Full wwPDB EM Validation Report (i)

Apr 8, 2024 – 04:29 PM JST

PDB ID	:	8WY9
EMDB ID	:	EMD-37920
Title	:	Cryo-EM structure of DSR2 apo (partial) complex
Authors	:	Zhang, J.T.; Jia, N.; Liu, X.Y.
Deposited on	:	2023-10-30
Resolution	:	2.57 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 (i) 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 (i)) were used in the production of this report:
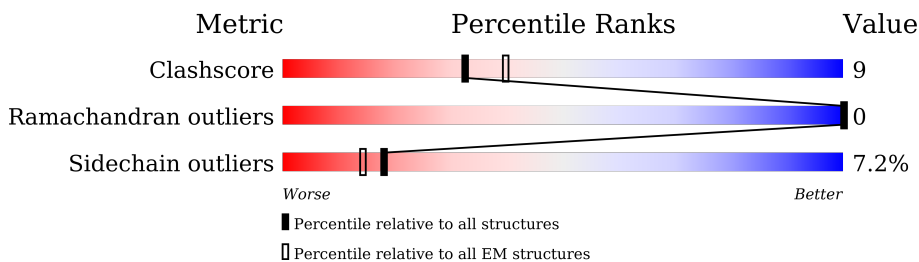
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.57 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	Percentile Ranks	Value
Clashscore		9
Ramachandran outliers		0
Sidechain outliers		7.2%

Worse *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures

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 <=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	1005	25% — 67% / 23% / 7%
1	B	1005	23% — 69% / 23% / 6%
1	C	1005	20% / 6% / 73%
1	D	1005	21% / 6% / 73%

2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 20129 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.
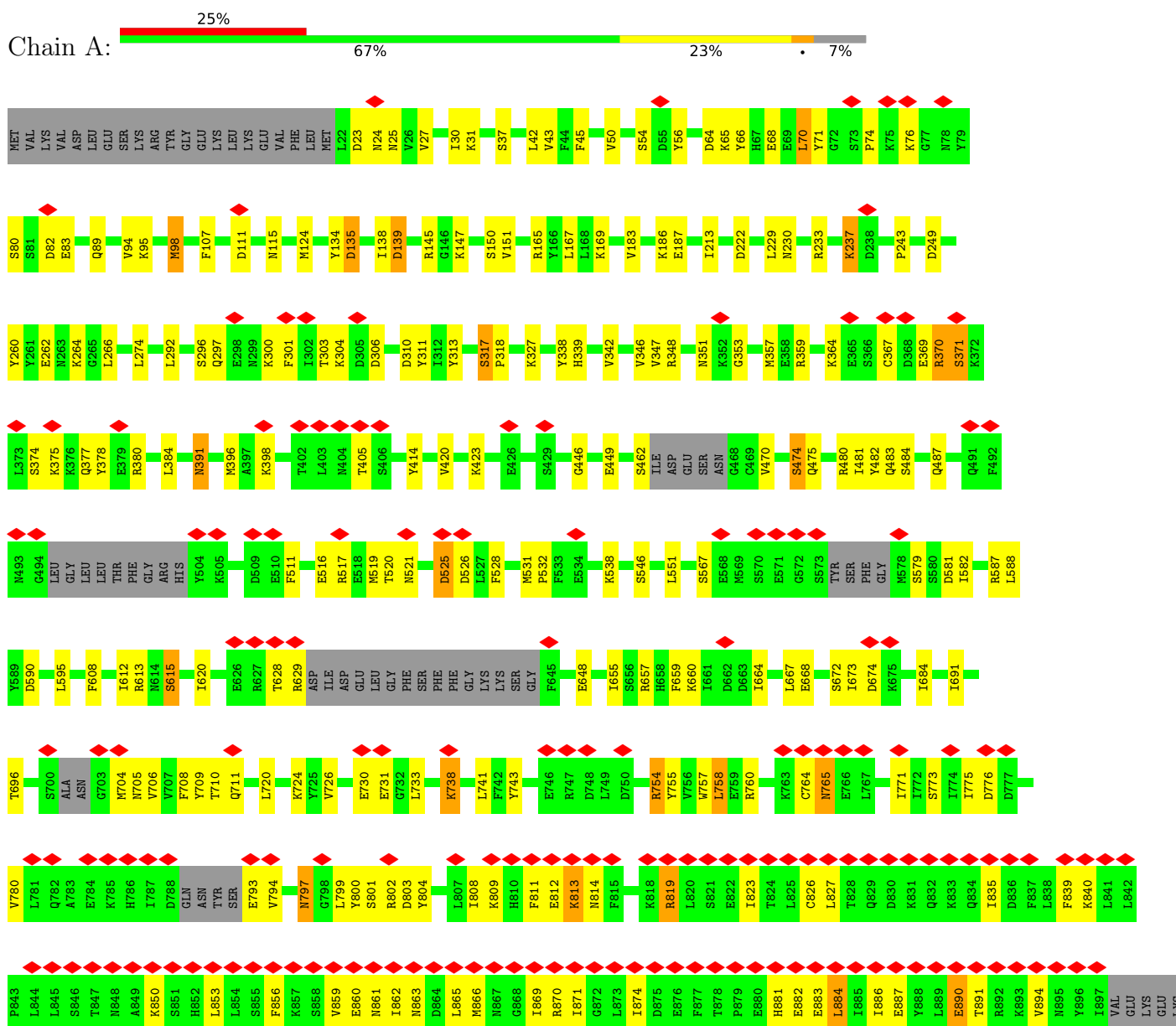
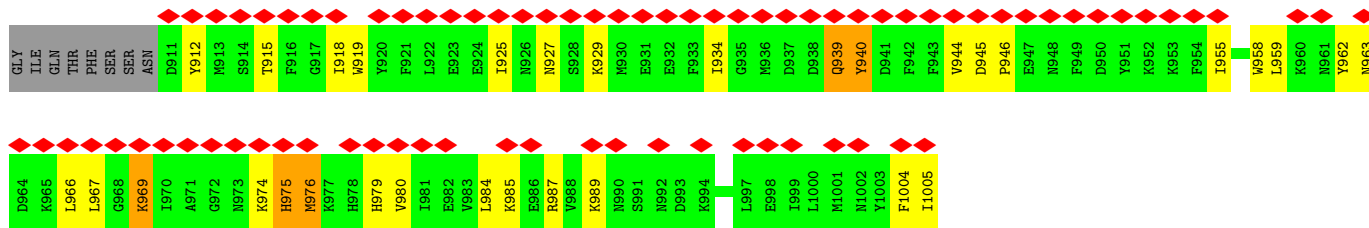- Molecule 1 is a protein called SIR2 family protein.

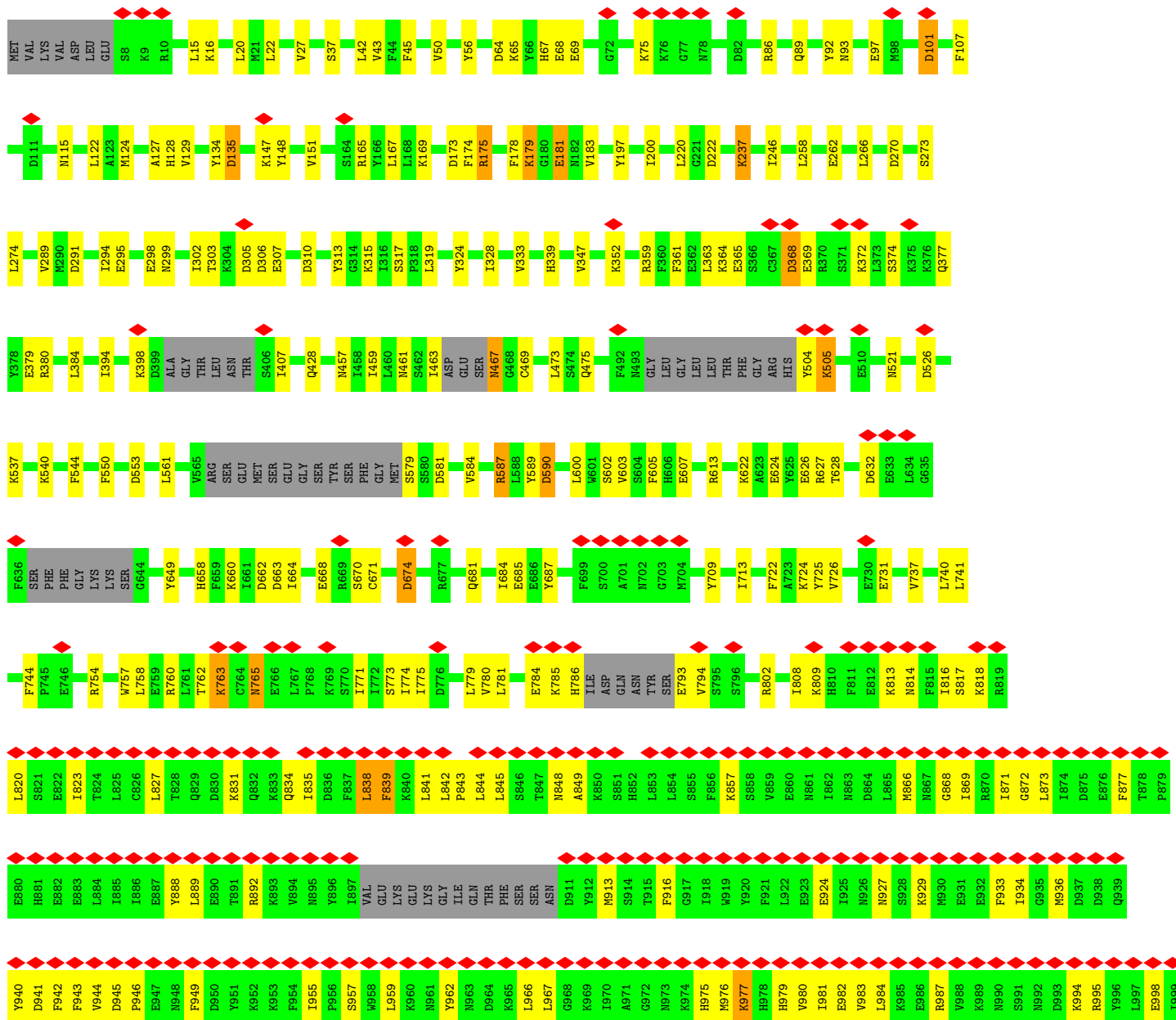| Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	932	Total	C	N	O	S	0	0
			7786	5042	1258	1455	31		
1	B	940	Total	C	N	O	S	0	0
			7869	5104	1270	1465	30		
1	C	272	Total	C	N	O	S	0	0
			2225	1435	362	421	7		
1	D	275	Total	C	N	O	S	0	0
			2249	1447	367	428	7		

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.
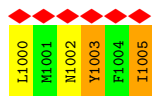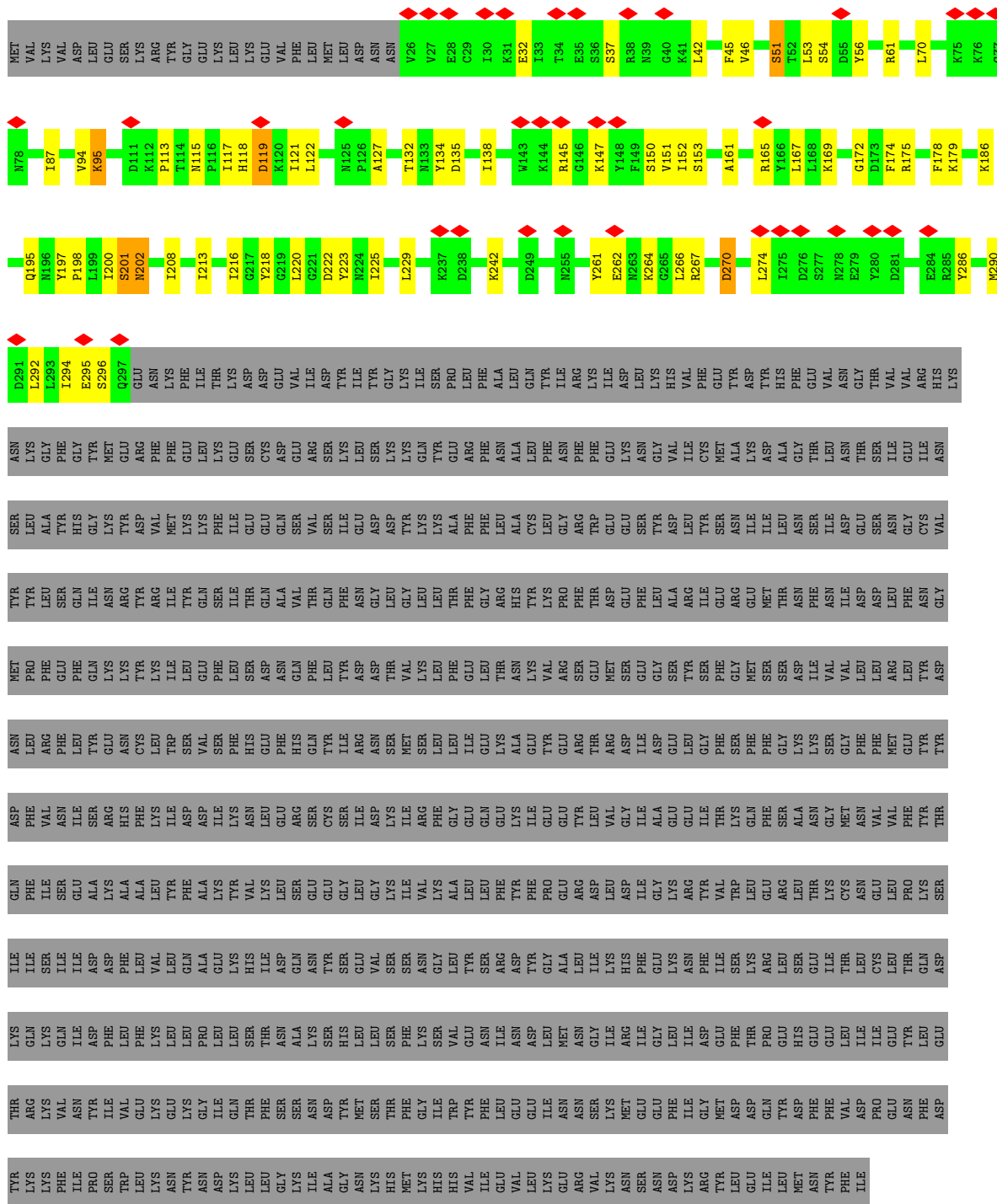
• Molecule 1: SIR2 family protein

