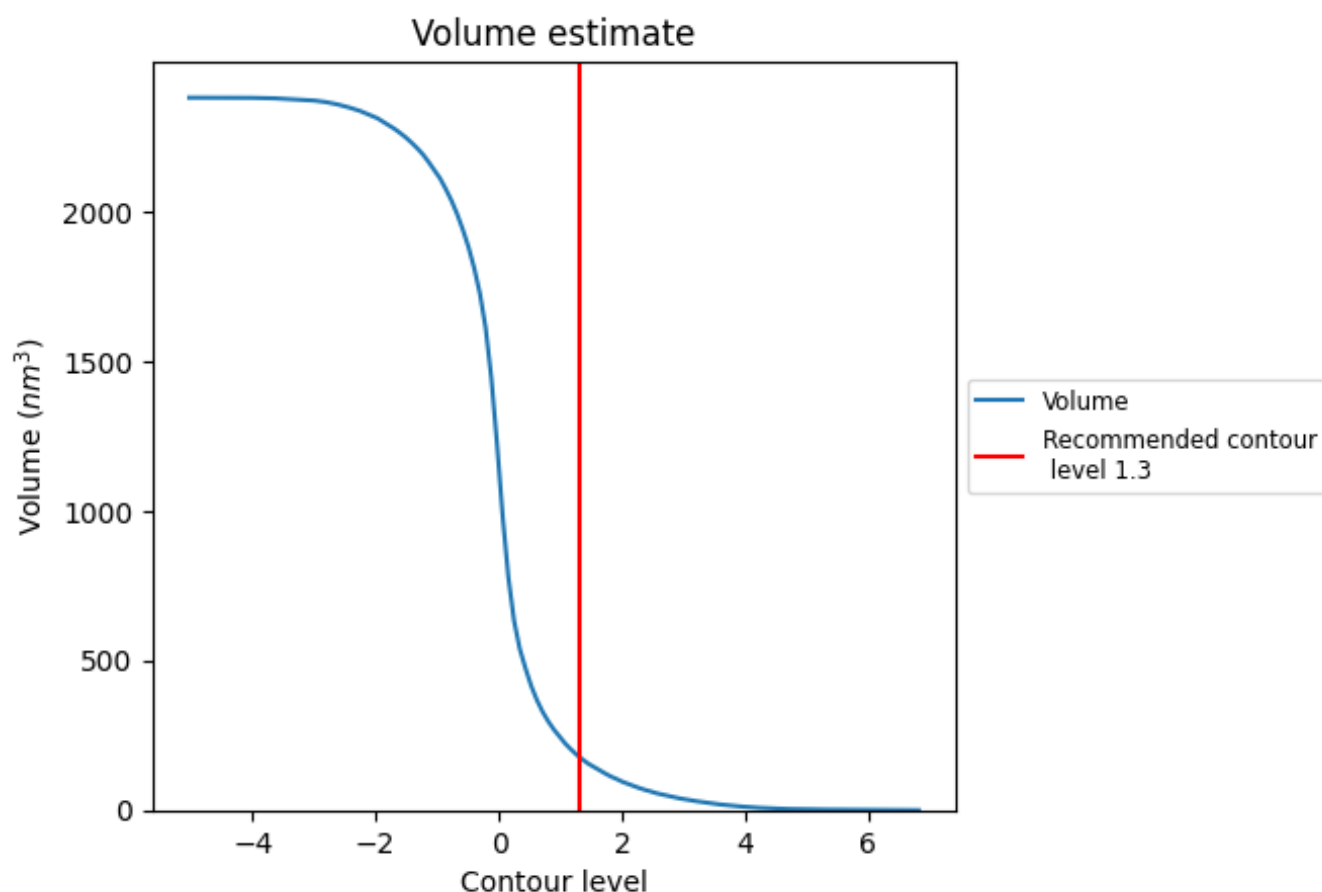
This section contains the results of statistical analysis of the map.

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 179 nm³; this corresponds to an approximate mass of 162 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](#)

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

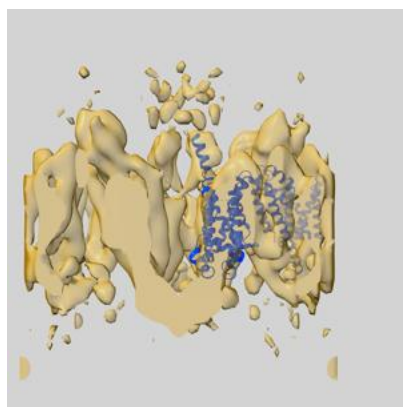
8 Fourier-Shell correlation ⓘ

This section was not generated. No FSC curve or half-maps provided.