• Molecule 1: SIR2 family protein

Chain B:

L1000 M1001 N1002 Y1003 F1004 I1005

• Molecule 1: SIR2 family protein

Chain C:

20%   6%   73%

MET VAL LYS VAL ASP LEU GLU SER LYS ARG TYR GLY GLU LYS LEU LYS GLU VAL PHE LEU MET LEU ASP ASN V26 V27 E28 C29 I30 K31 E32 I33 T34 E35 S36 S37 R38 N39 G40 K41 L42 F45 V46 S51 T52 L53 S54 D55 Y56 R61 L70 K75 K76 G77

N78 I87 V94 K95 D111 K112 P113 T114 N115 P116 I117 H118 D119 K120 I121 L122 N125 P126 A127 T132 N133 Y134 D135 I138 W143 K144 R145 G146 K147 Y148 F149 S150 V151 I152 S153 A161 R165 Y166 L167 L168 K169 G172 D173 F174 R175 F178 K179 K186

Q195 N196 Y197 P198 L199 I200 S201 N202 I208 I213 I216 G217 Y218 G219 L220 G221 D222 Y223 N224 I225 L229 K237 D238 K242 D249 N255 Y261 E262 N263 K264 G265 L266 R267 D270 L274 I275 D276 S277 N278 E279 Y280 D281 E284 R285 Y286 M290

D291 L292 L293 I294 E295 S296 Q297 GLU ASN LYS PHE ILE THR LYS ASP ASP VAL ILE LEU TYR ILE TYR GLY LYS ILE SER PRO LEU PHE ALA LEU GLN TYR ILE ARG LYS ASP LEU LYS HIS VAL PHE GLU TYR ASP TYR HIS PHE GLU VAL ASN GLY THR VAL VAL ARG HIS LYS

ASN LYS GLY PHE GLY TYR MET GLU ARG PHE PHE GLU ILE THR LYS ASP ASP VAL VAL GLN SER CYS ASP GLU LEU LYS GLU ILE GLU ARG SER LYS LEU SER LEU LYS GLN TYR GLU ARG PHE ASN ALA LEU GLU PHE ASN PHE GLU LYS ASN GLY VAL ILE CYS MET ALA LYS ASP ALA GLY THR LEU ASN SER ILE LEU ASP SER GLU ASN GLY THR SER ILE GLU ASP ASP LEU ASN GLY CYS VAL

SER LEU ALA TYR HIS GLY TYR ASP VAL MET LYS LYS PHE ILE GLU GLU SER CYS ASP GLU ARG SER VAL SER LEU GLU ASP ARG SER ILE GLU ASP TYR ARG ASP ALA LEU LEU LYS ARG THR LEU ASN SER ILE LEU ASP SER ILE LEU ASP ASP LEU ARG LEU TYR SER GLU ILE GLU ILE ASN SER GLY CYS VAL

TYR TYR LEU SER GLN ILE ILE ASN ARG GLY TYR ARG TYR ARG ILE LEU TYR GLN SER ILE GLU THR GLN ALA VAL THR GLN LEU PHE ASN GLY LEU GLY LEU PHE ASN GLY ARG HIS TYR LYS PRO PHE ASP PHE GLU LEU ARG ILE ARG MET THR ASN PHE ASN ILE ASP ASP LEU PHE ASN GLY

MET PRO PHE GLU PHE GLN PHE GLN LYS LYS TYR LYS LEU ILE LEU LEU PHE LEU SER ASP ASN GLN ASN PHE LEU ASP TYR ASP ASP THR VAL LYS LEU LEU PHE GLU GLY LEU ARG HIS TYR LYS PRO PHE THR ASP ASP GLU GLN PHE GLU ALA ARG ILE GLU ARG MET THR ASN PHE ASN ILE ASP ASP LEU PHE ASN GLY

ASN LEU ARG PHE LEU TYR GLU ASN CYS LEU TRP SER VAL SER PHE HIS GLU PHE HIS GLN LEU TYR ILE ARG ASN SER MET SER LEU LEU ILE GLU GLU LYS ALA GLU TYR GLU GLU THR ARG THR ARG ASP ILE ASP GLY LEU LEU PHE SER PHE GLY LYS LYS SER GLY PHE PHE MET GLU TYR TYR

ASP PHE VAL ASN ILE SER ARG HIS PHE LYS ILE ASP ASP ILE LYS ASN LEU GLU ARG SER CYS SER ILE ASP LYS ILE ARG PHE GLY GLU GLN GLU LYS ILE GLU GLU LYS THR LYS GLN PHE SER ALA ASN GLY MET ASN VAL VAL PHE TYR THR

GLN PHE ILE SER GLU ALA LYS ALA LEU TYR PHE ALA LYS TYR VAL LYS LEU SER GLU GLY GLY LYS ILE VAL LYS ALA LEU LEU PHE TYR PHE PRO GLU GLU ARG ASP LEU ASP ILE GLY LYS ARG VAL TRP LEU GLU ARG LEU GLU THR LYS ASN GLU LEU GLU LEU PRO LYS SER

ILE ILE SER ILE ASP ASP PHE LEU VAL LEU GLN ALA GLU LYS HIS LEU ASP GLN ASN TYR SER GLU VAL SER ASN GLY TYR SER ARG ASP TYR ALA LEU ILE LYS LYS HIS PHE GLU LYS ASN PHE ILE SER LYS ARG LEU SER GLU ILE THR LEU CYS LEU THR GLN ASP

LYS GLN LYS GLN ILE ASP ASP PHE LEU PHE LYS LEU LEU PRO LEU LEU LYS THR ASN ALA LYS HIS LEU LEU LEU SER PHE GLY ILE SER VAL LEU TRP TYR PHE LEU GLU LEU GLU ILE ASN ASN SER MET GLY ILE ILE ARG ILE LEU GLY LEU LEU ASP GLU PHE THR PRO GLU HIS GLU GLU LEU ILE GLU GLY TYR LEU GLU

THR ARG LYS VAL ASN TYR ILE VAL GLU GLY LYS GLY ILE GLN THR PHE SER SER ASN ASP TYR MET SER THR PHE GLY ILE TRP TYR PHE LEU GLU LEU GLU ILE ASN ASN SER MET GLU GLU PHE ILE GLY MET ASP GLN GLN TYR ASP PHE PHE VAL ASP PRO GLU ASN PHE ASP

TYR LYS LYS PHE ILE PRO SER TRP LEU ASN TYR ASP LYS LEU GLY LYS ILE ALA GLY ASN LYS MET LYS HIS VAL ILE GLU VAL LEU GLU GLU VAL ARG LYS ASN SER ASP LYS ARG TYR LEU GLU ILE LEU MET ASN TYR PHE ILE

• Molecule 1: SIR2 family protein

Chain D:

21%   6%   73%

MET VAL LYS VAL ASP LEU GLU SER LYS ARG TYR GLY GLU LYS LEU GLU VAL PHE LEU MET LEU D23 N24 N25 V26 V27 E28 C29 I30 K31 E32 I33 T34 E35 S36 S37 R38 N39 G40 K41 L42 F45 V46 D55 Y56 P57 Q58 W59 W60 K65 K76 G77 N78 D82

R86 I90 V94 K95 I103 L104 K105 D106 F107 D111 D119 M124 A127 Y134 D135 D139 W143 K144 R145 G146 K147 Y148 V151 I152 S153 A154 E155 N160 S163 L167 L168 K169 G172 N192 N196 Y197 P198 L199 I200 S201 N202

I208 I213 I216 D222 I225 N226 M227 L228 L229 D238 P243 F244 F245 T257 L258 I259 E262 N263 K264 G265 L266 R267 L274 I275 D276 S277 N278 E279 Y280 D291 L292 L293 I294 E295 S296 Q297 GLU ASN LYS PHE ILE THR LYS ASP ASP GLU VAL ILE ASP TYR

ILE TYR GLY LYS ILE SER PRO LEU PHE ALA LEU GLN ILE ARG LYS ILE ASP LEU LYS HIS VAL PHE GLU TYR ASP HIS PHE GLU VAL ASN SER GLY VAL ILE CYS MET ALA LYS ASP ALA GLY THR LEU ASN THR VAL VAL ARG HIS LYS ASN LYS GLY PHE GLY TYR MET GLU ARG PHE PHE GLU LEU LYS GLU ILE GLU SER CYS ASP ARG SER

LYS LEU SER LYS GLN TYR GLU ARG PHE ASN ALA LEU PHE ASN PHE PHE GLU LYS ASN GLY VAL ILE CYS MET ALA LYS ASP ALA GLY THR LEU ASN LEU ASN SER ILE GLU ILE LEU ASN GLY VAL CYS VAL TYR TYR LEU SER GLN ILE ASN ARG TYR ILE ARG TYR GLN SER ILE THR GLN ALA VAL THR GLN

ILE GLU ASP ASP TYR LYS LYS LYS ALA PHE PHE LEU ALA CYS LEU GLY ARG TRP GLU GLU SER TYR ASP LEU TYR SER ASN ILE ILE LEU ASN SER ILE ASP GLU GLU SER ASN GLY CYS VAL TYR TYR LEU SER GLN ILE ASN ARG ILE SER ARG ILE THR GLN ALA VAL THR GLN

PHE ASN GLY LEU GLY LEU LEU THR PHE GLY ARG HIS TYR LYS PRO PHE THR ASP GLU PHE LEU ALA ARG ILE GLU ARG GLU MET THR ASN PHE ASN ILE ASP ASP LEU PHE ASN GLY MET PRO PHE GLU GLN LYS LYS TYR LYS ILE LEU GLU PHE LEU SER ASP ASN GLN PHE LEU

TYR ASP ASP THR VAL LYS LEU PHE GLU LEU THR ASN LYS VAL ARG SER GLU MET SER GLU GLY SER TYR SER PHE SER PHE GLY MET SER SER ASP ILE VAL LEU LEU ARG LEU LEU TYR ASP ASN LEU ARG PHE LEU TYR GLU GLN ASN CYS LEU TRP SER VAL SER PHE HIS GLU PHE HIS GLN TYR

ILE ARG ASN SER MET SER LEU LEU ILE GLU LYS ALA GLU GLU TYR GLU ARG THR ARG ASP GLU ILE ASP GLU LEU GLY PHE SER PHE PHE GLY LYS LYS SER GLY PHE MET GLU TYR TYR ASP SER PHE VAL ASN ILE SER ARG HIS PHE LYS ILE ASP ASP ILE LYS ASN LEU GLU ARG SER CYS

SER ILE ASP LYS ILE ARG PHE GLY GLU GLN GLN LYS ILE GLU ALA GLU ILE THR LYS GLN PHE GLU GLY ARG LEU ASP THR LYS CYS ASN GLU LEU VAL VAL PHE THR THR GLN PHE ILE SER GLU ALA LYS ALA ALA LEU TYR PHE ALA LYS TYR VAL LYS LEU SER GLU GLU

GLY LEU GLY LYS ILE VAL LYS ALA LEU LEU PHE TYR PRO GLU ARG ASP LEU ASP ILE GLY LYS ARG TYR VAL TRP GLU GLU ARG LEU THR LYS CYS ASN GLU GLU LEU PRO LYS SER ILE ILE SER ILE LEU ASP PHE ASP PHE VAL LEU GLN ALA GLU GLU HIS ILE LYS ASP GLN ASN TYR

SER GLU VAL SER ASN GLY LEU TYR SER ARG ASP TYR GLY ALA LEU ILE LYS HIS PHE GLU LYS ASN PHE ILE SER LYS ARG LEU ASP SER ILE THR LEU CYS LEU THR GLN ASP LYS GLN LYS ILE GLU ASP PHE LEU PHE LEU PRO LEU LEU SER THR ASN ALA LYS SER