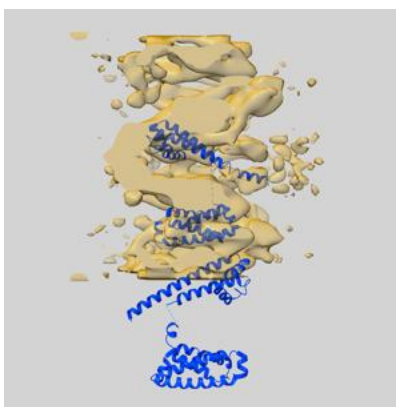
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-2347 and PDB model 4BGN. Per-residue inclusion information can be found in [section 3](#) on [page 4](#).

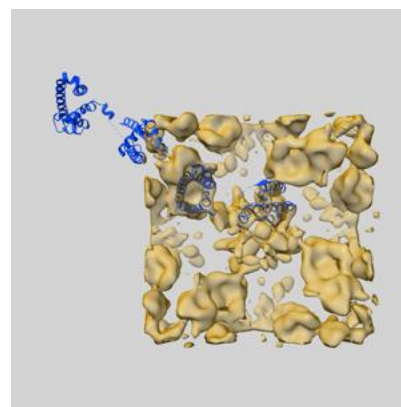
9.1 Map-model overlay [i](#)



X



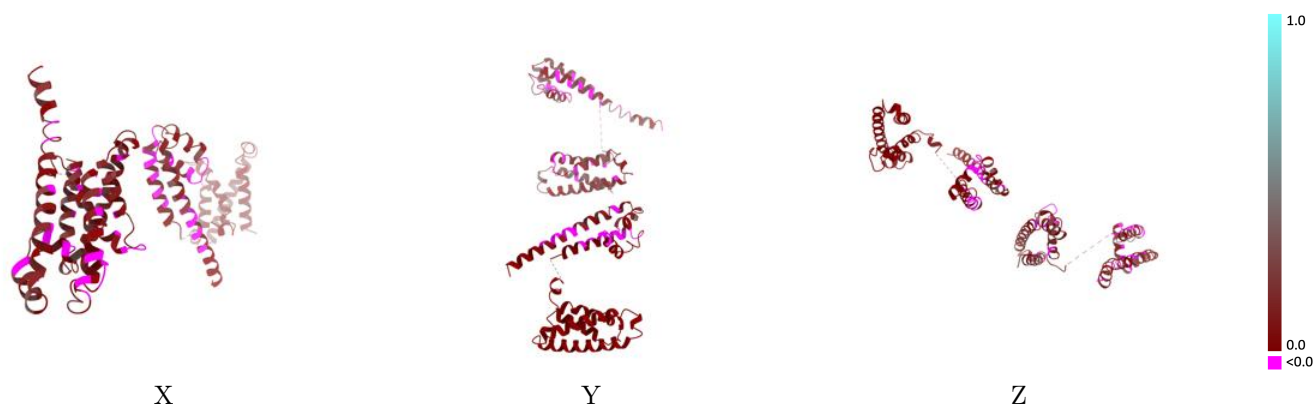
Y



Z

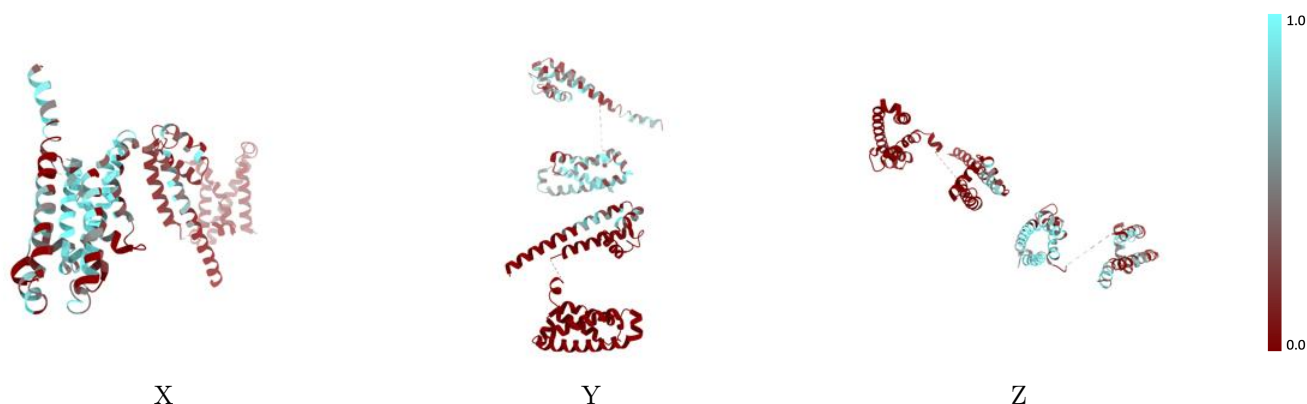
The images above show the 3D surface view of the map at the recommended contour level 1.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