HIS LEU LEU SER PHE LYS SER VAL GLU ASN ILE ASN ASP LEU MET ASN GLY ILE ARG ILE GLY LEU ILE ASP GLU PHE THR PRO GLU HIS GLU GLU LEU ILE ILE GLU TYR LEU THR THR ARG VAL LYS ASN TYR ILE VAL LYS GLU GLY LYS THR PHE SER ASN ASP

TYR MET SER THR PHE GLY ILE TRP TYR PHE LEU GLU GLU ILE ASN ASN SER MET GLU GLU PHE ILE GLY MET ASP ASP GLN TYR ASP PHE VAL ASP PRO GLU ASN PHE ASP TYR LYS PHE ILE PRO SER TRP LEU ASN TYR ASN ASP LEU LYS ASN TYR ASN ASP LEU LEU LYS ILE ALA

GLY ASN LYS HIS MET LYS HIS HIS VAL ILE GLU VAL LEU LYS GLU ARG VAL LYS ASN SER ASN ASP LYS ARG TYR LEU GLU ILE LEU LEU MET ASN TYR PHE ILE

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	364318	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/Å^2)$	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.634	Depositor
Minimum map value	-1.378	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.048	Depositor
Recommended contour level	0.5	Depositor
Map size (Å)	380.42, 380.42, 380.42	wwPDB
Map dimensions	460, 460, 460	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.827, 0.827, 0.827	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	0.25	0/7962	0.45	0/10719
1	B	0.25	0/8048	0.44	1/10833 (0.0%)
1	C	0.25	0/2280	0.44	0/3090
1	D	0.25	0/2304	0.45	0/3123
All	All	0.25	0/20594	0.45	1/27765 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	838	LEU	CA-CB-CG	5.28	127.45	115.30

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	7786	0	7635	158	0
1	B	7869	0	7726	146	0
1	C	2225	0	2175	39	0
1	D	2249	0	2191	35	0
All	All	20129	0	19727	371	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 (371) 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:470:VAL:O	1:A:474:SER:OG	2.09	0.71
1:A:839:PHE:HA	1:A:853:LEU:HD21	1.72	0.71
1:B:467:ASN:N	1:B:467:ASN:HD22	1.90	0.69
1:A:139:ASP:OD1	1:A:139:ASP:N	2.25	0.69
1:A:724:LYS:HD2	1:A:760:ARG:HG2	1.76	0.68
1:A:94:VAL:HG22	1:D:259:ILE:HD11	1.75	0.67
1:A:348:ARG:HE	1:A:351:ASN:HB3	1.59	0.67
1:B:306:ASP:HB2	1:B:377:GLN:HG2	1.77	0.67
1:D:153:SER:HB3	1:D:169:LYS:HB2	1.75	0.67
1:C:122:LEU:O	1:C:147:LYS:NZ	2.27	0.66
1:A:733:LEU:HD22	1:A:765:ASN:HD22	1.61	0.66
1:B:984:LEU:HB3	1:B:1000:LEU:HD12	1.77	0.66
1:A:802:ARG:HB3	1:A:840:LYS:HB3	1.76	0.66
1:B:934:ILE:HG23	1:B:941:ASP:HB3	1.78	0.66
1:B:741:LEU:HA	1:B:754:ARG:HD3	1.78	0.65
1:B:64:ASP:O	1:B:68:GLU:HG3	1.97	0.65
1:B:765:ASN:N	1:B:765:ASN:OD1	2.29	0.65
1:A:480:ARG:NH2	1:A:546:SER:O	2.30	0.65
1:C:53:LEU:HD23	1:C:115:ASN:HD22	1.61	0.65
1:B:622:LYS:O	1:B:626:GLU:HG2	1.97	0.64
1:D:153:SER:HB2	1:D:172:GLY:HA2	1.79	0.64
1:B:407:ILE:HD13	1:B:589:TYR:HB3	1.80	0.64
1:B:16:LYS:HE3	1:B:303:THR:HG22	1.80	0.63
1:A:516:GLU:O	1:A:520:THR:HG23	1.99	0.62
1:B:785:LYS:HD3	1:B:786:HIS:HD2	1.64	0.62
1:C:119:ASP:OD2	1:C:145:ARG:NH1	2.33	0.62
1:B:724:LYS:HB2	1:B:760:ARG:HB3	1.82	0.62
1:A:684:ILE:HG21	1:A:726:VAL:HG21	1.80	0.61
1:B:998:GLU:OE2	1:B:1002:ASN:ND2	2.33	0.61
1:A:860:GLU:OE2	1:A:861:ASN:ND2	2.34	0.60
1:B:834:GLN:O	1:B:838:LEU:HD23	2.01	0.60
1:C:135:ASP:O	1:C:169:LYS:NZ	2.33	0.60
1:A:881:HIS:HA	1:A:884:LEU:HD12	1.82	0.60
1:A:342:VAL:HG11	1:A:587:ARG:HG3	1.83	0.60
1:A:327:LYS:NZ	1:A:391:ASN:O	2.35	0.60
1:B:359:ARG:O	1:B:363:LEU:HD12	2.01	0.60
1:C:197:TYR:O	1:C:201:SER:OG	2.19	0.60
1:B:15:LEU:HD11	1:B:291:ASP:HB3	1.84	0.60
1:B:291:ASP:O	1:B:295:GLU:HG2	2.01	0.60
1:B:684:ILE:HG21	1:B:726:VAL:HG21	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:588:LEU:HD13	1:A:615:SER:HB2	1.84	0.59
1:B:731:GLU:OE1	1:B:731:GLU:N	2.29	0.59
1:C:42:LEU:O	1:C:127:ALA:N	2.35	0.59
1:A:741:LEU:HD11	1:A:775:ILE:HG22	1.83	0.59
1:A:962:TYR:HB3	1:A:966:LEU:HD11	1.83	0.59
1:B:561:LEU:HD11	1:B:584:VAL:HG11	1.85	0.58
1:C:151:VAL:HG22	1:C:167:LEU:HD23	1.85	0.58
1:B:602:SER:HA	1:B:605:PHE:HD1	1.69	0.58
1:A:793:GLU:OE2	1:A:801:SER:OG	2.22	0.57
1:A:367:CYS:O	1:A:371:SER:OG	2.22	0.57
1:B:20:LEU:HD21	1:B:303:THR:HG21	1.86	0.57
1:A:771:ILE:O	1:A:775:ILE:HG23	2.05	0.57
1:D:151:VAL:HG22	1:D:167:LEU:HD23	1.87	0.57
1:D:139:ASP:OD1	1:D:139:ASP:N	2.36	0.57
1:A:37:SER:OG	1:A:124:MET:O	2.19	0.56
1:A:980:VAL:HG21	1:A:1005:ILE:HG22	1.87	0.56
1:A:985:LYS:O	1:A:989:LYS:HD3	2.06	0.56
1:C:229:LEU:HD13	1:C:264:LYS:HB3	1.87	0.56
1:B:980:VAL:HA	1:B:983:VAL:HG22	1.87	0.56
1:C:94:VAL:HG23	1:C:95:LYS:HD2	1.87	0.56
1:B:310:ASP:OD1	1:B:380:ARG:NH1	2.38	0.56
1:A:66:TYR:O	1:A:70:LEU:HD23	2.06	0.56
1:A:54:SER:OG	1:A:115:ASN:ND2	2.39	0.56
1:A:364:LYS:O	1:A:370:ARG:NH2	2.39	0.55
1:B:967:LEU:HD22	1:B:1005:ILE:HD13	1.88	0.55
1:C:115:ASN:OD1	1:C:118:HIS:ND1	2.40	0.55
1:A:705:ASN:HB3	1:A:708:PHE:HB3	1.87	0.55
1:C:121:ILE:HD11	1:C:216:ILE:HD13	1.88	0.55
1:A:579:SER:HB3	1:A:582:ILE:HD12	1.89	0.55
1:A:840:LYS:HA	1:A:871:ILE:HD11	1.88	0.55
1:B:89:GLN:NE2	1:B:93:ASN:OD1	2.40	0.55
1:B:741:LEU:HD12	1:B:774:ILE:HG22	1.89	0.55
1:C:46:VAL:HG11	1:C:138:ILE:HD11	1.87	0.55
1:A:866:MET:O	1:A:869:ILE:HG13	2.07	0.55
1:C:51:SER:OG	1:C:135:ASP:OD2	2.20	0.54
1:D:23:ASP:HB3	1:D:26:VAL:HG23	1.88	0.54
1:C:117:ILE:HD12	1:C:286:TYR:HB3	1.89	0.54
1:A:628:THR:O	1:A:629:ARG:NE	2.40	0.54
1:A:963:ASN:O	1:A:967:LEU:HB2	2.07	0.54
1:D:42:LEU:O	1:D:127:ALA:N	2.39	0.54
1:A:304:LYS:HG3	1:A:306:ASP:OD1	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:324:TYR:OH	1:B:590:ASP:OD2	2.20	0.53
1:A:588:LEU:HD11	1:A:612:ILE:HG23	1.91	0.53
1:A:339:HIS:HB2	1:A:347:VAL:HB	1.90	0.53
1:A:946:PRO:HG2	1:A:975:HIS:HB3	1.91	0.53
1:D:65:LYS:HG3	1:D:103:ILE:HD13	1.89	0.53
1:A:446:GLY:HA3	1:A:708:PHE:HB2	1.91	0.53
1:B:361:PHE:O	1:B:365:GLU:HG2	2.08	0.53
1:B:579:SER:OG	1:B:581:ASP:OD1	2.27	0.53
1:B:624:GLU:OE1	1:B:627:ARG:NH1	2.40	0.53
1:A:827:LEU:HD13	1:A:835:ILE:HG23	1.92	0.52
1:A:946:PRO:HG3	1:A:976:MET:HE2	1.90	0.52
1:A:27:VAL:HG12	1:A:31:LYS:HE3	1.92	0.52
1:A:230:ASN:O	1:A:233:ARG:HG2	2.10	0.52
1:A:918:ILE:HD11	1:A:966:LEU:HD22	1.91	0.52
1:A:755:TYR:HB2	1:A:804:TYR:CE1	2.44	0.52
1:B:319:LEU:HD11	1:B:333:VAL:HG21	1.90	0.52
1:D:37:SER:OG	1:D:124:MET:O	2.28	0.52
1:A:480:ARG:NH1	1:A:483:GLN:OE1	2.37	0.52
1:B:270:ASP:OD2	1:B:273:SER:OG	2.28	0.52
1:B:467:ASN:N	1:B:467:ASN:ND2	2.58	0.52
1:B:129:VAL:HB	1:B:167:LEU:HD23	1.91	0.51
1:A:374:SER:HB3	1:A:377:GLN:HG3	1.92	0.51
1:B:941:ASP:HA	1:B:944:VAL:HG22	1.92	0.51
1:D:56:TYR:CZ	1:D:135:ASP:HB3	2.46	0.51
1:A:664:ILE:O	1:A:668:GLU:HG3	2.11	0.51
1:A:145:ARG:HG2	1:A:145:ARG:HH11	1.75	0.50
1:B:980:VAL:HG21	1:B:1005:ILE:HG22	1.93	0.50
1:B:313:TYR:O	1:B:317:SER:OG	2.18	0.50
1:A:967:LEU:HG	1:A:1005:ILE:HD11	1.93	0.50
1:B:151:VAL:HG13	1:B:167:LEU:HD12	1.92	0.50
1:B:868:GLY:HA2	1:B:871:ILE:HG22	1.92	0.50
1:C:56:TYR:CZ	1:C:135:ASP:HB3	2.46	0.50
1:A:579:SER:OG	1:A:581:ASP:OD2	2.22	0.50
1:A:915:THR:O	1:A:918:ILE:HG22	2.11	0.50
1:B:868:GLY:O	1:B:872:GLY:N	2.45	0.50
1:C:197:TYR:HD2	1:C:200:ILE:HG13	1.76	0.50
1:D:197:TYR:HD2	1:D:200:ILE:HG13	1.76	0.50
1:A:297:GLN:OE1	1:B:521:ASN:ND2	2.45	0.50
1:D:139:ASP:OD2	1:D:169:LYS:NZ	2.38	0.50
1:C:115:ASN:OD1	1:C:115:ASN:N	2.43	0.50
1:D:291:ASP:OD1	1:D:292:LEU:N	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:737:VAL:HG11	1:B:771:ILE:HG23	1.94	0.49
1:A:979:HIS:CE1	1:A:980:VAL:HG13	2.48	0.49
1:B:197:TYR:HD2	1:B:200:ILE:HD12	1.77	0.49
1:A:313:TYR:O	1:A:317:SER:OG	2.23	0.49
1:B:37:SER:HB2	1:B:42:LEU:HD22	1.94	0.49
1:B:979:HIS:O	1:B:982:GLU:HG3	2.11	0.49
1:A:313:TYR:HA	1:A:384:LEU:HD21	1.93	0.49
1:A:827:LEU:HD13	1:A:835:ILE:HG12	1.95	0.49
1:A:811:PHE:O	1:A:812:GLU:HG3	2.13	0.49
1:A:338:TYR:CZ	1:A:357:MET:HB2	2.48	0.48
1:C:152:ILE:HD11	1:C:161:ALA:HB2	1.95	0.48
1:A:741:LEU:HA	1:A:754:ARG:HD3	1.94	0.48
1:A:882:GLU:HG2	1:A:927:ASN:HB2	1.95	0.48
1:B:50:VAL:O	1:B:115:ASN:ND2	2.45	0.48
1:B:92:TYR:CZ	1:B:97:GLU:HG3	2.48	0.48
1:B:681:GLN:HG2	1:B:726:VAL:HG13	1.95	0.48
1:D:155:GLU:HG3	1:D:199:LEU:HD12	1.95	0.48
1:B:758:LEU:O	1:B:762:THR:HG23	2.14	0.48
1:B:169:LYS:HD2	1:B:173:ASP:HB3	1.96	0.48
1:A:71:TYR:HH	1:D:257:THR:HG1	1.62	0.48
1:D:225:ILE:HG13	1:D:245:PHE:HE1	1.78	0.48
1:A:976:MET:HB2	1:A:979:HIS:CE1	2.49	0.48
1:A:927:ASN:O	1:A:929:LYS:NZ	2.41	0.48
1:B:827:LEU:HD13	1:B:835:ILE:HD13	1.95	0.48
1:B:674:ASP:OD1	1:B:674:ASP:N	2.38	0.47
1:A:526:ASP:OD1	1:A:526:ASP:N	2.39	0.47
1:C:267:ARG:HH11	1:C:267:ARG:HG2	1.79	0.47
1:A:68:GLU:HG2	1:A:74:PRO:HD3	1.97	0.47
1:A:151:VAL:HG22	1:A:167:LEU:HD23	1.96	0.47
1:A:755:TYR:HB2	1:A:804:TYR:CZ	2.49	0.47
1:B:816:ILE:HG22	1:B:818:LYS:HE2	1.96	0.47
1:C:208:ILE:HG23	1:C:213:ILE:HG13	1.96	0.47
1:D:229:LEU:HD13	1:D:264:LYS:HD3	1.96	0.47
1:A:874:ILE:HD12	1:A:874:ILE:O	2.15	0.47
1:B:786:HIS:HE2	1:B:793:GLU:HG3	1.79	0.47
1:A:890:GLU:O	1:A:894:VAL:HG13	2.15	0.47
1:B:544:PHE:HD2	1:B:550:PHE:HB2	1.78	0.47
1:B:946:PRO:HG3	1:B:976:MET:HE2	1.96	0.47
1:C:54:SER:OG	1:C:113:PRO:O	2.24	0.47
1:C:70:LEU:HD12	1:C:87:ILE:HG23	1.96	0.47
1:B:995:ARG:HD2	1:B:995:ARG:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:955:ILE:HG22	1:B:957:SER:H	1.80	0.47
1:A:56:TYR:CZ	1:A:135:ASP:HB3	2.50	0.47
1:A:775:ILE:HD11	1:A:808:ILE:HG12	1.97	0.47
1:B:457:ASN:OD1	1:B:461:ASN:ND2	2.48	0.46
1:B:888:TYR:OH	1:B:892:ARG:NH1	2.48	0.46
1:B:537:LYS:HB3	1:B:537:LYS:HE2	1.63	0.46
1:A:620:ILE:HD11	1:A:655:ILE:HD11	1.97	0.46
1:B:977:LYS:O	1:B:981:ILE:HG12	2.14	0.46
1:B:842:LEU:HA	1:B:845:LEU:HD23	1.96	0.46
1:C:222:ASP:OD2	1:C:223:TYR:N	2.48	0.46
1:D:86:ARG:O	1:D:90:ILE:HG13	2.15	0.46
1:A:706:VAL:O	1:A:710:THR:HG23	2.16	0.46
1:A:797:ASN:ND2	1:A:797:ASN:H	2.14	0.46
1:B:65:LYS:NZ	1:B:69:GLU:OE2	2.41	0.46
1:A:310:ASP:OD1	1:A:380:ARG:NH1	2.48	0.46
1:B:780:VAL:O	1:B:784:GLU:HG3	2.15	0.46
1:D:30:ILE:HG12	1:D:292:LEU:HD23	1.98	0.46
1:A:318:PRO:HB3	1:A:538:LYS:HE3	1.98	0.45
1:B:305:ASP:C	1:B:307:GLU:H	2.19	0.45
1:D:208:ILE:HA	1:D:213:ILE:HD11	1.98	0.45
1:A:50:VAL:O	1:A:115:ASN:ND2	2.46	0.45
1:A:229:LEU:HD21	1:A:266:LEU:HG	1.98	0.45
1:A:730:GLU:CD	1:A:730:GLU:H	2.20	0.45
1:B:889:LEU:HD21	1:B:916:PHE:HD2	1.81	0.45
1:B:299:ASN:HB3	1:B:302:ILE:HD12	1.97	0.45
1:B:820:LEU:O	1:B:823:ILE:HG13	2.16	0.45
1:A:71:TYR:OH	1:D:257:THR:OG1	2.32	0.45
1:B:1003:TYR:HB2	1:B:1005:ILE:HD11	1.99	0.45
1:A:237:LYS:HE2	1:A:237:LYS:HB2	1.60	0.45
1:B:42:LEU:O	1:B:127:ALA:N	2.47	0.45
1:B:359:ARG:NH2	1:B:369:GLU:OE1	2.49	0.45
1:B:668:GLU:OE2	1:B:725:TYR:OH	2.27	0.45
1:B:839:PHE:CZ	1:B:873:LEU:HG	2.52	0.45
1:A:865:LEU:HD13	1:A:881:HIS:CG	2.52	0.45
1:B:943:PHE:HE1	1:B:966:LEU:HD11	1.81	0.45
1:D:213:ILE:HB	1:D:243:PRO:HB3	1.99	0.45
1:B:352:LYS:HA	1:B:352:LYS:HD3	1.68	0.45
1:B:660:LYS:O	1:B:664:ILE:HG13	2.17	0.45
1:B:817:SER:OG	1:B:844:LEU:O	2.33	0.45
1:B:827:LEU:HA	1:B:831:LYS:HE3	1.99	0.45
1:A:987:ARG:HH22	1:B:628:THR:HG23	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:813:LYS:HB2	1:A:813:LYS:HE2	1.59	0.44
1:A:863:ASN:HA	1:A:866:MET:HG2	1.98	0.44
1:B:889:LEU:HD22	1:B:933:PHE:CE2	2.52	0.44
1:A:359:ARG:HD2	1:A:359:ARG:HA	1.80	0.44
1:A:797:ASN:H	1:A:797:ASN:HD22	1.65	0.44
1:A:801:SER:HA	1:A:804:TYR:CD1	2.53	0.44
1:B:866:MET:HA	1:B:869:ILE:HG22	1.99	0.44
1:B:92:TYR:CE1	1:B:97:GLU:HG3	2.52	0.44
1:A:37:SER:HB2	1:A:42:LEU:HD22	1.99	0.44
1:A:696:THR:HG23	1:A:743:TYR:CE2	2.52	0.44
1:A:884:LEU:O	1:A:887:GLU:HG3	2.17	0.44
1:A:946:PRO:HB3	1:A:976:MET:HB3	1.99	0.44
1:A:800:TYR:N	1:A:803:ASP:OD2	2.36	0.44
1:B:976:MET:O	1:B:980:VAL:HG22	2.17	0.44
1:D:119:ASP:OD1	1:D:145:ARG:NE	2.49	0.44
1:A:934:ILE:HD13	1:A:945:ASP:OD2	2.17	0.44
1:B:22:LEU:HD11	1:B:274:LEU:HD22	1.99	0.44
1:C:292:LEU:O	1:C:296:SER:OG	2.28	0.44
1:A:348:ARG:NH2	1:A:353:GLY:O	2.51	0.44
1:A:482:TYR:CG	1:A:519:MET:HG3	2.53	0.44
1:B:877:PHE:HD2	1:B:924:GLU:HG3	1.82	0.44
1:B:927:ASN:OD1	1:B:929:LYS:HB3	2.17	0.44
1:A:962:TYR:HB2	1:A:967:LEU:HD13	1.99	0.44
1:C:218:TYR:CG	1:C:225:ILE:HD11	2.52	0.44
1:D:76:LYS:HB3	1:D:76:LYS:HE3	1.64	0.44
1:A:43:VAL:HB	1:A:213:ILE:HD13	2.00	0.43
1:A:76:LYS:HD3	1:A:76:LYS:HA	1.77	0.43
1:A:919:TRP:HB3	1:A:925:ILE:HG13	2.00	0.43
1:A:955:ILE:HB	1:A:958:TRP:CE2	2.53	0.43
1:A:809:LYS:HD2	1:A:809:LYS:HA	1.60	0.43
1:B:151:VAL:HB	1:B:175:ARG:HH21	1.83	0.43
1:B:827:LEU:HD11	1:B:838:LEU:HD21	2.00	0.43
1:C:290:MET:O	1:C:294:ILE:HG13	2.17	0.43
1:B:670:SER:OG	1:B:671:CYS:SG	2.64	0.43
1:A:98:MET:SD	1:A:98:MET:N	2.91	0.43
1:A:359:ARG:HH22	1:A:369:GLU:HG2	1.82	0.43
1:A:883:GLU:O	1:A:886:ILE:HG22	2.18	0.43
1:B:941:ASP:OD1	1:B:941:ASP:N	2.49	0.43
1:A:976:MET:O	1:A:980:VAL:HG22	2.19	0.43
1:B:848:ASN:OD1	1:B:849:ALA:N	2.52	0.43
1:C:54:SER:OG	1:C:54:SER:O	2.36	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:153:SER:OG	1:C:175:ARG:NH1	2.51	0.43
1:A:667:LEU:HD23	1:A:667:LEU:HA	1.82	0.43
1:B:173:ASP:OD1	1:B:175:ARG:HG3	2.19	0.43
1:B:473:LEU:HD22	1:B:600:LEU:HD21	2.00	0.43
1:B:889:LEU:HD21	1:B:916:PHE:CD2	2.54	0.43
1:D:267:ARG:HG2	1:D:267:ARG:HH11	1.83	0.43
1:A:165:ARG:NH2	1:B:526:ASP:OD1	2.51	0.43
1:B:613:ARG:HD3	1:B:658:HIS:O	2.17	0.43
1:A:89:GLN:HG2	1:A:187:GLU:HG2	2.00	0.43
1:A:551:LEU:HD11	1:A:608:PHE:HA	2.01	0.43
1:B:328:ILE:H	1:B:328:ILE:HG13	1.60	0.43
1:B:613:ARG:HD2	1:B:663:ASP:OD2	2.19	0.43
1:A:891:THR:O	1:A:894:VAL:HG22	2.19	0.43
1:A:940:TYR:O	1:A:944:VAL:HG12	2.18	0.43
1:B:22:LEU:HD12	1:B:22:LEU:HA	1.91	0.43
1:B:775:ILE:HB	1:B:808:ILE:HD11	2.00	0.43
1:B:359:ARG:HD2	1:B:359:ARG:HA	1.80	0.42
1:B:724:LYS:HD2	1:B:760:ARG:HG2	2.01	0.42
1:C:186:LYS:H	1:C:186:LYS:HG2	1.64	0.42
1:C:198:PRO:O	1:C:202:ASN:HB2	2.19	0.42
1:D:192:ASN:O	1:D:196:ASN:ND2	2.52	0.42
1:A:300:LYS:HD3	1:A:311:TYR:CZ	2.54	0.42
1:A:776:ASP:O	1:A:780:VAL:HG13	2.19	0.42
1:A:827:LEU:HD23	1:A:827:LEU:HA	1.90	0.42
1:B:339:HIS:HB2	1:B:347:VAL:HB	2.02	0.42
1:C:153:SER:HB2	1:C:172:GLY:HA2	2.01	0.42
1:C:292:LEU:HA	1:C:295:GLU:HG2	2.00	0.42
1:D:267:ARG:HG2	1:D:267:ARG:NH1	2.34	0.42
1:A:80:SER:H	1:A:83:GLU:HG3	1.84	0.42
1:A:213:ILE:HB	1:A:243:PRO:HB3	2.01	0.42
1:A:481:ILE:HD12	1:A:481:ILE:HA	1.84	0.42
1:B:587:ARG:HG3	1:B:587:ARG:NH1	2.34	0.42
1:B:809:LYS:HD3	1:B:809:LYS:HA	1.89	0.42
1:B:959:LEU:HA	1:B:962:TYR:CD2	2.55	0.42
1:D:243:PRO:HD2	1:D:265:GLY:O	2.20	0.42
1:B:313:TYR:HA	1:B:384:LEU:HD21	2.01	0.42
1:A:414:TYR:HA	1:A:657:ARG:HH12	1.85	0.42
1:B:740:LEU:O	1:B:754:ARG:NH1	2.50	0.42
1:D:94:VAL:HG23	1:D:95:LYS:HG2	2.02	0.42
1:A:738:LYS:HB3	1:A:738:LYS:HE3	1.74	0.42
1:D:266:LEU:HD23	1:D:266:LEU:HA	1.89	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:262:GLU:HA	1:A:266:LEU:O	2.20	0.42
1:B:771:ILE:O	1:B:775:ILE:HG13	2.19	0.42
1:B:786:HIS:NE2	1:B:793:GLU:HG3	2.35	0.42
1:A:660:LYS:HD3	1:A:660:LYS:HA	1.81	0.42
1:B:147:LYS:HE2	1:B:147:LYS:HB3	1.88	0.42
1:B:237:LYS:HE2	1:B:237:LYS:HB2	1.87	0.42
1:D:58:GLN:HB3	1:D:60:TRP:CD1	2.55	0.42
1:A:985:LYS:HB2	1:A:985:LYS:HE3	1.88	0.42
1:B:724:LYS:HG3	1:B:763:LYS:HD2	2.01	0.42
1:C:174:PHE:CD1	1:C:178:PHE:HA	2.55	0.42
1:C:270:ASP:O	1:C:274:LEU:HG	2.18	0.42
1:A:139:ASP:OD2	1:A:169:LYS:NZ	2.36	0.42
1:A:405:THR:O	1:A:405:THR:OG1	2.32	0.42
1:A:528:PHE:O	1:A:531:MET:HB2	2.20	0.42
1:A:741:LEU:HD21	1:A:758:LEU:HD13	2.01	0.42
1:A:802:ARG:NH1	1:A:870:ARG:HD2	2.34	0.42
1:B:831:LYS:H	1:B:831:LYS:HG2	1.60	0.42
1:C:220:LEU:HD23	1:C:220:LEU:HA	1.90	0.42
1:D:29:CYS:O	1:D:33:ILE:HD12	2.20	0.42
1:A:835:ILE:HG21	1:A:856:PHE:HD2	1.85	0.41
1:B:124:MET:HE3	1:B:294:ILE:HG13	2.01	0.41
1:C:37:SER:HB2	1:C:42:LEU:HD22	2.02	0.41
1:C:220:LEU:HD13	1:C:261:TYR:CD2	2.55	0.41
1:B:175:ARG:CB	1:B:175:ARG:HH11	2.33	0.41
1:C:242:LYS:HB2	1:C:267:ARG:HD2	2.02	0.41
1:A:374:SER:O	1:A:378:TYR:N	2.48	0.41
1:B:22:LEU:HB3	1:B:27:VAL:HG23	2.02	0.41
1:B:67:HIS:NE2	1:B:75:LYS:HB2	2.35	0.41
1:B:246:ILE:HG12	1:B:289:VAL:HG11	2.03	0.41
1:A:111:ASP:OD1	1:A:111:ASP:N	2.45	0.41
1:B:43:VAL:HG22	1:B:128:HIS:H	1.85	0.41
1:B:124:MET:HE2	1:B:124:MET:HA	2.02	0.41
1:B:258:LEU:O	1:B:262:GLU:HG3	2.19	0.41
1:A:655:ILE:O	1:A:659:PHE:HB2	2.21	0.41
1:A:724:LYS:HB2	1:A:760:ARG:HB3	2.02	0.41
1:A:959:LEU:HA	1:A:962:TYR:CD2	2.55	0.41
1:B:459:ILE:HG12	1:B:475:GLN:HG2	2.03	0.41
1:A:186:LYS:H	1:A:186:LYS:HG2	1.75	0.41
1:B:368:ASP:O	1:B:372:LYS:HG3	2.21	0.41
1:A:30:ILE:HD11	1:A:292:LEU:HD21	2.02	0.41
1:A:94:VAL:HG12	1:A:95:LYS:HD3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:296:SER:HB3	1:A:301:PHE:CZ	2.55	0.41
1:A:613:ARG:HA	1:A:659:PHE:CE1	2.56	0.41
1:A:862:ILE:HD12	1:A:865:LEU:HD23	2.03	0.41
1:B:181:GLU:H	1:B:181:GLU:HG3	1.56	0.41
1:B:505:LYS:HA	1:B:505:LYS:HD3	1.87	0.41
1:C:262:GLU:HA	1:C:266:LEU:O	2.21	0.41
1:A:260:TYR:CZ	1:A:264:LYS:HD2	2.55	0.41
1:A:346:VAL:O	1:A:396:MET:HE3	2.21	0.41
1:A:939:GLN:HE21	1:A:939:GLN:HB2	1.59	0.41
1:B:101:ASP:OD2	1:B:179:LYS:HE3	2.21	0.41
1:B:913:MET:HE3	1:B:933:PHE:CE2	2.56	0.41
1:B:942:PHE:HB2	1:B:949:PHE:CZ	2.56	0.41
1:B:1000:LEU:O	1:B:1000:LEU:HD23	2.19	0.41
1:A:532:PRO:HG3	1:B:148:TYR:CZ	2.56	0.41
1:A:608:PHE:O	1:A:612:ILE:HG12	2.21	0.41
1:A:799:LEU:HD23	1:A:803:ASP:CG	2.41	0.41
1:A:819:ARG:O	1:A:823:ILE:HG12	2.20	0.41
1:A:969:LYS:HD2	1:A:969:LYS:HA	1.83	0.41
1:B:174:PHE:CD1	1:B:178:PHE:HA	2.55	0.41
1:B:713:ILE:HD12	1:B:713:ILE:HA	1.95	0.41
1:B:944:VAL:HG23	1:B:945:ASP:OD1	2.20	0.41
1:D:46:VAL:HA	1:D:216:ILE:HD12	2.03	0.41
1:A:667:LEU:HB3	1:A:673:ILE:HD11	2.03	0.41
1:A:840:LYS:HE3	1:A:840:LYS:HB2	1.90	0.41
1:B:364:LYS:NZ	1:B:394:ILE:O	2.47	0.41
1:B:664:ILE:O	1:B:668:GLU:HG3	2.21	0.41
1:B:940:TYR:O	1:B:944:VAL:HG22	2.21	0.41
1:D:262:GLU:HA	1:D:266:LEU:O	2.21	0.41
1:B:56:TYR:CZ	1:B:135:ASP:HB3	2.56	0.40
1:B:295:GLU:HA	1:B:298:GLU:HB2	2.03	0.40
1:B:779:LEU:HD22	1:B:841:LEU:HD11	2.04	0.40
1:B:839:PHE:CE2	1:B:857:LYS:HG3	2.56	0.40
1:B:842:LEU:HD23	1:B:843:PRO:HD3	2.03	0.40
1:D:160:ASN:OD1	1:D:160:ASN:N	2.54	0.40
1:A:23:ASP:OD1	1:A:24:ASN:N	2.54	0.40
1:A:959:LEU:HD13	1:A:984:LEU:HD21	2.03	0.40
1:B:262:GLU:HA	1:B:266:LEU:O	2.21	0.40
1:A:525:ASP:OD2	1:A:525:ASP:N	2.55	0.40
1:A:595:LEU:HD23	1:A:595:LEU:HA	1.93	0.40
1:B:649:TYR:HE1	1:B:687:TYR:HB2	1.85	0.40
1:A:420:VAL:HA	1:A:423:LYS:HE3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:449:GLU:HG3	1:A:511:PHE:CE1	2.57	0.40
1:A:483:GLN:O	1:A:487:GLN:HG3	2.21	0.40
1:A:835:ILE:H	1:A:835:ILE:HG13	1.71	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	916/1005 (91%)	897 (98%)	19 (2%)	0	100	100
1	B	924/1005 (92%)	905 (98%)	19 (2%)	0	100	100
1	C	270/1005 (27%)	268 (99%)	2 (1%)	0	100	100
1	D	273/1005 (27%)	270 (99%)	3 (1%)	0	100	100
All	All	2383/4020 (59%)	2340 (98%)	43 (2%)	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	859/923 (93%)	789 (92%)	70 (8%)	11	22
1	B	867/923 (94%)	811 (94%)	56 (6%)	17	33