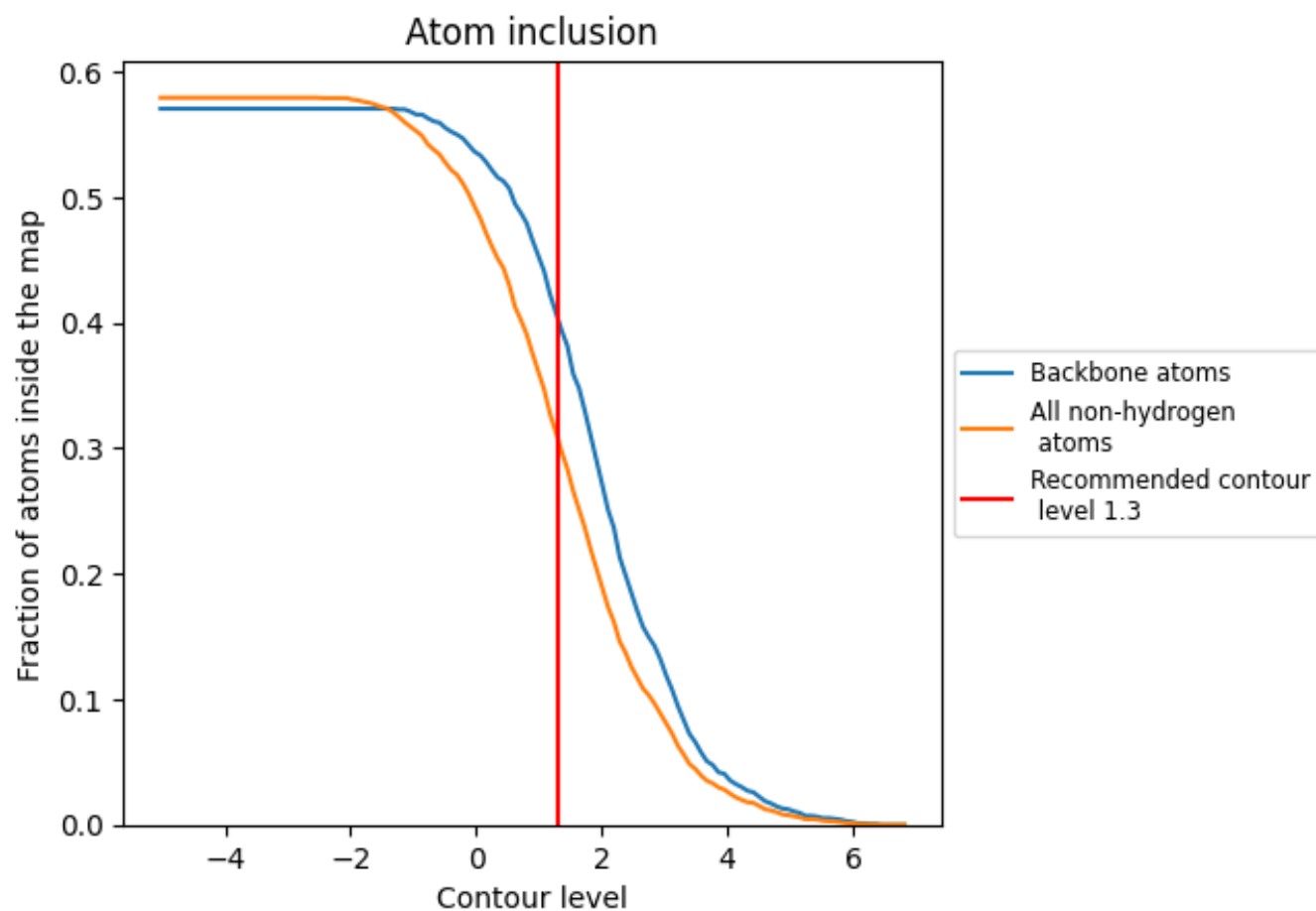
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (1.3).

9.4 Atom inclusion [i](#)



At the recommended contour level, 40% of all backbone atoms, 31% 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 (1.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.3079	<div></div> 0.0640
A	<div></div> 0.0682	<div></div> 0.0120
B	<div></div> 0.5498	<div></div> 0.1160