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	245/923 (26%)	230 (94%)	15 (6%)	18	36
1	D	248/923 (27%)	229 (92%)	19 (8%)	13	24
All	All	2219/3692 (60%)	2059 (93%)	160 (7%)	18	27

All (160) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	25	ASN
1	A	45	PHE
1	A	64	ASP
1	A	65	LYS
1	A	70	LEU
1	A	82	ASP
1	A	98	MET
1	A	107	PHE
1	A	134	TYR
1	A	135	ASP
1	A	138	ILE
1	A	139	ASP
1	A	147	LYS
1	A	150	SER
1	A	183	VAL
1	A	222	ASP
1	A	237	LYS
1	A	249	ASP
1	A	274	LEU
1	A	303	THR
1	A	317	SER
1	A	370	ARG
1	A	371	SER
1	A	375	LYS
1	A	391	ASN
1	A	398	LYS
1	A	462	SER
1	A	474	SER
1	A	475	GLN
1	A	484	SER
1	A	517	ARG
1	A	521	ASN
1	A	525	ASP
1	A	567	SER

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Mol	Chain	Res	Type
1	A	590	ASP
1	A	615	SER
1	A	648	GLU
1	A	672	SER
1	A	674	ASP
1	A	691	ILE
1	A	704	MET
1	A	709	TYR
1	A	711	GLN
1	A	720	LEU
1	A	731	GLU
1	A	738	LYS
1	A	754	ARG
1	A	757	TRP
1	A	758	LEU
1	A	764	CYS
1	A	765	ASN
1	A	773	SER
1	A	794	VAL
1	A	797	ASN
1	A	813	LYS
1	A	814	ASN
1	A	819	ARG
1	A	826	CYS
1	A	850	LYS
1	A	859	VAL
1	A	884	LEU
1	A	890	GLU
1	A	912	TYR
1	A	939	GLN
1	A	940	TYR
1	A	969	LYS
1	A	974	LYS
1	A	975	HIS
1	A	976	MET
1	A	1004	PHE
1	B	45	PHE
1	B	86	ARG
1	B	101	ASP
1	B	107	PHE
1	B	122	LEU
1	B	134	TYR

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Mol	Chain	Res	Type
1	B	135	ASP
1	B	165	ARG
1	B	175	ARG
1	B	179	LYS
1	B	181	GLU
1	B	183	VAL
1	B	220	LEU
1	B	222	ASP
1	B	237	LYS
1	B	315	LYS
1	B	368	ASP
1	B	374	SER
1	B	379	GLU
1	B	398	LYS
1	B	428	GLN
1	B	463	ILE
1	B	467	ASN
1	B	469	CYS
1	B	504	TYR
1	B	505	LYS
1	B	540	LYS
1	B	553	ASP
1	B	587	ARG
1	B	590	ASP
1	B	603	VAL
1	B	607	GLU
1	B	632	ASP
1	B	662	ASP
1	B	674	ASP
1	B	685	GLU
1	B	709	TYR
1	B	722	PHE
1	B	744	PHE
1	B	757	TRP
1	B	763	LYS
1	B	765	ASN
1	B	773	SER
1	B	781	LEU
1	B	794	VAL
1	B	802	ARG
1	B	813	LYS
1	B	814	ASN

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Mol	Chain	Res	Type
1	B	839	PHE
1	B	936	MET
1	B	975	HIS
1	B	977	LYS
1	B	987	ARG
1	B	994	LYS
1	B	1003	TYR
1	B	1005	ILE
1	C	32	GLU
1	C	45	PHE
1	C	51	SER
1	C	61	ARG
1	C	95	LYS
1	C	119	ASP
1	C	132	THR
1	C	134	TYR
1	C	150	SER
1	C	165	ARG
1	C	179	LYS
1	C	195	GLN
1	C	201	SER
1	C	202	ASN
1	C	270	ASP
1	D	39	ASN
1	D	41	LYS
1	D	45	PHE
1	D	55	ASP
1	D	76	LYS
1	D	105	LYS
1	D	107	PHE
1	D	134	TYR
1	D	135	ASP
1	D	139	ASP
1	D	160	ASN
1	D	163	SER
1	D	202	ASN
1	D	216	ILE
1	D	222	ASP
1	D	225	ILE
1	D	227	MET
1	D	238	ASP
1	D	292	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	797	ASN
1	A	834	GLN
1	A	979	HIS

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 ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-37920. 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 ⓘ
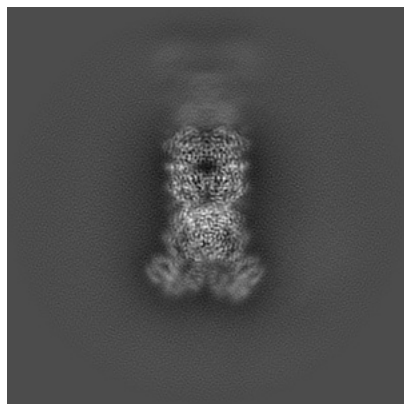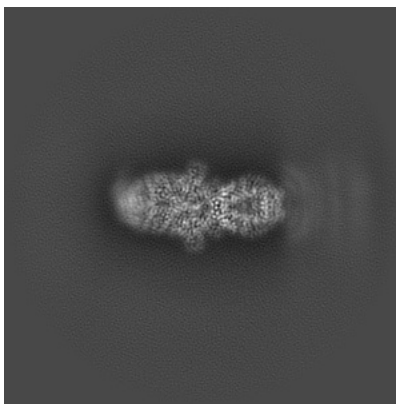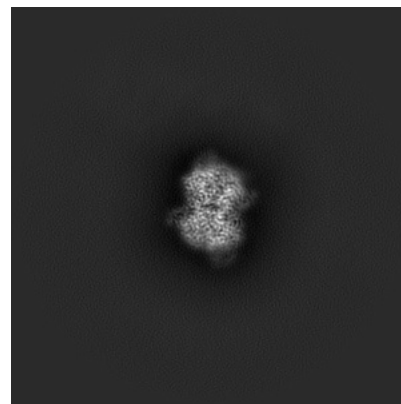
6.1.1 Primary map

| X | Y | Z |

6.1.2 Raw map

| X | Y | Z |
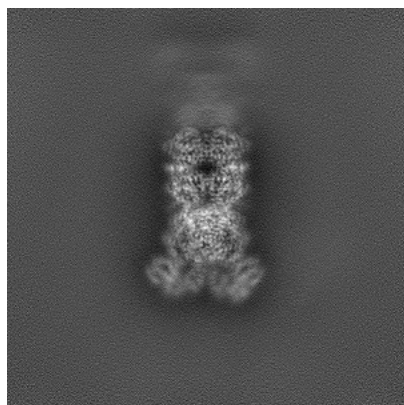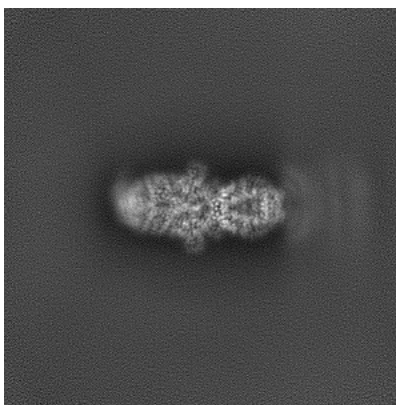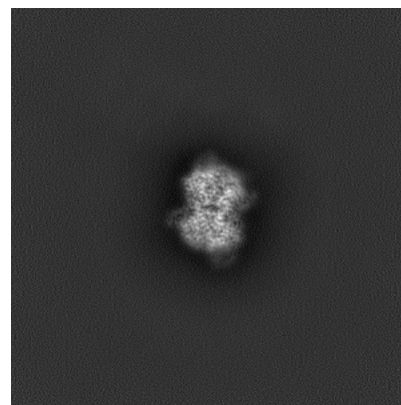
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
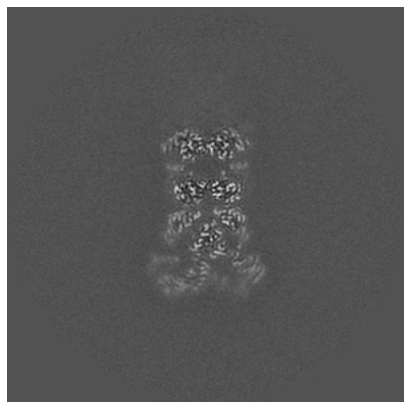
6.2.1 Primary map
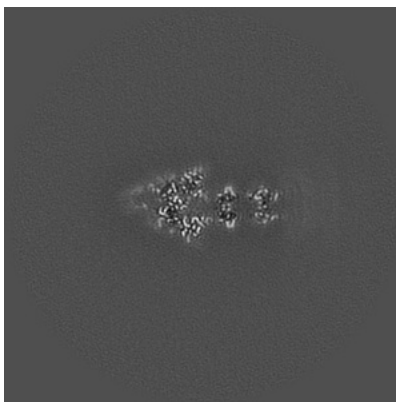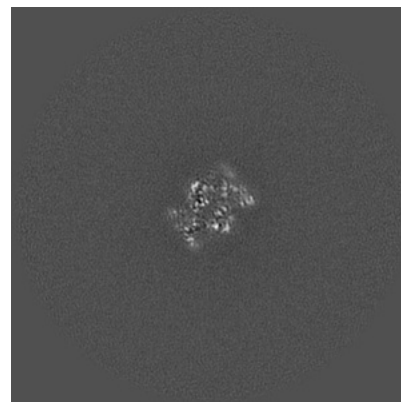
| X Index: 230 | Y Index: 230 | Z Index: 230 |

6.2.2 Raw map
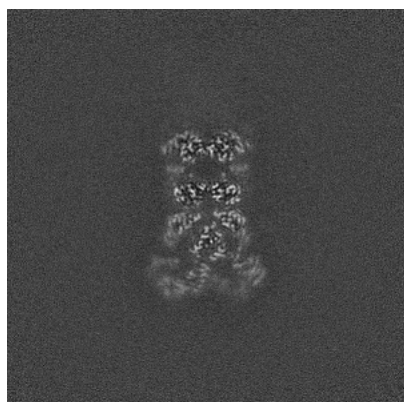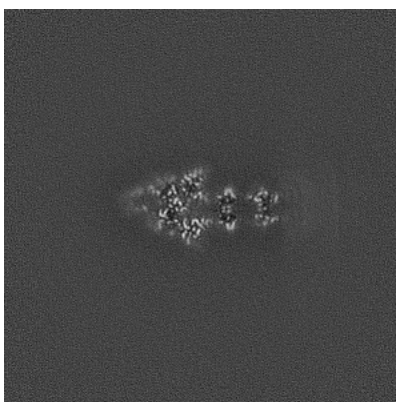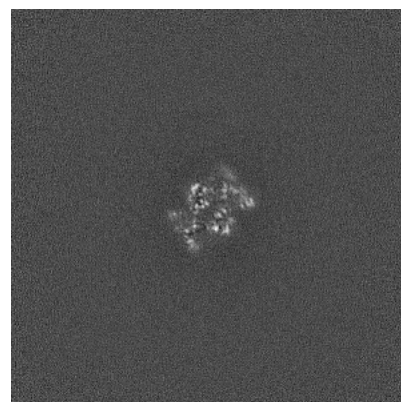
| X Index: 230 | Y Index: 230 | Z Index: 230 |

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

6.3 Largest variance slices ⓘ
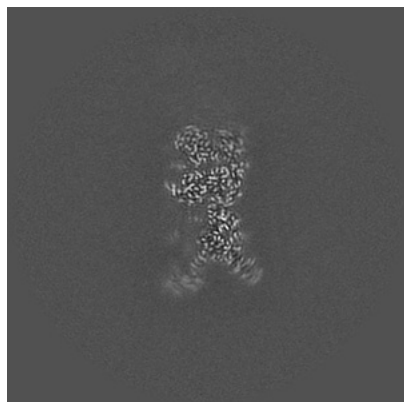
6.3.1 Primary map
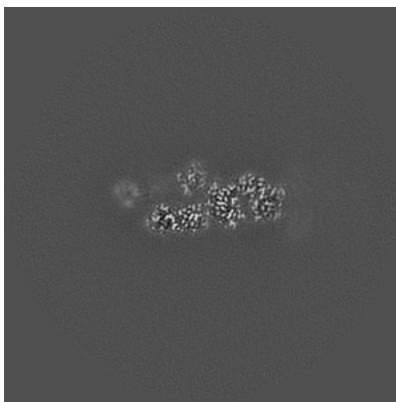
| X Index: 220 | Y Index: 248 | Z Index: 251 |
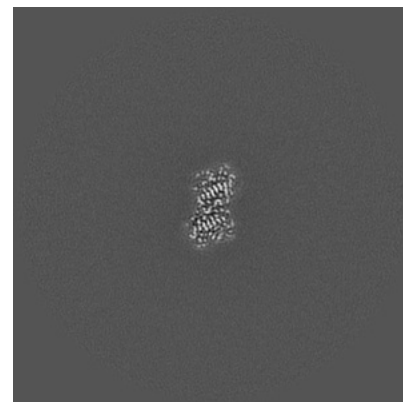
6.3.2 Raw map
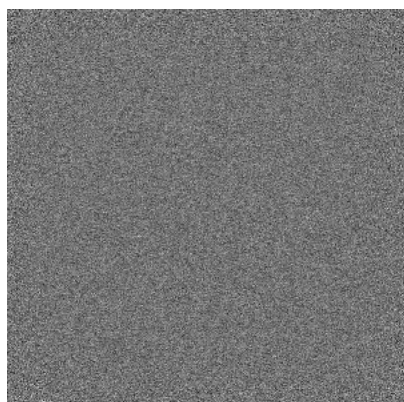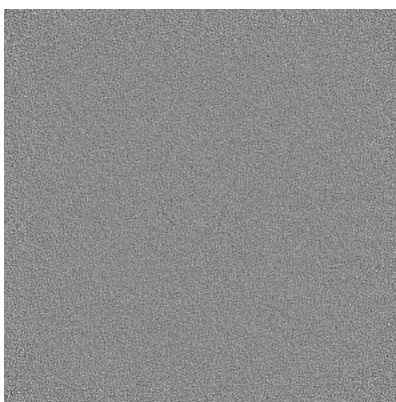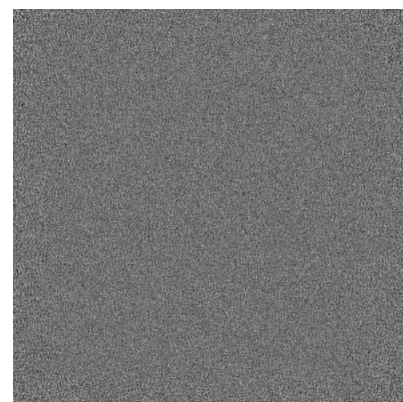
| X Index: 0 | Y Index: 0 | Z Index: 0 |

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

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map

X	Y	Z

6.4.2 Raw map

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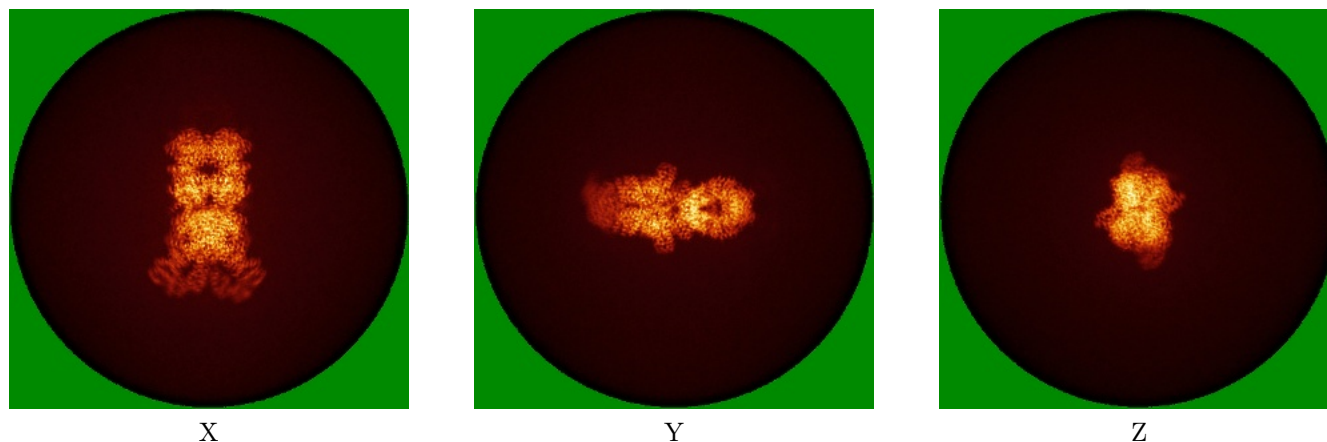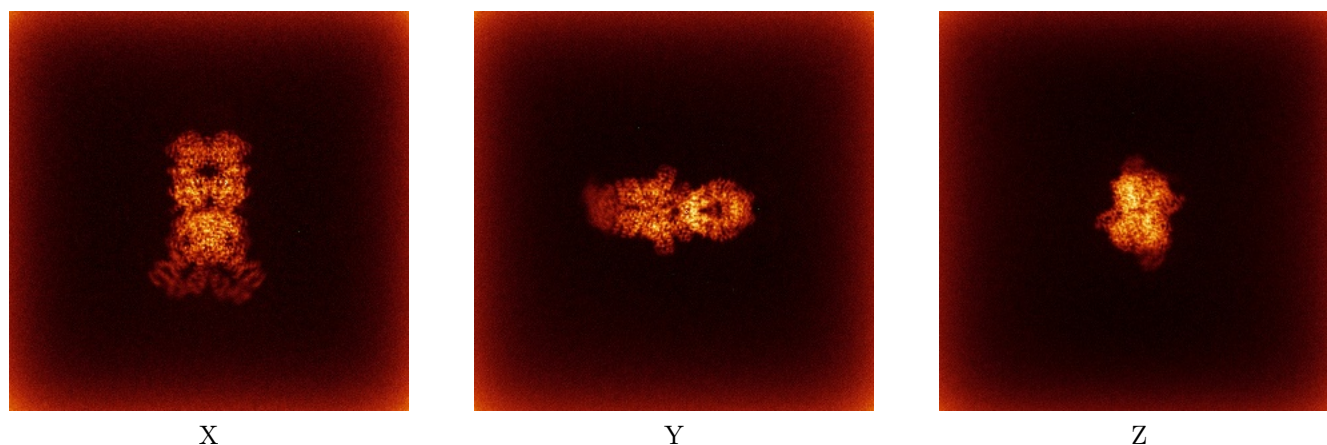
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5　Orthogonal surface views (i)

6.5.1　Primary map
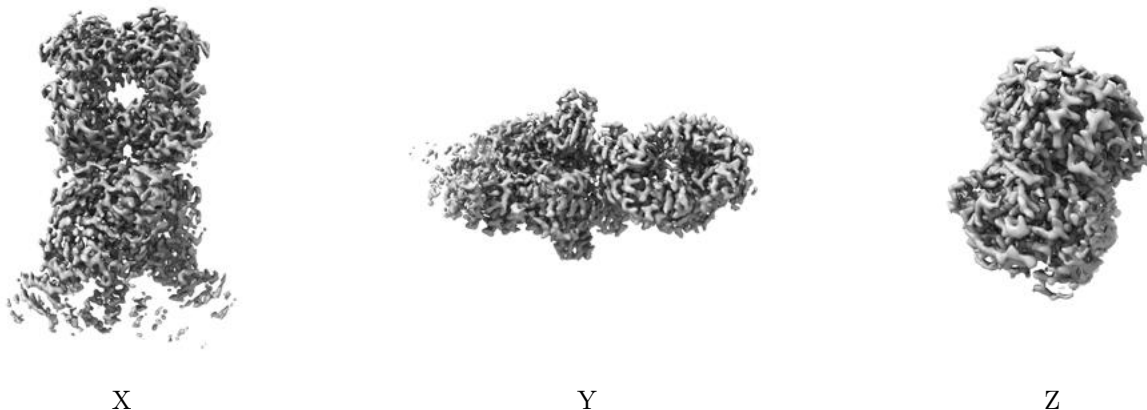
The images above show the 3D surface view of the map at the recommended contour level 0.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2　Raw map
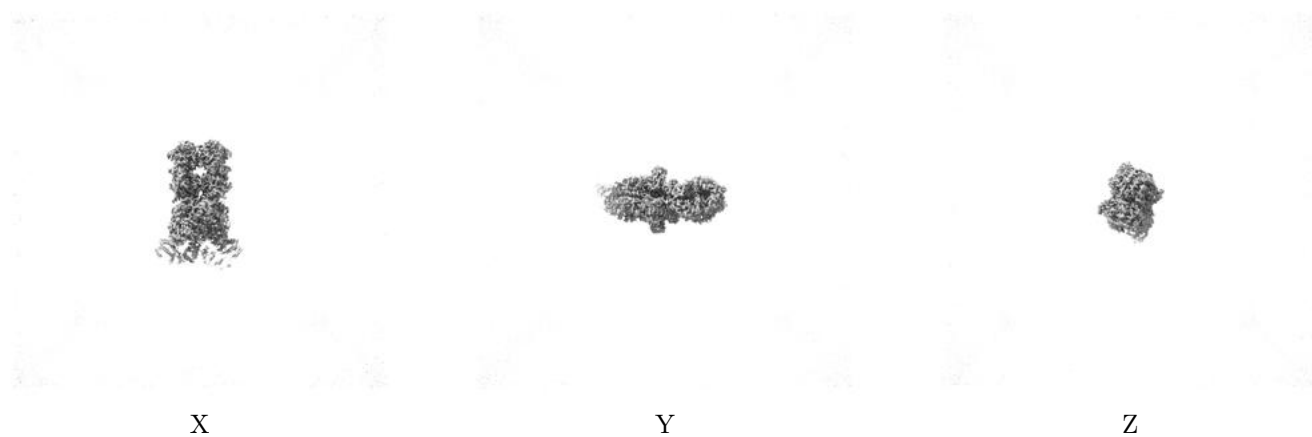
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6　Mask visualisation ⓘ

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_37920_msk_1.map ⓘ

X　　　　　　　　　　　　　　Y　　　　　　　　　　　　　　Z
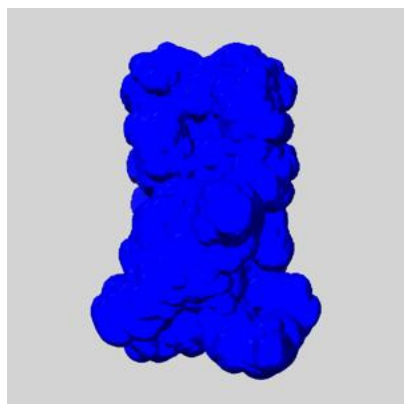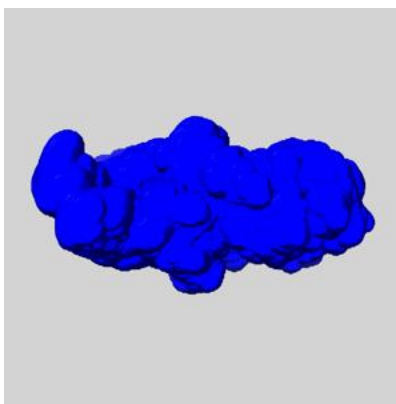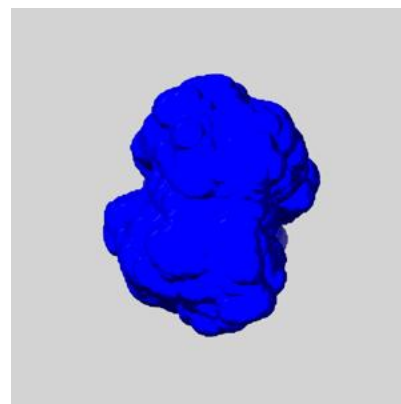
7 Map analysis ⓘ

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

7.1 Map-value distribution ⓘ

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 ⓘ
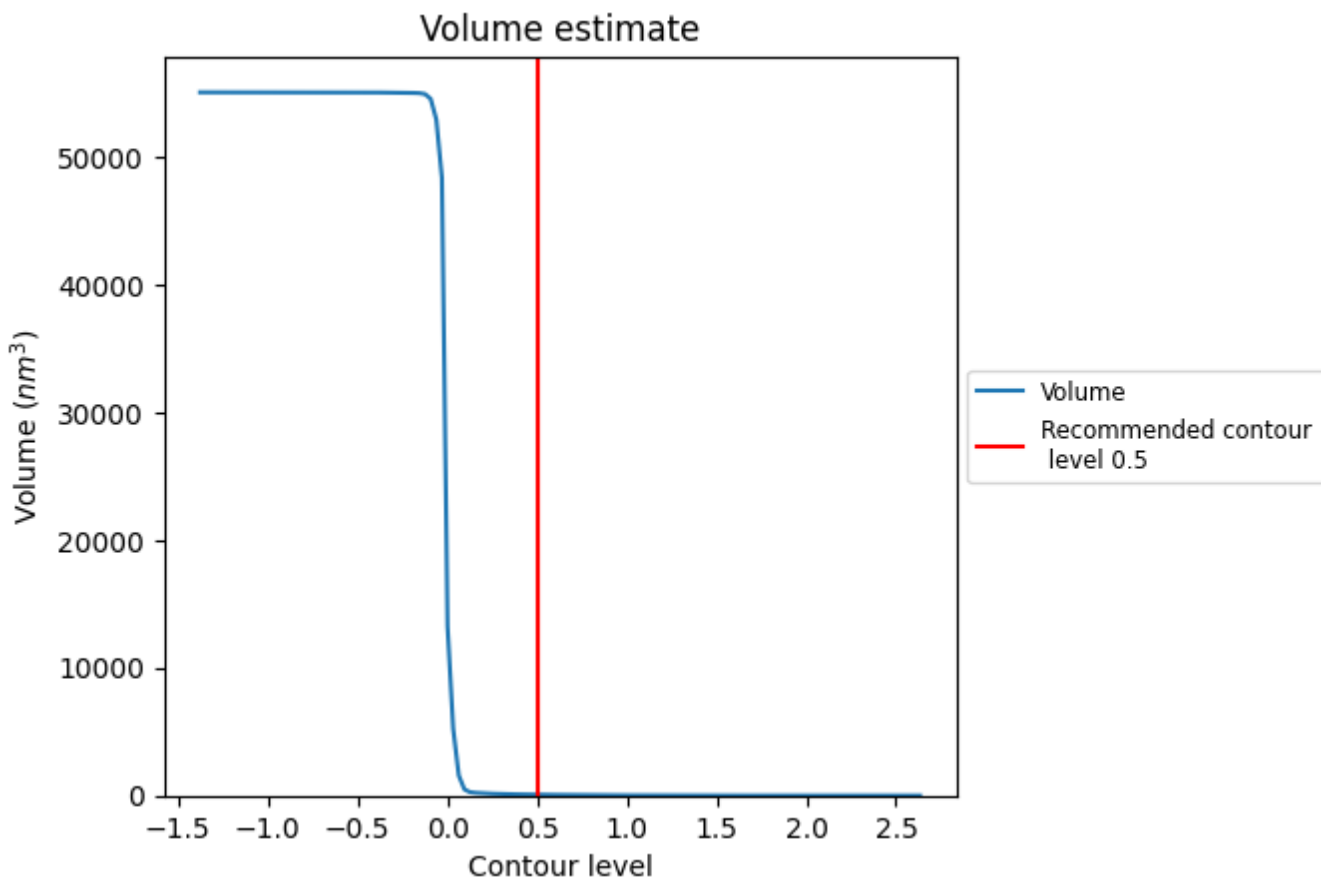
The volume at the recommended contour level is 70 nm^3; this corresponds to an approximate mass of 63 kDa.

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)
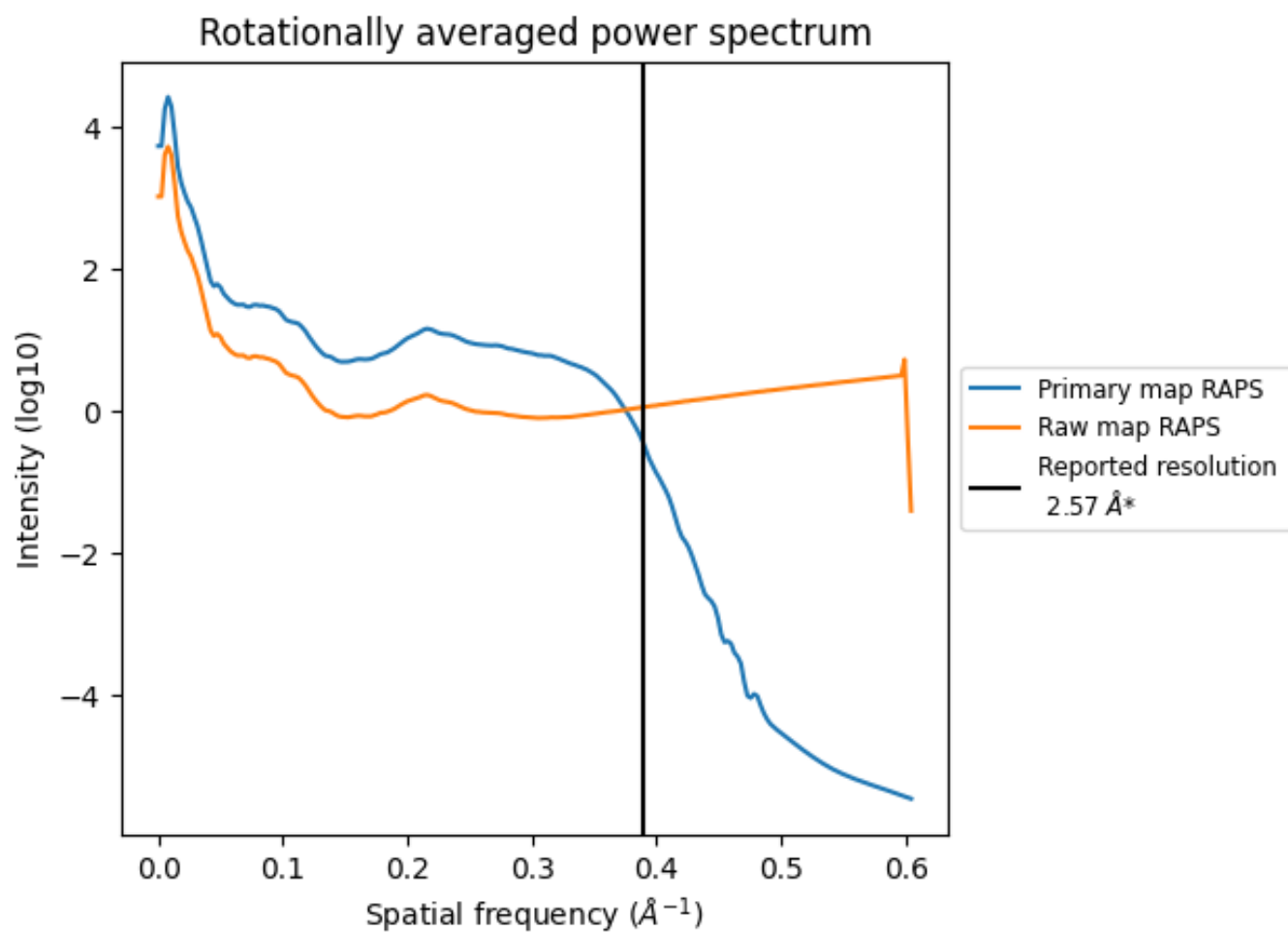
*Reported resolution corresponds to spatial frequency of 0.389 Å^{-1}

8　Fourier-Shell correlation ⓘ

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 ⓘ
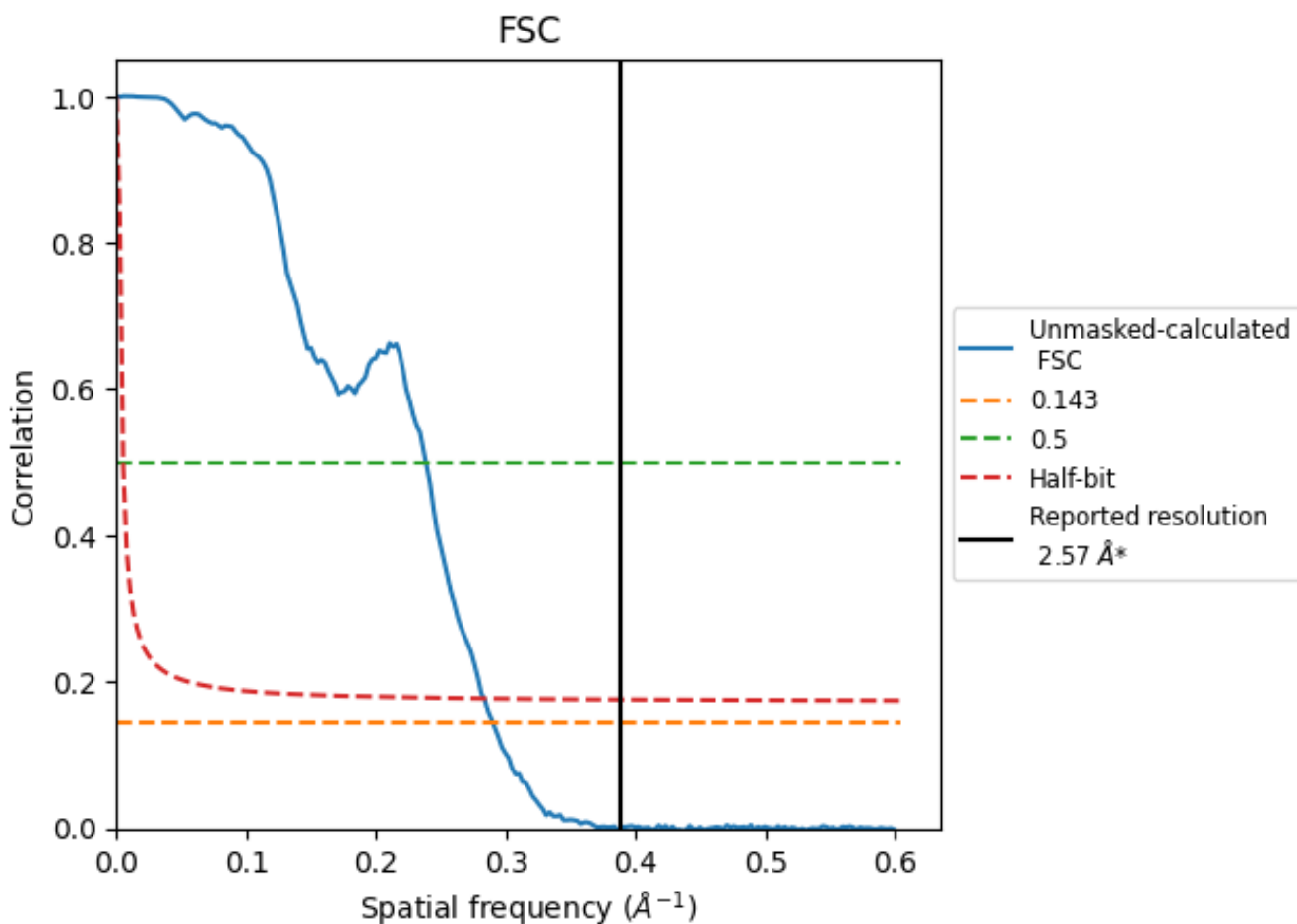
*Reported resolution corresponds to spatial frequency of 0.389 Å^{-1}

8.2　Resolution estimates　ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.57	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.45	4.19	3.53

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.45 differs from the reported value 2.57 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-37920 and PDB model 8WY9. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay ⓘ
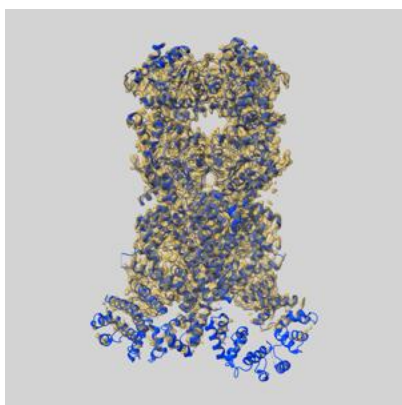
X

Y

Z
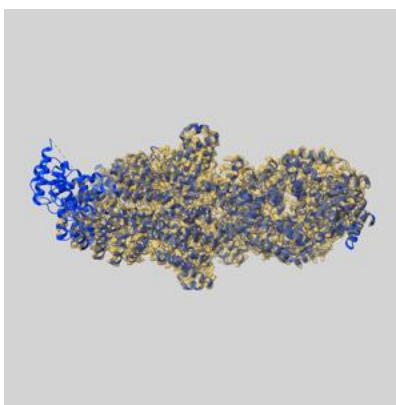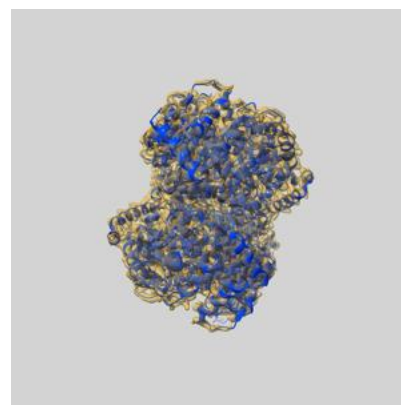
The images above show the 3D surface view of the map at the recommended contour level 0.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2   Q-score mapped to coordinate model   ⓘ
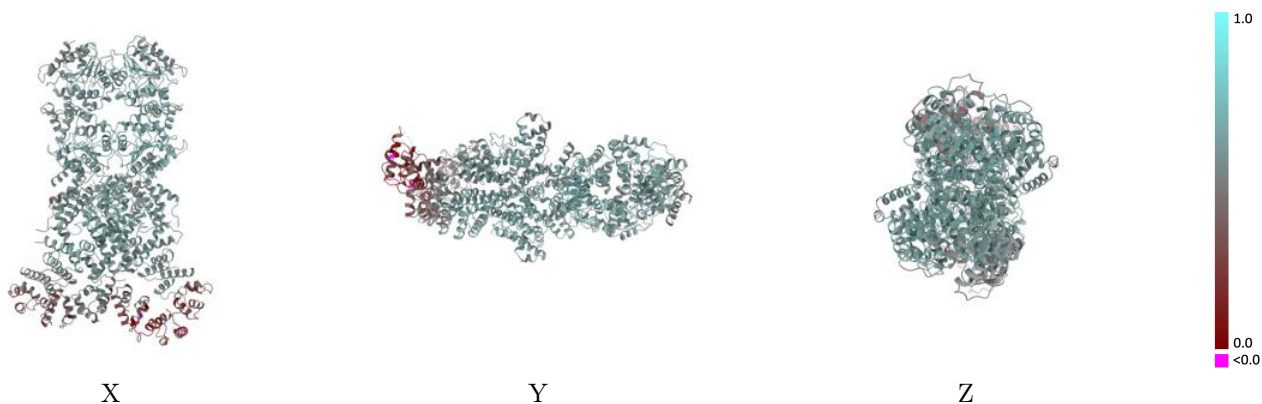
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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   ⓘ
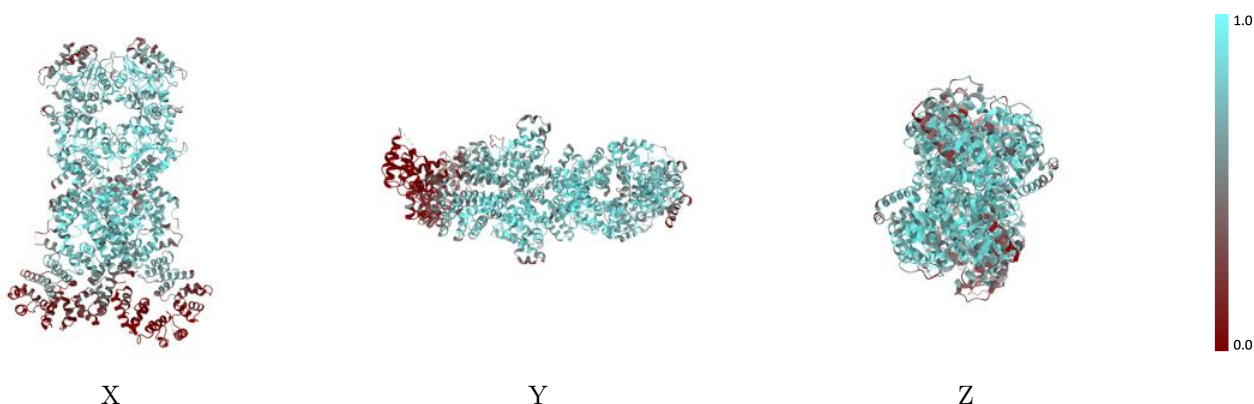
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.5).

9.4 Atom inclusion ⓘ
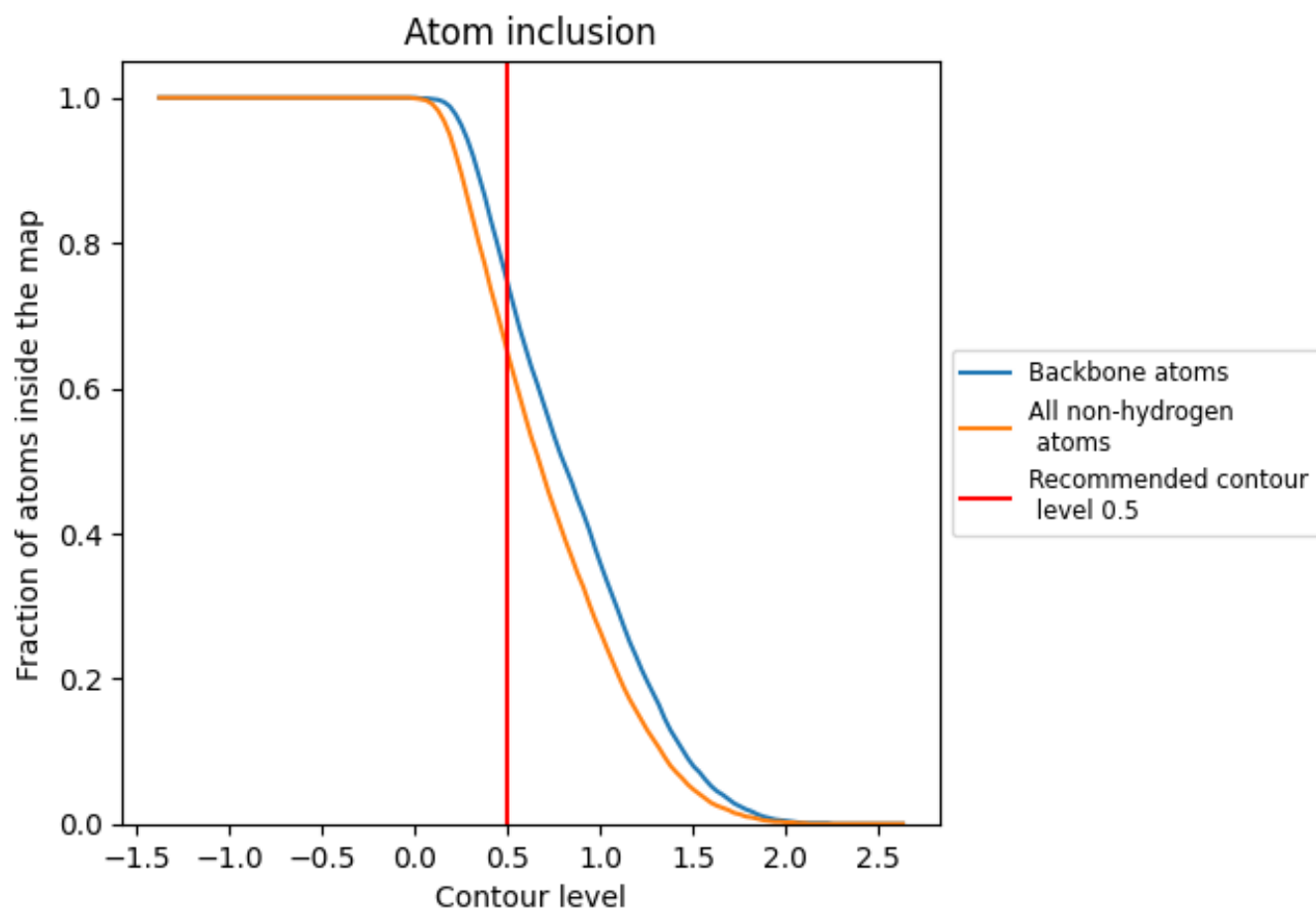
At the recommended contour level, 74% of all backbone atoms, 65% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.5) and Q-score for the entire model and for each chain.

1.0

Chain	Atom inclusion	Q-score
All	0.6500	0.5560
A	0.6280	0.5540
B	0.6430	0.5430
C	0.6880	0.5810
D	0.7060	0.5830

0.0
<0.0